

PRODUCT MANUAL



ABUS wire rope hoist for double girder travelling cranes

Double-rail trolley with twin hoist Z, ZA and ZB



AT A GLANCE:

Checking the requirements: page 14

Inspecting the wire rope: page 22

Checking the load hook and bottom block:
page 23

Replacing the wire rope: page 32

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Original Operating Instructions

ABUS

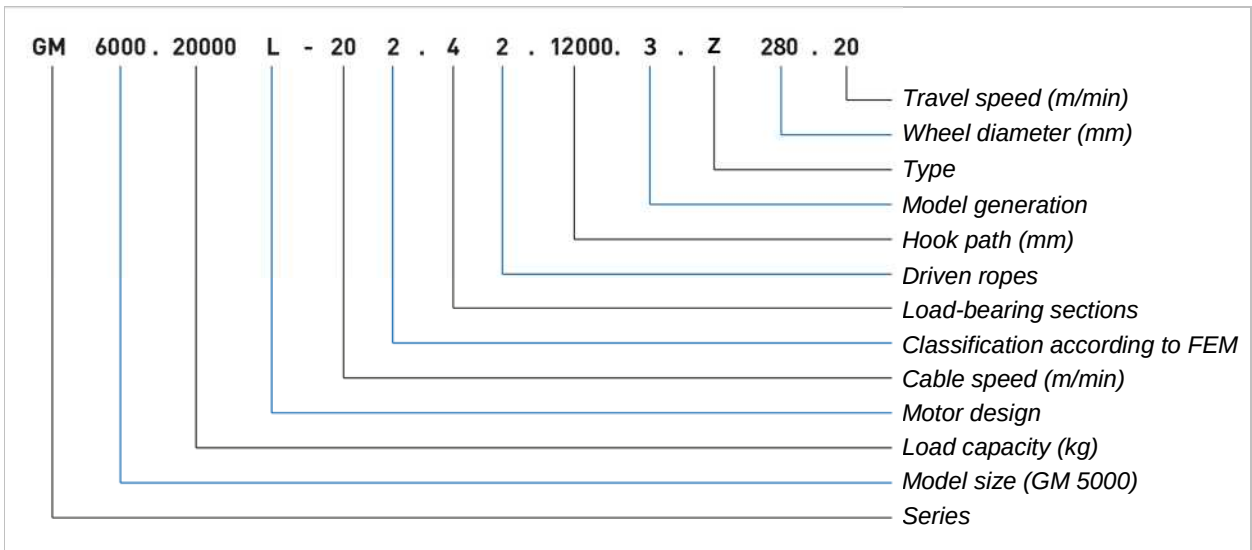
WIRE ROPE HOIST: VARIOUS TYPES, SIZES, VERSIONS AND OPTIONS

This product manual applies to wire rope hoists of various types, sizes, versions and options. The work steps described and the technical data differ depending on the wire rope hoist type, size, version and options. The areas of this product manual that do not apply to all wire rope hoists, but only under certain conditions, are framed by a dashed box. The types, sizes, versions and options to which the section applies are specified at the start of the box.

If a work step is described in a dashed box:

- ➡ At the start of the dashed box text, read the size, version or option to which this box applies.
 - ➡ Note page and turn to this first page.
 - ➡ Based on the images, determine which size, version or option applies to the crane in question.
 - ➡ Turn back to the page with the associated dashed box for the next work steps.
- ➡ The size, version or option that applies to the crane in question can also be determined by consulting the scope of delivery or the planning documents.

TYPE DESIGNATION



WIRE ROPE HOIST (TYPE)



Double-rail trolley with twin hoist (Z)



Double-rail trolley with twin hoist lowered (ZA)



Double-rail trolley with twin hoist and walkway (ZB)

POWER SUPPLY (VERSION)

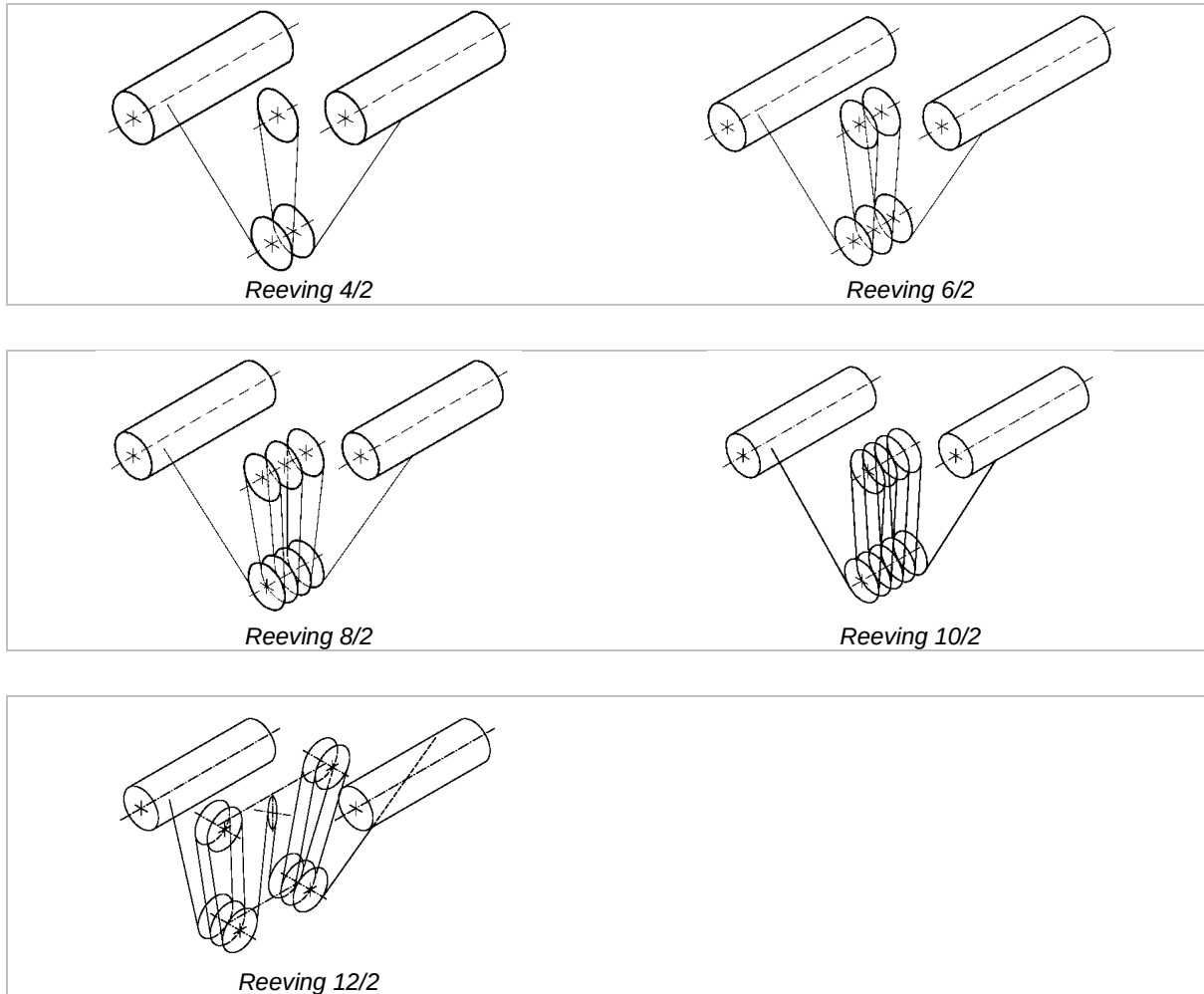


ABUPowerline energy chain



Festoon cable system

REEVING (VERSION)



DRIVE (VERSION)



CONTROL (VERSION)



ABUS electrics 3 with contactor control



ABUS electrics 3 with frequency converter for ABULiner travel and/or lifting



ABUControl

CROSS-TYPE LIMIT SWITCH (OPTION)



Cross-type limit switch as trolley travel limit switch

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GENERAL INFORMATION

THIS SECTION APPLIES TO ANYONE WHO LIFTS LOADS USING THE CRANE, PERFORMS WORK ON THE CRANE, OR WORKS NEARBY.

AT THE START

USING THIS PRODUCT MANUAL

The following symbols are used in this product manual:



DANGER TO PERSONS!

This warning notice indicates hazards for persons.



DANGER FROM ELECTRIC SHOCK!

This warning notice indicates hazards for persons due to incorrect handling of the electrical system and electricity.



DANGER DUE TO FALLING LOAD

This warning notice describes hazardous situations that can lead to a load drop.



NOTICE OF POSSIBLE DAMAGE!

This notice describes situations in which a component could be damaged.



This is an instruction regarding an action and prompts you to perform a work step.

- This is the result of an action and describes what happens on the device.
- This is a list.

ONLY WITH...

A section that appears in a box framed by a dashed line is only applicable for certain types, versions or options. The condition to which the section applies is specified at the beginning in the heading “Only with...”.

INSTRUCTIONS FOR THE PRODUCT MANUAL

Read the product manual through carefully before starting work. Also be sure to observe additional product manuals for accessories and components.

Afterwards, keep the product manual available in the vicinity of the crane. It must be accessible to all who work with or on the crane.

If the crane is sold on or hired out, always provide the product manual together with the crane.

PROPER USE

The wire rope hoist is intended for use on a correspondingly designed double girder travelling crane for area-wide movement of loads. The wire rope hoist travels horizontally with two end carriages on the trolley tracks of the main girders.

- The wire rope hoist is intended for a trolley power supply using the ABUPowerline energy chain or an ABUS festoon cable system.

REGULATIONS

The installation has been built and tested according to European standards, rules and regulations applicable at the time of its manufacture. The conventions applied during design and construction are specified in the Declaration of Conformity or the Declaration of Incorporation. The conventions must also be observed for installation, operation, inspection and maintenance, as must the applicable occupational health and safety regulations.



DANGER TO PERSONS!

Non-observance of the regulations can result in the death of persons or serious accidents.

To ensure that the work can be performed safely, thorough instruction in regard to this product manual and the regulations is necessary.

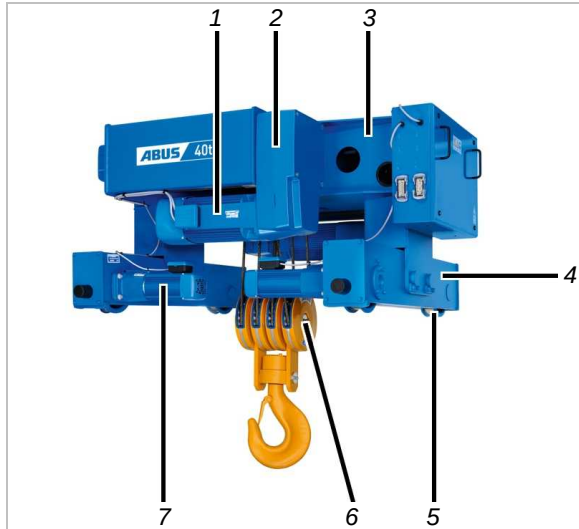
Which provision applies in individual cases will greatly depend on the crane's use and the national regulations. Review and observe all applicable and current regulations, including the occupational health and safety regulations. Refer also to the Declaration of Conformity or Declaration of Incorporation.

WARRANTY

- ABUS assumes no liability for damages that were caused by improper use, inadequately trained personnel, incorrect performance of work, nor for any changes, reconstruction or other modification of the crane or crane components which were not approved by ABUS.
- Any warranty claim becomes invalid if components were modified without consent, the crane or crane components were installed, used or serviced in any way other than that described in this product manual, or if parts other than original ABUS replacement parts were used.
- Safe operation of the crane or crane components is only guaranteed if original ABUS replacement parts are used.

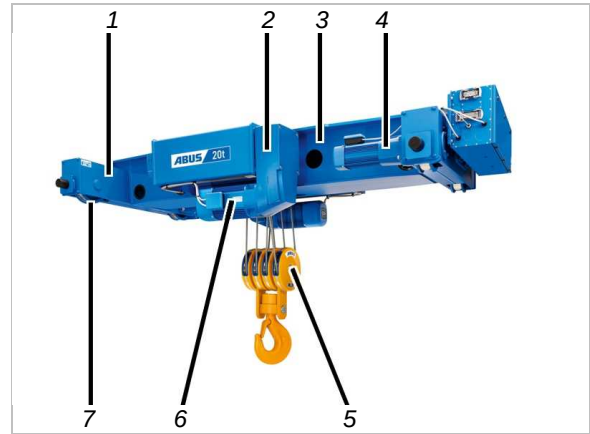
THE WIRE ROPE HOIST

DESCRIPTION OF THE DEVICE: DOUBLE-RAIL TROLLEY (Z)



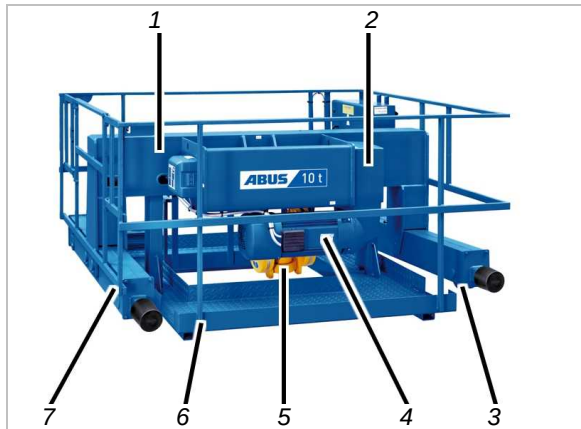
- 1: Hoist motor
- 2: Hoisting gear
- 3: Trolley frame
- 4: End carriage
- 5: Hoist trolley
- 6: Bottom block and load hook
- 7: Drive

DESCRIPTION OF THE DEVICE: LOWERED DOUBLE-RAIL TROLLEY (ZA)



- 1: End carriage
- 2: Hoisting gear
- 3: Trolley frame
- 4: Drive
- 5: Bottom block and load hook
- 6: Hoist motor
- 7: Hoist trolley

DESCRIPTION OF THE DEVICE: DOUBLE-RAIL TROLLEY WITH WALKWAY (ZB)



- 1: Trolley frame
- 2: Hoisting gear
- 3: Hoist trolley
- 4: Hoist motor
- 5: Bottom block and load hook
- 6: Walkway
- 7: End carriage

PERFORMANCE FEATURES

Double-rail trolley with twin hoist (Z):

- The wire rope hoist has two drives for the trolley, giving it two driven wheels and two non-driven wheels.
- The trolley frame is placed onto the end carriages from above. One end carriage is permanently fixed to the trolley frame by two bolts and the other end carriage is articulated with one bolt in the trolley frame. This ensures that all four wheels always rest on the trolley track.
- Optionally, a walkway can be attached around the wire rope hoist so service and maintenance work can be performed easily and safely. (Double-rail trolley with twin hoist ZB).
- The wire rope hoist covers a load capacity range of 8 t to 120 t.

Double-rail trolley with twin hoist, lowered (ZA):

- Unlike the double-rail trolley with twin hoist (Z), the trolley frame for this version is placed between the end carriages, allowing an overall minimum height to be reached.
- One of the two end carriages is permanently fixed to the trolley frame with high-tensile bolts and the other end carriage is articulated with one bolt in the trolley frame. This ensures that all four wheels always rest on the trolley track.
- The wire rope hoist covers a load capacity range of 8 t to 120 t.

AZP trolley drive (variant):

- The drives are designed as pole-variable rotary current motors with electromagnetic disc brakes and gear units.
- The drives have a low and a high speed. The ratio of the two speeds is 1:4.
- The drive's gear unit is a maintenance-free, two-stage or three-stage planetary gear.

AZF trolley drive (variant):

- The drives are designed as pole-variable rotary current motors with electromagnetic disc brakes and gear units.
- The drives have a low and a high speed. The ratio of the two speeds is 1:4.
- The drive's gear unit is a maintenance-free, flat gear unit with friction clutch.
- The drives of the size V420 and V500 have a visible output shaft.
- The drives are equipped with a fan blade on the motor shaft for ventilation. For very slow travel speeds, the drives can also be equipped with auxiliary fans.

Hoist drive with pole-variable hoist motor:

- The hoist drive is powered by a pole-variable 2/12-pole hoist motor with gear unit.
- The hoist motor features an electro-magnetically actuated spring-loaded brake.
- The hoist drive has a slow lifting speed and a fast lifting speed. The ratio of the two lifting speeds is 1:6.
- Using plug-in connections in the connector housing directly on the hoist drive, the hoist drive can be quickly separated from the rest of the crane's electrics.
- The hoisting gear features a multi-stage, helical spur gear in an alloy housing. The gear wheels run in a sealed oil bath, which ensures they remain lubricated over their full service life.
- For further details on the pole-variable hoist drive, see "Pole-variable, modular ABUS hoist drive for wire rope hoists" in the product manual.

Four-pole hoist drive GM 7000 with frequency converter controlled hoist motor:

- The hoist drive is powered by a four-pole hoist motor.
- The hoist motor features an electro-magnetically actuated spring-loaded brake.
- The hoist motor is powered by a frequency converter as series standard. It enables continuous control of the wire rope hoist lifting speed and (with ABUControl) a two-stage movement profile.

Continuous control of the lifting speed:

With a two-stage button or joystick, the drive can be accelerated in the second level up to a maximum value as long as the button is held down. If the button or joystick switches back into the first level, the drive maintains the current speed. If the button or joystick is released, the speed is reduced.

Two-stage movement profile:

With a two-stage button or joystick, the drive can be accelerated to a fixed slow travel speed in the first level and to a fixed fast travel speed in the second level, as is usual for hoist drives without frequency converters (pole-changeable).

- The hoisting gear features a multi-stage, helical spur gear in an alloy housing. The gear wheels run in a sealed oil bath, which ensures they remain lubricated over their full service life.
- The hoist drive is cooled by an auxiliary fan as series-standard.
- For further details on the frequency converter controlled hoist drive, see the product manual "ABUS hoist drive for wire rope hoists with frequency converters".

Hoist:

- The wire rope of the hoist is a special wire rope with a very high breaking strength. This gives it a considerably longer service life than a normal steel rope.
- The cable guide guarantees flawless winding and unwinding of the wire rope on the cable drum. It is made of wearproof, low-friction plastic.
- The "true vertical lift" prevents hook rotation by winding the wire rope around two cable drums simultaneously.

TECHNICAL DATA

Ambient conditions for operation:

Ambient temperature (for normal operation)	-10 °C to +40 °C
Ambient temperature (for reduced duty cycle)	+40 °C to +65 °C
Housing	IP 55
Insulation class	F

Noise emissions:

Size	Sound pressure level LP, m dB(A) at distance of 4 m	Sound pressure level LW, m dB(A)
GM 5000	68	88
GM 6000	68	88
GM 7000	70	90

Table: Noise emissions based on DIN 45635, Part 61 following the substitution process with an acoustic power source

In the table, the sound pressure level LP is specified for a distance of 4 m from the wire rope hoist. To calculate the sound pressure level LW, the sound pressure level at any distance may be used.

TRANSPORTING THE WIRE ROPE HOIST ON A LORRY

ONLY WITH UNINSTALLED WIRE ROPE HOISTS



DANGER FROM FALLING COMPONENTS!

The wire rope hoist can fall from the lorry and kill or injure people if it is not correctly loaded and secured. Transport and securing of loads must be performed by trained persons.

Observe the following points amongst others:



- ➔ Secure all loose parts and cables.
- ➔ Secure the load according to regional regulations.
- ➔ Secure the wire rope hoist to the loading area with suitable lifting tackle.
- ➔ Secure the load hook so that it cannot slide back and forth during transport.
 - The cable guide holds the wire rope firmly against the cable drum. This ensures that no loops can form on the cable drum.
- ➔ Do not place any heavy loads on the wire rope hoist.
- ➔ Do not place the wire rope hoist on the guide rollers.

LOADING AND UNLOADING THE WIRE ROPE HOIST

ONLY WITH UNINSTALLED WIRE ROPE HOISTS

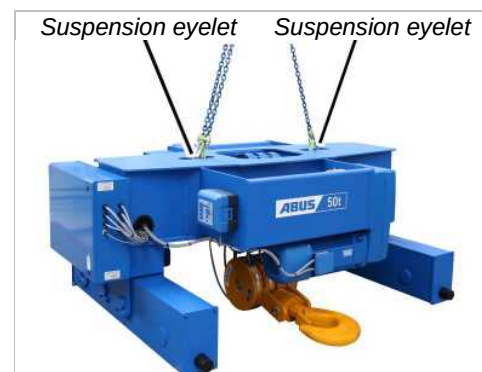


DANGER FROM FALLING COMPONENTS!

The wire rope hoist can fall and kill or injure people if it is not correctly attached and lifted. Attachment and loading should only be carried out by trained persons.

Observe the following points amongst others:

LIFTING THE WIRE ROPE HOIST WITH A CRANE



- ➔ Use suitable lifting tackle with load hooks.
- ➔ Hang at least three load hooks in the suspension eyelets on the wire rope hoist.
- ➔ Observe the occupational health and safety requirements and raise the wire rope hoist.

SETTING DOWN THE WIRE ROPE HOIST

- ➔ Place wooden slats on the floor as protection.
- ➔ Place the wire rope hoist onto the wooden slats with the flange plate.

DISPOSING OF THE WIRE ROPE HOIST

If the wire rope hoist needs to be disposed of:

- ➔ Dismantle the wire rope hoist as far as is possible.
- ➔ Observe local regulations concerning disposal and recycling.
- ➔ Sort the individual parts by material and dispose of them in an environmentally sound manner.
- Dispose of oil and grease from the gear units as lubricants.
- Dispose of brake linings as multiple components (hazardous waste).
- Dispose of electronic components as scrap electronic parts.
- Dispose of cables, plug-in connections and pendant controls as scrap electronic parts.
- Dispose of the trolley frame, cable drum, deflection rollers, wire rope and other metal components as metal scrap.
- Dispose of the housing cover and housing base of the control as plastic waste.
- Parts of the wire rope hoist that have been repainted must be disposed of in accordance with the paint manufacturer's specifications.



This product or electrical device may not be disposed of with regular domestic waste at the end of its service life.

INSTALLING AND CONNECTING

THIS SECTION APPLIES TO ANYONE WHO WORKS ON THE CRANE PRIOR TO ITS USE

The end user of the crane is responsible for the proper qualifications of the commissioning personnel.



DANGER TO PERSONS!

Persons can be injured if the crane is incorrectly put into operation.

If personnel belonging to companies other than ABUS are employed to perform the crane commissioning, it is the end user's responsibility to ensure that these persons are adequately qualified. Follow the procedures described here precisely.

Examples of qualified persons:

- Persons with comprehensive knowledge from specialist training in engineering and in the electrical systems of cranes.
- Persons with sufficient experience in the operation, installation and maintenance of cranes.
- Persons with comprehensive knowledge regarding the relevant technical rules, directives and safety regulations applicable in the respective country.
- Persons receiving regular training from ABUS.

ABUS assumes no liability for damage due to incorrectly performed commissioning work done by unqualified personnel.

ABUS recommends having the commissioning work performed by the ABUS assembly team.

CHECKING THE REQUIREMENTS

The following requirements must be met in order for the wire rope hoist to be installed:

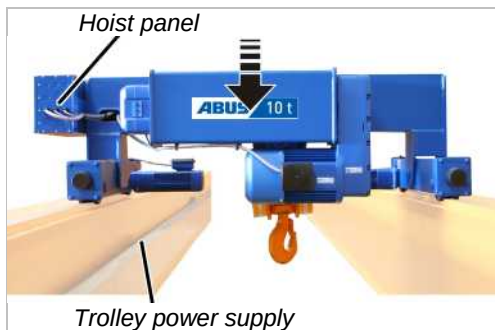
Among other things, these points must be coordinated as part of the technical authorisation process:

- The welded box girder on which the wire rope hoist travels must meet the specifications of the enclosed dimension sheet and data sheet.
- The installation dimensions as well as the mains voltage and operating voltage must be correspondingly checked against the dimension sheet and the data sheet.
- The trolley tracks that the wheels of the wire rope hoist travel on must be free of paint or other coatings.
- The trolley power supply must be executed as an ABUPowerline energy chain or ABUS festoon cable system.

