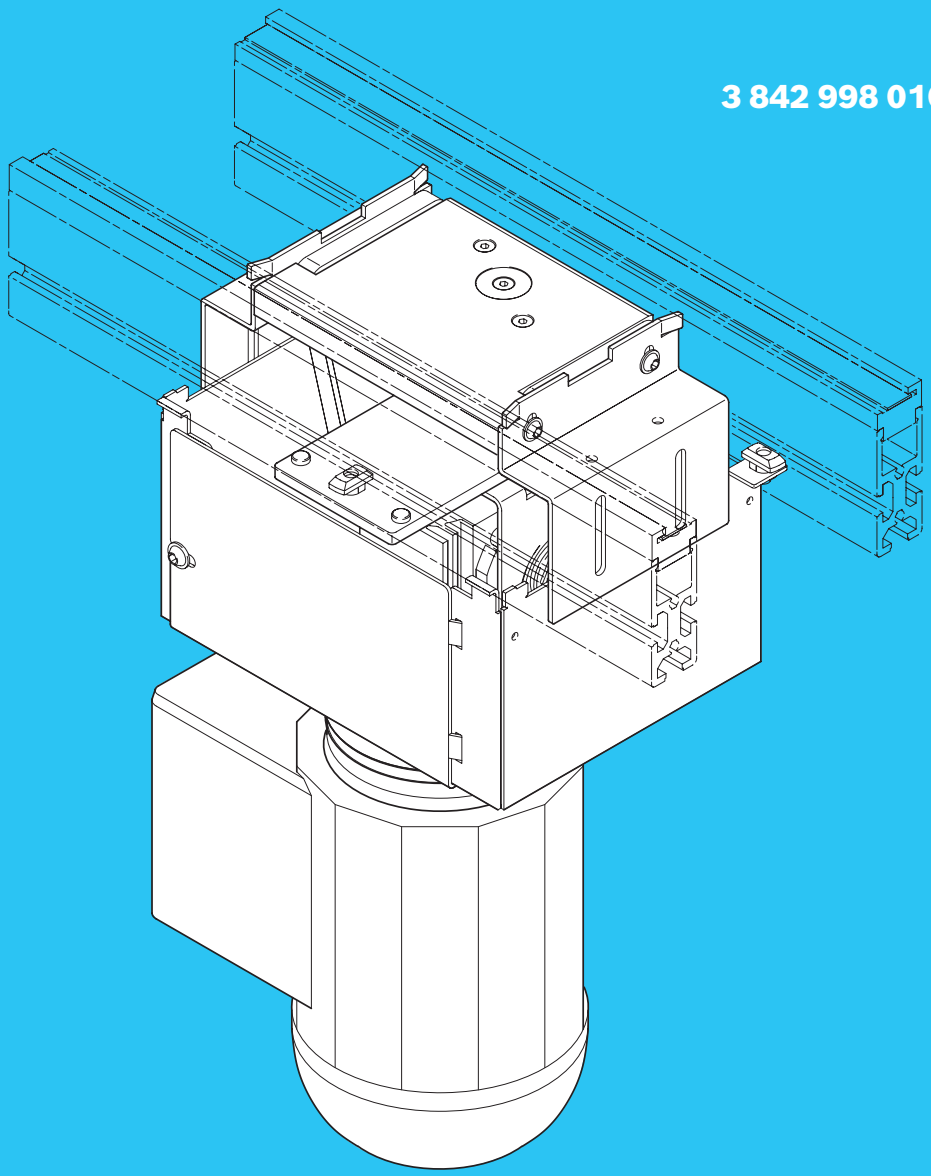
rexroth
A Bosch Company

Assembly instructions

Lift transverse unit HQ 1/U

ENGLISH



3 842 998 010

3 842 571 523, edition: 2023-05, replaces: 3 842 531 104/2010-12, EN

The information in these instructions is for product description purposes only. Any information in these instructions on how to use the product only constitutes examples and recommendations. Catalog information is not binding. The information given does not exempt the user from the obligation of own judgment and verification. Our products are subject to natural wear and aging.

An example configuration is shown on the title page. The delivered product may thus vary from the illustration.

The original assembly instructions are in German.

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3 842 571 522	print	media	Hub-Quereinheit HQ 1/U	DE Deutsch
3 842 571 523	print	media	Lift transverse unit HQ 1/U	EN English
3 842 571 524	print	media	Unité de levée transversale HQ 1/U	FR Français
3 842 571 525	print	media	Unità di svincolo HQ 1/U	IT Italiano
3 842 571 526	print	media	Unidad de elevación y transporte transversal HQ 1/U	ES Español
3 842 571 527	print	media	Unidade de elevação e transporte transversal HQ 1/U	PT Português
3 842 571 528	print	media	横向输送提升单元 HQ 1/U	ZH 中文

Contents

1 About this documentation

1.1 Validity of the documentation

This document applies to the following product:

- Lift transverse unit HQ 1/U

This document is intended for fitters, operators, and system owners.

It contains important information on the safe and proper assembly, operation, maintenance, disassembly, and simple troubleshooting of the product.

▶ Read this documentation completely and especially the chapter "Safety instructions" on page 7 before working with the product.

1.2 Required documentation

You must have completely read the documentation that is labeled with the book icon 🕮 and observed it before starting work on the product:

Table 1: Required documentation

	Title	Document number	Application
	System documentation		Optional if the product is integrated in a system.
🕮	Employee safety training[1)]	**3 842 527 147**	
	MT*pro*[2)]	**3 842 539 057**	Spare parts list

[1)] Download at: **www.boschrexroth.com/mediadirectory**
[2)] Download at: **www.boschrexroth.com/mtpro**

1.3 Presentation of information

Standardized safety instructions, symbols, terms and abbreviations are used so that you can use this documentation to work quickly and safely with this product. These are explained in the following sections to help you understand them better.

1.3.1 Safety instructions

This document includes safety instructions before a sequence whenever there is a risk of injury or damage to property. Be sure to observe all safety precautions.

Safety instructions are set out as follows:

⚠ SIGNAL WORD
Type and source of danger Consequences of non-compliance ▶ Measures to prevent danger ▶ ...

- **Warning sign:** Points out the danger
- **Signal word:** Indicates the severity of the danger
- **Type and source of danger:** Indicates the type and source of danger
- **Consequences:** Describes what happens if safety instructions are not complied with
- **Prevention:** States how the danger can be avoided

The safety instructions include the following risk classes.
The risk class describes the risk if you ignore the warning notice.

Table 2: Risk classes according to ANSI Z535.6

Warning sign, signal word	Meaning
⚠ DANGER	Indicates a hazardous situation that will result in serious injury or death if not avoided.
⚠ WARNING	Indicates a hazardous situation that may result in serious injury or death if not avoided.
⚠ CAUTION	Indicates a hazardous situation that may result in minor to moderate injury if not avoided.
NOTICE	Property damage: The product or the surrounding area could get damaged.

1.3.2 Symbols

The following symbols indicate important information that is not safety-relevant but increases the comprehensibility of the documentation.

Table 3: Meaning of the symbols

Symbol	Meaning
	If you do not follow this information, you cannot use/operate the product optimally.
▶	Single, independent action
1. **2.** **3.**	Numbered steps: The numbers indicate that the action steps are sequential.
• ... • ...	List format

1.3.3 Designations

This document uses the following designations:

Table 4: Designations

Abbreviation	Meaning
HQ 1/U	Lift transverse unit HQ 1/U
ST 1	Section
SP 1	Section profile
WT 1	Workpiece pallets
SH 1	Switch bracket
SH 1/S	Switch bracket, at side
SZ 1	Leg set

2 Safety instructions

2.1 About this chapter

The product has been manufactured in accordance with the generally accepted rules of current technology. Nevertheless, there is a risk of injury or damage to property when using this product if this chapter and the safety and warning information contained in this document are not observed.

- ▶ Read this documentation carefully and completely before you start working with the product.
- ▶ Keep the documentation accessible to all users at all times.
- ▶ Always include them when giving the product to a third party.

2.2 Intended use

The product is an incomplete machine (according to EU Machinery Directive 2006/42/EC).

You may use the product as follows:

- For installation in a Rexroth transfer system TS 1.
- For transporting Rexroth workpiece pallets WT 1.

This product is intended for commercial and not private use.

The intended use also includes having read and understood these instructions, especially chapter "Safety instructions".

2.3 Improper use

Any use other than that described in the section "Intended use" is considered improper and is not permitted.
Bosch Rexroth AG is not liable for any damage resulting from improper use.
The user alone bears any risks associated with improper use.

Improper use of the product includes:

- Transporting goods other than those specified.
- Transporting personnel on the product or the transported material.
- Personnel climbing on the product
  – keep off the product.
- Non-commercial use.
- Using the product without securing against tipping.

2.4 Personnel qualifications

The activities described in this document require basic knowledge of mechanical and electrical principles, as well as knowledge of the corresponding technical terms. To ensure safe use, these activities should therefore only be performed by qualified personnel or by an instructed person acting under the direction of such a person.

"Qualified personnel" refers to those who can recognize potential hazards and take appropriate safety measures based on their technical training, knowledge, experience, and understanding of the relevant regulations pertaining to the work being performed.
Qualified personnel must observe all specific professional rules.

2.5 General safety instructions

- Observe the applicable accident prevention and environmental protection regulations.
- Observe the safety directives and regulations of the country in which the product is used or operated.
- Only use Rexroth products that are in proper working order.
- Observe all the notices on the product.
- Persons who assemble, operate, disassemble or maintain Rexroth products should not be under the influence of alcohol, drugs or medication that may affect their ability to react.
- Only use accessories and replacement parts approved by the manufacturer.
- Observe the technical data and ambient conditions specified in the product documentation.
- Inspect the product for obvious transport damage.

2.6 Product-specific and technology-specific safety instructions

General

- Do not attempt to modify the product.
- Do not expose the product to any mechanical loads under any circumstances. Never use the product as a handhold or step. Do not place any objects on the product.
- Always ensure that the product cannot topple over.

During transport

- Observe the transport instructions on the packaging.

During installation

- Lay cables and lines so that they cannot be damaged and no one can trip over them.
- Make sure the system component you are working on is depressurized and de-energized before assembling the product or inserting or removing plugs.
- Ensure that the system component cannot be switched back on.

- Before commissioning, make sure that all seals and plugs for the plug-in connections are correctly installed and not damaged to prevent liquids and foreign bodies from entering the product.

During commissioning

- Allow the product to acclimatize for a few hours prior to commissioning in order to prevent water condensation from forming in the housing.
- Make sure that all electrical and pneumatic connections are either in use or covered.
- Check the safety requirements according to DIN EN 619.
- Only commission a product that has been completely installed.
- Make sure that all the safety equipment which forms part of the product is present, has been properly installed, and is fully functional. Do not move, bypass or disable any safety equipment.
- Do not reach into moving parts.
- Check the product for malfunctions.

During operation

- Make sure that only authorized personnel perform the following tasks within the scope of the product's intended use:
  - Starting or operating the system or interfering with its normal operation.
  - Operating component or part adjusters.
- Only allow people to be in the immediate vicinity of the product when it is operating if they are authorized by the owner to be there. This also applies when the product is idle.
- Make sure that:
  - There are no obstacles preventing access to the emergency off switches.
  - All delivery points, workstations and passages are kept clear.
- Do not use emergency off switch feature for routine stopping.
- Regularly check the emergency off switch feature to ensure that they are functioning properly.
- In case of an emergency, fault, or any other anomaly, switch the product off and secure it against being switched on again.
- Do not reach into moving parts.
- An idle system is not necessarily a safe system, as stored energy can be released unintentionally or through improper maintenance procedures.

EMERGENCY STOP, malfunction

- After an EMERGENCY STOP or a malfunction, only switch the system back on once you have established and rectified the cause of the fault.

During cleaning

- Prevent cleaning agents from getting into the system.
- Never use solvents or corrosive cleaning agents. Only clean the product with a damp, lint-free cloth. Only clean with water and, if necessary, a mild cleaning agent.
- Do not use a pressure washer for cleaning.

During maintenance and servicing

- Make sure that access to maintenance and inspection points is kept unobstructed.
- Perform the required maintenance at the intervals specified in the operating instructions.
- Make sure that no line connectors, connections or components are disconnected as long as the system is supplied with pressure and voltage. Secure the system against being switched back on. In addition, measures are required to secure the system against being unintentionally switched on again, e.g. affixing a corresponding "Maintenance work" warning sign, "Repair work", etc. at the main switch!

- All safety covers that have been removed during maintenance must be refitted before commissioning!

During disposal

- Dispose of the product in accordance with the regulations in your country.

2.7 Safety equipment

- Make sure that all safety equipment belonging to the product is present, has been installed properly and is fully functional, and that access is not obstructed. Do not move, bypass or disable any safety equipment.
- Refer to the information in the following documents when designing safety equipment:
  - Directive 2006/42/EC (Machinery Directive)
  - DIN EN 619
  - DIN EN 60204-1

2.8 Personal protective equipment

- As the system owner or operator, you are personally responsible for ensuring the use of appropriate protective equipment when the product is being used (e.g. the wearing of safety shoes). All component parts of the personal protective equipment must be free of damage.

2.9 Operator workstations

This product does not come with a specific workstation for an operator.

3 Scope of delivery

The scope of delivery includes the following:

- Various products according to your order. Please use the shipping documents to check that the consignment is complete.
- 1 Assembly instructions "Lift transverse unit HQ 1/U"

3.1 Condition on delivery

1: HQ 1/U mounted, without motor

2: Protective collar (not where b = 80 mm)

3: Motor with associated fastening material and assembly instructions is supplied separately.

