

HBS-28 to HBS-70

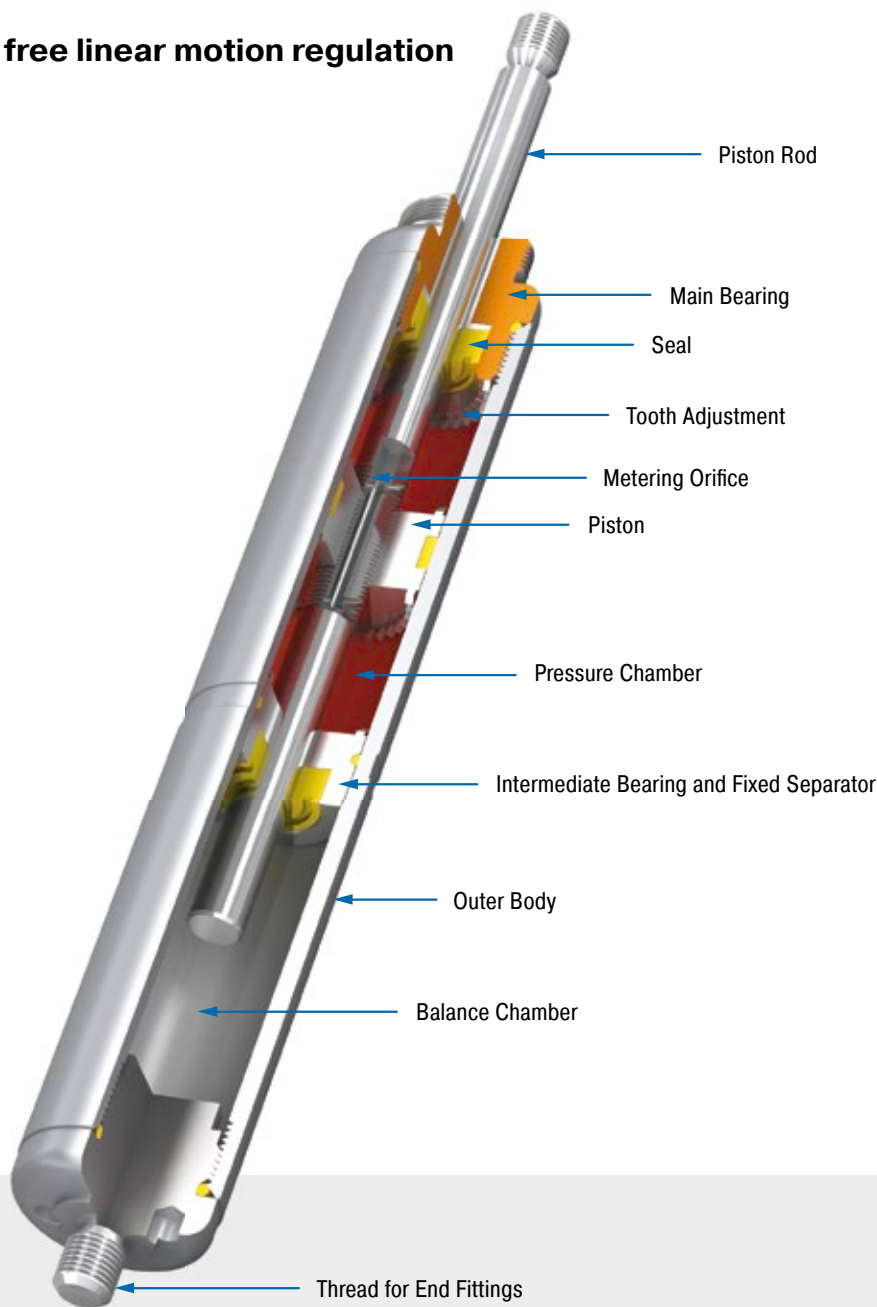
Hydraulic Dampers

Direction change backlash free linear motion regulation

Damping either in one or both directions: The HBS models of hydraulic dampers are made in a slim gas spring design and are compact and high in performance. Maintenance-free and ready-to-install they allow precise setting of retraction and extension speeds without any free travel when changing direction.

These hydraulic dampers offer constant feeding rates and can be finely tuned via the screw adjustment. A control segment on the piston makes the adjustment at the end position child's play. Thanks to many add-on components the assembly is easy to mount, so that the damper can be universally deployed for damping back and forth swinging masses, such as in power or free conveyors.

In addition to the automotive sector, the application areas are industrial applications, classic mechanical engineering, the electronics and furniture industry and medical technology.



Technical Data

Compression and extension force:

30 N to 40,000 N

Outer body diameter: Ø 28 mm to Ø 70 mm

Piston rod diameter: Ø 8 mm to Ø 30 mm

Lifetime: Approx. 10,000 m

Operating temperature range: -20 °C to +80 °C

Adjustment: Achieved by turning the piston rod in its fully extended or compressed position.

Positive stop: External positive stops 1 mm to 6 mm before the end of stroke provided by the customer.

Damping medium: Hydraulic oil

Material: Outer body: Zinc plated or coated steel; Piston rod: Hard chrome plated steel; End fittings: Zinc plated steel

Mounting: In any position

Application field: Oscillation insulation, Chairlift impact control, Fairground rides, Cylinder speed controls

Note: Increased break-away force if unit has not moved for some time.

End fittings: They are interchangeable and must be positively secured by the customer to prevent unscrewing.

Safety instructions: For long strokes with high forces use swivel mounting block MBS.

On request: Special oils and other special options. Alternative accessories available on request.

