Hydraulic Dampers

Multi-talent in speed control

The hydraulic dampers are similar in appearance to the ACE industrial gas springs but are adjusted in the end position and work differently to the DVC family with individual speed adjusters for the push and pull direction. This provide users with the maximum flexibility.

Whether used as drive compensation or safety elements, the retraction and extension speed of these ACE solutions can always be precisely set. This means that the speed of movement can be controlled, synchronisation regulated in both directions and pivoting loads can be compensated. Depending on the model, the push and pull forces are between 30 N and 40,000 N. These maintenance-free, ready-to-install products are available in body diameters of 12 mm to 70 mm and in stroke lengths up to 800 mm.

Hydraulic Dampers

DVC-32

Page 178

Adjustable, Without Free Travel
Individual speed adjustment in both directions
Cylinder speed controls, Absorption control, Finishing and processing centres

HBD-50 to HBD-85

Page 180

Adjustable, Without Free Travel
Regulation at the highest level
Sports equipment, Rehabilitation technology, Conveyor technology

HBS-28 to HBS-70

Page 184

Adjustable, Without Free Travel
Direction change backlash free linear motion regulation
Oscillation insulation, Chairlift impact control, Fairground rides, Cylinder speed controls

HB-12 to HB-70

Page 188

Adjustable
Linear motion control
Conveyor systems, Transport systems, Furniture industry, Locking systems

Door Dampers

TD, TDE

Page 196

Adjustable
The safe way to close doors
Lift doors, Automatic doors, Doors

Constant speeed rates

Sensitive adjustment

High quality and long lifetime

Easy to mount

DVC-32

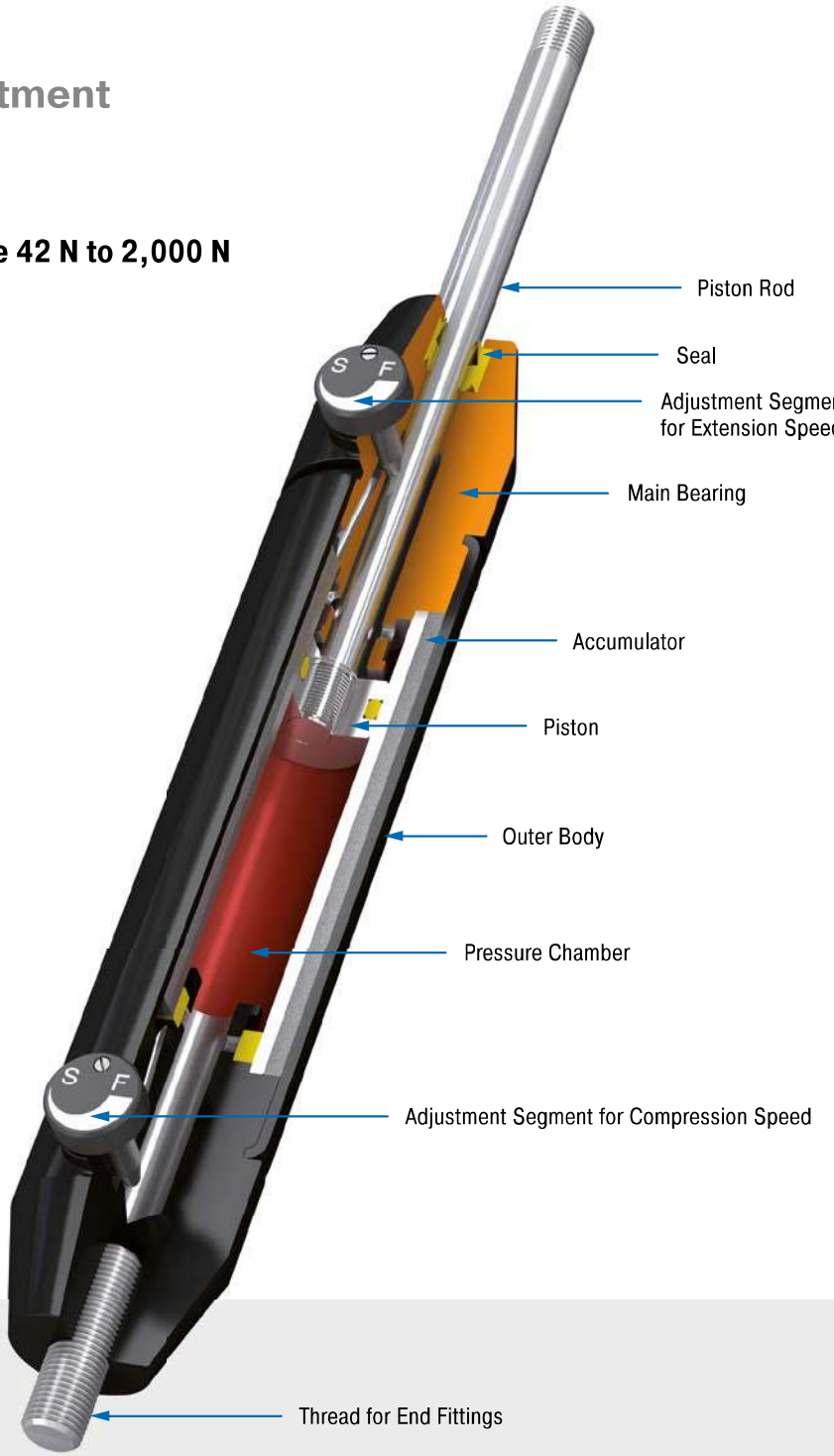
Individual speed adjustment in both directions

Adjustable, Without Free Travel
Compression and extension force 42 N to 2,000 N
Stroke 50 mm to 150 mm

Can be regulated separately in any stroke position: The hydraulic dampers in the DVC-32 model are the first model to have the ability to have the in and out speeds adjusted independently from the outside and therefore more precisely. With their individual adjustment segments for the push and pull direction as well as the double-sided action, these are suitable as safety or control elements.

The great number of mounting accessories makes assembly of these hydraulic dampers by ACE easier and allows these maintenance-free, ready-to-install and self-contained systems universally applicable. Qualitatively high grade, and at the same time simple to use; one of their uses is to absorb swinging loads.

These machine elements are used, for one, in the automotive sector and industrial applications as well as in mechanical engineering and the electronics industry.



Technical Data

Compression and extension force: 42 N to 2,000 N

Outer body diameter: Ø 32 mm

Piston rod diameter: Ø 8 mm

Lifetime: Approx. 10,000 m

Operating temperature range: 0 °C to 65 °C

Adjustment: Steplessly adjustable

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

Damping medium: Automatic Transmission Fluid (ATF)

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

Mounting: In any position

Application field: Cylinder speed controls, Absorption control, Finishing and processing centres

Note: Increased break-away force if unit has not moved for some time. Damping force can be adjusted after installation.

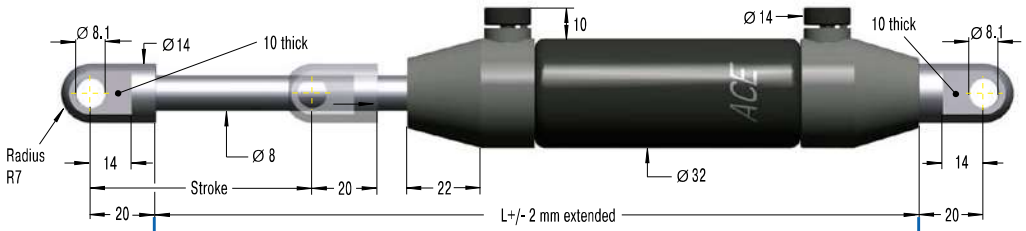
End fittings: They are interchangeable and if necessary must be positively secured by the customer to prevent unscrewing.

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

Issue 07.2017 – Specifications subject to change

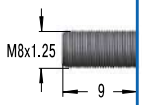
End Fitting — Standard Dimensions — End Fitting

A8



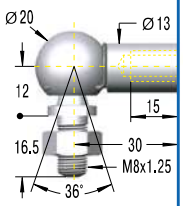
Eye A8
max. force 3,000 N

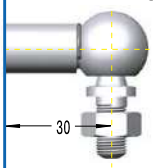
B8



Stud Thread B8

C8





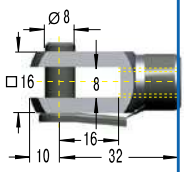
Angle Ball Joint C8
max. force 1,200 N

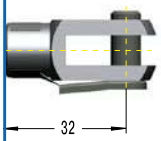
Performance and Dimensions

TYPES	Stroke mm	L extended mm	[1] Compression force max. N
DVC-32-50EU	50	240	2,000
DVC-32-100EU	100	340	1,670
DVC-32-150EU	150	440	1,335

[1] Max. extension force for all stroke lengths 2,000 N.

D8



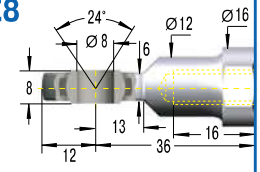


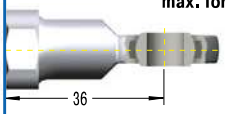
Clevis Fork D8
max. force 3,000 N

Ordering Example — DVC-32-50EU-DD-P

Type (Hydraulic Damper)
Body Ø (32 mm)
Stroke (50 mm)
EU Compliant
Piston Rod End Fitting D8
Body End Fitting D8
Damping Direction (P = both directions)

E8





Swivel Eye E8
max. force 3,000 N

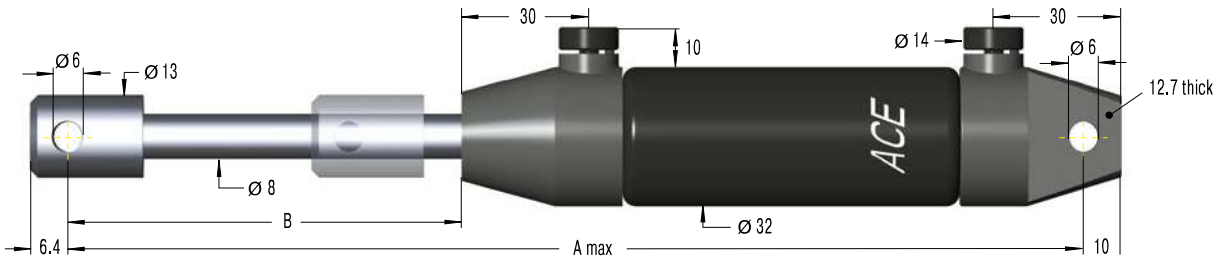
Model Type Prefix

P: Damping in both directions (standard model)
M: Damping on out stroke only (adjustment knob at “rear end” free flow)
N: Damping on in stroke only (adjustment knob at “piston rod end” free flow)

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

Mounting accessories see from page 200.