INSTALLING THE WIRE ROPE HOIST ON THE MAIN GIRDER

If the wire rope hoist has not been installed yet, continue here. Otherwise, skip this section.

LIFTING THE TROLLEY ONTO THE OVERHEAD TRAVELLING CRANE

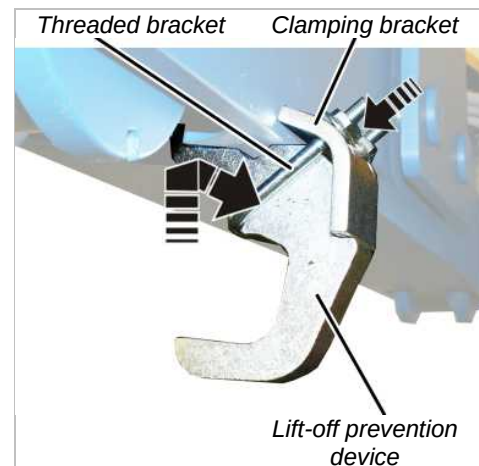


- ➔ Rotate the trolley as in the diagram.
- ➔ Place the trolley with the wheels onto the trolley track.
- ➔ Only for guide rollers: do not fit the trolley with the guide rollers. Otherwise, they will be damaged.
- ➔ Check whether all wheels come into contact with the trolley track.

INSTALLING THE LIFT-OFF PREVENTION DEVICE

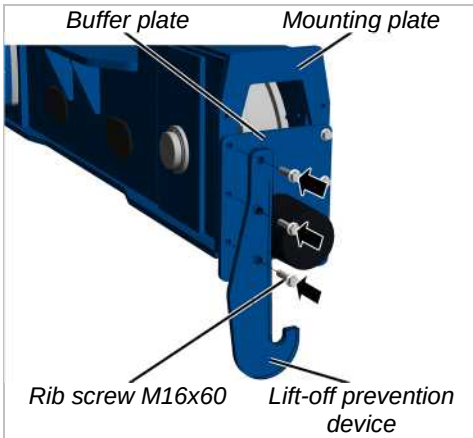
ONLY WITH HOIST DRIVE GM 5000 AND GM 6000

The lift-off prevention device is installed on the trolley. It consists of a load hook, which runs under the upper flange of the main girder. The trolley is therefore not able to fall from the main girder even in the event of accidents or similar incidents.



- ➔ Connect the clamping bracket and threaded bracket to the lift-off prevention device.
- ➔ Fasten the lift-off prevention device to the non-powered wheel from below in the opening.
- ➔ Screw the clamping bracket tightly with M8 rib nuts (2x). 25 Nm

ONLY WITH HOIST DRIVE GM 7000
WITH REEVING 10/2 AND 12/2



➡ Screw the lift-off prevention device onto the buffer plate of the non-powered wheel with rib screws M16x60 (3x). 250 Nm

INSTALLING THE TROLLEY POWER SUPPLY

If the trolley towing arm has not been installed yet, continue here. Otherwise, skip this section.

The trolley towing arm is installed above the hoist panel. It pulls the electrical cables for the trolley power supply (festoon cable system or energy chain) and the cross-type limit switch of the trolley travel limit switch back and forth parallel to the trolley.

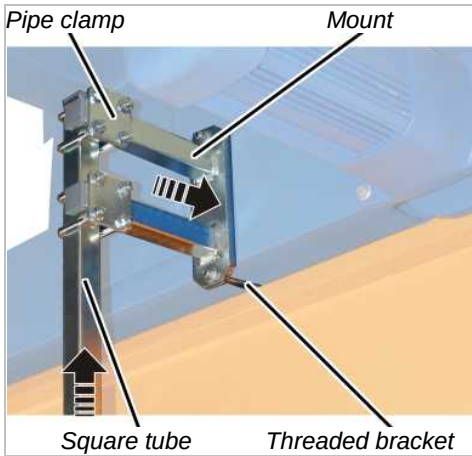
The trolley towing arm must be installed differently, depending on the main girder (I-beam or box girder) and the type of power supply (festoon cable system or energy chain).

MOUNTING THE TROLLEY TOWING ARM

ONLY WITH ENERGY CHAINS

This section only applies if a trolley of construction Z, ZA, or ZB is connected to an overhead travelling crane with an energy chain.

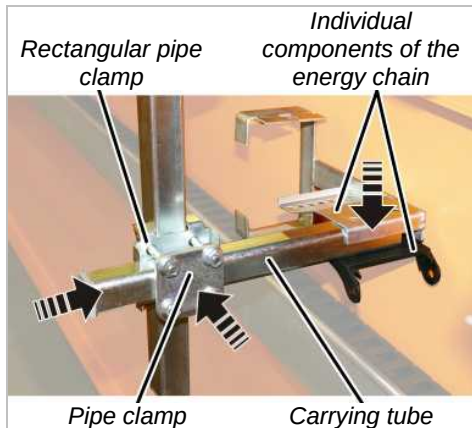
The component parts of the trolley towing arm are enclosed loose and must be assembled.



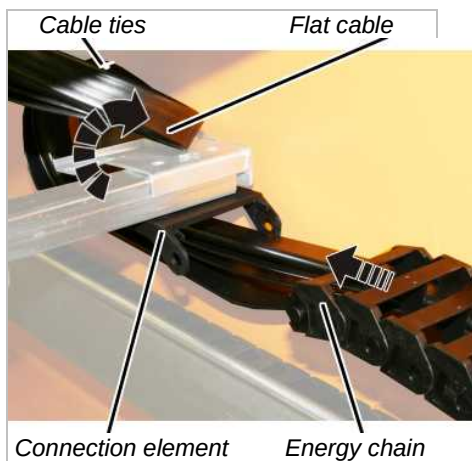
➡ Screw the mount to the end carriage using the threaded bracket and rib nuts (2x).

Threaded bracket	Tightening torque
M8	25 Nm
M10	50 Nm
M12	75 Nm

➡ Screw the square tube to the mount using two pipe clamps. 15 Nm



- ➔ Screw the carrying tube with pipe clamp and rectangular pipe clamp onto the vertical square tube (trolley towing arm). 15 Nm
- ➔ Fasten the individual components of the energy chain (deflection bracket and connection element) with bolts and SL safety clip to the carrying tube.

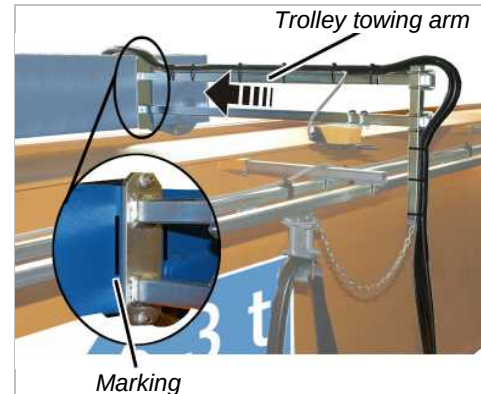


- ➔ Lead through the flat cable from the energy chain and guide in a curve around the deflection bracket.
- ➔ Fasten the flat cable with cable ties to the upper section of the deflection bracket.
- ➔ Insert the energy chain into the connection element and click into place.

ONLY FOR AN OVERHEAD TRAVELLING CRANE WITH A FESTOON CABLE SYSTEM

The trolley towing arm is fastened pre-installed to the C-rail system and must be fitted to the trolley.

For trolleys with trolley travel limit switches: the trolley travel limit switch is already completely installed.



- ➔ Attach the installed trolley towing arm to the end carriages.

In most cases, the end carriage has a marking at which the trolley towing arm is to be attached. The switching point of the trolley travel limit switch is already adjusted for this position and the cable lengths correspondingly adapted.

- ➔ Screw the trolley towing arm tightly with the threaded bracket and rib nuts (2x).

Threaded bracket	Tightening torque
M8	25 Nm
M10	50 Nm
M12	75 Nm

INSTALLING THE CROSS-TYPE LIMIT SWITCH ON THE TROLLEY TOWING ARM

ONLY WITH CROSS-TYPE LIMIT SWITCH

This section only applies if the wire rope hoist has a cross-type limit switch in the trolley travel direction.

Where and for which travel limit the cross-type limit switch is designed is specified on the wiring diagram.

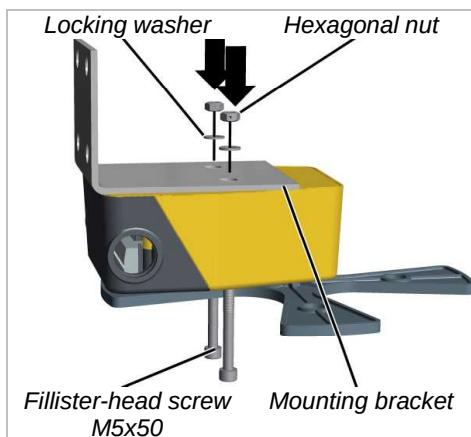
INSTALLING THE CROSS-TYPE LIMIT SWITCH



DANGER DUE TO MALFUNCTION!

If the cross-type limit switch is screwed on too tightly, the parts on the inside can become jammed and no longer function properly.

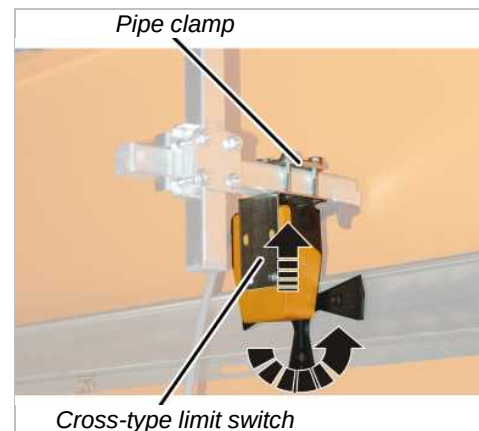
The tightening torque of 3 Nm must be strictly observed.



- ➔ Screw the mounting bracket onto the cross-type limit switch with the fillister-head screws M5x50 (2x).
- ➔ Screw on the mounting bracket using locking washers and M5 hex nuts (2x). 3 Nm.

INSTALLING THE CROSS-TYPE LIMIT SWITCH

The cross-type limit switch is normally installed on the trolley towing arm.



- ➔ Turn the cross-type limit switch to position 0.
- ➔ The position of the cross-type limit switch is marked with an arrow that can be rotated further, depending on the switching state.
- ➔ Move the cross-type limit switch onto the square tube in such a way that the switching lug activates the cross-type limit switch.
- ➔ Screw in the cross-type limit switch with pipe clamps (2x). 15 Nm.

CONNECTING THE CROSS-TYPE LIMIT SWITCH

- ➔ Route the connection cable (round cable or flat cable) from the cross-type limit switch to the panel.
- ➔ Route the connection cable with cable fitting into the panel.
- ➔ If necessary: Connect the connection cable to a coupler plug or connector.
- ➔ Fasten connection cable with cable ties, cable grips and adhesive clips.

CONNECTING THE TROLLEY POWER SUPPLY



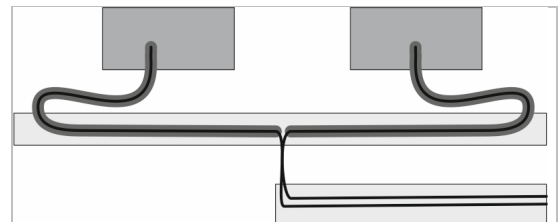
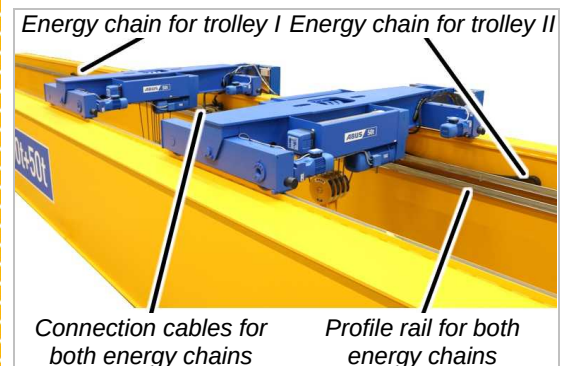
- ➔ Lay the connection cable leading from the energy chain along the square tube to the hoist panel.
- ➔ Fasten the connection cables neatly separated with cable ties.
- ➔ Plug the connector and coupler plugs into the hoist panel, or guide the connection cables through cable fittings and into the hoist panel.

INSTALLING THE SECOND TROLLEY

ONLY FOR CRANE WITH TWO TROLLEYS

Notes on installing the second trolley:

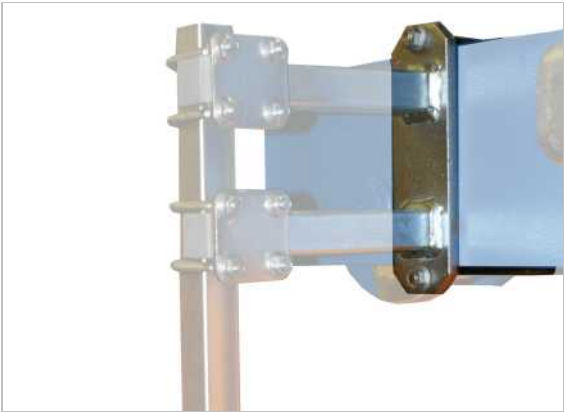
- Where and in which direction the second trolley is installed is specified in the planning documents.
- The trolleys are labelled “Trolley I” and “Trolley II” for clear assignment.
- Installation of the second trolley and trolley power supply is identical to the first trolley. The following diagram illustrates how the trolley power supply is routed.



- A crane with two trolleys has two profile rails. The upper one for both energy chains, the lower one for cable guidance.
- Both trolleys have their own separate energy chain for trolley power supply. One runs from the trolley to the left, the other to the right.
- Both energy chains start in the upper profile rail exactly in the middle of the main girder. One runs clockwise from there through the profile rail to the trolley, the other anti-clockwise.
- Both energy chains merge into the connection cables in the middle of the main girder. The connection cables run in the lower profile rail to the panel.

OVERVIEW OF SCREW TIGHTENING TORQUES

MOUNTINGS ON THE END CARRIAGE AND PIPE CLAMPS



Threaded bracket	Type and size	Number	Tightening torque
M8	Rib nut M8	2x	25 Nm
M10	Rib nut M10	2x	50 Nm
M12	Rib nut M12	2x	75 Nm

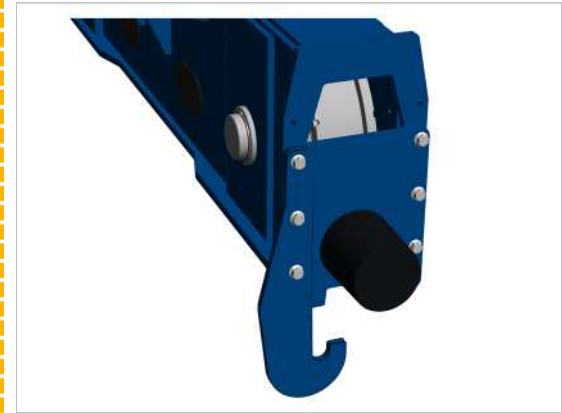
LIFT-OFF PREVENTION DEVICE

ONLY WITH HOIST DRIVE GM 5000 AND GM 6000



- Rib nut M8
- 2x per lift-off prevention device
- 25 Nm

ONLY WITH HOIST DRIVE GM 7000 WITH REEVING 10/2 AND 12/2



- Rib screws M16x60
- 3x per lift-off prevention device
- 250 Nm

INSPECTION

THIS SECTION APPLIES TO ANYONE WHO INSPECTS AND ACCEPTS THE CRANE IN ACCORDANCE WITH OCCUPATIONAL HEALTH AND SAFETY REQUIREMENTS

READ BEFORE STARTING WORK

TEST INTERVALS

The regular inspection is performed at least once annually.

Under certain conditions, more frequent regular inspections may be necessary. Reasons include:

- Frequent operation at the load capacity
- Working in multiple shifts
- Frequent use
- Dusty or chemically aggressive environment

The end user is responsible for checking the requirements and determining the test intervals. ABUS will gladly assist you if questions arise.

REQUIREMENTS FOR THE EXAMINER

The end user of the crane is responsible for the proper qualifications of the examiner.



DANGER TO PERSONS!

Persons can be injured if the test is performed incorrectly.

If personnel belonging to a company other than ABUS are employed to perform the test, it is the end user's responsibility to ensure that these persons are adequately qualified.

Examples of qualified persons:

- Persons with comprehensive knowledge from specialist training in engineering and in the electrical systems of cranes.
- Persons with sufficient experience in the operation, installation and maintenance of cranes.
- Persons with comprehensive knowledge regarding the relevant technical rules, directives and safety regulations applicable in the respective country.
- Persons receiving regular training from ABUS.

SCOPE OF THE TEST

The person qualified to inspect the wire rope hoist is responsible for the scope and type of inspection.

OVERVIEW: INSPECTING THE WIRE ROPE HOIST

In addition to the points described here, all points outlined in the other supplied product manuals must also be checked.

The decision as to whether the wire rope hoist is in a flawless condition is the sole responsibility of the examiner. Any inadequacies, if found, must be eliminated. The examiner decides whether the wire rope hoist needs to undergo inspection again afterwards.

If locally applicable regulations specify further tests, these are likewise to be carried out.

Additionally, at least the following points must be checked:

- ➔ Inspect the wire rope. See page 22.
 - ➔ Check the load hook and bottom block. See page 23.
 - ➔ Check the edge protection on the bottom block (visual inspection).
 - ➔ Inspect the deflection roller crosshead. See page 26.
 - ➔ Inspect the cable guide. See page 27.
 - ➔ Inspect the end clamps on the cable drum. The end clamps must be installed and must not exhibit any heavy damage.
 - ➔ Check the wheel diameters. See page 28.
 - ➔ Check the wheel flange wear of the wheels. See page 29.
 - ➔ Check the lift-off prevention device. See page 29.
 - ➔ Check the condition of the safety buffer. See page 30.
 - ➔ Check the brake on the hoist drive or travel drive.
- See product manual "Pole-variable, modular ABUS hoist drive for wire rope hoists".
- ➔ Check the braking distance of the trolley drive.

INSPECTING THE WIRE ROPE

- ➔ Inspect the entire wire rope for damage. The damage shown here or any similar damage should not be detectable on the wire rope.

Examples of damage:



The joining of the wire rope has opened. The inner strands of the wire rope are visible.



Loops have formed in the wire rope.



There is a kink in the wire rope. This can result, for example, from violent external forces being applied to the wire rope.



The wire rope is flattened at one point. This can result, for example, from the wire rope being pinched.



A bird cage has formed in the wire rope. This can result, for example, from violent untwisting of the wire rope.



The wire rope has a corkscrew-type deformation.

- ➔ Check the entire wire rope for broken wires. The wire rope must not exhibit more broken wires in a length of 6 times its diameter or 30 times its diameter than is specified for these lengths on the ABUS manufacturer's certificate for wire ropes in the test log book.

Examples of broken wires:



Multiple broken wires. Broken wires are signs of normal wear of the wire rope. They occur when the wire rope is bent on the reels under load.

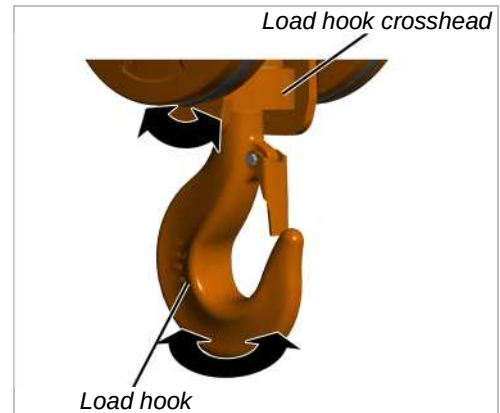


Broken wire with protruding wire end.

- ➔ If damage such as that pictured or similar damage is detected on the wire rope, replace the wire rope with a new one.
- ➔ If the wire rope has broken wires, but these do not exceed the permissible number, shorten the test interval until the next regular inspection.
- ➔ If the wire rope has more broken wires than permitted, replace the wire rope with a new one.

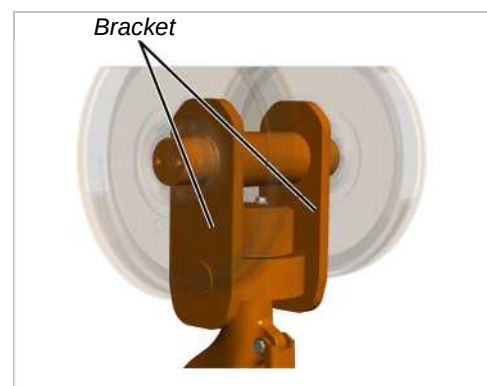
CHECKING THE LOAD HOOK AND BOTTOM BLOCK

CHECKING FOR EASE OF MOVEMENT



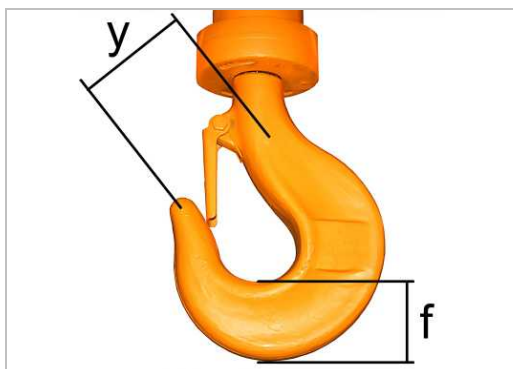
- ➔ Rotate the load hook to the left and right. The load hook must be easy to move and freely rotatable.
- ➔ Slew the load hook backwards and forwards at the load hook crosshead. The load hook crosshead must be freely slewable.
- ➔ If the load hook is not easy to move or freely rotatable or slewable, it must be repaired.

INSPECTING THE BRACKETS ON THE BOTTOM BLOCK



- ➔ Inspect the brackets. They must not exhibit any cracking, deformation or other signs of damage.
- ➔ If the brackets are deformed or damaged in any other way, they must be replaced.

MEASURING DEFORMATION AND WEAR OF THE LOAD HOOK



- ➔ Measure the distance 'y' between the two stamped markings on the load hook.
- ➔ Read the reference distance for 'y' from the test log book or, if applicable, from the load hook itself.

The measured distance 'y' must not be greater than 1.1 times the reference distance 'y'.

With ramshorn hooks, the distances 'y1' and 'y2' from the respective engraved marking on the tip of the load hook to the marking on the hook shank must each be measured and compared separately.

- ➔ Measure the base height 'f' of the load hook.
- ➔ Compare the measured value with the table.

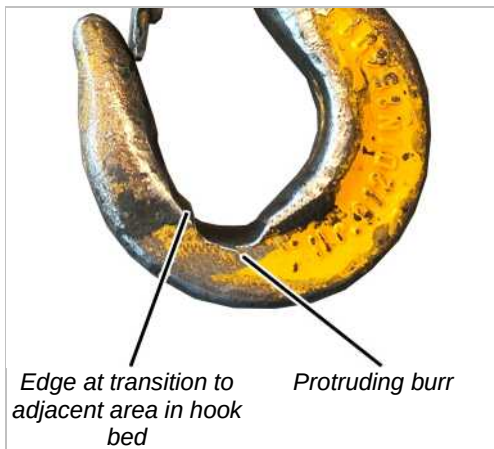
The measured base height 'f' must not be smaller than given in the table. The table specifies the minimum base height.

