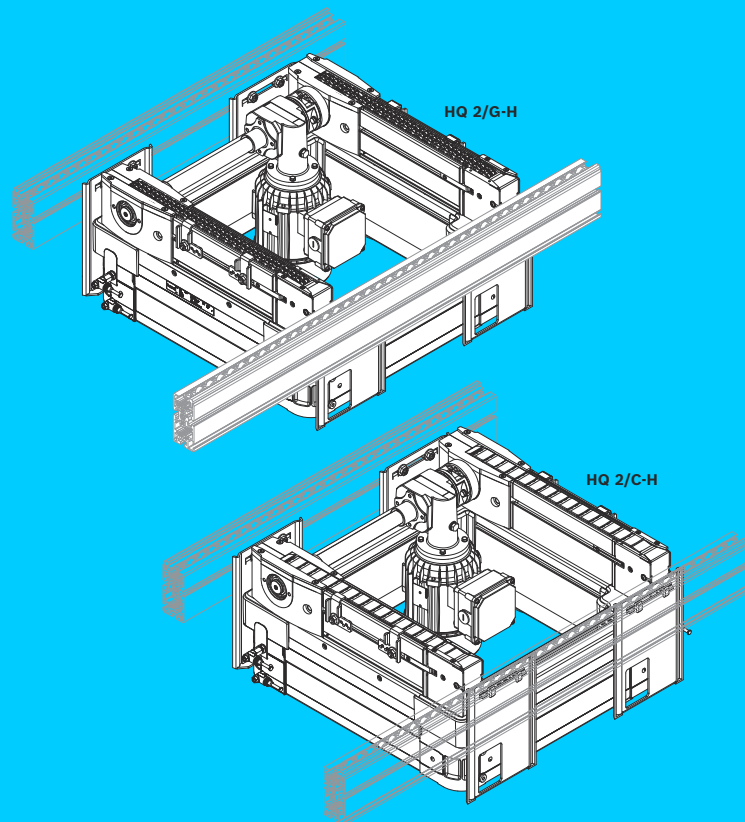


Assembly instructions

(Translation of the original assembly instructions)

HQ 2/G-H, BS 2/G-250, HQ 2/C-H

Lift transverse unit, belt section



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Disclaimer

The data specified above only serve to describe the product. As our products are constantly being further developed, no statements concerning a certain condition or suitability for a certain application can be derived from our information. The information given does not release the user from the obligation of own judgment and verification. It must be remembered that our products are subject to a natural process of wear and aging.

EN

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1 About this documentation

1.1 Validity of the documentation

This documentation applies to the following products:

- Lift transverse unit HQ 2/G-H (3842996370)
- Belt section BS 2/G-250 (3842999022)
- Lift transverse unit HQ 2/C-H (3842999002)

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

- ▶ Read this documentation completely and especially → [Chapter 2.5 General safety instructions on page 8](#) and → [Chapter 3 General notes on property and product damage on page 11](#) before working with the product.

1.2 Required and supplementary documentation

- ▶ Only commission 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 documentation

	Title	Document number	Document type
	Declaration of incorporation	→ 3842557182 (HQ 2) → 3842358415 (BS 2)	
	MT <i>pro</i>	→ www.boschrexroth.com/mtpro	With list of spare parts

All documents can be found in the download center at → www.boschrexroth.com/mediadirectory

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 Warnings and safety instructions

Information on safety can be found in → [Chapter 2 Safety instructions on page 7](#) as well as before a sequence of actions or before instructions whenever there is a risk of injury or damage to property. Be sure to observe all safety precautions.

Warnings are structured as follows:

⚠ CAUTION	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

Risk classes according to ANSI Z535.6-2006

 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 be damaged.

1.3.2 Symbols

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

Table 2: Meaning of the symbols

Symbol	Meaning
 Information symbol	If this information is not observed, the product cannot be used and/or operated as designed.
► Action step	Single, independent action
1. Step 1 2. Step 2	Numbered steps The numbers indicate that the action steps are sequential.

1.3.3 Designations

Designations	Meaning
HQ 2/G-H	Lift transverse unit with duplex chain conveyor medium from the Rexroth TS <i>2plus</i> transfer system.
BS 2/G-250	Belt section with duplex chain conveyor medium from the Rexroth TS <i>2plus</i> transfer system.
HQ 2/C-H	Lift transverse unit with flat top chain conveyor medium from the Rexroth TS <i>2plus</i> transfer system

1.3.4 Abbreviations

Abbreviations	Meaning
AS 2	TS <i>2plus</i> drive station
BS 2	TS <i>2plus</i> belt section
SE 2	TS <i>2plus</i> conveyor unit
ST 2	TS <i>2plus</i> section
SZ 2	TS <i>2plus</i> leg set

Abbreviations	Meaning
TS 2	TS 2 <i>plus</i> transfer system
UM 2	TS 2 <i>plus</i> return unit
WT 2	TS 2 <i>plus</i> workpiece pallet

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 personal injury and property damage if you do not read this chapter and follow the safety instructions in this documentation.

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

2.2 Intended use

The product is an incomplete machine.
This product is intended for:

- Installation in a Rexroth TS 2*plus* transfer system
- Lifting out of the section and transverse conveying of Rexroth WT 2 workpiece pallets
 - ▶ Please note → [Chapter 15 Technical data on page 63](#).

This product is intended for commercial use only.

The intended use also includes having read and understood these instructions, especially → [Chapter 2.5 General safety instructions on page 8](#).

2.3 Improper use

Bosch Rexroth AG does not accept any liability 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 a safeguard (provided by the customer).
- Using the product in accumulation operation.
- Transporting people on the product or on transported material.
- Persons climbing onto the product – Do not climb on the product.
- Use in the private sector.

2.4 Personnel qualifications

The activities described in this document require basic knowledge in the following fields:

- Mechanics
- Electrics
- Pneumatics

These activities must only be performed by a specialist or personnel under the direction of a specialist.

Specialists...

- ... have received specialist training and have the necessary expertise.
- ... comply with applicable regulations.
- ... have knowledge and experience regarding applicable regulations.
- ... can properly assess the work to be carried out.
- ... identify dangers and take suitable safety measures.
- ... have expertise in handling lifting equipment and suspension gear.



Training: ➔ [Bosch Rexroth Academy](#)

2.5 General safety instructions

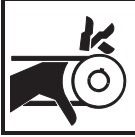
- ▶ Please observe:
 - The applicable accident prevention and environmental protection regulations.
 - The safety rules and regulations of the country in which the product is being used.
 - All the notices on the product.
- ▶ Only use Rexroth products that are in proper working order.
- ▶ Use only original accessories and spare parts from Rexroth in order to prevent hazards due to unsuitable spare parts ➔ [Chapter 11.4 Spare parts on page 47](#).
- ▶ Observe the technical data and ambient conditions.
- ▶ Rexroth products must only be installed in systems and machinery that comply with national regulations, safety requirements and standards.
- ▶ Do not modify the structure of the product.
- ▶ Please note ➔ [Chapter 15 Technical data on page 63](#).
- ▶ Inspect the product for transport damage.
- ▶ Secure the product against tipping over at all times.
- ▶ Before installation, depressurize and de-energize the respective system components.
- ▶ Secure against being switched back on.
- ▶ Route the cables and lines protected to prevent mechanical damage and ensure that no one can trip over them.
- ▶ Check all seals and locks for completeness and undamaged condition.
- ▶ To prevent condensation, allow the product to acclimatize for a few hours before commissioning.
- ▶ Have the product approved by a specialist electrician on the basis of national standards and requirements.
- ▶ Only commission a product that has been completely installed.
- ▶ Make sure that only authorized and qualified personnel:
 - Start or operate the system, or interfere with its operation
 - Operate component or part adjusters
- Safe handling of Rexroth products is compromised while under the influence of drugs and medication.

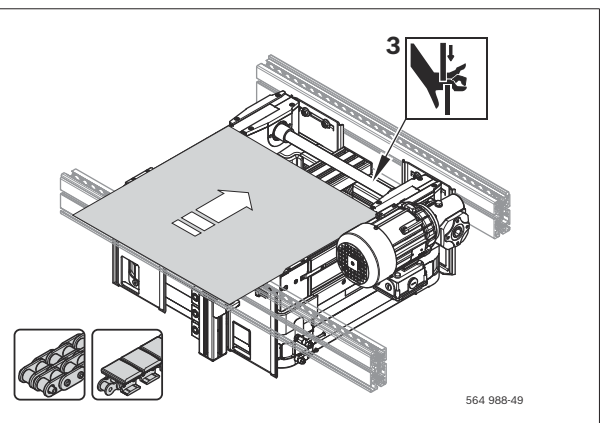
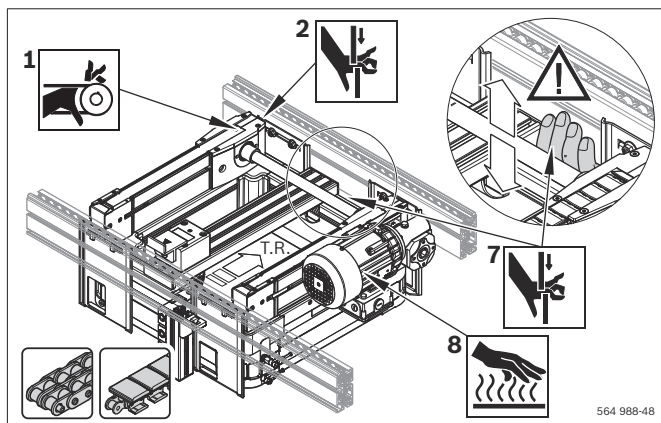
2.6 Personal protective equipment

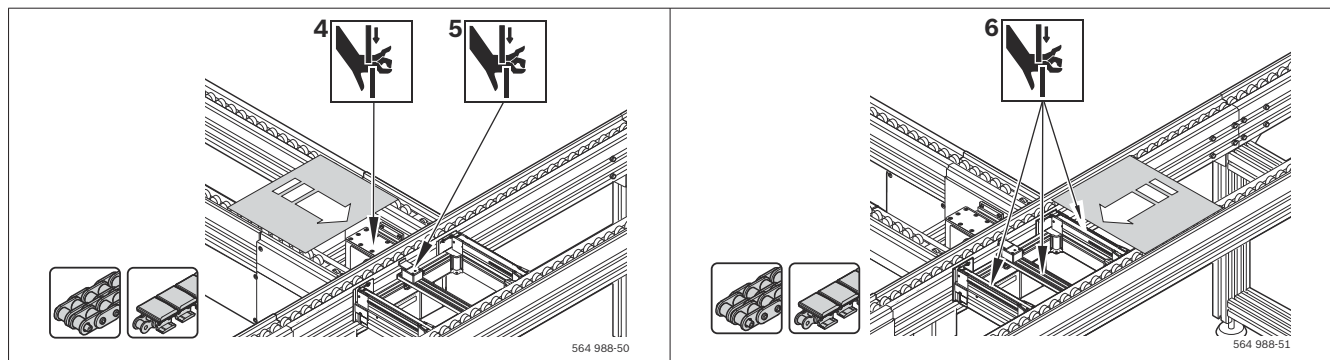
- ▶ Wear suitable protective equipment such as safety shoes, close-fitting clothing, hair nets, etc.

2.7 Residual risks

Residual risks for HQ 2/...

	Location	Situation	Hazard		Action
1	Entanglement zone near drive and return unit (reversible operation)	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	Between fastening plate and belt section during lifting	Trapping of body parts		Crushing	Do not reach into the system while it is running. Secure the danger area adequately.
3	Between HQ drive shaft and workpiece pallet	Trapping of body parts		Crushing, Shearing	Do not reach into the system while it is running. At workstations, crush and shear points on roller conveyors, suspension chain conveyors or multiple belt conveyors between rollers, drive shafts, cross struts or fixed parts and moving bulk goods must be secured. Risks of crushing and shearing may be deemed avoided if the static force for stopping the load is less than 150 N.
4	Between cross connector/main section profile and workpiece pallet				
5	Between HQ damper and workpiece pallet				
6	Between front and back belt section profile/stop gate pallet and workpiece pallet (WT moves toward main belt)				
7	Between top of HQ and bottom of belt section profile	Trapping of body parts		Shearing	Danger zone must be eliminated, e.g., by protective equipment.
8	Motor	Touching of the hot surface (above 65 °C)		Burning	Install appropriate guards. Let the unit cool down for at least 30 minutes before performing maintenance work.

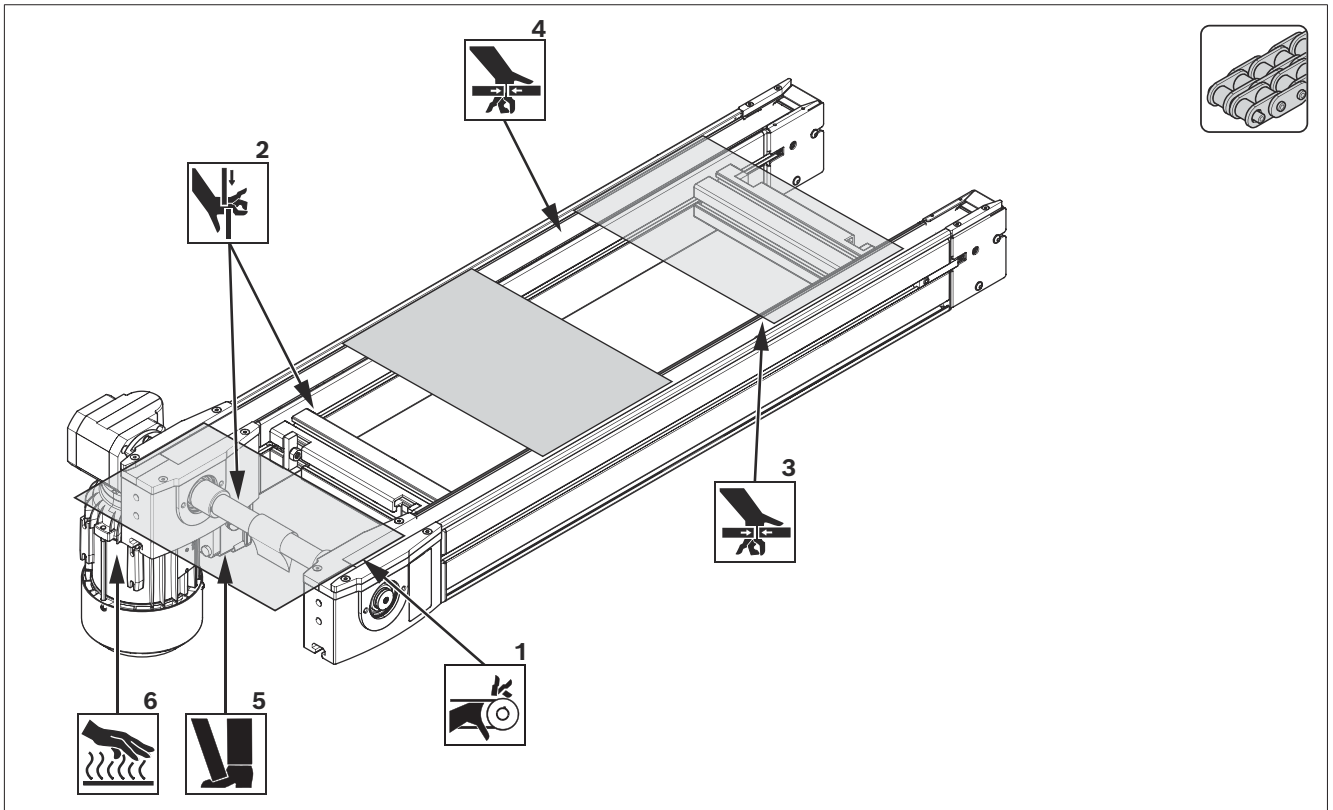




Residual risks for BS 2/G-250

	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	 	Crushing, Shearing Do not reach into the system while it is running. At workstations, crush and shear points on roller conveyors, suspension chain conveyors or multiple belt conveyors between rollers, drive shafts, cross struts or fixed parts and moving bulk goods must be secured. Risks of crushing and shearing may be deemed avoided if the static force for stopping the load is less than 150 N.
3	Conveyor medium: Between running conveyor medium and stationary workpiece pallet (e.g. during separation)	Trapping of body parts		Crushing Do not reach into the system while it is running.
4	Between workpiece pallets	Body parts can be crushed		Crushing Do not reach into the system while it is running. At workstations, relative movements of loads (e.g. at accumulating conveyors) which lead to the loads approaching a distance of less than 500 mm must be avoided. (e.g. through pre-separation of the workpiece pallets). Risks of crushing may be deemed avoided if the static force for stopping the load is less than 150 N.

	Location	Situation	Hazard		Action
5	End of belt section	Crushing injury to body parts caused by falling objects		Crushing	Structural solution required, e.g. in form of a stopper.
6	Motor	Touching of the hot surface (above 65 °C)		Burning	Install appropriate guards. Let the unit cool down for at least 30 minutes before performing maintenance work.



3 General notes on property and product damage

The warranty only applies to the delivered configuration.

- The warranty is void in the event of incorrect assembly, commissioning and operation, as well as improper use and/or improper handling.

4 Scope of delivery

HQ 2/G-H, HQ 2/C-H

- Lift transverse unit
- Lateral guides
- Fastening material
- Pneumatic elements such as fittings, throttle check valves, etc.
- Position sensor kit
- Assembly instructions
- Declaration of incorporation

BS 2/G-250

- Belt section
- Assembly instructions
- Declaration of incorporation

5 Accessories

All products can be found in the [➡ Rexroth Store \(www.boschrexroth.com/product/GLOBAL-ID\)](https://www.boschrexroth.com/product/GLOBAL-ID)

Leg sets for the BS 2/G-250

- Leg set SZ 2 (3842996320)
- Leg set SZ 2/H (3842996321)
- Leg set SZ 2/U-H (3842996323)
- Leg set SZ 2/T-H (3842996325)

For fastening the leg sets on the ground, you need the following (for each connection):

- 1 x Foundation bracket 210X90X42X4 (3842146848)
- 1 x Anchor M8X80-15 (3842526560)
- 2 x T-bolt HS10-M8X25 (3842528718)
- 2 x Flange nut M8 (3842345081)

Damper for the inlet/outfeed of workpiece pallets (WTs)

- Damper DA 2/100-H (3842998745)
- Damper DA 2/250-H (3842998746)
- Damper DA 2/100-C (3842525734)
- Damper DA 2/150-E (3842548644)

Slide stop for stopping and feeding in workpiece pallets (WTs)

- Slide stop VA 2/D-250 (3842998796)

For the position sensor of the HQ 2

- Position sensor HQ 2 (3842567133)
- Proximity switch M12-M12 SN=8MM L=60 (3842558990)

LU 2 lubrication unit for lubrication of the chain while in operation

- Lubrication unit LU 2/LS (3842562436)
- Grease cartridge LU 2/LS (3842562441)
- Adapter set AS2/C-100,-250 (3842543483) HQ 2/G-H
- Adapter set AS2/R-300, -700 (3842543485) for HQ 2/C-H

LU 2/P lubricating pump for lubrication of the chain while in operation

- Lubricating pump LU 2/P-24V-3L (3842562921)
- Oil 5L, STRUCTOVIS GHD (3842562941)
- Mounting kit LU 2/P (3842562923)
- Adapter set AS2/C-100,-250 (3842543483) HQ 2/G-H
- Adapter set AS2/R-300, -700 (3842543485) for HQ 2/C-H

For removing/installing the flat top chain

- Flat top chain disassembly tool (8981010510)
- Chain lock Flat Top CHA.ESD CPL. (3842551234)
- Mineral oil 0.5l STRUCTOV.GHD (0842904229) for the standard flat top chain (black)
- Roller bearing grease TOPAS NCA52 TUBE 400 (3842542314) for the electrostatic discharge flat top chain ESD (gray)

6 About this product

6.1 Product use

HQ 2/G-H, HQ 2/C-H



- Suitable for reversible operation
- Accumulation operation should be avoided.
 - Turn off the HQ 2/G-H and HQ 2/C-H as soon as the end position is reached.

- Installation in BS 2 and ST 2
- Offset of height difference between main and transverse section to the transverse conveyor of WTs when
 - Outfeeding from the main section
 - Infeeding to the main section

BS 2/G-250



- Suitable for reversible operation
- Not suitable for the accumulation operation

- Longitudinal conveying of WT 2 on conveyor sections of up to 2000 mm
- Transverse conveying of WT 2 between parallel conveyor sections (in connection with two HQ 2/G-H)
- Transverse conveying of WT 2 as a “dead end” section of up to 2000 mm with reversible operation

6.2 Product description

HQ 2/G-H, HQ 2/C-H

(shown here: 480 x 640 mm,
infeeding version)

- A₁** Motor mounting centered
(MA = M standard)
- A₂** Motor mounting right
(MA = R)
- B₁** Flat top chain (HQ 2/C-H)
- B₂** Duplex roller chain
(HQ 2/G-H)
- C** Damper kit *
(DA 2/100-H infeeding
shown)
- D** Mounting bracket (4x)
- E** Mounting kit
- F** Lateral guide/stop
- G** Position sensor kit for
HQ 2/G-H, HQ 2/C-H

* Not included in the scope
of delivery.
Damper kits should be
installed for an out-
feeding and/or infeeding
HQ.

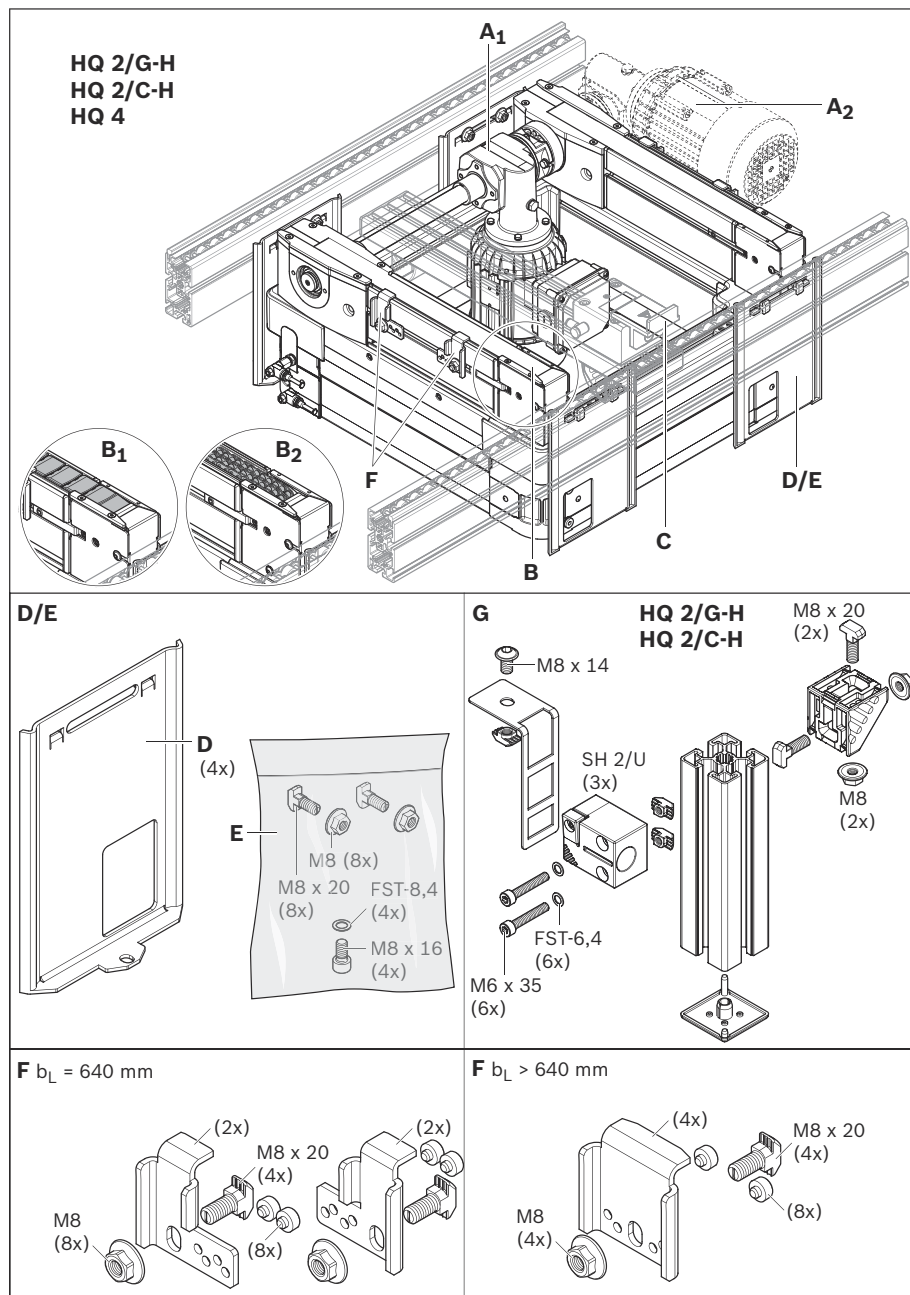
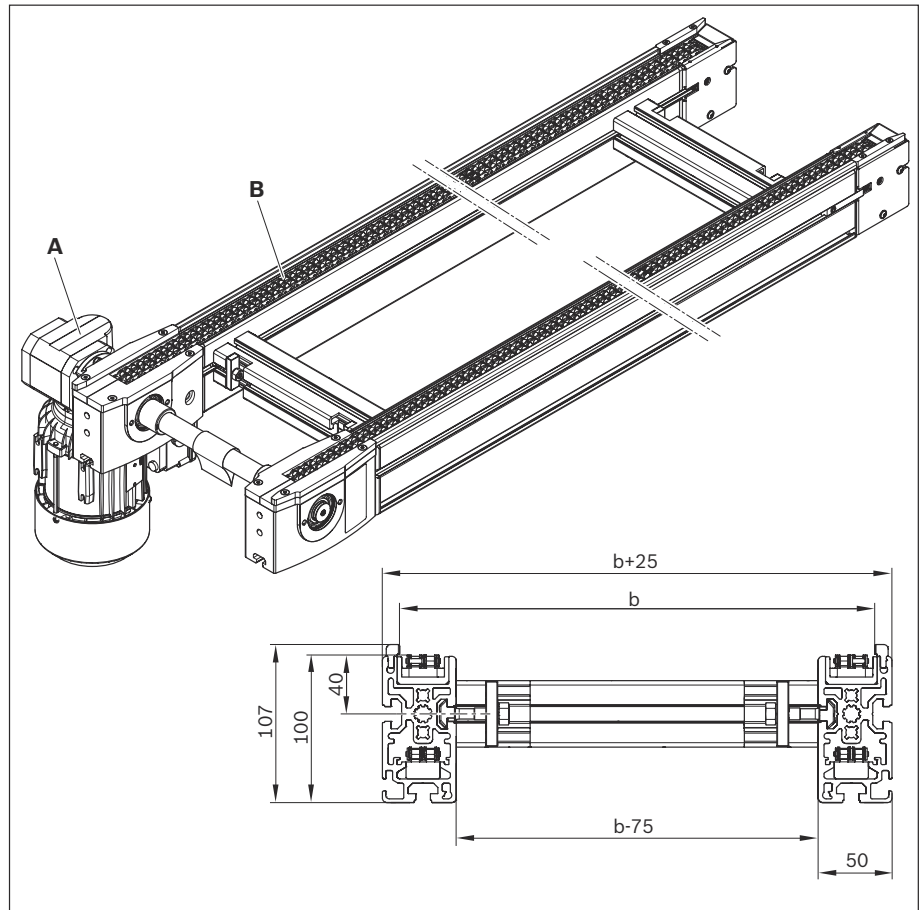