DVC-32EU-xx



Performance and Dimensions

TYPES	Stroke mm	A max. mm	B mm	Compression force max. N	Traction Force Range max. N
DVC-32-50EU-XX	50	250	75.2	2,000	2,000
DVC-32-100EU-XX	100	350	124.4	1,670	2,000
DVC-32-150EU-XX	150	450	173.6	1,335	2,000

Issue 07.2017 – Specifications subject to change

HBD-50 to HBD-85

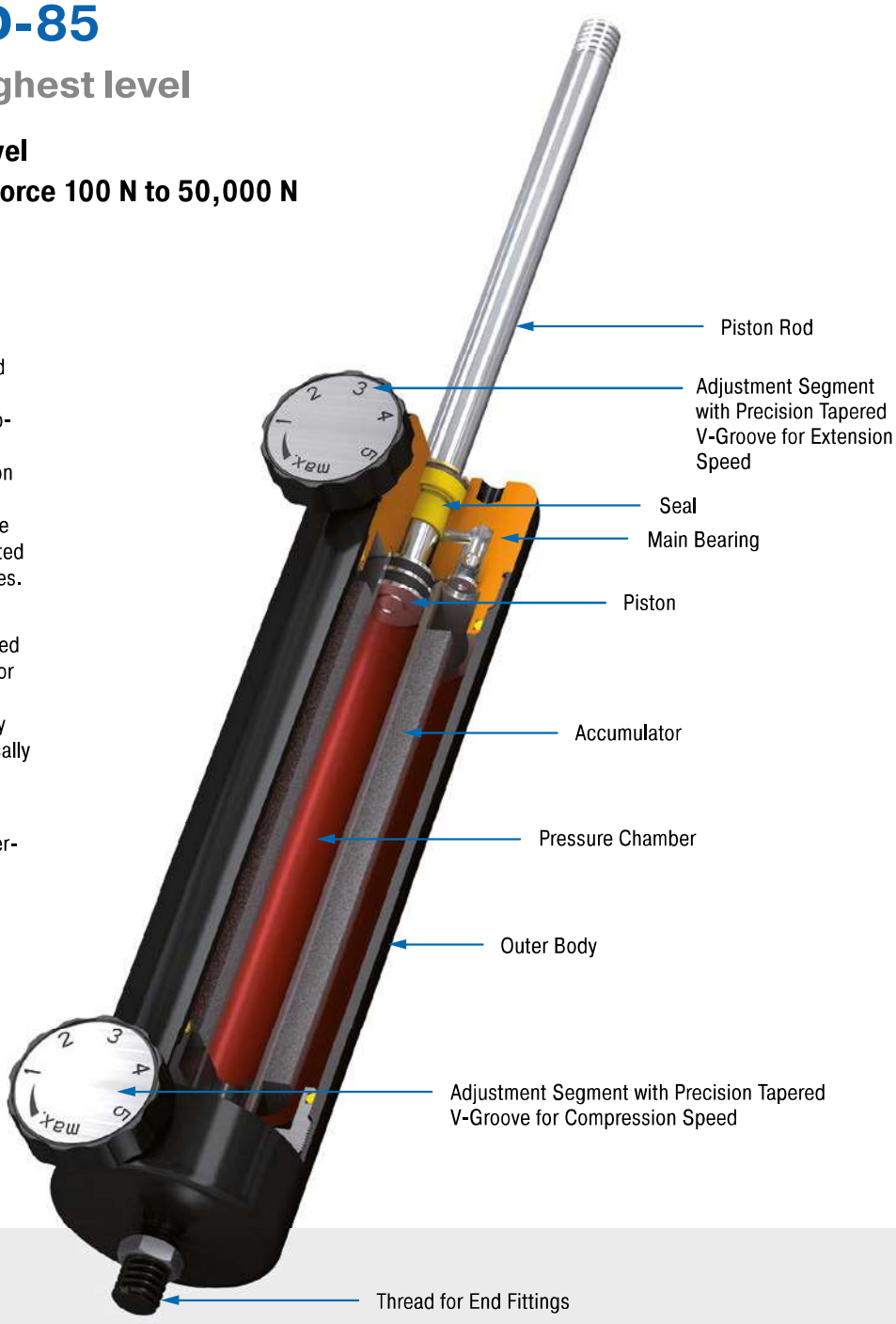
Regulation at the highest level

Adjustable, Without Free Travel
Compression and extension force 100 N to 50,000 N
Stroke 50 mm to 700 mm

Motion control in both directions: The HBD model of hydraulic dampers can be adjusted independently in both the push and pull direction. These maintenance-free, ready-to-install and closed systems leave no prayers unanswered as far as the setting of retraction and extension speeds are concerned. In addition each damper works without any free travel therefore the flow of oil can be regulated exactly via the two precision metering orifices.

Adjustment can be made once installed and even when moving through stroke. The coated body and hard-chromed piston rods stand for quality and long service life. The variety of mounting accessories makes assembly easy and the high-end hydraulic dampers universally usable.

HBD hydraulic dampers are used in the automotive, in industry, mechanical engineering and medical technology.



Technical Data

Compression and extension force: 100 N to 50,000 N

Outer body diameter: Ø 50 mm to Ø 85 mm

Piston rod diameter: Ø 10 mm to Ø 20 mm

Lifetime: Approx. 10,000 m

Operating temperature range: 0 °C to 65 °C

Adjustment: Steplessly adjustable

Positive stop: External positive stops 1 mm to 3 mm before the end of stroke provided by the customer.

Damping medium: hydraulic oil

Material: Outer body: coated steel; Piston rod: hard chrome plated steel; End fittings: zinc plated steel

Mounting: in any position

Application field: sports equipment, rehabilitation technology, conveyor technology

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

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

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

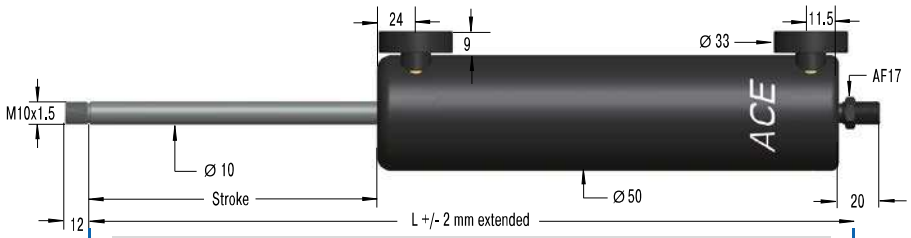
Issue 07.2017 – Specifications subject to change

End Fitting

Standard Dimensions

End Fitting

B10



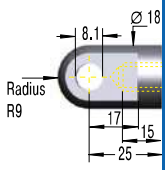
Stud Thread B10

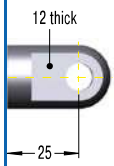
Performance and Dimensions

TYPES	Stroke mm	L extended mm	[1] Compression force max. N
HBD-50-50	50	192	6.000
HBD-50-100	100	292	6.000
HBD-50-150	150	392	4.400
HBD-50-200	200	492	2.800
HBD-50-250	250	592	2.000
HBD-50-300	300	692	1.400

[1] Max. extension force for all stroke lengths 6,000 N.

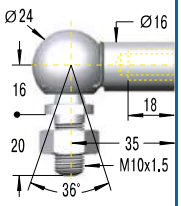
A10

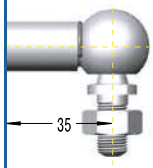




Eye A10
max. force 10,000 N

C10





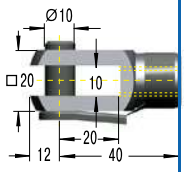
Angle Ball Joint C10
max. force 1,800 N

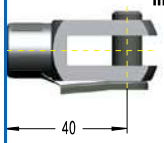
Ordering Example

HBD-50-150-EE

Type (Hydraulic Damper)
Body ⌀ (50 mm)
Stroke (150 mm)
Piston Rod End Fitting E10
Body End Fitting E10

D10



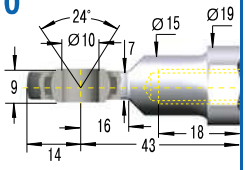


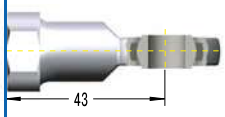
Clevis Fork D10
max. force 10,000 N

Model Type Prefix

P: Damping in both directions (standard model)
M: Damping on out stroke only (adjustment knob at “rear end” free flow)
N: Damping on in stroke only (adjustment knob at “piston rod end” free flow)

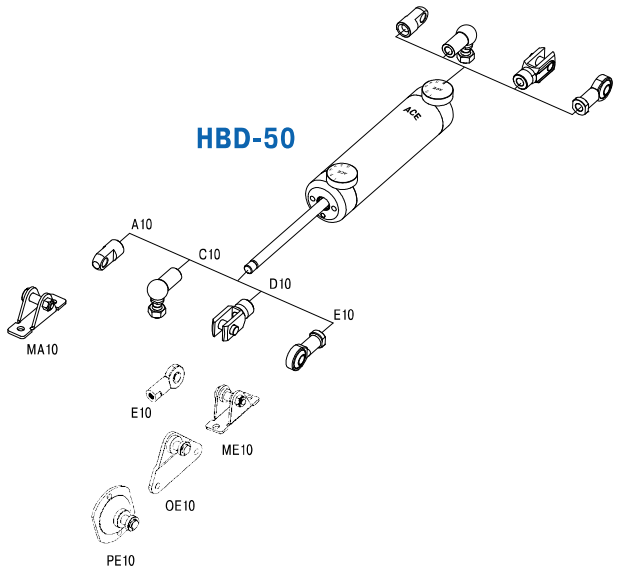
E10





Swivel Eye E10
max. force 10,000 N

Mounting accessories see from page 200.



