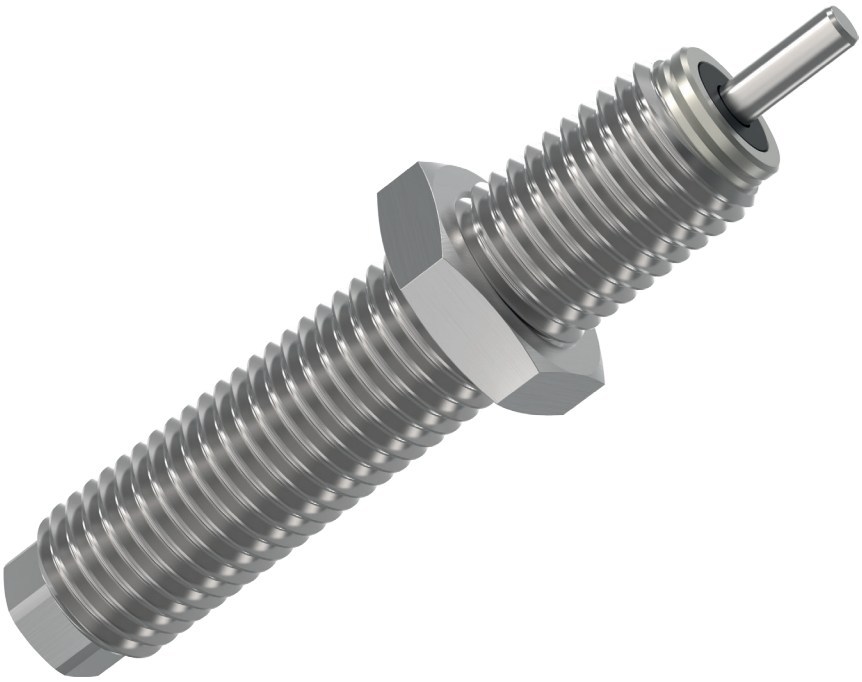
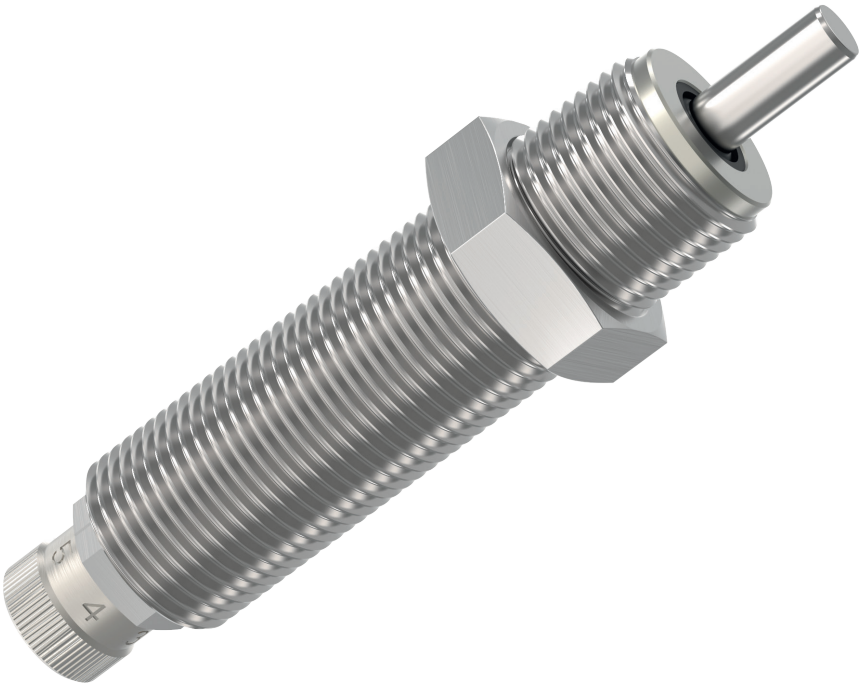




INSTALLATION AND OPERATING INSTRUCTIONS

Industrial shock absorber, hydraulic

PowerStop

DDOC00335

THE KNOW-HOW FACTORY

Content

EN / 2024-01-22
DDOC00335 / c

Zimmer GmbH • Im Salmenkopf 5 • 77866 Rheinau, Germany • +49 7844 9138 0 • www.zimmer-group.com

1 Supporting documents

NOTICE

Read through the installation and operating instructions before installing or working with the product.

The installation and operating instructions contain important notes for your personal safety. They must be read and understood by all persons who work with or handle the product during any phase of the product lifetime.

The documents listed below are available for download on our website www.zimmer-group.com.

- Installation and operating instructions
- Catalogs, drawings, CAD data, performance data
- Information on accessories
- Technical data sheets
- General Terms and Conditions, including warranty information.

⇨ Only those documents currently available on the website are valid.

In these installation and operating instructions, "product" refers to the product designation on the title page!

1.1 Notices and graphics in the installation and operating instructions

DANGER

This notice warns of an imminent danger to the life and health of people. Ignoring these notices can lead to serious injury or even death.

► You absolutely must comply with the described measures for avoiding these dangers!

⇨ The warning symbols are assigned according to the type of danger.

WARNING

This notice warns of a situation that is potentially hazardous to personal health. Ignoring these notices can cause serious injury or damage to health.

► You absolutely must comply with the described measures for avoiding these dangers!

⇨ The warning symbols are assigned according to the type of danger.

CAUTION

This notice warns of a situation that is potentially hazardous to persons. Ignoring these notices can cause minor, reversible injuries.

► You absolutely must comply with the described measures for avoiding these dangers!

⇨ The warning symbols are assigned according to the type of danger.

NOTICE

This notice warns of possible material and environmental damage. Ignoring these notices can result in damage to the product or the environment.

► You absolutely must comply with the described measures for avoiding these dangers!

⇨ The warning symbols are assigned according to the type of danger.

INFORMATION

This category contains useful tips for handling the product efficiently. Failure to observe these tips will not result in damage to the product. This information does not include any information relevant to health or workplace safety.

2 Safety notices

CAUTION

Risk of injury and material damage in case of non-compliance

Installation, commissioning, maintenance and repairs may only be performed by qualified specialists in accordance with these installation and operating instructions.

The product is state-of-the-art.

It is mounted on industrial machines and used for damping loads, workpieces and similar applications.

The following are examples of situations in which the product may cause a hazard:

- The product is not properly installed, used or maintained.
- The product is not used for its designated purpose.
- The locally applicable regulations, laws, directives or guidelines are not observed.

► The product may only be used in accordance with these installation and operating instructions and the product's technical data. Any changes or additions to the intended use of the product, as well as modifications to the product, such as those in the following examples, require the written permission of the manufacturer:

- Use of the product under extreme conditions, such as aggressive fluids or abrasive dusts
- Additional drilled holes or threads

⇨ Zimmer GmbH shall accept no liability for any damage caused by improper use. The operator bears sole responsibility.