4: Housing element with two mounting kits

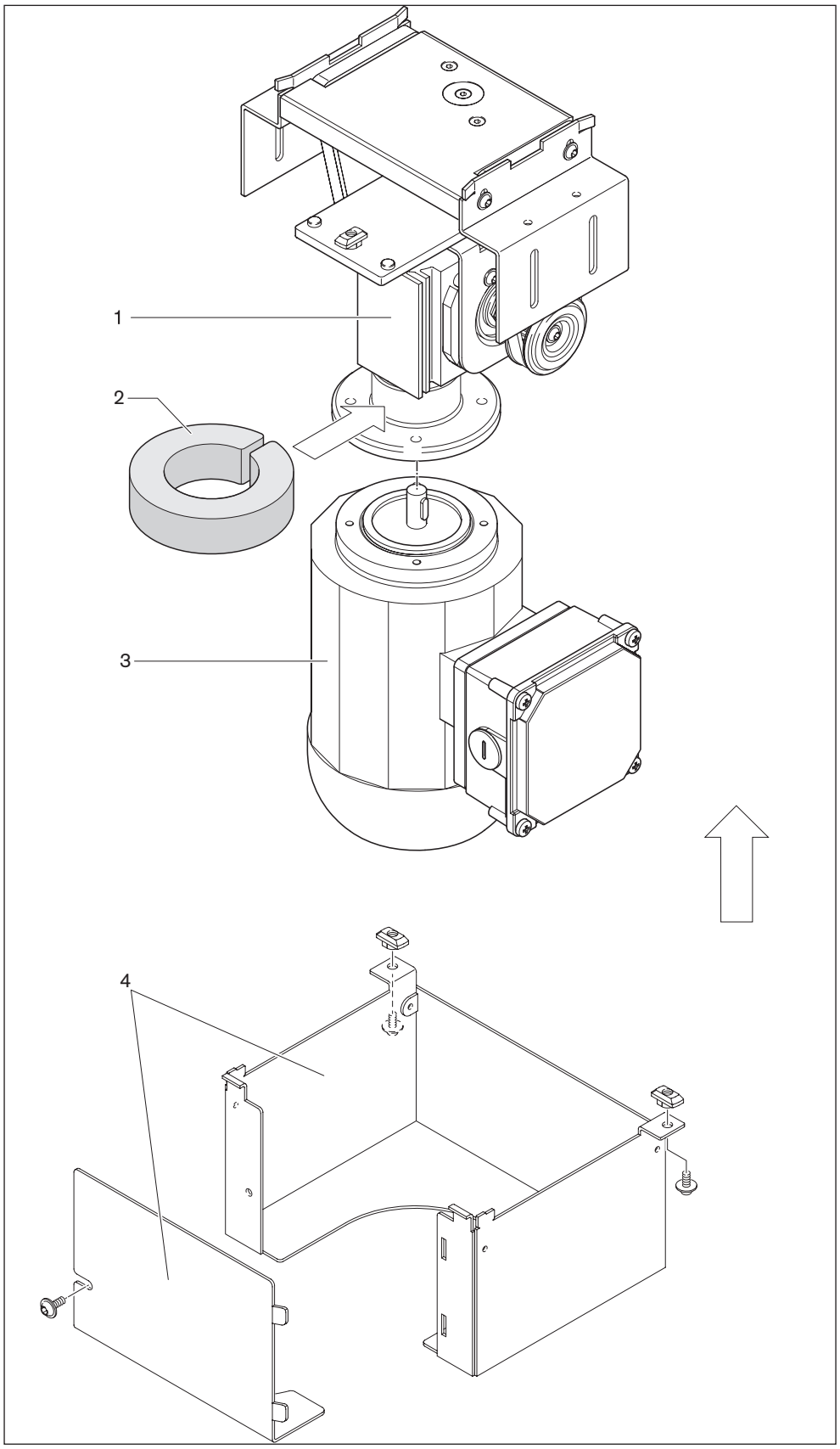


Fig. 1

3.2 Accessories

See also transfer system TS 1 sales catalog, **3 842 528 596**.

- Stop rail for WT 1 **3 842 564 179**
- Stop gate VE 1 **3 842 522 400**
- Stop gate VE 1/V **3 842 522 399**
- Damper DA 1/A **3 842 523 376**
- Switch bracket SH 1/U **3 842 542 555**
- Switch bracket SH 1/S **3 842 542 556**
- Proximity switch ⌀ 6.5 mm x 30 mm **3 842 542 500**
- Stop gate VE 1/20-E **3 842 563 101**
- Stop gate VE 1/D10-E **3 842 563 102**
- Stop gate VE 1/D-15 **3 842 567 561**
- Stop gate VE 1/D **3 842 547 758**

4 Product description

4.1 Specifications

4.1.1 Using lift transverse unit HQ 1/U:

- Outfeed and/or infeed of Rexroth workpiece pallet WT 1 from a longitudinal section to a transverse section in the Rexroth transfer system TS 1.
- Suitable for use in ESD applications.
- Reversible operation is permitted.

Lift transverse unit HQ 1/U design:

- Workpiece pallet total weight 3 kg.
- Pneumatic cylinder D = 25 mm, total stroke: 13 mm.

4.2 Device description

The lift transverse unit HQ 1/U is used to transport workpiece pallets WT 1 when outfeeding from a longitudinal section to a transverse section or when infeeding from a transverse section to a longitudinal section. The workpiece pallet is rotated by 90° in each case.

4.3 Main dimensions/functional dimensions

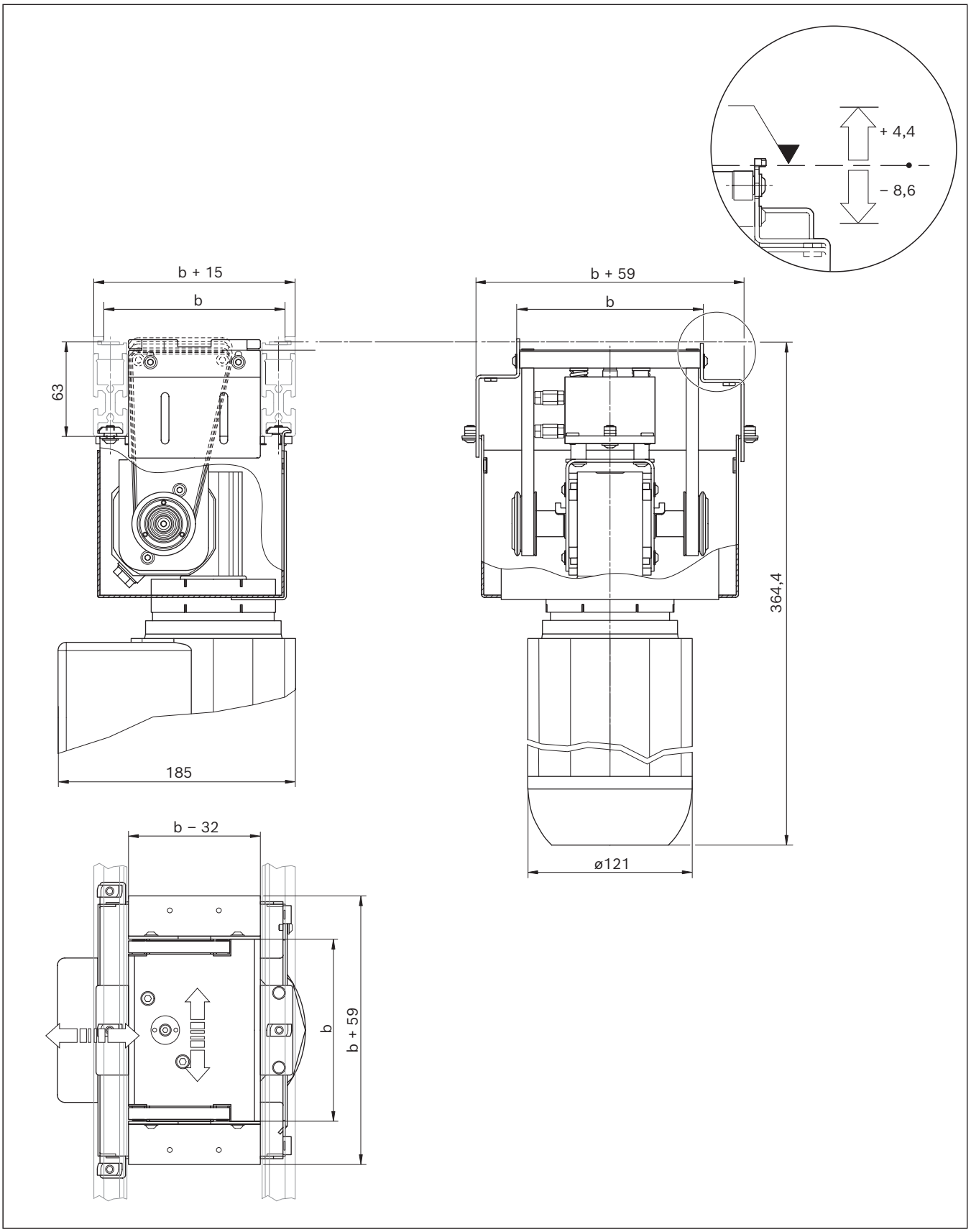


Fig. 2

4.4 Product identification

1: Order number
2: Designation
3: Information on the design and dimensions

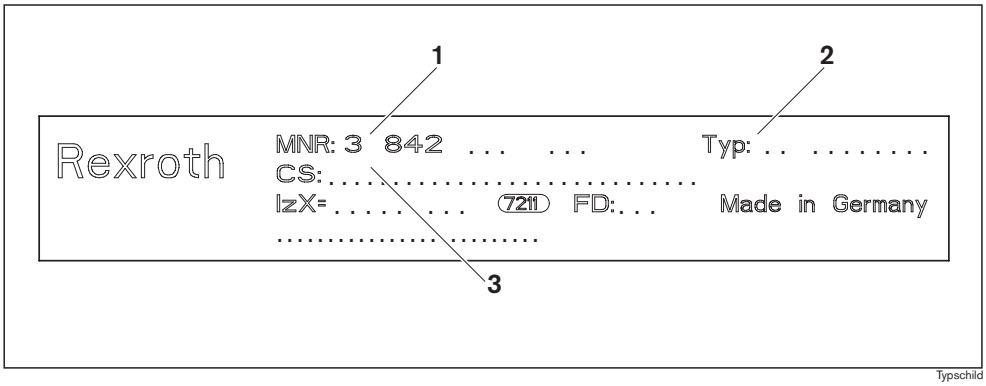


Fig. 3 Nameplate

5 Transport and storage

- Observe the transport instructions on the packaging.
- Transport weight: See delivery documents.
- Secure the product to prevent toppling!
- Always observe ambient conditions when storing and transporting the product, see chapter "Ambient conditions" on page 46.

5.1 Raising and lowering the product

⚠ WARNING

Suspended loads can fall!

Falling objects can result in severe injury (or even death).

- ▶ Use only slings with sufficiently high bearing loads (for product weight, see delivery documents).
- ▶ Make sure the lifting straps are correctly fastened before lifting the product!
- ▶ Secure the product against tipping over when lifting!
- ▶ Make sure that no one but the operator is in the hazard area during lifting and lowering!

5.2 Storing lift transverse unit HQ 1/U

- Only set the product down on a flat surface.
- Observe ambient conditions, see chapter "Ambient conditions" on page 46.
- For belt sections with mounted motor:
  Support the belt section so that the motor is not overloaded.

6 Assembly

6.1 Unpacking

- ▶ Lift the product out of its packaging.
- ▶ Dispose of the packaging material in accordance with the applicable regulations in your country.

6.2 Installation requirements

- ▶ Always observe ambient conditions when installing the product, see chapter "Ambient conditions" on page 46.

6.3 Installation position

- ▶ Install the product level and plumb, at right angles, and axially parallel.

  This ensures proper functioning and prevents premature wear.

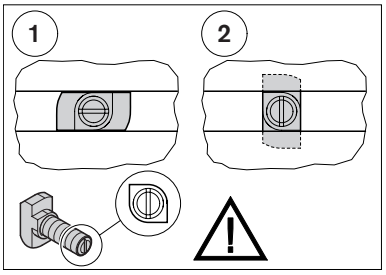
6.4 Fastening with T-bolts

You mount the transfer system TS 1 with T-bolt and flange nut.

- ▶ Make sure the T-bolt is in the correct position when inserting it into the slot and tightening it. The notch at the head of the screw indicates the orientation of the T-bolt.

1: T-bolt insertion position in the slot
2: T-bolt clamping position in the slot

Maximum tightening torque: 10 Nm



6.5 Required tools

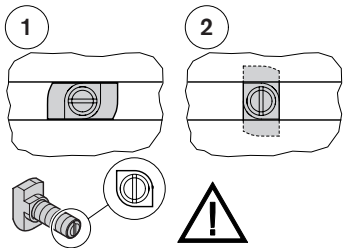
- Hex wrench (open-ended wrench), SW10, SW13, SW19, SW24
- Hex socket wrenches SW3, SW4, SW5, SW6, SW8
- Phillips screwdriver PH3
- Spirit level, minimum length 1200 mm

6.6 Required accessories

- Two throttle check valves M5 for air intake throttling.

