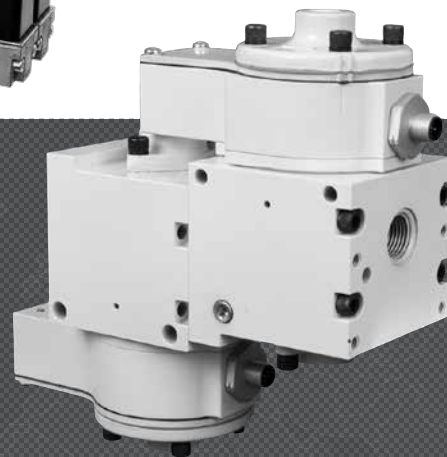




SAFE CYLINDER CONTROL AND STOP AND LOAD HOLDING VALVES



ROSS CONTROLS

CROSSCHECK™ Control Reliable Double Valves for External Monitoring

Safe Cylinder Control and Stop CC4 Series

A

4/3 Safety Directional Valve – Closed Center

HOW TO ORDER

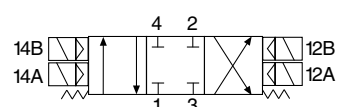
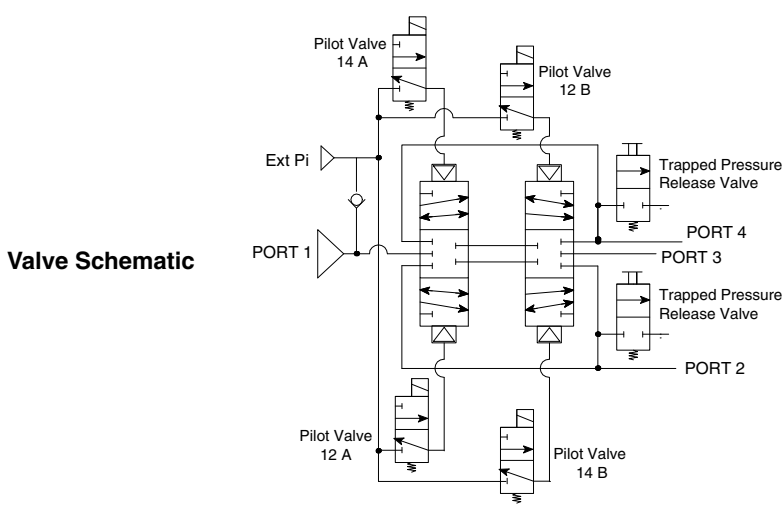
(Choose your options (in red) to configure your valve model number.)

CC4 **M** **22** **G** **A** **E** **X** **S** **A**

Series: CC4
 Pressure Release: Manual **M**, Valve Only (No Base) **X**
 Basic Size: 0
 Base Port Size: Inlet 1/4, Outlet 1/4, **22**
 3/8, 3/8, **23**
 Valve Only (No Base) **2X**
 1/2, 1/2, **44**
 3/4, 3/4, **45**
 Valve Only (No Base) **4X**
 Voltage: 24 volts DC
 Thread: BSPP **G**, NPT **N**, Valve Only **X**
 Communication: None
 Monitoring: External
 Revision Level: Standard
 Pin Configuration: Standard



CAT 4, PL e (certification pending)



Simplified Schematic

Port Size			Basic Size	C _v				Weight lb (Kg)
Inlet	Outlet	Exhaust		1-2	1-4	2-3	4-3	
1/4	1/4	1/4	0	0.9	0.9	0.7	0.6	11.2 (5.1)
3/8	3/8	3/8	0	0.9	0.9	0.7	0.6	11.2 (5.1)
1/2	1/2	1/2	2	1.7	1.6	1.8	1.7	18.3 (8.3)
3/4	3/4	3/4	2	1.7	1.6	1.8	1.7	18.3 (8.3)

APPLICATIONS: Category 4 applications - e.g., cylinder stop & load holding applications. The CROSSCHECK™ CC4 Series valve is designed to be controlled by a safety controller or safety relay with dual channel outputs and the capability of monitoring the mid-position feedback sensors. The valve is a redundant valve and is driven by 4 solenoid pilot valves - two for extending and two for retracting.

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Redundant, 4/3 Closed Center, Dual Poppet	Operating Pressure With Internal Pilot Supply: 60 to 120 psig (4 to 8 bar). With External Pilot Supply: 0 to 120 psig (0 to 8 bar). Pilot Supply: 60 to 120 psig (4 to 8 bar); Pressure must be equal to or greater than inlet pressure
Actuation	Solenoid pilot operated with air assisted spring return. Two solenoid per valve element (4 total) – two for extending and two for retracting	
Mounting	Type: Sub-Base Orientation: Any, but horizontally with solenoids on top is preferred	Static Pressure 0 to 150 psig (0 to 10 bar)
Solenoids	According to VDE 0580; Rated for continuous duty	
Voltage	24 volts DC	Monitoring Dynamic, cyclical, external with customer supplied equipment. Monitoring should check state of both valve mid-position sensors with any and all changes in state of valve control signals.
Power Consumption (each solenoid)	3.5 watts	
Enclosure Rating	According to DIN 400 50 IP 65	Minimum Operation Frequency Once per month, to ensure proper function
Electrical Connection	Two 5-pin M12 connectors	
Temperature	Ambient: 40° to 120°F (4° to 50°C). Media: 40° to 175°F (4° to 80°C)	Maximum Recommended Allowable Discordance Time: 150 msec
Flow Media	Compressed air according to ISO 8573-1 Class 7:4:4	
Pilot Supply	Internal or External	Construction Material Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N

These valves are 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.



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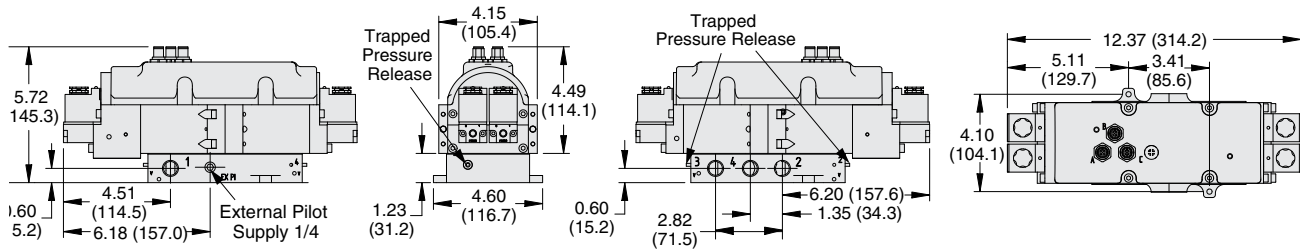
CROSSCHECK™ Control Reliable Double Valves for External Monitoring

Valve Technical Data CC4 Series

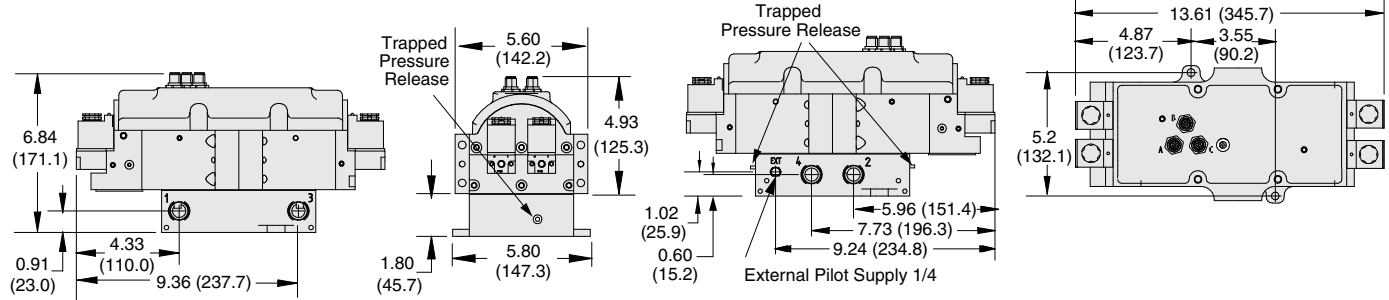
A

Port Size 1/4 & 3/8

Valve Dimensions – inches (mm)



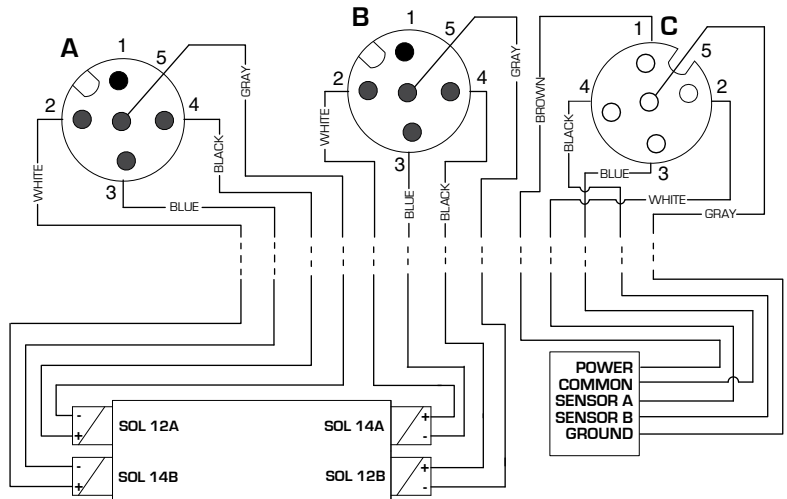
Port Size 1/2 & 3/4



A5

Valve Wiring Diagram

Valve Receptacle Arrangement
A & B - Solenoids
C - Sensor
IEC 61076-2-101
A CODED M12



ACCESSORIES & OPTIONS

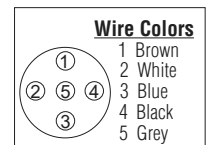
Silencers	Port Size	Thread Type	Model Number		Avg. C _v	Dimensions inches (mm)		Weight lb (kg)
			NPT Threads	R/Rp Threads		Width	Length	
			1/4	Male		5500A2003	D5500A2003	
3/8	Male	5500A3013	D5500A3013	2.7	0.9 (21)	2.2 (55)	0.1 (0.1)	
1/2	Male	5500A4003	D5500A4003	4.7	1.3 (32)	3.6 (92)	0.2 (0.1)	
3/4	Male	5500A5013	D5500A5013	5.1	1.3 (32)	3.6 (92)	0.2 (0.1)	

Pressure Range: 0 to 290 psig (0 to 20 bar) maximum. Flow Media: Filtered air.