Fig. 1:

BS 2/G-250

- A** Motor-gear combination (motor mounting MA = R, hanging)
- B** Duplex chain (roller chain)

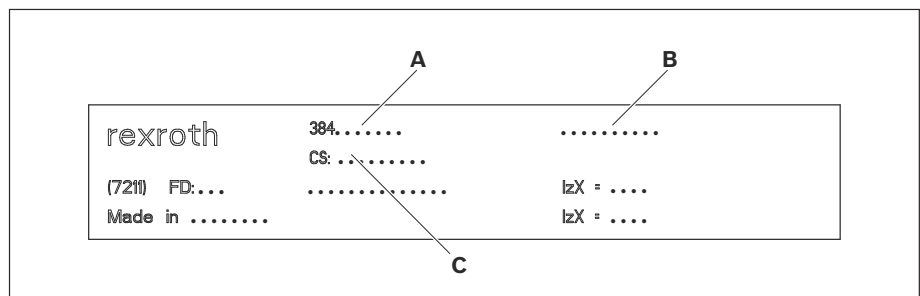


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Fig. 2:

6.3 Product identification

- A** Material number (order number)
- B** Designation
- C** Information on the version and dimensions



Typschild

Fig. 3: Nameplate

7 Transport and storage

- Observe the transport instructions on the packaging.
- Transport weight: see delivery documents.
- Secure the product to prevent toppling over!
- Please note ➔ [Chapter 15 Technical data on page 63.](#)

7.1 Transporting the product

- 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!
- Make sure that no one but the operator is in the danger area!

7.2 Storing the product

- Only set the product down on a flat surface.
- Protect the product from mechanical stress and environmental influences such as dirt and humidity.
- Always observe ambient conditions when storing and transporting the product, see chapter [↪ Chapter 15 Technical data on page 63.](#)
- Support the product so that suspended motors/accumulators/cylinders are not placed under strain.

8 Installation

8.1 Unpacking

NOTICE

Incorrect lifting of the lift transverse unit

Possible damage to the lift transverse unit

- Do not lift from the drive shaft.
- Use a lift aid to lift.
- The positions indicated with an (X) in the drawing are used as lifting points for a round sling.

Attachment points for lifting (HQ; BS 2/G-250)

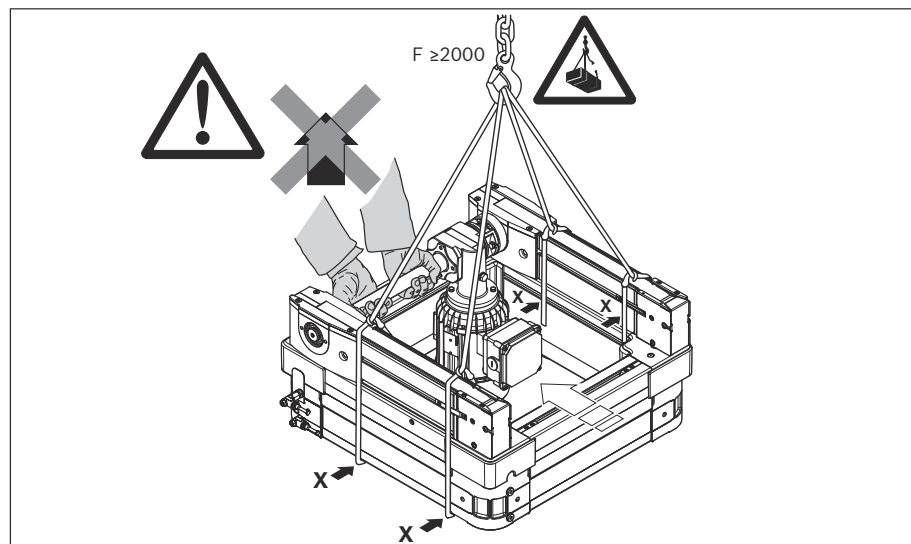


Fig. 4:

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8.2 Installation requirements

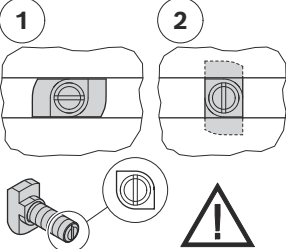
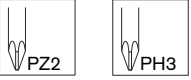
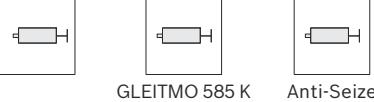
- ▶ [↪ Chapter 15 Technical data on page 63.](#)

8.3 Tools

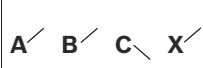
- Commercially available standard tools (metric) are required.
- In addition, a 500 mm caliper is required.

8.4 Symbols for assembly

Table 3: 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 • Tightening torque: ... Nm
 M _D = ... Nm	• Hex wrench • SW = wrench size ... mm • M_D = required tightening torque ... Nm
 M _D = ... Nm	• Hex socket wrench • SW = wrench size ... mm • M_D = required tightening torque ... Nm
	• Cross-head screwdriver • PZ ... = Pozidriv, size ... • PH ... = Phillips, 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
	Screw protection: • Loctite 243: medium strength (detachable), www.loctite.de • Loctite 601: high strength (non-detachable), www.loctite.de
	Oil/oil with specific mineral oil: • GHD: Structovis GHD, www.klueber.com • V 68: Mineral oil with viscosity 68 acc. to DIN
	• The marked parts are not required for the described assembly.
	• Suitable for ESD applications
	• Warning of dangerous electrical voltage
	• Disconnect the mains plug before opening and secure it against reinsertion/reconnection.
	• Assembly steps

HQ 2/G-H with BS 2/G-250, HQ 2/C-H: Conversion to motor mounting M left (by customer)

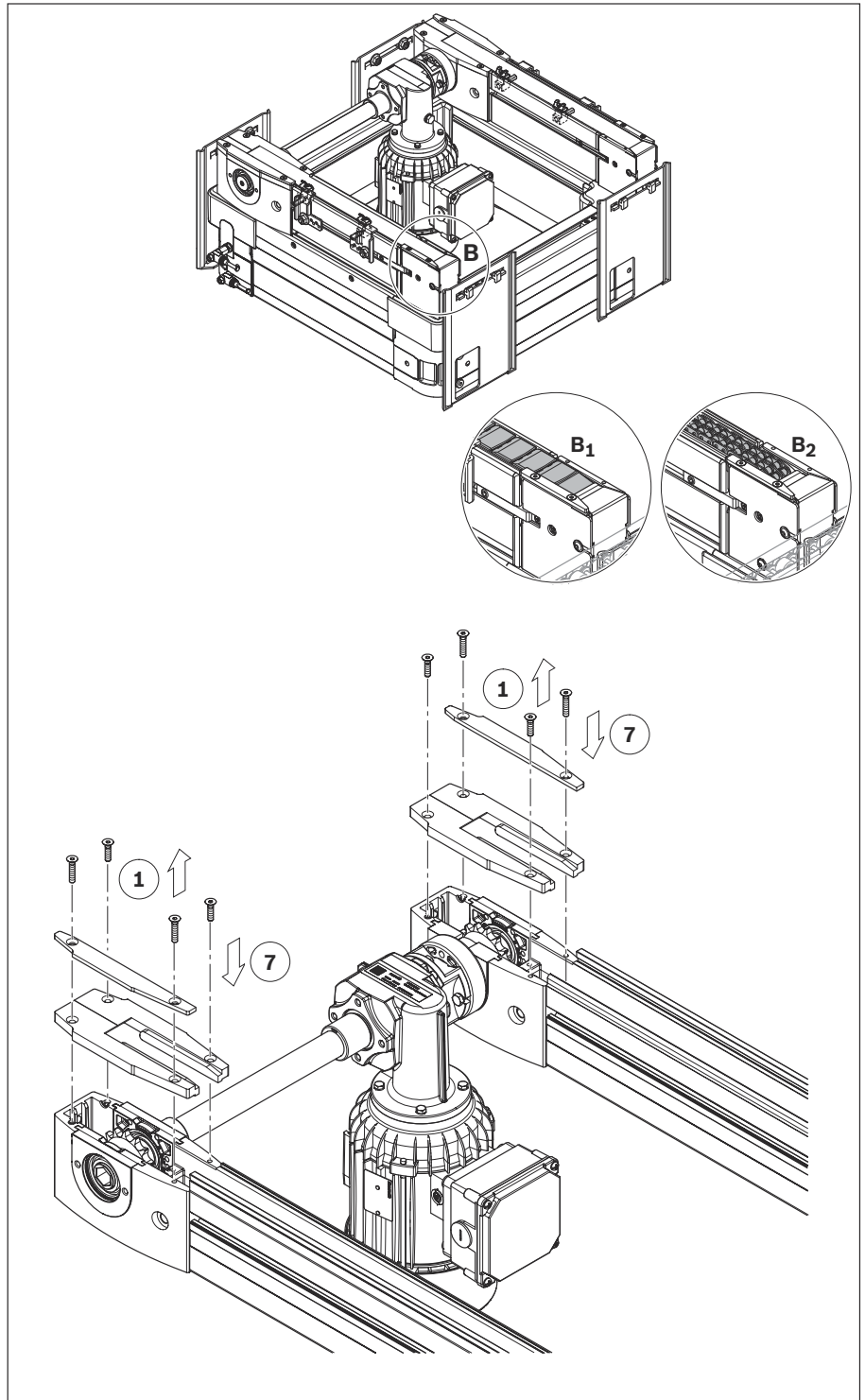
	• Designation of components
	• Detailed view from a different direction, for example, the back or the bottom side of the product.

8.5 HQ 2/G-H with BS 2/G-250, HQ 2/C-H: Conversion to motor mounting M left (by customer)



If necessary, the customer must perform the conversion from motor mounting M right (standard on delivery) to motor mounting M left before installing the lift transverse unit.

- B1** Flat top chain (for HQ 2/C-H)
- B2** Duplex chain (roller chain, for HQ 2/G-H)
- 1.** Remove the drive head covers.



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Fig. 5:

A

2. Remove the belt section (C1) with return unit (Kst), couplings (D), hexagonal shaft (E) and protective tube (F).
3. Remove the motor-gear assembly (G), flanges (J, H, K) and return unit (Alu + Kst).
4. Turn the flanges (K, H, J) by 180° and set the aluminum return unit (Alu + Kst) on the new flange side. The gear will stay aligned.

B

5. Install the motor-gear assembly (G), flanges (J, H, K) and return unit (Alu + Kst).
6. Install the couplings (D), hexagonal shaft (E), protective tube (F) and belt section (C2) with return unit (Kst).
7. Install the drive head covers (see Fig. 5).

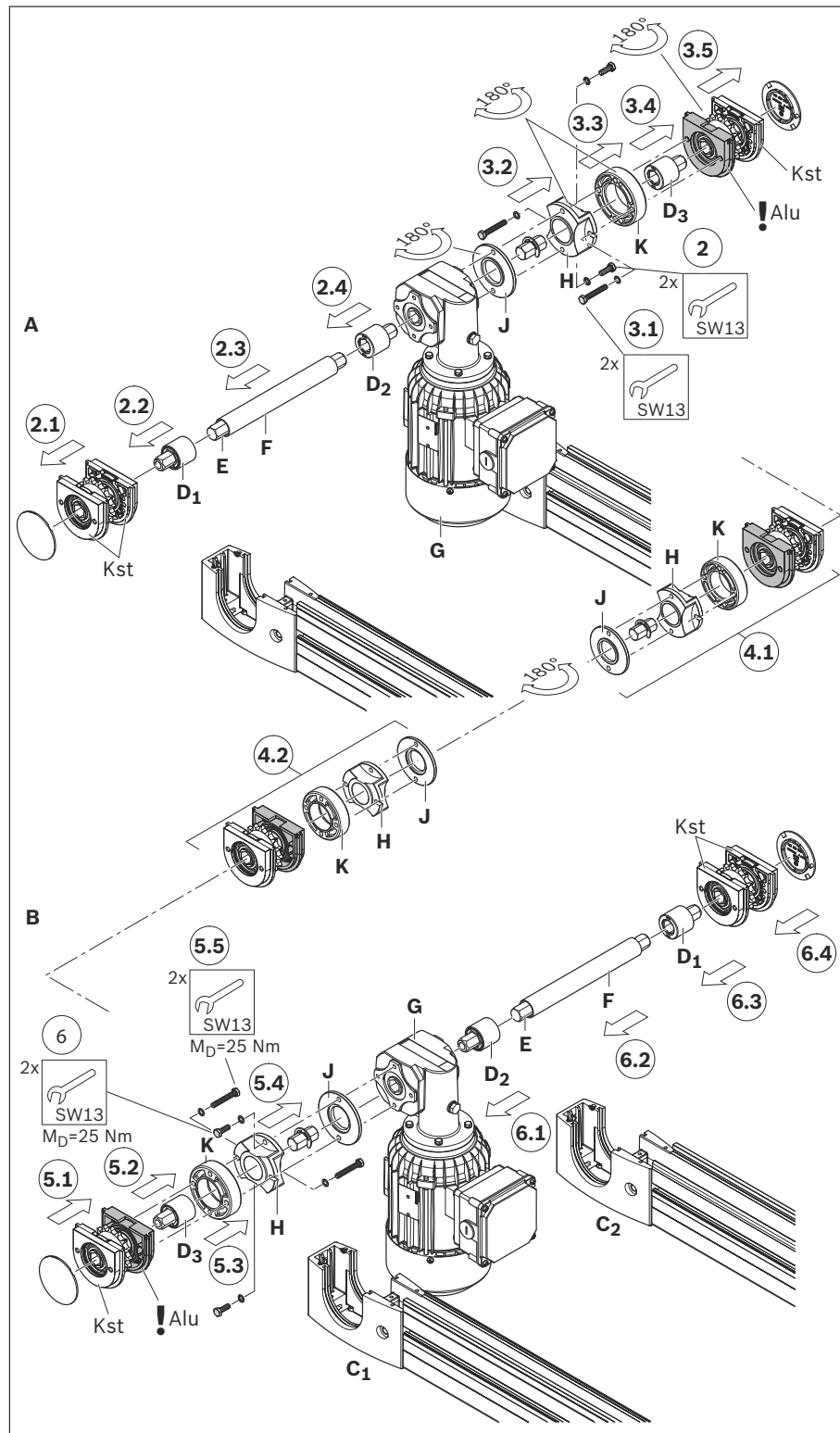


Fig. 6:

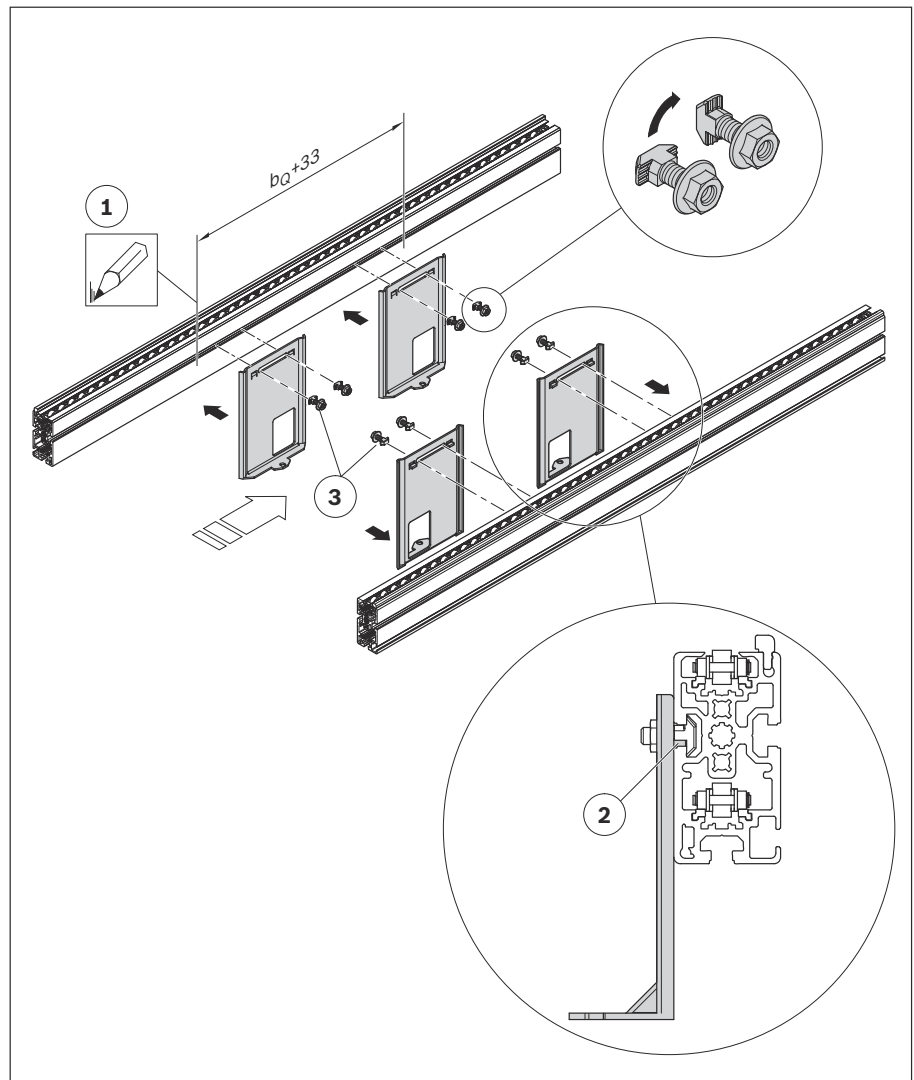
Alu Aluminum
Kst Plastic

8.6 Pre-assembling the mounting bracket



The mounting kit required for mounting the HQ 2/G-H and HQ 2/C-H on BS 2/... or ST 2/... is included in the scope of delivery.

1. Mark the mounting bracket installation position.
2. Hook the mounting bracket into the section profile.
3. Insert the T-bolts into the section profiles and lightly tighten the flange nuts (mounting bracket can still be moved).



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Fig. 7:

8.7 Installing the lift transverse unit

NOTICE

Incorrect lifting of the lift transverse unit

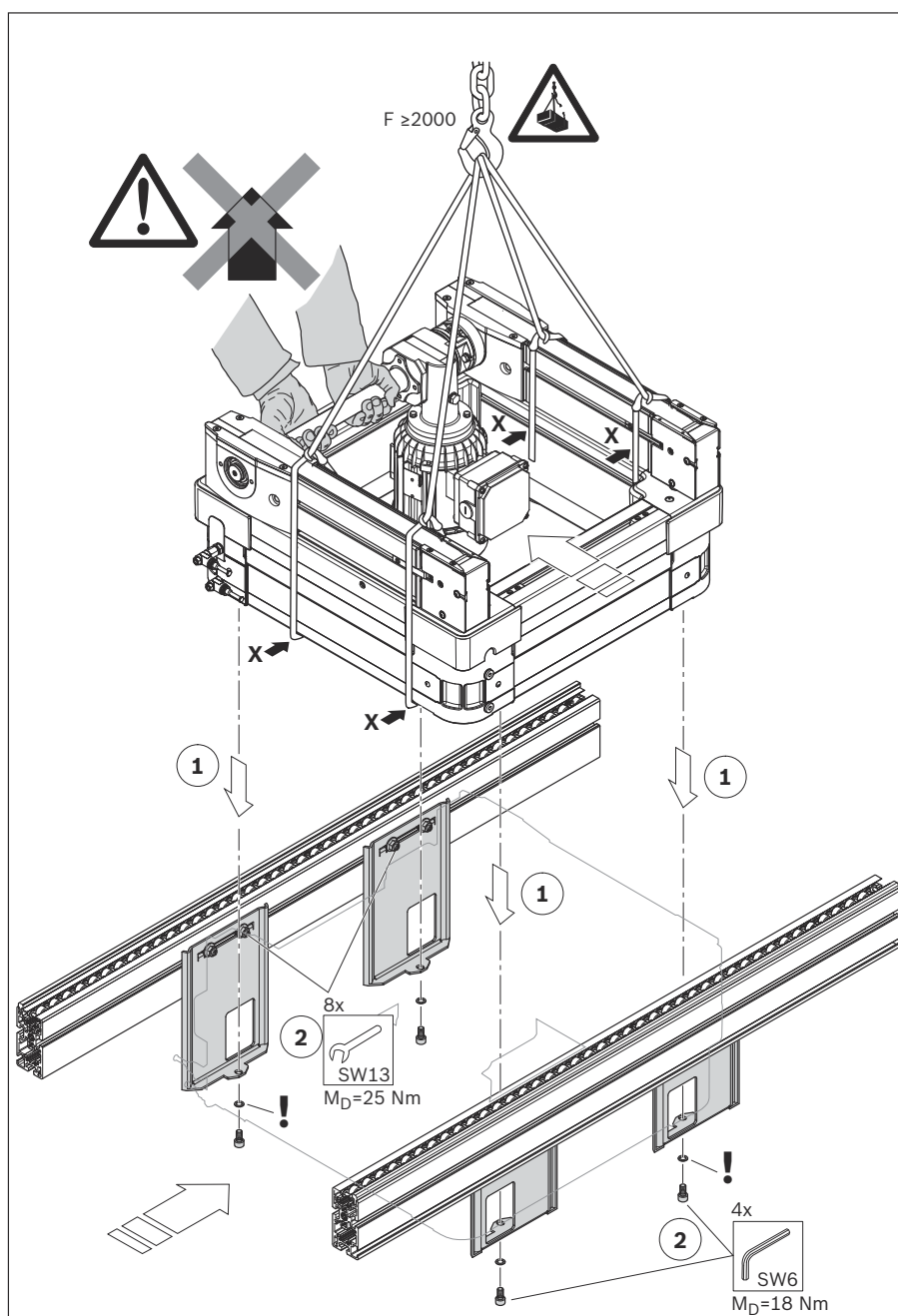
Possible damage to the lift transverse unit

- Do not lift from the drive shaft.
- Use a lift aid to lift.
- The positions indicated with an (X) in the drawing are used as lifting points for a round sling.



Use a workpiece pallet to help you align.

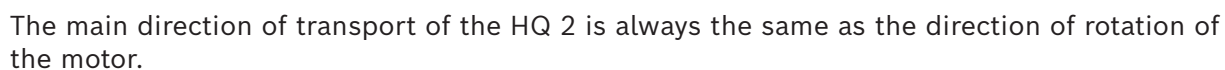
1. Insert the lift transverse unit into the section profile.
2. After aligning the lift transverse unit, tighten all mounting bracket screws.



