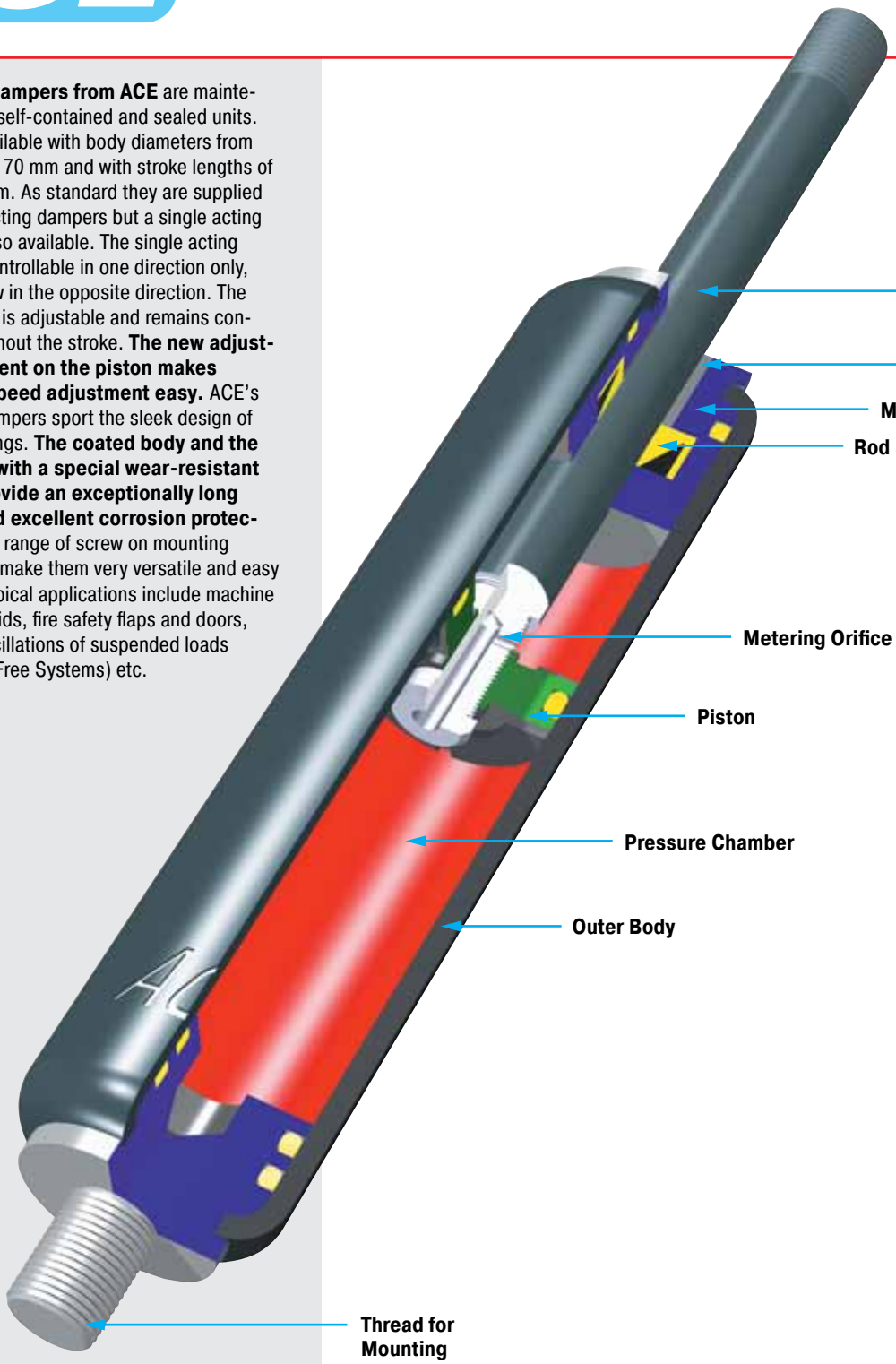
Hydraulic Dampers HB-12 to HB-70

Adjustable

Hydraulic dampers from ACE are maintenance-free, self-contained and sealed units. They are available with body diameters from 12 mm up to 70 mm and with stroke lengths of up to 800 mm. As standard they are supplied as double acting dampers but a single acting version is also available. The single acting version is controllable in one direction only, with free flow in the opposite direction. The travel speed is adjustable and remains constant throughout the stroke. **The new adjustment segment on the piston makes sensitive speed adjustment easy.** ACE's hydraulic dampers sport the sleek design of our gas springs. **The coated body and the piston rod with a special wear-resistant coating provide an exceptionally long lifetime and excellent corrosion protection.** A wide range of screw on mounting accessories make them very versatile and easy to install. Typical applications include machine guards and lids, fire safety flaps and doors, damping oscillations of suspended loads (Power and Free Systems) etc.



