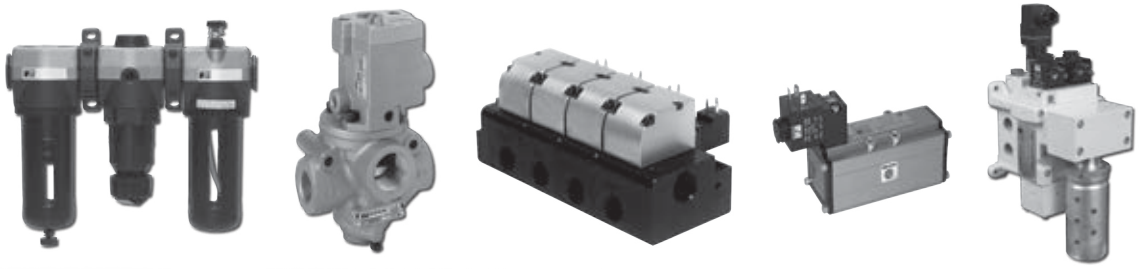
ROSS®

FULL LINE CATALOG



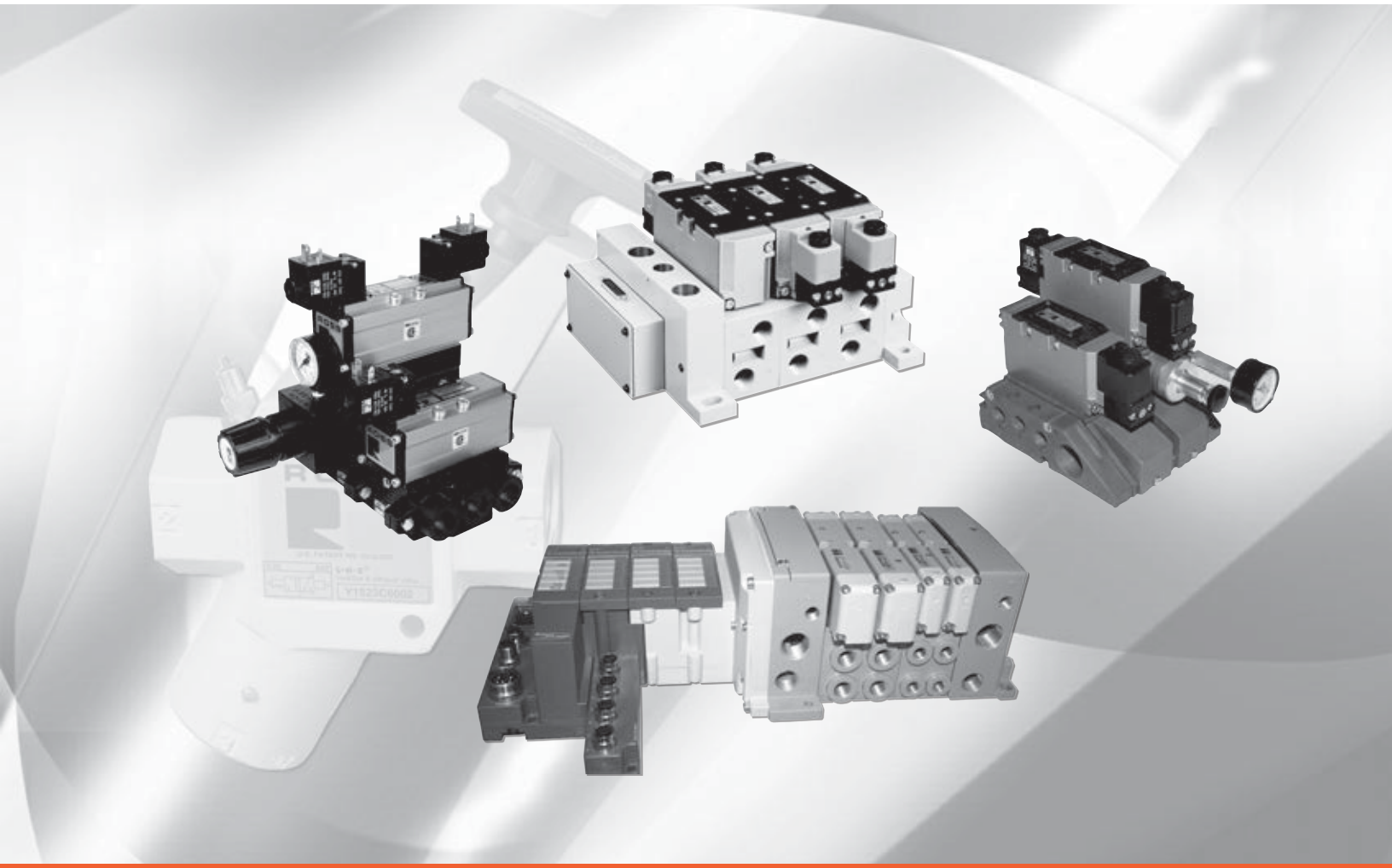
Pneumatic Valves
Safety Valves
Air Preparation

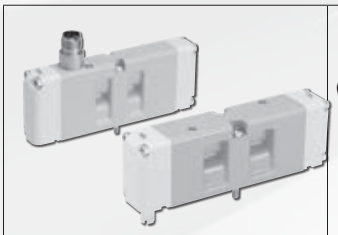
ROSS CONTROLS

Contents

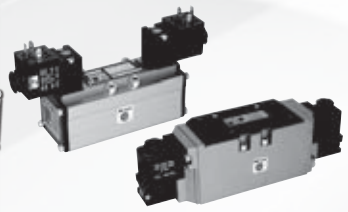
ROSS CONTROLS®

Base Mounted Valves and Serial Bus Communication

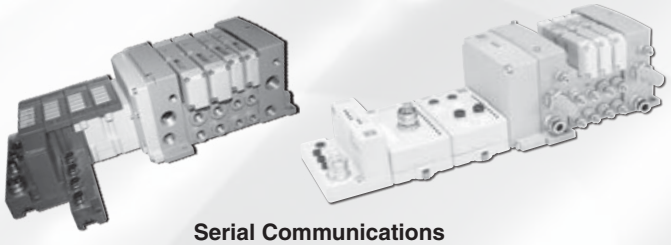




ISO 15407-1 & 2



ISO 5599/I & /II

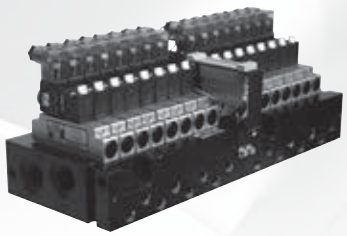


Serial Communications

ANSI

SAE

Miniature 14 Series



Solenoid Pilot Valves Pack

VALVE TYPE	VALVE SERIES	DESCRIPTION			AVAILABLE PORT SIZES								FUNCTIONS										Page
		ISO Size	Spool & Sleeve	Poppet	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	3/2 Single	5/2 Single	5/2 Double	5/3 Closed Center	5/3 Open Center	5/3 Pressure Center	Max Flow (Cv)	Solenoid Control	Direct Solenoid Control	Pressure Control	
ISO																							
ISO 15407-1	W66	00 (18mm)	■		■									■	■	■	■	■	0.55	■			A1.3 - A1.6
	W66	0 (26mm)	■			■								■	■	■	■	■	1.1	■			A1.3 - A1.6
ISO 15407-2	W66	00 (18mm)	■		■									■	■	■	■	■	0.55	■			A1.7 - A1.11
	W66	0 (26mm)	■			■								■	■	■	■	■	1.1	■			A1.7 - A1.11
ISO 5599/I	W60 & W64	1	■	■	■	■	■							■	■	■	■	■	0.8	■		■	A2.3 - A2.10
	W60 & W64	2	■	■			■	■						■	■	■	■	■	1.9	■		■	A2.3 - A2.10
	W60 & W64	3	■	■				■	■					■	■	■	■	■	3.8	■		■	A2.3 - A2.10
ISO 5599/II	W65	1	■			■	■							■	■	■	■	■	0.8	■		■	A2.11 - A2.19
	W65	2	■				■	■						■	■	■	■	■	1.9	■		■	A2.11 - A2.19
	W65	3	■					■	■					■	■	■	■	■	3.8	■		■	A2.11 - A2.19
SERIAL BUS COMMUNICATIONS																							
ROSS Serial Bus Communications																							A3.1 – A3.11
ROSS Serial Bus System with TURCK Modular I/O																							A4.1 - A4.10
ANSI																							
	W70 & W74	1	■	■		■	■							■	■	■	■	■	1.0	■	■	■	A5.1 - A5.15
	W70 & W74	2.5	■	■			■	■						■	■	■	■		2.5	■	■	■	A5.1 - A5.15
	W70 & W74	4	■	■			■	■	■					■	■	■	■		4.2	■	■	■	A5.1 - A5.15
	W70 & W74	10	■	■					■	■	■			■	■	■	■	■	10.0	■		■	A5.1 - A5.15
	W70 & W74	20	■	■							■	■		■	■	■	■	■	22.0	■		■	A5.1 - A5.15
SAE																							
	80 & 84	125	■	■	■	■	■							■	■	■	■	■	1.8	■			A6.1 - A6.10
	80 & 84	250	■	■		■	■	■	■					■	■	■	■	■	5.7	■			A6.1 - A6.10
	80 & 84	500	■	■				■	■	■				■	■	■	■		8.0	■			A6.1 - A6.10
MINIATURE																							
	W14			■	■														0.1	■			A7.3
PACK VALVE																							
	PACK			■	■	■							■	■					0.1	■			A7.4 - A7.5

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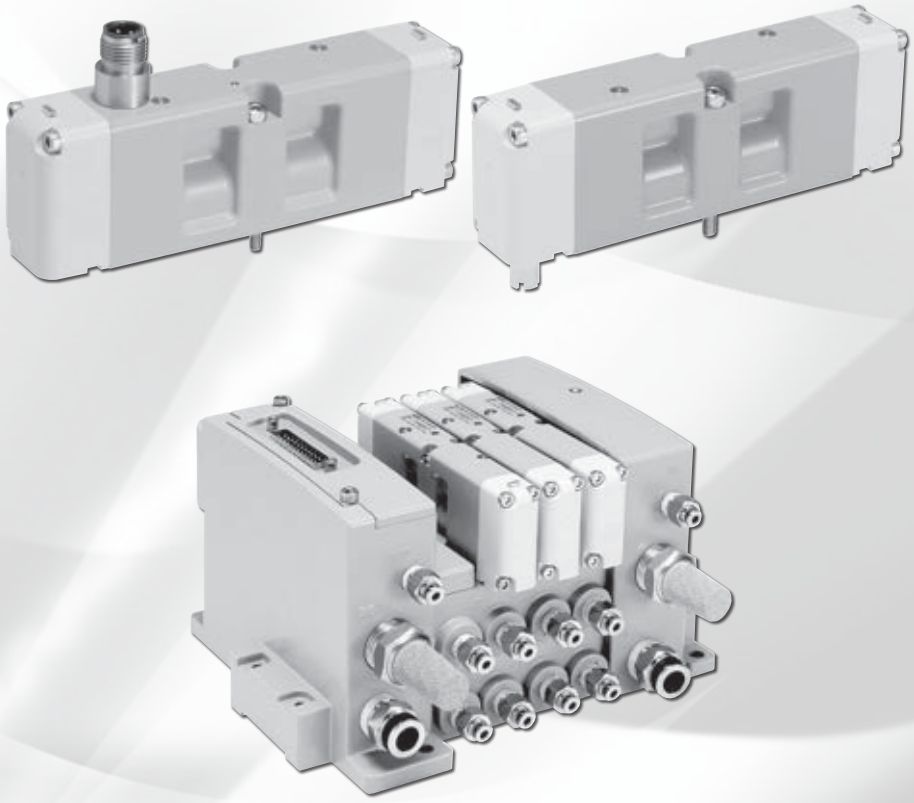
A

ROSS CONTROLS®

ISO 15407-1 & 15407-2 VALVES
W66 SERIES



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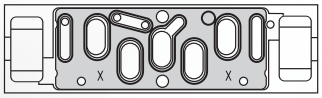
ISO W66 SERIES VALVES – KEY FEATURES

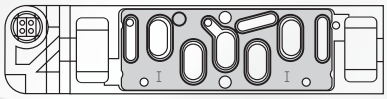
- ISO Sizes 00 (18mm) & 0 (26mm)
- Drop cord (15407-1) & Plug-In (15407-2) options
- 5/2 Single, 5/2 Double, & 5/3 Double Solenoid Pilot Controlled Valves
- Serial Bus Communication compatible
- UL, C-UL, and CE certified

Standard Definitions

15407-1: Drop-cord Standards for Size 0 (26mm) & Size 00 (18mm) Wide Valves



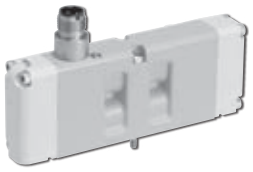
15407-2: Plug-in Standards for Size 0 (26mm) & Size 00 (18mm) Wide Valves



VALVE TYPE	VALVE SERIES	DESCRIPTION			AVAILABLE PORT SIZES								FUNCTIONS										Page
		Size	Spool & Sleeve	Poppet	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	3/2 Single	5/2 Single	5/2 Double	5/3 Closed Center	5/3 Open Center	5/3 Pressure Center	Max Flow (Cv)	Solenoid Control	Direct Solenoid Control	Pressure Control	
ISO																							
ISO 15407-1	W66	00 (18mm)	■		■									■	■	■	■	■	0.55	■			A1.3 - A1.4
	W66	0 (26mm)	■			■								■	■	■	■	■	1.1	■			A1.3 - A1.4
Single Sub-Bases Sub-Base Manifolds & End Plate Kits																							A1.5-A1.6
Accessories																							A1.6
ISO 15407-2	W66	00 (18mm)	■		■									■	■	■	■	■	0.55	■			A1.7 - A1.8
	W66	0 (26mm)	■			■								■	■	■	■	■	1.1	■			A1.7 - A1.8
Single Sub-Bases & Sub-Base Manifolds																							A1.9
End Plate Kits & Accessories																							A1.10 - A1.11

Solenoid Pilot Controlled Valves

5-Way 2-Position Valves, Single Solenoid Pilot Controlled, Spring Return



HOW TO ORDER

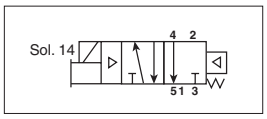
(Choose your options (in red) to configure your valve model number.)

W66	76	A	0	4	61	W

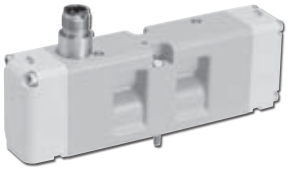
ISO Size	
00 (18mm)	0
0 (26mm)	1

Options		
Non-Locking Overrides	Internal Pilot - 61	
	External Pilot - 81	
Locking Overrides	Internal Pilot - 71	
	External Pilot - 91	

Voltage	
24 VDC	W
120 VAC	Z



5-Way 2-Position Valves, Double Solenoid Pilot



HOW TO ORDER

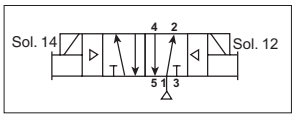
(Choose your options (in red) to configure your valve model number.)

W66	76	A	0	4	67	W

ISO Size	
00 (18mm)	0
0 (26mm)	1

Options		
Non-Locking Overrides	Internal Pilot - 67	
	External Pilot - 87	
Locking Overrides	Internal Pilot - 77	
	External Pilot - 97	

Voltage	
24 VDC	W
120 VAC	Z

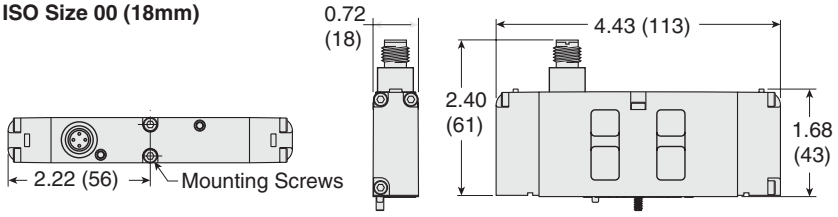


Technical Information

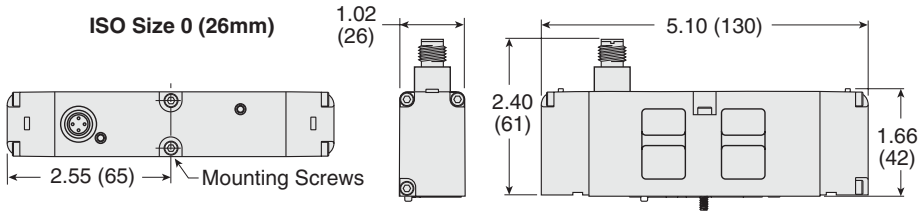
ISO Size	Valve Type	Avg. C_v	Weight lb (kg)
00 (18mm)	5/2 Single	0.55	0.3 (0.15)
00 (18mm)	5/2 Double	0.55	0.4 (0.16)
0 (26mm)	5/2 Single	1.1	0.6 (0.25)
0 (26mm)	5/2 Double	1.1	0.6 (0.25)

Valve Dimensions – inches (mm)

ISO Size 00 (18mm)



ISO Size 0 (26mm)



*** Sub-bases and sub-base manifolds ordered separately, refer to page A1.5-A1.6.**

Accessories ordered separately, refer to page A1.6.

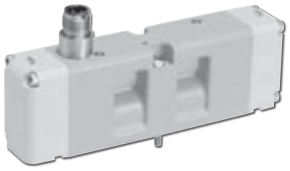
STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool and sleeve.
Solenoids: Bi-polar, surge suppression (standard), indicator lights.
Standard Voltages: 1.0, 24 volts DC; 2.0 VA, 120 volts AC.
Flow Media: Filtered air; 5 micron recommended.
Operating Pressure: Vacuum to 145 psig (9.9 bar).
Minimum Operating Pressure:
2-position: 20 psig (1.37 bar).
3-position: 30 psig (2.07 bar).

Manifolds: *Terminal Block Wiring (HA Only).*
Collective Wiring: 25-Pin' D-Sub; 19-Pin Round;
16 Point Terminal Strip; M23, 12-Pin; Isysnet Field Bus.
Materials of Construction:
Valve Body: Die Cast Aluminum.
End Caps: Polybutylene Terephthalate (PBT).
Fasteners: Zinc Plated Steel.
Coils: Thermoset Plastic.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

5-Way 3-Position Valves, Double Solenoid Pilot Controlled



HOW TO ORDER

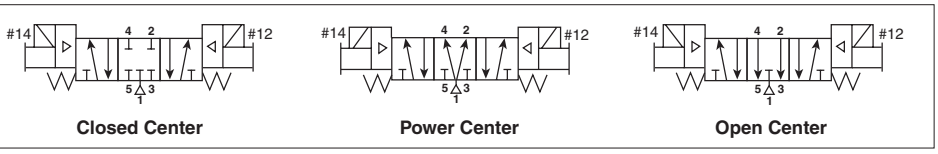
(Choose your options (in red) to configure your valve model number.)

W66	77	A	0	4	61	W

ISO Size	
00 (18mm)	0
0 (26mm)	1

Options		
Closed Center	Non-Locking Overrides	**Internal Pilot - 61**
		External Pilot - 81
	Locking Overrides	Internal Pilot - 71
		External Pilot - 91
Power Center	Non-Locking Overrides	Internal Pilot - 63
		External Pilot - 83
	Locking Overrides	Internal Pilot - 73
		External Pilot - 93
Open Center	Non-Locking Overrides	**Internal Pilot - 67**
		External Pilot - 87
	Locking Overrides	Internal Pilot - 77
		External Pilot - 97

Voltage	
24 VDC	W
120 VAC	Z



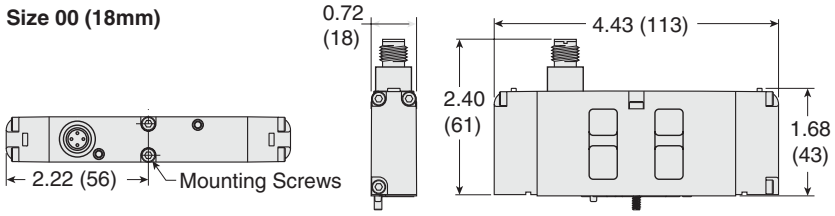
Closed Center | Power Center | Open Center

Technical Information

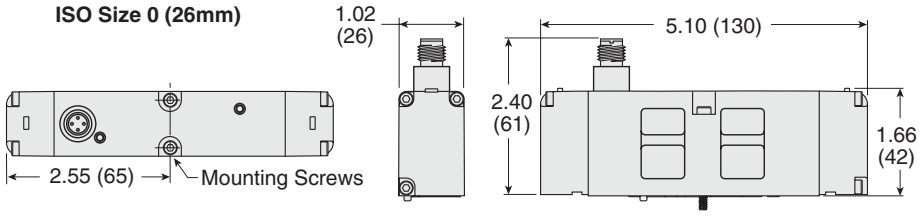
ISO Size	Avg. C_V	Weight lb (kg)
00 (18mm)	0.55	0.4 (0.16)
0 (26mm)	1.1	0.6 (0.25)

Valve Dimensions – inches (mm)

ISO Size 00 (18mm)



ISO Size 0 (26mm)



* **Sub-bases and sub-base manifolds ordered separately, refer to page A1.5-A1.6.**

Accessories ordered separately, refer to page A1.6.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool and sleeve.
Solenoids: Bi-polar, surge suppression (standard), indicator lights.
Standard Voltages: 1.0, 24 volts DC; 2.0 VA, 120 volts AC.
Flow Media: Filtered air; 5 micron recommended.
Operating Pressure: Vacuum to 145 psig (9.9 bar).
Minimum Operating Pressure:
2-position: 20 psig (1.37 bar).
3-position: 30 psig (2.07 bar).

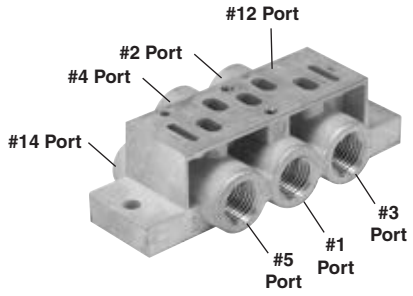
Manifolds: *Terminal Block Wiring (HA Only).*
Collective Wiring: 25-Pin' D-Sub; 19-Pin Round;
16 Point Terminal Strip; M23, 12-Pin; Isysnet Field Bus.
Materials of Construction:
Valve Body: Die Cast Aluminum.
End Caps: Polybutylene Terephthalate (PBT).
Fasteners: Zinc Plated Steel.
Coils: Thermoset Plastic.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Individual Sub-Base Kit with Side Ports

ISO Size	Port Size	Model Number*	
		NPT Threads	BSPP Threads
00 (18mm)	1/8	RPL02-01-80	RPL02-01-70
0 (26mm)	1/4	RPL01-02-80	RPL01-02-70

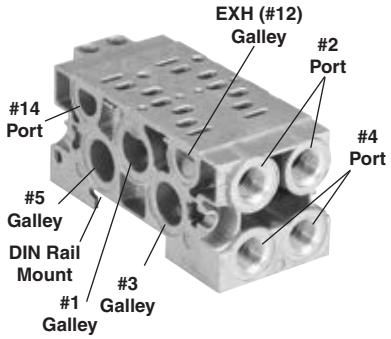
* Can be used for external, single, or double remote pilot.



Two Station Manifold Base with Side Ports

ISO Size	Port Size	Model Number*	
		NPT Threads	BSPP Threads
00 (18mm)	1/8	RPJLP02-201-80	RPJLP02-201-70

*Can be used for external pilot supply, cannot be used with pressure controlled valves.
Note: Gaskets and assembly hardware included.

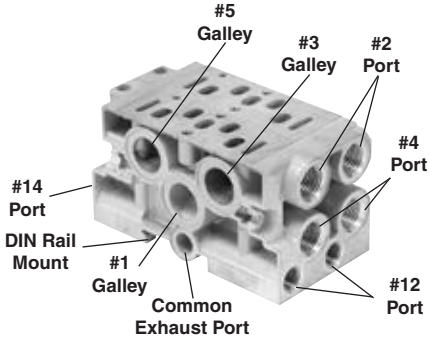


RPJLP02

Two Station Manifold Base with Side Ports

ISO Size	Port Size	Model Number*	
		NPT Threads	BSPP Threads
0 (26mm)	1/4	RPJLP01-202-80	RPJLP01-202-70

* Can be used for external pilot supply, or can be used with pressure controlled valves.
Note: Gaskets and assembly hardware included.

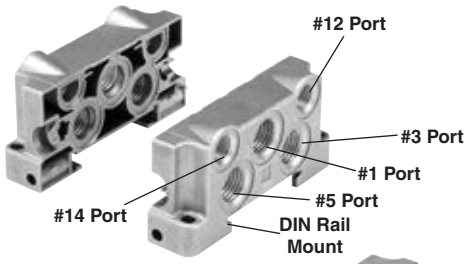


RPJLP01

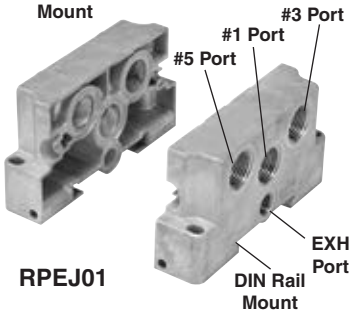
End Plate Kit for Side Ported Two Station Manifold Base

ISO Size	Port Size	End Stations Kit Number	
		NPT Threads	BSPP Threads
00 (18mm)	1/4	RPEJ02-02-80*	RPEJ02-02-80*
0 (26mm)	3/8	RPEJ01-03-80†	RPEJ01-03-80†

* Use with RPJLP02.....
† Use with RPJLP01 or RPJL01.....



RPEJ02



RPEJ01

Interposed Pressure Regulators

Remote Air Pilot Operated for hard-to-reach pressure control Unregulated Pilot Pressure to valve for consistent valve shifting regardless of pressure adjustment.

Size 00 - 18mm
(Dual Interposed Regulator Shown)

Size 0 - 26mm
(Single Interposed Regulator Shown)

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

R | PS5637 | 1 | 6 | 6 | P

Basic Series	
ISO Size 00 (18mm)	PS5637
ISO Size 0 (26mm)	PS5537

Regulator Function	
Common Pressure Regulator	1
Independent Pressure Regulator	2

#4 Port Regulator / Gauge*	
2-60 PSIG w/o Gauge	2
5-125 PSIG w/o Gauge	3
2-60 PSIG w/Gauge	5
5-125 PSIG w/Gauge	6

#2 Port Regulator / Gauge*	
2-60 PSIG w/o Gauge	2
5-125 PSIG w/o Gauge	3
2-60 PSIG w/Gauge	5
5-125 PSIG w/Gauge	6

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

Gauge Adapter Kit

Included with all Size 00 Regulators. Both kits are required on all Size 0 & 00 Regulators when the Regulator is on the last Station on the Right (14) End.

Description	Part Number
Gauge Kit	RPS5651160P
1/8" Female to 1/8" Female Coupling	R207P-2*
1/8" Male to 1/8" Male Long Nipple	RVS215PNL-2-15*

* Included in Gauge Kit RPS5651160P.

Interposed Flow Controls

Both adjustment screws are located on the 12 end of the unit. Interposed Flow Control mounts with its own studs, which means the valve uses standard bolts for mounting. Interposed Flow Control is not to be used as a shut off device and is not bubble tight when needles are fully turned down.

ISO Size	Part Number
00 (18mm)	RPS5642P
0 (26mm)	RPS5542P

Interposed Supply & Exhaust Modules

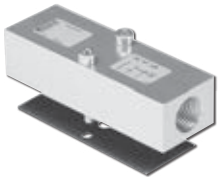
ISO Size		Part Number	
		NPT Threads	BSPP Threads
00 (18mm)	Supply	RPS562600P	RPS562601P
00 (18mm)	Exhaust	RPS562700P	RPS562701P
0 (26mm)	Supply	RPS552600P	RPS552601P
0 (26mm)	Exhaust	RPS552700P	RPS552701P

Quantity 1. Used on Size 00 & Size 0 valves to provide a pressure or exhaust path to individual valves.

Intermediate Air Supply Bases

ISO Size	Port Size	Part Number
		NPT Threads
00 (18mm)	1/8"	RD02P-01-80
0 (26mm)	1/4"	RD01P-02-80

Kit includes: Gasket and Mounting Bolts.



Blank Station Kits

ISO Size	Kit Number
00 (18mm)	RDX02BLK
0 (26mm)	RDX01BLK

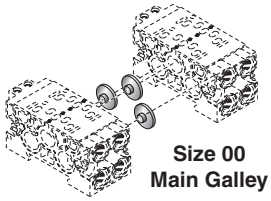
Kit includes: Blank Station Plate, Gasket, and Mounting Bolts.

Manifold Port Isolation Kits

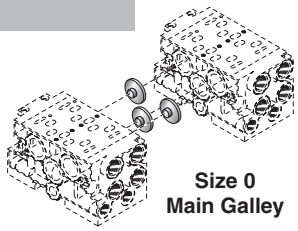
Main Galley (1, 3, 5)

ISO Size	Kit Number
00 (18mm)	RD02BD0
0 (26mm)	RD01BD0

Kit includes: Plugs with O-rings.



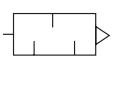
Size 00
Main Galley

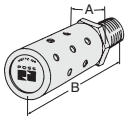


Size 0
Main Galley

Silencers

Port Size	Thread Type	Model Number		Avg. C_v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	BSPT Threads		A	B	
1/8	Male	5500A1003	D5500A1003	1.2	0.9 (21)	2.0 (51)	0.1 (0.1)
1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)
3/8	Male	5500A3013	D5500A3013	2.7	0.9 (21)	2.2 (55)	0.1 (0.1)

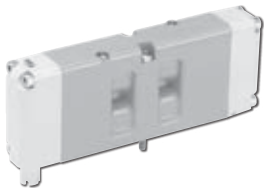




Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

5-Way 2-Position Valves, Single Solenoid Pilot Controlled, Spring Return



HOW TO ORDER

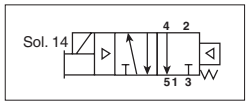
(Choose your options (in red) to configure your valve model number.)

W66	76	A	0	4	01	W

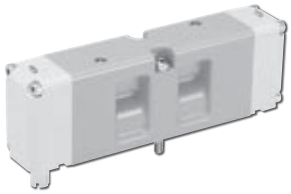
ISO Size	
00 (18mm)	0
0 (26mm)	1

Options		
Non-Locking Overrides	Internal Pilot -	01
	External Pilot -	51
Locking Overrides	Internal Pilot -	11
	External Pilot -	21

Voltage	
24 VDC	W
120 VAC	Z



5-Way 2-Position Valves, Double Solenoid Pilot Controlled



HOW TO ORDER

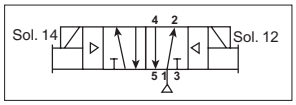
(Choose your options (in red) to configure your valve model number.)

W66	76	A	0	4	07	W

ISO Size	
00 (18mm)	0
0 (26mm)	1

Options		
Non-Locking Overrides	Internal Pilot -	07
	External Pilot -	57
Locking Overrides	Internal Pilot -	17
	External Pilot -	27

Voltage	
24 VDC	W
120 VAC	Z

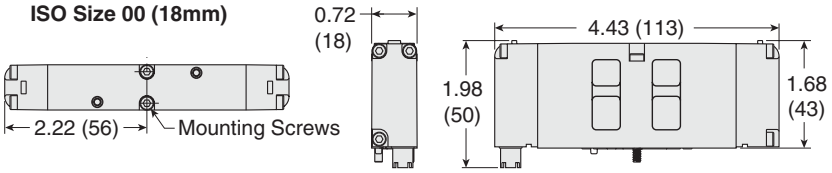


Technical Information

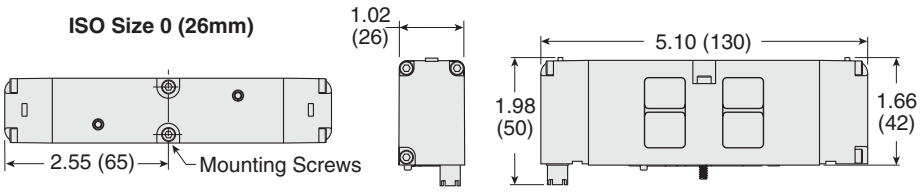
ISO Size	Valve Type	Avg. C_v	Weight lb (kg)
00 (18mm)	5/2 Single	0.55	0.3 (0.15)
00 (18mm)	5/2 Double	0.55	0.4 (0.16)
0 (26mm)	5/2 Single	1.1	0.6 (0.25)
0 (26mm)	5/2 Double	1.1	0.6 (0.25)

Valve Dimensions – inches (mm)

ISO Size 00 (18mm)



ISO Size 0 (26mm)



*** Sub-bases and sub-base manifolds ordered separately, refer to page A1.9.**

Accessories ordered separately, refer to page A1.10-A1.11.

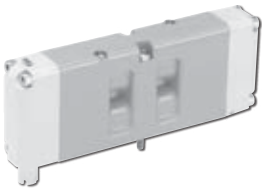
STANDARD SPECIFICATIONS (for valves on this page):

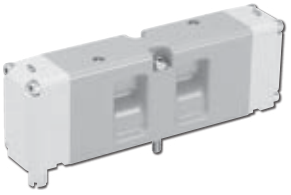
Construction: Spool and sleeve.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
For other voltages, consult ROSS.
Power Consumption (each solenoid): 11 VA inrush, 8.5 VA holding on 50 or 60 Hz; 6 watts on DC.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
For other temperature ranges, consult ROSS.

Flow Media: Filtered air.
Inlet Pressure: Vacuum to 145 psig (10 bar).
Pilot Pressure: At least 25 psig (1.7 bar).
Pilot Supply: Internal or external pilot supply.
Manual Override: Flush; metal, non-locking.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

5-Way 3-Position Valves, Double Solenoid Pilot Controlled





HOW TO ORDER

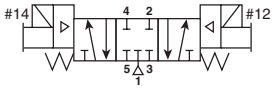
(Choose your options (in red) to configure your valve model number.)

W66	77	A	0	4	01	W

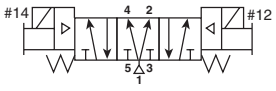
ISO Size	
00 (18mm)	0
0 (26mm)	1

Options		
Closed Center	Non-Locking Overrides	Internal Pilot - 01
		External Pilot - 51
	Locking Overrides	Internal Pilot - 11
		External Pilot - 21
Power Center	Non-Locking Overrides	Internal Pilot - 03
		External Pilot - 53
	Locking Overrides	Internal Pilot - 13
		External Pilot - 23
Open Center	Non-Locking Overrides	Internal Pilot - 07
		External Pilot - 57
	Locking Overrides	Internal Pilot - 17
		External Pilot - 27

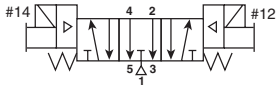
Voltage	
24 VDC	W
120 VAC	Z



Closed Center



Power Center



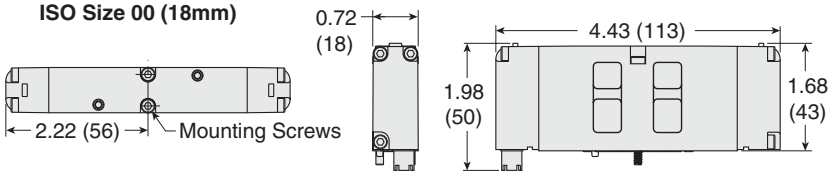
Open Center

Technical Information

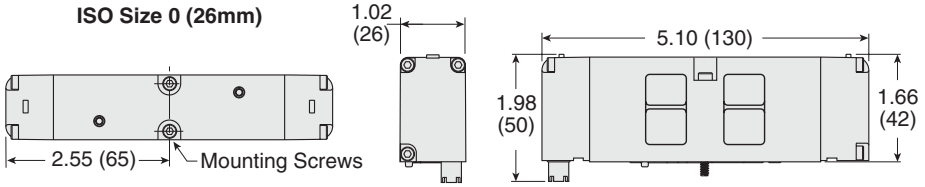
ISO Size	Avg. C_V	Weight lb (kg)
00 (18mm)	0.55	0.4 (0.16)
0 (26mm)	1.1	0.6 (0.25)

Valve Dimensions – inches (mm)

ISO Size 00 (18mm)



ISO Size 0 (26mm)



* **Sub-bases and sub-base manifolds ordered separately, refer to page A1.9.**

Accessories ordered separately, refer to page A1.10-A1.11.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool and sleeve.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
For other voltages, consult ROSS.
Power Consumption (each solenoid): 11 VA inrush, 8.5 VA holding on 50 or 60 Hz; 6 watts on DC.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
For other temperature ranges, consult ROSS.

Flow Media: Filtered air.
Inlet Pressure: Vacuum to 145 psig (10 bar).
Pilot Pressure: At least 30 psig (2 bar).
Pilot Supply: Internal or external pilot supply.
Manual Override: Flush; metal, non-locking.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Single Sub-Bases & Sub-Base Manifolds

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

R	PS5511	5	4	C	P

Basic Series	
ISO Size 00 (18mm)	**PS5611**
ISO Size 0 (26mm)	PS5511

Mounting Style	
Subbase - Side Ported	1
Subbase - Side & Bottom Ported	2
Manifold - Front Ported	**5**
Manifold - Front & Bottom Ported	6

Port Size	
ISO Size 00 (18mm)	
1/8 NPT	1
1/8 BSPP	2
ISO Size 0 (26mm)	
1/4 NPT	3
1/4 BSPP	**4**

Enclosures / Lead Length	
C†	**Terminal Strip**
J*	Circuit Board, Single Address
M*	**Circuit Board, Double Address**
N*§	Single Address Circuit Board with 32 Output Expansion ***(Not for Turck Serial Bus Communication Module)***
P*‡	Double Address Circuit Board with 32 Output Expansion ***(Not for Turck Serial Bus Communication Module)***

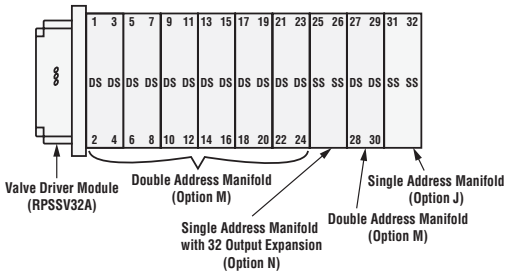
* Manifolds Only.

† Available with Series W66, Size 0 (26mm).

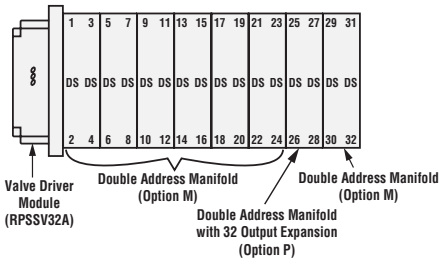
§ When using an Series W66, Size 0 or Series W66, Size 00 manifold base with the "N" Enclosure / Lead Length option:
- Outputs 1 – 24 can be single or double address bases. Use a base with "J" or "M" Enclosure / Lead Length option.
- Outputs 25 – 26 are a single address base. Use a base with "N" Enclosure / Lead Length option (this is a single address board with a ribbon connection from the valve driver module, RPSSV32A).
- Outputs 27 – 32 can be single or double. Use a base with "J" or "M" Enclosure / Lead Length option.

‡ When using an Series W66, Size 0 or Series W66, Size 00 manifold base with the "P" Enclosure / Lead Length option:
- Outputs 1 – 24 can be single or double address bases. Use a base with "J" or "M" Enclosure / Lead Length option.
- Outputs 25 – 28 are a double address base. Use a base with "P" Enclosure / Lead Length option (this is a double address board with a ribbon connection from the valve driver module, RPSSV32A).
- Outputs 29 – 32 can be single or double. Use a base with "J" or "M" Enclosure / Lead Length option.

Option "N"



Option "P"

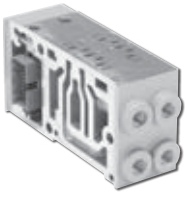


Sub-Base

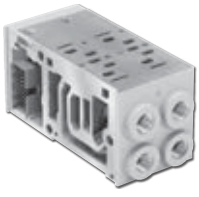
Series W66
ISO Size 0 (26mm)
Sub-Base

Manifold Kits

Series W66
ISO Size 00 (18mm)
2-Station Manifold



Series W66
ISO Size 0 (26mm)
2-Station Manifold



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

End Plate Kits & Accessories

End Plate Kits

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

R	PS56	20	L5	0	P

Basic Series	
ISO Size 00 (18mm) ISO Size 0 (26mm)	PS56

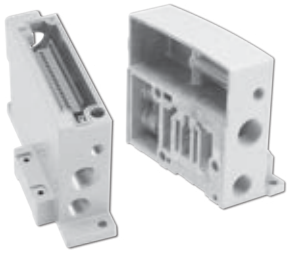
End Plate Kit Type	
End Plate, Collective Wiring	20

Thread Type	
0	NPT
1	BSPP "G"

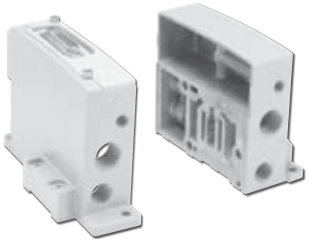
Multiwiring Connection#	
16 Point Terminal Strip	**L5**
25-Pin-D-Sub	L2*
12-Pin-M23	L4
19-Pin-M23	M2
19-Pin-Round, Brad Harrison	L3
Serial Bus	L6**
Industrial Communication	
Turck BL67 Valve Driver Module - For 16 Outputs	T1
Turck BL67 Valve Driver Module - For 32 Outputs	T2

Must order Bases with Circuit Boards.
*120 Volta AC is not CSA rated.
**Valve Driver Module and 24 Output Cable Installed.

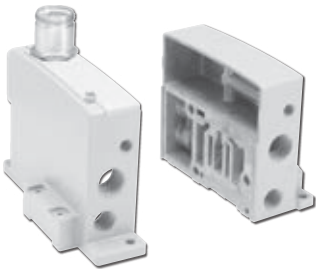
16-Point Terminal Strip End Plates



25-Pin End Plates



19-Pin End Plates



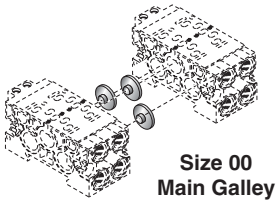
Blank Station Kits

ISO Size	Kit Number
00 (18mm)	RPS5634P
0 (26mm)	RPS5534P
Kit includes: Blank Station Plate, Gasket, and Mounting Bolts.	

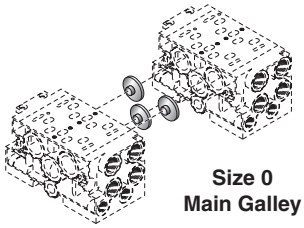
Manifold Port Isolation Kits

Main Galley (1, 3, 5)

ISO Size	Kit Number
00 (18mm)	RD02BD0
0 (26mm)	RD01BD0
Kit includes: Plugs with O-rings.	



Size 00 Main Galley



Size 0 Main Galley

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Interposed Pressure Regulators

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

R | PS5638 | 1 | 6 | 6 | P

Basic Series

ISO Size 00 (18mm)	**PS5638**
ISO Size 0 (26mm)	PS5538

Regulator Function

Common Pressure Regulator	**1**
Independent Pressure Regulator	**2**

#4 Port Regulator / Gauge*

2-60 PSIG w/o Gauge	2
5-125 PSIG w/o Gauge	3
2-60 PSIG w/Gauge	5
5-125 PSIG w/Gauge	**6**

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

#2 Port Regulator / Gauge*

2-60 PSIG w/o Gauge	2
5-125 PSIG w/o Gauge	3
2-60 PSIG w/Gauge	5
5-125 PSIG w/Gauge	**6**

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)

ISO Size 00 (18mm)
(Dual Interposed Regulator Shown)

ISO Size 0 (26mm)
(Single Interposed Regulator Shown)

Remote Air Pilot Operated for hard-to-reach pressure control, Unregulated Pilot Pressure to valve for consistent valve shifting regardless of pressure adjustment.

Gauge Adapter Kit

Description	Part Number
Gauge Kit	RPS5651160P
1/8" Female to 1/8" Female Coupling	R207P-2*
1/8" Male to 1/8" Male Long Nipple	RVS215PNL-2-15*
*Included in Gauge Kit RPS5651160P.	

Included with all Size 00 Regulators. Both kits are required on all Size 0 & 00 Regulators when the Regulator is on the last Station on the Right (14) End.

Interposed Supply & Exhaust Modules

ISO Size		Part Number	
		NPT Threads	BSPP Threads
00 (18mm)	Supply	RPS561600P	RPS561601P
	Exhaust	RPS561700P	RPS561701P
0 (26mm)	Supply	RPS551600P	RPS551601P
	Exhaust	RPS551700P	RPS551701P

Quantity 1. Used on Size 00 & Size 0 valves to provide a pressure or exhaust path to individual valves.

Interposed Flow Controls

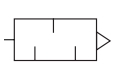
ISO Size	Part Number
00 (18mm)	RPS5635P
0 (26mm)	RPS5535P

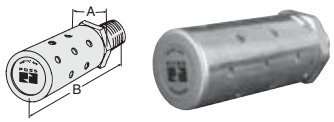
Both adjustment screws are located on the 12 end of the unit.
Interposed Flow Control mounts with its own studs, which means the valve uses standard bolts for mounting.
Interposed Flow Control is not to be used as a shut off device and is not bubble tight when needles are fully turned down.

Silencers

Port Size	Thread Type	Model Number NPT Threads	Model Number BSPT Threads	Avg. C_v	Dimensions inches (mm) A	Dimensions inches (mm) B	Weight lb (kg)
1/4	Male	5500A2003	D5500A2003	2.7	0.9 (21)	2.2 (55)	0.1 (0.1)

Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.



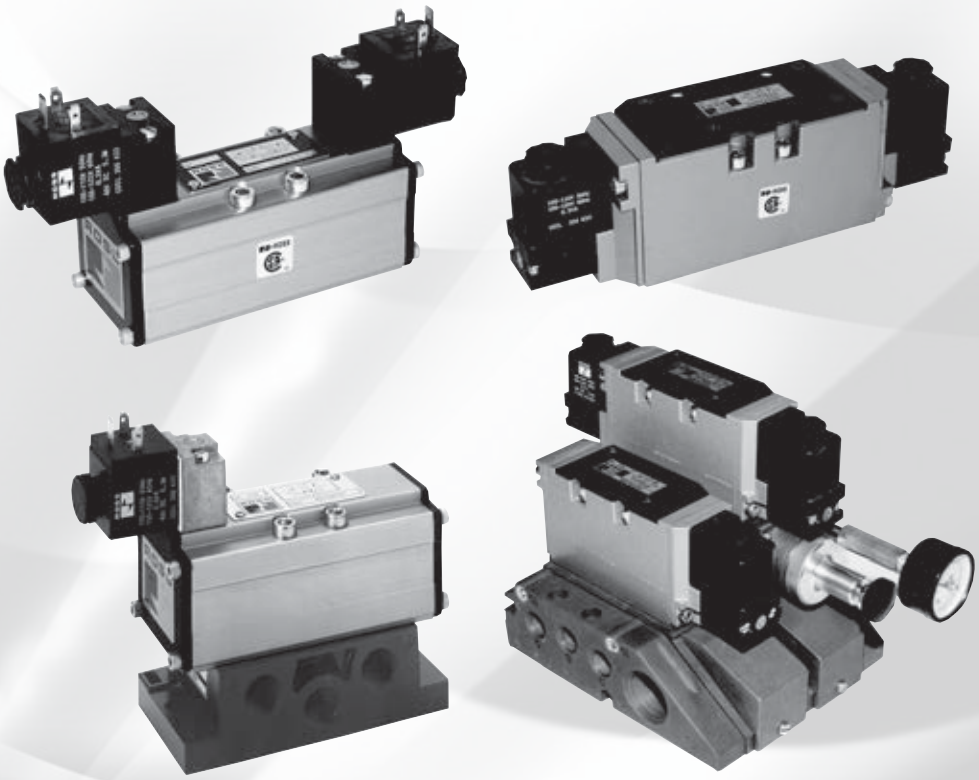


IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

A

ROSS CONTROLS®

ISO 5599/I Valves W60 & W64 Series
ISO 5599/II Valves W65 Series



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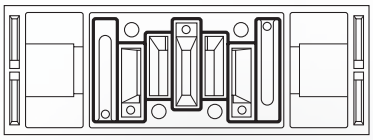
ISO W60, W64, & W65 SERIES VALVES – KEY FEATURES

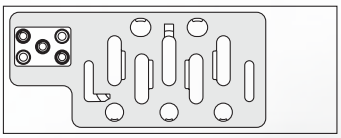
- ISO Sizes 1, 2, & 3
- 5/2 Single, 5/2 Double, & 5/3 Double Solenoid Pilot & Pressure Controlled Valves
- Available with Buna-N and Fluororelastomer seals for a wide temperature and resistance range
- W60 Series - Precision Finish Stainless Steel Spool & Sleeve internals that provide high shifting speed, long life, non-lube service, and easy maintenance
- W64 Series - Poppet construction is highly tolerant to dirty air
- W65 Series - Precision Finish Stainless Steel Spool & Sleeve internals that provide high shifting speed, long life, non-lube service, and easy maintenance
  - Serial Bus Communication compatible
  - Plug-In valve to base electrical connector eliminates need to disconnect wires to remove valve

Standard Definitions

5599/I: Drop-cord Standards for Sizes 1, 2, 3



5599/II: Plug-in Standards for Size 1, 2, 3

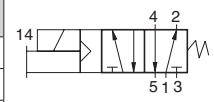


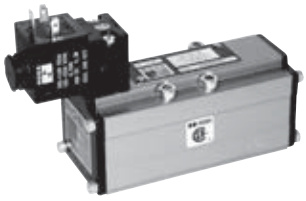
VALVE TYPE	VALVE SERIES	DESCRIPTION			AVAILABLE PORT SIZES								FUNCTIONS										Page
		ISO Size	Spool & Sleeve	Poppet	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	3/2 Single	5/2 Single	5/2 Double	5/3 Closed Center	5/3 Open Center	5/3 Pressure Center	Max Flow (Cv)	Solenoid Control	Direct Solenoid Control	Pressure Control	
ISO 5599/I	W60	1	■	■	■	■	■							■	■	■	■	■	0.8	■		■	A2.3 - A2.7
	W60	2	■	■			■	■						■	■	■	■	■	1.9	■		■	A2.3 - A2.7
	W60	3	■	■				■	■					■	■	■	■	■	3.8	■		■	A2.3 - A2.7
	W64	1	■	■	■	■	■							■	■				1.0	■		■	A2.3 - A2.7
	W64	2	■	■			■	■						■	■				2.0	■		■	A2.3 - A2.7
	W64	3	■	■				■	■					■	■				4.0	■		■	A2.3 - A2.7
Single Sub-Bases & Sub-Base Manifolds																							A2.8
Accessories																							A2.9 - A2.10
ISO 5599/II	W65	1	■			■	■							■	■	■	■	■	0.8	■		■	A2.10 - A2.13
	W65	2	■				■	■						■	■	■	■	■	1.9	■		■	A2.10 - A2.13
	W65	3	■					■	■					■	■	■	■	■	3.8	■		■	A2.10 - A2.13
Sub-Bases & Modular Manifolds																							A2.14 - A2.15
Accessories for Sub-Bases & Modular Manifolds																							A2.16
Single Sub-Bases & Modular Sub-Base Manifolds																							A2.17
End Plate Kits & Accessories																							A2.18 - A2.19

Solenoid Controlled Valves

5-Way 2-Position Valves, Single Solenoid Pilot Controlled, Spring Return

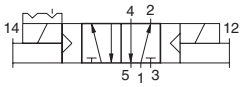
ISO Size	Port Size	Valve Model Number*	Avg. C_V	Average Response Constants# M	Average Response Constants# F In-Out	Average Response Constants# F Out-Exh.	Weight lb (kg)
1	1/8 - 3/8	W6076B2401**	0.8	29	3.5	4.9	1.5 (0.7)
2	3/8 - 1/2	W6076B3401**	1.9	41	1.5	2.4	2.3 (1.1)
3	1/2 - 3/4	W6076B4401**	3.8	51	0.8	1.1	3.5 (1.6)

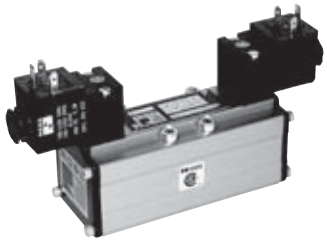




5-Way 2-Position Valves, Double Solenoid Pilot Controlled, Detented

ISO Size	Port Size	Valve Model Number*	Avg. C_V	Average Response Constants# M	Average Response Constants# F In-Out	Average Response Constants# F Out-Exh.	Weight lb (kg)
1	1/8 - 3/8	W6076B2407**	0.8	17	3.5	4.9	1.8 (0.9)
2	3/8 - 1/2	W6076B3407**	1.9	20	1.5	2.5	2.7 (1.2)
3	1/2 - 3/4	W6076E4407**	3.8	20	0.8	1.1	3.9 (1.8)

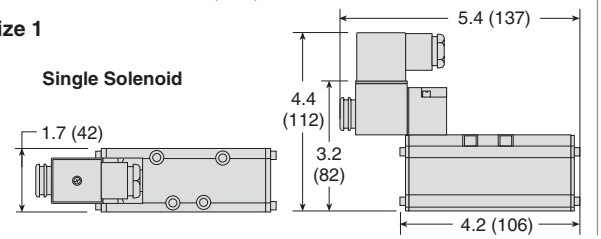


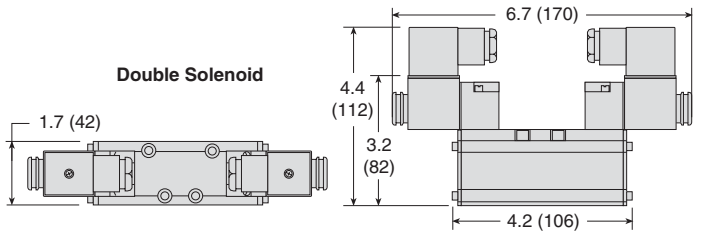


* **Sub-bases and sub-base manifolds ordered separately, refer to page A2.8.**
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., W6076B2401W. For other voltages, consult ROSS.
\# **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

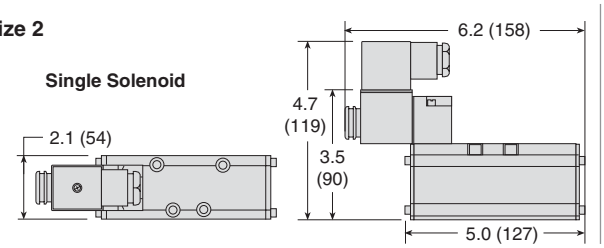
Valve Dimensions – inches (mm)

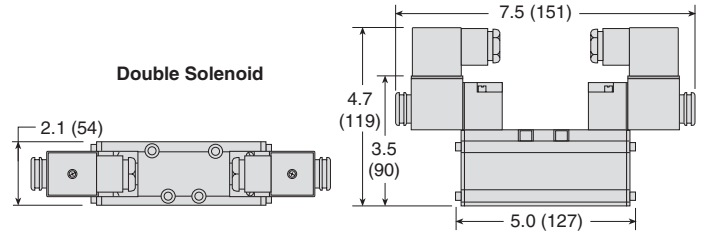
ISO Size 1



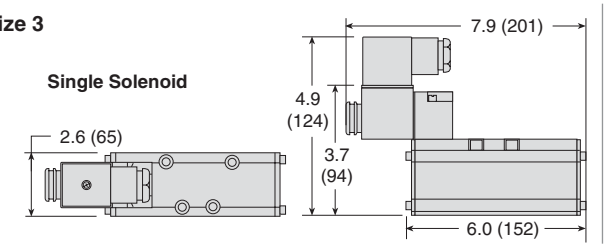


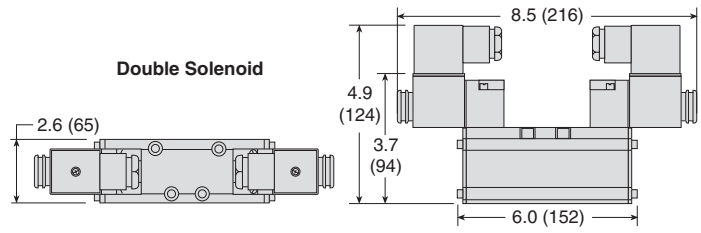
ISO Size 2





ISO Size 3





Options: Indicator Light (in electrical connectors), refer to page A2.9. Accessories ordered separately, refer to page A2.9-10.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool and sleeve.
Mounting Type: Base.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption (each solenoid): 11 VA inrush, 8.5 VA holding on 50 or 60 Hz; 6 watts on DC.
Enclosure Rating: IP65, IEC 60529.
Electrical Connections: EN 175301-803 Form A connector.

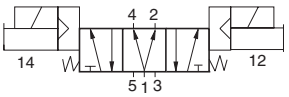
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
For other temperature ranges, consult ROSS.
Flow Media: Filtered air.
Inlet Pressure: Vacuum to 150 psig (10 bar).
Pilot Pressure: *ISO size 1 models:* At least 30 psig (2 bar).
ISO Size 2 & 3 models: At least 15 psig (1 bar).
Internal/External Supply: Selected automatically.
Manual Override: Flush; metal, non-locking.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

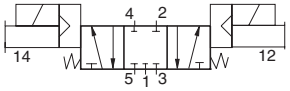
Solenoid Pilot Controlled Valves

5-Way 3-Position Valves, Double Solenoid Pilot Controlled

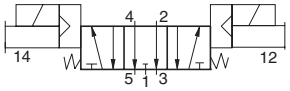
ISO Size	Port Size	Valve Model Number*			Avg. C_v	Average Response Constants#			Weight lb (kg)
		Power Center	Closed Center	Open Center		M	F		
							In-Out	Out-Exh.	
1	1/8 - 3/8	W6077A2951**	W6077B2401**	W6077B2407**	0.8	30	3.5	5.0	1.8 (0.9)
2	3/8 - 1/2	W6077A3945**	W6077B3401**	W6077B3407**	1.9	40	1.5	2.5	2.8 (1.3)
3	1/2 - 3/4	W6077B4934**	W6077B4401**	W6077B4407**	3.8	50	0.8	1.1	4.0 (1.8)



Power Center



Closed Center

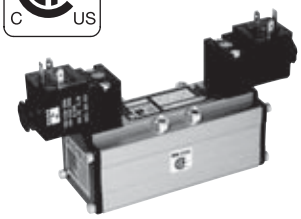


Open Center

* **Sub-bases and sub-base manifolds ordered separately, refer to page A2.8.**

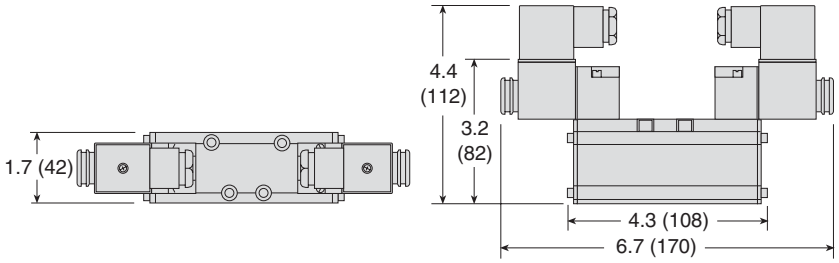
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., W6077A2951W.
For other voltages, consult ROSS.

Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

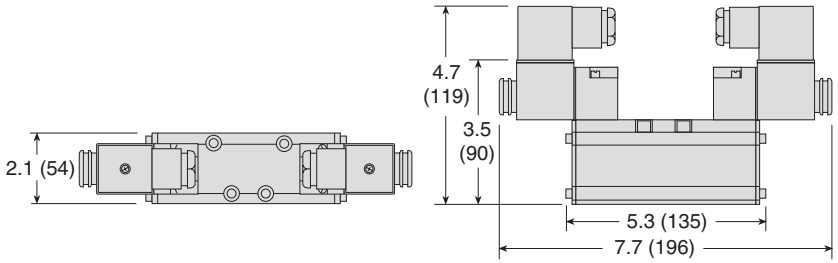


Valve Dimensions – inches (mm)

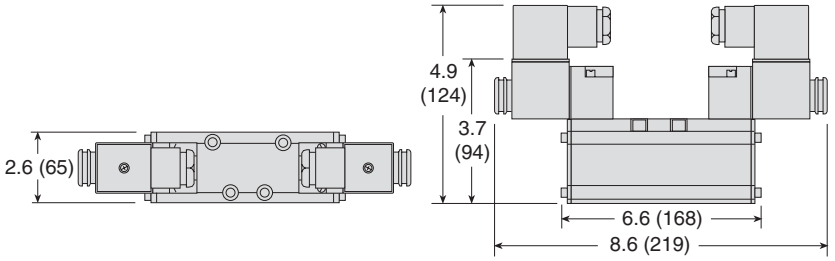
ISO Size 1



ISO Size 2



ISO Size 3



Options: Indicator Light (in electrical connectors), refer to page A2.9. Accessories ordered separately, refer to page A2.9-10.

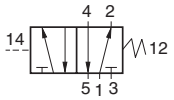
STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool and sleeve.
Mounting Type: Base.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption (each solenoid): 11 VA inrush, 8.5 VA holding on 50 or 60 Hz; 6 watts on DC.
Enclosure Rating: IP65, IEC 60529.
Electrical Connections: EN 175301-803 Form A connector.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
For other temperature ranges, consult ROSS.
Flow Media: Filtered air.
Inlet Pressure: Vacuum to 150 psig (10 bar).
Pilot Pressure:
Size 1 models: At least 30 psig (2 bar).
Size 2 & 3 models: At least 15 psig (1 bar).
Internal/External Supply: Selected automatically.
Manual Override: Flush; metal, non-locking.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

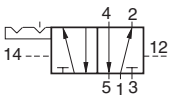
5-Way 2-Position Valves, Single Pressure Controlled, Spring Return

ISO Size	Port Size	Valve Model Number*	Avg. C_v	Average Response Constants#			Weight lb (kg)
				M	F		
					In-Out	Out-Exh.	
1	1/8 - 3/8	W6056B2411	0.8	29	3.5	4.9	0.8 (0.4)
2	3/8 - 1/2	W6056B3411	1.9	41	1.5	2.4	1.5 (0.7)
3	1/2 - 3/4	W6056B4411	3.8	51	0.8	1.1	3.0 (1.4)



5-Way 2-Position Valves, Double Pressure Controlled, Detented

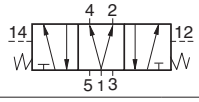
ISO Size	Port Size	Valve Model Number*	Avg. C_v	Average Response Constants#			Weight lb (kg)
				M	F		
					In-Out	Out-Exh.	
1	1/8 - 3/8	W6056B2417	0.8	17	3.5	5.0	0.8 (0.4)
2	3/8 - 1/2	W6056B3417	1.9	20	1.5	2.5	1.5 (0.7)
3	1/2 - 3/4	W6056E4417	3.8	20	0.8	1.1	3.0 (1.4)



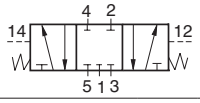
5-Way 3-Position Valves, Double Pressure Controlled

ISO Size	Port Size	Valve Model Number*			Avg. C_v	Average Response Constants#			Weight lb (kg)
		Power Center	Closed Center	Open Center		M	F		
							In-Out	Out-Exh.	
1	1/8 - 3/8	W6057A2934	W6057B2411	W6057B2417	0.8	30	3.5	5.0	1.0 (0.5)
2	3/8 - 1/2	W6057A3933	W6057B3411	W6057B3417	1.9	40	1.5	2.5	1.5 (0.7)
3	1/2 - 3/4	W6057A4937	W6057B4411	W6057B4417	3.8	50	0.8	1.1	3.0 (1.4)

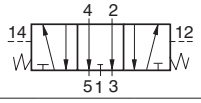
Power Center



Closed Center



Open Center



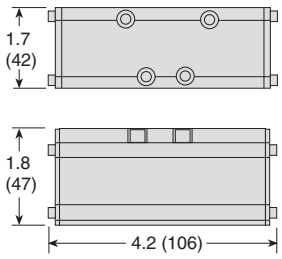
* **Sub-bases and sub-base manifolds ordered separately, refer to page A2.8.**

\# **Valve Response Time –** Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

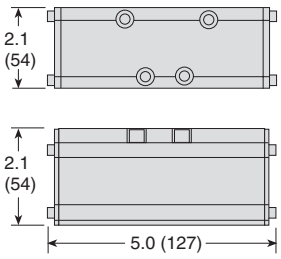
Valve Dimensions – inches (mm)

5/2 Valves

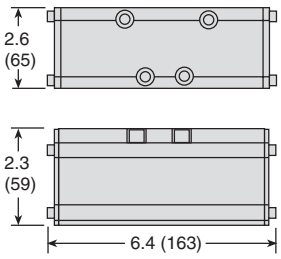
ISO Size 1



ISO Size 2

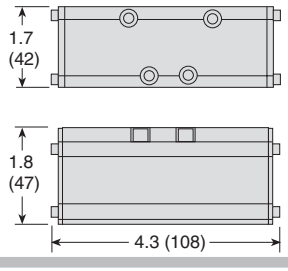


ISO Size 3

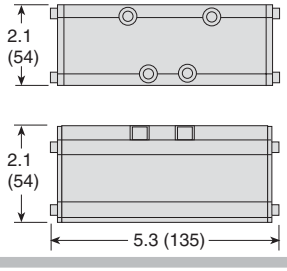


5/3 Valves

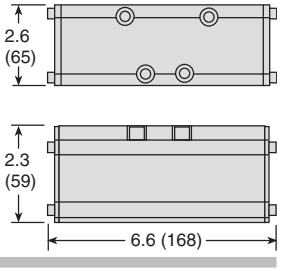
ISO Size 1



ISO Size 2



ISO Size 3



Accessories ordered separately, refer to page A2.9-10.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool and sleeve.
Mounting Type: Base.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
For other temperature ranges, consult ROSS.
Flow Media: Filtered air.
Inlet Pressure: Vacuum to 150 psig (10 bar).
Pilot Pressure:
Size 1 models: At least 30 psig (2 bar).
Size 2 & 3 models: At least 15 psig (1 bar).

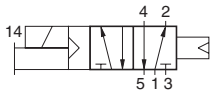
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Solenoid Pilot Controlled Valves

A

5-Way 2-Position Valves, Single Solenoid Pilot Controlled, Air Return

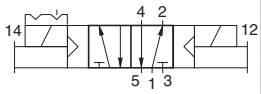
ISO Size	Port Size	Valve Model Number* Std. Temp.	Valve Model Number* High Temp.	Avg. C_v	Average Response Constants# M	Average Response Constants# F In-Out	Average Response Constants# F Out-Exh.	Weight lb (kg)
1	1/8 - 3/8	W6476B2401**	W6476B2402**	1.0	33	2.9	5.9	1.3 (0.6)
2	3/8 - 1/2	W6476B3401**	W6476B3402**	2.0	33	1.2	2.3	1.8 (0.8)
3	1/2 - 3/4	W6476B4401**	W6476B4402**	4.0	50	0.7	1.2	2.8 (1.3)

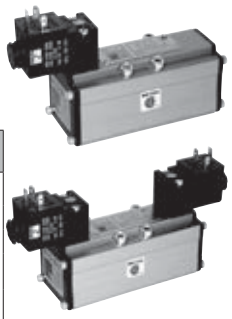


A2

5-Way 2-Position Valves, Double Solenoid Pilot Controlled, Detented

ISO Size	Port Size	Valve Model Number* Std. Temp.	Valve Model Number* High Temp.	Avg. C_v	Average Response Constants# M	Average Response Constants# F In-Out	Average Response Constants# F Out-Exh.	Weight lb (kg)
1	1/8 - 3/8	W6476B2407**	W6476B2408**	1.0	16	2.9	5.6	1.8 (0.8)
2	3/8 - 1/2	W6476B3407**	W6476B3408**	2.0	16	1.2	2.3	2.3 (1.0)
3	1/2 - 3/4	W6476B4407**	W6476B4408**	4.0	16	0.7	1.1	3.3 (1.5)





*** Sub-bases and sub-base manifolds ordered separately, refer to page A2.8.**

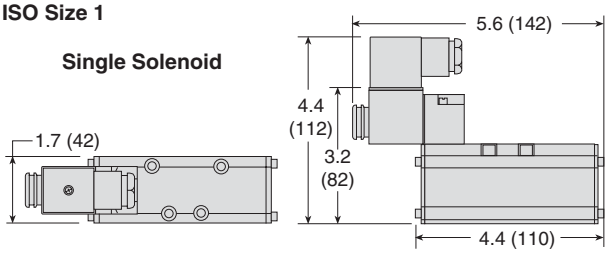
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., W6476B2401W. For other voltages, consult ROSS.

Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

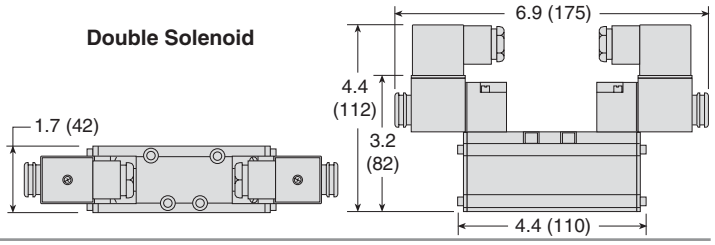
Valve Dimensions – inches (mm)

ISO Size 1

Single Solenoid

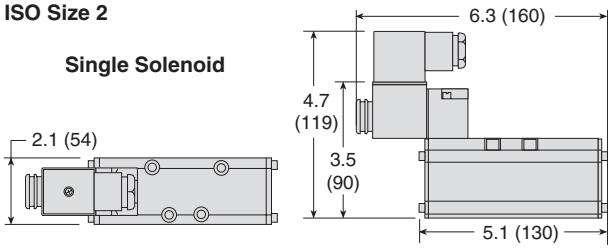


Double Solenoid

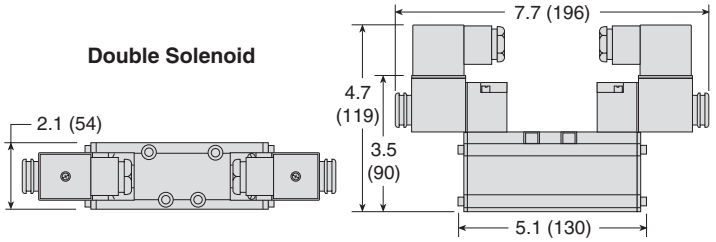


ISO Size 2

Single Solenoid

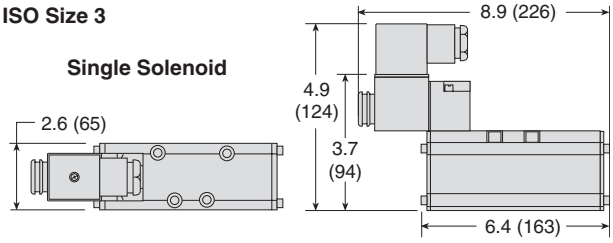


Double Solenoid

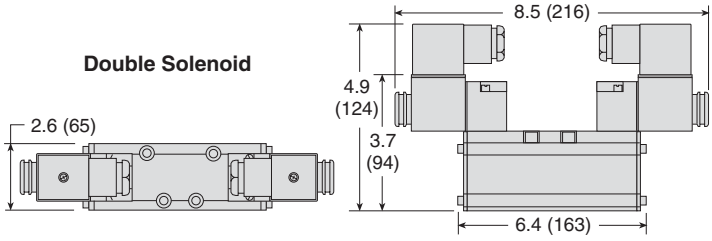


ISO Size 3

Single Solenoid



Double Solenoid



Options: Indicator Light (in electrical connectors); refer to page A2.9. Accessories ordered separately, refer to page A2.9-10.

STANDARD SPECIFICATIONS (for valves on this page):

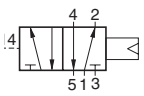
Construction: Poppet.
Mounting Type: Base.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption (each solenoid): 11 VA inrush, 8.5 VA holding on 50 or 60 Hz; 6 watts on DC.
Ambient Temperature: 40° to 120°F (4° to 50°C); extended to 175°F (80°C) for High Temperature models.
Enclosure Rating: IP65, IEC 60529.
Electrical Connections: EN 175301-803 Form A or Form C connector.
Media Temperature: 40° to 175°F (4° to 80°C); extended to 220°F (105°C) for High Temperature models.
For other temperature ranges, consult ROSS.
Flow Media: Filtered air.
Inlet Pressure: 30 to 150 psig (2 to 10 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.
Internal/External Supply: Selected automatically.
Manual Override: Flush; metal non-locking.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Online Version
Rev. 11/14/16

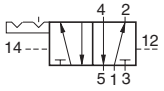
5-Way 2-Position Valves, Single Pressure Controlled, Air Return

ISO Size	Port Size	Valve Model Number*		Avg. C_v	Average Response Constants#			Weight lb (kg)
		Std. Temp.	High Temp.		M	F		
						In-Out	Out-Exh.	
1	1/8 - 3/8	W6456B2411	W6456B2412	1.0	33	2.9	5.9	0.8 (0.4)
2	3/8 - 1/2	W6456B3411	W6456B3412	2.0	33	1.2	2.3	1.3 (0.6)
3	1/2 - 3/4	W6456B4411	W6456B4412	4.0	50	0.7	1.2	2.3 (1.1)



5-Way 2-Position Valves, Double Pressure Controlled, Detented

ISO Size	Port Size	Valve Model Number*		Avg. C_v	Average Response Constants#			Weight lb (kg)
		Std. Temp.	High Temp.		M	F		
						In-Out	Out-Exh.	
1	1/8 - 3/8	W6456B2417	W6456B2418	1.0	16	2.9	5.6	1.8 (0.8)
2	3/8 - 1/2	W6456B3417	W6456B3418	2.0	16	1.2	2.3	2.3 (1.0)
3	1/2 - 3/4	W6456B4417	W6456B4418	4.0	18	0.7	1.1	3.3 (1.5)

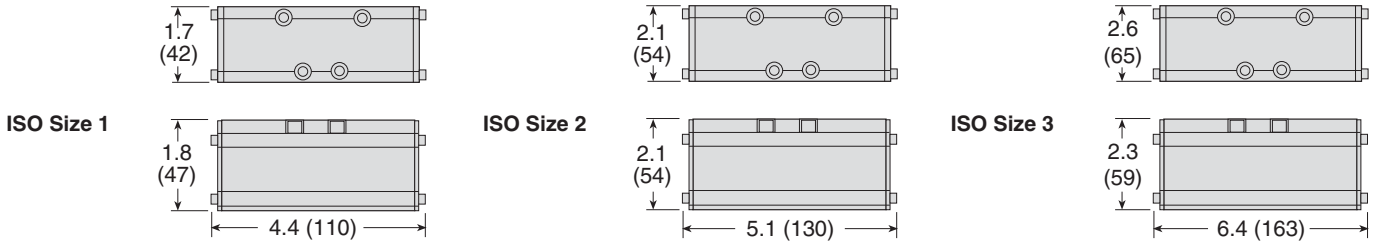


*** Sub-bases and sub-base manifolds ordered separately, refer to page A2.8.**

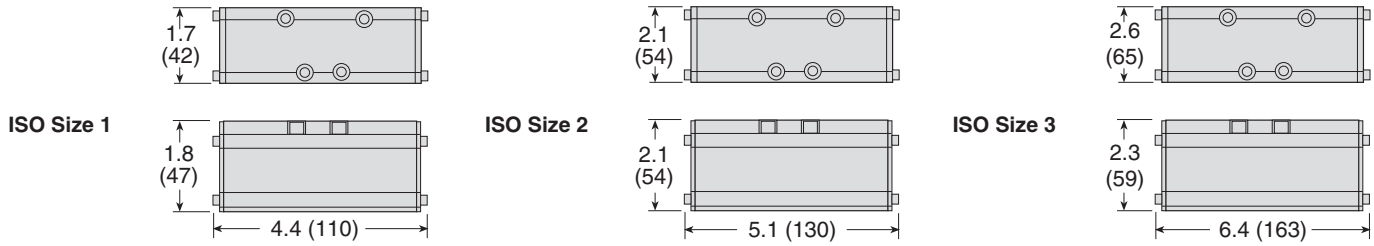
 # Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

Single Pressure Controlled



Double Pressure Controlled



Accessories ordered separately, refer to page A2.9-10.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: Base.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
For other temperature ranges, consult ROSS.
Flow Media: Filtered air.
Inlet Pressure: Vacuum to 150 psig (10 bar).
Pilot Pressure:
Size 1 models: At least 30 psig (2 bar).
Size 2 & 3 models: At least 15 psig (1 bar).

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

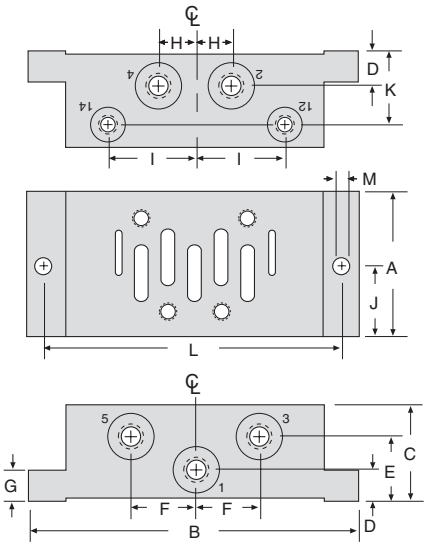
Single Sub-Bases & Sub-Base Manifolds

ISO 5599/I Sub-Bases

ISO Size	Port Threads	Port Size 2, 4	Port Size 1, 3, 5	Port Size 12, 14	Sub-Base Model Number (Side Ported)
1	NPT	1/8	1/4	1/8	654K91
	NPT	1/4	1/4	1/8	600C01
	G	1/4	1/4	1/8	D600C01
	NPT	3/8	3/8	1/8	642K91
2	NPT	3/8	3/8	1/8	601C01
	G	3/8	3/8	1/8	D601C01
	NPT	1/2	1/2	1/8	643K91
3	NPT	1/2	1/2	1/8	602C01
	G	1/2	1/2	1/8	D602C01
	NPT	3/4	3/4	1/8	644K91

Sub-Base Dimensions inches (mm)	ISO 1	ISO 2	ISO 3
A	1.89 (48)	2.24 (57)	2.80 (71
B	4.33 (110)	4.88 (124)	5.87 (149)
C	1.26 (32)	1.57 (40)	1.26 (32)*
D	0.41 (38)	0.55 (14)	0.67 (17)
E	0.85 (39)	1.02 (26)	0.67 (17)
F	0.85 (23)	1.10 (28)	1.34 (34)
G	0.39 (23)	0.51 (13)	0.71 (18)
H	0.47 (92)	0.59 (15)	0.63 (16)
I	1.14 (29)	1.46 (37)	1.77 (45)
J	0.94 (58)	1.12 (29)	1.40 (36)
K	0.93 (24)	1.518(30)	0.87 (22)
L	3.86 (22)	4.41 (112)	5.35 (136
M	0.22 (6)	0.26 (7)	0.26 (7)

* 1.77 (45) on sub-base 644K91.



ISO 5599/I Sub-Base Manifolds

ISO Size	Port Size 2, 4	Port Size 1, 3, 5	Port Size 12, 14	Manifold Model Number Bottom Ported Station*	Manifold Model Number End Ported Station*	Manifold Model Number End Station Kit*
1	1/4	3/8	1/8	460K91	664K91	326K86
2	3/8	1/2	1/8	461K91	665K91	327K86
3	1/2	1	1/8	462K91	666K91	328K86

*NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., D460K91.

In addition to the manifold stations, an end station kit must be ordered for each manifold installation. End-ported stations are assemblies consisting of a bottom-ported station and an end-ported adaptor plate. Adaptor plates are cross-hatched in the drawings below.

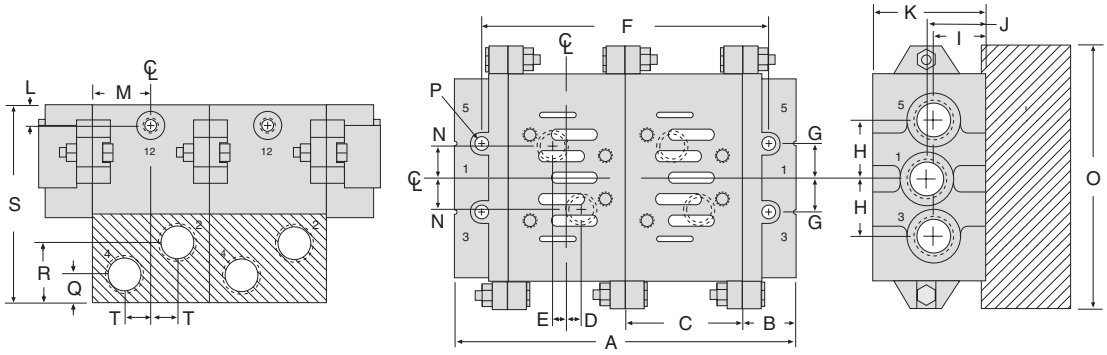
NOTE: Lined portions of drawings are end-ported adaptors which are included only with end-ported stations.

A and F dimensions are for a 2-station manifold.
For each additional station add the C dimension to obtain new A and F dimensions.

ACCESSORIES and OPTIONS for MANIFOLDS

Blank Station Kits, Blocking Discs, Pressure Plates, Transition Plates and other available options are shown on page A2.10.

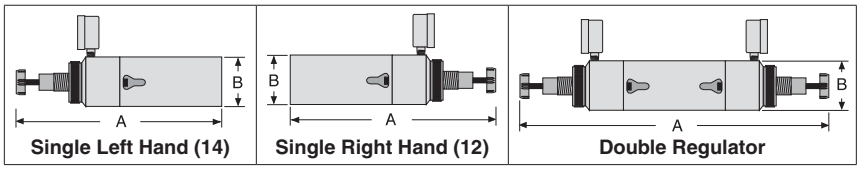
Manifolds Dimensions inches (mm)	ISO 1	ISO 2	ISO 3
A	5.12 (130)	6.46 (164)	7.95 (202)
B	0.87 (22)	1.02 (26)	1.18 (30)
C	1.69 (43)	2.20 (56)	2.80 (71)
D	0.30 (8)	0.24 (6)	0.31 (8)
E	0.06 (2)	0.20 (5)	0.24 (6)
F	4.25 (108)	5.43 (138)	6.77 (172)
G	0.55 (14)	0.69 (18)	1.02 (26)
H	0.94 (24)	1.24 (32)	1.85 (47)
I	0.83 (21)	0.87 (22)	1.22 (31)
J	0.94 (24)	0.94 (24)	1.34 (34)
K	1.81 (46)	1.85 (47)	2.20 (56)
L	0.33 (9)	0.35 (9)	0.39 (10)
M	0.85 (22)	1.10 (28)	1.40 (36)
N	0.51 (13)	0.59 (15)	0.75 (19)
P	0.27 (7)	0.35 (9)	0.47 (12)
Q	0.47 (12)	0.55 (14)	0.67 (17)
R	0.98 (25)	1.02 (26)	1.14 (29)
S	3.19 (81)	3.54 (90)	3.90 (99)
T	0.43 (11)	0.57 (15)	0.71 (18)



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Interposed Pressure Regulators

Single and double pressure regulators are available.
Single left hand (14) and single right hand (12) regulators are available. Single pressure regulators provide the same regulated pressure at both outlet ports.
Double pressure regulators allow the pressure at each outlet port to be set independently. Pressure can be regulated from 0 to 150 psig (0 to 10 bar). Requires no new piping.



Single Left Hand (14) | Single Right Hand (12) | Double Regulator

ISO Size	Regulator Model Number		
	Single		Double
	Left Hand (14)	Right Hand (12)	
1	1300K91	1301K91	1302K91
2	1303K91	1304K91	1305K91
3	1306K91	1307K91	1308K91

ISO Size	Regulator Dimensions - inches (mm)		
	A (Single)	B (Double)	B (Single/Double)
1	7.3 (186)	13.2 (336)	1.5 (39)
2	8.3 (211)	14.8 (376)	2.0 (51)
3	10.5 (267)	18.3 (465)	2.5 (64)

Interposed Pressure Regulators

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

R | PS4037 | 1 | 6 | 6 | C | P

Basic Series		
ISO Size 1	5599-1	PS4037
ISO Size 2	5599-1	PS4137
ISO Size 3	5599-1	PS4237

Regulator Function	
Common Pressure Regulator	1
Independent Pressure Regulator	2
Selector Regulator	3

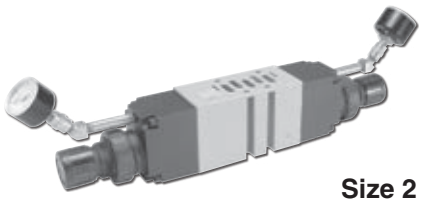
#4 Port Regulator / Gauge*	
0**	Line By-Pass Plate
1	1-30 PSIG w/o Gauge
2	2-60 PSIG w/o Gauge
3	5-125 PSIG w/o Gauge
4	1-30 PSIG w/Gauge
5	2-60 PSIG w/Gauge
6	5-125 PSIG w/Gauge
C	Air Pilot w/60 PSIG Gauge
D	Air Pilot w/160 PSIG Gauge

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)
** Pressure Line By-Pass Option can only be used with Independent and Selector Regulators (Option 2 & 3 in Interposed Block Function).

#2 Port Regulator / Gauge*	
0**	Line By-Pass Plate
1	1-30 PSIG w/o Gauge
2	2-60 PSIG w/o Gauge
3	5-125 PSIG w/o Gauge
4	1-30 PSIG w/Gauge
5	2-60 PSIG w/Gauge
6	5-125 PSIG w/Gauge
C	Air Pilot w/60 PSIG Gauge
D	Air Pilot w/160 PSIG Gauge

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)
** Pressure Line By-Pass Option can only be used with Independent and Selector Regulators (Option 2 & 3 in Interposed Block Function).


Size 1
(Dual Interposed Regulator Shown)


Size 2
(Dual Interposed Regulator Shown)

Ordering Components
- *Manifold or Subbase Kit required*
- *Interposed Regulator Kit configured for Internal Pilot as standard*
- *Order valve as External Pilot*

How to Configure Interposed Regulator / Valve Combinations

Internal Pilot Configuration - Pressure in Base Port 1 feeds regulator configured for Internal Pilot which feeds valve configured for External Pilot.

External Pilot Configuration - Size 1, Size 2, Size 3
An External Pilot pressure in Port 12 or 14 of the base feeds thru the Interposed Regulator 12 or 14 galley directly to the 12/14 pilot of the valve.
This configuration takes an External Pilot from the 12 port of the base and passes it thru the regulator to feed the 12 galley of the valve.

WARNING: Double interposed regulators will reverse output ports, the 12 solenoid will pressurize the 4 port, the 14 solenoid will pressurize the 2 port which may cause unexpected, potentially dangerous cylinder movement at valve pressurization.

Interposed Flow Controls

An interposed flow control unit regulates the exhaust flow of air from a pneumatic cylinder, thereby controlling the extension and retraction speeds. Separate controls regulate the air flow from each end of the cylinder. Being located between the valve and base, the unit requires no additional piping.
Available only for W60 Series valves.

ISO Size	Part Number
1	701B77
2	702B77
3	722B77

Blank Station Kits

A blank station plate is used to cover the top of a manifold station that is not in use. A kit consists of a metal plate 0.32 inch (8 mm) thick, a gasket, and mounting bolts.

ISO Size	Part Number
1	546H77
2	694K77
3	537H77

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

A

A2

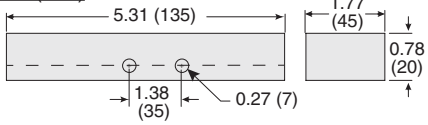
Transition Plates

Different size ISO valves can be used in the same manifold installation by means of transition plates. The inlet and exhaust ports of two different size manifold stations are connected by means of a transition plate installed between the two stations.

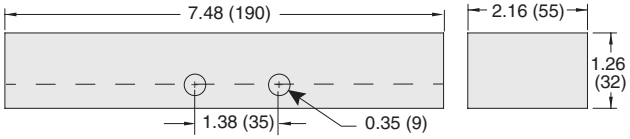
ISO Size	Part Number
1 to 2	D355K86
2 to 3	D356K86
1 to 3	D357K86

Dimensions - inches (mm)

ISO Size 1 to 2



ISO Size 2 to 3 and 1 to 3



Independent Pressure Plates

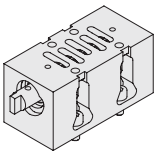
When a valve in a manifold installation must work at a different pressure than that supplied to the manifold, an independent supply can be provided via an independent pressure plate. The pressure plate mounts between valve and base and isolates the valve from the manifold inlet pressure. The independent supply is connected to an inlet port in the end of the pressure plate.

ISO Size	Inlet Port	Part Number
1	1/4	703K77
2	3/8	692K77
3	1/2	715K77

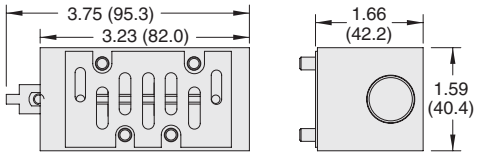
Interposed Shut-Off

Manually actuated with a 1/4 turn, the interposed shut-off isolates all ports, including the pilot.

ISO Size	Part Number
1	1871B91
2 & 3	Please contact ROSS.



ISO Size 1 **Dimensions -** inches (mm)



Blocking Disks

Ports between manifold stations can be closed by means of blocking disks.

ISO Size	Single Disk	Kit of 3 Disks
1	235A40	1007K77
2	236A40	1008K77
3	237A40	1009K77

Flying Solenoids Leads

Flying leads are available with 18 gauge insulated wires with spade connectors at one end. A kit of flying leads consists of three wires, each 39 inches (991 mm) long.

Kit Number	725K77

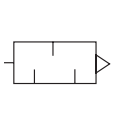
Electrical Connectors

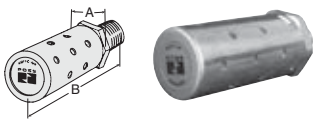
Electrical Connector	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
				Without Light	Lighted Connector*	
					24 Volts DC	120 Volts AC
EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z
EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	10-mm	371K77	383K77-W	383K77-Z
EN 175301-803 Form A	Connector for threaded conduit (1/2 inch electrical conduit fittings)	–	–	723K77	724K77-W	724K77-Z
EN 175301-803 Form A	Connector Only	–	–	937K87	936K87-W	936K87-Z

*Lights in connectors with a translucent housing can be used as indicator lights to show when solenoids are energized.

Silencers

Port Size	Thread Type	Model Number		Avg. C_v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	BSPT Threads		A	B	
3/8	Male	5500A3013	D5500A3013	2.7	0.9 (21)	2.2 (55)	0.1 (0.1)
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
3/4	Male	5500A5013	D5500A5013	5.1	1.3 (32)	3.6 (91)	0.2 (0.1)
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)



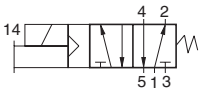


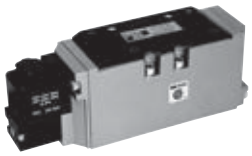
Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.

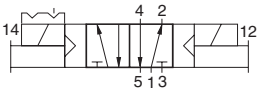
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Online Version
Rev. 11/14/16

Solenoid Pilot Controlled Valves

5-Way 2-Position Valves, Single Solenoid Pilot Controlled, Spring Return					
ISO Size	Port Size	Valve Model Number*	Avg. C_v	Weight lb (kg)	
1	1/4 - 3/8	W6576A2401**	1.0	1.5 (0.7)	
2	3/8 - 1/2	W6576A3401**	2.3	2.0 (1.0)	
3	1/2 - 3/4	W6576A4401**	3.4	3.5 (1.6)	



5-Way 2-Position Valves, Double Solenoid Pilot Controlled, Detented					
ISO Size	Port Size	Valve Model Number*	Avg. C_v	Weight lb (kg)	
1	1/4 - 3/8	W6576A2407**	1.0	2.0 (1.0)	
2	3/8 - 1/2	W6576A3407**	2.3	2.5 (1.2)	
3	1/2 - 3/4	W6576A4407**	3.4	4.0 (1.9	

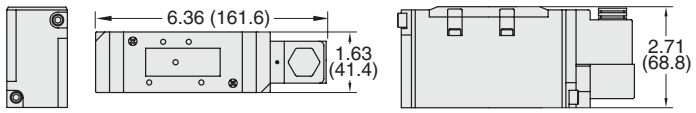
*** Sub-bases and sub-base manifolds ordered separately, refer to page A2.14-15 or page A2.17 when used with serial bus system.**

** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., W6576A2401W. For other voltages, consult ROSS.

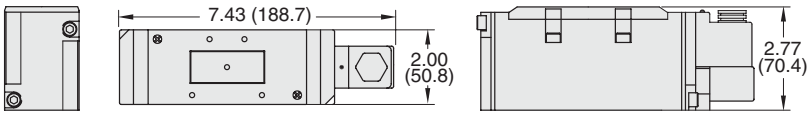
Valve Dimensions – inches (mm)

Single Solenoid

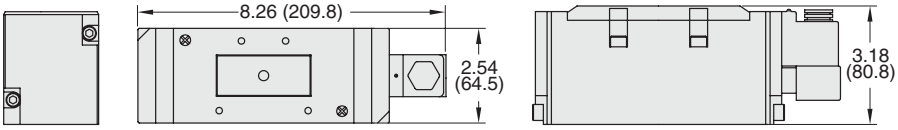
ISO Size 1



ISO Size 2

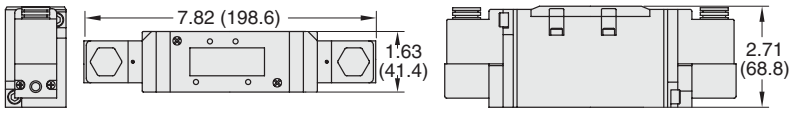


ISO Size 3

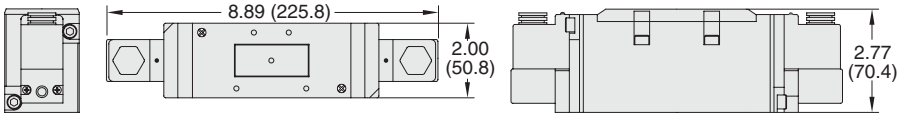


Double Solenoid

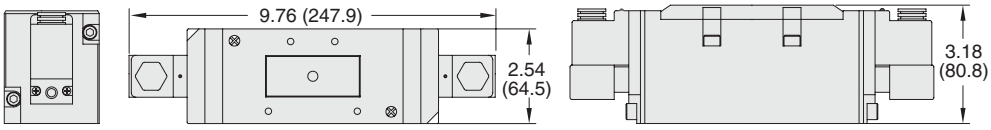
ISO Size 1



ISO Size 2



ISO Size 3



Accessories ordered separately, refer to page A2.16 or page A2.18-19 when used with serial bus system.

The W65 Series has a base electrical connector which eliminates the need to disconnect wires to remove the valve. This eliminates drop cords, simplifies maintenance and connection to Serial Data Communication systems.

STANDARD SPECIFICATIONS (for valves on this page):

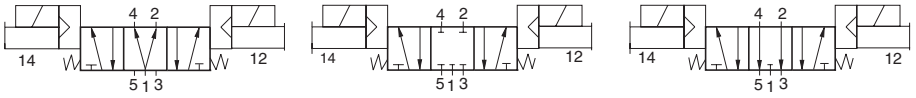
Construction: Spool and sleeve.
Mounting Type: Base.
Solenoids: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption (each solenoid): 6.5 VA holding on 50 or 60 Hz; 3.5 watts on DC (at 10 bar).
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
For other temperature ranges, consult ROSS.

Flow Media: Filtered air.
Inlet Pressure:
Size 1 models: 30 to 150 psig (2 to 10 bar);
Size 2 & 3 models: 15 to 150 psig (1 to 10 bar).
All sizes also available up to 232 psig (16 bar).
Pilot Supply: Internal/external supply selected automatically. Required pressure at least 30 psig (2 bar).
Indicator Light: Included, one per solenoid.
Manual Override: Flush; metal, non-locking.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

5-Way 3-Position Valves, Double Solenoid Pilot Controlled

ISO Size	Port Size	Valve Model Number*			Avg. C_v	Weight lb (kg)
		Power Center	Closed Center	Open Center		
1	1/4 - 3/8	W6577A2902**	W6577A2401**	W6577A2407**	1.0	2.0 (1.0)
2	3/8 - 1/2	W6577A3901**	W6577A3401**	W6577A3407**	2.3	2.5 (1.2)
3	1/2 - 3/4	W6577A4900**	W6577A4401**	W6577A4407**	3.4	4.0 (1.9)



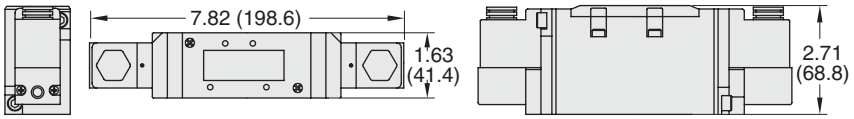
Power Center | Closed Center | Open Center

* **Sub-bases and sub-base manifolds ordered separately, refer to page A2.14-15 or page A2.17 when used with serial bus system.**

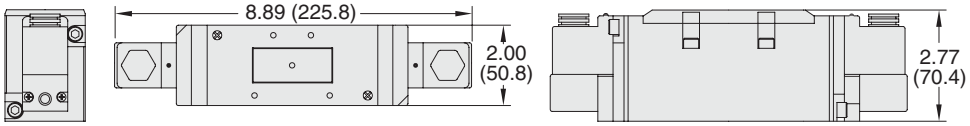
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., W6577A2902W. For other voltages, consult ROSS.

Valve Dimensions – inches (mm)

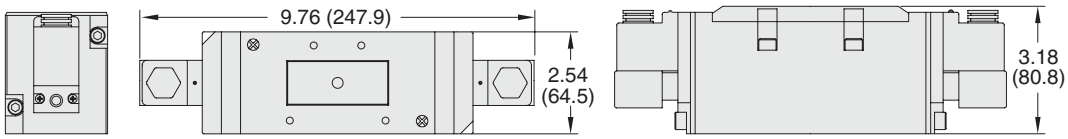
ISO Size 1



ISO Size 2



ISO Size 3



Accessories ordered separately, refer to page A2.16 or page A2.18-19 when used with serial bus system.

The W65 Series has a base electrical connector which eliminates the need to disconnect wires to remove the valve. This eliminates drop cords, simplifies maintenance and connection to Serial Data Communication systems.

STANDARD SPECIFICATIONS (for valves on this page):

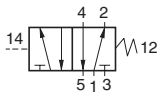
Construction: Spool and sleeve.
Mounting Type: Base.
Solenoids: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption (each solenoid): 6.5 VA holding on 50 or 60 Hz; 3.5 watts on DC (at 10 bar).
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
For other temperature ranges, consult ROSS.
Flow Media: Filtered air.

Inlet Pressure:
Size 1 models: 30 to 150 psig (2 to 10 bar);
Size 2 & 3 models: 15 to 150 psig (1 to 10 bar).
All sizes also available up to 232 psig (16 bar).
Pilot Supply: Internal/external supply selected automatically. Required pressure at least 30 psig (2 bar).
Indicator Light: Included, one per solenoid.
Manual Override: Flush; metal, non-locking.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

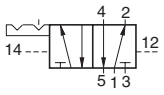
5-Way 2-Position Valves, Single Pressure Controlled, Spring Return

ISO Size	Port Size	Valve Model Number*	Avg. C_v	Weight lb (kg)
1	1/4 - 3/8	W6556A2411	1.0	0.8 (0.4)
2	3/8 - 1/2	W6556A3411	2.3	1.5 (0.7)
3	1/2 - 3/4	W6556A4411	3.4	3.0 (1.4)



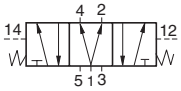
5-Way 2-Position Valves, Double Pressure Controlled, Detented

ISO Size	Port Size	Valve Model Number*	Avg. C_v	Weight lb (kg)
1	1/4 - 3/8	W6556A2417	1.0	0.8 (0.4)
2	3/8 - 1/2	W6556A3417	2.3	1.5 (0.7)
3	1/2 - 3/4	W6556A4417	3.4	3.0 (1.4)

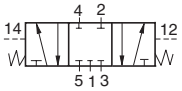


5-Way 3-Position Valves, Double Pressure Controlled

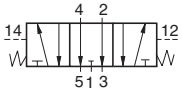
ISO Size	Port Size	Valve Model Number*			Avg C_v	Weight lb (kg)
		Power Center	Closed Center	Open Center		
1	1/4 - 3/8	–	W6557A2411	W6557A2417	1.0	0.8 (0.4)
2	3/8 - 1/2	W6557A3901	W6557A3411	W6557A3417	2.3	1.5 (0.7)
3	1/2 - 3/4	W6557A4900	W6557A4411	W6557A4417	3.4	3.0 (1.4)



Power Center



Closed Center

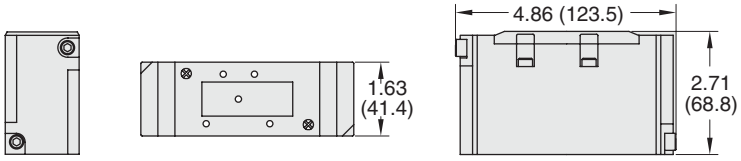


Open Center

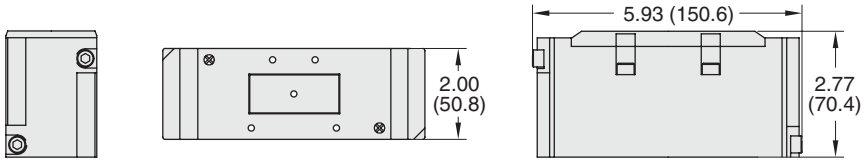
*** Sub-bases and sub-base manifolds ordered separately, refer to page A2.14-15 or page A2.17 when used with serial bus system.**

Valve Dimensions – inches (mm)

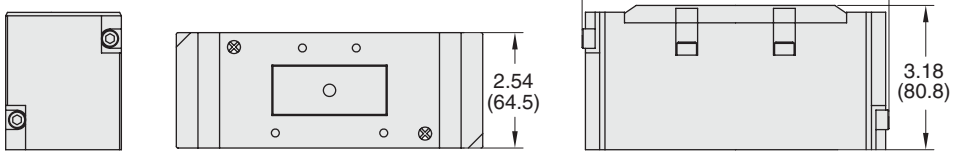
ISO Size 1



ISO Size 2



ISO Size 3



Accessories ordered separately, refer to page A2.16 or page A2.18-19 when used with serial bus system.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool and sleeve.
Mounting Type: Base.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
For other temperature ranges, consult ROSS.
Flow Media: Filtered air.

Inlet Pressure: *Size 1 models:* 30 to 150 psig (2 to 10 bar);
Size 2 & 3 models: 15 to 150 psig (1 to 10 bar).
All sizes also available up to 232 psig (16 bar).
Pilot Supply: Internal/external supply selected automatically.
Required pressure at least 30 psig (2 bar).

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

A

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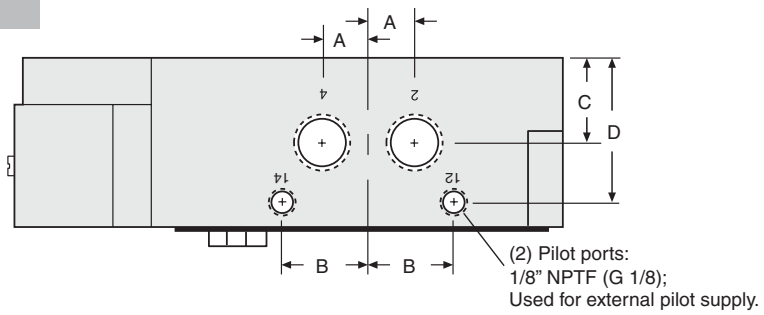
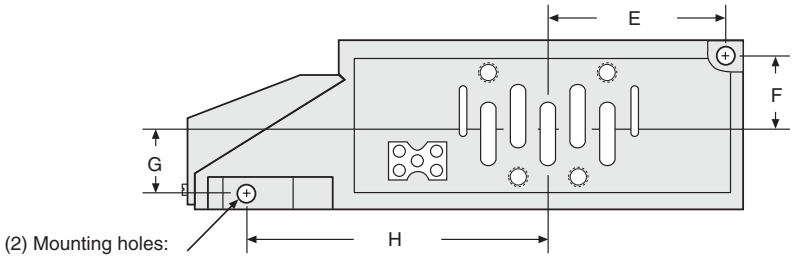
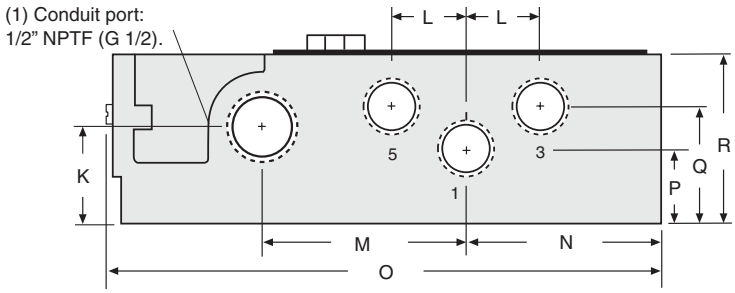
Side and Bottom-Ported Sub-Bases

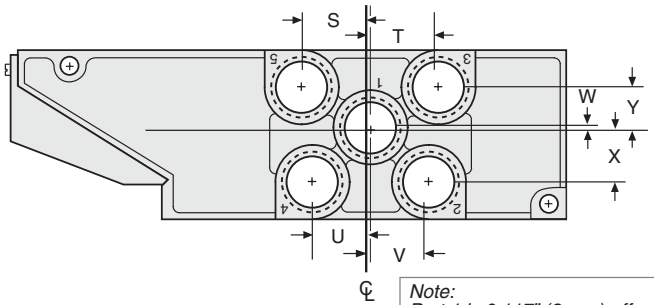
ISO Size	Port Threads	Port Size	Sub-Base Model Number
1	NPT	1/4Side	949N91
	NPT	1/4 Side/Bottom	971N91
	NPT	3/8 Side	950N91
	NPT	3/8 Side/Bottom	972N91
	G	1/4 Side	D949N91
	G	3/8 Side	D950N91
2	NPT	3/8 Side	951N91
	NPT	3/8 Side/Bottom	952N91
	NPT	1/2 Side	953N91
	NPT	1/2 Side/Bottom	954N91
	G	1/2 Side	D953N91
3	NPT	1/2" Side	955N91
	NPT	1/2" Side/Bottom	956N91
	NPT	3/4" Side	957N91
	NPT	3/4" Side/Bottom	958N91
	G	1/2 Side	D955N91
	G	1/2 Side/Bottom	D956N91
	G	3/4 Side	D957N91
	G	3/4 Side/Bottom	D958N91



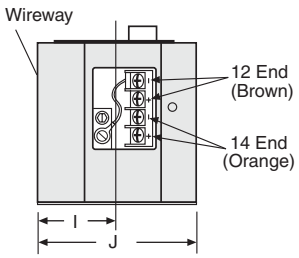


Sub-Base Dimensions inches (mm)			
	ISO 1	ISO 2	ISO 3
A	0.5 (13)	0.6 (16)	0.8 (21)
B	1.0 (26)	1.3 (33)	1.8 (45)
C	0.8 (21)	1.2 (31)	1.3 (34)
D	1.5 (38)	1.9 (49)	2.7 (70)
E	1.6 (39)	2.3 (57)	2.5 (63)
F	0.9 (23)	1.1 (29)	1.5 (39)
G	0.9 (23)	1.1 (29)	1.4 (36)
H	3.6 (92)	4.3 (108)	5.4 (137)
I	1.1 (29)	1.4 (35)	1.8 (45)
J	2.3 (58)	2.8 (70)	3.5 (90)
K	0.9 (24)	1.5 (37)	1.8 (47)
L	0.9 (22)	1.1 (27)	1.5 (38)
M	2.4 (60)	3.0 (75)	4.1 (104)
N	1.8 (46)	2.5 (64)	2.7 (69)
O	6.5 (164)	7.8 (197)	9.3 (235)
P	0.8 (21)	1.1 (28)	1.3 (34)
Q	1.3 (34)	1.7 (44)	2.0 (51)
R	1.9 (47)	2.4 (60)	3.3 (85)
S	0.8 (21)	1.1 (27)	1.6 (42)
T	1.1 (27)	1.1 (27)	1.6 (42)
U	0.5 (13)	0.9 (22)	1.1 (27)
V	0.6 (15)	0.9 (22)	1.1 (27)
W	0.3 (8)	0.1 (3)	0.8 (20)
X	0.7 (17)	0.8 (20)	0.8 (20)
Y	0.6 (16)	0.9 (20)	0.8 (20)





Note:
Port 1 is 0.117" (3 mm) off center line.
ISO 2, 3 fall on center line.



Assembled manifolds also available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Bottom or End-Ported Manifolds

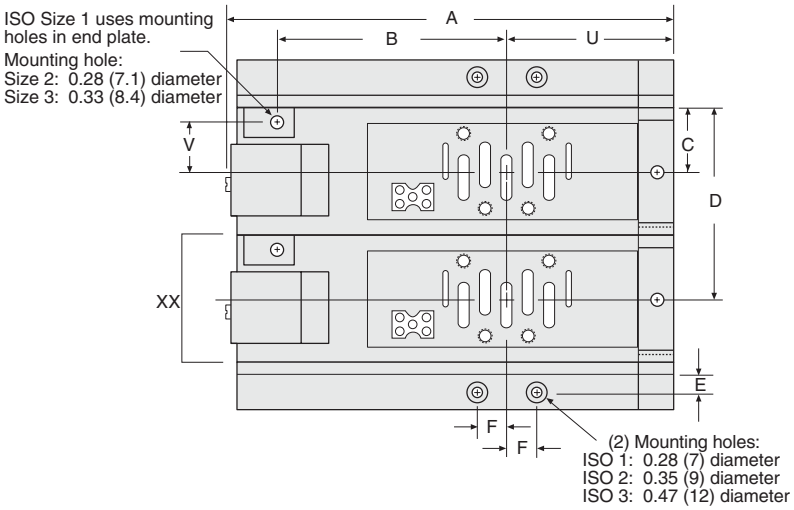
Manifold Station Assembly Numbers*		
ISO Size	**Port Size**	**Part Number****
1	1/4" End/Bottom	959N91
	3/8" End/Bottom	960N91
2	3/8" End/Bottom	961N91
	1/2" End/Bottom	962N91
3	1/2" End/Bottom	963N91
	3/4" End/Bottom	964N91

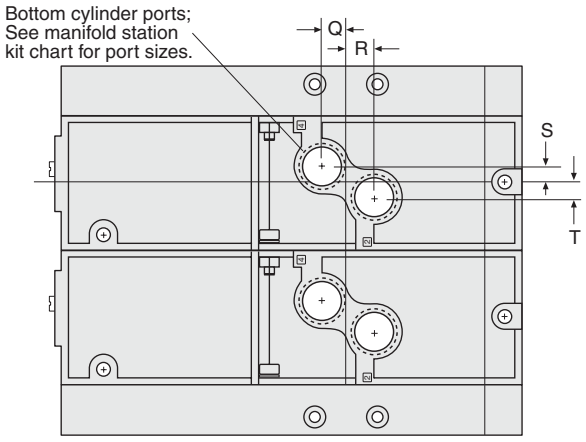
*Each manifold station assembly includes a manifold assembly, socket head screws, nuts and seals.
**NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., D959N91.

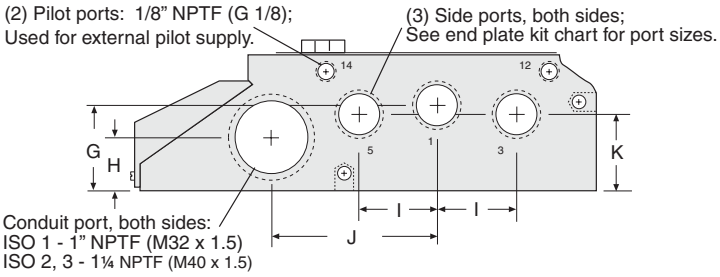
End Station Kit Numbers*		
ISO Size	**Port Size**	**Part Number****
1	3/8"	493N86
2	1/2"	494N86
3	1"	495N86

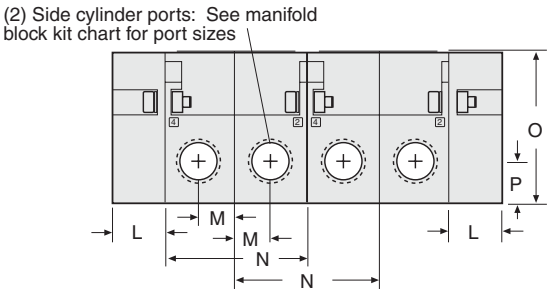
*Each end station kit includes left and right end plates, socket head screws, nuts and seals.
**NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., D493N86.

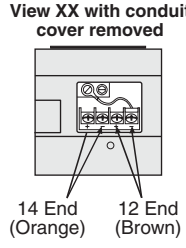
Manifold Dimensions inches (mm)			
	ISO 1	**ISO 2**	**ISO 3**
A	7.2 (183)	9.0 (229)	10.6 (270)
B	4.9 (125)	6.0 (152)	7.1 (180)
C	1.0 (26)	1.3 (33)	1.7 (43)
D	3.1 (79)	3.9 (100)	5.1 (128)
E	0.6 (14)	0.6 (16)	0.6 (15)
F	0.6 (14)	0.7 (17)	1.0 (26)
G	1.3 (34)	1.7 (42)	1.8 (46)
H	1.0 (25)	1.2 (30)	1.2 (31)
I	1.1 (28)	1.4 (35)	2.1 (52)
J	2.5 (64)	3.1 (79)	4.1 (104)
K	1.2 (31)	1.6 (40)	1.7 (42)
L	0.9 (22)	1.0 (25)	1.2 (30)
M	0.5 (13)	0.6 (16)	0.8 (21)
N	2.1 (53)	2.6 (67)	3.4 (86)
O	2.2 (55)	2.6 (66)	3.1 (78)
P	0.6 (16)	0.9 (22)	0.8 (20)
Q	0.5 (13)	0.6 (15)	0.7 (18)
R	0.5 (13)	0.6 (15)	0.8 (21)
S	0.3 (7)	0.3 (8)	0.5 (13)
T	0.3 (7)	0.3 (8)	0.5 (12)
U	2.0 (51)	2.8 (67)	3.1 (79)
V	----------	1.0 (26)	1.3 (31)











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A2

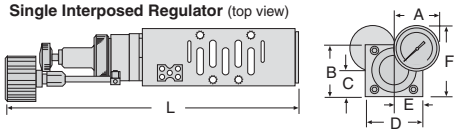
NOTE: Accessories from this page are to be used only with sub-bases and manifolds on page A2.14-15.

Interposed Regulators

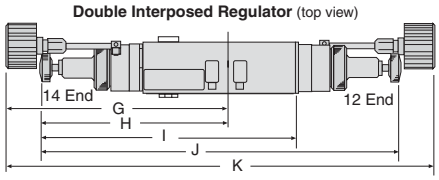
The interposed regulator controls the pressure through the base-mounted valve. These interposed devices are "sandwich" style, mounting between a valve and base or manifold. When using a dual interposed regulator for a W65 Series solenoid valve, the valve **must be externally piloted (port 14)**.

WARNING: Double interposed regulators will reverse output ports, the 12 solenoid will pressurize the 4 port, the 14 solenoid will pressurize the 2 port which may cause unexpected, potentially dangerous cylinder movement at valve pressurization.

Single Interposed Regulator (top view)



Double Interposed Regulator (top view)

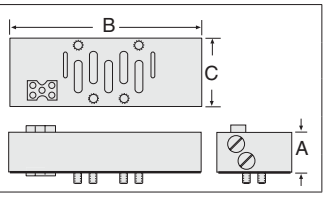


ISO Size	Model Number	Dimensions inches (mm)											
		A	B	C	D	E	F	G	H	I	J	K	L
1 (Sgl.)	965N91	1.6 (39)	1.8 (45)	0.9 (23)	1.7 (43)	0.9 (22)	2.5 (63)	6.2 (157)	7.2 (182)	8.0 (204)	11.6 (295)	13.6 (345)	9.0 (229)
1 (Dbl.)	966N91	1.6 (39)	1.8 (45)	0.9 (23)	1.7 (43)	0.9 (22)	2.5 (63)	6.2 (157)	7.2 (182)	8.0 (204)	11.6 (295)	13.6 (345)	9.0 (229)
2 (Sgl.)	967N91	1.6 (39)	1.8 (45)	0.9 (23)	2.0 (51)	1.0 (26)	2.5 (63)	6.5 (166)	7.5 (191)	9.0 (229)	12.6 (320)	14.6 (370)	10.0 (254)
2 (Dbl.)	968N91	1.6 (39)	1.8 (45)	0.9 (23)	2.0 (51)	1.0 (26)	2.5 (63)	6.5 (166)	7.5 (191)	9.0 (229)	12.6 (320)	14.6 (370)	10.0 (254)
3 (Sgl.)	969N91	2.1 (52)	2.7 (67)	1.3 (34)	2.6 (66)	1.3 (33)	3.4 (85)	9.5 (242)	8.0 (203)	10.6 (270)	18.2 (463)	15.2 (386)	13.0 (330)
3 (Dbl.)	970N91	2.1 (52)	2.7 (67)	1.3 (34)	2.6 (66)	1.3 (33)	3.4 (85)	9.5 (242)	8.0 (203)	10.6 (270)	18.2 (463)	15.2 (386)	13.0 (330)

Flow Control Kits

The interposed flow control independently adjusts the speed of a cylinder's extend and retract motions. This action is achieved by throttling the flow of exhaust air through ports 3 and 5 by means of a separate needle valve across each of these ports. These interposed devices are "sandwich" style, mounting between a valve and a base or manifold.

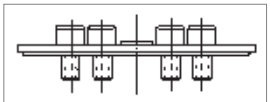
ISO Size	Part Number	Dimensions inches (mm)		
		A	B	C
1	1371N77	0.9 (24)	3.8 (97)	1.7 (43)
2	1372N77	1.3 (33)	5.1 (130)	2.0 (51)
3	1373N77	1.6 (41)	5.6 (142)	2.6 (66)



Blank Station Kits

A blank station plate is used to cover the top of a manifold station not in use.

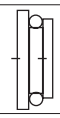
ISO Size	1	2	3
Kit Number	1381N77	1382N77	1383N77



Blocking Disk Kits

A blocking disk closes the ports between manifold stations.

ISO Size	1	2	3
Kit Number	1376N77	1378N77	1380N77



Pilot Port Blocking Plug

The pilot blocking plug blocks the pilot ports between manifold stations.

ISO Size	1	2	3
Kit Number	1375N77	1377N77	1379N77

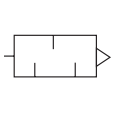
Transition Plates

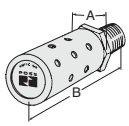
To bank different manifold sizes together.

Left Manifold ISO Size	Right Manifold ISO Size	Part Number
1	2	1387N77
2	1	1388N77
2	3	1389N77
3	2	1390N77

Silencers

Port Size	Thread Type	Model Number		Avg. C_v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	BSPT Threads		A	B	
1/4	Male	5500A2003	D5500A2003	1.2	0.9 (21)	2.2 (55)	0.1 (0.1)
3/8	Male	5500A3013	D5500A3013	2.7	0.9 (21)	2.2 (55)	0.1 (0.1)
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)





Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Single Sub-Bases & Modular Sub-Base Manifolds

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

R | PS4011 | 55 | M | C | P

Basic Series	
Size 1	PS4011
Size 2	PS4111
Size 3	PS4211

Enclosures / Lead Length	
J†	Circuit Board, Single Address
M†	**Circuit Board, Double Address**

† Not Available with Subbase Kits.

Note: When using the Enclosure / Lead Length "J" or "M" option:
12 volts DC - Maximum number of coils is 13
24 volts DC - Maximum number of coils is 21
120 volts AC - Coils limited by the number of pins available in the connector (25-Pin D-Sub = 24 coils, 19-Pin Brad Harrison = 16, 12-Pin M23 = 8)
240 volts AC - Must use "A" or "C" Option, Lead Wires or Terminal Blocks

Mounting Base Style / Port Size		
ISO Size 1	**Sub-base: 3/8 NPT Side Ports**	15
	Sub-base: 3/8 BSPP Side Ports	16*
	Manifold: 3/8 NPT End Ports	55
	Manifold: 3/8 BSPP End Ports	56*
	Manifold: 3/8 NPT Bottom / End Port	65†
	Manifold: 3/8 BSPP Bottom / End Port	66*†

*BSPP ISO 1179 Specifications.
† #1 Bottom Port - 1/4".

Mounting Base Style / Port Size		
ISO Size 2	**Sub-base: 1/2 NPT Side Ports**	17
	Sub-base: 1/2 BSPP Side Ports	18*
	Sub-base: 1/2 NPT Bottom / End Port	27
	Sub-base: 1/2 BSPP Bottom / End Port	28*
	Manifold: 1/2 NPT Bottom / End Port	67
	Manifold: 1/2 BSPP Bottom / End Port	68*

*BSPP ISO 1179 Specifications.

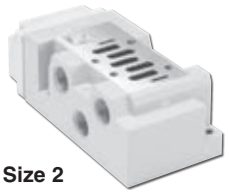
Mounting Base Style / Port Size		
ISO Size 3	**Sub-base: 3/4 NPT Side Ports**	19
	Sub-base: 3/4 BSPP Side Port	10*
	Sub-base: 3/4 NPT Bottom / End Port	29
	Sub-base: 3/4 BSPP Bottom / End Port	20*
	Manifold: 3/4 NPT Bottom / End Port	69
	Manifold: 3/4 BSPP Bottom / End Port	60*

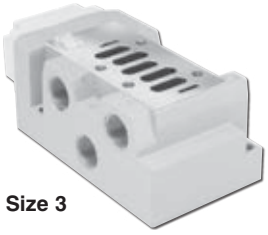
*BSPP ISO 1179 Specifications.

Sub-Base Kits

Automotive Connectors
Mounted in 1/2" Conduit Port
- 3-Pin - Wired for Single Solenoid
- 4-Pin / 5-Pin - Wired for Double Solenoid


Size 1


Size 2


Size 3

Sub-Base Manifold Kits

Automotive Connectors
Mounted in Individual Manifold Conduit Cover
- 3-Pin - Wired for Single Solenoid
- 4-Pin / 5-Pin - Wired for Double Solenoid


Size 1


Size 2


Size 3

End Plate Kits & Accessories

End Plate Kits

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

R | PS40 | 20 | L2 | 0 | C | P

Basic Series

ISO Size 1	**5599**	**PS40**
ISO Size 2	5599	PS41
ISO Size 3	5599	PS42

End Plate Kit Type

End Plate, Collective Wiring	**20**
End Plate, Non-Collective Wiring	31

Options	
Non-Collective Wiring	01*
Collective Wiring End Plate, Top Ported	L1†o**
25-Pin, D-Sub	**L2†#+**
19-Pin, Round, Brad Harrison	L3†+
12-Pin, M23	L4†+
Serial Bus	L6^+
16 Outputs *(For Turck Serial Bus Communication Module)*	T1
32 Outputs *(For Turck Serial Bus Communication Module)*	T2

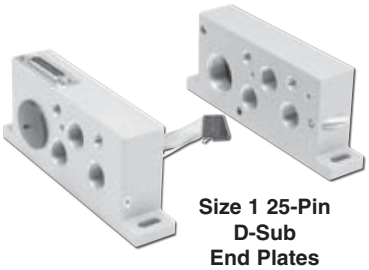
* Only Available with End Plate Kit Type "31".
** For PS41 and PS42 Kits Only.
† Only Available with End Plate Kit Type "20".
o Must Order Collective Wiring Module Separately.
120 VAC is Not CSA Rated.
^ Valve Driver Module and 24 Output Cable Installed. Must order communication modules separately.
+ Must Order Bases with Circuit Boards.

Engineering Level

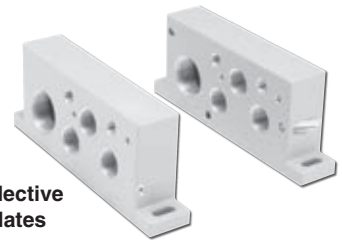
C	Current

Thread Type

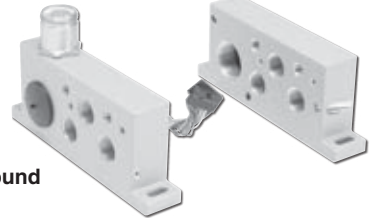
0	NPT
1	BSPP "G"



Size 1 25-Pin D-Sub End Plates



Size 1 Non-Collective Wiring End Plates

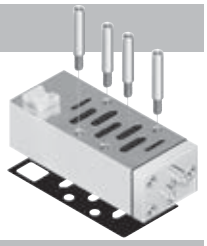


Size 1 19-Pin Round End Plates

Remote Pilot Access Plate Kits

ISO Size	Port Size	Kit Number	
		NPT Threads	BSPP Threads
1	1/8"	RPS401500CP	RPS401501CP
2	1/8"	RPS411500CP	RPS411501CP
3	1/8"	RPS421500CP	RPS421501CP

Kit includes: Pilot Port Access Plate, Gasket and Mounting Studs.



Size 1 Auxiliary Access Plate Kits

ISO Size	Port Size	Kit Number	
		NPT Threads	BSPP Threads
1	1/4" & 3/8"	RPS403000CP	RPS403001CP

Kit includes:
Pilot Port Access Plate, Gasket and Mounting Screws.
• Used on Size 1 Manifolds to provide auxiliary access to Ports 1, 3 & 5.
• Port 1: 1/4", Ports 3 & 5: 3/8". Height: .72 Inch

Blank Station Kits

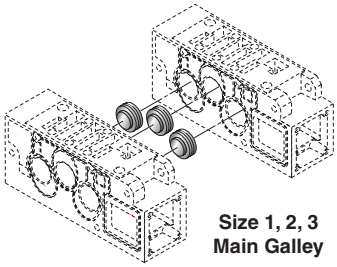
ISO Size	Kit Number
1	RPS4034CP
2	RPS4134CP
3	RPS4234CP

Kit includes: Blank Station Plate, Gasket, and Mounting Bolts.

Manifold Port Isolation Kits

Main Galley (1, 3, 5)

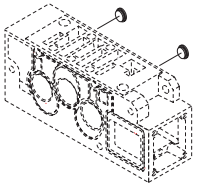
ISO Size	Kit Number
1	RPS4032CP
2	RPS4132CP
3	RPS4232CP
Kit includes: Plugs with O-rings.	



Size 1, 2, 3 Main Galley

Pilot Galley

ISO Size	Kit Number
1, 2, & 3	RPS4033CP
Kit includes: Plugs with O-rings.	

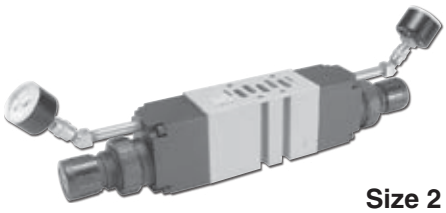


Size 1, 2, 3 Pilot Galley

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Interposed Pressure Regulators

Size 1
(Dual Interposed Regulator Shown)



Size 2
(Dual Interposed Regulator Shown)

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

R	PS4038	1	6	6	C	P

Basic Series

ISO Size 1	**5599-2**	**PS4038**
ISO Size 2	55992	PS4138
ISO Size 3	5599-2	PS4238

Regulator Function

Common Pressure Regulator	**1**
Independent Pressure Regulator	2
Selector Regulator	3

#4 Port Regulator / Gauge*

0**	**Line By-Pass Plate**
1	1-30 PSIG w/o Gauge
2	2-60 PSIG w/o Gauge
3	5-125 PSIG w/o Gauge
4	1-30 PSIG w/Gauge
5	2-60 PSIG w/Gauge
6	**5-125 PSIG w/Gauge**
C	Air Pilot w/60 PSIG Gauge
D	Air Pilot w/160 PSIG Gauge

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)
** Pressure Line By-Pass Option can only be used with Independent and Selector Regulators (Option 2 & 3 in Interposed Block Function).

#2 Port Regulator / Gauge*

0**	**Line By-Pass Plate**
1	1-30 PSIG w/o Gauge
2	2-60 PSIG w/o Gauge
3	5-125 PSIG w/o Gauge
4	1-30 PSIG w/Gauge
5	2-60 PSIG w/Gauge
6	**5-125 PSIG w/Gauge**
C	Air Pilot w/60 PSIG Gauge
D	Air Pilot w/160 PSIG Gauge

* For Common Pressure Regulator Option, Regulator Gauge callout must be the same number for both Port #4 and Port #2. (Example: 166)
** Pressure Line By-Pass Option can only be used with Independent and Selector Regulators (Option 2 & 3 in Interposed Block Function).

Ordering Components
- *Manifold or Subbase Kit required*
- *Interposed Regulator Kit configured for Internal Pilot as standard*
- *Order valve as External Pilot*

How to Configure Interposed Regulator / Valve Combinations

Internal Pilot Configuration - Pressure in Base Port 1 feeds regulator configured for Internal Pilot which feeds valve configured for External Pilot.

External Pilot Configuration - Size 1, Size 2, Size 3
An External Pilot pressure in Port 12 or 14 of the base feeds thru the Interposed Regulator 12 or 14 galley directly to the 12/14 pilot of the valve.
This configuration takes an External Pilot from the 12 port of the base and passes it thru the regulator to feed the 12 galley of the valve.

WARNING: Double interposed regulators will reverse output ports, the 12 solenoid will pressurize the 4 port, the 14 solenoid will pressurize the 2 port which may cause unexpected, potentially dangerous cylinder movement at valve pressurization.

Gauge Adapter Kit

Description	Part Number
Gauge Kit	RPS5651160P
1/8" Female to 1/8" Female Coupling	R207P-2*
1/8" Male to 1/8" Male Long Nipple	RVS215PNL-2-15*

* Included in Gauge Kit RPS5651160P.

Included with all Size 00 Regulators. Both kits are required on all Size 0 & 00 Regulators when the Regulator is on the last Station on the Right (14) End.

Interposed Flow Controls

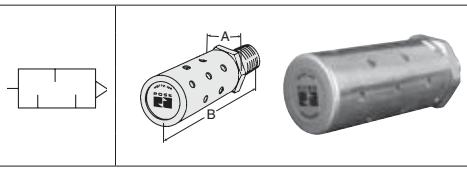
ISO Size	Part Number
1	RPS4035CP
2	RPS4135CP
3	RPS4235CP

Both adjustment screws are located on the 12 end of the unit.
Interposed Flow Control mounts with its own studs, which means the valve uses standard bolts for mounting.
Interposed Flow Control is not to be used as a shut off device and is not bubble tight when needles are fully turned down.

A Interposed Flow Control and Common Port Interposed Regulator may be sandwiched together on a Manifold or Sub-Base. The Interposed Flow Control MUST be located between the manifold/subbase and the Common Port Interposed Regulator.

Silencers

Port Size	Thread Type	Model Number NPT Threads	Model Number BSPT Threads	Avg. C_v	Dimensions inches (mm) A	Dimensions inches (mm) B	Weight lb (kg)
3/8	Male	5500A3013	D5500A3013	2.7	0.9 (21)	2.2 (55)	0.1 (0.1)
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
3/4	Male	5500A5013	D5500A5013	5.1	1.3 (32)	3.6 (91)	0.2 (0.1)

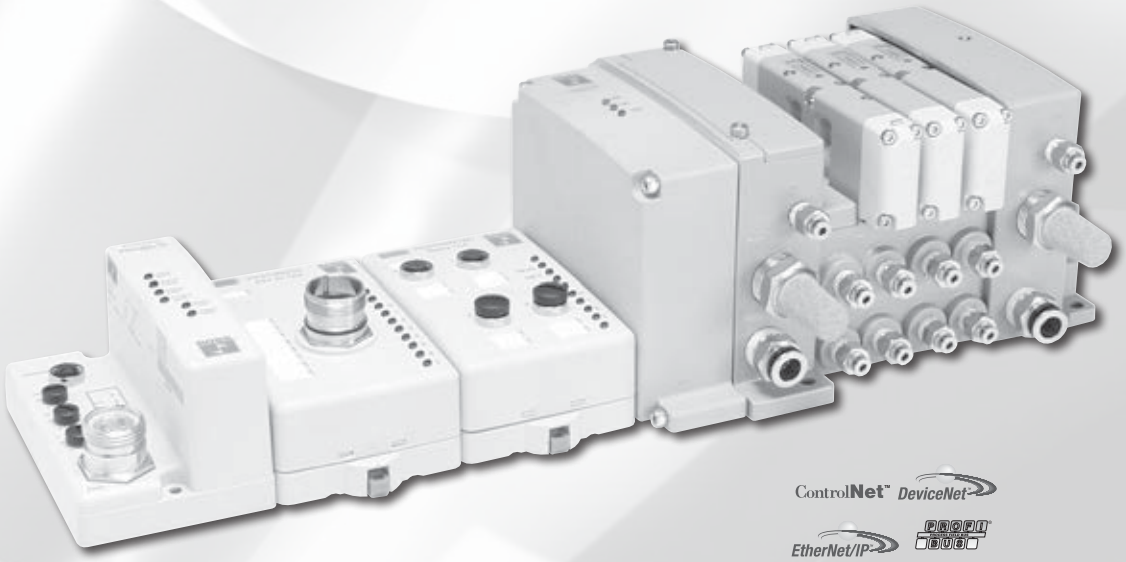


Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.

A

ROSS CONTROLS®

ROSS
SERIAL BUS COMMUNICATIONS



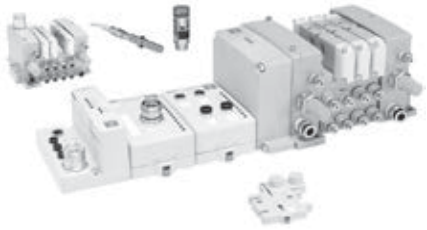
www.rosscontrols.com

ROSS SERIAL BUS COMMUNICATIONS – KEY FEATURES

- A complete Serial Bus communication offering for all ISO valves
- Centralized and decentralized pneumatics and I/O configurations
- Communication module supports up to 63 I/O modules, 264 Inputs, and 264 Outputs
- Input modules accept signals from sensors, photo eyes, limits and other field input devices
- Output modules provide signals to remote solenoid valves and other field output devices
- UL, C-UL, and CE certified

I/O - Centralized Configuration

A complete Serial Bus communication offering for all ISO valves.
UL, C-UL and CE certifications (as marked)
Centralized Serial Bus system.
Pneumatics and I/O are in close proximity to one another.
I/O density per module = 8.



I/O - Remote Configuration

A complete Serial Bus communication offering for all ISO valves.
UL, C-UL and CE certifications (as marked)
Centralized Serial Bus system.
Pneumatics and I/O are in close proximity to one another.
M23, 12-Pin output extension to remote valve island.
I/O density per module = 8.

I/O - Compartmentalized Remote Configuration

A complete Serial Bus communication offering for all ISO valves.
UL, C-UL and CE certifications (as marked).

Components Selection Steps

1. Select Communication Interface Module
2. Select I/O Modules
3. Select Valve Driver Module
4. Select Terminating Base Module
5. Select Optional Power Component
6. Select Accessories

Serial Bus Product Compatibility

	DeviceNet™ Adapter RPSSCDM	ControlNet Adapter RPSSCCNA	EtherNet Adapter RPSSCENA	PROFIBUS Adapter RPSSCPBA
PLC-5™ with Network Port	IOD	NS	NS	NA
SLC 500™ with Network Port	IOD	NS	NS	NA
PLC-5 Processor via Network Module	IOD	NS	NS	3
1756 Logix™ Communication Interface	IOD	IOD	IOD	3
PanelView™ Terminal	NA	NA	NA	NA
RSLinx™ Software	NA	NA	NA	NA
1769-L20, -L30 Controller with 1761- NET Interface	NA	NS	NS	NA
1769-L32E, -35E	NA	NA	IOD	NA
1769-L32C, -35CR	NA	IOD	NA	NA
1769 CompactLogix™ Communication Interface	IOD	NA	NA	3*
SoftLogix5800™ Communication Interface	IOD	IOD	IOD	3*
PC with RSLinx Only	NS	NS	NS	NA
FlexLogic™ Communication Interface	IOD	IOD	IOD	3

IOD = I/O Data, NS = Not Supported, NA = Not Applicable
3 = Requires third party scanner module
* Hilscher North America

Communication Considerations

Serial Bus features are impacted by your network choice.

Network	Impact
DeviceNet™ RPSSCDM12A and RPSSCDM18PA	The RPSSCDM12A and RPSSCDM18PA provide two means of connecting a node of I/O to DeviceNet™. A total of 63 Serial Bus modules can be assembled on a single DeviceNet™ node. Expansion power supplies may be used to provide additional PointBus backplane current.
ControlNet™ RPSSCCNA	A total of 63 Serial Bus modules can be assembled on a single ControlNet™ node. Expansion power supplies may be used to provide additional PointBus backplane current. Up to 25 direct connections and 5 rack connections are allowed.
EtherNet/IP™ RPSSCENA	A total of 63 Serial Bus modules can be assembled on a single EtherNet / IP node. Expansion power supplies may be used to provide additional PointBus backplane current. Refer to the User Manual, Bulletin 601 (form #A10311) to determine the ratings for direct and rack connections allowed.
PROFIBUS DP™ RPSSCPBA	A total of 63 Serial Bus modules can be assembled on a single PROFIBUS node. Expansion power supplies may be used to provide additional PointBus backplane current.

A

Communication Modules*

Network	Model Number	Voltage
†§ DeviceNet™ (M18 or M12)	RPSSCDM18PA (M18) or RPSSCDM12A (M12)	10 to 28.8 volts DC
†§ ControlNet™	RPSSCCNA	10 to 28.8 volts DC
†§ Ethernet I/P™	RPSSCENA	10 to 28.8 volts DC
†§ Profibus-DP®	RPSSCPBA	10 to 28.8 volts DC

* IP67 Certified.
† Reference the following Documents for Installation Instructions.
DeviceNet™ - A10313, A10311; ControlNet™ - A10315.
Ethernet I/P - A10316; Profibus-DP - A10314.
§ Requires a RPSST8M23A or RPSSV32A in all manifold assemblies.
RPSSV32A is included in factory assembled manifolds and Serial Bus End Plate Kits.

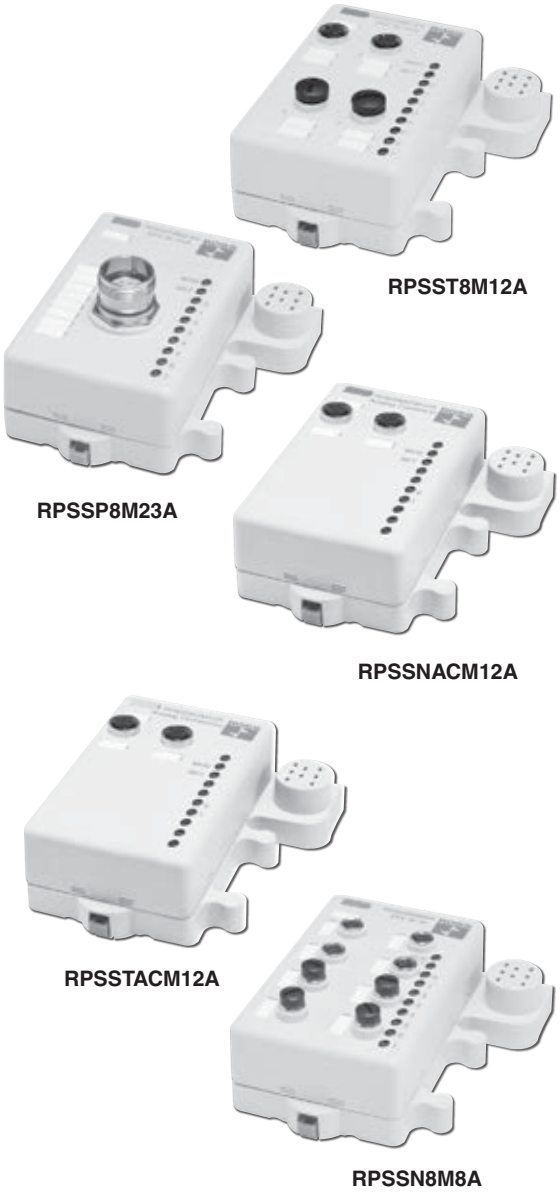
EDS and GSD files located at www.rosscontrols.com

A3

I/O Modules*

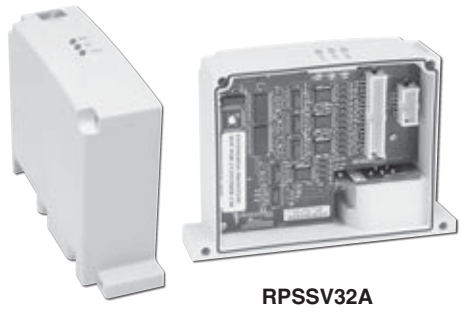
Network		Model Number	Voltage
†	8 Digital Inputs M12 (NPN Sinking - Requires PNP Sourcing Input Device)	RPSSN8M12A	10 to 28.8 volts DC
†	8 Digital Inputs M12 (PNP Sourcing - Requires NPN Sinking Input Device)	RPSSP8M12A	10 to 28.8 volts DC
†	8 Digital Inputs M8 (NPN Sinking - Requires PNP Sourcing Input Device)	RPSSN8M8A	10 to 28.8 volts DC
†	8 Digital Inputs M8 (PNP Sourcing - Requires NPN Sinking Input Device)	RPSSP8M8A	10 to 28.8 volts DC
†	8 Digital Inputs M23 12-Pin (PNP Sourcing - Requires NPN Sinking Input Device)	RPSSP8M23A	10 to 28.8 volts DC
†	8 Digital Inputs M23 12-Pin (NPN Sinking - Requires PNP Sourcing Input Device)	RPSSN8M23A	10 to 28.8 volts DC
+	8 Digital Outputs M12 (PNP Sourcing)	RPSST8M12A	10 to 28.8 volts DC
+	8 Digital Outputs M8 (PNP Sourcing)	RPSST8M8A	10 to 28.8 volts DC
§	4 Digital Output, High Watt Relay M12 (PNP Sourcing) (2 Amp)	RPSTR4M12A	24 volts DC
+#	8 Digital Outputs M23 (PNP Sourcing)	RPSST8M23A	10 to 28.8 volts DC
‡	2 Analog Inputs Voltage (M12)	RPSSNAVM12A	0 to 10V ± 10V
‡	2 Analog Inputs Current (M12)	RPSSNACM12A	4 to 20mA or 0 to 20mA
¨	2 Analog Outputs Voltage (M12)	RPSSTAVM12A	0 to 10V ± 10V
¨	2 Analog Outputs Current (M12)	RPSSTACM12A	4 to 20mA or 0 to 20mA

* IP67 Certified.
Reference the following Documents for Installation Instructions.
† A10318, +A10319, §A10320, ‡A10321, ¨A10322.
# Can be used with RPSSTERM.
See www.rosscontrols.com



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Online Version
Rev. 11/14/16



RPSSV32A

Valve Driver Module

Description	ISO Size	Model Number
32 Point Module	00, 0, 1, 2, & 3	RPSSV32A*†
24 Output Cable	00 & 0	RPS5624P†
25 - 32 Output Cable	00 & 0	RPS5632P†
24 Output Cable	1, 2, & 3	RPS4024P†

* Reference Document A10312 for Installation Instructions.
See www.rosscontrols.com
† Serial Bus Manifold assemblies and end plate kits include a valve driver module (RPSSV32A) and cable.
Series W66, Size 00 / Series W66, Size 0 24 output manifolds require a RPS5624P.
Series W66, Size 00 / Series W66, Size 0 32 output manifolds require a RPS5624P + RPS5632P.
Size 1, 2, & 3 manifolds require a RPS4024P, allowing 21 outputs.

RPSSTERM

Terminating Base Module

Description	Model Number
Terminating Module	RPSSTERM

Used as the last Terminating Module for a Stand Alone Serial Bus Assembly.
A RPSST8M23A must be located in the Serial Bus assembly.

RPSSSE24A

Power Extender Module

Description	Voltage	Model Number
Field Power Module	24 volts DC	RPSSSE24A

A Power Extender Module must be used on every 12th Module in an Serial Bus assembly. See www.rosscontrols.com
Reference Document A10317 and A10311 for configuration instructions.
See www.rosscontrols.com

RPSSEXT1

Bus Extender Cable

Description	Voltage	Model Number
1 Meter Cable*	24 volts DC	RPSSEXT1
3 Meter Cable*	24 volts DC	RPSSEXT2

* Requires a RPSSSE24A Power Extender Module.
IP67 Certified.
See www.rosscontrols.com

RP8BPA00MA

Devicebus Terminating Resistor

Description	Model Number
DeviceNet™ M12 Type A	RP8BPA00MA
Profibus-DP M12 Type B	RP8BPA00MB

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Communication Modules*

Network	Model Number	Voltage
†§ DeviceNet™ (M18 or M12)	RPSSCDM18PA (M18) or RPSSCDM12A (M12)	10 to 28.8 volts DC
†§ ControlNet™	RPSSCCNA	10 to 28.8 volts DC
†§ Ethernet I/P™	RPSSCENA	10 to 28.8 volts DC
†§ Profibus-DP®	RPSSCPBA	10 to 28.8 volts DC

* IP67 Certified.
† Reference the following Documents for Installation Instructions.
DeviceNet™ - A10313, A10311; ControlNet™ - A10315.
Ethernet I/P - A10316; Profibus-DP - A10314.
§ Requires a RPSST8M23A or RPSSV32A in all manifold assemblies.
RPSSV32A is included in factory assembled manifolds and Serial Bus End Plate Kits.

EDS and GSD files located at www.rosscontrols.com

RPSSCCNA

RPSSCENA

A3

General Environmental	
Operating Temperature	-4° to 140° F
Storage Temperature	-40° to 185° F
Relative Humidity	5 to 95% non-condensing
Vibration	5g @ 10 to 500Hz
Protection Class	Operating 30g; Non-operating 50g
Shock	IP 65/66/67
Approvals	UL, C-UL, CE

Maximum Size Layout

Part Number	PointBus Current (mA)	Maximum I/O Modules with 24VDC Backplane Current at 75 mA each	Maximum I/O Modules with Expansion Power Supplies	Maximum Number of I/O Module Connections
RPSSCDM12A on DeviceNet™	1000	Up to 13	63	
RPSSCDM18PA on DeviceNet™				
RPSSCCNA on ControlNet™				5 rack and 20 direct
RPSSCENA on EtherNet/IP™				20 total connections including rack and direct
RPSSCPBA on PROFIBUS				
RPSSSE24A Expansion Power	Horizontal mounting: 1A@5V DC for 10...19.2V input; 1.3A @ 5V DC for 19.2...28.8V input Vertical mounting: 1A @ 5V DC for 10...28.8V input			Not to exceed scanner capacity

Power Supply Distance Rating

Modules are placed to the right of the power supply. Each Serial Bus module can be placed in any of the slots to the right of the power supply until the usable backplane current of that supply has been exhausted. An adapter provides 1 A current to the PointBus. The RPSSSE24A provides up to 1.3 A and I/O modules require from 75 mA (typical for the digital and analog I/O modules) up to 90 mA or more.

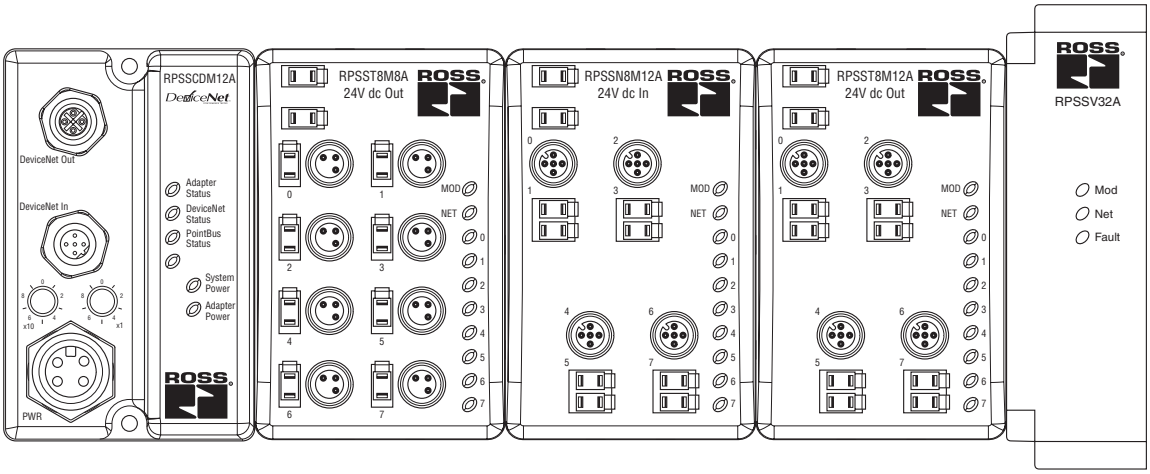
PointBus Current Requirements

Part Number	PointBus Current Requirements
RPSSN8xxx	75 mA
RPSSP8xxx	
RPSST8xxx	
RPSSTR4MRA	90 mA
RPSSNACM12A	75 mA
RPSSTACM12A	
RPSSNAVM12A	
RPSSTAVM12A	
RPSSV32A	

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

The Serial Bus family of I/O modules includes:

- Digital I/O Modules
- Analog I/O Modules
- Valve Driver Module



Digital DC Input Modules

	RPSSN8M8A RPSSN8M12A RPSSN8M23A	RPSSP8M8A RPSSP8M12A RPSSP8M23A
Number of Inputs	8 Sinking	8 Sourcing
Keyswitch Position	1	1
Voltage, On-State Input, Nom.	24 volts DC	24 volts DC
Voltage, On-State Input, Min.	10 volts DC	10 volts DC
Voltage, On-State Input, Max.	28.8 volts DC	28.8 volts DC
Input Delay Time, ON to OFF	0.5 ms Hardware + (0…65 ms selectable)*	0.5 ms Hardware + (0…65 ms selectable)*
Current, On-State Input, Min.	2 mA	2 mA
Current, On-State Input, Max.	5 mA	5 mA
Current, Off-State Input, Max.	1.5 mA	1.5 mA
PointBus Current (mA)	75	75
Power Dissipation, Max.	1.0 W @ 28.8 volts DC	1.0 W @ 28.8 volts DC

* Input ON-to-OFF delay time is the time from a valid input signal to recognition by the module.

Digital DC Output Modules

	RPSST8M8A RPSST8M12A RPSST8M23A
Number of Outputs	8 sourcing
Keyswitch Position	1
Voltage, On-State Output, Nom.	24 volts DC
Voltage, On-State Output, Min.	10 volts DC
Voltage, On-State Output, Max.	28.8 volts DC
Output Current Rating, Max.	3.0 A per module, 1.0 A per channel
PointBus Current (mA)	75
Power Dissipation, Max.	1.2 W @ 28.8 volts DC

Relay Output Module

	RPSSTR4M12A
Number of Outputs	4 Form A (N.O.) relays, isolated
Keyswitch Position	7
Output Delay Time, ON to OFF, Max.	26 ms*
Contact Resistance, Initial	30 mΩ
Current Leakage, Off-State Output, Max.	1.2 mA and bleed resistor thru snubber circuit @ 240 volts AC
PointBus Current (mA)	90
Power Dissipation, Max.	0.5 W

*Time from valid output off signal to relay de-energization by module.

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Analog Input Modules

Model Number	RPSSNACM12A	RPSSNAVM12A
Number of Inputs	2	2
Keyswitch Position	3	3
Input Signal Range	4…20 mA 0…20 mA	0…10V ±10V
Input Resolution, Bits	16 bits - over 21 mA 0.32 µA/cnt	15 bits plus sign 320 µV/cnt in unipolar or bipolar mode
Absolute Accuracy, Current Input	0.1% Full Scale @ 25°C*†	—
Absolute Accuracy, Voltage Input	—	0.1% Full Scale @ 25°C*†
Input Step Response, per Channel	70 ms @ Notch = 60 Hz (default) 80 ms @ Notch = 50 Hz 16 ms @ Notch = 250 Hz 8 ms @ Notch = 500 Hz	70 ms @ Notch = 60 Hz (default) 80 ms @ Notch = 50 Hz 16 ms @ Notch = 250 Hz 8 ms @ Notch = 500 Hz
Input Conversion Type	Delta Sigma	Delta Sigma
PointBus Current (mA)	75	75
Power Dissipation, Max.	0.6 W @ 28.8 volts DC	0.6 W @ 28.8 volts DC

* Includes offset, gain, non-linearity and repeatability error terms.

† Analog input modules support these configurable parameters and diagnostics: open-wire with LED and electronic reporting; four-alarm and annunciation set-points; calibration mode and electronic reporting; under- and over-range and electronic reporting; channel signal range and update rate and on-board scaling; filter-type; channel update rate.

Analog Output Modules

Model Number	RPSSTACM12A	RPSSTAVM12A
Number of Outputs	2	2
Keyswitch Position	4	4
Output Signal Range	4…20 mA 0…20 mA	0…10V ±10V
Output Resolution, Bits	13 bits - over 21 mA 2.5 µA/cnt	14 bits (13 plus sign) 1.28 mV/cnt in unipolar or bipolar mode
Absolute Accuracy, Current Output	0.1% Full Scale @ 25°C*†	—
Absolute Accuracy, Voltage Output	—	0.1% Full Scale @ 25°C*†
Step Response to 63% of FS,	24 µs	— Current Output
Step Response to 63% of FS,	—	20 µs Voltage Output
Output Conversion Rate	16 µs	20 µs
PointBus Current (mA)	75	75
Power Dissipation, Max.	1.0 W @ 28.8 volts DC	1.0 W @ 28.8 volts DC

* Includes offset, gain, non-linearity and repeatability error terms.

† Analog output modules support these configurable parameters and diagnostics: open-wire with LED and electronic reporting (RPSSTACM12A only); fault mode; idle mode; alarms; channel signal range and on-board scaling.

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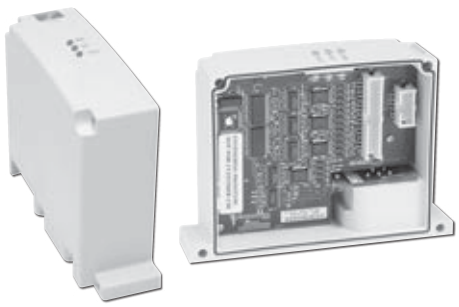
Step 3
Select Valve Driver Module for ROSS Bus System

Valve Driver Module Specifications

Model Number	RPSSV32A
Outputs per Module	32, sourcing
Voltage Drop, On-State Output, Maximum	0.2 volts DC
Voltage, Off-State Output, Maximum	28.8 volts DC
Voltage, On-State Output, Maximum Minimum Nominal	 28.8 volts DC 10 volts DC 24 volts DC
Output Current Rating	200 mA per channel, not to exceed 6.0 A per module
Output Surge Current, Maximum	0.5 A for 10 ms, repeatable every 3 seconds
Current Leakage, Off-State Output, Maximum	0.1 mA
Current, On-State Output Minimum	200 mA per channel
Output Delay Time OFF to ON, Maximum[1]	0.1 ms
Output Delay Time, ON to OFF, Maximum[1]	0.1 ms
External DC Power Supply Voltage Range	10 to 28.8 volts DC
External DC Power Supply Voltage Nominal	24 volts DC

1. OFF to ON or ON to OFF delay is time from a valid output “on” or “off” signal to output energization or de-energization.



The RPSSV32A valve driver module provides an interface between the Serial Bus system and the valve assembly. This module will always be the last module on the Serial Bus. It controls 32 digital outputs at 24 volts DC. Depending on the valve selection, it can control up to 32 single solenoid valves or 16 double solenoid valves.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Select the Appropriate Power Supply Unit

Serial Bus adapters have built-in PointBus power supplies. All Serial Bus modules are powered from the PointBus by either an adapter or expansion power supply.

Power Specifications

Part Number	Power Supply Input Voltage, Nom.	Operating Voltage Range	Field Side Power Requirements, Max.	Power Supply Inrush Current, Max.	Input Overvoltage Protection	Power Supply Interruption Protection
RPSSCDM12A	24 volts DC	10...28.8 volts DC	24 volts DC (+20% = 28.8VDC) @ 400 mA	6 A for 10 ms	Reverse polarity protected	Output voltage will stay within specifications when input drops out for max. load.
RPSSCDM18PA						
RPSSCCNA						
RPSSCENA						
RPSSCPBA						
RPSSSE24A						

Power units are divided into two categories:
- Communication adapters with built-in power supply (DC-DC)
- Expansion power supply

Expansion Power Unit

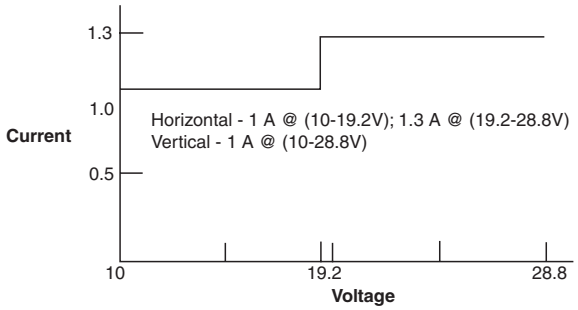
The RPSSSE24A expansion power unit passes 24 volts DC field power to the I/O modules to the right of it. This unit extends the backplane bus power and creates a new field voltage partition segment for driving field devices for up to 13 I/O modules. The expansion power unit separates field power from I/O modules to the left of the unit, effectively providing functional and logical partitioning for:

- Separating field power between input and output modules
- Separating field power to the analog and digital modules
- Grouping modules to perform a specific task or function

You can use multiple expansion power units with any of the communication adapters to assemble a full system. If you are using the RPSSCDM12A adapter, you may use a RPSSSE24A expansion power unit to add additional modules. For example, if you had a 36 module system with a RPSSCDM12A adapter, you would have at least two or more RPSSSE24A expansion power units to provide more PointBus current for modules to the right of the supply.

- 24 volts DC to 5 volts DC converter
- 1.3A, 5 volts DC output (extend backplane power)
- Starts new voltage distribution
- Partitioning

RPSSSE24A Current Derating for Mounting



Power Distribution General Specifications

Model Number	RPSSSE24A
Power Supply Requirements	Note: In order to comply with CE Low Voltage Directives (LVD), you must use a Safety Extra Low Voltage (SELV) or a Protected Extra Low Voltage (PELV) power supply to power this adapter
Field Side Power Requirements	24 volts DC (+20% = 28.8 volts DC max.) @ 400 mA
Inrush Current, Max.	6 A for 10 ms
Input Overvoltage Protection	Reverse polarity protected
Power Supply Interruption Protection	Output voltage will stay within specifications when input drops out for 10 ms at 10V with max. load
Power Supply Input Voltage, Nom.	24 volts DC
Operating Voltage Range	10…28.8 volts DC
Power Consumption, Max.	9.8 W @ 28.8 volts DC
Power Dissipation, Max.	3.0 W @ 28.8 volts DC
Thermal Dissipation, Max.	10.0 BTU/hr @ 28.8 volts DC
Isolation Voltage	1250 V rms
Field Power Bus Supply Voltage, Nom.	12 volts DC or 24 volts DC
Field Power Bus Supply Current, Max.	10 A

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Serial Bus Digital Input Module Cables

Part Number	For Using:	Recommended Rockwell Automation Patchcord (double-ended)	Recommended Rockwell Automation Male Cordset (single-ended)
RPSSN8M12A	2 inputs per connector	879D-F4ACDM-x	879-C3AEDM4-5
RPSSP8M12A	1 input per connector	889D-F4ACDM-x	889D-M4AC-y
RPSSN8M8A	3-Pin Pico connectors	889P-F3ABPM-x	889P-M3AB-y
RPSSP8M8A	4-Pin Pico connectors	889P-F4ABPM3-x	
RPSSN8M23A	M23, 12-Pin	889M-F12AHMU-z	—
RPSSP8M23A			
RPSST8M23A			

x = length in meters (1, 2, 3, 5, and 10 standard)
y = length in meters (2, 5, and 10 standard)
z = length in meters (1, 2, and 3 standard)

For more cables and cordsets, please refer to www.connector.com

A3

Serial Bus Analog Inputs and Outputs

Part Number	For Using:	Recommended Cable
RPSSNAVM12A	1 input per connector	804507P20M020 (Shielded)*
RPSSNACM12A		
RPSSTAVM12A	1 output per connector	
RPSSTACM12A		

* Refer to www.connector.com

Serial Bus Digital Output Module Cables

Part Number	For Using:	Recommended Rockwell Automation Patchcord (double-ended)	Recommended Rockwell Automation Male Cordset (single-ended)
RPSST8M12A	2 inputs per connector	879D-F4ACDM-x	879-C3AEDM4-5
	1 input per connector	889D-F4ACDM-x	889D-M4AC-y
RPSST8M8A	3-Pin Pico connectors	889P-F3ABPM-x	889P-M3AB-y
	4-Pin Pico connectors	889P-F4ABPM3-x	

x = length in meters (1, 2, 3, 5, and 10 standard)
y = length in meters (2, 5, and 10 standard)

For more cables and cordsets, please refer to www.connector.com

Serial Bus Relay Output Module Cables

Part Number	Recommended Rockwell Automation Patchcord (double-ended)	Recommended Rockwell Automation Male Cordset (single-ended)
RPSSTR4M12A	889D-F4ACDM-x	889D-M4AC-y

x = length in meters (1, 2, 3, 5, and 10 standard)
y = length in meters (2, 5, and 10 standard)
For more cables and cordsets, please refer to www.connector.com

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

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A3

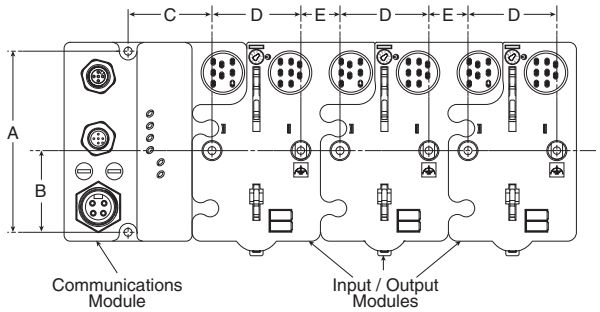
Serial Bus DeviceNet™ and Auxiliary Power Cables

Part Number	Network	Recommended Rockwell Automation Network Cable	Recommended Rockwell Automation Auxiliary Power Cables
RPSSCDM12A RPSSCDM18PA	DeviceNet™	KwikLink Flat Media system standard drop cable: 1485K-PzF5-R5 Thin Round system standard drop cable: 1485R-PzN5-M5 Thick Round system standard drop cable: 1485C-PzN5-M5	Standard Cordset (single-ended): 889N-F5AFC-y Standard Patchcord (double-ended): 889N-F4AFNC-x
RPSSCCNA	ControlNet™	BNC to TNC Connector is required when using BNC Cordsets. See **www.amphenolrf.com** 	
RPSSCENA	EtherNet/IP™	—	
RPSSCPBA	PROFIBUS DP	—	Standard Cordset (single-ended): 889N-F5AFC-y

x = length in meters (1, 2, 3, and 6 standard)
y = length in feet (6, 12, and 20 standard)
z = length in feet (1, 2, 3, 4, 5, and 6 standard)
For more cables and cordsets, please refer to **www.connector.com**

Serial Bus Valve Driver Module Harness Assemblies

ISO Size	Part Number	
	1 to 24 Outputs	25 to 32 Outputs
0 and Size 00	RPS5624P	RPS5632P
1, 2, & 3	RPS4024P	RPS4032P



Dimensions - inches (mm)					
A	B	C	D	E	F
4.0 (102)	1.8 (46)	1.9 (48)	2.0 (50)	0.87 (22)	0.43 (11)

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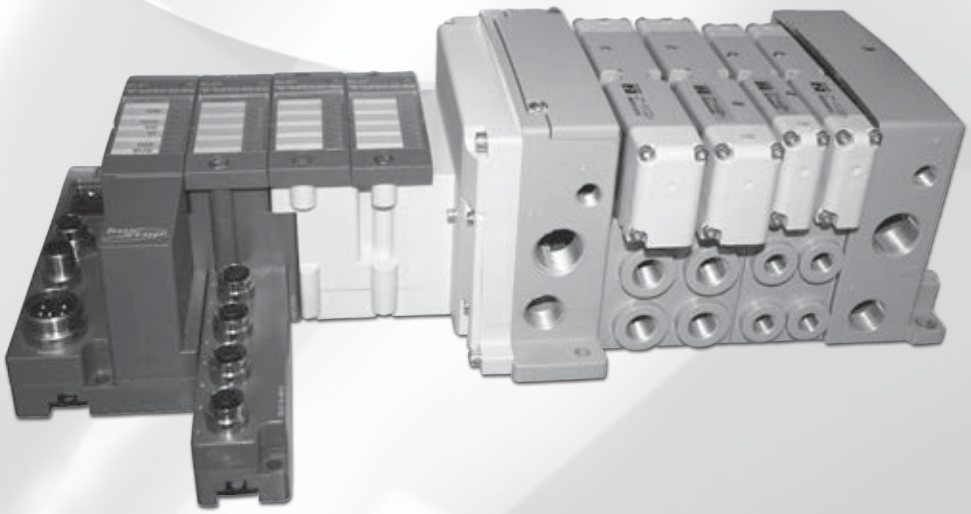
ROSS CONTROLS®

ROSS SERIAL BUS SYSTEM WITH TURCK MODULAR I/O



www.rosscontrols.com

ROSS Serial Bus System with TURCK Modular I/O – KEY FEATURES

- A complete Centralized Serial Bus communication offering for all ISO valves
- I/O system based on the TURCK Modular Industrial I/0 System BL 67
- Communication module supports up to 32 station modules each supporting up to 8 I/O modules
- Input modules accept signals from sensors, photo eyes, limits and other field input devices
- Output modules provide signals to remote solenoid valves and other field output devices
- UL, C-UL, and CE certified

The BL67 Solution

BL67 combines all the flexibility of an in-the-cabinet PLC I/O system with modularity, ruggedness and connectorization.

BL67 complements the AIM™, BL20 and piconet® product families to meet the needs of unique applications, such as small machine or conveyor systems requiring IP 67 protection.

The BL67 Concept

The BL67 modular concept is a very flexible approach to connectorized I/O. The gateway, base and electronic modules provide many benefits to the user.

- The gateway provides communication between the fieldbus and I/O modules; modules are not dependent on the fieldbus protocol.
- DIN-rail or frame mountable base modules are available with eurofast® (M12), minifast® (7/8-16UN), M23 and picofast® (M8) connectors.
- Electronic modules are hot swappable.
- Power distribution module (24 volts DC) supplies the connected I/O signals.

BL67's openness, flexibility, connectorization, compact housing and ruggedness provide a viable alternative to in-the-cabinet I/O.

Environmental Conditions

Intended Application Environments

- BL67 does not need an enclosure
- Mount directly on machine or conveyor
- Rugged design provides protection against dirt, dust and liquids

Not intended for These Environments

- Continuous submersion
- 100 percent humidity
- High pressure washdown

Note: *For higher levels of protection consider fully potted AIM stations.*

General Environmental	
Potential isolation	Via optocoupler
Operating temperature	32° to +131°F (0° to +55°C)
Storage temperature	-13° to +185°F (-25° to +85°C)
Relative humidity	5 to 95% (indoor), noncondensing
Vibration	1.0 g 5-10 Hz
Shock	15 g
Protection class	IP 67, NEMA 1, 3, 4, 12, 13
Electromagnetic compatibility (EMC)	According to EN 61131-2
Housing material	PC-V0 (Lexan), Nickel plated brass
Approvals	CE
	UL
	CSA

Maximum Size of a BL67 Station

BL67 stations consist of a gateway and a maximum of 32 modules (equivalent to 1 m station length). Some high-tech and analog I/O modules may consume or produce large amounts of data, and therefore may limit the number of modules that may be used per system. It is highly recommended that the I/O assistant software is used when planning and commissioning BL67 systems. This program allows you to build the BL67 node on your computer and verify that all restrictions with regard to power and size are met. The free I/O assistant software is available for download from www.turck.com.

Addressing

As a node on a network, BL67 stations are addressed dependent on the network system being used. Each network gateway has a set of rotary switches used to set the address for the node. DeviceNet™ and CANopen gateways may be addressed between 0 and 63 via two switches (one for the 10's digit and one for the 1's digit). For example, to set the address to 37 you would set the 10's switch to 3 and the 1's switch to 7. The third switch on the gateway may be used to set the communication rate of the network interface. PROFIBUS®-DP gateways may be set from 1 to 125 by using three switches (one for the 100's, one for the 10's and one for the 1's).

Ethernet gateways allow different addressing schemes depending on the Ethernet addressing method being used in the overall system. Dynamic addressing schemes include BootP and DHCP, while hard-coding a static address is also allowed.

BL67 Power Distribution

Power Overview

The power supply for a BL67 station is fed via the power connector on the PROFIBUS® gateway or directly from the network on the DeviceNet™ gateway. Power feeder modules can be added to the system at any point to provide a fresh isolated supply of power to all I/O connected to its right.

Internal Power Consumption via Module Bus

The amount of BL67 modules that may be supplied via the internal module bus depends on the respective nominal current IMB of the individual modules on the module bus. The sum of the nominal current inputs of the connected BL67 module must not exceed 1.5 A. If the I/O assistant software is used, an error message is generated automatically via the <Station - Verify> as soon as the system supply via the module bus is no longer sufficiently guaranteed.

To calculate current draw on DeviceNet: Add IMB(24) for all modules. Then add VI and VO for electronic modules to the left of the first power feed module. Next, add the current draw of the I/O devices.

To calculate current draw on PROFIBUS gateway power connector for VI: Add IMB for all modules. Then add VI current for all modules to the left of the first power feed module. Next, add the current draw of the input devices.

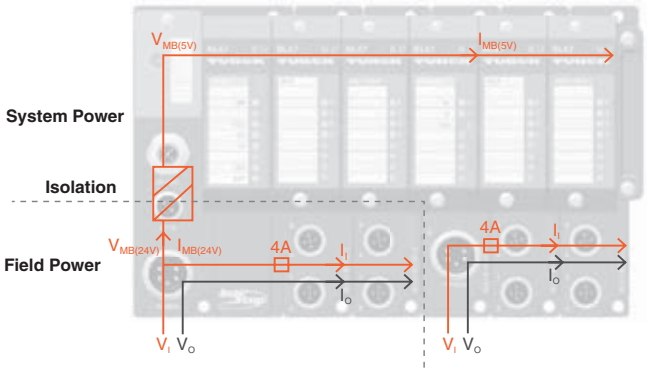
For VO, add the VO current for all modules to the left of the first power feed module. Next, add the current draw of the output devices.

VMB = Module bus power
VI = Input power
VO = Output power
IMB = Module bus current
IMB(24) = Effective current draw from gateway at 24 volts DC supply.

Module	Nominal 1 Current at 5 V I_{MB}	Effective Draw 2 from Gateway at 24 VDC $I_{MB(24)}$	Nominal 3 Current from V_I	Nominal 4 Current from V_O
BL67-GW-DPV1	–	≤150 mA		
BL67-GW-DN	–	≤100 mA		
BL67-PF-24VDC	≤30 mA	≤9 mA		
BL67-4DI-P	≤30 mA	≤9 mA	≤40 mA	
BL67-8DI-P	≤30 mA	≤9 mA	≤40 mA	
BL67-4DO-0.5A-P	≤30 mA	≤9 mA		≤100 mA
BL67-4DO-2A-P	≤30 mA	≤9 mA		≤100 mA
BL67-8DO-0.5A-P	≤30 mA	≤9 mA		≤100 mA
BL67-2AI-V	≤35 mA	≤10 mA	≤12 mA	
BL67-2AI-I	≤35 mA	≤10 mA	≤12 mA	
BL67-2AI-TC	≤35 mA	≤10 mA	≤30 mA	
BL67-2AI-PT	≤45 mA	≤13 mA	≤45 mA	
BL67-2AO-I	≤40 mA	≤12 mA		≤50 mA
BL67-2AO-V	≤60 mA	≤17 mA		≤50 mA
BL67-1RS232	≤100 mA	≤28 mA	≤50 mA	
BL67-8XSG-PD	≤30 mA	≤9 mA		≤100 mA
BL67-1SSI	≤50 mA	≤15 mA	≤50 mA	
BL67-4DI-PD	≤30 mA	≤9 mA		≤100 mA
BL67-8DI-PD	≤30 mA	≤9 mA		v100 mA

Applying Power to BL67

PROFIBUS® , Ethernet and CANopen System
DeviceNet™ System



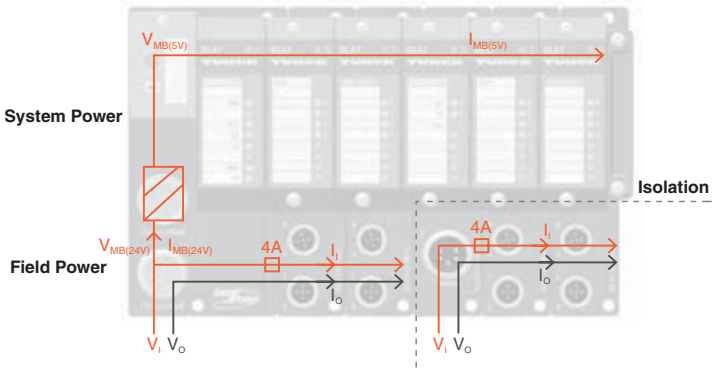
V_I, V_O, V_{MB} from Power on Gateway

$I_{MB(5V)}$ < 1.5A
I_I < 4A (protected)
I_O < 8A

V_{MB} = Module Bus Power
V_I = Input Power
V_O = Output Power

Isolation of Field Power V_I, V_O

A power feeder module provides a new isolated segment for all modules to its right.



V_I, V_O, V_{MB} from DeviceNet™

$I_{MB(5V)}$ < 1.5A
I_I < 4A (protected)
I_O < 8A

V_{MB} = Module Bus Power
V_I = Input Power
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Isolation of Field Power V_I V_O

A power feeder module provides a new isolated segment for all modules to its right

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

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General Environmental	
DeviceNet Gateway	BL67-GW-DN
ModBus TCP/IP, Ethernet Gateways	BL67-GW-EN BL67-PG-EN (programmable)
Ethernet IP, Ethernet Gateways	BL67-GW-EN-IP BL67-PG-EN-IP (programmable)
Profinet, Ethernet Gateways	BL67-GW-EN-PN
PROFIBUS-DP Gateway	BL67-GW-DPV1 BL67-PG-DP (programmable)
CANopen Gateway	BL67-GW-CO
IP67 Certified. Reference the following Document for installation instructions: AXXXXX See www.rosscontrols.com	

Electrical:

- Operating Current: <600 mA from V_{MB}
- Input Supply Current: <4 A (from V_I)
- Output Supply Current: <8 A (from V_O)
- Backplane Current: <1.5 A (from V_{MB})

Mechanical:

- Operating Temperature: -12 to +55°C (-13 to +131°F)
- Protection: IP 67
- Vibration: 5 g @ 10-500 Hz

Material:

- Housing: PC-V0 (Lexan)

Diagnostics (Logical)

- Diagnostic information available through the DeviceNet I/O map

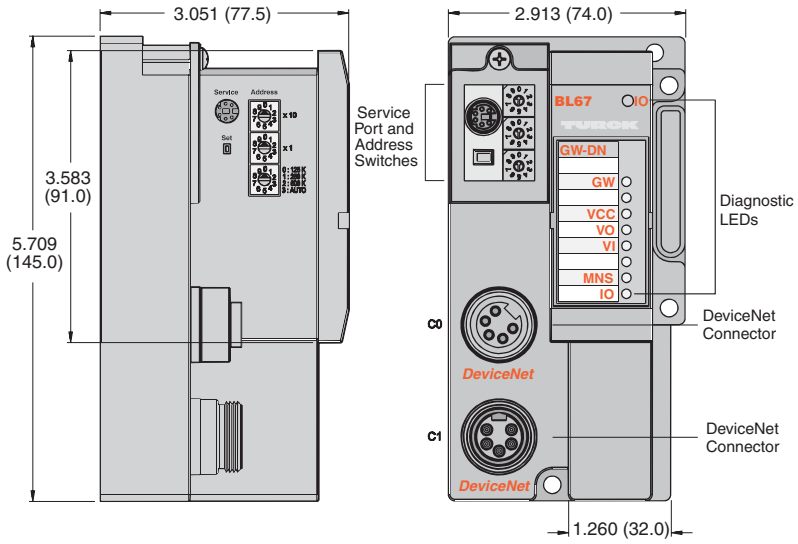
Diagnostics (Physical)

- LEDs to indicate status of DeviceNet and Module Bus communication

Programmability

- PG in part number designates a programmable gateway
- Progammable according to IEC 61131.3 using CodeSys (includes ladder logic)
- Use CodeSys to create logic programs to control local I/O

Dimensions – inches (mm)



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Power Distribution
Inputs: V_1
Outputs: V_0
Logic: V_{MB}

Mechanical:
Operating Temperature: +32 to +131°F (0 to +55°C)
Protection: NEMA 1,3,4,12,13 / IEC IP 67
Vibration: 5 g @ 10 – 500 Hz

Material:
Connectors: Nickel-plated brass
Housing PC-VO (Lexan)

Diagnostics (Logical)
Diagnostic information available through the fieldbus gateway

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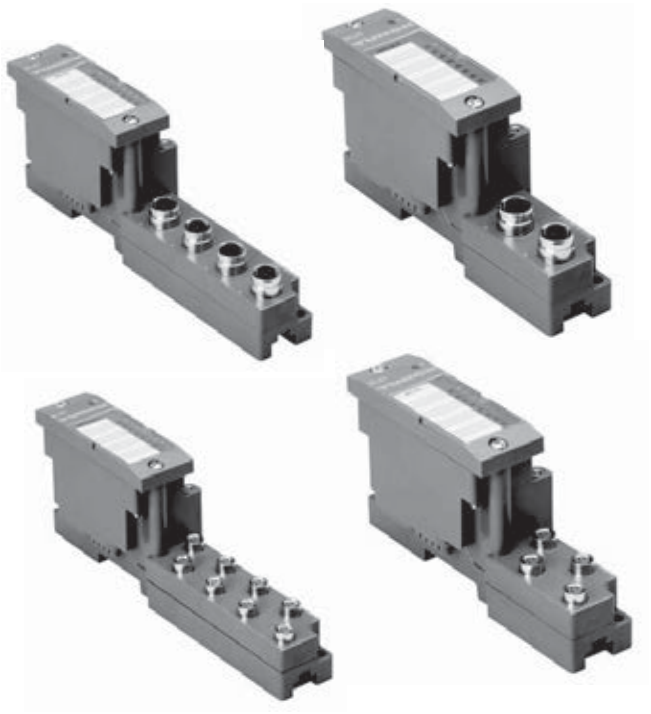
Diagnostics (Physical)
LEDs to indicate status of DeviceNet and Module Bus communication
LEDs for each I/O point to indicate on/off status



Model Description	Inputs	Outputs	Part Number	Operating Current			Output Current from V_O	Type
				from V_{MB}	from V_1	from V_O		
Inputs								
Discrete Inputs	4		BL67-4DI-P	<30 mA	<40 mA			PNP
Discrete Inputs	4		BL67-4DI-N	<30 mA	<1 mA			NPN
Discrete Inputs	8		BL67-8DI-P	<30 mA	<40 mA			PNP
Discrete Inputs	8		BL67-8DI-N	<30 mA	<1 mA			NPN
Discrete Inputs	4		BL67-4DI-PD	<30 mA	<100 mA			PNP
Discrete Inputs	8		BL67-8DI-PD	<30 mA	<100 mA			PNP
Analog Inputs	2		BL67-2AI-V	<35 mA	<12 mA			-10/0 to 10V
Analog Inputs	2		BL67-4DI-I	<35 mA	<12 mA			0/4 to 20mA
Analog Inputs	2		BL67-4DI-V/I	<35 mA	<12 mA			-10/0 to 10V, 0/4 to 20mA
Temperature Inputs	2		BL67-2AI-TC	<35 mA	<30 mA			Thermocouple
Temperature Inputs	2		BL67-2AI-PT	<45 mA	<30 mA			RTD
Outputs								
Discrete Outputs		4	BL67-4DO-0.5A-P	<30 mA		<100 mA	<0.5 A	PNP
Discrete Outputs		4	BL67-4DO-2A-P	<30 mA		<100 mA	<2 A	PNP
Discrete Outputs		4	BL67-4DO-2A-N	<30 mA		<100 mA	<2 A	NPN
Discrete Outputs		8	BL67-8DO-0.5A-P	<30 mA		<100 mA	<0.5 A	PNP
Discrete Outputs		16	BL67-16DO-0.5A-P	<30 mA		<100 mA	<0.5 A	PNP
Analog Outputs		2	BL67-2AO-V	<60 mA	<50 mA			-10/0 to 10V
Analog Outputs		2	BL67-2AO-I	<40 mA	<50 mA			0/4 to 20mA
Inputs / Outputs								
Discrete Inputs /Outputs	8	8	BL67-8XSG-P	<30 mA		<100 mA	<0.5 A	PNP
Discrete Inputs /Outputs	8	8	BL67-8XSG-PD	<30 mA		<100 mA	<0.5 A	PNP
Discrete Inputs /Outputs	4	4	BL67-4DI4DO-PD	<30 mA		<100 mA	<0.5 A	PNP

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

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Select Optional CANopen Interface / Serial Communication Modules

Power Distribution
Inputs: V_1
Outputs: V_0
Logic: V_{MB}

Mechanical:
Operating Temperature: +32 to +131°F (0 to +55°C)
Protection: NEMA 1,3,4,12,13 / IEC IP 67
Vibration: 5 g @ 10 – 500 Hz

Material:
- Connectors: Nickel-plated brass
- Housing: PC-VO (Lexan)

Diagnostics (Logical):
- Diagnostic information available through the fieldbus gateway

Diagnostics (Physical):
- LED to indicate module bus communication status as well as I/O diagnostics
- LEDs for each I/O point to indicate on/off status

Functional Description:
- Connect up to 8 CANopen slaves to this module
- Map the slaves into any available fieldbus

Shown with BL67-B-4M12 base

Model Description	Model Number	Operating Current		
		from V_{MB}	from V	from V Supply
Inputs				
Discrete Inputs	BL67-4DI-P	<30 mA	<50 mA	<100 mA
Outputs				
Discrete Outputs	BL67-1RS485/422	<140 mA	<50 mA	
Discrete Outputs	BL67-1RS232	<60 mA	<50 mA	
Discrete Outputs	BL67-1SSI	<50 mA	<50 mA	

Select Optional CANopen Interface / Serial Communication Modules

Electrical:
Operating CurrentInputs: V1
Outputs: V0
Logic: VMB
Power Distribution:
Accepts 24 volts DC supply to provide V1 and V0 for downstream modules
Material:
Connectors: Nickel-plated brass
Housing PC-VO (Lexan)
Diagnostics (Logical)
Diagnostic information available through the fieldbus gateway
Diagnostics (Physical)
LEDs to indicate status of DeviceNet and Module Bus communication
LEDs for each I/O point to indicate on/off status

Model Description	Model Number	Operating Current	
		from V_{MB}	for downstream I/O
Power Feeding Module	BL67-PF-24 volts DC	<30 mA	<10 mA




eurofast®


picofast®

M23

minifast®

Connector Type	Number of Connectors	Number of Pins	Model Number	Description
eurofast®	2	2 (ea)	BL67-B-2M12	When used with 4 input or 4 output modules, each connector has 2 I/O points.
eurofast®	2	2 (ea)	BL67-B-2M12-P	Each connector has 2 I/O points, paired so consecutive points are on the same connector.
eurofast®	4	2 (ea)	BL67-B-2M12	When used with 8 input or 8 output modules, each connector has 2 I/O points.
eurofast®	4	2 (ea)	BL67-B-2M12-P	Each connector has 2 I/O points, paired so consecutive points are on the same connector.
eurofast®	1	5	BL67-B-1M12	Typically used with serial I/O modules.
eurofast®	1	8	BL67-B-1M12-8	Typically used with serial I/O modules.
picofast®	4		BL67-B-4M8	Typically used with 4-input or 4-output modules.
picofast®	8		BL67-B-8M8	Typically used 8-input or 8-output modules with.
M23	1	12	BL67-B-1M23	Typically used with 8-output or SSI Modules.
M23	1	12	BL67-B-1M23-VI	Base module that allows full 4 A available from V+ pins.
M23	1	19	BL67-B-1M23-19	For use with 16-output module.
minifast®	1	5	BL67-B-1RSM	For use with the power feeding module, five wire power scheme.
minifast®	1	4	BL67-B-1RSM-4	For use with the power feeding module, four wire power scheme.

Labels for labeling electronic modules
BL67-Label/DIN-A4-50-PCS

DIN A4 sheet size

Programming Cable -
For connecting the BL20/BL67 system to the I/O Assistant software
XN-PS2-CABLE

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

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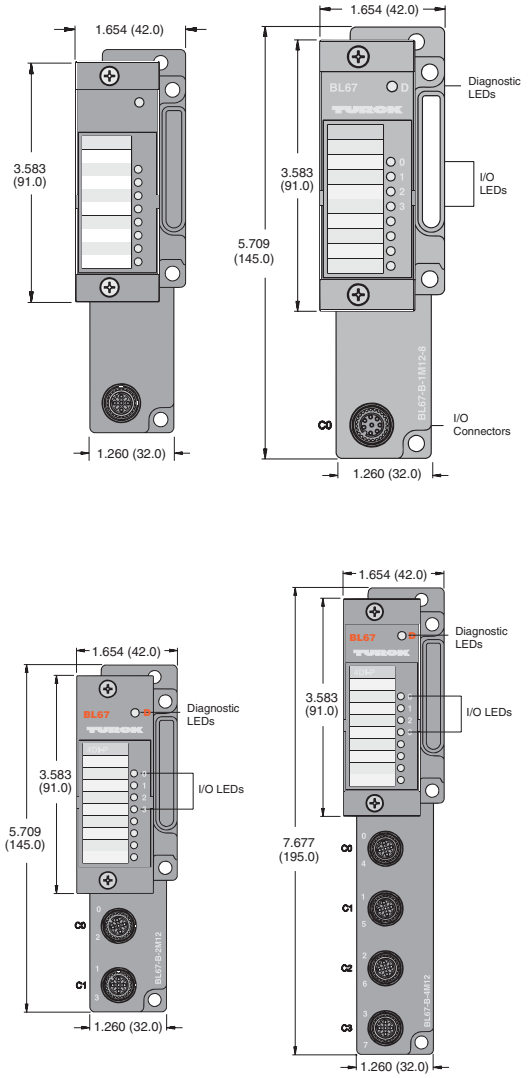
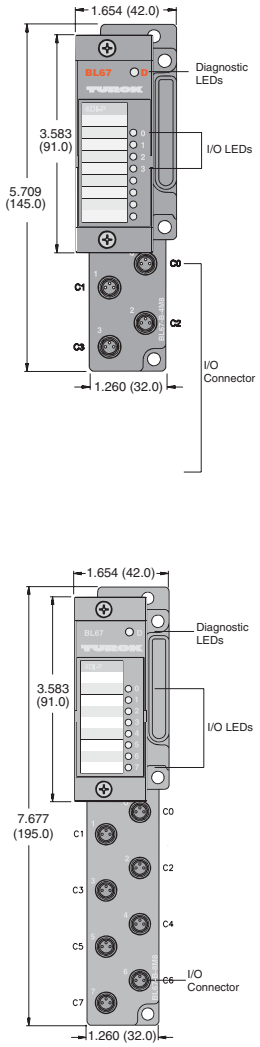
Dimensions – inches (mm)

eurofast®



picofast®



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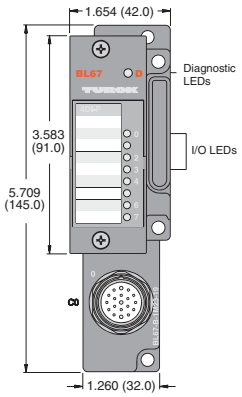
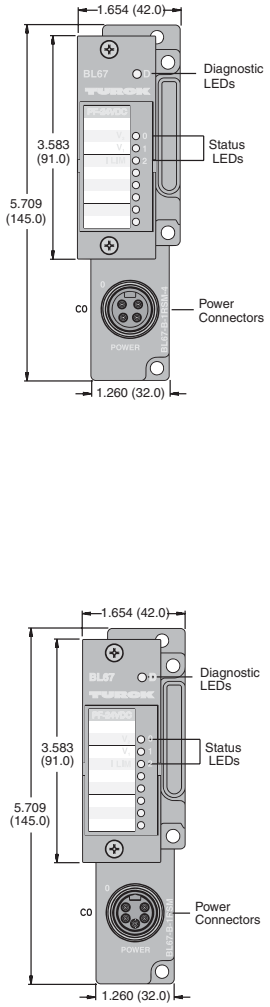


minifast®



RISK OF LOSS

Delivery of the equipment to a common carrier shall constitute delivery to the Purchaser and the risk of loss shall transfer at that time to Purchaser. Should delivery be delayed due to an act or omission on the part of the Purchaser, risk of loss shall transfer to the Purchaser upon notification by TURCK Inc. that the order is complete and ready for shipment.

WARRANTIES

TURCK INC. (hereinafter "TURCK") offers five (5) WARRANTIES to cover all products sold. They are as follows:

1) The **12-MONTH WARRANTY** is available for the products listed - generally those not covered by LIFETIME, 5-YEAR, 24-MONTH or 18-MONTH warranty. No registration required.

2) The **18-MONTH WARRANTY** is available for the products listed - generally those not covered by LIFETIME or 5-YEAR WARRANTY.

No registration is required.

3) The **24-MONTH WARRANTY** is available for the products listed - generally those not covered by LIFETIME, 5-YEAR or 18-MONTH.

No registration is required.

4) The **5-YEAR WARRANTY** is available generally for the products listed. No registration is required.

5) A LIFETIME WARRANTY is available for the products listed. It becomes effective when the accompanying TURCK LIFETIME WARRANTY REGISTRATION is completed and returned to TURCK.

GENERAL TERMS AND CONDITIONS FOR ALL WARRANTIES

- **12-MONTH STANDARD WARRANTY**
- **18-MONTH STANDARD WARRANTY**
- **24-MONTH STANDARD WARRANTY**
- **5-YEAR WARRANTY**
- **LIFETIME WARRANTY**

TURCK warrants the Products covered by the respective WARRANTY AGREEMENTS to be free from defects in material and workmanship under normal and proper usage for the respective time periods listed above from the date of shipment from **TURCK**. In addition, certain specific terms apply to the various WARRANTIES.

THESE EXPRESS WARRANTIES ARE IN LIEU OF AND EXCLUDE ALL OTHER REPRESENTATIONS MADE - BOTH EXPRESSED AND IMPLIED.

THERE ARE NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE FOR PRODUCTS COVERED BY THESE TERMS AND CONDITIONS.

TURCK warrants that the goods sold are as described, but no promise, description, affirmation of fact, sample model or representation, oral or written shall be part of an order, unless set forth in these terms and conditions, or are in writing and signed by an authorized representative of TURCK. These WARRANTIES do not apply to any Product which has been subject to misuse, negligence, or accident -or to any Product which has been modified or repaired, improperly installed, altered, or disassembled -except according to TURCK's written instructions.

These WARRANTIES are subject to the following conditions:

1) These WARRANTIES are limited to the electronic and mechanical performance only, as expressly detailed in the Product specifications and NOT to cosmetic performance.

2) These WARRANTIES shall not apply to any cables attached to, or integrated with the Product. However, the 18-MONTH WARRANTY shall apply to cables sold separately by TURCK.

3) These WARRANTIES shall not apply to any Products which are stored, or utilized, in harsh environmental or electrical conditions outside TURCK's written specifications.

4) The WARRANTIES are applicable only to Products shipped from TURCK subsequent to January 1, 1988.

ADDITIONAL SPECIFIC TERMS FOR - (12-MONTH STANDARD WARRANTY) for Linear Displacement Transducers and RFID products.

(18-MONTH STANDARD WARRANTY) FOR ULTRASONIC SENSORS, CABLES AND ALL NON-SENSING PRODUCTS SOLD BY TURCK INC. INCLUDING MULTI-SAFE, MULTI-MODUL, MULTI-CART AND RELATED AMPLIFIER PRODUCTS, RELAYS AND TIMERS.

(24-MONTH STANDARD WARRANTY) FOR ENCODERS.

5-YEAR WARRANTY FOR INDUCTIVE AND CAPACITIVE PROXIMITY SENSORS: The periods covered for the above WARRANTIES and Products shall be 12 MONTHS, 18-MONTHS, 24-MONTHS and 5-YEARS, respectively, from the date of shipment from TURCK.

LIFETIME WARRANTY (OPTIONAL - REGISTRATION REQUIRED) FOR INDUCTIVE, INDUCTIVE MAGNET OPERATED AND CAPACITIVE PROXIMITY SENSORS SOLD TO THE ORIGINAL PURCHASER FOR THE LIFETIME OF THE ORIGINAL APPLICATION.

The following terms apply to the LIFETIME WARRANTY in addition to the General Terms:

1) This WARRANTY shall be effective only when the LIFETIME WARRANTY REGISTRATION has been completed, signed by the End User and an authorized TURCK Representative or Distributor and has been received by TURCK no later than six (6) months after installation in the End User's Plant, or two (2) years from the date product was shipped from TURCK, whichever is sooner.

2) This warranty is available only to TURCK's authorized Representatives, Distributors and to the Original User. (The term "Original User" means that person, firm, or corporation which first uses the Product on a continuous basis in connection with the operation of a production line, piece of machinery, equipment, or similar device.) In the event the ownership of the product is transferred to a person, firm or corporation other than the Original User, this WARRANTY shall terminate.

3) This WARRANTY is applicable only to the Original Application. In the event the machinery, equipment, or production line to which the Product is connected, or on which it is installed, is substituted, changed, moved or replaced, the WARRANTY shall terminate.

4) This WARRANTY shall be valid only if the Product was purchased by the Original User from TURCK, or from an authorized TURCK Distributor, or was an integral part of a piece of machinery and equipment obtained by the Original user from an Original Equipment Manufacturer, which itself, was purchased directly from TURCK or from an authorized Distributor.

PURCHASER'S REMEDIES

This Remedy shall apply to all WARRANTIES. If a TURCK Distributor desires to make a WARRANTY Claim, the Distributor shall, if requested by TURCK, ship the Product to TURCK's factory in Minneapolis, Minnesota, postage or freight prepaid. If the User desires to make a WARRANTY Claim, they shall notify the authorized TURCK Distributor from whom it was purchased or, if such Distributor is unknown, shall notify TURCK. TURCK shall, at its option, take any of the following two courses of action for any products which TURCK determines are defective in materials or workmanship.

1) Repair or replace the Product and ship the Product to the Original Purchaser or to the authorized TURCK Distributor, postage or freight prepaid; or

2) Repay to the Original Purchaser that price paid by the Original Purchaser; provided that if the claim is made under the LIFETIME WARRANTY, and such Product is not then being manufactured by TURCK, then the amount to be repaid by TURCK to the Original Purchaser shall be reduced according to the following schedule:

Number of Years Since Date of Purchase by Original Purchaser	Percent of Original Purchase Price To Be Paid by TURCK
10	50%
15	25%
20	10%
More than 20	5%

PURCHASER'S REMEDIES SHALL BE LIMITED EXCLUSIVELY TO THE RIGHT OF REPLACEMENT, REPAIR OR REPAYMENT AS PROVIDED AND DOES NOT INCLUDE ANY LABOR COST OR REPLACEMENT AT ORIGINAL PURCHASER'S SITE. TURCK SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF ANY WARRANTY, EXPRESSED OR IMPLIED, APPLICABLE TO THE PRODUCT, INCLUDING WITHOUT LIMITATION, ANY DAMAGES RESULTING FROM PROPERTY DAMAGE, PERSONAL INJURY OR BUSINESS INTERRUPTION.

CONSIDER SAFETY AND PROTECTION PRECAUTIONS

TURCK takes great care to design and build reliable and dependable products, however, some products can fail eventually. You must take precautions to design your equipment to prevent property damage and personal injury in the unlikely event of failure. As a matter of policy, TURCK does NOT recommend the installation of electronic controls as the sole device FOR THE PROTECTION OF PERSONNEL in connection with power driven presses, brakes, shears and similar equipment and, therefore, the customer should build in redundancy or dual control using approved safety devices for these applications.

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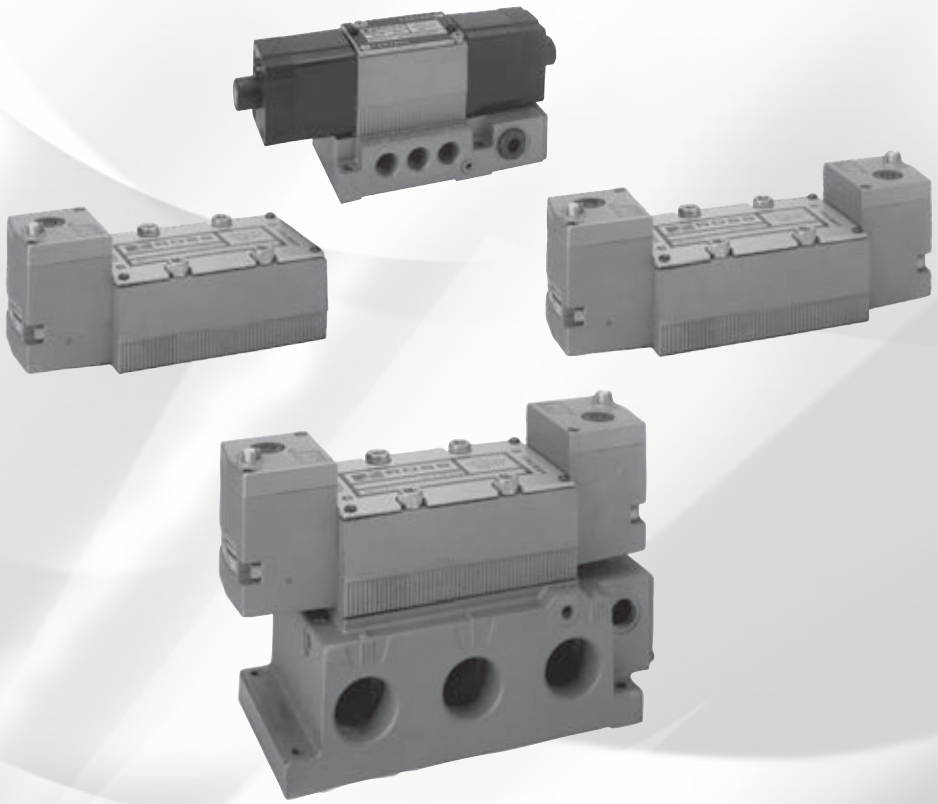
ROSS CONTROLS®

ANSI Valves W70 & W74 Series



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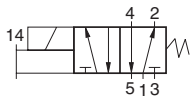
ANSI SERIES VALVES – KEY FEATURES

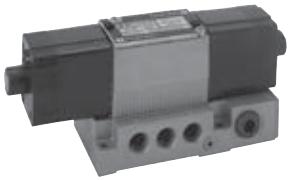
- ANSI Sizes 1, 2.5, 4, 10 and 20
- 5/2- and 5/3 way direct and pilot solenoid options
- Spool & Sleeve construction
- 24 volts DC or 110 volts AC solenoid control
- Available with 1/4 – 1½ ports
- Lube or non-lube service
- Manual overrides
- Interpose pressure regulators
- Single sub-base mounting
- Micro-thin air bearing between spool and sleeve assures quick valve response
- W70 Series - Suitable for vacuum service with or without external pilot supply
- W74 Series - Suitable for vacuum service (with external pilot supply)

VALVE TYPE	VALVE SERIES	DESCRIPTION			AVAILABLE PORT SIZES								FUNCTIONS										Page
		ANSI Size	Spool & Sleeve	Poppet	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	3/2 Single	5/2 Single	5/2 Double	5/3 Closed Center	5/3 Open Center	5/3 Pressure Center	Max Flow (Cv)	Solenoid Control	Direct Solenoid Control	Pressure Control	
ANSI	W70	1	■	■		■	■							■	■	■	■	■	1.0	■	■	■	A5.3 - A5.9
ANSI	W70	2.5	■	■			■	■						■	■	■	■		2.5	■	■	■	A5.3 - A5.9
ANSI	W70	4	■	■			■	■	■					■	■	■	■		4.2	■	■	■	A5.3 - A5.9
ANSI	W70	10	■	■					■	■	■			■	■	■	■	■	10.0	■		■	A5.3 - A5.9
ANSI	W70	20	■	■							■	■		■	■	■	■	■	22.0	■		■	A5.3 - A5.9
ANSI	W74	1	■	■		■	■							■	■	■	■	■	1.0	■		■	A5.11 - A5.13
ANSI	W74	2.5	■	■			■	■						■	■	■	■		2.5	■		■	A5.11 - A5.13
ANSI	W74	4	■	■				■	■					■	■	■	■		4.2	■		■	A5.11 - A5.13
ANSI	W74	10	■	■					■	■	■			■	■				10.0	■		■	A5.11 - A5.13
ANSI	W74	20	■	■							■	■		■	■				22.0	■		■	A5.11 - A5.13
Sub-Bases & Manifolds																							A5.14 - A5.18
Accessories																							A5.19

5-Way 2-Position Valves, Single Direct Solenoid, Spring Return

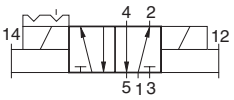
ANSI Size	Port Size	Valve Model Number*	Avg. C_v	Average Response Constants#			Weight lb (kg)
				M	F		
					In-Out	Out-Exh.	
1	1/4 - 3/8	W7016B2331**	1.0	20	3.5	4.9	3.5 (1.6)
2.5	3/8 - 1/2	W7016A3331**	2.5	17	1.6	2.7	3.3 (1.5)
4	3/8 - 3/4	W7016C4331**	4.2	–	–	–	4.3 (1.9)





5-Way 2-Position Valves, Double Direct Solenoid, Detented

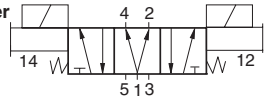
ANSI Size	Port Size	Valve Model Number*	Avg. C_v	Average Response Constants#			Weight lb (kg)
				M	F		
					In-Out	Out-Exh.	
1	1/4 - 3/8	W7016B2332**	1.0	20	3.5	4.9	3.5 (1.6)
2.5	3/8 - 1/2	W7016A3332**	2.5	10	1.3	1.8	3.3 (1.5)
4	3/8 - 3/4	W7016C4332**	4.2	–	–	–	4.3 (1.9)



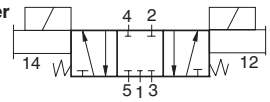
5-Way 3-Position Valves, Double Direct Solenoid

ANSI Size	Port Size	Valve Model Number*			Avg. C_v	Average Response Constants#			Weight lb (kg)
		Power Center	Closed Center	Open Center		M	F		
							In-Out	Out-Exh.	
1	1/8 - 3/8	W7017B2905**	W7017B2331**	W7017B2332**	1.0	20	3.5	4.9	4.5 (2.0)
2.5	3/8 - 1/2	–	W7017A3331**	W7017A3332**	1.9	10	1.3	1.8	5.0 (2.3)
4	1/2 - 3/4	–	W7017C4331**	W7017C4332**	3.8	–	–	–	5.8 (2.6)

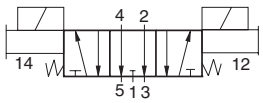
Power Center



Closed Center



Open Center



* **Sub-bases and sub-base manifolds ordered separately, refer to page A5.14-A5.18.**

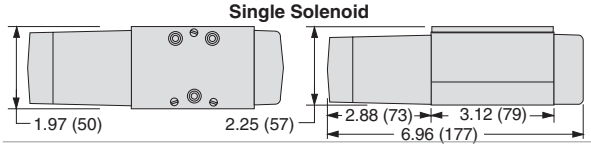
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., W7016B2331W. For other voltages, consult ROSS.

\# **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

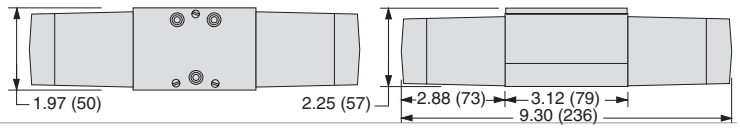
ANSI Size 1

Valve Dimensions – inches (mm)

Single Solenoid

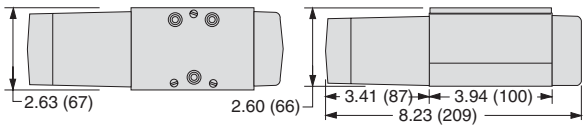


Double Solenoid

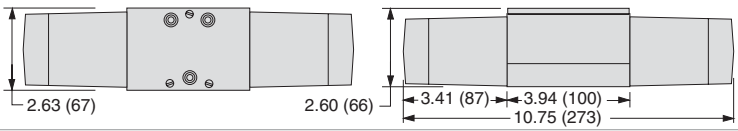


ANSI Size 2.5

Single Solenoid

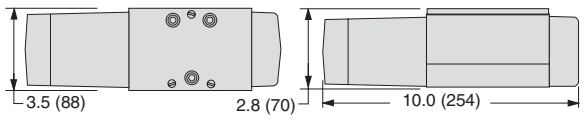


Double Solenoid

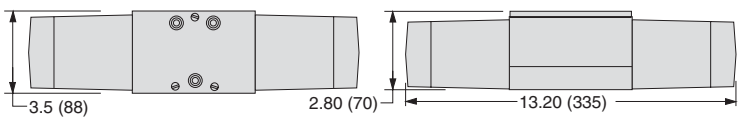


ANSI Size 4

Single Solenoid



Double Solenoid



Options: Indicator Light (in Base/Manifold), refer to page A5.17-A5.18. Accessories ordered separately, refer to page A5.19.

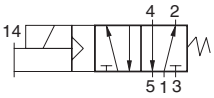
STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool and sleeve.
Mounting Type: Base.
Solenoid Pilot: Rated for continuous duty.
Solenoids: AC power; *DC for ANSI size 1 models only.*
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption (each solenoid**):**
ANSI Size 1: 140 VA inrush, 30 VA holding on 50 or 60 Hz; 20 watts on DC.
ANSI Size 2.5 and 4: 380 VA inrush, 79 VA holding.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
For other temperature ranges, consult ROSS.
Flow Media: Filtered air.
Inlet Pressure: Vacuum to 150 psig (10 bar).
Manual Override: Flush; rubber non-locking.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

5-Way 2-Position Valves, Spring Return

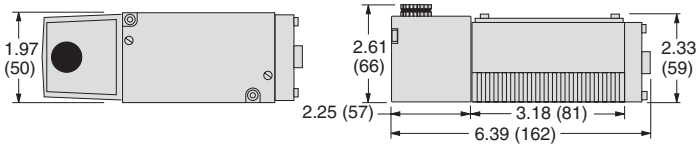
ANSI Size	Port Size	Valve Model Number*	Avg. C_v	Average Response Constants#			Weight lb (kg)
				M	F		
					In-Out	Out-Exh.	
1	1/4 - 3/8	W7076B2331**	1.0	20	3.6	4.9	3.0 (1.4)
2.5	3/8 - 1/2	W7076A3331**	2.5	17	1.6	2.7	3.0 (1.4)
4	3/8 - 3/4	W7076D4331**	4.2	20	0.6	0.6	5.3 (2.4)
10	3/4 - 1¼	W7076C6331**	10	30	0.3	0.3	7.3 (3.3)
20	1¼ - 1½	W7076C8331**	22	50	0.1	0.2	14.5 (6.5)



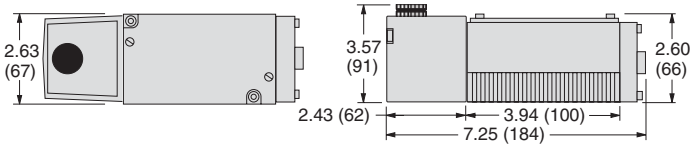
* **Sub-bases and sub-base manifolds ordered separately, refer to page A5.14-A5.18.**
** Insert voltage code: "W" = 24 volts DC; "Z" = 100-110/50, 100-130/60 volts AC/Hz; e.g., W7076B2331W.
For other voltages, consult ROSS.
Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

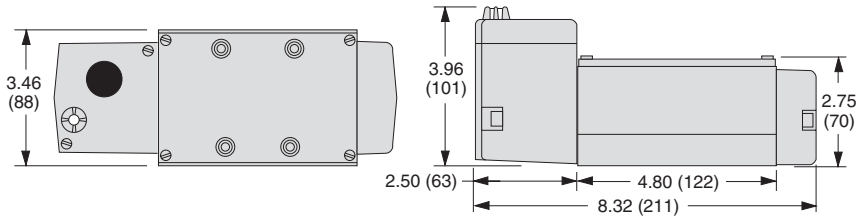
ANSI Size 1



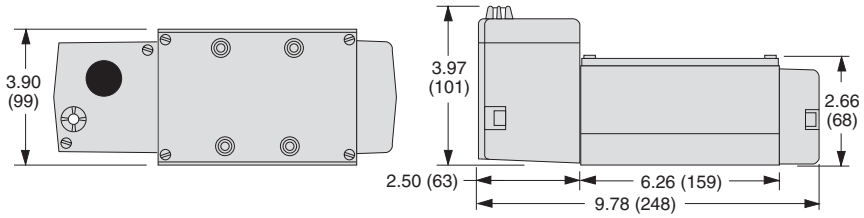
ANSI Size 2.5



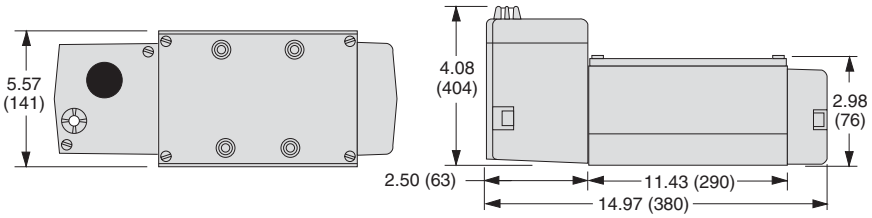
ANSI Size 4



ANSI Size 10



ANSI Size 20



Options: Indicator Light (in Base/Manifold), refer to page A5.17-A5.18. Accessories ordered separately, refer to page A5.19.