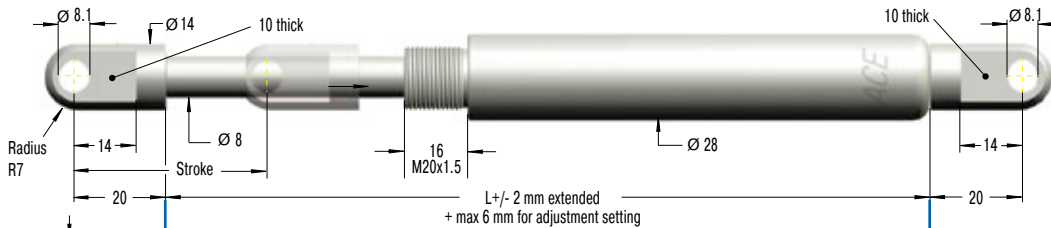
Adjustable, Without Free Travel, Compression and extension force 30 N to 3,000 N

End Fitting

Standard Dimensions

End Fitting

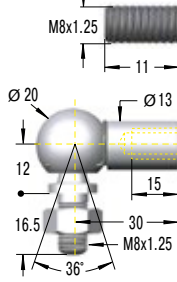
A8



Eye A8
max. force
3,000 N

B8

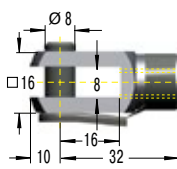
C8



Stud Thread B8

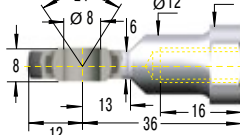
Angle Ball Joint C8
max. force 1,200 N

D8



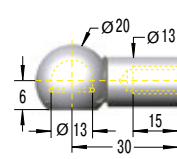
Clevis Fork D8
max. force 3,000 N

E8



Swivel Eye E8
max. force 3,000 N

G8



Ball Socket G8
max. force 1,200 N

Rod Shroud
no retrofit
Ø 32, L = Stroke + 50

Performance and Dimensions

TYPES	Stroke mm	L extended mm	¹ Compression Force max. N	¹ Compression Force with MBS max. N
HBS-28-50	50	295	3,000	3,000
HBS-28-100	100	445	1,550	3,000
HBS-28-150	150	595	900	3,000
HBS-28-200	200	745	600	3,000
HBS-28-250	250	895	440	3,000
HBS-28-300	300	1,045	330	3,000
HBS-28-350	350	1,195	260	2,500
HBS-28-400	400	1,345	200	2,000

¹ Max. extension force for all stroke lengths 3,000 N.

Ordering Example

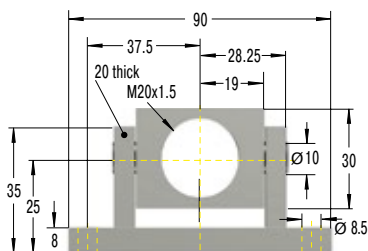
Type (Hydraulic Damper) _____
 Body Ø (28 mm) _____
 Stroke (150 mm) _____
 Piston Rod End Fitting D8 _____
 Body End Fitting D8 _____
 Damping Direction (M = out stroke only) _____

HBS-28-150-DD-M

Model Type Prefix

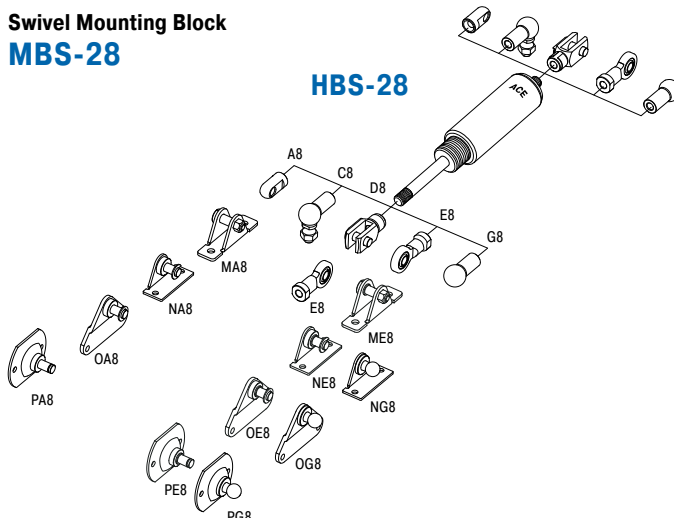
P: Damping in both directions
 N: Damping on in stroke only
 M: Damping on out stroke only
 X: Special model suffix

Mounting accessories see from
page 194.



Swivel Mounting Block MBS-28

HBS-28



Compression and extension force: 30 N to 3,000 N

Operating temperature range: -20 °C to +80 °C

Adjustment: Achieved by turning the piston rod in its fully extended or fully compressed position.

Clockwise rotation = increase of the damping

Anti-clockwise rotation = decrease of the damping

Damping force adjustable before installation. The adjustment can add a max. of 6 mm to the L dimension.

Positive stop: External positive stops 1 mm to 1.5 mm before the end of stroke provided by the customer.

Material: Outer body: Zinc plated or coated steel; Piston rod: Hard chrome plated steel; End fittings: Zinc plated steel

Mounting: In any position

Note: Increased break-away force if unit has not moved for some time.

End fittings: They are interchangeable and must be positively secured by the customer to prevent unscrewing.

Safety instructions: For long strokes with high forces use swivel mounting block MBS.

