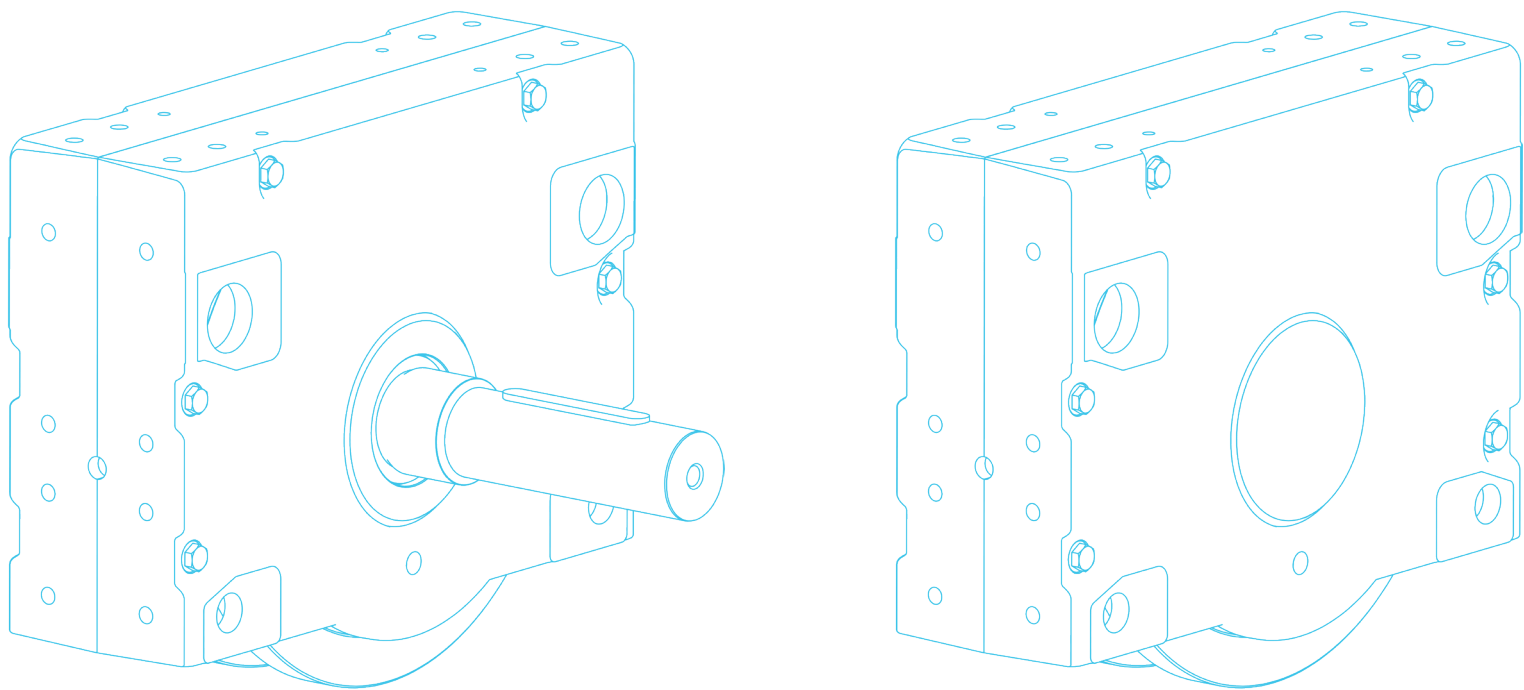


Installation and Maintenance Instructions

ATLAS

WHEEL BLOCK SYSTEM




RB 500



KARL GEORG

Foreword

Thank you for choosing a KARL GEORG product.

 **These Installation and Maintenance Instructions provide you with all of the information required for the installation, safe operation and maintenance of the wheel blocks. Please read these instructions through carefully before installation and commissioning. Operating personnel must have access to these instructions at all times.**

KARL GEORG accepts no liability for any damage or malfunctions that result from non-compliance with these Installation and Maintenance Instructions.


Intended use

KARL GEORG wheel blocks are used in conveyance systems and the machinery construction sector in general to support a wide range of transportation activities. Many options for attachment are offered by the connection surfaces machined onto the block on all sides and a range of optionally available fastenings. The drive shafts can be designed to fit any brand of slip-on gear unit.

The wheel block body consists of two threaded housing halves, machined to fit precisely together. The crane wheel wear part and self-aligning roller bearings can be replaced easily (see page 20).

Materials: EN-GJS-700 (GGG-70) crane wheel
EN-GJS-400 (GGG-40) housing

The connection holes in the housing and the associated fastenings offer a wide range of options for ensuring precise attachment. Plastic plugs are used to protect all connection holes in the product as delivered.

 The plastic plugs can be used at temperatures of -40 °C to +60 °C. Remove these plastic plugs before commissioning if wheel blocks are used outside this temperature range or in an ATEX Zone.

Colour

Standard: The wheel block housing and crane wheel body are primed with an anthracite-brown 1C anti-corrosion agent at the factory. This primer is easy to paint over while offering good resistance to corrosion and weathering.

Custom colour: On request, the wheel blocks can be supplied with a primer coat, intermediate coat and top coat.

Foreseeable misuse

Failing to follow these Installation and Maintenance Instructions and/or the main catalogue can result in misuse of the wheel block system.

In a worst-case scenario, this could lead to malfunctions, failures or risks to life and limb.

The situations as listed below may result in misuse:

- Design:
 - Excessive stress/strain or failure to account for load peaks
 - Failure to account for extreme ambient conditions
 - Out-of-scope application temperatures
- Installation:
 - Failure to use all connecting elements
 - Use of third-party connecting elements
 - Failure to properly align wheel blocks to the track
- Maintenance:
 - Failure to observe re-lubrication intervals in extreme conditions
 - Failure to apply the tightening torques for the connection bolts and/or comply with their inspection intervals

Maintenance

The technical structure of KARL GEORG wheel blocks means that they are generally maintenance-free under normal operating conditions.

Bolted fittings

Use a torque spanner to check the connection bolts on the drive shafts after the first 3–6 operating hours/after approx. 100 load cycles (torque 650 Nm).

After a further three months of operation, tighten all bolted fittings to the specified torques. Following this, re-tighten at least once a year, and as required by conditions of use and operating conditions (see BGV code D6 UVV on cranes).

Roller bearings

Before delivery, the roller bearings are lubricated with the following greases:

- | | | |
|----|---|--|
| a) | Series | Product: Multifak EP 2
Made by Texaco |
| b) | Higher temperatures $\leq 200\text{ }^{\circ}\text{C}$ | Product: OKS 424
Made by OKS |
| c) | For operation in Ex Zone 1 or 21, special-purpose grease OKS 464 (made by OKS) must be used. | |

While equivalent lubricants can be used, compatibility with the original lubricant must be guaranteed.

After commissioning, small amounts of grease may exit at the seals: remove this grease and ensure its environmentally-friendly disposal.

Material fatigue/crane wheel wear

The wheel block and drive shafts must be inspected at regular intervals for corrosion, material fracture (shaft fracture in particular) and correct alignment, as appropriate.

Check the running surface and wheel flanges at least every three months for wear and/or damage. Replace the crane wheel unit when one of the following thresholds is exceeded:

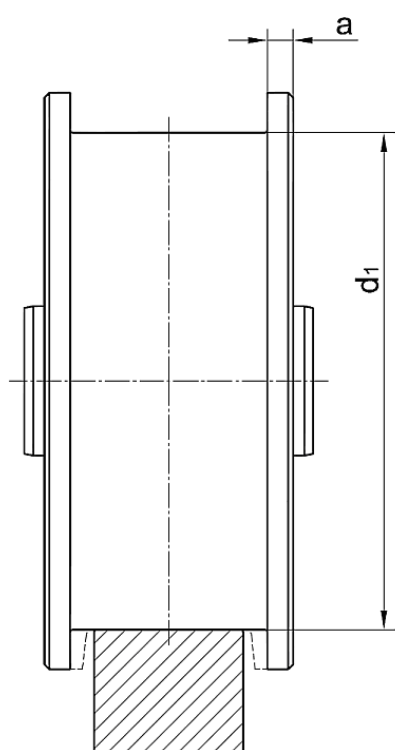


Table of wear thresholds

Crane wheel size (wheel width ...)	Smallest wheel flange width a	Smallest crane wheel Ø d1
160	7.0	153.5
200	8.5	193
250/250-V	9.5	242
315	11	307
400	13	392
500	13	490

Wheel blocks can be sent in for repairs – please ask for details.

To minimise wear on the crane wheel, the wheel blocks should be correctly aligned and the track clean of any dirt. Running surfaces and the inner surface of the wheel flanges can also be hardened to make them anti-slip, which extends crane wheel service life – please ask for details.



Storage

- The wheel blocks must be stored in a dry place
- The crane wheels must be rotated several times every six months
- Before use, the wheel blocks must be lubricated while rotating the crane wheel

Potential faults and remedies

- Increased wear on the running surface and/or wheel flange
- Running noises

Track dirty?

The track should be protected from excessive fouling – by regular cleaning, for example. Use a track cleaning device as necessary.

Wheel block misalignment?

Check wheel blocks to confirm correct alignment at regular intervals. Realign wheel blocks if they are misaligned.

If a bearing is defective, the complete crane wheel unit must be checked and the defective parts replaced. Follow the instructions in the chapters on wheel block removal and installation. Defective wheel blocks can also be sent in for repairs – please ask for details.

Permissible wheel loads

Crane wheel size (wheel width ...)	Wheel load in kg*
160	6,800
200	10,000
250	12,800
250-V	16,000
315	22,000
400	30,000
500	40,000

*The above values apply to usage under optimum conditions. Wheel loads are reduced at temperatures >150 °C.

Wheel block weight

Crane wheel size (wheel width ...)	Weight in kg
160	approx. 21
200	approx. 33
250	approx. 52
250-V	approx. 57
315	approx. 90
400	approx. 165
500	approx. 310

Roller bearings

Series

Sealing is completed on both sides using NILOS rings with additional protective steel discs.
The self-aligning roller bearings are lubricated.

Usable for extreme environmental conditions (dust, heat, moisture, etc.) at temperatures from -30 °C to +140 °C.



The wheel blocks can be re-lubricated.
Re-lubricating intervals should be adjusted to the respective conditions of use.

Higher temperatures

Sealing is completed on both sides using NILOS rings with additional protective steel discs.
The self-aligning roller bearings are lubricated using OKS 424 high-temperature grease.

Usable for temperatures from -25 °C to +200 °C.