6.7 Symbols used

Table 5: Symbols used

	Connection with T-bolt and flange nut. Make sure the T-bolt is in the correct position when inserting it into the slot and tightening it. The notch at the head of the screw indicates the orientation of the T-bolt. 1 = T-bolt insertion position in the slot. 2 = T-bolt clamping position in the slot. Maximum tightening torque: 10 Nm
 M_D=XX Nm	Hex wrench SW ... = wrench size ... mm M_D = xxNm = required torque xx Nm
 M_D=X Nm	Hex socket wrench SW ... = wrench size ... mm M_D = xNm = required torque x Nm
 	Screwdrivers for cross-head screws PZ ... = Pozidriv cross-head screw driver, size ... PH ... = Phillips cross-head screw driver, size ...
	Lubricate with specific grease: • gleitmo 585 K: gleitmo 585 K, www.fuchs-lubritech.com • Anti-Seize: Food Grade Anti-Seize/Loctite 8014, www.henkel.com
 Loctite 243  Loctite 601	Secure the screws with: • Loctite 243: Medium strength (detachable), www.loctite.de • Loctite 601: High-strength screw retention (non-detachable), www.loctite.de
	The marked parts are not required for the described assembly. Dispose of the parts or use them for other purposes.
	Graphical depiction of the installation steps. The numbers correspond to the sequence of installation steps, in accordance with the instructions in the accompanying text.
	Graphical depiction of the designation of components. The letters denote the components mentioned in the accompanying text.
	Detail view from a different direction, for example, the back or the bottom side of the product.

6.8 Installing HQ 1/U in section ST 1 (Fig. 4)

1. Identify the mounting location.
2. Align the T-nuts in the longitudinal direction.
3. Lift HQ 1/U into ST 1 from below.
   If necessary, support HQ 1/U until final attachment (step 6)!
4. Tighten cylinder head screws with 0 Nm.
5. Align HQ 1/U!
6. Tighten cylinder head screws with 5 Nm.

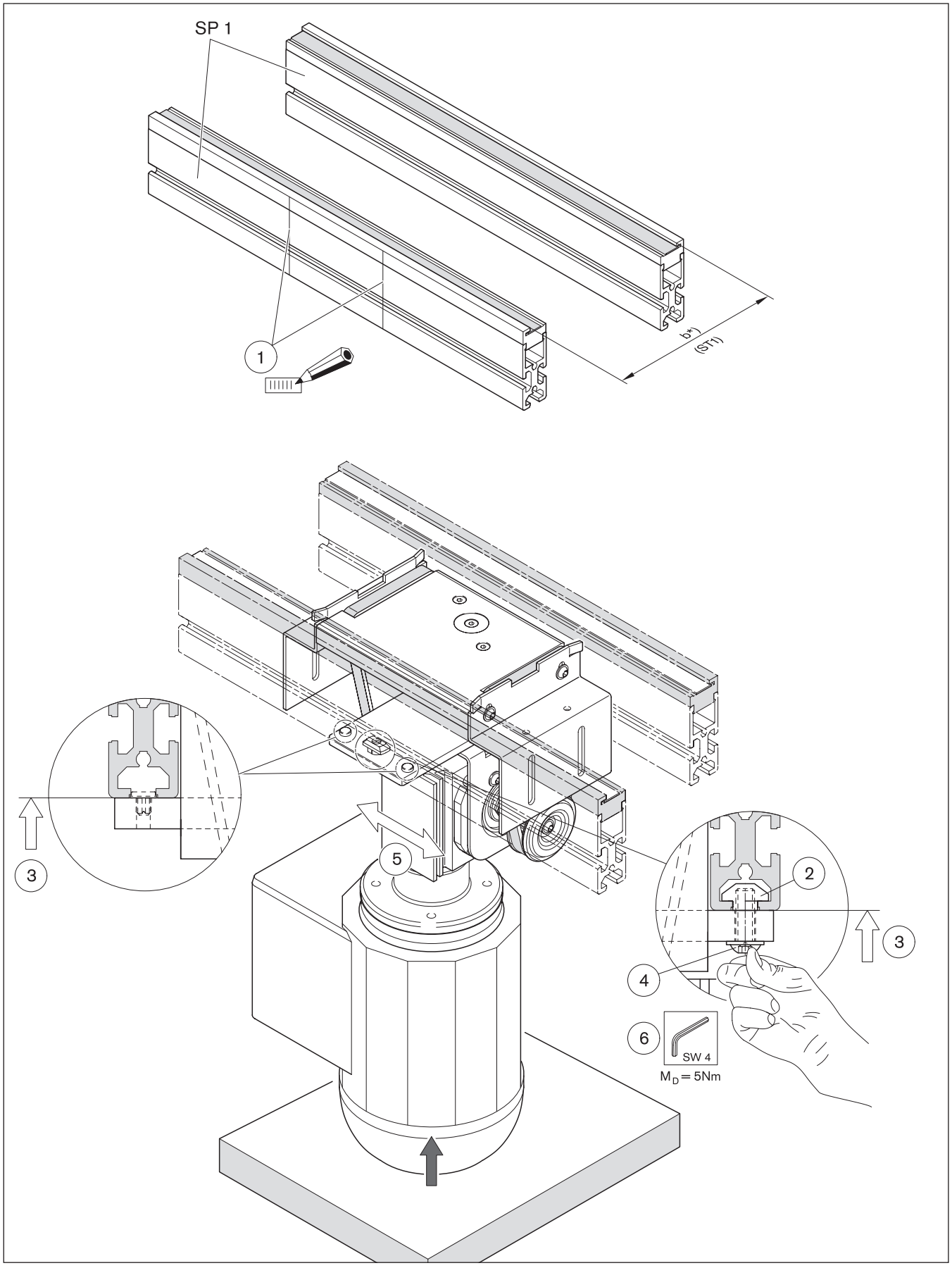


Fig. 4

*) Track width

6.9 Assembling the stop and switch bracket SH 1/S

Depending on whether the WT transport is longitudinal or transverse, install either stop **3 842 564 179** "**X**" or switch bracket SH 1/S "**Y**".

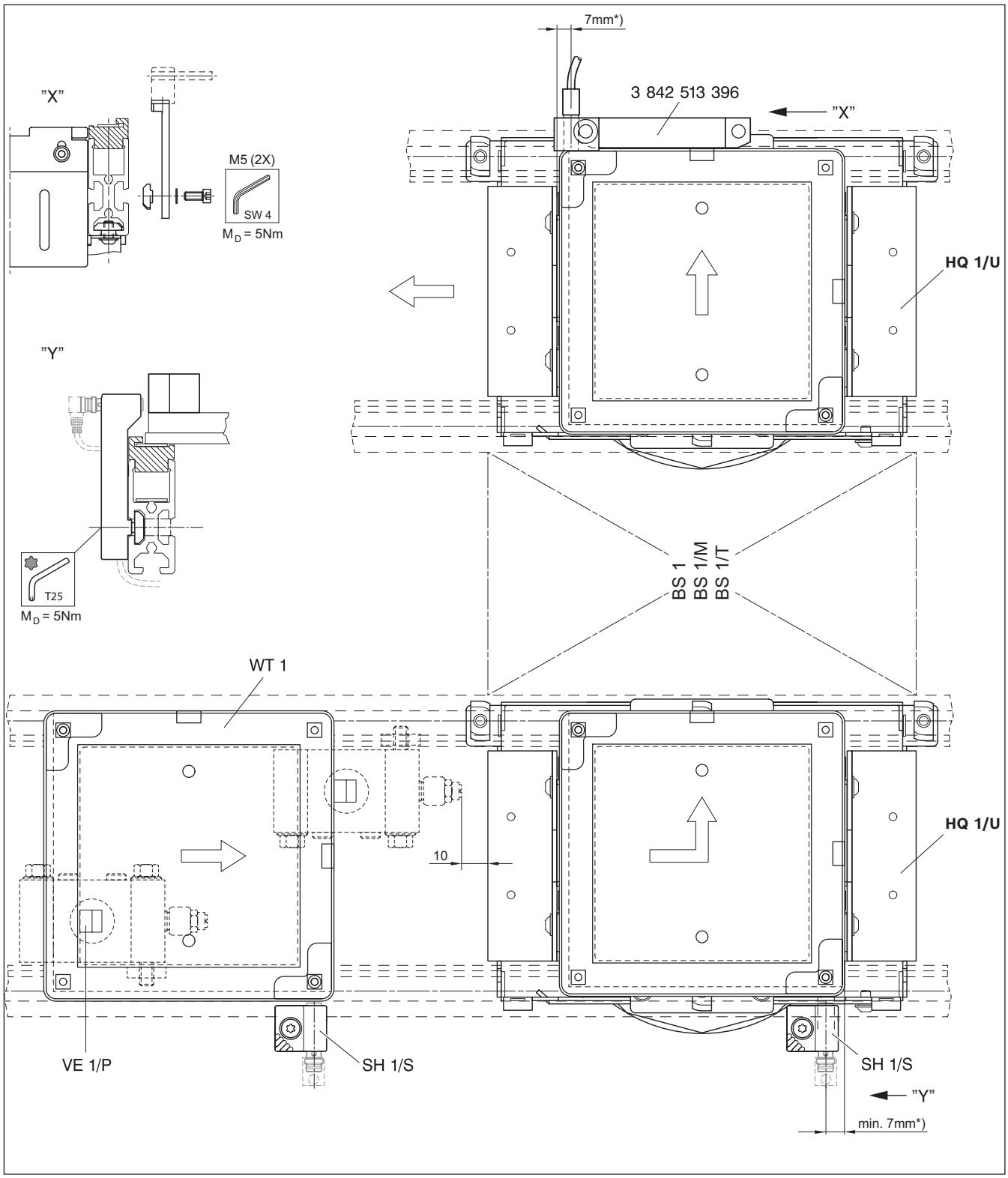


Fig. 5

*) Center of switch/stop HQ 1/U

6.10 Assembling the protective equipment

Assemble the housing element after the test run and before the final commissioning (Fig. 6)!

1. Push the housing element with the opening laterally over the gear collar.
2. Hook the two suspension straps "**A**" into the lower T-slot of SP 1.
3. On the other side, lightly (slidably) secure 2x in the lower T-slot of SP 1 using the T-nut mounting kits.
4. Guide the sheet with the fixing lugs "**B**" into longitudinal slots on the housing element and secure with a self-tapping screw.

   The motor projects downwards over the housing element through the opening provided for this purpose.
5. Align the gaps between the inner edge of the housing element and HQ 1/U for reasons of functional safety and then finally tighten the screws.

   HQ 1/U must not touch the housing element during the upward and downward stroke!

Please note:

Pinching edges cannot be completely avoided by design. Depending on the application, additional protective covers may be required.

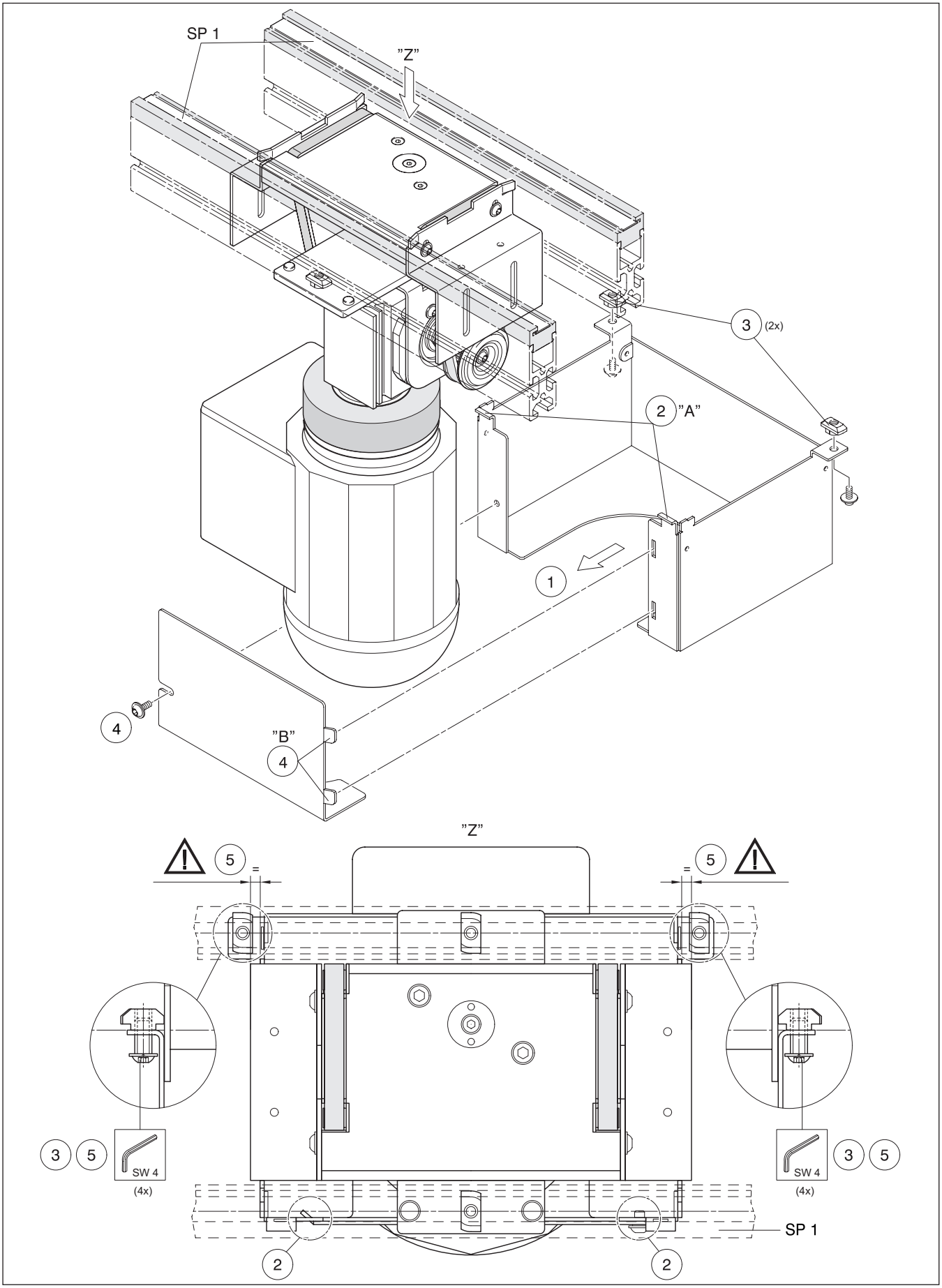


Fig. 6

7 Installation

7.1 Connecting the power supply

⚠ WARNING

High electrical voltage!