Size of load hook	Type of load hook	Minimum base height, 'f' [mm]
6	Ramshorn hook	71.3
6	Normal hook	80.8

Size of load hook	Type of load hook	Minimum base height, 'f' [mm]
8	Ramshorn hook	80.8
8	Normal hook	90.3
10	Ramshorn hook	90.3
10	Normal hook	100.7
12	Ramshorn hook	100.7
12	Normal hook	112.1
16	Ramshorn hook	112.1
16	Normal hook	125.4
20	Ramshorn hook	125.4
20	Normal hook	142.5
25	Ramshorn hook	142.5
25	Normal hook	161.5
32	Ramshorn hook	161.5
32	Normal hook	180.5
40	Ramshorn hook	180.5
40	Normal hook	201.4

- ➔ If the load hook has been widened to a greater degree than is allowed or if the base height is below the permissible limit, replace the load hook.

Do not carry out any repair welding (e.g. build-up welding) on the load hook or on the load hook nut.



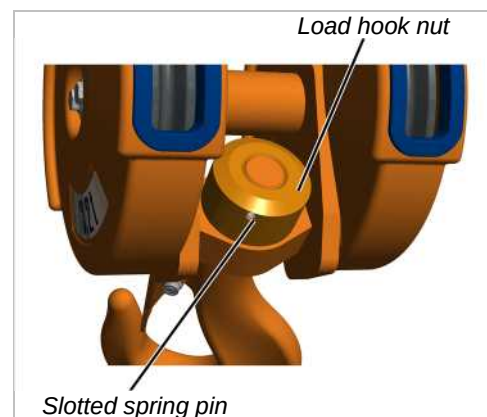
- ➔ Check the wear surfaces in the hook bed. They must merge gradually with the surrounding surfaces. They must not have any sharp score marks and edges or other surface faults.
- ➔ Inspect the edges. The side edges on the hook should not have any exterior protruding burrs or similar surface faults.
- ➔ If the wear surfaces or side edges do have sharp score marks or edges, these may be smoothed (e.g. filed). The limit values for base height given above must be observed even after smoothing.

INSPECTING THE LOAD HOOK SURFACE

- ➔ Inspect the load hook surface. It must not have any faults, cracks or corrosion.
- ➔ If the surface of the load hook is to any extent not OK, disassemble the load hook and inspect the surface of the hook shank. It must not have any faults, cracks or corrosion.

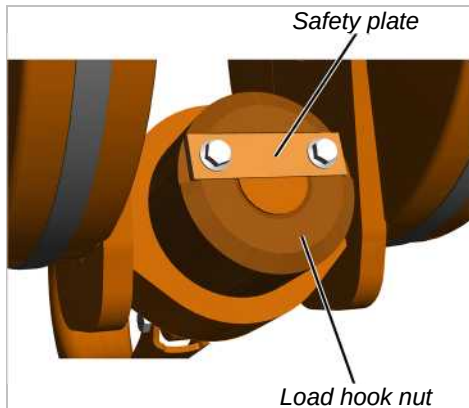
INSPECTING THE ANTI-ROTATION DEVICE OF THE LOAD HOOK NUT

For load hooks with anti-rotation device in the form of a slotted spring pin:



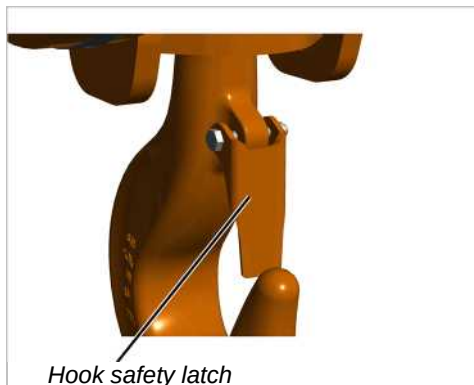
- ➔ Tilt the load hook until the anti-rotation device is clearly visible.
- ➔ Inspect the anti-rotation device. The locking pin must be present, undamaged and sitting securely.
- ➔ If the locking pin is missing or damaged, it must be replaced.

For load hooks with anti-rotation device in the form of a locking plate:



- ➔ Tilt the load hook until the anti-rotation device is clearly visible.
- ➔ Inspect the anti-rotation device. The locking plate must be present, undamaged and sitting securely.
- ➔ If the locking plate is missing or damaged, it must be replaced.

INSPECTING THE HOOK SAFETY LATCH



- ➔ Inspect the hook safety latch. It must be present, functional and easy to move, and must not be deformed or damaged in any other way.
- ➔ If the hook safety latch is missing, damaged or not working properly, it must be replaced.

INSPECTING THE DEFLECTION ROLLER CROSSHEAD

The deflection roller crossheads are welded to the top of the trolley frame.

ONLY WITH WIRE ROPE HOIST WITH HOIST DRIVE GM 5000 OR GM 6000

On a wire rope hoist with a hoist drive GM 5000 or GM 6000, the deflection rollers are fitted in the trolley frame with a measurement bolt. A retainer is also fitted over the deflection rollers.



- ➔ Inspect the deflection roller crosshead. The drilled holes must not exhibit any cracking or other damage.
- ➔ Inspect the deflection roller. It must not exhibit any deep grooves or heavy wear.
- ➔ Check the deflection roller crosshead suspension.

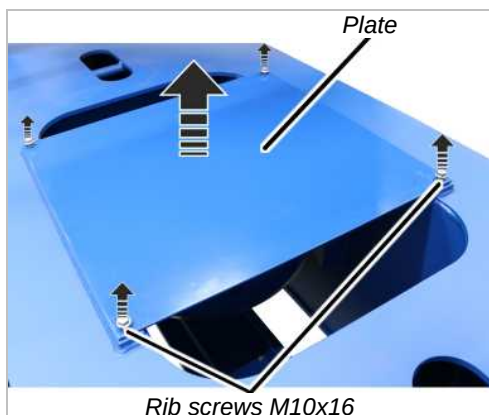
The supporting structure must be sufficiently lubricated so the deflection roller crosshead can move back and forth.

- ➔ If components are missing or damaged: replace the components.

See "Replacing the deflection rollers" page 45.

ONLY WITH WIRE ROPE HOIST WITH HOIST DRIVE GM 7000

On a wire rope hoist with a hoist drive GM 7000, the deflection roller crossheads are installed in the trolley frame. The deflection roller crossheads are also covered by a plate.



- ➔ Release the rib screws M10x16 (4x) on the plate.
- ➔ Lift the plate off the trolley frame.



- ➔ Inspect the deflection roller crosshead. The drilled holes must not exhibit any cracking or other damage.
 - ➔ Inspect the deflection roller. It must not exhibit any deep grooves or heavy wear.
 - ➔ Check the deflection roller crosshead suspension.
- The supporting structure must be sufficiently lubricated so the deflection roller crosshead can move back and forth.
- ➔ If components are missing or damaged: replace the components.

See "Disassembling the deflection roller crosshead" page 52.

INSPECTING THE CABLE GUIDE



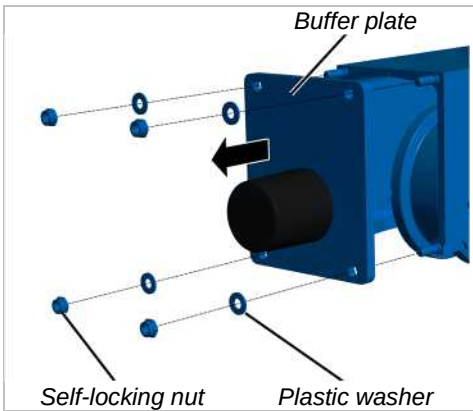
- ➔ Inspect the cable guide. The plastic parts must not be cracked, deformed or have abraded areas caused by the wire rope.
- ➔ Check the cable guide for ease of movement.
- ➔ Check the lubrication of the cable guide.
- ➔ If the cable guide is damaged: replace the cable guide. See "Replacing the wire rope", page 32.

CHECKING THE DIAMETER OF THE WHEELS

The running surfaces of the wheels become worn during operation. This reduces the diameter of the wheels.

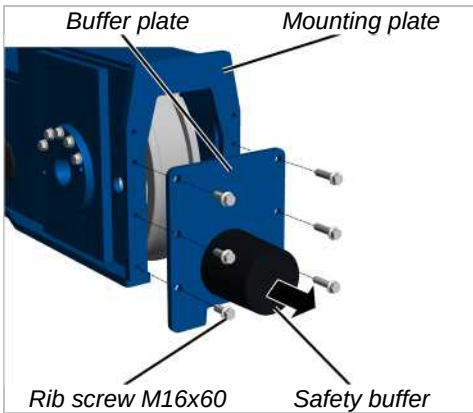
EXPOSING THE WHEEL

ONLY FOR SIZE 200 TO 420



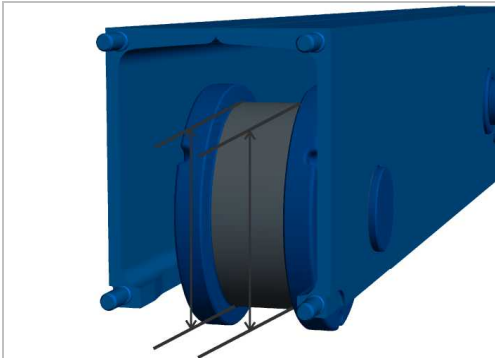
- ➡ Unscrew the self-locking nuts (4x).
- ➡ Remove the plastic washers (4x).
- ➡ Remove the buffer plate.

ONLY WITH SIZE 500



- ➡ Unscrew rib screws M16x60 (6x) and remove the buffer plate from the mounting plate.

MEASURING THE DIAMETER



- ➡ Measure the diameter of the wheel at multiple points over the width of the wheel.

- ➡ The diameter may not be smaller than is specified in the table.

If the diameter is smaller, the wheel must be replaced. See page 57.

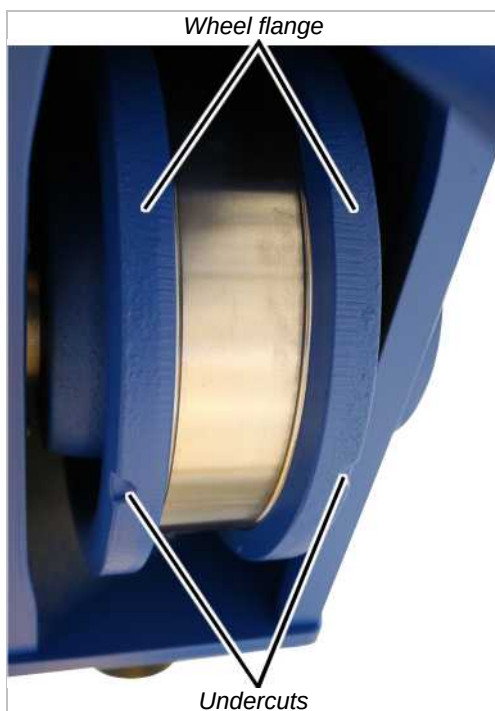
Wheel	Maximum permissible wear	Minimum diameter
200	-4 mm	196 mm
280	-5 mm	275 mm
350	-5 mm	345 mm
420	-5 mm	415 mm
500	-5 mm	495 mm

INSPECTING THE WHEEL FLANGE WEAR

The undercuts in the wheel flanges are a sign of wear on the wheel flange.

Note

First check the clearance between wheel flange and rail. If the clearance between wheel flange and rail is too large, the wheel flanges must be inspected.



- ➔ Inspect the wheel flanges of the wheels: The wheel flanges must not be worn so much that a continuous crack can be seen in the wheel flange (rather than undercuts). If they are, replace the wheels. See page 57.

CHECKING THE LIFT-OFF PREVENTION DEVICE

The lift-off prevention device for a wire rope hoist with a hoist drive GM 5000 or GM 6000 is shown below. The process of checking a wire rope hoist with a GM 7000 with a reeving 10/2 or 12/2 does not differ significantly from this.

CHECKING THE LIFT-OFF PREVENTION DEVICE



- ➔ Check the lift-off prevention device for wear and damage.
If the lift-off prevention device is damaged, it must be replaced. In this case, check the wire rope hoist for further damage because the wire rope hoist may have bounced on the trolley track.
- ➔ Test the firm seating of the lift-off prevention device with a light hammer tap.
If the rib nuts on the lift-off prevention device are loose, they must be tightened.

INSPECTING THE CONDITION OF THE SAFETY BUFFER



- ➔ Check all the safety buffers. The safety buffers must not be porous, pinched, bent or otherwise damaged.
- ➔ Check the material of the safety buffers all the way round. The plastic must not be cracked anywhere on the surface.
- ➔ Press the safety buffers with your finger. The safety buffers must be able to be pressed in slightly and be deformable.
- ➔ If one of the safety buffers is damaged in any way, replace all the safety buffers on the wire rope hoist. See page 68.
- ➔ If one of the safety buffers cannot be pressed in, replace all the safety buffers on the wire rope hoist. See page 68.

MAINTENANCE

THIS SECTION APPLIES TO ANYONE WHO MAINTAINS, REPAIRS OR MODIFIES THE CRANE.

The end user of the crane is responsible for the selection and proper qualifications of the maintenance personnel.



DANGER TO PERSONS!

Persons can be injured if the crane is incorrectly serviced.

If personnel other than that of the ABUS company are employed to perform maintenance on the crane, it is the end user's responsibility to ensure that these persons are adequately qualified. Follow the procedures described here precisely.

Examples of qualified persons:

- Persons with comprehensive knowledge from specialist training in engineering and in the electrical systems of cranes.
- Persons with sufficient experience in the operation, installation and maintenance of cranes.
- Persons with comprehensive knowledge regarding the relevant technical rules, directives and safety regulations applicable in the respective country.
- Persons receiving regular training from ABUS.

ABUS assumes no liability for damage due to incorrectly performed maintenance work done by unqualified personnel.

ABUS recommends having the maintenance work performed by ABUS Service.

Use only original ABUS replacement parts. Otherwise, all warranty claims will be rendered invalid.

INSTRUCTIONS REGARDING SAFETY WHEN PERFORMING MAINTENANCE WORK

Observe the following safety instructions during all maintenance work on the wire rope hoist.

- Switch off the mains switch. Secure the switch to ensure it cannot be turned back on accidentally.
- Open the fuse isolating link in the crane panel. Secure the fuse isolating link with a padlock so that it cannot be accidentally closed again.
- Use suitable lifting platforms and fall protection equipment.
- Adequately cordon off the operating range around the lifting platform.
- Switch off other cranes on the same crane track or cranes that are above or below the crane to be serviced. Secure the switches to ensure they cannot be turned back on accidentally. Other cranes could otherwise overturn the lifting platform or hit the crane to be serviced.
- Notify personnel in the area that maintenance work will be performed.
- Only trained electricians should work on the crane electrical system!
- Even after the emergency stop button has been pressed, life-threatening high voltages are still present in the crane control and in the trolley control.

These safety instructions apply specifically to the wire rope hoist:

- **Danger of crushing!**
Fingers could be crushed on the wheels, cable drum and deflection roller should the wire rope hoist make unforeseen movements, or if work is performed without sufficient attention. Secure the wire rope hoist. Work with caution!

REPLACING THE WIRE ROPE

If the wire rope is damaged or has more broken wires than permitted (see “Inspecting the wire rope”, page 22), it must be replaced.

If the cable guide is damaged (see “Inspecting the cable guide”, page 27), it must be replaced.

The wire rope and cable guides are wearing parts that are subject to heavy loads. They subject each other to wear during operation. This is why the wire rope and cable guide should always be replaced together.

The wire rope is a special lifting rope with a very high breaking strength. This ensures that it has a longer service life than a normal wire rope. This is why only genuine wire ropes from ABUS may be used.

These safety instructions apply specifically to changing the wire rope:

- Cordon off a generous space for the work area under the wire rope hoist.
- Ensure that the floor is swept clean.
This reduces soiling of the new wire rope.
- If no unrolling device is available to unroll the wire rope, sufficient free space for this is required.
- Position a scrap container or similar receptacle in the immediate vicinity of the lift platform and bottom block for the old wire rope.
- For a wire rope diameter larger than 11 mm, the rope change should be performed with the assistance of a second person.

PREPARING FOR WIRE ROPE REPLACEMENT

- ➔ Move the load hook under the upper limit switch range.
- ➔ Measure, and note the position of the load hook.

This makes adjusting the hoist limit switch after replacing the wire rope in many cases unnecessary.

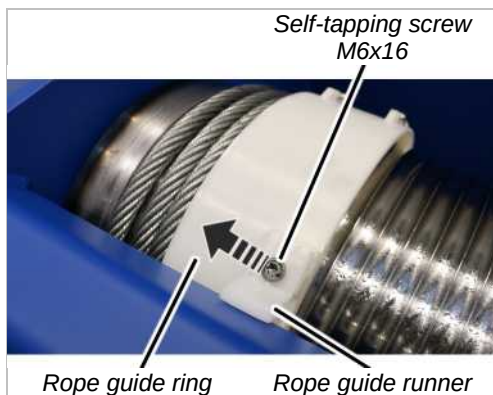
ONLY WITH ABUCONTROL

If ABUControl is installed for the wire rope hoist, refer to the product manual “ABUControl”, section “Exchanging the wire rope” to prepare for the rope change.

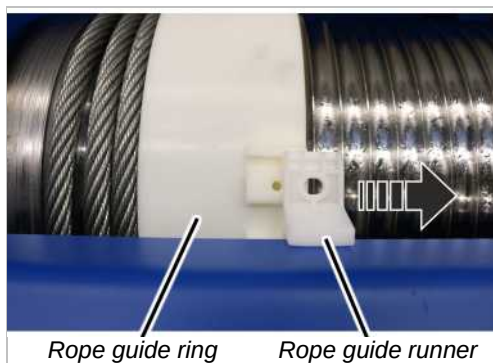
Further steps for the wire rope change are then described in this product manual.

REMOVING THE ROPE GUIDE RUNNER

On the first cable drum:



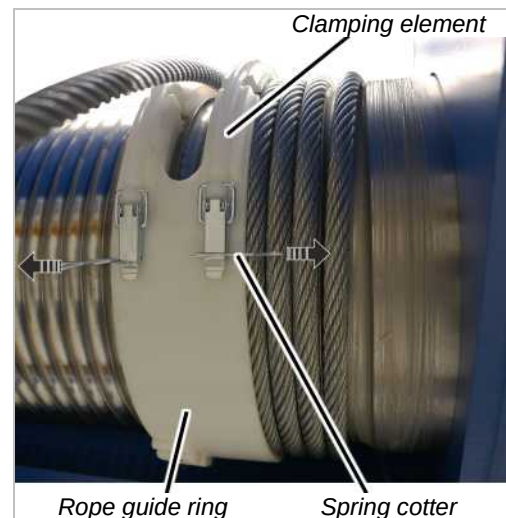
- ➔ Allow the wire rope to run off the cable drum using the motor.
Several wire rope windings should remain on the cable drum.
- ➔ Unscrew the rope guide runner.



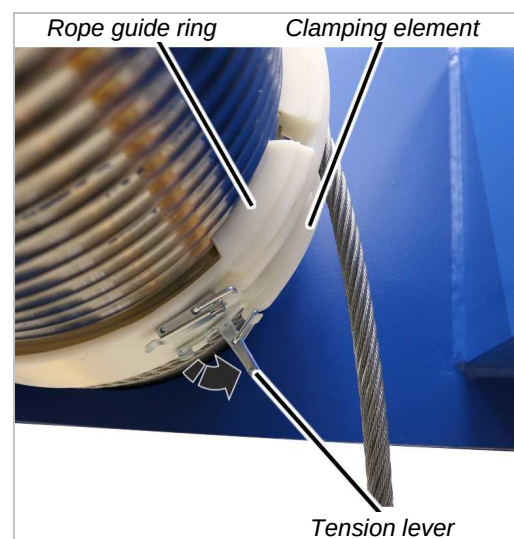
- ➔ Push the rope guide runner away to one side of the rope guide ring.
 - The rope guide ring can now be turned freely on the cable drum.

DISASSEMBLING THE CABLE GUIDE

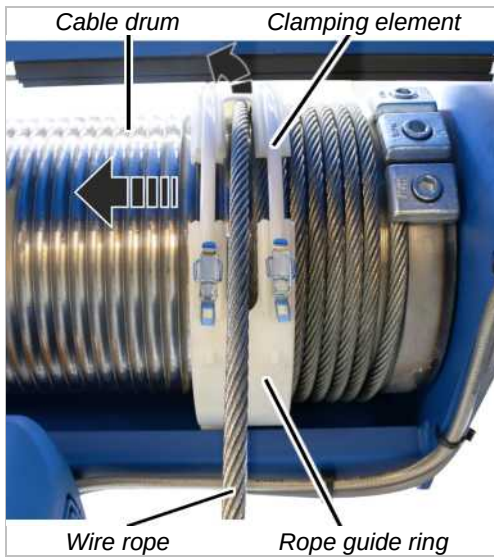
On the first cable drum:



- ➔ Pull the spring cotter out of the clamping elements on the rope guide ring.



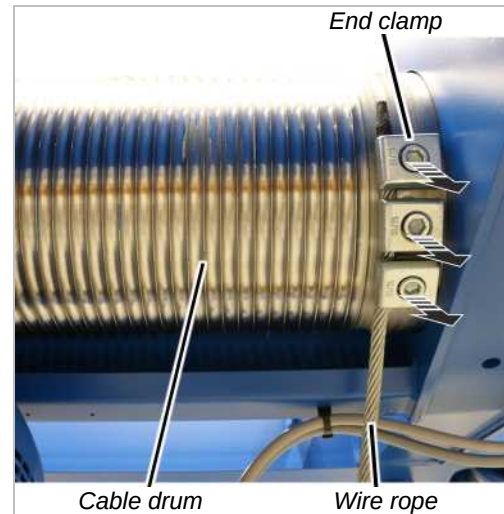
- ➔ Open and release the tension lever of the clamping element on the rope guide ring.



- ➔ Pull the rope guide ring with clamping elements from the cable drum.

REMOVING THE END TERMINALS

On the first cable drum:



- ➔ Allow the wire rope to run off the cable drum using the motor.
- ➔ Release the end clamps.
- ➔ Completely remove the wire rope from the cable drum.
- ➔ Secure the wire rope against falling and carefully set it down on the floor of the building.



DANGER TO PERSONS FROM THE WIRE ROPE FALLING.

When loosening the wire rope, there is a risk that the wire rope may fall and cause serious injuries to persons or severe material damage.

Secure the wire rope against falling.

CLEANING AND LUBRICATING THE CABLE DRUM

On the first cable drum:

- ➔ Clean the cable drum.



- ➔ Lubricate the cable drum from the start to about the 8th or 10th turn.
 - ➔ Lubricate the cable drum behind the last turn.
- Lubricant: "Molykote PG-75". For details, see "Lubricants", page 69.



- ➔ Lubricate the cable drum behind the 8th/10th turn up to the last turn.
- Lubricant: "Chainlife S". See "Lubricants" page 69.

FITTING A NEW WIRE ROPE

On the second cable drum:

- ➔ Pull the wire rope back up using the motor until the rope end is positioned 2 m below the first deflection roller of the bottom block.
 - ➔ Pull the connection sleeve over the ends of the old and new wire ropes.
 - ➔ Fix the connection sleeve in place with duct tape.
- The duct tape must be applied as smoothly as possible to ensure that there are no edges sticking up so the wire rope can be pulled up evenly.
- ➔ Pull the wire rope up until the new rope end is pulled through all of the deflection rollers and reaches the cable drum.

Keep the wire rope taut and pull it up without twisting it.

ROLL THE WIRE ROPE OUT WITHOUT TWISTING IT.

The wire rope will bend and become damaged if it is rolled out incorrectly.

Do not pull the wire rope upwards away from a horizontally lying ring.

Unroll the ring so it is vertically upright instead, and allow the wire rope to run onto the cable drum in the same direction as it was rolled onto the ring.