Technical Data

Compression and extension force: 100 N to 6,000 N

Operating temperature range: 0 °C to 65 °C

Adjustment: Steplessly adjustable

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: 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. One locknut included.

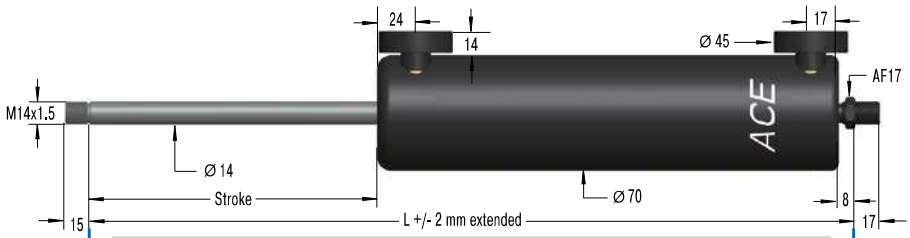
End fittings: They are interchangeable and if necessary must be positively secured by the customer to prevent unscrewing.

Hydraulic Dampers HBD-70

Adjustable, Without Free Travel, Compression and extension force 150 N to 10,000 N

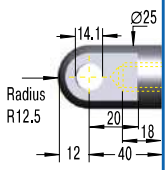
End Fitting | **Standard Dimensions** | **End Fitting**

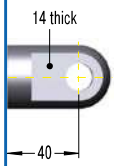
B14



Stud Thread B14

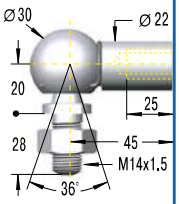
A14

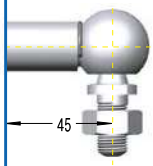




Eye A14
max. force 10,000 N

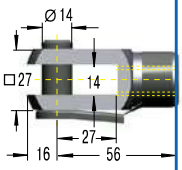
C14

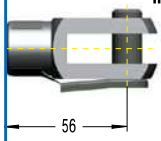




Angle Ball Joint C14
max. force 3,200 N

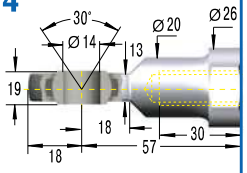
D14

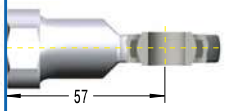




Clevis Fork D14
max. force 10,000 N

E14





Swivel Eye E14
max. force 10,000 N

Performance and Dimensions

TYPES	Stroke mm	L extended mm	[1] Compression force max. N
HBD-70-100	100	306	10,000
HBD-70-150	150	406	10,000
HBD-70-200	200	506	10,000
HBD-70-300	300	706	10,000
HBD-70-400	400	906	8,000
HBD-70-500	500	1,106	6,000

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

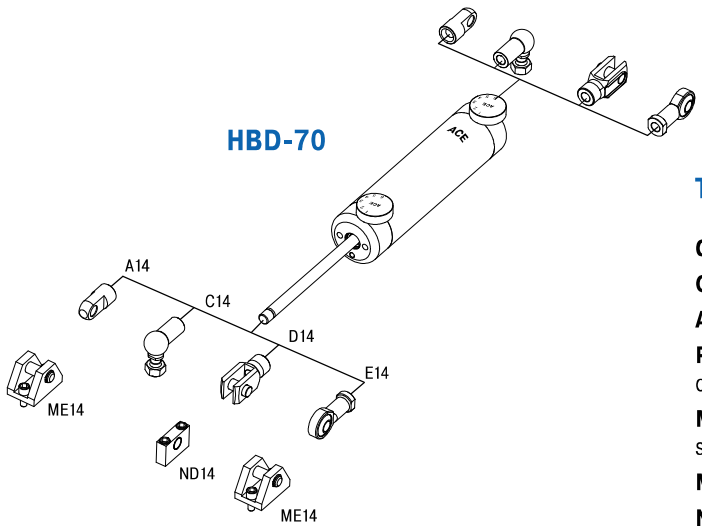
Ordering Example — HBD-70-300-EE

Type (Hydraulic Damper)
Body Ø (70 mm)
Stroke (300 mm)
Piston Rod End Fitting E14
Body End Fitting E14

Model Type Prefix

P: Damping in both directions (standard model)
M: Damping on out stroke only (adjustment knob at “rear end” free flow)
N: Damping on in stroke only (adjustment knob at “piston rod end” free flow)

Mounting accessories see from page 200.



Technical Data

Compression and extension force: 150 N to 10,000 N

Operating temperature range: 0 °C to 65 °C

Adjustment: Steplessly adjustable

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: 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. One locknut included.

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

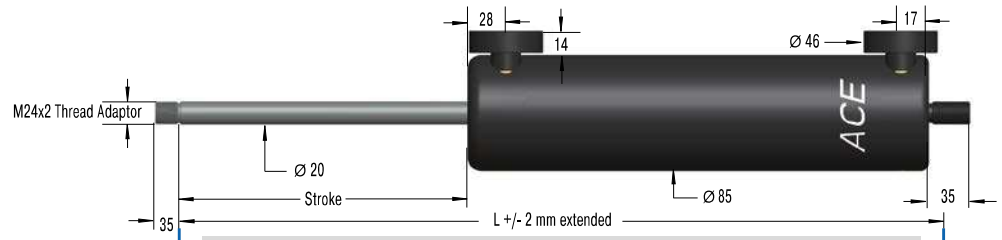
Issue 07.2017 – Specifications subject to change

End Fitting

Standard Dimensions

End Fitting

B24



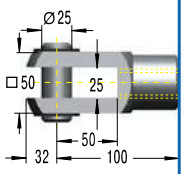
Stud Thread B24

Performance and Dimensions

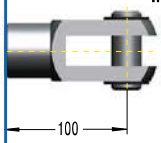
TYPES	Stroke mm	L extended mm	[1] Compression force max. N
HBD-85-100	100	313	50,000
HBD-85-150	150	413	30,000
HBD-85-200	200	513	20,000
HBD-85-300	300	713	10,000
HBD-85-400	400	913	6,500
HBD-85-500	500	1,113	4,000
HBD-85-600	600	1,313	3,000
HBD-85-700	700	1,513	2,000

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

D24



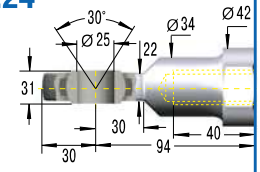
Clevis Fork D24
max. force 50,000 N



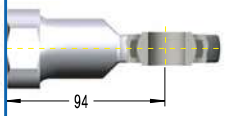
Ordering Example **HBD-85-300-EE**

Type (Hydraulic Damper)
Body Ø (85 mm)
Stroke (300 mm)
Piston Rod End Fitting E24
Body End Fitting E24

E24



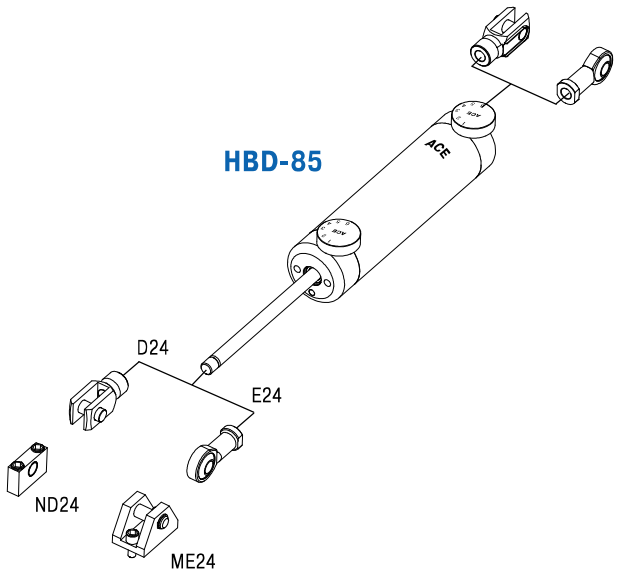
Swivel Eye E24
max. force 50,000 N



Model Type Prefix

P: Damping in both directions (standard model)
M: Damping on out stroke only (adjustment knob at “rear end” free flow)
N: Damping on in stroke only (adjustment knob at “piston rod end” free flow)

Mounting accessories see from page 200.



Technical Data

Compression and extension force: 150 N to 50,000 N

Operating temperature range: 0 °C to 65 °C

Adjustment: Steplessly adjustable

Positive stop: External positive stops 2 mm to 3 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. Thread adaptor for piston rod from M16 to M24 included.