Risk of severe injury or death from electric shock.

- ▶ Disconnect the relevant system component before you perform any maintenance or repair work.
- ▶ Secure the system against being unintentionally switched on again.

- Choose control and sensor elements in accordance with EN ISO 13849. Factor in the load being transported and the transport speed.
- The motor may only be connected by qualified personnel!
- Comply with VDE regulation VDE 0100 for Germany, or corresponding regulations in the country of use.

7.1.1 Motor connection

- Observe the available line voltage!
- The motor connection must be made according to the electrical connection values on the nameplate (Fig. 7).
- Connect the motor in either a wye or a delta configuration in accordance with the wiring diagrams, see Fig. 8 on page 23, and the wiring diagram in the terminal box.
- The motor is fitted with a bimetal temperature monitoring switch (potential-free thermal contact, 230 V AC, 300 mA). Wire the motor so that it is de-energized when the switch is triggered.
- Insert the cable so that it cannot get damaged during operation.
- Optional motor connection with plug (AT = S), see Fig. 9 "Optional motor connection with plug (AT = S)" on page 23. Observe the pre-fuse!

7.1.2 Checking the rotational direction of the motor

- ▶ Let the system run only briefly (max. 2 s) and make sure the motor is rotating in the correct rotational direction.
- ▶ Switch any two wires (U1, V1 or W1, see Fig. 8 on page 23) to change the motor's rotational direction.

Please note:

For motors that come with a fitted plug, correct the rotational direction in the control cabinet or at the socket contact (socket side). This makes replacement easier.

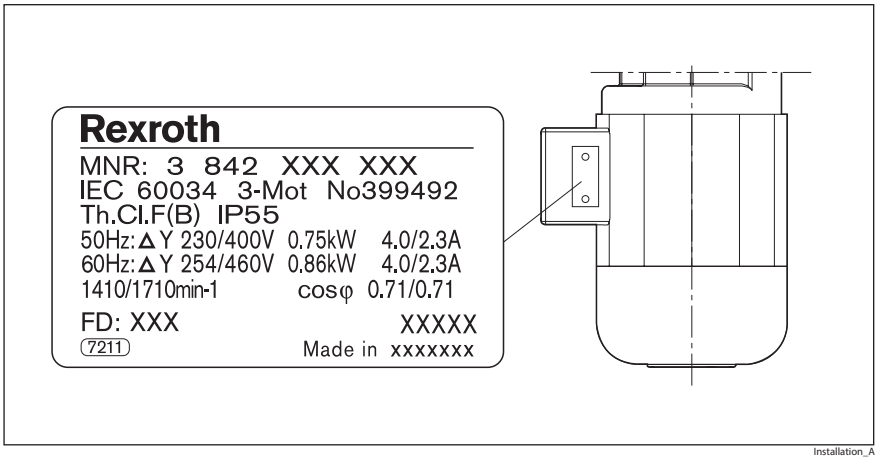


Fig. 7 Motor nameplate (example)

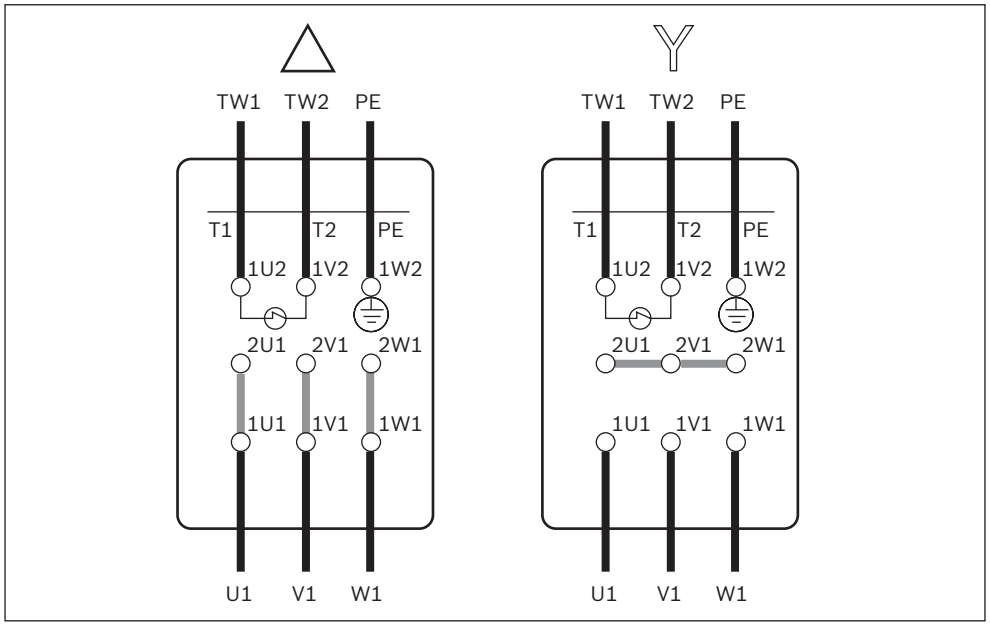


Fig. 8 Delta/wye connection diagrams

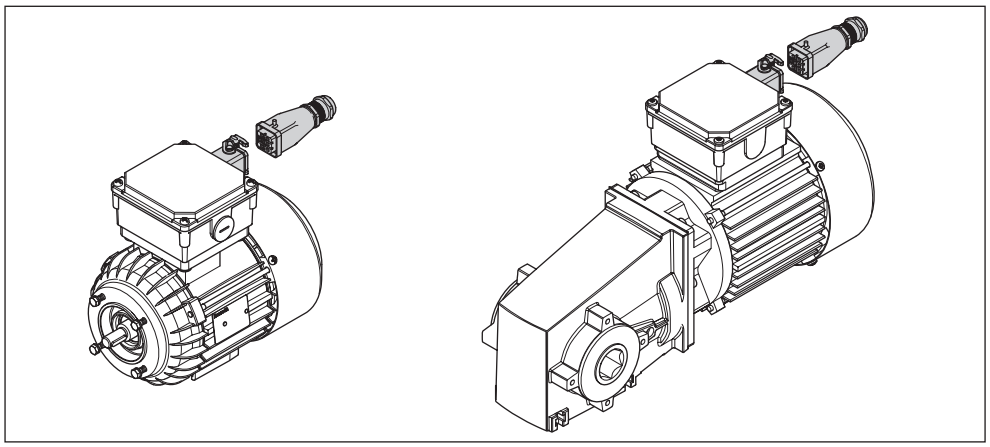
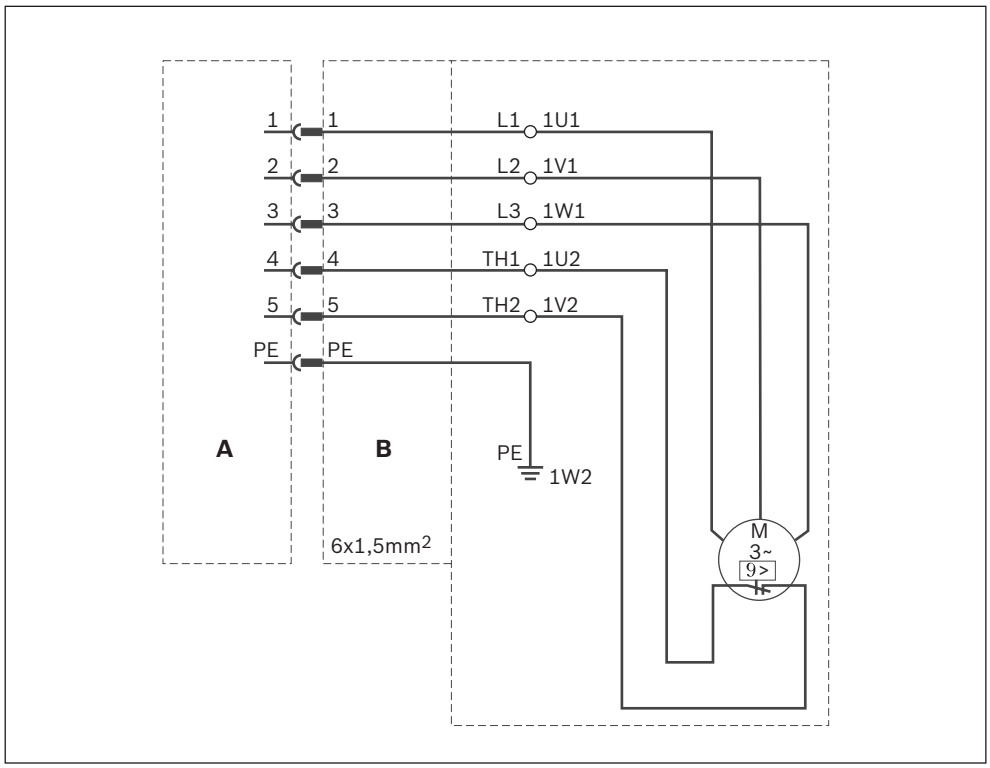


Fig. 9 Optional motor connection with plug (AT = S)



Installation_S-plan

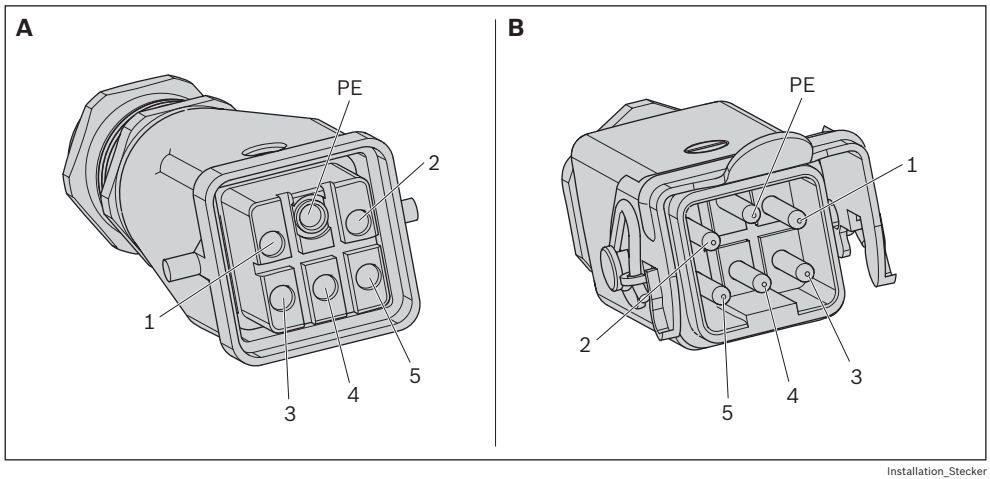
Fig. 10 Motor connection with cable/plug (AT = S), circuit diagram

A: Connection cable side
B: Motor side

The push-in fitting consists of UL components.

Connection list

3~ motor connection terminals	Pin no.	Code
U1	1	L1
V1	2	L2
W1	3	L3
TW1	4	Th1
TW2	5	Th2
	PE	PE



Installation_Stecker

Fig. 11 Motor connection with plug (AT = S), push-in fitting

A: Connection cable side
B: Motor side

7.2 Connecting the compressed air supply

⚠ WARNING

High pneumatic pressure!

Risk of severe injury or death.

- ▶ Switch off the compressed air supply to the relevant system component before assembling, disassembling or connecting the product to the pneumatic system.
- ▶ Secure the system against being unintentionally switched on again.

- ▶ Oiled or non-oiled, filtered, dry compressed air.
  Operating pressure: 4 to 6 bar

- ▶ Connect the compressed air connections "**P**" at bracket pivoting screw fittings (Fig. 12) via plug-in fixing connections (pipe outer diameter 4 mm) to the associated control valve or to the maintenance unit.

  The customer should fit a throttle check valve between the swivel fitting and the control valve.

