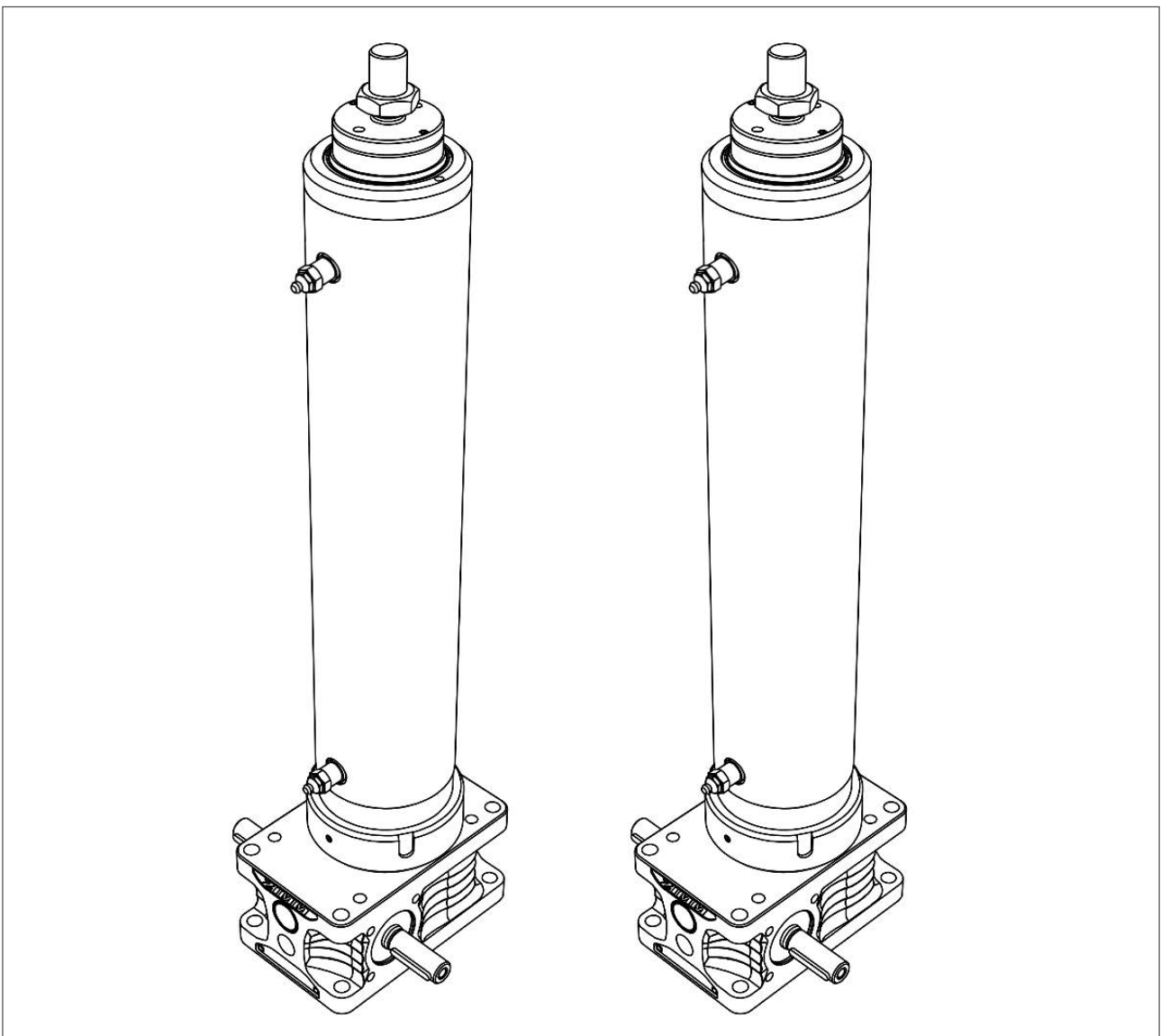


Instruction manual

Actuator

Installation – Operation – Maintenance – Inspection

ZA-25 – ZA-200



Translation of the original

Instruction manual Publisher

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Date of issue

2024-06

Version

0.6

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1 About this document

1.1 Handling these operating instructions

These operating instructions are part of the ZIMM actuator.

- Read the operating instructions carefully before use.
- Keep the operating instructions for the entire service life.
- Make the operating instructions accessible to operating and maintenance personnel at all times.
- Pass the operating instructions on to any subsequent owner or user.
- Update the operating instructions with every supplement received from the manufacturer.

1.2 Symbols and labeling

Symbol	Meaning
 DANGER	Dangers to persons. Disregard will lead to death or serious injuries.
 WARNING	Dangers for persons. Non-compliance can lead to death or serious injury.
 CAUTION	Dangers for persons. Non-observance can lead to minor injuries.
 CAUTION	Information to prevent damage to property.
 NOTE	Tips for understanding or optimizing work processes.
✓	Prerequisite for an instruction manual.
→	One-step call to action.
1. ... 2. ...	Multi-step instructions. → Observe the sequence.

Tab. 1: Symbols and labels

2 Security

The ZIMM actuator is built according to the state of the art and recognized safety regulations. Nevertheless, danger to life and limb of the user or third parties or damage to the ZIMM actuator and other property may occur during use.

- Only use the ZIMM actuator if it is in perfect technical condition and in accordance with the operating instructions.
- Have any defects rectified without delay..
- Do not make any unauthorized modifications to the ZIMM actuator.
- Only use original spare parts from ZIMM GmbH.

2.1 Intended use

The ZIMM actuator is only suitable for lifting, lowering, tilting and feed movements within the designated lifting capacity ranges.

The user is responsible for the respective application.

The lifting systems may only be operated within the limits described in our catalogs and brochures and within the permissible limit values.

The ZIMM actuator is not suitable for use in potentially explosive atmospheres.

For compliance with the Electromagnetic Compatibility Act, the ZIMM actuator may only be used in industrial applications as defined in EN 50 081-2. Any other use is considered improper use.

In cases of doubt, the use of the ZIMM actuator must be clarified in advance with ZIMM GmbH.

2.2 Obligations of the operator

- Ensure that the ZIMM actuator is only operated and maintained in accordance with these operating instructions and the nationally applicable regulations and directives.
- Ensure that the staff
 - is authorized to operate the ZIMM actuator,
 - is trained and qualified for the respective activity,
 - has read and understood these operating instructions,
 - knows the relevant safety regulations and
 - wears personal protective equipment (protective gloves, hard hat and safety shoes).

3 Scope of supply

The ZIMM actuator is supplied in adequately secured packaging to prevent possible shipping damage.

The following parts are in the scope of supply of the ZIMM actuator:

- ZIMM actuator
- These operating instructions
- Other parts according to delivery bill

