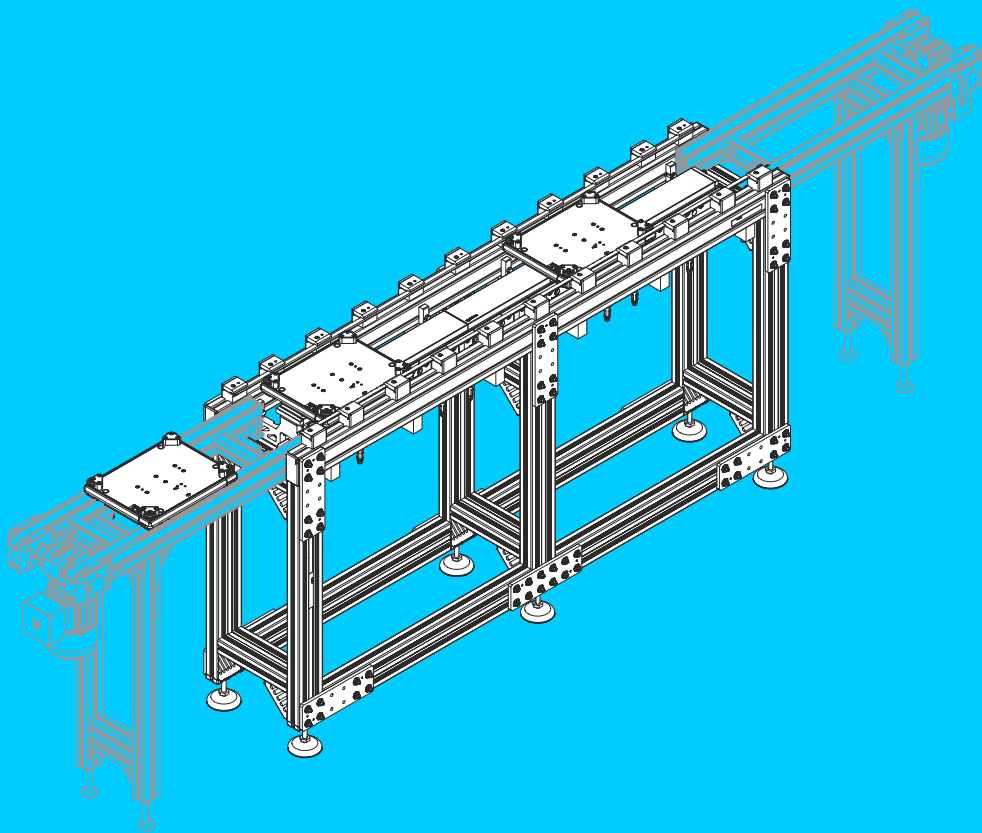


LS 2

Linear section



Copyright

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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:

- Workpiece pallet booster WB 2
Consisting of:
 - Linear section LS 2 (3842998905)
 - Leg set SZ 2/LS END (3842998906)
 - Leg set SZ 2/LS MID (3842998907)
 - Longitudinal connector LV 2 (3842998908)
 - Workpiece pallet WT 2/LS (3842562346 ... 3842562360)

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 10](#) and → [Chapter 4 General notes on property and product damage on page 17](#) 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.
- ▶ The declaration of conformity is part of the operating instructions.

Table 1: Required documentation

	Title	Document number	Document type
	Declaration of incorporation	→ 3842562438	
	Assembly instructions BS 2/... belt section	→ 3842559101	
	Assembly instructions Workpiece pallet booster WB 2, Automatic lubrication unit LU 2/LS	→ 3842571804	
	MTpro	→ 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 8](#) 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
BS 2	Belt section from the Rexroth transfer system TS <i>2plus</i> , for transport of work-piece pallet WT 2
FMK...	Motor cable for connection of motor at the linear section LS 2 ➡ control cabinet

Designations	Meaning
FSK...	Sensor cable for connection of Hall sensor at the linear section LS 2 ➡ control cabinet
LS 2	Pre-assembled linear section LS 2 for the workpiece pallet booster WB 2 for transport of workpiece pallets WT 2/LS
LU 2/LS	Lubrication for the workpiece pallet booster WB 2
LV 2	Longitudinal connector for the linear section LS 2
SZ 2/LS	Leg sets for the linear section LS 2
WT 2/LS	Workpiece pallet for the workpiece pallet booster WB 2

1.3.4 Abbreviations

Abbreviations	Meaning
AS 2	TS 2 <i>plus</i> drive station
BS 2	TS 2 <i>plus</i> belt section
CU 2	TS 2 <i>plus</i> curve
DE 2	TS 2 <i>plus</i> rotary unit
EL 2	TS 2 <i>plus</i> lift
EQ 2	TS 2 <i>plus</i> electrical transverse conveyor
KE 2	TS 2 <i>plus</i> curve
KU 2	TS 2 <i>plus</i> curve
HD 2	TS 2 <i>plus</i> lift rotary unit
HP 2	TS 2 <i>plus</i> lift positioning unit
HQ 2	TS 2 <i>plus</i> lift transverse unit
LG 2/H	TS 2 <i>plus</i> Liftgate
LU 2	TS 2 <i>plus</i> automatic lubrication unit
PE 2	TS 2 <i>plus</i> positioning unit
SE 2	TS 2 <i>plus</i> conveyor unit
ST 2	TS 2 <i>plus</i> section
SZ 2	TS 2 <i>plus</i> leg set
TS 2	TS 2 <i>plus</i> transfer system
UM 2	TS 2 <i>plus</i> return unit
VA 2	TS 2 <i>plus</i> slide stop
VE 2	TS 2 <i>plus</i> stop gate
WI 2, WI/M	TS 2 <i>plus</i> rocker
WB 2	TS 2 <i>plus</i> workpiece pallet booster
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 *2plus* transfer system
 - For transport of products on dedicated Rexroth workpiece pallets WT 2/LS for the linear section LS 2
- ▶ For approved modular units and recommended system components, see the respective product catalog in the download center at www.boschrexroth.com
 - ▶ Control operation is only permitted with the MCS components (drive controller including control platform) approved by SIEMENS¹⁾ and is not included in the scope of delivery of Bosch Rexroth.
 - ▶ Please note [Chapter 17 Technical data on page 62](#).