STANDARD SPECIFICATIONS (for valves on this page):

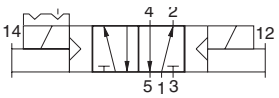
Construction: Spool and sleeve.
Mounting Type: Base.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 100-110/50, 100-130/60 volts AC/Hz.
Power Consumption (each solenoid**):**
ANSI Size 1: 10 VA inrush, 24 VA holding on 50 or 60 Hz; 5 watts on DC.
ANSI Size 2.5, 4, 10 & 20: 87 VA inrush, 55 VA holding on 50 or 60 Hz; 14 watts on DC.
Ambient Temperature: 40° to 120°F (4°C to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C). For other temperature ranges, consult ROSS.
Flow Media: Filtered air.
Inlet Pressure: Vacuum to 150 psig (10 bar).
Pilot Pressure:
ANSI Size 1 & 20: At least 30 psig (2 bar).
ANSI Size 2.5, 4 &10: At least 15 psig (1 bar).
Indicator Light: Size 4, 10 & 20 models only.
Manual Override: Flush; rubber, non-locking.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Double Solenoid Pilot Controlled Valves

5-Way 2-Position Valves, Detented

ANSI Size	Port Size	Valve Model Number*	Avg. C_v	Average Response Constants#			Weight lb (kg)
				M	F		
					In-Out	Out-Exh.	
1	1/4 - 3/8	W7076B2332**	1.0	20	3.5	4.9	4.0 (1.8)
2.5	3/8 - 1/2	W7076A3332**	2.5	10	1.3	1.8	4.0 (1.8)
4	3/8 - 3/4	W7076D4332**	4.2	12	0.6	0.7	6.5 (2.9)
10	3/4 - 1¼	W7076C6332**	10	20	0.3	0.3	9.0 (4.1)
20	1¼ - 1½	W7076C8332**	22	30	0.1	0.2	15.8 (6.8)



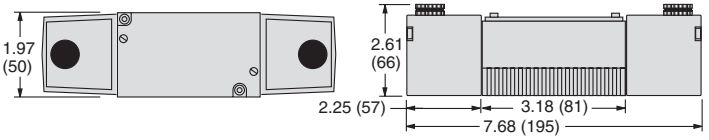
* **Sub-bases and sub-base manifolds ordered separately, refer to page A5.14-A5.18.**

** Insert voltage code: "W" = 24 volts DC; "Z" = 100-110/50, 100-130/60 volts AC/Hz; e.g., W7076B2332W. For other voltages, consult ROSS.

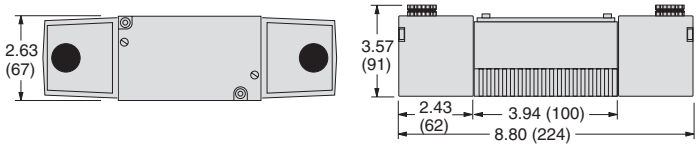
\# **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

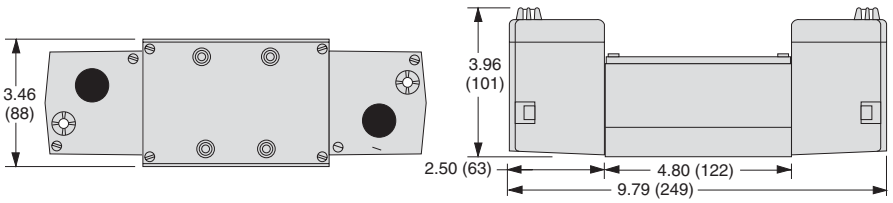
ANSI Size 1



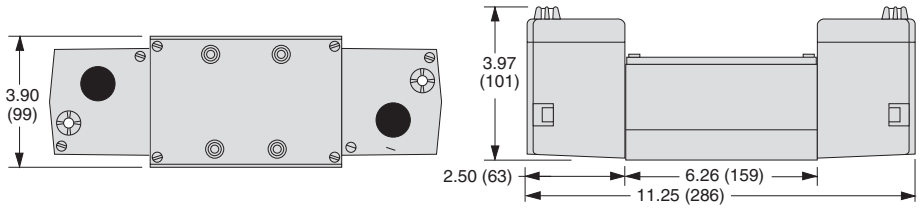
ANSI Size 2.5



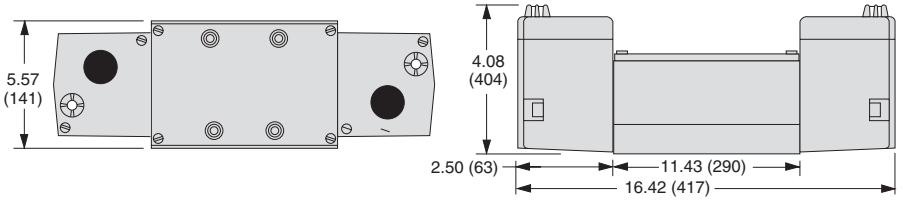
ANSI Size 4



ANSI Size 10



ANSI Size 20



Options: Indicator Light (in Base/Manifold), refer to page A5.17-A5.18. Accessories ordered separately, refer to page A5.19.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool and sleeve.
Mounting Type: Base.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 100-110/50, 100-130/60 volts AC/Hz.
Power Consumption (each solenoid**):**
ANSI Size 1: 10 VA inrush, 24 VA holding on 50 or 60 Hz; 5 watts on DC.
ANSI Size 2.5, 4, 10 & 20: 87 VA inrush, 55 VA holding on 50 or 60 Hz; 14 watts on DC.
Ambient Temperature: 40° to 120°F (4°C to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C). For other temperature ranges, consult ROSS.
Flow Media: Filtered air.
Inlet Pressure: Vacuum to 150 psig (10 bar).
Pilot Pressure:
ANSI Size 1 & 20: At least 30 psig (2 bar).
ANSI Size 2.5, 4 &10: At least 15 psig (1 bar).
Indicator Light: Size 4, 10 & 20 models only.
Manual Override: Flush; rubber, non-locking.

A5

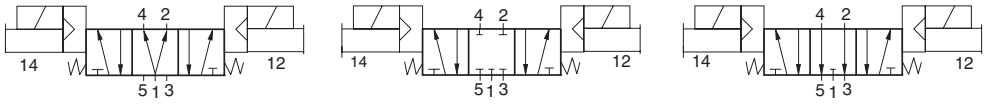
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Double Solenoid Pilot Controlled Valves

ANSI W70 Series

5-Way 3-Position Valves

ANSI Size	Port Size	Valve Model Number*			Avg. C_v	Average Response Constants#			Weight lb (kg)
		Power Center	Closed Center	Open Center		M	F		
							In-Out	Out-Exh.	
1	1/8 - 3/8	W7077B2906**	W7077B2331**	W7077B2332**	1.0	20	3.5	4.9	4.0 (1.8)
2.5	3/8 - 1/2	W7077A3904**	W7077A3331**	W7077A3332**	2.5	10	1.6	2.6	4.0 (1.8)
4	1/2 - 3/4	W7077C4939**	W7077D4331**	W7077D4332**	4.2	12	0.6	0.7	6.5 (2.9)
10	3/4 - 1¼	W7077A6920**	W7077C6331**	W7077C6332**	10	20	0.3	0.3	8.5 (3.8)
20	1¼ - 1½	W7077A8901**	W7077C8331**	W7077C8332**	22	30	0.1	0.2	15.3 (6.9)



Power Center | Closed Center | Open Center

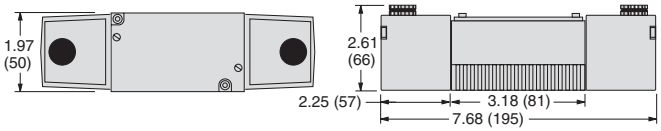
*** Sub-bases and sub-base manifolds ordered separately, refer to page A5.14-A5.18.**

** Insert voltage code: "W" = 24 volts DC; "Z" = 100-110/50, 100-130/60 volts AC/Hz; e.g., W7077B2906W. For other voltages, consult ROSS.

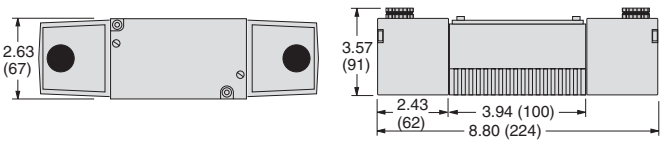
Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

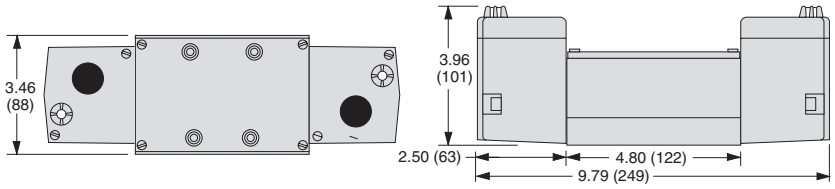
ANSI Size 1



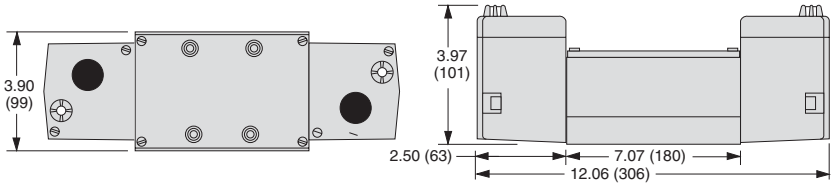
ANSI Size 2.5



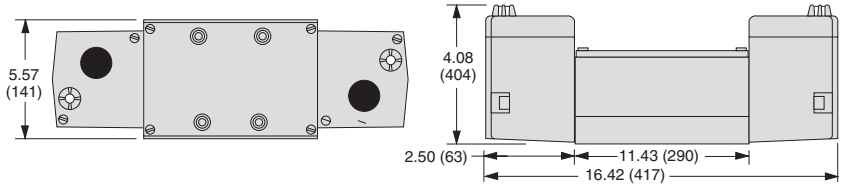
ANSI Size 4



ANSI Size 10



ANSI Size 20



Options: Indicator Light (in Base/Manifold), refer to page A5.17-A5.18. Accessories ordered separately, refer to page A5.19.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool and sleeve.
Mounting Type: Base.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 100-110/50, 100-130/60 volts AC/Hz.
Power Consumption (each solenoid)**:**
ANSI Size 1: 10 VA inrush, 24 VA holding on 50 or 60 Hz; 5 watts on DC.
ANSI Size 2.5, 4, 10 & 20: 87 VA inrush, 55 VA holding on 50 or 60 Hz; 14 watts on DC.
Ambient Temperature: 40° to 120°F (4°C to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C). For other temperature ranges, consult ROSS.
Flow Media: Filtered air.
Inlet Pressure: Vacuum to 150 psig (10 bar).
Pilot Pressure:
ANSI Size 1 & 20: At least 30 psig (2 bar).
ANSI Size 2.5, 4 &10: At least 15 psig (1 bar).
Indicator Light: ANSI Size 4, 10 & 20 models only.
Manual Override: Flush; rubber, non-locking.

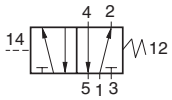
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Online Version
Rev. 11/14/16

Single Pressure Controlled Valves

5-Way 2-Position Valves, Spring Return

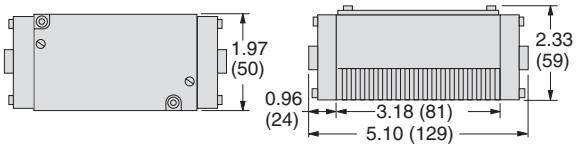
ANSI Size	Port Size	Valve Model Number*	Avg. C_v	Average Response Constants#			Weight lb (kg)
				M	F		
					In-Out	Out-Exh.	
1	1/4 - 3/8	W7056B2331	1.0	20	3.6	4.9	2.5 (1.1)
2.5	3/8 - 1/2	W7056A3331	2.5	17	1.5	2.6	2.0 (0.9)
4	3/8 - 3/4	W7056B4331	4.2	12	0.6	0.7	4.3 (1.9)
10	3/4 - 1¼	W7056A6331	10	20	0.3	0.3	6.3 (2.8)
20	1¼ - 1½	W7056A8331	22	30	0.1	0.2	13.0 (5.9)



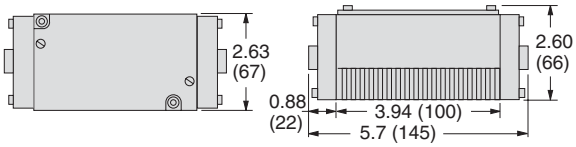
* **Sub-bases and sub-base manifolds ordered separately, refer to page A5.14-A5.18.**
\# **Valve Response Time –** Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

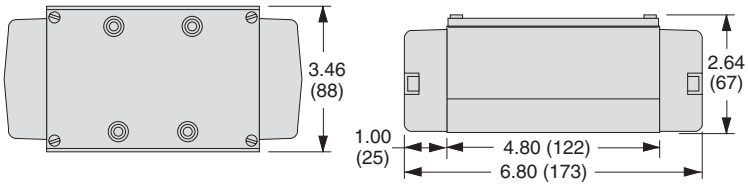
ANSI Size 1



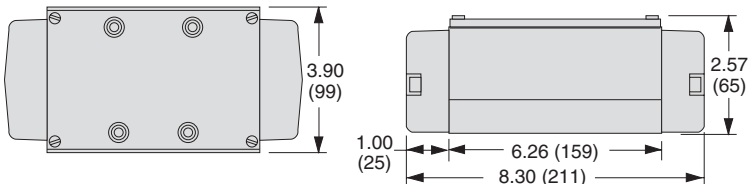
ANSI Size 2.5



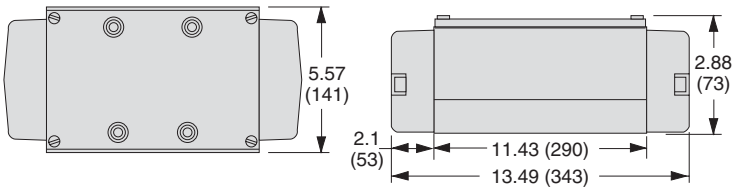
ANSI Size 4



ANSI Size 10



ANSI Size 20



Accessories ordered separately, refer to page A5.19.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool and sleeve.
Mounting Type: Base.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
For other temperature ranges, consult ROSS.
Flow Media: Filtered air.

Inlet Pressure: Vacuum to 150 psig (10 bar).
Pilot Pressure:
ANSI Size 1 & 20: At least 30 psig (2 bar).
ANSI Size 2.5, 4 & 10: At least 15 psig (1 bar).

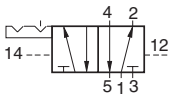
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Double Pressure Controlled Valves

ANSI W70 Series

5-Way 2-Position Valves, Detented

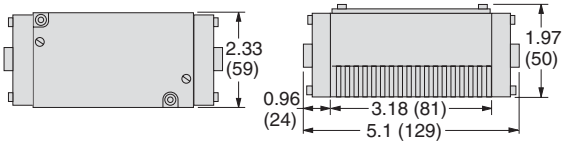
ANSI Size	Port Size	Valve Model Number*	Avg. C_v	Average Response Constants#			Weight lb (kg)
				M	F		
					In-Out	Out-Exh.	
1	1/4 - 3/8	W7056B2332	1.0	20	3.5	4.9	2.5 (1.1)
2.5	3/8 - 1/2	W7056A3332	2.5	17	1.5	2.6	2.0 (0.9)
4	3/8 - 3/4	W7056B4332	4.2	12	0.6	0.7	4.3 (1.9)
10	3/4 - 1¼	W705A6332	10	20	0.3	0.3	6.3 (2.8)
20	1¼ - 1½	W7056A8332	22	30	0.1	0.2	13.8 (6.2)



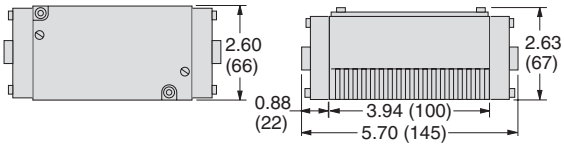
* **Sub-bases and sub-base manifolds ordered separately, refer to page A5.14-A5.18.**
\# **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

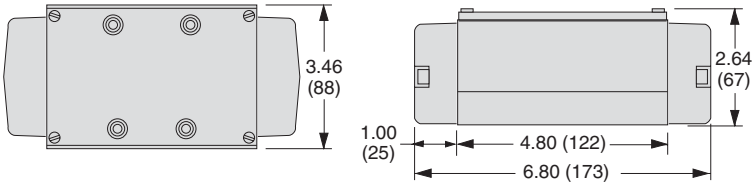
ANSI Size 1



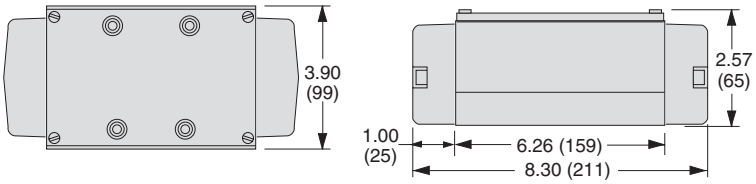
ANSI Size 2.5



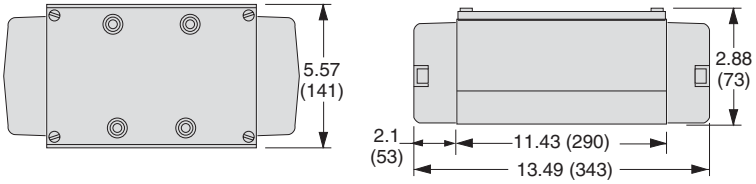
ANSI Size 4



ANSI Size 10



ANSI Size 20



Accessories ordered separately, refer to page A5.19.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool and sleeve.
Mounting Type: Base.
Ambient/Media Temperature:: 40° to 175°F (4° to 80°C).
For other temperature ranges, consult ROSS.
Flow Media: Filtered air.

Inlet Pressure: Vacuum to 150 psig (10 bar).
Pilot Pressure:
ANSI Size 1 & 20: At least 30 psig (2 bar).
ANSI Size 2.5, 4 & 10: At least 15 psig (1 bar).

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

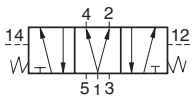
Online Version
Rev. 11/14/16

Double Pressure Controlled Valves

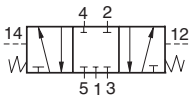
5-Way 3-Position Valves

ANSI Size	Port Size	Valve Model Number*			Avg. C_v	Average Response Constants#			Weight lb (kg)
		Power Center	Closed Center	Open Center		M	F		
							In-Out	Out-Exh.	
1	1/8 - 3/8	–	W7057B2331	W7057B2332	1.0	20	3.5	4.9	2.5 (1.1)
2.5	3/8 - 1/2	–	W7057A3331	W7057A3332	2.5	17	1.5	2.6	2.0 (0.9)
4	1/2 - 3/4	–	W7057B4331	W7057B4332	4.2	12	0.6	0.7	4.3 (1.9)
10	3/4 - 1¼	W7057A6902	W7057A6331	W7057A6332	10	20	0.3	0.3	6.3 (2.8)
20	1¼ - 1½	–	W7057A8331	W7057A8332	22	30	0.1	0.2	13.8 (6.2)

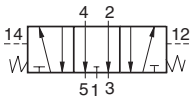
Power Center



Closed Center



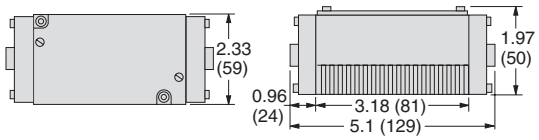
Open Center



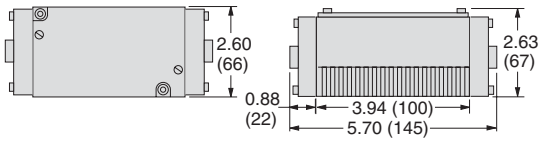
* **Sub-bases and sub-base manifolds ordered separately, refer to page A5.14-A5.18.**
\# **Valve Response Time –** Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

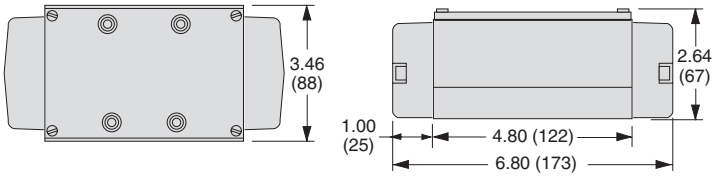
ANSI Size 1



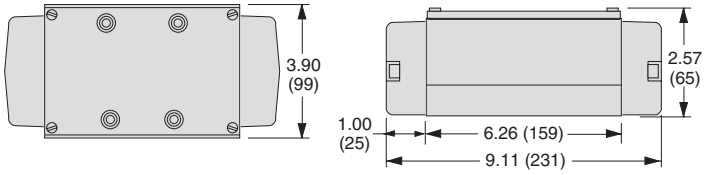
ANSI Size 2.5



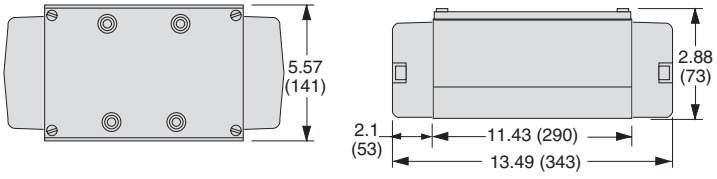
ANSI Size 4



ANSI Size 10



ANSI Size 20



Accessories ordered separately, refer to page A5.19.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool and sleeve.
Mounting Type: Base.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
For other temperature ranges, consult ROSS.
Flow Media: Filtered air.

Inlet Pressure: Vacuum to 150 psig (10 bar).
Pilot Pressure:
ANSI Size 1 & 20: At least 30 psig (2 bar).
ANSI Size 2.5, 4 & 10: At least 15 psig (1 bar).

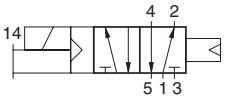
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Single Solenoid Pilot Controlled Valves

ANSI W74 Series

5-Way 2-Position Valves, Air Return

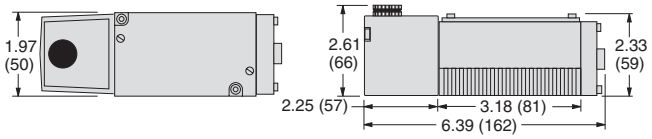
ANSI Size	Port Size	Valve Model Number*		Avg. C_v	Average Response Constants#			Weight lb (kg)
		Standard Temp.	High Temp.		M	F		
						In-Out	Out-Exh.	
1	1/4 - 3/8	W7476B2331**	W7476B2336**	0.9	30	2.7	5.6	3.0 (1.4)
2.5	3/8 - 1/2	W7476A3331**	W7476A3336**	2.0	25	1.5	2.9	3.0 (1.4)
4	1/2 - 3/4	W7476C4331**	W7476C4336**	4.2	27	0.6	1.0	5.0 (2.3)
10	3/4 - 1¼	W7476A6331**	W7476A6336**	11	30	0.3	0.5	6.1 (2.8)
20	1¼ - 1½	W7476A8331**	W7476A8336**	22	50	0.1	0.2	18.5 (8.3)



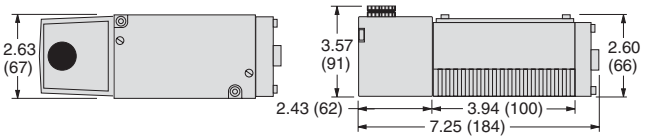
* **Sub-bases and sub-base manifolds ordered separately, refer to page A5.14-A5.18.**
** Insert voltage code: "W" = 24 volts DC; "Z" = 100-110/50, 100-130/60 volts AC/Hz; e.g., W7476B2331W.
For other voltages, consult ROSS.
Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

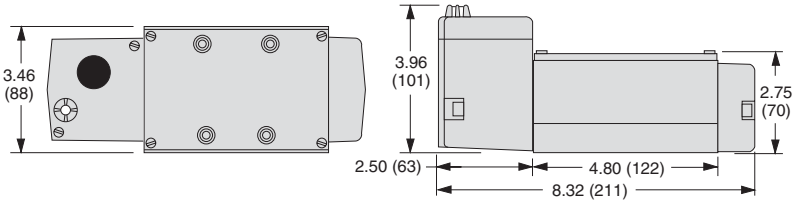
ANSI Size 1



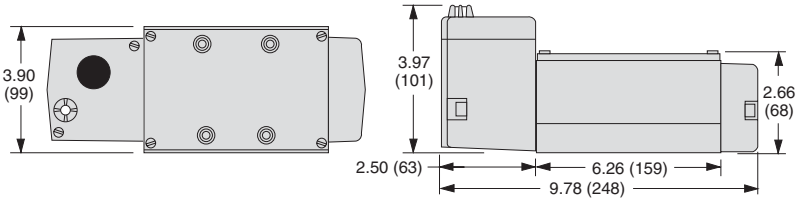
ANSI Size 2.5



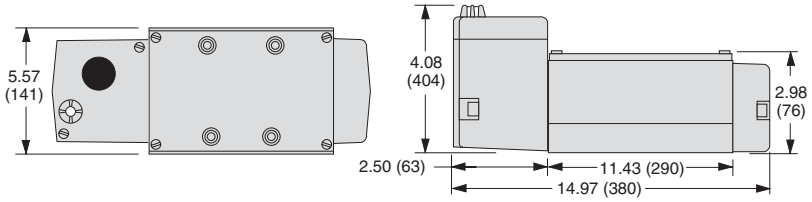
ANSI Size 4



ANSI Size 10



ANSI Size 20



Options: Indicator Light (in Base/Manifold), refer to page A5.17-A5.18. Accessories ordered separately, refer to page A5.19.

STANDARD SPECIFICATIONS (for valves on this page):

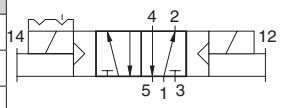
Construction: Poppet.
Mounting Type: Base.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110/50, 110-120/60 volts AC/Hz.
Power Consumption (each solenoid):
ANSI Size 1: 10 VA inrush, 24 VA holding on 50 or 60 Hz; 5 watts on DC.
ANSI Size 2.5, 4, 10 & 20: 87 VA inrush, 55 VA holding on 50 or 60 Hz; 15 watts on DC.
Ambient Temperature: 40° to 120°F (4° to 50°C); extended to 175°F (80°C) for High Temperature models.
Media Temperature: 40° to 175°F (4° to 80°C); extended to 220°F (105°C) for High Temperature models.
Flow Media: Filtered air.
Inlet Pressure: 30 to 150 psig (2 to 10 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.
Indicator Light: *ANSI Size 4, 10 & 20 models only:* Included, one per solenoid.
Manual Override: Flush; rubber, non-locking.

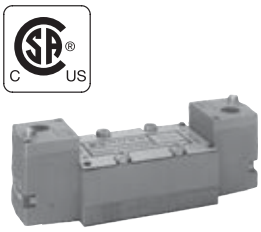
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Double Solenoid Pilot Controlled Valves

5-Way 2-Position Valves, Double Solenoid Pilot Controlled, Detented

ANSI Size	Port Size	Valve Model Number*		Avg. C_v	Average Response Constants#			Weight lb (kg)
		Standard Temp.	High Temp.		M	F		
						In-Out	Out-Exh.	
1	1/4 - 3/8	W7476B2332**	W7476B2337**	0.9	30	2.7	5.6	3.0 (1.4)
2.5	3/8 - 1/2	W7476A3332**	W7476A3337**	2.0	25	1.5	2.9	3.0 (1.4)
4	1/2 - 3/4	W7476C4332**	W7476C4337**	4.2	27	0.6	1.0	5.0 (2.3)
10	3/4 - 1¼	W7476A6332**	W7476A6337**	11	30	0.3	0.5	6.1 (2.8)
20	1¼ - 1½	W7476A8332**	W7476A8337**	22	50	0.1	0.2	18.5 (8.3)

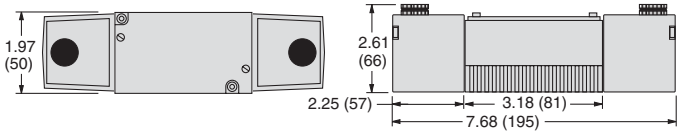




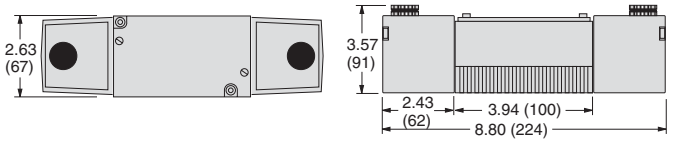
* **Sub-bases and sub-base manifolds ordered separately, refer to page A5.14-A5.18.**
** Insert voltage code: "W" = 24 volts DC; "Z" = 100-110/50, 100-130/60 volts AC/Hz; e.g., W7476B2332W.
For other voltages, consult ROSS.
Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

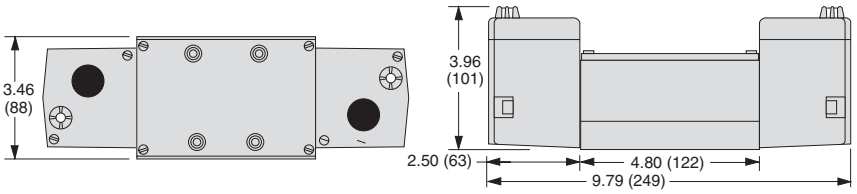
ANSI Size 1



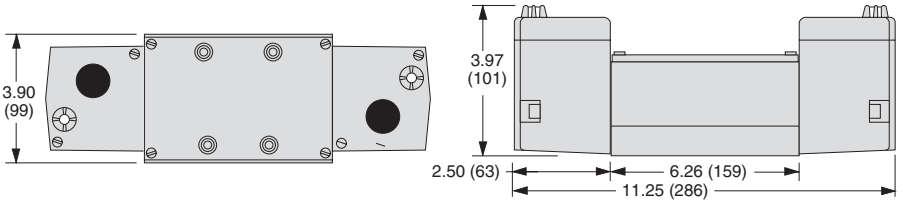
ANSI Size 2.5



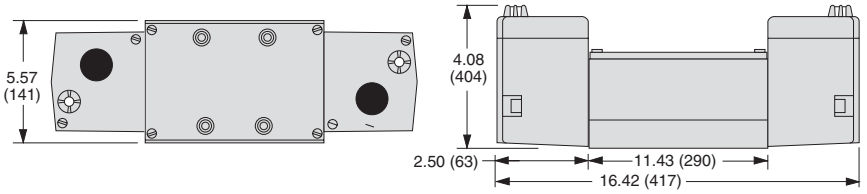
ANSI Size 4



ANSI Size 10



ANSI Size 20



A5

Options: Indicator Light (in Base/Manifold), refer to page A5.17-A5.18. Accessories ordered separately, refer to page A5.19.

STANDARD SPECIFICATIONS (for valves on this page):

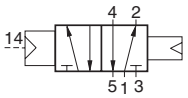
Construction: Poppet.
Mounting Type: Base.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110/50, 110-120/60 volts AC/Hz.
Power Consumption (each solenoid):
ANSI Size 1: 10 VA inrush, 24 VA holding on 50 or 60 Hz; 5 watts on DC.
ANSI Size 2.5, 4, 10 & 20: 87 VA inrush, 55 VA holding on 50 or 60 Hz; 15 watts on DC.
Ambient Temperature: 40° to 120°F (4° to 50°C); extended to 175°F (80°C) for High Temperature models.
Media Temperature: 40° to 175°F (4° to 80°C); extended to 220°F (105°C) for High Temperature models.
Flow Media: Filtered air.
Inlet Pressure: 30 to 150 psig (2 to 10 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.
Indicator Light: *ANSI Size 4, 10 & 20 models only:* Included, one per solenoid.
Manual Override: Flush; rubber, non-locking.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Single Pressure Controlled Valves

5-Way 2-Position Valves, Air Return

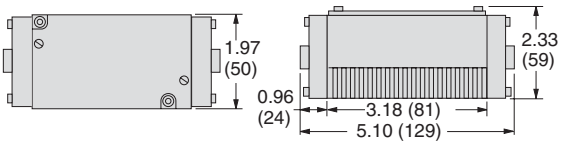
ANSI Size	Port Size	Valve Model Number*		Avg. C_v	Average Response Constants#			Weight lb (kg)
		Standard Temp.	High Temp.		M	F		
						In-Out	Out-Exh.	
1	1/4 - 3/8	W7456B2331	W7456B2336	0.9	30	2.7	5.6	2.5 (1.1)
2.5	3/8 - 1/2	W7456A3331	W7456A3336	2.0	25	1.4	2.9	2.0 (0.9)
4	1/2 - 3/4	W7456C4331	W7456C4336	4.2	16	0.5	1.1	3.3 (1.5)
10	3/4 - 1¼	W7456A6331	W7456A6336	11	14	0.3	0.5	7.3 (3.3)
20	1¼ - 1½	W7456A8331	W7456A8336	22	32	0.1	0.2	17.5 (7.9)



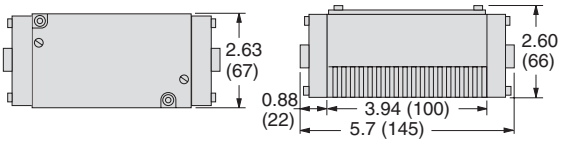
* **Sub-bases and sub-base manifolds ordered separately, refer to page A5.14-A5.18.**
\# **Valve Response Time –** Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

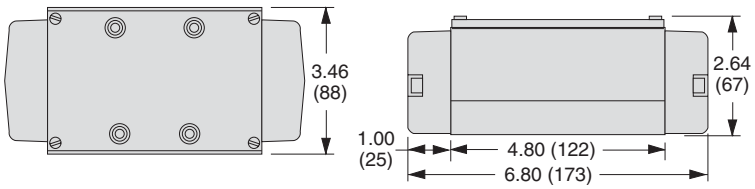
ANSI Size 1



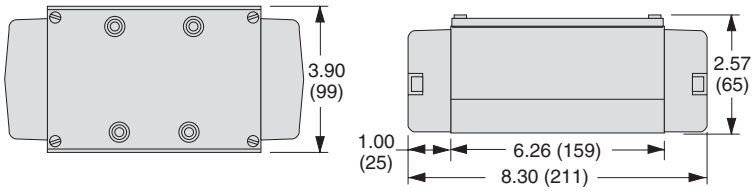
ANSI Size 2.5



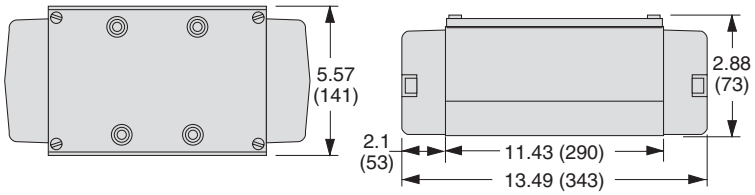
ANSI Size 4



ANSI Size 10



ANSI Size 20



Accessories ordered separately, refer to page A5.19.

STANDARD SPECIFICATIONS (for valves on this page):

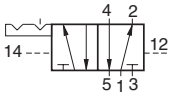
Construction: Poppet.
Mounting Type: Base.
Ambient Temperature: 40° to 175°F (4° to 80°C).
Media Temperature: 40° to 175°F (4° to 80°C); extended to 220°F (105°C) for High Temperature models.
Flow Media: Filtered air.
Inlet Pressure: 30 to 150 psig (2 to 10 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Double Pressure Controlled Valves

5-Way 2-Position Valves, Detented

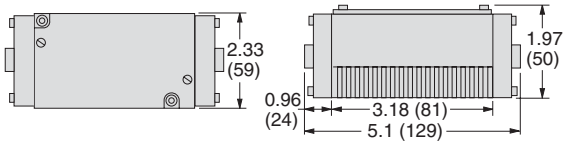
ANSI Size	Port Size	Valve Model Number*		Avg. C_V	Average Response Constants#			Weight lb (kg)
		Standard Temp.	High Temp.		M	F		
						In-Out	Out-Exh.	
1	1/4 - 3/8	W7456B2332	W7456B2337	0.9	30	2.7	5.6	2.5 (1.1)
2.5	3/8 - 1/2	W7456A3332	W7456A3337	2.0	25	1.4	2.9	2.0 (0.9)
4	1/2 - 3/4	W7456C4332	W7456C4337	4.2	16	0.5	1.1	3.3 (1.5)
10	3/4 - 1¼	W7456A6332	W7456A6337	11	14	0.3	0.5	7.3 (3.3)
20	1¼ - 1½	W7456A8332	W7456A8337	22	32	0.1	0.2	17.5 (7.9)



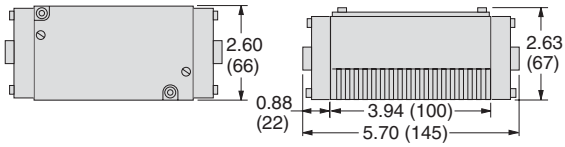
* **Sub-bases and sub-base manifolds ordered separately, refer to page A5.14-A5.18.**
\# **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

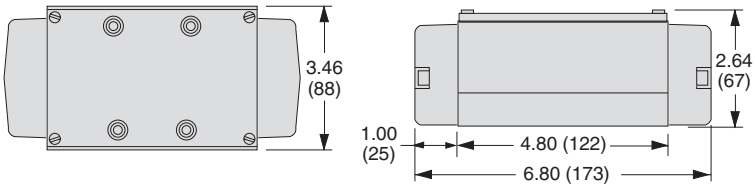
ANSI Size 1



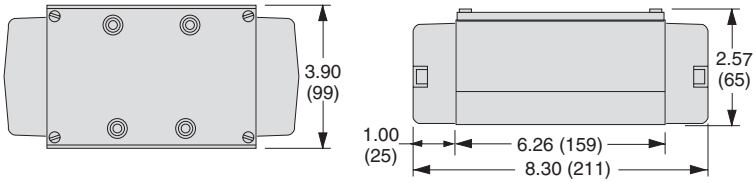
ANSI Size 2.5



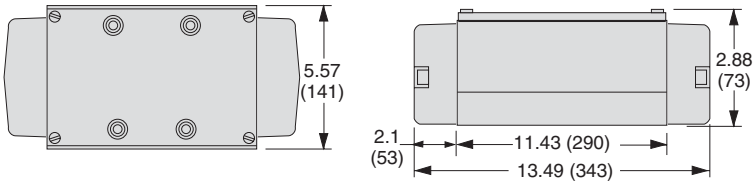
ANSI Size 4



ANSI Size 10



ANSI Size 20



Accessories ordered separately, refer to page A5.19.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: Base.
Ambient Temperature: 40° to 175°F (4° to 80°C).
Media Temperature: 40° to 175°F (4° to 80°C); extended to 220°F (105°C) for High Temperature models.
Flow Media: Filtered air.
Inlet Pressure: 30 to 150 psig (2 to 10 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.

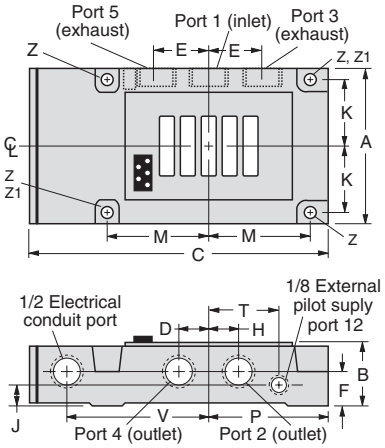
Sub-base for ANSI Size 4 valve illustrated

The sub-base numbers shown in the chart on the right specify pressure ports with NPT threads, and electrical openings with 1/2 NPT threads.

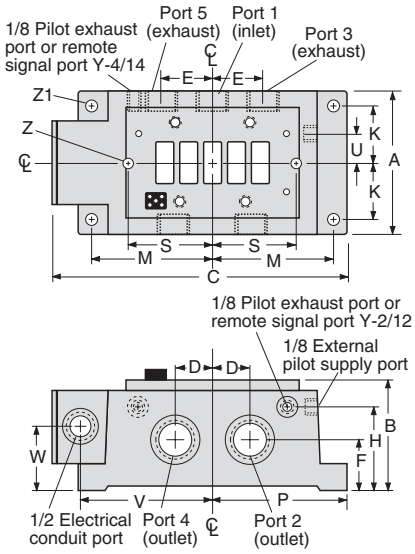
ANSI Size	Outlet Port	Indicator Lights in Base*			Avg. C_v
		None	One	Two	
		Model Number			
1	1/4	500B91	525K91**	526K91**	0.9 to 1.0
	3/8	501B91	527K91**	528K91**	0.9 to 1.0
2.5	3/8	474K91	482K91**	484K91**	2.0 to 2.5
	1/2	475K91	483K91**	485K91**	2.0 to 2.5
4	3/8	361B91	—	—	4.2
	1/2	362B91	—	—	4.2
	3/4	363B91	—	—	4.2
10	3/4	364B91	—	—	10 to 11
	1	365B91	—	—	10 to 11
	1¼	366B91	—	—	10 to 11
20	1¼	367B91	—	—	22
	1½	368B91	—	—	22

*NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., D502B91.
** Insert voltage code: "–W" = 24 volts DC; "–Z" = 110-120 volts AC, 50/60 Hz; e.g., 525K91–W. For other voltages, consult ROSS.

ANSI Size 1 & 2.5



ANSI Size 4, 10 & 20



Sub-Base Dimensions inches (mm)					
	ANSI 1	ANSI 2.5	ANSI 4	ANSI 10	ANSI 20
A	2.80 (71)	3.56 (90)	3.36 (85)	5.08 (129)	6.64 (169)
B	1.44 (37)	1.61 (41)	2.64 (67)	3.78 (96)	3.70 (94)
C	6.15 (156)	7.09 (180)	7.21 (183)	10.45 (266)	12.34 (313)
D	0.51 (13)	0.63 (16)	0.75 (19)	1.38 (35)	1.38 (35)
E	0.88 (22)	1.25 (32)	1.50 (38)	2.76 (70)	2.76 (70)
F	0.78 (20)	0.93 (23)	1.23 (31)	1.75 (44)	1.59 (40)
H	0.58 (15)	0.63 (16)	2.21 (56)	3.01 (76)	2.85 (72)
J	0.38 (10)	0.50 (13)	–	–	–
K	1.13 (29)	1.50 (38)	–	2.05 (52)	2.38 (60)
M	1.88 (48)	2.31 (59)	–	4.33 (110)	5.35 (136)
P	2.43 (62)	2.97 (75)	2.86 (73)	4.76 (121)	5.86 (149)
S	–	–	2.36 (60)	–	–
T	1.35 (34)	1.78 (45)	–	–	–
U	–	–	0.83 (21)	1.97 (50)	1.54 (39)
V	2.75 (70)	3.29 (83)	3.07 (78)	4.65 (118)	5.60 (142)
W	–	–	1.23 (31)	2.50 (64)	2.15 (55)
Z	0.27 (7)	–	0.30 (7)	–	–
Z1	–	0.28 (7)	–	0.34 (9)	0.37 (9)

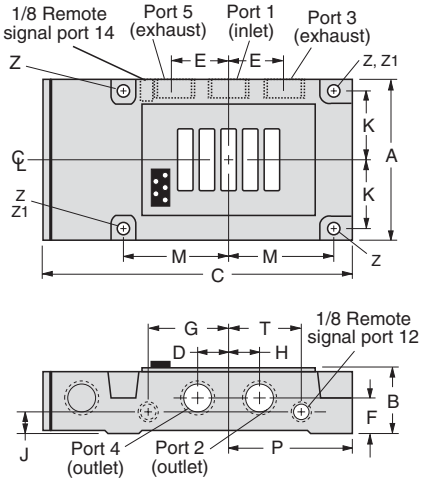
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Sub-base for ANSI Size 4 valve illustrated

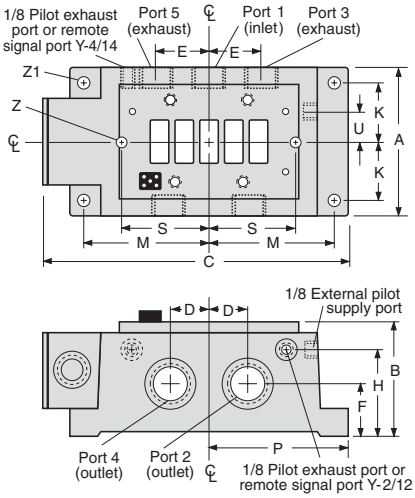
ANSI Size	Outlet Port	Model Number	Avg. C_v
1	1/4	500B91	0.9 to 1.0
	3/8	501B91	0.9 to 1.0
2.5	3/8	474K91	2.0 to 2.5
	1/2	475K91	2.0 to 2.5
4	3/8	361B91	4.2
	1/2	362B91	4.2
	3/4	363B91	4.2
10	3/4	364B91	10 to 11
	1	365B91	10 to 11
	1¼	366B91	10 to 11
20	1¼	367B91	22
	1½	368B91	22

*NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., D502B91.

ANSI Size 1 & 2.5



ANSI Size 4, 10 & 20



Sub-Base Dimensions inches (mm)					
	ANSI 1	ANSI 2.5	ANSI 4	ANSI 10	ANSI 20
A	2.80 (71)	3.56 (90)	3.36 (85)	5.08 (129)	6.64 (169)
B	1.44 (37)	1.61 (41)	2.64 (67)	3.78 (96)	3.70 (94)
C	6.15 (156)	7.09 (180)	7.21 (183)	10.45 (266)	12.34 (313)
D	0.51 (13)	0.63 (16)	0.75 (19)	1.38 (35)	1.38 (35)
E	0.88 (22)	1.25 (32)	1.50 (38)	2.76 (70)	2.76 (70)
F	0.78 (20)	0.93 (23)	1.23 (31)	1.75 (44)	1.59 (40)
H	0.58 (15)	0.63 (16)	2.21 (56)	3.01 (76)	2.85 (72)
J	0.38 (10)	0.50 (13)	–	–	–
K	1.13 (29)	1.50 (38)	–	2.05 (52)	2.38 (60)
M	1.88 (48)	2.31 (59)	–	4.33 (110)	5.35 (136)
P	2.43 (62)	2.97 (75)	2.86 (73)	4.76 (121)	5.86 (149)
S	–	–	2.36 (60)	–	–
T	1.35 (34)	1.78 (45)	–	–	–
U	–	–	0.83 (21)	1.97 (50)	1.54 (39)
V	–	–	–	–	–
Z	0.27 (7)	–	0.30 (7)	–	–
Z1	–	0.28 (7)	–	0.34 (9)	0.37 (9)

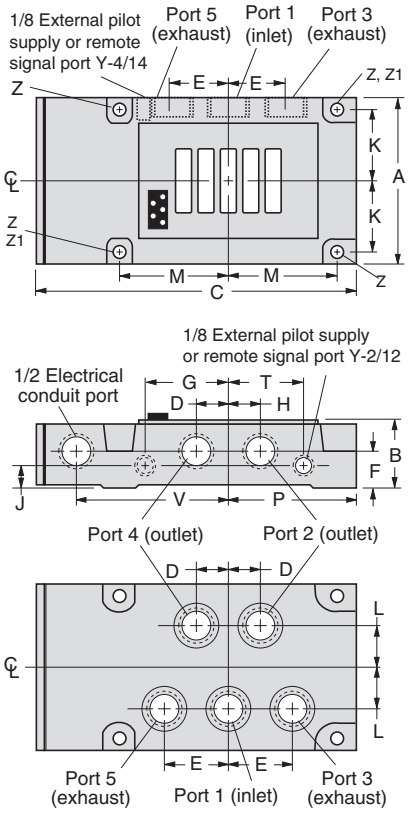
Side & Bottom Ported Sub-Bases

ANSI Size	Outlet Port	Indicator Lights in Base*			Avg. C_v
		None	One	Two	
		Model Number			
1	1/4	499B91	529K91**	530K91**	0.9 to 1.0
2.5	3/8	476K91	477K91**	486K91**	2.0 to 2.5
4	3/8	369B91	—	—	4.2
	1/2	370B91	—	—	4.2
	3/4	371B91	—	—	4.2

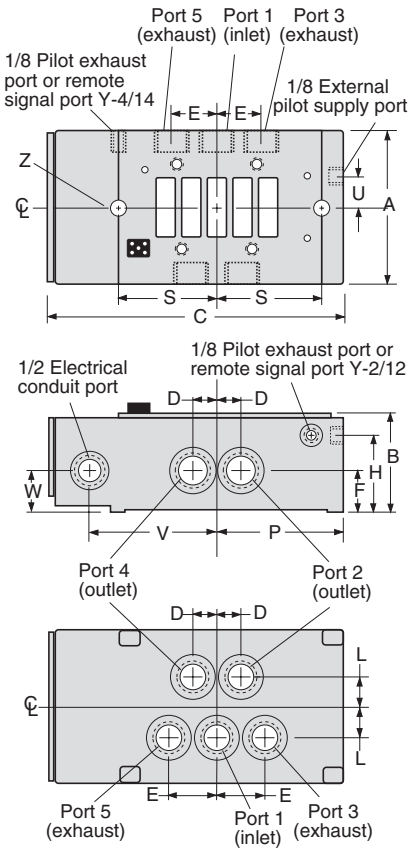
*NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., D502B91.
** Insert voltage code: "–W" = 24 volts DC; "–Z" = 110-120 volts AC, 50/60 Hz; e.g., 529K91–W.
For other voltages, consult ROSS.

Sub-Base Dimensions inches (mm)			
	ANSI 1	ANSI 2.5	ANSI 4
A	2.80 (71)	3.56 (90)	3.36 (85)
B	1.44 (37)	1.61 (41)	2.64 (67)
C	6.15 (156)	7.09 (180)	7.21 (183)
D	0.51 (13)	0.63 (16)	0.75 (19)
E	0.88 (22)	1.25 (32)	1.50 (38)
F	0.78 (20)	0.93 (23)	1.23 (31)
G	1.46 (37)	2.41 (61)	–
H	0.58 (15)	0.63 (16)	2.21 (56)
J	0.38 (10)	0.50 (13)	–
K	1.13 (29)	1.50 (38)	–
L	0.63 (16)	0.81 (21)	–
M	1.88 (48)	2.31 (59)	–
P	2.43 (62)	2.97 (75)	2.86 (73)
S	–	–	2.36 (60)
T	1.35 (34)	1.78 (45)	–
U	–	–	0.83 (21)
V	2.75 (70)	3.29 (83)	–
Z	0.27 (7)	–	0.30 (7)
Z1	–	0.28 (7)	–

ANSI Size 1 & 2.5



ANSI Size 4

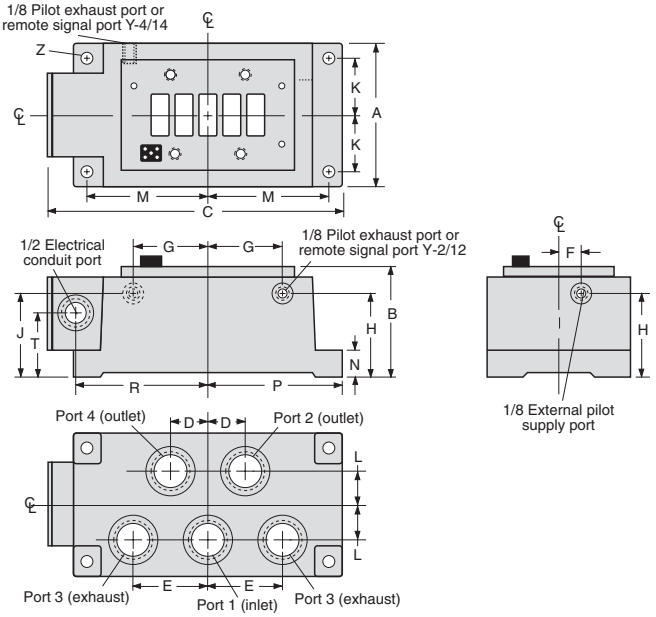


Bottom Ported Sub-Bases

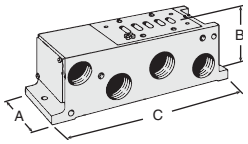
ANSI Size	Outlet Port	Model Number	Avg. C_v
10	3/4	372B91	10 to 11
	1	373B91	10 to 11
	1¼	374B91	10 to 11
20	1¼	375B91	22
	1½	376B91	22

*NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., D502B91.

Dimensions inches (mm)					
	ANSI 10	ANSI 20		ANSI 10	ANSI 20
A	5.8 (129)	6.64 (169)	K	2.05 (52)	2.38 (60)
B	3.78 (96)	3.70 (94)	L	1.22 (31)	1.22 (31)
C	10.45 (266)	12.34 (313)	M	4.33 (110)	5.36 (136)
D	1.38 (35)	1.38 (35)	N	0.88 (22)	1.00 (25)
E	2.76 (70)	2.76 (76)	P	4.76 (121)	5.82 (148)
F	1.03 (26)	1.54 (39)	R	4.65 (118)	5.60 (142)
G	2.60 (66)	3.90 (99)	T	2.50 (64)	2.15 (55)
H	3.01 (76)	2.85 (72)	Z	0.34 (8)	0.37 (9)
J	3.25 (83)	2.85 (72)			



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

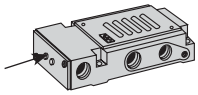


Typical Manifold Station

The numbers of the manifold stations shown in the chart on the right specify pressure ports with NPT threads and electrical openings with 1¼ NPT threads. All necessary hardware and seals for manifold assembly are included with each manifold station.

Indicator Lights: As shown in the chart the smaller sizes of manifolds are available with indicator lights. These lights are located in the end plate covering the electrical cavity.

Lights are mounted in bases, on the valves, or on solenoids, depending on the particular type of valve.



Manifold Note: The port positions of the solenoid controlled and the pressure controlled manifolds are not the same. For this reason these stations cannot be mixed in the same installation. If both types of valves *must* be used in the same installation, *use only manifold stations for solenoid controlled valves.*

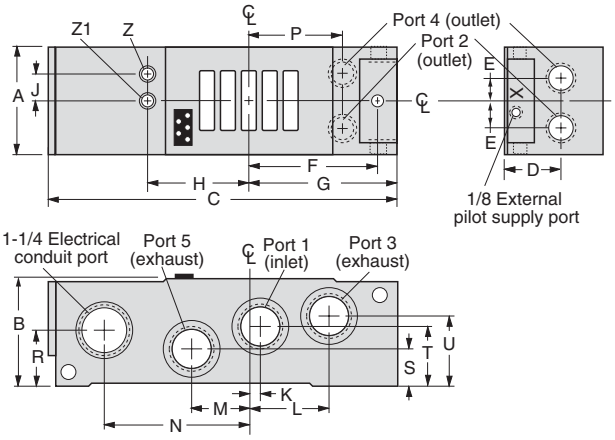
ANSI Size	Outlet Port	Indicator Lights in Manifold*			Avg. C_v
		None	One	Two	
		Model Number			
1	1/4	502B91	531K91**	532K91**	0.9 to 1.0
	3/8	503B91	533K91**	534K91**	0.9 to 1.0
2.5	3/8	472K91	478K91**	480K91**	2.0 to 2.5
	1/2	473K91	479K91**	481K91**	2.0 to 2.5
4	3/8	377B91	—	—	4.2
	1/2	378B91	—	—	4.2
	3/4	379B91	—	—	4.2
10	3/4	380B91	—	—	10 to 11
	1	381B91	—	—	10 to 11
	1¼	382B91	—	—	10 to 11

*NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., D502B91.
** Insert voltage code: "–W" = 24 volts DC; "–Z" = 110-120 volts AC, 50/60 Hz; e.g., 531K91–W. For other voltages, consult ROSS.

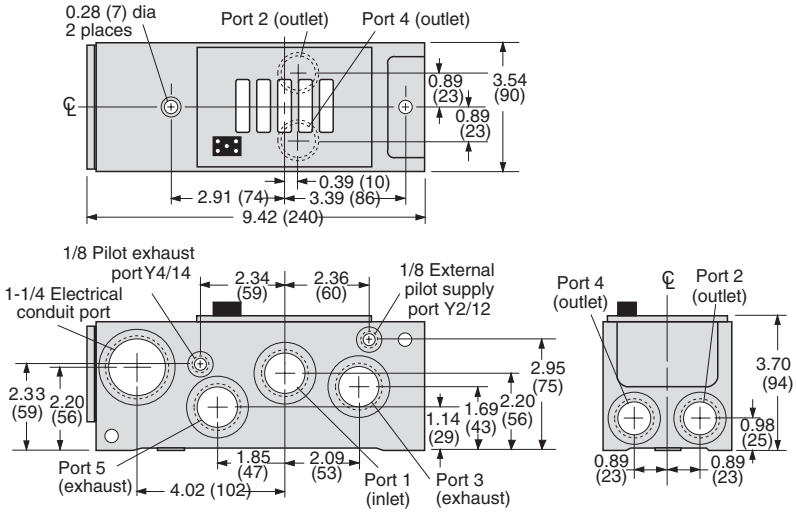
Manifold Dimensions – inches (mm)

ANSI Size 1 & 2.5

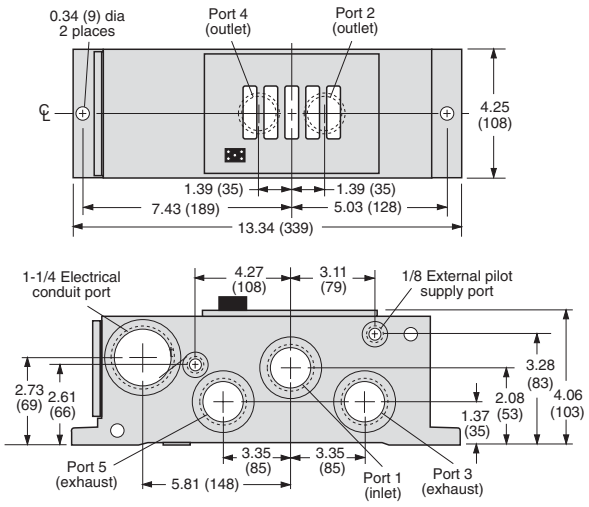
	Dimensions inches (mm)				
	ANSI 1	ANSI 2.5		ANSI 1	ANSI 2.5
A	2.26 (57)	2.80 (71)	L	1.62 (41)	1.81 (46)
B	2.26 (57)	2.66 (68)	M	1.00 (25)	1.46 (37)
C	7.89 (201)	8.50 (216)	N	2.88 (73)	3.46 (88)
D	1.38 (35)	1.48 (38)	P	2.16 (55)	2.21 (56)
E	0.56 (14)	0.70 (18)	R	1.17 (30)	1.36 (35)
F	2.76 (70)	2.99 (76)	S	0.64 (16)	0.78 (20)
G	3.14 (80)	3.43 (87)	T	1.07 (27)	1.40 (36)
H	1.80 (46)	2.24 (87)	U	1.57 (40)	1.76 (45)
J	0.50 (13)	–	Z	0.28 (7)	–
K	0.31 (8)	0.18 (6)	Z1	–	0.28 (7)



ANSI Size 4



ANSI Size 10

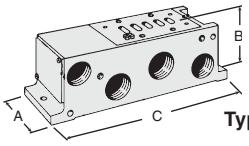


ASSEMBLED MANIFOLDS

Valves and manifold stations can be assembled by ROSS to precise specifications. The assembly is then ready for integration into your system.

For detailed information about such assemblies, consult your ROSS Distributor or call ROSS in the U.S.A. at 1-888-TEK-ROSS (835-7677) or 1-706-356-3708.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.



Typical Manifold Station

ANSI Size	Outlet Port	Model Number	Avg. C_v
1	1/4	359B91	0.9 to 1.0
	3/8	360B91	0.9 to 1.0
2.5	3/8	468B91	2.0 to 2.5
	1/2	469B91	2.0 to 2.5
4	3/8	383B91	4.2
	1/2	384B91	4.2
	3/4	385B91	4.2
10	3/4	386B91	10 to 11
	1	387B91	10 to 11
	1¼	388B91	10 to 11

*NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., D502B91.

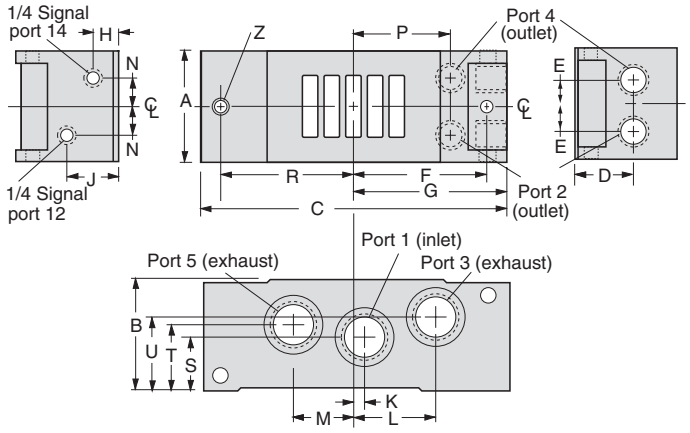
The numbers of the manifold stations shown in the chart on the right specify pressure ports with NPT threads. All necessary hardware and seals for manifold assembly are included with each manifold station.

Manifold Note: The port positions of the solenoid controlled and the pressure controlled manifolds are not the same. For this reason these stations cannot be mixed in the same installation. If both types of valves *must* be used in the same installation, *use only manifold stations for solenoid controlled valves.*

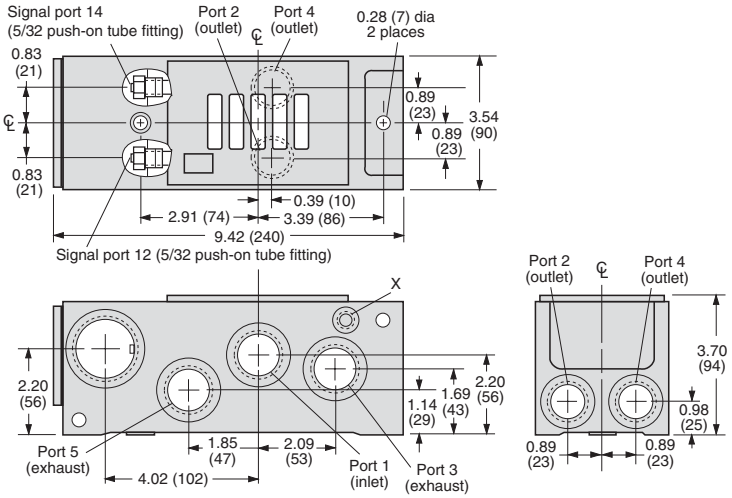
Manifold Dimensions – inches (mm)

ANSI Size 1 & 2.5

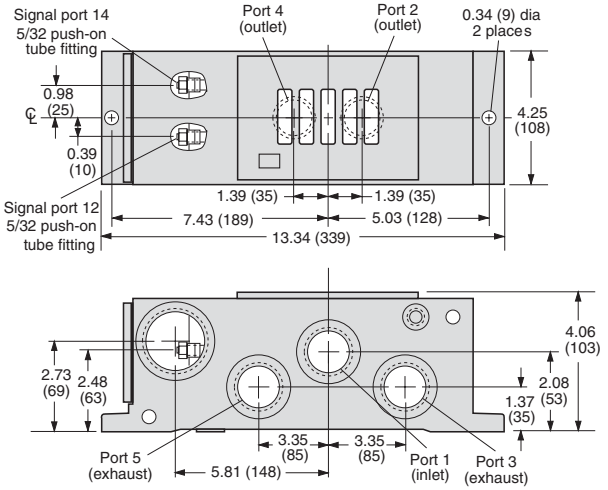
	Dimensions inches (mm)				
	ANSI 1	ANSI 2.5		ANSI 1	ANSI 2.5
A	2.26 (57)	2.80 (71)	L	1.47 (37)	1.80 (46)
B	2.26 (57)	2.66 (68)	M	1.36 (35)	1.46 (37)
C	6.25 (159)	6.86 (174)	N	0.56 (14)	0.70 (18)
D	1.32 (34)	1.48 (38)	P	2.37 (60)	2.21 (56)
E	0.56 (14)	0.70 (18)	R	2.50 (64)	2.99 (76)
F	2.88 (73)	2.99 (76)	S	1.14 (29)	1.40 (36)
G	3.31 (84)	3.40 (86)	T	1.14 (29)	1.76 (45)
H	0.56 (14)	0.74 (19)	U	1.26 (32)	1.76 (45)
J	0.88 (22)	1.26 (32)	Z	0.28 (7)	0.28 (7)
K	0.00 (00)	0.18 (6)			



ANSI Size 4



ANSI Size 10



ASSEMBLED MANIFOLDS

Valves and manifold stations can be assembled by ROSS to precise specifications. The assembly is then ready for integration into your system.

For detailed information about such assemblies, consult your ROSS Distributor or call ROSS in the U.S.A. at 1-888-TEK-ROSS (835-7677) or 1-706-356-3708.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Interposed Pressure Regulators

Both single and double interposed regulators are available for valves with C_v ratings up to 4.2. A regulator is bolted to the valve's sub-base or manifold station, and the valve is then bolted to the regulator. This mounting method allows the valve to be removed and replaced without disturbing the regulator.

Single pressure regulators provide the same regulated pressure at both outlet ports. Double pressure regulators allow the pressure at each outlet port to be set independently.

A locking type knob is used to set the regulated pressure at any point in the range of:

5 to 100 psig (0.3 to 7 bar) for size 1 and 2 models;
5 to 125 psig (0.3 to 8.5 bar) for size = 4.2 models.

Maximum inlet pressure is 150 psig (10 bar).
Pressure gauge(s) included.

ANSI Size	Interposed Regulator – Model Number		
	Single	Double*	
		Solenoid	Remote Air
1	840C91	841C91	713C91
2.5	626C91	627C91	714C91
4	632C91	633C91	715C91

* Double regulator only for W70 spool valves.

WARNING: Double interposed regulators will reverse output ports - the 12 solenoid will pressurize the 4 port, the 14 solenoid will pressurize the 2 port - which may cause unexpected, potentially dangerous cylinder movement at valve pressurization.

A5

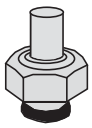
Manual Override Kits

Flush flexible manual overrides are standard on solenoid pilot controlled valves with C_v ratings of 2.0 or larger. Both locking and non-locking metal override buttons are also available for these models.

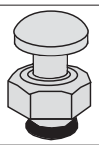
Each of the override buttons in the kits at the right is made of metal and is spring-returned. The locking type button, however, can be kept in the actuated position by turning the slot in the top of the button with a screwdriver.

Flush Button	
Locking Type	Kit Number
Non-Locking	790K87
Locking	792K87

Extended Button	
Locking Type	Kit Number
Non-Locking	791K87

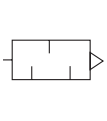


Extended Button with Palm	
Locking Type	Kit Number
Non-Locking	984H87



Silencers

Port Size	Thread Type	Model Number		Avg. C_v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	BSPT Threads		A	B	
1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)
3/8	Male	5500A3013	D5500A3013	2.7	0.9 (21)	2.2 (55)	0.1 (0.1)
3/8	Male	5500A3003	D5500A3003	4.3	1.3 (32)	3.5 (88)	0.2 (0.1)
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
3/4	Male	5500A5013	D5500A5013	5.1	1.3 (32)	3.6 (92)	0.2 (0.1)
3/4	Male	5500A5003	D5500A5003	11.5	2.0 (51)	5.3 (135)	0.6 (0.3)
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)
1¼	Male	5500A7013	D5500A7013	16.4	2.0 (51)	5.5 (140)	0.6 (0.3)

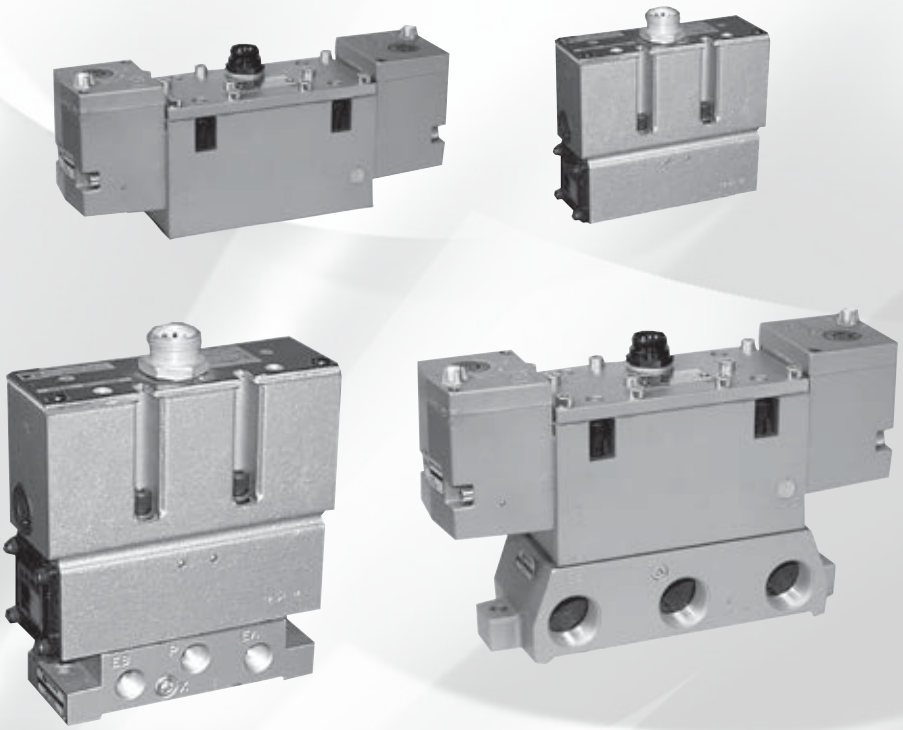


Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.

A

ROSS CONTROLS®

SAE Valves 80 & 84 Series



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SAE 80 & 84 SERIES VALVES – KEY FEATURES

- Micro-thin air bearing between spool and sleeve assures quick valve response
- Designed for high cycle rates and long life
- No seals to wear out
- Easily field-convertible for use with an external pilot supply
- Suitable for vacuum service (with external pilot supply)

VALVE TYPE	VALVE SERIES	DESCRIPTION			AVAILABLE PORT SIZES								FUNCTIONS										Page
		SAE Size	Spool & Sleeve	Poppet	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	3/2 Single	5/2 Single	5/2 Double	5/3 Closed Center	5/3 Open Center	5/3 Pressure Center	Max Flow (Cv)	Solenoid Control	Direct Solenoid Control	Pressure Control	
SAE	80 & 84	125	■	■		■	■							■	■	■	■	■	1.8	■			A6.3 - A6.7
SAE	80 & 84	250	■	■			■	■	■					■	■	■	■	■	5.7	■			A6.3 - A6.7
SAE	80 & 84	500	■	■				■	■	■				■	■	■	■	–	8.0	■			A6.3 - A6.7
Sub-Bases																							A6.8
Manifolds																							A6.9
Accessories																							A6.10

Single Solenoid Pilot Controlled Valves

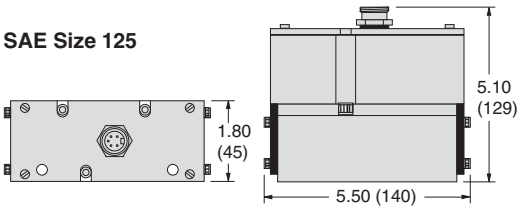
5-Way 2-Position Valves, Spring Return

SAE Size	Valve Model Number* Chrysler Wired 5-pin micro-connector (120 volts / 60 Hz)	Chrysler Wired 5-pin micro-connector (24 volts DC)	Ford Wired 5-pin mini-connector (all voltages)	Chrysler Wired 5-pin mini-connector (all voltages)	Hardwire	Ford Wired 5-pin micro connector (24 volts DC)	Avg. C_v	Average Response Constants# M	Average Response Constants# F In-Out	Average Response Constants# F Out-Exh.	Weight lb (kg)
125	8076C3311	8076C3321	8076C3331**	8076C3341**	8076C3351**	8076C3361	1.4	20	3.5	4.9	3.5 (1.6)
250	8076C4311	8076C4321	8076C4331**	8076C4341**	8076C4351**	8076C4361	4.0	10	1.4	2.6	6.5 (2.9)
500	8076B6311	8076B6321	8076B6331**	8076B6341**	8076B6351**	8076B6361	8.2	22	0.5	0.8	8.3 (3.7)

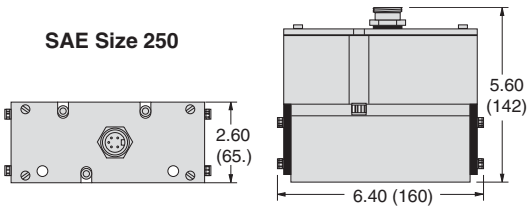
* **Sub-bases and sub-base manifolds ordered separately, refer to page A6.8-9.**
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g.,8076C3331W. For other voltages, consult ROSS.
# **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

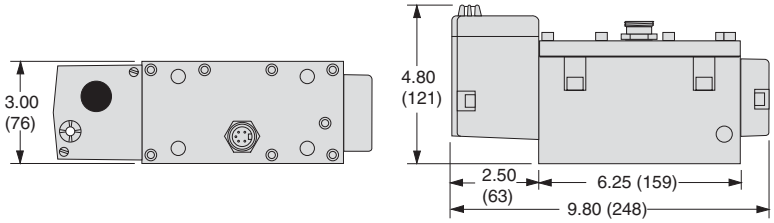
SAE Size 125



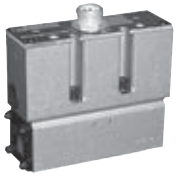
SAE Size 250



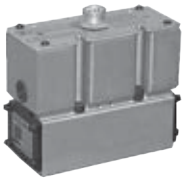
SAE Size 500

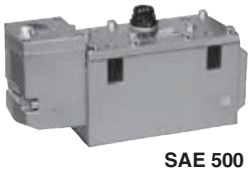


SAE 125



SAE 250



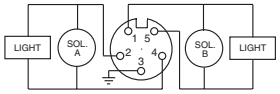


SAE 500
Single Solenoid

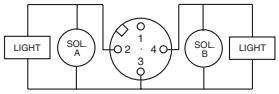
A6

Wiring Diagrams for Available Options

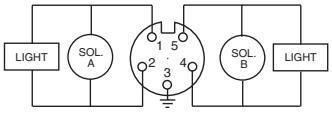
Ford Wired 5-pin mini-connector (all voltages)



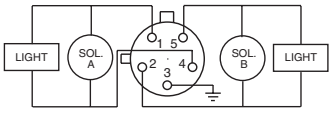
Ford Wired 4-pin micro-connector (24 volts DC)



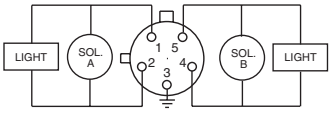
Chrysler Wired 5-pin mini-connector (all voltages)



Chrysler Wired 5-pin micro-connector (24 volts DC)



Chrysler Wired 5-pin micro-connector (120 volts / 60 Hz)



Options: Manual Override (for SAE 500 size only), refer to page A6.10. Accessories ordered separately, refer to page A6.10.

Pressure Controlled Spool & Sleeve Valves for SAE available, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool and sleeve.
Mounting Type: Base.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption (each solenoid):
SAE Size 125, 250: 8 VA inrush; 6 VA holding on 50/60 Hz; 8 watts on DC.
SAE Size 500: 87 VA inrush; 30 VA holding on 50/60 Hz; 14 watts on DC.

Indicator Light: One for each solenoid.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: Vacuum to 150 psig (10 bar).
Manual Override: Flush; rubber, non-locking.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Double Solenoid Pilot Controlled Valves

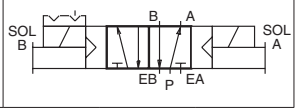
5-Way 2-Position Valves, Detented

SAE Size	Valve Model Number*						Avg. C_v	Average Response Constants#			Weight lb (kg)
	Chrysler Wired 5-pin micro-connector (120 volts / 60 Hz)	Chrysler Wired 5-pin micro-connector (24 volts DC)	Ford Wired 5-pin mini-connector (all voltages)	Chrysler Wired 5-pin mini-connector (all voltages)	Hardwire	Ford Wired 5-pin micro connector (24 volts DC)		M	F In-Out	F Out-Exh.	
125	8076C3312	8076C3322	8076C3332**	8076C3342**	8076C3352**	8076C3362	1.4	15	3.5	4.9	3.5 (1.6)
250	8076C4312	8076C4322	8076C4332**	8076C4342**	8076C4352**	8076C4362	4.0	17	1.5	2.6	7.0 (3.2)
500	8076B6312	8076B6322	8076B6332**	8076B6342**	8076B6352**	8076B6362	8.0	30	0.4	0.5	9.5 (4.3)

* **Sub-bases and sub-base manifolds ordered separately, refer to page A6.8-9.**

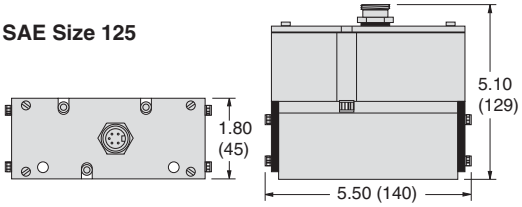
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g.,8076C3332W. For other voltages, consult ROSS.

Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

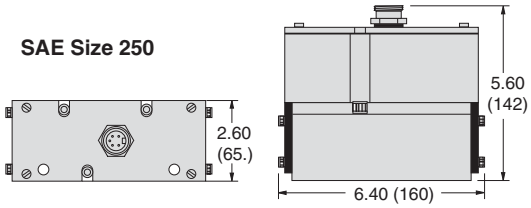


Valve Dimensions – inches (mm)

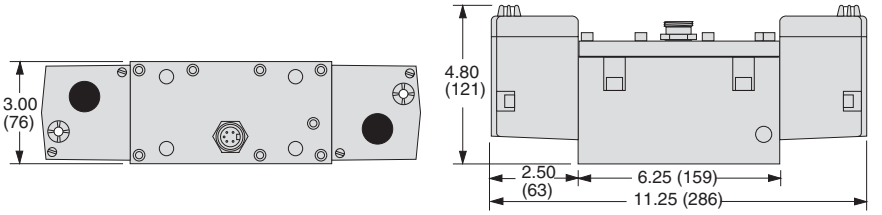
SAE Size 125



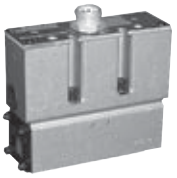
SAE Size 250



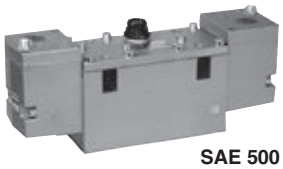
SAE Size 500



SAE 125



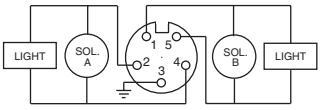
SAE 250



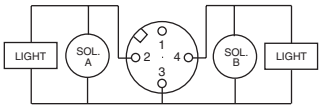
SAE 500
Double Solenoid

Wiring Diagrams for Available Options

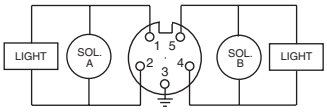
Ford Wired 5-pin mini-connector (all voltages)



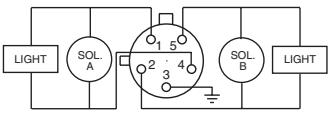
Ford Wired 4-pin micro-connector (24 volts DC)



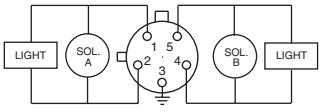
Chrysler Wired 5-pin mini-connector (all voltages)



Chrysler Wired 5-pin micro-connector (24 volts DC)



Chrysler Wired 5-pin micro-connector (120 volts / 60 Hz)



Options: Manual Override (for SAE 500 size only), refer to page A6.10. Accessories ordered separately, refer to page A6.10.

Pressure Controlled Spool & Sleeve Valves for SAE available, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool and sleeve.
Mounting Type: Base.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption (each solenoid):
SAE SIze 125, 250: 8 VA inrush; 6 VA holding on 50/60 Hz; 8 watts on DC.
SAE Size 500: 87 VA inrush; 30 VA holding on 50/60 Hz; 14 watts on DC.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: Vacuum to 150 psig (10 bar).
Pilot Pressure: When external supply is used, pressure must be equal to or greater than inlet pressure.
Indicator Light: One for each solenoid.
Manual Override: Flush; rubber, non-locking.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

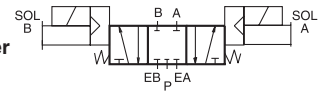
Double Solenoid Pilot Controlled Valves

5-Way 3-Position Valves

	SAE Size	Valve Model Number*						Avg. C_v	Average Response Constants#			Weight lb (kg)
		Chrysler Wired 5-pin micro-connector (120 volts / 60 Hz)	Chrysler Wired 5-pin micro-connector (24 volts DC)	Ford Wired 5-pin mini-connector (all voltages)	Chrysler Wired 5-pin mini-connector (all voltages)	Hardwire	Ford Wired 5-pin micro connector (24 volts DC)		M	In-Out	Out-Exh.	
Power Center	125	–	–	8077B3910**	8077B3904**	–	–	1.4	20	3.5	5.2	3.5 (1.6)
	250	–	–	8077A4907**	8077A4904**	–	–	4.0	10	1.4	2.6	7.0 (3.2)
Closed Center	125	8077C3311	8077C3321	8077C3331**	8077C3341**	8077C3351**	8077C3361	1.4	20	3.5	5.2	3.5 (1.6)
	250	8077C4311	8077C4321	8077C4331**	8077C4341**	8077C4351**	8077C4361	4.0	10	1.4	2.6	7.0 (3.2)
	500	8077B6311	8077B6321	8077B6331**	8077B6341**	8077B6351**	8077B6361	8.0	12	0.5	0.8	9.5 (4.3)
Open Center	125	8077C3312	8077C3322	8077C3332**	8077C3342**	8077C3352**	8077C3362	1.4	20	3.5	5.2	3.5 (1.6)
	250	8077C4312	8077C4322	8077C4332**	8077C4342**	8077C4352**	8077C4362	4.0	10	1.4	2.6	7.0 (3.2)
	500	8077B6312	8077B6322	8077B6332**	8077B6342**	8077B6352**	8077B6362	8.0	12	0.5	0.8	9.5 (4.3)

Power Center

Closed Center



Open Center

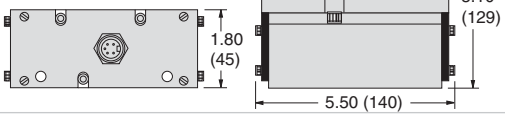
* **Sub-bases and sub-base manifolds ordered separately, refer to page A6.8-9.**

** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 8077B3910W. For other voltages, consult ROSS.

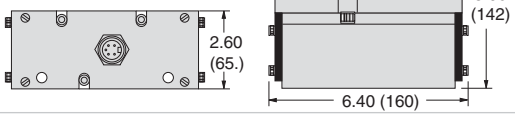
\# **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

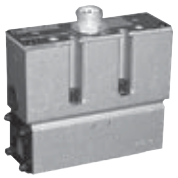
Valve Dimensions – inches (mm)

SAE Size 125



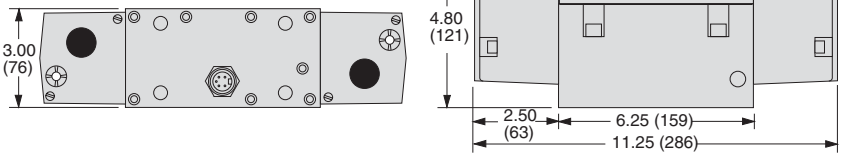
SAE Size 250

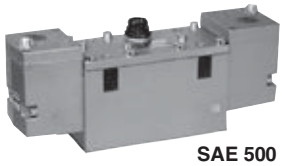




SAE 125 & 250

SAE Size 500

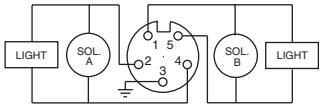




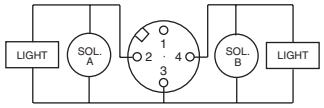
SAE 500
Double Solenoid

Wiring Diagrams for Available Options

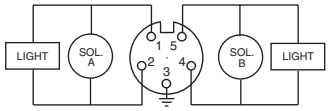
Ford Wired 5-pin mini-connector (all voltages)



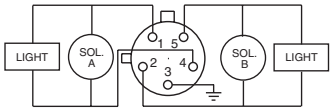
Ford Wired 4-pin micro-connector (24 volts DC)



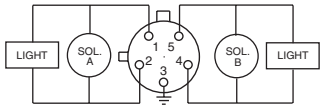
Chrysler Wired 5-pin mini-connector (all voltages)



Chrysler Wired 5-pin micro-connector (24 volts DC)



Chrysler Wired 5-pin micro-connector (120 volts / 60 Hz)



Options: Manual Override (for SAE 500 size only), refer to page A6.10. Accessories ordered separately, refer to page A6.10.

Pressure Controlled Spool & Sleeve Valves for SAE available, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool and sleeve.
Mounting Type: Base.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption (each solenoid):
SAE Size 125, 250: 8 VA inrush; 6 VA holding on 50/60 Hz; 8 watts on DC.
SAE Size 500: 87 VA inrush; 30 VA holding on 50/60 Hz; 14 watts on DC.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: Vacuum to 150 psig (10 bar).
Pilot Pressure: When external supply is used, pressure must be equal to or greater than inlet pressure.
Indicator Light: One for each solenoid.
Manual Override: Flush; rubber, non-locking.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

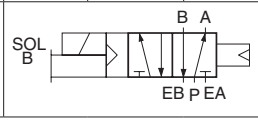
5-Way 2-Position Valves, Air Return

SAE Size	Valve Model Number* Chrysler Wired 5-pin micro-connector (120 volts / 60 Hz)	Chrysler Wired 5-pin micro-connector (24 volts DC)	Ford Wired 5-pin mini-connector (all voltages)	Chrysler Wired 5-pin mini-connector (all voltages)	Hardwire	Ford Wired 5-pin micro connector (24 volts DC)	Avg. C_v	Average Response Constants# M	F In-Out	F Out-Exh.	Weight lb (kg)
125	8476C3311	8476C3321	8476C3331**	8476C3341**	8476C3351**	8476C3361	1.8	47	1.6	3.0	2.8 (1.3)
250	8476C4311	8476C4321	8476C4331**	8476C4341**	8476C4351**	8476C4361	5.5	60	0.6	0.8	5.2 (2.4)
500	8476B6311	8476B6321	8476B6331**	8476B6341**	8476B6351**	8476B6361	7.9	30	0.4	0.5	7.7 (3.5)

*** Sub-bases and sub-base manifolds ordered separately, refer to page A6.8-9.**

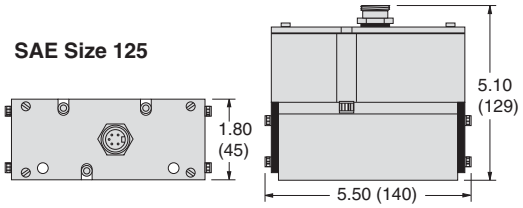
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g.,8476C3331W. For other voltages, consult ROSS.

 # Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

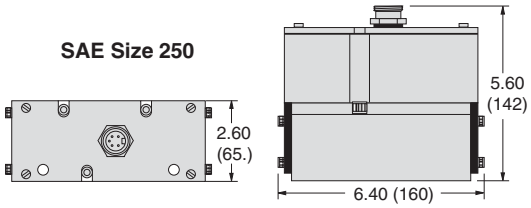


Valve Dimensions – inches (mm)

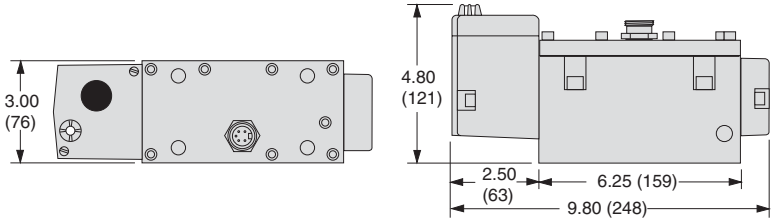
SAE Size 125

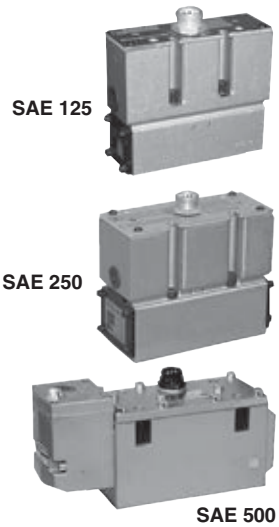


SAE Size 250



SAE Size 500





SAE 125

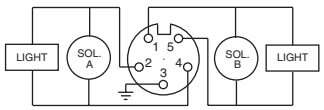
SAE 250

SAE 500
Single Solenoid

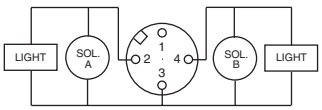
A6

Wiring Diagrams for Available Options

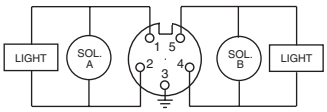
Ford Wired 5-pin mini-connector (all voltages)



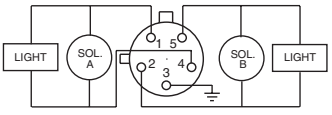
Ford Wired 4-pin micro-connector (24 volts DC)



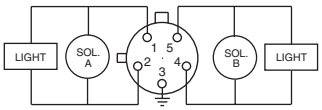
Chrysler Wired 5-pin mini-connector (all voltages)



Chrysler Wired 5-pin micro-connector (24 volts DC)



Chrysler Wired 5-pin micro-connector (120 volts / 60 Hz)



Options: Manual Override (for SAE 500 size only), refer to page A6.10. Accessories ordered separately, refer to page A6.10.

Pressure Controlled Spool & Sleeve Valves for SAE available, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: Base.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: Each solenoid:
SAE Size 125, 250: 8 VA inrush; 6 VA holding on 50/60 Hz; 8 watts on DC.
SAE Size 500: 87 VA inrush; 30 VA holding on 50/60 Hz; 14 watts on DC.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 30 to 150 psig (2 to 10 bar).
Pilot Pressure: When external supply is used, pressure must be equal to or greater than inlet pressure.
Indicator Light: One for each solenoid.
Manual Override: Flush; rubber non-locking.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Double Solenoid Pilot Controlled Valves

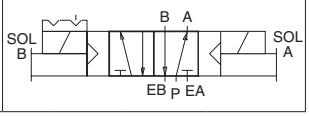
5-Way 2-Position Valves, Detented

SAE Size	Valve Model Number*						Avg. C_v	Average Response Constants#			Weight lb (kg)
	Chrysler Wired 5-pin micro-connector (120 volts / 60 Hz)	Chrysler Wired 5-pin micro-connector (24 volts DC)	Ford Wired 5-pin mini-connector (all voltages)	Chrysler Wired 5-pin mini-connector (all voltages)	Hardwire	Ford Wired 5-pin micro connector (24 volts DC)		M	F		
									In-Out	Out-Exh.	
125	8476C3312	8476C3322	8476C3332**	8476C3342**	8476C3352**	8476C3362	1.8	16	1.7	2.4	3.3 (1.5)
250	8476C4312	8476C4322	8476C4332**	8476C4342**	8476C4352**	8476C4362	5.7	20	0.6	0.8	5.7 (2.6)
500	8476B6312	8476B6322	8476B6332**	8476B6342**	8476B6352**	8476B6362	7.6	16	0.2	0.5	8.9 (4.1)

* **Sub-bases and sub-base manifolds ordered separately, refer to page A6.8-9.**

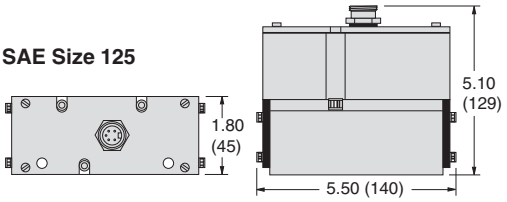
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g.,8476C3332W. For other voltages, consult ROSS.

Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

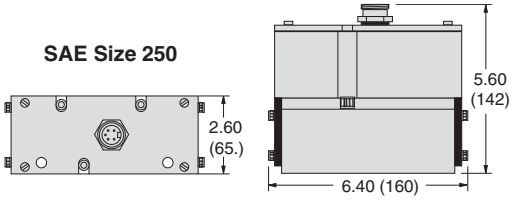


Valve Dimensions – inches (mm)

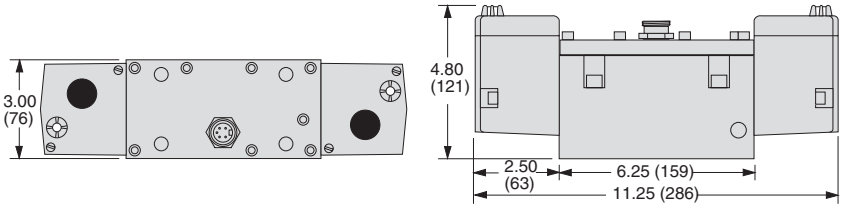
SAE Size 125

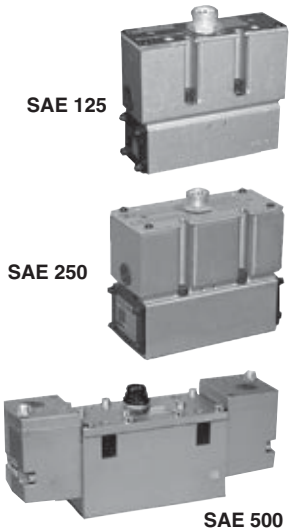


SAE Size 250



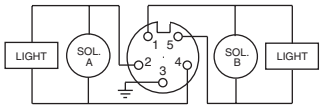
SAE Size 500



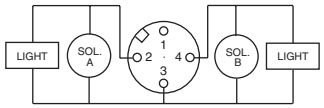


Wiring Diagrams for Available Options

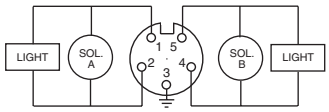
Ford Wired 5-pin mini-connector (all voltages)



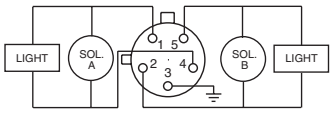
Ford Wired 4-pin micro-connector (24 volts DC)



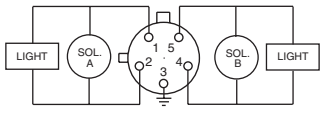
Chrysler Wired 5-pin mini-connector (all voltages)



Chrysler Wired 5-pin micro-connector (24 volts DC)



Chrysler Wired 5-pin micro-connector (120 volts / 60 Hz)



Options: Manual Override (for SAE 500 size only), refer to page A6.10. Accessories ordered separately, refer to page A6.10.

Pressure Controlled Spool & Sleeve Valves for SAE available, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: Base.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: Each solenoid:
SAE Size 125, 250: 8 VA inrush; 6 VA holding on 50/60 Hz; 8 watts on DC.
SAE Size 500: 87 VA inrush; 30 VA holding on 50/60 Hz; 14 watts on DC.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 30 to 150 psig (2 to 10 bar).
Pilot Pressure: When external supply is used, pressure must be equal to or greater than inlet pressure.
Indicator Light: One for each solenoid.
Manual Override: Flush; rubber non-locking.

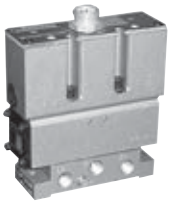
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

A

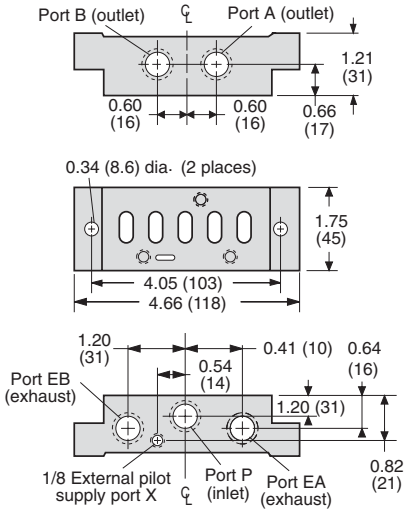
SAE 125

SAE 125 Sub-Base		
Model Number	Port Size*	
	A, B	P, EA, EB
577K91	1/8	1/4
578K91	1/4	3/8
579K91	3/8	3/8

*NPT port threads.
For SAE threads, consult ROSS.



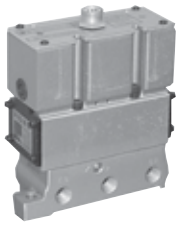
Dimensions – inches (mm)

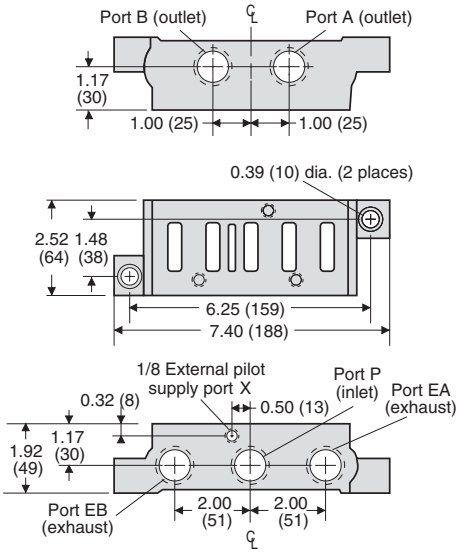


SAE 250

SAE 250 Sub-Base		
Model Number	Port Size*	
	A, B	P, EA, EB
539K91	1/4	3/8
540K91	3/8	1/2
541K91	1/2	1/2
542K91	3/4	3/4

*NPT port threads.
For SAE threads, consult ROSS.

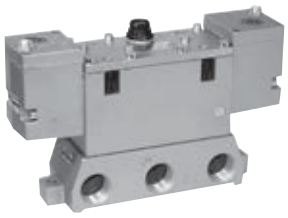




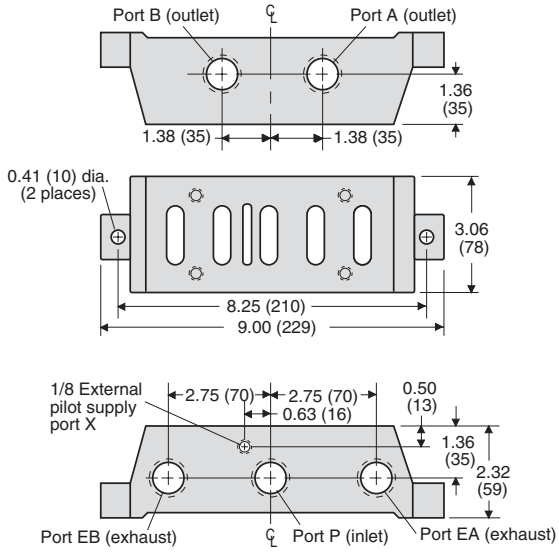
SAE 500

SAE 500 Sub-Base		
Model Number	Port Size*	
	A, B	P, EA, EB
582K91	1/2	3/4
728K91	3/4	3/4
583K91	3/4	1
584K91	1	1

*NPT port threads.
For SAE threads, consult ROSS.



SAE 500
Double Solenoid



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IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Manifold Stations

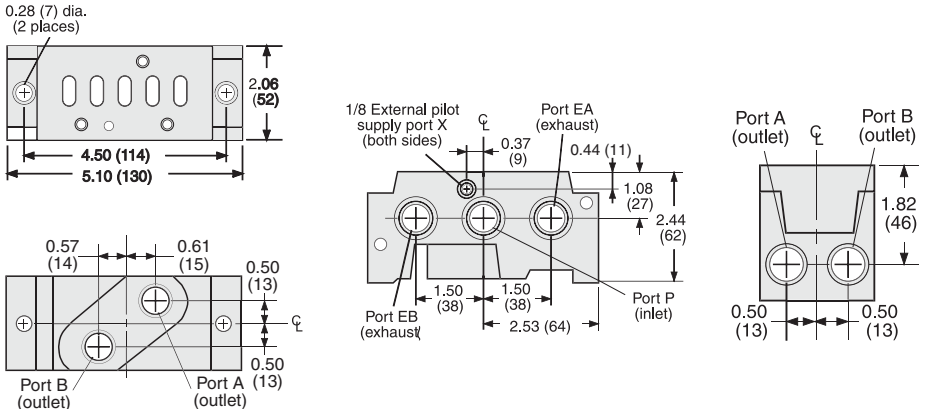
Each manifold station is supplied with all necessary seals and hardware for assembly.
End plates are *not* required with these manifolds.
Each station has all ports threaded to accept piping.

Dimensions – inches (mm)

SAE 125

SAE 125 Manifold		
Model Number	Port Size*	
	A, B	P, EA, EB
580K91	1/4	3/8
581K91	3/8	3/8

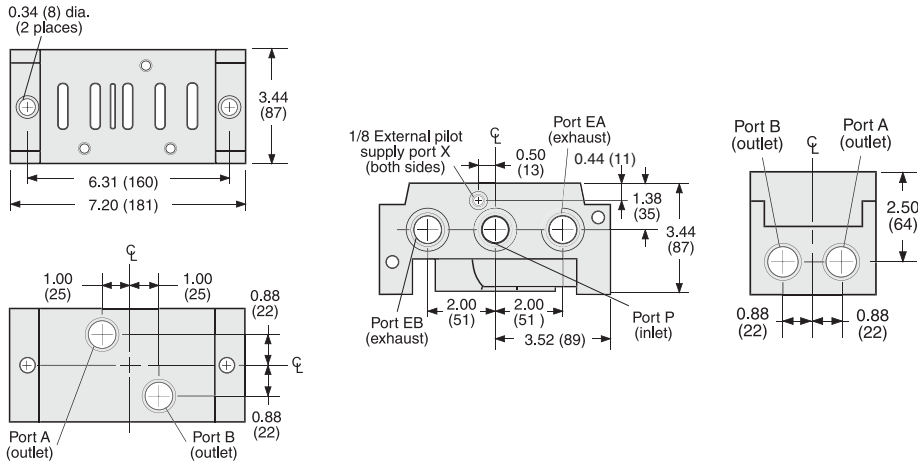
*NPT port threads.
For SAE threads, consult ROSS.



SAE 250

SAE 250 Manifold		
Model Number	Port Size*	
	A, B	P, EA, EB
553K91	3/8	1/2
554K91	1/2	3/4
555K91	3/4	3/4

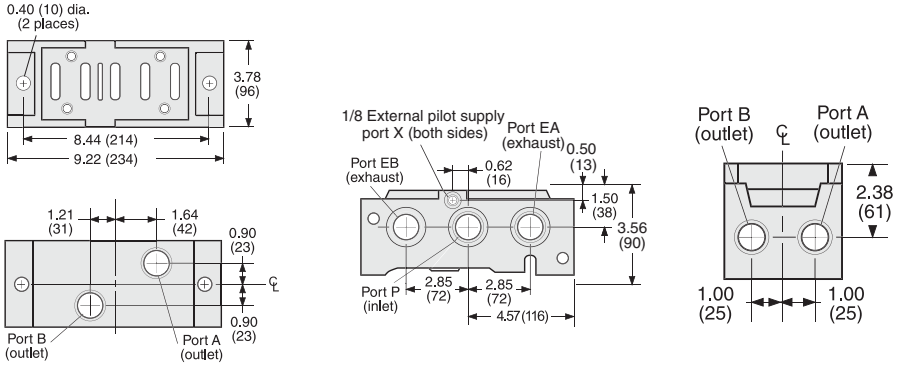
*NPT port threads.
For SAE threads, consult ROSS.



SAE 500

SAE 500 Manifold		
Model Number	Port Size*	
	A, B	P, EA, EB
585K91	1/2	3/4
586K91	3/4	1
587K91	1	1

*NPT port threads.
For SAE threads, consult ROSS.



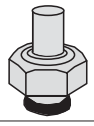
A

Manual Override Kits for SAE Size 500 Valves

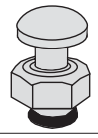
Flush flexible manual override buttons are standard on all SAE 500 solenoid pilot valves. Metal buttons as shown below can be installed in place of the standard flexible buttons. Both locking and non-locking metal buttons are available. Each button has spring-return action. The locking type button, however, can be kept in the actuated position by turning the slot in the top of the button with a screwdriver.

Flush Button	
Locking Type	**Kit Number**
Non-Locking	790K87
Locking	792K87

Extended Button	
Locking Type	**Kit Number**
Non-Locking	791K87



Extended Button with Palm	
Locking Type	**Kit Number**
Non-Locking	984H87

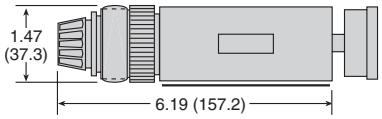
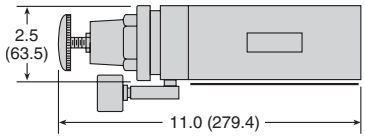
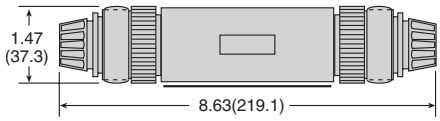
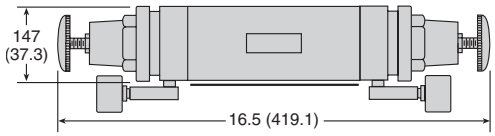


Blanking Plates

For manifold stations not occupied by a valve, blanking plates are available. These plates block the unused air passages.

SAE Size	Part Number
125	820K77
250	821K77
500	822K77

Interposed Regulators

SAE Size & Type	Model Number	Dimensions – inches (mm)
125 Single	593K91	
125 Dual	873H91	
250 Single	595K91	
250 Dual	816H91	

Single and dual interposed regulators are available for SAE sizes 125 and 250.

A regulator is sandwiched between the valve and sub-base or manifold station and the valve is then bolted through the regulator to the sub-base or manifold station with the longer bolts provided.

Single pressure regulators supply the same regulated pressure at both outlet ports.

Dual pressure regulators allow the pressure at each outlet port to be set independently.

Use dual pressure regulators with 80 Series valves only. When using dual pressure regulators, the valve must be externally piloted. For external pilot supply conversion, see below.

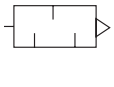
Regulated pressure range: 10 to 130 psig (1 to 9 bar); regulator-to-base gasket included.

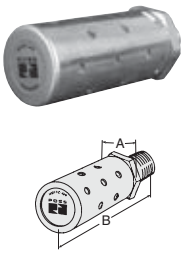
EXTERNAL PILOT SUPPLY CONVERSION

ROSS SAE Solenoid pilot valves are designed to use an internal pilot supply. However, they are easily converted for use with an external pilot supply. To make this conversion, remove the pipe plug on the bottom of the valve. The plug is located between the center port and an adjacent port. Install this plug in the threaded port at the end of the center port. This blocks the internal pilot supply. Connect the external pilot supply line to port X in the base. Pressure in the external supply line must not be less than that specified in the valve's Standard Specifications.

Silencers

Port Size	Thread Type	Model Number NPT Threads	Model Number BSPT Threads	Avg. C_v	Dimensions inches (mm) A	Dimensions inches (mm) B	Weight lb (kg)
1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)
3/8	Male	5500A3013	D5500A3013	2.7	0.9 (21)	2.2 (55)	0.1 (0.1)
3/8	Male	5500A3003	D5500A3003	4.3	1.3 (32)	3.5 (88)	0.2 (0.1)
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
3/4	Male	5500A5013	D5500A5013	5.1	1.3 (32)	3.6 (92)	0.2 (0.1)
3/4	Male	5500A5003	D5500A5003	11.5	2.0 (51)	5.3 (135)	0.6 (0.3)
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)





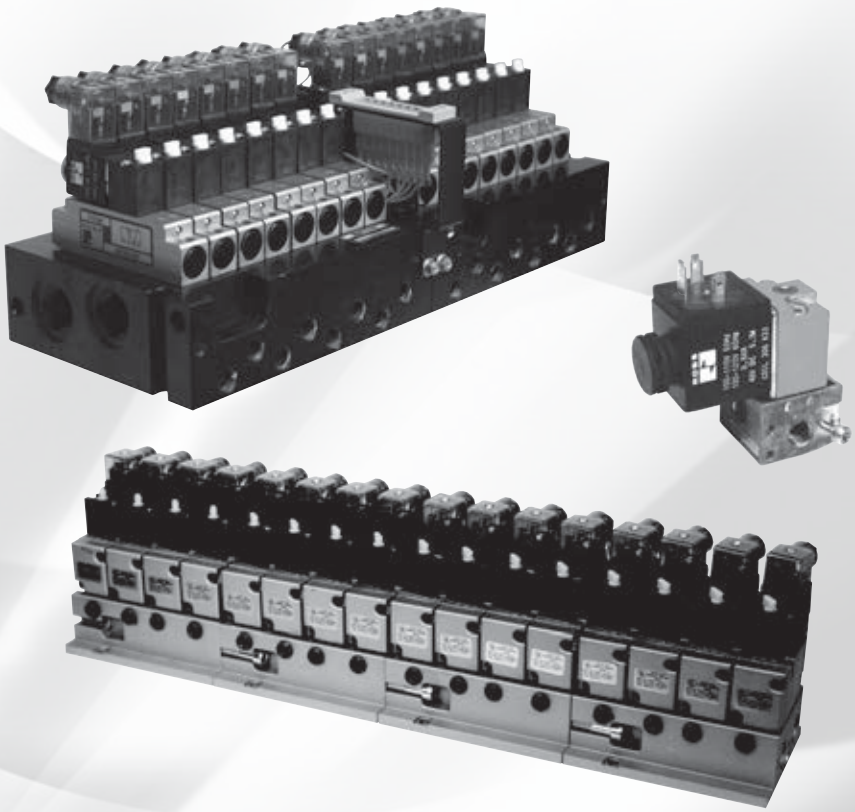
Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

A

ROSS CONTROLS®

Miniature Valves W14 Series
Solenoid Pilot Pack Valves Series

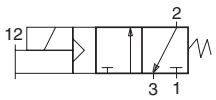


www.rosscontrols.com

SOLENOID PILOT CONTROLLED PACK VALVES – KEY FEATURES

- Individual Valve Shut-off (automatic): increases uptime for continuous processing
- Sure-Shifting and Self-Cleaning: reliable performance in extreme conditions (dirt tolerant, high humidity, cold, heat, dust, debris returned from the field actuator, etc...)
- Easily Accessible Manual Override (Yellow): turn to actuate, no tools needed
- Positive Sealing and Self-Compensating for Wear: perpendicular poppet face seals
- Quick Electrical Disconnect w/Indicator Light: allows immediate troubleshooting of component/system issues in the field.
- Consistent Actuation over the Life of the Valve: strong shifting forces
- Explosion Proof & Intrinsically Safe - options available, consult ROSS
- 8 & 16 Station Valve/Manifold: flying wire leads or central wiring option

A

3-Way 2-Position Valves, Single Direct Solenoid, Spring Return			
Override Type	**Valve Model Number***	**C_v**	
Locking	W1413A1408**	0.1	 **3/2 Normally Closed**
Non-Locking	W1413A1409**	0.1	

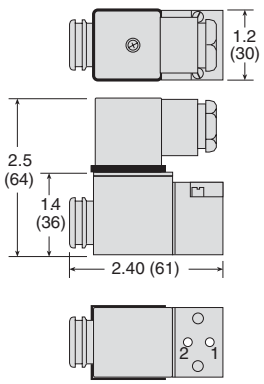
* **Sub-bases and sub-base manifold ordered separately.**
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., W1413A1408W.
For other voltages, consult ROSS.

Manifold	Model Number
	535K91

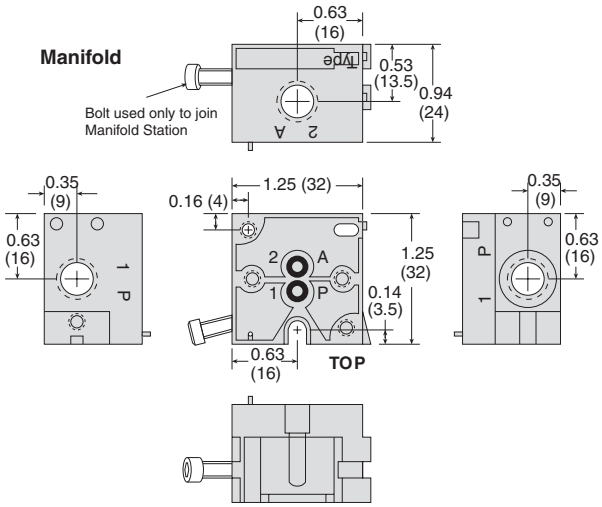
Sub-Base	Port Threads	Model Number
	1/8 NPT	516B91
	1/8 BSPP	D516B91

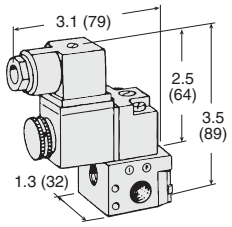
Dimensions – inches (mm)

Valve



Manifold





Valve is shown with electrical connector and on a base. Electrical connector, optional.

Accessories

Electrical Connectors	Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
					Without Light	Lighted Connector*	
						24 Volts DC	120 Volts AC
	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z
	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	10-mm	371K77	383K77-W	383K77-Z
	EN 175301-803 Form A	Connector for threaded conduit (1/2 inch electrical conduit fittings)	–	–	723K77	724K77-W	724K77-Z
	EN 175301-803 Form A	Connector Only	–	–	937K87	936K87-W	936K87-Z
	* Lights in connectors with a translucent housing can be used as indicator lights to show when solenoids are energized.						

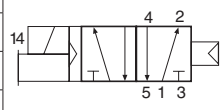
A7

STANDARD SPECIFICATIONS (for valves on this page):

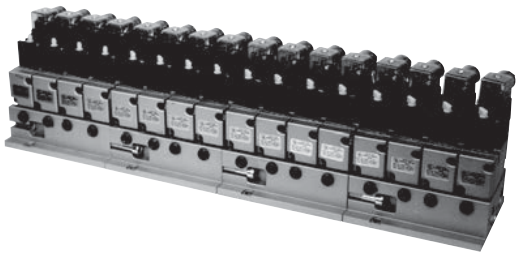
Construction: Poppet.
Mounting Type: Base.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: 8 VA inrush, 6 VA holding on 50 or 60 Hz; 6 watts on DC.
Enclosure Rating: IP65, IEC 60529.
Electrical Connections: EN 175301-803 Form A connector.
Ambient Temperature: 5° to 120°F (-15° to 50°C).
Media Temperature: 5° to 175°F (-15° to 80°C).
For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.
Flow Media: Filtered air.
Inlet Pressure: Vacuum to 150 psig (10 bar).
Manual Override: Flush; metal, locking and non-locking.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

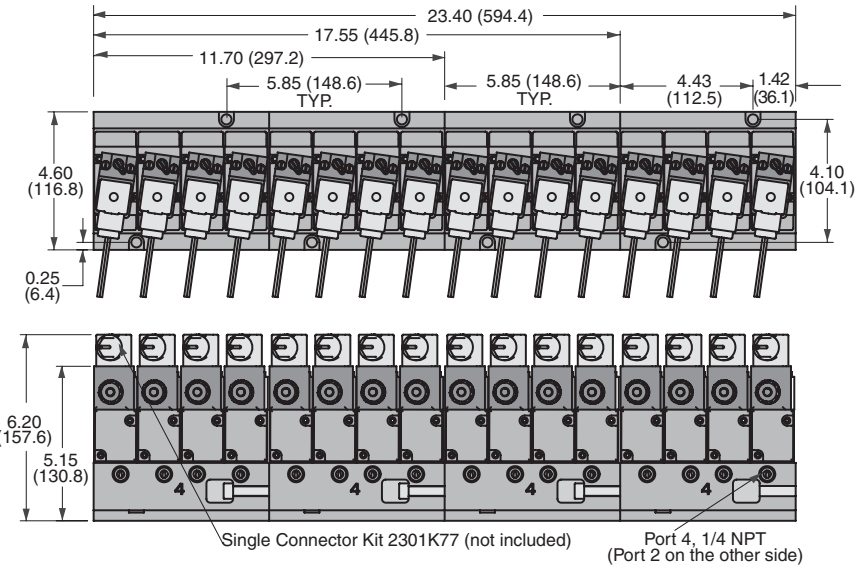
A

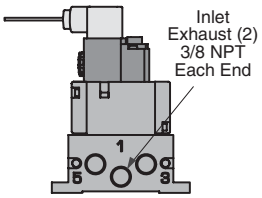
5-Way 2-Position Valves, Single Solenoid Pilot Controlled			
Valve/Manifold Assembly	Model Number	C_v	
4 Station	3900A1052-1**	0.5	
8 Station	3900A1052-2**	0.5	
12 Statio	3900A1052-3**	0.5	
16 Station	3900A1052-4**	0.5	
20 Station and over	consult ROSS	0.5	

** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 3900A1052-1W. For other voltages, consult ROSS.



Dimensions – inches (mm)





Accessories & Options

Silencers

Port Size	Thread Type	Model Number	
		NPT Threads	BSPT Threads
3/8	Male	5500A3013	D5500A3013
1/2	Male	5500A4003	D5500A3003

Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum.
Flow Media: Filtered air.

Fitting

Fitting Type	Port Threads	Model Number*
Brass Swivel	1/4	270A27
*1/4 tube.		

Electrical Connector

Connector Type	Model Number*
EN 175301-803 Form A	2301K77
* Electrical Connector w/10' leads.	

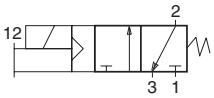
For dual or spring return actuators. Field convertible to a 3/2 Valve.

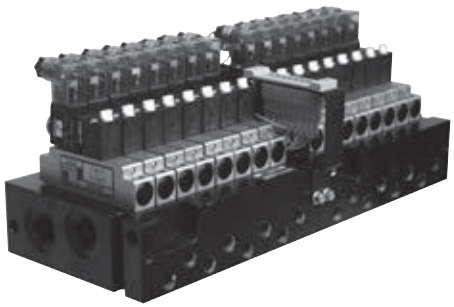
STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: Base.
Solenoids: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: 3.9 VA holding on 50/60 Hz; 2.1 watts on DC.
Enclosure Rating: IP65, IEC 60529.
Electrical Connections: EN 175301-803 Form A connector.
Ambient Temperature: 39° to 122°F (4° to 50°F).
Media Temperature: 39° to 175°F (4° to 80°C).
Indicator Light: In connector.
Flow Media: Filtered air.
Inlet Pressure: 30 to 150 psig (2 to 10 bar).

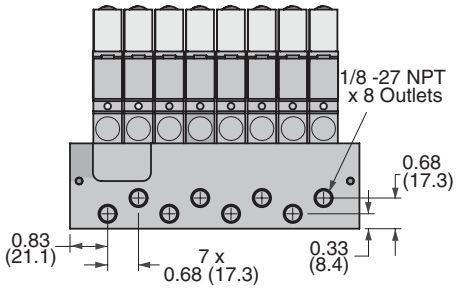
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

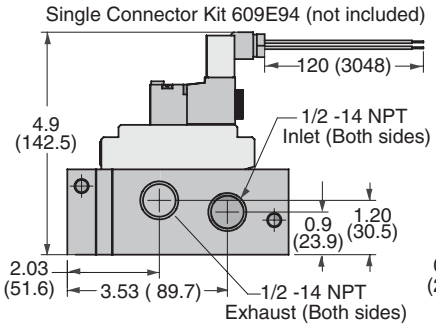
A7

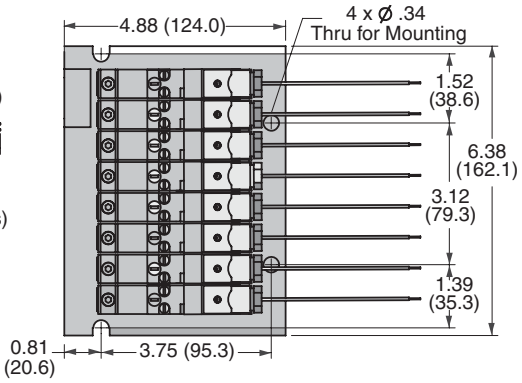
3-Way 2-Position Valves - Extended-Duty, Single Solenoid Pilot Controlled			
Valve/Manifold Assembly	Model Number		C_v
	Flying Leads	Central Wiring	
8 Station	3900A0713-1**	3900A1055-1**	0.5
16 Station	3900A0713-2**	3900A1055-2**	0.5
24 Station and over	consult ROSS	consult ROSS	0.5
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 3900A1052-1W. For other voltages, consult ROSS.			
3/2 Normally Closed 			



Dimensions – inches (mm)







Accessories & Options

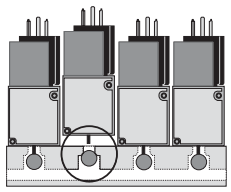
Silencers			
Port Size	Thread Type	Model Number	
		NPT Threads	BSPT Threads
3/8	Male	5500A3013	D5500A3013
1/2	Male	5500A4003	D5500A3003
Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.			

Fitting	Fitting Type	Port Threads	Model Number*	
			Flying Leads	Central Wiring
	Metal Swivel	1/8	322E27	322E27
	*1/4 tube.			

Electrical Connector	Connector Type	Model Number	
		Flying Leads	Central Wiring
	EN 175301-803 Form C	609E94	consult ROSS
	* Electrical Connector w/10' leads.		

Individual Valve Shut-off (automatic): Individual valves can be removed without shutting off main air supply to the whole manifold or entire solenoid cabinet.

- Simply remove the valve and an internal check-ball automatically blocks inlet air to that station
- Inlet air is automatically restored to the station when the valve is returned



4/2 Low-Power Solenoid Pilot Controlled Valves available, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

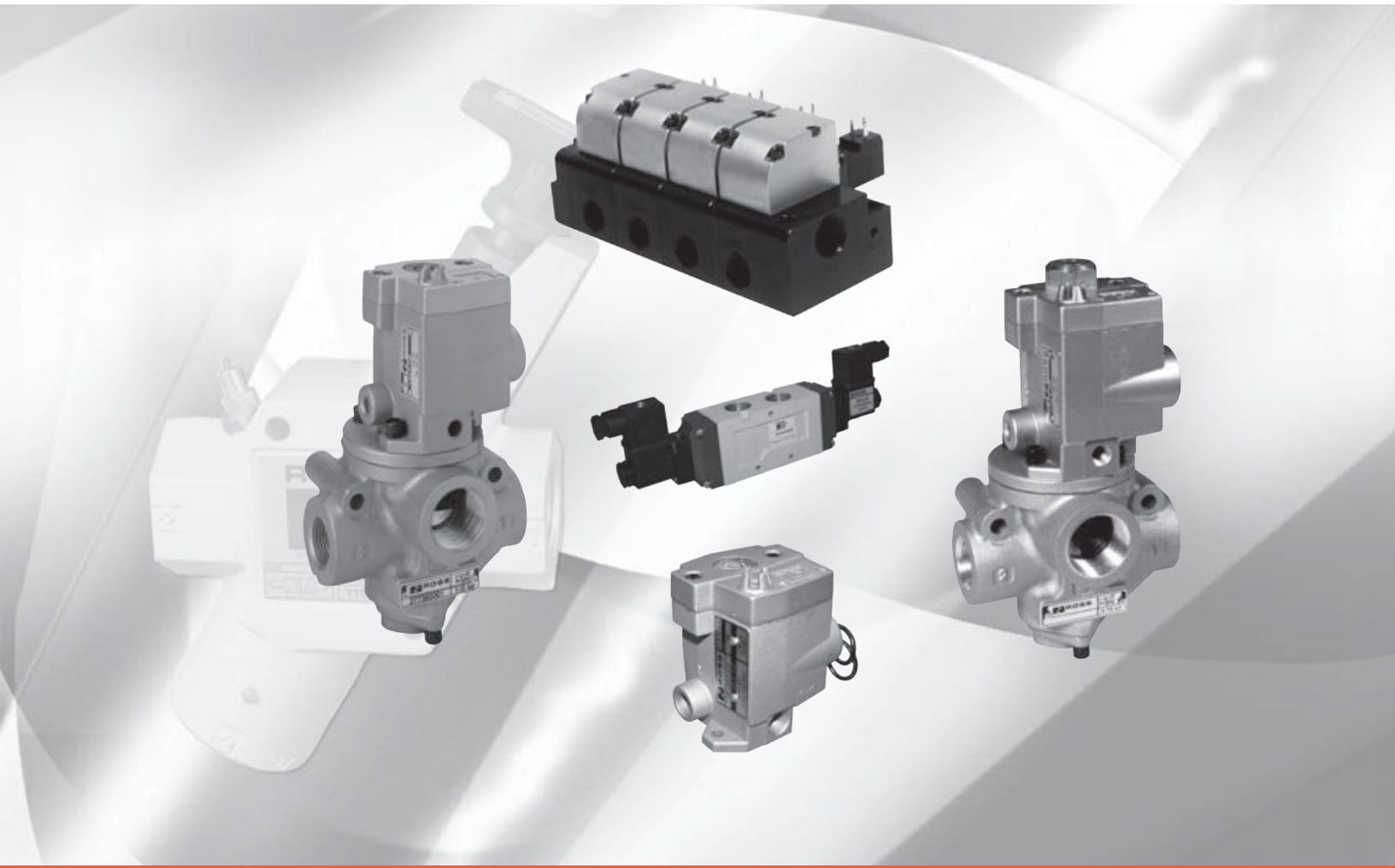
Construction: Poppet.
Mounting Type: Base.
Solenoids: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: 0.03 VA holding on 50/60 Hz; 0.8 watts on DC.
Enclosure Rating: IP65, IEC 60529.
Electrical Connections: EN 175301-803 Form C connector.
Ambient Temperature: 39° to 122°F (4° to 50°F).
Media Temperature: 39° to 175°F (4° to 80°C).
Indicator Light: In connector.
Flow Media: Filtered air.
Inlet Pressure: 30 to 150 psig (2 to 10 bar).

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

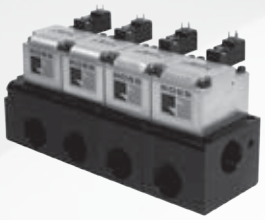
A

ROSS CONTROLS®

INLINE MOUNTED VALVES AND MANIFOLDS



B

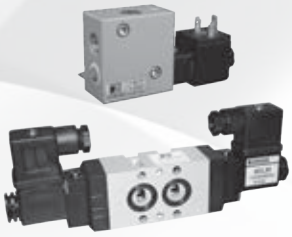


Dale Series

Poppet Valves
27 Series

Poppet Valves
21 Series

Directional Control
95 Series



NAMUR Interface 95 & 34 Series

Compact Valves
16 Series

VALVE TYPE/SERIES	DESCRIPTION		AVAILABLE INLET PORT SIZES										FUNCTIONS											Page
	Spool & Sleeve	Poppet	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	2	2½	2/2	3/2	3/4	4/2	5/2	5/3	Max Flow (Cv)	Solenoid Control	Direct Solenoid Control	Pressure Control	Manifold	
DALE SERIES																								
CP		■				■		■		■		■	■	■					100	■			■	B1.3 - B1.6
LF		■			■	■	■	■	■	■	■	■	■						64.7	■				B1.7 - B1.8
CX		■		■		■		■		■		■	■	■					100	■		■	■	B1.9 - B1.18
LX		■			■	■	■	■	■	■	■	■	■						64.7	■		■		B1.19 - B1.21
LT		■		■											■				2.2	■			■	B1.22 - B1.23
Accessories																								B1.25
27 SERIES																								
27		■		■	■	■	■	■	■	■	■	■	■	■		■			72	■				B2.3 - B2.9
27		■		■	■	■	■	■	■	■				■		■			34		■			B2.10 - B2.11
27		■		■	■	■	■	■	■	■			■	■		■			72			■		B2.3 - B2.5
Options & Accessories																								B2.12 - B2.22
21 SERIES																								
21		■		■	■	■	■	■	■	■			■	■		■			40	■				B3.3 - B3.5
21		■		■	■	■	■	■	■	■			■	■		■			40			■		B3.6 - B3.8
21 Vacuum		■		■	■	■	■	■	■	■	■	■	■	■					71	■				B3.9 - B3.10 B3.12 - B3.13
21 Full Vacuum		■		■	■	■	■	■	■	■	■	■	■	■					71	■				B3.11
Options & Accessories																								B3.14
INLINE DIRECTIONAL CONTROL 95 SERIES																								
95	■		■	■	■	■								■					2.6	■		■	■	B4.3, B4.7
95	■		■	■	■	■											■		4.5	■		■	■	B4.4 - B4.5 B4.8 - B4.9
95	■		■	■	■	■												■	3.4	■		■	■	B4.6, B4.10
Manifold Base, Options & Accessories																								B4.11 - B4.12
NAMUR INTERFACE 95 & 34 Series																								
95				■																				B5.3
34				■																				B5.4
COMPACT 16 SERIES																								
16			■	■																				B6.3 - B6.4

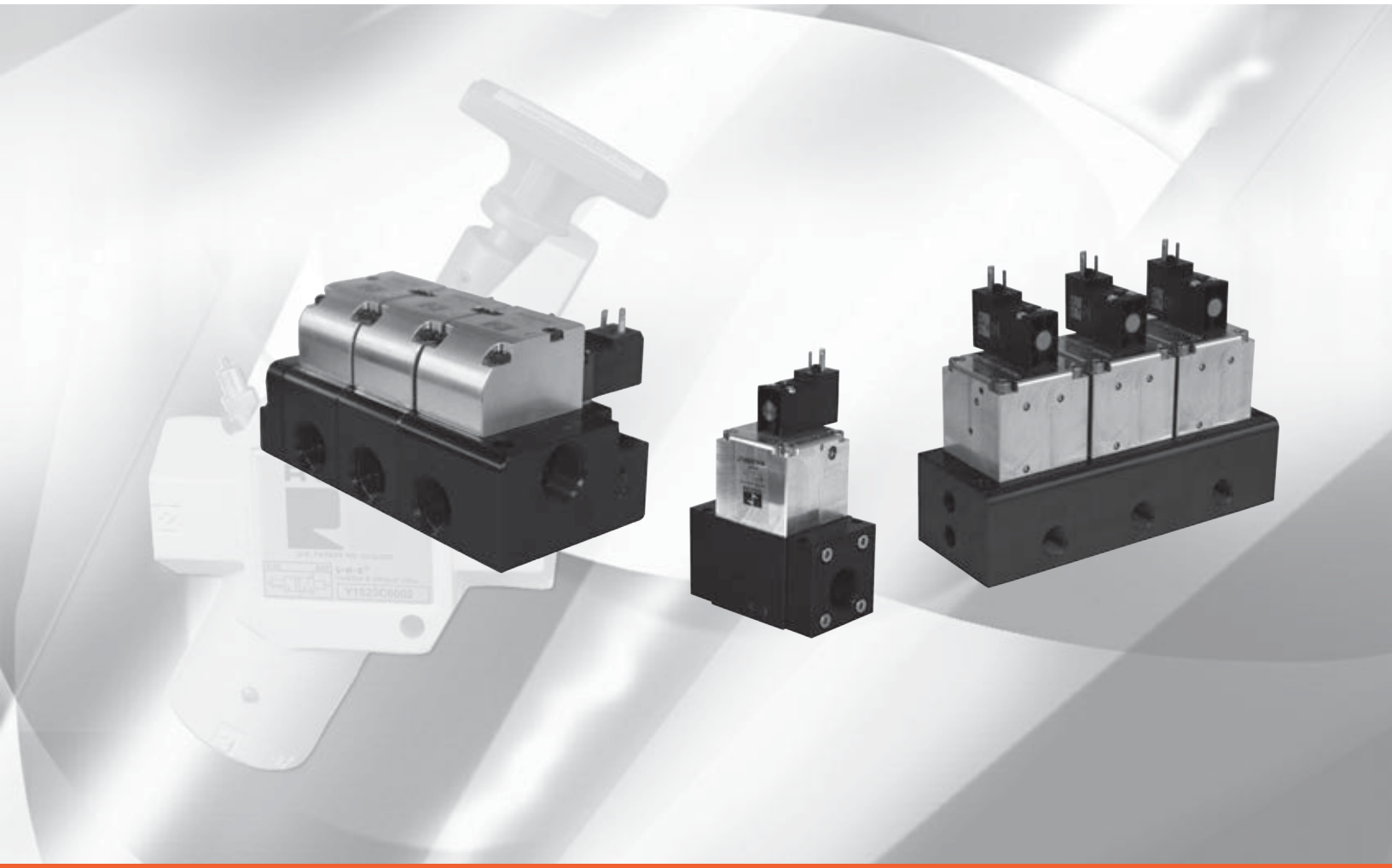
Contents

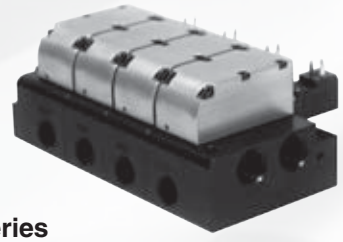
B

ROSS CONTROLS®

DALE Series Valves

Inline Poppet Valves & Manifolds
Leak Tight Valves & Manifolds

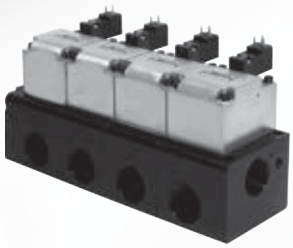




CP Series

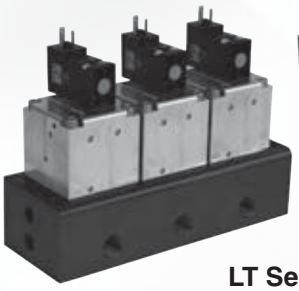
LF Series

Internally or externally piloted series for use in standard pressure applications with 30 psi (2 bar) minimum operating pressure.



CX Series

LX Series



LT Series

Externally piloted only series for use in leak tight, low pressure, vacuum, and process applications.

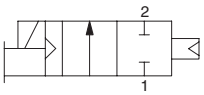
For use in leak test applications.

VALVE TYPE/FUNCTION	SOLENOID	PRESSURE	AVAILABLE INLET PORT SIZES									MAXIMUM FLOW Cv	MOUNTING		Page
			1/4	3/8	1/2	3/4	1	1¼	1½	2	2½		INLINE	MANIFOLD	
CP SERIES															
2/2	■				■		■		■		■	108	■	■	B1.3 - B1.6
3/2	■				■		■					12.3	■	■	B1.3 - B1.6
LF SERIES															
2/2	■			■	■	■	■	■	■	■	■	62.7	■		B1.7 - B1.8
CX SERIES for Leak Test Applications															
2/2	■		■		■		■		■		■	108	■		B1.9 - B1.10
3/2	■				■		■					12.3	■		B1.11
2/2		■			■		■		■		■	108	■		B1.12 - B1.13
3/2		■			■		■					12.3	■		B1.12 - B1.13
CX SERIES MANIFOLDS for Leak Test Applications															
2/2	■		■		■		■		■		■	108		■	B1.14 - B1.15
3/2	■				■		■					12.3		■	B1.16
2/2		■			■		■		■		■	108		■	B1.17 - B1.18
3/2		■			■		■					12.3		■	B1.17 - B1.18
LX SERIES for Leak Test Applications															
2/2	■			■	■	■	■	■	■	■	■	62.7	■		B1.19 - B1.20
2/2		■		■	■	■	■	■	■	■	■	62.7	■		B1.21
LT SERIES															
3/4	■		■									2.2		■	B1.22 - B1.23
Accessories	Electrical Connectors, Silencers														B1.25

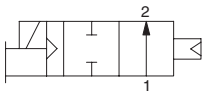
2-Way 2-Position Valves, Spring Assisted Air Return

Port Size		Model Number* Internal Pilot Supply		Pilot Port Thread		Avg. C_v	Weight lb (kg)
1	2	Normally Closed	Normally Open	NPT	BSPP		
1/2	3/8	CP14NB37101**	CP24NB37101**	10-32 UNF	M5	3.5	1.4 (0.6)
1/2	1/2	CP14NB47101**	CP24NB47101**	10-32 UNF	M5	3.5	1.4 (0.6)
1	3/4	CP16NB57101**	CP26NB57101**	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1	1	CP16NB67101**	CP26NB67101**	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1½	1¼	CP18NB77101**	CP28NB77101**	1/8-27 NPT	G1/8	44.9	10.0 (4.6)
1½	1½	CP18NB87101**	CP28NB87101**	1/8-27 NPT	G1/8	44.9	10.0 (4.6)
2½	2	CP10NB97101**	CP20NB97101**	1/8-27 NPT	G1/8	108	19.5 (8.9)
2½	2½	CP10NB07101**	CP20NB07101**	1/8-27 NPT	G1/8	108	19.5 (8.9)

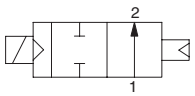
* NPT threads. For BSPP threads, replace "N" in the model number with a "D" , e.g., CP14DB37101W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110 volts AC, 120 volts AC; e.g., CP14NB37101W.



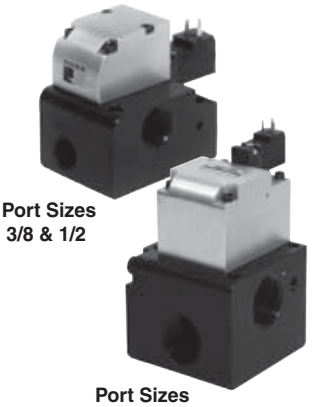
1/2 thru 2½
Normally Closed



1/2 & 1
Normally Open



1½ & 2½
Normally Open

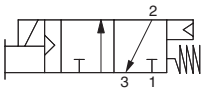

Port Sizes
3/8 & 1/2

Port Sizes
3/4 thru 2½

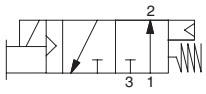
3-Way 2-Position Valves, Spring Assisted Air Return

Port Size		Model Number* Internal Pilot Supply		Pilot Port Thread		Avg. C_v	Weight lb (kg)
1, 3	2	Normally Closed	Normally Open	NPT	BSPP		
1/2	3/8	CP34NB37101**	CP44NB37101**	10-32 UNF	M5	3.5	1.8 (0.8)
1/2	1/2	CP34NB47101**	CP44NB47101**	10-32 UNF	M5	3.5	1.8 (0.8)
1	3/4	CP36NB57101**	CP46NB57101**	1/8-27 NPT	G1/8	12.3	5.3 (2.4)
1	1	CP36NB67101**	CP46NB67101**	1/8-27 NPT	G1/8	12.3	5.3 (2.4)

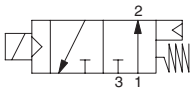
* NPT threads. For BSPP threads, replace "N" in the model number with a "D" , e.g., CP34DB37101W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110 volts AC, 120 volts AC; e.g., CP34NB37101W.



1/2 & 1
Normally Closed



1/2
Normally Open



1
Normally Open


Port Sizes
3/8 & 1/2

Port Sizes
3/4 & 1

EXTERNAL PILOT SUPPLY CONVERSION: The CP Series valves can be easily field converted to external pilot supply by simply removing existing pipe plug from port X-1, and installing air supply to the X-1 port.

Accessories ordered separately, refer to page B1.25.

STANDARD SPECIFICATIONS (for valves on this page):

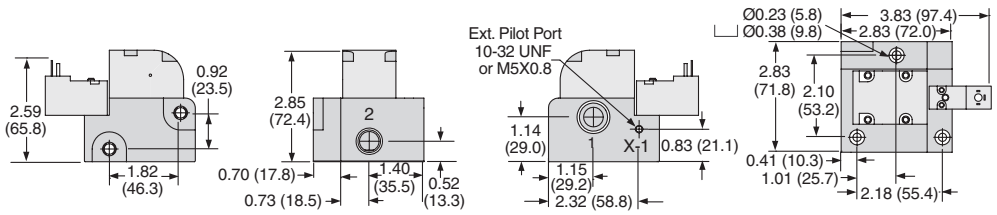
Construction: Poppet.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages/Power Consumption (each solenoid):
2/2 Valves *Port Size 1/2 & 1 and* ***3/2 Valves*** *Port Size 1/2:*
24 volts DC: 1.2 watts on DC.
110 volts AC, 50 Hz: 5.4 VA.
120 volts AC, 60 Hz: 5.0 VA.
2/2 Valves *Port Size 1½ & 2½ and* ***3/2 Valves*** *Port Size 1:*
24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz.
5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC.
Enclosure Rating: IP65, IEC 60529.
Electrical Connections: EN 175301-803 Form A or Form C connector.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air. For liquid applications, consult ROSS.
Inlet Pressure: 30 to 145 psig (2 to 10 bar).
Pilot Pressure: 30 to 145 psig (2 to 10 bar). Must be equal to or greater than inlet pressure.
Manual Override: Non-Locking.
2/2 valves: *Port Size:* 1/2 thru 2½ (Normally Closed).
Port Size: 1/2 & 1 (Normally Open).
3/2 valves: *Port Size:* 1/2 & 1 (Normally Closed).
Port Size: 1/2 (Normally Open).

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

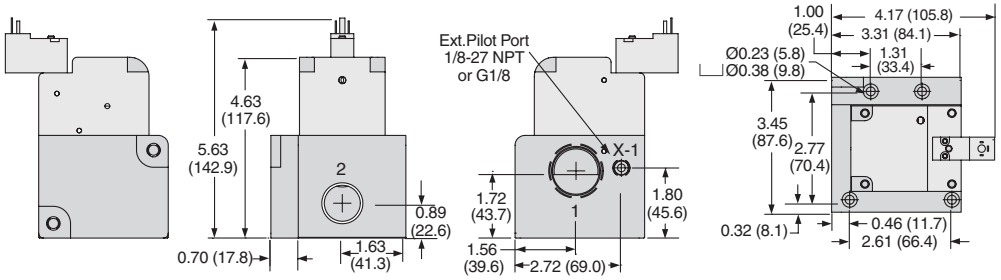
Valve Dimensions – inches (mm)

2/2 Valves

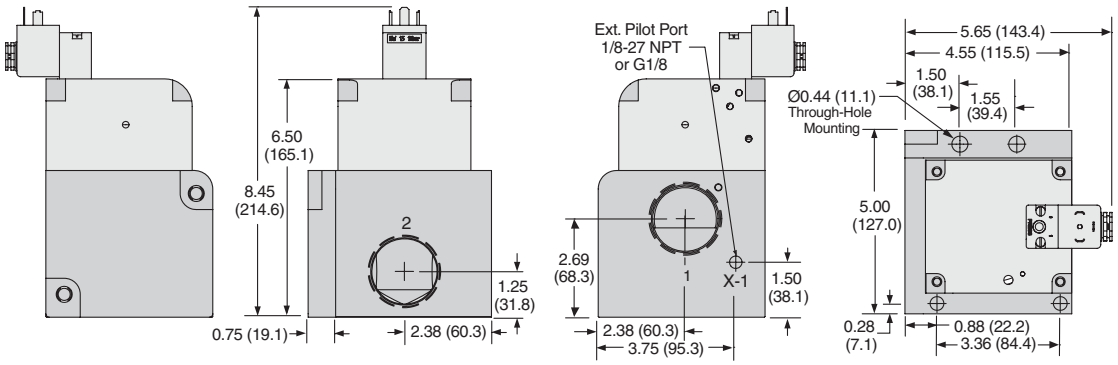
Port Size 3/8 & 1/2



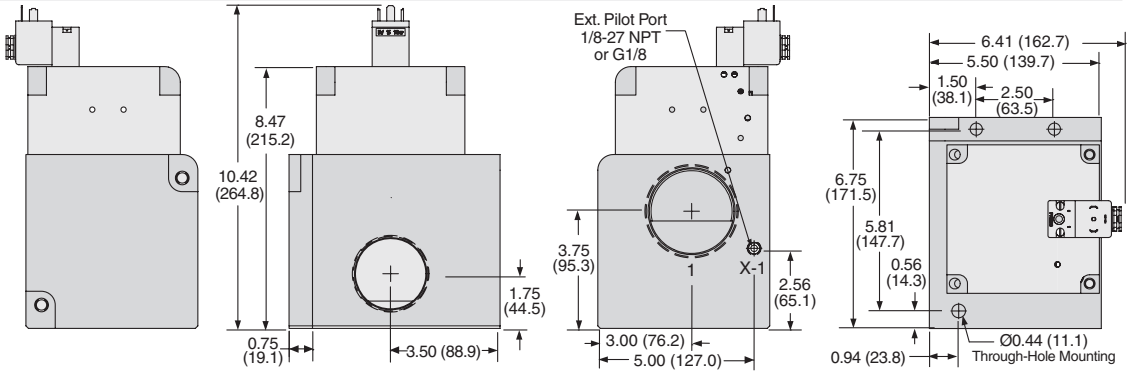
Port Size 3/4 & 1



Port Size 1¼ & 1½

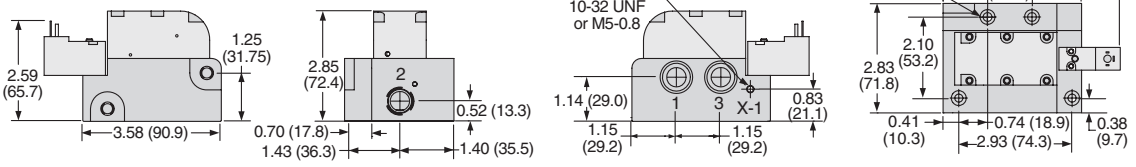


Port Size 2 & 2½

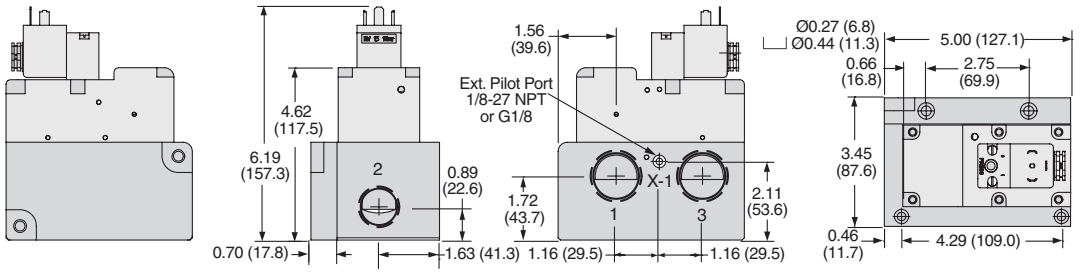


3/2 Valves

Port Size 3/8 & 1/2



Port Size 3/4 & 1

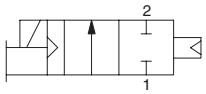


Manifolds can be ordered from two to ten stations. Complete valves-on-manifold assemblies can be ordered to fit your precise requirements. For preassembled manifold valves with the same model number, select the part number from the table below.

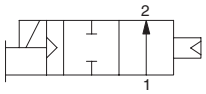
For ordering the Dale CP Series manifold valves with different valve functions, please see page B1.24 for manifold configurator.

2-Way 2-Position Valves, Spring Assisted Air Return

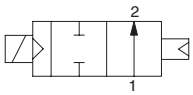
Port Size		Model Number* Internal Pilot Supply		Pilot Port Thread		Avg. C_V
1	2	Normally Closed	Normally Open	NPT	BSPP	
1/2	3/8	CP14NB3711X**	CP24NB3711X**	10-32 UNF	M5	3.7
1/2	1/2	CP14NB4711X**	CP24NB4711X**	10-32 UNF	M5	3.7
1	3/4	CP16NB5711X**	CP26NB5711X**	1/8-27 NPT	G1/8	13.7
1	1	CP16NB6711X**	CP26NB6711X**	1/8-27 NPT	G1/8	13.7
1½	1¼	CP18NB7711X**	CP28NB7711X**	1/8-27 NPT	G1/8	44.9
1½	1½	CP18NB8711X**	CP28NB8711X**	1/8-27 NPT	G1/8	44.9
2½	2	CP10NB9711X**	CP20NB9711X**	1/8-27 NPT	G1/8	108
2½	2½	CP10NB0711X**	CP20NB0711X**	1/8-27 NPT	G1/8	108



1/2 thru 2½ Normally Closed



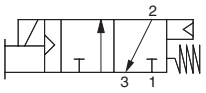
1/2 & 1 Normally Open



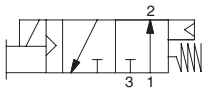
1½ & 2½ Normally Open

3-Way 2-Position Valves, Spring Assisted Air Return

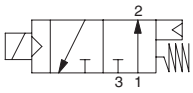
Port Size		Model Number* Internal Pilot Supply		Pilot Port Thread		Avg. C_V
1, 3	2	Normally Closed	Normally Open	NPT	BSPP	
1/2	3/8	CP34NB3711X**	CP44NB3711X**	10-32 UNF	M5	3.6
1/2	1/2	CP34NB4711X**	CP44NB4711X**	10-32 UNF	M5	3.6
1	3/4	CP36NB5711X**	CP46NB5711X**	1/8-27 NPT	G1/8	12.3
1	1	CP36NB6711X**	CP46NB6711X**	1/8-27 NPT	G1/8	12.3



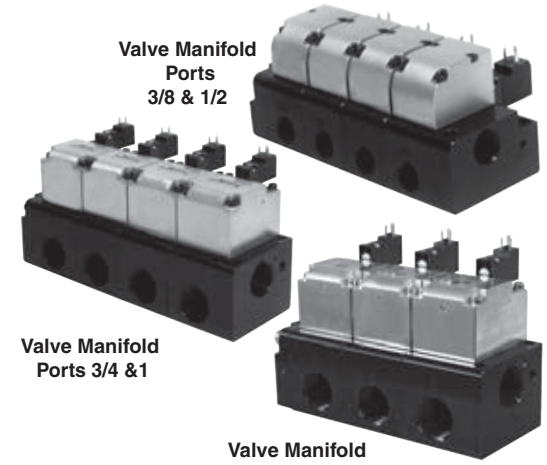
1/2 & 1 Normally Closed



1/2 Normally Open



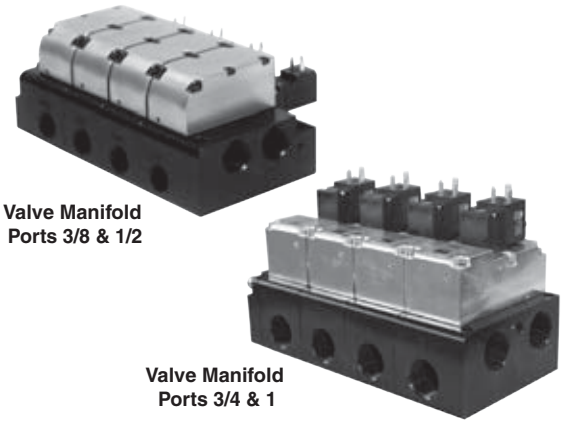
1 Normally Open



Valve Manifold Ports 3/8 & 1/2

Valve Manifold Ports 3/4 &1

Valve Manifold Ports 1¼ thru 2½



Valve Manifold Ports 3/8 & 1/2

Valve Manifold Ports 3/4 & 1

* NPT threads. For BSPP threads, replace "N" in the model number with a "D", e.g., CP14DB3711XW.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110 volts AC, 120 volts AC; e.g., CP14NB3711XW.
X To indicate the number of stations desired (2-10), replace X in the model number with the specific number of stations, e.g., CP14NB37114W, 4 = Number of Stations.
Contact ROSS for 1 station valve manifolds or refer to single CX Valve product page.

EXTERNAL PILOT SUPPLY CONVERSION: The CP Series valves can be easily field converted to external pilot supply by simply removing existing pipe plug from port X-1, and installing air supply to the X-1 port.

Accessories ordered separately, refer to page B1.25.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages/Power Consumption (each solenoid):
2/2 Valves *Port Size 1/2 & 1 and* ***3/2 Valves*** *Port Size 1/2:*
24 volts DC: 1.2 watts on DC.
110 volts AC, 50 Hz: 5.4 VA.
120 volts AC, 60 Hz: 5.0 VA.
2/2 Valves *Port Size* ***1½*** *& 2½ and* ***3/2 Valves*** *Port Size 1:*
24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz.
5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC
Enclosure Rating: IP65, IEC 60529.
Electrical Connections: EN 175301-803 Form A or Form C connector.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air. For liquid applications, consult ROSS.
Inlet Pressure: 30 145 psig (2 to 10 bar).
Pilot Pressure: 30 to 145 psig (2 to 10 bar). Must be equal to or greater than inlet pressure.
Manual Override: Non-Locking.
2/2 valves: *Port Size:* 1/2 thru 2½ (Normally Closed).
Port Size: 1/2 & 1 (Normally Open).
3/2 valves: *Port Size:* 1/2 & 1 (Normally Closed).
Port Size: 1/2 (Normally Open).

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

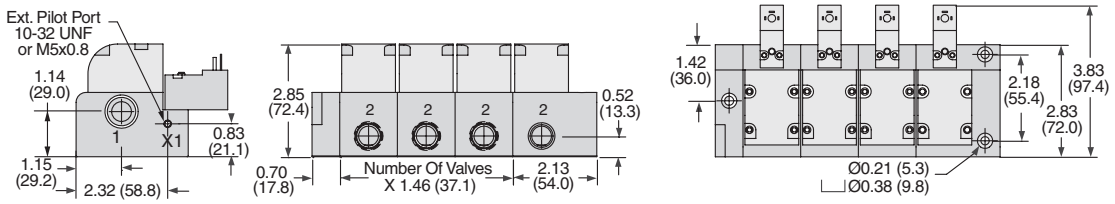
B1

B

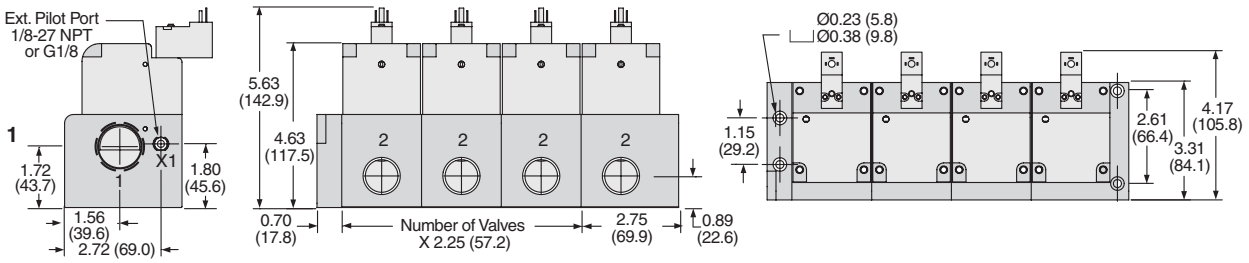
Dimensions – inches (mm)

2/2 Valves

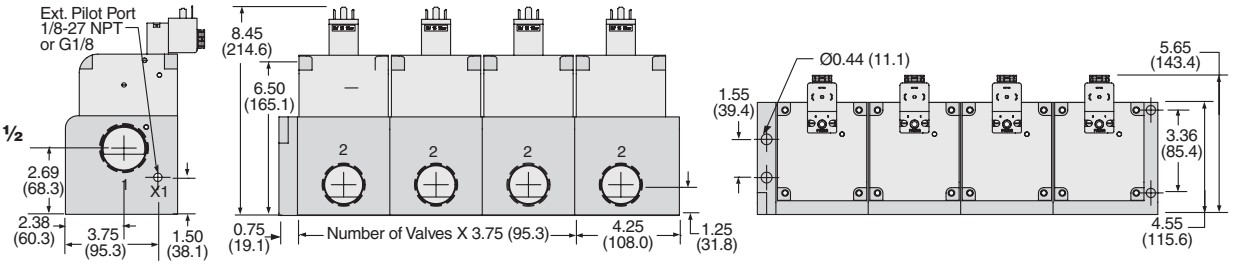
Port Size 3/8 & 1/2



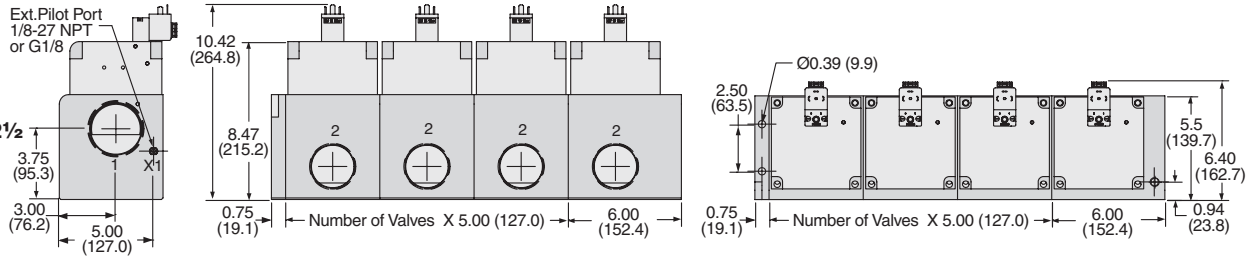
Port Size 3/4 & 1



Port Size 1¼ & 1½

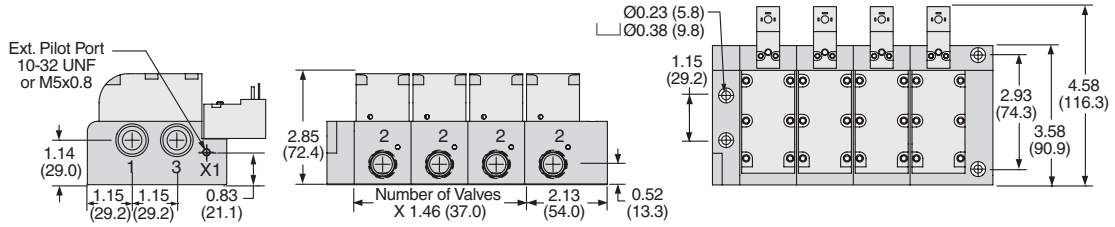


Port Size 2 & 2½

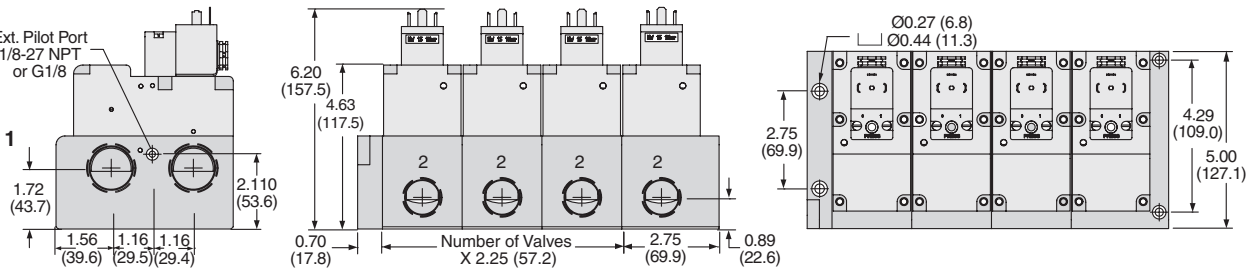


3/2 Valves

Port Size 3/8 & 1/2

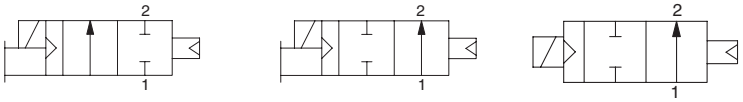


Port Size 3/4 & 1



2-Way 2-Position Valves, Spring Assisted Air Return							
Port Size		Model Number* Internal Pilot Supply		Pilot Port Thread		Avg. C_v	Weight lb (kg)
1	2	Normally Closed	Normally Open	NPT	BSPP		
3/8	3/8	LF13NB37101**	LF23NB37101**	1/8-27 NPT	G1/8	3.6	1.5 (0.7)
1/2	1/2	LF14NB47101**	LF24NB47101**	1/8-27 NPT	G1/8	3.6	1.5 (0.7)
3/4	3/4	LF15NB57101**	LF25NB57101**	1/8-27 NPT	G1/8	12.2	3.5 (1.6)
1	1	LF16NB67101**	LF26NB67101**	1/8-27 NPT	G1/8	12.2	3.5 (1.6)
1¼	1¼	LF17NB77101**	LF27NB77101**	1/8-27 NPT	G1/8	36.1	9.3 (4.2)
1½	1½	LF18NB87101**	LF28NB87101**	1/8-27 NPT	G1/8	36.1	9.3 (4.2)
2	2	LF19NB97101**	LF29NB97101**	1/8-27 NPT	G1/8	62.7	19.3 (8.8)
2½	2½	LF10NB07101**	LF20NB07101**	1/8-27 NPT	G1/8	62.7	19.3 (8.8)

* NPT threads. For BSPP threads, replace "N" in the model number with a "D", e.g., LF13DB37101W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110 volts AC, 120 volts AC; e.g., LF13NB37101W.



Normally Closed | 3/8 thru 1 Normally Open | 1¼ thru 2½ Normally Open

Ports 3/8 thru 1

Ports 1¼ thru 2½

The LF & LX Series provides superior performance over a diaphragm valve with a rugged poppet design, bi-directional flow and high cycle life.

The LF & LX Series provides superior performance over a ball valve with solenoid actuation, shifting speed, cycle life, and most important, a cost effective alternative.

Diaphragm Valve ← **Improved Performance** | **Cost Effective** → **Ball Valve**

EXTERNAL PILOT SUPPLY CONVERSION:

The LF Series valves can be easily field converted to external pilot supply by simply removing existing pipe plug from port X-1, and installing air supply to the X-1 port.

Accessories ordered separately, refer to page B1.25.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages/Power Consumption (each solenoid):
Port Size 3/8 thru 1: 24 volts DC: 1.2 watts on DC.
110 volts AC, 50 Hz: 5.4 VA.
120 volts AC, 60 Hz: 5.0 VA.
Port Size 1¼ thru 2½:
24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz.
5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC.
Enclosure Rating: IP65, IEC 60529.
Electrical Connections: EN 175301-803 Form A or Form C connector.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air. For liquid applications, consult ROSS.
Inlet Pressure: 30 to 145 psig (2 to 10 bar).
Pilot Pressure: 30 to 145 psig (2 to 10 bar). Must be equal to or greater than inlet pressure.
Manual Override: Non-Locking.
Port Size: 3/8 thru 2½ (Normally Closed).
Port Size: 3/8 thru 1 (Normally Open).

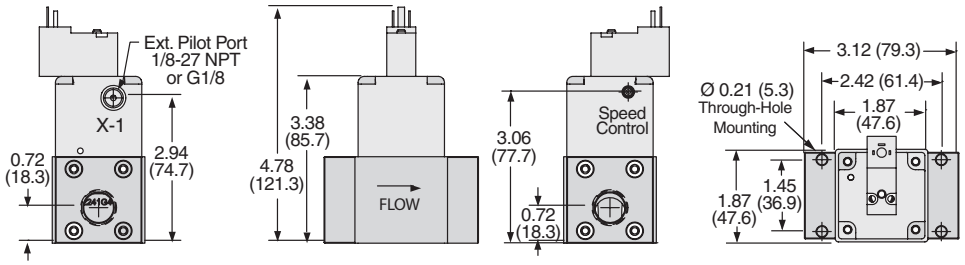
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

B1

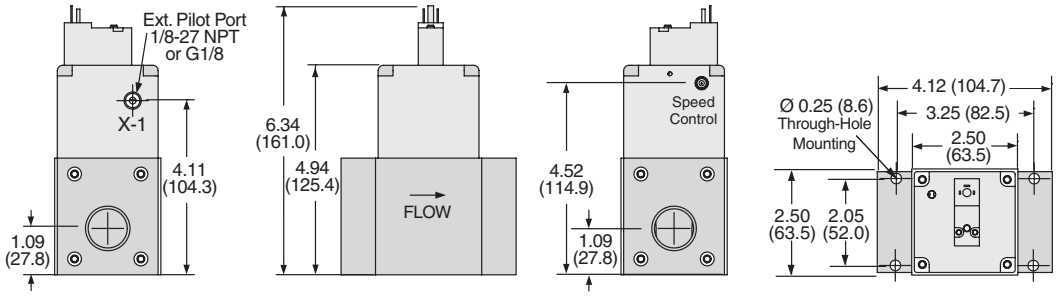
B

Valve Dimensions – inches (mm)

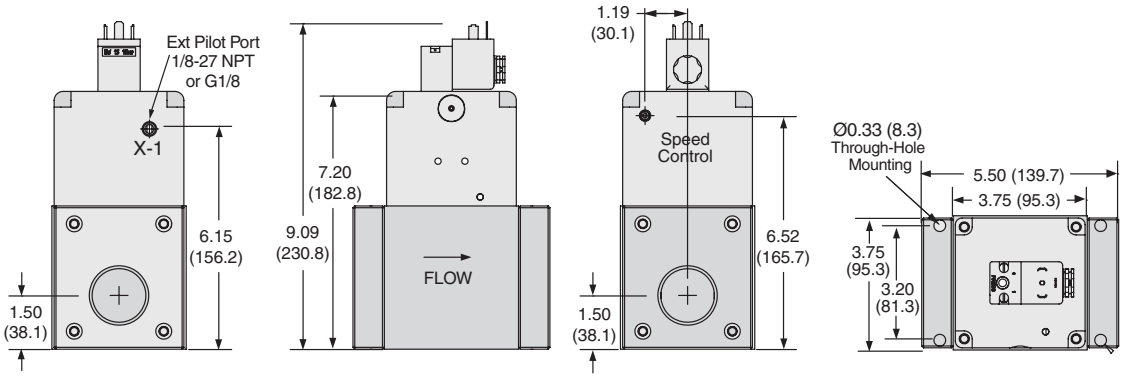
Port Size 3/8 & 1/2



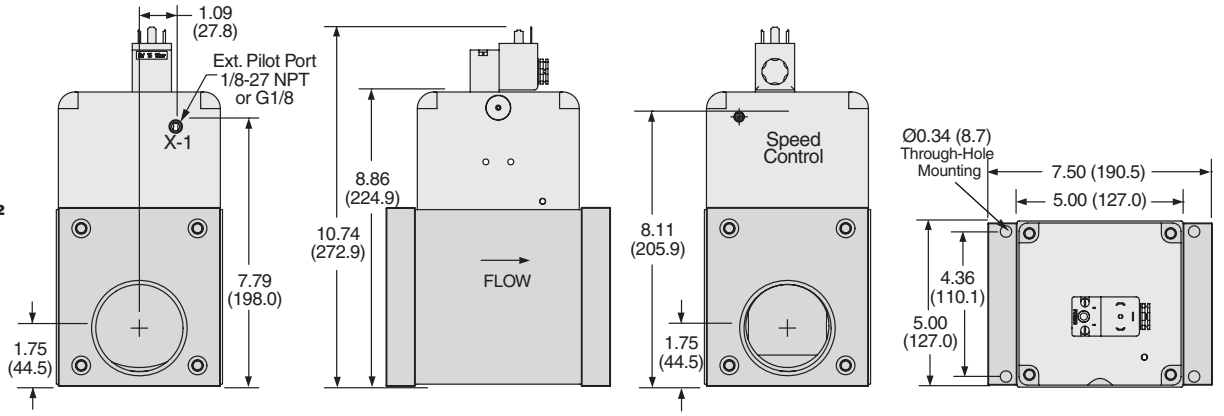
Port Size 3/4 & 1



Port Size 1¼ & 1½

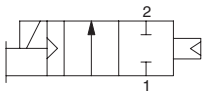


Port Size 2 & 2½

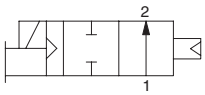


2-Way 2-Position Valves, Air Return							
Port Size		Model Number* External Pilot Supply		Pilot Port Thread		Avg. C_v	Weight lb (kg)
1	2	Normally Closed	Normally Open	NPT	BSPP		
1/4	1/4	CX12NB27501**	CX22NB27501**	10-32 UNF	M5	0.9	1.3 (0.6)
1/2	3/8	CX14NB37501**	CX24NB37501**	10-32 UNF	M5	3.5	1.4 (0.6)
1/2	1/2	CX14NB47501**	CX24NB47501**	10-32 UNF	M5	3.5	1.4 (0.6)
1	3/4	CX16NB57501**	CX26NB57501**	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1	1	CX16NB67501**	CX26NB67501**	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1½	1¼	CX18NB77501**	CX28NB77501**	1/8-27 NPT	G1/8	44.9	10.0 (4.6)
1½	1½	CX18NB87501**	CX28NB87501**	1/8-27 NPT	G1/8	44.9	10.0 (4.6)
2½	2	CX10NB97501**	CX20NB97501**	1/8-27 NPT	G1/8	108	19.5 (8.9)
2½	2½	CX10NB07501**	CX20NB07501**	1/8-27 NPT	G1/8	108	19.5 (8.9)

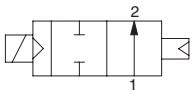
* NPT threads. For BSPP threads, replace "N" in the model number with a "D", e.g., CX12DB27501W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110 volts AC, 120 volts AC; e.g., CX12NB27501W.



1/4 thru 2½ Normally Closed



1/4 thru 1 Normally Open



1½ & 2½ Normally Open


Port Sizes 3/8 & 1/2


Port Sizes 1/4, 3/4 thru 2½

Features & Benefits:

Compact Manifold Design – Eliminating piping
High Flow – CP Series port sizes from 3/8" to 2-1/2"
Consistent Shifting – Dual piston provides smooth, consistent shifting
Bi-Directional Flow – Allows pressure or vacuum on any port at any time
Reduced Downtime – Poppet cartridge rebuilds completed in minutes
Life Test – Tested to 20 million cycles

Accessories ordered separately, refer to page B1.25.

STANDARD SPECIFICATIONS (for valves on this page):

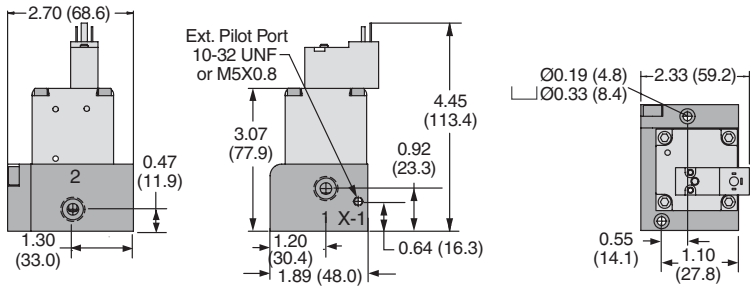
Construction: Poppet.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages/Power Consumption (each solenoid):
Port Size 1/4 thru 1:
24 volts DC: 1.2 watts on DC.
110 volts AC, 50 Hz: 5.4 VA.
120 volts AC, 60 Hz: 5.0 VA.
Port Size 1¼ thru 2½:
24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz.
5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC.
Enclosure Rating: IP65, IEC 60529.
Electrical Connections: EN 175301-803 Form A or Form C connector.

Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air. For liquid applications, consult ROSS.
Inlet Pressure:
Port Size 1/4: Vacuum to 250 psig (vacuum to 17.2 bar).
Port Size 1/2 thru 2½: Vacuum to 145 psig (vacuum to 10 bar).
Pilot Pressure:
Port Size 1/4: 70 to 145 psig (5 to 10 bar).
Port Size 1/2 thru 2½: 30 to 145 psig (2 to 10 bar). Must be equal to or greater than inlet pressure.
Manual Override: Non-Locking.
Port Size: 1/4 thru 2½ (Normally Closed).
Port Size: 1/4 thru 1 (Normally Open).

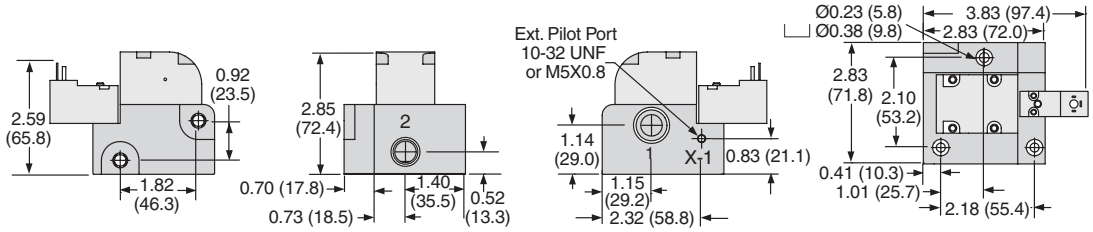
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Valve Dimensions – inches (mm)

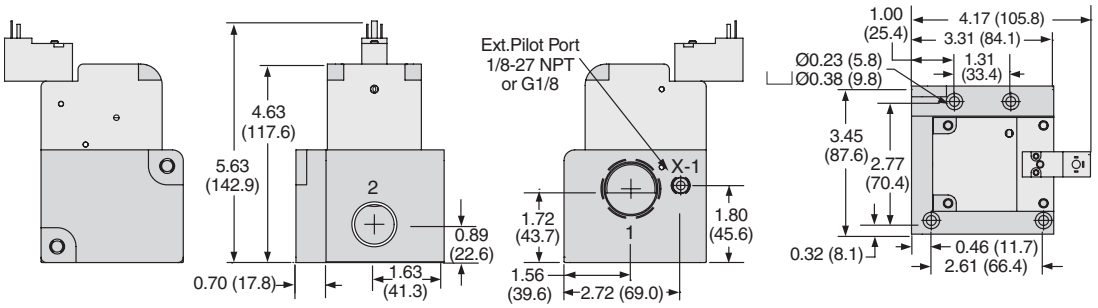
Port Size 1/4



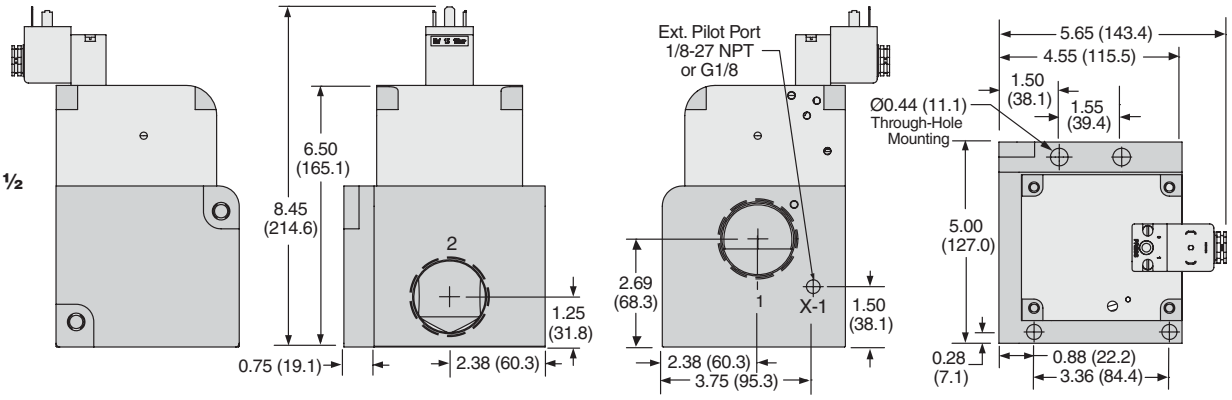
Port Size 3/8 & 1/2



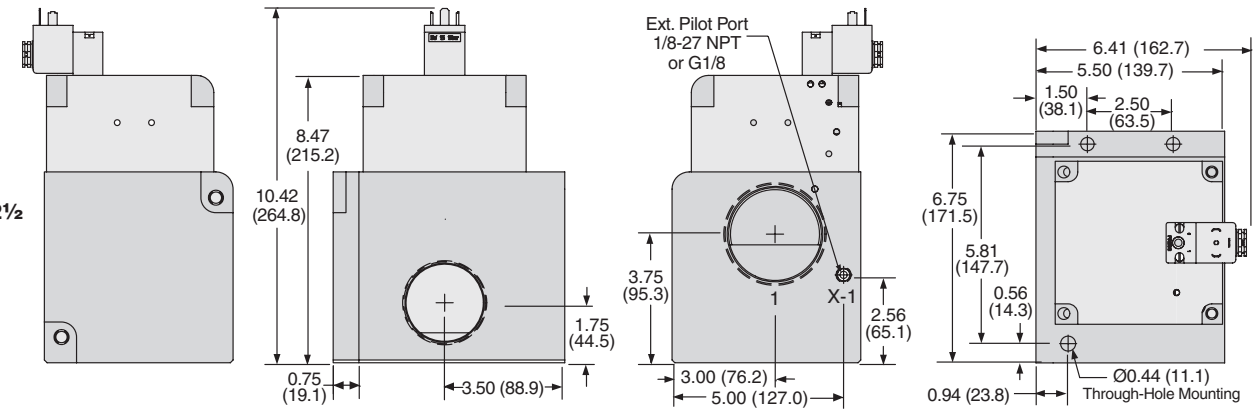
Port Size 3/4 & 1



Port Size 1¼ & 1½

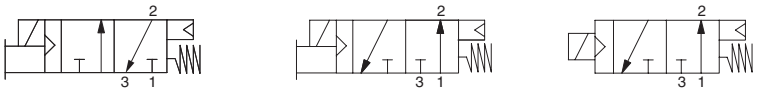


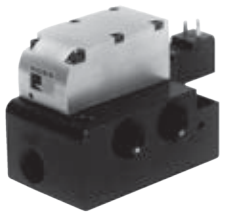
Port Size 2 & 2½



3-Way 2-Position Valves, Spring Assisted Air Return							
Port Size		Model Number* External Pilot Supply		Pilot Port Thread		Avg. C_v	Weight lb (kg)
1, 3	2	Normally Closed	Normally Open	NPT	BSPP		
1/2	3/8	CX34NB37501**	CX44NB37501**	10-32 UNF	M5	3.5	1.8 (0.8)
1/2	1/2	CX34NB47501**	CX44NB47501**	10-32 UNF	M5	3.5	1.8 (0.8)
1	3/4	CX36NB57501**	CX46NB57501**	1/8-27 NPT	G1/8	12.3	5.3 (2.4)
1	1	CX36NB67501**	CX46NB67501**	1/8-27 NPT	G1/8	12.3	5.3 (2.4)

* NPT threads. For BSPP threads, replace "N" in the model number with a "D", e.g., CX34DB37501W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110 volts AC, 120 volts AC; e.g., CX34NB37501W.



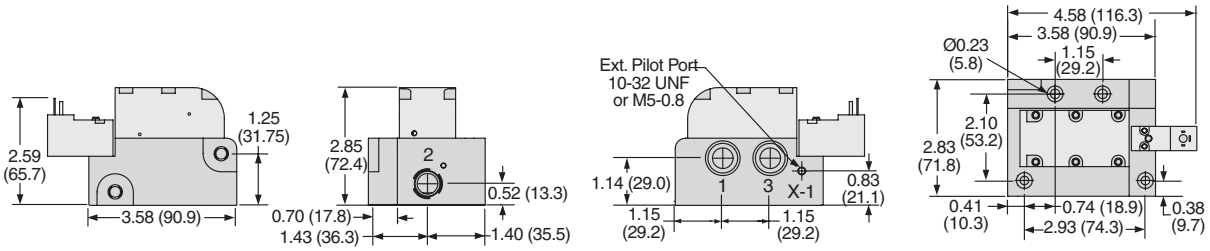


Port Sizes 3/8 & 1/2

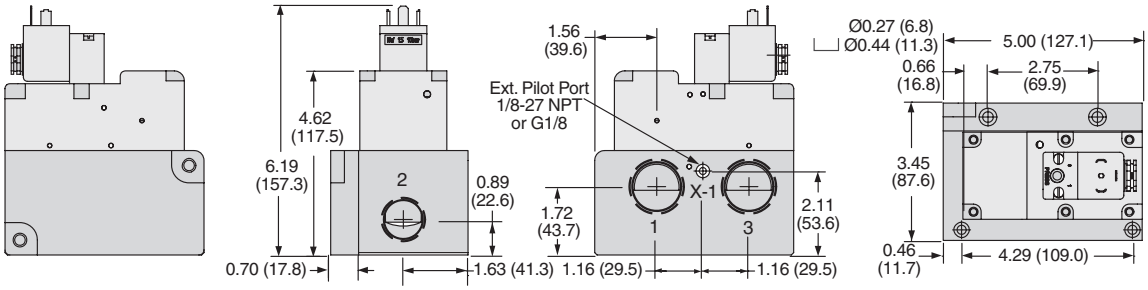
Port Sizes 3/4 & 1

Valve Dimensions – inches (mm)

Port Size 3/8 & 1/2



Port Size 3/4 & 1



Accessories ordered separately, refer to page B1.25.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages/Power Consumption (each solenoid):
Port Size 1/2: 24 volts DC: 1.2 watts on DC.
110 volts AC, 50 Hz: 5.4 VA.
120 volts AC, 60 Hz: 5.0 VA.
Port Size 1:
24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz.
5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC.

Enclosure Rating: IP65, IEC 60529.
Electrical Connections: EN 175301-803 Form A or Form C connector.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air. For liquid applications, consult ROSS.
Inlet Pressure: Vacuum to 145 psig (vacuum to 10 bar).
Pilot Pressure: 50 to 145 psig (3.4 to 10 bar). Must be equal to or greater than inlet pressure.
Manual Override: Non-Locking.
Port Size: 1/2 & 1 (Normally Closed).
Port Size: 1/2 (Normally Open).

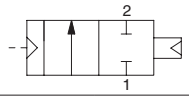
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

2-Way 2-Position Valves, Air Return

Port Size 1	Port Size 2	Model Number*	Pilot Port Thread NPT	Pilot Port Thread BSPP	Avg. C_v	Weight lb (kg)
1/2	3/8	CX14NB35501	10-32 UNF	M5	3.5	1.4 (0.6)
1/2	1/2	CX14NB45501	10-32 UNF	M5	3.5	1.4 (0.6)
1	3/4	CX16NB55501	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1	1	CX16NB65501	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1½	1¼	CX18NB75501	1/8-27 NPT	G1/8	44.9	10.0 (4.6)
1½	1½	CX18NB85501	1/8-27 NPT	G1/8	44.9	10.0 (4.6)
2½	2	CX10NB95501	1/8-27 NPT	G1/8	108	19.5 (8.9)
2½	2½	CX10NB05501	1/8-27 NPT	G1/8	108	19.5 (8.9)

* NPT threads. For BSPP threads, replace "N" in the model number with a "D", e.g., CX34DB35501.

Normally Closed



Port Sizes 3/8 & 1/2

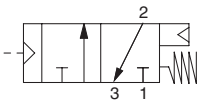
Port Sizes 3/4 thru 2½

3-Way 2-Position Valves, Spring Assisted Air Return

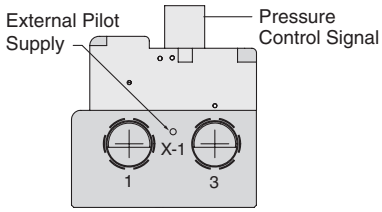
Port Size 1, 3	Port Size 2	Model Number*	Pilot Port Thread NPT	Pilot Port Thread BSPP	Avg. C_v	Weight lb (kg)
1/2	3/8	CX34NB35501	10-32 UNF	M5	3.5	1.4 (0.6)
1/2	1/2	CX34NB45501	10-32 UNF	M5	3.5	1.4 (0.6)
1	3/4	CX36NB55501	1/8-27 NPT	G1/8	12.3	3.5 (1.6)
1	1	CX36NB65501	1/8-27 NPT	G1/8	12.3	3.5 (1.6)

* NPT threads. For BSPP threads, replace "N" in the model number with a "D", e.g., CX34DB35501.

Normally Closed



Note: The Dale Series pressure controlled valves require both an external pilot supply and a control signal to operate the valve. When a pressure control signal is applied the valve shifts to the open position.



Accessories ordered separately, refer to page B1.25.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: Inline.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air. For liquid applications, consult ROSS.
Inlet Pressure: Vacuum to 250 psig (17.2 bar).

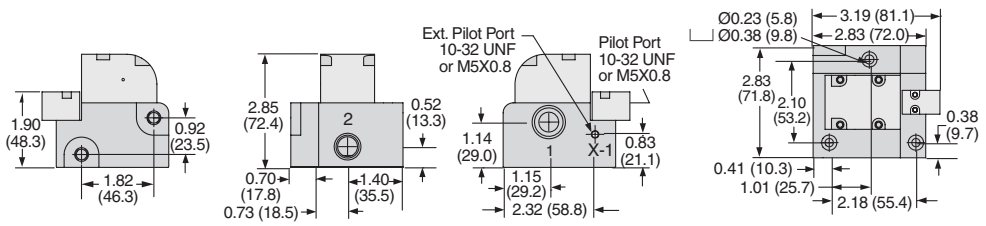
Pilot Pressure:
2/2 valves: 30 to 250 psig (2 to 17.2 bar). Must be equal to or greater than inlet pressure.
3/2 valves: 50 to 250 psig (3.4 to 17.2 bar). Must be equal to or greater than inlet pressure.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

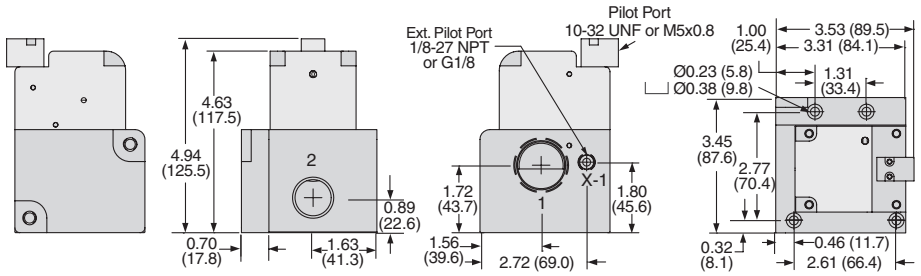
Valve Dimensions – inches (mm)

2/2 Valves

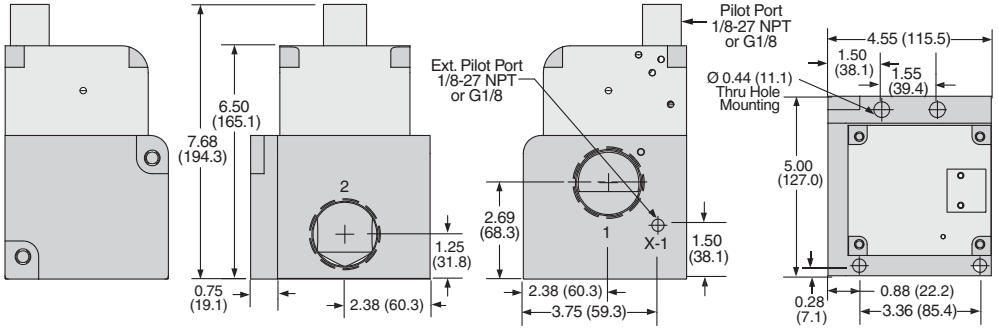
Port Size 3/8 & 1/2



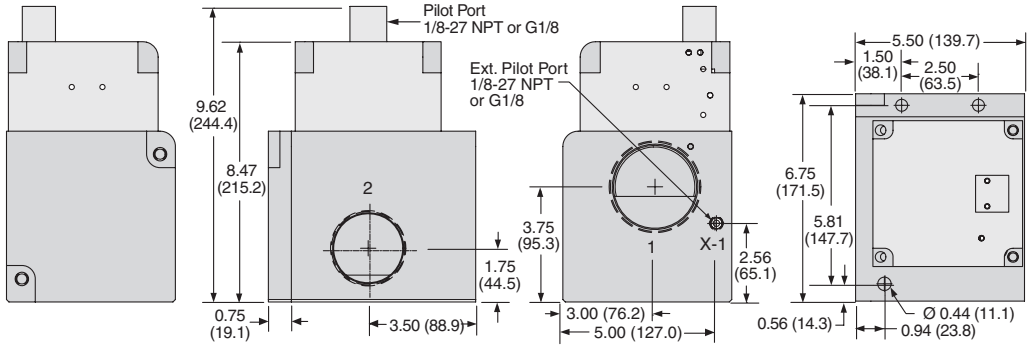
Port Size 3/4 & 1



Port Size 1¼ & 1½

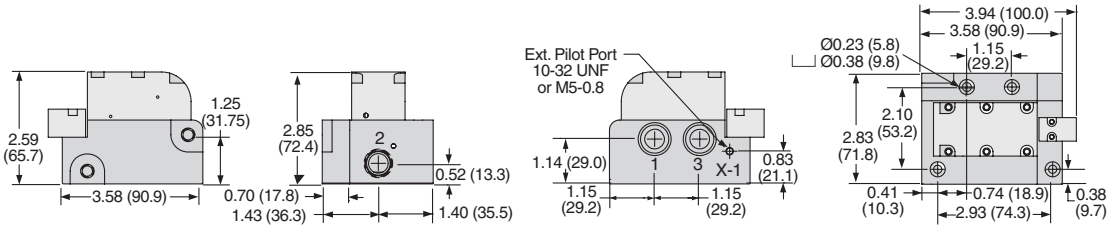


Port Size 2 & 2½

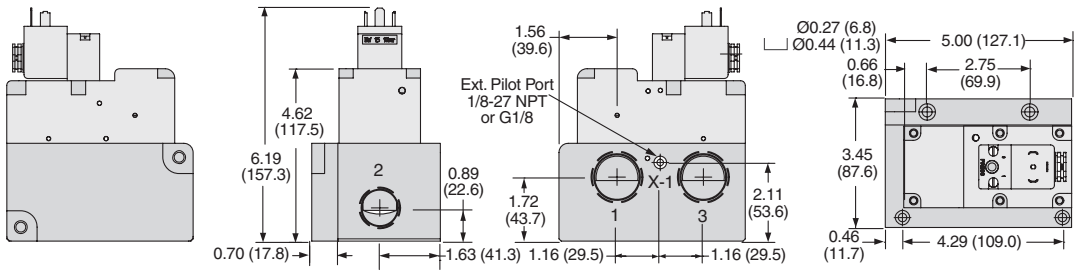


3/2 Valves

Port Size 3/8 & 1/2



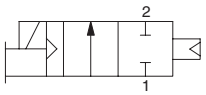
Port Size 3/4 & 1



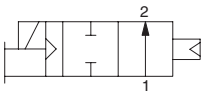
Manifolds can be ordered from two (2) to ten (10) stations. Complete valves-on-manifold assemblies can be ordered to fit your precise requirements.
For preassembled manifold valves with the same model number, select the part number from the table below.
For ordering the Dale CX Series manifold valves with different valve functions, please see page B1.24 for manifold configurator.

2-Way 2-Position Valves, Air Return

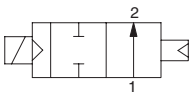
Port Size		Model Number* External Pilot Supply		Pilot Port Thread		Avg. C_v
1	2	Normally Closed	Normally Open	NPT	BSPP	
1/4	1/4	CX12NB2751X**	CX22NB2751X**	10-32 UNF	M5	0.9
1/2	3/8	CX14NB3751X**	CX24NB3751X**	10-32 UNF	M5	3.5
1/2	1/2	CX14NB4751X**	CX24NB4751X**	10-32 UNF	M5	3.5
1	3/4	CX16NB5751X**	CX26NB5751X**	1/8-27 NPT	G1/8	12.3
1	1	CX16NB6751X**	CX26NB6751X**	1/8-27 NPT	G1/8	12.3
1½	1¼	CX18NB7751X**	CX28NB7751X**	1/8-27 NPT	G1/8	44.9
1½	1½	CX18NB8751X**	CX28NB8751X**	1/8-27 NPT	G1/8	44.9
2½	2	CX10NB9751X**	CX20NB9751X**	1/8-27 NPT	G1/8	108
2½	2½	CX10NB0751X**	CX20NB0751X**	1/8-27 NPT	G1/8	108



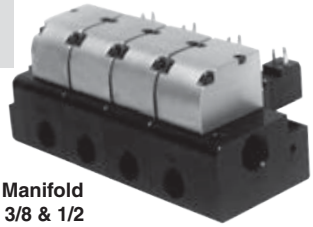
1/4 thru 2½ Normally Closed

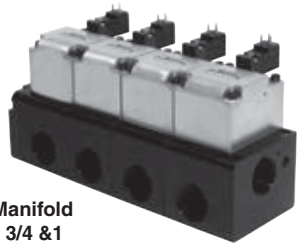


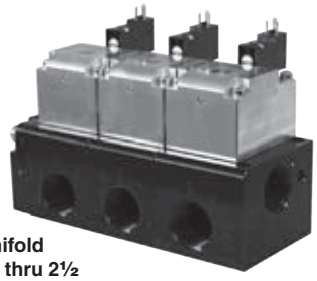
1/4 thru 1 Normally Open



1½ & 2½ Normally Open


Valve Manifold Ports 3/8 & 1/2


Valve Manifold Ports 3/4 &1


Valve Manifold Ports 1/4, 1¼ thru 2½

* NPT threads. For BSPP threads, replace "N" in the model number with a "D", e.g., CX12DB2751XW.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110 volts AC, 120 volts AC; e.g.,CX12NB2751XW.
X To indicate the number of stations desired, replace X in the model number with the specific number of stations, e.g., CX12NB27514W, 4 = 4 Stations; CX12NB27510W, 0 = 10 Stations.

Features & Benefits:

- Compact Manifold Design – Eliminating piping
- High Flow – CP Series port sizes from 3/8" to 2-1/2"
- Consistent Shifting – Dual piston provides smooth, consistent shifting
- Bi-Directional Flow – Allows pressure or vacuum on any port at any time
- Reduced Downtime – Poppet cartridge rebuilds completed in minutes
- Life Test – Tested to 20 million cycles

Accessories ordered separately, refer to page B1.25.

STANDARD SPECIFICATIONS (for valves on this page)**:**

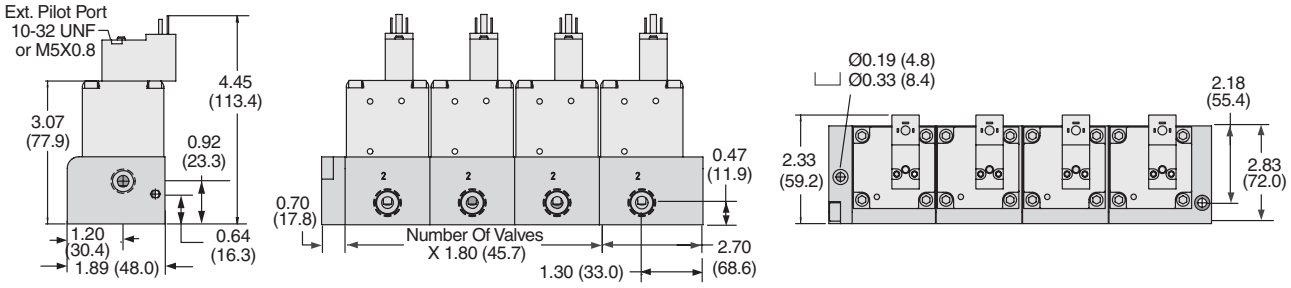
Construction: Poppet.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages/Power Consumption (each solenoid):
Port Size 1/4 thru 1: 24 volts DC: 1.2 watts on DC.
110 volts AC, 50 Hz: 5.4 VA.
120 volts AC, 60 Hz: 5.0 VA.
Port Size 1¼ thru 2½:
24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz.
5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Enclosure Rating: IP65, IEC 60529.
Electrical Connections: EN 175301-803 Form A or Form C connector.
Flow Media: Filtered air. For liquid applications, consult ROSS.
Inlet Pressure:
Port Size 1/4: Vacuum to 250 psig (vacuum to 17.2 bar).
Port Size 1/2 thru 2½: Vacuum to 145 psig (vacuum to 10 bar).
Pilot Pressure:
Port Size 1/4: 70 to 145 psig (5 to 10 bar).
Port Size 1/2 thru 2½: 30 to 145 psig (2 to 10 bar). Must be equal to or greater than inlet pressure.
Manual Override: Non-Locking.
Port Size: 1/4 thru 2½ (Normally Closed).
Port Size: 1/4 thru 1 (Normally Open).

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

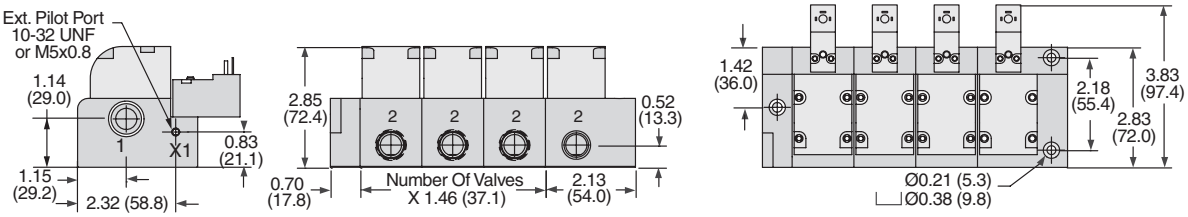
Online Version
Rev. 11/14/16

Dimensions – inches (mm)

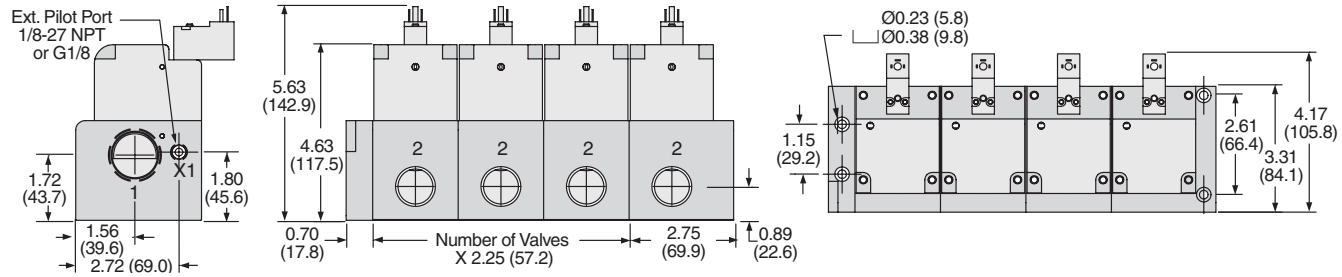
Port Size 1/4



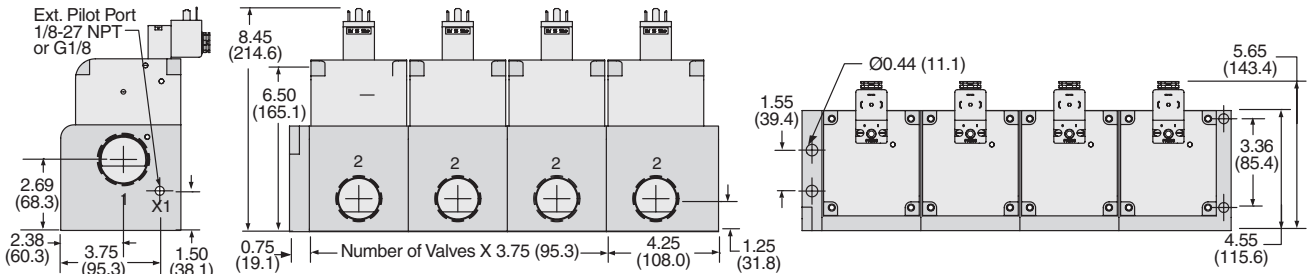
Port Size 3/8 & 1/2



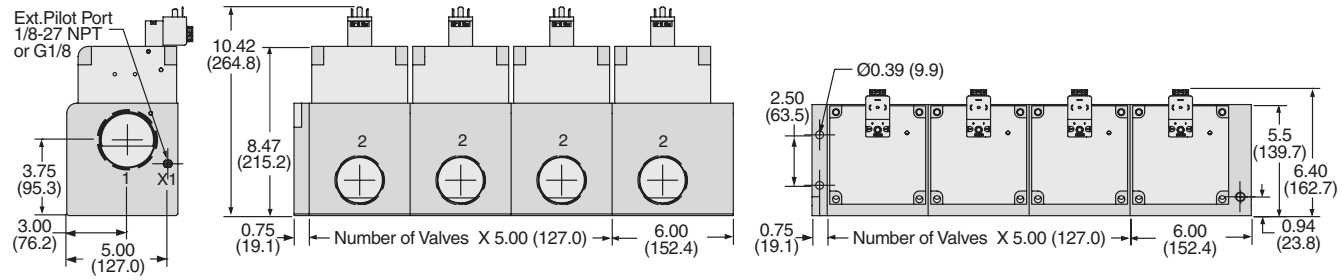
Port Size 3/4 & 1



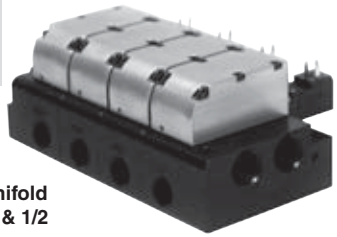
Port Size 1¼ & 1½



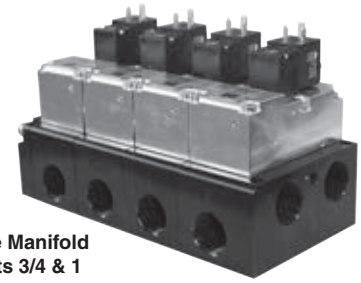
Port Size 2 & 2½



Manifolds can be ordered from two (2) to ten (10) stations. Complete valves-on-manifold assemblies can be ordered to fit your precise requirements.
For preassembled manifold valves with the same model number, select the part number from the table below. For ordering the Dale CX Series manifold valves with different valve functions, please see page B1.24 for manifold configurator.



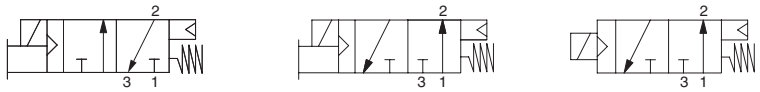
Valve Manifold
Ports 3/8 & 1/2



Valve Manifold
Ports 3/4 & 1

3-Way 2-Position Valves, Spring Assisted Air Return

Port Size		Model Number* External Pilot Supply		Pilot Port Thread		Avg. C_v
1, 3	2	Normally Closed	Normally Open	NPT	BSPP	
1/2	3/8	CX34NB3751X**	CX44NB3751X**	10-32 UNF	M5	3.6
1/2	1/2	CX34NB4751X**	CX44NB4751X**	10-32 UNF	M5	3.6
1	3/4	CX36NB5751X**	CX46NB5751X**	1/8-27 NPT	G1/8	12.3
1	1	CX36NB6751X**	CX46NB6751X**	1/8-27 NPT	G1/8	12.3



1/2 & 1
Normally Closed

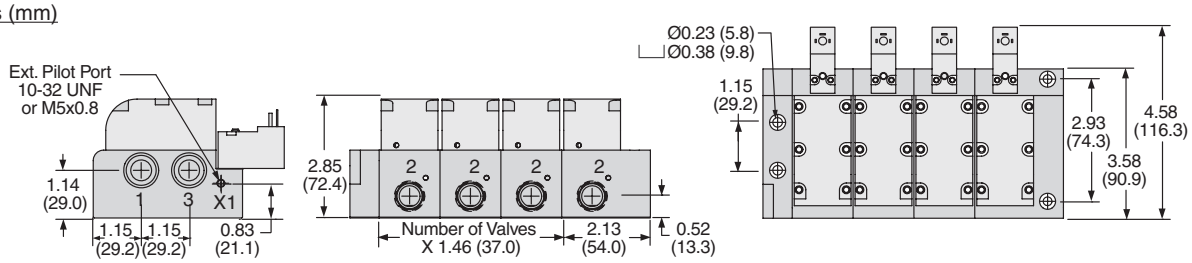
1/2
Normally Open

1
Normally Open

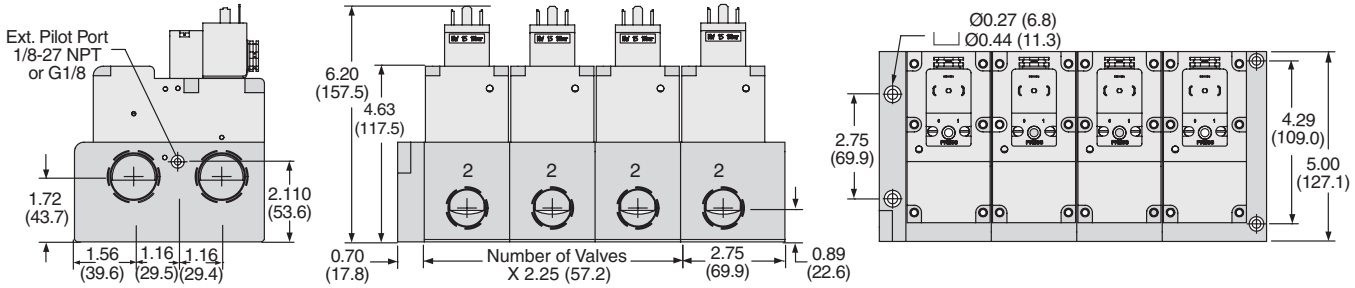
* NPT threads. For BSPP threads, replace "N" in the model number with a "D", e.g., CX34DB3751**.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110 volts AC, 120 volts AC; e.g., CX34NB3751XW.
X To indicate the number of stations desired, replace X in the model number with the specific number of stations, e.g., CX34NB37514W, 4 = 4 Stations ; CX34NB37510W, 0 = 10 Stations.

Dimensions – inches (mm)

Port Size 3/8 & 1/2



Port Size 3/4 & 1



Accessories ordered separately, refer to page B1.25.

STANDARD SPECIFICATIONS (for valves on this page):

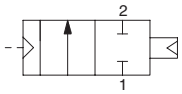
Construction: Poppet.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages/Power Consumption (each solenoid):
Port Size 1/2: 24 volts DC: 1.2 watts on DC.
110 volts AC, 50 Hz: 5.4 VA.
120 volts AC, 60 Hz: 5.0 VA.
Port Size 1: 24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz. 5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC.
Enclosure Rating: IP65, IEC 60529.
Electrical Connections: EN 175301-803 Form A or Form C connector.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air. For liquid applications, consult ROSS.
Inlet Pressure: Vacuum to 145 psig (vacuum to 10 bar).
Pilot Pressure: 50 to 145 psig (3.4 to 10 bar). Must be equal to or greater than inlet pressure.
Manual Override: Non-Locking.
Port Size: 1/2 & 1 (Normally Closed).
Port Size: 1/2 (Normally Open).

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

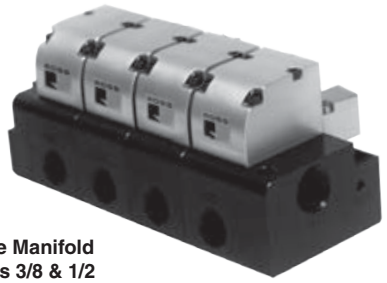
Manifolds can be ordered from two (2) to ten (10) stations.
Complete valves-on-manifold assemblies can be ordered to fit your precise requirements.
For preassembled manifold valves with the same model number, select the part number from the table below.
For ordering the Dale CX Series manifold valves with different valve functions, please see page B1.24 for manifold configurator.

2-Way 2-Position Valves, Air Return

Port Size		Model Number*	Pilot Port Thread		Avg. C_v
1	2		NPT	BSPP	
1/2	3/8	CX14NB3551X	10-32 UNF	M5	3.7
1/2	1/2	CX14NB4551X	10-32 UNF	M5	3.7
1	3/4	CX16NB5551X	1/8-27 NPT	G1/8	13.7
1	1	CX16NB6551X	1/8-27 NPT	G1/8	13.7
1½	1¼	CX18NB7551X	1/8-27 NPT	G1/8	44.9
1½	1½	CX18NB8551X	1/8-27 NPT	G1/8	44.9
2½	2	CX10NB9551X	1/8-27 NPT	G1/8	108
2½	2½	CX10NB0551X	1/8-27 NPT	G1/8	108

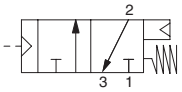


Normally Closed

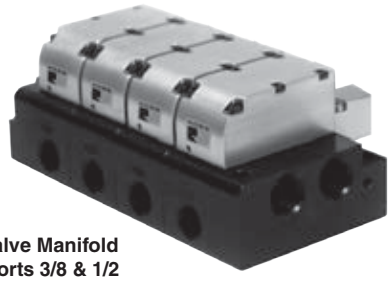

Valve Manifold
Ports 3/8 & 1/2

3-Way 2-Position Valves, Spring Assisted Air Return

Port Size		Model Number*	Pilot Port Thread		Avg. C_v
1, 3	2		NPT	BSPP	
1/2	3/8	CX34NB3551X	10-32 UNF	M5	3.6
1/2	1/2	CX34NB4551X	10-32 UNF	M5	3.6
1	3/4	CX36NB5551X	1/8-27 NPT	G1/8	12.3
1	1	CX36NB6551X	1/8-27 NPT	G1/8	12.3

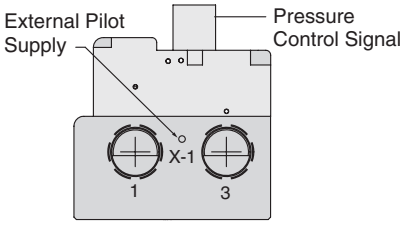


Normally Closed


Valve Manifold
Ports 3/8 & 1/2

* NPT threads. For BSPP threads, replace "N" in the model number with a "D", e.g., CX14DB3551X.
X To indicate the number of stations desired, replace X in the model number with the specific number of stations, e.g., CX14NB35516, 6 = 6 Stations; CX14NB35510, 0 = 10 Stations.

Note: The Dale Series pressure controlled valves require both an external pilot supply and a control signal to operate the valve. When a pressure control signal is applied the valve shifts to the open position.



Note: For manifolds requiring different valves types, consult ROSS.

Accessories ordered separately, refer to page B1.25.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: Inline.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air. For liquid applications, consult ROSS.
Inlet Pressure: Vacuum to 250 psig (vacuum to 17.2 bar).