Function: The stepless adjustment of the damping rate is achieved by pulling (or pushing) the piston rod to its fully extended (or compressed) position and then turning the piston rod.

Operating fluid: Hydraulic oil

Mounting: In any position. End fittings must be positively secured to prevent unscrewing.

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

On request: Special lengths, alternative seals and end fittings.

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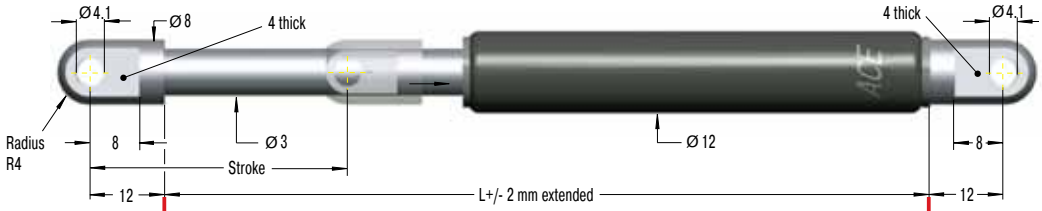
Issue 6.2011 Specifications subject to change

Hydraulic Dampers HB-12

Adjustable (Compression and Extension Forces 20 N to 180 N)

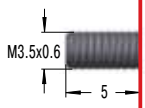
End Fitting | **Standard Dimensions** | **End Fitting**

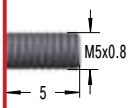
A3,5



Eye
A3,5-M5
max. force 370 N

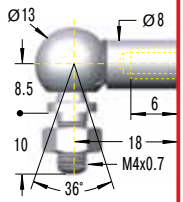
B3,5

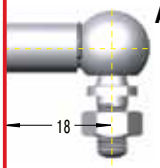




Stud Thread
B3,5-M5

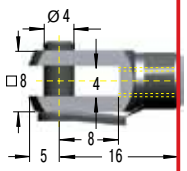
C3,5

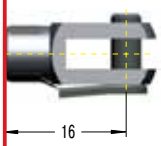




Angle Ball Joint
C3,5-M5
max. force 370 N

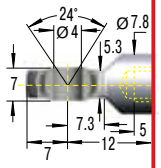
D3,5

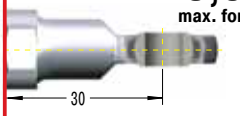




Clevis Fork
D3,5-M5
max. force 370 N

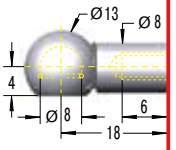
E3,5

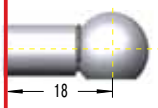




Swivel Eye
E3,5-M5
max. force 370 N

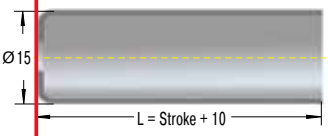
G3,5





Ball Socket
G3,5-M5
max. force 370 N

Rod Shroud
W3,5-12



Dimensions

Type	Stroke mm	L extended	[1] Max. Compression Force 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.