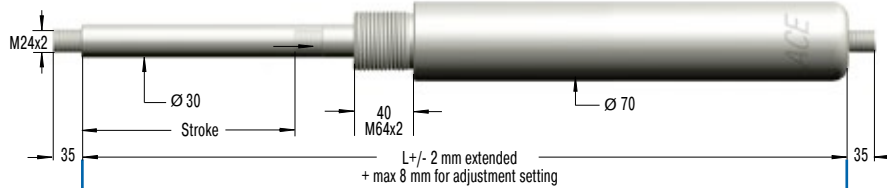
Adjustable, Without Free Travel, Compression and extension force 2,000 N to 40,000 N

End Fitting

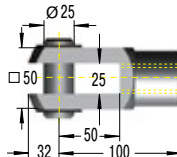
Standard Dimensions

End Fitting

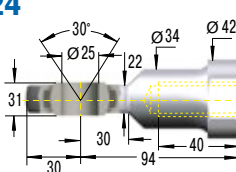
B24


Stud Thread **B24**

D24


Clevis Fork **D24**
max. force 50,000 N

E24


Swivel Eye **E24**
max. force 50,000 N

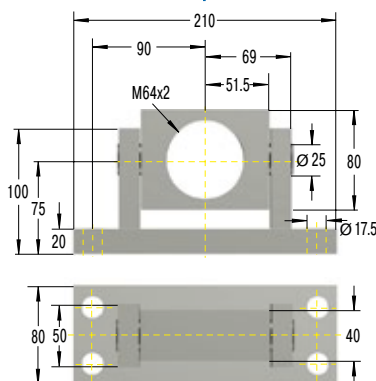
Performance and Dimensions

TYPES	Stroke mm	L extended mm	¹ Compression Force max. N	¹ Compression Force with MBS max. N
HBS-70-100	100	561	40,000	40,000
HBS-70-200	200	861	40,000	40,000
HBS-70-300	300	1,161	40,000	40,000
HBS-70-400	400	1,461	30,300	40,000
HBS-70-500	500	1,761	21,600	40,000
HBS-70-600	600	2,061	16,200	40,000
HBS-70-700	700	2,361	12,600	40,000
HBS-70-800	800	2,661	10,100	40,000

¹ Max. extension force for all stroke lengths 40,000 N.

Ordering Example

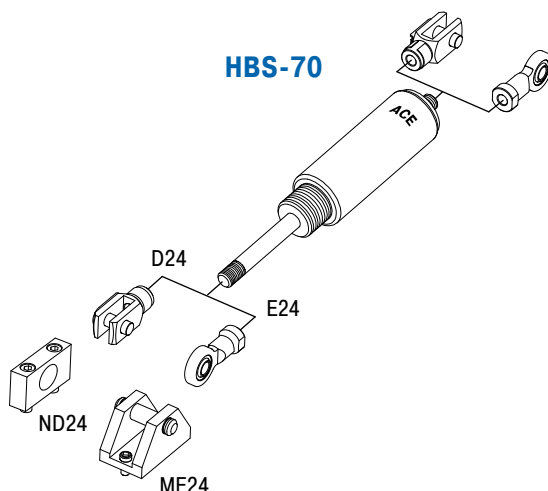
Type (Hydraulic Damper) _____
 Body Ø (70 mm) _____
 Stroke (300 mm) _____
 Piston Rod End Fitting E24 _____
 Body End Fitting E24 _____
 Damping Direction (N = in stroke only) _____

HBS-70-300-EE-N

Swivel Mounting Block
MBS-70

Model Type Prefix

P: Damping in both directions
 N: Damping on in stroke only
 M: Damping on out stroke only
 X: Special model suffix

Mounting accessories see from
page 194.

Rod Shroud **W24-70**
Ø 80, L = Stroke + 130


Technical Data

Compression and extension force: 2,000 N to 40,000 N

Operating temperature range: -20 °C to +80 °C

Adjustment: Achieved by turning the piston rod in its fully extended or fully compressed position.

Clockwise rotation = increase of the damping

Anti-clockwise rotation = decrease of the damping

Damping force adjustable before installation. The adjustment can add a max. of 8 mm to the L dimension.

Positive stop: External positive stops 5 mm to 6 mm before the end of stroke provided by the customer.

Material: Outer body: Zinc plated or coated steel; Piston rod: Hard chrome plated steel; End fittings: Zinc plated steel

Mounting: In any position

Note: Increased break-away force if unit has not moved for some time.

End fittings: They are interchangeable and must be positively secured by the customer to prevent unscrewing.

Safety instructions: For long strokes with high forces use swivel mounting block MBS.