564 988-23

Fig. 8:

8.8 Direction of transport and damper position



Main transport direction

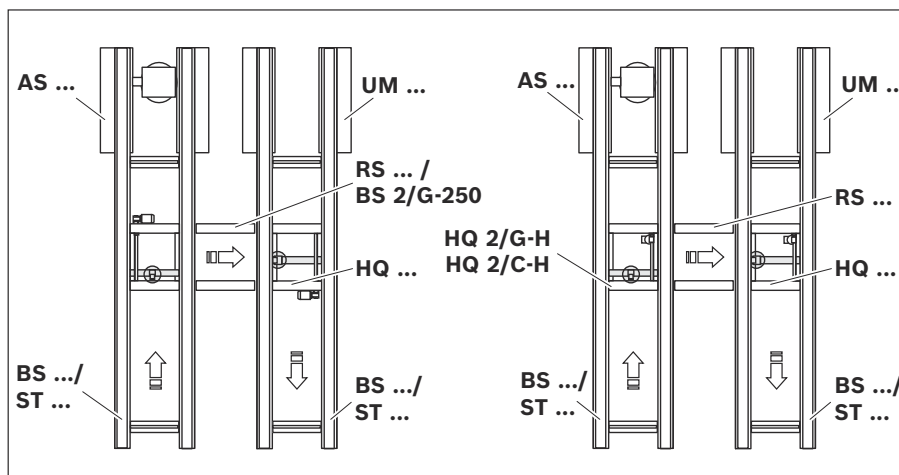
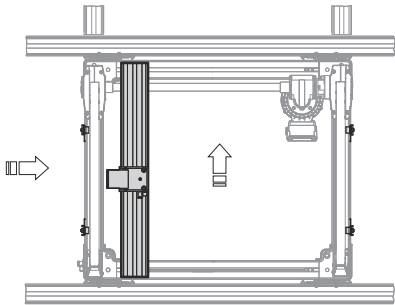
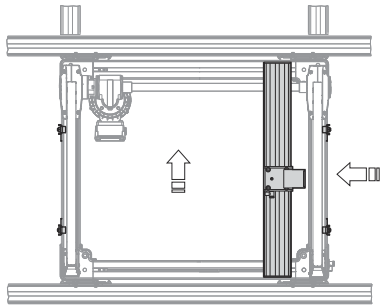
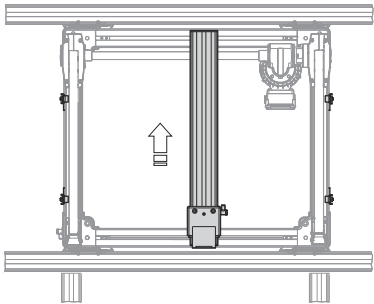
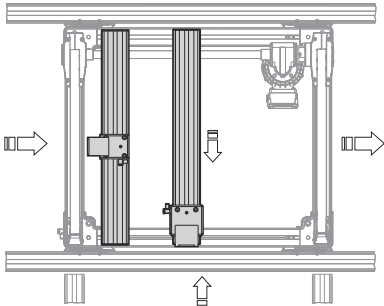
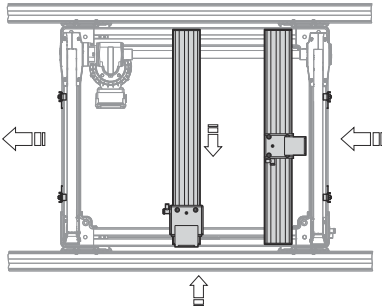


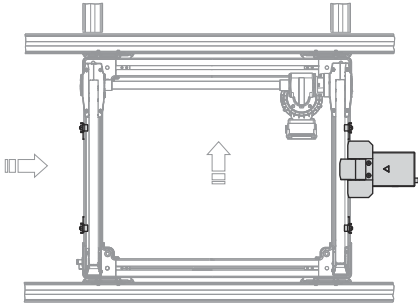
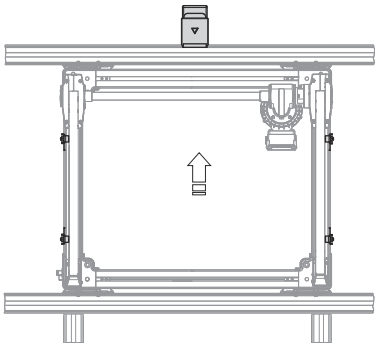
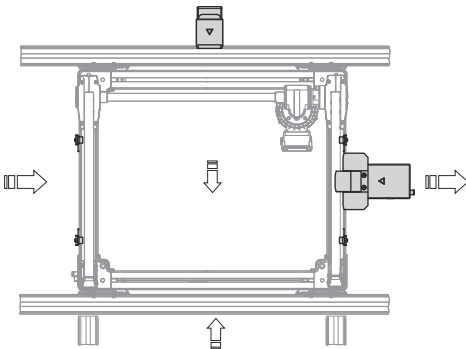
Fig. 9:

Direction of transport and damper position for WT 2/H, WT 2/F-H

HQ 2 function	Motor mounting M, right (standard)	Motor mounting M, left ¹⁾
Outfeeding		
Infeeding		
Reversible operation		

1) The customer is responsible for switching to motor mounting M left (see ➔ Chapter 8.5 HQ 2/G-H with BS 2/G-250, HQ 2/C-H: Conversion to motor mounting M left (by customer) on page 18).

Direction of transport and damper position for WT 2, WT 2/F

HQ 2 function	Any motor mounting
Outfeeding	
Infeeding	
Reversible operation	

8.9 Pre-installation of DA 2/...-H



For use with the combination:

- HQ 2/G-H or HQ 2/C-H with WT 2/H and WT 2/F-H.

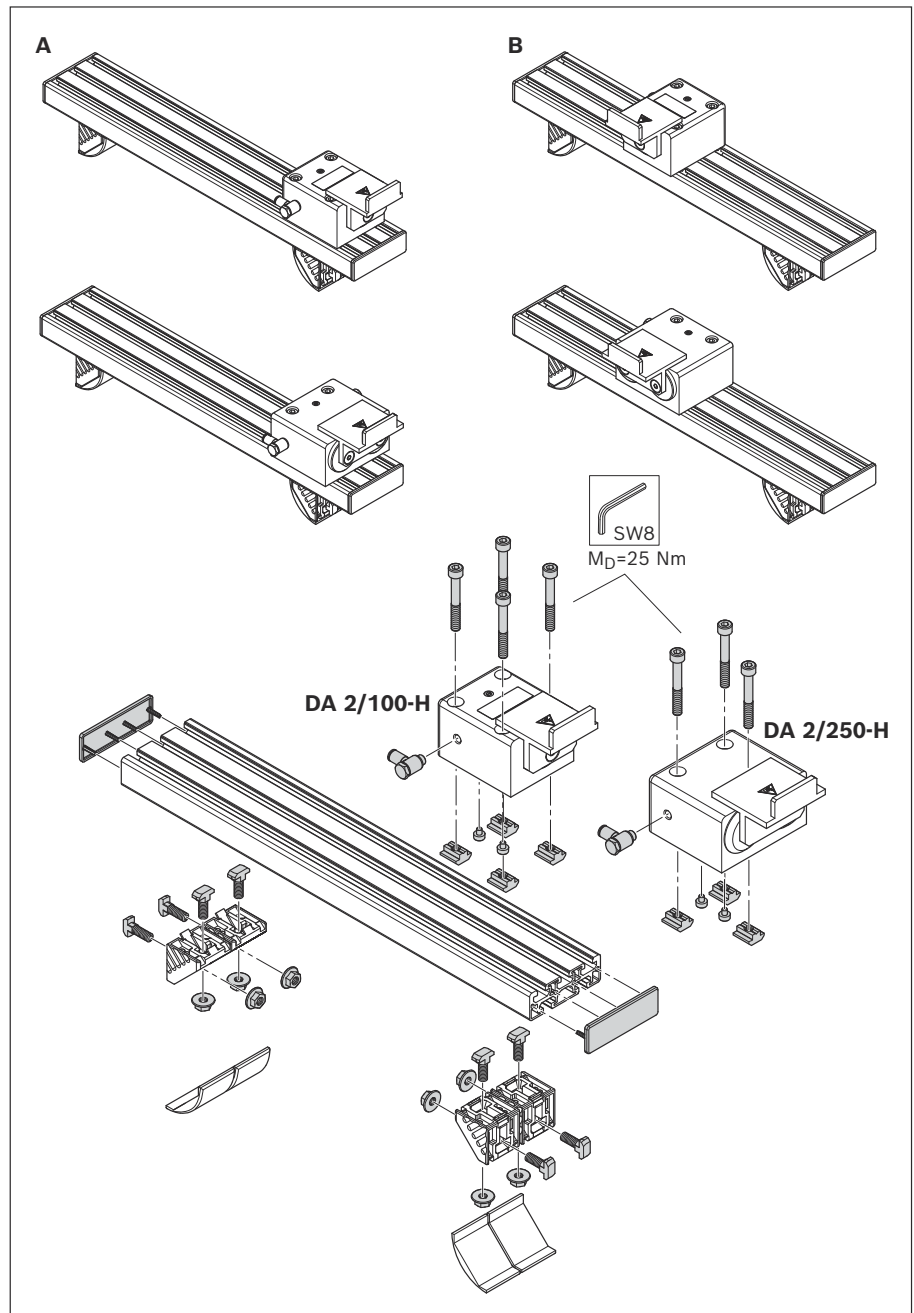
Accessories

- Damper DA 2/100-H (3842998745)
- Damper DA 2/250-H (3842998746)

A Infeeding

B Outfeeding

- Pre-install the DA 2/...-H according to its function, i.e. “A” infeeding or “B” outfeeding.



564 988-24

Fig. 10: Pre-installation of DA 2/...-H (in this example: “A” infeeding)

8.10 Installing the DA 2/...-H damper, infeed



For use with the combination:

- HQ 2/G-H or HQ 2/C-H with WT 2/H and WT 2/F-H.

- Install the DA 2/...-H on the lift transverse unit.

For assembly dimensions “a” and “b”, see [Table 4 Mounting dimensions for DA 2/...-H, infeed](#) on page 26.

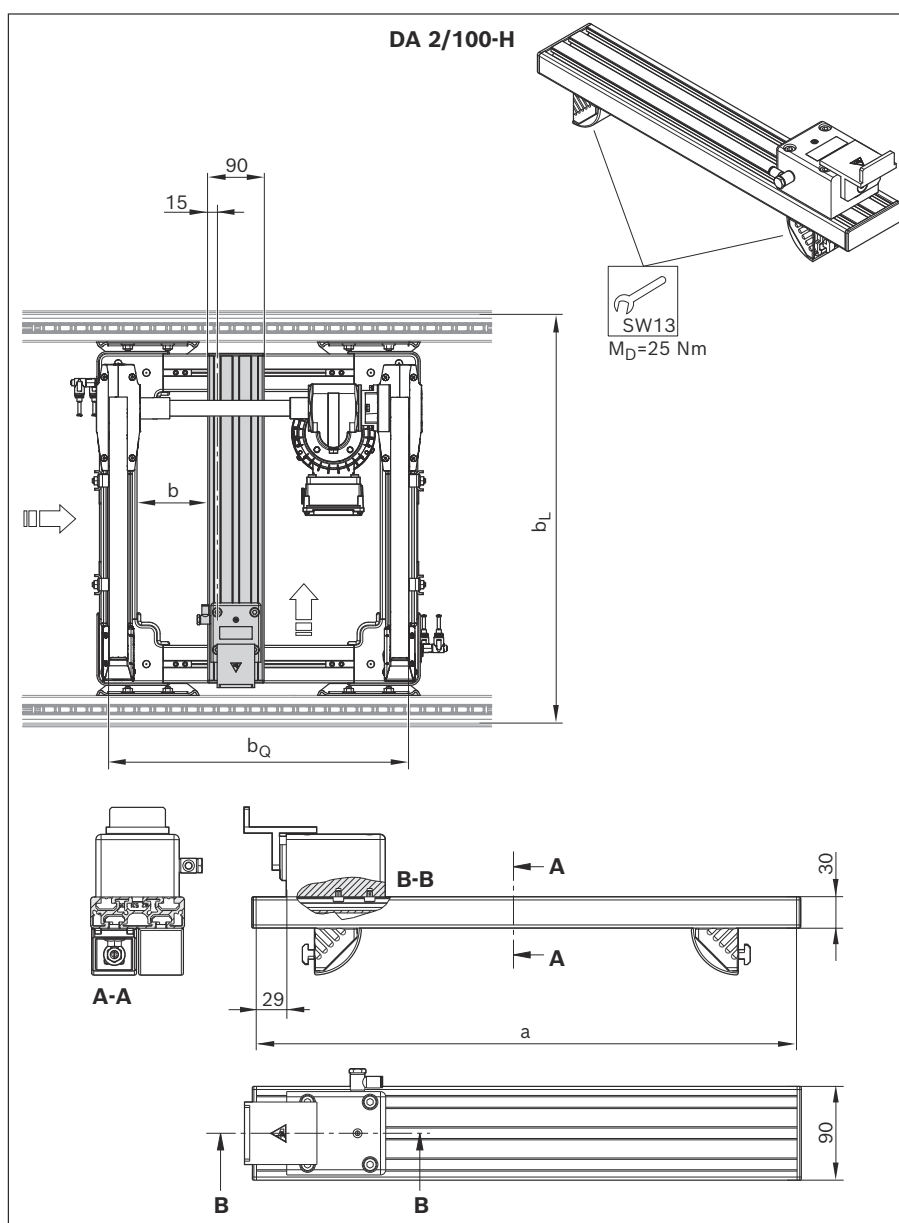


Fig. 11: Installing the DA 2/...-H (using DA 2/100-H as an example)

Table 4: Mounting dimensions for DA 2/...-H, infeed

Track width in the longitudinal conveyor b_L [mm]	Installing the HQ 2/G-H or HQ 2/C-H in BS 2/...	
	a [mm]	b [mm]
480	359	180
640	519	260
800	679	340
1040	919	460
1200	1079	540

8.11 Installing the DA 2/...-H damper, outfeed

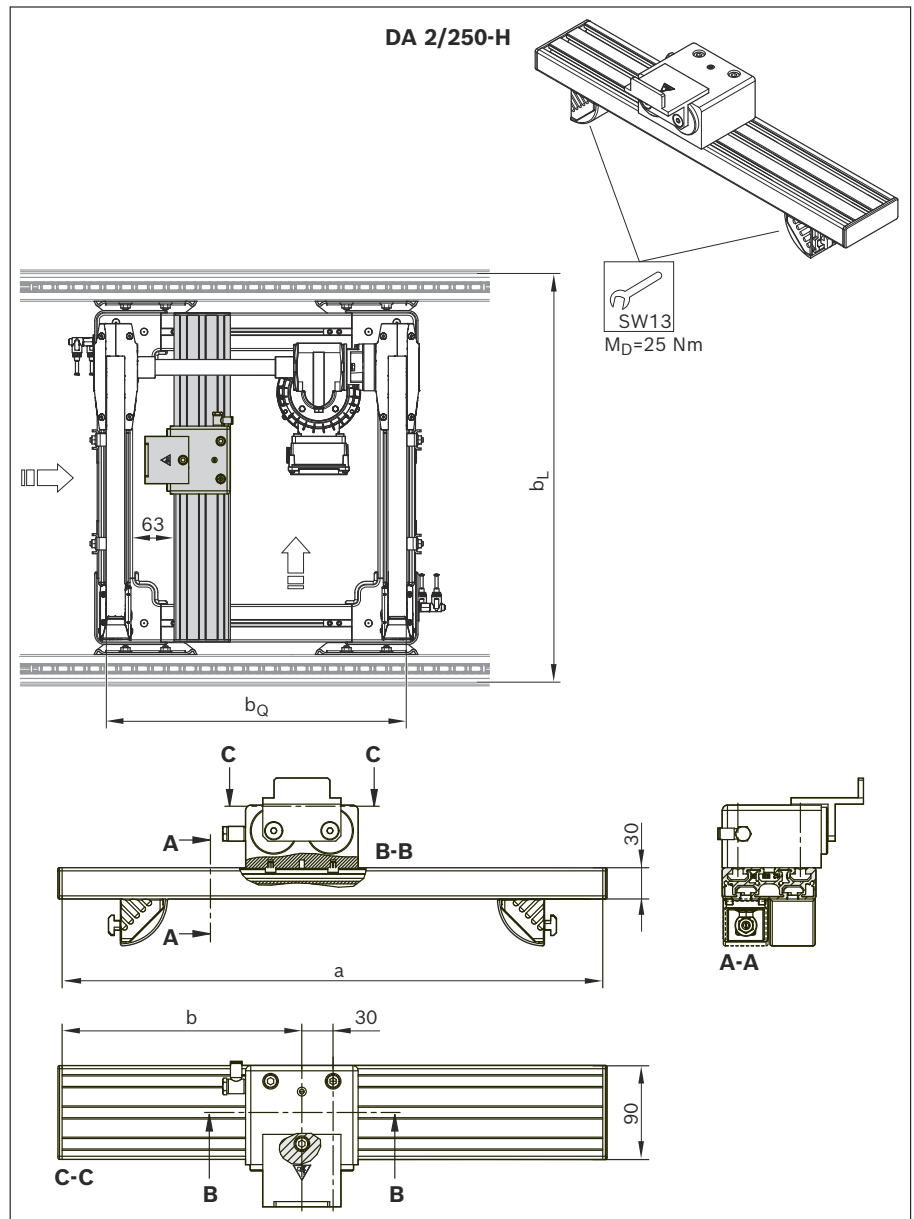


For use with the combination:

- HQ 2/G-H or HQ 2/C-H with WT 2/H and WT 2/F-H.

- Install the DA 2/...-H on the lift transverse unit.

For assembly dimensions “a” and “b”, see → Table 5 Installation dimensions for DA 2/...-H, outfeed on page 27.



564 988-26

Fig. 12: Installing the DA 2/...-H (using DA 2/250-H as an example)

Table 5: Installation dimensions for DA 2/...-H, outfeed

Track width in the longitudinal conveyor b_L [mm]	Installing the HQ 2/G-H or HQ 2/C-H in BS 2/...	
	a [mm]	b [mm]
480	359	149.5
640	519	229.5
800	679	309.5
1040	919	429.5
1200	1079	509.5

8.12 DA 2/100-C damper, infeed mounting



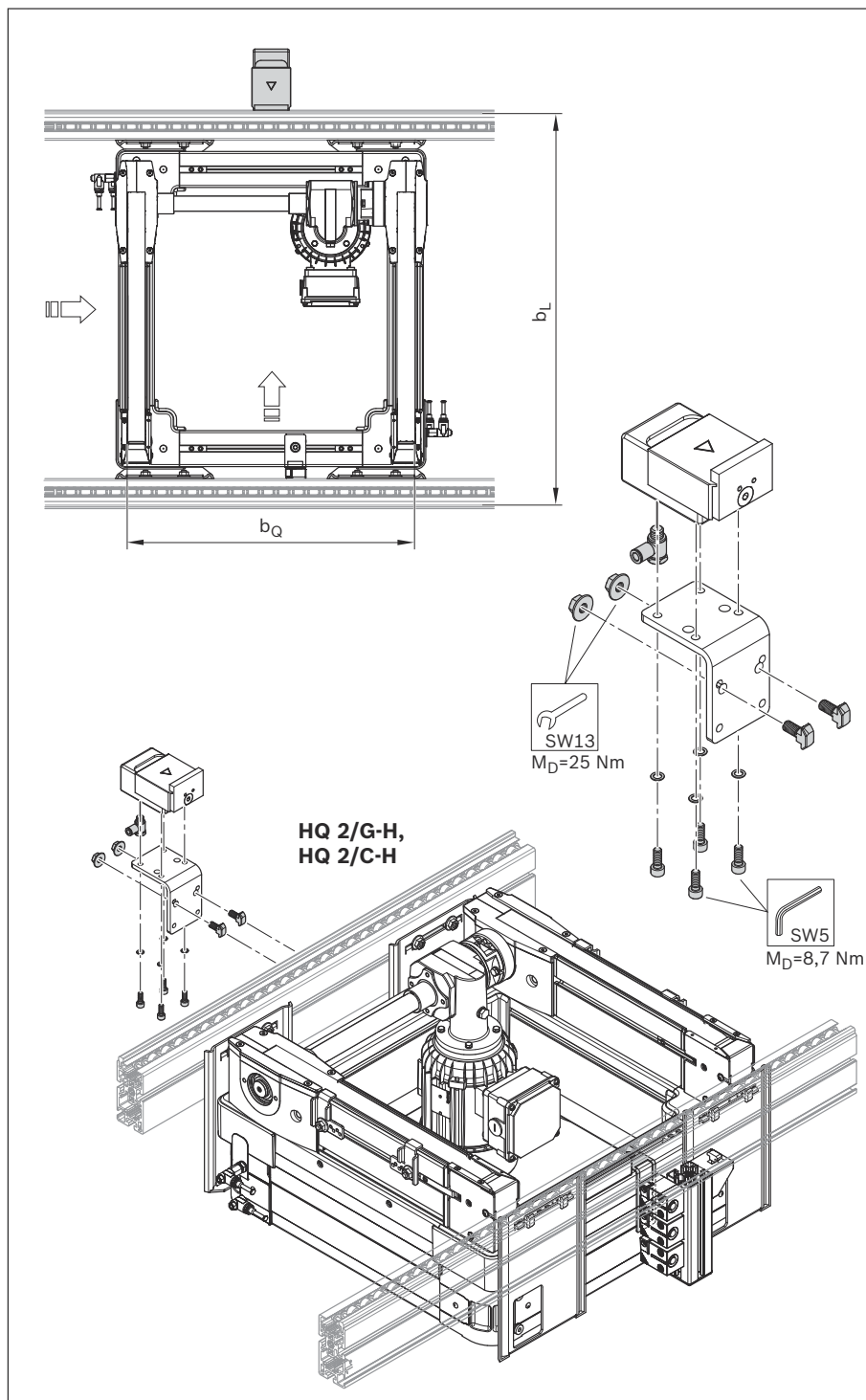
For use with the combination:

- HQ 2/G-H or HQ 2/C-H with WT 2 and WT 2/F.

Accessories

- Damper DA 2/100-C (3842525734)

- Install the DA 2/100-C on the section profile, aligned centrally to the lift transverse unit.



564 988-27

Fig. 13:

8.13 DA 2/150-E damper, outfeed mounting



For use with the combination:

- HQ 2/C-H with WT 2/H and WT 2/F-H.
- HQ 2/G-H with WT 2, WT 2/F, WT 2/H and WT 2/F-H.

Accessories

- Damper DA 2/150-E (3842548644)

For assembly instructions DA 2/150-E (3842572905), see the download center
➔ www.boschrexroth.com/mediadirectory.

8.14 Installing the VA 2/D-250 slide stop



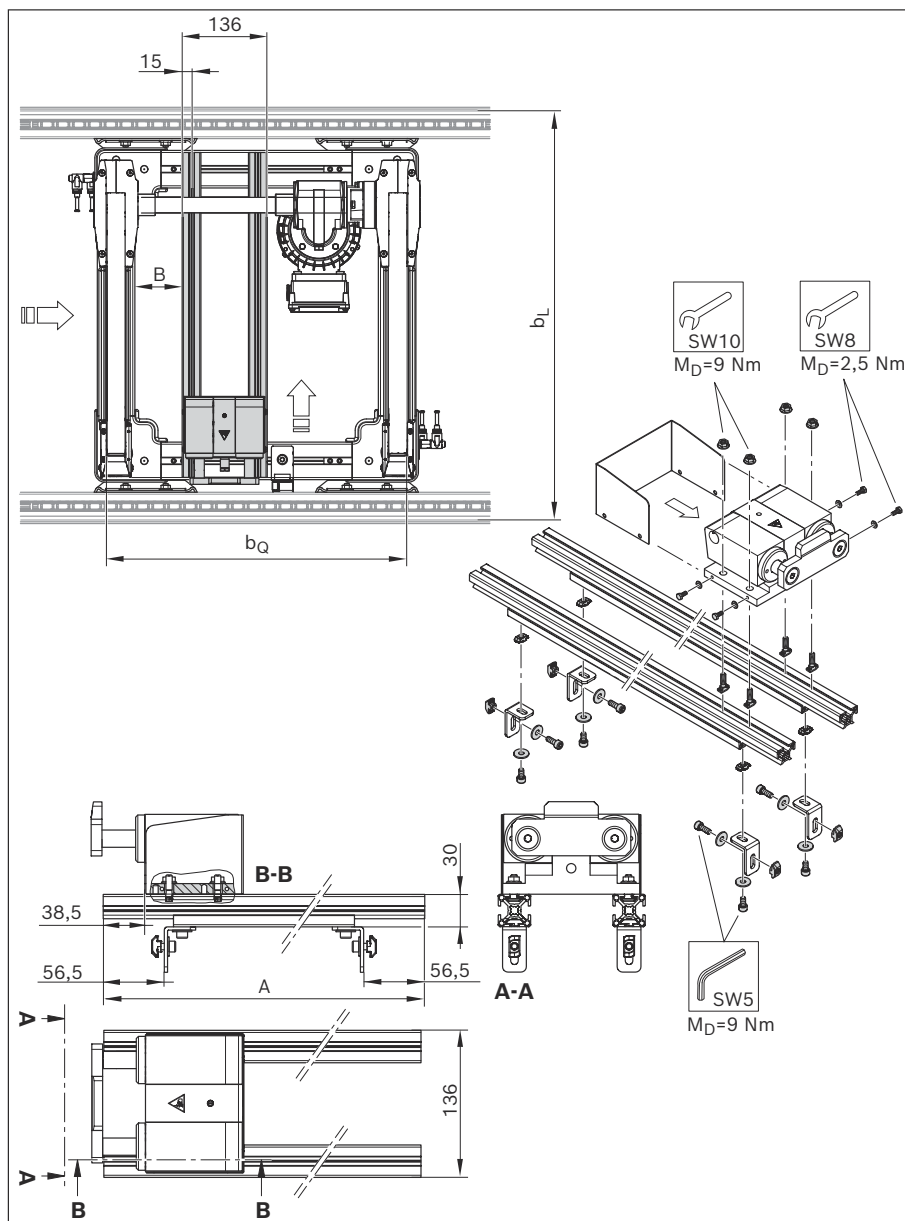
For use with the combination:

- HQ 2/G-H or HQ 2/C-H with WT 2/H and WT 2/F-H.

