

HQ 2/U-H

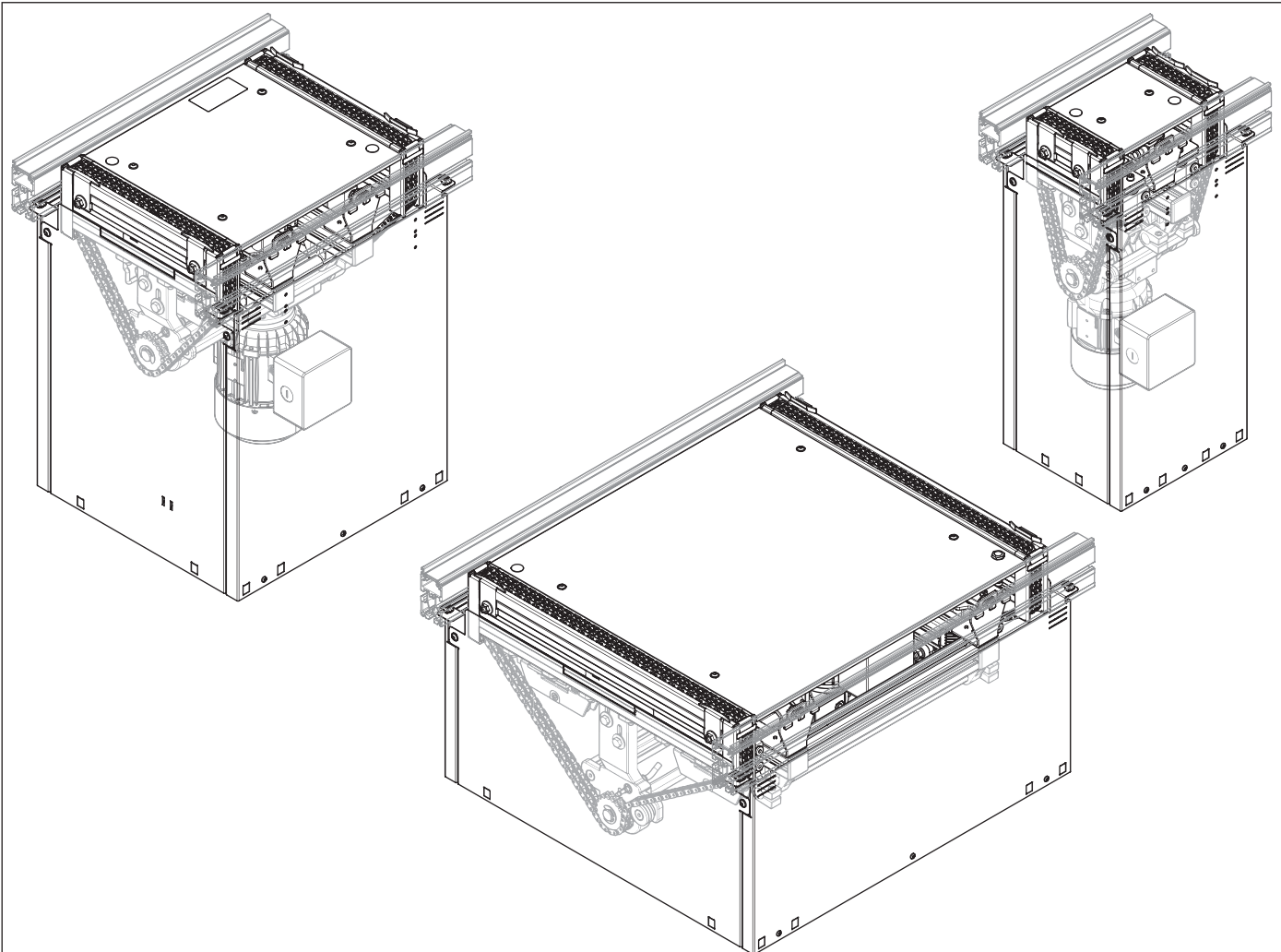
Lift transverse unit

3 842 998 750

Assembly instructions
3 842 562 241/2019-04

Replaces: –
ENGLISH

ENGLISH



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

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The cover depicts a sample configuration. The actual product may vary.

The original assembly instructions are in German.

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- | | | | |
|-----------|----------------------|---|-----------|
| DE | 3 842 562 240 | HQ 2/U-H Hub-Quereinheit | Deutsch |
| EN | 3 842 562 241 | HQ 2/U-H Lift transverse unit | English |
| FR | 3 842 562 242 | HQ 2/U-H Unité de levée transversale | Français |
| IT | 3 842 562 243 | HQ 2/U-H Unità di svincolo | Italiano |
| ES | 3 842 562 244 | HQ 2/U-H Unidad de elevación y transporte transversal | Español |
| PT | 3 842 562 245 | HQ 2/U-H Unidade de elevação e transporte transversal | Português |
| ZH | 3 842 562 246 | HQ 2/U-H 顶升横移单元 | 中文 |
| CS | MTCS 562 240 | 1) HQ 2/U-H Zvedací příčná jednotka | Česky |
| PL | MTPL 562 240 | 1) HQ 2/U-H Układ podnoszący poprzeczny | Polski |
| HU | MTHU 562 240 | 1) HQ 2/U-H Keresztirányú emelőegység | Magyar |
| RO | MTRO 562 240 | 1) HQ 2/U-H Unitate transversală de ridicare | Română |
- 1) Only as PDF / Not available in print.

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1 About this documentation

1.1 Validity of the documentation

This documentation applies to the following products:

- 3 842 998 750, HQ 2/U-H lift transverse unit

This documentation is intended for fitters, operators, service engineers and system end users.

This documentation contains important information relating to the safe and proper assembly, transportation, start-up, operation, use, maintenance and disassembly of the product, and on how to rectify simple faults yourself.

- Read this documentation completely and in particular section 2 “Safety instructions” and section 3 “General notes on property and product damage”, before working with the lift transverse unit.

1.2 Required and supplementary documentation

- Only start up the product if the documentation marked with the book symbol  is available and you have understood and followed the instructions in it.

Table 1: Required and supplementary documentation

Title	Document number	Document type
 Employee safety training	3 842 527 147	
 Declaration of installation	3 842 557 182	
MTpro ¹⁾	3 842 539 057	With list of spare parts

¹⁾ Download from: 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 your product. These are explained in the following chapters to help you understand them better.

1.3.1 Safety instructions

This document contains safety instructions in section 2.6 “Product-specific safety instructions” and section 3 “General notes on property and product damage”, as well as before any sequence of actions or any required action which involves a risk of personal injury or property damage. 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 the danger
- **Consequences:** describes the consequences of non-compliance
- **Prevention:** states how the danger can be avoided

Table 2: Risk classes according to ANSI Z535.6-2006

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 severe 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 this information is not observed, the product cannot be used and/or operated as designed.
►	Single, independent action
1. 2. 3.	Numbered steps: the numbers indicate that the steps must be performed in order.

1.3.3 Designations

This document uses the following designations:

Table 4: Designations

Designation	Meaning
HQ 2/U-H	Lift transverse unit from the Rexroth TS <i>2plus</i> transfer system
WT 2	Workpiece pallet from the Rexroth TS <i>2plus</i> transfer system
WT 2/H	
WT 2/F-H	

2 Safety instructions

2.1 About this section

The product has been manufactured in accordance with the generally accepted rules of current technology. Nevertheless, there is a risk of personal injury and property damage if you do not read this section and follow the safety instructions in this document.

- ▶ Read this documentation carefully and completely before you start working with the product.
- ▶ Keep these instructions 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.

You may use the product as follows:

- For installation in a Rexroth TS *2plus* transfer system
- For transporting Rexroth WT 2 workpiece pallets:
 - Lifting out of the section
 - Transverse conveying
 - Lowering into the section
- For the maximum load / section load see Technical Data on page 63.
- For the ambient conditions, see page 64.

The product is strictly intended for professional use and not for private use.

Intended use also includes having read and understood these instructions, especially section 2 “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.

The following foreseeable misuses also constitute improper use:

- Transporting goods other than those specified.
- Using the product without protective casing or other protective guards.
- Using the product in accumulation operation.
- Transporting people on the product or transported material.
- Persons climbing onto the product – do not climb on the product.
- Private use.

2.4 Personnel qualifications

The activities described in this document require a basic knowledge of mechanical, electrical and pneumatic systems, as well as familiarity with the corresponding technical terms. Additional knowledge regarding the use of lifting gear and corresponding slings is required for transporting and handling the product.

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 comply with the relevant technical regulations and have the necessary expertise.

In the case of pneumatic products, for example, expertise means:

- Having the ability to read and fully understand pneumatic diagrams, in particular, fully understanding the interactions between safety equipment, and
- understanding the function and design of pneumatic components.



Bosch Rexroth offers training support for specialized fields. You can find an overview of the training content online at: <http://www.boschrexroth.de/didactic>

2.5 General safety instructions

- Observe the applicable accident prevention and environmental protection regulations.
- Observe the safety rules and regulations of the country in which the product is being used.
- Only use Rexroth products that are in proper working order.
- Heed all the notices on the product.
- People who install/assemble, operate, disassemble or service Rexroth products must not be under the influence of alcohol, drugs or pharmaceutical medications that affect their reactions.
- Use only original accessories and spare parts from Rexroth in order to prevent hazards to people due to unsuitable spare parts.
- Observe the technical data and ambient conditions specified in the product documentation.
- Only start up the product if it has been determined that the end product (for example, a machine or system) into which the Rexroth products have been installed complies with national provisions, safety regulations and application standards.

2.6 Product-specific safety instructions

- | | |
|----------------------------|--|
| General | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • Observe the transport instructions on the packaging. |
| During installation | <ul style="list-style-type: none"> • Inspect the product for obvious transport damage. • 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 start-up, make sure that all seals and plugs for the screwed connections are correctly installed and undamaged to prevent fluids and debris from infiltrating the product. |
| During start-up | <ul style="list-style-type: none"> • Allow the product to acclimatize for a few hours prior to start-up in order to prevent water condensation from forming in the housing. • Make sure that all the electrical and pneumatic connections are either in use or covered. • Check the safety requirements according to DIN EN 619. • Only start up 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 | <ul style="list-style-type: none"> • Make sure that only authorized personnel perform the following tasks within the scope of the product's intended use: <ul style="list-style-type: none"> – 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 operator to be there. This also applies when the product is idle. • Make sure that: <ul style="list-style-type: none"> – There are no obstacles preventing access to the EMERGENCY STOP controls. – All delivery points, workstations and passages are kept clear. • Do not use EMERGENCY STOP controls for routine stopping. • Regularly check the EMERGENCY STOP controls to ensure that they are functioning properly. • Following an EMERGENCY STOP or in the event of a fault or other irregularity, turn the product off and secure it against being switched back on. • 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
During maintenance and servicing

During disposal | <ul style="list-style-type: none"> • After an EMERGENCY STOP or a malfunction, only switch the system back on once you have established and rectified the cause of the fault. • Make sure that access to maintenance and inspection points is kept unobstructed. • Perform the prescribed maintenance work at the intervals specified in chapter 10.3 "Maintenance". • 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. • Dispose of the product in accordance with the regulations in your country. |
|---|---|

2.7 Personal protective equipment

- Appropriate protective clothing should be worn when handling/using the product (e.g. safety shoes, close-fitting clothing, a hair net for long, loose hair). As the system user or operator, you are personally responsible for ensuring the use of appropriate protective equipment when the product is being used.
- All component parts of the personal protective equipment must be free of damage.

2.8 Owner responsibilities

- Before the initial start-up or re-commissioning of a conveyor system, carry out a risk assessment in accordance with DIN EN ISO 12100.
- Before the initial start-up, make sure there are no protruding or sharp-edged parts that may be a hazard to personnel working or moving in the area.
- Provide safety-related instructions to the operating personnel before the initial start-up or re-commissioning, and then at regular intervals.

3 General notes on property and product damage

The warranty only applies to the delivered configuration.

- The warranty is void in the event of faulty installation, start-up and operation, as well as improper use and/or improper handling.

During cleaning

- Prevent cleaning agents from getting into the system.
- Never use solvents or corrosive cleaning agents.
- Do not use a pressure washer for cleaning.

4 Scope of delivery

The scope of delivery includes the following:

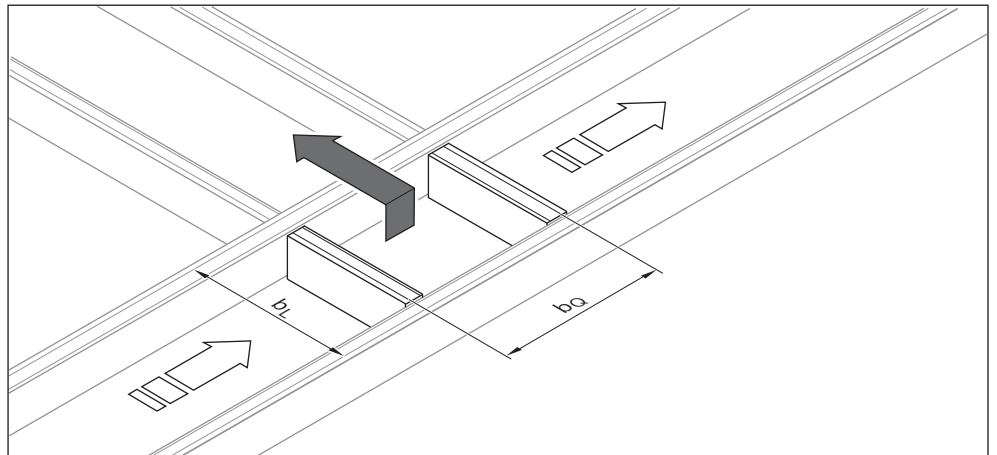
- 1 HQ 2/U-H lift transverse unit
- 1 protective casing kit
- 1 position monitoring kit
- 1 assembly instructions for the HQ 2/U-H lift transverse unit

4.1 Condition on delivery

- HQ 2/U lift transverse unit, ready-to-install
- Protective casing kit, not assembled

5 About this product

5.1 Specifications



562 240-01

Fig. 1: Specifications for the HQ 2/U-H lift transverse unit

5.1.1 Utilization of the HQ 2/U-H lift transverse unit

- For installation in belt section BS 2/... or conveyor unit SE 2/...
- For lifting out of the section and the transverse conveying of workpiece pallets WT 2

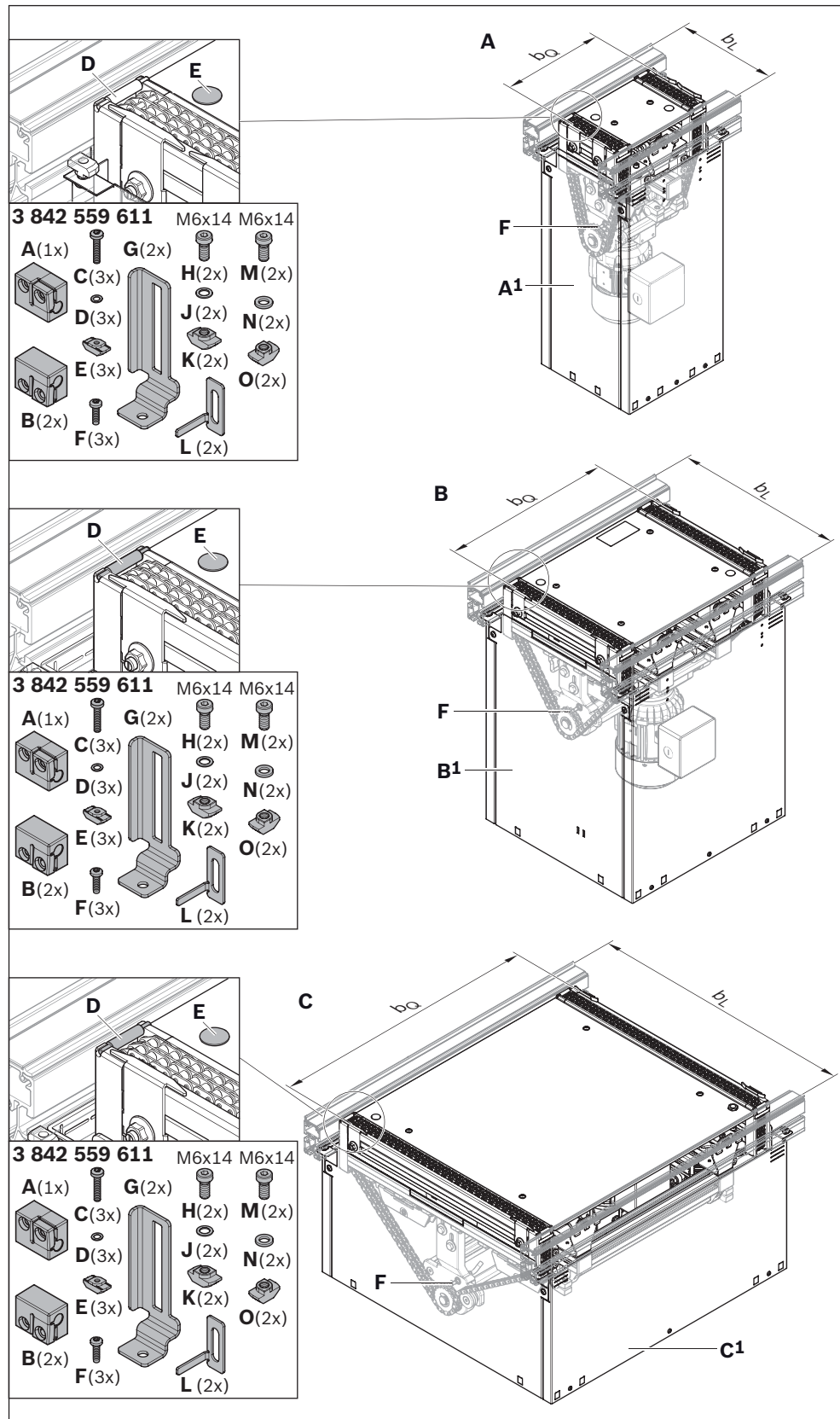
5.1.2 HQ 2/U-H lift transverse unit features

- Extremely compact construction thanks to the motor-gear combination hanging down at the bottom. Suitable for tight installation conditions (is not wider than the section)
- Conveyor medium: Duplex roller chain
- Suitable for reversible operation
- Cable/plug or terminal-box motor connection

5.2 Product description

- A:** HQ 2/U-H lift transverse unit, $b_Q \times b_L$ [mm]: 240 x ... (see page 15)
- A¹:** Protective casing kit (optional)
- B:** HQ 2/U-H lift transverse unit, $b_Q \times b_L$ [mm]: 320 x ... 400 x ... (see page 15)
- B¹:** Protective casing kit (optional)
- C:** HQ 2/U-H lift transverse unit, $b_Q \times b_L$ [mm]: 480 x ... 640 x ... (see page 15)
- C¹:** Protective casing kit (optional)
- D:** Bridging the conveyor trench and finger protection
- E:** Querying the position of the workpiece pallet from below (optional)
- F:** Lubricating with the LU 2 automatic lubrication unit (optional)

3 842 559 611:
Position monitoring kit (included in the scope of delivery)



562 240-02

Fig. 2: HQ 2/U-H lift transverse unit

Number and arrangement of the lift units for sizes ...

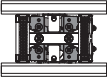
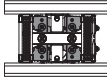
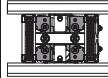
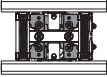
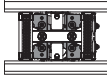
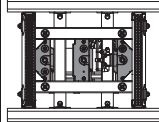
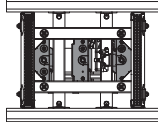
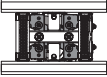
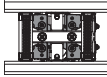
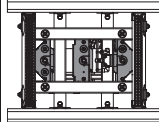
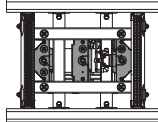
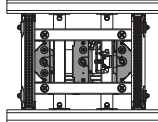
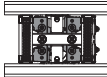
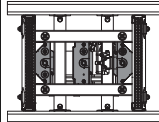
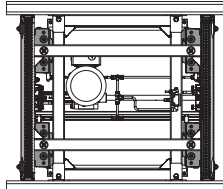
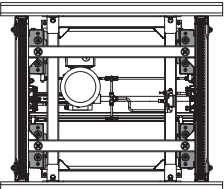
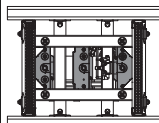
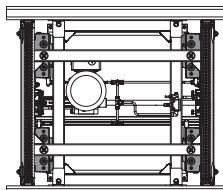
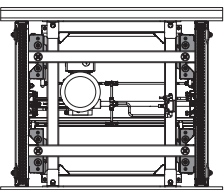
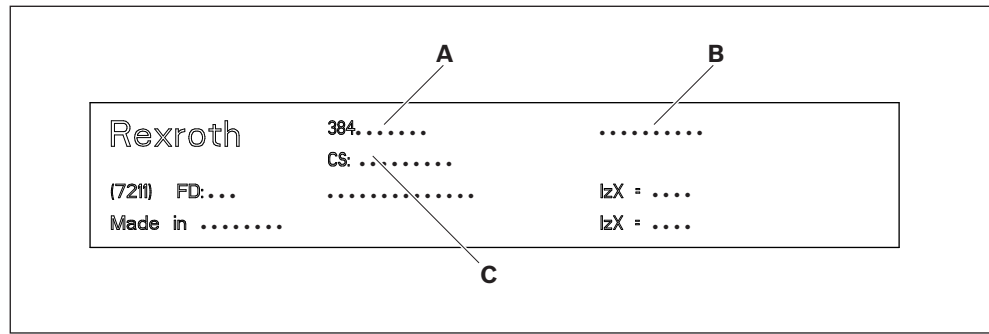
	$b_Q = 240 \text{ mm}$	$b_Q = 320 \text{ mm}$	$b_Q = 400 \text{ mm}$	$b_Q = 480 \text{ mm}$	$b_Q = 640 \text{ mm}$
$b_L = 240 \text{ mm}$	 2 lift units	 2 lift units	 2 lift units		
$b_L = 320 \text{ mm}$	 2 lift units	 2 lift units	 3 lift units	 3 lift units	
$b_L = 400 \text{ mm}$	 2 lift units	 2 lift units	 3 lift units	 3 lift units	 3 lift units
$b_L = 480 \text{ mm}$		 2 lift units	 3 lift units	 4 lift units	 4 lift units
$b_L = 640 \text{ mm}$			 3 lift units	 4 lift units	 4 lift units

Fig. 3: Number and arrangement of the lift units for sizes ...

5.3 Identification of the product

- A:** Material number
(order number)
- B:** Designation
- C:** Design and dimensions



Typschild

Fig. 4: Name plate

6 Transport and storage

- Observe the transport instructions on the packaging.
- See the delivery documents for the transport weight
- Secure the product to prevent toppling!
- Always maintain ambient conditions during loading and transport, see page 64.

6.1 Transporting the product

WARNING

Suspended loads can fall!

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

- ▶ Use only slings with sufficiently high bearing load capacity (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 danger zone during lifting and lowering!

6.2 Storing the product

- Only set the product down on a flat surface.
- Protect the product from mechanical stress.
- Protect the product from environmental influences such as dirt and humidity.
- Observe the ambient conditions, see page 64.
- Support the product so that there is no load on motors that are installed in a suspended position.

7 Assembly

7.1 Unpacking

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

7.2 Installation requirements

- ▶ During installation, be sure to maintain the ambient conditions specified in the Technical Data (see page 64).

7.2.1 Installation position

- ▶ Install the product level and plumb, at right angles, and axially parallel.
This ensures proper functioning and prevents premature wear.

7.3 Required tools

- Hex wrench (open-end) SW13.
- Hex socket wrenches SW3, SW4, SW5.
- Hex socket wrench (Torx™) T30, T50
- Posidriv screwdriver, PZ2
- Hammer
- Level
- Combination pliers
- Flat smooth file

7.4
Symbols used

Table 5: Symbols used

1 2	Connection with T-bolt and flange nut. Make sure the T-bolt is in the correct position when inserting into the slot and tightening. The notch at the head of the bolt indicates the orientation of the T-bolt. 1 = T-bolt insertion position in the slot 2 = T-bolt clamping position in the slot Tightening torque: 25 Nm
SW13 $M_D = 20Nm$	Hex wrench SW = wrench size ... mm M_D = required tightening torque ... Nm
SW5 $M_D = 8Nm$	Hex socket wrench SW = wrench size ... mm M_D = required tightening torque ... Nm
PZ2 PH3	Screwdrivers for cross-head screws PZ ... = Pozidriv screw drive size ... PH ... = Phillips screw drive size ...
gleitmo 585 K Anti-Seize	Lubricate/lubricate with specific grease lubricant: - gleitmo 585 K: gleitmo 585 K, www.fuchs-lubritech.com - Anti-Seize: Food Grade Anti-Seize/Loctite 8014, www.henkel.com
GHD V 68	Lubricate/lubricate with specific mineral oil: - GHD: Structovis GHD, www.klueber.com - V 68: mineral oil with a viscosity of 68
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.
1 2 3	Graphical depiction of the installation steps. The numbers correspond to the sequence of installation steps, in accordance with the instructions in the accompanying text.
A B C X	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.