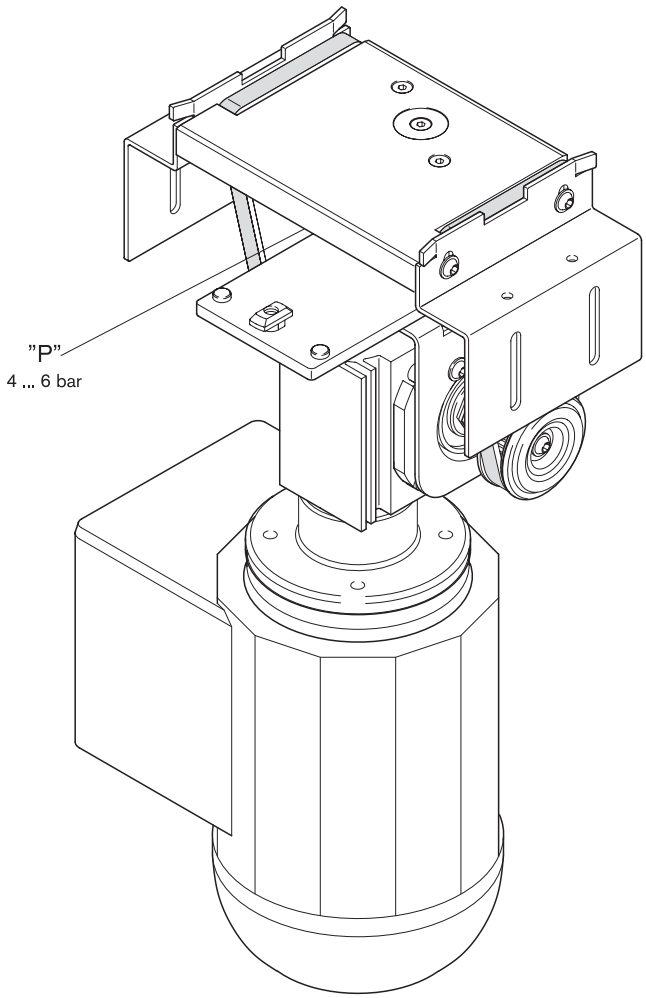


Fig. 12

8 Commissioning

8.1 Initial commissioning

⚠ CAUTION

Sudden movements, falling workpiece pallets

Injuries caused by falling objects.

- ▶ Make sure that the product was properly assembled by qualified personnel (see chapter "Personnel qualifications" on page 8) before starting up the product.

NOTICE

Malfunctions due to incorrect assembly and commissioning

The product can be damaged; the service life may be adversely affected.

- ▶ Commissioning requires basic mechanical, pneumatic and electrical knowledge.
- ▶ The product should only be recommissioned by qualified personnel (see chapter "Personnel qualifications" on page 8).

- Under EU Machinery Directive 2006/42/EC, all transfer systems must be equipped with an emergency off feature.
- The surfaces of motors and gears can reach temperatures of over 65 °C under certain load and operating conditions. In these cases, you must comply with the respective applicable accident prevention regulations (UVV) by taking appropriate constructive measures (safety guards) or by affixing/displaying appropriate warning signs!
- Make sure that all electrical and pneumatic connections are either used or covered. Make sure that all bolted connections and plug-in connections are properly seated. All relevant protective covers must be fitted.
- Only inspect and adjust continuous conveyors that are in motion or operation when the protective equipment is in place.
- Observe DIN EN 13857 when you remove or replace protective equipment and/or bypass safety equipment.
- Test runs with open paneling should only be performed by a person with appropriate knowledge and experience using jog switches, and if there is no possibility of interference from other switching devices.
- Only commission the product if all safety equipment has been installed in the system and is ready for use.
- Only commission a product that has been completely installed.

8.2 Residual risks

Table 6: Residual risks

	Location	Situation	Hazard		Action
1	Conveyor medium pinch point	Pieces of clothing or long hair can be pulled in		Crushing, pulling out of hair	Do not reach into the system while it is running. Wear protective clothing.
2	Cross connector, drive shaft: Between component and workpiece pallet	Trapping of body parts		Shearing	Do not reach into the system while it is running.
3	Between workpiece pallets	Trapping of body parts		Crushing	Do not reach into the system while it is running.
4	Conveyor medium pinch point	Pieces of clothing or long hair can be pulled in		Crushing, pulling out of hair	Do not reach into the system while it is running. Wear protective clothing.

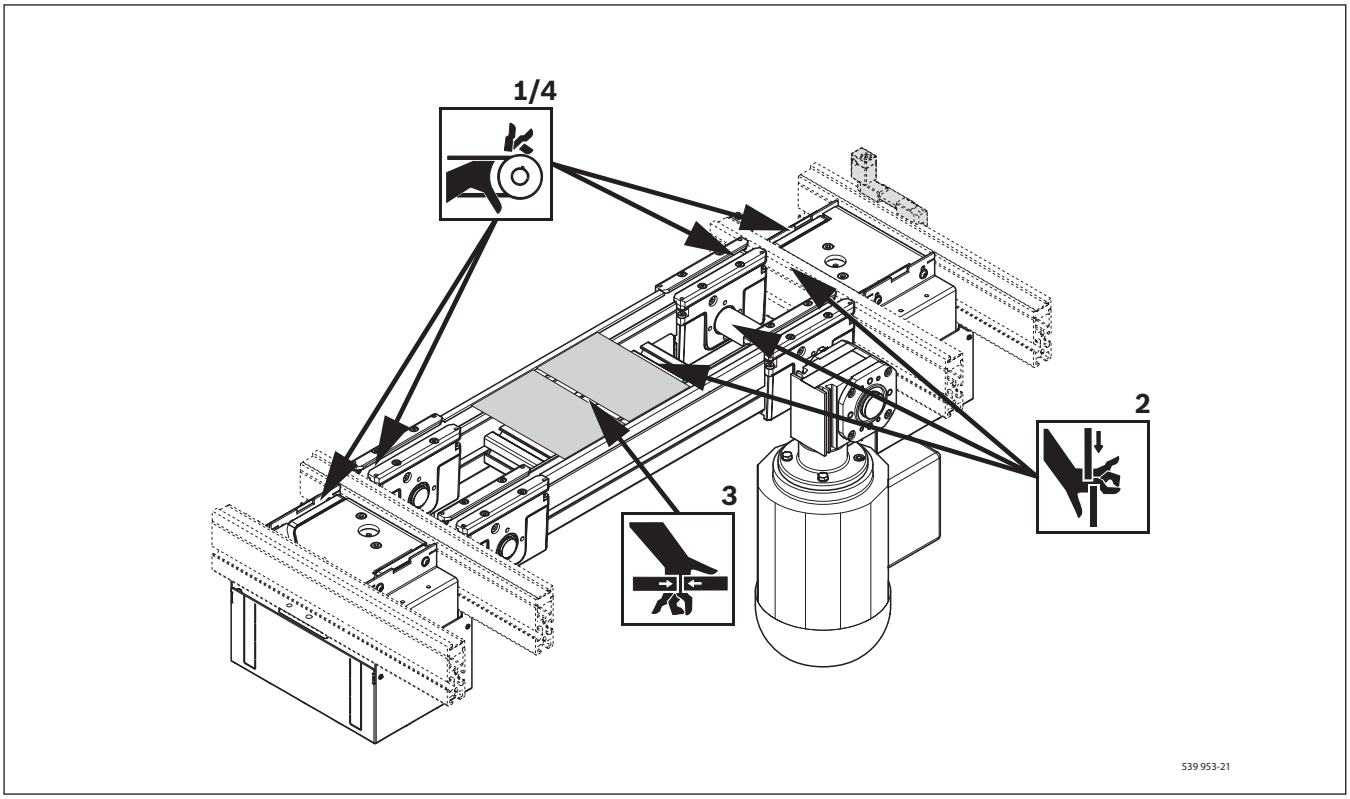


Fig. 13 Residual risks

8.3 Re-commissioning after a standstill

Follow the steps outlined for the initial commissioning.

8.4 Functional check

The functional check is described in function plans 1 to 4 (Fig. 14 to Fig. 17).

General abbreviations

WT	Workpiece pallets
VE	Stop gate
S ...	Signal transmitter
Y ...	Valve
Z ...	Cylinder
HS	Main section
NS	Secondary section
1	Start pulse after end of start-up
2	Enable cyclic travel
S1	WT in position at VE 1/1 (Z1)
S2	WT after VE 1/1 (Z1)
S3	WT in position on EQ 1- delayed start 100...200 ms
S4	Enable main section 1
S5	Enable secondary section
S6	WT before VE 1/4 (Z4)
S7	WT after VE 1/4
S8	WT on EQ 1
S9	Enable main section 2
S10	WT before VE 1/5 (Z5)
S11	WT after VE 1/5 (Z5)
Y1	Main section VE (Z1)
Y2/Y2.1/2.2	Lifting cylinder EQ (Z2)
Y3/Y3.1/3.2	Lifting cylinder EQ (Z3)
Y4	Secondary section VE (Z4)
Y5	Main section VE (Z5)
Y6	VE in EQ (Z6)
P10	Priority
A1	Straight-ahead signal

8.4.1 Function plan 1

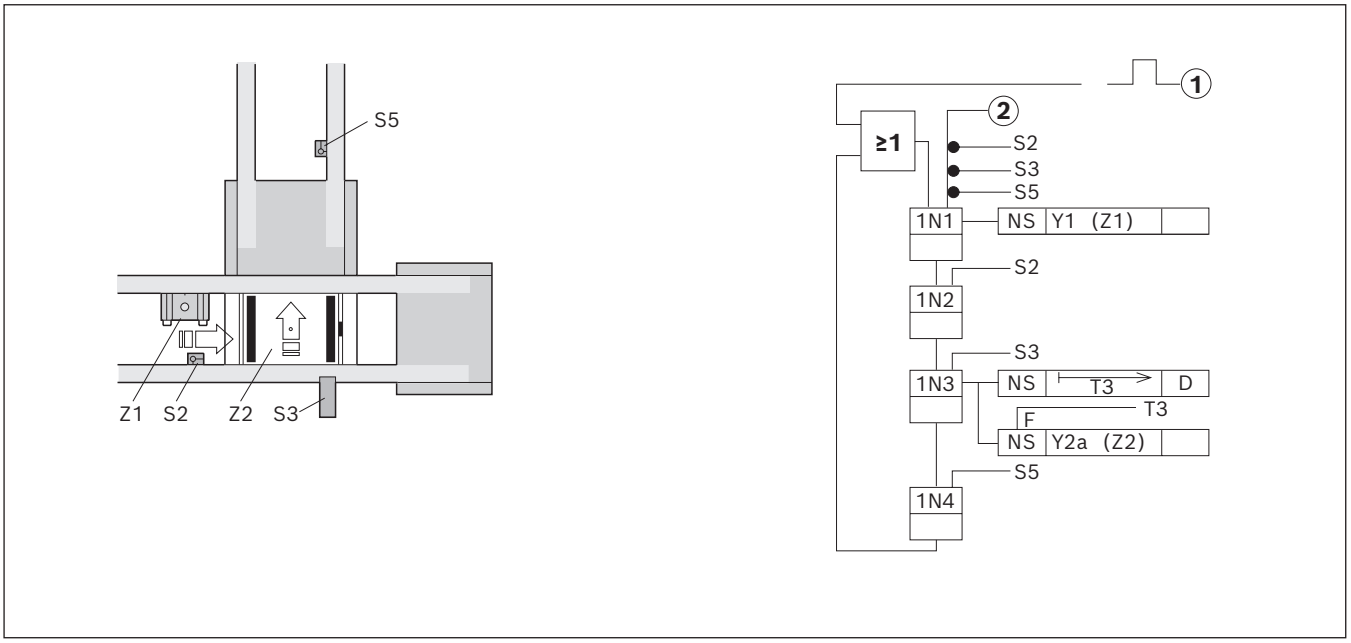


Fig. 14

See also explanation on page 28.

8.4.2 Function plan 2

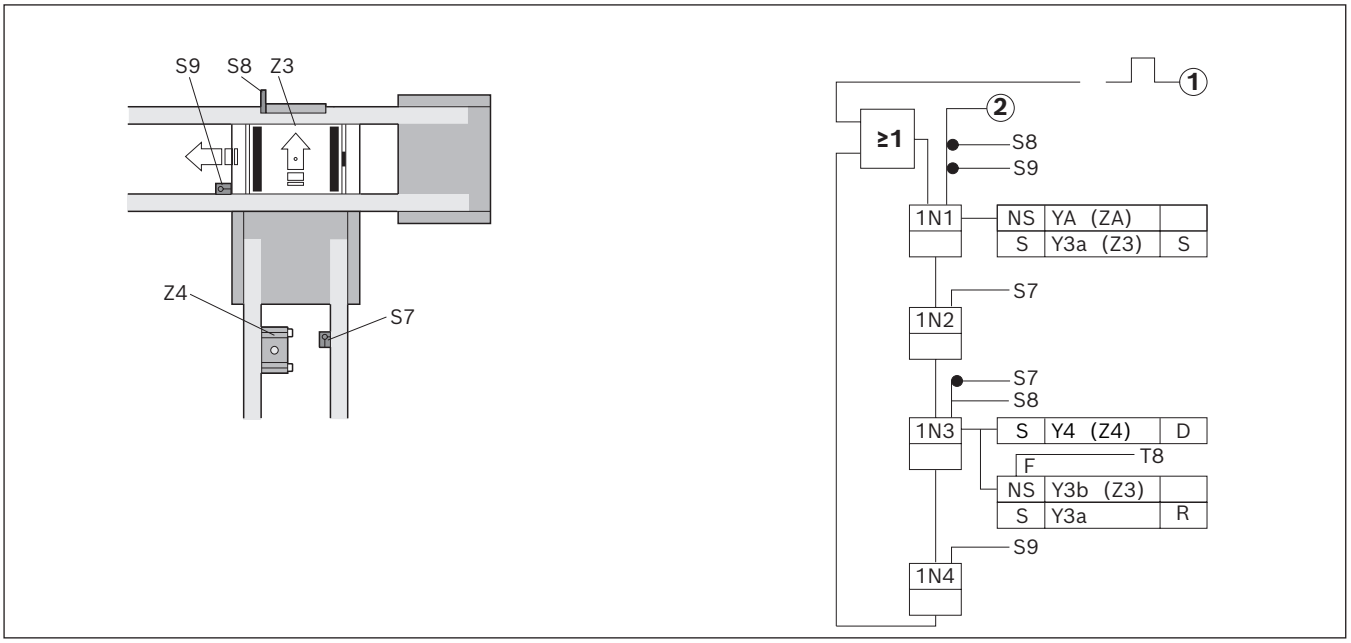


Fig. 15

See also explanation on page 28.