Accessories

- Slide stop VA 2/D-250 (3842998796)
- Mount the VA 2/D-250 on the lift transverse unit.

For assembly dimensions “a” and “b”, see [Table 6](#)
VA 2/D-250 mounting dimensions on page 30.



564 988-29

Fig. 14:

Table 6: VA 2/D-250 mounting dimensions

Track width in the longitudinal conveyor b_L [mm]	Installing the HQ 2/G-H or HQ 2/C-H in BS 2/...	
	a [mm]	b [mm]
640	519	237
800	679	317
1040	919	437
1200	1079	517

8.15 Installing the lateral guides



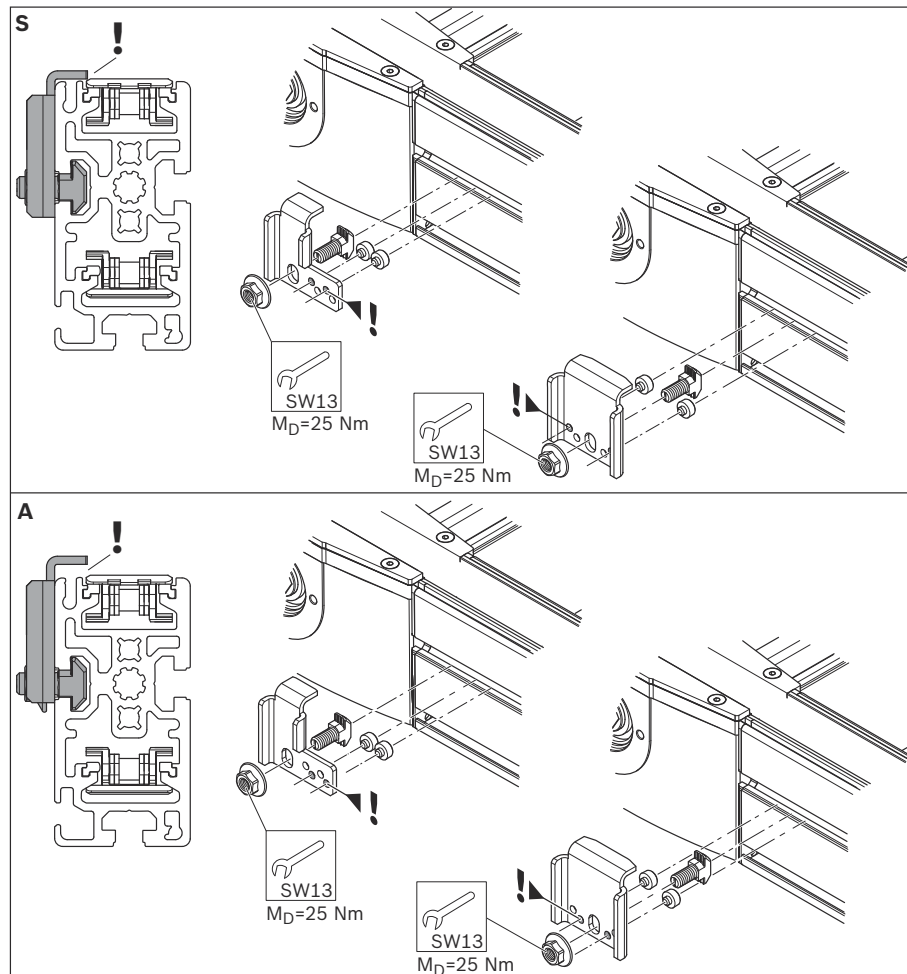
- Always use a damper to stop loaded workpiece pallets!
- Only ever use the lateral guides with unloaded workpiece pallets as a non-damped stop “A”.

Possible installation of the lateral guides as:

- Lateral guide “S” or
- non-damped stop “A”

HQ 2 function	Motor mounting M, right (standard)	Motor mounting M, left	Any motor mounting
Outfeeding			
Infeeding		—	
Reversible operation			

- S** Lateral guide mounted as a lateral guide “S”.
- A** Lateral guide mounted as a non-damped stop “A” instead of a damper.

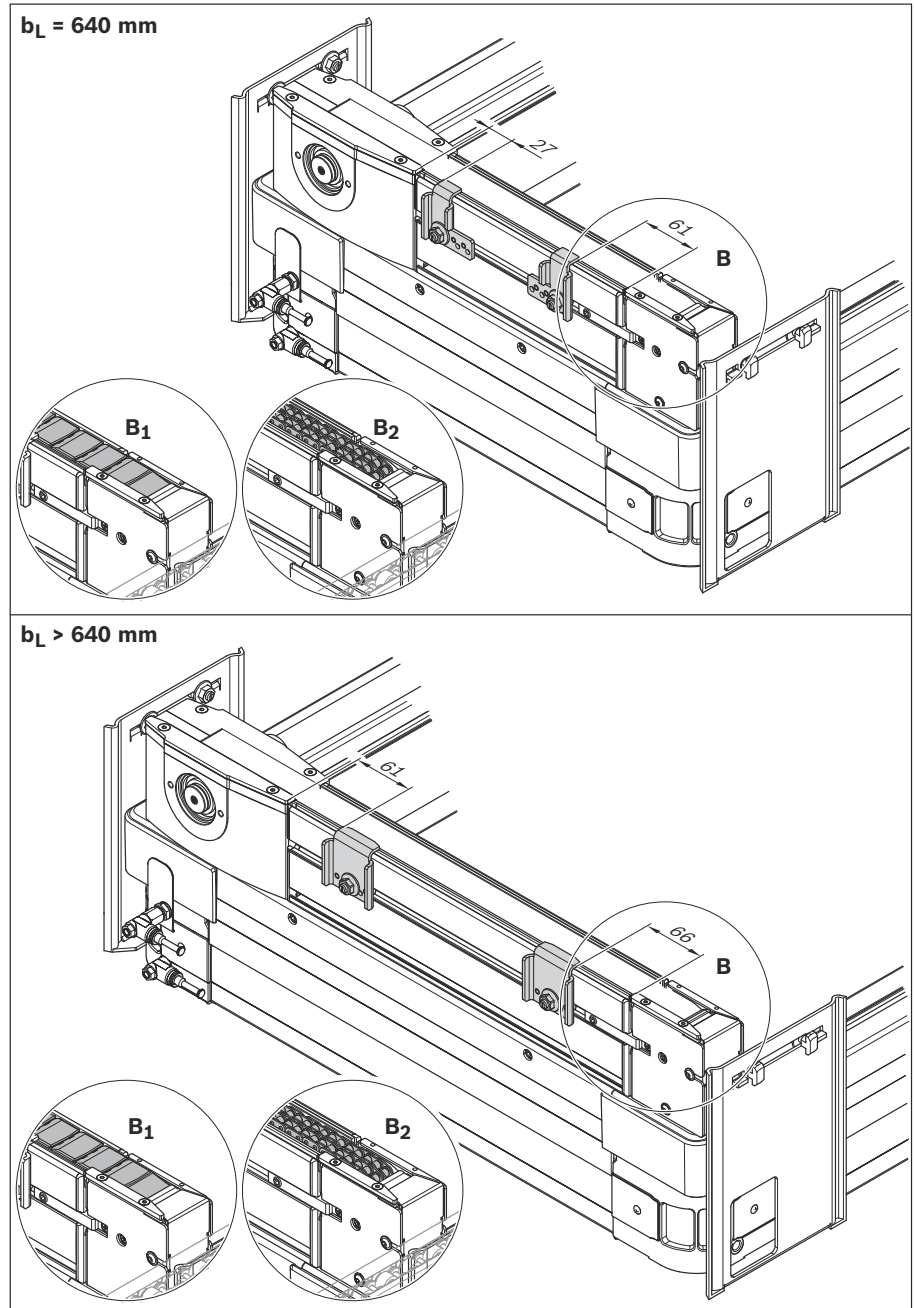


564 988-12

Fig. 15:

Position of the lateral guides

- Mount the lateral guides as a lateral guide "S" or a non-damped stop "A".



564 988-38

Fig. 16:

B₁ HQ 2/C-H flat top chain

B₂ HQ 2/G-H duplex chain (roller chain)

8.16 Installing the position sensor

Accessories

- Position sensor HQ 2 (3842567133)
- Proximity switch M12-M12 SN=8MM L=60 (3842558990)

1. Install the switching element for the HQ position sensor.
2. Install the retaining profile and position sensor bracket.
3. Mount the switch bracket to the profile.
4. Install the sensor as far as it will go. Insert the switch into the switch bracket and adjust the switching distance.
5. Set the switch brackets along the slot to the respective position of the switching element by moving the switch bracket down. You can query all 3 lift positions.

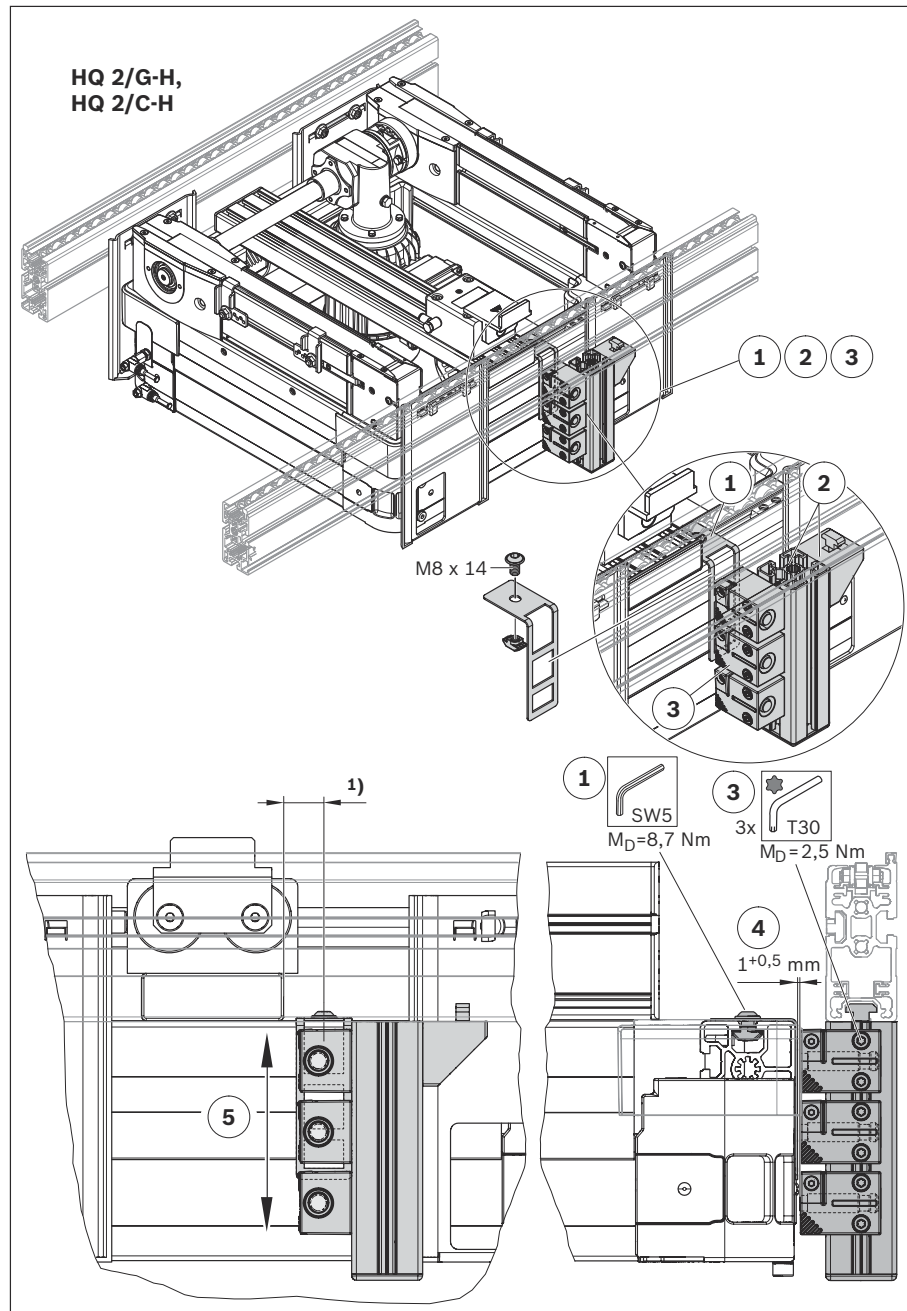


Fig. 17:

1) Can be selected by the customer

8.17 Pneumatic connection of the product

⚠ WARNING

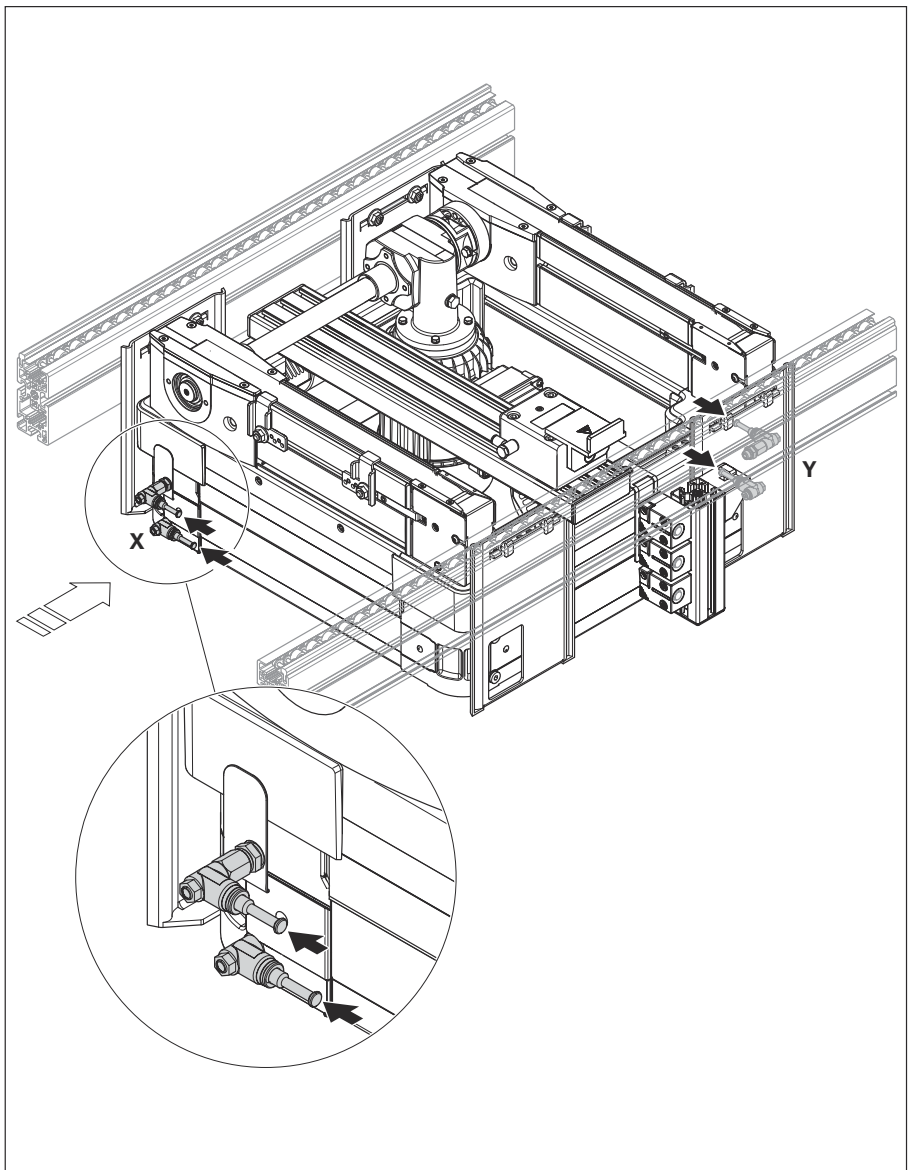
Pneumatic pressure!

Risk of sudden movements.

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



- For compressed air specifications, see ➔ [Chapter 15 Technical data on page 63](#).
 - Connect the pneumatics at X and Y. This results in a faster and more uniform filling of the system.
 - The pneumatic hoses on all 4 ports must be the same length!
- Connect HQ 2 to the compressed air supply.



564 988-40

Fig. 18:

Approaching the central position:

- ▶ Lower to the bottom position.
- ▶ Then depressurize the valve (= middle switching position).
- ➡ Built-in springs lift the HQ 2 to the central position.

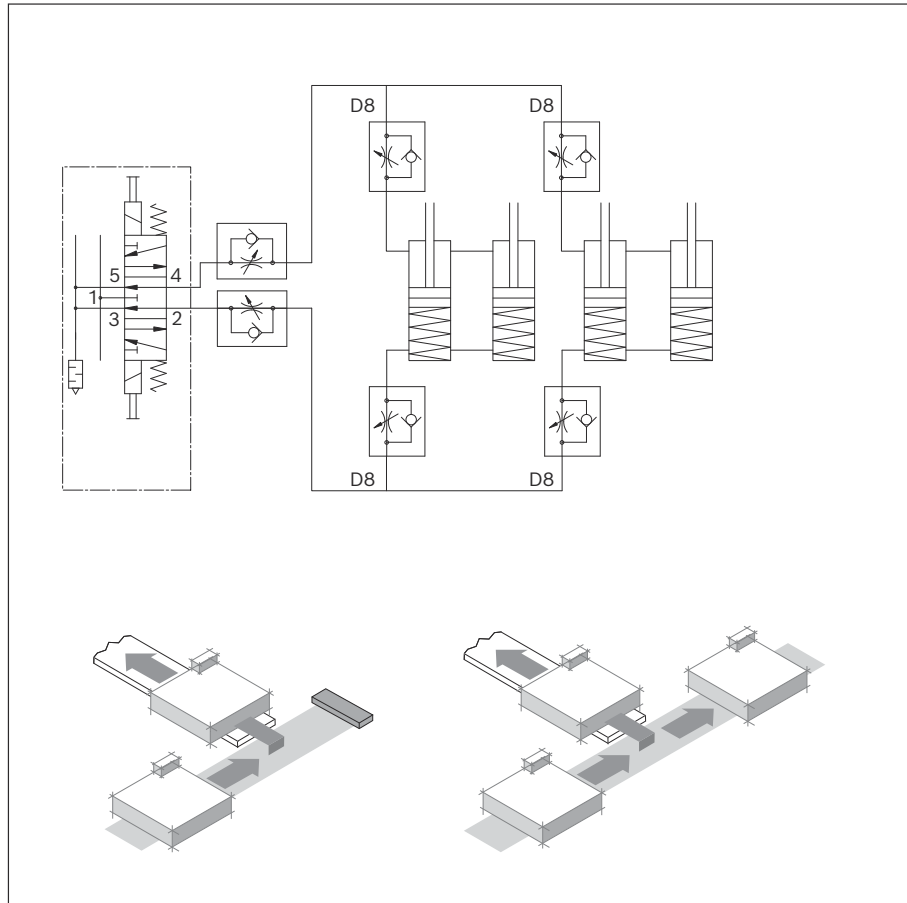


Fig. 19:

564 988-41

8.18 Setting the lifting speed

⚠ CAUTION

Operation of the HQ... without protective equipment

Injury due to unprotected danger areas ➡ [Chapter 2.7 Residual risks on page 8](#).

- When adjusting the lifting speed, pay attention to unprotected hazard areas.
- Final commissioning may only be performed with protective equipment installed.

⚠ CAUTION

Sudden, jerky movements

Injuries caused by falling workpiece pallets.

- During configuration, aim at an even and smooth lifting movement of the HQ... .



- Before setting the lifting speed, attach the appropriate WT (operating load).
- During configuration, aim at an even and smooth lifting movement of the HQ....

- Throttle the extract air evenly using both throttle check valves to adjust the speed of the lifting movement.

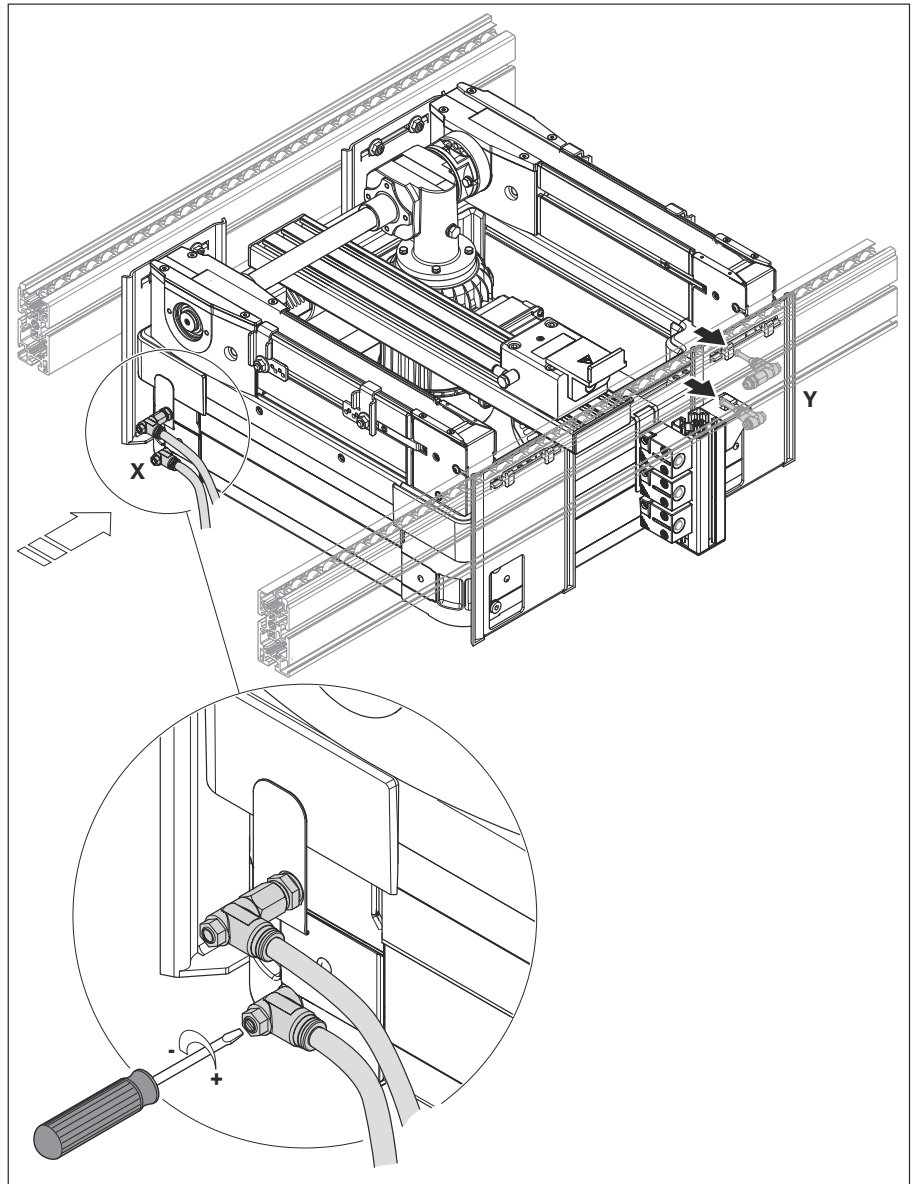


Fig. 20:
Rotate in the "+" direction The movement is slower.
Rotate in the "-" direction The movement is faster.