7.5 Installing the product

7.5.1 Installing the HQ 2/U-H lift transverse unit, $b_0 = 240$ mm

1. Mark the installation position of the HQ 2/U-H.
2. Remove the cover sheet.
3. Install the HQ 2/U-H in the section from below.



Please note:

Use a lift aid to lift the product. For the lifting points for a round sling (X), for example, see Fig. 5.

4. Insert the hooks (A) in the inner profile slot of the section.
5. Align the HQ 2/U-H flush to the transverse section.
6. Only for $b_0 = 240$ mm: install the distance bolts (B).
7. Install the T-bolts.
8. Install the cover sheet.

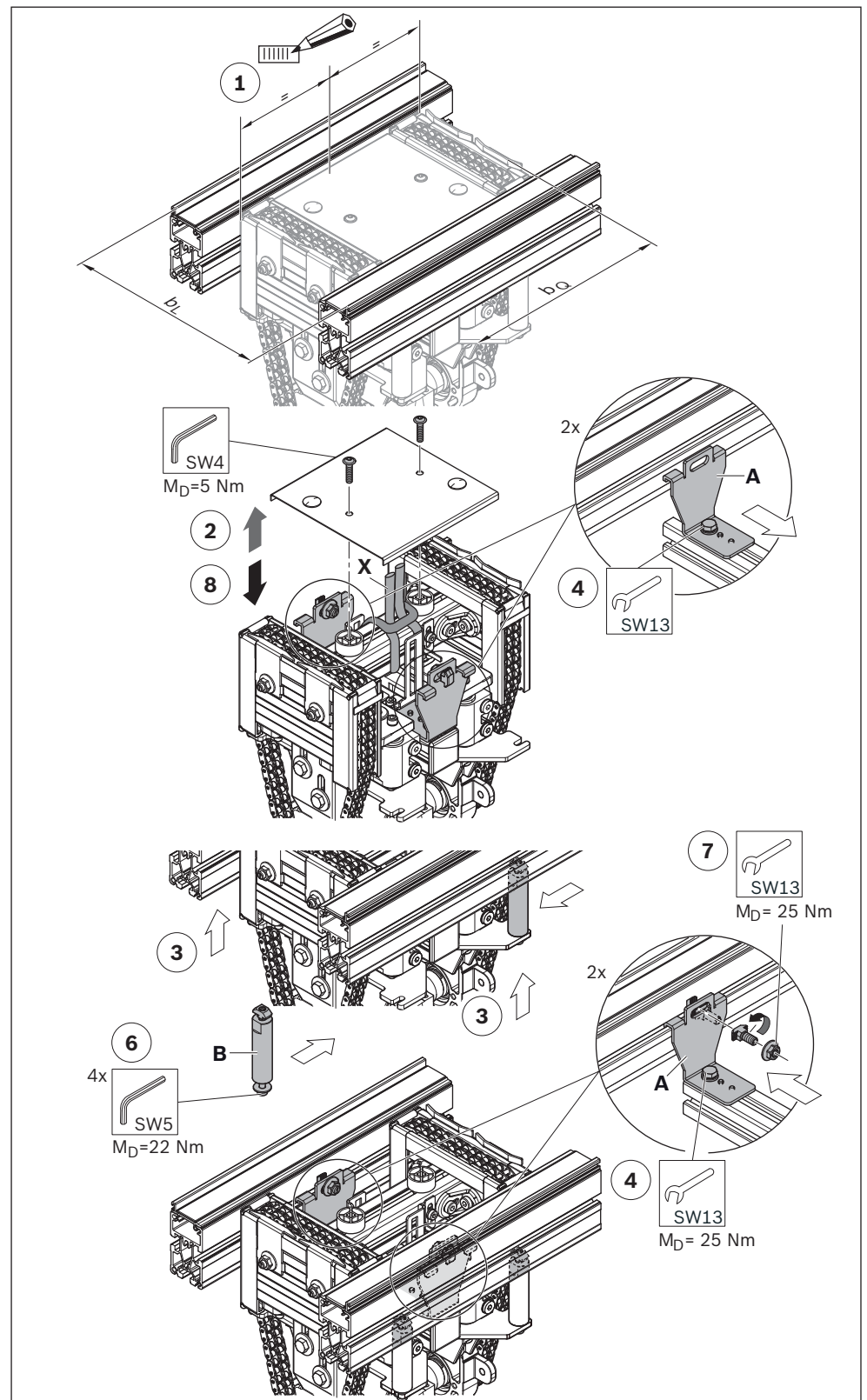


Fig. 5: Installing the HQ 2/U-H lift transverse unit, $b_0 = 240$ mm

Installing the HQ 2/U-H lift transverse unit, $b_0 \geq 320$ mm

1. Mark the installation position of the HQ 2/U-H (see Fig. 5 on page 18).
2. Remove the cover sheet.
3. Install the HQ 2/U-H in the section from below.

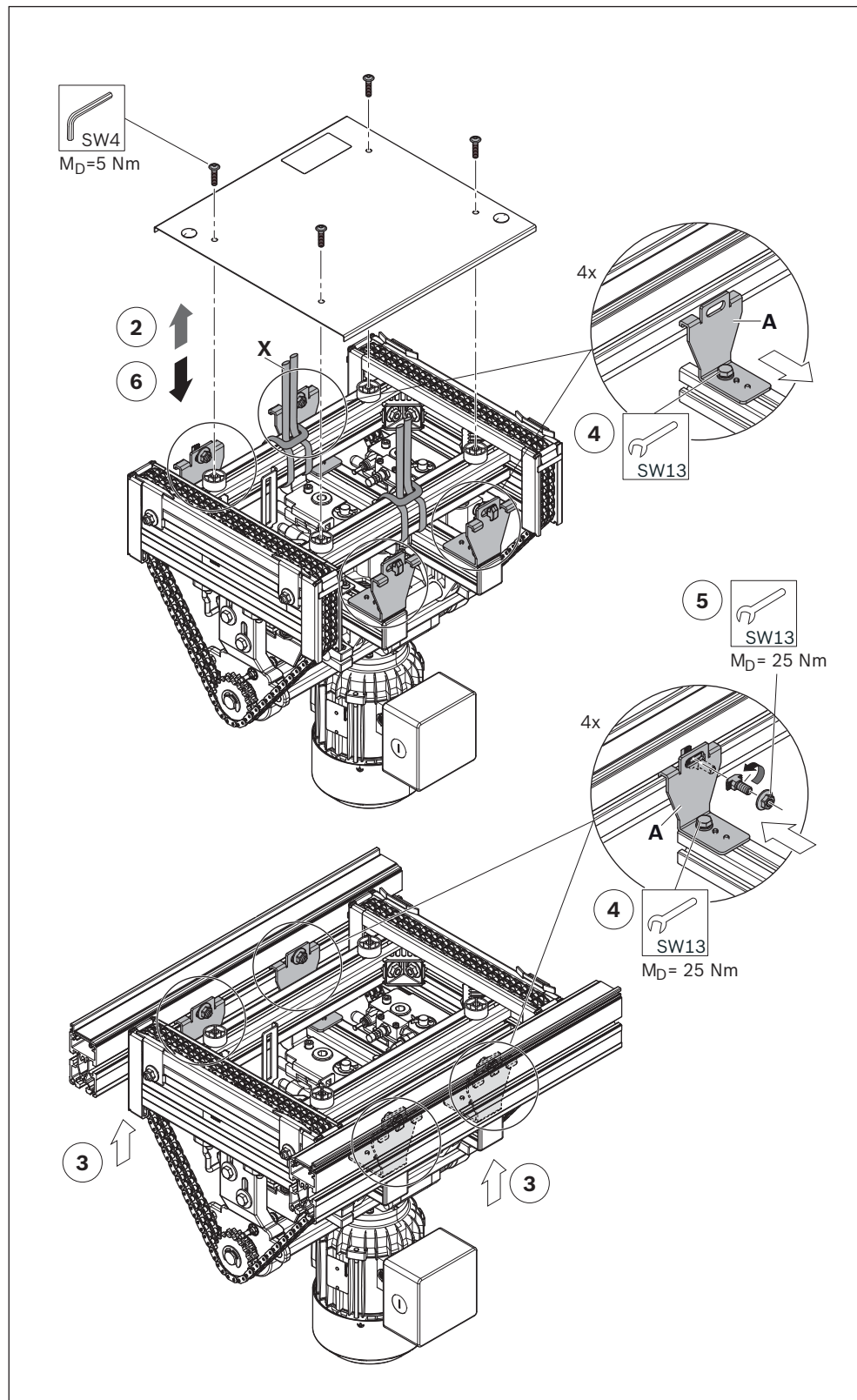


Please note:

Use a lift aid to lift the product. For the lifting points for a round sling (X), for example, see Fig. 6.

Insert the hooks (A) in the inner profile slot of the section.

4. Align the HQ 2/U-H flush to the transverse section.
5. Install the T-bolts.
6. Install the cover sheet.



562 240-04

Fig. 6: Installing the HQ 2/U-H lift transverse unit, $b_0 \geq 320$ mm

7.5.2 Installing the position monitoring device

Required accessories

- **3 842 548 585**,
fastening kit
HQ 2/U-H
(included in the scope of
delivery)

$b_L = 240 \text{ mm}$

Center position

1. Install the switching flag
(L, M, N, O)
2. Install the sensor ¹⁾
(B, C, D, E, G, H, J, K)
3. The HQ 2/U-H is held in
the center position by
spring force:
set the sensors.

¹⁾ **3 842 549 814**

Not included in the scope of
delivery!

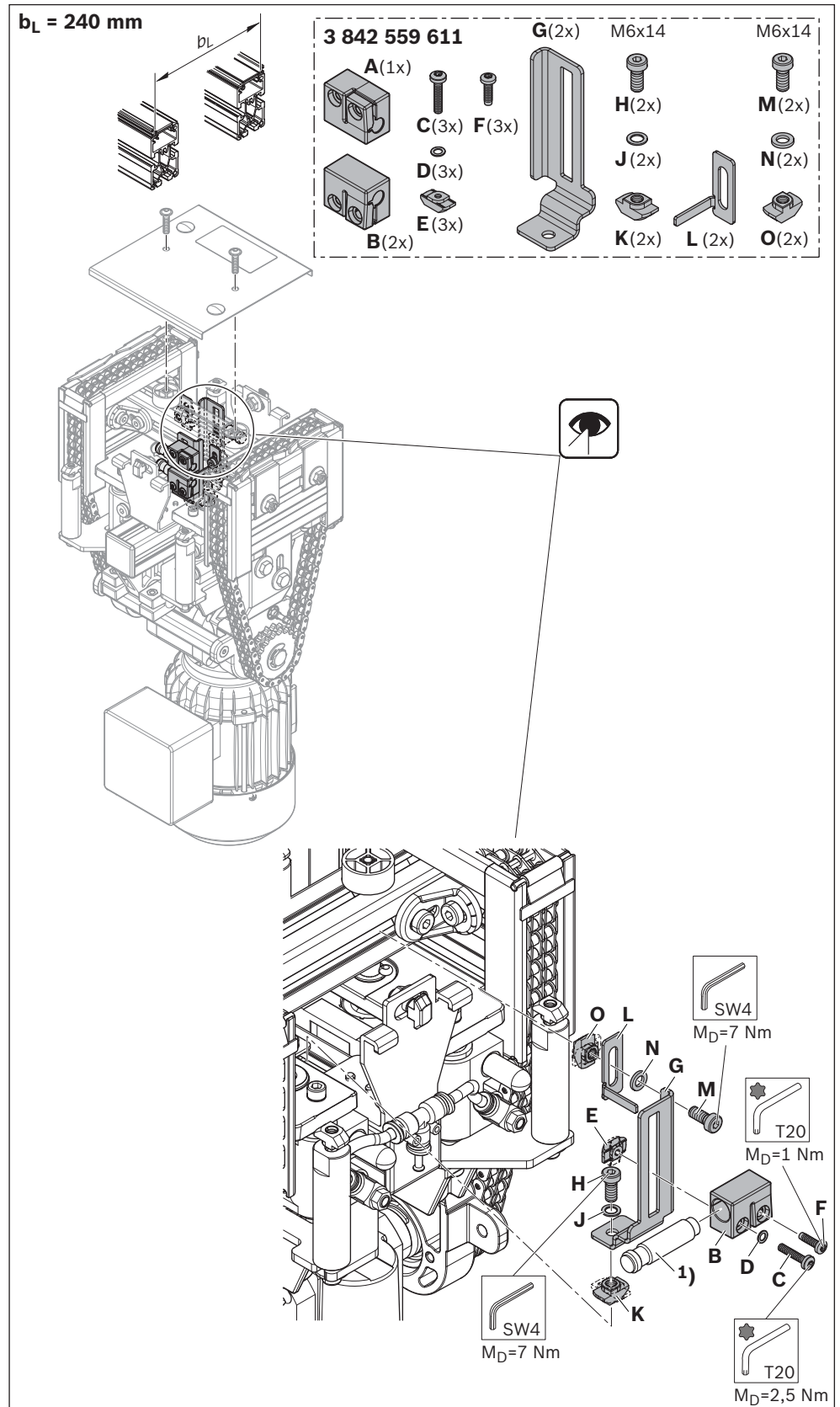


Fig. 7: Installing the position monitoring device, $b_L = 240 \text{ mm}$, center position

Required accessories

- **3 842 548 585**,
fastening kit
HQ 2/U-H
(included in the scope
of delivery)

$b_L = 240 \text{ mm}$
upper position/lower
position

1. Install the switching flag
(L, M, N, O)
2. Install the sensors ¹⁾
(A, B, C, D, E, G, H, J, K)
3. After you have
pneumatically
connected the HQ 2/U-H
(see page 31):
set the sensors.

¹⁾ **3 842 549 814**
Not included in the scope of
delivery!

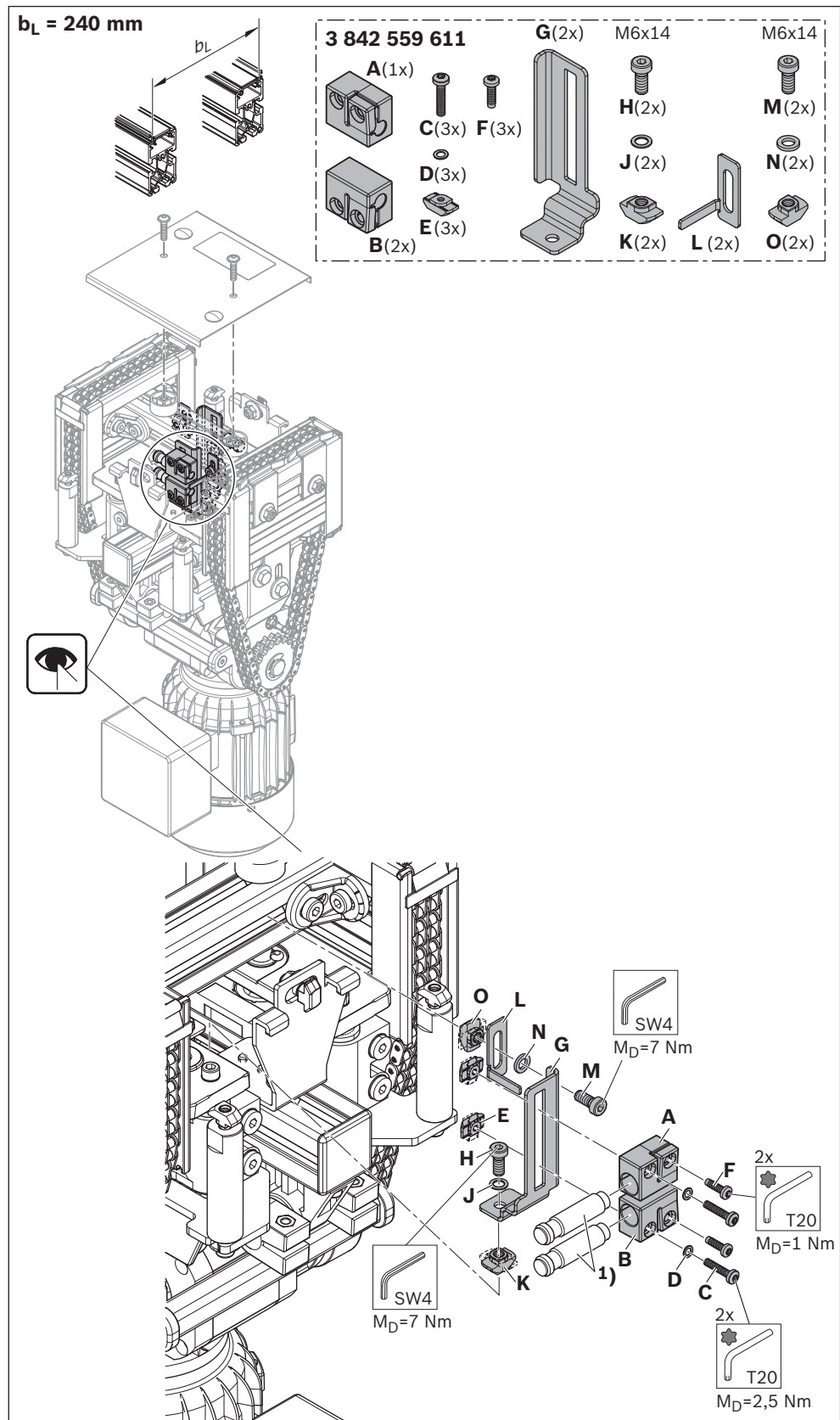


Fig. 8: Installing the position monitoring device, $b_L = 240 \text{ mm}$, upper position / lower position

562 240-51

Required accessories

- **3 842 548 585**,
fastening kit
HQ 2/U-H
(included in the scope of
delivery)

$b_L \geq 320$ mm center position

1. Install the switching flag
(L, M, N, O)
2. Install the sensor ¹⁾
(B, C, D, E, G, H, J, K)
3. The HQ 2/U-H is held in
the center position by
spring force:
set the sensors.

¹⁾ **3 842 549 814**
Not included in the scope of
delivery!

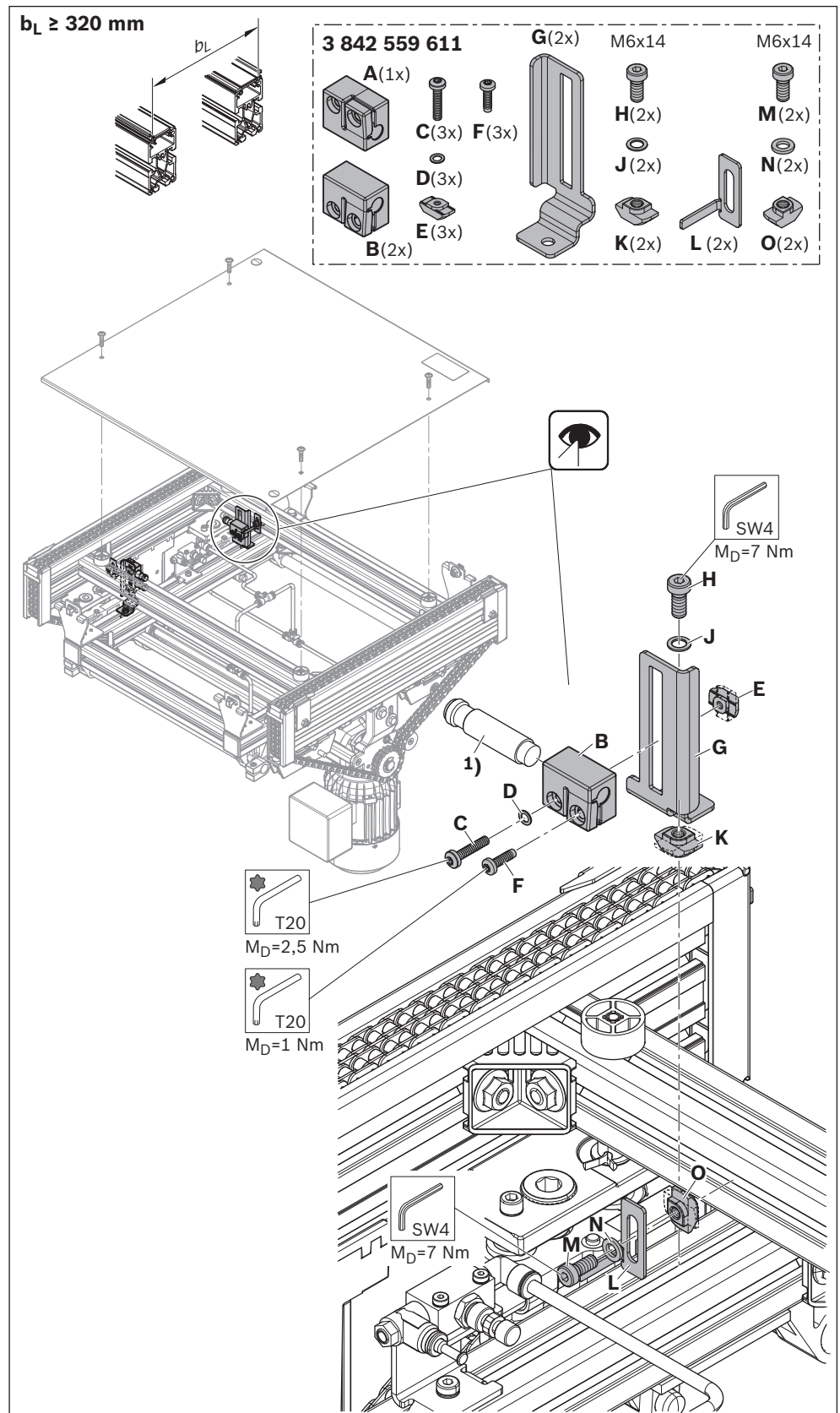


Fig. 9: Installing the position monitoring device, $b_L \geq 320$ mm, center position

Required accessories

- **3 842 548 585**,
fastening kit
HQ 2/U-H
(included in the scope of
delivery)

 $b_L \geq 320$ mm
center position

1. Install the switching flag
(L, M, N, O)
2. Install the sensor ¹⁾
(B, C, D, E, G, H, J, K)
3. The HQ 2/U-H is held in
the center position by
spring force:
set the sensors.

¹⁾ **3 842 549 814**

Not included in the scope of
delivery!