Preassembled Wiring Kits

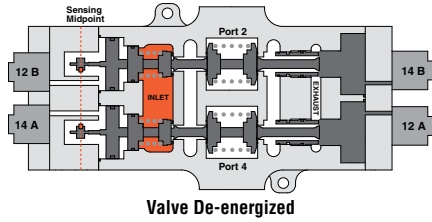
Wiring Kit	Kit Number	Description	Connector Type	Number of Cords	Cord Length meters (feet)
M12 System Cables	2642K77	This kit includes 2 cords with female connector on one end and flying leads on the opposite end, and 1 cord with male connector on one end and flying leads on the opposite end.	5-pin, straight A-coded	3	5 (16.4)



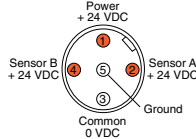
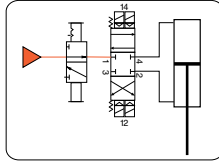
A

Conditions at Start:

Pressure applied to port 1, but all solenoids off. All ports (1, 2, 3, & 4) are blocked.



Valve De-energized



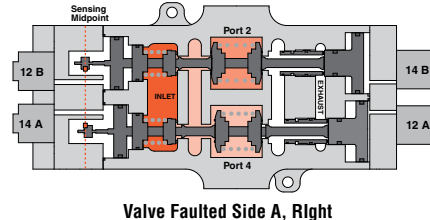
Abnormal Operation:

When energizing, if both sets of valve internals do not shift synchronously (either on or off), the CROSSCHECK™ valve will block all ports. While in this fault condition, the valve cannot further pressurize or exhaust the cylinder lines. Also, as long as the fault condition exists, there will be a voltage output from the valve internals that did not shift from center, but there will not be an output from the other valve internals that did shift off center. This provides a detectable fault condition as both sensors need to agree in order to not indicate a fault.

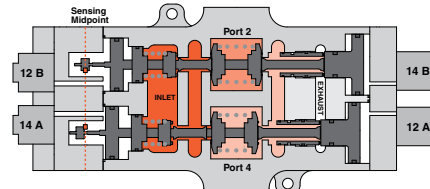
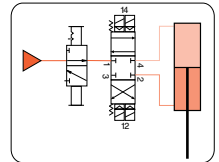
Normal Operation:

Energizing both solenoids 14A & 14B causes the valve to shift and supply pressure to port 4 while exhausting pressure from port 2, thus, extending the cylinder. Conversely, energizing solenoids 12A & 12B causes the valve to shift and supply pressure to port 2 while exhausting pressure from port 4, thus, causing the cylinder to retract. Turning all the solenoids off allows the strong return springs to shift the redundant valves back to the center position, which blocks all ports. This traps any downstream pressure in the cylinder and holds it in its current position (see below on the right, image of valve de-energized trapping pressure). Each of the mid-position feedback sensors provide a voltage output when the valve is in the center, safe position, but no voltage output when the valve internals are shifted out of the center position. This provides a detectable center position for both sets of valve internals.

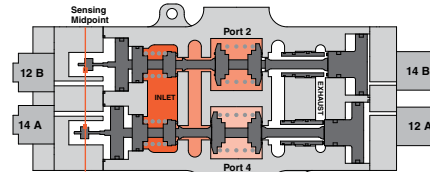
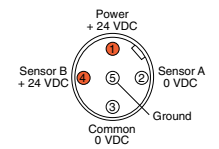
NOTE: Momentary operation of either the 12A & 12B solenoids (or 14A & 14B solenoids) can be utilized to jog the cylinder to intermediate positions instead of just fully extended or fully retracted. This is sometimes referred to as “inching.”



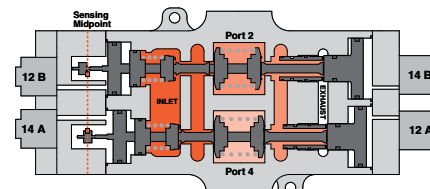
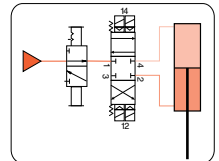
Valve Faulted Side A, Right



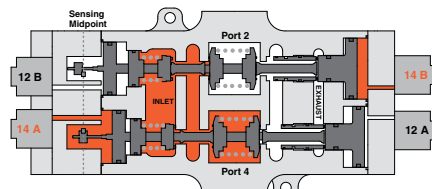
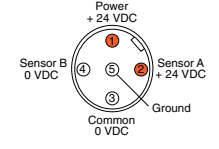
Valve Faulted Side A, Left



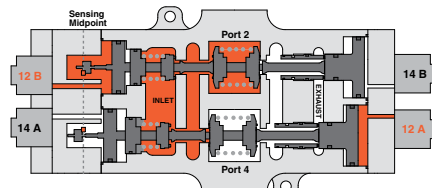
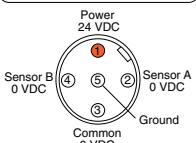
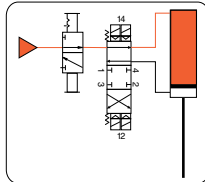
Valve Faulted Side B, Right



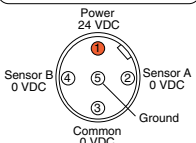
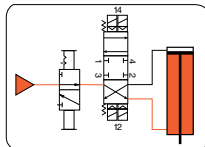
Valve Faulted Side B, Left



Solenoids 14A & 14B Energized Port 4 Pressurized



Solenoids 12A & 12B Energized Port 2 Pressurized



Monitoring:

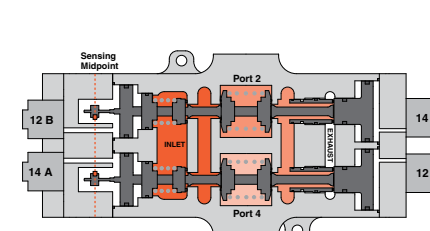
External monitoring of the CROSSCHECK™ mid-position sensors must be performed by an external monitoring system. Such a monitoring system must be capable of inhibiting the operation of the valve. The safety control system must de-energize the valve's solenoids in the event of a fault within the valve and/or within the safety control system, and check for achievement of the valve center position before allowing an attempt to re-energize the valve. Valve reset is accomplished by de-energizing all of the valve's solenoids. Reset of the safety control system should not occur unless the valve has fully returned to its center position (both sets of internals).

The output voltage of the sensors, when switched on (center position), equals approximately the voltage supplied to the sensors by the safety controller. For example, 24 volts DC In = 24 volts DC Out, etc.

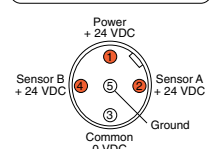
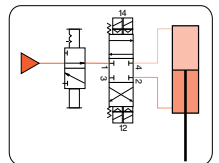
Trapped Pressure Release:

In order to perform machine maintenance, after stopping the machine and performing lockout/tagout, pressure trapped in the cylinder by the CROSSCHECK™ valve can be released (exhausted) by the two manually-operated 2-way valves that are provided in the CROSSCHECK™ valve sub-base - one each per valve outlet port. This provides a way to slowly lower the cylinder to its lowest position.

NOTE: Operating the manual trapped pressure release valves will cause movement of the cylinder. Use caution to avoid any hazards associated with this movement.



Valve De-energized Trapping Pressure



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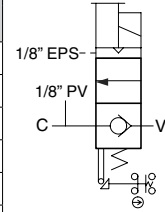
Single Pilot Operated Check Sensing Valves for External Monitoring – Solenoid Pilot Controlled

Load Holding SV27 Series

A

2-Way 2-Position Valves, Normally Closed

Port Size	Body Size	Valve Model Number#		C _v	Weight lb (kg)
		NPT Threads	G Threads		
1/2	3/4	SV27NC115408CSAA1D	SV27DC115408CSAA1D	4.5	5.0 (2.3)
3/4	3/4	SV27NC115508CSAA1D	SV27DC115508CSAA1D	8.3	5.0 (2.3)
1	3/4	SV27NC115608CSAA1D	SV27DC115608CSAA1D	10.3	5.0 (2.3)
1	1 1/4	SV27NC117608CSAA1D	SV27DC117608CSAA1D	20	12.5 (5.6)
1 1/4	1 1/4	SV27NC117708CSAA1D	SV27DC117708CSAA1D	29	12.5 (5.6)
1 1/2	1 1/4	SV27NC117808CSAA1D	SV27DC117808CSAA1D	33	12.5 (5.6)



**Cat. 2
PL c**

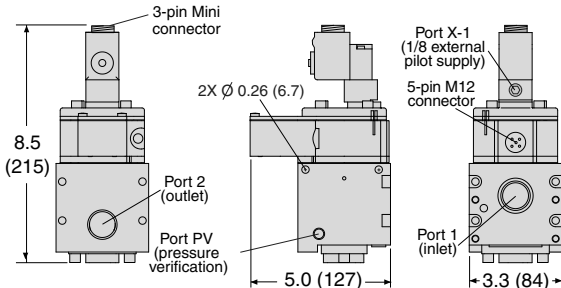


**Body Size
1/4 shown**

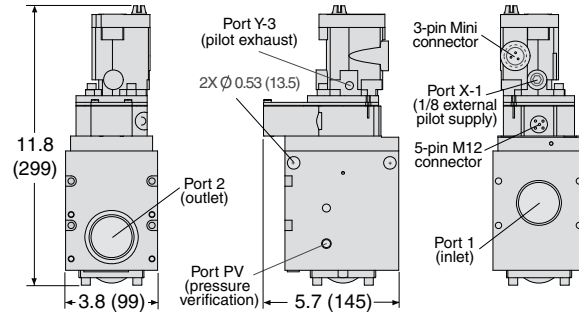
Voltage: 1D= 24 VDC; 1A=110-120 VAC, 50/60 Hz, e.g., SV27NC115408CSAA1A. For other voltages, consult ROSS.

Valve Dimensions – inches (mm)

Body Size 3/4 (CNOMO Style Pilot)



Body Size 1 1/4 (Pacer Style Pilot)



A5

ACCESSORIES & OPTIONS

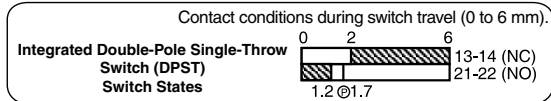
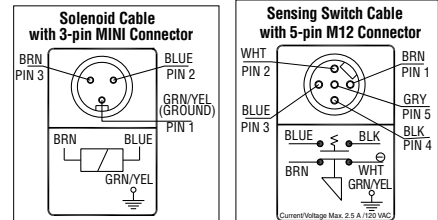
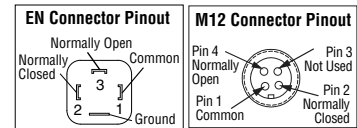
Pressure Switches	Connection Type	Model Number*	Port Threads
	EN 175301-803 Form A	586A86	1/8 NPT
	M12	1153A30	

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).

Indicator Light Kits	Kit Number	
	for Pacer Style Pilot	110-120 volts AC 50-60 Hz
	862K87-W	862K87-Z

Preassembled Wiring Kits			
Kit Number*	Length meters (feet)	Number of Cables	Description
2239H77	4 (13.1)	2	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.
2240H77	10 (32.8)	2	

* Each cable has one connector.



