

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 and DVC-2 to DVC-6

Page 194

Adjustable, Without Free Travel
Multi-directional speed adjustment
 Cylinder speed controls, Absorption control, Finishing and processing centres



HBD-15 to HBD-40

Page 196

Adjustable
Motion Control at the highest level
 Finishing and processing centres, Machine housing, Hoods, Shutters



HB-12 to HB-70

Page 202

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

Constant speed rates

Sensitive adjustment

High quality and long lifetime

Easy to mount



DVC-32 and DVC-2 to DVC-6

Multi-directional speed adjustment

Adjustable, Without Free Travel

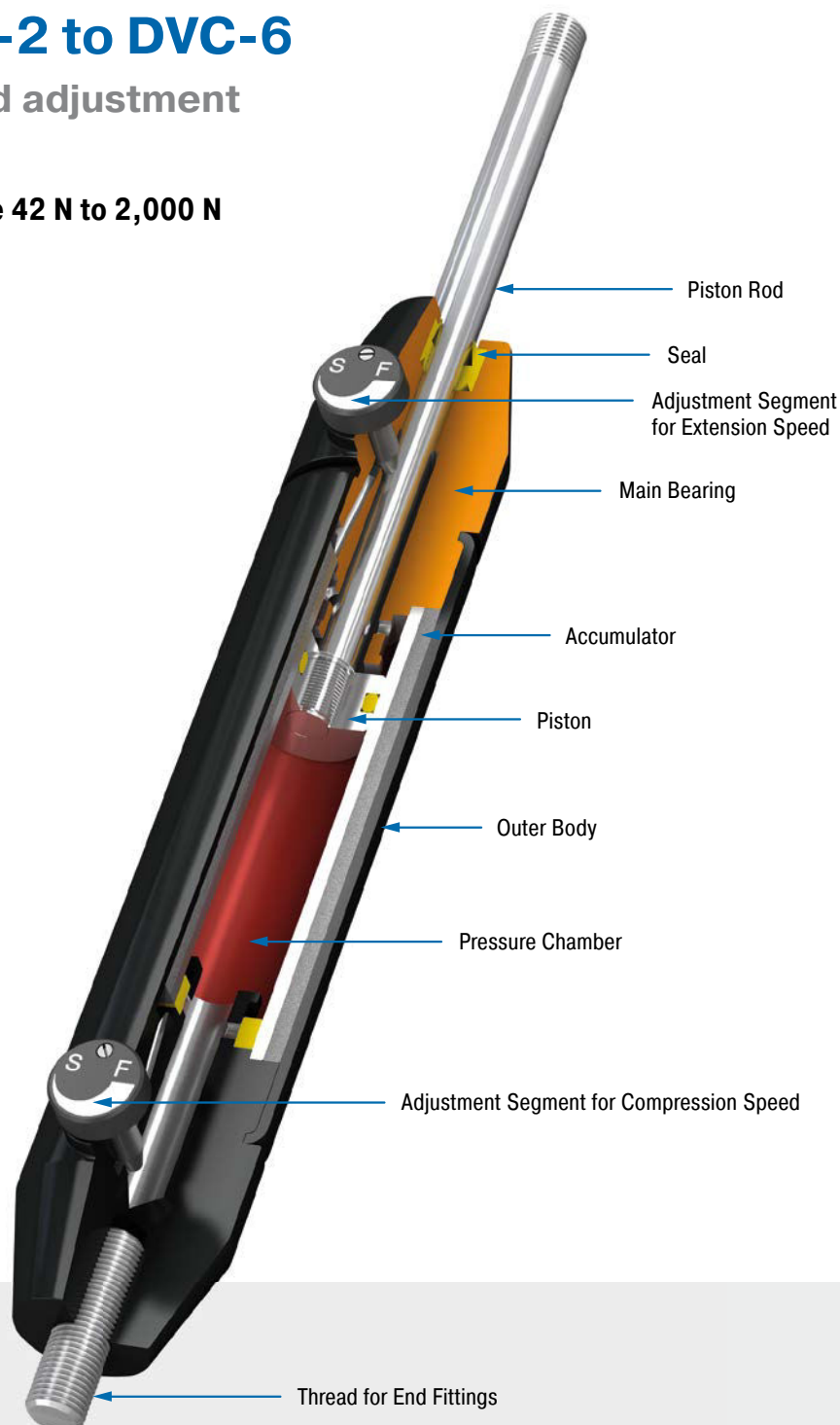
Compression and extension force 42 N to 2,000 N

Stroke 50 mm to 150 mm

Separately regulated in any stroke position: The hydraulic dampers of the product family DVC-32 and DVC-2 to DVC-6 are the first dampers to provide precise, independent, external adjustment of in-and-out speeds. With their individual adjustments for the push and pull direction as well as the bi-directional action, these are suitable as safety or control elements.

The great number of mounting accessories makes assembly of these ACE hydraulic dampers 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 velocity controllers are used in the automotive sector, automation and machine building as well as in 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

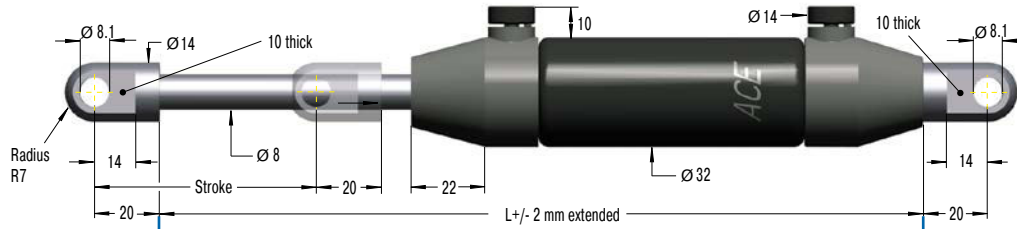
Application field: Cylinder speed controls, Absorption control, Finishing and processing centres

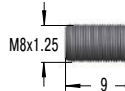
Note: Increased break-away force if unit has not moved for some time. Damping force can be adjusted after installation.

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.

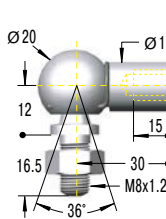
Adjustable, Without Free Travel, Compression and extension force 42 N to 2,000 N

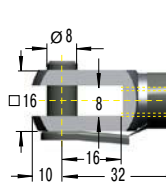
End Fitting
Standard Dimensions
End Fitting
A8

Eye A8
max. force 3,000 N

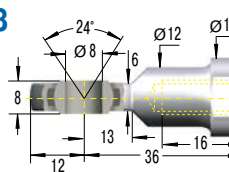
B8

Performance and Dimensions

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

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

Stud Thread B8
C8

Angle Ball Joint C8
max. force 1,200 N

D8

Clevis Fork D8
max. force 3,000 N

E8

Swivel Eye E8
max. force 3,000 N

Ordering Example
DVC-32-50-DD-CCO

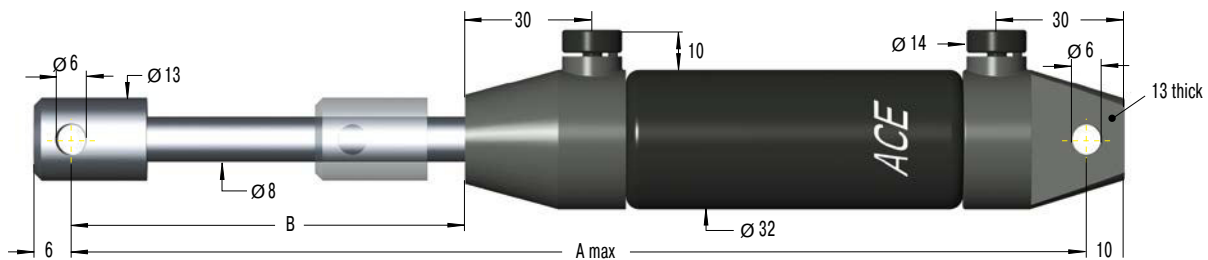
Type (Hydraulic Damper) _____
 Body \varnothing 1.26" (32 mm) omitted at DVC-2 to DVC-6 _____
 Stroke 2" (50 mm) _____
 Piston Rod End Fitting D8 _____
 Body End Fitting D8 _____
 Velocity Controls (Omit prefix for controlled, both directions) _____

Model Type Prefix

- : Controlled, both directions
 CCO: Controlled, compression only
 CTO: Controlled, tension only

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

Mounting accessories see from page 212.

DVC-2 to DVC-6

Performance and Dimensions

TYPES	Stroke mm	A max. mm	B mm	Compression force max. N	Traction force max. N
DVC-2	50	250	75.4	2,000	2,000
DVC-4	100	351	125	2,000	2,000
DVC-6	150	452	176	2,000	2,000

HBD-15 to HBD-40

Motion Control at the highest level

Adjustable

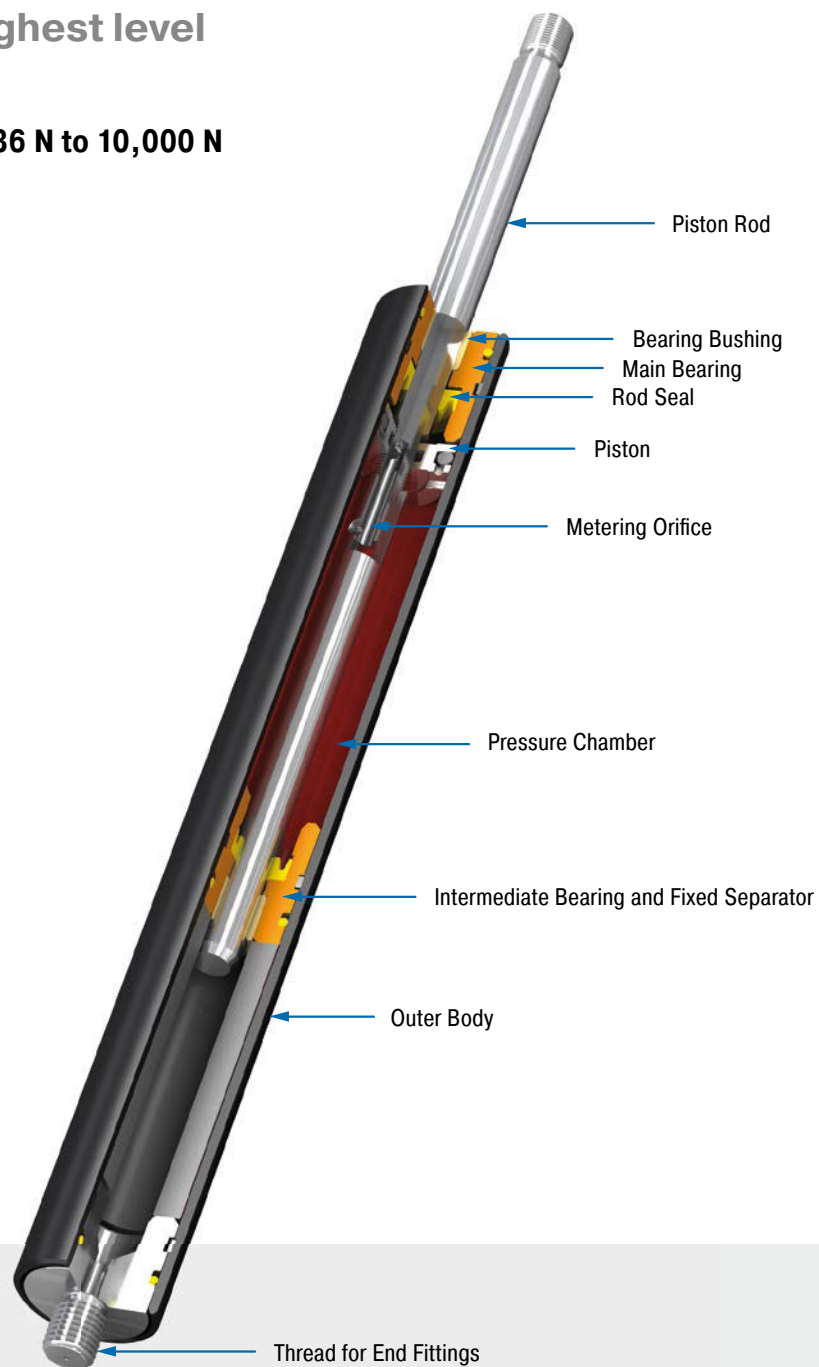
Compression and extension force 36 N to 10,000 N

Stroke 25 mm to 800 mm

ACE Controls HBD hydraulic dampers are maintenance-free, self-contained and sealed units. They are available with body diameters from 15 mm (0.59") to 40 mm (1.57") and with stroke lengths of up to 800 mm (31.5"). Unlike standard hydraulic dampers that include free travel up to 20 % of stroke, these dependable units have no free travel and are ideal for applications that require this level of performance. Double-acting hydraulic dampers are standard. However, a single acting design is available. Adjustment is easily achieved by pulling and turning the rod until the desired damping speed is achieved. The travel speed is adjustable and remains constant throughout the stroke.