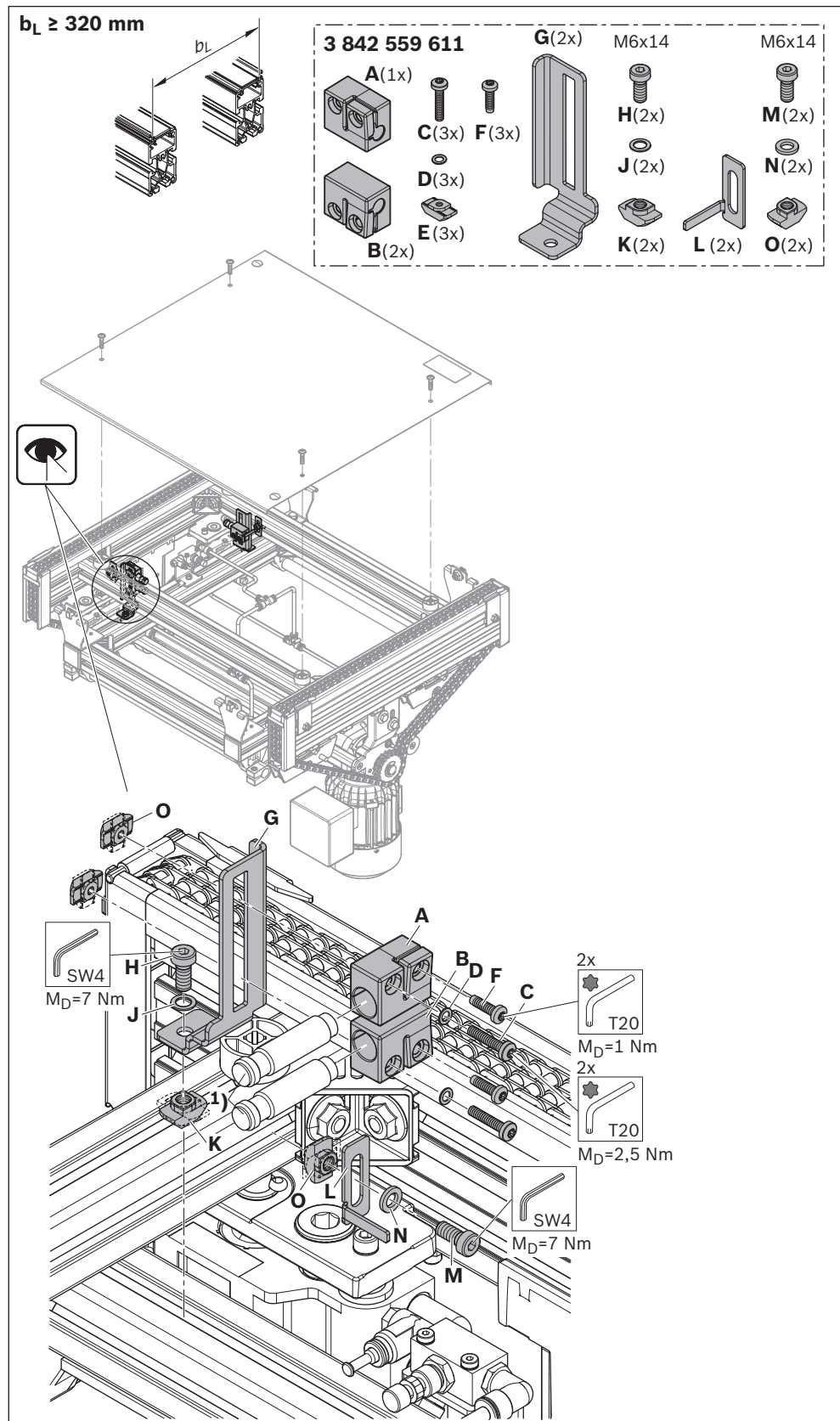


Fig. 10: Installing the position monitoring device, $b_L \geq 320$ mm, center position

562 240-53

7.5.3 Option to query the position of the workpiece pallet from below

Makes it possible to send a signal to the control, e.g. to reduce the conveying speed of the HQ 2/U-H when the workpiece pallet enters in order to gently brake it.

1. Remove the cover sheet.
2. Install the proximity switch.
3. Install the cover sheet.

Suitable sensor:

- switching distance 4 mm
- M12
- L = 55 mm (max.)
- can be installed flush
- Fully threaded
- e.g. PNP normally open contact,

3 842 549 814

(not included in the scope of delivery!)

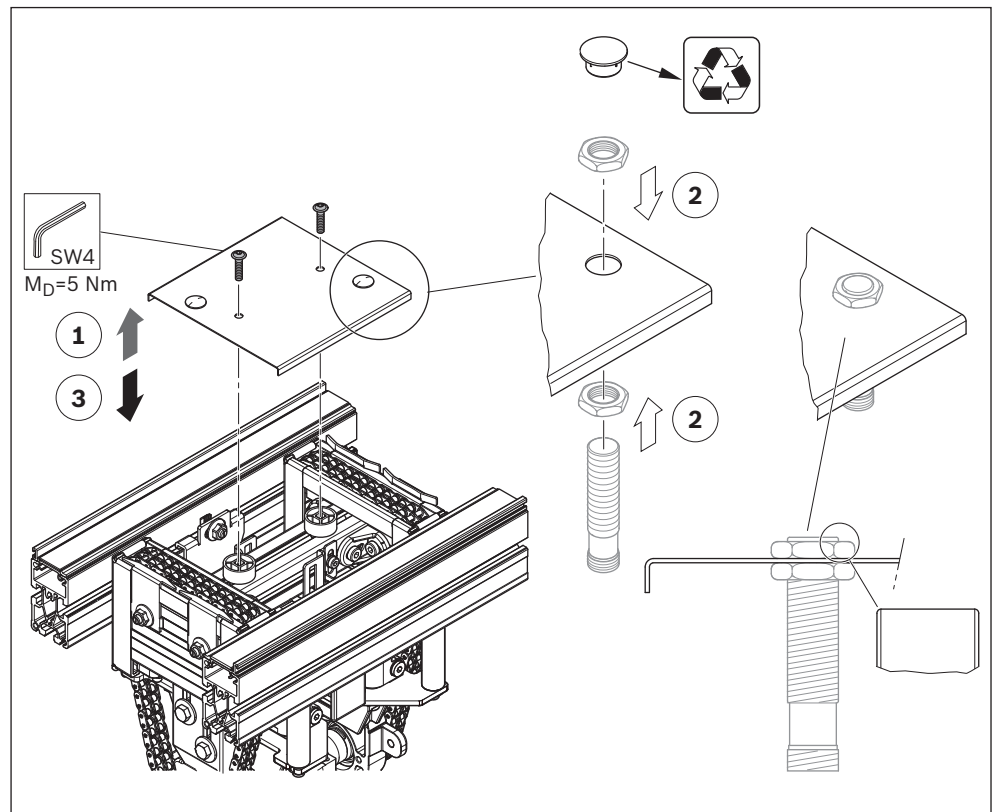


Fig. 11: Query the position of the workpiece pallet from below



Please note:

The query from below is not possible with WT 2/H or WT 2/F-H.

Required accessories

- DA 2/100-E damper,
3 842 548 585



Please note:

Operate the HQ 2/U-H with damper:

- when the transport speed is $v > 9 \text{ m/min}$.
- when the section load support surface length is $> 1.0 \text{ kg/cm}$ (measured on the shorter side of the workpiece pallet).

1. Install the protective guard in the damper mounting bracket.
2. Install the damper in the mounting bracket.
3. Remove the baffle plates if necessary.
4. Install the damper mounting bracket.

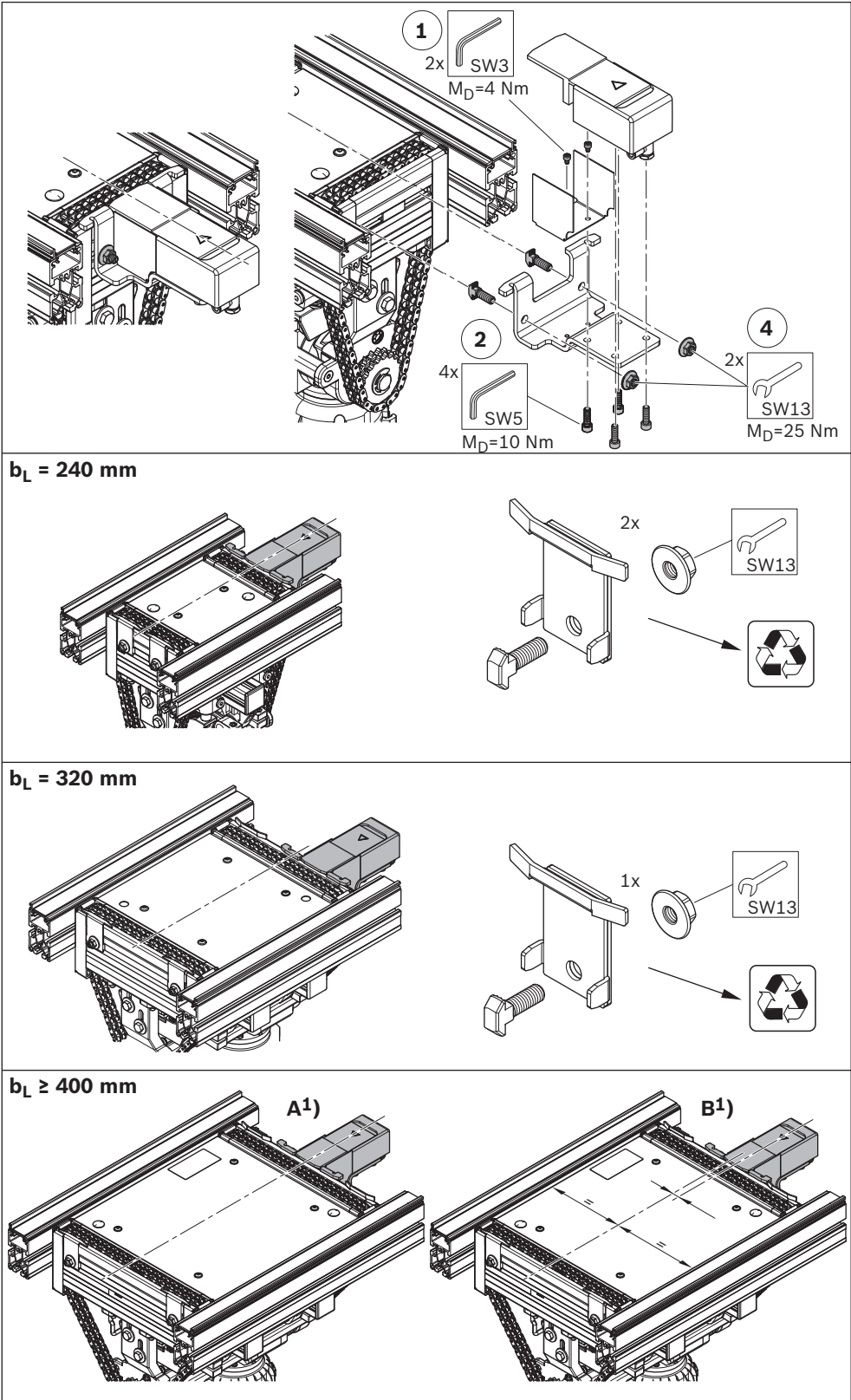


Please note:

¹⁾position of the damper when operating with WT 2: A.
position of the damper when operating with WT 2/H, WT 2/F-H: B.

$b_L \text{ (mm)}$	$X \text{ (mm)}$
400	30
480	30
640	30

7.5.4 Installing the DA 2/100-E damper (optional)



562 240-07

Fig. 12: Installing the DA 2/100-E damper (optional)

Pneumatically connecting the DA 2/100-E damper

! WARNING

High pneumatic pressure!

Risk of serious injury or death.

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

- For the compressed air and operating pressure specifications, see page 64.

Connect the damper to the compressed air supply.

Control sequence:

- enabling the workpiece pallet to retract in the HQ = enabling the damper (pressure pulse, damper extends).

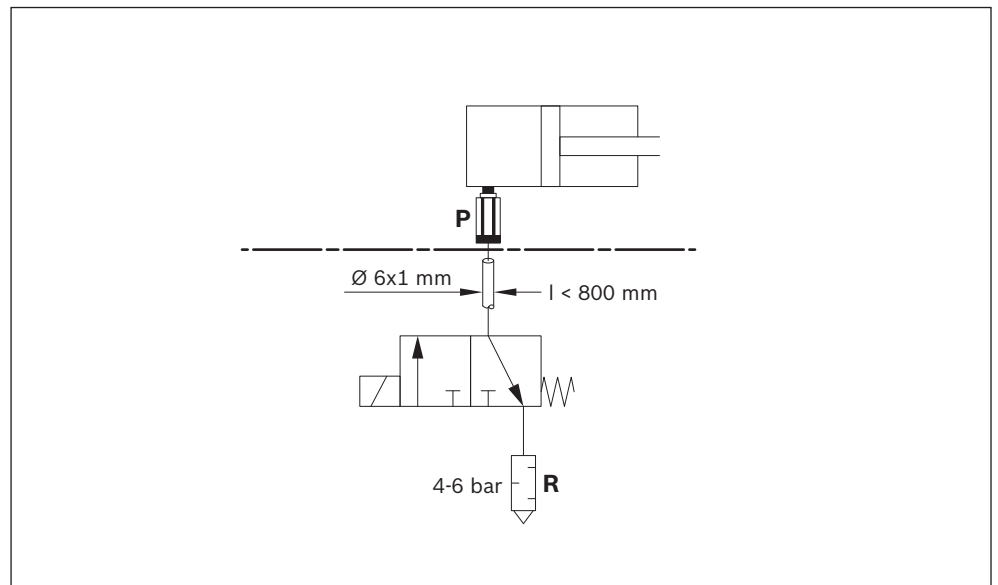


Fig. 13: Pneumatic diagram for the DA 2/100-E damper

562 240-08

Adjusting the damping in the DA 2/100-E damper

In the delivery condition, it is set with a medium damping.

To adjust:

- ▶ Turn it in the direction marked “+” to make the damping harder.
- ▶ Turn it in the direction marked “-” to make the damping softer.

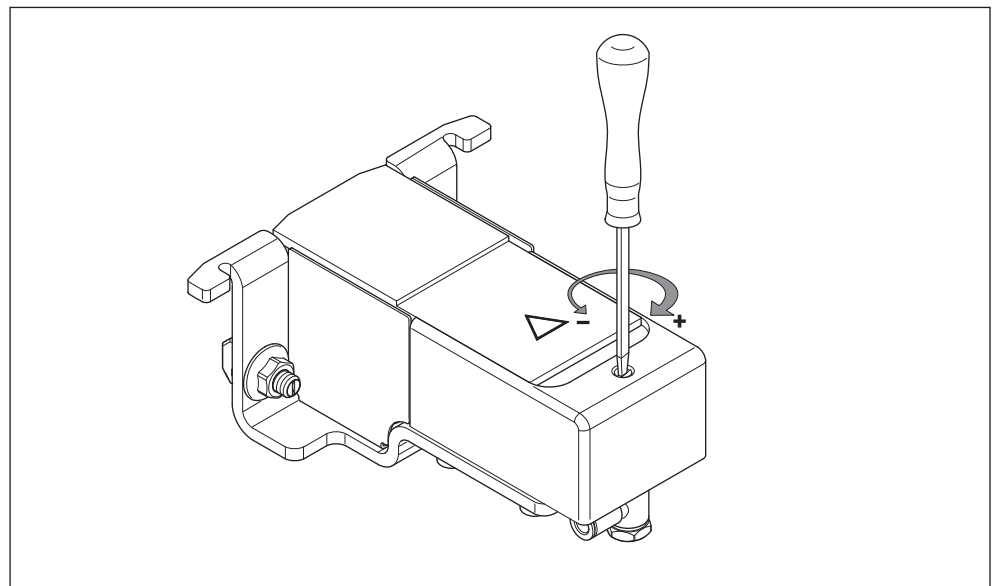


Fig. 14: Adjusting the damping in the DA 2/100-E damper

562 240-09

Required accessories

- DA 2/150-E damper,
3 842 548 644



Please note:

Operate the HQ 2/U-H with damper:

- when the transport speed is $v > 9 \text{ m/min}$.
- when the section load support surface length is $> 1.0 \text{ kg/cm}$ (measured on the shorter side of the workpiece pallet).

1. Remove the baffle plates if necessary.
2. Install the damper.



Please note:

- ¹⁾position of the damper when operating with WT 2: A.
position of the damper when operating with WT 2/H, WT 2/F-H: B.

b_L (mm)	X (mm)
400	30
480	30
640	30

7.5.5 Installing the DA 2/150-E damper (optional)

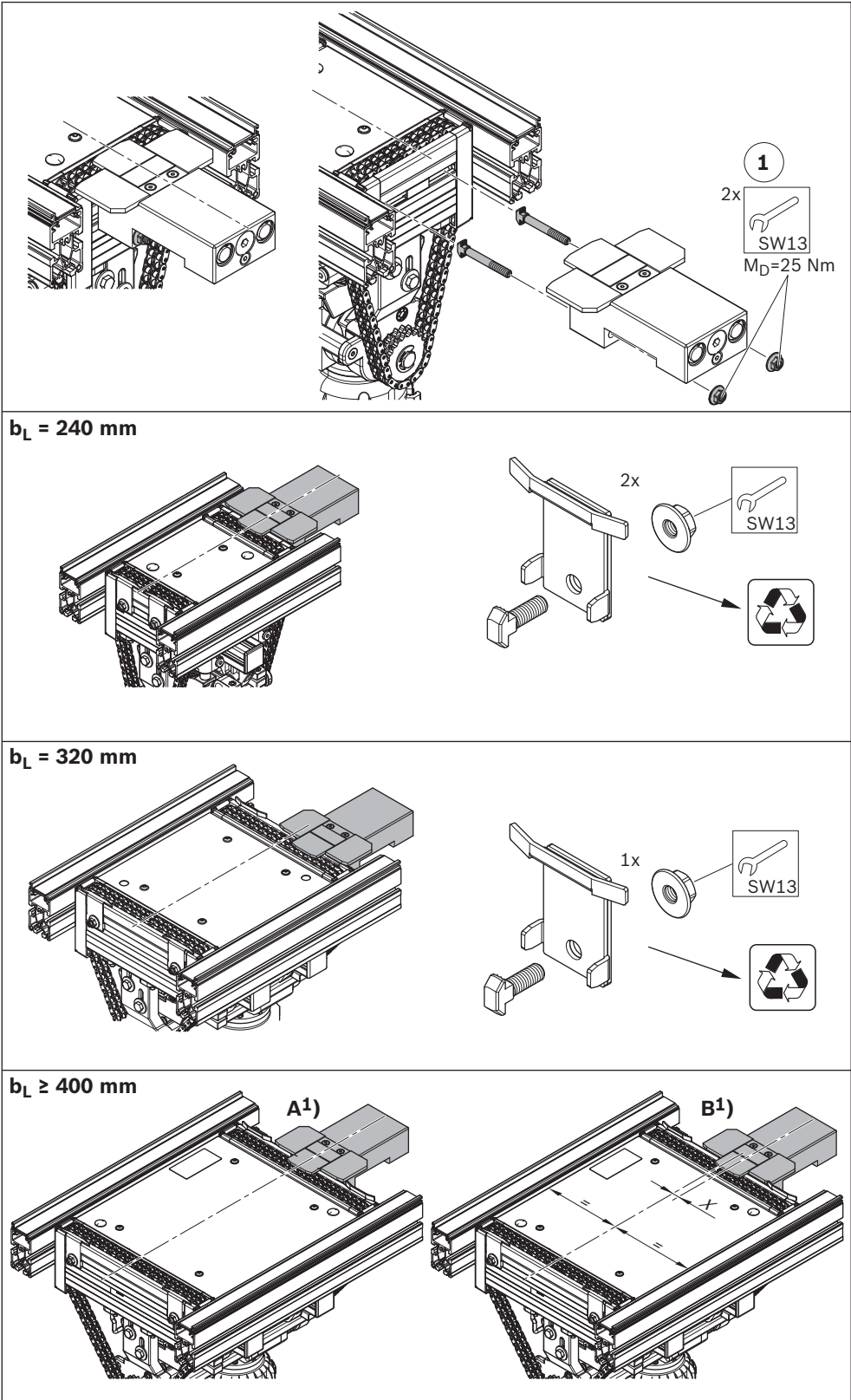


Fig. 15: Installing the DA 2/150-E damper (optional)

562 240-10

Pneumatically connecting the DA 2/150-E damper

! WARNING

High pneumatic pressure!

Risk of serious injury or death.

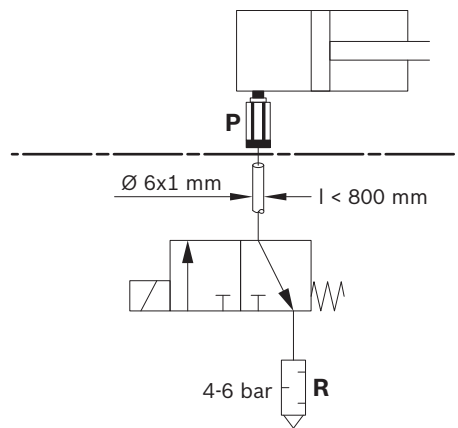
- Switch off the compressed air supply to the relevant system component before installing, removing or connecting the product to the pneumatic system.
- Secure the system against being unintentionally switched on again.

- For the compressed air and operating pressure specifications, see page 64.

Connect the damper to the compressed air supply.

Control sequence:

- enabling the workpiece pallet to retract in the HQ = enabling the damper (pressure pulse, damper extends).



ENGLISH

Fig. 16: Pneumatic diagram for the DA 2/150-E damper

562 240-08

You can optionally install the LU 2 automatic lubrication unit, **3 842 543 482**.

Required accessories

- HQ 2/U-H adapter set, **3 842 548 578**

1. Install the hose connection (C) on the lubrication pin (A).
2. Insert the lubrication pin (A) in the bore of the HQ 2/U-H.
3. Secure the lubrication pin (A) with the lock washer (B).
4. Install the lubrication line.



Please note:

- The lubrication line must always be placed lower than the lubricating pin, otherwise the lubrication line runs empty (uncontrolled oil spillage, bubbles are formed in the hoses)
- Uneven lubricant distribution occurs when there is uneven flow resistance. The difference in length of the lubrication lines should be $< 20 \text{ mm}$.
- Fill the lubrication line before start-up, e.g. by repeatedly pressing the lubricating device (button in the PLC control) until lubrication comes out of the lubrication pin.

7.5.6 Installing the LU 2 automatic lubrication unit (optional)

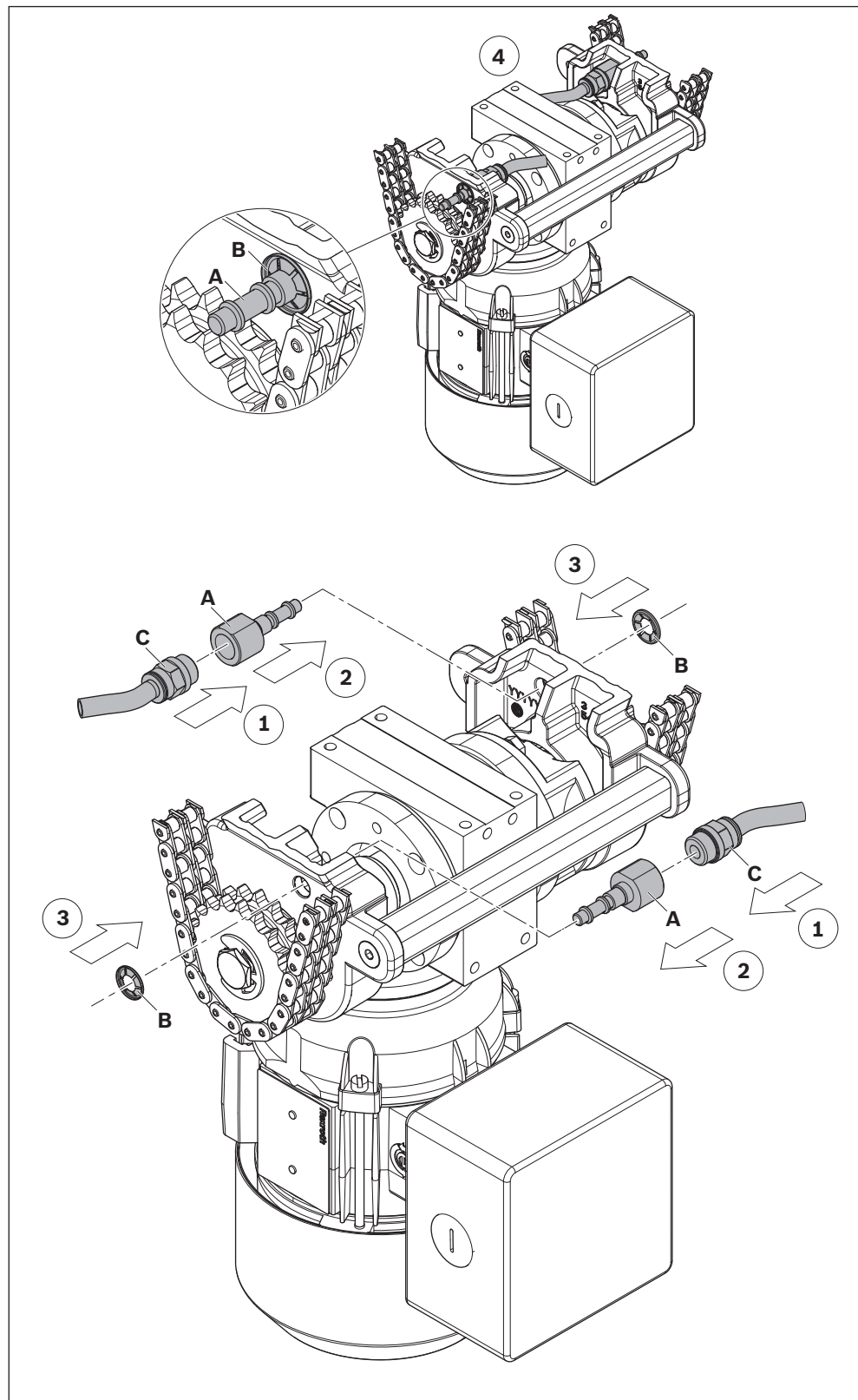


Fig. 17: Installing the HQ 2/U-H adapter set

562 240-11



Please note:

- The opening in the protective casing to feed through the lubrication line must be made by the customer.
- Make sure the length of the lubrication line is sufficient to offset the height movements ($P_n = 2$: + 14 mm; $P_n = 3$: + 14 mm / - 7 mm).