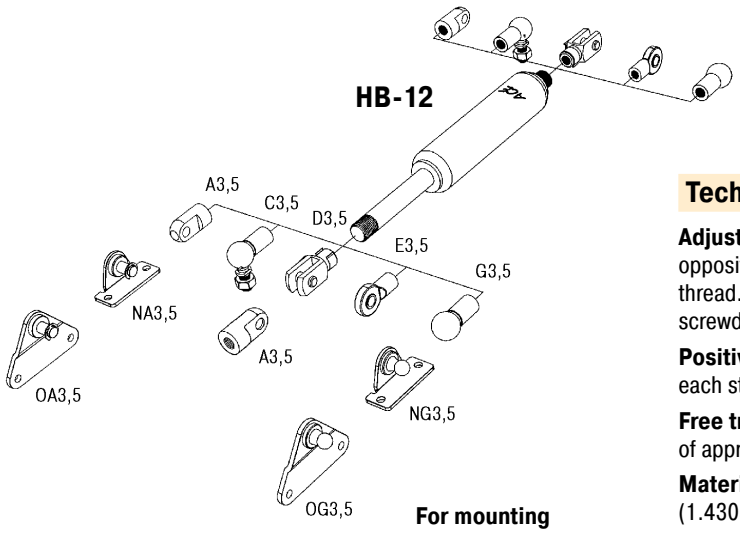
Ordering Example **HB-12-30-AC-M**

- Type (Hydraulic Damper)
- Body Ø (12 mm)
- Stroke (30 mm)
- Piston Rod End Fitting A3,5
- Body End Fitting C3,5-M5
- Damping Direction (M = out stroke only)

Damping Options

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

The end fittings are interchangeable and must be positively secured by the customer to prevent unscrewing (i.e. Loctite). For mounting accessories see page 199.



For mounting accessories see page 199.

Technical Data

Adjustment: Adjustment of the damping rate is handled, in the opposite way to the dampers HB-15 to HB-70, via the cylinder stud thread. The damping force can be precisely regulated by using a screwdriver (adjustment instruction see page 159).

Positive stop: Provide mechanical stops 1 to 1.5 mm before end of each stroke direction.

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

Material: Body: Black coated steel. Piston rod: Stainless steel (1.4305). End fittings: Zinc plated steel.

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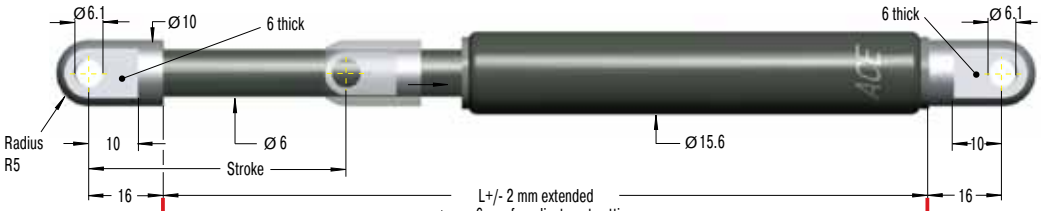
Hydraulic Dampers HB-15

Adjustable (Compression and Extension Forces 20 N to 800 N)

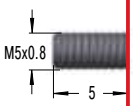
End Fitting | **Standard Dimensions** | **End Fitting**

A5



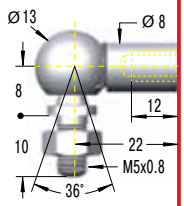
Eye A5
max. force 800 N

B5

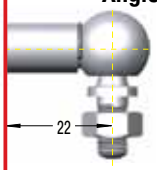


Stud Thread B5

C5



Angle Ball Joint C5
max. force 500 N

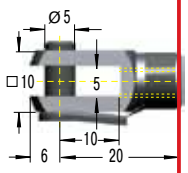


Dimensions

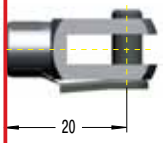
Type	Stroke mm	L extended	[1] Max. Compression Force N
HB-15-25	25	90	800
HB-15-50	50	140	800
HB-15-75	75	190	800
HB-15-100	100	240	350
HB-15-150	150	340	300

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

D5



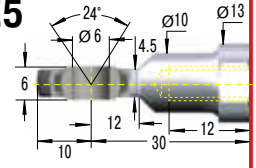
Clevis Fork D5
max. force 800 N



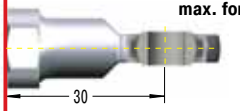
Ordering Example **HB-15-150-CC-M**

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)

