

HB-12 to HB-70 Hydraulic dampers

Linear deceleration

Adjustable

Compression and extension force

range 20 N to 50,000 N

Stroke 10 mm to 800 mm

HB-12

HB-15

HB-22

HB-28

HB-40

HB-70

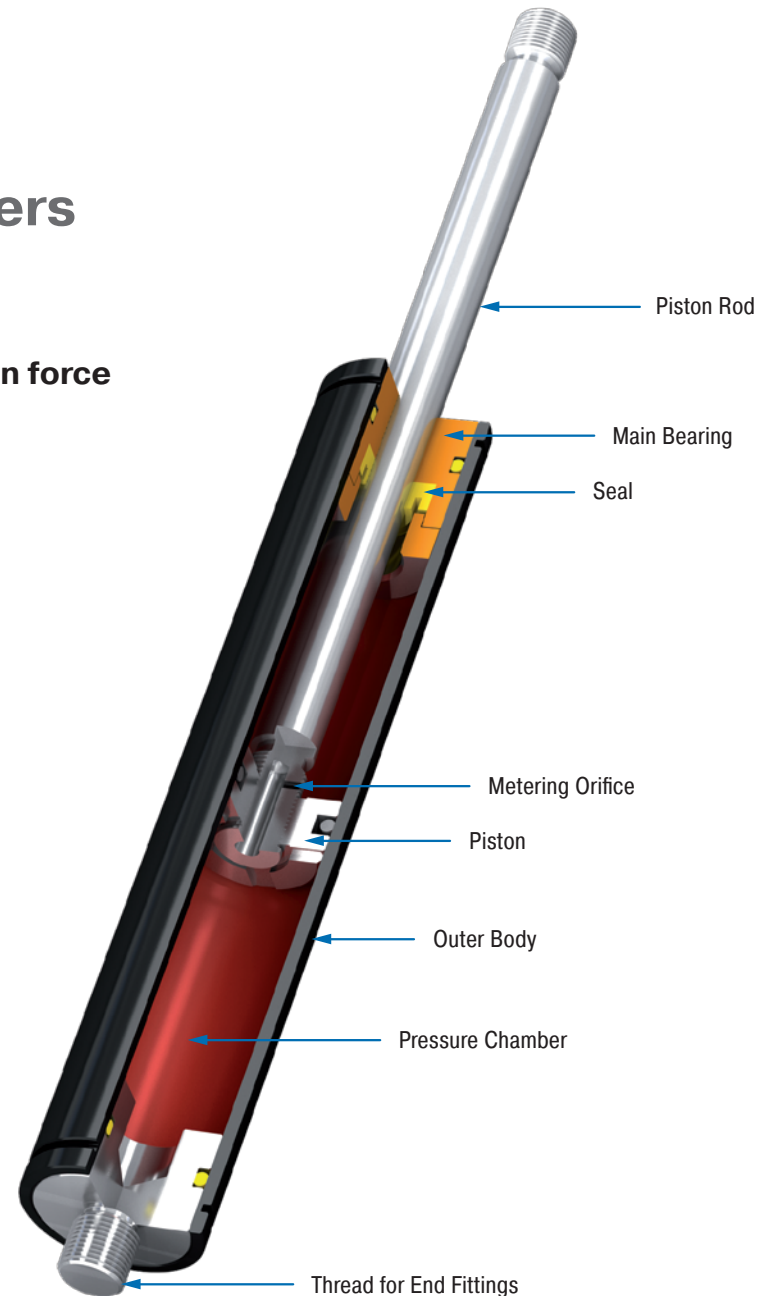


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Manual

General instructions

This manual is for the disruption-free use of the product types listed on page 1; its compliance is a prerequisite for the fulfilment of any warranty claims.

Therefore, make sure to read this manual before use.

Please always maintain the specified limits from the performance table (technical data). Take into account the predominant environmental conditions and restrictions. Note the regulations of the trade association, TÜV or corresponding national, international and European regulations. Installation and commissioning only according to mounting instructions.

Safety information

WARNING



If ACE hydraulic dampers are used where a failure of the product could lead to personal injuries and/or material damage, additional safety elements must be implemented.



The flap/mass can fall down during installation of dampers. Secure the flap/mass to be moved against falling down.

Intended use

Hydraulic dampers by ACE are used wherever moving masses are to be subjected to an even, defined speed. The damping is retracting and/or extending.

Description and function

Hydraulic dampers are maintenance-free and ready-to-install. They are available off-the-shelf with a body diameter of 12 mm to 70 mm.

When extending or retracting the piston rod, the hydraulic fluid, located in the cylinder space in front of the piston, is displaced by the piston and pressed through the throttle into the cylinder space behind the piston. The sealing system reliably takes care of the sealing of the chrome-plated piston rod on the outside. In order to adjust the damping, the piston rod is twisted in a completely extended or retracted state and the metering orifice is further opened or closed. The damping is adjusted the same way in both directions with version "P" (damping type on both sides).

The hydraulic damper does not have its own return force and must be guided over the total working stroke in both directions.

The compression and extension force can be found in the performance table.

Depending on design, the dampers of the HB-12 to HB-70 range, alongside hydraulic oil, have a gas bubble on the inside. This leads to a free travel of approx. 20%, in which no damping is generated (in extended position; the gas bubble compresses when retracted). This must be taken into account during installation. The HB should therefore not be used horizontally; it should have a slight inclination.

It is possible, upon request, to use separator pistons to produce versions without free travel. These HBs are longer and have a light force range (see separator piston version).