4 Product description

4.1 Overview

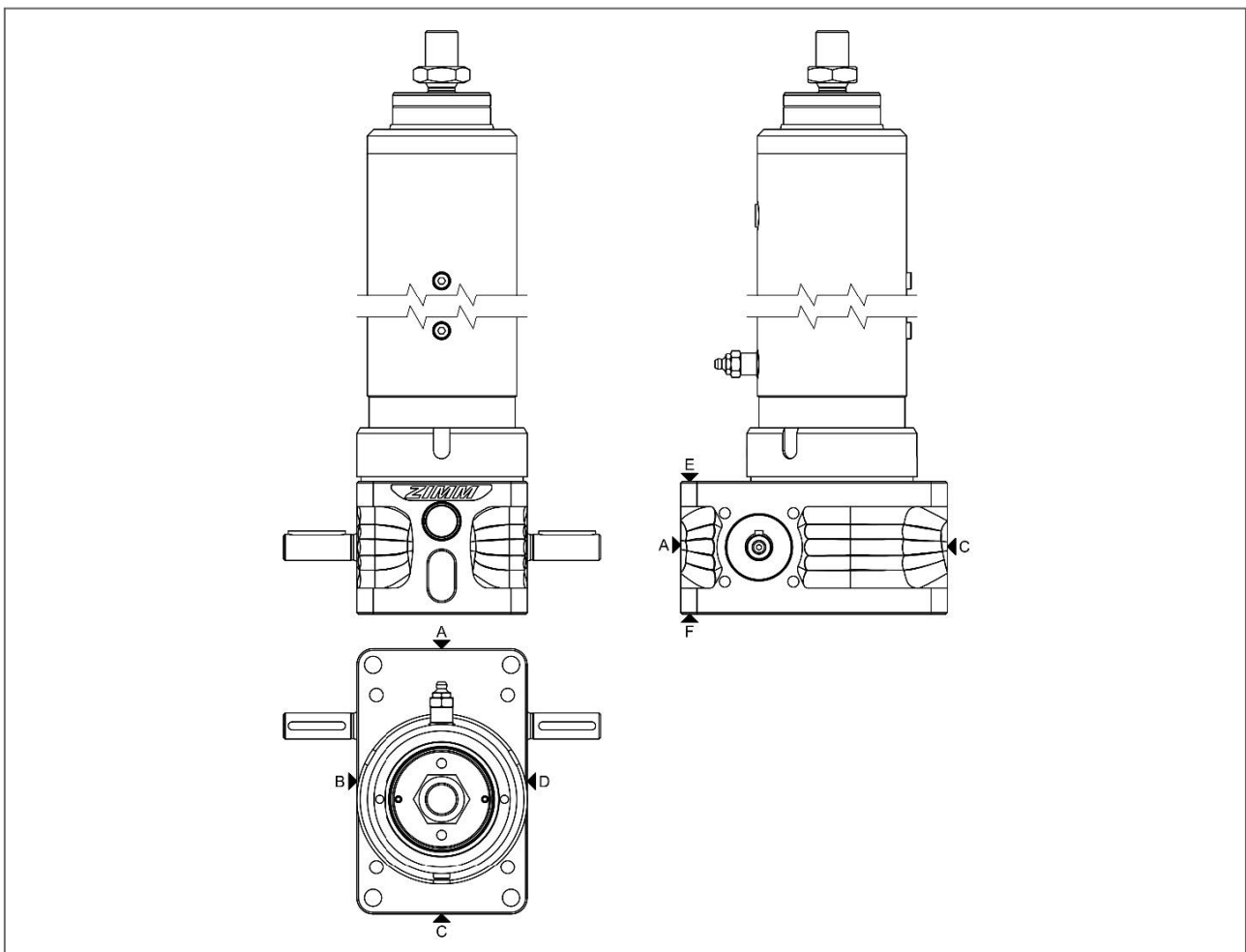


Fig. 1: Overview of ZIMM actuator

A to F: sides of the ZIMM actuator.

4.2 Nameplate

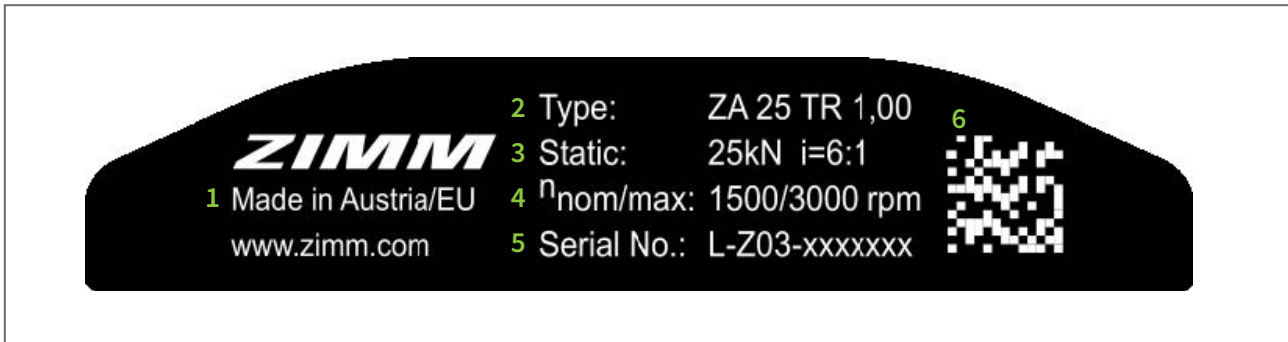


Fig. 2: Example of a nameplate

- | | | | |
|---|---|---|--------------------------------------|
| 1 | Contact details ZIMM | 4 | Rated speed / max. speed |
| 2 | Type designation | 5 | Serial number |
| 3 | Maximum static load actuator
(spindle etc. not included)
and gear ratio | 6 | Serial number
as Data Matrix Code |

4.3 Versions / Variants

Variant	
ZA series, with trapezoidal screw jack TR	

- | | | | |
|---|-----------------|---|---|
| 1 | Mounting head | 5 | Housing, ZA series |
| 2 | Push tube | 6 | Drive shaft |
| 3 | Head nut | 7 | Lubrication spindle
and torsional protection |
| 4 | Cylinder barrel | | |

Variant	
ZA series, with ball screw drive KGT	

- | | | | |
|---|-----------------|---|--|
| 1 | Mounting head | 5 | Housing, ZA series |
| 2 | Push tube | 6 | Drive shaft |
| 3 | Head nut | 7 | Lubrication Spindle and torsional protection |
| 4 | Cylinder barrel | | |

Variant	
ZA series, (with ball screw drive KGT and load damper)	

- | | | | |
|---|-----------------|---|--|
| 1 | Load damper | 5 | Housing, ZA series |
| 2 | Push tube | 6 | Drive shaft |
| 3 | Head nut | 7 | Lubrication Spindle and torsional protection |
| 4 | Cylinder barrel | | |

4.4 Grease nipple

ZIMM actuators have grease nipples that ensure simple and clean lubricating of the screw drives and torsional protection.

NOTE

For optimum lubrication, use an automatic and controlled lubricator (PLC-capable).

4.5 Load damper

The load damper provides the actuator with a physical buffer that reduces shocks in the event of block travel. The following points must be observed when using load dampers:

WARNING

- Load dampers contain gas under high pressure. Improper actions can cause considerable material damage and injuries. Any use outside the actuator or outside the intended use of the actuator is not permitted.
- Maximum and minimum loading pressures must be observed. Unless otherwise agreed, ZIMM delivers the load damper with the charge pressure agreed for the application.

Type ZA	min. boost pressure (bar)	max. boost pressure (bar)
ZA-25-LAD	35	150
ZA-50-LAD	50	150
ZA-100-LAD	35	170
ZA-200-LAD	35	150

5 Transportation and storage

5.1 Transportation



WARNING

Falling load!

Falling loads can lead to serious injuries.

- Ensure that the lifting slings used are securely fastened and slip.
- Do not stay under the suspended load.
- Wear personal protective equipment.



CAUTION

High weight!

Injuries to components weighing 25 kg or more.

- Transport heavy ZIMM actuators properly (max. 25 kg per person).



CAUTION

Damage to the ZIMM actuator!

- Check the packaging for damage on receipt.
- Do not drop the ZIMM actuator and do not subject it to impacts.
- Use suitable lifting gear if necessary.

Bending of the push tube or spindle!

- Handle long and thin push tubes with particular care to avoid damage.