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

HBS-28 to HBS-70

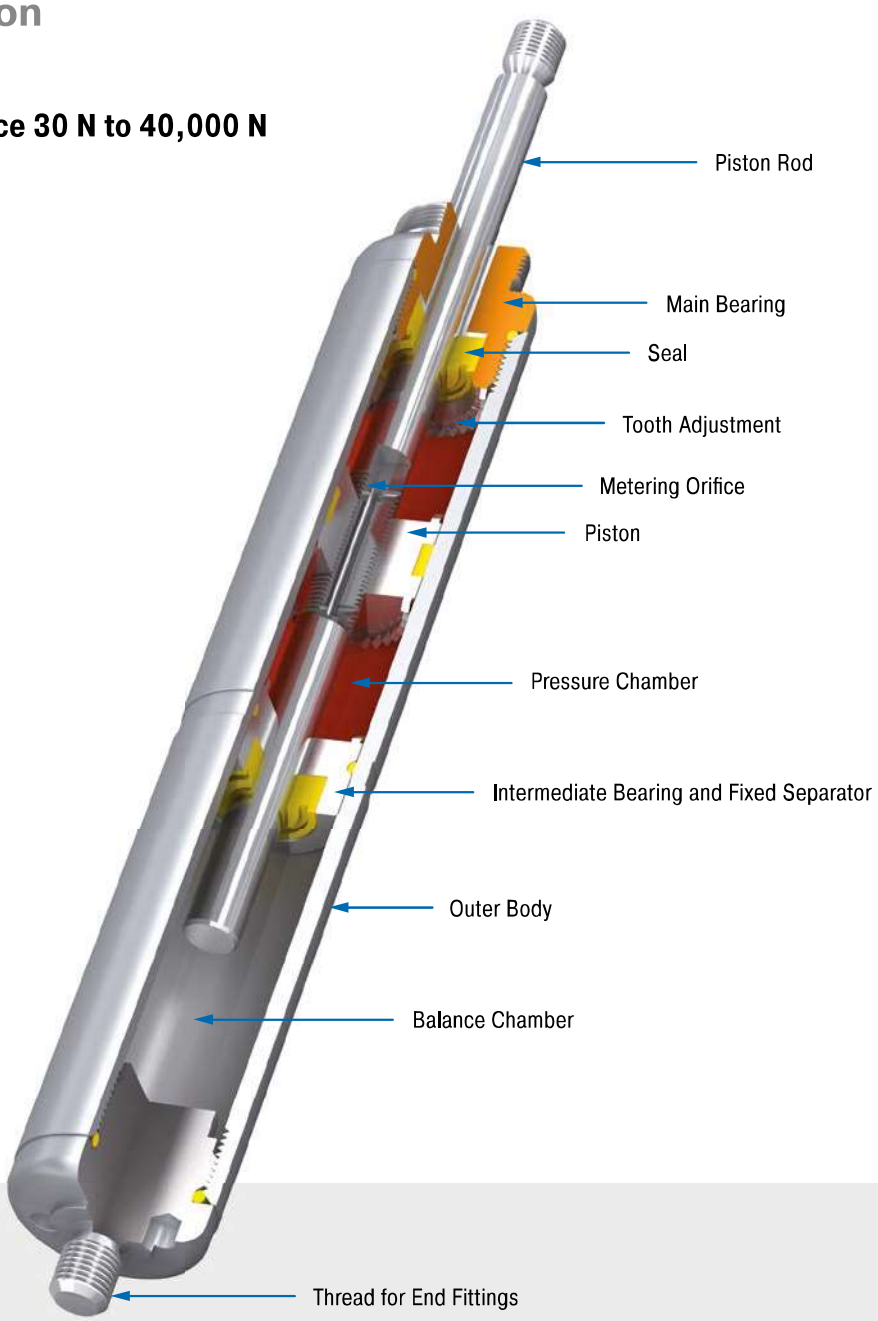
Direction change backlash free linear motion regulation

Adjustable, Without Free Travel
Compression and extension force 30 N to 40,000 N
Stroke 50 mm to 800 mm

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, Absorption control

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

End fittings: They are interchangeable and if necessary 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.

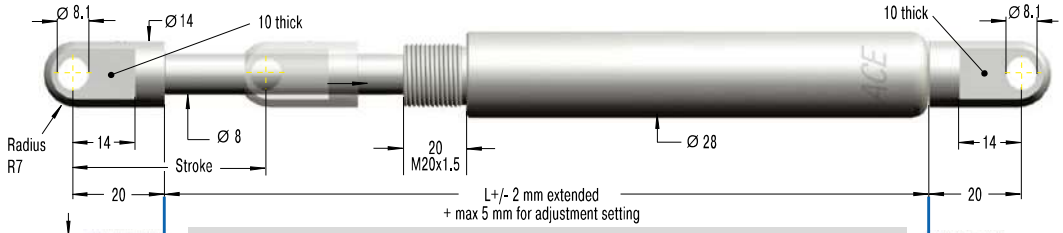
Issue 07.2017 – Specifications subject to change

End Fitting

Standard Dimensions

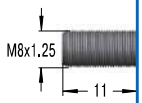
End Fitting

A8



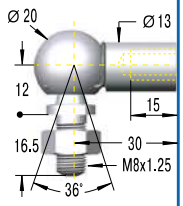
Eye A8
max. force 3,000 N

B8

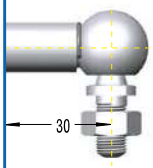


Stud Thread B8

C8



Angle Ball Joint C8
max. force 1,200 N

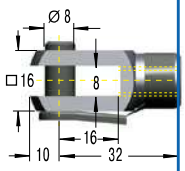


Performance and Dimensions

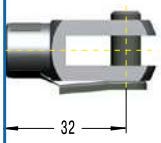
TYPES	Stroke mm	L extended mm	[1] Compression force max. N	[1] Compression force with MBS max. N
HBS-28-50	62	297	3,000	3,000
HBS-28-100	112	447	1,550	3,000
HBS-28-150	162	597	900	3,000
HBS-28-200	212	747	600	3,000
HBS-28-250	262	897	440	3,000
HBS-28-300	312	1,047	330	3,000
HBS-28-350	362	1,197	260	2,500
HBS-28-400	412	1,347	200	2,000

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

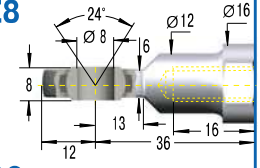
D8



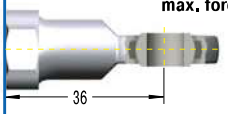
Clevis Fork D8
max. force 3,000 N



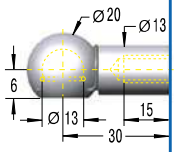
E8



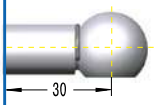
Swivel Eye E8
max. force 3,000 N



G8



Ball Socket G8
max. force 1,200 N



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

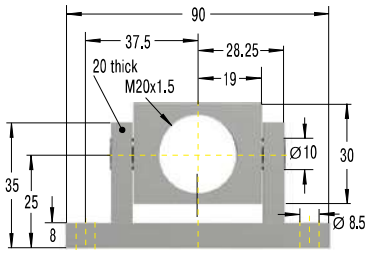
Type (Hydraulic Damper)
Body Ø (28 mm)
Stroke (150 mm)
Piston Rod End Fitting D8
Body End Fitting D8
Damping Direction (M = out stroke only)

Model Type Prefix

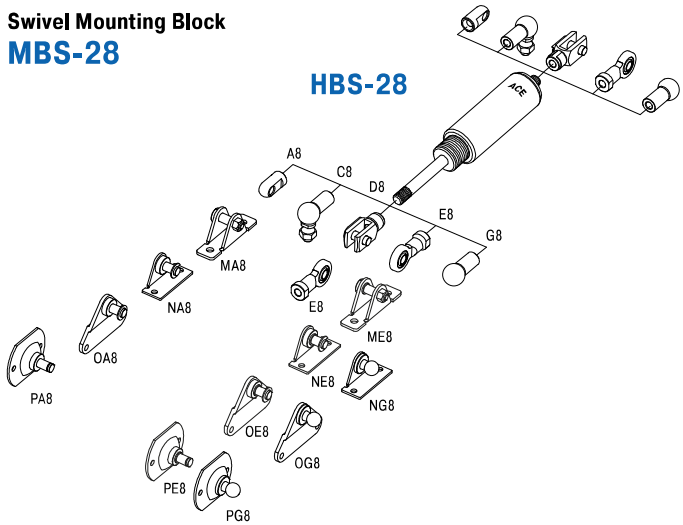
P: Damping in both directions
N: Damping on in stroke only
M: Damping on out stroke only
X: Special model suffix

Mounting accessories see from page 200.

Rod Shroud
no retrofit
Ø 32, L = Stroke + 80



Swivel Mounting Block
MBS-28



Technical Data

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 5 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 if necessary must be positively secured by the customer to prevent unscrewing.

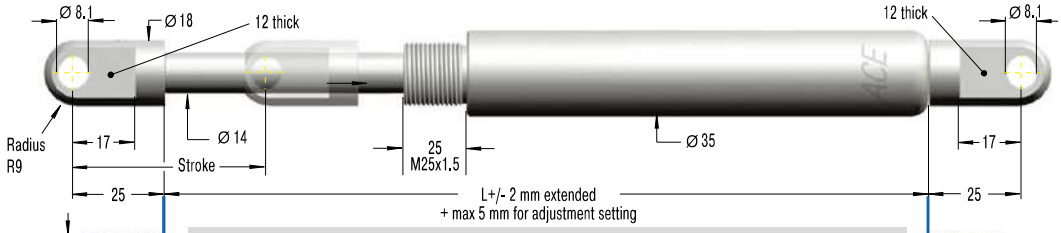
Safety instructions: For long strokes with high forces use swivel mounting block MBS.