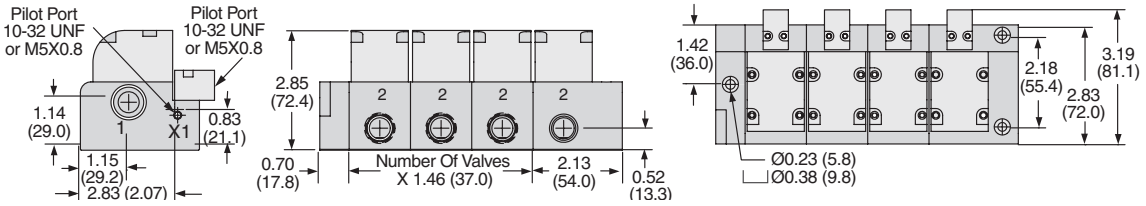
Pilot Pressure:
2/2 valves: 30 to 250 psig (2 to 17.2 bar).
Must be equal to or greater than inlet pressure.
3/2 valves: 50 to 250 psig (3.4 to 17.2 bar). Must be equal to or greater than inlet pressure.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

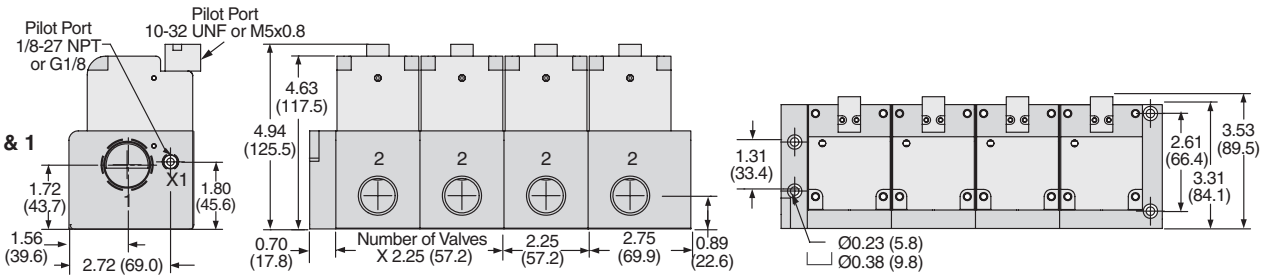
Dimensions – inches (mm)

2/2 Valves

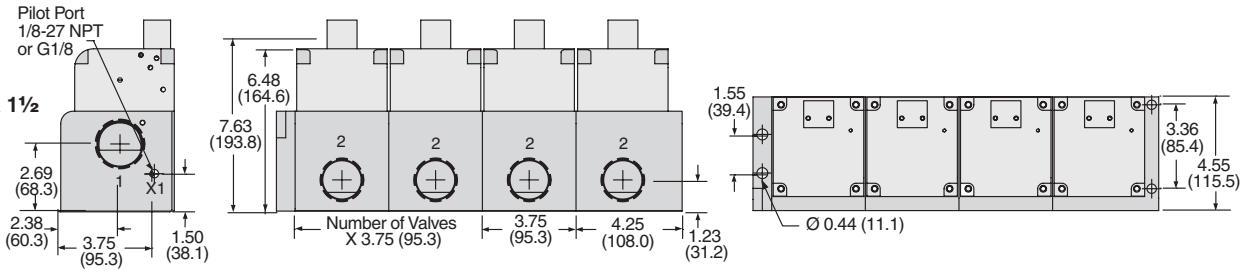
Port Size 3/8 & 1/2



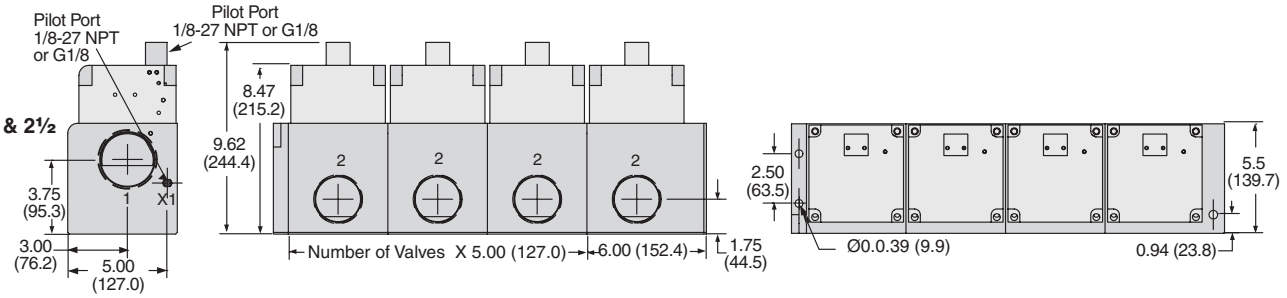
Port Size 3/4 & 1



Port Size 1¼ & 1½

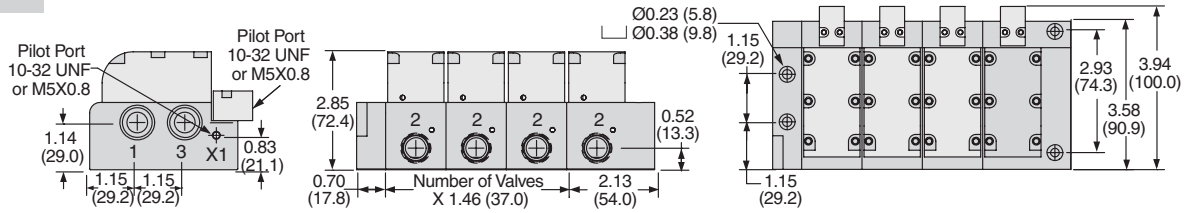


Port Size 2 & 2½

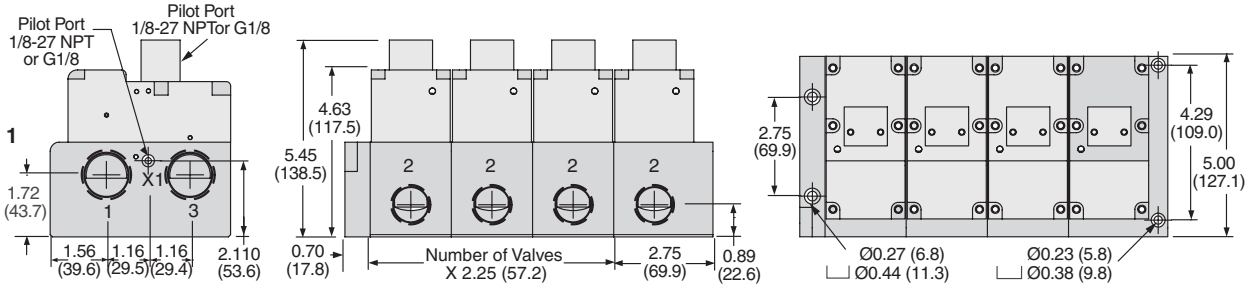


3/2 Valves

Port Size 3/8 & 1/2

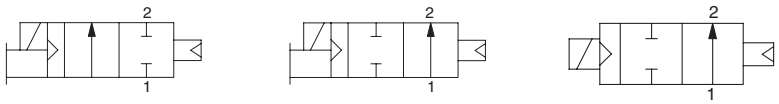


Port Size 3/4 & 1



2-Way 2-Position Valves, Air Return							
Port Size		Model Number* External Pilot Supply		Pilot Port Thread		Avg. C_v	Weight lb (kg)
1	2	Normally Closed	Normally Open	NPT	BSPP		
3/8	3/8	LX13NB37501**	LX23NB37501**	10-32 UNF	M5	3.6	1.5 (0.7)
1/2	1/2	LX14NB47501**	LX24NB47501**	10-32 UNF	M5	3.6	1.5 (0.7)
3/4	3/4	LX15NB57501**	LX25NB57501**	1/8-27 NPT	G1/8	12.2	3.5 (1.6)
1	1	LX16NB67501**	LX26NB67501**	1/8-27 NPT	G1/8	12.2	3.5 (1.6)
1¼	1¼	LX17NB77501**	LX27NB77501**	1/8-27 NPT	G1/8	36.1	9.3 (4.2)
1½	1½	LX18NB87501**	LX28NB87501**	1/8-27 NPT	G1/8	36.1	9.3 (4.2)
2	2	LX19NB97501**	LX29NB97501**	1/8-27 NPT	G1/8	62.7	19.3 (8.8)
2½	2½	LX10NB07501**	LX20NB07501**	1/8-27 NPT	G1/8	62.7	19.3 (8.8)

* NPT threads. For BSPP threads, replace "N" in the model number with a "D", e.g., LX13DB37501W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110 volts AC, 120 volts AC; e.g., LX13NB37501W.



Normally Closed | 3/8 thru 1 Normally Open | 1¼ & 2½ Normally Open

Ports 3/8 thru 1

Ports 1¼ thru 2½

The LF & LX Series provides superior performance over a diaphragm valve with a rugged poppet design, bi-directional flow and high cycle life.

The LF & LX Series provides superior performance over a ball valve with solenoid actuation, shifting speed, cycle life, and most important, a cost effective alternative.

Diaphragm Valve → **Improved Performance** ← **Cost Effective** **Ball Valve**

EXTERNAL PILOT SUPPLY CONVERSION:

The LX Series valves can be easily field converted to external pilot supply by simply removing existing pipe plug from port X-1, and installing air supply to the X-1 port.

Accessories ordered separately, refer to page B1.25.

STANDARD SPECIFICATIONS (for valves on this page):

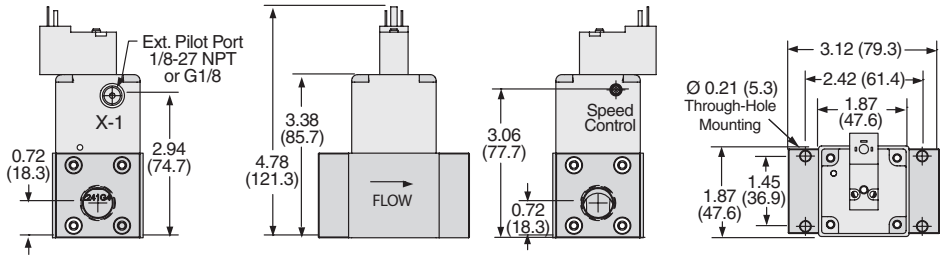
Construction: Poppet.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages/Power Consumption (each solenoid)**:**
Port Size 3/8 thru 1:
24 volts DC: 1.2 watts on DC.
110 volts AC, 50 Hz: 5.4 VA.
120 volts AC, 60 Hz: 5.0 VA.
Port Size 1¼ thru 2½:
24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz.
5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC.

Enclosure Rating: IP65, IEC 60529.
Electrical Connections: EN 175301-803 Form A or Form C connector.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air. For liquid applications, consult ROSS.
Inlet Pressure: Vacuum to 145 psig (vacuum to 10 bar).
Pilot Pressure: 30 to 145 psig (2 to 10 bar). Must be equal to or greater than inlet pressure.
Manual Override: Non-Locking.
Port Size: 3/8 thru 2½ (Normally Closed).
Port Size: 3/8 thru 1 (Normally Open).

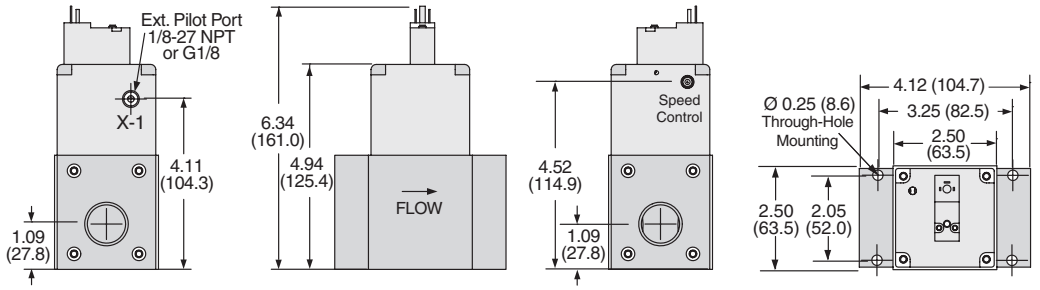
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Valve Dimensions – inches (mm)

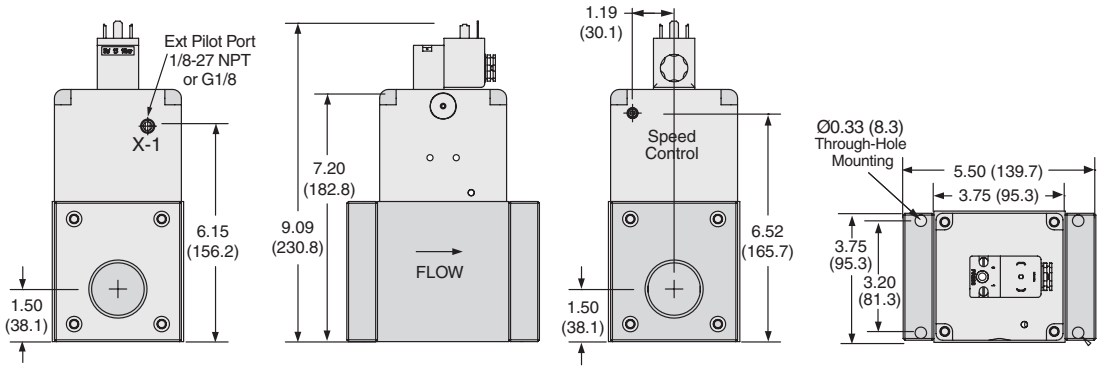
Port Size 3/8 & 1/2



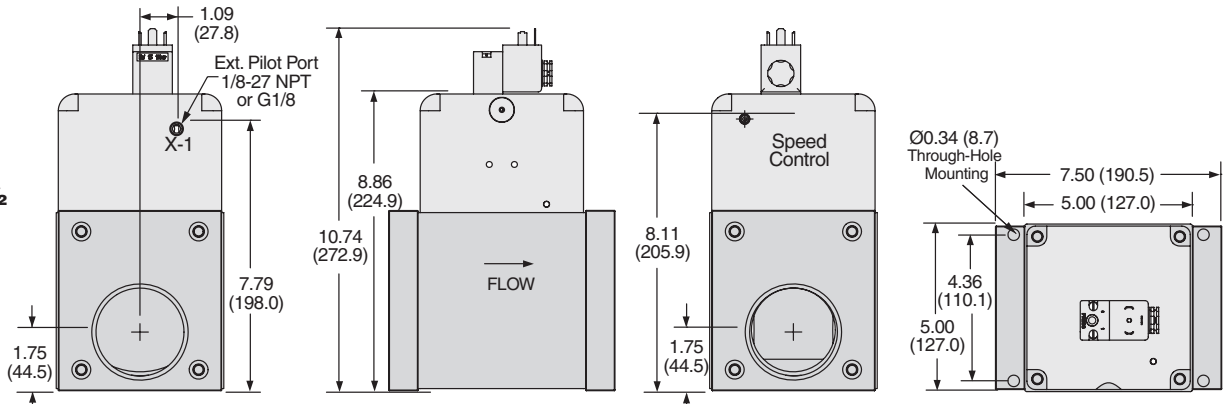
Port Size 3/4 & 1



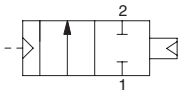
Port Size 1¼ & 1½



Port Size 2 & 2½



2-Way 2-Position Valves, Air Return						
Port Size		Model Number*	Pilot Port Thread		Avg. C_v	Weight lb (kg)
1	2		NPT	BSPP		
3/8	3/8	LX13NB35501	10-32 UNF	M5	3.6	1.5 (0.7)
1/2	1/2	LX14NB45501	10-32 UNF	M5	3.6	1.5 (0.7)
3/4	3/4	LX15NB55501	1/8-27 NPT	G1/8	12.2	3.5 (1.6)
1	1	LX16NB65501	1/8-27 NPT	G1/8	12.2	3.5 (1.6)
1¼	1¼	LX17NB75501	1/8-27 NPT	G1/8	36.1	9.3 (4.2)
1½	1½	LX18NB85501	1/8-27 NPT	G1/8	36.1	9.3 (4.2)
2	2	LX19NB95501	1/8-27 NPT	G1/8	62.7	19.3 (8.8)
2½	2½	LX10NB05501	1/8-27 NPT	G1/8	62.7	19.3 (8.8)

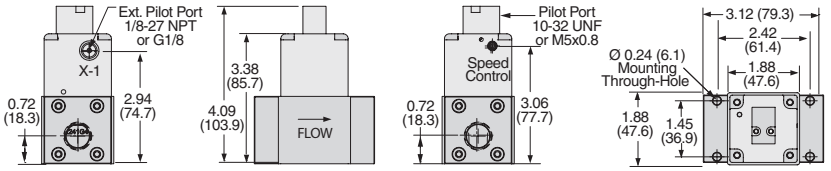


Normally Closed

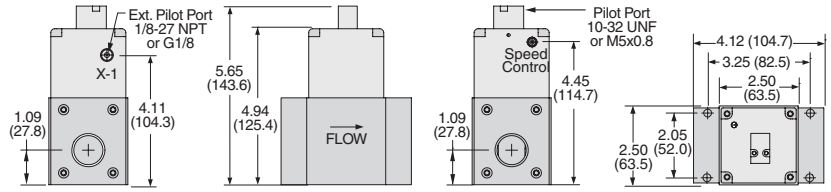
* NPT threads. For BSPP threads, replace "N" in the model number with a "D", e.g., LX13DB35501.

Valve Dimensions – inches (mm)

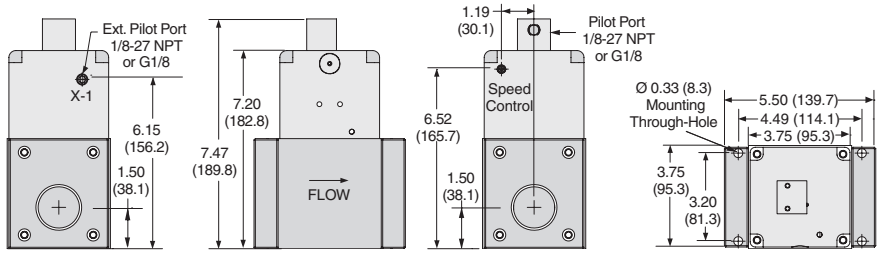
Port Size 3/8 & 1/2



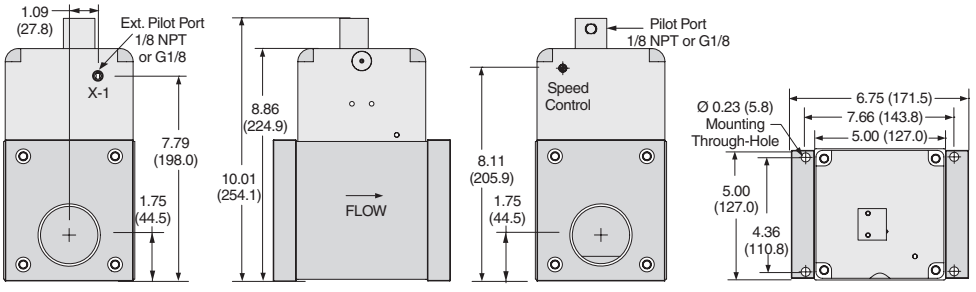
Port Size 3/4 & 1



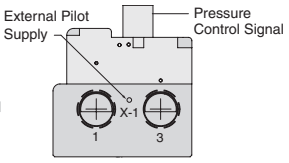
Port Size 1¼ & 1½



Port Size 2 & 2½



Note: The Dale Series pressure controlled valves require both an external pilot supply and a control signal to operate the valve. When a pressure control signal is applied the valve shifts to the open position.



Accessories ordered separately, refer to page B1.25.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: Inline.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air. For liquid applications, consult ROSS.
Inlet Pressure: Vacuum to 250 psig (vacuum to 17.2 bar).
Pilot Pressure: 30 to 250 psig (2 to 17.2 bar). Must be equal to or greater than inlet pressure.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Solenoid Pilot Controlled Valve Manifold
for Leak Test Applications

Dale LT Series

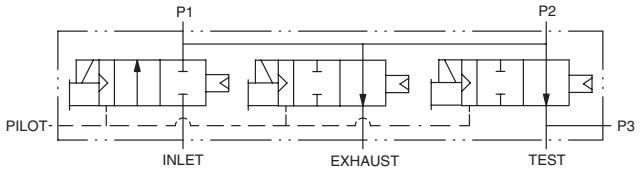
The LT Series valves can be field configured for flow, pressure decay, or differential pressure testing by selecting different combinations of the three sensor ports.

3-Way 4-Position Valve, Multi Solenoid Actuated

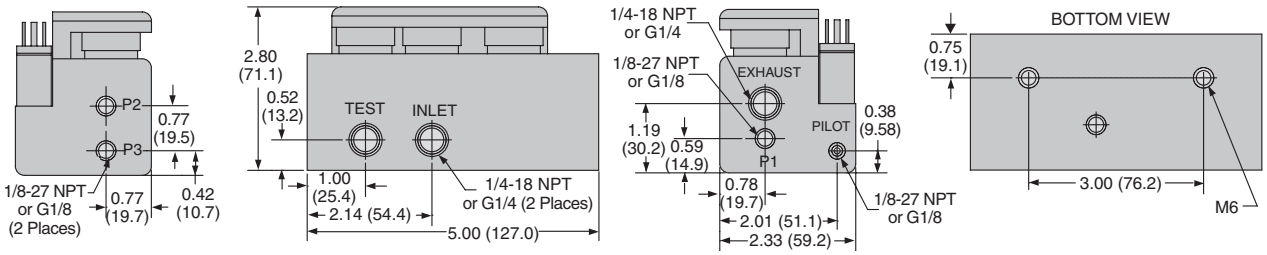
Port Size			Model Number*	Pilot Port Thread		Avg. C_v	Weight lb (kg)
In	Exh.	Test		NPT	BSPP		
1/4	1/4	1/4	LT32NB27500**	1/8-27 NPT	G1/8	2.2	2.9 (1.3)

* NPT threads. For BSPP threads, replace "N" in the model number with a "D", e.g., LT32DB27500W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110 volts AC, 120 volts AC; e.g., LT32NB27500W.

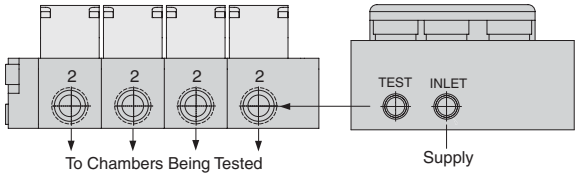
Normally Closed



Dimensions – inches (mm)



The CX and LT Series can be combined to simplify the most complex test circuits. The LT manifold with integrated sensor ports is the primary valve used for the fill, isolate and test functions. In this example the test port of the LT is connected to the CX manifold allowing four chambers to be tested one at a time. The flexibility of combining the LT and CX manifolds creates a compact package, reduces leak paths, and provides an all in one test solution.



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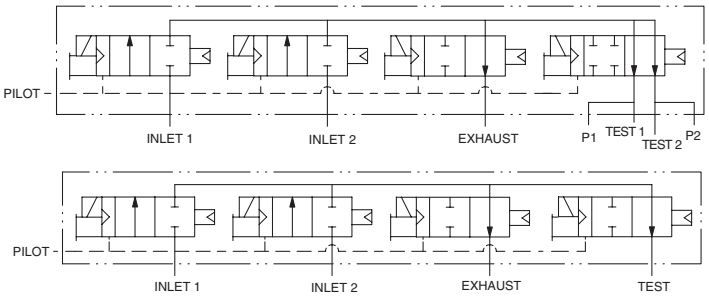
Looking for a different solution?

ROSS/FLEX® Customer defined application specific solutions that reduce cost, improve productivity and provide a perfect fit.



Accessories ordered separately, refer to page B1.25.

STANDARD SPECIFICATIONS (for valves on this page):

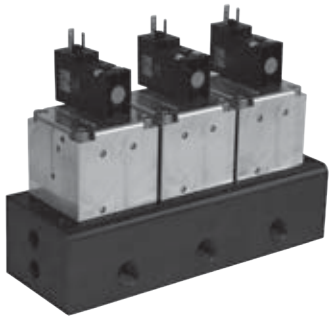
Construction: Poppet.
Mounting Type: Inline.
Pilot Solenoid: DC power. Rated for continuous duty.
Standard Voltages/Power Consumption (each solenoid):
24 volts DC: 1.2 watts on DC.
110 volts AC, 50 Hz: 5.4 VA.
120 volts AC, 60 Hz: 5.0 VA.

Ambient/Media Temperature: 40° to 120°F (4° to 50°C).
Flow Media: Filtered air. For liquid applications, consult ROSS.
Pilot Port: 1/8 NPT, or G1/8 ports.
Inlet Pressure: 2 to 145 psi (0.13 to 10 bar).
Pilot Pressure: 50 to 145 psi (3.4 to 10 bar). Must be equal to or greater than inlet pressure.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Online Version
Rev. 11/14/16

The LT Series valves can be field configured for flow, pressure decay, or differential pressure testing by selecting different combinations of the three sensor ports.

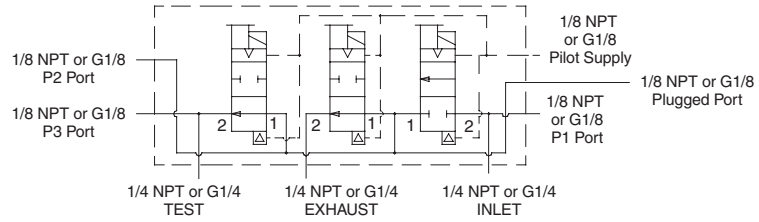


3-Way 4-Position Valve, Multi Solenoid Actuated

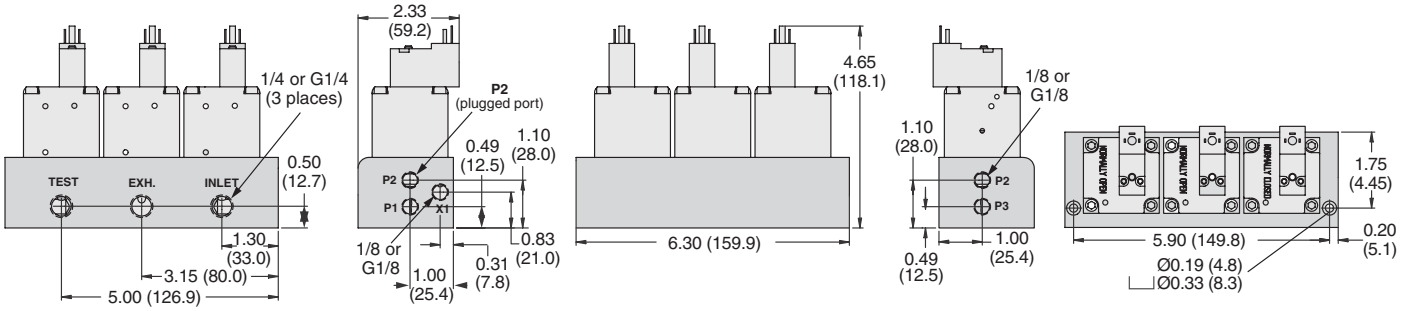
Threads	Port Size			Model Number	Sensor Ports			Pilot Port Thread	Avg. C_v	Weight lb (kg)
	In	Exh.	Test		P1	P2	P3			
NPT	1/4	1/4	1/4	LT32NB27500**01	1/8	1/8	1/8	1/8 NPT	0.9	3.6 (1.7)
BSPP	1/4	1/4	1/4	LT32DB27500**01	1/8	1/8	1/8	G 1/8	0.9	3.6 (1.7)

** Insert voltage code: "W" = 24 volts DC; "Z" = 110 volts AC, 120 volts AC; e.g., LT32NB27500W01.

Normally Closed



Dimensions – inches (mm)



The CX and LT Series can be combined to simplify the most complex test circuits. The LT manifold with integrated sensor ports is the primary valve used for the fill, isolate and test functions. In this example the test port of the LT is connected to the CX manifold allowing four chambers to be tested one at a time. The flexibility of combining the LT and CX manifolds creates a compact package, reduces leak paths, and provides an all in one test solution.

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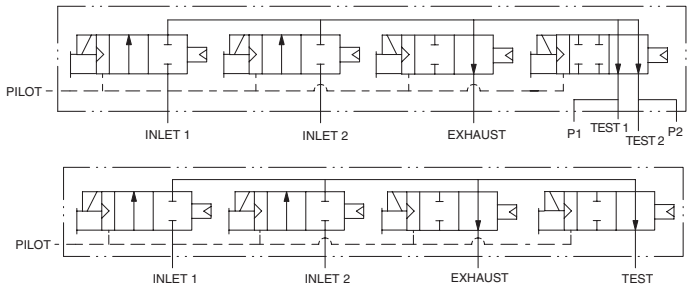


Accessories ordered separately, refer to page B1.25.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: Inline.
Pilot Solenoid: DC power. Rated for continuous duty.
Standard Voltages/Power Consumption (each solenoid):
24 volts DC: 1.2 watts on DC.
110 volts AC, 50 Hz: 5.4 VA.
120 volts AC, 60 Hz: 5.0 VA.

Enclosure Rating: IP65, IEC 60529.
Electrical Connections: EN 175301-803 Form C connector.
Ambient/Media Temperature: 40° to 120°F (4° to 50°C).
Flow Media: Filtered air. For liquid applications, consult ROSS.
Pilot Port: 1/8 NPT, or G1/8 ports.
Inlet Pressure: Vacuum to 250 psi (vacuum to 17.2 bar).
Pilot Pressure: 70 to 145 psi (4.8 to 17.2 bar).

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

CP & CX Series Assembled Valve Manifold Configurator

This form can be used when your application requires either a CP or CX Series valve manifold with different valve functions to provide you with complete valve manifold assemblies to fit your precise requirements.

Manifolds can be ordered from two to ten stations. For other combinations, contact ROSS for more information.

# of Stations 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐

Port Thread: NPT ☐ BSPP ☐

Valve Series: CP ☐ CX ☐

Valve Type: 2/2 ☐ 3/2 ☐

Compatible Combinations

- Air Pilot & Solenoid Pilot Valves
- 24 volts DC & 110 or 120 volts AC Solenoid Pilot Valves
- Different port 2 sizes with same port 1 size
  (i.e., valve 1 = 1/2" port 1 & 3/8" port 2;
  valve 2 = 1/2" port 1 & 1/2" port 2.

Valve Position Number	Valve Model Number*
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

*Refer to CP or CX Valve product pages for Valve Model Numbers. Enter "Blank" to indicate base with blocking plate.

Example:

Valve Position Number	Valve Model Number**
1	CX14NB37511W
2	CX14NB37511W
3	CX24NB37511W
4	CX24NB37511W
5	Blank
6	CX14NB47511W
7	CX24NB47511W
8	CX14NB35511
9	
10	

**Example given for an eight station manifold.

Name:_____ **Date:**_____

Company Name:_____

Address:_____

City, State, Zip Code:_____

Tel:_____ **e-mail:**_____

Fax completed form to 1-706-356-3600 or e-mail to custsvc@rosscontrols.com to obtain pre-assemble part number, price, and delivery.

Online Version
Rev. 11/14/16

Electrical Connectors

Electrical Connectors for CP, CX Series Solenoid Pilot Controlled Valves.

Valve Type	Port Size	Electrical Connector Form	Electrical Connectors Part Number			
			Lighted Connector Only		Lighted Connector Pre-wired*	
			24 Volts DC	120 Volts AC	24 Volts DC	120 Volts AC
2/2	1/4 - 1	EN 175301-803 Form C	2453K77-W	2453K77-Z	2476K77-W	2476K77-Z
2/2	1½-2½	EN 175301-803 Form A	936K87-W	936K87-Z	720K77-W	720K77-Z
3/2	1/2	EN 175301-803 Form C	2453K77-W	2453K77-Z	2476K77-W	2476K77-Z
3/2	1	EN 175301-803 Form A	936K87-W	936K87-Z	720K77-W	720K77-Z

*Pre-wired connectors include a 2 meter (6½ ft.) cord.

Electrical Connectors for LF, LX Series Solenoid Pilot Controlled Valves.

Valve Type	Port Size	Electrical Connector Form	Electrical Connectors Part Number			
			Lighted Connector Only		Lighted Connector Pre-wired*	
			24 Volts DC	120 Volts AC	24 Volts DC	120 Volts AC
2/2	3/8 - 1	EN 175301-803 Form C	2453K77-W	2453K77-Z	2476K77-W	2476K77-Z
2/2	1¼-2½	EN 175301-803 Form A	936K87-W	936K87-Z	720K77-W	720K77-Z

*Pre-wired connectors include a 2 meter (6½ ft.) cord.

Electrical Connectors for LT Series Solenoid Pilot Controlled Valves.

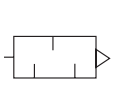
Valve Type	Port Size	Electrical Connector Form	Electrical Connectors Part Number			
			Lighted Connector Only		Lighted Connector Pre-wired*	
			24 Volts DC	120 Volts AC	24 Volts DC	120 Volts AC
1/4	3/8 - 1	EN 175301-803 Form C	2453K77-W	2453K77-Z	2476K77-W	2476K77-Z

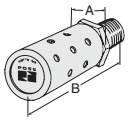
*Pre-wired connectors include a 2 meter (6½ ft.) cord.

Silencers

Port Size	Thread Type	Model Number		Avg. C_v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	BSPT Threads		A	B	
1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)
3/8	Male	5500A3013	D5500A3013	2.7	0.9 (21)	2.2 (55)	0.1 (0.1)
3/8	Male	5500A3003	D5500A3003	4.3	1.3 (32)	3.5 (88)	0.2 (0.1)
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
3/4	Male	5500A5003	D5500A5003	11.5	2.0 (51)	5.3 (135)	0.6 (0.3)
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)

Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.

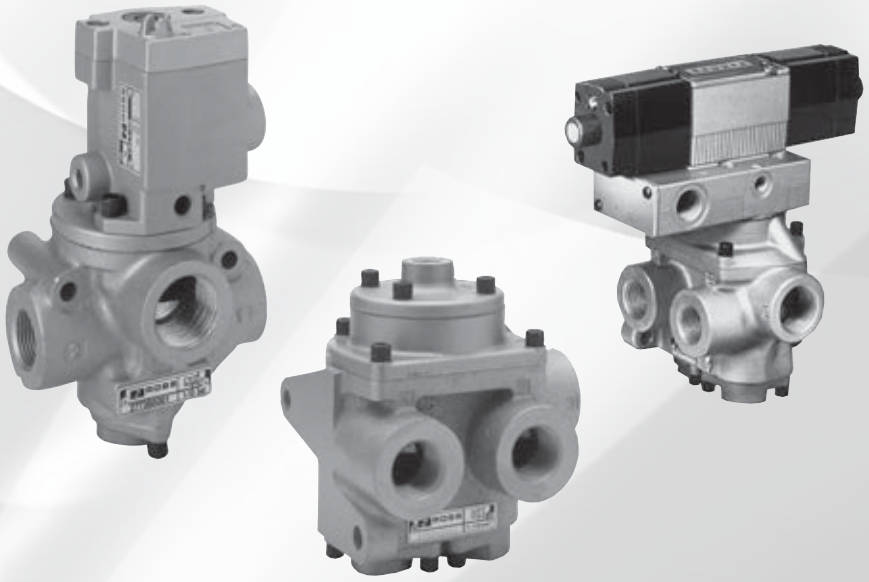




B

ROSS CONTROLS®

POPPET VALVES 27 SERIES



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POPPET 27 SERIES VALVES – KEY FEATURES

- Low weight; compact size
- Valves available with special control functions:
  - Timed sequence actuation and/or deactuation
  - Momentary control of actuation/deactuation from one pressure source
  - Actuating force multiplier, for use with low signal pressures
- Available with choices of internal components for three different temperature ranges
- Can be mounted close to actuator, reducing length of pipe to be pressurized/exhausted on each cycle
- Easily field-convertible for use with an external pilot supply
- Long life expectancy
- Consistent response times over the life of the valve

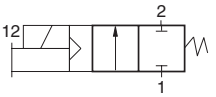
Valve models for external pilot supply available, consult ROSS.

Explosion-Proof solenoid pilot valves available, see explosion proof valves.

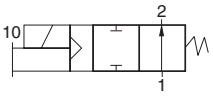
VALVE TYPE/SERIES	DESCRIPTION		AVAILABLE INLET PORT SIZES										FUNCTIONS												Page
	Spool & Sleeve	Poppet	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	2	2½	2/2	3/2	3/4	4/2	5/2 Single	5/2 Double	5/3 Closed Center	5/3 Open Center	5/3 Pressure Center	Max Flow (Cv)	Solenoid Control	Direct Solenoid Control	Pressure Control	
27		■		■	■	■	■	■	■	■	■	■	■	■								72	■			B2.3 - B2.5
27		■		■	■	■	■	■	■	■						■						34		■		B2.10 - B2.11
27		■		■	■	■	■	■	■	■			■	■		■						72			■	B2.12 - B2.14
27 Series with Pressure Booster Adaptor																										
		■		■	■	■	■	■	■	■				■								32	■			B2.6
		■		■	■	■	■	■	■	■			■	■								34			■	B2.15
27 Series with Air Index Adaptor																										
		■		■	■	■	■	■	■	■						■						27	■			B2.7
		■		■	■	■	■	■	■	■			■	■								32			■	B2.16
27 Series with Timed Sequence Adaptor																										
		■		■	■	■	■	■	■	■			■	■								34	■		■	B2.8, B2.17
27 Series with Timed Sequence & Timed Sequence Extension Adaptors																										
		■		■	■	■	■	■	■	■				■		■						34	■			B2.9
		■		■	■	■	■	■	■	■			■	■		■						32			■	B2.18
27 Series with Timed In/Out Sequence Adaptor																										
		■		■	■	■	■	■	■	■			■	■								32			■	B2.19
27 Series with Timed-In/Out Sequence & Timed Sequence Extension Adaptors																										
		■		■	■	■	■	■	■	■			■	■		■						34			■	B2.20
27 Series Pressure Controlled with Inlet Port Controlled Timed-In Sequence Adaptor																										
		■		■	■	■	■	■	■	■			■	■		■						34			■	B2.21
27 Series Pressure Controlled with Inlet Port Controlled Timed-In Sequence & Timed Sequence Extension Adaptors																										
		■		■	■	■	■	■	■	■			■	■		■						32			■	B2.22
Options & Accessories																										B2.23

2-Way 2-Position Valves, Spring Return

Port Size	Body Size	Valve Model Number*		C_v		Average Response Constants#			Weight lb (kg)
1, 2		Normally Closed	Normally Open	NC	NO	M	F NC	F NO	
1/4	**3/8**	2771B2001**	2772B2001**	2.3	2.3	10	0.91	0.91	2.5 (1.2)
3/8	**3/8**	2771B3001**	2772B3001**	3.8	3.3	10	0.70	0.76	2.5 (1.2)
1/2	3/8	2771B4011**	2772B4011**	4.0	3.5	10	0.64	0.72	2.5 (1.2)
1/2	3/4	2771B4001**	2772B4001**	7.7	6.5	14	0.37	0.43	3.3 (1.5)
3/4	3/4	2771B5001**	2772B5001**	9.0	7.3	14	0.34	0.39	3.3 (1.5)
1	3/4	2771B6011**	2772B6011**	9.0	7.9	14	0.34	0.37	3.3 (1.5)
1	1¼	2771B6001**	2772B6001**	24	21	26	0.17	0.17	7.0 (3.2)
1¼	1¼	2771B7001**	2772B7001**	29	20	26	0.15	0.19	7.0 (3.2)
1½	1¼	2771B8011**	2772B8011**	29	21	26	0.15	0.18	7.0 (3.2)
1½	2	2771B8001**	2772B8001**	49	49	41	0.09	0.09	15.5 (6.9)
2	2	2771B9001**	2772B9001**	57	57	41	0.07	0.07	15.5 (6.9)
2½	2	2771B9011**	2772B9011**	64	72	41	0.07	0.06	15.5 (6.9)



Normally Closed



Normally Open

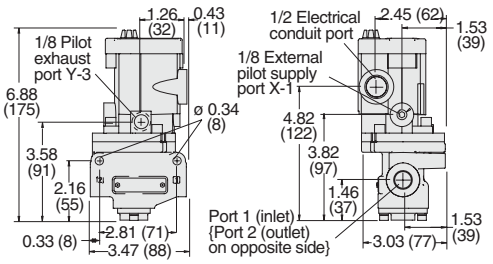
B

B2

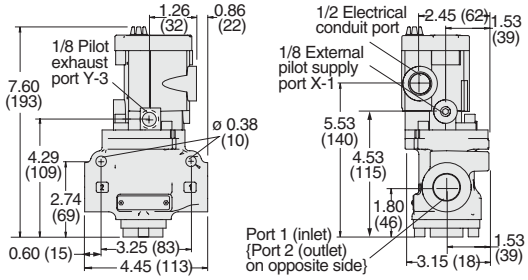
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2771B2001W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2771B2001W. For other voltages, consult ROSS.
# **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

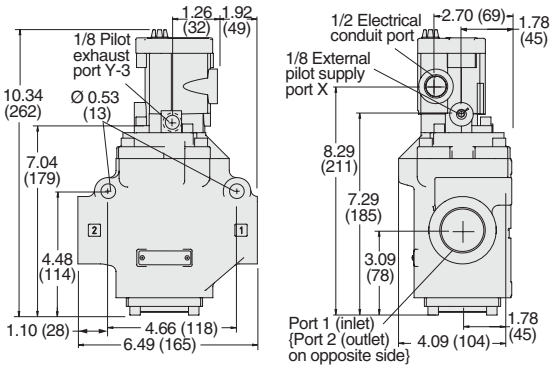
Body Size 3/8



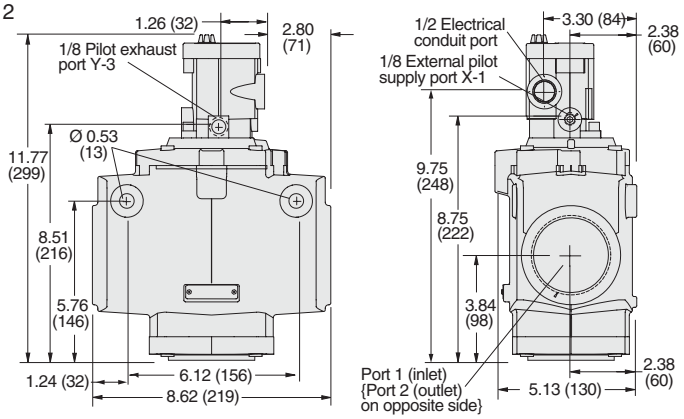
Body Size 3/4



Body Size 1¼



Body Size 2



Options: Indicator Light Kit, Manual Override Kits; refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.

Inlet Pressure: *Port Size 1/4 to 1½:* 15 to 150 psig (1 to 10 bar).
Inlet Pressure: *Port Size 1½ to 2½:* 30 to 150 psig (2 to 10 bar).
Pilot Pressure: When external supply is used, pressure must be equal to or greater than inlet pressure.
Manual Override: Flush; rubber, non-locking.

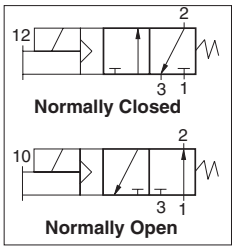
Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT≥1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

3-Way 2-Position Valves, Spring Return

Port Size 1, 2	Port Size 3	Body Size	Valve Model Number* Normally Closed	Valve Model Number* Normally Open	C_v NC 1-2	C_v NC 2-3	C_v NO 1-2	C_v NO 2-3	Average Response Constants# M	F NC 1-2	F NC 2-3	F NO 1-2	F NO 2-3	Weight lb (kg)
1/4	1/2	3/8	2773B2001**	2774B2001**	2.5	3.1	2.3	2.7	10	0.90	0.80	0.99	0.88	2.5 (1.2)
3/8	1/2	3/8	2773B3001**	2774B3001**	3.6	5.3	2.8	3.2	10	0.70	0.50	0.90	0.77	2.5 (1.2)
1/2	1/2	3/8	2773B4011**	2774B4011**	3.3	5.3	2.8	3.2	10	0.75	0.50	0.90	0.76	2.5 (1.2)
1/2	1	3/4	2773B4001**	2774B4001**	6.3	9.2	6.3	8.0	11	0.43	0.27	0.46	0.60	3.3 (1.5)
3/4	1	3/4	2773B5001**	2774B5001**	7.7	11	6.9	7.4	11	0.36	0.26	0.45	0.60	3.3 (1.5)
1	1	3/4	2773B6011**	2774B6011**	8	12	6.8	7.5	11	0.34	0.25	0.40	0.59	3.3 (1.5)
1	1½	1¼	2773B6001**	2774B6001**	23	34	17	24	28	0.17	0.14	0.20	0.17	7.0 (3.2)
1¼	1½	1¼	2773B7001**	2774B7001**	30	32	19	24	28	0.15	0.15	0.19	0.17	7.0 (3.2)
1½	1½	1¼	2773B8011**	2774B8011**	30	31	19	23	28	0.15	0.15	0.19	0.16	7.0 (3.2)
1½	2½	2	2773B8001**	2774B8001**	68	70	57	59	76	0.05	0.04	0.07	0.04	16.5 (7.4)
2	2½	2	2773B9001**	2774B9001**	70	70	58	61	76	0.05	0.04	0.05	0.04	16.5 (7.4)
2½	2½	2	2773B9011**	2774B9011**	70	71	54	55	76	0.05	0.04	0.50	0.04	16.5 (7.4)



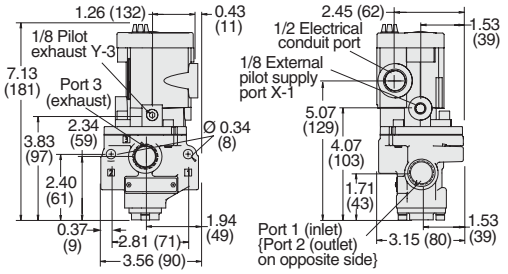
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2773B2001W.

** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2773B2001W. For other voltages, consult ROSS.

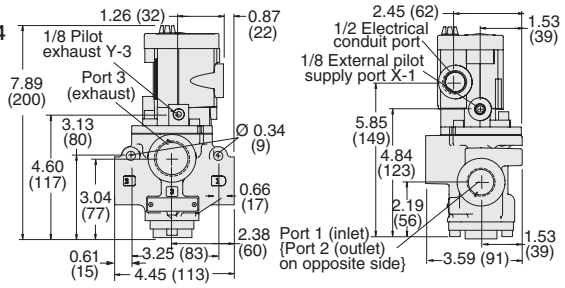
Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

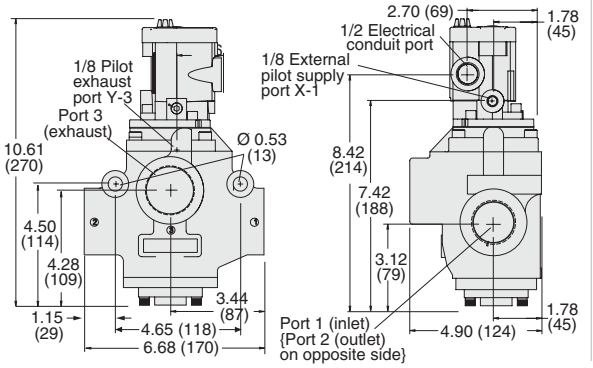
Body Size 3/8



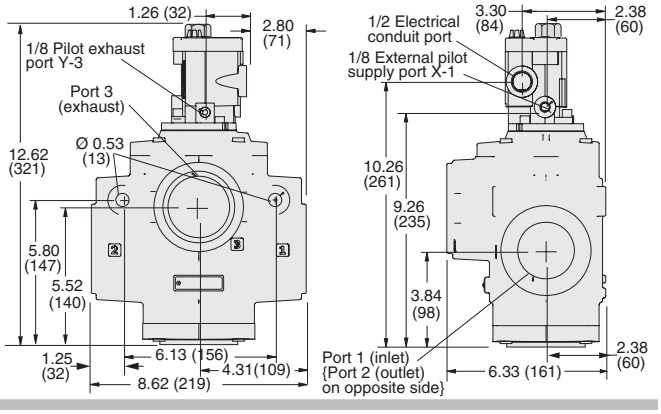
Body Size 3/4



Body Size 1¼



Body Size 2



Options: Indicator Light Kit, Manual Override Kits; refer to page B2.23. Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: *Port Size 1/4 to 1½:* 15 to 150 psig (1 to 10 bar).
Inlet Pressure: *Port Size 1½ to 2½:* 30 to 150 psig (2 to 10 bar).
Pilot Pressure: When external supply is used, pressure must be equal to or greater than inlet pressure.
Manual Override: Flush; rubber, non-locking.

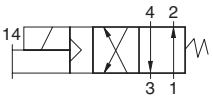
Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

4-Way 2-Position Valves, Spring Return

Port Size 1, 2, 4	Port Size 3	Body Size	Valve Model Number*	C_v 1-2, 1-4	C_v 4-3, 2-3	Average Response Constants# M	Average Response Constants# F 1-2, 1-4	Average Response Constants# F 4-3, 2-3	Weight lb (kg)
1/4	1/2	3/8	2776B2001**	2.1	2.9	10	0.92	0.92	3.0 (1.4)
3/8	1/2	3/8	2776B3001**	2.9	4.2	10	0.90	0.90	3.0 (1.4)
1/2	1/2	3/8	2776B4011**	3.1	7.3	10	0.89	0.73	3.0 (1.4)
1/2	1	3/4	2776B4001**	5.6	8.1	26	0.50	0.66	5.3 (2.4)
3/4	1	3/4	2776B5001**	7.0	9.3	26	0.36	0.55	5.3 (2.4)
1	1	3/4	2776B6011**	7.8	10	26	0.35	0.50	5.3 (2.4)
1	1½	1¼	2776B6001**	19	26	79	0.17	0.22	11.3 (5.1)
1¼	1½	1¼	2776B7001**	21	27	79	0.16	0.18	11.3 (5.1)
1½	1½	1¼	2776B8011**	22	27	79	0.15	0.15	11.3 (5.1)



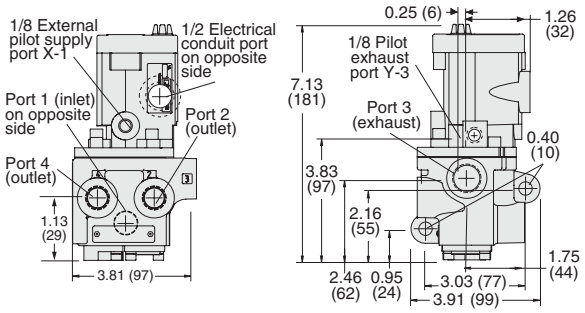
B

B2

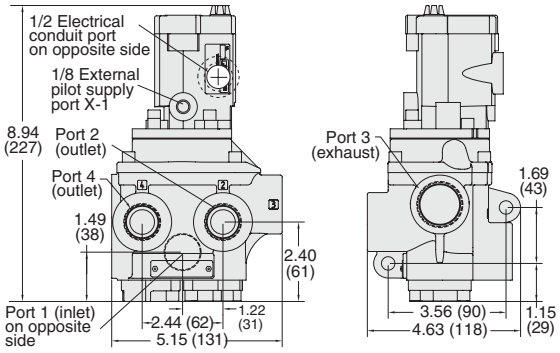
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2776B2001W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2776B2001W. For other voltages, consult ROSS.
\# **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

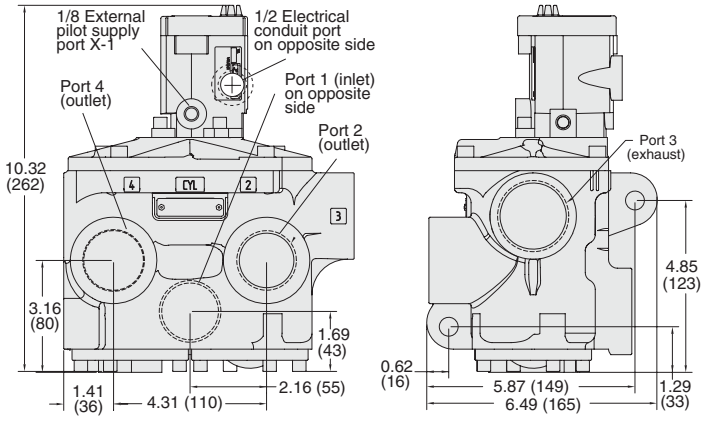
Body Size 3/8



Body Size 3/4



Body Size 1¼



Options: Indicator Light Kit, Manual Override Kits; refer to page B2.23. Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: *Port Size 1/4 to 1½:* 15 to 150 psig (1 to 10 bar);
Inlet Pressure: *Port Size 1½ to 2½:* 30 to 150 psig (2 to 10 bar).
Pilot Pressure: When external supply is used, pressure must be equal to or greater than inlet pressure.
Manual Override: Flush; rubber, non-locking.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

Valve models with EN connector available, consult ROSS.

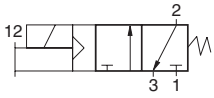
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Pressure Booster Adaptor: Increases the actuating force on the valve piston. It should be used when the inlet and pilot pressures are below the minimums specified for the valve. It should also be used when an external pilot supply with a lower pressure than the inlet pressure is used. The valve's pilot pressure is applied to a piston in the pilot booster adaptor that has a larger area than the piston in the valve. The force on the piston in the adaptor is thereby larger than that which could be produced by the piston in the valve. This larger force is applied to the valve's piston directly so that there is then sufficient force to shift the valve properly.

3-Way 2-Position Valves, Spring Return

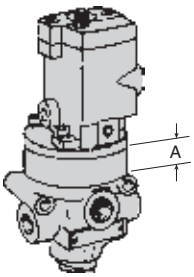
Port Size		Body Size	Valve Model Number*	C_v		Dimension A inches (mm)	Weight lb (kg)
1, 2	3			1-2	2-3		
1/4	1/2	3/8	2773B2009**	2.5	3.1	0.75 (19)	2.5 (1.2)
3/8	1/2	3/8	2773B3009**	3.6	5.3	0.75 (19)	2.5 (1.2)
1/2	1/2	3/8	2773B4019**	3.3	5.3	0.75 (19)	2.5 (1.2)
1/2	1	3/4	2773B4009**	6.3	9.2	0.75 (19)	3.3 (1.5)
3/4	1	3/4	2773B5009**	7.7	11	0.75 (19)	3.3 (1.5)
1	1	3/4	2773B6019**	8	12	0.75 (19)	3.3 (1.5)
1	1½	1¼	2773B6009**	23	34	1.25 (32)	7.0 (3.2)
1¼	1½	1¼	2773B7009**	30	32	1.25 (32)	7.0 (3.2)
1½	1½	1¼	2773B8019**	30	31	1.25 (32)	7.0 (3.2)

Normally Closed



* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2773B2009W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2773B2009W. For other voltages, consult ROSS.

Detailed dimensions, see corresponding valves models pages.



Options: Indicator Light Kit, Manual Override Kits; refer to page B2.23. Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.

Inlet Pressure: 15 to 150 psig (1 to 10 bar).
Pilot Pressure: When external supply is used, pressure must be equal to or greater than inlet pressure.
Manual Override: Flush; rubber, non-locking.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

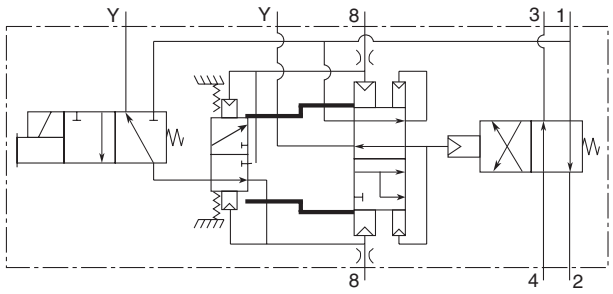
Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Online Version
Rev. 11/14/16

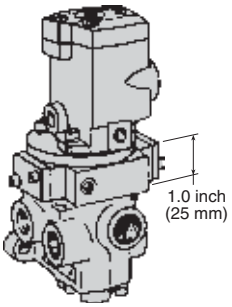
Air Index Adaptor: Allows a valve controlled by a single solenoid pilot to function as an impulse controlled, mechanically detented valve. A momentary electrical signal to the solenoid actuates the valve and holds it in the actuated position. A second momentary signal from the same source returns the valve to its deactuated position.

4-Way 2-Position Valves, Spring Return						
Port Size		Body Size	Valve Model Number*	C_v		Weight lb (kg)
1, 2, 4	3			1-2, 1-4	4-3, 2-3	
1/4	1/2	3/8	2776B2008**	2.1	2.9	3.0 (1.4)
3/8	1/2	3/8	2776B3008**	2.9	4.2	3.0 (1.4)
1/2	1/2	3/8	2776B4018**	3.1	7.3	3.0 (1.4)
1/2	1	3/4	2776B4008**	5.6	8.1	5.3 (2.4)
3/4	1	3/4	2776B5008**	7.0	9.3	5.3 (2.4)
1	1	3/4	2776B6018**	7.8	10	5.3 (2.4)
1	1½	1¼	2776B6008**	19	26	11.3 (5.1)
1¼	1½	1¼	2776B7008**	21	27	11.3 (5.1)
1½	1½	1¼	2776B8018**	22	27	11.3 (5.1)



* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2776B2008W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2776B2008W. For other voltages, consult ROSS.

Detailed dimensions, see corresponding valves models pages.



Options: Indicator Light Kit, Manual Override Kits; refer to page B2.23. Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.

Inlet Pressure: 15 to 150 psig (1 to 10 bar).
Pilot Pressure: When external supply is used, pressure must be equal to or greater than inlet pressure.
Manual Override: Flush; rubber, non-locking.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

Valve models with EN connector available, consult ROSS.

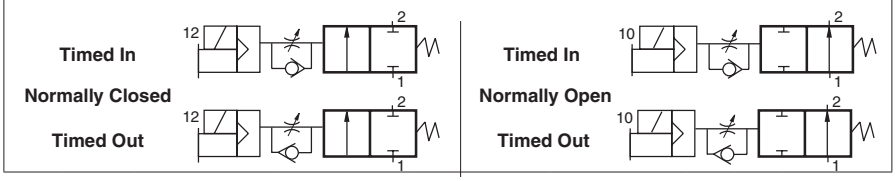
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Solenoid Pilot Controlled Valves
With Timed Sequence Adaptor

27 Series

2-Way 2-Position Valves, Spring Return

Port Size	Body Size	Valve Model Number*				C_v		Weight lb (kg)
		Normally Closed		Normally Open				
1, 2		Timed In	Timed Out	Timed In	Timed Out	NC	NO	
1/4	3/8	2771B2004**	2771B2005**	2772B2004**	2772B2005**	2.3	2.3	3.5 (1.6)
3/8	3/8	2771B3004**	2771B3005**	2772B3004**	2772B3005**	3.8	3.3	3.5 (1.6)
1/2	3/8	2771B4014**	2771B4015**	2772B4014**	2772B4015**	4.0	3.5	3.5 (1.6)
1/2	3/4	2771B4004**	2771B4005**	2772B4004**	2772B4005**	7.7	6.5	4.3 (2.0)
3/4	3/4	2771B5004**	2771B5005**	2772B5004**	2772B5005**	9.0	7.3	4.3 (2.0)
1	3/4	2771B6014**	2771B6015**	2772B6014**	2772B6015**	9.0	7.9	4.3 (2.0)
1	1¼	2771B6004**	2771B6005**	2772B6004**	2772B6005**	24	21	9.0 (4.1)
1¼	1¼	2771B7004**	2771B7005**	2772B7004**	2772B7005**	29	20	9.0 (4.1)
1½	1¼	2771B8014**	2771B8015**	2772B8014**	2772B8015**	29	21	9.0 (4.1)



Timed Sequence Adaptor: Allows the actuation and/or de-actuation of a valve to be delayed up to 30 seconds for 2/2 valves, and up to 3 seconds for 3/2 and 4/2 valves. The time delay function is controlled by a continuously adjustable tapered needle. Longer time delays can be obtained by using this adaptor in conjunction with the timed sequence extension adaptor, see next page.

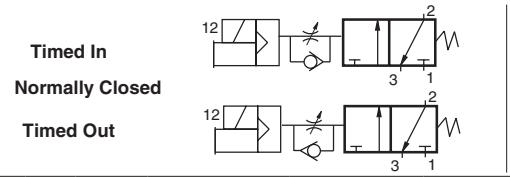
OPERATION

Timed In Adaptor: Solenoid energized; after preset delay valve is actuated. Solenoid de-energized; valve immediately deactuated.

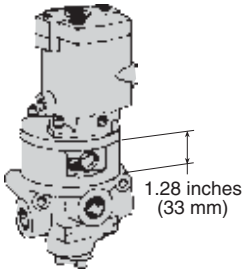
Timed Out Adaptor: Solenoid energized; valve immediately actuated. Solenoid de-energized; after preset delay valve is deactuated.

3-Way 2-Position Valves, Spring Return

Port Size		Body Size	Valve Model Number*				C_v				Weight lb (kg)
			Normally Closed		Normally Open		NC		NO		
1, 2	3		Timed In	Timed Out	Timed In	Timed Out	1-2	2-3	1-2	2-3	
1/4	1/2	3/8	2773B2004**	2773B2005**	2774B2004**	2774B2005**	2.5	3.1	2.3	2.7	3.5 (1.6)
3/8	1/2	3/8	2773B3004**	2773B3005**	2774B3004**	2774B3005**	3.6	5.3	2.8	3.2	3.5 (1.6)
1/2	1/2	3/8	2773B4014**	2773B4015**	2774B4014**	2774B4015**	3.3	5.3	2.8	3.2	3.5 (1.6)
1/2	1	3/4	2773B4004**	2773B4005**	2774B4004**	2774B4005**	6.3	9.2	6.3	8.0	4.3 (2.0)
3/4	1	3/4	2773B5004**	2773B5005**	2774B5004**	2774B5005**	7.7	11	6.9	7.4	4.3 (2.0)
1	1	3/4	2773B6014**	2773B6015**	2774B6014**	2774B6015**	8	12	6.8	7.5	4.3 (2.0)
1	1½	1¼	2773B6004**	2773B6005**	2774B6004**	2774B6005**	23	34	17	24	9.0 (4.1)
1¼	1½	1¼	2773B7004**	2773B7005**	2774B7004**	2774B7005**	30	32	19	24	9.0 (4.1)
1½	1½	1¼	2773B8014**	2773B8015**	2774B8014**	2774B8015**	30	31	19	23	9.0 (4.1)



Detailed dimensions, see corresponding valves models pages.



* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2771B2004W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2771B2004W. For other voltages, consult ROSS.

Options: Indicator Light Kit, Manual Override Kits; refer to page B2.23. Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 15 to 150 psig (1 to 10 bar).

Pilot Pressure: When external supply is used, pressure must be equal to or greater than inlet pressure.
Manual Override: Flush; rubber, non-locking.
Time Delay Interval: 2/2 Valves: Up to 30 seconds.
3/2 Valves: Up to 3 seconds.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

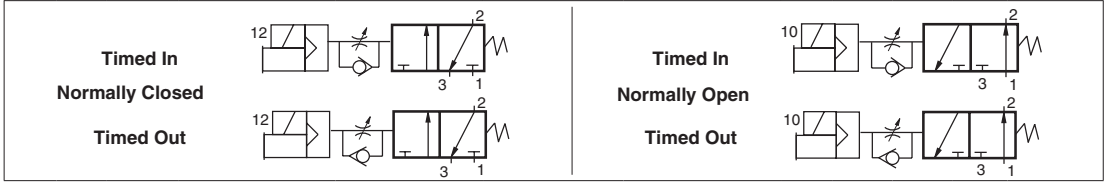
Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Timed Sequence & Timed Sequence Extension Adaptors: Used in conjunction can increase the time delay interval up to 60 seconds. It also helps to obtain "snap" action of the valve. By keeping pilot air off the main valve piston until the pressure has built high enough to ensure prompt valve response, the timed sequence extension adaptor prevents the piston from creeping.

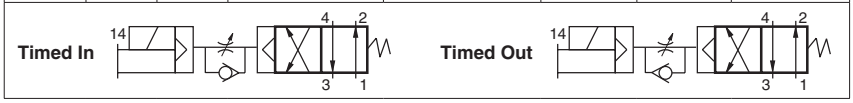
3-Way 2-Position Valves, Spring Return

Port Size		Body Size	Valve Model Number*				C_v				Weight lb (kg)
			Normally Closed		Normally Open		NC		NO		
1, 2	3		Timed In	Timed Out	Timed In	Timed Out	1-2	2-3	1-2	2-3	
1/4	1/2	3/8	2773B2006**	2773B2007**	2774B2006**	2774B2007**	2.5	3.1	2.3	2.7	3.5 (1.6)
3/8	1/2	3/8	2773B3006**	2773B3007**	2774B3006**	2774B3007**	3.6	5.3	2.8	3.2	3.5 (1.6)
1/2	1/2	3/8	2773B4016**	2773B4017**	2774B4016**	2774B4017**	3.3	5.3	2.8	3.2	3.5 (1.6)
1/2	1	3/4	2773B4006**	2773B4007**	2774B4006**	2774B4007**	6.3	9.2	6.3	8.0	4.3 (2.0)
3/4	1	3/4	2773B5006**	2773B5007**	2774B5006**	2774B5007**	7.7	11	6.9	7.4	4.3 (2.0)
1	1	3/4	2773B6016**	2773B6017**	2774B6016**	2774B6017**	8	12	6.8	7.5	4.3 (2.0)
1	1½	1¼	2773B6006**	2773B6007**	2774B6006**	2774B6007**	23	34	17	24	9.0 (4.1)
1¼	1½	1¼	2773B7006**	2773B7007**	2774B7006**	2774B7007**	30	32	19	24	9.0 (4.1)
1½	1½	1¼	2773B8016**	2773B8017**	2774B8016**	2774B8017**	30	31	19	23	9.0 (4.1)

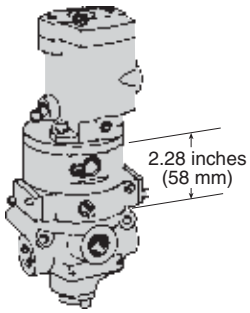


4-Way 2-Position Valves, Spring Return

Port Size		Body Size	Valve Model Number*		C_v		Weight lb (kg)
1, 2, 4	3		Timed In	Timed Out	1-2, 1-4	4-3, 2-3	
1/4	1/2	3/8	2776B2006**	2776B2007**	2.1	2.9	3.0 (1.4)
3/8	1/2	3/8	2776B3006**	2776B3007**	2.9	4.2	3.0 (1.4)
1/2	1/2	3/8	2776B4016**	2776B4017**	3.1	7.3	3.0 (1.4)
1/2	1	3/4	2776B4006**	2776B4007**	5.6	8.1	5.3 (2.4)
3/4	1	3/4	2776B5006**	2776B5007**	7.0	9.3	5.3 (2.4)
1	1	3/4	2776B6016**	2776B6017**	7.8	10	5.3 (2.4)
1	1½	1¼	2776B6006**	2776B6007**	19	26	11.3 (5.1)
1¼	1½	1¼	2776B7006**	2776B7007**	21	27	11.3 (5.1)
1½	1½	1¼	2776B8016**	2776B8017**	22	27	11.3 (5.1)



Detailed dimensions,
see corresponding valves models pages.



* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2773B2006W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2773B2006W. For other voltages, consult ROSS.

Options: Indicator Light Kit, Manual Override Kits; refer to page B2.23. Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 15 to 150 psig (1 to 10 bar).

Pilot Pressure: When external supply is used, pressure must be equal to or greater than inlet pressure.
Manual Override: Flush; rubber, non-locking.
Adjustable Time Delay: Up to 30 seconds.

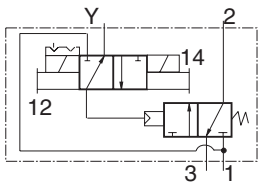
Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

Valve models with EN connector available, consult ROSS.

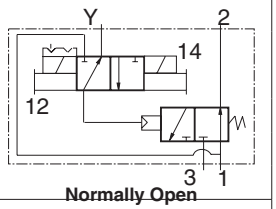
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

3-Way 2-Position Valves, Detented

Port Size		Body Size	Valve Model Number*		C_v				Average Response Constants#					Weight lb (kg)
					NC		NO			F				
										NC		NO		
1, 2	3		Normally Closed	Normally Open	1-2	2-3	1-2	2-3	M	1-2	2-3	1-2	2-3	
1/4	1/2	3/8	2773B2003**	2774B2003**	2.5	3.1	2.3	2.7	30	0.90	0.80	0.99	0.88	3.5 (1.6)
3/8	1/2	3/8	2773B3003**	2774B3003**	3.6	5.3	2.8	3.2	30	0.70	0.50	0.90	0.77	3.5 (1.6)
1/2	1/2	3/8	2773B4013**	2774B4013**	3.3	5.3	2.8	3.2	30	0.75	0.50	0.90	0.76	3.5 (1.6)
1/2	1	3/4	2773B4003**	2774B4003**	6.3	9.2	6.3	8.0	32	0.43	0.17	0.46	0.60	4.3 (1.9)
3/4	1	3/4	2773B5003**	2774B5003**	7.7	11	6.9	7.4	32	0.36	0.26	0.45	0.60	4.3 (1.9)
1	1	3/4	2773B6013**	2774B6013**	8	12	6.8	7.5	32	0.34	0.25	0.40	0.59	4.3 (1.9)
1	1½	1¼	2773B6003**	2774B6003**	23	34	17	24	52	0.17	0.14	0.20	0.17	8.0 (3.6)
1¼	1½	1¼	2773B7003**	2774B7003**	30	32	19	24	52	0.15	0.15	0.19	0.17	8.0 (3.6)
1½	1½	1¼	2773B8013**	2774B8013**	30	31	19	23	52	0.15	0.15	0.19	0.16	8.0 (3.6)



Normally Closed

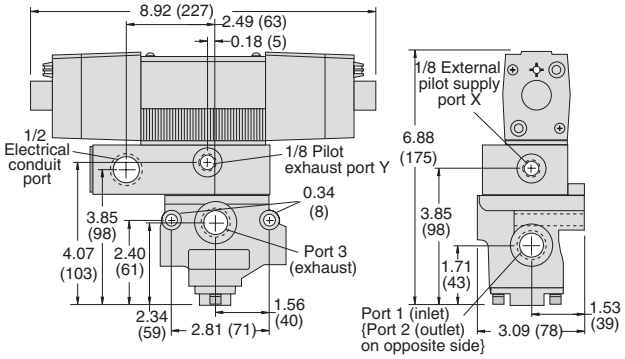


Normally Open

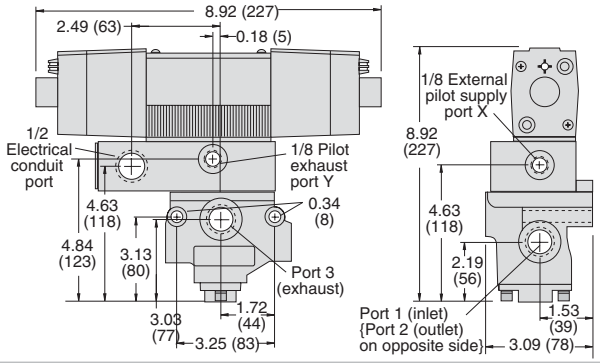
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2773B2003W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2773B2003W. For other voltages, consult ROSS.
# **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

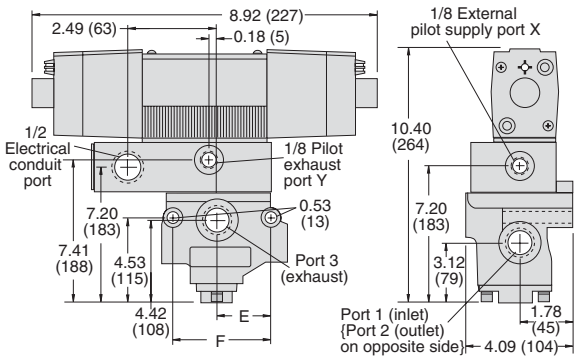
Body Size 3/8



Body Size 3/4



Body Size 1¼



Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption (each solenoid): 190 VA inrush, 40 VA holding on 50 or 60 Hz; 20 watts on DC.
Indicator Lights: In each solenoid housing.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.

Inlet Pressure: 15 to 150 psig (1 to 10 bar).
Pilot Pressure: If external supply is used, pressure must be equal to or greater than inlet pressure.
Manual Override: Flush; metal, non-locking.

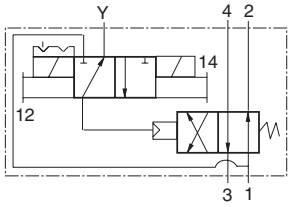
Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

4-Way 2-Position Valves, Detented

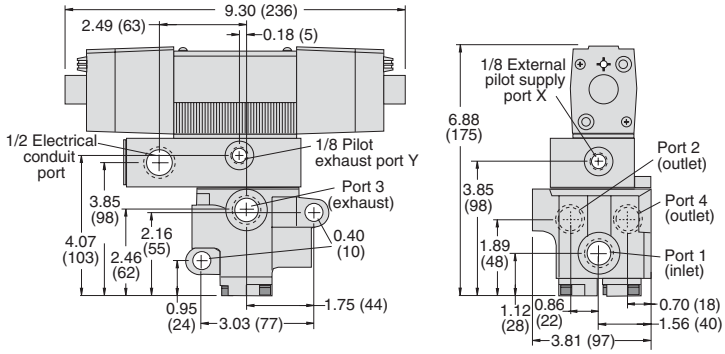
Port Size 1, 2, 4	Port Size 3	Body Size	Valve Model Number*	C_v 1-2, 1-4	C_v 4-3, 2-3	Average Response Constants# M	Average Response Constants# F 1-2, 1-4	Average Response Constants# F 4-3, 2-3	Weight lb (kg)
1/4	1/2	3/8	2776B2003**	2.1	2.9	30	0.92	0.92	4.0 (1.8)
3/8	1/2	3/8	2776B3003**	2.9	4.2	30	0.90	0.90	4.0 (1.8)
1/2	1/2	3/8	2776B4013**	3.1	4.3	30	0.89	0.73	4.0 (1.8)
1/2	1	3/4	2776B4003**	5.6	8.1	46	0.50	0.66	6.3 (2.8)
3/4	1	3/4	2776B5003**	7.0	9.3	46	0.36	0.55	6.3 (2.8)
1	1	3/4	2776B6013**	7.8	10	46	0.35	0.50	6.3 (2.8)
1	1½	1¼	2776B6003**	19	26	99	0.17	0.22	12.3 (5.5)
1¼	1½	1¼	2776B7003**	21	27	99	0.16	0.18	12.3 (5.5)
1½	1½	1¼	2776B8013**	22	27	99	0.15	0.15	12.3 (5.5)



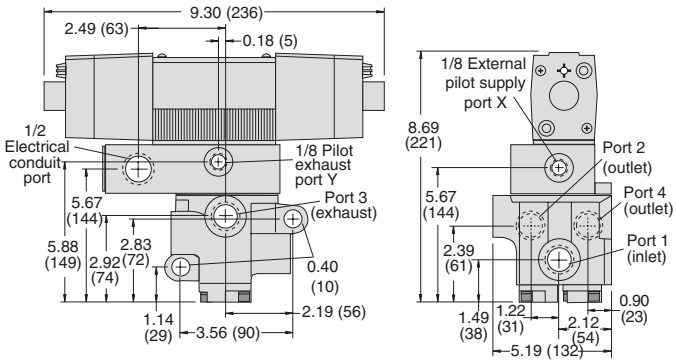
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2776B2003W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2776B2003W. For other voltages, consult ROSS.
# **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

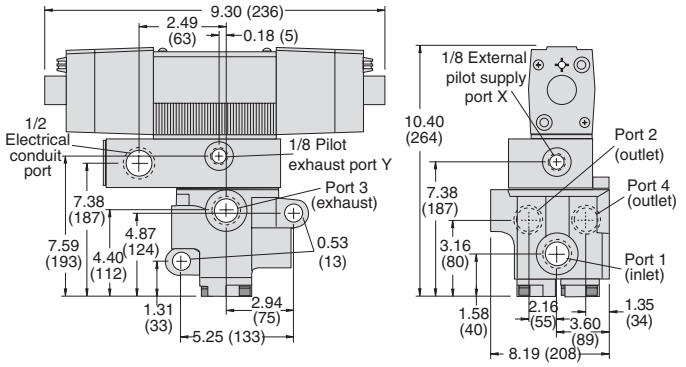
Body Size 3/8



Body Size 3/4



Body Size 1¼



Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption (each solenoid)): 190 VA inrush, 40 VA holding on 50 or 60 Hz; 20 watts on DC.
Indicator Lights: In each solenoid housing.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.

Inlet Pressure: 15 to 150 psig (1 to 10 bar).
Pilot Pressure: If external supply is used, pressure must be equal to or greater than inlet pressure.
Manual Override: Flush; metal, non-locking.

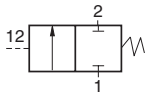
Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

Valve models with EN connector available, consult ROSS.

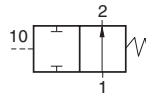
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

2-Way 2-Position Valves, Spring Return

Port Size 1, 2	Body Size	Valve Model Number*		C_v		Average Response Constants#			Weight lb (kg)
		Normally Closed	Normally Open	NC	NO	M	F NC	F NO	
1/4	3/8	2751A2001	2752A2001	2.3	2.3	10	0.91	0.91	1.3 (0.6)
3/8	3/8	2751A3001	2752A3001	3.8	3.3	10	0.70	0.76	1.3 (0.6)
1/2	3/8	2751A4011	2752A4011	4.0	3.5	10	0.64	0.72	1.3 (0.6)
1/2	3/4	2751A4001	2752A4001	7.7	6.5	14	0.37	0.43	2.0 (0.9)
3/4	3/4	2751A5001	2752A5001	9.0	7.3	14	0.34	0.39	2.0 (0.9)
1	3/4	2751A6011	2752A6011	9.0	7.9	14	0.34	0.37	2.0 (0.9)
1	1¼	2751A6001	2752A6001	24	21	26	0.17	0.17	8.0 (3.6)
1¼	1¼	2751A7001	2752A7001	29	20	26	0.15	0.19	8.0 (3.6)
1½	1¼	2751A8011	2752A8011	29	21	26	0.15	0.18	8.0 (3.6)
1½	2	2751A8001	2752A8001	49	49	41	0.09	0.09	14.3 (6.4)
2	2	2751A9001	2752A9001	57	57	41	0.07	0.07	14.3 (6.4)
2½	2	2751A9011	2752A9011	64	72	41	0.07	0.06	14.3 (6.4)



Normally Closed

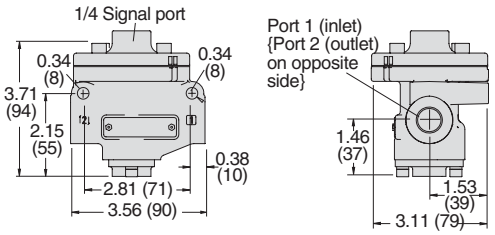


Normally Open

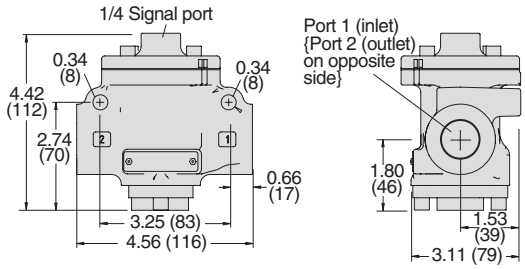
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2751A2001.
# **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

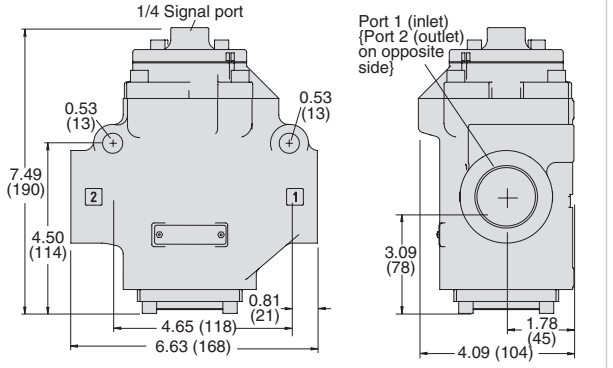
Body Size 3/8



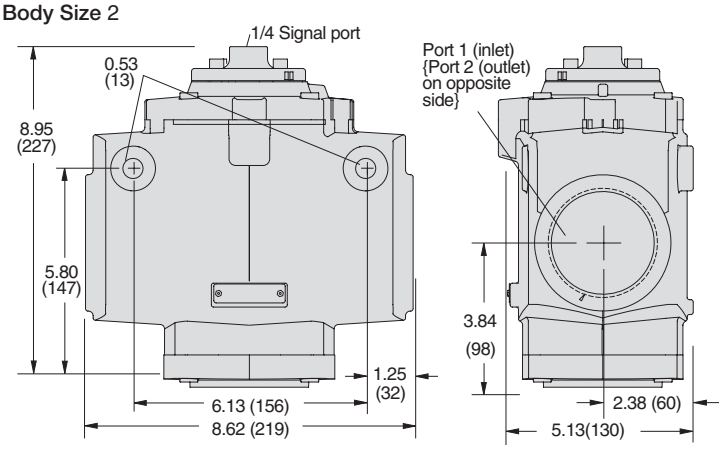
Body Size 3/4



Body Size 1¼



Body Size 2



Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.
Mounting Type: Inline.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: *Port Size 1/4 to 1½:* 15 to 150 psig (1 to 10 bar).
Port Size 1½ to 2½: 30 to 150 psig (2 to 10 bar).

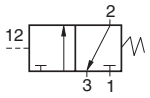
Pilot Pressure: Must be equal to or greater than inlet pressure.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

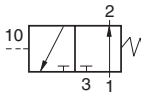
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

3-Way 2-Position Valves, Spring Return

Port Size		Body Size	Valve Model Number*		C_v				Average Response Constants#					Weight lb (kg)
					NC		NO		M	F				
										NC		NO		
1, 2	3		Normally Closed	Normally Open	1-2	2-3	1-2	2-3		1-2	2-3	1-2	2-3	
1/4	1/2	3/8	2753A2001	2754A2001	2.5	3.1	2.3	2.7	10	0.90	0.80	0.99	0.88	1.3 (0.6)
3/8	1/2	3/8	2753A3001	2754A3001	3.6	5.3	2.8	3.2	10	0.70	0.50	0.90	0.77	1.3 (0.6)
1/2	1/2	3/8	2753A4011	2754A4011	3.3	5.3	2.8	3.2	10	0.75	0.50	0.90	0.76	1.3 (0.6)
1/2	1	3/4	2753A4001	2754A4001	6.3	9.2	6.3	8.0	12	0.43	0.17	0.46	0.60	2.0 (0.9)
3/4	1	3/4	2753A5001	2754A5001	7.7	11	6.9	7.4	12	0.36	0.26	0.45	0.60	2.0 (0.9
1	1	3/4	2753A6011	2754A6011	8	12	6.8	7.5	12	0.34	0.25	0.40	0.59	2.0 (0.9
1	1½	1¼	2753A6001	2754A6001	23	34	17	24	32	0.17	0.14	0.20	0.17	6.0 (2.7)
1¼	1½	1¼	2753A7001	2754A7001	30	32	19	24	32	0.15	0.15	0.19	0.17	6.0 (2.7)
1½	1½	1¼	2753A8011	2754A8011	30	31	19	23	32	0.15	0.15	0.19	0.16	6.0 (2.7)
1½	2½	2	2753A8001	2754A8001	68	70	57	59	76	0.05	0.04	0.07	0.04	15.3 (6.9)
2	2½	2	2753A9001	2754A9001	70	70	58	61	76	0.05	0.04	0.05	0.04	15.3 (6.9)
2½	2½	2	2753A9011	2754A9011	70	71	54	55	76	0.05	0.04	0.05	0.04	15.3 (6.9)



Normally Closed

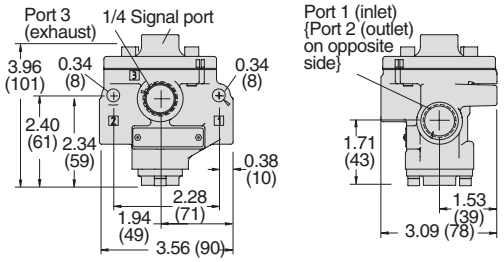


Normally Open

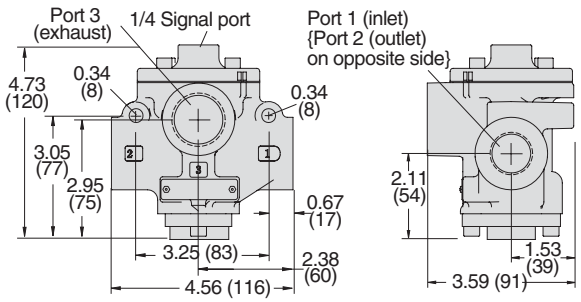
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2753A2001.
# **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

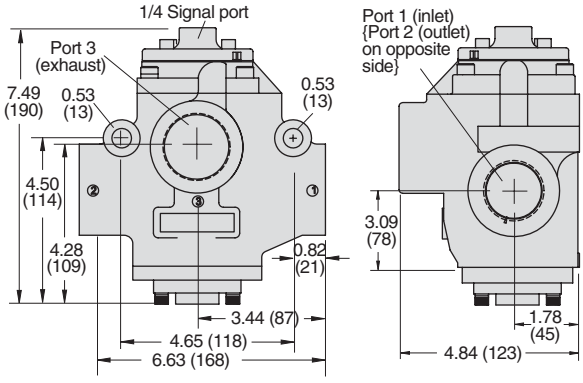
Body Size 3/8



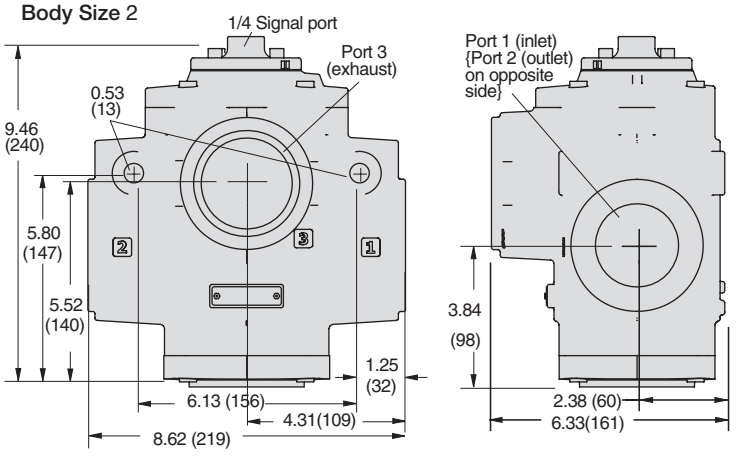
Body Size 3/4



Body Size 1¼



Body Size 2



Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.
Mounting Type: Inline.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: *Port Size 1/4 to 1½:* 15 to 150 psig (1 to 10 bar).
Port Size 1½ to 2½: 30 to 150 psig (2 to 10 bar).

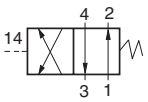
Pilot Pressure: Must be equal to or greater than inlet pressure.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

4-Way 2-Position Valves, Spring Return

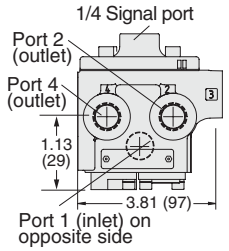
Port Size		Body Size	Valve Model Number*	C_v		Average Response Constants#			Weight lb (kg)
1, 2, 4	3			1-2, 1-4	4-3, 2-3	M	1-2, 1-4	4-3, 2-3	
1/4	1/2	3/8	2756A2001	2.1	2.9	10	0.92	0.92	1.8 (0.8)
3/8	1/2	3/8	2756A3001	2.9	4.2	10	0.90	0.90	1.8 (0.8)
1/2	1/2	3/8	2756A4011	3.1	4.3	10	0.89	0.73	1.8 (0.8)
1/2	1	3/4	2756A4001	5.6	8.1	26	0.50	0.66	4.3 (1.9)
3/4	1	3/4	2756A5001	7.0	9.3	26	0.36	0.55	4.3 (1.9)
1	1	3/4	2756A6011	7.8	10	26	0.35	0.50	4.3 (1.9)
1	1½	1¼	2756A6001	19	26	79	0.22	0.22	10.3 (4.6)
1¼	1½	1¼	2756A7001	21	27	79	0.18	0.18	10.3 (4.6)
1½	1½	1¼	2756A8011	22	27	79	0.15	0.15	10.3 (4.6)

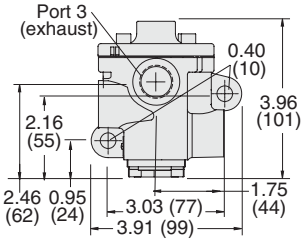


* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2756A2001.
# **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

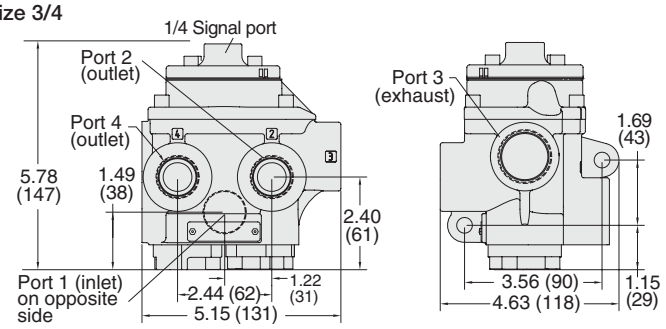
Valve Dimensions – inches (mm)

Body Size 3/8

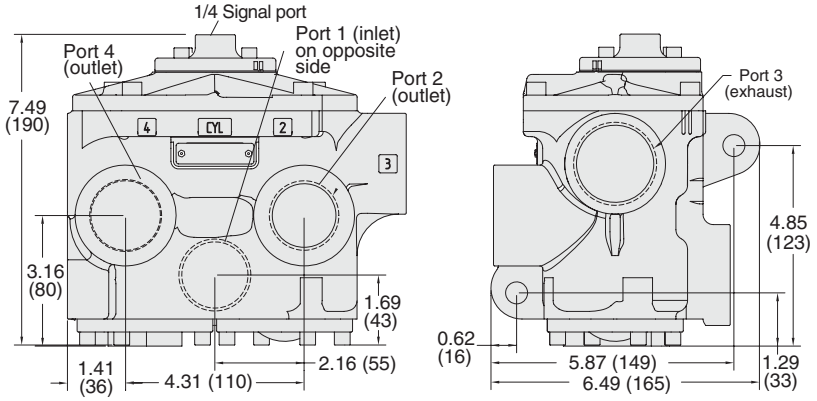




Body Size 3/4



Body Size 1¼



Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.
Mounting Type: Inline.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: *Port Size 1/4 to 1½:* 15 to 150 psig (1 to 10 bar).
Port Size 1½ to 2½: 30 to 150 psig (2 to 10 bar).

Pilot Pressure: Must be equal to or greater than inlet pressure.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

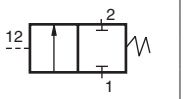
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Pressure Booster Adaptor: Increases the actuating force on the valve piston. It should be used when the inlet pressure exceeds the available signal pressure, or when the signal pressure is less than 15 psig (1 bar).
The valve's signal pressure is applied to a piston in the pressure booster adaptor that has a larger area than the piston in the valve. The force on the piston in the adaptor is thereby larger than that which could be produced by the piston in the valve. This larger force is applied to the valve's piston directly so that there is then sufficient force to shift the valve properly.

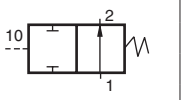
2-Way 2-Position Valves, Spring Return

Port Size 1, 2	Body Size	Valve Model Number* Normally Closed	Valve Model Number* Normally Open	C_v NC	C_v NO	Dimension A inches (mm)	Weight lb (kg)
1/4	3/8	2751A2007	2752A2007	2.3	2.3	0.75 (19)	2.3 (1.1)
3/8	3/8	2751A3007	2752A3007	3.8	3.3	0.75 (19)	2.3 (1.1)
1/2	3/8	2751A4017	2752A4017	4.0	3.5	0.75 (19)	2.3 (1.1)
1/2	3/4	2751A4007	2752A4007	7.7	6.5	0.75 (19)	3.0 (1.4)
3/4	3/4	2751A5007	2752A5007	9.0	7.3	0.75 (19)	3.0 (1.4)
1	3/4	2751A6017	2752A6017	9.0	7.9	0.75 (19)	3.0 (1.4)
1	1¼	2751A6007	2752A6007	24	21	1.25 (32)	9.0 (4.1)
1¼	1¼	2751A7007	2752A7007	29	20	1.25 (32)	9.0 (4.1)
1½	1¼	2751A8017	2752A8017	29	21	1.25 (32)	9.0 (4.1)

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2751A2007.



Normally Closed



Normally Open


3-way PB Adaptor


4-way PB Adaptor

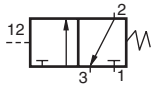
B

B2

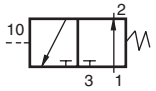
3-Way 2-Position Valves, Spring Return

Port Size 1, 2	Port Size 3	Body Size	Valve Model Number* Normally Closed	Valve Model Number* Normally Open	C_v NC 1-2	C_v NC 2-3	C_v NO 1-2	C_v NO 2-3	Dimension A inches (mm)	Weight lb (kg)
1/4	1/2	3/8	2753A2007	2754A2007	2.5	3.1	2.3	2.7	0.75 (19)	2.3 (1.1)
3/8	1/2	3/8	2753A3007	2754A3007	3.6	5.3	28	3.2	0.75 (19)	2.3 (1.1)
1/2	1/2	3/8	2753A4017	2754A4017	3.3	5.3	28	3.2	0.75 (19)	2.3 (1.1)
1/2	1	3/4	2753A4007	2754A4007	6.3	9.2	6.3	8.0	0.75 (19)	3.0 (1.4)
3/4	1	3/4	2753A5007	2754A5007	7.7	11	6.9	7.4	0.75 (19)	3.0 (1.4)
1	1	3/4	2753A6017	2754A6017	8	12	6.8	7.5	0.75 (19)	3.0 (1.4)
1	1½	1¼	2753A6007	2754A6007	23	34	17	24	1.25 (32)	9.0 (4.1)
1¼	1½	1¼	2753A7007	2754A7007	30	32	19	24	1.25 (32)	9.0 (4.1)
1½	1½	1¼	2753A8017	2754A8017	30	31	19	23	1.25 (32)	9.0 (4.1)

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2753A2007.



Normally Closed

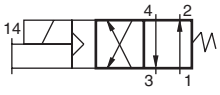


Normally Open

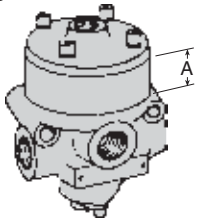
4-Way 2-Position Valves, Spring Return

Port Size 1, 2, 4	Port Size 3	Body Size	Valve Model Number*	C_v 1-2, 1-4	C_v 4-3, 2-3	Dimension A inches (mm)	Weight lb (kg)
1/4	1/2	3/8	2756A2007	2.1	2.9	0.75 (19)	2.8 (1.3)
3/8	1/2	3/8	2756A3007	2.9	4.2	0.75 (19)	2.8 (1.3)
1/2	1/2	3/8	2756A4017	3.1	4.3	0.75 (19)	2.8 (1.3)
1/2	1	3/4	2756A4007	5.6	8.1	0.75 (19)	5.3 (2.4)
3/4	1	3/4	2756A5007	7.0	9.3	0.75 (19)	5.3 (2.4)
1	1	3/4	2756A6017	7.8	10	0.75 (19)	5.3 (2.4)
1	1½	1¼	2756A6007	19	26	1.25 (32)	11.3 (5.2)
1¼	1½	1¼	2756A7007	21	27	1.25 (32)	11.3 (5.2)
1½	1½	1¼	2756A8017	22	27	1.25 (32)	11.3 (5.2)

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2756A2007.



Detailed dimensions, see corresponding valves models pages.



Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.
Mounting Type: Inline.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 15 to 150 psig (1 to 10 bar).

Pilot Pressure: Must be equal to or greater than inlet pressure.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

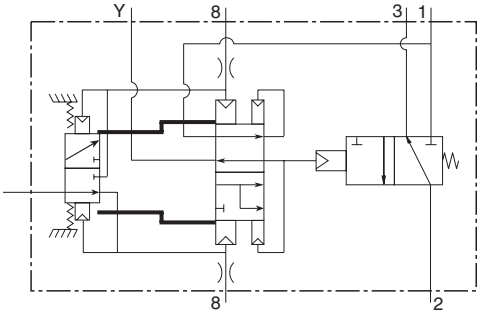
Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Air Index Adaptor: Allows a valve with a single signal source to function as an impulse controlled, mechanically detented valve.
A momentary pressure signal shifts and holds the valve. A second momentary pressure signal from the same source returns the valve to its original position.

3-Way 2-Position Valves, Spring Return

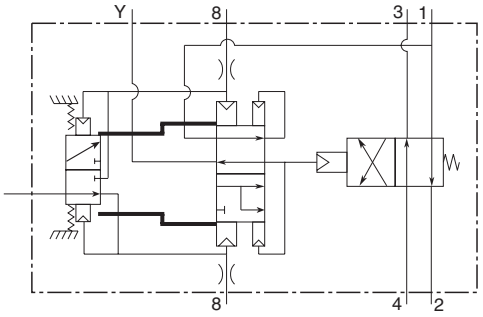
Port Size 1, 2	Port Size 3	Body Size	Valve Model Number*	C_v 1-2	C_v 2-3	Weight lb (kg)
1/4	1/2	3/8	2783A2001	2.5	3.1	2.3 (1.1)
3/8	1/2	3/8	2783A3001	3.6	5.3	2.3 (1.1)
1/2	1/2	3/8	2783A4011	3.3	5.3	2.3 (1.1)
1/2	1	3/4	2783A4001	6.3	9.2	3.0 (1.4)
3/4	1	3/4	2783A5001	7.7	11	3.0 (1.4)
1	1	3/4	2783A6011	8	12	3.0 (1.4)
1	1½	1¼	2783A6001	23	34	9.0 (4.1)
1¼	1½	1¼	2783A7001	30	32	9.0 (4.1)
1½	1½	1¼	2783A8011	30	31	9.0 (4.1)



* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2783A2001.

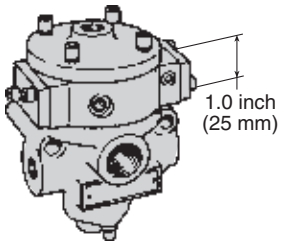
4-Way 2-Position Valves, Spring Return

Port Size 1, 2, 4	Port Size 3	Body Size	Valve Model Number*	C_v 1-2, 1-4	C_v 4-3, 2-3	Weight lb (kg)
1/4	1/2	3/8	2786A2001	2.1	2.9	2.8 (1.3)
3/8	1/2	3/8	2786A3001	2.9	4.2	2.8 (1.3)
1/2	1/2	3/8	2786A4011	3.1	4.3	2.8 (1.3)
1/2	1	3/4	2786A4001	5.6	8.1	5.3 (2.4)
3/4	1	3/4	2786A5001	7.0	9.3	5.3 (2.4)
1	1	3/4	2786A6011	7.8	10	5.3 (2.4)
1	1½	1¼	2786A6001	19	26	11.3 (5.2)
1¼	1½	1¼	2786A7001	21	27	11.3 (5.2)
1½	1½	1¼	2786A8011	22	27	11.3 (5.2)



* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2783A2001.

Detailed dimensions, see corresponding valves models pages.



Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.
Mounting Type: Inline.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 15 to 150 psig (1 to 10 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

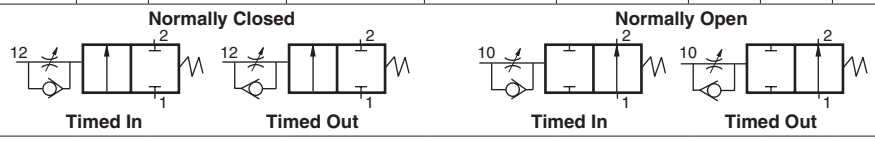
Timed Sequence Adaptor: Allows the actuation and/or de-actuation of a valve to be delayed up to 30 seconds for 2/2 valves, and up to 3 seconds for 3/2 and 4/2 valves. The time delay function is controlled by a continuously adjustable tapered needle.

Timed-Out Adaptor

Dual Timed Adaptor

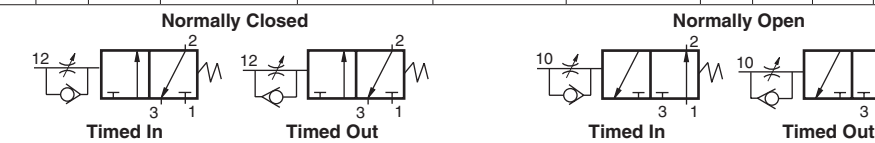
2-Way 2-Position Valves, Spring Return

Port Size	Body Size	Valve Model Number*				C_v		Weight lb (kg)
		Normally Closed		Normally Open				
1, 2		Timed In	Timed Out	Timed In	Timed Out	NC	NO	
1/4	3/8	2751A2002	2751A2003	2752A2002	2752A2003	2.3	2.3	2.3 (1.1)
3/8	3/8	2751A3002	2751A3003	2752A3002	2752A3003	3.8	3.3	2.3 (1.1)
1/2	3/8	2751A4012	2751A4013	2752A4012	2752A4013	4.0	3.5	2.3 (1.1)
1/2	3/4	2751A4002	2751A4003	2752A4002	2752A4003	7.7	6.5	3.0 (1.4)
3/4	3/4	2751A5002	2751A5003	2752A5002	2752A5003	9.0	7.3	3.0 (1.4)
1	3/4	2751A6012	2751A6013	2752A6012	2752A6013	9.0	7.9	3.0 (1.4)
1	1¼	2751A6002	2751A6003	2752A6002	2752A6003	24	21	9.0 (4.1)
1¼	1¼	2751A7002	2751A7003	2752A7002	2752A7003	29	20	9.0 (4.1)
1½	1¼	2751A8012	2751A8013	2752A8012	2752A8013	29	21	9.0 (4.1)

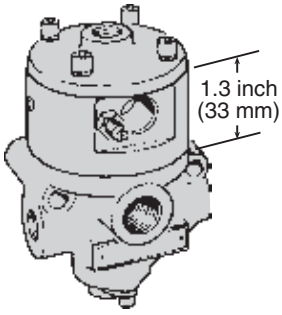


3-Way 2-Position Valves, Spring Return

Port Size		Body Size	Valve Model Number*				C_v				Weight lb (kg)
			Normally Closed		Normally Open		NC		NO		
1, 2	3		Timed In	Timed Out	Timed In	Timed Out	1-2	2-3	1-2	2-3	
1/4	1/2	3/8	2753A2002	2753A2003	2754A2002	2754A2003	2.5	3.1	2.3	2.7	2.3 (1.1)
3/8	1/2	3/8	2753A3002	2753A3003	2754A3002	2754A3003	3.6	5.3	28	3.2	2.3 (1.1)
1/2	1/2	3/8	2753A4012	2753A4013	2754A4012	2754A4013	3.3	5.3	28	3.2	2.3 (1.1)
1/2	1	3/4	2753A4002	2753A4003	2754A4002	2754A4003	6.3	9.2	6.3	8.0	3.0 (1.4)
3/4	1	3/4	2753A5002	2753A5003	2754A5002	2754A5003	7.7	11	6.9	7.4	3.0 (1.4)
1	1	3/4	2753A6012	2753A6013	2754A6012	2754A6013	8	12	6.8	7.5	3.0 (1.4)
1	1½	1¼	2753A6002	2753A6003	2754A6002	2754A6003	23	34	17	24	9.0 (4.1)
1¼	1½	1¼	2753A7002	2753A7003	2754A7002	2754A7003	30	32	19	24	9.0 (4.1)
1½	1½	1¼	2753A8012	2753A8013	2754A8012	2754A8013	30	31	19	23	9.0 (4.1)



Detailed dimensions, see corresponding valves models pages.



* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2751A2002.

OPERATION : **Timed In Adaptor:** Air signal applied; after preset time delay valve is actuated. Air signal removed; valve immediately deactuated.
Timed Out Adaptor: Air signal applied; valve immediately actuated. Air signal removed; after preset delay valve is deactuated.

Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.
Mounting Type: Inline.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 15 to 150 psig (1 to 10 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.

Adjustable Time Delay: Up to 30 seconds.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

Valve models with EN connector available, consult ROSS.

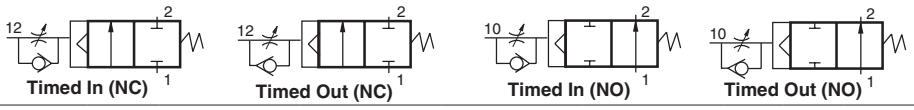
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Pressure Controlled Valves
With Timed Sequence & Timed Sequence Extension Adaptors

27 Series

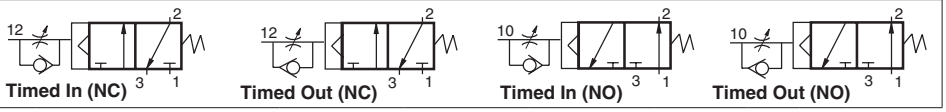
2-Way 2-Position Valves, Spring Return

Port Size	Body Size	Valve Model Number*				C_v		Weight lb (kg)
		Normally Closed		Normally Open				
1, 2		Timed In	Timed Out	Timed In	Timed Out	NC	NO	
1/4	3/8	2781A2002	2781A2003	2782A2002	2782A2003	2.3	2.3	2.3 (1.1)
3/8	3/8	2781A3002	2781A3003	2782A3002	2782A3003	3.8	3.3	2.3 (1.1)
1/2	3/8	2781A4012	2781A4013	2782A4012	2782A4013	4.0	3.5	2.3 (1.1)
1/2	3/4	2781A4002	2781A4003	2782A4002	2782A4003	7.7	6.5	3.0 (1.4)
3/4	3/4	2781A5002	2781A5003	2782A5002	2782A5003	9.0	7.3	3.0 (1.4)
1	3/4	2781A6012	2781A6013	2782A6012	2782A6013	9.0	7.9	3.0 (1.4)
1	1¼	2781A6002	2781A6003	2782A6002	2782A6003	24	21	9.0 (4.1)
1¼	1¼	2781A7002	2781A7003	2782A7002	2782A7003	29	20	9.0 (4.1)
1½	1¼	2781A8012	2781A8013	2782A8012	2782A8013	29	21	9.0 (4.1)



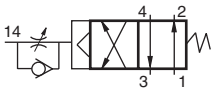
3-Way 2-Position Valves, Spring Return

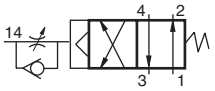
Port Size		Body Size	Valve Model Number*				C_v				Weight lb (kg)
			Normally Closed		Normally Open		NC		NO		
1, 2	3		Timed In	Timed Out	Timed In	Timed Out	1-2	2-3	1-2	2-3	
1/4	1/2	3/8	2783A2002	2783A2003	2784A2002	2784A2003	2.5	3.1	2.3	2.7	2.3 (1.1)
3/8	1/2	3/8	2783A3002	2783A3003	2784A3002	2784A3003	3.6	5.3	28	3.2	2.3 (1.1)
1/2	1/2	3/8	2783A4012	2783A4013	2784A4012	2784A4013	3.3	5.3	28	3.2	2.3 (1.1)
1/2	1	3/4	2783A4002	2783A4003	2784A4002	2784A4003	6.3	9.2	6.3	8.0	3.0 (1.4)
3/4	1	3/4	2783A5002	2783A5003	2784A5002	2784A5003	7.7	11	6.9	7.4	3.0 (1.4)
1	1	3/4	2783A6012	2783A6013	2784A6012	2784A6013	8	12	6.8	7.5	3.0 (1.4)
1	1½	1¼	2783A6002	2783A6003	2784A6002	2784A6003	23	34	17	24	9.0 (4.1)
1¼	1½	1¼	2783A7002	2783A7003	2784A7002	2784A7003	30	32	19	24	9.0 (4.1)
1½	1½	1¼	2783A8012	2783A8013	2784A8012	2784A8013	30	31	19	23	9.0 (4.1)



4-Way 2-Position Valves, Spring Return

Port Size		Body Size	Valve Model Number*		C_v		Weight lb (kg)
1, 2, 4	3		Timed In	Timed Out	1-2, 1-4	4-3, 2-3	
1/4	1/2	3/8	2786A2002	2786A2003	2.1	2.9	2.8 (1.3)
3/8	1/2	3/8	2786A3002	2786A3003	2.9	4.2	2.8 (1.3)
1/2	1/2	3/8	2786A4012	2786A4013	3.1	4.3	2.8 (1.3)
1/2	1	3/4	2786A4002	2786A4003	5.6	8.1	5.3 (2.4)
3/4	1	3/4	2786A5002	2786A5003	7.0	9.3	5.3 (2.4)
1	1	3/4	2786A6012	2786A6013	7.8	10	5.3 (2.4)
1	1½	1¼	2786A6002	2786A6003	19	26	11.3 (5.2)
1¼	1½	1¼	2786A7002	2786A7003	21	27	11.3 (5.2)
1½	1½	1¼	2786A8012	2786A8013	22	27	11.3 (5.2)



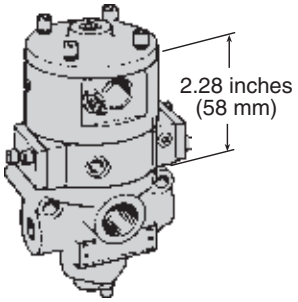


Timed-Out Adaptor

Timed Sequence Adaptor: Allows the actuation and/or de-actuation of a valve to be delayed up to 30 seconds for 2/2 valves, and up to 3 seconds for 3/2 and 4/2 valves. The time delay function is controlled by a continuously adjustable tapered needle. Longer time delays can be obtained by using this adaptor in conjunction with the timed sequence extension adaptor.

Timed Sequence Extension Adaptor: Used in conjunction with the timed sequence adaptor to extend the delay interval up to 60 seconds. It also helps to obtain "snap" action of the valve by keeping pilot or signal air off the main valve piston until the pressure has built high enough to cause prompt valve response. Air line lubrication is required with this adaptor.

Detailed dimensions, see corresponding valves models pages.



* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2781B2002.

Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.
Mounting Type: Inline.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 15 to 150 psig (1 to 10 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.

Adjustable Time Delay: Up to 60 seconds.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

Valve models with EN connector available, consult ROSS.

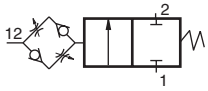
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

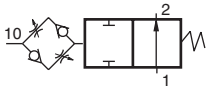
Timed Sequence Adaptor: Allows the actuation and/or de-actuation of a valve to be delayed up to 30 seconds for 2/2 valves, and up to 3 seconds for 3/2 and 4/2 valves. The time delay function is controlled by a continuously adjustable tapered needle.

2-Way 2-Position Valves, Spring Return

Port Size	Body Size	Valve Model Number*		C_v		Weight
1, 2		Normally Closed	Normally Open	NC	NO	lb (kg)
1/4	3/8	2751B2008	2752B2008	2.3	2.3	2.3 (1.1)
3/8	3/8	2751B3008	2752B3008	3.8	3.3	2.3 (1.1)
1/2	3/8	2751B4018	2752B4018	4.0	3.5	2.3 (1.1)
1/2	3/4	2751B4008	2752B4008	7.7	6.5	3.0 (1.4)
3/4	3/4	2751B5008	2752B5008	9.0	7.3	3.0 (1.4)
1	3/4	2751B6018	2752B6018	9.0	7.9	3.0 (1.4)
1	1¼	2751B6008	2752B6008	24	21	9.0 (4.1)
1¼	1¼	2751B7008	2752B7008	29	20	9.0 (4.1)
1½	1¼	2751B8018	2752B8018	29	21	9.0 (4.1)

NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2751B2008.

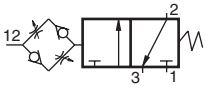
Normally Closed 

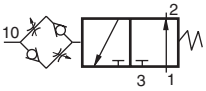
Normally Open 

3-Way 2-Position Valves, Spring Return

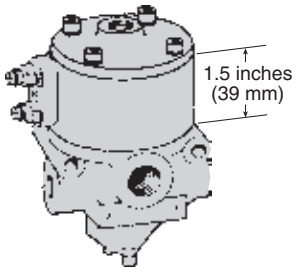
Port Size		Body Size	Valve Model Number*		C_v				Weight
					NC		NO		lb (kg)
1, 2	3		Normally Closed	Normally Open	1-2	2-3	1-2	2-3	
1/4	1/2	3/8	2753B2008	2754B2008	2.5	3.1	2.3	2.7	2.3 (1.1)
3/8	1/2	3/8	2753B3008	2754B3008	3.6	5.3	28	3.2	2.3 (1.1)
1/2	1/2	3/8	2753B4018	2754B4018	3.3	5.3	28	3.2	2.3 (1.1)
1/2	1	3/4	2753B4008	2754B4008	6.3	9.2	6.3	8.0	3.0 (1.4)
3/4	1	3/4	2753B5008	2754B5008	7.7	11	6.9	7.4	3.0 (1.4)
1	1	3/4	2753B6018	2754A6018	8	12	6.8	7.5	3.0 (1.4)
1	1½	1¼	2753B6008	2754B6008	23	34	17	24	9.0 (4.1)
1¼	1½	1¼	2753B7008	2754B7008	30	32	19	24	9.0 (4.1)
1½	1½	1¼	2753B8018	2754B8018	30	31	19	23	9.0 (4.1)

NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2753B2008

Normally Closed 

Normally Open 

Detailed dimensions, see corresponding valves models pages.



OPERATION :

Timed In Adaptor: Air signal applied; after preset time delay valve is actuated. Air signal removed; valve immediately deactuated.

Timed Out Adaptor: Air signal applied; valve immediately actuated. Air signal removed; after preset delay valve is deactuated.

Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.
Mounting Type: Inline.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 15 to 150 psig (1 to 10 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.
Adjustable Time Delay: Up to 30 seconds.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

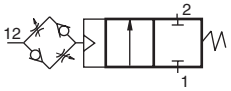
Pressure Controlled Valves
With Timed-In/Out Sequence & Timed Sequence Extension Adaptors

27 Series

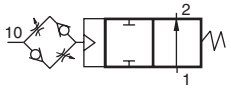
Timed-In/Out Sequence & Timed Sequence Extension Adaptors: Used in conjunction can increase the time delay interval up to 60 seconds. It also helps to obtain "snap" action of the valve. By keeping pilot air off the main valve piston until the pressure has built high enough to ensure prompt valve response, the timed sequence extension adaptor prevents the piston from creeping.

2-Way 2-Position Valves, Spring Return

Port Size 1, 2	Body Size	Valve Model Number* Normally Closed	Valve Model Number* Normally Open	C_v NC	C_v NO	Weight lb (kg)
1/4	3/8	2781B2005	2782B2005	2.3	2.3	2.3 (1.1)
3/8	3/8	2781B3005	2782B3005	3.8	3.3	2.3 (1.1)
1/2	3/8	2781B4015	2782B4015	4.0	3.5	2.3 (1.1)
1/2	3/4	2781B4005	2782B4005	7.7	6.5	3.0 (1.4)
3/4	3/4	2781B5005	2782B5005	9.0	7.3	3.0 (1.4)
1	3/4	2781B6015	2782B6015	9.0	7.9	3.0 (1.4)
1	1¼	2781B6005	2782B6005	24	21	9.0 (4.1)
1¼	1¼	2781B7005	2782B7005	29	20	9.0 (4.1)
1½	1¼	2781B8015	2782B8015	29	21	9.0 (4.1)



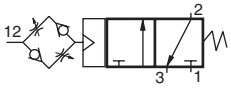
Normally Closed



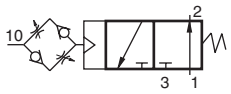
Normally Open

3-Way 2-Position Valves, Spring Return

Port Size 1, 2	Port Size 3	Body Size	Valve Model Number* Normally Closed	Valve Model Number* Normally Open	C_v NC 1-2	C_v NC 2-3	C_v NO 1-2	C_v NO 2-3	Weight lb (kg)
1/4	1/2	3/8	2783B2005	2784B2005	2.5	3.1	2.3	2.7	2.3 (1.1)
3/8	1/2	3/8	2783B3005	2784B3005	3.6	5.3	28	3.2	2.3 (1.1)
1/2	1/2	3/8	2783B4015	2784B4015	3.3	5.3	28	3.2	2.3 (1.1)
1/2	1	3/4	2783B4005	2784B4005	6.3	9.2	6.3	8.0	3.0 (1.4)
3/4	1	3/4	2783B5005	2784B5005	7.7	11	6.9	7.4	3.0 (1.4)
1	1	3/4	2783B6015	2784B6015	8	12	6.8	7.5	3.0 (1.4)
1	1½	1¼	2783B6005	2784B6005	23	34	17	24	9.0 (4.1)
1¼	1½	1¼	2783B7005	2784B7005	30	32	19	24	9.0 (4.1)
1½	1½	1¼	2783B8015	2784B8015	30	31	19	23	9.0 (4.1)



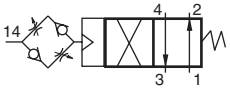
Normally Closed



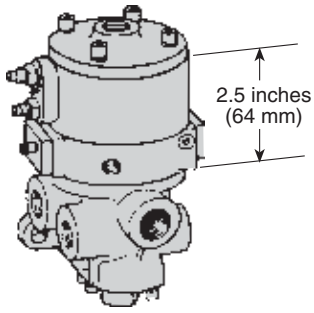
Normally Open

4-Way 2-Position Valves, Spring Return

Port Size 1, 2, 4	Port Size 3	Body Size	Valve Model Number*	C_v 1-2, 1-4	C_v 4-3, 2-3	Weight lb (kg)
1/4	1/2	3/8	2786B2005	2.1	2.9	2.8 (1.3)
3/8	1/2	3/8	2786B3005	2.9	4.2	2.8 (1.3)
1/2	1/2	3/8	2786B4015	3.1	4.3	2.8 (1.3)
1/2	1	3/4	2786B4005	5.6	8.1	5.3 (2.4)
3/4	1	3/4	2786B5005	7.0	9.3	5.3 (2.4)
1	1	3/4	2786B6015	7.8	10	5.3 (2.4)
1	1½	1¼	2786B6005	19	26	11.3 (5.2)
1¼	1½	1¼	2786B7005	21	27	11.3 (5.2)
1½	1½	1¼	2786B8015	22	27	11.3 (5.2)



Detailed dimensions, see corresponding valves models pages.



* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2781B2005.

Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.
Mounting Type: Inline.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 15 to 150 psig (1 to 10 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.
Adjustable Time Delay: Up to 60 seconds.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

Valve models with EN connector available, consult ROSS.

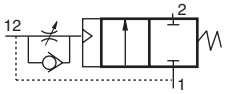
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Online Version
Rev. 11/14/16

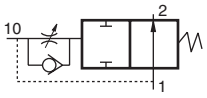
Inlet Port Controlled Timed-In Sequence Adaptor: Permits valve actuation and deactuation to be controlled by the pressure at the inlet port. When pressure is applied an internal passage conducts the pressure to the sequence adaptor. After the preset time delay, the valve is actuated. When pressure is removed from the inlet port the valve is deactuated.

2-Way 2-Position Valves, Spring Return

Port Size 1, 2	Body Size	Valve Model Number* Normally Closed	Valve Model Number* Normally Open	C_v NC	C_v NO	Weight lb (kg)
1/4	3/8	2751A2004	2752A2004	2.3	2.3	2.3 (1.1)
3/8	3/8	2751A3004	2752A3004	3.8	3.3	2.3 (1.1)
1/2	3/8	2751A4014	2752A4014	4.0	3.5	2.3 (1.1)
1/2	3/4	2751A4004	2752A4004	7.7	6.5	3.0 (1.4)
3/4	3/4	2751A5004	2752A5004	9.0	7.3	3.0 (1.4)
1	3/4	2751A6014	2752A6014	9.0	7.9	3.0 (1.4)
1	1¼	2751A6004	2752A6004	24	21	9.0 (4.1)
1¼	1¼	2751A7004	2752A7004	29	20	9.0 (4.1)
1½	1¼	2751A8014	2752A8014	29	21	9.0 (4.1)



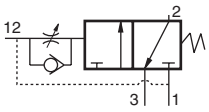
Normally Closed



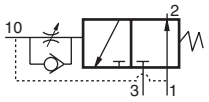
Normally Open

3-Way 2-Position Valves, Spring Return

Port Size 1, 2	Port Size 3	Body Size	Valve Model Number* Normally Closed	Valve Model Number* Normally Open	C_v NC 1-2	C_v NC 2-3	C_v NO 1-2	C_v NO 2-3	Weight lb (kg)
1/4	1/2	3/8	2753A2004	2754A2004	2.5	3.1	2.3	2.7	2.3 (1.1)
3/8	1/2	3/8	2753A3004	2754A3004	3.6	5.3	28	3.2	2.3 (1.1)
1/2	1/2	3/8	2753A4014	2754A4014	3.3	5.3	28	3.2	2.3 (1.1)
1/2	1	3/4	2753A4004	2754A4004	6.3	9.2	6.3	8.0	3.0 (1.4)
3/4	1	3/4	2753A5004	2754A5004	7.7	11	6.9	7.4	3.0 (1.4)
1	1	3/4	2753A6014	2754A6014	8	12	6.8	7.5	3.0 (1.4)
1	1½	1¼	2753A6004	2754A6004	23	34	17	24	9.0 (4.1)
1¼	1½	1¼	2753A7004	2754A7004	30	32	19	24	9.0 (4.1)
1½	1½	1¼	2753A8014	2754A8014	30	31	19	23	9.0 (4.1)



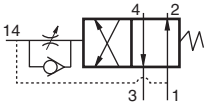
Normally Closed



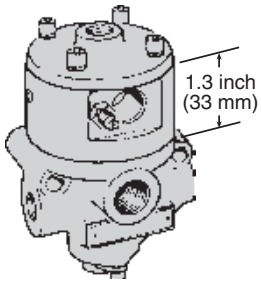
Normally Open

4-Way 2-Position Valves, Spring Return

Port Size 1, 2, 4	Port Size 3	Body Size	Valve Model Number*	C_v 1-2, 1-4	C_v 4-3, 2-3	Weight lb (kg)
1/4	1/2	3/8	2756A2004	2.1	2.9	2.8 (1.3)
3/8	1/2	3/8	2756A3004	2.9	4.2	2.8 (1.3)
1/2	1/2	3/8	2756A4014	3.1	4.3	2.8 (1.3)
1/2	1	3/4	2756A4004	5.6	8.1	5.3 (2.4)
3/4	1	3/4	2756A5004	7.0	9.3	5.3 (2.4)
1	1	3/4	2756A6014	7.8	10	5.3 (2.4)
1	1½	1¼	2756A6004	19	26	11.3 (5.2)
1¼	1½	1¼	2756A7004	21	27	11.3 (5.2)
1½	1½	1¼	2756A8014	22	27	11.3 (5.2)



Detailed dimensions, see corresponding valves models pages.



* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2751A2004.

Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.
Mounting Type: Inline.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 15 to 150 psig (1 to 10 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.
Adjustable Time Delay: *2/2 Valves:* Up to 30 seconds.
3/2, 4/2 Valves: Up to 3 seconds.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Pressure Controlled Valves

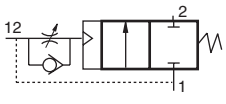
With Inlet Port Controlled Timed-In Sequence & Timed Sequence Extension Adaptors

27 Series

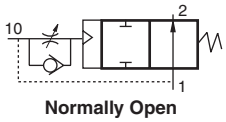
Inlet Port Controlled Timed-In Sequence Adaptor: Permits valve actuation and deactuation to be controlled by the pressure at the inlet port. When pressure is applied an internal passage conducts the pressure to the sequence adaptor. After the preset time delay, the valve is actuated. When pressure is removed from the inlet port the valve is deactuated.
Timed Sequence Extension Adaptor: Increases the maximum time delay interval to 60 seconds. It also helps to obtain "snap" action of the valve. By keeping pressure off the main valve piston until it is high enough to ensure prompt valve response, the timed sequence extension adaptor prevents the piston from creeping.

2-Way 2-Position Valves, Spring Return

Port Size	Body Size	Valve Model Number*		C_v		Weight lb (kg)
1, 2		Normally Closed	Normally Open	NC	NO	
1/4	3/8	2781A2004	2782A2004	2.3	2.3	2.3 (1.1)
3/8	3/8	2781A3004	2782A3004	3.8	3.3	2.3 (1.1)
1/2	3/8	2781A4014	2782A4014	4.0	3.5	2.3 (1.1)
1/2	3/4	2781A4004	2782A4004	7.7	6.5	3.0 (1.4)
3/4	3/4	2781A5004	2782A5004	9.0	7.3	3.0 (1.4)
1	3/4	2781A6014	2782A6014	9.0	7.9	3.0 (1.4)
1	1¼	2781A6004	2782A6004	24	21	9.0 (4.1)
1¼	1¼	2781A7004	2782A7004	29	20	9.0 (4.1)
1½	1¼	2781A8014	2782A8014	29	21	9.0 (4.1)



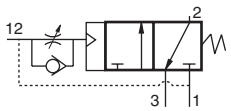
Normally Closed



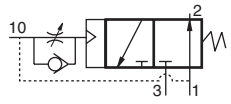
Normally Open

3-Way 2-Position Valves, Spring Return

Port Size		Body Size	Valve Model Number*		C_v				Weight lb (kg)
					NC		NO		
1, 2	3		Normally Closed	Normally Open	1-2	2-3	1-2	2-3	
1/4	1/2	3/8	2783A2004	2784A2004	2.5	3.1	2.3	2.7	2.3 (1.1)
3/8	1/2	3/8	2783A3004	2784A3004	3.6	5.3	28	3.2	2.3 (1.1)
1/2	1/2	3/8	2783A4014	2784A4014	3.3	5.3	28	3.2	2.3 (1.1)
1/2	1	3/4	2783A4004	2784A4004	6.3	9.2	6.3	8.0	3.0 (1.4)
3/4	1	3/4	2783A5004	2784A5004	7.7	11	6.9	7.4	3.0 (1.4)
1	1	3/4	2783A6014	2784A6014	8	12	6.8	7.5	3.0 (1.4)
1	1½	1¼	2783A6004	2784A6004	23	34	17	24	9.0 (4.1)
1¼	1½	1¼	2783A7004	2784A7004	30	32	19	24	9.0 (4.1)
1½	1½	1¼	2783A8014	2784A8014	30	31	19	23	9.0 (4.1)



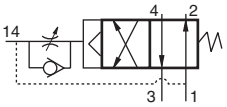
Normally Closed



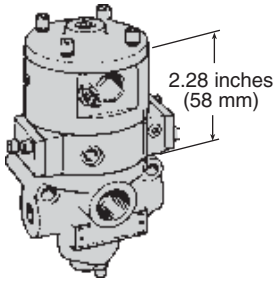
Normally Open

4-Way 2-Position Valves, Spring Return

Port Size		Body Size	Valve Model Number*	C_v		Weight lb (kg)
1, 2, 4	3			1-2, 1-4	4-3, 2-3	
1/4	1/2	3/8	2786A2004	2.1	2.9	2.8 (1.3)
3/8	1/2	3/8	2786A3004	2.9	4.2	2.8 (1.3)
1/2	1/2	3/8	2786A4014	3.1	4.3	2.8 (1.3)
1/2	1	3/4	2786A4004	5.6	8.1	5.3 (2.4)
3/4	1	3/4	2786A5004	7.0	9.3	5.3 (2.4)
1	1	3/4	2786A6014	7.8	10	5.3 (2.4)
1	1½	1¼	2786A6004	19	26	11.3 (5.2)
1¼	1½	1¼	2786A7004	21	27	11.3 (5.2)
1½	1½	1¼	2786A8014	22	27	11.3 (5.2)



Detailed dimensions, see corresponding valves models pages.



* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2781A2004.

Silencers ordered separately, refer to page B2.23.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.
Mounting Type: Inline.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 15 to 150 psig (1 to 10 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.

Adjustable Time Delay: Up to 60 seconds.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

Valve models with EN connector available, consult ROSS.

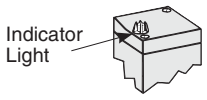
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

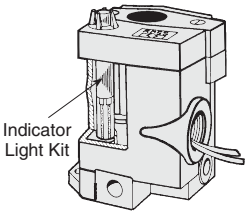
Indicator Light Kit

To visually verify valve operation indicator lights are available in kit form. The indicator light extends through the solenoid or pilot cover and is illuminated when the solenoid is energized. Such lights are standard on double solenoid valves.

Indicator light kit is available for single solenoid models.

Kit Number		
24 volts DC	110-120 volts AC 50-60 Hz	220 volts 50-60 Hz
862K87-W	862K87-Z	862K87-Y





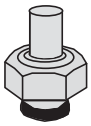
Manual Override Kits

Flush flexible manual overrides are standard on single solenoid models. Double solenoid models have flush metal-button overrides. Both types are non-locking.

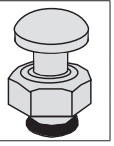
Each of the buttons in the override kits below is made of metal and is spring-returned. The locking type button, however, can be kept in the actuated position by turning the slot in the top of the button with a screwdriver.

FLUSH BUTTON	
Locking Type	Kit Number
Non-Locking	790K87
Locking	792K87

EXTENDED BUTTON	
Locking Type	Kit Number
Non-Locking	791K87



EXTENDED BUTTON with PALM	
Locking Type	Kit Number
Non-Locking	984H87



Electrical Connector

Valves available with installed prewired connectors, consult ROSS.

System 8 Solenoid Pilot

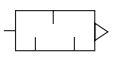
Models available with preinstalled System 8 solenoid pilot, consult ROSS.

Silencers

Port size 1/4 thru 2

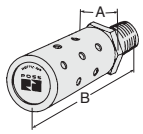
Port size 2½

Port Size	Thread Type	Model Number		Avg. C_v	Dimensions inches (mm)		Weight lb (kg)
		NPT Treads	BSPT Threads		A	B	
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)
1½	Female	5500A8001	D5500A8001	29.9	2.5 (64)	5.7 (144)	1.0 (0.5)
2½	Female	5500A9002	D5500A9002	103.7	4.0 (102)	5.7 (145)	2.9 (1.4)

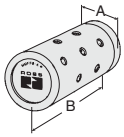


Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum.
Flow Media: Filtered air.

Male Pipe Threads



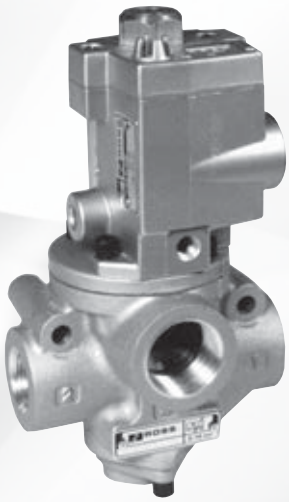
Female Pipe Threads



ROSS CONTROLS®

POPPET VALVES 21 SERIES

HIGH TEMPERATURE AND LOW TEMPERATURE APPLICATIONS



www.rosscontrols.com

POPPET 21 SERIES VALVES – KEY FEATURES

- Low weight; compact size
- Available with choices of internal components for three different temperature ranges
- Can be mounted close to actuator, reducing length of pipe to be pressurized/exhausted on each cycle
- Long life expectancy
- Consistent response times over the life of the valve
- Construction makes them readily adaptable to vacuum service
- Easily field-convertible for use with an external pilot supply
- Models with external pilot supply available, consult ROSS

Type H (High Temperature) Service:
Fluorocarbon seals are used to ensure high temperature stability.
Ambient Temperature: Up to 250°F (122°C) for solenoid models; up to 300°F (150°C) for pressure controlled models.
Media Temperature: 0° to 300°F (-17° to 150°C).

Type O (Low Temperature) Service:
Buna-N seals are used to ensure good performance at low temperatures.
Ambient Temperature: Down to -40°F (-40°C).
Media Temperature: -40° to 175°F (-40° to 80°C).

Vacuum Service Valves

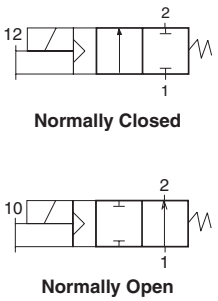
Vacuum service valves are ideal for lifting, holding, vacuum packaging and moving anything from large objects to tiny particles. They also provide an effective means for leak testing.

Explosion-Proof solenoid pilot valves available, see explosion proof valves.

VALVE TYPE/SERIES	DESCRIPTION		AVAILABLE INLET PORT SIZES										FUNCTIONS												Page
	Spool & Sleeve	Poppet	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	2	2½	2/2	3/2	3/4	4/2	5/2 Single	5/2 Double	5/3 Closed Center	5/3 Open Center	5/3 Pressure Center	Max Flow (Cv)	Solenoid Control	Direct Solenoid Control	Pressure Control	
21		■		■	■	■	■	■	■	■			■	■		■						40	■			B3.3 - B3.5
21		■		■	■	■	■	■	■	■			■	■		■						40			■	B3.6 - B3.8
21 Vacuum		■		■	■	■	■	■	■	■	■	■	■	■								71	■			B3.9 - B3.10 B3.12 - B3.13
21 Full Vacuum		■		■	■	■	■	■	■	■	■	■	■	■								71	■			B3.11
Options & Accessories																										B3.14

2-Way 2-Position Valves, Spring Return

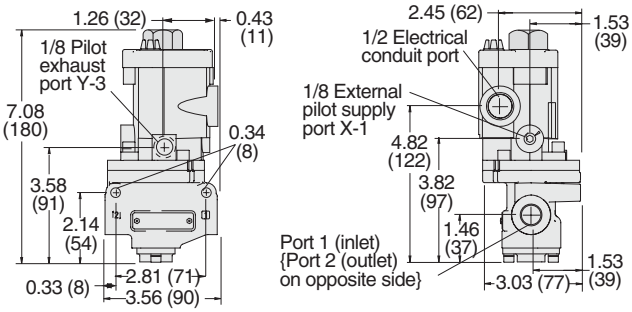
Port Size 1,2	Body Size	Valve Model Number* High Temperature Normally Closed	Valve Model Number* High Temperature Normally Open	Valve Model Number* Low Temperature Normally Closed	Valve Model Number* Low Temperature Normally Open	Avg. C_v NC	Avg. C_v NO	Average Response Constants# M	Average Response Constants# F NC	Average Response Constants# F NO	Weight lb (kg)
1/4	3/8	2171B2001**	2172B2001**	2171B2002**	2172B2002**	2.3	2.3	10	0.96	0.96	3.0 (1.4)
3/8	3/8	2171B3001**	2172B3001**	2171B3002**	2172B3002**	3.8	3.3	10	0.90	0.93	3.0 (1.4)
1/2	3/8	2171B4011**	2172B4011**	2171B4012**	2172B4012**	4.0	3.5	10	0.82	0.88	3.0 (1.4)
1/2	3/4	2171B4001**	2172B4001**	2171B4002**	2172B4002**	7.7	6.5	14	0.39	0.50	3.3 (1.5)
3/4	3/4	2171B5001**	2172B5001**	2171B5002**	2172B5002**	9.0	7.3	14	0.32	0.37	3.3 (1.5)
1	3/4	2171B6011**	2172B6011**	2171B6012**	2172B6012**	9.0	7.9	14	0.31	0.36	3.3 (1.5)
1	1¼	2171B6001**	2172B6001**	2171B6002**	2172B6002**	24	21	26	0.19	0.20	7.5 (3.4)
1¼	1¼	2171B7001**	2172B7001**	2171B7002**	2172B7002**	29	20	26	0.14	.18	7.5 (3.4)
1½	1¼	2171B8011**	2172B8011**	2171B8012**	2172B8012**	29	21	26	0.13	0.17	7.5 (3.4)



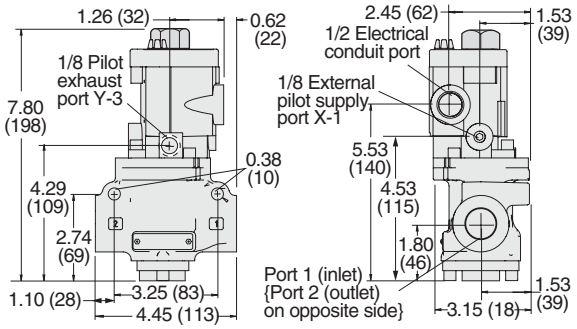
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2171B2001W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2171B2001W. For other voltages, consult ROSS.
# **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

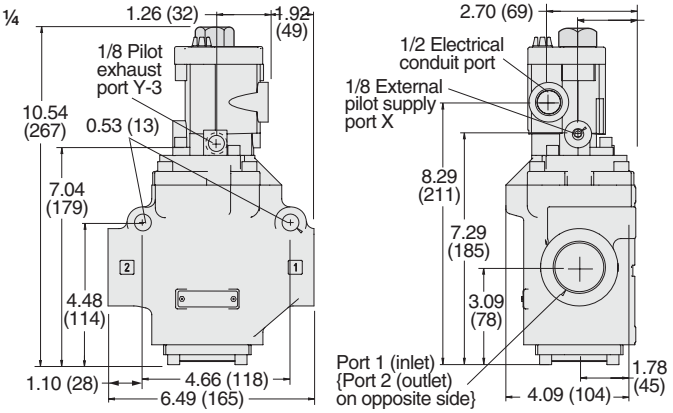
Body Size 3/8



Body Size 3/4



Body Size 1¼



Options: Indicator Light Kit, Manual Override Kits; refer to page B3.14.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Metal.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.
Ambient Temperature: *High Temp:* 0° to 250°F (-17° to 122°C).
Low Temp: -40° to 120°F (-40° to 50°C).
Media Temperature: *High Temp:* 0° to 300°F (-17° to 150°C).
Low Temp: -40° to 175°F (-40° to 80°C).

For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.
Flow Media: Filtered air.
Inlet Pressure: 30 to 150 psig (2 to 10 bar).
Pilot Pressure: When external supply is used, pressure must be equal to or greater than inlet pressure.
Manual Override: Non-locking metal button, standard.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

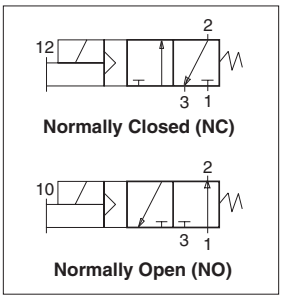
B

B3

3-Way 2-Position Valves, Spring Return

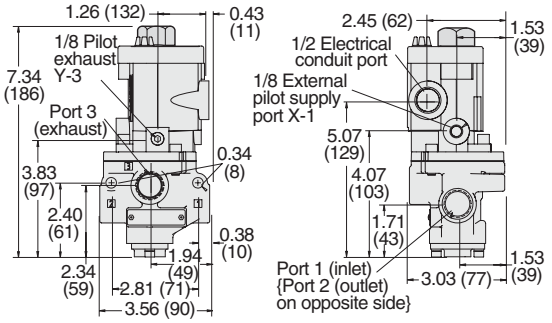
Port Size 1, 2	Port Size 3	Body Size	Valve Model Number* High Temperature Normally Closed	High Temperature Normally Open	Low Temperature Normally Closed	Low Temperature Normally Open	C_v NC 1-2	C_v NC 2-3	C_v NO 1-2	C_v NO 2-3	Average Response Constants# M	F NC 1-2	F NC 2-3	F NO 1-2	F NO 2-3	Weight lb (kg)
1/4	1/2	3/8	2173B2001**	2174B2001**	2173B2002**	2174B2002**	2.4	3.4	2.0	2.1	10	1.76	2.08	1.60	2.30	3.0 (1.4)
3/8	1/2	3/8	2173B3001**	2174B3001**	2173B3002**	2174B3002**	3.0	5.8	2.3	2.4	10	0.95	1.07	1.03	1.60	3.0 (1.4)
1/2	1/2	3/8	2173B4011**	2174B4011**	2173B4012**	2174B4012**	3.0	5.2	2.9	2.8	10	0.94	0.98	11.00	2.00	3.0 (1.4)
1/2	1	3/4	2173B4001**	2174B4001**	2173B4002**	2174B4002**	6.6	12	6.5	7.0	11	0.58	0.64	0.50	0.70	3.3 (1.5)
3/4	1	3/4	2173B5001**	2174B5001**	2173B5002**	2174B5002**	7.8	13	7.5	7.5	11	0.38	0.41	0.43	0.67	3.3 (1.5)
1	1	3/4	2173B6011**	2174B6011**	2173B6012**	2174B6012**	7.5	12	7.7	7.6	11	0.24	0.36	0.42	0.60	3.3 (1.5)
1	1½	1¼	2173B6001**	2174B6001**	2173B6002**	2174B6002**	24	40	15	17	28	0.16	0.18	0.17	0.20	7.5 (3.4)
1¼	1½	1¼	2173B7001**	2174B7001**	2173B7002**	2174B7002**	29	39	21	23	28	0.12	0.17	0.15	0.19	7.5 (3.4)
1½	1½	1¼	2173B8011**	2174B8011**	2173B8012**	2174B8012**	30	38	22	23	28	0.12	0.16	0.13	0.18	7.5 (3.4)

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2173B2001W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2173B2001W. For other voltages, consult ROSS.
# **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

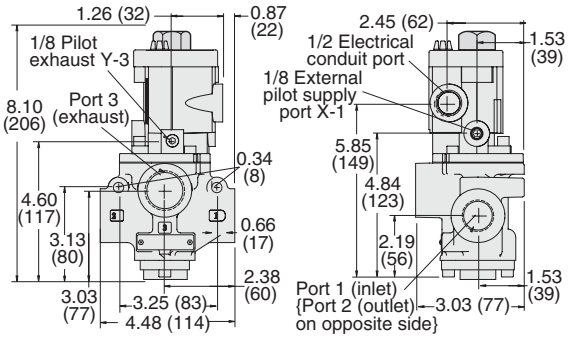


Valve Dimensions – inches (mm)

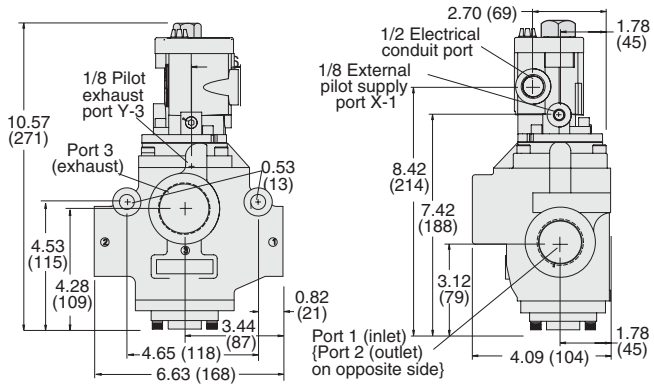
Body Size 3/8



Body Size 3/4



Body Size 1¼



Options: Indicator Light Kit, Manual Override Kits; refer to page B3.14. Silencers ordered separately, refer to page B3.14.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Metal.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.
Ambient Temperature: *High Temp:* 0° to 250°F (-17° to 122°C). *Low Temp:* -40° to 120°F (-40° to 50°C).
Media Temperature: *High Temp:* 0° to 300°F (-17° to 150°C). *Low Temp:* -40° to 175°F (-40° to 80°C).
For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.

Flow Media: Filtered air.
Inlet Pressure: 30 to 150 psig (2 to 10 bar).
Pilot Pressure: When external supply is used, pressure must be equal to or greater than inlet pressure.
Manual Override: Non-locking metal button, standard.

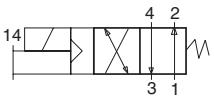
Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

4-Way 2-Position Valves, Spring Return

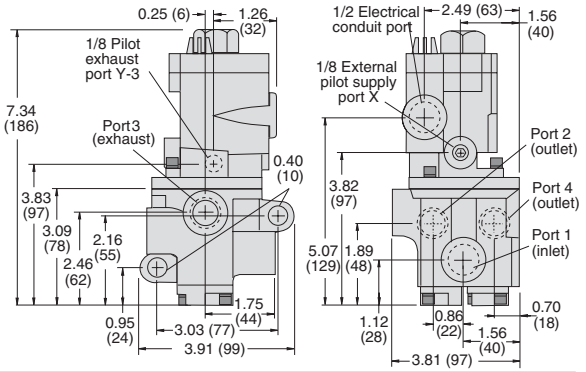
Port Size		Body Size	Valve Model Number*		C_v		Average Response Constants#			Weight lb (kg)
1, 2, 4	3		High Temperature	Low Temperature	1-2, 1-4	4-3, 2-3	M	F 1-2, 1-4	F 4-3, 2-3	
1/4	1/2	3/8	2176B2001**	2176B2002**	2.1	2.2	30	1.70	2.28	3.0 (1.4)
3/8	1/2	3/8	2176B3001**	2176B3002**	2.5	3.1	30	1.13	1.33	3.0 (1.4)
1/2	1/2	3/8	2176B4011**	2176B4012**	2.9	3.8	30	1.00	1.22	3.0 (1.4)
1/2	1	3/4	2176B4001**	2176B4002**	5.7	6.5	46	0.50	0.76	5.8 (2.6)
3/4	1	3/4	2176B5001**	2176B5002**	7.1	8.7	46	0.36	0.55	5.8 (2.6)
1	1	3/4	2176B6011**	2176B6012**	7.7	10	46	0.36	0.50	5.8 (2.6)
1	1½	1¼	2176B6001**	2176B6002**	18	23	99	0.19	0.22	12.0 (5.4)
1¼	1½	1¼	2176B7001**	2176B7002**	20	28	99	0.19	0.22	12.0 (5.4)
1½	1½	1¼	2176B8011**	2176B8012**	21	29	99	0.16	0.22	12.0 (5.4)



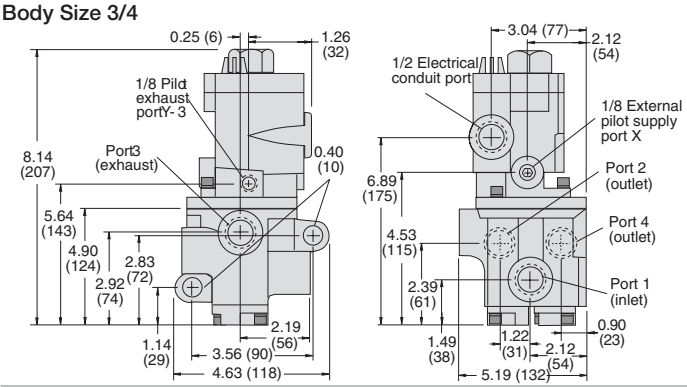
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2176B2001W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2176B2001W. For other voltages, consult ROSS.
# **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

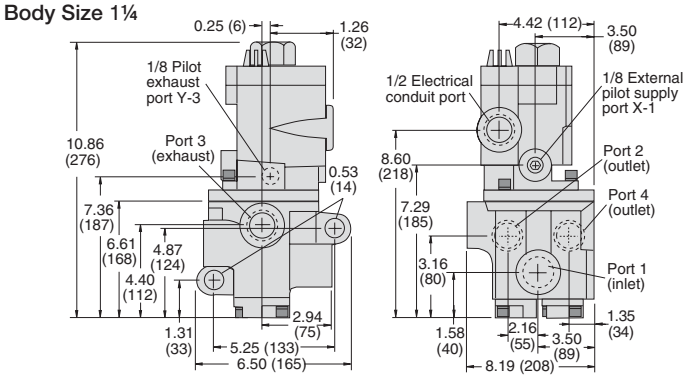
Body Size 3/8



Body Size 3/4



Body Size 1¼



Options: Indicator Light Kit, Manual Override Kits; refer to page B3.14. Silencers ordered separately, refer to page B3.14.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Metal.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.
Ambient Temperature: *High Temp:* 0° to 250°F (-17° to 122°C).
Low Temp: -40° to 120°F (-40° to 50°C).
Media Temperature: *High Temp:* 0° to 300°F (-17° to 150°C).
Low Temp: -40° to 175°F (-40° to 80°C).
For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.

Flow Media: Filtered air.
Inlet Pressure: 30 to 150 psig (2 to 10 bar).
Pilot Pressure: When external supply is used, pressure must be equal to or greater than inlet pressure.
Manual Override: Non-locking metal button, standard.

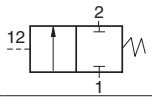
Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

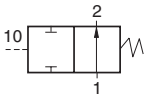
Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

2-Way 2-Position Valves, Spring Return

Port Size	Body Size	Valve Model Number*				Avg. C_v		Average Response Constants#			Weight lb (kg)
		High Temperature		Low Temperature					F		
		Normally Closed	Normally Open	Normally Closed	Normally Open	NC	NO	M	NC	NO	
1/4	3/8	2151B2001	2152B2001	2151B2002	2152B2002	2.3	2.3	10	0.91	0.91	1.8 (0.8)
3/8	3/8	2151B3001	2152B3001	2151B3002	2152B3002	3.8	3.3	10	0.70	0.76	1.8 (0.8)
1/2	3/8	2151B4011	2152B4011	2151B4012	2152B4012	4.0	3.5	10	0.64	0.72	1.8 (0.8)
1/2	3/4	2151B4001	2152B4001	2151B4002	2152B4002	7.7	6.5	16	0.37	0.43	4.2 (2.0)
3/4	3/4	2151B5001	2152B5001	2151B5002	2152B5002	9.0	7.3	16	0.34	0.39	4.2 (2.0)
1	3/4	2151B6011	2152B6011	2151B6012	2152B6012	9.0	7.9	16	0.34	0.37	4.2 (2.0)
1	1¼	2151B6001	2152B6001	2151B6002	2152B6002	24	21	27	0.17	0.17	11.0 (5.0)
1¼	1¼	2151B7001	2152B7001	2151B7002	2152B7002	29	20	27	0.19	0.19	11.0 (5.0)
1½	1¼	2151B8011	2152B8011	2151B8012	2152B8012	29	21	27	0.18	0.18	11.0 (5.0)

Normally Closed (NC) 

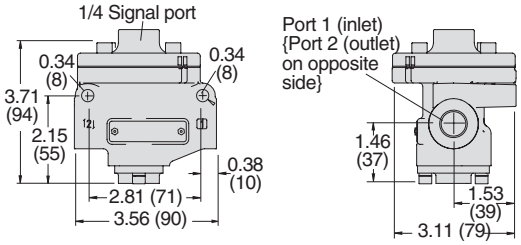
Normally Open (NO) 

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g.,D2151B2001.

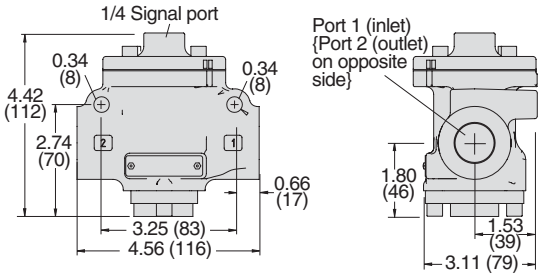
Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

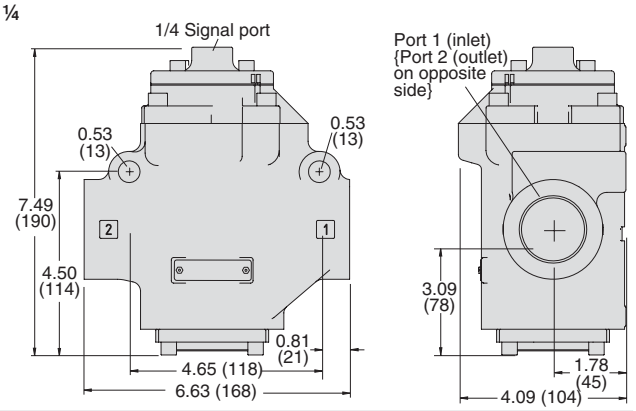
Body Size 3/8



Body Size 3/4



Body Size 1¼



Silencers ordered separately, refer to page B3.14.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Metal.
Mounting Type: Inline.
Ambient/Media Temperatures:
High Temperature: 0° to 300°F (-17° to 150°C).
Low Temperature: -40° to 175°F (-40° to 80°C).
For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.
Flow Media: Filtered air.

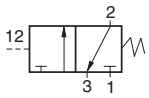
Inlet Pressure: 30 to 150 psig (2 to 10 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.

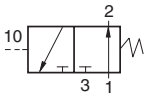
Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

3-Way 2-Position Valves, Spring Return

Port Size		Body Size	Valve Model Number*				C_v				Average Response Constants#					Weight lb (kg)
			High Temperature		Low Temperature		NC		NO		M	F				
												NC		NO		
1, 2	3		Normally Closed	Normally Open	Normally Closed	Normally Open	1-2	2-3	1-2	2-3		1-2	2-3	1-2	2-3	
1/4	1/2	3/8	2153B2001	2154B2001	2153B2002	2154B2002	2.4	3.4	2.0	2.1	10	1.76	2.08	1.60	2.30	1.8 (0.8)
3/8	1/2	3/8	2153B3001	2154B3001	2153B3002	2154B3002	3.0	5.8	2.3	2.4	10	0.95	1.07	1.03	1.60	1.8 (0.8)
1/2	1/2	3/8	2153B4011	2154B4011	2153B4012	2154B4012	3.0	5.2	2.9	2.8	10	0.94	0.98	11.00	2.00	1.8 (0.8)
1/2	1	3/4	2153B4001	2154B4001	2153B4002	2154B4002	6.6	12	6.5	7.0	11	0.58	0.64	0.50	0.70	4.5 (2.1)
3/4	1	3/4	2153B5001	2154B5001	2153B5002	2154B5002	7.8	13	7.5	7.5	11	0.38	0.41	0.43	0.67	4.5(2.1)
1	1	3/4	2153B6011	2154B6011	2153B6012	2154B6012	7.5	12	7.7	7.6	11	0.24	0.36	0.42	0.60	4.5 (2.1)
1	1½	1¼	2153B6001	2154B6001	2153B6002	2154B6002	24	40	15	17	28	0.16	0.18	0.17	0.20	11.0 (5.0)
1¼	1½	1¼	2153B7001	2154B7001	2153B7002	2154B7002	29	39	21	23	28	0.12	0.17	0.15	0.19	11.0 (5.0)
1½	1½	1¼	2153B8011	2154B8011	2153B8012	2154B8012	30	38	22	23	28	0.12	0.16	0.13	0.18	11.0 (5.0)

Normally Closed 

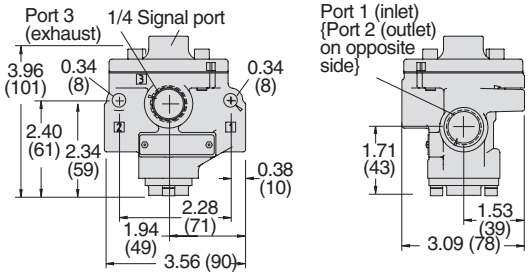
Normally Open 

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g.,D2153B2001.

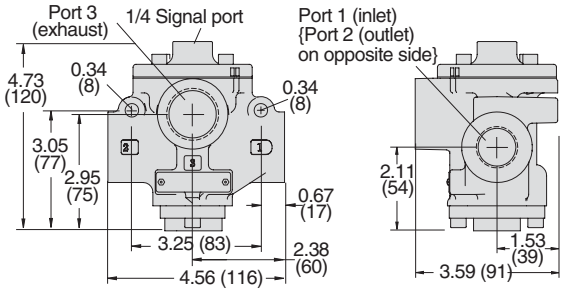
Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

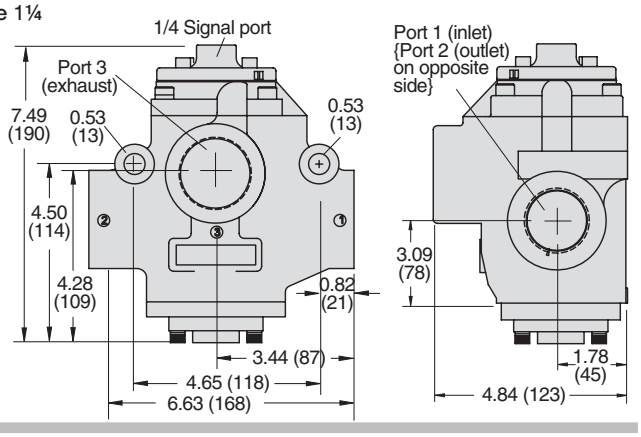
Body Size 3/8



Body Size 3/4



Body Size 1¼



Silencers ordered separately, refer to page B3.14.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Metal.
Mounting Type: Inline.
Ambient/Media Temperatures:
High Temperature: 0° to 300°F (-17° to 150°C).
Low Temperature: -40° to 175°F (-40° to 80°C).
For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.
Flow Media: Filtered air.

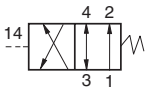
Inlet Pressure: 30 to 150 psig (2 to 10 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

4-Way 2-Position Valves, Spring Return

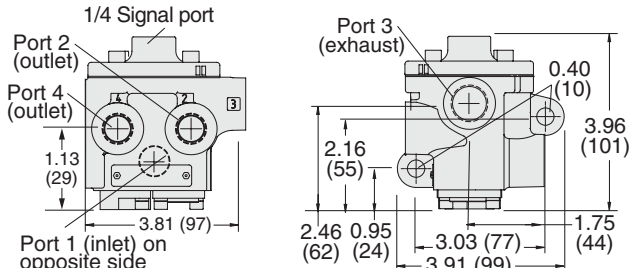
Port Size		Body Size	Valve Model Number*		C_v		Average Response Constants#			Weight lb (kg)
								F		
1, 2, 4	3		High Temperature	Low Temperature	1-2, 1-4	4-3, 2-3	M	1-2, 1-4	4-3, 2-3	
1/4	1/2	3/8	2156B2001	2156B2002	2.1	2.9	30	1.70	2.28	3.0 (1.4)
3/8	1/2	3/8	2156B3001	2156B3002	2.9	4.2	30	1.13	1.33	3.0 (1.4)
1/2	1/2	3/8	2156B4011	2156B4012	3.1	4.3	30	1.00	1.22	3.0 (1.4)
1/2	1	3/4	2156B4001	2156B4002	5.6	8.1	46	0.50	0.76	5.8 (2.6)
3/4	1	3/4	2156B5001	2156B5002	7.0	9.3	46	0.36	0.55	5.8 (2.6)
1	1	3/4	2156B6011	2156B6012	7.8	10	46	0.36	0.50	5.8 (2.6)
1	1½	1¼	2156B6001	2156B6002	19	26	99	0.19	0.22	12.0 (5.4)
1¼	1½	1¼	2156B7001	2156B7002	21	27	99	0.19	0.18	12.0 (5.4)
1½	1½	1¼	2156B8011	2156B8012	22	27	99	0.16	0.15	12.0 (5.4)



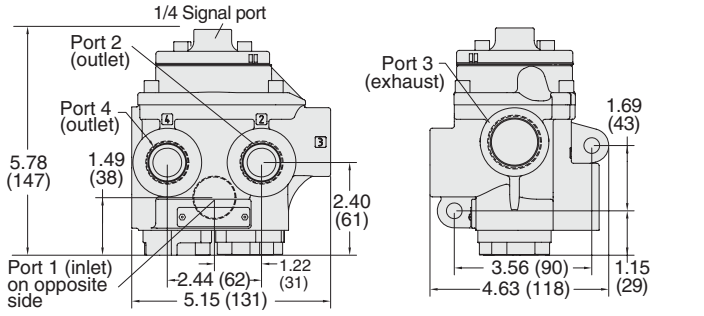
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g.,D2156B2001.
# **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

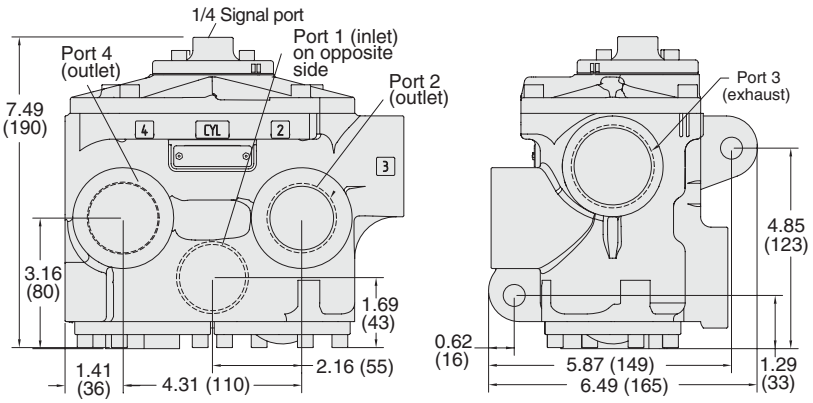
Body Size 3/8



Body Size 3/4



Body Size 1¼



Silencers ordered separately, refer to page B3.14.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Metal.
Mounting Type: Inline.
Ambient/Media Temperatures:
High Temperatures: 0° to 300°F (-17° to 150°C).
Low Temperatures: -40° to 175°F (-40° to 80°C).
For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.
Flow Media: Filtered air.

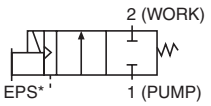
Inlet Pressure: 30 to 150 psig (2 to 10 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

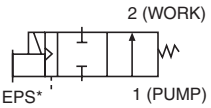
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

2-Way 2-Position Valves, Spring Return

Port Size	Body Size	Valve Model Number*	Function	C_v	Average Response Constants#		Weight lb (kg)
					M	F	
1/4	3/8	2171B2901**	NC	2.1	10	0.96	3.0 (1.4)
3/8	3/8	2171B3906**	NC	2.6	10	0.90	3.0 (1.4)
1/2	3/8	2171A4917**	NC	2.6	10	0.82	3.0 (1.4)
3/4	3/4	2171B5905**	NC	7.8	14	0.39	3.3 (1.5)
1	3/4	2171B6904**	NC	8.3	14	0.32	3.3 (1.5)
1	1¼	2171B6916**	NC	20	14	0.31	3.3 (1.5)
1¼	1¼	2171B7901**	NC	30	26	0.19	7.5 (3.4)
1¼	1¼	2171B8906**	NC	31	26	0.14	7.5 (3.4)
1½	1¼	2172B8900**	NO	21	26	0.17	7.5 (3.4)
1½	2	2171B8900**	NC	57	##	##	15.5 (6.9)
2½	2	2171B9901**	NC	64	##	##	15.5 (6.9)



Normally Closed (NC)



Normally Open (NO)

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2171B2901W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2171B2901W.
For other voltages, consult ROSS.
Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.
Consult ROSS.

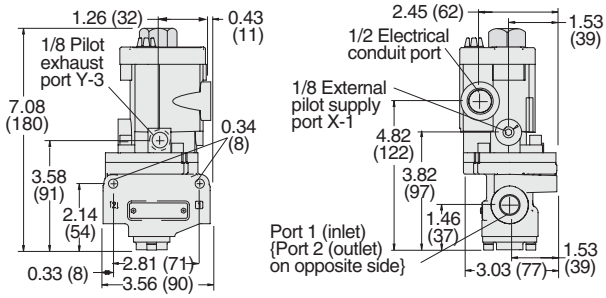
Piping 2/2 Normally Closed or Normally Open Valves

Pipe the unit into the system by connecting the vacuum source or pump to the normal air pressure inlet port (port 1). The normal outlet port is the work port (port 2).

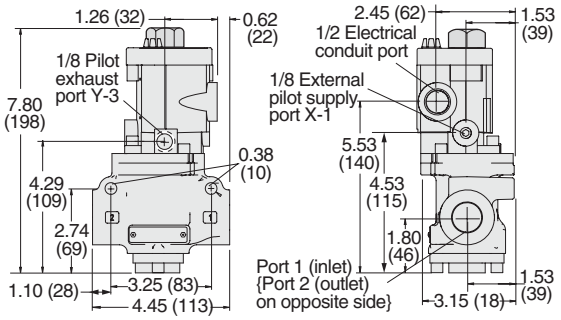
Note: 2/2 vacuum valves provide only on/off control and do not have an exhaust function.

Valve Dimensions – inches (mm)

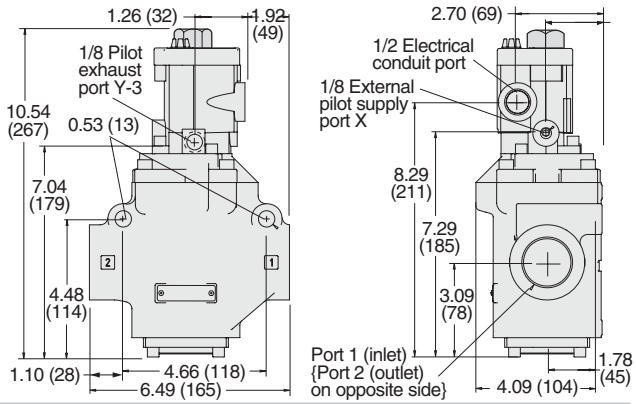
Body Size 3/8



Body Size 3/4



Body Size 1¼



Options: Indicator Light Kit, Manual Override Kits; refer to page B3.14.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Metal.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 Watts on DC.
Ambient Temperature: -40° to 120° F (-40° to 50° C), for low temperature valves. High temperature valves also available.
Media Temperature: -40° to 175° F (-40° to 80° C).

Flow Media: Vacuum and/or filtered-compressed air.
Pressure: Vacuum to 150 psig (vacuum to 10 bar).
***External Pilot Pressure:** Equal or higher than inlet pressure, but not less than 30 psig.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

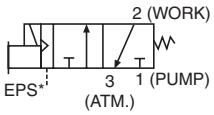
B

B3

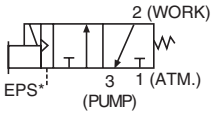
3-Way 2-Position Valves, Spring Return

Port Size 1, 2	Port Size 3	Body Size	Valve Model Number*	C_v 1-2	C_v 2-3	Function	Average Response Constants# M	F In-Out	F Out-Exh.	Weight lb (kg)
1/4	1/2	3/8	2173B2900**	2.4	3.4	NC	10	1.76	2.08	3.0 (1.4)
3/8	1/2	3/8	2173B3900**	3.0	5.8	NC	10	0.95	1.07	3.0 (1.4)
3/8	1/2	3/8	2174B3900**	3.0	5.8	NC	10	0.95	1.07	3.0 (1.4)
3/8	1/2	3/8	2173B3908**	3.0	5.8	NO	10	0.95	1.07	3.0 (1.4)
1/2	1/2	3/8	2173B4901**	3.0	5.2	NC	10	0.94	0.98	3.0 (1.4)
1/2	1	3/4	2173B4902**	6.6	12	NC	11	0.58	0.64	3.3 (1.5)
1/2	1	3/4	2174A4912**	6.5	7.0	NC	11	0.58	0.64	3.3 (1.5)
3/4	1	3/4	2173B5900**	7.8	13	NC	11	0.38	0.41	3.3 (1.5)
3/4	1	3/4	2174B5903**	7.5	7.5	NC	11	0.38	0.41	3.3 (1.5)
1	1	3/4	2173B6901**	7.5	12	NC	11	0.24	0.36	3.3 (1.5)
1	1½	1¼	2173B6902**	24	40	NC	28	0.16	0.18	7.5 (3.4)
1	1½	1¼	2174A6914**	15	17	NO	28	0.16	0.18	7.5 (3.4)
1¼	1½	1¼	2173B7901**	29	39	NC	28	0.12	0.17	7.5 (3.4)
1¼	1½	1¼	2173B7917**	29	39	NO	28	0.12	0.17	7.5 (3.4)
1½	1½	1¼	2173B8900**	30	38	NC	28	0.12	0.16	7.5 (3.4)
1½	2½	2	2173A8915**	68	70	NC	##	##	##	16.5 (7.4)
2	2½	2	2173A9905**	70	70	NC	##	##	##	16.5 (7.4)
2½	2½	2	2173A9906**	70	71	NC	##	##	##	16.5 (7.4)

* NPT port threads. For BSPP threads add a "D" prefix to the model number,e.g., D2173B2900W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2173B2900W. For other voltages, consult ROSS.
# **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.
Consult ROSS.



Normally Closed



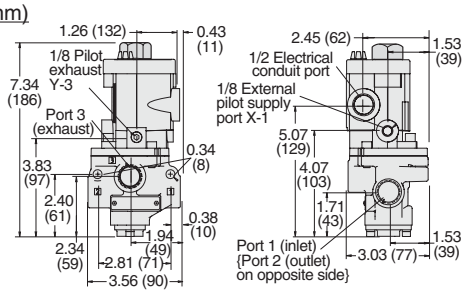
Normally Open

Piping 3/2 Normally Closed (NC) Valves
In this valve configuration, pipe the unit into the system by connecting the vacuum source or pump to the normal air pressure inlet port (port 1). The normal outlet port is the work port (port 2), and the normal air pressure exhaust port becomes the atmosphere port (port 3).

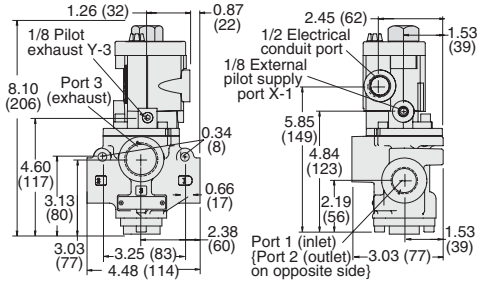
Piping 3/2 Normally Open (NO) Valves
To obtain a 3/2 normally open ROSS vacuum valve, simply pipe the 3/2 normally closed body slightly differently. Connect the vacuum source or pump to port 3, the normal exhaust. Leave port 1 open to atmosphere, and the normal outlet remains as the work port (port 2).

Valve Dimensions – inches (mm)

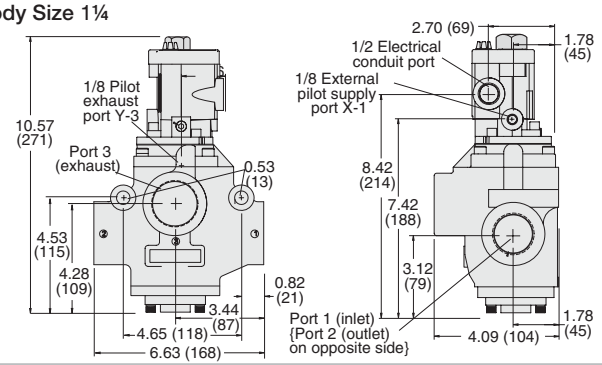
Body Size 3/8



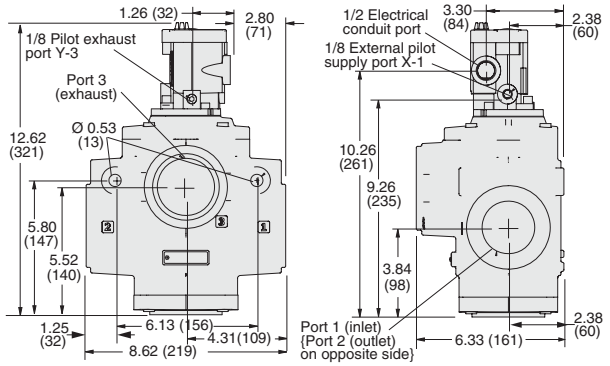
Body Size 3/4



Body Size 1¼



Body Size 2



Options: Indicator Light Kit, Manual Override Kits; refer to page B3.14. Silencers ordered separately, refer to page B3.14.

STANDARD SPECIFICATIONS (for valves on this page):

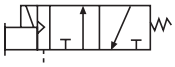
Construction: Poppet; Metal.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.
Ambient Temperature: -40° to 120° F (-40° to 50° C), for low temperature valves. High temperature valves also available.
Media Temperature: -40° to 175° F (-40° to 80° C).

Flow Media: Vacuum and/or filtered-compressed air.
Pressure: Vacuum to 150 psig (vacuum to 10 bar).
***External Pilot Pressure:** Equal or higher than inlet pressure, but not less than 30 psig.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

Valve models with EN connector available, consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

3-Way 2-Position Valves, Spring Return										
Port Size		Body Size	Valve Model Number*	C_v		Function	Average Response Constants#			Weight lb (kg)
1, 2	3			1-2	2-3		M	F		
								In-Out	Out-Exh.	
1/2	1/2	3/8	2174B4900**	2.8	2.8	NC	11	0.58	0.64	3.0 (1.4)
1/2	1/2	3/8	2173B4914**	3.0	5.2	NO	11	0.50	0.70	3.0 (1.4)
1¼	1½	1¼	2174B7903**	23	23	NC	28	0.12	0.17	7.5 (3.4)
1¼	1½	1¼	2173B7904**	39	39	NO	28	0.15	0.19	7.5 (3.4)
Normally Closed 							Normally Open 			

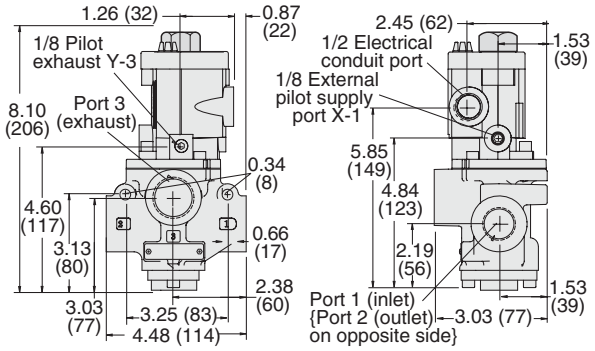
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2173B4914W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2173B4914W. For other voltages, consult ROSS.
# **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Full Vacuum – 3-Way Normally Closed (NC) Valves
This valve functions as a ***normally open*** valve. Pipe the unit into the system by connecting the vacuum source or pump to port 3, the normal exhaust. Leave port 1 open to atmosphere, and the normal outlet remains as the work port (port 2).

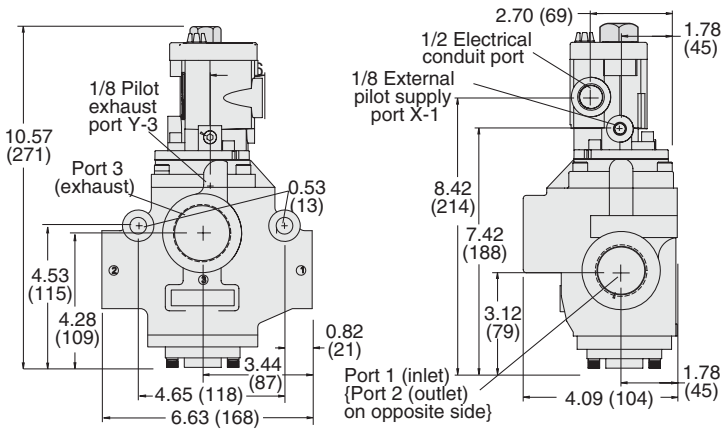
Full Vacuum – 3-Way Normally Open (NO) Valves
This valve functions as a normally closed valve. Pipe the unit into the system by connecting the vacuum source or pump to port 3, the normal exhaust. Leave port 1 open to atmosphere, and the normal outlet remains as the work port (port 2).

Valve Dimensions – inches (mm)

Body Size 3/8



Body Size 1¼



Options: Indicator Light Kit, Manual Override Kits; refer to page B3.14. Silencers ordered separately, refer to page B3.14.

STANDARD SPECIFICATIONS (for valves on this page)**:**

Construction: Poppet; Metal.
Mounting Type: Inline.
Solenoids: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 Watts on DC.
Ambient Temperature: -40° to 120° F (-40° to 50° C), for low temperature valves. High temperature valves also available.
Media Temperature: -40° to 175° F (-40° to 80° C).
Flow Media: Vacuum and/or filtered-compressed air.

Pressure: Vacuum to 150 psig (vacuum to 10 bar).
***External Pilot Pressure:** Equal or higher than inlet pressure, but not less than 30 psig.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

Valve models with EN connector available, consult ROSS.

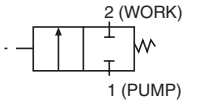
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

B

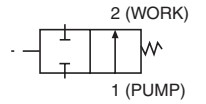
B3

2-Way 2-Position Valves, Spring Return

Port Size	Body Size	Valve Model Number*	Function	C_v	Average Response Constants#		Weight lb (kg)
1, 2					M	F	
1/4	3/8	2151A2901	NC	2.1	10	0.96	1.8 (0.8)
1/2	3/8	2151A4910	NC	3.0	10	0.90	1.8 (0.8)
1/2	3/4	2151B4904	NC	6.9	10	0.82	4.5 (2.0)
3/4	3/4	2151A5913	NC	7.8	14	0.39	4.5 (2.0)
3/4	3/4	2152A5901	NO	7.0	14	0.37	4.5 (2.0)
1	3/4	2151B6900	NC	8.3	14	0.19	4.5 (2.0)
1¼	1¼	2151A7909	NC	30	26	0.14	11.0 (5.0)
1½	1¼	2151B8900	NC	31	26	0.13	11.0 (5.0)
1½	1¼	2152B7900	NO	23	26	0.17	11.0 (5.0)



Normally Closed (NC)



Normally Open (NO)

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g.,D2151A2901.
# **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

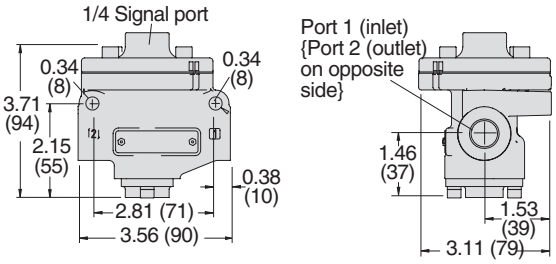
Piping 2/2 Normally Closed (NC) Valves

Pipe the unit into the system by connecting the vacuum source or pump to the normal air pressure inlet port (port 1). The normal outlet port is the work port (port 2).

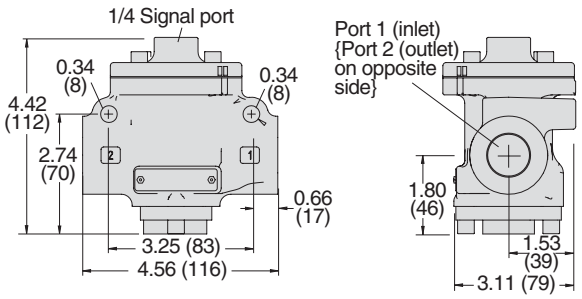
Note: 2/2 vacuum valves provide only on/off control and do not have an exhaust function.

Valve Dimensions – inches (mm)

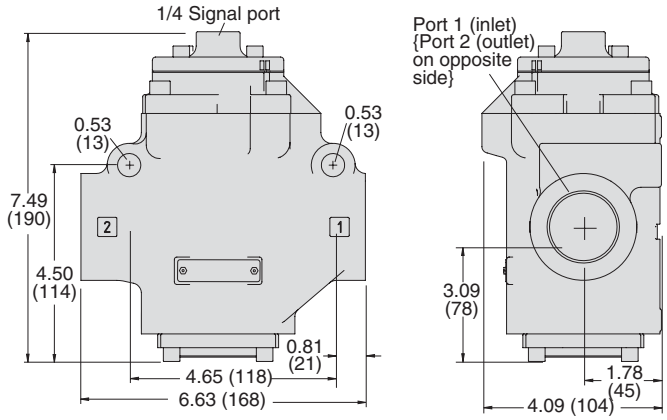
Body Size 3/8



Body Size 3/4



Body Size 1¼



STANDARD SPECIFICATIONS (for valves on this page):

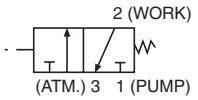
Construction: Poppet; Metal.
Mounting Type: Inline.
Media Temperature: -40° to 175° F (-40° to 80° C).
Flow Media: Vacuum and/or filtered-compressed air.
Pressure: Vacuum to 150 psig (vacuum to 10 bar).
Signal Pressure: Equal or higher than inlet pressure, but not less than 30 psig (2 bar).

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

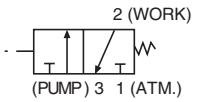
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

3-Way 2-Position Valves, Spring Return

Port Size 1, 2	Port Size 3	Body Size	Valve Model Number*	Function	C_v 1-2	C_v 2-3	Average Response Constants# M	Average Response Constants# F In-Out	Average Response Constants# F Out-Exh.	Weight lb (kg)
1/4	1/2	3/8	2153B2900	NO	2.4	3.4	10	1.60	2.30	1.8 (0.8)
3/8	1/2	3/8	2153A3913	NC	2.4	3.4	10	0.95	1.07	1.8 (0.8)
1/2	1/2	3/8	2153B4903	NC	3.0	5.2	10	0.94	0.98	1.8 (0.8)
3/4	1	3/4	2153B5903	NC	7.8	13	11	0.38	0.41	4.5 (2.0)
1	1	3/4	2153A6906	NC	7.4	12	11	0.24	0.36	4.5 (2.0)
1	1½	1½	2153C6905	NO	24	40	28	0.17	0.20	11.0 (5.0)
1¼	1½	1½	2153A7906	NO	29	39	28	0.15	0.19	11.0 (5.0)
1½	1½	1½	2153B8900	NC	30	38	28	0.12	0.16	11.0 (5.0)
2	2½	2	2153A9903	NC	70	71	##	##	##	15.3 (6.9)
2½	2½	2	2153A9902	NC	70	71	##	##	##	15.3 (6.9)



Normally Closed (NC)



Normally Open (NO)

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2153B2900.
\# **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.
Consult ROSS.

Piping 3/2 Normally Closed (NC) Valves

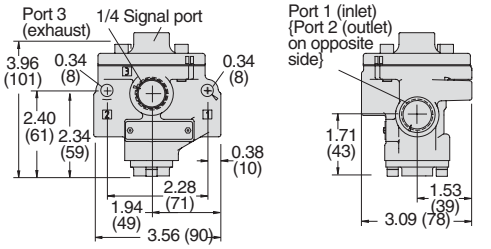
In this valve configuration, pipe the unit into the system by connecting the vacuum source or pump to the normal air pressure inlet port (port 1). The normal outlet port is the work port (port 2), and the normal air pressure exhaust port becomes the atmosphere port (port 3).

Piping 3/2 Normally Open (NO) Valves

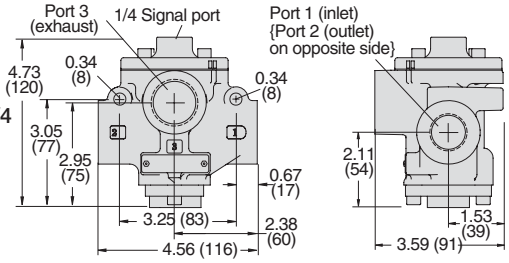
To obtain a 3/2 normally open ROSS vacuum valve, simply pipe the 3/2 normally closed body slightly differently. Connect the vacuum source or pump to port 3, the normal exhaust. Leave port 1 open to atmosphere, and the normal outlet remains as the work port (port 2).

Valve Dimensions – inches (mm)

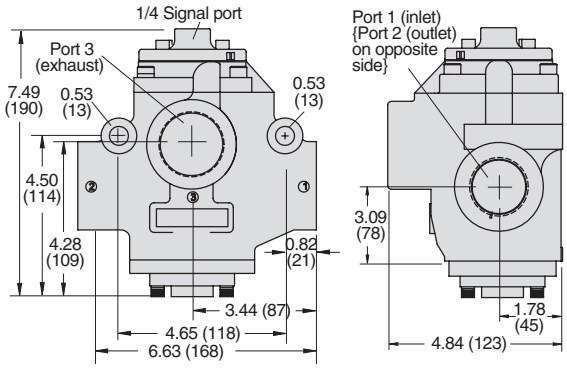
Body Size 3/8



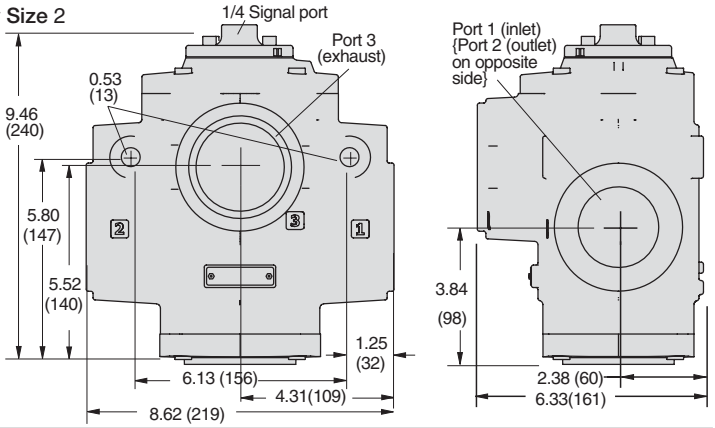
Body Size 3/4



Body Size 1¼



Body Size 2



Silencers ordered separately, refer to page B3.14.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Metal.
Mounting Type: Inline.
Media Temperature: -40° to 175° F (-40° to 80° C).
Flow Media: Vacuum and/or filtered-compressed air.
Pressure: Vacuum to 150 psig (vacuum to 10 bar).
Signal Pressure: Equal or higher than inlet pressure, but not less than 30 psig (2 bar).

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

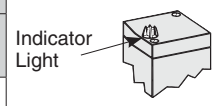
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

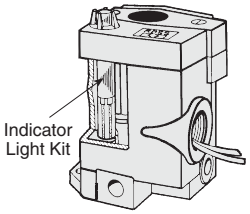
Indicator Light Kit

To visually verify valve operation indicator lights are available in kit form. The indicator light extends through the solenoid or pilot cover and is illuminated when the solenoid is energized. Such lights are standard on double solenoid valves.

Indicator light kit is available for single solenoid models (type O only).

Kit Number		
24 volts DC	110-120 volts AC 50-60 Hz	220 volts 50-60 Hz
862K87-W	862K87-Z	862K87-Y





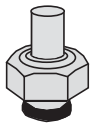
Manual Override Kits

Flush flexible manual overrides are standard on single solenoid models. Double solenoid models have flush metal-button overrides. Both types are non-locking.

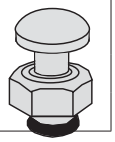
Each of the buttons in the override kits below is made of metal and is spring-returned. The locking type button, however, can be kept in the actuated position by turning the slot in the top of the button with a screwdriver.

FLUSH BUTTON	
Locking Type	Kit Number
Non-Locking	790K87
Locking	792K87

EXTENDED BUTTON	
Locking Type	Kit Number
Non-Locking	791K87



EXTENDED BUTTON with PALM	
Locking Type	Kit Number
Non-Locking	984H87



Electrical Connector

Valves available with installed prewired connectors, please consult ROSS.

System 8 Pilot

Models available with preinstalled System 8 solenoid pilot, consult ROSS.

Silencers

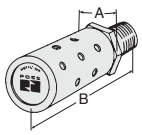
Port size 1/4 thru 2

Port size 2½

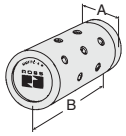
Port Size	Thread Type	Model Number		Avg. C_v	Dimensions inches (mm)		Weight lb (kg)
		NPT Treads	BSPT Threads		A	B	
3/8	Male	5500A3003	D5500A3003	4.3	1.3 (32)	3.5 (88)	0.2 (0.1)
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)
1½	Female	5500A8001	D5500A8001	29.9	2.5 (64)	5.7 (144)	1.0 (0.5)
2½	Female	5500A9002	D5500A9002	103.7	4.0 (102)	5.7 (145)	2.9 (1.4)

Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum.
Flow Media: Filtered air.

Male Pipe Threads



Female Pipe Threads

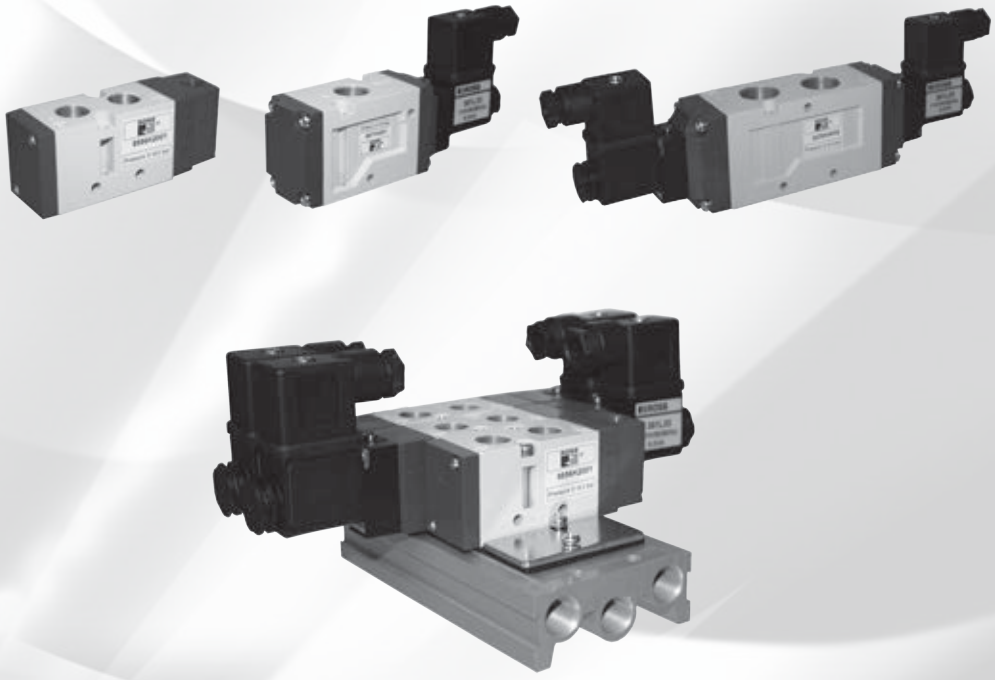


IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

B

ROSS CONTROLS®

INLINE DIRECTIONAL CONTROL VALVES
95 SERIES



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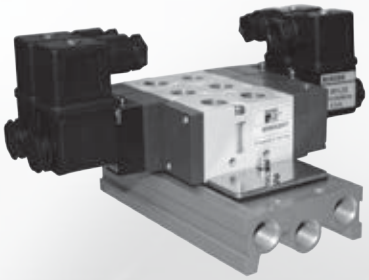
INLINE DIRECTIONAL VALVES AND MANIFOLDS– KEY FEATURES

- 24 volts DC and 110 volts AC options for solenoid control
- Available with 1/8, 1/4, 3/8, and 1/2 port options
- Flexible mounting - inline or manifold
- Resilient seal spool construction
- Compact size
- High flow capacity
- Lube or non-lube service
- Manual overrides
- Pressure ports located in valve body

Solenoid Controlled

Pressure Controlled



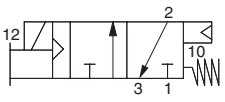
Manifold Options

VALVE TYPE	AVAILABLE PORT SIZES				MAX. FLOW Cv	MOUNTING		Page
	1/8	1/4	3/8	1/2		INLINE	MANIFOLD	
SOLENOID PILOT CONTROLLED								
3/2 NC/NO Spring return	■	■	■		2.6	■	■	B4.3
5/2 Spring Return	■	■	■	■	4.5	■	■	B4.4
5/2 Detented	■	■	■	■	4.5	■	■	B4.5
5/3 Spring Center	■	■	■	■	2.2	■	■	B4.6
PRESSURE CONTROLLED								
3/2 NC/NO Spring return	■	■	■		2.6	■	■	B4.7
5/2 Spring Return	■	■	■	■	4.5	■	■	B4.8
5/2 Detented	■	■	■	■	4.5	■	■	B4.9
5/3 Spring Center	■	■	■	■	3.4	■	■	B4.10
MANIFOLD BLOCKS, OPTIONS, & ACCESSORIES								
Manifold Blocks (3/2 Valves)	■	■						B4.11
Manifold Blocks (5/2 & 5/3 Valves)	■	■	■	■				B4.12
Manifold Blanking Plates	■	■	■	■				B4.11 - B4.12
Pilot Coils & Connectors								B4.11 - B4.12
Silencers								B4.11 - B4.12

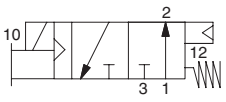
3-Way 2-Position Valves, Single Solenoid, Spring Return					
Port Size		Valve Model Number*		Avg. C_v	Weight lb (kg)
1, 2	3	Normally Closed	Normally Open		
1/8	1/8	9573K1001**	9574K1001**	0.9	0.38 (0.17)
1/4	1/4	9573K2001**	9574K2001**	1.3	0.70 (0.32)
3/8	3/8	9573K3001**	9574K3001**	2.6	1.15 (0.52)

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D9573K1001W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 9573K1001W.

Normally Closed

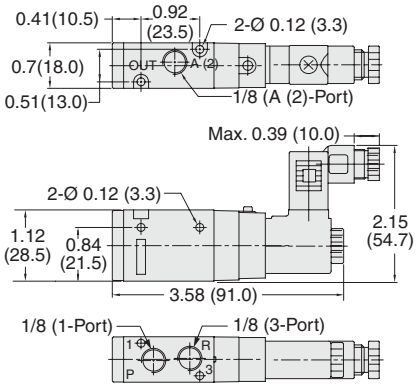


Normally Open

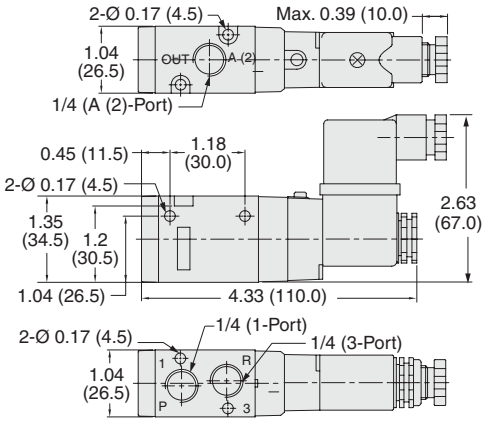


Valve Dimensions – inches (mm)

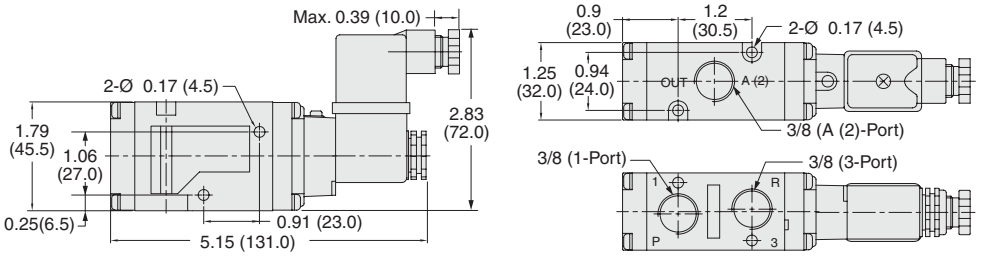
Port Size 1/8



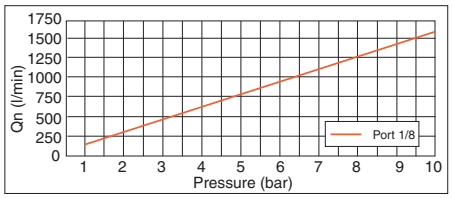
Port Size 1/4

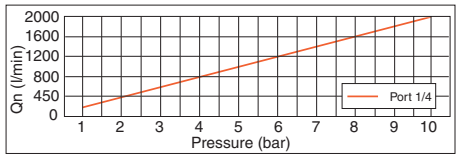


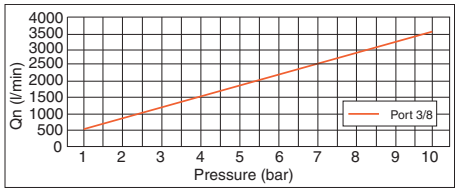
Port Size 3/8



FLOW CHARTS







Solenoid and Connector included.
Manifolds and Accessories ordered separately, refer to page B4.11. For other options, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page)**:**

Construction: Spool.
Mounting Type: Inline or manifold mounted.
Solenoid Pilot: AC or DC power, rated for continuous duty.
Standard Voltages: 24 volts DC; 110 volts AC, 50/60 Hz.
Power Consumption: 3.5 VA holding on 50/60 Hz; 2.5 watts on DC.
Enclosure Rating: IP65, IEC 60529.

Electrical Connections:
Port Size 1/8: MICRO-MINI EN 175301-803 connector.
Port Size 1/4 & 3/8: EN 175301-803 Industrial Form B connector.
Ambient/Media Temperature: 41° to 140°F (5° to 60°C).
Flow Media: Filtered air.
Inlet Pressure: 22.5 to 150 psig (1.5 to 10 bar).
Manual Override: Pushbutton, non-locking.

Valves available with installed prewired connectors, please consult ROSS.

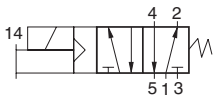
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

B

B4

5-Way 2-Position Valves, Single Solenoid, Spring Return

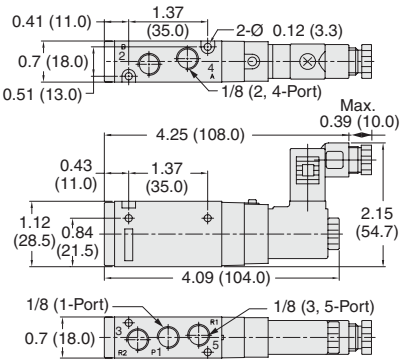
Port Size 1, 2, 4	Port Size 3, 5	Valve Model Number*	Avg. C_v	Weight lb (kg)
1/8	1/8	9576K1001**	0.9	0.43 (0.20)
1/4	1/8	9576K2001**	1.3	0.80 (0.36)
3/8	3/8	9576K3001**	2.6	1.29 (0.59)
1/2	1/2	9576K4001**	4.5	1.66 (0.75)



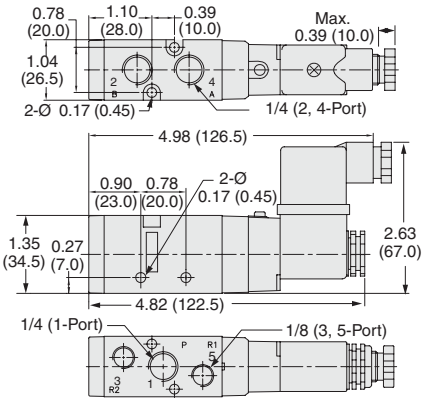
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D9576K1001W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 9576K1001W.

Valve Dimensions – inches (mm)

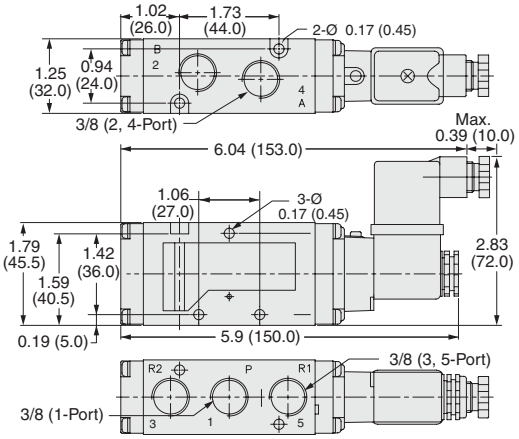
Port Size 1/8



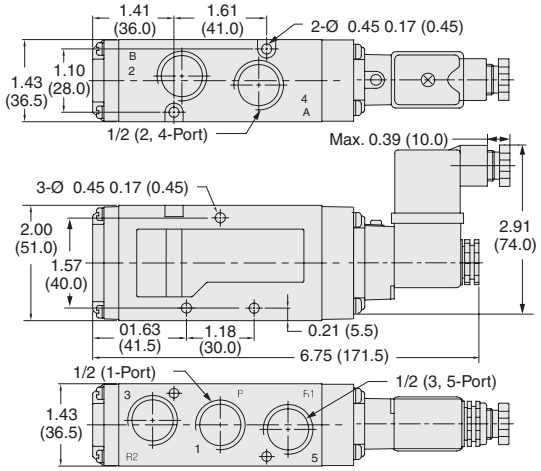
Port Size 1/4



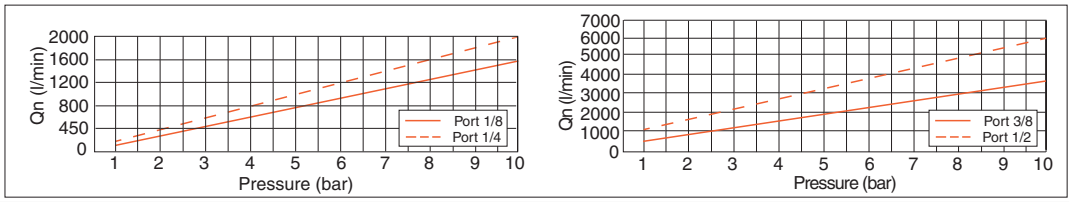
Port Size 3/8



Port Size 1/2



FLOW CHARTS



Solenoid and Connector included.
Manifolds and Accessories ordered separately, refer to page B4.12. For other options, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool.
Mounting Type: Inline or manifold mounted.
Solenoid Pilot: AC or DC power, rated for continuous duty.
Standard Voltages: 24 volts DC; 110 volts AC, 50/60 Hz.
Power Consumption: 3.5 VA holding on 50/60 Hz; 2.5 watts on DC.
Enclosure Rating: IP65, IEC 60529.

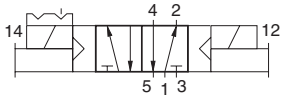
Electrical Connections:
Port Size 1/8: MICRO-MINI EN 175301-803 connector.
Port Size 1/4, 3/8 & 1/2: EN 175301-803 Industrial Form B connector.
Ambient/Media Temperature: 41° to 140°F (5° to 60°C).
Flow Media: Filtered air.
Inlet Pressure: 22.5 to 150 psig (1.5 to 10 bar).
Manual Override: Pushbutton, non-locking.

Valves available with installed prewired connectors, please consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Online Version
Rev. 11/14/16

5-Way 2-Position Valves, Double Solenoid, Detented				
Port Size		Valve Model Number*	Avg. C_v	Weight lb (kg)
1, 2, 4	3, 5			
1/8	1/8	9576K1002**	0.9	0.62 (0.28)
1/4	1/8	9576K2002**	1.3	1.04 (0.47)
3/8	3/8	9576K3002**	2.6	1.58 (0.72)
1/2	1/2	9576K4002**	4.5	2.04 (0.93)

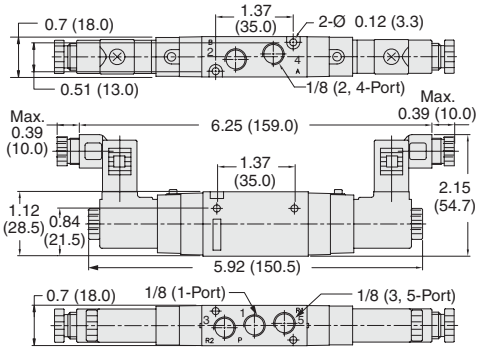


* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D9576K1002W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 9576K1002W.

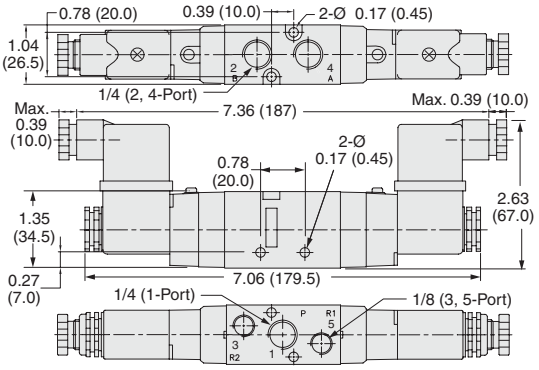
B

Valve Dimensions – inches (mm)

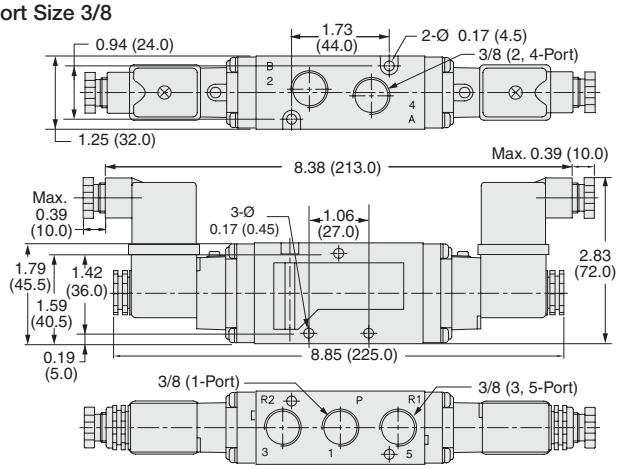
Port Size 1/8



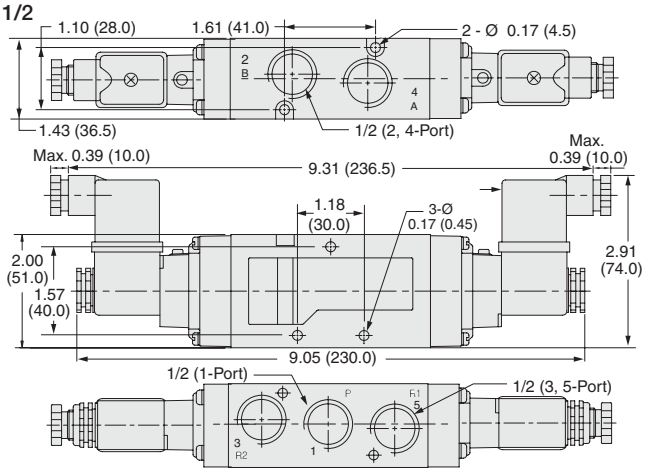
Port Size 1/4



Port Size 3/8

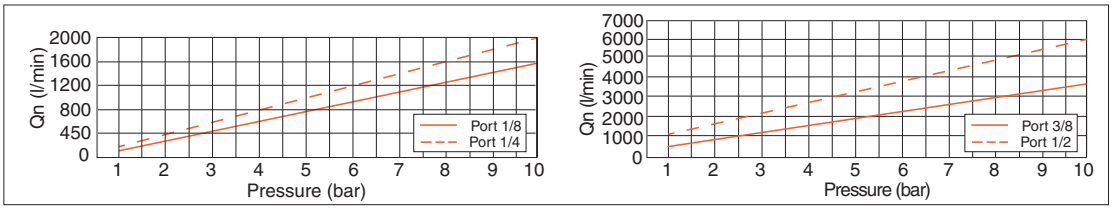


Port Size 1/2



B4

FLOW CHARTS



Solenoid and Connector included.
Manifolds and Accessories ordered separately, refer to page B4.12. For other options, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page)**:**

Construction: Spool.
Mounting Type: Inline or manifold mounted.
Solenoid Pilot: AC or DC power, rated for continuous duty.
Standard Voltages: 24 volts DC; 110 volts AC, 50/60 Hz.
Power Consumption: 3.5 VA holding on 50/60 Hz; 2.5 watts on DC.
Enclosure Rating: IP65, IEC 60529.

Electrical Connections:
Port Size 1/8: MICRO-MINI EN 175301-803 connector.
Port Size 1/4, 3/8 & 1/2: EN 175301-803 Industrial Form B connector.
Ambient/Media Temperature: 41° to 140°F (5° to 60°C).
Flow Media: Filtered air.
Inlet Pressure: 22.5 to 150 psig (1.5 to 10 bar).
Manual Override: Pushbutton, non-locking.

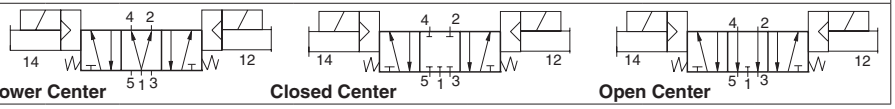
Valves available with installed prewired connectors, please consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

5-Way 3-Position Valves, Double Solenoid, Spring Center

Port Size		Valve Model Number*			Avg. C_v	Weight lb (kg)
1, 2, 4	3, 5	Power Center	Closed Center	Open Center		
1/8	1/8	9577K1019**	9577K1010**	9577K1007**	0.7	0.70 (0.32)
1/4	1/8	9577K2019**	9577K2010**	9577K2007**	1.1	1.26 (0.57)
3/8	3/8	9577K3019**	9577K3010**	9577K3007**	2.2	1.71 (0.78)
1/2	1/2	9577K4019**	9577K4010**	9577K4007**	4.5	2.41 (1.09)

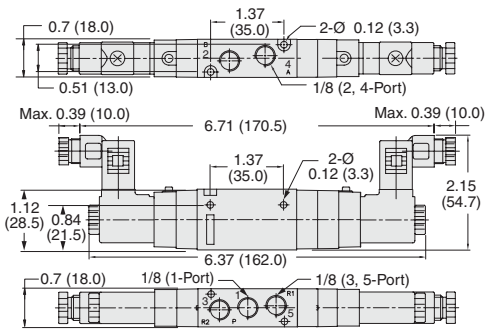
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D9577K1019W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 9577K1019W.



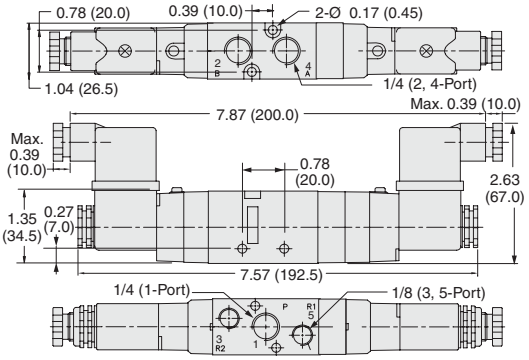
B4

Valve Dimensions – inches (mm)

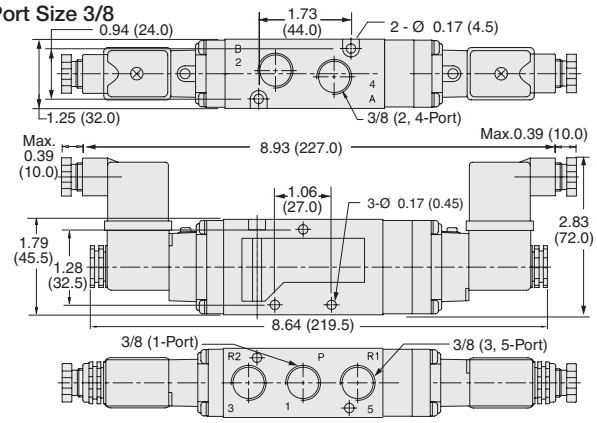
Port Size 1/8



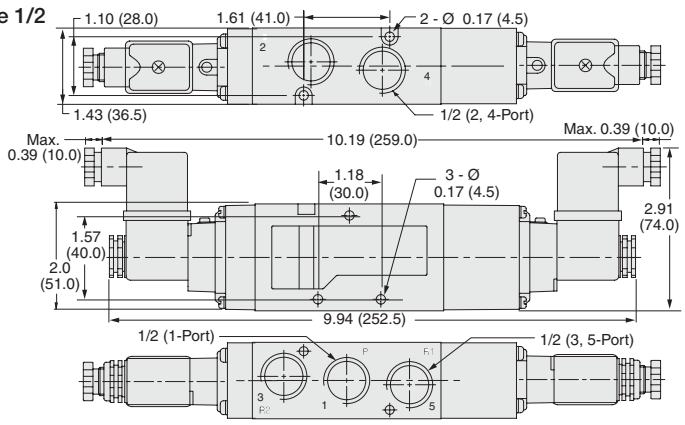
Port Size 1/4



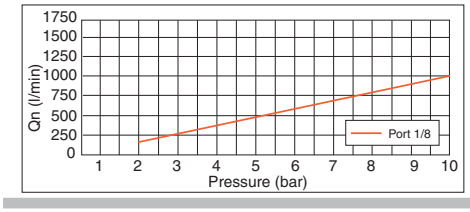
Port Size 3/8

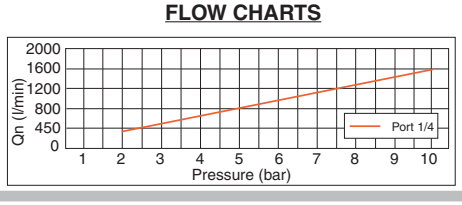


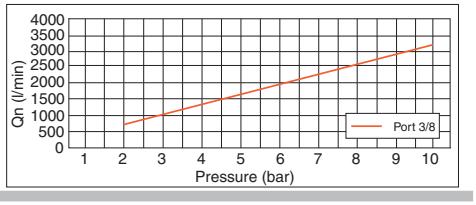
Port Size 1/2



FLOW CHARTS







Solenoid and Connector included.
Manifolds and Accessories ordered separately, refer to page B4.12. For other options, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool.
Mounting Type: Inline or manifold mounted.
Solenoid Pilot: AC or DC power, rated for continuous duty.
Standard Voltages: 24 volts DC; 110 volts AC, 50/60 Hz.
Power Consumption: 3.5 VA holding on 50/60 Hz; 2.5 watts on DC.
Enclosure Rating: IP65, IEC 60529.

Electrical Connections:
Port Size 1/8: MICRO-MINI EN 175301-803 connector.
Port Size 1/4, 3/8 & 1/2: EN 175301-803 Industrial Form B connector.
Ambient/Media Temperature: 41° to 140°F (5° to 60°C).
Flow Media: Filtered air.
Inlet Pressure: 30 to 150 psig (2 to 10 bar).
Manual Override: Pushbutton, non-locking.

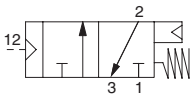
Valves available with installed prewired connectors, please consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

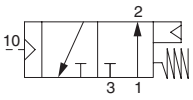
3-Way 2-Position Valves, Single Pilot, Spring Return						
Port Size		Signal Port Thread	Valve Model Number*		Avg. C_v	Weight lb (kg)
1, 2	3		Normally Closed	Normally Open		
1/8	1/8	10-32 UNF	9553K1000	9554K1000	0.9	0.26 (0.12)
1/4	1/4	1/8	9553K2000	9554K2000	1.3	0.51 (0.23)
3/8	3/8	1/8	9553K3000	9554K3000	2.6	0.86 (0.39)

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D9553K1000.