Re-lubrication intervals and grease quantities for high-temperature bearing grease, type OKS 424

Reduction factors:

Dust and humidity	x	0.4-0.7
Vibration and oscillations	x	0.4-0.7

Re-lubrication following exposure to temperature of

110 °C	after	16,000 hours
125 °C	after	8,000 hours
140 °C	after	4,000 hours
155 °C	after	2,000 hours
170 °C	after	1,000 hours
185 °C	after	500 hours
200 °C	after	250 hours

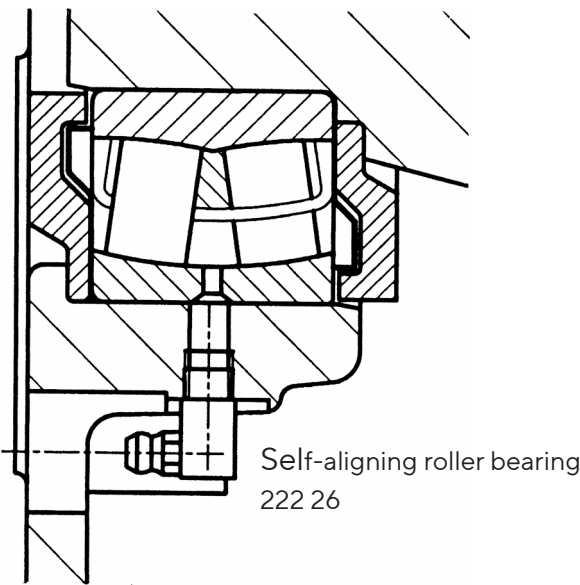
Minimum quantity of grease per bearing: 90 cm³

ATEX

Sealing is completed on both sides using NILOS rings with additional protective steel discs.
The self-aligning roller bearings are lubricated using OKS 464 (electrically conductive) high-temperature grease.

Usable for temperatures from -20 °C to +60 °C.

Re-lubrication is completed depending on wheel block temperature and operating time.



ATEX (Ex protection)

Use in potentially explosive atmospheres according to Directive 94/9/EC ("ATEX 95")



Approved use

Use of wheel blocks in potentially explosive atmospheres is approved only if the following instructions and warnings are observed, which permits the safe and correct use of these blocks.

Speed of travel

Relative speeds of wheel blocks in **Zone 1 or 21** must be kept below **1 m/s**. Always ensure speed of travel monitoring is carried out in Zone 1 and 21. Ensure crane wheel rotational speed monitoring is provided for operation with a VFD in Zone 2 and 22, and travel speeds greater than 1 m/s.

Electrical voltage

The wheel blocks must be integrated as a conductive part of the overall system, which can itself be individually earthed. If this cannot be ensured in all circumstances, additional methods of ensuring electronic contact must be installed (e.g. contact brushes). Equipotential bonding must be tested at regular intervals by the operating company. The operating company and equipment manufacturer must ensure sufficient protection against stray currents.

Drive system

In potentially explosive atmospheres, only motors with Ex protection having special, Ex-protected frequency converters must be operated; correct switching must also be considered at all times.

Track

If tracks are used, their material must be chosen carefully. Tracks made from light alloys should not be used. The material should also be a non-sparking material (as defined by Directive 94/9/EC) and rustproof.

Temperature

Bearing temperature monitoring must be ensured during operation in Zone 1 and 21. During braking, frictional heat can be generated: this should be measured as required after installation of the wheel blocks in the overall system.

Accident prevention

As a general safety measure, take steps to avoid collisions during movement. In particular, avoid impacts into stationary obstacles at high speeds at all times. Some circumstances may require the installation of guard systems to prevent accidents. Methods to prevent accidents include installing photoelectric barriers or limit switches, for example. Always allow for an adequate braking distance at all times.

CE marking

The KARL GEORG wheel block constitutes "partly completed machinery" according to the EU Machinery Directive (2006/42/EC – for definition see Article 2(g)).

Wheel blocks from KARL GEORG are therefore not subject to CE marking requirements and only bear marking pursuant to the EU ATEX Directive (94/9/EC, "ATEX 95") if approved for use in potentially explosive atmospheres.

Zone 1 or 21:



Zone 2 or 22:



Marking pursuant to EU Directive 94/9/EC, point 1.0.5 of Annex II

ATEX (Ex protection)

Use in potentially explosive atmospheres pursuant to EU Directive 94/9/EC ("ATEX 95")



Design measures

The wheel block is approved for use in Zone 1/21 and 2/22 only if marked in accordance with the ATEX Directive.

Wheel blocks for use in potentially explosive atmospheres are designed to use electrically conductive grease (OKS 464).



Plastic plugs must not be used for ATEX applications.

The following also applies to use in Zone 1 and 21:

- Cellular foam buffers PU 70...210 must not be used
 ↪ A material must be used with a verifiable surface resistance of less than 1 GΩ
- Rotational speed must be monitored, especially when used with VFDs
- Prevent accidents: this can be achieved by installing photoelectric barriers or limit switches, for example
 Always allow for an adequate braking distance at all times.
- Bearing temperatures must be monitored

Maintenance (ATEX supplement)

As a supplement to the chapter on maintenance (see p. 3), follow the instructions below for use in potentially explosive atmospheres:

- Tracks must be cleaned at regular intervals using an antistatic brush
- Avoid the formation of corrosion on tracks
- Verify that potentially explosive atmospheres are not present during maintenance or any adjustment work that becomes necessary!
- Avoid situations where the sides of wheel sets could run up against the track system

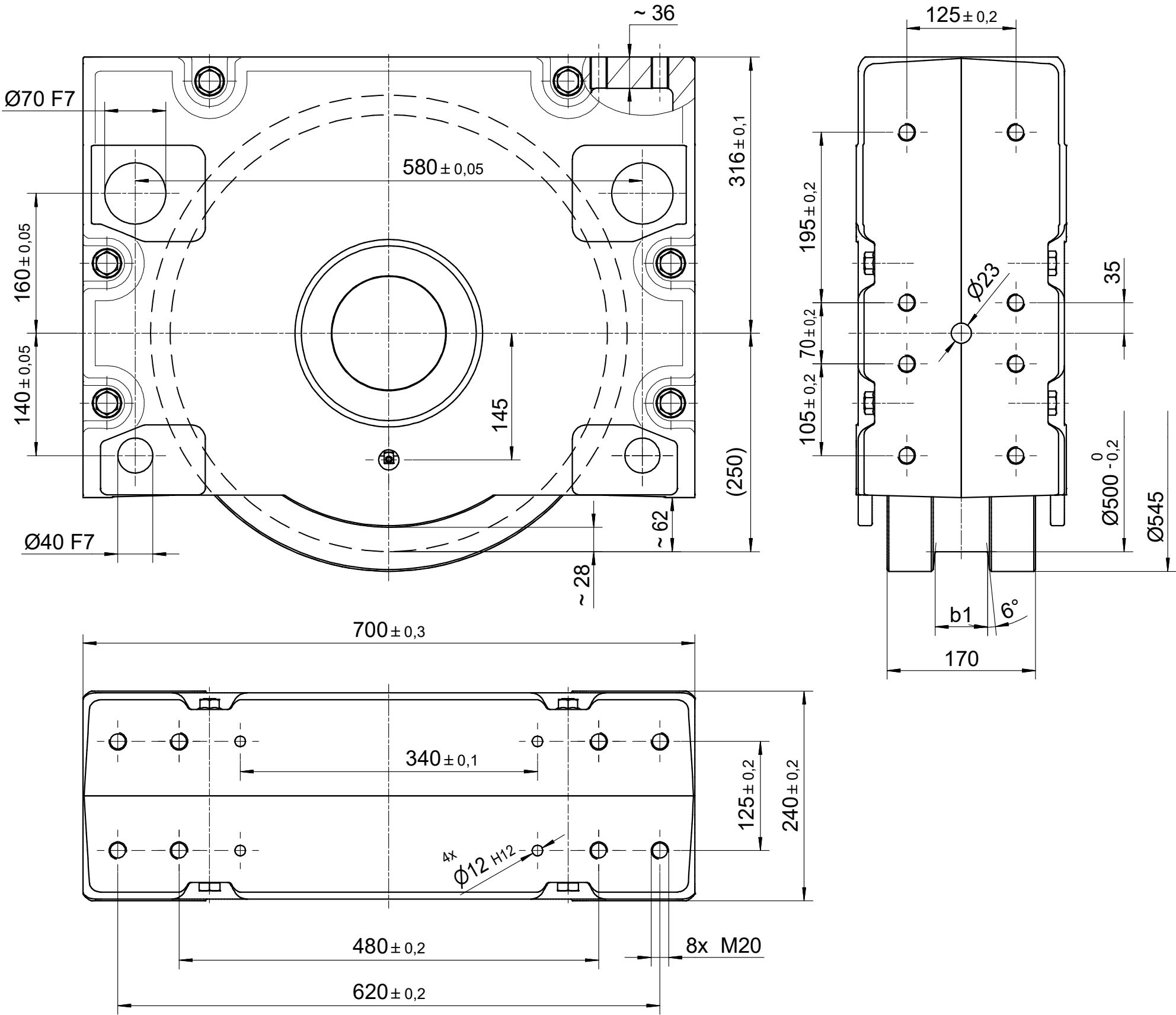


Notice:

The ATEX Directive applies only for a temperature range between –20 °C and +60 °C.