¹⁾ SIEMENS is a registered trademark of SIEMENS AG, Munich

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 10](#).

The following components of the transfer system TS *2plus* are permitted for use with the workpiece pallet WT 2/LS, taking into account the possible workpiece pallet sizes:

Table 3: TS *2plus* components for WT 2/LS

Use	Components
Longitudinal conveyor	AS 2/B, UM 2/B, ST 2/B ³⁾ BS 2, BS 2/M-2, BS 2/K (LS = 0) ²⁾ BS 2/LS, BS 2/M LS, BS 2/K (LS = 1) ¹⁾ LG 2/H from b = 400 mm AS 2/C..., UM 2/C..., ST 2/C... ^{2), 3)} BS 2/C ^{2), 3)}
Curves	KE 2/... LS ¹⁾ KU 2/... ^{2), 3)}
Transverse conveyor	EQ 2/... LS ¹⁾ HQ 2/... LS ¹⁾ Roller sections EL 2 from b = 320 mm

Use	Components
Positioning and orientation	Inner guide from b = 240 mm PE 2/LS ¹⁾ HP 2/L LS, HP 2/LS ¹⁾ HD 2-LS, HD 2/H LS ¹⁾ DE 2
Transportation control	VE 2, VE 2/L, VE 2/M, VE 2/S, VE 2/RS VE 2/D60-LS, VE 2/175-LS ¹⁾ VA 2/50 WI 2/..., WI/M
Leg sets	SZ 2...

¹⁾ These components are available in an adapted version (LS version). The LS version is specifically designed for the WT 2/LS. However, it can also be combined with the same components as your standard version.

²⁾ The WT 2/LS cannot be inserted into the transverse conveyor on these components.

³⁾ In combination with the WT 2/LS, centered motor mounting (MA = M) is not permissible for these components.

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:

- Using the system without securing against tipping.
- Transporting goods other than those specified.
- Use without protective equipment.
- Operation while people are in the danger area.
- Use in potentially explosive atmospheres
- 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 12.4 Spare parts on page 58](#).
- ▶ 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 17 Technical data on page 62](#).
- ▶ 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 Product-specific safety instructions



Handling of the feed magnets and the workpiece pallets requires great care and caution – risk of injury due to crushing.

Commissioning and operation

High acceleration of workpiece pallets	The high acceleration and speed of the Workpiece pallet WT 2/LS (3842562346 ... 3842562360) result in high impact forces which can lead to injuries and damage to property. • Be aware of this danger during commissioning – avoid dangerous situations. • During operation, the system must be surrounded by a separating protective device in accordance with DIN ISO EN 14120. • The guards must withstand the loads to be expected.
Falling/uncontrolled accelerated workpieces	Loose workpieces on the WT may fall down during acceleration, deceleration, outfeed or in the case of malfunction and become dangerous projectiles. • Secure the workpiece on the WT against falling and slipping.
Flashovers and electric shock 	Injuries and burns – danger to life! • Observe all requirements of NFPA 79 (NA) and DIN EN 60204-1 (EU) for safe work on electrical systems. Follow national and international regulations. • Wear appropriate protective equipment and use appropriate tools.
Stored energy	Injuries and burns – danger to life! After the motor module power supply has been switched off, there is a danger from stored energy in the capacitors. • Block access by means of locked protective equipment with guard locking so that the energy stored in the capacitors can dissipate.
Operation with unreleased control components	Possible material damage and malfunctions • Operation is only permitted with the MCS components (drive controller including control platform) approved by SIEMENS¹⁾ – not included in the scope of delivery. • Recommended system components: ➔ www.boschrexroth.com 1) SIEMENS is a registered trademark of SIEMENS AG, Munich

All product phases

Strong magnetic field  	• Persons with pacemakers or other medical implants must not handle workpiece pallets and must keep a minimum distance of 30 cm – danger to life! • A protective device must be installed by the owner at a minimum distance of 30 cm from open magnets. • Keep metallic objects at a distance. • No loose metallic objects must be present below the belt section/linear section, at a distance of < 30 mm from the magnets. • Remove the workpiece pallets before maintenance. • If the workpiece pallets are not in operation, apply the magnetic protection immediately – → Chapter 9.14 Inserting/removing WT 2/LS on page 43. • Do not remove the magnetic protection until shortly before using the workpiece pallets.
Accidents involving permanent magnets	Have the following emergency tools to hand in order to free any trapped body parts: • Hammer made from non-ferromagnetic material. • Wedges with approx. 10 - 15° wedge angle made from non-ferromagnetic material – for driving into the separating gap. • If voltage is present, de-energize the machine immediately. • Separate any adhering parts using the emergency tools in order to free trapped body parts.

Safety instructions for magnets

Magnetic and electromagnetic fields are generated in the direct vicinity of live conductors or permanent magnets of electric motors and present a significant hazard.

- Protect personnel from danger.
- Observe country-specific regulations. For Germany – specifications of the employers' liability insurance association: *DGUV Regulation 15* and *BGR B11*

Magnetic forces of permanent magnets act on all magnetizable materials.