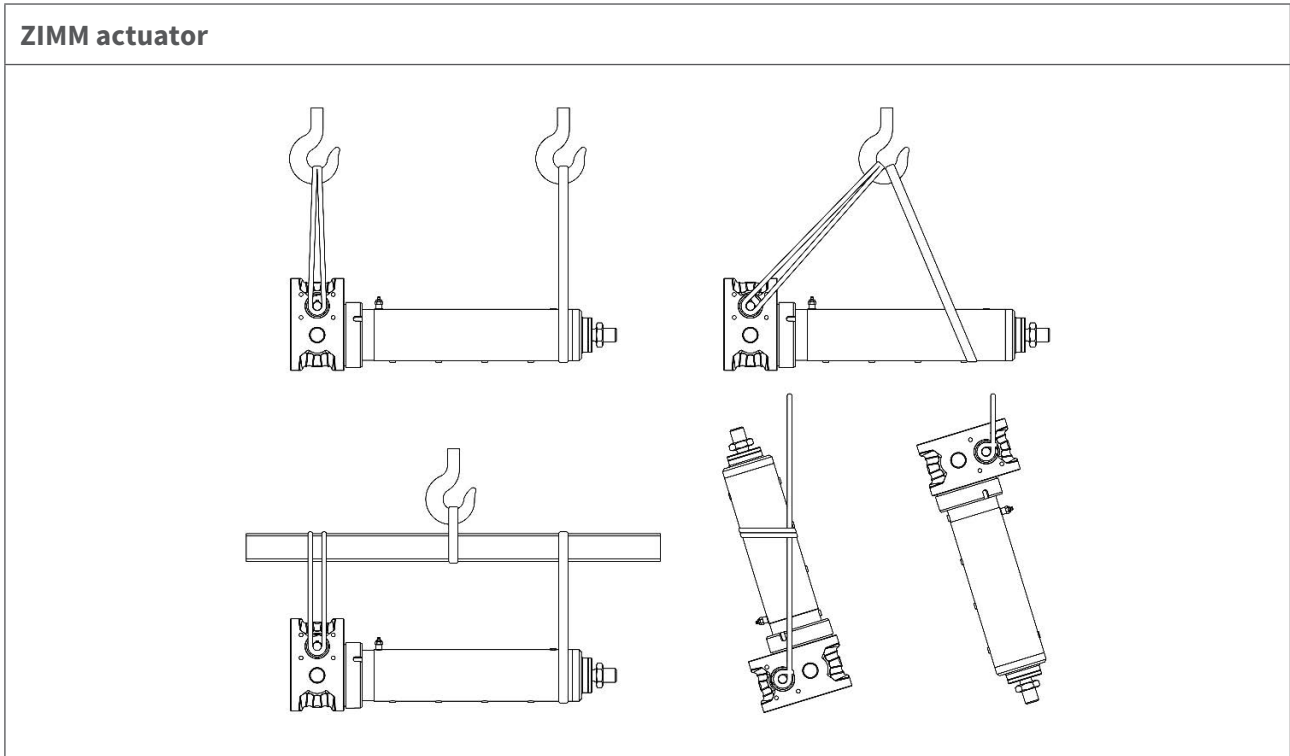


Fig. 3: Examples of transporting the ZIMM actuator

- When lifting with the crane, attach the lifting slings to suitable lifting points.
- During transportation, distribute the weight of the ZIMM actuator as evenly as possible over all holding points.

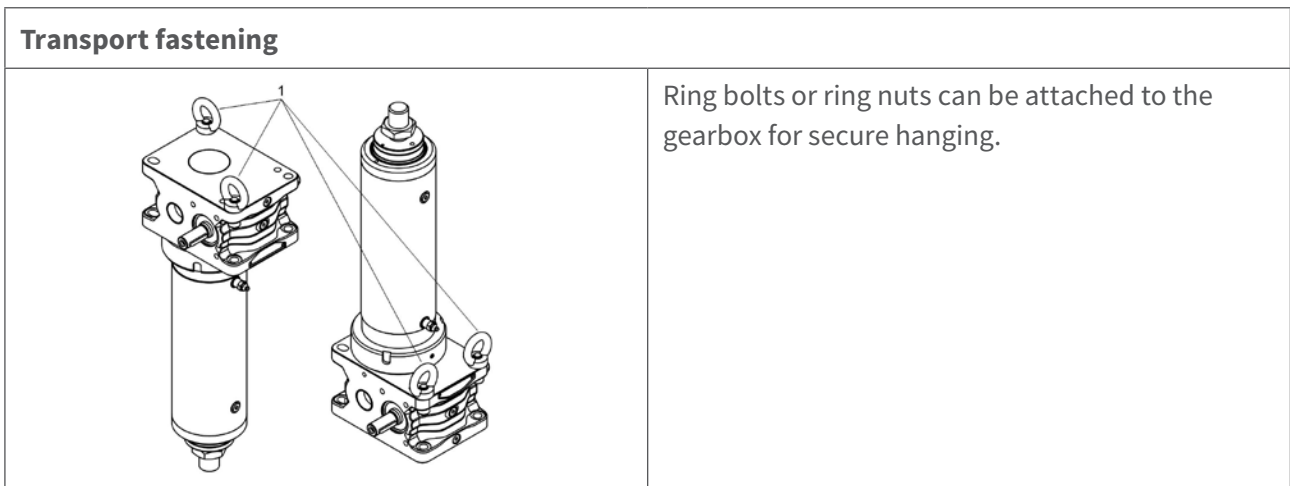


Fig. 4: Ring bolts (1) or ring nuts (not included in the scope of supply)



CAUTION

Incorrect storage!

Damage due to corrosion.

- Only store in closed and dry rooms.
- Protected against ground moisture.
- Do not store for more than a brief period in areas that although roofed still allow free circulation of air from outside.
- Carry out commissioning no later than 1 year after delivery (delivery date from ZIMM is decisive).

→ For other storage conditions and storage times: Please consult ZIMM GmbH.



WARNING

Risk of shearing, pinching and crushing!

- Switch off the entire system and it against being switched on again.
- Work may only be carried out by trained specialists.
- Do not existing covers.
- Wear personal protective equipment.

Sharp edges!

Cut injuries.

- Wear protective gloves.



CAUTION

High forces are generated!

Material damage to the entire system and ZIMM actuator.

- Ensure that the following installation conditions observed:
 - Limit switches are not overridden.
 - Tolerance parallelism and angularity: see chapter 6.1, page 14
 - The direction of rotation and movement of all components is correct.
 - Safety distance between moving and fixed components is maintained.

Lack of self-locking!

Material damage to the overall system and ZIMM actuators due to lack of self-locking on spindle with ball screw drive KGT.

- Provide spring-applied brake FDB or brake motor.
- Ensure that the push tube does not move onto the block during installation.

The system will run on!

Material damage to the entire system and ZIMM actuator due to overrun.

- The run-on travel may increase after the running-in phase.
- Provide spring-applied brake FDB or brake motor if required.

! NOTE

Installation and operation of the entire system may present additional hazards.

- Observe regional regulations and implement necessary measures (e.g. risk assessment).
- Document all additional hazards in the overall system documentation.

6.1 Installing actuator and bevel gear drives

- ✓ Observe the maximum permissible lateral load that can act on the mounting head of the ZIMM actuator.
- ✓ Protect the push tube from damage and do not twist it by force.

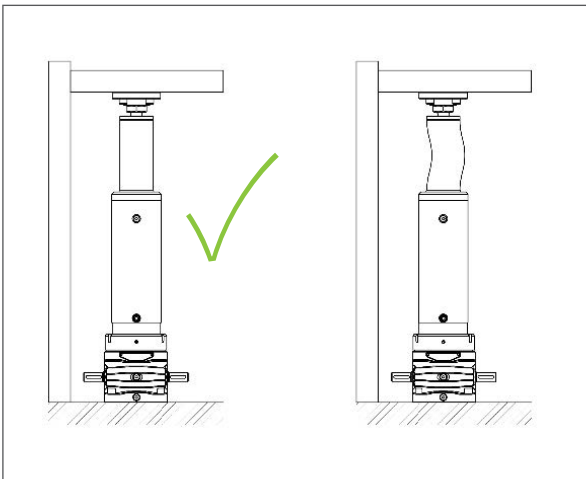


Fig. 5: Observe the maximum lateral load on the mounting head

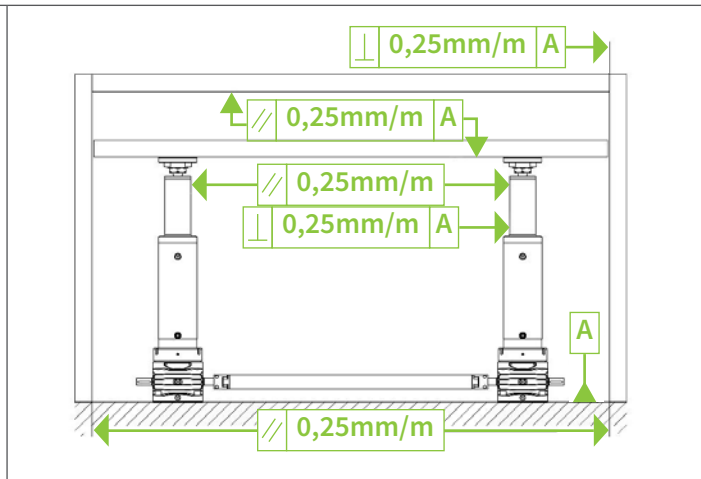


Fig. 6: Installation accuracy: parallelism and perpendicularity

1. Set up the ZIMM actuator and ensure that the installation accuracies are observed and ensure straight alignment for the spindle attachments (e.g. with a precision machine spirit level).
2. Mount the ZIMM actuator with screws, tighten the mounting screws.
3. Fit the screws for sizes 50 and 100 of the ZA series to the elongated holes using washers (e.g. to DIN 1441). Fit the spindle head (see Fig. 7), fix the locking screws with threadlocker (e.g. Loctite), fit the lock nut (up to size 100).