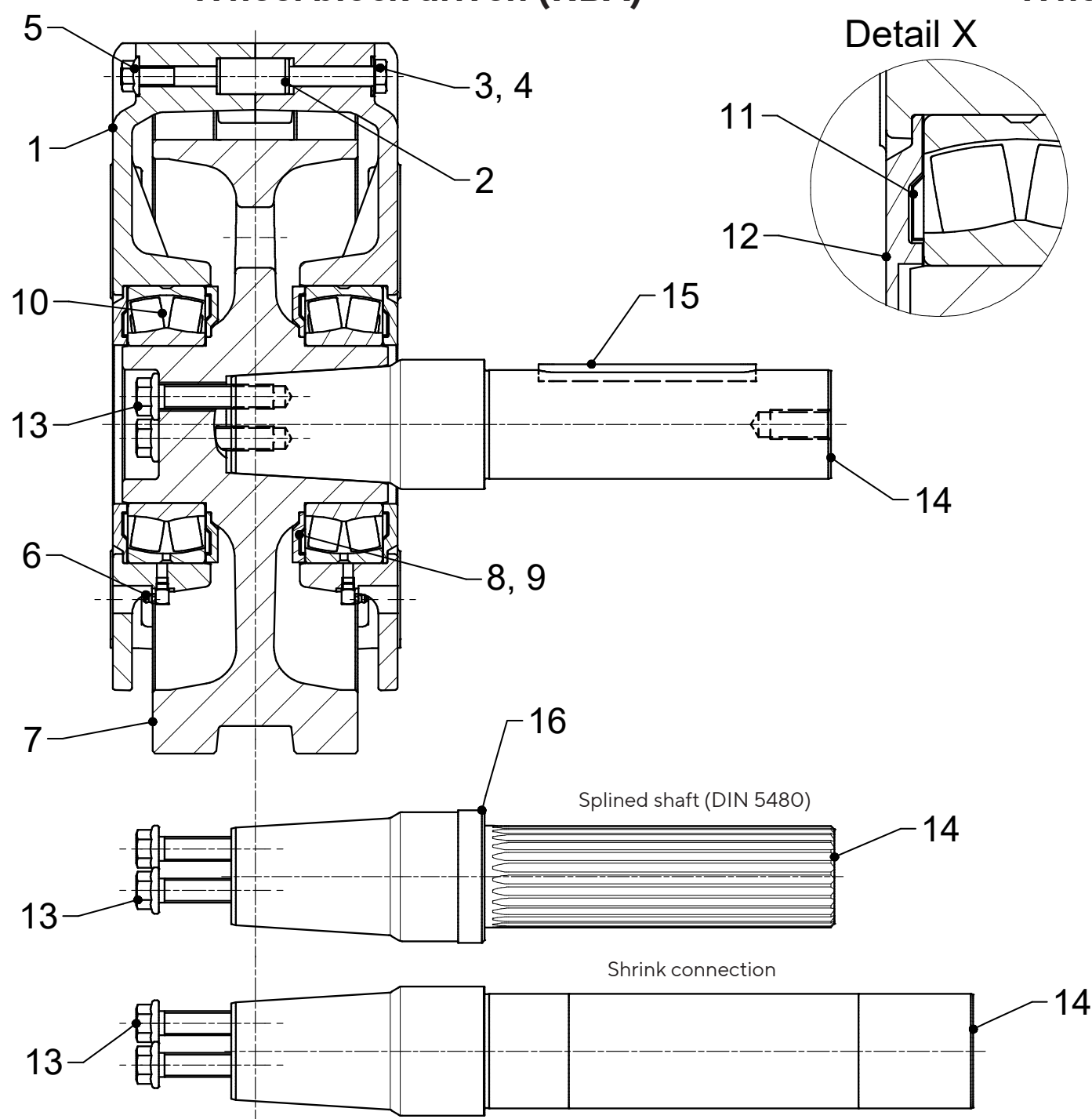
At higher ambient temperatures, measurements must be carried out as necessary on the wheel blocks.

Installation dimensions for RB 500 wheel block



Wheel block driven (RBA)

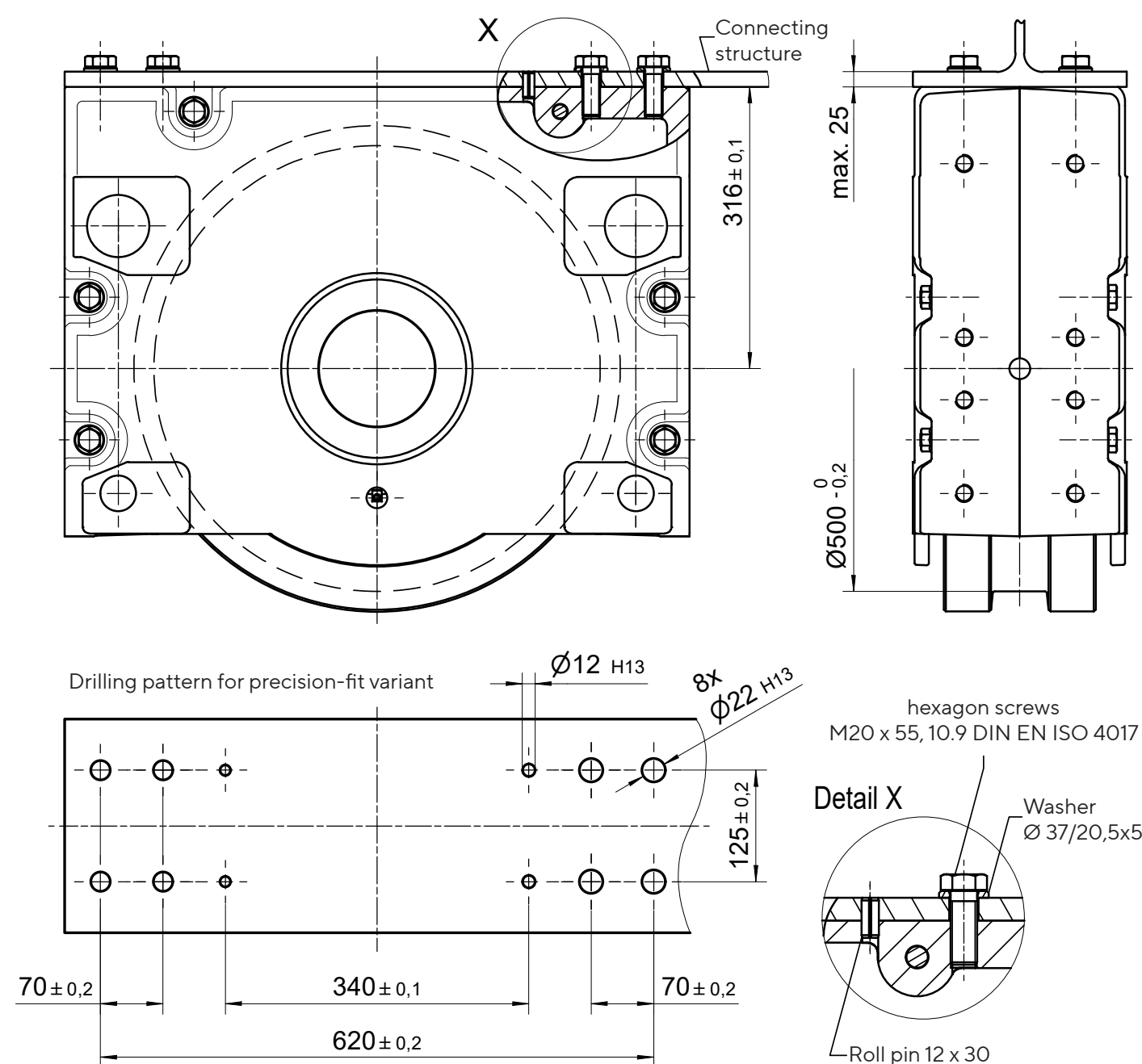
Wheel block non-driven (RBN)



Part No.	Quantity	Designation
1	2	Housing half RB 500, EN-GJS-400
2	6	Roll pin 30 x 60, 55 Si7, DIN EN ISO 8752
3	6	Hexagon screw M16 x 210, DIN 931, 10.9
4	6	Disc spring 31.5 x 16.3 x 2, DIN 2093
5	6	Locking nut M16, 10
6	2	Grease nipple C R1/8" DIN 71412
7	1	Crane wheel RBA/RBN 500, EN-GJS-700
8	2	Protective disc, internal, C45
9	2	NILOS ring 222 26 AV
10	2	Self-aligning roller bearing 222 26 DIN 635-2
11	2	NILOS ring 222 26 IV
12	2	Protective disc, external, C45
13	3	Connection bolt M20 x 90, 12.9
14	1	Drive shaft
15	1	Feather key DIN 6885/1
16	1	Adjusting ring DIN 705

Head connection KA 500.1

Direct connection as a bolted fitting (e.g. for rolled sections, weldments, etc.)



Sample order:

1 set KA 500.1

1 set fastenings for head connection KA 500.1, consisting of:

8 hexagon screws
M20 x 55, 10.9 DIN EN ISO 4017
8 washers Ø37/20.5 x 5
4 roll pins 12 x 30
DIN EN ISO 8752

Connection options

- Precision-fit direct connection: Connection option **1** (see fig.)
- Adjustable direct connection: Connection option **2**

Connection option 1 requires a precise alignment of hole patterns on the wheel block and the connecting structure (see fig.). To avoid positional errors accompanied by premature wear on the crane wheels, the mounting faces must be aligned exactly with the connection holes on the system.

If the connection holes cannot be aligned in this way, connection option 2 must be used instead (see p. 11 for the hole pattern for this connection option).

Installation procedure

Connection option 1:

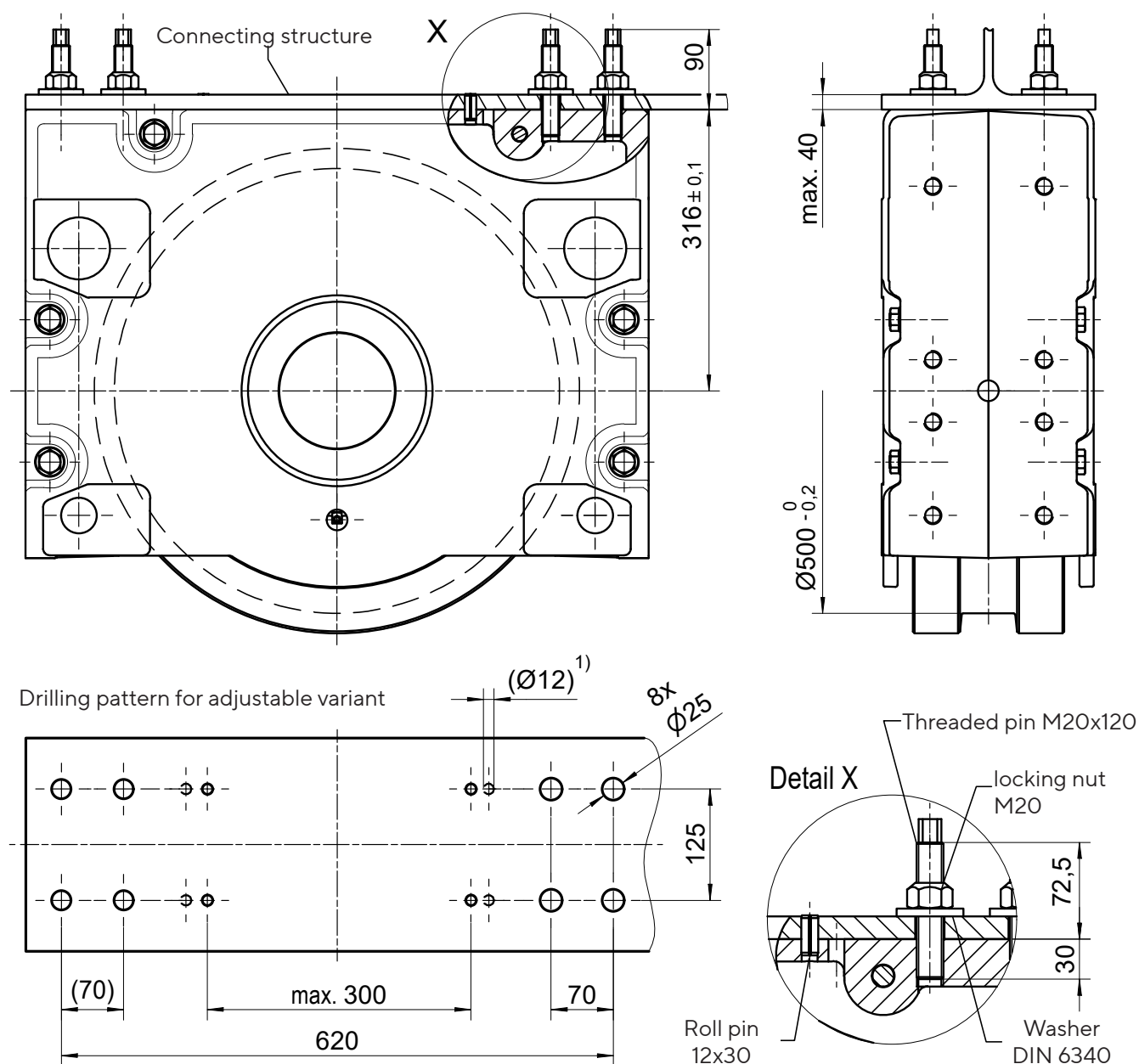
1. Position the wheel block against the connection holes on the connecting structure.
2. Knock in the 12x30 roll pins.
3. Fit the M20x55 locking screws with washers (torque 480 N·m).