- Especially in the close range < 100 mm, the magnetic forces increase considerably.
- Surrounding parts made of magnetizable material can suddenly collide with permanent magnets.

- Be careful when handling components with permanent magnets. **Never** underestimate the magnetic forces.
- Do not work alone.
- Use personal protective equipment.
- Do not take several components with permanent magnets out of the packaging and do not set them down in an unsecured manner.

- Always take components with permanent magnets out of the packaging separately and immediately before assembly.
- Do not bring objects made of magnetized or magnetizable material into the vicinity of the permanent magnets. If magnetizable tools cannot be avoided, hold the tool very tight – carry out slow movements.

Risk to people with pacemakers or implants as well as pregnant women 	Electromagnetic or magnetic fields. Staying in the following areas can be dangerous for these people: - Areas in which components of the linear section are operated. - Areas in which permanent magnets are stored, repaired or installed. • Staying in such areas is not recommended.
Hazard due to metal splinters 	Magnets are brittle – they can splinter in the case of collisions or mechanical processing. Splinters can be thrown far and cause eye injuries. • Avoid collisions. • Do not subject magnets to mechanical processing. • Wear personal protective equipment when handling. • Keep bystanders at a distance.
Strong magnetic field 	Magnetic fields can damage televisions, laptops, data carriers, credit cards, debit cards, mechanical watches, hearing aids and loudspeakers, among other things. • Keep endangered devices and objects at a distance.
Oxidation, corrosion	Untreated magnets will oxidize very quickly and disintegrate. To protect against corrosion, magnets therefore have a thin copper-nickel coating. • Use magnets only in dry indoor areas or protect them against environmental influences. • Avoid damage to the coating.
Allergic reactions 	Magnets contain nickel – this also applies to magnets without a nickel coating. - Some people are allergic to nickel contact. - An allergy may develop with continuous contact. • Avoid skin contact.
Temperature resistance	Ambient temperature -10 °C to 80 °C. Magnets can permanently lose some of their adhesive force at temperatures above 80 °C. • Observe the temperature range.

2.7 Personal protective equipment

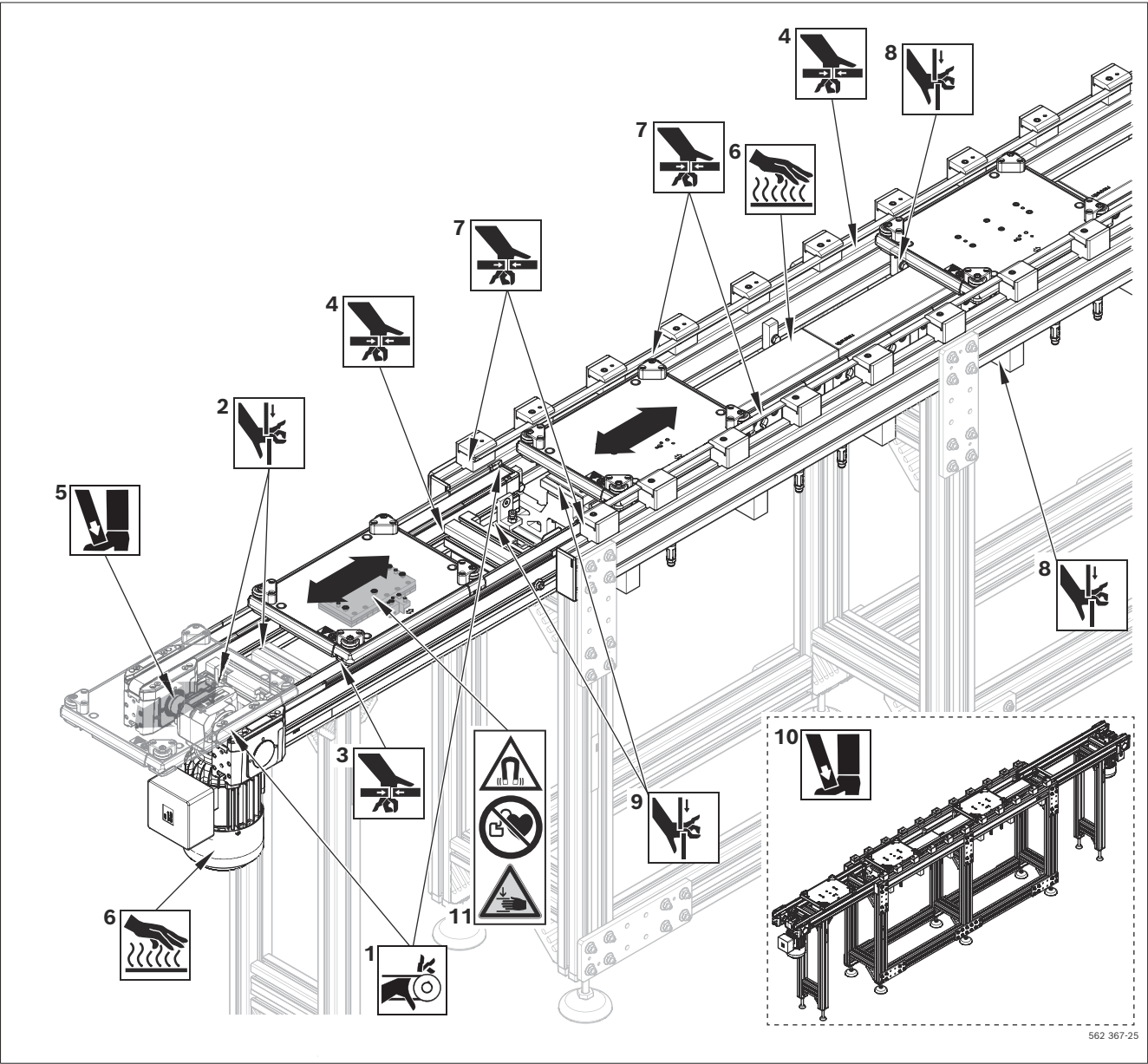
- ▶ Wear suitable protective equipment such as safety shoes, close-fitting clothing, hair nets, etc.