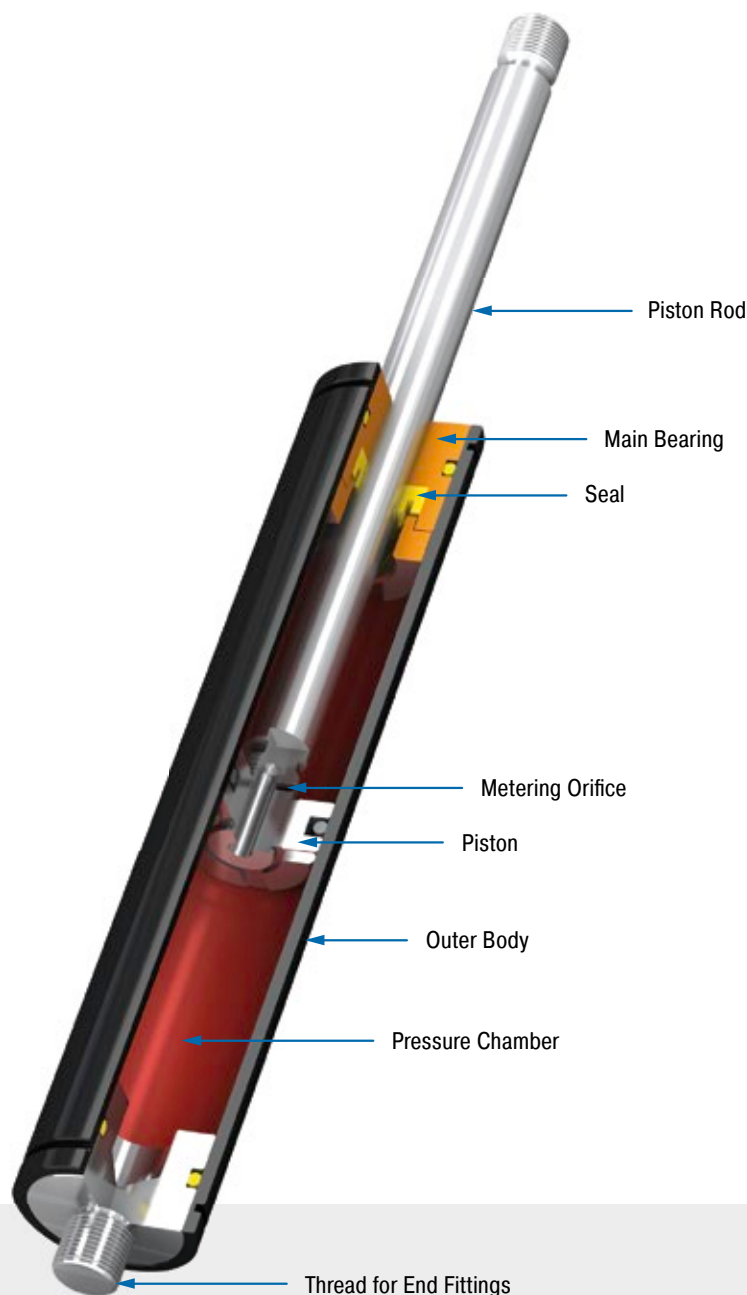
HB-12 to HB-70 Hydraulic Dampers

Linear motion control

High quality and long service life: The HB model of hydraulic damper can also be used as single or double acting brake. Its coated body in a slim gas spring design and the piston rods with wear-resistant surface coating are features of high quality and long service life.

The maintenance free, ready-to-install and closed systems provide a constant feed rate and are adjustable, and the control segment on the piston makes adjustment at the end position child's play. Thanks to many add-on components the assembly is easy to mount, so that the damper can be universally deployed for damping back and forth swinging masses, such as in power or free conveyors.

On automotive or industrial applications, mechanical engineering, medical technology or the electronics and furniture industry, these machine elements are found in a number of different areas.



Technical Data

Compression and extension force:
20 N to 50,000 N

Outer body diameter: Ø 12 mm to Ø 70 mm

Piston rod diameter: Ø 4 mm to Ø 30 mm

Lifetime: Approx. 10,000 m

Free travel: Construction of the damper results in a free travel of approx. 20 % of stroke.

Separator piston: Available as a special option without free travel achieved by separator piston and nitrogen accumulator.

Operating temperature range: -20 °C to +80 °C

Adjustment: Achieved by turning the piston rod in its fully extended or fully compressed position.

Positive stop: External positive stops 1 mm to 6 mm before the end of stroke provided by the customer.

Damping medium: Hydraulic oil

Material: Outer body: Coated steel; Piston rod: Steel or stainless steel with wear-resistant coating; End fittings: Zinc plated steel

Mounting: In any position

Application field: Conveyor systems, Transport systems, Furniture industry, Locking systems

Note: Increased break-away force if unit has not moved for some time.

End fittings: They are interchangeable and must be positively secured by the customer to prevent unscrewing.

On request: Special oils and other special options. Alternative accessories available on request.

Adjustable, Compression and extension force 20 N to 180 N

End Fitting

Standard Dimensions

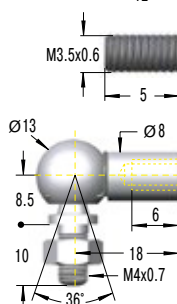
End Fitting

A3,5


Eye A3,5
max. force 370 N

B3,5

C3,5

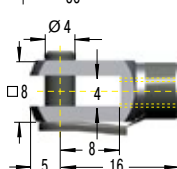


Performance and Dimensions

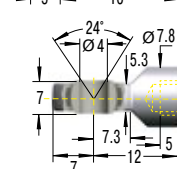
TYPES	Stroke mm	L extended mm	¹ Compression Force max. N
HB-12-10	10	55	180
HB-12-20	20	75	180
HB-12-30	30	95	180
HB-12-40	40	115	180
HB-12-50	50	135	180
HB-12-60	60	155	180
HB-12-70	70	175	180
HB-12-80	80	195	150

¹ Max. extension force for all stroke lengths 180 N.

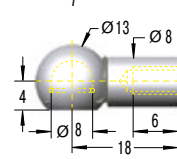
D3,5



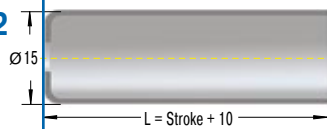
E3,5



G3,5



Rod Shroud W3,5-12



Stud Thread B3,5

Angle Ball Joint C3,5
max. force 370 N

Clevis Fork D3,5
max. force 370 N

Swivel Eye E3,5
max. force 370 N

Ball Socket G3,5
max. force 370 N

Ordering Example

Type (Hydraulic Damper) _____
 Body Ø (12 mm) _____
 Stroke (30 mm) _____
 Piston Rod End Fitting A3,5 _____
 Body End Fitting C3,5 _____
 Damping Direction (M = out stroke only) _____

HB-12-30-AC-M

Model Type Prefix

P: Damping in both directions
 N: Damping on in stroke only
 M: Damping on out stroke only
 X: Special model suffix

Mounting accessories see from page 194.

Technical Data

Compression and extension force: 20 N to 180 N

Free travel: Construction of the damper results in a free travel of approx. 21 % of stroke.

Separator piston: -

Operating temperature range: -20 °C to +80 °C

Adjustment: Achieved by turning the piston rod in its fully extended or fully compressed position.

Clockwise rotation = increase of the damping

Anti-clockwise rotation = decrease of the damping.

The adjustment can add a max. of 6 mm to the L dimension.

Positive stop: External positive stops 1 mm to 1.5 mm before the end of stroke provided by the customer.