HQ 2/U-H: required dosing quantity

For further details see the LU 2 assembly instructions.

- x [m]:** Section length
y [h]: Distance between the dosing procedures
¹⁾: Dosing quantity per pulse: 0.26 cm³.
 You can find the value for b_L on the HQ 2/U-H nameplate.

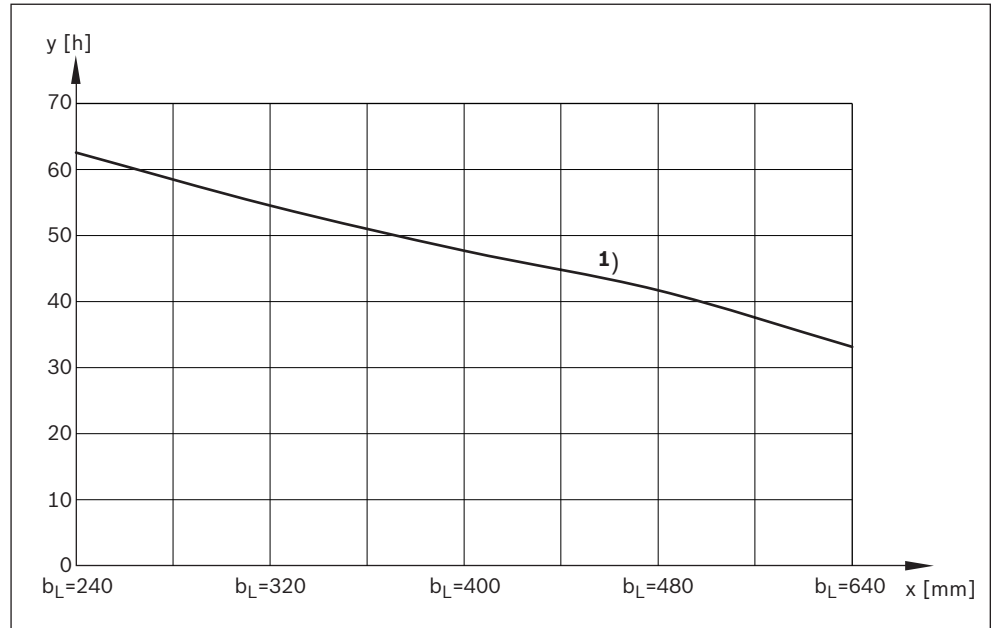


Fig. 18: HQ 2/U-H: required dosing quantity

7.5.7 Making the pneumatic connection to the product

! WARNING

High pneumatic pressure!

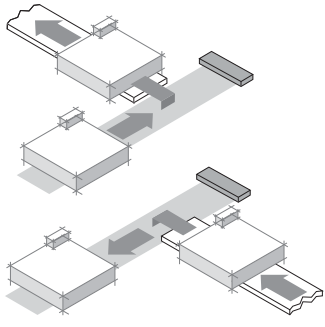
Risk of serious injury or death.

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

- For the compressed air and operating pressure specifications, see page 64.
 - Depending on the order parameters (PN), the as-delivered condition of the pneumatics system is:
 - Order parameter $P_n = 2$: The HQ 2/U-H can be moved from the center position (without pressurization) to the upper position (TFE 1, TFE 2).
 - Order parameter $P_n = 3$: The HQ 2/U-H can be moved from the center position (without pressurization) to the upper or lower position (TFE 3, TFE 4).
- You can find the function plans (TFE ...) for control tasks in transfer systems in the appendix starting on page 65.

Use the pneumatic diagram:

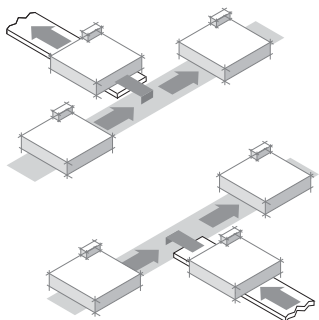
- **A**, if you want to transfer the WT from the longitudinal section to the transverse section (TFE 1) or from the transverse section to the longitudinal section (TFE 2).



562 240-16

Fig. 19: TFE 1, TFE 2

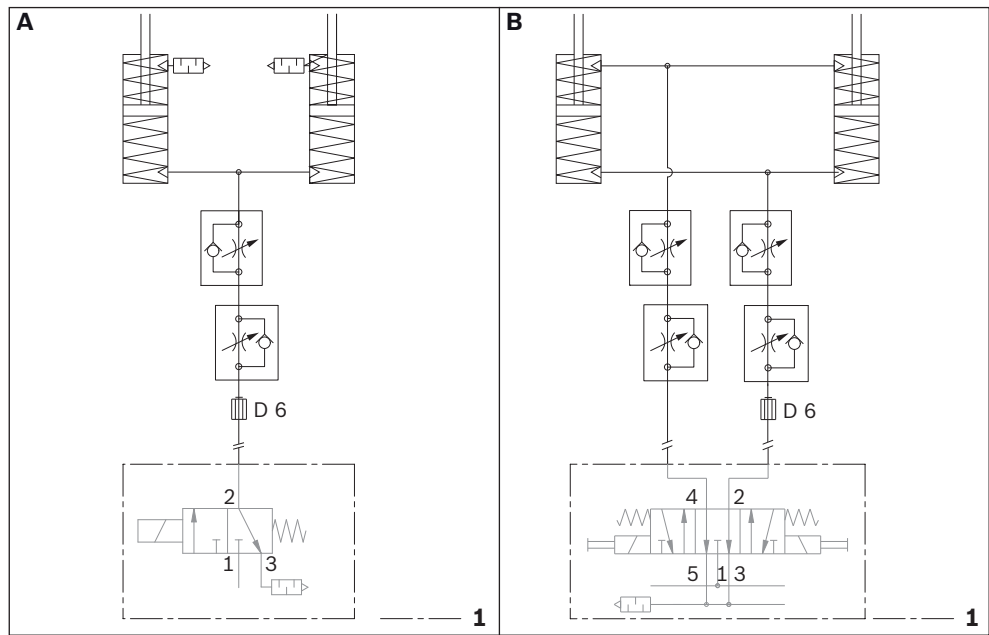
- **B**, if you want to outfeed the WT from the longitudinal section to the transverse section (TFE 3) or infeed from the transverse section to the longitudinal section (TFE 4).



562 240-17

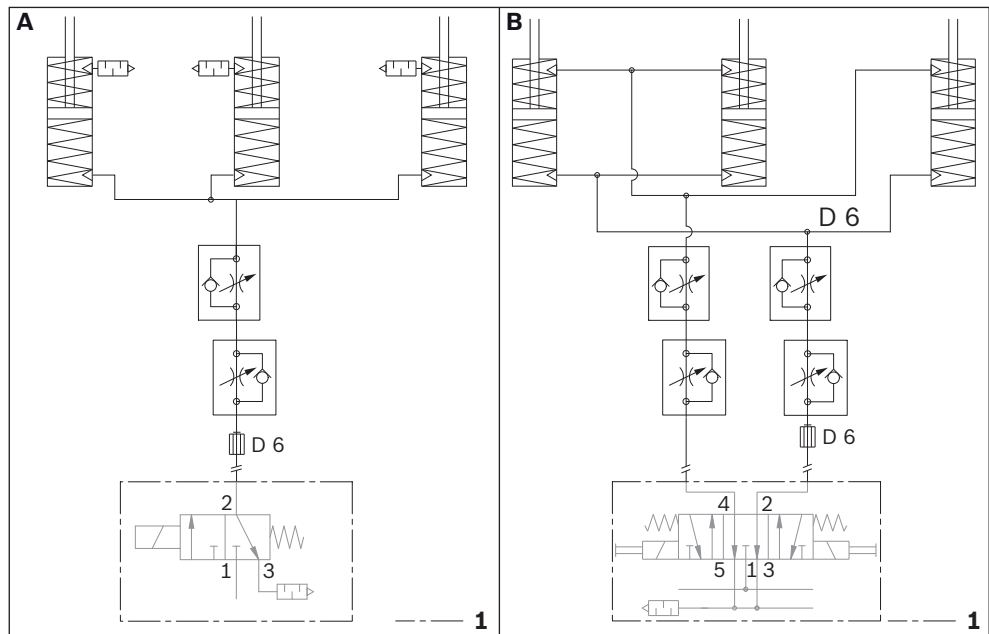
Fig. 20: TFE 3, TFE 4

► Connect the HQ 2/U-H to the compressed air supply.



562 240-13

Fig. 21: Pneumatic diagram $b_L \times b_Q$ [mm]: 240 x ..., 2 lift units



562 240-14

Fig. 22: Pneumatic diagram $b_L \times b_Q$ [mm]: 320 x ..., 400 x ..., 3 lift units

Use the pneumatic diagram:

- **A**, if you want to transfer the WT from the longitudinal section to the transverse section (TFE 1) or from the transverse section to the longitudinal section (TFE 2).

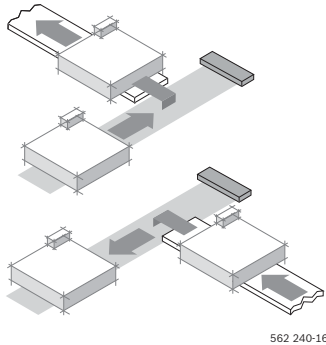


Fig. 23: TFE 1, TFE 2

- **B**, if you want to outfeed the WT from the longitudinal section to the transverse section (TFE 3) or infeed from the transverse section to the longitudinal section (TFE 4).

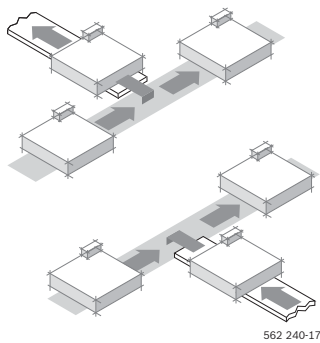


Fig. 24: TFE 3, TFE 4

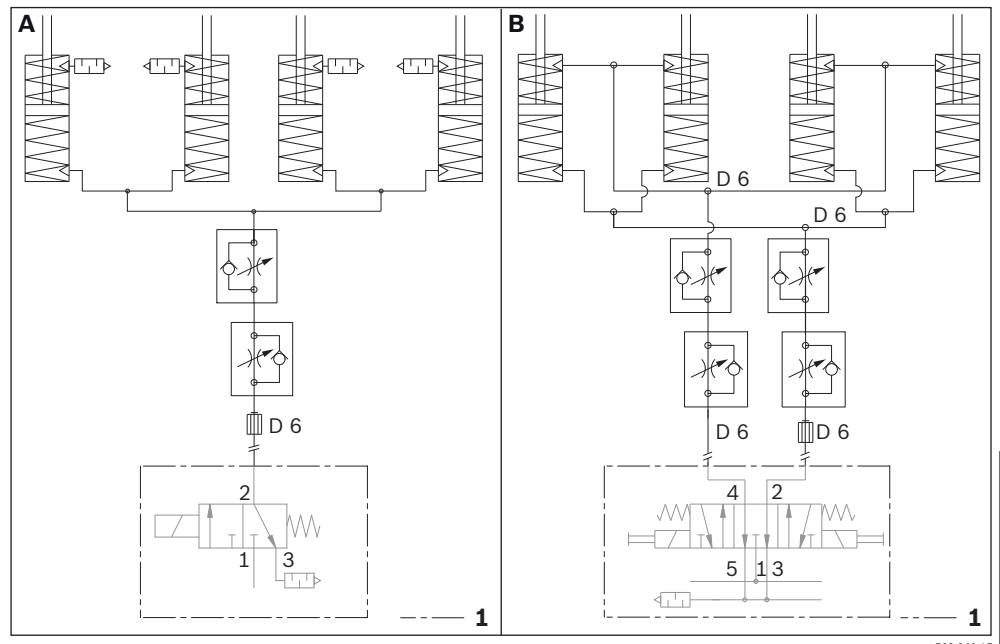


Fig. 25: Pneumatic diagram $b_L \times b_Q$ [mm]: 480 x ..., 640 x ..., 4 lift units

7.5.8 Adjusting the lifting speed

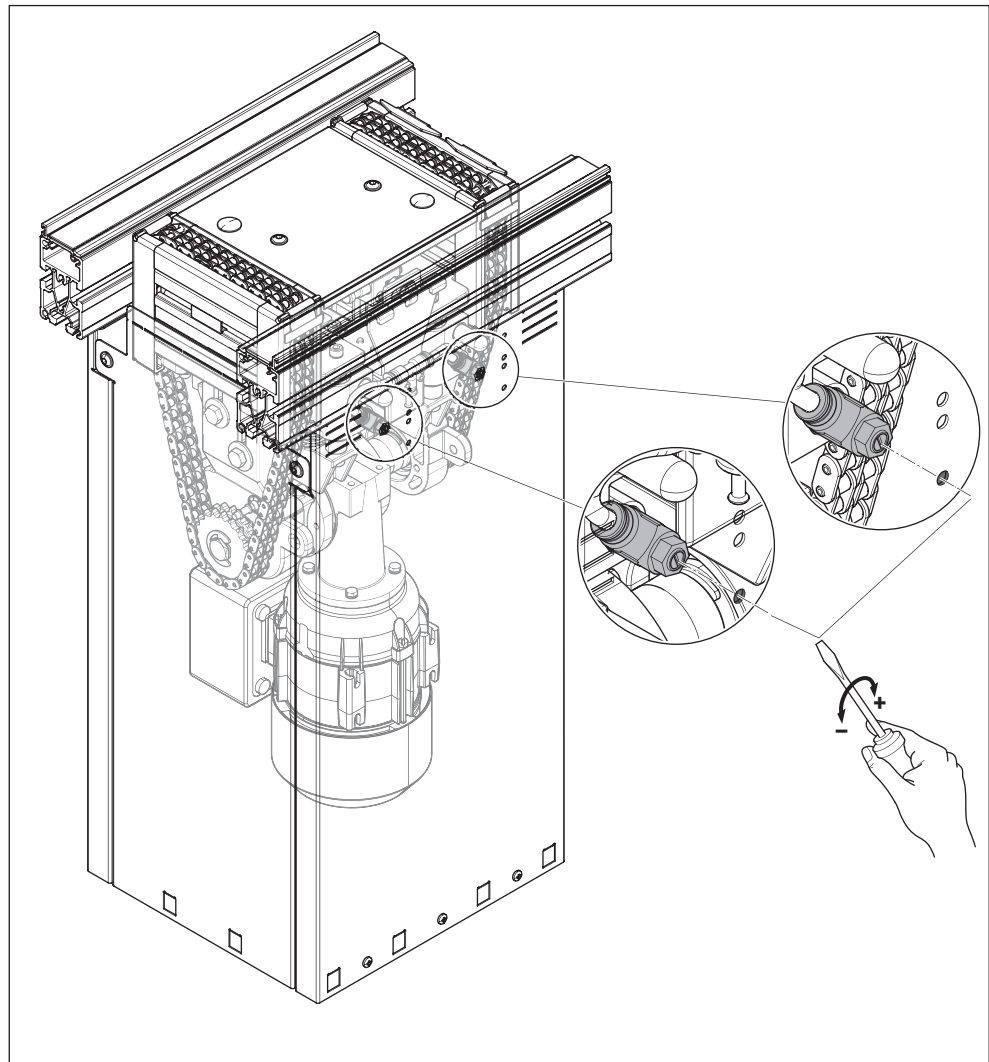
$b_L \times b_Q$ [mm]: 240 x ...

In the delivery condition, the lifting movement of the HQ 2/U-H is pre-set.

To adjust the speed of the upward stroke, throttle the supply air.

For **$b_L \times b_Q$ [mm]: 240 x ...**, the cover or the protective casing do not need to be removed.

- ▶ Insert the screwdriver in the hole in the protective casing wall.
- ▶ Turn it in the direction marked “+” to make the upward stroke slower.
- ▶ Turn it in the direction marked “-” to make the upward stroke faster.



562 240-47

Fig. 26: Adjusting the lifting speed $b_L \times b_Q$ [mm]: 240 x ..., 2 lift units

$b_L \times b_Q$ [mm]:

320 x ..., 400 x ...

In the delivery condition, the lifting movement of the HQ 2/U-H is pre-set.

To adjust the speed of the upward stroke, throttle the supply air.

- ▶ Remove the protective cover.
- ▶ Turn it in the direction marked “+” to make the upward stroke slower.
- ▶ Turn it in the direction marked “-” to make the upward stroke faster.

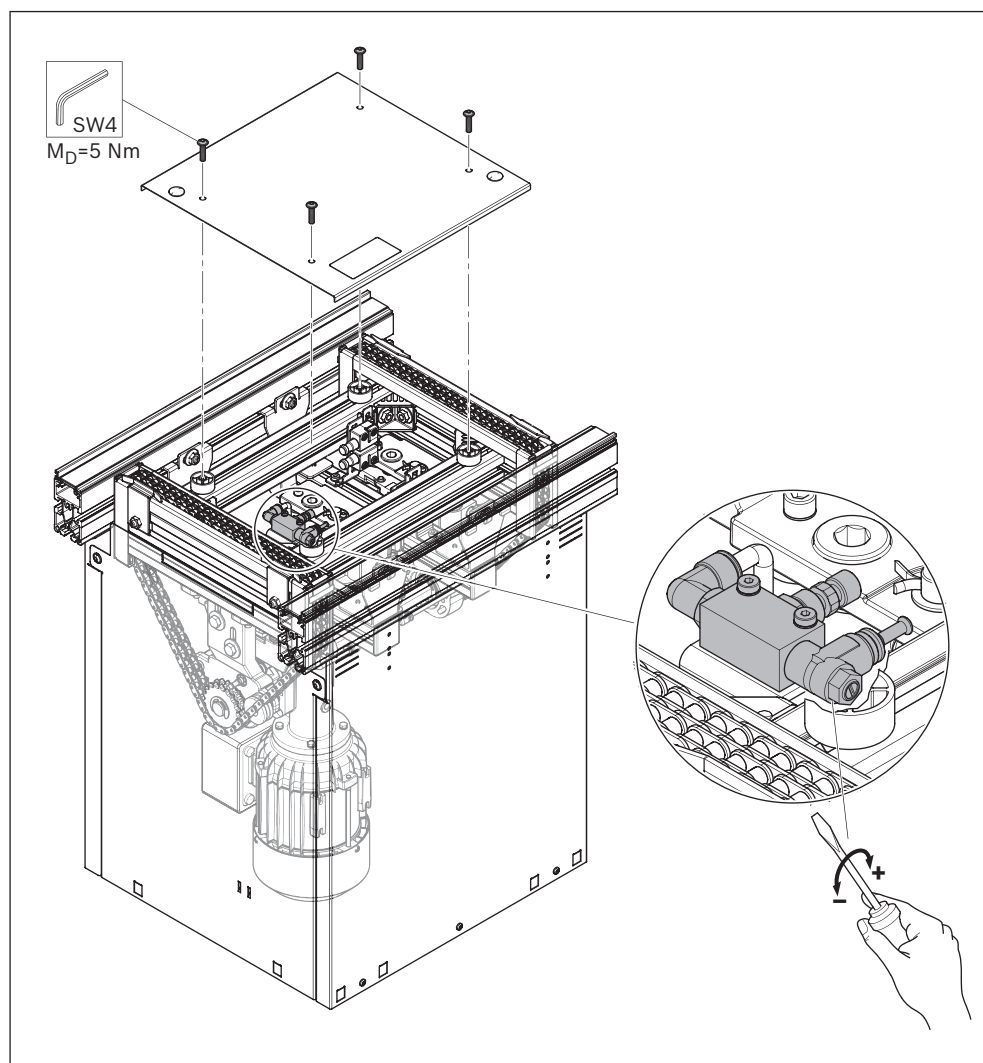


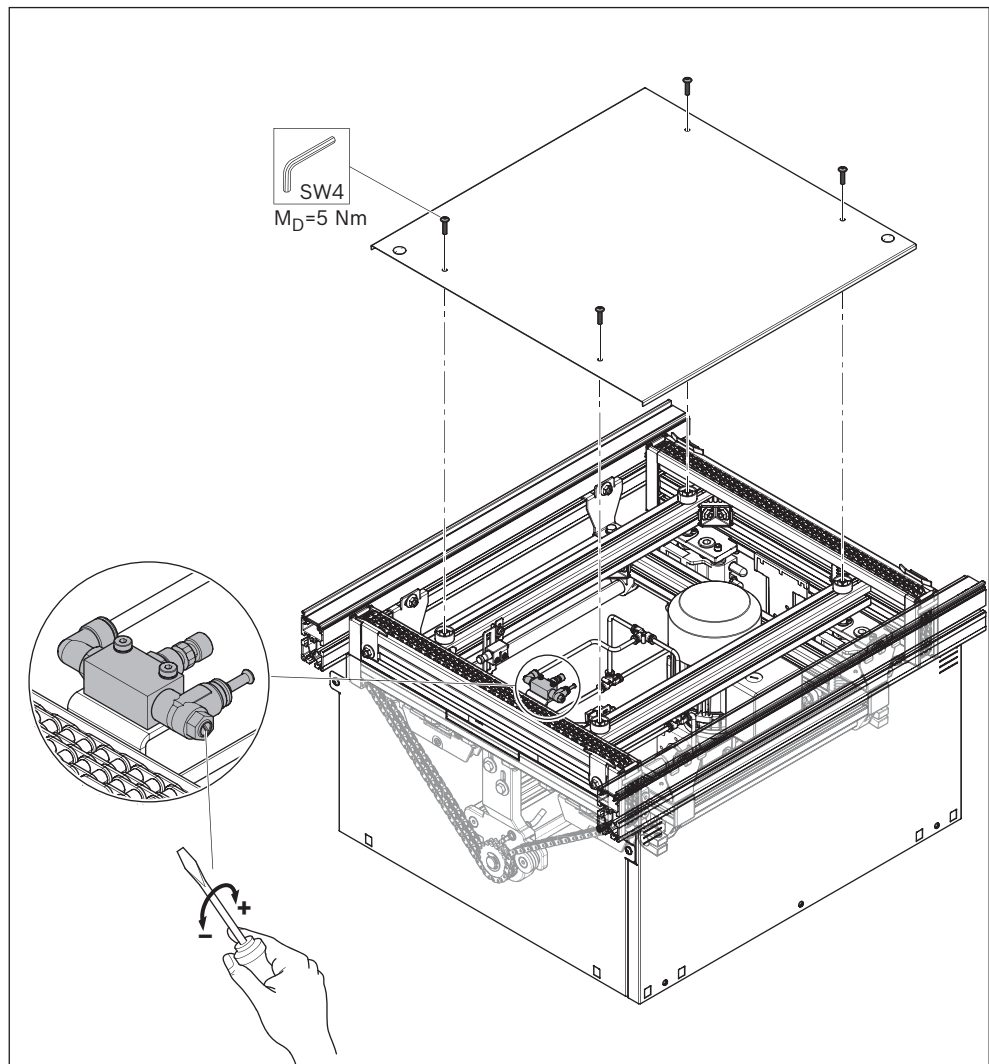
Fig. 27: Adjusting the lifting speed $b_L \times b_Q$ [mm]: 320 x ..., 400 x ..., 3 lift units

$b_L \times b_Q$ [mm]:**480 x ..., 640 x ...**

In the delivery condition,
the lifting movement of the
HQ 2/U-H is pre-set.