2.8 Residual risks

	Location	Situation	Hazard		Action
1	Conveyor medium pinch point	Pieces of clothing or long hair can be pulled in		Crushing, pulling out of hair	Do not reach into the system while it is running. Wear protective clothing.
2	Cross connector, drive shaft: between component and workpiece pallet	Trapping of body parts	 	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 can 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	Trapping of body parts	 	Crushing, Shearing	Belt section: Do not reach into the system while it is running. At workstations, relative movements of loads (e.g. at accumulating conveyors) that 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 can be deemed avoided if the static force for stopping the load is less than 150 N. Linear section: Do not reach into the system while it is running. Provide access locks, e.g. by means of a separating protective device in accordance with DIN ISO EN 14120 with guard locking (PLr = d in accordance with DIN EN ISO 13849).

	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	Provide appropriate separating protective devices. Allow the system to cool for at least 30 minutes before performing maintenance. Visible marking with a warning sign "Warning! Hot surface" in accordance with ASR A1.3/ISO 7010
7	Between WT rollers and guide profile of the linear section at the inlet/outlet of the linear section and along the entire guide profile	Trapping of body parts		Crushing	Do not reach into the system while it is running. Provide access locks, e.g. by means of a separating protective device in accordance with DIN ISO EN 14120 with guard locking (PLr = d in accordance with DIN EN ISO 13849).
8	Along the linear section: Between WT and carrier profiles of the motor modules	Trapping of body parts		Shearing	Do not reach into the system while it is running. Provide access locks, e.g. by means of a separating protective device in accordance with DIN ISO EN 14120 with guard locking (PLr = d in accordance with DIN EN ISO 13849).
9	Linear motor, cross connector: Between component and workpiece pallet	Trapping of body parts		Shearing	Do not reach into the system while it is running. Provide access locks, e.g. by means of a separating protective device in accordance with DIN ISO EN 14120 with guard locking (PLr = d in accordance with DIN EN ISO 13849).
10	In the area of the complete system	Risk of crushing of body parts due to falling workpiece pallets at potentially high speeds		Crushing	Observe maximum loading specifications and process force. See the respective product catalog in the download center at www.boschrexroth.com . Provide access locks in working areas, e.g. by means of separating protective equipment in accordance with DIN ISO EN 14120 with guard locking (PLr = d in accordance with DIN EN ISO 13849).

	Location	Situation	Hazard		Action
11	Magnetic field: Work-piece pallets on belt section with uncovered magnets on the bottom	Influence on implants, risk of crushing due to attraction of ferromagnetic materials, attraction of ferromagnetic materials		Severe injuries with potential risk of death, crushing	A separating protective device must be installed by the owner at a minimum distance of 30 cm from the open magnets.



3 Safety equipment

3.1 Emergency stop and functional safety

Emergency stop safety circuit	Specifications of emergency stop safety circuits: • Stop category 1 according to DIN EN 60204-1 The system must be completely surrounded by a separating safety device in accordance with DIN ISO EN 14120. • An additional risk assessment for implementation of guards in compliance with applicable standards must be carried out by the customer. • The guards must withstand the loads to be expected. • Access doors must be electrically locked and have guard locking. • Opening of the access door must be prevented for at least 5 seconds after the motor modules have shut down. • The required performance level in accordance with DIN EN ISO 13849 must be PLr = d. • It must not be possible to start up the linear section with the safety door open.
Functional safety according to DIN EN ISO 13849-1 • To be ensured by the customer – not included in the scope of delivery.	• Due to the high dynamic forces and potential follow-up movements of the linear section, maintenance access to separating protective device must be fitted with a locking mechanism with guard locking. • When the safety door is open, all drives located in the danger zone are safely stopped (STO). • An interlock mechanism must prevent any opening of the safety doors for at least 5 seconds after all linear drives in the danger zone have been shut down safely (STO). • PLr of subsystem • Safety door locking mechanism (locked and interlock engaged) • Safety control • - Safe shutdown (STO) of linear motor drives; see PL assessment. • The linear section can only be used if the safety door is closed and locked with the interlock engaged.

4 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.

5 Scope of delivery

The scope of delivery includes the following:

- Linear section LS 2 according to customer order
- Suitable grease for roller bearings, NLGI consistency class 2 for initial lubrication
- Assembly instructions "WB 2 workpiece pallet booster"

Further necessary components such as:

- Motor cable FMK... for connection of motor at the linear section ➡ control cabinet
- Sensor cable FSK... for connection of Hall sensor at the linear section ➡ control cabinet
- Workpiece pallet WT 2/LS
- Leg sets SZ 2/LS

5.1 Condition on delivery

- Linear section LS 2 fully assembled with:
 - Motor modules
 - Hall sensors
 - Guide module
- Workpiece pallet WT 2/LS fully assembled
- Leg set SZ 2/LS with/without assembly according to customer order

6 Accessories

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

For the pre-centering of the WT 2/LS (for $b \geq 240$ mm):

- Inner guide WT2 L=45 COMPLETE (3842525634)

For fastening the leg sets to the ground (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)