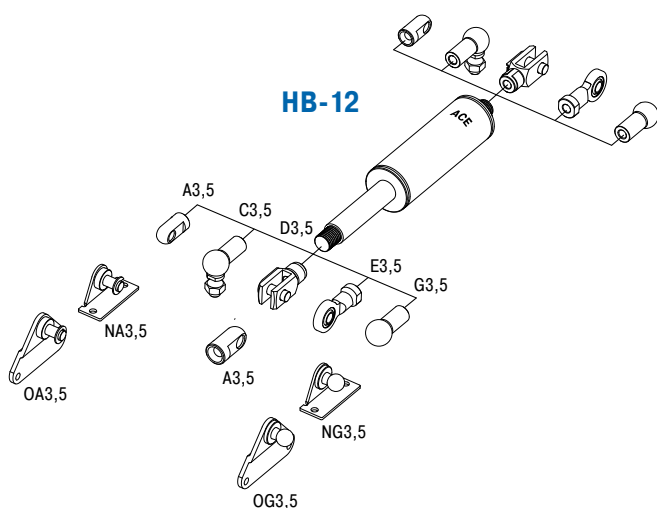
Material: Outer body: Coated steel; Piston rod: Stainless steel (1.4301/1.4305, AISI 304/303); End fittings: Zinc plated steel

Mounting: In any position

Note: Increased break-away force if unit has not moved for some time.

End fittings: They are interchangeable and must be positively secured by the customer to prevent unscrewing.

HB-12

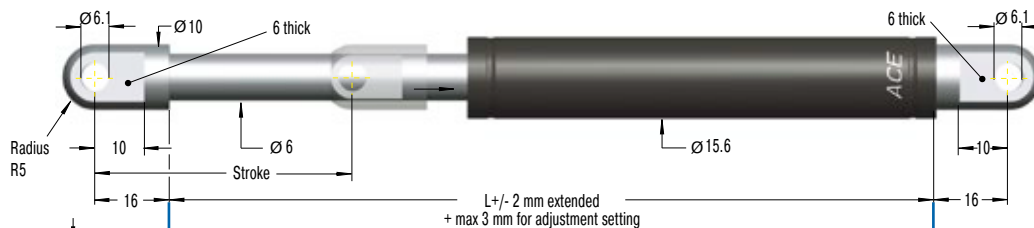


End Fitting

Standard Dimensions

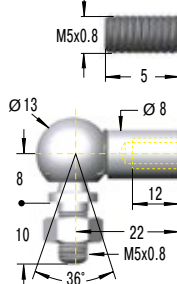
End Fitting

A5



B5

C5

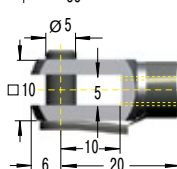


Performance and Dimensions

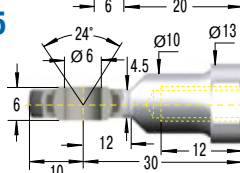
TYPES	Stroke mm	L extended mm	¹ Compression Force max. N
HB-15-25	25	93	800
HB-15-50	50	143	800
HB-15-75	75	193	800
HB-15-100	100	243	350
HB-15-150	150	343	300

¹ Max. extension force for all stroke lengths 800 N.

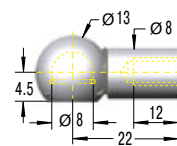
D5



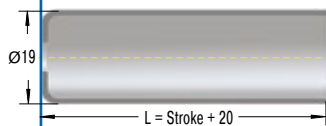
E5



G5



Rod Shroud W5-15



Stud Thread B5

Angle Ball Joint C5

max. force 500 N

Clevis Fork D5

max. force 800 N

Swivel Eye E5

max. force 800 N

Ball Socket G5

max. force 500 N

Ordering Example

HB-15-150-CC-M

Type (Hydraulic Damper) _____
 Body Ø (15.6 mm) _____
 Stroke (150 mm) _____
 Piston Rod End Fitting C5 _____
 Body End Fitting C5 _____
 Damping Direction (M = out stroke only) _____

Model Type Prefix

P: Damping in both directions
 N: Damping on in stroke only
 M: Damping on out stroke only
 X: Special model suffix

Mounting accessories see from
 page 194.

Technical Data

Compression and extension force: 20 N to 800 N

Free travel: Construction of the damper results in a free travel of approx. 20 % of stroke.

Separator piston: Extension force 40 N; dimension L = 2.45 x stroke + 49 mm. Part number: add suffix -T.

Operating temperature range: -20 °C to +80 °C

Adjustment: Achieved by turning the piston rod in its fully extended or fully compressed position.

Clockwise rotation = increase of the damping.

Anti-clockwise rotation = decrease of the damping.

The adjustment can add a max. of 6 mm to the L dimension.

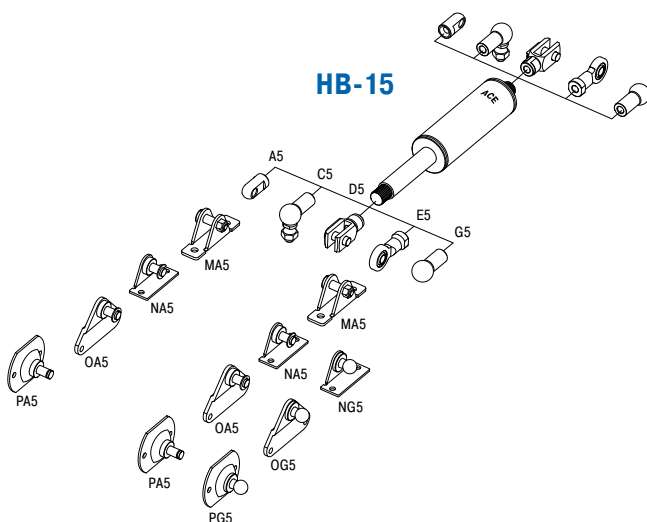
Positive stop: External positive stops 1 mm to 1.5 mm before the end of stroke provided by the customer.