Calculation and design

In order to ensure an optimum and durable function of the hydraulic damper they must be correctly dimensioned and designed. The following parameters must be known:

- Moving mass
- Feed force
- Feed speed
- Number of strokes or cycles per minute

For the correct sizing, please phone the following number for free advice:

+49 (0)2173 - 9226-20.



View in direction of arrow (from front of the piston rod)

Adjustment only possible in **completely** retracted or extended position

Regulation instructions for HB-12 to HB-70

1. Hold body.
2. a) With extended piston rod:
Adjustment by twisting the piston rod according to the illustration. During the twisting movement, slightly pull the piston rod so that the piston engages.
b) With retracted piston rod:
Adjustment by twisting the piston rod. During the twisting movement, slightly push in the piston rod so that the piston engages.
Twist to the right: powerful damping
Twist to the left: weak damping
3. When the twisting resistance is noticeably increased, end the adjustment process!
NOTE: Do not twist by force as otherwise the adjustment segment may become damaged.
4. Check adjustment of damping and, if necessary, repeat steps 1 to 3.
5. On all versions with separator pistons (T) the adjustment is only possible in the extended state.



Weak damping

Twisting to the left
Fast speed

Powerful damping

Twisting to the right
Slow speed

Disassembly and disposal

Take account of environmental protection during disposal of the hydraulic dampers.

Hydraulic dampers HB-15 to HB-40 cannot be repaired. The corresponding disposal instructions are available on request. You can return the door dampers to ACE for disposal that is free of charge.

Hydraulic dampers HB-70 are repairable.

Faulty HB-70 can be sent to our service department for determination of the cause of failure and for repair.

Delivery and storage

- After delivery please check the damper for any damage.
- The hydraulic damper can become damaged if it falls. Carefully remove the product from the packaging.
- Dampers can generally be stored in any position.
- Always store dampers in a dry place in order to avoid oxidation.
- The recommended maximum storage time is 1 year.
- Any protective packaging must be removed before installation.

Maintenance and care

Regularly check the hydraulic dampers for oil loss, function and external damage.

Hydraulic dampers are maintenance-free and ready-to-install.

Hydraulic dampers are machine elements that are subject to continuous wear.

Mounting instructions and mounting accessories

Installation instructions

Before installation and use check whether the identification number on the hydraulic damper or on the packaging matches the respective designation on the delivery note. Hydraulic dampers are maintenance-free and ready-to-install.

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

Mounting: In any position, preferably not horizontal

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

Adjustment

Possible by twisting the piston rod to completely extended or retracted state.

Twisting clockwise = increased braking force

Anticlockwise = reduced braking force

Damping force adjustable in fitted condition. The L dimension is extended by maximum 6 mm during adjustment.

WARNING

-  **The flap/mass can fall down during installation of hydraulic dampers.**
Secure the flap/mass to be moved against falling down.
-  **If the temperature exceeds or falls below the maximum or minimum temperature, hydraulic dampers may fail.**
Always maintain temperature range of -20 °C to +80 °C.
-  **Fluids, gases and dirt particles in the surrounding area can attack or destroy the seal system of the hydraulic damper and cause the damper to fail.**
Protect piston rod and seal system from external materials in the environment.
-  **Damage to the piston rod surface can destroy the seal system.**
Do not grease, oil, paint piston rod, etc.; protect against dirt particles.
-  **The piston rod can be torn from the hydraulic damper.**
Ensure a mechanical end stop in tension direction.
-  **Tilting and lateral forces can lead to leaks from the damper or blocking of the piston rod.**
Check installation and ensure suitable end fittings and guides. There must be no tension on mounting parts; if necessary, allow a little free play.
-  **The body tube can become deformed.**
Do not allow any transverse or lateral forces on the hydraulic damper. Do not clamp the body tube.
-  **End fittings can come loose from the hydraulic damper.**
Always completely screw on the end fittings and, if necessary, secure with threadlocker (Loctite).
-  **High forces may cause the hydraulic damper to compress or overstretch.**
Apply mechanical stops.

M5x0.8 mounting accessories

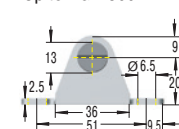
HB-12

Before installation check whether the identification number on the packaging matches the respective designation on the delivery note.

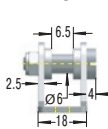
Note the dimensioning for mounting when using accessory parts. Bolts for fitting of accessories are not included.

If you have any questions, please phone +49 (0)2173 - 9226-20 for free advice.