Lubrication unit LU 2/LS for lubrication of the guide rails during operation

- 2 x Lubrication unit LU 2/LS (3842562436)
- 2 x Grease cartridge LU 2/LS (3842562441)

Adjustment set LS 2 for adjusting the motor modules

- Adjustment set LS 2 (3842562442)

7 About this product

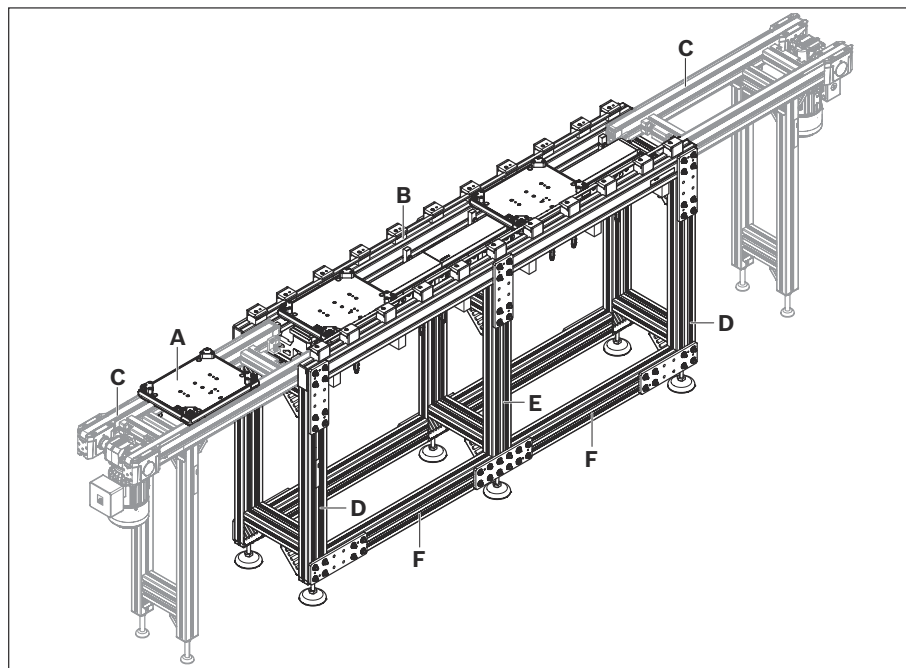
7.1 Product use

- Installation in a Rexroth TS *2plus* transfer system
- Transport of products on dedicated Rexroth workpiece pallets WT 2/LS for the linear section LS 2
- Positioning of products on specific workpiece pallets WT 2/LS
- For approved modular units and recommended system components, see the respective product catalog in the download center at ➔ www.boschrexroth.com

7.2 Product description

Workpiece pallet booster WB 2

- A** Workpiece pallet WT 2/LS (3842562346 ... 3842562360)
- B** Linear section LS 2 (3842998905)
- C** Belt section BS 2 (not in scope of delivery)
- D** Leg set SZ 2/LS END (3842998906)
- E** Leg set SZ 2/LS MID (3842998907)
- F** Longitudinal connector LV 2 (3842998908)



562 367-01

Fig. 1: Workpiece pallet booster WB 2 (here, track width $b = 240$)

Table 4: Versions depending on track width b

Track width b (b_{WT}) [mm]	l_{WT} [mm]	Version Workpiece pallet WT 2/LS	Version Linear section LS 2	Version Motor modules
160	160			306-1 and/or 306-3
	240			
	320			
240	160			
	240			
	320			
	400			
320	240			
	320			
	400			
	480			
400	320			only 306-1
	400			
	480			
	640			

Workpiece pallet WT 2/LS



- Feed magnets and measuring magnets must not be subjected to mechanical processing (e.g. drilling, grinding, milling).
- Information on processing the WT carrying plate → [Chapter 9.15 Processing the WT carrying plate / removing magnets on page 45.](#)

- A1** Cam rollers
- A2** Feed magnet
- A3** Measuring magnet
- A4** Magnetic protection
- A5** Protective cover
- A6** Running direction indication