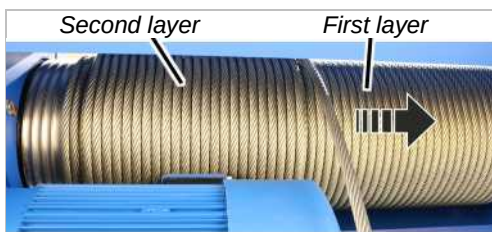
Note

If the cable drum is completely full, the wire rope must be wound in the opposite direction on the cable drum as a second layer.

If there is not enough room on the cable drum:



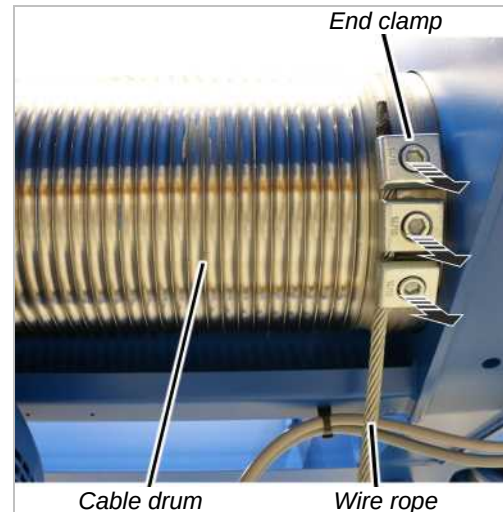
- ➔ Cross the wire rope over and wind the second layer at a slow lifting speed.



- ➔ Continue winding the second layer until the new rope end reaches the second cable drum.

REMOVING THE END TERMINALS

On the second cable drum:



- ➔ Secure the new rope end.
- ➔ Remove the connection sleeve.
- ➔ Allow the wire rope to run off the cable drum using the motor.
- ➔ Release the end clamps.
- ➔ Completely remove the wire rope from the cable drum.
- ➔ Secure the wire rope against falling and carefully set it down.

Ideally, a container should be positioned under the wire rope hoist so that the wire rope can be unwound directly into it.



DANGER TO PERSONS DUE TO FALLING WIRE ROPE.

When loosening the wire rope, there is a risk that the wire rope may fall and cause serious injuries to persons or severe material damage.

Secure the wire rope against falling.

CLEANING AND LUBRICATING THE CABLE DRUM

On the second cable drum:

- ➡ Clean the cable drum.



- ➡ Lubricate the cable drum from the start to about the 8th or 10th turn.
- ➡ Lubricate the cable drum behind the last turn.

Lubricant: "Molykote PG-75". For details, see "Lubricants", page 69.



- ➡ Lubricate the cable drum behind the 8th/10th turn up to the last turn.

Lubricant: "Chainlife S". See "Lubricants" page 69.

BOLTING THE END CLAMPS IN PLACE

Note



The wire rope must be guided into the second cable drum in front of the reeving in the bottom block to ensure that the wire rope does not become twisted or guided to the second cable drum between the reeving of the wire rope.



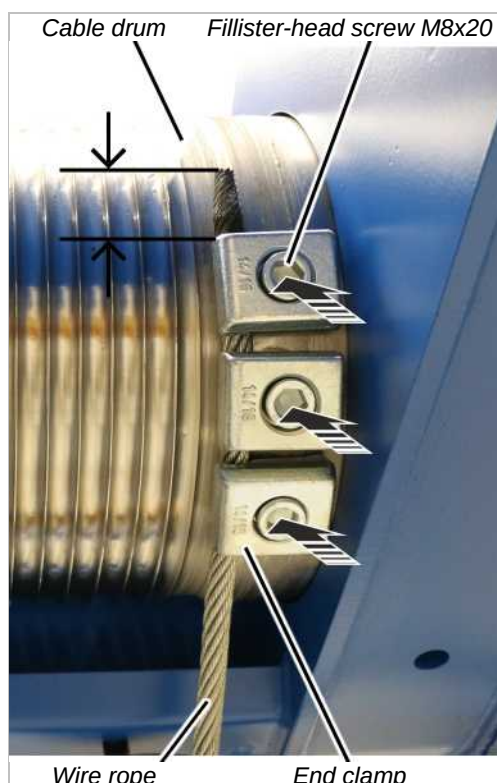
ROLL OUT THE WIRE ROPE WITHOUT TWISTING IT!

The wire rope will bend and become damaged if it is rolled out incorrectly.

Do not pull the wire rope upwards away from a horizontally lying ring.

Unroll the ring so it is vertically upright instead, and allow the wire rope to run onto the cable drum in the same direction as it was rolled onto the ring.

On the second cable drum:



- ➔ Roll out the wire rope without twisting it.
- ➔ Thoroughly clean the fillister-head screws of the end clamps.
The fillister-head screws were previously bolted with a thread lock coating or a thread lock. The residues must be completely removed before the fillister-head screw may be used again.
The thread lock coating and thread lock are single-use only.
- ➔ Push the wire rope under the end clamps far enough that the rope protrusion is about 30 mm.
- ➔ Tighten the end clamps with fillister-head screws and secure with (medium strength) thread lock.

Size	Number	Wire rope diameter	Tightening torque
GM 5000	3	14 mm	210 Nm
GM 6000	3	16.2 mm	210 Nm
GM 7000	3	14 mm	210 Nm
GM 7000	3	20.2 mm	425 Nm

- ➔ Pull the wire rope taut and use the motor to wind it onto the cable drum by 6 to 8 turns, ensuring it is taut and not twisted.

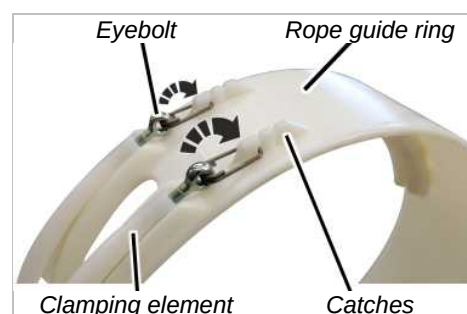
PREPARING THE ROPE GUIDE RING

On a cable guide for a GM 5000 to GM 7000, the clamping elements must be secured on the rope guide ring.

No pre-assembly is necessary on a cable guide for a GM 800 to GM 3000. This section can be skipped over in this case.

ONLY WITH WIRE ROPE HOIST WITH HOIST DRIVE GM 5000 AND GM 6000

On the cable guide for a wire rope hoist with hoist drive GM 5000 or GM 6000, the clamping elements are hooked into catches on the rope guide ring. The eyebolts for clamping the rope guide ring are located above on the clamping elements.

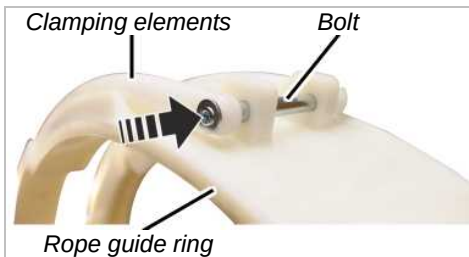


- ➔ Insert the clamping elements (2x) with the eyebolts in the first catch on the rope guide ring.
- ➔ Grease the groove of the rope guide ring from the inside.

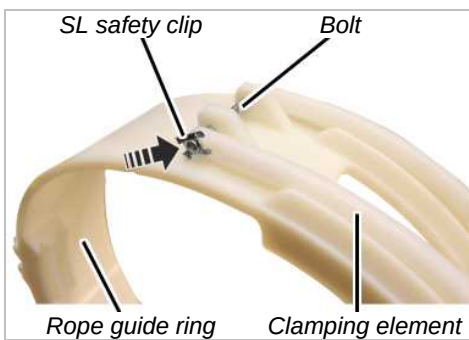
Lubricant: "Molykote PG-75". For details, see "Lubricants", page 69.

ONLY WITH WIRE ROPE HOIST WITH HOIST DRIVE GM 7000

On the cable guide for a wire rope hoist with hoist drive GM 7000, the clamping elements are secured on the rope guide ring using a bolt and an SL safety clip. The eyebolts for tensioning the rope guide ring are located below on the clamping elements.



- ➔ Push the bolt through the clamping elements and the rope guide ring.

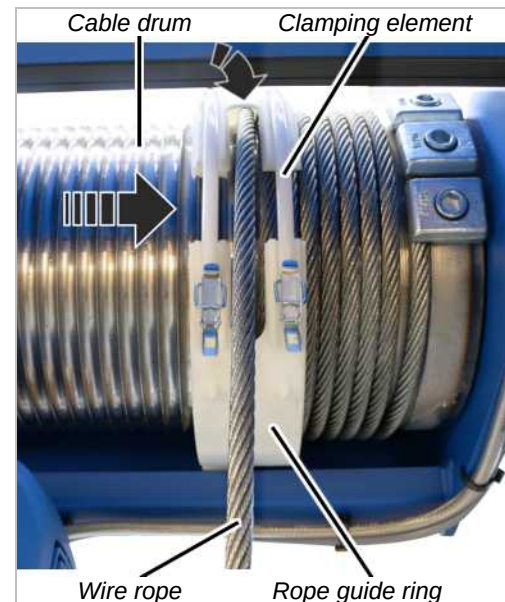


- ➔ Push the SL safety clip onto the bolt.
- ➔ Grease the groove of the rope guide ring from the inside.

Lubricant: "Molykote PG-75". For details, see "Lubricants", page 69.

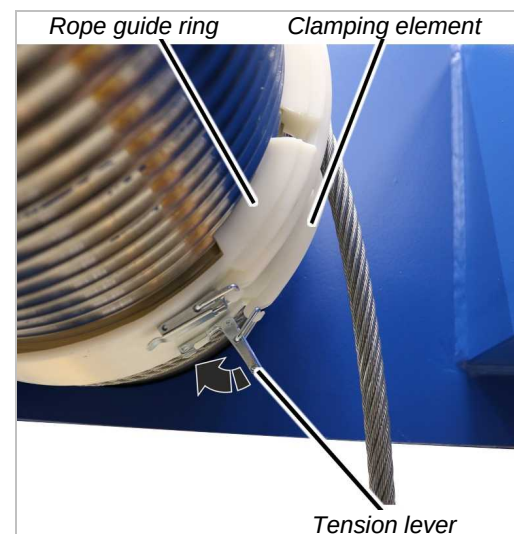
MOUNTING THE ROPE GUIDE RING

On the second cable drum:



- ➔ Pull the rope guide ring with clamping elements onto the cable drum.
- ➔ Position the wire rope between the clamping elements.
- ➔ Check that both ends of the rope guide ring lie in the same groove of the cable drum.

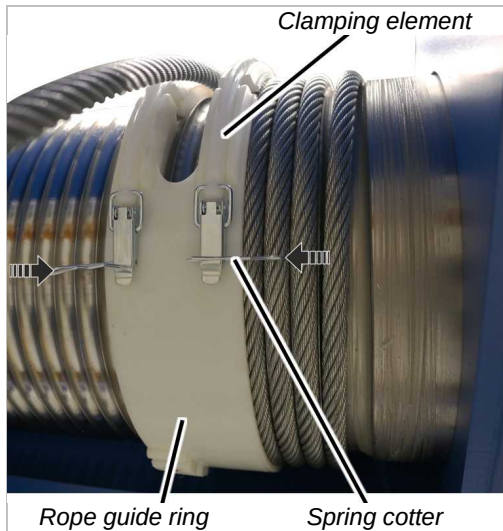
The ends of the rope guide ring must be aligned.



- ➔ Insert the tension lever on the clamping elements into the rope guide ring and close it.

If necessary:

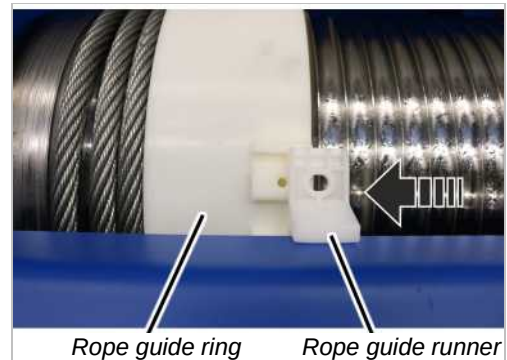
- ➔ Open the tension lever again and adjust the rope guide ring with the eyebolts so that the rope guide ring rests securely on the wire rope but can still be rotated.



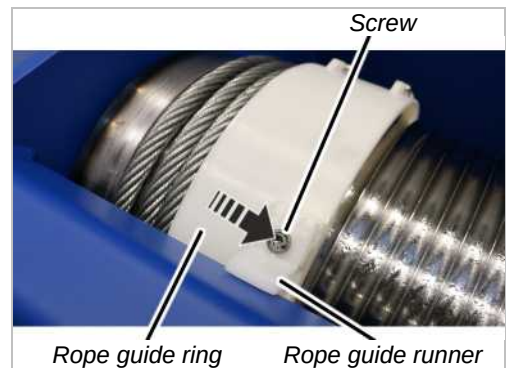
- ➔ Push the spring cotter into the tension lever of the clamping elements.

INSTALLING THE ROPE GUIDE RUNNER

On the second cable drum:



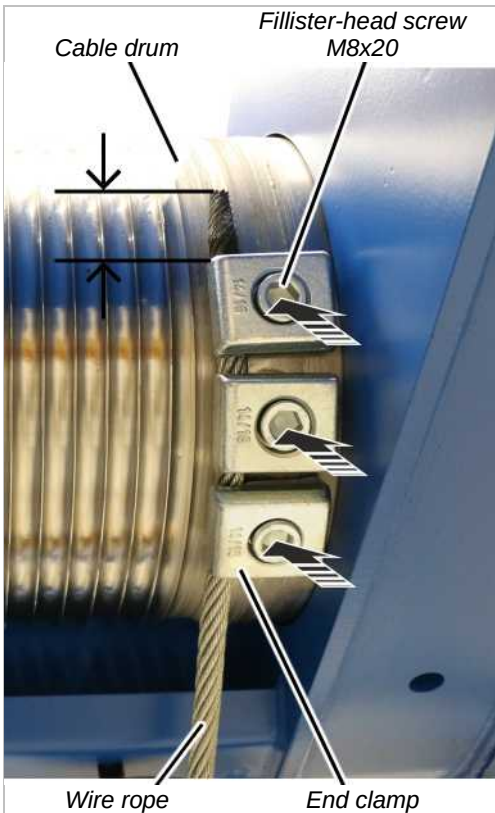
- ➔ Put the rope guide runner on the drum housing and push it laterally into the rope guide ring.



- ➔ Screw on the rope guide runner with the self-tapping screw M6x16. 5 Nm.

BOLTING THE END CLAMPS IN PLACE

On the first cable drum:



- ➔ Roll out the wire rope without twisting it.
- ➔ Thoroughly clean the fillister-head screws of the end clamps.

The fillister-head screws were previously bolted with a thread lock coating or a thread lock. The residues must be completely removed before the fillister-head screw may be used again.

The thread lock coating and thread lock are single-use only.
- ➔ Push the wire rope under the end clamps far enough that the rope protrusion is about 30 mm.
- ➔ Tighten the end clamps with fillister-head screws and secure with (medium strength) thread lock.

Size	Number	Wire rope diameter	Tightening torque
GM 5000	3	14 mm	210 Nm
GM 6000	3	16.2 mm	210 Nm
GM 7000	3	14 mm	210 Nm
GM 7000	3	20.2 mm	425 Nm

- ➔ Pull the wire rope taut and use the motor to wind it onto the cable drum by 6 to 8 turns, ensuring it is taut and not twisted.

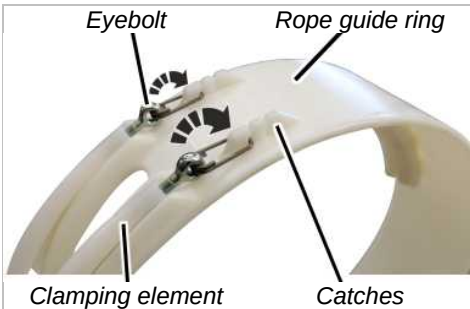
PREPARING THE ROPE GUIDE RING

On a cable guide for a GM 5000 to GM 7000, the clamping elements must be secured on the rope guide ring.

No pre-assembly is necessary on a cable guide for a GM 800 to GM 3000. This section can be skipped over in this case.

ONLY WITH WIRE ROPE HOIST WITH HOIST DRIVE GM 5000 AND GM 6000

On the cable guide for a wire rope hoist with hoist drive GM 5000 or GM 6000, the clamping elements are hooked into catches on the rope guide ring. The eyebolts for clamping the rope guide ring are located above on the clamping elements.

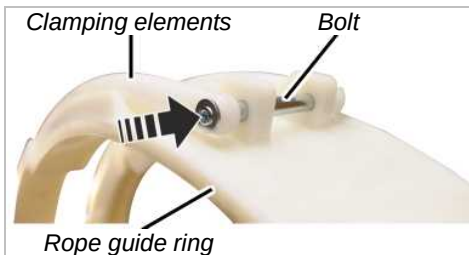


- ➔ Insert the clamping elements (2x) with the eyebolts in the first catch on the rope guide ring.
- ➔ Grease the groove of the rope guide ring from the inside.

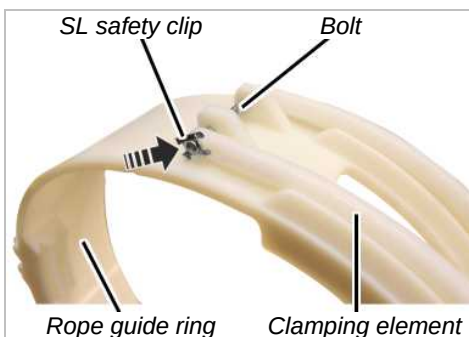
Lubricant: "Molykote PG-75". For details, see "Lubricants", page 69.

ONLY WITH WIRE ROPE HOIST WITH HOIST DRIVE GM 7000

On the cable guide for a wire rope hoist with hoist drive GM 7000, the clamping elements are secured on the rope guide ring using a bolt and an SL safety clip. The eyebolts for tensioning the rope guide ring are located below on the clamping elements.



- ➔ Push the bolt through the clamping elements and the rope guide ring.



- ➔ Push the SL safety clip onto the bolt.
- ➔ Grease the groove of the rope guide ring from the inside.

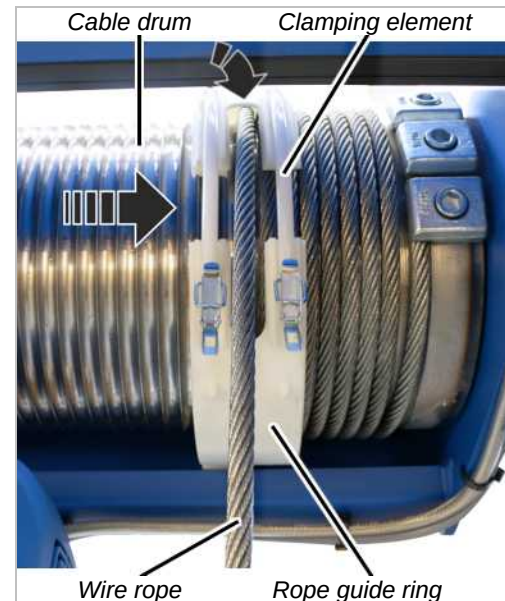
Lubricant: "Molykote PG-75". For details, see "Lubricants", page 69.

INSTALLING THE CABLE GUIDE

Note

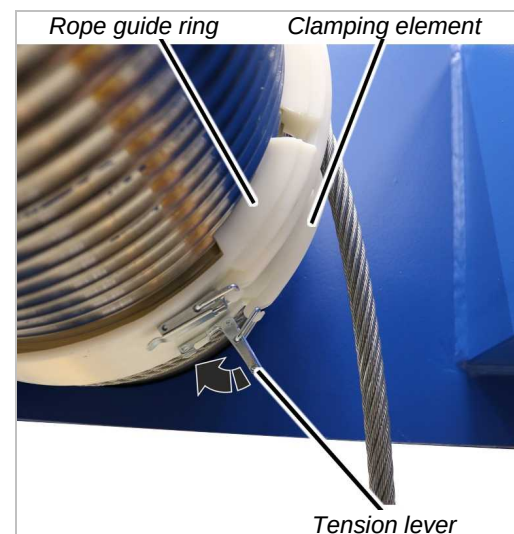
Before the second cable guide is mounted, there must be the same number of turns on both cable drums, in other words, 5 to 6 turns in front of the cable guide.

On the first cable drum:



- ➔ Pull the rope guide ring with clamping elements onto the cable drum.
- ➔ Position the wire rope between the clamping elements.
- ➔ Check that both ends of the rope guide ring lie in the same groove of the cable drum.

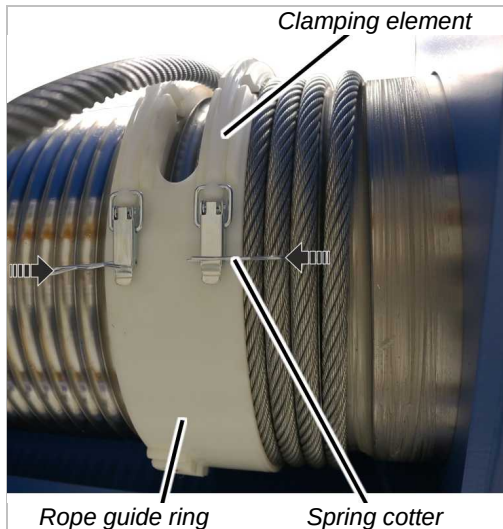
The ends of the rope guide ring must be aligned.



- ➔ Insert the tension lever on the clamping elements into the rope guide ring and close it.

If necessary:

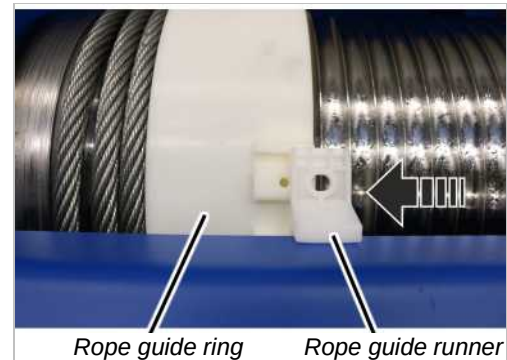
- ➔ Open the tension lever again and adjust the rope guide ring with the eyebolts so that the rope guide ring rests securely on the wire rope but can still be rotated.



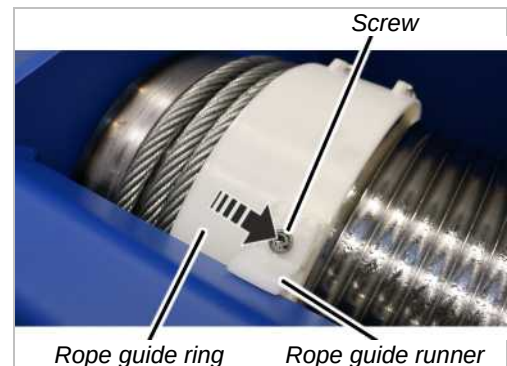
- ➔ Push the spring cotter into the tension lever of the clamping elements.

INSTALLING THE ROPE GUIDE RUNNER

On the first cable drum:



- ➔ Put the rope guide runner on the drum housing and push it laterally into the rope guide ring.



- ➔ Screw on the rope guide runner with the self-tapping screw M6x16. 5 Nm.

COMPLETING THE WIRE ROPE REPLACEMENT

- ➔ Use the motor to wind up the wire rope completely.

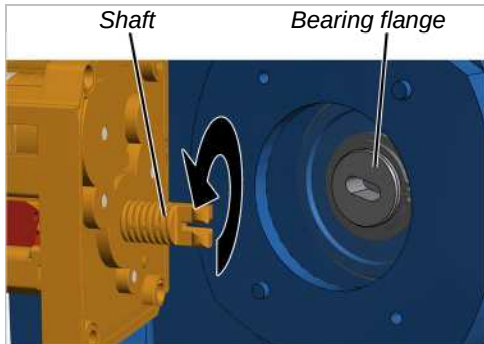
ONLY WITH ABUCONTROL

If ABUControl is installed for the wire rope hoist, refer to the "Exchanging the wire rope" section of the "ABUControl" product manual to complete the rope change.