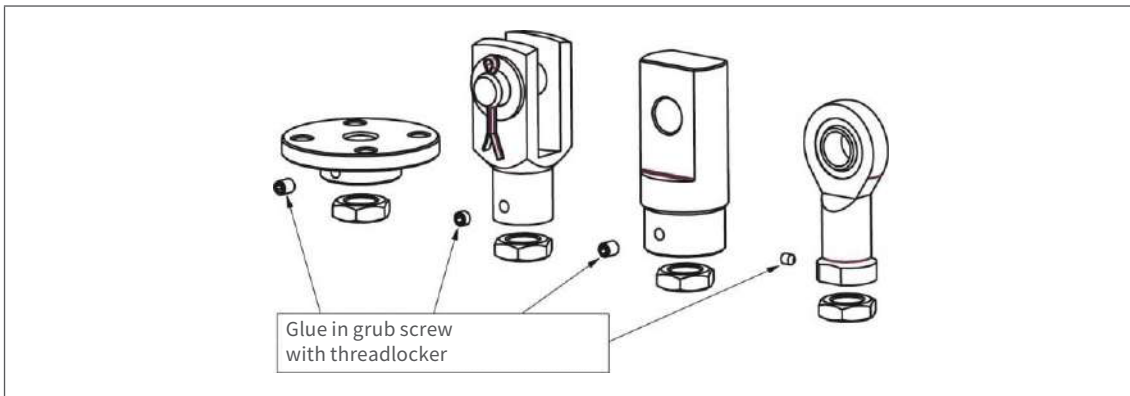


Fig. 9: Fix parts such as Fixing flange, Forked end, Pivot bearing end, Rod end and ball joint heads after setting the position.

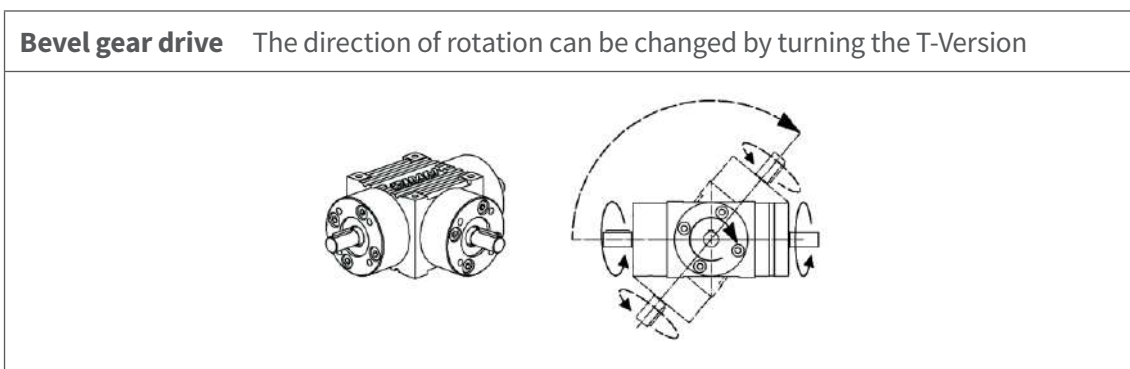


Fig. 8: T-Version (Bevel gear drive)

→ Ensure correct direction of rotation during installation.

6.2 Fitting couplings and connecting shafts

- ✓ ZIMM actuators to be connected are installed.
- ✓ The bevel gear drives must be installed where appropriate.

CAUTION

Moving parts!

Injuries caused by rotating parts.

→ Switch off the entire system and it against being switched on again.

1. Place the connecting shaft on the shaft extensions (ZIMM actuator or Bevel gear drive). Ensure that the gearboxes are correctly leveled.
2. Fix the coupling half shells with mounting screws with the following tightening torques:

Connecting shaft	Coupling	Tightening torque
VWZ-30	KUZ-KK-16	4 Nm
VWZ-40	KUZ-KK-24	8 Nm
VWZ-60	KUZ-KK-32	15 Nm
VWZ-60V	KUZ-KK-35	35 Nm
VWZ-80	KUZ-KK-45	70 Nm
VWZ-100	KUZ-KK-60	120 Nm

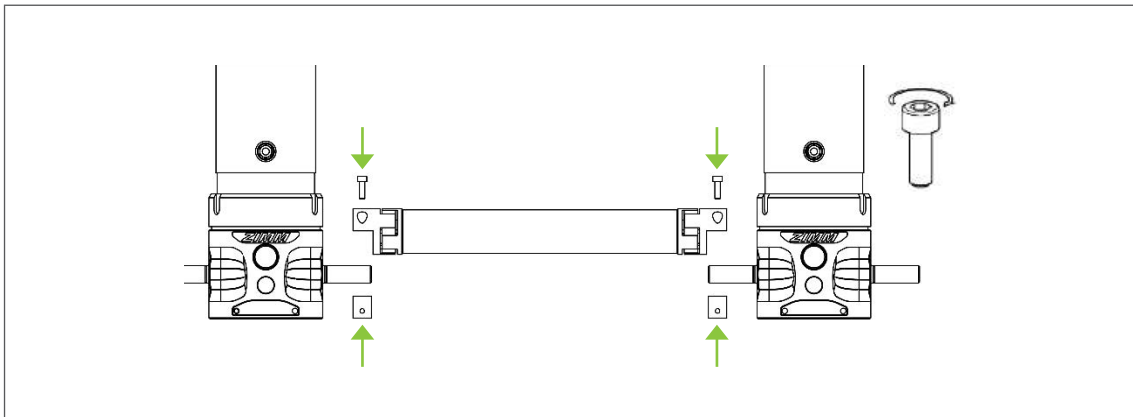


Fig. 9: Mounting the connecting shafts

⚠ CAUTION

Axial joining force!

Damage to the roller bearings, circlips, etc.

- Mount the parts to be fitted using a suitable device.
- Avoid knocks or impacts on shaft extensions.

3. Fit couplings KUZ (couplings without coupling half shells) onto shaft extensions.
Fix the grub screw with the following tightening torques:

Size KUZ-..	Grub screw	Tightening torque
09, (14)	M4	1,5 Nm
24, 28	M5	2,0 Nm
14, 19, 38	M6	4,8 Nm
45, 55, 60	M8	10 Nm
70, 75, 90	M10	17 Nm

To increase security, the grub screw can be secured with „medium-strength“ threadlocker.

6.3 Fitting the motor

- ✓ ZIMM actuator is installed.

CAUTION

Moving parts!

Injuries caused by rotating parts.

→ Switch off the entire system and it against being switched on again.

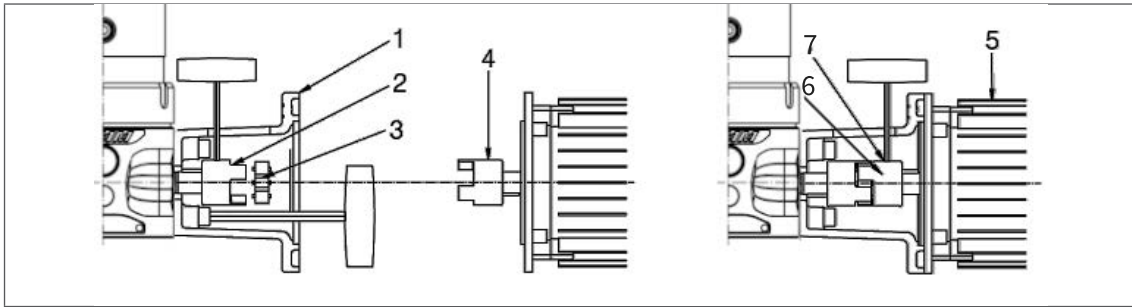


Fig. 10: Motor assembly

1. Fit the motor flange (1) to the ZIMM actuator and screw tight.
2. Mount the coupling halves (2) on the gearbox shaft and fix them in place.
3. Attach the coupling star (3).
4. Fit the coupling halves (4) on the motor side onto the motor shaft.
5. Fit the motor (5) onto the motor flange and screw tight.
6. Mount the coupling halves (6) on the motor side as follows:
 - Push onto the coupling halves on the gearbox side, leaving 1 mm axial play.
 - Tighten with mounting screw (7).
 - If the coupling halves cannot be pushed onto the motor shaft:
Adjust the position before step 5 and tighten them.
7. Close the mounting opening in the motor flange with suitable covering materials.

6.4 Installation with load damper

! NOTE

- Wear safety goggles and personal protective equipment for all work on the load damper, especially during maintenance work.

During initial installation, the cylinder may be transported under pressure and installed at its final destination. However, for maintenance work that requires the cylinder to be dismantled, it must completely deflated. The piston should be fully inserted.

Load dampers must always work perpendicular to the contact surface. Lateral forces caused by a poorly aligned design can cause irreparable damage (see figures 1 and 2).