To adjust the speed of the
upward stroke, throttle the
supply air.

- Remove the protective
cover.
- Turn it in the direction
marked “+” to make the
upward stroke slower.
- Turn it in the direction
marked “-” to make the
upward stroke faster.



562 240-48

Fig. 28: Adjusting the lifting speed $b_L \times b_Q$ [mm]: 480 x ..., 640 x ..., 4 lift units

7.5.9 Making the electrical connection to the product

WARNING

High electrical voltage!

Risk of serious 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.

- Choose control and sensor elements in accordance with EN ISO 13849. When doing so, factor in the load that is to be 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.

Motor connection

- Observe the available supply voltage!
- Observe the electrical power requirement shown on the motor nameplate, see Fig. 25 on page 33.
- Connect up the motor in either a wye or a delta configuration in accordance with the connection diagrams, see Fig. 26 on page 34, and the connection 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. 31 on page 38. Observe the pre-fuse!

Checking the rotational direction of the motor

- Let the system run for no more than 2 secs., then make sure the motor is rotating in the proper direction.
- Switch any two wires (U1, V1 or W1, see Fig. 31 on page 38) 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.

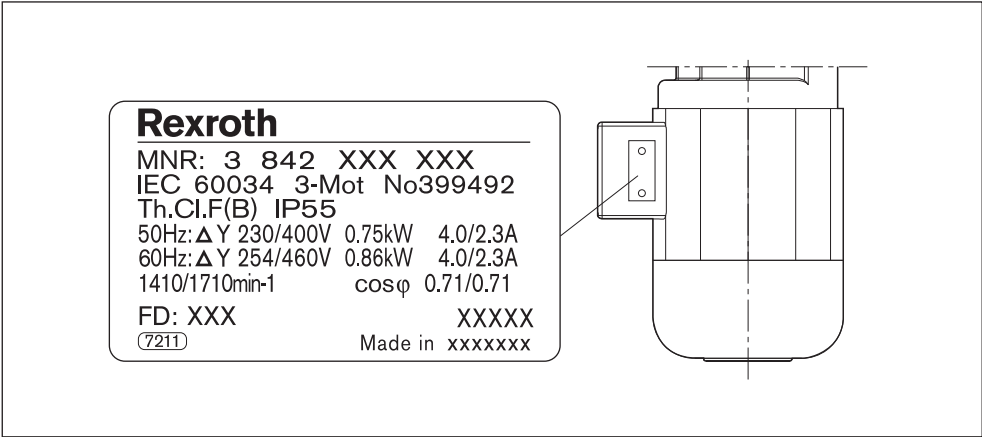


Fig. 29: Motor nameplate (example)

Installation_A

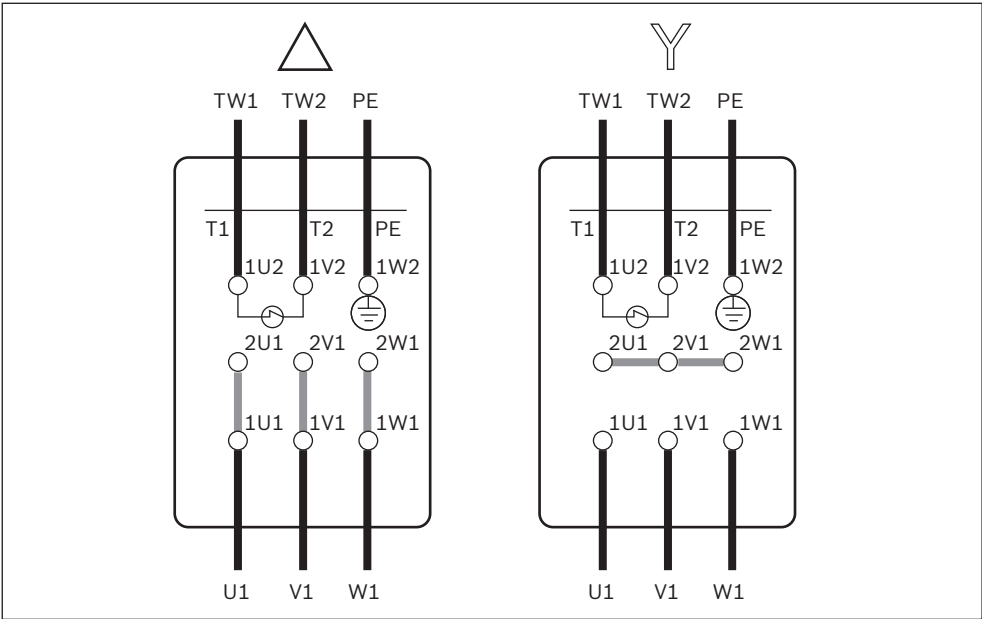


Fig. 30: Delta/ye connection diagrams

Installation_DY

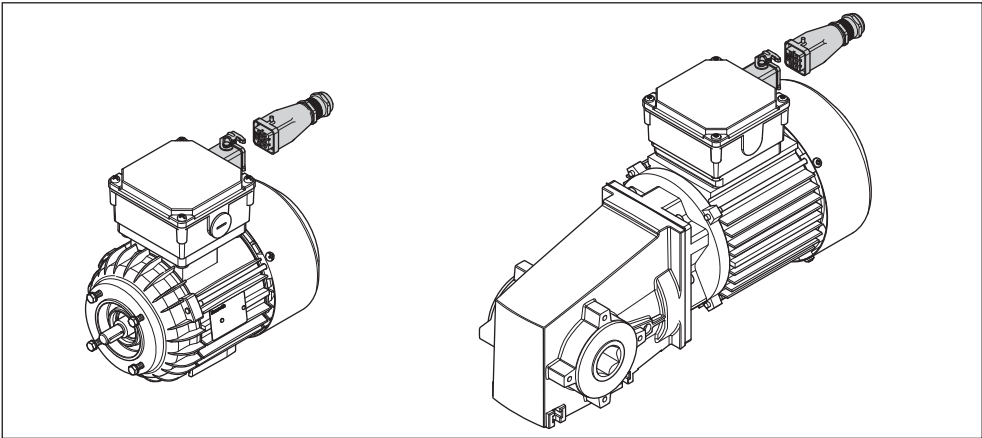
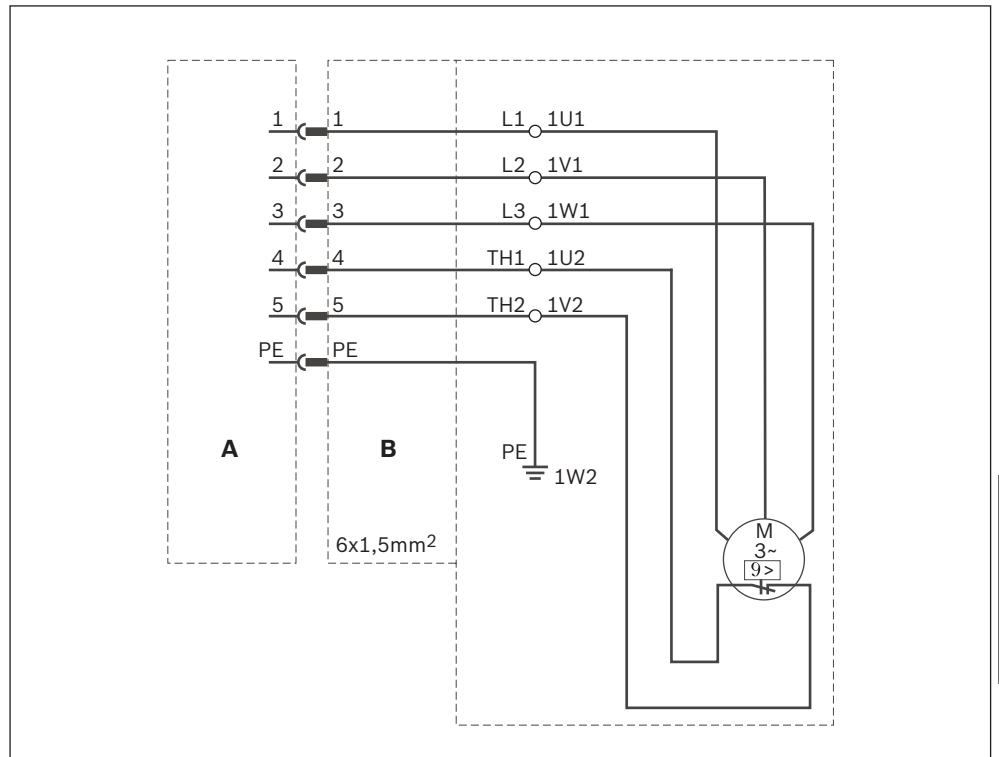


Fig. 31: Optional motor connection with plug (AT = S)

Installation_IEC



Installation_S-plan

Fig. 32: Motor connection with plug (AT = 1), circuit diagram

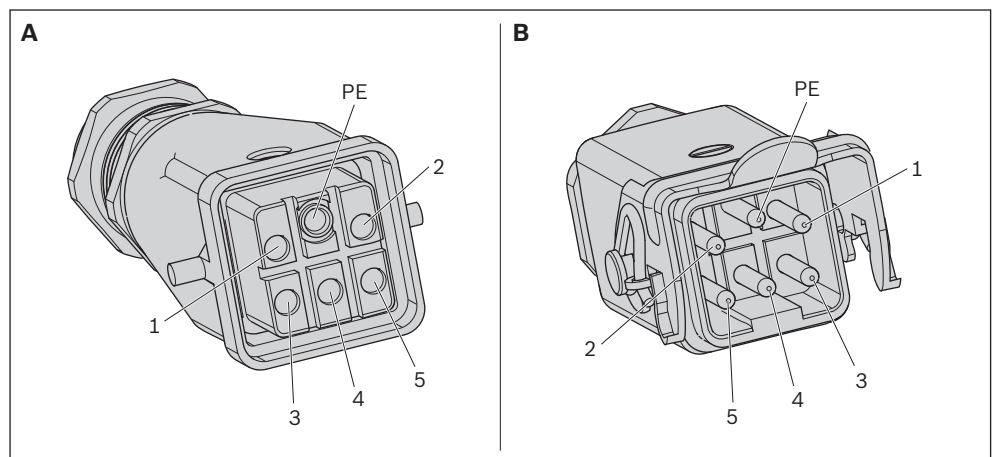
A: Connection cable side

B: Motor side

The plug connection consists of UL components.

Connection list

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



Installation_Stecker

Fig. 33: Motor connection with plug (AT = 1), plug connection

A: Connection cable side

B: Motor side

7.5.10 Installing the protective casing

1. If present, remove the protective foil from the sheet metal.
2. Install the edge protector in the cable recess.
3. Install the side walls in the base.
The side walls connect with an audible click.
4. Install the end walls.



Please note:

Make sure you install the lock washer (A, **3 842 542 330**) as a locking device for the screws!

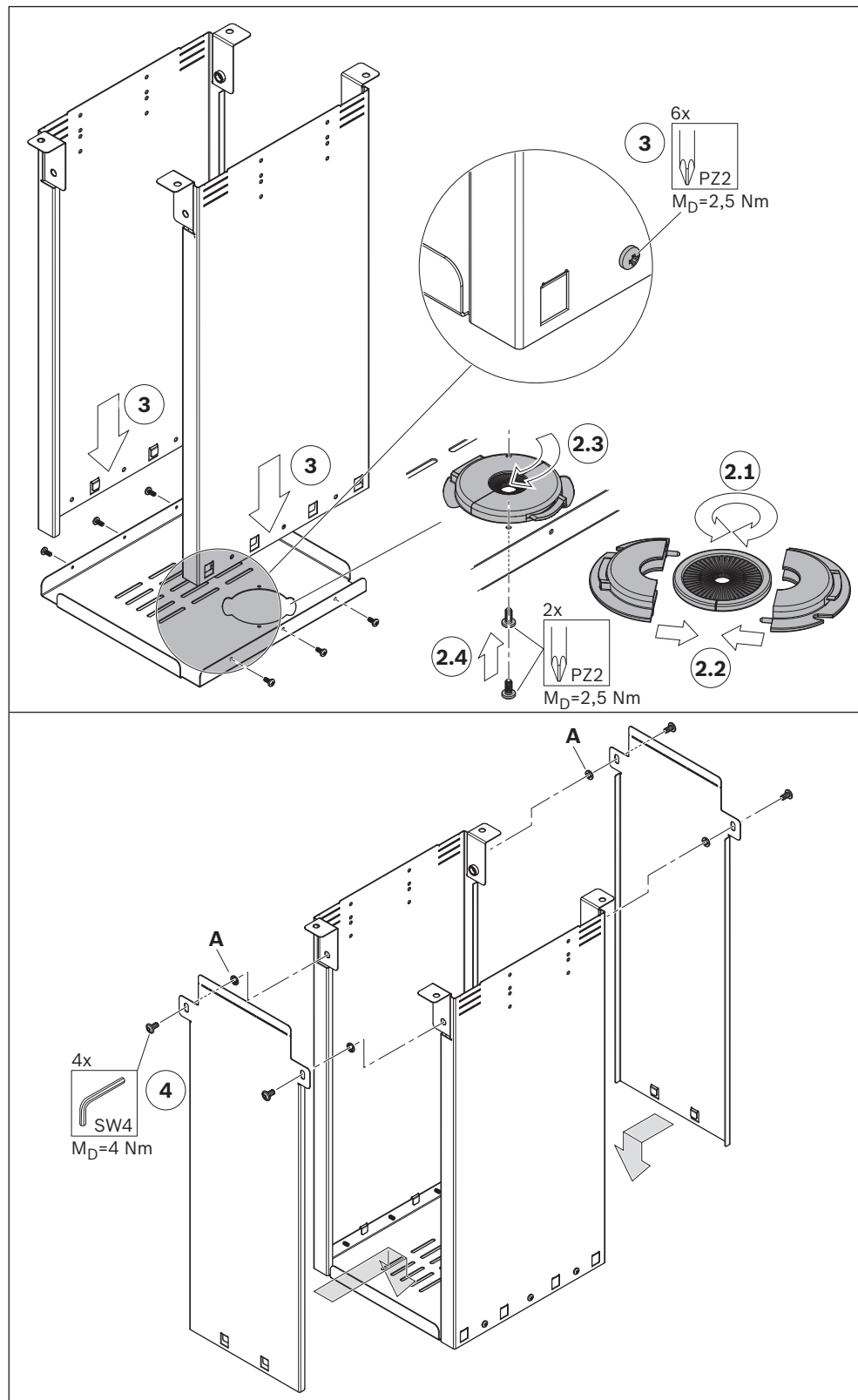


Fig. 34: Preassembling the protective casing

562 240-46

5. Insert the connection cable through the opening in the base of the protective casing.

Place the protecting casing over the HQ 2/U-H from below.

Screw it together with the section.

1)



Please note:

Motor connection with plug:

b_o (mm)	x	b_L (mm)
400	x	320
400	x	400
400	x	480
400	x	640
480	x	320
480	x	400
640	x	400

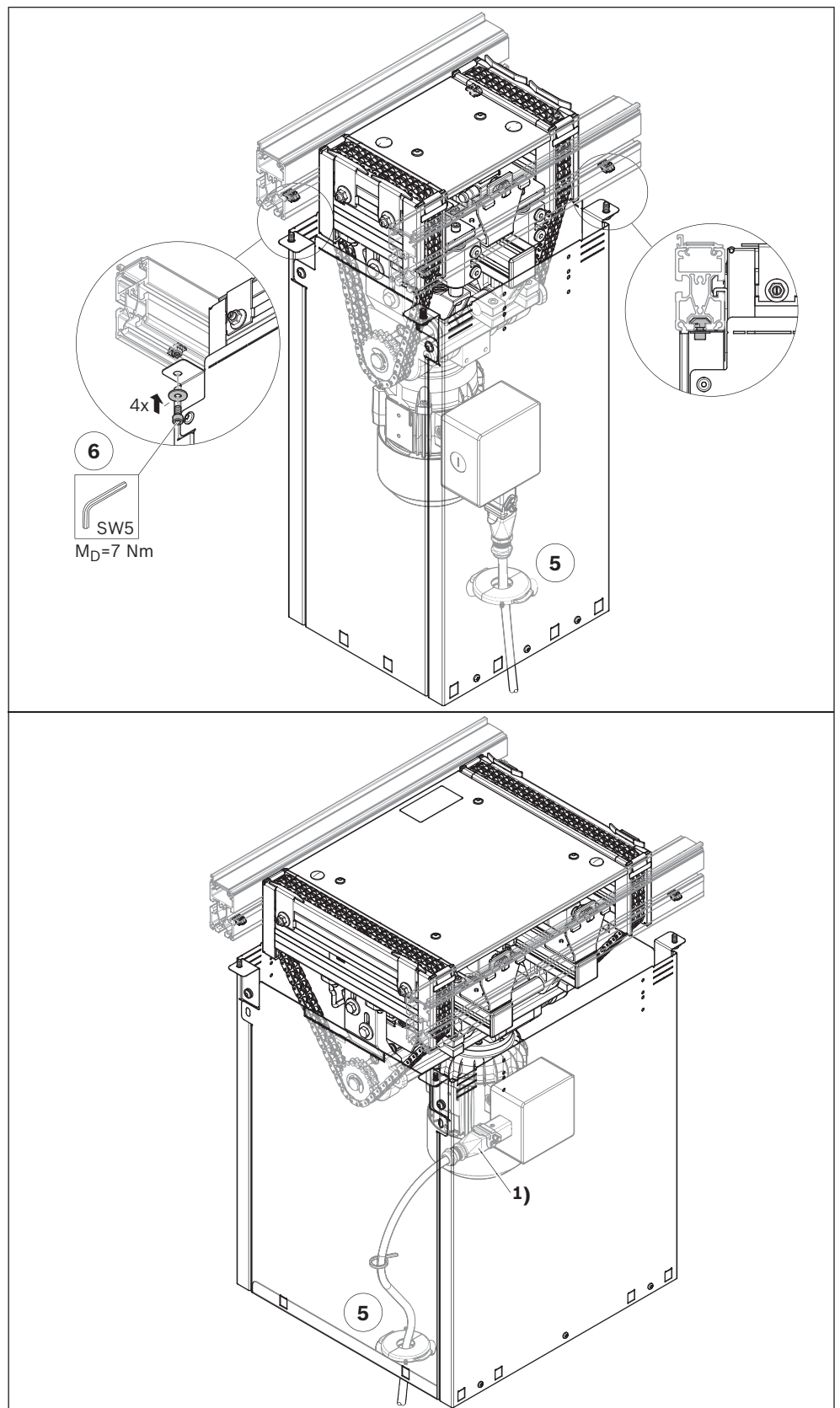
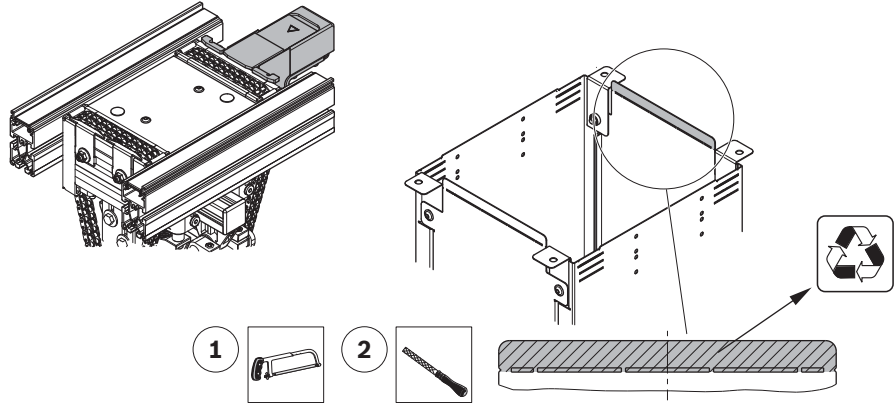
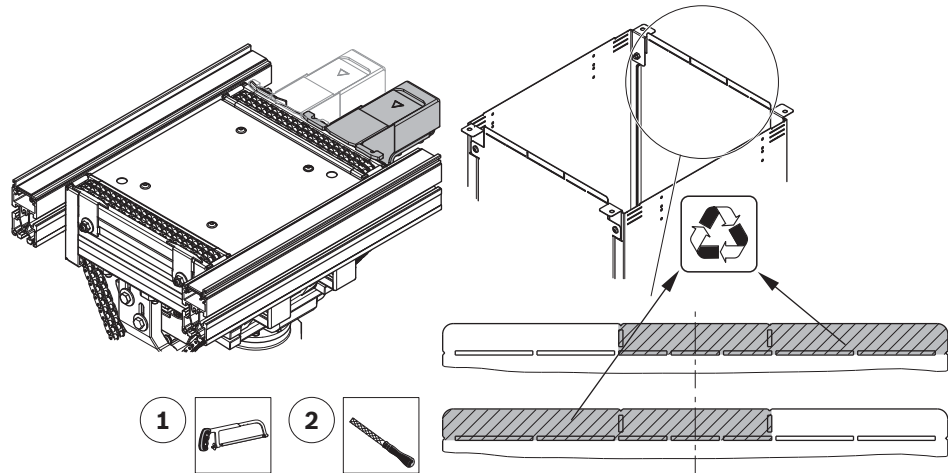
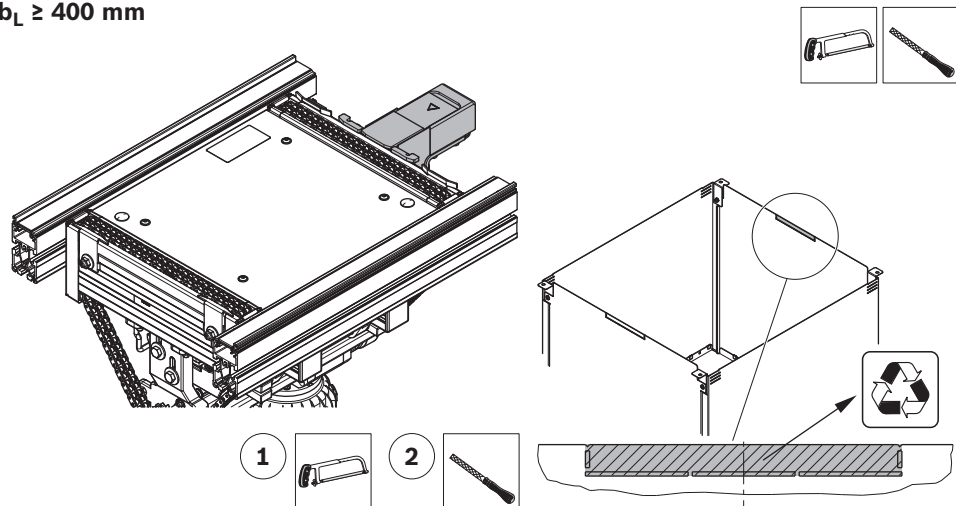


Fig. 35: Installing the protective casing

Cutouts for mounting the damper in a section profile height of 80 mm

Only for installation in a section with a section profile height of 80 mm. (No cutouts are required when mounting in a section with a section profile height of 100 mm.)