8.19 Installing the BS 2/G-250

Installing the belt section on leg sets

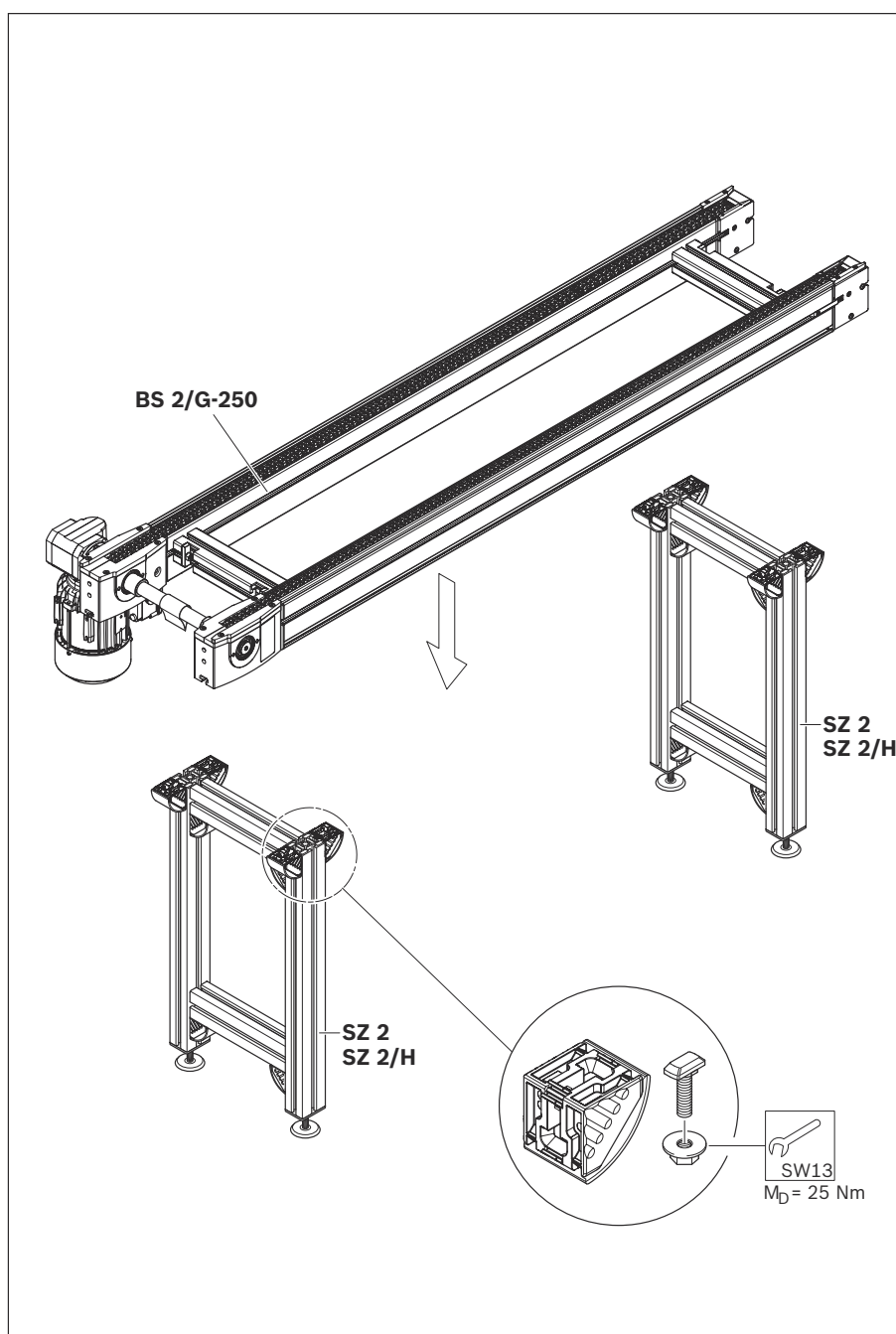


- Install one leg set each in the immediate vicinity of the drive and return unit.
- Install the leg sets under each of the cross connectors of the belt section.
- Max. distance between 2 leg sets: 2000 mm.

Accessories

- Leg set SZ 2 (3842996320)
- Leg set SZ 2/H (3842996321)
- Leg set SZ 2/U-H (3842996323)
- Leg set SZ 2/T-H (3842996325)

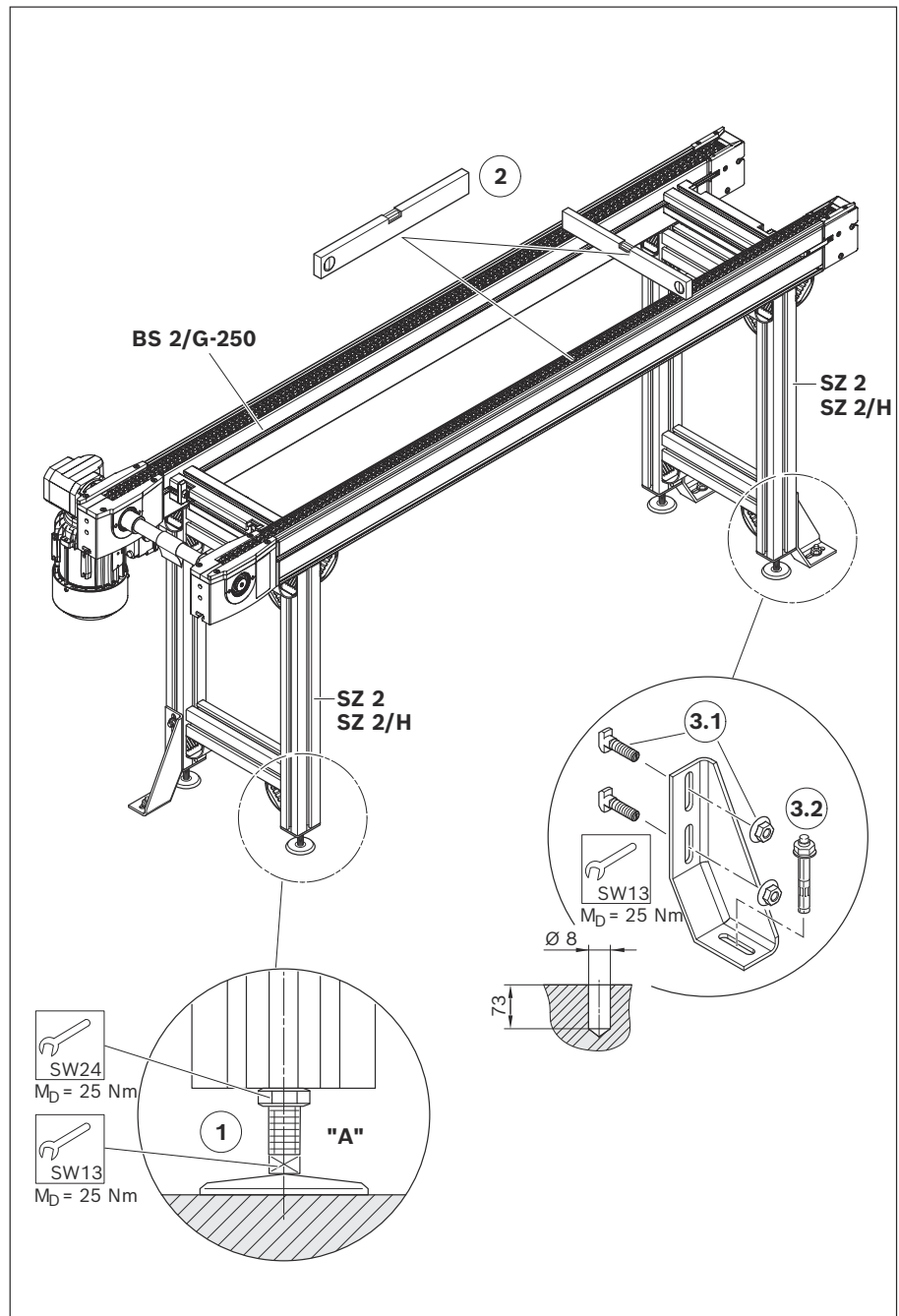
1. Install the belt section on leg sets.



564 988-42

Fig. 21:

2. Align belt section flush, horizontally and by height.
3. Screw the belt section to the floor.
4. Install the motor.



564 988-43

Fig. 22:

BS 2/G-250, modify mounting position of the motor-gear combination

1. Remove the screws "A".
2. Rotate the motor-gear combination or gear motor in 90°-steps.
3. Install the screws "A".

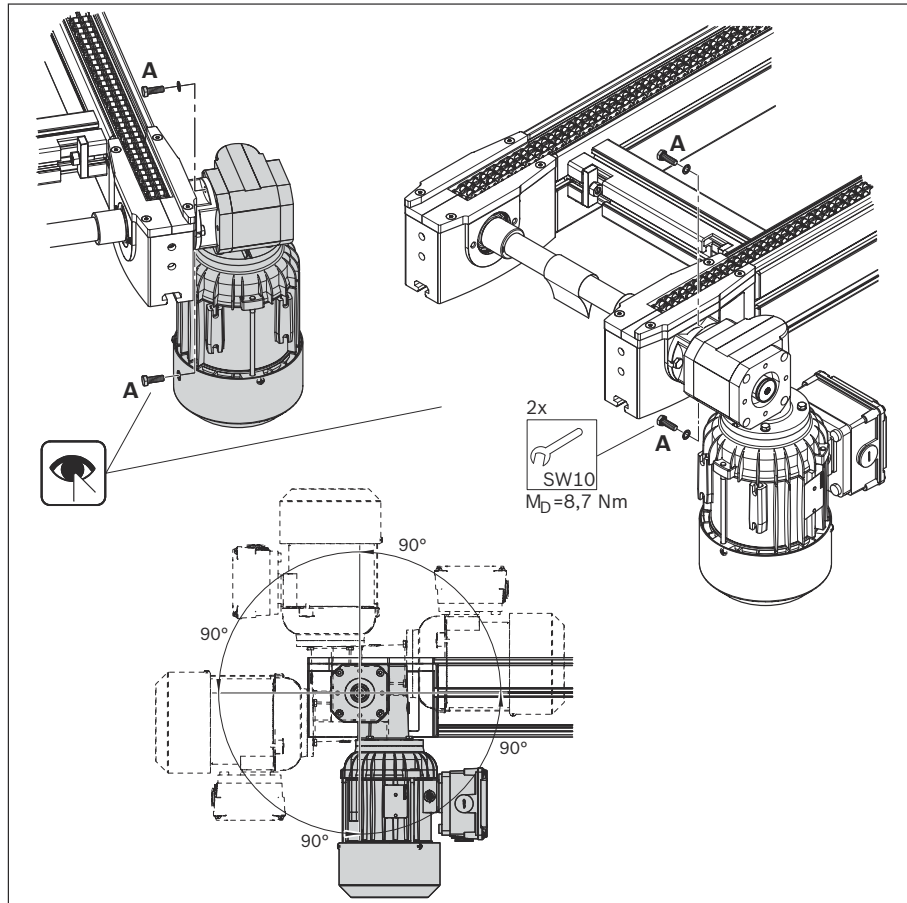


Fig. 23:

564 988-44

8.20 Electrical connection of the product

⚠ WARNING

Electrical current

Danger to life or serious injury

- De-energize
- Secure against reactivation
- Ensure absence of voltage on all poles
- Ground and short-circuit
- Cover or block off any adjacent live parts

- Choose the control and sensor elements in accordance with EN ISO 13849. Factor in the load being transported and the transport speed.
- Comply with VDE regulation 0100 for Germany, or corresponding regulations in the country of use.

Motor connection

- Observe the electrical connector information on the motor nameplate.
- Wire the motor either into a wye connection or a delta connection in accordance with the wiring diagrams (see figures below) 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 figures below).

Checking the rotational direction of the motor

- Let the system run for no more than 2 seconds., then check the rotational direction of the motor.
- Switch any two wires (U1, V1 or W1, see figure) to change the motor's rotational direction.

Motor nameplate (example)

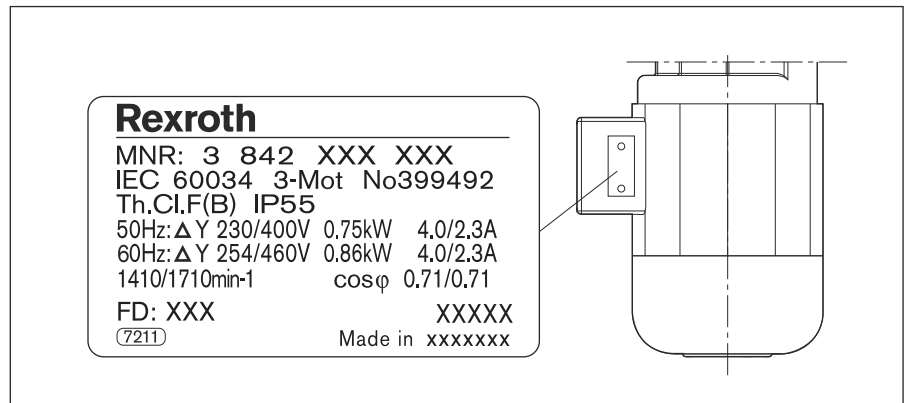


Fig. 24:

Delta/wye wiring diagrams

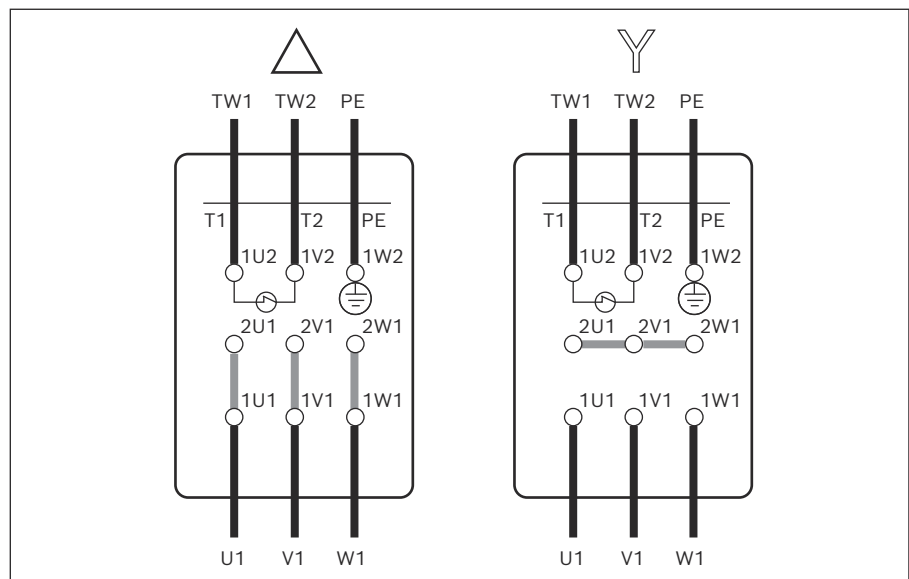


Fig. 25:

Optional motor connection
with plug (AT = S)

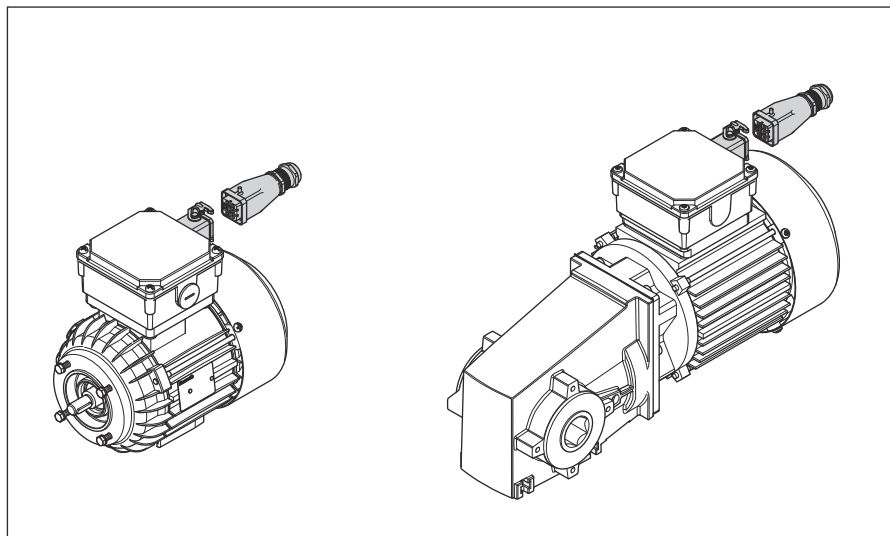


Fig. 26:

Motor connection with plug
(AT = 1), circuit diagram

- **A:** Connection cable side
- **B:** Motor side

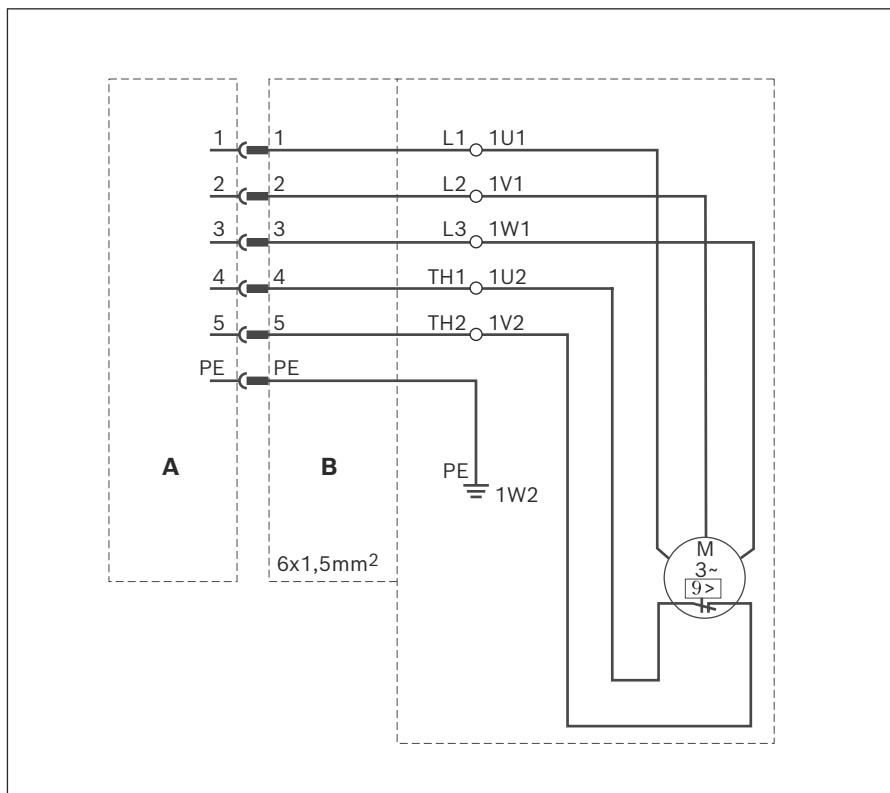


Fig. 27:

The plug connection consists of UL components

Motor connection with plug
(AT = 1), push-in fitting

- **A:** Connection cable side
- **B:** Motor side

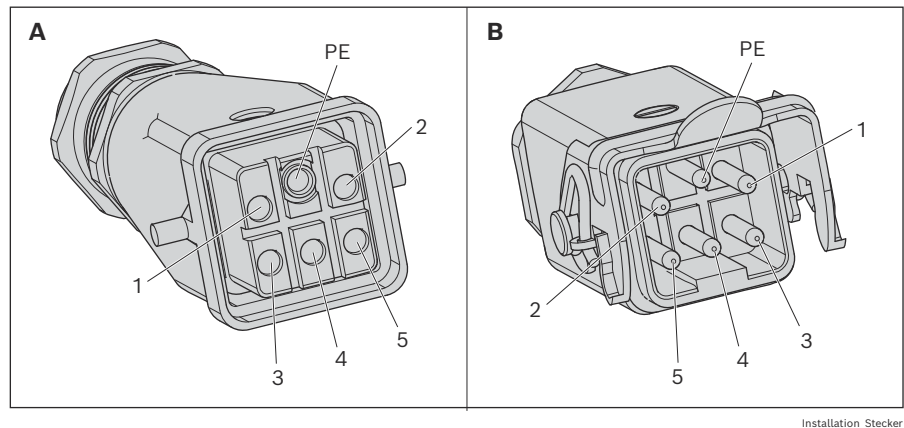


Fig. 28:

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

9 Commissioning

9.1 Initial commissioning

⚠ WARNING

Pneumatic pressure!

Risk of sudden movements.

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

NOTICE

Malfunctions due to incorrect assembly and commissioning

The product can get damaged, shortening its service life.

- Commissioning requires basic mechanical, pneumatic and electrical knowledge.
- The product should only be commissioned by qualified personnel

- ▶ Start the system only briefly (max. 2 s) and ensure the correct rotational direction of the motor.
- ➡ Switch any two wires (L1, L2 or L3, see wiring diagrams) to change the motor's rotational direction.



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.

10 Operation

CAUTION

Hot surfaces on electric motors

Burns on contact

- Install protective devices.
- Allow the motor to cool for at least 30 minutes before starting work.

10.1 Information on operation

10.1.1 Wear

- Individual components are subject to unavoidable wear by their very nature. Constructive measures and the selection of materials help ensure functional safety 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 function incorrectly and lead to the premature breakdown of motors and gears.

10.1.2 Measures to reduce wear

The following obvious measures will reduce wear:

- Switch off the conveyor section during line downtime, e.g. during breaks, at night and on week-ends.
- Do not select a higher speed for the conveyor section than that required for the corresponding function.
- Abrasive media increase wear to a considerable extent. Clean the system regularly.

10.1.3 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 congestion length before stop gates.
- Damper functionality.
- Dampened stop gates.

11 Maintenance and repair

WARNING

Electrical current

Danger to life or serious injury

- De-energize
- Secure against reactivation
- Ensure absence of voltage on all poles
- Ground and short-circuit
- Cover or block off any adjacent live parts

⚠ CAUTION

Hot surfaces on electric motors

Burns on contact

- Install protective devices.
- Allow the motor to cool for at least 30 minutes before starting work.

- Only inspect and adjust continuous conveyors that are in motion or operation when the protective equipment is in place.
- Adhere to DIN EN ISO 13857 when removing or replacing protective equipment and/or bypassing 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.

11.1 Cleaning and care

NOTICE

Lubrication failure at bearings

Grease-dissolving substances lead to failure of the bearing lubrication.

- Keep grease-dissolving cleaners away from bearings.
- Clean only with a slightly damp cloth.

NOTICE

Wear of toothed belts and conveyor chains due to lubrication failure

Grease-dissolving substances lead to lubrication failure.

- Keep grease-dissolving cleaners away from toothed belts and conveyor chains.
- Clean only with a slightly damp cloth.

11.1.1 Motor

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

- On surfaces
- At intake ports
- Between cooling ribs

11.2 Inspection

11.2.1 Conveyor chain

- Inspect the conveyor chain regularly, every 1000 h, for ease of movement, sufficient lubrication, correct chain tension and wear.
- Check and 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. See [Chapter 11.5.6 HQ 2/C-H, replacing the flat top chain on page 58](#).
- Replace the conveyor chain when wear becomes visible or at the latest when it has increased in length by 3%. See [Chapter 11.5.6 HQ 2/C-H, replacing the flat top chain on page 58](#)

11.2.2 Pneumatic connections

Check the pneumatic connections regularly for leaks.

11.3 Maintenance

11.3.1 Bearings

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

11.3.2 Oiling the conveyor chain

HQ 2/G-H duplex chain (roller chain)

The conveyor chain is delivered oiled.

- ▶ Oil the conveyor chain when restarting after longer downtimes and every 1000 h with Mineral oil 0.5l STRUCTOV.GHD (0842904229).
- ➔ Required lubricant quantity:
2 g/m of chain.
For chain length, see
➔ [Table 7 Chain length depending on size \$b_L\$ on page 46.](#)

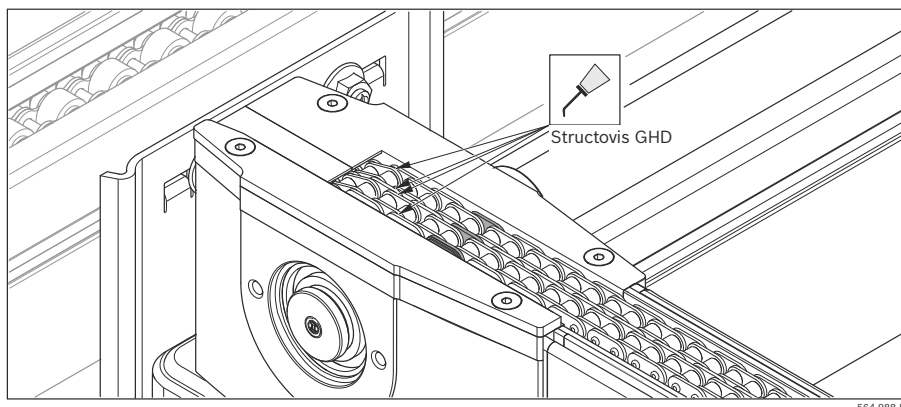


Fig. 29:

Table 7: Chain length depending on size b_L

Size b_L [mm]	Chain length [m]
640	0.943
800	1.267
1040	1.743
1200	2.067

HQ 2/C-H flat top chain

The conveyor chain is delivered oiled.

- ▶ Oil the conveyor chain before initial commissioning using 1–2 g oil/m of chain, then every 1000 h with 2–3 g oil/m of chain.