E5



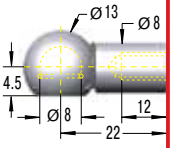
Swivel Eye E5
max. force 800 N



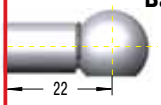
Damping Options

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

G5

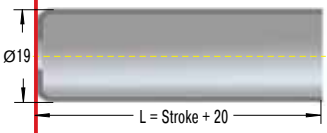


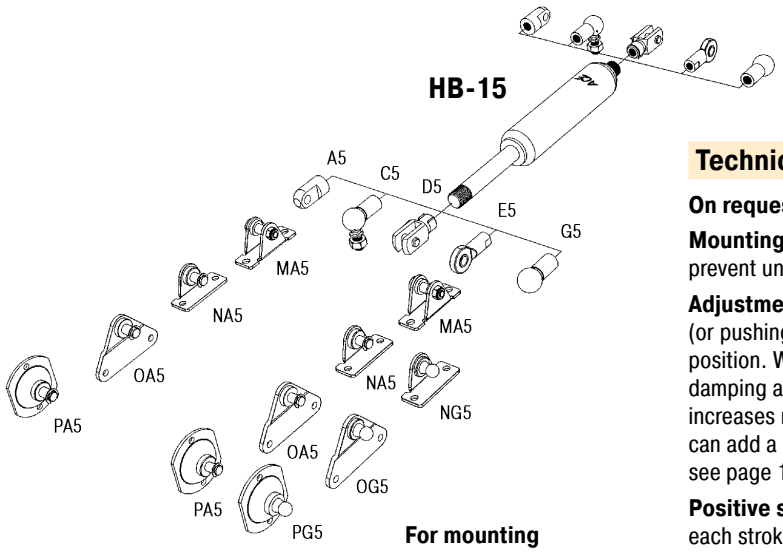
Ball Socket G5
max. force 500 N



The end fittings are interchangeable and must be positively secured by the customer to prevent unscrewing (i.e. Loctite). For mounting accessories see page 199.

Rod Shroud
W5-15





For mounting accessories see page 199.

Technical Data

On request: Special lengths, alternative seals and end fittings.

Mounting: In any position. End fittings must be positively secured to prevent unscrewing.

Adjustment: Adjustment of the damping rate is achieved by pulling (or pushing) the piston rod to its fully extended (or compressed) position. Whilst still pulling the piston rod turn it clockwise to increase damping and anti-clockwise to decrease damping. If the resistance increases noticeably, stop adjusting to avoid damage. The adjustment can add a max. of 6 mm to the L dim. shown (adjustment instruction see page 159).

Positive stop: Provide mechanical stops 1 to 1.5 mm before end of each stroke direction.

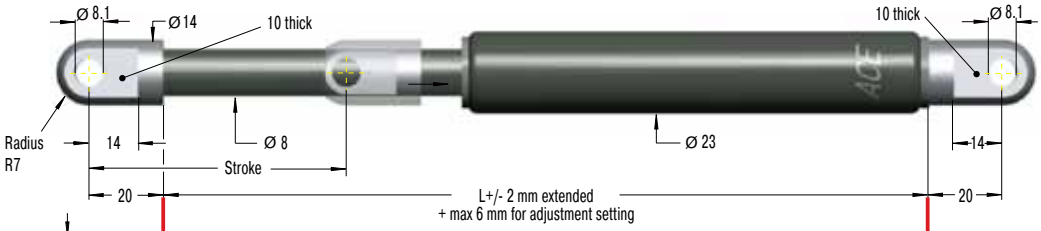
Free travel: Construction of standard damper results in a free travel of approx. 20% of stroke.

Material: Body: Black coated steel. Piston rod: With wear-resistant coating. End fittings: Zinc plated steel.

Issue 6.2011 Specifications subject to change

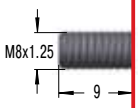
End Fitting | **Standard Dimensions** | **End Fitting**

A8



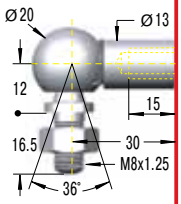
Eye A8
max. force 3000 N

B8

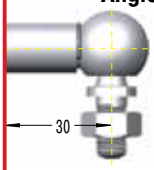


Stud Thread B8

C8



Angle Ball Joint C8
max. force 1200 N

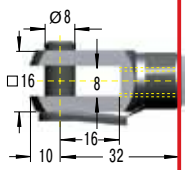


Dimensions

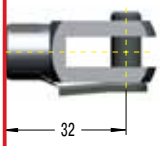
Type	Stroke mm	L extended	[1] Max. Compression Force N
HB-22-50	50	150	1 800
HB-22-100	100	250	1 800
HB-22-150	150	350	1 800
HB-22-200	200	450	1 000
HB-22-250	250	550	1 000

[1] Max. extension force for all stroke lengths 1800 N.