Issue 07.2017 – Specifications subject to change

Adjustable, Without Free Travel, Compression and extension force 30 N to 10,000 N

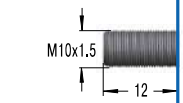
End Fitting — Standard Dimensions — End Fitting

A10



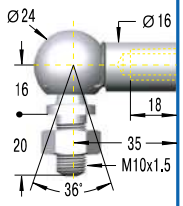
Eye A10
max. force 10,000 N

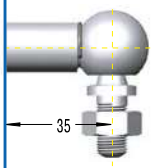
B10



Stud Thread B10

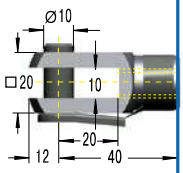
C10

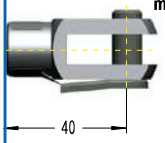




Angle Ball Joint C10
max. force 1,800 N

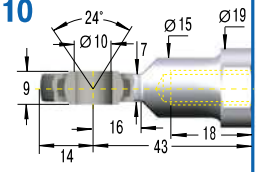
D10

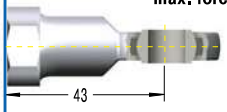




Clevis Fork D10
max. force 10,000 N

E10





Swivel Eye E10
max. force 10,000 N

Rod Shroud
no retrofit
Ø 40, L = Stroke + 80

Performance and Dimensions

TYPES	Stroke mm	L extended mm	[1] Compression force max. N	[1] Compression force with MBS max. N
HBS-35-100	117	487	10,000	10,000
HBS-35-150	167	637	7,500	10,000
HBS-35-200	217	787	5,150	10,000
HBS-35-300	317	1,087	2,850	10,000
HBS-35-400	417	1,387	1,800	10,000
HBS-35-500	517	1,687	1,240	10,000
HBS-35-600	617	1,987	910	8,600
HBS-35-700	717	2,287	690	6,500
HBS-35-800	817	2,587	540	5,100

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

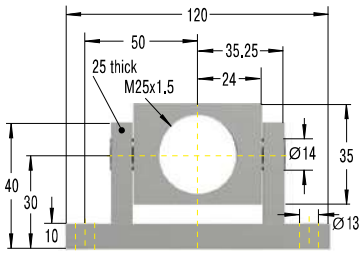
Ordering Example — HBS-35-300-EE-N

Type (Hydraulic Damper)
Body Ø (35 mm)
Stroke (300 mm)
Piston Rod End Fitting E10
Body End Fitting E10
Damping Direction (N = in stroke only)

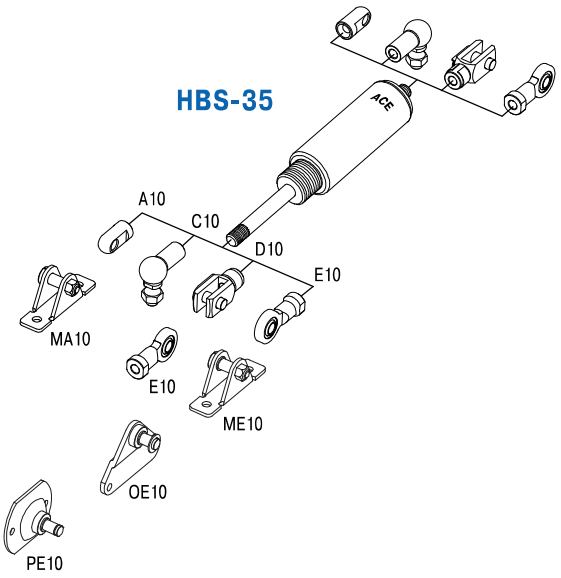
Model Type Prefix

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 200.



Swivel Mounting Block
MBS-35



Technical Data

Compression and extension force: 30 N to 10,000 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 5 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.

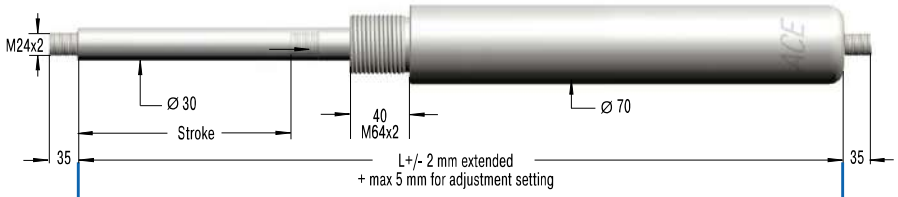
End fittings: They are interchangeable and if necessary must be positively secured by the customer to prevent unscrewing.

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

Issue 07.2017 – Specifications subject to change

End Fitting — Standard Dimensions — End Fitting

B24



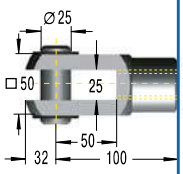
Stud Thread B24

Performance and Dimensions

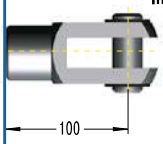
TYPES	Stroke mm	L extended mm	[1] Compression force max. N	[1] Compression force with MBS max. N
HBS-70-100	111	561	40,000	40,000
HBS-70-200	211	861	40,000	40,000
HBS-70-300	311	1,161	40,000	40,000
HBS-70-400	411	1,461	30,300	40,000
HBS-70-500	511	1,761	21,600	40,000
HBS-70-600	611	2,061	16,200	40,000
HBS-70-700	711	2,361	12,600	40,000
HBS-70-800	811	2,661	10,100	40,000

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

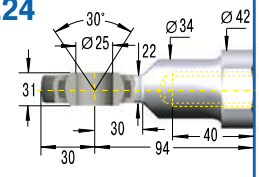
D24



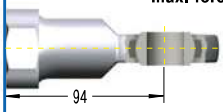
Clevis Fork D24
max. force 50,000 N



E24



Swivel Eye E24
max. force 50,000 N



Ordering Example — HBS-70-300-EE-N

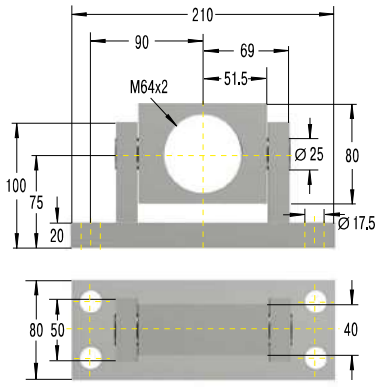
Type (Hydraulic Damper)
Body Ø (70 mm)
Stroke (300 mm)
Piston Rod End Fitting E24
Body End Fitting E24
Damping Direction (N = in stroke only)

Model Type Prefix

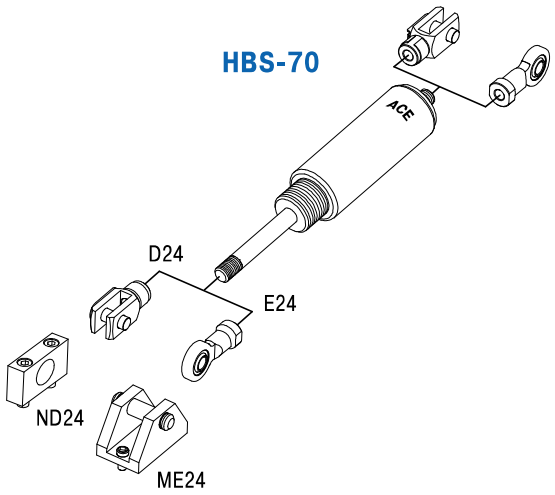
P: Damping in both directions
N: Damping on in stroke only
M: Damping on out stroke only
X: Special model suffix

Mounting accessories see from page 200.

Rod Shroud W24-70
Ø 80, L = Stroke + 180



Swivel Mounting Block
MBS-70



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 5 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 if necessary must be positively secured by the customer to prevent unscrewing.

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

Issue 07.2017 – Specifications subject to change

HB-12 to HB-70

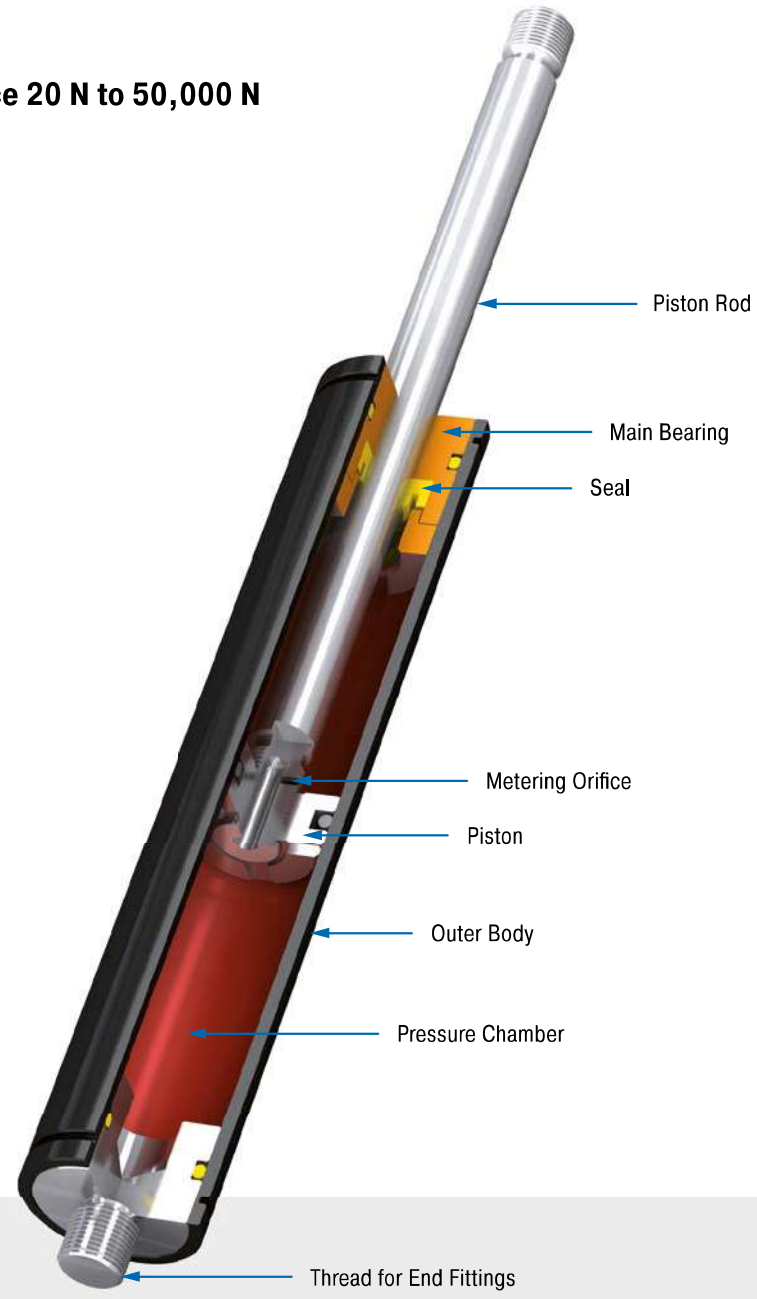
Linear motion control

Adjustable
Compression and extension force 20 N to 50,000 N
Stroke 10 mm to 800 mm