Connection option 2:

1. Position the wheel block against the connection holes on the connecting structure.
2. Screw in the M20x55 locking screws with washers until hand-tight.
3. Align the wheel block with the system precisely to avoid positional errors and premature wear on the crane wheels. Alignment can be carried out using the machined surfaces on the sides of the wheel block.
4. Tighten the M20x55 locking screws (torque 480 N·m).
5. Drill holes for the roll pins and knock in the roll pins (e.g. 12x30).
Do not insert pins near to the Ø12 holes ¹⁾ and the connection bolts on the wheel blocks.

Head connection KA 500.2

Direct connection as a bolted fitting (e.g. for rolled sections, weldments, etc.)



Sample order:

1 set KA 500.2

1 set fastenings for head connection KA 500.2, consisting of:

8 threaded pins M20x120 – 10.9ZT
 8 locking nuts M20 – 10
 DIN EN ISO 7042
 8 washers 21 DIN 6340
 4 roll pins 12x30
 DIN EN ISO 8752

Longer threaded pins are available on request.

Connection options

- Precision-fit direct connection: Connection option 1
- Adjustable direct connection: Connection option 2 (see fig.)

Connection option 1 requires a precise alignment of hole patterns on the wheel block and the connecting structure (see p. 10 for hole pattern). To avoid positional errors accompanied by premature wear on the crane wheels, the mounting faces must be aligned exactly with the connection holes on the system. If the connection holes cannot be aligned in this way, connection option 2 must be used instead.

Installation procedure

Connection option 1:

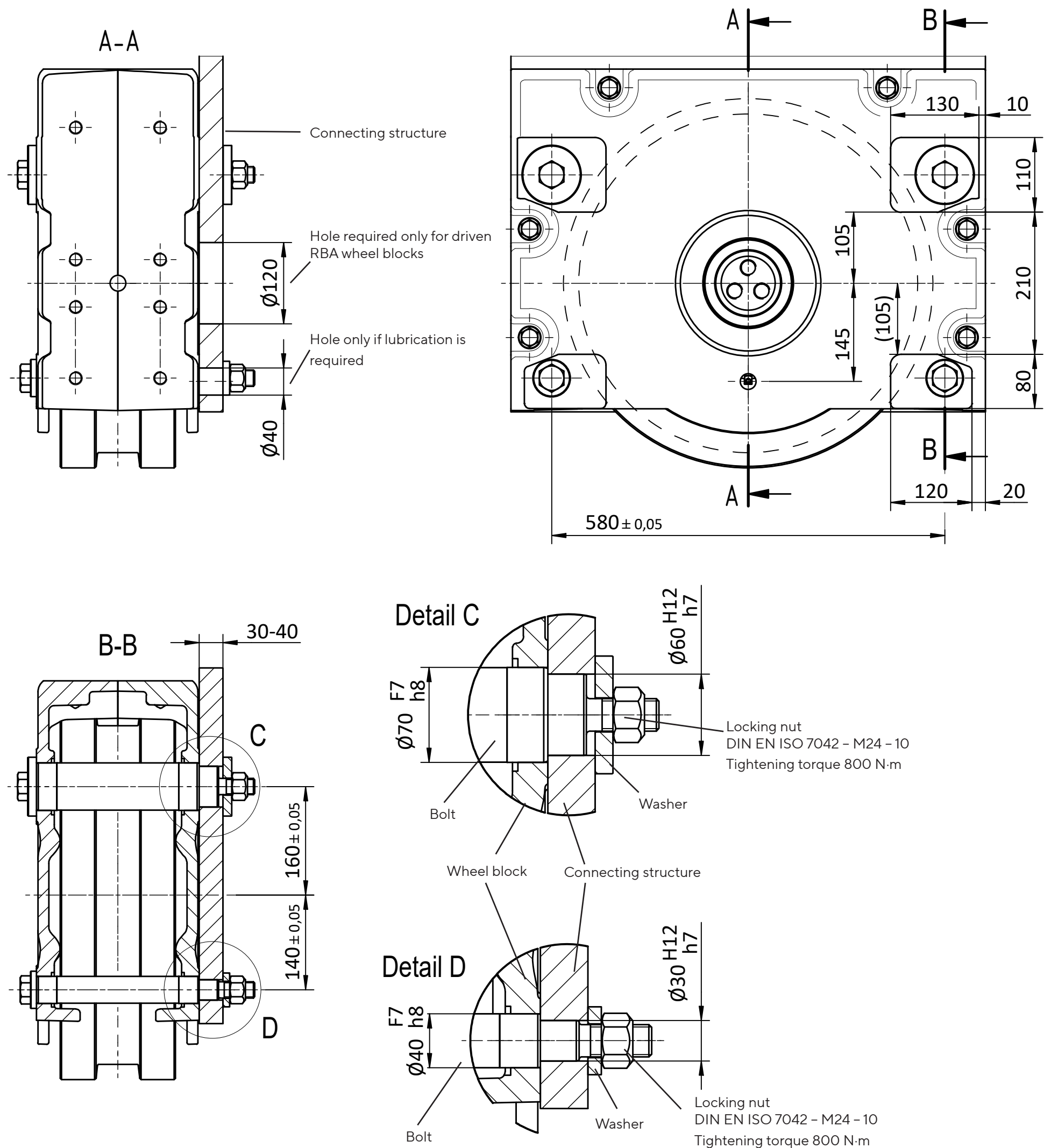
1. Install the wheel block with glued-in threaded pins into the connection holes for the connecting structure.
2. Knock in the 12x30 roll pins.
3. Fit the M20 locking nuts with washers underneath (torque 480 N·m). Hold the threaded pins in place with a spanner while doing so.

Connection option 2:

1. Install the wheel block with glued-in threaded pins into the connection holes for the connecting structure.
2. Fit the M20 locking nuts with washers underneath so they are hand-tight.
3. Align the wheel block with the system precisely to avoid positional errors and premature wear on the crane wheels. Alignment can be carried out using the machined surfaces on the sides of the wheel block.
4. Tighten the M20 locking nuts (torque 480 N·m). Hold the threaded pins in place with a spanner.
5. Drill holes (Ø12, 13 deep) for the 12x30 roll pins and knock in the roll pins. Do not insert pins near to the Ø12 holes ¹⁾ and the connection bolts on the wheel blocks.

Flank connection WA 500

Lateral connection option for low structural designs



1	set of fastenings for WA 500 flank connection, consisting of:	Sample order:
2	bolts Ø70/60	1 set WA 500
2	washers Ø25/87	
2	bolts Ø40/30	
2	washers Ø25 DIN 7349	
4	locking nuts M24 DIN EN ISO 7042	

Installation procedure

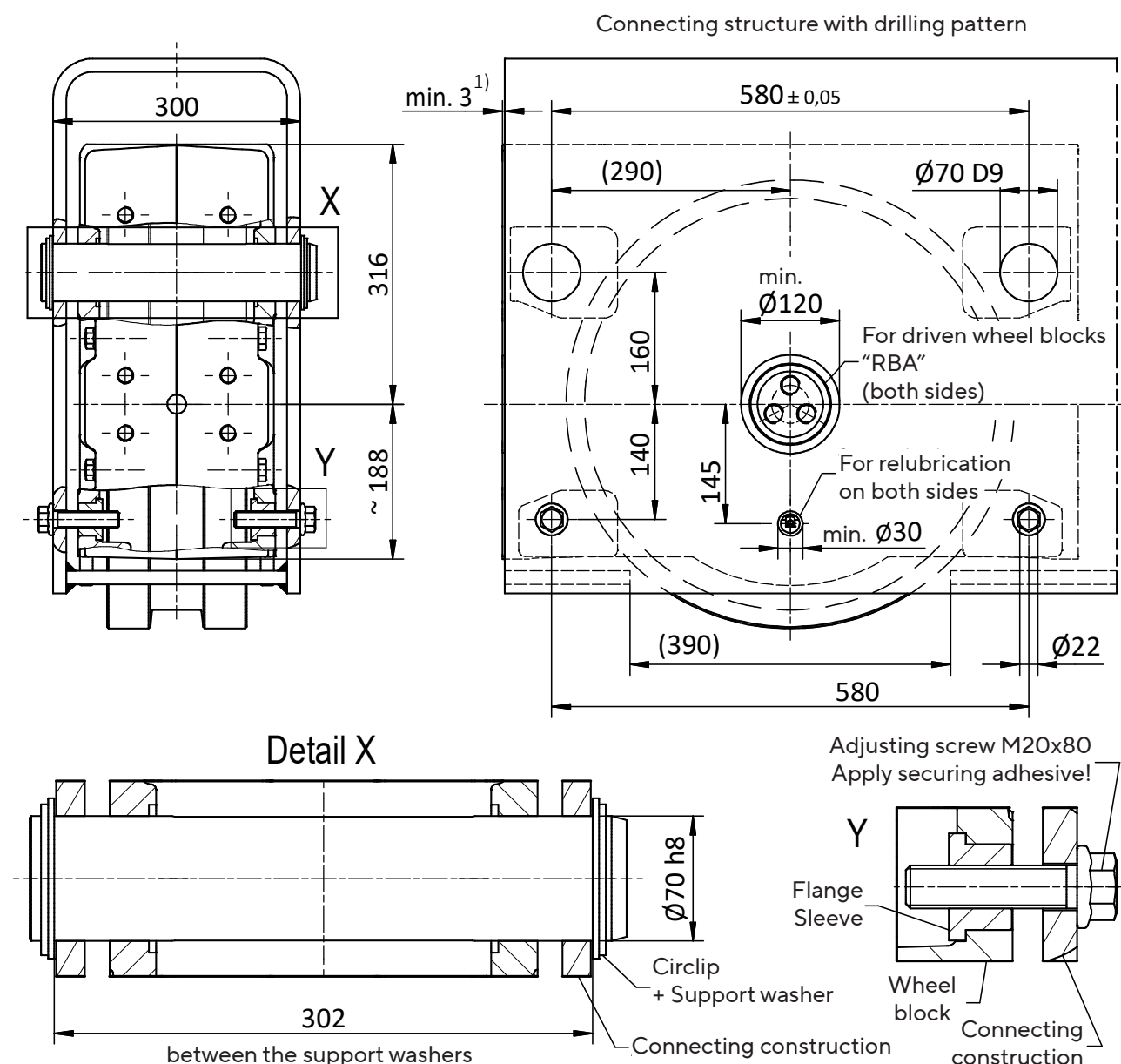
The connection surfaces of the wheel block connecting structure must be flat enough to ensure that the wheel block butts cleanly against them with its machined surfaces (rework if necessary).