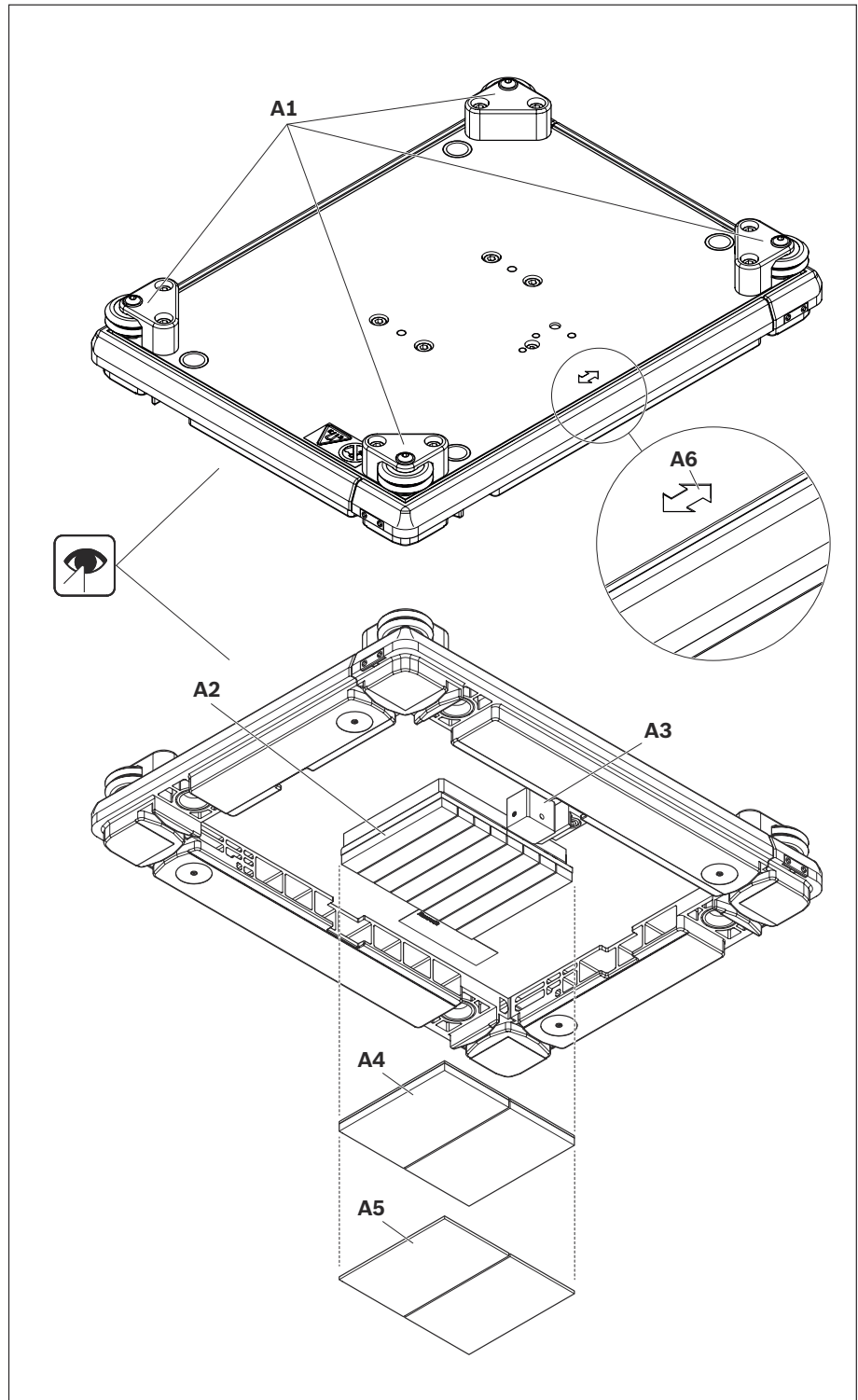


Fig. 2: WT 2/LS (here: 240 x 320 mm)

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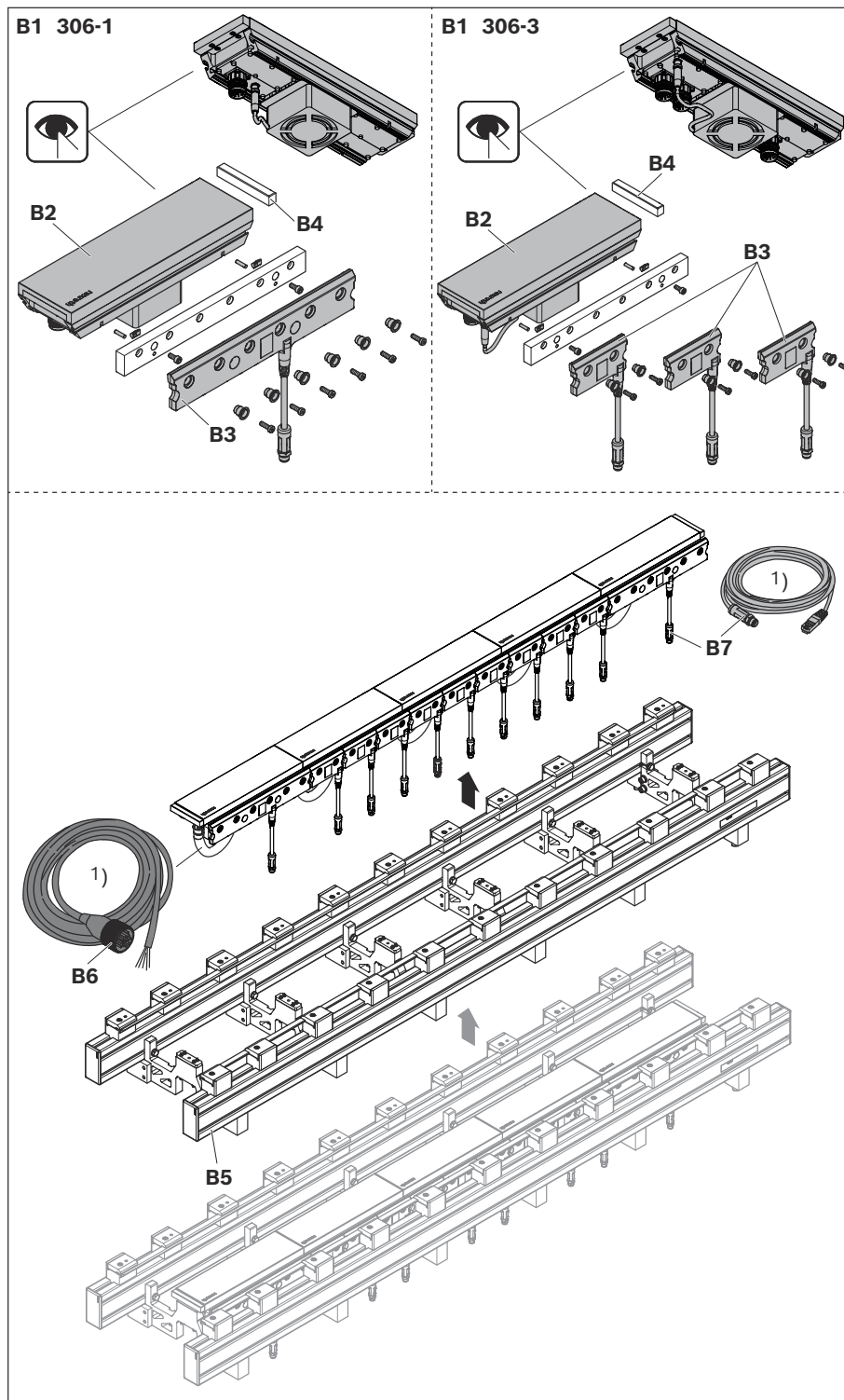
Linear section LS 2