¹ Up to max. 500 N

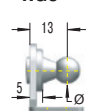


MA5

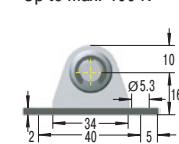


NA5

NG5

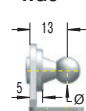


¹ Up to max. 400 N

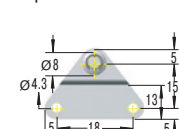


OA5

OG5

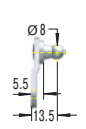


¹ Up to max. 180 N

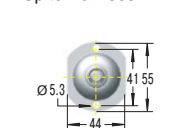


PA5

PG5



¹ Up to max. 500 N



MA5

NA5

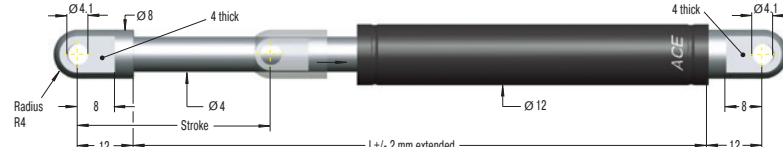


Adjustable, Compression and extension force range 20 N to 180 N

End Fitting

Standard Dimensions

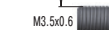
A3.5



End Fitting

Eyelet
A3.5
to max. 370 N

B3.5

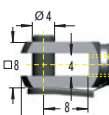


Performance data and dimensions

TYPES	Stroke mm	L extended mm	¹ recommended compression force max. N	Weight kg
HB-12-10	10	55	180	0.0270
HB-12-20	20	75	180	0.0320
HB-12-30	30	95	180	0.0360
HB-12-40	40	115	180	0.0400
HB-12-50	50	135	180	0.0450
HB-12-60	60	155	180	0.0495
HB-12-70	70	175	180	0.0530
HB-12-80	80	195	150	0.0580

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

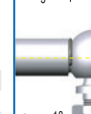
D3.5



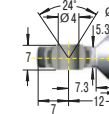
Threaded pin B3.5



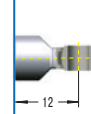
Hinge joint
C3.5
to max. 370 N



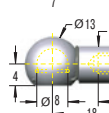
E3.5



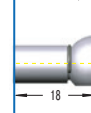
Joint head E3.5
to max. 370 N



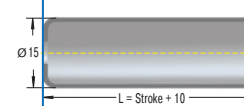
G3.5



Angle joint G3.5
to max. 370 N



Protective tube W3.5-12



The end fittings can be combined in any manner and must be secured against twisting by the customer, if necessary. See mounting accessories.

¹ Note! Max. static load in N; note force increase when pushing in (progression). Higher load possible on request.

Packaging disposal

Please dispose of the transportation packaging in an environmentally-friendly manner. Recycling packaging materials saves raw materials and reduces waste. The packaging materials do not contain any prohibited materials.

Mounting instructions and mounting accessories

Installation instructions

Before installation and use check whether the identification number on the hydraulic damper or on the packaging matches the respective designation on the delivery note. Hydraulic dampers are maintenance-free and ready-to-install.

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

Mounting: In any position, preferably not horizontal

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

Separator piston version: Force 40 N;

Dimension L = 2.45 x stroke + 49 mm

Adjustment

Possible by twisting the piston rod to completely extended or retracted state.

Twisting clockwise = increased braking force

Anticlockwise = reduced braking force

Damping force adjustable in fitted condition. The L dimension is extended by maximum 6 mm during adjustment.

WARNING

-  **The flap/mass can fall down during installation of hydraulic dampers.**
Secure the flap/mass to be moved against falling down.
-  **If the temperature exceeds or falls below the maximum or minimum temperature, hydraulic dampers may fail.**
Always maintain temperature range of -20 °C to +80 °C.
-  **Fluids, gases and dirt particles in the surrounding area can attack or destroy the seal system of the hydraulic damper and cause the damper to fail.**
Protect piston rod and seal system from external materials in the environment.
-  **Damage to the piston rod surface can destroy the seal system.**
Do not grease, oil, paint piston rod, etc.; protect against dirt particles.
-  **The piston rod can be torn from the hydraulic damper.**
Ensure a mechanical end stop in tension direction.
-  **Tilting and lateral forces can lead to leaks from the damper or blocking of the piston rod.**
Check installation and ensure suitable end fittings and guides. There must be no tension on mounting parts; if necessary, allow a little free play.
-  **The body tube can become deformed.**
Do not allow any transverse or lateral forces on the hydraulic damper. Do not clamp the body tube.
-  **End fittings can come loose from the hydraulic damper.**
Always completely screw on the end fittings and, if necessary, secure with threadlocker (Loctite).
-  **High forces may cause the hydraulic damper to compress or overstretch.**
Apply mechanical stops.

M5x0.8 mounting accessories

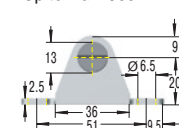
HB-15

Before installation check whether the identification number on the packaging matches the respective designation on the delivery note.

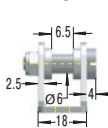
Note the dimensioning for mounting when using accessory parts. Bolts for fitting of accessories are not included.

If you have any questions, please phone +49 (0)2173 - 9226-20 for free advice.

¹ Up to max. 500 N

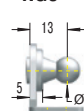


MA5

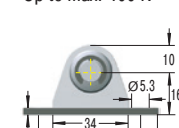


NA5

NG5

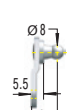


¹ Up to max. 400 N

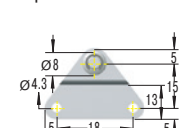


OA5

OG5

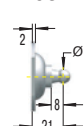


¹ Up to max. 180 N

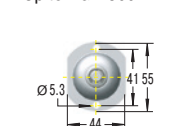


PA5

PG5



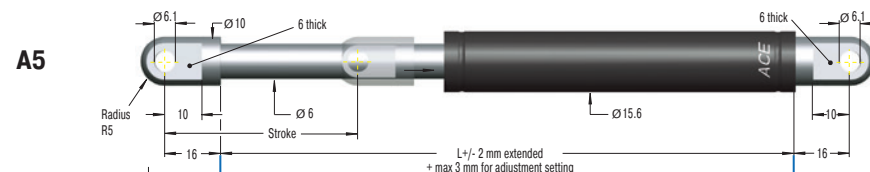
¹ Up to max. 500 N



Adjustable, Compression and extension force range 20 N to 800 N

End Fitting

Standard Dimensions



A5

B5

C5

D5

E5

G5

Protective tube W5-15

Performance data and dimensions

TYPES	Stroke mm	L extended mm	¹ recommended compression force max. N	Weight kg
HB-15-25	25	93	800	0.0685
HB-15-50	50	143	800	0.0875
HB-15-75	75	193	800	0.1060
HB-15-100	100	243	350	0.1270
HB-15-150	150	343	300	0.1660