Material: Outer body: Coated steel; Piston rod: Steel with wear-resistant coating; End fittings: Zinc plated steel

Mounting: In any position

Note: Increased break-away force if unit has not moved for some time.

End fittings: They are interchangeable and must be positively secured by the customer to prevent unscrewing.



Adjustable, Compression and extension force 30 N to 1,800 N

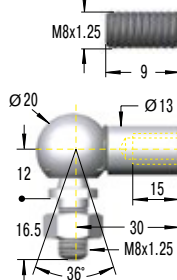
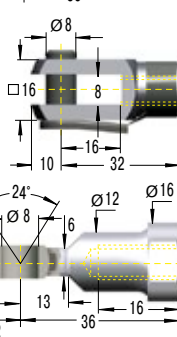
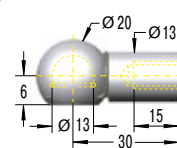
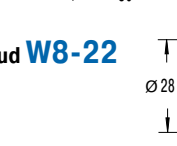
End Fitting

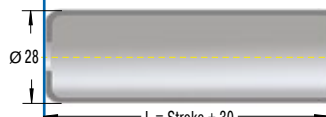
Standard Dimensions

End Fitting

A8

Eye A8
max. force 3,000 N

B8
C8

Stud Thread B8
D8
E8
G8

Clevis Fork D8
max. force 3,000 N

Swivel Eye E8
max. force 3,000 N

Ball Socket G8
max. force 1,200 N

Rod Shroud W8-22


Performance and Dimensions

TYPES	Stroke mm	L extended mm	¹ Compression Force max. N
HB-22-50	50	150	1,800
HB-22-100	100	250	1,800
HB-22-150	150	350	1,800
HB-22-200	200	450	1,000
HB-22-250	250	550	1,000

¹ Max. extension force for all stroke lengths 1,800 N.

Ordering Example

Type (Hydraulic Damper) **HB-22-150-DD-M**
 Body Ø (23 mm)
 Stroke (150 mm)
 Piston Rod End Fitting D8
 Body End Fitting D8
 Damping Direction (M = out stroke only)

Model Type Prefix

P: Damping in both directions
 N: Damping on in stroke only
 M: Damping on out stroke only
 X: Special model suffix

Mounting accessories see from page 194.

Technical Data

Compression and extension force: 30 N to 1,800 N

Free travel: Construction of the damper results in a free travel of approx. 20 % of stroke.

Separator piston: Extension force 50 N; dimension L = 2.38 x stroke + 55 mm. Part number: add suffix -T.

Operating temperature range: -20 °C to +80 °C

Adjustment: Achieved by turning the piston rod in its fully extended or fully compressed position.

Clockwise rotation = increase of the damping

Anti-clockwise rotation = decrease of the damping

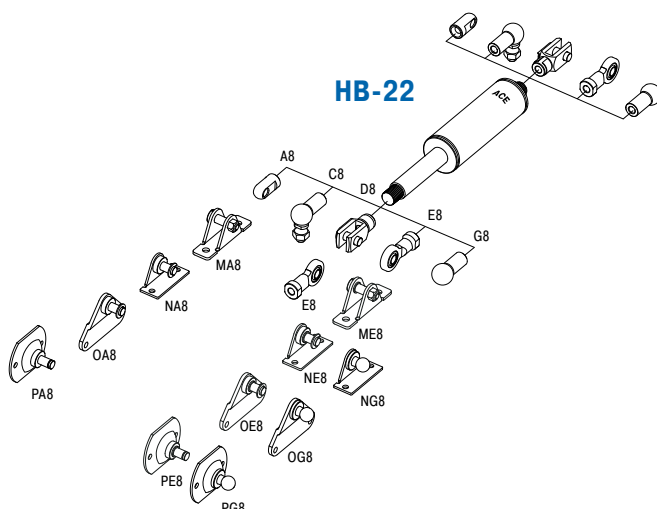
The adjustment can add a max. of 6 mm to the L dimension.

Positive stop: External positive stops 1 mm to 1.5 mm before the end of stroke provided by the customer.

Material: Outer body: Coated steel; Piston rod: Steel with wear-resistant coating; End fittings: Zinc plated steel

Mounting: In any position

Note: Increased break-away force if unit has not moved for some time.

End fittings: They are interchangeable and must be positively secured by the customer to prevent unscrewing.


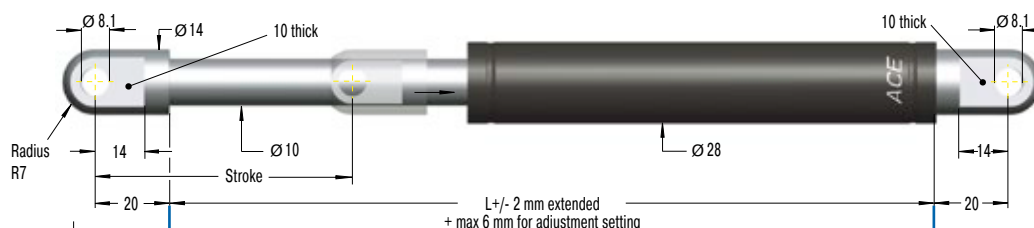
Adjustable, Compression and extension force 30 N to 3,000 N