► Note the corresponding protection variants if the product is to be used under extreme conditions.

► For more information, refer to the "Protection variants" section.

► Make sure that the power supply is disconnected before you mount, adjust, modify, maintain or repair the product.

► Whenever work is carried out on the product, make sure that the product cannot be actuated by mistake.

► Do not reach into the operational range of the product.

Zimmer GmbH • Im Salmenkopf 5 • 77866 Rheinau, Germany • +49 7844 9138 0 • www.zimmer-group.com

3 Proper use

NOTICE

The product is only to be used in its original state with its original accessories, with no unauthorized changes and within the stipulated parameter limits and operating conditions.

Any other or secondary use is deemed improper.

- ▶ Operate the product only in compliance with the associated installation and operating instructions.
- ▶ Operate the product only when it is in a technical condition that corresponds to the guaranteed parameters and operating conditions.
- ▶ The piston rod of the product may only be subjected to pressure.
  - ▶ Never subject the piston rod to tension.
- ⇨ Zimmer GmbH shall accept no liability for any damage caused by improper use. The operator bears sole responsibility.

NOTICE

Malfunction in case of non-compliance

- ▶ When selecting the product, check that all parameters are being observed.
  - Maximum energy absorption per stroke
  - Maximum energy absorption per hour
  - Pressure when used in a pressure chamber
  - Force at fixed stop
  - Maximum impact angle
  - Permitted temperature range

- The product is intended for industrial use.

4 Personnel qualification

WARNING

Injuries and material damage due to inadequate qualification

If inadequately qualified personnel perform work on the product, this can cause serious injuries and significant material damage.

- ▶ All work on the product must be performed by qualified personnel.
- ▶ Before working with the product, read the document in its entirety and make sure that you have understood everything.
- ▶ Observe country-specific accident prevention regulations and the general safety notices.

The following qualifications are a prerequisite for performing various work on the product.

4.1 Electricians

Electricians are able to perform work on electrical systems, can recognize and avoid possible dangers and know the relevant standards and provisions due to their technical training, knowledge and experience.

4.2 Specialists

Specialists are able to perform the assigned work, can recognize and avoid possible dangers and know the relevant standards and provisions due to their technical training, knowledge and experience.

4.3 Instructed personnel

Instructed personnel have been trained by the operating company on the tasks and possible dangers of improper behavior.

4.4 Service personnel

Service personnel are able to perform the assigned work and can recognize and avoid possible dangers due to their technical training, knowledge and experience.

4.5 Additional qualifications

Persons who work with the product must be familiar with the valid safety regulations and laws as well as the standards, guidelines and laws listed in this document.

Personnel who work with the product must have facility-issued authorization to commission, program, configure, operate, maintain and also decommission this product.

Zimmer GmbH • Im Salmenkopf 5 • 77866 Rheinau, Germany • +49 7844 9138 0 • www.zimmer-group.com

5 Product description

The product is a pressure-loaded shock absorber. It is used to brake moving masses in the end position.

INFORMATION

- ▶ Determine the energy absorption and the impact velocity using the Product Finder on our website or see the corresponding catalog pages.
- ▶ Use the checklists on our website to find the right product for your application.

INFORMATION

- ▶ Information about connecting products in parallel or series, transforming rotations or calculating lever translations can be found in the description in the catalog.

5.1 Hydraulic fluid properties

The product is filled with a bio-oil based on synthetic ester (HEES).

- Biologically degradable
- PWIS-free
- H1 certification for use in the food industry
- Low vaporization inclination, which is beneficial for use in cleanroom applications.

5.2 Stroke variants

A variety of stroke variants are available for this product:

- Normal stroke (N)
- Long stroke (L)
- Extra-long stroke (V)

5.3 Degrees of hardness

The degree of hardness describes the damping characteristics according to the impact velocity of the moving mass on the product.

There are four defined degrees of hardness:

- Hard (H)
- Medium (M)
- Soft (S)
- Super soft (W)

The energy absorption in accordance with the technical specifications is reached in the specified speed range.

NOTICE

Material damage and malfunction in case of non-compliance

- ▶ Please note that the product reacts with an increased counterforce if the specified speed range is exceeded.
- ⇨ The product can be overloaded because of this.
- ▶ Please note that the product reacts with a reduced counterforce if the speed range falls short of the specified value.
- ⇨ The product cannot achieve the full energy absorption because of this.

5.4 Protection variants

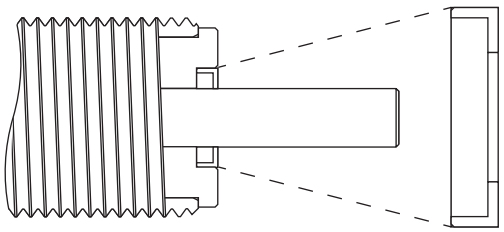
INFORMATION

- ▶ Please note that the No protection, Felt ring and Wiper variants are also available with the side load adapter accessory as optional protection.
- ▶ For more information, refer to the "Installing the side load adapter (PBV)" section.

You can choose from the following protection variants for the product.

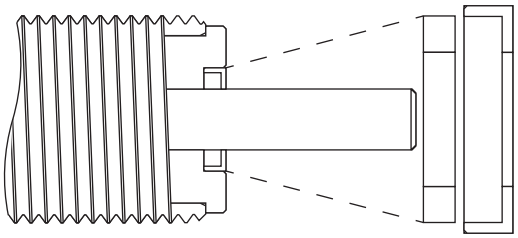
No protection (D)

If the product is used in a dirt-free environment, additional protection is unnecessary.



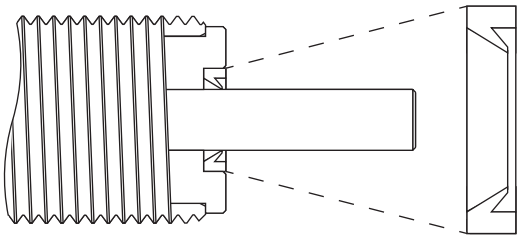
Felt ring (F)

The felt ring protects the product against dirt, dust and chips, such as wood dust and metal swarf.



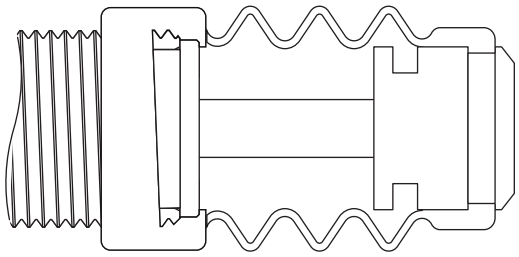
Wiper (A)

The wiper protects the product against liquids and aerosols, such as cooling lubricants, oils, oil mist and hydraulic media.



Bellows (B)

The bellows offer maximum protection when used in a dirty environment. It protects the product against dirt and liquids.