- On delivery, the motor modules and the Hall sensors are already installed on the guide module.
- For versions and possible motor module assembly, see ➔ [Table 4 Versions depending on track width b on page 20](#)

- B1** Motor modules
- B2** Motor
- B3** Hall sensor
- B4** End piece
- B5** Guide module
- B6** Motor cable FMK...¹⁾;
Connection of motor ➔ control cabinet
- B7** Sensor cable FSK...¹⁾;
Connection of Hall sensor ➔ control cabinet

1) Not included in the scope of delivery of the linear section. Please order separately.



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Fig. 3: LS 2 (here, track width $b = 240$ mm, $MC = 2$)

Base/leg sets SZ 2/LS

- Depending on the order, the leg sets are already installed on delivery.
- Calculation of the clearances of the leg sets SZ 2/LS or lengths of the longitudinal connectors LV 2 → [Chapter 9.6 Lengths of longitudinal connector LV 2 on page 29.](#)

- B** Workpiece pallet booster
WB 2
- D** Leg set SZ 2/LS END
(3842998906)
- D1** Adjuster auxiliary kit
(3842562433)
For use, see [Fig. 14](#)
- E** Leg set SZ 2/LS MID
(3842998907)
- F** Longitudinal connector LV 2
(3842998908)
- G** Connection plates (4x)
with mounting kit (total of
40 screws and 40 T-nuts)
- H** Leveling foot Ø90, height-
adjustable
- I** Strut profile I 45x90
- J** 90x90 bracket with
mounting kit and cover
cap
- K** 45x90 plate with
mounting kit
- L** Strut profile I 45x90

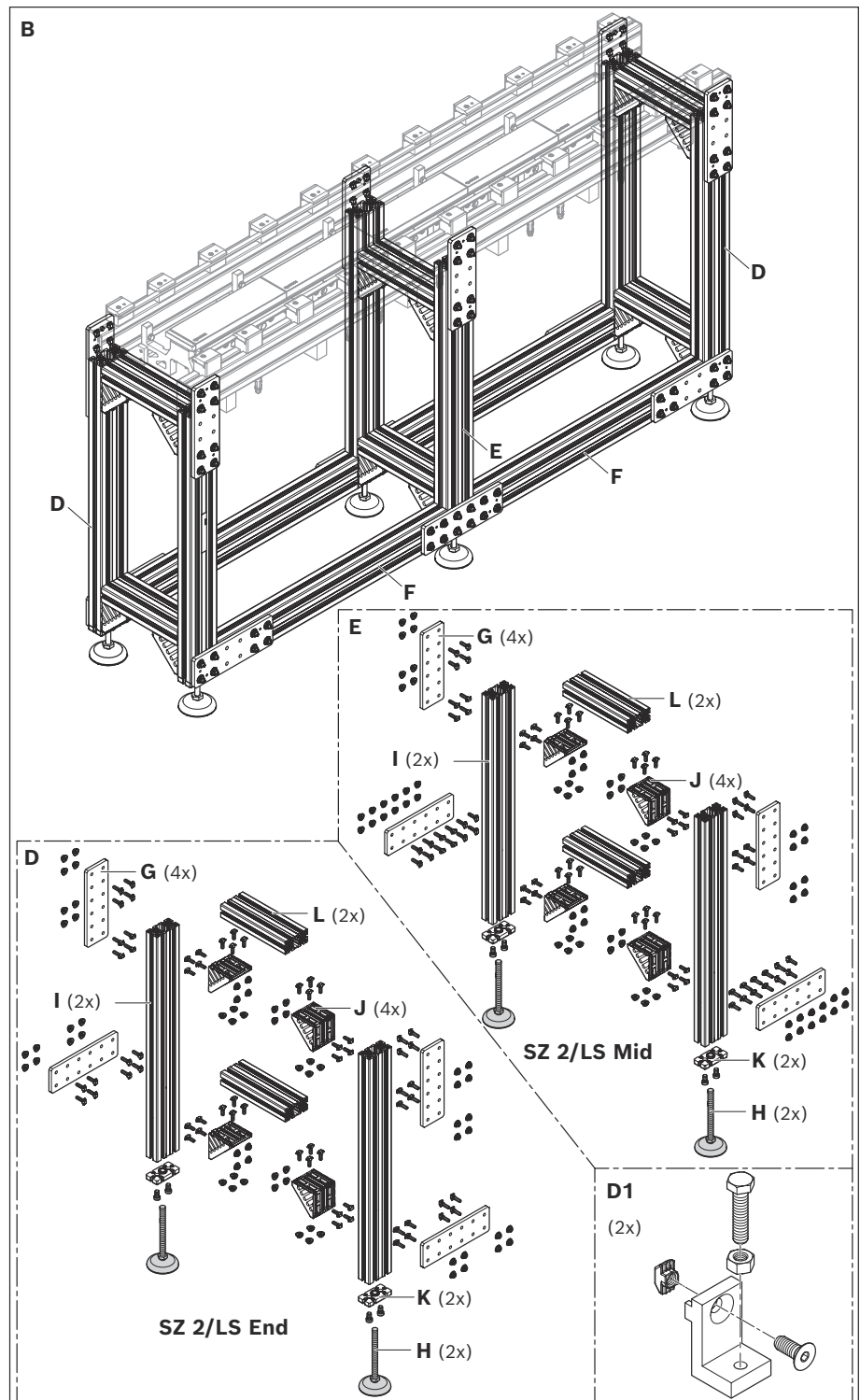


Fig. 4: Base/leg sets (here, track width $b = 240$ mm)