D8



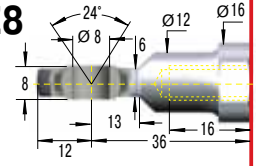
Clevis Fork D8
max. force 3000 N



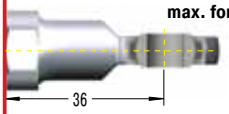
Ordering Example **HB-22-150-DD-M**

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

E8



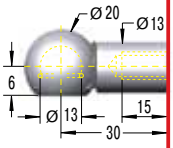
Swivel Eye E8
max. force 3000 N



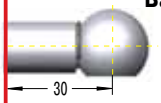
Damping Options

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

G8

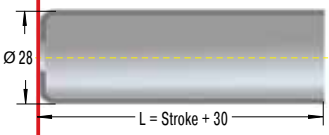


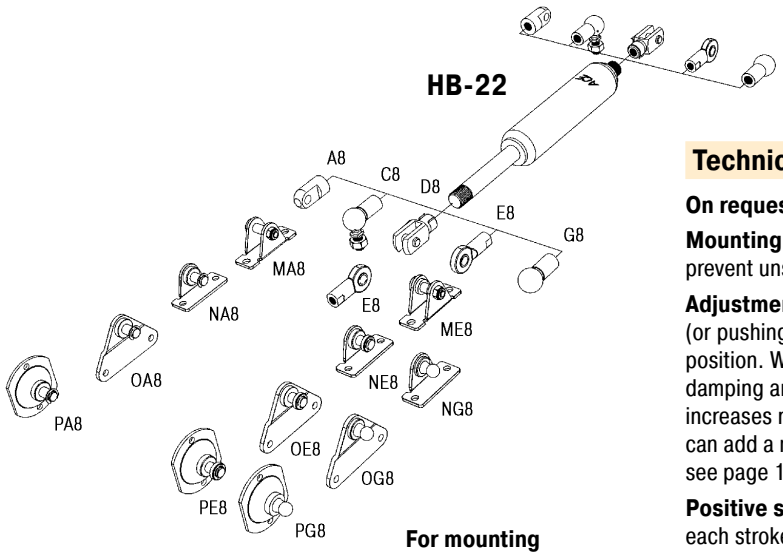
Ball Socket G8
max. force 1200 N



The end fittings are interchangeable and must be positively secured by the customer to prevent unscrewing (i.e. Loctite). For mounting accessories see page 200.

Rod Shroud
W8-22





For mounting accessories see page 200.

Technical Data

On request: Special lengths, alternative seals and end fittings.

Mounting: In any position. End fittings must be positively secured to prevent unscrewing.

Adjustment: Adjustment of the damping rate is achieved by pulling (or pushing) the piston rod to its fully extended (or compressed) position. Whilst still pulling the piston rod turn it clockwise to increase damping and anti-clockwise to decrease damping. If the resistance increases noticeably, stop adjusting to avoid damage. The adjustment can add a max. of 6 mm to the L dim. shown (adjustment instruction see page 159).

Positive stop: Provide mechanical stops 1 to 1.5 mm before end of each stroke direction.

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

Material: Body: Black coated steel. Piston rod: With wear-resistant coating. End fittings: Zinc plated steel.

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Hydraulic Dampers HB-28

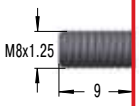
Adjustable (Compression and Extension Forces 30 N to 3000 N)

End Fitting | **Standard Dimensions** | **End Fitting**

A8

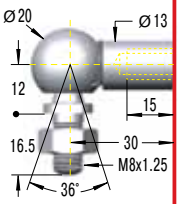
Eye A8
max. force 3000 N

B8

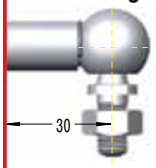


Stud Thread B8

C8



Angle Ball Joint C8
max. force 1200 N

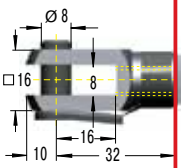


Dimensions

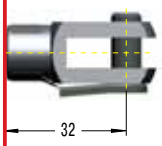
Type	Stroke mm	L extended	[1] Max. Compression Force N
HB-28-100	100	260	3 000
HB-28-150	150	360	3 000
HB-28-200	200	460	3 000
HB-28-250	250	560	3 000
HB-28-300	300	660	2 500
HB-28-350	350	760	2 000
HB-28-400	400	860	1 500
HB-28-500	500	1 060	1 000

[1] Max. extension force for all stroke lengths 3000 N.