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	40 to 150 psig (2.8 to 10.3 bar)
Mounting Type	In-line	Pilot Supply	- When external pilot supply, pressure must be equal to or greater than inlet pressure.
Solenoids	AC or DC power; Rated for continuous duty	Switch Current/Voltage	Maximum: 2.5 A/120 volts AC Minimum: 50 mA/24 volts DC NOTE: Electrical life of switch varies with conditions and voltage; rated in excess of 15 million cycles.
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Power Consumption	CNOMO Style Pilot: 6 watts on DC; 11 VA inrush, 8.5 VA holding on 50 or 60 Hz Pacer Style Pilot: 14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Manual Override	Pacer Style Pilot: Flush; rubber, non-locking
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)	Safety Integrity Level (SIL) - Category 2, PL d; B ₁₀₀ : Valve - 20,000,000, Switch - 2,000,000; PFH _D : 2.35x10 ⁻⁷ ; MTTFD _D : 98.15 (λ _{top} : 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
Flow Media	Filtered air		
Pilot Supply	Internal or External		

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



Dual Pilot Operated Check Sensing Valves for External Monitoring – Solenoid Pilot Controlled

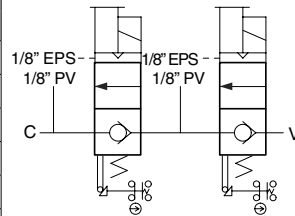
Load Holding SV27 Series

Cat. 3
PL e

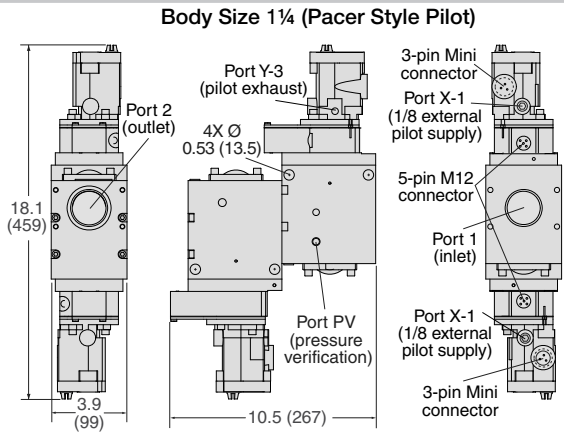
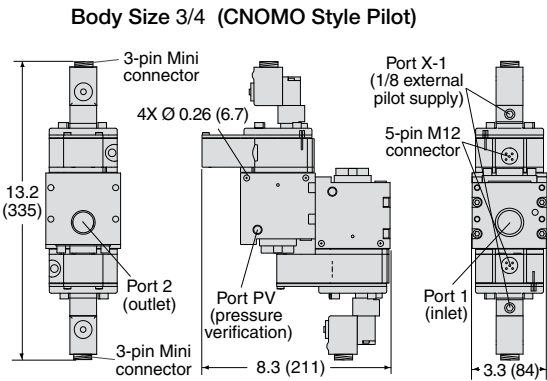
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2-Way 2-Position Redundant Normally Closed					
Port Size 1, 2	Body Size	Valve Model Number#		C _v 1-2	Weight lb (kg)
		NPT Threads	G Threads		
1/2	3/4	SV27NC555408CSAA1D	SV27DC555408CSAA1D	3.8	10.0 (4.5)
3/4	3/4	SV27NC555508CSAA1D	SV27DC555508CSAA1D	5.6	10.0 (4.5)
1	3/4	SV27NC555608CSAA1D	SV27DC555608CSAA1D	8	10.0 (4.5)
1	1¼	SV27NC557608CSAA1D	SV27DC557608CSAA1D	12	25.0 (11.3)
1¼	1¼	SV27NC557708CSAA1D	SV27DC557708CSAA1D	19	25.0 (11.3)
1½	1¼	SV27NC557808CSAA1D	SV27DC557808CSAA1D	22	25.0 (11.3)

Voltage: 1D= 24 VDC; 1A=110-120 VAC, 50/60 Hz, e.g., SV27NC555408CSAA1A. For other voltages, consult ROSS.



Valve Dimensions – inches (mm)

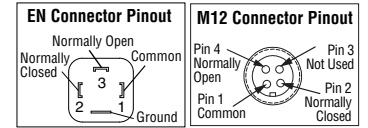


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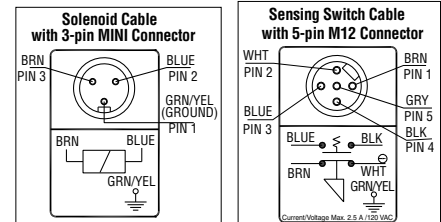
ACCESSORIES & OPTIONS

Pressure Switches	Connection Type	Model Number*	Port Threads
	EN 175301-803 Form A	586A86	1/8 NPT
M12	1153A30		

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).

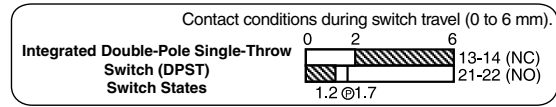


Indicator Light Kits	Kit Number	
	for Pacer Style Pilot	110-120 volts AC 50-60 Hz
	862K87-W	862K87-Z



Preassembled Wiring Kits			
Kit Number*	Length meters (feet)	Number of Cables	Description
2239H77	4 (13.1)	2	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.
2240H77	10 (32.8)	2	

* Each cable has one connector.



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	40 to 150 psig (2.8 to 10.3 bar)
Mounting Type	In-line	Pilot Supply	When external pilot supply, pressure must be equal to or greater than inlet pressure.
Solenoids	AC or DC power; Rated for continuous duty	Switch Current/Voltage	Maximum: 2.5 A/120 volts AC Minimum: 50 mA/24 volts DC NOTE: Electrical life of switch varies with conditions and voltage; rated in excess of 15 million cycles.
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Power Consumption	CNOMO Style Pilot: 6 watts on DC; 11 VA inrush, 8.5 VA holding on 50 or 60 Hz Pacer Style Pilot: 14 watts on DC; 87 VA inrush, 30 VA holding on 50 or 60 Hz	Manual Override	Pacer Style Pilot: Flush; rubber, non-locking
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)	Safety Integrity Level (SIL) - Category 2, PL d; B _{10D} : Valve - 20,000,000, Switch - 2,000,000; PFF _D : 2.35x10 ⁻⁷ ; MTTFF _D : 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
Flow Media	Filtered air		
Pilot Supply	Internal or External		

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



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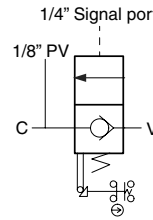
Single Pilot Operated Check Sensing Valves for External Monitoring – Pressure Controlled

Load Holding SV27 Series

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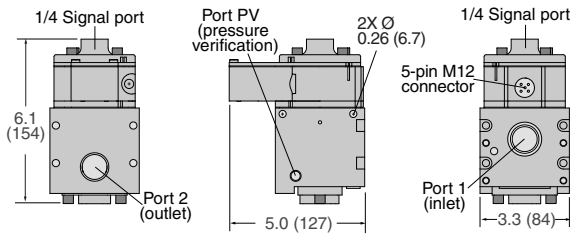
2-Way 2-Position Valves					
Port Size	Body Size	Valve Model Number		C _v	Weight lb (kg)
		NPT Threads	G Threads		
1/2	3/4	SV27NC115405ASAA	SV27DC115405ASAA	4.5	4.0 (1.8)
3/4	3/4	SV27NC115505ASAA	SV27DC115505ASAA	8.3	4.0 (1.8)
1	3/4	SV27NC115605ASAA	SV27DC115605ASAA	10.3	4.0 (1.8)
1	1¼	SV27NC117605ASAA	SV27DC117605ASAA	20	11.0 (5.0)
1¼	1¼	SV27NC117705ASAA	SV27DC117705ASAA	29	11.0 (5.0)
1½	1¼	SV27NC117805ASAA	SV27DC117805ASAA	33	11.0 (5.0)

Cat. 2
PL c

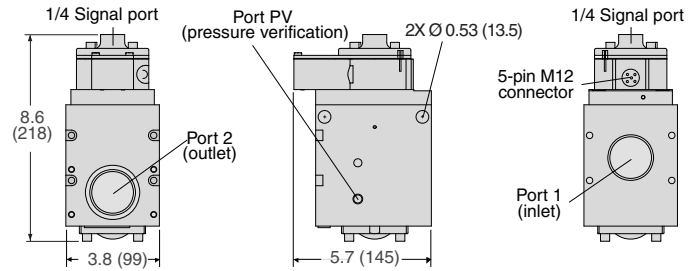


Valve Dimensions – inches (mm)

Body Size 3/4



Body Size 1¼

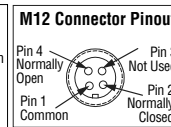
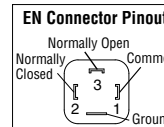


A5

ACCESSORIES & OPTIONS

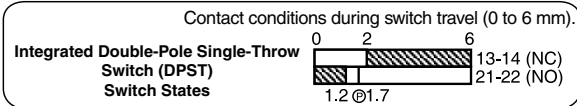
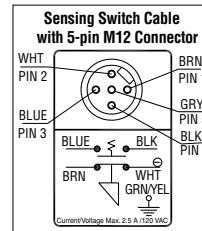
Pressure Switches	Connection Type	Model Number*	Port Threads
	EN 175301-803 Form A	586A86	1/8 NPT
	M12	1153A30	

*Pressure switch closes on falling pressure of 5 psig (0.34 bar).



Preassembled Wiring Kits			
Kit Number*	Length meters (feet)	Number of Cables	Description
2241H77	5 (16.4)	1	The wiring kits include one cable with a 5-pin M12 connector for the sensing switch, and a cord grip.
2242H77	10 (32.8)	1	

* Each cable has one connector.