The single acting version is controllable in one direction only, with free-flow in the opposite direction. A built-in antilock guard allows adjustment to be made at any damping rate without unit lock up. These reliable units offer long life-cycle performance. A variety of end fittings are available for ease of operation and installation, and are included.

HBD hydraulic dampers are used for process control, machine guards, lids, hatches, fire safety doors, arms for medical equipment, conveyors, swinging loads, machine tools, lift gates, drill feed control, amusement park rides, and more.



Technical Data

Compression and extension force: 36 N to 10,000 N

Outer body diameter: Ø 15 mm to Ø 40 mm

Piston rod diameter: Ø 6 mm to Ø 14 mm

Lifetime: Approx. 10,000 m

Free travel: These units have no free travel and are ideal for applications that require this level of performance.

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

Adjustment: Pull the piston rod out to its fully extended position. While pulling on the rod, turn it clockwise or counter-clockwise until the desired damping is achieved. The adjustment

is multi-turn and correct damping may require several trial and error adjustments. A built-in antilock guard allows adjustments to be made at any damping rate without unit lock up.

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

Damping medium: Petroleum oil

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

Mounting: In any position

Application field: Finishing and processing centers, Machine housing, Hoods, Shutters,

Fire safety doors, Medical technology, Conveyor systems, Swivel units, Tool machines, Lift doors

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 information: Mechanical Stop required 1 mm to 1.5 mm before end of stroke.

On request: Special oils, damping characteristics, and stroke lengths. Alternative accessories available on request.

Adjustable, Compression and extension force 36 N to 800 N

End Fitting

Standard Dimensions

End Fitting

End Fitting A5
Eye A5
max. force 800 N

End Fitting B5
Stud Thread B5

End Fitting C5
Angle Ball Joint C5
max. force 500 N

End Fitting D5
Clevis Fork D5
max. force 800 N

End Fitting E5
Swivel Eye E5
max. force 800 N

Stroke

L +/- 2 extended
+ max 6 at maximum adjustment

3 thick

11

8

6

6

7

15

R5

16

22

M5x0.8

5

Ø13

8

12

10

22

M5x0.8

36°

Ø5

10

5

6

20

Ø10

Ø13

24°

6

12

30

12

Performance and Dimensions

TYPES	Stroke mm	L extended mm	¹ Compression force max. N
HBD-15-25	25	145	800
HBD-15-50	50	220	800
HBD-15-75	75	295	800
HBD-15-100	100	370	350
HBD-15-150	150	520	300

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

Ordering Example

HBD-15-150-AA-P

Type (Hydraulic Damper) _____

Body 0.59" (15 mm) _____

Stroke 5.91" (150 mm) _____

Piston Rod End Fitting A5 _____

Body End Fitting A5 _____

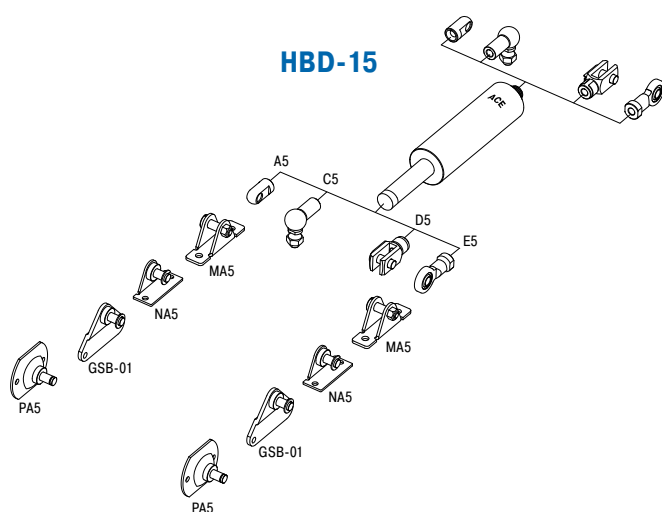
Damping Direction (P = in both directions) _____

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 212.

HBD-15



Technical Data

Compression and extension force: 36 N to 800 N

Free travel: These units have no free travel and are ideal for applications that require this level of performance.

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

Adjustment: Pull the piston rod out to its fully extended position. While pulling on the rod, turn it clockwise or counter-clockwise until the desired damping is achieved. The adjustment is multi-turn and correct damping may require several trial and error adjustments. A built-in antilock guard allows adjustments to be made at any damping rate without unit lock up.

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

Mounting: In any position

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

Safety information: Mechanical Stop required 1 mm to 1.5 mm before end of stroke.

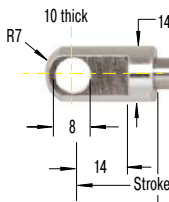
Adjustable, Compression and extension force 50 N to 1,800 N

End Fitting

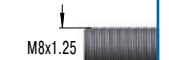
Standard Dimensions

End Fitting

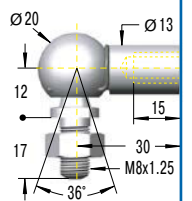
A8



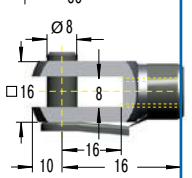
B8



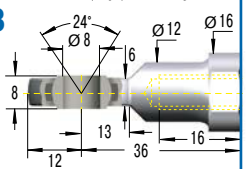
C8



D8



E8



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

Performance and Dimensions

TYPES	Stroke mm	L extended mm	¹ Compression force max. N
HBD-22-50	50	238	1,800
HBD-22-100	100	385	1,800
HBD-22-150	150	525	1,800
HBD-22-200	200	685	1,000
HBD-22-250	250	835	1,000
HBD-22-300	300	985	800
HBD-22-350	350	1,135	600
HBD-22-400	400	1,285	400

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

Ordering Example

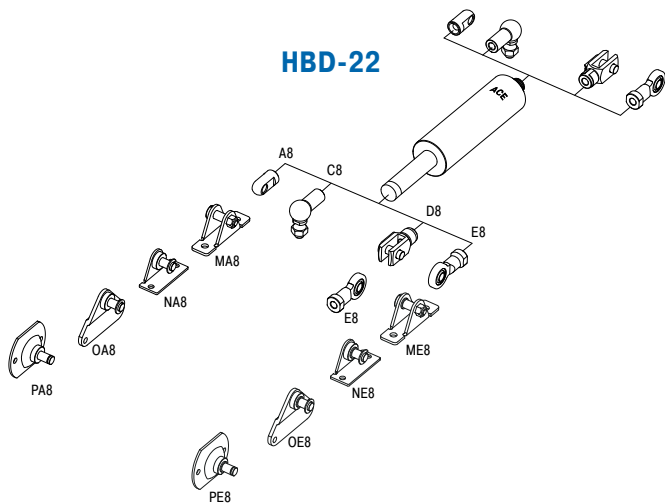
Type (Hydraulic Damper) _____
 Body 0.87" (22 mm) _____
 Stroke 5.90" (150 mm) _____
 Piston Rod End Fitting A8 _____
 Body End Fitting A8 _____
 Damping Direction (P = in both directions) _____

HBD-22-150-AA-P

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 212.



Technical Data

Compression and extension force: 50 N to 1,800 N

Free travel: These units have no free travel and are ideal for applications that require this level of performance.

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

Adjustment: Pull the piston rod out to its fully extended position. While pulling on the rod, turn it clockwise or counter-clockwise until the desired damping is achieved. The adjustment is multi-turn and correct damping may require several trial and error adjustments. A built-in antilock guard allows adjustments to be made at any damping rate without unit lock up.

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

Mounting: In any position

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

Safety information: Mechanical Stop required 1 mm to 1.5 mm before end of stroke.

Adjustable, Compression and extension force 70 N to 3,000 N

End Fitting

Standard Dimensions

End Fitting

End Fitting A8
max. force 3,000 N

End Fitting B8
Stud Thread B8

End Fitting C8
Angle Ball Joint C8
max. force 1,200 N

End Fitting D8
Clevis Fork D8
max. force 3,000 N

End Fitting E8
Swivel Eye E8
max. force 3,000 N

Performance and Dimensions

TYPES	Stroke mm	L extended mm	¹ Compression force max. N
HBD-28-50	50	250	3,000
HBD-28-100	100	400	3,000
HBD-28-150	150	550	3,000
HBD-28-200	200	700	3,000
HBD-28-250	250	850	3,000
HBD-28-300	300	1,000	2,500
HBD-28-350	350	1,150	2,000
HBD-28-400	400	1,300	1,500
HBD-28-500	500	1,600	1,000

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

Ordering Example

HBD-28-150-AA-P

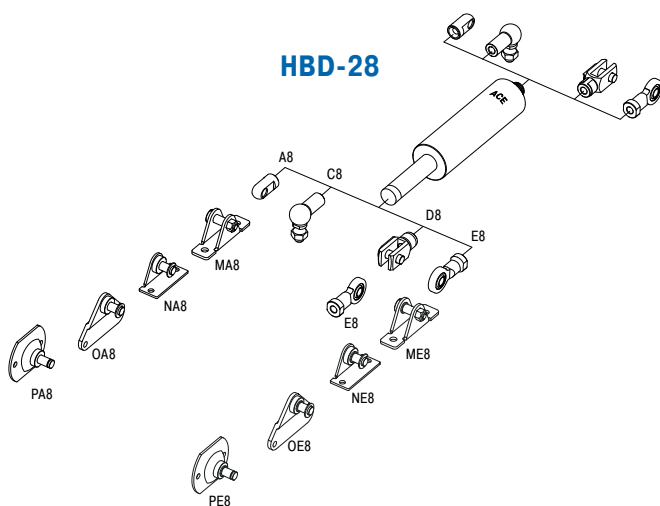
Type (Hydraulic Damper) _____
 Body 1.10" (28 mm) _____
 Stroke 5.91" (150 mm) _____
 Piston Rod End Fitting A8 _____
 Body End Fitting A8 _____
 Damping Direction (P = in both directions) _____

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 212.

HBD-28



Technical Data

Compression and extension force: 70 N to 3,000 N

Free travel: These units have no free travel and are ideal for applications that require this level of performance.

Operating temperature range: -4 °F to 176 °F

Adjustment: Pull the piston rod out to its fully extended position. While pulling on the rod, turn it clockwise or counter-clockwise until the desired damping is achieved. The adjustment is multi-turn and correct damping may require several trial and error adjustments. A built-in antilock guard allows adjustments to be made at any damping rate without unit lock up.

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

Mounting: In any position

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

Safety information: Mechanical Stop required 1 mm to 1.5 mm before end of stroke.

Adjustable, Compression and extension force 80 N to 10,000 N

End Fitting

Standard Dimensions

End Fitting

A14 Eye A14 max. force 10,000 N

B14 Stud Thread B14

C14 Angle Ball Joint C14 max. force 3,200 N

D14 Clevis Fork D14 max. force 10,000 N

E14 Swivel Eye E14 max. force 10,000 N

Stroke

L +/- 2 extended + max 6 at maximum adjustment

40

14 thick

R12

25

14

14

21

M14x1.5

15

Ø30

20

25

28

45

M14x1.5

36°

Ø14

27

14

16

56

30°

Ø14

13

Ø20

Ø26

19

18

57

30

Performance and Dimensions

TYPES	Stroke mm	L extended mm	¹ Compression force max. N
HBD-40-100	100	430	10,000
HBD-40-150	150	580	10,000
HBD-40-200	200	730	10,000
HBD-40-300	300	1,030	10,000
HBD-40-400	400	1,330	8,000
HBD-40-500	500	1,630	6,000
HBD-40-600	600	1,930	4,000
HBD-40-700	700	2,230	3,000
HBD-40-800	800	2,530	2,000

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

Ordering Example

HBD-40-300-AA-P

Type (Hydraulic Damper) _____

Body 1.57" (40 mm) _____

Stroke 11.81" (300 mm) _____

Piston Rod End Fitting A14 _____

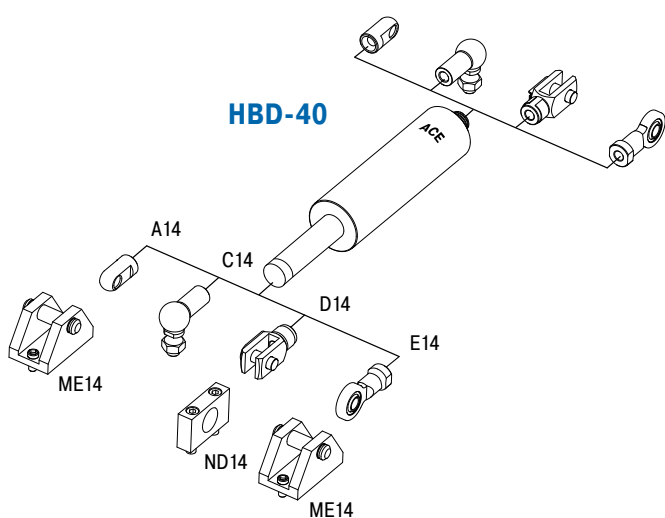
Body End Fitting A14 _____

Damping Direction (P = in both directions) _____

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 212.