Zimmer GmbH • Im Salmenkopf 5 • 77866 Rheinau, Germany • +49 7844 9138 0 • www.zimmer-group.com

5.5 Head variants

INFORMATION

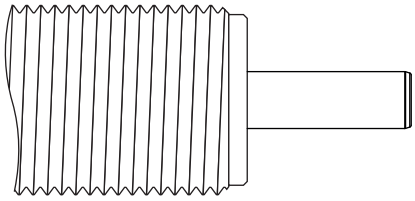
- ▶ Please note the availability and effect of the integrated fixed stop for the different head variants.
- ▶ For more information, refer to the "Setting the stroke and fixed stop" section.

The counter piece that impacts the product must exhibit the highest possible hardness in order to minimize wear on the counter piece. In case of softer materials, the use of a steel or plastic head is recommended to reduce surface pressure.

For even greater durability at inclined impact angles, all heads are rounded in order to absorb the load with reduced transverse force. For a secure hold, the heads are glued as well as crimped via lateral grooves for reliable positioning with the piston rod.

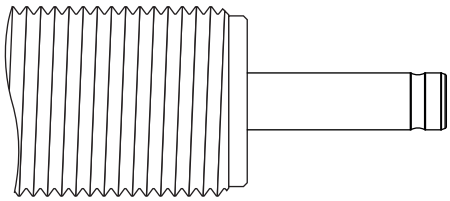
Short piston rod no head (D)

The piston rod extends out of the housing by the maximum stroke of the respective product. Because of this, the product has an integrated fixed stop.



Long piston rod no head (E)

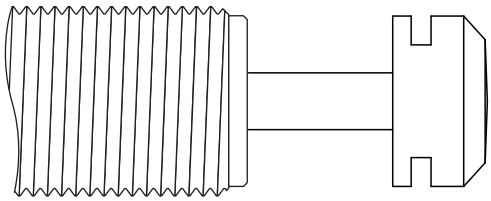
The piston rod extends further out of the housing than the maximum stroke of the respective product. Because of this, the product does not have an integrated fixed stop.



Steel head (S)

The steel head has an enlarged surface, thus reducing the surface pressure during impact. The steel head is suitable for soft opposing materials.

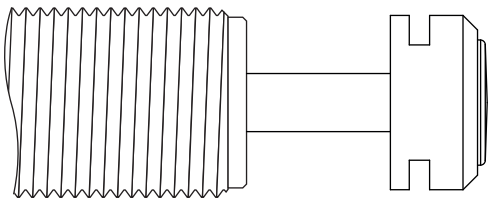
The distance between the housing and the bottom of the head corresponds to the maximum stroke of the respective product. Because of this, the product has an integrated fixed stop.



Plastic head (K)

The plastic head consists of an intake made of steel with an insert made of a TPC material. The plastic head is suitable for soft opposing materials and for noise reduction.

The distance between the housing and the bottom of the head corresponds to the maximum stroke of the respective product. Because of this, the product has an integrated fixed stop.



6 Functional description

The braking of moving masses in the end position is performed by converting kinetic energy into heat using hydraulic damping.

6.1 Shock absorber characteristic curve

The shock absorber characteristic curve describes the development of force over the stroke of the product. This development is the result of the design-based buildup of the internal hydraulic friction and throttle effect via the spiral groove as well as the velocity-dependent loading of the product.

It depends on the following parameters and can vary within the specified ranges:

- Type, viscosity and density of the oil
- Impact velocity
- Energy load due to the impact process
- Temperature
- Wear

6.1.1 Velocity-dependent behavior

The specified technical data apply to the use of the maximum damper stroke.

The force that the product generates depends on the impact velocity.

- A higher velocity corresponds to a higher product force.
- The force curve over the stroke yields the energy absorption per stroke.

INFORMATION

► During the design process, make sure that the energy load of the application is not greater than the maximum energy absorption per stroke.

The product is designed so that the maximum energy absorption per stroke is present with a minimum impact velocity.

Up to reaching the maximum impact velocity, the maximum energy absorption per stroke remains the same in order to prevent the product from being overloaded.

Below the minimum velocity, the product responds more softly and no longer achieves the maximum energy absorption per stroke.

NOTICE

Non-compliance may result in material damage.

► Make sure that the maximum impact velocity of the product is not exceeded.

⇨ The resulting high forces can cause an overload, thus damaging the product.

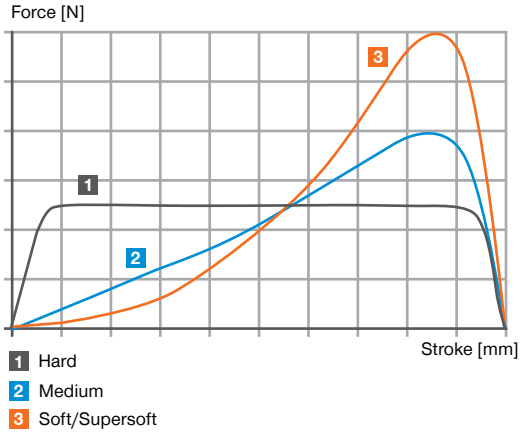
⇨ Because the oil cannot drain quickly enough through the throttle cross-section, bouncing can occur above the maximum impact velocity.

The individual degrees of hardness tend toward the following characteristics in the shock absorber characteristic curve:

As a rule, the maximum force increases from the minimum to maximum impact velocity, whereby the energy is absorbed in an earlier stroke than the maximum stroke.

Thus the stroke that results or that is necessary for the application can be lower than the maximum stroke of the product.

► For more information, refer to the "Setting the stroke and fixed stop" section.



6.1.2 Bypass function

The Adjustable Energy series has an internal bypass whose opening can be manually adjusted from the outside using a knurled nut.

The adjustment of the additional throttle cross-section allows the product to be used over the entire speed range. This is only possible for products from the Mini Energy, Standard Energy and High Energy series using preset degrees of hardness.

Level 0
The bypass is completely closed.

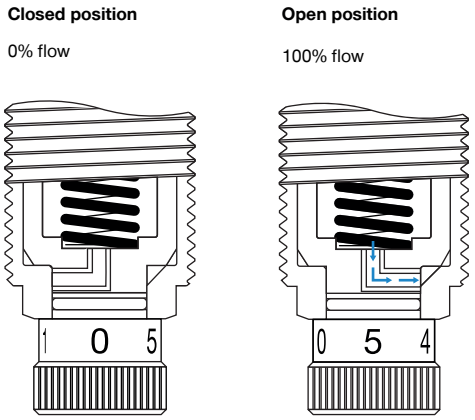
This allows the maximum energy absorption in the speed range of the Hard (H) degree of hardness.

Levels 1–4
The bypass is partially open.

For softer damping operations, as higher speeds are approached or for lower energy absorption levels, the bypass must be opened.

Level 5
The bypass is completely open.