Normally Closed



Normally Open

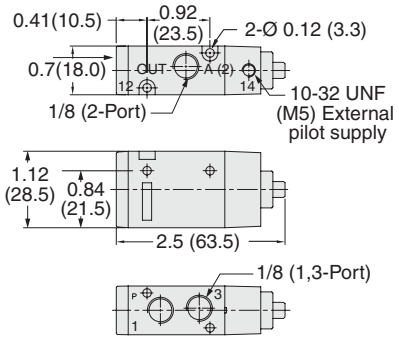


B

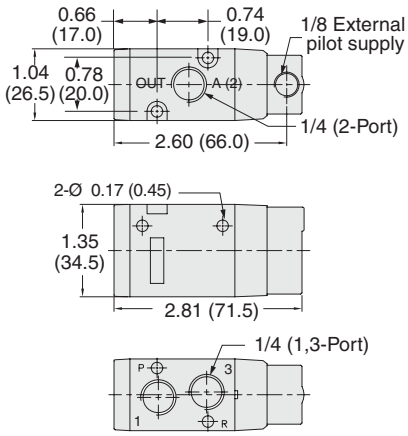
B4

Valve Dimensions – inches (mm)

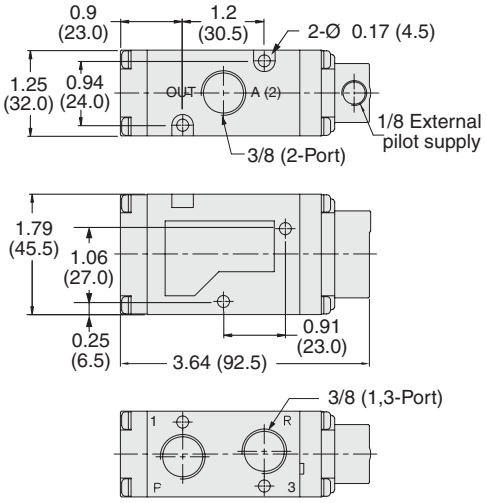
Port Size 1/8



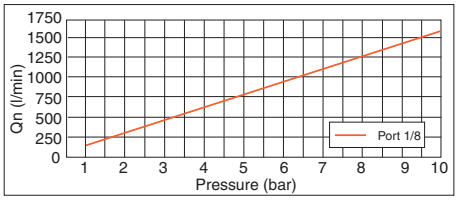
Port Size 1/4

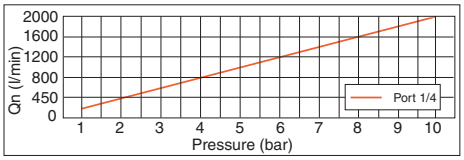


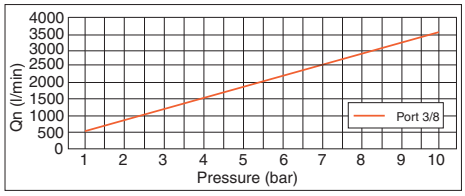
Port Size 3/8



FLOW CHARTS







Manifolds and Accessories ordered separately, refer to page B4.11. For other options, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page)**:**

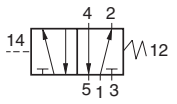
Construction: Spool.
Mounting Type: Inline or manifold mounted.
Ambient/Media Temperature: 41° to 140°F (5° to 60°C).
Flow Media: Filtered air.
Inlet Pressure: 22.5 to 150 psig (1.5 to 10 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.
Manual Override: Pushbutton, non-locking.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

B

B4

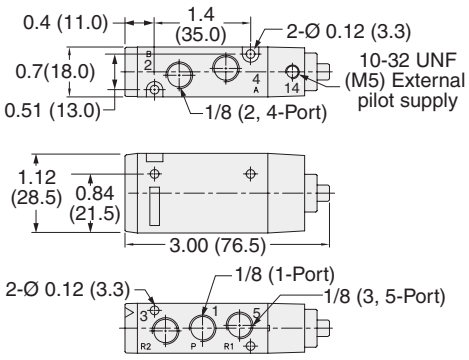
5-Way 2-Position Valves, Single Pilot, Spring Return					
Port Size		Signal Port Thread	Valve Model Number*	Avg. C_v	Weight lb (kg)
1, 2, 4	3, 5				
1/8	1/8	1/8	9556K1001	0.9	0.26 (0.12)
1/4	1/8	1/8	9556K2001	1.3	0.48 (0.22)
3/8	3/8	1/8	9556K3001	2.6	1.02 (0.46)
1/2	1/2	1/8	9556K4001	4.5	1.39 (0.63)



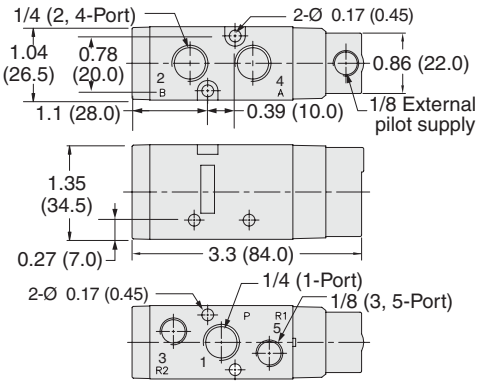
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D9556K1001.

Valve Dimensions – inches (mm)

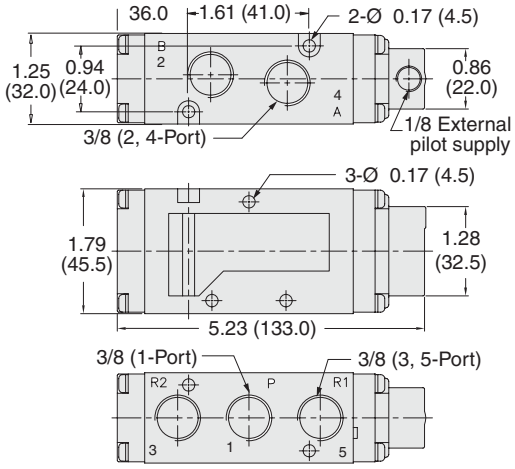
Port Size 1/8



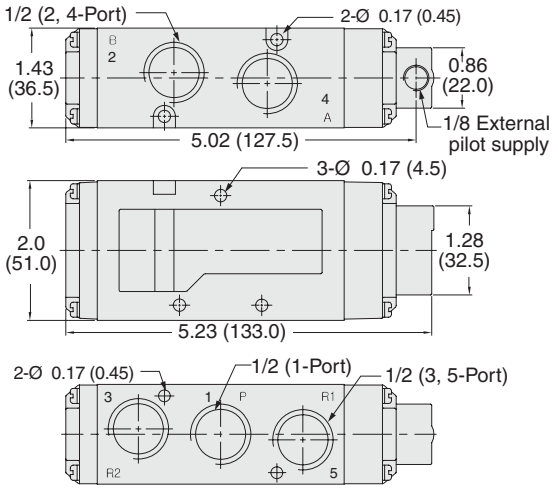
Port Size 1/4



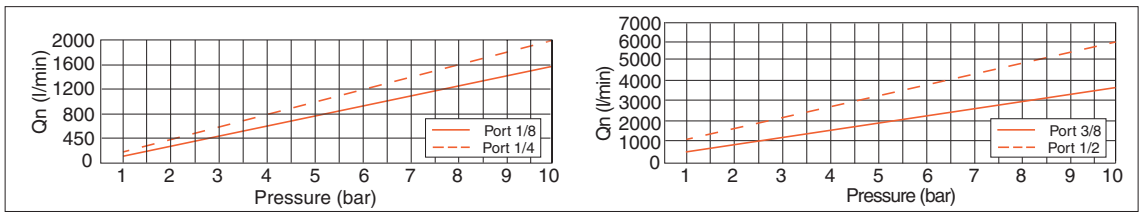
Port Size 3/8



Port Size 1/2



FLOW CHARTS

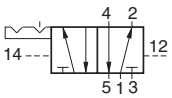


Manifolds and Accessories ordered separately, refer to page B4.12. For other options, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page)**:**

Construction: Spool.
Mounting Type: Inline or manifold mounted.
Ambient/Media Temperature: 41° to 140°F (5° to 60°C).
Flow Media: Filtered air.
Inlet Pressure: 22.5 to 150 psig (1.5 to 10 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.
Manual Override: Pushbutton, non-locking.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

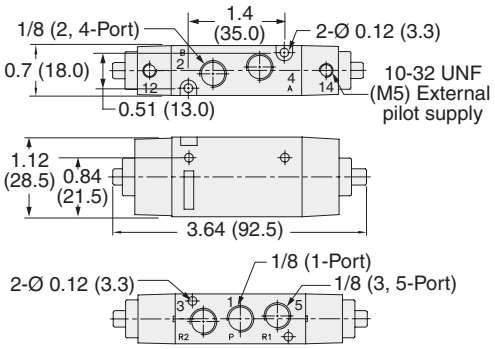
5-Way 2-Position Valves, Double Pilot, Detented						
Port Size		Signal Port Thread	Valve Model Number*	Avg. C_v	Weight lb (kg)	
1, 2, 4	3, 5					
1/8	1/8	1/8	9556K1002	0.9	0.32 (0.15)	
1/4	1/8	1/8	9556K2002	1.3	0.59 (0.27)	
3/8	3/8	1/8	9556K3002	2.6	1.07 (0.49)	
1/2	1/2	1/8	9556K4002	4.5	1.55 (0.70)	

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D9556K1002.

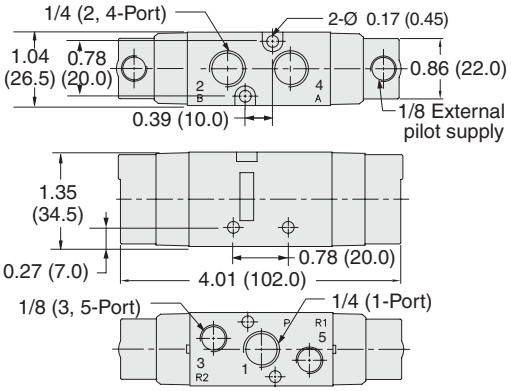
B

Valve Dimensions – inches (mm)

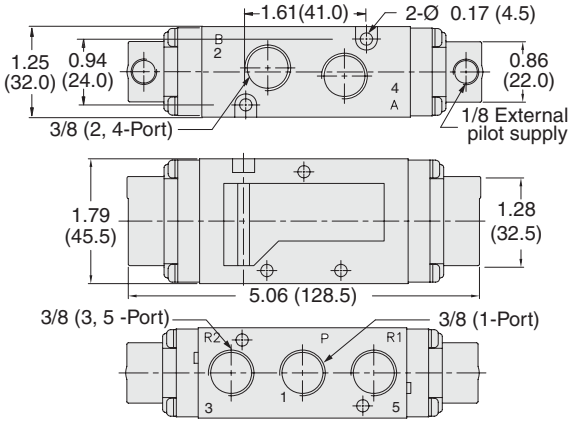
Port Size 1/8



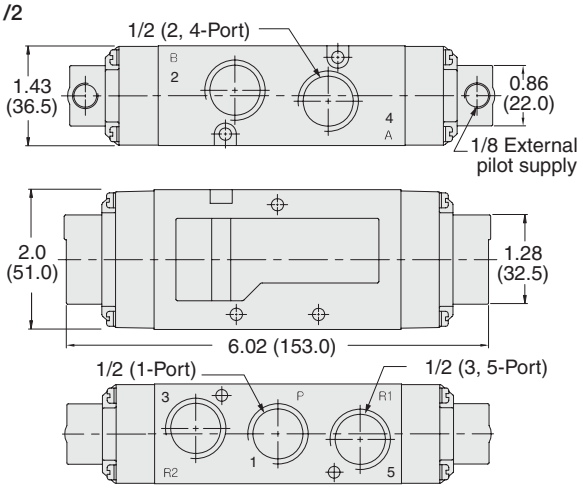
Port Size 1/4



Port Size 3/8

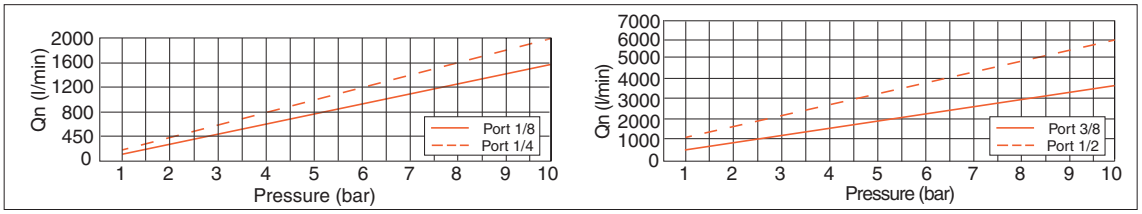


Port Size 1/2



B4

FLOW CHARTS



Manifolds and Accessories ordered separately, refer to page B4.12. For other options, consult ROSS.

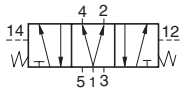
STANDARD SPECIFICATIONS (for valves on this page)**:**

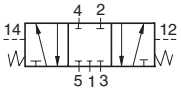
Construction: Spool.
Mounting Type: Inline or manifold mounted.
Ambient/Media Temperature: 41° to 140°F (5° to 60°C).
Flow Media: Filtered air.
Inlet Pressure: 22.5 to 150 psig (1.5 to 10 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.
Manual Override: Pushbutton, non-locking.

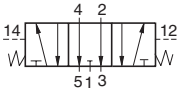
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

5-Way 3-Position Valves, Double Pilot, Spring Center							
Port Size		Signal Port Thread	Valve Model Number*			Avg. C_v	Weight lb (kg)
1, 2, 4	3, 5		Power Center	Closed Center	Open Center		
1/8	1/8	10-32 UNF	9557K1019	9557K1010	9557K1007	0.7	0.38 (0.17)
1/4	1/8	1/8	9557K2019	9577K2010	9557K2007	1.1	0.51 (0.23)
3/8	3/8	1/8	9557K3019	9557K3010	9557K3007	2.2	1.39 (0.63)
1/2	1/2	1/8	9557K4019	9557K4010	9557K4007	3.4	1.98 (0.90)

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D9557K1019.

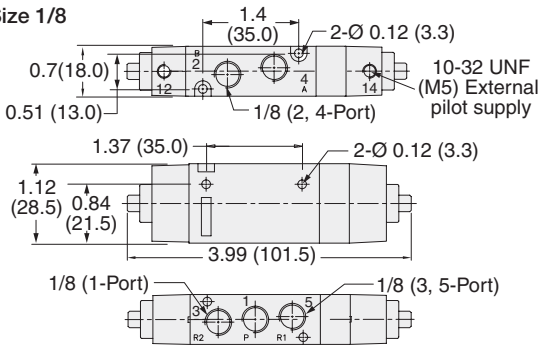
Power Center 

Closed Center 

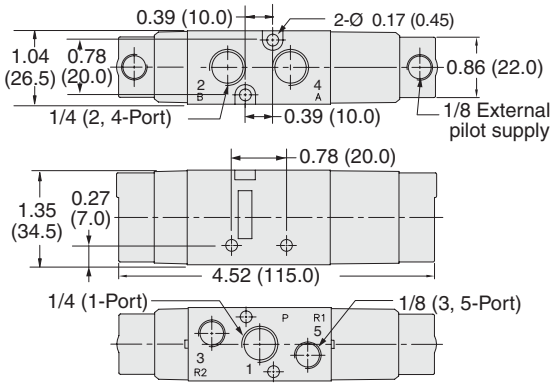
Open Center 

Valve Dimensions – inches (mm)

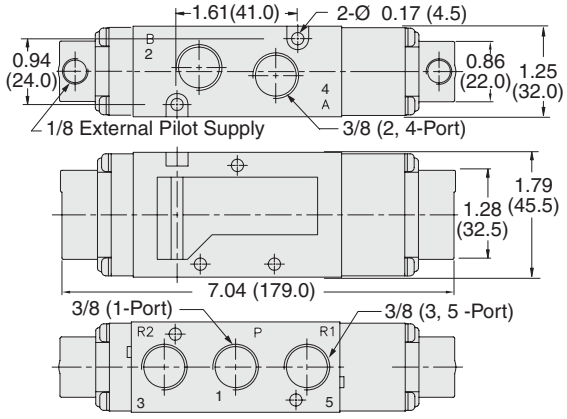
Port Size 1/8



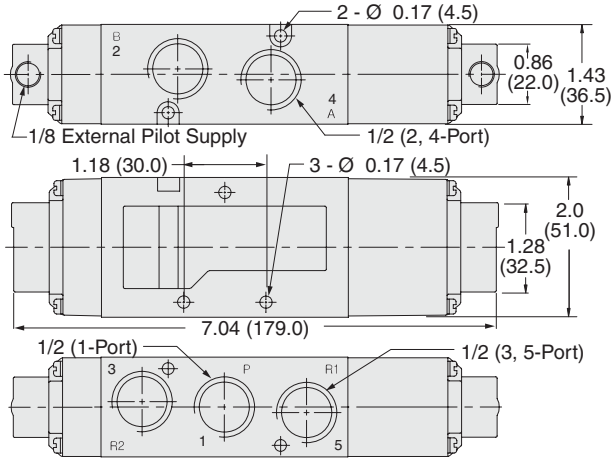
Port Size 1/4



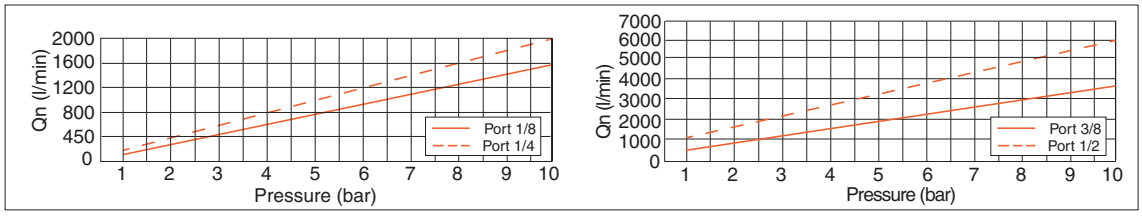
Port Size 3/8



Port Size 1/2



FLOW CHARTS



Manifolds and Accessories ordered separately, refer to page B4.12. For other options, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page)**:**

Construction: Spool.
Mounting Type: Inline or manifold mounted.
Ambient/Media Temperature: 41° to 140°F (5° to 60°C).
Flow Media: Filtered air.
Inlet Pressure: 30 to 150 psi (2 to 10 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.
Manual Override: Pushbutton, non-locking.

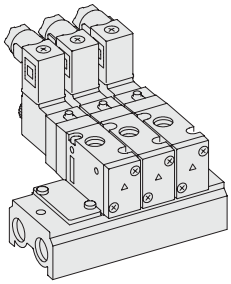
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Manifold Base
For 3/2- Spring Return or Detented Valves

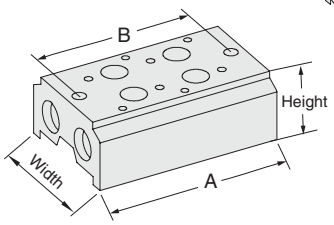
for 95 Series

Port Size		Manifold Base Part Number*				
1, 3	2	2 Valves Unit	4 Valves Unit	6 Valves Unit	8 Valves Unit	10 Valves Unit
1/8	1/8	1472H91	1474H91	1476H91	1478H91	1480H91
1/4	1/4	1492H91	1494H91	1496H91	1498H91	1500H91

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D1472H91.

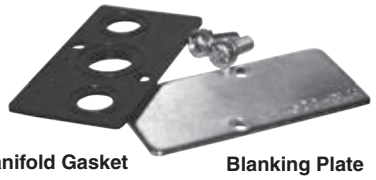


Port Size	Base Dimensions	Numbers of Valves Unit				
		2	4	6	8	10
		Dimensions – inches (mm)				
1/8	Height	0.98 (25)	0.98 (25)	0.98 (25)	0.98 (25)	0.98 (25)
	Length (A)	2.32 (59)	3.82 (97)	5.31 (135)	6.81 (173)	8.31 (211)
	Length (B)	1.85 (47)	3.35 (85)	4.84 (123)	6.34 (161)	7.83 (199)
	Width	1.65 (42)	1.65 (42)	1.65 (42)	1.65 (42)	1.65 (42)
1/4	Height	1.06 (27)	1.06 (27)	1.06 (27)	1.06 (27)	1.06 (27)
	Length (A)	3.03 (77)	5.16 (131)	7.28 (185)	9.41 (239)	11.53 (293)
	Length (B)	2.60 (66)	4.72 (120)	6.85 (174)	8.98 (228)	11.10 (282)
	Width	1.97 (50)	1.97 (50)	1.97 (50)	1.97 (50)	1.97 (50)



MANIFOLD BLANKING KITS	Port Size	Kit Number
	1/8	1813H77
	1/4	1814H77

Manifold blanking kits incude: blanking plate, manifold gasket and mounting bolts.

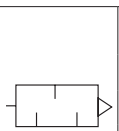


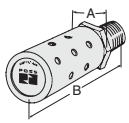
Accessories & Options

Electrical Connectors	Connector Form	Port Size	Model Number*	
			24 Volts DC	110 Volts AC
	EN 175301-803 MICRO-MINI	1/8	1766L77	1780L77
	EN 175301-803 Industrial Form B connector	1/4, 3/8, 1/2	1767L77	1781L77
	*3-Pin Electrical Connectors with LED & Surge Suppressor			

Silencers

Port Size	Thread Type	Model Number		Avg. C_v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	BSPT Threads		A	B	
1/8	Male	5500A1003	D5500A1003	1.2	0.9 (21)	2.2 (55)	0.1 (0.1)
1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)
3/8	Male	5500A3013	D5500A3013	2.7	0.9 (21)	2.2 (55)	0.1 (0.1)



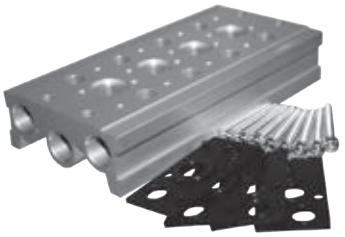


Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.

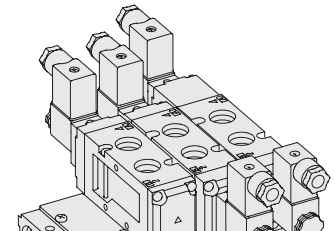
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

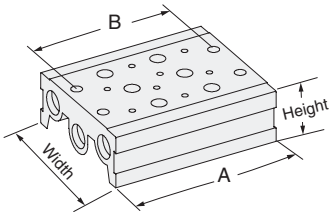
Port Size		Manifold Base Part Number*				
1, 2, 4	3, 5	2 Valves Unit	4 Valves Unit	6 Valves Unit	8 Valves Unit	10 Valves Unit
1/8	1/8	1392H91	1394H91	1396H91	1398H91	1390H91
1/4	1/4	1412H91	1414H91	1416H91	1418H91	1420H91
3/8	3/8	1432H91	1434H91	1436H91	1438H91	1440H91
1/2	1/2	1652H91	1654H91	1656H91	1658H91	1650H91

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D1392H91.



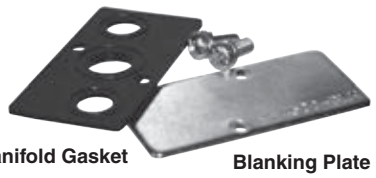
Port Size	Base Dimensions	Numbers of Valves Unit				
		2	4	6	8	10
		Dimensions – inches (mm)				
1/8	Height	1.02 (26)	1.02 (26)	1.02 (26)	1.02 (26)	1.02 (26)
	Length (A)	2.32 (59)	3.81 (97)	5.31 (135)	6.81 (173)	8.31 (211)
	Length (B)	1.85 (47)	3.35 (85)	4.84 (123)	6.34 (161)	7.83 (199)
	Width	4.33 (110)	4.33 (110)	4.33 (110)	4.33 (110)	4.33 (110)
1/4	Height	1.06 (27)	1.06 (27)	1.06 (27)	1.06 (27)	1.06 (27)
	Length (A)	3.29 (83.5)	5.45 (138.5)	7.62 (193.5)	9.78 (248.5)	11.95 (303.5)
	Length (B)	2.81 (71.5)	4.98 (126.5)	7.15 (181.5)	9.31 (236.5)	7.94 (201.5)
	Width	2.68 (68)	2.68 (68)	2.68 (68)	2.68 (68)	2.68 (68)
3/8	Height	1.18 (30)	1.18 (30)	1.18 (30)	1.18 (30)	1.18 (30)
	Length (A)	3.66 (93)	6.26 (159)	8.86 (225)	11.46(291)	14.05 (357)
	Length (B)	3.15 (80)	5.75 (146)	8.35 (212)	10.94 (278)	13.54 (344)
	Width	3.43 (87)	3.43 (87)	3.43 (87)	3.43 (87)	3.43 (87)
1/2	Height	1.32 (33.5)	1.32 (33.5)	1.32 (33.5)	1.32 (33.5)	1.32 (33.5)
	Length (A)	4.05 (103)	7.01 (178)	9.96 (253)	12.91 (328)	15.87 (403)
	Length (B)	3.46 (88)	6.42 (163)	9.37 (238)	12.32 (313)	15.27 (388)
	Width	3.86 (98)	3.86 (98)	3.86 (98)	3.86 (98)	3.86 (98)





MANIFOLD BLANKING KITS	Port Size	Part Number
	1/8	1806H77
	1/4	1807H77
	3/8	1808H77
	1/2	1809H77

Manifold blanking kits incude blanking plate, manifold gasket and mounting bolts.

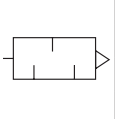


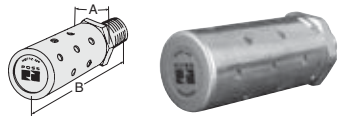
Accessories & Options

Electrical Connectors	Connector Form	Port Size	Model Number*	
			24 Volts DC	110 Volts AC
	EN 175301-803 Form A MICRO-MINI	1/8	1766L77	1780L77
	EN 175301-803 Industrial Form B connector	1/4, 3/8, 1/2	1767L77	1781L77
	*3-Pin Electrical Connectors with LED & Surge Suppressor			

Silencers

Port Size	Thread Type	Model Number		Avg. C_v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	BSPT Threads		A	B	
1/8	Male	5500A1003	D5500A1003	1.2	0.9 (21)	2.2 (55)	0.1 (0.1)
1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)
3/8	Male	5500A3013	D5500A3013	2.7	0.9 (21)	2.2 (55)	0.1 (0.1)
1/2	Male	5500A4003	D5500A4003	2.7	1.3 (32)	3.6 (92)	0.2 (0.1)





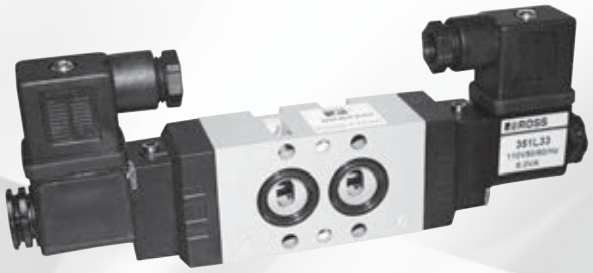
Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.

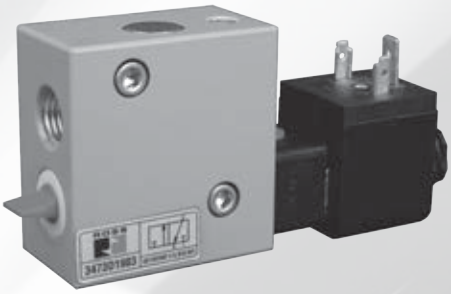
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

B

ROSS CONTROLS®

NAMUR Interface Valves
95 & 34 Series





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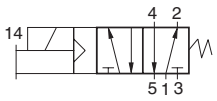
NAMUR INTERFACE 95 SERIES VALVES – KEY FEATURES

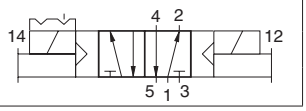
- Compact inline ported valve consisting 5/2-way with either solenoid pilot control
- 24 volts DC and 110 volts AC options for solenoid control
- Available port sizes - 1/4”
- Resilient spool & sleeve construction
- High flow capacity
- Pressure ports located in valve body
- Manual override included
- Lube or non-lube service
- Fast response times

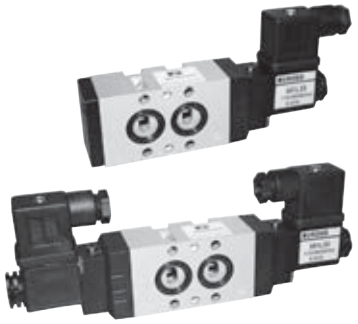
NAMUR INTERFACE 34 SERIES VALVES – KEY FEATURES

- “Duck-bill” protected exhaust port(s):
  - Limits wash down fluids from entering the valve
  - Minimizes the collection point for contamination
- Corrosion resistant epoxy powder coat
- Solenoid Pilot – Low wattage, fast shifting, repeatable, long life
- Patented Ball-poppet internals - Near zero internal leakage for the life of the valve, self cleaning valve seats, sure shifting
- Faster and more precise operation than a spool valve
- 3/2 Normally Closed

VALVE TYPE/SERIES	PORT SIZES		MAX. FLOW Cv	Page
	CONNECTION	1/4		
95 SERIES				
SOLENOID PILOT CONTROLLED with NAMUR INTERFACE				
5/2			1.3	B5.3
34 SERIES				
SOLENOID PILOT CONTROLLED with NAMUR INTERFACE				
3/2, 52	M12, or EN 175301-803 Form A		0.25	B5.4

5-Way 2-Position Valves, Single Solenoid, Spring Return				
Port Size 1, 3, 5	Valve Model Number*	Avg. C_v	Weight lb (kg)	
1/4	9576K2901**	1.3	0.80 (0.36)	

5-Way 2-Position Valves, Double Solenoid, Detented				
Port Size 1, 3, 5	Valve Model Number*	Avg. C_v	Weight lb (kg)	
1/4	9576K2902**	1.3	1.04 (0.47)	

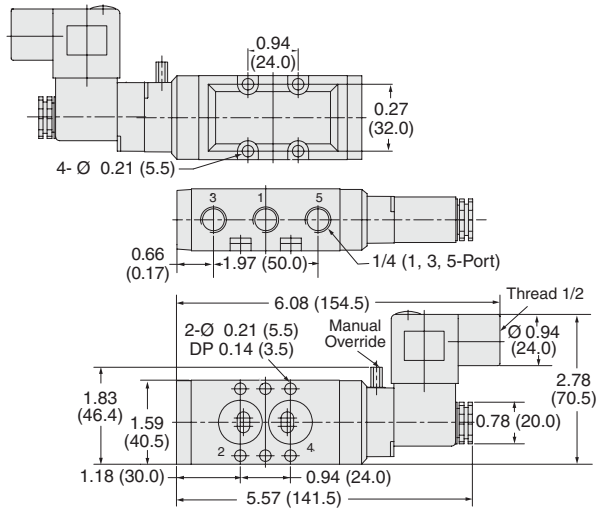


B

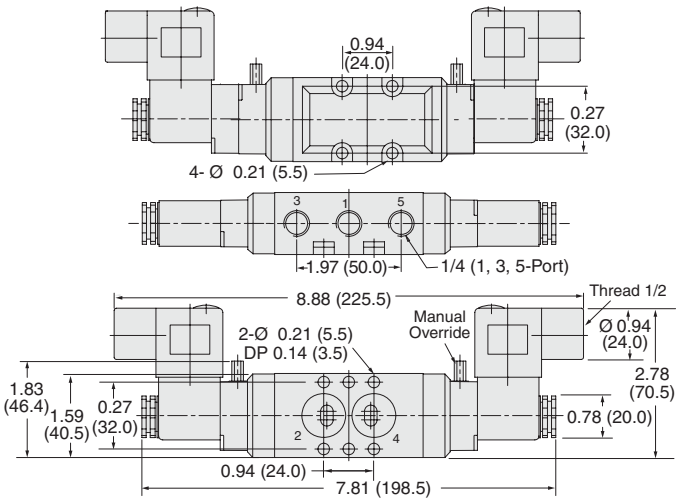
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D9576K2901W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 9576K2901W.

Valve Dimensions – inches (mm)

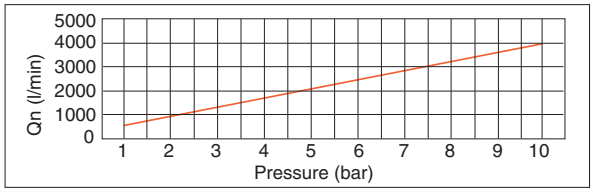
Single Solenoid Valve



Double Solenoid Valve



FLOW CHART



Accessories & Options

Electrical Connectors

Connector Form	Port Size	Model Number*	
		24 Volts DC	110 Volts AC
EN 175301-803 Form B	1/4	1767L77	1781L77
*3-Pin Electrical Connectors with LED & Surge Suppressor			

Silencers

Port Size	Threads	Model Number
1/4	Male - NPT	5500A2003
1/4	Male - BSPT	D5500A2003

B5

For other options, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page)**:**

Construction: Spool.
Mounting Type: Inline.
Solenoid Pilot: AC or DC power, rated for continuous duty.
Standard Voltages: 24 volts DC; 110 volts AC, 50/60 Hz.
Power Consumption: 5.5 VA holding on 50/60 Hz; 2.5 watts on DC.
Enclosure Rating: IP65, IEC 60529.
Electrical Connections: Industrial Form B EN 175301-803 connector.
Ambient/Media Temperature: 41° to 140°F (5° to 60°C).
Flow Media: Filtered air.
Inlet Pressure: 22.5 to 150 psig (1.5 to 10 bar).
Manual Override: Pushbutton, non-locking.

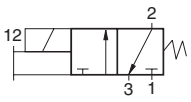
Valves available with installed prewired connectors, please consult ROSS.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

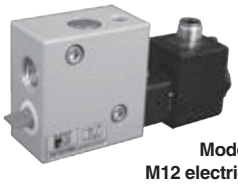
B

3-Way 2-Position Valves, Spring Return

Electrical Connection	Valve Model Number*	Avg. C_v	Mounting Bolts	Weight lb (kg)
M12	3473D1904**	0.25	10-32	0.8 (0.3)
EN 175301-803 Form A	3473D1900**	0.25	10-32	0.8 (0.3)



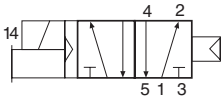
***Note:** 10-24 and M5 mounting fasteners available upon request.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 3473D190W. For other voltages, consult ROSS.



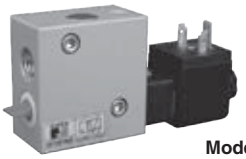
Model shown with M12 electrical connector

5-Way 2-Position Valves, Spring Return

Electrical Connection	Valve Model Number*	Avg. C_v	Mounting Bolts	Weight lb (kg)
M12	3476C1904**	0.25	10-32	0.9 (0.4)
EN 175301-803 Form A	3476C1900**	0.25	10-32	0.9 (0.4)

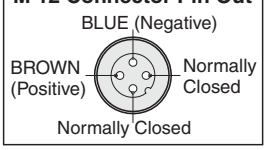


***Note:** 10-24 and M5 mounting fasteners available upon request.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 3476C1904W. For other voltages, consult ROSS.



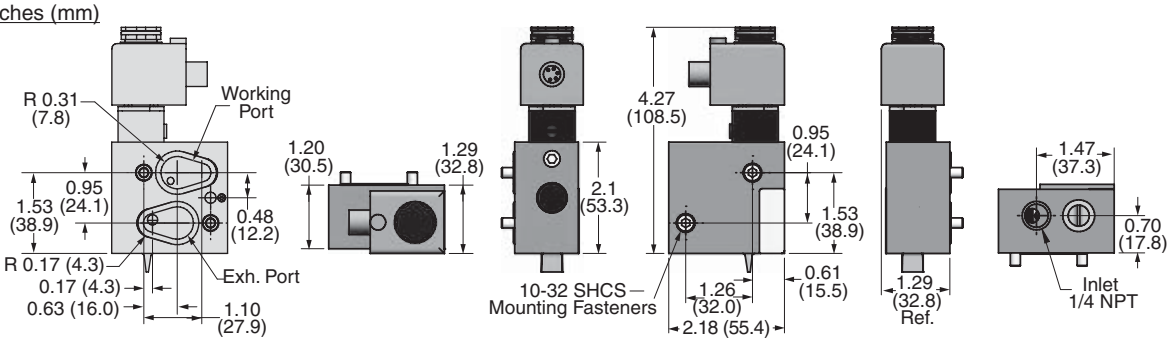
Model shown with EN electrical connector

M 12 Connector Pin Out

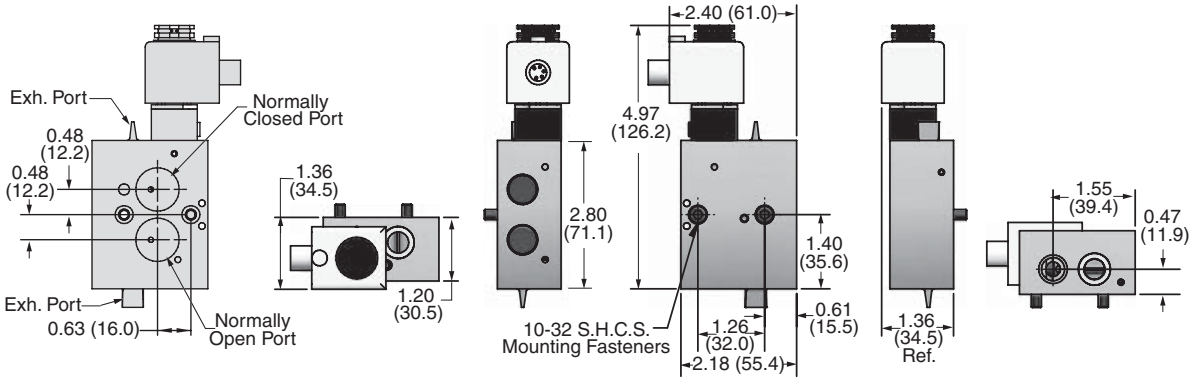


Valve Dimensions – inches (mm)

3/2 Valves



5/2 Valves



B5

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: 24 volts DC, 0.7 watt; 110-120 volts AC, 50/60 Hz.
Enclosure Rating: IP65, IEC 60529.
Electrical Connections: EN 175301-803 Form A connector, or M12.
Ambient/Media Temperatures: 4° to 122°F (-10° to 50°C).
For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.

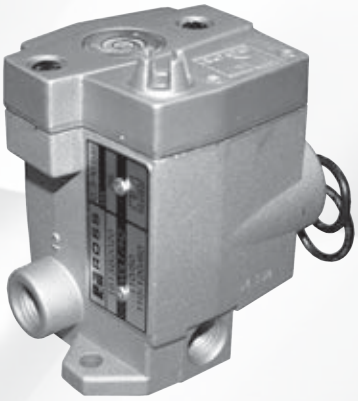
Flow Media: Filtered air.
Inlet Pressure: 29 to 116 psig (2 to 8 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.
Port Threads: NPT.
Standard: NEMA 4X (enclosure constructed for indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; and also provides protection in highly corrosive environments.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

B

ROSS CONTROLS®

COMPACT VALVES 16 SERIES



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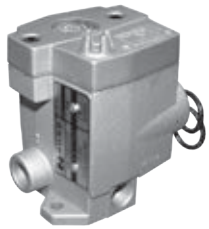
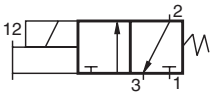
B

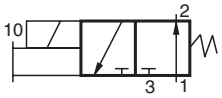
3-Way 2-Position Valves, Spring Return							
Port Size	Valve Model Number*		C_v		Average Response Constants#		Weight lb (kg)
1, 2, 3	Normally Closed (NC)	Normally Open (NO)	NC	NO	M	F	
1/8	1613B1020**	1614B1020**	0.3	0.3	5	2.90	1.4 (0.6)
1/4	1613B2020**	1614B2020**	0.3	0.3	5	2.90	1.4 (0.6)



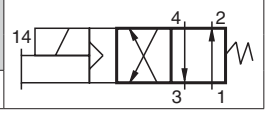
Normally Closed



Normally Open



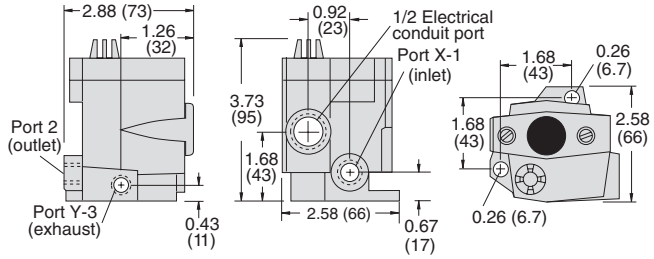
4-Way 2-Position Valves, Spring Return							
Port Size	Valve Model Number*	C_v		Average Response Constants#		Weight lb (kg)	
1, 2, 3, 4		1-2	2-4	M	F		
1/4	1616C2020**	0.3	0.3	5	2.90	2.4 (1.1)	



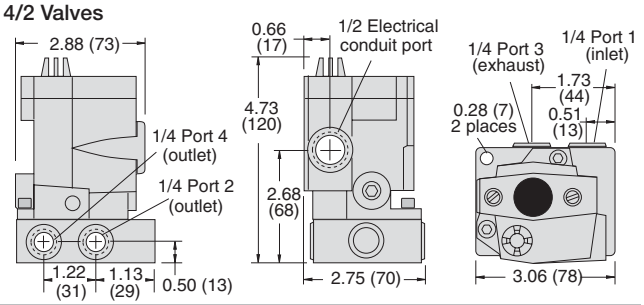
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D1613B1020W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 1613B1020W. For other voltages, consult ROSS.
# **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Valve Dimensions – inches (mm)

3/2 Valves



4/2 Valves



Accessories & Options

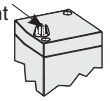
Silencers

Port Size	Thread Type	Model Number		Avg. C_v
		NPT Threads	BSPT Threads	
1/8	Male	5500A1003	D5500A1003	1.2
1/4	Male	5500A2003	D5500A2003	2.1
Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.				

Indicator Light Kit

The indicator light gives the option to visually verify valve operation, it extends through the solenoid or pilot cover and is illuminated when the solenoid is energized.

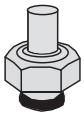
Kit Number		Indicator Light
24 volts DC	110-120 volts AC 50-60 Hz	
862K87-W	862K87-Z	



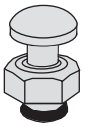
Manual Override Kits

FLUSH BUTTON	
Locking Type	Kit Number
Non-Locking	790K87
Locking	792K87

EXTENDED BUTTON	
Locking Type	Kit Number
Non-Locking	791K87



EXTENDED BUTTON with PALM	
Locking Type	Kit Number
Non-Locking	984H87



Buttons in the override kits are made of metal and are spring-returned. The locking type button, can be kept in the actuated position by turning the slot in the top of the button with a screwdriver.

STANDARD SPECIFICATIONS (for valves on this page):

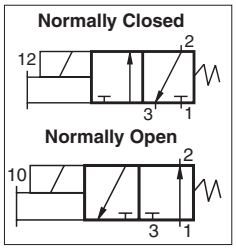
Construction: Poppet.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.
Ambient Temperature: 40° to 120°F (4° to 50°F).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: *3/2 Valves:* 5 to 150 psig (0.3 to 10 bar).
4/2 Valves: 30 to 150 psig (2 to 10 bar).
Manual Override: Flush; rubber, non-locking.

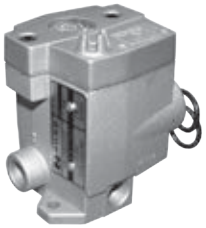
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

3-Way 2-Position Valves, Spring Return

Port Size	Valve Model Number*#		C_v		Average Response Constants#		Weight lb (kg)
1, 2, 3	Normally Closed (NC)	Normally Open (NO)	NC	NO	M	F	
1/4	1613C2322**	1614B2322**	0.3	0.3	5	2.90	2.4 (1.1)

Manifold not included with the valve. Order manifold station model number **256B91**.



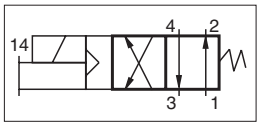


B

4-Way 2-Position Valves, Spring Return

Port Size	Valve Model Number*	C_v		Average Response Constants#		Weight lb (kg)
1, 2, 3, 4		1-2	2-4	M	F	
1/4	1616C2322**	0.3	0.3	5	2.90	2.4 (1.1)

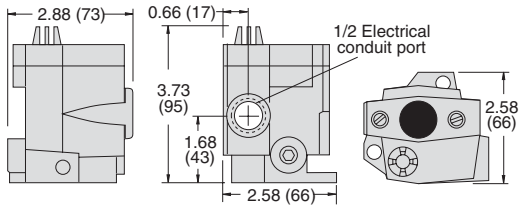
Manifold not included with the valve. Order manifold station model number **257B91**.



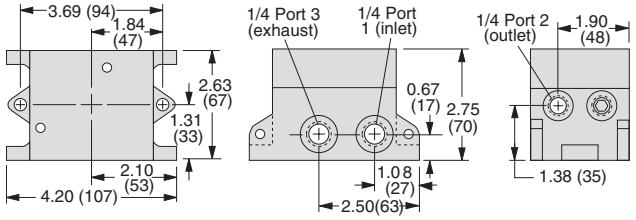
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D1613C2322W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 1613C2322W. For other voltages, consult ROSS.
# **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. M and F values are shown above.

Dimensions – inches (mm)

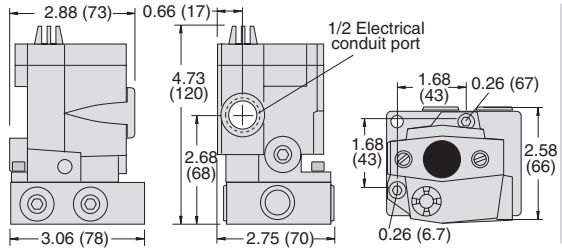
3/2 Valves



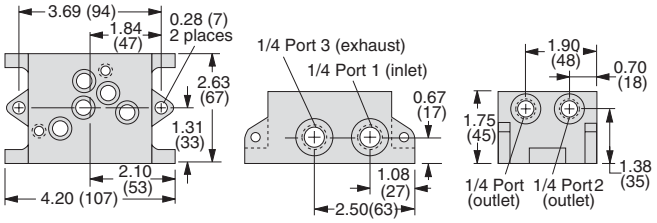
3/2 Manifold Station



4/2 Valves



4/2 Manifold Station



Accessories & Options

Silencers

Port Size	Thread Type	Model Number		Avg. C_v
		NPT Threads	BSPT Threads	
1/8	Male	5500A1003	D5500A1003	1.2
1/4	Male	5500A2003	D5500A2003	2.1

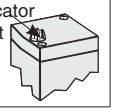
Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.

Indicator Light Kit

The indicator light gives the option to visually verify valve operation, it extends through the solenoid or pilot cover and is illuminated when the solenoid is energized.

Kit Number	
24 volts DC	110-120 volts AC 50-60 Hz
862K87-W	862K87-Z

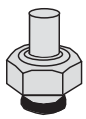
Indicator Light



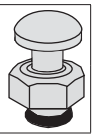
Manual Override Kits

FLUSH BUTTON	
Locking Type	Kit Number
Non-Locking	790K87
Locking	792K87

EXTENDED BUTTON	
Locking Type	Kit Number
Non-Locking	791K87



EXTENDED BUTTON with PALM	
Locking Type	Kit Number
Non-Locking	984H87



Buttons in the override kits are made of metal and are spring-returned. The locking type button, can be kept in the actuated position by turning the slot in the top of the button with a screwdriver.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.
Ambient Temperature: 40° to 120°F (4° to 50°F).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: *3/2 Valves:* 5 to 150 psig (0.3 to 10 bar).
4/2 Valves: 30 to 150 psig (2 to 10 bar).
Manual Override: Flush flexible manual override (non-locking).

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

B

ROSS®

ROSS CONTROLS®

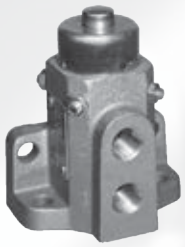
MANUAL AND MECHANICAL VALVES

Pushbutton

Palm Button

Toggle Lever

Roller Cam



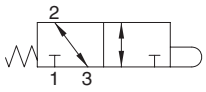
Plunger

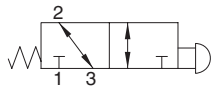
Heavy Duty Hand Lever

Foot Pedal with Guard

Pendant

VALVE TYPE	VALVE SERIES	AVAILABLE PORT SIZES							MAX. FLOW Cv	FUNCTIONS					Page
		1/8	1/4	3/8	1/2	3/4	1	1¼		2/2	3/2	4/2	4/3	5/2	
Flush & Mushroom Pushbutton															
	12	■	■						0.9		■				C1.3
Palm Button & Heavy Duty Palm Button															
	11 & 12	■	■						0.5	■	■				C1.4
Selector Switch															
	12	■	■						0.9		■				C1.5
Toggle Lever															
	11		■						0.5	■	■				C1.6
Lever															
	36		■						1.2		■	■			C1.7
Heavy Duty Hand Lever															
	31			■	■	■	■	■	14				■		C1.8 - C1.9
Pedal & Treadle															
	36		■						1.2		■	■			C1.10
Foot Pedal with Guard															
	RM		■						0.5					■	C1.11
Mechanical Cam Valves															
	11		■						0.5	■	■				C1.12
Pendant Control															
	20 & 39		■						0.5	■	■				C1.13

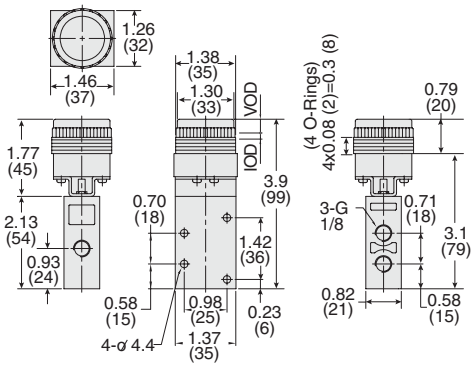
3-Way 2-Position Valves, Flush Pushbutton, Spring Return					
Port Size	Valve Model Number*		C_v	Weight lb (kg)	
	Green Button	Red Button			
1/8	1223B1FPG	1223B1FPR	0.6	0.28 (0.13)	
1/4	1223B2FPG	1223B2FPR	0.9	0.34 (0.15)	

3-Way 2-Position Valves, Mushroom Button Spring Return					
Port Size	Valve Model Number*		C_v	Weight lb (kg)	
	Green Button	Red Button			
1/8	1223B1MBG	1223B1MBR	0.6	0.29 (0.13)	
1/4	1223B2MBG	1223B2MBR	0.9	0.35 (0.16)	

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D1223B1FPG

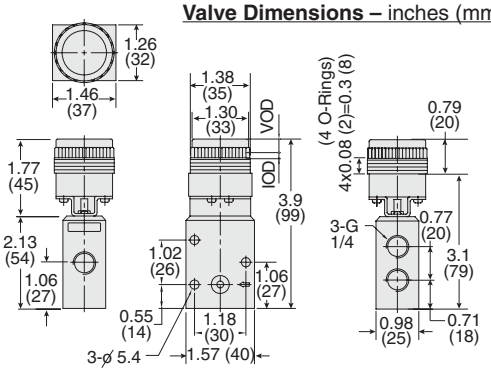
Flush Pushbutton

Port Size 1/8



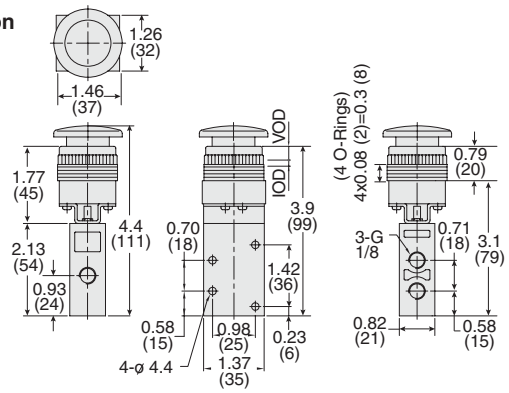
Valve Dimensions – inches (mm)

Port Size 1/4

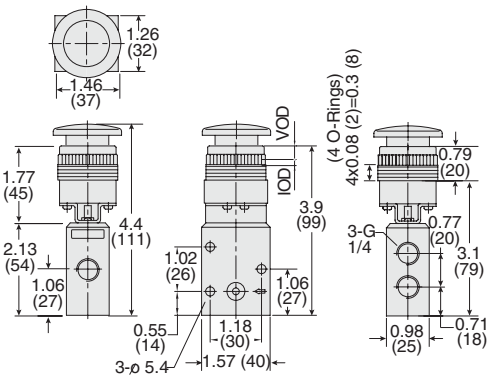


Mushroom Button

Port Size 1/8

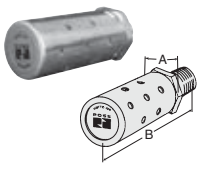


Port Size 1/4



Accessories

Silencers	Port Size	Thread Type	Model Number NPT Threads	Model Number BSPT Threads	Avg. C_v	Dimensions inches (mm) A	Dimensions inches (mm) B	Weight lb (kg)	
	1/8	Male	5500A1003	D5500A1003	1.2	0.9 (21)	2.0 (51)	0.1 (0.1)	
	1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)	
	Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.								



Normally Closed or Normally Open simply by piping the inlet supply accordingly.

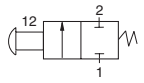
STANDARD SPECIFICATIONS (for valves on this page):

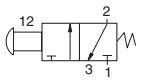
Construction: Spool & Sleeve.
Mounting Type: Inline.
Ambient/Media Temperature: 40° to 175°F (4° to 80 °C).
Flow Media: Filtered air.
Inlet Pressure: 5 to 150 psig (0.3 to 10 bar).
Valve Body: Die-cast aluminum.
Button Materials: Stainless steel, polyoxymethylene.

Spool Material: Aluminum.
Seals Material: Nitrile rubber.
Spring Material: Stainless Steel.
Switch Parts: Glass filled Nylon.

Valid Operation Distance: 0.22 inches (5.5 mm).
Invalid Operation Distance: 0.04 inches (1.0 mm).
Pressure for Valid/Invalid Operation: 7.7 lb (3.5 Kg).

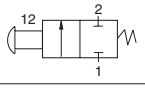
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

2-Way 2-Position Valves, Palm Button, Spring Return					
Port Size 1-2	Valve Model Number*	C_v	Average Response Constants# F 1-2	Weight lb (kg)	
1/4	1121A2001	0.5	2.5	1.0 (0.5)	

3-Way 2-Position Valves, Palm Button, Spring Return						
Port Size 1, 2, 3	Valve Model Number*	C_v	Average Response Constants# F		Weight lb (kg)	
			1-2	2-3		
1/4	1123A2001	0.5	2.5	3.2	1.0 (0.5)	

2/2 Normally Closed
3/2 Normally Closed

Palm Button

2-Way 2-Position Valves, Heavy Duty Palm Button Spring Return						
Port Size	Valve Model Number*		C_v	Average Response Constants# F 1-2	Weight lb (kg)	
	Green Button	Red Button				
1/4	1221B2001	1221B2003	0.8	2.0	1.8 (0.8)	

3-Way 2-Position Valves, Heavy Duty Palm Button Spring Return						
Port Size	Valve Model Number*		C_v	Average Response Constants# F		Weight lb (kg)
	Green Button	Red Button		1-2	2-3	
1/4	1223B2001	1223B2003	0.8	2.0	2.3	1.8 (0.8)

2/2 Normally Closed
3/2 Normally Closed

Heavy Duty Palm Button

C

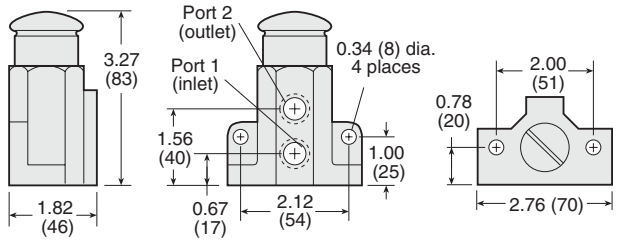
C1

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D1121A2001.

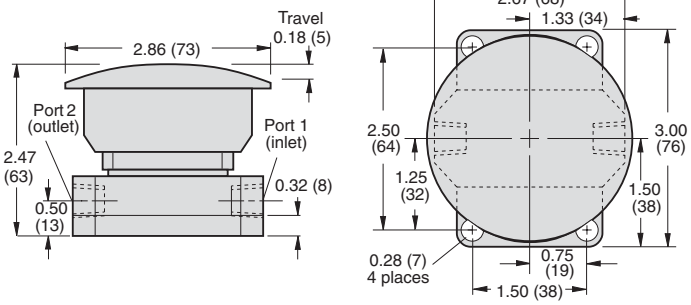
 # Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. F values are given in the chart above. M values for manually operated valves depend on the speed of actuation, and may be taken as zero for most practical applications.

Valve Dimensions – inches (mm)

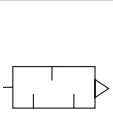
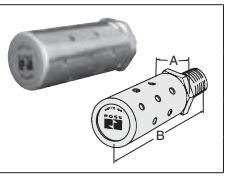
Palm Button

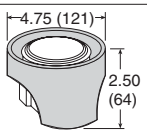


Heavy Duty Palm Button



Accessories & Options

Silencers for 3-way Valves	Port Size	Thread Type	Model Number NPT Threads	Model Number BSPT Threads	Avg. C_v	Dimensions inches (mm) A	Dimensions inches (mm) B	Weight lb (kg)	
	1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)	 
	Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.								

RING GUARD for Heavy Duty Palm Button	Part Number	
	278B30	

Helps to protect against accidental valve actuation.

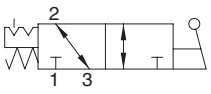
STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: Side and bottom mounting flanges.
Ambient/Media Temperature: 40° to 175°F (4° to 80 °C).
Flow Media: Filtered air.
Inlet Pressure: 5 to 150 psig (0.3 to 10 bar) .

Valve Body: Die-cast aluminum.
Button Materials:
Pushbutton: Aluminum.
Heavy Duty Palm Button: High-strength plastic.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

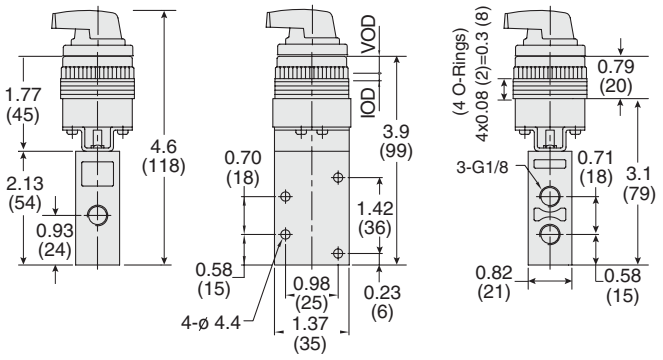
3-Way 2-Position Valves, Detented			
Port Size	Valve Model Number*	C_v	Weight lb (kg)
1-2	Black Switch Knob	1-2	
1/8	1223B1SLB	0.6	0.31 (0.14)
1/4	1223B2SLB	0.9	0.37 (0.17)



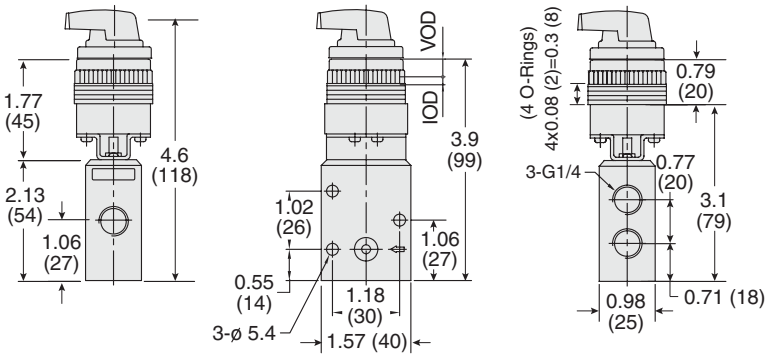
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D1223B1SLB.

Valve Dimensions – inches (mm)

Port Size 1/8



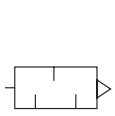
Port Size 1/4

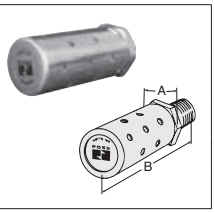


Normally Closed or Normally Open simply by piping the inlet supply accordingly.

Accessories

Silencers	Port Size	Thread Type	Model Number NPT Threads	Model Number BSPT Threads	Avg. C_v	Dimensions inches (mm) A	Dimensions inches (mm) B	Weight lb (kg)
	1/8	Male	5500A1003	D5500A1003	1.2	0.9 (21)	2.0 (51)	0.1 (0.1)
	1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)
	Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.							





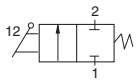
STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool & Sleeve.
Mounting Type: Inline.
Ambient/Media Temperature: 40° to 175°F (4° to 80 °C).
Flow Media: Filtered air.
Inlet Pressure: 5 to 150 psig (0.3 to 10 bar).
Valve Body: Die-cast aluminum.
Button Materials: Stainless steel, polyoxymethylene.

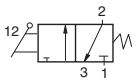
Spool Material: Aluminum.
Seals Material: Nitrile rubber.
Spring Material: Stainless Steel.
Switch Parts: Glass filled Nylon.

Valid Operation Distance: 0.22 inches (5.5 mm).
Invalid Operation Distance: 0.04 inches (1.0 mm).
Pressure for Valid/Invalid Operation: 7.7 lb (3.5 Kg).

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

2-Way 2-Position Valves, Spring Return					
Port Size	Valve Model Number*	C_v	Average Response Constants# F 1-2	Weight lb (kg)	
1/4	1121A2002	0.5	2.5	1.0 (0.5)	

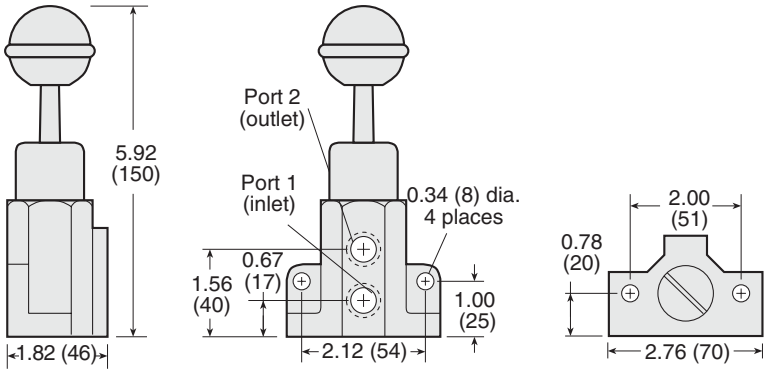
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D1121A2002.

3-Way 2-Position Valves, Spring Return						
Port Size	Valve Model Number*	C_v	Average Response Constants# F 1-2	Average Response Constants# F 2-3	Weight lb (kg)	
1/4	1123A2002	0.5	2.5	3.2	1.0 (0.5)	

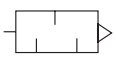
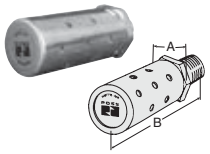
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D1123A2002.

Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. F values are given in the chart above. M values for manually operated valves depend on the speed of actuation, and may be taken as zero for most practical applications.

Valve Dimensions – inches (mm)



Accessories

Silencers for 3-way Valves	Port Size	Thread Type	Model Number NPT Threads	Model Number BSPT Threads	Avg. C_v	Dimensions inches (mm) A	Dimensions inches (mm) B	Weight lb (kg)		
	1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)		
	Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.									

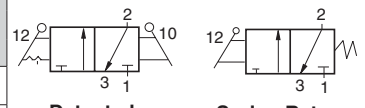
STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: Side and bottom mounting flanges.
Ambient/Media Temperature: 40° to 175°F (4° to 80 °C).
Flow Media: Filtered air.

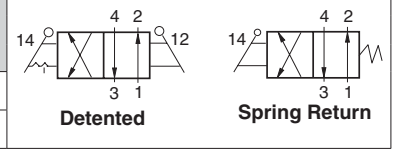
Inlet Pressure: 5 to 150 psig (0.3 to 10 bar) .
Valve Body: Die-cast aluminum.
Lever Knob Material: Glass filled Nylon.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

3-Way 2-Position Valves, Detented or Spring Return							
Port Size	Operators	Valve Model Number*	C_v	Average Response Constants# F 1-2	Average Response Constants# F 2-3	Weight lb (kg)	
1/4	Detented	3623A2003	1.2	1.66	1.43	1.3 (0.6)	
1/4	Spring Return	3623A2004	1.2	1.66	1.43	1.3 (0.6)	



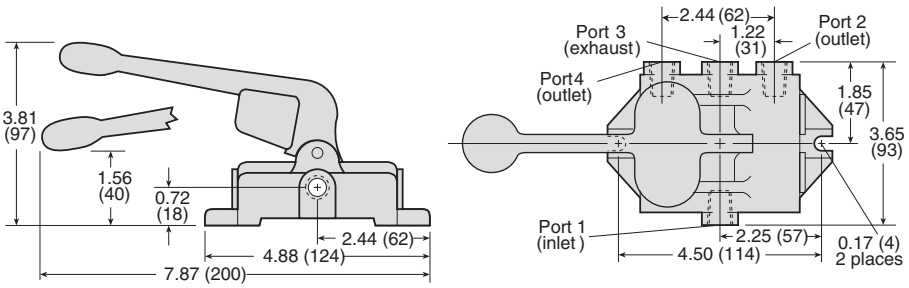
4-Way 2-Position Valves, Detented or Spring Return							
Port Size	Operators	Valve Model Number*	C_v	Average Response Constants# F 1-2, 1-4	Average Response Constants# F 4-3, 2-3	Weight lb (kg)	
1/4	Detented	3626A2003	1.2	1.66	1.43	2.5 (1.1)	
1/4	Spring Return	3626A2004	1.2	1.66	1.43	2.5 (1.1)	



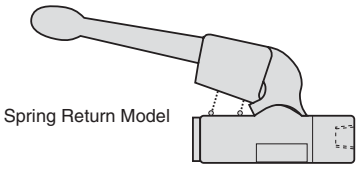
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D3623A2003.
# **Valve Response Time** – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. F values are given in the chart above. M values for manually operated valves depend on the speed of actuation, and may be taken as zero for most practical applications.

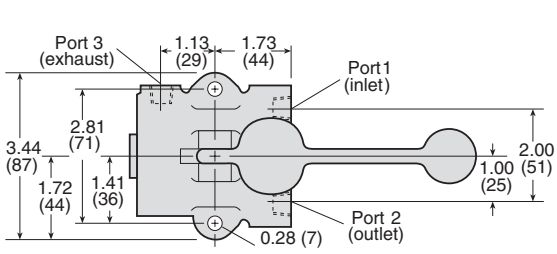
Valve Dimensions – inches (mm)

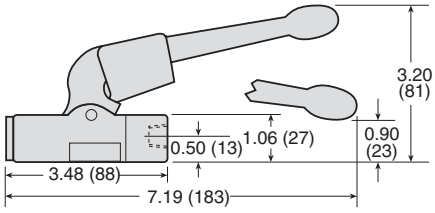
3/2 Valve



4/2 Valve

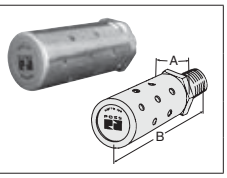






Accessories

Silencers for 3-way Valves	Port Size	Thread Type	Model Number NPT Threads	Model Number BSPT Threads	Avg. C_v	Dimensions inches (mm) A	Dimensions inches (mm) B	Weight lb (kg)
	1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)
	Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.							



For models with vertical handle, consult ROSS.

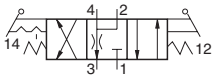
STANDARD SPECIFICATIONS (for valves on this page)**:**

Construction: Poppet.
Mounting Type: Side and bottom mounting flanges.
Ambient/Media Temperature: 40° to 175°F (4° to 80 °C).
Flow Media: Filtered air.
Inlet Pressure: 5 to 150 psig (0.3 to 10 bar) .

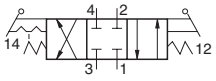
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

4-Way 3-Position Valves, Detented

Port Size 1, 2, 4	Port Size 3	Closed/Open Center	Valve Model Number*	C_v In-Out	C_v Out-Exh.	Average Response Constants# F In-Out	Average Response Constants# F Out-Exh.	Weight lb (kg)
3/8	1/2	Open	3126A3007	1.7	1.4	1.26	1.43	2.0 (0.9)
3/8	1/2	Closed	3126A3010	1.7	1.4	1.26	1.43	2.0 (0.9)
1/2	3/4	Open	3126A4007	2.8	2.3	0.87	1.01	3.8 (1.7)
1/2	3/4	Closed	3126A4010	2.8	2.3	0.87	1.01	3.8 (1.7)
3/4	1	Open	3126A5007	5.0	4.2	0.55	0.63	5.0 (2.3)
3/4	1	Closed	3126A5010	5.0	4.2	0.55	0.63	5.0 (2.3)
1	1¼	Open	3126A6007	10	7.5	0.30	0.39	10.0 (4.5)
1	1¼	Closed	3126A6010	10	7.5	0.30	0.39	10.0 (4.5)
1¼	1½	Open	3126A7007	14	9.6	0.23	0.32	11.0 (5.0)
1¼	1½	Closed	3126A7010	14	9.6	0.23	0.32	11.0 (5.0)



Open Center



Closed Center

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D3126A3007.

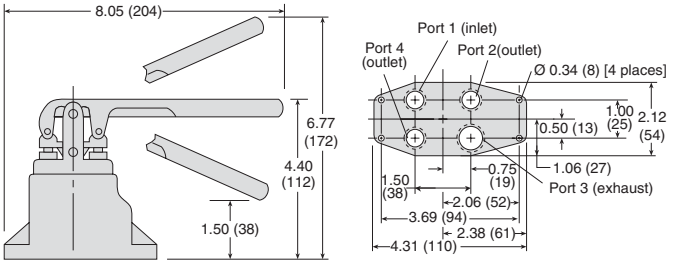
C

C1

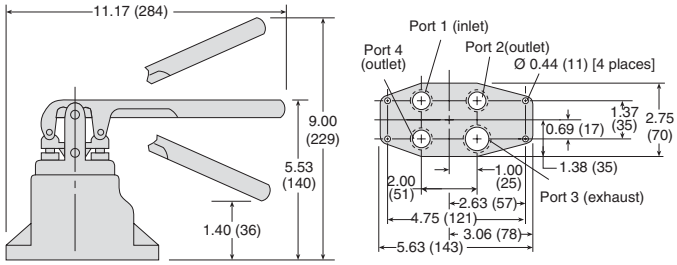
 # Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. F values are given in the chart above. M values for manually operated valves depend on the speed of actuation, and may be taken as zero for most practical applications.

Valve Dimensions – inches (mm)

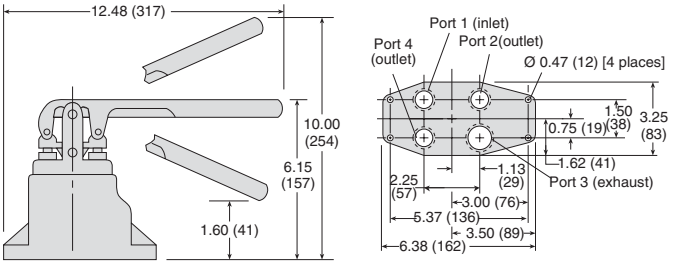
Port Size 3/8



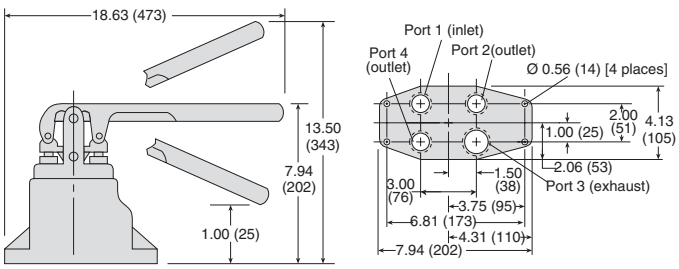
Port Size 1/2



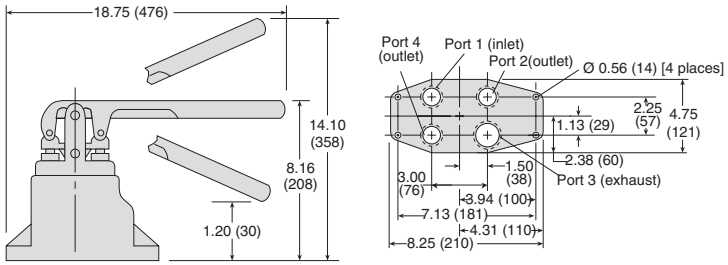
Port Size 3/4



Port Size 1



Port Size 1¼

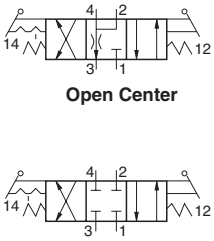


STANDARD SPECIFICATIONS (for valves on this page)**:**

Construction: Poppet.
Mounting Type: Bottom mounting flanges.
Ambient/Media Temperature: 40° to 175°F (4° to 80 °C).
Flow Media: Filtered air.
Inlet Pressure: 5 to 150 psig (0.3 to 10 bar) .

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

4-Way 3-Position Valves, Detented or Non-Detented								
Port Size		Closed/Open Center	Valve Model Number*	C_v		Average Response Constants#		Weight lb (kg)
						F		
1, 2, 4	3			In-Out	Out-Exh.	In-Out	Out-Exh.	
3/8	1/2	Open	3126A3009	1.7	1.4	1.26	1.43	2.4 (1.1)
3/8	1/2	Open	3126A3012#	1.7	1.4	1.26	1.43	2.4 (1.1)
3/8	1/2	Closed	3126A3013	1.7	1.4	1.26	1.43	2.4 (1.1)
3/8	1/2	Closed	3126A3014#	1.7	1.4	1.26	1.43	2.4 (1.1)
1/2	3/4	Open	3126A4009	2.8	2.3	0.87	1.01	4.8 (2.2)
1/2	3/4	Open	3126A4012#	2.8	2.3	0.87	1.01	4.8 (2.2)
1/2	3/4	Closed	3126A4013	2.8	2.3	0.87	1.01	4.8 (2.2)
1/2	3/4	Closed	3126A4014#	2.8	2.3	0.87	1.01	4.8 (2.2)
# Non-detented models.								



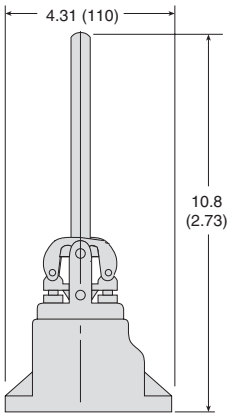
Open Center

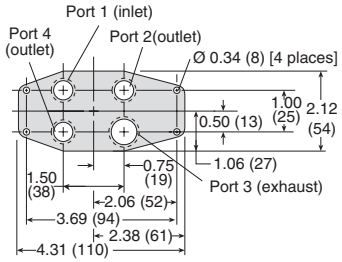
Closed Center

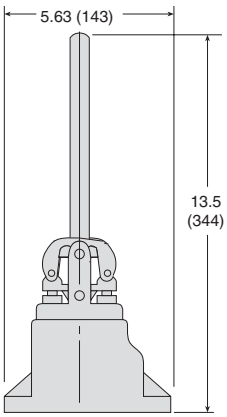
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D3126A3007.

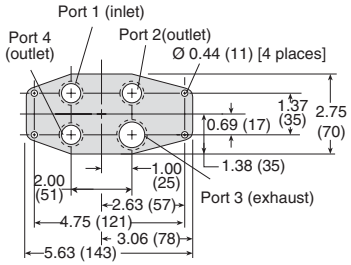
Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. F values are given in the chart above. M values for manually operated valves depend on the speed of actuation, and may be taken as zero for most practical applications.

Valve Dimensions – inches (mm)







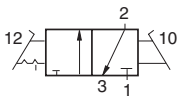


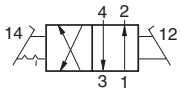
STANDARD SPECIFICATIONS (for valves on this page):

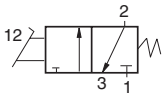
Construction: Poppet.
Mounting Type: Bottom mounting flanges.

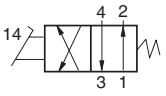
Ambient/Media Temperature: 40° to 175°F (4° to 80 °C).
Flow Media: Filtered air.
Inlet Pressure: 5 to 150 psig (0.3 to 10 bar) .

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

3-Way 2-Position Valves, Treadle, Detented						
Port Size	Valve Model Number*	C_v	Average Response Constants# F 1-2	Average Response Constants# F 2-3	Weight lb (kg)	
1/4	3643A2001	1.2	1.66	1.43	1.3 (0.6)	

4-Way 2-Position Valves, Treadle, Detented						
Port Size	Valve Model Number*	C_v	Average Response Constants# F 1-2, 1-4	Average Response Constants# F 4-3, 2-3	Weight lb (kg)	
1/4	3646A2001	1.2	1.66	1.43	2.8 (1.3	

3-Way 2-Position Valves, Pedal, Spring Return						
Port Size	Valve Model Number*	C_v	Average Response Constants# F 1-2	Average Response Constants# F 2-3	Weight lb (kg)	
1/4	3643A2002	1.2	1.66	1.43	1.3 (0.6)	

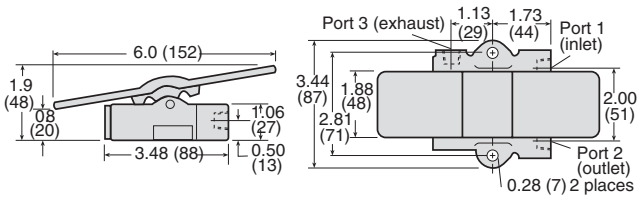
4-Way 2-Position Valves, Pedal, Spring Return						
Port Size	Valve Model Number*	C_v	Average Response Constants# F 1-2, 1-4	Average Response Constants# F 4-3, 2-3	Weight lb (kg)	
1/4	3646A2002	1.2	1.66	1.43	2.8 (1.3	

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D3643A2001.

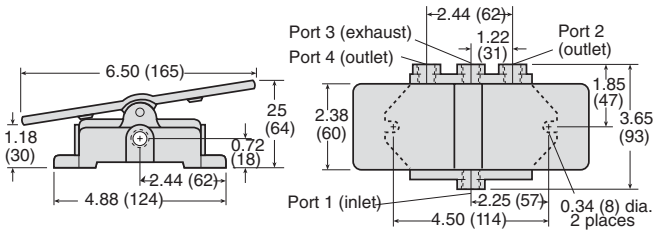
 # Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. F values are given in the chart above. M values for manually operated valves depend on the speed of actuation, and may be taken as zero for most practical applications.

Valve Dimensions – inches (mm)

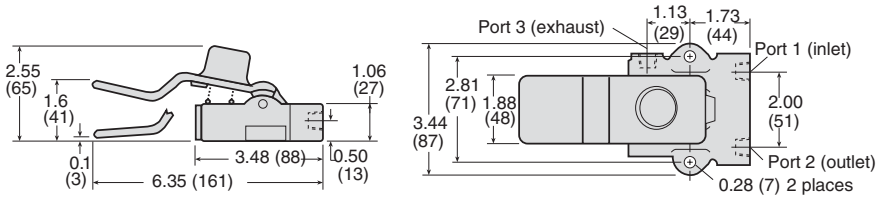
3/2 Treadle



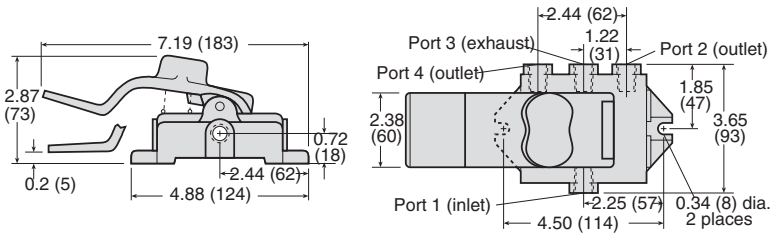
4/2 Treadle



3/2 Pedal



4/2 Pedal



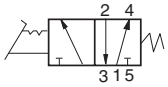
STANDARD SPECIFICATIONS (for valves on this page)**:**

Construction: Poppet design.
Mounting Type: Line mounting.
Ambient/Media Temperature: 40° to 175°F (4° to 80 °C).
Flow Media: Filtered air; 5 micron recommended.
Inlet Pressure: 5 to 125 psig (0.3 to 8.5 bar).

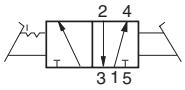
Note: The 3/2 and 4/2 treadle valves are not designed to be used to actuate clutch/brake mechanisms on mechanical power presses.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

5-Way 2-Position Valves, Pedal				
Port Size	**Operators**	**Valve Model Number***	**C_v**	**Weight** lb (kg)
1/4	Non-locking foot pedal	RM4F210-08G	0.5	2.1 (0.9)
1/4	Locking foot pedal	RM4F210-08LG	0.5	2.1 (0.9)



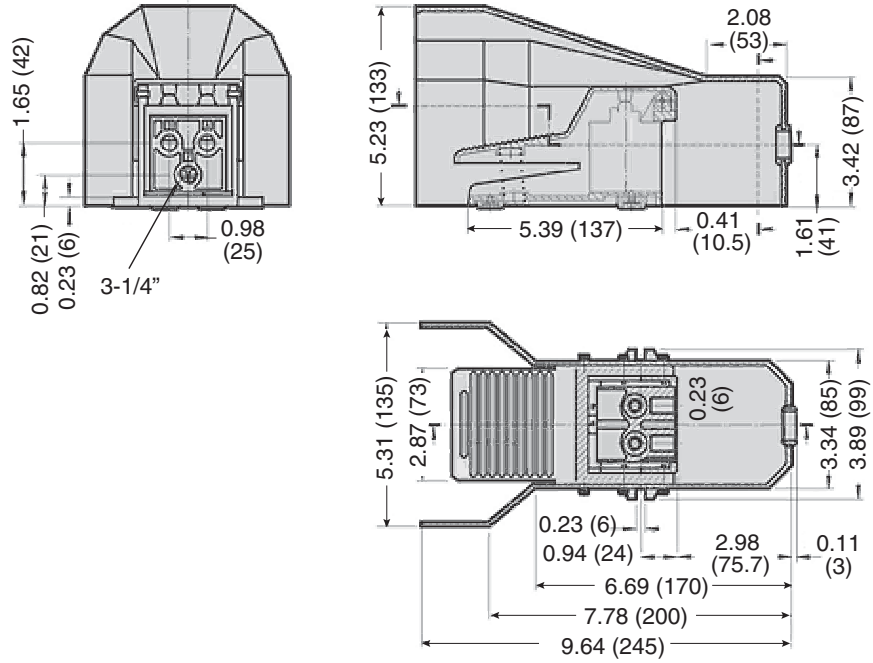
5/2 Spring Return without Lock



5/2 Detented with Lock

* NPT port threads.

Valve Dimensions – inches (mm)



Convertible to a 3-Way function.

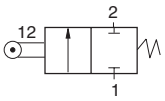
Note: Designed to meet OSHA 1910.217 Mechanical power presses, with protective guard to prevent accidental actuation.

STANDARD SPECIFICATIONS (for valves on this page)**:**

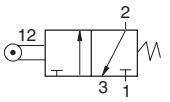
Construction: Poppet.
Mounting Type: Line mounting.

Ambient/Media Temperature: 23° to 140°F (-5° to 60°C).
Flow Media: Filtered air.
Inlet Pressure: 0 to 120 psig (0 to 8.2 bar).

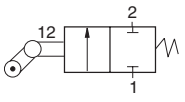
2-Way 2-Position Valves, Roller			
Port Size	**Valve Model Number***	**C_v**	**Weight** lb (kg)
1/4	1131A2001	0.5	1.0 (0.5)



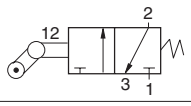
3-Way 2-Position Valves, Roller			
Port Size	**Valve Model Number***	**C_v**	**Weight** lb (kg)
1/4	1133A2001	0.5	1.0 (0.5)



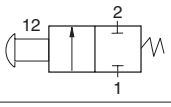
2-Way 2-Position Valves, 1-Way Roller			
Port Size	**Valve Model Number***	**C_v**	**Weight** lb (kg)
1/4	1131A2002	0.5	1.0 (0.5)



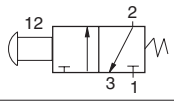
3-Way 2-Position Valves, 1-Way Roller			
Port Size	**Valve Model Number***	**C_v**	**Weight** lb (kg)
1/4	1133A2002	0.5	1.0 (0.5)



2-Way 2-Position Valves, Plunger			
Port Size	**Valve Model Number***	**C_v**	**Weight** lb (kg)
1/4	1131A2003	0.5	1.0 (0.5)



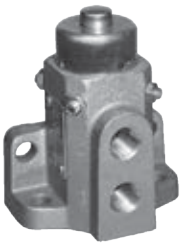
3-Way 2-Position Valves, Plunger			
Port Size	**Valve Model Number***	**C_v**	**Weight** lb (kg)
1/4	1133A2003	0.5	1.0 (0.5)



Roller Cam

1-Way Roller Cam

Plunger



C

C1

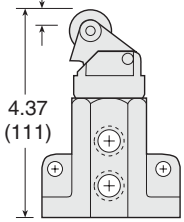
* NPT port threads. For BSPP threads add a "D" prefix to the model number, e.g., D1131A2001.

 # Valve Response Time – Response Time (msec) = M + (F • V). This is the average time required to fill a volume V (cubic inches) to 90% of supply pressure or to exhaust it to 10% of supply pressure. F values are given in the chart above. M values for manually operated valves depend on the speed of actuation, and may be taken as zero for most practical applications.

Valve Dimensions – inches (mm)

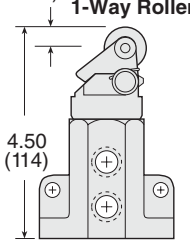
Travel 0.10 to 0.29 (2.5 to 7.4)

Roller



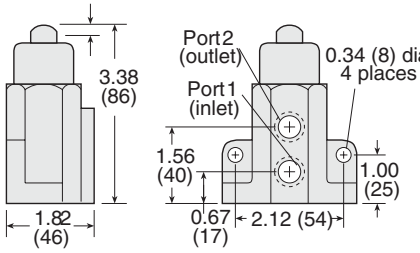
Travel 0.05 to 0.10 (1.3 to 2.5)

1-Way Roller



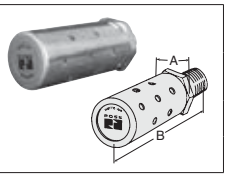
Travel 0.07 to 0.25 (1.8 to 6.4)

Plunger



ACCESSORIES

Silencers for 3-way Valves	Port Size	Thread Type	Model Number		Avg. C_v	Dimensions inches (mm)		Weight lb (kg)
			NPT Threads	BSPT Threads		A	B	
	1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)
	Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.							



STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: Side and bottom mounting flanges.
Ambient/Media Temperature: 40° to 175°F (4° to 80 °C).
Flow Media: Filtered air.
Inlet Pressure: 5 to 150 psig (0.3 to 10 bar) .

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

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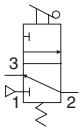
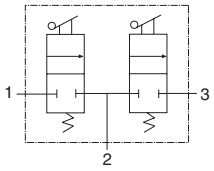
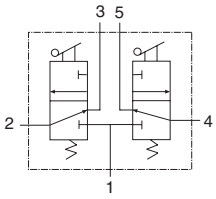


Single 3-Way

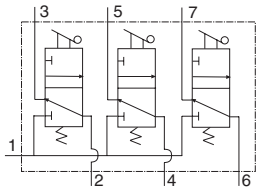
ROSS pendant control valves are a durable pneumatic solution that can be used anywhere manual control of devices is needed, such as an air hoist, air motor, or counterbalance cylinder. Ideal for use on or with material handling devices such as overhead cranes or air hoists, ROSS pendant control valves can withstand even the toughest environments.



Dual 2-Way



Dual 3-Way



Triple 3-Way

Single 3/2

The Single 3/2 pendant control valve may be used anywhere that requires manual 3/2 control, such as operating small single acting cylinders or pressurizing vacuum cups for quick release. Ideal for use on or with material handling devices. Spring-return rubber poppet internals provide dependable shifting, long life, and low cost.

Dual 2/2

Ideal for use on or with material handling devices. Spring-return rubber poppet internals provide dependable shifting, long life, and low cost.

Dual 3/2

Ideal for use on or with material handling devices. Twin Pacer® inserts ensure reliability, dirt tolerance, and easy maintenance. May be used as a pilot valve convertible to a dual 2/2 function.

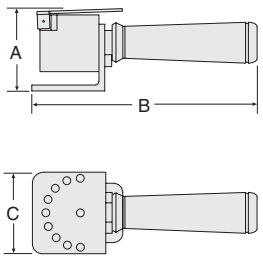
Triple 3/2

The Triple 3/2 pendant control valve may be used anywhere that three independant manual outputs are needed. Provides remote pilot signals to pressure controlled valves. Three Pacer® inserts ensure reliability and dirt tolerance.

C

C1

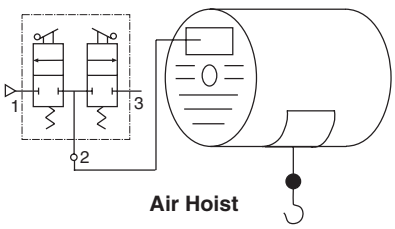
Model Description	Pipe Size	Valve Model Number*	C_v 1-2	C_v 2-3	Dimensions inches (mm) A	B	C	Weight lb (kg)
Single 3-Way; one lever, no handle	1/4	2025A2904	0.24	0.42	4.7 (120)	6.0 (170)	1.8 (46)	1.0 (0.5)
Single 3-Way; one lever/handle	1/4	3900A1111	0.24	0.42	4.7 (120)	7.2 (182)	1.8 (46)	1.7 (0.8)
Dual 2-Way high flow; two levers only	1/4	2025A2901	0.73	0.55	3.1 (78)	2.8 (71)	2.8 (70)	1.0 (0.5)
Dual 2-Way high flow; two levers/handle	1/4	3900A0378	0.73	0.55	3.1 (78)	7.2 (182)	2.8 (70)	1.7 (0.8)
Dual 3-Way; two levers only	1/8	2025A1900	0.24	0.42	2.1 (54)	2.8 (71)	2.5 (64)	0.9 (0.4)
Dual 3-Way; two levers/handle	1/8	3900A0379	0.24	0.42	2.9 (73)	7.2 (182)	2.8 (70)	1.6 (0.7)
Triple 3-Way; three levers only	1/4	2025A2902	0.24	0.42	2.8 (71)	2.8 (71)	3.8 (97)	1.6 (0.7)
Triple 3-Way; three levers/handle	1/4	3900A0407	0.24	0.42	2.8 (71)	7.2 (182)	3.8 (97)	2.3 (1.0)



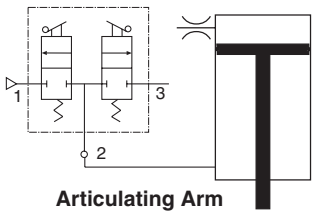
* NPT port threads.

Application Data

Dual 2/2 - High Flow

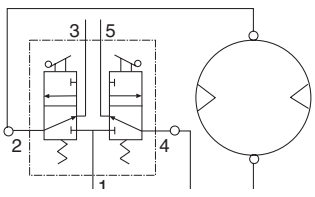


Air Hoist

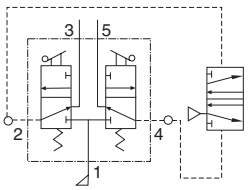


Articulating Arm

Dual 3/2



Bi-directional Air Motor



Pilot for Larger Double Pressure Controlled Valve

To convert a Dual 3/2 into a Dual 2/2:
Plug ports 3 and 5. Connect supply line to port 2. Port 1 becomes the outlet and port 4 becomes the exhaust port.

STANDARD SPECIFICATIONS (for valves on this page)**:**

Construction: Poppet.
Mounting Type: Line mounting.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 0 to 150 psig (0 to 10 bar).

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

C

ROSS CONTROLS®

VALVES FOR AIR FLOW CONTROL

Flow Control Valves

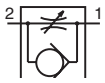
Check Valves

Shuttle Valves

Quick Exhaust Valves

VALVE TYPE	VALVE SERIES	AVAILABLE PORT SIZES										MAX. FLOW Cv	Page
		1/8	1/4	3/8	1/2	3/4	1	1¼	1½	2	2½		
Flow Control													
Low Profile	19	■	■	■	■							2.3	D1.3
High Capacity	19		■	■	■	■	■	■	■	■	■	50	D1.4
Low Profile High Capacity	19				■	■	■	■				22	D1.4
Right Angle	11	■	■	■	■							2.8	D1.5
Check													
Low Profile	19	■	■									0.5	D1.6
Mid Range	19		■	■	■							3.9	D1.6
High Capacity	19				■	■	■	■	■	■	■	50	D1.6
Shuttle													
Standard	19	■	■									0.8	D1.7
High Flow	19		■	■								3.0	D1.7
Quick Exhaust													
	18			■	■	■	■					7.2	D1.7

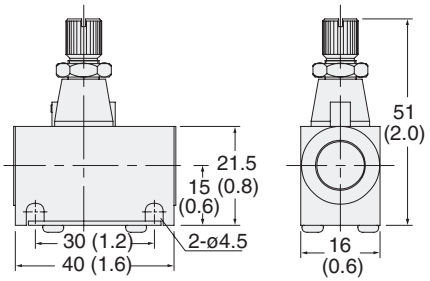
Low Profile Flow Control Valves with Slot Adjustment

Port Size	Valve Model Number*	Avg. CV (Fully Open)	Weight lb (kg)	
1/8	1968F1004	0.5	0.1 (0.1)	
1/4 OT	1968F2004	0.5	0.1 (0.1)	

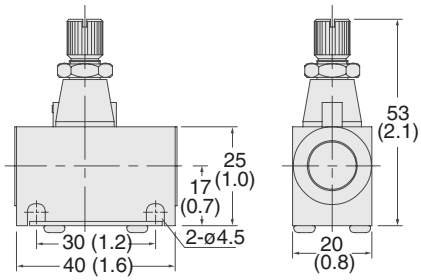
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D1968F1004.

Valve Dimensions – inches (mm)

Port Size 1/8



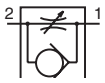
Port Size 1/4 OT
(Over Tap)



D

D1

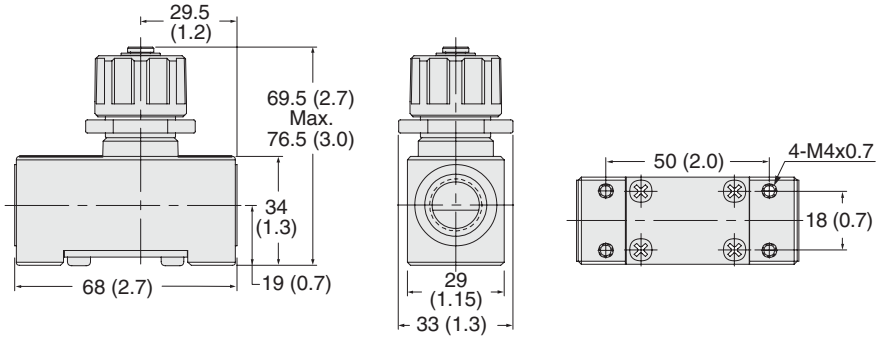
Low Profile Flow Control Valves with Knob Adjustment

Port Size	Valve Model Number*	Avg. CV (Fully Open)	Weight lb (kg)	
1/4	1968F2007	2.3	0.4 (0.2)	
3/8	1968F3007	2.3	0.4 (0.2)	
1/2	1968F4007	2.3	0.4 (0.2)	

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D1968F2007.

Valve Dimensions – inches (mm)

Port Sizes 1/4 thru 1/2



Operation:
To increase flow: Turn adjustment screw out.
To decrease flow: Turn adjustment screw in.
Flow Adjustment: From 0 to Maximum Flow.

Numbers of Slot/Knob Turns:
Port sizes 1/8 and 1/4 OT (Over Tap): 8.
Port sizes 1/4, 3/8 and 1/2: 10.

STANDARD SPECIFICATIONS (for valves on this page)**:**

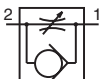
Ambient/Media Temperature: 41° to 140°F (5° to 60°C).
Flow Media: Filtered air.

Pressure Range:
Supply Pressure: 217 psi (14.9 bar).
Maximum Operating Pressure: 150 psi (10.3 bar).

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

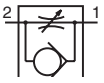
High Capacity Control Valves

Port Size	Body Size	Valve Model Number*	Avg. C_v (Fully Open)	Weight lb (kg)
1/4	3/8	1968B2007	2.3	0.5 (0.2)
3/8	3/8	1968B3007	2.6	0.5 (0.2)
1/2	3/8	1968B4017	2.6	0.5 (0.2)
1/2	3/4	1968B4007	7.5	0.8 (0.4)
3/4	3/4	1968B5007	8.3	0.8 (0.4)
1	3/4	1968B6017	8.3	0.8 (0.4)
1	1¼	1968B6007	17	2.2 (1.0)
1¼	1¼	1968B7007	22	2.2 (1.0)
1½	1¼	1968B8017	22	2.2 (1.0)
1½	2	1968B8007	50	4.3 (1.9)
2	2	1968B9007	50	4.3 (1.9)
2½	2	1968B9017	50	4.3 (1.9)



Low Profile High Capacity Control Valves

Port Size	Body Size	Valve Model Number*	Avg. C_v (Fully Open)	Weight lb (kg)
1/2	3/4	1968E4007	7.5	0.8 (0.4)
3/4	3/4	1968E5007	8.3	0.8 (0.4)
1	1¼	1968E6007	17	2.1 (1.0)
1¼	1¼	1968E7007	22	2.1 (1.0)

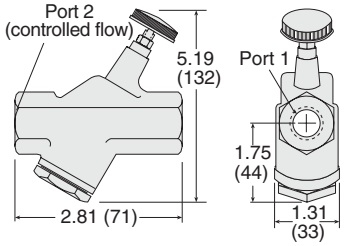


* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D1968B2007.

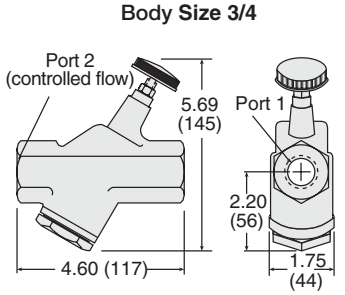
Valve Dimensions – inches (mm)

High Capacity Control Valves

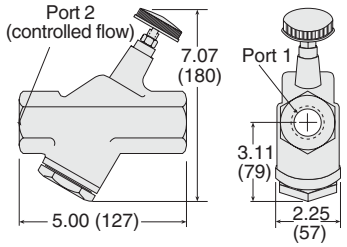
Body Size 3/8



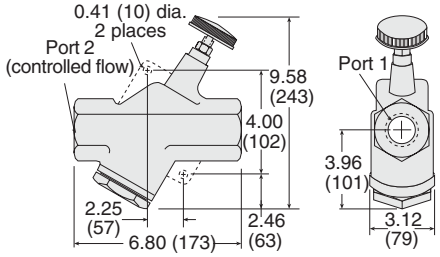
Body Size 3/4



Body Size 1¼

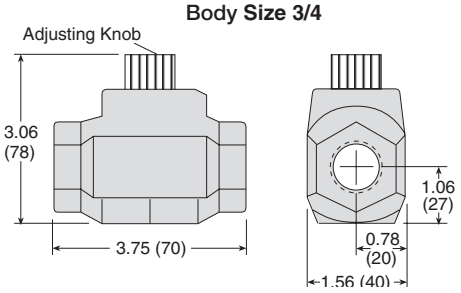


Body Size 2

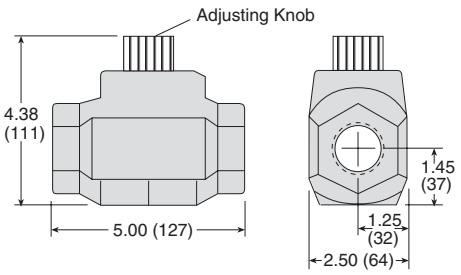


Low Profile High Capacity Control Valves

Body Size 3/4



Body Size 1¼



Operation: To increase flow: Turn adjustment screw out.
To decrease flow: Turn adjustment screw in.
Flow Adjustment: From 0 to Maximum Flow.

Numbers of Slot/Knob Turns: *Port sizes 1/4 and 3/8:* 14.
Port sizes 1/2, 3/4: 12.
Port sizes 1, 1¼: 24.
Port sizes 1½, 2½: 24.

STANDARD SPECIFICATIONS (for valves on this page)**:**

Construction: Poppet.
Mounting Type: Line mounting.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Pressure Range: 5 to 150 psig (0.3 to 10 bar).

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

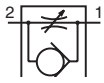
Online Version
Rev. 11/14/16

Right Angle Flow Control Valves with Slot Adjustment

Port Size	Valve Model Number*		Avg.C_v (Fully Open)	Weight lb (kg)	
	Threaded Inlet	Tube Fitting			
1/8	1968A1008	1968A1108#	0.3	0.06 (0.03)	
1/4	1968A2008	1968A2108	0.6	0.12 (0.05)	
3/8	1968A3008	1968A3108	1.9	0.20 (0.09)	
1/2	1968A4008	---	2.8	0.34 (0.15)	

* NPT threads. For BSPP threads add a "D" prefix to the model number, e.g., D1968A1008.
# These models have 1/8 threaded outlet, but with 1/4 inlet tube fittings.

Right Angle Flow Control Valves with Knob Adjustment

Port Size	Valve Model Number*		Avg.C_v (Fully Open)	Weight lb (kg)	
	Threaded Inlet	Tube Fitting			
1/8	1968A1018	1968A1118#	0.3	0.08 (0.04)	
1/4	1968A2018	1968A2118	0.6	0.14 (0.06)	
3/8	1968A3018	1968A3118	1.9	0.20 (0.09)	
1/2	1968A4018	---	2.8	0.34 (0.15)	

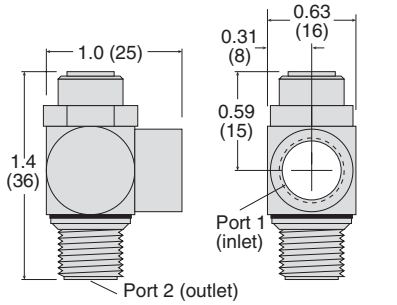
* NPT threads. For BSPP threads add a "D" prefix to the model number, e.g., D1968A1018.
# These models have 1/8 threaded outlet, but with 1/4 inlet tube fittings.

D

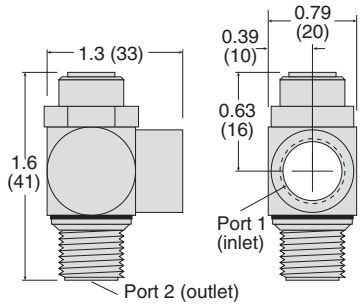
D1

Valve Dimensions – inches (mm)

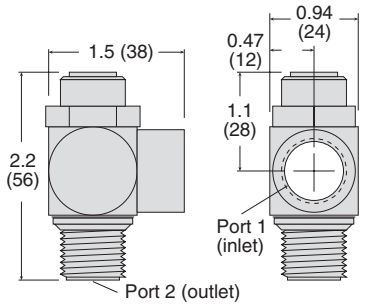
Port Size 1/8



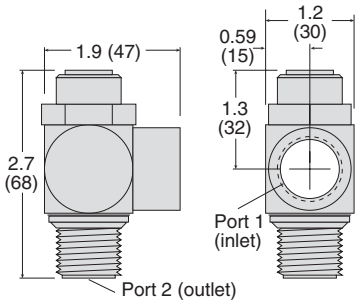
Port Size 1/4



Port Size 3/8



Port Size 1/2



Operation:
To increase flow: Turn adjustment screw out.
To decrease flow: Turn adjustment screw in.
Flow Adjustment: From 0 to Maximum Flow.

Numbers of Slot/Knob Turns: *Port sizes 1/4 and 3/8:* 14.
Port sizes 1/2, 3/4: 12.
Port sizes 1, 1¼: 24.

STANDARD SPECIFICATIONS (for valves on this page)**:**

Construction: Poppet.
Mounting Type: Line mounting.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Pressure Range: 5 to 150 psig (0.3 to 10 bar).

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Low Profile Check Valves

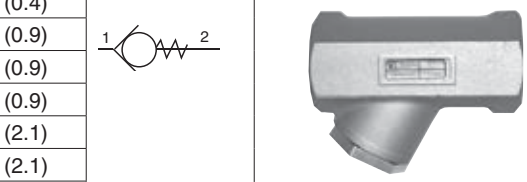
Port Size	Valve Model Number*	C_v	Weight lb (kg)
1/8	1968D1005	0.5	0.5 (0.2)
1/4	1968D2005	0.5	0.5 (0.2)

Mid Range Check Valves

Port Size	Valve Model Number*	C_v	Weight lb (kg)
1/4	1968D2001	2.9	0.5 (0.2)
3/8	1968D3001	3.7	0.5 (0.2)
1/2	1968D4001	3.9	0.5 (0.2)

High Capacity Check Valves

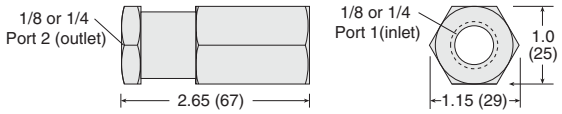
Port Size	Body Size	Valve Model Number*	C_v	Weight lb (kg)
1/2	3/4	1968A4107	5.2	0.9 (0.4)
3/4	3/4	1968A5107	8.6	0.9 (0.4)
1	3/4	1968A6117	8.3	0.9 (0.4)
1	1¼	1968A6107	17	2.0 (0.9)
1¼	1¼	1968A7107	22	2.0 (0.9)
1½	1¼	1968A8117	22	2.0 (0.9)
1½	2	1968A8107	50	4.7 (2.1)
2	2	1968A9107	50	4.7 (2.1)
2½	2	1968A9117	50	4.7 (2.1)



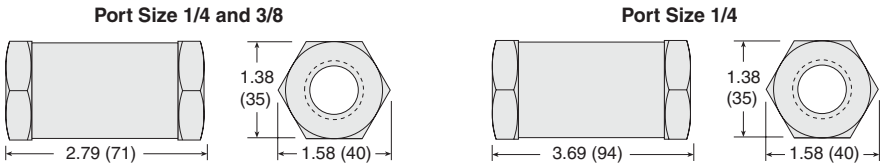
* NPT threads. For BSPP threads add a "D" prefix to the model number, e.g., D1968D2001.

Valve Dimensions – inches (mm)

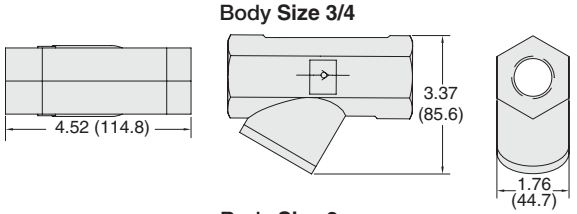
Low Profile Check Valves

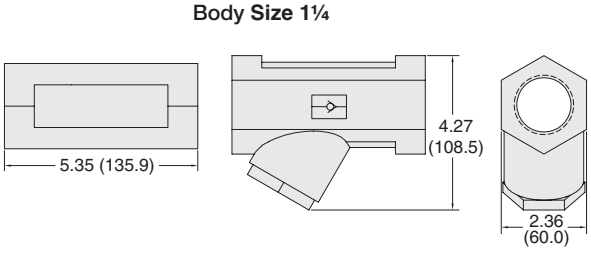


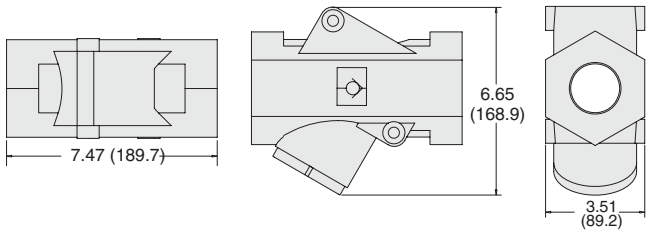
Mid Range Check Valves



High Capacity Check Valves







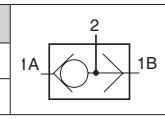
STANDARD SPECIFICATIONS (for valves on this page)**:**

Construction: Poppet.
Mounting Type: Line mounting.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 5 to 150 psig (0.3 to 10 bar).
Signal Pressure: Must be equal to or greater than inlet.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

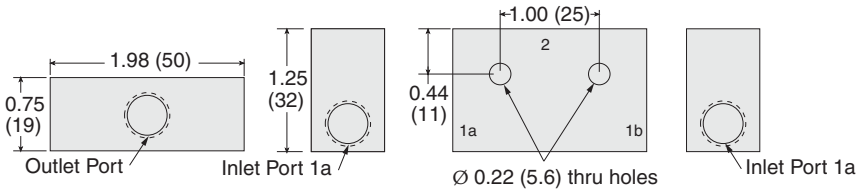
Online Version
Rev. 11/14/16

Standard Shuttle Valves

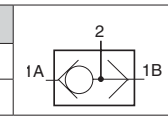
Port Size	Valve Model Number*	Avg. C_v 1-2	Weight lb (kg)	
1/8	1968E1006	0.8	0.15 (0.07)	
1/4	1968E2006	0.8	0.15 (0.07)	

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D1968E1006.

Valve Dimensions – inches (mm)

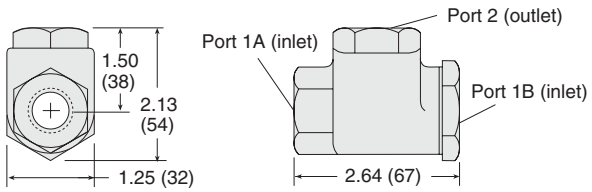


High Flow Shuttle Valves

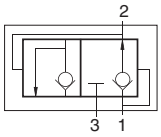
Port Size	Valve Model Number*	Avg. C_v 1-2	Weight lb (kg)	
1/4	1968D2003	2.0	0.8 (0.4)	
3/8	1968D3003	3.0	0.8 (0.4)	

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D1968E2003.

Valve Dimensions – inches (mm)



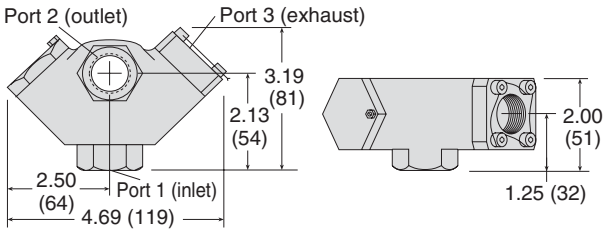
Quick Exhaust Valves

Port Size 1-2	Port Size 3	Valve Model Number*	Avg. C_v 1-2	Avg. C_v 2-3	Weight lb (kg)	
3/8	1/2	1868A3005	2.9	3.4	1.0 (0.5)	
1/2	1/2	1868A4005	2.9	3.4	1.0 (0.5)	
3/4	1	1868A5005	7.2	10	2.5 (1.1)	
1	1	1868A6005	7.2	10	2.5 (1.1)	

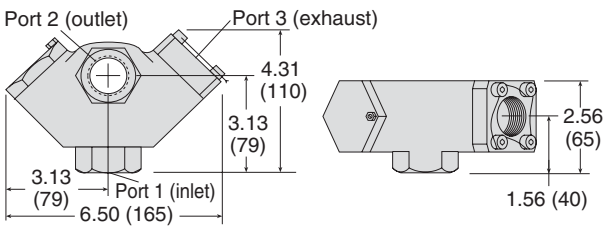
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D1868A3005.

Valve Dimensions – inches (mm)

Port Size 3/8 and 1/2



Port Size 3/4 and 1



STANDARD SPECIFICATIONS (for valves on this page)**:**

Construction: Poppet.
Mounting Type: Line mounting.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered air.
Pressure Range: 5 to 150 psig (0.3 to 10 bar).

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

D

ROSS®

ROSS CONTROLS®

FILTERS, PRESSURE REGULATORS, LUBRICATORS SILENCERS RECLASSIFIERS

Filters

Regulators

Integrated Filter/Regulators

Lubricators

Combinations Units

E

Contents

E

ROSS CONTROLS®

FILTERS

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FILTERS – KEY FEATURES

- Filters – 5- and 40-micron filtration levels
- Coalescing Filters – 0.3- and 0.01-micron filtration levels
- Oil Vapor Removal (Adsorbing) Filters – removes oil and hydrocarbon vapors
- Filter Drains – manual, automatic, internal float, and automatic external drains
- Modular and inline mounting options
- Metal and High Strength polycarbonate bowl options
- Several Differential Gauge options available

FILTER TYPE/SERIES	AVAILABLE PORT SIZES									MOUNTING		FLOW	OPTIONS				FILTRATION						Page
	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	2	INLINE	MODULAR	MAX FLOW (scfm)	POLYCARBONATE BOWL	METAL BOWL	AUTOMATIC DRAIN	MANUAL DRAIN	0.01 µm	0.3 µm	5 µm	20 µm	40 µm	ACTIVATED CARBON	
FILTERS																							
BANTAM	■	■									■	30	■	■	■	■			■				E1.3
MINIATURE	■	■								■		23	■	■	■	■			■				E1.4
MID-SIZE		■	■	■							■	75	■	■	■	■			■				E1.5
MD3™		■	■	■							■	92	■	■	■	■			■	■	■		E1.6
FULL-SIZE		■	■	■	■						■	155	■	■	■	■			■				E1.7
MD4™			■	■	■						■	205	■	■	■	■			■		■		E1.8
HIGH-CAPACITY					■	■	■	■	■	■		1000	■	■	■	■			■		■		E1.9 E1.11
COALESCING FILTERS																							
BANTAM	■	■									■	11	■	■	■	■	■	■					E1.12
MINIATURE	■	■								■		10	■	■	■	■	■	■					E1.13
MID-SIZE		■	■	■							■	100		■	■	■	■	■					E1.14
MD3™		■	■	■							■	125		■	■	■	■	■					E1.15
FULL-SIZE		■	■	■							■	100		■	■	■	■	■					E1.16
MD4™			■	■	■						■	158		■	■	■	■	■					E1.17
HIGH-CAPACITY					■	■	■	■	■	■		840		■	■	■	■	■					E1.18- E1.22
OIL VAPOR REMOVAL (ADSORBING) FILTERS																							
MD3™		■	■	■							■	125	■	■								■	E1.23
MD4™			■	■	■						■	165	■	■								■	E1.24
CLEAN AIR PACKAGES																							
MD3™		■	■	■							■	125	■	■	■	■	■	■	■			■	E1.25 - E1.26
MD4™			■	■	■						■	158	■	■	■	■	■	■	■			■	E1.27 -E1.28
INLINE SILENCERS / RECLASSIFIERS																							
				■	■	■				■													E1.29
DRIP LEG DRAINS																							
					■	■	■	■	■	■				■	■	■							E1.30

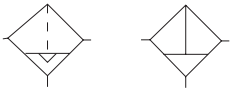
Port Sizes: 1/8 to 1/4 – Flow to 30 scfm

Port Size	Model Numbers			
	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
With THREADED PORTS *				
1/8	5B01B0100	5B01B0200	5B01B0300	5B01B0400
1/4*	5B02B0100	5B02B0200	5B02B0300	5B02B0400
With Quick-Connect TUBE FITTINGS				
1/4	5B03B0100	5B03B0200	5B03B0300	5B03B0400
3/8	5B04B0100	5B04B0200	5B04B0300	5B04B0400
4mm	5B05B0100	5B05B0200	5B05B0300	5B05B0400
6mm	5B06B0100	5B06B0200	5B06B0300	5B06B0400
8mm	5B07B0100	5B07B0200	5B07B0300	5B07B0400
10mm	5B08B0100	5B08B0200	5B08B0300	5B08B0400

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5B01B0100.

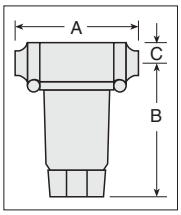
ISO Symbols

Filter



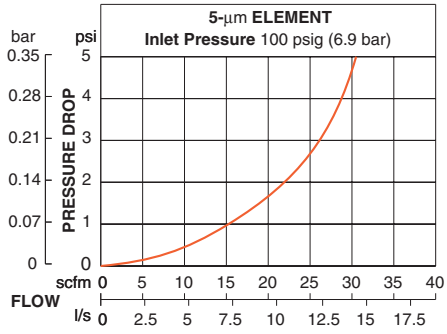
Port Size	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
		A	B**	C	Depth	
No Port	2-oz (60-ml)	1.7 (43)	3.9 (99)	0.5 (13)	1.8 (45)	0.27 (0.12)
1/8, 1/4	2-oz (60-ml)	3.0 (76)	3.9 (99)	0.5 (13)	1.8 (45)	0.49 (0.22)
Models below have quick-connect tube fittings.						
1/4	2-oz (60-ml)	3.4 (86)	3.9 (99)	0.5 (13)	1.8 (45)	0.47 (0.21)
3/8	2-oz (60-ml)	3.9 (99)	3.9 (99)	0.5 (13)	1.8 (45)	0.47 (0.21)
4 mm	2-oz (60-ml)	3.4 (86)	3.9 (99)	0.5 (13)	1.8 (45)	0.47 (0.21)
6 mm	2-oz (60-ml)	3.4 (86)	3.9 (99)	0.5 (13)	1.8 (45)	0.47 (0.21)
8 mm	2-oz (60-ml)	3.4 (86)	3.9 (99)	0.5 (13)	1.8 (45)	0.47 (0.21)
10 mm	2-oz (60-ml)	3.9 (99)	3.9 (99)	0.5 (13)	1.8 (45)	0.47 (0.21)

** Dimension for polycarbonate bowl; metal bowl is 3.8 (97).



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
5-µm	Polyethylene	933K77

FLOW CHART



Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Fiber.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 150°F (4° to 66°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: Up to 150 psig (up to 10 bar).
Metal bowl: Up to 200 psig (up to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Filter Element: 5-micron rated polyethylene.
Body: Acetal.
Bowl: Polycarbonate or aluminum.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

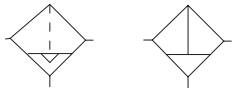
Port Sizes: 1/8 & 1/4 – Flow to 23 scfm

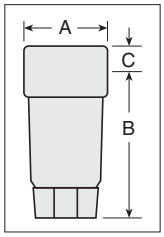
Port Size	Model Numbers*			
	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
1/8	5021B1010	5022B1010	5011B1010	5012B1010
1/4	5021B2010	5022B2010	5011B2010	5012B2010

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5021B1010.

Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
1/8, 1/4	Polycarbonate	2-oz (60-ml)	1.6 (41)	3.9 (99)	0.4 (9.5)	1.6 (41)	0.33 (0.15)
	Aluminum	2-oz (60-ml)	1.6 (41)	4.3 (109)	0.4 (9.5)	1.6 (41)	0.35 (0.16)

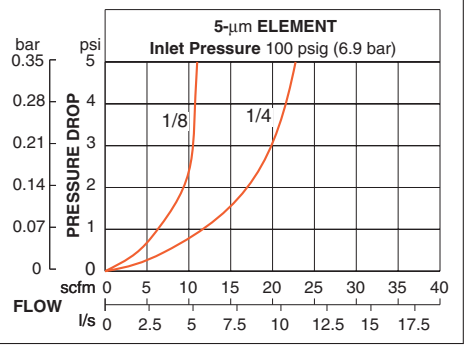
ISO Symbols
Filter





REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
5-µm	Polyethylene	933K77

FLOW CHART



Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Fiber.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 150°F (4° to 66°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: Up to 150 psig (up to 10 bar).
Metal bowl: Up to 200 psig (up to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Filter Element: 5-micron rated polyethylene.
Body: Aluminum.
Bowl: Polycarbonate or aluminum.
Seals: Nitrile.

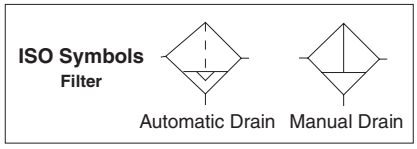
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

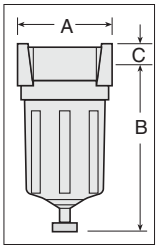
Port Sizes: 1/4, 3/8 & 1/2 – Flow to 75 scfm

Port Size	Model Numbers*			
	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
1/4	5021B2007	5022B2007	5011B2007	5012B2007
3/8	5021B3027	5022B3027	5011B3026	5012B3026
1/2	5021B4007	5022B4007	5011B4007	5012B4007

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5021B2007.

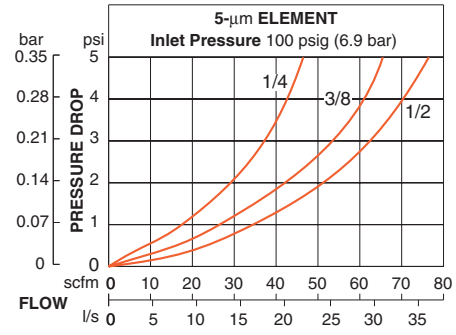
Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
1/4, 3/8, 1/2	Polycarbonate	4-oz (120-ml)	2.7 (67)	4.8 (122)	0.6 (16)	2.4 (60)	1.13 (0.51)
	Zinc	4-oz (120-ml)	2.7 (67)	4.9 (123)	0.6 (16)	2.4 (60)	1.50 (0.68)





REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
5-µm	Polyethylene	936K77

FLOW CHART



Options: Internal Float Drain, consult ROSS.
Accessories ordered separately, refer to page E6.3-4, E6.7.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Fiber.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 79°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: Up to 150 psig (up to 10 bar).
Metal bowl: Up to 200 psig (up to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Filter Element: 5-micron rated polyethylene.
Body: Zinc.
Bowl: Polycarbonate bowl with zinc shatterguard, or zinc bowl.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

E1

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 92 scfm

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

MD3	50P	A	M	C	2	2	A

BOWL TYPE

Polycarbonate Bowl 5.1-oz (151-ml)	**50P**
Metal Bowl 6-oz (177-ml)	50M

FILTER ELEMENT TYPE

40 µm sintered bronze	**A**
5 µm polyethylene	B
5 µm sintered bronze	E
20 µm sintered bronze	F

BOWL DRAIN

Manual Drain	**M**
Float Drain	F
Less Drain Fitting (1/4 NPT female instead)	L

PIPE SIZE

1/4 NPTF	**2**
3/8 NPTF	3
1/2 NPTF	4
1/4 BSPP	B
3/8 BSPP	C
1/2 BSPP	D

CAP COLOR

Gold	**2**
Gray	G
Yellow	Y
Red	R
Blue	B

DIFFERENTIAL PRESSURE GAUGE

No Gauge (without gauge port)	**A**
Small Slide Gauge	S

ISO Symbols

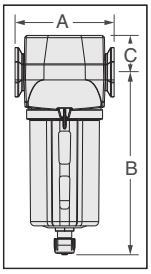
Filter

Automatic Drain

Manual Drain

Port Size	Bowl Type	Dimensions inches (mm) A	B*	C	Depth	Weight lb (kg)
1/4, 3/8, 1/2	Polycarbonate	3.0 (76.2)	5.54 (140.6)	1.12 (28.3)	2.51 (63.8)	1.29 (0.59)
	Aluminum	5.0 (127)	6.42 (163.1)	1.12 (28.3)	2.76 (70.1)	1.41 (0.64)

* With small differential gauge, add 1.21 (31) to dimension C.
Bowl removal clearance: add 3.1 (79).



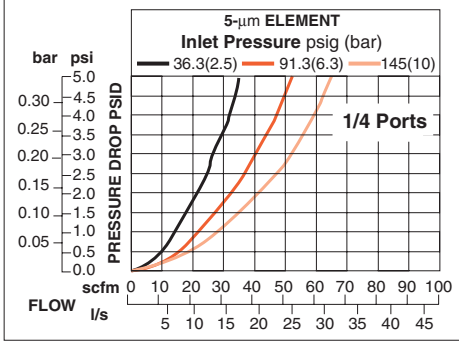
REPLACEMENT FILTER ELEMENTS*

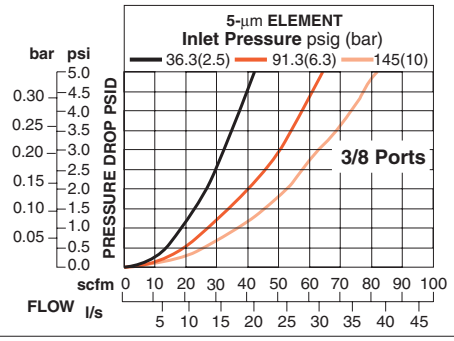
Element Rating	Element Material	Part Number
5-µm	Polyethylene	R-A60F-03PE5
5-µm	Sintered Bronze	R-A60F-03E5
20-µm	Sintered Bronze	R-A60F-03E4
40-µm	Sintered Bronze	R-A60F-03E3

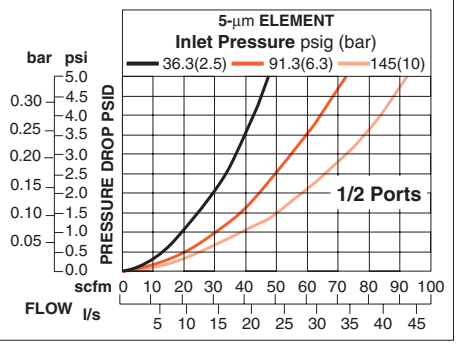
* For polycarbonate and metal bowl types.

E

FLOW CHARTS







Options: Differential Pressure Gauge, for additional information refer to page E6.6.
Options: External Bowl Drains, refer to page E6.7.
Accessories ordered separately, refer to page E6.3-5.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Sintered or fiber.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: 30 to 150 psig (2 to 10 bar).
Metal bowl: 30 to 200 psig (2 to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 250 psig (0 to 17 bar).
Filter Element: 5-micron polyethylene, or 5-, 20-, 40-µm sintered bronze.
Body: Die-cast zinc.
Bowl: Polycarbonate bowl with nylon shatterguard, or aluminum bowl with clear nylon sight glass.
Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Online Version
Rev. 11/14/16

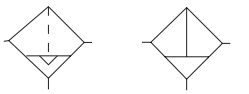
Port Sizes: 1/4, 3/8, 1/2 & 3/4 – Flow to 155 scfm

Port Size	Model Numbers*			
	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
1/4	5021B2008	5022B2005	5011B2008	5012B2006
3/8	5021B3008	5022B3005	5011B3008	5012B3006
1/2	5021B4008	5022B4005	5011B4008	5012B4006
3/4	5021B5018	5022B5015	5011B5018	5012B5016

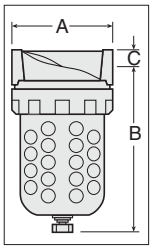
* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5021B2008.

Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
1/4, 3/8, 1/2, 3/4	Polycarbonate	8-oz (240-ml)	3.5 (89)	5.8 (146)	0.6 (16)	3.5 (89)	1.93 (0.88)
	Zinc	8-oz (240-ml)	3.5 (89)	6.4 (163)	0.6 (16)	3.5 (89)	2.90 (1.32)

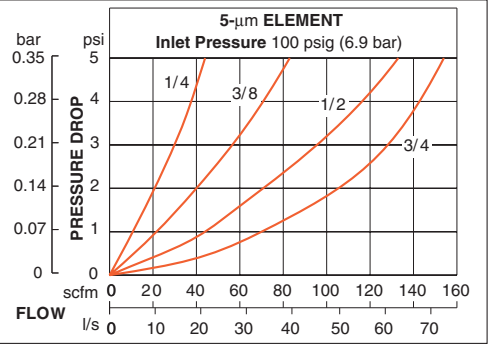
ISO Symbols
Filter



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
5-µm	Polyethylene	939K77



FLOW CHART



Options: Automatic External Drain, refer to page E6.7.
Internal Float Drain, consult ROSS.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Fiber.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: Up to 150 psig (up to 10 bar).
Metal bowl: Up to 200 psig (up to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Filter Element: 5-micron rated polyethylene.
Body: Zinc.
Bowl: Polycarbonate bowl with steel shatterguard, or zinc bowl with clear nylon sight glass.
Bowl Ring: Aluminum.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

E1

Port Sizes: 3/8, 1/2 & 3/4 – Flow to 205 scfm

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

MD4	50P	B	A	B	5	2	L

BOWL TYPE

Polycarbonate Bowl 9-oz (266-ml)	**50P**
Metal Bowl 9-oz (266-ml)	50M

FILTER ELEMENT TYPE

40-µm sintered bronze	A
5-µm polyethylene	**B**

BOWL DRAIN

Automatic Drain	**A**
Manual Drain	M
Less Drain Fitting - 1/4 NPT female instead	L
Internal Float Drain	F

PIPE SIZE

3/8 NPTF	3
1/2 NPTF	4
3/4 NPTF	**5**
3/8 BSPP	C
1/2 BSPP	D
3/4 BSPP	E

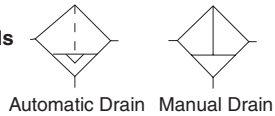
CAP COLOR

Gold	**2**
Gray	G
Yellow	Y
Red	R
Blue	B

DIFFERENTIAL PRESSURE GAUGE

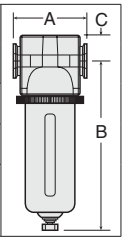
No Gauge (without gauge port)	A
Large Dual Face Gauge	**L**
Small Slide Gauge	S
Large Dual Face Gauge with Normally Open Reed Switch	E
Large Dual Face Gauge with Normally Closed Reed Switch	C

ISO Symbols
Filter



Port Size	Bowl Type	Dimensions inches (mm) A	B**	C	Depth	Weight lb (kg)
3/8, 1/2, 3/4	Polycarbonate	3.0 (76.2)	7.7 (195)	1.1 (28)	2.9 (73)	2.13 (0.97)
	Aluminum	3.5 (76.2)	7.6 (193)	1.1 (28)	3.1 (79)	2.13 (0.97)

**With small differential gauge, add 1.21 (31) to dimension C.
Bowl removal clearance: add 3.1 (79).

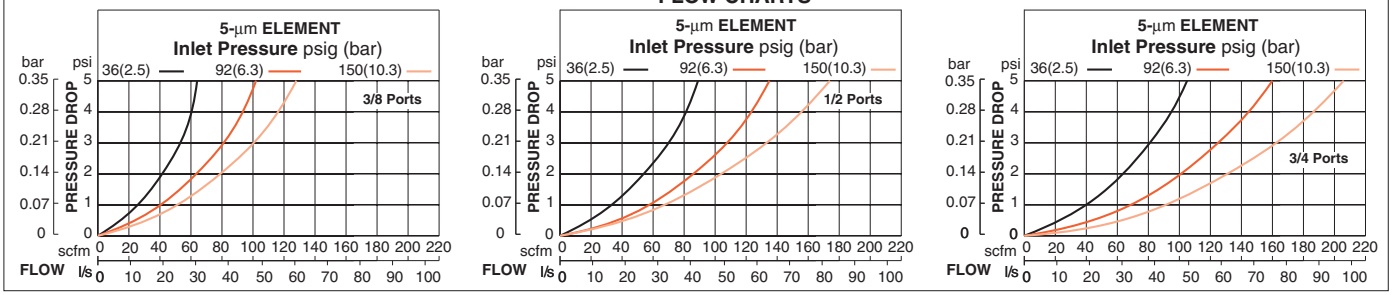


REPLACEMENT FILTER ELEMENTS

Element Rating	Element Material	Element Number
5-µm	Polyethylene	R-A115-106PE5
40-µm	Sintered Bronze	R-A115-106PE3

E

FLOW CHARTS



Options: Differential Pressure Gauge, for additional information refer to page E6.6.
Options: External Bowl Drains, refer to page E6.7.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Sintered or fiber.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: Up to 150 psig (up to 10 bar).
Metal bowl: Up to 200 psig (up to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Filter Element: 5-micron rated polyethylene, or 40-micron rated sintered bronze.
Body: Die-cast zinc.
Bowl: Polycarbonate bowl with steel shatterguard, or aluminum bowl with clear nylon sight glass.
Bowl Ring: Nylon.
Seals: Nitrile

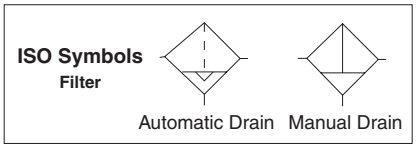
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

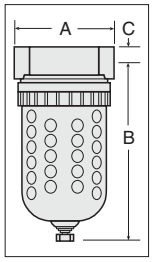
Port Sizes: 3/4 & 1 – Flow to 275 scfm

Port Size	Model Numbers*			
	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
3/4	5021B5008	5022B5005	5011B5008	5012B5006
1	5021B6008	5022B6005	5011B6008	5012B6006

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5021B5008.

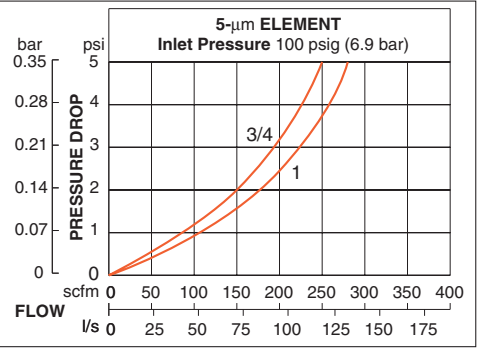
Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
3/4	Polycarbonate	16-oz (480-ml)	4.5 (114)	8.0 (203)	0.8 (21)	4.2 (106)	2.44 (1.11
1	Aluminum	16-oz (480-ml)	4.5 (114)	8.3 (210)	0.8 (21)	4.2 (106)	3.25 (1.48)





REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
5-µm	Polyethylene	1010K77

FLOW CHART



Options: Automatic External Drain, refer to page E6.7.
Internal float drain , consult ROSS.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Fiber.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: Up to 150 psig (up to 10 bar).
Metal bowl: Up to 200 psig (up to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Filter Element: 5-micron rated polyethylene.
Body: Aluminum.
Bowl: Polycarbonate bowl with steel shatterguard, or aluminum bowl with clear nylon sight glass.
Bowl Ring: Aluminum.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

E1

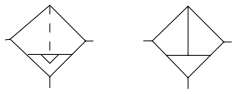
Port Sizes: 1¼ & 1½ – Flow to 660 scfm

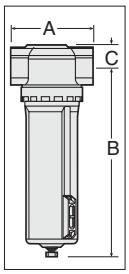
Port Size	Filter Element Rating	Model Numbers*	
		Automatic Drain	Manual Drain
		Metal Bowl	Metal Bowl
1¼	5-µm	5022B7019	5012B7019
	40-µm	5X00B7051	5X00B7052
1½	5-µm	5022B8019	5012B8019
	40-µm	5X00B8037	5X00B8051

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5022B7019.

Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
1¼	Aluminum	35-oz (1000-ml)	5.5 (140)	10.7 (271)	1.4(36)	4.2 (106)	1.93 (0.88)
1½	Aluminum	35-oz (1000-ml)	5.5 (140)	10.7 (271)	1.4(36)	4.2 (106)	1.93 (0.88)

ISO Symbols
Filter

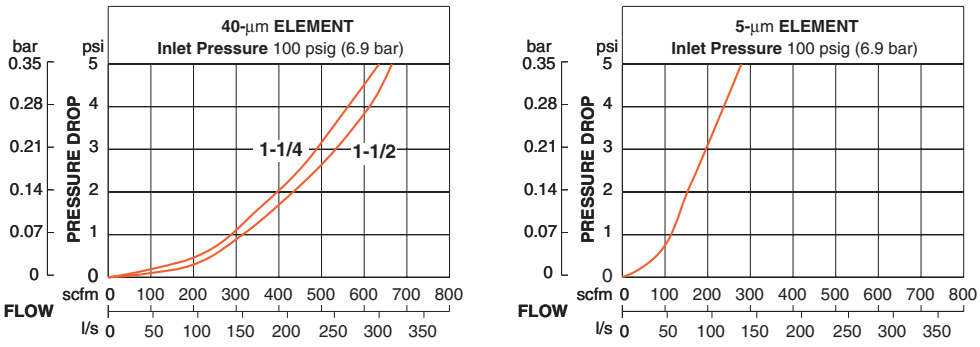




REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
5-µm	Sintered Bronze	1656K77
40-µm	Sintered Bronze	R-A114-106E3

E

FLOW CHARTS



Options: External Automatic Drain, refer to page E6.7.
Internal float drain, consult ROSS.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Sintered.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure:
Automatic drain model: Up to 200 psig (up to 14 bar).
Manual drain model: 0 to 200 psig (0 to 14 bar).

Filter Element: 40-micron rated or 5-micron rated sintered bronze.
Body: Aluminum.
Bowl: Aluminum bowl with clear nylon sight glass.
Bowl Ring: Aluminum.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

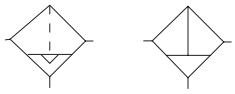
Port Sizes: 1¼, 1½ & 2 – Flow to 1000 scfm

Port Size	Filter Element Rating	Model Numbers*	
		Internal Float Drain	Manual Drain
1¼	5-µm	5022B7018	5012B7018
1¼	40-µm	5X00B7025	5X00B7054
1½	5-µm	5022B8018	5012B8018
1½	40-µm	5X00B8018	5X00B8019
2	5-µm	5022B9018	5012B9018
2	40-µm	5X00B9004	5X00B9003

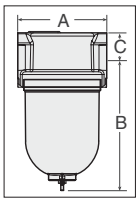
* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5022B7018.

Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
1¼, 1½, 2	Aluminum	123-oz (3700-ml)	8.1 (204)	12.0 (305)	2.4 (60.3)	8.0 (203.2)	14.3 (6.59)

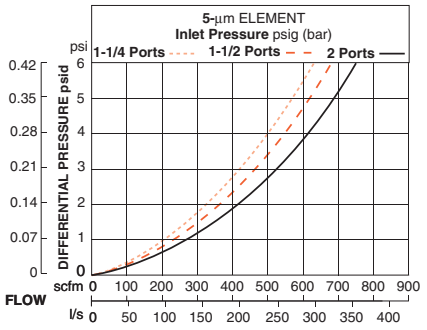
ISO Symbols
Filter

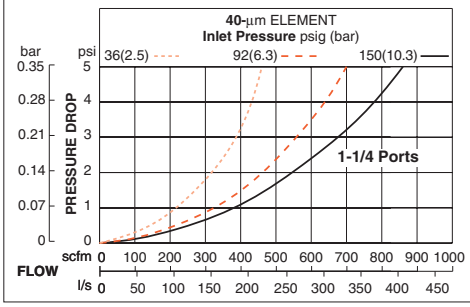


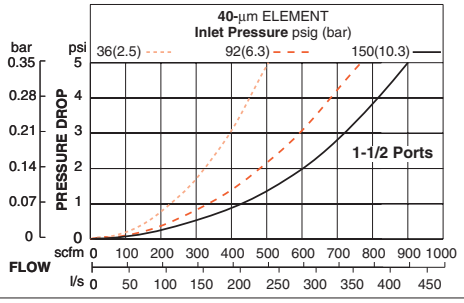
REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
5-µm	Sintered Bronze	942K77
40-µm	Sintered Bronze	944K77

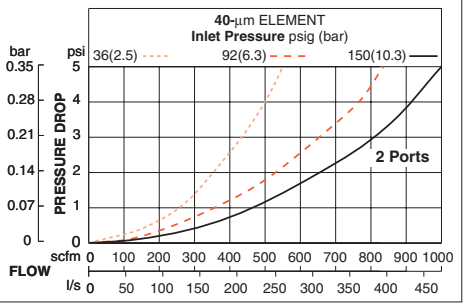


FLOW CHARTS









Options: External Automatic Drain, refer to page E6.7.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Sintered or fiber.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure:
Internal float drain model: 30 to 200 psig (2.1 to 14 bar).
Manual drain model: 0 to 200 psig (0 to 14 bar).

Filter Element: 40-micron rated or 5-micron rated sintered bronze.
Body: Aluminum.
Bowl: Aluminum.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

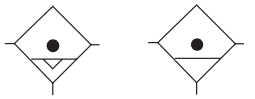
E1

Port Sizes: 1/8 & 1/4 – Flow to 11 scfm

Port Size	Model Numbers			
	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
***With THREADED PORTS** *				
1/8	5B01B0700	5B01B0800	5B01B0500	5B01B0600
1/4	5B02B0700	5B02B0800	5B02B0500	5B02B0600
With Quick-Connect TUBE FITTINGS				
1/4	5B03B0700	5B03B0800	5B03B0500	5B03B0600
3/8	5B04B0700	5B04B0800	5B04B0500	5B04B0600
4mm	5B05B0700	5B05B0800	5B05B0500	5B05B0600
6mm	5B06B0700	5B06B0800	5B06B0500	5B06B0600
8mm	5B07B0700	5B07B0800	5B07B0500	5B07B0600
10mm	5B08B0700	5B08B0800	5B08B0500	5B08B0600

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5B01B0700. Models include 0.3-micron rated filter element.

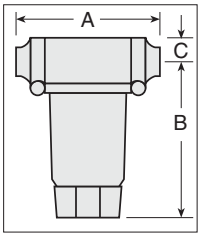
ISO Symbols
Coalescing Filter



Automatic Drain Manual Drain

Port Size	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
		A	B**	C	Depth	
No Ports	2-oz (60-ml)	1.7 (43)	3.9 (99)	0.5 (13)	1.8 (45)	0.27 (0.12)
1/8, 1/4	2-oz (60-ml)	3.0 (76)	3.9 (99)	0.5 (13)	1.8 (45)	0.49 (0.22)
Models below have quick-connect tube fittings.						
1/4	2-oz (60-ml)	3.4 (86)	3.9 (99)	0.5 (13)	1.8 (45)	0.47 (0.21)
3/8	2-oz (60-ml)	3.9 (99)	3.9 (99)	0.5 (13)	1.8 (45)	0.47 (0.21)
4 mm	2-oz (60-ml)	3.4 (86)	3.9 (99)	0.5 (13)	1.8 (45)	0.47 (0.21)
6 mm	2-oz (60-ml)	3.4 (86)	3.9 (99)	0.5 (13)	1.8 (45)	0.47 (0.21)
8 mm	2-oz (60-ml)	3.4 (86)	3.9 (99)	0.5 (13)	1.8 (45)	0.47 (0.21)
10 mm	2-oz (60-ml)	3.9 (99)	3.9 (99)	0.5 (13)	1.8 (45)	0.47 (0.21)

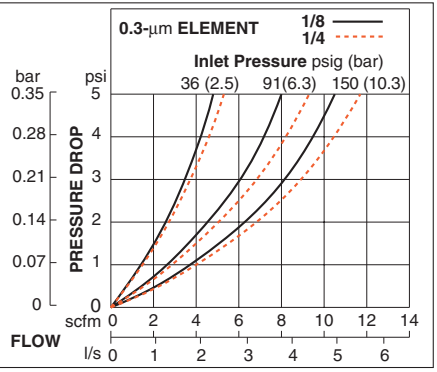
** Dimension for polycarbonate bowl; aluminum bowl is 3.8 (97).



E

REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
0.3-µm	Borosilicate-glass-fiber	945K77
0.01-µm	Borosilicate-glass-fiber	R-A-10F-16E8

FLOW CHART



Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Fiber.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 150°F (4° to 66°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: Up to 150 psig (up to 10 bar).
Metal bowl: Up to 200 psig (up to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Filter Element: 0.3-micron rated, or 0.01-micron rated borosilicate-glass-fiber element.
Body: Acetal.
Bowl: Polycarbonate or aluminum.
Seals: Nitrile.

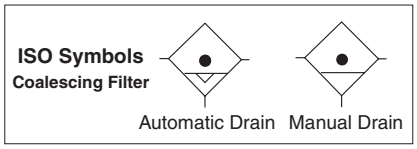
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

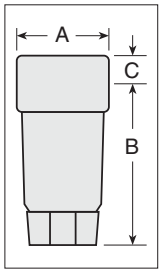
Port Sizes: 1/8 & 1/4 – Flow to 10 scfm

Port Size	Model Numbers*			
	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
1/8	5031B1128	5032B1118	5031B1028	5032B1028
1/4	5031B2128	5032B2128	5031B2028	5032B2028

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5031B1128. Models include 0.3-micron rated filter element.

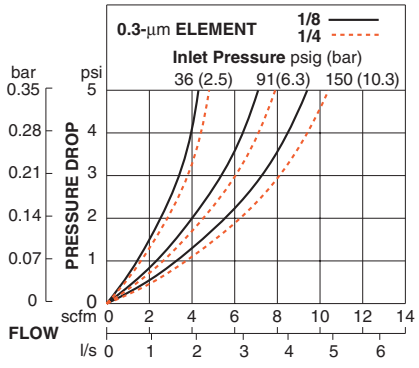
Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
1/8, 1/4	Polycarbonate	2-oz (60-ml)	1.6 (41)	3.6 (92)	0.4 (9.5)	1.6 (41)	0.33 (0.15)
1/8, 1/4	Aluminum	2-oz (60-ml)	1.6 (41)	4.3 (109)	0.4 (9.5)	1.6 (41)	0.35 (0.16)





REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
0.3-µm	Borosilicate-glass-fiber	945K77
0.01-µm	Borosilicate-glass-fiber	R-A-10F-16E8

FLOW CHART



Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Fiber.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 150°F (4° to 66°C)
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: Up to 150 psig (up to 10 bar).
Metal bowl: Up to 200 psig (up to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar)
Filter Element: 0.3-micron rated or 0.01-micron rated borosilicate-glass-fiber coalescing element.
Body: Aluminum.
Bowl: Polycarbonate or aluminum.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

E1

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 85 scfm

Port Size	Filter Element Rating	Model Numbers*			
		Automatic Drain		Manual Drain	
		Metal Bowl	Extended Metal Bowl	Metal Bowl	Extended Metal Bowl
1/4	0.3-µm	5032B2138	5032B2148	5032B2038	5032B2048
	0.01-µm	5032B2239	5032B2249	5032B2238	5032B2248
3/8	0.3-µm	5032B3138	5032B3148	5032B3038	5032B3048
	0.01-µm	5032B3239	5032B3249	5032B3238	5032B3248
1/2	0.3-µm	5032B4138	5032B4148	5032B4038	5032B4048
	0.01-µm	5032B4239	5032B4249	5032B4238	5032B4248

*NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5032B2138.
Models include 0.3-micron rated filter element.

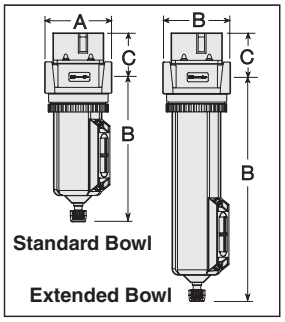
Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
1/4, 3/8, 1/2	Standard	6-oz (180-ml)	2.7 (67)	6.5 (165)	1.8 (45)	2.4 (60)	1.75 (0.80)
1/4, 3/8, 1/2	Extended	10-oz (300-ml)	2.7 (67)	9.5 (241)	1.8 (45)	2.4 (60)	2.00 (0.91)

ISO Symbols
Coalescing Filter

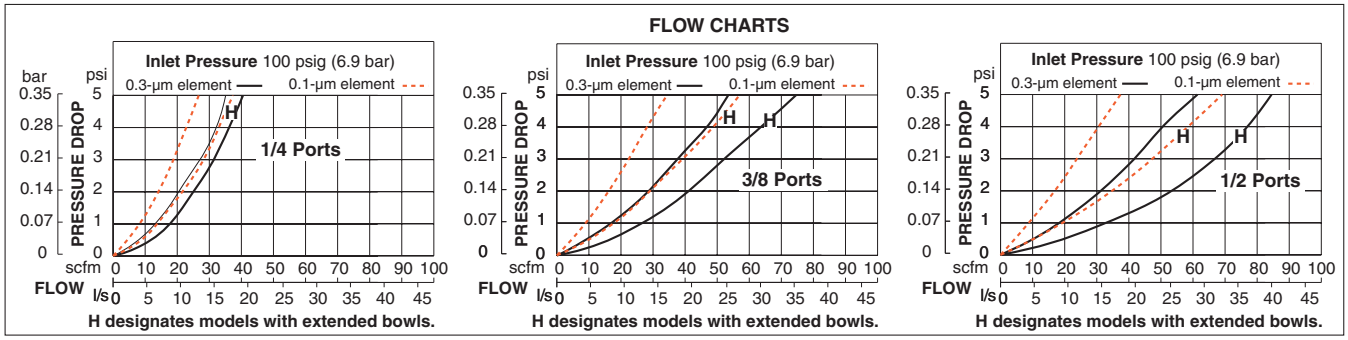
Automatic Drain Manual Drain

E

REPLACEMENT FILTER ELEMENTS			
Element Rating	Bowl Type	Element Material	Part Number
0.3-µm	Standard	Borosilicate-glass-fiber	R-A60F-29
0.3-µm	Extended	Borosilicate-glass-fiber	R-A60F-32
0.01-µm	Standard	Borosilicate-glass-fiber	R-A60F-29E8
0.01-µm	Extended	Borosilicate-glass-fiber	R-A60F-32E8



FLOW CHARTS



Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Fiber.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure:
Automatic drain model: Up to 150 psig (up to 10 bar).
Manual drain model: 0 to 150 psig (0 to 10 bar).

Filter Element: 0.3-micron rated or 0.01-micron rated borosilicate-glass-fiber coalescing element.
Body: Zinc.
Bowl: Aluminum bowl with clear nylon sight glass, or extended aluminum bowl with clear nylon sight glass.
Bowl Ring: Nylon.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 125 scfm

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

MD3 | 50P | C | M | C | 4 | 2 | A

BOWL TYPE

Polycarbonate Bowl 5.1-oz (151-ml)	**50P**
Metal Bowl 6-oz (177-ml)	50M
Extended Metal Bowl 10-oz (295-ml)	50E

FILTER ELEMENT TYPE

0.3 µm Borosilicate glass	**C**
0.01 µm Borosilicate glass	D

BOWL DRAIN

Manual Drain	**M**
Float Drain	F
Less Drain Fitting (1/4 NPT female instead)	L

PIPE SIZE

1/4 NPTF	**2**
3/8 NPTF	3
1/2 NPTF	4
1/4 BSPP	B
3/8 BSPP	C
1/2 BSPP	D

CAP COLOR

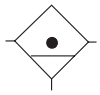
Gold	**2**
Gray	G
Yellow	Y
Red	R
Blue	B

DIFFERENTIAL PRESSURE GAUGE

No Gauge (without gauge port)	**A**
Small Slide Gauge	S

ISO Symbols
Coalescing Filter

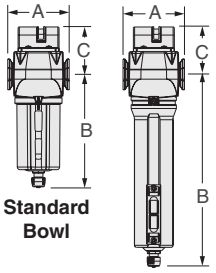
Automatic Drain



Manual Drain

Port Size	Bowl Type	Dimensions inches (mm) A	B*	C	Depth	Weight lb (kg)
1/4, 3/8, 1/2	Polycarbonate	3.0 (76.2)	5.54 (140.6)	2.33 (59.3)	2.51 (63.8)	1.30 (0.59)
	Aluminum	3.0 (76.2)	6.42 (163.1)	2.33 (59.3)	2.76 (70.1)	1.41 (0.64)
	Extended Aluminum	3.0 (76.2)	9.51 (241.6)	2.33 (59.3)	2.76 (70.1)	1.54 (0.70)

* Bowl removal clearance: add 3.1 (79). Extended Bowl removal clearance: add 6.1 (155).



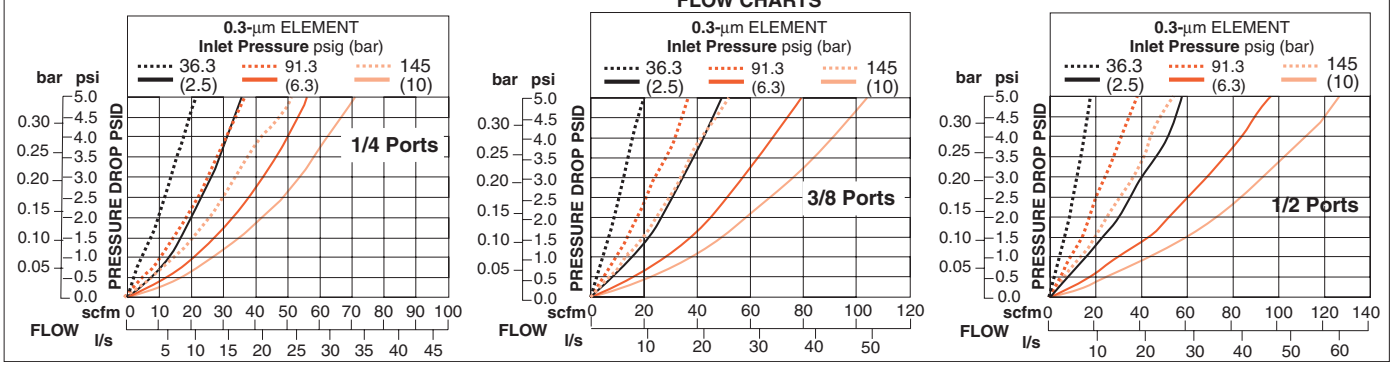
Standard Bowl

Extended Metal Bowl

REPLACEMENT FILTER ELEMENTS

Element Rating	Bowl Type	Part Number	Element Rating	Bowl Type	Part Number
0.3-µm	Polycarbonate	R-A60F-23	0.01-µm	Polycarbonate	R-A60F-23E8
	Metal	R-A60F-29		Metal	R-A60F-29E8
	Extended Metal	R-A60F-32		Extended Metal	R-A60F-32E8

FLOW CHARTS



Options: External Bowl Drains, for additional information refer to page E6.7.
Accessories ordered separately, refer to page E6.3-5.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Fiber.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: 30 to 150 psig (2 to 10 bar).
Metal bowl: 30 to 200 psig (2 to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 250 psig (0 to 17 bar).
Filter Element: 0.3-micron rated or 0.01-micron rated borosilicate-glass-fiber coalescing element.
Body: Die-cast zinc.
Seals: Nitrile.
Bowl: Polycarbonate bowl with nylon shatterguard, or aluminum bowl with clear nylon sight glass.

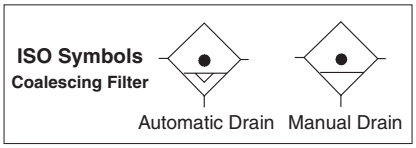
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

E1

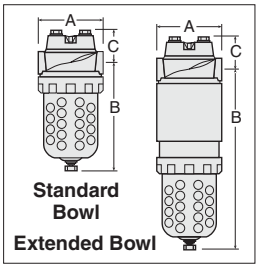
Port Sizes: 1/4, 3/8 & 1/2 – Flow to 100 scfm

Port Size	Bowl Type	Filter Element Rating	Model Numbers*			
			Automatic Drain		Manual Drain	
			Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
1/4	Standard	0.3-µm	5031B2108	5032B2118	5031B2008	5032B2018
		0.01-µm	5031B2209	5032B2219	5031B2208	5032B2218
3/8	Standard	0.3-µm	5031B3108	5032B3118	5031B3008	5032B3018
		0.01-µm	5031B3209	5032B3219	5031B3208	5032B3218
1/2	Standard	0.3-µm	5031B4108	5032B4118	5031B4008	5032B4018
		0.01-µm	5031B4209	5032B4219	5031B4208	5032B4218
	Extended	0.3-µm	5031B4128	5032B4128	5031B4028	5032B4028
		0.01-µm	5031B4229	5032B4229	5031B4228	5032B4228

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5031B2108.



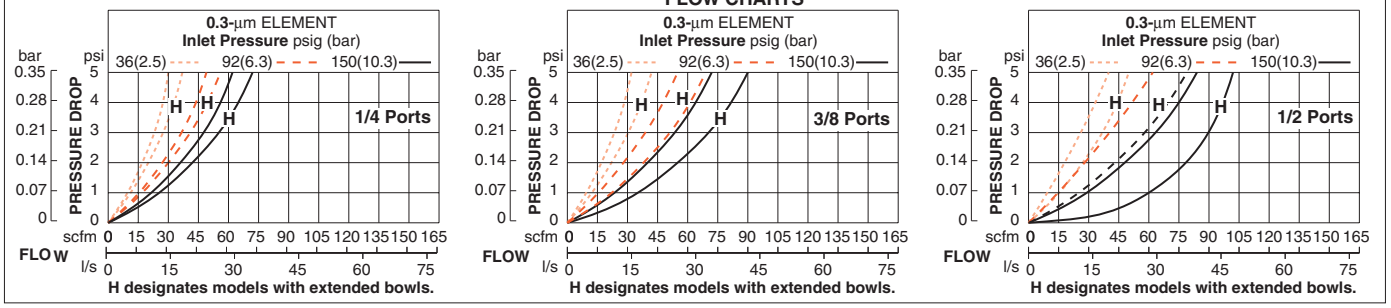
Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
1/4, 3/8, 1/2	Standard	8-oz (240-ml)	3.5 (89)	5.8 (146)	1.8 (45)	3.5 (89)	2.13 (0.95)
1/4, 3/8, 1/2	Extended	20-oz (600-ml)	3.5 (89)	10.3 (260)	1.8 (45)	3.5 (89)	3.25 (1.54)



REPLACEMENT FILTER ELEMENTS			
Element Rating	Bowl Type	Element Material	Part Number
0.3-µm	Standard	Borosilicate-glass-fiber	947K77
0.3-µm	Extended	Borosilicate-glass-fiber	R-A103-160L
0.01-µm	Standard	Borosilicate-glass-fiber	948K77
0.01-µm	Extended	Borosilicate-glass-fiber	R-A103-160LE8

E

FLOW CHARTS



Small slide differential Pressure Gauge included.

Options: Differential Pressure Gauges: Large Dual Face, Large Dual Face with Reed Switch (NO-NC), refer to page E6.6.

Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Fiber.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: Up to 150 psig (up to 10 bar).
Metal bowl: Up to 200 psig (up to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Filter Element: 0.3-micron rated or 0.01-micron rated borosilicate-glass-fiber coalescing element.
Body: Zinc.
Bowl: Polycarbonate bowl with steel shatterguard, or zinc bowl with clear nylon sight glass.
Bowl Ring: Aluminum.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 3/8, 1/2 & 3/4 – Flow to 158 scfm

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

MD4	50P	C	A	B	5	2	L

BOWL SIZE

Polycarbonate Bowl 9-oz (266-ml)	**50P**
Metal Bowl 9-oz (266-ml)	50M
Extended Metal Bowl 15-oz (443-ml)	50E

FILTER ELEMENT TYPE

0.3 µm Borosilicate glass	**C**
0.01 µm Borosilicate glass	D

BOWL DRAIN

Automatic Drain	**A**
Manual Drain	M
Less Drain Fitting - 1/4 NPT female instead	L
Internal Float Drain	F

PIPE SIZE

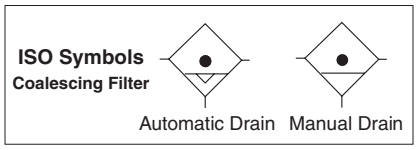
3/8 NPTF	3
1/2 NPTF	4
3/4 NPTF	**5**
3/8 BSPP	C
1/2 BSPP	D
3/4 BSPP	E

CAP COLOR

Gold	**2**
Gray	G
Yellow	Y
Red	R
Blue	B

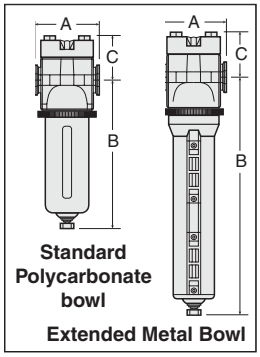
DIFFERENTIAL PRESSURE GAUGE

No Gauge (without gauge port)	A
Large Dual Face Gauge	**L**
Small Slide Gauge	S
Large Dual Face Gauge with Normally Open Reed Switch	E
Large Dual Face Gauge with Normally Closed Reed Switch	C



Bowl Type	Bowl Type	Dimensions inches (mm) A	B*	C	Depth	Weight lb (kg)
3/8, 1/2, 3/4	Polycarbonate	3.5 (88)	7.7 (195)	2.2 (55)	2.9 (73)	2.13 (0.97)
	Aluminum	3.5 (88)	7.6 (193)	2.2 (55)	3.1 (79)	2.13 (0.97)
	Extended Aluminum	3.5 (88)	11.2 (284)	2.2 (55)	3.1 (79)	2.31 (1.05)

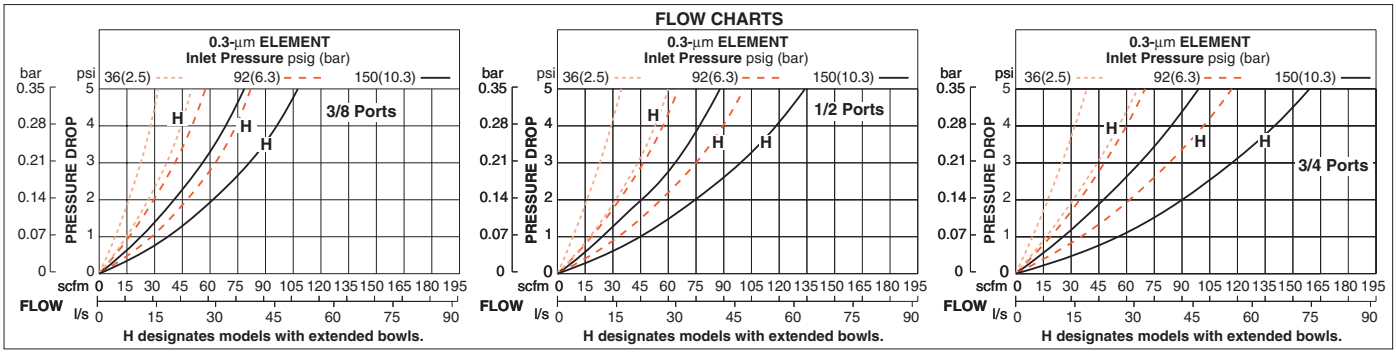
* Bowl removal clearance: add 3.1 (79). Extended Bowl removal clearance: add 6.1 (155).



REPLACEMENT FILTER ELEMENTS

Element Rating	Bowl Type	Part Number	Element Rating	Bowl Type	Part Number
0.3-µm	Standard	R-A115-117	0.01-µm	Standard	R-A115-117E8
	Extended	R-A115-118		Extended	R-A115-118E8

FLOW CHARTS



Options: Differential Pressure Gauges: Large Dual Face, Large Dual Face with Reed Switch (NO-NC), refer to page E6.6.
Options: External Bowl Drains, for additional information refer to page E6.7.
Accessories ordered separately, refer to page E6.3-5.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Fiber.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: Up to 150 psig (up to 10 bar).
Metal bowl: Up to 200 psig (up to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Filter Element: 0.3-micron rated or 0.01-micron rated borosilicate-glass-fiber coalescing element.
Body: Die-cast zinc.
Bowl: Polycarbonate bowl with steel shatterguard, or aluminum bowl with clear nylon sight glass.
Bowl Ring: Nylon.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

E1

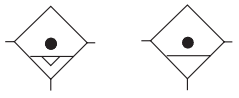
Port Sizes: 3/4 & 1 – Flow to 220 scfm

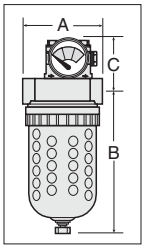
Port Size	Model Numbers*			
	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
3/4	5X00B5099	5X00B5076	5031B5008	5032B5018
1	5X00B6027	5X00B6054	5031C6008	5032B6117

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5X00B5099. Models include 0.3-micron rated filter element.

Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B*	C	Depth	
3/4, 1	Polycarbonate	16-oz (480-ml)	4.5 (114)	8.0 (203)	3.1 (78)	4.5 (114)	2.38 (1.09)
3/4, 1	Aluminum	16-oz (480-ml)	4.5 (114)	8.3 (210)	3.1 (78)	4.5 (114)	3.20 (1.46)

ISO Symbols
Coalescing Filter

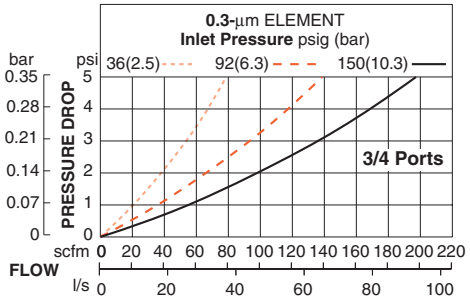


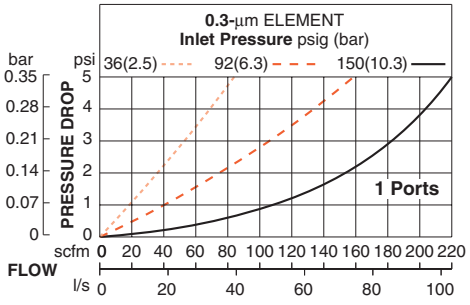


REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
0.3-µm	Borosilicate-glass-fiber	949K77
0.01-µm	Borosilicate-glass-fiber	R-A109-106E8

E

FLOW CHARTS





Large dual face differential Pressure Gauge included.
Options: Differential Pressure Gauges: Small Slide, Large Dual Face with Reed Switch (NO-NC), refer to page E6.6.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Fiber.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: Up to 150 psig (up to 10 bar).
Metal bowl: Up to 200 psig (up to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Filter Element: 0.3-micron rated or 0.01-micron rated borosilicate-glass-fiber coalescing element.
Body: Aluminum.
Bowl: Polycarbonate bowl with steel shatterguard, or aluminum bowl with clear nylon sight glass.
Bowl Ring: Aluminum.
Seals: Nitrile.

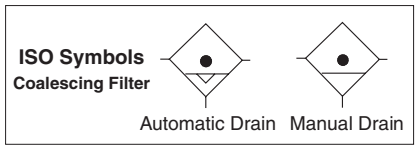
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 3/4 & 1 – Flow to 295 scfm

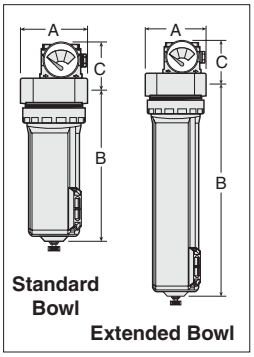
Port Size	Model Numbers*			
	Automatic Drain		Manual Drain	
	Metal Bowl	Extended Metal Bowl	Metal Bowl	Extended Metal Bowl
3/4	5X00B5086	5X00B5087	5032B5019	5032B5029
1	5X00B6064	5X00B6065	5032B6019	5032C6028

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5X00B5086. Models include 0.3-micron rated filter element.

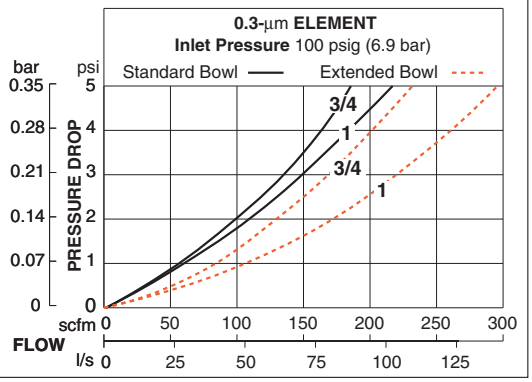
Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
3/4, 1	Standard	35-oz (1050-ml)	4.5 (114)	10.1 (257)	3.3 (83)	4.2 (106)	3.50 (1.59)
3/4, 1	Extended	62-oz (1860-ml)	4.5 (114)	15.7 (399)	3.3 (83)	4.2 (106)	4.25 (1.91)



REPLACEMENT FILTER ELEMENTS			
Element Rating	Bowl Type	Element Material	Part Number
0.3-µm	Standard	Borosilicate-glass-fiber	R-A114-112
	Extended	Borosilicate-glass-fiber	R-A114-113
0.01-µm	Standard	Borosilicate-glass-fiber	R-A114-112E8
	Extended	Borosilicate-glass-fiber	R-A114-113E8



FLOW CHART



Large dual face differential Pressure Gauge included.
Options: Differential Pressure Gauges: Small Slide, Large Dual Face with Reed Switch (NO-NC), refer to page E6.6.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Fiber.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure:
Automatic drain model: Up to 200 psig (up to 14 bar).
Manual drain model: 0 to 200 psig (0 to 14 bar).

Filter Element: 0.3-micron rated or 0.01-micron rated borosilicate-glass-fiber coalescing element.
Body: Aluminum.
Bowl: Aluminum bowl, or extended aluminum bowl.
Bowl Ring: Aluminum.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

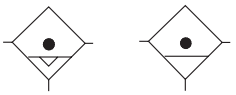
Port Sizes: 1¼ & 1½ – Flow to 450 scfm

Port Size	Model Numbers*			
	Automatic Drain		Manual Drain	
	Metal Bowl	Extended Metal Bowl	Metal Bowl	Extended Metal Bowl
1¼	5X00B7034	5X00B7036	5032B7019	5032B7029
1½	5X00B8035	5X00B8036	5032B8019	5032B8029

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5X00B7034. Models include 0.3-micron rated filter element.

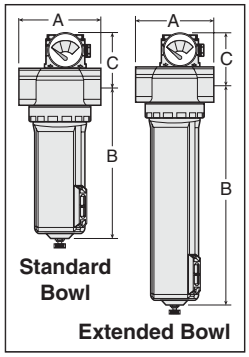
Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
1¼, 1½	Standard	35-oz (1050-ml)	5.5 (140)	10.6 (270)	3.7 (94)	4.2 (106)	4.31 (1.94)
	Extended	62-oz (1860-ml)	5.5 (140)	16.2 (412)	3.7 (94)	4.2 (106)	5.00 (2.27)

ISO Symbols
Coalescing Filter



Automatic Drain Manual Drain

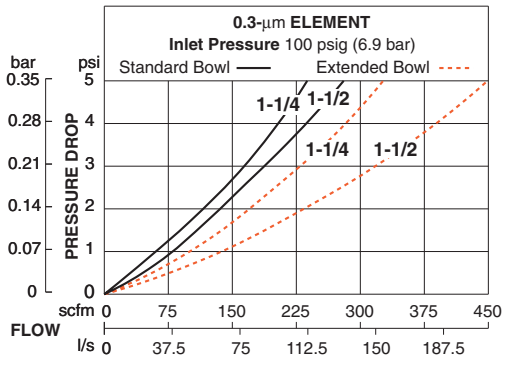
REPLACEMENT FILTER ELEMENTS			
Element Rating	Bowl Type	Element Material	Part Number
0.3-µm	Standard	Borosilicate-glass-fiber	R-A114-112
	Extended	Borosilicate-glass-fiber	R-A114-113
0.01-µm	Standard	Borosilicate-glass-fiber	R-A114-112E8
	Extended	Borosilicate-glass-fiber	R-A114-113E8



Standard Bowl

Extended Bowl

FLOW CHART



Large dual face differential Pressure Gauge included.
Options: Differential Pressure Gauges: Small Slide, Large Dual Face with Reed Switch (NO-NC), refer to page E6.6.
Bowl Drain - Internal Float Drain (on polycarbonate bowl only), consult ROSS.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Fiber.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure:
Automatic drain model: Up to 200 psig (up to 14 bar).
Manual drain model: 0 to 200 psig (0 to 14 bar).

Filter Element: 0.3-micron rated or 0.01-micron rated borosilicate-glass-fiber coalescing element.
Body: Aluminum.
Bowl: Aluminum bowl, or extended aluminum bowl.
Bowl Ring: Aluminum.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1¼ & 1½ – Flow to 465 scfm

Port Size	Model Numbers[*]		
	Internal Float Drain	Manual Drain	
	Metal Bowl	Metal Bowl	Extended Metal Bowl
1¼	5X00B7019	5032B7018	5032B7028
1½	5X00B8008	5032B8018	5032B8028

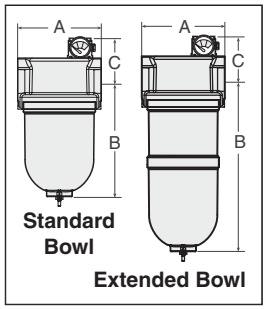
* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5X00B7019. Models include 0.3-micron rated filter element.

Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
1¼, 1½	Standard	123-oz (3700-ml)	8.1 (204.7)	12.0 (305.1)	4.6 (117.4)	8.0 (203.2)	17.0 (7.8)
1¼, 1½	Extended	233-oz (7000-ml)	8.1 (204.7)	18.3 (465.1)	4.6 (117.4)	8.0 (203.2)	26.0 (11.8)

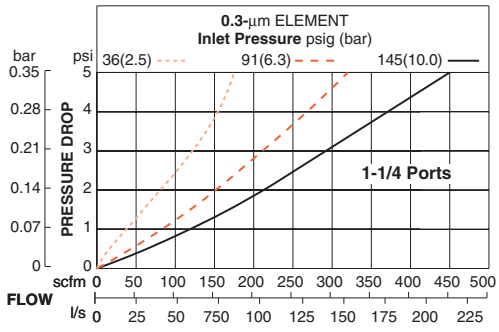
ISO Symbols
Coalescing Filter

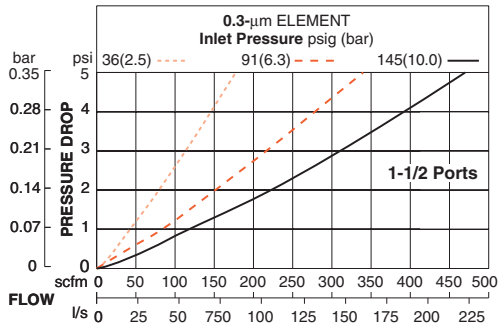
Automatic Drain Manual Drain

REPLACEMENT FILTER ELEMENTS			
Element Rating	Bowl Type	Element Material	Part Number
0.3-µm	Standard	Borosilicate-glass-fiber	952K77
	Extended	Borosilicate-glass-fiber	953K77
0.01-µm	Standard	Borosilicate-glass-fiber	R-A106-24E8
	Extended	Borosilicate-glass-fiber	R-A106-24LE8



FLOW CHARTS





Large dual face differential Pressure Gauge included.

Options: Differential Pressure Gauges: Small Slide, Large Dual Face with Reed Switch (NO-NC), refer to page E6.6.

Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Fiber.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure:
Internal float drain model: 30 to 200 psig (2 to 14 bar).
Manual drain model: 0 to 200 psig (0 to 14 bar).

Filter Element: 0.3-micron rated borosilicate-glass-fiber coalescing element; optional 0.01-micron rated element.
Body: Aluminum.
Bowl: Aluminum bowl, or extended aluminum bowl.
V-Band: Stainless steel.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

E1

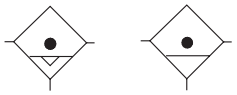
Port Sizes: 2 – Flow to 840 scfm

Port Size	Model Numbers*	
	Internal Float Drain	Manual Drain
	Metal Bowl	Metal Bowl
2	5X00B9009	5032B9018

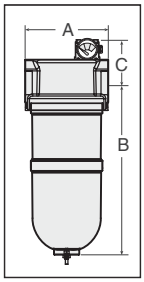
* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5X00B9009.
Models include 0.3-micron rated filter element.

Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
2	Aluminum	233-oz (7000-ml)	8.1 (204.7)	18.3 (465.1)	4.6 (117.4)	8.0 (203.2)	26.0 (11.8)

ISO Symbols
Coalescing Filter

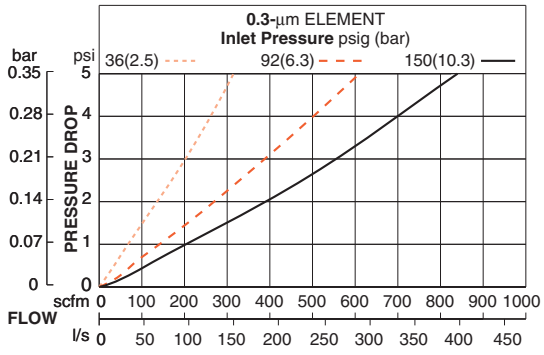


REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
0.3-µm	Borosilicate-glass-fiber	953K77
0.01-µm	Borosilicate-glass-fiber	R-A106-24LE8



E

FLOW CHART



Large dual face differential Pressure Gauge included.
Options: Differential Pressure Gauges: Small Slide, Large Dual Face with Reed Switch (NO-NC), refer to page E6.6.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Fiber.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure:
Internal float drain model: 30 to 200 psig (2 to 14 bar).
Manual drain model: 0 to 200 psig (0 to 14 bar).

Filter Element: 0.3-micron rated borosilicate-glass-fiber coalescing element; optional 0.01-micron rated element.
Body: Aluminum.
Bowl: Aluminum.
V-Band: Stainless steel.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 125 scfm

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

MD3 | 50P | C | 4 | 2

BOWL SIZE	
Polycarbonate Bowl 5.1-oz (151-ml)	50P
Metal Bowl 6-oz (177-ml)	50M
Extended Metal Bowl 10-oz (295-ml)	50E

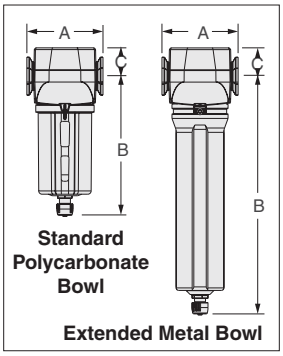
PIPE SIZE	
1/4 NPTF	2
3/8 NPTF	3
1/2 NPTF	4
1/4 BSPP	B
3/8 BSPP	C
1/2 BSPP	D

CAP COLOR	
Gold	2
Gray	G
Yellow	Y
Red	R
Blue	B

ISO Symbols
Adsorbing Filter
Manual Drain

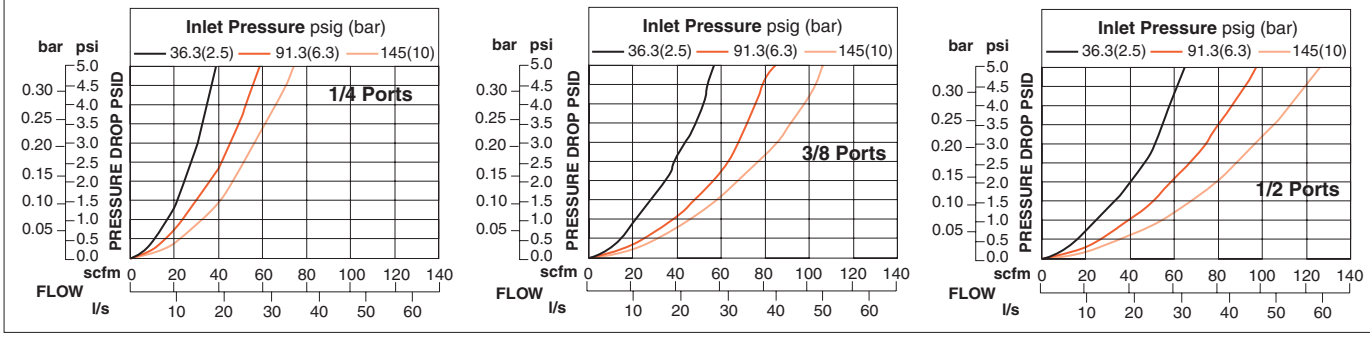
Bowl Size	Bowl Type	Dimensions inches (mm)				Weight lb (kg)
		A	B*	C	Depth	
1/4, 3/8, 1/2	Polycarbonate	3.0 (76.2)	5.54 (140.6)	1.12 (28.3)	2.51 (63.8)	1.29 (0.59)
	Aluminum	3.0 (76.2)	6.42 (163.1)	1.12 (28.3)	2.76 (70.1)	1.41 (0.64)
	Extended Aluminum	3.0 (76.2)	9.51 (241.6)	1.12 (28.3)	2.76 (70.1)	1.54 (0.70)

* Bowl removal clearance: add 3.1 (79). Extended Bowl removal clearance: add 6.1 (155).



REPLACEMENT FILTER ELEMENTS	
Bowl Type	Part Number
Polycarbonate	R-A60F-29E9
Metal	R-A60F-29E9
Extended Metal	R-A60F-32E9

FLOW CHARTS



Accessories ordered separately, refer to page E6.3-5.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Fiber.
Ambient/Media Temperature:
With polycarbonate bowl: 40° to 125°F (4° to 52°C).
With metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure:
With polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
With metal bowl: 0 to 250 psig (0 to 17 bar).

Filter Element: Activated carbon with urethane seals.
Bowl Drain: Manual drain.
Body: Die-cast zinc.
Bowl: Polycarbonate with nylon shatterguard, aluminum bowl with clear nylon sight glass, or extended aluminum bowl with clear nylon sight glass.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Modular Oil Vapor Removal (Adsorbing) Filters — Series MD4™

Port Sizes: 3/8, 1/2 & 3/4 – Flow to 165 scfm

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

MD4 — 50P — B — 5 — 2

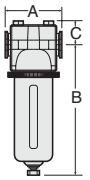
BOWL SIZE	
Polycarbonate Bowl 9-oz (270-ml)	**50P**
Metal Bowl 9-oz (270-ml)	50M
Extended Metal Bowl 15-oz (450-ml)	50E

PIPE SIZE	
3/8 NPTF	3
1/2 NPTF	4
3/4 NPTF	5
3/8 BSPP	C
1/2 BSPP	D
3/4 BSPP	E

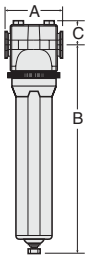
CAP COLOR	
Gold	**2**
Gray	G
Yellow	Y
Red	R
Blue	B

Bowl Size	Bowl Type	Dimensions inches (mm)				Weight lb (kg)
		A	B*	C	Depth	
3/8, 1/2, 3/4	Polycarbonate	3.5 (88)	7.7 (195)	1.1 (28)	2.9 (73)	2.13 (0.97)
	Aluminum	3.5 (88)	7.6 (193)	1.1 (28)	3.1 (79)	2.13 (0.97)
	Extended Aluminum	3.5 (88)	11.2 (284)	1.1 (28)	3.1 (79)	2.31 (1.05)

* Bowl removal clearance: add 3.1 (79). Extended Bowl removal clearance: add 6.1 (155).



Standard Polycarbonate Bowl

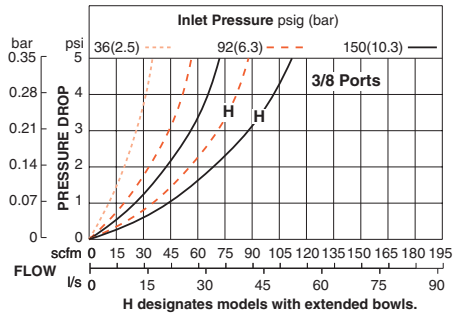


Extended Metal Bowl

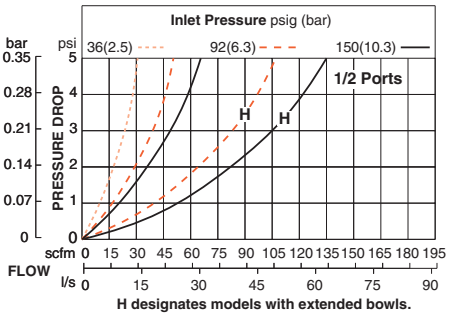
ISO Symbols
Adsorbing Filter
Manual Drain

REPLACEMENT FILTER CARTRIDGE		
Filter Rating	**Bowl Type**	**Part Number**
0.01-µm	Standard	R-A115-117E9
	Extended	R-A115-118E9

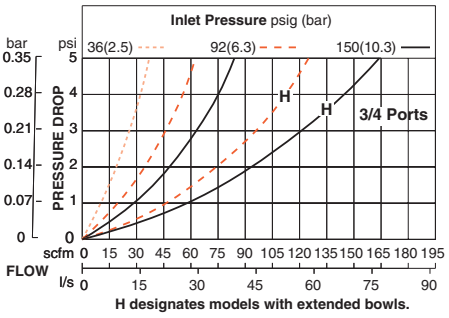
FLOW CHARTS



H designates models with extended bowls.



H designates models with extended bowls.



H designates models with extended bowls.

Accessories ordered separately, refer to page E6.3-5.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Fiber.
Ambient/Media Temperature:
With polycarbonate bowl: 40° to 125°F (4° to 52°C).
With metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure:
With polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
With metal bowl: 0 to 200 psig (0 to 14 bar).
Bowl Drain: Manual.
Filter Cartridge: Activated carbon with urethane seals.
Body: Zinc.
Bowl: Polycarbonate bowl with steel shatterguard, aluminum bowl, or extended aluminum bowl.
Bowl Ring: Nylon.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Online Version
Rev. 11/14/16

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 125 scfm

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

MD3	CAP	1	A	C	1	2	2	A	1

BOWL SIZE

Polycarbonate Bowl 5.1-oz (151-ml)	**1**
Metal Bowl 6-oz (177-ml)	2
Extended Metal Bowl 10-oz (295-ml)	3

COALESCING FILTER ELEMENT TYPE

0.3 µm Borosilicate glass	**A**
0.01 µm Borosilicate glass	B

BOWL DRAIN

Manual Drain	**1**
Float Drain	F

PIPE SIZE

1/4 NPTF	**2**
3/8 NPTF	3
1/2 NPTF	4
1/4 BSPP	B
3/8 BSPP	C
1/2 BSPP	D

CAP COLOR

Gold	**2**
Gray	G
Yellow	Y
Red	R
Blue	B

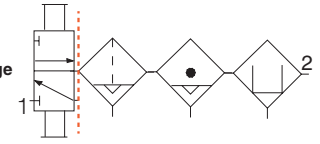
ADD on L-O-X® - Optional

L-O-X® on outlet side	**1**
L-O-X® on the inlet side	2
EEZ-ON® on outlet side	3
EEZ-ON® on inlet side	4
Blank - No L-O-X®	

DIFFERENTIAL PRESSURE GAUGE

No Gauge (without gauge port)	**A**
Small Slide Gauge	S

ISO Symbol
Clean Air Package with Lockout



REPLACEMENT COALESCING ELEMENTS

Element Rating	Bowl Type	Part Number
0.3-µm	Polycarbonate	R-A60F-23
	Metal	R-A60F-29
	Extended Metal	R-A60F-32
0.01-µm	Polycarbonate	R-A60F-23E8
	Metal	R-A60F-29E8
	Extended Metal	R-A60F-32E8

REPLACEMENT ADSORBING ELEMENTS

Bowl Type	Part Number
Polycarbonate	R-A60F-29E9
Metal	R-A60F-29E9
Extended Metal	R-A60F-29

REPLACEMENT FILTER ELEMENTS

Element Rating	Element Material	Part Number
5-µm	Polyethylene	R-A60F-03PE5

Accessories ordered separately, refer to page E6.3-5.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter, Coalescing Filter - Fiber.
Ambient/Media Temperature:
With polycarbonate bowl: 40° to 125°F (4° to 52°C).
With metal bowl: 40° to 175°F (4° to 80°C).
With metal bowl & float drain: 40° to 175°F (4° to 80°C).
Inlet Pressure - Automatic drain model:
With polycarbonate bowl: 30 to 150 psig (2 to 10 bar).
With metal bowl: 30 to 200 psig (2 to 14 bar).
Inlet Pressure - Manual drain model:
With polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
With metal bowl: 0 to 250 psig (0 to 17 bar).
Filter Element: 5-µm-rated polyethylene.

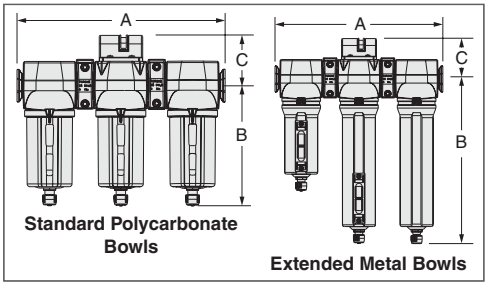
Coalescing Filter Element: 0.3-micron rated or 0.01-micron rated borosilicate-glass-fiber.
Adsorbing Filter Element: Activated carbon with urethane seals.
Bowl Drain:
Filter and Coalescing Filter: Internal float drain or manual drain.
Adsorber Filter: Manual drain only.
Body: Die-cast zinc.
Bowl: Polycarbonate bowl with nylon shatterguard; aluminum bowl with clear nylon sight glass; extended aluminum bowl with clear nylon sight glass and higher flow filter element (for coalescing and adsorber filter only).
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

E1

Bowl Size	Bowl Type	Dimensions inches (mm) A*	B*	C	Depth	Weight lb (kg)
1/4, 3/8, 1/2	Polycarbonate	9.58 (243.3)	5.54 (140.6)	2.38 (59.3)	2.51 (63.8)	4.3 (2.0)
	Aluminum	9.58 (243.3)	6.42 (163.1)	2.38 (59.3)	2.76 (70.1)	4.6 (2.1)
	Extended Aluminum	9.58 (243.3)	9.51 (241.6)	2.38 (59.3)	2.76 (70.1)	4.9 (2.2)

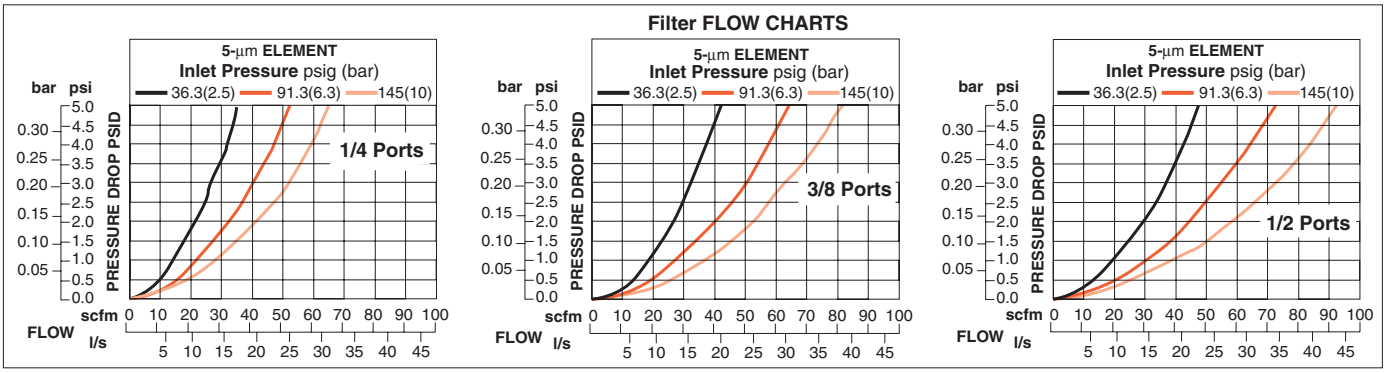
* **Lockout:** With the lockout valve, add 2.3 (58) to dimension A.
Bowl removal clearance: add 3.1 (79). Extended Bowl removal clearance: add 6.1 (155).



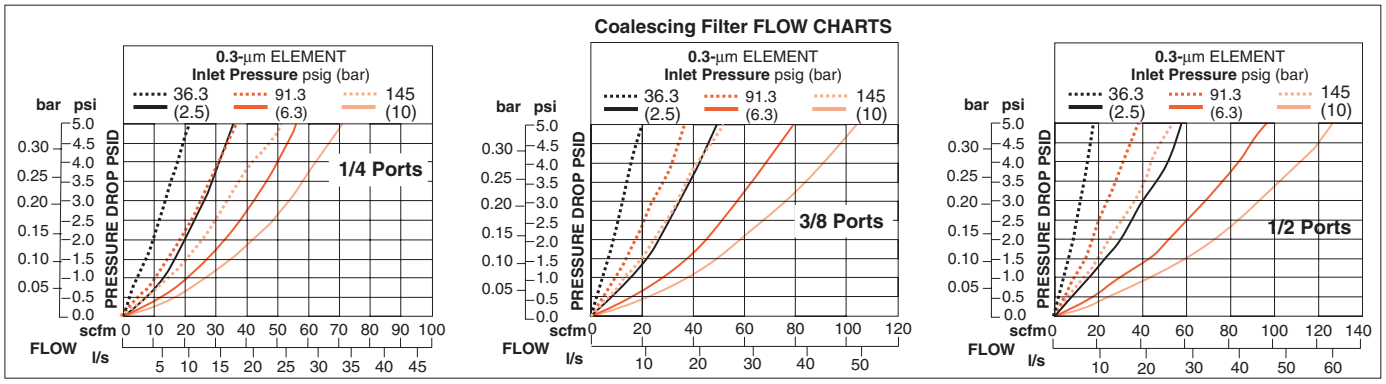
AIR FLOW and CONSTRUCTION DATA

E

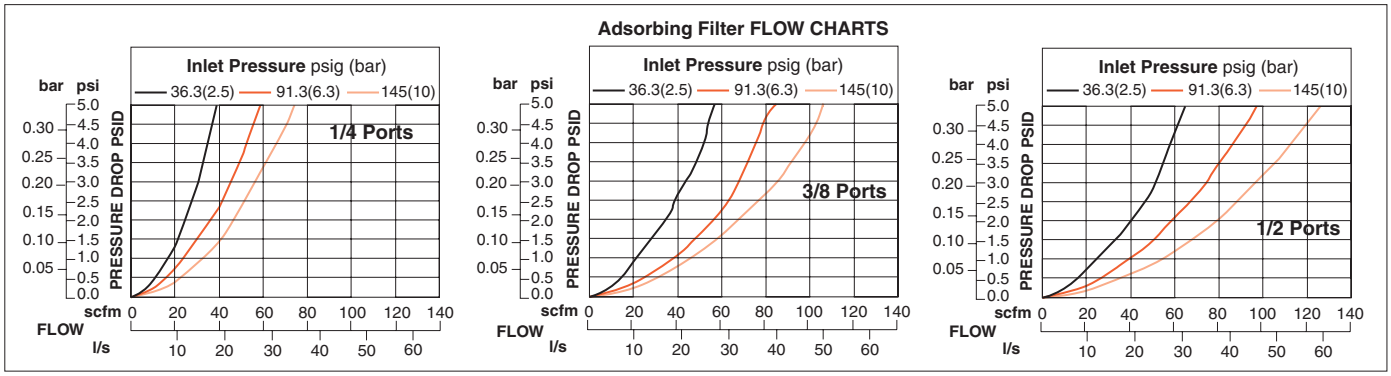
Filter FLOW CHARTS



Coalescing Filter FLOW CHARTS



Adsorbing Filter FLOW CHARTS



Port Sizes: 3/8, 1/2 & 3/4

E1

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

MD4	CAP	1	A	B	1	5	2	L	

BOWL SIZE

Three Polycarbonate Bowls 9-oz (266-ml)	**1**
Three Metal Bowls 9-oz (266-ml)	2
One Metal Bowl 9 oz (266-ml) and Two Metal Bowls 15-oz (443-ml)	3

COALESCING FILTER ELEMENT TYPE

0.3 µm Borosilicate glass	**A**
0.01 µm Borosilicate glass	B

BOWL DRAIN

Manual	**1**
Internal Automatic (not available on adsorber)	2
Internal Float drain	F

PIPE SIZE

3/8 NPTF	3
1/2 NPTF	4
3/4 NPTF	**5**
3/8 BSPP	C
1/2 BSPP	D
3/4 BSPP	E

CAP COLOR

Gold	**2**
Gray	G
Yellow	Y
Red	R
Blue	B

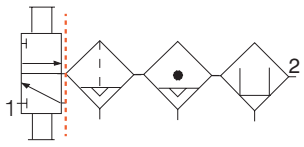
DIFFERENTIAL PRESSURE GAUGE

No Gauge (without gauge port)	A
Large Dual Face Gauge	**L**
Small Slide Gauge	S
Large Dual Face Gauge with Normally Open Reed Switch	E
Large Dual Face Gauge with Normally Open Reed Switch	C

ADD on L-O-X® - Optional

L-O-X® on outlet side	1
L-O-X® on the inlet side	2
EEZ-ON® on outlet side	3
EEZ-ON® on inlet side	4
Blank - No L-O-X®	

ISO Symbol
Clean Air Package with Lockout



E

REPLACEMENT FILTER ELEMENTS

Filter Type	Element Rating	Bowl Type	Element Material	Part Number
Filter	5-µm	Standard	Polyethylene	R-A115-106PE5
Coalescing	0.3-µm	Standard	Borosilicate-glass-fiber	R-A115-117
Coalescing	0.3-µm	Extended	Borosilicate-glass-fiber	R-A115-118
Coalescing	0.01-µm	Standard	Borosilicate-glass-fiber	R-A115-117E8
Coalescing	0.01-µm	Extended	Borosilicate-glass-fiber	R-A115-118E8
Adsorbing	Standard Cartridge	Standard	Activated Carbon	R-A115-117E9
Adsorbing	Extended Standard Cartridge	Extended	Activated Carbon	R-A115-118E9

Accessories ordered separately, refer to page E6.3-5.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter, Coalescing Filter - Fiber.
With polycarbonate bowl: 40° to 125°F (4° to 52°C).
With metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
With polycarbonate bowl: 15 to 150 psig (1 to 10 bar).
With metal bowl: 15 to 200 psig (1 to 14 bar).
Inlet Pressure - Internal float drain model:
With polycarbonate bowl: 30 to 150 psig (2 to 10 bar).
With metal bowl: 30 to 200 psig (2 to 14 bar).
Inlet Pressure - Manual drain model:
With polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
With metal bowl: 0 to 200 psig (0 to 14 bar).

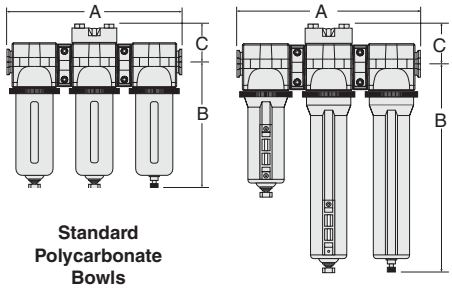
Filter Drains: Internal automatic drains for general purpose and coalescing filters; manual drain for adsorbing filter.
Optional internal float drain on polycarbonate bowl only, consult ROSS.
Filter Elements:
General Purpose: 5-micron rated polyethylene.
Coalescing: 0.3-micron rated or 0.01-micron rated borosilicate-glass-fiber; element.
Adsorbing: Activated carbon with urethane seals.
Bowls: Polycarbonate bowls with steel shatterguards; aluminum bowl with clear nylon sight glasses on general purpose and coalescing units, or extended aluminum bowls for coalescing and adsorbing filters.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

E1

Port Size	Bowl Type	Dimensions inches (mm) A*	B*	C	Depth	Weight lb (kg)
3/8, 1/2, 3/4	Polycarbonate	10.9 (276)	7.7 (195)	2.2 (55)	2.9 (73)	6.63 (3.01)
	Aluminum	3.5 (88)	7.7 (195)	2.2 (55)	2.9 (73)	6.63 (3.01)
	Extended Aluminum	3.5 (88)	11.2 (284)	2.2 (55)	2.9 (73)	7.00 (3.18)

** **Lockout:** With the lockout valve, add 2.3 (58) to dimension A.
Bowl removal clearance: add 3.1 (79). Extended Bowl removal clearance: add 6.1 (155).

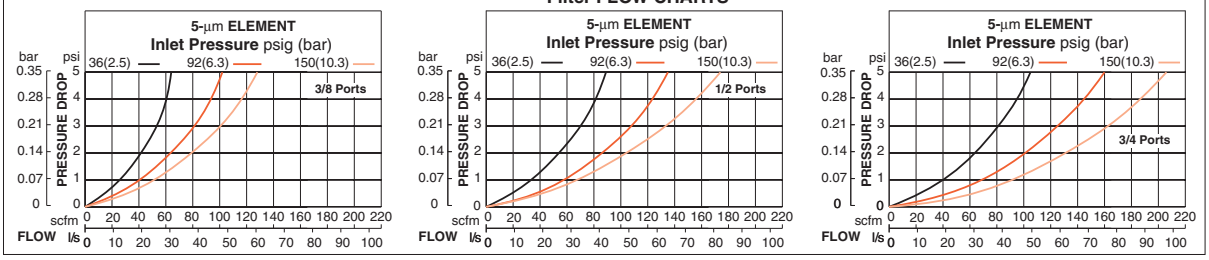


Standard Polycarbonate Bowls

Extended Metal Bowls

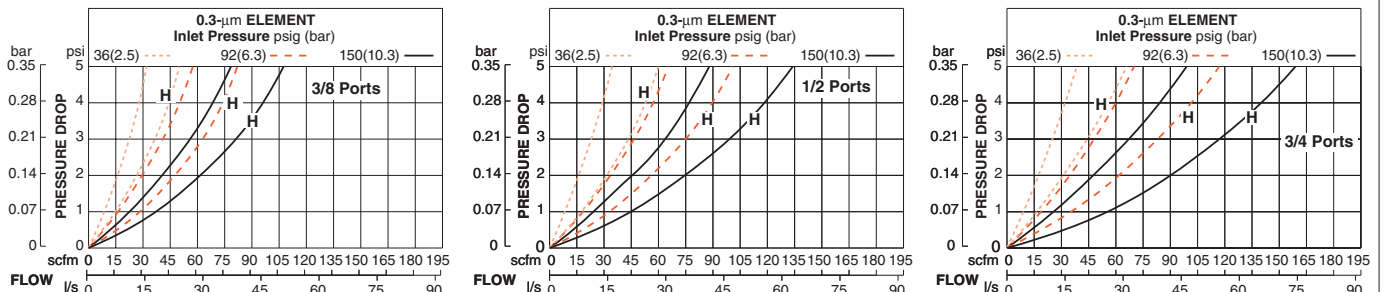
AIR FLOW and CONSTRUCTION DATA

Filter FLOW CHARTS



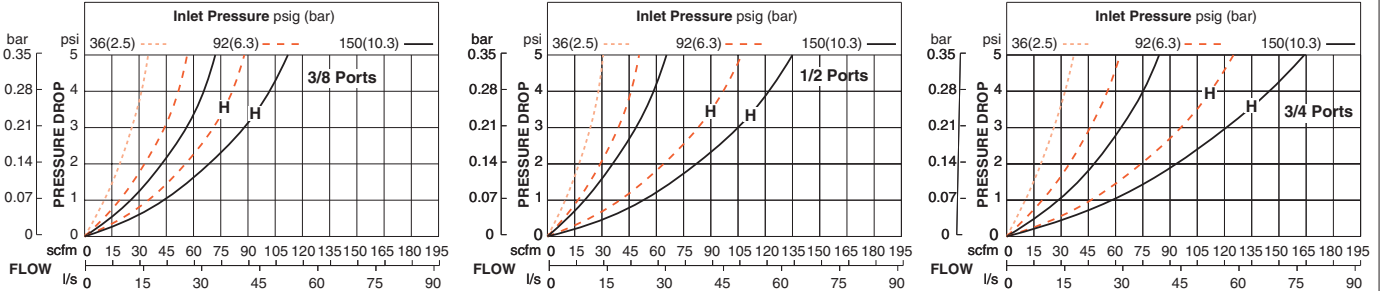
E

Coalescing Filter FLOW CHARTS



H designates models with extended bowls.

Adsorbing FLOW CHARTS



H designates models with extended bowls.

Port Sizes: 1/2, 3/4 & 1

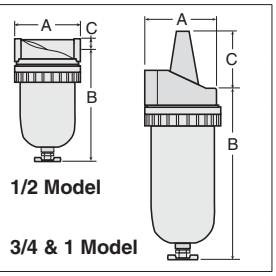
Port Size	Bowl Type	Model Numbers*
1/2	Polycarbonate	5055B4009
3/4	Polycarbonate	5055B5009
1	Polycarbonate	5055B6009

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5055B4009.

1/2 Model

3/4 & 1 Model

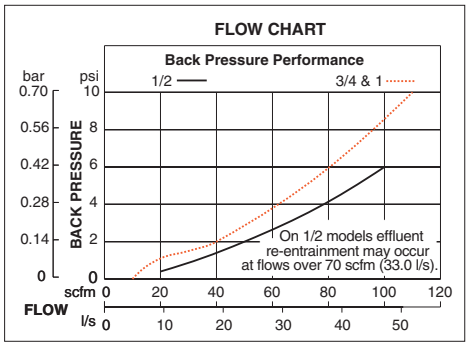
Port Size	Dimensions inches (mm)				Weight lb (kg)
	A	B	C	Depth	
1/2	3.5 (89)	5.5 (140)	0.7 (18)	3.5 (89)	1.3 (0.59)
3/4	4.2 (107)	8.4 (213)	2.7 (69)	4.2 107)	2.8(1.27)
1	4.2 (107)	8.4 (213)	2.7 (69)	4.2 (107)	2.8 (1.27)

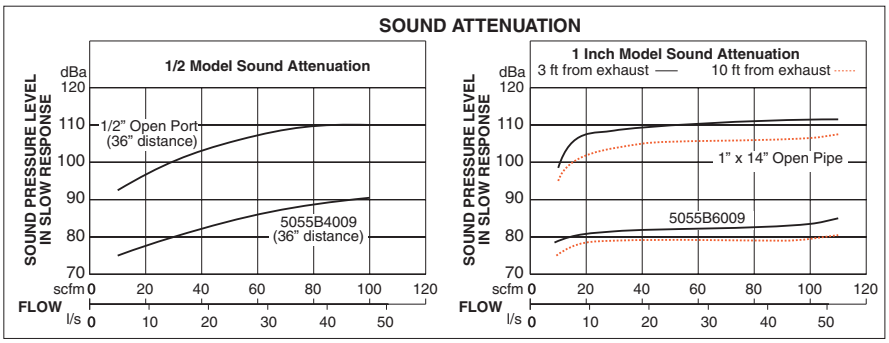


REPLACEMENT FILTER ELEMENTS			
Port Size	Element Rating	Element Material	Part Number
1/2	20-µm	Sintered Bronze	940K77
3/4, 1	100-µm	Sintered Bronze	981K77

SOUND ATTENUATION DATA

Constant-flow tests - conducted in a 14' x 22' room with a 14' ceiling.
Sound pressure levels - recorded using a B & K precision impulse sound meter (model 22045), a 1-inch microphone (DB0375), a flexible extension rod (UA0196), and a random incidence corrector (UA0055).
Test system was mounted on the 14-foot wall with exhaust port 4 feet from the 14-foot wall.





Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Sintered.
Ambient/Media Temperature: 40° to 125°F (4° to 51°C).
Fluid Media: Compressed air.
Inlet Pressure: 5 to 150 psig (0.3 to 10 bar).
Filter Element: Sintered bronze.
Bowl: Polycarbonate.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

E1

Port Sizes: 3/4, 1, 1¼, 1½ & 2

Port Size	Model Numbers*						
	with Drain-Cock		with Ball Valve				
	Bowl Capacity ounce (ml)						
	35 (1035)	**62** (1833)	**35** (1035)	**62** (1833)	**120** (3548)	**230** (6801)	**340** (10055)
3/4	RC012-01	RC012-01-62	RC012-01-BV	RC012-01-62-BV	—	—	—
1	RC013-01	RC013-01-62	RC013-01-BV	RC013-01-62-BV	—	—	—
1¼	RC014-01	RC014-01-62	RC014-01-BV	RC014-01-62-BV	—	—	—
1½	RC015-01	RC015-01-62	RC015-01-BV	RC015-01-62-BV	—	—	—
2		–		RC016-01-120	RC016-01-120	RC016-01-225	RC016-01

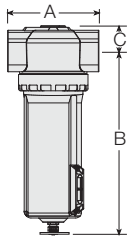
* NPT port threads. For BSPP threads add a "D" suffix to the model number e.g., RC012-01D.

Port sizes 3/4 thru1½

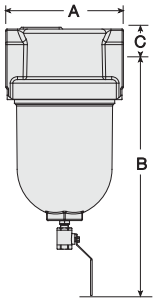
Port size 2

Port Size	Bowl Capacity ounce (ml)	Dimensions inches (mm)				Weight lb (kg)
		A	B*	C	Depth	
3/4	35 (1035)	4.5 (114)	10.6 (269)	0.81 (21)	4.2 (106)	4.25 (1.93)
	62 (1833)	4.5 (114)	16.2 (412)	0.81 (21)	4.2 (106)	5.00 (2.25)
1	35 (1035)	5.5 (140)	10.6 (269)	1.4 (36)	4.2 (106)	4.25 (1.93)
	62 (1833)	5.5 (140)	16.2 (412)	1.4 (36)	4.2 (106)	5.00 (2.25)
1¼	35 (1035)	5.5 (140)	11.2 (285)	1.4 (36)	4.2 (106)	4.50 (2.04)
	62 (1833)	5.5 (140)	16.7 (424)	1.4 (36)	4.2 (106)	5.81 (2.37)
1½	35 (1035)	5.5 (140)	11.2 (285)	1.4 (36)	4.2 (106)	4.50 (2.04)
	62 (1833)	5.5 (140)	16.7 (424)	1.4 (36)	4.2 (106)	5.81 (2.37)
2	120 (3548)	8.1 (206)	15.5 (394)	4.6 (117)	8.0 (203)	17.00 (7.72)
	230 (6801)	8.1 (206)	22.5 (572)	4.6 (117)	8.0 (203)	21.9 (9.82)
	340 (10055)	8.1 (206)	29.5 (749)	4.6 (117)	8.0 (203)	26.8 (11.92)

* Add 3.5 inches (89 mm) to Dimension "B" and 0.29 lb (0.13 kg) to weight for units with Ball valves (BV option).



Port sizes 3/4 thru1½



Port size 2

ISO Symbols
Filter
Drip Leg Drain

E

The ROSS Drip Leg Drain replaces conventional welded drip legs through improvements in both performance and serviceability resulting in increased machine productivity.

The ROSS Drip Leg Drain has a baffling device that increases the contamination removal efficiency by requiring the air to make more direction changes than a standard drip leg drain. This efficiency gain puts less contamination at the point of filtration, allowing the filter to function longer before maintenance is necessary.

Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Ambient/Media Temperature: 40° to 175° F (4° to 79°C).
Fluid Media: Compressed air.
Inlet Pressure: 15 to 200 psig (1 to 14 bar).
Filter Drain: Drain-cock or Ball valve.