Technical Data

Compression and extension force: 80 N to 10,000 N

Free travel: These units have no free travel and are ideal for applications that require this level of performance.

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

Adjustment: Pull the piston rod out to its fully extended position. While pulling on the rod, turn it clockwise or counter-clockwise until the desired damping is achieved. The adjustment is multi-turn and correct damping may require several trial and error adjustments. A built-in antilock guard allows adjustments to be made at any damping rate without unit lock up.

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

Mounting: In any position

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

Safety information: Mechanical Stop required 1 mm to 1.5 mm before end of stroke.

Dream it

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HB-12 to HB-70

Linear motion control

Adjustable

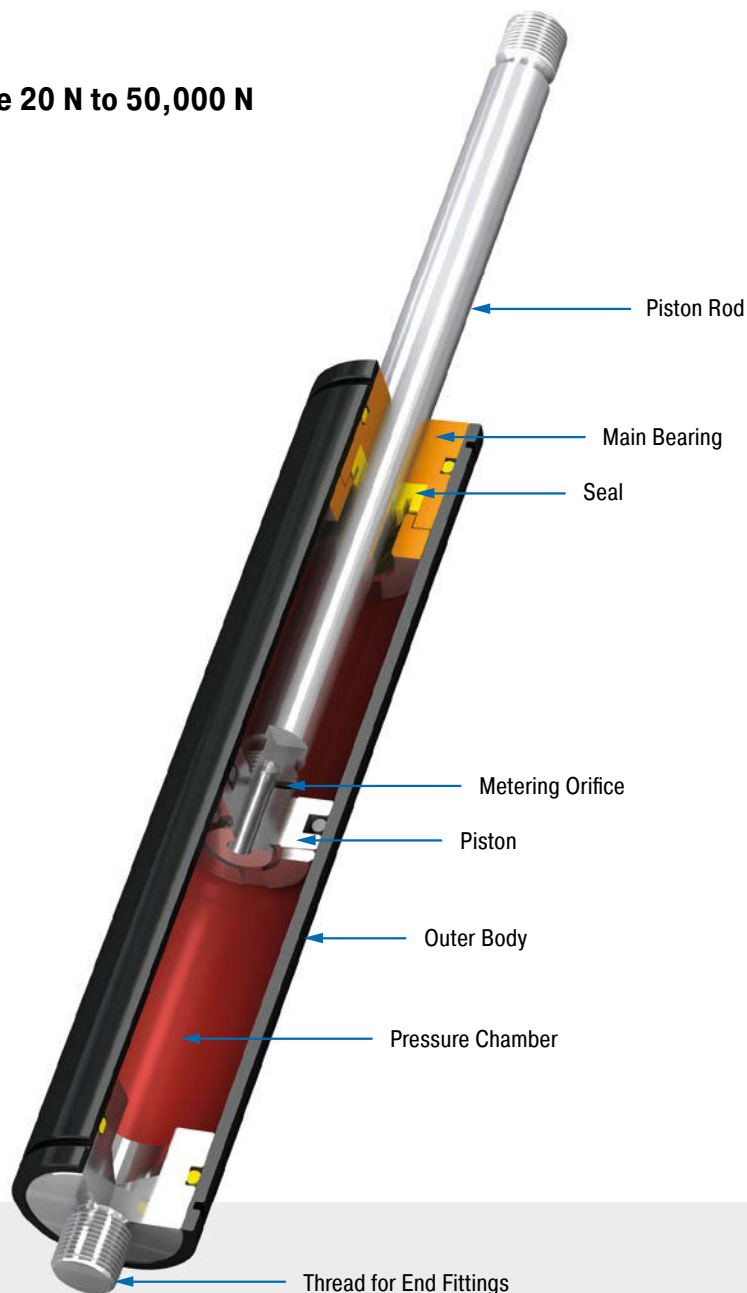
Compression and extension force 20 N to 50,000 N

Stroke 10 mm to 800 mm

High quality and long service life: The hydraulic dampers of the product family HB can also be used as single or double acting brake. Its coated body and piston rods with wear-resistant surface treatment 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. The control segment on the piston makes adjustment at the end position child's play. Thanks to a broad selection of end fittings the assembly is easy to mount, so that the damper can be universally deployed for damping swinging masses, such as in power or free conveyors.

On automotive, automation and machine building, 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.

Adjustable, Compression and extension force 20 N to 180 N

End Fitting
Standard Dimensions
End Fitting
A3.5

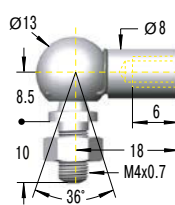
Eye A3.5
max. force 370 N

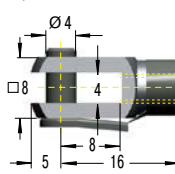
B3.5

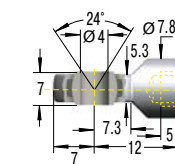
Performance and Dimensions

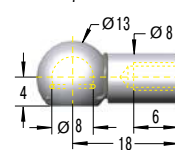
TYPES	Stroke mm	L extended mm	¹ Compression force max. N
HB-12-10	10	55	180
HB-12-20	20	75	180
HB-12-30	30	95	180
HB-12-40	40	115	180
HB-12-50	50	135	180
HB-12-60	60	155	180
HB-12-70	70	175	180
HB-12-80	80	195	150

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

Stud Thread B3.5
C3.5

Angle Ball Joint C3.5
max. force 370 N

D3.5

Clevis Fork D3.5
max. force 370 N

E3.5

Swivel Eye E3.5
max. force 370 N

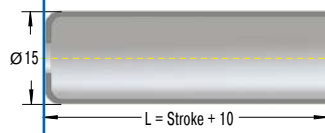
G3.5

Ball Socket G3.5
max. force 370 N

Ordering Example

Type (Hydraulic Damper) _____ **HB-12-30-AC-M**
 Body 0.47" (12 mm) _____
 Stroke 1.18" (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 212.
Rod Shroud W3.5-12

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: 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.

Clockwise rotation = increase of the damping

Anti-clockwise rotation = decrease of the damping

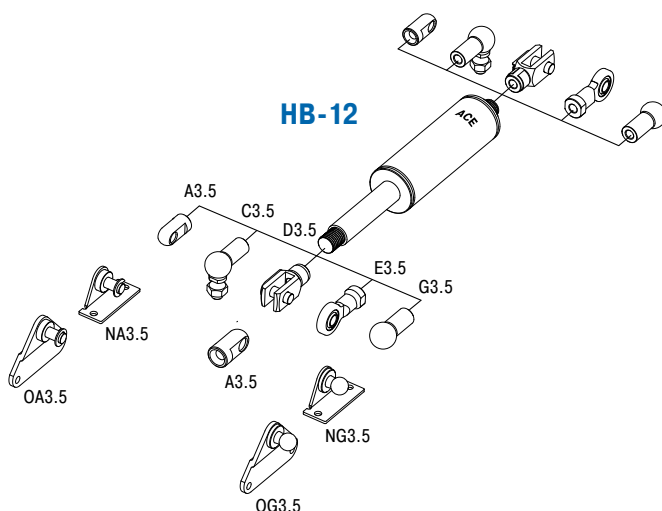
Damping force adjustable before installation. Adjustment can add a max. of 6 mm to the L dimension.

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.


Adjustable, Compression and extension force 20 N to 800 N

End Fitting

Standard Dimensions

End Fitting

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-AA-P

Type (Hydraulic Damper) _____
 Body 0.59" (15 mm) _____
 Stroke 5.91" (150 mm) _____
 Piston Rod End Fitting A5 _____
 Body End Fitting A5 _____
 Damping Direction (P = in both directions) _____

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 212.

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: 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.

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.

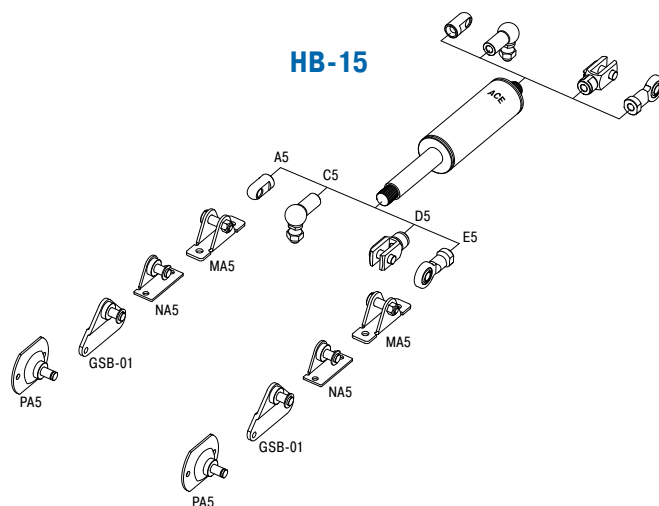
Positive stop: External positive stops 1 mm to 1.5 mm before the end of stroke provided by the customer.

Material: Outer body: Black anodized aluminium; 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.



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

End Fitting

Standard Dimensions

End Fitting

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
HB-22-300	300	650	800
HB-22-350	350	750	600
HB-22-400	400	850	400

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

Ordering Example

HB-22-150-AA-P

Type (Hydraulic Damper) _____
 Body 0.87" (22 mm) _____
 Stroke 5.90" (150 mm) _____
 Piston Rod End Fitting A8 _____
 Body End Fitting A8 _____
 Damping Direction (P = in both directions) _____

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 212.

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: 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.

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.

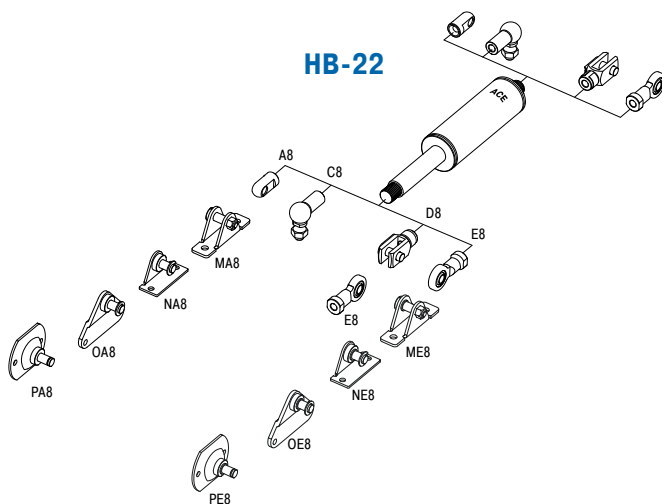
Positive stop: External positive stops 1 mm to 1.5 mm before the end of stroke provided by the customer.

Material: Outer body: Black anodized aluminium; 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.



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

End Fitting

Standard Dimensions

End Fitting

Performance and Dimensions

TYPES	Stroke mm	L extended mm	¹ Compression force max. N
HB-28-50	50	160	3,000
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-AA-P

Type (Hydraulic Damper) _____
 Body 1.10" (28 mm) _____
 Stroke 5.91" (150 mm) _____
 Piston Rod End Fitting A8 _____
 Body End Fitting A8 _____
 Damping Direction (P = in both directions) _____

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 212.

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: 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.

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.

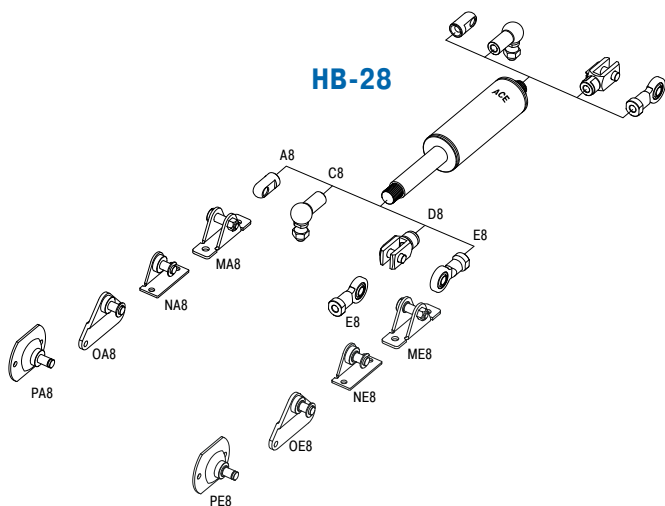
Positive stop: External positive stops 1 mm to 1.5 mm before the end of stroke provided by the customer.

Material: Outer body: Black anodized aluminium; 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.