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

End Fitting

Eyelet A5
up to max. 800 N

Threaded pin B5

Hinge joint C5
up to max. 500 N

Clevis fork D5
up to max. 800 N

Joint head E5
up to max. 800 N

Angle joint G5
up to max. 500 N

The end fittings can be combined in any manner and must be secured against twisting by the customer, if necessary. See mounting accessories.

Packaging disposal

Please dispose of the transportation packaging in an environmentally-friendly manner. Recycling packaging materials saves raw materials and reduces waste. The packaging materials do not contain any prohibited materials.

Mounting instructions and mounting accessories

Installation instructions

Before installation and use check whether the identification number on the hydraulic damper or on the packaging matches the respective designation on the delivery note. Hydraulic dampers are maintenance-free and ready-to-install.

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

Mounting: In any position, preferably not horizontal

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

Separator piston version: Force 50 N;

Dimension L = 2.38 x stroke + 55 mm

Adjustment

Possible by twisting the piston rod to completely extended or retracted state.

Twisting clockwise = increased braking force

Anticlockwise = reduced braking force

Damping force adjustable in fitted condition. The L dimension is extended by maximum 6 mm during adjustment.

WARNING

-  **The flap/mass can fall down during installation of hydraulic dampers.**
Secure the flap/mass to be moved against falling down.
-  **If the temperature exceeds or falls below the maximum or minimum temperature, hydraulic dampers may fail.**
Always maintain temperature range of -20 °C to +80 °C.
-  **Fluids, gases and dirt particles in the surrounding area can attack or destroy the seal system of the hydraulic damper and cause the damper to fail.**
Protect piston rod and seal system from external materials in the environment.
-  **Damage to the piston rod surface can destroy the seal system.**
Do not grease, oil, paint piston rod, etc.; protect against dirt particles.
-  **The piston rod can be torn from the hydraulic damper.**
Ensure a mechanical end stop in tension direction.
-  **Tilting and lateral forces can lead to leaks from the damper or blocking of the piston rod.**
Check installation and ensure suitable end fittings and guides. There must be no tension on mounting parts; if necessary, allow a little free play.
-  **The body tube can become deformed.**
Do not allow any transverse or lateral forces on the hydraulic damper. Do not clamp the body tube.
-  **End fittings can come loose from the hydraulic damper.**
Always completely screw on the end fittings and, if necessary, secure with threadlocker (Loctite).
-  **High forces may cause the hydraulic damper to compress or overstretch.**
Apply mechanical stops.

M8x1.25 mounting accessories

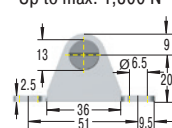
HB-22

Before installation check whether the identification number on the packaging matches the respective designation on the delivery note.

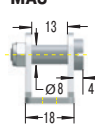
Note the dimensioning for mounting when using accessory parts. Bolts for fitting of accessories are not included.

If you have any questions, please phone +49 (0)2173 - 9226-20 for free advice.

¹ Up to max. 1,800 N

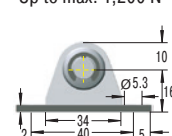


MA8

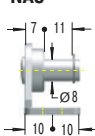


ME8

¹ Up to max. 1,200 N

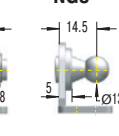


NA8

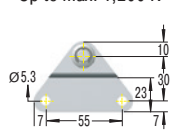


NE8

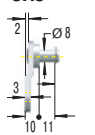
NG8



¹ Up to max. 1,200 N

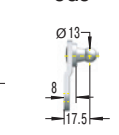


OA8

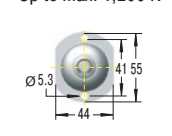


OE8

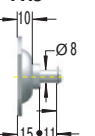
OG8



¹ Up to max. 1,200 N

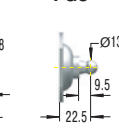


PA8



PE8

PG8



¹ Note! Max. static load in N; note force increase when pushing in (progression). Higher load possible on request.