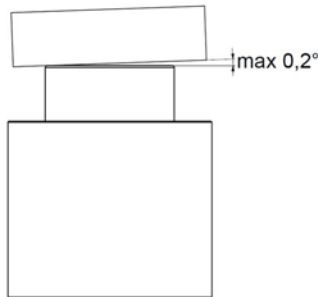


Fig. 1: Load resting loosely

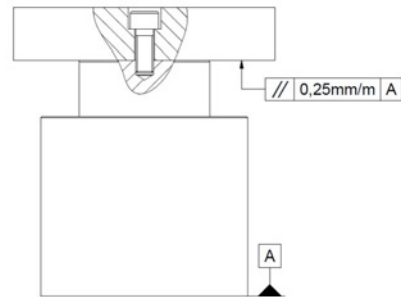


Fig. 2: Screw connection for positioning permitted, no tensile loads and no lateral forces permitted. Only reduced thread depth available. Not suitable for load transfer.

6.5 Connecting electrical components

WARNING

Electric shock!

Death or serious injury due to electric shock.

- Only have work on the electrical system carried out by a specialist.
- Observe the basic rules:
 - Deenergise the system.
 - Secure against restarting.
 - Ensure all phases are electrically dead.
 - Earth and short-circuit the system.
 - Cover any adjacent parts that are still live.

6.5.1 Motor

- ✓ Motor (if included in the scope of supply) is attached.
- 1. Open the motor terminal box. The terminal assignment can be found in the terminal box of the motor.
- 2. Connect the motor according to the wiring diagram.

6.5.2 Limit switch

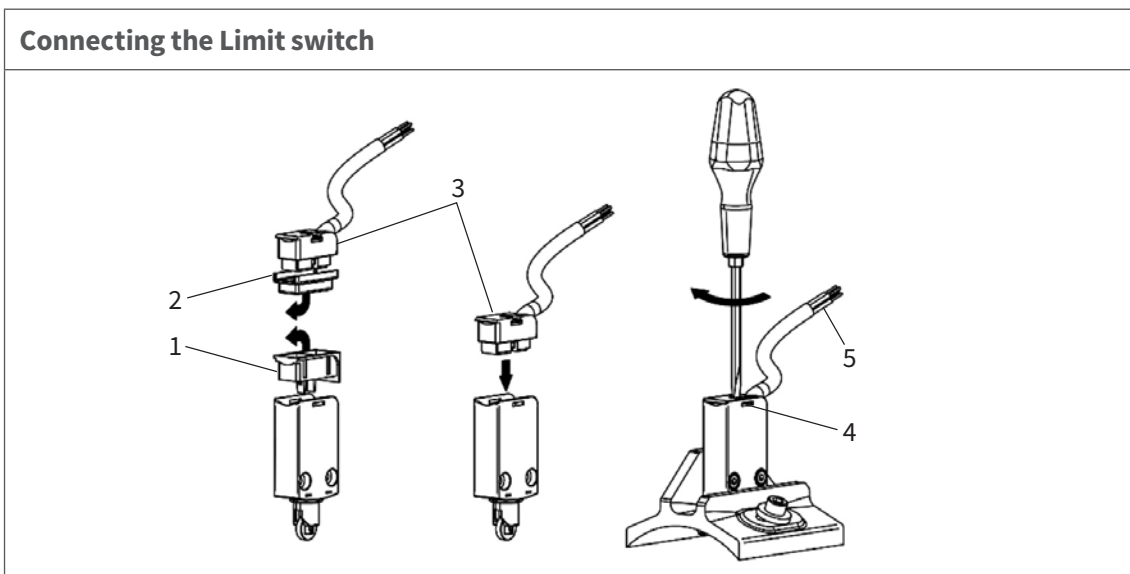
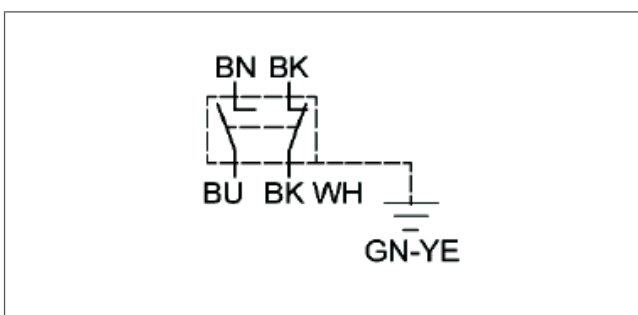


Fig. 11: Fitting the connector plug to the Limit switch

1. Remove the protective element (1) from the Limit switch.
2. Remove the protective element (2) from the connector plug.
3. Insert the connector plug (3) into the Limit switch.
4. Turn the screw (4) clockwise by 90°.
5. Connect the cable ends (5) as shown in the diagram (see Fig. 12).



BN Brown
BK Black
BU Blue
BK-WH Black and white
GN-YE Green-Yellow

Fig. 12: Electrical connection diagram for Limit switch

Rotate cable outlet If required, the cable outlet can be rotated by 180°.

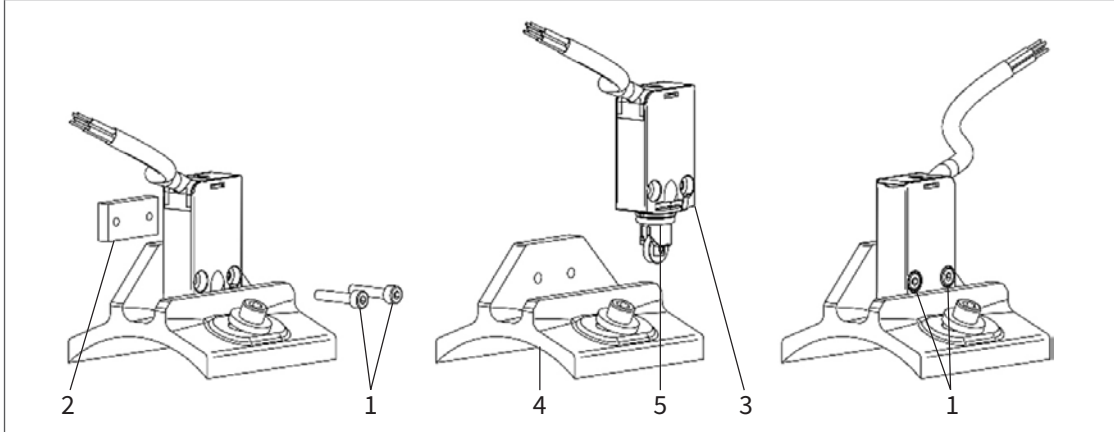


Fig. 13: Turning the cable outlet of the Limit switch

1. Undo and remove the screws (1) from the screw-on strip (2).
2. Pull Limit switch (3) out of Limit switch holder (4) with O-ring (5) and turn 180°.
3. Reinsert the limit switch (3) with O-ring (5) into the limit switch holder (4).
4. Refit the screws (1) with the screw-on strip (2) and tighten.

Adjusting the position of the Limit switch

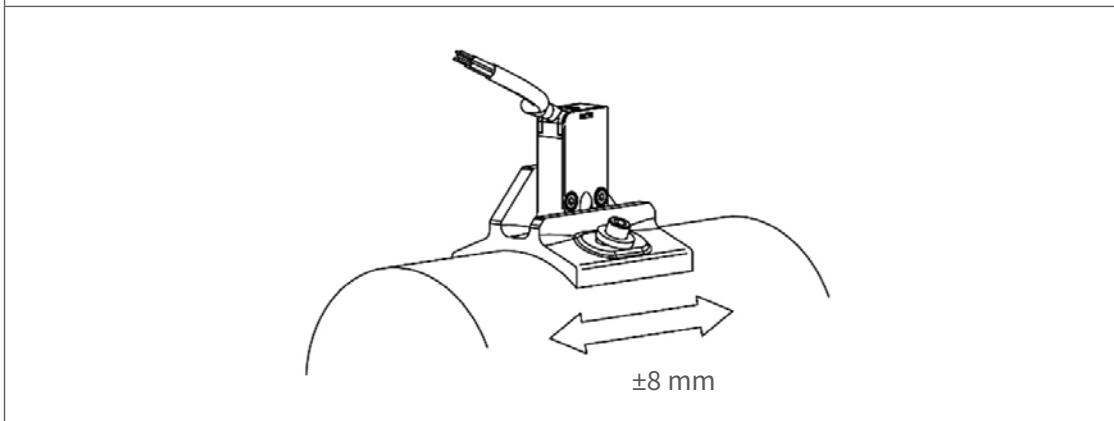


Fig. 14: Adjusting the Limit switch

1. Move away from the switching point with actuator.
2. Slightly loosen the screws (1) so the limit switch set can be moved.
3. Fine-tune the Limit switch by moving it in the direction of the arrow.
4. Tighten the screws (1) with threadlocker. Make sure that the screws to be secured are also sealed (if tightness of the actuator is required in the application in question).