To avoid positional errors accompanied by premature wear on the crane wheels, the connection surfaces must be aligned exactly with the system.

1. Bring the wheel block into position against the connecting structure.
2. Insert bolts Ø70/60 and Ø40/30 through the wheel block holes, into the holes in the connecting structure.
3. Fit the washers and M24 locking nuts with a torque spanner, holding the bolt in place by the hex head while doing so.
M24 tightening torque: 800 Nm

Bolted connection BA 500.2

Installation variant as bolted connection (hollow sections, rocker arms, etc.)



1 set of fastenings for BA 500.2 bolted connection, consisting of:

- 2 Ø70 bolts
- 4 70 x 4 DIN 471 retaining rings
- 4 S70x90 DIN 988 shim rings
- 4 collar bushings with internal thread (glued-in)
- 4 locking screws M20 x 80, 12.9 (secure in place with threadlocker*)

Sample order:
1 set **BA 500.2**



To prevent positional errors with corresponding premature wear on the crane wheels, the Ø70^{D9} holes for attaching the wheel block must be drilled to line up exactly with one another and the wheel block must be aligned precisely in the connecting structure.

Ensure the wheel block is unloaded before adjusting the track or during initial installation.

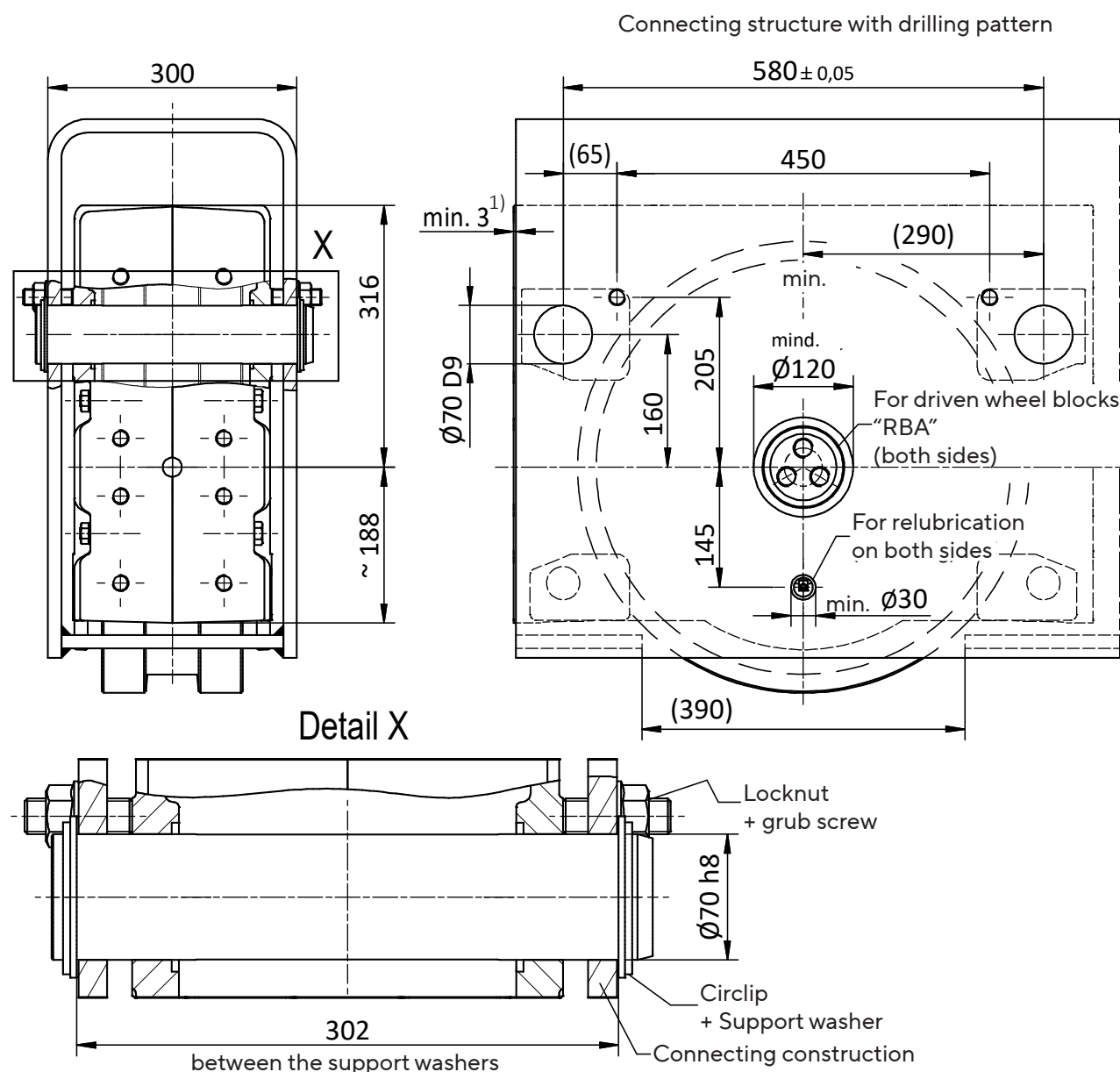
Installation procedure

1. Insert the wheel block into the connecting structure.
2. Use 2 bolts to connect the connecting structure to the wheel block through the top Ø70 holes.
3. Fit the retaining rings and shim rings to secure the bolts axially.
4. Apply threadlocker* to two M20x80 adjustment screws and screw into the wheel block on one side through the holes in the connecting structure. Pull the wheel block into the required (horizontal) position by tightening the adjustment screws (max. torque 420 N·m).
Correction option: Unscrew the adjustment screws along the correction path, install the other two adjustment screws with threadlocker on the opposite side and pull the wheel block back into position.
5. When the required position is reached, tighten all adjustment screws (max. torque 420 Nm)

* Threadlocker not included in the scope of delivery

Bolted connection BA 500.3

Installation variant as bolted connection (hollow sections, rocker arms, etc.)



1 set of fastenings for BA 500.3 bolted connection, consisting of:

- 2 Ø70 bolts
- 4 70 x 4 DIN 471 retaining rings
- 4 S70x90 DIN 988 shim rings
- 4 threaded pins M20x60 DIN 913
- 4 M20 locking nuts

Sample order:
1 set **BA 500.3**



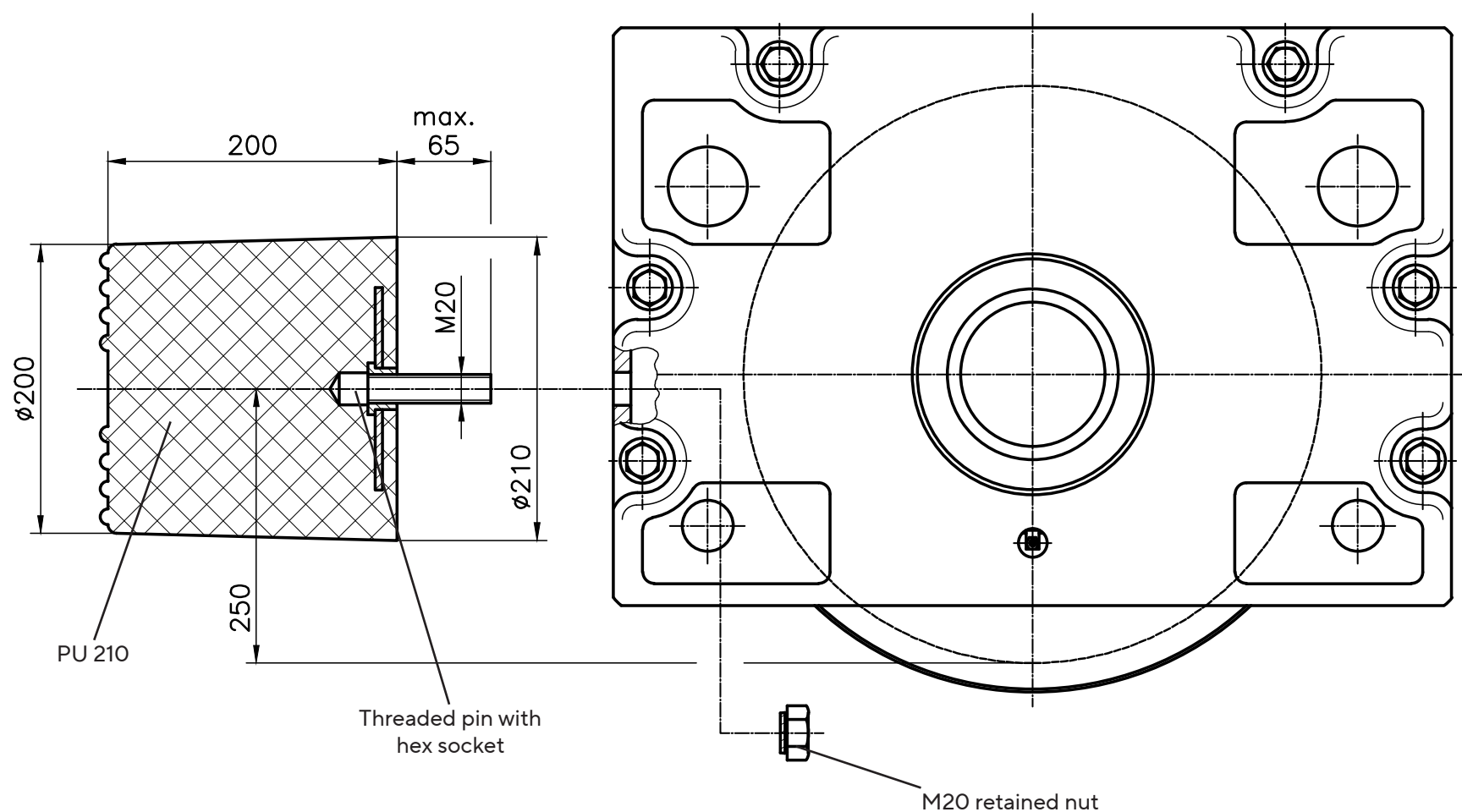
To prevent positional errors with corresponding premature wear on the crane wheels, the Ø70^{D9} holes for attaching the wheel block must be drilled to line up exactly with one another and the wheel block must be aligned precisely in the connecting structure.