D8



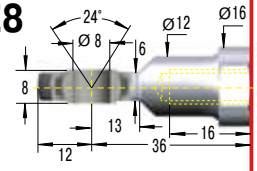
Clevis Fork D8
max. force 3000 N



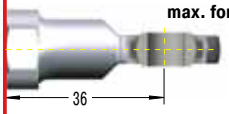
Ordering Example **HB-28-150-DD-M**

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)

E8



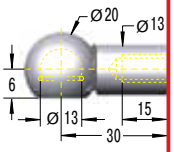
Swivel Eye E8
max. force 3000 N



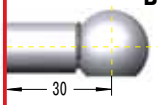
Damping Options

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

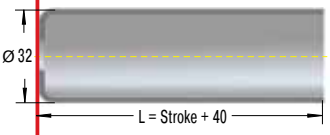
G8



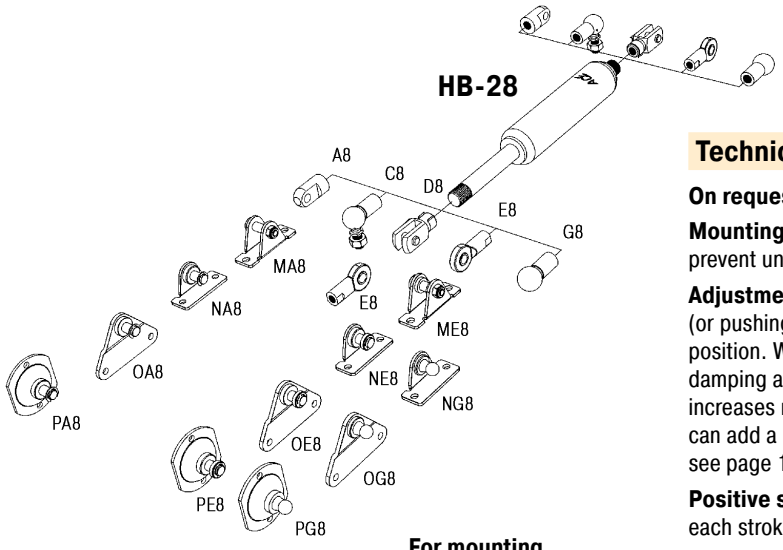
Ball Socket G8
max. force 1200 N



Rod Shroud
W8-28



The end fittings are interchangeable and must be positively secured by the customer to prevent unscrewing (i.e. Loctite). For mounting accessories see page 200.



For mounting accessories see page 200.

Technical Data

On request: Special lengths, alternative seals and end fittings.

Mounting: In any position. End fittings must be positively secured to prevent unscrewing.

Adjustment: Adjustment of the damping rate is achieved by pulling (or pushing) the piston rod to its fully extended (or compressed) position. Whilst still pulling the piston rod turn it clockwise to increase damping and anti-clockwise to decrease damping. If the resistance increases noticeably, stop adjusting to avoid damage. The adjustment can add a max. of 6 mm to the L dim. shown (adjustment instruction see page 159).

Positive stop: Provide mechanical stops 1 to 1.5 mm before end of each stroke direction.

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

Material: Body: Black coated steel. Piston rod: With wear-resistant coating. End fittings: Zinc plated steel.

Issue 6.2011 Specifications subject to change

Hydraulic Dampers HB-40

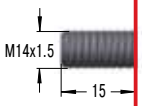
Adjustable (Compression and Extension Forces 30 N to 10 000 N)

End Fitting | **Standard Dimensions** | **End Fitting**

A14

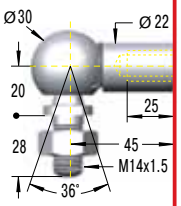
Eye A14
max. force 10 000 N

B14

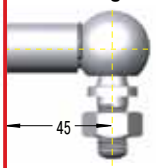


Stud Thread B14

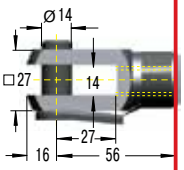
C14



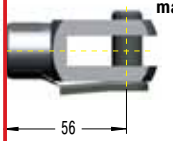
Angle Ball Joint C14
max. force 3200 N



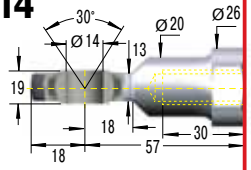
D14



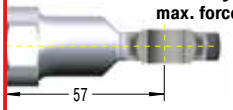
Clevis Fork D14
max. force 10000 N



E14



Swivel Eye E14
max. force 10000 N



Dimensions

Type	Stroke mm	L extended	[1] Max. Compression Force 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