Using this setting, the highest speed or the lowest speed is possible.



It is not possible to assign a degree of hardness from stage 0–5.

6.2 Ambient temperature

The force of the product and thus the shock absorber characteristic curve and energy absorption depend on the viscosity and density of the oil and thus on the ambient temperature.

- At lower ambient temperatures, the viscosity and density of the oil increase, which can result in higher forces and energy absorption levels per stroke.
  - The low ambient temperature can be counteracted due to the heating of the product as a result of damping using a corresponding cycle time in continuous operation.
- At higher ambient temperatures, the viscosity and density of the oil decrease, which can result in lower forces and lower maximum energy absorption per stroke.

6.3 Energy absorption per hour

NOTICE

Material damage from overheating of the product

► Make sure that the energy absorption per hour does not exceed the maximum energy absorption.

The energy absorption per hour at which the product is placed under load results from the energy absorption per stroke and the cycle time in continuous operation.

6.4 Operation modes

6.4.1 Continuous operation

Continuous operation represents continuous loading of the product with a certain number of cycles per unit of time.

This results in the product heating up, which yields a certain operating temperature prevailing from the thermal balance between heat absorption due to damping and heat dissipation to the surroundings.

NOTICE

Malfunction in case of non-compliance

► When the system is at a standstill, make sure that the product does not remain in the actuated state in order to ensure that the product can be reset to the starting position with the piston rod extended.

NOTICE

Non-compliance may result in material damage.

► Ensure sufficient heat dissipation so that the product does not heat up above the permitted maximum temperature.

6.4.2 Emergency stop operation

INFORMATION

► Please note that several products can absorb higher energy per stroke in emergency stop operation.

In emergency stop operation, the product is only used in emergencies, e.g. a failure of the machine control system.

Emergency stop operation can cause irregular loading of the product at unpredictable intervals.

6.5 Impact angle

The impact angle results from the angular deviation between the movement of the impacting mass and the piston rod of the product. In cases with rotational loads, the distance of the product to the instant center plays an important role. In addition, in case of rotational movements, the position of the swiveling component to be damped can influence the impact angle in the impact point and in the end position.

INFORMATION

The product is approved for a maximum impact angle, which limits the maximum lateral forces acting upon it.

► Please note that a side load adapter must be installed if the maximum permitted impact angle is exceeded.

► For more information, refer to the "Installing the side load adapter (PBV)" section.

Zimmer GmbH • Im Salmenkopf 5 • 77866 Rheinau, Germany • +49 7844 9138 0 • www.zimmer-group.com

7 Technical data

The technical data is determined under laboratory conditions.

► For more information, refer to the "Service life" section.

INFORMATION

► You can find the information in the technical data sheet on our website.

This data varies within the series, depending on the specific design.

► Please contact Customer Service if you have any questions.

INFORMATION

► Please note that the manual adjustability of the function parameters must be taken into account for products from the Adjustable Energy series.

INFORMATION

The specified technical data apply to an ambient temperature of 20–25 °C.

► Please contact Customer Service for help designing the product for ambient temperatures of < 0 °C and > 40 °C.

Zimmer GmbH • Im Salmenkopf 5 • 77866 Rheinau, Germany • +49 7844 9138 0 • www.zimmer-group.com

8 Accessories

INFORMATION

If any accessories not sold or authorized by Zimmer GmbH are used, the function of the product cannot be guaranteed. Zimmer GmbH accessories are specifically tailored to the individual products.

- ► For optional accessories and those included in the scope of delivery, refer to our website.

9 Transportation/storage/preservation

- ► Transport and storage of the product must be done only with the original packaging.
- ► If the product has already been installed on the superordinate machine unit, care must be taken during transport to ensure that no unexpected movements can occur.
  - ► Before commissioning the product and after transport, check all power and communication connections as well as all mechanical connections.
- ► If the product is stored for an extended period, the following points are to be observed:
  - ► Keep the storage location as dust-free and dry as possible.
  - ► Avoid temperature fluctuations.
  - ► Avoid wind/drafts/water condensation formation.
  - ► Pack the product and do not expose it to direct sunlight during storage.
- ► Remove all foreign substances.

Zimmer GmbH • Im Salmenkopf 5 • 77866 Rheinau, Germany • +49 7844 9138 0 • www.zimmer-group.com

10 Installation

WARNING

Risk of injury due to uncontrolled movements

Risk of injury in case of unexpected movement of the machine or system into which the product is to be installed.

- ► Switch off the energy supply of the machine before any work.
- ► Secure the power supply against being switched on unintentionally.
- ► Check the machine for any residual energy that may be present.

CAUTION

Risk of injury in case of non-compliance

- ► Please note that the product has sharp edges and corners.
- ⇨ Contact can result in injuries.

- ► Wear suitable protective equipment.

NOTICE

Installation may only be carried out by qualified personnel in accordance with these installation and operating instructions.

- ► Switch off the power supply before any assembly, installation or maintenance work.

- ► Make sure that the mounting piece is sufficiently rigid.
- ► Comply with the tightening torques of the mounting screws.
- ► Verify the permitted load capacity of the required screw connections in accordance with VDI 2230.
- ► When tightening the lock nut, adhere to the specified tightening torque with a maximum deviation of ± 10 %.
- ► Please note that the angular deviation between the product and the weight to be damped must not exceed the maximum impact angle.

INFORMATION

Further installation information:

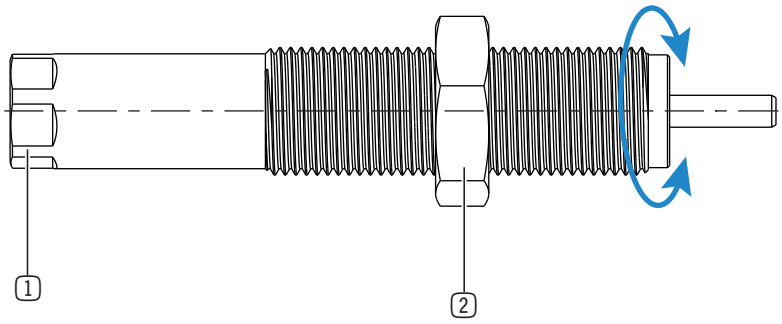
- The lock nut is included in the scope of delivery.
- A clamp flange can be used as an alternative for installation.

10.1 Installing the product

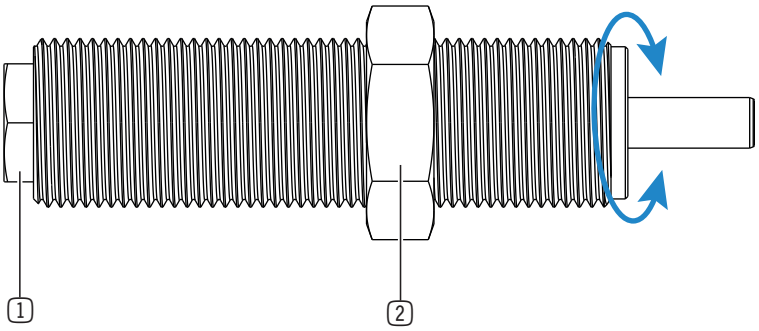
10.1.1 Installing Mini Energy, Standard Energy, High Energy

- ▶ Install the product at the desired position on the housing using the thread.
- ▶ Position the product with the hexagon using a hexagon key.
- ▶ Secure the product using the lock nut.