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, Sports equipment

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

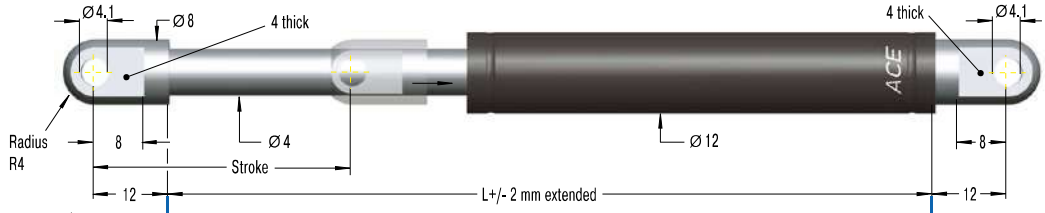
End fittings: They are interchangeable and if necessary must be positively secured by the customer to prevent unscrewing.

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

Issue 07.2017 – Specifications subject to change

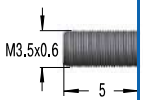
End Fitting — Standard Dimensions — End Fitting

A3,5



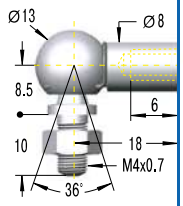
Eye A3,5
max. force 370 N

B3,5

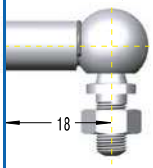


Stud Thread B3,5

C3,5



Angle Ball Joint C3,5
max. force 370 N

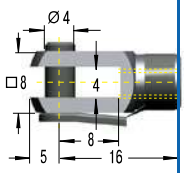


Performance and Dimensions

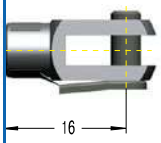
TYPES	Stroke mm	L extended mm	[1] Compression force max. N
HB-12-10	10	55	180
HB-12-20	20	75	180
HB-12-30	30	95	180
HB-12-40	40	115	180
HB-12-50	50	135	180
HB-12-60	60	155	180
HB-12-70	70	175	180
HB-12-80	80	195	150

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

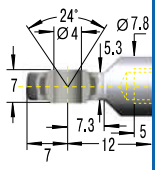
D3,5



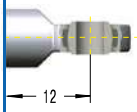
Clevis Fork D3,5
max. force 370 N



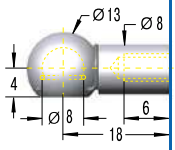
E3,5



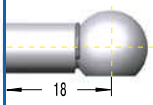
Swivel Eye E3,5
max. force 370 N



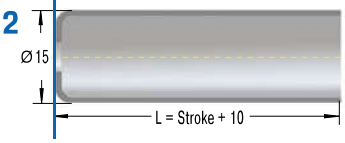
G3,5



Ball Socket G3,5
max. force 370 N



Rod Shroud W3,5-12



Ordering Example — HB-12-30-AC-M

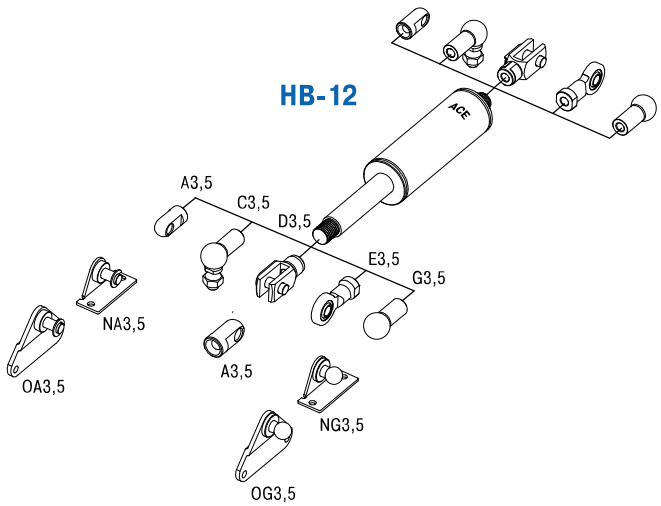
- Type (Hydraulic Damper)
- Body Ø (12 mm)
- Stroke (30 mm)
- Piston Rod End Fitting A3,5
- Body End Fitting C3,5
- Damping Direction (M = out stroke only)

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 200.

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
Damping force adjustable before installation. 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.

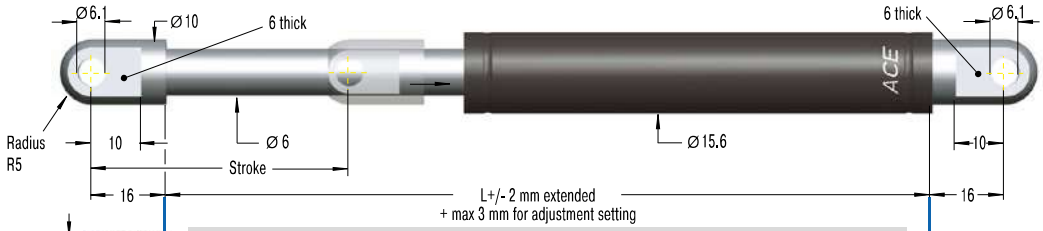
End fittings: They are interchangeable and if necessary must be positively secured by the customer to prevent unscrewing.

Hydraulic Dampers HB-15

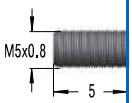
Adjustable, Compression and extension force 20 N to 800 N

End Fitting

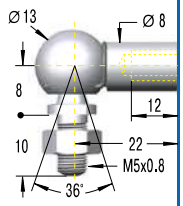
A5



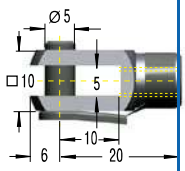
B5



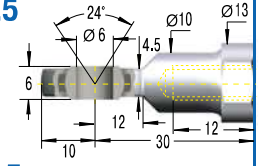
C5



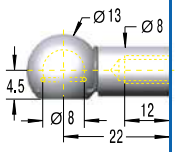
D5



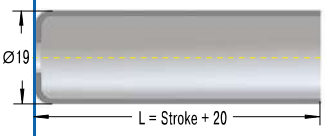
E5



G5



Rod Shroud W5-15



Standard Dimensions

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.

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

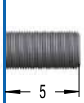
Mounting accessories see from page 200.

End Fitting

Eye A5

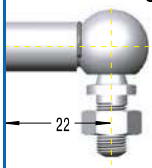
max. force 800 N

Stud Thread B5



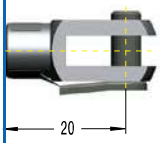
Angle Ball Joint C5

max. force 500 N



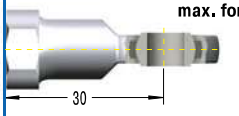
Clevis Fork D5

max. force 800 N



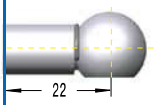
Swivel Eye E5

max. force 800 N

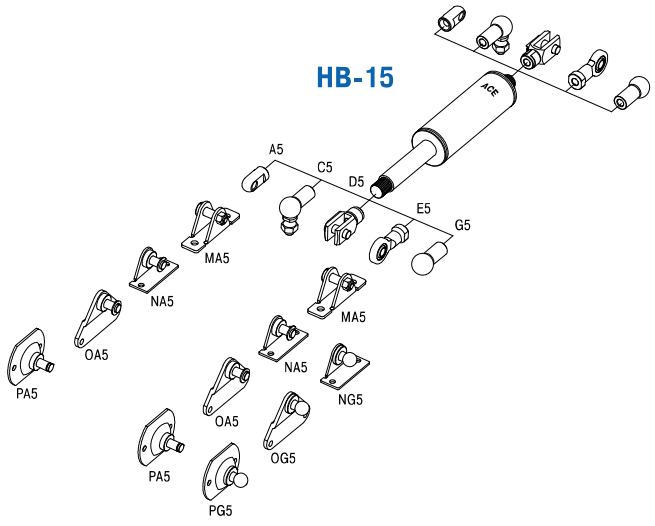


Ball Socket G5

max. force 500 N



HB-15



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
Damping force adjustable before installation. 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 if necessary must be positively secured by the customer to prevent unscrewing.

Issue 07.2017 – Specifications subject to change

End Fitting

A8

B8

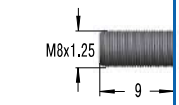
C8

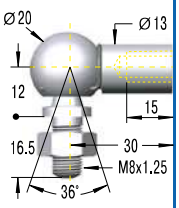
D8

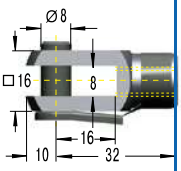
E8

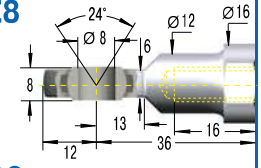
G8

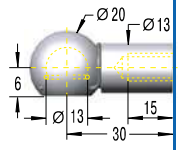
Standard Dimensions











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

HB-22-150-DD-M

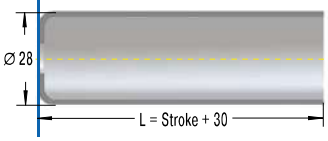
- Type (Hydraulic Damper)
- Body Ø (23 mm)
- Stroke (150 mm)
- Piston Rod End Fitting D8
- Body End Fitting D8
- Damping Direction (M = out stroke only)

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 200.