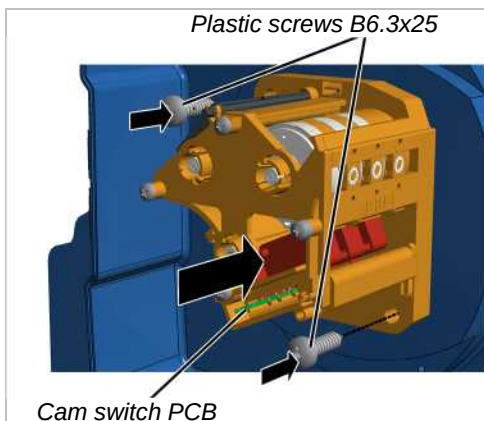
Further steps are then described in this product manual.

INSTALLING THE HOIST LIMIT SWITCH

- ➔ Move the load hooks to the position you noted previously.



- ➔ Open the housing cover of the hoist limit switch enclosure on the cable drum.
- ➔ Rotate the shaft of the gear limit switch so that it matches the elongated hole in the bearing flange of the cable drum.



- ➔ Insert the gear limit switch with the shaft in the elongated hole on the bearing flange and guide it onto the two pins.
- ➔ Screw the gear limit switch tight with the plastic screws B6.3x25. 3 Nm.

CONNECTING THE HOIST LIMIT SWITCH

- ➔ Plug in the connector of the connection cable on the cam switch PCB.
- ➔ Close the housing cover.

If the switching points have moved:

Normally, the adjustment of the hoist limit switch after replacing the wire rope can in many cases be omitted, since the position of the load hook was previously measured and then travelled to again. In special cases (e.g. if the wire rope is severely damaged or has been incorrectly rolled onto the cable drum), the switching points may need to be readjusted.

- ➔ Reset switching points for the bottom hoist limiter, the top hoist limiter and the backup limiter.

With ABUS electrics 3 with contactor control: see product manual "ABUS gear limit switch".

With ABUS electrics 3 with ABULiner: see product manual "Frequency converter control of the lifting speed for ABUS electrics 3".

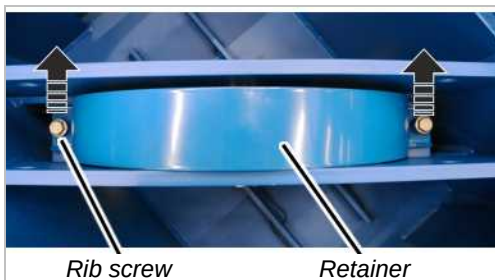
REPLACING THE DEFLECTION ROLLERS

If the deflection roller is damaged, it must be replaced.

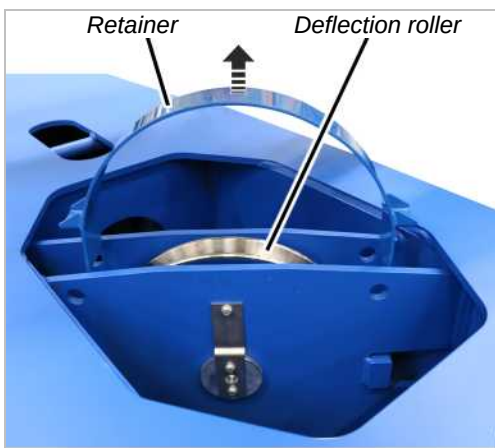
**ONLY WITH HOIST DRIVE GM 5000
OR GM 6000 WITH REEVING 4/2 OR
6/2**

The procedure for replacing the deflection rollers on a wire rope hoist with one deflection roller (reeving 4/2) is shown below. The replacement procedure does not differ significantly for wire rope hoists with two deflection rollers (reeving 6/2).

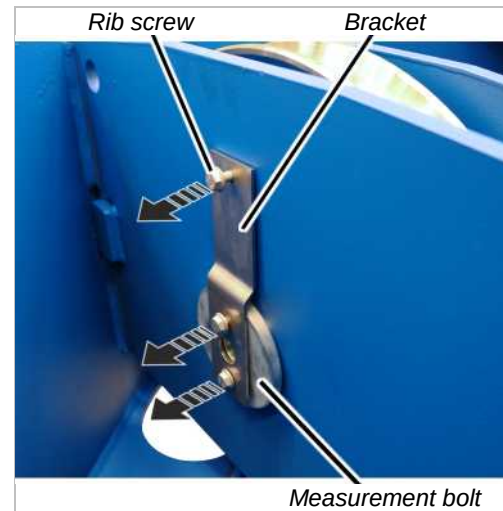
DISASSEMBLING THE DEFLECTION ROLLER



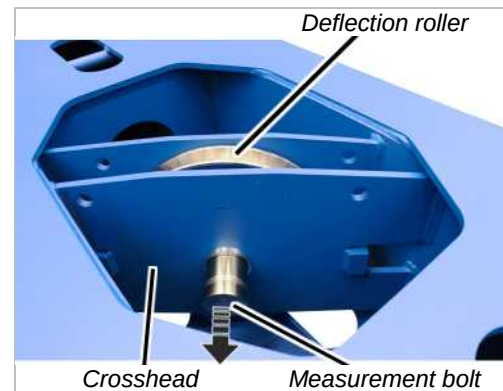
→ Loosen the rib screws on the retainer.



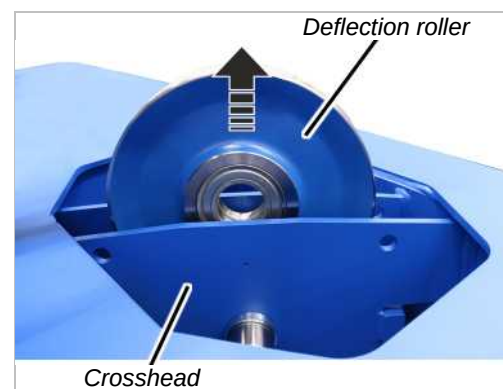
→ Remove the retainer from the deflection roller.



→ Unscrew the measurement bolt bracket.

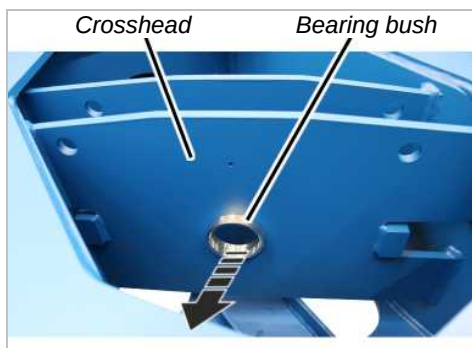


→ Pull the measurement bolt out of the crosshead and deflection roller.



→ Lift the deflection roller out of the crosshead.

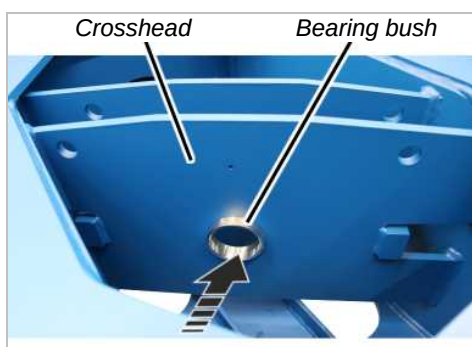
If the bearing bushes are damaged:



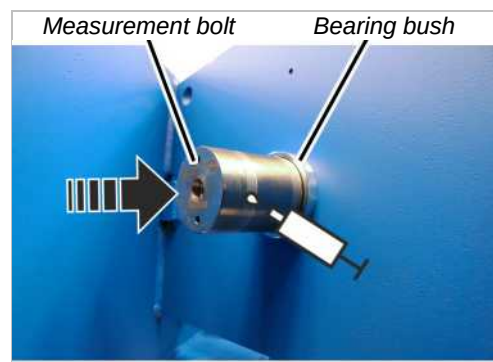
- ➔ Pull the bearing bushes out of the crosshead.

ASSEMBLING THE DEFLECTION ROLLER

If the bearing bushes are damaged:

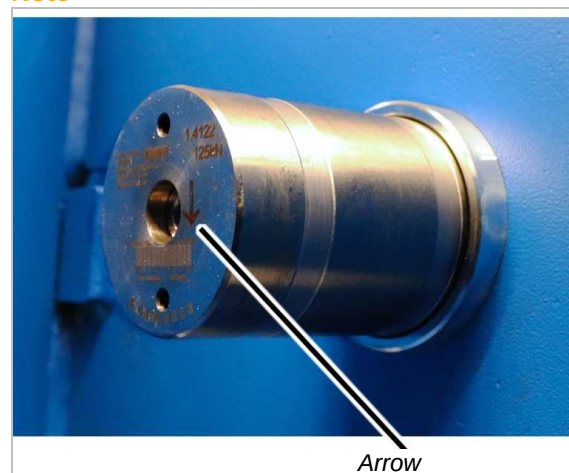


- ➔ Insert the bearing bushes into both sides of the crosshead.

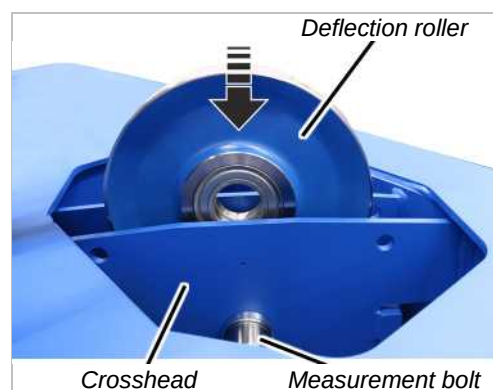


- ➔ Grease the measurement bolt.
Lubricant: "High temperature paste PBC 1574". For details, see "Lubricants", page 69.
- ➔ Slide the measurement bolt into one side of the bearing bush.
Do not slide the measurement bolt fully into the crosshead.

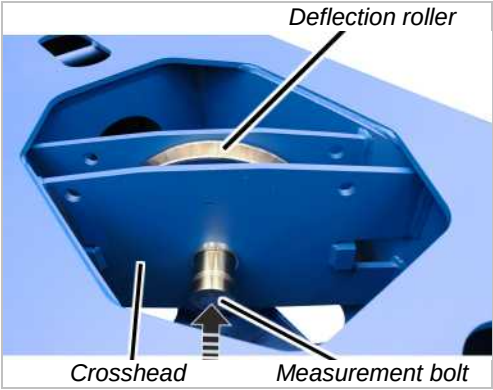
Note



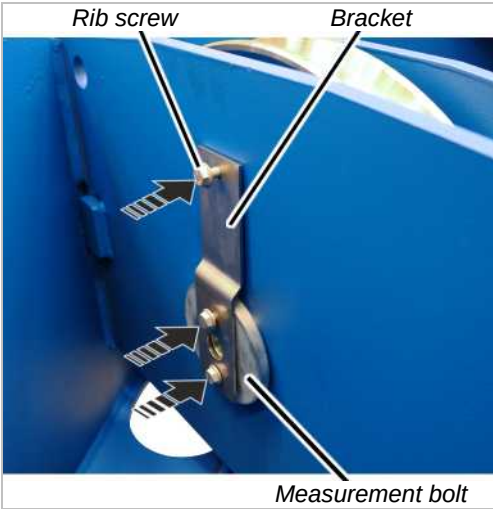
The arrow on the measurement bolt must be pointing downwards.



- ➔ Insert the deflection roller into the crosshead.

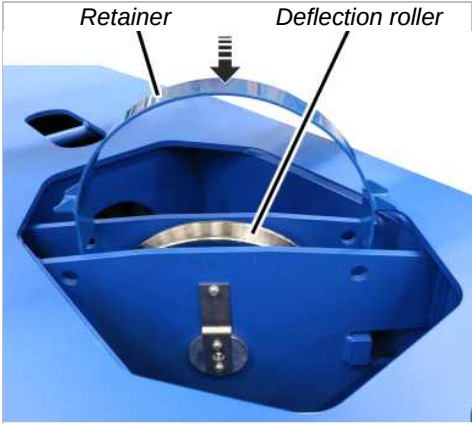


- Slide the measurement bolt through the deflection roller and into the other bearing bush.
The measurement bolt ends up flush with the bearing bushes on both sides.

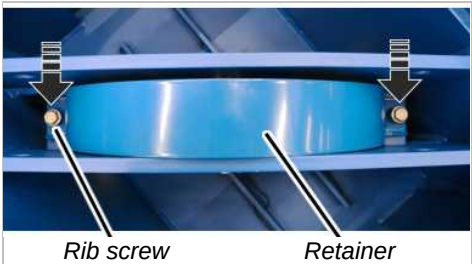


- Screw the brackets in place on both sides with rib screws (3x).

Screw	Type	Tightening torque
Rib screw	M8x16	42 Nm
Rib screw	M10x20	75 Nm



- Place the retainer over the deflection roller.

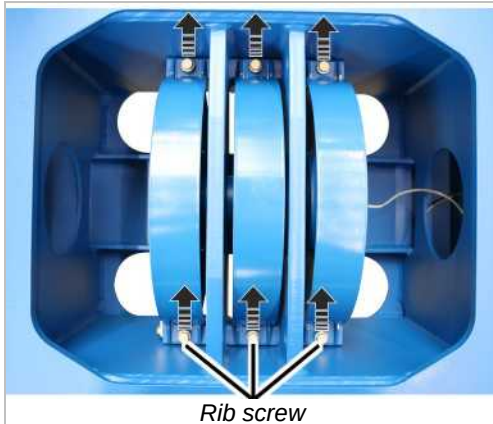


- Screw on the retainer with rib screws M10x20 (2x). 75 Nm.

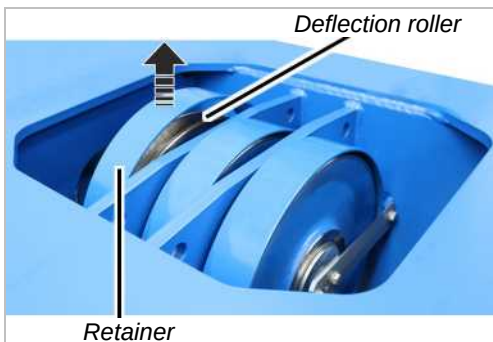
**ONLY WITH HOIST DRIVE GM 5000
OR GM 6000 WITH REEVING 8/2**

For a reeving 8/2 with a hoist drive GM 5000 or GM 6000, three deflection rollers are installed in the trolley frame.

DISASSEMBLING THE DEFLECTION ROLLER

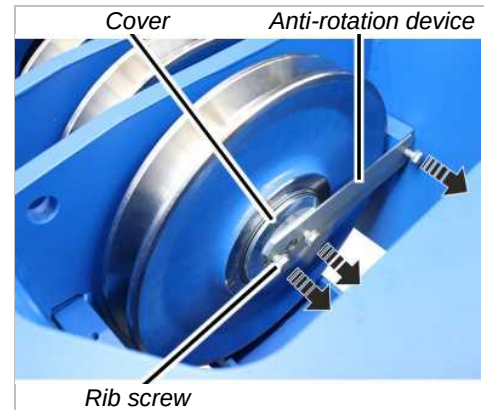


- Loosen the rib screws (6x) on the retainers.

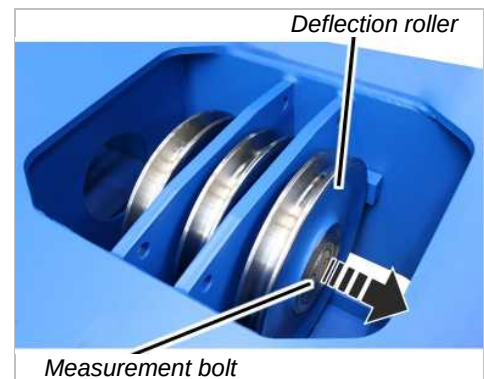


- Remove the retainers from the deflection rollers.

On the side with the anti-rotation device:

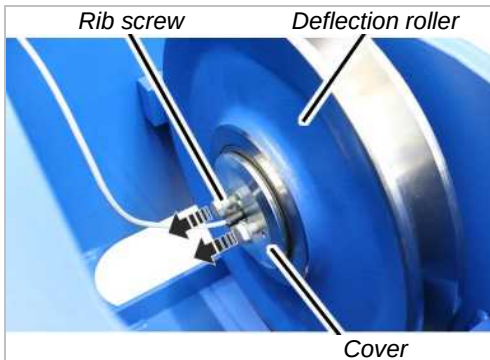


- Release the rib screws (3x).
→ Remove the anti-rotation device and cover from the measurement bolt.

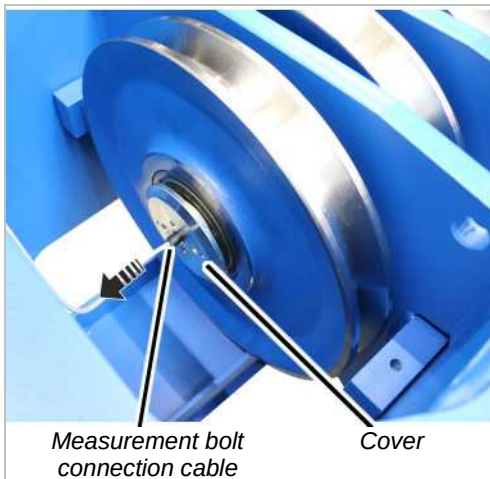


- Pull the deflection roller sideways off the measurement bolt and lift it out of the trolley frame.

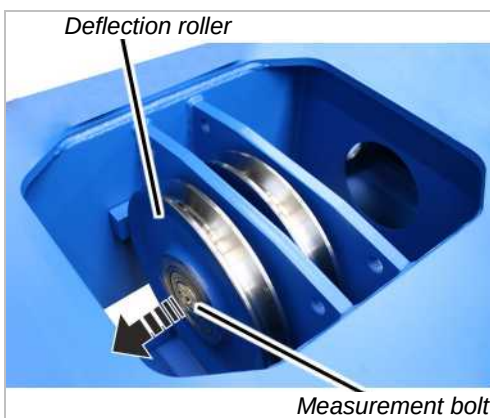
On the side with the measurement bolt connection:



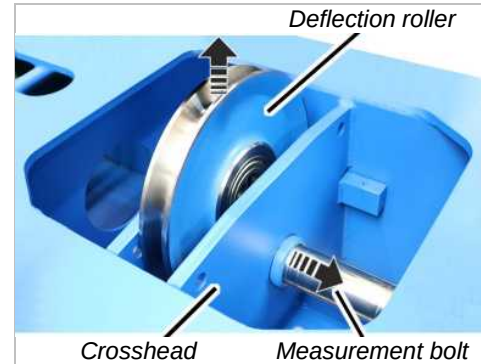
- ➔ Loosen the rib screws on the cover of the measurement bolt.



- ➔ Remove the cover from the measurement bolt.
- ➔ Unscrew the measurement bolt connection cable.

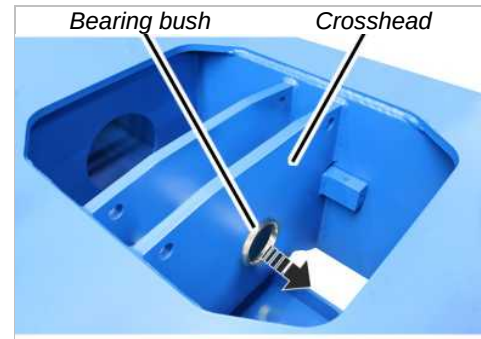


- ➔ Pull the deflection roller sideways off the measurement bolt and lift it out of the trolley frame.



- ➔ Pull the measurement bolt out of the crosshead and lift the deflection roller out of the crosshead.

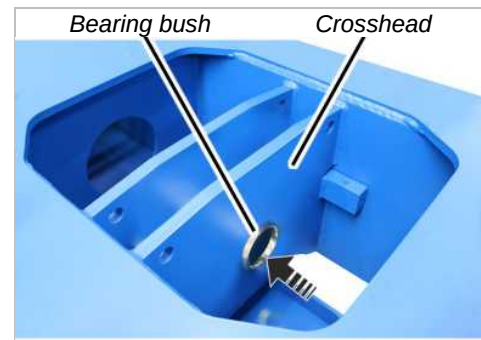
If the bearing bushes are damaged:



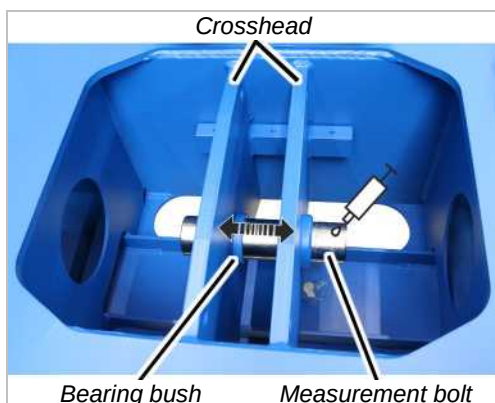
- ➔ Pull the bearing bushes out of the crosshead.

ASSEMBLING THE DEFLECTION ROLLER

If the bearing bushes are damaged:



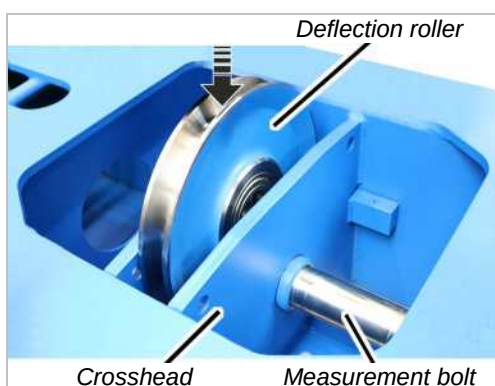
- ➔ Insert the bearing bushes on both sides in the crosshead.



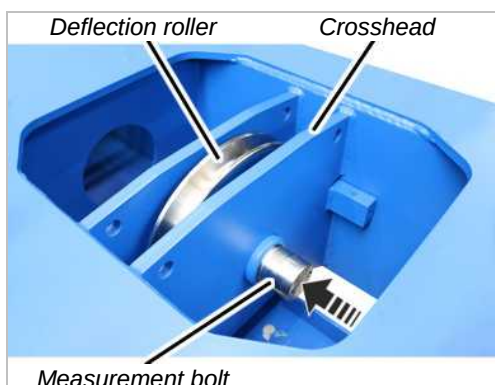
- ➔ Grease the measurement bolt.

Lubricant: "High temperature paste PBC 1574". For details, see "Lubricants", page 69.

- ➔ Slide the measurement bolt back and forth through the bearing bushes in the crosshead to distribute the lubricant within the bearing bushes.

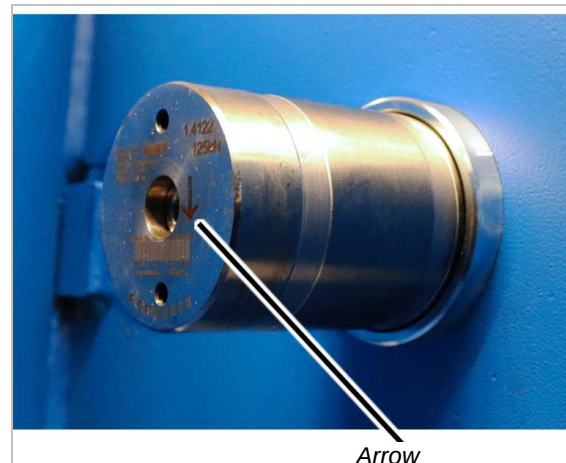


- ➔ Pull the measurement bolt far enough out of the crosshead that the deflection roller can be inserted centrally in the crosshead.
- ➔ Insert the deflection roller into the crosshead.