8.4.3 Function plan 3

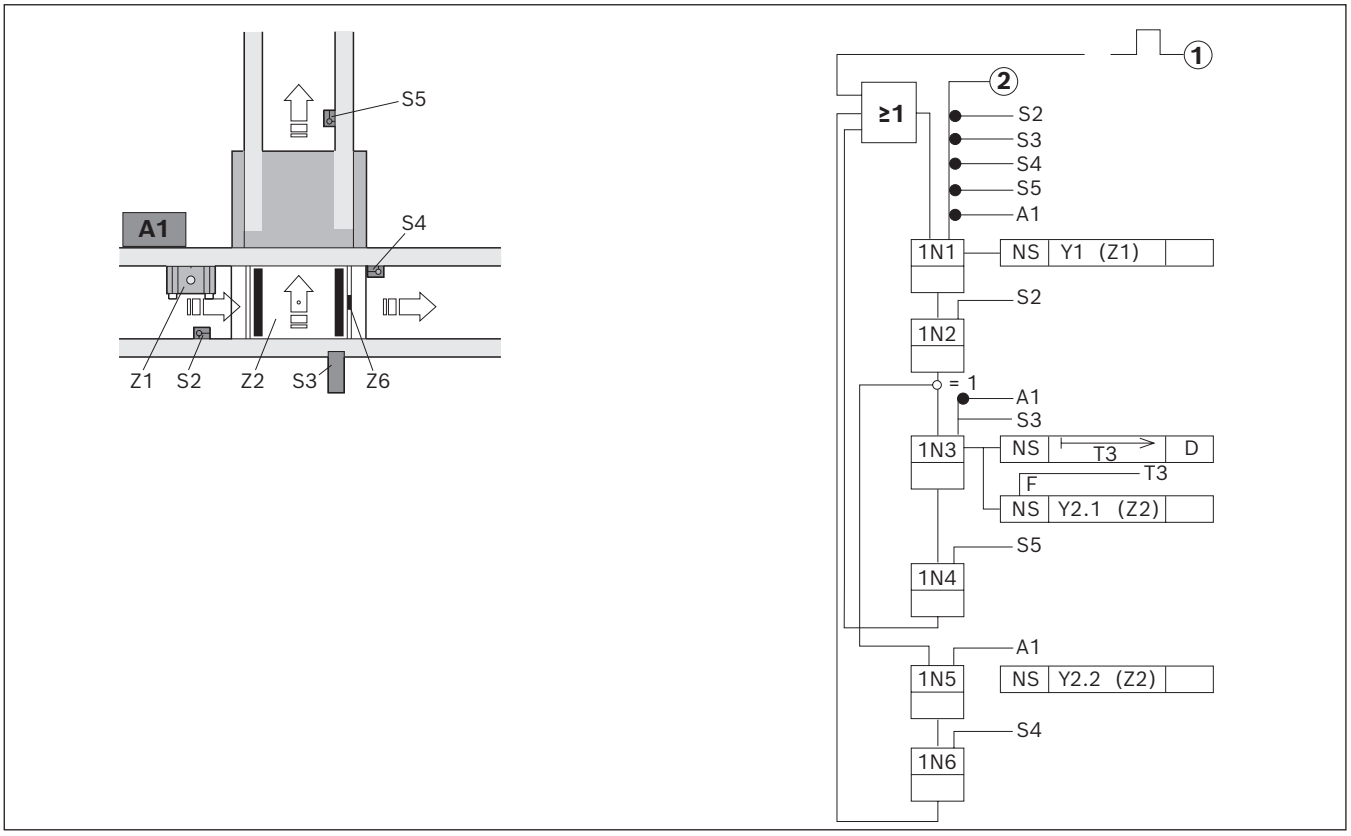


Fig. 16

See also explanation on page 28.

8.4.4 Function plan 4

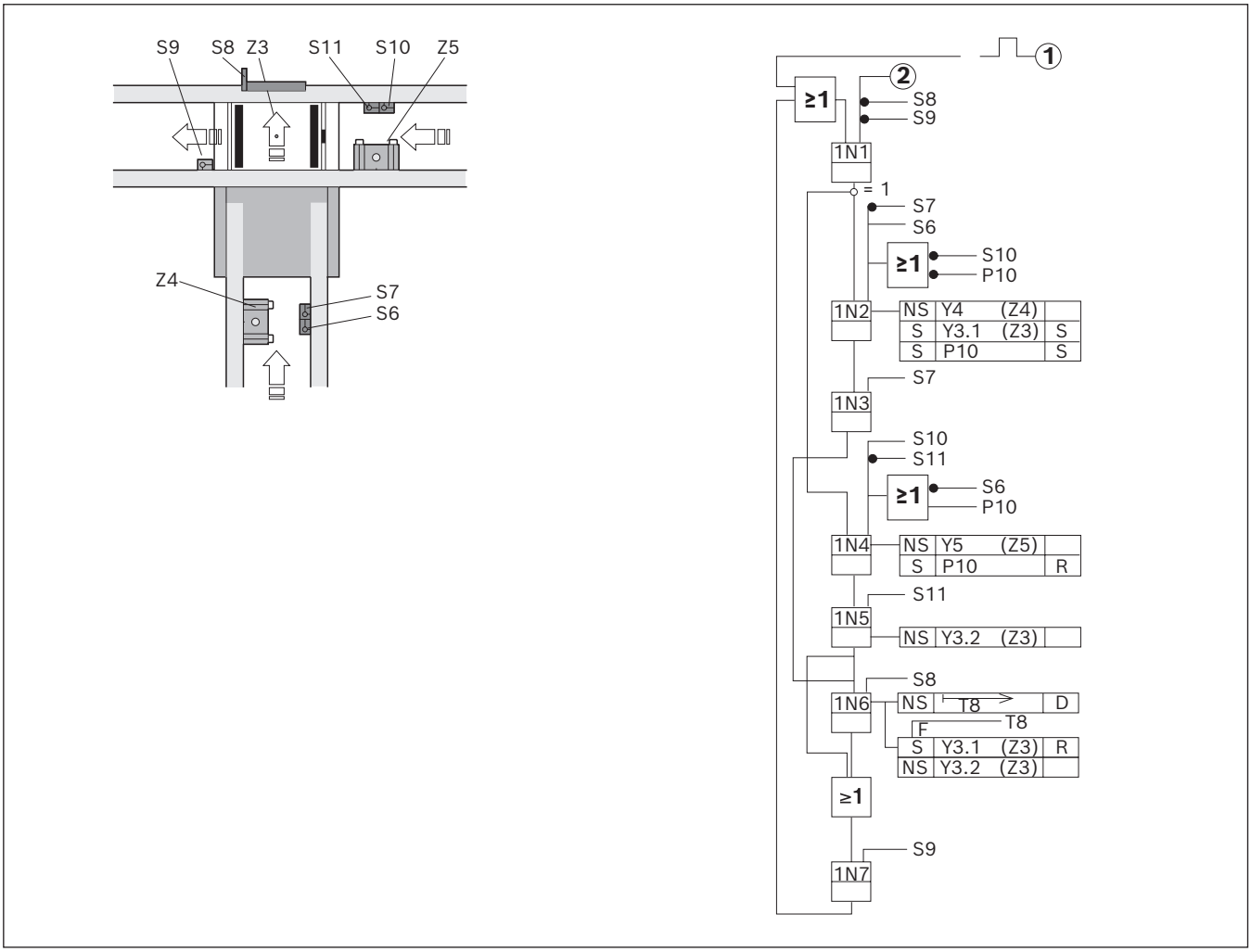


Fig. 17

See also explanation on page 28.

8.4.5 Pneumatic circuits, examples

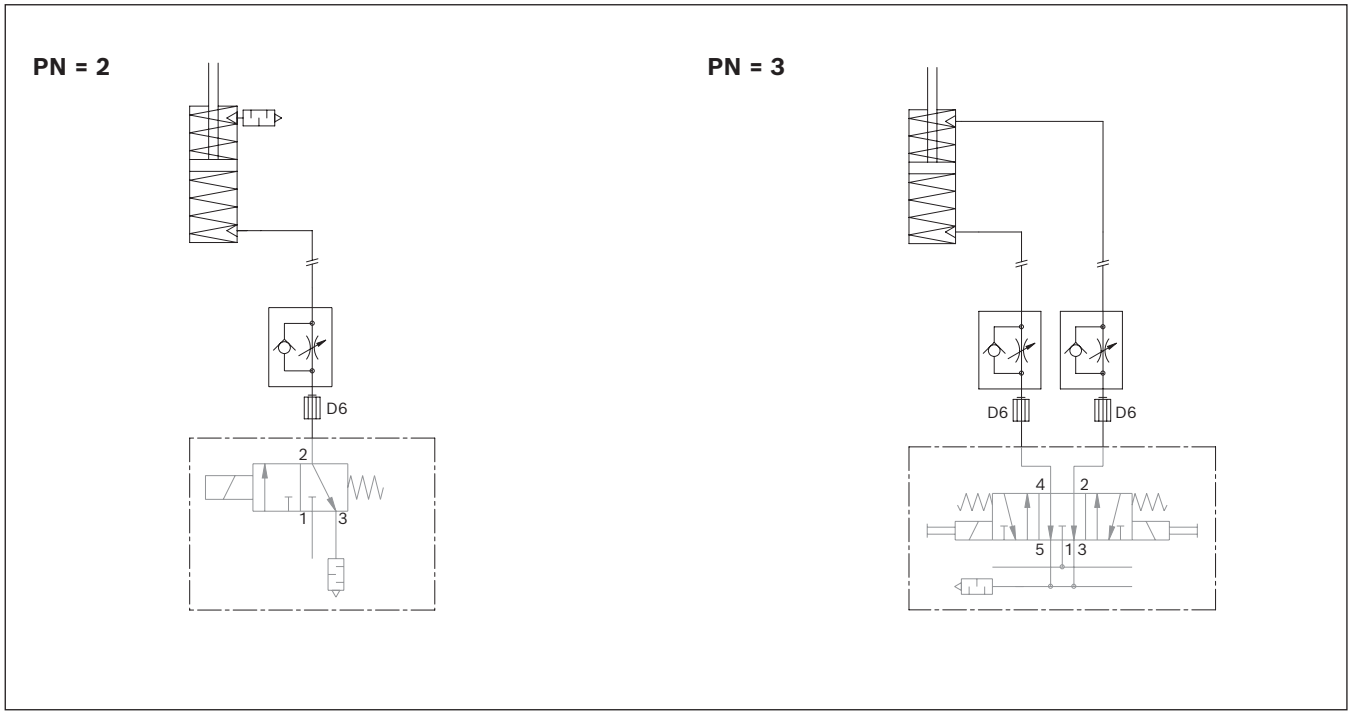


Fig. 18

9 Operation

⚠ CAUTION

Hot electric motor surfaces during operation!

Risk of burns from touching hot surfaces above 65 °C

- ▶ Install appropriate guards.
- ▶ Let the unit cool down for at least 30 minutes before performing maintenance and/or repair work.

9.1 Information on operation

9.1.1 Wear

- Wear is caused by the basic principle of this system and cannot be avoided. Constructive measures and selection of the proper materials will help functional safety last for the service life of the system. However, wear depends on the operating, maintenance, and ambient conditions of the system and the location (resistance, contamination).
- Overloading the conveyor section can cause the conveyor medium to fail and motors and gears to fail prematurely.
- When overloading of pneumatic components occurs, function cannot be guaranteed.

9.1.2 Measures to reduce wear

The following obvious steps reduce wear:

- Switch off the conveyor section during line downtime, e.g. during breaks, at night, and at weekends.
- Do not select a higher speed for the conveyor section than that required for the corresponding function.
- Very important: Avoid contamination from abrasive media; reduce contamination through regular cleaning.

9.1.3 Loading the workpiece pallet

The modular units are designed and tested under the assumption that the workpiece pallets will not all have the same weight during one cycle on one conveyor section. Workpiece pallets (WT) are both loaded and unloaded.

Significantly different weights may require special measures to avoid malfunctions. This applies to:

- the permitted accumulation length before stop gates.
- the damper function.
- dampened stop gates.

9.1.4 Ambient conditions

- Our products are resistant to many media that are commonly found in manufacturing, such as water, mineral oil, grease and detergents. Contact your

Rexroth representative if you have any doubts about resistance to specific chemicals, such as test oil, doped oils, corrosive detergents, solvents or brake fluid.

- Avoid prolonged contact with highly reactive acidic or alkaline materials.
- Contamination – specifically from abrasive media from the surrounding area, such as sand and silicates, e.g. from construction as well as machining processes in the transfer system (e.g. welding beads, pumice dust, glass shards, chips, loose parts, etc.) – can greatly increase wear. The maintenance intervals should be considerably shortened under such conditions.
- Resistance to media and contamination does not mean that functional safety is guaranteed in every case.
  - Liquids that thicken as they evaporate and become highly viscous or adhesive (sticky) can lead to malfunctions.
  - If they get carried onto systems with rollers, media which have lubricating properties can lead to a reduction in the drive power that is transmitted via friction.

Such cases require special attention when planning the system and adjusting the maintenance intervals.

10 Maintenance and repair

⚠ WARNING

High electrical voltage!

Risk of severe injury or death from electric shock.

- ▶ Disconnect the relevant system component before performing any maintenance or repair work.
- ▶ Secure the system against being unintentionally switched on again.

High pneumatic pressure!