Ensure the wheel block is unloaded before adjusting the track or during initial installation.

Installation procedure

1. Insert the wheel block into the connecting structure.
2. Use 2 bolts to connect the connecting structure to the wheel block through the top Ø70 holes.
3. Fit the retaining rings and shim rings to secure the bolts axially.
4. Screw two M20x60 threaded pins on one side through the holes in the connecting structure against the wheel block. Push the wheel block into the required (horizontal) position by tightening the threaded pins.
Correction option: Unscrew the threaded pins along the correction path, install the other two threaded pins on the opposite side and push the wheel block back into position.
5. When the required position is reached, tighten all threaded pins and secure in place by fitting the M20 locking nuts (max. torque 490 Nm, hold threaded pins stationary)

Fitting cellular foam buffers



Included in scope of delivery:

- 1 cellular foam buffer
- 1 threaded pin
- 1 retained nut

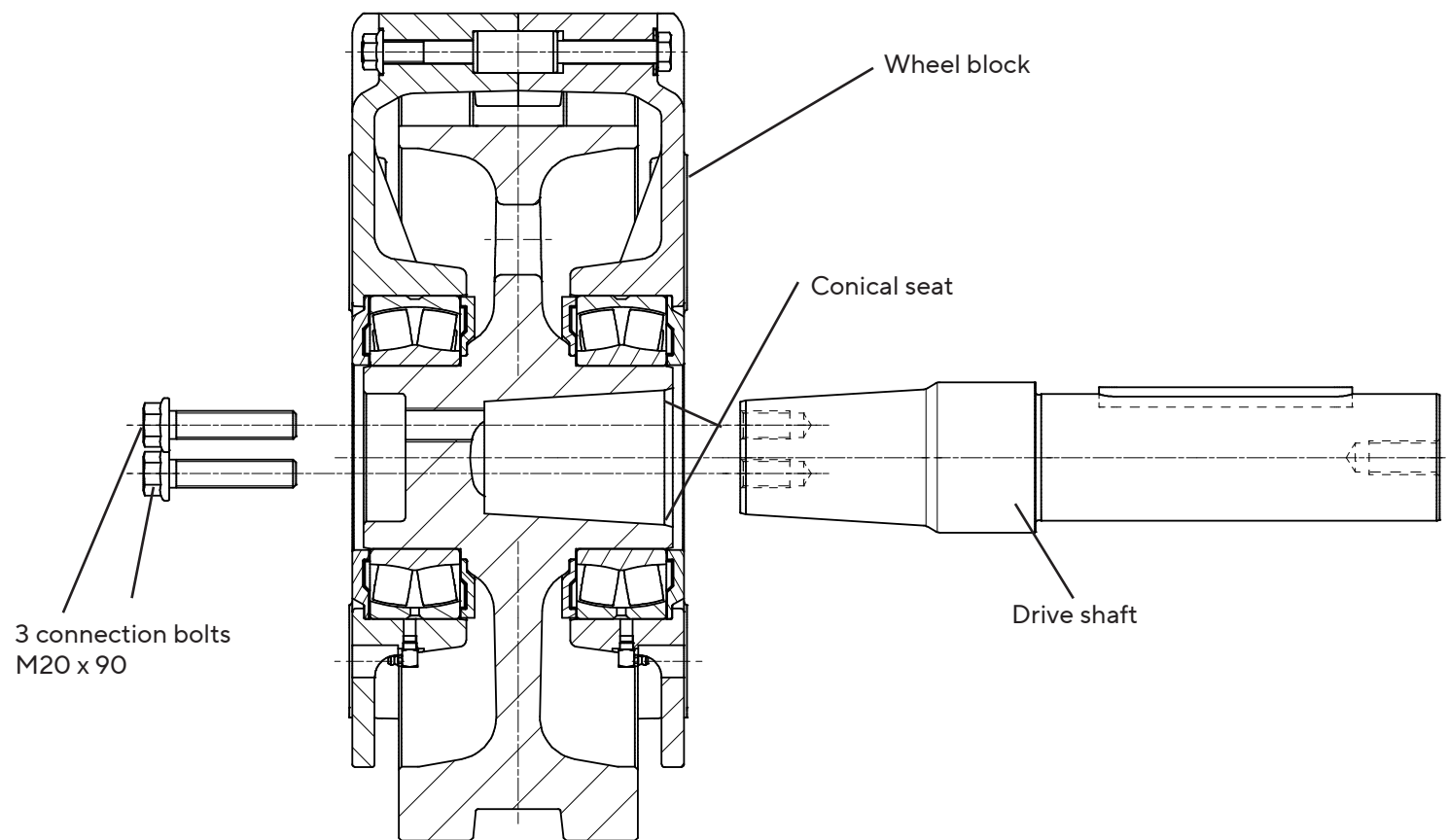
Sample order:

- 1 cellular foam buffer **PU 210**

Installation procedure

1. Guide the M20 retained nut from the inside to the corresponding hole and use an M20 bolt to draw it from the outside into the wheel block housing.
2. Screw the M20 threaded pin into the buffer.
3. Screw the buffer with threaded pin into the retained nut in the wheel block.

Drive shaft installation



Included in scope of delivery:

- 1 drive shaft
- 3 connection bolts
- 1 retaining ring/feather key

When ordering, give details of the gearbox type, shaft end and manufacturer.

Sample order:
1 drive shaft 500
FA97 - Ø70 - SEW

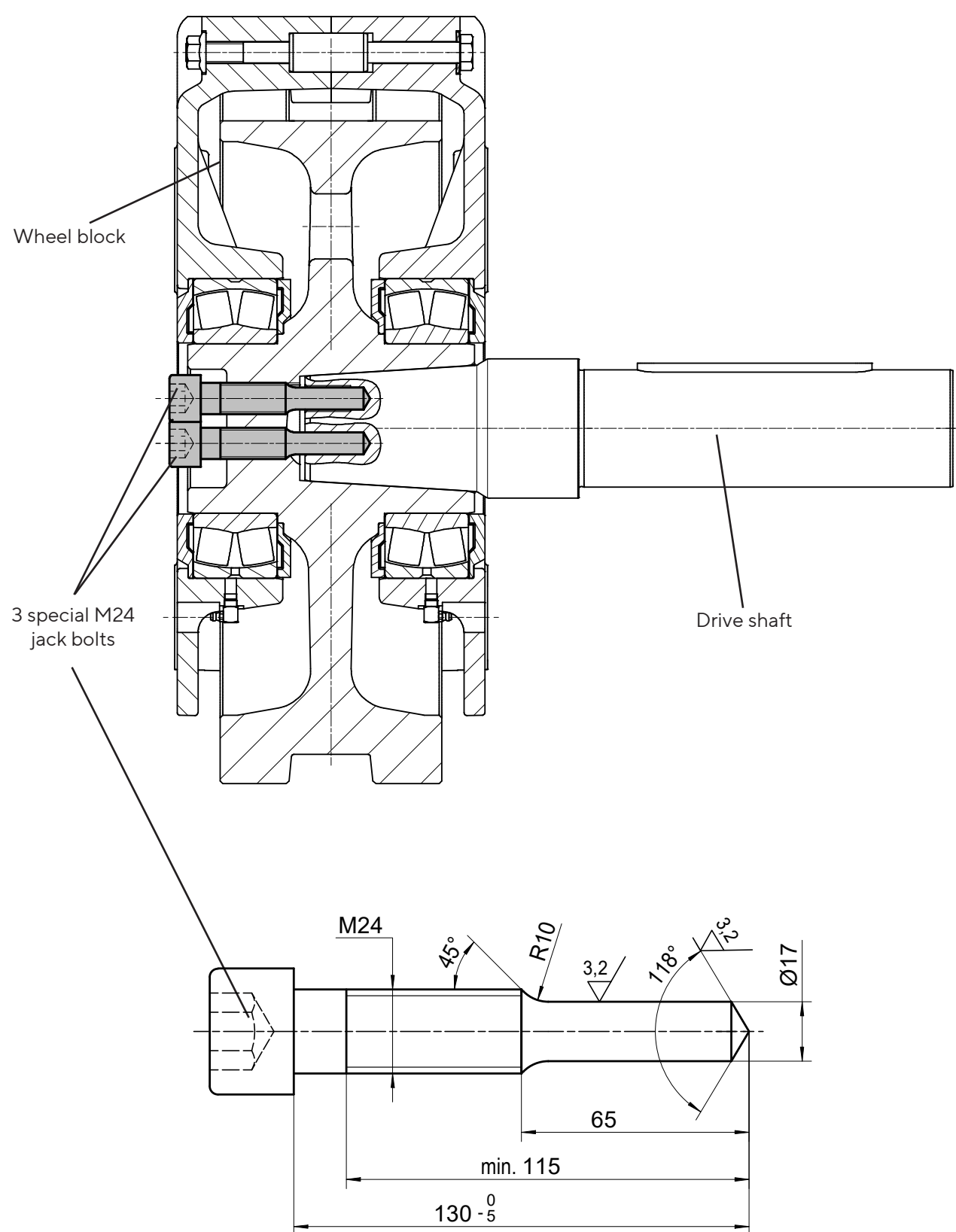
Installation procedure

To prevent fretting corrosion, the drive shaft is electrogalvanised and the conical seat in the crane wheel is given an anti-friction coating.

Caution! Do not damage the conical seat coating – replace if damaged
(Spray on a thin and uniform coat of Molykote D 321 R.)