Mini Energy



Standard Energy/High Energy

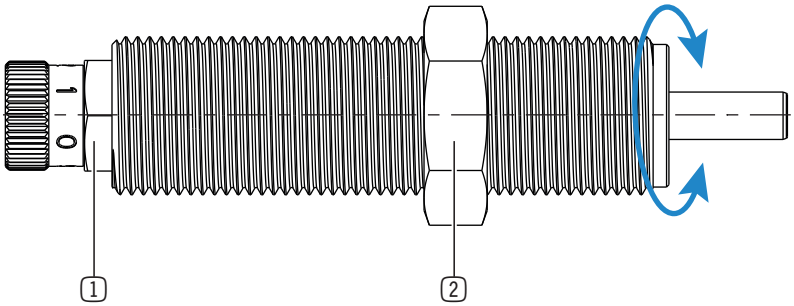


1 Hexagon key

2 Lock nut

10.1.2 Installing Adjustable Energy

- ▶ Install the product at the desired position on the housing using the thread.
- ▶ Position the product with the hexagon using a hexagon key.
- ▶ Secure the product using the lock nut.



1 Hexagon key

2 Lock nut

10.1.3 Setting Adjustable Energy

NOTICE

Non-compliance may result in material damage.

If the product setting is too soft, the energy is not entirely absorbed.

If the product setting is too hard, bouncing and excessive forces may result.

- ► Observe the procedure for setting the product.
- ► Adjust the product accordingly for the energy load.

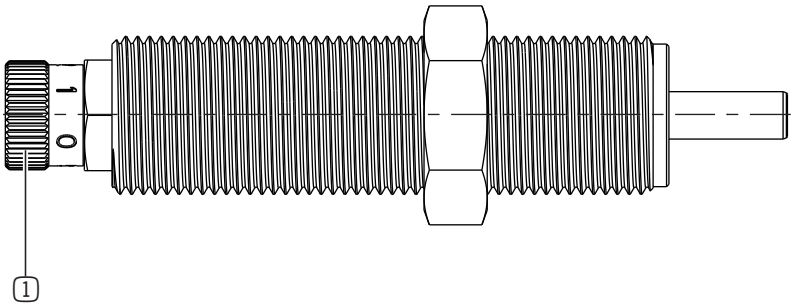
NOTICE

Material damage and malfunction in case of non-compliance

If the load of the product cannot be adapted iteratively while the system is being started up, it is necessary to select a level for the start.

- ► Level 5 is not recommended for the start.
- ⇨ Incomplete energy absorption can cause damage to the system.
- ► Please note the following information when starting with level 0:
  - ⇨ There is a danger that the product will respond with excessive force, which can cause damage to the product.
  - ⇨ An overload of the structure is possible. The risk of damage to the system is less for level 0 than for level 5.
- ► At the beginning, avoid any cycle time over multiple cycles until you have determined the optimum setting.

- ► Loosen the countersunk screw.
- ⇨ This enables the knurled nut to move.
- ► Use the knurled nut to set the desired damping.
- ► Secure the knurled nut using the countersunk screw.
- ► Tighten the countersunk screw hand-tight.
- ⇨ The product cannot be adjusted any more during operation.



[1] Knurled nut

- ► Start with a load on the product that is as low as possible.
- ► Increase the load gradually until the actual operating point of the system is reached.
  - ► Adjust the settings of the product iteratively.

10.1.4 Setting the stroke and fixed stop

NOTICE

Non-compliance may result in material damage.

If the stroke is reduced too much, the product and mounting piece are loaded with the residual energy.

► Make sure that the stroke is sufficient for the complete absorption of the energy of the impact.

NOTICE

Malfunction in case of non-compliance

Make sure that a hub limit of < 50% relative to the maximum stroke is maintained.

⇨ This will avoid worsened return behavior of the piston rod.

NOTICE

Non-compliance may result in material damage.

If the integrated fixed stop of the product is used in continuous operation, this can reduce the service life.

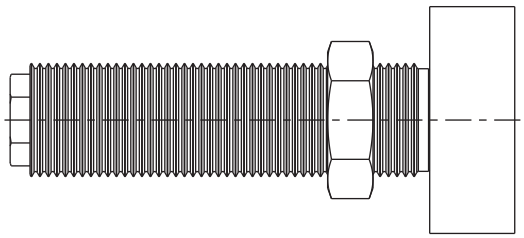
► In continuous operation, use an external fixed stop.

⇨ This reduces the product load.

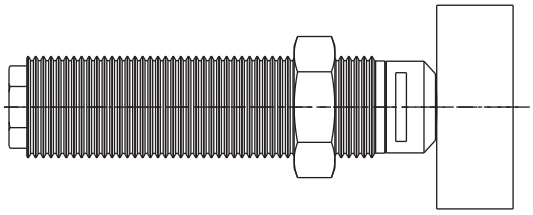
The following product variants have an integrated fixed stop. Here, the bottom of the head moves to the fixed stop of the product.

In the Short piston rod no head variant, the braked component sits on the fixed stop after the maximum stroke has been reached. This takes place under consideration of the maximum forces specified in the catalog.

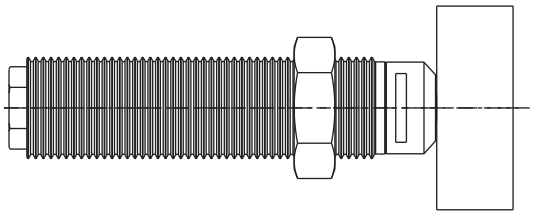
Short piston rod no head (D)



Steel head (S)



Plastic head (K)



INFORMATION

► Use an external fixed stop to set the damping stroke.

⇨ As a result, the energy absorption of the product is limited to the necessary stroke. Under some circumstances, this can save time compared to the full stroke.

External fixed stops for the version without bellows using accessories:

- Stop sleeve
- Sensor stop sleeve

External fixed stops using the mounting piece:

- Embedding in the mounting piece
- Adjusting a stop screw

Zimmer GmbH • Im Salmenkopf 5 • 77866 Rheinau, Germany • +49 7844 9138 0 • www.zimmer-group.com

INFORMATION

► Please note that the product setting differs depending on the stroke limitation used.

► Set the external fixed stop to attain the most time-efficient shock absorption possible.

⇨ This reduces the stroke and thus the energy absorption of the product.

⇨ This prevents slow retraction times up to the maximum stroke.