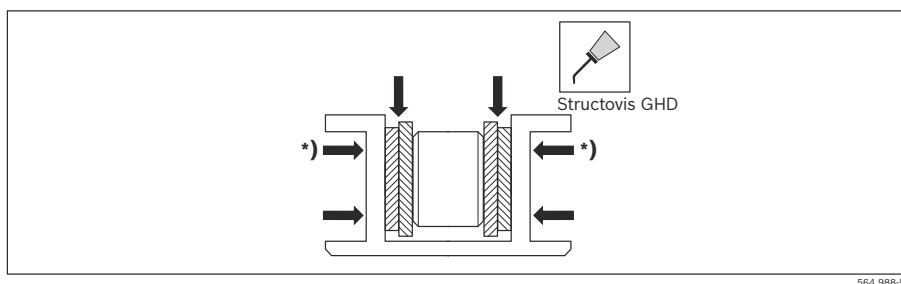


Fig. 30:

*) Also oil the side of the flat top chain.

11.3.3 Re-tensioning the conveyor chain (HQ 2/C-H)

Re-tension the conveyor chain

- 150 h after initial commissioning
- Every 1000 hours of operation
- When the chain dips
- When the chain is thrown off
- When there is operating noise

See → Chapter 11.5.6 HQ 2/C-H, replacing the flat top chain on page 58.

11.3.4 LU 2 automatic lubrication unit

The automatic Lubrication unit LU2 (3842543482) allows for lubrication of the chain while in operation.

- Install the Lubrication unit LU2 (3842543482) either at the next closest cross connector in the section, next to the HQ 2 or on the underside of the section.

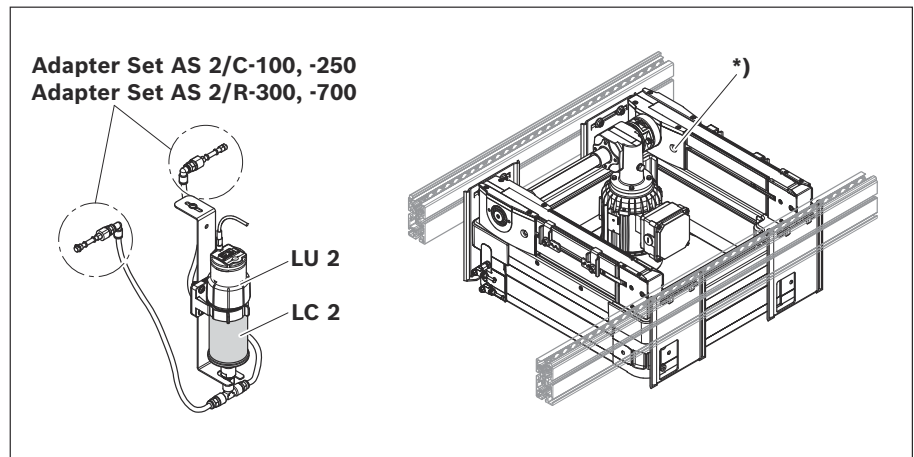


Fig. 31:

*) Install the adapters for the lubrication unit in these holes.

11.3.5 LU 2/P automatic lubrication pump

The automatic Lubricating pump LU 2/P-24V-3L (3842562921) allows for lubrication of the chain while in operation.

11.4 Spare parts

Spare parts can be found in the spare parts catalog in the MTpro software → www.boschrexroth.com/mtpro.

11.5 Replacement of wear parts

11.5.1 HQ 2/G-H, BS 2/G-250, replacing the motor



- The end faces of the motor and gear unit must be undamaged.
- The gear hub comes lubricated with anti-seize lubricant.
- Do **not** tilt the motor. Make sure that there is enough clearance for installing the motor.
- Position the motor correctly (terminal box!) and fit it into the gear unit.
- If the motor is not in the proper position: **DO NOT** twist the motor. Disconnect the motor from the gear unit, then reconnect it to the gear unit.

1. Remove the motor.
2. Remove the protective cap on the new motor.
3. Grease the drive shaft.
4. Install the motor.

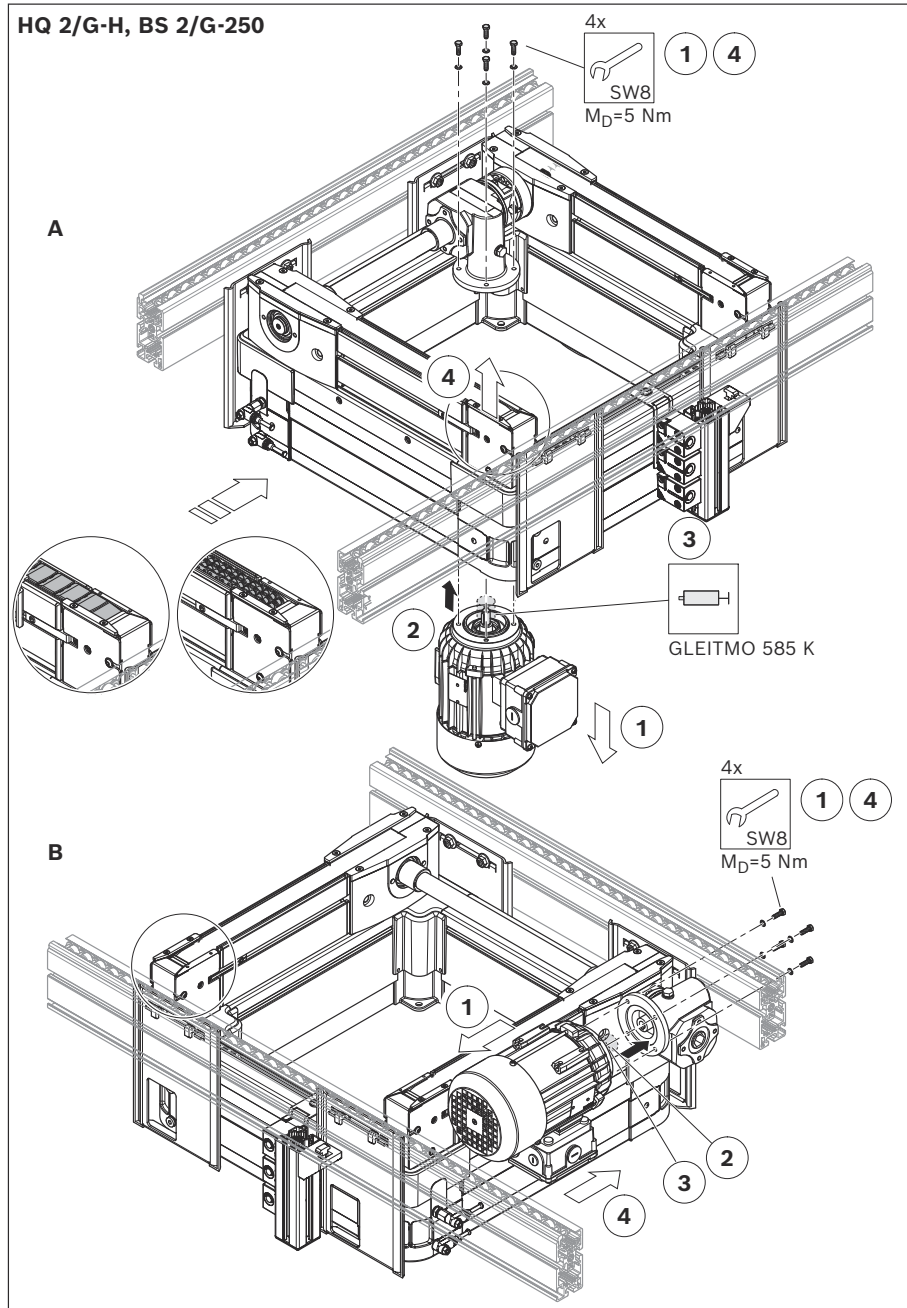


Fig. 32:

- A Internal motor mounting
B External motor mounting

11.5.2 HQ 2/C-H, HQ 2/G-H, BS 2/G-250, replacing the gear unit, (MA = R/L)



- The end faces of the motor and gear unit must be undamaged.
- The gear hub comes lubricated with anti-seize lubricant.
- Do **not** tilt the motor. Make sure that there is enough clearance for installing the motor.
- Position the motor correctly (terminal box!) and fit it into the gear unit.
- If the motor is not in the proper position: **DO NOT** twist the motor. Disconnect the motor from the gear unit, then reconnect it to the gear unit.

1. Remove the motor.
2. Remove the gear unit.
3. Remove the plug and install it on the new gear unit.
4. Install the new gear unit.
5. Install the motor.

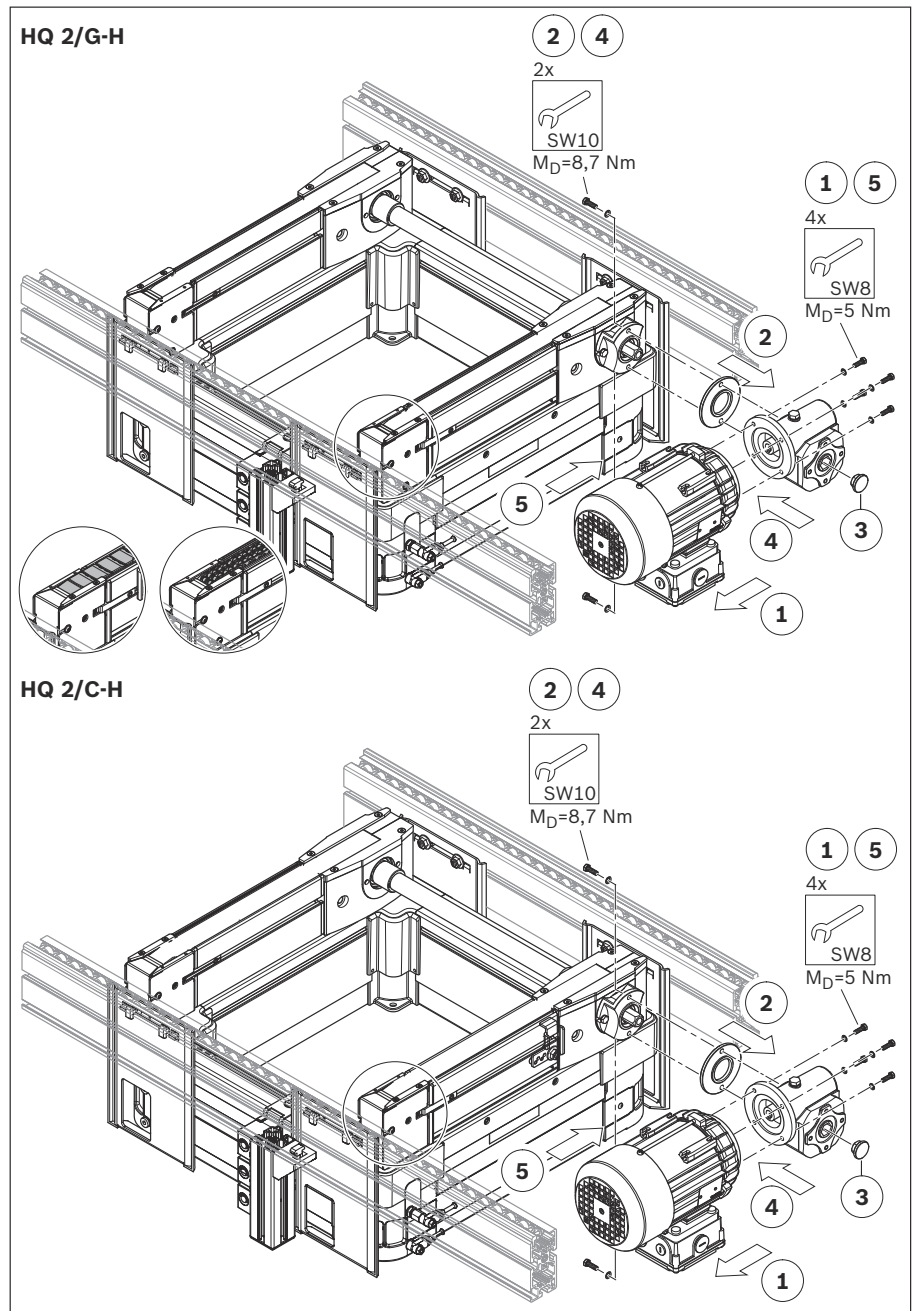


Fig. 33:

- 1) The change of the gear unit can also be carried out as in [Chapter 8.5](#)
HQ 2/G-H with BS 2/G-250, HQ 2/C-H: Conversion to motor mounting M left (by customer) on page 18.

11.5.3 HQ 2/G-H with BS 2/G-250, HQ 2/C-H: Replacing the gear, (MA = M)



- The end faces of the motor and gear unit must be undamaged.
- The gear hub comes lubricated with anti-seize lubricant.
- Do **not** tilt the motor. Make sure that there is enough clearance for installing the motor.
- Position the motor correctly (terminal box!) and fit it into the gear unit.
- If the motor is not in the proper position: **DO NOT** twist the motor. Disconnect the motor from the gear unit, then reconnect it to the gear unit.



For belt sections with cross connectors: If possible, **do not open** the cross connectors, but rather remove the gear unit as described in → Chapter 8.5 HQ 2/G-H with BS 2/G-250, HQ 2/C-H: Conversion to motor mounting M left (by customer) on page 18. Only open the cross connectors if necessary, otherwise the belt section will lose its alignment.

1. Allow the belt section to run briefly and position the chain lock "B" on the sprocket of the drive.
2. Deenergize and depressurize the system, and secure it against being reactivated.
3. **Only applies to HQ 2/G-H:**
Loosen the headless set-screw on the belt section lock and remove the belt section upward.

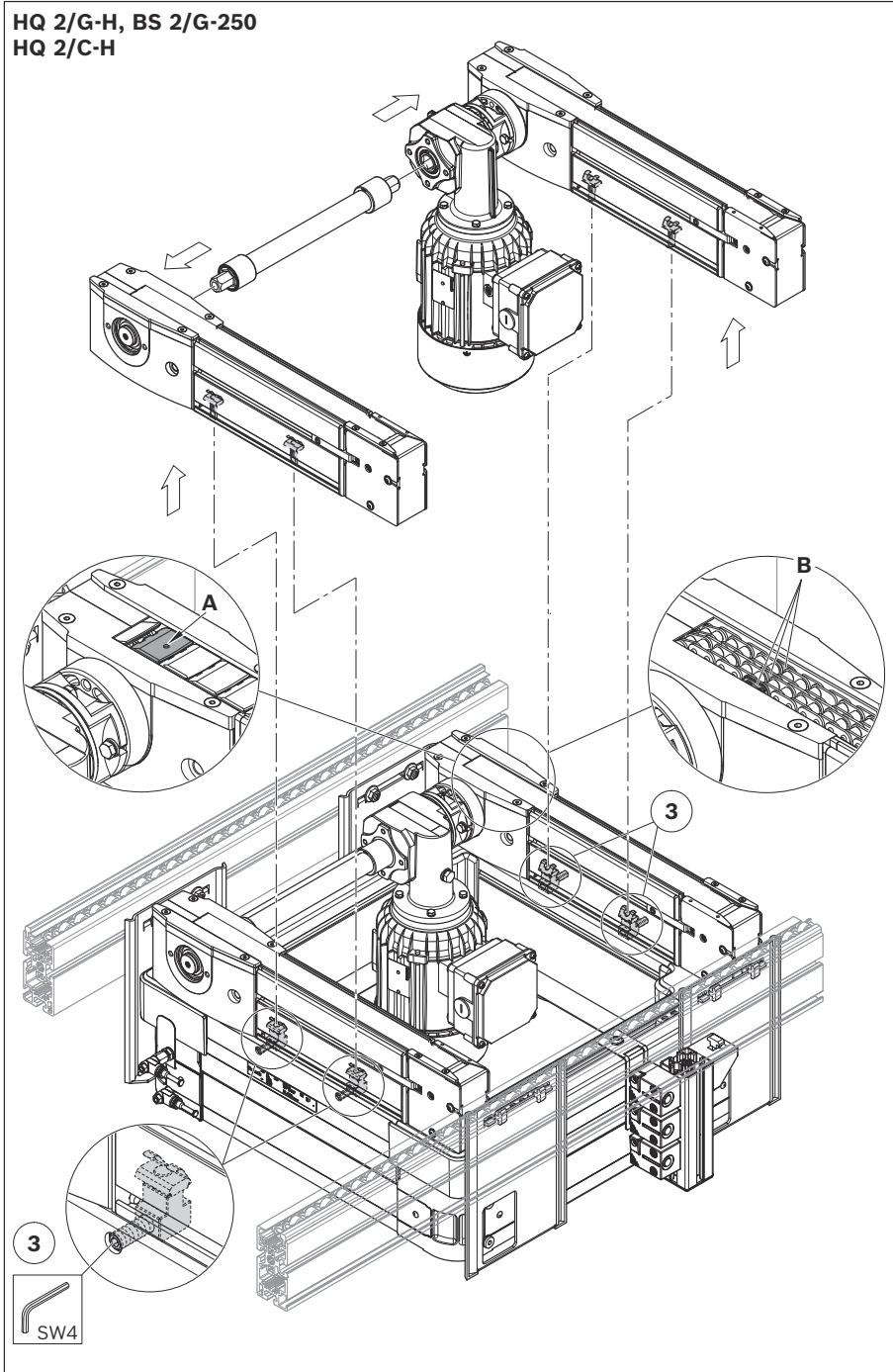


Fig. 34: Replacing the gear unit, internal motor mounting (MA = M)
(in this case HQ 2/G-H)

4. **Only applies to BS 2/G-250:**
Loosen profile connector "A".
5. Remove belt section "C1", couplings "D1", "D2", hexagonal shaft "E" and protective tube "F".
6. Remove the motor-gear combination.
7. Loosen the hexagon screws on the gear flange.
8. Remove the faulty gear from the motor.
9. Remove the yellow protective cap (X) from the motor shaft of the new motor.
10. Grease the motor shaft.
11. Install the motor on the gear.
12. Fitting the motor-gear combination.
13. Install belt section "C1", couplings "D1", "D2", hexagonal shaft "E" and protective tube "F".
14. **Only applies to BS 2/G-250:**
Install the profile connector (A).

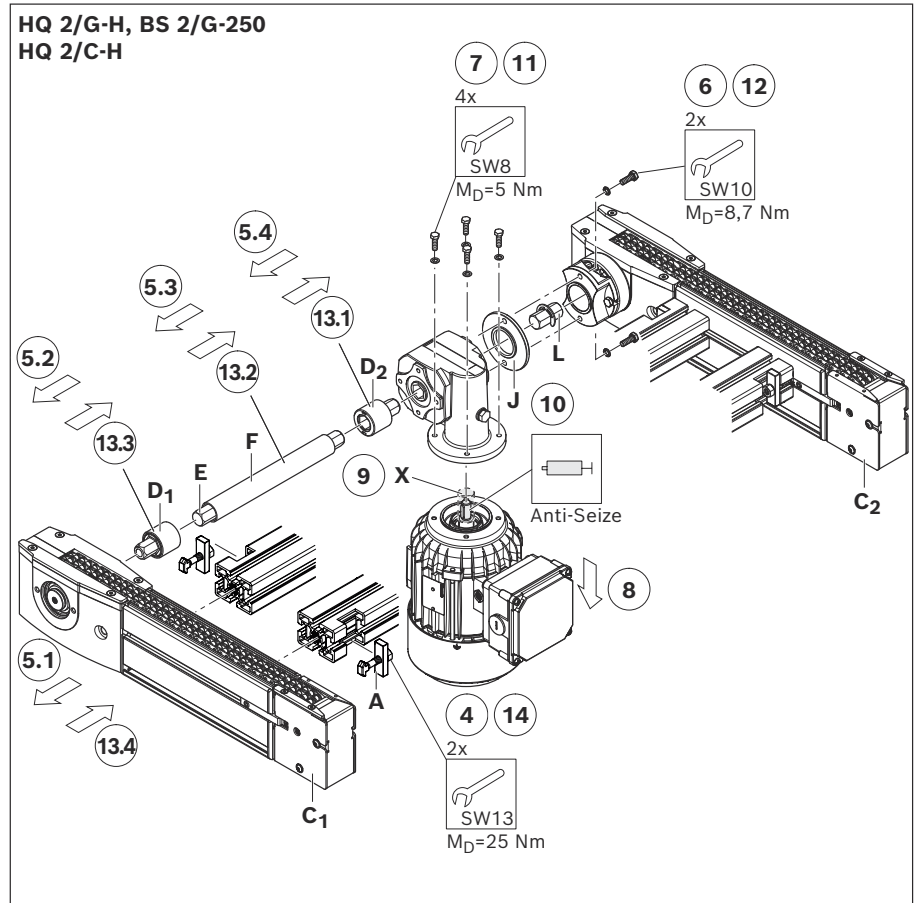


Fig. 35: Replacing the gear unit, internal motor mounting (MA = M)
(in this case BS 2/G-250)

15. Install the belt section on the lift frame.

i Check the right-angled alignment of the belt section. The coupling "C" of the drive train should be easy to move.

16. Lock the belt section.

- i**
- The belt section must be tensioned firmly (vibration test) and flat (without gap) on the lift frame.
 - If there is a gap between the belt section and the lift frame: Remove the belt section from the lift frame and turn the clamping connectors by 1 rotation.

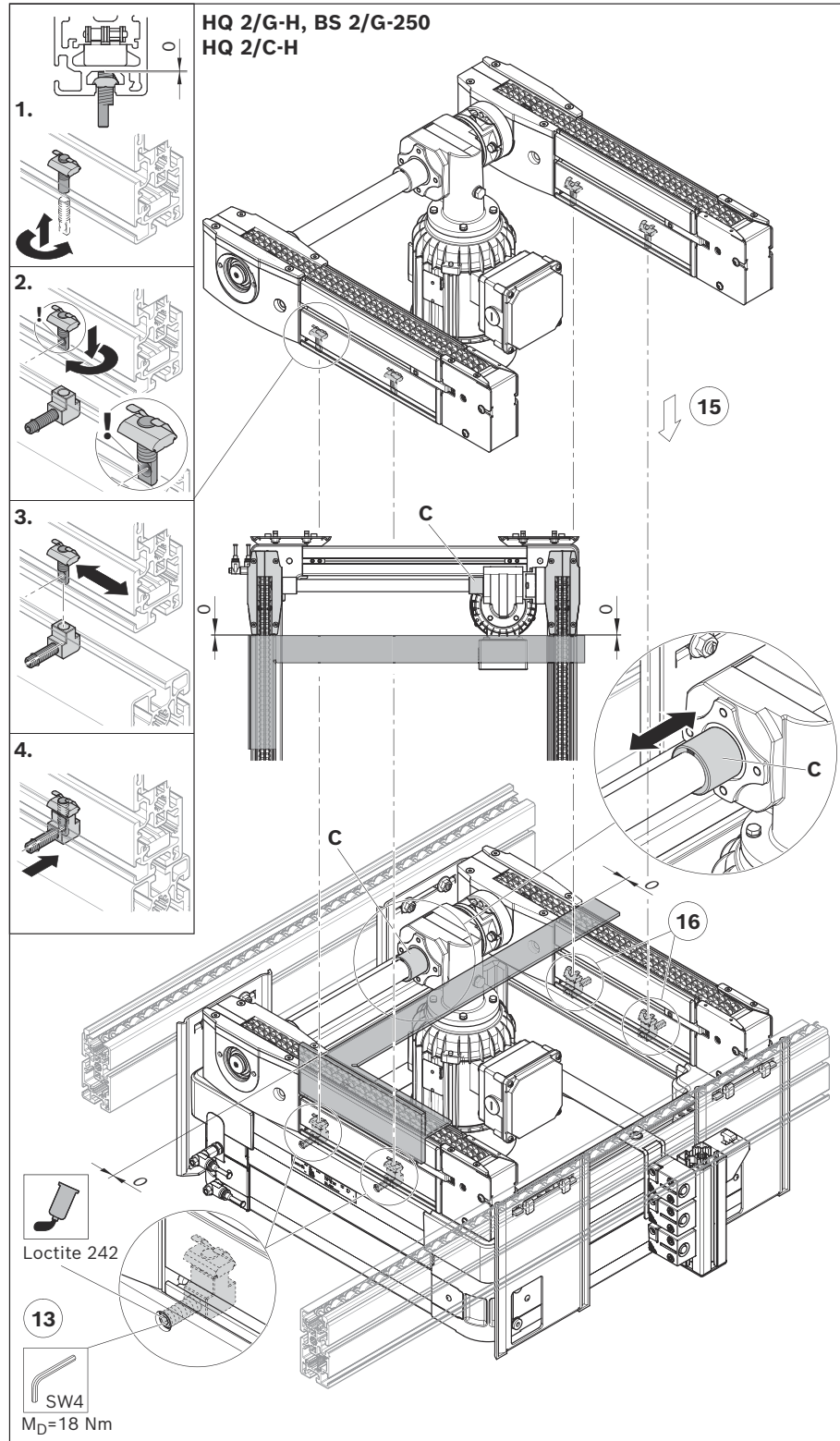


Fig. 36: Installing the belt section (using HQ 2/G-H as an example)

11.5.4 HQ 2/G-H with BS 2/G-250, HQ 2/C-H: Tensioning the conveyor chain

1. Release the chain tensioner.
2. Move (shake) the chain back and forth a bit to allow the chain tensioner the maximum tensioning distance.
➡ The resulting elongation is compensated by spring force.
3. Close the chain tensioner.