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

End Fitting

Standard Dimensions

End Fitting

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-AA-P

Type (Hydraulic Damper) _____ ↑ ↑ ↑ ↑ ↑
 Body 1.57" (40 mm) _____ ↑ ↑ ↑ ↑ ↑
 Stroke 11.81" (300 mm) _____ ↑ ↑ ↑ ↑ ↑
 Piston Rod End Fitting A14 _____ ↑ ↑ ↑ ↑ ↑
 Body End Fitting A14 _____ ↑ ↑ ↑ ↑ ↑
 Damping Direction (P = in both directions) _____ ↑ ↑ ↑ ↑ ↑

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 212.

End Fitting Options:
 Eye A14 max. force 10,000 N
 Stud Thread B14
 Angle Ball Joint C14 max. force 3,200 N
 Clevis Fork D14 max. force 10,000 N
 Swivel Eye E14 max. force 10,000 N

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: 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.

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.

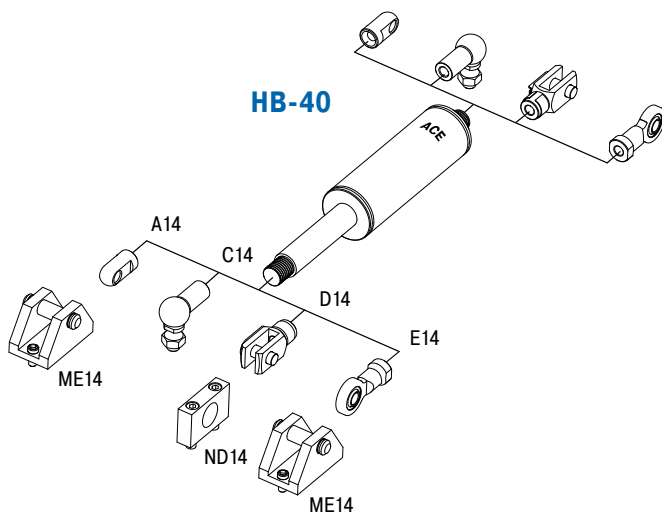
Positive stop: External positive stops 1 mm to 1.5 mm before the end of stroke provided by the customer.

Material: Outer body: Black anodized aluminium; 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.



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

End Fitting

Standard Dimensions

End Fitting

B24

D24

E24

Rod Shroud W24-70

Stud Thread B24

Clevis Fork D24
max. force 50,000 N

Swivel Eye E24
max. force 50,000 N

Performance and Dimensions

TYPES	Stroke mm	L extended mm	¹ Compression force max. N
HB-70-100	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.

Ordering Example

HB-70-300-EE-N

Type (Hydraulic Damper) _____
 Body 2.76" (70 mm) _____
 Stroke 11.81" (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 212.

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: 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.

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.

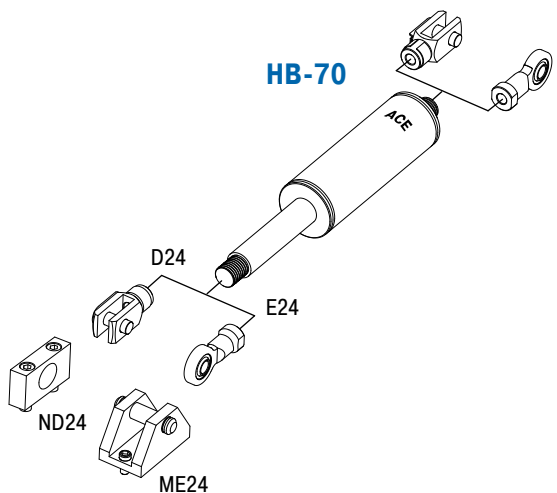
Positive stop: External positive stops 5 mm to 6 mm before the end of stroke provided by the customer.

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

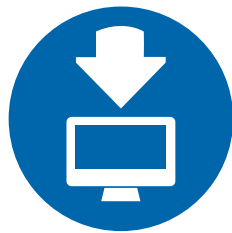
Mounting: In any position

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.



ACE Digital Tools



For more information
about the calculation
service see page 188!

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- ▶ Downloads: Product information in many languages
- ▶ PC calculation software & online calculation service
- ▶ Extensive CAD component libraries
- ▶ ACE-YouTube channel with video tips
- ▶ VibroChecker – free award-winning iPhone App

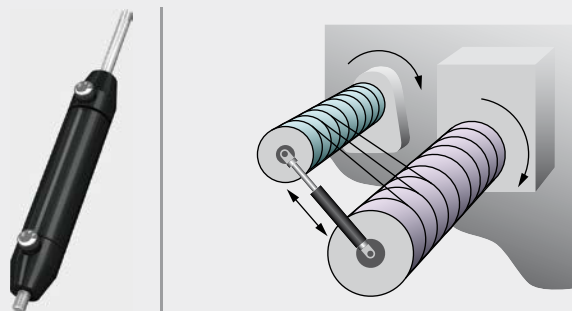
All available at www.acecontrols.com

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-32-100. 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.

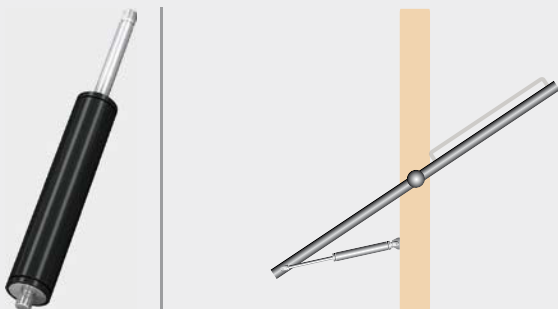


Textile machine unreels threads even better

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

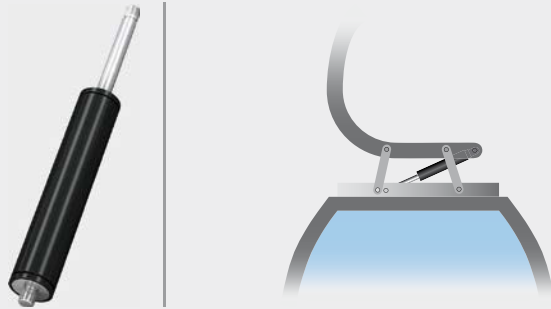
HB-40

Swinging movements cushioned by hydraulic dampers

Passengers always feel the swinging movement involved when cable cars arrive at the ski station. Maintenance-free hydraulic dampers type HB-40-300-EE-X-P cushion these movements perfectly. Designers of the cable cars, connected by means of an articulated joint via a four-point frame and connection guide to the suspension rod, profit from the ability of the adjustable dampers to absorb compressive forces of up to 10,000 N on either side.



Hydraulic dampers for added convenience when operating cable cars



Mounting Accessories for steel gas springs and hydraulic dampers

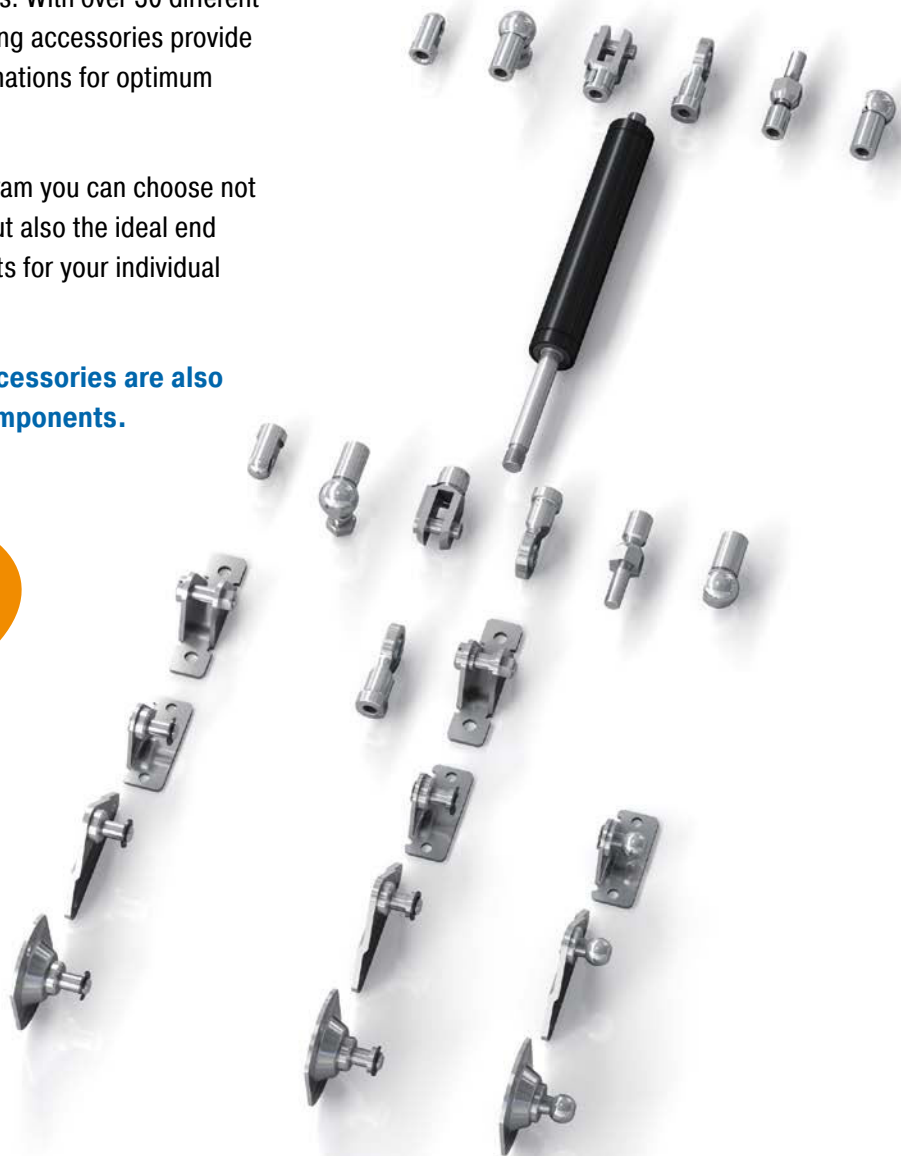
By taking advantage of the very extensive range of ACE end fittings and mounting brackets you can easily and simply install our gas springs and hydraulic dampers. You profit from the variety of DIN standard end fittings such as swivel eyes, clevis forks, angle ball joints, inline ball joints, and included ball sockets.

ACE also offers eye fittings made of wear-resistant steel to meet the higher specification requirements found in industrial applications. With over 30 different types available these mounting accessories provide an extensive range of combinations for optimum installations.

With the ACE selection program you can choose not only your ACE gas springs but also the ideal end fittings and mounting brackets for your individual application example.

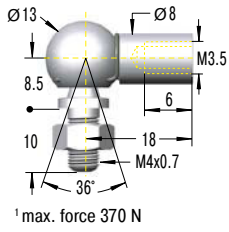
The complete range of accessories are also available as individual components.

**Infinite
Combinations!**

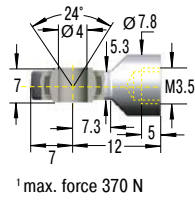


M3.5x0.6 (for GS-8, GS-10, GS-12, GZ-15, HB-12)

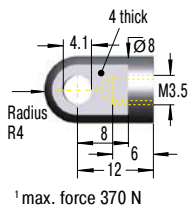
C3.5
Angle Ball Joint
DIN 71802



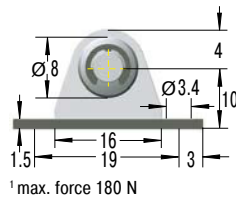
E3.5
Swivel Eye
DIN 648



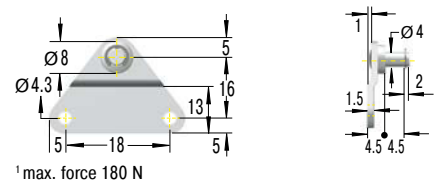
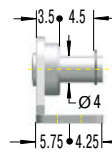
A3.5
Eye



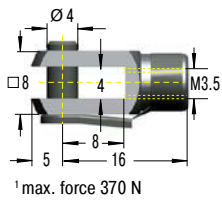
NA3.5
Angle Bracket



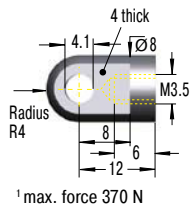
OA3.5
Side Bracket



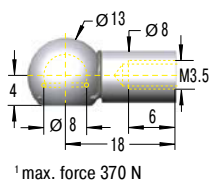
D3.5
Clevis Fork
DIN 71752



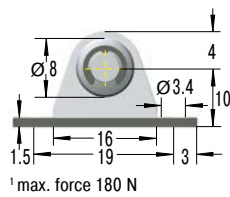
A3.5
Eye



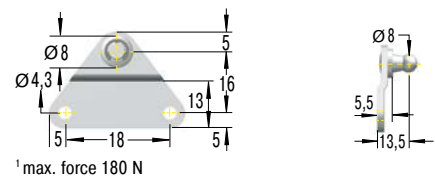
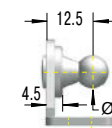
G3.5
Ball Socket
DIN 71805



NG3.5
Angle Bracket



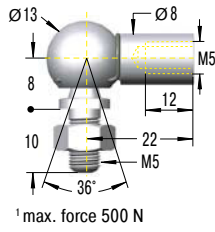
OG3.5
Side Bracket



¹ Attention! Max. static load in Newtons. Beware force increase during compression (progression) and observe max. force limit.