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Switch Current/Voltage	Maximum: 2.5 A/120 volts AC Minimum: 50 mA/24 volts DC
Mounting Type	In-line	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)	Safety Integrity Level (SIL) - Category 2, PL d; B _{10D} : Valve - 20,000,000, Switch - 2,000,000; PFH ₀ : 2.35x10 ⁻⁷ ; MTTF ₀ : 98.15 (n _{0P} : 7360); DC (obtained by monitoring safety switch status): 99% ; ROSS recommends testing the switch function and sealing for load holding valves every 8 hours	
Flow Media	Filtered air	Vibration/Impact Resistance: Calculated to BS EN 60068-2-27	
Pilot Supply	External		
Operating Pressure	40 to 150 psig (2.8 to 10.3 bar) <i>Pilot supply pressure must be equal to or greater than inlet pressure.</i>		

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

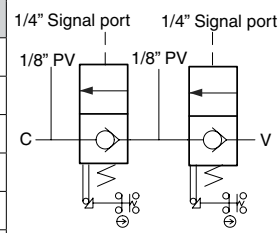
Dual Pilot Operated Check Sensing Valves for External Monitoring – Pressure Controlled

Load Holding SV27 Series

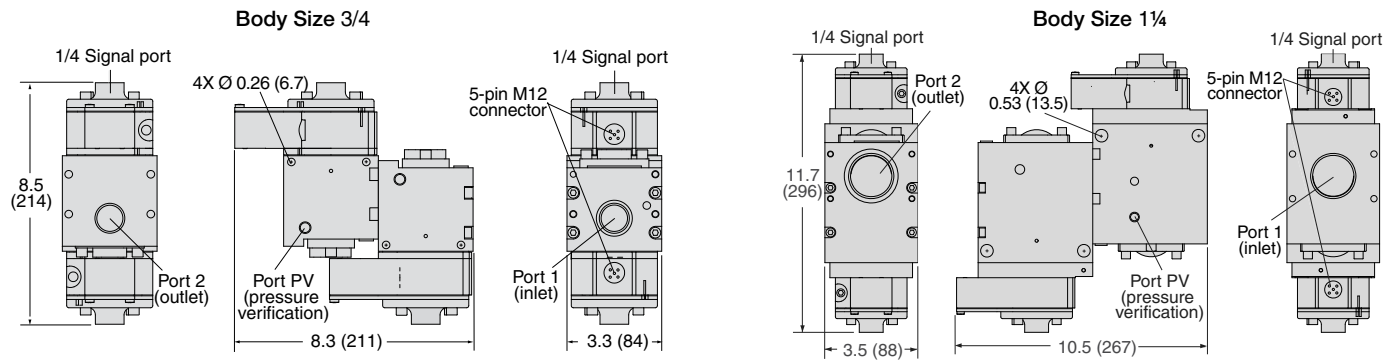
2-Way 2-Position Valves					
Port Size	Body Size	Valve Model Number		C _v	Weight lb (kg)
		NPT Threads	G Threads		
1/2	3/4	SV27NC555405ASAA	SV27DC555405ASAA	3.8	9.0 (4.1)
3/4	3/4	SV27NC555505ASAA	SV27DC555505ASAA	5.6	9.0 (4.1)
1	3/4	SV27NC555605ASAA	SV27DC555605ASAA	8	9.0 (4.1)
1	1¼	SV27NC557605ASAA	SV27DC557605ASAA	12	22.0 (10.0)
1¼	1¼	SV27NC557705ASAA	SV27DC557705ASAA	19	22.0 (10.0)
1½	1¼	SV27NC557805ASAA	SV27DC557805ASAA	22	22.0 (10.0)

Cat. 3
PL e

A



Valve Dimensions – inches (mm)

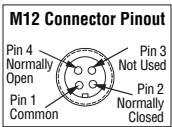
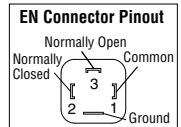


A5

ACCESSORIES & OPTIONS

Pressure Switches	Connection Type	Model Number*	Port Threads
	EN 175301-803 Form A	586A86	1/8 NPT
	M12	1153A30	

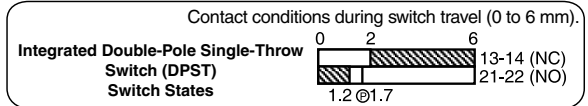
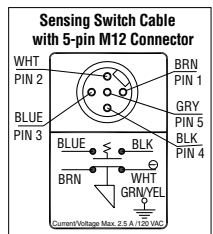
*Pressure switch closes on falling pressure of 5 psig (0.34 bar).



Preassembled Wiring Kits#			
Kit Number*	Length meters (feet)	Number of Cables	Description
2241H77	5 (16.4)	1	The wiring kits include one cable with a 5-pin M12 connector for the sensing switch, and a cord grip.
2242H77	10 (32.8)	1	

* Each cable has one connector.

SV27 Redundant PO Check valves (CAT 3), requires 2 kits.



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Switch Current/Voltage	Maximum: 2.5 A/120 volts AC Minimum: 50 mA/24 volts DC
Mounting Type	In-line	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 175°F (4° to 80°C)	Safety Integrity Level (SIL) - Category 2, PL d; B _{10D} : Valve - 20,000,000, Switch - 2,000,000; PFH _D : 2.35x10 ⁻⁷ ; MTTFD _D : 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	
Flow Media	Filtered air		
Pilot Supply	External		
Operating Pressure	40 to 150 psig (2.8 to 10.3 bar) Pilot supply 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.



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A5.9

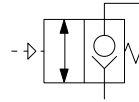
Pilot Operated Check Valves Right-Angle with Threaded Banjo

Cylinder Position Holding 19 Series

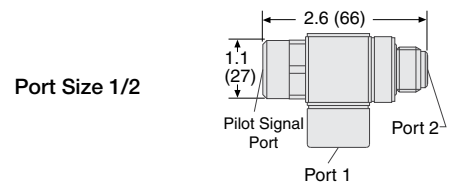
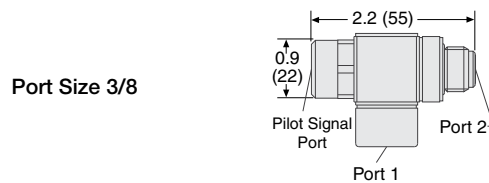
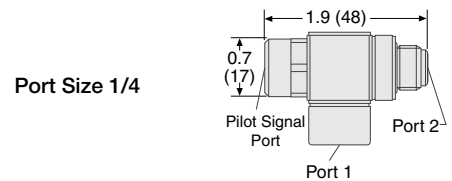
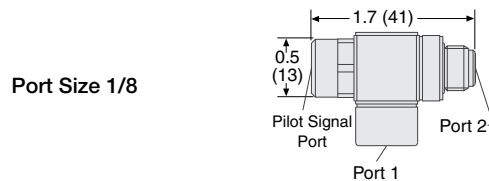
A

Models with Threaded Banjo							
Port Size		Port Threads	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	NPT	1958A1010	10-32 UNF	0.4	0.4	22.13 (30)
1/4	1/4	NPT	1958A2010	10-32 UNF	0.8	0.7	14.75 (20)
3/8	3/8	NPT	1958A3010	10-32 UNF	1.2	1.3	22.13 (30)
1/2	1/2	NPT	1958A4010	10-32 UNF	2.3	2.2	29.50 (40)
1/8	1/8	G	D1958A1010	M5	0.4	0.4	7.38 (10)
1/4	1/4	G	D1958A2010	M5	0.8	0.7	8.85 (12)
3/8	3/8	G	D1958A3010	M5	1.2	1.3	14.75 (20)
1/2	1/2	G	D1958A4010	M5	2.3	2.2	22.13 (30)

**Cat. 1
PL b**

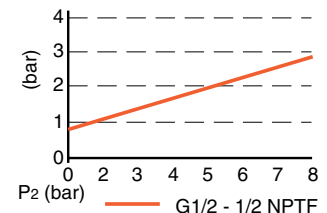
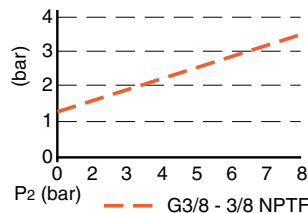
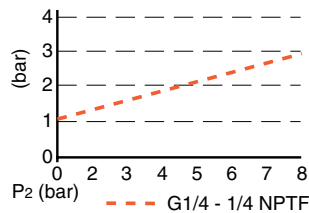
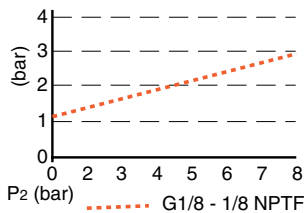


Valve Dimensions – inches (mm)



A5

Signal Pressure: The charts below show the minimum signal pilot port pressure to open the valve versus port 2 pressure (P₂) when there is no pressure at port 1 (P₁ = 0 bar).



ACCESSORIES & OPTIONS

Manual Override	Manual Trapped Pressure Relief Adapter			
	Port 1 (male threads)	Port 2	Port Threads	Model Number*
	10/32	5/32 tubing – Manual Operated Check	NPT	1998A1015
	M5	M5 Manual Operated Check	G	D1998A1010

* Adapter threads into the signal port.



Valve Illustrated with **Optional Manual Trapped Pressure Relief Adapter**

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	5 to 150 psig (0.3 to 10 bar)
Mounting Type	In-line	Construction Material	Valve Body: Nickel Plated Brass and Anodized Aluminum Seals: Buna-N
Temperature	Ambient/Media: 15° to 160°F (-10° to 70°C)		
Flow Media	Filtered air		

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

Pilot Operated Check Valves Right-Angle with Push-to-Connect Fitting

Cylinder Position Holding 19 Series

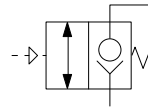
Models with Push-to-Connect Fitting						
Port Size		Valve Model Number	Port 12	C _v		Tightening Torque Max. Ft-lb (Nm)
Port 1* (tube fittings)	Port 2 (male threads)			1-2	2-1	
5/32"	1/8 NPT	1958A1115	10-32 UNF	0.4	0.4	11.06 (15)
1/4"	1/8 NPT	1958A1120	10-32 UNF	0.4	0.4	11.06 (15)
1/4"	1/4 NPT	1958A2120	10-32 UNF	0.8	0.7	14.75 (20)
3/8"	1/4 NPT	1958A2130	10-32 UNF	0.8	0.7	14.75 (20)
3/8"	3/8 NPT	1958A3130	10-32 UNF	1.2	1.3	22.13 (30)
4 mm	1/8 G	D1958A1140	M5	0.4	0.4	7.38 (10)
6 mm	1/8 G	D1958A1160	M5	0.4	0.4	7.38 (10)
8 mm	1/8 G	D1958A1180	M5	0.4	0.4	7.38 (10)
6 mm	1/4 G	D1958A2160	M5	0.8	0.7	8.85 (12)
8 mm	1/4 G	D1958A2180	M5	0.8	0.7	8.85 (12)
10 mm	1/4 G	---	M5	0.8	0.7	8.85 (12)
8 mm	3/8 G	---	M5	1.2	1.3	14.75 (20)
10 mm	3/8 G	D1958A3110	M5	1.2	1.3	14.75 (20)

Port 1 tubing size in inches (") or millimeters (mm).

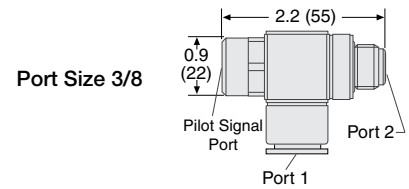
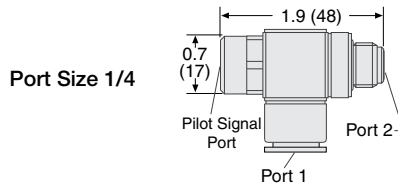
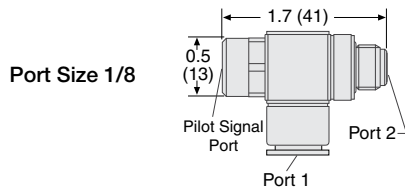
Cat. 1
PL b



A

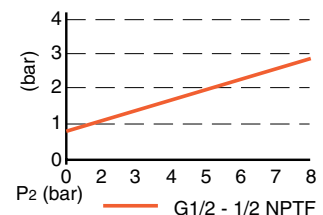
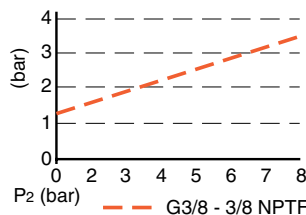
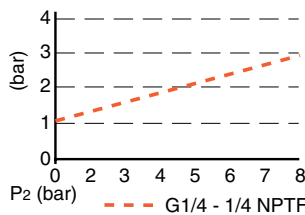
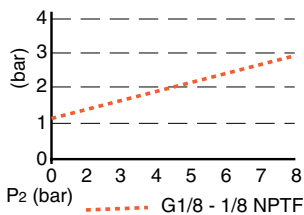


Valve Dimensions – inches (mm)



A5

Signal Pressure: The charts below show the minimum signal pilot port pressure to open the valve versus port 2 pressure (P₂) when there is no pressure at port 1 (P₁ = 0 bar).