1. Cut out the marked cutouts with a saw.
2. Smooth the saw burrs with a file.

 $b_L = 240 \text{ mm}$  **$b_L = 320 \text{ mm}$**  **$b_L \geq 400 \text{ mm}$** **Fig. 36: Cutouts for mounting the damper**

562 240-20

Cutouts for mounting the connection kits

1. Cut out the marked cutouts with a saw.
2. Smooth the saw burrs with a file.

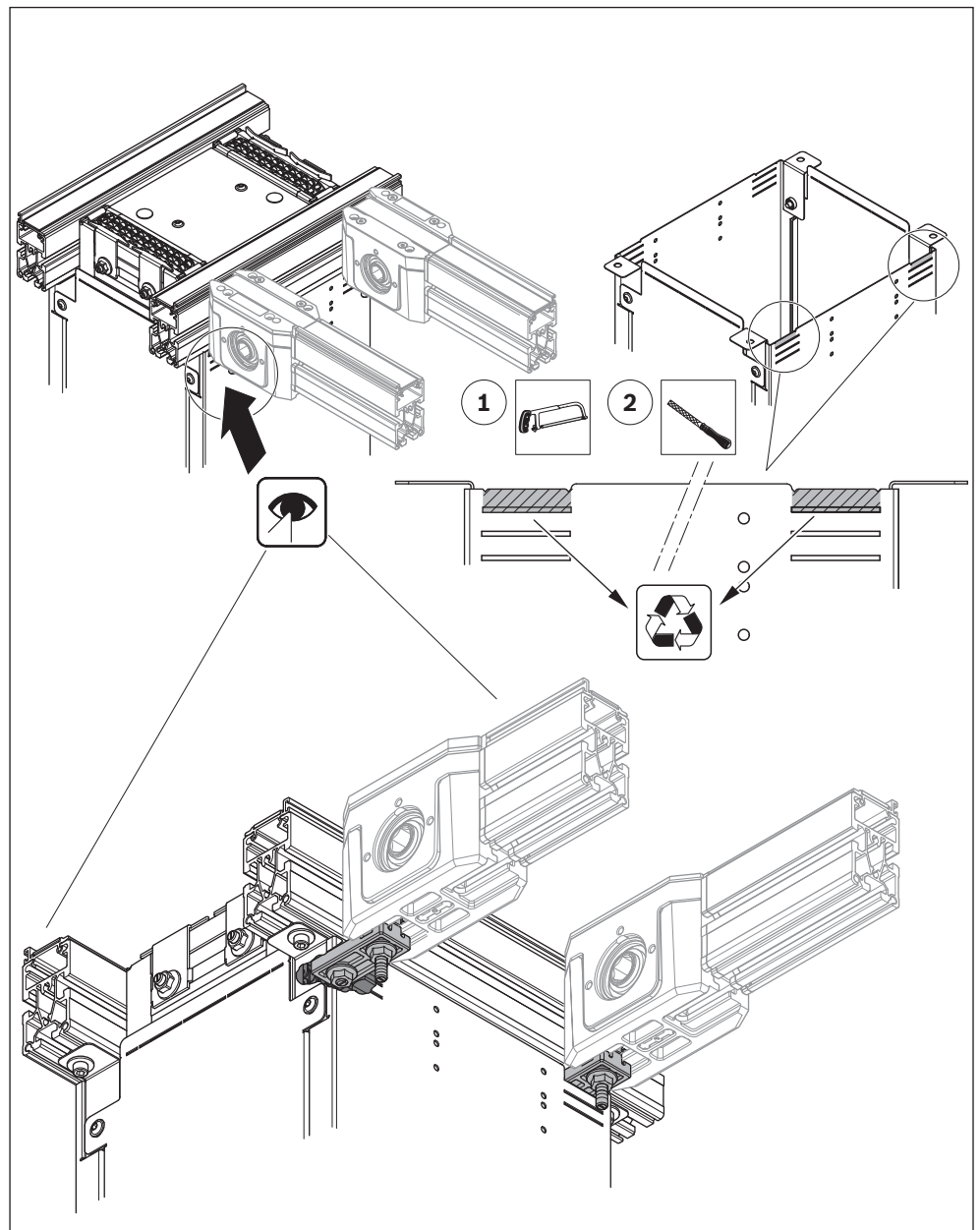


Fig. 37: Cutouts for mounting the connection kits

562 240-21



Please note:

- Lubricate the conveyor chain before initial start-up and after longer downtimes, then every 1,000 h, with Structovis GHD, **0 842 904 229**.
Required lubricant quantity:

2 g/m chain length

Size b _L [mm]	Chain length [m]
240	0.75
320	0.86
400	0.98
480	1.12
640	1.41

7.5.11 Initial lubrication of the conveyor chain

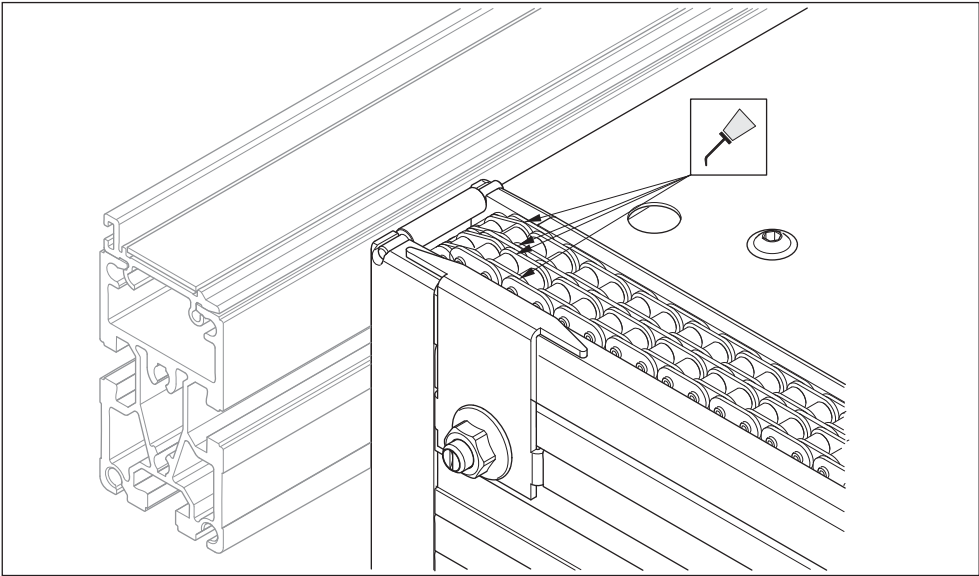


Fig. 38: Initial lubrication of the conveyor chain

8 Start-up

8.1 Initial start-up



CAUTION

Sudden movements, falling workpiece pallets

- ▶ Injuries caused by falling objects.
- ▶ Make sure that the product has been installed properly by qualified personnel (see page 9) before starting it up.

NOTICE

Malfunctions due to incorrect assembly and start-up

The product can get damaged, shortening its service life.

- ▶ Start-up requires basic mechanical, pneumatic and electrical knowledge.
- ▶ The product may only be operated by qualified personnel (see page 9)

- Before the initial start-up or re-commissioning of a conveyor system, carry out a risk assessment in accordance with DIN EN ISO 12100.
- In accordance with the EU Machinery Directive 2006/42/EC, transfer systems must be equipped with EMERGENCY STOP devices.
- 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 structural measures (guards) or by affixing/displaying appropriate warning signs!
- Make sure that all the electrical and pneumatic connections are either in use 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 safety guards are in place.
- Observe EN ISO 13857 when you remove or replace safety guards and/or bypass safety equipment.
- Test runs with open paneling should only be performed by a person with appropriate knowledge and experience using tip switches, and if there is no possibility of interference from other switching devices.
- Only start up the product if all safety equipment has been installed in the system and is functional.
- Only start up a product that has been completely installed.

Life stages of the machine according to EN 12100 Sect. 5.4 a /b (No. 1- 27), Sect. 5.4 a

- 1** Transport, assembly and installation
- 2** Commissioning
- 3** Use
- 4** Dismantling, decommissioning and disposal
- 5** Set up
- 6** Verifying
- 7** Teaching/programming
- 8** Changeover
- 9** Startup
- 10** All operating modes
- 11** Feeding the machine
- 12** Removing product from the machine
- 13** Shutting the machine down
- 14** Shutting the machine down in the case of an emergency
- 15** Restoring operation after a bottleneck or blockage
- 16** Restarting after unscheduled shutdown
- 17** Troubleshooting and remedial action (intervention by operating personnel)
- 18** Cleaning and keeping clean
- 19** Preventive maintenance
- 20** Corrective maintenance

Operating states of the machine, Sect. 5.4 b

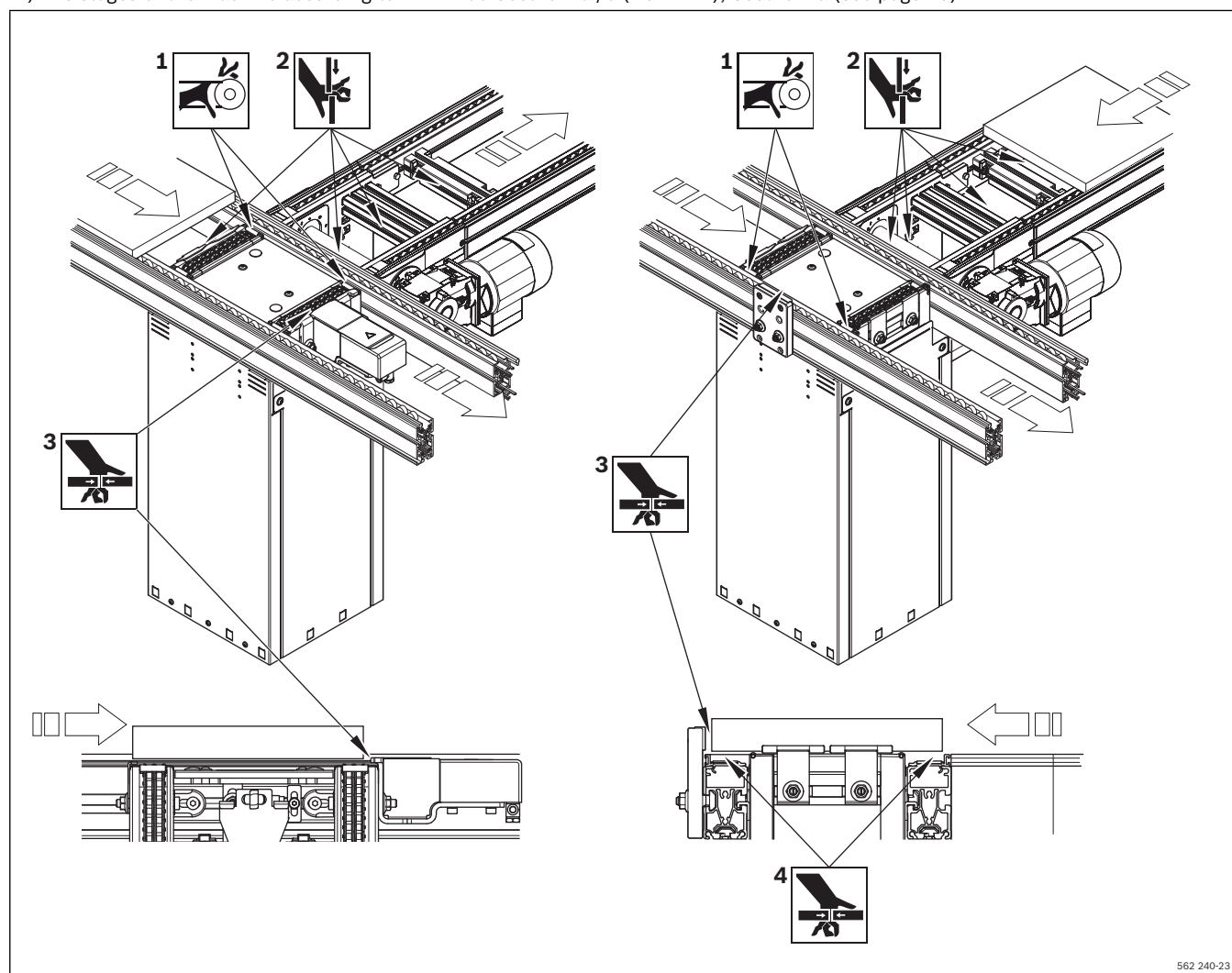
- 21** Normal operation
- 22** Modification of a property or a dimension of the material or workpiece to be processed
- 23** Failure of one (or more) of its components or supply devices
- 24** External disturbances (e.g. impact, vibration, electromagnetic interference)
- 25** Design faults or defects (e.g. software errors)
- 26** Disruption in the power supply
- 27** Environmental conditions (e.g. damaged floors)

8.2 Residual risks

Table 6: Residual risks

Life stage ¹⁾ , location			Situation	Hazard	Action
1	2 9 21	Conveyor medium pinch point	Clothing or long hair can become entangled		Crushing, pulling out of hair Do not reach into the system while it is running. Wear protective clothing.
2	2 9 21	Between incoming workpiece pallet and HQ 2/U-H	Limbs can become trapped		Shearing Do not reach into the system while it is running. Secure the danger zone adequately: • in the work area • in the transport area, if $v > 15$ m/min.
3	2 21	Between incoming workpiece pallet and damper / stops.	Limbs can become trapped		Crushing
4	2 9 21	Between lowering workpiece pallet and belt section	Limbs can become trapped		Crushing Do not reach into the system while it is running. Secure the danger zone adequately.

¹⁾ Life stages of the machine according to EN 12100 Sect. 5.4 a / b (No. 1- 27), Sect. 5.4 a (see page 46)



8.3 Re-commissioning after a standstill

- Follow the steps outlined for the initial start-up.
- Lubricate the conveyor chain before initial start-up and after longer downtimes, then every 1,000 h, with Structovis GHD, **0 842 904 229**.

9 Operation

CAUTION

Hot electric motor surfaces during operation!

Burns from touching hot surfaces over 65 °C

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

9.1 Notes regarding operation

9.1.1 Wear

- Individual components are subject to unavoidable wear by their very nature. Constructive measures and the selection of materials help ensure functional reliability over the full service life. However, wear is also dependent on the operating, maintenance and ambient conditions at the place of use (resistance, contamination).
- Overloading the conveyor sections can cause the conveyor medium to malfunction and lead to the premature breakdown of motors and gears.
- If pneumatically activated components are overloaded, it is not possible to guarantee their function.

9.1.2 Measures to reduce wear

The following commonsense measures will reduce wear:

- Switch off the conveyor section when the system is not in use, e.g., during breaks, at night and on weekends.
- Do not select a higher speed for the conveyor section than that required for the corresponding function.
- Avoid contamination caused by abrasive media, reduce contamination by cleaning on a regular basis.

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 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,
- damper functionality,
- dampened stop gates.

9.1.4 Environmental factors

- 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, aggressive cleaning agents, solvents or brake fluid.
- Avoid prolonged contact with highly reactive acidic or alkaline materials.
- Contamination can greatly increase wear – 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 powder, glass shards, chips, waste parts, etc.). Maintenance intervals should be significantly reduced under these circumstances.
- 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 a lubricating effect can lead to a reduction in the drive power that is transmitted via friction.In such instances, special care must be taken when planning the system, and the maintenance intervals must be correspondingly shortened.

10 Maintenance and repair



WARNING

High electrical voltage!

Risk of serious 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 serious 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!

Burns from touching hot surfaces over 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 safety guards are in place.
- Observe DIN EN ISO 13857 when you remove or replace safety guards and/or bypass safety equipment.
- Test runs with open paneling should only be performed by a person with appropriate knowledge and experience using tip 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. during cleaning, leads to bearing failure. 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 a damp cloth.

Chain failure

Applying grease-dissolving substances to the chain, e.g. when cleaning, leads to chain failure. There is a risk of damage to property.

- ▶ Keep degreasers or aggressive cleaning agents away from the chain!
- ▶ Only clean the product with a damp cloth.

10.2 Inspection

Chain

Inspect the chain regularly, every 1000 h, for ease of movement, sufficient lubrication, correct chain tension (see page 44) and wear. Check more frequently, e.g. every 500 h or 200 h, when using production processes that include rinsing, fluid transfer, etc. in which the lift transverse unit chain could be washed out.

Lift unit

Regularly check the pneumatic connections for leaks.

10.3 Maintenance

Chain

Lubricate the conveyor chain before initial start-up and after longer downtimes, then every 1,000 h, with Structovis GHD, **0 842 904 229**. Lubricate more frequently, e.g. every 500 h or 200 h, when using production processes that include rinsing, fluid transfer, etc. in which the lift transverse unit chain could be washed out. We recommend using the LU 2 automatic lubrication unit. Replace the conveyor chain when wear becomes visible and at the latest when it has increased in length by 3%.

Bearings

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

Gear

The gear is maintenance-free.

Motor

To ensure adequate cooling of the motors, regularly remove dirt and dust deposits:

- 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.

10.4 Replacement of wear parts

Required tools

- Hex wrench (open-end) SW13
- Hex socket wrenches SW3, SW4, SW5
- Posidriv screwdriver, PZ2
- Caliper, 500 mm
- Rubber mallet
- Drift punch

The protective casing does not have to be completely dismantled for inspection and maintenance. It is sufficient to open the end walls.

- Disconnect the relevant system component so it is de-energized and secure the system against unintentionally being switched on again before opening the protective casing.

10.4.1 Opening the protective casing

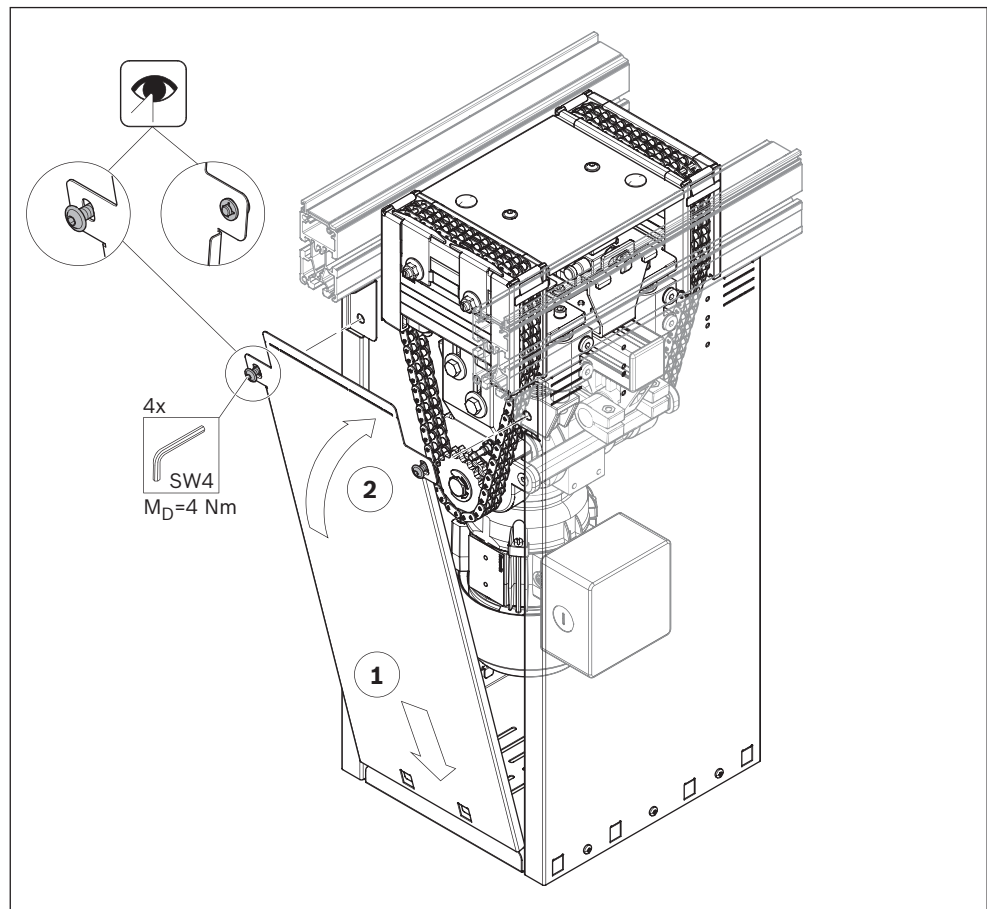


Fig. 39: Opening the protective casing

562 240-24

10.4.2 Replacing the roller chain

It is possible to replace the roller chain when the HQ 2/U-H is installed in the section.

1. Open the chain lock (A).
2. Replace the roller chain.
3. Check the sprocket and the chain guides for break-in scoring. Replace the worn parts.
4. Check the tension of the roller chain. Adjust the roller chain tension if necessary.



Please note:

- Do not pre-tension the roller chain, the chain should be able to be pressed in by ~10 mm.
- Incorrect roller chain tensioning reduces the service life of the roller chain, gear and motor!

Adjusting the roller chain tension

- Loosen the screws (B) and move the motor-gear combination until the correct chain tension is achieved.
- Fix this setting with the screws (B).

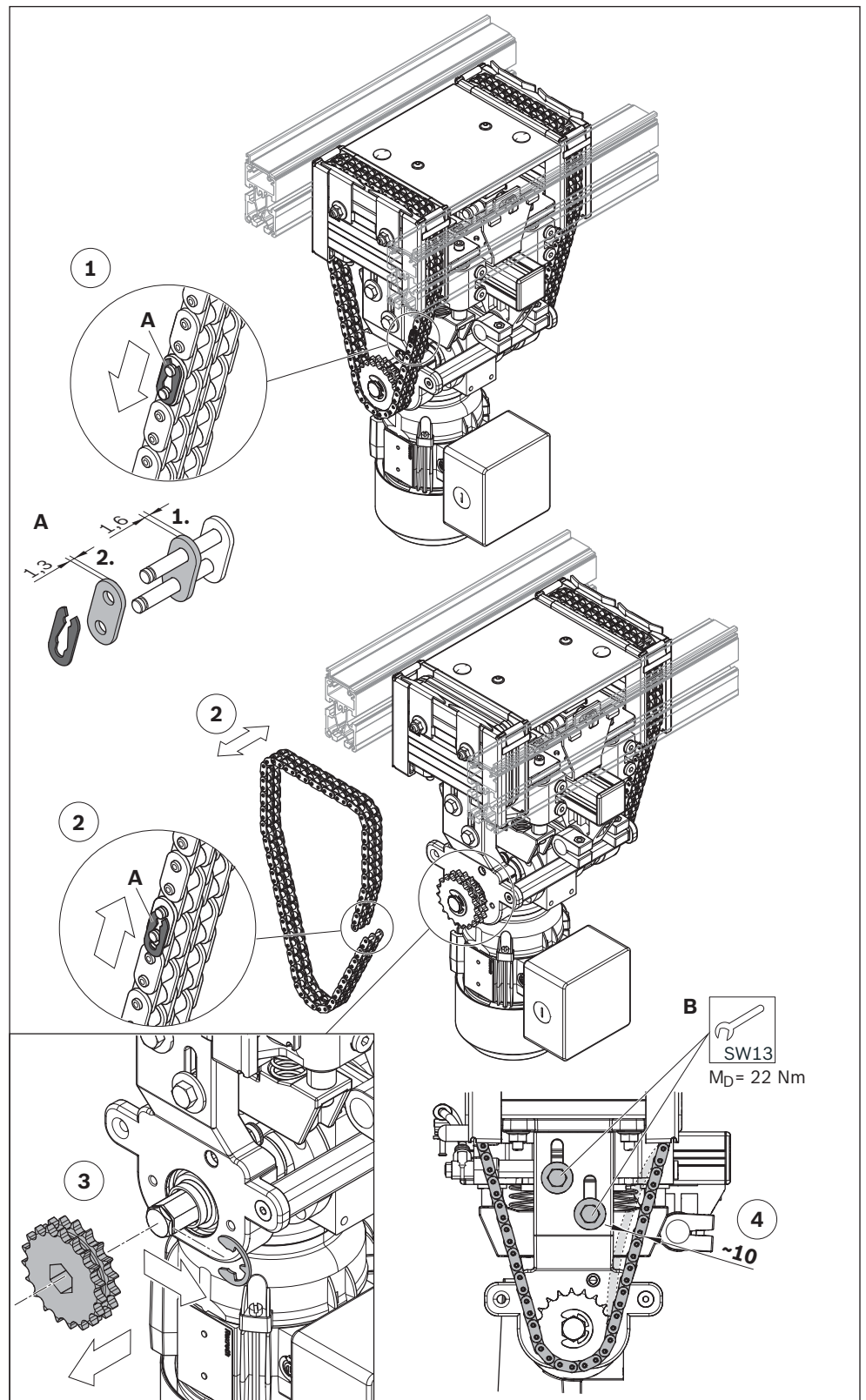


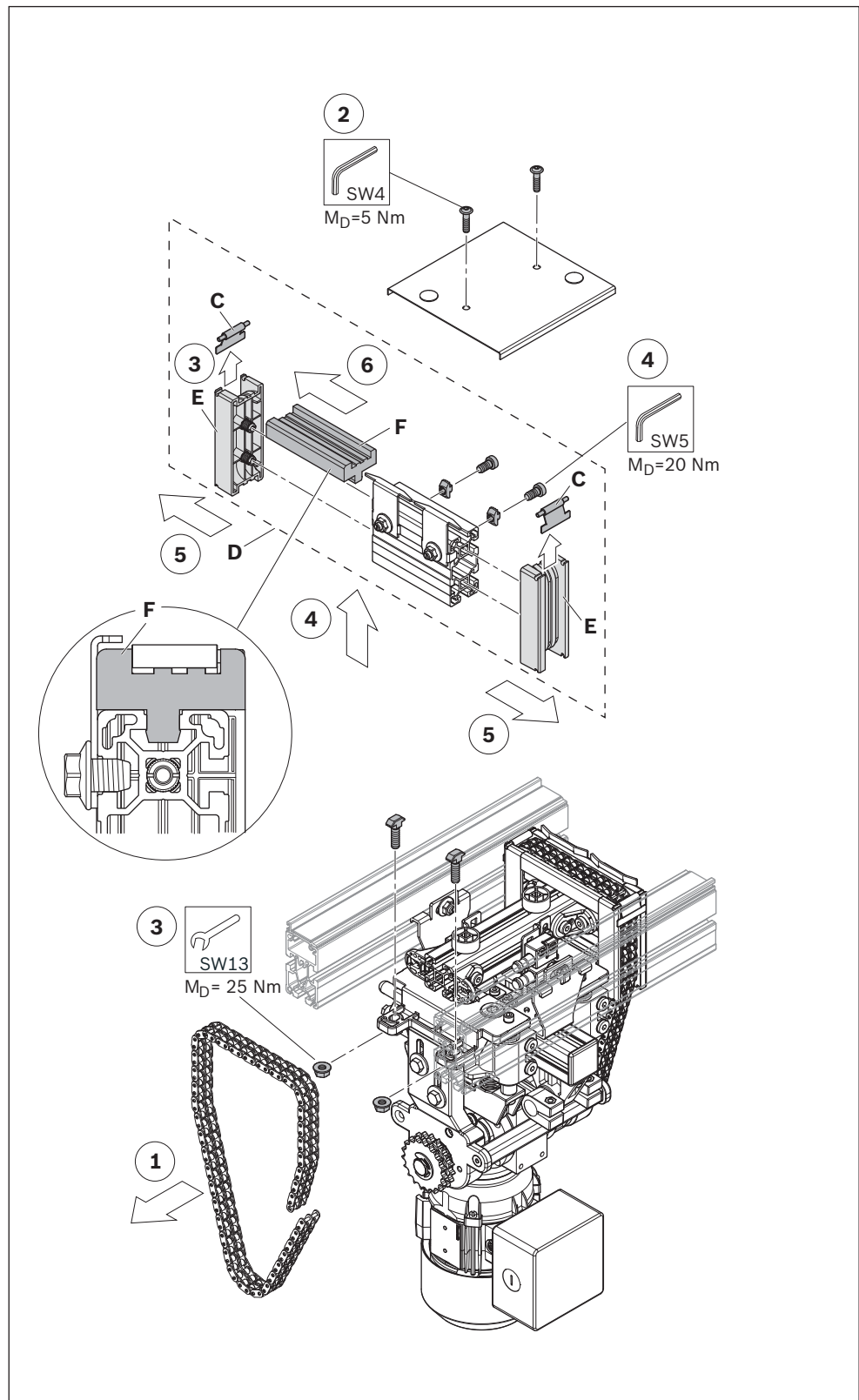
Fig. 40: Replacing the roller chain

562 240-25

10.4.3 Replacing the chain guide

It is possible to replace the chain guide when the HQ 2/U-H is installed in the section.