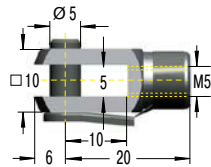
M5x0.8 (for GS-15, HBD-15, HB-15)

C5
Angle Ball Joint
DIN 71802



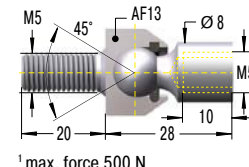
¹ max. force 500 N

D5
Clevis Fork
DIN 71752



¹ max. force 800 N

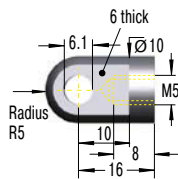
F5
Inline Ball Joint



¹ max. force 500 N

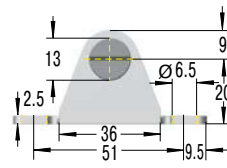
Attention! Must only be used with compression loads!

A5
Eye



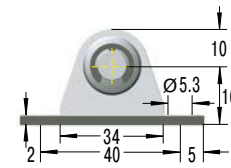
¹ max. force 800 N

MA5
Bearing Shoe

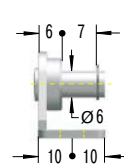


¹ max. force 500 N

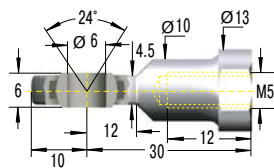
NA5
Angle Bracket



¹ max. force 400 N

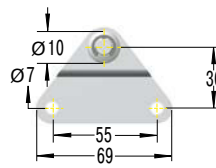


E5
Swivel Eye
DIN 648

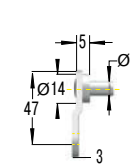


¹ max. force 800 N

GSB-01
Side Bracket



¹ max. force 500 N



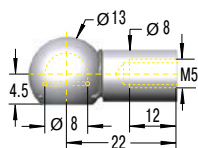
PA5
Round Bracket



¹ max. force 500 N

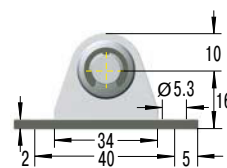


G5
Ball Socket
DIN 71805

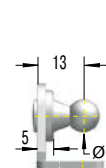


¹ max. force 500 N

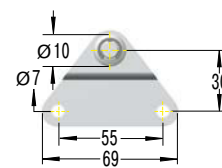
NG5
Angle Bracket



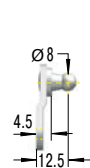
¹ max. force 400 N



GSB-02
Side Bracket



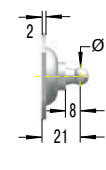
¹ max. force 500 N



PG5
Round Bracket



¹ max. force 500 N



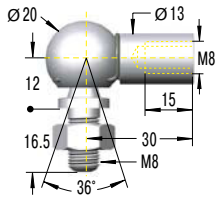
¹ Attention! Max. static load in Newtons. Beware force increase during compression (progression) and observe max. force limit.

M8x1.25

(for GS-19, GS-22, GZ-19, HBD-22, HBD-28, HB-22, HB-28, DVC-32)

C8

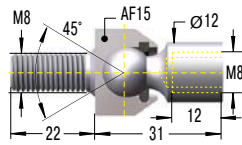
Angle Ball Joint
DIN 71802



¹ max. force 1,200 N

F8

Inline Ball Joint

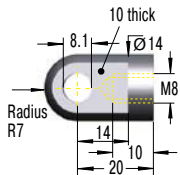


¹ max. force 1,200 N

Attention! Must only be used with compression loads!

A8

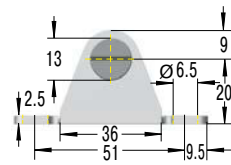
Eye



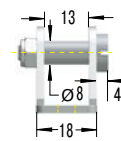
¹ max. force 3,000 N

MA8

Bearing Shoe

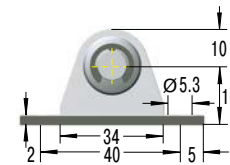


¹ max. force 1,800 N

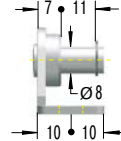


NA8

Angle Bracket

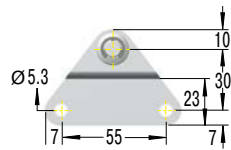


¹ max. force 1,000 N

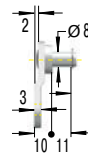


OA8

Side Bracket

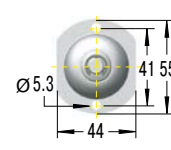


¹ max. force 1,200 N

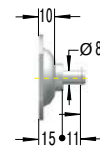


PA8

Round Bracket

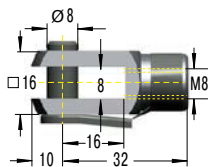


¹ max. force 1,200 N



D8

Clevis Fork
DIN 71752

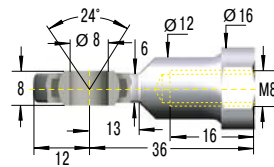


¹ max. force 3,000 N



E8

Swivel Eye
DIN 648

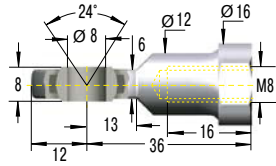


¹ max. force 3,000 N

¹ Attention! Max. static load in Newtons. Beware force increase during compression (progression) and observe max. force limit.

M8x1.25 (for GS-19, GS-22, GZ-19, HBD-22, HBD-28, HB-22, HB-28, DVC-32)

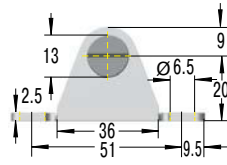
E8
Swivel Eye
DIN 648



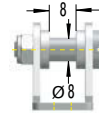
¹ max. force 3,000 N



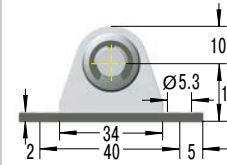
ME8
Bearing Shoe



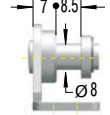
¹ max. force 1,800 N



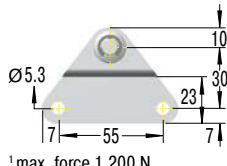
NE8
Angle Bracket



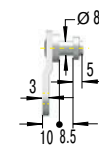
¹ max. force 1,000 N



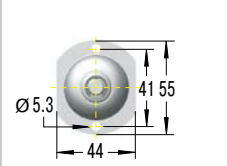
OE8
Side Bracket



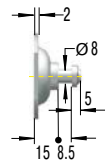
¹ max. force 1,200 N



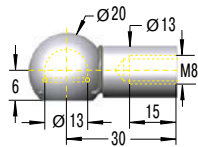
PE8
Round Bracket



¹ max. force 1,200 N



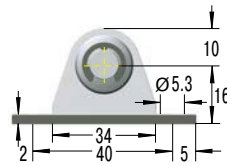
G8
Ball Socket
DIN 71805



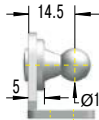
¹ max. force 1,200 N



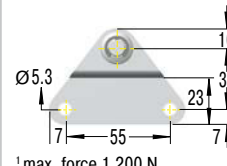
NG8
Angle Bracket



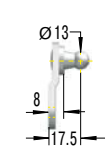
¹ max. force 1,000 N



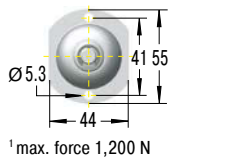
OG8
Side Bracket



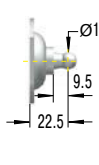
¹ max. force 1,200 N



PG8
Round Bracket



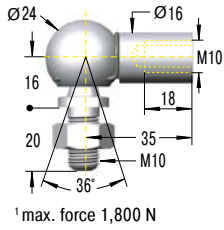
¹ max. force 1,200 N



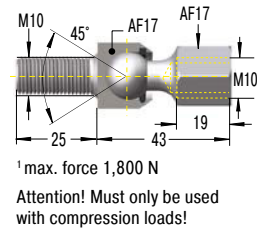
¹ Attention! Max. static load in Newtons. Beware force increase during compression (progression) and observe max. force limit.

M10x1.5 (for GS-28, GZ-28, HBD-50)

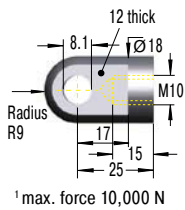
C10
Angle Ball Joint
DIN 71802



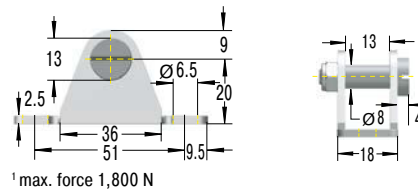
F10
Inline Ball Joint



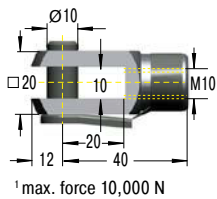
A10
Eye



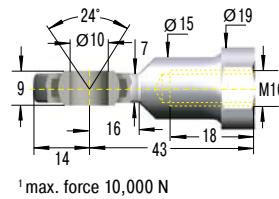
MA10
Bearing Shoe



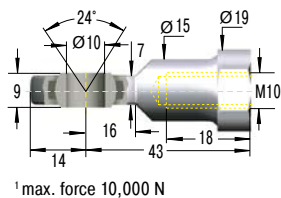
D10
Clevis Fork
DIN 71752



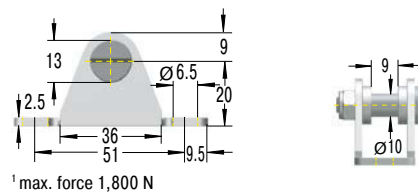
E10
Swivel Eye
DIN 648



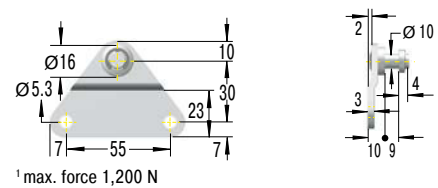
E10
Swivel Eye
DIN 648



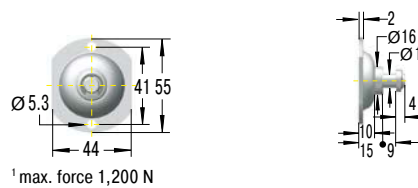
ME10
Bearing Shoe



OE10
Side Bracket

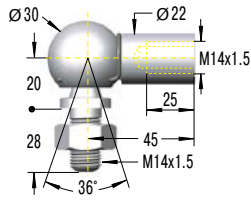


PE10
Round Bracket



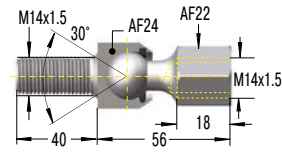
M14x1.5 (for GS-40, GST-40, GZ-40, HBD-40, HB-40)

C14
Angle Ball Joint
DIN 71802



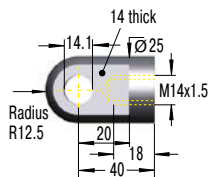
¹ max. force 3,200 N

F14
Inline Ball Joint



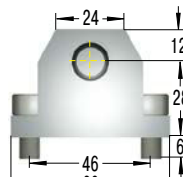
¹ max. force 3,200 N
Attention! Must only be used with compression loads!

A14
Eye

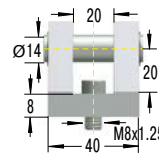


¹ max. force 10,000 N

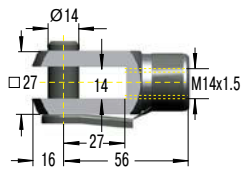
ME14
Bearing Shoe



¹ max. force 10,000 N

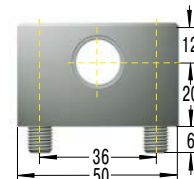


D14
Clevis Fork
DIN 71752

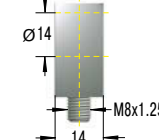


¹ max. force 10,000 N

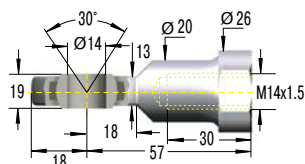
ND14
Mounting Flange



¹ max. force 10,000 N

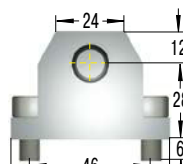


E14
Swivel Eye
DIN 648

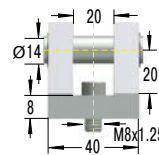


¹ max. force 10,000 N

ME14
Bearing Shoe



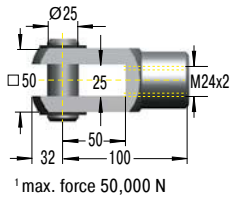
¹ max. force 10,000 N



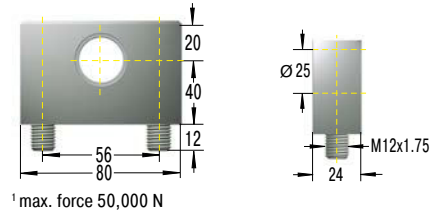
¹ Attention! Max. static load in Newtons. Beware force increase during compression (progression) and observe max. force limit.