OPTIONS

Manual Override	Manual Trapped Pressure Relief Adapter			
	Port 1 (male threads)	Port 2	Port Threads	Model Number*
	10/32	5/32 tubing – Manual Operated Check	NPT	1998A1015
M5	M5 Manual Operated Check	G	D1998A1010	

* Adapter threads into the signal port.



Valve Illustrated with **Optional Manual Trapped Pressure Relief Adapter**

STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	5 to 150 psig (0.3 to 10 bar)
Mounting Type	In-line	Construction Material	Valve Body: Nickel Plated Brass and Anodized Aluminum Seals: Buna-N
Temperature	Ambient/Media: 15° to 160°F (-10° to 70°C)		
Flow Media	Filtered air		

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



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Single Pilot Operated Check Valves without Trapped Pressure Relief

Load Holding
27 Series

A

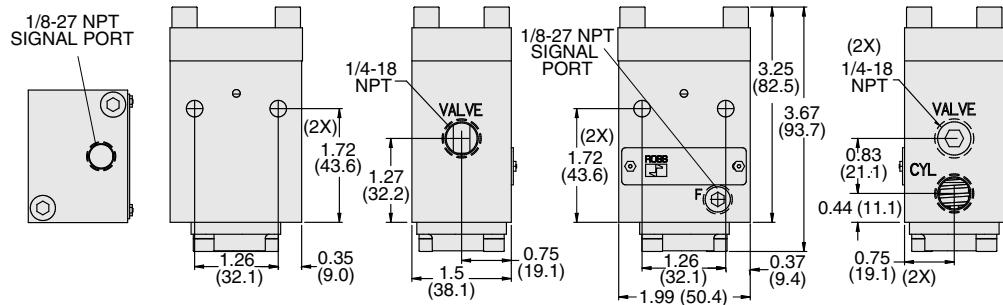
2-Way 2-Position, Pressure Controlled					
Ports Size	Valve Model Number		Signal Port	C _v	Weight lb (kg)
	NPT Threads	G Threads			
1/4	2751A2908	D2751A2908	1/8-27 NPT	2.2	2.3 (1.0)
3/8	2751A3908	D2751A3908	1/8-27 NPT	2.9	2.3 (1.0)
1/2	2751A4915	D2751A4915	1/8-27 NPT	3.2	2.3 (1.0)

Cat. 1
PL b

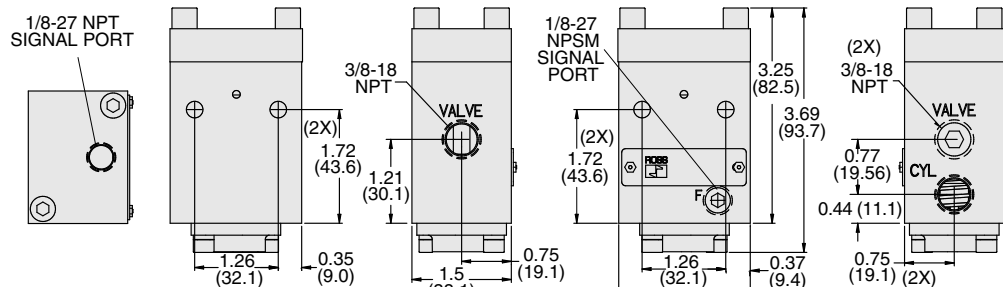


Valve Dimensions – inches (mm)

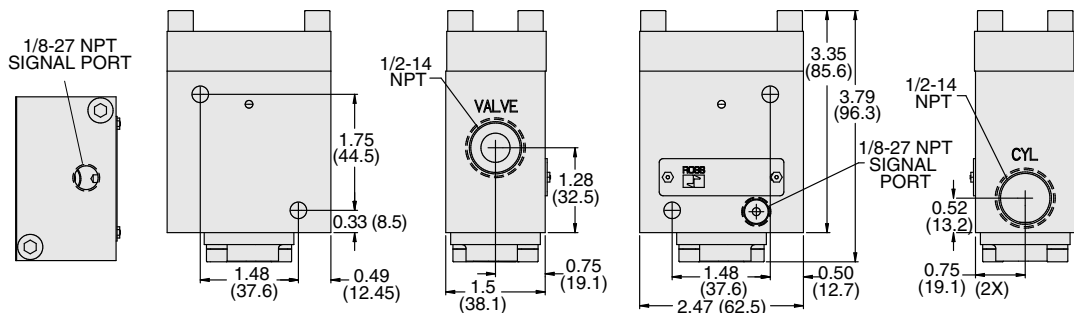
Port Size 1/4



Port Size 3/8



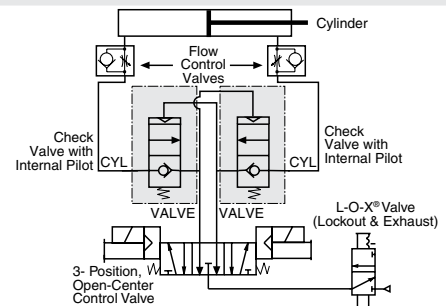
Port Size 1/2



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 Design	Poppet	Operating Pressure	15 to 150 psig (1 to 10.3 bar)
Mounting Type	In-line	Signal Pressure	Must be equal to or greater than inlet pressure
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Flow Media	Filtered air		
Pilot Supply	External		

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

Single Pilot Operated Check Valves without Trapped Pressure Relief

Load Holding
27 Series

2-Way 2-Position, Pressure Controlled						
Ports Size	Body Size	Valve Model Number		Signal Port	C _v	Weight lb (kg)
		NPT Threads	G Threads			
1/4	3/8	2751A2903	D2751A2903	1/4	2.3	1.3 (0.6)
3/8	3/8	2751A3901	D2751A3901	1/4	3.8	1.3 (0.6)
1/2	3/8	2751A4902	D2751A4902	1/4	4	1.3 (0.6)
1/2	3/4	2751A4905	D2751A4905	1/4	7.7	2.3 (1.0)
3/4	3/4	2751A5903	D2751A5903	1/4	9	2.3 (1.0)
1	3/4	2751A6901	D2751A6901	1/4	9	2.3 (1.0)
1	1 1/4	2751B6904	D2751B6904	1/4	24	6.0 (2.7)
1 1/4	1 1/4	2751B7901	D2751B7901	1/4	29	6.0 (2.7)
1 1/2	1 1/4	2751B8902	D2751B8902	1/4	29	6.0 (2.7)

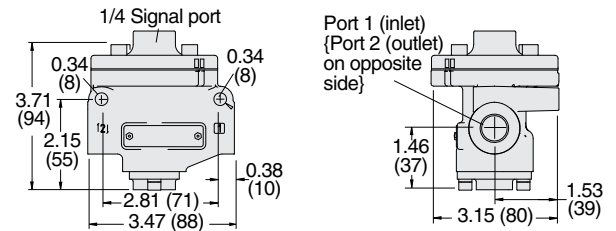
Cat. 1
PL b



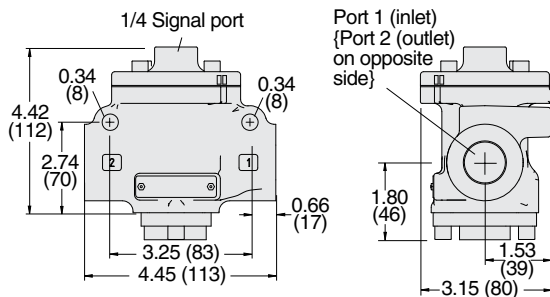
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Valve Dimensions – inches (mm)

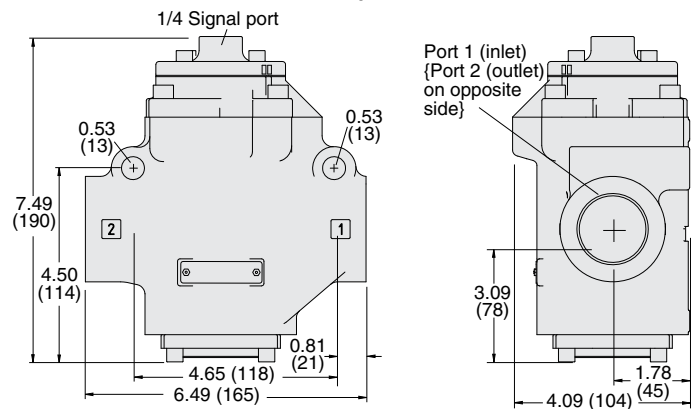
Body Size 3/8



Body Size 3/4



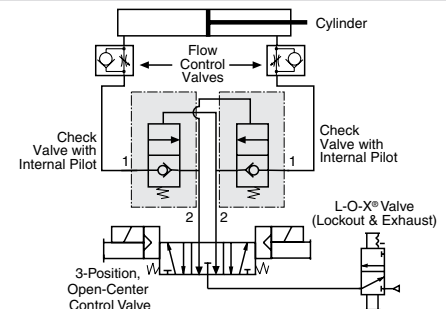
Body Size 1 1/2



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 Design	Poppet	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Mounting Type	In-line	Safety Integrity Level (SIL) - Certified by TÜV Rheinland in accordance with IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT ≥ 1, for details see certificate.	
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)		
Flow Media	Filtered air		
Pilot Supply	External		
Operating Pressure	15 to 150 psig (1 to 10.3 bar) 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.