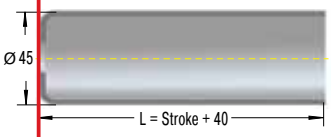
HB-40-300-EE-N

- 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)

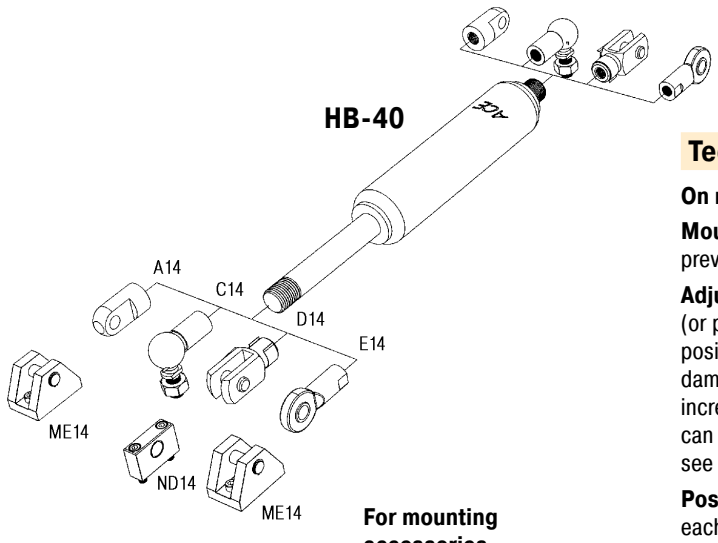
Damping Options

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

Rod Shroud
W14-40



The end fittings are interchangeable and must be positively secured by the customer to prevent unscrewing (i.e. Loctite). For mounting accessories see page 201.



For mounting accessories see page 201.

Technical Data

On request: Special lengths, alternative seals and end fittings.

Mounting: In any position. End fittings must be positively secured to prevent unscrewing.

Adjustment: Adjustment of the damping rate is achieved by pulling (or pushing) the piston rod to its fully extended (or compressed) position. Whilst still pulling the piston rod turn it clockwise to increase damping and anti-clockwise to decrease damping. If the resistance increases noticeably, stop adjusting to avoid damage. The adjustment can add a max. of 6 mm to the L dim. shown (adjustment instruction see page 159).

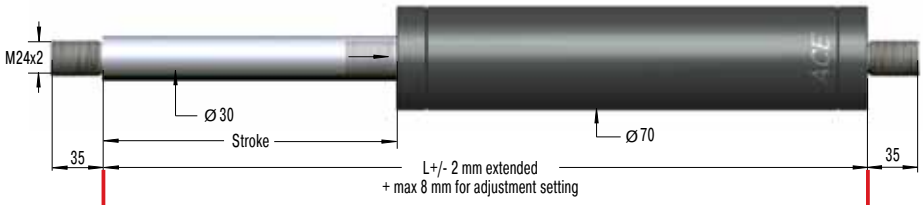
Positive stop: Provide mechanical stops 1 to 1.5 mm before end of each stroke direction.

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

Material: Body: Black coated steel. Piston rod: With wear-resistant coating. End fittings: Zinc plated steel.