6.6 Test run

- ✓ System installed and aligned.
- ✓ Lubricated spindle (for more information, see chapter „7.2 Lubrication“, page 28).



CAUTION

Lateral forces due to incorrect alignment!

Damage to the gearbox and spindle.

1. If the alignment is incorrect: Correct the alignment, see chapter 6.6, page 22.
2. Repeat the test run.

High forces are generated!

Damage to the ZIMM actuator.

- Ensure that the Limit switches or end positions are not overrun.
- Ensure that attachments do not collide with other components.



NOTE

- Ensure that the mechanism being actuated can be moved over the entire stroke.

- Run the screw jack over the complete travel in both directions.
When doing this, comply with the following:
 - Run the screw jack slowly and carefully.
 - If possible, drive through with little or no load.
 - Current consumption in the normal range and constant.
Strong fluctuations indicate misalignment and tension.
 - Monitor the temperature and avoid overheating, especially with long strokes and several strokes in succession.
 - Avoid overrunning Limit switches or end positions.

6.7 Correct alignment

The alignment can be corrected with little effort if necessary.

- ✓ Lubricated spindle (for more information, see chapter „7.2 Lubrication“, page 28).

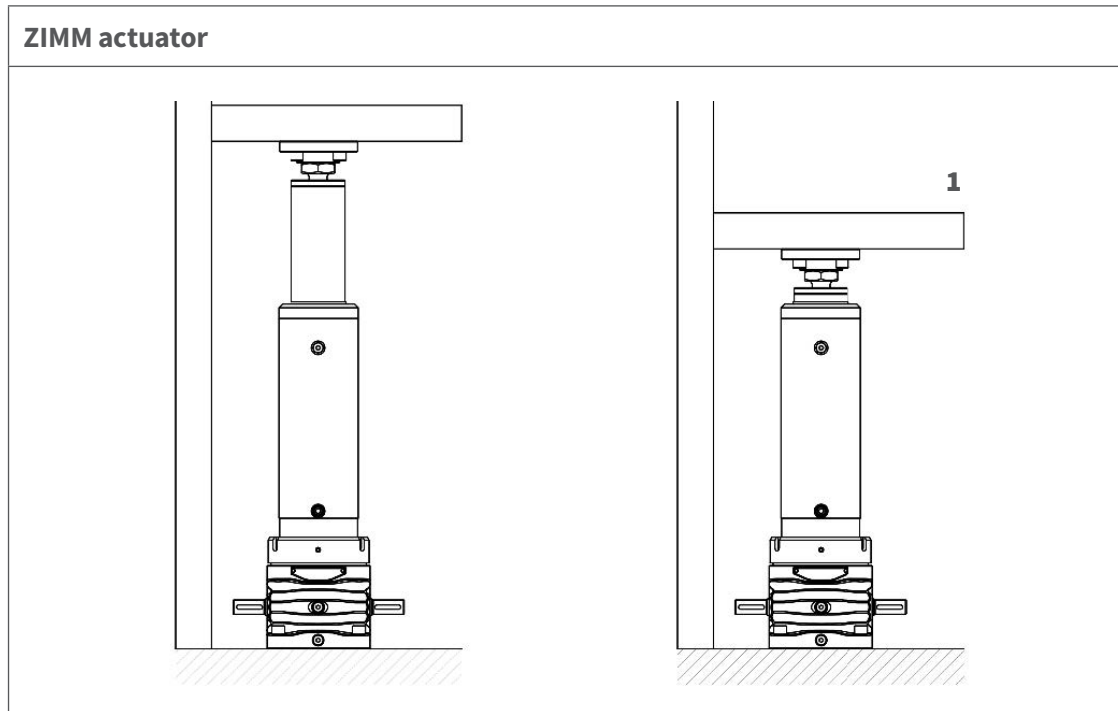


Fig. 15: Correctly aligned ZIMM actuator

1. Loosen the fastening screws on the gearbox housing and on the head.
2. Fully retract the jack (1).
3. Tighten the fastening screws.
4. Repeat the test run (see chapter „6.6 Test run“, page 22).
5. Check alignment (e.g. check with a precision machine spirit level)

6.8 Commissioning

- ✓ ZIMM actuator and attachments mounted and connected.
- ✓ Lubricated spindle and torsional protection (for more information see chapter „7.2 Lubrication“, page 28).
- ✓ Trial run successfully completed.



CAUTION

High forces are generated!

Damage to the ZIMM actuator.

- Ensure that the Limit switches or end positions are not overrun.
- Ensure that attachments do not collide with other components.



NOTE

- Ensure that the mechanism being actuated can be moved over the entire stroke.

1. Check all screw connections again.
2. Carry out a test run with operating load.
Pay attention to the following:
 - Torque is constant.
 - Current consumption is constant.
 - Operating temperature is within the normal range.
 - Limit switches or end positions are not overrun.
3. If a safety catch nut SIFA is fitted. Measure dimension „A“ and make a note of it (see Fig. 16). This dimension in new condition serves as a reference dimension in the further course of operation and is necessary to be able to assess wear later (see chapter 7.1.1., page 28).

6.9 Run-in phase

The running-in phase of the ZIMM actuator and the spindle usually lasts between 20 and 50 operating hours. During this time, a higher torque and a higher operating temperature must be expected.

The torque can be up to 50% higher than in operation after the running-in phase.

7 Operation and maintenance



WARNING

Lifting movement in the danger zone!

Serious injury or death.

→ Leave the danger zone and secure it.

7.1 Inspection

ZIMM actuators must be inspected regularly to ensure trouble-free operation:

- First inspection after 1 month at the latest
 - Further inspections at least once a year
 - 1.** Record inspections, for template see „Annex: Inspection log“, page 37.
 - 2.** If necessary, carry out troubleshooting, see chapter 7.3, page 33.
 - 3.** The inspection intervals must be adapted to the operating conditions and external influences.
- If problems cannot be localized and rectified:
Contact ZIMM GmbH.

7.1.1 Visual inspection

- ✓ Machine switched off and secured against being switched on again.
- 1.** Check the actuator, especially the push tube, for damage.
- 2.** Check the screws for fastenings and couplings / connecting shafts and tighten if necessary.
- 3.** If a safety catch nut SIFA fitted: check wear as shown Fig. in 16.
 - Note dimension „A“ and compare it with the set value.
(see chapter „6.8 Commissioning“, page 24):
 - $\text{Wear} = (\text{dimension „A“ in new condition}) - (\text{current dimension „A“})$.
 - Maximum permissible wear: 25% of the thread pitch.

Gearbox or spindle [TrØxP]	Thread pitch P [mm]	Max. permissible wear/ thread play (25% of P) [mm]
Tr30x6	6	1,5
Tr40x7	7	1,75
Tr50x8	8	2,0
Tr55x9, Tr60x9	9	2,25
Tr70x12	12	3
Tr80x16	16	4,0

- If the maximum permissible wear is exceeded, the ZIMM actuator must be replaced.