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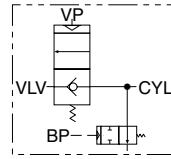
A5

Single Pilot Operated Check Valves with Remote Trapped Pressure Relief

Load Holding
27 Series

A

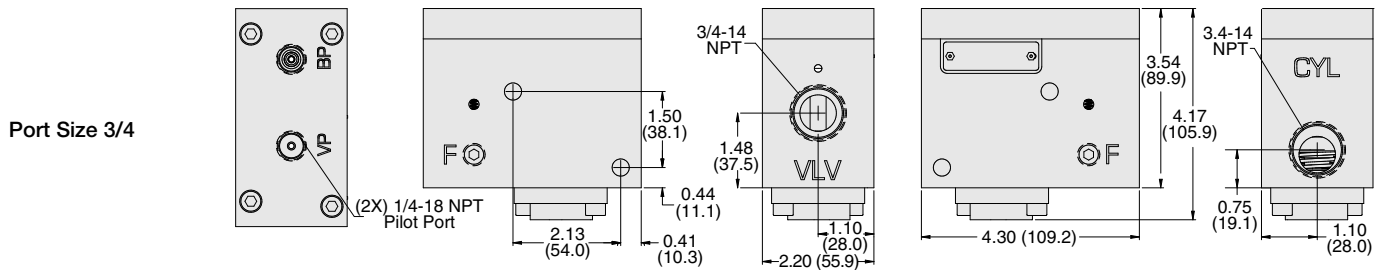
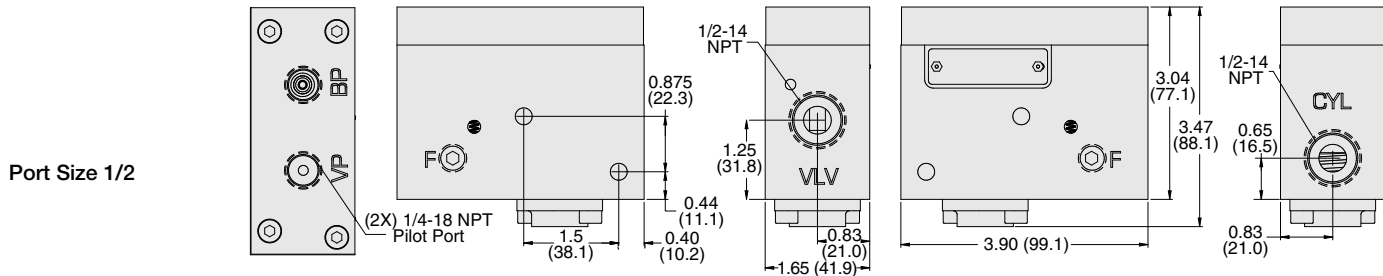
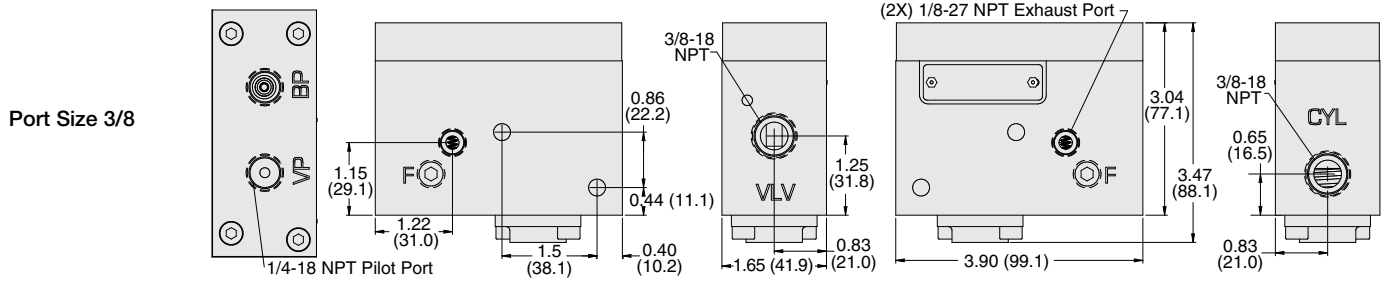
2-Way 2-Position, Pressure Controlled					
Ports Size	Valve Model Number		Signal Port	C _v	Weight lb (kg)
	NPT Threads	G Threads			
3/8	2751A3922	D2751A3922	1/8-27 NPT	2.6	1.8 (0.8)
1/2	2751A4922	D2751A4922	1/8-27 NPT	2.8	1.8 (0.8)
3/4	2751A5917	D2751A5917	1/8-27 NPT	9.2	2.9 (3.1)



Cat. 1
PL b



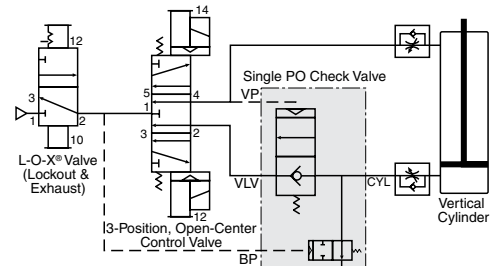
Valve Dimensions – inches (mm)



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.

Single Pilot Operated Check Valve with Trapped Pressure Relief Application



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Operating Pressure	15 to 150 psig (1 to 10.3 bar)
Mounting Type	In-line	Signal Pressure:	Must be equal to or greater than inlet pressure
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Flow Media	Filtered air		
Pilot Supply	External		

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



Single Pilot Operated Check Valves with Manual Trapped Pressure Relief

Load Holding 27 Series

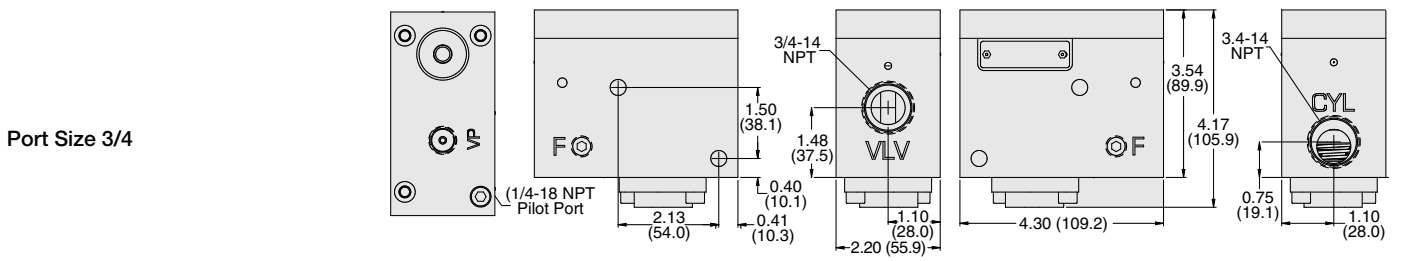
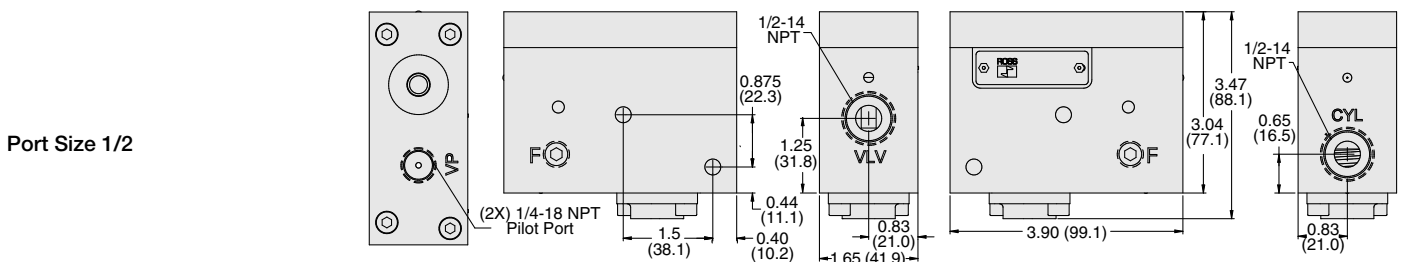
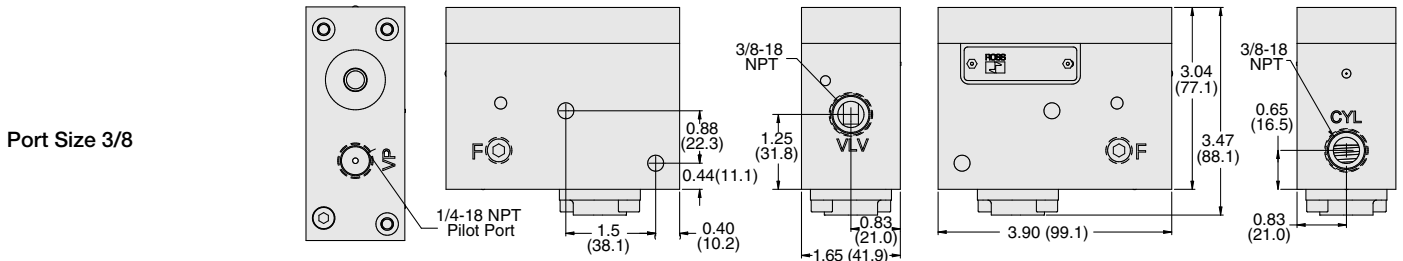
2-Way 2-Position, Pressure Controlled				
Ports Size	Valve Model Number		C _v	Weight lb (kg)
	NPT Threads	G Threads		
3/8	2751A3920	D2751A3920	2.6	1.8 (0.8)
1/2	2751A4920	D2751A4920	2.8	1.8 (0.8)
3/4	2751A5919	D2751A5919	9.2	2.9 (3.1)

Cat. 1
PL b



A

Valve Dimensions – inches (mm)

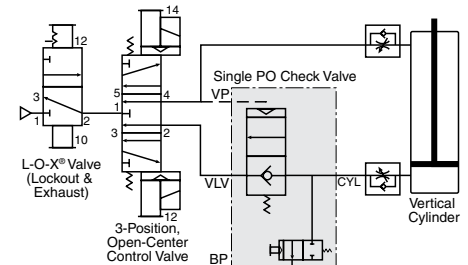


A5

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 Design	Poppet	Operating Pressure	15 to 150 psig (1 to 10.3 bar)
Mounting Type	In-line	Signal Pressure	Must be equal to or greater than inlet pressure
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Flow Media	Filtered air		
Pilot Supply	External		

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



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Dual Pilot Operated Check Valves without Trapped Pressure Relief

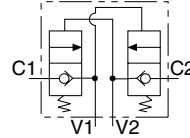
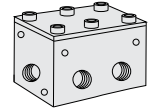
Load Holding
27 Series

A

2-Way 2-Position, Pressure Controlled					
Ports Size	Valve Model Number		Signal Port	C _v	Weight lb (kg)
	NPT Threads	G Threads			
3/8	2768C3900	D2768C3900	1/8-27 NPT	2.9	2.0 (0.9)
1/2	2768C4900	D2768C4900	1/8-27 NPT	3.2	2.4 (1.1)
3/4	2768C5900	D2768C5900	1/8-27 NPT	8.5 #	3.8 (1.7)
1	2768A6900	D2768A6900	1/8-27 NPT	8.5 #	6.8 (3.1)

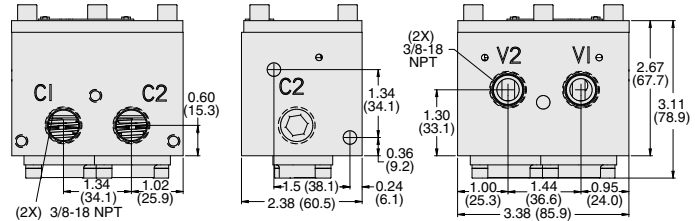
Effective C_v varies with load and pressure drop. Consult ROSS for specifics on your system.