M24x2 (for GS-70, HB-70)

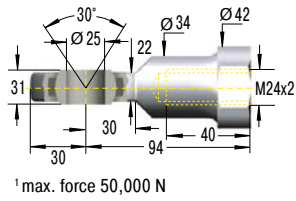
D24
Clevis Fork
DIN 71752



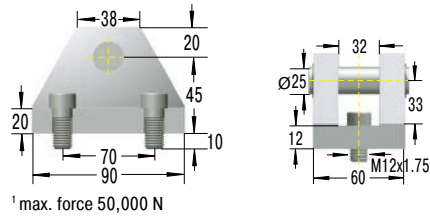
ND24
Mounting Flange



E24
Swivel Eye
DIN 648



ME24
Bearing Shoe



¹ Attention! Max. static load in Newtons. Beware force increase during compression (progression) and observe max. force limit.

Mounting Accessories

for stainless steel gas springs and hydraulic dampers

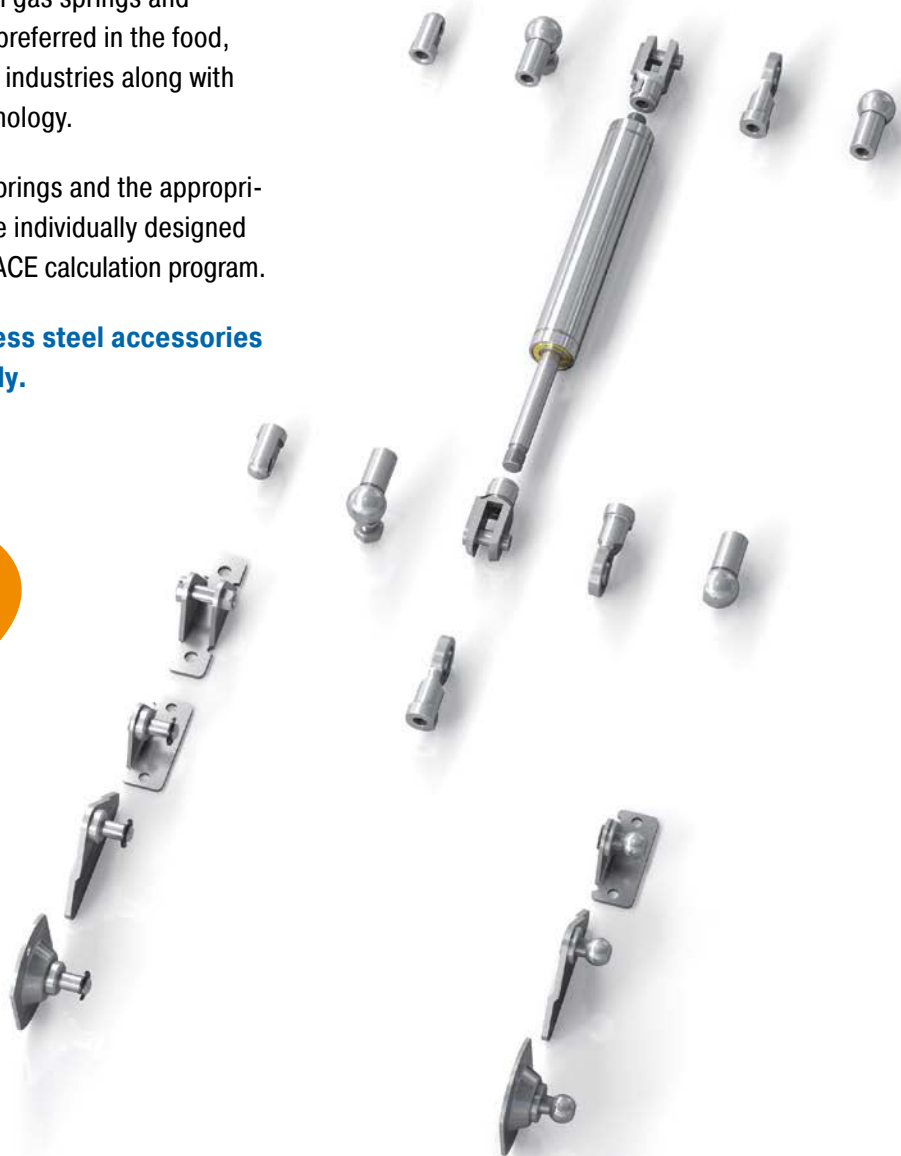
For our gas springs and hydraulic dampers made of stainless steel we also offer a flexible product range of DIN standardized end fittings and mounting brackets. These eyes, swivel eyes, clevis forks, angle ball joints, ball sockets, inline ball joints and mounting brackets are also made of sturdy stainless steel and can be easily combined.

The high-quality stainless steel accessories are rustproof and weakly magnetic. Just as with the corresponding stainless steel gas springs and hydraulic dampers, they are preferred in the food, electronics and ship building industries along with medical and cleanroom technology.

All ACE stainless steel gas springs and the appropriate mounting accessories are individually designed for each application with the ACE calculation program.

The entire range of stainless steel accessories is also available separately.

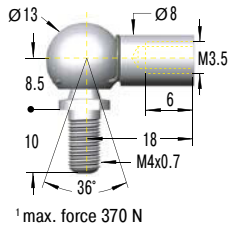
**Infinite
Combinations!**



M3.5x0.6

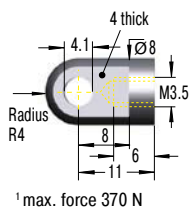
(for GS-8-V4A, GS-10-V4A, GS-12-V4A, GZ-15-V4A)

C3.5-V4A Angle Ball Joint



¹ max. force 370 N

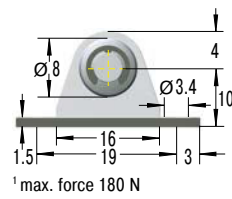
A3.5-V4A Eye



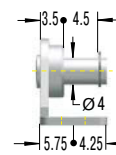
¹ max. force 370 N



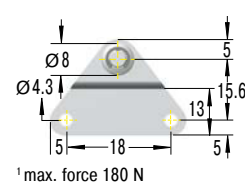
NA3.5-V4A Angle Bracket



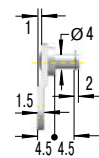
¹ max. force 180 N



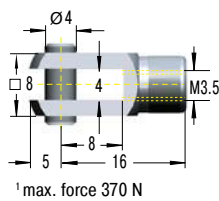
OA3.5-V4A Side Bracket



¹ max. force 180 N



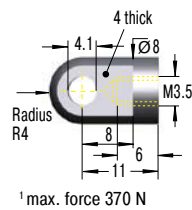
D3.5-V4A Clevis Fork



¹ max. force 370 N

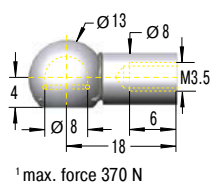


A3.5-V4A Eye



¹ max. force 370 N

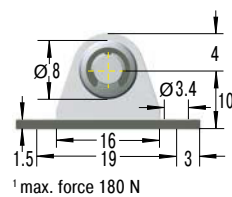
G3.5-V4A Ball Socket



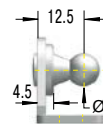
¹ max. force 370 N



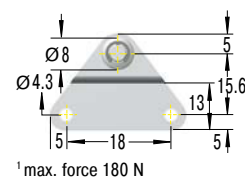
NG3.5-V4A Angle Bracket



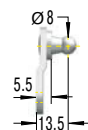
¹ max. force 180 N



OG3.5-V4A Side Bracket



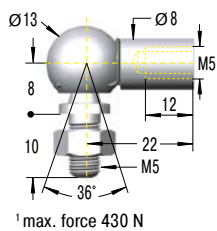
¹ max. force 180 N



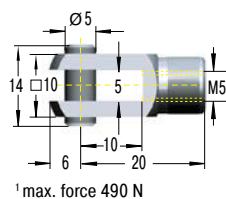
¹ Attention! Max. static load in Newtons. Beware force increase during compression (progression) and observe max. force limit.

M5x0.8 (for GS-15-VA)

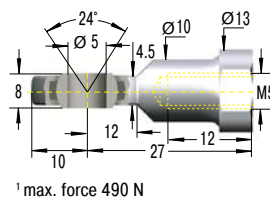
C5-VA
Angle Ball Joint



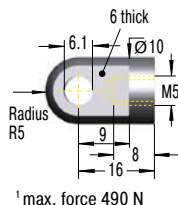
D5-VA
Clevis Fork



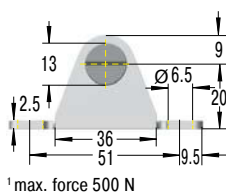
E5-VA
Swivel Eye



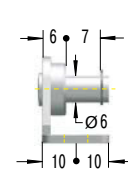
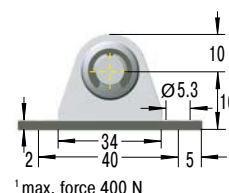
A5-VA
Eye



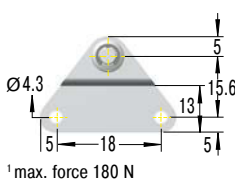
MA5-V4A
Bearing Shoe



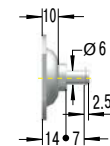
NA5-V4A
Angle Bracket



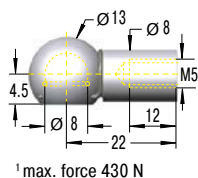
OA5-V4A
Side Bracket



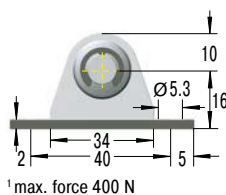
PA5-V4A
Round Bracket



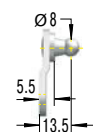
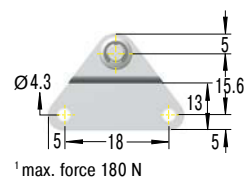
G5-VA
Ball Socket



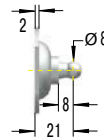
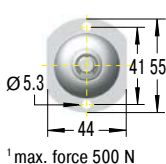
NG5-V4A
Angle Bracket



OG5-V4A
Side Bracket



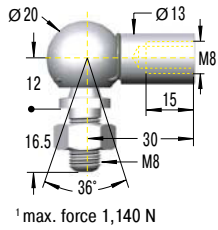
PG5-V4A
Round Bracket



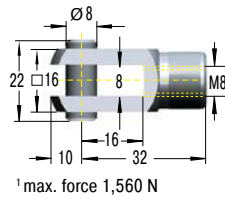
¹ Attention! Max. static load in Newtons. Beware force increase during compression (progression) and observe max. force limit.

M8x1.25 (for GS-19-VA, GS-22-VA, GZ-19-VA)

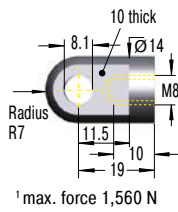
C8-VA
Angle Ball Joint



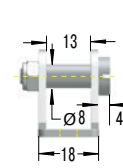
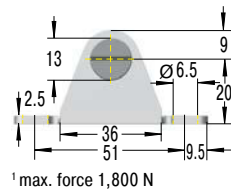
D8-VA
Clevis Fork



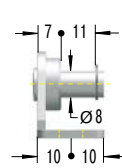
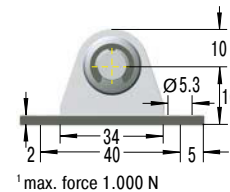
A8-VA
Eye



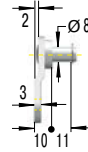
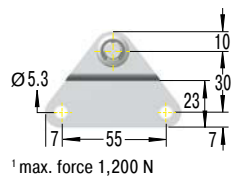
MA8-V4A
Bearing Shoe



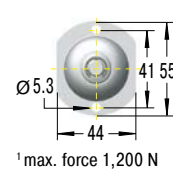
NA8-V4A
Angle Bracket



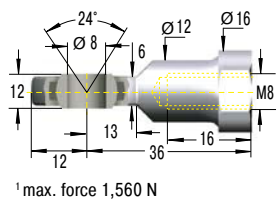
OA8-V4A
Side Bracket



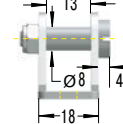
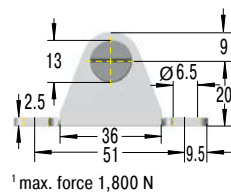
PA8-V4A
Round Bracket



E8-VA
Swivel Eye



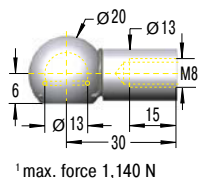
MA8-V4A
Bearing Shoe



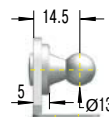
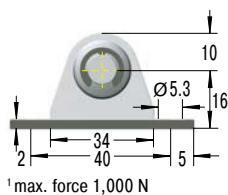
¹Attention! Max. static load in Newtons. Beware force increase during compression (progression) and observe max. force limit.