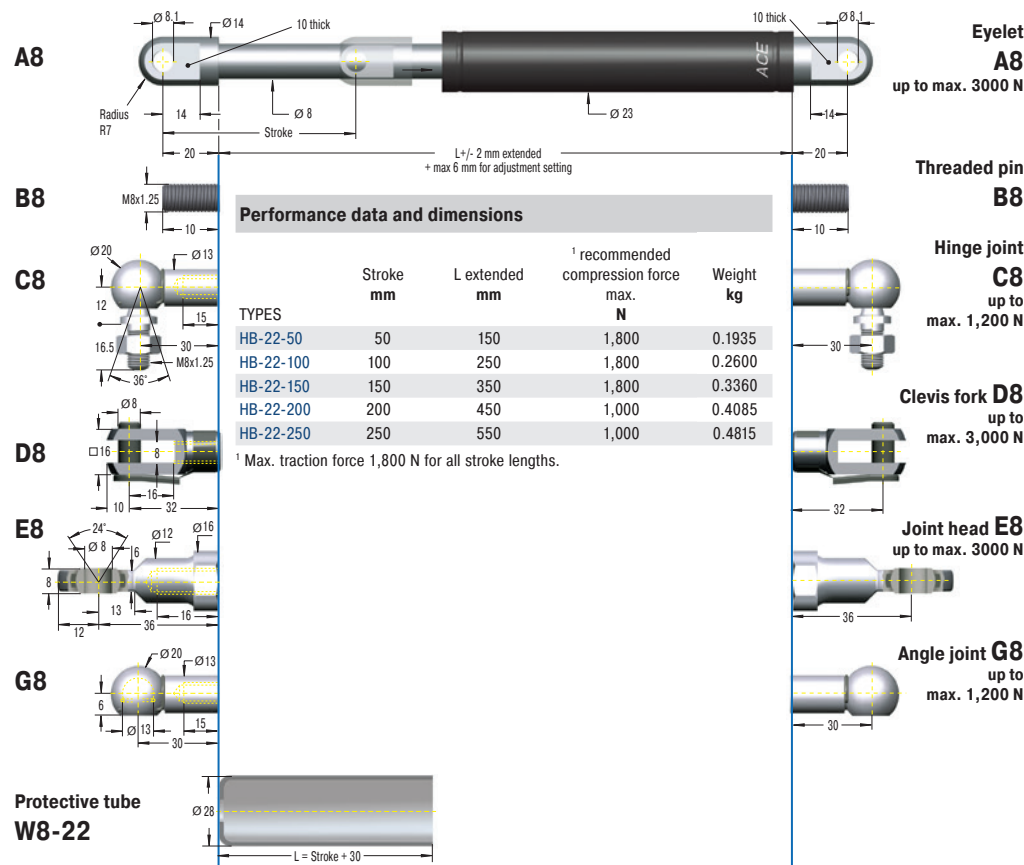
Packaging disposal

Please dispose of the transportation packaging in an environmentally-friendly manner. Recycling packaging materials saves raw materials and reduces waste. The packaging materials do not contain any prohibited materials.

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

End Fitting

Standard Dimensions



The end fittings can be combined in any manner and must be secured against twisting by the customer, if necessary. See mounting accessories.

Mounting instructions and mounting accessories

Installation instructions

Before installation and use check whether the identification number on the hydraulic damper or on the packaging matches the respective designation on the delivery note. Hydraulic dampers are maintenance-free and ready-to-install.

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

Mounting: In any position, preferably not horizontal

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

Separator piston version: Force 80 N;

Dimension L = 2.35 x stroke + 60 mm

Adjustment

Possible by twisting the piston rod to completely extended or retracted state.

Twisting clockwise = increased braking force

Anticlockwise = reduced braking force

Damping force adjustable in fitted condition. The L dimension is extended by maximum 6 mm during adjustment.

WARNING

-  **The flap/mass can fall down during installation of hydraulic dampers.**
Secure the flap/mass to be moved against falling down.
-  **If the temperature exceeds or falls below the maximum or minimum temperature, hydraulic dampers may fail.**
Always maintain temperature range of -20 °C to +80 °C.
-  **Fluids, gases and dirt particles in the surrounding area can attack or destroy the seal system of the hydraulic damper and cause the damper to fail.**
Protect piston rod and seal system from external materials in the environment.
-  **Damage to the piston rod surface can destroy the seal system.**
Do not grease, oil, paint piston rod, etc.; protect against dirt particles.
-  **The piston rod can be torn from the hydraulic damper.**
Ensure a mechanical end stop in tension direction.
-  **Tilting and lateral forces can lead to leaks from the damper or blocking of the piston rod.**
Check installation and ensure suitable end fittings and guides. There must be no tension on mounting parts; if necessary, allow a little free play.
-  **The body tube can become deformed.**
Do not allow any transverse or lateral forces on the hydraulic damper. Do not clamp the body tube.
-  **End fittings can come loose from the hydraulic damper.**
Always completely screw on the end fittings and, if necessary, secure with threadlocker (Loctite).
-  **High forces may cause the hydraulic damper to compress or overstretch.**
Apply mechanical stops.

M8x1.25 mounting accessories

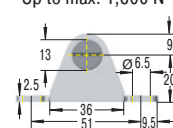
HB-28

Before installation check whether the identification number on the packaging matches the respective designation on the delivery note.

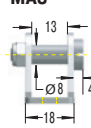
Note the dimensioning for mounting when using accessory parts. Bolts for fitting of accessories are not included.

If you have any questions, please phone +49 (0)2173 - 9226-20 for free advice.

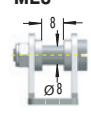
¹ Up to max. 1,800 N



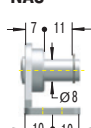
MA8



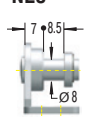
ME8



NA8

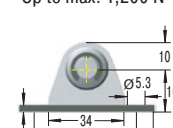


NE8

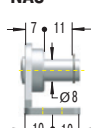


NG8

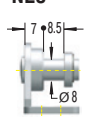
¹ Up to max. 1,200 N



OA8

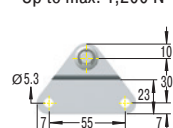


OE8

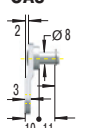


OG8

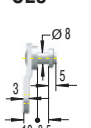
¹ Up to max. 1,200 N



PA8

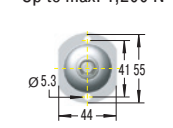


PE8

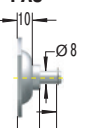


PG8

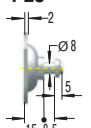
¹ Up to max. 1,200 N



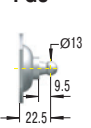
MA8



ME8



NA8



¹ Note! Max. static load in N; note force increase when pushing in (progression). Higher load possible on request.