End Fitting

Standard Dimensions

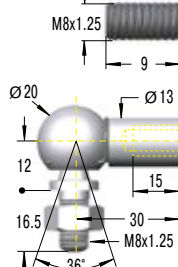
End Fitting

A8

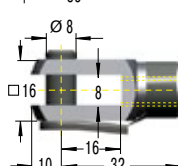

Eye A8
 max. force 3,000 N

B8

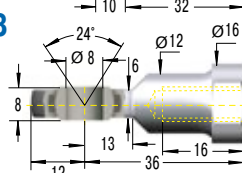
C8


Stud Thread B8

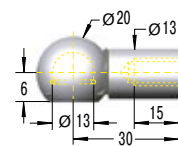
D8


Clevis Fork D8
 max. force 3,000 N

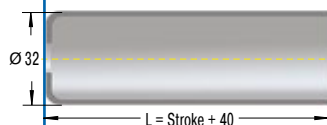
E8


Swivel Eye E8
 max. force 3,000 N

G8


Ball Socket G8
 max. force 1,200 N

Rod Shroud W8-28



Performance and Dimensions

TYPES	Stroke mm	L extended mm	¹ Compression Force max. N
HB-28-100	100	260	3,000
HB-28-150	150	360	3,000
HB-28-200	200	460	3,000
HB-28-250	250	560	3,000
HB-28-300	300	660	2,500
HB-28-350	350	760	2,000
HB-28-400	400	860	1,500
HB-28-500	500	1,060	1,000

¹ Max. extension force for all stroke lengths 3,000 N.

Ordering Example

Type (Hydraulic Damper) _____
 Body Ø (28 mm) _____
 Stroke (150 mm) _____
 Piston Rod End Fitting D8 _____
 Body End Fitting D8 _____
 Damping Direction (M = out stroke only) _____

HB-28-150-DD-M

Model Type Prefix

P: Damping in both directions
 N: Damping on in stroke only
 M: Damping on out stroke only
 X: Special model suffix

 Mounting accessories see from
 page 194.

Technical Data

Compression and extension force: 30 N to 3,000 N

Free travel: Construction of the damper results in a free travel of approx. 20 % of stroke.

Separator piston: Extension force 80 N; dimension L = 2.35 x stroke + 60 mm. Part number: add suffix -T.

Operating temperature range: -20 °C to +80 °C

Adjustment: Achieved by turning the piston rod in its fully extended or fully compressed position.

Clockwise rotation = increase of the damping

Anti-clockwise rotation = decrease of the damping

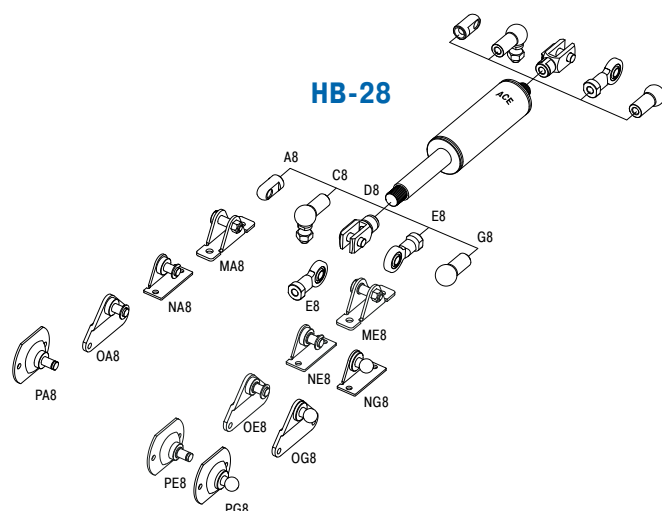
The adjustment can add a max. of 6 mm to the L dimension.

Positive stop: External positive stops 1 mm to 1.5 mm before the end of stroke provided by the customer.

Material: Outer body: Coated steel; Piston rod: Steel with wear-resistant coating; End fittings: Zinc plated steel

Mounting: In any position

Note: Increased break-away force if unit has not moved for some time.

End fittings: They are interchangeable and must be positively secured by the customer to prevent unscrewing.


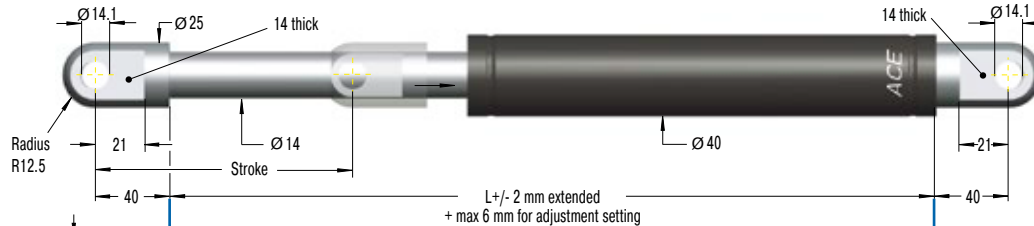
Adjustable, Compression and extension force 30 N to 10,000 N

End Fitting

Standard Dimensions

End Fitting

A14



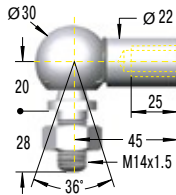
Eye A14
max. force 10,000 N

B14



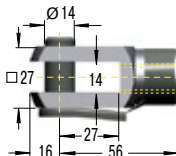
Stud Thread B14

C14



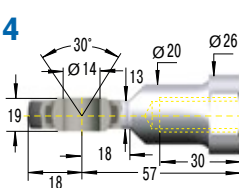
Angle Ball Joint C14
max. force 3,200 N

D14



Clevis Fork D14
max. force 10,000 N

E14



Swivel Eye E14
max. force 10,000 N

Performance and Dimensions

TYPES	Stroke mm	L extended mm	¹ Compression Force max. N
HB-40-100	100	275	10,000
HB-40-150	150	375	10,000
HB-40-200	200	475	10,000
HB-40-300	300	675	10,000
HB-40-400	400	875	8,000
HB-40-500	500	1,075	6,000
HB-40-600	600	1,275	4,000
HB-40-700	700	1,475	3,000
HB-40-800	800	1,675	3,000

¹ Max. extension force for all stroke lengths 10,000 N.