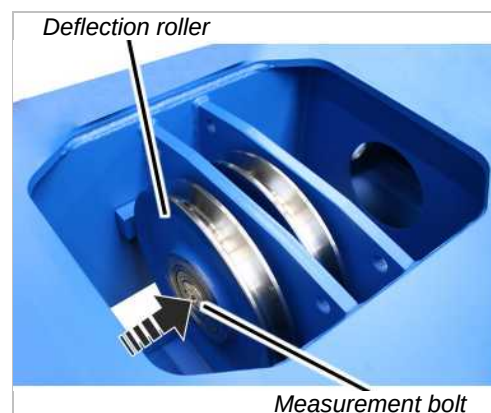


- ➔ Slide the measurement bolt through the crosshead and the deflection roller.

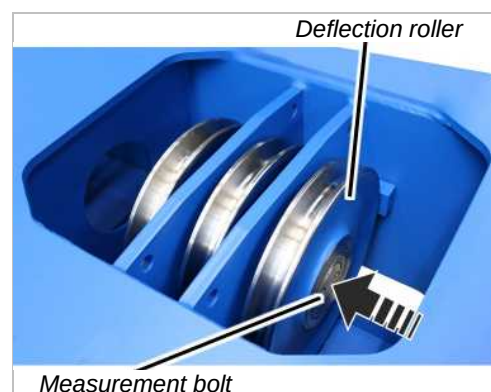
Note



The arrow on the measurement bolt must be pointing downwards.

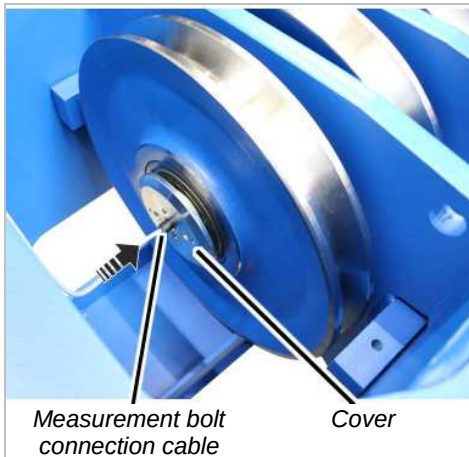


- ➔ Slide the second deflection roller onto one side of the measurement bolt.

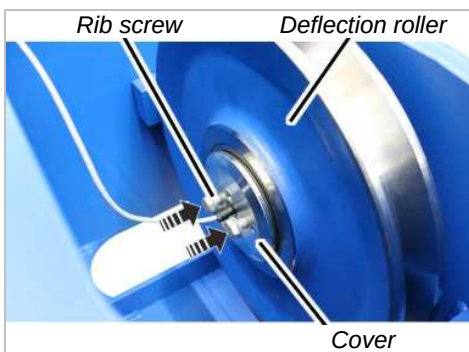


- ➔ Slide the third deflection roller onto the other side of the measurement bolt.
- The measurement bolt ends up flush with the bearing bushes on both sides.

On the side with the measurement bolt connection:



- ➔ Slide the measurement bolt connection cable through the middle hole in the cover.
- ➔ Screw in the measurement bolt connection cable.
- ➔ Slide the cover onto the measurement bolt.

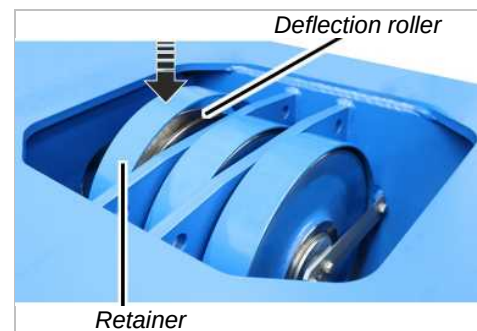


- ➔ Bolt the cover to the measurement bolt using rib screws M10x25 (2x). 75 Nm.

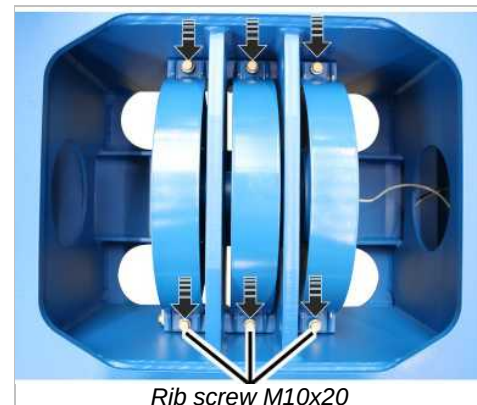
On the other side of the measurement bolt:



- ➔ Bolt the cover and anti-rotation device to the measurement bolt using rib screws M10x25 (2x). 75 Nm.
- ➔ Bolt the anti-rotation device to the crosshead with rib screws M10x20. 75 Nm.



- ➔ Slide the retainers over the deflection rollers.

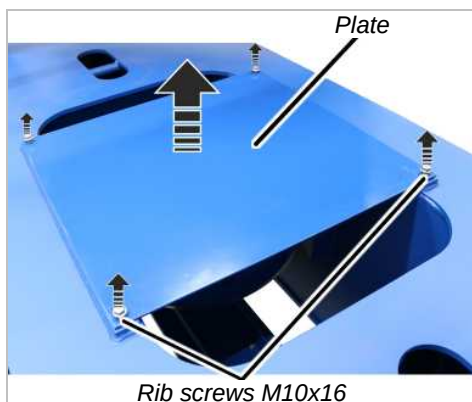


- ➔ Screw on the retainer with rib screws M10x20 (6x). 75 Nm.

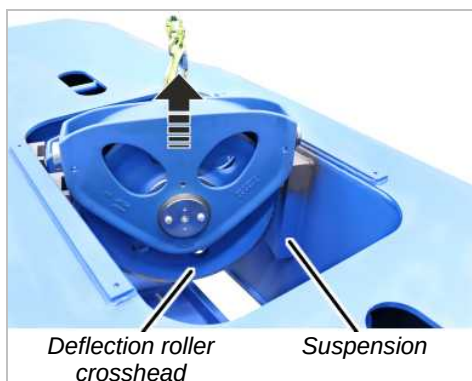
ONLY WITH WIRE ROPE HOIST WITH HOIST DRIVE GM 7000

The procedure for replacing the deflection rollers on a wire rope hoist with two deflection rollers (reeving 6/2) is shown below. The procedure for performing the replacement on a wire rope hoist with one or more deflection rollers does not differ significantly from this.

DISASSEMBLING THE DEFLECTION ROLLER CROSSHEAD



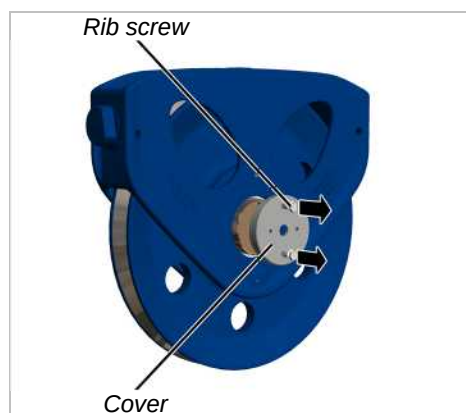
- ➡ Release the rib screws M10x16 (4x) on the plate.
- ➡ Lift the plate off the trolley frame.



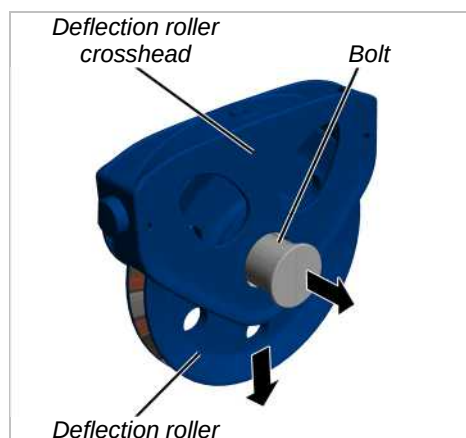
- ➡ Lift the deflection roller crosshead out of the trolley frame.

DISASSEMBLING THE DEFLECTION ROLLER

On a wire rope hoist with hoist drive GM 7000, the deflection roller is secured on the deflection roller using a bolt with a cover.

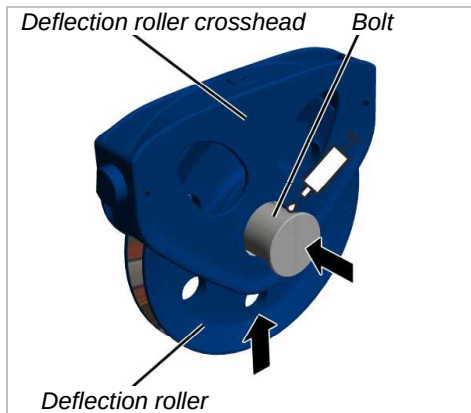


- ➡ Release the rib screws (2x) on the cover.
- ➡ Take the cover off the deflection roller crosshead.



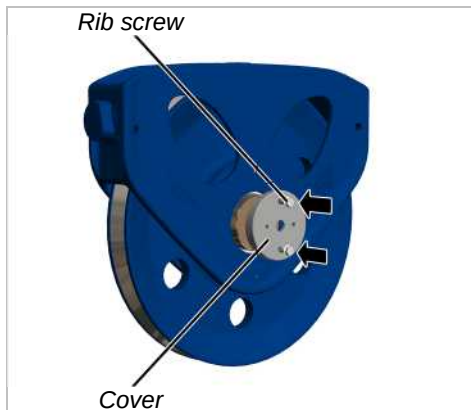
- ➡ Pull the bolt out of the deflection roller crosshead and deflection roller.
- ➡ Pull the deflection roller out of the deflection roller crosshead.

ASSEMBLING THE DEFLECTION ROLLER



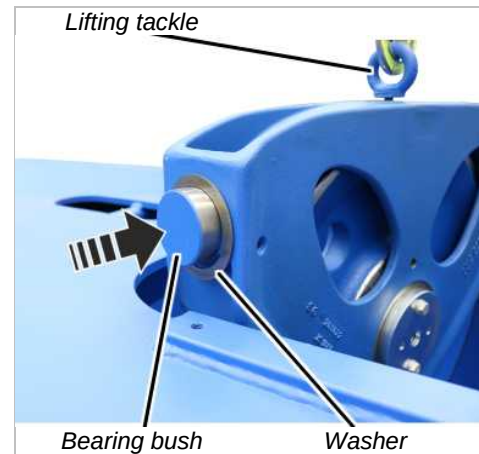
- ➔ Push the deflection roller into the deflection roller crosshead.
- ➔ Lubricate the bolt and push it through the deflection roller crosshead and deflection roller.

Lubricant: "High temperature paste PBC 1574". For details, see "Lubricants", page 69.

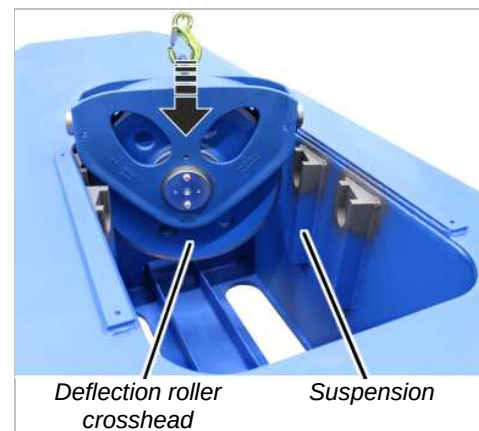


- ➔ Screw the cover tight with the rib screws M10x20 on the bolt. 75 Nm.

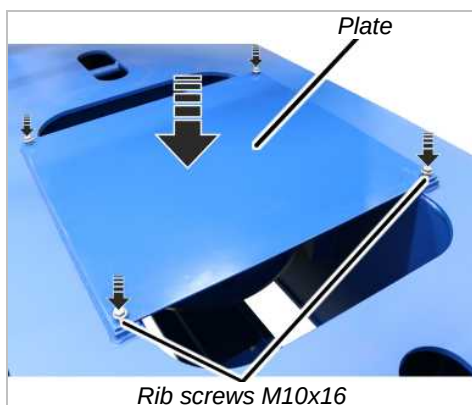
MOUNTING THE DEFLECTION ROLLER CROSSHEAD



- ➔ Push the washer (2x) onto both bearing bushes.



- ➔ Lift the deflection roller crosshead into the trolley frame.
- ➔ Repeat the process for the other deflection roller crossheads.



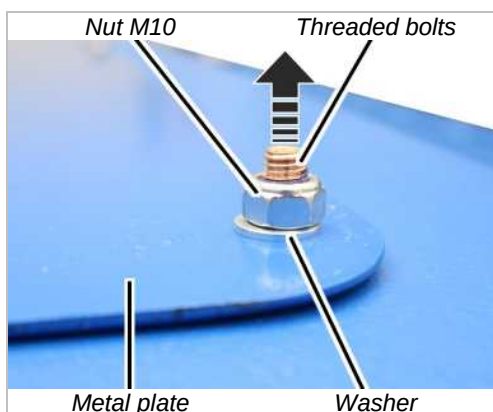
- ➔ Place the plate on the trolley frame over the deflection roller crossheads and screw in with rib screws M10x16 (4x). 75 Nm.

ONLY WITH HOIST DRIVE GM 7000 WITH REEVING 12/2

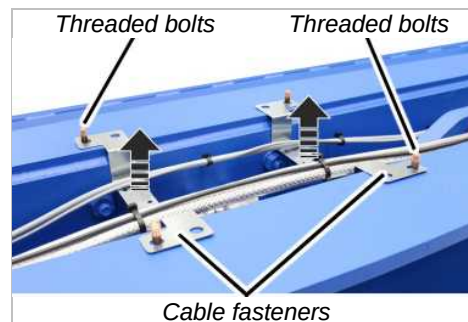
On a wire rope hoist with a reeving 12/2, four deflection rollers are installed at the top in the trolley frame. Two of the deflection rollers are always fastened to a crosshead with a bolt, which is suspended from above in the trolley frame. There is an additional compensating sheave in the middle of the trolley frame on an articulated girder.

The replacement of the deflection rollers and the compensating sheave is described below.

REMOVE THE PLATE



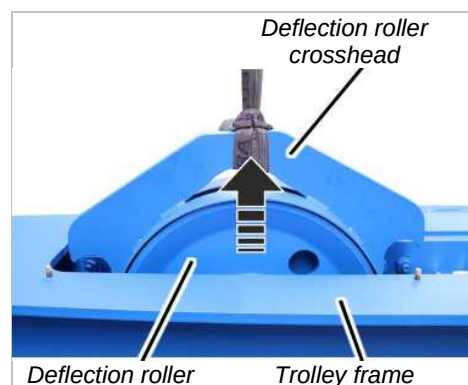
- ➔ Release the nuts M10 (8x) and, together with the washers, take them off the threaded bolts.
- ➔ Lift the plate off the threaded bolts.



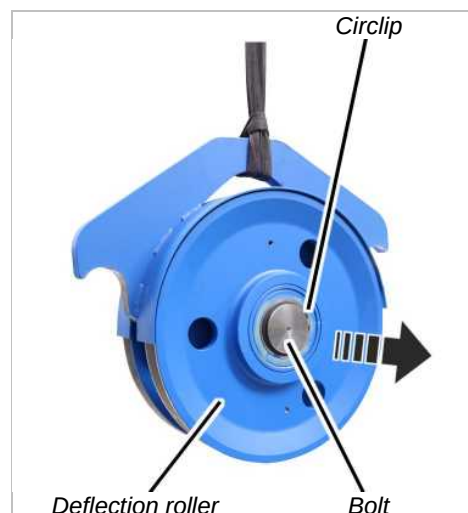
- ➔ Lift the cable fastener (4x) off the threaded bolts.

Put the wiring aside, so that it cannot become damaged when lifting the crossheads out.

REMOVING DEFLECTION ROLLERS

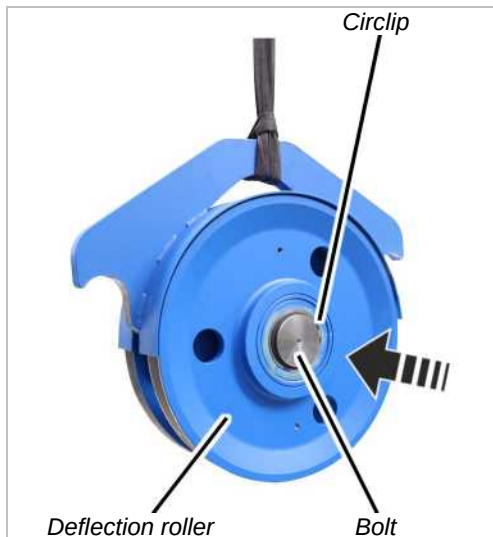


- ➔ Lift the deflection roller crossheads (2x)

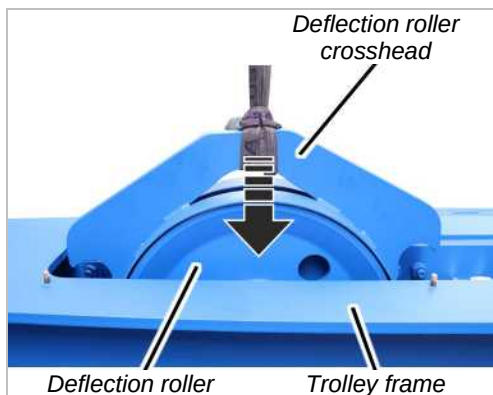


- ➔ Release the circlips (2x) on each side.
- ➔ Take the deflection rollers off the bolt.

INSTALLING DEFLECTION ROLLERS

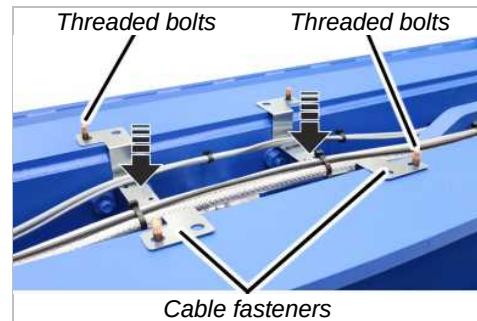


- ➔ Push the deflection rollers from both sides onto the bolt.
- ➔ Push circlips (2x) onto the bolt on each side.

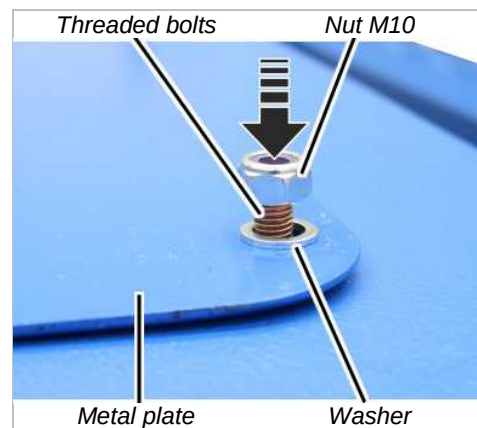


- ➔ Lift the deflection roller crossheads into the trolley frame.

INSTALLING THE PLATE

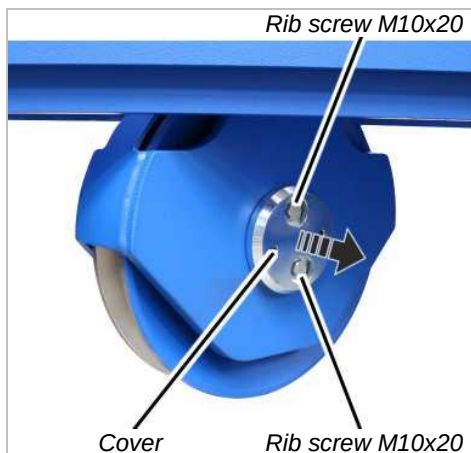


- ➔ Place cable fasteners (4x) on the threaded bolts.

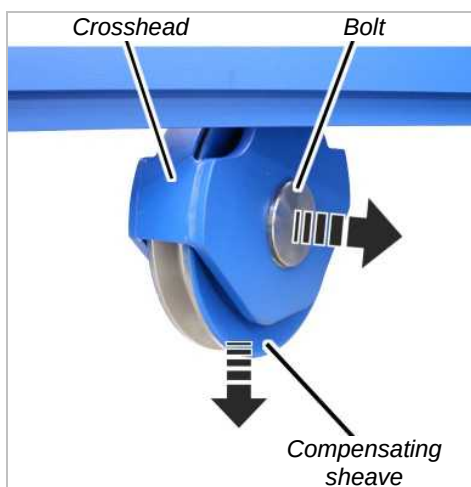


- ➔ Place the plate on the threaded bolts.
- ➔ Screw the plate tight with nuts M10 (8x). 10 Nm.

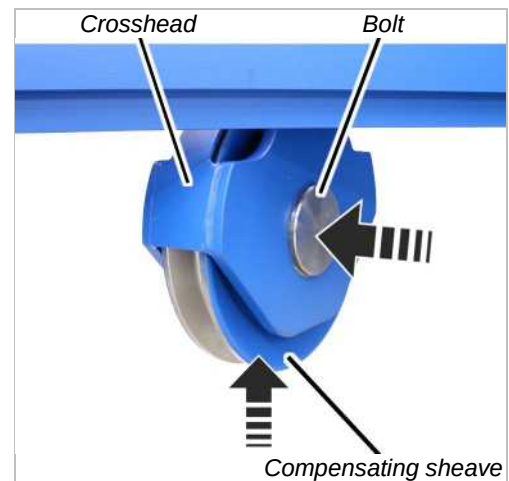
If the compensating sheave is to be replaced:



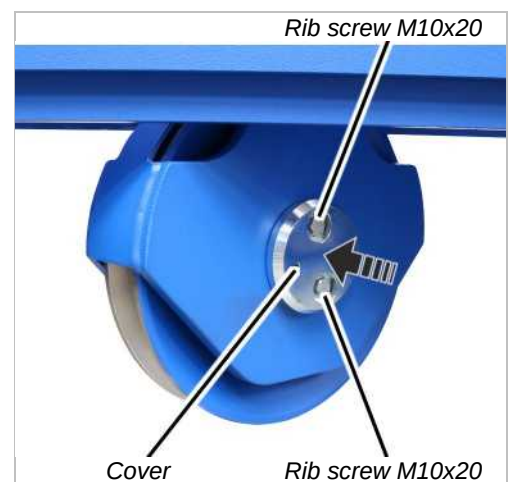
- ➔ Release the rib screws M10x20 on the cover.
- ➔ Take the cover off the bolt.



- ➔ Pull the bolts out of the crosshead and the compensating sheave and pull the compensating sheave out of the crosshead.



- ➔ Push the compensating sheave into the crosshead.
- ➔ Push the bolts through the crosshead and compensating sheave.



- ➔ Screw the cover tight on the bolt with rib screws M10x20. 75 Nm.

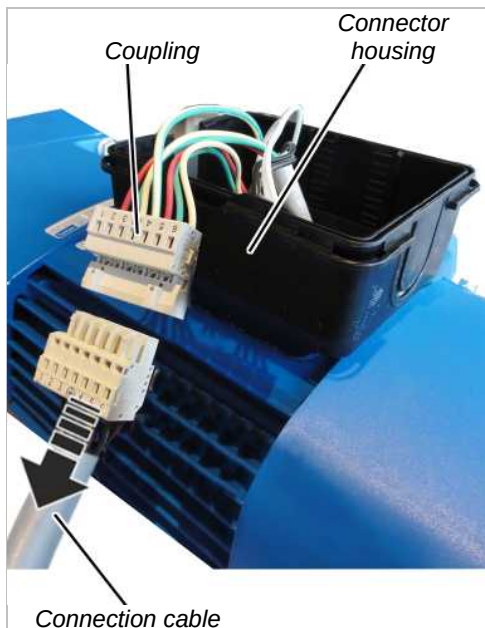
DISASSEMBLING THE POWERED WHEEL

If the wheel is damaged or worn, it must be replaced by a new wheel.

PREPARING THE WIRE ROPE HOIST

- ➔ Comply with occupational health and safety requirements.
- ➔ Relieve the load of the end carriage on the wire rope hoist near the wheel from below.