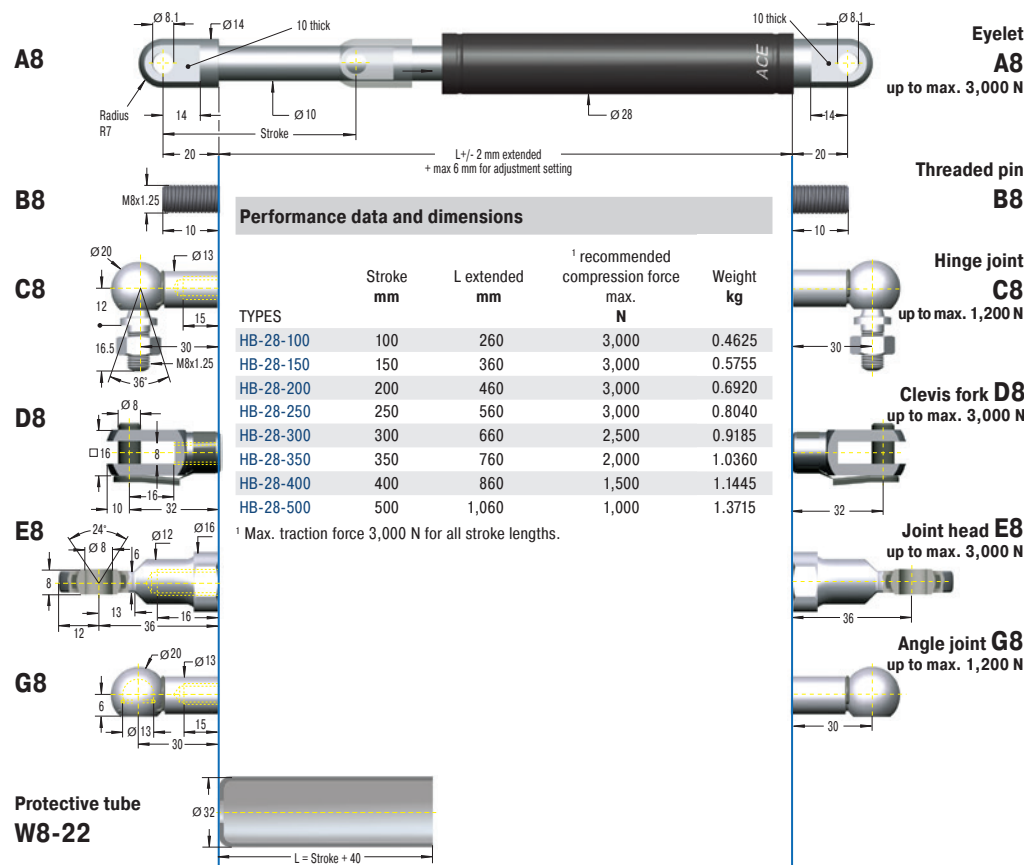
Packaging disposal

Please dispose of the transportation packaging in an environmentally-friendly manner. Recycling packaging materials saves raw materials and reduces waste. The packaging materials do not contain any prohibited materials.

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

End Fitting

Standard Dimensions



The end fittings can be combined in any manner and must be secured against twisting by the customer, if necessary. See mounting accessories.

Mounting instructions and mounting accessories

Installation instructions

Before installation and use check whether the identification number on the hydraulic damper or on the packaging matches the respective designation on the delivery note. Hydraulic dampers are maintenance-free and ready-to-install.

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

Mounting: In any position, preferably not horizontal

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

Separator piston version: Force 150 N;
Dimension L = 2.32 x stroke + 82 mm

Adjustment

Possible by twisting the piston rod to completely extended or retracted state.

Twisting clockwise = increased braking force

Anticlockwise = reduced braking force

Damping force adjustable in fitted condition. The L dimension is extended by maximum 6 mm during adjustment.

M14x1.5 mounting accessories

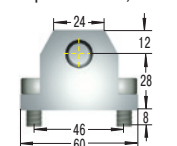
HB-40

Before installation check whether the identification number on the packaging matches the respective designation on the delivery note.

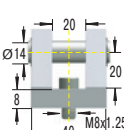
Note the dimensioning for mounting when using accessory parts. Bolts for fitting of accessories are not included.

If you have any questions, please phone +49 (0)2173 - 9226-20 for free advice.

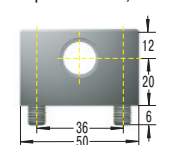
¹ Up to max. 10,000 N



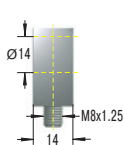
ME14



¹ Up to max. 10,000 N



ND14



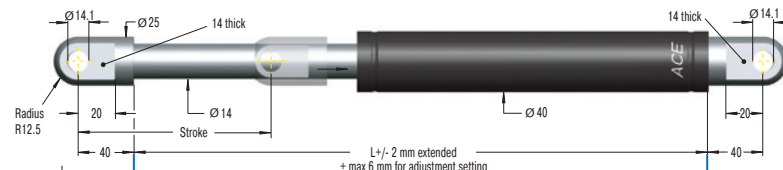
¹ Note! Max. static load in N; note force increase when pushing in (progression). Higher load possible on request.