End Fitting | **Standard Dimensions** | **End Fitting**

B24



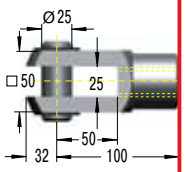
Stud Thread B24

Dimensions

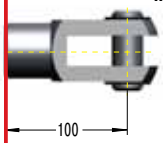
Type	Stroke mm	L extended	[1] Max. Compression Force N
HB-70-100	100	320	50 000
HB-70-200	200	520	50 000
HB-70-300	300	720	50 000
HB-70-400	400	920	30 300
HB-70-500	500	1 120	21 600
HB-70-600	600	1 320	16 200
HB-70-700	700	1 520	12 600
HB-70-800	800	1 720	10 100

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

D24



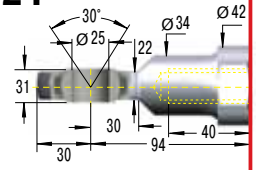
Clevis Fork D24
max. force 50 000 N



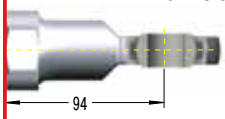
Ordering Example — HB-70-300-EE-N

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)

E24



Swivel Eye E24
max. force 50 000 N

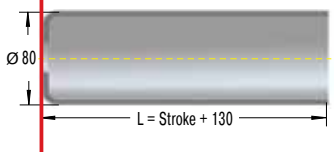


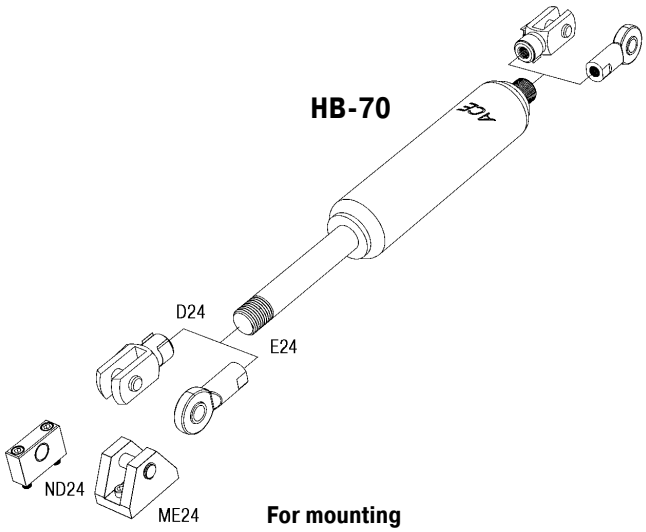
Damping Options

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

The end fittings are interchangeable and must be positively secured by the customer to prevent unscrewing (i.e. Loctite). For mounting accessories see page 201.

Rod Shroud W24-70





For mounting accessories see page 201.

Technical Data

On request: Special lengths, alternative seals and end fittings.

Mounting: In any position. End fittings must be positively secured to prevent unscrewing.

Adjustment: Adjustment of the damping rate is achieved by pulling (or pushing) the piston rod to its fully extended (or compressed) position. Whilst still pulling the piston rod turn it clockwise to increase damping and anti-clockwise to decrease damping. If the resistance increases noticeably, stop adjusting to avoid damage. The adjustment can add a max. of 8 mm to the L dim. shown (adjustment instruction see page 159).

Positive stop: Provide mechanical stops 5 to 6 mm before end of each stroke direction.

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

Material: Body: Black coated steel or zinc plated steel. Piston rod: Hard chrome plated. End fittings: Zinc plated steel.

Separator piston: Available as a special option to remove free travel. Also provides extension force of min. 250 N. Increases dimension L + 150 mm. Part number: Add suffix -T.

Issue 6.2011 Specifications subject to change

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Adjustment Instructions for HB-15 to HB-70 and HBS-28 to HBS-70

View in direction of arrow

Adjustment only possible when piston rod is **fully** extended or **fully** compressed.

soft damping

Rotate rod anti-clockwise for higher velocity

strong damping

Rotate rod clockwise for slower velocity

1. Hold outer body.
2. a) When piston rod is fully extended:
   Adjust damping by turning the piston rod as shown in the picture. Whilst rotating, pull the piston rod gently, to ensure the adjuster locates in the end cap.
   b) When the piston rod is fully compressed:
   Adjust the damping by turning the piston rod as shown in the picture. Whilst rotating, push the piston rod gently, to ensure the adjuster locates in the end cap.
3. When resistance is felt when rotating the piston rod, stop turning. You will be at the end of the adjustment.
   NOTE: Do not rotate piston rod too quickly as damage could occur.
4. Check the damping, if required repeat step 1 to 3.
5. On all versions with a separator piston (type "T") adjustment is only possible when the piston rod is extended (adjustment 2a).

Adjustment Instructions for HB-12

Adjustment Rotate anti-clockwise for higher velocity

Use screwdriver with size 0.6 x 2.5 mm

Rotate clockwise for slower velocity