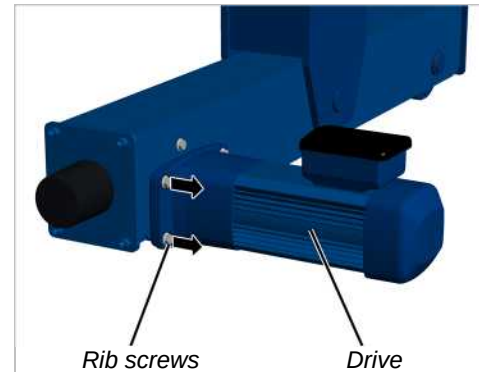
REMOVING THE DRIVE



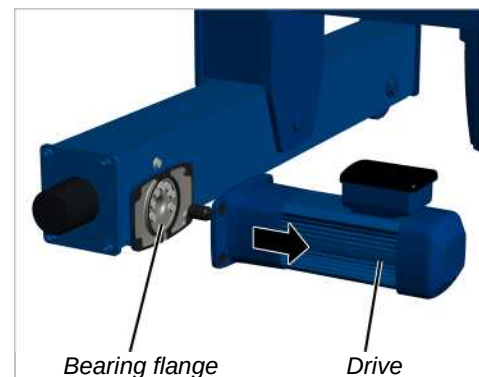
- ➔ Open the connector housing to the drive.
- ➔ Disconnect the connection cable from the coupler plug.
- ➔ Determine the weight of the drive. See the ABUS Drive product manual.
- ➔ Secure the drive so that the weight can be held safely and the output shaft will not be subject to load (e.g. insert in round sling).

ONLY WITH AZP DRIVES

This section only applies if an AZP drive is to be removed.



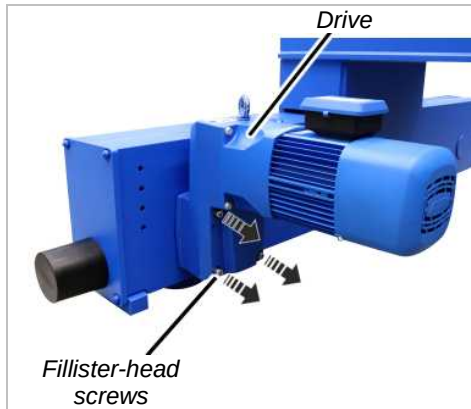
- ➔ Release the rib screws (4x).



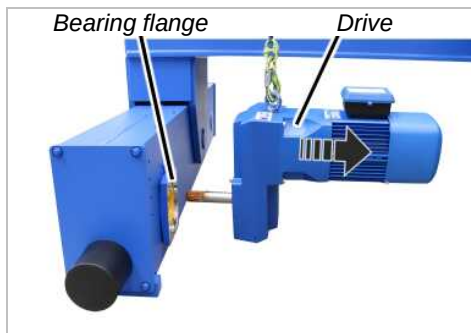
- ➔ Pull out the drive.

ONLY WITH AZF DRIVES

This section only applies if an AZF drive is to be removed.



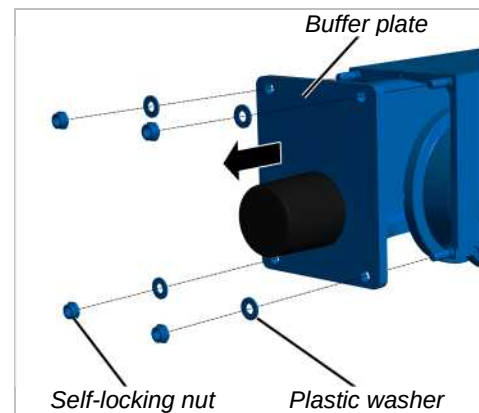
➡ Loosen the fillister-head screws (4x).



➡ Pull out the drive.

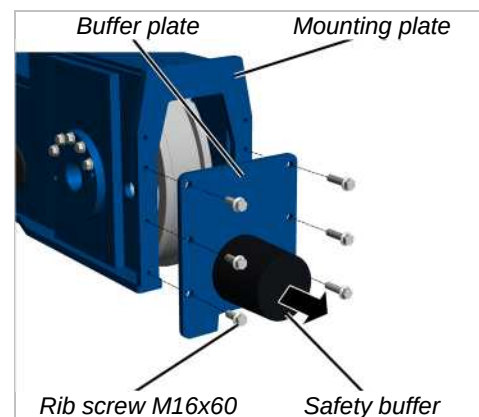
EXPOSING THE WHEEL

ONLY FOR SIZE 200 TO 420



- ➡ Unscrew the self-locking nuts (4x).
- ➡ Remove the plastic washers (4x).
- ➡ Remove the buffer plate.

ONLY WITH SIZE 500



- ➡ Unscrew rib screws M16x60 (6x) and remove the buffer plate from the mounting plate.

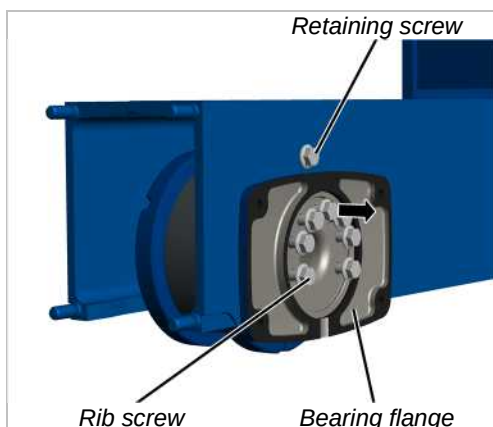
ONLY WITH END CARRIAGES OF THE SIZES 280, 350 AND 420

Trolleys in size 280, 350 and 420 have a clamping piece installed on the driven wheel in the end carriage. To remove the wheel, the clamping piece must be removed.

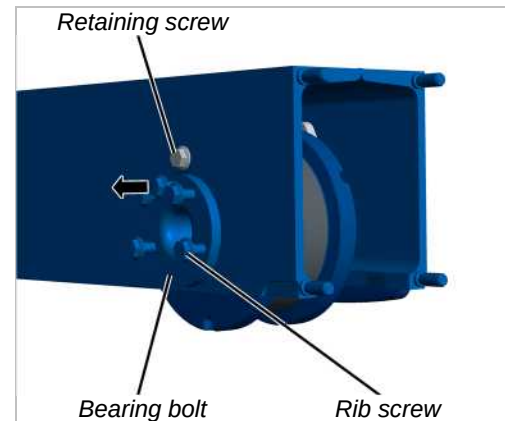


- ➡ Loosen screws (2x).
- ➡ Take out the bracket with the clamping piece.

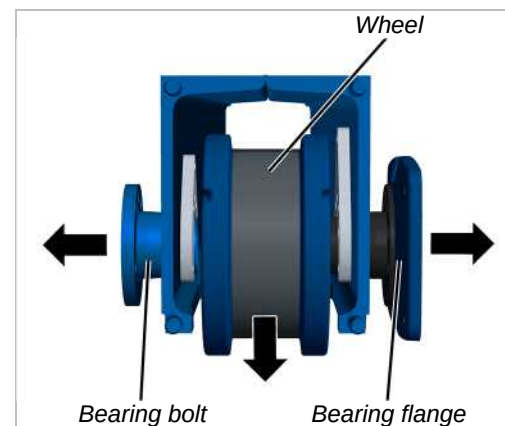
REMOVING THE WHEEL



- ➡ Unscrew and remove all rib screws on the bearing flange. Do not unscrew and remove the retaining screw(s).



- ➡ Unscrew and remove all rib screws on the bearing bolt. Do not unscrew and remove the retaining screw(s).



- ➡ Take out the bearing bolt, bearing flange and wheel.

Note

Only for size 420 with drive 420V: an adapter is also inserted on the bearing flange. If this cannot be easily taken off, it can remain on the bearing flange when the wheel is removed.

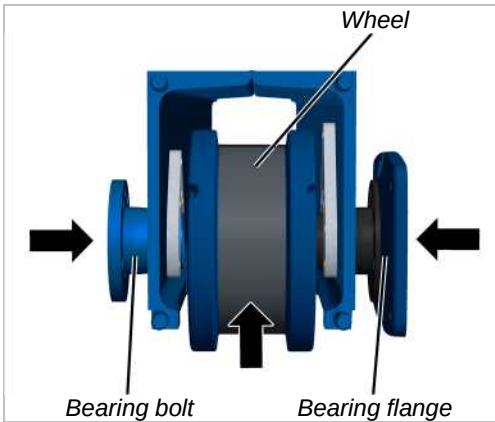
Tip:

To be able to easily remove the bearing flange from the end carriage, screw two or four screws in the corners of the bearing flange, using them to press the bearing flange off the end carriage.

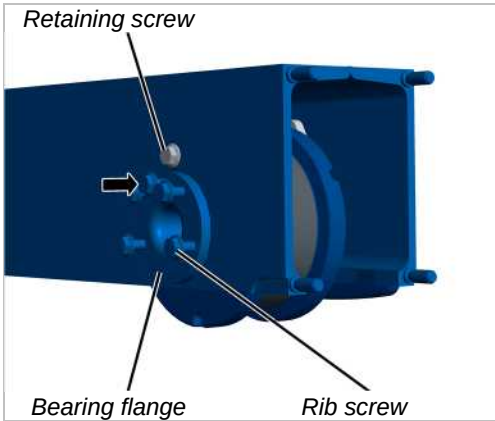
INSTALLING THE POWERED WHEEL

If the wheel is damaged or worn, it must be replaced by a new wheel.

FITTING THE WHEEL



- ➔ Hold the wheel in the end carriage. It does not matter which side faces inwards or outwards.
- ➔ Insert the bearing bolt and bearing flange. If necessary, lightly hammer the bearing bolt and bearing flange.



- ➔ Tighten the rib screws in stages.

Wheel Ø	Strength category	Number	Screw	Tightening torque
200	10.9	5x	M10x30	85 Nm
280	10.9	5x	M12x40	130 Nm
350	10.9	8x	M12x40	130 Nm
420	10.9	8x	M16x40	330 Nm

ONLY WITH SIZE 420 WITH DRIVE 420V

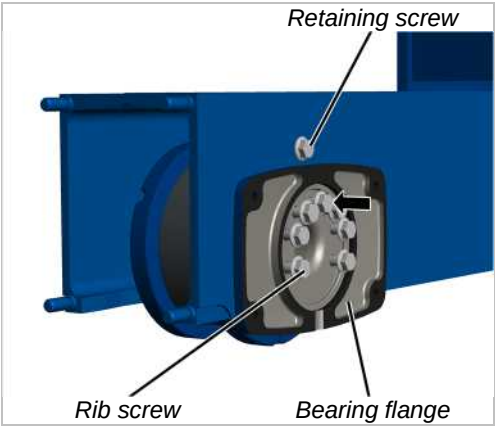
This work step only applies if an end carriage size 420 is to be installed with a drive size 420V.

MOUNTING THE ADAPTER



- ➔ If necessary: insert the pins (4x) in the bearing flange.
- ➔ Turn the adapter to match the hole pattern.
- ➔ Place the adapter on the pins on the bearing flange.
- ➔ Insert the rib screws M16x70 (10x) through the adapter and bearing flange.

FASTENING THE BEARING FLANGE



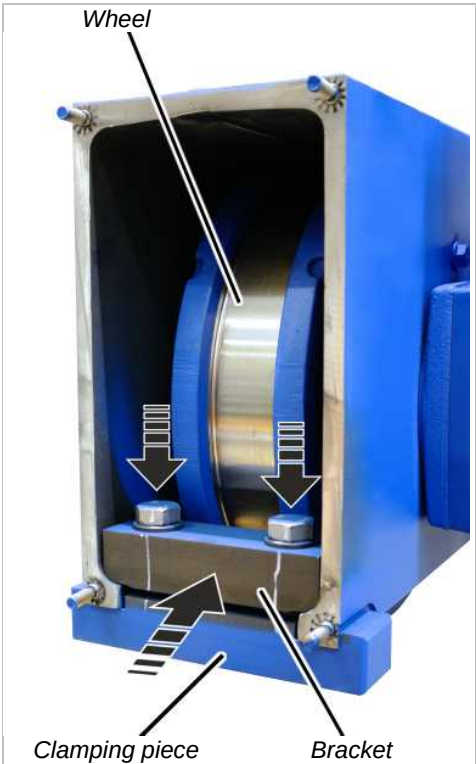
➡ Tighten the rib screws in stages.

Wheel Ø	Strength category	Number	Type	Tightening torque
200	10.9	7x	M10x30	85 Nm
280	10.9	7x	M12x40	130 Nm
350	10.9	10x	M12x40	130 Nm
420 with crane travel drive 420	10.9	10x	M16x40	330 Nm
420 with crane travel drive 420 V	10.9	10x	M16x70	330 Nm
500	10.9	9x	M16x60	300 Nm

ASSEMBLING THE END CARRIAGE

ONLY WITH END CARRIAGES OF SIZES 280, 350 AND 420

This work step applies only to end carriages of sizes 280, 350 and 420.

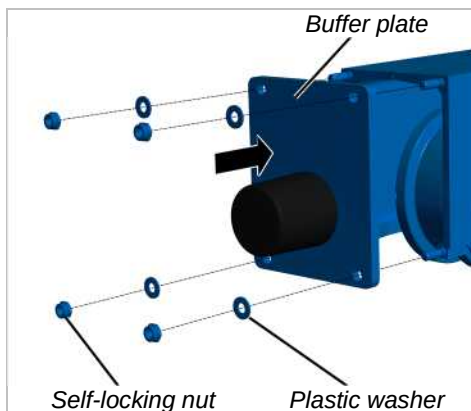


➡ Insert clamping piece.

➡ Tighten screws (2x).

Wheel Ø	Type	Kind	Tightening torque
200	M10x50	Rib screw	85 Nm
280	M12x60	Hexagon head screw	130 Nm
350	M20x75 or M20x70	Hexagon head screw	300 Nm
420	M20x75 or M20x70	Hexagon head screw	300 Nm

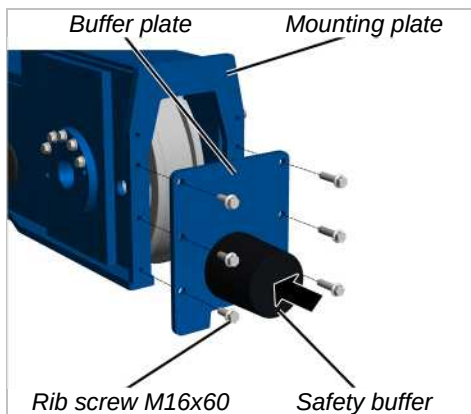
ONLY FOR SIZE 200 TO 420



- ➔ Slide the buffer plate onto the threaded bolt.
- ➔ Mount the plastic washers (4x).
- ➔ Tightly screw the self-locking nuts M10 (4x). 6 Nm.

The self-locking nuts may only be reused a maximum of 3 times. After this, new self-locking nuts must be used.

ONLY WITH SIZE 500



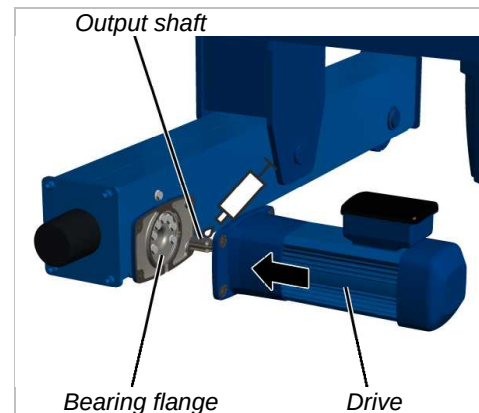
- ➔ Bolt the buffer plate with safety buffer onto the mounting plate with rib screws M16x60 (6x). 250 Nm

INSTALLING THE DRIVE

- ➔ Determine the weight of the drive. See the ABUS Drive product manual.
- ➔ Secure the drive so that the weight can be held safely and the output shaft will not be subject to load (e.g. insert in round sling).

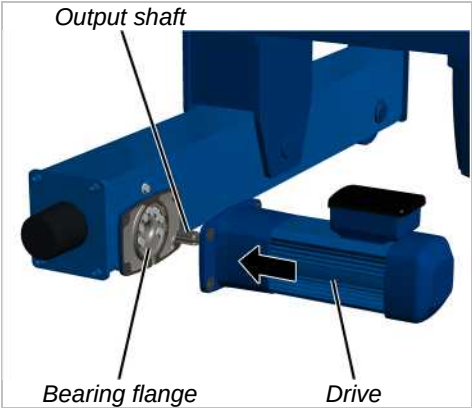
ONLY WITH AZP DRIVES

This work step only applies when an AZP drive is to be mounted on the end carriage.

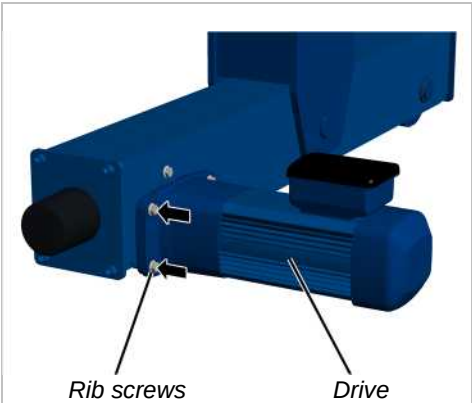


- ➔ Lubricate the gearing on the output shaft.

Lubricant from Fuchs Lubritech "High temperature paste PBC 1574". For details, see the ABUS Drive product manual.



➡ Push the drive into the wheel.

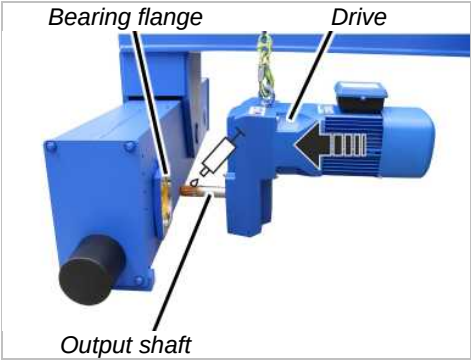


➡ Bolt on the drive with the rib screws (4x).

Size	Type	Tightening torque
200	M12x30	115 Nm
280	M16x40	300 Nm

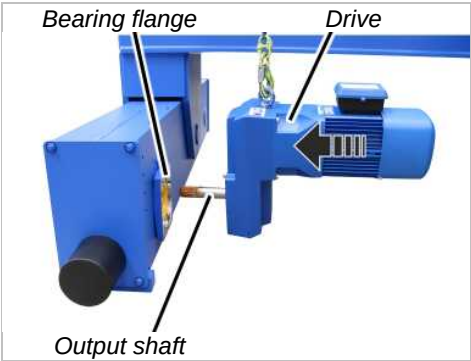
ONLY WITH AZF DRIVES

This work step only applies when an AZF drive is to be mounted on the end carriage.

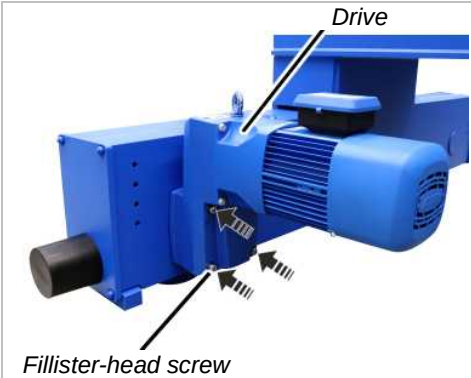


➡ Lubricate the gearing on the output shaft. Apply lubricant with brush to coat surface completely.

Lubricant: "High temperature paste PBC 1574". See the ABUS Drive product manual for details.



➡ Push the drive into the wheel.

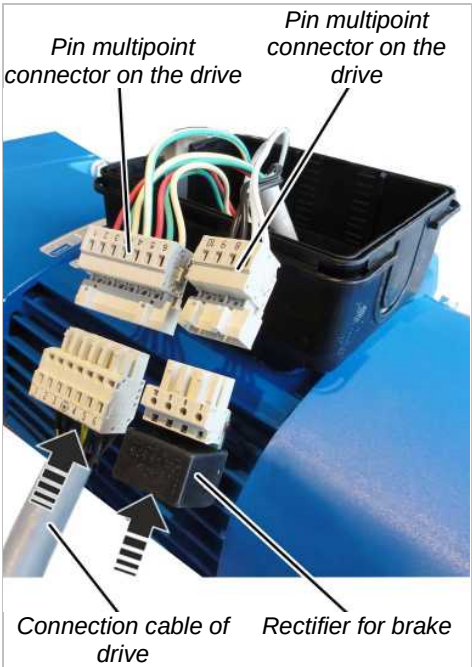


➔ Screw the drive in place using fillister-head screws and washers (4x).

Size	Type	Tightening torque
350	M12x100	85 Nm
420	M12x100	85 Nm
V420	M16x140	210 Nm
V500	M16x140	210 Nm

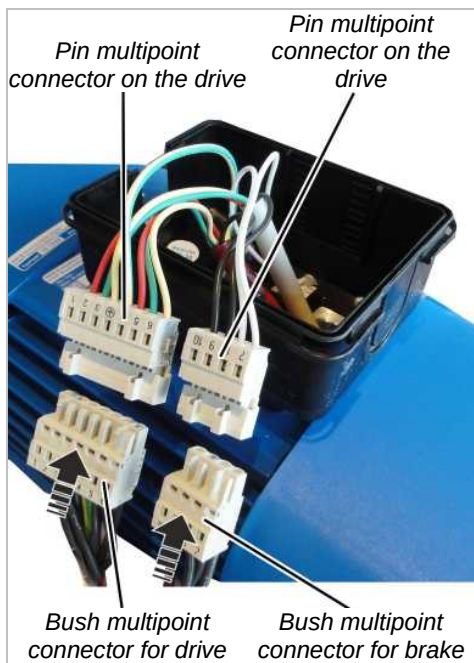
CONNECTING THE DRIVE

ONLY WITH CONTACTOR CONTROL

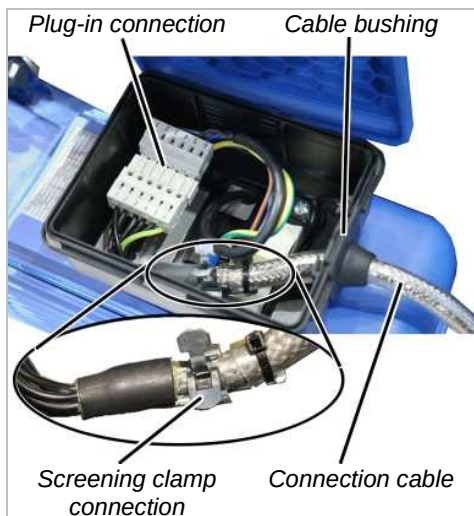


- ➔ Insert the connection cable for the drive in the pin multipoint connector on the drive.
- ➔ Insert the rectifier for the brake in the pin multipoint connector on the drive.
- ➔ Lay the plug-in connections and connection cable in the connector housing.

ONLY FOR FREQUENCY CONVERTER



- ➔ Insert the bush multipoint connector for the drive on the pin multipoint connector on the drive.
- ➔ Insert the bush multipoint connector for the brake on the pin multipoint connector on the drive.



- ➔ Push the front end of the connection cable (where the sheathing around the shield has been removed) into the screening clamp connection.
- ➔ Fasten the connection cable to the screening clamp connection using cable ties.
- ➔ Lay the plug-in connections and connection cable in the connector housing.
- ➔ Close the connector housing.

CHECKING THE WIRE ROPE HOIST

- ➔ Set the wire rope hoist down again.
- ➔ Put the wire rope hoist into operation.
- ➔ Check the function of the wheel.

DISASSEMBLING THE NON-POWERED WHEEL

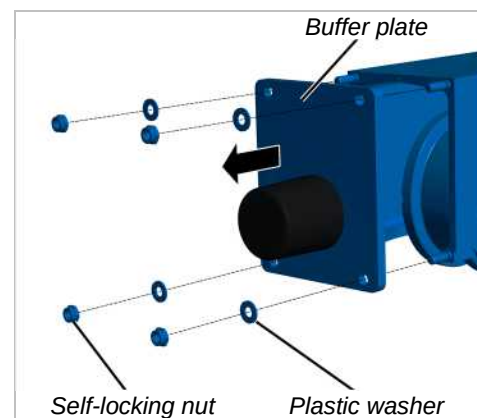
If the wheel is damaged or worn, it must be replaced by a new wheel.