Heads: Aluminum.
Bowl Rings: Aluminum.
Seals: Nitrite.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

E

ROSS CONTROLS®

PRESSURE REGULATORS

www.rosscontrols.com

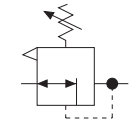
PRESSURE REGULATORS – KEY FEATURES

- Two design options available:
  Piston design for highest air flow
  Diaphragm design for high sensitivity and quick response
- Modular or Inline Mounting options
- Pressure Gauge included
- Removable Adjusting Knob for tamper resistance
- Self-relieving or non-relieving options
- Reverse Flow option available on some regulator models
- T-Handle option available on some regulator models

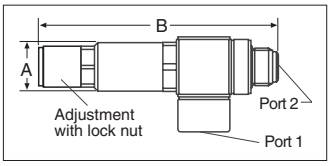
REGULATOR TYPE/SERIES	AVAILABLE PORT SIZES										MOUNTING		FLOW	CONSTRUCTION		OPTIONS					Page
	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	2	3	INLINE	MODULAR	MAX FLOW (scfm)	PISTON	DIAPHRAM	SELF RELIEVING	NON RELIEVING	REVERSE FLOW	T-HANDLE	LOCKING KNOB	
REGULATORS																					
RIGHT ANGLE	■	■	■	■							■		55			■					E2.3
BANTAM	■	■										■	23	■	■	■				■	E2.4
MINIATURE	■	■									■		40	■	■	■				■	E2.5
MID-SIZE		■	■	■								■	100	■		■		■	■	■	E2.6
MD3™		■	■	■								■	120			■		■	■	■	E2.7
FULL-SIZE		■	■	■	■							■	155	■	■	■	■	■	■	■	E2.8
MD4™			■	■	■							■	220		■	■	■	■	■	■	E2.9
HIGH-CAPACITY					■	■	■	■			■		800	■	■	■	■	■	■	■	E2.10
HIGH-PRESSURE REGULATORS																					
HIGH-PRESSURE	■	■	■										70	■		■	■				E2.11
PRECISION REGULATORS																					
MINIATURE	■	■											4		■	■					E2.12
FULL-SIZE		■	■	■	■								155		■	■				■	E2.13
MD4™			■	■	■								170		■	■				■	E2.14
HIGH-CAPACITY					■	■	■	■					800		■	■				■	E2.15
REMOTE PILOT REGULATORS																					
FULL-SIZE		■	■	■	■								155		■	■	■			■	E2.16 - E2.18
MD4™			■	■	■								190		■	■	■			■	E2.19
HIGH-CAPACITY				■	■	■	■	■	■	■			4000	■	■	■	■			■	E2.20 - E2.22
RELIEF VALVES																					
MINIATURE	■	■											40		■						E2.23
HIGH-FLOW						■							450		■						E2.24
PROPORTIONAL VALVES																					
RER Series													1000		■						E2.25
RB-RER Series		■	■	■	■	■	■	■					4000		■						E2.26

Port Sizes: 1/8, 1/4, 3/8 & 1/2 – Flow to 55 scfm

ISO Symbol
Regulator
Self-Relieving

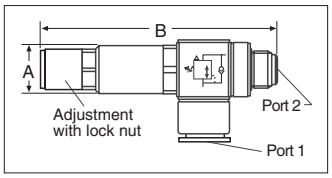


Models with Threaded Banjo					
Port Size		Model Number	Dimensions inches (mm)		Tightening Torque Max. Ft-lb (Nm)
Port 1 (female threads)	Port 2 (male threads)		A	B	
1/8	1/8	5214A1010	0.7 (17)	2.9 (74)	7.38 (10)
1/4	1/4	5214A2010	0.7 (17)	3.2 (81)	8.85 (12)
3/8	3/8	5214A3010	0.9 (22)	3.5 (88)	14.75 (20)
1/2	1/2	5214A4010	1.1 (27)	3.5 (89)	22.13 (30)
G1/8	G1/8	D5214A1010	0.7 (17)	2.9 (74)	11.06 (15)
G1/4	G1/4	D5214A2010	0.7 (17)	3.2 (81)	14.75 (20)
G3/8	G3/8	D5214A3010	0.9 (22)	3.5 (88)	22.13 (20)
G1/2	G1/2	D5214A4010	1.1 (27)	3.5 (89)	22.50 (30)

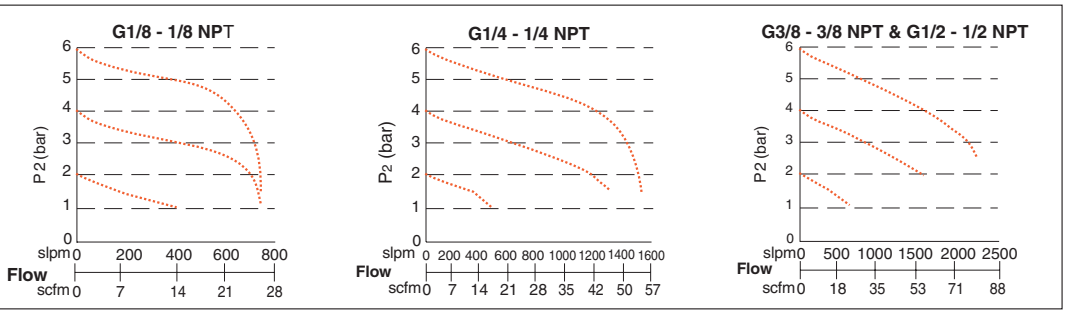


Models with Push-to-Connect Fitting					
Port Size		Valve Model Number	Dimensions inches (mm)		Tightening Torque Max. Ft-lb (Nm)
Port 1# (tube size)	Port 2** (thread size)		A	B	
5/32”	1/8	5214A1115	0.7 (17)	2.9 (73)	11.06 (15)
1/4”	1/8	5214A1120	0.7 (17)	2.9 (73)	11.06 (15)
1/4”	1/4	5214A2120	0.7 (17)	3.2 (81)	14.75 (20)
3/8”	1/4	5214A2130	0.7 (17)	3.2 (81)	14.75 (20)
3/8”	3/8	5214A3130	0.9 (22)	3.5 (88)	22.13 (30)
4 mm	G1/8	D5214A1140	0.5 (13)	2.9 (73)	7.38 (10)
6 mm	G1/8	D5214A1160	0.5 (13)	2.9 (73)	7.38 (10)
8 mm	G1/8	D5214A1180	0.5 (13)	2.9 (73)	7.38 (10)
6 mm	G1/4	D5214A2160	0.7 (17)	3.2 (81)	8.85 (12)
8 mm	G1/4	D5214A2180	0.7 (17)	3.2 (81)	8.85 (12)
10 mm	G1/4	D5214A2110	0.7 (17)	3.2 (81)	8.85 (12)
8 mm	G3/8	D5214A3180	0.9 (22)	3.5 (88)	14.75 (20)
10 mm	G3/8	D5214A3110	0.9 (22)	3.5 (88)	14.75 (20)

Port 1 tubing size in inches (”) or millimeters (mm). ** Port 2 threads are male.



FLOW CHARTS



STANDARD SPECIFICATIONS (for products on this page):

Construction: Self-relieving.
Ambient/Media Temperature: 15° to 160°F (-10° to 70°C).
Flow Media: Filtered air.
Inlet Pressure: 15 to 240 psig (1 to 17 bar).
Regulated Pressure Range: 15 to 120 psig (1 to 8 bar).

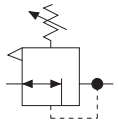
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/8, 1/4 & 3/8 – Flow to 23 scfm

Port Size	Model Numbers					
	Piston			Diaphragm		
	Regulated Pressure psig (bar)					
	0-50 (0-3.4)	**0-100** (0-6.9)	**0-125** (0-8.6)	**0-50** (0-3.4)	**0-100** (0-6.9)	**0-125** (0-8.6)
With THREADED PORTS *						
1/8	5B01C0030	5B01C0010	5B01C0050	5B01C0040	5B01C0020	5B01C0060
1/4	5B02C0030	5B02C0010	5B02C0050	5B02C0040	5B02C0020	5B02C0060
With Quick Connect TUBE FITTINGS						
1/4	5B03C0030	5B03C0010	5B03C0050	5B03C0040	5B03C0020	5B03C0060
3/8	5B04C0030	5B04C0010	5B04C0050	5B04C0040	5B04C0020	5B04C0060
4mm	5B05C0030	5B05C0010	5B05C0050	5B05C0040	5B05C0020	5B05C0060
6mm	5B06C0030	5B06C0010	5B06C0050	5B06C0040	5B06C0020	5B06C0060
8mm	5B07C0030	5B07C0010	5B07C0050	5B07C0040	5B07C0020	5B07C0060
10mm	5B08C0030	5B08C0010	5B08C0050	5B08C0040	5B08C0020	5B08C0060

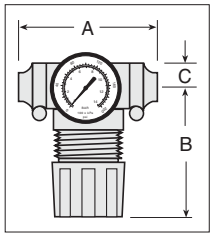
* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5B01C0030.

ISO Symbol
Regulator
Self-Relieving

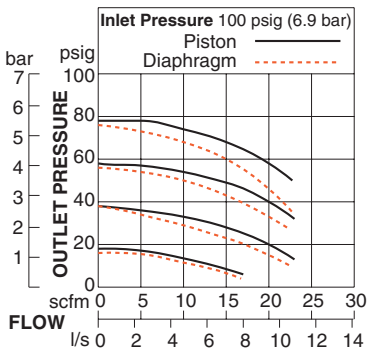


Port Size	Dimensions inches (mm)				Weight lb (kg)
	A	B	C	Depth*	
No Port	1.7 (43)	2.6 (67)	0.5 (13)	1.8 (45)	0.21 (0.09)
1/8, 1/4	3.0 (76)	2.6 (67)	0.5 (13)	1.8 (45)	0.43 (0.19)
Models below have quick-connect tube fittings.					
1/4	3.4 (86)	2.6 (67)	0.5 (13)	1.8 (45)	0.21 (0.09)
3/8	3.9 (99)	2.6 (67)	0.5 (13)	1.8 (45)	0.21 (0.09)
4 mm	3.4 (86)	2.6 (67)	0.5 (13)	1.8 (45)	0.41 (0.18)
6 mm	3.4 (86)	2.6 (67)	0.5 (13)	1.8 (45)	0.41 (0.18)
8 mm	3.1 (79)	2.6 (67)	0.5 (13)	1.8 (45)	0.41 (0.18)
10 mm	3.9 (99)	2.6 (67)	0.5 (13)	1.8 (45)	0.41 (0.18)

* Less gauge.



FLOW CHART



Pressure Gauge included.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Piston or diaphragm.
Self-relieving, for non-relieving option consult ROSS.
Ambient/Media Temperature: 40° to 125°F (4° to 52°C).
Fluid Media: Compressed air.
Inlet Pressure: 150 psig (10 bar) maximum.
Outlet Pressure: Adjustable up to 100 psig (7 bar).
Pressure Gauge: 0 to 160 psig (0 to 11 bar); 1/8 gauge ports front and rear.
Panel Mounting: 1-3/16 inch (30 mm) hole required.
Body: Acetal.
Dome and Knob: Acetal.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

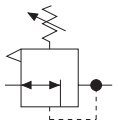
Port Sizes: 1/8 & 1/4 – Flow to 40 scfm

Port Size	Model Numbers*					
	Piston			Diaphragm		
	Regulated Pressure psig (bar)					
	0-50 (0-3.4)	**0-100** (0-6.9)	**0-125** (0-8.6)	**0-50** (0-3.4)	**0-100** (0-6.9)	**0-125** (0-8.6)
1/8	5212C1004	5211C1004	5213C1004	5212C1005	5211C1005	5213C1005
1/4	5212C2004	5211C2004	5213C2004	5212C2005	5211C2005	5213C2005

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5212C1004.

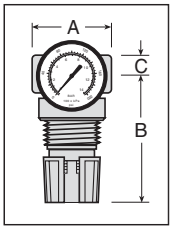
E2

ISO Symbol
Regulator
Self-Relieving



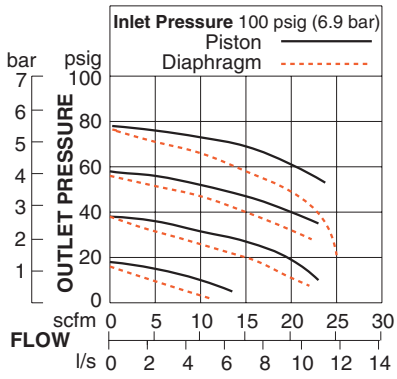
Port Size	Dimensions inches (mm)				Weight* lb (kg)
	A	B	C	Depth*	
1/8, 1/4	1.6 (41)	2.7 (68)	0.4 (10)	1.6 (41)	0.24 (0.11)

* Less gauge.



E

FLOW CHART



Pressure Gauge included.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Piston or diaphragm.
Self-relieving, for non-relieving option consult ROSS.
Ambient/Media Temperature: 40° to 125°F (4° to 52°C).
Fluid Media: Compressed air.
Inlet Pressure: 300 psig (21 bar) maximum.
Outlet Pressure: Adjustable up to 100 psig (7 bar).
Pressure Gauge: 0 to 160 psig (0 to 11 bar); 1/8 NPT gauge ports front and rear.
Panel Mounting: 1-3/16 inch (30 mm) hole required.
Body: Aluminum.
Dome and Knob: Acetal.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 100 scfm

Port Size	Model Numbers* Pressure Range psig (bar)		
	0-50 (0-3.4)	**0-100** (0-6.9)	**0-150** (0-10.3)
1/4	5212B2015	5211B2015	5213B2015
3/8	5212B3015	5211B3015	5213B3015
1/2	5212B4015	5211B4015	5213B4015

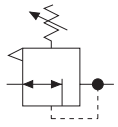
* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5212B2015.

E2

REGULATORS with REVERSE FLOW			
Port Size	Regulated Pressure Range psig (bar)	Model Numbers* Pressure Adjustment	
		Knob	T-Handle
1/4	0-100 (0-6.9)	5X00B2035	5X00B2039
3/8	0-100 (0-6.9)	5X00B3024	5X00B3021
1/2	0-100 (0-6.9)	5X00B4023	5X00B4041

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5X00B2035.

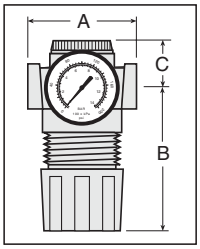
ISO Symbol
Regulator
Self-Relieving



Port Size	Dimensions inches (mm)				Weight* lb (kg)
	A	B	C	Depth*	
1/4, 3/8, 1/2	2.7 (68)	3.3 (83)	1.3 (33)	2.1 (52)	1.0 (0.46)

*Less gauge.

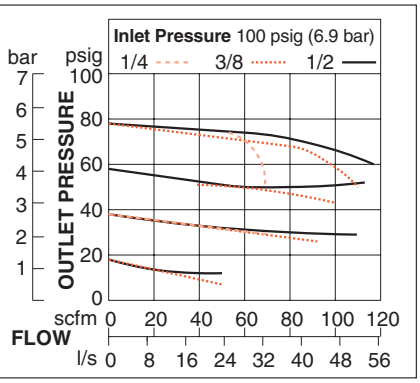
E



Reverse-Flow Regulators provide regulated in-to-out pressure control, plus quick exhausting from out-to-in.

Used for downstream pressure regulation of weld guns and other applications requiring quick exhausting through the regulator.

FLOW CHART



Pressure Gauge included.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Piston.
Self-relieving, for non-relieving option consult ROSS.
Ambient/Media Temperature: 40° to 125°F (4° to 52°C).
Fluid Media: Compressed air.
Inlet Pressure: 250 psig (17 bar) maximum.
Outlet Pressure: Adjustable up to 150 psig (10 bar).
Pressure Gauge: 0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.

Panel Mounting: 1-9/16 inch (40 mm) hole required.
Body: Zinc.
Cap: Nylon.
Dome: Acetal.
Knob: Acetal.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 120 scfm

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

MD3	52K	A	R	C	2	2	A

ADJUSTMENT TYPE	
Knob	52K
Tee Handle	52T
Locking Knob	52L

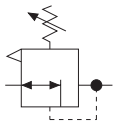
ADJUSTMENT RANGE	
0-200 psig (0-13.8 bar)	A
0-150 psig (0-10.3 bar)	B
0-100 psig (0-6.9 bar)	C
0-50 psig (0-3.4 bar)	D

FLOW OPTIONS	
Reverse Flow	R
Standard Flow	S

PIPE SIZE	
1/4 NPTF	2
3/8 NPTF	3
1/2 NPTF	4
1/4 BSPP	B
3/8 BSPP	C
1/2 BSPP	D

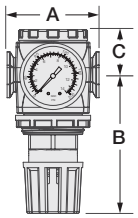
GAUGE	
No Gauge (without gauge port)	A
With Gauge 0-200 psig (0-13.8 bar)	B
With Gauge 0-60 psig (0-4.1 bar)	C
No Gauge, With Panel Mount Nut	D
With Panel Mount Nut & Gauge 0-200 psig (0-13.8 bar)	E
With Panel Mount Nut & Gauge 0-60 psig (0-4.1 bar)	F

ISO Symbol
Regulator
Self-Relieving

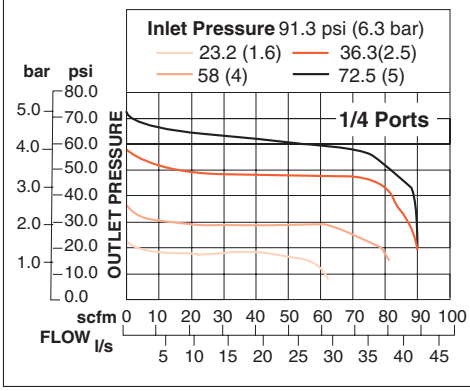


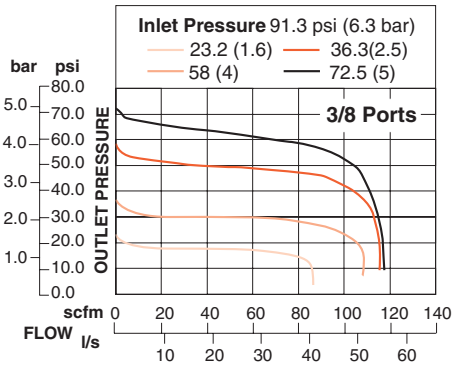
Port Size	Dimensions inches (mm)				Weight† lb (kg)
	A	B*	C**	Depth†	
1/4, 3/8, 1/2, 3/4	3.0 (76.2)	4.52 (114.9)	1.46 (37)	2.51 (63.8)	1.9 (0.86)

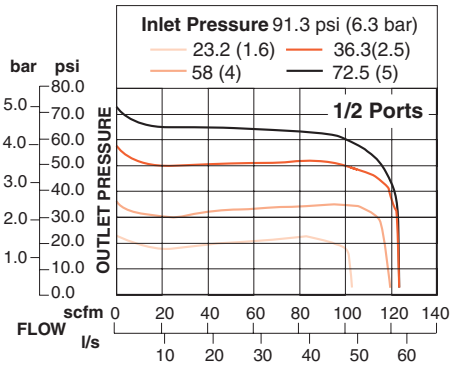
* Dome removal clearance: add 0.575 (14.6).
**Cap removal clearance: add 0.750 (19.1).
† Less gauge.



FLOW CHARTS







Accessories ordered separately, refer to page E6.3-5.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Diaphragm.
Self-relieving, for non-relieving option consult ROSS.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed Air.
Inlet Pressure: 300 psig (21 bar) maximum.
Outlet Pressure: Adjustable up to 200 psig (14 bar); optional adjusting springs.
Optional Pressure Adjustment Locking Key: Removable.
Pressure Gauge: 0-200 psig (0-14 bar) or 0-60 psig (0-4 bar); 1/4-NPT gauge ports front and rear.
Panel Mounting: 2-1/16 inch (52 mm) hole required.
Self-relieving: Non-relieving optional.
Body: Zinc.
Dome: Nylon.
Knob: Acetal.
Seals: Nitrile.
Valve: Brass.
Valve Cap: Nylon.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/4, 3/8, 1/2 & 3/4 – Flow to 155 scfm

Port Size	Model Numbers*		
	Pressure Range psig (bar)		
	0-50 (0-3.4)	**0-125** (0-8.6)	**0-175** (0-12.1)
1/4	5212B2017	5211B2017	5213B2017
3/8	5212B3017	5211B3017	5213B3017
1/2	5212B4017	5211B4017	5213B4017
3/4	5212B5027	5211B5027	5213B5027

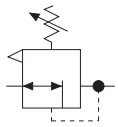
* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5212B2017.

E2

REGULATORS with REVERSE FLOW		
Port Size	Model Numbers*	
	Pressure Adjustment 0-125 (0-8.6)	
	Knob	T-Handle
1/4	5X00B2010	–
3/8	5X00B3004	5X00B3012
1/2	5X00B4004	5X00B4047
3/4	5X00B5034	5X00B5044

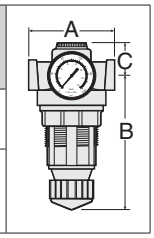
* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5X00B2010.

ISO Symbol
Regulator
Self-Relieving



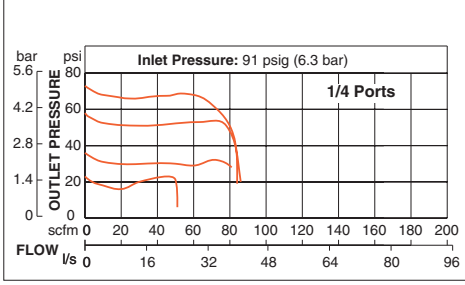
Port Size	Dimensions inches (mm)				Weight† lb (kg)
	A	B**	C***	Depth†	
1/4, 3/8, 1/2, 3/4	3.5 (89)	5.8 (146)	1.3 (33)	2.8 (71)	2.06 (0.92)

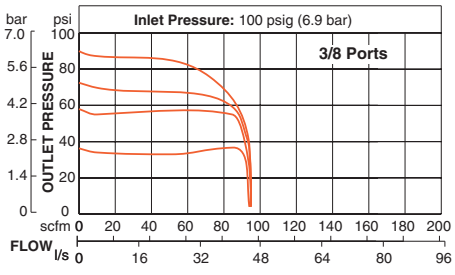
** Dome removal clearance: add 0.63 (16).
*** Cap removal clearance: add 0.5 (13).
† Less gauge.

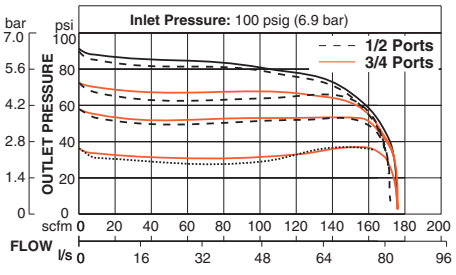


E

FLOW CHARTS







Pressure Gauge included.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Diaphragm.
Self-relieving, for non-relieving option consult ROSS.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure: 300 psig (21 bar) maximum.
Outlet Pressure: Adjustable up to 175 psig (12 bar).
Pressure Adjustment Locking Key: Removable.
Pressure Gauge: 0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
Panel Mounting: 2-1/16 inch (52 mm) hole required.
Body: Zinc.
Dome: Nylon; aluminum with optional 0 to 175 psig (0 to 12 bar) spring.
Knob: Acetal.
Seals: Nitrile.
Valve: Brass.
Valve Cap: Nylon.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 3/8, 1/2 & 3/4 – Flow to 220 scfm

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

MD4	52K	A	S	B	5	2	B

ADJUSTMENT TYPE

Knob	**52K**
Tee Handle	52T

ADJUSTMENT RANGE

0-175 psig (0-12.1 bar)	**A**
0-125 psig (0-8.6 bar)	B
0-50 psig (0-3.4 bar)	C
0-20 psig (0-1.4 bar)	D

FLOW OPTIONS

Reverse Flow	R
Standard Flow	**S**

PIPE SIZE

3/8 NPTF	3
1/2 NPTF	4
3/4 NPTF	5
3/8 BSPP	C
1/2 BSPP	D
3/4 BSPP	E

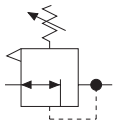
CAP COLOR

Gold	**2**
Gray	G
Yellow	Y
Red	R
Blue	B

GAUGE

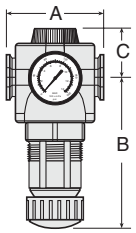
No Gauge (without gauge port)	A
With Gauge 0-200 psig (0-13.8 bar)	**B**
With Gauge 0-60 psig (0-4.1 bar)	C
No Gauge, With Panel Mount Nut	D
With Panel Mount Nut & Gauge 0-200 psig (0-13.8 bar)	E
With Panel Mount Nut & Gauge 0-60 psig (0-4.1 bar)	F

ISO Symbol
Regulator
Self-Relieving

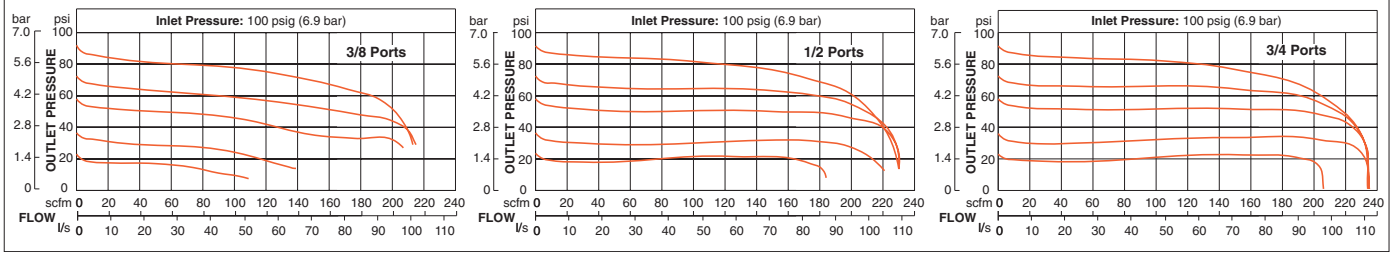


Port Size	Dimensions inches (mm) A	B*	C**	Depth †	Weight † lb (kg)
3/8, 1/2, 3/4	3.5 (87)	5.6 (142)	1.6 (40)	2.9 (73)	2.56 (1.16)

*Dome removal clearance: add 0.625 (16).
**Cap removal clearance: add 0.50 (13).
† Dimensions reflect less gauge.



FLOW CHARTS



Accessories ordered separately, refer to page E6.3-5.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Diaphragm.
Self-relieving, for non-relieving option consult ROSS.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure: 300 psig (21 bar) maximum.
Outlet Pressure: Adjustable up to 175 psig (12 bar); optional adjusting springs.
Pressure Adjustment Locking Key: Removable.
Pressure Gauge: 0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
Panel Mounting: 2-1/16 inch (52 mm) hole required.
Body: Zinc.
Dome: Nylon; aluminum with optional 0 to 175 psig (0 to 12 bar) spring.
Knob: Acetal.
Seals: Nitrile.
Valve: Brass.
Valve Cap: Nylon.

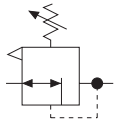
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 3/4, 1, 1¼ & 1½ – Flow to 800 scfm

Port Size	Model Numbers*	
	Pressure Range psig (bar)	
	0-50 (0-3.4)	**0-100** (0-6.9)
3/4	5212D5017	5211D5017
1	5212D6017	5211D6017
1¼	5212C7017	5211C7017
1½	5212C8017	5211C8017

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5212D5017.

ISO Symbol
Regulator
Self-Relieving

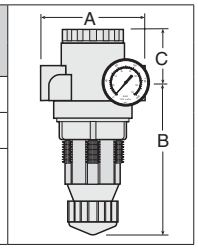


REGULATORS with REVERSE FLOW:			
Port Size	**Pressure Range psig** (bar)	**Model Numbers***	
		Pressure Adjustment	
		Knob	**T-Handle**
3/4	0-100 (0-6.9)	5X00B5049	5X00B5050
1	0-100 (0-6.9)	5X00D6003	5X00B6038
1¼	0-100 (0-6.9)	5X00C7003	5X00B7016
1½	0-100 (0-6.9)	5X00C8001	5X00B8024

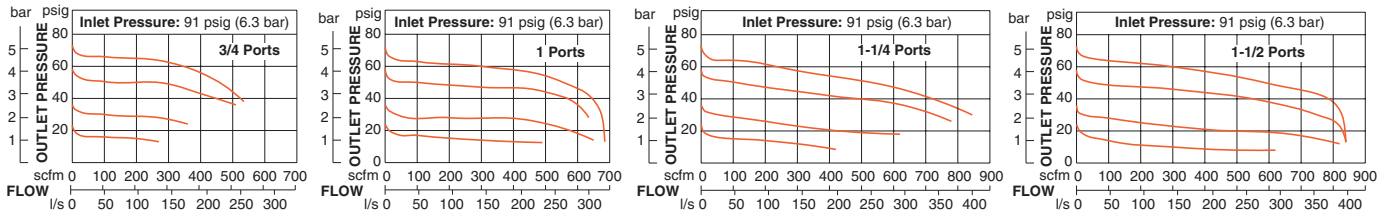
* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5X00B5049.

Port Size	Dimensions inches (mm)				Weight † lb (kg)
	A	B**	C***	Depth †	
3/4, 1	4.4 (111)	6.1 (154)	2.4 (62)	2.8 (71)	2.19 (0.99)
1¼, 1½	4.9 (124)	6.4 (162)	2.1 (54)	2.8 (71)	2.50 (1.14)

** Dome removal clearance: add 0.63 (16).
*** Cap removal clearance: add 0.65 (16.5).
† Dimensions reflect less gauge.



FLOW CHARTS



Pressure Gauge included.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Piston.
Self-relieving.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure: 300 psig (21 bar) maximum.
Outlet Pressure: Adjustable up to 100 psig (7 bar).
Pressure Adjustment Locking Key: Removable.
Pressure Gauge: 0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
Panel Mounting: 2-1/16 inch (52 mm) hole required.
Body: Aluminum.
Dome: Nylon; aluminum with optional 0 to 150 psig (0 to 10 bar) spring.
Knob: Acetal
Seals: Nitrile.
Valve: Brass.
Valve Cap: Nylon.

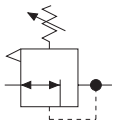
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/8, 1/4 & 3/8 – Flow to 70 scfm

Port Size	Model Numbers*	
	Piston Type	
	Relieving	Non-relieving
1/8	5215B1004	5X00B1025
1/4	5215B2004	5X00B2076
3/8	5215B3004	5X00B3052

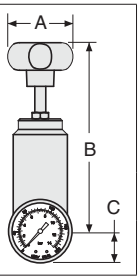
* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5215B1004.

ISO Symbol
Regulator
Self-Relieving



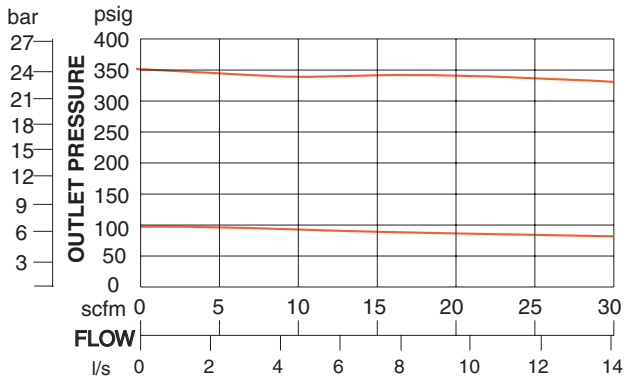
Port Size	Dimensions inches (mm)				Weight** lb (kg)
	A	B	C	Depth**	
1/8, 1/4	1.9 (47)	7.3 (186) max	0.4 (10)	1.9 (47)	1.15 (0.53)
3/8	2.1 (54)	7.4 (188) max	0.5 (13)	2.1 (54)	1.30 (0.59)

** Less gauge.



FLOW CHART

Using a 0-400 psig (0 to 27.6 bar) main spring and 400 psig (27.6 bar) inlet.



Pressure Gauge included.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Piston.
Self-relieving, Non-relieving.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure: 400 psig (28 bar) maximum.
Outlet Pressure: Adjustable up to 390 psig (27 bar).
Pressure Gauge: 0 to 600 psig (0 to 40 bar).
Body and Dome: Aluminum.
Knob: Nylon.
Seals: Fluorelastomer.
Max Flow Rate: 70 scfm (33.0 l/s) @400 psi (28 bar).

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

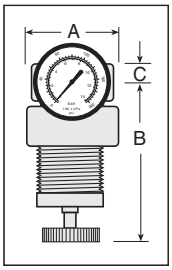
Port Sizes: 1/8 & 1/4 – Flow to 4 scfm

Port Size	Regulated Pressure Range# psig (bar)	Model Numbers*
1/8	0-50 (0-3.4)	5212C1006
1/4	0-50 (0-3.4)	5212C2006

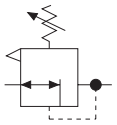
For 0-10 psig (0-0.7 bar), 0-20 psig (0-1.4 bar), and 0-60 psig (0-4.1 bar) ranges, consult ROSS.
* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5212C1006.

Port Size	Dimensions inches (mm)				Weight** lb (kg)
	A	B	C	Depth**	
1/8, 1/4	1.8 (44)	3.4 (86)	0.4 (10)	1.8 (44)	0.38 (0.16)

**Less gauge.

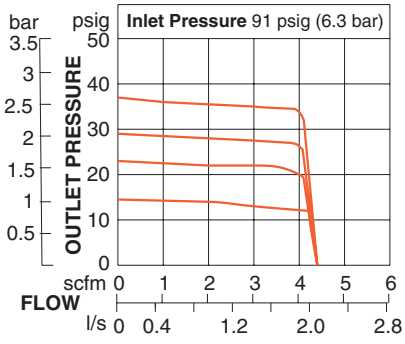


ISO Symbol
Regulator
Self-Relieving



Precision Regulators have a small valve seat and a large diaphragm area, a combination that allows greater precision, sensitivity, adjustment resolution, and less variation in regulated pressure.

FLOW CHART



Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Diaphragm.
Self-relieving.
Ambient/Media Temperature: 40° to 125°F (4° to 52°C).
Fluid Media: Compressed air.
Inlet Pressure: 300 psig (21 bar) maximum.
Outlet Pressure: Adjustable up to 100 psig (7 bar).
Pressure Gauge: 0 to 160 psig (0 to 11 bar); 1/8 NPT gauge ports front and rear.
Panel Mounting: 1-3/16 inch (30 mm) hole required.
Body: Aluminum.
Dome and Knob: Acetal.
Seals: Nitrile.

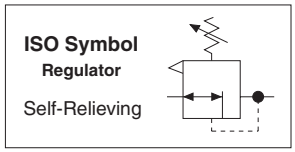
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Online Version
Rev. 11/14/16

Port Sizes: 1/4, 3/8, 1/2 & 3/4 – Flow to 155 scfm

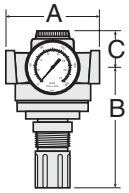
Internally Piloted Regulator		
Port Size	**Model Numbers***	
	Pressure Range psig (bar)	
	15-200 (1-13.8)	**15-250** (1-17.2)
1/4	5213C2018	5214C2018
3/8	5213C3018	5214C3018
1/2	5213C4018	5214C4018
3/4	5213C5018	5214C5018

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5213C2018.



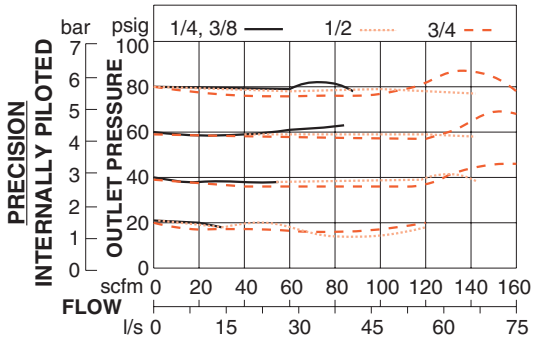
Port Size	Dimensions inches (mm)				Weight† lb (kg)
	A	B**	C***	Depth†	
1/4, 3/8, 1/2, 3/4	3.5 (89)	4.2 (106)	1.3 (33)	2.8 (71)	2.06 (0.92)

** Dome removal clearance: add 0.63 (16).
*** Cap removal clearance: add 0.5 (13).
† Less gauge.



Precision internal Pilot Regulators provide improved torque control for pneumatic tools; diaphragm type. Pressure settings held within 3 psig (0.2 bar).

FLOW CHART



Pressure Gauge included.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Diaphragm.
Self-relieving.
Ambient/Media Temperature: 40° to 125°F (4° to 52°C).
Fluid Media: Compressed air.
Inlet Pressure: 300 psig (21 bar) maximum.
Outlet Pressure: Adjustable 15 to 250 psig (1 to 17 bar).
Pressure Adjustment Locking Key: Removable.
Pressure Gauge: 0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
Panel Mounting: 2-1/16 inch (52 mm) hole required.
Body: Zinc.
Dome: Nylon; aluminum with optional 0 to 175 psig (0 to 12 bar) spring.
Knob: Acetal.
Seals: Nitrile.
Valve: Brass.
Valve Cap: Nylon.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 3/8, 1/2 & 3/4 – Flow to 170 scfm

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

MD4	52K	E	B	5	2	B

ADJUSTMENT RANGE

15-200 psig (1.0-13.8 bar)	**E**
15-250 psig (1.0-17.2bar)	F
15-100 psig (1.0-6.9 bar)	G

PIPE SIZE

3/8 NPTF	3
1/2 NPTF	4
3/4 NPTF	**5**
3/8 BSPP	C
1/2 BSPP	D
3/4 BSPP	E

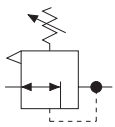
CAP COLOR

Gold	**2**
Gray	G
Yellow	Y
Red	R
Blue	B

GAUGE

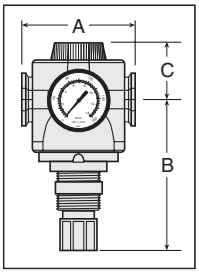
No Gauge (without gauge port)	A
With Gauge 0-200 psig (0-13.8 bar)	**B**
No Gauge, With Panel Mount Nut	D
With Panel Mount Nut & Gauge 0-200 psig (0-13.8 bar)	E

ISO Symbol
Regulator
Self-Relieving

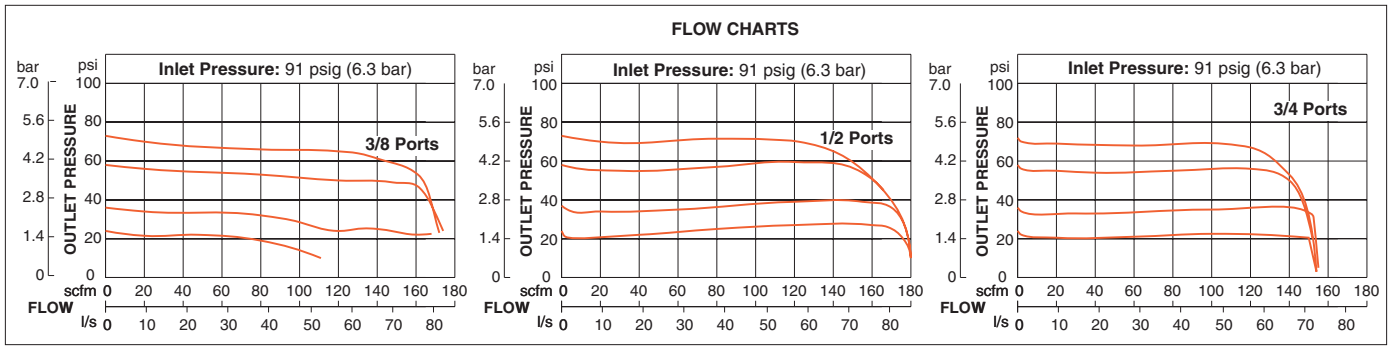


Port Size	Dimensions inches (mm)				Weight † lb (kg)
	A	B	C	Depth †	
3/8, 1/2, 3/4	3.5 (87)	4.8 (122)	1.6 (40)	2.9 (73)	2.3 (1.0)

† Dimensions reflect less gauge.



FLOW CHARTS



Accessories ordered separately, refer to page E6.3-5.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Diaphragm.
Self-relieving.
Ambient/Media Temperature: 40° to 125°F (4° to 52°C).
Fluid Media: Compressed air.
Inlet Pressure: 250 psig (17 bar) maximum.
Outlet Pressure: Adjustable 15 to 250 psig (1 to 17 bar).
Pressure Gauge: 0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
Panel Mounting: 2-1/16 (52 mm) hole required.
Body and Dome: Zinc.
Bonnet and Knob: Acetal.
Seals: Nitrile.
Valve: Brass.
Precision Regulators: Provide improved torque control for pneumatic tools; diaphragm type. Pressure settings held within 3 psig (0.2 bar).

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

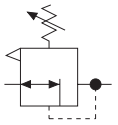
Online Version
Rev. 11/14/16

Port Sizes: 3/4, 1, 1¼, 1½ – Flow to 800 scfm

Port Size	Model Numbers*	
	Pressure Range psig (bar)	
	15-200 (1-13.8)	**15-250** (1-17.2)
3/4	5213D5017	5214D5017
1	5213D6017	5214D6017
1¼	5213D7017	5214D7017
1½	5213D8017	5214D8017

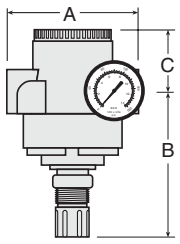
* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5214D5017.

ISO Symbol
Regulator
Self-Relieving

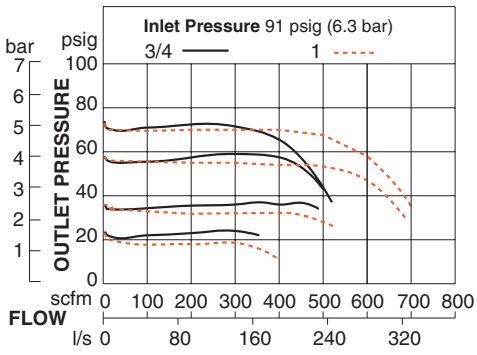


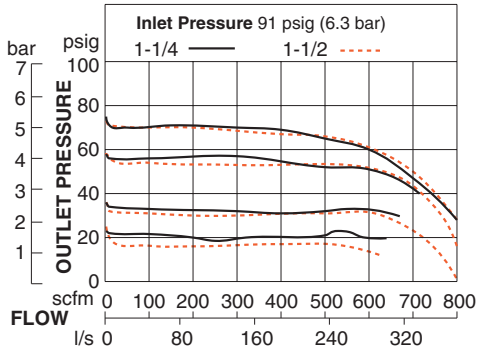
Port Size	Dimensions inches (mm)				Weight † lb (kg)
	A	B	C	Depth †	
3/4, 1	4.4 (111)	4.6 (112)	2.4 (62)	2.8 (71)	2.0 (0.91)
1¼, 1½	4.9 (124)	4.9 (125)	2.1 (54)	2.8 (71)	2.38 (1.08)

† Dimensions reflect less gauge.



FLOW CHARTS





Precision Regulators:
Provide improved torque control for pneumatic tools. Pressure settings held within 3 psig (0.2 bar).

Pressure Gauge included.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Diaphragm.
Self-relieving.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure: 300 psig (21 bar) maximum.
Outlet Pressure: Adjustable 15 to 250 psig (1 to 17 bar).
Pressure Gauge: 0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
Panel Mounting: 1-3/16 (30 mm) hole required.
Body: Aluminum.
Bonnet and Knob: Acetal.
Dome: Zinc.
Seals: Nitrile.
Valve: Brass.
Valve Cap: Nylon.

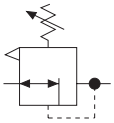
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/4, 3/8, 1/2, 3/4 – Flow to 155 scfm

Port Size	Model Numbers*
	Pressure Range psig (bar)
	0-200 (0-13.8)
1/4	5211C2007
3/8	5211C3007
1/2	5211C4007
3/4	5211C5007

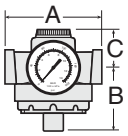
* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5211C2007.

ISO Symbol
Regulator
Self-Relieving



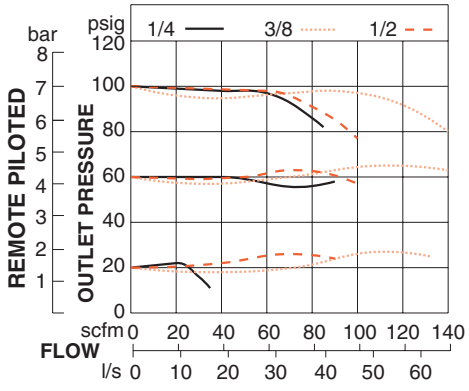
Port Size	Dimensions inches (mm)				Weight† lb (kg)
	A	B**	C***	Depth†	
1/4, 3/8, 1/2, 3/4	3.5 (89)	2.4 (62)	1.3 (33)	2.8 (71)	2.06 (0.92)

** Dome removal clearance: add 0.63 (16).
*** Cap removal clearance: add 0.5 (13).
† Less gauge.



Remote Pilot Regulators use any small regulator to provide remote adjustment and to ensure accurate pressure control.

FLOW CHART



Pressure Gauge included.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Diaphragm.
Self-relieving.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure: 300 psig (21 bar) maximum.
Outlet Pressure: Adjustable 0 to 125 psig (0 to 14 bar).
Pressure Adjustment Locking Key: Removable.
Pressure Gauge: 0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
Panel Mounting: 2-1/16 inch (52 mm) hole required.
Body: Zinc.
Dome: Zinc.
Knob: Acetal.
Seals: Nitrile.
Valve: Brass.
Valve Cap: Nylon.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

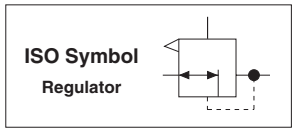
Port Sizes: 1/4, 3/8, 1/2 & 3/4 – Flow to 150 scfm

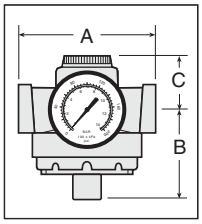
Port Size	Model Numbers*
1/4	5X00B2037
3/8	5X00B3025
1/2	5X00B4040
3/4	5X00B5035

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5X00B2037.

Port Size	Dimensions inches (mm)				Weight † lb (kg)
	A	B	C	Depth †	
1/4, 3/8, 1/2, 3/4	3.5 (87)	2.4 (62)	1.3 (33)	2.8 (71)	2.06 (0.92)

† Dimensions reflect less gauge.





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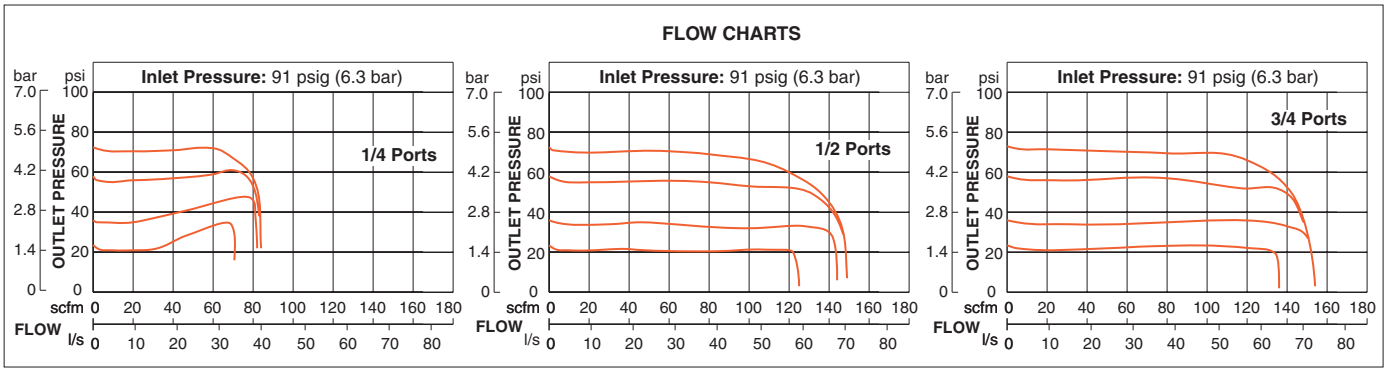


Pressure Gauge included.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Diaphragm.
Self-relieving.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure: 300 psig (21 bar) maximum.
Outlet Pressure: Adjustable 0 to 200 psig (0 to 14 bar).
Pilot Ports: 1/4 NPTF.

Pressure Gauge: 0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
Body and Dome: Zinc.
Seals: Nitrile; Fluororelastomer seals optional, consult ROSS.
Valve: Brass.
Valve Cap: Nylon.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

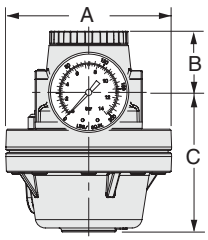
Port Sizes: 1/4, 3/8 & 1/2 – Flow to 150 scfm

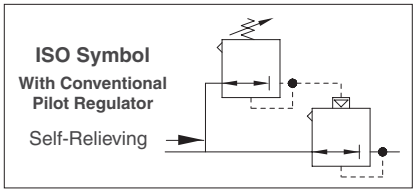
Port Size	Model Numbers*
1/4	5216A2007
3/8	5216A3007
1/2	5216A4007

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5216A2007.

Port Size	Dimensions inches (mm)				Weight† lb (kg)
	A	B**	C***	Depth†	
1/4, 3/8, 1/2	4.18 (106)	1.54 (39.1)	3.52 (89.3)	4.18 (106)	4.84 (2.2)

** Dome removal clearance: add 0.63 (16).
*** Cap removal clearance: add 0.5 (13).
† Less gauge.





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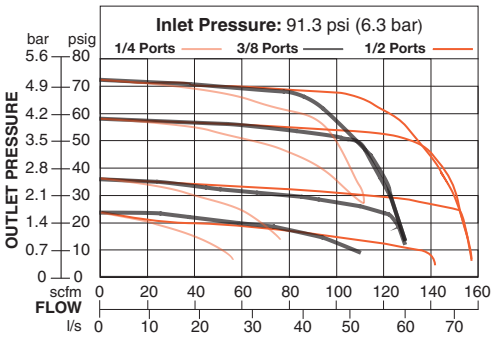
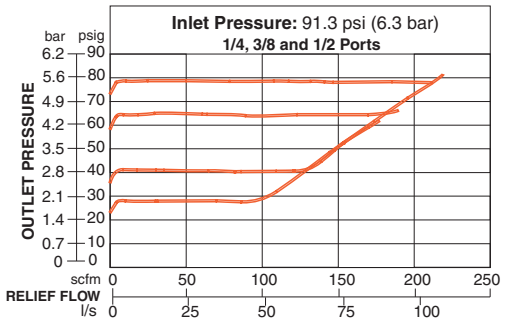




Pressure Gauge included.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Diaphragm. Self-relieving.
Ambient/Media Temperature: 0° to 158°F (-18° to 70°C).
Fluid Media: Compressed air.
Inlet Pressure: 400 psig (28 bar) maximum.
Outlet Pressure: Adjustable up to 250 psig (17 bar).
Pressure Gauge: 0 to 200 psig (0 to 14 bar) standard, 1/4-NPTF (1/4 BSPP) gauge ports front and rear; 0 to 600 psig (0 to 40 bar) optional.
Body and Dome: Zinc.
Valve: Brass.
Valve Cap: Glass filled Nylon.
Seals: Nitrile

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 3/8, 1/2 & 3/4 – Flow to 190 scfm

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

MD4	52K	1	B	5	2	B

RELIEF OPTION

Relieving	1
Non-relieving	2

PIPE SIZE

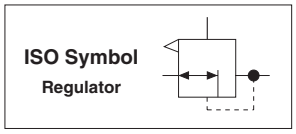
3/8 NPTF	3
1/2 NPTF	4
3/4 NPTF	5
3/8 BSPP	C
1/2 BSPP	D
3/4 BSPP	E

CAP COLOR

Gold	2
Gray	G
Yellow	Y
Red	R
Blue	B

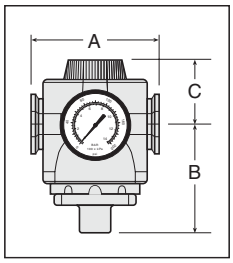
GAUGE

No Gauge (without gauge port)	A
With Gauge 0-200 psig (0-13.8 bar)	B



Port Size	Dimensions inches (mm)				Weight † lb (kg)
	A	B	C	Depth †	
1/4, 3/8, 1/2, 3/4	3.5 (87)	2.4 (62)	1.6 (41)	2.9 (73)	2.2 (1.0)

† Dimensions reflect less gauge.



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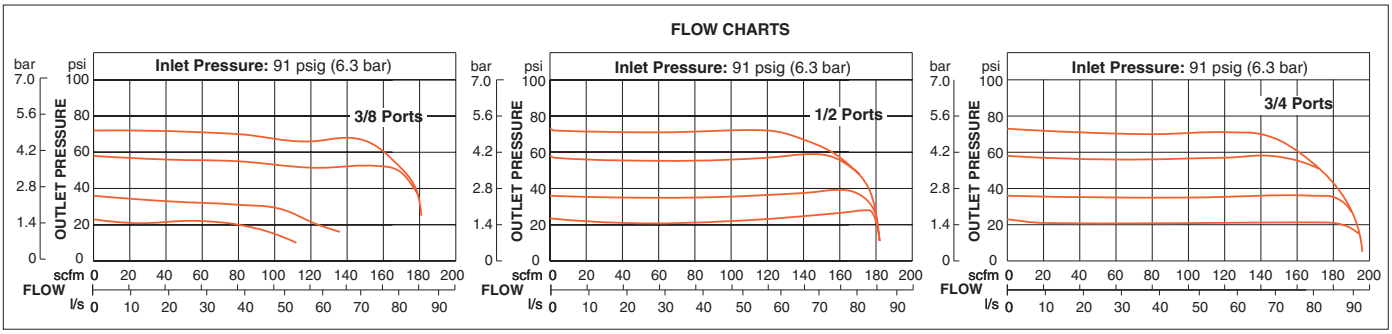


Accessories ordered separately, refer to page E6.3-5.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Diaphragm.
Self-relieving.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure: 300 psig (21 bar) maximum.
Outlet Pressure: Adjustable 0 to 250 psig (0 to 17 bar).
Pilot Ports: 1/4 NPTF.
Pressure Gauge: 0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
Body and Dome: Zinc.
Seals: Nitrile.
Valve: Brass.
Valve Cap: Nylon.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

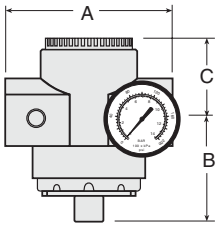
Port Sizes: 3/4, 1, 1¼ & 1½ – Flow to 700 scfm

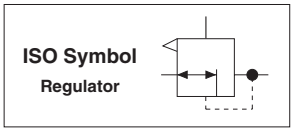
Port Size	Model Numbers*
3/4	5X00B5046
1	5X00B6039
1¼	5X00B7021
1½	5X00B8049

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5X00B5046.

Port Size	Dimensions inches (mm)				Weight† lb (kg)
	A	B**	C***	Depth†	
3/4, 1	4.4 (111)	2.9 (74)	2.4 (62)	2.8 (71)	1.88 (0.85)
1¼, 1½	4.9 (124)	3.2 (81)	2.1 (54)	2.8 (71)	2.25 (1.02)

** Dome removal clearance: add 0.63 (16).
*** Cap removal clearance: add 0.5 (13).
† Less gauge.





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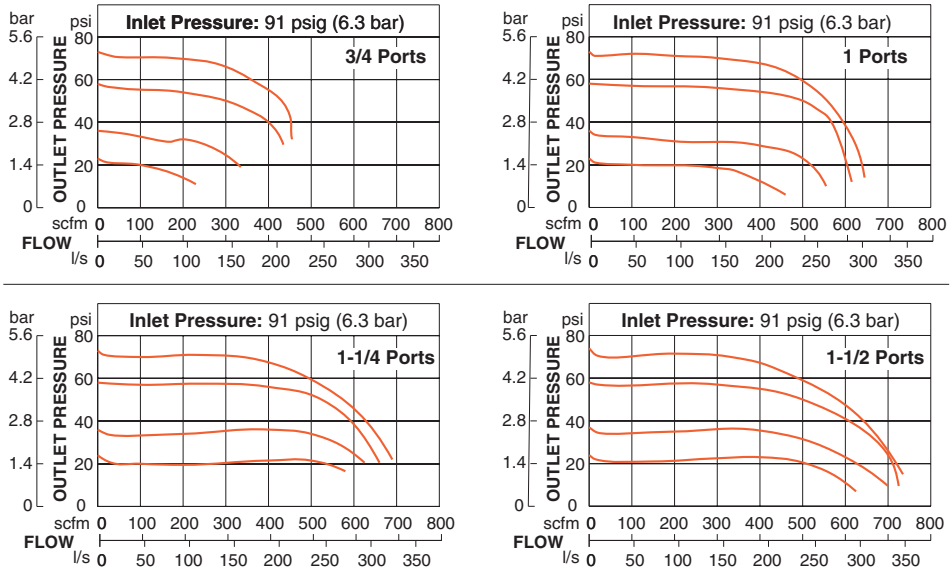


Pressure Gauge included.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Diaphragm.
Self-relieving.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure: 300 psig (21 bar) maximum.
Outlet Pressure: 0 to 200 psig (0 to 14 bar).
Pilot Ports: 1/4 NPTF.
Pressure Gauge: 0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
Body: Aluminum.
Dome: Zinc.
Seals: Nitrile.
Valve: Brass.
Valve Cap: Nylon.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

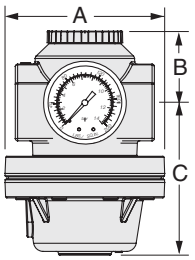
Port Sizes: 3/4, 1 & 1¼ – Flow to 400 scfm

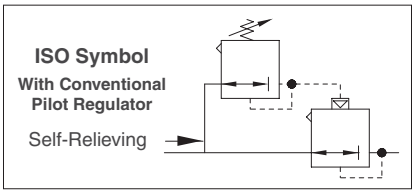
Port Size	Model Numbers*
3/4	5216A5007
1	5216A6007
1¼	5216A7007

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5216A5007.

Port Size	Dimensions inches (mm)				Weight† lb (kg)
	A	B**	C***	Depth†	
3/4, 1, 1¼	4.18 (117)	1.87 (47.5)	3.99 (101.3)	4.18 (106)	6.44 (3.0)

** Dome removal clearance: add 0.63 (16).
*** Cap removal clearance: add 0.5 (13).
† Less gauge.

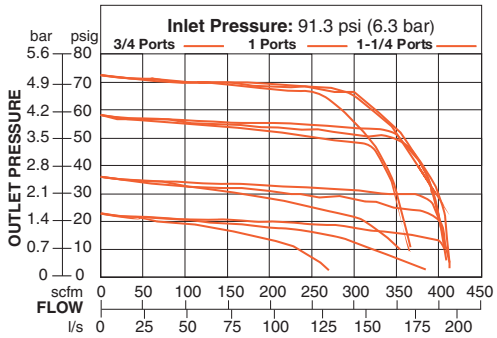


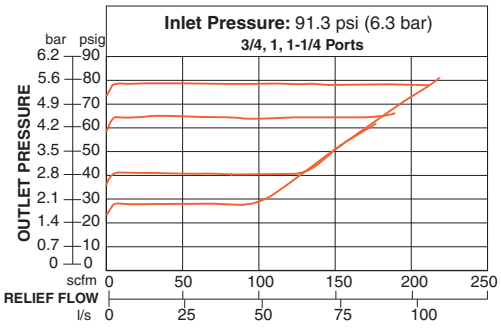


E2

E

FLOW CHARTS





Pressure Gauge included.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Diaphragm.
Self-relieving.
Ambient/Media Temperature: 0° to 158°F (-18° to 70°C).
Fluid Media: Compressed air.
Inlet Pressure: 400 psig (28 bar) maximum.
Outlet Pressure: Adjustable up to 250 psig (17 bar).
Pressure Gauge: 0 to 200 psig (0 to 14 bar) standard, 1/4-NPTF (1/4 BSPP) gauge ports front and rear; 0 to 600 psig (0 to 40 bar) optional.
Body and Dome: Zinc.
Valve: Brass.
Valve Cap: Glass filled Nylon.
Seals: Nitrile

Port Sizes: 1½, 2 & 3 – Flow to 4000 scfm

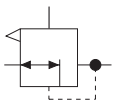
Flow to 850 scfm	
Port Size	**Model Numbers***
1½	5211B8027
2	5211B9007

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5211B8027.

Flow to 4000 scfm		
Port Size	**Seals**	**Model Numbers***
3	Nitrile	5211B9008
3	Fluororelastomer	5X00B9021

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5211B9008.

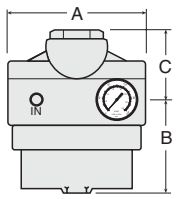
ISO Symbol
Regulator



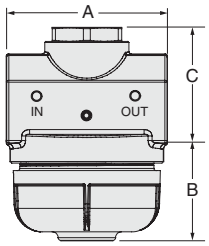
Port Size	Dimensions inches (mm)				Weight† lb (kg)
	A	B	C	Depth†	
1½, 2	6.4 (162)	5.0 (127)	3.0 (76)	2.8 (71)	8.94 (4.06)
3	8.4 (214)	7.36 (187)	3.74 (95)	8.0 (203)	21.77 (9.88)

† Less gauge.

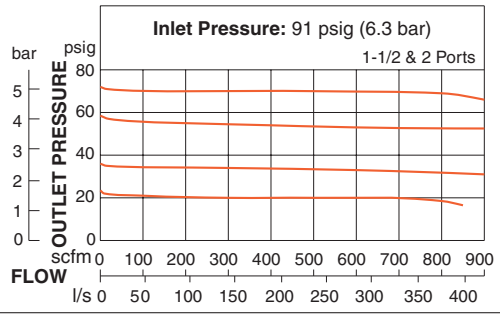
Port Size 1½, 2

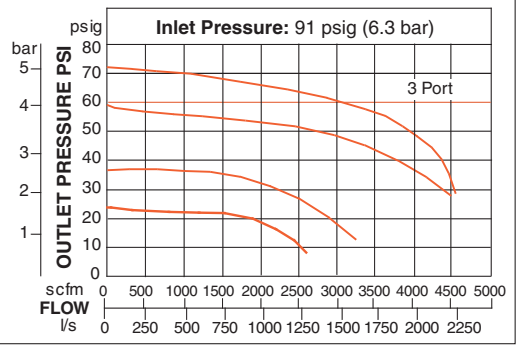


Port Size 3



FLOW CHARTS





Pressure Gauge included.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Piston.
Self-relieving.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure: 300 psig (21 bar) maximum.
Outlet Pressure: 0 to 200 psig (0 to 14 bar).
NOTE: Outlet pressure depends on the selection of the pilot regulator.
Pilot Ports: 1/4 NPTF.
Pressure Gauge: 0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
Body and Dome: Aluminum.
Seals: Nitrile.
Valve: Brass on ½" & 2" ports; Aluminum on 3" ports.
Valve Cap: Aluminum.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

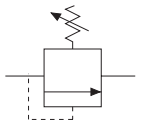
Port Sizes: 1/8 & 1/4 – Flow to 40 scfm

Port Size	Model Numbers*			
	Pressure Range psig (bar)			
	1-15 (0.07-1.0)	**1-30** (0.07-2.1)	**1-50** (0.07-3.4)	**1-140** (0.07-9.6)
1/8	5210B1002	5210B1003	5210B1004	5210B1001
1/4	5210B2002	5210B2003	5210B2004	5210B2001

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5210B1002.

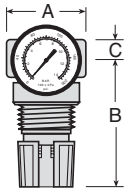
E2

ISO Symbol
Relief Valve
Self-Relieving



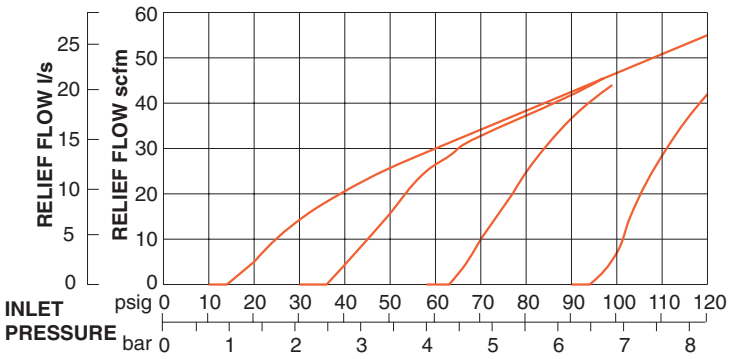
Port Size	Dimensions inches (mm)				Weight† lb (kg)
	A	B	C	Depth†	
1/8, 1/4	1.6 (41)	2.7 (68)	0.4 (10)	1.6 (41)	0.24 (0.11)

†Less gauge.



E

FLOW CHART



Relief Valves have maximum relief flows of 10 to 20 scfm (4.7 to 9.4 l/s).
For models with increased sensitivity at lower pressure, consult ROSS.

Pressure Gauge included.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Diaphragm.
Self-relieving.
Ambient/Media Temperature: 40° to 125°F (4° to 52°C).
Fluid Media: Compressed air.
Inlet Pressure: 300 psig (21 bar) maximum.
Outlet Pressure: Adjustable 1 to 140 psig (0.07 to 9.6 bar).
Pressure Gauge: 0 to 160 psig (0 to 11 bar); 1/8 NPT gauge ports front and rear.
Panel Mounting: 1-3/16 inch (30 mm) hole required.
Body: Aluminum.
Dome and Knob: Acetal.
Seals: Nitrile.

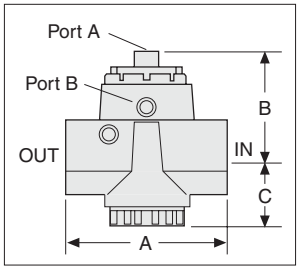
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

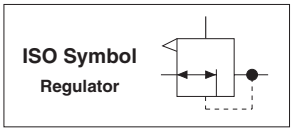
Port Sizes: 1 – Flow to 450 scfm

Port Size	Model Numbers*
1	5X00D6012

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5X00D6012.

Port Size	Dimensions inches (mm)				Weight lb (kg)
	A	B	C	Depth	
1	4.4 (111)	4.8 (122)	2.5 (62)	2.9 (72)	1.8 (0.8)





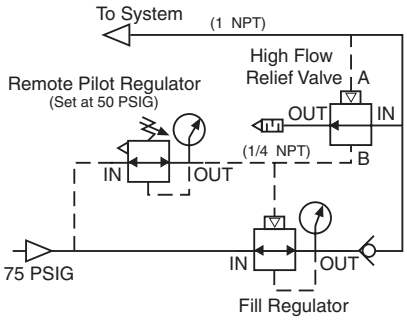
On the right is a typical circuit using the High Flow Relief Valve. The circuit utilizes a remotely piloted "fill" regulator (port size 1 NPT) and a small, remotely mounted, pilot regulator with 1/4 NPT ports.

The required system pressure is set by adjusting the knob on the pilot regulator until the desired system pressure is shown on the pilot regulator's gauge. An example system pressure of 50 PSIG was selected in the circuit.

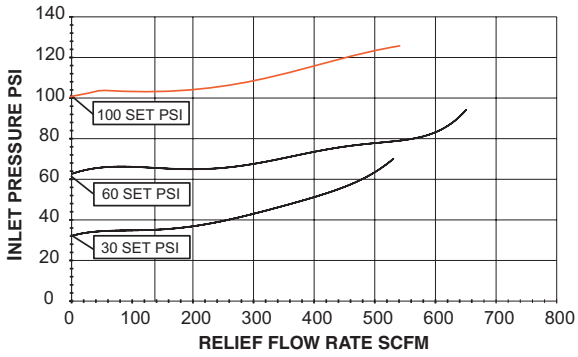
Outlet pressure from the pilot regulator is sent to the fill regulator's signal port and the Port 2 of the High Flow Relief Valve. The Port 1 of the High Flow Relief Valve is connected to the system, as shown, to monitor system pressure.

If the system pressure exceeds the pilot regulator setting (set-point), the High Flow Relief Valve will begin to exhaust air after an approximate 2 psig (0.1 bar) rise above the set-point.

Should the system pressure drop below the set-point, the fill valve will open to supply air downstream and maintain the system at the set-point.



FLOW CHART



Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Diaphragm. Self-relieving.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure: 200 psig (14 bar) maximum.
Outlet Pressure: 0 to 200 psig (0 to 14 bar).
Pilot Ports: 1/4 NPTF.
Pressure Gauge: 0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
Body: Aluminum.
Dome: Zinc.
Seals: Nitrile.
Valve: Brass.
Valve Cap: Nylon.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

RER1	A	1	A	100

CONNECTOR

6-Pin Brad Harrison	**A**
5-Pin M12	B

COMMAND INPUT

0–10 volts DC	**1**
4–20 mA	2

MONITOR SIGNAL

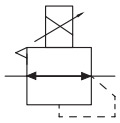
0–10 volts DC	**A**
4–20 mA - sinking	B
4–20 mA - sourcing	C

MAXIMUM CALIBRATED PRESSURE RANGE

0-30 psig (0 to 2.1 bar)	**030**
0-50 psig (0 to 3.5 bar)	050
100 psig (0 to 6.9 bar)	100
0-200 psig (0 to 13.8 bar)	200
0-300 psig (0 to 20.7 bar)	300
0-20 in Hg (vacuum)	V20

E2

ISO Symbol



Accessories ordered separately, see below.

ACCESSORIES

Cables

For 6-Pin Brad Harrison Connector.

E

Cable Length	Part Number*
6 feet (1.8 meters)	RER-CBL-6
12 feet (3.7 meters)	RER-CBL-12
25 feet (7.5 meters)	RER-CBL-25
*For cables for 5-Pin M12 connector, consult ROSS.	

STANDARD SPECIFICATIONS (for products on this page):

Supply Voltage/Current: 15 – 24 volts DC/250 mA (required).
Analog Monitor Signal:
Voltage: 0 – 10 volts DC@20 mA maximum.
Current: 4 – 20 mA sinking (sourcing optional).
Command Signal Impedance: *Voltage:* 4.7 k_{Ω}, *Current:* 100$_{\Omega}$.
Command Signal Voltage/Current: 0 – 10 volts DC/4 – 20 mA.
Electrical Connector: 6-pin Brad Harrison or 5-pin M12.
Ambient/Media Temperature: 32° to 158°F (0° to 70°C).
Fluid Media: Compressed Air.
Input Pressure: 29.9 in Hg to 300 psig (760 mm Hg to 21 bar).
Output Pressure: 0 to 200 psi (0 to 14 bar).

Body and Dome: Zinc.
Housing: Aluminum; powder coated.
Manifold: Brass. **Seals:** Fluorocarbon.
Transducer: Silicon, aluminum.
Valves: Nickel-plated brass.
Accuracy: < ± .25% F.S.
Linearity/Hysteresis: < ± .2% F.S. BFSL.
Repeatability: < ± .2% F.S.
Note: *High-pressure Proportional valve ≧175 psi (12 bar) - inlet and exhaust ports reversed from picture shown.*

Port Sizes: 1½, 2 & 3 – Flow to 4000 scfm

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

RB	1	2	A	RER1	A	1	A	100

REGULATOR TYPE

1/4 to 3/4 - Self Relieving	1
3/4 to 1½ - Self Relieving	2
1/4 to 1/2 - High-Relief	3
3/4 to 1½ - High-Relief	4

INLET/OUTLET PORTS

1/4 NPTF	2	1/4 BSPP	B
3/8 NPTF	3	3/8 BSPP	C
1/2 NPTF	4	1/2 BSPP	D
3/4 NPTF	6	3/4 BSPP	E
1 NPTF	8	1 BSPP	F
1¼ NPTF	J	1¼ BSPP	G
1½ NPTF	K	1½ BSPP	H

CONNECTOR

6-Pin Brad Harrison	A
5-Pin M12	B

COMMAND INPUT

0–10 volts DC	1
4–20 mA	2

PRESSURE RANGE (Valve)

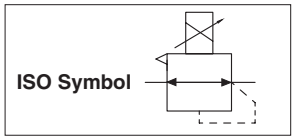
No Gauge (without gauge port)	A
0-200 psig (0-13.8 bar)	B
0-600 psig (0-40 bar)	C
0-30 psig (0-2 bar)	D
0-60 psig (0-4 bar)	E
For Electronic Gauge, consult ROSS.	

MONITOR SIGNAL

0–10 volts DC	A
4–20 mA - sinking	B
4–20 mA - sourcing	C

MAXIMUM CALIBRATED PRESSURE RANGE

0-30 psig (0 to 2.1 bar)	030
0-50 psig (0 to 3.5 bar)	050
0-100 psig (0 to 6.9 bar)	100
0-200 psig (0 to 13.8 bar)	200
0-300 psig (0 to 20.7 bar)	300
0-20 in Hg (vacuum)	V20



Accessories ordered separately, see below.

Regulator Pressure Model	Inlet psi (bar)	Outlet psi (bar)	Relief scfm
RB1 - RB2	300 (20.7)	200 (13.8)	10
RB3 - RB4	400 (27.6)	250 (17.3)	200

Brass Inlet Filter (R37-R288) is included when purchasing a proportional-valve. *NOTE: Cable not included with the product, see choices below.*

ACCESSORIES

Mounting Bracket Kit

Kit Number	R-A37-381

Cables

For 6-Pin Brad Harrison Connector.

Cable Length	Part Number*
6 feet (1.8 meters)	RER-CBL-6
12 feet (3.7 meters)	RER-CBL-12
25 feet (7.5 meters)	RER-CBL-25
*For cables for 5-Pin M12 connector, consult ROSS.	

STANDARD SPECIFICATIONS (for products on this page):

Supply Voltage/Current: 15 – 24 volts DC/250 mA (required).
Analog Monitor Signal:
Voltage: 0 – 10 volts DC@20 mA maximum.
Current: 4 – 20 mA sinking (sourcing optional).
Command Signal Impedance: *Voltage:* 4.7 k_{Ω}, *Current:* 100_{Ω}.
Command Signal Voltage/Current: 0 – 10 volts DC/4 – 20 mA.
Electrical Connector: 6-pin Brad Harrison or 5-pin M12.
Ambient/Media Temperature: 32° to 158°F (0° to 70°C).
Fluid Media: Compressed Air.
Input Pressure: 29.9 in Hg to 300 psig (760 mm Hg to 21 bar).
Output Pressure: 0 to 200 psi (0 to 14 bar).
Body and Dome: Zinc.
Housing: Aluminum; powder coated.
Manifold: Brass. **Seals:** Fluorocarbon.
Transducer: Silicon, aluminum.
Valves: Nickel-plated brass.
Accuracy: < ± 2.5% F.S.
Linearity/Hysteresis: < ± 2.0% F.S. BFSL.
Repeatability: < ± 0.6% F.S.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Online Version
Rev. 11/14/16

E

ROSS CONTROLS®

INTEGRATED FILTER/REGULATORS

www.rosscontrols.com

INTEGRATED FILTER/REGULATORS – KEY FEATURES

- Filter and Pressure Regulator combined into a single module to provide the compactness needed where space is limited
- All sizes have essentially the same operating characteristics as their corresponding individual filters and regulators
- All Filter/Regulator include internal automatic filter drain or manual drain options
- Pressure gauge included
- Regulator function is self relieving, and includes front and rear gauge ports
- 5-, 20-, 40-micron filter elements available (see table below)
- Metal or high strength polycarbonate bowl
- Modular or inline mounting
- MD3™ and MD4™ series can be modularly connected to a L-O-X® lockout valve
- Stainless steel Filter/Regulator and L-O-X® lockout valve combination available

INTEGRATED FILTER/REGULATOR TYPE/SERIES	AVAILABLE PORT SIZES					FLOW	FILTRATION			BOWLS & DRAINS OPTIONS				REGULATOR TYPE		OPTIONS		Page
	1/8	1/4	3/8	1/2	3/4	MAX FLOW (scfm)	5 µ	20 µ	40 µ	POLYCARBONATE BOWL	METAL BOWL	AUTOMATIC DRAIN	MANUAL DRAIN	PISTON	DIAPHRAM	SELF RELIEVING	NON RELIEVING	
BANTAM	■	■				24	■			■	■	■	■	■	■	■	■	E3.3
MINIATURE	■	■				24	■			■	■	■	■	■	■	■	■	E3.4
MID-SIZE		■	■	■		105				■	■	■	■	■		■	■	E3.5
MD3™		■	■	■		110	■	■	■	■	■	■	■		■	■	■	E3.6
FULL-SIZE		■	■	■	■	180	■			■	■	■	■		■	■	■	E3.7
MD4™			■	■	■	230	■		■	■	■	■	■		■	■	■	E3.8
STAINLESS STEEL with L-O-X® LOCKOUT VALVE																		
		■		■	■													E3.9

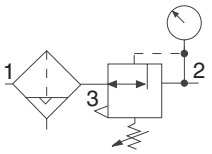
Port Sizes: 1/8 & 1/4 – Flow to 24 scfm

Port Size	Model Numbers			
	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
With THREADED PORTS (Piston Type): *				
1/8	5D01C0110	5D01C0210	5D01C0310	5D01C0410
1/4	5D02C0110	5D02C0210	5D02C0310	5D02C0410
With Quick-Connect TUBE FITTINGS (Piston Type):				
1/4	5D03C0110	5D03C0210	5D03C0310	5D03C0410
3/8	5D04C0110	5D04C0210	5D04C0310	5D04C0410
4mm	5D05C0110	5D05C0210	5D05C0310	5D05C0410
6mm	5D06C0110	5D06C0210	5D06C0310	5D06C0410
8mm	5D07C0110	5D07C0210	5D07C0310	5D07C0410
10mm	5D08C0110	5D08C0210	5D08C0310	5D08C0410
With Quick-Connect TUBE FITTINGS (Diaphragm Type):				
1/4	5D03C0120	5D03C0220	5D03C0320	5D03C0410
3/8	5D04C0120	5D04C0220	5D04C0320	5D04C0420
4mm	5D05C0120	5D05C0220	5D05C0320	5D05C0420
6mm	5D06C0120	5D06C0220	5D06C0320	5D06C0420
8mm	5D07C0120	5D07C0220	5D07C0320	5D07C0420
10mm	5D08C0120	5D08C0220	5D08C0320	5D08C0420

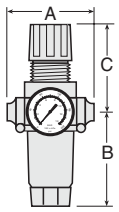
* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5D01C0110.

ISO Symbol
Filter/Regulator

Automatic Drain
Self-relieving



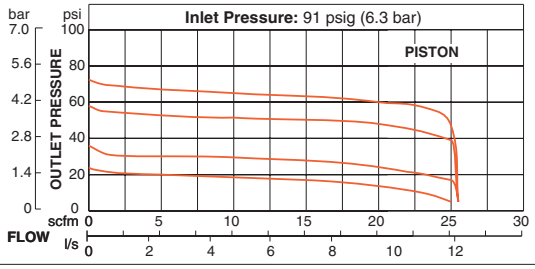
Port Size	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
		A	B**	C	Depth †	
No Port	2-oz (60-ml)	1.7 (43)	3.6 (92)	2.6 (67)	1.8 (45)	0.31 (0.15)
1/8, 1/4	2-oz (60-ml)	3.0 (76)	3.6 (92)	2.6 (67)	1.8 (45)	0.53 (0.24)
Models below have quick-connect tube fittings.						
1/4, 4, 6 mm	2-oz (60-ml)	3.4 (86)	3.6 (92)	2.6 (67)	1.8 (45)	0.51 (0.23)
3/8, 10 mm	2-oz (60-ml)	3.9 (99)	3.6 (92)	2.6 (67)	1.8 (45)	0.51 (0.23)
8 mm	2-oz (60-ml)	3.1 (79)	3.6 (92)	2.6 (67)	1.8 (45)	0.51 (0.23)

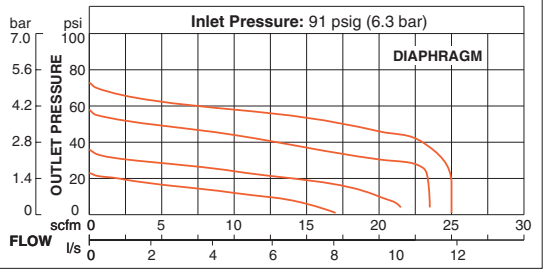


** Dimension for polycarbonate filter bowl; metal bowl is 3.8 (97). † Less gauge.

REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
5-µm	Polyethylene	933K77

FLOW CHARTS





Pressure Gauge included. Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter – fiber; Regulator – Piston.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 150°F (4° to 66°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: Up to 150 psig (up to 10 bar).
Metal bowl: Up to 200 psig (up to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Outlet Pressure: Adjustable up to 100 psig (7 bar).
Pressure Gauge: 0 to 160 psig (0 to 11 bar); 1/8 NPT gauge ports front and rear.
Panel Mounting: 1-3/16 inch (30 mm) hole required.
Filter Element: 5-micron rated polyethylene.
Body, Dome and Knob: Acetal.
Bowl: Polycarbonate or aluminum bowl.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

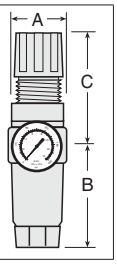
Port Sizes: 1/8 & 1/4 – Flow to 24 scfm

Port Size	Regulator Type	Model Numbers*			
		Automatic Drain		Manual Drain	
		Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
1/8	Piston	5321C1032	5322C1031	5321C1002	5322C1001
	Diaphragm	5321C1042	5322C1041	5321C1022	5322C1021
1/4	Piston	5321C2032	5322C2031	5321C2002	5322C2001
	Diaphragm	5321C2042	5322C2041	5321C2022	5322C2021

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g.,C5321C1032.

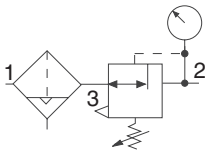
Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
1/8, 1/4	Polycarbonate	2-oz (60-ml)	1.6 (41)	3.6 (92)	2.6 (65)	1.6 (41)	0.53 (0.24)
1/8, 1/4	Aluminum	2-oz (60-ml)	1.6 (41)	4.3 (109)	2.6 (65)	1.6 (41)	0.53 (0.24)

† Less gauge.



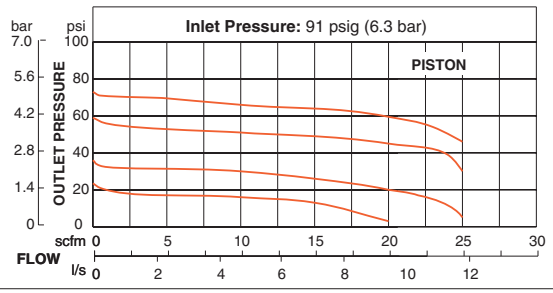
ISO Symbol
Filter/Regulator

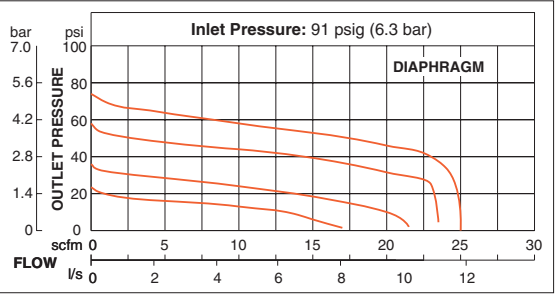
Automatic Drain
Self-relieving



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
5-µm	Polyethylene	933K77

FLOW CHARTS





Pressure Gauge included.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter – fiber; Regulator – Piston.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 150°F (4° to 66°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: Up to 150 psig (up to 10 bar).
Metal bowl: Up to 200 psig (up to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Outlet Pressure: Adjustable up to 100 psig (7 bar).
Pressure Gauge: 0 to 160 psig (0 to 11 bar); 1/8 NPT gauge ports front and rear.
Panel Mounting: 1-3/16 inch (30 mm) hole required.
Filter Drain: Internal automatic drain; optional manual drain.
Filter Element: 5-micron rated polyethylene.
Body: Aluminum.
Bowl: Polycarbonate or aluminum.
Dome and Knob: Acetal.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 105 scfm

Port Size	Model Numbers*			
	Automatic Drain		Manual Drain	
	Polycarbonate bowl	Metal Bowl	Polycarbonate bowl	Metal Bowl
1/4	5321B2052	5322B2051	5321B2062	5322B2061
3/8	5321B3052	5322B3051	5321B3062	5322B3061
1/2	5321B4052	5322B4051	5321B4062	5322B4061

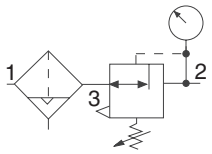
* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5321B2052.

Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B**	C***	Depth †	
1/4, 3/8, 1/2	Polycarbonate	4-oz (120-ml)	2.7 (67)	4.6 (116)	3.3 (83)	2.4 (60)	1.44 (0.65)
1/4, 3/8, 1/2	Zinc	4-oz (120-ml)	2.7 (67)	4.9 (123)	3.3 (83)	2.4 (60)	1.50 (0.68)

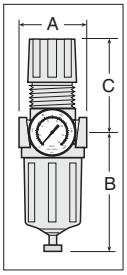
** Bowl removal clearance: add 3.1 (79). *** Dome removal clearance: add 0.63 (16).
† Less gauge.

ISO Symbol
Filter/Regulator

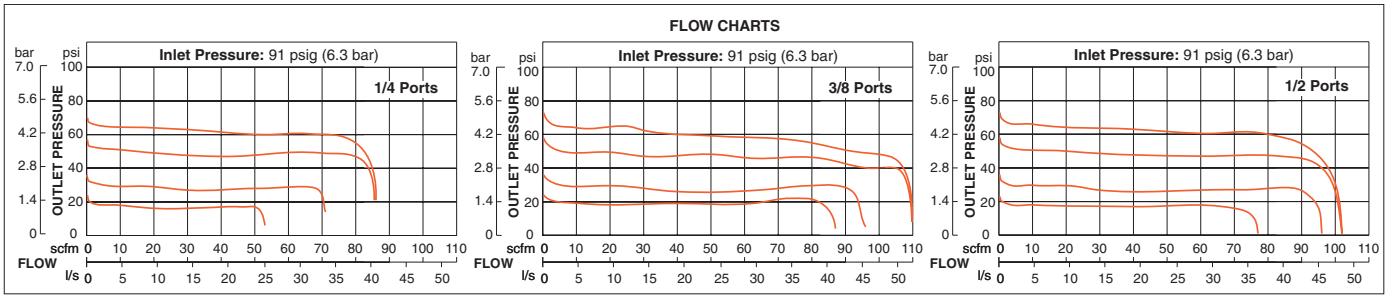
Automatic Drain
Self-relieving



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
5-µm	Polyethylene	936K77



FLOW CHARTS



Pressure Gauge included.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter – fiber; Regulator – Piston.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal Bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: Up to 150 psig (up to 10 bar).
Metal bowl: Up to 200 psig (up to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Outlet Pressure: Adjustable up to 100 psig (7 bar).
Pressure Gauge: 0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
Filter Drain: Internal automatic drain or manual drain.
Panel Mounting: 1-9/16 inch (40 mm) hole required.
Filter Element: 5-micron rated polyethylene.
Body: Zinc.
Bowl: Polycarbonate with zinc shatterguard, or zinc bowl.
Dome and Knob: Acetal.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 110 scfm

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

MD3	53P	B	M	C	2	A	A	1

BOWL SIZE

Polycarbonate Bowl 5.1-oz (151-ml)	**53P**
Metal Bowl 6-oz (177-ml)	53M

FILTER ELEMENT TYPE

40 µm sintered bronze	A
5 µm polyethylene	**B**
5 µm sintered bronze	E
20 µm sintered bronze	F

BOWL DRAIN

Manual Drain	**M**
Float Drain	F
Less Drain Fitting (1/4 NPT female instead)	L

PIPE SIZE

1/4 NPTF	**2**
3/8 NPTF	3
1/2 NPTF	4
1/4 BSPP	B
3/8 BSPP	C
1/2 BSPP	D

ADJUSTMENT RANGE

0-200 psig (0-13.8 bar)	**A**
0-150 psig (0-10 bar)	B
0-100 psig (0-6.9 bar)	C
0-50 psig (0-3.4 bar)	D
Reverse Flow 0-200 psig (0-13.8 bar)	F
Reverse Flow 0-150 psig (0-10.3 bar)	G
Reverse Flow 0-100 psig (0-6.9 bar)	H
Reverse Flow 0-50 psig (0-3.4 bar)	J

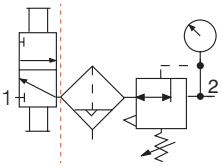
GAUGE

No Gauge (without gauge port)	**A**
With Gauge 0-200 psig (0-13.8 bar)	B
With Gauge 0-60 psig (0-4.1 bar)	C
No Gauge, With Panel Mount Nut	D
With Panel Mount Nut & Gauge 0-200 psig (0-13.8 bar)	E
With Panel Mount Nut & Gauge 0-60 psig (0-4.1 bar)	F

ADD on L-O-X® - Optional

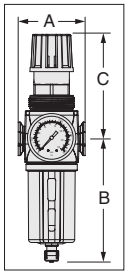
L-O-X® on outlet side	**1**
L-O-X® on the inlet side (must also choose Reverse Flow)	2
EEZ-ON® on outlet side	3
EEZ-ON® on inlet side (must also choose Reverse Flow)	4
Blank - No L-O-X®	

ISO Symbol
Filter/Regulator with Lockout
Automatic Drain
Self-relieving



Bowl Type	Dimensions inches (mm)				Weight lb (kg)
	A	B*	C	Depth	
Polycarbonate	3.0 (76.2)	5.54 (140.6)	4.68 (119)	2.51 (63.8)	1.98 (0.90)
Metal	3.0 (76.2)	6.42 (163.1)	4.68 (119)	2.76 (70.1)	2.17 (0.99)

Lockout: With the lockout valve, add 2.3 (58) to dimension A.
* Bowl (standard) removal clearance: add 3.1 (79)
* Bowl (extended) removal clearance: add 6.1 (155)
Dimensions above reflect less gauge.

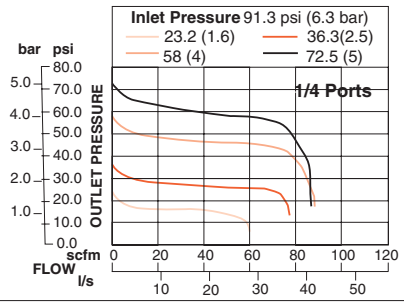


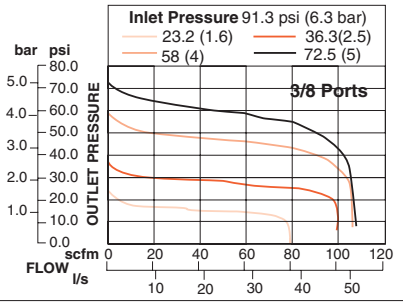
REPLACEMENT FILTER ELEMENTS*

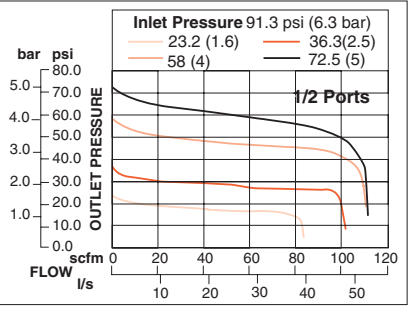
Element Rating	Element Material	Part Number
5-µm	Polyethylene	R-A60F-03PE5
5-µm	Sintered Bronze	R-A60F-03E5
20-µm	Sintered Bronze	R-A60F-03E4
40-µm	Sintered Bronze	R-A60F-03E3

* For polycarbonate and metal bowl types.

FLOW CHARTS







Options: External Bowl Drains, refer to page E6.7.
Accessories ordered separately, refer to page E6.3-5.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Regulator-diaphragm.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal Bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: 30 to 150 psig (2 to 10 bar).
Metal bowl: 30 to 200 psig (2 to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 250 psig (0 to 17 bar).
Outlet Pressure: Adjustable up to 200 psig (14 bar).
Pressure Adjustment Locking Key: Removable.
Pressure Gauge: 0 to 200 psig (0 to14 bar) or 0 to 60 psig (0 to 4 bar); 1/4-NPT gauge ports front and rear.
Panel Mounting: 2-1/16 inch (52 mm) hole required.
Body: Zinc.
Dome: Nylon.
Bowl: Polycarbonate with nylon shatterguard, or aluminum bowl with clear nylon sight glass.
Seals: Nitrile.
Valve: Brass.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/4, 3/8, 1/2 & 3/4 – Flow to 180 scfm

Port Size	Model Numbers *			
	Automatic Drain		Manual Drain	
	Polycarbonate bowl	Metal Bowl	Polycarbonate bowl	Metal Bowl
1/4	5321B2072	5322B2071	5321B2012	5322B2011
3/8	5321B3072	5322B3071	5321B3012	5322B3011
1/2	5321B4072	5322B4071	5321B4012	5322B4011
3/4	5321B5072	5322B5071	5321B5012	5322B5011

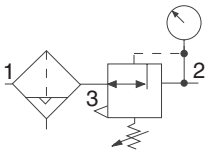
* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5321B2072.

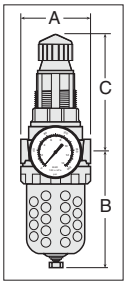
Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B**	C***	Depth †	
1/4, 3/8, 1/2, 3/4	Polycarbonate	8-oz (240-ml)	3.5 (89)	5.8 (146)	5.8 (146)	3.5 (89)	2.50 (1.15)
1/4, 3/8, 1/2, 3/4	Zinc	8-oz (240-ml)	3.5 (89)	6.4 (163)	5.8 (146)	3.5 (89)	2.55 (1.17)

** Bowl removal clearance: add 3.1 (79). *** Dome removal clearance: add 0.63 (16). † Less gauge.

ISO Symbol
Filter/Regulator

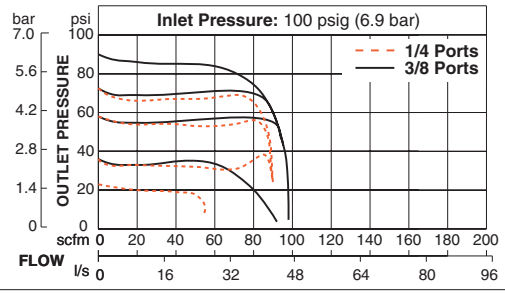
Automatic Drain
Self-relieving

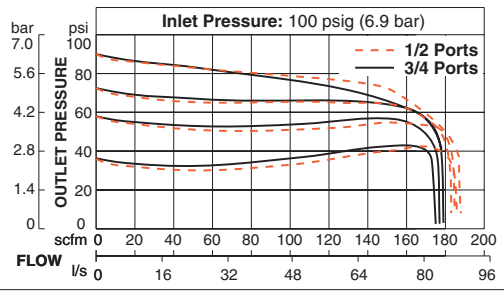




REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
5-µm	Polyethylene	939K77

FLOW CHARTS





Pressure Gauge included.
Options: External Automatic Drain, refer to page E6.7.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter – fiber; Regulator – Piston.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal Bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: Up to 150 psig (up to 10 bar).
Metal bowl: Up to 200 psig (up to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Outlet Pressure: Adjustable up to 125 psig (9 bar).
Pressure Adjustment Locking Key: Removable.
Pressure Gauge: 0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
Panel Mounting: 2-1/16 inch (52 mm) hole required.
Filter Element: 5-micron rated polyethylene.
Body: Zinc.
Dome: Nylon.
Knob: Acetal.
Bowl: Polycarbonate with steel shatterguard, or zinc bowl with clear nylon sight glass.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 3/8, 1/2 & 3/4 – Flow to 230 scfm

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

MD4	53P	B	A	B	3	B	B	1

BOWL SIZE

Polycarbonate Bowl 9-oz (266-ml)	**53P**
Metal Bowl 9-oz (266-ml)	53M

FILTER ELEMENT TYPE

40 µm sintered bronze	**A**
5 µm polyethylene	B

BOWL DRAIN

Auto Drain	**A**
Manual Drain	**M**

PIPE SIZE

3/8 NPTF	3
1/2 NPTF	4
3/4 NPTF	5
3/8 BSPP	C
1/2 BSPP	D
3/4 BSPP	E

ADJUSTMENT RANGE

0-175 psig (0-12.1 bar)	**A**
0-125 psig (0-8.6 bar)	B
0-50 psig (0-3.4 bar)	C
0-20 psig (0-1.4 bar)	D
Reverse Flow 0-175 psig (0-12.1 bar)	F
Reverse Flow 0-125 psig (0-8.6 bar)	G
Reverse Flow 0-50 psig (0-3.4 bar)	H
Reverse Flow 0-20 psig (0-1.4 bar)	J

GAUGE*

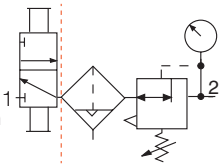
No Gauge (without gauge port)	**A**
With Gauge 0-200 psig (0-14 bar)	B
With Gauge 0-60 psig (0-4.1 bar)	C
No Gauge, With Panel Mount Nut	D
With Panel Mount Nut & Gauge 0-200 psig (0-14 bar)	E
With Panel Mount Nut & Gauge 0-60 psig (0-4 bar)	F

*1/4 NPT gauge ports front and rear.

ADD on L-O-X® - Optional

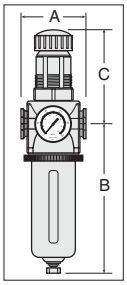
L-O-X® on outlet side	**1**
L-O-X® on the inlet side (must also choose Reverse Flow)	2
L-O-X® with EEZ-ON® on outlet side	3
L-O-X® with EEZ-ON® on inlet side (must also choose Reverse Flow)	4
Blank - No L-O-X®	

ISO Symbol
Filter/Regulator with Lockout
Automatic Drain
Self-relieving



Port Size	Bowl Type	Dimensions inches (mm) A	B*	C**	Depth †	Weight † lb (kg)
3/8, 1/2, 3/4	Polycarbonate	3.5 (88)	7.7 (195)	5.4 (137)	2.9 (73)	3.69 (1.68)
3/8, 1/2, 3/4	Aluminum	3.5 (88)	7.6 (193)	5.4 (137)	2.9 (73)	3.69 (1.68)

* Bowl removal clearance: add 3.1 (79).
** Dome removal clearance: add 0.63 (16).
† Less gauge.

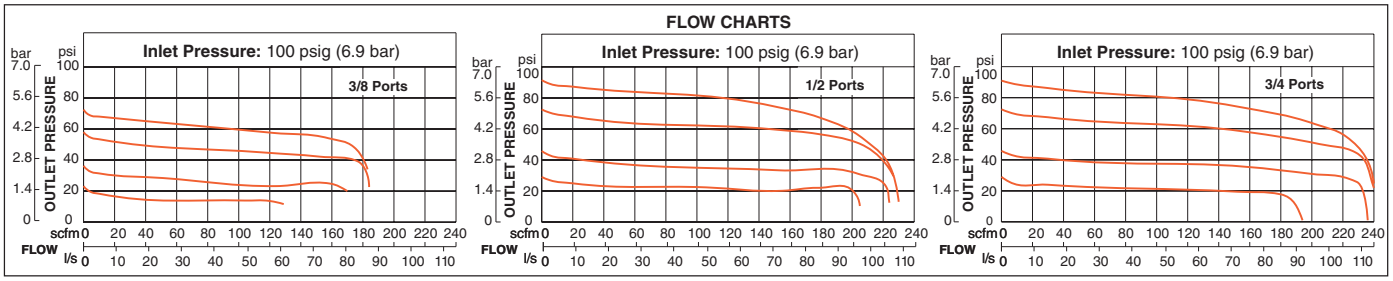


REPLACEMENT FILTER ELEMENTS*

Element Rating	Element Material	Element Number
5-µm	Polyethylene	R-A115-106PE5
40-µm	Sintered Bronze	R-A115-106PE3

* For polycarbonate and metal bowl types.

FLOW CHARTS



Options: External Bowl Drains, refer to page E6.7.
Accessories ordered separately, refer to page E6.3-5.

STANDARD SPECIFICATIONS (for products on this page):

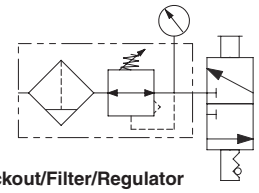
Construction: Filter – fiber; Regulator – Piston.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal Bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: Up to 150 psig (up to 10 bar).
Metal bowl: Up to 200 psig (up to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Outlet Pressure: Adjustable up to 125 psig (9 bar); optional adjusting springs.
Pressure Adjustment Locking Key: Removable.
Panel Mounting: 2.05 inch (52.1 mm) hole required.
Filter Element: 5-micron rated polyethylene; optional 40-micron.
Body: Zinc.
Bonnet: Nylon; aluminum with optional 0 to 175 psig (0 to 12.1 bar) spring.
Cap Color: Black.
Bowl: Polycarbonate with steel shatterguard, or aluminum bowl with clear nylon sight glass.
Seals: Nitrile. **Valve:** Brass.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

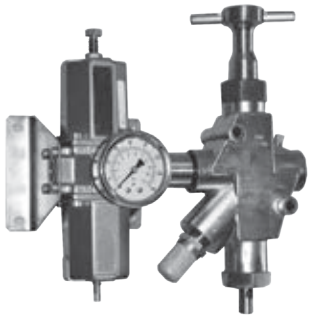
Online Version
Rev. 11/14/16

Port Sizes: 1/4, 1/2, 3/4 & 1 – Flow to 17 scfm

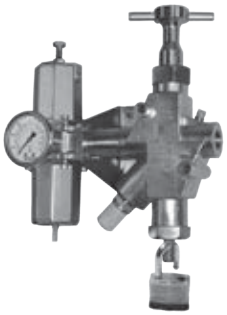
Port Size		Model Number*	C_v	
1-2	3		1-2	2-3
1/4	1/4	RC010-13	2.14	2.08
1/2	1/2	RC011-13	4.4	6.24
3/4	1	RC012-13	5.0	17.0
1	1	RC013-13	8.0	17.0



Lockout/Filter/Regulator ISO Symbol
Lockout, Manual Drain, Self-relieving



Port Size		Avg. C_v		Dimensions (inches/mm)		
1-2	3	1-2	2-3	Length	Width	Depth
1/4	1/4	2.14	2.08	8.9 (226.1)	7.65 (194.4)	5.86 (149)
1/2	1/2	4.4	6.24	10.24 (260)	8.98 (228)	5.94 (151)
3/4	1	5.0	17.0	15.75 (400)	12.24 (311)	6.49 (165)
1	1	8.0	17.0	15.75 (400)	12.24 (311)	6.49 (165)



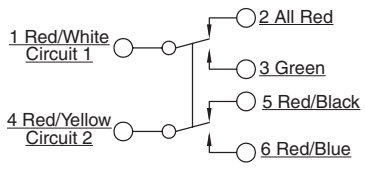
E3

E

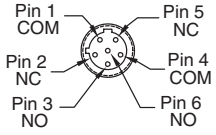
ACCESSORIES

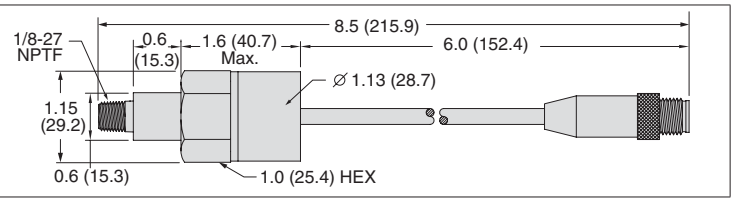
Stainless Steel Pressure Switch

Inlet Port Size	Model Number	Weight lb (kg)
1/8	1162A30	0.23 (.01)



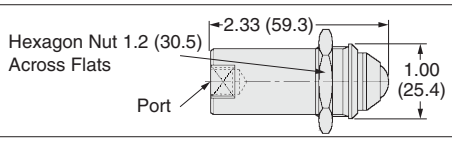
Pin Configuration





Stainless Steel Visual Indicator

Inlet Port Size	Model Number	Weight lb (kg)
1/8	1155H30	0.22 (0.1)



* NPT threads. For BSPP threads, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet, 316 Stainless Steel.
Mounting Type: In-Line.
Ambient/Media Temperature: 30° to 175°F (-1° to 80°C).
Note: For lower temperature ratings, consult ROSS.
Flow Media: Filtered air.
Inlet Pressure: 0 to 300 psig (0 to 21 bar).
Secondary Pressure: 7 to 174 psig (0.5 to 12 bar).
Seals: Fluorocarbon (Viton).
Lock Hole Diameter: *Port sizes 1/4 thru 2:* 0.34 inch (8.64 mm).
Length of Hole: *Port size 1/4:* 0.44 in (11.17 mm).
Port size 1/2: 0.47 in (11.93 mm)

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

E

ROSS CONTROLS®

LUBRICATORS

www.rosscontrols.com

LUBRICATORS – KEY FEATURES

- Sight-feed and wick-feed design options
- Sight-feed Lubricators are easy to adjust, and an indicator on the sight dome measures the amount of oil dispensed
- The adjusting knob can be removed to make the lubricator “tamper-resistant”
- All working parts are in an easily replaceable cartridge
- Modular and inline mounting options
- Metal and High Strength polycarbonate bowl options
- External tamper resistant adjustment
- Quick-fill cap option for full size, MD3™, and MD4™ series
- Extended bowls available for MD3™ and MD4™ series

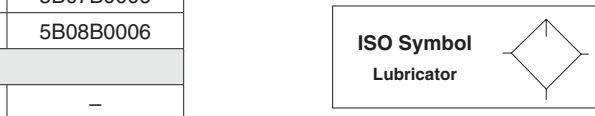
LUBRICATOR TYPE/SERIES	AVAILABLE PORT SIZES								FLOW	DESIGN		BOWL TYPE		Page
	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	MAX FLOW (scfm)	SIGHT FEED	WICK FEED	POLYCARBONATE	METAL	
BANTAM	■	■							27		■	■	■	E4.3
MINIATURE	■	■							25		■	■	■	E4.4
MID-SIZE		■	■	■					110	■		■	■	E4.5
MD3™		■	■	■					150	■		■	■	E4.6
FULL-SIZE		■	■	■	■				140	■	■	■	■	E4.7
MD4™			■	■	■				205	■		■	■	E4.8
HIGH-CAPACITY					■	■	■	■	500	■	■	■	■	E4.9

Port Sizes: 1/8 & 1/4, and Tube Fittings – Flow to 27 scfm

Port Size	Model Numbers			
	Threaded Ports*		Tube Fittings	
	Polycarbonate bowl	Metal Bowl	Polycarbonate bowl	Metal Bowl
FILL PORT				
1/8	5B01B0005	5B01B0006	–	–
1/4	5B02B0005	5B02B0006	5B03B0005	5B03B0006
3/8	–	–	5B04B0005	5B04B0006
4mm	–	–	5B05B0005	5B05B0006
6mm	–	–	5B06B0005	5B06B0006
8mm	–	–	5B07B0005	5B07B0006
10mm	–	–	5B08B0005	5B08B0006
QUICK-FILL CAP				
1/8	5B01B0007	5B01B0008	–	–
1/4	5B02B0007	5B02B0008	5B03B0007	5B03B0008
3/8	–	–	5B04B0007	5B04B0008
4mm	–	–	5B05B0007	5B05B0008
6mm	–	–	5B06B0007	5B06B0008
8mm	–	–	5B07B0007	5B07B0008
10mm	–	–	5B08B0007	5B08B0008

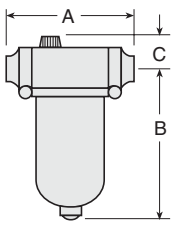
* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5B01B0005.

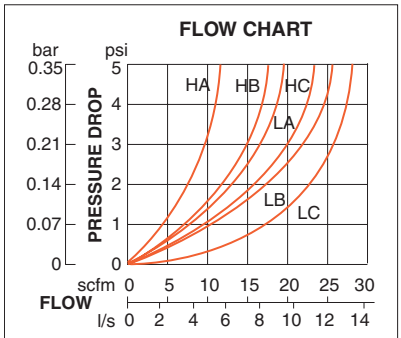
ISO Symbol
Lubricator



Port Size	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
		A	B**	C	Depth	
No Port	2-oz (60-ml)	1.7 (43)	3.6 (91)	0.9 (22)	1.8 (45)	0.17 (0.08)
1/8, 1/4	2-oz (60-ml)	3.0 (76)	3.6 (91)	0.9 (22)	1.8 (45)	0.37 (0.17)
Models below have quick-connect tube fittings.						
1/4	2-oz (60-ml)	3.4 (86)	3.6 (91)	0.9 (22)	1.8 (45)	0.37 (0.17)
3/8	2-oz (60-ml)	3.9 (99)	3.6 (91)	0.9 (22)	1.8 (45)	0.37 (0.17)
4 mm	2-oz (60-ml)	3.4 (86)	3.6 (91)	0.9 (22)	1.8 (45)	0.37 (0.17)
6 mm	2-oz (60-ml)	3.4 (86)	3.6 (91)	0.9 (22)	1.8 (45)	0.37 (0.17)
8 mm	2-oz (60-ml)	3.4 (86)	3.6 (91)	0.9 (22)	1.8 (45)	0.37 (0.17)
10 mm	2-oz (60-ml)	3.9 (99)	3.6 (91)	0.9 (22)	1.8 (45)	0.37 (0.17)

** Dimension for polycarbonate bowl; metal bowl is 3.8 (97).





A: Wick Up
B: Wick Down 1 Groove
C: Wick Down 2 Grooves
H: High Oil Delivery
L: Low Oil Delivery
Inlet Pressure: 100 psig (6.9 bar)
Minimum Flow: 1 scfm (0.47 l/s)

E
E4

Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Wick-Feed.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 150°F (4° to 66°C).
Fluid Media: Compressed air.
Inlet Pressure:
Polycarbonate bowl: 150 psig (10 bar) maximum.
Metal bowl: 200 psig (14 bar) maximum.
Oil Adjustment: External, no shutoff.
Body: Acetal.
Bowl: Polycarbonate or aluminum.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

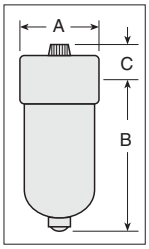
Port Sizes: 1/8 & 1/4 – Flow to 25 scfm

Port Size	Fill Type	Model Numbers*			
		Polycarbonate bowl		Metal Bowl	
		High Flow	Low Flow	High Flow	Low Flow
1/8	Fill Port	5111B1010	5111B1012	5112B1010	5112B1012
1/4	Fill Port	5111B2010	5111B2012	5112B2010	5112B2012
1/8	Quick-Fill Cap	5111B1110	5111B1112	5112B1110	5112B1112
1/4	Quick-Fill Cap	5111B2110	5111B2112	5112B2110	5112B2112

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5111B1010.

Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
1/8, 1/4	Polycarbonate	2-oz (60-ml)	1.6 (41)	3.6 (92)	0.7 (17)	1.6 (41)	0.21 (0.10)
1/8, 1/4	Aluminum	2-oz (60-ml)	1.6 (41)	3.8 (97)	0.7 (17)	1.6 (41)	0.21 (0.10)

ISO Symbol
Lubricator



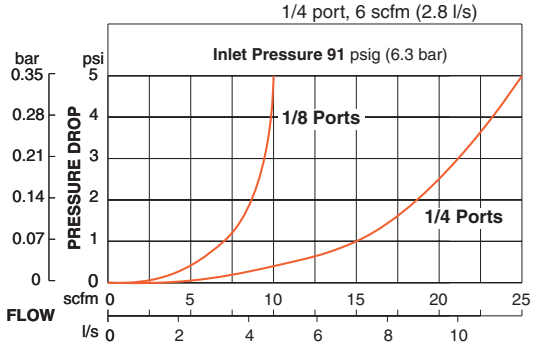
E

E4

FLOW CHARTS

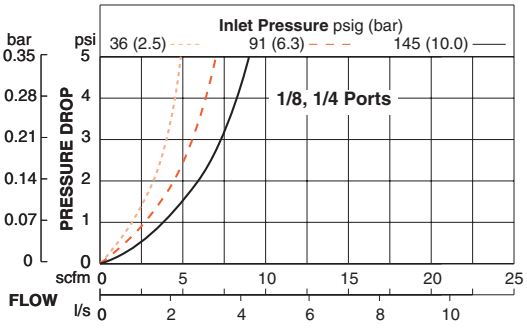
HIGH FLOW MODELS

Minimum Flow: 1/8 port, 2 scfm (0.94 l/s)
1/4 port, 6 scfm (2.8 l/s)



LOW FLOW MODELS

Minimum Flow: 1 scfm (0.47 l/s)



Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Wick-Feed.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 150°F (4° to 66°C).
Fluid Media: Compressed air.

Inlet Pressure:
Polycarbonate bowl: 150 psig (10 bar) maximum.
Metal bowl: 200 psig (14 bar) maximum.
Oil Adjustment: Internal, tamper-proof.
Body: Aluminum.
Bowl: Polycarbonate or aluminum.
Seals: Nitrile.

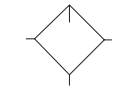
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 110 scfm

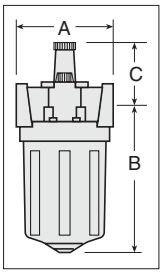
Port Size	Fill Type	Model Numbers*	
		Sight-Feed	
		Polycarbonate Bowl	Metal Bowl
1/4	Fill Port	5111B2007	5112B2007
3/8	Fill Port	5111B3007	5112B3007
1/2	Fill Port	5111B4007	5112B4007
1/4	Quick-Fill Cap	5111B2107	5112B2107
3/8	Quick-Fill Cap	5111B3107	5112B3107
1/2	Quick-Fill Cap	5111B4107	5112B4107

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5111B2007.

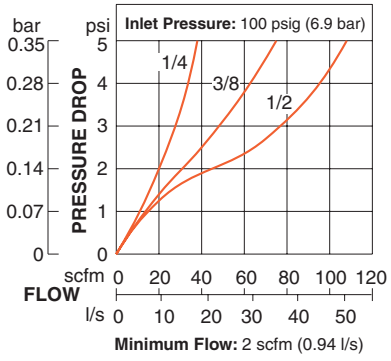
ISO Symbol
Lubricator



Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B	C	Depth	
1/4, 3/8, 1/2	Polycarbonate	4-oz (120-ml)	2.7 (68)	4.1 (103)	1.8 (46)	2.4 (60)	1.06 (0.48)
1/4, 3/8, 1/2	Zinc	4-oz (120-ml)	2.7 (68)	4.1 (103)	1.8 (46)	2.4 (60)	1.50 (0.68)



FLOW CHART



Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Sight-Feed.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Inlet Pressure:
Polycarbonate bowl: 150 psig (10 bar) maximum.
Metal bowl: 200 psig (14 bar) maximum.
Fluid Media: Compressed air.
Oil Adjustment: External, tamper-resistant.
Body: Zinc.
Bowl: Polycarbonate bowl with zinc shatterguard, or zinc bowl.
Sight Dome: Nylon.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 150 scfm

HOW TO ORDER

(Choose your options (in red) to configure your model number.)

MD3	51P	Q	C	2	2

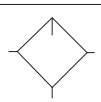
BOWL SIZE	
Polycarbonate Bowl 5.1-oz (151-ml)	**51P**
Metal Bowl 6-oz (177-ml)	51M
Extended Metal Bowl 10-oz (295-ml)	51E

LUBRICATOR FILL TYPE	
Quick Fill Cap	**Q**
Fill Port	S

PIPE SIZE	
1/4 NPTF	**2**
3/8 NPTF	3
1/2 NPTF	4
1/4 BSPP	B
3/8 BSPP	C
1/2 BSPP	D

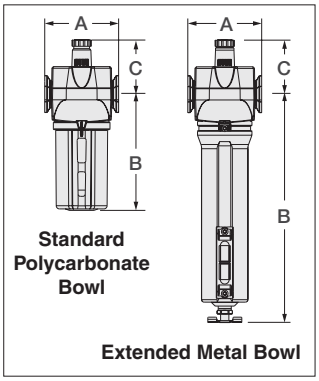
CAP COLOR	
Gold	**2**
Gray	G
Yellow	Y
Red	R
Blue	B

ISO Symbol
Lubricator



Bowl Type	Dimensions inches (mm)				Weight lb (kg)
	A	B**	C	Depth	
Polycarbonate	3.0 (76.2)	4.72 (119.9)	2.21 (56.1)	2.51 (63.8)	1.30 (0.59)
Aluminum	3.0 (76.2)	6.02 (152.9)	2.21 (56.1)	2.76 (70.1)	1.42 (0.64)
Extended Aluminum	3.0 (76.2)	9.37 (238)	2.21 (56.1)	2.76 (70.1)	1.54 (0.70)

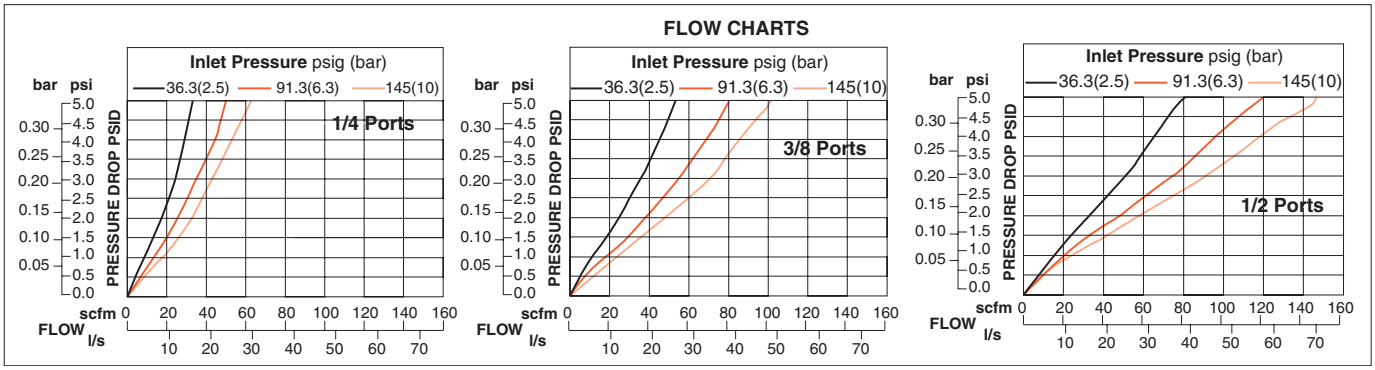
** Bowl removal clearance: add 3.1 (79).
Extended Bowl removal clearance: add 6.1 (155).



E

E4

FLOW CHARTS



Accessories ordered separately, refer to page E6.3-5.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Sight-Feed.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure:
Polycarbonate bowl: 150 psig (10 bar) maximum.
Metal bowl: 250 psig (17 bar) maximum.
Oil Adjustment: External; tamper resistant.
Body: Zinc.
Bowl: Polycarbonate with nylon shatterguard, or aluminum bowl with clear nylon sight glass.
Sight-Feed Dome: Nylon.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/4, 3/8, 1/2 & 3/4 – Flow to 140 scfm

Port Size	Fill Type	Model Numbers*			
		Sight-Feed		Wick-Feed	
		Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
1/4	Fill Port	5111B2008	5112B2008	5111B2014	5112B2014
3/8	Fill Port	5111B3008	5112B3008	5111B3014	5112B3014
1/2	Fill Port	5111B4008	5112B4008	5111B4014	5112B4014
3/4	Fill Port	5111B5008	5112B5008	5111B5014	5112B5014
1/4	Quick-Fill Cap	5111B2108	5112B2108	5111B2114	5112B2114
3/8	Quick-Fill Cap	5111B3108	5112B3108	5111B3114	5112B3114
1/2	Quick-Fill Cap	5111B4108	5112B4108	5111B4114	5112B4114
3/4	Quick-Fill Cap	5111B5108	5112B5108	5111B5114	5112B5114

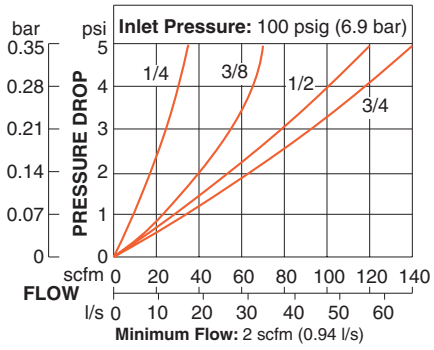
* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5111B2008.

ISO Symbol
Lubricator

Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight lb (kg)
			A	B**	C	Depth	
With Sight-Feed							
1/4, 3/8, 1/2, 3/4	Polycarbonate	8-oz (240-ml)	3.5 (88)	5.2 (132)	1.3 (32)	3.5 (89)	2.06 (0.94)
1/4, 3/8, 1/2, 3/4	Zinc	8-oz (240-ml)	3.5 (88)	5.3 (135)	1.3 (32)	3.5 (89)	2.90 (1.32)
With Wick-Feed							
1/4, 3/8, 1/2, 3/4	Polycarbonate	8-oz (240-ml)	3.5 (88)	5.2 (132)	0.7 (17)	3.5 (89)	2.25 (1.02)
1/4, 3/8, 1/2, 3/4	Zinc	8-oz (240-ml)	3.5 (88)	5.3 (135)	0.7 (17)	3.5 (89)	2.85 (1.30)

** Bowl removal clearance: add 3.1 (79).

FLOW CHART



Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Sight-Feed.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure:
Polycarbonate bowl: 150 psig (10 bar) maximum.
Metal bowl: 200 psig (14 bar) maximum.
Oil Adjustment: External, tamper-resistant.
Adjusting Knob: Acetal.
Body: Zinc.
Bowl: Polycarbonate with steel shatterguard, or zinc bowl with sight glass.
Bowl Ring: Aluminum.
Seals: Nitrile.
Sight Dome: Nylon. External, tamper-proof.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 3/8, 1/2 & 3/4 – Flow to 205 scfm

HOW TO ORDER

(Choose your options (in red) to configure your model number.)

MD4	51P	S	B	3	2

BOWL SIZE

Polycarbonate Bowl 9-oz (266-ml)	51P
Metal Bowl 9-oz (266-ml)	51M
Extended Metal Bowl 15-oz (443-ml)	51E

LUBRICATOR FILL TYPE

Quick Fill Cap	Q
Fill Port	S

PIPE SIZE

3/8 NPTF	3
1/2 NPTF	4
3/4 NPTF	5
3/8 BSPP	C
1/2 BSPP	D
3/4 BSPP	E

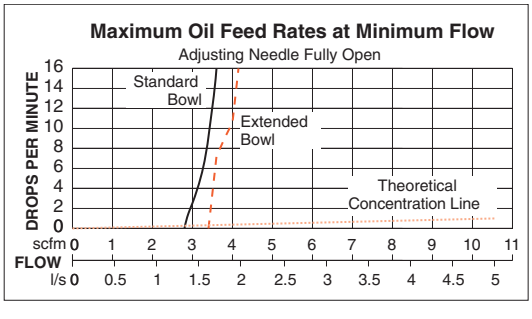
CAP COLOR

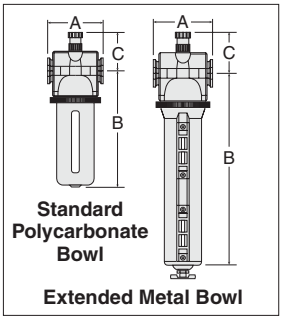
Gold	2
Gray	G
Yellow	Y
Red	R
Blue	B

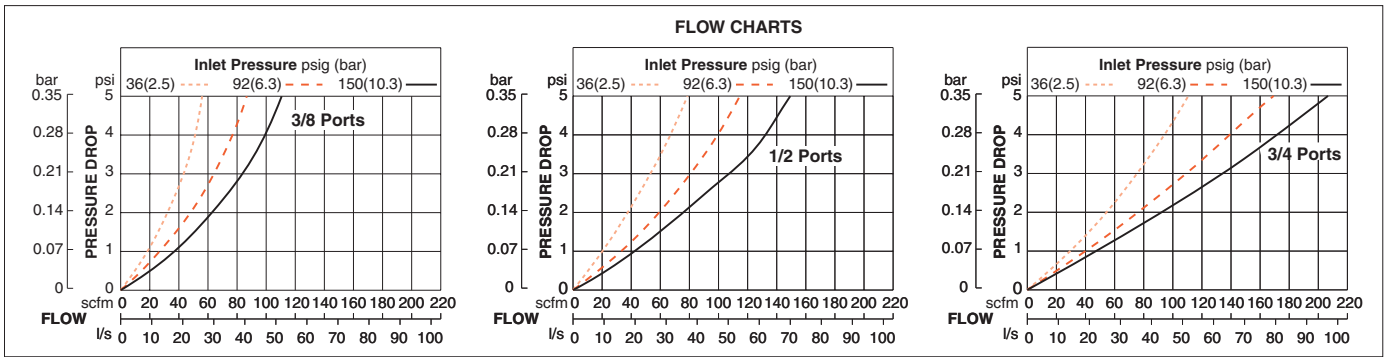
ISO Symbol
Lubricator

Bowl Size	Bowl Type	Dimensions inches (mm)				Weight lb (kg)
		A	B**	C	Depth	
3/8, 1/2, 3/4	Polycarbonate	3.5 (88)	7.1 (179)	2.2 (56)	2.9 (73)	2.0 (0.91)
	Aluminum	3.5 (88)	7.4 (188)	2.2 (56)	3.1 (79)	2.0 (0.91)

** Bowl removal clearance: add 3.1 (79).
Extended Bowl removal clearance: add 6.1 (155).







Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

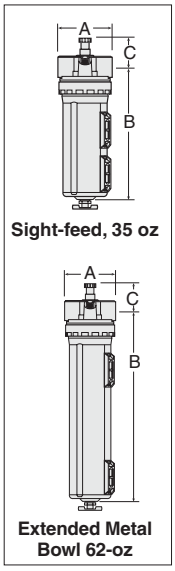
Construction: Sight-Feed.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure:
Polycarbonate bowl: 150 psig (10 bar).
Metal bowl: 200 psig (14 bar).
Oil Adjustment: External; tamper resistant.
Body: Zinc.
Bowl: Polycarbonate with steel shatterguard, aluminum bowl with clear nylon sight glass, or extended aluminum bowl with two clear nylon sight glass.
Bowl Ring: Nylon.
Sight-Feed Dome: Nylon.
Seals: Nitrile.

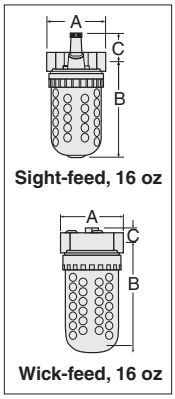
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 3/4, 1, 1¼ & 1½ – Flow to 500 scfm

Port Size	Bowl Size oz (ml)	Model Numbers* Metal Bowl			
		FILL-PORT		*QUICK-FILL CAP*	
		Sight-Feed	Wick-Feed	Sight-Feed	Wick-Feed
3/4	16 (473.2)	5112B5009	—	5112B5109	—
	35 (1035.1)	5112B5019	—	5112B5119	—
	62 (1833.6)	5112B5029	—	5112B5129	—
1	16 (473.2)	5112B6009	5112B6011	5112B6109	5112B6111
	35 (1035.1)	5112B6019	—	5112B6119	—
	62 (1833.6)	5112B6029	—	5112B6129	—
1¼	16 (473.2)	5112B7009	—	5112B7109	—
	35 (1035.1)	5112B7019	—	5112B7119	—
	62 (1833.6)	5112B7029	—	5112B7129	—
1½	16 (473.2)	5112B8009	—	5112B8109	—
	35 (1035.1)	5112B8019	—	5112B8119	—
	62 (1833.6)	5112B8029	—	5112B8129	—
Port Size	**Bowl Size oz (ml)**	**Polycarbonate Bowl**			
3/4	16 (473.2)	5111B5009	—	5111B5109	—
1	16 (473.2)	5111B6009	5111B6011	5111B6109	5111B6111
1¼	16 (473.2)	5111B7009	—	5111B7109	—
1½	16 (473.2)	5111B8009	—	5111B8109	—

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5111B5009.






Polycarbonate Bowl Metal Bowl

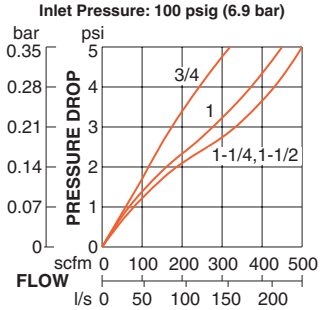
ISO Symbol
Lubricator

Port Size	Bowl Type	Dimensions inches (mm) A	B**	C	Depth	Weight lb (kg)
With Sight-Feed, 16 oz (473.2 ml)						
3/4, 1, 1¼, 1½	Polycarbonate	4.3 (108)	8.2 (208)	1.4 (37)	4.2 (106)	2.63 (1.21)
3/4, 1, 1¼, 1½	Aluminum	4.3 (108)	7.3 (185)	1.4 (37)	4.2 (106)	2.85 (1.30)
With Wick-Feed, 16 oz (473.2 ml)						
1/4, 3/8, 1/2, 3/4	Polycarbonate	4.5 (114)	7.7 (195)	0.8 (21)	4.3 (108)	2.88 (1.31)
1/4, 3/8, 1/2, 3/4	Aluminum	4.5 (114)	8.2 (208)	0.8 (21)	4.3 (108)	3.00 (1.36)
With Sight-Feed, 35 oz (1035.1 ml)						
3/4, 1	Aluminum	4.3 (108)	10.2 (259)	2.0 (51)	4.2 (106)	2.56 (1.16)
1¼, 1½	Aluminum	4.3 (108)	10.6 (268)	1.6 (41)	4.2 (106)	2.53 (1.16)
Extended Bowls, 35oz (1035ml)						
3/4, 1	Aluminum	4.3 (108)	15.8 (400)	2.0 (51)	4.2 (106)	3.38 (1.64)
1¼, 1½	Aluminum	4.3 (108)	16.1 (410)	1.6 (41)	4.2 (106)	3.38 (1.64)

** Bowl removal clearance: add 3.1 (79).

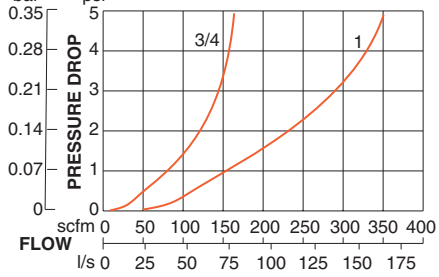
FLOW CHARTS

Inlet Pressure: 100 psig (6.9 bar)



Minimum Flow: 35-ounce bowl, 10 scfm (4.7 l/s)
62-ounce bowl, 14 scfm (6.6 l/s)

Inlet Pressure: 100 psig (6.9 bar)



Minimum Flow: 3/4 port, 25 scfm (11.8 l/s)
1 port, 35 scfm (16.5 l/s)

Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Sight-Feed, or Wick-Feed.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure: *Polycarbonate bowl:* 150 psig (10 bar) maximum.
Metal bowl: 200 psig (14 bar) maximum.
Oil Adjustment: External, tamper-resistant or internal.
Body: Aluminum.
Bowl: Polycarbonate with steel shatterguard; aluminum bowl with sight glass, or extended aluminum bowl with sight glass.
Bowl Ring: Aluminum.
Sight Dome: Nylon.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

E

ROSS CONTROLS®

Filter, Regulator, and Lubricator Combinations

www.rosscontrols.com

FRLs Combinations – KEY FEATURES

- Combinations include Filter and Regulator, Filter and Lubricator, Integrated Filter / Regulator combined into a single module plus a Lubricator, and Filter, Regulator and Lubricator
- All sizes have essentially the same operating characteristics as their corresponding individual Filters, Regulators, and Lubricators
- All filters include either a manual or internal automatic filter drain and a pressure gauge
- Regulators are either self relieving or non-relieving and have gauge ports front and rear
- 5-, 20-, and 40-micron filter element options available
- Additional available options are the same as those for the corresponding individual filters
- Modular or inline mounting

COMBINATION TYPE/SERIES	AVAILABLE PORT SIZES								FLOW	FILTRATION			OPTIONS				REGULATOR TYPE		OPTIONS		LUBRICATOR TYPE		OPT.	Page
	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	MAX FLOW (scfm)	5 µm	20 µm	40 µm	POLYCARBONATE BOWL	METAL BOWL	AUTOMATIC DRAIN	MANUAL DRAIN	PISTON	DIAPHRAGM	SELF RELIEVING	NON RELIEVING	WICK FEED	SIGHT FEED	LOCKOUT	
FILTER AND REGULATOR																								
MINIATURE	■	■							19	■			■	■	■	■	■	■	■	■				E5.3
MID-SIZE		■	■	■					100	■			■	■	■	■	■		■	■				E5.4
FULL-SIZE		■	■	■	■				138	■			■	■	■	■		■	■	■				E5.5
HIGH CAPACITY					■	■			270	■			■	■	■	■	■		■	■				E5.6
FILTER AND LUBRICATOR																								
MINIATURE	■	■							19	■			■	■	■	■					■			E5.7
MID-SIZE		■	■	■					100	■			■	■	■	■						■		E5.8
FULL-SIZE		■	■	■	■				138	■			■	■	■	■						■		E5.9
HIGH CAPACITY					■	■			270	■			■	■	■	■					■	■		E5.10
INTEGRATED FILTER/REGULATOR PLUS LUBRICATOR																								
BANTAM	■	■							23	■			■	■	■	■	■	■	■	■	■			E5.11 - E5.12
MINIATURE	■	■							24	■			■	■	■	■	■	■	■	■	■			E5.13 - E5.14
MID-SIZE		■	■	■					100	■			■	■	■	■	■		■	■		■		E5.15
MD3™		■	■	■					110	■	■	■	■	■	■	■		■	■	■		■	■	E5.16 - E5.17
FULL-SIZE		■	■	■	■				140	■			■	■	■	■		■	■	■		■		E5.18
MD4™			■	■	■				205	■		■	■	■	■	■		■	■	■		■	■	E5.19 - E5.20
FILTER REGULATOR PLUS LUBRICATOR																								
BANTAM	■	■							22	■			■	■	■	■	■	■	■	■	■			E5.21 - E5.22
MINIATURE	■	■							19	■			■	■	■	■	■	■	■	■	■			E5.23
MID-SIZE		■	■	■					100	■			■	■	■	■	■		■	■		■		E5.24
MD3™		■	■	■					110	■	■	■	■	■	■	■		■	■	■		■	■	E5.25 - E5.26
FULL-SIZE		■	■	■	■				138	■			■	■	■	■		■	■	■	■	■		E5.27
MD4™			■	■	■				205	■		■	■	■	■	■		■	■	■		■	■	E5.28 - E5.28
HIGH CAPACITY					■	■	■	■	495	■		■	■	■	■	■	■		■	■	■	■		E5.30 - E5.31

Port Sizes: 1/8 & 1/4 – Flow to 19 scfm

FILTER and PISTON type REGULATOR				
Port Size	Model Numbers*			
	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
1/8	5321C1027	5322C1024	5321C1026	5322C1025
1/4	5321C2027	5322C2024	5321C2026	5322C2025

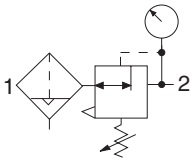
* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5321C1027.

FILTER and DIAPHRAGM type REGULATOR				
Port Size	Model Numbers*			
	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
1/8	5321C1037	5322C1034	5321C1036	5322C1035
1/4	5321C2037	5322C2034	5321C2036	5322C2035

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5321C1037.

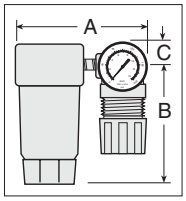
ISO Symbol
Filter/Regulator

Automatic Drain
Self-relieving

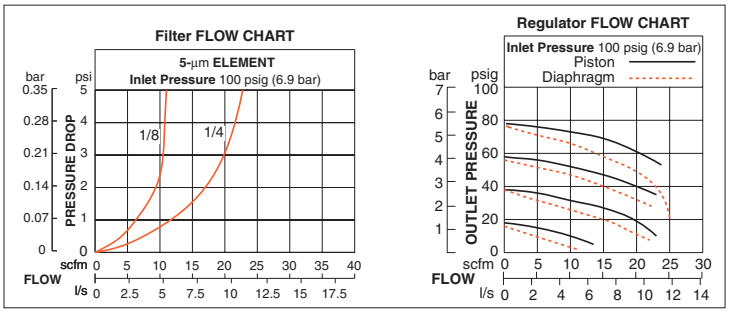


Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
1/8, 1/4	Polycarbonate	2-oz (60-ml)	4.4 (111)	3.6 (90)	0.7 (17)	1.6 (41)	0.77 (0.34)
1/8, 1/4	Aluminum	2-oz (60-ml)	4.4 (111)	4.3 (109)	0.7 (17)	1.6 (41)	0.79 (0.36)

† Less gauge.



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
5-µm	Polyethylene	933K77



Pressure Gauge included.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

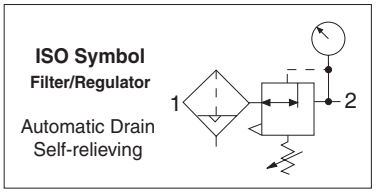
Construction: Filter – Fiber; Regulator – Piston.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowls: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: 15 to 150 psig (1 to 10 bar).
Metal bowl: 15 to 200 psig (1 to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Outlet Pressure: Adjustable up to 100 psig (7 bar).
Pressure Gauge: 0 to 160 psig (0 to 11 bar); 1/8 NPT gauge ports front and rear.
Oil Adjustment: Internal; tamper-resistant.
Panel Mounting: 1-3/16 inch (30 mm) hole required.
Filter Element: 5-micron rated polyethylene.
Heads: Aluminum.
Bowls: Polycarbonate bowls, or aluminum bowls.
Regulator Dome and Knob: Acetal.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 100 scfm

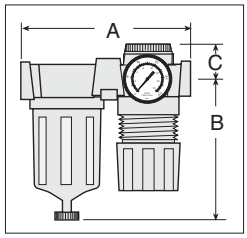
Port Size	Model Numbers*			
	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
1/4	5M11B2110	5M11B2210	5M11B2310	5M11B2410
3/8	5M11B3110	5M11B3210	5M11B3310	5M11B3410
1/2	5M11B4110	5M11B4210	5M11B4310	5M11B4410

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5M11B2110.

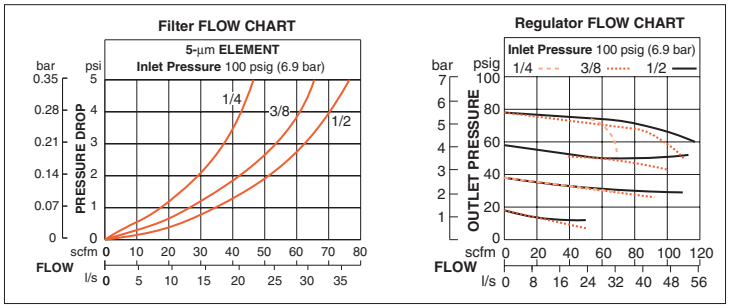


Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
1/4, 3/8, 1/2	Polycarbonate	4-oz (120-ml)	5.4 (137)	6.2 (157)	1.3 (33)	2.8 (71)	2.20 (1.00)
1/4, 3/8, 1/2	Zinc	4-oz (120-ml)	5.4 (137)	6.3 (160)	1.3 (33)	2.8 (71)	2.57 (1.17)

† Less gauge.



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
5-µm	Polyethylene	936K77



Pressure Gauge included.
Includes 2 female port blocks.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter – Fiber; Regulator – Piston.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowls: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: 15 to 150 psig (1 to 10 bar).
Metal bowl: 15 to 200 psig (1 to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Outlet Pressure: Adjustable up to 100 psig (7 bar).
Filter Element: 5-micron rated polyethylene.
Heads: Zinc.
Oil Adjustment: External; tamper-resistant.
Pressure Gauge: 0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
Panel Mounting: 1-9/16 inch (40 mm) hole required.
Regulator Dome and Knob: Acetal. Optional metal regulator dome.
Bowls: Polycarbonate bowls with zinc shatterguards, or zinc bowls.
Sight Dome: Clear nylon.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/4, 3/8, 1/2 & 3/4 – Flow to 138 scfm

With THREADED PORTS

Port Size	Model Numbers*			
	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
1/4	5F11B2120	5F11B2220	5F11B2320	5F11B2420
3/8	5F11B3120	5F11B3220	5F11B3320	5F11B3420
1/2	5F11B4120	5F11B4220	5F11B4320	5F11B4420
3/4	5F11B5120	5F11B5220	5F11B5320	5F11B5420

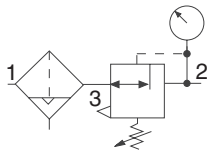
With PIPE NIPPLES

Fittings for Tubing	Model Numbers*			
	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
1/4	5F00B2120	5F00B2220	5F00B2320	5F00B2420
3/8	5F00B3120	5F00B3220	5F00B3320	5F00B3420
1/2	5F00B4120	5F00B4220	5F00B4320	5F00B4420
3/4	5F00B5120	5F00B5220	5F00B5320	5F00B5420

*NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5F11B2120, C5F00B2120.

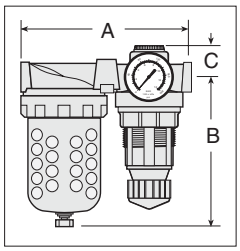
ISO Symbol
Filter/Regulator

Automatic Drain
Self-relieving

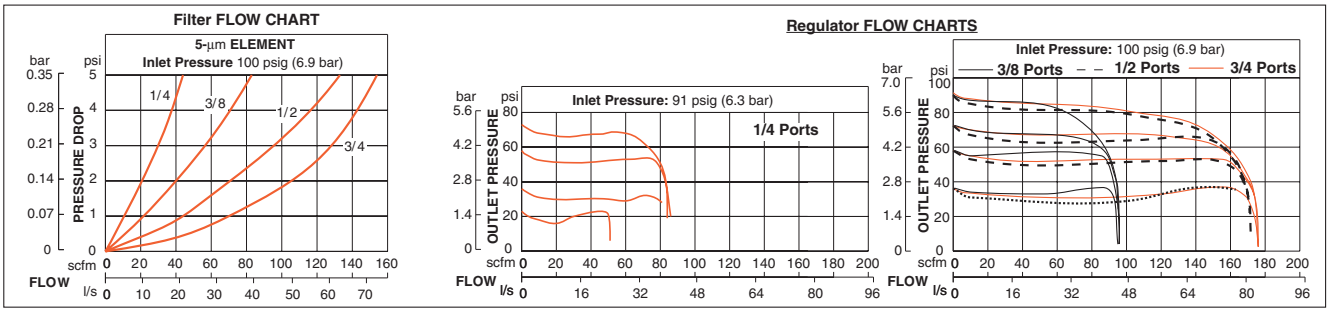


Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
1/4, 3/8, 1/2, 3/4	Polycarbonate	8-oz (240-ml)	7.0 (178)	5.8 (147)	1.3 (33)	2.8 (71)	4.09 (1.86)
1/4, 3/8, 1/2, 3/4	Zinc	8-oz (240-ml)	7.0 (178)	6.4 (163)	1.3 (33)	2.8 (71)	5.06 (2.30)

† Less gauge.



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
5-µm	Polyethylene	939K77



Pressure Gauge included. Units with Threaded Ports Include 2 female port blocks.
Options: External Automatic Drain, refer to page E6.7. Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter – Fiber; Regulator – Piston.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: 15 to 150 psig (1 to 10 bar).
Metal bowl: 15 to 200 psig (1 to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Outlet Pressure: Adjustable up to 125 psig (9 bar).
Filter Element: 5-micron rated polyethylene.
Heads: Zinc.
Oil Adjustment: External; tamper-resistant.
Pressure Adjustment Locking Key: Removable.
Pressure Gauge: 0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
Bowls: Polycarbonate bowl with steel shatterguard, or zinc bowl with clear nylon sight glass.
Bowl Rings: Aluminum.
Regulator: Nylon dome; acetal Knob.
Sight Dome: Clear nylon.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 3/4 & 1 – Flow to 270 scfm

Port Size	Model Numbers*			
	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
3/4	5H00C5110	5H00C5210	5H00C5310	5H00C5410
1	5H00C6110	5H00C6210	5H00C6310	5H00C6410

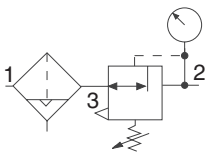
* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5H00C5110.

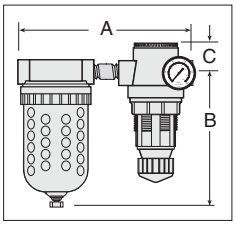
Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
3/4, 1	Polycarbonate	16-oz (480-ml)	9.1 (231)	8.0 (203)	2.4 (62)	4.3 (108)	4.53 (2.05)
3/4, 1	Zinc	16-oz (480-ml)	9.1 (231)	8.3 (210)	2.1 (54)	4.3 (108)	5.95 (2.70)

† Less gauge.

ISO Symbol
Filter/Regulator

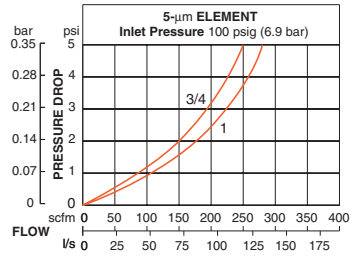
Automatic Drain
Self-relieving



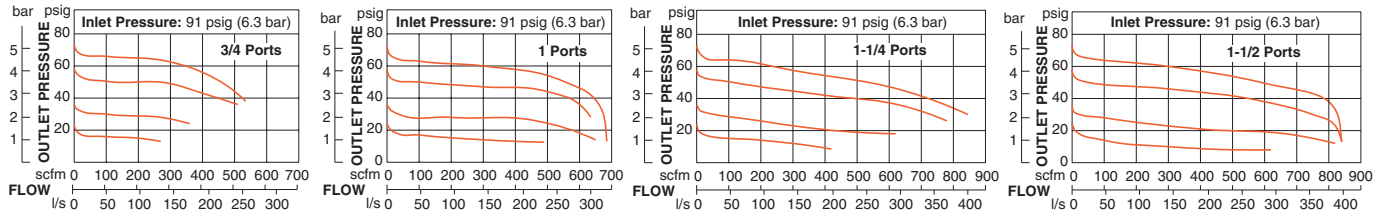


REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
5-µm	Polyethylene	1010K77

Filter FLOW CHART



Regulator FLOW CHARTS



Pressure Gauge included.
Options: External Automatic Drain, Electronic Drain, refer to page E6.7.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter – Fiber; Regulator – Piston.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: 15 to 150 psig (1 to 10 bar).
Metal bowl: 15 to 200 psig (1 to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Filter Element: 5-micron rated polyethylene.
Heads: Aluminum.
Oil Adjustment: External; tamper-resistant.
Outlet Pressure: Adjustable up to 100 psig (7 bar).
Pressure Adjustment Locking Key: Removable.
Pressure Gauge: 0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
Bowls: Polycarbonate bowl with steel shatterguard, or zinc bowl with clear nylon sight glass.
Bowl Rings: Aluminum.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/8 & 1/4 – Flow to 19 scfm

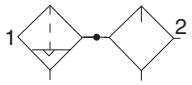
Port Size	Lubricator Fill Type	Model Numbers*			
		Automatic Drain		Manual Drain	
		Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
1/8	Fill Port	5311C1012	5312C1012	5311C1011	5312C1011
1/4	Fill Port	5311C2012	5312C2012	5311C2011	5312C2011
1/8	Quick-Fill Cap	5311C1112	5312C1112	5311C1111	5312C1111
1/4	Quick-Fill Cap	5311C2112	5312C2112	5311C2111	5312C2111

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5311C1012.

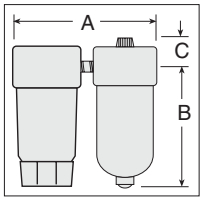
Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
1/8, 1/4	Polycarbonate	2-oz (60-ml)	3.4 (86)	3.6 (90)	0.7 (17)	1.6 (41)	0.59 (0.27)
1/8, 1/4	Metal	2-oz (60-ml)	3.4 (86)	4.3 (109)	0.7 (17)	1.6 (41)	0.59 (0.27)

† Less gauge.

ISO Symbol
Filter-Lubricator
Automatic Drain
Self-relieving

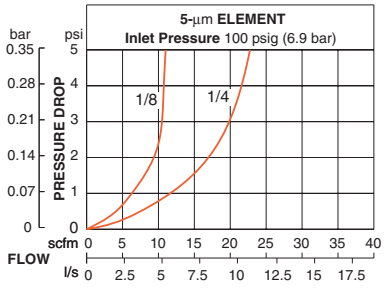


REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
5-µm	Polyethylene	933K77



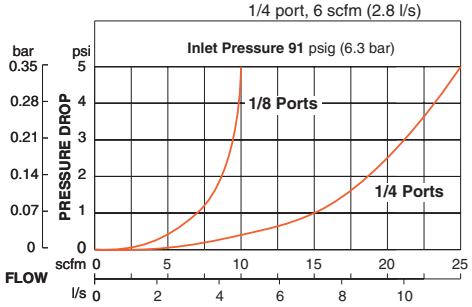
Lubricator FLOW CHARTS

Filter FLOW CHART



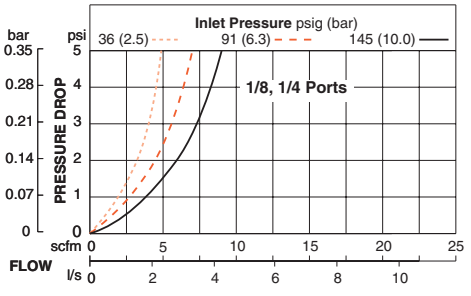
HIGH FLOW MODELS

Minimum Flow: 1/8 port, 2 scfm (0.94 l/s)
1/4 port, 6 scfm (2.8 l/s)



LOW FLOW MODELS

Minimum Flow: 1 scfm (0.47 l/s)



Pressure Gauge included.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter – Fiber, Lubricator – Wick-Feed or Quick-Fill Cap.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: 15 to 150 psig (1 to 10 bar).
Metal bowl: 15 to 200 psig (1 to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Oil Adjustment: Internal; tamper-resistant.
Filter Drain: Internal automatic drain; optional manual drain.
Filter Element: 5-micron rated polyethylene.
Heads: Aluminum.
Bowls: Polycarbonate or aluminum.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 100 scfm

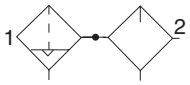
Port Size	Model Numbers*			
	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
1/4	5M11B2101	5M11B2202	5M11B2301	5M11B2402
3/8	5M11B3101	5M11B3202	5M11B3301	5M11B3402
1/2	5M11B4101	5M11B4202	5M11B4301	5M11B4402

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5M11B2101.

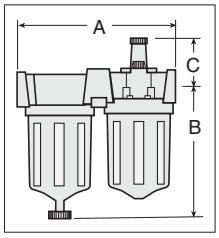
Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
1/4, 3/8, 1/2	Polycarbonate	4-oz (120-ml)	5.6 (137)	4.8 (122)	1.8 (46)	2.8 (71)	2.29 (1.04)
1/4, 3/8, 1/2	Metal	4-oz (120-ml)	5.6 (137)	4.9 (123)	1.8 (46)	2.8 (71)	3.10 (1.41)

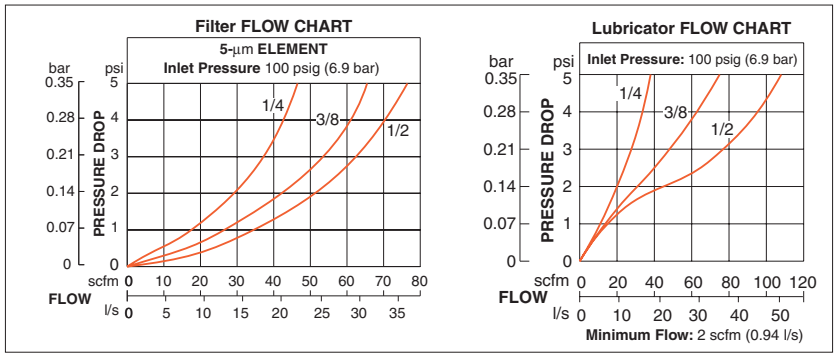
† Less gauge.

ISO Symbol
Filter-Lubricator
Automatic Drain
Self-relieving



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
5-µm	Polyethylene	936K77





Pressure Gauge included.
Includes 2 female port blocks.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter – Fiber, Lubricator – Sight-Feed.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: 15 to 150 psig (1 to 10 bar).
Metal bowl: 15 to 200 psig (1 to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Filter Element: 5-micron rated polyethylene.
Heads: Zinc.
Oil Adjustment: External; tamper-resistant.
Bowls: Polycarbonate bowls with zinc shatterguards, or zinc bowls.
Sight Dome: Clear nylon.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

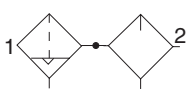
Port Sizes: 1/4, 3/8, 1/2 & 3/4 – Flow to 138 scfm

With THREADED PORTS				
Port Size	Model Numbers*			
	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
1/4	5F11B2101	5F11B2202	5F11B2301	5F11B2402
3/8	5F11B3101	5F11B3202	5F11B3301	5F11B3402
1/2	5F11B4101	5F11B4202	5F11B4301	5F11B4402
3/4	5F11B5101	5F11B5202	5F11B5301	5F11B5402

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5F11B2101

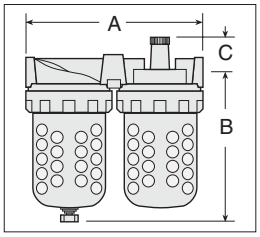
With PIPE NIPPLES				
Fittings for Tubing	Model Numbers			
	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
1/4	5F00B2101	5F00B2202	5F00B2301	5F00B2402
3/8	5F00B3101	5F00B3202	5F00B3301	5F00B3402
1/2	5F00B4101	5F00B4202	5F00B4301	5F00B4402
3/4	5F00B5101	5F00B5202	5F00B5301	5F00B5402

ISO Symbol
Filter-Lubricator
Automatic Drain
Self-relieving

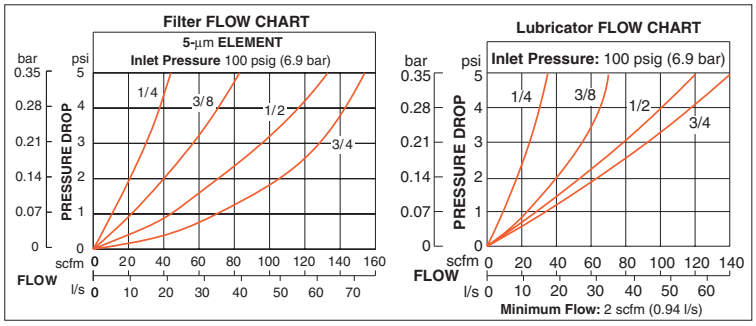


Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
1/4, 3/8, 1/2, 3/4	Polycarbonate	8-oz (240-ml)	7.1 (180)	5.8 (147)	1.3 (33)	2.8 (71)	4.09 (1.86)
1/4, 3/8, 1/2, 3/4	Zinc	8-oz (240-ml)	7.1 (180)	6.4 (163)	1.3 (33)	2.8 (71)	5.9 (2.68)

† Less gauge.



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
5-µm	Polyethylene	939K77



Pressure Gauge included. Units with Threaded Ports Include 2 female port blocks.
Options: Electronic Drain, refer to page E6.7.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter – Fiber, Lubricator – Sight-Feed.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: 15 to 150 psig (1 to 10 bar).
Metal bowl: 15 to 200 psig (1 to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Outlet Pressure: Adjustable up to 125 psig (9 bar).
Filter Element: 5-micron rated polyethylene.
Heads: Zinc.
Oil Adjustment: External; tamper-resistant.
Pressure Adjustment Locking Key: Removable.
Pressure Gauge: 0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
Bowls: Polycarbonate bowl with steel shatterguard, or zinc bowl with clear nylon sight glass.
Bowl Rings: Aluminum.
Regulator: Nylon dome; acetal knob.
Sight Dome: Clear nylon.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 3/4 & 1 – Flow to 270 scfm

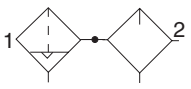
Port Size	Model Numbers*			
	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
3/4	5H00B5101	5H00B5202	5H00B5301	5H00B5402
1	5H00B6101	5H00B6202	5H00B6301	5H00B6402

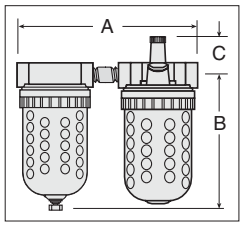
* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5H00B5101.

Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
3/4, 1	Polycarbonate	16-oz (480-ml)	9.2 (234)	8.0 (204)	1.4 (37)	4.3 (108)	5.27 (2.39)
3/4, 1	Aluminum	16-oz (480-ml)	9.2 (234)	8.3 (210)	1.4 (37)	4.3 (108)	6.3 (2.86)

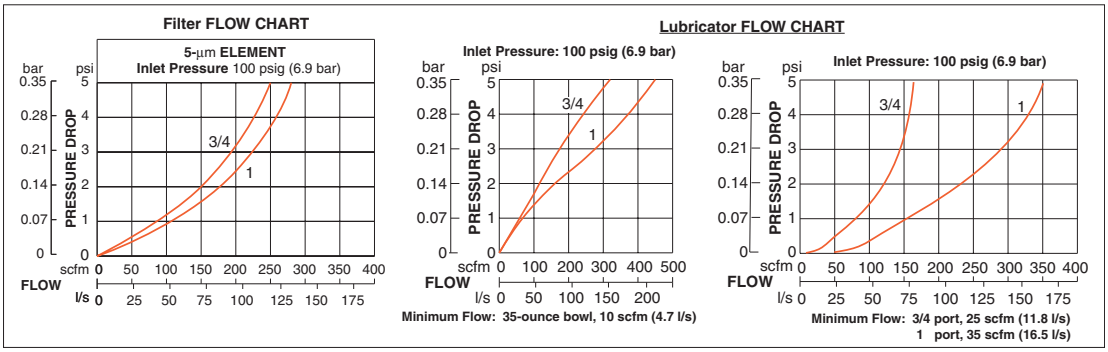
† Less gauge.

ISO Symbol
Filter-Lubricator
Automatic Drain
Self-relieving





REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
5-µm	Polyethylene	1010K77



Pressure Gauge included.
Options: Automatic External Drain, Electronic Drain, refer to page E6.7.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter – Fiber, Lubricator – Wick-Feed.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: 15 to 150 psig (1 to 10 bar).
Metal bowl: 15 to 200 psig (1 to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Filter Element: 5-micron rated polyethylene.
Heads: Aluminum.
Oil Adjustment: External; tamper-resistant.
Bowls: Polycarbonate bowls with steel shatterguard, or aluminum bowls with sight glass.
Bowl Rings: Aluminum.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

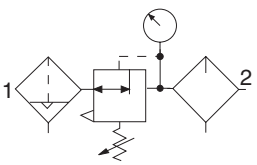
Port Sizes: 1/8 & 1/4 and Tube Fittings – Flow to 23 scfm

Combination with PISTON Type REGULATOR				
Port Size	Model Numbers#			
	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
With THREADED PORTS*				
1/8	5D01C0115	5D01C0216	5D01C0315	5D01C0416
1/4	5D02C0115	5D02C0216	5D02C0315	5D02C0416
With Quick Connect TUBE FITTINGS				
1/4	5D03C0115	5D03C0216	5D03C0315	5D03C0416
3/8	5D04C0115	5D04C0216	5D04C0315	5D04C0416
4mm	5D05C0115	5D05C0216	5D05C0315	5D05C0416
6mm	5D06C0115	5D06C0216	5D06C0315	5D06C0416
8mm	5D07C0115	5D07C0216	5D07C0315	5D07C0416
10mm	5D08C0115	5D08C0216	5D08C0315	5D08C0416

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5D01C0115.
#Change the ninth digit to "7" for quick fill lubricator cap e.g., 5D01C0117

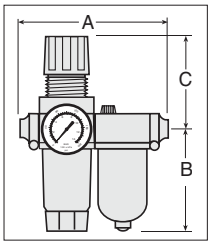
ISO Symbol
FRL

Automatic Drain
Self-relieving



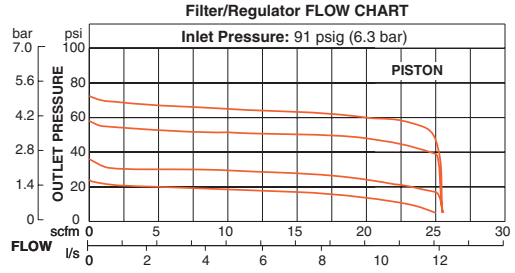
Port Size	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
		A	B**	C	Depth †	
1/8, 1/4	2-oz (60-ml)	4.6 (117)	3.6 (92)	2.6 (67)	1.8 (45)	0.57 (0.32)
Models below have quick-connect tube fittings.						
1/4	2-oz (60-ml)	5.0 (127)	3.6 (92)	2.6 (67)	1.8 (45)	0.55 (0.31)
3/8	2-oz (60-ml)	5.6 (142)	3.6 (92)	2.6 (67)	1.8 (45)	0.55 (0.31)
4, 6 mm	2-oz (60-ml)	5.1 (130)	3.6 (92)	2.6 (67)	1.8 (45)	0.55 (0.31)
8 mm	2-oz (60-ml)	4.7 (120)	3.6 (92)	2.6 (67)	1.8 (45)	0.55 (0.31)
10 mm	2-oz (60-ml)	5.6 (142)	3.6 (92)	2.6 (67)	1.8 (45)	0.55 (0.31)

** Dimension for polycarbonate filter bowl; metal bowl is 3.8 (97).
† Less gauge.

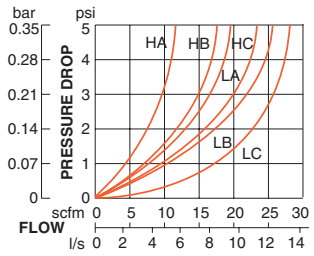


REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
5-µm	Polyethylene	933K77

Filter/Regulator FLOW CHART



Lubricator FLOW CHART



A: Wick Up
B: Wick Down 1 Groove
C: Wick Down 2 Grooves
H: High Oil Delivery
L: Low Oil Delivery
Inlet Pressure: 100 psig (6.9 bar)
Minimum Flow: 1 scfm (0.47 l/s)

Pressure Gauge included. Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter – Fiber, Regulator - Piston; Lubricator - Wick-Feed.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: 15 to 150 psig (1 to 10 bar).
Metal bowl: 15 to 200 psig (1 to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Pressure Gauge: 0 to 160 psig (11 bar); 1/8 NPT gauge ports front and rear.
Filter Element: 5-micron rated polyethylene.
Oil Adjustment: External, no shutoff.
Outlet Pressure: Adjustable up to 100 psig (7 bar).
Panel Mounting: 1-3/16 inch (30 mm) hole required.
Filter/Regulator & Lubricator Bodies: Acetal.
Bowls: Polycarbonate bowls or aluminum bowls.
Regulator Dome and Knob: Acetal.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

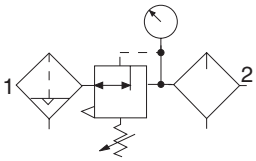
Port Sizes: 1/8 & 1/4 and Tube Fittings – Flow to 23 scfm

Port Size	Model Numbers#			
	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
Combination with DIAPHRAGM Type REGULATOR				
With THREADED PORTS*				
1/8	5D01C0125	5D01C0226	5D01C0325	5D01C0426
1/4	5D02C0125	5D02C0226	5D02C0325	5D02C0426
With Quick Connect TUBE FITTINGS				
1/4	5D03C0125	5D03C0226	5D03C0325	5D03C0426
3/8	5D04C0125	5D04C0226	5D04C0325	5D04C0426
4mm	5D05C0125	5D05C0226	5D05C0325	5D05C0426
6mm	5D06C0125	5D06C0226	5D06C0325	5D06C0426
8mm	5D07C0125	5D07C0226	5D07C0325	5D07C0426
10mm	5D08C0125	5D08C0226	5D08C0325	5D08C0426

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5D01C0115.
#Change the ninth digit to "7" for quick fill lubricator cap e.g., 5D01C0127.

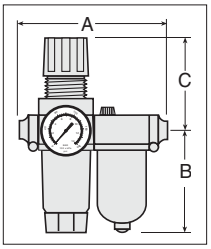
ISO Symbol
FRL

Automatic Drain
Self-relieving

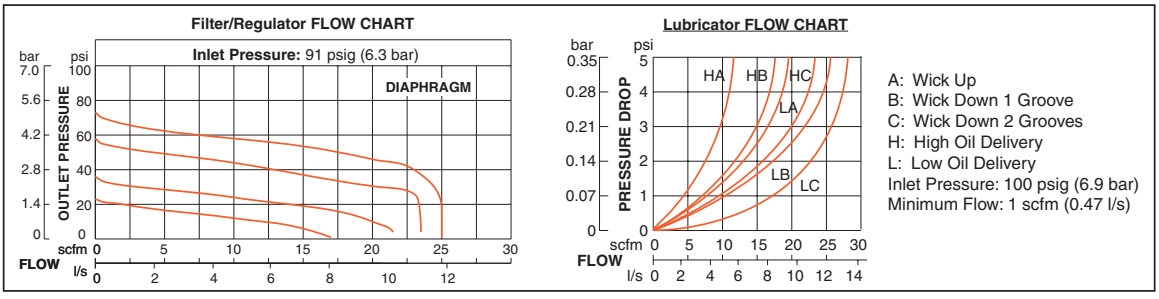


Port Size	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
		A	B**	C	Depth †	
1/8, 1/4	2-oz (60-ml)	4.6 (117)	3.6 (92)	2.6 (67)	1.8 (45)	0.57 (0.32)
Models below have quick-connect tube fittings.						
1/4	2-oz (60-ml)	5.0 (127)	3.6 (92)	2.6 (67)	1.8 (45)	0.55 (0.31)
3/8	2-oz (60-ml)	5.6 (142)	3.6 (92)	2.6 (67)	1.8 (45)	0.55 (0.31)
4, 6 mm	2-oz (60-ml)	5.1 (130)	3.6 (92)	2.6 (67)	1.8 (45)	0.55 (0.31)
8 mm	2-oz (60-ml)	4.7 (120)	3.6 (92)	2.6 (67)	1.8 (45)	0.55 (0.31)
10 mm	2-oz (60-ml)	5.6 (142)	3.6 (92)	2.6 (67)	1.8 (45)	0.55 (0.31)

** Dimension for polycarbonate filter bowl; metal bowl is 3.8 (97).
† Less gauge.



REPLACEMENT FILTER ELEMENTS		
Element Rating	**Element Material**	**Part Number**
5-µm	Polyethylene	933K77



Pressure Gauge included. Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter – Fiber, Lubricator – Diaphragm.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: 15 to 150 psig (1 to 10 bar).
Metal bowl: 15 to 200 psig (1 to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Pressure Gauge: 0 to 160 psig (11 bar); 1/8 NPT gauge ports front and rear.
Filter Element: 5-micron rated polyethylene.
Oil Adjustment: External, no shutoff.
Outlet Pressure: Adjustable up to 100 psig (7 bar).
Panel Mounting: 1-3/16 inch (30 mm) hole required.
Filter/Regulator & Lubricator Bodies: Acetal.
Bowls: Polycarbonate bowls or aluminum bowls.
Regulator Dome and Knob: Acetal.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

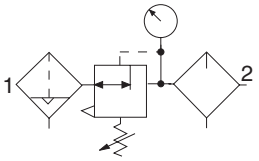
Port Sizes: 1/8 & 1/4 – Flow to 24 scfm

Combination with PISTON Type REGULATOR				
Port Size	Model Numbers*			
	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
Fill Port Lubricator				
1/8	5351C1006	5352C1006	5351C1005	5352C1005
1/4	5351C2006	5352C2006	5351C2005	5352C2005
With QUICK-FILL Cap Lubricator				
1/8	5351C1106	5352C1106	5351C1105	5352C1105
1/4	5351C2106	5352C2106	5351C2105	5352C2105

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5351C1006.

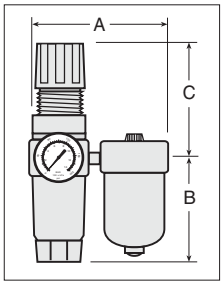
ISO Symbol
FRL

Automatic Drain
Self-relieving

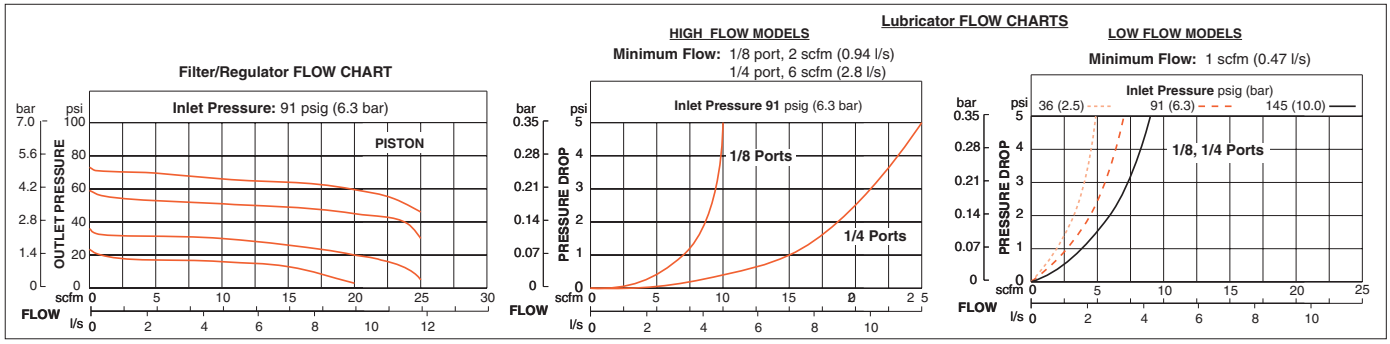


Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
1/8, 1/4	Polycarbonate	2-oz (59.1-ml)	3.7 (94)	3.9 (99)	2.6 (67)	1.6 (41)	0.66 (0.30)
1/8, 1/4	Aluminum	2-oz (59.1-ml)	4.0 (101)	4.3 (109)	2.6 (67)	1.6 (41)	0.66 (0.30)

† Less gauge.



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
5-µm	Polyethylene	933K77



Pressure Gauge included.

Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter – Fiber, Regulator - Piston; Lubricator - Wick-Feed.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: 15 to 150 psig (1 to 10 bar).
Metal bowl: 15 to 200 psig (1 to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Outlet Pressure: Adjustable up to 100 psig (7 bar).
Pressure Gauge: 0 to 160 psig (11 bar); 1/8 NPT gauge ports front and rear.
Oil Adjustment: Internal; tamper-resistant.
Panel Mounting: 1-3/16 inch (30 mm) hole required.
Filter Drain: Internal automatic drain; optional manual drain.
Filter Element: 5-micron rated polyethylene.
Bodies: Aluminum for filter/regulator and lubricator.
Bowls: Polycarbonate bowls or aluminum bowls.
Regulator Dome and Knob: Acetal.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

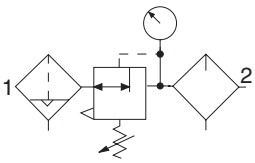
Port Sizes: 1/8 & 1/4 – Flow to 24 scfm

Combination with DIAPHRAGM Type REGULATOR				
Port Size	Model Numbers*			
	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
Fill Port Lubricator				
1/8	5341C1006	5342C1006	5341C1005	5342C1005
1/4	5341C2006	5342C2006	5341C2005	5342C2005
With QUICK-FILL Cap Lubricator				
1/8	5341C1106	5342C1106	5341C1105	5342C1105
1/4	5341C2106	5342C2106	5341C2105	5342C2105

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5351C1006.

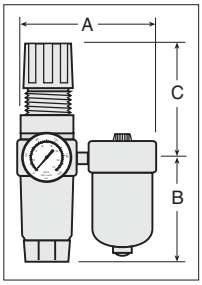
ISO Symbol
FRL

Automatic Drain
Self-relieving

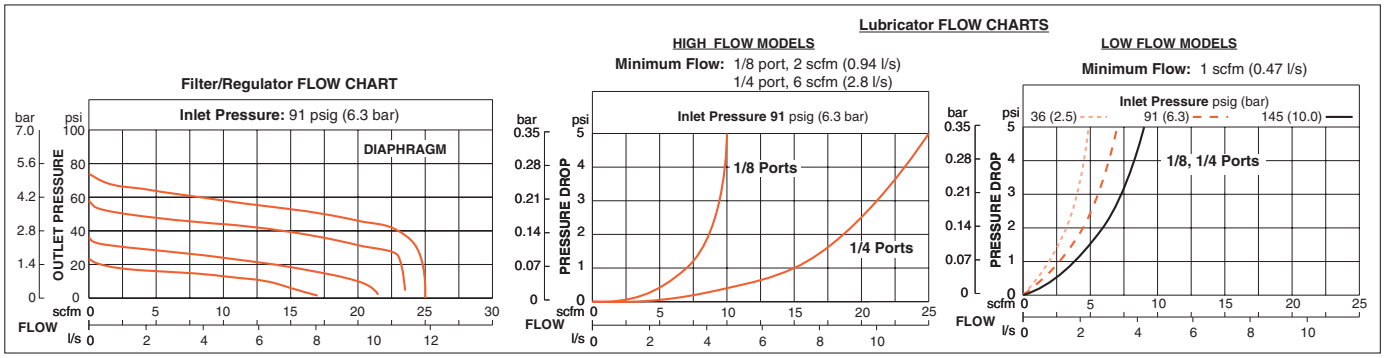


Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
1/8, 1/4	Polycarbonate	2-oz (59.1-ml)	3.7 (94)	3.6 (92)	2.6 (67)	1.6 (41)	0.66 (0.30)
1/8, 1/4	Aluminum	2-oz (59.1-ml)	4.0 (101)	4.3 (109)	2.6 (67)	1.6 (41)	0.66 (0.30)

† Less gauge.



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
5-µm	Polyethylene	933K77



Pressure Gauge included.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter – Fiber, Lubricator – Diaphragm; Lubricator - Week-Feed
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: 15 to 150 psig (1 to 10 bar).
Metal bowl: 15 to 200 psig (1 to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Outlet Pressure: Adjustable up to 100 psig (7 bar).
Pressure Gauge: 0 to 160 psig (11 bar); 1/8 NPT gauge ports front and rear.
Oil Adjustment: Internal; tamper-resistant.
Panel Mounting: 1-3/16 inch (30 mm) hole required.
Filter Drain: Internal automatic drain; optional manual drain.
Filter Element: 5-micron rated polyethylene.
Bodies: Aluminum for filter/regulator and lubricator.
Bowls: Polycarbonate bowls or aluminum bowls.
Regulator Dome and Knob: Acetal.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 100 scfm

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

5N	00	B	2	1	0	1

CONNECTIONS	
NPTF Pipe In, Out, Between	00
NPTF Pipe In & Out, Modular Between	09
Modular, Male Ports In & Out	10
Modular, Female Ports In & Out	11

PIPE SIZE	
1/4	2
3/8	3
1/2	4

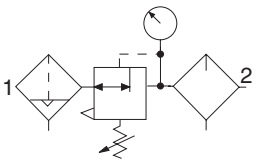
FILTER DRAIN TYPE	
None	0
Automatic Drain, Plastic Bowl	1
Automatic Drain, Metal Bowl	2
Manual Drain, Plastic Bowl	3
Manual Drain, Metal Bowl	4

Regulator TYPE ADJUSTMENT RANGE	
None	0
0-100 psig (0-6.9 bar)	1
0-50 psig (0-3.4 bar)	3
0-150 psig (0-10 bar)	5

LUBRICATOR FILL TYPE	
None	0
Plastic Bowl	1
Metal Bowl	2
Plastic Bowl, Quick-Fill Cap	3
Metal Bowl, Quick-Fill Cap	4

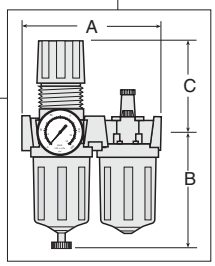
ISO Symbol
FRL

Automatic Drain
Self-relieving



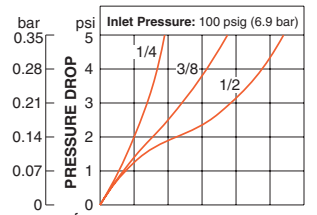
Port Size	Bowl Type	Bowl Capacity	Dimensions* inches (mm) A	B**	C***	Depth †	Weight † lb (kg)
1/4, 3/8, 1/2	Polycarbonate	4-oz (120-ml)	4.9 (124)	4.6 (116)	3.3 (83)	2.4 (60)	2.94 (1.34)
1/4, 3/8, 1/2	Zinc	4-oz (120-ml)	4.9 (124)	4.9 (123)	3.3 (83)	2.4 (60)	2.94 (1.34)

* **Dimensions** for NPTF Pipe In & Out, Modular Between option; dimensions for other combinations consult ROSS.
** Bowl removal clearance: add 3.1 (79).
*** Dome removal clearance: add 0.63 (16).
† Less gauge.

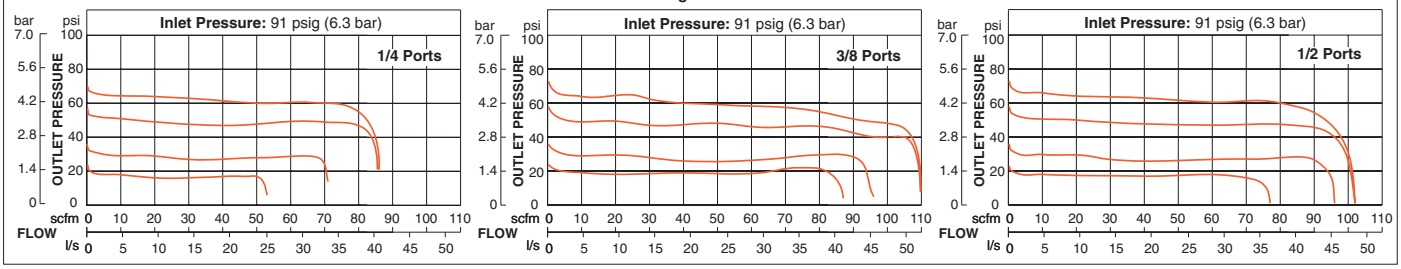


REPLACEMENT FILTER ELEMENTS		
Element Rating	**Element Material**	**Part Number**
5-µm	Polyethylene	936K77

Lubricator FLOW CHART



Filter/Regulator FLOW CHARTS



Pressure Gauge included. Includes 2 Female Port Blocks.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter – Fiber, Regulator - Diaphragm; Lubricator - Sight-feed.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure:
For automatic drain model:
Polycarbonate bowl: 15 to 150 psig (1 to 10 bar).
Metal bowl: 15 to 200 psig (1 to 14 bar).
For manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Outlet Pressure: Adjustable up to 100 psig (7 bar).
Pressure Gauge: 0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
Oil Adjustment: External; tamper-resistant.
Panel Mounting: 1-9/16 inch (40 mm) hole required.
Filter Element: 5-micron rated polyethylene.
Bodies: Zinc for filter/regulator and lubricator.
Bowls: Polycarbonate bowls with zinc shatterguard, or zinc bowls.
Regulator Dome and Knob: Acetal.
Seals: Nitrile.
Sight Dome: Clear nylon.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 110 scfm

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

MD3	53P	B	B	2	C	2	2	Q	1

BOWL SIZE

Polycarbonate Bowl 5.1-oz (151-ml)	**53P**
Metal Bowl 6-oz (177-ml)	53M
Metal Bowl 6-oz (177-ml) - on Filter Metal Bowl 10-oz (295-ml) - on Lubricator	53E
Plastic Bowl 6-oz (177-ml) - on Filter Metal Bowl 10-oz (295-ml) - on Lubricator	53F

PIPE SIZE

1/4 NPTF	**2**
3/8 NPTF	3
1/2 NPTF	4
1/4 BSPP	B
3/8 BSPP	C
1/2 BSPP	D

ADD on L-O-X® - Optional

L-O-X® on outlet side	1
L-O-X® on the inlet side (must also choose Reverse Flow)	2
EEZ-ON® on outlet side	3
EEZ-ON® on inlet side (must also choose Reverse Flow)	4
Blank - No L-O-X®	

ADJUSTMENT RANGE

0-200 psig (0-13.8 bar)	A
0-150 psig (0-10.3 bar)	**B**
0-100 psig (0-6.9 bar)	C
0-50 psig (0-3.4 bar)	D
Reverse Flow 0-200 psig (0-13.8 bar)	F
Reverse Flow 0-150 psig (0-10.3 bar)	G
Reverse Flow 0-100 psig (0-6.9 bar)	H
Reverse Flow 0-50 psig (0-3.4 bar)	J

FILTER ELEMENT TYPE

40 µm sintered bronze	A
5 µm polyethylene	**B**
5 µm sintered bronze	E
20 µm sintered bronze	F

BOWL DRAIN

Manual Drain	2
Float Drain	0

CAP COLOR

Gold	**2**
Gray	G
Yellow	Y
Red	R
Blue	B

LUBRICATOR FILL TYPE

None	N
Quick Fill Cap	**Q**
Fill Port	S

REPLACEMENT FILTER ELEMENTS*

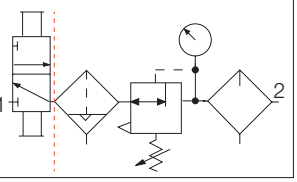
Element Rating	Element Material	Part Number
5-µm	Polyethylene	R-A60F-03PE5
5-µm	Sintered Bronze	R-A60F-03E5
20-µm	Sintered Bronze	R-A60F-03E4
40-µm	Sintered Bronze	R-A60F-03E3

* For polycarbonate and metal bowl types.

ISO Symbol

FRL with Lockout

Automatic Drain Self-relieving



Accessories ordered separately, refer to page E6.3-5.

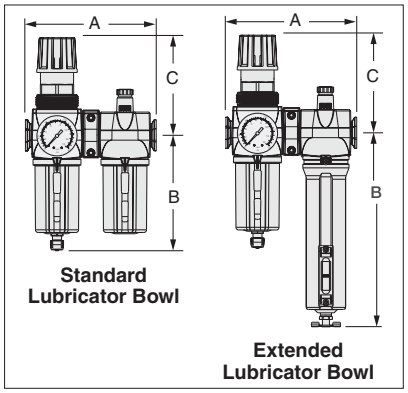
STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter – Fiber, or Sintered Bronze, Regulator - Diaphragm; Lubricator - Sight-feed.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Filter Inlet Pressure:
Polycarbonate bowl & Manual drain: 0 to 150 psig (0 to 10 bar).
Polycarbonate bowl & Float drain: 30 to 150 psig (2 to 10 bar).
Filter Inlet Pressure:
Metal bowl & Manual drain: 0-250 psig (0 to 17 bar).
Metal bowl & Float drain: 30-200 psig (2 to 14 bar).
Lubricator Inlet Pressure:
Polycarbonate bowl: 150 psig (10 bar) maximum.
Metal bowl: 250 psig (17 bar) maximum.
Outlet Pressure: Adjustable up to 200 psig (14 bar); optional adjusting springs.
Optional Pressure Adjustment Locking Key: Removable.
Pressure Gauge: 0-200 psig (0-13.8 bar)); 1/4 NPT gauge ports front and rear.
Panel Mounting: 2-1/16 inch (52 mm) hole required.
Oil Adjustment: External; tamper resistant.
Filter Element: 5-micron rated polyethylene; 5-, 20- or 40-micron rated sintered bronze.
Body: Zinc.
Dome: Nylon.
Bowl: Polycarbonate bowl with nylon shatterguard, or aluminum bowl with clear nylon sight glass. Lubricator bowl only: extended aluminum bowl with clear nylon sight glass.
Seals: Nitrile.
Valve: Brass.
Sight-Feed Dome: Nylon.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

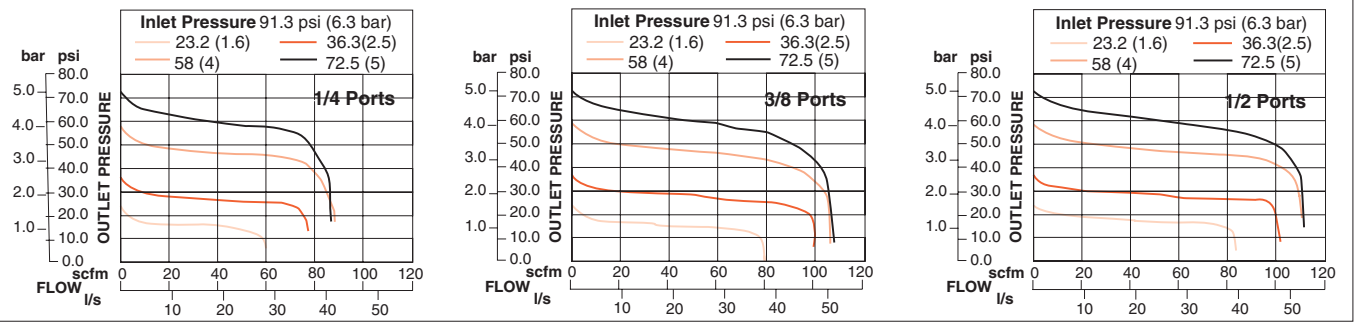
Bowl Type	Dimensions inches (mm)				Weight † lb (kg)
	A	B*	C	Depth †	
Polycarbonate	6.46 (164.1)	5.54 (140.6)	4.68 (119)	2.90 (73.7)	4.7 (2.1)
Metal	6.46 (164.1)	6.42 (163.1)	4.68 (119)	2.90 (73.7)	5.1 (2.3)
Extended Metal	6.46 (164.1)	9.37 (238)	4.68 (119)	2.90 (73.7)	5.3 (2.4)

Lockout: With the lockout valve, add 2.3 (58) to dimension A.
* Bowl (standard) removal clearance: add 3.1 (79)
* Bowl (extended) removal clearance: add 6.1 (155)
† Less gauge.

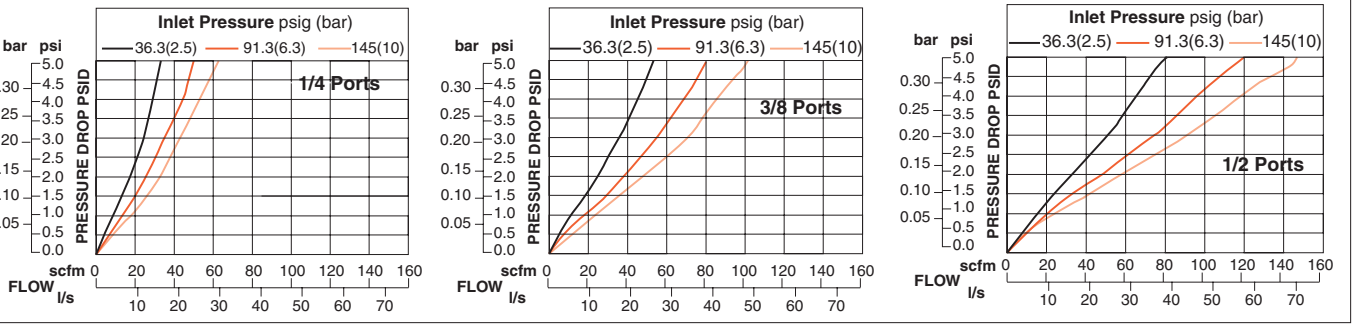


AIR FLOW and CONSTRUCTION DATA

Filter/Regulator FLOW CHARTS



Lubricator FLOW CHARTS



E

E5

Port Sizes: 1/4, 3/8, 1/2 & 3/4 – Flow to 140 scfm

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

5E	00	B	2	1	0	5

CONNECTIONS

NPTF Pipe In, Out, Between	00
NPTF Pipe In & Out, Modular Between	09
Modular, Male Ports In & Out	10
Modular, Female Ports In & Out	11

PIPE SIZE

1/4	2
3/8	3
1/2	4
3/4	5

FILTER DRAIN TYPE

None	0
Automatic Drain, Plastic Bowl	1
Automatic Drain, Metal Bowl	2
Manual Drain, Plastic Bowl	3
Manual Drain, Metal Bowl	4

Regulator TYPE ADJUSTMENT RANGE

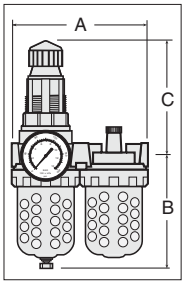
None	0
0-125 psig (0-8.6 bar)	2
0-50 psig (0-3.4 bar)	4
0-175 psig (0-12.1 bar)	6

LUBRICATOR FILL TYPE

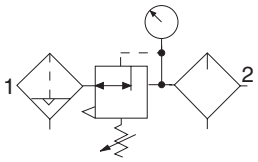
None	0
Sight-Feed, Plastic Bowl	1
Sight-Feed, Metal Bowl	2
Sight-Feed, Plastic Bowl, Quick-Fill Cap	3
Sight-Feed, Metal Bowl, Quick-Fill Cap	4
Wick-Feed, Plastic Bowl	5
Wick-Feed, Metal Bowl	6
Wick-Feed, Plastic Bowl, Quick-Fill Cap	7
Wick-Feed, Metal Bowl, Quick-Fill Cap	8

Port Size	Bowl Type	Dimensions* inches (mm)				Weight † lb (kg)
		A	B**	C***	Depth †	
1/4, 3/8, 1/2, 3/4	Polycarbonate 8-oz (240-ml)	6.7 (170)	5.8 (146)	5.8 (146)	3.5 (89)	5.94 (2.69)
1/4, 3/8, 1/2, 3/4	Metal 8-oz (240-ml)	6.7 (170)	6.4 (163)	5.8 (146)	3.5 (89)	5.94 (2.69)

* **Dimensions** for NPTF Pipe In & Out, Modular Between option; dimensions for other combinations consult ROSS.
** Bowl removal clearance: add 3.1 (79).
*** Dome removal clearance: add 0.63 (16).
† Less gauge.



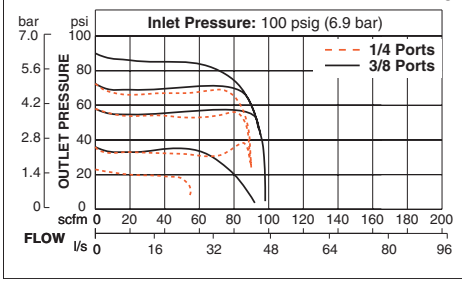
ISO Symbol
FRL
Automatic Drain
Self-relieving

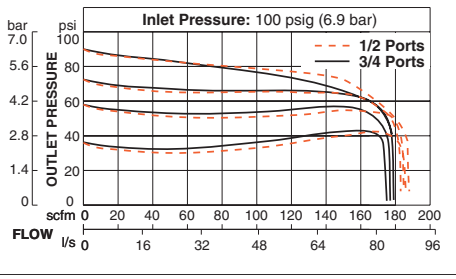


REPLACEMENT FILTER ELEMENTS

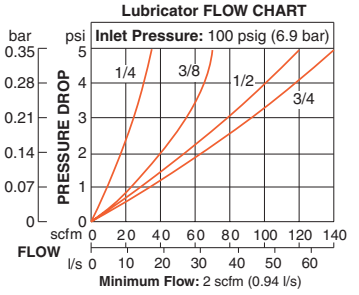
Element Rating	Element Material	Part Number
5-µm	Polyethylene	939K77

Filter/Regulator FLOW CHARTS





Lubricator FLOW CHART



Minimum Flow: 2 scfm (0.94 l/s)

Pressure Gauge included. Units with Threaded Ports Include 2 female port blocks.
Options: External Automatic Drain, refer to page E6.7.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter – Fiber, Regulator - Diaphragm; Lubricator - Sight-Feed, or Wick-Feed.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: Up to 150 psig (up to 10 bar).
Metal bowl: Up to 200 psig (up to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Outlet Pressure: Adjustable up to 125 psig (9 bar).
Filter Element: 5-micron rated polyethylene.
Pressure Adjustment Locking Key: Removable.
Pressure Gauge: 0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
Oil Adjustment: External; tamper-resistant.
Bodies: Zinc for filter/regulator and lubricator.
Bowls: Polycarbonate bowls with steel shatterguards, or zinc bowls with clear nylon sight glasses.
Bowl Rings: Nylon.
Regulator: Nylon dome; acetal knob.
Sight Dome: Clear nylon. **Seals:** Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 3/8, 1/2 & 3/4 – Flow to 205 scfm

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

MD4	53P	B	B	1	B	5	2	S	1

BOWL MATERIAL/SIZE

Two Polycarbonate Bowls 9-oz (270-ml)	**53P**
Two Metal Bowl 9-oz (270-ml)	53M
Metal Bowl 9-oz (270-ml) - on Filter Extended Metal Bowl 15-oz (450-ml) - on Lubricator	53E
Platic Bowl 9-oz (270-ml) - on Filter Extended Metal Bowl 15-oz (450-ml) - on Lubricator	53F

ADJUSTMENT RANGE

0-175 psig (0-12.1 bar) with 0-200 psig (0-13.8 bar) gauge	**A**
0-125 psig (0-8.6 bar) standard with 0-200 psig (0-13.8 bar) gauge	B
0-50 psig (0-3.4 bar) with 0-60 psig (0-4.1 bar) gauge	C
0-20 psig (0-1.4 bar) with 0-60 psig (0-4.1 bar) gauge	D
Reverse Flow 0-175 psig (0-12.1 bar) with 0-200 psig (0-13.8 bar) gauge	F
Reverse Flow 0-125 psig (0-8.6 bar) standard with 0-200 psig (0-13.8 bar) gauge	G
Reverse Flow 0-50 psig (0-3.4 bar) with 0-60 psig (0-4.1 bar) gauge	H
Reverse Flow 0-20 psig (0-1.4 bar) with 0-60 psig (0-4.1 bar) gauge	J

FILTER ELEMENT TYPE

40 µm sintered bronze	**A**
5 µm polyethylene	B

FILTER REGULATOR DRAIN TYPE

Automatic Drain	**1**
Manual Drain	2

PIPE SIZE

3/8 NPTF	3
1/2 NPTF	4
3/4 NPTF	5
3/8 BSPP	C
1/2 BSPP	D
3/4 BSPP	E

CAP COLOR

Gold	**2**
Gray	G
Yellow	Y
Red	R
Blue	B

LUBRICATOR FILL TYPE

Quick Fill Cap	**Q**
Fill Port	S

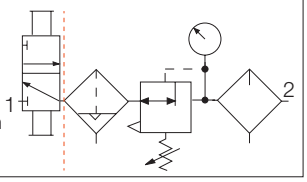
ADD on L-O-X® - Optional

L-O-X® on outlet side	**1**
L-O-X® on the inlet side (must also choose Reverse Flow)	2
EEZ-ON® on outlet side	3
EEZ-ON® on inlet side (must also choose Reverse Flow)	4
Blank - No L-O-X®	

ISO Symbol

FRL with Lockout

Automatic Drain Self-relieving



REPLACEMENT FILTER ELEMENTS*

Element Rating	Element Material	Part Number
5-µm	Polyethylene	R-A115-106PE5
40-µm	Sintered Bronze	R-A115-106PE3

* For Polycarbonate and metal bowl types.

Options: External Bowl Drains, refer to page E6.7.
Accessories ordered separately, refer to page E6.3-5.

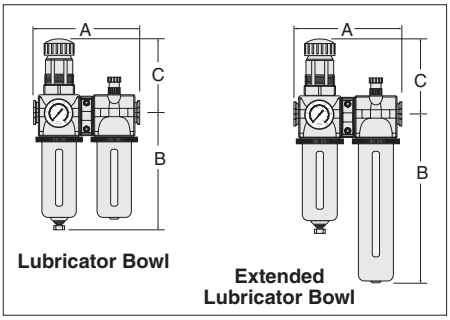
STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter – Fiber or Sintered Bronze, Regulator - Diaphragm; Lubricator - Sight-Feed.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: Up to 150 psig up to 10 bar).
Metal bowl: Up to 200 psig (up to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Outlet Pressure: Adjustable up to 125 psig (9 bar).
Filter Element: 5-micron rated polyethylene; optional 40-micron element.
Heads: Zinc.
Pressure Adjustment Locking Key: Removable.
Pressure Gauge: 0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
Oil Adjustment: External; tamper-resistant.
Bowls: Aluminum bowl with clear nylon sight glass, polycarbonate bowl with steel shatterguard, or extended aluminum lubricator bowl with clear nylon sight glass.
Regulator Valve: Brass.
Sight Dome: Clear nylon.
Seals: Nitrile.

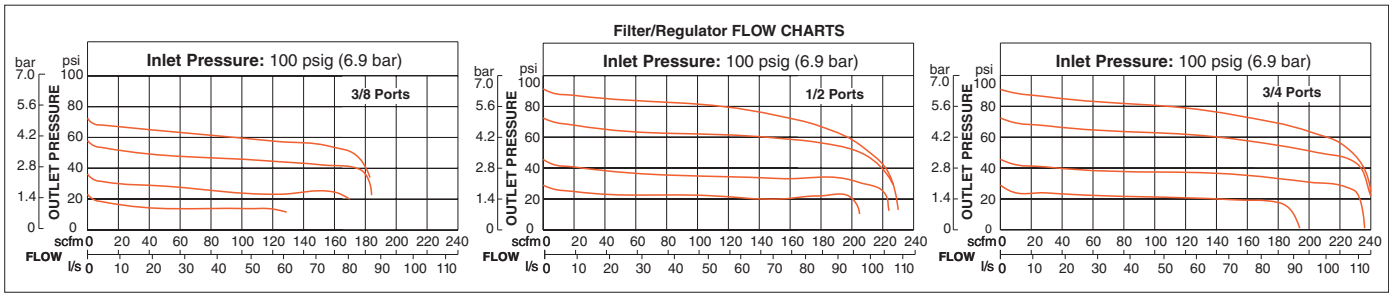
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

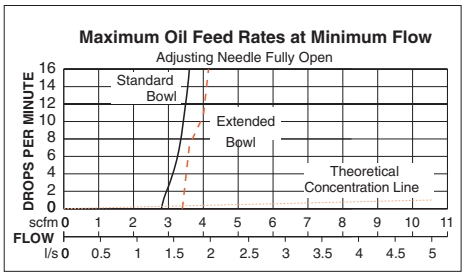
Port Size	Bowl Type	Dimensions inches (mm)				Weight † lb (kg)
		A	B*	C	Depth †	
3/8, 1/2, 3/4	Polycarbonate	7.3 (186)	7.7 (195)	5.4 (137)	2.9 (73)	5.81 (2.64)
	Metal	7.3 (186)	7.6 (193)	5.4 (137)	2.9 (73)	5.81 (2.64)
	Extended Metal	7.2 (183)	10.6 (269)	4.68 (119)	5.4 (137)	6.00 (2.73)

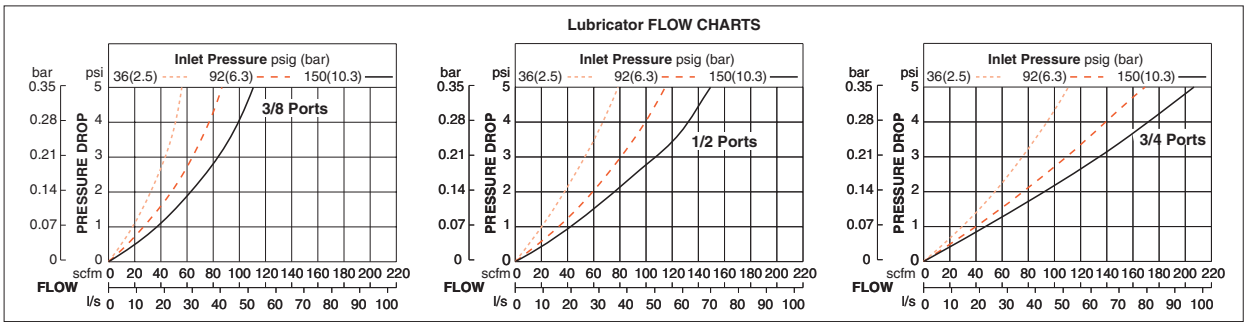
Lockout: With the lockout valve, add 2.3 (58) to dimension A.
* Bowl (standard) removal clearance: add 4.2 (107).
* Bowl (extended) removal clearance: add 6.1 (155)
† Less gauge.



AIR FLOW and CONSTRUCTION DATA





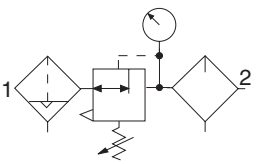


Port Sizes: 1/8 & 1/4 – Flow to 22 scfm

Combination with PISTON Type Regulator - Fill Port Lubricator				
Port Size	Model Numbers*#			
	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
With THREADED PORTS				
1/8	5B01C0115	5B01C0216	5B01C0315	5B01C0416
1/4	5B02C0115	5B02C0216	5B02C0315	5B02C0416
With Quick Connect TUBE FITTINGS				
1/4	5B03C0115	5B03C0216	5B03C0315	5B03C0416
3/8	5B04C0115	5B04C0216	5B04C0315	5B04C0416
4mm	5B05C0115	5B05C0216	5B05C0315	5B05C0416
6mm	5B06C0115	5B06C0216	5B06C0315	5B06C0416
8mm	5B07C0115	5B07C0216	5B07C0315	5B07C0416
10mm	5B08C0115	5B08C0216	5B08C0315	5B08C0416

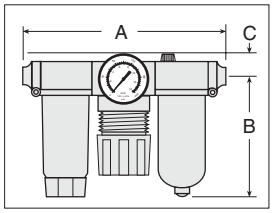
* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5B01C0115.
#Change the ninth digit to "7" for quick fill lubricator cap e.g., 5B01C0117.

ISO Symbol
FRL
Automatic Drain
Self-relieving



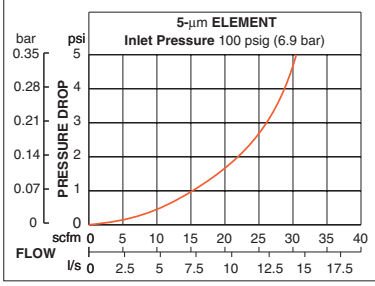
Port Size	Dimensions inches (mm)				Weight † lb (kg)
	A	B**	C	Depth †	
1/8, 1/4	6.3 (160	3.6 (92)	1.7 (43)	3.6 (92)	0.53 (0.24)
Models below have quick-connect tube fittings.					
1/4	6.7 (170)	3.6 (92)	1.7 (43)	3.6 (92)	0.50 (0.23)
3/8	7.2 (183)	3.6 (92)	1.7 (43)	3.6 (92)	0.50 (0.23)
4, 6 mm	6.7 (170)	3.6 (92)	1.7 (43)	3.6 (92)	0.50 (0.23)
8 mm	6.4 (163)	3.6 (92)	1.7 (43)	3.6 (92)	0.50 (0.23)
10 mm	7.2 (183)	3.6 (92)	1.7 (43)	3.6 (92)	0.50 (0.23)

** Dimension for polycarbonate filter bowl; metal bowl is 3.8 (97).
† Less gauge.

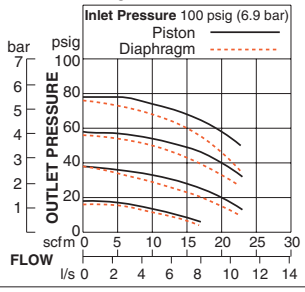


REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
5-µm	Polyethylene	933K77

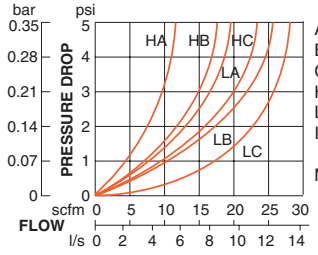
Filter FLOW CHART



Regulator FLOW CHART



Lubricator FLOW CHART



A: Wick Up
B: Wick Down 1 Groove
C: Wick Down 2 Grooves
H: High Oil Delivery
L: Low Oil Delivery
Inlet Pressure:
100 psig (6.9 bar)
Minimum Flow:
1 scfm (0.47 l/s)

Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter – Fiber; Regulator – Piston; Lubricator - Wick-Feed.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: Up to 150 psig up to 10 bar).
Metal bowl: Up to 200 psig (up to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Filter Element: 5-micron rated polyethylene.
Oil Adjustment: External, no shutoff.
Outlet Pressure: Adjustable up to 100 psig (7 bar).
Panel Mounting: 1-3/16 inch (30 mm) hole required.
Bodies: Acetal.
Bowls: 2-oz (60-ml) polycarbonate bowls or aluminum bowls.
Regulator Dome and Knob: Acetal.
Seals: Nitrile.

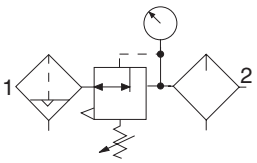
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/8 & 1/4 – Flow to 22 scfm

Combination with DIAPHRAGM Type Regulator - Fill Port Lubricator				
Port Size	Model Numbers#			
	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
With THREADED PORTS*				
1/8	5B01C0125	5B01C0226	5B01C0325	5B01C0426
1/4	5B02C0125	5B02C0226	5B02C0325	5B02C0426
With Quick Connect TUBE FITTINGS				
1/4	5B03C0125	5B03C0226	5B03C0325	5B03C0426
3/8	5B04C0125	5B04C0226	5B04C0325	5B04C0426
4mm	5B05C0125	5B05C0226	5B05C0325	5B05C0426
6mm	5B06C0125	5B06C0226	5B06C0325	5B06C0426
8mm	5B07C0125	5B07C0226	5B07C0325	5B07C0426
10mm	5B08C0125	5B08C0226	5B08C0325	5B08C0426

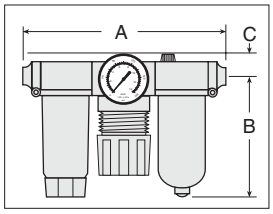
* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5B01C0115.
#Change the ninth digit to "7" for quick fill lubricator cap e.g., 5B01C0127.

ISO Symbol
FRL
Automatic Drain
Self-relieving

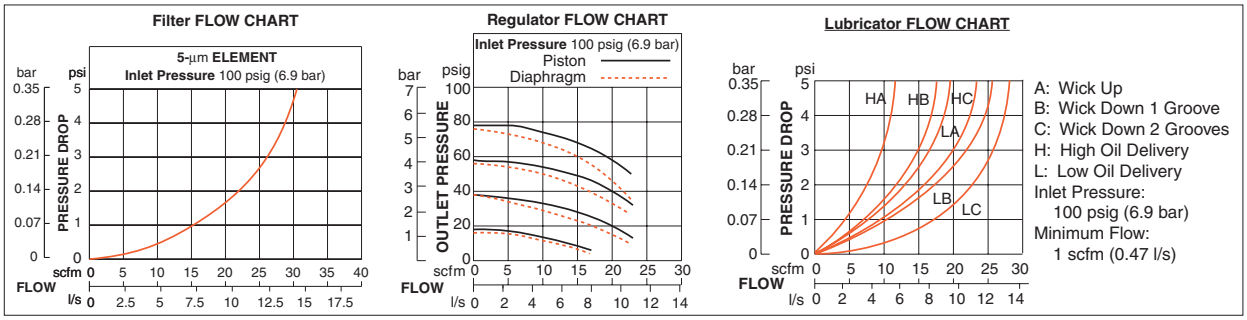


Port Size	Dimensions inches (mm)				Weight † lb (kg)
	A	B**	C	Depth †	
1/8, 1/4	6.3 (160	3.6 (92)	1.7 (43)	3.6 (92)	0.53 (0.24)
Models below have quick-connect tube fittings.					
1/4	6.7 (170)	3.6 (92)	1.7 (43)	3.6 (92)	0.50 (0.23)
3/8	7.2 (183)	3.6 (92)	1.7 (43)	3.6 (92)	0.50 (0.23)
4, 6 mm	6.7 (170)	3.6 (92)	1.7 (43)	3.6 (92)	0.50 (0.23)
8 mm	6.4 (163)	3.6 (92)	1.7 (43)	3.6 (92)	0.50 (0.23)
10 mm	7.2 (183)	3.6 (92)	1.7 (43)	3.6 (92)	0.50 (0.23)

** Dimension for polycarbonate filter bowl; metal bowl is 3.8 (97).
† Less gauge.



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
5-µm	Polyethylene	933K77



Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter – Fiber; Regulator – Diaphragm; Lubricator - Wick-Feed.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: Up to 150 psig up to 10 bar).
Metal bowl: Up to 200 psig (up to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Filter Element: 5-micron rated polyethylene.
Oil Adjustment: External, no shutoff.
Outlet Pressure: Adjustable up to 100 psig (7 bar).
Panel Mounting: 1-3/16 inch (30 mm) hole required.
Bodies: Acetal.
Bowls: 2 oz (60 ml) polycarbonate bowls or aluminum bowls.
Regulator Dome and Knob: Acetal.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

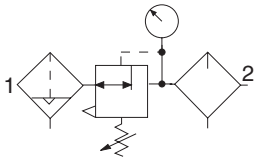
Port Sizes: 1/8 & 1/4 – Flow to 19 scfm

Port Size	Model Numbers*			
	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
FILL Port Lubricator				
1/8	5331C1006	5332C1006	5331C1005	5332C1005
1/4	5331C2006	5332C2006	5331C2005	5332C2005
With QUICK-FILL CAP				
1/8	5331C1106	5332C1106	5331C1105	5332C1105
1/4	5331C2106	5332C2106	5331C2105	5332C2105

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5331C1006.

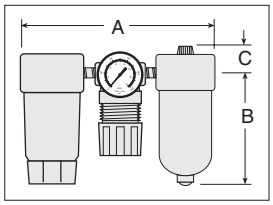
ISO Symbol
FRL

Automatic Drain
Self-relieving

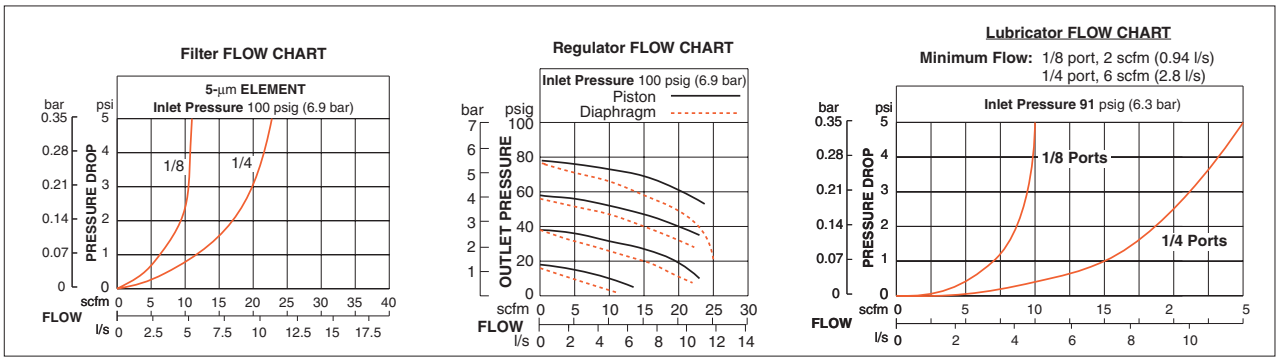


Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
1/8, 1/4	Polycarbonate	2-oz (60-ml)	5.5 (140)	3.6 (90)	0.7 (17)	1.6 (41)	0.76 (0.34)
1/8, 1/4	Aluminum	2-oz (60-ml)	5.5 (140)	4.3 (109)	0.7 (17)	1.6 (41)	0.76 (0.34)

† Less gauge.