Rod Shroud W8-22

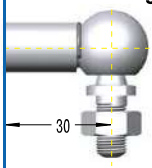


End Fitting

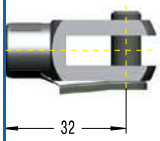
Eye A8
max. force 3,000 N

Stud Thread B8

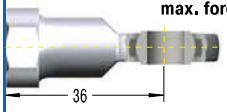
Angle Ball Joint C8
max. force 1,200 N



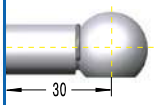
Clevis Fork D8
max. force 3,000 N



Swivel Eye E8
max. force 3,000 N



Ball Socket G8
max. force 1,200 N



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

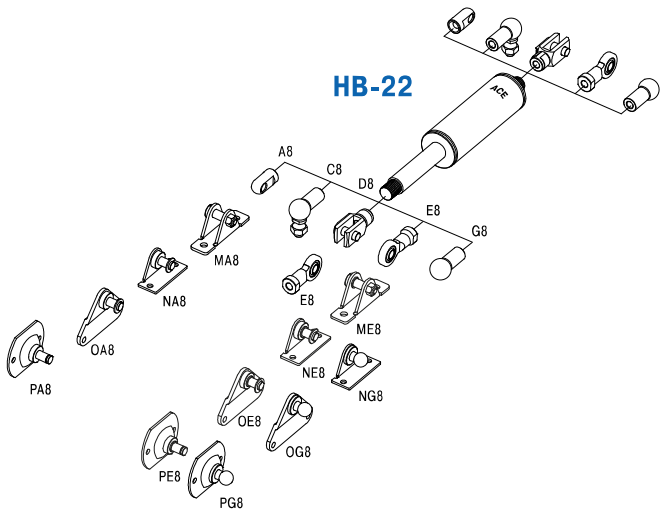
Positive stop: External positive stops 1 mm to 1.5 mm before the end of stroke provided by the customer.

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 if necessary must be positively secured by the customer to prevent unscrewing.



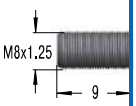
Hydraulic Dampers HB-28

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

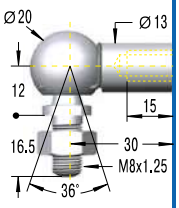
End Fitting

A8

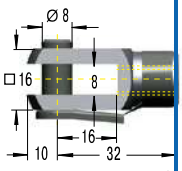
B8



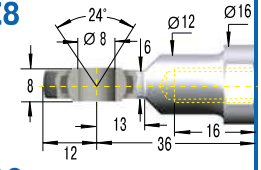
C8



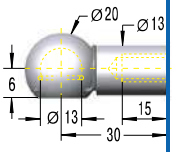
D8



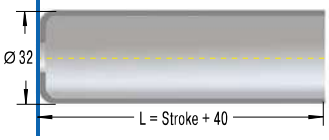
E8



G8



Rod Shroud W8-28



Standard Dimensions

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

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)

Model Type Prefix

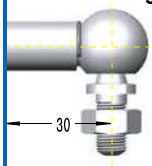
P: Damping in both directions
N: Damping on in stroke only
M: Damping on out stroke only
X: Special model suffix

Mounting accessories see from page 200.

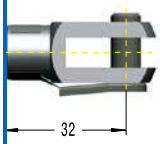
End Fitting

Eye A8
max. force 3,000 N

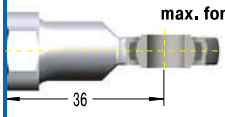
Stud Thread B8



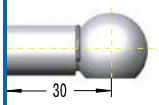
Angle Ball Joint C8
max. force 1,200 N



Clevis Fork D8
max. force 3,000 N

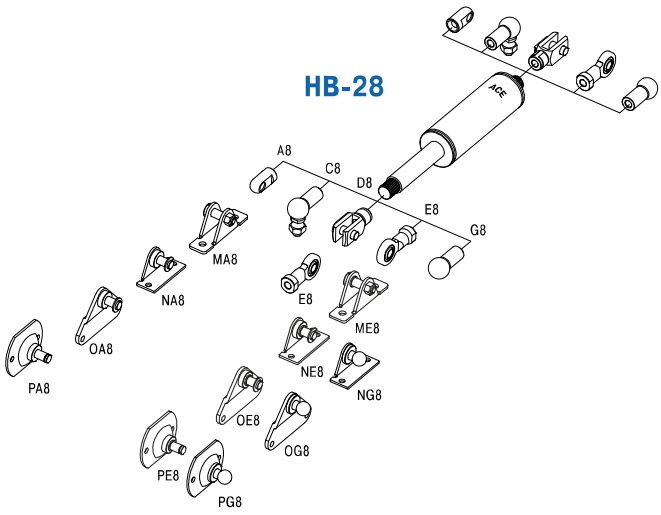


Swivel Eye E8
max. force 3,000 N



Ball Socket G8
max. force 1,200 N

HB-28



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
Damping force adjustable before installation. 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

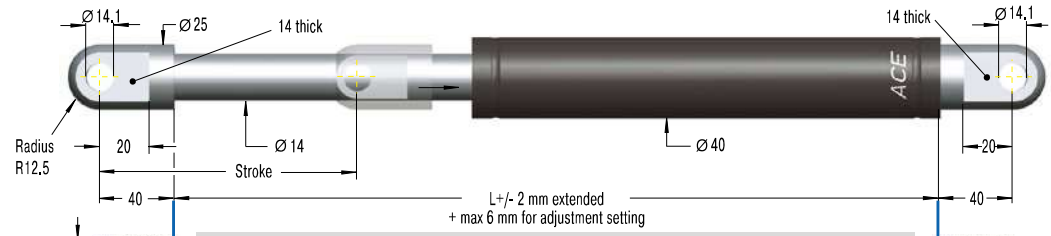
Note: Increased break-away force if unit has not moved for some time.

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

Issue 07.2017 – Specifications subject to change

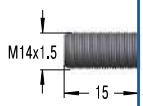
End Fitting — Standard Dimensions — End Fitting

A14



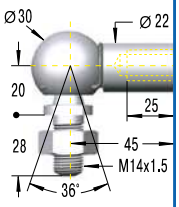
Eye A14
max. force 10,000 N

B14

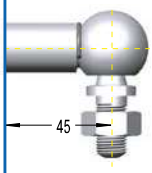


Stud Thread B14

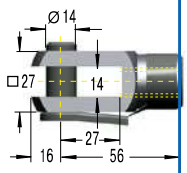
C14



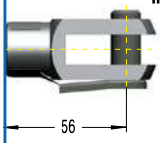
Angle Ball Joint C14
max. force 3,200 N



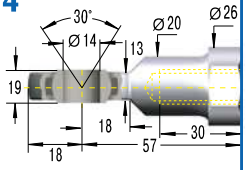
D14



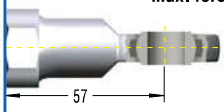
Clevis Fork D14
max. force 10,000 N



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 — HB-40-300-EE-N

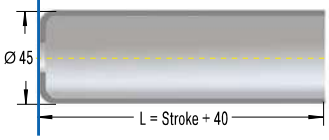
Type (Hydraulic Damper)
Body Ø (40 mm)
Stroke (300 mm)
Piston Rod End Fitting E14
Body End Fitting E14
Damping Direction (N = in stroke only)

Model Type Prefix

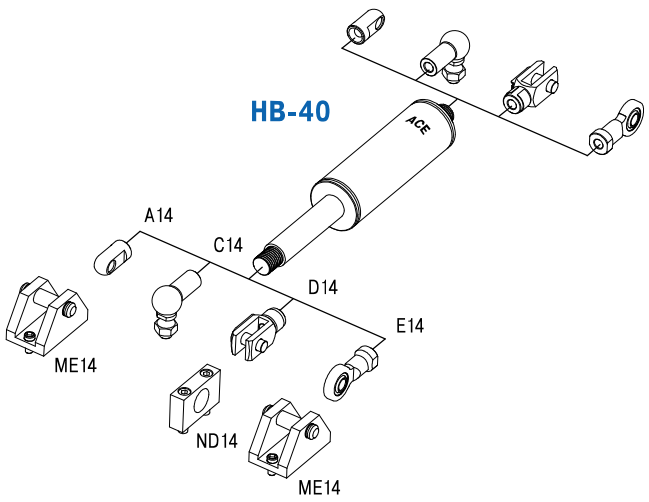
P: Damping in both directions
N: Damping on in stroke only
M: Damping on out stroke only
X: Special model suffix

Mounting accessories see from page 200.

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
Damping force adjustable before installation. 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.

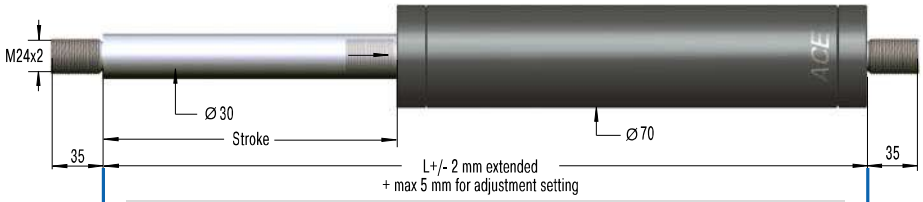
End fittings: They are interchangeable and if necessary must be positively secured by the customer to prevent unscrewing.