PREPARING THE WIRE ROPE HOIST

- ➔ Comply with occupational health and safety requirements.
- ➔ Relieve the load of the end carriage on the wire rope hoist near the wheel from below.

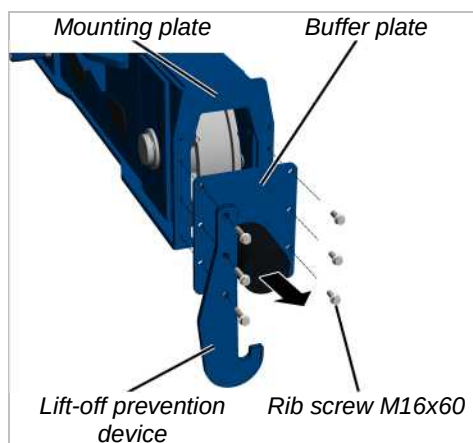
EXPOSING THE WHEEL

ONLY FOR SIZE 200 TO 420

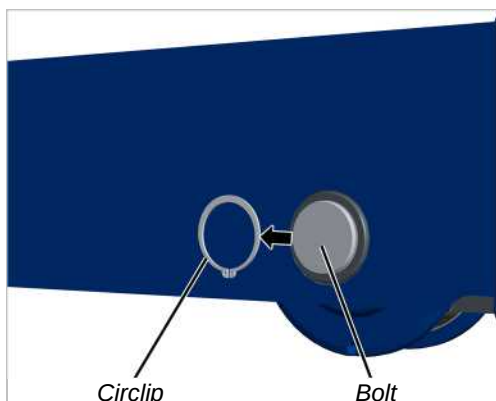


- ➔ Unscrew the self-locking nuts (4x).
- ➔ Remove the plastic washers (4x).
- ➔ Remove the buffer plate.

ONLY WITH SIZE 500

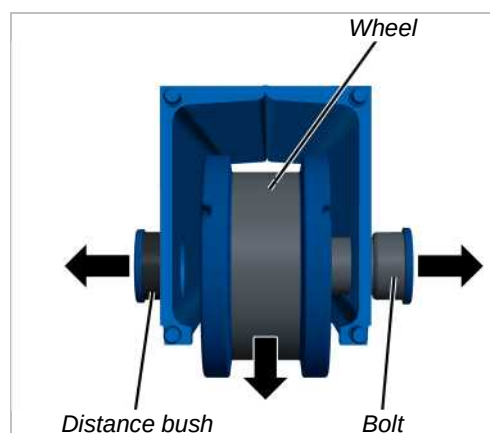


- ➡ Release the M16x60 rib screws (6x).
- ➡ Remove the lift-off prevention device and buffer plate with safety buffer from the mounting plate.



- ➡ Remove the circlip.

REMOVING THE WHEEL

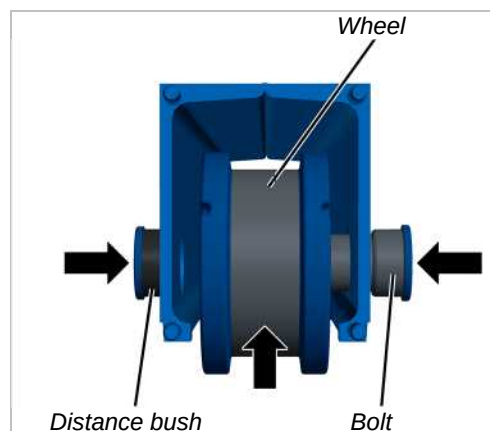


- ➡ Take out the bolt, distance bush and wheel.

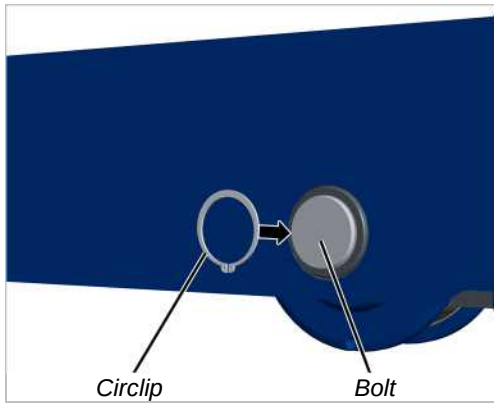
INSTALLING THE NON-POWERED WHEEL

If the wheel is damaged or worn, it must be replaced by a new wheel.

FITTING THE WHEEL

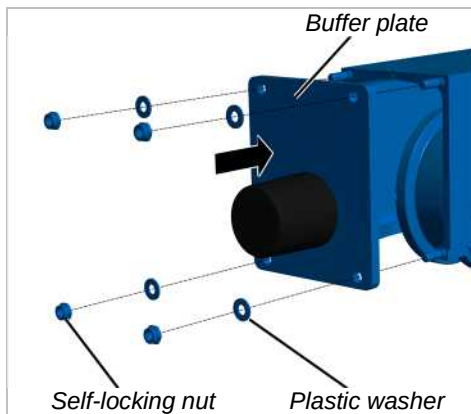


- ➡ Hold the wheel in the end carriage. It does not matter which side faces inwards or outwards.
- ➡ Insert the bolt and distance bush. If necessary, lightly hammer the bolt and distance bush.



- ➔ Attach the circlip and neatly lock into place.
- ➔ Turn the wheel. It must move easily.

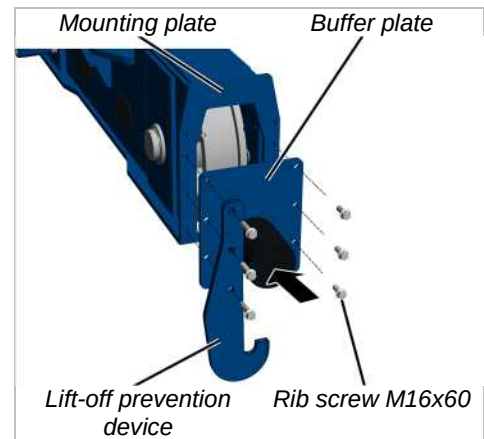
ONLY FOR SIZE 200 TO 420



- ➔ Slide the buffer plate onto the threaded bolt.
- ➔ Mount the plastic washers (4x).
- ➔ Tightly screw the self-locking nuts M10 (4x). 6 Nm.

The self-locking nuts may only be reused a maximum of 3 times. After this, new self-locking nuts must be used.

ONLY WITH SIZE 500



- ➔ Bolt the lift-off prevention device and buffer plate to the mounting plate with rib screws M16x60 (6x). 250 Nm

CHECKING THE WIRE ROPE HOIST

- ➔ Set the wire rope hoist down again.
- ➔ Put the wire rope hoist into operation.
- ➔ Check the function of the wheel.

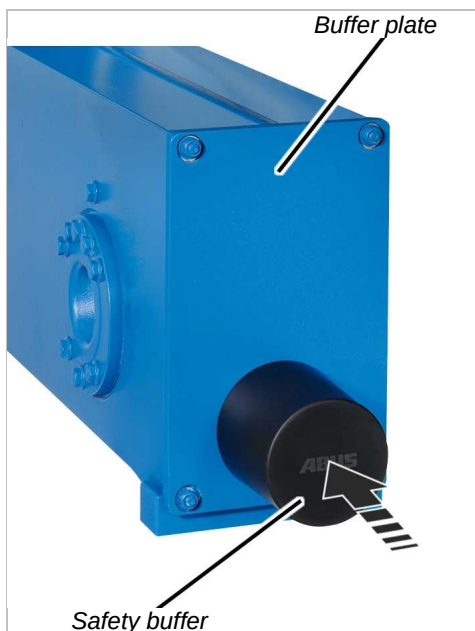
REPLACING THE SAFETY BUFFER

If the safety buffer is damaged, it must be replaced.

On both sides:



➔ Unscrew the safety buffer.



➔ Screw safety buffers into the buffer plates. Approx. 30 Nm.

The safety buffer must be in contact with the buffer plate and there must be no gap between them, otherwise the impact will be absorbed by the screw and not by the safety buffer.

REPLACING THE CROSS-TYPE LIMIT SWITCH

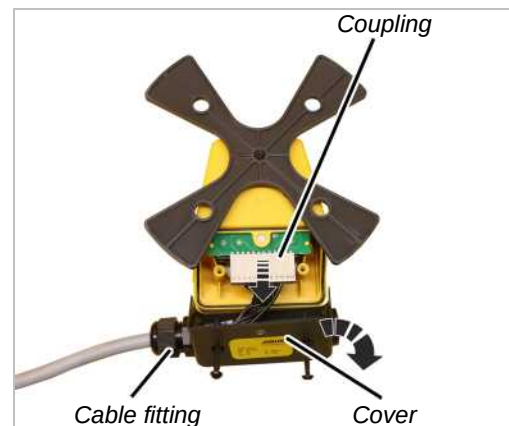
If the cross-type limit switch is damaged, it must be replaced. The plug-in connection allows you to carry out the replacement without any wiring work.



DANGER DUE TO MALFUNCTION!

If the cross-type limit switch is screwed on too tightly, the parts on the inside can become jammed and no longer function properly.

The tightening torque of 3 Nm must be strictly observed.



➔ Unscrew and remove the screws (2x) on the cover.

➔ Remove the cover.

➔ Disconnect the coupling of the connecting cable from the circuit board.

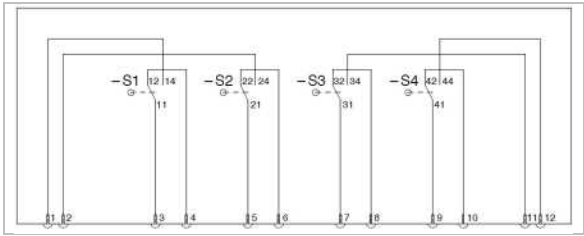
The cable fitting on the cover does not need to be unscrewed. The existing cover can be fitted with the attached connection cable to a new cross-type limit switch.

➔ Insert the coupling onto the new cross-type limit switch.

➔ Close the cover.

➔ Tighten screws (2x). 3 Nm.

WIRING DIAGRAM OF THE CROSS-TYPE LIMIT SWITCH



- The contact numbering shown on the wiring diagram starts on the left ascending from 1.
- The designation of the microswitches starts on the left of the installation position with S1.

Position arrow	Switch position	S1 closed	S1 open	S2 closed	S2 open	S3 closed	S3 open	S4 closed	S4 open
0	0°	3.4		5.6		7.8		9.10	
1	90°	3.4		5.6			7.11	9.10	
2	180°	3.4		5.6			7.11		9.12
3	270°		3.1	5.6		7.8			9.12
4	360°		3.1		5.2	7.8		9.10	
5	450°	3.4			5.2	7.8		9.10	
0	540°	3.4		5.6		7.8		9.10	

LUBRICANTS

Note:

Synthetic lubricants must not be mixed with mineral-based lubricants!

CABLE DRUM IN THE EDGE AREAS



On-site lubrication with “Molykote PG-75”, ABUS item number 5168.

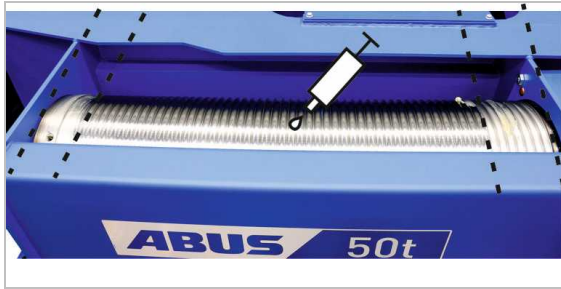
Lubrication ex works with “Molykote PG-75”, ABUS item number 411.

Lubricate the wire rope during:

- Wire rope change
- Cable guide change
- Regular inspection
- General overhaul

For details, see “Cleaning and lubricating the cable drum”, page 37.

WIRE ROPE AND CABLE DRUM IN THE CENTRE



On-site lubrication with “Chainlife S”, ABUS item number 2717

Lubrication ex works with “Chainlife S”, ABUS item number 2718.

Alternatives:

- Castrol “Viscogen KL 23”
- Klüber “Grafloscon CA 901 Ultra Spray”
- Optimol “KL 23”
- Shell “Malleus GL 95”

Lubricate the wire rope during:

- Wire rope change
- Regular inspection
- General overhaul

For details, see “Cleaning and lubricating the cable drum”, page 37.

ROPE GUIDE RUNNER ON THE CABLE GUIDE



On-site lubrication with “Molykote PG-75”, ABUS item number 5168.

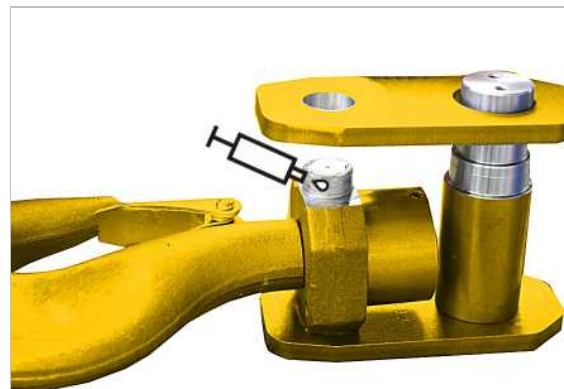
Lubrication ex works with “Molykote PG-75”, ABUS item number 411.

Lubricate the rope guide runner during:

- Wire rope change
- Cable guide change
- Regular inspection
- General overhaul

For details, see “Replacing the wire rope”, page 32.

LOAD HOOK CROSSHEAD ON THE BOTTOM BLOCK



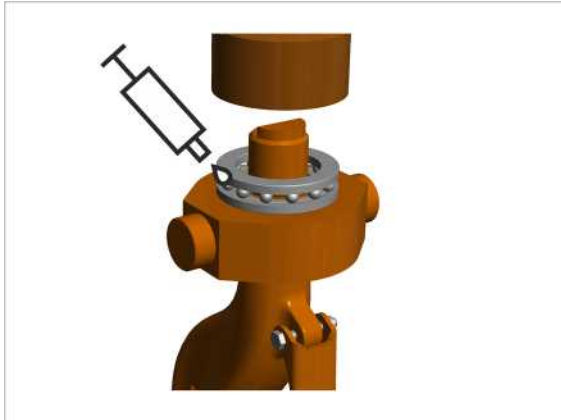
On-site lubrication with “High temperature paste PBC 1574”, ABUS item number 6758.

Lubrication ex works with “High-Lub LT1 EP”, ABUS item number 317880.

Lubricate the load hook crosshead during:

- Assembly and disassembly
- General overhaul

DEEP GROOVE BALL THRUST BEARING ON THE LOAD HOOK



Lubrication ex works with multi-purpose grease “High-Lub LT1 EP”, item number 317880.

Quantity: Apply lubricant with brush to coat surface completely.

- ➡ Lubricate the deep groove ball thrust bearing:
- When the load hook is disassembled and reassembled
 - When carrying out a general overhaul

MEASUREMENT BOLT IN TROLLEY FRAME



On-site lubrication with “High temperature paste PBC 1574”, ABUS item number 6758.

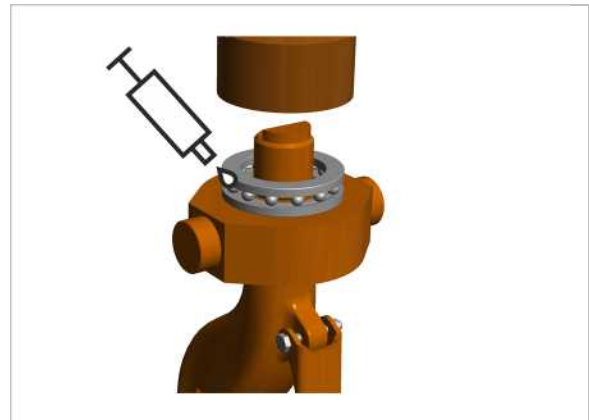
Lubrication ex works with multi-purpose grease “High-Lub LT1 EP”, item number 317880.

Lubricate the measurement bolt when:

- Installing or removing the deflection rollers.

For details, see “Replacing the deflection rollers”, page 45.

BOLT IN DEFLECTION ROLLER



On-site lubrication with “High temperature paste PBC 1574”, ABUS item number 6758.

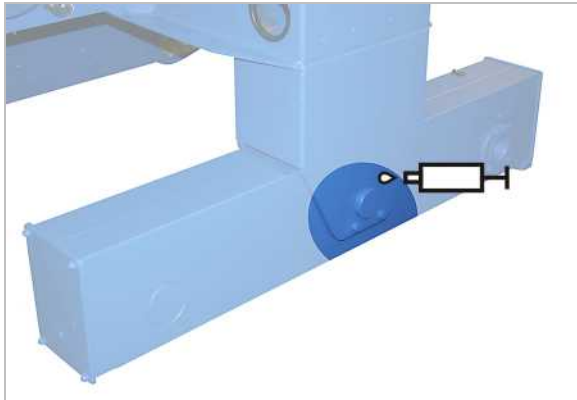
Lubrication ex works with “High-Lub LT1 EP”, ABUS item number 317880.

Lubricate bolt for:

- Assembly or disassembly of the deflection roller
- General overhaul

For details, see “Replacing the deflection rollers”, page 45.

HINGE PIN

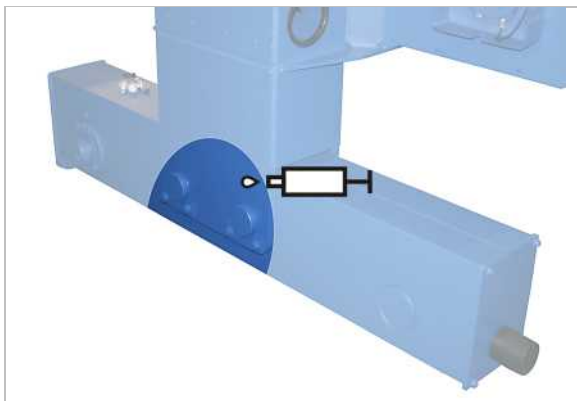


On-site lubrication with "High temperature paste PBC 1574", ABUS item number 6758.

Lubrication ex works with "High-Lub LT1 EP", ABUS item number 317880.

Lubricate the hinge pin for:

- Assembling or disassembling the end carriage



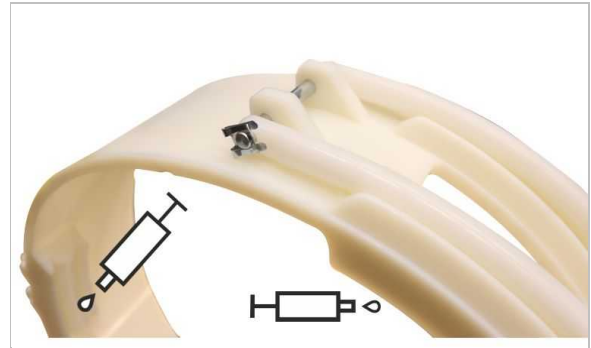
On-site lubrication with "High temperature paste PBC 1574", ABUS item number 6758.

Lubrication ex works with "High-Lub LT1 EP", ABUS item number 317880.

Lubricate the hinge pin for:

- Assembling or disassembling the end carriage

CABLE GUIDE



On-site lubrication with "Molykote PG-75", ABUS item number 5168.

Lubrication ex works with "Molykote PG-75", ABUS item number 411.

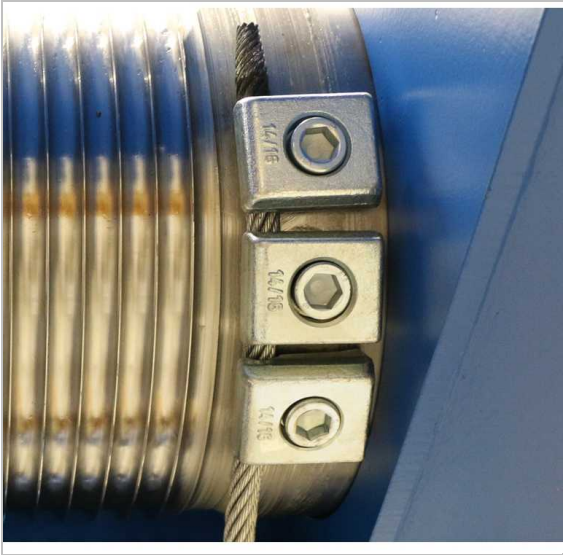
Lubricate the cable guide in case of:

- Wire rope change
- Cable guide change
- Regular inspection, at least once annually
- General overhaul

For details, see "Preparing the rope guide ring", page 41.

OVERVIEW OF TIGHTENING TORQUES

END CLAMP



Size	Fillister-head screw	Wire rope diameter	Tightening torque
GM 5000	M16x35	14 mm	210 Nm
GM 6000	M16x35	16.2 mm	210 Nm
GM 7000	M16x35	14 mm	210 Nm
GM 7000	M20x40	20.2 mm	425 Nm

AZP DRIVE



Size	Type, size and length	Number	Tightening torque
200	Rib screw M12x30	4x	115 Nm
280	Rib screw M16x40	4x	300 Nm

AZF DRIVE



Size	Type, size and length	Number	Tightening torque
AZF 350	Fillister-head screw M12x100	4x	85 Nm
AZF 420	Fillister-head screw M12x100	4x	85 Nm
AZF V420	Fillister-head screw M16x140	4x	210 Nm
AZF V500	Fillister-head screw M16x140	4x	210 Nm

ROPE GUIDE RUNNER



Size	Screw	Number	Tightening torque
GM 5000	Self-tapping screw M6x16	1x	5 Nm
GM 6000	Self-tapping screw M6x16	1x	5 Nm
GM7000	Self-tapping screw M6x16	1x	5 Nm

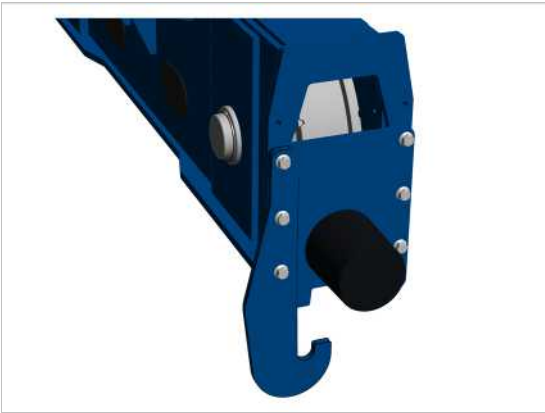
LIFT-OFF PREVENTION DEVICE

ONLY WITH HOIST DRIVE GM 5000 AND GM 6000



- Rib nut M8
- 2x per lift-off prevention device
- 25 Nm

ONLY WITH HOIST DRIVE GM 7000 WITH REEVING 10/2 AND 12/2



- Rib screws M16x60
- 3x per lift-off prevention device
- 250 Nm

ABUS SERVICE

ONLY IN GERMANY

- ➔ If available, have the product number, serial number and customer number handy.
- ➔ Call the ABUS Service Centre:
 - Phone: +49-2261-37-237
- ➔ If calling outside the usual business hours, leave a message on the answering machine.
 - ABUS Service will return your call promptly.
- ➔ If necessary, send a description of the problem by fax or e-mail:
 - Fax: +49-2261-37-265
 - E-mail: service@abus-kransysteme.de

ONLY OUTSIDE GERMANY

- ➔ Call the local ABUS branch or crane service partner.

Your local ABUS branch or crane service partner will provide details of contact data, contacts and availability.

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2025-12-04

The ABUS logo is displayed in white, bold, sans-serif capital letters on a blue background. The background is a large, solid blue shape that starts from the bottom right corner and extends diagonally upwards and to the left, covering the bottom right portion of the page.