1. Insert the drive shaft into the crane wheel.
2. Screw in the connection bolt.
3. Force the drive shaft into the cone by tapping it lightly with a hammer (aluminium hammer, copper pin) and tighten the connection bolts with a torque spanner (torque 650 N·m, repeat procedure).
4. Apply a coat of roller bearing grease to the drive shaft near the slip-on gear unit.
5. Push on the slip-on gear unit and attach as specified by the manufacturer.
6. Retighten the connection bolts after 3 to 6 operating hours or approx. 100 load cycles using a torque spanner (torque 650 Nm).

Removing the drive shaft

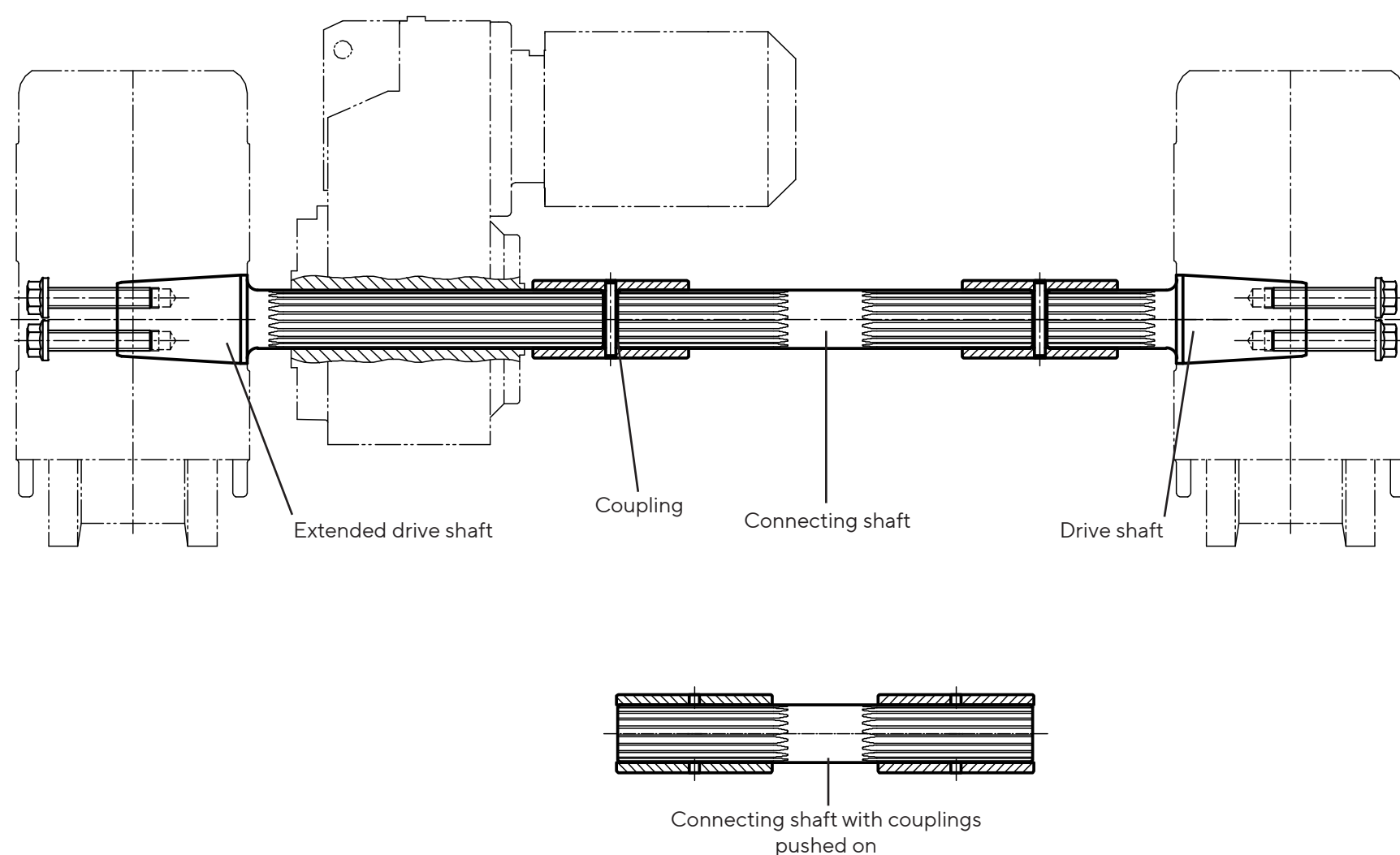


Removal procedure

For easy removal of the drive shafts, use of three special M24 jack bolts is necessary.

1. Undo and remove the connection bolts (see figure "Drive shaft installation").
2. Release the slip-on gear unit at the torque support and pull off the drive shaft.
3. Using an Allen key, screw the special M24 jack bolts into the crane wheel (lubricate thread and bolt tip with grease). This forces the drive shaft out of the cone.

Installing and removing the central drive unit



Included in scope of delivery:

- 1 ZAA drive shaft
- 1 ZAM drive shaft
- 6 connection bolts
- 2 couplings with clamping sleeves
- 1 connecting shaft

When ordering, state the gearbox type, diameter or splined-shaft profile and average track dimension L.

Sample order:
1 central drive unit 500
FV97 - W70 - SEW - 2000

Installation procedure

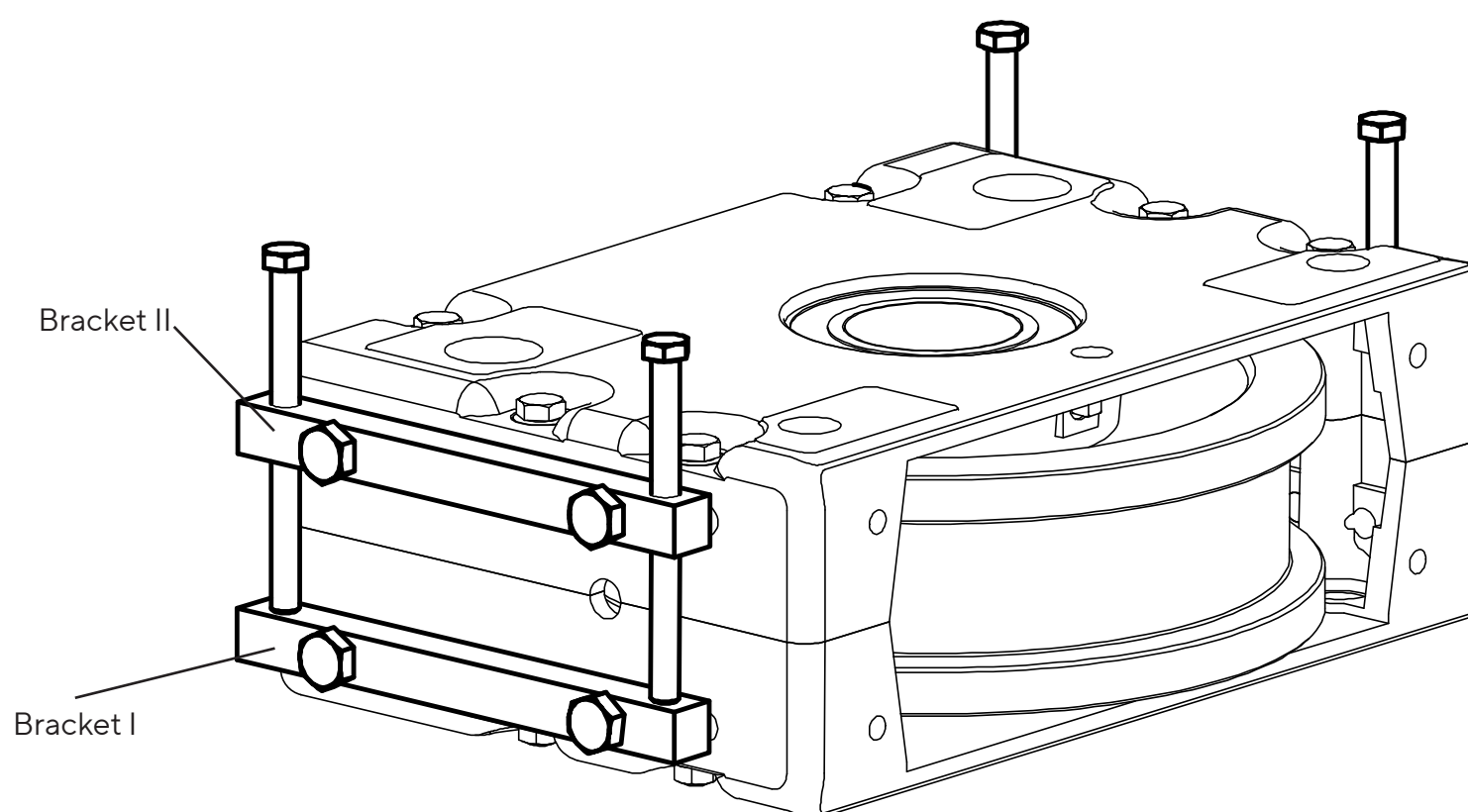
1. Install the drive shafts according to the "Drive shaft installation" instructions.
2. Apply a coat of roller bearing grease to the drive shafts and connecting shaft near the slip-on gear unit and couplings.
3. Push on the slip-on gear unit and attach as specified by the manufacturer.
4. Push the couplings onto the connecting shaft on both sides (see fig. above).
5. Place the connecting shaft with couplings between the drive shafts and push the couplings halfway onto the drive shafts.
6. Secure the couplings by hammering in the Ø8 clamping sleeves.

To remove, complete the above steps in reverse order.

Removing the wheel block with the aid of the removal jig

Removal procedure

1. Lay the wheel block on a side surface.
2. Undo and remove the six connection bolts.
3. Secure bracket I (without M16 thread) on both end faces to the bottom housing half with M20 x 60 bolts.
4. Secure bracket II (with M16 thread) on both end faces to the top housing half with M20 x 60 bolts.
5. Use 4 M16 x 200 bolts to force the housing uniformly apart.
6. Use suitable lifting gear to remove the top housing half and crane wheel unit.
7. Remove the NILOS rings (11) from the housing halves.
8. Using a suitable pull-off tool, pull the self-aligning roller bearing (10) off the crane wheel hubs.
9. Replace the self-aligning roller bearings and NILOS rings.