Zimmer GmbH • Im Salmenkopf 5 • 77866 Rheinau, Germany • +49 7844 9138 0 • www.zimmer-group.com

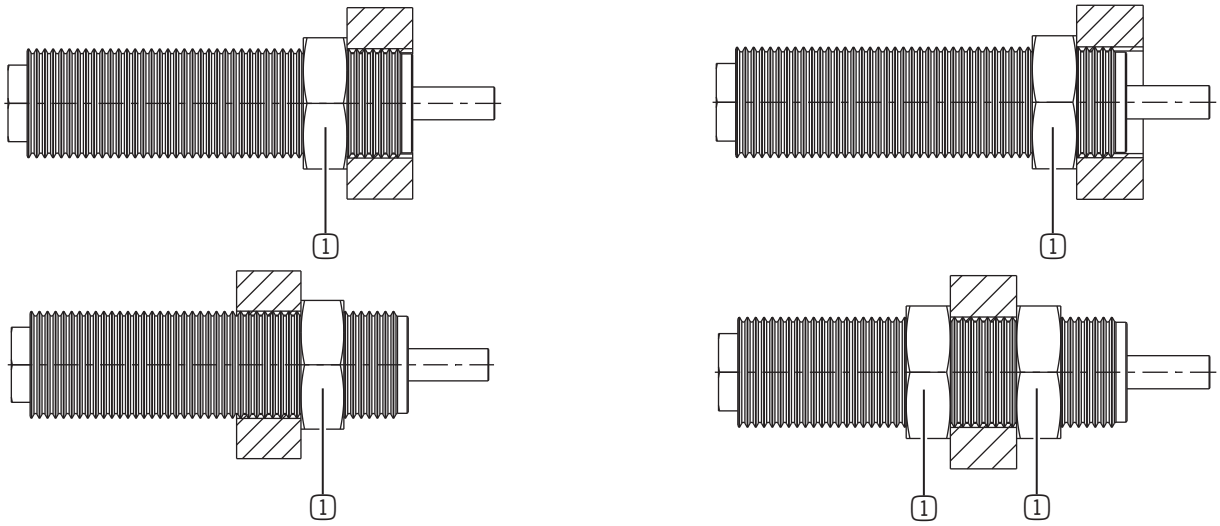
10.2 Installing accessories

NOTICE

- ▶ Before installing an accessory, make sure it is suitable for use with the selected variant.
- ▶ You can find information on our website.
- ▶ Please contact Customer Service if you have any questions.

10.2.1 Installing the lock nut (PVM)

- ▶ Screw the lock nut onto the external thread of the product.
- ▶ Tighten the lock nut.



[1] Lock nut

10.2.2 Installing the clamp flange (PKS, PKP)

INFORMATION

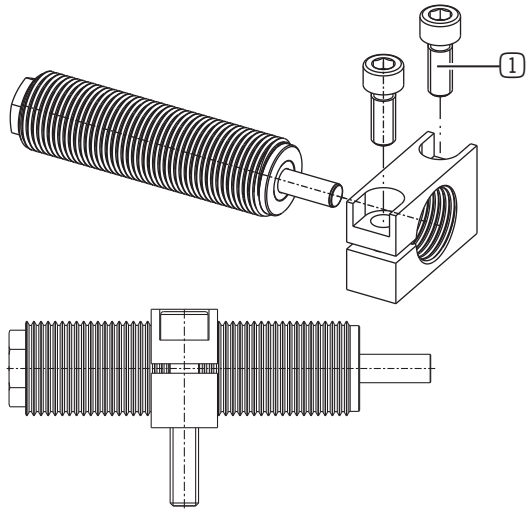
► Please note that the mounting screws are not part of the scope of delivery.

You can use a clamp flange to connect the product to the mounting piece more easily. The clamp flange can be installed on the product orthogonally or parallel. A lock nut is not required.

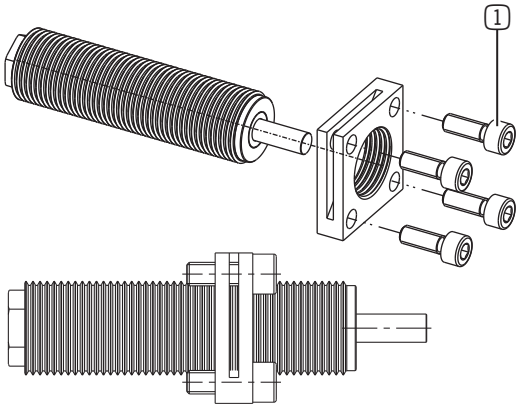
► Screw the product into the clamp flange.

► Mount the clamp flange to the mounting piece using the mounting screws.

Orthogonal installation (PKS)



Parallel installation (PKP)



1 Mounting screw

10.2.3 Installing the pressure chamber seal (PDD)

NOTICE

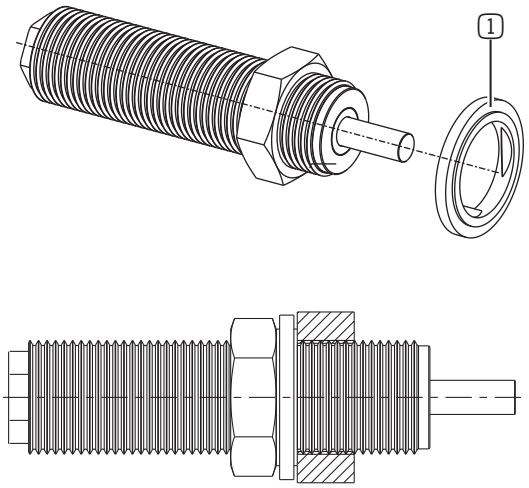
Non-compliance may result in material damage.

► Do not slide the pressure chamber seal onto the external thread.

INFORMATION

If the product is used within a pneumatic pressure chamber, e.g. in a pneumatic cylinder or swivel unit, a pressure chamber seal is required.

► Screw the pressure chamber seal onto the external thread of the product.
► Tighten the lock nut.
► Make sure that the seal is in full contact on both sides.
⇨ This will ensure optimal sealing.



[1] Pressure chamber seal

10.2.4 Installing the stop sleeve (PAH)

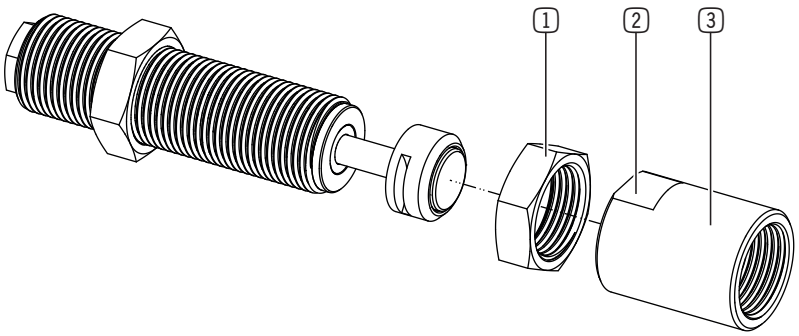
INFORMATION

► Please note that a stop sleeve is required for optimal setting of the damping stroke.
► Please note that the stop sleeve cannot be used in conjunction with the bellows.