1. Remove the roller chain (see page 53).
2. Remove the cover sheet.
3. Remove the axles (C).
4. Remove the chain guide block (D).
5. Remove the vertical chain guides (E) by pulling them off (parts are only plugged in).
6. Remove the horizontal chain guide (F) by pushing it out.
7. Install the chain guide in reverse order. Note the installation position of the chain guide (F).



562 240-26

Fig. 41: Replacing the chain guide

10.4.4 Replacing the motor and/or gear

It is possible to replace the motor and/or the gear when the HQ 2/U-H is installed in the section.

If only the motor is to be removed, start with pos. 5.

1. Remove the roller chain (see page 53).
2. Remove the motor-gear combination.
3. Remove the hanger from the flange (G).
4. Remove the flange (G) from the gear.
5. Loosen the hexagon screws on the gear flange.
6. Disconnect the defective gear from the motor. Remove the yellow protective cap (X) from the motor shaft of the new motor. Grease the motor shaft.
7. Install the motor.
8. Install the motor-gear combination in reverse order.
9. Check the tension of the roller chains (see page 53) and correct the tension if necessary.

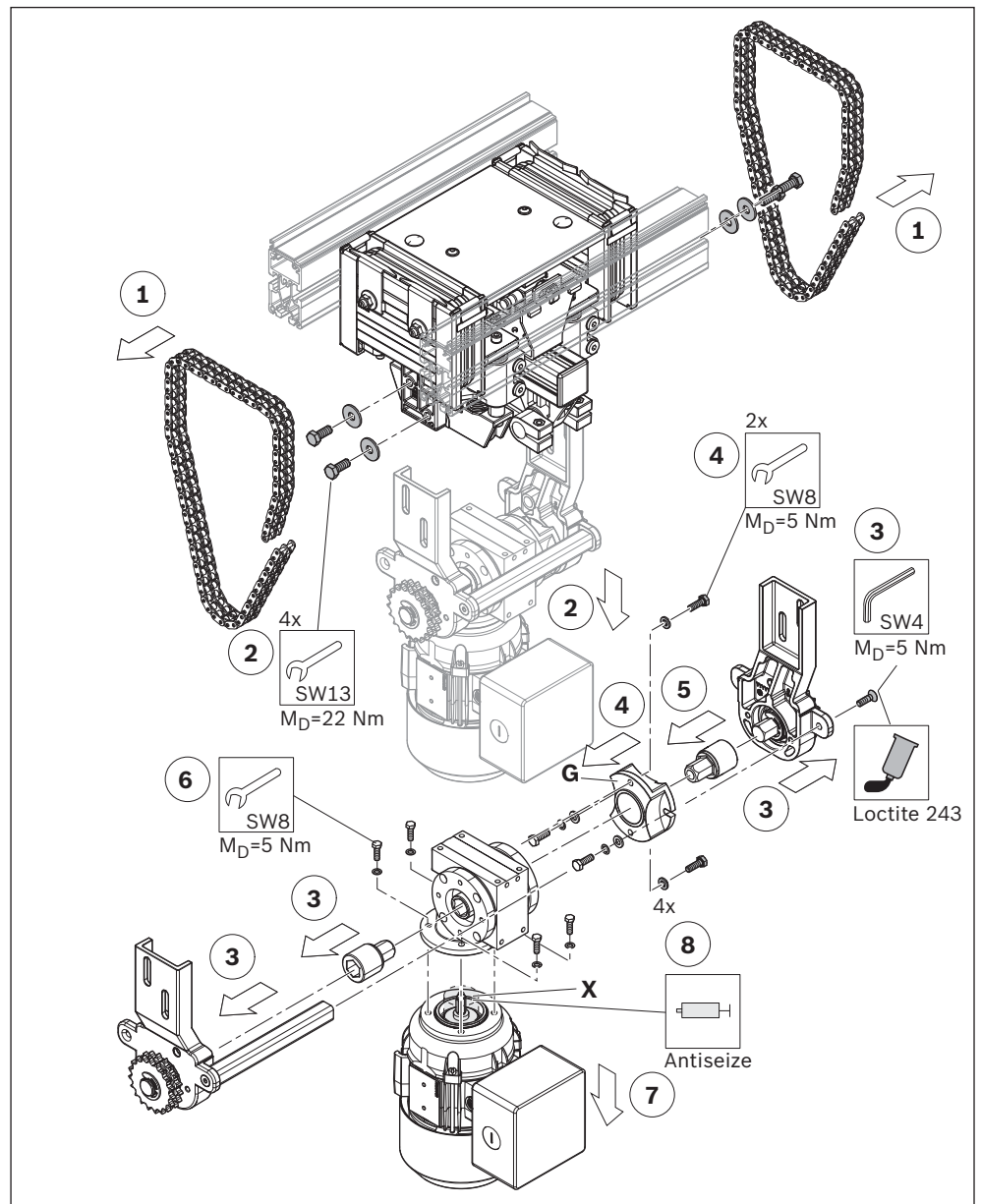


Fig. 42: Replacing the motor and/or gear



Please note:

- The end faces of the motor and gear must be undamaged.
- The gear hub comes lubricated with anti-seize lubricant.
- If only the motor is to be replaced: grease the gear hub with anti-seize.
- Do **not** tilt the motor, and make sure it has the necessary clearance area for installation.
- Install the motor in the proper position (terminal box) and connect it to the gear. If the motor is not in the proper position: do **NOT** rotate the motor. Disconnect the motor from the gear and reconnect it.

10.4.5 Replacing the block cylinder: 2 block cylinders

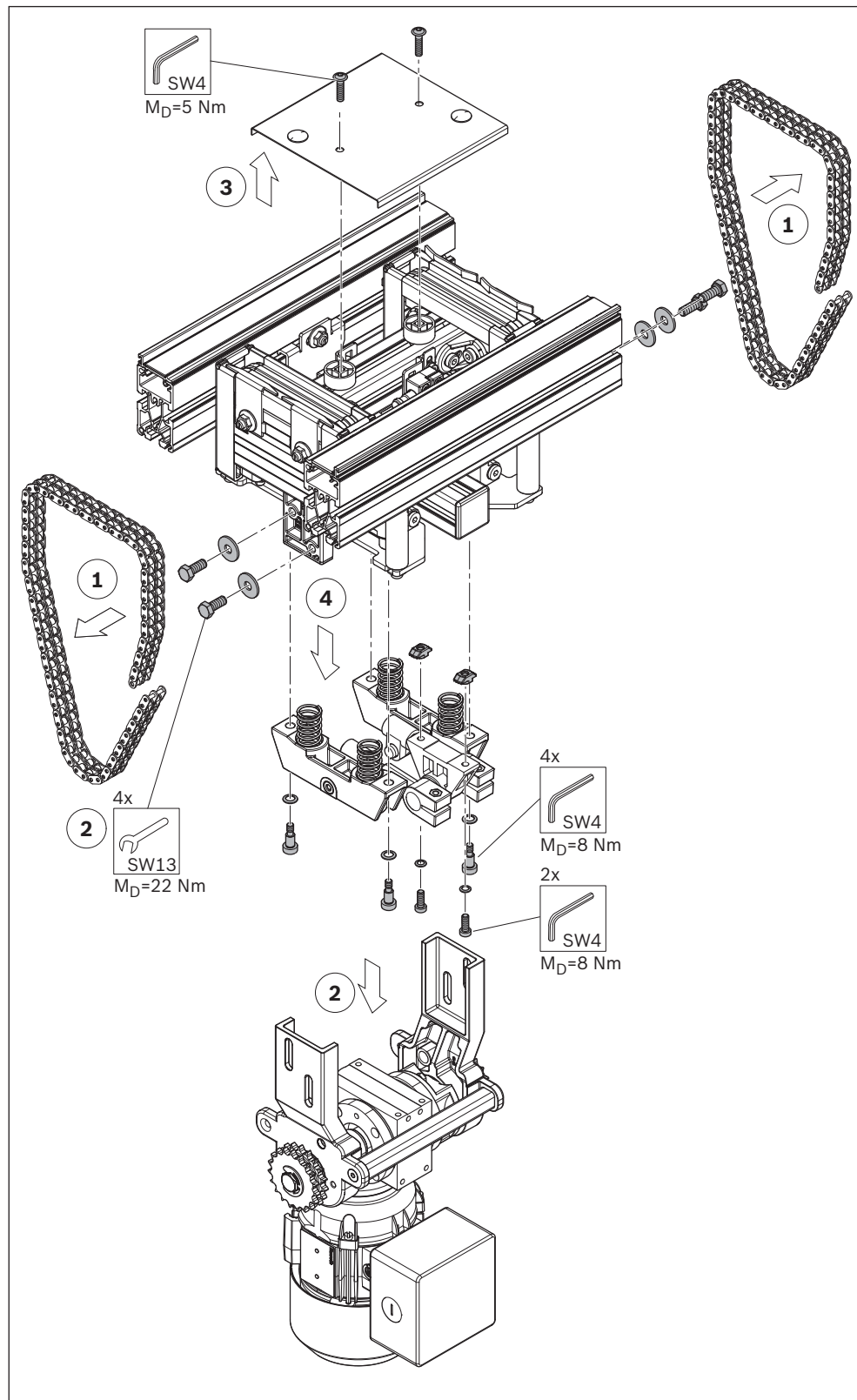
It is possible to change the block cylinders when the HQ 2/U-H is installed in the section. It is easier if you remove the HQ 2/U-H from the section.



We recommend:

- That you always replace the block cylinders as a complete module.

1. Remove the roller chain (see page 53).
2. Remove the motor-gear combination.
3. Remove the cover plate.
4. Remove the parallel guide.



562 240-28

Fig. 43: Replacing the block cylinder: 2 block cylinders (1/2)

5. Remove the distance bolts.

6. Remove the block cylinders.



Please note:

- Do not change the factory setting of the springs (Y)!
7. Replace the block cylinders.

Install the block cylinders in reverse order.

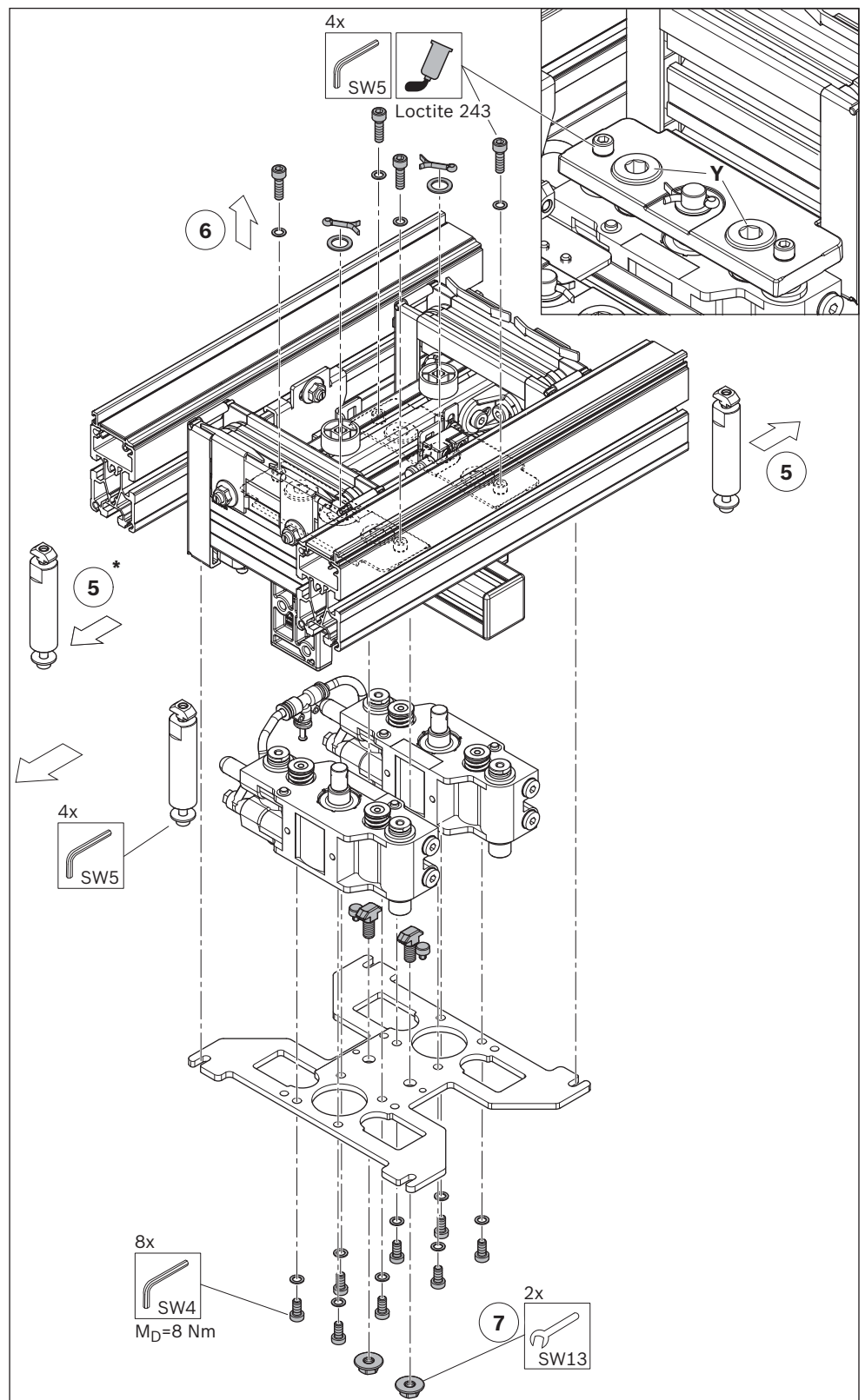


Fig. 44: Replacing the block cylinder: 2 block cylinders (2/2)

562 240-29

Replacing the block cylinder: 3 block cylinders

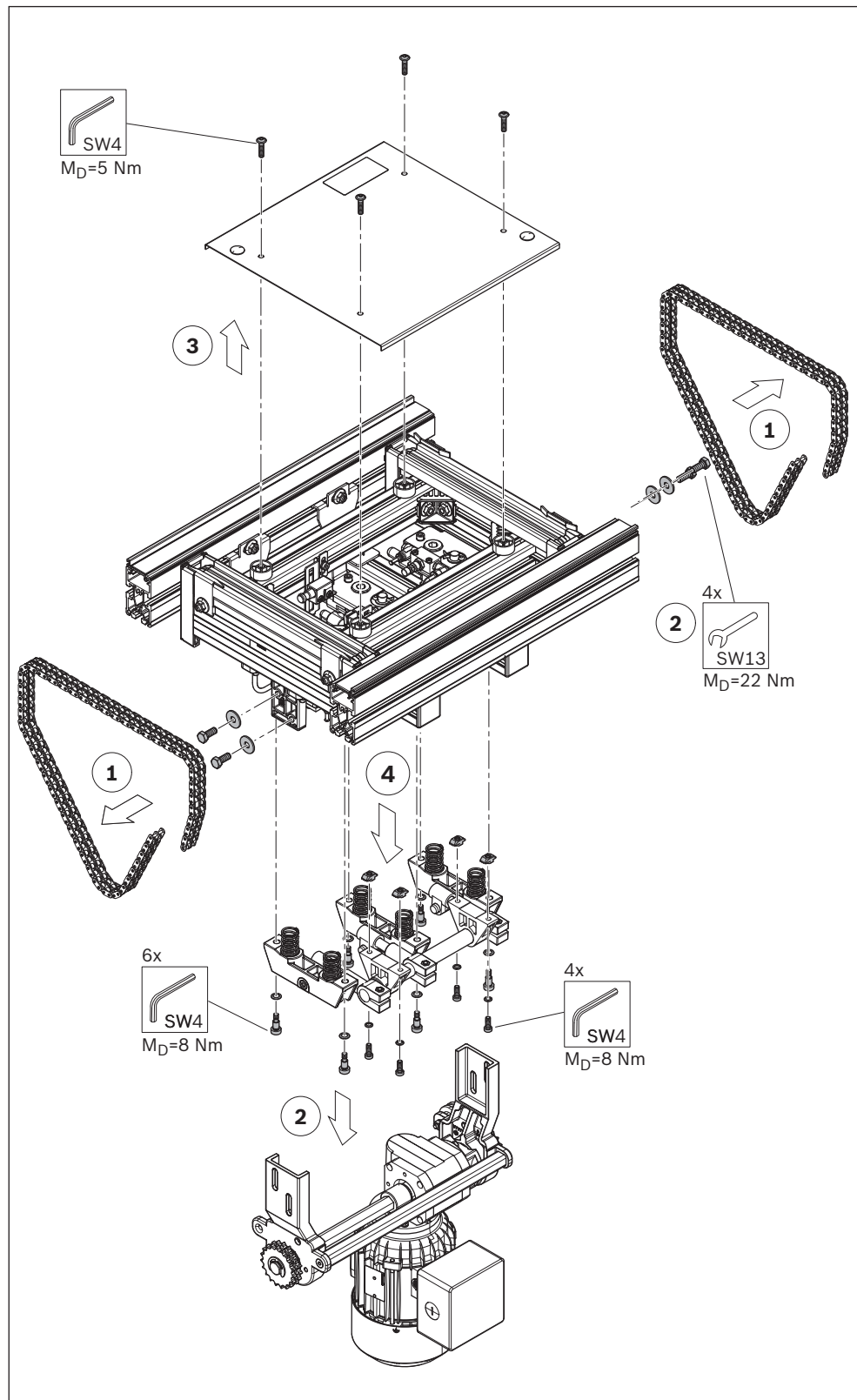
It is possible to change the block cylinders when the HQ 2/U-H is installed in the section. It is easier if you remove the HQ 2/U-H from the section.



We recommend:

- That you always replace the block cylinders as a complete module.

1. Remove the roller chain (see page 53).
2. Remove the motor-gear combination.
3. Remove the cover plate.
4. Remove the parallel guide.



562 240-30

Fig. 45: Replacing the block cylinder: 3 block cylinders (1/2)

5. Remove the block cylinders.



Please note:

- Do not change the factory setting of the springs (Y)!

6. Replace the block cylinders.

Install the block cylinders in reverse order.

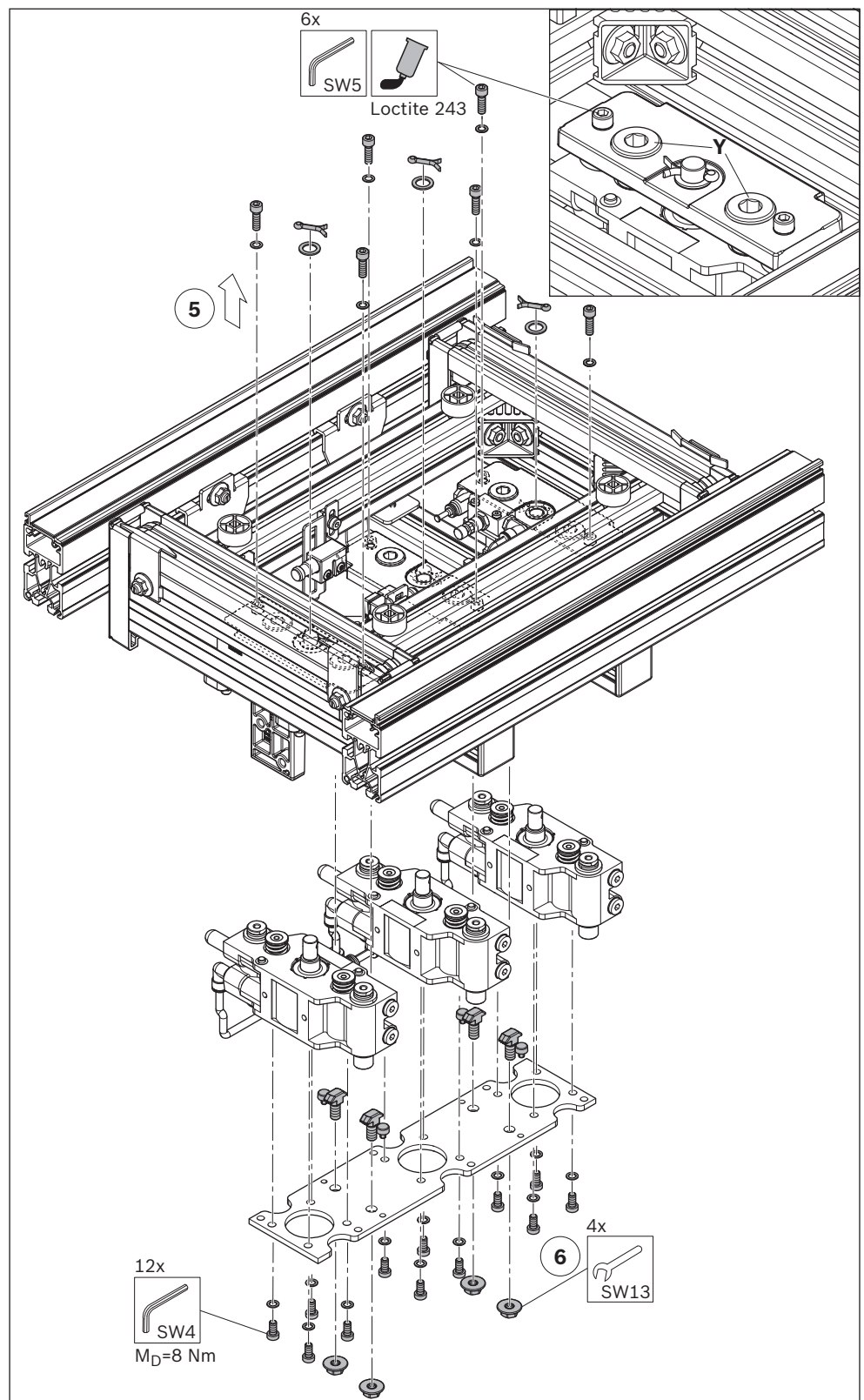


Fig. 46: Replacing the block cylinder: 3 block cylinders (2/2)

562 240-31

Replacing the block cylinder: 4 block cylinders

It is possible to change the block cylinders when the HQ 2/U-H is installed in the section. It is easier if you remove the HQ 2/U-H from the section.