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

End Fitting

Standard Dimensions

A14



End Fitting

Eyelet A14

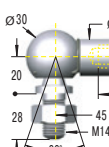
up to max. 10,000 N

B14



Threaded pin B14

C14



Hinge joint C14

up to max. 3,200 N

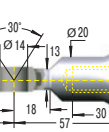
D14



Clevis fork D14

up to max. 10,000 N

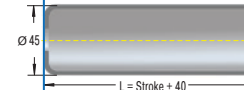
E14



Joint head E14

up to max. 10,000 N

Protective tube W14-40



Performance data and dimensions

TYPES	Stroke mm	L extended mm	¹ recommended compression force max. N	Weight kg
HB-40-100	100	275	10,000	0.9600
HB-40-150	150	375	10,000	1.1560
HB-40-200	200	475	10,000	1.3450
HB-40-300	300	675	10,000	1.7355
HB-40-400	400	875	8,000	2.1245
HB-40-500	500	1,075	6,000	2.5110
HB-40-600	600	1,275	4,000	2.700
HB-40-700	700	1,475	3,000	3.100
HB-40-800	800	1,675	3,000	3.681

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

The end fittings can be combined in any manner and must be secured against twisting by the customer, if necessary. See mounting accessories.

WARNING

- The flap/mass can fall down during installation of hydraulic dampers.**
Secure the flap/mass to be moved against falling down.
- If the temperature exceeds or falls below the maximum or minimum temperature, hydraulic dampers may fail.**
Always maintain temperature range of -20 °C to +80 °C.
- Fluids, gases and dirt particles in the surrounding area can attack or destroy the seal system of the hydraulic damper and cause the damper to fail.**
Protect piston rod and seal system from external materials in the environment.
- Damage to the piston rod surface can destroy the seal system.**
Do not grease, oil, paint piston rod, etc.; protect against dirt particles.
- The piston rod can be torn from the hydraulic damper.**
Ensure a mechanical end stop in tension direction.
- Tilting and lateral forces can lead to leaks from the damper or blocking of the piston rod.**
Check installation and ensure suitable end fittings and guides. There must be no tension on mounting parts; if necessary, allow a little free play.
- The body tube can become deformed.**
Do not allow any transverse or lateral forces on the hydraulic damper. Do not clamp the body tube.
- End fittings can come loose from the hydraulic damper.**
Always completely screw on the end fittings and, if necessary, secure with threadlocker (Loctite).
- High forces may cause the hydraulic damper to compress or overstretch.**
Apply mechanical stops.

Packaging disposal

Please dispose of the transportation packaging in an environmentally-friendly manner. Recycling packaging materials saves raw materials and reduces waste. The packaging materials do not contain any prohibited materials.

Mounting instructions and mounting accessories

Installation instructions

Before installation and use check whether the identification number on the hydraulic damper or on the packaging matches the respective designation on the delivery note. Hydraulic dampers are maintenance-free and ready-to-install.

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

Mounting: In any position, preferably not horizontal

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

Separator piston version: Force 250 N;
Dimension L + 150 mm

Adjustment

Possible by twisting the piston rod to completely extended or retracted state.

Twisting clockwise = increased braking force

Anticlockwise = reduced braking force

Damping force adjustable in fitted condition. The L dimension is extended by maximum 5 mm during adjustment.

M24x2 mounting accessories

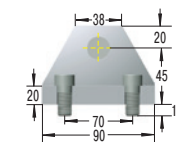
HB-70

Before installation check whether the identification number on the packaging matches the respective designation on the delivery note.

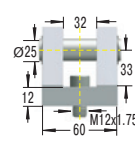
Note the dimensioning for mounting when using accessory parts. Bolts for fitting of accessories are not included.

If you have any questions, please phone +49 (0)2173 - 9226-20 for free advice.

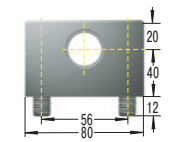
¹ Up to max. 50,000 N



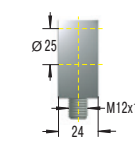
ME24



¹ Up to max. 50,000 N



ND24



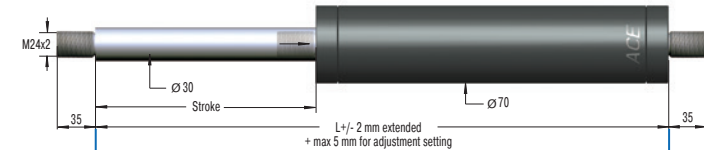
¹ Note! Max. static load in N; note force increase when pushing in (progression). Higher load possible on request.

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

End Fitting

Standard Dimensions

B24

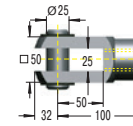


End Fitting

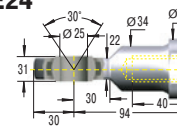
Threaded pin B24

Performance data and dimensions

D24



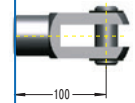
E24



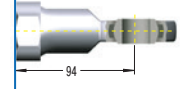
TYPES	Stroke mm	L extended mm	¹ recommended compression force max. N	Weight kg
HB-70-100	111	331	50,000	6.4
HB-70-200	211	531	50,000	8.2
HB-70-300	311	731	50,000	10.0
HB-70-400	411	931	30,300	11.8
HB-70-500	511	1,131	21,600	13.6
HB-70-600	611	1,331	16,200	15.4
HB-70-700	711	1,531	12,600	17.2
HB-70-800	811	1,731	10,100	19.0

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

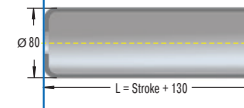
Clevis fork D24
up to max. 50,000 N



Joint head E24
up to max. 50,000 N



Protective tube W24-70



The end fittings can be combined in any manner and must be secured against twisting by the customer, if necessary. See mounting accessories.