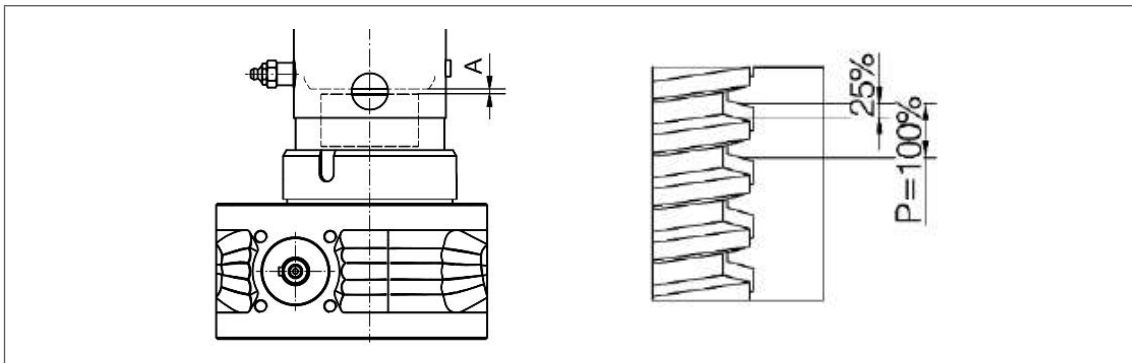


Fig. 16: Safety catch nut SIFA: Dimension „A“ for comparison during wear test

4. Check the clutch spiders visually.
5. Check coatings and surface coatings: repair any existing coating and paint damage or renew the surface protection.
6. Run machine, paying attention to the following:
 - Smooth and vibration-free operation
 - No excessive noise development
 - Consistent power consumption
 - Temperature rise within the permissible range

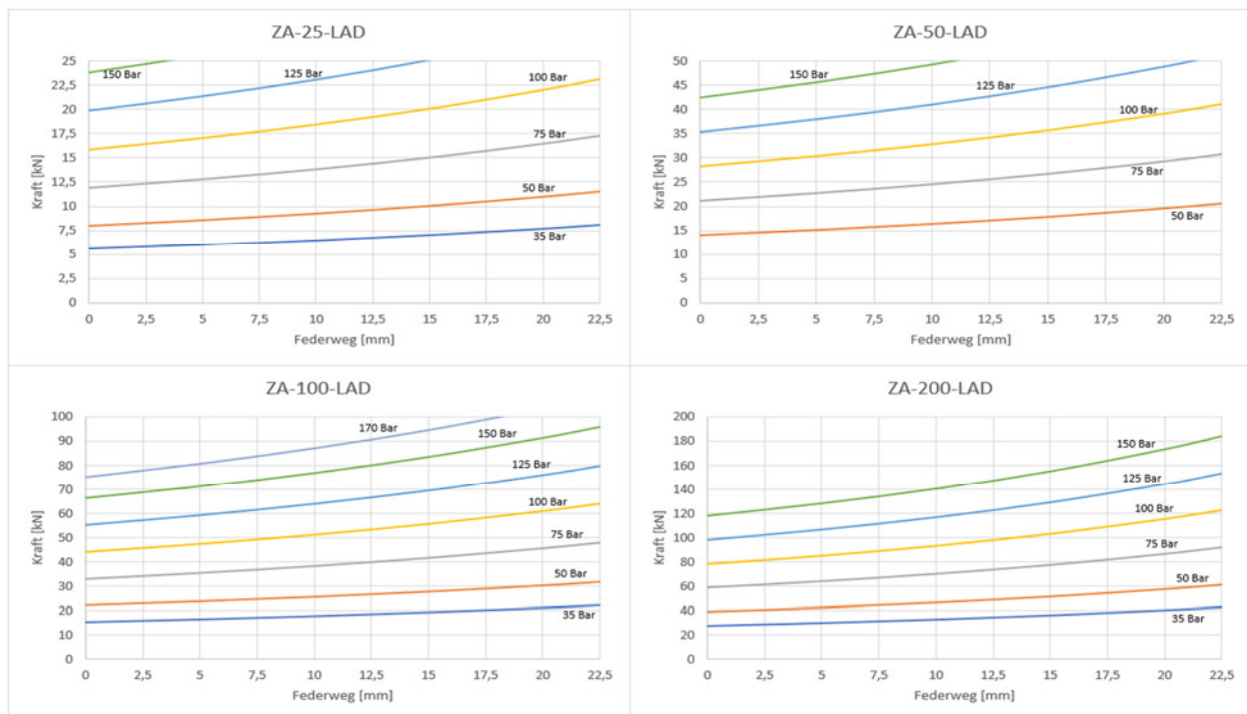
7.1.2 Use of load dampers



WARNING

- The maximum spring travel must not be exceeded in order to achieve the specified service life of the shock absorber and to avoid the risk of crushing or explosion.
- Any mechanical processing (drilling, welding ...) on the load damper is strictly prohibited. Do not use the load attenuator near flames or heat sources.

- Check spring travel (in compressed state) at certain intervals in order to be able to detect pressure loss (see force-spring travel diagrams).



- The boost pressure specified in the design must be maintained.
- It may be necessary to adjust the cut-off torque in order to relieve the lifting system, as the calculated torque may deviate in practice.
- If necessary, the boost pressure must be adjusted if the actual stroke load deviates too much from the design data. The spring travel must be measured for this purpose.
- Dimension the braking torque so that the system has a maximum overtravel of 10 mm after reaching the braking torque.
- Protect load dampers from liquid or solid contamination and impacts. Damage can cause pressure loss and impair the service life.

7.2 Lubrication

Good lubrication and the right lubricant are crucial for the function and service life of the ZIMM actuator.

Each application of ZIMM actuators has different requirements, therefore the following chapters only contain recommendations.

NOTE

ZIMM standard greases are not hazardous goods.

→ Contact ZIMM for safety data sheets.

7.2.1 Lubricating the actuator gearbox

Gearboxes of ZIMM actuators are sealed and filled with high-quality synthetic fluid grease.

Under normal conditions, the gearbox is lubricated for life.

7.2.2 Lubricating the bevel gear drive

The bevel gear drives are filled with a synthetic oil and lubricated for life under normal conditions.

7.2.3 Lubricating the spindle with trapezoidal screw jack TR

Quantities for Lubricating new trapezoidal threaded spindles TR:

	ZA-25		ZA-50		ZA-100		ZA-200	
TR Ø (mm)	30	40	40	50	55	60	70	80
Quantity (ml/m)	23	30	30	38	41	45	53	60

NOTE

The ZIMM actuator is supplied ex works with initial lubrication.

Intervals

Lubrication quantity during 100 km working stroke, grease every 1 km working stroke.

	ZA-25		ZA-50		ZA-100		ZA-200	
TR Ø (mm)	30	40	40	50	55	60	70	80
Amount of fat (ml)	900	1200	1200	1500	1650	1800	2100	2400

NOTE

Lubricating interval depends on the application.

- Lubrication positions must be approached to ± 2 mm.
- In extreme situations (high load, high duty cycle or fast travel), the lubrication should be adapted. ZIMM will be pleased to give you advice.



Lubricants

Standard grease for all sizes: Tungaloy BS

CAUTION

Unsuitable lubricant!

Damage to the spindle.

- Do not multi-purpose greases.
- Do not mix greases.
- Use special grease if necessary.
- Only use lubricants that have been approved by ZIMM GmbH.
- ZIMM will be pleased to give you advice.

CAUTION

Risk of burns!

Operating temperature too high.

- Allow the ZIMM actuator to cool down.

1. Approach lubrication position SP1 or SP2 to ± 2 mm.
2. Remove the protective cap from the grease nipple.
3. Press the grease gun connection onto the grease nipple.
4. Fill with lubricant.

! NOTE

Lubrication during operation.

- Instead of a grease gun, use the automatically controlled lubricator (e.g. PLCcompatible).
- ZIMM will be pleased to give you advice.

There are also different lubricants for different applications.

- High temperature
- Low temperature
- Food industry
- Heavy-duty applications
- etc.
- ZIMM will be pleased to give you advice.

7.2.4 Lubricating the spindle with ball screw drive KGT

The values in the following table can be used as a guide for lubricating ungreased KGT nuts [ml]:

Gradient	KGT-Ø			
	32	40	50	80
5	3	4	–	–
10	8	15	20	60
20	12	20	40	160

! NOTE

The ZIMM actuator is supplied ex works with initial lubrication.

Intervals

Lubrication quantity during 100 km working stroke, grease every 5 km working stroke.

	ZA-25			ZA-50			ZA-100		ZA-200	
KGT	32x5	32x10	32x20	40x5	40x10	40x20	50x10	50x20	80x10	80x20
Amount of fat (ml)	72	72	72	72	70	72	120	120	240	240

NOTE

Lubricating interval depends on the application.

- Lubrication positions must be approached to ± 2 mm.
- In extreme situations (high load, high duty cycle or fast travel), the lubrication should be adapted. ZIMM will be pleased to give you advice.



Lubricants

Standard grease for ball screw drive KGT

Order no.: Castrol Tribol GR 4747/220-2 HT, cartridge 400 ml

CAUTION

Unsuitable lubricant!

Damage to the spindle.

- Do not multi-purpose greases.
- Do not mix greases.
- Use special grease if necessary..
- Only use lubricants that have been approved by ZIMM GmbH.
- ZIMM will be pleased to give you advice.

CAUTION

Risk of burns!

Operating temperature too high.

- Allow the ZIMM actuator to cool down.

1. Approach lubrication position SP1 or SP2 to ± 2 mm.
2. Remove the protective cap from the grease nipple.
3. Press the grease gun connection onto the grease nipple.
4. Fill with lubricant.

! **NOTE**

Lubrication during operation.