M8x1.25 (for GS-19-VA, GS-22-VA, GZ-19-VA)

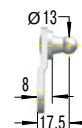
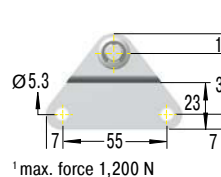
G8-VA
Ball Socket



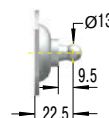
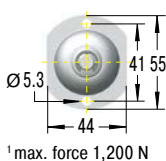
NG8-V4A
Angle Bracket



OG8-V4A
Side Bracket

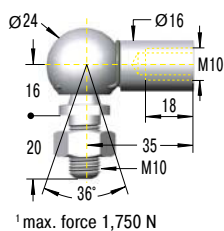


PG8-V4A
Round Bracket

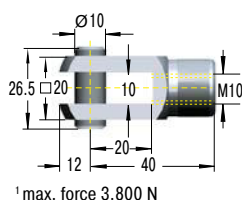


M10x1.5 (for GS-28-VA, GZ-28-VA)

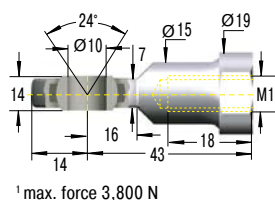
C10-VA
Angle Ball Joint



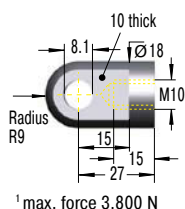
D10-VA
Clevis Fork



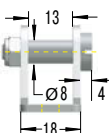
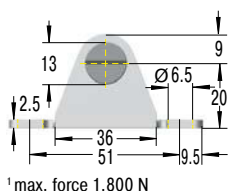
E10-VA
Swivel Eye



A10-VA
Eye



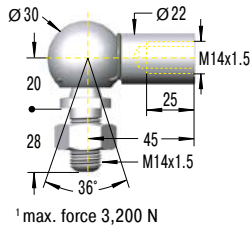
MA10-V4A
Bearing Shoe



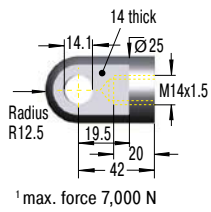
¹ Attention! Max. static load in Newtons. Beware force increase during compression (progression) and observe max. force limit.

M14x1.5 (for GS-40-VA, GZ-40-VA)

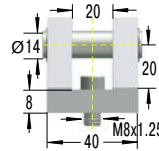
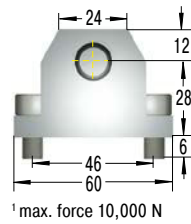
C14-VA Angle Ball Joint



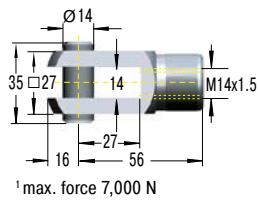
A14-VA Eye



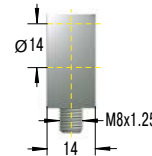
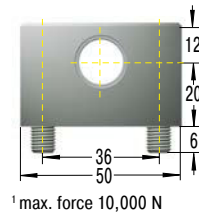
ME14-VA Bearing Shoe



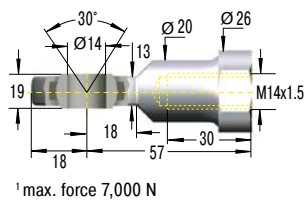
D14-VA Clevis Fork



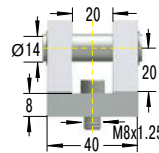
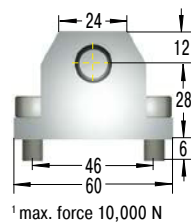
ND14-VA Mounting Flange



E14-VA Swivel Eye



ME14-VA Bearing Shoe



¹ Attention! Max. static load in Newtons. Beware force increase during compression (progression) and observe max. force limit.

Hydraulic Feed Controls

Regulate feed rates in the best way

ACE Hydraulic feed controls are recommended as the perfect solution when sawing, cutting, drilling and in order to prevent the stick-slip effect on pneumatic cylinders. They can be precisely adjusted and provide speeds from 12 mm/min. (1/2"/min.) with a very low feed force or up to 38 m/min. (1.5"/min.) with a high feed rate.

These maintenance-free, ready-to-install hydraulic feed controls are self-contained hydraulic elements regulated by a precision throttle. The feed rate is set from the outside by turning the setting adjuster. The tried-and-tested rolling diaphragms used in many ACE shock absorbers also serve as a dynamic sealing element for a hermetic seal as well as volume compensation for the piston rod and provide the resetting of the piston when the force is removed.



Hydraulic Feed Controls



VC25

Adjustable

For precision adjustment of feed rates

Handling modules, Linear slides, Automatic machinery,
Conveyor equipment

Page 228



MA, MVC

Adjustable

Designed for applications with low precision requirements

Handling modules, Linear slides, Automatic machinery,
Conveyor equipment

Page 230

Shorter processing times

Different feed rates

Adjustment segment at the lower end of the feed control

Most accurate calibrations

Available immediately

Easy to mount



VC25

For precision adjustment of feed rates

Adjustable

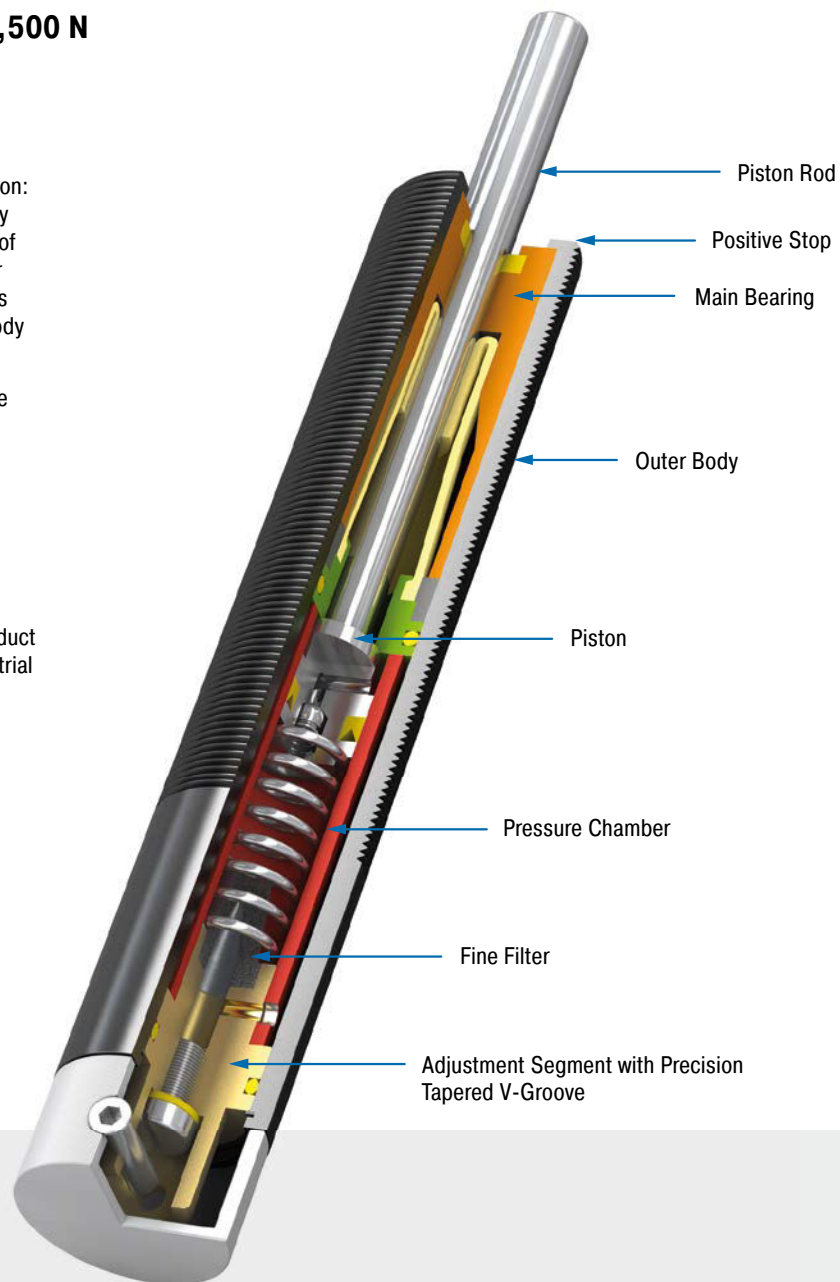
Compression force 30 N to 3,500 N

Stroke 15 mm to 125 mm

Precise adjustment for any type of application: Hydraulic feed controls of the product family VC are ideally suited for the precise tuning of constant feed rates. The thread of the outer body of this closed hydraulic element allows simple assembly. Designs with a smooth body can also be supplied.

As the hydraulic oil is forced out through the throttle opening, a constant feed rate is achieved on the stroke. In the models up to 55 mm (2.17") stroke, the tried and tested rolling diaphragm, known from ACE shock absorbers, serves as a dynamic seal, as volume compensation of the piston rod and as a reset element.

Precision hydraulic feed controls of the product family VC are used in automotive and industrial applications as well as in mechanical engineering and the electronics industry.



Technical Data

Compression force: 30 N to 3,500 N

Execution: F = Ø 23.8 mm without thread
FT = M25x1.5 threaded body

Piston rod diameter: Ø 8 mm

Feed rate/Compression force:
Min. 0.013 m/min. at 400 N; Max. 38 m/min.
at 3,500 N

Impact velocity range: At speeds of 0.3 m/s the maximum allowed energy is approx. 1 Nm for units up to 55 mm stroke and approx. 2 Nm for units 75 mm to 125 mm stroke. Where higher energies occur use a shock absorber for the initial impact. Avoid high impact velocities.

Adjustment: Infinitely adjustable

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

Damping medium: Oil, temperature stable

Material: Outer body: Black anodized aluminium; Piston rod: Hard chrome plated steel; Accessories: Steel with black oxide finish or nitride hardened

Mounting: In any position

Operating temperature range: 0 °C to 60 °C

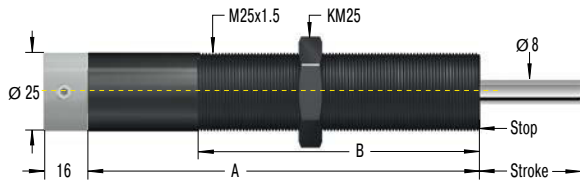
Application field: Handling modules, Linear slides, Automatic machinery, Conveyor equipment, Absorption control

Note: Nylon button can be fitted onto piston rod. Unit may be mounted in any position.

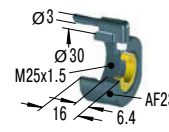
Safety information: Do not rotate piston rod, if excessive rotation force is applied rolling seal may rupture. External materials in the surrounding area can attack the seal components and lead to a shorter service life. Please contact ACE for appropriate solution suggestions.

On request: Special oil and other special options available on request.

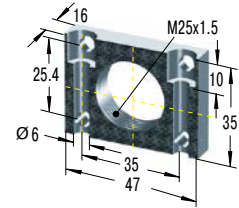
VC25FT



SP25 Air Bleed Collar

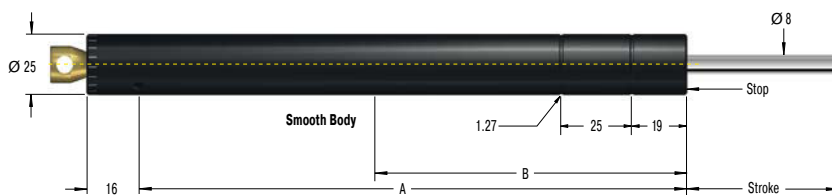


250-0044 Mounting Block

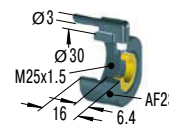


For VC2515FT to VC2555FT
reduction of the stroke 6.4 mm

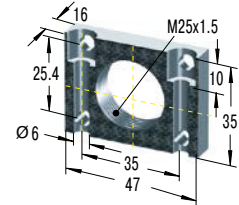
VC25F



SP25 Air Bleed Collar



250-0044 Mounting Block



For VC2515FT to VC2555FT
reduction of the stroke 6.4 mm

Additional accessories, mounting, installation ... see from page 47.