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
5-µm	Polyethylene	933K77



Pressure Gauge included.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter – Fiber; Regulator – Piston; Lubricator - Wick-Feed.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: Up to 150 psig up to 10 bar).
Metal bowl: Up to 200 psig (up to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Outlet Pressure: Adjustable up to 100 psig (7 bar).
Pressure Gauge: 0 to 160 psig (0 to 11 bar); 1/8 NPT gauge ports front and rear.
Oil Adjustment: Internal; tamper-resistant.
Panel Mounting: 1-3/16 inch (30 mm) hole required.
Filter Element: 5-micron rated polyethylene.
Heads: Aluminum.
Bowls: Polycarbonate or aluminum.
Regulator Dome and Knob: Acetal.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 100 scfm

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

[ ]	5M	00	B	2	1	0	1

PIPE THREAD

NPTF (Blank)	
BSPP	C

CONNECTIONS

Pipe In, Out, Between	**00**
Pipe In & Out, Modular Between	09
Modular, Male Ports In & Out	10
Modular, Female Ports In & Out	11

PIPE SIZE

1/4	2
3/8	3
1/2	4

FILTER BOWL & DRAIN TYPE

None	0
Plastic Bowl, Automatic Drain	1
Metal Bowl, Automatic Drain	2
Plastic Bowl, Manual Drain	3
Metal Bowl, Manual Drain	4

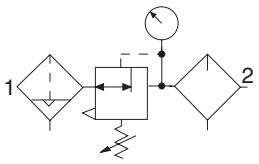
ADJUSTMENT RANGE

None	0
0-100 psig (0-6.9 bar)	1
0-50 psig (0-3.4 bar)	3
0-150 psig (0-10 bar)	5

LUBRICATOR BOWL & FILL TYPE

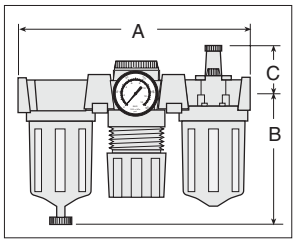
None	0
Plastic Bowl, Fill Port	1
Metal Bowl, Fill Port	2
Plastic Bowl, Quick-Fill Cap	3
Metal Bowl, Quick-Fill Cap	4

ISO Symbol
FRL
Automatic Drain
Self-relieving

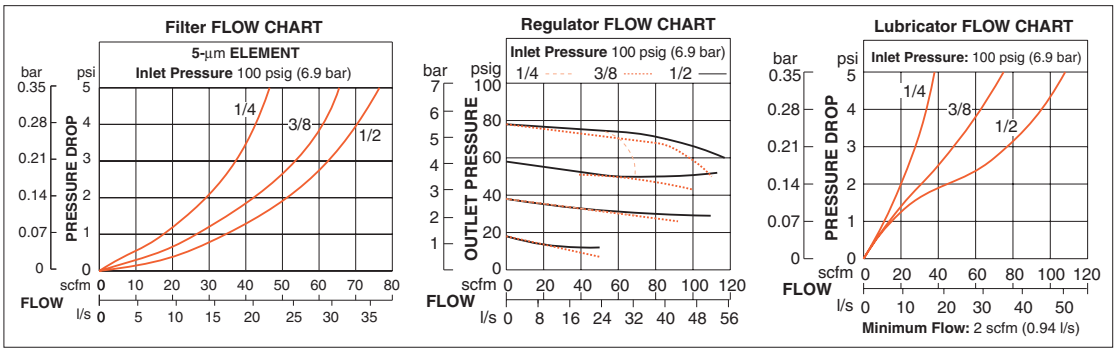


Port Size	Bowl Type	Bowl Capacity	Dimensions* inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
1/4, 3/8, 1/2	Polycarbonate	4-oz (120-ml)	8.5 (215)	4.6 (117)	1.8 (46)	2.8 (71)	3.75 (1.70)
1/4, 3/8, 1/2	Zinc	4-oz (120-ml)	8.5 (215)	4.7 (119)	1.8 (46)	2.8 (71)	3.75 (1.70)

* **Dimensions** for NPTF Pipe In & Out, Modular Between option; dimensions for other combinations consult ROSS.
† Less gauge.



REPLACEMENT FILTER ELEMENTS		
Element Rating	**Element Material**	**Part Number**
5-µm	Polyethylene	936K77



Pressure Gauge included. Includes 2 Female Port Blocks.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter – Fiber; Regulator – Piston; Lubricator - Sight-Feed.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: Up to 150 psig up to 10 bar).
Metal bowl: Up to 200 psig (up to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Outlet Pressure: Adjustable up to 100 psig (7 bar).
Filter Element: 5-micron rated polyethylene.
Heads: Zinc.
Oil Adjustment: External; tamper-resistant.
Pressure Gauge: 0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
Panel Mounting: 1-9/16 inch (40 mm) hole required.
Regulator Dome and Knob: Acetal. Optional metal regulator dome.
Bowls: Polycarbonate bowls with zinc shatterguards, or zinc bowls.
Sight Dome: Clear nylon.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1/4, 3/8 & 1/2 – Flow to 110 scfm

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

MD3	53P	B	A	6	C	2	2	Q	1

BOWL SIZE

Polycarbonate Bowl 5.1-oz (151-ml)	**53P**
Metal Bowl 6-oz (177-ml)	53M
Metal Bowl 6-oz (177-ml) - on Filter Metal Bowl 10-oz (295-ml) - on Lubricator	53E
Plastic Bowl 6-oz (177-ml) - on Filter Metal Bowl 10-oz (295-ml) - on Lubricator	53F

ADJUSTMENT RANGE

0-200 psig (0-13.8 bar)	**A**
0-150 psig (0-10.3 bar)	B
0-100 psig (0-6.9 bar)	C
0-50 psig (0-3.4 bar)	D
No Regulator	E
Reverse Flow 0-200 psig (0-13.8 bar)	F
Reverse Flow 0-150 psig (0-10.3 bar)	G
Reverse Flow 0-100 psig (0-6.9 bar)	H
Reverse Flow 0-50 psig (0-3.4 bar)	J

FILTER ELEMENT TYPE

40 µm sintered bronze	**A**
5 µm polyethylene	B
5 µm sintered bronze	E
20 µm sintered bronze	F

BOWL DRAIN

Manual Drain	**6**
Float Drain	9

PIPE SIZE

1/4 NPTF	**2**
3/8 NPTF	3
1/2 NPTF	4
1/4 BSPP	B
3/8 BSPP	C
1/2 BSPP	D

CAP COLOR

Gold	**2**
Gray	G
Yellow	Y
Red	R
Blue	B

LUBRICATOR FILL TYPE

Quick Fill Cap	**Q**
Fill Port	S

ADD on L-O-X® - Optional

L-O-X® on outlet side	**1**
L-O-X® on the inlet side (must also choose Reverse Flow)	2
L-O-X® with EEZ-ON® on outlet side	3
L-O-X® with EEZ-ON® on inlet side (must also choose Reverse Flow)	4
Blank - No L-O-X®	

REPLACEMENT FILTER ELEMENTS*

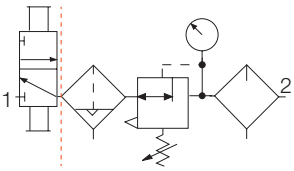
Element Rating	Element Material	Part Number
5-µm	Polyethylene	R-A60F-03PE5
5-µm	Sintered Bronze	R-A60F-03E5
20-µm	Sintered Bronze	R-A60F-03E4
40-µm	Sintered Bronze	R-A60F-03E3

* For polycarbonate and metal bowl types.

ISO Symbol

FRL with Lockout

Automatic Drain
Self-relieving



Options: Drains: For additional information, refer to page E6.7.
Accessories ordered separately, refer to page E6.3-5.

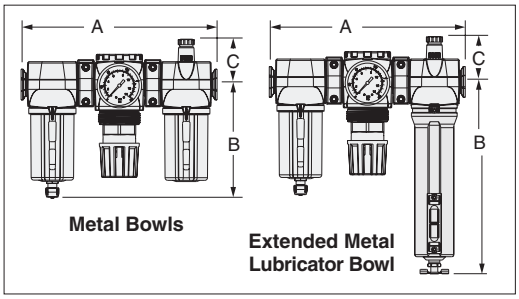
STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter – Fiber, or Sintered Bronze; Regulator - Diaphragm; Lubricator - Sight-Feed.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
With metal bowl: 40° to 175°F (4° to 80°C).
Differential Pressure Gauge: Optional.
Fluid Media: Compressed air.
Filter Inlet Pressure:
Polycarbonate bowl & Manual drain: 0 to 150 psig (0 to 10 bar).
Polycarbonate bowl & Float drain: 30 to 150 psig (2 to 10 bar).
Metal bowl & Manual drain: 0 to 250 psig (0 to 17 bar).
Metal bowl & Float drain: 30 to 200 psig (2 to 14 bar).
Outlet Pressure: Adjustable up to 200 psig (13 bar); optional adjusting springs.
Optional Pressure Adjustment Locking Key: Removable.
Pressure Gauge: 0 to 200 psig (0 to 14 bar); 1/4-NPT gauge ports front and rear.
Panel Mounting: 2-1/16 inch (52 mm) hole required.
Self-relieving: Non-relieving optional.
Oil Adjustment: External; tamper resistant.
Filter Element: 5-µm-rated polyethylene; 5-µm, 20-µm or 40-µm-rated sintered bronze.
Body: Zinc.
Dome: Nylon.
Regulator Dome: Nylon.
Knob: Acetal.
Bowl: Polycarbonate with nylon shatterguard, or aluminum bowl with clear nylon sight glass. Lubricator bowl only: extended aluminum bowl with clear nylon sight glass.
Seals: Nitrile.
Valve: Brass.
Valve Cap: Nylon.
Sight-Feed Dome: Nylon

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

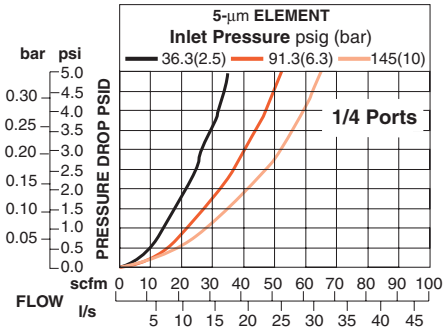
Port Size	Bowl Type	Dimensions inches (mm)				Weight lb (kg)
		A	B*	C	Depth	
1/2, 3/8, 1/2	Polycarbonate	9.72 (247.4)	5.54 (140.6)	2.21 (56.2)	2.90 (73.7)	6.1 (2.8)
	Aluminum	9.72 (247.4)	6.42 (163.1)	2.21 (56.2)	2.90 (73.7)	6.4 (2.9)
	Extended Aluminuml	9.72 (247.4)	9.37 (238)	2.21 (56.2)	2.90 (73.7)	6.6 (3.0)

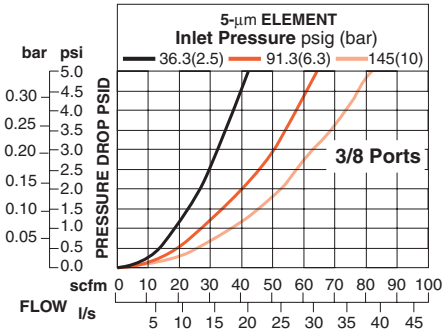
Lockout: With the lockout valve, add 2.3 (58) to dimension A.
* Bowl (standard) removal clearance: add 3.1 (79)
* Bowl (extended) removal clearance: add 6.1 (155)
Dimensions above reflect less gauge.

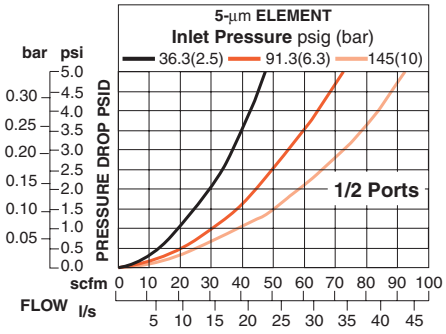


AIR FLOW and CONSTRUCTION DATA

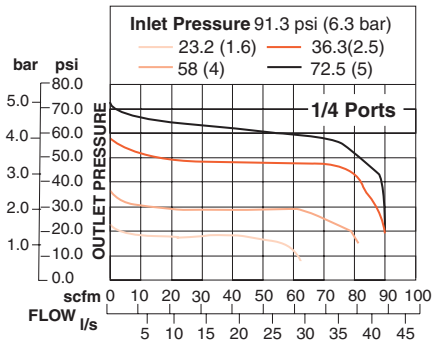
Filter FLOW CHARTS

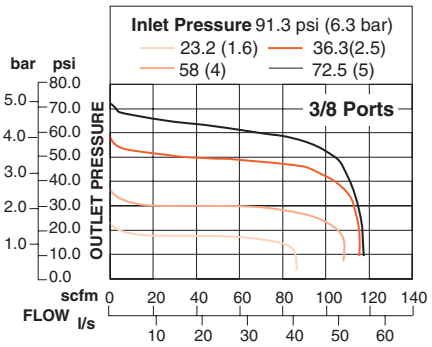


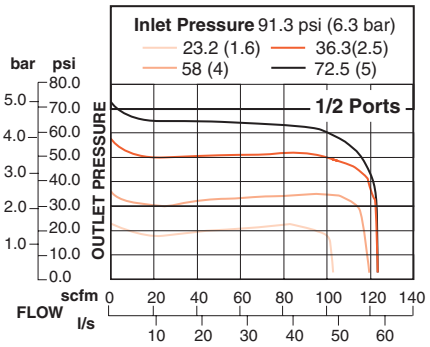




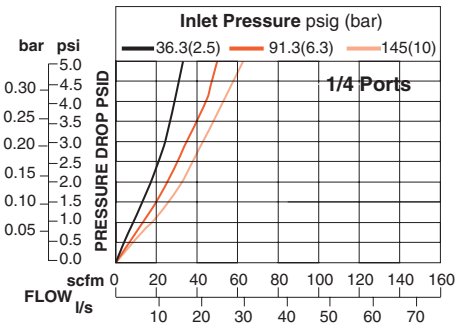
Regulator FLOW CHARTS

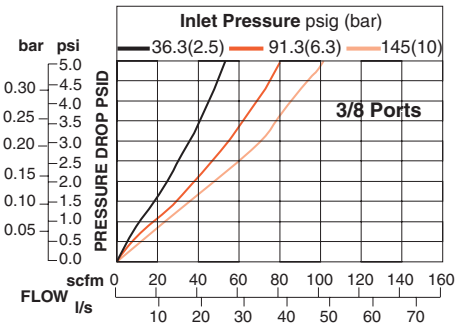


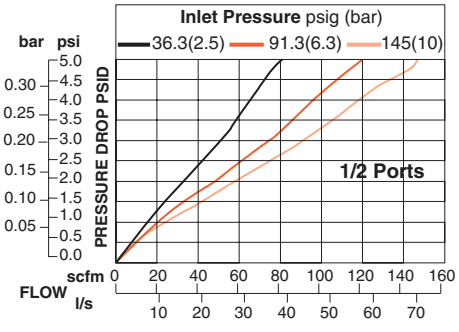




Lubricator FLOW CHARTS







Port Sizes: 1/4, 3/8, 1/2 & 3/4 – Flow to 138 scfm

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

	5F	00	B	2	1	0	5

PIPE THREAD

NPTF (Blank)	
BSPP	C

CONNECTIONS

Pipe In, Out, Between	**00**
Pipe In & Out, Modular Between	09
Modular, Male Ports In & Out	10
Modular, Female Ports In & Out	11

PIPE SIZE

1/4	2
3/8	3
1/2	4
3/4	5

FILTER DRAIN & BOWL TYPE

None	0
Automatic Drain, Plastic Bowl	1
Automatic Drain, Metal Bowl	2
Manual Drain, Plastic Bowl	3
Manual Drain, Metal Bowl	4

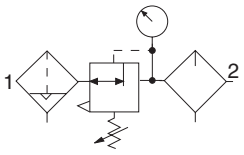
Regulator TYPE ADJUSTMENT RANGE

None	0
0-125 psig (0-8.6 bar)	2
0-50 psig (0-3.4 bar)	4
0-175 psig (0-12.1 bar)	6

LUBRICATOR FILL & BOWL TYPE

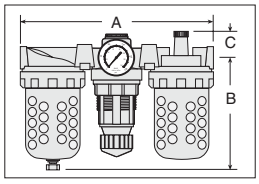
None	0
Sight-Feed, Plastic Bowl, Fill Port	1
Sight-Feed, Metal Bowl, Fill Port	2
Sight-Feed, Plastic Bowl, Quick-Fill Cap	3
Sight-Feed, Metal Bowl, Quick-Fill Cap	4
Wick-Feed, Plastic Bowl, Fill Port	5
Wick-Feed, Metal Bowl, Fill Port	6
Wick-Feed, Plastic Bowl, Quick-Fill Cap	7
Wick-Feed, Metal Bowl, Quick-Fill Cap	8

ISO Symbol
FRL
Automatic Drain
Self-relieving

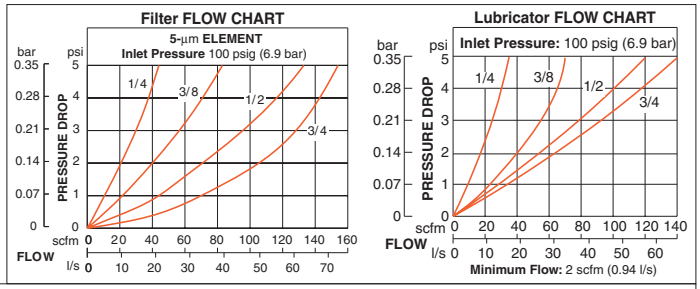


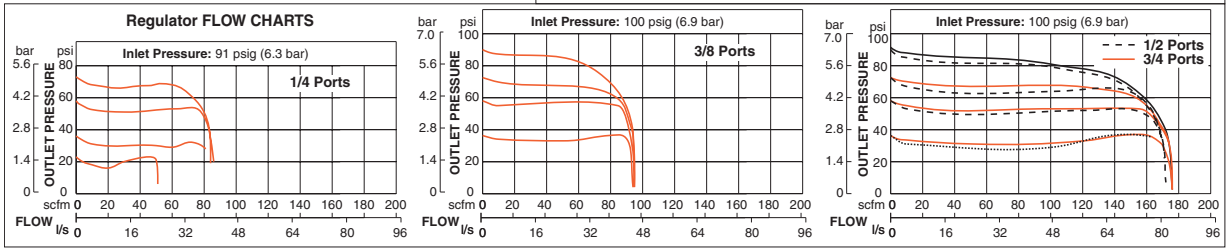
Port Size	Bowl Type	Bowl Capacity	Dimensions* inches (mm) A	B	C	Depth †	Weight † lb (kg)
1/4, 3/8, 1/2, 3/4	Polycarbonate	8-oz (240-ml)	10.1 (256)	5.8 (147)	1.3 (33)	2.8 (71)	7.06 (3.20)
1/4, 3/8, 1/2, 3/4	Zinc	8-oz (240-ml)	10.1 (256)	6.4 (163)	1.3 (33)	2.8 (71)	7.06 (3.20)

* **Dimensions** for NPTF Pipe In & Out, Modular Between option; dimensions for other combinations consult ROSS. † Less gauge.



REPLACEMENT FILTER ELEMENTS		
Element Rating	**Element Material**	**Part Number**
5-µm	Polyethylene	939K77





Pressure Gauge included. Units with Threaded Ports Include 2 female port blocks.
Options: Electronic Drain, refer to page E6.7.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter – Fiber; Regulator – Piston; Lubricator - Sight-Feed.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: 15 to 150 psig (1 to 10 bar).
Metal bowl: 15 to 200 psig (1 to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Outlet Pressure: Adjustable up to 125 psig (9 bar).
Filter Element: 5-micron rated polyethylene.
Heads: Zinc.
Oil Adjustment: External; tamper-resistant.
Pressure Adjustment Locking Key: Removable.
Pressure Gauge: 0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
Bowls: Zinc bowl with clear nylon sight glass, or polycarbonate bowl with steel shatterguard.
Bowl Rings: Aluminum.
Regulator: Nylon dome; acetal knob.
Sight Dome: Clear nylon. **Seals:** Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 3/8, 1/2 & 3/4 – Flow to 205 scfm

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

MD4	53P	B	A	6	B	3	2	Q	–

BOWL MATERIAL/SIZE

Two Polycarbonate Bowls 9-oz (270-ml)	**53P**
Two Metal Bowl 9-oz (270-ml)	53M
Metal Bowl 9-oz (270-ml) - on Filter Extended Metal Bowl 15-oz (450-ml) - on Lubricator	53E
Plastic Bowl 9-oz (270-ml) - on Filter Extended Metal Bowl 15-oz (450-ml) - on Lubricator	53F

REGULATOR ADJUSTMENT RANGE

0-175 psig (0-12.1 bar)	A
0-125 psig (0-8.6 bar)	**B**
0-50 psig (0-3.4 bar)	C
0-20 psig (0-1.4 bar)	D
No Regulator	E
Reverse Flow 0-175 psig (0-12.1 bar)	F
Reverse Flow 0-125 psig (0-8.6 bar)	G
Reverse Flow 0-50 psig (0-3.4 bar)	H
Reverse Flow 0-20 psig (0-1.4 bar)	J

FILTER ELEMENT TYPE

40 µm sintered bronze	**A**
5 µm polyethylene	B

PIPE SIZE

3/8 NPTF	3
1/2 NPTF	4
3/4 NPTF	5
3/8 BSPP	C
1/2 BSPP	D
3/4 BSPP	E

FILTER REGULATOR DRAIN TYPE

Automatic Drain	**5**
Manual Drain	6

CAP COLOR

Gold	**2**
Gray	G
Yellow	Y
Red	R
Blue	B

LUBRICATOR FILL TYPE

No Lubricator	N
Quick Fill Cap	**Q**
Fill Port	S

ADD on L-O-X® - Optional

L-O-X® on outlet side	**1**
L-O-X® on the inlet side (must also choose Reverse Flow)	2
EEZ-ON® on outlet side	3
EEZ-ON® on inlet side (must also choose Reverse Flow)	4
Blank - No L-O-X®	

REPLACEMENT FILTER ELEMENTS*

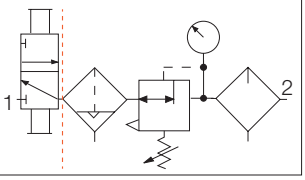
Element Rating	Element Material	Part Number
5-µm	Sintered Bronze	R-A115-106PE5
40-µm	Sintered Bronze	R-A115-106PE3

* For polycarbonate and metal bowl types.

ISO Symbol

FRL with Lockout

Automatic Drain
Self-relieving



Options: External Bowl Drains, refer to page E6.7.

Accessories ordered separately, refer to page E6.3-5.

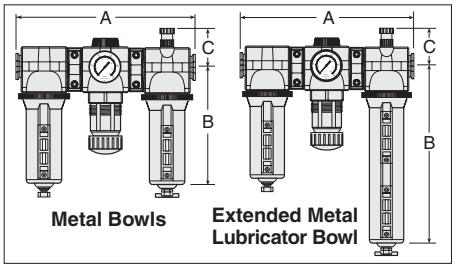
STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter – Fiber, or Sintered Bronze; Regulator – Piston; Lubricator - Sight-Feed.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: 15 to 150 psig (1 to 10 bar).
Metal bowl: 15 to 200 psig (1 to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Outlet Pressure: Adjustable up to 125 psig (9 bar).
Filter Element: 5-micron rated polyethylene or 40-micron element.
Heads: Zinc.
Oil Adjustment: External; tamper-resistant.
Pressure Adjustment Locking Key: Removable.
Pressure Gauge: 0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
Bowls: Aluminum bowl with clear nylon sight glass, polycarbonate bowl with steel shatterguard; extended aluminum lubricator bowl with two clear nylon sight glasses.
Bowl Rings: Nylon.
Sight Dome: Clear nylon.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

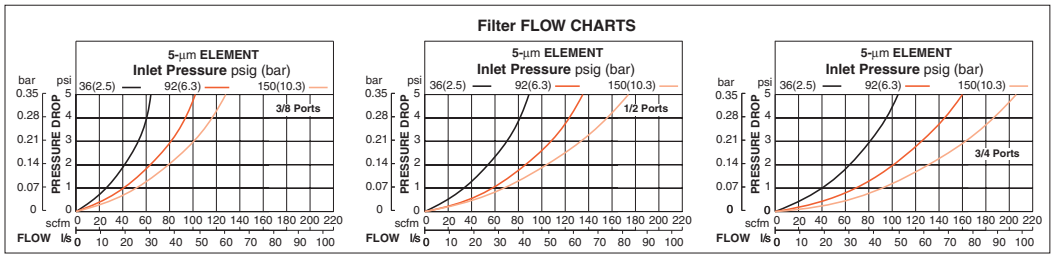
Port Size	Bowl Type	Dimensions inches (mm)				Weight † lb (kg)
		A	B*	C	Depth †	
3/8, 1/2, 3/4	Polycarbonate	10.9 (276)	7.7 (195)	2.2 (56)	2.9 (73)	6.94 (3.15)
3/8, 1/2, 3/4	Aluminum	10.9 (276)	7.6 (193)	2.2 (56)	3.1 (79)	6.94 (3.15)
3/8, 1/2, 3/4	Extended Metal	10.9 (276)	10.6 (269)	2.2 (56)	3.1 (79)	7.13 (3.24)

Lockout: With the lockout valve, add 2.3 (58) to dimension A.
* Bowl (standard) removal clearance: add 4.2 (107).
* Bowl (extended) removal clearance: add 6.1 (155)
† Less gauge.

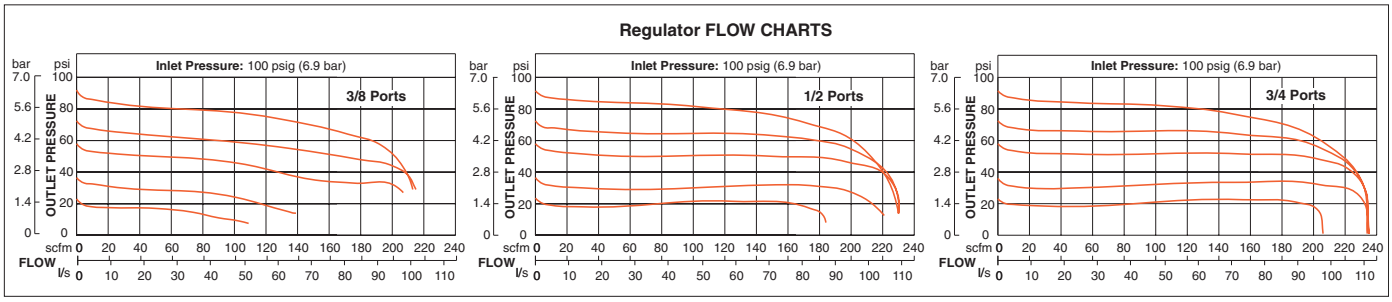


AIR FLOW and CONSTRUCTION DATA

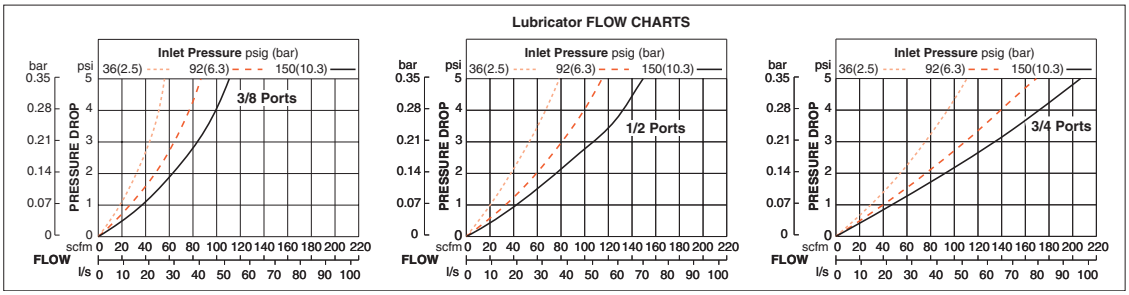
Filter FLOW CHARTS



Regulator FLOW CHARTS



Lubricator FLOW CHARTS



E

E5

Port Sizes: 3/4 & 1 – Flow to 270 scfm

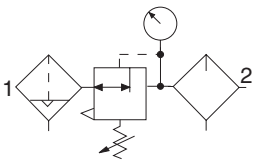
Port Size	Model Numbers*			
	Automatic Drain		Manual Drain	
	Polycarbonate Bowl	Metal Bowl	Polycarbonate Bowl	Metal Bowl
3/4	5H00C5111	5H00C5212	5H00C5311	5H00C5412
1	5H00C6111	5H00C6212	5H00C6311	5H00C6412

* NPT port threads. For BSPP threads add a "C" prefix to the model number e.g., C5H00C5110.

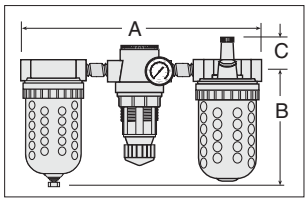
Port Size	Bowl Type	Bowl Capacity	Dimensions inches (mm)				Weight † lb (kg)
			A	B	C	Depth †	
3/4, 1	Polycarbonate	16-oz (480-ml)	15.8 (401)	8.0 (204)	1.2 (31)	4.3 (108)	8.00 (3.64)
3/4, 1	Aluminum	16-oz (480-ml)	15.8 (401)	8.3 (210)	1.2 (31)	4.3 (108)	8.9 (4.03)

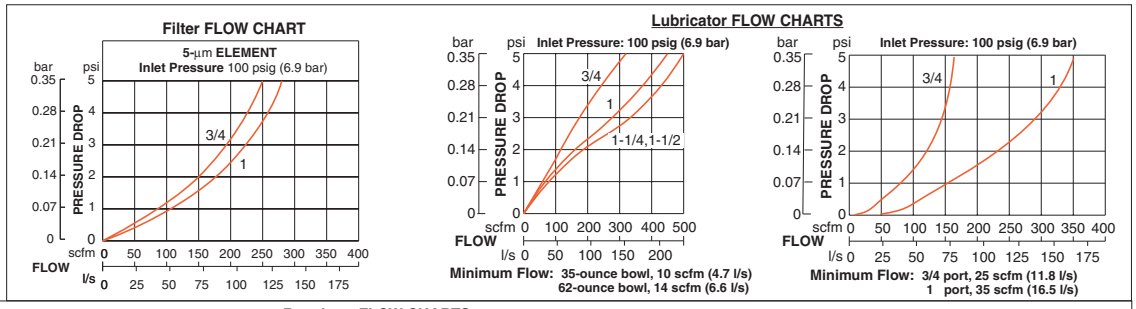
† Less gauge.

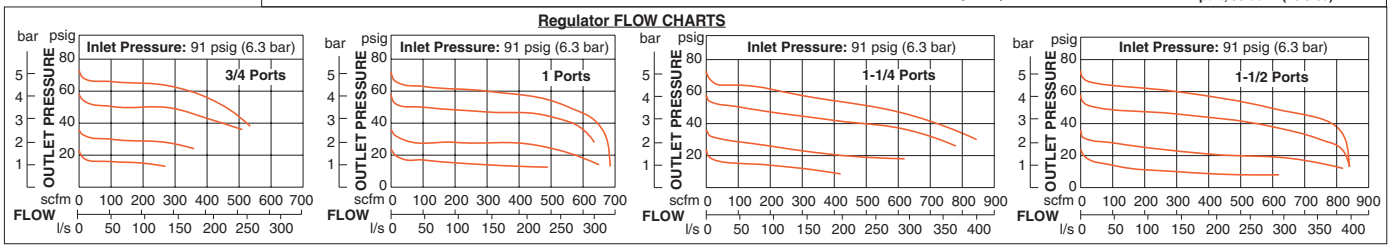
ISO Symbol
FRL
Automatic Drain
Self-relieving



REPLACEMENT FILTER ELEMENTS		
Element Rating	Element Material	Part Number
5-µm	Polyethylene	1010K77







Pressure Gauge included.
Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter – Fiber; Regulator – Piston; Lubricator - Wick-Feed.
Ambient/Media Temperature:
Polycarbonate bowl: 40° to 125°F (4° to 52°C).
Metal bowl: 40° to 175°F (4° to 80°C).
Fluid Media: Compressed air.
Inlet Pressure - Automatic drain model:
Polycarbonate bowl: 15 to 150 psig (1 to 10 bar).
Metal bowl: 15 to 200 psig (1 to 14 bar).
Inlet Pressure - Manual drain model:
Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).
Metal bowl: 0 to 200 psig (0 to 14 bar).
Filter Element: 5-micron rated polyethylene.
Heads: Aluminum.
Oil Adjustment: External; tamper-resistant.
Outlet Pressure: Adjustable up to 100 psig (7 bar).
Pressure Adjustment Locking Key: Removable.
Pressure Gauge: 0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
Bowls: Aluminum bowls with sight glass, or polycarbonate bowls with steel shatterguard.
Bowl Rings: Aluminum.
Seals: Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Sizes: 1¼ & 1½ – Flow to 495 scfm

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

	5H	00C	7	1	1	2

PIPE THREAD

NPTF (Blank)	
BSPP	C

PIPE SIZE

1¼	7
1½	8

FILTER DRAIN & ELEMENT TYPE

None	0
Automatic drain, 40-µm	1
Automatic drain, 5-µm	2
Manual drain, 40-µm	3
Manual drain, 5-µm	4

REGULATOR TYPE

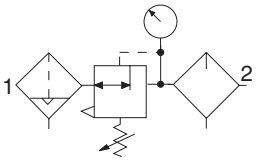
None	0
Piston, 0-100 psig (0-6.9 bar)	1
Internal pilot, 15-200 psig (1.0-13)	2

LUBRICATOR TYPE

None	0
Sight-feed, Fill port	2
Sight-feed, Quick-fill cap	4

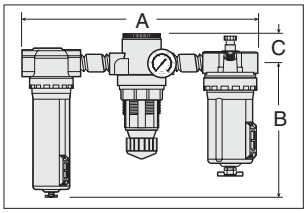
ISO Symbol
FRL

Automatic Drain
Self-relieving



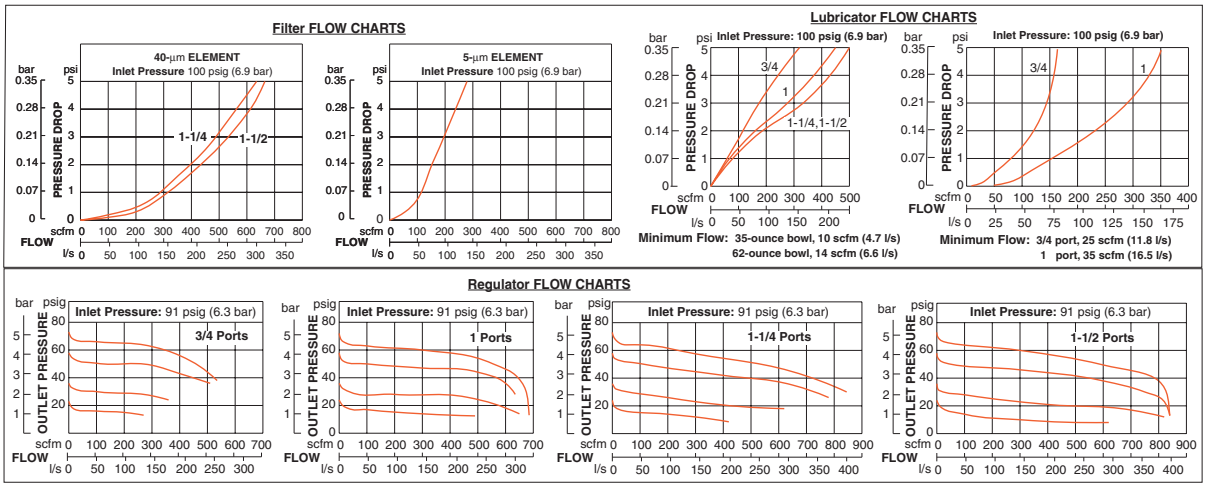
Port Size	Bowl Capacity	Dimensions inches (mm) A	B	C	Depth†	Weight† lb (kg)
1¼, 1½	35-oz (1000-ml)	15.8 (401)	10.6 (268)	2.1 (54)	4.3 (108)	8.00 (3.64)

† Less gauge.



REPLACEMENT FILTER ELEMENTS*

Element Rating	Element Material	Element Number
5-µm	Polyethylene	1656K77
40-µm	Sintered Bronze	R-A114-106E3



Options: Drains: For additional information, refer to page E6.7.

Accessories ordered separately, refer to page E6.3-4.

STANDARD SPECIFICATIONS (for products on this page):

Construction: Filter – Fiber; Regulator – Piston; Lubricator - Sight-Feed.
Ambient/Media Temperature: 40° to 175°F (4° to 79°C).
Bowls: Aluminum bowls with clear nylon sight glasses.
Bowl Rings: Aluminum.
Filter Drain: Internal automatic drain. Optional manual drain.
Filter Element: 5-micron or 40-micron rated filter element available.
Fluid Media: Compressed air.
Inlet Pressure:
Automatic drain model: 15 to 200 psig (1 to 14 bar).
Manual drain model: 0 to 200 psig (0 to 14 bar).
Heads: Aluminum.
Oil Adjustment: External; tamper-resistant.
Outlet Pressure: Adjustable up to 100 psig (7 bar).
Pressure Adjustment Locking Key: Removable.
Pressure Gauge: 0 to 200 psig (0 to 14 bar); 1/4 NPT gauge ports front and rear.
Regulator: Nylon dome; acetal knob.
Seals: Nitrile.
Sight Dome: Clear nylon.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

E

ROSS CONTROLS®

Filter, Regulator, and Lubricator Accessories

www.rosscontrols.com

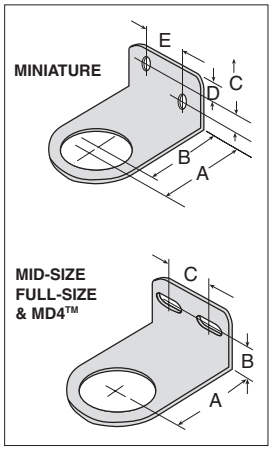
Mounting Screws for BANTAM Models

Usage Models	Kit Number
BANTAM	859K77

BANTAM models mounts with long screws that extend through end plates.

Mounting Brackets for Regulators and Integrated Filter/Regulators

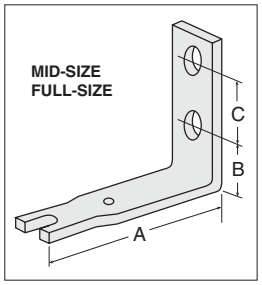
Regulators and integrated filter/regulators can be mounted to a surface with a bracket that attaches to the regulator. Brackets and mounting panel nuts can be ordered separately or in a kit which includes both bracket and mounting panel nut.



Usage Models	Part Number			Dimensions inches (mm)					
	Kit	Bracket	Panel Nut	A	B	C	D	E	Panel Mounting Hole Diameter
MINIATURE	873K77	872K77	874K77	1.375 (35)	1.125 (29)	0.31 (8)	0.31 (8)	0.69 (17)	1.19 (30)
MID-SIZE	876K77	875K77	877K77	2.38 (60)	1.00 (25)	1.50 (38)	–	–	1.56 (40)
MD3™	R-A127-11	–	R-127-11	2.38 (60)	1.00 (25)	1.50 (38)	–	–	1.56 (40)
FULL-SIZE, MD4™	879K77	878K77	880K77	2.38 (60)	1.00 (25)	1.50 (38)	–	–	2.06 (52)

Modular Mounting Brackets for Filters, Regulators, Lubricators, FRL's, or Clean Air Packages

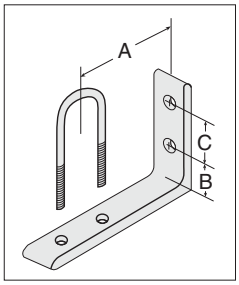
Two L-shaped metal brackets as shown at the right can be used for wall mounting of modular FRLs or Clean Air Packages. A single bracket can be used to mount individual filters or lubricators. Kits include two brackets and four screws for attaching the brackets to the modules.



Usage Models	Kit Number	Dimensions inches (mm)			
		A	B	C	D
MID-SIZE & FULL-SIZE	915K77	3.0 (76)	0.88 (22)	1.00 (25)	1.20 (31)

FRLs Inline Mounting Pipe Brackets

Two pipe brackets can be used for wall mounting of FRLs assemblies that use pipe nipples to join the components. The bracket kits listed below include two sets of brackets.



Nipple Size	Kit Number	Dimensions inches (mm)		
		A	B	C
1/4	887K77	2.72 (28)	0.50 (13)	1.00 (25)
3/8	888K77	2.72 (28)	0.50 (13)	1.00 (25)
1/2	889K77	2.72 (28)	0.50 (13)	1.00 (25)
3/4	890K77	3.69 (94)	1.13 (29)	1.25 (32)
1	891K77	3.69 (94)	1.13 (29)	1.25 (32)

Bracket Assembly Kit for HIGH-RELIEF Pilot Operated Regulator

High-Relief Pilot Operated Regulator with 1/4- thru 1¼ inch ports can be mounted to a vertical surface using a bracket assembly kit.

Kit Number	R-A37-381

MID-SIZE and FULL-SIZE Units

The modular designs of the MID-SIZE and FULL-SIZE series offer maximum flexibility in customizing FRLs assemblies. As shown at the right, connector kits are required to interconnect units. Various port kits (shown below) can be used to connect the assemblies to the inlet and outlet piping. Note that all FRLs components have threaded ports so that conventional pipe fittings may be used where desired.

Female Port Block

Used to connect to piping at inlet or outlet.

Port Size	Part Number	
	NPT Threads	BSPP Threads
1/4	897K77	D897K77
3/8	898K77	D898K77
1/2	899K77	D899K77
3/4	900K77	D900K77

Male Port Block

Used to connect modular to non-modular units.

Port Size	Part Number	
	NPT Threads	BSPP Threads
1/4	893K77	D893K77
3/8	894K77	D894K77
1/2	895K77	D895K77
3/4	896K77	D896K77

Connector Kit

Used to connect units to one another as well as to any of the ports shown on this page.

Kit Number	892K77

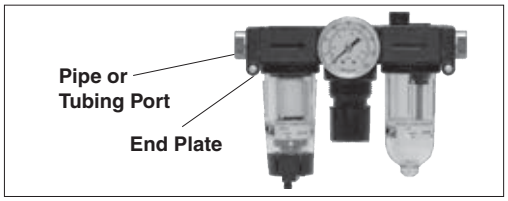
MID-SIZE and FULL-SIZE Modular Assembly

BANTAM Units

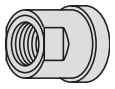
BANTAM modular units use end plates secured with screws to hold the pipe or tubing ports (see below), and also to serve as mounting brackets. Short screws are used to secure the end plates when a single BANTAM unit is used. If two or more units are combined, long screws extend through an end plate and thread into the next unit.

Screw kits required are as follows:

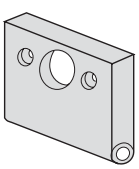
Single Unit: Two short screw kits.
Two-Unit Combination: One each short screw kit and long screw kit.
Three-Unit Combination: Two long screw kits.



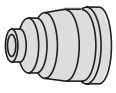
Pipe Ports	
Port Size	Part Number
1/8 NPT	862K77
1/4 NPT	863K77
1/8 BSPP	D864K77
1/4 BSPP	D865K77



Pipe Ports	
Kit Description	Part Number
END PLATE (1)	857K77
Short Screw (2)	858K77
Long Screw (2)	859K77
Small O-Ring (for inlet or mating ports)	860K77
Large O-Ring (for outlet or mating ports)	861K77



Tube Ports	
Port Size	Part Number
1/4	866K77
3/8	867K77
4 mm	868K77
6 mm	869K77
8 mm	870K77
10 mm	871K77



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

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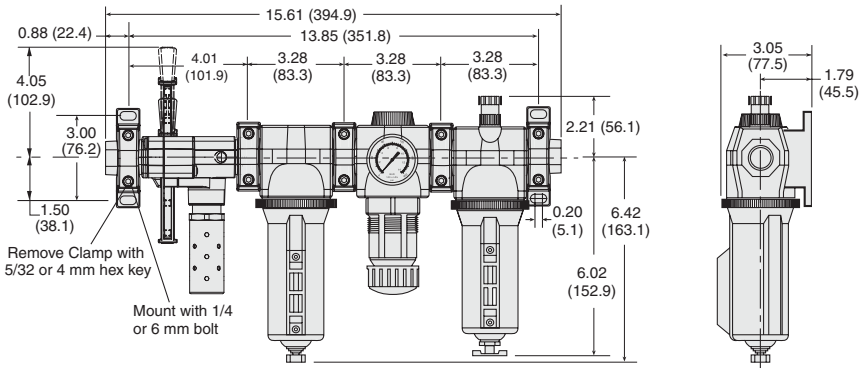
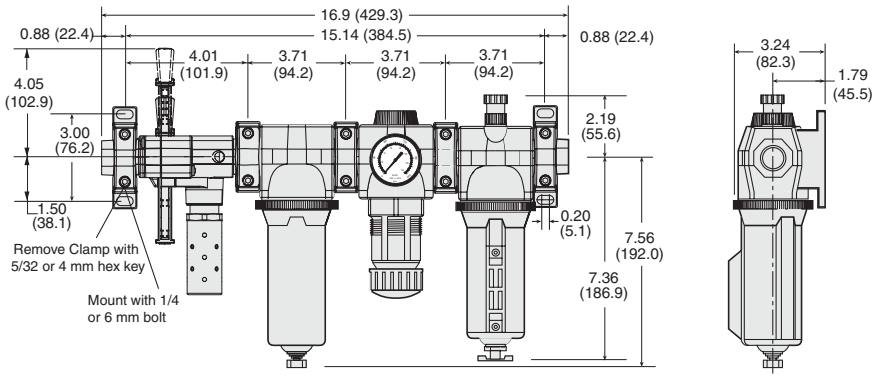
Dimensions: inches (mm)

MD3™ Series



MD4™ Series



Clamp for Module Connections

Specially designed clamps provide a quick and easy assembly or disassembly of MD modules. Two allen-head bolts quickly tighten or loosen the clamp using a 5/32 or 4mm hex key. The clamp contains a plate carrying two O-rings to provide positive sealing between modules.

Order clamp by part number **R-A118-105**.

Combined clamp and bracket (below) can be ordered by part number **R-A118-105M**.

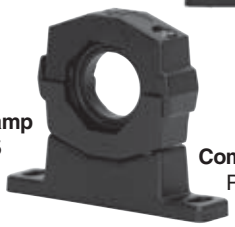
Mounting Brackets

Two brackets are normally used to mount an FRL to a vertical surface. The mounting bracket attaches to the module connecting clamp (see above) with a single screw. Each bracket then employs two bolts (1/4" or 6mm) to connect the assembly to the mounting surface.

Order bracket and screw by part number **R-A118-103**. Combined bracket and clamp (above) can be ordered by part number **R-A118-105M**.

Module Connecting Clamp
Part No. R-A118-105

Mounting Bracket
Part No. R-A118-103



Combined Clamp & Bracket
Part No. R-A118-105M

Male and Female End Ports

Either male or female end ports can be attached to threaded inlet and outlet lines. This allows all modules of an FRL assembly to be removed easily and quickly without having to unthread the end modules. The end ports are attached to the modules with clamps (see at left). End ports can be included in an assembled FRL or ordered separately by the following part numbers:

Port Size	Male Part Number*
1/4	R-118-109-2F
3/8	R-118-109-3F
1/2	R-118-109-4F
3/4	R-118-109-6F

Port Size	Female Part Number*
1/4	R-118-100-2
3/8	R-118-100-3
1/2	R-118-100-4
3/4	R-118-100-6

* For BSPP threads, add a "W" suffix to the model number, e.g., R-118-109-2FW.

Extra Port Blocks

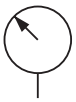
An extra port block can be placed between modules to provide two auxiliary 1/4 NPTF ports. Its mounting position can be rotated to obtain the most convenient operating orientation. If only one auxiliary port is to be used, the unused port must be closed with a pipe plug. (The inlet and outlet are not threaded.)

Port Size	Part Number*
1/4	R-118-106-2
3/8	R-118-106-3
1/2	R-118-106-4

* For BSPP threads, add a "W" suffix to the model number, e.g., R-118-106-2W.

Pressure Gauges

Port Size	Model Number*	Pressure Range psig (bar)	Case Diameter inches (mm)
1/8	5400A1002	0-160 (0-11)	1.5 (38)
1/4	5400A2010	0-60 (0-4)	2.0 (51)
1/4	5400A2011	0-200 (0-14)	2.0 (51)
1/4	5400A2012	0-300 (0-20)	2.0 (51)
1/4	5400A2014**	0-160 (0-11)	2.5 (64)
1/4	5400A2015***	0-160 (0-11)	2.0 (51)



* Center back mounting; male pipe threads.
** 5400A2014 - Stainless steel case liquid filled.
*** 5400A2015 - Green shade between 40-70 psi (2.7-4.8 bar).

Differential Pressure Gauges

DIFFERENTIAL PRESSURE GAUGE TYPE/SERIES	Small Slide Gauge	Small Slide Gauge	Large Dual Face Gauge	Large Dual Face Gauge with Reed Switch (Normally Open)	Large Dual Face Gauge with Reed Switch (Normally Closed)
	R-A60F-28	R-K103-151	R-106-35	R-106-35E	R-106-35C
					
FILTERS					
BANTAM	–	–	–	–	–
MINIATURE	–	–	–	–	–
MID-SIZE	–	–	–	–	–
MD3™		–	–	–	–
FULL-SIZE	–	–	–	–	–
MD4™	–				
HIGH-CAPACITY	–	–	–	–	–
COALESCING FILTERS					
BANTAM	–	–	–	–	–
MINIATURE	–	–	–	–	–
MID-SIZE		–	–	–	–
FULL-SIZE	–				
MD3™		–	–	–	–
MD4™	–				
HIGH-CAPACITY	–				
OIL VAPOR REMOVAL (ADSORBING) FILTERS					
MD3™	–	–	–	–	–
MD4™	–	–	–	–	–
CLEAN AIR PACKAGES					
MD3™		–	–	–	–
MD4™	–				

E

E6

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

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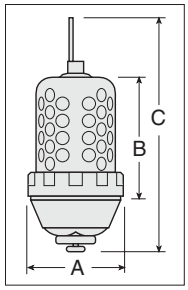
External Automatic Drains

Pipe Size	Model Number*	
	Polycarbonate Bowl**	Metal Bowl
1/8	5057B1001	5058B1001
1/4*	5057B2001	5058B2001

*Use 1/4 size with FULL-SIZE, HIGH-CAPACITY, MD3™ & MD4™ filters. Use kit 1076K77 to convert standard bowl to accept auto drain unit.
**Available for FULL-SIZE filters only. Polycarbonate bowl includes metal bowl guard.

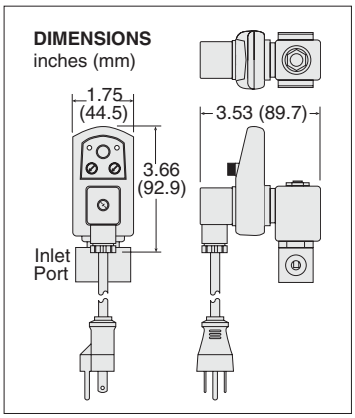
Port Size	Dimensions inches (mm)			Weight lb (kg)
	A	B	C	
1/8, 1/4	3.5 (89)	4.2 (107)	8.3 (211)	2.6 (1.2)



Electronically Controlled Drain

Pipe Size	Voltage	Model Number**
1/4	110-120 volts AC, 50/60 Hz	R-DED-115V-2
3/8	110-120 volts AC, 50/60 Hz	R-DED-115V-3
1/2	110-120 volts AC, 50/60 Hz	R-DED-115V-4
1/4	24 volts DC	R-DED-24V-2
3/8	24 volts DC	R-DED-24V-3
1/2	24 volts DC	R-DED-24V-4

** NPT port threads. For BSPP threads, add a "W" suffix to the model number, e.g., R-DED-115V-2W.

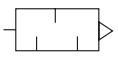


STANDARD SPECIFICATIONS (for electronically controlled drain):

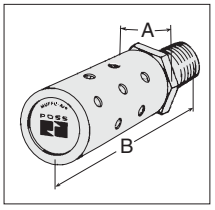
Drain Time: Adjustable 0.5 to 10 seconds.
Drain Interval: Adjustable 0.5 to 45 minutes.
Current Consumption: 4 ma maximum.
Ambient Temperature: 35° to 130°F (2° to 54°C).
Media Temperature: 35° to 190°F (2° to 88°C).
Electrical Connection: DIN 43650A, ISO 440/6952.
Valve Type: 2/2 direct acting, normally closed.
Valve Body: Forged brass; 3/16-inch (4.8 mm) orifice.
Maximum Pressure: 230 psig (15.8 bar).

Silencers

Port Size	Thread Type	Model Number*		Avg. C_v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	BSPT Threads		A	B	
3/8	Male	5500A3003	D5500A3003	4.3	1.3 (32)	3.5 (88)	0.2 (0.1)
3/4	Male	5500A5013	D5500A5013	5.1	1.3 (32)	3.6 (92)	0.2 (0.1)
3/4	Male	5500A5003	D5500A5003	11.5	2.0 (51)	5.3 (135)	0.6 (0.3)



Flow Media: Filtered air; 5 micron recommended.
Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum.



Category	Series	Element Rating	Bowl Type	Element Material	Part Number
Filters	Bantam	5-µm		Polyethylene	933K77
	Miniature	5-µm		Polyethylene	933K77
	MID-SIZE	5-µm		Polyethylene	936K77
	MD3™	5-µm		Polyethylene	R-A60F-03PE5
		5-µm		Sintered Bronze	R-A60F-03E5
		20-µm		Sintered Bronze	R-A60F-03E4
		40-µm		Sintered Bronze	R-A60F-03E3
	FULL-SIZE	5-µm		Polyethylene	939K77
	MD4™	5-µm		Polyethylene	R-A115-106PE5
		40-µm		Sintered Bronze	R-A115-106PE3
	HIGH-CAPACITY Flow to 275 scfm	5-µm		Polyethylene	1010K77
	HIGH-CAPACITY Flow to 660 scfm	5-µm		Sintered Bronze	1656K77
		40-µm		Sintered Bronze	R-A114-106E3
	HIGH-CAPACITY Flow to 1000 scfm	5-µm		Sintered Bronze	942K77
		40-µm		Sintered Bronze	944K77
Coalescing Filters	Bantam, Miniature	0.3-µm		Borosilicate-glass-fiber	945K77
		0.01-µm		Borosilicate-glass-fiber	R-A-10F-16E8
	MID-SIZE	0.3-µm	Standard	Borosilicate-glass-fiber	R-A60F-29
		0.3-µm	Extended	Borosilicate-glass-fiber	R-A60F-32
		0.01-µm	Standard	Borosilicate-glass-fiber	R-A60F-29E8
		0.01-µm	Extended	Borosilicate-glass-fiber	R-A60F-32E8
	MD3™	0.3-µm	Polycarbonate	Borosilicate-glass-fiber	R-A60F-23
			Metal	Borosilicate-glass-fiber	R-A60F-29
			Extended Metal	Borosilicate-glass-fiber	R-A60F-32
		0.01-µm	Polycarbonate	Borosilicate-glass-fiber	R-A60F-23E8
			Metal	Borosilicate-glass-fiber	R-A60F-29E8
			Extended Metal	Borosilicate-glass-fiber	R-A60F-32E8
	FULL-SIZE	0.3-µm	Standard	Borosilicate-glass-fiber	947K77
		0.3-µm	Extended	Borosilicate-glass-fiber	R-A103-160L
		0.01-µm	Standard	Borosilicate-glass-fiber	948K77
		0.01-µm	Extended	Borosilicate-glass-fiber	R-A103-160LE8
	MD4™	0.3-µm	Standard	Borosilicate-glass-fiber	R-A115-117
			Extended	Borosilicate-glass-fiber	R-A115-118
		0.01-µm	Standard	Borosilicate-glass-fiber	R-A115-117E8
			Extended	Borosilicate-glass-fiber	R-A115-118E8
	HIGH-CAPACITY Flow to 220 scfm	0.3-µm	Standard	Borosilicate-glass-fiber	949K77
		0.01-µm	Standard	Borosilicate-glass-fiber	R-A109-106E8
	HIGH-CAPACITY Flow to 295 & 450 scfm	0.3-µm	Standard	Borosilicate-glass-fiber	R-A114-112
			Extended	Borosilicate-glass-fiber	R-A114-113
		0.01-µm	Standard	Borosilicate-glass-fiber	R-A114-112E8
			Extended	Borosilicate-glass-fiber	R-A114-113E8
	HIGH-CAPACITY Flow to 465 scfm	0.3-µm	Standard	Borosilicate-glass-fiber	952K77
			Extended	Borosilicate-glass-fiber	953K77
		0.01-µm	Standard	Borosilicate-glass-fiber	R-A106-24E8
			Extended	Borosilicate-glass-fiber	R-A106-24LE8
	HIGH-CAPACITY Flow to 840 scfm	0.3-µm	Extended	Borosilicate-glass-fiber	953K77
		0.01-µm	Extended	Borosilicate-glass-fiber	R-A106-24E8
Oil Vapor Removal Filters	MD3™		Polycarbonate	Borosilicate-glass-fiber	R-A60F-29E9
			Metal	Borosilicate-glass-fiber	R-A60F-29E9
			Extended Metal	Borosilicate-glass-fiber	R-A60F-32E9
	MD4™	0.01-µm	Standard	Borosilicate-glass-fiber	R-A115-117E9
			Extended	Borosilicate-glass-fiber	R-A115-118E9
Silencers Reclassifiers	Port Size 1/2	20-µm		Sintered Bronze	940K77
	Port Size 3/4, 1	100-µm		Sintered Bronze	981K77

Lubricants, Polycarbonate Bowl Cautions

Compatible Lubricants

Although air line lubrication is not required for most ROSS valves, other mechanisms in the system may need such lubrication. When a lubricator is used, it should be supplied only with oils which are compatible with the materials used in the valves for seals and poppets. Generally speaking, these are petroleum base oils with oxidation inhibitors, and aniline point between 180°F (82°C) and 220°F (104°C) and an ISO 32, or lighter, viscosity. Oils with phosphate type additives, such as zinc dithiophosphate, must be avoided because they can harm polyurethane valve components.
The best oils to use in pneumatic systems are those specifically compounded for air line lubricator service.

Cautions on the Use of Polycarbonate Bowls

Use Only with Compressed Air. Filters and lubricators with polycarbonate bowls are specifically designed for compressed air service, and their use with any other fluid (liquid or gas) is a misapplication. The use with or injection of certain hazardous fluids in the system (e.g., alcohol or liquefied petroleum gas) could be harmful to the polycarbonate bowl or result in a combustible condition or hazardous leakage. Before using with a fluid other than air, or for nonindustrial applications, or for life support systems, consult ROSS.
Use Metal Bowl Guard When Supplied. A metal bowl guard is supplied with all but the smallest bowls, and must always be used to minimize danger from fragmentation in the event of failure of a polycarbonate bowl.
Avoid Harmful Substances. Some compressor oils, chemical cleaners, solvents, paints, and fumes will attack polycarbonate bowls and can cause bowl failure. Do not use with or near these materials. When a bowl becomes dirty, replace the bowl or wipe it with a clean dry cloth. Immediately replace any polycarbonate bowl which is crazed, cracked, or deteriorated.

Substances HARMFUL to Polycarbonate Bowls

Acetaldehyde
Acetic acid
Acetone
Acrylonitrile
Ammonia
Ammonium fluoride
Ammonium hydroxide
Ammonium sulfide
Anaerobic adhesives & sealants
Antifreeze
Benzene
Benzoic acid
Benzyl alcohol
Brake fluids
Bromobenzene
Butyric acid
Carbolic acid
Carbon disulfide
Carbon tetrachloride
Caustic potash solution
Caustic soda solution
Chlorobenzene
Chloroform
Cresol
Cyclohexanol
Cyclohexanone
Cyclohexene
Dimethyl formamide
Dioxane
Ethane tetrachloride
Ethyl acetate
Ethyl ether
Ethylamine
Ethylene chlorohydrin
Ethylene dichloride
Ethylene glycol
Formic acid
Freon (refrigerant & propellant)
Gasoline (high aromatic)
Hydrazine
Hydrochloric acid
Lacquer thinner
Methyl alcohol
Methylene chloride
Methylene salicylate
Milk of lime (CaOH)
Nitric acid
Nitrobenzene
Nitrocellulose lacquer
Phenol
Phosphorous hydroxyl chloride
Phosphorous trichloride
Propionic acid
Pyridine
Sodium hydroxide
Sodium sulfide
Styrene
Sulfuric acid
Sulfural chloride
Tetrahydronaphthalene
Thiophene
Toluene
Turpentine
Xylene
Perchlorethylene

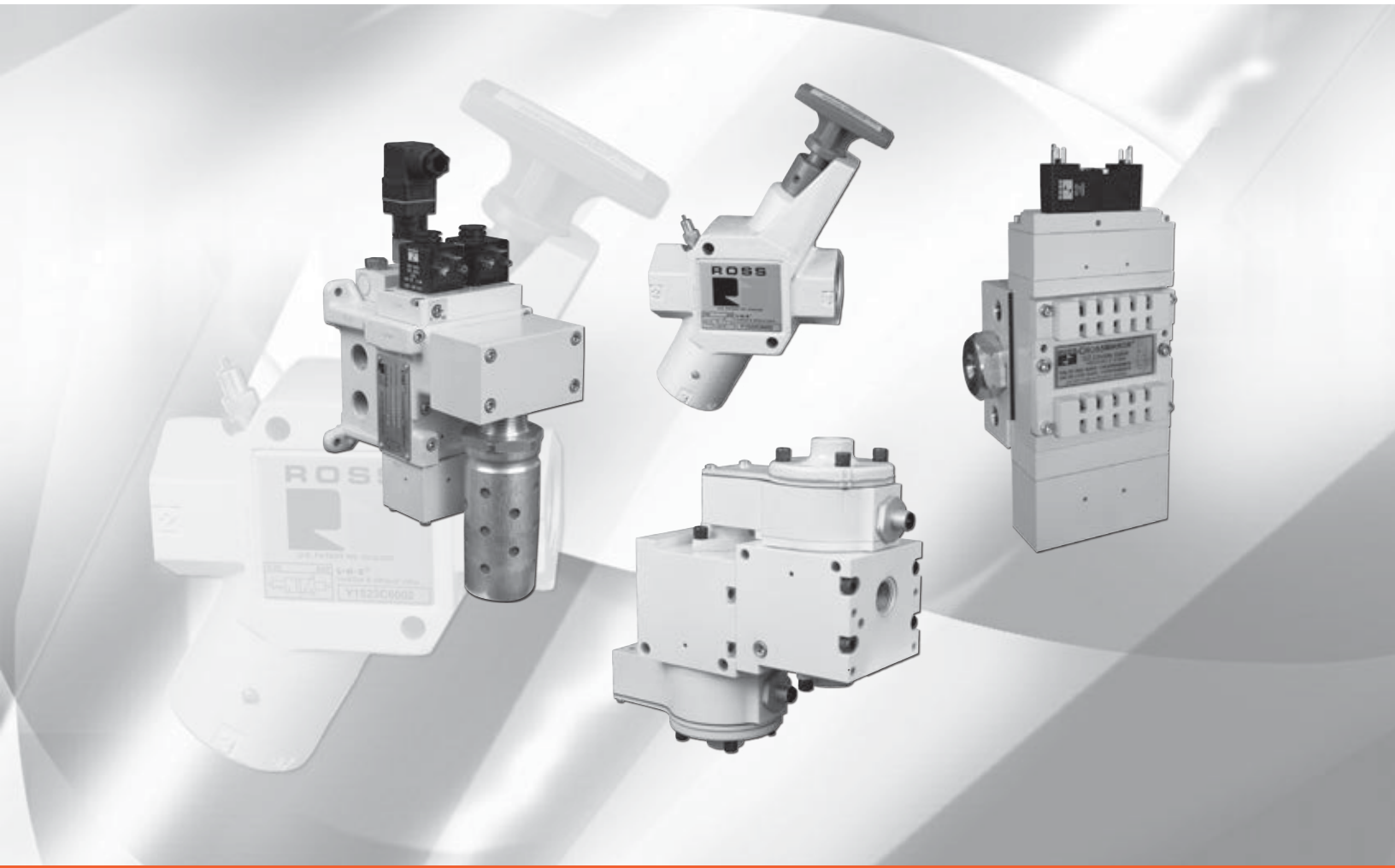
Trade Names of Substances HARMFUL to Polycarbonate Bowls

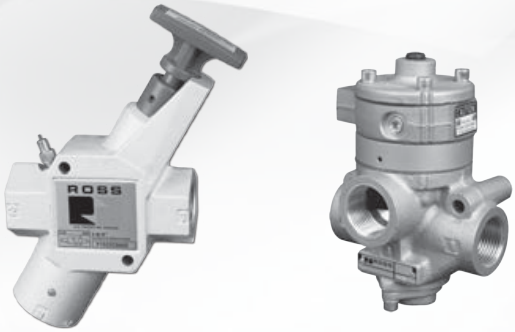
• Atlas Perma-Guard • Buna N • Cellulube #150 & #220 • Crylex #5 cement • Eastman 910 • Garlock 98403 (polyurethane) • Haskel 568-023 • Hilgard Company's hil phene • Houghton & Co. oil 1120, 1130, 1055 • Houtosafe 1000 • Kano Kroil • Keystone penetrating oil #2 • Loctite 271, 290, 601 • Loctite Teflon sealant • Marvel Mystery Oil • Minn. Rubber 366Y • National Compound N11 Nylock VC-3 • Parco 1306 Neoprene • Permabond 910 • Petron PD287 • Prestone • Pydraul AC • Sears Regular Motor Oil • Sinclair oil "Lily White" • Stauffer Chemical FYRQUEL 150 • Stillman SR 269-75 (polyurethane) • Stillman SR 513-70 (neoprene) • Tannergas • Telar • Tenneco anderol 495 & 500 oils • Titon • Vibra-tite • Zerex

E

ROSS CONTROLS®

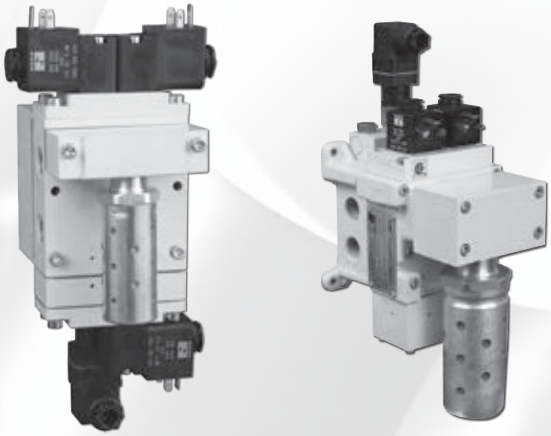
ROSS SAFETY-RELATED PRODUCTS





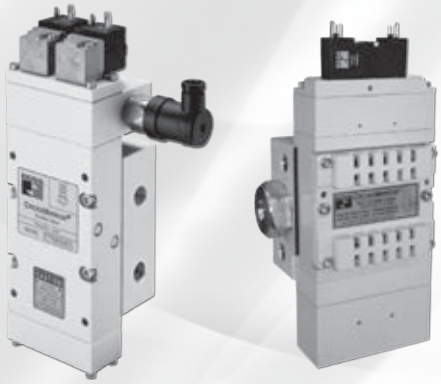
Lockout & Exhaust and Soft Start Valves

Sensing Valves



Double Valves for Control Reliable Energy Isolation

Pilot Operated Check Valves



Double Valves for Cylinder Return to Home Position

Explosion Proof Valves

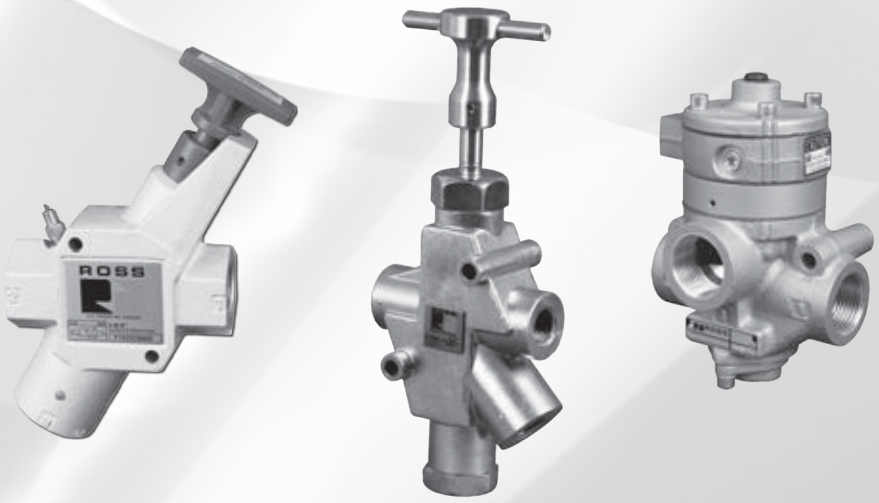
F

Contents

F

ROSS CONTROLS®

LOCKOUT & EXHAUST L-O-X® VALVES AND SOFT START EEZ-ON® VALVES 15 AND 27 SERIES



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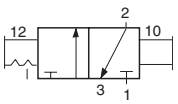
MANUAL LOCKOUT & EXHAUST L-O-X® VALVES – KEY FEATURES

- Fluorocarbon slipper seals for easy shifting, even after long periods of inactivity
- Easily identified by yellow body with red handle
- Integrated sensing port for pressure verification
- Lockable only in the OFF position
- Has a full size exhaust port (equal to or larger than supply)
- Simple push/pull of the large handle provides positive direct manual operation

MANUAL LOCKOUT L-O-X® VALVES WITH SOFT START EEZ-ON® – KEY FEATURES

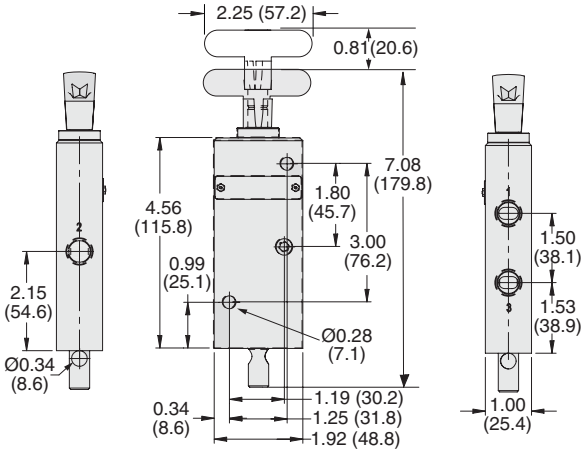
- Easily identified by blue handle
- Gradual re-application of pneumatic pressure prevents rapid equipment movement at startup
- Lockable only in the OFF position
- Has a full size exhaust port (equal to or larger than supply)
- Positive action (2 positions only)
- Simple push/pull of the large blue handle provides positive direct manual operation
- Integrated sensing port for pressure verification

VALVE TYPE	VALVE SERIES	AVAILABLE PORT SIZES										FUNCTIONS					Page
		1/4	3/8	1/2	3/4	1	1¼	1½	2	2½	3	2/2	3/2	Max Flow (Cv)	Solenoid Control	Pressure Control	
Manual Lockout & Exhaust L-O-X® Valves																	
Slim Line	15	■	■										■	2.67			F1.3
Modular	15	■	■	■	■								■	5.6			F1.4
Classic	15		■	■	■	■	■						■	19.25			F1.5
High Capacity	L-O-X®							■	■				■	40.38			F1.6
Stainless Steel	15	■	■	■	■	■	■	■	■				■	39			F1.7
Stainless Steel with Integrated Filter/Regulator	RCO	■		■	■	■							■	9			F1.8 - F1.10
Piloted Valves with Manual Lockout L-O-X® Control																	
		■	■	■	■	■	■	■	■	■	■		■	70	■		F1.11 - F1.12
						■	■	■	■	■	■		■	70		■	F1.13
											■		■	140	■		F1.14
											■		■	140		■	F1.15
Soft Start EEZ-ON® Valves																	
Right Angle	19	■	■									■		1.8			F1.16
	27	■	■	■	■	■	■	■					■	30	■		F1.17 - F1.18
	27	■	■	■	■	■	■	■				■		29		■	F1.19
	27	■	■	■	■	■	■	■					■			■	F1.20
Manual Lockout L-O-X® Valves with Soft Start EEZ-ON® Operation																	
Modular	15	■	■	■	■								■	5.6			F1.21
Classic	15		■	■	■	■	■						■	16.2			F1.22
Piloted Valves with Manual Lockout L-O-X® & Soft Start EEZ-ON® Operation																	
Manual Pilot Controlled	27	■	■	■	■	■	■	■					■	30	■		F1.23 - F1.24
Solenoid Pilot Controlled	27	■	■	■	■	■	■	■					■	30		■	F1.25

3-Way 2-Position Valve						
Port Size		Valve Model Number*	C_v		Weight lb (kg)	
1, 2	3		1-2	2-3		
1/4	3/8	Y1523D2002	1.84	1.79	0.9 (0.4)	
3/8	3/8	Y1523D3012	2.67	2.64	0.9 (0.4)	

* NPT port threads. For BSPP threads, insert a "D" after "Y" to the model number, e.g., YD1523D2002.

Valve Dimensions – inches (mm)



Accessories & Options

Silencers

Port Size	Thread Type	Model Number	Avg. C_v
3/8	Male - NPT	5500A3013	2.7
3/8	Male - BSPT	D5500A3013	2.7

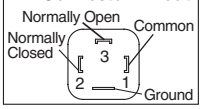
Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.

Pressure Switches

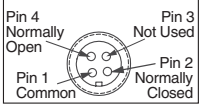
Connection Type	Model Number*	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	1/8 NPT

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).

EN Connector Pinout



M12 Connector Pinout



Pop-Up Indicator

Model Number**	988A30

** 1/8 NPT port threads.

Multiple Lock-out Device

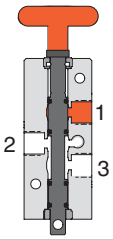
Model Number	356A30

F

VALVE OPERATION

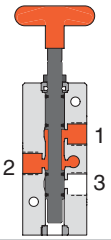
Valved Closed

When the red handle is pushed inward, the flow of supply air is blocked and downstream air is exhausted via the exhaust port. While servicing or maintaining machinery, the L-O-X® valve should be padlocked in this position to prevent the handle from being pulled outward inadvertently where potential for human injury exists.



Valve Open

When the red handle is pulled outward supply air flows freely from inlet to outlet and flow to exhaust is blocked. A detent keeps the handle in the open position.



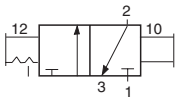
If a system requires gradual buildup of downstream pressure, see manual L-O-X® valves with EEZ-ON® operation.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool.
Mounting Type: In-Line.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 0 to 145 psig (0 to 10 bar).
Lock Hole Diameter: 0.27 inch (7.0 mm).
Length of Hole: 0.43 inch (10.9 mm).

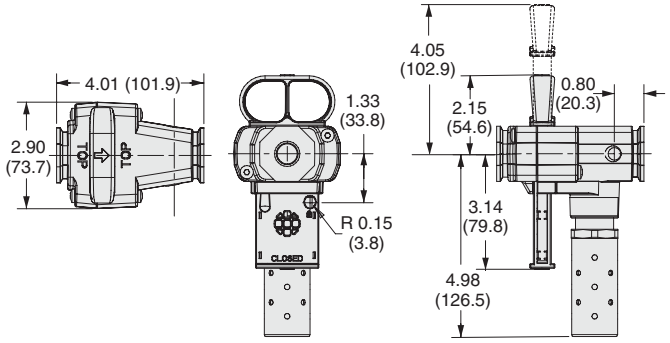
NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

3-Way 2-Position Valve,						
Port Size		Valve Model Number*	C_v		Weight lb (kg)	
1, 2	3		1-2	2-3		
1/4	3/4	Y1523A2003	3.7	7.8	1.7 (0.8)	
3/8	3/4	Y1523A3003	5.1	8.3	1.7 (0.8)	
1/2	3/4	Y1523A4003	5.5	8.6	1.8 (0.8)	
3/4	3/4	Y1523A5013	5.6	8.1	1.8 (0.8)	

* NPT port threads. For BSPP threads, insert a "D" after "Y" to the model number, e.g., YD1523A2003.

Valve Dimensions – inches (mm)



Accessories & Options

Silencers

Port Size	Thread Type	Model Number	Avg. C_v
3/4	Male - NPT	5500A5003	11.5
3/4	Male - BSPT	D5500A5003	11.5

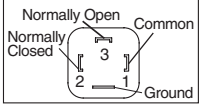
Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.

Pressure Switches

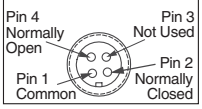
Connection Type	Model Number*	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	1/8 NPT

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).

EN Connector Pinout



M12 Connector Pinout



Pop-Up Indicator

Model Number**	988A30
** 1/8 NPT port threads.	

Multiple Lock-out Device

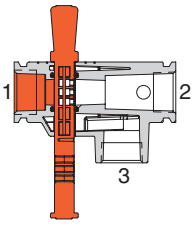
Model Number	356A30

F

VALVE OPERATION

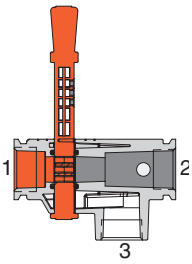
Valved Closed

When the red handle is pushed inward, the flow of supply air is blocked and downstream air is exhausted via the exhaust port. While servicing or maintaining machinery, the L-O-X® valve should be padlocked in this position to prevent the handle from being pulled outward inadvertently where potential for human injury exists.



Valve Open

When the red handle is pulled outward supply air flows freely from inlet to outlet and flow to exhaust is blocked. A detent keeps the handle in the open position.



If a system requires gradual buildup of downstream pressure, see manual L-O-X® valves with EEZ-ON® operation.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool.
Mounting Type: Modular, In-Line.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 0 to 200 psig (0 to 14 bar).
Lock Hole Diameter: 0.27 inch (7.0 mm).
Length of Hole: 0.43 inch (10.9 mm).

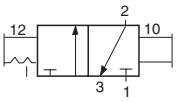
NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

F1

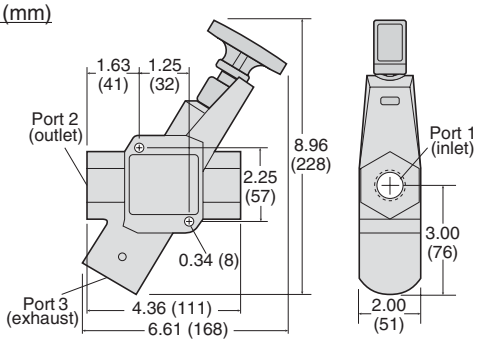
3-Way 2-Position Valve						
Port Size		Body Size	Valve Model Number*	C_v		Weight lb (kg)
1, 2	3			1-2	2-3	
3/8	3/4	1/2	Y1523C3002	4.74	3.57	1.5 (0.7)
1/2	3/4	1/2	Y1523C4002	7.10	4.00	1.5 (0.7)
3/4	3/4	1/2	Y1523C5012	8.26	4.10	1.5 (0.7
3/4	1¼	1	Y1523C5002	13.12	8.98	2.5 (1.1)
1	1¼	1	Y1523C6002	16.56	9.52	2.5 (1.1)
1¼	1¼	1	Y1523C7012	19.25	9.74	2.5 (1.1)

*NPT port threads. For BSPP threads, insert a "D" after "Y" to the model number, e.g., YD1523D3002.

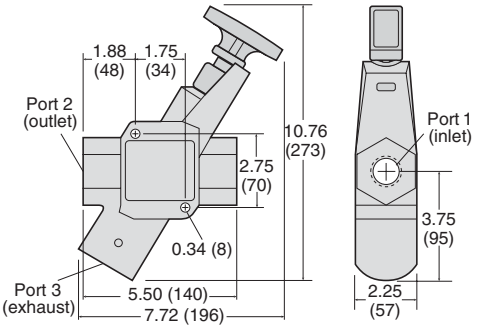


Valve Dimensions – inches (mm)

Body Size 1/2



Body Size 1



Accessories & Options

Silencers

Port Size	Thread Type	Model Number*	Avg. C_v
3/4	Male - NPT	5500A5003	11.5
3/4	Male - BSPT	D5500A5003	11.5
1¼	Male - NPT	5500A7013	16.4
1¼	Male - BSPT	D5500A7013	16.4

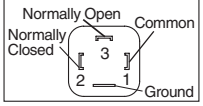
Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.

Pressure Switches

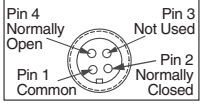
Connection Type	Model Number*	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	1/8 NPT

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).

EN Connector Pinout



M12 Connector Pinout



Pop-Up Indicator

Model Number**	988A30

** 1/8 NPT port threads.

Multiple Lock-out Device

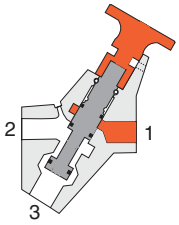
Model Number	356A30

F

VALVE OPERATION

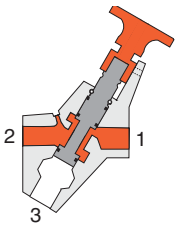
Valved Closed

With a short push of the red handle inward, the flow of supply air is blocked and downstream air is exhausted via the exhaust port at the bottom of the valve. The L-O-X® valve should be padlocked in this position to prevent the handle from being pulled outward inadvertently where potential for human injury exists or while servicing machinery.



Valve Open

When the red handle is pulled out, supply air flows freely from inlet to outlet and flow to exhaust is blocked. A detent keeps the handle in the open position. The handle is not designed to be locked in this position, thereby providing for ready shut-off when necessary.



If a system requires gradual buildup of downstream pressure, see manual L-O-X® valves with EEZ-ON® operation.

STANDARD SPECIFICATIONS (for valves on this page)**:**

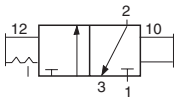
Construction: Spool.
Mounting Type: In-Line.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 0 to 300 psig (0 to 20.7 bar).

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

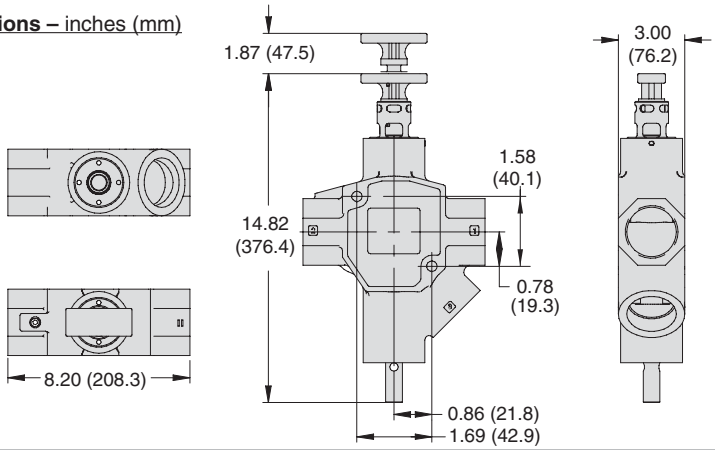
Manual Lockout & Exhaust L-O-X® Valves
High Capacity

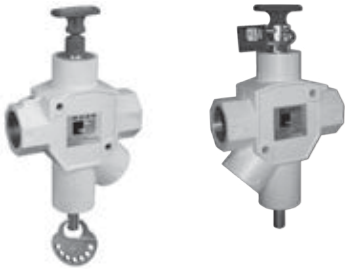
15 Series

3-Way 2-Position Valve						
Port Size		Valve Model Number*	C_v		Weight lb (kg)	
1, 2	3		1-2	2-3		
1½	2	Y1523C8002	35.53	50.98	8.3 (3.7)	
2	2	Y1523C9012	40.38	52.23	8.3 (3.7)	

* NPT port threads. For BSPP threads, insert a "D" after "Y" to the model number, e.g., YD1523C8002.

Valve Dimensions – inches (mm)





Valves can be padlocked in two locations, at the handle or at the end of the spool.

Accessories & Options

Silencers

Port Size	Thread Type	Model Number	Avg. C_v
2	Female - NPT	5500B9001	34.2
2	Female - BSPT	D5500B9001	34.2

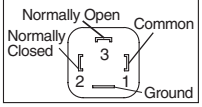
Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.

Pressure Switches

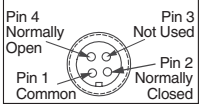
Connection Type	Model Number*	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	1/8 NPT

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).

EN Connector Pinout



M12 Connector Pinout



Pop-Up Indicator

Model Number**	988A30

** 1/8 NPT port threads.

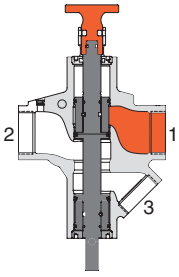
Multiple Lock-out Device

Model Number	356A30

VALVE OPERATION

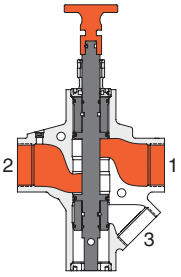
Valved Closed

With a short push of the red handle inward, the flow of supply air is blocked and downstream air is exhausted via the exhaust port while servicing or maintaining machinery. Padlock the L-O-X® valve in this position to prevent the handle from being pulled outward inadvertently to avoid potential for human injury while servicing machinery.



Valve Open

When the red handle is pulled out, supply air flows freely from inlet to outlet and flow to exhaust is blocked. A detent keeps the handle in the open position. The handle is not designed to be locked in this position, thereby providing for ready shut-off when necessary.



If a system requires gradual buildup of downstream pressure, see manual L-O-X® valves with EEZ-ON® operation.

STANDARD SPECIFICATIONS (for valves on this page):

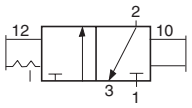
Construction: Spool.
Mounting Type: In-Line.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 0 to 300 psig (0 to 20.7 bar).
Lock Hole Diameter: 0.27 inch (7.0 mm).
Length of Hole: 0.43 inch (10.9 mm).

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Online Version
Rev. 11/14/16

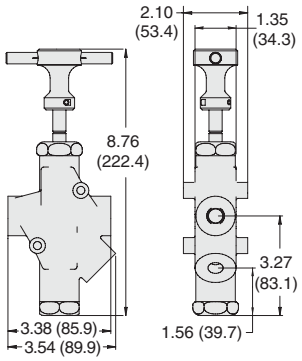
3-Way 2-Position Valve					
Port Size		Valve Model Number*	C_v		Weight lb (kg)
1, 2	3		1-2	2-3	
1/4	1/4	1523B2004	2.14	2.08	3.75 (1.70)
3/8	1/2	1523B3004	5.79	6.24	6.0 (2.72)
1/2	1/2	1523B4004	5.79	6.24	6.0 (2.72)
3/4	1	1523B5004	14.30	17.00	13.0 (5.89
1	1	1523B6004	14.30	17.00	13.0 (5.89)
1½	2	1523B8004	39.00	45.00	35.0 (15.87)
2	2	1523B9004	39.00	45.00	35.0 (15.87)



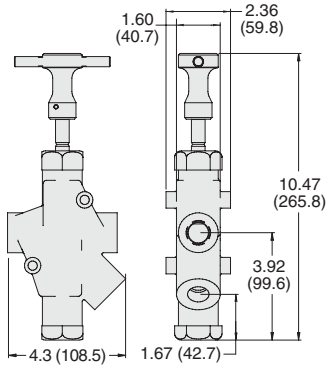
* NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., D1523B2004.

Valve Dimensions – inches (mm)

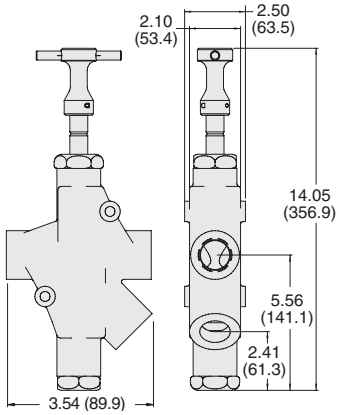
Port Size 1/4



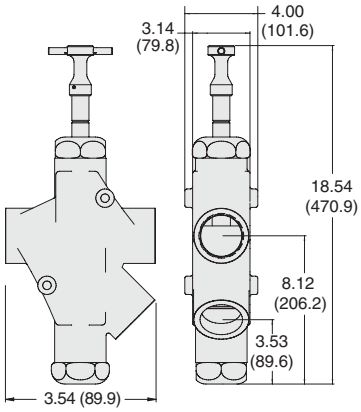
Port Sizes 3/8 & 1/2



Port Sizes 3/4 & 1



Port Sizes 1½ & 2

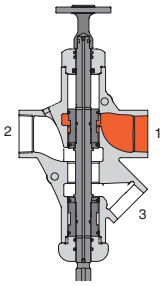


F

VALVE OPERATION

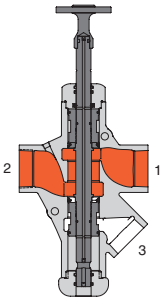
Valve Closed

With a push of the handle inward, the flow of supply air is blocked and downstream air is exhausted via the exhaust port while servicing or maintaining machinery. Padlock the L-O-X® valve in this position to prevent the handle from being pulled outward inadvertently to avoid potential for human injury while servicing machinery.



Valve Open

When the handle is pulled out, supply air flows freely from inlet to outlet and flow to exhaust is blocked. A detent keeps the handle in the open position. The handle is not designed to be locked in this position, thereby providing for ready shut-off when necessary.



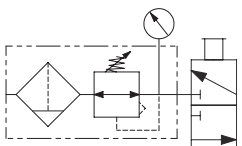
STANDARD SPECIFICATIONS (for valves on this page)**:**

Construction: Spool, 316 Stainless Steel.
Mounting Type: In-Line.
Ambient/Media Temperature: 30° to 175°F (-1° to 80°C).
Note: For lower temperature ratings, consult ROSS.
Flow Media: Filtered air.
Inlet Pressure: 0 to 300 psig (0 to 20.7 bar).
Lock Hole Diameter: *Port sizes 1/4 thru 2:* 0.34 inch (8.64 mm).
Length of Hole: *Port size 1/4:* 0.44 in (11.17 mm).
Port size 1/2: 0.47 in (11.93 mm)
Port size 1 and 2: 0.55 inch (13.97 mm).

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

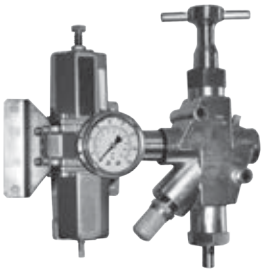
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Port Size		Model Number*	C_V	
1, 2	3		1-2	2-3
1/4	1/4	RC010-13	2.14	2.08
1/2	1/2	RC011-13	4.4	6.24
3/4	1	RC012-13	5.0	17.0
1	1	RC013-13	8.0	17.0



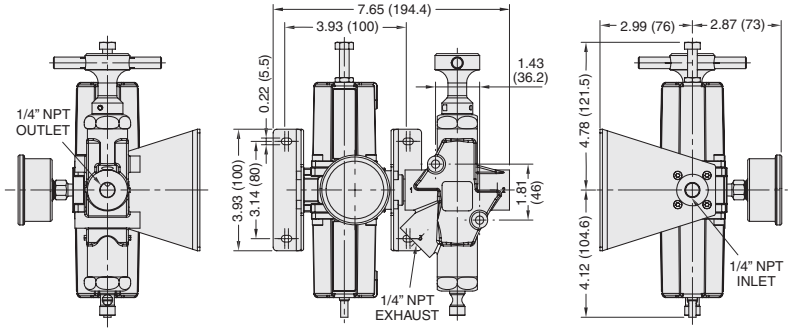
Lockout/Filter/Regulator
Lockout Manual Drain Self-relieving

* NPT port threads. For BSPP threads, consult ROSS.

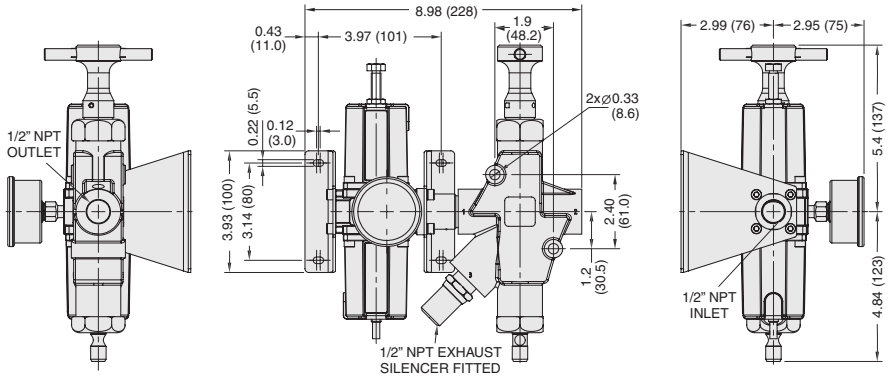


Dimensions – inches (mm)

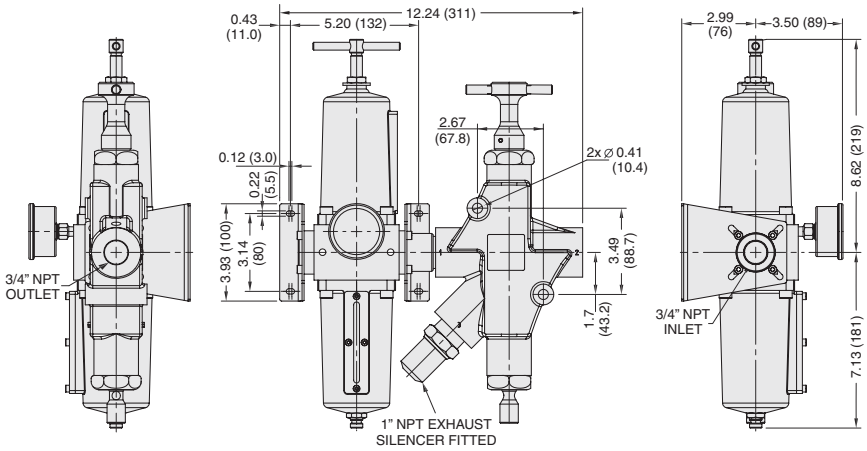
Port Size 1/4



Port Size 1/2



Port Size 3/4



F

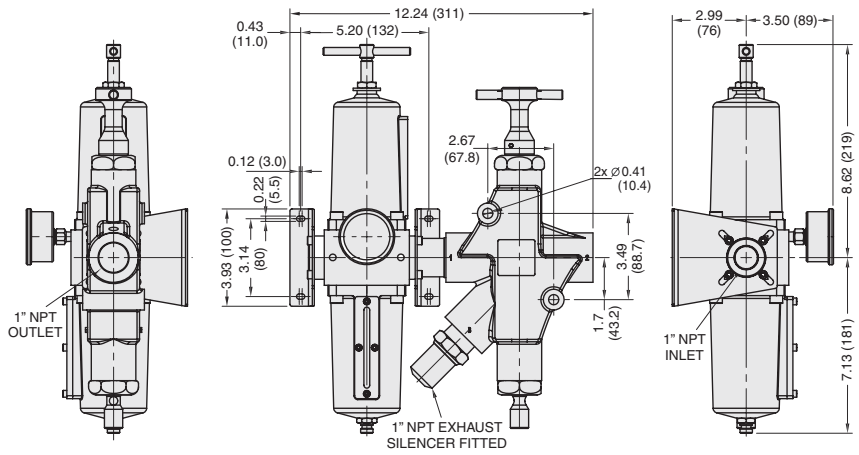
STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool, 316 Stainless Steel.
Mounting Type: In-Line.
Ambient/Media Temperature: 30° to 175°F (-1° to 80°C).
Note: For lower temperature ratings, consult ROSS.
Flow Media: Filtered air.
Inlet Pressure: 0 to 300 psig (0 to 20.7 bar).
Secondary Pressure: 7 to 174 psig (0.5 to 12 bar).
Seals: Fluorocarbon (Viton).
Lock Hole Diameter: *Port sizes 1/4 thru 2:* 0.34 inch (8.64 mm).
Length of Hole: *Port size 1/4:* 0.44 in (11.17 mm).
Port size 1/2: 0.47 in (11.93 mm)
Port size 1 and 2: 0.55 inch (13.97 mm).

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

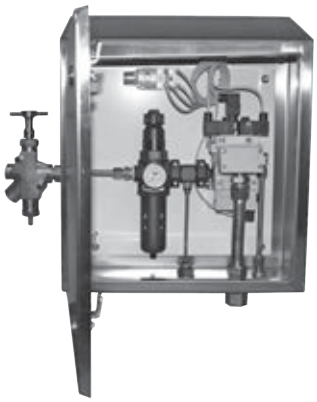
Port Size 1



Stainless Steel Cabinet for Wash-Down Applications

- Stainless steel control cabinet includes filter/regulator and Category 4 DM2® Series valve for Air Entry Control
- Stainless steel construction, designed for wash-down areas
- Control cabinet is built with slanted top to avoid pooling
- Control Reliable Energy Isolation

CONTROL CATEGORY 2
CONTROL CATEGORY 3
CONTROL CATEGORY 4



APPLICATIONS:

• Chemical Processing • Forestry • Mining • Pharmaceutical
• Pulp and Paper • Oil and Gas • Off-shore Industries

Will build to your specifications!

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

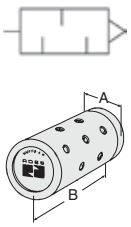
F1

Stainless Steel Silencers

- Port sizes 1/4 thru 1 NPT have all stainless steel construction
- Port sizes 2 NPT and all BSPT have standard construction consisting of nickel plated cold rolled steel
- Supplied with a standard pipe thread fitting for attaching directly to the exhaust ports of air-operated equipment

Port Size	Thread Type	Model Number		Avg. C_v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	BSPT Threads		A	B	
1/4	Male	5500B2004	D5500B2004	1.44	0.56 (14.2)	1.75 (44.5)	0.05 (0.23)
1/2	Male	5500B4004	D5500B4004	3.01	0.87 (22.1)	2.75 (69.7)	0.25 (0.11)
1	Male	5500B6004	D5500B6004	10.41	1.31 (33.3)	3.87 (98.3)	0.45 (0.20)
2	Male	5500B9004	D5500B9004	28.11	2.37 (60.2)	5.50 (139.7)	1.5 (0.68)

Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum.
Flow Media: Filtered air; 5 micron recommended.

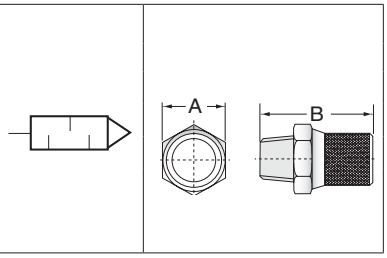


Silencers for Stainless Steel L-O-X® Air Entry Combinations

- 316 Stainless Steel sintered element silencers used to protect ports open to the atmosphere.

Port Size	Thread Type	Model Number		Avg. C_v	Dimensions inches (mm)	
		NPT Threads	BSP Threads		A	B
1/4	Male	5500A2005	D5500A2005	1.5	0.67 (17)	1.50 (38)
1/2	Male	5500A4005	D5500A4005	3.5	0.94 (24)	2.17 (55
1	Male	5500A6005	D5500A6005	5.7	1.41 (36)	2.95 (75)

Pressure Range: 0 to 174 psig (0 to 12 bar) maximum.
Flow Media: Filtered air; 5 micron recommended.
Seals: Nitrile.



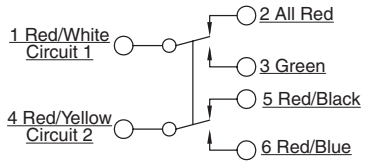
Stainless Steel Pressure Switch

F

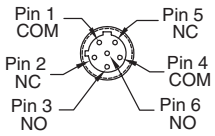
- 316 Stainless Steel Body
- Nitrile Seals
- DPDT (Double-Pole Double-Throw Switch
- Factory preset 5 psi (falling)

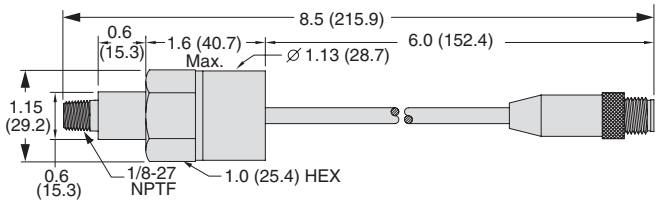
Inlet Port Size	Model Number	Weight lb (kg)
1/8	1162A30	0.23 (.01)

NPT port threads.



Pin Configuration



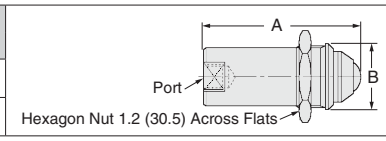


Stainless Steel Visual Indicator

- 316 Stainless Steel Body, internals and Springs
- Nitrile Seals
- Visual Indicator piston, Acetal
- Visual Indicator assembly, Acetal with acrylic lens

Inlet Port Size	Model Number	Dimensions inches (mm)		Weight lb (kg)
		A	B	
1/8	1155H30	2.33 (59.3)	1.00 (25.4)	0.22 (0.1)

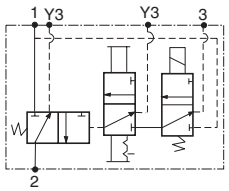
NPT port threads.



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

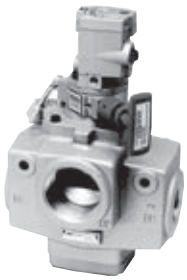
3-Way 2-Position Valve, Solenoid Pilot Controlled

Port Size 1, 2	Port Size 3	Body Size	Valve Model Number*	C_v 1-2	C_v 2-3	Weight lb (kg)
1/4	1/2	3/8	Y2773A2072**	2.5	3.1	3.5 (1.6)
3/8	1/2	3/8	Y2773A3072**	3.6	5.3	3.5 (1.6)
1/2	1/2	3/8	Y2773A4082**	3.3	5.3	3.5 (1.6)
1/2	1	3/4	Y2773A4072**	6.3	9.2	4.3 (1.9)
3/4	1	3/4	Y2773A5072**	7.7	11	4.3 (1.9)
1	1	3/4	Y2773A6082**	8.0	12	4.3 (1.9)
1	1½	1¼	Y2773A6072**	23	34	8.0 (3.6)
1¼	1½	1¼	Y2773A7072**	30	32	8.0 (3.6)
1½	1½	1¼	Y2773A8082**	30	31	8.0 (3.6)
1½	2½	2	Y2773A8072**	68	70	17.5 (7.9)
2	2½	2	Y2773A9072**	70	70	17.5 (7.9)
2½	2½	2	Y2773A9082**	70	71	17.5 (7.9)



* NPT port threads. For BSPP threads, insert a "D" after "Y" to the model number, e.g., YD2773A2072W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., Y2773A2072W.
For other voltages, consult ROSS.

CONTROL CATEGORY 1



Accessories & Options

Silencers

Port Size	Thread Type	Model Number NPT Threads	Model Number BSPT Threads	Avg. C_v
1/2	Male	5500A4003	D5500A4003	4.7
1	Male	5500A6003	D5500A6003	14.6
1½	Female	5500A8001	D5500A8001	29.9
2½	Female	5500A9002	D5500A9002	103.7

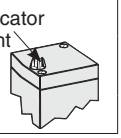
Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum.
Flow Media: Filtered air.


Port size 1/2 thru 2


Port size 2½

Indicator Light Kit

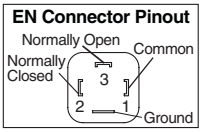
Kit Number 24 volts DC	Kit Number 110-120 volts AC 50-60 Hz
862K87-W	862K87-Z

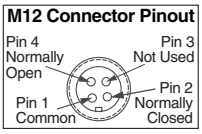


Pressure Switches

Connection Type	Model Number*	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	1/8 NPT

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).





Pop-Up Indicator

Model Number**	988A30
** 1/8 NPT port threads.	

Multiple Lock-out Device

Model Number	356A30

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: In-Line.
Solenoids: AC or DC power. Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.

Inlet Pressure: *Port sizes 1/4 to 1½:* 15 to 150 psig (1 to 10 bar).
Port sizes 1½ to 2½: 30 to 150 psig (2 to 10 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.

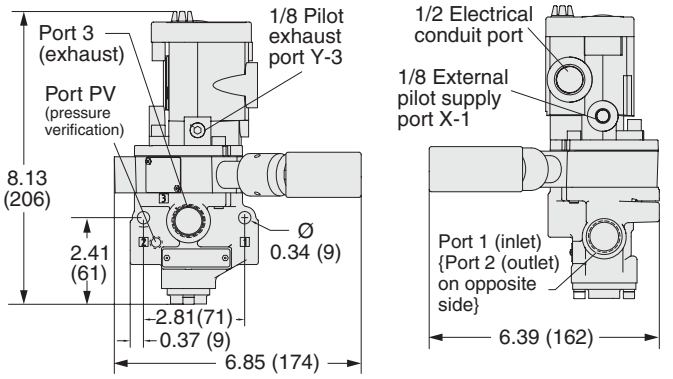
Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

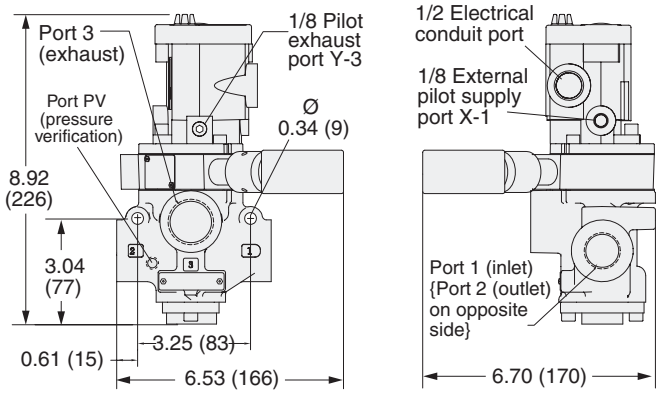
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Valve Dimensions – inches (mm)

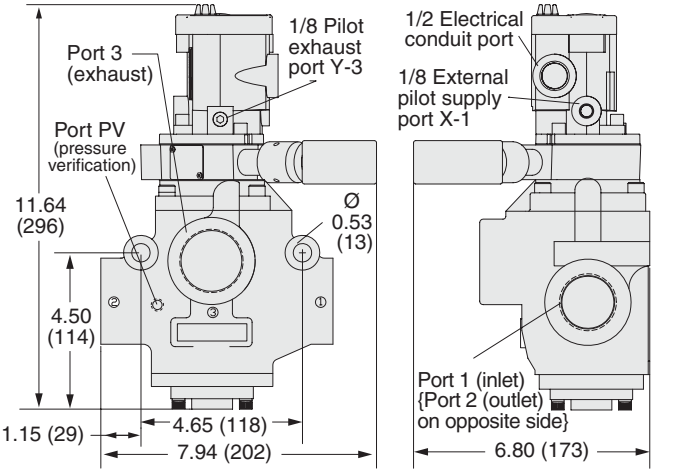
Body Size 3/8



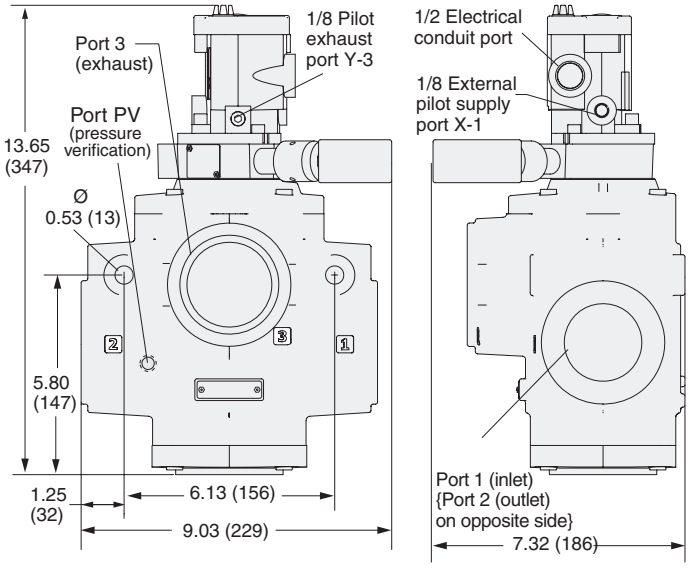
Body Size 3/4



Body Size 1¼



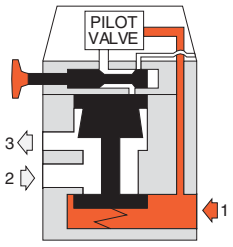
Body Size 2



VALVE OPERATION

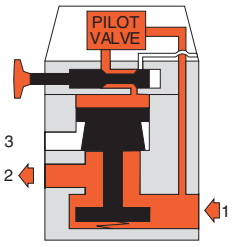
Pilot De-energized

With the solenoid pilot de-energized (regardless of the position of the L-O-X® handle) the inlet poppet remains closed. The outlet port is connected to the exhaust port so that pressure in the downstream lines is vented to atmosphere.



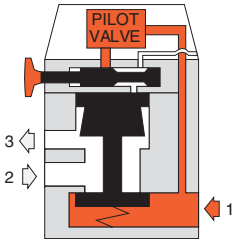
Pilot Energized

With the solenoid pilot energized and the L-O-X® control in the open position, air can flow from inlet to outlet port. The exhaust port is closed.



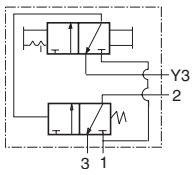
L-O-X® Valve Closed

With the handle pushed inward, the L-O-X® control is closed, and air to the valve piston is cut off. This allows the inlet poppet to be closed by its spring and the pressure of the inlet air. The outlet is connected to exhaust so downstream pressure is vented.

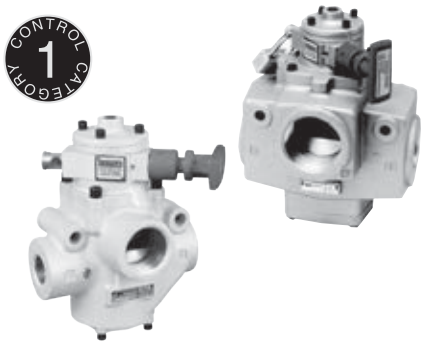


3-Way 2-Position Valve, Internal Pressure Controlled

Port Size 1, 2	Port Size 3	Body Size	Valve Model Number*	C_v 1-2	C_v 2-3	Weight lb (kg)
1	1½	1¼	Y2783A6006	23	34	7.0 (3.2)
1¼	1½	1¼	Y2783A7006	30	32	7.0 (3.2)
1½	1½	1¼	Y2783A8016	30	31	7.0 (3.2)
1½	2½	2	Y2783A8006	68	70	15.3 (6.9
2	2½	2	Y2783A9006	70	70	15.3 (6.9
2½	2½	2	Y2783A9016	70	71	15.3 (6.9)

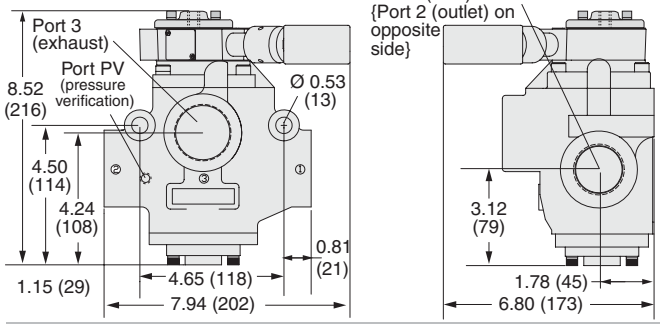


* NPT port threads. For BSPP threads, insert a "D" after "Y" to the model number, e.g., YD2783A6006.

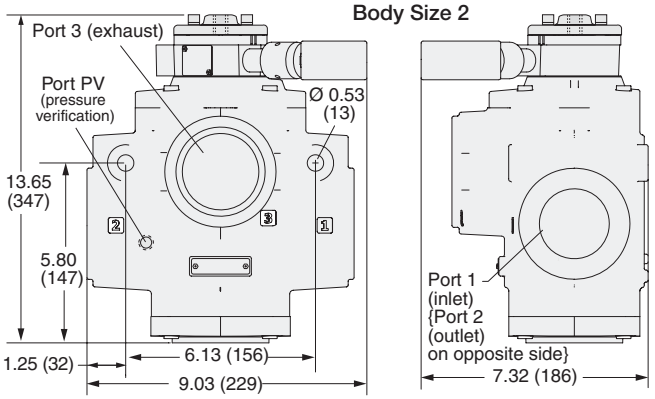


Valve Dimensions – inches (mm)

Body Size 1¼



Body Size 2



Accessories & Options

Silencers

Port Size	Thread Type	Model Number NPT Threads	Model Number BSPT Threads	Avg. C_v
1½	Female	5500A8001	D5500A8001	29.9
2½	Female	5500A9002	D5500A9002	103.7

Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum.
Flow Media: Filtered air.

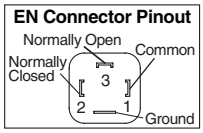
Port size 1½ thru 2

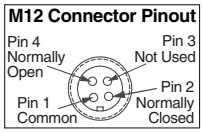
Port size 2½

Pressure Switches

Connection Type	Model Number*	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	1/8 NPT

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).





Pop-Up Indicator

Model Number**	988A30

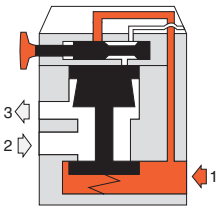
** 1/8 NPT port threads.

Multiple Lock-out Device

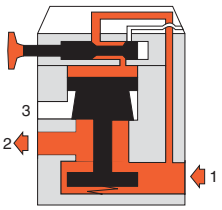
Model Number 356A30

VALVE OPERATION

Valve Closed With a short push of the red handle inward the flow of supply air is blocked and downstream air is exhausted via the exhaust port. Air pressure on the inlet and exhaust poppets produces a large closing force. The L-O-X® valve should be padlocked in this position to prevent the handle from being pulled outward inadvertently when potential for human injury exists or servicing machinery.



Valve Open With the red handle pulled out, pilot air flows to the top of the actuating piston, causing it to open the inlet poppet. Supply air then flows freely from inlet to outlet, and the exhaust port is blocked. A detent keeps the L-O-X® handle in the open position. The handle is designed not to be locked in the open position, thereby allowing for quick shut-off when necessary.



STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: In-Line.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: *Basic Size 1¼:* 15 to 150 psig (1 to 10 bar).
Basic Size 2: 30 to 150 psig (2 to 10 bar).

Pilot Pressure: Must be equal to or greater than inlet pressure.

Safety Integrity Level (SIL) – Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c or PL d (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥1.

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

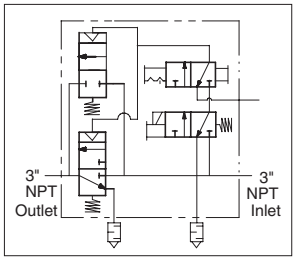
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

F1

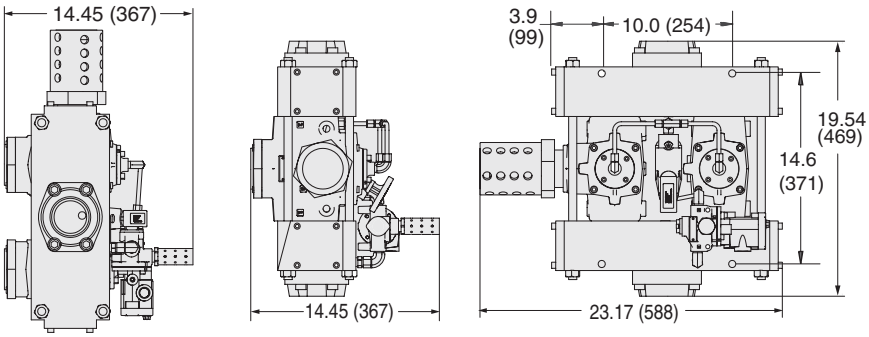
3 Inch L-O-X® Valve for Lockout

3-Way 2-Position Valve, Solenoid Pilot Controlled					
Port Size		Valve Model Number	C_v		Weight lb (kg)
1, 2	3		1-2	2-3	
3	2½	Y3900A0896**	140	71	115 (53.0)

** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., Y3900A0896W. For other voltages, consult ROSS.



Valve Dimensions – inches (mm)



OPTIONS

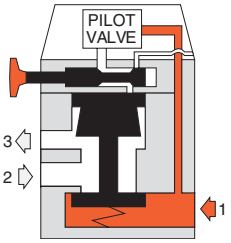
Multiple Lock-out Device	Model Number	356A30

VALVE OPERATION

F

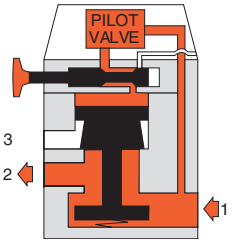
Pilot De-energized

With the solenoid pilot de-energized (regardless of the position of the L-O-X® handle) the inlet poppet remains closed. The outlet port is connected to the exhaust port so that pressure in the downstream lines is vented to atmosphere.



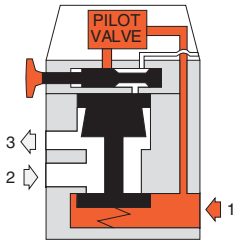
Pilot Energized

With the solenoid pilot energized and the L-O-X® control in the open position, air can flow from inlet to outlet port. The exhaust port is closed.



L-O-X® Valve Closed

With the handle pushed inward, the L-O-X® control is closed, and air to the valve piston is cut off. This allows the inlet poppet to be closed by its spring and the pressure of the inlet air. The outlet is connected to exhaust so downstream pressure is vented.



STANDARD SPECIFICATIONS (for valves on this page)**:**

Construction: Spool.
Mounting Type: In-Line.
Solenoids: AC or DC power. Rated for continuous duty.
Power Consumption:
87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.

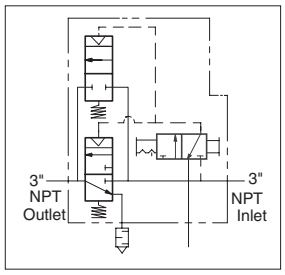
Ambient Temperature: 40 to 120°F (4 to 50°C).
Media Temperature: 40 to 175°F (4 to 80°C).
Flow Media: Filtered air; 5 micron filter recommended.
Inlet Pressure: 30 to 150 psig (2 to 10 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.
Port Threads: NPT.

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

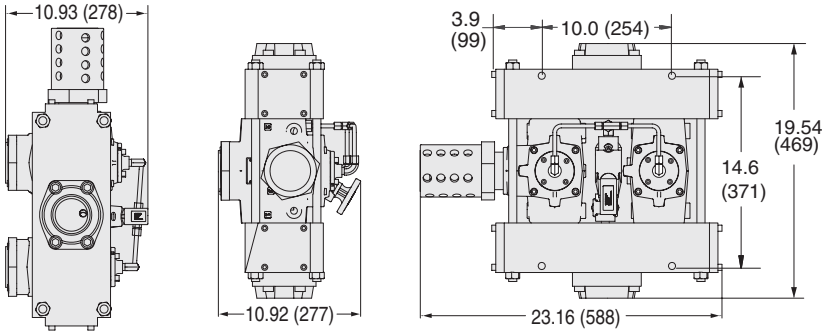
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

3 Inch L-O-X® Valve for Lockout

3-Way 2-Position Valve, Pressure Controlled					
Port Size		Valve Model Number	C_v		Weight lb (kg)
1, 2	3		1-2	2-3	
3	2½	Y3900A0829	140	71	110 (49.9)



Valve Dimensions – inches (mm)



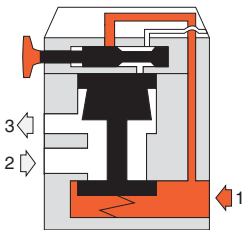
OPTIONS

Multiple Lock-out Device	Model Number	356A30

VALVE OPERATION

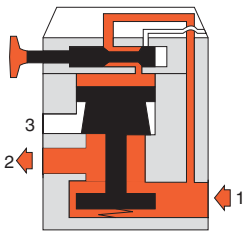
Valve Closed

With a short push of the red handle inward the flow of supply air is blocked and downstream air is exhausted via the exhaust port. Air pressure on the inlet and exhaust poppets produces a large closing force. The L-O-X® valve should be padlocked in this position to prevent the handle from being pulled outward inadvertently when potential for human injury exists or servicing machinery.



Valve Open

With the red handle pulled out, pilot air flows to the top of the actuating piston, causing it to open the inlet poppet. Supply air then flows freely from inlet to outlet, and the exhaust port is blocked. A detent keeps the L-O-X® handle in the open position. The handle is designed not to be locked in the open position, thereby allowing for quick shut-off when necessary.



STANDARD SPECIFICATIONS (for valves on this page):

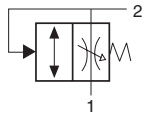
Construction: Spool.
Mounting Type: In-Line.
Ambient/Media Temperature: 40 to 175° F (4 to 80°C).
Flow Media: Filtered air; 5 micron filter recommended.
Inlet Pressure: 30 to 150 psig (2 to 10 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.
Port Threads: NPT.

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

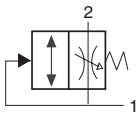
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

F1

Models with Threaded Banjo				
2-Way Normally Closed EEZ-ON®				
Port Size		Valve Model Number	Avg. C_v	Weight lb (kg)
Port 1 (female threads)	Port 2 (male threads)			
1/4	1/4	1969B2010	1.2	0.38 (0.15)
3/8	3/8	1969B3010	1.7	0.38 (0.15)
G1/4	G1/4	D1969B2010	1.2	0.38 (0.15)
G3/8	G3/8	D1969B3010	1.7	0.38 (0.15)

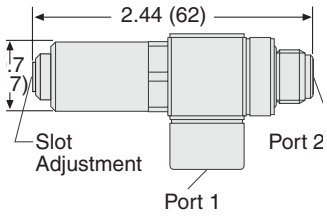


Primary Pressure at Port 1



Primary Pressure at Port 2

Valve Dimensions – inches (mm)



F

- Gradual re-application of pneumatic pressure prevents rapid equipment movement at startup
- Right angle style mounts directly in cylinder ports
- Available with threaded ports
- Point of use Soft Start

STANDARD SPECIFICATIONS (for valves on this page)**:**

Construction: Spool.
Mounting Type: Port Mounted.
Ambient/Media Temperature: 15° to 160°F (-10° to 70°C).

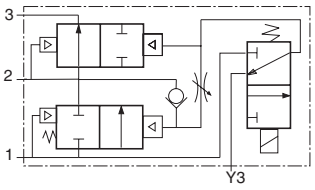
Flow Media: Filtered air.
Operating Pressure: 45 to 150 psig (3 to 10.3 bar).

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

3-Way 2-Position Valve, Solenoid Pilot Controlled

CONTROL CATEGORY 1

Port Size 1, 2	Port Size 3	Body Size	Valve Model Number*	C_v 1-2	C_v 2-3	Weight lb (kg)
1/4	1/2	3/8	2773B2037**	2.5	3.1	4.5 (2.0)
3/8	1/2	3/8	2773B3037**	3.6	5.3	4.5 (2.0)
1/2	1/2	3/8	2773B4047**	3.3	5.3	4.5 (2.0)
1/2	1	3/4	2773B4037**	10.0	13.0	5.0 (2.3)
3/4	1	3/4	2773B5037**	12.0	15.0	5.0 (2.3)
1	1	3/4	2773B6047**	12.0	16.0	5.0 (2.3)
1	1½	1¼	2773A6037**	23.0	34.0	8.8 (4.0)
1¼	1½	1¼	2773A7037**	30.0	32.0	8.8 (4.0)
1½	1½	1¼	2773A8047**	30.0	31.0	8.8 (4.0)



* NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., D2773B2037.
**Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 2773B2037W. For other voltages, consult ROSS.

Accessories & Options

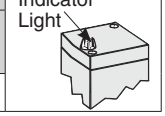
Silencers

Port Size	Thread Type	Model Number* NPT Threads	Model Number* BSPT Threads	Avg. C_v
1/2	Male	5500A4003	D5500A4003	4.7
1	Male	5500A6003	D5500A6003	14.6
1½	Female	5500A8001	D5500A8001	29.9

Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.

Indicator Light Kit

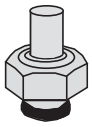
Kit Number 24 volts DC	Kit Number 110-120 volts AC 50-60 Hz
862K87-W	862K87-Z



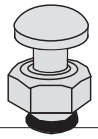
Manual Overrides

FLUSH BUTTON Locking Type	FLUSH BUTTON Kit Number
Locking	792K87

EXTENDED BUTTON Locking Type	EXTENDED BUTTON Kit Number
Non-Locking	791K87



EXTENDED BUTTON with PALM Locking Type	EXTENDED BUTTON with PALM Kit Number
Non-Locking	984H87



NOTE: ***The 3/2 EEZ-ON® valve is also available with a L-O-X® adapter so that both L-O-X® and EEZ-ON® functions are consolidated in a single valve.***

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: In-Line.
Solenoid Pilot: AC or DC power. Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 15 to 150 psig (1 to 10.3 bar).

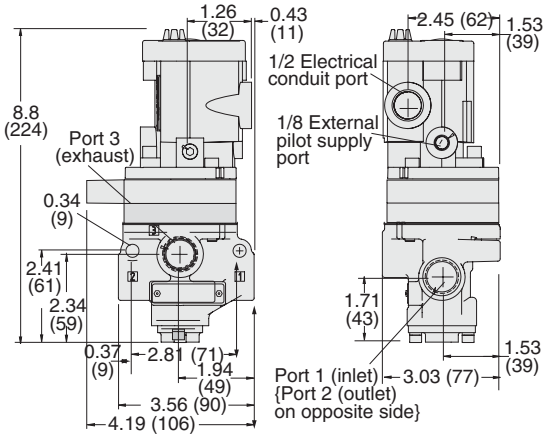
NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

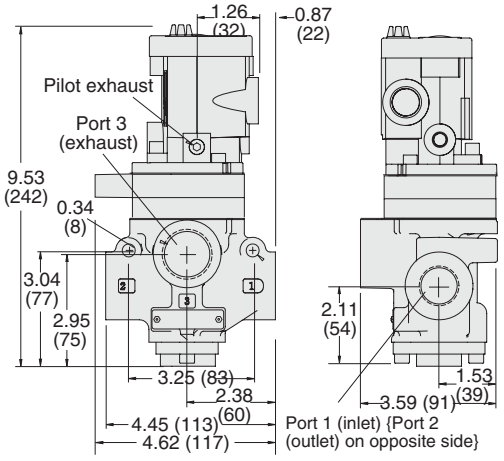
F1

Valve Dimensions – inches (mm)

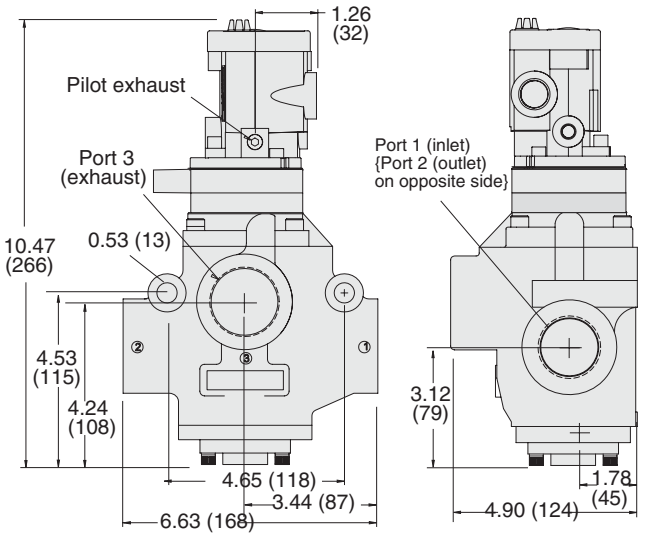
Body Size 3/8



Body Size 3/4



Body Size 1¼

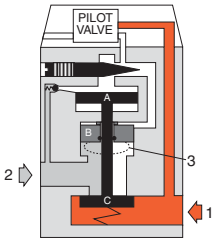


F

VALVE OPERATION

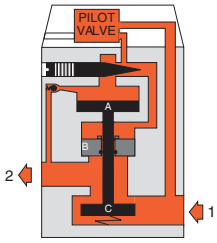
Pilot Not Energized

Pilot air is blocked by the pilot. Any downstream pressure forces piston B (which slides on the valve stem) upward. This opens the exhaust port and vents the downstream line.



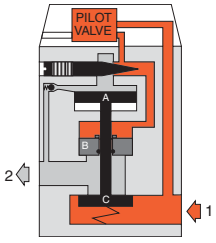
Full Pressure

When the pressure on piston A reaches approximately 50 percent of inlet pressure, it is forced downward and opens inlet poppet C. Full inlet pressure now flows freely to the outlet port.



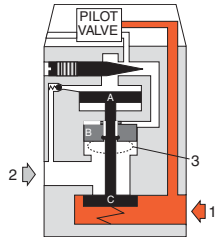
Pilot Energized

Pilot air forces piston B downward to close the exhaust port. Pilot air also flows past the adjusting needle, opens the ball check and begins slowly to pressurize the outlet line. At the same time, pressure is building up on piston A.

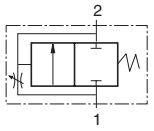


Pilot De-energized

Air above pistons A and B is exhausted through the exhaust port of the pilot valve. Air above poppet C forces sliding piston B upward so that the main exhaust port is opened and the pressurized air is exhausted.



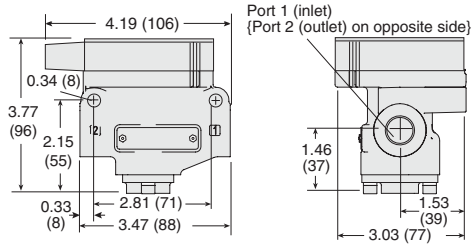
2-Way 2-Position Valves, Pressure Controlled				
Port Size 1, 2	Body Size	Valve Model Number*	C_v	Weight lb (kg)
1/4	3/8	2781A2007	2.3	1.5 (0.7)
3/8	3/8	2781A3007	3.8	1.5 (0.7)
1/2	3/8	2781A4017	4.0	1.5 (0.7)
1/2	3/4	2781A4007	13.0	2.3 (1.0)
3/4	3/4	2781A5007	15.0	2.3 (1.0)
1	3/4	2781A6017	16.0	2.3 (1.0)
1	1¼	2781A6007	24.0	6.0 (2.7)
1¼	1¼	2781A7007	29.0	6.0 (2.7)
1½	1¼	2781A8017	29.0	6.0 (2.7)



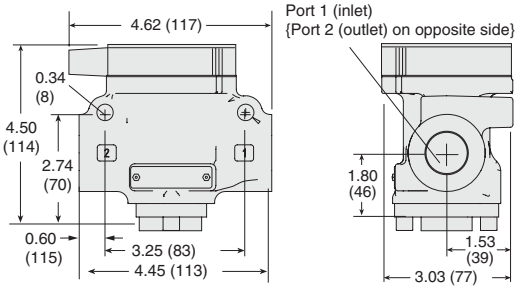
* NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., D2781A2007.

Valve Dimensions – inches (mm)

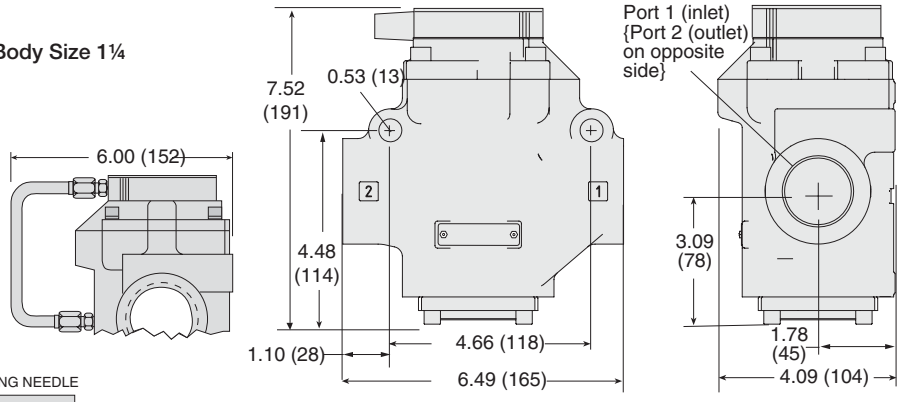
Body Size 3/8



Body Size 3/4



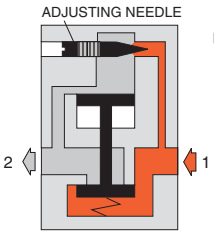
Body Size 1¼



VALVE OPERATION

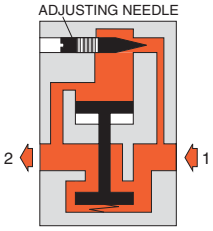
Air Pressure to Inlet

When air pressure is first applied to the inlet, air flow to the piston is restricted by the adjustable needle in the delay orifice. Downstream air pressure gradually builds up at a rate determined by the setting of the adjustable needle.



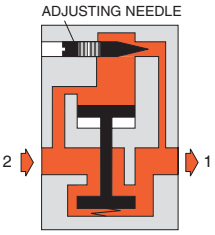
Valve Opens to Full Flow

When downstream air pressure reaches approximately 40 to 60 percent of inlet pressure, the valve element shifts to the full open position and there is full air flow to the downstream components. This condition continues as long as inlet air pressure is present.



Inlet Pressure Removed

When inlet pressure is removed, the exhausting downstream air pressure keeps the inlet poppet open until the downstream pressure drops by approximately 90 percent. The remaining pressure is exhausted via the delay orifice.



STANDARD SPECIFICATIONS (for valves on this page)**:**

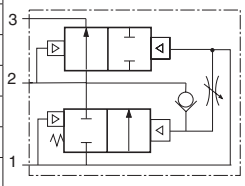
Construction: Poppet.
Mounting Type: In-Line.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 15 to 150 psig (1 to 10.3 bar).

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

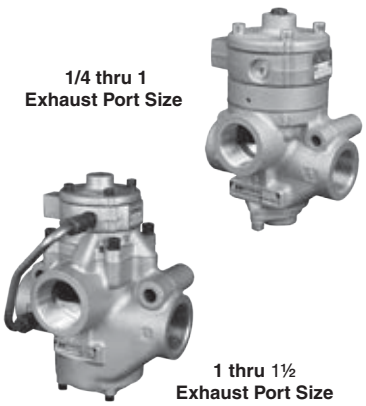
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

3-Way 2-Position Valve, Pressure Controlled

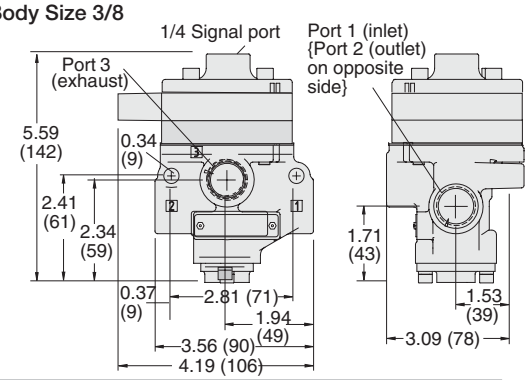
Port Size 1, 2	Port Size 3	Body Size	Valve Model Number*	C_v 1-2	C_v 2-3	Weight lb (kg)
1/4	1/2	3/8	2783C2037	2.5	3.1	4.5 (2.0)
3/8	1/2	3/8	2783C3037	3.6	5.3	4.5 (2.0)
1/2	1/2	3/8	2783C4047	3.3	5.3	4.5 (2.0)
1/2	1	3/4	2783C4037	10.0	13.0	5.0 (2.3)
3/4	1	3/4	2783C5037	12.0	15.0	5.0 (2.3)
1	1	3/4	2783C6047	12.0	16.0	5.0 (2.3)
1	1½	1¼	2783C6037	23.0	34.0	8.8 (4.0)
1¼	1½	1¼	2783B7037	30.0	32.0	8.8 (4.0
1½	1½	1¼	2783B8047	30.0	31.0	8.8 (4.0)



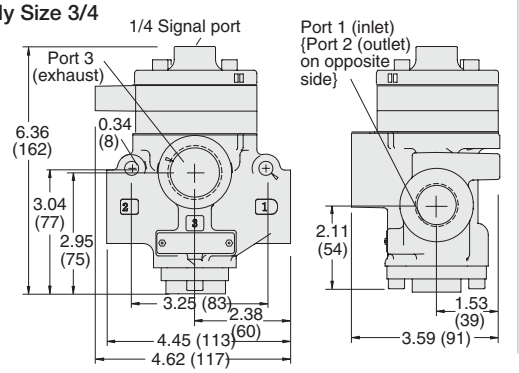
* NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., D2783C2037.



Body Size 3/8

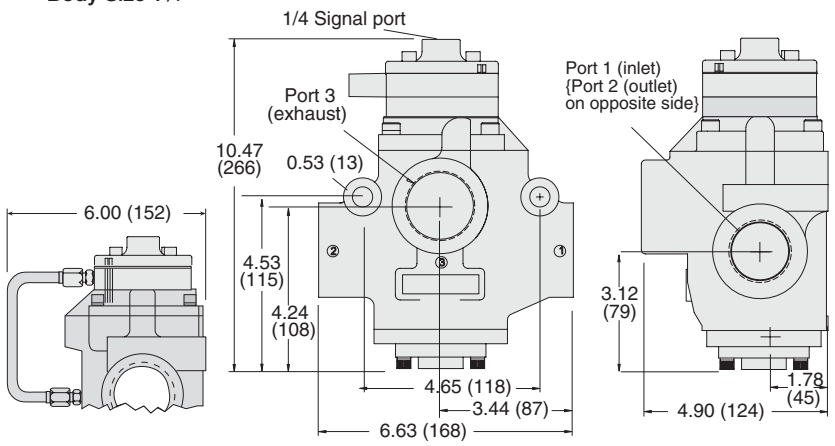


Body Size 3/4



Body Size 1¼

Valve Dimensions – inches (mm)



Accessories & Options

Silencers

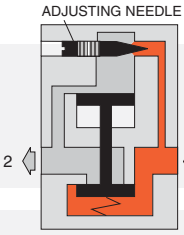
Port Size	Thread Type	Model Number* NPT Threads	Model Number* BSPT Threads	Avg. C_v
1/2	Male	5500A4003	D5500A4003	4.7
1	Male	5500A6003	D5500A6003	14.6
1½	Female	5500A8001	D5500A8001	29.9

Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum.
Flow Media: Filtered air.

VALVE OPERATION

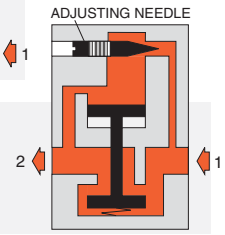
Air Pressure to Inlet

When air pressure is first applied to the inlet, air flow to the piston is restricted by the adjustable needle in the delay orifice. Downstream air pressure gradually builds up at a rate determined by the setting of the adjustable needle.



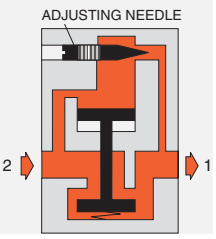
Valve Opens to Full Flow

When downstream air pressure reaches approximately 40 to 60 percent of inlet pressure, the valve element shifts to the full open position and there is full air flow to the downstream components. This condition continues as long as inlet air pressure is present.



Inlet Pressure Removed

When inlet pressure is removed, the exhausting downstream air pressure keeps the inlet poppet open until the downstream pressure drops by approximately 90 percent. The remaining pressure is exhausted via the delay orifice.



STANDARD SPECIFICATIONS (for valves on this page):

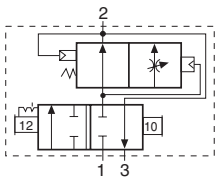
Construction: Poppet.
Mounting Type: In-Line.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 15 to 150 psig (1 to 10.3 bar).

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

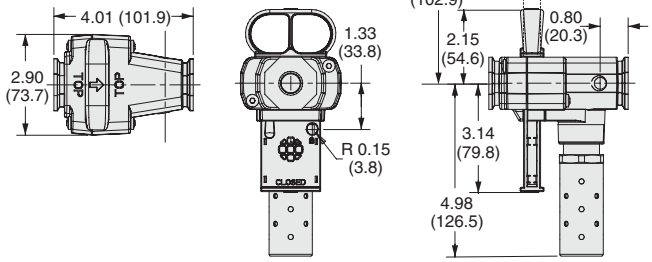
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

3-Way 2-Position Valve, Modular						
Port Size		Valve Model Number*	C_v		Weight lb (kg)	
1, 2	3		1-2	2-3		
1/4	3/4	Y1523A2103	3.7	7.8	1.7 (0.8)	
3/8	3/4	Y1523A3103	5.1	8.3	1.7 (0.8)	
1/2	3/4	Y1523A4103	5.5	8.6	1.8 (0.8)	
3/4	3/4	Y1523A5113	5.6	8.1	1.8 (0.8)	

* NPT port threads. For BSPP threads, insert a "D" after "Y" to the model number, e.g., YD1523A2103.



Valve Dimensions – inches (mm)



Accessories & Options

Silencers

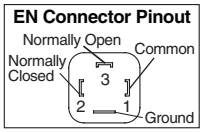
Port Size	Thread Type	Model Number	Avg. C_v
3/4	Male - NPT	5500A5003	11.5
3/4	Male - BSPT	D5500A5003	11.5

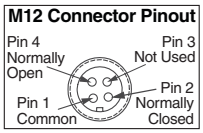
Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.

Pressure Switches

Connection Type	Model Number*	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	1/8 NPT

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).





Pop-Up Indicator

Model Number**	988A30

** 1/8 NPT port threads.

Multiple Lock-out Device

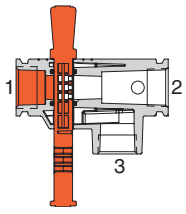
Model Number	356A30

F

VALVE OPERATION

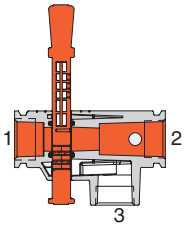
Valved Closed

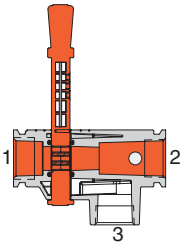
With a short push of the blue handle inward, the flow of supply is blocked and downstream air is exhausted via the exhaust port at the bottom of the valve. It is required by OSHA that the L-O-X® valves with EEZ-ON® operation be padlocked in this position to prevent the handle from being pulled outward inadvertently when potential for human injury exists or servicing machinery.



EEZ-ON® Function

The blue handle will only shift part way due to a mechanical stop button allowing only partial flow from inlet to downstream causing the pressure to increase at a slower rate.





Valve Open

Pressing the mechanical stop button allows the blue handle to be shifted completely open allowing full flow from inlet to downstream.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool.
Mounting Type: In-Line.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 0 to 200 psig (0 to 14 bar).
Lock Hole Diameter: 0.27 inch (7.0 mm).
Length of Hole: 0.43 inch (10.9 mm).

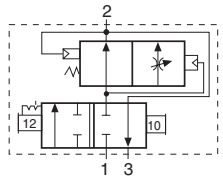
NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Manual Lockout & Exhaust L-O-X® Valves with Soft Start EEZ-ON®

3-Way 2-Position Valve, Classic

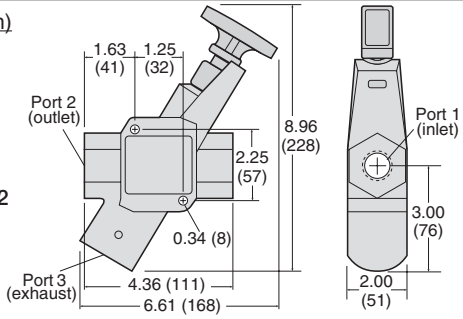
Port Size 1, 2	Port Size 3	Body Size	Valve Model Number*	C_v 1-2	C_v 2-3	Weight lb (kg)
3/8	3/4	1/2	Y1523B3102	3.64	2.81	1.5 (0.7)
1/2	3/4	1/2	Y1523B4102	4.86	3.51	1.5 (0.7)
3/4	3/4	1/2	Y1523B5112	5.09	2.91	1.5 (0.7)
3/4	1¼	1	Y1523B5102	10.08	8.56	3.2 (1.5)
1	1¼	1	Y1523B6102	11.07	8.45	3.2 (1.5)
1¼	1¼	1	Y1523B7112	11.86	8.46	3.2 (1.5)



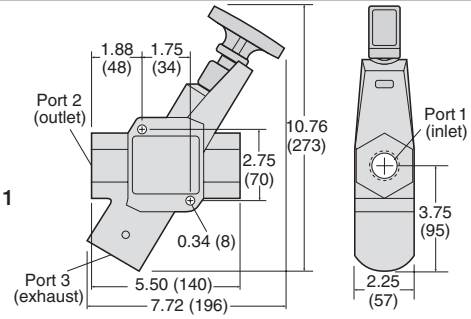
* NPT port threads. For BSPP threads, insert a "D" after "Y" to the model number, e.g., YD1523B3102.

Valve Dimensions – inches (mm)

Body Size 1/2



Body Size 1



Accessories & Options

Silencers

Port Size	Thread Type	Model Number*	Avg. C_v
3/4	Male - NPT	5500A5003	11.5
3/4	Male - BSPT	D5500A5003	11.5
1¼	Male - NPT	5500A7013	16.4
1¼	Male - BSPT	D5500A7013	16.4

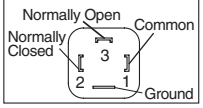
Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.

Pressure Switches

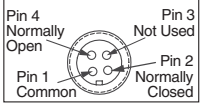
Connection Type	Model Number*	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	1/8 NPT

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).

EN Connector Pinout



M12 Connector Pinout



Pop-Up Indicator

Model Number**	988A30

** 1/8 NPT port threads.

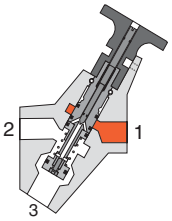
Multiple Lock-out Device

Model Number	356A30

VALVE OPERATION

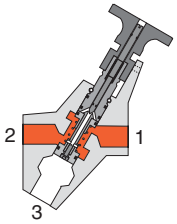
Valved Closed

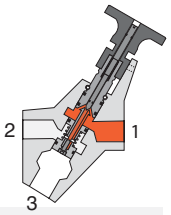
With a short push of the blue handle inward, the flow of supply is blocked and downstream air is exhausted via the exhaust port at the bottom of the valve. It is required by OSHA that the L-O-X® valves with EEZ-ON® operation be padlocked in this position to prevent the handle from being pulled outward inadvertently when potential for human injury exists or servicing machinery.



EEZ-ON® Function

With the blue handle pulled out, the adjustable needle valve (accessed through top of handle) setting determines the rate of pressure buildup.





Valve Open

After the blue handle is pulled out and pressure downstream has gradually increased, the valve automatically changes to a fully open state, allowing full flow from inlet to downstream. Full flow is achieved at approximately 50% of inlet pressure.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Spool.
Mounting Type: In-Line.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 0 to 150 psig (0 to 10 bar).

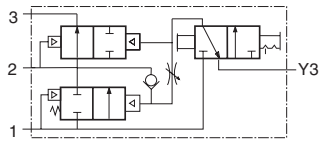
NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

F1

3-Way 2-Position Valve, Manual Lockout Controlled

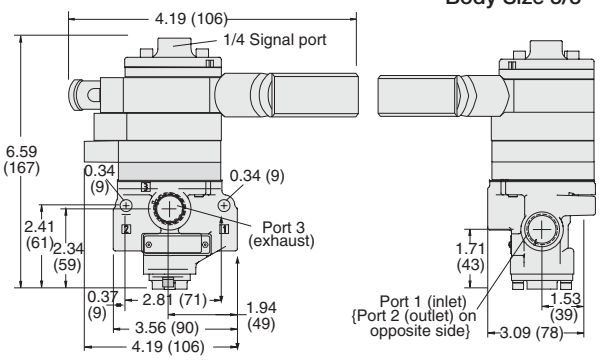
Port Size 1, 2	Port Size 3	Body Size	Valve Model Number*	C_v 1-2	C_v 2-3	Weight lb (kg)
1/4	1/2	3/8	Y2783B2055	2.5	3.1	4.3 (2.0)
3/8	1/2	3/8	Y2783B3055	3.6	5.3	4.3 (2.0)
1/2	1/2	3/8	Y2783B4065	3.3	5.3	4.3 (2.0)
1/2	1	3/4	Y2783B4055	10.0	13.0	4.8 (2.2)
3/4	1	3/4	Y2783B5055	12.0	15.0	4.8 (2.2)
1	1	3/4	Y2783B6065	12.0	16.0	4.8 (2.2)
1	1½	1¼	Y2783A6055	23.0	34.0	7.9 (3.6)
1½	1½	1¼	Y2783A7055	30.0	32.0	7.9 (3.6)
1½	1½	1¼	Y2783A8065	30.0	31.0	7.9 (3.6)



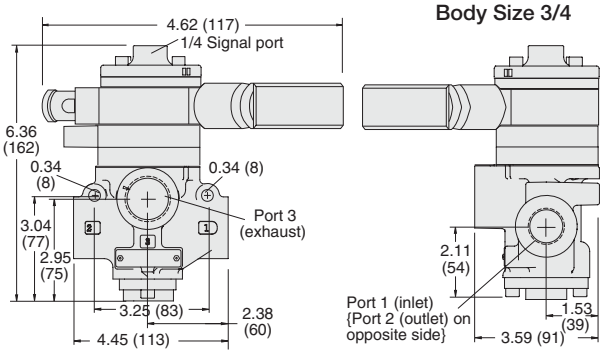
* NPT port threads. For BSPP threads, insert a "D" after "Y" to the model number, e.g., YD2783B2055.

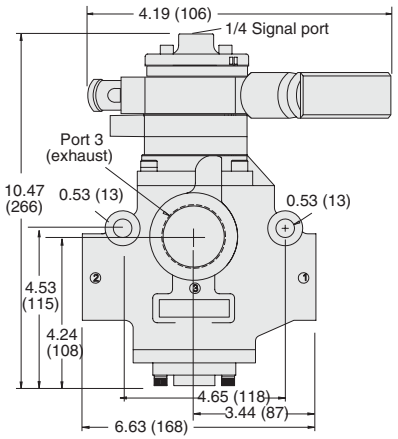
Valve Dimensions – inches (mm)

Body Size 3/8

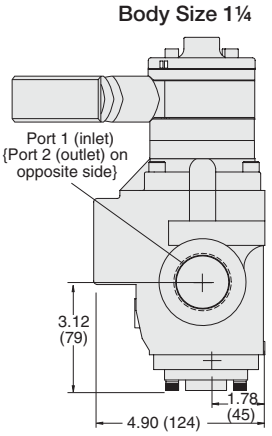


Body Size 3/4





Body Size 1¼



Accessories & Options

Silencers

Port Size	Thread Type	Model Number* NPT Threads	Model Number* BSPT Threads	Avg. C_v
1/2	Male	5500A4003	D5500A4003	4.7
1	Male	5500A6003	D5500A6003	14.6
1½	Female	5500A8001	D5500A8001	29.9

Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.

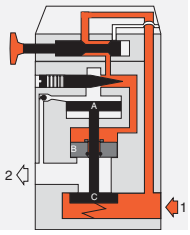
F

Multiple Lock-out Device	Model Number	356A30

VALVE OPERATION

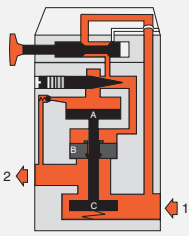
L-O-X® Valve (Handle) Open

Pilot air forces piston B downward to close the exhaust port. Pilot air flows past the adjusting needle, opens the ball check and begins slowly to pressurize the outlet line. At the same time, pressure is building up on piston A.



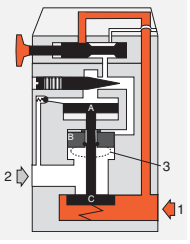
Full Pressure

With a short push of the red handle inward the flow of supply air is blocked and downstream air is exhausted via the exhaust port. Air pressure on the inlet and exhaust poppets produces a large closing force. The L-O-X® valve should be padlocked in this position to prevent the handle from being pulled outward inadvertently when potential for human injury exists or servicing machinery.



L-O-X® Valve (Handle) Closed

Pilot air forces piston B downward to close the exhaust port. Pilot air flows past the adjusting needle, opens the ball check and begins slowly to pressurize the outlet line. At the same time, pressure is building up on piston A.



STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: In-Line.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 40 to 150 psig (2.8 to 10.3 bar).

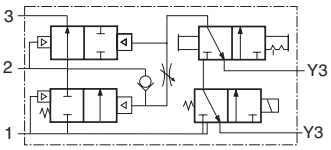
NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

F1

3-Way 2-Position Valve, Solenoid Pilot Controlled

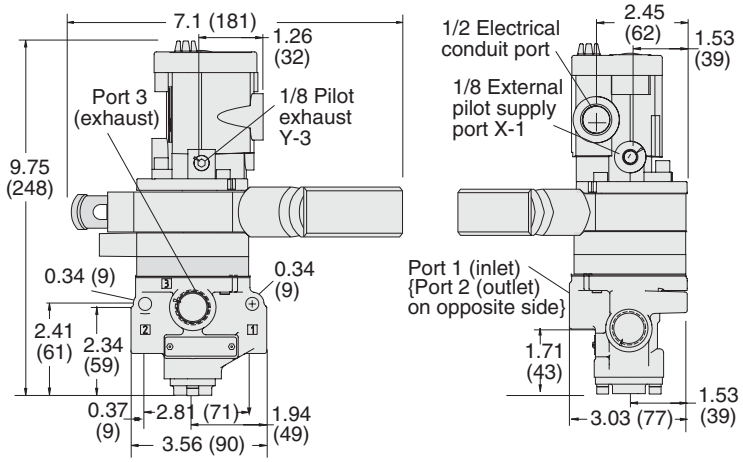
Port Size 1, 2	Port Size 3	Body Size	Valve Model Number*	C_v 1-2	C_v 2-3	Weight lb (kg)
1/4	1/2	3/8	Y2773B2075**	2.5	3.1	5.3 (2.4)
3/8	1/2	3/8	Y2773B3075**	3.6	5.3	5.3 (2.4)
1/2	1/2	3/8	Y2773B4085**	3.3	5.3	5.3 (2.4)
1/2	1	3/4	Y2773B4075**	10.0	13.0	6.0 (2.7)
3/4	1	3/4	Y2773B5075**	12.0	15.0	6.0 (2.7)
1	1	3/4	Y2773B6085**	12.0	16.0	6.0 (2.7)
1	1½	1¼	Y2773B6075**	23.0	34.0	9.5 (4.3)
1¼	1½	1¼	Y2773B7075**	30.0	32.0	9.5 (4.3)
1½	1½	1¼	Y2773B8085**	30.0	31.0	9.5 (4.3)



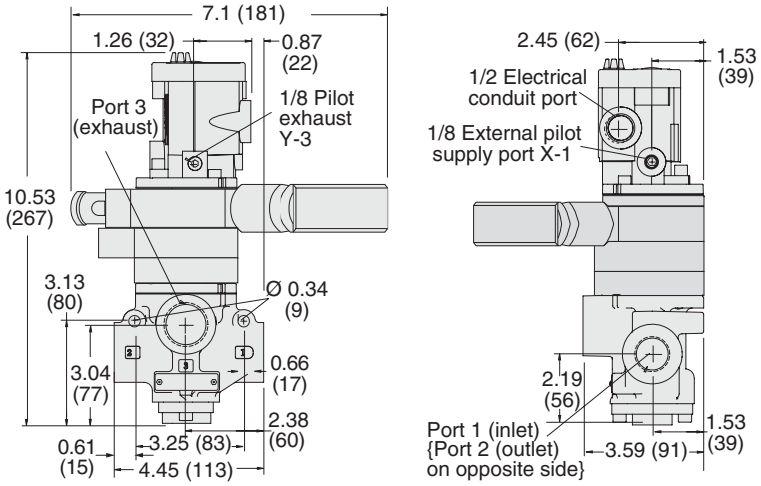
* NPT port threads. For BSPP threads, insert a "D" after "Y" to the model number, e.g., YD2773B2075.
**Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g.,Y2773B2075W.
For other voltages, consult ROSS.

Valve Dimensions – inches (mm)

Body Size 3/8



Body Size 3/4



F

STANDARD SPECIFICATIONS (for valves on this page):

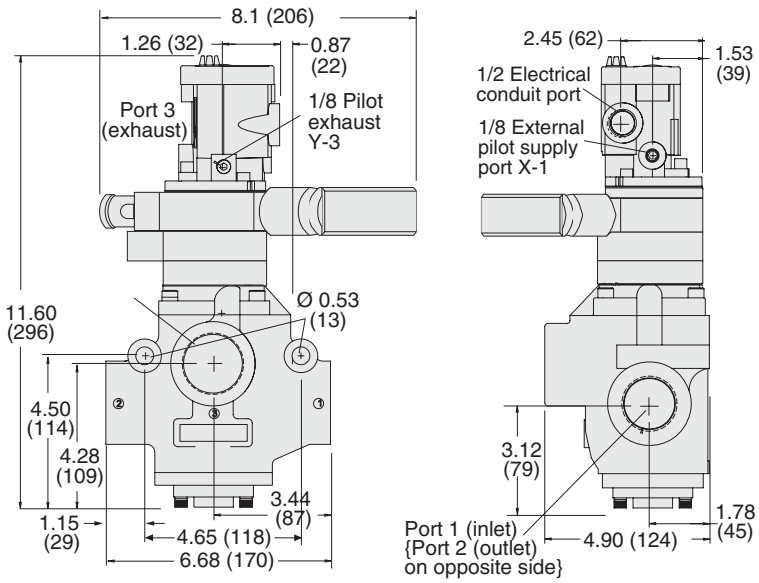
Construction: Poppet.
Mounting Type: In-Line.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 40 to 150 psig (2.8 to 10.3 bar).

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Valve Dimensions – inches (mm)

Body Size 1¼



Accessories & Options

Silencers

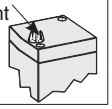
Port Size	Thread Type	Model Number* NPT Threads	Model Number* BSPT Threads	Avg. C_v
1/2	Male	5500A4003	D5500A4003	4.7
1	Male	5500A6003	D5500A6003	14.6
1½	Female	5500A8001	D5500A8001	29.9

Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum.
Flow Media: Filtered air.

Indicator Light Kit

	Kit Number	
	24 volts DC	110-120 volts AC 50-60 Hz
	862K87-W	862K87-Z

Indicator Light



Multiple Lock-out Device

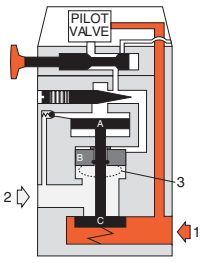
	Model Number	356A30

F

VALVE OPERATION

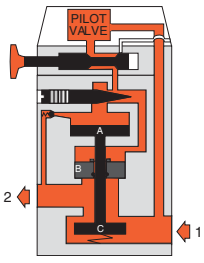
L-O-X® Handle Open and Pilot Not Energized

Pilot air is blocked by the pilot. Any downstream pressure forces piston B (which slides on the valve stem) upward. This opens the exhaust port and vents the downstream line.



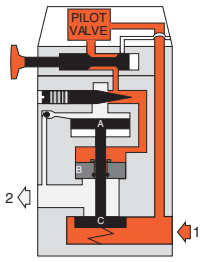
Full Pressure

When the pressure on piston A reaches approximately 50 percent of inlet pressure, it is forced downward and opens inlet poppet C. Full inlet pressure now flows freely to the outlet port.



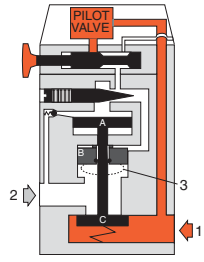
L-O-X® Handle Open and Pilot Energized

Pilot air forces piston B downward to close the exhaust port. Pilot air also flows past the adjusting needle, opens the ball check and begins slowly to pressurize the outlet line. At the same time, pressure is building up on piston A.



L-O-X® Handle Closed

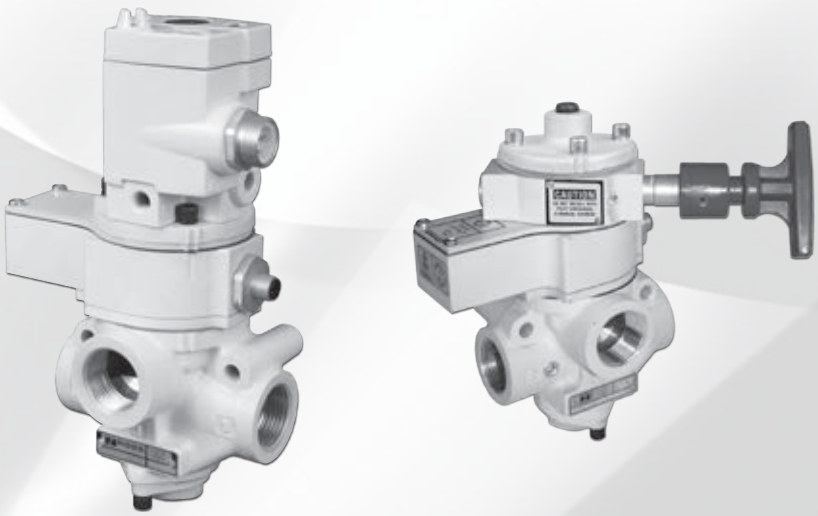
At any time the L-O-X® handle can be pushed inward, thereby closing off the flow of pilot air. Pilot air above pistons A and B is then vented to atmosphere. Piston A moves upward and closes inlet poppet C. Sliding piston B also moves upward to open the exhaust port and vents the downstream line.



F

ROSS CONTROLS®

SENSING VALVES SV27 SERIES



www.rosscontrols.com

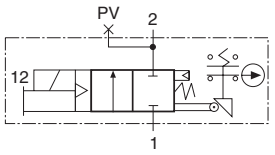
SENSING VALVES – KEY FEATURES

- Senses internal position & state
- Electrical feedback via DPST switch (Double-Pole Single-Throw)
- Directly operated safety-rated force-guided positive-break status switch (DPST)
- Poppet construction for near zero leakage & dirt tolerance
- A diagnostic coverage (DC) of 90% can be obtained by monitoring the safety switch status
- *Explosion proof solenoid pilot available, for more information consult ROSS*

VALVE TYPE/SERIES	DESCRIPTION		AVAILABLE INLET PORT SIZES										FUNCTIONS											Page
	Spool & Sleeve	Poppet	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	2	2½	2/2	3/2	3/4	4/2	5/2 Single	5/2 Double	5/3 Closed Center	5/3 Open Center	5/3 Pressure Center	Max Flow (Cv)	Solenoid Control	Pressure Controlled	
SV27 Series		■				■	■	■	■	■			■									29	■	■	F2.3 - F2.6
SV27 Series		■				■	■	■	■	■	■	■		■								71	■	■	F2.4 - F2.7
SV27 Series with Lockout Valve		■				■	■	■	■	■				■								32	■	■	F2.8 - F2.9
Air Entry Packages																									F2.10

2-Way 2-Position Valves, Solenoid Pilot Controlled

Port Size 1, 2	Body Size	Valve Model Number*	C_v 1-2	Weight lb (kg)
1/2	3/4	SV27NC105407PSAA**	7.7	4.6 (2.1)
3/4	3/4	SV27NC105507PSAA**	9.0	4.6 (2.1)
1	3/4	SV27NC105607PSAA**	9.0	4.6 (2.1)
1	1¼	SV27NC107607PSAA**	24	8.1 (3.7)
1¼	1¼	SV27NC107707PSAA**	29	8.1 (3.7)
1½	1¼	SV27NC107807PSAA**	29	8.1 (3.7)



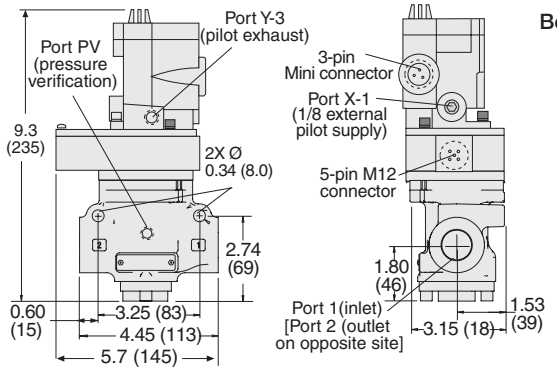
CONTROL CATEGORY 2

* NPT port threads. For BSPP threads, replace "N" in the model number with a "D", e.g., SV27DC105407PSAA1A.
** Insert voltage code: "1A"=110-120 volts, 50/60 Hz; "1D"= 24 volts DC; .e.g., SV27NC105407PSAA1A. For other voltages, consult ROSS.

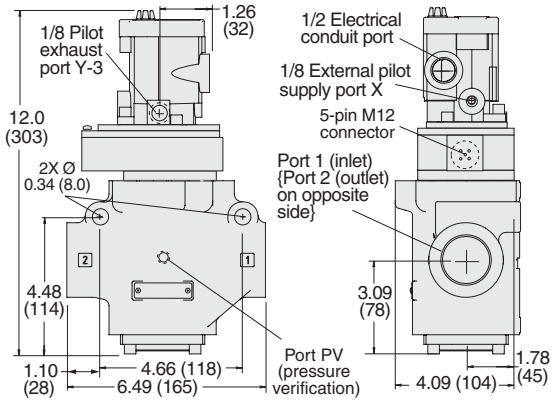
F2

Valve Dimensions – inches (mm)

Body Size 3/4



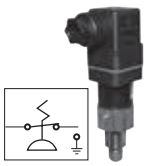
Body Size 1¼



Accessories & Options

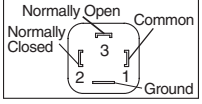
Pressure Switches	Connection Type	Model Number*	Port Threads
	EN 175301-803 Form A	586A86	1/8 NPT
	M12	1153A30	1/8 NPT

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).

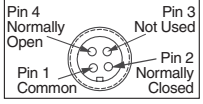


Pop-Up Indicator	Model Number**	988A30
	** 1/8 NPT port threads.	

EN Connector Pinout



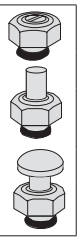
M12 Connector Pinout



Indicator Light Kit	
Kit Number	
24 volts DC	110-120 volts AC 50-60 Hz
862K87-W	862K87-Z

Manual Override Kits

BUTTON Type	Locking Type	Model Number*
FLUSH	Non-Locking	790K87
	Locking	792K87
EXTENDED	Non-Locking	791K87
EXTENDED with PALM	Non-Locking	984H87



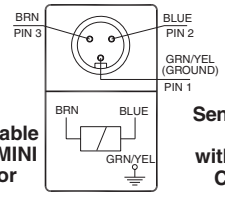
F

Preassembled Wiring Kits

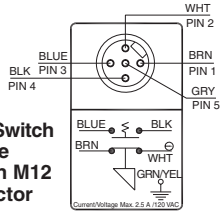
Kit Number*	Length meters (feet)
2239H77	4 (13.1)
2240H77	10 (32.8)

* Cable has one connector.

These kits include two cables with a cord grip on each cable. One cable has a 3-pin MINI connector for the solenoid, and one has a 5-pin M12 (Micro) connector for the sensing switch.



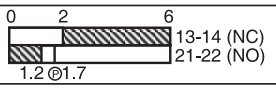
Solenoid Cable with 3-pin MINI Connector



Sensing Switch Cable with 5-pin M12 Connector

Integrated Double-Pole Single-Throw Switch (DPST) Switch States

Contact conditions during switch travel (0 to 6 mm).



For valves basic size 3/4 & 1-1/4, **the DPST switch is actuated whenever the valve is not in the normal home position.**

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: In-Line.
Solenoid Pilot: AC or DC power. Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 40 to 150 psig (2.8 to 10.3 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.

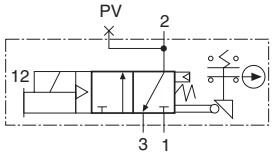
Switch Current/Voltage Max.: 2.5 A/120 volts AC.
Switch Current/Voltage Min.: 50 mA/24 volts DC.
NOTE: Electrical life of switch varies with conditions and voltage; rated in excess of 15 million cycles.

Functional Safety Data:
Category 2 PL d; B10d: Valve - 20,000,000, Switch – 2,000,000; PFHd: 2.35×10^{-7} ; MTTFd: 98.15 (n_{op}: 7360); DC (obtained by monitoring safety switch status): 90%; ROSS recommends testing the switch function and sealing for load holding valves every 8 hours.
Vibration/Impact Resistance: Calculated to BS EN 60068-2-27.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

F2

3-Way 2-Position Valve, Solenoid Pilot Controlled						
Port Size 1, 2	Port Size 3	Body Size	Valve Model Number*	C_v 1-2	C_v 2-3	Weight lb (kg)
1/2	1	3/4	SV27NC305407PSAA**	6.3	9.2	4.5 (2.0)
3/4	1	3/4	SV27NC305507PSAA**	7.7	11	4.5 (2.0)
1	1	3/4	SV27NC305607PSAA**	8.0	12	4.5 (2.0)
1	1½	1¼	SV27NC307607PSAA**	23	34	7.8 (3.5)
1¼	1½	1¼	SV27NC307707PSAA**	30	32	7.8 (3.5)
1½	1½	1¼	SV27NC307807PSAA**	30	31	7.8 (3.5)
1½	2½	2	SV27NC309807PSAA**	68	70	18.1 (8.2)
2	2½	2	SV27NC309907PSAA**	70	70	18.1 (8.2)
2½	2½	2	SV27NC309957PSAA**	70	71	18.1 (8.2)



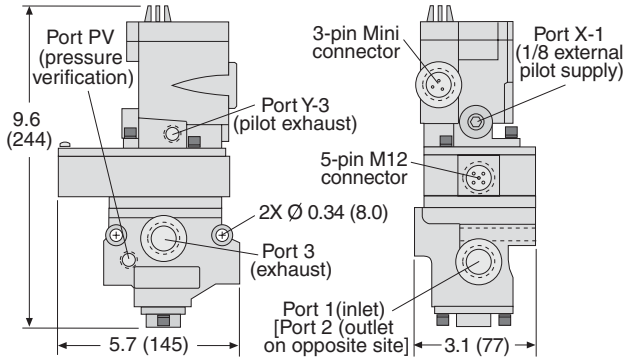
CONTROL CATEGORY 2

* NPT port threads. For BSPP threads, replace "N" in the model number with a "D", e.g., SV27DC305407PSAA1A.

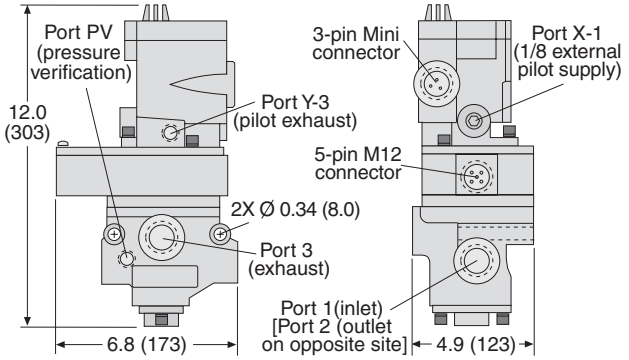
** Insert voltage code: "1A"=110-120 volts, 50/60 Hz; "1D"= 24 volts DC; .e.g., SV27NC305407PSAA1A. For other voltages, consult ROSS.

Valve Dimensions – inches (mm)

Body Size 3/4

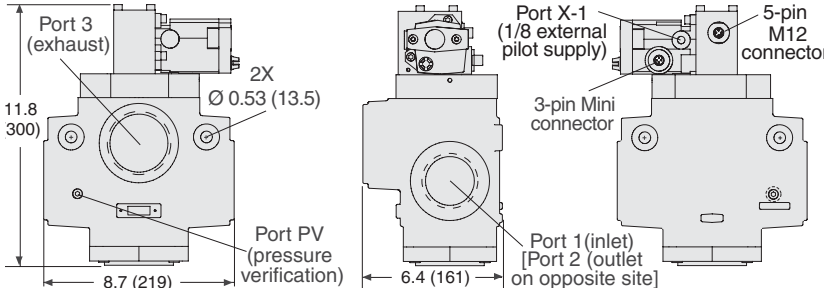


Body Size 1¼



F

Body Size 2



STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: In-Line.
Solenoid Pilot: AC or DC power. Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 40 to 150 psig (2.8 to 10.3 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.

Switch Current/Voltage Max.: 2.5 A/120 volts AC.
Switch Current/Voltage Min.: 50 mA/24 volts DC.
NOTE: Electrical life of switch varies with conditions and voltage; rated in excess of 15 million cycles.

Functional Safety Data:
Category 2 PL d; B10d: Valve - 20,000,000, Switch – 2,000,000; PFHd: 2.35×10^{-7} ; MTTFd: 98.15 (n_{op}: 7360); DC (obtained by monitoring safety switch status): 99%, ; ROSS recommends testing the switch function and sealing for load holding valves every 8 hours.
Vibration/Impact Resistance: Calculated to BS EN 60068-2-27.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Silencers

Port Size	Thread Type	Model Number*		Avg. C_v
		NPT Threads	BSPT Threads	
1	Male	5500A6003	D5500A6003	14.6
1½	Female	5500A8001	D5500A8001	29.9
2½	Female	5500A9002	D5500A9002	103.7

Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum.
Flow Media: Filtered air.

Port size 1 thru 1½

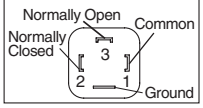
Port size 2½

Pressure Switches

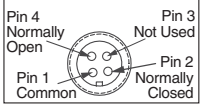
Connection Type	Model Number*	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	1/8 NPT

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).

EN Connector Pinout



M12 Connector Pinout



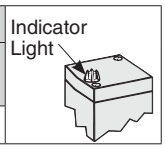
Pop-Up Indicator

Model Number**	988A30

** 1/8 NPT port threads.

Indicator Light Kit

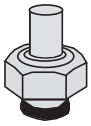
Kit Number	
24 volts DC	110-120 volts AC 50-60 Hz
862K87-W	862K87-Z



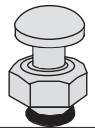
Manual Overrides

FLUSH BUTTON	
Locking Type	Kit Number
Non-Locking	790K87
Locking	792K87

EXTENDED BUTTON	
Locking Type	Kit Number
Non-Locking	791K87



EXTENDED BUTTON with PALM	
Locking Type	Kit Number
Non-Locking	984H87

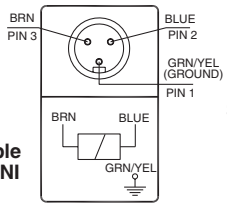


Preassembled Wiring Kits

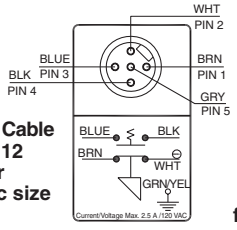
These kits include two cables with a cord grip on each cable. One cable has a 3-pin MINI connector for the solenoid, and one has a 5-pin M12 (Micro) connector for the sensing switch.

Kit Number*	Length meters (feet)
2239H77	4 (13.1)
2240H77	10 (32.8)

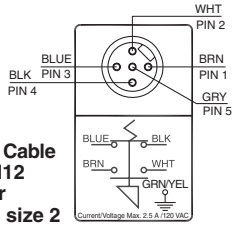
* Cable has one connector.



Solenoid Cable with 3-pin MINI Connector



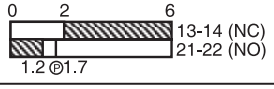
Sensing Switch Cable with 5-pin M12 Connector for valves basic size 3/4 &1¼



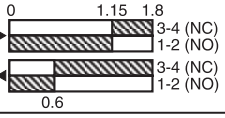
Sensing Switch Cable with 5-pin M12 Connector for valves basic size 2

Integrated Double-Pole Single-Throw Switch (DPST) Switch States
Contact conditions during switch travel (0 to 6 mm).

For basic size 3/4 & 1-1/4



For basic size 2



For valves basic size 3/4 & 1-1/4, the DPST switch is actuated whenever the valve is not in the normal home position.
For valves basic size 2, the DPST switch is only actuated whenever the valve is in the normal home position.

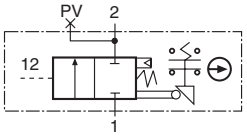
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

F2

F

2-Way 2-Position Valves, Pressure Controlled

Port Size 1, 2	Body Size	Valve Model Number*	C_v 1-2	Weight lb (kg)
1/2	3/4	SV27NC105405ASAA	7.7	3.4 (1.6)
3/4	3/4	SV27NC105505ASAA	9.0	3.4 (1.6)
1	3/4	SV27NC105605ASAA	9.0	3.4 (1.6)
1	1¼	SV27NC107605ASAA	24	6.7 (3.0)
1¼	1¼	SV27NC107705ASAA	29	6.7 (3.0)
1½	1¼	SV27NC107805ASAA	29	6.7 (3.0)



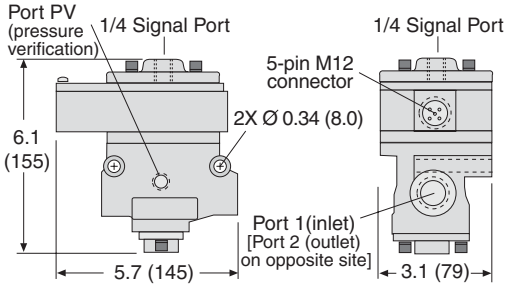
CONTROL CATEGORY 2

F2

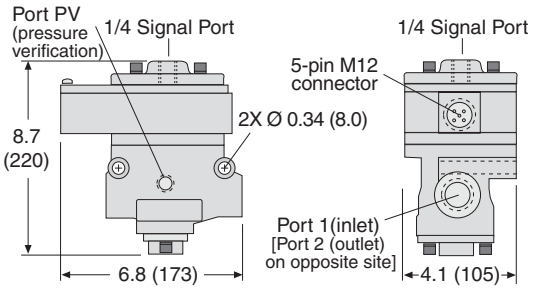
* NPT port threads. For BSPP threads, replace "N" in the model number with a "D", e.g., SV27ND105405ASAA.

Valve Dimensions – inches (mm)

Body Size 3/4



Body Size 1¼

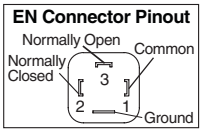


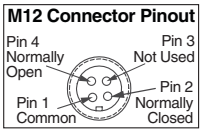
Not intended as a pressure trapping device; Please see Pilot Operated Check Sensing Valves, pages F4.13-F4.16.

Accessories & Options

Pressure Switches	Connection Type	Model Number*	Port Threads
	EN 175301-803 Form A	586A86	1/8 NPT
	M12	1153A30	1/8 NPT

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).





Pop-Up Indicator	Model Number**	988A30
	** 1/8 NPT port threads.	

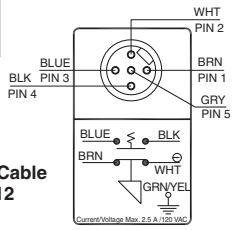
F

Preassembled Wiring Kits

Kit Number*	Length meters (feet)
2241H77	4 (13.1)
2242H77	10 (32.8)

* Cable has one connector.

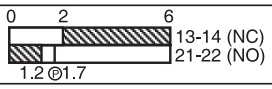
These kits include one cable with a cord grip. Cable has a 5-pin M12 (Micro) connector for the sensing switch.



Sensing Switch Cable with 5-pin M12 Connector

Integrated Double-Pole Single-Throw Switch (DPST) Switch States

Contact conditions during switch travel (0 to 6 mm).



For valves basic size 3/4 & 1-1/4, **the DPST switch is actuated whenever the valve is not in the normal home position.**

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: In-Line.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 40 to 150 psig (2.8 to 10.3 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.
Switch Current/Voltage Max.: 2.5 A/120 volts AC.
Switch Current/Voltage Min.: 50 mA/24 volts DC.

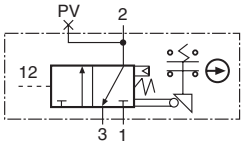
NOTE: Electrical life of switch varies with conditions and voltage; rated in excess of 15 million cycles.

Functional Safety Data: Category 2 PL d; B10d: Valve - 20,000,000, Switch – 2,000,000; PFHd: 2.35×10^{-7} ; MTTFd: 98.15 (n_{op}: 7360); DC (obtained by monitoring safety switch status): 90%; ROSS recommends testing the switch function and sealing for load holding valves every 8 hours.
Vibration/Impact Resistance: Calculated to BS EN 60068-2-27.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

3-Way 2-Position Valve, Pressure Controlled

Port Size 1, 2	Port Size 3	Body Size	Valve Model Number*	C_v 1-2	C_v 2-3	Weight lb (kg)
1/2	1	3/4	SV27NC305405ASAA	6.3	9.2	3.3 (1.5)
3/4	1	3/4	SV27NC305505ASAA	7.7	11	3.3 (1.5)
1	1	3/4	SV27NC305605ASAA	8.0	12	3.3 (1.5)
1	1½	1¼	SV27NC307605ASAA	23	34	6.4 (2.9)
1¼	1½	1¼	SV27NC307705ASAA	30	32	6.4 (2.9)
1½	1½	1¼	SV27NC307805ASAA	30	31	6.4 (2.9)
1½	2½	2	SV27NC309805ASAA	68	70	17.2 (7.8)
2	2½	2	SV27NC309905ASAA	70	70	17.2 (7.8)
2½	2½	2	SV27NC309955ASAA	70	71	17.2 (7.8)



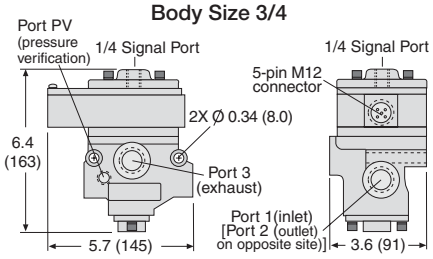
CONTROL CATEGORY 2

F2

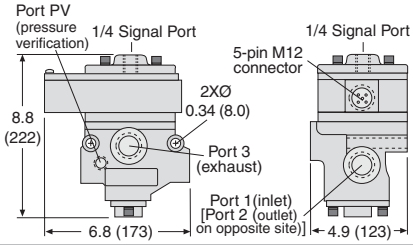
* NPT port threads. For BSPP threads, replace "N" in the model number with a "D", e.g., SV27DC305405ASAA.

Valve Dimensions – inches (mm)

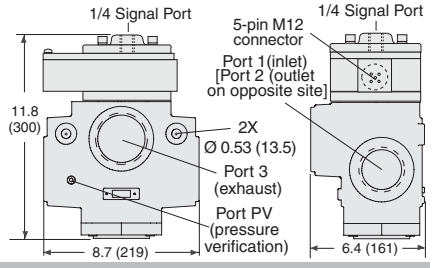
Body Size 3/4



Body Size 1¼



Body Size 2



Accessories & Options

Silencers

Port Size	Thread Type	Model Number* NPT Threads	Model Number* BSPT Threads	Avg. C_v
1	Male	5500A6003	D5500A6003	14.6
1½	Female	5500A8001	D5500A8001	29.9
2½	Female	5500A9002	D5500A9002	103.7

Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.

Port size 1 & 1½

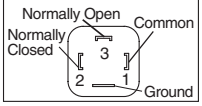
Port size 2½

Pressure Switches

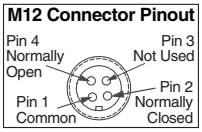
Connection Type	Model Number*	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	1/8 NPT

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).

EN Connector Pinout



M12 Connector Pinout



Pop-Up Indicator

Model Number**	988A30
** 1/8 NPT port threads.	

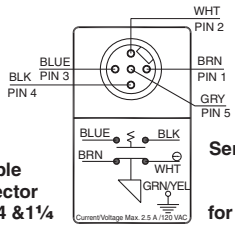
F

Preassembled Wiring Kits

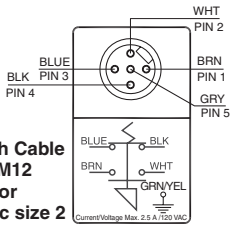
Kit Number*	Length meters (feet)
2241H77	4 (13.1)
2242H77	10 (32.8)

* Cable has one connector.

These kits include one cable with a cord grip. Cable has a 5-pin M12 (Micro) connector for the sensing switch.

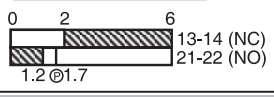


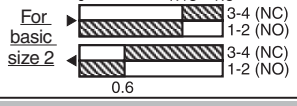
Sensing Switch Cable with 5-pin M12 Connector for valves basic size 3/4 &1¼



Sensing Switch Cable with 5-pin M12 Connector for valves basic size 2

Integrated Double-Pole Single-Throw Switch (DPST) Switch States
Contact conditions during switch travel (0 to 6 mm).





For valves basic size 3/4 & 1-1/4, the DPST switch is actuated whenever the valve is not in the normal home position.
For valves basic size 2, the DPST switch is only actuated whenever the valve is in the normal home position.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: In-Line.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 40 to 150 psig (2.8 to 10.3 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.
Switch Current/Voltage Max.: 2.5 A/120 volts AC.
Switch Current/Voltage Min.: 50 mA/24 volts DC.

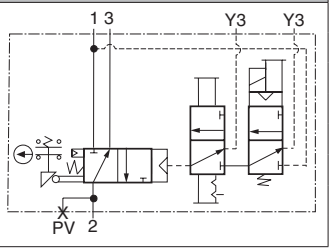
NOTE: Electrical life of switch varies with conditions and voltage; rated in excess of 15 million cycles.

Functional Safety Data:
Category 2 PL d; B10d: Valve - 20,000,000, Switch – 2,000,000; PFHd: $2.35x10^{-7}$; MTTFd: 98.15 (n_{op}: 7360); DC (obtained by monitoring safety switch status): 99% ; ROSS recommends testing the switch function and sealing for load holding valves every 8 hours.
Vibration/Impact Resistance: Calculated to BS EN 60068-2-27.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

3-Way 2-Position Valve, Solenoid Pilot Controlled

Port Size 1, 2	Port Size 3	Body Size	Valve Model Number*	C_v 1-2	C_v 2-3	Weight lb (kg)
1/2	1	3/4	SV27NC3L5407PSAA**	6.3	9.2	5.5 (2.5)
3/4	1	3/4	SV27NC3L5507PSAA**	7.7	11	5.5 (2.5)
1	1	3/4	SV27NC3L5607PSAA**	8.0	12	5.5 (2.5)
1	1½	1¼	SV27NC3L7607PSAA**	23	34	9.0 (4.0)
1¼	1½	1¼	SV27NC3L7707PSAA**	30	32	9.0 (4.0)
1½	1½	1¼	SV27NC3L7807PSAA**	30	32	9.0 (4.0)



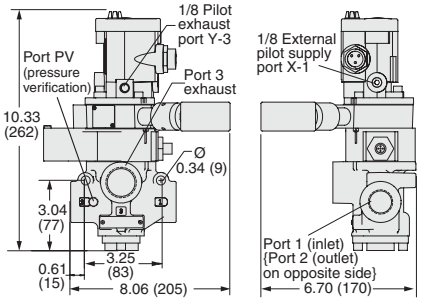
CONTROL CATEGORY 2

* NPT port threads. For BSPP threads, replace "N" in the model number with a "D", e.g., SV27DC3L5407PSAA1A.
**Insert voltage code: "1A"=110-120 volts AC, 50/60 Hz; "1D" for 24 volts DC; e.g., SV27NC3L5407PSAA1A. For other voltages, consult ROSS.

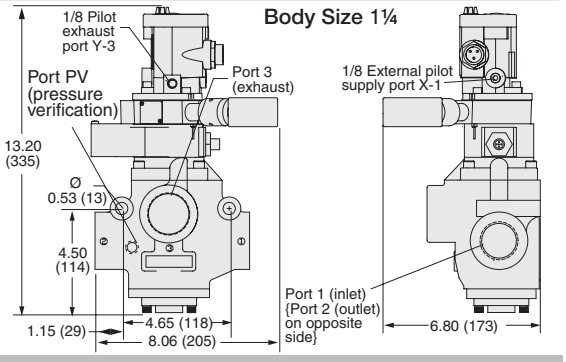
F2

Valve Dimensions – inches (mm)

Body Size 3/4



Body Size 1¼



Accessories & Options

Silencers

Port size 1 & 1½

Port size 2½

Port Size	Thread Type	Model Number* NPT Threads	Model Number* BSPT Threads	Avg. C_v
1	Male	5500A6003	D5500A6003	14.6
1½	Female	5500A8001	D5500A8001	29.9
2½	Female	5500A9002	D5500A9002	103.7

Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.

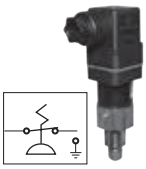
Indicator Light Kit

Kit Number	
24 volts DC	110-120 volts AC 50-60 Hz
862K87-W	862K87-Z

Pressure Switches

Connection Type	Model Number*	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	1/8 NPT

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).

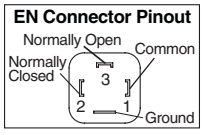


Pop-Up Indicator

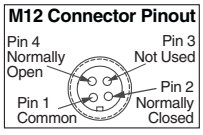
Model Number**	988A30

** 1/8 NPT port threads.

EN Connector Pinout



M12 Connector Pinout



F

Multiple Lock-out Device

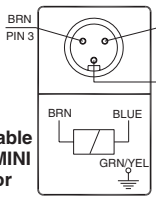
Model Number	356A30

Preassembled Wiring Kits

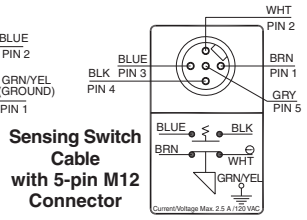
These kits include two cables with a cord grip on each cable. One cable has a 3-pin MINI connector for the solenoid, and one has a 5-pin M12 (Micro) connector for the sensing switch.

Kit Number*	Length meters (feet)
2239H77	4 (13.1)
2240H77	10 (32.8)

* Cable has one connector.



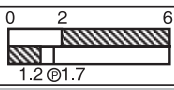
Solenoid Cable with 3-pin MINI Connector



Sensing Switch Cable with 5-pin M12 Connector

Integrated Double-Pole Single-Throw Switch (DPST) Switch States

Contact conditions during switch travel (0 to 6 mm).



For valves basic size 3/4 & 1-1/4, **the DPST switch is actuated whenever the valve is not in the normal home position.**

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: In-Line.
Solenoid Pilot: AC or DC power. Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 40 to 150 psig (2.8 to 10.3 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.

Switch Current/Voltage Max.: 2.5 A/120 volts AC.
Switch Current/Voltage Min.: 50 mA/24 volts DC.
Manual Override: Flush; rubber, non-locking.
NOTE: Electrical life of switch varies with conditions and voltage; rated in excess of 15 million cycles.

Functional Safety Data:
Category 2 PL d; B10d: Valve - 20,000,000, Switch – 2,000,000; PFHd: $2.35x10^{-7}$; MTTFd: 98.15 (n_{op}: 7360); DC (obtained by monitoring safety switch status): 99% ; ROSS recommends testing the switch function and sealing for load holding valves every 8 hours.
Vibration/Impact Resistance: Calculated to BS EN 60068-2-27.

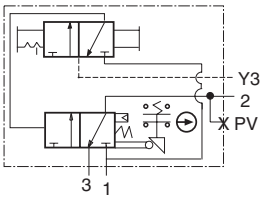
NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

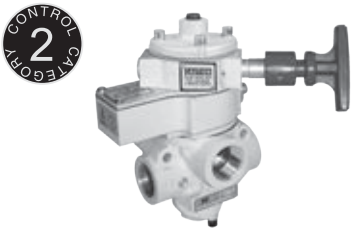
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

3-Way 2-Position Valve, Pressure Controlled

Port Size 1, 2	Port Size 3	Body Size	Valve Model Number*	C_v 1-2	C_v 2-3	Weight lb (kg)
1/2	1	3/4	SV27NC3L5405ASAA	6.3	9.2	4.3 (2.0)
3/4	1	3/4	SV27NC3L5505ASAA	7.7	11	4.3 (2.0)
1	1	3/4	SV27NC3L5605ASAA	8.0	12	4.3 (2.0)
1	1½	1¼	SV27NC3L7605ASAA	23	34	7.4 (3.4)
1¼	1½	1¼	SV27NC3L7705ASAA	30	32	7.4 (3.4)
1½	1½	1¼	SV27NC3L7805ASAA	30	32	7.4 (3.4)

* NPT port threads. For BSPP threads, replace "N" in the model number with a "D", e.g., SV27DC3L5405ASAA.

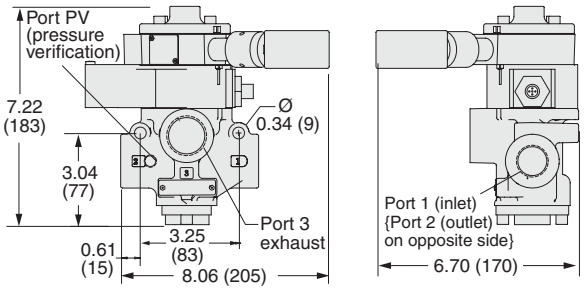




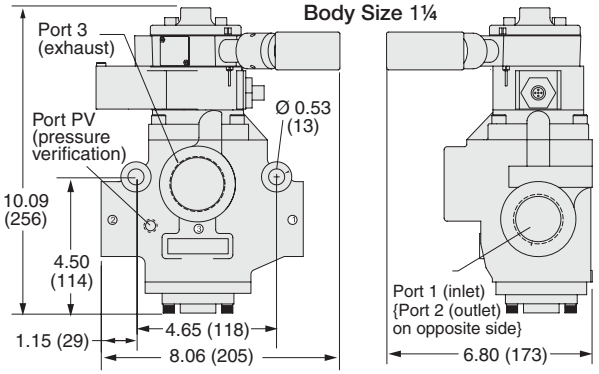
F2

Valve Dimensions – inches (mm)

Body Size 3/4



Body Size 1¼



Accessories & Options

Silencers

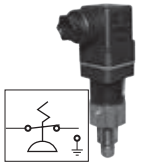
Port Size	Thread Type	Model Number* NPT Threads	Model Number* BSPP Threads	Avg. C_v
1	Male	5500A6003	D5500A6003	14.6
1½	Female	5500A8001	D5500A8001	29.9

Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.

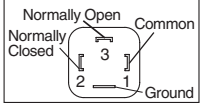
Pressure Switches

Connection Type	Model Number*	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	1/8 NPT

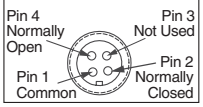
*Pressure switch closes on falling pressure of 5 psig (0.34 bar).



EN Connector Pinout



M12 Connector Pinout



Multiple Lock-out Device

Model Number	356A30

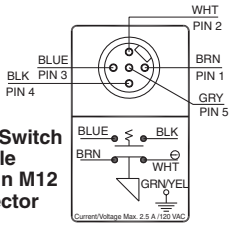
F

Preassembled Wiring Kits

Kit Number*	Length meters (feet)
2241H77	4 (13.1)
2242H77	10 (32.8)

* Cable has one connector.

These kits include one cable with a cord grip. Cable has a 5-pin M12 (Micro) connector for the sensing switch.



Sensing Switch Cable with 5-pin M12 Connector

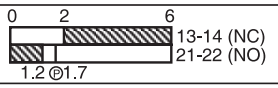
Pop-Up Indicator

Model Number**	988A30

** 1/8 NPT port threads.

Integrated Double-Pole Single-Throw Switch (DPST) Switch States

Contact conditions during switch travel (0 to 6 mm).



For valves basic size 3/4 & 1-1/4, **the DPST switch is actuated whenever the valve is not in the normal home position.**

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: In-Line.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 40 to 150 psig (2.8 to 10.3 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.
Switch Current/Voltage Max.: 2.5 A/120 volts AC.
Switch Current/Voltage Min.: 50 mA/24 volts DC.

NOTE: Electrical life of switch varies with conditions and voltage; rated in excess of 15 million cycles.

Functional Safety Data:
Category 2 PL d; B10d: Valve - 20,000,000, Switch – 2,000,000; PFHd: 2.35×10^{-7} ; MTTFd: 98.15 (n_{op}: 7360); DC (obtained by monitoring safety switch status): 99% ; ROSS recommends testing the switch function and sealing for load holding valves every 8 hours.
Vibration/Impact Resistance: Calculated to BS EN 60068-2-27.

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

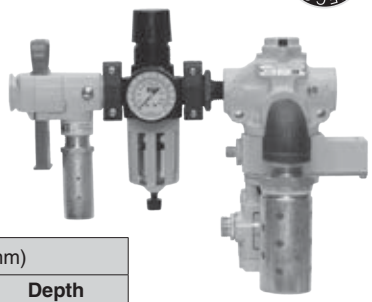
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

F2

SV27 Sensing Valves, Manual Lockout L-O-X® Valves with Integrated Filter/Regulator

CONTROL CATEGORY 2

Pre-engineered panel-mounted design with air entry via filter and regulator "FR", or filter, regulator, and lubricator "FRL".
Includes 3/2 Normally Closed Sensing Valve which senses poppet position and state.
Electrical feedback via DPST switch (Double-Pole Single-Throw).
Applications include Air Dump and Trapped-Pressure Release.
Mounting plate included.



Air Entry Combination	Port Size		Model Number*	Air Entry Type	C_v		Dimensions inches (mm)		
	1, 2	3			1-2	2-3	Length	Width	Depth
Cat-2 with SV27	1/2	1	RC208-09**	FR	6.3	9.2	14.80 (374.9)	11.00 (279.0)	6.60 (167.7)
Cat-2 with SV27	1/2	1	RC208L-09**	FRL	6.3	9.2	14.80 (374.9)	11.00 (279.0)	6.60 (167.7)

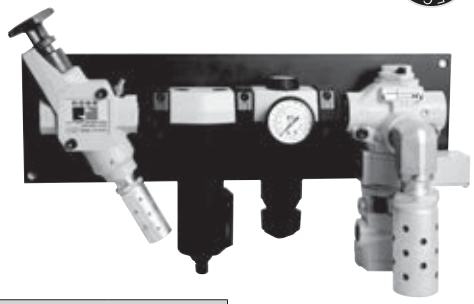
* NPT pressure port threads.
** Specify voltage when ordering. Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., RC208-09W.
M12 connectors available, consult ROSS.
Standard Air Entry Packages supplied with metal bowl and manual drain. For automatic drain insert an "A" before the dash (-) in the model number, e.g., RC208A-09.

Custom designs available, consult ROSS.
Explosion proof solenoid pilot available, for more information consult ROSS.

SV27 Sensing Valves, Manual Lockout L-O-X® Valves with Filter and Regulator

CONTROL CATEGORY 2

Pre-engineered panel-mounted design with air entry via filter and regulator "FR", or filter, regulator, and lubricator "FRL"
Includes 3/2 Normally Closed Sensing Valve .
Applications include Air Dump and Trapped-Pressure Release.
Mounting plate included.



F

Air Entry Combination	Port Size		Model Number*	Air Entry Type	C_v		Dimensions inches (mm)		
	1, 2	3			1-2	2-3	Length	Width	Depth
Cat-2 with SV27	1/2	1/2	RC208-06**	FR	6.3	9.2	23.0 (585)	12.8 (326)	6.7 (171)
Cat-2 with SV27	1/2	1/2	RC208L-06**	FRL	7.7	11	23.0 (585)	12.8 (326)	6.7 (171)
Cat-2 with SV27	3/4	3/4	RC212-06**	FR	8.0	12	28.0 (712)	17.0 (432)	9.5 (242)
Cat-2 with SV27	3/4	3/4	RC212L-06**	FR	6.3	9.2	23.0 (585)	12.8 (326)	6.7 (171)
Cat-2 with SV27	1	1	RC216-06**	FRL	7.7	11	23.0 (585)	12.8 (326)	6.7 (171)
Cat-2 with SV27	1	1	RC216L-06**	FRL	8.0	12	31.8 (808)	17.0 (432)	9.5 (242)

* NPT pressure port threads.
** Specify voltage when ordering. Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., RC208-06W.
M12 connectors available, consult ROSS.
Standard Air Entry Packages supplied with metal bowl and manual drain. For automatic drain insert an "A" before the dash (-) in the model number, e.g., RC208A-06.

Custom designs available, consult ROSS.
Explosion proof solenoid pilot available, for more information consult ROSS.

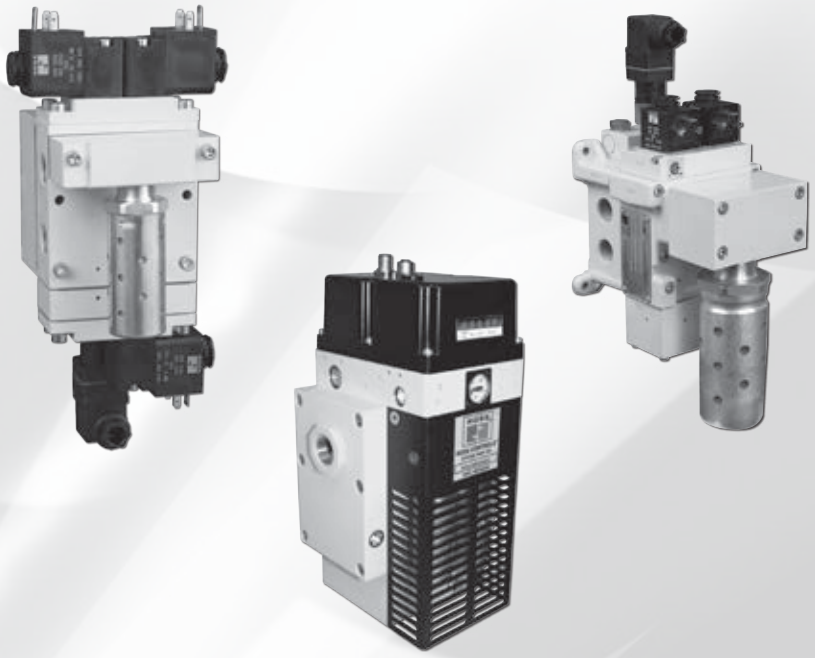
NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

F

ROSS CONTROLS®

Double Valves for Control Reliable Energy Isolation DM¹ and DM²® Series



www.rosscontrols.com

CONTROL RELIABLE DOUBLE VALVES DM SERIES – KEY FEATURES

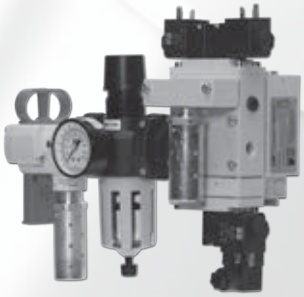
- Rapid response time to minimize stopping time
- Status Indicator switch for valve condition (ready to run) feedback
- Highly contaminant tolerant poppet construction
- Explosion proof solenoid pilot available, for more information consult ROSS

This valves are not designed for controlling clutch/brake mechanisms on mechanical power presses, see DM2® series D valves for mechanical power press applications.

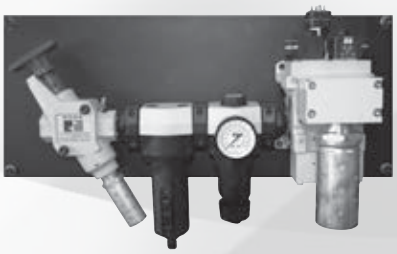
Control Reliable Double Valves with Dynamic Monitoring

Control Reliable Double Valves With Dynamic Monitoring & Memory

Control Reliable Modular Double Valves with Integrated Soft Start



Air Entry Packages Control Reliable Energy Isolation Lockout L-O-X® Valves with Integrated Filter/Regulator



VALVE TYPE/SERIES	Category	AVAILABLE PORT SIZES						MAX. FLOW Cv							RESET		Page
								Port Size						Integrated Soft Start	Automatic	Solenoid	
		1/4	3/8	1/2	3/4	1	1½	1/4	3/8	1/2	3/4	1	1½				
DM[1] E	4	■	■					2.4	2.4						■		F3.3 - F3.4
DM[1] C	4	■	■	■	■	■		2.6	2.6	10	13	13			■		F3.5 - F3.7
DM[1] Series E & C Preassembled Wiring Kits																	F3.8
DM[2®] E	4	■	■					2.4	2.4							■	F3.9 - F3.10
DM[2®] Series C Preassembled Wiring Kits																	F3.11
DM[2®] C	4	■	■	■	■	■	■			10	13	20	64			■	F3.12 - F3.14
DM[2®] Series C Preassembled Wiring Kits																	F3.15
M DM[2®]	4				■						8.4			■		■	F3.16 - F3.18
Air Entry Packages																	F3.19 - F3.20

Dynamic Monitoring: Monitoring and air flow control functions are integrated into two identical valve elements for CAT 4 applications. The valve exhausts downstream air if asynchronous movement of valve elements occurs during actuation or de-actuation, resulting in a residual outlet pressure of less than 1% of supply. If the abnormality clears itself, the valve will return to the ready-to-run state; there is no memory of the abnormal behavior, as in the ROSS DM[2®] Series E and DM[2®] Series C products that require an intentional reset following lockout.

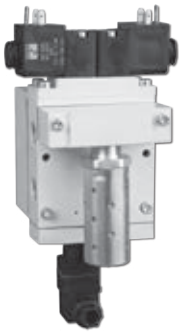
Basic 3/2 Normally Closed Valve Function: Dirt tolerant, wear compensating poppet design for quick response and high flow capacity. PTFE back-up rings on pistons to enhance valve endurance – operates with or without inline lubrication.

Ready-to-run: If an abnormality clears itself upon the removal of electricity to both solenoids, it will be ready-to-run again. It does not remember the abnormality and stay in a locked-out state until intentionally reset. Therefore, cumulative abnormalities may go undetected.

Status Indicator: Includes a pressure switch with both normally open (NO) and normally closed (NC) contacts to provide status feedback to the control system indicating whether the valve is in the "ready-to-run" condition or has experienced abnormal function. This indicator only reports status, it is not part of a lockout function.

Silencers: All models include high flow, clog resistant silencers.

Mounting: Inline mounted with BSPP or NPT pipe threads. Inlet and outlet ports on both sides provide for flexible piping (plugs for unused ports included).



ISO 13849-1:2006
Category 4
PL e applications

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

DM1E	N	A	2	0	A	3	1	

Thread
BSPP D
NPT N

Revision Level

Basic Size

Base Port Size
2 — 1/4 inlet – 1/4 outlet 0; 3/8 inlet – 3/8 outlet 1
Exhaust port size 1/2"

Voltage*
24 volts DC A
110 volts AC, 50 Hz / 120 volts AC, 50/60 Hz B
* For other voltages consult ROSS.

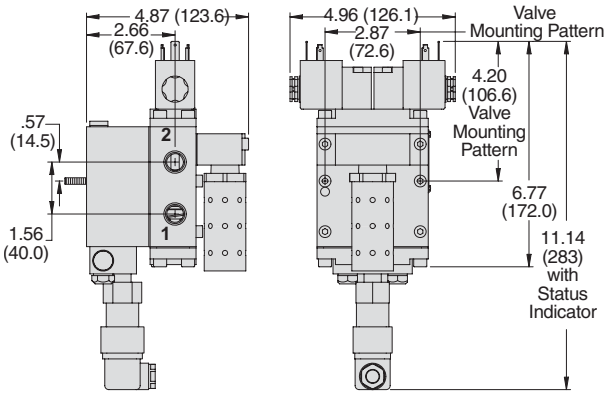
Automatic Reset Type

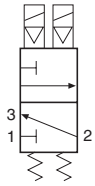
Status Indicator
Yes 1
No X

Connection Type
EN 175301-803 Form A* (connector not included) Blank
M12 (connector included) 005
*See options for connectors or wiring kits.

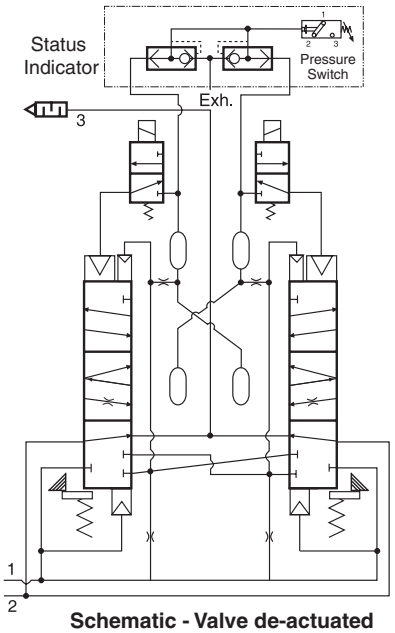
Inlet Port Size	Cv 1-2	Cv 2-3	Weight lb (Kg)
1/4	1.3	2.4	5.0 (2.27)
3/8	2.2	2.4	5.0 (2.27)

Valve Dimensions – inches (mm)





Simplified Schematic



Schematic - Valve de-actuated

Explosion proof solenoid pilot available, for more information consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Dual poppet.
Mounting Type: Line mounted.
Pilot Solenoid: According to VDE 0580. Enclosure rating according to DIN 400 50 IP 65. Three solenoids, rated for continuous duty.
Standard Voltages/Pilot Solenoids Power Consumption (each solenoid): 24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz.
5.8 watts nominal on AC and DC; 6.5 watts maximum on AC and DC.
Enclosure Rating: IP65, IEC 60529.
Electrical Connection: EN 175301-803 Form A, or M12.
Ambient Temperature: 15° to 122°F (-10° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered, lubricated or unlubricated air (mineral oils according to DIN 51519, viscosity classes 32-46).

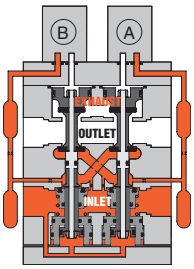
Inlet Pressure: 30 to 120 psig (2 to 8.3 bar).
Pressure Switch (Status Indicator) Rating:
Contacts - 5 amps at 250 volts AC, or 5 amps at 30 volts DC.
Monitoring: Dynamically, cyclically, internally during each actuating and de-actuating movement.
Mounting Orientation: Preferably horizontally (valve on top of base) or vertically with pilot solenoids on top.

Functional Safety Data: Category 4 PL e; B10d: 20,000,000; PFHd: 4.29×10^{-8} ; MTTFd: 100 (n_{op}: 662400).
Certifications: CE Marked for applicable directives, DGUV Test, CSA/UL, TSSA for appropriately tested valves.
Vibration/Impact Resistance: Tested to BS EN 60068-2-27.

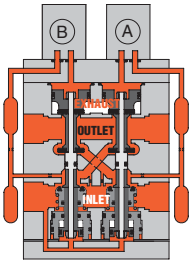
This valve is not designed for controlling clutch/brake mechanisms on mechanical power presses, see DM2® series D for mechanical power press applications.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

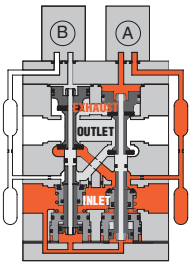
Valve de-actuated (ready-to-run): The flow of inlet air pressure into the crossover passages from the inlet chamber is restricted by orifices that allow air pressure to bypass the lower inlet poppets. Flow is sufficient to quickly pressurize the pilot supply/timing chambers on both sides A and B. The upper inlet poppets prevent air flow from the crossover passages into the outlet chamber. Air pressure acting on the inlet poppets and return pistons securely hold the valve elements in the de-actuated position. (Internal air passages shown out of the valve body for clarity.)



Valve actuated: Energizing the pilot solenoids simultaneously applies pressure to both pistons, forcing the internal parts to move to their actuated position, where inlet air flow to outlet is open and both exhaust poppets are closed. The outlet is then quickly pressurized, and pressure in the inlet, crossovers, outlet, and timing chambers are quickly equalized. De-energizing the main solenoids causes the valve elements to return to the ready-to-run (de-actuated) position.