INFORMATION

The lock nut is included in the scope of delivery.

► Screw the lock nut onto the external thread of the product.
► Screw the stop sleeve onto the desired position on the external thread of the product.
⇨ This is done to set the end stop and the damping stroke.
► Counter the stop sleeve using the lock nut.
► Place the tool on the wrench flats.



[1] Lock nut
[2] Wrench flats
[3] Stop sleeve

Zimmer GmbH • Im Salmenkopf 5 • 77866 Rheinau, Germany • +49 7844 9138 0 • www.zimmer-group.com

10.2.5 Installing the sensor stop sleeve (PSH)

INFORMATION

- ► Please note that the sensor can only be used for products with a steel or plastic head.
- ► Please note that the sensor stop sleeve cannot be used in conjunction with the bellows.

The sensor stop sleeve includes a sensor for sensing the end position of the set damping stroke.

Due to the tolerance of the switching distance, the sensor cannot be used for precise detection of the end position in terms of position and time.

INFORMATION

An inductive sensor is integrated into the sensor stop sleeve.

- PNP
- NO = normally open
- Protection class IP65
- PUR cable 2 m

► You can find more information in the technical data sheet on our website.

INFORMATION

The lock nut is included in the scope of delivery.

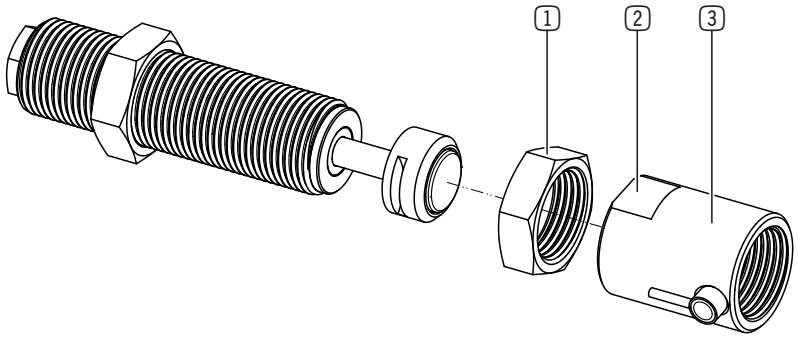
► Screw the lock nut onto the external thread of the product.

► Screw the stop sleeve onto the desired position on the external thread of the product.

⇨ This is done to set the end stop and the damping stroke.

► Counter the stop sleeve using the lock nut.

► Place the tool on the wrench flats.



1 Lock nut

2 Wrench flats

3 Sensor stop sleeve

10.2.6 Installing the side load adapter (PBV)

NOTICE

Malfunction in case of non-compliance

If the product is equipped with both the side load adapter and protection, this can lead to worsened return behavior.

► Select the No protection (D) product variant, if using a side load adapter.

NOTICE

Non-compliance may result in material damage.

The side load adapter can only be used in combination with the Short piston rod no head (D) product variant.

INFORMATION

The lock nut is not included in the scope of delivery.

► Use a side load adapter if the product is operated with a higher impact angle than the permitted misalignment.

⇨ This increases the permitted impact angle up to 30°.

► For more information, refer to the "Impact angle and side load adapter" section.

The side load adapter consists of the pin, pin guide and optional protection.

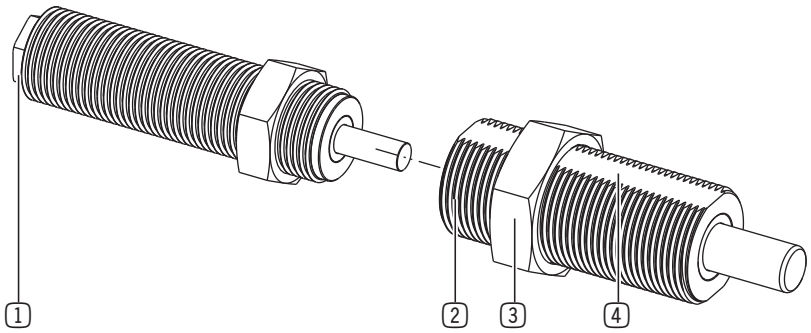
► Screw the side load adapter onto the external thread of the product up to the fixed stop.

► Mount the side load adapter to the product via the wrench flats and hexagon.

• The tightening torque of the side load adapter is based on the associated lock nut.

► Screw in the assembly using the external thread of the product or the side load adapter.

► Secure the assembly using the lock nut on the product or the side load adapter lock nut on the mounting piece.



1 Hexagon key

2 Side load adapter

3 Lock nut

4 Wrench flats

Zimmer GmbH • Im Salmenkopf 5 • 77866 Rheinau, Germany • +49 7844 9138 0 • www.zimmer-group.com

10.2.7 Setting the side load adapter

NOTICE

Reduction of the service life in case of non-compliance

If the integrated fixed stop of the product is used in continuous operation, this can reduce the service life.

► In continuous operation, use an external fixed stop.

INFORMATION

► Please note that higher lateral forces are present with a stroke = 0 at an impact angle setting of 30°.

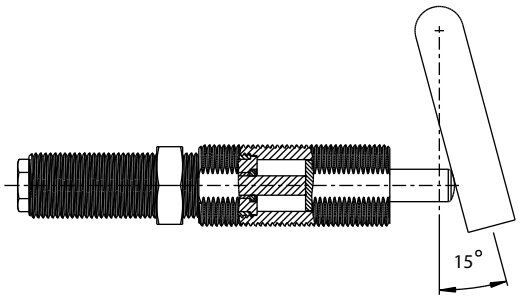
The side load adapter sits with the pin on the piston rod of the product.

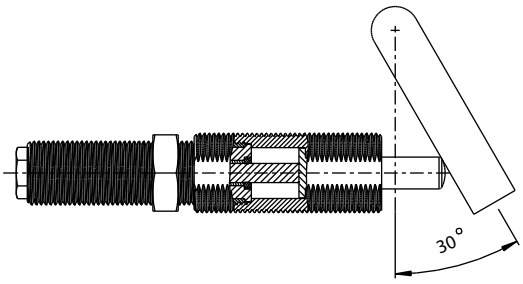
The piston rod is subject to a load because the lateral forces are dissipated by the pin guide.

If the maximum stroke is reached, the pin sits on the fixed stop of the product and thus fulfills the function of the integrated fixed stop. The pin protrudes from the pin guide in this process to ensure an impact angle of 15° in the end position.