We recommend:

- That you always replace the block cylinders as a complete module.

1. Remove the roller chain (see page 53).
2. Remove the motor-gear combination.
3. Remove the cover plate.
4. Remove the parallel guide.

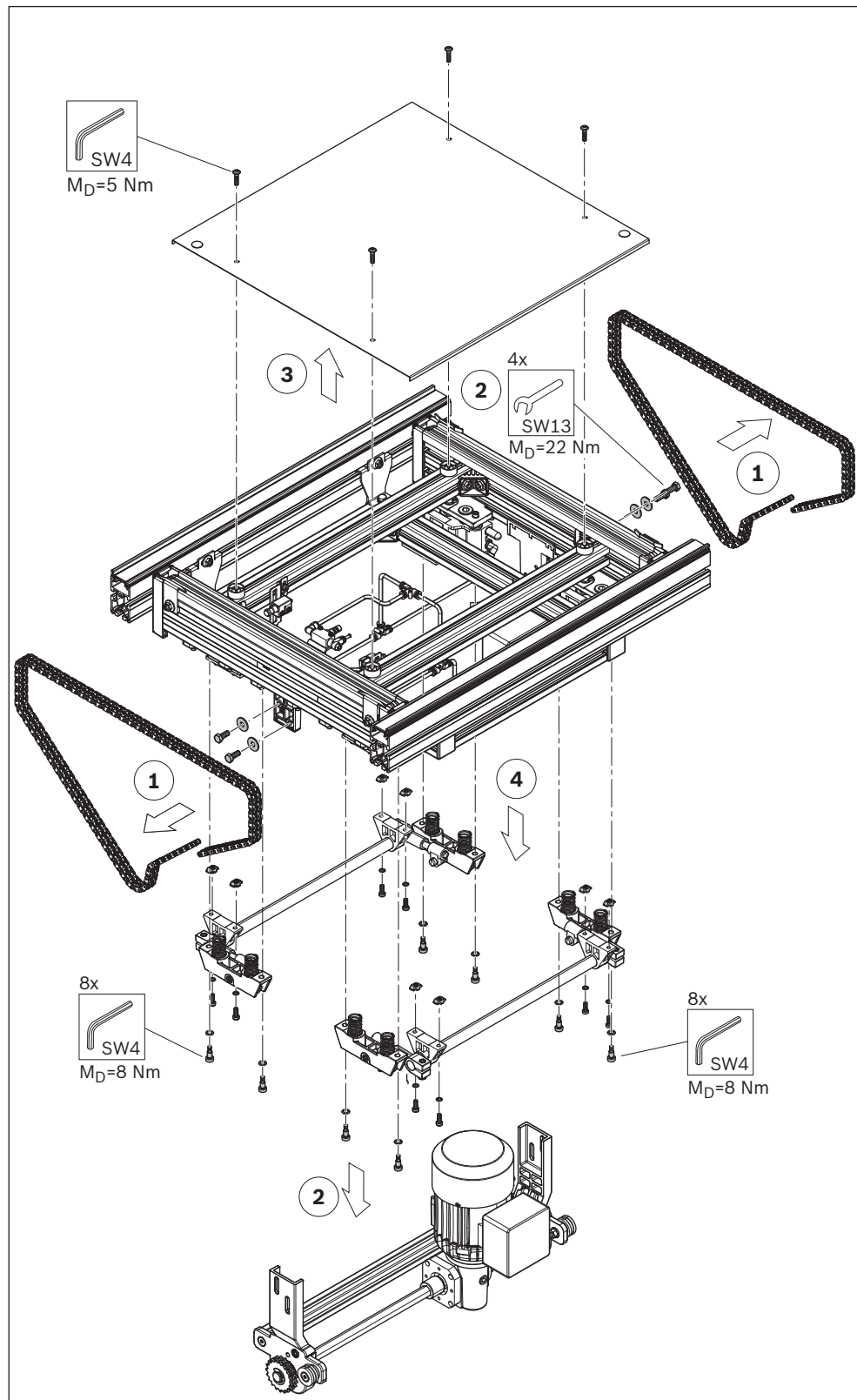


Fig. 47: Replacing the block cylinder: 4 block cylinders (1/2)

562 240-32

5. Remove the block cylinders.



Please note:

- Do not change the factory setting of the springs (Y)!
6. Replace the block cylinders.

Install the block cylinders in reverse order.

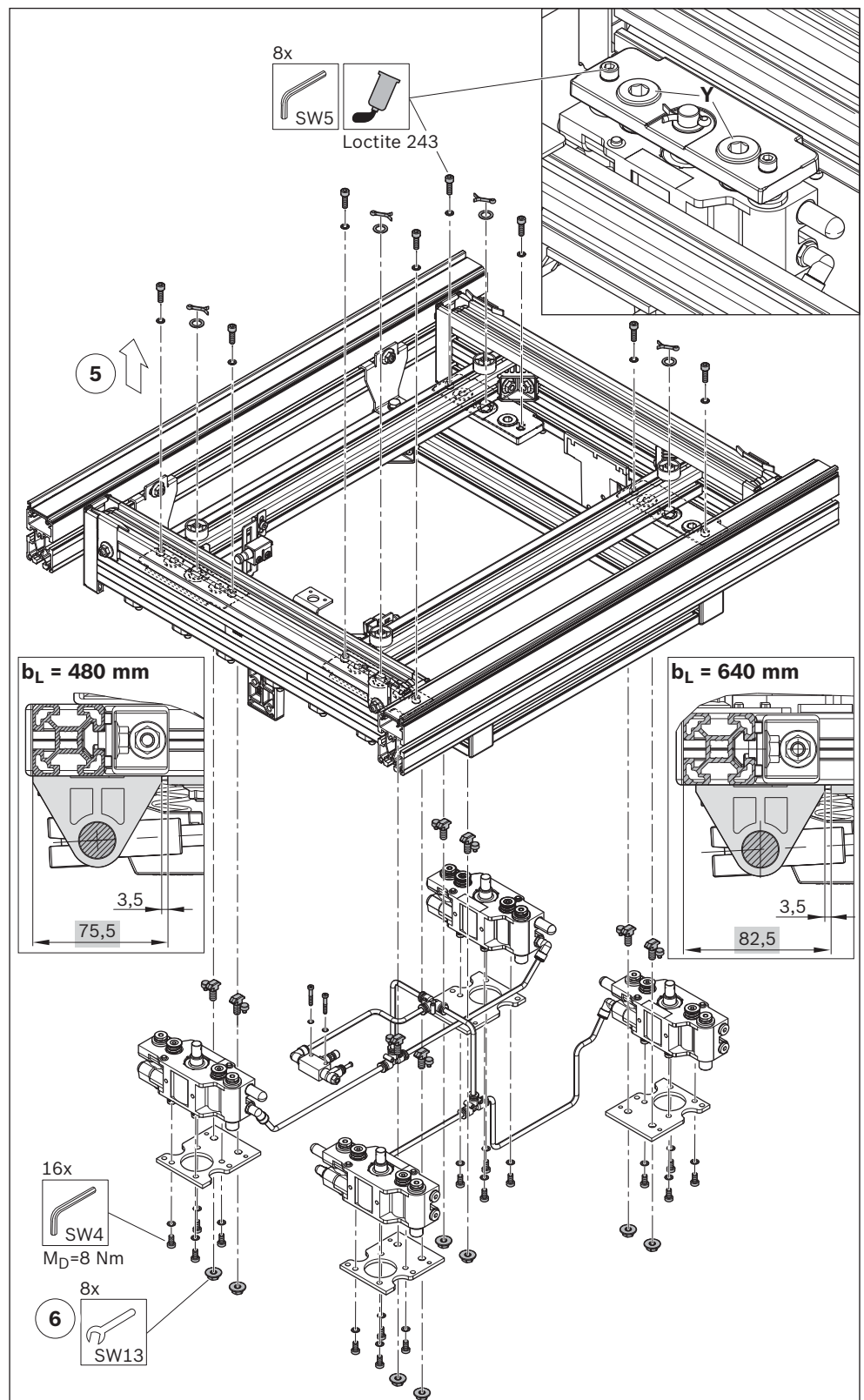


Fig. 48: Replacing the block cylinder: 4 block cylinders (2/2)

562 240-33

10.5 Spare parts

For a list of spare parts, see *MTparts*, **3 842 529 770**.

11 Decommissioning

This product does not need to be decommissioned. Accordingly, this section has been left blank.

12 Disassembly and replacement

WARNING

High electrical voltage!

Risk of serious 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 serious 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 serious injury (or even death).

- ▶ Use only slings with sufficiently high bearing load capacity (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 danger zone during lifting and lowering!

12.1 Preparing the product for storage/later use

- Only set the product down on a flat surface.
- Protect the product from mechanical stress.
- Protect the product from environmental influences such as dirt and humidity.
- Observe the ambient conditions, see page 64.
- For products with a mounted motor: support the product so that the motor is not placed under mechanical load.

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 and repair

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

16 Technical data

- For dimensions, see sales catalog TS *2plus*, 3 842 531 138.
- Maximum section load: 2.0 kg/cm support surface length
- Max. load:

	b _Q = 240 mm	b _Q = 320 mm	b _Q = 400 mm	b _Q = 480 mm	b _Q = 640 mm
b _L = 240 mm	48 kg	48 kg	48 kg		
b _L = 320 mm	48 kg	64 kg	64 kg	64 kg	
b _L = 400 mm	48 kg	64 kg	80 kg	80 kg	80 kg
b _L = 480 mm		64 kg	80 kg	96 kg	96 kg
b _L = 640 mm			80 kg	96 kg	128 kg

- Noise emission: < 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%, non-condensing
- Air pressure > 84 kPa, corresponds to an altitude < 1400 m above sea level
- Permissible load capacity of floor: 1000 kg/m²
- At altitudes > 1400 m, the load values of the electric drives are reduced by 15%.
- 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. If you are unsure about resistance against certain chemicals such as test oil, doped oils, aggressive cleaning agents, solvents, or brake fluid, we recommend that you consult your specialist Rexroth representative.
- 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
- Solids
 - Particle size ≤ 5 µm (Class 6 as per ISO 8573-1:2010)
 - Particle quantity ≤ 5 mg/m³ (Class 6 as per ISO 8573-1:2010)
- Humidity – water content
 - Pressure dew point¹⁾ ≤ +3 °C (Class 4 as per ISO 8573-1:2010)
- ¹⁾ The pressure dew point should be at least 15 °C below the ambient temperature.
- Oil content
 - Oil quantity ≤ 1 mg/m³ (Class 3 as per ISO 8573-1:2010)

17 Appendix

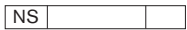
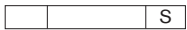
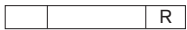
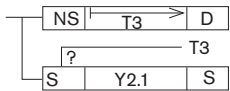
17.1 Function plans

On the following pages, you can find proven fundamental function plans for control tasks in transfer systems.

Characters are used in the action blocks that deviate from DIN IEC 611313.

They are explained in the following table.

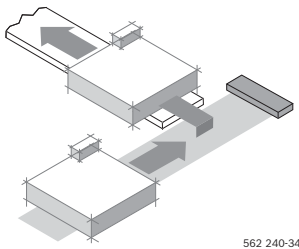
Simple VE 2 stop gates are used to stop workpiece pallets. The position of the workpiece pallets is determined using separate proximity switches.

Action block	Explanation
	Storing
	Non-storing
	Set
	Reset
	Non-storing trigger of a time function (with runtime T), after which a switching function is triggered.

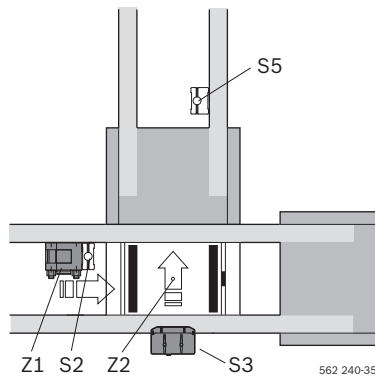
General abbreviations

- WT = Workpiece pallet
- VE = Stop gate
- S ... = Signal transmitter
- Y ... = Valve
- Z ... = Cylinder
- LT = Longitudinal conveyor (main section)
- QT = Transverse conveyor (secondary section)
- ① = Start pulse after end of start-up
- ② = Enable cyclic travel

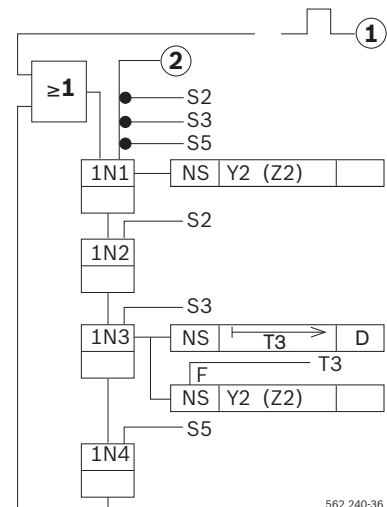
17.1.1 Implementation in transverse section (TFE 1)



562 240-34



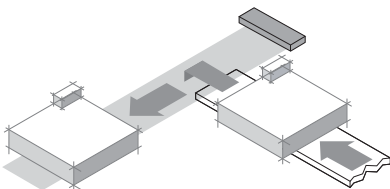
562 240-35



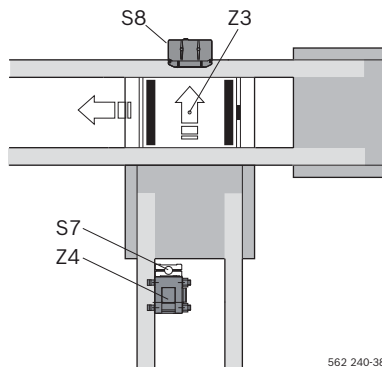
562 240-36

S2 = WT after VE1 (Z1)
S3 = WT in position on HQ (Z2) (WI/M rocker)
T3 = Delaying time 100...200 ms
S5 = Enable main section 1
Y1 = Main section VE (Z1)
Y2 = HQ lift cylinder (Z2)

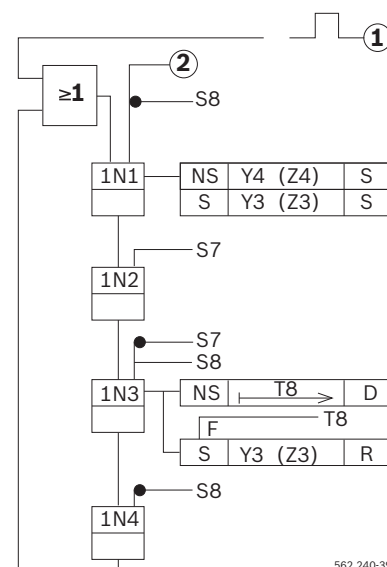
17.1.2 Implementation in longitudinal section (TFE 2)



562 240-37



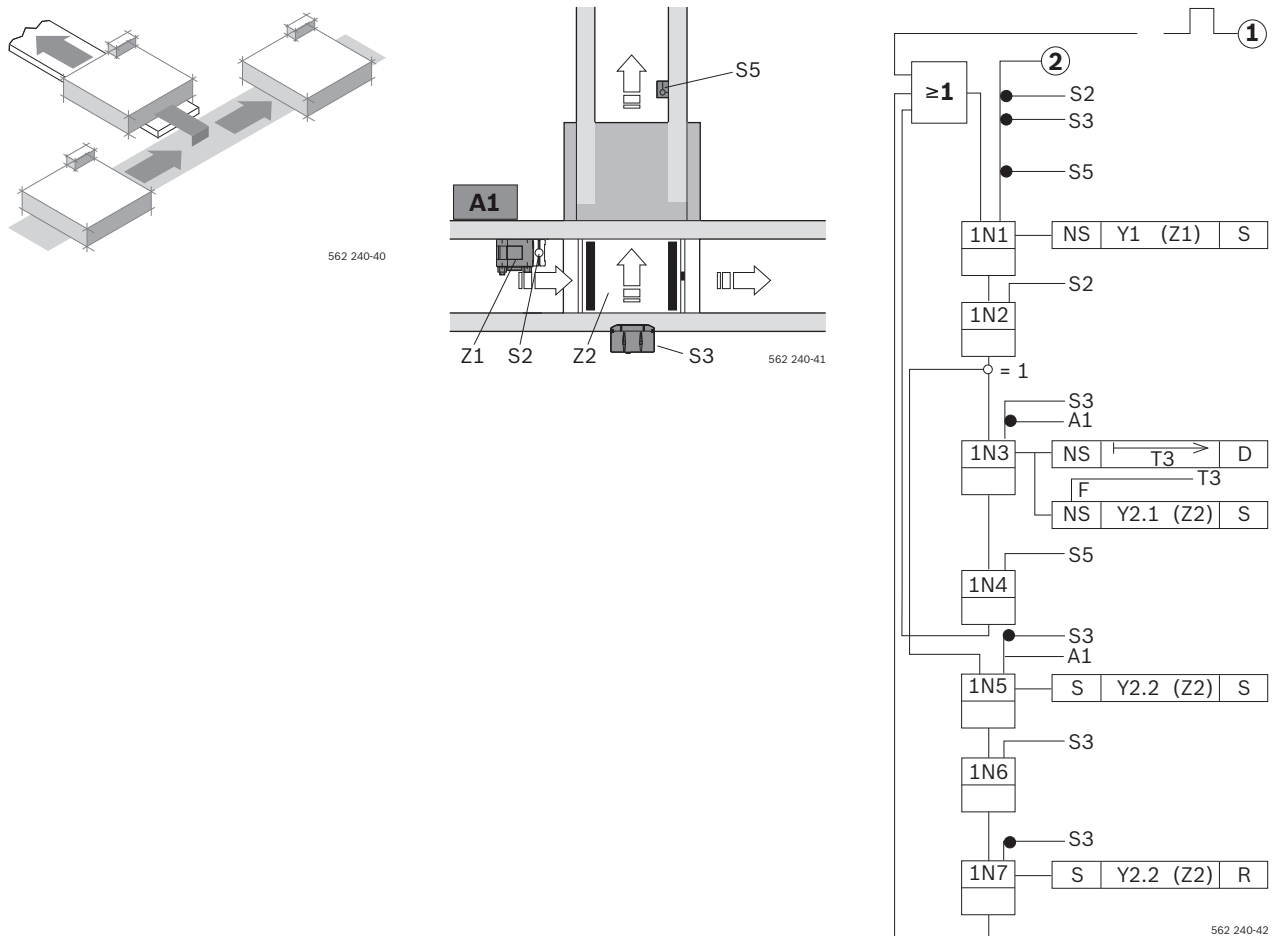
562 240-38



562 240-39

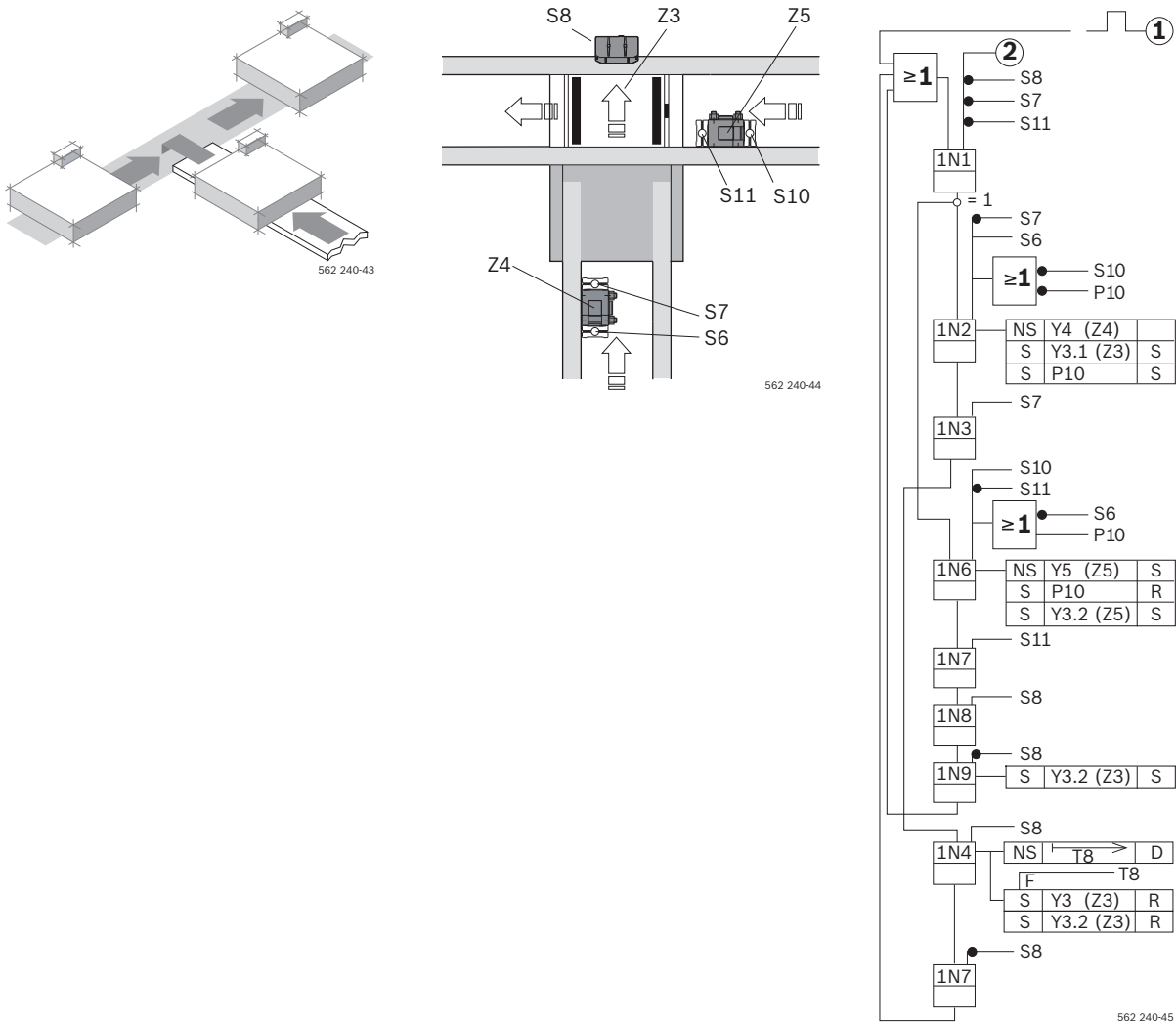
S7 = WT after VE4 (Z4)
S8 = WT in position on HQ (WI/M rocker)
T8 = Delaying time 100...200 ms
Y3 = HQ lift cylinder (Z3)
Y4 = Secondary section VE (Z4)

17.1.3 Transverse conveyor (separating, outfeeding) (TFE 3)



- S2 = WT after VE1 (Z1)
- S3 = WT in position on HQ (WI/M rocker)
- T3 = Delaying time 100...200 ms
- S4 = Enable main section 1
- S5 = Enable secondary section
- Y1 = Main section VE (Z1)
- Y2 = HQ lift cylinder (Z2)
- P10 = Priority main section
- A1 = Identification system with straight-ahead signal (0 = branching, 1 = straight)

17.1.4 Transverse conveyor (separating, infeeding) (TFE 4)



- S6 = WT in position at VE4 (Z4)
- S7 = WT after VE4 (enable secondary section)
- S8 = WT in position on HQ (WI/M rocker)
- S10 = WT before VE5 (Z5)
- S11 = WT after VE5 (Z5)
- T8 = Delaying time 100...200 ms
- Y3 = HQ lift cylinder (Z3)
- Y4 = Secondary section VE (Z4)
- Y5 = Main section VE (Z5)
- Y6 = VE in HQ (Z6)
- P10 = Priority main section

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