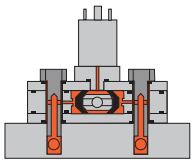
Asynchronous Operation: If the valve elements operate in a sufficiently asynchronous manner on ACTUATION, the valve will shift into a position where one crossover and its related timing chambers will be exhausted, and the other crossover and its related timing chambers will be pressurized.
In the illustration, side B is in the de-actuated position, but has no pilot air available to actuate with and has full pressure on its upper and lower inlet poppets and return piston to hold it in place.
Inlet air flow on side B into its crossover is restricted and flows through the open upper inlet poppet on side A, through the outlet into the exhaust port, and from the exhaust port to atmosphere. Residual pressure in the outlet is less than 1% of inlet pressure. Once the main solenoids are de-energized, actuating pressure is removed from the top of the main pistons and then the lower inlet poppet return spring along with inlet air pressure acting on the side A return piston will push side A back into the de-actuated position. Inlet air pressurizes the crossovers and volume chambers. Pressure in the crossovers helps hold the upper inlet poppets on seat. The valve will then be in the ready-to-run position. On the next attempt to actuate normally, if side B is still unable to actuate synchronously with side A, the same sequence of events described above will occur again.



Valve in restricted outlet to exhaust state

WARNING: If asynchronous operation occurs while DE-ACTUATING, the pilot supply/timing chambers on one side will still be exhausted as described above. However, this could be a temporary situation because the cause of the asynchronous operation may be able to correct itself allowing the stuck or slow acting side of the valve to eventually move back into the de-actuated position. Once the slow or stuck side has de-actuated, the pilot supply/timing chambers that were exhausted will then repressurize. If an external monitoring system is only checking the status indicator periodically this fault signal could be missed. The machine's safety system must be designed to ensure that this does not cause a hazardous situation.

Status Indicator: The status indicator pressure switch will actuate when the main valve is operating normally, and will de-actuate when the main valve operation is sufficiently asynchronous or inlet pressure is removed. This device is not part of the valve lockout function, but, rather, only reports the status of the main valve.



Status indicator in normal ready-to-run position

Options

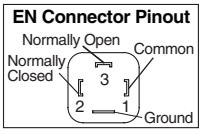
Electrical Connectors	Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
					Without Light	Lighted Connector	
						24 Volts DC	120 Volts AC
	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z
	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	10-mm	371K77	383K77-W	383K77-Z
	EN 175301-803 Form A	Connector for threaded conduit (1/2 inch electrical conduit fittings)	–	–	723K77	724K77-W	724K77-Z
	EN 175301-803 Form A	Connector Only	–	–	937K87	936K87-W	936K87-Z

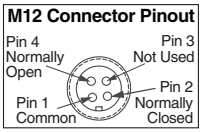
CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

Downstream Pressure Monitoring

Pressure Switches		
Connection Type	**Model Number**	**Port Threads**
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	1/8 NPT

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).





Redundant Downstream Feedback Switch	Model Number	Port Threads
	RC26-13	3/8 NPT

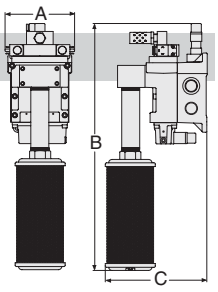
- May be installed downstream on all double valves
- Provides a redundant means to verify the release of downstream pressure to next obstruction
- Factory preset, 5 psi (0.3 bar) - falling

High-Flow, High Reduction Silencer Kits

Basic Size	Kit Number*		Avg. C_V	Dimensions inches (mm)			
	NPT Threads	BSPP Threads		A	B (NPT)	B (BSPP)	C
2	2323H77	2328H77	256 (121)	4.96 (126.1)	14.24 (361.7)	16.05 (407.7)	5.68 (144.3)

* Kits include all plumbing required for installation. **Pressure Range:** 125 psig (8.6 bar) maximum.

Designed to improve equipment performance and reduce the Exponentially Perceived Noise (EPNdB) in the 35–40 dB range.



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Dynamic Monitoring: Monitoring and air flow control functions are integrated into two identical valve elements for CAT 4 applications. The valve exhausts downstream air if asynchronous movement of valve elements occurs during actuation or de-actuation, resulting in a residual outlet pressure of less than 1% of supply. If the abnormality clears itself, the valve will return to the ready-to-run state; there is no memory of the abnormal behavior, as in the ROSS DM[2®] Series E and DM[2®] Series C products that require an intentional reset following lockout.

Basic 3/2 Normally Closed Valve Function: Dirt tolerant, wear compensating poppet design for quick response and high flow capacity. PTFE back-up rings on pistons to enhance valve endurance – operates with or without inline lubrication.

Ready-to-run: If an abnormality clears itself upon the removal of electricity to both solenoids, it will be ready-to-run again. It does not remember the abnormality and stay in a locked-out state until intentionally reset. Therefore, cumulative abnormalities may go undetected.

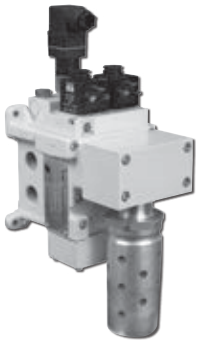
Status Indicator: Includes a pressure switch with both normally open (NO) and normally closed (NC) contacts to provide status feedback to the control system indicating whether the valve is in the "ready-to-run" condition or has experienced abnormal function. MUST be integrated into machine controls in order to prevent run signal until fault is cleared in valve. This indicator only reports status, it is not part of a lockout function.

Silencers: All models include high flow, clog resistant silencers.

Mounting: Base mounted – with BSPP or NPT pipe threads. Inlet and outlet ports on both sides provide for flexible piping (plugs for unused ports included). Captive valve-to-base mounting screws.

ISO 13849-1:2006 Category 4 PL e applications

(Basic Size 2 DGUV, CE Certifications pending)



F3

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

DM1C	N	A	4	2	A	3	1	

Thread

BSPP	D
NPT	N

REVISION LEVEL

Size 4, 8, 12, 30	A
Size 2	B

Basic Size

2	2
4	4
8	5

Base Port Size

2	1/4 inlet – 1/4 outlet	0
	3/8 inlet – 3/8 outlet	1
4	1/2 inlet – 1/2 outlet	2
8	3/4 inlet – 3/4 outlet	4
	1 inlet – 1 outlet	5

Automatic Reset Type

Voltage*

24 volts DC	A
110 volts AC, 50 Hz 120 volts AC, 50/60 Hz	B

* For other voltages consult ROSS.

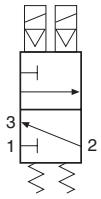
Status Indicator

Yes	1
No	X

Connection Type

EN 175301-803 Form A* (connector not included)	Blank
M12 (connector included)	005

*See options for connectors or wiring kits.



Simplified Schematic

Basic Size	Inlet Port Size	C_V 1-2	C_V 2-3	Weight lb (Kg)
2	1/4	1.67	2.61	5.3 (2.4)
2	3/8	2.17	2.61	5.3 (2.4)
4	1/2	3	10	5.9 (2.6)
8	3/4	4.2	13	8.4 (3.7)
8	1	4.4	13	8.4 (3.7)

Valve and base assembly with status indicator.

F

Explosion proof solenoid pilot available for basic size 4 valves, for more information consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Dual poppet.
Mounting Type: Base mounted.
Pilot Solenoids: According to VDE 0580. Enclosure rating according to DIN 400 50 IP 65. Three solenoids, rated for continuous duty.
Standard Voltages/Pilot Solenoids Power Consumption (each solenoid):
Basic Size 2 & 4:
24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz.
5.8 watts nominal on AC and DC; 6.5 watts maximum on AC and DC.
Basic Size 8:
15 watts on DC; 36 VA inrush and 24.6 VA holding on AC.
Enclosure Rating: IP65, IEC 60529.
Electrical Connection: EN 175301-803 Form A, or M12.

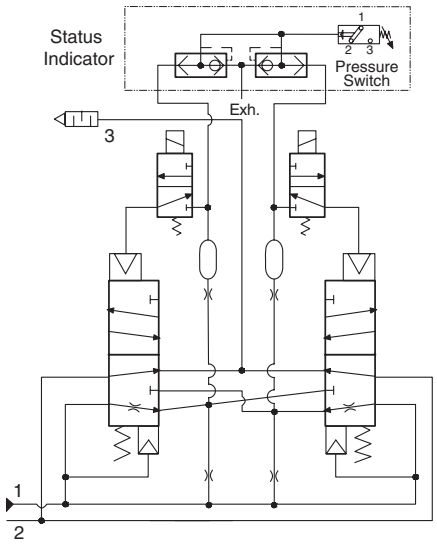
Ambient Temperature: 15° to 122°F (-10° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered, lubricated or unlubricated (mineral oils according to DIN 51519, viscosity classes 32-46).
Inlet Pressure: *Basic Size 2:* 45 to 150 psig (3.1 to 10.3 bar).
Basic Size 4, 8, 12, 30: 30 to 120 psig (2.1 to 8.3 bar).
Pressure Switch (Status Indicator) Rating: Contacts - 5 amps at 250 volts AC, or 5 amps at 30 volts DC.
Monitoring: Dynamically, cyclically, internally during each actuating and de-actuating movement.
Mounting Orientation: Preferably horizontally (valve on top of base) or vertically with pilot solenoids on top.

Product data for Sistema Library users, pending.

This valve is not designed for controlling clutch/brake mechanisms on mechanical power presses, see DM2® series D for mechanical power press applications.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

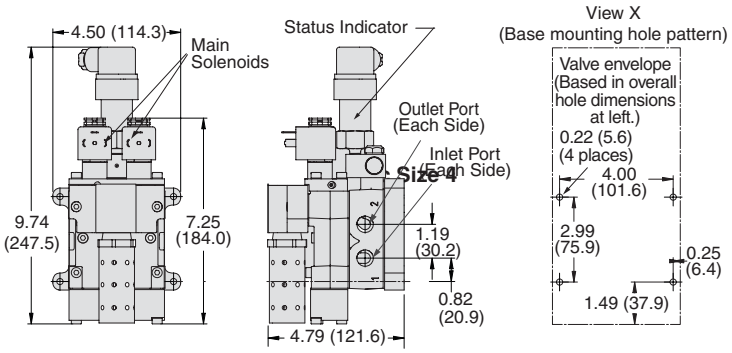
Schematic - Valve de-actuated



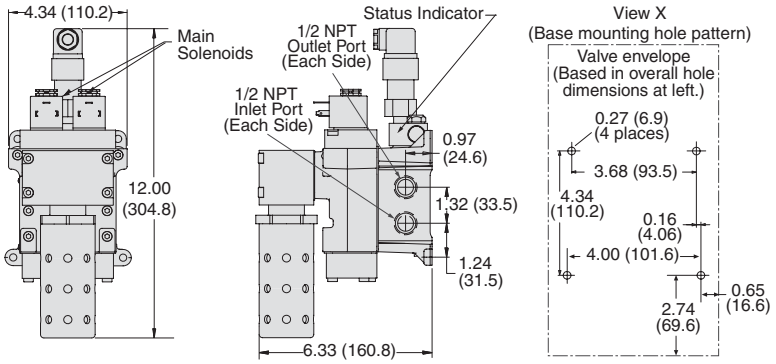
F3

Valve Dimensions – inches (mm)

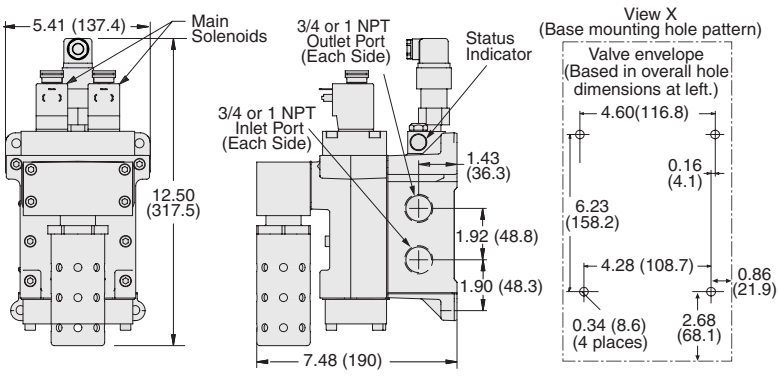
Basic Size 2



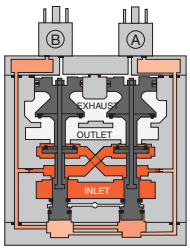
Basic Size 4



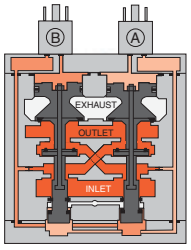
Basic Size 8



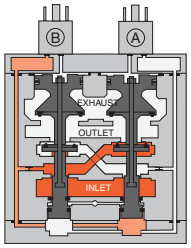
Valve de-actuated (ready-to-run): The flow of inlet air pressure into the crossover passages from the inlet chamber is restricted by orifices that allow air pressure to bypass the lower inlet poppets. Flow is sufficient to quickly pressurize the pilot supply/timing chambers on both sides A and B. The upper inlet poppets prevent air flow from the crossover passages into the outlet chamber. Air pressure acting on the inlet poppets and return pistons securely hold the valve elements in the de-actuated position. (Internal air passages shown out of the valve body for clarity.)



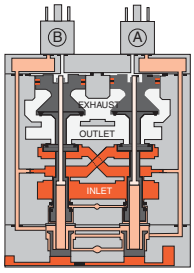
Valve actuated: Energizing the pilot solenoids simultaneously applies pressure to both pistons, forcing the internal parts to move to their actuated position, where inlet air flow to outlet is open and both exhaust poppets are closed. The outlet is then quickly pressurized, and pressure in the inlet, crossovers, outlet, and timing chambers are quickly equalized. De-energizing the main solenoids causes the valve elements to return to the ready-to-run (de-actuated) position.



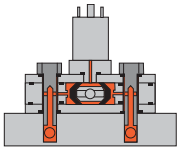
Asynchronous Operation: If the valve elements operate in a sufficiently asynchronous manner on ACTUATION, the valve will shift into a position where one crossover and its related timing chambers will be exhausted, and the other crossover and its related timing chambers will be pressurized.
In the illustration, side B is in the de-actuated position, but has no pilot air available to actuate with and has full pressure on its upper and lower inlet poppets and return piston to hold it in place.
Inlet air flow on side B into its crossover is restricted and flows through the open upper inlet poppet on side A, through the outlet into the exhaust port, and from the exhaust port to atmosphere. Residual pressure in the outlet is less than 1% of inlet pressure. Once the main solenoids are de-energized, actuating pressure is removed from the top of the main pistons and then the lower inlet poppet return spring along with inlet air pressure acting on the side A return piston will push side A back into the de-actuated position. Inlet air pressurizes the crossovers and volume chambers. Pressure in the crossovers helps hold the upper inlet poppets on seat. The valve will then be in the ready-to-run position. On the next attempt to actuate normally, if side B is still unable to actuate synchronously with side A, the same sequence of events described above will occur again.



WARNING: If asynchronous operation occurs while DE-ACTUATING, the pilot supply/timing chambers on one side will still be exhausted as described above. However, this could be a temporary situation because the cause of the asynchronous operation may be able to correct itself allowing the stuck or slow acting side of the valve to eventually move back into the de-actuated position. Once the slow or stuck side has de-actuated, the pilot supply/timing chambers that were exhausted will then repressurize. If an external monitoring system is only checking the status indicator periodically this fault signal could be missed. The machine's safety system must be designed to ensure that this does not cause a hazardous situation.



Status Indicator:
The status indicator pressure switch will actuate when the main valve is operating normally, and will de-actuate when the main valve operation is sufficiently asynchronous or inlet pressure is removed. This device is not part of the valve lockout function, but, rather, only reports the status of the main valve.



Status indicator in normal ready-to-run position

F3

Options

Electrical Connectors	Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
					Without Light	Lighted Connector	
						24 Volts DC	120 Volts AC
	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z
	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	10-mm	371K77	383K77-W	383K77-Z
	EN 175301-803 Form A	Connector for threaded conduit (1/2 inch electrical conduit fittings)	–	–	723K77	724K77-W	724K77-Z
	EN 175301-803 Form A	Connector Only	–	–	937K87	936K87-W	936K87-Z

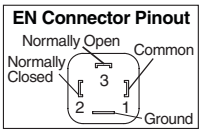
CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

F

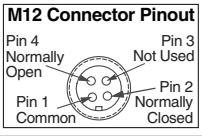
Downstream Pressure Monitoring

Pressure Switches		
Connection Type	Model Number	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	1/8 NPT
*Pressure switch closes on falling pressure of 5 psig (0.34 bar).		

EN Connector Pinout



M12 Connector Pinout



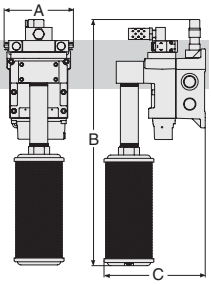
Redundant Downstream Feedback Switch	Model Number	Port Threads
	RC26-13	3/8 NPT

- May be installed downstream on all double valves
- Provides a redundant means to verify the release of downstream pressure to next obstruction
- Factory preset, 5 psi (0.3 bar) - falling

High-Flow, High Reduction Silencer Kits

Basic Size	Kit Number*		Flow scfm	Dimensions inches (mm)			
	NPT threads	BSPP threads		A	B (NPT)	B (BSPP)	C
2, 4	2324H77	2329H77	800 (378)	4.34 (110.2)	19.06 (484.1)	21.40 (543.6)	7.27 (184.7)
8	2325H77	2330H77	800 (378)	5.41 (137.4)	21.18 (538.0)	23.52 (597.4)	8.41 (213.6)

* Kits include all plumbing required for installation. **Pressure Range:** 125 psig (8.6 bar) maximum.

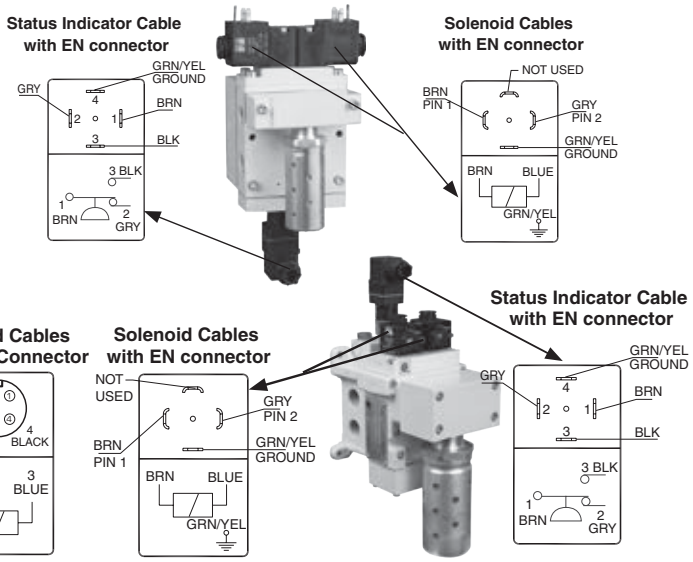


Designed to improve equipment performance and reduce the Exponentially Perceived Noise (EPNdB) in the 35–40 dB range.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

These kits include 2 cables with either EN or M12 connectors for the solenoids. All cables include cord grips.

Kit Number	Solenoid Connector Type	Length meters (feet)
2243H77	EN 175301-803 Form A	5 (16.4)
2244H77	EN 175301-803 Form A	10 (32.8)
2245H77	M12	5 (16.4)
2246H77	M12	10 (32.8)



Status Indicator kit ordered separately.

Status Indicator Kits	Kit Number	Length meters (feet)
	2247H77	5 (16.4)
	2248H77	10 (32.8)

Status Indicator kits include one cable with EN connector and a cord grip.

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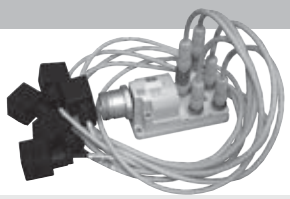
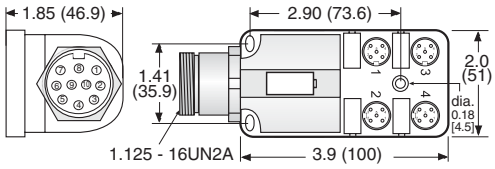
Wiring Kits with J-Box

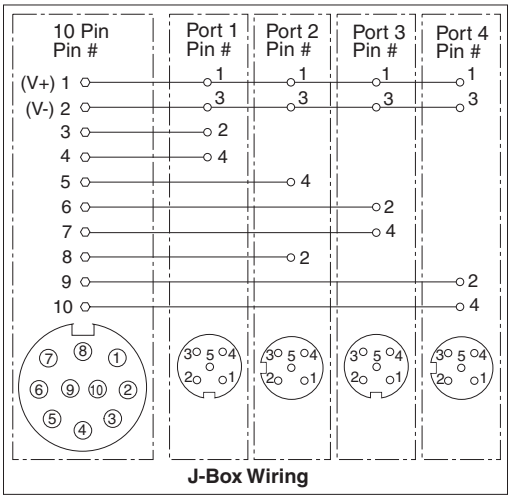
Kit Number*	Connector Types	Length meters (feet)
2249H77	M12 - DIN	1 (3.3)
2250H77	M12 - M12	1 (3.3)

*24 volts DC only.



A J-Box is a junction box with a 10-pin MINI connector for connecting to the user's control system and (4) 5-pin M12 ports for connecting to the 3 solenoids and the status indicator on the DM[2]® Series valve. The J-Box kits include the J-Box as described above and (4) 1-meter cables for connecting to the valve. These cables have a connector on each end. The status indicator cable and the (3) solenoid cables have an M12 connector on one end and a EN connector on the other end (M12-DIN).
Standard valves come with DIN type solenoid connections, but could be bought with M12 type connections as well. Therefore we also offer a kit that provides solenoid cables with an M12 connector on each end (M12-M12).





J-Box Wiring

F

10 PIN MINI Cable

Kit Number	Length meters (feet)
2253H77	3.66 (12)
2254H77	6.1 (20)
2255H77	9.1 (30)
2256H77	15.2 (50)

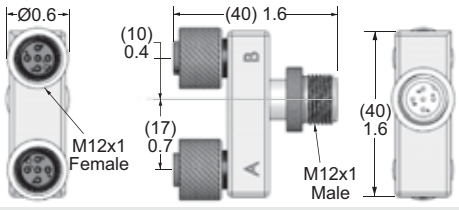
These cables have a 10-pin MINI connector for connecting the J-Box kits above to the user's control system. Kits include one cable with connector and cord grip. Cable conductors are 18-gauge wire.

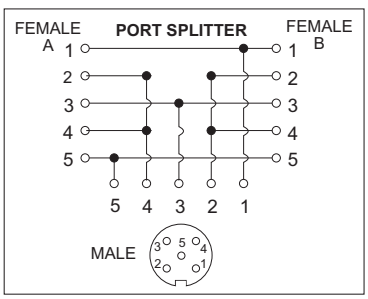
PIN #		PIN #		Wire Colors:	Wire Colors:
1	+24 volts DC	6	-	Orange	Orange w/Black
2	Common volts DC	7	Remote Reset	Blue	Red
3	-	8	-	White w/Black	Green/Yellow
4	Solenoid A	9	Remote Valve Fault Light	Red w/Black	Black
5	Solenoid B	10	Remote System OK Light	Green w/Black	White

Outlet Port Pressure Monitoring Wiring Kit

Kit Number	Length meters (feet)
2251H77	1 (3.3)

Some customers prefer to monitor downstream pressure in addition to using the DM[2]® or DM[1] Series valve. A convenient way to do this is to install a pressure switch in the extra outlet port that is provided on the valve. The Outlet Port Pressure Monitoring kit can be used with one of the J-Box kits above to split one of the M12 ports on the J-Box so that a pressure switch can be wired in as well. These kits consist of one port splitter (a Tee with three M12 connectors) and one M12-DIN cable (1 meter).





Pressure switch available separately, see valve options.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Dynamic Monitoring with Memory: Memory, monitoring, and air flow control functions are integrated into two identical valve elements for CAT 4 applications, except control of the clutch/brake mechanism on mechanical power press. Valves lock-out if asynchronous movement of valve elements occurs during actuation or de-actuation, resulting in a residual outlet pressure of less than 1% of supply.
An Action is Required for Reset – cannot be reset by removing and re-applying supply pressure or electrical power. Reset can only be accomplished by the integrated electrical (solenoid) reset.
Basic 3/2 Normally Closed Valve Function: Dirt tolerant, wear compensating poppet design for quick response and high flow capacity. PTFE back-up rings on pistons to enhance valve endurance – operates with or without inline lubrication.
Status Indicator: Includes a pressure switch with both normally open (NO) and normally closed (NC) contacts to provide status feedback to the control system indicating whether the valve is in the lockout or ready-to-run condition.
Silencers: All models include high flow, clog resistant silencers.
Mounting: Inline mounted with BSPP or NPT pipe threads. Inlet and outlet ports on both sides provide for flexible piping (plugs for unused ports included).

ISO 13849-1:2006
Category 4 PL e applications

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

DM2E	N	A	2	0	A	2	1	

Thread
BSPP D
NPT N

Revision Level

Basic Size

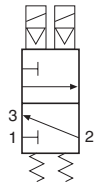
Base Port Size
2 — 1/4 inlet – 1/4 outlet 0; 3/8 inlet – 3/8 outlet 1

Voltage*
24 volts DC A
110 volts AC, 50 Hz / 120 volts AC, 50/60 Hz B
* For other voltages consult ROSS.

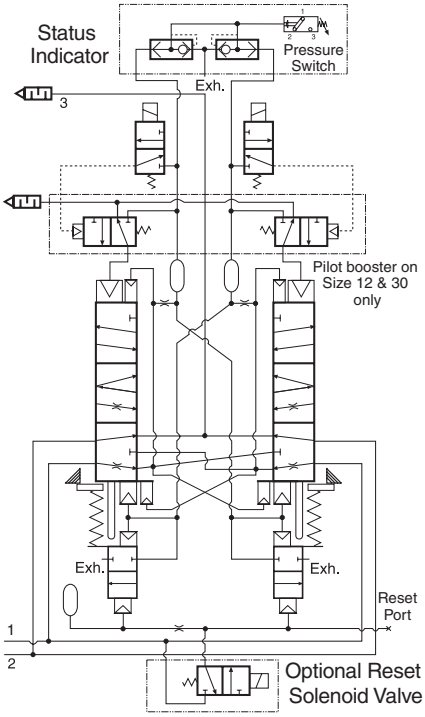
Solenoid Reset Type

Status Indicator
Yes 1
No X

Connection Type
EN 175301-803 Form A* (connector not included) Blank
M12 (connector included) 005
*See options for connectors or wiring kits.

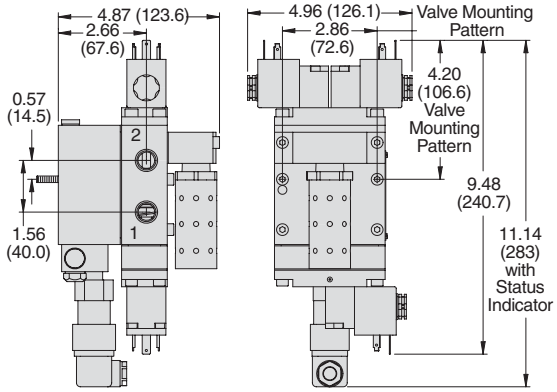


Simplified Schematic



Schematic - Valve de-actuated

Valve Dimensions – inches (mm)



Inlet Port Size	Cv 1-2	Cv 2-3	Weight lb (Kg)
1/4	1.3	2.4	5.6 (2.43)
3/8	2.2	2.4	5.6 (2.43)

Explosion proof solenoid pilot available, for more information consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Dual poppet.
Mounting Type: Line mounted.
Pilot Solenoid: According to VDE 0580. Enclosure rating according to DIN 400 50 IP 65. Three solenoids, rated for continuous duty.
Standard Voltages/Pilot Solenoids Power Consumption (each solenoid): 24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz. 5.8 watts nominal on AC and DC; 6.5 watts maximum on AC and DC.
Enclosure Rating: IP65, IEC 60529.
Electrical Connection: EN 175301-803 Form A, or M12.
Ambient Temperature: 15° to 122°F (-10° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered, lubricated or unlubricated air (mineral oils according to DIN 51519, viscosity classes 32-46).
Inlet Pressure: 30 to 120 psig (2 to 8.3 bar).

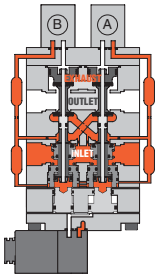
Pressure Switch (Status Indicator) Rating: Contacts - 5 amps at 250 volts AC, or 5 amps at 30 volts DC.
Monitoring: Dynamically, cyclically, internally during each actuating and de-actuating movement. Monitoring function has memory and requires an overt act to reset unit after lockout.
Mounting Orientation: Preferably horizontally (valve on top of base) or vertically with pilot solenoids on top.

Functional Safety Data: Category 4 PL e; B10d: 20,000,000; PFHd: 7.71×10^{-9} ; MTTFd: 301.9 (n_{op}: 662400).
Certifications: CE Marked for applicable directives, DGUV Test, CSA/UL, TSSA for appropriately tested valves.
Vibration/Impact Resistance: Tested to BS EN 60068-2-27.

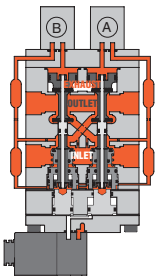
This valve is not designed for controlling clutch/brake mechanisms on mechanical power presses, see DM2® series D for mechanical power press applications.

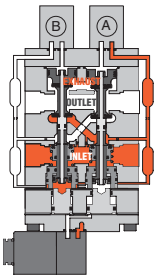
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Valve de-actuated (ready-to-run): The flow of inlet air pressure into the crossover passages from the inlet chamber is restricted by orifices that allow air pressure to bypass the lower inlet poppets. Flow is sufficient to quickly pressurize the pilot supply/timing chambers on both sides A and B. The upper inlet poppets prevent air flow from the crossover passages into the outlet chamber. Air pressure acting on the inlet poppets and return pistons securely hold the valve elements in the de-actuated position. (Air passages shown out of position for clarity.)



Valve actuated: Energizing the pilot solenoids simultaneously applies pressure to both pistons, forcing the internal parts to move to their actuated position, where inlet air flow to outlet is open and both exhaust poppets are closed. The outlet is then quickly pressurized, and pressure in the inlet, crossovers, outlet, and timing chambers are quickly equalized. De-energizing the main solenoids causes the valve elements to return to the ready-to-run (de-actuated) position.





Asynchronous Operation: Whenever the valve elements operate in a sufficiently asynchronous manner, either on actuation or de-actuation, the valve will shift into a locked-out position. In the locked-out position, one crossover and its related timing chambers will be exhausted, and the other crossover and its related timing chambers will be pressurized. The valve element (side A) that is partially actuated has pilot air available to actuate it, but there is no air pressure on the return piston to de-actuate that valve element. Air pressure in the crossover acts on the differential of side A stem diameters creating a latching force.
Side B is in the de-actuated position, but has no pilot air available to actuate with and has full pressure on its upper and lower inlet poppets and return piston to hold it in place. Inlet air flow on side B into its crossover is restricted and flows through the open upper inlet poppet on side A, through the outlet into the exhaust port, and from the exhaust port to atmosphere. Residual pressure in the outlet is less than 1% of inlet pressure. Also, the return springs can only return the valve elements to the intermediate (locked-out) position. Therefore, the valve will remain in the locked-out position even if the inlet air supply is removed and re-applied. A reset signal must be applied intentionally in order to reset the valve.

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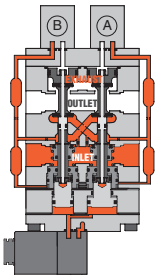
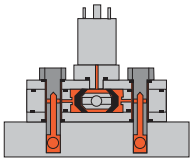
Resetting the valve: Reset is accomplished by momentarily energizing the reset solenoid. Actuation of the reset solenoid provides inlet air pressure to the reset pistons which physically push the main valve elements to their de-actuated position. Inlet air pressurizes the crossovers and volume chambers, thereby applying air to the return pistons which then hold the upper inlet poppets on seat. De-actuation of the reset solenoid removes pressure from the lower side of the reset pistons, thus allowing them to return to their de-actuated position.

Reset anti-tie-down feature: Attempting to energize the valve's main solenoids while the reset solenoid is energized will cause side B to shift (overcoming the pressure on the small reset piston), but side A will not move due to the pressure on the larger reset piston on that side. This will cause the valve to go into and remain in the locked-out position until a reset signal is applied while the main solenoids are de-energized.



Status Indicator: The status indicator pressure switch will actuate when the main valve is operating normally, and will de-actuate when the main valve is in the locked-out position or when inlet pressure is removed. This device is not part of the valve lockout function, but, rather, only reports the status of the main valve.



Options

Electrical Connectors	Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
					Without Light	Lighted Connector	
						24 Volts DC	120 Volts AC
	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z
	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	10-mm	371K77	383K77-W	383K77-Z
	EN 175301-803 Form A	Connector for threaded conduit (1/2 inch electrical conduit fittings)	–	–	723K77	724K77-W	724K77-Z
	EN 175301-803 Form A	Connector Only	–	–	937K87	936K87-W	936K87-Z

CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

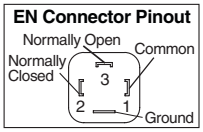
F

Downstream Pressure Monitoring

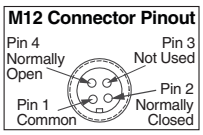
Pressure Switches		
Connection Type	Model Number	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	1/8 NPT

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).

EN Connector Pinout



M12 Connector Pinout



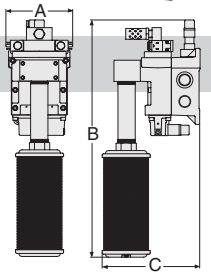
Redundant Downstream Feedback Switch	Model Number	Port Threads
	RC26-13	3/8 NPT

- May be installed downstream on all double valves
- Provides a redundant means to verify the release of downstream pressure to next obstruction
- Factory preset, 5 psi (0.3 bar) - falling

High-Flow, High Reduction Silencer Kits

Basic Size	Kit Number*		Avg. C_v	Dimensions inches (mm)			
	NPT threads	BSPT threads		A	B (NPT)	B (BSPT)	C
2	2323H77	2328H77	256 (121)	4.96 (126.1)	14.24 (361.7)	16.05 (407.7)	5.68 (144.3)

* Kits include all plumbing required for installation. **Pressure Range:** 125 psig (8.6 bar) maximum.



Designed to improve equipment performance and reduce the Exponentially Perceived Noise (EPNdB) in the 35–40 dB range.

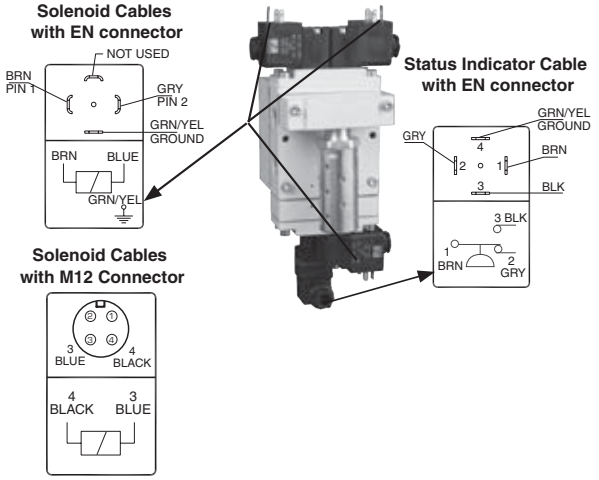
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Preassembled Wiring Kits

These kits include 1 cable for the status indicator, and 3 cables with connector plus a cord grip for each.

Kit Number*			Solenoid Connector Type	Length meters (feet)
Connector without Light	Lighted Connector			
	24 Volts DC	120 Volts AC		
2283H77	2532H77-W	2532H77-Z	EN 175301-803 Form A	5 (16.4)
2284H77	2533H77-W	2533H77-Z	EN 175301-803 Form A	10 (32.8)
2288H77**	–	–	M12	5 (16.4)
2289H77**	–	–	M12	10 (32.8)

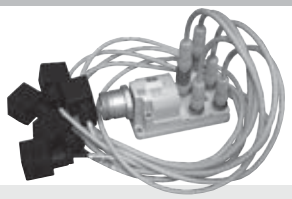
* Each cable has one connector. **Coil includes light.



Wiring Kits with J-Box

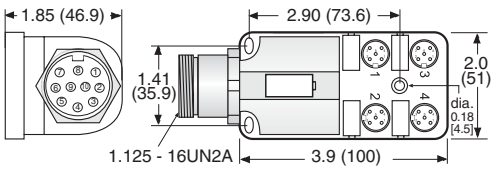
Kit Number*	Connector Types	Length meters (feet)
2249H77	M12 - DIN	1 (3.3)
2250H77	M12 - M12	1 (3.3)

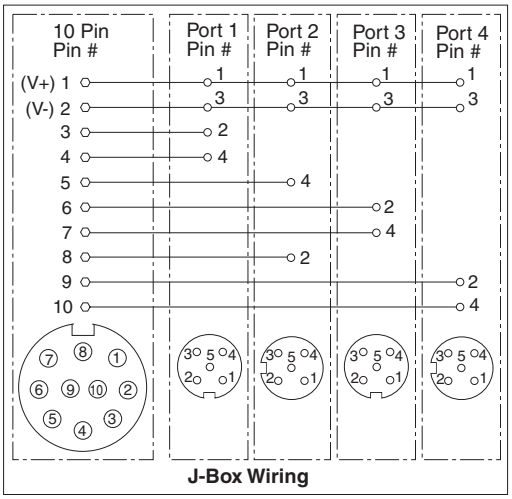
*24 volts DC only.



A J-Box is a junction box with a 10-pin MINI connector for connecting to the user's control system and (4) 5-pin M12 ports for connecting to the 3 solenoids and the status indicator on the DM2® Series valve. The J-Box kits include the J-Box as described above and (4) 1-meter cables for connecting to the valve. These cables have a connector on each end. The status indicator cable and the (3) solenoid cables have an M12 connector on one end and a EN connector on the other end (M12-DIN).

Standard valves come with DIN type solenoid connections, but could be bought with M12 type connections as well. Therefore we also offer a kit that provides solenoid cables with an M12 connector on each end (M12-M12).





F3

F

10 PIN MINI Cable

Kit Number	Length meters (feet)
2253H77	3.66 (12)
2254H77	6.1 (20)
2255H77	9.1 (30)
2256H77	15.2 (50)

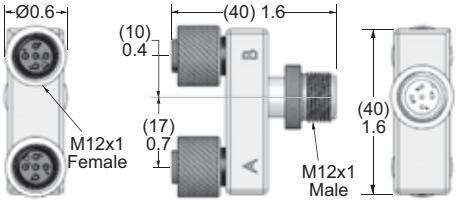
These cables have a 10-pin MINI connector for connecting the J-Box kits above to the user's control system. Kits include one cable with connector and cord grip. Cable conductors are 18-gauge wire.

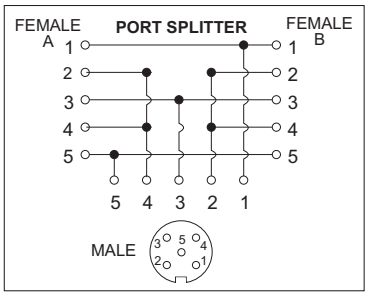
PIN #		PIN #		Wire Colors:	Wire Colors:
1	+24 volts DC	6	-	Orange	Orange w/Black
2	Common volts DC	7	Remote Reset	Blue	Red
3	-	8	-	White w/Black	Green/Yellow
4	Solenoid A	9	Remote Valve Fault Light	Red w/Black	Black
5	Solenoid B	10	Remote System OK Light	Green w/Black	White

Outlet Port Pressure Monitoring Wiring Kit

Kit Number	Length meters (feet)
2251H77	1 (3.3)

Some customers prefer to monitor downstream pressure in addition to using the DM2® or DM1 Series valve. A convenient way to do this is to install a pressure switch in the extra outlet port that is provided on the valve. The Outlet Port Pressure Monitoring kit can be used with one of the J-Box kits above to split one of the M12 ports on the J-Box so that a pressure switch can be wired in as well. These kits consist of one port splitter (a Tee with three M12 connectors) and one M12-DIN cable (1 meter).





Pressure switch available separately, see valve options.

Control Reliable Double Valves with Dynamic Monitoring & Memory

DM2® Series C Air Dump / Release

Basic Size 2, 4, 8, 12 and 30

Dynamic Monitoring With Complete Memory: Memory, monitoring, and air flow control functions are simply integrated into two identical valve elements. Valves lock-out due to asynchronous movement of valve elements during actuation or de-actuation, resulting in a residual outlet pressure of less than 1% of supply.

An Action is Required for Reset – cannot be reset by removing and re-applying supply pressure. Reset can only be accomplished by the optional integrated electrical (solenoid) reset.

Basic 3/2 Normally Closed Valve Function: Dirt tolerant, wear compensating poppet design for quick response and high flow capacity. PTFE back-up rings on pistons to enhance valve endurance – operates with or without inline lubrication.

Status Indicator: Includes a pressure switch with both normally open (NO) and normally closed (NC) contacts to provide status feedback to the control system indicating whether the valve is in the lockout or ready-to-run condition.

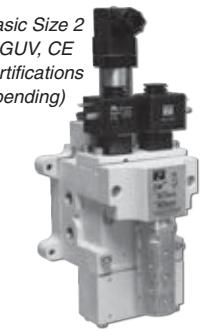
Silencers: All models include high flow, clog resistant silencers.

Mounting: Base mounted – with BSPP or NPT pipe threads. Inlet and outlet ports on both sides provide for flexible piping (plugs for unused ports included). Captive valve-to-base mounting screws.

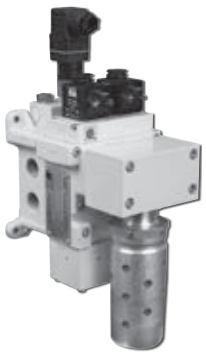
Basic Size 12 and 30

Intermediate Pilots: Increases pilot air flow for fast valve response, making it possible to use the same size solenoids as valve sizes 2, 4 & 8, thereby reducing electrical power requirements for these larger valves.

ISO 13849-1:2006 Category 4 PL e applications



(Basic Size 2 DGUV, CE Certifications pending)



HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

DM2C [N] [A] [4] [2] [A] [2] [1] [ ]

Thread
BSPP	D
NPT	N

REVISION LEVEL
Size 4, 8, 12, 30	A
Size 2	B

Basic Size
2	2
4	4
8	5
12	6
30	8

Base Port Size
2	1/4 inlet – 1/4 outlet	0
	3/8 inlet – 3/8 outlet	1
4	1/2 inlet – 1/2 outlet	2
8	3/4 inlet – 3/4 outlet	4
	1 inlet – 1 outlet	5
12	1 inlet – 1 outlet	6
30	1½ inlet - 2 outlet	8

Voltage*
24 volts DC	A
110 volts AC, 50 Hz 120 volts AC, 50/60 Hz	B

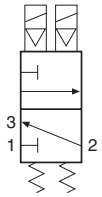
* For other voltages consult ROSS.

Solenoid Reset Type

Status Indicator
Yes	1
No	X

Connection Type
EN 175301-803 Form A* (connector not included)	Blank
M12 (connector included)	005

*See options for connectors or wiring kits.



Simplified Schematic

Basic Size	Inlet Port Size	Cv 1-2	Cv 2-3	Weight lb (Kg)
2	1/4	1.67	2.61	5.3 (2.4)
2	3/8	2.17	2.61	5.3 (2.4)
4	1/2	3	10	5.9 (2.6)
8	3/4	4.2	13	8.4 (3.7)
8	1	4.4	13	8.4 (3.7)
12	1	8.5	20	15.3 (3.7)
30	1½	22	64	34.7 (15.1)

Valve and base assembly with status indicator.

Explosion proof solenoid pilot available, for more information consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Dual poppet.
Mounting Type: Base mounted.
Pilot Solenoids: According to VDE 0580. Enclosure rating according to DIN 400 50 IP 65. Three solenoids, rated for continuous duty.
Standard Voltages/Pilot Solenoids Power Consumption (each solenoid):
Basic Size 2, 4, 12 & 30:
Primary and reset solenoids:
24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz.
5.8 watts nominal on AC and DC; 6.5 watts maximum on AC and DC.
Basic Size 8:
Primary solenoids: 15 watts on DC; 36 VA inrush and 24.6 VA holding on AC.
Reset solenoid: 6.0 watts on DC; 15.8 VA inrush and 10.4 VA holding on AC.
Enclosure Rating: IP65, IEC 60529.
Electrical Connection: EN 175301-803 Form A, or M12.
Ambient Temperature: 15° to 122°F (-10° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).

Flow Media: Filtered, lubricated or unlubricated (mineral oils according to DIN 51519, viscosity classes 32-46).
Inlet Pressure: *Basic Size 2:* 45 to 150 psig (3.1 to 10.3 bar).
Basic Size 4, 8, 12, 30: 30 to 120 psig (2.1 to 8.3 bar).
Pressure Switch (Status Indicator) Rating: Contacts - 5 amps at 250 volts AC, or 5 amps at 30 volts DC.
Monitoring: Dynamically, cyclically, internally during each actuating and de-actuating movement. Monitoring function has memory and requires an overt act to reset unit after lockout.
Mounting Orientation: Preferably horizontally (valve on top of base) or vertically with pilot solenoids on top.

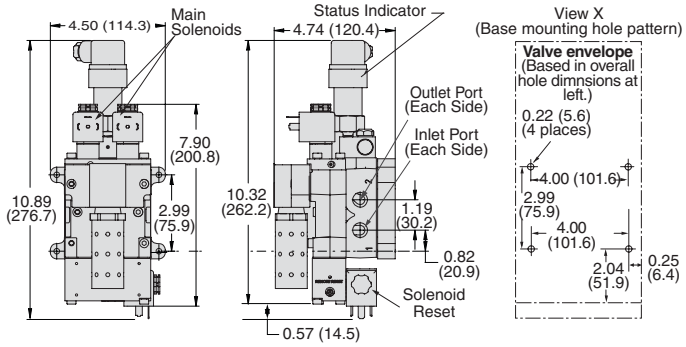
Functional Safety Data: Category 4 PL e; B10d: 20,000,000; PFHd: 7.71×10^{-9} ; MTTFd: 301.9 (n_{op}: 662400).
Certifications: CE Marked for applicable directives, DGUV Test, CSA/UL, TSSA for appropriately tested valves.
Vibration/Impact Resistance: Tested to BS EN 60068-2-27.

This valve is not designed for controlling clutch/brake mechanisms on mechanical power presses, see DM2® series D for mechanical power press applications.

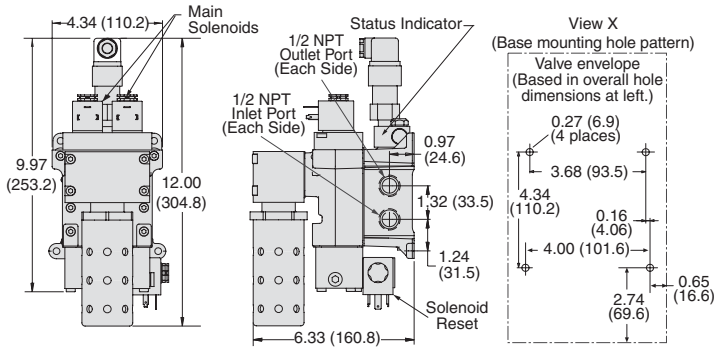
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Valve Dimensions – inches (mm)

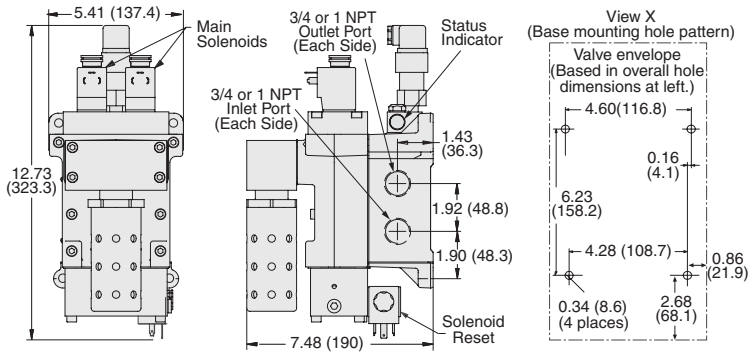
Basic Size 2



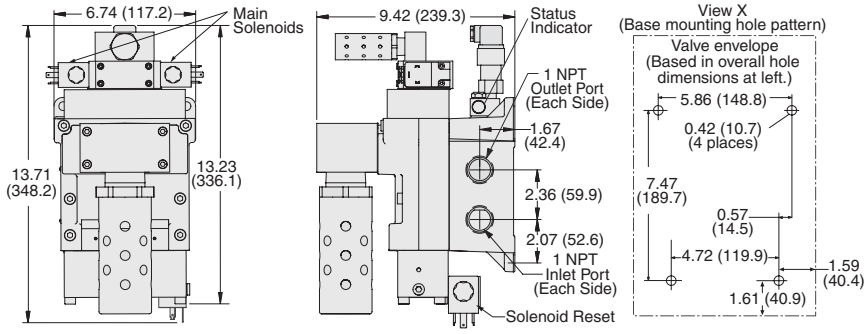
Basic Size 4



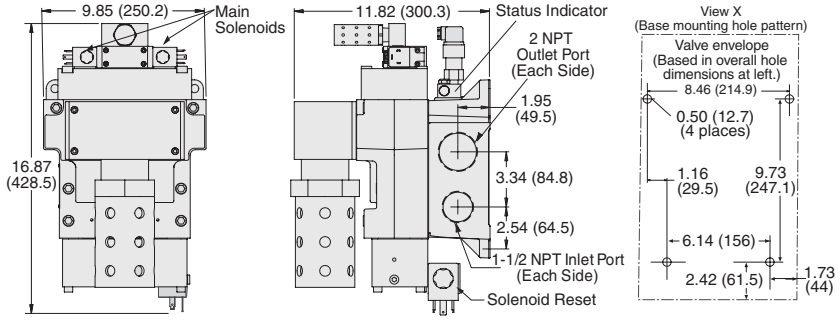
Basic Size 8

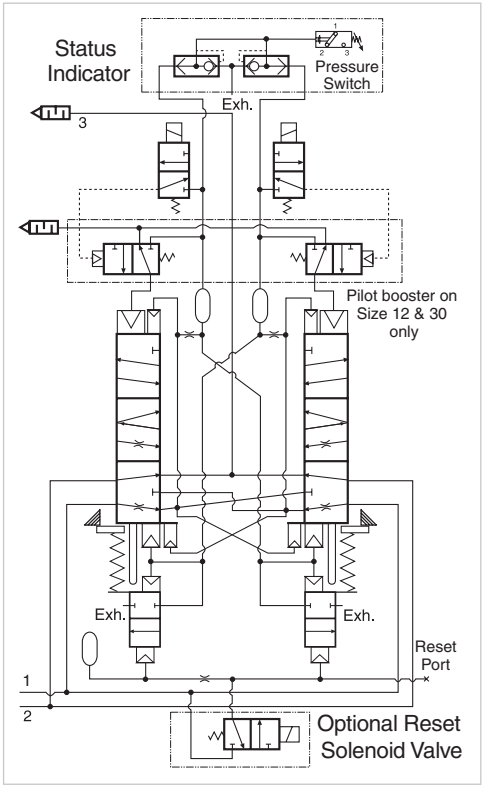


Basic Size 12



Basic Size 30





Schematic - Valve de-actuated

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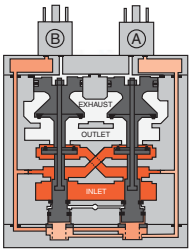
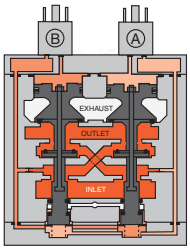
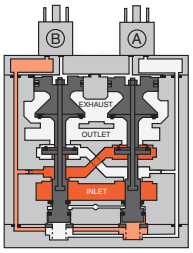
Valve de-actuated (ready-to-run): The flow of inlet air pressure into the crossover passages is restricted by the size of the passage between the stem and the valve body opening. Flow is sufficient to quickly pressurize pilot supply/timing chambers A and B. The inlet poppets prevent air flow from crossover passages into the outlet chamber. Air pressure acting on the inlet poppets and return pistons securely hold the valve elements in the closed position. (Air passages shown out of position and reset adapter omitted for clarity.)



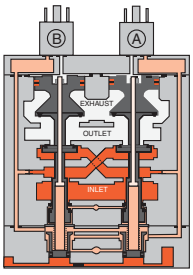
Valve actuated: Energizing the pilot valves simultaneously applies pressure to both pistons, forcing the internal parts to move to their actuated (open) position, where inlet air flow to crossover passages is fully open, inlet poppets are fully open and exhaust poppets are fully closed. The outlet is then quickly pressurized, and pressure in the inlet, crossovers, outlet, and timing chambers are quickly equalized. De-energizing the pilots quickly causes the valve elements to return to the ready-to-run position.



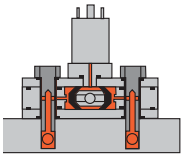
Valve locked-out: Whenever the valve elements operate in a sufficiently asynchronous manner, either on actuation or de-actuation, the valve will move to a locked-out position. In the locked-out position, one crossover and its related timing chamber will be exhausted, and the other crossover and its related timing chamber will be fully pressurized.
The valve element (side B) that is partially actuated has pilot air available to fully actuate it, but no air pressure on the return piston to fully de-actuate the valve element. Air pressure in the crossover acts on the differential of side B stem diameters creating a latching force. Side A is in a fully closed position, and has no pilot air available to actuate, but has full pressure on the inlet poppet and return piston to hold the element in the fully closed position. Inlet air flow on side A into its crossover is restricted, and flows through the open inlet poppet on side B, through the outlet into the exhaust port, and from the exhaust port to atmosphere. Residual pressure in the outlet is less than 1% of inlet pressure. The return springs are limited in travel, and can only return the valve elements to the intermediate (locked-out) position. Sufficient air pressure acting on the return pistons is needed to return the valve elements to a fully closed position.



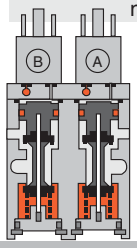
Resetting the valve: The valve will remain in the locked-out position, even if the inlet air supply is removed and re-applied. A remote reset signal must be applied to reset the valve. Reset is accomplished by momentarily pressurizing the reset port. Actuation of the reset piston physically pushes the main valve elements to their closed position. Inlet air fully pressurizes the crossovers and holds the inlet poppets on seat. Actuation of the reset piston opens the reset poppet, thereby, immediately exhausting pilot supply air, thus, preventing valve operation during reset (Reset adapter added to illustration.). De-actuation of reset pistons causes the reset poppets to close and pilot supply to fully pressurize. Reset pressure can be applied by a remote 3/2 normally closed valve, or from an optional 3/2 normally closed solenoid mounted on the reset adapter. De-actuation of reset pistons causes the reset poppets to close and pilot supply to fully pressurize. Reset air pressure can be applied by a remote 3/2 normally closed valve, or from an optional 3/2 normally closed solenoid, or a manual push button mounted on the reset adapter.



Status Indicator: The status indicator pressure switch will actuate when the main valve is operating normally, and will de-actuate when the main valve is in the locked-out position or inlet pressure is removed. This device is not part of the valve lockout function, but, rather, only reports the status of the main valve.



Status indicator in normal ready-to-run position.



Basic Size 12 and 30 valves require relatively large pilots to actuate and de-actuate the main valve elements. In order to achieve extremely quick valve response for such large pilots, a 2-stage solenoid pilot system is incorporated into the design. This keeps the required electrical current to operate the pilots to a minimum.

Basic Size 12 & 30 pilots

Accessories & Options

Electrical Connectors	Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
					Without Light	Lighted Connector	
						24 Volts DC	120 Volts AC
	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z
	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	10-mm	371K77	383K77-W	383K77-Z
	EN 175301-803 Form A	Connector for threaded conduit (1/2 inch electrical conduit fittings)	–	–	723K77	724K77-W	724K77-Z
	EN 175301-803 Form A	Connector Only	–	–	937K87	936K87-W	936K87-Z

CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

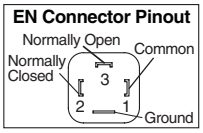
Downstream Pressure Monitoring

Pressure Switches

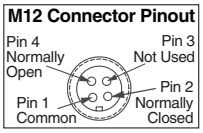
Connection Type	Model Number	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	1/8 NPT

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).

EN Connector Pinout



M12 Connector Pinout



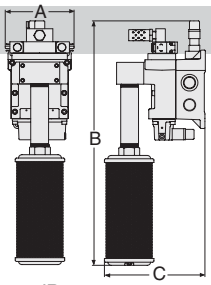
Redundant Downstream Feedback Switch	Model Number	Port Threads
	RC26-13	3/8 NPT

- May be installed downstream on all double valves
- Provides a redundant means to verify the release of downstream pressure to next obstruction
- Factory preset, 5 psi (0.3 bar) - falling

High-Flow, High Reduction Silencer Kits

Port Size	Kit Number*		Flow scfm	Dimensions inches (mm)			
	NPT threads	BSPT threads		A	B (NPT)	B (BSPT)	C
4	2324H77	2329H77	800 (378)	4.34 (110.2)	19.06 (484.1)	21.40 (543.6)	7.27 (184.7)
8	2325H77	2330H77	800 (378)	5.41 (137.4)	21.18 (538.0)	23.52 (597.4)	8.41 (213.6)
12	2326H77	2331H77	2080 (982)	6.74 (117.2)	25.85 (656.6)	28.20 (716.3)	10.66 (270.8)
30	2327H77	2332H77	7200 (3398)	9.85 (250.2)	41.55 (1055.4)	41.55 (1055.4)	13.47 (342.1)

* Kits include all plumbing required for installation. **Pressure Range:** 125 psig (8.6 bar) maximum.



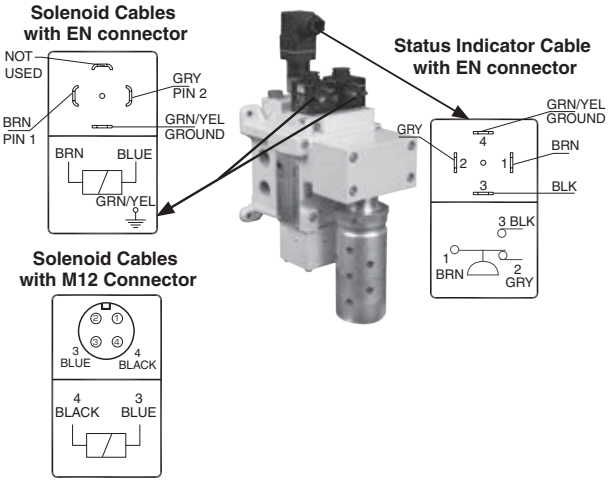
Designed to improve equipment performance and reduce the Exponentially Perceived Noise (EPNdB) in the 35–40 dB range.

Preassembled Wiring Kits

These kits include 1 cable for the status indicator, and 3 cables with connector plus a cord grip for each.

Kit Number*			Solenoid Connector Type	Length meters (feet)
Connector without Light	Lighted Connector			
	24 Volts DC	120 Volts AC		
2283H77	2532H77-W	2532H77-Z	EN 175301-803 Form A	5 (16.4)
2284H77	2533H77-W	2533H77-Z	EN 175301-803 Form A	10 (32.8)
2288H77**	–	–	M12	5 (16.4)
2289H77**	–	–	M12	10 (32.8)

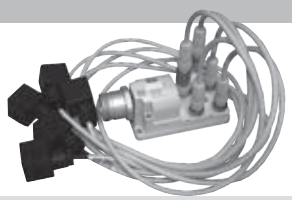
* Each cable has one connector. **Coil includes light.



Wiring Kits with J-Box

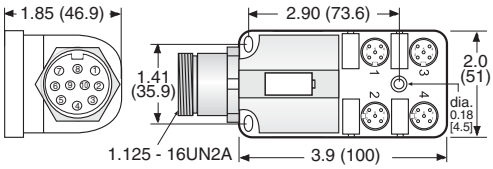
Kit Number*	Connector Types	Length meters (feet)
2249H77	M12 - DIN	1 (3.3)
2250H77	M12 - M12	1 (3.3)

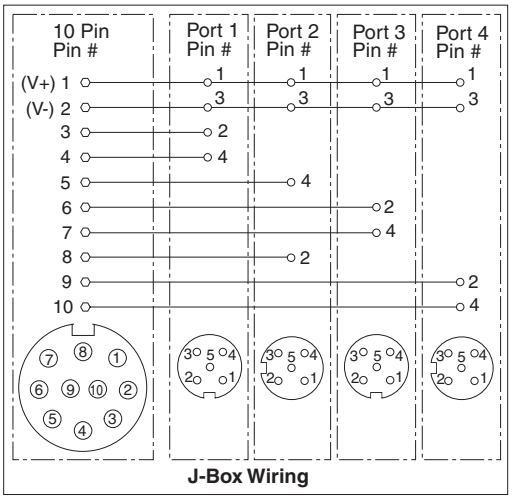
*24 volts DC only.



A J-Box is a junction box with a 10-pin MINI connector for connecting to the user's control system and (4) 5-pin M12 ports for connecting to the 3 solenoids and the status indicator on the DM2® Series valve. The J-Box kits include the J-Box as described above and (4) 1-meter cables for connecting to the valve. These cables have a connector on each end. The status indicator cable and the (3) solenoid cables have an M12 connector on one end and a EN connector on the other end (M12-DIN).

Standard valves come with DIN type solenoid connections, but could be bought with M12 type connections as well. Therefore we also offer a kit that provides solenoid cables with an M12 connector on each end (M12-M12).





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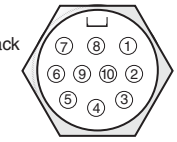
10 PIN MINI Cable

These cables have a 10-pin MINI connector for connecting the J-Box kits above to the user's control system. Kits include one cable with connector and cord grip. Cable conductors are 18-gauge wire.

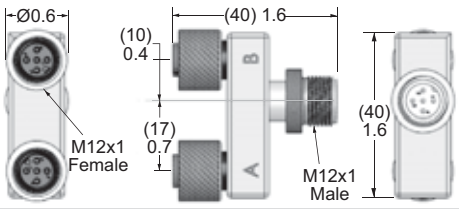
Kit Number	Length meters (feet)
2253H77	3.66 (12)
2254H77	6.1 (20)
2255H77	9.1 (30)
2256H77	15.2 (50)

PIN #		PIN #		Wire Colors:	Wire Colors:
1	+24 volts DC	6	-	Orange	Orange w/Black
2	Common volts DC	7	Remote Reset	Blue	Red
3	-	8	-	White w/Black	Green/Yellow
4	Solenoid A	9	Remote Valve Fault Light	Red w/Black	Black
5	Solenoid B	10	Remote System OK Light	Green w/Black	White

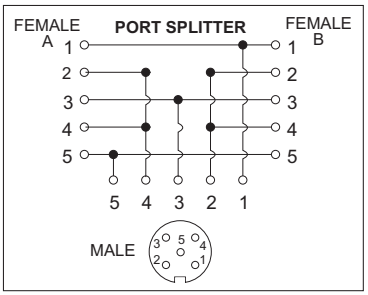


Outlet Port Pressure Monitoring Wiring Kit

Kit Number	Length meters (feet)
2251H77	1 (3.3)



Some customers prefer to monitor downstream pressure in addition to using the DM2® or DM1 Series valve. A convenient way to do this is to install a pressure switch in the extra outlet port that is provided on the valve. The Outlet Port Pressure Monitoring kit can be used with one of the J-Box kits above to split one of the M12 ports on the J-Box so that a pressure switch can be wired in as well. These kits consist of one port splitter (a Tee with three M12 connectors) and one M12-DIN cable (1 meter).



Pressure switch available separately, see valve options.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Double Valves with Dynamic Monitoring & Memory

Dynamic Monitoring With Memory: Memory, monitoring, and air flow control functions are integrated into two identical valve elements. Valves lock-out if asynchronous movement of valve elements occurs during actuation or de-actuation, resulting in a residual outlet pressure of less than 1% of supply.

An Action is Required for Reset: Cannot be reset by removing and re-applying supply pressure. Reset can be accomplished by the integrated electrical (solenoid) reset or by the manual reset button.

Basic 3/2 Normally Closed Valve Function: Dirt tolerant, wear compensating poppet design for quick response and high flow capacity. PTFE back-up rings on pistons to enhance valve endurance – operates with or without inline lubrication.

LED Indication: Light-emitting diode (LED) indicators of main solenoid operation, reset solenoid operation, and status indicator condition.

Status Indicator: Includes a pressure switch with both normally open (NO) and normally closed (NC) contacts to provide status feedback to the control system indicating whether the valve is in the lockout or ready-to-run condition.

Transducer (optional): For monitoring of downstream pressure in the system.

Silencers: All models include high flow, clog resistant silencers.

ISO 13849-1:2006 Category 4 PL e applications

U.S. Patent No. 6840258, 6840259 (Worldwide Patents Pending)

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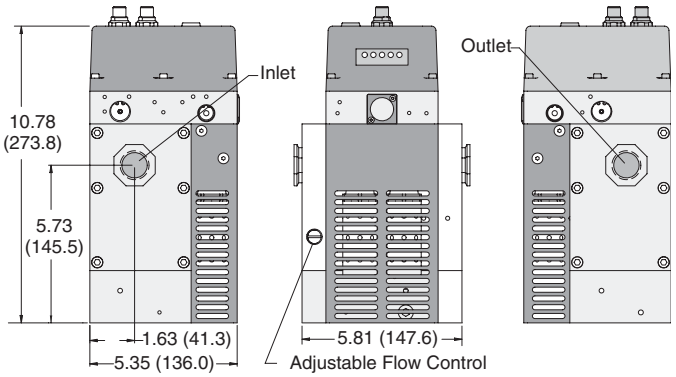
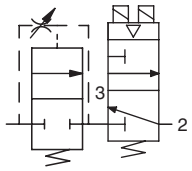
Port Size		Basic Size	Transducer	Valve Model Number*	C_v		Weight lb (Kg)
Inlet	Outlet				1 to 2	2 to 3	
3/4	3/4	8	With	MDM2CNA55A23	3.7	8.5	16.3 (7.4)
3/4	3/4	8	Without	MDM2CNA55A21	3.7	8.5	16.1 (7.3)

* NPT port threads. For BSPP threads , replace "N" in the model number with a "D", e.g., MDM2CDA55A23.

Valve Dimensions – inches (mm)





Simplified Schematic

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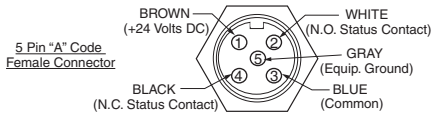
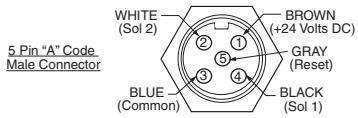
Valve Wiring





Mounting brackets are required to install valve in the system, see M DM²® Series C accessories for ordering information page F3.18.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Dual Poppet.
Mounting Type: Base mounted.
Pilot Solenoids: According to VDE 0580. Enclosure rating according to DIN 400 50 IP 65. Three solenoids, rated for continuous duty.
Standard Voltages: 24 volts DC.
Pilot Solenoids Power Consumption (each solenoid)**:**
Primary and reset solenoids: 1.2 watts on DC.
Enclosure Rating: IP65, IEC 60529.
Solenoid & Status Indicator Connection:
M12, 5-pin Male Receptacle, A-Coded.
Ambient Temperature: 15° to 122°F (-10° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered, lubricated or unlubricated (mineral oils according to DIN 51519, viscosity classes 32-46); 5-micron recommended.

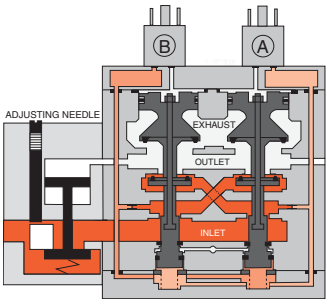
Inlet Pressure: 30 to 150 psig (2 to 10 bar). Under certain circumstances, such as maximum restriction of the adjustable flow control or a very large downstream system volume, the minimum inlet pressure may need to be set up to 60 psig (4 bar) to prevent nuisance valve faults.
Pressure Switch (Status Indicator) Rating: 5 amps at 30 volts DC.
Monitoring: Dynamically, cyclically, internally during each actuating and de-actuating movement. Monitoring function has memory and requires an overt act to reset unit after lockout.
Mounting Orientation: Vertically with pilot solenoids on top.

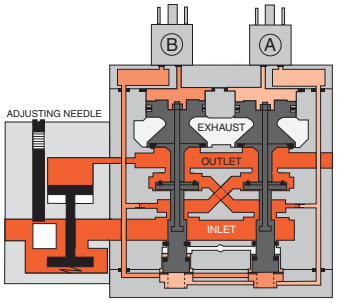
Functional Safety Data: Category 4 PL e; B10d: 20,000,000; PFHd: 7.71×10^{-9} ; MTTFd: 301.9 (n_{op}: 662400).
Certifications: CE Marked for applicable directives, CSA/UL.
Vibration/Impact Resistance: Tested to BS EN 60068-2-27.

This valve is not designed for controlling clutch/brake mechanisms on mechanical power presses, see DM2® series D for mechanical power press applications.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Valve de-actuated (ready-to-run): The flow of inlet air pressure to the inlet chamber of the main valve internals is restricted by a fixed orifice and an adjustable flow control as well as an air piloted 2-way normally closed poppet valve. The flow of inlet air pressure into the crossover passages is restricted by the size of the passage between the stem and the valve body opening. Flow is sufficient to quickly pressurize pilot supply/timing chambers A and B. The inlet poppets prevent air flow from crossover passages into the outlet chamber. Air pressure acting on the inlet poppets and return pistons securely hold the valve elements in the closed position. (Reset adapter omitted for clarity.)



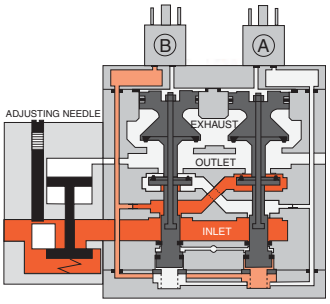


Valve actuated: Energizing the pilot valves simultaneously applies pressure to both pistons, forcing the internal parts to move to their actuated (open) position, where inlet air flow to crossover passages is fully open, inlet poppets are fully open and exhaust poppets are fully closed. The outlet is then pressurized at a rate allowed by the fixed orifice and the adjusted flow control. Once the air pressure in the outlet chamber reaches approximately 60% of inlet pressure, the air piloted 2-way normally closed poppet valve opens fully and the pressure in the inlet, crossovers, outlet, and timing chambers are quickly equalized. The adjustable flow control will control the time it takes for the outlet air pressure to reach approximately 60% of inlet pressure. Green "SOL. 1" and SOL. 2" LEDs will be displayed when the main solenoids are energized.

De-energizing the pilots quickly causes the valve elements to return to the ready-to-run position.

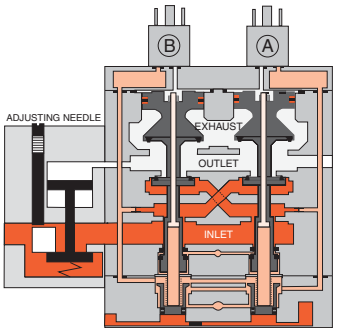
Valve locked-out: Whenever the valve elements operate in a sufficiently asynchronous manner, either on actuation or de-actuation, the valve will move to a locked-out position. In the locked-out position, one crossover and its related timing chamber will be exhausted, and the other crossover and its related timing chamber will be fully pressurized. The valve element (side B) that is partially actuated has pilot air available to fully actuate it, but no air pressure on the return piston to fully de-actuate the valve element.

Air pressure in the crossover acts on the differential of side B stem diameters creating a latching force. Side A is in a fully closed position, and has no pilot air available to actuate, but has full pressure on the inlet poppet and return piston to hold the element in the fully closed position. Inlet air flow on side A into its crossover is restricted, and flows through the open inlet poppet on side B, through the outlet into the exhaust port, and from the exhaust port to atmosphere. Residual pressure in the outlet is less than 1% of inlet pressure. The return springs are limited in travel, and can only return the valve elements to the intermediate (locked-out) position. Sufficient air pressure acting on the return pistons is needed to return the valve elements to a fully closed position.



Resetting the valve: The valve will remain in the locked-out position, even if the inlet air supply is removed and re-applied.

A remote reset signal must be applied to reset the valve. A momentary, remote electrical signal must be applied to the reset solenoid to apply pressure to the reset pistons in the valve. Actuation of the reset piston physically pushes the main valve elements to their closed position. Inlet air fully pressurizes the crossovers and holds the inlet poppets on seat. Actuation of the reset piston opens the reset poppet, thereby, immediately exhausting pilot supply air, thus, preventing valve operation during reset (Reset adapter added to illustration.). De-actuation of reset pistons causes the reset poppets to close and pilot supply to fully pressurize. Reset air pressure is applied by a 3/2 normally closed solenoid, or a manual push button mounted on the reset adapter in the top valve cover. A green "RESET SOL." LED will be displayed when the reset solenoid is energized.

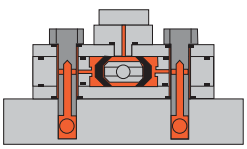


The reset procedure is as follows:

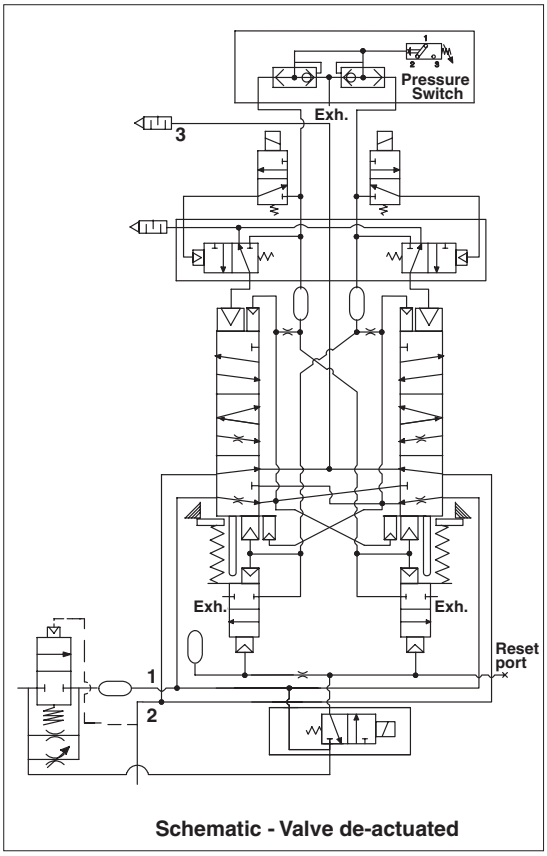
- *Remove the electrical signals to the main coils*
- *Ensure there is air supplied to the valve*
- *Energize the reset solenoid for a minimum of 200 ms*
- *Allow a 200 ms delay after de-energizing the reset solenoid and re-energizing the main solenoids*

Status Indicator:

The status indicator pressure switch will actuate when the main valve is operating normally, and will de-actuate when the main valve is in the locked-out position or inlet pressure is removed. This device is not part of the valve lockout function, but, rather, only reports the status of the main valve. If the valve is in a ready-to-run condition, a green "STATUS" LED will be displayed. If the valve is faulted or there is no air pressure at the inlet, a red "STATUS" LED will be displayed.



Status indicator in normal ready-to-run position



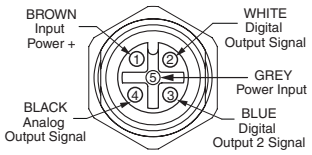
Schematic - Valve de-actuated

F3

F

Digital Pressure Transducer

Model Number
2447H77



Precision digital pressure transducer with 5 pin female connection

- Two PNP digital outputs which may be set individually, 4-20 mA analog output
- Three operation modes: Easy, Window and Hysteresis
- Selectable response times to eliminate output chattering
- Powered by 12-24 vots DC
- 6 pressure unit conversions
- Lockable keypad
- Fast zero reset

Wiring Kits

Kit Number	Length
2431H77	Wiring Kit - 5 meters (16.4 feet). Includes two cords, and the cord grips.
2432H77	Wiring Kit with Transducer - 5 meters (16.4 feet). Includes three cords, and the cord grips.

Mounting Accessories

At least two mounting brackets should be used.
This can consist of two clamp mounting brackets or one clamp mounting bracket and one mounting bracket Kit Number 2433H77.

F3

Clamp for Module Connections

Specially designed clamps provide a quick and easy assembly or disassembly of MD3™ modules. Two allen-head bolts quickly tighten or loosen the clamp using a 5/32 or 4mm hex key. The clamp contains a plate carrying two O-rings to provide positive sealing between modules.

Order clamp by part number **R-A118-105**.

Combined clamp and bracket (below) can be ordered by part number **R-A118-105M**.

Mounting Brackets

Two brackets are normally used to mount an FRL to a vertical surface. The mounting bracket attaches to the module connecting clamp (see above) with a single screw. Each bracket then employs two bolts (1/4" or 6mm) to connect the assembly to the mounting surface.

Order bracket and screw by part number **R-A118-103**.

Combined bracket and clamp (above) can be ordered by part number **R-A118-105M**.

F

Module Connecting Clamp
Part No. R-A118-105

Mounting Bracket
Part No. R-A118-103

Combined Clamp & Bracket
Part No. R-A118-105M

Male and Female End Ports

Either male or female end ports can be attached to threaded inlet and outlet lines. This allows all modules of an FRL assembly to be removed easily and quickly without having to unthread the end modules. The end ports are attached to the modules with clamps (see at left). End ports can be included in an assembled FRL or ordered separately by the following part numbers:

Port Size	Male Part Number*		Port Size	Female Part Number*	
1/4	R-118-109-2F		1/4	R-118-100-2	
3/8	R-118-109-3F		3/8	R-118-100-3	
1/2	R-118-109-4F		1/2	R-118-100-4	
3/4	R-118-109-6F		3/4	R-118-100-6	

* For BSPP threads, add a "W" suffix to the model number, e.g., R-118-109-2FW.

Extra Port Blocks

An extra port block can be placed between modules to provide two auxiliary 1/4 NPTF ports. Its mounting position can be rotated to obtain the most convenient operating orientation. If only one auxiliary port is to be used, the unused port must be closed with a pipe plug. (The inlet and outlet are not threaded.)

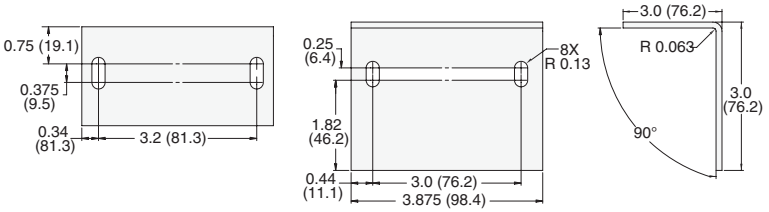
Port Size	Part Number*	
1/4	R-118-106-2	
3/8	R-118-106-3	
1/2	R-118-106-4	

* For BSPP threads, add a "W" suffix to the model number, e.g., R-118-106-2W.

Mounting Bracket Kit

Mounting Bracket Kit includes bracket and bolts to mount to the valve end plate.

Kit Number	2433H77

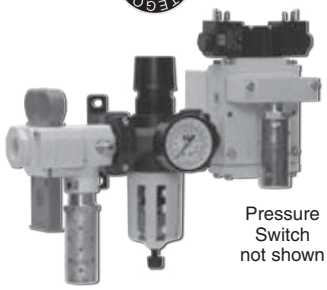


IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

DM[1] Series E Double Valves, Manual Lockout L-O-X® Valves with Integrated Filter/Regulator

CONTROL CATEGORY 4

Pre-engineered panel-mounted design with air entry via a filter and regulator "FR", or filter, regulator and lubricator "FRL".
Includes DM[1] Series E Double Valve with Monitoring:
a) Self-contained dynamic monitoring system requires no further valve monitoring controls,
b) Ready-to-run: If an abnormality clears itself upon the removal of electricity to both solenoids, it will be ready-to-run again. It does not remember the abnormality & stay in a locked-out state until intentionally reset. Therefore, cumulative abnormalities may go undetected,
c) Status indicator switch for valve condition (ready-to-run) feedback.
Mounting plate included.



Pressure Switch not shown

Air Entry Combination	Port Size		Model Number*	Air Entry Type	C_v		Dimensions inches (mm)		
	1, 2	3			1-2	2-3	Length	Width	Depth
Cat-4 with DM1 Series E	1/4	1/2	RC304-09**	FR	1.3	2.4	13.00 (330.0)	11.00 (279.0)	5.40 (134.7)
Cat-4 with DM1 Series E	3/8	1/2	RC306-09**	FR	2.2	2.4	13.00 (330.0)	11.00 (279.0)	5.40 (134.7)
Cat-4 with DM1 Series E	1/4	1/2	RC304L-09**	FRL	1.3	2.4	13.00 (330.0)	11.00 (279.0)	5.40 (134.7)
Cat-4 with DM1 Series E	3/8	1/2	RC306L-09**	FRL	2.2	2.4	13.00 (330.0)	11.00 (279.0)	5.40 (134.7)

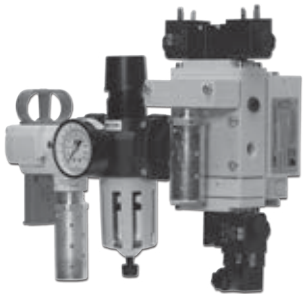
* NPT pressure port threads.
** Specify voltage when ordering. Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., RC304-09W. M12 connectors available, consult ROSS.
Standard Air Entry Packages supplied with metal bowl and manual drain. For automatic drain insert an "A" before the dash (-) in the model number, e.g., RC304A-09.

Custom designs available, consult ROSS.

DM[2]® Series E Double Valves, Manual Lockout L-O-X® Valves with Integrated Filter/Regulator

CONTROL CATEGORY 4

Pre-engineered panel-mounted design with air entry via a filter and regulator "FR", or filter, regulator and lubricator "FRL".
Includes DM[2]® Series E Double Valve with Monitoring & Memory:
a) Self-contained dynamic monitoring system requires no further valve monitoring controls,
b) Dynamic memory of abnormal function prevents unintentional reset with removal of air or electricity.
All necessary features for safety applications are included:
a) Electrical reset valve,
b) Status indicator switch for valve condition (ready-to-run) feedback.
Mounting plate included.



Air Entry Combination	Port Size		Model Number*	Air Entry Type	C_v		Dimensions inches (mm)		
	1, 2	3			1-2	2-3	Length	Width	Depth
Cat-4 with DM2® Series E	1/4	1/2	RC404-09**	FR	1.3	2.4	13.00 (330.0)	11.00 (279.0)	5.40 (134.7)
Cat-4 with DM2® Series E	3/8	1/2	RC406-09**	FR	2.2	2.4	13.00 (330.0)	11.00 (279.0)	5.40 (134.7)
Cat-4 with DM2® Series E	1/4	1/2	RC404L-09**	FRL	1.3	2.4	13.00 (330.0)	11.00 (279.0)	5.40 (134.7)
Cat-4 with DM2® Series E	3/8	1/2	RC406L-09**	FRL	2.2	2.4	13.00 (330.0)	11.00 (279.0)	5.40 (134.7)

* NPT pressure port threads.
** Specify voltage when ordering. Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., RC404-09W. M12 connectors available, consult ROSS.
Standard Air Entry Packages supplied with metal bowl and manual drain. For automatic drain insert an "A" before the dash (-) in the model number, e.g., RC404A-09.

Custom designs available, consult ROSS.

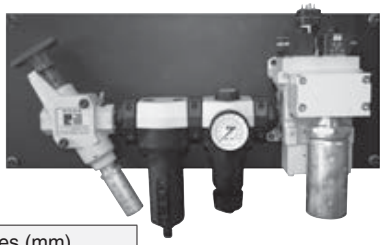
NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

DM2® Series C Double Valves, Manual Lockout L-O-X® Valves with Filter and Regulator

CONTROL CATEGORY 4

Pre-engineered panel-mounted design with air entry via a filter and regulator "FR", or filter, regulator and lubricator "FRL"
Includes DM2® Series C Double Valve with Monitoring & Memory:
a) Self-contained dynamic monitoring system requires no further valve monitoring controls,
b) Dynamic memory of abnormal function prevents unintentional reset with removal of air or electricity
All necessary features for safety applications are included:
a) Electrical reset valve,
b) Status indicator switch for valve condition (ready to run) feedback



Air Entry Combination	Port Size		Model Number*	Air Entry Type	C_v		Dimensions inches (mm)		
	1, 2	3			1-2	2-3	Length	Width	Depth
Cat-4 with DM2® Series C	1/2	1/2	RC408-06**	FR	3	10	24.0 (610)	14.5 (369)	7.4 (187)
Cat-4 with DM2® Series C	1/2	1/2	RC408L-06**	FRL	4.4	13	24.0 (610)	15.7 (399)	8.3 (211)
Cat-4 with DM2® Series C	3/4	3/4	RC412-06**	FR	4.4	13	27.0 (686)	19.0 (483)	9.0 (229)
Cat-4 with DM2® Series C	3/4	3/4	RC412L-06**	FR	3	10	24.0 (610)	14.5 (369)	7.4 (187)
Cat-4 with DM2® Series C	1	1	RC416-06**	FRL	4.4	13	24.0 (610)	15.7 (399)	8.3 (211)
Cat-4 with DM2® Series C	1	1	RC416L-06**	FRL	4.4	13	31.0 (788)	19.0 (483)	9.0 (229)

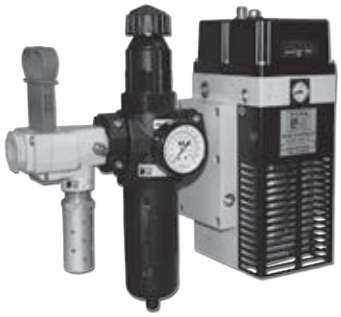
* NPT pressure port threads.
** Specify voltage when ordering. Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., RC408-06W. M12 connectors available, consult ROSS.
Standard Air Entry Packages supplied with metal bowl and manual drain. For automatic drain insert an "A" before the dash (-) in the model number, e.g., RC408A-06.

Custom designs available, consult ROSS.
Explosion proof solenoid pilot available, for more information consult ROSS.

M DM2® Series C Double Valves with Integrated Soft Start, Manual Lockout L-O-X® Valves with Integrated Filter/Regulators

CONTROL CATEGORY 4

Pre-engineered panel mountable design with air entry via a filter and regulator "FR", or filter, regulator and lubricator "FRL"
Includes M DM2® Series C Double Valve with Monitoring & Memory:
a) Self-contained dynamic monitoring system requires no further valve monitoring controls,
b) Dynamic memory of abnormal function prevents unintentional reset with removal of air or electricity
All necessary features for safety applications are included:
a) Electrical reset valve,
b) Status indicator switch for valve condition (ready to run) feedback



HOW TO ORDER

(Choose your options (in red) to configure your valve assembly model number.)

M	5	1	1	X	A	2	1	2	1	1

PIPE SIZE

1/2 NPTF	4
3/4 NPTF	5
1/2 BSPP	D
3/4 BSPP	E

LOCKOUT VALVE TYPE

Modular L-O-X®	**1**
L-O-X®	2
No L-O-X®	X

LUBRICATOR FILL TYPE

Fill Port	2
No lubricator	X

CABLE OPTIONS

Yes	1
No	X

DOWNSTREAM PRESSURE SWITCH (includes 1/4" Extra Port)

586A86	1
None	X

FILTER-REGULATOR (0-125 psi with 0-200 gauge)

5 Micron, Manual Drain, Metal Bowl	**1**
5 Micron, Auto Drain, Metal Bow	2
None	X

EXTRA PORTS (Prior to M DM2® Exhaust Valve)

1/4	**2**
3/8	3
1/2	4
None	X

M DM2® VALVE

Without Transducer	1
With Transducer	3

EXTRA PORTS (Downstream of M DM2®)

1/4	**2**
3/8	3
1/2	4
None	X

Custom designs available, consult ROSS.

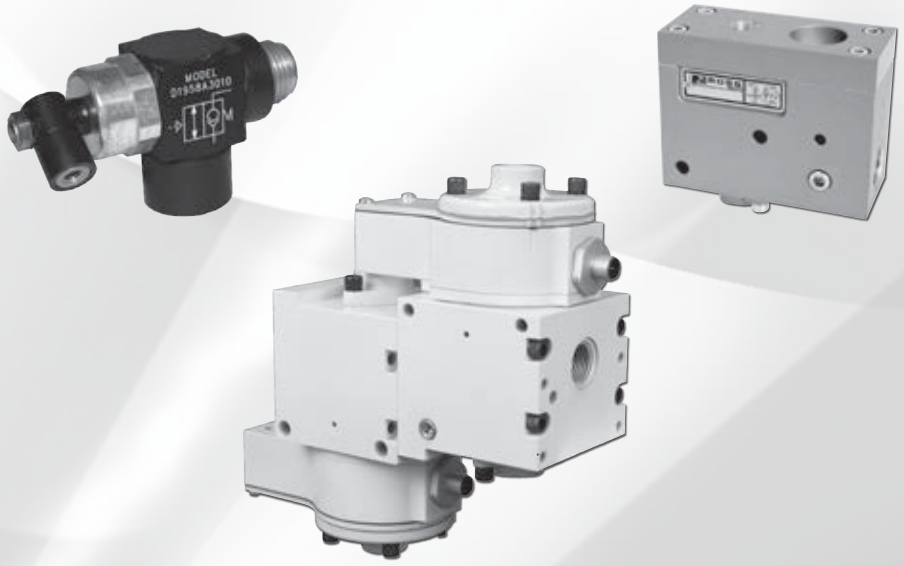
NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

F

ROSS CONTROLS®

Pilot Operated Check Valves
19, 27 and SV27 Series



www.rosscontrols.com

PILOT OPERATED CHECK VALVES RIGHT ANGLE – KEY FEATURES

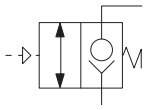
- Right angle design for easy positioning of pipe or tubing
- Threaded outlet ports available with NPT or G threads
- Inlet ports available with NPTF threaded or push-to-connect fittings
- Quick and easy installation
- Galvanized zinc plated brass body construction
- Lube or non-lube operation

PILOT OPERATED CHECK VALVES – KEY FEATURES

- Available with automatic or manual trapped pressure release when pressure is removed from the Blowdown Signal Port (BP)
- Poppet construction for near zero leakage
- Applications include Air Holding and Cylinder Load Holding

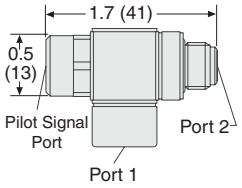
VALVE SERIES	Category	OPERATION				AVAILABLE PORT SIZES								MAX. FLOW (Cv)								Integrated Trapped Pressure Relief	Page
														Port Size									
		Air Pilot	Solenoid	Single	Dual	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	1/8	1/4	3/8	1/2	3/4	1	1¼	1½		
19	1	■		■		■	■	■						0.4	0.8	1.2						Optional	F4.4
27	1	■		■			■	■	■						2.2	2.9	3.2						F4.5
27	1	■		■			■	■	■	■	■	■	■	2.3	3.8	4	7.7	9	24	29	29		F4.6
27	1	■		■			■	■	■						2.2	2.9	3.2					Remote	F4.7
27	1	■		■			■	■	■							2.6	2.8	9.2				Remote	F4.7
27	1	■		■				■	■	■						2.6	2.8	9.2				Manual	F4.8
27	1	■			■			■	■	■	■					2.9	3.2	8.5	8.5				F4.9
27	1	■			■			■	■	■	■					2.9	3.2	8.5	8.5			Remote	F4.10
27	1	■			■			■	■	■	■					2.9	3.2	8.5	8.5			Manual	F4.11
27	1	■			■			■	■	■	■					2.9	3.2	8.5	8.5			Solenoid	F4.12
SV27	2	■	■	■				■	■	■	■	■				4.5	8.3	20	29	33			F4.13
SV27	3	■	■	■				■	■	■	■	■				4.5	8.3	20	29	33			F4.14
SV27	2	■		■				■	■	■	■	■				4.5	8.3	20	29	33			F4.15
SV27	3	■		■				■	■	■	■	■				4.5	8.3	20	29	33			F4.16

Models with Threaded Banjo						
Port Size		Valve Model Number	Port 12	C_v		Tightening Torque Max. Ft-lb (Nm)
Port 1 (female threads)	Port 2 (male threads)			1-2	2-1	
1/8	1/8	1958A1010	10-32 UNF	0.4	0.4	22.13 (30)
1/4	1/4	1958A2010	10-32 UNF	0.8	0.7	14.75 (20)
3/8	3/8	1958A3010	10-32 UNF	1.2	1.3	22.13 (30)
1/2	1/2	1958A4010	10-32 UNF	2.3	2.2	29.50 (40)
G1/8	G1/4	D1958A1010*	M5	0.4	0.4	7.38 (10)
G1/4	G1/4	D1958A2010*	M5	0.8	0.7	8.85 (12)
G3/8	G3/8	D1958A3010*	M5	1.2	1.3	14.75 (20)
G1/2	G1/2	D1958A4010*	M5	2.3	2.2	22.13 (30)
* BSPP port threads.						

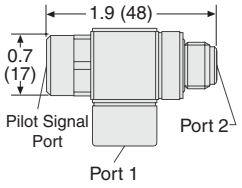


Valve Dimensions – inches (mm)

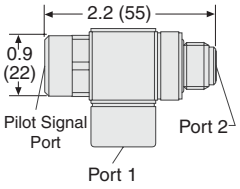
Port Size 1/8



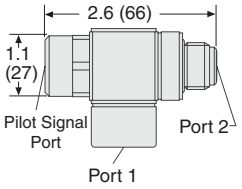
Port Size 1/4



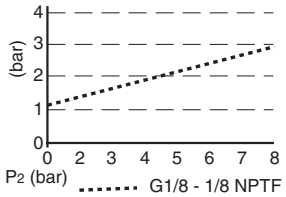
Port Size 3/8

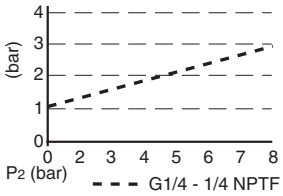


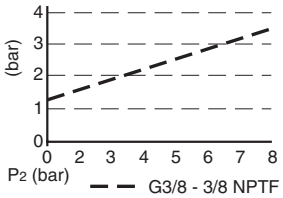
Port Size 1/2

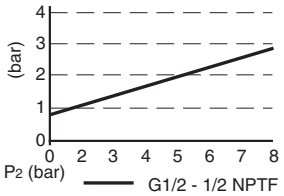


Signal Pressure: The charts below show the minimum signal pilot port pressure to open the valve versus port 2 pressure (P_2) when there is no pressure at port 1 (P_1 = 0 bar).









Accessories & Options

Manual Override	Manual Trapped Pressure Relief Adapter			
	Port 1	Port 2	Port Threads	Model Number*
	5/32	10-32 Manual Operated Check	NPT	1998A1015
	M5	M5 Manual Operated Check	BSPP	D1998A1010
	* Adapter threads into the signal port.			

Valve Illustrated with Optional Manual Trapped Pressure Relief Adapter

STANDARD SPECIFICATIONS (for valves on this page)**:**

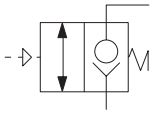
Construction: Poppet.
Mounting Type: In-Line.
Ambient/Media Temperature: 15° to 160°F (-10° to 70°C).
Flow Media: Filtered air.
Operating Pressure: 15 to 150 psig (1 to 10 bar).

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Models with Push-to-Connect Fitting

Port Size		Valve Model Number	Port 12	C_v		Tightening Torque Max. Ft-lb (Nm)
Port 1# (tube fittings)	Port 2 (male threads)			1-2	2-1	
5/32”	1/8	1958A1115	10-32 UNF	0.4	0.4	11.06 (15)
1/4”	1/8	1958A1120	10-32 UNF	0.4	0.4	11.06 (15)
1/4”	1/4	1958A2120	10-32 UNF	0.8	0.7	14.75 (20)
3/8”	1/4	1958A2130	10-32 UNF	0.8	0.7	14.75 (20)
3/8”	3/8	1958A3130	10-32 UNF	1.2	1.3	22.13 (30)
4 mm	G1/8	D1958A1140*	M5	0.4	0.4	7.38 (10)
6 mm	G1/8	D1958A1160*	M5	0.4	0.4	7.38 (10)
8 mm	G1/8	D1958A1180*	M5	0.4	0.4	7.38 (10)
6 mm	G1/4	D1958A2160*	M5	0.8	0.7	8.85 (12
8 mm	G1/4	D1958A2180*	M5	0.8	0.7	8.85 (12)
10 mm	G1/4	D1958A2110*	M5	0.8	0.7	8.85 (12)
8 mm	G3/8	D1958A3180*	M5	1.2	1.3	14.75 (20)
10 mm	G3/8	D1958A3110*	M5	1.2	1.3	14.75 (20

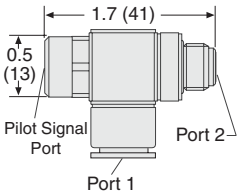
Port 1 tubing size in inches (”) or millimeters (mm).
* BSPP port threads.



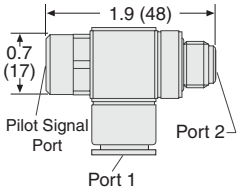
Valve Dimensions – inches (mm)

F4

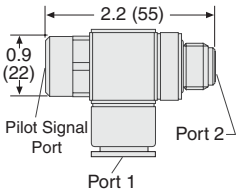
Port Size 1/8



Port Size 1/4

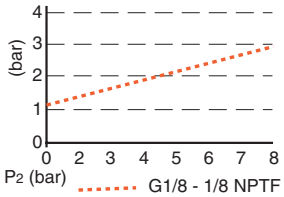


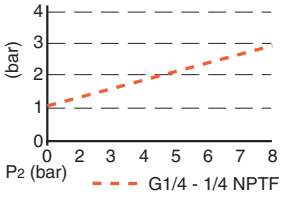
Port Size 3/8

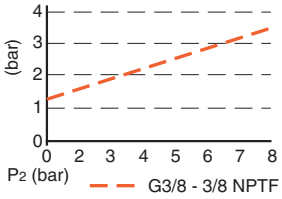


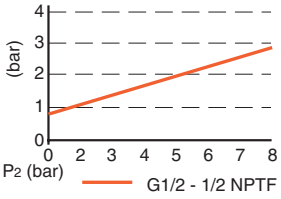
Signal Pressure: The charts below show the minimum signal pilot port pressure to open the valve versus port 2 pressure (P_2) when there is no pressure at port 1 (P_1 = 0 bar).

F









OPTIONS

Manual Override

Manual Trapped Pressure Relief Adapter			
Port 1	Port 2	Port Threads	Model Number*
5/32	10-32 Manual Operated Check	NPT	1998A1015
M5	M5 Manual Operated Check	BSPP	D1998A1010
* Adapter threads into the signal port.			

Valve Illustrated with Optional Manual Trapped Pressure Relief Adapter

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: In-Line.
Ambient/Media Temperature: 15° to 160°F (-10° to 70°C).
Flow Media: Filtered air.
Operating Pressure: 15 to 150 psig (1 to 10.3 bar).

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

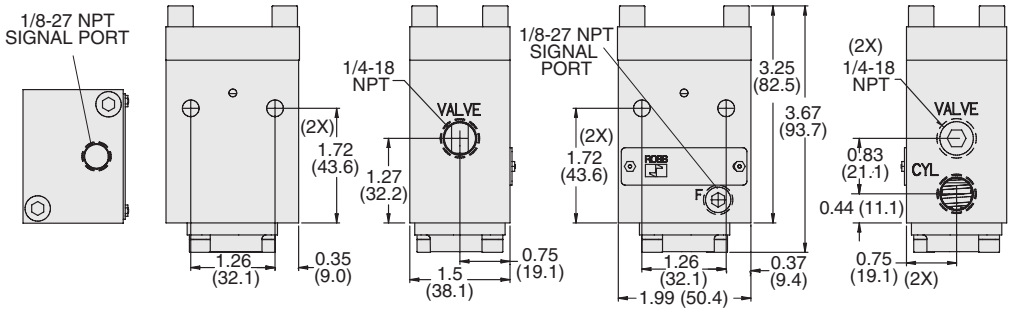
Online Version
Rev. 11/14/16

2-Way 2-Position, Pressure Controlled				
Ports Size	**Valve Model Number***	**Signal Port**	**C_v**	**Weight** lb (kg)
1/4	2751A2908	1/8-27 NPT	2.2	2.3 (1.0)
3/8	2751A3908	1/8-27 NPT	2.9	2.3 (1.0)
1/2	2751A4915	1/8-27 NPT	3.2	2.3 (1.0)

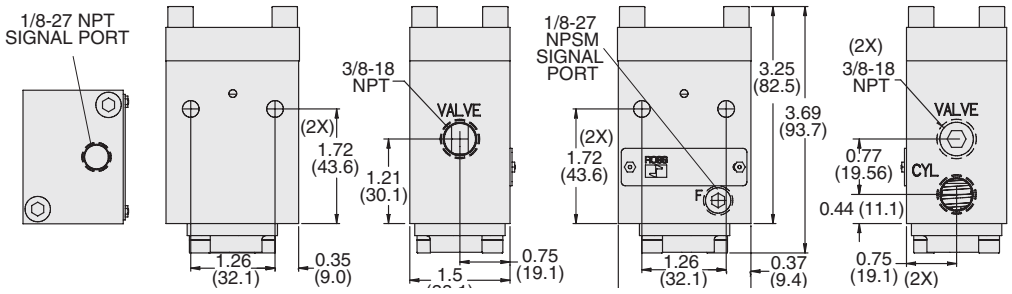
* NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g.,D2751A2908.

Valve Dimensions – inches (mm)

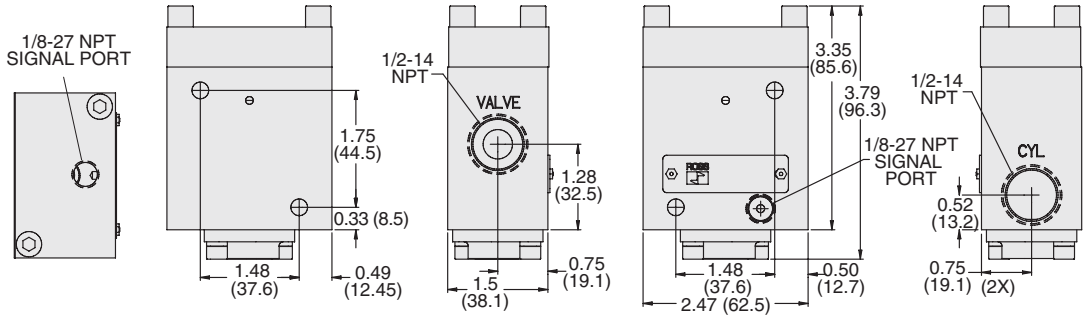
Port Size 1/4



Port Size 3/8



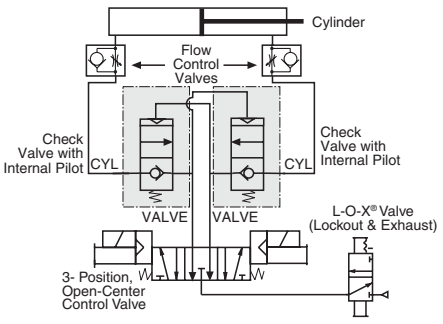
Port Size 1/2



Single Pilot Operated Check Valve Application

CIRCUIT FEATURES:

- Cylinder moves as long as the control valve solenoid is energized. Use for continuous motion or jogging.
- Cylinder remains stationary if neither control valve solenoid is energized, or if electrical signal is lost.

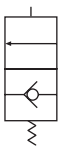


STANDARD SPECIFICATIONS (for valves on this page)**:**

Construction: Poppet.
Mounting Type: In-Line.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Inlet Pressure: 15 to 150 psig (1 to 10.3 bar).
Flow Media: Filtered air.
Signal Pressure: Must be equal to or greater than inlet pressure.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

2-Way 2-Position, Pressure Controlled						
Ports Size	**Body Size**	**Valve Model Number***	**Signal Port**	**C_v**	**Weight** lb (kg)	
1/4	3/8	2751A2903	1/4	2.3	1.3 (0.6)	
3/8	3/8	2751A3901	1/4	3.8	1.3 (0.6)	
1/2	3/8	2751A4902	1/4	4.0	1.3 (0.6)	
1/2	3/4	2751A4905	1/4	7.7	2.3 (1.0)	
3/4	3/4	2751A5903	1/4	9.0	2.3 (1.0)	
1	3/4	2751A6901	1/4	9.0	2.3 (1.0)	
1	1¼	2751B6904	1/4	24	6.0 (2.7)	
1¼	1¼	2751B7901	1/4	29	6.0 (2.7)	
1½	1¼	2751B8902	1/4	29	6.0 (2.7)	

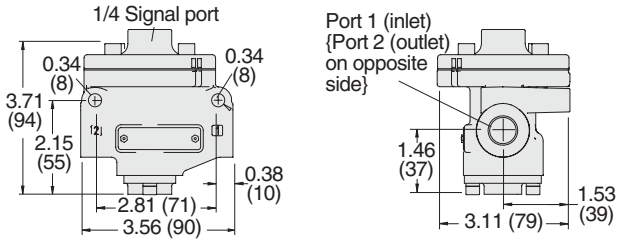


* NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g.,D2751A2903.

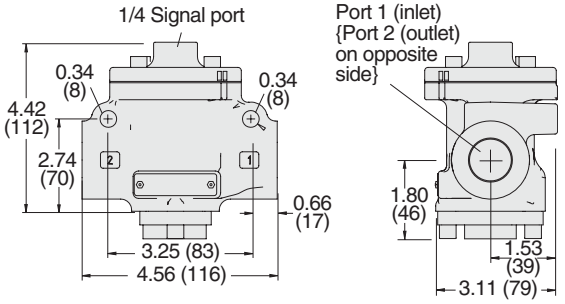
CONTROL CATEGORY 1

Valve Dimensions – inches (mm)

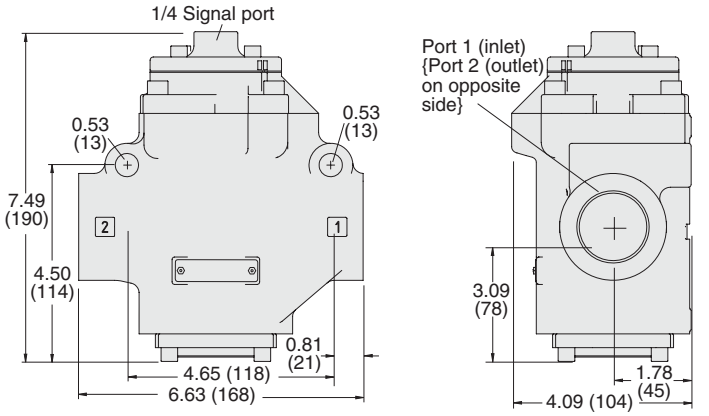
Body Size 3/8



Body Size 3/4



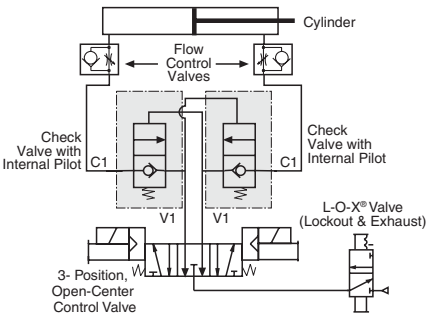
Body Size 1½



Single Pilot Operated Check Valve Application

CIRCUIT FEATURES:

- Cylinder moves as long as the control valve solenoid is energized. Use for continuous motion or jogging.
- Cylinder remains stationary if neither control valve solenoid is energized, or if electrical signal is lost.



STANDARD SPECIFICATIONS (for valves on this page)**:**

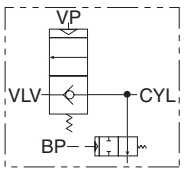
Construction: Poppet.
Mounting Type: In-Line.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Inlet Pressure: 15 to 150 psig (1 to 10.3 bar).
Flow Media: Filtered air.
Signal Pressure: Must be equal to or greater than inlet pressure.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Online Version
Rev. 11/14/16

2-Way 2-Position, Pressure Controlled				
Ports Size	**Valve Model Number***	**Signal Port**	**C_v**	**Weight** lb (kg)
3/8	2751A3922	1/8-27 NPT	2.6	1.8 (0.8)
1/2	2751A4922	1/8-27 NPT	2.8	1.8 (0.8)
3/4	2751A5917	1/8-27 NPT	9.2	2.9 (3.1)

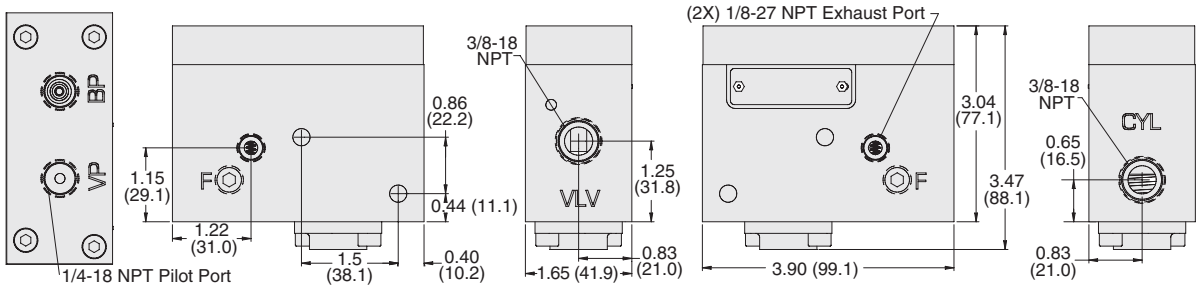
* NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g.,D2751A3922.



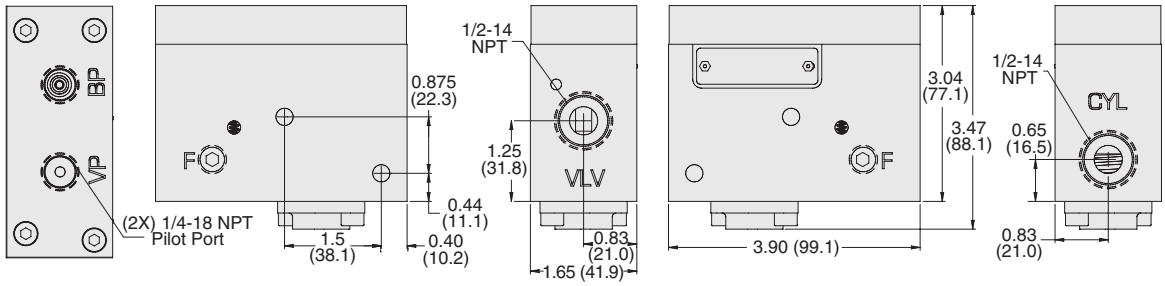
CONTROL CATEGORY 1

Valve Dimensions – inches (mm)

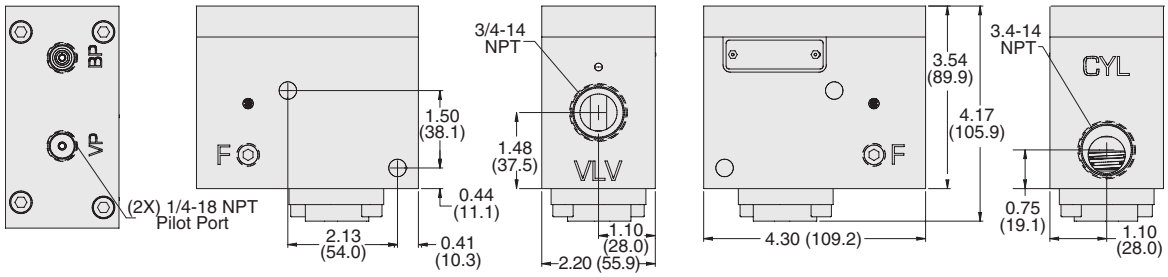
Port Size 3/8



Port Size 1/2



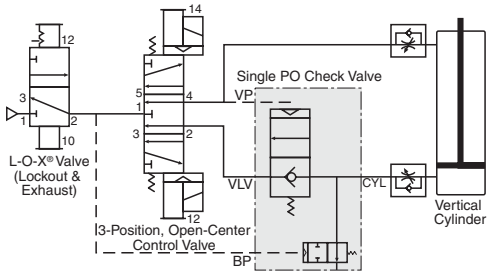
Port Size 3/4



Single Pilot Operated Check Valve with Trapped Pressure Relief Application

CIRCUIT FEATURES:

- Trapped pressure between check valve and cylinder is exhausted when the air supply at the Blowdown Signal Port (BP) is lost or locked-out.
- Cylinder moves as long as the control valve solenoid is energized. Use for continuous motion or jogging.
- Cylinder remains stationary if neither control valve solenoid is energized, or if electrical signal is lost.

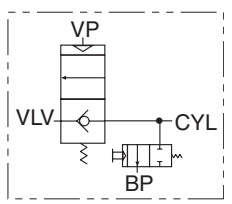


STANDARD SPECIFICATIONS (for valves on this page)**:**

Construction: Poppet.
Mounting Type: In-Line.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Inlet Pressure: 15 to 150 psig (1 to 10.3 bar).
Flow Media: Filtered air.
Signal Pressure: Must be equal to or greater than inlet pressure.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

2-Way 2-Position, Pressure Controlled			
Ports Size	**Valve Model Number***	**C_v**	**Weight** lb (kg)
3/8	2751A3920	2.6	1.8 (0.8)
1/2	2751A4920	2.8	1.8 (0.8)
3/4	2751A5919	9.2	2.9 (3.1)

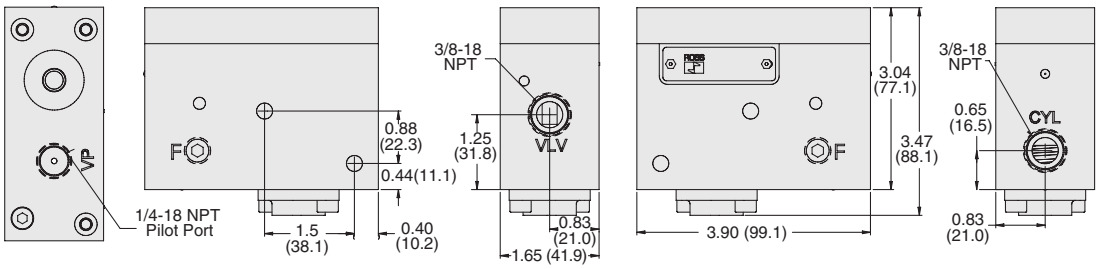


* NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g.,D2751A3920.

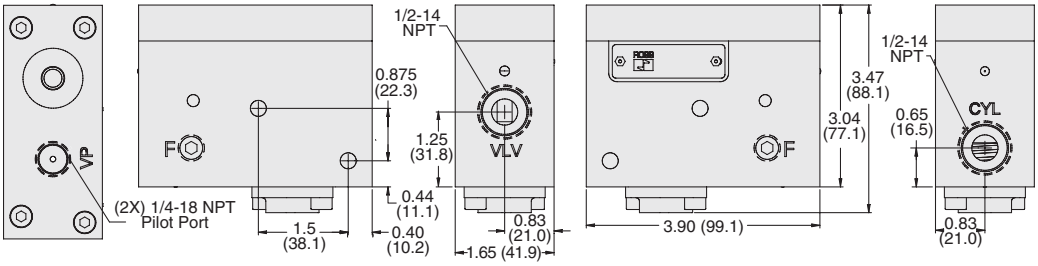
CONTROL CATEGORY 1

Valve Dimensions – inches (mm)

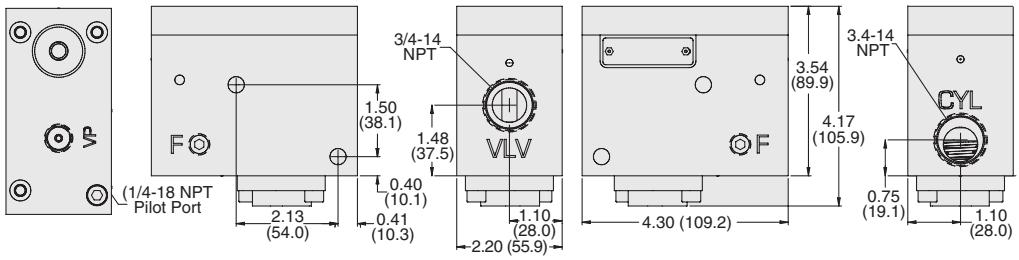
Port Size 3/8



Port Size 1/2



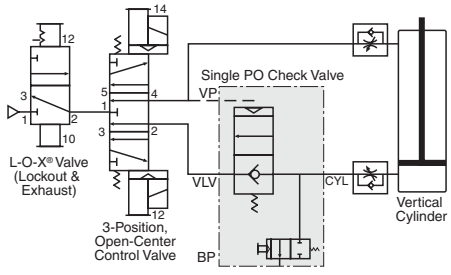
Port Size 3/4



Single Pilot Operated Check Valve with Manual Trapped Pressure Relief Application

CIRCUIT FEATURES:

- Trapped pressure between check valve and cylinder is exhausted when the manual relief button is pressed.
- Cylinder moves as long as the control valve solenoid is energized. Use for continuous motion or jogging.
- Cylinder remains stationary if neither control valve solenoid is energized, or if electrical signal is lost.

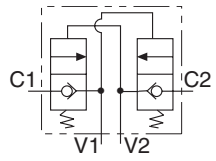


STANDARD SPECIFICATIONS (for valves on this page)**:**

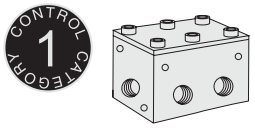
Construction: Poppet.
Mounting Type: In-Line.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Inlet Pressure: 15 to 150 psig (1 to 10.3 bar).
Flow Media: Filtered air.
Signal Pressure: Must be equal to or greater than inlet pressure.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

2-Way 2-Position, Pressure Controlled				
Ports Size	**Valve Model Number***	**Signal Port**	**C_v**	**Weight** lb (kg)
3/8	2768C3900	1/8-27 NPT	2.9	2.0 (0.9)
1/2	2768C4900	1/8-27 NPT	3.2	2.4 (1.1)
3/4	2768C5900	1/8-27 NPT	8.5 #	3.8 (1.7)
1	2768A6900	1/8-27 NPT	8.5 #	6.8 (3.1)

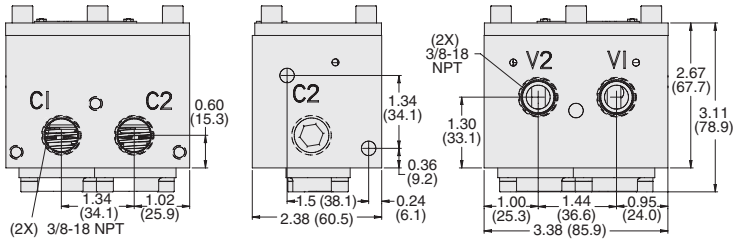


* NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g.,D2768C3900.
# Effective C_v varies with load and pressure drop. Consult ROSS for specifics on your system.

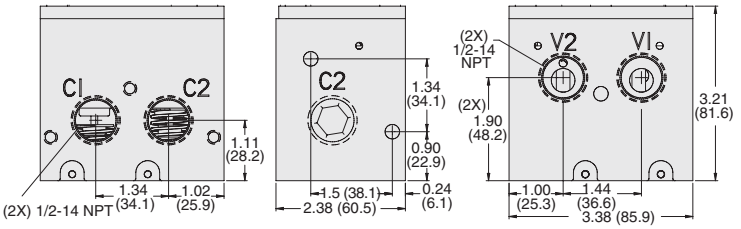


Valve Dimensions – inches (mm)

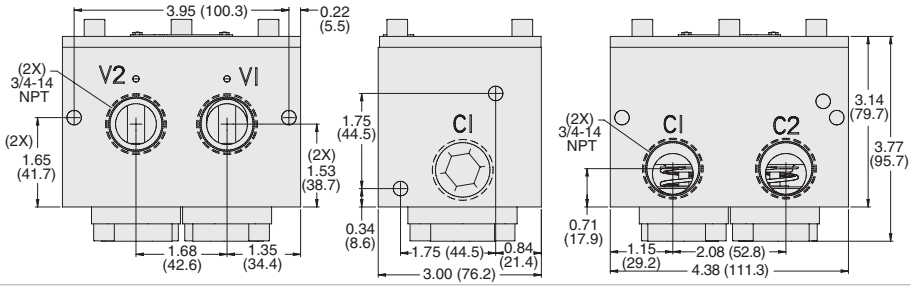
Port Size 3/8



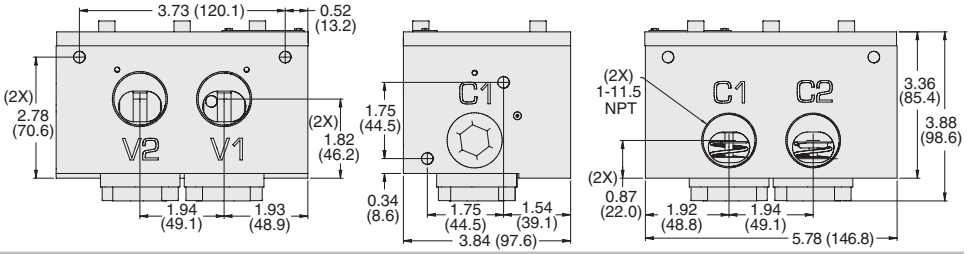
Port Size 1/2



Port Size 3/4



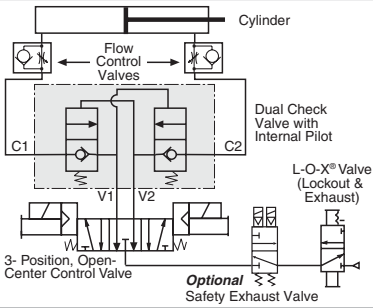
Port Size 1



Dual Pilot Operated Check Valve Application

CIRCUIT FEATURES:

- Cylinder moves as long as the control valve solenoid is energized. Use for continuous motion or jogging.
- Cylinder remains stationary if neither control valve solenoid is energized, or if electrical signal is lost.

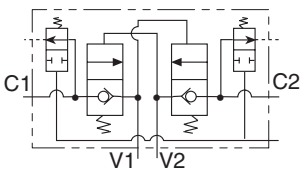


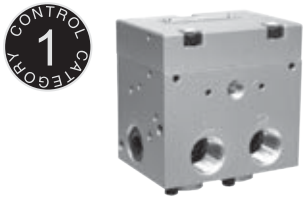
STANDARD SPECIFICATIONS (for valves on this page)**:**

Construction: Poppet.
Mounting Type: In-Line.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Inlet Pressure: 15 to 150 psig (1 to 10.3 bar).
Flow Media: Filtered air.
Signal Pressure: Must be equal to or greater than inlet pressure.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

2-Way 2-Position, Pressure Controlled				
Ports Size	**Valve Model Number***	**Signal Port**	**C_v**	**Weight** lb (kg)
3/8	2768D3901	1/8-27 NPT	2.9	2.3 (1.1)
1/2	2768D4901	1/8-27 NPT	3.2	2.3 (1.1)
3/4	2768D5901	1/8-27 NPT	8.5 #	3.8 (1.7)
1	2768D6901	1/8-27 NPT	8.5 #	7.4 (3.4)

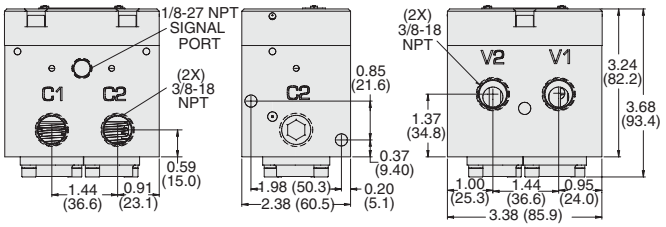




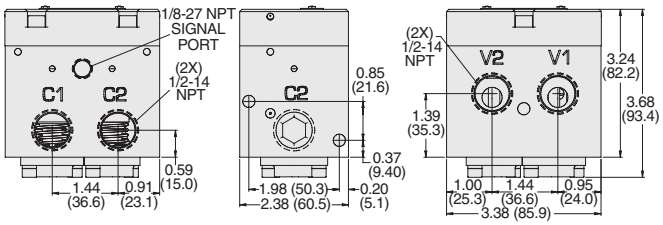
* NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g.,D2768D3901.
# Effective C_V varies with load and pressure drop. Consult ROSS for specifics on your system.

Valve Dimensions – inches (mm)

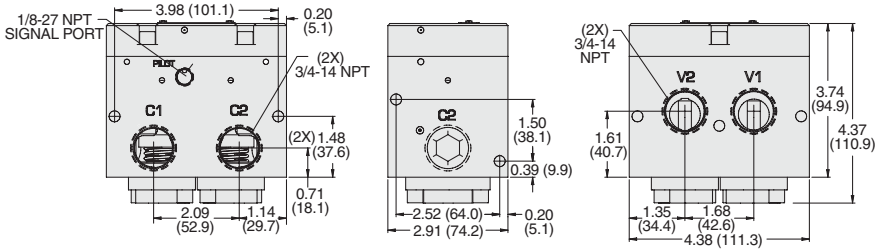
Port Size 3/8



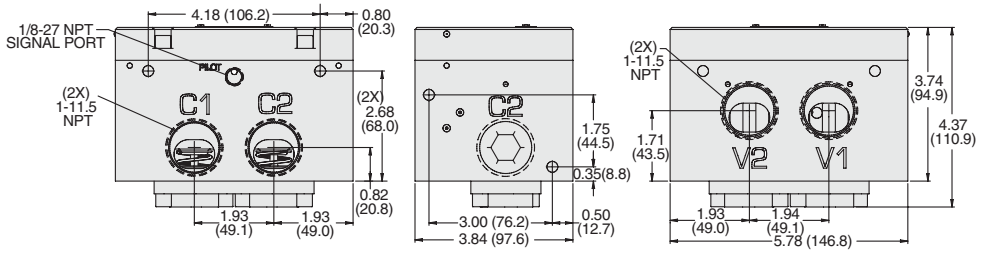
Port Size 1/2



Port Size 3/4



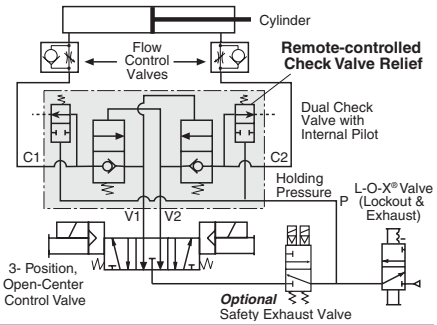
Port Size 1



Dual Pilot Operated Check Valve Remote Trapped Pressure Relief Application

CIRCUIT FEATURES:

- Trapped pressure between check valve and cylinder is exhausted when the air supply at the port "P" is lost or locked-out.
- Cylinder moves as long as the control valve solenoid is energized. Use for continuous motion or jogging.
- Cylinder remains stationary if neither control valve solenoid is energized, or if electrical signal is lost.

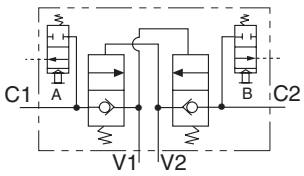


STANDARD SPECIFICATIONS (for valves on this page)**:**

Construction: Poppet.
Mounting Type: In-Line.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Inlet Pressure: 15 to 150 psig (1 to 10.3 bar).
Flow Media: Filtered air.
Signal Pressure: Must be equal to or greater than inlet pressure.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

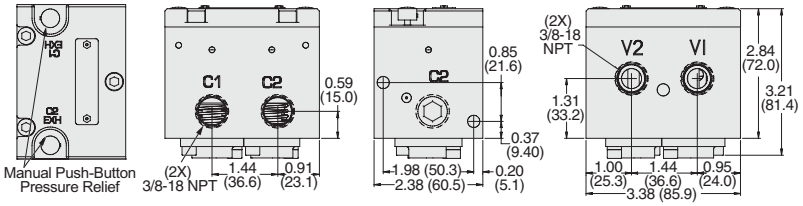
2-Way 2-Position, Pressure Controlled			
Ports Size	**Valve Model Number**	**C_v**	**Weight** lb (kg)
3/8	2768D3904	2.9	2.3 (1.1)
1/2	2768D4904	3.2	2.3 (1.1)
3/4	2768D5904	8.5 #	3.8 (1.7)
1	2768D6904	8.5 #	6.58 (3.0)



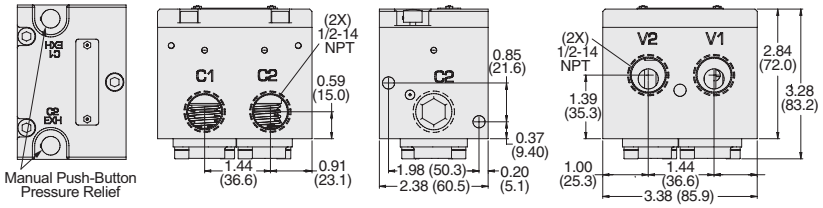
* NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g.,D2768D3904.
# Effective C_V varies with load and pressure drop. Consult ROSS for specifics on your system.

Valve Dimensions – inches (mm)

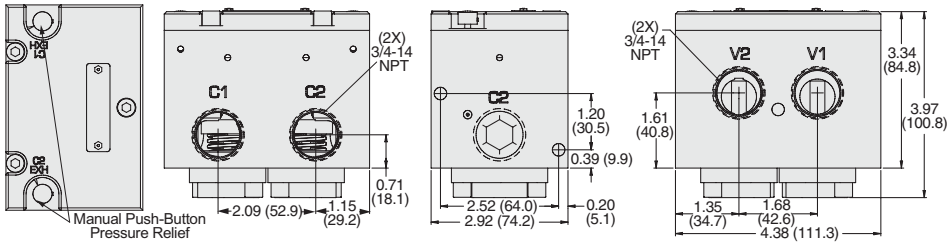
Port Size 3/8



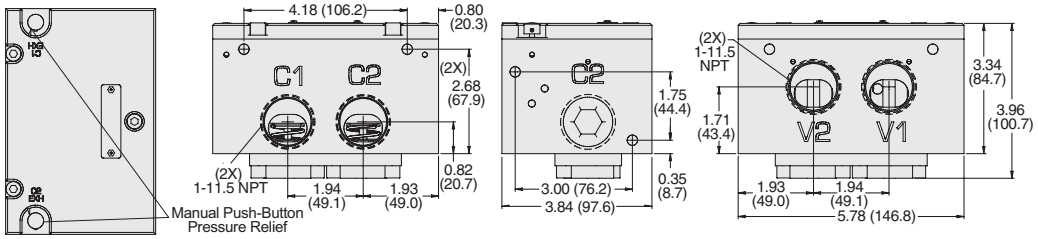
Port Size 1/2



Port Size 3/4



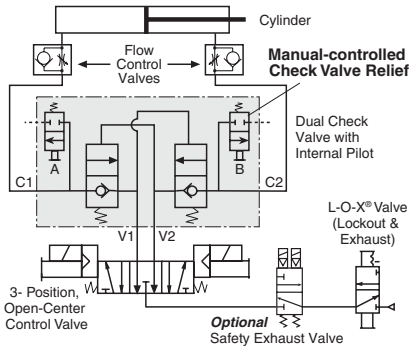
Port Size 1



Dual Pilot Operated Check Valve Manual Trapped Pressure Relief Application

CIRCUIT FEATURES:

- Trapped pressure between check valve and cylinder is exhausted when push buttons A and B are pressed.
- Cylinder moves as long as the control valve solenoid is energized. Use for continuous motion or jogging.
- Cylinder remains stationary if neither control valve solenoid is energized, or if electrical signal is lost.



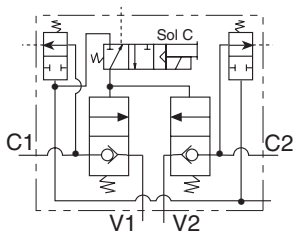
STANDARD SPECIFICATIONS (for valves on this page)**:**

Construction: Poppet.
Mounting Type: In-Line.
Ambient/Media Temperature: 40° to 175°F (4° to 80°C).
Inlet Pressure: 15 to 150 psig (1 to 10.3 bar).
Flow Media: Filtered air.
Signal Pressure: Must be equal to or greater than inlet pressure.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

2-Way 2-Position, Solenoid Pilot Controlled

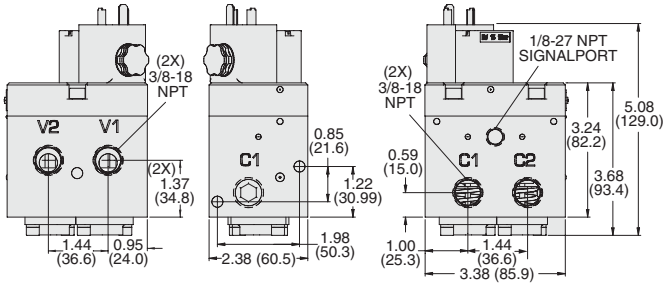
Ports Size	Valve Model Number* DIN Connector	3-Pin Mini Connector	24 Volts DC 3-Pin Mini	24 Volts DC 4-Pin Micro	Signal Port	C_v
3/8	2778D3900**	2778D3901**	2778D3902	2778D3904	1/8-27 NPT	2.9
1/2	2778D4900**	2778D4901**	2778D4902	2778D4904	1/8-27 NPT	3.2
3/4	2778D5900**	2778D5901**	2778D5902	2778D5904	1/8-27 NPT	8.5 #
1	2778D6900**	2778D6901**	2778D6902	2778D6904	1/8-27 NPT	8.5 #



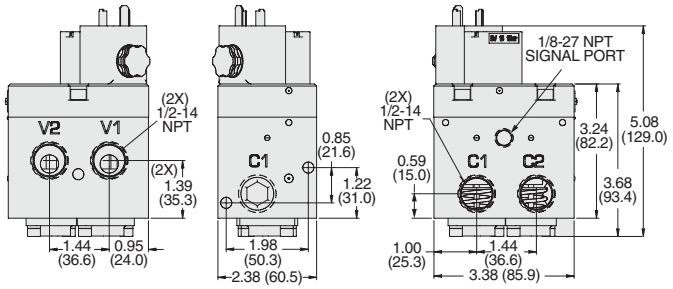
* NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g.,D2778D3900W.
**Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g.,D2778D3900W. For other voltages, consult ROSS.
Effective C_V varies with load and pressure drop. Consult ROSS for specifics on your system.

Valve Dimensions – inches (mm)

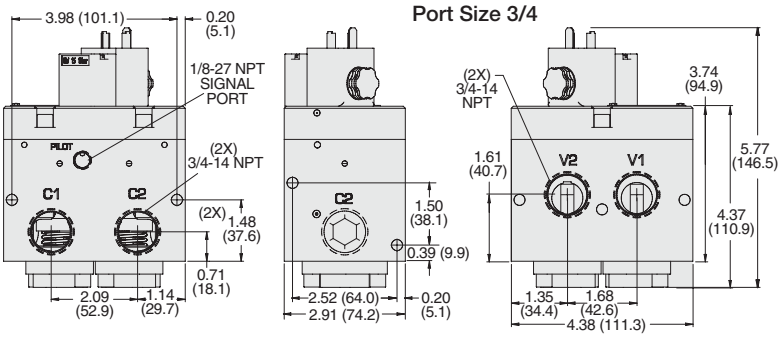
Port Size 3/8



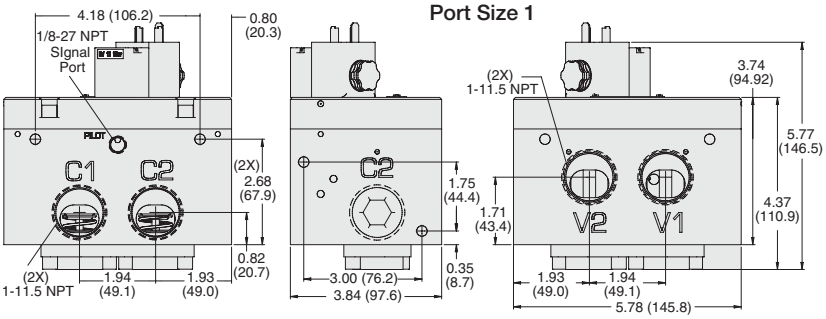
Port Size 1/2



Port Size 3/4



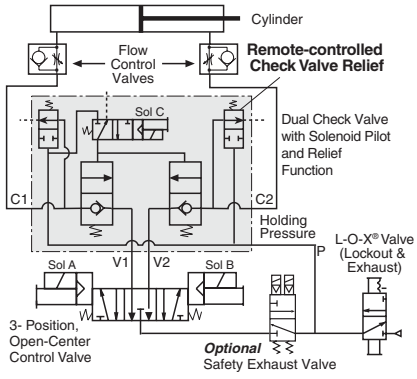
Port Size 1



Dual Pilot Operated Check Valve Solenoid Pilot Controlled Application

CIRCUIT FEATURES:

- To operate cylinder, simultaneously energize solenoids A and C *or* B and C.
- Pilot supply and exhaust are independent of control valve.
- Response time is not affected by exhaust restrictions of the control valve.
- Cylinder remains stationary if neither control valve solenoid is energized, or if electrical signal is lost.
- Pressure in cylinder is exhausted when the air supply at "P" port is lost or locked-out.
- L-O-X® valve provides lockable shut-off of air supply, and exhausting of trapped downstream air.



Connector Wiring

STANDARD SPECIFICATIONS (for valves on this page):

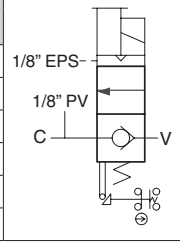
Construction: Poppet.
Mounting Type: In-Line.
Solenoids: AC or DC power.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption: 8 VA inrush, 6 VA holding on AC; on DC 4.5 watts with 4-pin Micro connector, 60 watts with 3-pin connector.

Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Inlet Pressure: 30 to 150 psig (2 to 10 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

2-Way 2-Position Valves, Solenoid Pilot Controlled

Port Size 1, 2	Body Size	Valve Model Number*	C_v 1-2	Weight lb (kg)
1/2	3/4	SV27NC115408CSAA**	4.5	5.0 (2.3)
3/4	3/4	SV27NC115508CSAA**	8.3	5.0 (2.3)
1	3/4	SV27NC115608CSAA**	10.3	5.0 (2.3)
1	1¼	SV27NC117608CSAA**	20	12.5 (5.6)
1¼	1¼	SV27NC117708CSAA**	29	12.5 (5.6)
1½	1¼	SV27NC117808CSAA**	33	12.5 (5.6)



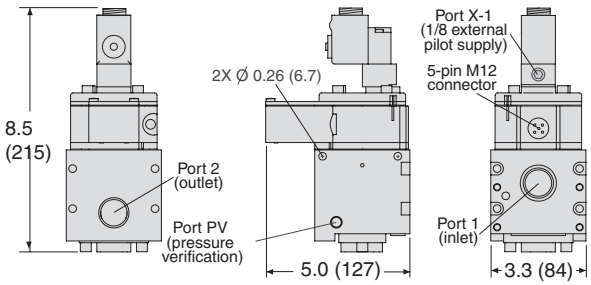
CONTROL CATEGORY 2

* NPT port threads. For BSPP threads, replace "N" in the model number with a "D", e.g., SV27DC115408CSAA1A.

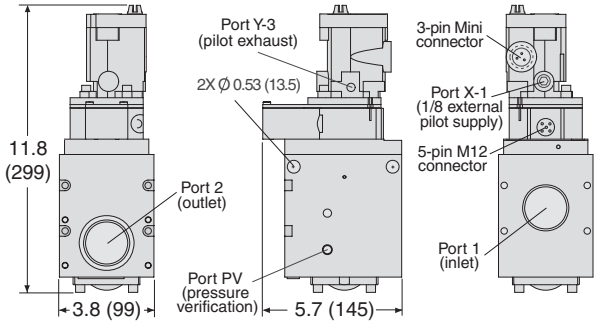
** Insert voltage code: "1A"=110-120 volts AC, 50/60 Hz; "1D"= 24 volts DC; .e.g., SV27NC115408CSAA1A. For other voltages, consult ROSS.

Valve Dimensions – inches (mm)

Body Size 3/4 (CNOMO Style Pilot)



Body Size 1¼ (Pacer Style Pilot)



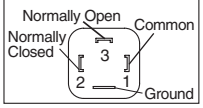
F4

Accessories & Options

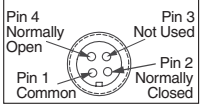
Pressure Switches	Connection Type	Model Number*	Port Threads
	EN 175301-803 Form A	586A86	1/8 NPT
	M12	1153A30	1/8 NPT

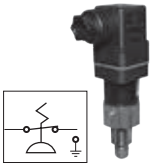
*Pressure switch closes on falling pressure of 5 psig (0.34 bar).

EN Connector Pinout



M12 Connector Pinout





Indicator Light Kit for Pacer Style Pilot

Kit Number	
24 volts DC	110-120 volts AC 50-60 Hz
862K87-W	862K87-Z

F

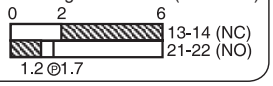
Preassembled Wiring Kits

Kit Number*	Length meters (feet)	Number of Cables
2239H77	4 (13.1)	2
2240H77	10 (32.8)	2

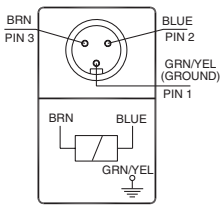
* Each cable has one connector.

Contact conditions during switch travel (0 to 6 mm).

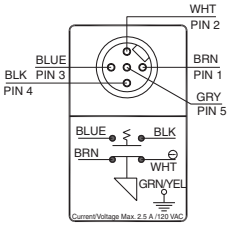
Integrated Double-Pole Single-Throw Switch (DPST) Switch States



The wiring kits come with a cord grip on each cable. One cable has a 3-pin MINI connector for the solenoid and one has a 5-pin M12 (Micro) connector for the sensing switch.



Solenoid Cable with 3-pin MINI Connector



Sensing Switch Cable with 5-pin M12 Connector

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: In-Line.
Solenoid: AC or DC power. Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption:
CNOMO Style: 11 VA inrush, 8.5 VA holding on 50 or 60 Hz; 6 watts on DC.
Pacer Style: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 40 to 150 psig (2.8 to 10.3 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.

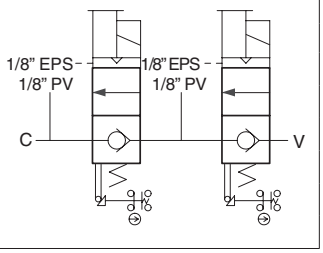
Switch Current/Voltage Max.: 2.5 A/120 volts AC.
Switch Current/Voltage Min.: 50 mA/24 volts DC.
NOTE: Electrical life of switch varies with conditions and voltage; rated in excess of 15 million cycles.

Functional Safety Data:
Category 2 PL d; B10d: Valve - 20,000,000, Switch – 2,000,000; PFHd: 2.35×10^{-7} ; MTTFd: 98.15 (n_{op}: 7360); DC (obtained by monitoring safety switch status): 90%; ROSS recommends testing the switch function and sealing for load holding valves every 8 hours.
Vibration/Impact Resistance: Calculated to BS EN 60068-2-27.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

2-Way 2-Position Redundant Valves, Solenoid Pilot Controlled

Port Size 1, 2	Body Size	Valve Model Number*	C_v 1-2	Weight lb (kg)
1/2	3/4	SV27NC555408CSAA**	3.8	10.0 (4.5)
3/4	3/4	SV27NC555508CSAA**	5.6	10.0 (4.5)
1	3/4	SV27NC555608CSAA**	8	10.0 (4.5)
1	1¼	SV27NC557608CSAA**	12	25.0 (11.3)
1¼	1¼	SV27NC557708CSAA**	19	25.0 (11.3)
1½	1¼	SV27NC557808CSAA**	22	25.0 (11.3)



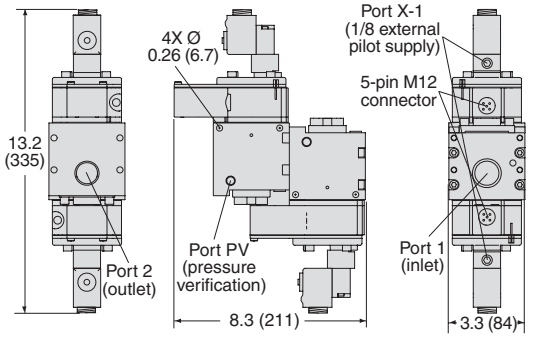
CONTROL CATEGORY 3

* NPT port threads. For BSPP threads, replace "N" in the model number with a "D", e.g., SV27DC555408CSAA1A.

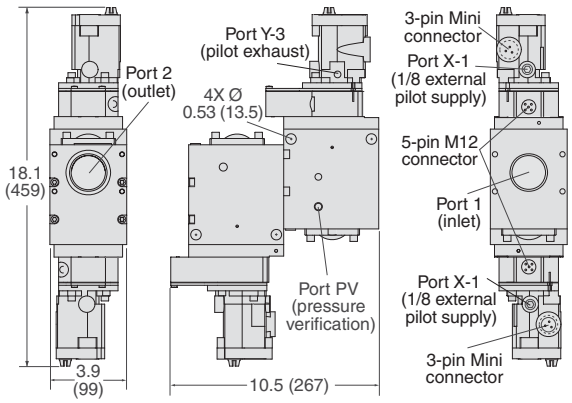
** Insert voltage code: "1A"=110-120 volts AC, 50/60 Hz; "1D"= 24 volts DC; .e.g., SV27NC555408CSAA1A. For other voltages, consult ROSS.

Valve Dimensions – inches (mm)

Body Size 3/4 (CNOMO Style Pilot)



Body Size 1¼ (Pacer Style Pilot)



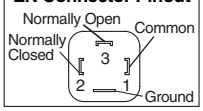
F4

Accessories & Options

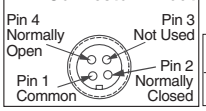
Pressure Switches	Connection Type	Model Number*	Port Threads
	EN 175301-803 Form A	586A86	1/8 NPT
	M12	1153A30	1/8 NPT

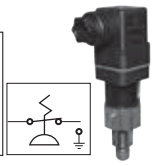
*Pressure switch closes on falling pressure of 5 psig (0.34 bar).

EN Connector Pinout



M12 Connector Pinout





Indicator Light Kit for Pacer Style Pilot

Kit Number	
24 volts DC	110-120 volts AC 50-60 Hz
862K87-W	862K87-Z

F

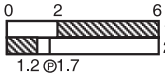
Preassembled Wiring Kits

Kit Number*	Length meters (feet)	Number of Cables
2239H77	4 (13.1)	2
2240H77	10 (32.8)	2

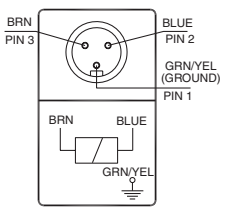
* Each cable has one connector.

Contact conditions during switch travel (0 to 6 mm).

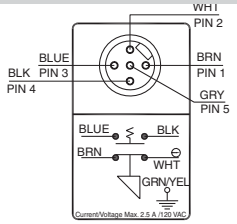
Integrated Double-Pole Single-Throw Switch (DPST) Switch States



The wiring kits come with a cord grip on each cable. One cable has a 3-pin MINI connector for the solenoid and one has a 5-pin M12 (Micro) connector for the sensing switch.



Solenoid Cable with 3-pin MINI Connector



Sensing Switch Cable with 5-pin M12 Connector

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: In-Line.
Solenoid: AC or DC power. Rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption:
CNOMO Style: 11 VA inrush, 8.5 VA holding on 50 or 60 Hz; 6 watts on DC.
Pacer Style: 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 40 to 150 psig (2.8 to 10.3 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.

Switch Current/Voltage Max.: 2.5 A/120 volts AC.
Switch Current/Voltage Min.: 50 mA/24 volts DC.
NOTE: Electrical life of switch varies with conditions and voltage; rated in excess of 15 million cycles.

Functional Safety Data:
Category 3 PL e; B10d: Valve - 20,000,000, Switch – 2,000,000; PFHd: 2.47×10^{-8}; MTTFd: 100 (n_{op}: 7360); DC (obtained by monitoring safety switch status): 90%; ROSS recommends testing the switch function and sealing for load holding valves every 8 hours.
Vibration/Impact Resistance: Calculated to BS EN 60068-2-27.

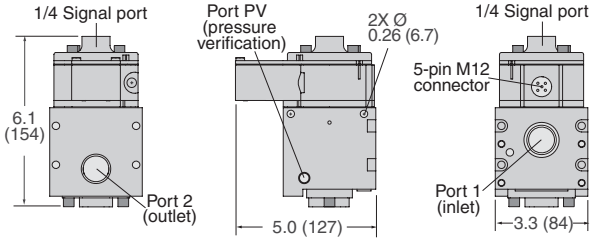
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

2-Way 2-Position Valves, Pressure Controlled					
Port Size 1, 2	Body Size	Valve Model Number*	C_v 1-2	Weight lb (kg)	1/4" Signal port, 1/8" PV, C, V
1/2	3/4	SV27NC115405ASAA	4.5	4.0 (1.8)	
3/4	3/4	SV27NC115505ASAA	8.3	4.0 (1.8)	
1	3/4	SV27NC115605ASAA	10.3	4.0 (1.8)	
1	1¼	SV27NC117605ASAA	20	11.0 (5.0)	
1¼	1¼	SV27NC117705ASAA	29	11.0 (5.0)	
1½	1¼	SV27NC117805ASAA	33	11.0 (5.0)	

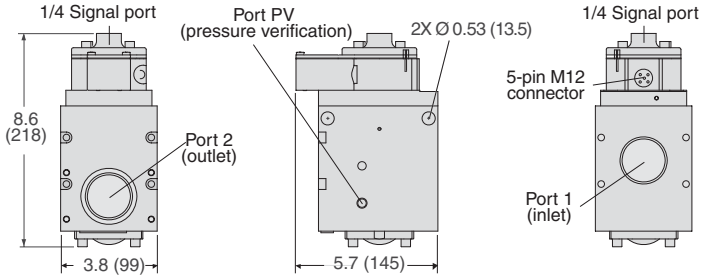
* NPT port threads. For BSPP threads, replace "N" in the model number with a "D", e.g., SV27DC115405ASAA.

Valve Dimensions – inches (mm)

Body Size 3/4

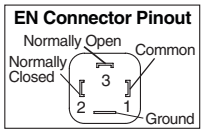


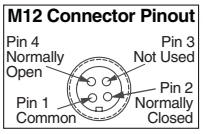
Body Size 1¼

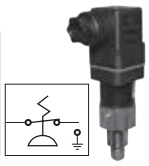


Accessories & Options

Pressure Switches	Connection Type	Model Number*	Port Threads
	EN 175301-803 Form A	586A86	1/8 NPT
	M12	1153A30	1/8 NPT
*Pressure switch closes on falling pressure of 5 psig (0.34 bar).			



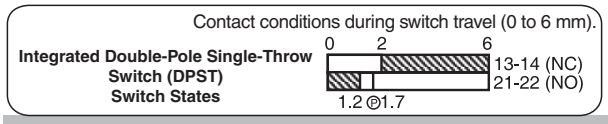


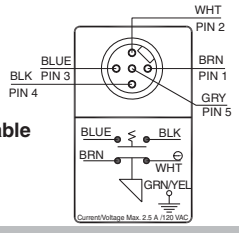


Preassembled Wiring Kits

Kit Number*	Length meters (feet)	Number of Cables
2241H77	4 (13.1)	1
2242H77	10 (32.8)	1
* Each cable has one connector.		

The wiring kits include one cable with a 5-pin M12 connector for the sensing switch, and a cord grip.





Sensing Switch Cable with 5-pin M12 Connector

STANDARD SPECIFICATIONS (for valves on this page):

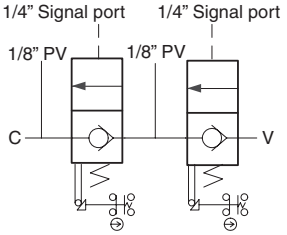
Construction: Poppet.
Mounting Type: In-Line.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 40 to 150 psig (2.8 to 10.3 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.
Switch Current/Voltage Max.: 2.5 A/120 volts AC.
Switch Current/Voltage Min.: 50 mA/24 volts DC.

NOTE: Electrical life of switch varies with conditions and voltage; rated in excess of 15 million cycles.

Functional Safety Data:
Category 2 PL d; B10d: Valve - 20,000,000, Switch – 2,000,000; PFHd: 2.35×10^{-7} ; MTTFd: 98.15 (n_{op}: 7360); DC (obtained by monitoring safety switch status): 90%; ROSS recommends testing the switch function and sealing for load holding valves every 8 hours.
Vibration/Impact Resistance: Calculated to BS EN 60068-2-27.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

2-Way 2-Position Valves, Pressure Controlled				
Port Size 1, 2	**Body Size**	**Valve Model Number***	**C_v 1-2**	**Weight lb (kg)**
1/2	3/4	SV27NC555405ASAA	3.8	9.0 (4.1)
3/4	3/4	SV27NC555505ASAA	5.6	9.0 (4.1)
1	3/4	SV27NC555605ASAA	8	9.0 (4.1)
1	1¼	SV27NC557605ASAA	12	22.0 (10.0)
1¼	1¼	SV27NC557705ASAA	19	22.0 (10.0)
1½	1¼	SV27NC557805ASAA	22	22.0 (10.0)

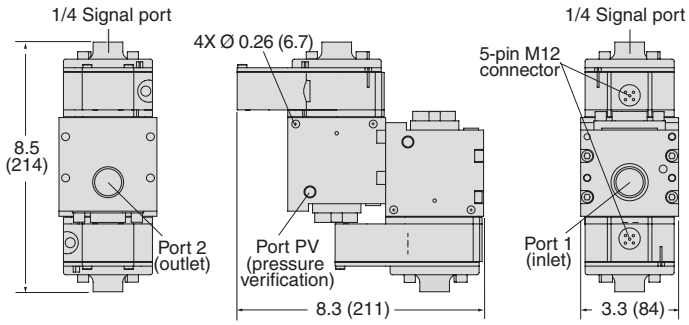


CONTROL CATEGORY 3

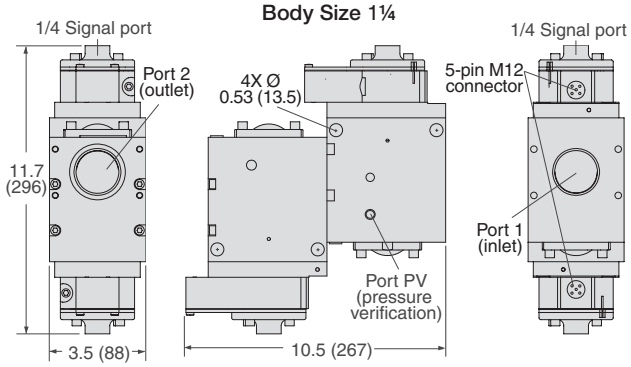
* NPT port threads. For BSPP threads, replace "N" in the model number with a "D", e.g., SV27DC555405ASAA.

Valve Dimensions – inches (mm)

Body Size 3/4



Body Size 1¼

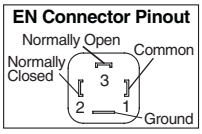


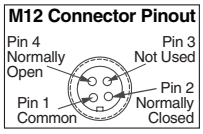
F4

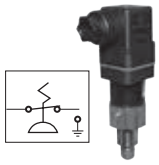
Accessories & Options

Pressure Switches	Connection Type	Model Number*	Port Threads
	EN 175301-803 Form A	586A86	1/8 NPT
	M12	1153A30	1/8 NPT

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).







F

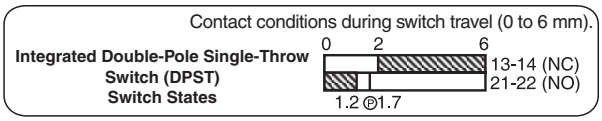
Preassembled Wiring Kits

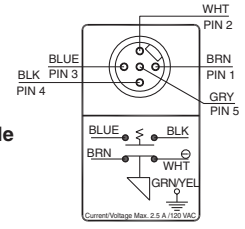
SV27 Redundant PO Check valves (CAT 3), requires 2 kits.

Kit Number*	Length meters (feet)	Number of Cables
2241H77	4 (13.1)	1
2242H77	10 (32.8)	1

* Each cable has one connector.

The wiring kits include one cable with a 5-pin M12 connector for the sensing switch, and with a cord grip.





Sensing Switch Cable with 5-pin M12 Connector

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet.
Mounting Type: In-Line.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 40 to 150 psig (2.8 to 10.3 bar).
Pilot Pressure: Must be equal to or greater than inlet pressure.
Switch Current/Voltage Max.: 2.5 A/120 volts AC.
Switch Current/Voltage Min.: 50 mA/24 volts DC.

NOTE: Electrical life of switch varies with conditions and voltage; rated in excess of 15 million cycles.

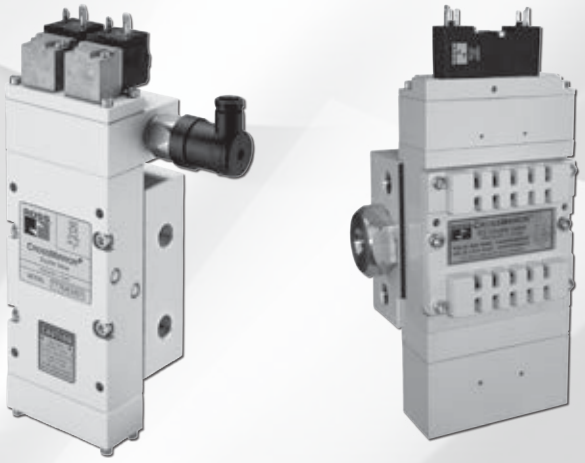
Functional Safety Data:
Category 3 PL e; B10d: Valve - 20,000,000, Switch – 2,000,000; PFHd: $2.47x10^{-8}$; MTTFd: 100 (n_{op}: 7360); DC (obtained by monitoring safety switch status): 90%; ROSS recommends testing the switch function and sealing for load holding valves every 8 hours.
Vibration/Impact Resistance: Calculated to BS EN 60068-2-27.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

F

ROSS CONTROLS®

Double Valves for Cylinder Return to Home Position CrossMirror® 77 and CM Series



www.rosscontrols.com

5/2 PRESSURE RETURN – KEY FEATURES

- Can be used as 3/2 Normally Closed or 3/2 Normally Open valve function by plugging the unused outlet port
- Self-contained dynamic monitoring system; no additional monitoring required
- Valve fault results in a lockout condition and prevents unintentional reset with removal of air or electricity
- Reset can be electrical solenoid or remote pneumatic signal
- Status indication switch (ready-to-run) to inform machine controller of valve condition
- Base mounted, stainless steel spool valve construction
- Manifoldable for multi valve applications
- Includes non-clogging safety mufflers; for applications requiring ported exhaust, consult ROSS

VALVE TYPE	VALVE SERIES	AVAILABLE PORT SIZES				MAX. FLOW Cv				RESET		Page
						Port Size						
		1/4	3/8	1/2	3/4	1/4	3/8	1/2	3/4	REMOTE	SOLENOID	
SOLENOID PILOT CONTROLLED												
with Pressure Switch	**77**		■	■	■		2.8	7.2	7.2	■	■	F5.3 - F5.4
without Pressure Switch	**77**		■	■	■		2.8	7.2	7.2	■	■	F5.3 - F5.4
PRESSURE CONTROLLED												
with Pressure Switch	**77**		■	■	■		2.8	7.2	7.2	■		F5.5 - F5.6
without Pressure Switch	**77**		■	■	■		2.8	7.2	7.2	■		F5.5 - F5.6
SOLENOID PILOT CONTROLLED												
with Pressure Switch	**CM**	■	■	■		1.1	1.1	3.9		■	■	F5.7 - F5.10
without Pressure Switch	**CM**	■	■	■		1.1	1.1	3.9		■	■	F5.7 - F5.10
COMPONENTS FOR MANIFOLD ASSEMBLIES - SOLENOID PILOT CONTROLLED												
Valves, Manifold Bases and End Stations for Manifold Assemblies												F5.7
PRESSURE CONTROLLED												
with Pressure Switch	**CM**	■	■	■		1.1	1.1	3.9		■		F5.11 - F5.13
without Pressure Switch	**CM**	■	■	■		1.1	1.1	3.9		■		F5.11 - F5.13
COMPONENTS FOR MANIFOLD ASSEMBLIES - PRESSURE CONTROLLED												
Valves, Manifold Bases and End Stations for Manifold Assemblies												F5.11

5 Ports, 4-Way 2-Position Valve, Solenoid Pilot Controlled

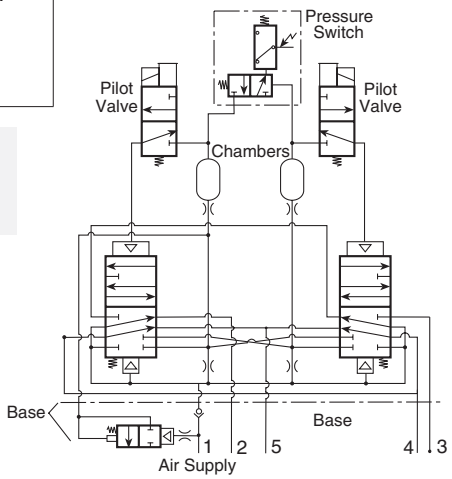
Port Sizes 1	Port Sizes 2, 4	Basic Size	Pressure Switch#	Model Number (valve and base)	C_v 1-2	C_v 1-4	C_v 2-3	C_v 4-5	Weight lb (kg)	Model Number (valve only)	Model Number (base only)
1/2	3/8	2*	With	Y7776A3411**	2.0	1.6	1.6	2.8	8.4 (3.8)	Y7776A3400**	996C91
1/2	3/8	2*	Without	Y7776A3410**	2.0	1.6	1.6	2.8	7.6 (3.4)	Y7776A3401**	996C91
3/4	1/2	4*	With	Y7776A4421**	3.2	3.4	2.7	7.2	11.2 (5.1)	Y7776A4400**	1049C91
3/4	1/2	4*	Without	Y7776A4420**	3.2	3.4	2.7	7.2	10.2 (4.6)	Y7776A4401**	1049C91
3/4	3/4	4*	With	Y7776A5411**	3.2	3.4	2.7	7.2	11.2 (5.1)	Y7776A4400**	1153C91
3/4	3/4	4*	Without	Y7776A5410**	3.2	3.4	2.7	7.2	10.2 (4.6)	Y7776A4401**	1153C91
SAE 12		4	With	SY7776A4H10**	3.2	3.4	2.7	7.2	11.2 (5.1)	Y7776A4400**	1159G91
SAE 12		4	Without	SY7776A4H11**	3.2	3.4	2.7	7.2	10.2 (4.6)	Y7776A4401**	1159G91

* NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., YD7776A3411W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110 volts AC, 120 volts AC ; e.g., Y7776A3411W.
For other voltages consult ROSS.
#Pressure switches with DIN type connection, for pressure switches with M12 type connection consult ROSS.

ISO 13849-1:2006
Category 4 PL e
applications

5/2 CrossMirror® double valve with pressure switch

This valve is constructed with precision, stainless steel spools as the main valve elements, and is designed to offer added safety to the operation of many pneumatically controlled machines. The Pressure switch provides a signal when valve is in a faulted position.



Accessories & Options

Pressure Switches & Pressure Switch Connectors	Pressure Switch 24 Volts DC	Pressure Switch 120 Volts AC	Pressure Switch Connector
	798E30	518E30	522E30
	798E30	518E30	522E30

Electrical Connectors

Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number Without Light	Lighted Connector 24 Volts DC	Lighted Connector 120 Volts AC
EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z
EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	10-mm	371K77	383K77-W	383K77-Z
EN 175301-803 Form A	Connector for threaded conduit (1/2 inch electrical conduit fittings)	–	–	723K77	724K77-W	724K77-Z
EN 175301-803 Form A	Connector Only	–	–	937K87	936K87-W	936K87-Z

CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

Explosion proof solenoid pilot available, for more information consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Double spool and sleeve.
Mounting Type: Base mounted.
Pilot Solenoid: According to VDE 0580. Enclosure rating according to DIN 400 50 IP 65. Three (with pressure switch) or two solenoids (without pressure switch), rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption (each solenoid)**:** 6 watts on DC; 18 VA inrush, 14 VA holding on 50 or 60 Hz.
Enclosure Rating: IP65, IEC 60529.
Electrical Connection: EN 175301-803 Form A. Uses cord-grip connectors at solenoids.

Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 40 to 150 psig (2.5 to 10.3 bar).

Functional Safety Data:
Category 4 PL e; B10d: 20,000,000; PFHd: 7.71×10^{-9} ; MTTFd: 301.9 (n_{op}: 662400).
Certifications: CE Marked for applicable directives, DGUV Test.
Vibration/Impact Resistance: Tested to BS EN 60068-2-27.

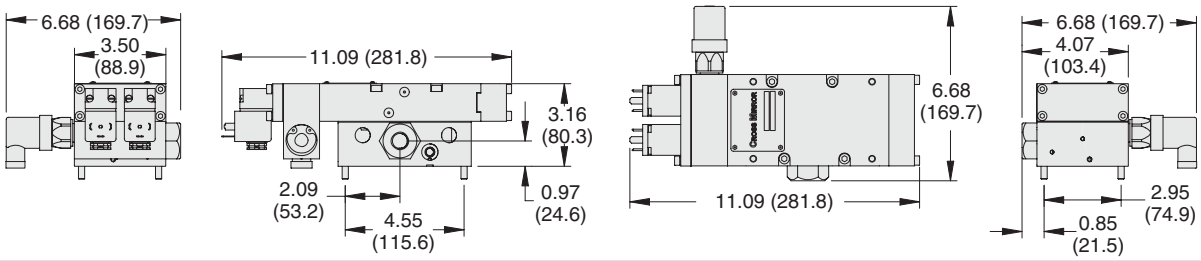
Meets Standards EN13736 and ANSI B11.2, Safety requirements for Pneumatic Cylinder Presses and other hazardous pneumatic cylinder applications.

This valve is not designed for controlling clutch/brake mechanisms on mechanical power presses.

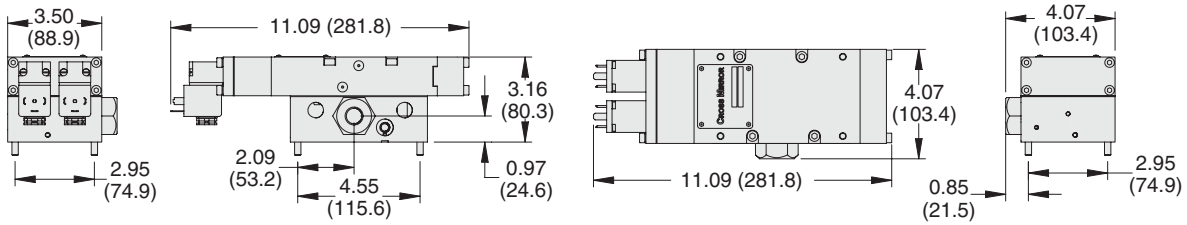
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Valve Dimensions – inches (mm)

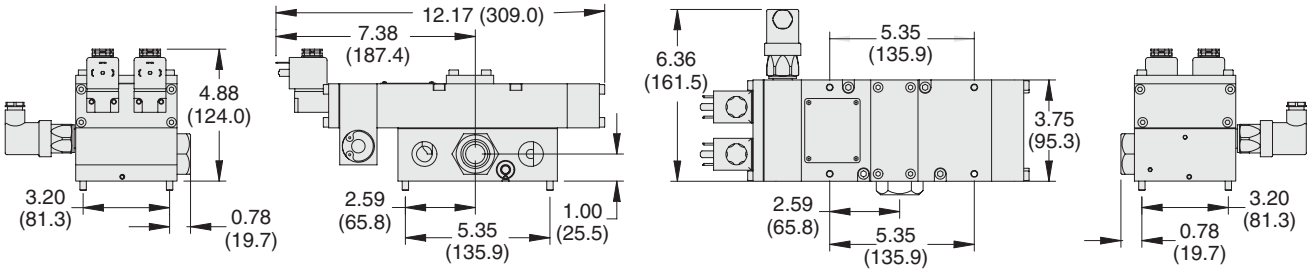
Basic Size 2 – Valve and base assembly, with remote reset and pressure switch.



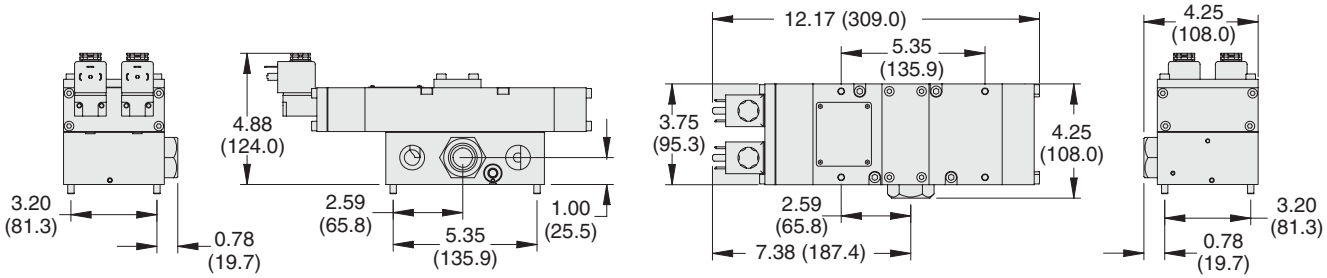
Basic Size 2 – Valve and base assembly, with remote reset and without pressure switch.



Basic Size 4 – Valve and base assembly, with remote reset and pressure switch.



Basic Size 4 – Valve and base assembly, with remote reset and without pressure switch.



F5

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Valve Operation

Normal Operation:

After installation the valve is operated by energizing both solenoid pilots (S1 and S2) simultaneously. This causes both main valve elements to be actuated so that air from inlet port 1 flows to outlet port 4. Air downstream of port 2 is exhausted through port 3.

When the solenoid pilots are de-energizing, both valve elements are de-actuated, and air then flows from inlet port 1 to outlet port 2. Air downstream of port 4 is exhausted through port 5.

Pressure Switch:

Valves with model numbers ending in the number 1 have a pressure switch to provide user feedback when movement of the main valve elements was asynchronous.

Safety Function:

If the two main valve elements are not actuated or de-actuated synchronously, within 500 ms, the valve defaults so that outlet port 2 receives full inlet pressure, and outlet port 4 is exhausted through port 5. If this abnormal operation is the result of a temporary circumstance, the valve will be ready to resume normal operation as soon as both pilot signal ports have been de-energized and both main valve elements have returned to their normal ready-to-run position. Applying the electrical signal to both solenoids simultaneously will resume normal operation.

If the cause of the abnormal operation is still present, the valve will either remain in the default position (pressure on port 2 and not port 4) or will again go into this position on the next actuation attempt. The source of the abnormality must be investigated and corrected before further operation.

5 Ports, 4-Way 2-Position Valve											
Port Sizes		Basic Size	Pressure Switch#	Model Number (valve and base)	C_v				Weight lb (kg)	Model Number (valve only)	Model Number (base only)
1	2, 4				1-2	1-4	2-3	4-5			
1/2	3/8	2*	With	Y7786A3411**	2.0	1.6	1.6	2.8	8.4 (3.8)	Y7786A3400	996C91
1/2	3/8	2*	Without	Y7786A3410	2.0	1.6	1.6	2.8	7.6 (3.4)	Y7786A3401**	996C91
3/4	1/2	4*	With	Y7786A4421**	3.2	3.4	2.7	7.2	11.6 (5.3)	Y7786A4400	1049C91
3/4	1/2	4*	Without	Y7786A4420	3.2	3.4	2.7	7.2	10.6 (4.8)	Y7786A4401**	1049C91
3/4	3/4	4*	With	Y7786A5411**	3.2	3.4	2.7	7.2	11.6 (5.3)	Y7786A3400	1153C91
3/4	3/4	4*	Without	Y7786A5410	3.2	3.4	2.7	7.2	10.6 (4.8)	Y7786A3401**	1153C91
SAE 12		4	With	SY7786A4H11**	3.2	3.4	2.7	7.2	11.6 (5.3)	Y7786A4400	1159G91
SAE 12		4	Without	SY7786A4H10	3.2	3.4	2.7	7.2	10.6 (4.8)	Y7786A4401**	1159G91

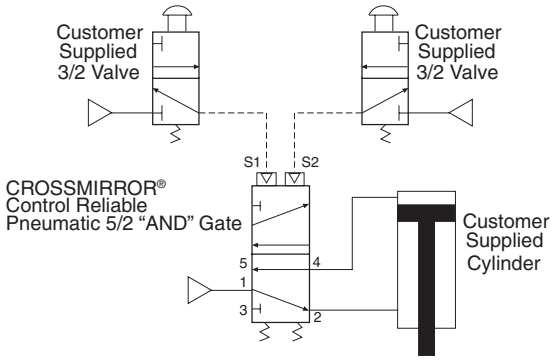
* NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., YD7786A3411W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., Y7786A3411W.
For other voltages consult ROSS.
#Pressure switches with DIN type connection, for pressure switches with M12 type connection consult ROSS.

ISO 13849-1:2006
Category 4 PL e
applications

This 77 Series 5/2 CrossMirror® valve is a control reliable, two hand pressure controlled 4-way double valve that is controlled by two separate pneumatic signals essentially providing "AND" gate control for the output ports. Both pilot signals must be provided within approximately 500 milliseconds of each other to actuate the valve.
Proper actuation shifts output pressure to port 4. If the valve is not actuated, not provided appropriate pneumatic signals within the discordance window or if the valve actuates abnormally, inlet pressure will only be passed to port 2 - cylinder retracted.

This valve is constructed with precision, stainless steel spools as the main valve elements, and is designed to offer added safety to the operation of many pneumatically controlled machines.

Typical 2-Hand-Anti-Tie-Down Application

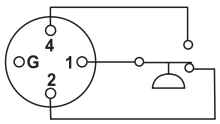


Accessories & Options

Pressure Switches & Pressure Switch Connectors	Pressure Switch		Pressure Switch Connector
	24 Volts DC	120 Volts AC	
	798E30	518E30	522E30
	798E30	518E30	522E30

Status Indicator (pressure switch)

Terminals 1 and 4 are connected when air pressure is present and the valve is "Ready-to-Run". If an abnormal operation has occured or pressure is removed from the valve inlet, terminals 1 and 2 are connected.
Note: DC voltage pressure switches do not have a ground terminal.



Pin 1: Common
Pin 2: Normally Closed
Pin G: Not used
Pin 4 : Normally Open

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Double spool and sleeve.
Mounting Type: Base mounted.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 40 to 100 psig (2.7 to 7 bar).
Pilot Pressure: Must be equal or greater than inlet pressure, but should not exceed maximum inlet pressure.

Pressure Switch Rating: *Max Current 4A, Max 250 volts AC.*
Max Current 50 mA, Max 24 volts DC.
Pressure Switch: *Pressure Switch signal indicates when the input signals or parts movement is asynchronous.*

Functional Safety Data: Category 4 PL e; B10d: 20,000,000; PFHd: 7.71x10^{-9} ; MTTFd: 301.9 (n_{op}: 662400).
Certifications: CE Marked for applicable directives, DGUV Test.
Vibration/Impact Resistance: Tested to BS EN 60068-2-27.

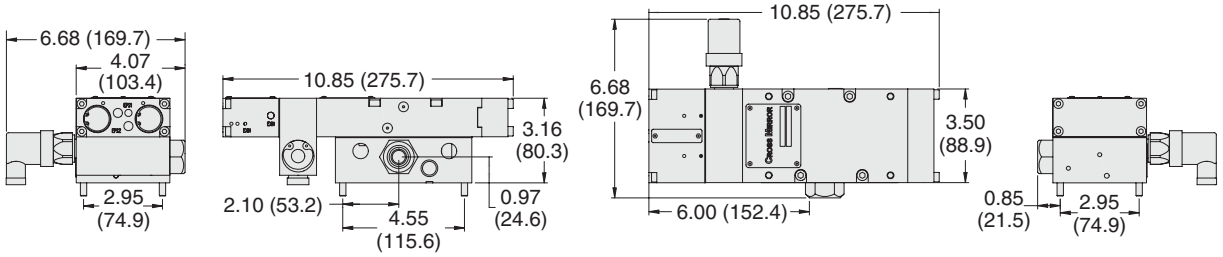
Meets Standards EN13736 and ANSI B11.2, Safety requirements for Pneumatic Cylinder Presses and other hazardous pneumatic cylinder applications.

This valve is not designed for controlling clutch/brake mechanisms on mechanical power presses.

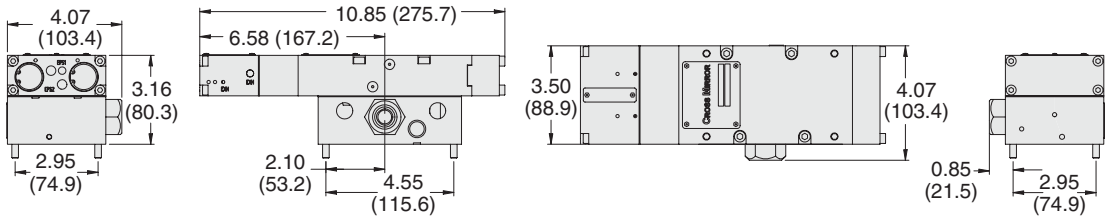
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Basic Size 2 – Valve and base assembly, with remote reset and pressure switch.

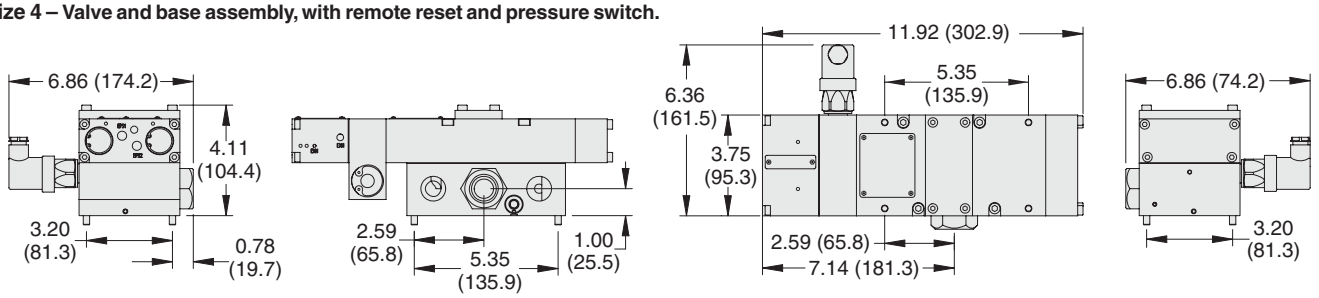
Valve Dimensions – inches (mm)



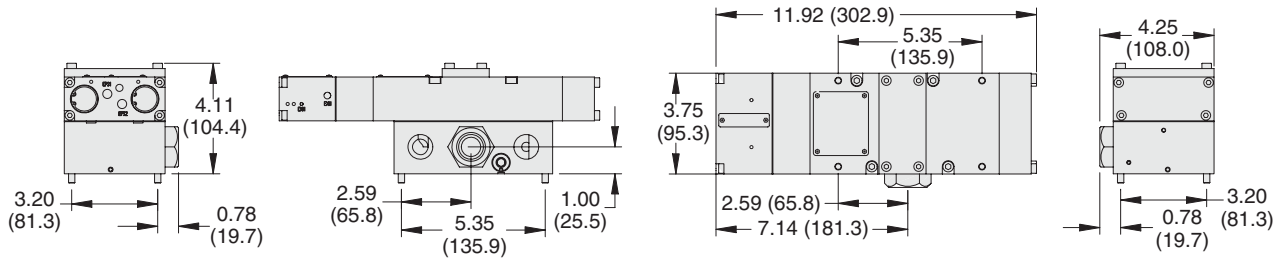
Basic Size 2 – Valve and base assembly, with remote reset and without pressure switch.



Basic Size 4 – Valve and base assembly, with remote reset and pressure switch.



Basic Size 4 – Valve and base assembly, with remote reset and without pressure switch.



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Valve Operation

Normal Operation: After installation the valve is operated by pressurizing both pilot supply ports (S1 and S2) simultaneously. This causes both main valve elements to be actuated so that air from inlet port 1 flows to outlet port 4. Air downstream of port 2 is exhausted through port 3.

When the pilot supply ports are de-pressurized, both valve elements are de-actuated, and air then flows from inlet port 1 to outlet port 2. Air downstream of port 4 is exhausted through port 5.

Pressure Switch: Valves with model numbers ending in the number 1 have a pressure switch to provide user feedback when movement of the main valve elements was asynchronous.

Safety Function: If the two main valve elements are not actuated or de-actuated synchronously, within 500 ms, the valve defaults so that outlet port 2 receives full inlet pressure, and outlet port 4 is exhausted through port 5. If this abnormal operation is the result of a temporary circumstance, the valve will be ready to resume normal operation as soon as both pilot signal ports have been de-pressurized and both main valve elements have returned to their normal ready-to-run position. Applying pressure to both signal ports simultaneously will resume normal operation.

If the cause of the abnormal operation is still present, the valve will either remain in the default position (pressure on port 2 and not port 4) or will again go into this position on the next actuation attempt. The source of the abnormality must be investigated and corrected before further operation.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Valve and Base Assembly

5 Ports, 4-Way 2-Position Valve, Pressure Return

Port Sizes		Basic Size	Pressure Switch	Model Number*		C_v				Weight lb (kg)
1	2, 4			With Remote Reset	With Solenoid Reset	1-2	1-4	2-3	4-5	
1/4	1/4	0	With#	CM26PNA00**11	CM26PNA00**21	0.8	0.6	0.5	1.1	5.85 (2.7)
1/4	1/4	0	Without	CM26PNA00**1X	CM26PNA00**2X	0.8	0.6	0.5	1.1	5.30 (2.4)
3/8	3/8	0	With#	CM26PNA01**11	CM26PNA01**21	0.8	0.6	0.5	1.1	5.75 (2.6)
3/8	3/8	0	Without	CM26PNA01**1X	CM26PNA01**2X	0.8	0.6	0.5	1.1	5.20 (2.4)
1/2	1/2	2	With#	CM26PNA22**11	CM26PNA22**21	3.0	2.5	2.0	3.9	14.45 (6.56)
1/2	1/2	2	Without	CM26PNA22**1X	CM26PNA22**2X	3.0	2.5	2.0	3.9	13.80 (6.26)

* Includes base supplied with NPT port threads. For BSPP threads, replace "N" with a "D" in the model number, e.g., CM26PDA00A1X.** Insert voltage code: "A" = 24 volts DC; "B" = 110 volts AC, 120 volts AC; e.g., CM26PNA00A1X.
# Valve include pressure switches with DIN type connection, for pressure switches with M12 type connection consult ROSS.

CONTROL CATEGORY 4

DGUV Test HSM 15026 Sicherheit geprüft tested safety

CE

ISO 13849-1:2006 Category 4 PL e

Valves, Manifold Bases, and End Stations for Manifold Assemblies

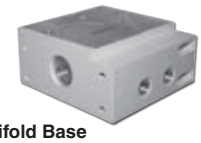
In addition to the manifold, an end station kit with a check valve must be ordered for each assembly. The number of manifolds with a single supply inlet will be limited to the pressure and flow rate of the system. Too many manifolds may result in too large of an internal pressure drop resulting in valve faults. The manifold end station kit with dual inlet check will allow the manifold to be supplied with air from both ends of the assembly.

Port Size		Basic Size	Valve without Sub-Base			Manifold Base Model Number#	Manifold End Station w/ Check Valve Kit Number##	Dual Supply Manifold End Station w/ Check Valves Kit Number##
1	2, 4		Pressure Switch	Model Number				
				With Remote Reset	With Solenoid Reset			
1/4	1/4	0	With*	CM26PXA0X**11	CM26PXA0X**21	Y1951D91	699K86	701K86
1/4	1/4	0	Without	CM26PXA0X**1X	CM26PXA0X**2X	Y1951D91	699K86	701K86
3/8	3/8	0	With*	CM26PXA0X**11	CM26PXA0X**21	Y1949D91	698K86	700K86
3/8	3/8	0	Without	CM26PXA0X**1X	CM26PXA0X**2X	Y1949D91	698K86	700K86
1/2	1/2	2	With*	CM26PXA2X**11	CM26PXA2X**21	Y1955D91	702K86	704K86
1/2	1/2	2	Without	CM26PXA2X**1X	CM26PXA2X**2X	Y1955D91	702K86	704K86

* Valve include pressure switches with DIN type connection, for pressure switches with M12 type connection consult ROSS. ** Insert voltage code: "A" = 24 volts DC; "B" = 110 volts AC, 120 volts AC; e.g., CM26PXA0XA1X.
#NPT port threads. For BSPP threads, insert a "D" after "Y" in the model number, e.g., YD1951D91.
##NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., D699K86, D701K86.

End Station

End Station with Check Valve



Manifold Base

For other voltages consult ROSS.

Explosion proof solenoid pilot available, for more information consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Double spool and sleeve.
Mounting Type: Base mounted.
Pilot Solenoid: According to VDE 0580. Two solenoids, rated for continuous duty.
Standard Voltages/Pilot Solenoids Power Consumption (each solenoid)**:**
Size 0: 24 volts DC: 1.2 watts on DC. 110 volts AC, 50 Hz: 5.4 VA; 120 volts AC, 60 Hz: 5.0 VA.
Size 2: 24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz. 5.8 watts nominal on AC and DC, 6.5 watts maximum on AC and DC.
Enclosure Rating: DIN 400 50 IP 65.
Electrical Connection:
Size 0: Connector socket according to EN 175301-803 Form C.
Size 2: Connector socket according to EN 175301-803 Form A.
Ambient Temperature: 15° to 122°F (-10° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 40 to 150 psig (3 to 10 bar).
Pressure Switch (Status Indicator) Rating: 5 amps at 250 volts AC, or 5 amps at 30 volts DC.

Monitoring: Dynamically, cyclically, internally during each actuating and de-actuating movement. Monitoring function has memory and requires an overt act to reset unit after lockout.
Solenoid Reset: Units with solenoid reset include a 3/2 solenoid valve. Energize this solenoid momentarily to reset valve after lock-out condition occurs.
Remote Reset: Remote signal to be supplied by customer's 3/2 valve (connect remote signal line to remote RESET port in valve). Apply signal momentarily to reset valve after fault condition occurs.
NOTE: *Main solenoids must be off when performing reset procedure.*

Product data for Sistema Library users, ***For Basic Size 0 only:***

Functional Safety Data: Category 4 PL e; B10d: 20,000,000; PFHd: 7.71×10^{-9} ; MTTFd: 301.9 (n_{op}: 662400).
Certifications: CE Marked for applicable directives, DGUV Test.
Vibration/Impact Resistance: Tested to BS EN 60068-2-27.

For Basic Size 2, Product data for Sistema Library users, pending.

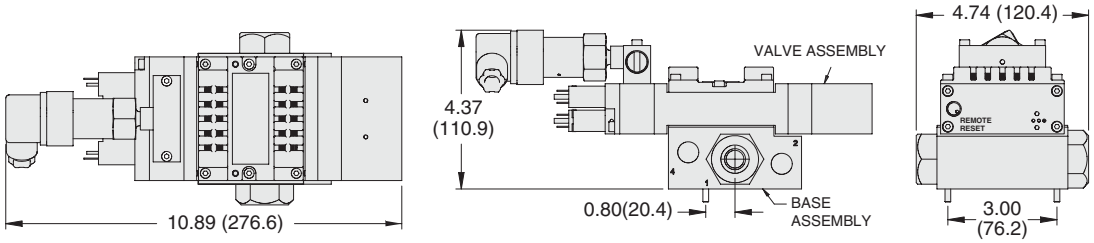
Meets Standards EN13736 and ANSI B11.2, Safety requirements for Pneumatic Cylinder Presses and other hazardous pneumatic cylinder applications.

This valve is not designed for controlling clutch/brake mechanisms on mechanical power presses.

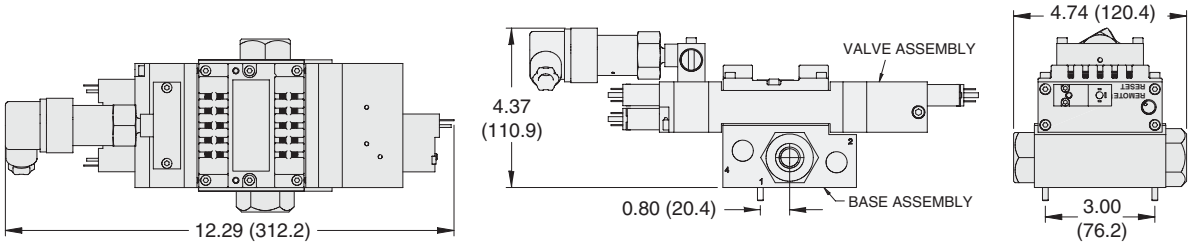
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Valve Dimensions – inches (mm)

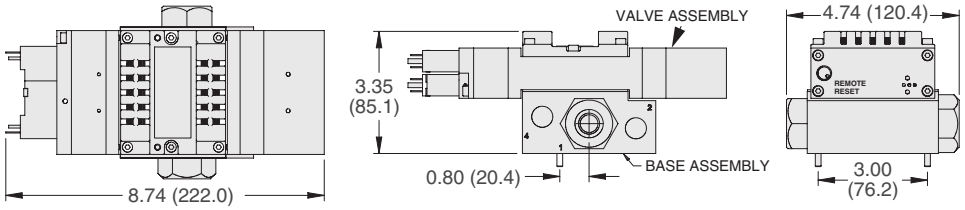
Basic Size 0 - Valve and base assembly, with remote reset and with pressure switch.



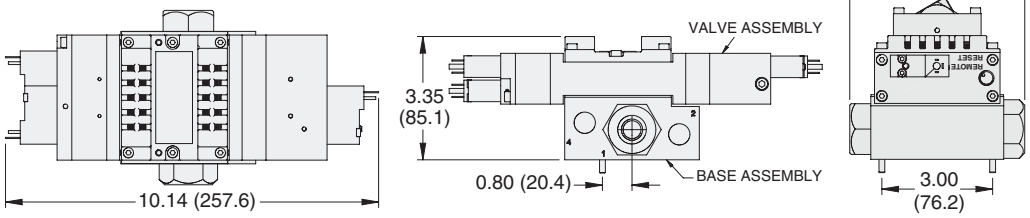
Basic Size 0 - Valve and base assembly, with solenoid reset and with pressure switch.



Basic Size 0 - Valve and base assembly, with remote reset and without pressure switch.

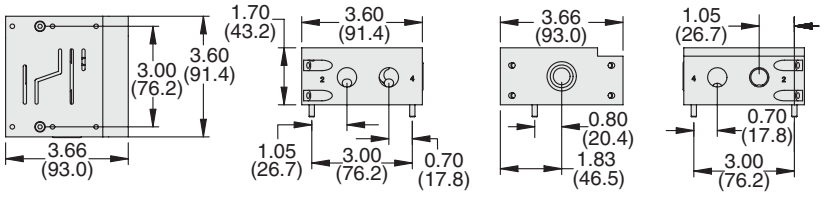


Basic Size 0 - Valve and base assembly, with solenoid reset and without pressure switch.

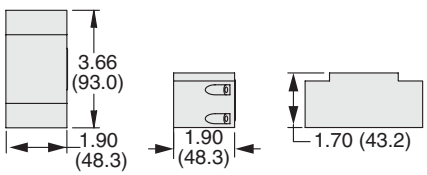


Dimensions – inches (mm)

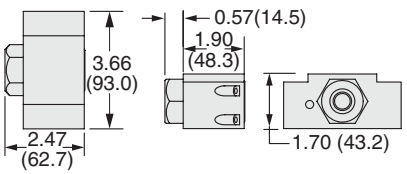
Manifold Base for Basic Size 0



End Station for Basic Size 0



End Station with Check Valve for Basic Size 0



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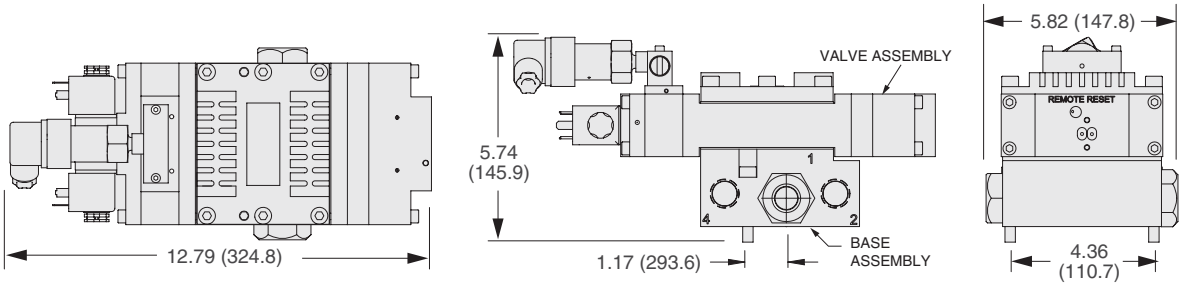
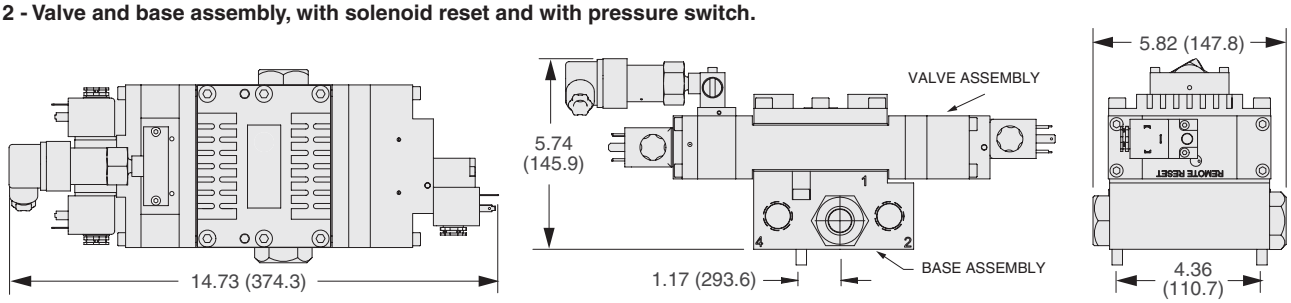
Valve Dimensions – inches (mm)

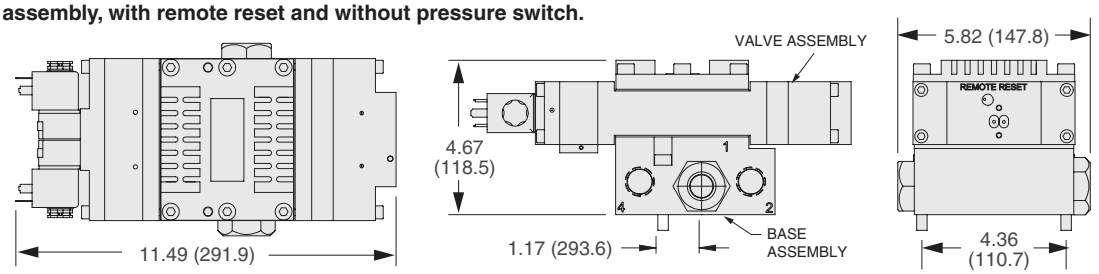
Basic Size 2 - Valve and base assembly, with remote reset and with pressure switch.



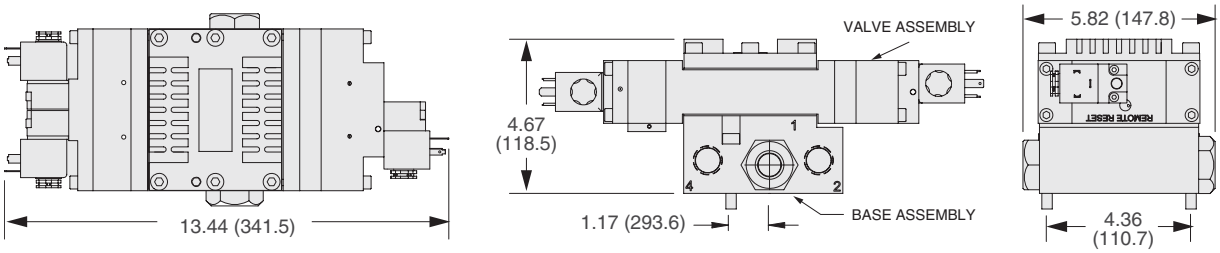
Basic Size 2 - Valve and base assembly, with solenoid reset and with pressure switch.



Basic Size 2 - Valve and base assembly, with remote reset and without pressure switch.

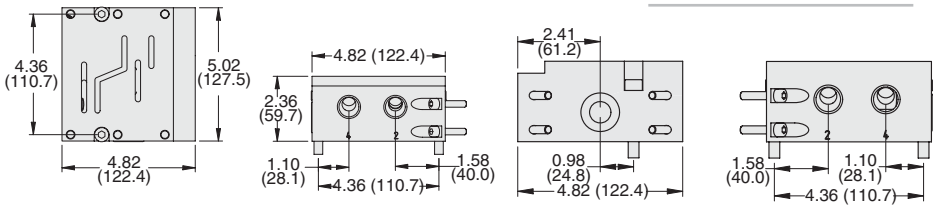


Basic Size 2 - Valve and base assembly, with solenoid reset and without pressure switch.

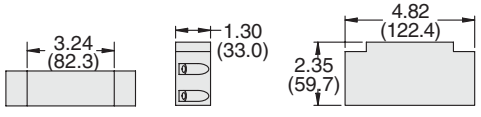


Dimensions – inches (mm)

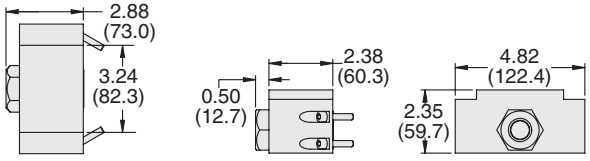
Manifold Base for Basic Size 2



End Station for Basic Size 2



End Station with Check Valve for Basic Size 2



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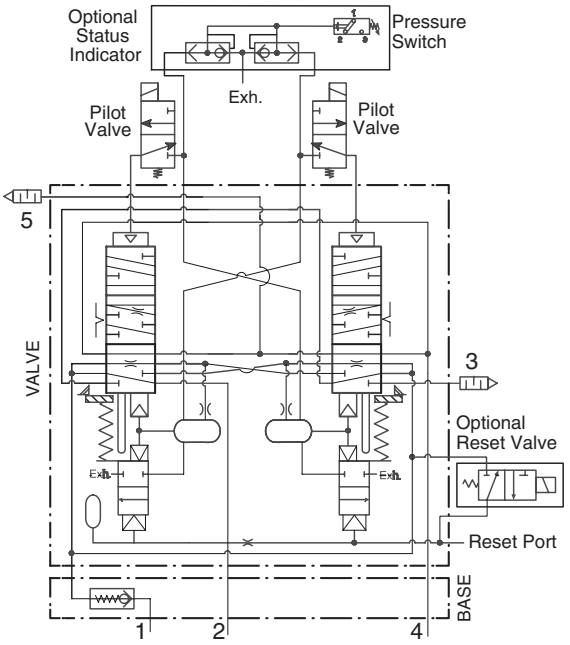
Normal Operation: The valve is operated by energizing both pilot solenoids simultaneously. This causes both main valve elements to be actuated so that air from inlet port 1 flows to outlet port 4, but not to port 2. Air downstream of port 2 is exhausted through port 3.
When the solenoids are de-energized, both valve elements are de-actuated, and air then flows from inlet port 1 to outlet port 2, but no longer to outlet port 4. Air downstream of port 4 is exhausted through port 5. On first operation, or after repair, the pilot valve supply circuit and inherent monitoring elements may need to be reset.

Valve Locked-out: Whenever the valve elements operate in a sufficiently asynchronous manner, either on actuation or de-actuation, the valve will move to a locked-out position. In the locked-out position, one crossover and its related timing chamber will be exhausted, and the other crossover and its related timing chamber will be fully pressurized.
The valve element (side B) that is partially actuated has pilot air available to fully actuate it, but no air pressure on the return piston to fully de-actuate the valve element.
The return springs are limited in travel, and can only return the valve elements to the intermediate (locked-out) position. Sufficient air pressure acting on the return pistons is needed to return the valve elements to a fully home position.

Detecting a Malfunction: If the main valve elements are not both actuated or de-actuated synchronously, the valve defaults to the locked-out position so that outlet port 2 receives full inlet pressure, and outlet port 4 is exhausted through port 5. The valve must now be "reset" to resume normal operation.

Resetting the Valve: The valve will remain in the locked-out position, even if the inlet air supply is removed and re-applied.
A remote reset signal must be applied to reset the valve. Reset is accomplished by momentarily pressurizing the reset port. Actuation of the reset piston physically pushes the main valve elements to their home position. Actuation of the reset piston also opens the reset poppet, thereby, immediately exhausting pilot supply air, thus, preventing valve operation during reset. De-actuation of reset pistons causes the reset poppets to close and pilot supply timing chambers to fully pressurize. Reset pressure can be applied by a remote 3/2 normally closed valve, or from an optional 3/2 normally closed solenoid (which includes an integral manual reset button) mounted on the reset adapter.



Valve Schematic

Status Indicator: The optional status indicator pressure switch will actuate when the main valve is operating normally, and will de-actuate when the main valve is in the locked-out position or inlet pressure is removed. This device is not part of the valve lockout function, but, rather, only reports the status of the main valve.

Electrical Connectors

Basic Valve Size	Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number			
					Without Light	Lighted Connector		
						24 Volts DC	120 Volts AC	
0	EN 175301-803 Form C	Prewired Connector	3 (10)	8-mm	2449K77	2450K77-W	2450K77-Z	
0	EN 175301-803 Form C	Connector Only	–	–	2452K77	2453K77-W	2453K77-Z	
2	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z	
2	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	10-mm	371K77	383K77-W	383K77-Z	
2	EN 175301-803 Form A	Connector for threaded conduit (1/2 inch electrical conduit fittings)	–	–	723K77	724K77-W	724K77-Z	
2	EN 175301-803 Form A	Connector Only	–	–	937K87	936K87-W	936K87-Z	

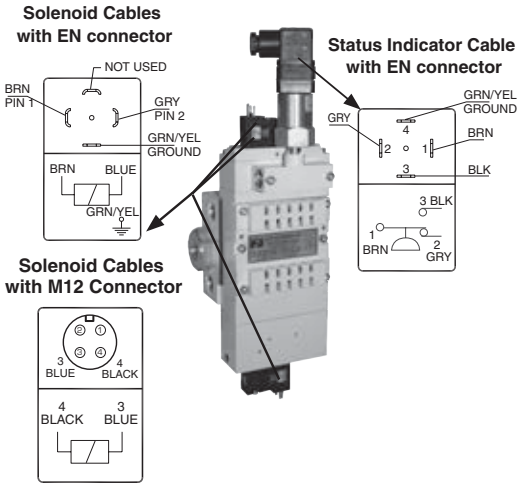
CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

Preassembled Wiring Kits

Basic Valve Size	Kit Number			Solenoid Connector Type	Length meters (feet)
	Connector without Light	Lighted Connector			
		24 Volts DC	120 Volts AC		
0*	2526H77	2529H77-W	2529H77-Z	EN 175301-803 Form A and Form C	5 (16.4)
	2527H77	2530H77-W	2530H77-Z		10 (32.8)
2#	2283H77	2532H77-W	2532H77-Z	EN 175301-803 Form A	5 (16.4)
	2284H77	2533H77-W	2533H77-Z	EN 175301-803 Form A	10 (32.8)
	2288H77**	–	–	M12	5 (16.4)
	2289H77**	–	–	M12	10 (32.8)

* Each cable has one connector. Kits include 1 cable for the status indicator (EN 175301-803 Form A), and 3 cables (EN 175301-803 Form C) with connector plus a cord grip for each.

Each cable has one connector. **Coil includes light.
Kits include 1 cable for the status indicator, and 3 cables with connector plus a cord grip for each.



IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Valve and Base Assembly

5 Ports, 4-Way 2-Position Valve, Pressure Return

Port Sizes		Basic Size	Pressure Switch	Valve Model Number*	C_v				Weight lb (kg)
1	2, 4				1-2	1-4	2-3	4-5	
1/4	1/4	0	With#	CM26PNA00P11	0.8	0.6	0.5	1.1	6.15 (2.79)
1/4	1/4	0	Without	CM26PNA00P1X	0.8	0.6	0.5	1.1	5.60 (2.54)
3/8	3/8	0	With#	CM26PNA01P11	0.8	0.6	0.5	1.1	6.05 (2.74)
3/8	3/8	0	Without	CM26PNA01P1X	0.8	0.6	0.5	1.1	5.50 (2.49)
1/2	1/2	2	With#	CM26PNA22P1X	3.0	2.5	2.0	3.9	14.45 (6.56)
1/2	1/2	2	Without	CM26PNA22P11	3.0	2.5	2.0	3.9	13.80 (6.26)

* Model number includes base supplied with NPT port threads. For BSPP threads, replace "N" with a "D" in the model number, e.g., CM26PDA00P11.
* Valve include pressure switches with DIN type connection, for pressure switches with M12 type connection consult ROSS.

CONTROL CATEGORY 4

DGUV Test
HSM 15026 Sicherheit geprüft tested safety

CE

ISO 13849-1:2006 Category 4 PL e

Valves, Manifold Bases, and End Stations for Manifold Assemblies

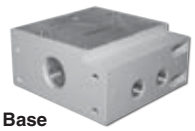
In addition to the manifold, an end station kit with a check valve must be ordered for each assembly. The number of manifolds with a single supply inlet will be limited to the pressure and flow rate of the system. Too many manifolds may result in too large of an internal pressure drop resulting in valve faults. The manifold end station kit with dual inlet check will allow the manifold to be supplied with air from both ends of the assembly.

Port Size		Basic Size	Valve without Sub-Base		Manifold Base Model Number#	Manifold End Station w/ Check Valve Kit Number##	Dual Supply Manifold End Station w/ Check Valves Kit Number##
1	2, 4		Pressure Switch	Valve Model Number			
1/4	1/4	0	With*	CM26PNA0XP11	Y1951D91	699K86	701K86
1/4	1/4	0	Without	CM26PNA0XP1X	Y1951D91	699K86	701K86
3/8	3/8	0	With*	CM26PNA0XP11	Y1949D91	698K86	700K86
3/8	3/8	0	Without	CM26PNA0XP1X	Y1949D91	698K86	700K86
1/2	1/2	2	With*	CM26PNA22P11	Y1955D91	702K86	704K86
1/2	1/2	2	Without	CM26PNA22P1X	Y1955D91	702K86	704K86

* Valve include pressure switches with DIN type connection, for pressure switches with M12 type connection consult ROSS.
#NPT port threads. For BSPP threads, insert a "D" after "Y" in the model number, e.g., YD1951D91.
##NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., D699K86, D701K86.

End Station

End Station with Check Valve



Manifold Base

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STANDARD SPECIFICATIONS (for valves on this page):

Construction: Double spool and sleeve.
Mounting Type: Base mounted.
Ambient Temperature: 15° to 122°F (-10° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 40 to 150 psig (3 to 10 bar).
Pilot Pressure: Must be equal or greater than inlet pressure, but should not exceed maximum inlet pressure.
Pressure Switch Rating: *Max Current 4A, Max 250 volts AC.*
Max Current 50 mA, Max 24 volts DC.
Pressure Switch: *Pressure Switch signal indicates when the input signals or parts movement is asynchronous.*

Monitoring: Dynamically, cyclically, internally during each actuating and de-actuating movement. Monitoring function has memory and requires an overt act to reset unit after lockout.

Product data for Sistema Library users, ***For Basic Size 0 only:***

Functional Safety Data: Category 4 PL e; B10d: 20,000,000; PFHd: 7.71×10^{-9} ; MTTFd: 301.9 (n_{op}: 662400).
Certifications: CE Marked for applicable directives, DGUV Test.
Vibration/Impact Resistance: Tested to BS EN 60068-2-27.

For Basic Size 2, Product data for Sistema Library users, pending.

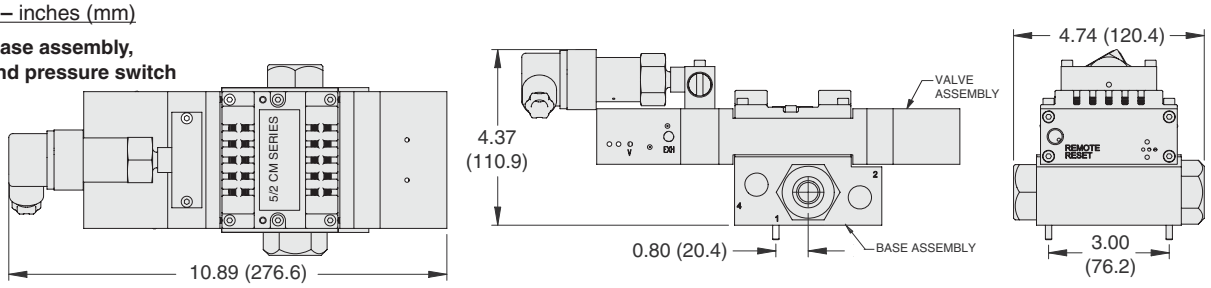
Meets Standards EN13736 and ANSI B11.2, Safety requirements for Pneumatic Cylinder Presses and other hazardous pneumatic cylinder applications.

This valve is not designed for controlling clutch/brake mechanisms on mechanical power presses.