WARNING

- The flap/mass can fall down during installation of hydraulic dampers.**
Secure the flap/mass to be moved against falling down.
- If the temperature exceeds or falls below the maximum or minimum temperature, hydraulic dampers may fail.**
Always maintain temperature range of -20 °C to +80 °C.
- Fluids, gases and dirt particles in the surrounding area can attack or destroy the seal system of the hydraulic damper and cause the damper to fail.**
Protect piston rod and seal system from external materials in the environment.
- Damage to the piston rod surface can destroy the seal system.**
Do not grease, oil, paint piston rod, etc.; protect against dirt particles.
- The piston rod can be torn from the hydraulic damper.**
Ensure a mechanical end stop in tension direction.
- Tilting and lateral forces can lead to leaks from the damper or blocking of the piston rod.**
Check installation and ensure suitable end fittings and guides. There must be no tension on mounting parts; if necessary, allow a little free play.
- The body tube can become deformed.**
Do not allow any transverse or lateral forces on the hydraulic damper. Do not clamp the body tube.
- End fittings can come loose from the hydraulic damper.**
Always completely screw on the end fittings and, if necessary, secure with threadlocker (Loctite).
- High forces may cause the hydraulic damper to compress or overstretch.**
Apply mechanical stops.

Packaging disposal

Please dispose of the transportation packaging in an environmentally-friendly manner. Recycling packaging materials saves raw materials and reduces waste. The packaging materials do not contain any prohibited materials.

Manual

Warranty

Fundamentally, all modifications to the product by third parties lead to exclusion from the warranty.

Obvious defects must be reported to the vendor in writing immediately after delivery, no later than one week, but in any case before processing or installation, otherwise the assertion of a warranty claim is excluded. A timely dispatch is sufficient to keep the term.

The vendor is to be given an opportunity to check on site. If the complaint is justified the vendor offers warranty by repair or replacement at its own discretion. If the rectification fails, the buyer may choose to demand reduction of payment (abatement) or cancellation of the contract (withdrawal). If there is only a minor lack of conformity, particularly with only minor defects, the buyer nevertheless has a right of withdrawal.

If, after failed rectification, the buyer chooses to cancel the contract due to a defect of title or material defect, they are not entitled to additionally claim for damages.

If, after failed fulfilment, the buyer chooses compensation, the goods remain with the buyer, if this is reasonable. The compensation is limited to the difference between the purchase price and the value of the defective item. This does not apply if the vendor maliciously causes the breach of contract.

The quality of the goods is only considered as agreed upon with the product description of the vendor. Public statements, claims or advertising of the manufacturer do not represent an additional contractual specification of quality of the goods.

If the buyer receives defective mounting instructions, the buyer is only obligated to deliver defect-free mounting instructions and only if the defect to the mounting instructions prevents proper mounting.

The warranty period is two years and begins upon completion. Exchange and return of custom products are fundamentally excluded. The factory conditions of the manufacturing factory apply to parts not manufactured and processed by the vendor, which can be viewed by the orderer at the vendor at any time. Construction and installation parts are delivered according to the present standard of engineering.

Expected service life

In general, hydraulic dampers are machine elements that are subject to wear. Wear parts such as seals and pistons are excluded from the general warranty.

The wear of seals is largely dependent upon the operating conditions and the respective application with its operating parameters. In general, the hydraulic damper HB by ACE is tested over a lifetime of approx. 10,000 m. Adverse environmental and operating conditions can significantly reduce the expected service life.

Performance data

TYPES	Stroke	¹ Compression force	¹ Compression force	Traction force range	Traction force range	Weight
	mm	min. N	max. N	min. N	max. N	kg
HB-12	10 - 80	20	180	20	180	0.027 - 0.058
HB-15	25 - 150	20	800	20	800	0.0685 - 0.166
HB-22	50 - 250	30	1,800	30	1800	0.1935 - 0.4815
HB-28	100 - 500	30	3,000	30	3,000	0.4625 - 1.3715
HB-40	100 - 800	30	10,000	30	10,000	0.96 - 3.681
HB-70	111 - 811	2,000	50,000	2,000	50,000	6.4 - 19

¹ Depending on stroke, see datasheet of respective range.

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: Depending on design, free travel of approx. 20% (21% for HB-12).

Separator piston version: Alternative free-travel design with separator piston and nitrogen volume.

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

Adjustment: Possible by twisting the piston rod to completely extended or retracted state.

Positive stop: External positive stops 1 mm to 1.5 mm (HB-70: 5 mm to 6 mm) before the end of stroke provided by the customer.

Damping medium: Hydraulic oil

Material: Outer body: Steel coated;
piston rod: **HB-12:** V2A (1.4301/1.4305, AISI 304/303);
HB-15 to HB-40: Steel with wear-resistant surface coating;
HB-70: Chrome-plated steel;
end fittings: Zinc-plated steel

Mounting: In any position, preferably not horizontal

Application field: Conveyor systems, transport systems, furniture industry, locking systems, sports equipment

Note: Increased clamping torque with longer downtimes.

End fittings: Can be combined in any manner and must be secured against twisting by the customer, if necessary.

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