Complete details required when ordering

- Load to be decelerated: m (kg)
- Impact velocity: v (m/s)
- Propelling force: F (N)
- Operating cycles per hour: c (/hr)
- Number of absorbers in parallel: n
- Ambient temperature: °C

Ordering Example

Type (Feed Control) _____ **VC2555FT**
 25 for Thread Size M25 _____
 Stroke 2.16" (55 mm) _____
 FT = with thread M25x1.5 _____
 F = without thread, plain body (Ø 0.94" / 23.8 mm)

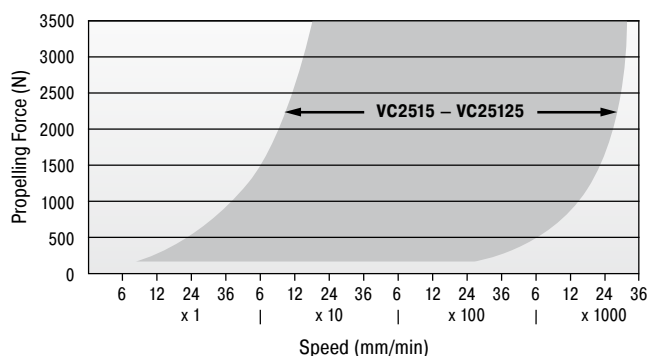
Performance and Dimensions

TYPES	Stroke mm	A mm	B mm	Compression force		Return Force		Return Time s	Side Load Angle		Weight kg
				min. N	max. N	min. N	max. N		max. °		
VC2515FT	15	128	80	30	3,500	15	30	0.2	3	0.240	
VC2530FT	30	161	110	30	3,500	5	30	0.4	2	0.280	
VC2555FT	55	209	130	35	3,500	5	40	1.2	2	0.420	
VC2575FT	75	283	150	50	3,500	10	50	1.7	2	0.480	
VC25100FT	100	308	150	60	3,500	10	50	2.3	1	0.500	
VC25125FT	125	333.5	150	70	3,500	10	60	2.8	1	0.540	
VC2515F	15	128	80	30	3,500	15	30	0.2	3	0.240	
VC2530F	30	161	110	30	3,500	5	30	0.2	2	0.280	
VC2555F	55	209	130	35	3,500	5	40	1.2	2	0.420	
VC2575F	75	283	150	50	3,500	10	50	1.7	2	0.480	
VC25100F	100	308	150	60	3,500	10	50	2.3	1	0.500	
VC25125F	125	333.5	150	70	3,500	10	60	2.8	1	0.540	

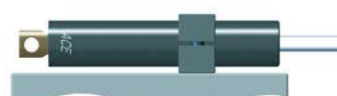
Suffix FT: M25x1.5 threaded body.

Suffix F: plain body 23.8 mm dia. (without thread), with optional clamp type mounting block.

Operating range VC



Accessories with Mounting Example



Mounting with clamp mount



Installed with air bleed collar SP25 (part no. 10783-000)

MA, MVC

Designed for applications with low precision requirements

Adjustable

Compression force 8 N to 3,500 N

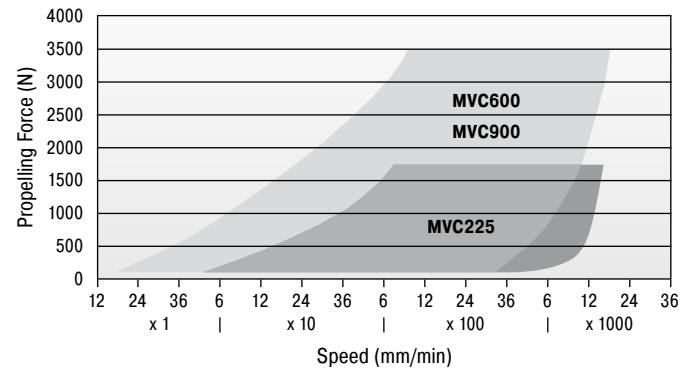
Stroke 7 mm to 40 mm

Many application options: the hydraulic feed controls in models MA and MVC are similar to that of the VC model. However, these hydraulic controls have been designed for applications that require less precision.

There are also plenty of accessories for the MA and MVC models. All products are ready-to-install, maintenance-free, stable in temperature and avoid stick-slip effect. Speeds from 0.47"/min. (12 mm/min.) can be driven at a low thrust force using the adjustment screw on the base of the hydraulic control.

Hydraulic feed controls with the designations MA and MVC are especially used in handling modules or linear carriages and also for applications with changing usage data.

Operating Range MVC225 to MVC900



Performance and Dimensions

TYPES	Stroke mm	Compression force min. N	Compression force max. N	Return Force min. N	Return Force max. N	Return Time s	¹ Side Load Angle max. °	M	Weight kg
MA30M	8	8	80	1.7	5.3	0.3	2	M8x1	0.013
MA50M	7.2	40	160	3	6	0.3	2	M10x1	0.025
MA35	10.2	15	200	5	11	0.2	2	1/2-20 UNF / M12x1	0.043
MA150	12.7	20	300	3	5	0.4	2	9/16-18 UNF / M14x1.5	0.061
MVC225	19	25	1,750	5	10	0.65	2	3/4-16 UNF / M20x1.5	0.173
MVC600	25	65	3,500	10	30	0.85	2	1-12 UNF / M25x1.5	0.352
MVC900	40	70	3,500	10	35	0.95	2	1-12 UNF / M25x1.5	0.414

¹ For applications with higher side load angles consider using the side load adaptor, pages 44 to 51.

Technical Data

Compression force: 8 N to 3,500 N

Execution: Thread M8 to M25

Impact velocity range: At speeds of 0.3 m/s the maximum allowed energy is approx. 2 Nm.

Where higher energies occur use a shock absorber for the initial impact. Avoid high impact velocities.

Adjustment: Hard impact at the start of stroke, turn towards 9 or PLUS. Hard impact at the end of stroke, turn towards 0 or MINUS.

Positive stop: Integrated

Damping medium: Oil, temperature stable

Material: Outer body: Nitride hardened steel; Piston rod: Steel with black oxide finish or nitride hardened

Mounting: In any position

Operating temperature range: 0 °C to 66 °C

Application field: Handling modules, Linear slides, Automatic machinery, Conveyor equipment, Absorption control

Note: Damper is preset at delivery in a neutral position between hard and soft.

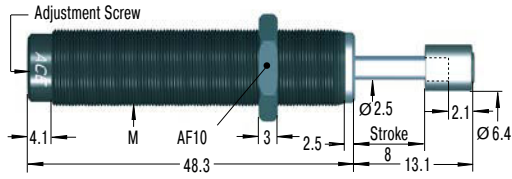
Safety information: External materials in the surrounding area can attack the seal components and lead to a shorter service life. Please contact ACE for appropriate solution suggestions.

On request: Nickel-plated, weartec finish (seawater resistant) or other special options available on request.

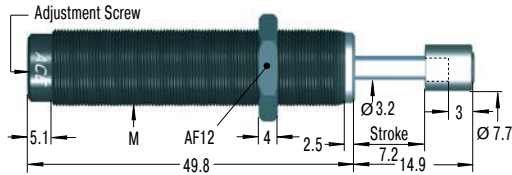
Products for UNF and metric thread available

Adjustable

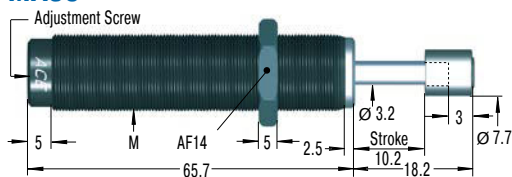
MA30M



MA50M

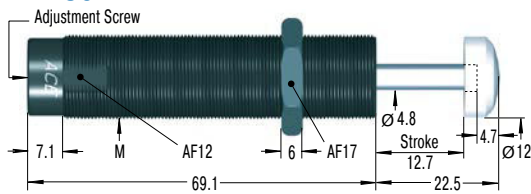


MA35



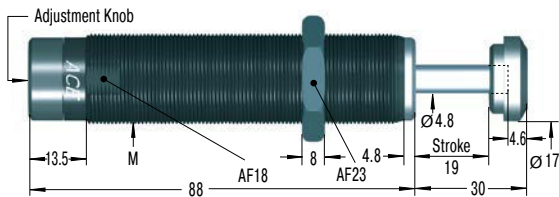
Product available for UNF and metric thread (for metric add suffix -M from part number)

MA150



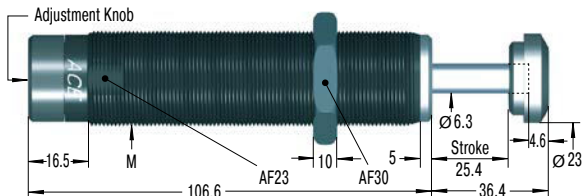
Product available for UNF and metric thread (for metric add suffix -M from part number)

MVC225



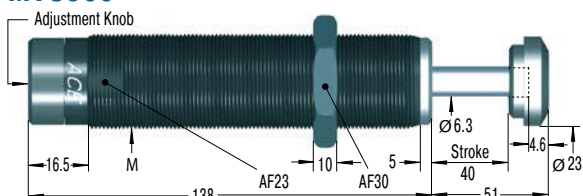
Product available for UNF and metric thread (for metric add suffix -M from part number)

MVC600



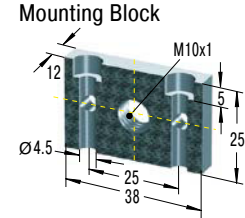
Product available for UNF and metric thread (for metric add suffix -M from part number)

MVC900

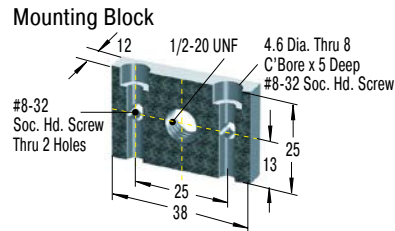


Product available for UNF and metric thread (for metric add suffix -M from part number)

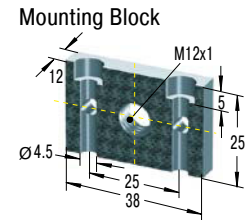
250-0307



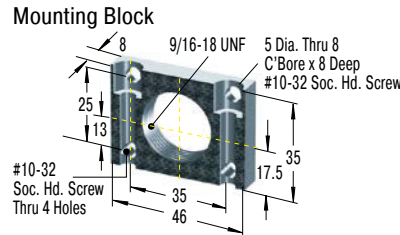
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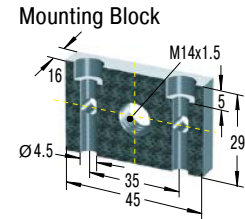
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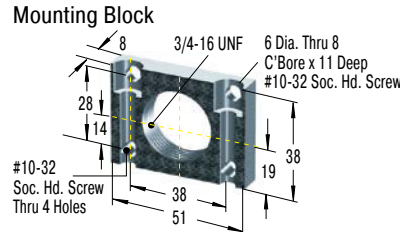
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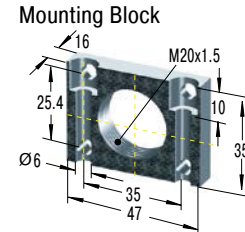
250-0352



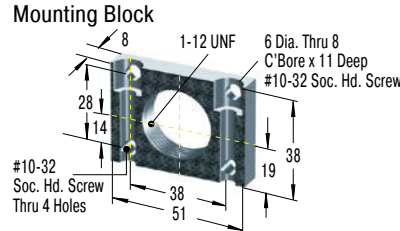
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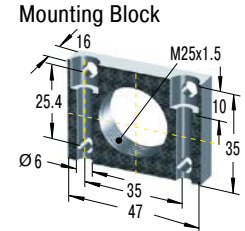
250-0353



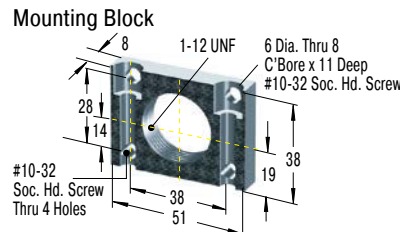
250-0402



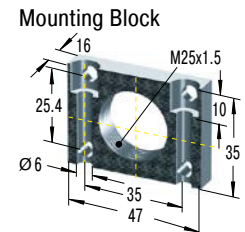
250-0044



250-0402



250-0044



Additional accessories, mounting, installation ... see from page 44.