Cat. 1
PL b

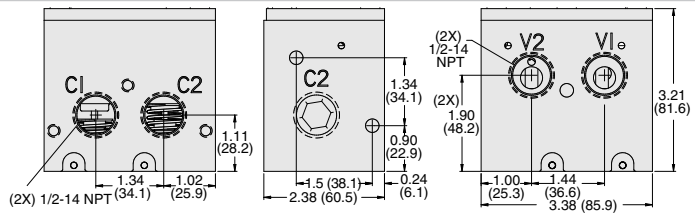


Valve Dimensions – inches (mm)

Port Size 3/8

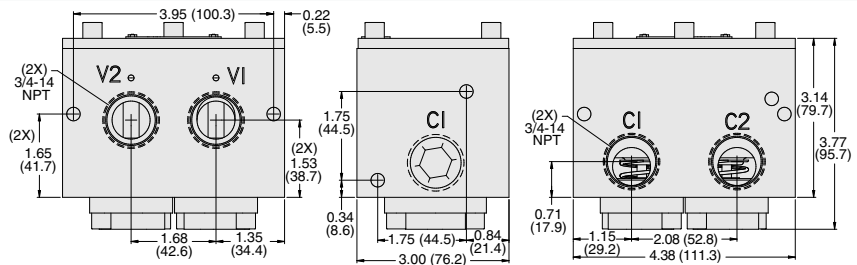


Port Size 1/2

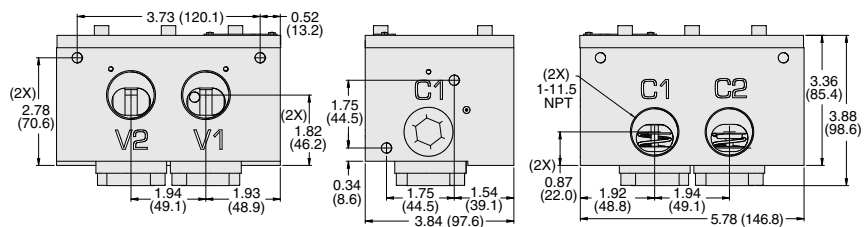


A5

Port Size 3/4



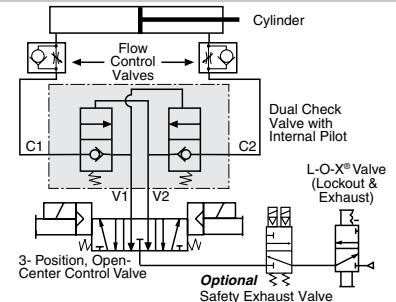
Port Size 1



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 Design	Poppet	Operating Pressure	15 to 150 psig (1 to 10.3 bar)
Mounting Type	In-line	Signal Pressure	Must be equal to or greater than inlet pressure
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Flow Media	Filtered air		
Pilot Supply	External		

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

Dual Pilot Operated Check Valves with Remote Trapped Pressure Relief

Load Holding 27 Series

2-Way 2-Position, Pressure Controlled					
Ports Size	Valve Model Number		Signal Port	C _v	Weight lb (kg)
	NPT Threads	G Threads			
3/8	2768D3901	D2768D3901	1/8-27 NPT	2.9	2.3 (1.1)
1/2	2768D4901	D2768D4901	1/8-27 NPT	3.2	2.3 (1.1)
3/4	2768D5901	D2768D5901	1/8-27 NPT	8.5 #	3.8 (1.7)
1	2768D6901	D2768D6901	1/8-27 NPT	8.5 #	7.4 (3.4)

Effective C_v varies with load and pressure drop. Consult ROSS for specifics on your system.

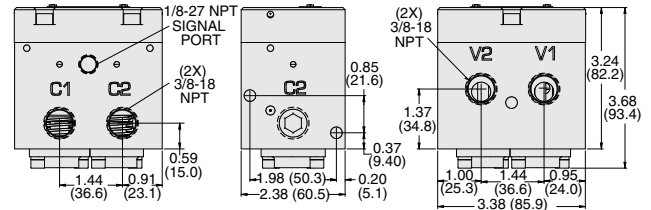
Cat. 1
PL b



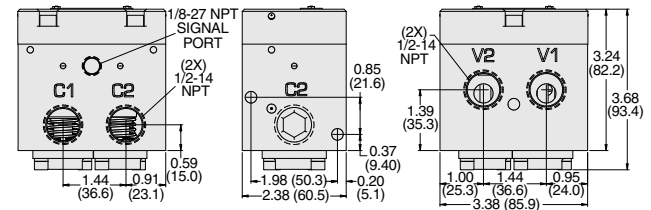
A

Valve Dimensions – inches (mm)

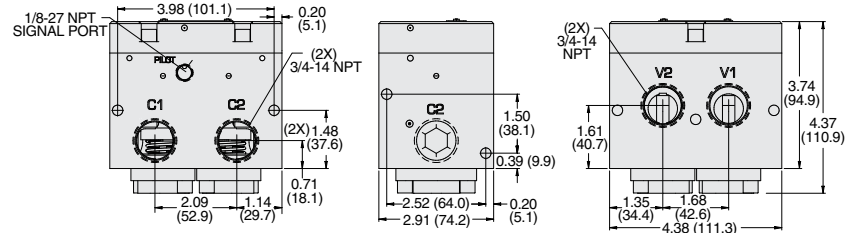
Port Size 3/8



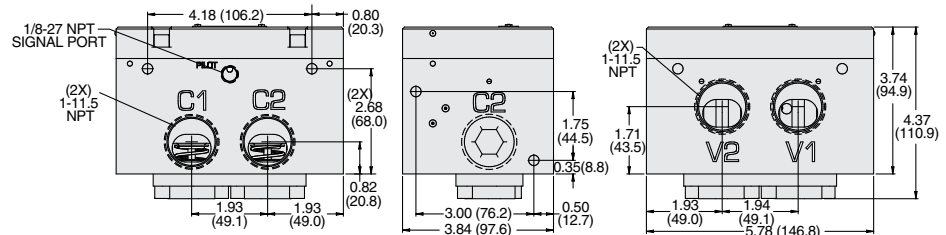
Port Size 1/2



Port Size 3/4



Port Size 1

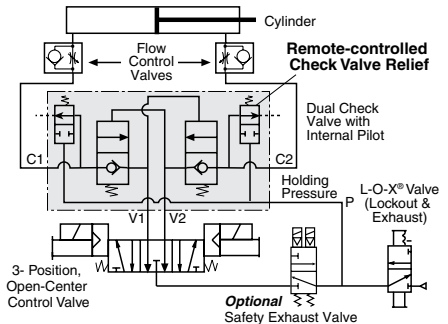


A5

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 Design	Poppet	Operating Pressure	15 to 150 psig (1 to 10.3 bar)
Mounting Type	In-line	Signal Pressure	Must be equal to or greater than inlet pressure
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Construction Material	Valve Body: Cast Aluminum Poppet: Acetal and Stainless Steel Seals: Buna-N
Flow Media	Filtered air		
Pilot Supply	External		

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



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Dual Pilot Operated Check Valves with Manual Trapped Pressure Relief

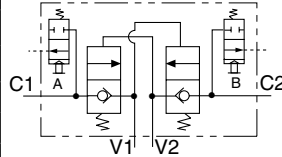
Load Holding
27 Series

A

2-Way 2-Position, Pressure Controlled				
Ports Size	Valve Model Number		C _v	Weight lb (kg)
	NPT Threads	G Threads		
3/8	2768D3904	D2768D3904	2.9	2.3 (1.1)
1/2	2768D4904	D2768D4904	3.2	2.3 (1.1)
3/4	2768D5904	D2768D5904	8.5 #	3.8 (1.7)
1	2768D6904	D2768D6904	8.5 #	6.58 (3.0)

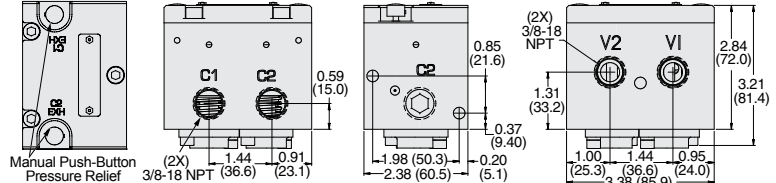
Effective C_v varies with load and pressure drop. Consult ROSS for specifics on your system.

Cat. 1
PL b

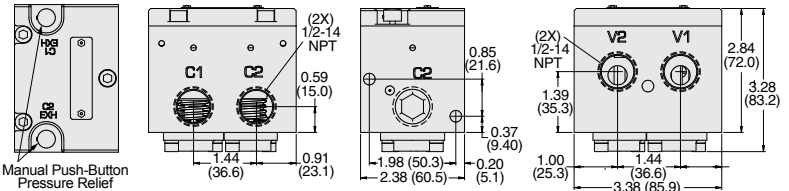


Valve Dimensions – inches (mm)

Port Size 3/8

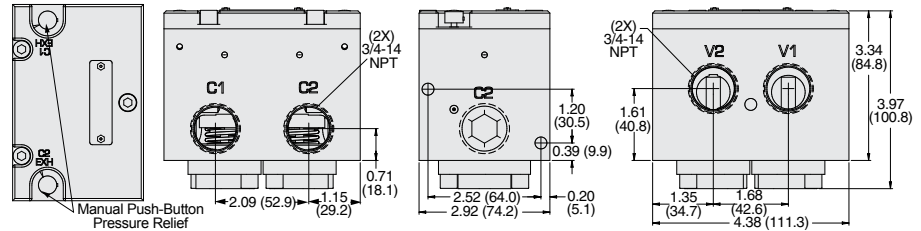


Port Size 1/2

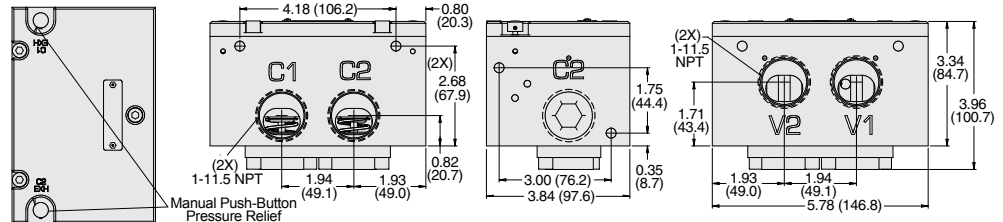


A5

Port Size 3/4



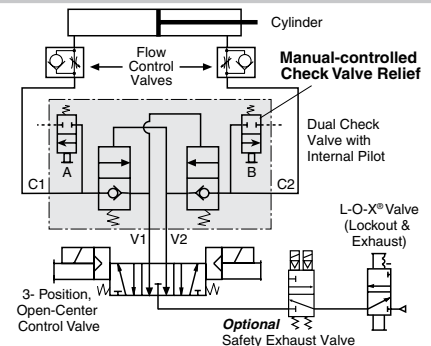
Port Size 1



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 Design	Poppet	Operating Pressure	15 to 150 psig (1 to 10.3 bar)
Mounting Type	In-line	Signal Pressure	Must be equal to or greater than inlet pressure
Temperature	Ambient/Media: 40° to 175°F (4° to 80°C)	Valve Body	Cast Aluminum
Flow Media	Filtered air	Construction Material	Poppet: Acetal and Stainless Steel Seals: Buna-N
Pilot Supply	External		