- Instead of a grease gun, use the automatically controlled lubricator (e.g. PLCcompatible).
- ZIMM will be pleased to give you advice.

There are also different lubricants for different applications.

- High temperature
 - Low temperature
 - Food industry
 - Heavy-duty applications
 - etc.
- ZIMM will be pleased to give you advice.

7.2.5 Automatic lubrication

! **NOTE**

Controlled lubricator (e.g. PLC-capable)

- Delivery rate of the controlled lubricator from 0.2 ml to 0.5 ml per lubrication burst.
- Approach lubrication position SP1 or SP2 to ± 2 mm.
- The opposite side of the lubrication point must be ventilated.
- The lubrication point to be ventilated is always on the top side.
- ZIMM will be pleased to give you advice.

For vertical upright position, ventilate at lubrication point SML2. For vertically suspended position, ventilate at lubrication point SML1.

For horizontal installation, ventilation can be provided as required (SML1 or SML2).

Sintered metal silencers from the pneumatic industry can be used as ventilation. This means that the ZIMM actuator loses its IP64 protection class. A different type of ventilation must be used for a higher degree of protection.

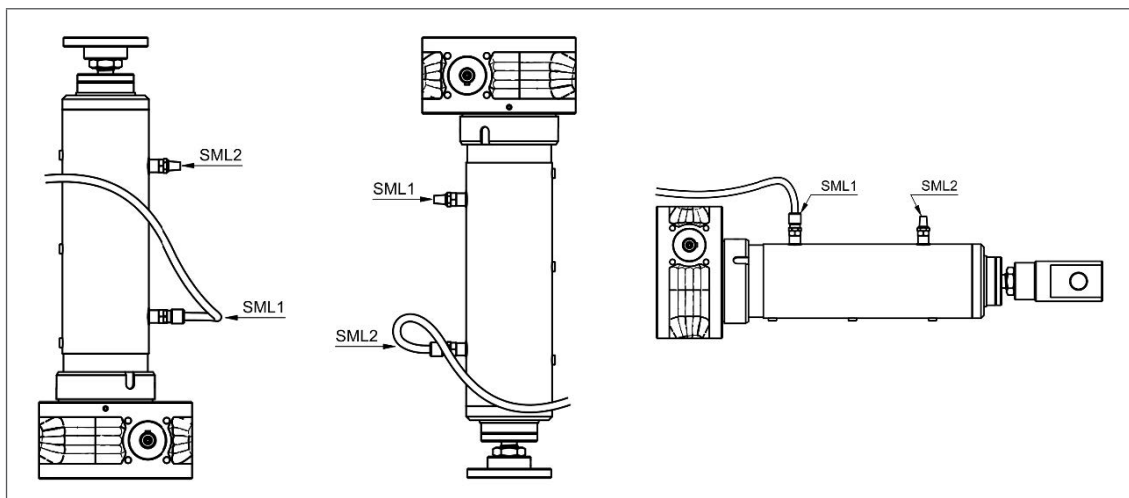


Fig. 17: Ventilation position with automatic lubrication

7.3 Troubleshooting

If faults are identified, they can be isolated according to certain criteria and rectified with the appropriate measures.

The following table should help you to approaches for troubleshooting.

Error	Possible cause	Measure
Spindle squeaks or vibrates	Incorrect spindle grease, stick-slip	<p>→ Use a different grease:</p> <ul style="list-style-type: none"> • with high viscosity base oil • with additives • possibly with solid lubricants <p>→ ZIMM will be pleased to give you advice.</p>
	Geometric errors in the system	<p>→ Check alignment:</p> <ul style="list-style-type: none"> • Parallelism of the ZIMM actuators (thrust tubes, cylinder tubes) to each other • Parallelism of the ZIMM actuators to the guides • Angularity of the mounting surfaces (gearbox, nut, fixing flanges, etc.)
	Unfavorable spindle frequency	<p>→ Change speed: slower or faster (observe limit values)</p>
	Load too high	<p>→ Reduce the load during the running-in phase.</p>

High wear on the trapezoidal thread	Incorrect spindle grease	→ Check spindle grease, ZIMM will be pleased to give you advice (load, speed, etc.).
	Lack of lubricant	<ol style="list-style-type: none"> 1. Regreasing the spindle. 2. Shorten the greasing intervals.
	Geometric errors in the system	<p>→ Check alignment:</p> <ul style="list-style-type: none"> • Parallelism of the ZIMM actuators to each other • Parallelism of the ZIMM actuators to the guides • Angularity of the screw-on surfaces (gearbox, nut, fixing flanges, etc.)
	Load too high	→ Contact ZIMM (load, speed, duty cycle, etc.).
Operating temperature too high	Load or duty cycle too high	→ Check the operating parameters, ZIMM will be pleased to give you advice.
	Geometric errors in the system	<p>→ Check alignment:</p> <ul style="list-style-type: none"> • Parallelism of the ZIMM actuators to each other • Parallelism of the ZIMM actuators to the guides • Angularity of the screw-on surfaces (gearbox, nut, fixing flanges, etc.)
	Incorrect spindle grease	→ Check spindle grease, ZIMM will be pleased to give you advice (load, speed, etc.).
Noise at coupling or connecting shaft	Friction in the coupling star	→ Lubricate the coupling star with Vaseline or plastic-compatible grease.
	Permissible offset exceeded	→ Check and correct alignment.
Slight leakage at the shaft seal	Slight leakage	<p>A slight leakage is normal and not a technical problem.</p> <p>→ Wipe off leakage and continue to monitor.</p>
Gross leakage	Shaft sealing ring defective or excessive pressure in the gearbox	→ Contact ZIMM and send photos.

8 Decommissioning and recommissioning

Decommissioning

CAUTION

Corrosion!

Damage to the ZIMM actuator due to prolonged standstill.

→ Oil bare spots.

Recommissioning

After a longer standstill period of the ZIMM actuator:

1. Run through the full working stroke
2. Lubricate lubrication points with table after initial lubrication
see chapter 7.2.3, page 28 for trapezoidal screw jack / 7.2.4, page 30 for ball screw jack

9 Repair and replacement

NOTE

The warranty is void if the ZIMM actuator is dismantled.

→ Only have the ZIMM actuator disassembled by ZIMM or by personnel authorized by ZIMM.

→ Get in touch with ZIMM GmbH.

10 Waste disposal

The ZIMM actuator complies with the current standards and guidelines for the disposal of old appliances and does not contain any toxic substances that require special precautions.

→ During disposal, ensure:

- Compliance with regional laws and regulations on waste disposal
- Professional disposal and recycling by a professional waste disposal company

The following materials are for disposal:

- Lubricants (grease or oil in the gearbox, grease on the spindle)
- Steel parts (with environmentally friendly paints or coatings)
- Anodized aluminium (components)
- Bronze / copper (Bevel gear, nuts or coils of the motor)
- Plastic parts (seals etc.)

11 Declaration of incorporation

ZIMM GmbH

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Declaration of incorporation

for partly completed machinery

(Described in EC Machinery Directive 2006/42/EC, Annex II B)

The manufacturer "ZIMM GmbH" declares herewith that all "screw jacks" delivered by ZIMM of the models SHZ, MSZ, Z, GSZ, ZE or ZA

Size (max. load)

02 (0,25 kN)

2 (2,5 kN)

5 (5 kN)

10 (10 kN)

25 (25 kN)

35 (35 kN)

50 (50 kN)

100 (100 kN)

150 (150 kN)

200 (200 kN)

250 (250 kN)

350 (350 kN)

500 (500 kN)

650 (650 kN)

750 (750 kN)

1000 (1000 kN)

including the attachments described in the ZIMM engineering catalogue valid at the time of delivery

conform with the following essential requirements of the **Machinery Directive 2006/42/EC**:

Annex I, Article 1.3.3, 1.1.5, 1.3.4 and 4.1.2.3

In addition we declare that the relevant technical documentation for this partly completed machinery was prepared in accordance with Annex VII, part B, and undertake to transmit these to the market oversight authorities upon request. Authorised representative for the compilation of the relevant technical documentation:

ZIMM GmbH, AT-6890 Lustenau, Millennium Park 3

Putting the partly completed machinery into service is prohibited until the partly completed machinery has been incorporated into final machinery which conforms to the provisions of the EC Machinery Directive and there is an EC Declaration of Conformity in accordance with Annex II A.

Enclosure: current assembly instructions

ZIMM GmbH
Millennium Park 3
AT-6890 Lustenau, 28th August 2019

Gunther Zimmermann, CEO

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