Risk of severe injury or death.

- ▶ Switch off the compressed air supply to the relevant system component before performing any maintenance or repair work.
- ▶ Secure the system against being unintentionally switched on again.

⚠ CAUTION

Hot electric motor surfaces during operation!

Risk of burns from touching hot surfaces above 65 °C

- ▶ Install appropriate guards.
- ▶ Let the unit cool down for at least 30 minutes before performing maintenance and/or repair work.

- Only inspect and adjust continuous conveyors that are in motion or operation when the protective equipment is in place.
- Observe DIN EN 13857 when you remove or replace protective equipment and/or bypass safety equipment.
- Test runs with open paneling should only be performed by a person with appropriate knowledge and experience using jog switches, and if there is no possibility of interference from other switching devices.

10.1 Cleaning and care

NOTICE
Bearing failure Applying grease-dissolving substances to the bearing points, e.g. when cleaning, leads to the failure of the bearings. There is a risk of damage to property, and service life may be reduced. ▶ Keep degreasers or aggressive cleaning agents away from the bearings! ▶ Only clean the product with water and a slightly damp cloth.
Failure of the toothed belt Applying grease-dissolving substances to the toothed belt, e.g. when cleaning, leads to the failure of the toothed belt. There is a risk of damage to property. ▶ Keep degreasers or corrosive cleaning agents away from the toothed belt! ▶ Only clean the product with water and a slightly damp cloth.

10.2 Inspection

10.2.1 Lift transverse unit drive belt

Check the drive belt regularly (1x/week) for wear, dirt and foreign objects by visual inspection. For visual inspection, remove the attachment kit cover.

10.2.2 Lift transverse unit transport toothed belt

Check the transport toothed belt regularly (1x/week) for wear, dirt and foreign objects by visual inspection.

10.3 Maintenance

10.3.1 Bearings

The bearings have lifelong lubrication and are maintenance-free under normal conditions of use.

10.3.2 Gear (1, Fig. 19)

The gear is maintenance-free!

10.3.3 Motor (2, Fig. 19)

To ensure adequate cooling of the motor, you must regularly remove deposits of dirt and dust:

- from the surface of the motor.
- from the intake openings on the fan hood.
- from between the cooling ribs.

The cleaning intervals depend on the ambient and operating conditions.

10.3.4 Toothed belt (3, Fig. 19)

Visual inspection once a week for wear, dirt and foreign objects.

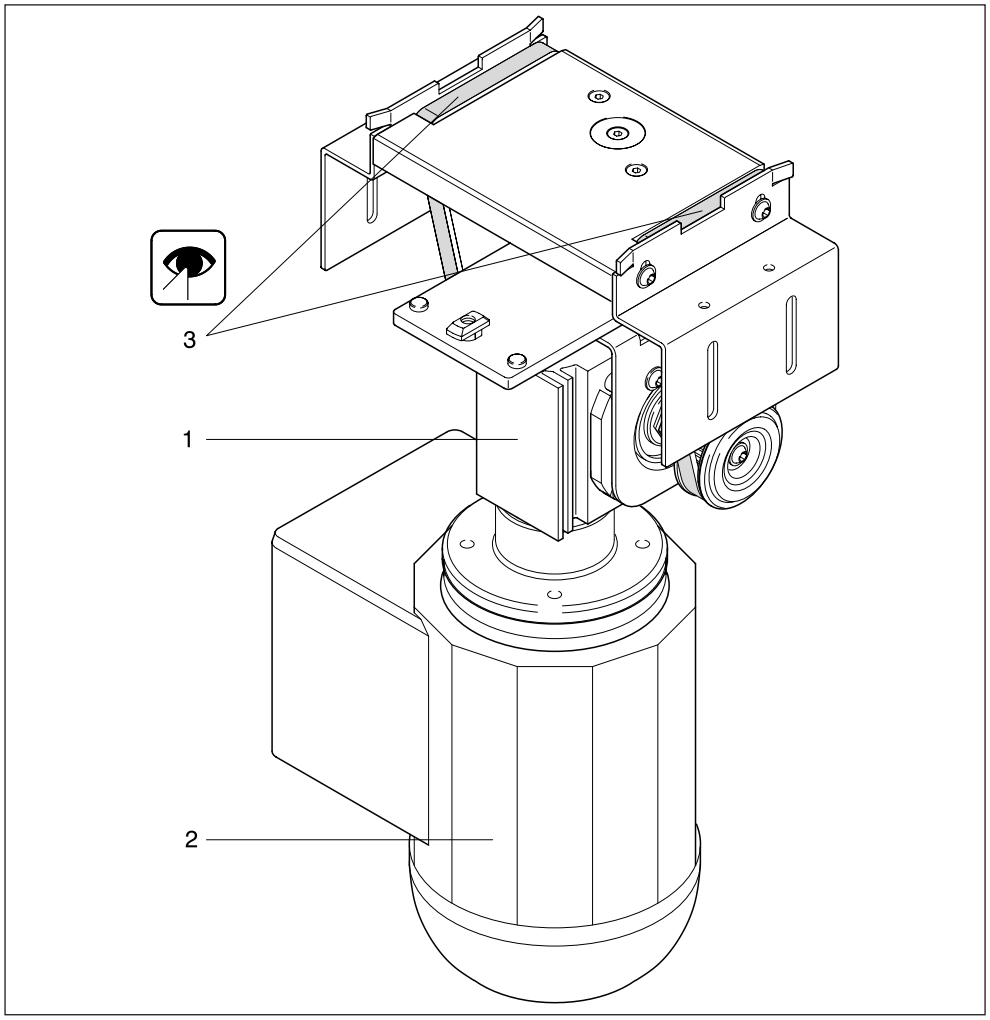


Fig. 19

10.4 Repair

10.4.1 Required tools

- Hex wrench (open-ended wrench) SW8, SW10, SW13, SW17, SW19, SW24
- Hex socket wrenches SW3, SW4, SW5, SW6

10.4.2 Replacing the motor (Fig. 20)

1. Remove protective equipment.
2. Loosen the four hexagon screws (SW 8) at the gear flange and remove the motor to the bottom.
3. Before installation of the new motor, pull the protective cap "**X**" from the drive shaft.
4. Grease the motor drive shaft (gleitmo 585 K).

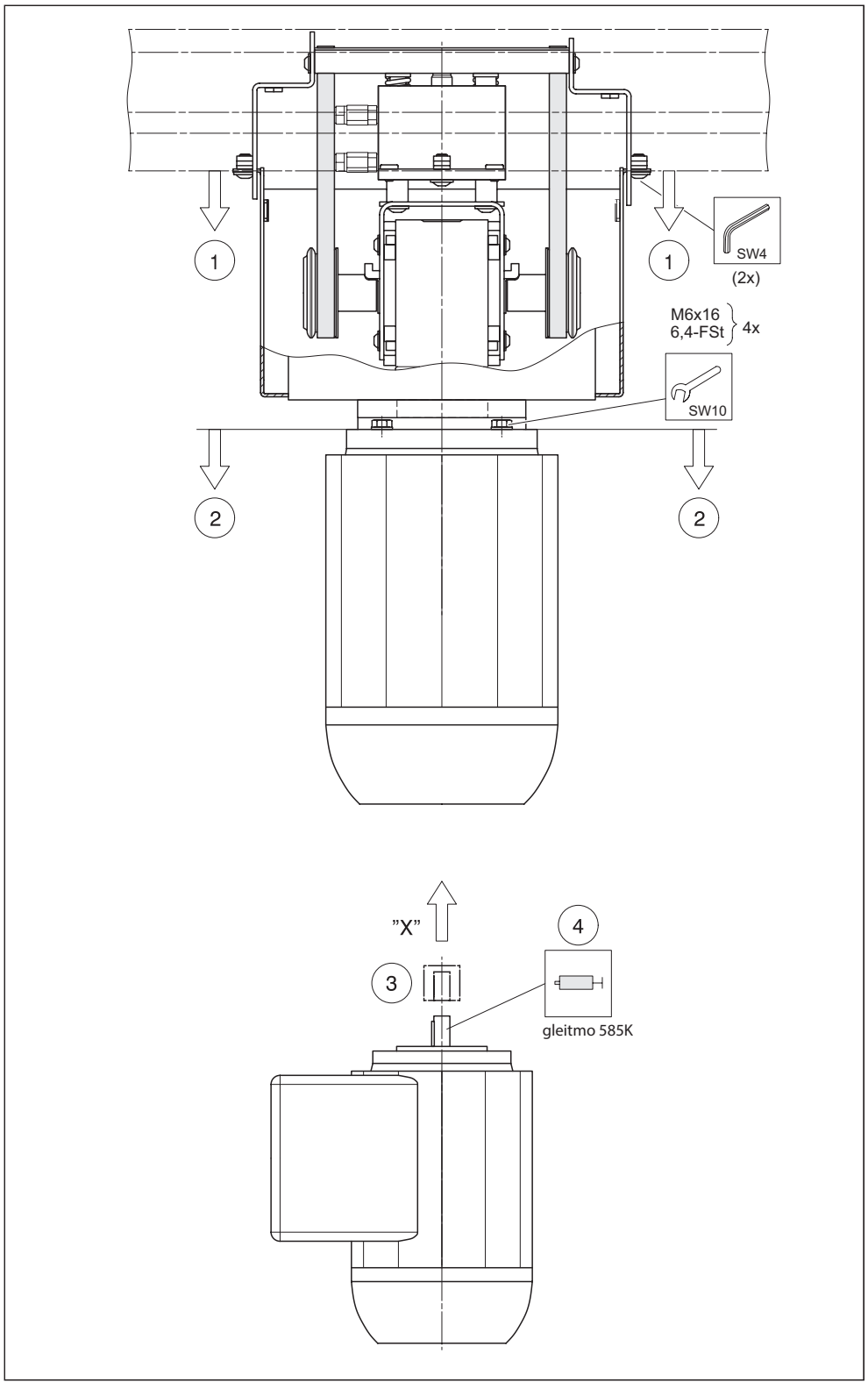


Fig. 20

10.4.3 Replacing the gear (Fig. 21)

Removing the stop is not necessary for this

1. Remove the housing element.
2. Remove the flange head screw with the hexagonal washer.
3. Remove both conveyor belts from the toothed belt wheel.
4. Pull the toothed belt wheel (right side only) out of the hexagonal shaft.
5. Remove the plug-in washer (right side only) from the hexagonal shaft.
6. Push the hexagonal shaft completely out of the gear to the left.
7. Remove two flange head screws on each side of the retaining bracket.
8. Spread the side tabs of the retaining bracket over the gear collar, remove the gear motor downwards.
9. Loosen the defective gear from the motor, flange on new gear.

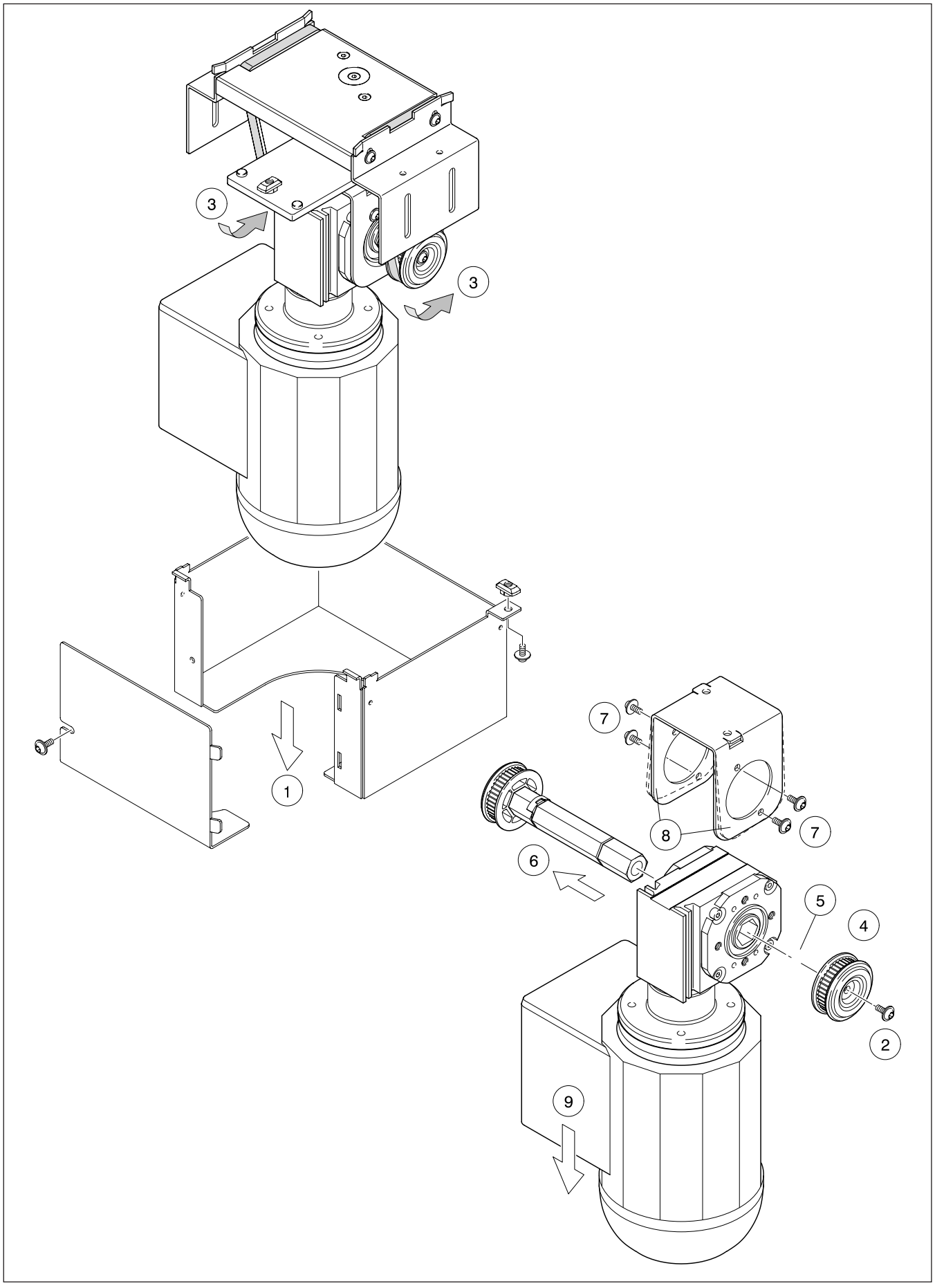


Fig. 21

Replacing the gear (cont. Fig. 22)

10. Spread the side tabs of the retaining bracket slightly, push in the gear motor and attach only loosely with 2 flange head screws at first.