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

Dual Pilot Operated Check Valves with Remote Trapped Pressure Relief – Solenoid Pilot Controlled

Load Holding
27 Series

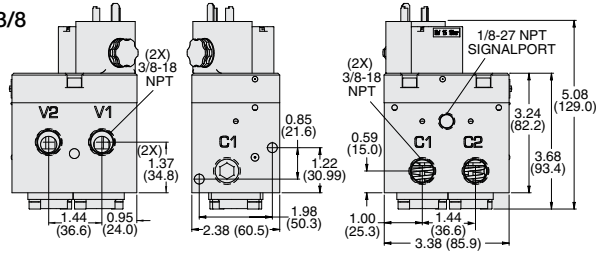
A

2-Way 2-Position, Solenoid Pilot Controlled										
Ports Size	DIN Connector		3-Pin Mini Connector		24 Volts DC 3-Pin Mini		24 Volts DC 4-Pin Micro		Signal Port	C _v
	Valve Model Number#		Valve Model Number#		Valve Model Number		Valve Model Number			
	NPT Threads	G Threads	NPT Threads	G Threads	NPT Threads	G Threads	NPT Threads	G Threads		
3/8	2778D3900W	D2778D3900W	2778D3901W	D2778D3901W	2778D3902	D2778D3902	2778D3904	D2778D3904	1/8-27 NPT	2.9
1/2	2778D4900W	D2778D4900W	2778D4901W	D2778D4901W	2778D4902	D2778D4902	2778D4904	D2778D4904	1/8-27 NPT	3.2
3/4	2778D5900W	D2778D5900W	2778D5901W	D2778D5901W	2778D5902	D2778D5902	2778D5904	D2778D5904	1/8-27 NPT	8.5 #
1	2778D6900W	D2778D6900W	2778D6901W	D2778D6901W	2778D6902	D2778D6902	2778D6904	D2778D6904	1/8-27 NPT	8.5 #

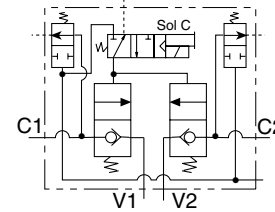
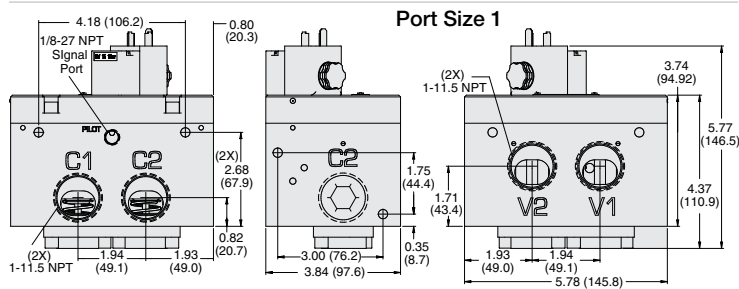
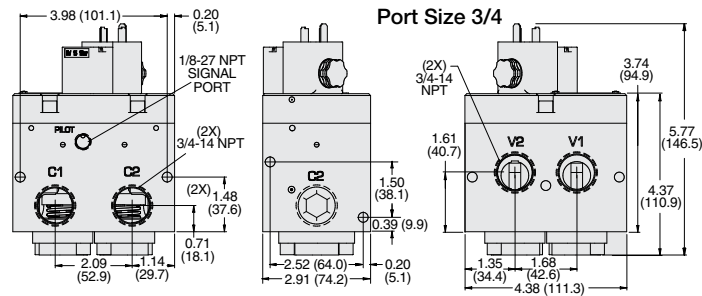
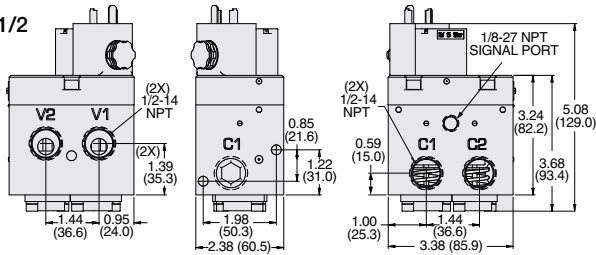
Voltage: W=24 VDC; Z=110-120 VAC, 50/60 Hz, e.g., D2778D3900Z. For other voltages, consult ROSS.
Effective C_v varies with load and pressure drop. Consult ROSS for specifics on your system.

Valve Dimensions – inches (mm)

Port Size 3/8

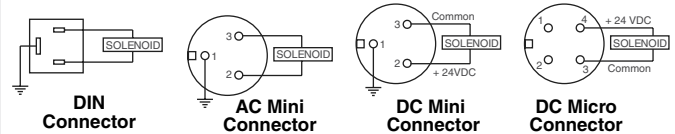


Port Size 1/2



Cat. 1
PL b

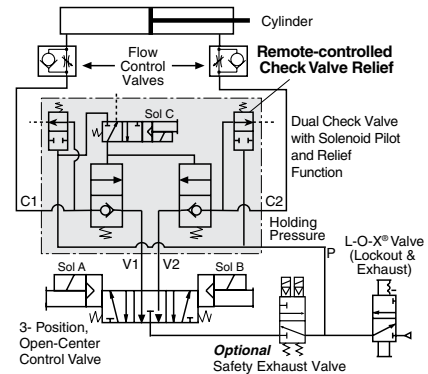
Connector Wiring



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.



STANDARD SPECIFICATIONS (for valves on this page):

Construction Design	Poppet	Flow Media	Filtered air
Mounting Type	In-line	Pilot Supply	Internal or External
Solenoids	AC or DC power; Rated for continuous duty	Operating Pressure	30 to 150 psig (2 to 10.3 bar)
Voltage	24 volts DC; 110-120 volts AC, 50/60 Hz	Construction Material	Pilot Supply - When external pilot supply, pressure must be equal to or greater than inlet pressure.
Power Consumption (each solenoid)	4.5 watts with 4-pin Micro connector, 60 watts with 3-pin connector; 8 VA inrush, 6 VA holding on AC		Valve Body: Cast Aluminum
Temperature	Ambient: 40° to 120°F (4° to 50°C) Media: 40° to 150°F (4° to 80°C)		Poppet: Acetal and Stainless Steel Seals: Buna-N

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



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CAUTIONS, WARNINGS And STANDARD WARRANTY

ROSS OPERATING VALVE, ROSS CONTROLS®, ROSS DECCO®, and AUTOMATIC VALVE INDUSTRIAL, collectively the “ROSS Group”.

PRE-INSTALLATION or SERVICE

1. Before servicing a valve or other pneumatic component, be sure all sources of energy are turned off, the entire pneumatic system is shut down and exhausted, and all power sources are locked out (ref: OSHA 1910.147, EN 1037).
2. All ROSS Group Products, including service kits and parts, should be installed and/or serviced only by persons having training and experience with pneumatic equipment. Because any product can be tampered with and/or need servicing after installation, persons responsible for the safety of others or the care of equipment must check ROSS Group Products on a regular basis and perform all necessary maintenance to ensure safe operating conditions.
3. All applicable instructions should be read and complied with before using any fluid power system 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 Group location.
4. Each ROSS Group Product should be used within its specification limits. In addition, use only ROSS Group components to repair ROSS Group Products.

WARNINGS: *Failure to follow these instructions can result in personal injury and/or property damage.*

FILTRATION and LUBRICATION

1. 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. The ROSS Group recommends a filter with a 5-micron rating for normal applications.
2. All standard ROSS Group filters and lubricators with polycarbonate plastic bowls are designed for compressed air applications only. 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 and hazardous leakage. Immediately replace crazed, cracked, or deteriorated bowls.
3. Only use lubricants which are compatible with materials used in the valves and other components in the system. Normally, compatible lubricants are petroleum base 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 personal injury, and/or damage to property.

WARNINGS: *Failure to follow these instructions can result in personal injury and/or property damage.*

AVOID INTAKE/EXHAUST RESTRICTION

1. Do not restrict air flow in the supply line. To do so could reduce the pressure of the supply air below minimum requirements for the valve and thereby causing erratic action.
2. 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.

WARNINGS: *Failure to follow these instructions can result in personal injury and/or property damage.*

SAFETY APPLICATIONS

1. 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.
2. Safety exhaust (dump) valves without a self-contained monitoring device should be used only in conjunction with a control system which assures monitoring of the valve. All safety exhaust valve installations should incorporate a monitoring system which inhibits further operation of the valve and machine in the event of a failure within the valve mechanism.
3. Per specifications and regulations, the ROSS L-O-X® and L-O-X® with EEZ-ON®, N06 and N16 Series operation products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

WARNINGS: *Failure to follow these instructions can result in personal injury and/or property damage.*

STANDARD WARRANTY

All products sold by the ROSS Group are warranted for a one-year period [with the exception of Filters, Regulators and Lubricators (“FRLs”) which are warranted for a period of seven (7) years] from the date of purchase. All products are, during their respective warranty periods, warranted to be free of defects in material and workmanship. The ROSS Group’s obligation under this warranty is limited to repair, replacement or refund of the purchase price paid for products which the ROSS Group has determined, in its sole discretion, are defective. All warranties become void if a product has been subject to misuse, misapplication, improper maintenance, modification or tampering. Products for which warranty protection is sought must be returned to the ROSS Group freight prepaid.

THE WARRANTY EXPRESSED ABOVE IS IN LIEU OF AND EXCLUSIVE OF ALL OTHER WARRANTIES AND THE ROSS GROUP EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES EITHER EXPRESSED OR IMPLIED WITH RESPECT TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THE ROSS GROUP MAKES NO WARRANTY WITH RESPECT TO ITS PRODUCTS MEETING THE PROVISIONS OF ANY GOVERNMENTAL OCCUPATIONAL SAFETY AND/OR HEALTH LAWS OR REGULATIONS. IN NO EVENT IS THE ROSS GROUP LIABLE TO PURCHASER, USER, THEIR EMPLOYEES OR OTHERS FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES WHICH MAY RESULT FROM A BREACH OF THE WARRANTY DESCRIBED ABOVE OR THE USE OR MISUSE OF THE PRODUCTS. NO STATEMENT OF ANY REPRESENTATIVE OR EMPLOYEE OF THE ROSS GROUP MAY EXTEND THE LIABILITY OF THE ROSS GROUP AS SET FORTH HEREIN.





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There are ROSS Distributors Throughout the World

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Other literature is available for engineering, maintenance, and service requirements.

If you need products or specifications not shown in this catalog, please visit ROSS' website, contact ROSS or your ROSS distributor. The ROSS Support Team 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' at rosscontrols.com.