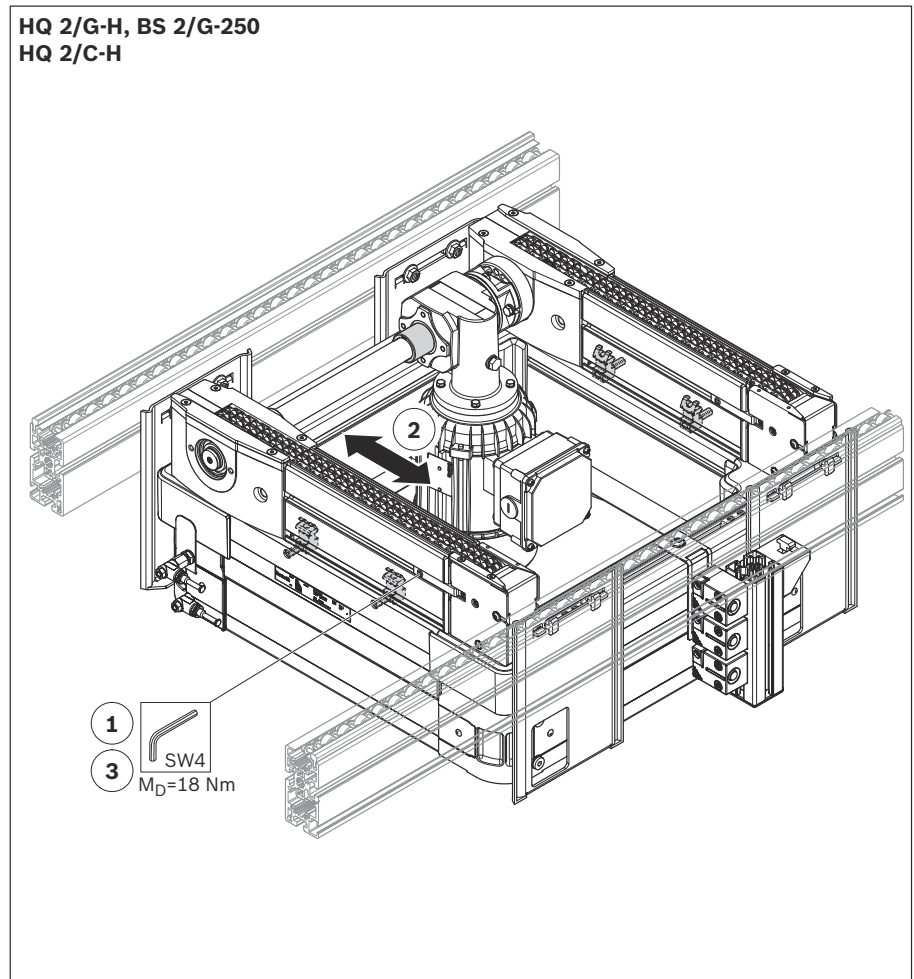


Fig. 37: Tensioning the conveyor chain (using HQ 2/G-H as an example)

11.5.5 HQ 2/G-H, BS 2/G-250, replacing the duplex chain (roller chain)



Applies for HQ 2/G-H:

- The roller chain can be replaced without removing the belt section from the lift unit.
- To replace worn guides or if space is restricted, remove the belt section from the lift unit.
- For information on removing and installing the belt section on the lift unit, see [Chapter 11.5.3 HQ 2/G-H with BS 2/G-250, HQ 2/C-H: Replacing the gear, \(MA = M\) on page 49.](#)

1. Allow the belt section to run briefly and position the chain lock "B" on the sprocket of the drive.
2. Deenergize and depressurize the system, and secure it against being reactivated.
3. Remove the top covers of the drive heads.
4. Remove the chain tensioner cover sheets.

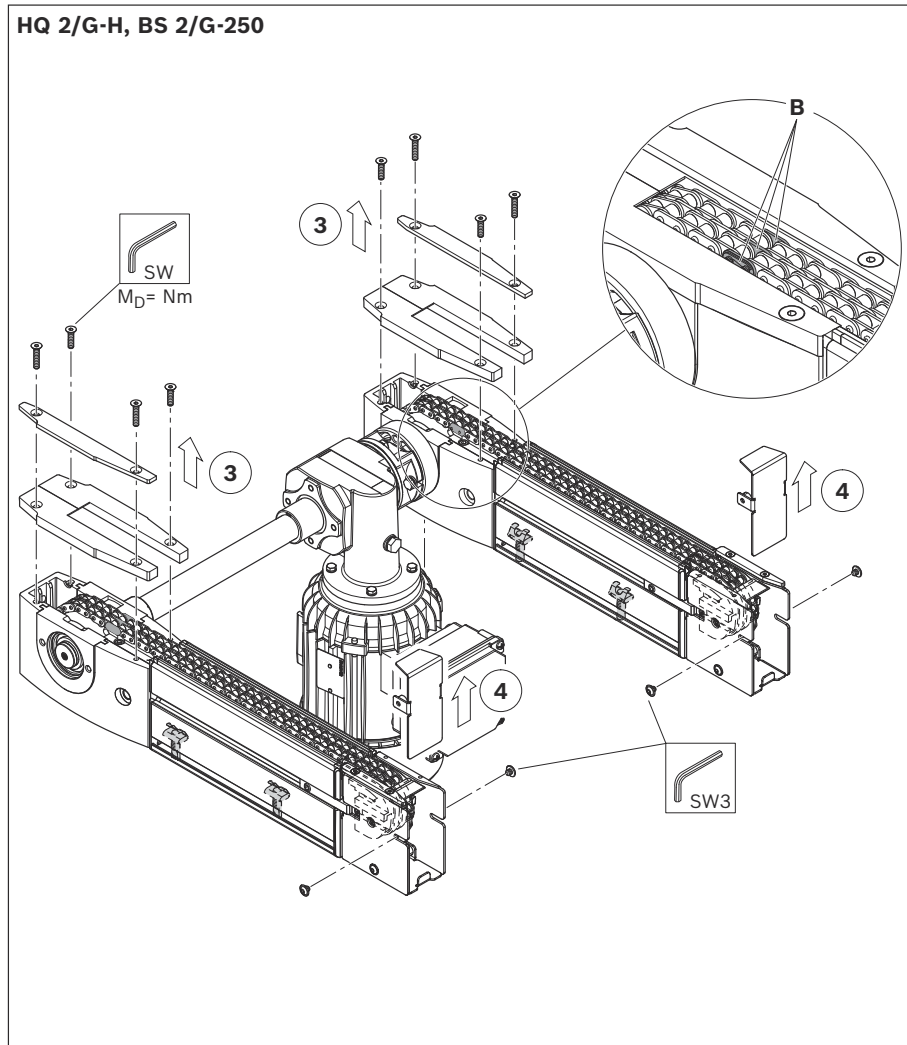


Fig. 38: Preparations for replacing the duplex chain (using HQ 2/G-H as an example, shown without lift unit)

CAUTION

Chain tensioner under extreme tension

Risk of crushing due to unintentionally loosening the fastening bolts.

- Ensure the chain tensioner remains tensioned during assembly and cannot loosen unintentionally.

5. **Only required if the guides are to be replaced:**
Remove the belt section from the lift unit, then remove the bottom covers of the drive heads.
6. Release the chain tensioner.
7. Slacken the chain as much as possible.
8. Re-tighten the chain tensioner.

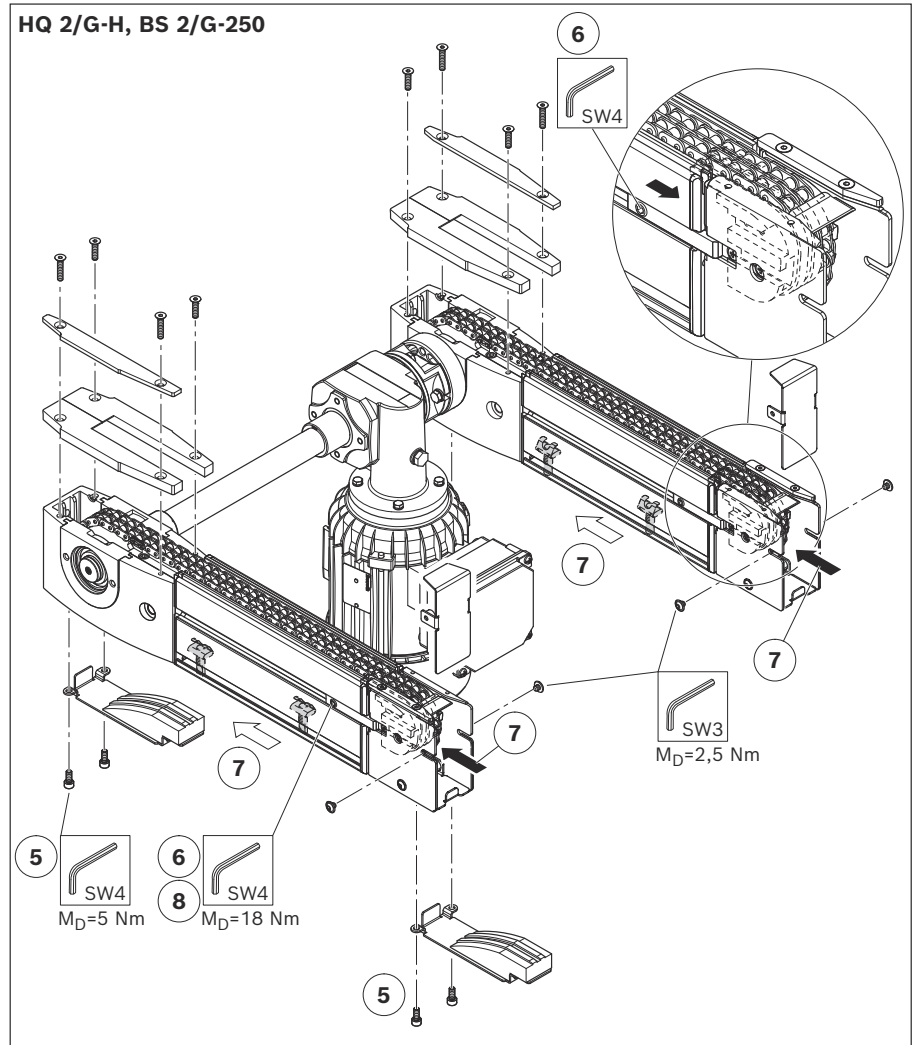


Fig. 39: Slackening the duplex chain (using HQ 2/G-H as an example, shown without lift unit)



Assembly tip

Before pulling out the used chain, connect the fresh chain to the used chain (chain lock). Pulling out the worn-out chain will pull in the new chain.

9. Open the chain lock.
 10. Pull the chain back from the drive heads.
 11. **Only required if the guides or sprockets are to be replaced:**
Remove the sliding piece.
 12. Pull the chain completely out of the belt section.
- Replacing the chain
- ➔ Check the sprocket and the chain guides for break-in scoring. Replace worn parts.

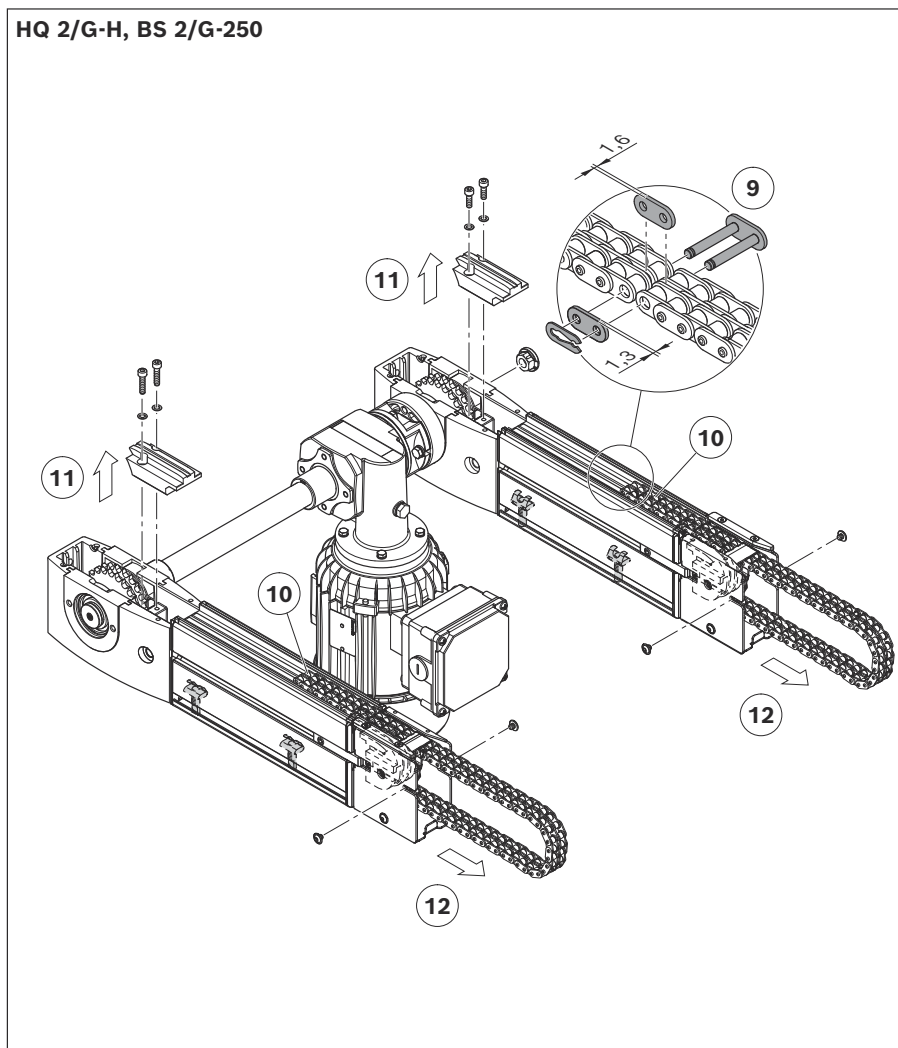


Fig. 40: Removing the duplex chain (using HQ 2/G-H as an example, shown without lift unit)

13. Slide the chain from the chain tensioner along the return level up to the drive head.
14. Guide the chain up and around the drive gear.
15. Lead the other end of the chain to the drive head.
16. Close the chain.
17. Release the chain tensioner. To tension the chain, pull the chain tensioner as far back as it will go and fasten it in place.
18. Install the drive head covers.
19. Install the chain tensioner cover sheets.

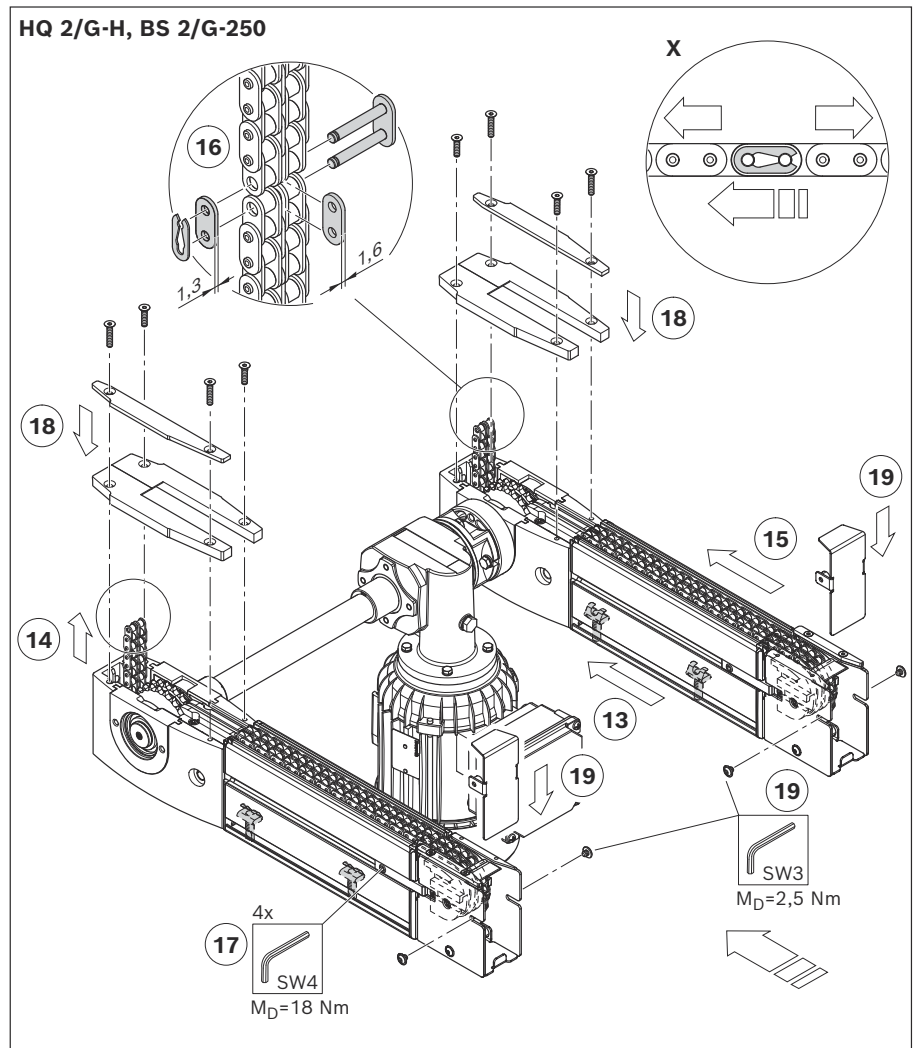


Fig. 41: Install and tighten the duplex chain (in this case HQ 2/G-H)

11.5.6 HQ 2/C-H, replacing the flat top chain

NOTICE

Failure of conveyor chain due to chain deformation

Risk of property damage. Bending and/or twisting of the chain, e.g., by tilting the chain reel during installation, can result in conveyor chain failure and even crashing.

- Ensure the chain remains straight and can leave the chain reel smoothly during installation.
- Make sure the chain reel cannot tilt during installation.
- If the chain reel does tilt during installation and the chain is deformed: Use the disassembly tool to remove the affected area, with a generous margin on either end.

NOTICE

Incorrect running direction of conveyor chain

Risk of material damage due to conveyor chain failure

- Ensure proper running direction opposite the main transport direction.

Running direction of chain

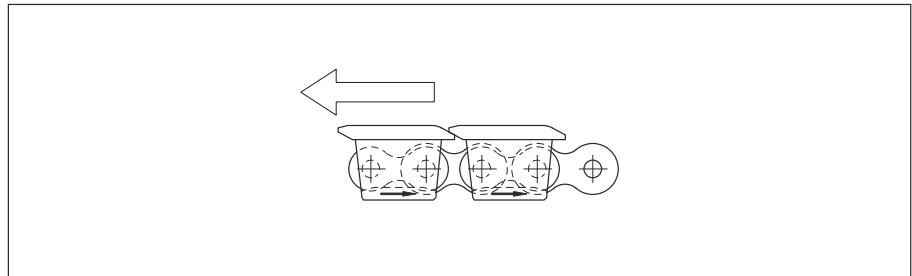


Fig. 42:

551 261-49

NOTICE

Failure of conveyor chain due to lack of lubrication

Risk of property damage. Inadequate lubrication of the conveyor chain can result in conveyor chain failure or even crashing.

- The conveyor chain used in this product comes lubricated.
- Oil the conveyor chain before initial commissioning using 1–2 g oil/m of chain, then every 1000 h with 2–3 g oil/m of chain with Mineral oil 0.5l STRUCTOV.GHD (0842904229)

Oiling points

*) Also oil the side of the flat top chain.

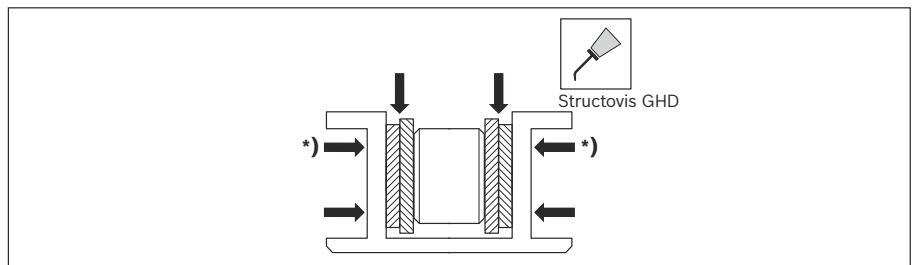


Fig. 43:

564 988-55

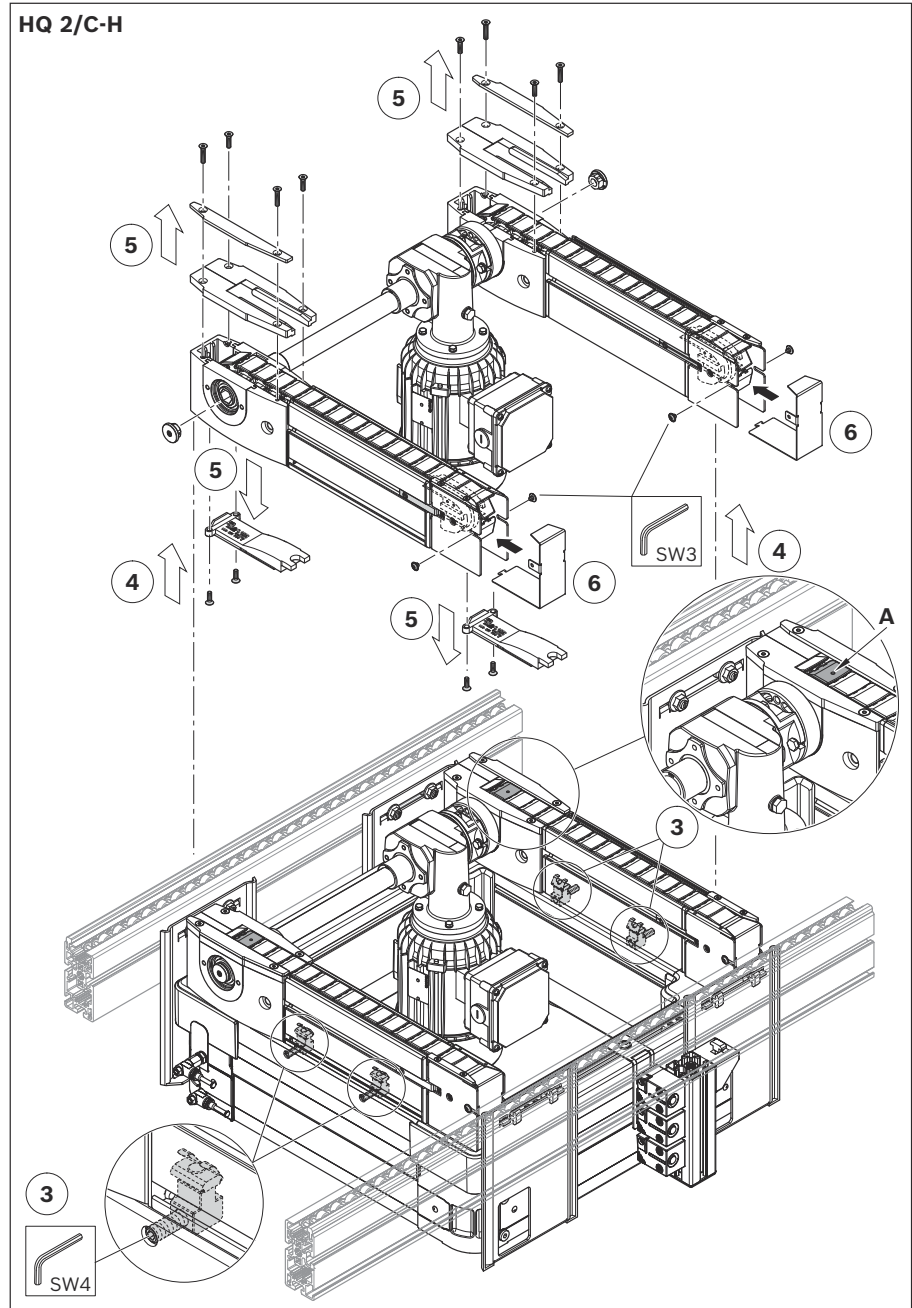


To replace the flat top chain, the belt section for the transverse conveyor of the lift unit must be removed.

Accessories

- Flat top chain disassembly tool (8981010510)
- Chain lock Flat Top CHA.ESD CPL. (3842551234)
- Mineral oil 0.5l STRUCTOV.GHD (0842904229) for the standard flat top chain (black)
- Roller bearing grease TOPAS NCA52 TUBE 400 (3842542314) for the electrostatic discharge flat top chain ESD (gray)

1. Allow the belt section to run briefly and position the flat-top plate with hole "A" (chain lock position) on the drive sprocket.
2. Deenergize and depressurize the system, and secure it against being reactivated.
3. Remove the headless set-screw from the belt section lock.
4. Remove the belt section upward.
5. Remove the drive head covers.
6. Remove the chain tensioner cover sheets.