Hydraulic Dampers HB-70

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

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

B24



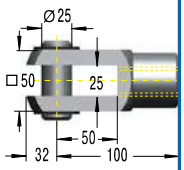
Stud Thread B24

Performance and Dimensions

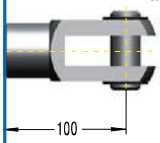
TYPES	Stroke mm	L extended mm	[1] Compression force max. N
HB-70-100	111	331	50,000
HB-70-200	211	531	50,000
HB-70-300	311	731	50,000
HB-70-400	411	931	30,300
HB-70-500	511	1,131	21,600
HB-70-600	611	1,331	16,200
HB-70-700	711	1,531	12,600
HB-70-800	811	1,731	10,100

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

D24



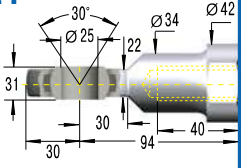
Clevis Fork D24
max. force 50,000 N



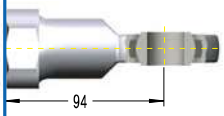
Ordering Example — HB-70-300-EE-N

- 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

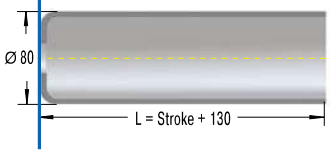


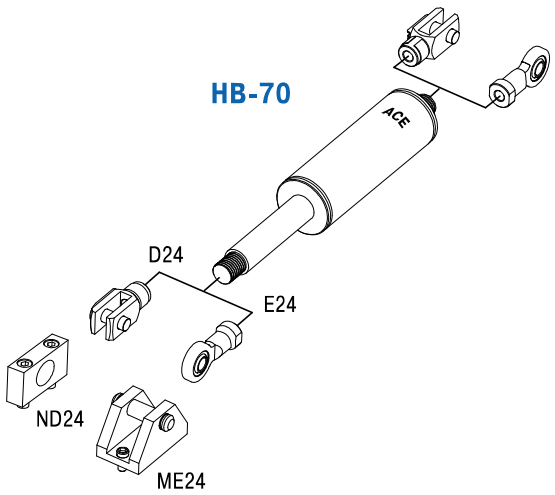
Model Type Prefix

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 200.

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
Damping force adjustable before installation. The adjustment can add a max. of 5 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 if necessary must be positively secured by the customer to prevent unscrewing.

Issue 07.2017 – Specifications subject to change

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TD, TDE

The safe way to close doors

Adjustable
Energy capacity 75 Nm/Cycle to 190 Nm/Cycle
Stroke 50 mm to 120 mm

Safety for individuals, doors and frames: whether acting single-sided or double-sided, ACE TD-28 and TDE-28 dampers securely prevent doors of all types and many weight classes from slamming shut. This is because the energy for stroke lengths between 50 mm and 120 mm is absorbed so reliably, that people and their possessions are protected.

The desired attenuation force is set manually; as a result, this door damper can absorb energy up to max. 190 Nm/stroke. Impact masses up to a maximum of 7,000 kg can be overcome depending on which type. ACE door dampers are manufactured to be high quality and durable with hard chrome-plated piston rod and galvanised steel cylinder tubes.

Practical and safe, these door dampers are suitable for manual or automatically operated hinged and sliding doors, as is often seen in the elevator and furniture industries, as well as in building technology.

Technical Data

Outer body diameter: Ø 28 mm

Piston rod diameter: Ø 8 mm

Free travel: TDE: marginal

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

Adjustment: Pull the piston rod fully out and turn the knurled rod end button. The internal toothed adjustment allows the damping to be separately adjusted for each side. As a result of the adjustment mechanism the overall length L can be increased by up to 4 mm (TDE-28) or 8 mm (TD-28).

Material: Outer body: zinc plated steel; Piston rod: hard chrome plated steel

Impact velocity range: 0.1 m/s to 2 m/s

Strokes per minute: max. 10

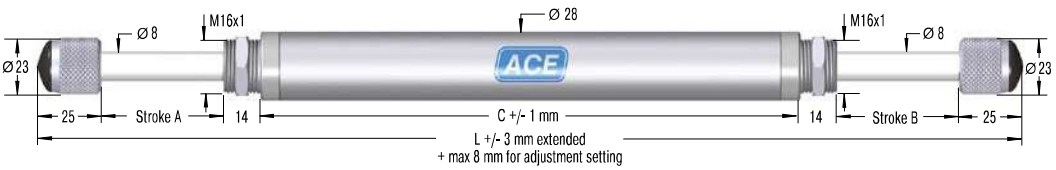
Application field: lift doors, automatic doors, doors

Note: ACE door dampers are single ended or double ended adjustable hydraulic shock absorbers.

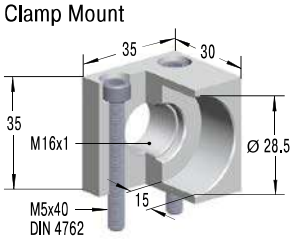
On request: Special oils, other special options and special accessories are available on request.

Issue 07.2017 – Specifications subject to change

TD-28



MB-16
Clamp Mount



Model Type Prefix

F: Automatic return with return spring
D: Without return spring. When one piston is pushed in, the piston rod at the other end is pushed out (thus the damper must be impacted from alternate ends to sequence correctly).

Ordering Example **TD-28-50-50**

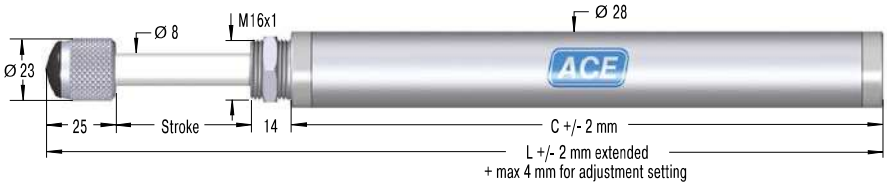
Type (Door Damper)
Body Ø (28 mm)
Stroke A (50 mm)
Stroke B (50 mm)

Performance and Dimensions

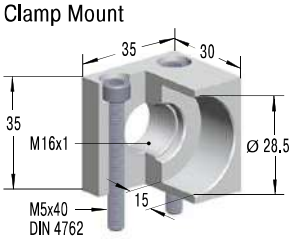
TYPES	Energy capacity Nm/cycle	Reacting Force N	Impact Mass max. kg	Stroke A mm	Stroke B mm	C mm	L extended mm	Return Force max. N	[1] Return Type
TD-28-50-50-F	75	1,550	150	50	50	220	402	30	F
TD-28-70-70-F	70	1,500	200	70	70	260	482	30	F
TD-28-100-100-F	80	1,500	250	100	100	220	502	40	F
TD-28-120-120-D	165	3,800	250	120	120	208	417	-	D

[1] Standard model. Other models available on request.

TDE-28



MB-16
Clamp Mount



Ordering Example **TDE-28-50**

Type (Door Damper)
Body Ø (28 mm)
Stroke (50 mm)

Performance and Dimensions

TYPES	Energy capacity Nm/cycle	Reacting Force N	Impact Mass max. kg	Stroke mm	C mm	L extended mm	Return Force max. N
TDE-28-50	80	2,400	4,000	50	130	219	30
TDE-28-70	112	2,400	5,600	70	158	267	30
TDE-28-100	160	2,400	8,000	100	193	332	30
TDE-28-120	190	2,400	7,000	120	214	371	40

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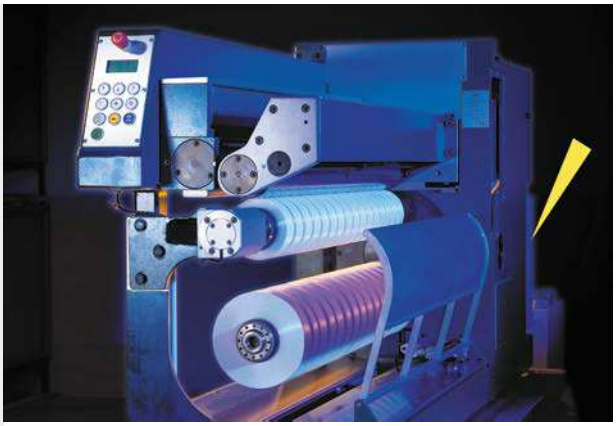
Application Examples

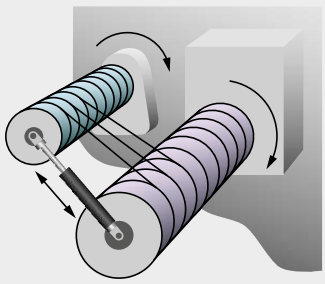
DVC-32

Precise unreeling

Hydraulic dampers bring the sled movement of this textile machine to a gentle stop. At the turning point of 130 kg reeling spools, a sled should move up and down smoothly without causing a collision at the end of stroke position. The solution was provided by the hydraulic damper DVC-32-100EU. A self-contained sealed unit, ready to install and maintenance-free these units are ideal for precise control of speeds in both directions of travel. The travel speed is maintained throughout the entire stroke and can be independently adjusted in each direction of travel. Thanks to their compact design and wide choice of mounting accessories, these dampers could be easily integrated into this machine.



Textile machine unreels threads even better

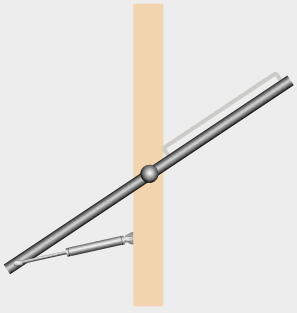


HB-15

Operating speed of flaps top-regulated

In the past, operators of used-clothes containers could sustain injury because the flaps closed relatively quickly and uncontrollably. Various hydraulic dampers of the type HB-15, which are designed specifically for the type of container, regulate the synchronization of the flap in both directions and thereby serve to regulate the operating speed. To accommodate a range of requirements and to provide optimal protection against theft, different types with different strokes are mounted on flaps without damping, on large flaps with damping and on rotor flaps with damping.

Hydraulic dampers prevent fingers becoming trapped in used-clothes containers as they ensure more gentle opening and closing movements
MCB Milieu & Techniek BV, 4704 SE Roosendaal, Netherlands



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