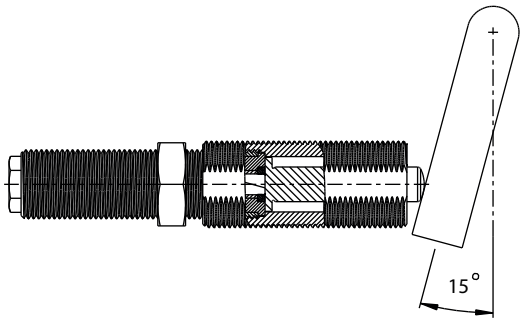
Use the following setting for rotational applications.

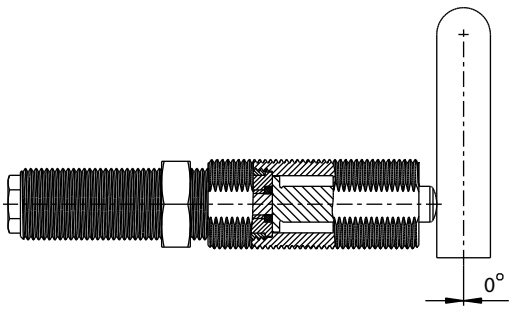
Stroke = 0





Stroke = maximum value





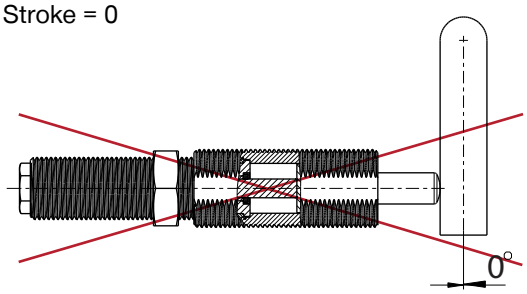
NOTICE

Non-compliance may result in material damage.

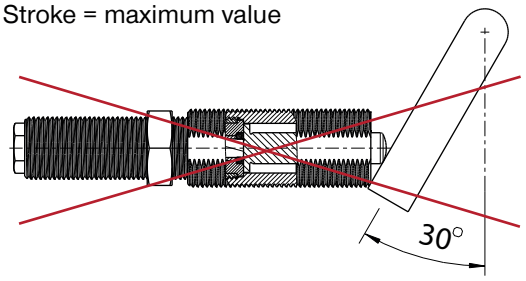
An incorrect setting of the side load adapter can lead to a collision with the component.

► Set the side load adapter so that the impact angle is between 0°–15° at maximum stroke.

Stroke = 0



Stroke = maximum value



11 Commissioning

INFORMATION

- ▶ When commissioning different series, observe the corresponding processes and requirements.
- ▶ For more information, refer to the "Installation" section.
- ▶ Observe the described processes.

INFORMATION

The specified technical data apply to an ambient temperature of 20–25 °C.

- ▶ Please contact Customer Service for help designing the product for ambient temperatures of < 0 °C and > 40 °C.

11.1 Operating temperature during commissioning, operation

CAUTION

Risk of injury and material damage in case of non-compliance

During continuous operation, the housing can heat up considerably due to hydraulic damping.

- ▶ Observe the recommended cooling temperature in accordance with standard EN ISO 13732-1.
- ▶ Wear suitable protective equipment.

INFORMATION

- ▶ Please note that when setting the product, the operating temperature must be reached for later continuous operation.
- ▶ Please contact Customer Service if you have any questions.

The product heats up during operation due to damping.

12 Service life

INFORMATION

▶ Please note that depending on the application case and environmental conditions, the achievable number of cycles can be over or under the tested number of cycles.

The service life depends on the following factors:

- Application
- Load case and/or installation situation
- Energy load
- Stroke application
- Ambient conditions

The products are continually tested in an internal endurance test, where the energy load per hour and the installation situation correspond to the worst-case conditions.

The test takes place in a clean environment and at a room temperature of 20–25 °C.

The following values were determined under laboratory conditions:

Product series	Operating cycles
Mini Energy	5 million
Standard Energy	10 million
High Energy	15 million
Adjustable Energy	15 million

Zimmer GmbH • Im Salmenkopf 5 • 77866 Rheinau, Germany • +49 7844 9138 0 • www.zimmer-group.com

13 Maintenance

WARNING

Risk of injury due to leakage

Increased caution must be exercised during maintenance and service work because hot, pressurized oil can escape due to leakage.

► Wear suitable protective equipment.

NOTICE

Material damage caused by unsuitable cleaning materials

Liquid and solvent-based cleaning agents can cause malfunctions and pose a risk of accidents.

► Do not clean the product with any cleaning agents that are liquid or contain solvents.

The product is maintenance-free during the expected service life.

► Replace the product before reaching the application-specific service life.

⇨ This is to avoid a possible standstill.

► Note that the product could become damaged under the following circumstances:

- Dirty environment
- Improper use and use that does not comply with the performance data
- Permissible temperature range not observed

14 Decommissioning/disposal

WARNING

Risk of injury due to objects being ejected

► Note that, due to the spring tension, you should exercise increased caution when uninstalling products with integrated springs.

INFORMATION

When the product reaches the end of its operational phase, it can be completely disassembled and disposed of. The oil used is biodegradable.

► Disconnect the product completely from the power supply.

► Dispose of the components properly according to the material groups.

► Comply with the locally applicable environmental and disposal regulations.

15 Declaration of Incorporation

In terms of the EU Machinery Directive 2006/42/EC (Annex II 1 B)

Name and address of the manufacturer:

Zimmer GmbH
Im Salmenkopf
77866 Rheinau, Germany
+49 7844 9138 0
info@zimmer-group.com
www.zimmer-group.com

We hereby declare that the incomplete machine described below

Product designation: Industrial shock absorber, hydraulic

Type designation: PowerStop

conform to the requirements of the Machinery Directive, 2006/42/EC, Article 2g, Annex VII.b – Annex II.b, in its design and the version we put on the market.

Basic health and safety requirements:

No. 1.1.2, No. 1.1.3, No. 1.1.5, No. 1.3.2, No. 1.3.3, No. 1.3.4, No. 1.3.7, No. 1.5.3, No. 1.5.4, No. 1.6.4, No. 1.7.1, No. 1.7.4

A full list of applied standards can be obtained from the manufacturer.

We also declare that the specific technical documents were produced in accordance with Annex VII Part B of this Directive. We undertake to provide the market supervisory bodies with electronic versions of special documents for the incomplete machine through our documentation department, should they have reason to request them.

The incomplete machine may only be commissioned if it has been ascertained, if applicable, that the machine or system in which the incomplete machine is to be installed satisfies the requirements of Directive 2006/42/EC on Machinery and an EC Declaration of Conformity has been drawn up in accordance with Annex II 1 A.

Michael Hemler	Rheinau, Germany, 2021-08-20	
Authorized representative for the compilation of relevant technical documents	(Place and date of issuance)	Martin Zimmer (Legally binding signature) Managing Partner