Ordering Example

Type (Hydraulic Damper) _____
 Body Ø (40 mm) _____
 Stroke (300 mm) _____
 Piston Rod End Fitting E14 _____
 Body End Fitting E14 _____
 Damping Direction (N = in stroke only) _____

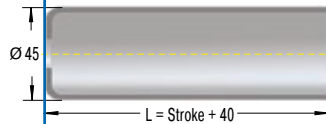
HB-40-300-EE-N

Model Type Prefix

P: Damping in both directions
 N: Damping on in stroke only
 M: Damping on out stroke only
 X: Special model suffix

Mounting accessories see from
page 194.

Rod Shroud W14-40



Technical Data

Compression and extension force: 30 N to 10,000 N

Free travel: Construction of the damper results in a free travel of approx. 20 % of stroke.

Separator piston: Extension force 150 N; dimension L = 2.32 x stroke + 82 mm. Part number: add suffix -T.

Operating temperature range: -20 °C to +80 °C

Adjustment: Achieved by turning the piston rod in its fully extended or fully compressed position.

Clockwise rotation = increase of the damping

Anti-clockwise rotation = decrease of the damping

The adjustment can add a max. of 6 mm to the L dimension.

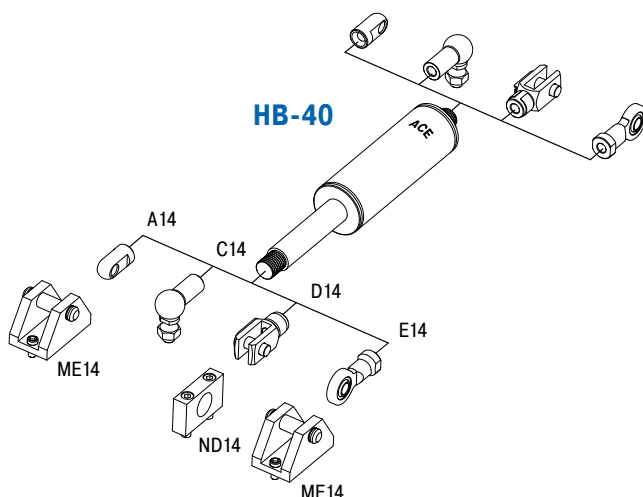
Positive stop: External positive stops 1 mm to 1.5 mm before the end of stroke provided by the customer.

Material: Outer body: Coated steel; Piston rod: Steel with wear-resistant coating; End fittings: Zinc plated steel

Mounting: In any position

Note: Increased break-away force if unit has not moved for some time.

End fittings: They are interchangeable and must be positively secured by the customer to prevent unscrewing.



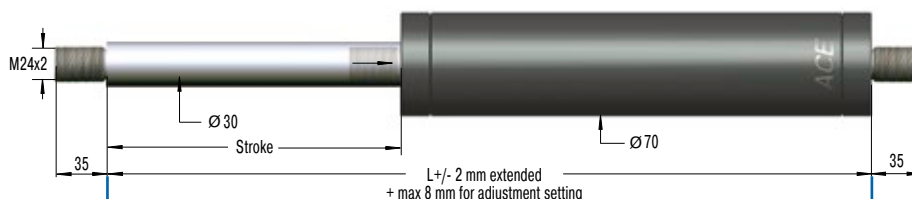
Adjustable, Compression and extension force 2,000 N to 50,000 N

End Fitting

Standard Dimensions

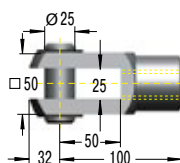
End Fitting

B24

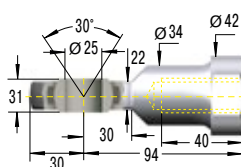


Stud Thread B24

D24

Clevis Fork D24
max. force 50,000 N

E24

Swivel Eye E24
max. force 50,000 N

Performance and Dimensions

TYPES	Stroke mm	L extended mm	¹ Compression Force max. N
HB-70-100	100	320	50,000
HB-70-200	200	520	50,000
HB-70-300	300	720	50,000
HB-70-400	400	920	30,300
HB-70-500	500	1,120	21,600
HB-70-600	600	1,320	16,200
HB-70-700	700	1,520	12,600
HB-70-800	800	1,720	10,100

¹ Max. extension force for all stroke lengths 50,000 N.

Ordering Example

Type (Hydraulic Damper) _____
 Body Ø (70 mm) _____
 Stroke (300 mm) _____
 Piston Rod End Fitting E24 _____
 Body End Fitting E24 _____
 Damping Direction (N = in stroke only) _____

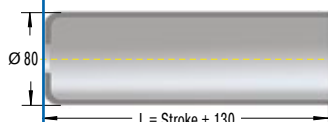
HB-70-300-EE-N

Model Type Prefix

P: Damping in both directions
 N: Damping on in stroke only
 M: Damping on out stroke only
 X: Special model suffix

Mounting accessories see from
page 194.

Rod Shroud W24-70



Technical Data

Compression and extension force: 2,000 N to 50,000 N

Free travel: Construction of the damper results in a free travel of approx. 20 % of stroke.

Separator piston: Extension force min. 250 N; dimension L + 150 mm. Part number: add suffix -T.

Operating temperature range: -20 °C to +80 °C

Adjustment: Achieved by turning the piston rod in its fully extended or fully compressed position.

Clockwise rotation = increase of the damping

Anti-clockwise rotation = decrease of the damping

The adjustment can add a max. of 8 mm to the L dimension.

Positive stop: External positive stops 5 mm to 6 mm before the end of stroke provided by the customer.

Material: Outer body: Coated steel; Piston rod: Hard chrome plated steel; End fittings: Zinc plated steel

Mounting: In any position

Note: Increased break-away force if unit has not moved for some time.

End fittings: They are interchangeable and must be positively secured by the customer to prevent unscrewing.