Grease the hexagonal shaft before reinstalling, e.g. with "gleitmo 585K"!

Gear hubs have already been lubricated at the factory!

11. Gently push the hexagonal shaft back into the gear until the recess is visible for the right plug-in washer.
Do not tilt it!

12. Fit the plug-in washer.

13. Finally tighten the gear fastening.

14. Push on the belt wheel and fasten with the flanged head screw and hexagonal washer

15. Position the conveyor belt.

16. Fit the housing element!

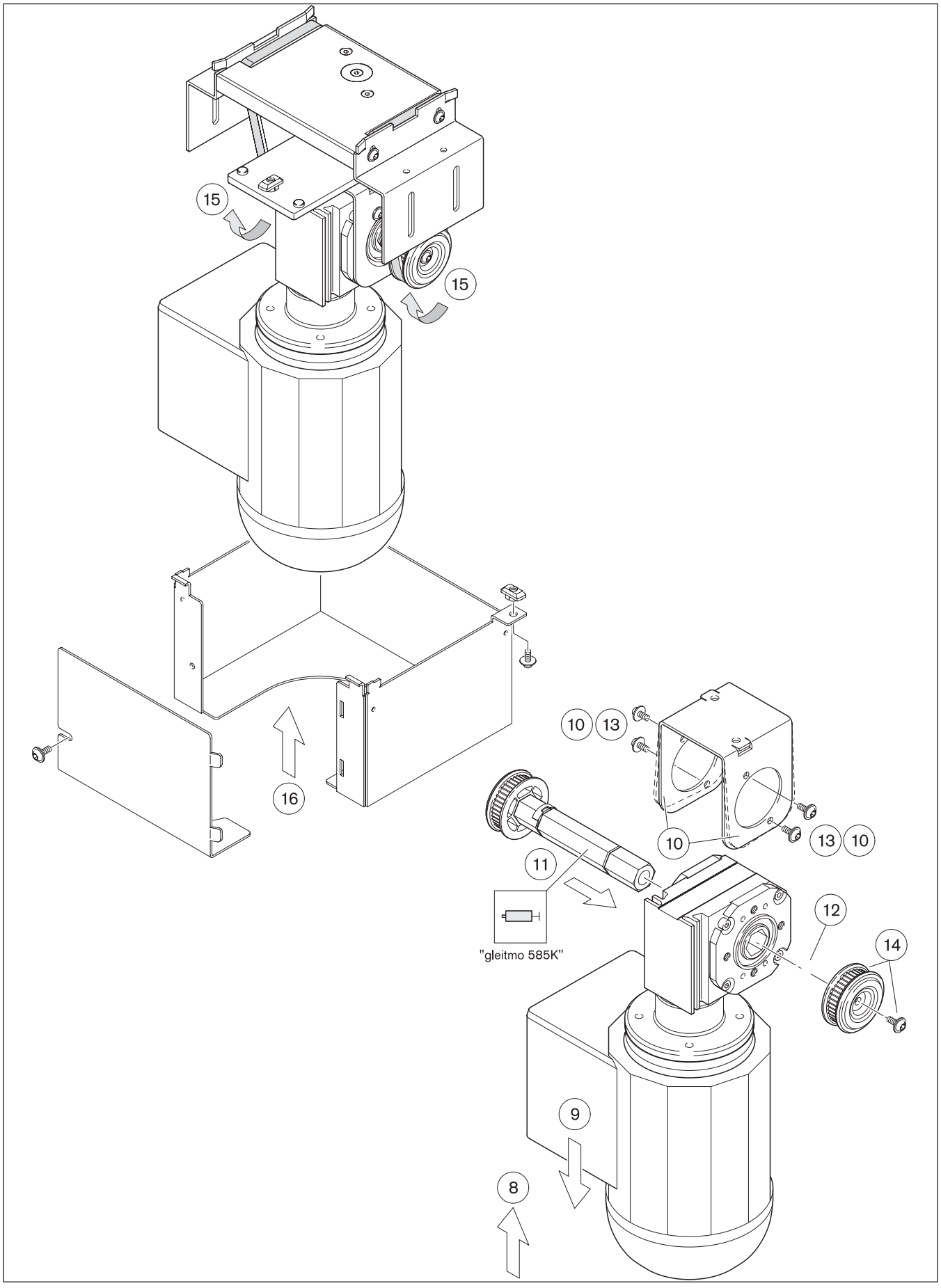


Fig. 22

10.4.4 Replacing the conveyor belt (Fig. 23)

Note when replacing conveyor belts:
The return rollers lie loosely, unsecured on the bearing pin.

Check the check dimension of the bearing pin ("**Z**").

1. Remove the protective equipment.
2. Remove the lateral stop.

   For reinstallation, ensure that the installation or height position is selected beforehand.

   Ensure functional safety!
3. Remove the conveyor belt at the top of the return rollers.
4. Position the new conveyor belt, first at the bottom around the belt wheel, then at the top over the return rollers.
5. Attach the stop, ensuring that the installation or height position is correct.
6. Fit the housing element.

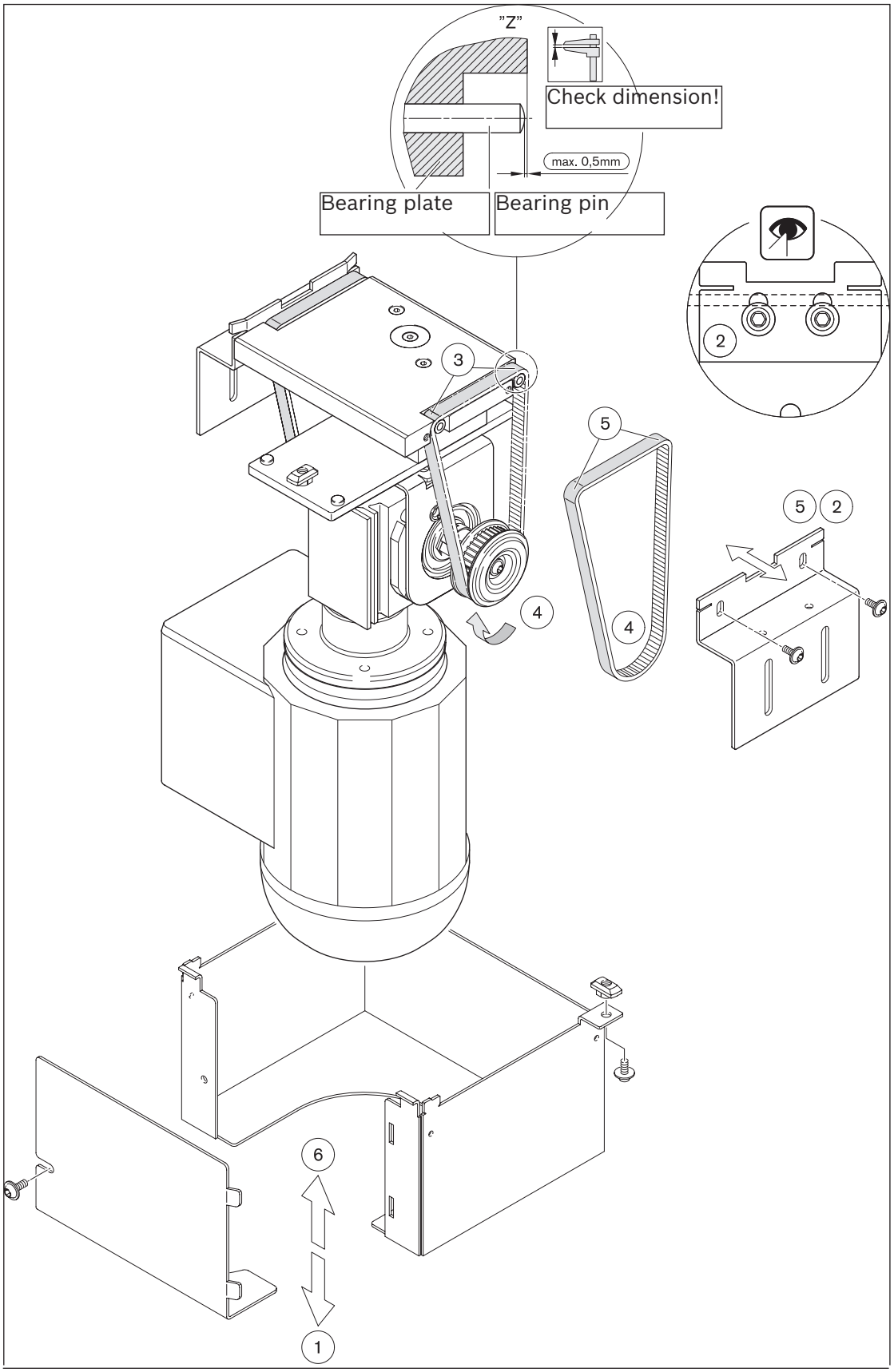

"Z"
Check dimension!
max. 0,5mm
Bearing plate
Bearing pin
2
3
5
5
2
4
4
6
1

Fig. 23

10.5 Spare parts

For spare parts, see MT*pro* spare parts list **3 842 539 057**.
Download at www.boschrexroth.de/mtpro.

11 Decommissioning

This product is a component which does not need to be decommissioned. Accordingly, this chapter has been left blank.

How to remove and replace the product is described in chapter "Disassembly and replacement" on page 45.

12 Disassembly and replacement

⚠ WARNING

High electrical voltage!

Risk of severe injury or death from electric shock.

- ▶ Disconnect the relevant system component before performing any maintenance or repair work.
- ▶ Secure the system against being unintentionally switched on again.

High pneumatic pressure!

Risk of severe injury or death.

- ▶ Switch off the compressed air supply to the relevant system component before performing any maintenance or repair work.
- ▶ Secure the system against being unintentionally switched on again.

Suspended loads can fall!

Falling objects can result in severe injury (or even death).

- ▶ Use only slings with sufficiently high bearing loads (for product weight, see delivery documents).
- ▶ Make sure the lifting straps are correctly fastened before lifting the product!
- ▶ Secure the product against tipping over when lifting!
- ▶ Make sure that no one but the operator is in the hazard area during lifting and lowering!

12.1 Preparing the lift transverse unit HQ 1/U for storage/later use

- Only set the products down on a flat surface.
- For belt sections with mounted motor:
  Support the belt section so that the motor is not overloaded.
- Protect the products from environmental influences, such as dirt and moisture.
- Protect the products from mechanical effects.
- Observe the ambient conditions.

13 Disposal

- The materials used are environmentally friendly.
- They can be recycled or reused (components may have to be processed and replaced).
  Recyclability is ensured by the selection of materials and the ability to take the components apart.
- Careless disposal may lead to environmental contamination.
- Dispose of the product in accordance with the regulations in your country.

14 Upgrading and modification

- Do not modify the product.
- The Bosch Rexroth warranty only applies to the configuration as delivered, and to approved upgrades. The manufacturer will not accept any warranty claims for systems with unapproved modifications or upgrades.

15 Troubleshooting

If you cannot correct a fault, please contact one of the addresses you can find at www.boschrexroth.com.

16 Technical data

- For the dimensions, please refer to the transfer system TS 1 sales catalog, **3 842 528 596**
- Workpiece pallet total weight: 3 kg
- Noise emissions: < 70 dB (A)

16.1 Ambient conditions

- The transfer systems have been designed for stationary use in a location that is protected from the elements.
- Operating temperature +5 °C to +40 °C
  –5 °C to +60 °C at 20 % reduced load
- Storage temperature –25 °C to +70 °C
- Relative humidity 5% to 85%
- Air pressure > 84 kPa, corresponds to an installation altitude < 1400 m above sea level
- Permissible load capacity of floor: 1000 kg/m^2
- Load values are reduced by 15% when the system is set up at a location that is > 1400 m above sea level.
- The area should be kept free of mold, fungus, rodents and other vermin.
- Do not install or operate in the immediate vicinity of industrial equipment producing chemical emissions.
- Do not install or operate near sources of sand or dust.
- Do not install or operate in areas that are regularly subjected to high-energy forces caused, for example, by presses or heavy machinery.

- Resistant to many media that are commonly found in manufacturing, such as water, mineral oil, grease, and detergents. Contact your Rexroth representative if you have any doubts about resistance to specific chemicals, such as test oil, doped oils, corrosive detergents, solvents or brake fluid.
- Avoid prolonged contact with highly reactive acidic or alkaline materials.

16.2 Pneumatics

- Oiled or non-oiled, filtered, dry compressed air.
- Operating pressure: 4 to 6 bar

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