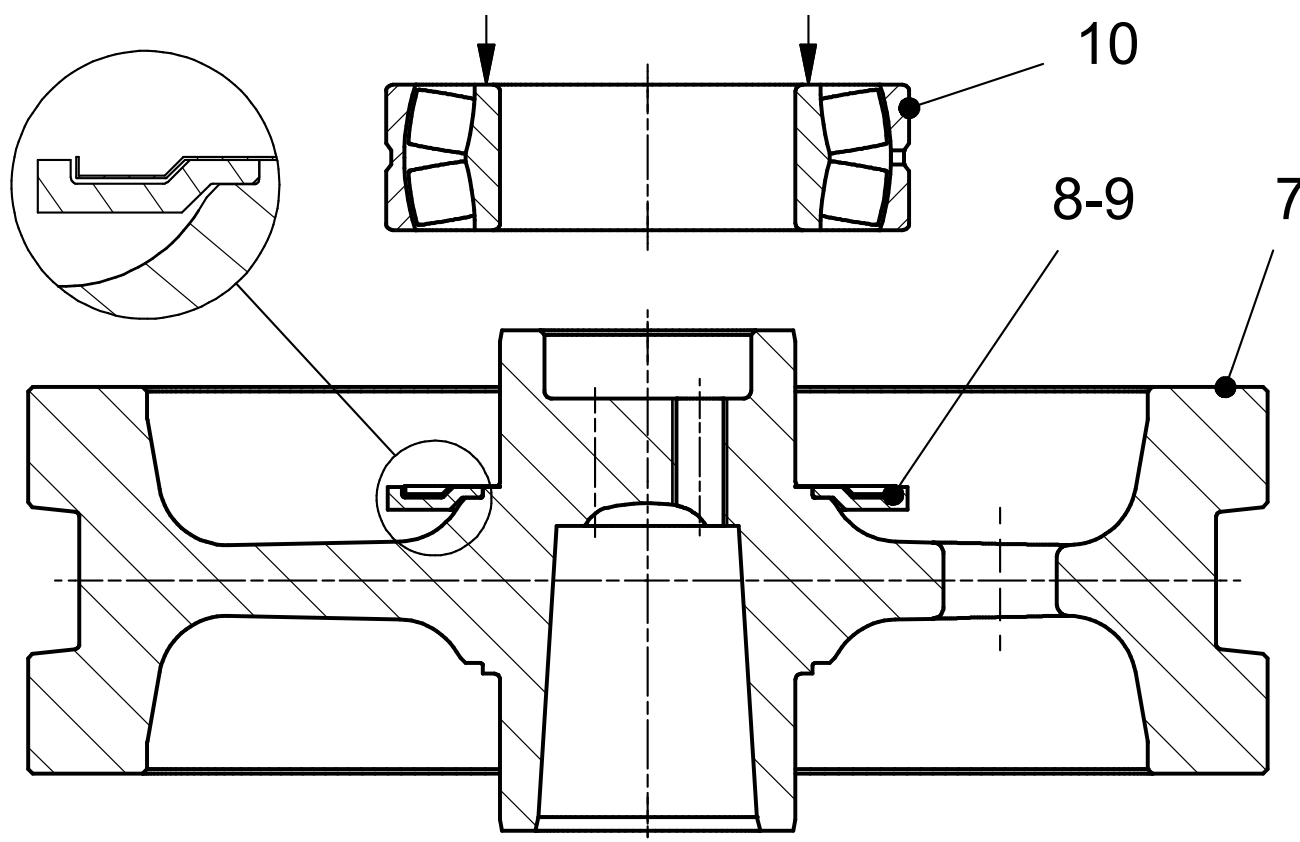
Part number for removal jig RB 500: **6615.1000**

Further information, including price and delivery times, is available on request.

Installing the wheel block

Installation procedure

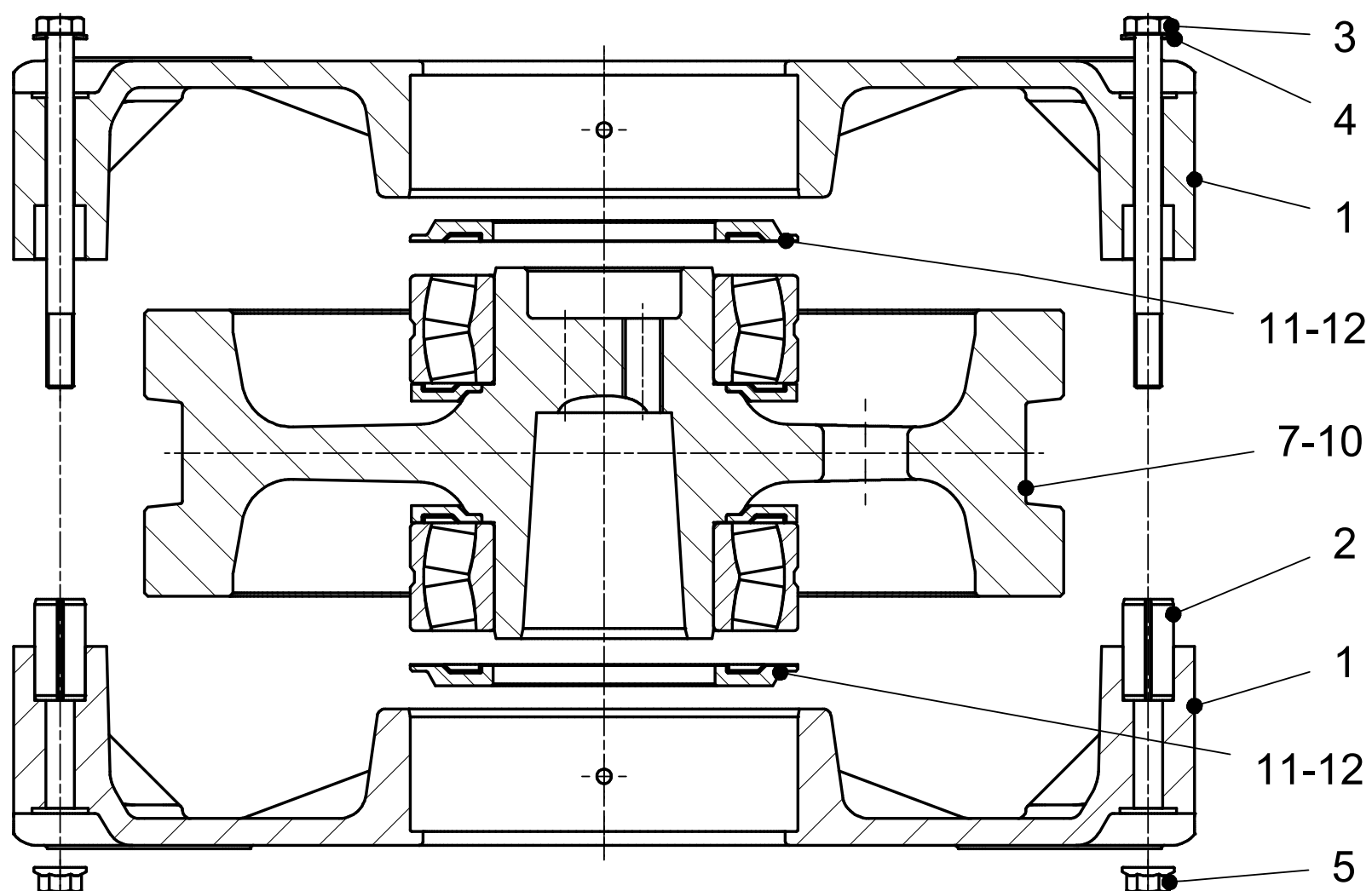
1. Lay the crane wheel (7) so it is horizontal.
2. Position the protective disc (8) and NILOS ring (9) so they are flush.
3. Press on the self-aligning roller bearing (10) over the inner ring against the end stop.
4. Turn over the crane wheel and assemble on the other side of the hub as described in (2) and (3).



See p. 9 for parts list.

5. Place one housing half (1.1) on the flank connection surface.
6. If not yet installed, push or hammer in the 6 roll pins 30 x 60 (2).
7. Place the protective disc (12) and NILOS ring (11) into the housing hole.
8. Install the self-aligning roller bearing with crane wheel into the housing hole.
9. Lay the protective disc (12) and NILOS ring (11) so they are centred on the self-aligning roller bearing.
10. Push the second housing half (1.2) onto the self-aligning roller bearing until the housing halves touch the roll pins.
11. Press on the top housing half (1.2) with an assembly press. Keep the force applied as even as possible near the roll pins, to avoid these becoming jammed.
12. Install 6 M16 x 210 connection bolts (3, 4, 5).
Caution! Ensure that the disc spring (4) under the bolt head is correctly seated.
13. Tighten the hexagon screws (3) with a torque spanner (torque 260 N·m).
14. Lubricate both self-aligning roller bearings using the grease nipples provided (6) until grease exits at the protective discs.

Rotate the crane wheel during the lubrication procedure.



Produkt- und Kundeninformation *Product and customer information*

Beim Radblocksysteem handelt es sich um eine einbaufertige Fahreinheit für förder technische Anlagen (z.B. Krane).
The wheel block system is a ready-to-install travel unit for conveyor systems (e.g. cranes).

Das Radblocksysteem ist keine Maschine und dazugehöriges Produkt im Sinne der Richtlinie 2006/24/EG sowie der Verordnung 2023/1230.

The wheel block system is not a machine and associated product within the meaning of Directive 2006/24/EC and Regulation 2023/1230.

Das Radblocksysteem ist als Komponente zu betrachten und ist konform mit den Anforderungen nachstehender Dokumente:

The wheel block system is to be regarded as a component and conforms to the requirements of the following documents:

- **DIN EN 13135 08/18** Krane – Sicherheit – Konstruktion – Anforderungen an die Ausrüstungen
Cranes – Safety – Design – Requirements for equipment
- **DIN EN 13001-3-3 02/15** Krane - Konstruktion allgemein - Teil 3-3: Grenzzustände und Sicherheitsnachweis von Laufrad/Schiene-Kontakten
Cranes – General design – Part 3-3: Limit states and proof of competence of wheel/rail contacts
- **DIN EN ISO 12100 03/11** Sicherheit von Maschinen – Allgemeine Gestaltungsleitsätze – Risikobeurteilung und Risikominderung (ISO 12100:2010)
Safety of machinery – General principles for design – Risk assessment and risk reduction (ISO 12100:2010)
- **DIN EN ISO 9001 11/15** Qualitätsmanagementsysteme - Anforderungen (ISO 9001:2015)
Quality management systems – Requirements (ISO 9001:2015)

Bei der Verwendung der Komponenten sind die Vorgaben / Hinweise der Montage-, Wartungsanleitung zu o.g. Komponente zwingend zu beachten!

When using the components, the specifications / instructions in the installation and maintenance instructions for the above-mentioned components must be observed!

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Ort, Datum
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Subject to alterations by the manufacturer for the purposes of further technical development!

Thus, no claims can be derived from the information, figures and descriptions given in these operating instructions.

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