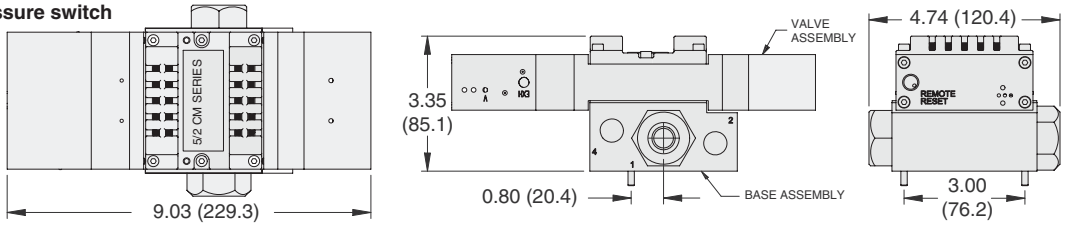
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Valve Dimensions – inches (mm)

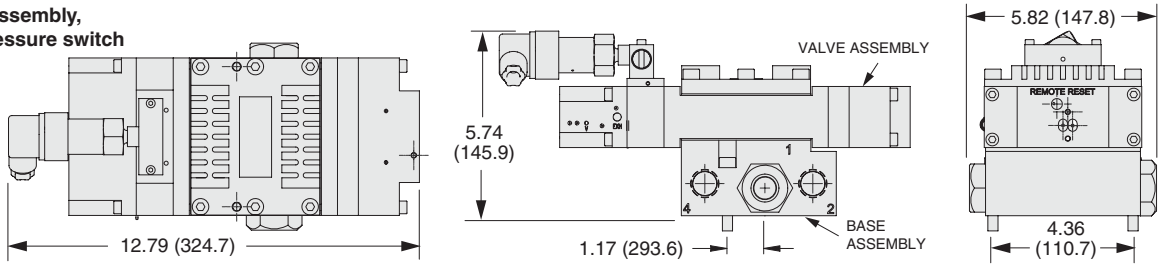
Size 0 – Valve and base assembly, with remote reset and pressure switch



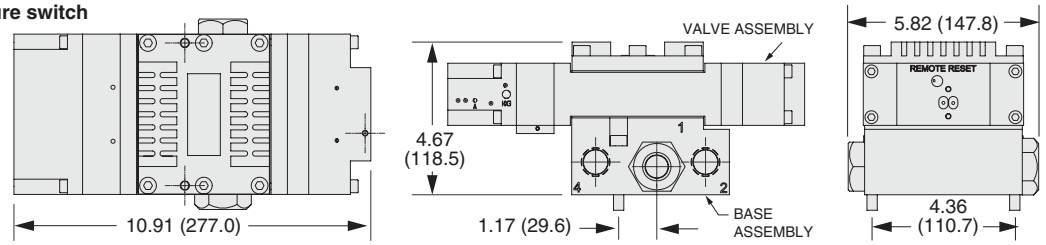
Size 0 – Valve and base assembly, with remote reset and without pressure switch



Size 2 – Valve and base assembly, with remote reset and pressure switch

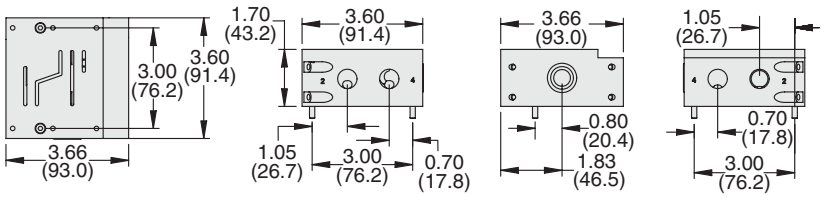


Size 2 – Valve and base assembly, with remote reset and without pressure switch

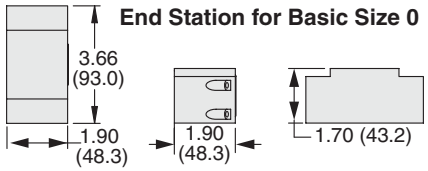


Dimensions – inches (mm)

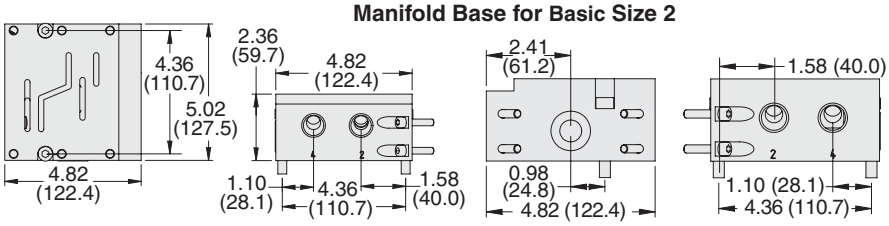
Manifold Base for Basic Size 0



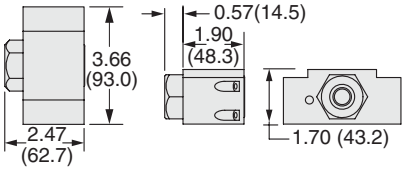
End Station for Basic Size 0



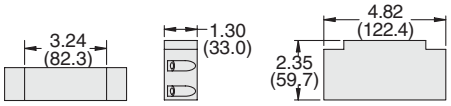
Manifold Base for Basic Size 2

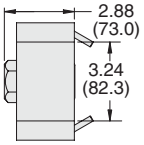


End Station with Check Valve for BasicSize 0

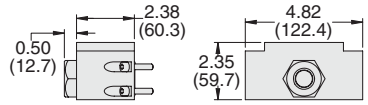


End Station for Basic Size 2





End Station with Check Valve for Basic Size 2



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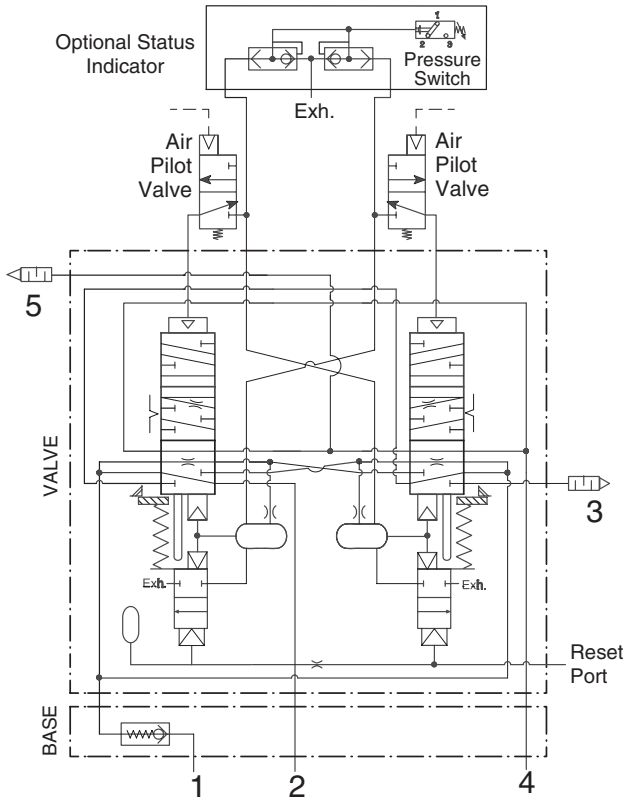
Normal Operation: The valve is operated by pressurizing both pilot supply ports simultaneously. This causes both main valve elements to be actuated so that air from inlet port 1 flows to outlet port 4, but not to port 2. Air downstream of port 2 is exhausted through port 3.
When the pilot supply ports are de-pressurized, both valve elements are de-actuated, and air then flows from inlet port 1 to outlet port 2, but no longer to outlet port 4. Air downstream of port 4 is exhausted through port 5. On first operation, or after repair, the pilot valve supply circuit and inherent monitoring elements may need to be reset.

Valve Locked-out: Whenever the valve elements operate in a sufficiently asynchronous manner, either on actuation or de-actuation, the valve will move to a locked-out position. In the locked-out position, one crossover and its related timing chamber will be exhausted, and the other crossover and its related timing chamber will be fully pressurized.
The valve element (side B) that is partially actuated has pilot air available to fully actuate it, but no air pressure on the return piston to fully de-actuate the valve element.
The return springs are limited in travel, and can only return the valve elements to the intermediate (locked-out) position. Sufficient air pressure acting on the return pistons is needed to return the valve elements to a fully home position.

Detecting a Malfunction: If the main valve elements are not both actuated or de-actuated synchronously, the valve defaults to the locked-out position so that outlet port 2 receives full inlet pressure, and outlet port 4 is exhausted through port 5. The valve must now be "reset" to resume normal operation.



Valve Schematic

Resetting the Valve: The valve will remain in the locked-out position, even if the inlet air supply is removed and re-applied.
A remote reset signal must be applied to reset the valve. Reset is accomplished by momentarily pressurizing the reset port. Actuation of the reset piston physically pushes the main valve elements to their home position. Actuation of the reset piston also opens the reset poppet, thereby, immediately exhausting pilot supply air, thus, preventing valve operation during reset. De-actuation of reset pistons causes the reset poppets to close and pilot supply timing chambers to fully pressurize. Reset pressure can be applied by a remote 3/2 normally closed valve.

Status Indicator: The optional status indicator pressure switch will actuate when the main valve is operating normally, and will de-actuate when the main valve is in the locked-out position or inlet pressure is removed. This device is not part of the valve lockout function, but, rather, only reports the status of the main valve.

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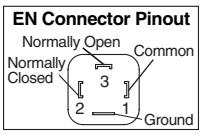
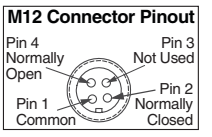
OPTIONS

PRESSURE SWITCHES For Verification Of Downstream Pressure Release

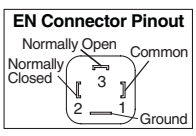
Pressure Switches		
Connection Type	**Model Number**	**Port Threads**
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	1/8 NPT





- May be installed downstream on all double valves
- Provides means to verify the release of downstream pressure to next obstruction
- Factory preset, 5 psi (0.3 bar) - falling

Redundant Pressure Switch		
Connection Types	**Model Number**	**Port Threads**
EN 175301-803 Form A	RC26-13	3/8 NPT



- May be installed downstream on all double valves
- Provides a redundant means to verify the release of downstream pressure to next obstruction
- Factory preset, 5 psi (0.3 bar) - falling

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

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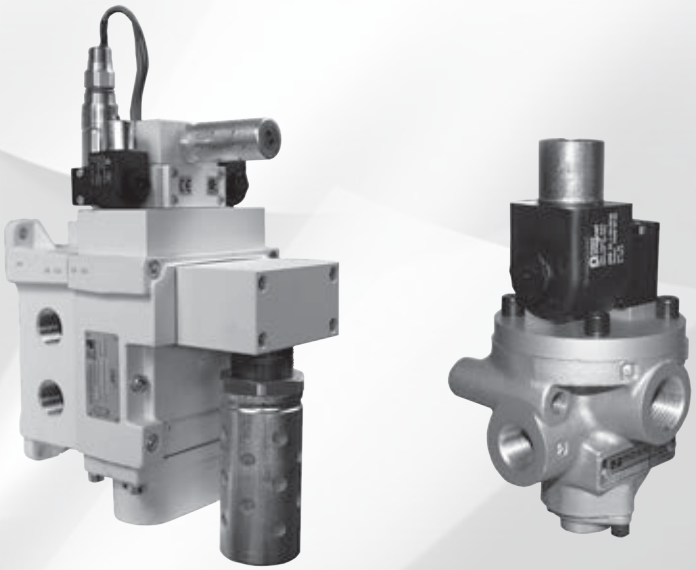
ROSS CONTROLS®

Explosion Proof Valves
27 & 21 Series, DM²® Series C
ISO Valves W60 & W64 Series



www.rosscontrols.com

POPPET 27 & 21 SERIES EXPLOSION PROOF VALVES – KEY FEATURES

- 27 Series - Construction - Acetal internals
- 21 Series - Construction - Metal, Aluminum
- Poppet construction for near zero leakage and high dirt tolerance
- Pilot can rotate, giving the ability to change orientation
- Self-cleaning
- Wear compensating
- Repeatability throughout the life of the valve

VALVE TYPE/ SERIES	DESCRIPTION		AVAILABLE INLET PORT SIZES										FUNCTIONS										Explosion Proof Certifications		Page
	Spool & Sleeve	Poppet	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	2	2½	2/2	3/2	3/4	4/2	5/2 Single	5/2 Double	Max Flow (Cv)	Solenoid Control	Normally Closed	Normally Open	CSA/UL	ATEX#	
27 SERIES Poppet Valves																									
27		■		■	■	■	■	■	■	■	■	■	■						72	■	■	■	■	■	F6.3
27		■		■	■	■	■	■	■	■	■	■		■					71	■	■	■	■	■	F6.4
27		■		■	■	■	■	■	■	■						■			25	■			■	■	F6.5
21 SERIES for Low Temperature																									
21		■		■	■	■	■	■	■	■			■						29	■	■	■	■	■	F6.6
21		■		■	■	■	■	■	■	■				■					31	■	■	■	■	■	F6.7
21		■		■	■	■	■	■	■	■						■			25	■			■	■	F6.8
Accessories																									F6.9

 # For ATEX Certified valves order placement, consult ROSS.

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F6

CONTROL RELIABLE DOUBLE VALVES DM²® SERIES – KEY FEATURES

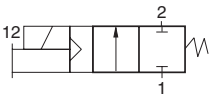
- Rapid response time to minimize stopping time
- Status Indicator switch for valve condition (ready to run) feedback
- Highly contaminant tolerant poppet construction

VALVE TYPE/ SERIES	Category	Available Port Sizes						MAX. FLOW Cv						Reset			Explosion Proof Certifications		Page
								Port Size						Integrated Soft Start	Remote	Solenoid	CSA/UL	ATEX	
		1/4	3/8	1/2	3/4	1	1½	1/4	3/8	1/2	3/4	1	1½						
Control Reliable Explosion Proof Double Valves																			
DM²® C	4			■		■	■			10		20	64		■	■	■		F6.10 -F6.12

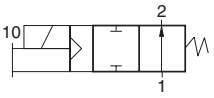
2-Way 2-Position Valves, Spring Return

Port Size 1, 2	Body Size	Valve Model Number*		C_v		Weight lb (kg)
		Normally Closed	Normally Open	NC	NO	
1/4	3/8	2771B2002**	2772B2002**	2.3	2.3	3.0 (1.4)
3/8	3/8	2771B3002**	2772B3002**	3.8	3.3	3.0 (1.4)
1/2	3/8	2771B4012**	2772B4012**	4.0	3.5	3.0 (1.4)
1/2	3/4	2771B4002**	2772B4002**	7.7	6.5	3.6 (1.6)
3/4	3/4	2771B5002**	2772B5002**	9.0	7.3	3.6 (1.6)
1	3/4	2771B6012**	2772B6012**	9.0	7.9	3.6 (1.6)
1	1¼	2771B6002**	2772B6002**	24	21	7.5 (3.4)
1¼	1¼	2771B7002**	2772B7002**	29	20	7.5 (3.4)
1½	1¼	2771B8012**	2772B8012**	29	21	7.5 (3.4)
1½	2	2771B8002**	2772B8002**	49	49	16.0 (7.3)
2	2	2771B9002**	2772B9002**	57	57	16.0 (7.3)
2½	2	2771B9012**	2772B9012**	64	72	16.0 (7.3)

APPROVED



Normally Closed (NC)

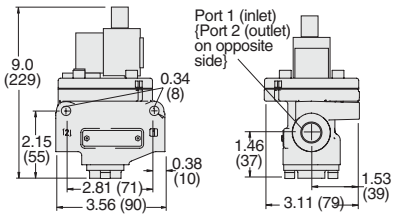


Normally Open (NO)

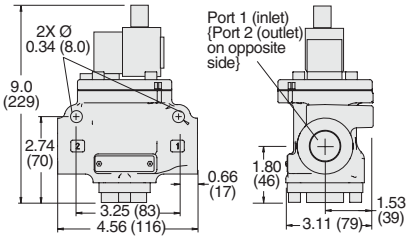
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2772B2002.
** Insert voltage code: "W" = 24 volts DC; "Z" = 120 volts AC, 60 Hz; e.g., 2771B2002W. For other voltages, consult ROSS.

Valve Dimensions – inches (mm)

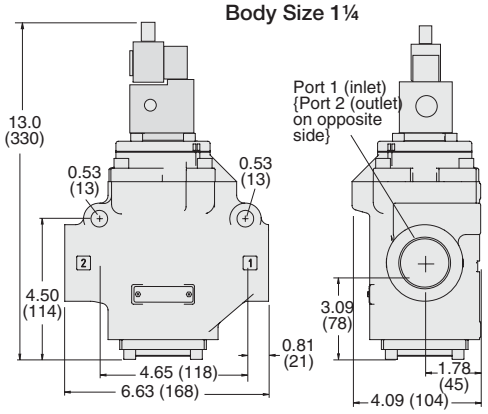
Body Size 3/8



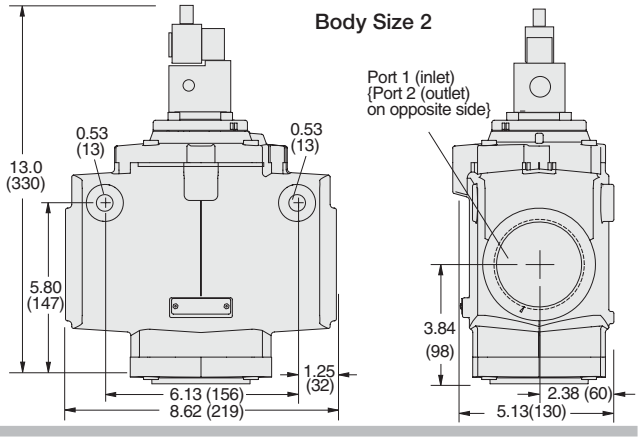
Body Size 3/4



Body Size 1¼



Body Size 2



Applicable Requirements: C22.2 No. 0-10 - General Requirements - Canadian Electrical Code, Part II; CSA C22.2 No. 25-1966 - Enclosures for use in Class II Groups E, F and G Hazardous Locations; CSA C22.2 No. 142-M1987 - Process Control Equipment; C22.2 No. 213-M1987 - Nonincendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations; CAN/CSA E79-0-95 - Electrical apparatus for explosive atmospheres, Part 0: General requirements; CAN/CSA E79-18-95 - Electrical apparatus for explosive atmospheres, Part 18: Encapsulation "m".

APPROVED for use in the following Hazardous Locations – Ex m II T4 and Division 1 –
Specifications in accordance to CSA certificate: Class I, Division 1, Groups A, B, C and D; Class II, Groups E, F and G; Class III; Class I, Division 2, Groups A, B, C, D.
Specifications in accordance to FM certificate: Explosion-proof Class I, Division 1, Groups A, B, C, D, T4, Ta = 60 °C (encapsulation/explosion-proof Class I, Zone 1, AEx m II T4, Ta = 60 °C; dust-ignition-proof for Class II/III, Division 1, Groups E, F and G, T4, Ta = 60 °C); Nonincendive Class I, Division 2, Groups A, B, C, D, T4, Ta = 60 °C; Suitable for Class II, III, Division 2, Groups E, F, G, T4, Ta = 60 °C

CSA CLASS 2258 02 – process control equipment – for hazardous locations; **FM CLASS 3600, 3611, 3615, 3810** – hazardous (classified) location electrical equipment

For ATEX Certified valves order placement, consult ROSS.

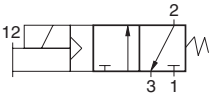
STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.
Mounting Type: In-Line.
Standard Voltages/Pilot Solenoids Power Consumption (each solenoid): 24 volts DC, 4.6 watts; 120 volts AC, 60 Hz, 6.8 volt amps.
Ambient Temperature: 40° to 140°F (4° to 60°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: *Body Size 3/8, 3/4, 1½:* 15 to 150 psig (1 to 10 bar).
Body Size 2: 30 to 150 psig (2 to 10 bar).

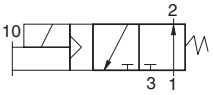
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

3-Way 2-Position Valves, Spring Return

Port Size		Body Size	Valve Model Number*		C_v				Weight lb (kg)
					NC		NO		
1, 2	3		Normally Closed	Normally Open	1-2	2-3	1-2	2-3	
1/4	1/2	3/8	2773B2002**	2774B2002**	2.5	3.1	2.3	2.7	2.5 (1.2)
3/8	1/2	3/8	2773B3002**	2774B3002**	3.6	5.3	2.8	3.2	2.5 (1.2)
1/2	1/2	3/8	2773B4012**	2774B4012**	3.3	5.3	2.8	3.2	2.5 (1.2)
1/2	1	3/4	2773B4002**	2774B4002**	6.3	9.2	6.3	8.0	3.3 (1.5)
3/4	1	3/4	2773B5002**	2774B5002**	7.7	11	6.9	7.4	3.3 (1.5)
1	1	3/4	2773B6012**	2774B6012**	8	12	6.8	7.5	3.3 (1.5)
1	1½	1¼	2773B6002**	2774B6002**	23	34	17	24	7.0 (3.2)
1¼	1½	1¼	2773B7002**	2774B7002**	30	32	19	24	7.0 (3.2)
1½	1½	1¼	2773B8012**	2774B8012**	30	31	19	23	7.0 (3.2)
1½	2½	2	2773B8002**	2774B8002**	68	70	57	59	16.5 (7.4)
2	2½	2	2773B9002**	2774B9002**	70	70	58	61	16.5 (7.4)
2½	2½	2	2773B9012**	2774B9012**	70	71	54	55	16.5 (7.4)



Normally Closed (NC)

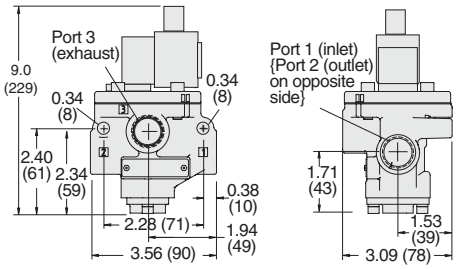


Normally Open (NO)

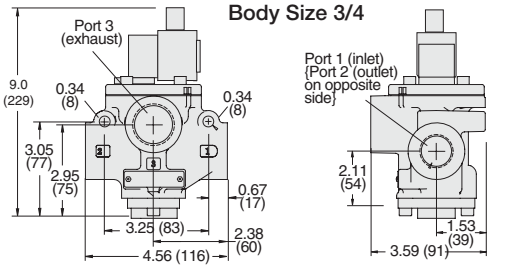
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2773B2002.
** Insert voltage code: "W" = 24 volts DC; "Z" = 120 volts AC, 60 Hz; e.g., 2773B2002W. For other voltages, consult ROSS.

Valve Dimensions – inches (mm)

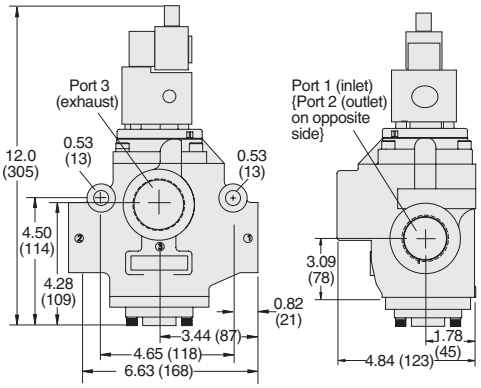
Body Size 3/8



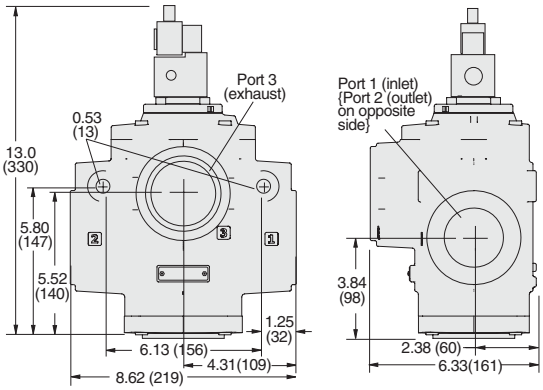
Body Size 3/4



Body Size 1¼



Body Size 2



Applicable Requirements: C22.2 No. 0-10 - General Requirements - Canadian Electrical Code, Part II; CSA C22.2 No. 25-1966 - Enclosures for use in Class II Groups E, F and G Hazardous Locations; CSA C22.2 No. 142-M1987 - Process Control Equipment; C22.2 No. 213-M1987 - Nonincendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations; CAN/CSA E79-0-95 - Electrical apparatus for explosive atmospheres, Part 0: General requirements; CAN/CSA E79-18-95 - Electrical apparatus for explosive atmospheres, Part 18: Encapsulation "m".

APPROVED for use in the following Hazardous Locations – Ex m II T4 and Division 1 –
Specifications in accordance to CSA certificate: Class I, Division 1, Groups A, B, C and D; Class II, Groups E, F and G; Class III; Class I, Division 2, Groups A, B, C, D.
Specifications in accordance to FM certificate: Explosion-proof Class I, Division 1, Groups A, B, C, D, T4, Ta = 60 °C (encapsulation/explosion-proof Class I, Zone 1, AEx m II T4, Ta = 60 °C; dust-ignition-proof for Class II/III, Division 1, Groups E, F and G, T4, Ta = 60 °C); Nonincendive Class I, Division 2, Groups A, B, C, D, T4, Ta = 60 °C; Suitable for Class II, III, Division 2, Groups E, F, G, T4, Ta = 60 °C

CSA CLASS 2258 02 – process control equipment – for hazardous locations; **FM CLASS 3600, 3611, 3615, 3810** – hazardous (classified) location electrical equipment

For ATEX Certified valves order placement, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.
Mounting Type: In-Line.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages/Pilot Solenoids Power Consumption (each solenoid): 24 volts DC, 4.6 watts; 120 volts AC, 60 Hz, 6.8 volt amps.

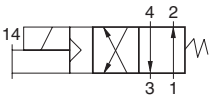
Ambient Temperature: 40° to 140°F (4° to 60°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: *Body Size 3/8, 3/4, 1½:* 15 to 150 psig (1 to 10 bar).
Body Size 2: 30 to 150 psig (2 to 10 bar).

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

4-Way 2-Position Valves, Spring Return

Port Size 1, 2, 4	Port Size 3	Body Size	Valve Model Number*	C_v 1-2, 1-4	C_v 4-3, 2-3	Weight lb (kg)
1/4	1/2	3/8	2776B2002**	2.1	2.9	1.9 (0.9)
3/8	1/2	3/8	2776B3002**	2.9	4.2	1.9 (0.9)
1/2	1/2	3/8	2776B4012**	3.1	4.3	1.9 (0.9)
1/2	1	3/4	2776B4002**	5.6	8.1	4.2 (1.9)
3/4	1	3/4	2776B5002**	7.0	9.3	4.2 (1.9)
1	1	3/4	2776B6012**	7.8	10	4.2 (1.9)
1	1½	1¼	2776B6002**	19	26	11.0 (5.0)
1¼	1½	1¼	2776B7002**	21	27	11.0 (5.0)
1½	1½	1¼	2776B8012**	22	27	11.0 (5.0)

FM APPROVED

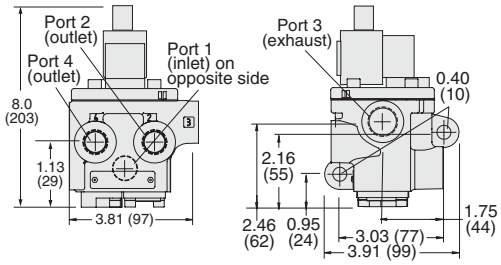


Port Sizes 1 to 1½

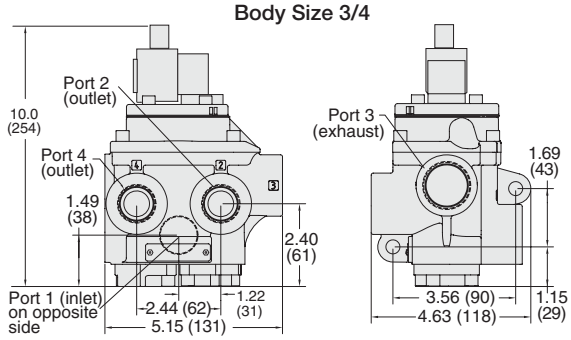
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2776B2002.
** Insert voltage code: "W" = 24 volts DC; "Z" = 120 volts AC, 60 Hz; e.g., 2776B2002W. For other voltages, consult ROSS.

Valve Dimensions – inches (mm)

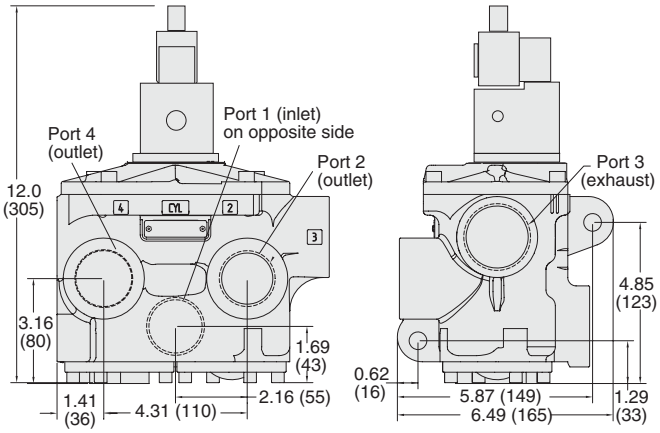
Body Size 3/8



Body Size 3/4



Body Size 1¼



Applicable Requirements: C22.2 No. 0-10 - General Requirements - Canadian Electrical Code, Part II; CSA C22.2 No. 25-1966 - Enclosures for use in Class II Groups E, F and G Hazardous Locations; CSA C22.2 No. 142-M1987 - Process Control Equipment; C22.2 No. 213-M1987 - Nonincendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations; CAN/CSA E79-0-95 - Electrical apparatus for explosive atmospheres, Part 0: General requirements; CAN/CSA E79-18-95 - Electrical apparatus for explosive atmospheres, Part 18: Encapsulation "m".

APPROVED for use in the following Hazardous Locations – Ex m II T4 and Division 1 –
Specifications in accordance to CSA certificate: Class I, Division 1, Groups A, B, C and D; Class II, Groups E, F and G; Class III; Class I, Division 2, Groups A, B, C, D.
Specifications in accordance to FM certificate: Explosion-proof Class I, Division 1, Groups A, B, C, D, T4, Ta = 60 °C (encapsulation/explosion-proof Class I, Zone 1, AEx m II T4, Ta = 60 °C; dust-ignition-proof for Class II/III, Division 1, Groups E, F and G, T4, Ta = 60 °C); Nonincendive Class I, Division 2, Groups A, B, C, D, T4, Ta = 60 °C; Suitable for Class II, III, Division 2, Groups E, F, G, T4, Ta = 60 °C

CSA CLASS 2258 02 – process control equipment – for hazardous locations; **FM CLASS 3600, 3611, 3615, 3810** – hazardous (classified) location electrical equipment

For ATEX Certified valves order placement, consult ROSS.

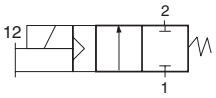
STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Acetal.
Mounting Type: In-Line.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages/Pilot Solenoids Power Consumption (each solenoid): 24 volts DC, 4.6 watts; 120 volts AC, 60 Hz, 6.8 volt amps.
Ambient Temperature: 40° to 140°F (4° to 60°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 15 to 150 psig (1 to 10 bar).

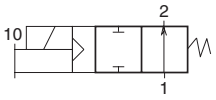
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

2-Way 2-Position Valves, Spring Return						
Port Size 1,2	Body Size	Valve Model Number*		Avg. C_v		Weight lb (kg)
		Normally Closed	Normally Open	NC	NO	
1/4	3/8	2171B2005**	2172B2005**	2.3	2.3	3.0 (1.4)
3/8	3/8	2171B3005**	2172B3005**	3.8	3.3	3.0 (1.4)
1/2	3/8	2171B4015**	2172B4015**	4.0	3.5	3.0 (1.4)
1/2	3/4	2171B4005**	2172B4005**	7.7	6.5	3.3 (1.5)
3/4	3/4	2171B5005**	2172B5005**	9.0	7.3	3.3 (1.5)
1	3/4	2171B6015**	2172B6015**	9.0	7.9	3.3 (1.5)
1	1¼	2171B6005**	2172B6005**	24	21	7.5 (3.4)
1¼	1¼	2171B7005**	2172B7005**	29	20	7.5 (3.4)
1½	1¼	2171B8015**	2172B8015**	29	21	7.5 (3.4)

FM APPROVED



Normally Closed (NC)

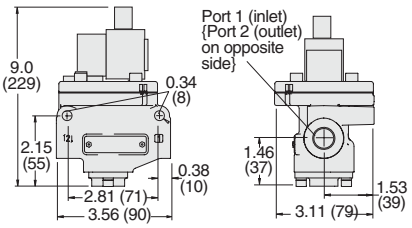


Normally Open (NO)

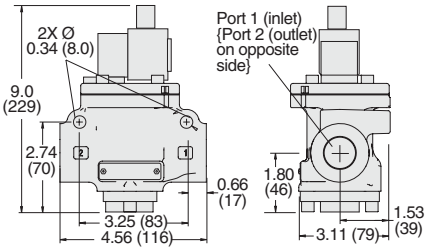
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2171B2004.
** Insert voltage code: "W" = 24 volts DC; "Z" = 120 volts AC, 60 Hz; e.g., 2171B2004W. For other voltages, consult ROSS.

Valve Dimensions – inches (mm)

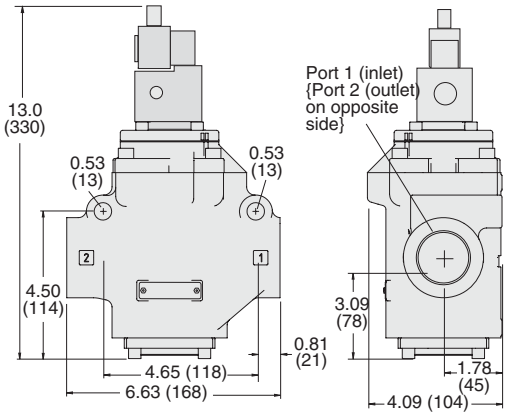
Body Size 3/8



Body Size 3/4



Body Size 1¼



F

F6

Applicable Requirements: C22.2 No. 0-10 - General Requirements - Canadian Electrical Code, Part II; CSA C22.2 No. 25-1966 - Enclosures for use in Class II Groups E, F and G Hazardous Locations; CSA C22.2 No. 142-M1987 - Process Control Equipment; C22.2 No. 213-M1987 - Nonincendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations; CAN/CSA E79-0-95 - Electrical apparatus for explosive atmospheres, Part 0: General requirements; CAN/CSA E79-18-95 - Electrical apparatus for explosive atmospheres, Part 18: Encapsulation "m".

APPROVED for use in the following Hazardous Locations – Ex m II T4 and Division 1 –
Specifications in accordance to CSA certificate: Class I, Division 1, Groups A, B, C and D; Class II, Groups E, F and G; Class III; Class I, Division 2, Groups A, B, C, D.
Specifications in accordance to FM certificate: Explosion-proof Class I, Division 1, Groups A, B, C, D, T4, Ta = 60 °C (encapsulation/explosion-proof Class I, Zone 1, AEx m II T4, Ta = 60 °C; dust-ignition-proof for Class II/III, Division 1, Groups E, F and G, T4, Ta = 60 °C); Nonincendive Class I, Division 2, Groups A, B, C, D, T4, Ta = 60 °C; Suitable for Class II, III, Division 2, Groups E, F, G, T4, Ta = 60 °C

CSA CLASS 2258 02 – process control equipment – for hazardous locations; **FM CLASS 3600, 3611, 3615, 3810** – hazardous (classified) location electrical equipment

For ATEX Certified valves order placement, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page)**:**

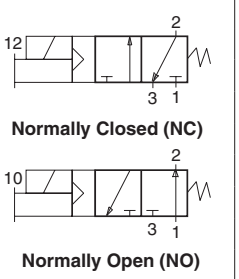
Construction: Poppet; Metal.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages/Pilot Solenoids Power Consumption (each solenoid): 24 volts DC, 4.6 watts; 120 volts AC, 60 Hz, 6.8 volt amps.

Ambient Temperature: -4° to 140°F (-20° to 60°C).
Media Temperature: -4° to 175°F (-20° to 80°C).
For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.
Flow Media: Filtered air.
Inlet Pressure: 30 to 150 psig (2 to 10 bar).

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

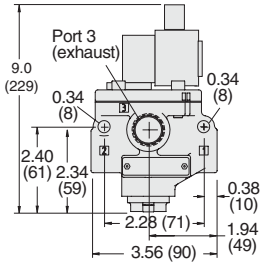
3-Way 2-Position Valves, Spring Return									
Port Size		Body Size	Valve Model Number*		C_v				Weight lb (kg)
			Low Temperature		NC		NO		
1, 2	3		Normally Closed	Normally Open	1-2	2-3	1-2	2-3	
1/4	1/2	3/8	2173B2005**	2174B2005**	2.4	3.4	2.0	2.1	3.0 (1.4)
3/8	1/2	3/8	2173B3005**	2174B3005**	3.0	5.8	2.3	2.4	3.0 (1.4)
1/2	1/2	3/8	2173B4015**	2174B4015**	3.0	5.2	2.9	2.8	3.0 (1.4)
1/2	1	3/4	2173B4005**	2174B4005**	6.6	12	6.5	7.0	3.3 (1.5)
3/4	1	3/4	2173B5005**	2174B5005**	7.8	13	7.5	7.5	3.3 (1.5)
1	1	3/4	2173B6015**	2174B6015**	7.5	12	7.7	7.6	3.3 (1.5)
1	1½	1¼	2173B6005**	2174B6005**	24	40	15	17	7.5 (3.4)
1¼	1½	1¼	2173B7005**	2174B7005**	29	39	21	23	7.5 (3.4)
1½	1½	1¼	2173B8015**	2174B8015**	30	38	22	23	7.5 (3.4)

* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2171B2004.
** Insert voltage code: "W" = 24 volts DC; "Z" = 120 volts AC, 60 Hz; e.g., 2173B2004W. For other voltages, consult ROSS.

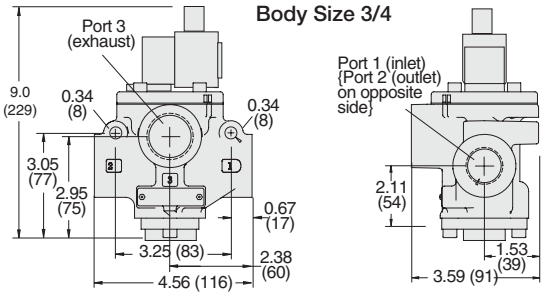


Valve Dimensions – inches (mm)

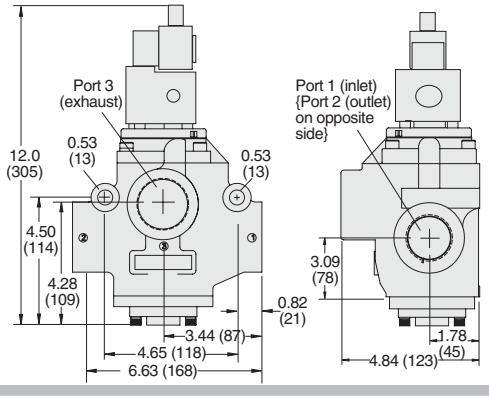
Body Size 3/8



Body Size 3/4



Body Size 1¼



Applicable Requirements: C22.2 No. 0-10 - General Requirements - Canadian Electrical Code, Part II; CSA C22.2 No. 25-1966 - Enclosures for use in Class II Groups E, F and G Hazardous Locations; CSA C22.2 No. 142-M1987 - Process Control Equipment; C22.2 No. 213-M1987 - Nonincendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations; CAN/CSA E79-0-95 - Electrical apparatus for explosive atmospheres, Part 0: General requirements; CAN/CSA E79-18-95 - Electrical apparatus for explosive atmospheres, Part 18: Encapsulation "m".

APPROVED for use in the following Hazardous Locations – Ex m II T4 and Division 1 –
Specifications in accordance to CSA certificate: Class I, Division 1, Groups A, B, C and D; Class II, Groups E, F and G; Class III; Class I, Division 2, Groups A, B, C, D.
Specifications in accordance to FM certificate: Explosion-proof Class I, Division 1, Groups A, B, C, D, T4, Ta = 60 °C (encapsulation/explosion-proof Class I, Zone 1, AEx m II T4, Ta = 60 °C; dust-ignition-proof for Class II/III, Division 1, Groups E, F and G, T4, Ta = 60 °C); Nonincendive Class I, Division 2, Groups A, B, C, D, T4, Ta = 60 °C; Suitable for Class II, III, Division 2, Groups E, F, G, T4, Ta = 60 °C

CSA CLASS 2258 02 – process control equipment – for hazardous locations; **FM CLASS 3600, 3611, 3615, 3810** – hazardous (classified) location electrical equipment

For ATEX Certified valves order placement, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Poppet; Metal.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages/Pilot Solenoids Power Consumption (each solenoid): 24 volts DC, 4.6 watts; 120 volts AC, 60 Hz, 6.8 volt amps.

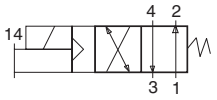
Ambient Temperature: -4° to 140°F (-20° to 60°C).
Media Temperature: -4° to 175°F (-20° to 80°C).
For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.
Flow Media: Filtered air.
Inlet Pressure: 30 to 150 psig (2 to 10 bar).

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

4-Way 2-Position Valves, Spring Return

Port Size		Body Size	Valve Model Number*	C_v		Weight
1, 2, 4	3		Low Temperature	1-2, 1-4	4-3, 2-3	lb (kg)
1/4	1/2	3/8	2176B2005**	2.1	2.2	3.0 (1.4)
3/8	1/2	3/8	2176B3005**	2.5	3.1	3.0 (1.4)
1/2	1/2	3/8	2176B4015**	2.9	3.8	3.0 (1.4)
1/2	1	3/4	2176B4005**	5.7	6.5	5.8 (2.6)
3/4	1	3/4	2176B5005**	7.1	8.7	5.8 (2.6)
1	1	3/4	2176B6015**	7.7	10	5.8 (2.6)
1	1½	1¼	2176B6005**	18	23	12.0 (5.4)
1¼	1½	1¼	2176B7005**	20	28	12.0 (5.4)
1½	1½	1¼	2176B8015**	21	29	12.0 (5.4)

FM APPROVED

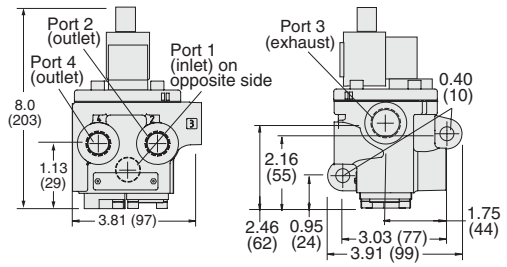


Port Sizes 1 to 1½

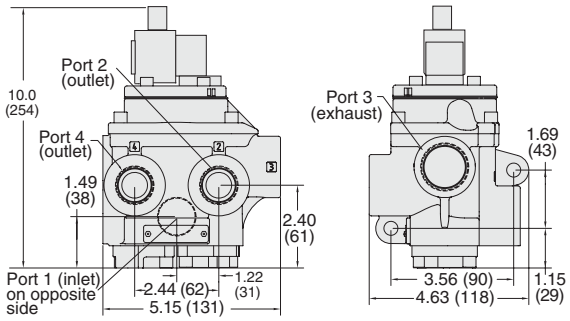
* NPT port threads. For BSPP threads add a "D" prefix to the model number e.g., D2176B2004.
** Insert voltage code: "W" = 24 volts DC; "Z" = 120 volts AC, 60 Hz; e.g., 2176B2004W. For other voltages, consult ROSS.

Valve Dimensions – inches (mm)

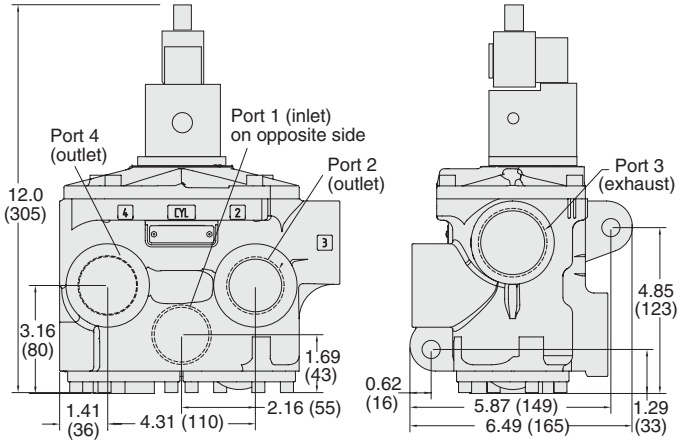
Body Size 3/8



Body Size 3/4



Body Size 1¼



F

F6

Applicable Requirements: C22.2 No. 0-10 - General Requirements - Canadian Electrical Code, Part II; CSA C22.2 No. 25-1966 - Enclosures for use in Class II Groups E, F and G Hazardous Locations; CSA C22.2 No. 142-M1987 - Process Control Equipment; C22.2 No. 213-M1987 - Nonincendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations; CAN/CSA E79-0-95 - Electrical apparatus for explosive atmospheres, Part 0: General requirements; CAN/CSA E79-18-95 - Electrical apparatus for explosive atmospheres, Part 18: Encapsulation "m".

APPROVED for use in the following Hazardous Locations – Ex m II T4 and Division 1 –
Specifications in accordance to CSA certificate: Class I, Division 1, Groups A, B, C and D; Class II, Groups E, F and G; Class III; Class I, Division 2, Groups A, B, C, D.
Specifications in accordance to FM certificate: Explosion-proof Class I, Division 1, Groups A, B, C, D, T4, Ta = 60 °C (encapsulation/explosion-proof Class I, Zone 1, AEx m II T4, Ta = 60 °C; dust-ignition-proof for Class II/III, Division 1, Groups E, F and G, T4, Ta = 60 °C); Nonincendive Class I, Division 2, Groups A, B, C, D, T4, Ta = 60 °C; Suitable for Class II, III, Division 2, Groups E, F, G, T4, Ta = 60 °C

CSA CLASS 2258 02 – process control equipment – for hazardous locations; **FM CLASS 3600, 3611, 3615, 3810** – hazardous (classified) location electrical equipment

For ATEX Certified valves order placement, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page)**:**

Construction: Poppet; Metal.
Mounting Type: Inline.
Solenoid Pilot: Rated for continuous duty.
Standard Voltages/Pilot Solenoids Power Consumption (each solenoid): 24 volts DC, 4.6 watts; 120 volts AC, 60 Hz, 6.8 volt amps.

Ambient Temperature: -4° to 140°F (-20° to 60°C).
Media Temperature: -4° to 175°F (-20° to 80°C).
For temperatures below 40°F (4°C) air must be free of water vapor to prevent formation of ice.
Flow Media: Filtered air.
Inlet Pressure: 30 to 150 psig (2 to 10 bar).

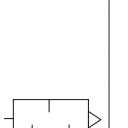
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Silencers

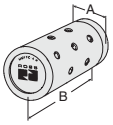
Port size 1/8 thru 2

Port size 2½

Port Size	Thread Type	Model Number*		Avg. C_v	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	BSPT Threads		A	B	
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)
1½	Female	5500A8001	D5500A8001	29.9	2.5 (64)	5.7 (144)	1.0 (0.5)
2½	Female	5500A9002	D5500A9002	103.7	4.0 (102)	5.7 (145)	2.9 (1.4)



Male Pipe Threads



Female Pipe Threads

Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.

Conversion Kits

ROSS Controls standard poppet solenoid pilot controlled valves for line mounting can be easily field-converted into an explosion-proof solenoid pilot poppet valve.

Listed below are the conversion kit numbers to replace the obsolete ROSS explosion proof pilot, or to convert a standard in-line valve to an explosion-proof valve.

Valve Basic Size	Kit Number
1/4" - 1" (Cv up to 10)	2370K77W
1" (Cv up to 29) - 2½"	2371K77W

F

F6

Basic Size 4, 12 and 30

Dynamic Monitoring With Complete Memory: Memory, monitoring, and air flow control functions are simply integrated into two identical valve elements. Valves lock-out due to asynchronous movement of valve elements during actuation or de-actuation, resulting in a residual outlet pressure of less than 1% of supply.

An Action is Required for Reset – cannot be reset by removing and re-applying supply pressure. Reset can only be accomplished by the optional integrated electrical (solenoid) reset.

Basic 3/2 Normally Closed Valve Function: Dirt tolerant, wear compensating poppet design for quick response and high flow capacity. PTFE back-up rings on pistons to enhance valve endurance – operates with or without inline lubrication.

Status Indicator: Includes a pressure switch with both normally open (NO) and normally closed (NC) contacts to provide status feedback to the control system indicating whether the valve is in the lockout or ready-to-run condition.

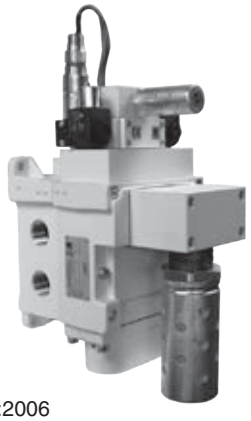
Silencers: All models include high flow, clog resistant silencers.

Mounting: Base mounted – with BSPP or NPT pipe threads. Inlet and outlet ports on both sides provide for flexible piping (plugs for unused ports included). Captive valve-to-base mounting screws.

Basic Size 12 and 30

Intermediate Pilots: Increases pilot air flow for fast valve response, making it possible to use the same size solenoids as valve sizes 4, thereby reducing electrical power requirements for these larger valves.

ISO 13849-1:2006 Category 4 PL e applications



HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

DM2C	N	A	4	2	A	2	1	019

Thread

BSPP	D
NPT	N

Revision Level

All Sizes	A

Basic Size

4	4
12	6
30	8

Base Port Size

4	1/2 inlet – 1/2 outlet	2
12	1 inlet – 1 outlet	6
30	1½ inlet - 2 outlet	8

Voltage*

24 volts DC	A
120 volts AC, 60 Hz	B

* For other voltages consult ROSS.

Reset Type

Solenoid	2

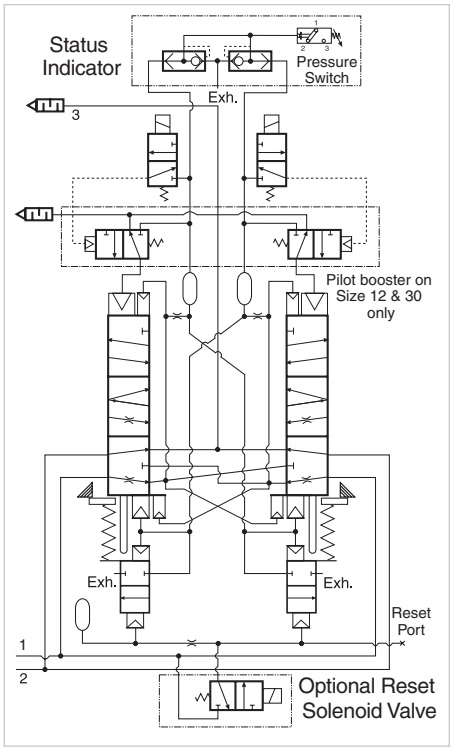
Status Indicator

Yes	1
No	X

Pilot Type

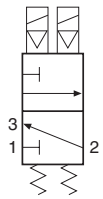
Explosion Proof	019

Schematic - Valve de-actuated



Valve Basic Size	Cv 1-2	Cv 2-3	Weight lb (Kg)
4	4.4	13	5.9 (2.6)
12	8.5	20	15.3 (3.7)
30	22	64	34.7 (15.1)

Simplified Schematic



Applicable Requirements: C22.2 No. 0-10 - General Requirements - Canadian Electrical Code, Part II; CSA C22.2 No. 25-1966 - Enclosures for use in Class II Groups E, F and G Hazardous Locations; CSA C22.2 No. 142-M1987 - Process Control Equipment; C22.2 No. 213-M1987 - Nonincendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations; CAN/CSA E79-0-95 - Electrical apparatus for explosive atmospheres, Part 0: General requirements; CAN/CSA E79-18-95 - Electrical apparatus for explosive atmospheres, Part 18: Encapsulation "m".

APPROVED for use in the following Hazardous Locations – Ex m II T4 and Division 1

Specifications in accordance to CSA certificate: Class I, Division 1, Groups A, B, C and D; Class II, Groups E, F and G; Class III; Class I, Division 2, Groups A, B, C, D.

Specifications in accordance to FM certificate: Explosion-proof Class I, Division 1, Groups A, B, C, D, T4, Ta = 60 °C (encapsulation/explosion-proof Class I, Zone 1, AEx m II T4, Ta = 60 °C; dust-ignition-proof for Class II/III, Division 1, Groups E, F and G, T4, Ta = 60 °C); Nonincendive Class I, Division 2, Groups A, B, C, D, T4, Ta = 60 °C; Suitable for Class II, III, Division 2, Groups E, F, G, T4, Ta = 60 °C

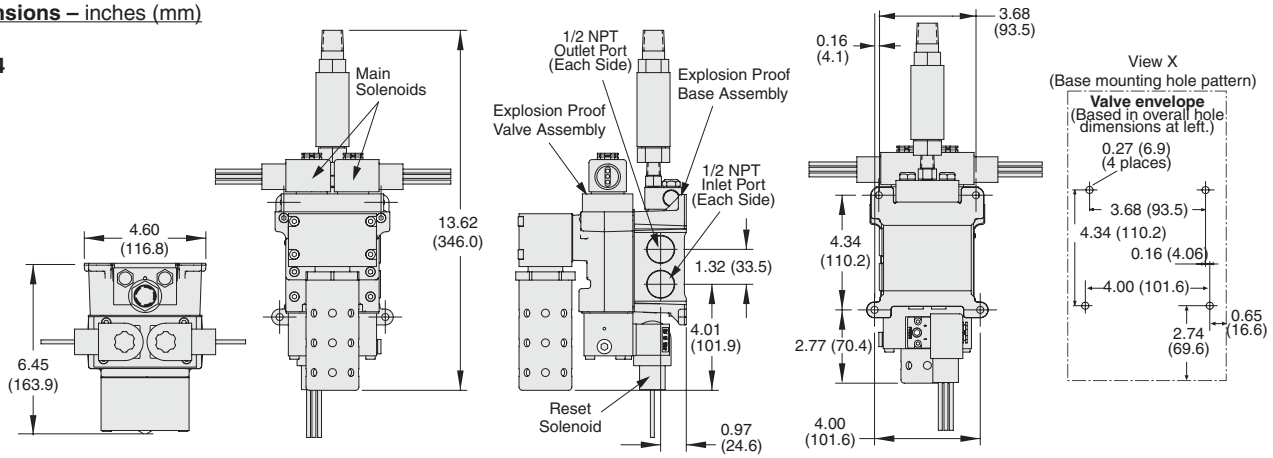
CSA CLASS 2258 02 – process control equipment – for hazardous locations
FM CLASS 3600, 3611, 3615, 3810 – hazardous (classified) location electrical equipment

This valve is not designed for controlling clutch/brake mechanisms on mechanical power presses, see DM2® Series D for mechanical power press applications.

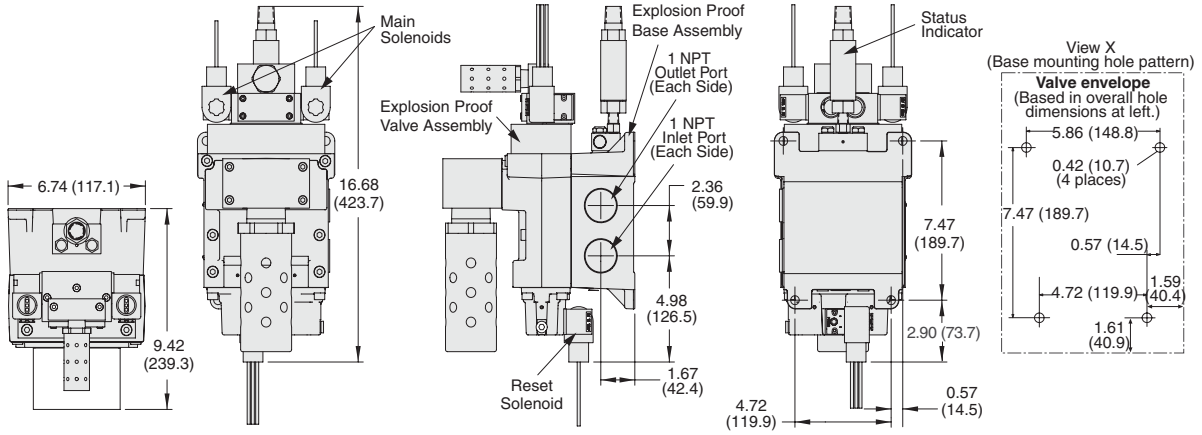
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Valve Dimensions – inches (mm)

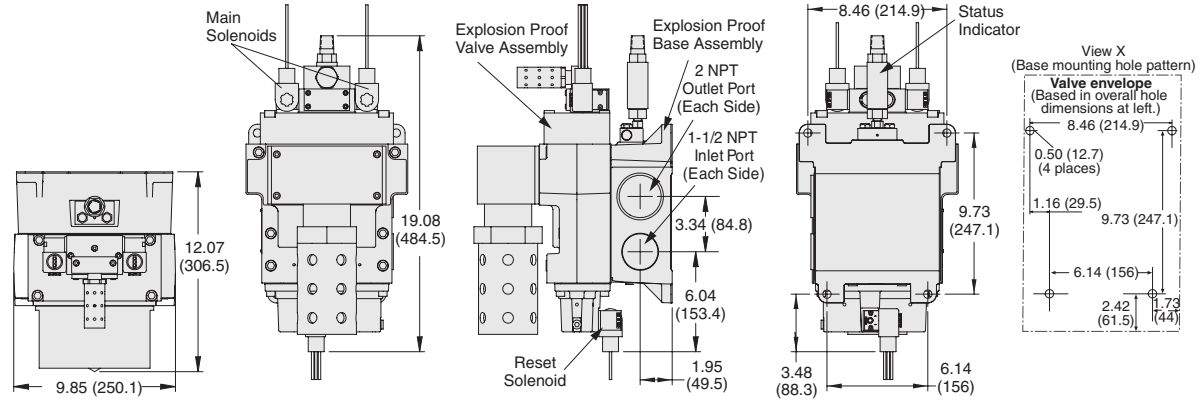
Basic Size 4



Basic Size 12



Basic Size 30



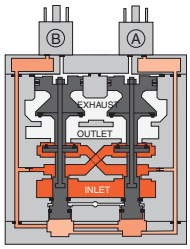
STANDARD SPECIFICATIONS (for valves on this page):

Construction: Dual poppet.
Mounting Type: Base mounted.
Pilot Solenoids: According to VDE 0580. Enclosure rating according to DIN 400 50 IP 65. Three solenoids, rated for continuous duty.
Standard Voltages/Pilot Solenoids Power Consumption (each solenoid):
Primary and reset solenoids:
24 volts DC, 4.6 watts; 120 volts AC, 60 Hz, 6.8 volt amps.
Enclosure Rating: IP65, IEC 60529.
Electrical Connection: Three lead wires with 1/2 NPT conduit connection.
Ambient Temperature: 15° to 122°F (-10° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered, lubricated or unlubricated (mineral oils according to DIN 51519, viscosity classes 32-46).
Inlet Pressure: 30 to 120 psig (2 to 8 bar).
Pressure Switch (Status Indicator) Rating: Contacts - 1 amps at 250 volts AC, SPDT.
Pressure Switch Enclosure Rating: IP66.
Monitoring: Dynamically, cyclically, internally during each actuating and de-actuating movement. Monitoring function has memory and requires an overt act to reset unit after lockout.
Mounting Orientation: Preferably horizontally (valve on top of base) or vertically with pilot solenoids on top.

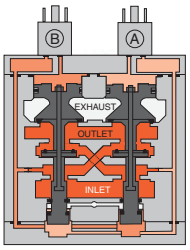
Product data for Sistema Library users, pending.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

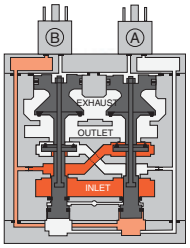
Valve de-actuated (ready-to-run): The flow of inlet air pressure into the crossover passages from the inlet chamber is restricted by orifices that allow air pressure to bypass the lower inlet poppets. Flow is sufficient to quickly pressurize the pilot supply/timing chambers on both sides A and B. The upper inlet poppets prevent air flow from the crossover passages into the outlet chamber. Air pressure acting on the inlet poppets and return pistons securely hold the valve elements in the de-actuated position. (Internal air passages shown out of the valve body for clarity.)



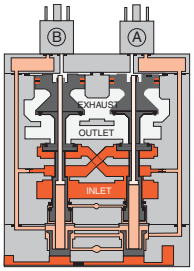
Valve actuated: Energizing the pilot solenoids simultaneously applies pressure to both pistons, forcing the internal parts to move to their actuated position, where inlet air flow to outlet is open and both exhaust poppets are closed. The outlet is then quickly pressurized, and pressure in the inlet, crossovers, outlet, and timing chambers are quickly equalized. De-energizing the main solenoids causes the valve elements to return to the ready-to-run (de-actuated) position.



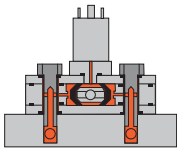
Asynchronous Operation: If the valve elements operate in a sufficiently asynchronous manner on ACTUATION, the valve will shift into a position where one crossover and its related timing chambers will be exhausted, and the other crossover and its related timing chambers will be pressurized.
In the illustration, side B is in the de-actuated position, but has no pilot air available to actuate with and has full pressure on its upper and lower inlet poppets and return piston to hold it in place.
Inlet air flow on side B into its crossover is restricted and flows through the open upper inlet poppet on side A, through the outlet into the exhaust port, and from the exhaust port to atmosphere. Residual pressure in the outlet is less than 1% of inlet pressure. Once the main solenoids are de-energized, actuating pressure is removed from the top of the main pistons and then the lower inlet poppet return spring along with inlet air pressure acting on the side A return piston will push side A back into the de-actuated position. Inlet air pressurizes the crossovers and volume chambers. Pressure in the crossovers helps hold the upper inlet poppets on seat. The valve will then be in the ready-to-run position. On the next attempt to actuate normally, if side B is still unable to actuate synchronously with side A, the same sequence of events described above will occur again.



WARNING: If asynchronous operation occurs while DE-ACTUATING, the pilot supply/timing chambers on one side will still be exhausted as described above. However, this could be a temporary situation because the cause of the asynchronous operation may be able to correct itself allowing the stuck or slow acting side of the valve to eventually move back into the de-actuated position. Once the slow or stuck side has de-actuated, the pilot supply/timing chambers that were exhausted will then repressurize. If an external monitoring system is only checking the status indicator periodically this fault signal could be missed. The machine's safety system must be designed to ensure that this does not cause a hazardous situation.



Status Indicator:
The status indicator pressure switch will actuate when the main valve is operating normally, and will de-actuate when the main valve operation is sufficiently asynchronous or inlet pressure is removed. This device is not part of the valve lockout function, but, rather, only reports the status of the main valve.



Status indicator in normal ready-to-run position

Accessories & Options

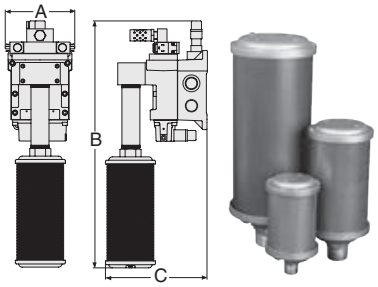
F

High-Flow, High Reduction Silencer KITS

Designed to improve equipment performance and reduce the Exponentially Perceived Noise (EPNdB) in the 35–40 dB range.

Basic Size	Kit Number*		Flow scfm	Dimensions inches (mm)			
	NPT threads	BSPT threads		A	B (NPT)	B (BSPT)	C
4	2324H77	2330H77	800 (378)	4.34 (110.2)	20.68 (525.3)	23.02 (584.7)	7.27 (184.7)
12	2326H77	2331H77	2080 (982)	6.74 (117.2)	29.3 (744.2)	31.65 (803.91)	10.66 (270.8)
30	2327H77	2332H77	7200 (3398)	9.85 (250.2)	42.69 (1084.3)	42.69 (1084.3)	13.47 (342.1)

* Kits include all plumbing required for installation. **Pressure Range:** 125 psig (8.6 bar) maximum.



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Status Indicator

The Status Indicator pressure switch actuates when the valve is in a ready-to-run condition and de-actuates when the valve is in a lockout condition or when the inlet air pressure has been removed. Although, the valves can be purchased with this option already installed, the Status Indicator can be purchased separately.

Model Number	Y739B94

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

VALVE TYPE	Series	DESCRIPTION			AVAILABLE PORT SIZES								FUNCTIONS										Explosion Proof Certifications		Page
		ISO Size	Spool & Sleeve	Poppet	1/8	1/4	3/8	1/2	3/4	1	1¼	1½	3/2 Single	5/2 Single	5/2 Double	5/3 Closed Center	5/3 Open Center	5/3 Pressure Center	Max Flow (Cv)	Solenoid Control	Direct Solenoid Control	Pressure Control	CSA/ UL	ATEX	
ISO																									
ISO 5599/I	W60 & W64	1	■	■	■	■	■							■	■	■	■	■	0.8	■		■	■		A2.3 - A2.7
	W60 & W64	2	■	■			■	■						■	■	■	■	■	1.9	■		■	■		A2.3 - A2.7
	W60 & W64	3	■	■				■	■					■	■	■	■	■	3.8	■		■	■		A2.3 - A2.7

For Explosion-proof ISO Valves order placement, consult ROSS.

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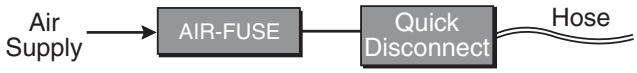
ROSS CONTROLS®

AIR-FUSE Flow Diffusers

www.rosscontrols.com

AIR-FUSE Flow Diffusers

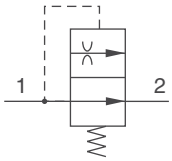
The ROSS AIR-FUSE Flow Diffuser automatically reduces air flow to minimize hose whip. After a hose failure has occurred, the AIR-FUSE is designed to minimize the whip effect of the hose. A minimal amount of media flow will occur after the AIR-FUSE is triggered. This pilot flow will escape to atmosphere and continue until the AIR-FUSE is reset, therefore, the AIR-FUSE is intended to be used only with non-corrosive, non-flammable, non-hazardous gases. To reset the AIR-FUSE, simply shut-off the air supply.



Ordering Information

Proper sizing of the Air-Fuse unit is guided by the air-operated work elements. Required flow rating must be ensured; i.e., flow capacity of the pneumatic element (pressure regulator, ball valve) installed upstream of the Air-Fuse must be larger, than that of the used hose-break protection.

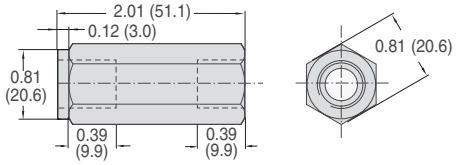
Port Size	Porting Type	Model Number*	Shut-off Flow Rate at 100 psi (7 bar) scfm (dm³/s)	Flow at 100 psi (7 bar) ΔP 1 psi (0.07 bar) scfm (dm³/s)	Weight lb (kg)
1/4	Female-Female	1969D2002	29.7 (14)	13.8 (8)	0.09 (0.04)
3/8	Female-Female	1969D3002	68.2 (32)	28.6 (14)	0.15 (0.07)
1/2	Female-Female	1969D4002	102.3 (48)	49.2 (23)	0.33 (0.15)
3/4	Female-Female	1969D5002	169.5 (80)	91.1 (43)	0.28 (0.13)
1	Female-Female	1969D6002	271.0 (128)	144 (68)	1.19 (0.54)
1½	Female-Female	1969D8002	568.0 (268)	307 (145)	2.20 (1.00)



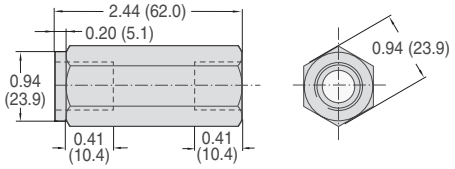
*NPT port threads. For BSPP threads add a "D" prefix to the model number, e.g., D1969D2002.

Valve Dimensions – inches (mm)

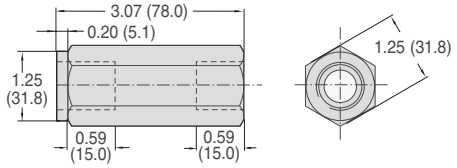
Port Size 1/4



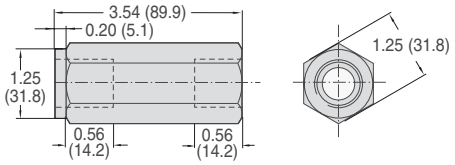
Port Size 3/8



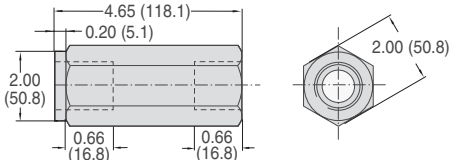
Port Size 1/2



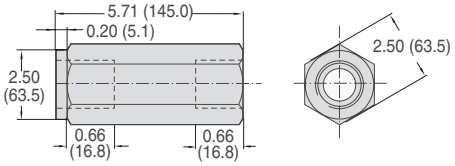
Port Size 3/4



Port Size 1



Port Size 1½



Reduces the Dangers of Hose and Plastic Tubing Failure

STANDARD SPECIFICATIONS (for valves on this page)**:**

Ambient/Media Temperature: 35° to 175°F (2° to 80°C). For temperature below 35°F (2°C), consult ROSS.
Flow Media: Filtered air.
Operating Pressure: Maximum 232 psi (16 bar). Minimum according to hose length.
Drop pressure at shut-off flow: 4.4 psi (0.3 bar).

Mounting: In-line two-way valve. To be inserted between fixed air supply and flexible air lines
Material: *Housing:* Aluminum.
Inner parts: Brass.
Spring: Stainless Steel.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

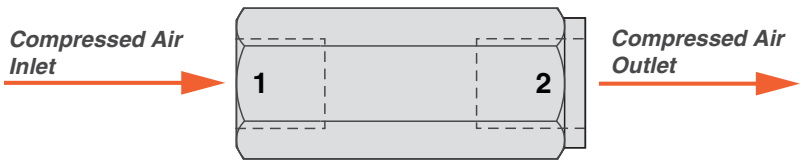
Online Version
Rev. 11/14/16

Coiled Hose Selection Information

Minimum Supply Working pressure based on hose length and diameter psig (bar)												
Model Number	**Port Size**	**Hose Length** feet (meter)	**Internal Hose Diameter** inch (mm)									
			0.25	0.313	0.370	0.470	0.500	0.590	0.750	1.000	1.250	1.500
1969D2002	1/4	12 (3.65)	70 (4.82)	31 (2.13)	17 (1.17)	10 (0.69)	9 (0.62)	8 (0.55)	7 (0.48)	7 (0.48)	7 (0.48)	7 (0.48)
		25 (7.62)	137 (9.45)	57 (3.93)	27 (1.86)	13 (0.90)	11 (0.76)	9 (0.62)	8 (0.55)	7 (0.48)	7 (0.48)	7 (0.48)
		50 (15.24)		107 (7.38)	47 (3.24)	19 (1.31)	15 (1.03)	11 (0.76)	8 (0.55)	7 (0.48)	7 (0.48)	7 (0.48)
		100 (30.48)		207 (14.27)	87 (6)	30 (2.10)	23 (1.58)	14 (0.96)	9 (0.62)	8 (0.55)	7 (0.48)	7 (0.48)
1969D3002	3/8	12 (3.65)		132 (9.10)	57 (3.93)	21 (1.45)	17 (1.17)	11 (0.76)	8 (0.55)	8 (0.55)	7 (0.48)	7 (0.48)
		25 (7.62)			111 (7.65)	37 (2.55)	28 (1.93)	16 (1.10)	10 (0.69)	8 (0.55)	7 (0.48)	7 (0.48)
		50 (15.24)			215 (14.82)	67 94.61)	49 (3.38)	25 (1.72)	12 (0.83)	8 (0.55)	8 (0.55)	7 (0.48)
		100 (30.48)				126 (8.69)	91 (6.27)	42 (2.90)	17 (1.17)	9 (0.62)	8 (0.55)	7 (0.48)
1969D4002	1/2	12 (3.65)			119 (8.20)	39 (2.69)	30 (2.07)	17 (1.17)	10 (0.69)	8 (0.55)	7 (0.48)	7 (0.48)
		25 (7.62)				74 (5.10)	54 (3.72)	27 (1.86)	13 (0.90)	8 (0.55)	8 (0.55)	7 (0.48)
		50 (15.24)				141 (9.72)	102 (7.03)	46 (3.17)	19 (1.31)	10 (0.69)	8 (0.55)	8 (0.55)
		100 (30.48)					196 (13.51)	85 (5.86)	29 (2)	12 (0.83)	9 (0.62)	8 (0.55)
1969D5002	3/4	12 (3.65)				96 (6.62)	70 (4.83)	33 (2.27)	15 (1.03)	9 (0.62)	8 (0.55)	7 (0.48)
		25 (7.62)				193 (13.31)	139 (9.58)	62 (4.27)	23 (1.58)	11 (0.76)	8 (0.55)	8 (0.55)
		50 (15.24)						116 (8)	38 (2.62)	14 (0.97)	9 (0.62)	8 (0.55)
		100 (30.48)						224 (15.44)	69 (4.76)	20 (1.38)	11 (0.76)	9 (0.62)
1969D6002	1	12 (3.65)				231 (15.93)	166 (8)	73 (15.03)	26 (1.79)	11 (0.76)	8 (0.55)	8 (0.55)
		25 (7.62)						144 (9.93)	47 (3.24)	16 (1.10)	10 (0.69)	8 (0.55)
		50 (15.24)							85 (5.86)	24 (1.65)	12 (0.83)	9 (0.62)
		100 (30.48)							163(11.24)	14 (0.96)	17 (1.17)	11 (0.76)
1969D8002	1½	12 (3.65)							89 (6.14)	25 (1.72)	13 (0.89)	9 (0.62)
		25 (7.62)							179 (12.34)	44 (3.03)	18 (1.24)	12 (0.83)
		50 (15.24)								81 (5.58)	20 (1.38)	16 (1.10)
		100 (30.48)								154 (10.62)	52 (3.58)	24 (1.65)

Important Notes:

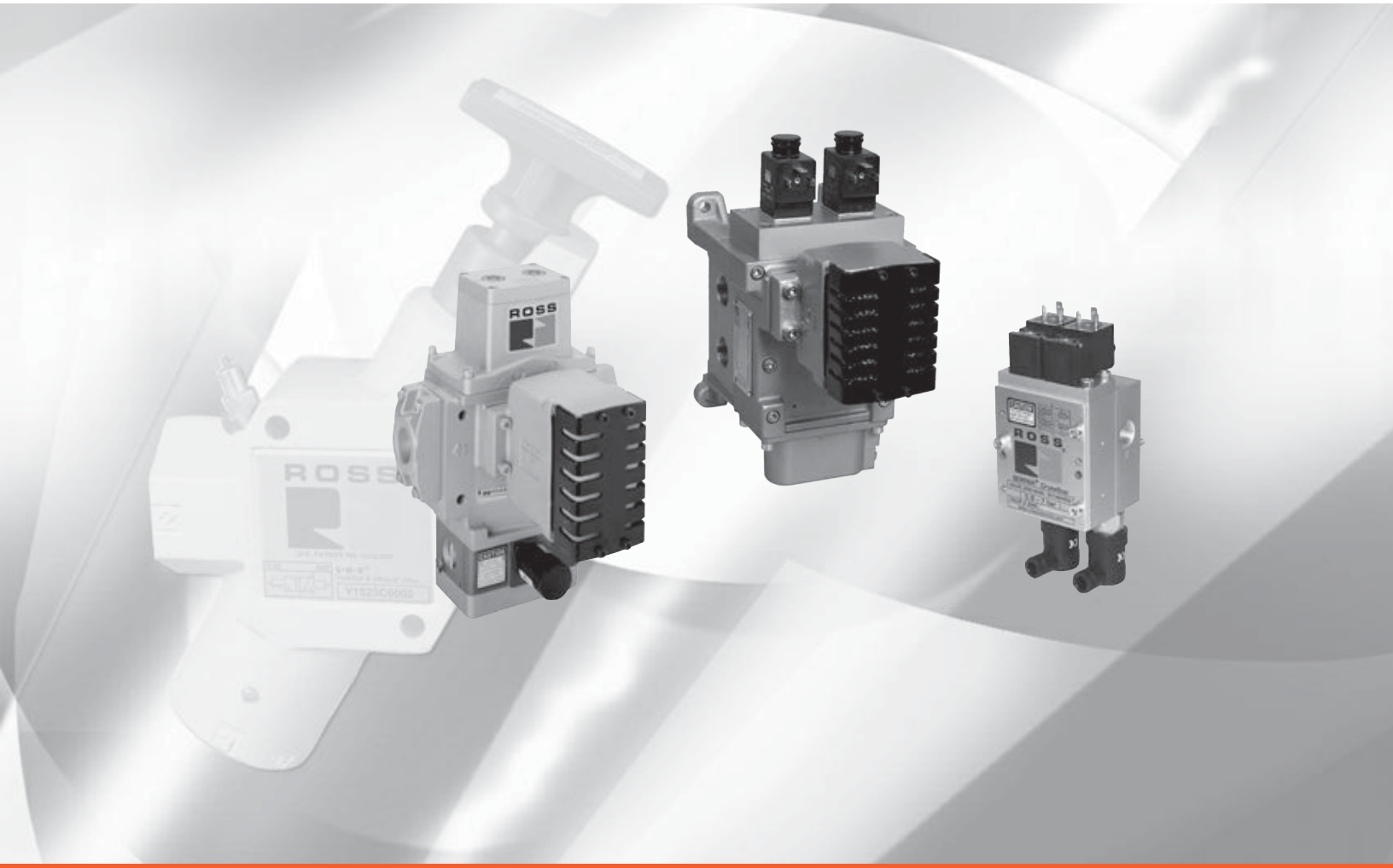
Flow is automatically reduced to a non-hazardous level after the ROSS AIR-FUSE has sensed a broken hose or tube.
Until the supply of the compressed media is turned off, a nominal amount of flow will occur through the AIR-FUSE, therefore use only with non-corrosive, non-flammable and non-hazardous gases (check material compatibility). AIR-FUSE size should equal hose inside diameter.
No reduced fittings should be used downstream of the AIR-FUSE before the tool. Flow-reducing fittings may only be used if they are directly connected with the work element.
When applying the AIR-FUSE to a directional valve application, the valve should be oversized to eliminate excessive back pressure.



F

ROSS CONTROLS®

DOUBLE VALVES FOR CLUTCH/BRAKE CONTROL
DM²® SERIES D AND 35 SERIES

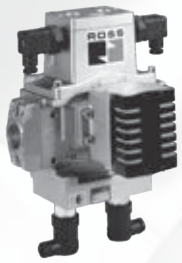


G

Contents

DM[2]® Series D Double Valves

SERPAR® 35 Series Double Valves

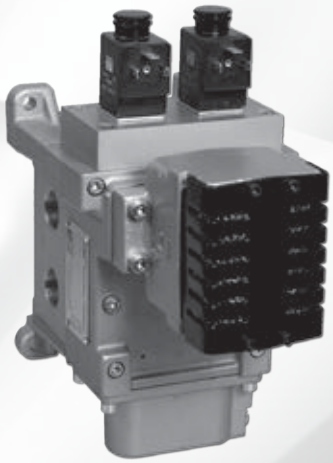


SERPAR® Crossflow
35 Series Double Valves

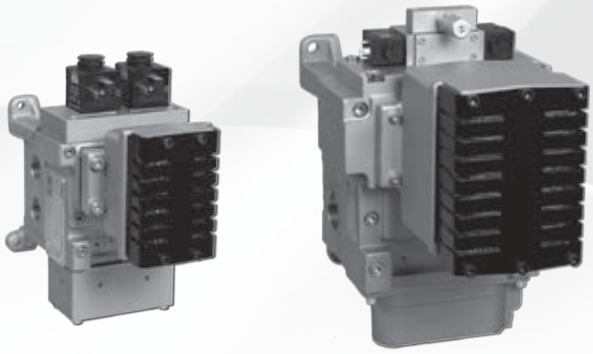
VALVE SERIES	Basic Size	AVAILABLE PORT SIZES								MAX. FLOW Cv								Reset			Page
										Port Size											
		1/4	3/8	1/2	3/4	1	1¼	1½	2	1/4	3/8	1/2	3/4	1	1¼	1½	2	Manual	Remote	Solenoid	
DM[2]® D with Total Dynamic Monitoring & Complete Memory																					
DM[2]® D	**2, 4, 8**	■	■	■	■	■				2.17	2.17	2.8	4.63	4.63				■	■	■	G1.3 - G1.6
DM[2]® D	**12, 30**					■		■						8.86		20.22		■	■	■	G1.3 - G1.6
DM[2]® D Series E & C Preassembled Wiring Kits																					G1.7
Accessories																					G1.8
35 SERPAR®																					
L-G Monitor	**4**		■	■	■						3	3	3								G2.3 - G2.4
	8			■	■							3.5	4	4							G2.5 - G2.6
	12				■	■	■						8	8.5	9						G2.5 - G2.6
	30						■	■	■						20.0	21	21				G2.5 - G2.6
E-P Monitor	**8**			■	■							3.5	4	4							G2.7 - G2.8
	12				■	■	■						8	8.5	9						G2.7 - G2.8
	30						■	■	■						20	21	21				G2.7 - G2.8
D-S Monitor	**8**			■	■							3.5	4	4							G2.9 - G2.10
	12				■	■	■						8	8.5	9						G2.9 - G2.10
	30						■	■	■						20	21	21				G2.9 - G2.10
35 SERPAR® Crossflow																					
With or Without Pressure Switches	**1**	■	■							0.9	1.2										G3.3 - G3.4
	2			■	■							3.7	4.2								G3.5 - G3.6
With Pressure Switches	**4**		■	■	■						3	3	3								G3.7
	8		■	■	■							3.5	4	4							G3.8 - G3.9
	12				■	■	■						8	8.5	9						G3.8 - G3.9
	30						■	■	■						20	21	21				G3.8 - G3.9

ROSS CONTROLS®

Double Valves Control Reliable for Clutch/Brake Control DM²® Series D



www.rosscontrols.com



DM²® Monitoring:

The DM²® is a patented 3/2 normally closed valve (with an intermediate, lockout position) distinguished by SERPAR® Crossflow passages with poppet and spool valving on the main valve stems. This arrangement provides the valve's outstanding flow characteristics and an integrated monitoring capability with total memory. The valve provides dynamic monitoring and dynamic memory.

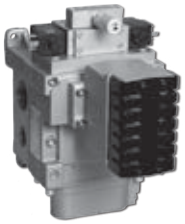
Dynamic Monitoring means that all monitoring components change state on every valve cycle. Should the valve elements cycle asynchronously, the valve will exhaust downstream air and lock-out, prohibiting further operation.

Dynamic Memory within a monitoring system indicates that when a valve lock-out occurs, the valve will retain the fault information regardless of air or electrical changes. The DM²® system can only be reset by a defined operation/procedure, and will not self-reset (turning the valve off and on) or reset when inlet air supply is removed and re-applied. Such automatic resetting would conceal potential hazards from the operator.

Explosion-Proof solenoid pilot valves available, consult ROSS.

VALVE SERIES	AVAILABLE PORT SIZES						MAX. FLOW Cv						Reset			Page
							Port Size									
	1/4	3/8	1/2	3/4	1	1½	1/4	3/8	1/2	3/4	1	1½	Manual	Remote	Solenoid	
DM²® D	■	■	■	■	■	■	2.17	2.17	2.8	4.63	4.63 8.86	20.22	■	■	■	G1.3 - G1.6
DM²® D Series E & C Preassembled Wiring Kits																G1.7
Accessories																G1.8

Self Monitored - Clutch/Brake Control



Basic Size 2, 4, 8, 12 and 30

Dynamic Monitoring With Complete Memory: Memory, monitoring, and air flow control functions are simply integrated into two identical valve elements. Valves lock-out due to asynchronous movement of valve elements during actuation or de-actuation, resulting in a residual outlet pressure of less than 1% of supply. Overt action is required for reset – cannot be reset by removing and re-applying supply pressure. Reset can only be accomplished by remote air signal, optional electrical solenoid reset signal, or optional manual reset.

Basic 3/2 Normally Closed Valve Function: Dirt tolerant, wear compensating poppet design for quick response and high flow capacity. PTFE back-up rings on pistons to enhance valve endurance – operates with or without inline lubrication.

Status Indicator (Optional): Includes a pressure switch with both normally open and normally closed contacts to provide status feedback to the press control system indicating whether the valve is in the lockout or ready-to-run condition. The Status Indicator can be ordered installed or purchased separately and added to any DM2® base.

Silencers: All models include high flow, clog resistant silencers.

Mounting: Base mounted – with BSPP or NPT pipe threads. Inlet and outlet ports on both sides provide for flexible piping (plugs for unused ports included). Captive valve-to-base mounting screws.

Basic Size 12 and 30

Intermediate Pilots: Increases pilot air flow for fast valve response, making it possible to use the same size solenoids as valve sizes 2, 4 & 8, thereby reducing electrical power requirements for these larger valves.

HOW TO ORDER

(Choose your options (in red) to configure your valve model number.)

DM2D	D	A	4	2	A	1	1

THREAD

BSPP	D
NPT	N
N/A (no base)	X

REVISION LEVEL

Size 4, 8, 12, 30	A
Size 2	B

BASIC SIZE

2	2
4	4
8	5
12	6
30	8

BASE PORT SIZE

2	1/4 inlet – 1/4 outlet	0
	3/8 inlet – 3/8 outlet	1
4	1/2 inlet – 1/2 outlet	2
	1/2 inlet – 3/4 outlet	3
8	3/4 inlet – 3/4 outlet	4
	1 inlet – 1 outlet	5
12	1 inlet – 1 outlet	6
	1 inlet – 1½ outlet	7
30	1½ inlet - 2 outlet	8
Valve Only (less base)		X

RESET TYPE

Remote	1
Solenoid	2
Manual	4

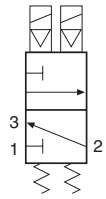
STATUS INDICATOR

Yes	1
No	X

Voltage*

24 volts DC	A
110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz	B
220 volts AC, 50/60 Hz	C**
12 volts DC	D
24 volts AC	E

* For other voltages consult ROSS.
** 220 VAC not available in the U.S. (OSHA regulations limit press control voltage to no more than 120 volts AC).



Simplified Schematic

Valve Basic Size	C_v 1-2	C_v 2-3	Weight# lb (Kg)
2	2.17	3.66	5 (2.3)
4	2.80	6.70	6.0 (2.8)
8	4.63	12.55	9.1 (4.2)
12	8.86	20.78	15.5 (7.1)
30	20.22	53.68	32.6 (14.8)

Valve and base assembly with status indicator and solenoid reset.

Connectors ordered separately, refer to page G1.8. For other options, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Dual poppet.
Mounting Type: Base mounted.
Pilot Solenoids: According to VDE 0580. Two solenoids, rated for continuous duty (additional solenoid on optional reset).
Standard Voltages/Pilot Solenoids Power Consumption (each solenoid):
Basic Size 2, 4, 12, 30: *Primary and reset solenoids:*
24 volts DC; 110 volts AC, 50 Hz; 120 volts AC, 50/60 Hz.
5.8 watts nominal on AC and DC
6.5 watts maximum on AC and DC.
Basic Size 8: 24 volts DC; 110 volts AC, 50/60 Hz.
*Primary solenoids:*15 watts on DC; 36 VA inrush and 24.6 VA holding on AC.
Reset solenoid: 6.0 watts on DC; 15.8 VA inrush and 10.4 VA holding on AC
Enclosure Rating: DIN 40050, IP65, IEC 60529.
Electrical Connection: EN 175301-803 Form A.
Ambient Temperature: 15° to 120°F (-10° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered, lubricated or unlubricated (mineral oils according to DIN 51519, viscosity classes 32-46).

Inlet Pressure: *Basic Size 2:* 45 to 150 psig (3.1 to 10.3 bar).
Basic Size 4, 8, 12, 30: 30 to 120 psig (2.1 to 8.3 bar).
Reset Pressure: For remote air reset option – must be equal to inlet pressure.
Manual Pressure: Encapsulated, push button actuation.
Pressure Switch (Status Indicator) Rating: Contacts - 5 amps at 250 volts AC, or 5 amps at 30 volts DC.
Monitoring: Dynamically, cyclically, internally during each actuating and de-actuating movement. Monitoring function has memory and requires an overt act to reset unit after lockout.
Mounting Orientation: Preferably horizontally (valve on top of base) or vertically (with pilot solenoids on top).

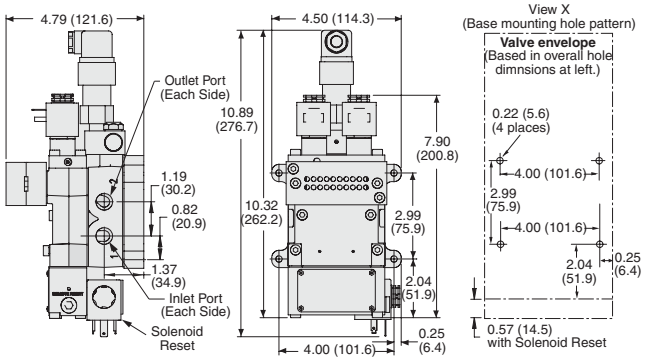
Functional Safety Data: Category 4 PL e; B10d: 20,000,000; PFHd: 7.71×10^{-9} ; MTTFd: 301.9 (n_{op}: 662400).
Certifications: CE Marked for applicable directives, BG, CSA/UL, TSSA for appropriately tested valves.
Vibration/Impact Resistance: Tested to BS EN 60068-2-27.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

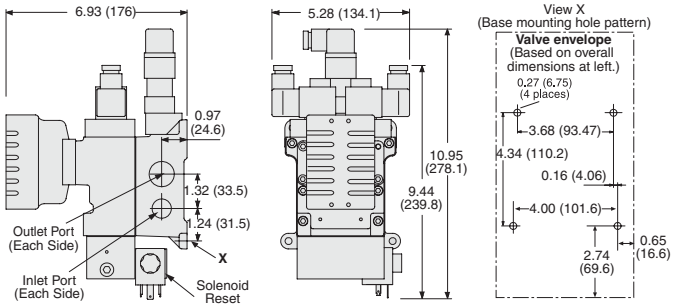
G1

Valve Dimensions – inches (mm)

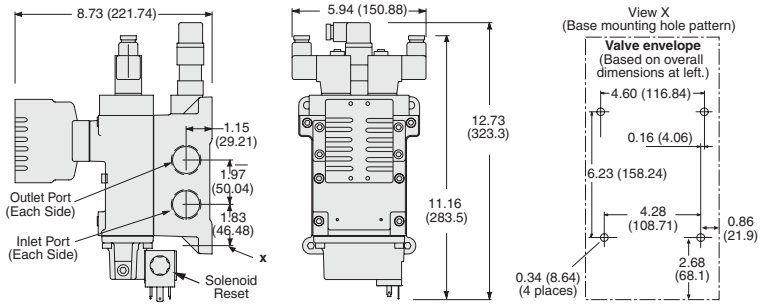
Basic Size 2



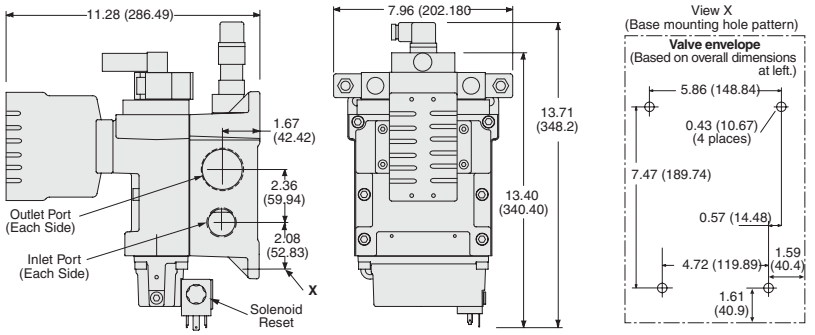
Basic Size 4



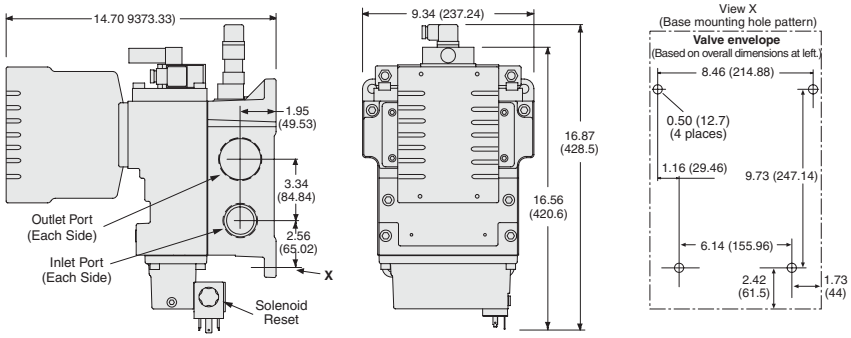
Basic Size 8



Basic Size 12



Basic Size 30



SUB-BASE MODEL NUMBERS and SUB-BASE SPECIFIC INFORMATION					
Valve Basic Size	Port Size		Sub-Base Model Number	Status Indicator	Weight lb (kg)
	Inlet	Outlet			
2	1/4	1/4	1872C91	No	1.7 (0.8)
2	1/4	1/4	1873C91	Yes	2.1 (1.0)
2	3/8	3/8	1874C91	No	1.7 (0.8)
2	3/8	3/8	1875C91	Yes	2.1 (1.0)
4	1/2	1/2	1697C91	No	1.7 (0.8)
4	1/2	1/2	1698C91	Yes	2.3 (1.1)
4	1/2	3/4	1699C91	No	1.7 (0.8)
4	1/2	3/4	1700C91	Yes	2.3 (1.1)
8	3/4	3/4	1701C91	No	3.6 (1.6)
8	3/4	3/4	1702C91	Yes	4.2 (1.9)
8	1	1	1703C91	No	3.6 (1.6)
8	1	1	1704C91	Yes	4.2 (1.9)
12	1	1	1705C91	No	6.2 (2.8)
12	1	1	1706C91	Yes	6.8 (3.1)
12	1	1½	1707C91	No	6.2 (2.8)
12	1	1½	1708C91	Yes	6.8 (3.1)
30	1½	2	1709C91	No	12.0 (5.4)
30	1½	2	1710C91	Yes	12.6 (5.7)

* NPT port threads. For BSPP threads add a "D" prefix to the model number, e.g., D1872C91.

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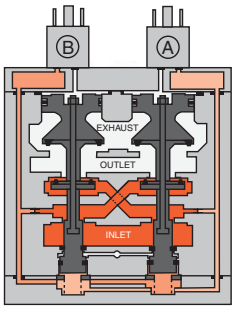
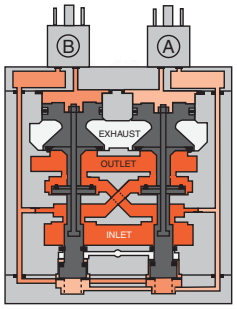
Valve de-actuated (ready-to-run):

The flow of inlet air pressure into the crossover passages is restricted by the size of the passage between the stem and the valve body opening. Flow is sufficient to quickly pressurize pilot supply/timing chambers A and B. The inlet poppets prevent air flow from crossover passages into the outlet chamber. Air pressure acting on the inlet poppets and return pistons securely hold the valve elements in the closed position. (Air passages shown out of position and reset adapter omitted for clarity.



Valve actuated:

Energizing the pilot valves simultaneously applies pressure to both pistons, forcing the internal parts to move to their actuated (open) position, where inlet air flow to crossover passages is fully open, inlet poppets are fully open and exhaust poppets are fully closed. The outlet is then quickly pressurized, and pressure in the inlet, crossovers, outlet, and timing chambers are quickly equalized. De-energizing the pilots quickly causes the valve elements to return to the ready-to-run position.

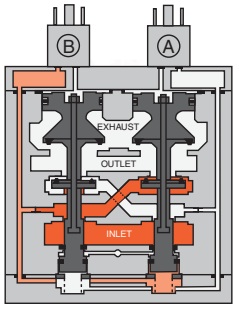


Valve locked-out:

Whenever the valve elements operate in a sufficiently asynchronous manner, either on actuation or de-actuation, the valve will move to a locked-out position. In the locked-out position, one crossover and its related timing chamber will be exhausted, and the other crossover and its related timing chamber will be fully pressurized. The valve element (side B) that is partially actuated has pilot air available to fully actuate it, but no air pressure on the return piston to fully de-actuate the valve element. Air pressure in the crossover acts on the differential of side B stem diameters creating a latching force. Side A is in a fully closed position, and has no pilot air available to actuate, but has full pressure on the inlet poppet and return piston to hold the element in the fully closed position.

Inlet air flow on side A into its crossover is restricted, and flows through the open inlet poppet on side B, through the outlet into the exhaust port, and from the exhaust port to atmosphere. Residual pressure in the outlet is less than 1% of inlet pressure.

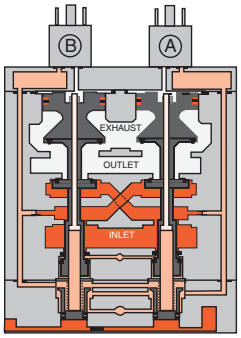
The return springs are limited in travel, and can only return the valve elements to the intermediate (locked-out) position. Sufficient air pressure acting on the return pistons is needed to return the valve elements to a fully closed position.



Resetting the valve:

The valve will remain in the locked-out position, even if the inlet air supply is removed and re-applied. A remote reset signal (air or electric), or a manual push button actuation must be applied to reset the valve.

Reset is accomplished by momentarily pressurizing the reset port. Actuation of the reset piston physically pushes the main valve elements to their closed position. Inlet air fully pressurizes the crossovers and holds the inlet poppets on seat. Actuation of the reset piston opens the reset poppet, thereby, immediately exhausting pilot supply air, thus, preventing valve operation during reset. (Reset adapter added to illustration.)

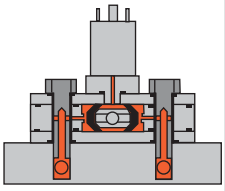


De-actuation of reset pistons causes the reset poppets to close and pilot supply to fully pressurize.

Reset air pressure can be applied by a remote 3/2 normally closed valve, or from an optional 3/2 normally closed solenoid, or a manual push button mounted on the reset adapter.

Status Indicator:

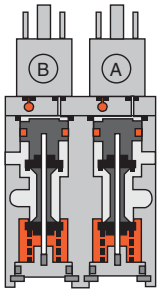
The status indicator pressure switch will actuate when the main valve is operating normally, and will de-actuate when the main valve is in the locked-out position or inlet pressure is removed. This device is not part of the valve lockout function, but, rather, only reports the status of the main valve.



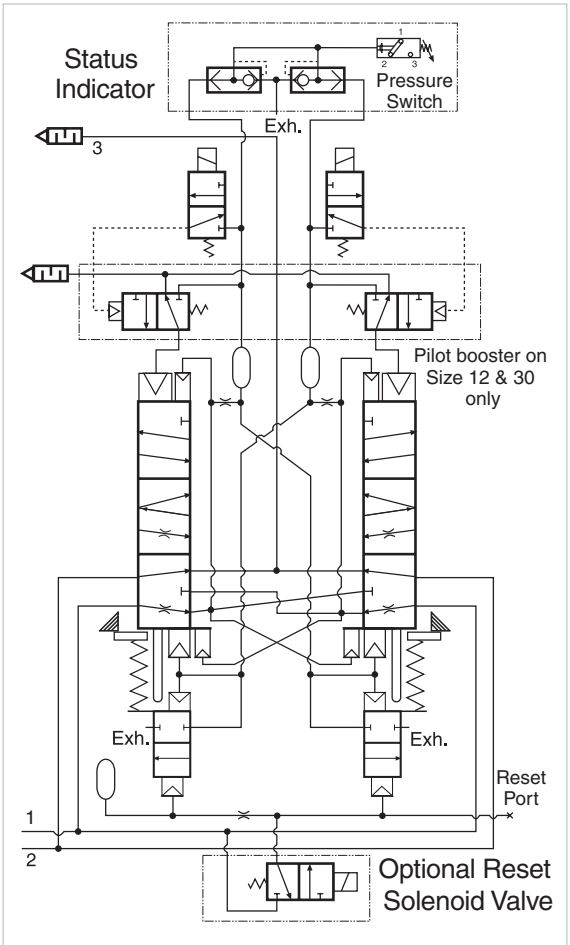
Status indicator (optional) in normal ready-to-run position.

Basic Size 12 and 30 valves require relatively large pilots to actuate and de-actuate the main valve elements. In order to achieve extremely quick valve response for such large pilots, a 2-stage solenoid pilot system is incorporated into the design.

This keeps the required electrical current to operate the pilots to a minimum.

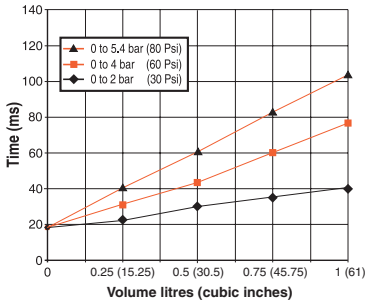
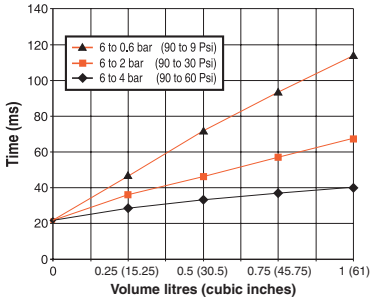
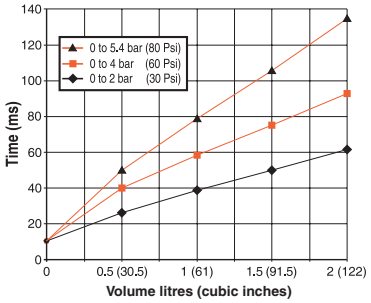
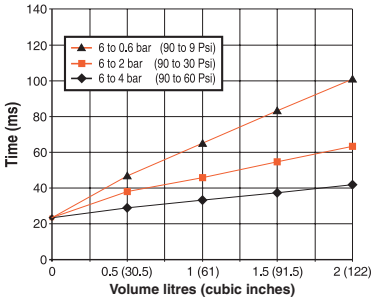
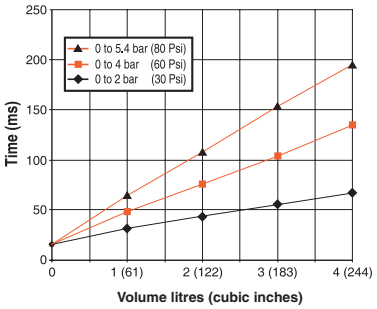
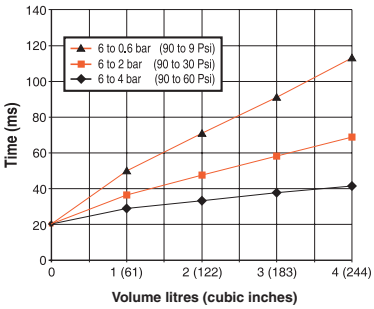
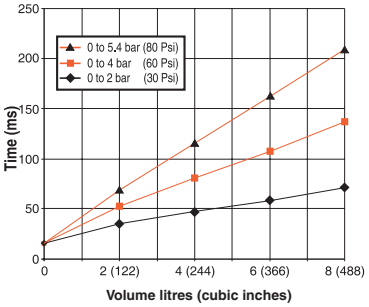
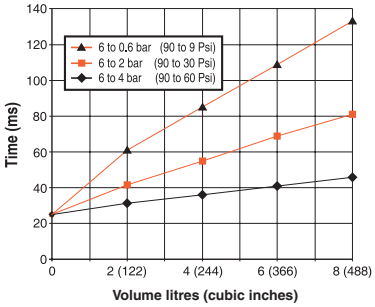
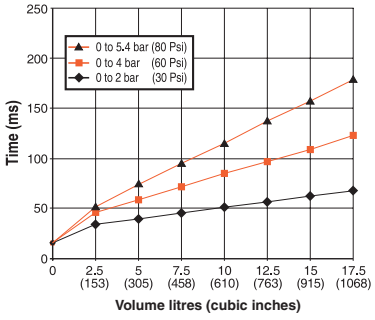
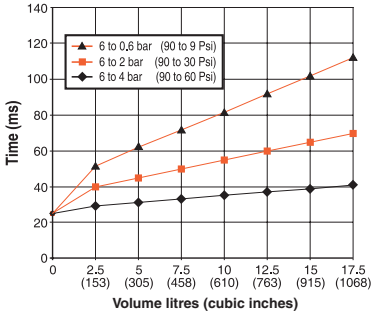


Basic Size 12 & 30 pilots



Schematic - Valve de-actuated

The charts below represent the fill and exhaust times for each of the various sizes of DM2® Series D double valves. The "fill" times were measured while raising (filling) the pressure in a volume from 0 to 30, 60, & 80 psi (0 to 2.1, 4.1, & 5.5 bar) with a 90 psi (6.2 bar) inlet pressure. Conversely, the "exhaust" times were measured while lowering the pressure (exhausting) in a volume from 90 psi (6.2 bar) down to 90 to 60, 30, & 9 psi (4.1, 2.1, & 0.6 bar). **Exhausting tests performed with silencer installed.**

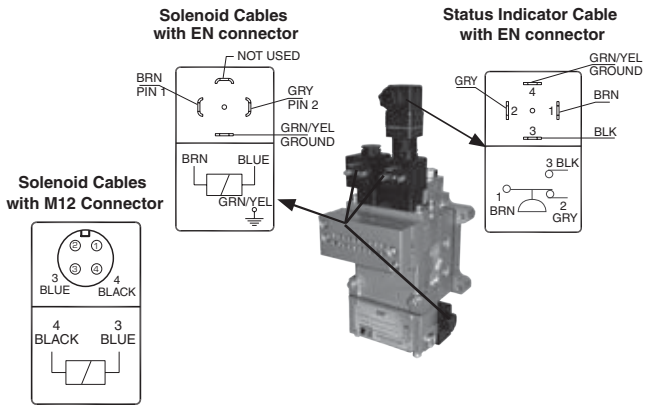
	Filling	Exhausting
Basic Size 2		
Basic Size 4		
Basic Size 8		
Basic Size 12		
Basic Size 30		

Preassembled Wiring Kits

Kit Number*			Solenoid Connector Type	Length meters (feet)
Connector without Light	Lighted Connector			
	24 Volts DC	120 Volts AC		
2283H77	2532H77-W	2532H77-Z	EN 175301-803 Form A	5 (16.4)
2284H77	2533H77-W	2533H77-Z	EN 175301-803 Form A	10 (32.8)
2288H77**	–	–	M12	5 (16.4)
2289H77**	–	–	M12	10 (32.8)

* Each cable has one connector. **Coil includes light.

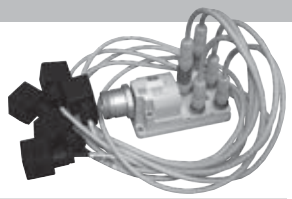
These kits include 1 cable for the status indicator, and 3 cables with connector plus a cord grip for each.



Wiring Kits with J-Box

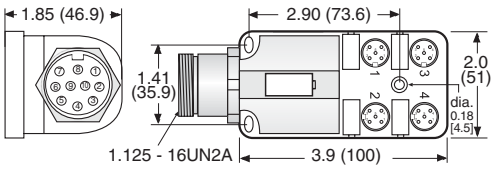
Kit Number*	Connector Types	Length meters (feet)
2249H77	M12 - DIN	1 (3.3)
2250H77	M12 - M12	1 (3.3)

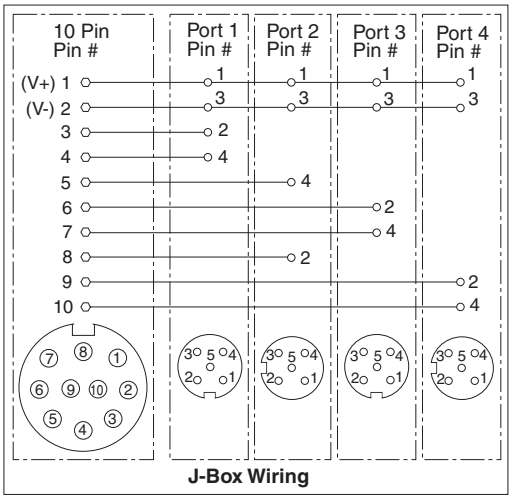
*24 volts DC only.



A J-Box is a junction box with a 10-pin MINI connector for connecting to the user's control system and (4) 5-pin M12 ports for connecting to the 3 solenoids and the status indicator on the DM²® Series valve. The J-Box kits include the J-Box as described above and (4) 1-meter cables for connecting to the valve. These cables have a connector on each end. The status indicator cable and the (3) solenoid cables have an M12 connector on one end and a EN connector on the other end (M12-DIN).

Standard valves come with DIN type solenoid connections, but could be bought with M12 type connections as well. Therefore we also offer a kit that provides solenoid cables with an M12 connector on each end (M12-M12).





10 PIN MINI Cable

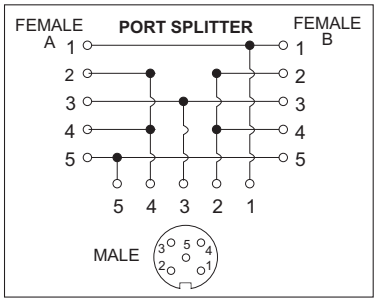
Kit Number	Length meters (feet)
2253H77	3.66 (12)
2254H77	6.1 (20)
2255H77	9.1 (30)
2256H77	15.2 (50)

These cables have a 10-pin MINI connector for connecting the J-Box kits above to the user's control system. Kits include one cable with connector and cord grip. Cable conductors are 18-gauge wire.

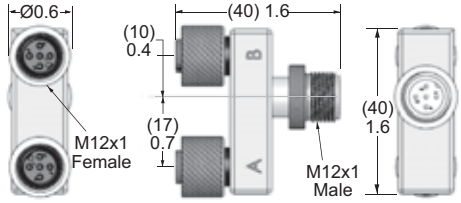
PIN #		PIN #		Wire Colors:	Wire Colors:
1	+24 volts DC	6	-	Orange	Orange w/Black
2	Common volts DC	7	Remote Reset	Blue	Red
3	-	8	-	White w/Black	Green/Yellow
4	Solenoid A	9	Remote Valve Fault Light	Red w/Black	Black
5	Solenoid B	10	Remote System OK Light	Green w/Black	White

Outlet Port Pressure Monitoring Wiring Kit

Kit Number	Length meters (feet)
2251H77	1 (3.3)



Some customers prefer to monitor downstream pressure in addition to using the DM²® or DM¹ Series valve. A convenient way to do this is to install a pressure switch in the extra outlet port that is provided on the valve. The Outlet Port Pressure Monitoring kit can be used with one of the J-Box kits above to split one of the M12 ports on the J-Box so that a pressure switch can be wired in as well. These kits consist of one port splitter (a Tee with three M12 connectors) and one M12-DIN cable (1 meter).



Pressure switch available separately, see valve options.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

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Electrical Connectors

Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
				Without Light	Lighted Connector	
					24 Volts DC	120 Volts AC
EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z
EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	10-mm	371K77	383K77-W	383K77-Z
EN 175301-803 Form A	Connector for threaded conduit (1/2 inch electrical conduit fittings)	–	–	723K77	724K77-W	724K77-Z
EN 175301-803 Form A	Connector Only	–	–	937K87	936K87-W	936K87-Z

CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

Status Indicator

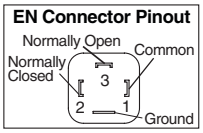
Model Number
670B94

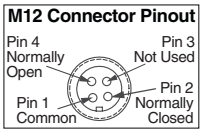
The Status Indicator pressure switch actuates when the valve is in a ready-to-run condition and de-actuates when the valve is in a lockout condition or when the inlet air pressure has been removed. Although, the valves can be purchased with this option already installed, the Status Indicator can be purchased separately.

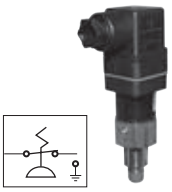
Downstream Pressure Monitoring

- May be installed downstream on all double valves
- Provides means to verify the release of downstream pressure to next obstruction
- Factory preset, 5 psi (0.3 bar) - falling

Pressure Switches		
Connection Type	Model Number	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	1/8 NPT







RESET VALVES for DOUBLE VALVES with REMOTE RESET

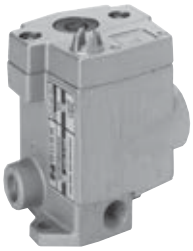
Valves with the remote reset option require a small 3/2 reset valve and the installation of a 1/8 inch air line from the reset valve to the reset port of the double valve. ROSS offers 3/2 normally closed valves with either manual or electric control that are suitable for this purpose.

G

Reset Valves	
Description	Model Number
Flush Pushbutton: Green	1223B1FPG
Mushroom Button: Green	1223B1MBG
Direct Solenoid Control for Line Mounting	1613B1020**
Direct Solenoid Control for Base Mounting	W1413A1409** (Base: 516B91)

* NPT threads. For BSPP threads add a "D" prefix to the model number, e.g., D1223B1FPG.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 1613B1020W.

Direct Solenoid Model for Line Mounting:
1613B1020**



Flush Pushbutton:
1223B1FPG

Mushroom Button:
1223B1MBG

Direct Solenoid Model for Base Mounting
Valve: W1413A1409**
Sub-Base: 516B91

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Online Version
Rev. 11/14/16

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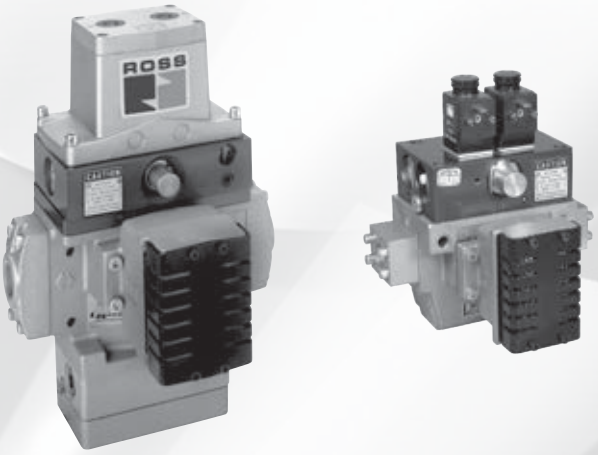
ROSS CONTROLS®

DOUBLE VALVES FOR CLUTCH/BRAKE CONTROL
SERPAR® 35 SERIES



www.rosscontrols.com

SERPAR® DOUBLE VALVES 35 SERIES DOUBLE VALVES WITH INTERNAL MONITORING & LOCKOUT – KEY FEATURES

- Internal monitoring – requires no additional monitoring circuitry
- Automatic lock-out/inhibit upon detection of a malfunction
- Default to de-energized position upon fault detection
- Dedicated reset function
- No undesired automatic reset upon removal of electrical or pneumatic energy sources
- Built-in non-clogging silencers on Basic Sizes 4, 8, 12 and 30

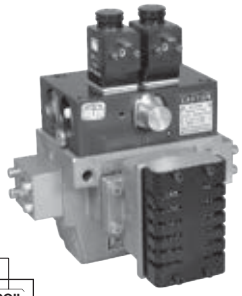
35 Series SERPAR® valves are internally monitored double valves and are available in Basic Size 4, 8, 12 and 30 ranging from 3/8" – 1½" port sizes. Internally monitored double valves contain a built-in monitoring device that checks for the proper operation of each valve element. If the internal monitor detects a valve fault on a particular cycle, the double valve will fail to a safe condition (all downstream air is exhausted) and the monitor will lock-out to inhibit further operation of the device. Normal operation can only be resumed by a momentary reset signal to the valve, either pneumatic or electric.

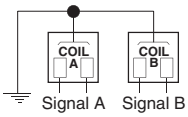
The original application for these double valves was in the control of clutch/brake mechanisms on stamping presses, but they have found their way into many other critical applications such as alternative lockout systems for energy isolation, air cylinder press load-holding systems, as well as other Category -3 and -4 safety circuits. ROSS double valves are a vital part of any control-reliable fluid power control system.

DESCRIPTION		Page
SERPAR® Double Valves with L-G Monitor Size 4		G2.3 - G2.4
SERPAR® Double Valves with L-G Monitor Size 8, 12, 30		G2.5 - G2.6
SERPAR® Double Valves with E-P Monitor Size 8, 12, 30		G2.7 - G2.8
SERPAR® Double Valves with D-S Monitor Size 8, 12, 30		G2.9 - G2.10

Port Size	Basic Size	Monitor Reset	Model Number*		C_v		Avg. Response Constants			Weight lb (kg)
			Right Inlet	Left Inlet	1-2	2-3	M	F 1-2	F 2-3	
3/8	4	Manual	3573D3191**	3573D3195**	3.0	6.0	**15**	**0.70**	**0.40**	8.3 (3.7)
3/8	4	Remote	3573D3192**	3573D3196**	3.0	6.0	15	**0.70**	**0.40**	8.3 (3.7)
1/2	4	Manual	3573D4211**	3573D4215**	3.0	8.0	15	0.65	0.35	8.3 (3.7)
1/2	4	Remote	3573D4212**	3573D4216**	3.0	8.0	15	0.65	0.35	8.3 (3.7)
3/4	4	Manual	3573D5211**	3573D5215**	3.0	9.0	15	0.65	0.35	8.3 (3.7)
3/4	4	Remote	3573D5212**	3573D5216**	3.0	9.0	15	0.65	0.35	8.3 (3.7)

* NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., D3573D3191W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 3573D3191W.
For other voltages consult ROSS.

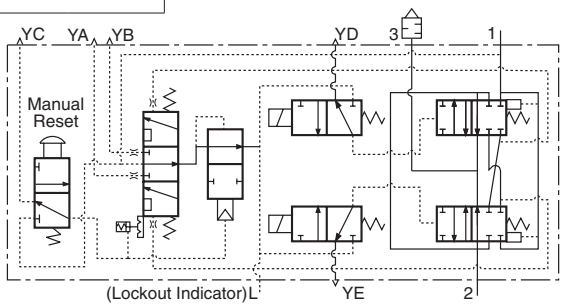




Valve Response Time

The constants above, designated M and F, can be used to determine the amount of time required to fill or exhaust a volume of any size using the formula on the right:

Vlv. Resp. Time (msec)= M + F *V
M = avg. time for parts movement
F = msec. per cubic inch of volume
V = volume in cubic inches

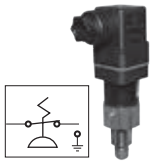


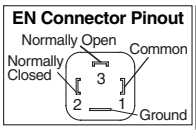
Accessories & Options

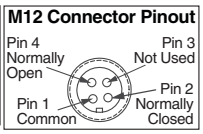
Pressure Switches
(Electrical Lockout Indicator)

Connection Type	Model Number*	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	1/8 NPT

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).







Piping Flange Kits

Each kit includes two threaded (NPT) flanges and the required seals and mounting bolts.

Port Size	Basic Size	Kit Number
3/8	4	658K77
1/2	4	659K77
3/4	4	660K77

Valve Without Piping Flanges

Port Size	Basic Size	Monitor Reset	Model Number*	
			Right Inlet	Left Inlet
3/8, 1/2, 3/4	4	Manual	3573D4241**	3573D4245**
		Remote	3573D4242**	3573D4246**

RESET VALVES for L-G MONITOR

On valve models with manual reset a button on the side of the monitor is pushed to perform the reset function. Models for remote reset, however, require a small reset valve and the installation of a 1/8 line from the reset valve to the reset port on the monitor. ROSS offers 3/2 normally closed valves with either manual or electric control that are suitable for this purpose, valves size 8, 12, 30 with L-G monitor are suggested.

Reset Valves	
Description	**Model Numbers**
Flush Pushbutton: Green	1223B1FPG
Mushroom Button: Green	1223B1MBG
Direct Solenoid Control for Line Mounting	1613B1020**
Direct Solenoid Control for Base Mounting	W1413A1409** (Base: 516B91)

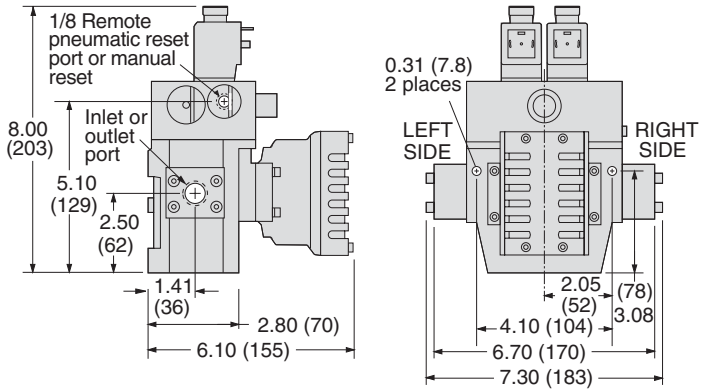
* NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., D3573D4241W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 3573D4241W. For other voltages consult ROSS

Valve Without Silencer Exhaust port has threaded flange only, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Dual poppet.
Mounting Type: Inline.
Pilot Solenoids: Two, rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption (each solenoid)**:** 30 VA inrush, 16 VA holding on 50 or 60 Hz; 11 watts on DC.
Enclosure Rating: IP65, IEC 60529.
Electrical Connections: EN 175301-803 Form A, uses two cord-grip connectors at solenoids.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 30 to 100 psig (2 to 7 bar).
L-G Reset Pressure: Remote pneumatic reset models require a pressure of at least 30 psig (2 bar). Manual reset models use internal valve pressure.
Inlet Port: Models are available with the inlet port on either the right or the left side of the valve body.

Valve Dimensions – inches (mm)



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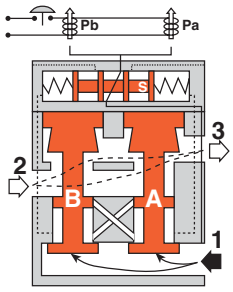
OPTIONS

Electrical Connectors	Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
					Without Light	Lighted Connector	
						24 Volts DC	120 Volts AC
	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z
	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	10-mm	371K77	383K77-W	383K77-Z
	EN 175301-803 Form A	Connector for threaded conduit (1/2 inch electrical conduit fittings)	–	–	723K77	724K77-W	724K77-Z
	EN 175301-803 Form A	Connector Only	–	–	937K87	936K87-W	936K87-Z

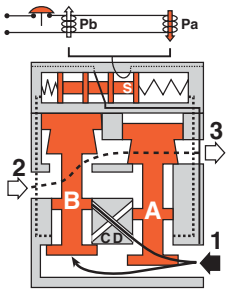
CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

VALVE OPERATION

Conditions at Start:
Inlet 1 is closed to outlet 2 by both valve elements A and B. Outlet 2 is open to exhaust 3. Pilot air is ported from inlet 1 and through the center section of spool S to the normally closed pilots Pa and Pb. Monitoring pressure signals at both ends of spool S are exhausted.



Detecting a Malfunction:
A malfunction in the system or the valve itself could cause one valve element to be open and the other closed. Air then flows past the inlet poppet on valve element A, into crossflow passage D, but is substantially blocked by the spool portion of element B. The large size of the open exhaust passage past element B keeps the pressure at the outlet port below two percent of inlet pressure. Full monitoring air pressure from side A goes to the right end of spool S, and a reduced pressure goes to the left end. This pressure imbalance causes the spool to shift to the left. This shuts off and exhausts pilot air to both solenoid pilots, and allows valve element A to return to the closed position.



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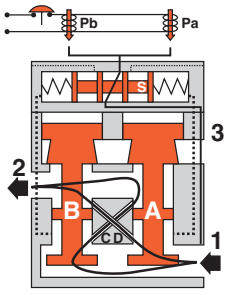
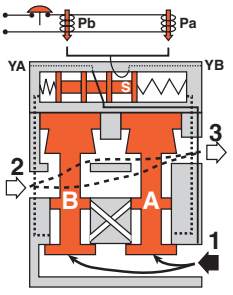
Normal Operation:
Simultaneously energizing both solenoids actuates both pilots and causes valve elements A and B to shift. Inlet 1 is then connected to outlet 2 via crossflow passages C and D. Exhaust 3 is closed. Monitoring pressure signals go to each end of spool S and become equal to inlet pressure.



L-G Monitor Locked-out:
When the L-G spool shifts it is held by a lockout pin (not shown). Pilot air is then exhausted to atmosphere via port YB, and pilot supply air is diverted to atmosphere via port YA. The lockout mechanism must be reset before the valve can return to normal operation. *During and following reset, the pilot solenoids must be kept de-energized to prevent inadvertent and possibly dangerous cycling of the press.* The reset function is either manual or remote-pneumatic depending on valve model.

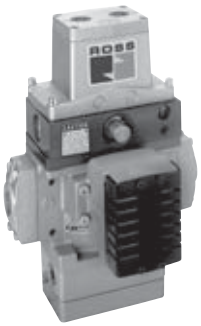


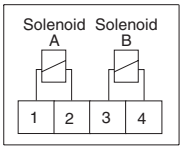
Both solenoids must be energized simultaneously to shift the valve; maintained signal required to keep valve shifted.

WARNING: *If monitor must be reset, electrical signals to both solenoids must be removed to prevent the machine controlled by the valve from immediately recycling and producing a potentially hazardous condition.*

Port Size	Basic Size	Model Number*		C_v		Avg. Response Constants			Weight lb (kg)
		With Overrides	Without Overrides	1-2	2-3	M	F 1-2	F 2-3	
1/2	8	3573A4142**	3573A4162**	3.5	8.5	15	0.70	0.30	15.3 (6.9)
3/4	8	3573A5142**	3573A5162**	4.0	12	15	0.65	0.23	15.3 (6.9)
3/4	12	3573A5152**	3573A5172**	8.0	15	15	0.65	0.23	19.0 (8.6)
1	8	3573A6152**	3573A6172**	4.0	12	20	0.33	0.21	15.3 (6.9)
1	12	3573A6162**	3573A6182**	8.5	19	20	0.28	0.21	19.0 (8.6)
1¼	12	3573A7162**	3573A7182**	9.0	21	20	0.28	0.21	19.0 (8.6)
1¼	30	3573A7152**	3573A7172**	20	42	25	0.19	0.07	37.5 (16.9)
1½	30	3573A8162**	3573A8182**	21	43	25	0.18	0.07	37.5 (16.9)
2	30	2 inch port size available on size 30 valves. Order part number 1999H77 flange kit separately.							

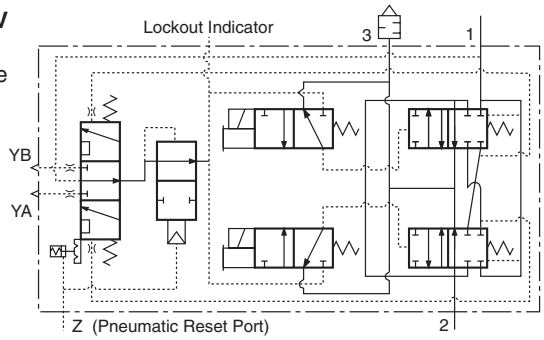
* NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., D3573A4142W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 3573A4142W.
For other voltages consult ROSS.





Valve Response Time The constants above, designated M and F, can be used to determine the amount of time required to fill or exhaust a volume of any size using the formula on the right:

Vlv. Resp. Time (msec)= M + F *V
M = avg. time for parts movement
F = msec. per cubic inch of volume
V = volume in cubic inches

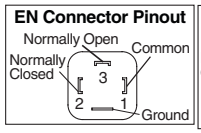


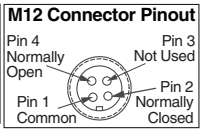
Accessories & Options

Pressure Switches
(Electrical Lockout Indicator)

Connection Type	Model Number*	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	1/8 NPT

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).





Valve Without Piping Flanges

Port Size	Basic Size	Model Number* With Overrides	Model Number* Without Overrides
1/2, 3/4, 1	8	3573A4202**	3573A4222**
3/4, 1, 1¼	12	3573A5202**	3573A5222**
1¼, 1½	30	3573A7202**	3573A7222**

Piping Flange Kits

Each kit includes two threaded (NPT) flanges and the required seals and mounting bolts.

Port Size	Basic Size	Pipe Flange Kit Number
1/2	8	661K77
3/4	8	662K77
1	8	663K77
3/4	12	664K77
1	12	665K77
1¼	12	666K77
1¼	30	667K77
1½	30	668K77

RESET VALVES for L-G MONITOR

Models for remote reset, however, require a small reset valve and the installation of a 1/8 line from the reset valve to the reset port on the monitor. ROSS offers 3/2 normally closed valves with either manual or electric control that are suitable for this purpose, valves size 8, 12, 30 with L-G monitor are suggested.

Reset Valves	
Description	**Model Number***
Flush Pushbutton: Green	1223B1FPG
Mushroom Button: Green	1223B1MBG
Direct Solenoid Control for Line Mounting	1613B1020**
Direct Solenoid Control for Base Mounting	W1413A1409** (Base: 516B91)

* NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., D3573A4202W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 3573A4202W. For other voltages consult ROSS.

Valve Without Silencer Exhaust port has threaded flange only, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Dual poppet.
Mounting Type: Inline.
Pilot Solenoids: Two, rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption (each solenoid)**:** 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.
Electrical Connections: Uses terminal strip connectors.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 30 to 125 psig (2 to 8.5 bar).
L-G Reset Pressure: 60 psig (4 bar) minimum.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

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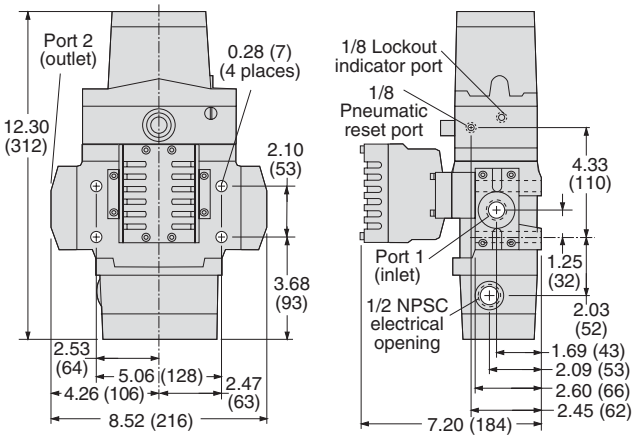
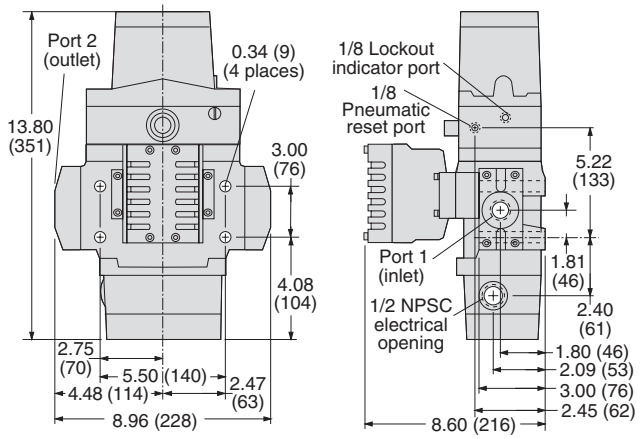
Valve Dimensions – inches (mm)

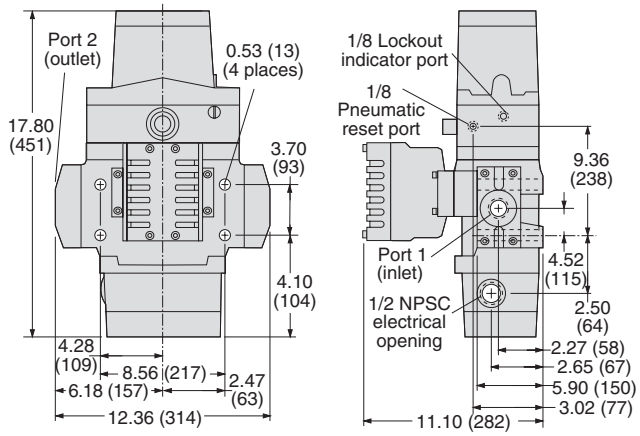
Basic Size 8



Basic Size 12



Basic Size 30



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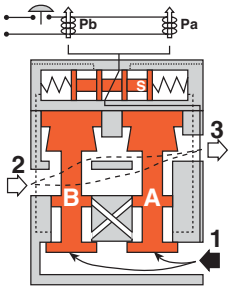
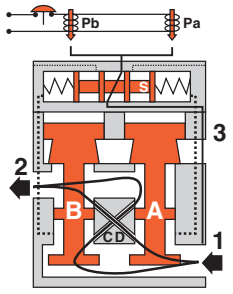
VALVE OPERATION

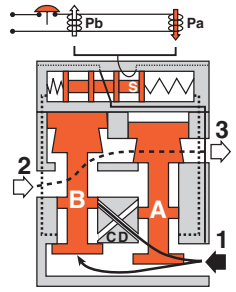
Conditions at Start:
Inlet 1 is closed to outlet 2 by both valve elements A and B. Outlet 2 is open to exhaust 3. Pilot air is ported from inlet 1 and through the center section of spool S to the normally closed pilots Pa and Pb. Monitoring pressure signals at both ends of spool S are exhausted.



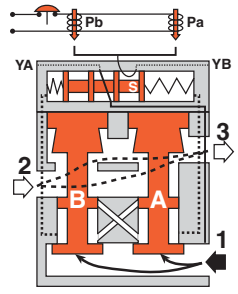
Normal Operation:
Simultaneously energizing both solenoids actuates both pilots and causes valve elements A and B to shift. Inlet 1 is then connected to outlet 2 via crossflow passages C and D. Exhaust 3 is closed. Monitoring pressure signals go to each end of spool S and become equal to inlet pressure.



Detecting a Malfunction:
A malfunction in the system or the valve itself could cause one valve element to be open and the other closed. Air then flows past the inlet poppet on valve element A, into crossflow passage D, but is substantially blocked by the spool portion of element B. The large size of the open exhaust passage past element B keeps the pressure at the outlet port below two percent of inlet pressure. Full monitoring air pressure from side A goes to the right end of spool S, and a reduced pressure goes to the left end. This pressure imbalance causes the spool to shift to the left. This shuts off and exhausts pilot air to both solenoid pilots, and allows valve element A to return to the closed position.



L-G Monitor Locked-out:
When the L-G spool shifts it is held by a lockout pin (not shown). Pilot air is then exhausted to atmosphere via port YB, and pilot supply air is diverted to atmosphere via port YA. The lockout mechanism must be reset before the valve can return to normal operation. *During and following reset, the pilot solenoids must be kept de-energized to prevent inadvertent and possibly dangerous cycling of the press.* The reset function is either manual or remote-pneumatic depending on valve model.

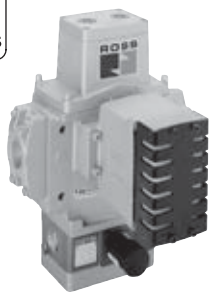


Both solenoids must be energized simultaneously to shift the valve; maintained signal required to keep valve shifted.

WARNING: *If monitor must be reset, electrical signals to both solenoids must be removed to prevent the machine controlled by the valve from immediately recycling and producing a potentially hazardous condition.*

Port Size	Basic Size	Model Number*				C_v		Avg. Response Constants			Weight lb (kg)
		Single Signal Input		Dual Signal Input					F		
		With Overrides	Without Overrides	With Overrides	Without Overrides	1-2	2-3	M	1-2	2-3	
1/2	8	3573A4141**	3573A4161**	3573A4341**	3753A4361**	3.5	8.5	15	0.70	0.30	11.8 (5.3)
3/4	8	3573A5141**	3573A5161**	3573A5341**	3573A5361**	4.0	12	15	0.65	0.23	11.8 (5.3)
3/4	12	3573A5151**	3573A5171**	3573A5351**	3573A5371**	8.0	15	15	0.65	0.23	15.5 (7.0)
1	8	3573A6151**	3573A6171**	3573A6351**	3573A6371**	4.0	12	20	0.33	0.21	11.8 (5.3)
1	12	3573A6161**	3573A6181**	3573A6361**	3573A6381**	8.5	19	20	0.28	0.21	15.5 (7.0)
1¼	12	3573A7161**	3573A7181**	3573A7361**	3573A7381**	9.0	21	20	0.28	0.21	15.5 (7.0)
1¼	30	3573A7151**	3573A7171**	3573A7351**	3573A7371**	20	42	25	0.19	0.07	35.0 (15.8)
1½	30	3573A8161**	3573A8181**	3573A8361**	3573A8381**	21	43	25	0.18	0.07	35.0 (15.8)
2	30	2 inch port size available on size 30 valves. Order part number 1999H77 flange kit separately.									

* NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., D3573A4141W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 3573A4141W.
For other voltages consult ROSS.



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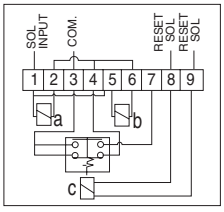
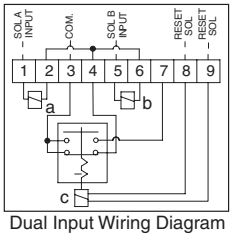
Valve Response Time

The constants above, designated M and F, can be used to determine the amount of time required to fill or exhaust a volume of any size using the formula below:

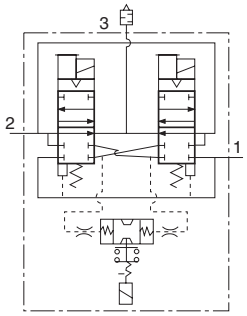
Vlv. Resp. Time (msec)= M + F *V
M = avg. time for parts movement
F = msec. per cubic inch of volume
V = volume in cubic inches



Single Input Wiring Diagram



Dual Input Wiring Diagram



During lock-out: Terminals 3 and 7 are connected which allows a panel light, bell, or other electrical device to be wired through terminals 7 and 3 to serve as a lockout indicator.

OPTIONS

Valve Without Piping Flanges

Port Size	Basic Size	Model Number*			
		Single Signal Input		Dual Signal Input	
		With Overrides	Without Overrides	With Overrides	Without Overrides
1/2, 3/4, 1	8	3573A4201**	3573A4221**	3573A4301**	3573A4321**
3/4, 1, 1¼	12	3573A5201**	3573A5221**	3573A5301**	3573A5321**
1¼, 1½	30	3573A7201**	3573A7221**	3573A7301**	3573A7321**

* NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., D3573A4201W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 3573A4201W. For other voltages consult ROSS.

Piping Flange Kits

Each kit includes two threaded (NPT) flanges and the required seals and mounting bolts.

Port Size	Basic Size	Kit Number
1/2	8	661K77
3/4	8	662K77
1	8	663K77
3/4	12	664K77
1	12	665K77
1¼	12	666K77
1¼	30	667K77
1½	30	668K77

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Valve Without Silencer

Exhaust port has threaded flange only, consult ROSS.

STANDARD SPECIFICATIONS (for valves on this page):

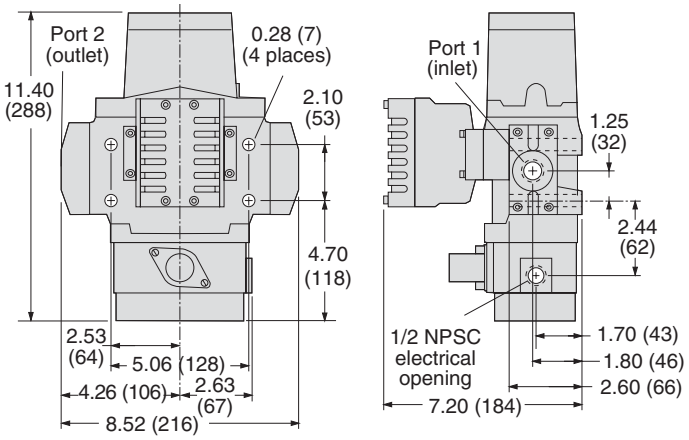
Construction: Dual poppet.
Mounting Type: Inline.
Pilot Solenoids: Two, rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption (each solenoid)**:** 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.
E-P Reset Solenoid: Rated for *intermittent* duty. Voltages: 24-48 or 100-120 volts AC or DC.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Pressure Range: 30 to 125 psig (2 to 8.5 bar).

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

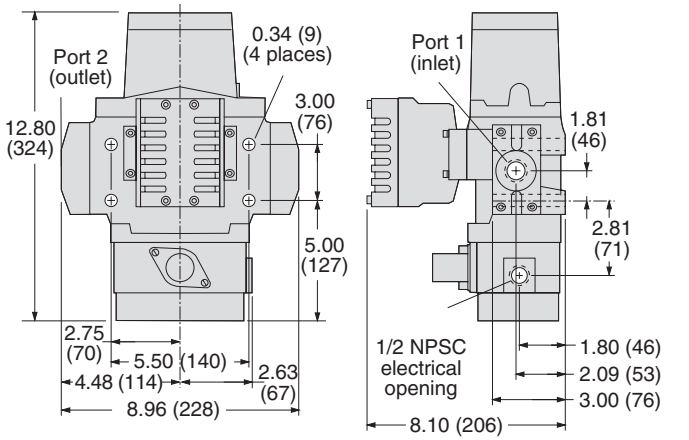
G2

Valve Dimensions – inches (mm)

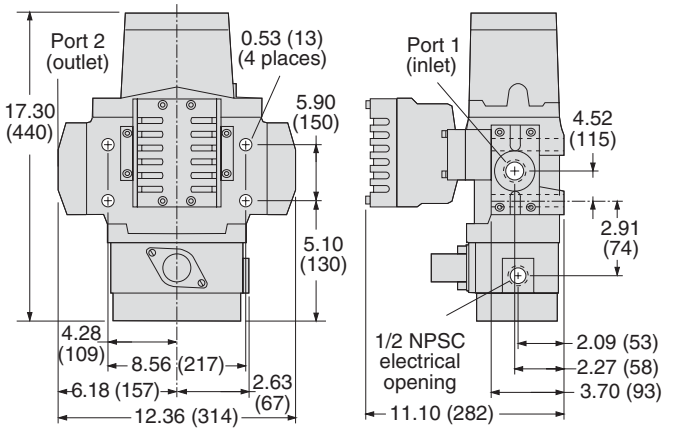
Basic Size 8



Basic Size 12



Basic Size 30



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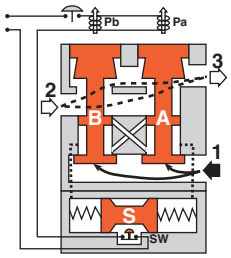
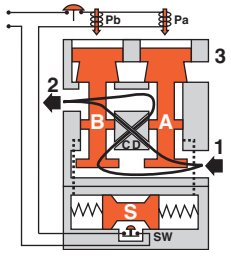
VALVE OPERATION

Conditions at Start:
Inlet 1 is closed to outlet 2 by both valve elements A and B. Outlet 2 is open to exhaust 3. Contacts of switch SW are closed. Monitoring pressure signals at both ends of spool S are exhausted.

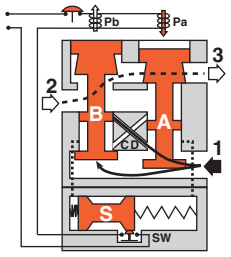


Normal Operation:
Simultaneously energizing both solenoids actuates both pilots and causes valve elements A and B to shift. Inlet 1 is then connected to outlet 2 via crossflow passages C and D. Exhaust 3 is closed. Monitoring pressure signals go to each end of spool S and become equal to inlet pressure.

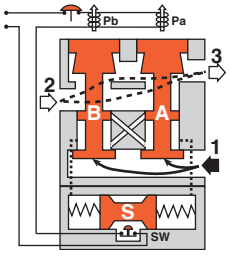


Completion of Normal Cycle:
Simultaneously de-energizing both solenoids returns the valve to the "Conditions at Start" described above.

Detecting a Malfunction:
A malfunction in the system or the valve itself could cause one valve element to be open and the other closed. Air then flows past the inlet poppet on valve element A, into crossflow passage D, but is substantially blocked by the spool portion of element B. The large size of the open exhaust passage past element B keeps the pressure at the outlet port below two percent of inlet pressure. Full monitoring air pressure from side A goes to the right end of spool S, and a reduced pressure goes to the left end. This pressure imbalance causes the spool to shift to the left. This trips switch SW, breaks the electrical circuit to the pilot solenoids, and allows valve element A to return to the closed position.



E-P Monitor Locked-out:
With both valve elements closed, monitoring air pressure is exhausted from both ends of spool S so that it returns to its normal position. The electrical circuit to the pilot solenoids remains broken by switch SW. To restore the electrical circuit and return the valve to normal operation, the reset solenoid (not shown) must be briefly energized to reset switch SW. *During and following reset, the pilot solenoids must be kept de-energized to prevent inadvertent and possibly dangerous cycling of the press.* Prolonged energizing of the reset solenoid can cause burnout and nullify the reset function.



Port Size	Basic Size	Model Number*		C_v		Avg. Response Constants			Weight lb (kg)
		With Overrides	Without Overrides	1-2	2-3	M	F 1-2	F 2-3	
1/2	8	3573B4143**	3573B4163**	3.5	8.5	15	0.70	0.30	16.8 (7.6)
3/4	8	3573B5143**	3573B5163**	4.0	12	15	0.65	0.23	16.8 (7.6)
3/4	12	3573B5153**	3573B5173**	8.0	15	15	0.65	0.23	20.5 (9.2)
1	8	3573B6153**	3573B6173**	4.0	12	20	0.33	0.21	16.8 (7.6)
1	12	3573B6163**	3573B6183**	8.5	19	20	0.28	0.21	20.5 (9.2)
1¼	12	3573B7163**	3573B7183**	9.0	21	20	0.28	0.21	20.5 (9.2)
1¼	30	3573B7153**	3573B7173**	20	42	25	0.19	0.07	39.3 (17.7)
1½	30	3573B8163**	3573B8183**	21	43	25	0.18	0.07	39.3 (17.7)
2	30	2 inch port size available on size 30 valves. Order part number 1999H77 flange kit separately.							

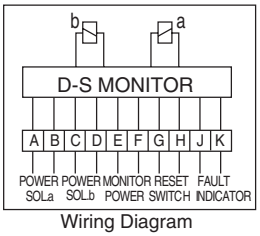
* NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., D3573B4143W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 3573B4143W.
For other voltages consult ROSS.

G2

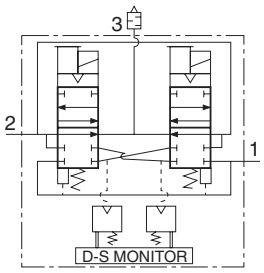
Valve Response Time

The constants above, designated M and F, can be used to determine the amount of time required to fill or exhaust a volume of any size using the formula below:

Vlv. Resp. Time (msec)= M + F *V
M = avg. time for parts movement
F = msec. per cubic inch of volume
V = volume in cubic inches



Wiring Diagram



Options

Valve Without Piping Flanges	Port Size	Basic Size	Model Number*	
			With Overrides	Without Overrides
	1/2, 3/4, 1	8	3573A4203**	3573A4223**
	3/4, 1, 1¼	12	3573A5203**	3573A5223**
	1¼, 1½	30	3573A7203**	3573A7223**

* NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., D3573A4203W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 3573A4203W. For other voltages consult ROSS.

Piping Flange Kits

Each kit includes two threaded (NPT) flanges and the required seals and mounting bolts.

Port Size	Basic Size	Kit Number
1/2	8	661K77
3/4	8	662K77
1	8	663K77
3/4	12	664K77
1	12	665K77
1¼	12	666K77
1¼	30	667K77
1½	30	668K77

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Valve Without Silencer Exhaust port has threaded flange only, consult ROSS.

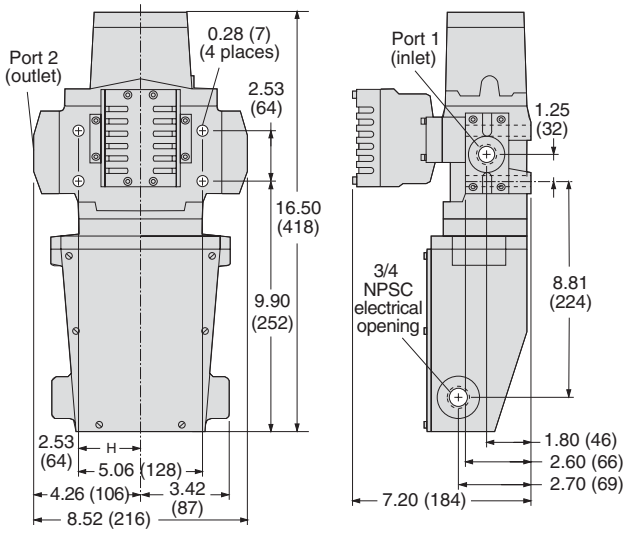
STANDARD SPECIFICATIONS (for valves on this page):

Construction: Dual poppet.
Mounting Type: Inline.
Pilot Solenoids: Two, rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption (each solenoid)**:** 87 VA inrush, 30 VA holding on 50 or 60 Hz; 14 watts on DC.
D-S Monitor: Rated for same voltage as pilot solenoids. Power supply to monitor must be independent and continuous.
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Pressure Range: 30 to 125 psig (2 to 8.5 bar).

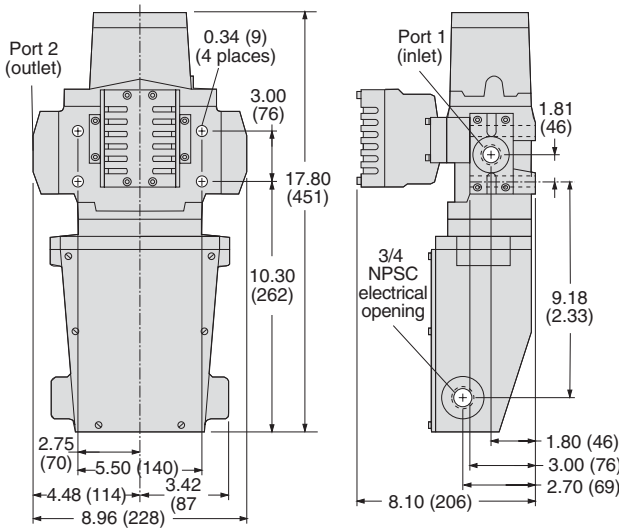
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Valve Dimensions – inches (mm)

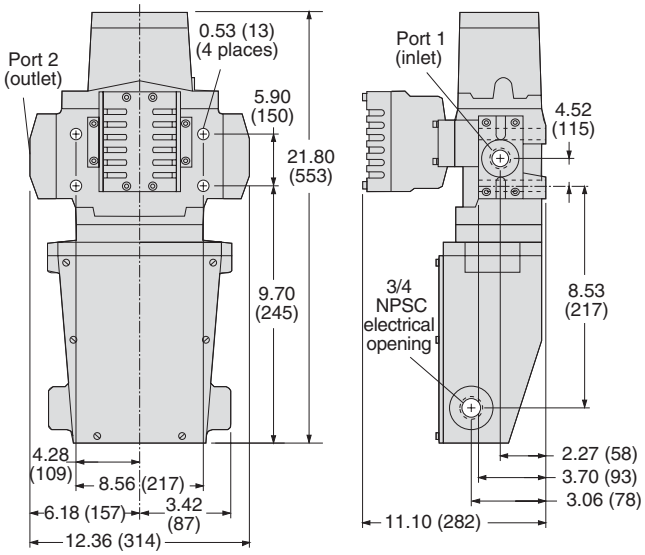
Basic Size 8



Basic Size 12

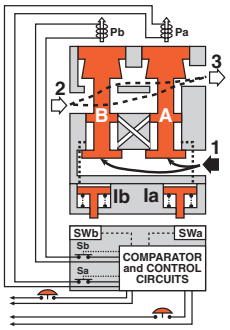


Basic Size 30

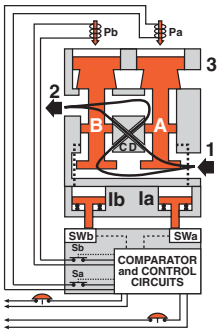


VALVE OPERATION

Conditions at Start:
Inlet 1 is closed to outlet 2 by both valve elements A and B. Outlet 2 is open to exhaust 3. Contacts of switch SW are closed. Monitoring pressure signals at both ends of spool S are exhausted.

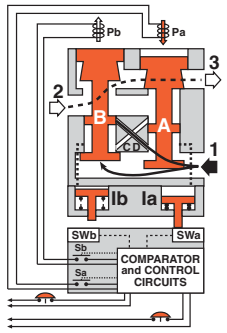


Normal Operation:
Simultaneously energizing both solenoids actuates both pilots and causes valve elements A and B to shift. Inlet 1 is then connected to outlet 2 via crossflow passages C and D. Exhaust 3 is closed. Monitoring pressure signals go to pressure indicators Ia and Ib, causing the indicator pins to be extended and to actuate proximity switches SWa and SWb. In normal operation, each pair - solenoids, valve elements, indicators, and proximity switches - responds in unison so that the comparator circuits "read" the operation as normal.

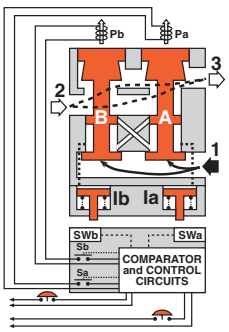


Completion of Normal Cycle:
Simultaneously de-energizing both solenoids returns the valve to the "Conditions at Start" described above.

Detecting a Malfunction:
A malfunction in the system or the valve itself could cause one valve element to be open and the other closed. Air then flows past the inlet poppet on valve element A, into crossflow passage D, but is substantially blocked by the spool portion of element B. The large size of the open exhaust passage past element B keeps the pressure at the outlet port below two percent of inlet pressure. Full monitoring air pressure from side A goes to pressure indicator Ia so that its pin is extended and actuates proximity switch SWa. When the time interval between the signal to a solenoid and the signal from its corresponding proximity switch exceeds approximately 175 milliseconds, the D-S monitor breaks contacts Sa and Sb *as soon as solenoid power is removed*. This allows valve element A to return to the closed position.



D-S Monitor Locked-out:
With the valve locked out by contacts Sa and Sb, solenoids Pa and Pb cannot be energized. The monitor must be reset before another valve cycle can begin. Reset can be achieved by a separately connected ancillary switch, but not if the pilot solenoids are energized. *The monitor can be reset by removing and reapplying power to the monitor even when the pilot solenoids are energized. For this reason it is necessary to have the pilot solenoids de-energized during and following reset to prevent inadvertent and possibly dangerous cycling of the press.*



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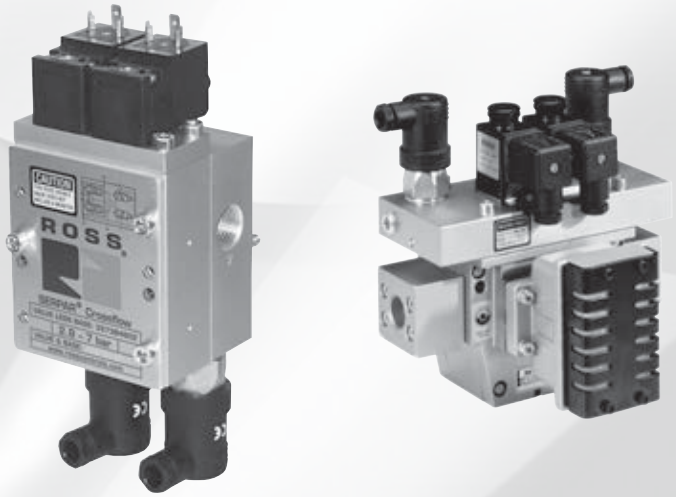
ROSS CONTROLS®

DOUBLE VALVES FOR CLUTCH/BRAKE CONTROL
SERPAR® CROSSFLOW 35 SERIES



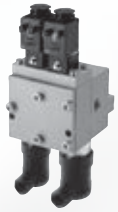
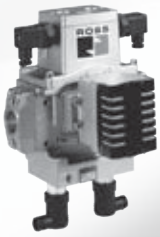
www.rosscontrols.com

SERPAR® CROSSFLOW DOUBLE VALVES 35 SERIES WITH PRESSURE SWITCHES FOR EXTERNAL MONITORING – KEY FEATURES

- Designed to enable users to comply with current safety regulations
- Can be integrated with external monitoring systems to provide for lockout and inhibiting further machine operation until the controls system is reset
- Default to de-energized position upon fault condition
- Built-in non-clogging silencers on Basic Sizes 4, 8, 12 and 30

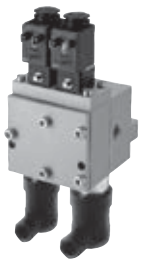
Basic Size 1 and 2 SERPAR® Crossflow valves with pressure switches (for external monitoring) are available from ¼" to ¾" port sizes. Externally monitored double valves provide feedback signals (via the pressure switches), which allows the main press controls, or separate monitoring device,

The original application for these double valves was in the control of clutch/brake mechanisms on stamping presses, but they have found their way into many other critical applications such as alternative lockout systems for energy isolation, air cylinder press load-holding systems, as well as other Category -3 and -4 safety circuits. ROSS double valves are a vital part of any control-reliable fluid power control system.

DESCRIPTION		Page
SERPAR® Crossflow Double Valves with or without Pressure Switches Size 1		G3.3 - G3.4
SERPAR® Crossflow Double Valves with or without Pressure Switches Size 2		G3.5 - G3.6
SERPAR® Crossflow Double Valves with Pressure Switches Size 4		G3.7
SERPAR® Crossflow Double Valves with Pressure Switches Size 8, 12, 30		G3.8 - G3.9

Port Sizes		Basic Size	Pressure Switches	Pressure Switch Provision	Model Number*	C_v		Avg. Response Constants			Weight lb (kg)
								M	F		
1, 2	3					1-2	2-3		1-2	2-3	
1/4	1/4	1	None	Yes	3573B2632**	0.9	1.4	28	4.6	3.4	2.1 (95)
1/4	3/8	1	None	No	3573B2640**	0.9	1.4	24	4.4	3.1	2.1 (95)
1/4	1/4	1	Two##	Yes	3573B2642**	0.9	1.4	28	4.6	3.4	2.5 (1.14)
3/8	3/8	1	Two##	Yes	3573B2644**	1.2	1.7	25	3.1	2.8	2.9 (1.32)
3/8	3/8	1	None	Yes	3573B2645**	1.2	1.7	25	3.1	2.8	2.5 (1.14)

* NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., D3573B2632W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 3573B2632W. For other voltages consult ROSS.
Valve and base can be ordered separately, consult ROSS.
Only valves with pressure switches should be used to control clutch/brake mechanisms on press machinery. The pressure switches must be used in conjunction with a monitoring device to assist with OSHA compliance (Ref. 1910.217).
##Valve include pressure switches with DIN type connection, for pressure switches with M12 type connection consult ROSS.

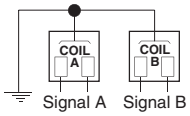


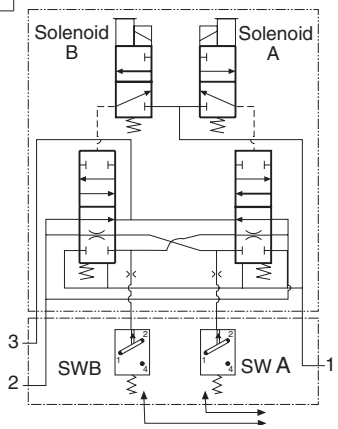
Valve Response Time

The constants above, designated M and F, can be used to determine the amount of time required to fill or exhaust a volume of any size using the formula on the right:

Vlv. Resp. Time (msec)= M + F *V
M = avg. time for parts movement
F = msec. per cubic inch of volume
V = volume in cubic inches

** Non-monitored*





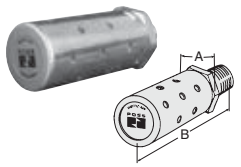
To customer's external monitor

Pressure Switches & Monitoring:

Valves without pressure switches must not be used to control clutch/brake mechanisms on press machinery. Valves with pressure switches must be used in conjunction with an external monitoring device to assist with OSHA compliance (Ref. 1910.217). The valves on this page do not have a built-in monitor, and must only be used in conjunction with an external monitoring system. Such monitoring system must be capable of inhibiting the operation of the valve in the event of a failure within the valve.

Accessories & Options

Electrical Connectors	Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
					Without Light	Lighted Connector	
						24 Volts DC	120 Volts AC
	EN 175301-803 Form B	Prewired Connector (18 gauge)	2 (6½)	10-mm	266K87	267K77-W	267K77-Z
	EN 175301-803 Form B	Connector Only	–	–	372K77	382K77-W	382K77-Z
	CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.						

Silencers	Port Size	Thread Type	Model Number		Avg. C_v	Dimensions inches (mm)		Weight lb (kg)		
			NPT Threads	BSPT Threads		A	B			
	1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)		
	3/8	Male	5500A3013	D5500A3013	2.7	0.9 (21)	2.2 (55)	0.1 (0.1)		
	Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.									

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Dual poppet.
Mounting Type: Inline.
Pilot Solenoids: Two, rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption (each solenoid)**:** 12 VA maximum inrush, 9.8 VA maximum holding on 50 or 60 Hz; 7.5 watts nominal on DC.
Enclosure Rating: IP65, IEC 60529.
Electrical Connections: EN 175301-803 Form A, uses two cord-grip connectors at solenoids.

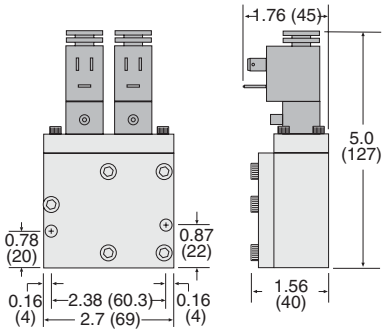
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 40 to 100 psig (2.8 to 7 bar).

Functional Safety Data: Category 4 PL e; B10d: 20,000,000; PFHd: 7.71×10^{-9} ; MTTFd: 301.9 (n_{op}: 662400).
Certifications: CE Marked for applicable directives, DGUV Test, CSA/UL.
Vibration/Impact Resistance: Tested to BS EN 60068-2-27.

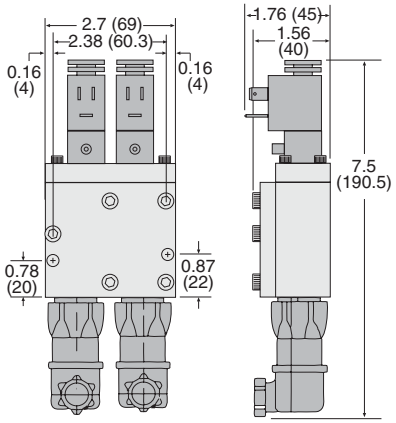
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Valve Dimensions – inches (mm)

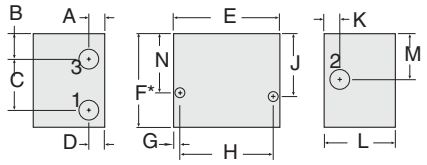
Valve without Pressure Switches



Valve with Pressure Switches



Base



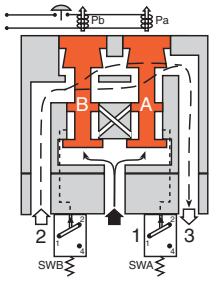
Valve Model Number	Base Model Number	BASE Dimensions – inches (mm)												
		A	B	C	D	E	F	G	H	J	K	L	M	N
3573B2632	1120C91	0.4 (11)	0.7 (17)	1.29 (32.8)	0.4 (11)	2.7 (69)	2.4 (61)	0.2 (5)	2.38 (60.5)	1.6 (41)	0.4 (11)	1.8 (46)	1.2 (30)	1.5 (38)
3573B2640	1042C91	0.5 (13)	0.6 (15)	1.36 (34.5)	0.4 (11)	2.7 (69)	2.4 (61)	0.2 (5)	2.38 (60.5)	1.6 (41)	0.4 (11)	1.8 (46)	1.2 (30)	1.5 (38)
3573B2642	888C91	0.4 (11)	0.7 (17)	1.29 (32.8)	0.4 (11)	2.7 (69)	2.4 (61)	0.2 (5)	2.38 (60.5)	1.6 (41)	0.4 (11)	1.8 (46)	1.2 (30)	1.5 (38)
3573B2644	1171C91	0.5 (13)	0.6 (15)	1.47 (37.2)	0.5 (13)	2.7 (69)	2.5 (63)	0.2 (5)	2.38 (60.5)	1.6 (41)	0.8 (19)	1.8 (46)	1.1 (27)	1.5 (38)
3573B2645	1172C91	0.5 (13)	0.6 (15)	1.47 (37.2)	0.5 (13)	2.7 (69)	2.5 (63)	0.2 (5)	2.38 (60.5)	1.6 (41)	0.8 (19)	1.8 (46)	1.1 (27)	1.5 (38)
For replacement valve (less base), order model 3573B2602.														

Valve Operation: Both solenoids must be energized simultaneously to shift the valve; maintained signal required to keep valve shifted.

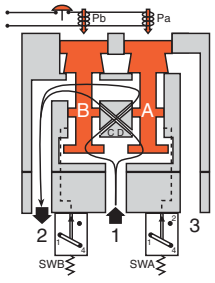
CAUTION: *If the monitor must be reset, electrical signals to both solenoids must be removed to prevent the machine controlled by the valve from immediately recycling and producing a potentially hazardous condition.*

VALVE OPERATION

Conditions at Start:
Inlet 1 is closed to outlet 2 by both valve elements A and B. Outlet 2 is open to exhaust 3. Pressure signals at both switches SWA and SWB are exhausted. Contacts 1 and 2 of switches SWA and SWB are connected.

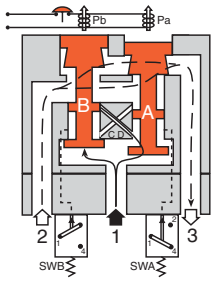


Normal Operation:
Simultaneously energizing both solenoids actuates both pilots and causes valve elements A and B to shift. Inlet 1 is then connected to outlet 2 via crossflow passages C and D. Exhaust 3 is closed. Sensing pressure signals go to each pressure switch and become equal to inlet pressure. Both switches trip and now contacts 1 and 4 of switches SWA and SWB are connected instead of contacts 1 and 2.



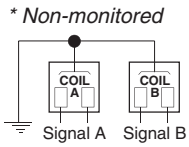
Completion of Normal Cycle:
Simultaneously de-energizing both solenoids returns the valve to the "Conditions at Start" described at left.

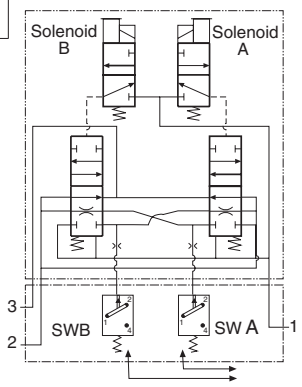
Detecting a Malfunction:
A malfunction in the system or the valve itself could cause one valve element to be open and the other closed. Air then flows past the inlet poppet on valve element A, into crossflow passage D, but is substantially blocked by the spool portion of element B. The large size of the open exhaust passage past element B keeps the pressure at the outlet port below 2 % of inlet pressure. Full sensing air pressure from side A goes to switch SWA, and a reduced pressure goes to switch SWB. This full pressure signal causes switch SWA to trip. Switch SWB, with a reduced pressure signal, does not trip. An external monitoring system can detect the malfunction by monitoring the condition of the switches SWA and SWB. The external monitoring system may then react accordingly by shutting down the power to the valve solenoids and any other components deemed necessary to stop the machine.



Port Sizes 1, 2	Port Sizes 3	Basic Size	Inlet Orientation	Pressure Switches	Pressure Switch Provision	Model Number*	C_v 1-2	C_v 2-3	Avg. Response Constants M	Avg. Response Constants F 1-2	Avg. Response Constants F 2-3	Weight lb (kg)
1/2	1/2	2	Left Hand	None	No	3573C4620**	3.7	6.6	30	1.2	1.0	4.3 (1.95)
1/2	1/2	2	Left Hand	None	Yes	3573C4632**	3.7	6.6	30	1.2	1.0	4.3 (1.95)
1/2	3/4	2	Left Hand	None	No	3573C4640**	3.7	9.0	25	1.1	0.9	4.3 (1.95)
1/2	1/2	2	Left Hand	Two##	Yes	3573C4642**	3.7	6.6	30	1.2	1.0	4.8 (2.18)
3/4	3/4	2	Left Hand	None	No	3573C4643**	4.2	9.0	25	1.1	0.9	4.7 (2.13)
3/4	3/4	2	Left Hand	Two##	Yes	3573C4644**	4.2	9.0	25	1.1	0.9	5.2 (2.36)
3/4	3/4	2	Left Hand	None	Yes	3573C4645**	4.2	9.0	25	1.1	0.9	4.7 (2.13)
1/2	3/4	2	Left Hand	Two##	Yes	3573C4652**	3.7	9.0	25	1.1	0.9	4.3 (1.95)
1/2	1	2	Right Hand	Two##	Yes	3573C4706**	3.7	9.0	30	1.2	1.0	4.3 (1.95)
3/4	1	2	Right Hand	Two##	Yes	3573C4715**	4.2	9.0	25	1.1	0.9	5.2 (2.36)
1/2	1	2	Left Hand	None	No	3573A4735**	3.7	9.0	30	1.2	1.0	4.3 (1.95)
1/2	1	2	Left Hand	Two##	Yes	3573A4736**	3.7	9.0	30	1.2	1.0	4.3 (1.95)
3/4	1	2	Left Hand	None	No	3573A4737**	4.2	9.0	25	1.1	0.9	5.2 (2.36)
3/4	1	2	Left Hand	Two##	Yes	3573A4738**	3.7	9.0	25	1.1	0.9	5.2 (2.36)
3/4	1	2	Right Hand	None	No	3573B4883**	4.2	9.0	25	1.1	0.9	5.2 (2.36)
1/2	1	2	Right Hand	None	No	3573B4891**	4.2	9.0	30	1.2	1.0	4.3 (1.95)

* NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., D3573C4620W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 3573C4620W. For other voltages consult ROSS.
Valve and base can be ordered separately, consult ROSS.
Only valves with pressure switches should be used to control clutch/brake mechanisms on press machinery. The pressure switches must be used in conjunction with a monitoring device to assist with OSHA compliance (Ref. 1910.217).
##Valve include pressure switches with DIN type connection, for pressure switches with M12 type connection consult ROSS.





To customer's external monitor

Valve Response Time

The constants above, designated M and F, can be used to determine the amount of time required to fill or exhaust a volume of any size using the formula on the right:

Vlv. Resp. Time (msec)= M + F *V
M = avg. time for parts movement
F = msec. per cubic inch of volume
V = volume in cubic inches

Pressure Switches & Monitoring:

Valves without pressure switches must not be used to control clutch/brake mechanisms on press machinery. Valves with pressure switches must be used in conjunction with an external monitoring device to assist with OSHA compliance (Ref. 1910.217). The valves on this page do not have a built-in monitor, and must only be used in conjunction with an external monitoring system. Such monitoring system must be capable of inhibiting the operation of the valve in the event of a failure within the valve.

Valve Operation: Both solenoids must be energized simultaneously to shift the valve; maintained signal required to keep valve shifted.

CAUTION: *If the monitor must be reset, electrical signals to both solenoids must be removed to prevent the machine controlled by the valve from immediately recycling and producing a potentially hazardous condition.*

STANDARD SPECIFICATIONS (for valves on this page):

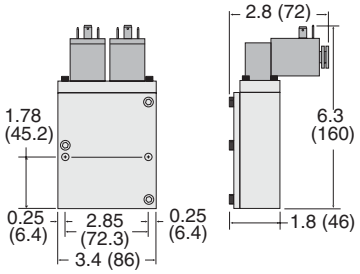
Construction: Dual poppet.
Mounting Type: Inline.
Pilot Solenoids: Two, rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Power Consumption (each solenoid)**:** 8.5 VA maximum inrush, 8.5 VA maximum holding on 50 or 60 Hz; 6 watts nominal on DC.
Enclosure Rating: IP65, IEC 60529.
Electrical Connections: EN 175301-803 Form A, uses two cord-grip connectors at solenoids.

Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 40 to 100 psig (2.8 to 7 bar).

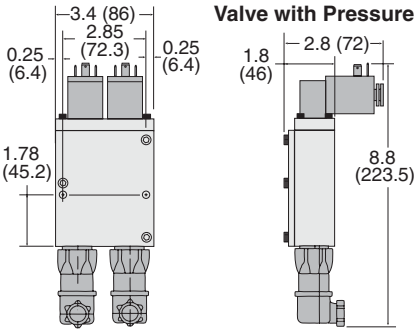
Functional Safety Data: Category 4 PL e; B10d: 20,000,000; PFHd: 7.71×10^{-9} ; MTTFd: 301.9 (n_{op}: 662400).
Certifications: CE Marked for applicable directives, DGUV Test, CSA/UL.
Vibration/Impact Resistance: Tested to BS EN 60068-2-27.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Valve without Pressure Switches

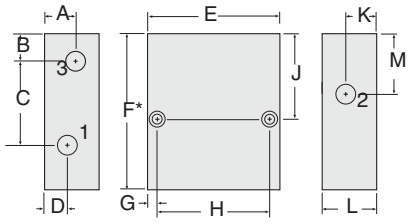


Valve with Pressure Switches



Valve Dimensions – inches (mm)

Base



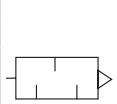
Valve Model Number	Base Model Number	BASE Dimensions – inches (mm)											
		A	B	C	D	E	F	G	H	J	K	L	M
3573B4620	1136C91	0.8 (19)	0.7 (17)	2.15 (54.6)	0.6 (15)	3.4 (86)	4.0 (101)	0.3 (7)	2.85 (72.4)	2.2 (56)	0.8 (19)	1.4 (36)	1.6 (39)
3573B4632	1122C91	0.8 (19)	0.7 (17)	2.15 (54.6)	0.6 (15)	3.4 (86)	4.0 (101)	0.3 (7)	2.85 (72.4)	2.2 (56)	0.8 (19)	1.4 (36)	1.6 (39)
3573B4640	1028C91	1.1 (27)	1.0 (24)	2.32 (58.9)	0.6 (15)	3.4 (86)	4.3 (110)	0.3 (7)	2.85 (72.4)	2.6 (64)	0.8 (19)	1.7 (44)	1.9 (48)
3573B4642	893C91	0.8 (19)	0.7 (17)	2.15 (54.6)	0.6 (15)	3.4 (86)	4.0 (101)	0.3 (7)	2.85 (72.4)	2.2 (56)	0.8 (19)	1.4 (36)	1.6 (39)
3573B4643	1123C91	1.1 (27)	0.8 (19)	2.64 (67.1)	1.3 (33)	3.7 (94)	4.3 (110)	0.3 (7)	2.85 (72.4)	2.6 (64)	0.7 (17)	2.0 (50)	1.8 (46)
3573B4644	1163C91	1.1 (27)	0.8 (19)	2.86 (72.7)	0.7 (17)	3.7 (94)	4.3 (110)	0.3 (7)	2.85 (72.4)	2.6 (64)	0.7 (17)	2.0 (50)	1.8 (46)
3573B4645	1164C91	1.1 (27)	0.8 (19)	2.86 (72.7)	0.7 (17)	3.7 (94)	4.3 (110)	0.3 (7)	2.85 (72.4)	2.6 (64)	0.7 (17)	2.0 (50)	1.8 (46)
3573B4652	1129C91	1.1 (27)	1.0 (24)	2.32 (58.9)	0.6 (15)	3.4 (86)	4.3 (110)	0.3 (7)	2.85 (72.4)	2.6 (64)	0.8 (19)	1.7 (44)	1.9 (48)
For replacement valve (less base), order model 3573B4602.													

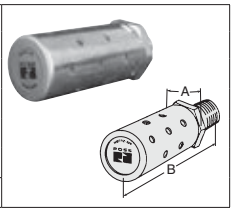
ACCESSORIES

Electrical Connectors	Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
					Without Light	Lighted Connector	
						24 Volts DC	120 Volts AC
	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z
	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	10-mm	371K77	383K77-W	383K77-Z
	EN 175301-803 Form A	Connector for threaded conduit (1/2 inch electrical conduit fittings)	–	–	723K77	724K77-W	724K77-Z
	EN 175301-803 Form A	Connector Only	–	–	937K87	936K87-W	936K87-Z

CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

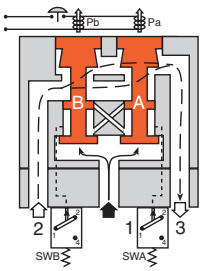
Silencers	Port Size	Thread Type	Model Number*		Avg. C_v	Dimensions inches (mm)		Weight lb (kg)
			NPT Threads	BSPT Threads		Length	Width	
	1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
	3/4	Male	5500A5013	D5500A5013	5.1	1.3 (32)	3.6 (92)	0.2 (0.1)
	3/4	Male	5500A5003	D5500A5003	11.5	2.0 (51)	5.3 (135)	0.6 (0.3)
	1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)
	Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.							



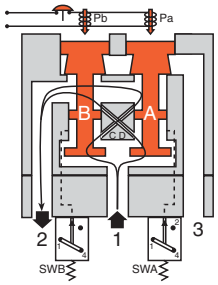


VALVE OPERATION

Conditions at Start:
Inlet 1 is closed to outlet 2 by both valve elements A and B. Outlet 2 is open to exhaust 3. Pressure signals at both switches SWA and SWB are exhausted. Contacts 1 and 2 of switches SWA and SWB are connected.

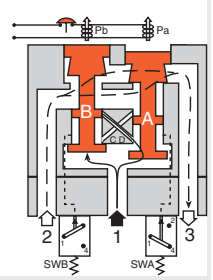


Normal Operation:
Simultaneously energizing both solenoids actuates both pilots and causes valve elements A and B to shift. Inlet 1 is then connected to outlet 2 via crossflow passages C and D. Exhaust 3 is closed. Sensing pressure signals go to each pressure switch and become equal to inlet pressure. Both switches trip and now contacts 1 and 4 of switches SWA and SWB are connected instead of contacts 1 and 2.



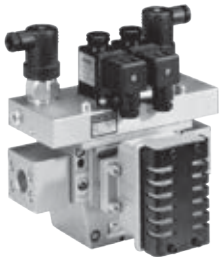
Completion of Normal Cycle:
Simultaneously de-energizing both solenoids returns the valve to the "Conditions at Start" described at left.

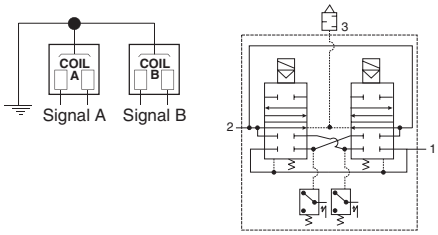
Detecting a Malfunction:
A malfunction in the system or the valve itself could cause one valve element to be open and the other closed. Air then flows past the inlet poppet on valve element A, into crossflow passage D, but is substantially blocked by the spool portion of element B. The large size of the open exhaust passage past element B keeps the pressure at the outlet port below 2 % of inlet pressure. Full sensing air pressure from side A goes to switch SWA, and a reduced pressure goes to switch SWB. This full pressure signal causes switch SWA to trip. Switch SWB, with a reduced pressure signal, does not trip. An external monitoring system can detect the malfunction by monitoring the condition of the switches SWA and SWB. The external monitoring system may then react accordingly by shutting down the power to the valve solenoids and any other components deemed necessary to stop the machine.



Port Size	Basic Size	Model Number*#		C_v		Weight lb (kg)
		Flanged Ports				
		With Overrides	Without Overrides	1-2	2-3	
3/8	4	3573C3270**	3573C3276**	3	7	8.4 (3.8)
1/2	4	3573C4270**	3573C4276**	3	9	8.4 (3.8)
3/4	4	3573C5230**	3573C5236**	3	11	8.4 (3.8)

* NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., D3573C3270W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 3573C3270W. For other voltages consult ROSS.
#Valve include pressure switches with DIN type connection, for pressure switches with M12 type connection consult ROSS.
Valve and base can be ordered separately, consult ROSS.





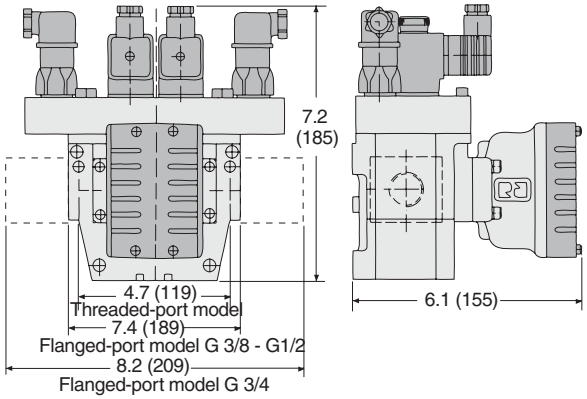
Pressure Switches & Monitoring:

Valves with pressure switches must be used in conjunction with an external monitoring device to assist with OSHA compliance (Ref. 1910.217).

The valves on this page do not have a built-in monitor, and so must only be used in conjunction with an external monitoring system. Such monitoring system must be capable of inhibiting the operation of the valve and associated machinery in the event of a failure within the valve.

CAUTION: *If the system must be reset, electrical signals to both solenoids must be removed to prevent the machine from immediately recycling and producing a potentially hazardous condition.*

Valve Dimensions – inches (mm)



G3

ACCESSORIES

Electrical Connectors	Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
					Without Light	Lighted Connector	
						24 Volts DC	120 Volts AC
	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z
	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	10-mm	371K77	383K77-W	383K77-Z
	EN 175301-803 Form A	Connector for threaded conduit (1/2 inch electrical conduit fittings)	–	–	723K77	724K77-W	724K77-Z
	EN 175301-803 Form A	Connector Only	–	–	937K87	936K87-W	936K87-Z

CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

G

VALVE OPERATION

Refer to page G3.9.

STANDARD SPECIFICATIONS (for valves on this page):

Construction: Dual poppet.
Mounting Type: Inline.
Pilot Solenoids: Two, rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Voltages at pressure switches must not exceed 250 volts.
Power Consumption (each solenoid)**:** 35 VA maximum in-rush, 22 VA holding on 50 or 60 Hz; 14 watts nominal on DC.
Enclosure Rating: IP65, IEC 60529.
Electrical Connections: EN 175301-803 Form A, uses two cord-grip connectors at solenoids.

Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 40 to 150 psig (2.5 to 10 bar).

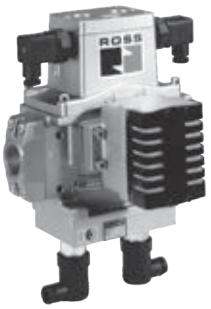
Functional Safety Data: Category 4 PL e; B10d: 20,000,000; PFHd: 7.71×10^{-9} ; MTTFd: 301.9 (n_{op}: 662400).
Certifications: CE Marked for applicable directives, DGUV Test, CSA/UL.
Vibration/Impact Resistance: Tested to BS EN 60068-2-27.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

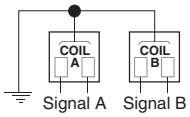
SERPAR® Crossflow Double Valves with Pressure Switches, Size 8, 12, & 30

35 Series

Port Size	Basic Size	Model Number*#	C_v		Weight lb (kg)
		Flanged Ports	1-2	2-3	
1/2	8	3573B4638**	3.5	10	11.4 (5.2)
3/4	8	3573B5638**	4	14	11.4 (5.2)
1	8	3573B6638**	4	14	11.4 (5.2)
3/4	12	3573B5632**	8	15	15.4 (7.0)
1	12	3573B6632**	8.5	19	15.4 (7.0)
1¼	12	3573B7632**	9.0	21	15.4 (7.0)
1¼	30	3573B7630**	20	42	33.9 (15.4)
1½	30	3573B8630**	21	43	33.9 (15.4)

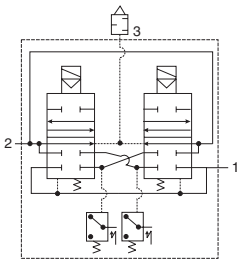


* NPT port threads. For BSPP threads, add a "D" prefix to the model number, e.g., D3573B4638W.
** Insert voltage code: "W" = 24 volts DC; "Z" = 110-120 volts AC, 50/60 Hz; e.g., 3573B4638W.
For other voltages consult ROSS.
#Valve include pressure switches with DIN type connection, for pressure switches with M12 type connection consult ROSS.
Valve and base can be ordered separately, consult ROSS.



Pressure Switches & Monitoring: Valves with pressure switches must be used in conjunction with an external monitoring device to assist with OSHA compliance (Ref. 1910.217).

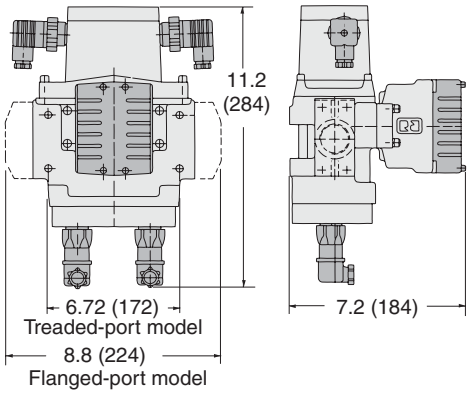
The valves on this page do not have a built-in monitor, and so must only be used in conjunction with an external monitoring system. Such monitoring system must be capable of inhibiting the operation of the valve and associated machinery in the event of a failure within the valve.



CAUTION: *If the system must be reset, electrical signals to both solenoids must be removed to prevent the machine from immediately recycling and producing a potentially hazardous condition.*

Valve Dimensions – inches (mm)

Basic Size 8



STANDARD SPECIFICATIONS (for valves on this page):

Construction: Dual poppet.
Mounting Type: Inline.
Pilot Solenoids: Two, rated for continuous duty.
Standard Voltages: 24 volts DC; 110-120 volts AC, 50/60 Hz.
Voltages at pressure switches must not exceed 250 volts.
Power Consumption (each solenoid)**:** 87 VA maximum in-rush, 30 VA holding on 50 or 60 Hz; 14 watts nominal on DC.
Electrical Connections: EN 175301-803 Form A, uses two cord-grip connectors at solenoids.
Enclosure Rating: IP 65 according to IEC-Publication 144 and DIN 40050, Sheet 1.

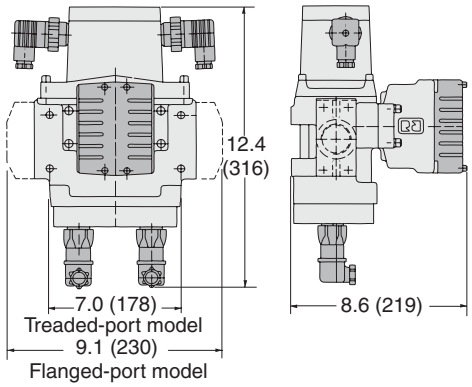
Ambient Temperature: 40° to 120°F (4° to 50°C).
Media Temperature: 40° to 175°F (4° to 80°C).
Flow Media: Filtered air.
Inlet Pressure: 30 to 125 psig (2 to 8.5 bar).

Functional Safety Data: Category 4 PL e; B10d: 20,000,000; PFHd: 7.71×10^{-9} ; MTTFd: 301.9 (n_{op}: 662400).
Certifications: CE Marked for applicable directives, DGUV Test, CSA/UL.
Vibration/Impact Resistance: Tested to BS EN 60068-2-27.

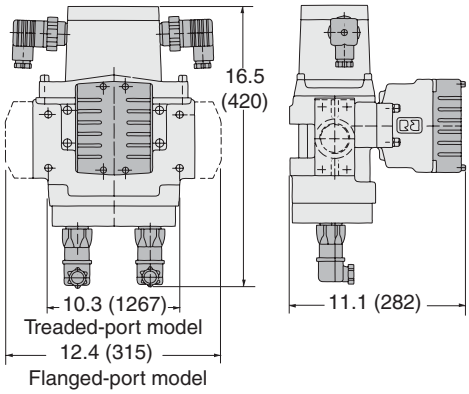
IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

Valve Dimensions – inches (mm)

Basic Size 12



Basic Size 30



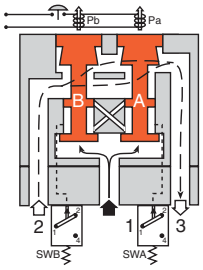
Accessories

Electrical Connectors	Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
					Without Light	Lighted Connector	
						24 Volts DC	120 Volts AC
	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z
	EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	10-mm	371K77	383K77-W	383K77-Z
	EN 175301-803 Form A	Connector for threaded conduit (1/2 inch electrical conduit fittings)	–	–	723K77	724K77-W	724K77-Z
	EN 175301-803 Form A	Connector Only	–	–	937K87	936K87-W	936K87-Z

CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

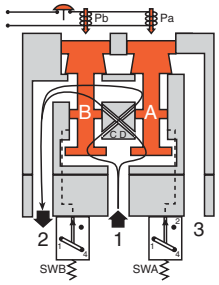
VALVE OPERATION

Conditions at Start:
Inlet 1 is closed to outlet 2 by both valve elements A and B. Outlet 2 is open to exhaust 3. Pressure signals at both switches SWA and SWB are exhausted. Contacts 1 and 2 of switches SWA and SWB are connected.

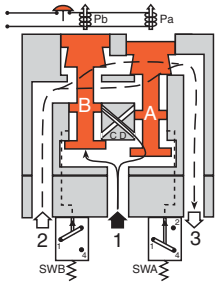


Completion of Normal Cycle:
Simultaneously de-energizing both solenoids returns the valve to the "Conditions at Start" described at left.

Normal Operation:
Simultaneously energizing both solenoids actuates both pilots and causes valve elements A and B to shift. Inlet 1 is then connected to outlet 2 via crossflow passages C and D. Exhaust 3 is closed. Sensing pressure signals go to each pressure switch and become equal to inlet pressure. Both switches trip and now contacts 1 and 4 of switches SWA and SWB are connected instead of contacts 1 and 2.



Detecting a Malfunction:
A malfunction in the system or the valve itself could cause one valve element to be open and the other closed. Air then flows past the inlet poppet on valve element A, into crossflow passage D, but is substantially blocked by the spool portion of element B. The large size of the open exhaust passage past element B keeps the pressure at the outlet port below 2 % of inlet pressure. Full sensing air pressure from side A goes to switch SWA, and a reduced pressure goes to switch SWB. This full pressure signal causes switch SWA to trip. Switch SWB, with a reduced pressure signal, does not trip. An external monitoring system can detect the malfunction by monitoring the condition of the switches SWA and SWB. The external monitoring system may then react accordingly by shutting down the power to the valve solenoids and any other components deemed necessary to stop the machine.



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H

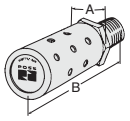
SILENCERS

Port Size	Thread Type	Model Number		Avg. C_V	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	BSPT Threads		A	B	
1/8	Male	5500A1003	D5500A1003	1.2	0.9 (21)	2.0 (51)	0.1 (0.1)
1/4	Male	5500A2003	D5500A2003	2.1	0.9 (21)	2.2 (55)	0.1 (0.1)
3/8	Male	5500A3013	D5500A3013	2.7	0.9 (21)	2.2 (55)	0.1 (0.1)
3/8	Male	5500A3003	D5500A3003	4.3	1.3 (32)	3.5 (88)	0.2 (0.1)
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (91)	0.2 (0.1)
3/4	Male	5500A5013	D5500A5013	5.1	1.3 (32)	3.6 (92)	0.2 (0.1)
3/4	Male	5500A5003	D5500A5003	11.5	2.0 (51)	5.3 (135)	0.6 (0.3)
1	Male	5500A6003	D5500A6003	14.6	2.0 (51)	5.4 (138)	0.6 (0.3)
1¼	Male	5500A7013	D5500A7013	16.4	2.0 (51)	5.5 (140)	0.6 (0.3)
1¼	Female	5500A7001	D5500A7001	24.0	2.5 (64)	5.7 (144)	1.0 (0.5)
1½	Female	5500A8001	D5500A8001	29.9	2.5 (64)	5.7 (144)	1.0 (0.5)
2	Female	5500B9001	D5500B9001	34.2	3.0 (76)	6.6 (168)	1.5 (0.7)
2½	Female	5500A9002	D5500A9002	103.7	4.0 (102)	5.7 (145)	2.9 (1.4)

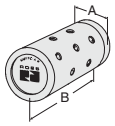
Port size 1/8 thru 2

Port size 2½

Male Pipe Threads
For ports 1/8 through 1¼



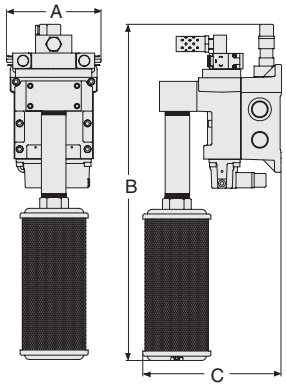
Female Pipe Threads
For ports 1¼ through 2½



Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air.

HIGH-FLOW, HIGH-REDUCTION SILENCERS for DM[1], DM[2]® Series E & DM[2]® Series C Double Valves

Valve Model	Basic Size	Thread Type	Kit Number*	Flow scfm	Dimensions inches (mm)		
					A	B	C
DM Series E	2	NPT	2323H77	256 (121)	4.96 (126.1)	14.24 (361.7)	5.68 (144.3)
	2	BSPT	2328H77	256 (121)	4.96 (126.1)	16.05 (407.7)	5.73 (145.5)
DM Series C	4	NPT	2324H77	800 (378)	4.34 (110.2)	19.06 (484.1)	7.27 (184.7)
	8	NPT	2325H77	800 (378)	5.41 (137.4)	21.18 (538.0)	8.41 (213.6)
	12	NPT	2326H77	2080 (982)	6.74 (117.2)	25.85 (656.6)	10.66 (270.8)
	30	NPT	2327H77	7200 (3398)	9.85 (250.2)	41.55 (1055.4)	13.47 (342.1)
	4	BSPT	2329H77	800 (378)	4.34 (110.2)	21.40 (543.6)	7.27 (184.7)
	8	BSPT	2330H77	800 (378)	5.41 (137.4)	23.52 (597.4)	8.41 (213.6)
	12	BSPT	2331H77	2080 (982)	6.74 (117.2)	28.20 (716.3)	10.66 (270.8)
	30	BSPT	2332H77	7200 (3398)	9.85 (250.2)	41.55 (1055.4)	13.47 (342.1)



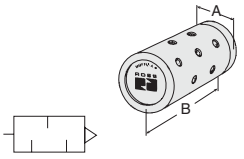
* Kits include all plumbing required for installation.

Pressure Range: 125 psig (8.6 bar) maximum.

Stainless Steel Silencers

- Port sizes 1/4 thru 1 NPT have all stainless steel construction
- Port sizes 2 NPT and all BSPT have standard construction consisting of nickel plated cold rolled steel
- Supplied with a standard pipe thread fitting for attaching directly to the exhaust ports of air-operated equipment

Port Size	Thread Type	Model Number		Avg. C_V	Dimensions inches (mm)		Weight lb (kg)
		NPT Threads	BSPT Threads		A	B	
1/4	Male	5500B2004	D5500B2004	1.44	0.56 (14.2)	1.75 (44.5)	0.05 (0.23)
1/2	Male	5500B4004	D5500B4004	3.01	0.87 (22.1)	2.75 (69.7)	0.25 (0.11)
1	Male	5500B6004	D5500B6004	10.41	1.31 (33.3)	3.87 (98.3)	0.45 (0.20)
2	Male	5500B9004	D5500B9004	28.11	2.37 (60.2)	5.50 (139.7)	1.5 (0.68)

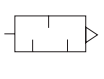


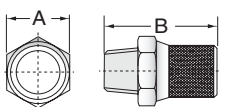
Pressure Range: 0 to 150 psig (0 to 10.3 bar) maximum. **Flow Media:** Filtered air; 5 micron recommended.

Silencers for Stainless Steel L-O-X® Air Entry Combinations

- 316 Stainless Steel sintered element silencers used to protect ports open to the atmosphere.

Port Size	Thread Type	Model Number		Avg. C_V	Dimensions inches (mm)	
		NPT Threads	BSP Threads		A	B
1/4	Male	5500A2005	D5500A2005	1.5	0.67 (17)	1.50 (38)
1/2	Male	5500A4005	D5500A4005	3.5	0.94 (24)	2.17 (55
1	Male	5500A6005	D5500A6005	5.7	1.41 (36)	2.95 (75)





Pressure Range: 0 to 174 psig (0 to 12 bar) maximum. **Flow Media:** Filtered air; 5 micron recommended. **Seals:** Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

ELECTRICAL Connectors

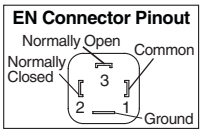
Electrical Connector Form	Electrical Connector Type	Cord Length meters (feet)	Cord Diameter	Electrical Connector Model Number		
				Without Light	Lighted Connector	
					24 Volts DC	120 Volts AC
EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	6-mm	721K77	720K77-W	720K77-Z
EN 175301-803 Form A	Prewired Connector (18 gauge)	2 (6½)	10-mm	371K77	383K77-W	383K77-Z
EN 175301-803 Form A	Connector for threaded conduit (1/2 inch electrical conduit fittings)	–	–	723K77	724K77-W	724K77-Z
EN 175301-803 Form A	Connector Only	–	–	937K87	936K87-W	936K87-Z
EN 175301-803 Form B	Prewired Connector (18 gauge)	2 (6½)	10-mm	266K87	267K77-W	267K77-Z
EN 175301-803 Form B	Connector Only	–	–	372K77	382K77-W	382K77-Z
EN 175301-803 Form C	Prewired Connector (18 gauge)	2 (6½)	5-mm	–	2476K77-W	2476K77-Z
EN 175301-803 Form C	Prewired Connector (18 gauge)	3 (10)	8-mm	2449K77	2450K77-W	2450K77-Z
EN 175301-803 Form C	Connector Only	–	–	2452K77	2453K77-W	2453K77-Z

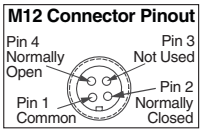
CAUTIONS: Do not use electrical connectors with surge suppressors, as this may increase valve response time when de-actuating the solenoids.

PRESSURE SWITCHES For Verification Of Downstream PRESSURE RELEASE

- May be installed downstream on all double valves
- Provides means to verify the release of downstream pressure to next obstruction
- Factory preset, 5 psi (0.3 bar) - falling

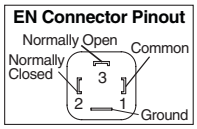
Pressure Switches		
Connection Type	Model Number	Port Threads
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	1/8 NPT





- May be installed downstream on all double valves
- Provides a redundant means to verify the release of downstream pressure to next obstruction
- Factory preset, 5 psi (0.3 bar) - falling

Redundant Pressure Switch		
Connection Type	Model Number	Port Threads
EN 175301-803 Form A	RC26-13	3/8 NPT



POP-UP Indicator

Model Number**	988A30

** 1/8 NPT port threads.

STATUS Indicator

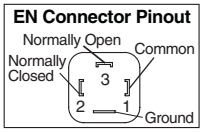
Model Number	670B94

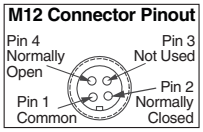
The Status Indicator pressure switch actuates when the valve is in a ready-to-run condition and de-actuates when the valve is in a lockout condition or when the inlet air pressure has been removed. Although, the valves can be purchased with this option already installed, the Status Indicator can be purchased separately.

IMPORTANT NOTE: Please read carefully and thoroughly all of the **CAUTIONS, WARNINGS** on the inside back cover.

PRESSURE SWITCHES & INDICATOR Light Kit for SV27 & SV27 PO Check Sensing Valves

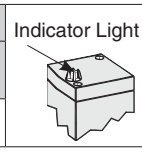
Pressure Switches		
Connection Type	**Model Number**	**Port Threads**
EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30	1/8 NPT

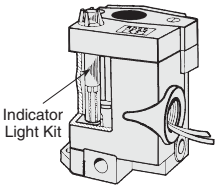




INDICATOR LIGHT Kit
for 27 & 21 Series, SV27, SV27 PO Check Valves with Solenoid Controlled Pacer Pilot

Kit Number		
24 volts DC	**110-120 volts AC 50-60 Hz**	**220 volts 50-60 Hz**
862K87-W	862K87-Z	862K87-Y





To visually verify valve operation indicator lights are available in kit form. The indicator light extends through the solenoid or pilot cover and is illuminated when the solenoid is energized. Such lights are standard on double solenoid valves. Indicator light kit is available for single solenoid models.

PRESSURE Gauges

Port Size	Model Number*	Pressure Range **psig** (bar)	Case Diameter inches (mm)
1/8	5400A1002	0-160 (0-11)	1.5 (38)
1/4	5400A2010	0-60 (0-4)	2.0 (51)
1/4	5400A2011	0-200 (0-14)	2.0 (51)
1/4	5400A2012	0-300 (0-20)	2.0 (51)
1/4	5400A2014**	0-160 (0-11)	2.5 (64)
1/4	5400A2015***	0-160 (0-11)	2.0 (51)

* Center back mounting; male pipe threads.
** 5400A2014 - Stainless steel case liquid filled.
*** 5400A2015 - Green shade between 40-70 psi (2.7-4.8 bar).

MULTIPLE LOCK-OUT Device

Model Number	356A30

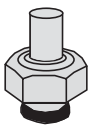
MANUAL OVERRIDE Kits

Flush flexible manual overrides are standard on single solenoid models. Double solenoid models have flush metal-button overrides. Both types are non-locking.

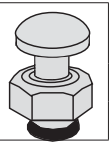
Each of the buttons in the override kits below is made of metal and is spring-returned. The locking type button, however, can be kept in the actuated position by turning the slot in the top of the button with a screwdriver.

FLUSH BUTTON	
Locking Type	**Kit Number**
Non-Locking	790K87
Locking	792K87

EXTENDED BUTTON	
Locking Type	**Kit Number**
Non-Locking	791K87



EXTENDED BUTTON with PALM	
Locking Type	**Kit Number**
Non-Locking	984H87



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C5H00C5311	E5.30
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C5H00C6111	E5.30
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C5H00C6212	E5.30
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C5H00C6311	E5.30
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C5X00B3052	E2.11
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C5X00B6038	E2.10
C5X00B6039	E2.20
C5X00B6054	E1.18
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C5X00B8037	E1.10
C5X00B8049	E2.20
C5X00B8051	E1.10
C5X00B9003, 9004	E1.11
C5X00B9009, 9021	E1.22
C5X00C7003, 8001	E2.10
C5X00D6003	E2.10
C5X00D6012	E2.24
CM26PDA00****	F5.7
CM26PDA00P1*	F5.11
CM26PDA01****	F5.7
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YD7776A3410** to 5411**	F5.3
YD7786A3410, 5411**	F5.5

I

General Information

Standard Specifications

The standard specifications for the products on each page of this catalog are given on the same page or referenced. For solenoid pilot valves, models with internal pilot supply are listed. Most models are also available for use with external pilot supply or have a built-in pilot supply selector valve.

The products in this catalog are intended for use in industrial pneumatic systems. Most products are adaptable to other uses and conditions not covered by the standard specifications given in this catalog. Weights shown are approximate and are subject to change. Dimensions given, unless otherwise noted, are envelope dimensions (not for mounting). Consult ROSS for further information.

Port Threads

Ports of valves and bases described in this catalog have NPT (ANSI B2.1) threads. Other thread types can be specified by putting an appropriate prefix letter on the model or part number when ordering.

Thread Types by Model Prefix Letter

Pneumatic Port Threads	Prefix Letter	Threaded Electrical Opening
NPT (ANSI B2.1)	None	NPT
ISO 228 - DIN 259 Parallel, BSPP#	**C***	—
ISO 228 - DIN 259 Parallel, BSPP#	**D**	G
ISO 228 - JIS B0203 Tapered#	**J**	ISO
SAE 1926- ISO 11926	**S**	NPT

* Used only for filters, regulators, lubricators.

ISO 228 threads superseds BSPP, G and JIS thread types.

Flow Ratings

Flow ratings are expressed as C_V where C_V = 1 corresponds to a steady state air flow of approximately 32 scfm under the following conditions:

Inlet pressure = 100 psig (6.7 bar)
Pressure drop = 10 psi (0.69 bar)
Air temperature = 68°F (20°C)
Relative humidity = 36%

Note: *Because widely differing test standards are used to measure C_V values, the figures given in this catalog should not be used to compare ROSS valves with those of other makers. The C_V ratings given here are intended only for use with performance charts published by ROSS. The C_V ratings are averages for the various flow paths through the valve and are for steady flow conditions.*

Approvals and Certifications

ROSS products are designed to meet a number of industrial standards, including the Canadian Standards Association (C.S.A.) guidelines.

For more information on specific product approvals, contact your local distributor or ROSS.

Solenoids

All ROSS standard solenoids are rated for continuous duty (unless noted otherwise) and will operate the valve within the air pressure range specified in this catalog.

Explosion-Proof Solenoid Pilot available, for more information consult ROSS.

Voltage & Hertz

When ordering a solenoid valve, also specify the desired solenoid voltage and hertz.

Voltage Types by Model Suffix Letter

Voltage	Suffix Letter
120 volts AC	**Z**
220 volts AC	**Y**
12 volts DC	**H**
24 volts DC	**W**
48 volts DC	**M**
90 volts DC	**K**
110 volts DC	**P**
125 volts DC	**C**

Recommended Solenoid Voltages: 100-110 volts AC, 50 Hz; 100-120 volts AC, 60 Hz; 24 volts DC; 110 volts DC.

In addition, the following voltages are available:

200, 220 volts AC, 50 Hz
200, 240, 480 volts AC, 60 Hz

24, 48, 220 volts AC, 50 Hz
240 volts AC, 60 Hz

200, 220 volts AC, 50 Hz
200, 240 volts AC, 60 Hz.

For example: Model 2773B5001, 120 volts AC, 60 Hz.
Model W6076B2401, 220 volts AC, 50 Hz.

Please note that not all configurations are available for all models.

For additional information or help with voltage configuration, please contact your local distributor or ROSS.

Port Identification

Valve symbols in this catalog conform to the ISO 1219-1:1991 standard of the International Organization for Standardization (ISO) and the SAE J2051 standard of the Society of Automotive Engineers (SAE) respectively.

Information or Technical Assistance

For additional information or application assistance concerning ROSS products, consult ROSS or your local ROSS distributor (see contact information on the back cover).

Order Placement

For order placement, consult ROSS or your local ROSS distributor.

For a current list of countries and local distributors, visit ROSS' website at www.rosscontrols.com.

CAUTIONS, WARNINGS and STANDARD WARRANTY

PRE-INSTALLATION or SERVICE

1. Before servicing a valve or other pneumatic component, be sure that all sources of energy are turned off, the entire pneumatic system is shut off and exhausted, and all power sources are locked out (ref: OSHA 1910.147, EN 1037).

2. All ROSS products, including service kits and parts, should be installed and/or serviced only by persons having training and experience with pneumatic equipment. Because any installation can be tampered with or need servicing after installation, persons responsible for the safety of others or the care of equipment must check every installation on a regular basis and perform all necessary maintenance.

3. All applicable instructions should be read and complied with before using any fluid power system in order to prevent harm to persons or equipment. In addition, overhauled or serviced valves must be functionally tested prior to installation and use. If you have any questions, call your nearest ROSS location listed on the cover of this document.

4. Each ROSS product should be used within its specification limits. In addition, use only ROSS parts to repair ROSS products.

WARNING: Failure to follow these directions can adversely affect the performance of the product or result in the potential for human injury or damage to property.

FILTRATION and LUBRICATION

5. Dirt, scale, moisture, etc. are present in virtually every air system. Although some valves are more tolerant of these contaminants than others, best performance will be realized if a filter is installed to clean the air supply, thus preventing contaminants from interfering with the proper performance of the equipment. ROSS recommends a filter with a 5-micron rating for normal applications.

6. All standard ROSS filters and lubricators with polycarbonate plastic bowls are designed for compressed air applications only. Do *not* fail to use the metal bowl guard, where provided, to minimize danger from high pressure fragmentation in the event of bowl failure. Do not expose these products to certain fluids, such as alcohol or liquefied petroleum gas, as they can cause bowls to rupture, creating a combustible condition, hazardous leakage, and the potential for human injury or damage to property. Immediately replace a crazed, cracked, or deteriorated bowl. When bowl gets dirty, replace it or wipe it with a clean dry cloth.

7. Only use lubricants which are compatible with materials used in the valves and other components in the system. Normally, compatible lubricants are petroleum based oils with oxidation inhibitors, an aniline point between 180°F (82°C) and 220°F (104°C), and an ISO 32, or lighter, viscosity. Avoid oils with phosphate type additives which can harm polyurethane components, potentially leading to valve failure which risks human injury, and/or damage to property.

AVOID INTAKE/EXHAUST RESTRICTION

8. Do not restrict the air flow in the supply line. To do so could reduce the pressure of the supply air below the minimum requirements for the valve and thereby cause erratic action.

9. Do not restrict a valve's exhaust port as this can adversely affect its operation. Exhaust silencers must be resistant to clogging and must have flow capacities at least as great as the exhaust capacities of the valves. Contamination of the silencer can result in reduced flow and increased back pressure.

WARNING: ROSS expressly disclaims all warranties and responsibility for any unsatisfactory performance or injuries caused by the use of the wrong type, wrong size, or an inadequately maintained silencer installed with a ROSS product.

POWER PRESSES

10. Mechanical power presses and other potentially hazardous machinery using a pneumatically controlled clutch and brake mechanism must use a press control double valve with a monitoring device. A double valve without a self-contained monitoring device should be used only in conjunction with a control system which assures monitoring of the valve. All double valve installations involving hazardous applications should incorporate a monitoring system which inhibits further operation of the valve and machine in the event of a failure within the valve mechanism.

ENERGY ISOLATION/EMERGENCY STOP

11. Per specifications and regulations, ROSS **L-O-X®** and **L-O-X®** with **EEZ-ON®** operation products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

STANDARD WARRANTY

All products sold by ROSS CONTROLS are warranted for a one-year period [with the exception of all Filters, Regulators and Lubricators ("FRLs") which are warranted for a period of seven years] from the date of purchase to be free of defects in material and workmanship. ROSS' obligation under this warranty is limited to repair or replacement of the product or refund of the purchase price paid solely at the discretion of ROSS and provided such product is returned to ROSS freight prepaid and upon examination by ROSS is found to be defective. This warranty becomes void in the event that product has been subject to misuse, misapplication, improper maintenance, modification or tampering.

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ROSS CONTROLS
U.S.A.
Tel: +1-248-764-1800
Customer Svs. 1-800-GET-ROSS
Technical Svs. 1-888-TEK-ROSS
sales@rosscontrols.com
www.rosscontrols.com

ROSS EUROPA GmbH
Germany
Tel: +49-6103-7597-0
sales@rosseuropa.com
www.rosseuropa.com

ROSS ASIA K.K.
Japan
Tel: +81-42-778-7251
www.rossasia.co.jp

ROSS UK Ltd.
United Kingdom
Tel: +44-1543-671495
sales.uk@rosscontrols.com
www.rossuk.co.uk

ROSS CONTROLS INDIA Pvt. Ltd.
India
Tel: +91-44-2624-9040
ross.chennai@rosscontrols.com

ROSS SOUTH AMERICA Ltda.
Brazil
Tel: +55-11-4335-2200
vendas@rosscontrols.com

ROSS FRANCE SAS
France
Tel: +33-1-49-45-65-65
www.rossfrance.com

ROSS CONTROLS (CHINA) Ltd.
China
Tel: +86-21-6915-7961
sales@rosscontrols.com.cn
www.rosscontrolschina.com

ROSS CANADA
Canada
Tel: +1-416-251-7677
sales@rosscanada.com
www.rosscanada.com

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There are ROSS Distributors Throughout the World

To meet your requirements across the globe, ROSS distributors are located throughout the world. Through ROSS or its distributors, guidance is available for the selection of ROSS products, both for those using pneumatic components for the first time and those designing complex pneumatic systems.

Other literature is available for engineering, maintenance, and service requirements. If you need products or specifications not shown here, please contact ROSS or your ROSS distributor. They will be happy to assist you in selecting the best product for your application.

For a current list of countries and local distributors, visit ROSS' website at www.rosscontrols.com.

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