564988-72

Fig. 44: Preparing to replace the flat top chain

⚠ CAUTION

Chain tensioner under extreme tension

Risk of crushing due to unintentionally loosening the fastening bolts.

- Ensure the chain tensioner remains tensioned during assembly and cannot loosen unintentionally.

7. Release the chain tensioner.
8. Slacken the chain as much as possible.
9. Re-tighten the chain tensioner.

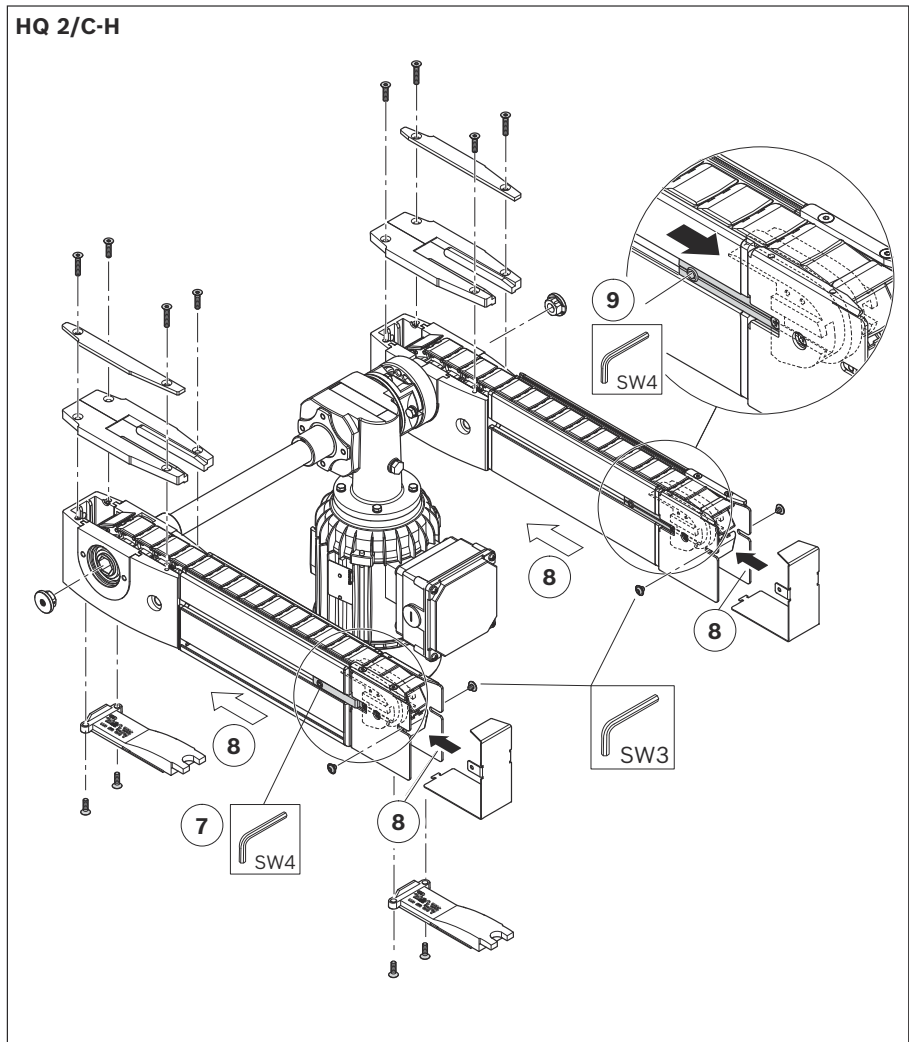
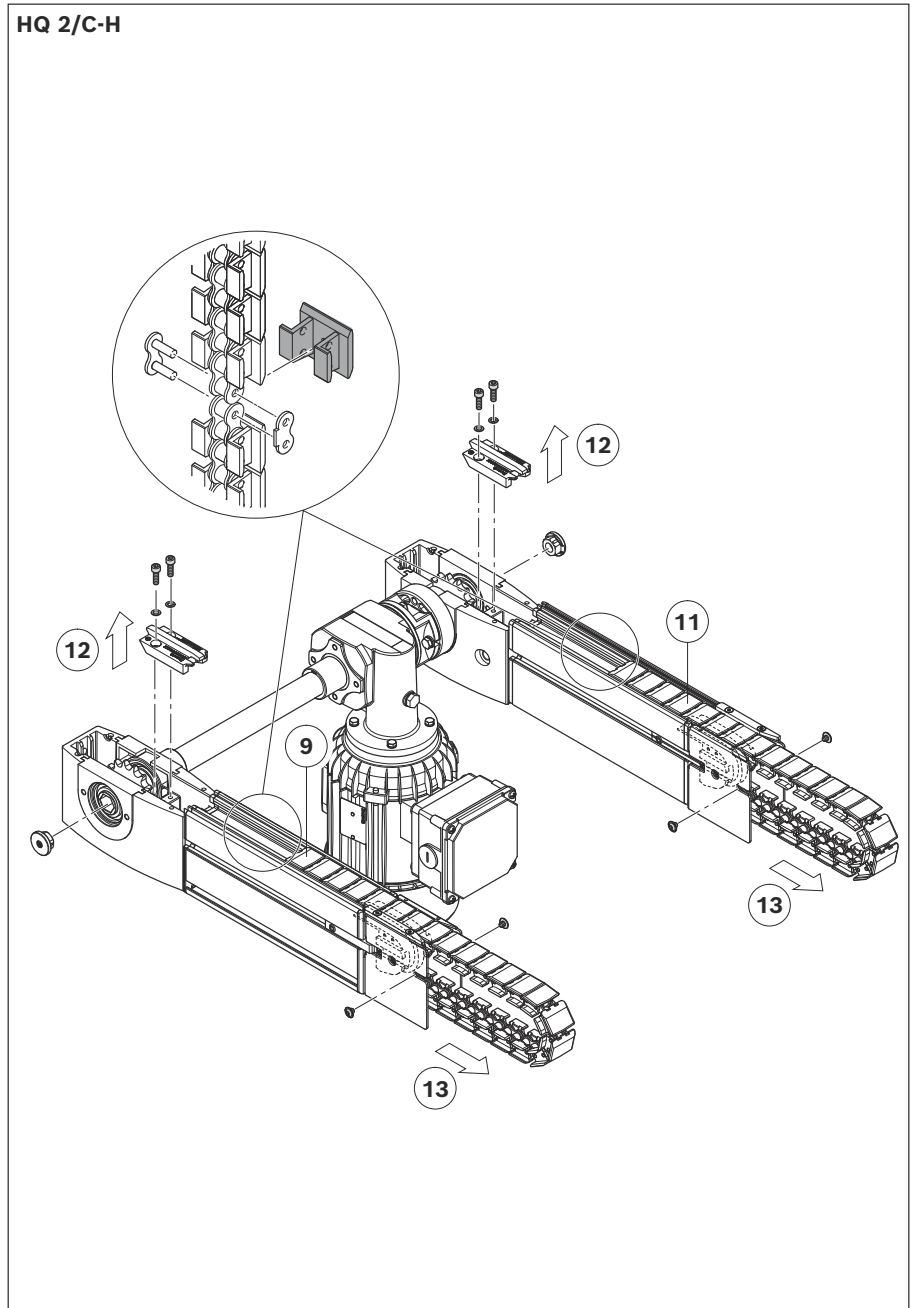


Fig. 45: Slackening the flat top chain

564988-73

10. Open the flat top chain (chain lock under flat plate with hole).
11. Pull the chain back from the drive heads.
12. Disassemble the sliding piece.
13. Pull the chain completely out of the belt section.



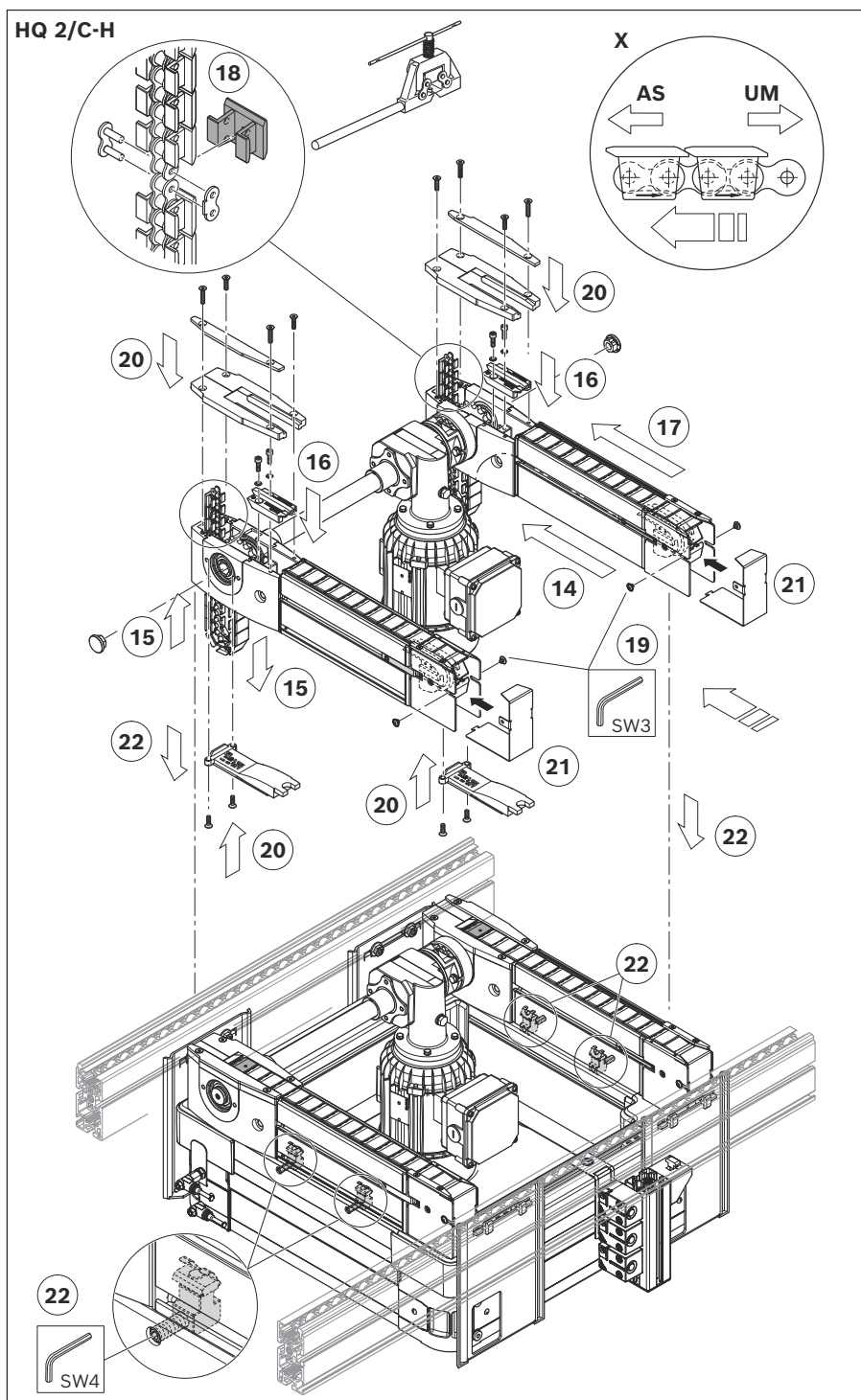
564988-74

Fig. 46: Removing the flat top chain



Note the running direction of the chain. See detail "X".

14. Slide the chain from the chain tensioner along the return level up to the drive head.
15. Guide the chain up and around the drive gear.
16. Install the sliding piece.
17. Lead the other end of the chain to the drive head.
18. Close the chain and clip on the flat plate with hole.
19. Release the chain tensioner. To tension the chain, pull the chain tensioner as far back as it will go and fasten it in place.
20. Install the drive head covers.
21. Install the chain tensioner cover sheets.
22. Install the belt section on the lift unit.



564988-75

Fig. 47: Installing and tensioning the flat top chain

12 Disassembly and replacement

⚠ WARNING

Electrical current

Danger to life or serious injury

- De-energize
- Secure against reactivation
- Ensure absence of voltage on all poles
- Ground and short-circuit
- Cover or block off any adjacent live parts

12.1 Preparing the product for storage/later use

- ▶ Only set the product down on a flat surface.
- ▶ Protect the product from mechanical stress, dirt and humidity.
- ▶ Observe the ambient conditions (see → Chapter 15.2 Ambient conditions on page 64).
- ▶ Do not subject the assembled motor to mechanical stress.

13 Upgrading and modification

- ▶ Do not alter the design or structure of 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.

14 Troubleshooting

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

15 Technical data



More technical data:

→ [Rexroth Store](#) | [Downloads](#) | [TS 2plus catalog](#) (<https://www.boschrexroth.com>)

Data	Value	Unit
Maximum load	250	kg
Section load	2.0	kg/cm of support surface length
Noise emission	< 70	dB (A)

15.1 Pneumatics

Data	Value	Unit
Compressed air		
- oiled or non-oiled, filtered, dry		
- operating pressure	4 ... 6	bar
Solids		
- particle size ¹⁾	≤ 5	µm

Data	Value	Unit
- particle quantity ¹⁾	≤ 5	mg/m ³
Humidity/water content		
- pressure dew point ^{2) 3)}	≤ +3	°C
Oil content		
- oil quantity ⁴⁾	≤ 1	mg/m ³

1) Class 6 as per ISO 8573-1:2010

2) The pressure dew point should be at least 15 °C below the ambient temperature.

3) Class 4 as per ISO 8573-1:2010

4) Class 3 as per ISO 8573-1:2010

15.2 Ambient conditions

Data	Value	Unit
Operating temperature ¹⁾	+5 ... +40	°C
Storage temperature	-25 ... +70	°C
Relative humidity	5 ... 85	% (non-condensing)
Air pressure ²⁾	> 84	kPa
Max. load capacity of floor	1,000	kg/m ²

1) –5 °C ... +60 °C at 20% reduced load

2) Corresponds to an installation altitude < 1400 m above sea level (NN) At installation altitudes > 1400 m, the load values of the electric drives are reduced by 15%.

- The products have been designed for stationary use in a location that is protected from the elements.
- The area should be kept free of mold, fungus, rodents and other vermin.
- Do not install or operate:
 - Near industrial systems with chemical emissions
 - Near sources of sand or dust
 - 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 contact with highly acidic or alkaline substances.

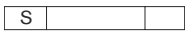
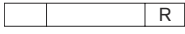
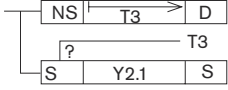
16 Appendix

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 61131-3. They are explained in the following table.

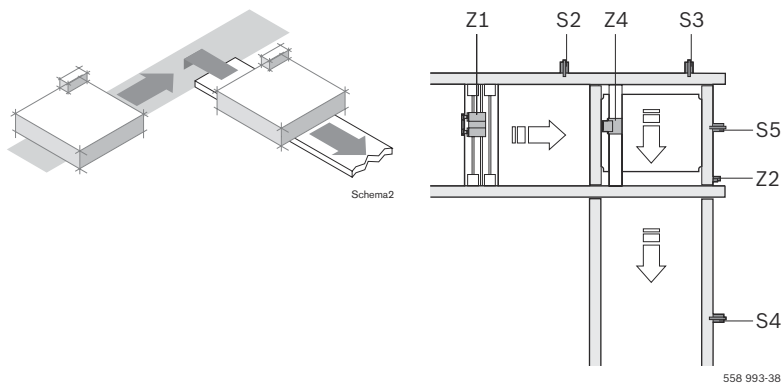
Simple stop gates VE 2 are used to stop workpiece pallets. The position of the workpiece pallets is queried with separate sensors.

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

Action block	Explanation
WT	Workpiece pallets
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

Implementation in transverse section (TFE 1)



① Start pulse after end of start-up

② Enable cyclic travel

S2 WT after VE

S3 WT in position on HQ

S4 Release secondary section, HQ free

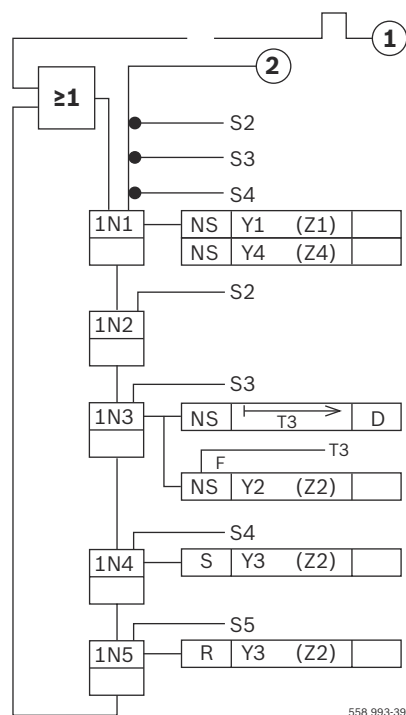
S5 HQ down

Y1 Main section VE (Z1)

Y2 HQ up (Z2)

Y3 HQ down (Z2)

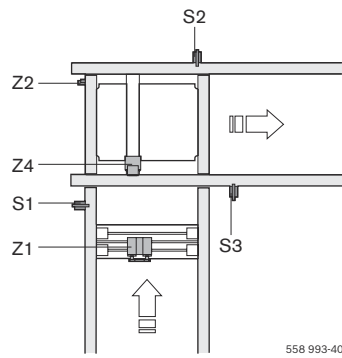
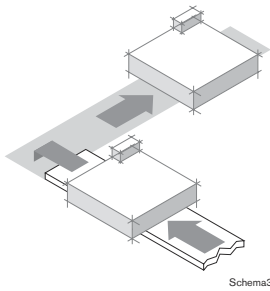
Y4 Extend DA damper (Z4), stop position



Notes:

- Approaching the central position, see [Fig. 19](#)
- Distance
 $Z1 - Z3 = l_{WT} + 200 \text{ mm}$

Implementation in longitudinal section (TFE 2)



① Start pulse after end of start-up

② Enable cyclic travel

S2 WT after VE

S3 WT in position on HQ

S4 Release secondary section, HQ free

Y1 Main section VE (Z1)

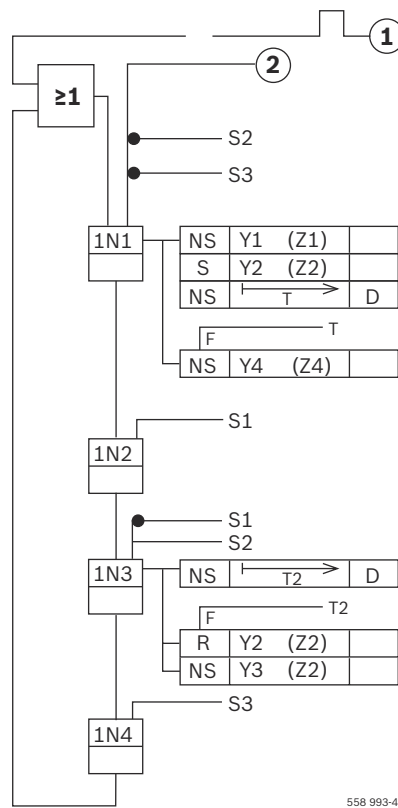
Y2 HQ up (Z2)

Y3 HQ down (Z2)

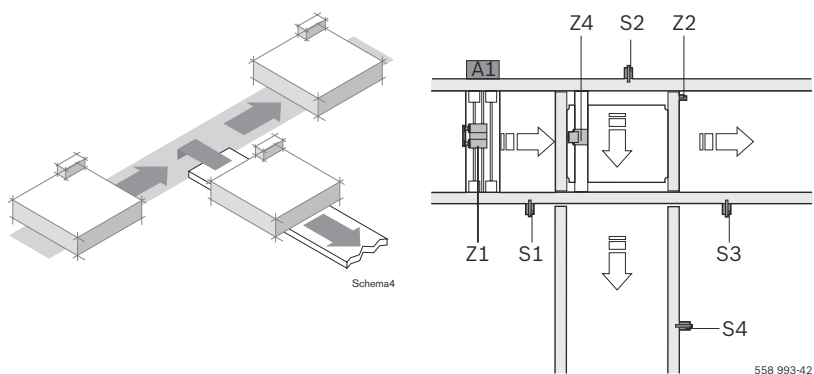
Y4 Extend DA damper (Z4)

Notes:

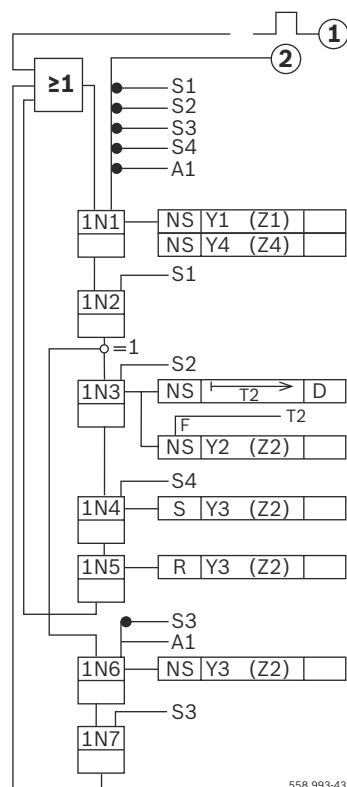
- Distance
 $Z1 - Z3 = b_{WT} + 200 \text{ mm}$



Outfeeding from longitudinal conveyor (TFE 3)



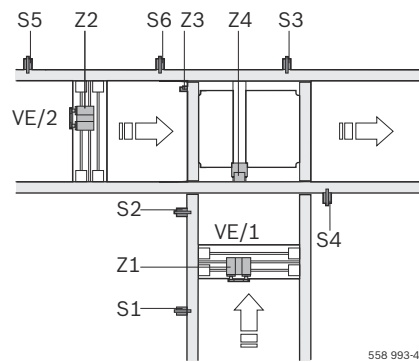
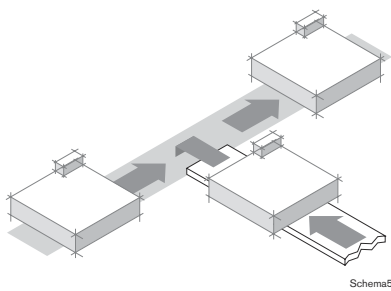
- | | |
|----|------------------------------------|
| ① | Start pulse after end of start-up |
| ② | Enable cyclic travel |
| S1 | WT after VE |
| S2 | WT in position on HQ |
| S3 | Release secondary section, HQ free |
| S4 | Release main section, HQ free |
| S5 | HQ down (Z2) |
| Y1 | Main section VE (Z1) |
| Y2 | HQ up (Z2) |
| Y3 | HQ down (Z2) |
| Y4 | Extend DA damper (Z4) |
| A1 | Straight-ahead signal |



Notes:

- Approaching the central position, see Fig. 19
- Distance
 $Z1 - Z3 = l_{WT} + 200 \text{ mm}$
- Distance
 $S2 - S3 = \min. 200 \text{ mm}$

Infeeding to longitudinal conveyor (TFE 4)



① Start pulse after end of start-up

② Enable cyclic travel

S1 WT before VE/1

S2 WT after VE/1

S3 WT in position on HQ

S4 WT after HQ

S5 WT before VE 2

S6 WT after VE/2

Y1 Secondary section VE/1 (Z1)

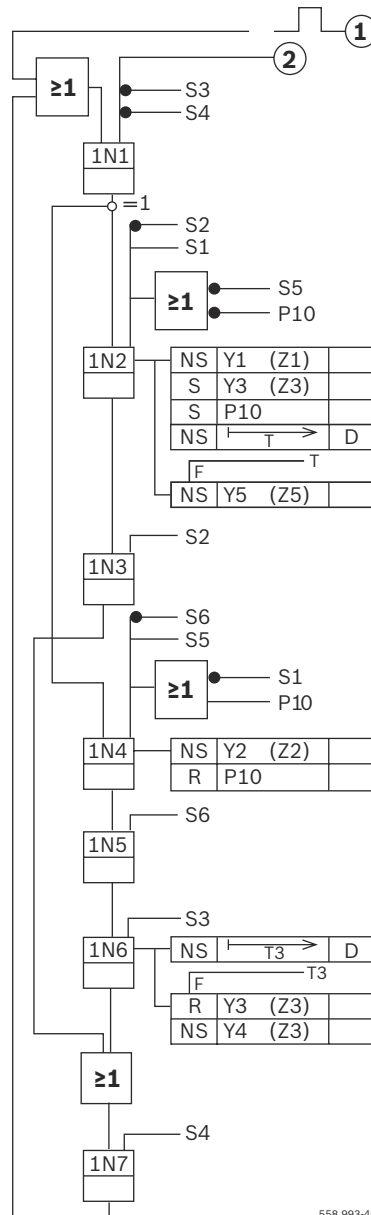
Y2 Main section VE/2 (Z2)

Y3 HQ up (Z3)

Y4 HQ down (Z3); not required

Y5 Extend DA damper (Z4)

P10 Priority



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