7.3 Product identification

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

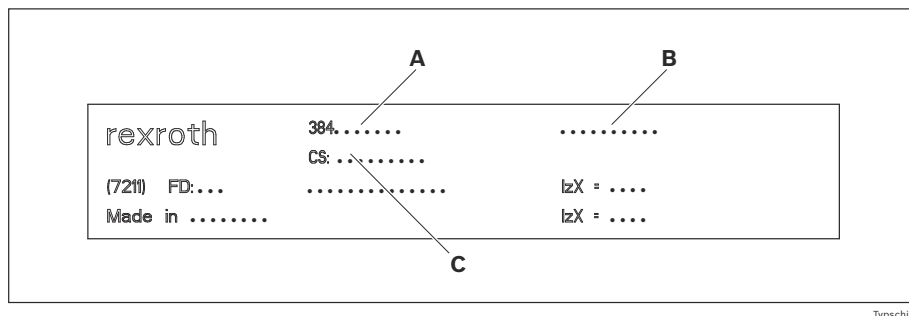


Fig. 5: Nameplate

8 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 17 Technical data on page 62](#).

⚠ CAUTION

Risk of crushing when attaching the magnetic protection

Due to the high magnetic holding force, the magnetic protection is suddenly attracted when approaching the magnetic kit.

- Wear personal protective equipment.
- Be prepared for high attractive force.
- Apply the magnetic protection with the **magnetic foil side**.
- Do not place body parts between the magnetic protection and magnetic kit.

8.1 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!

Interference during air transport	 Magnetic fields can affect and interfere with aircraft equipment and components. • Only ship magnets or workpiece pallets with magnetic protection and in original packaging with inserted protective cover. • Observe the applicable regulations.
Damage in the event of postal delivery	 Magnetic fields can cause interference with sorting equipment and damage sensitive goods in other packages. • Ship workpiece pallets with magnetic protection and protective covers in the original packaging. • Observe the applicable regulations.

8.2 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 17 Technical data on page 62](#).
- Support the product so that suspended motors/accumulators/cylinders are not placed under strain.

9 Installation

9.1 Unpacking

Unpacking the WT 2/LS



- Remove only the protective cover "A5".
- Leave the magnetic protection "A4" on the magnetic kit "A2" until commissioning.
- The magnetic protection must be attached to the magnetic kit with the **magnetic foil side**.

Remove the protective cover for air transport

A2 Magnetic kit

A4 Magnetic protection

A5 Protective cover

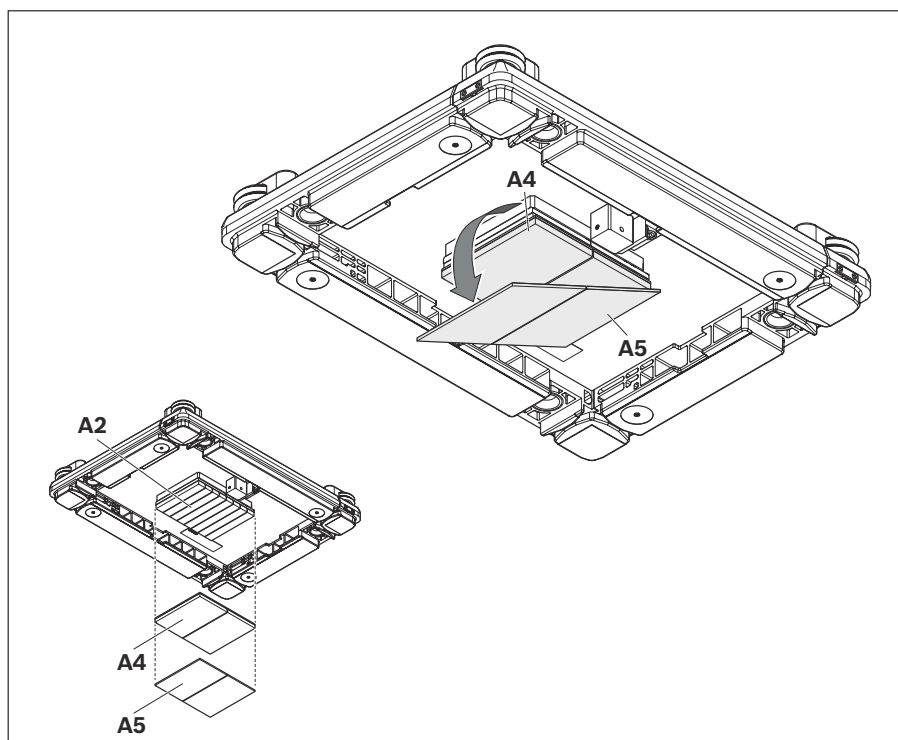


Fig. 6: WT 2/LS 240 x 320 mm)

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- Retain the protective cover for further use.

9.2 Lifting lugs for hoist



- The linear section is equipped with lifting lugs for attachment of a 4-string lifting chain.
- After assembly of the linear section, remove the lifting lugs.
- Retain the lifting lugs for later modifications or disassembly.
- For reassembly, ensure correct fitting of the T-bolt in the profile slot.

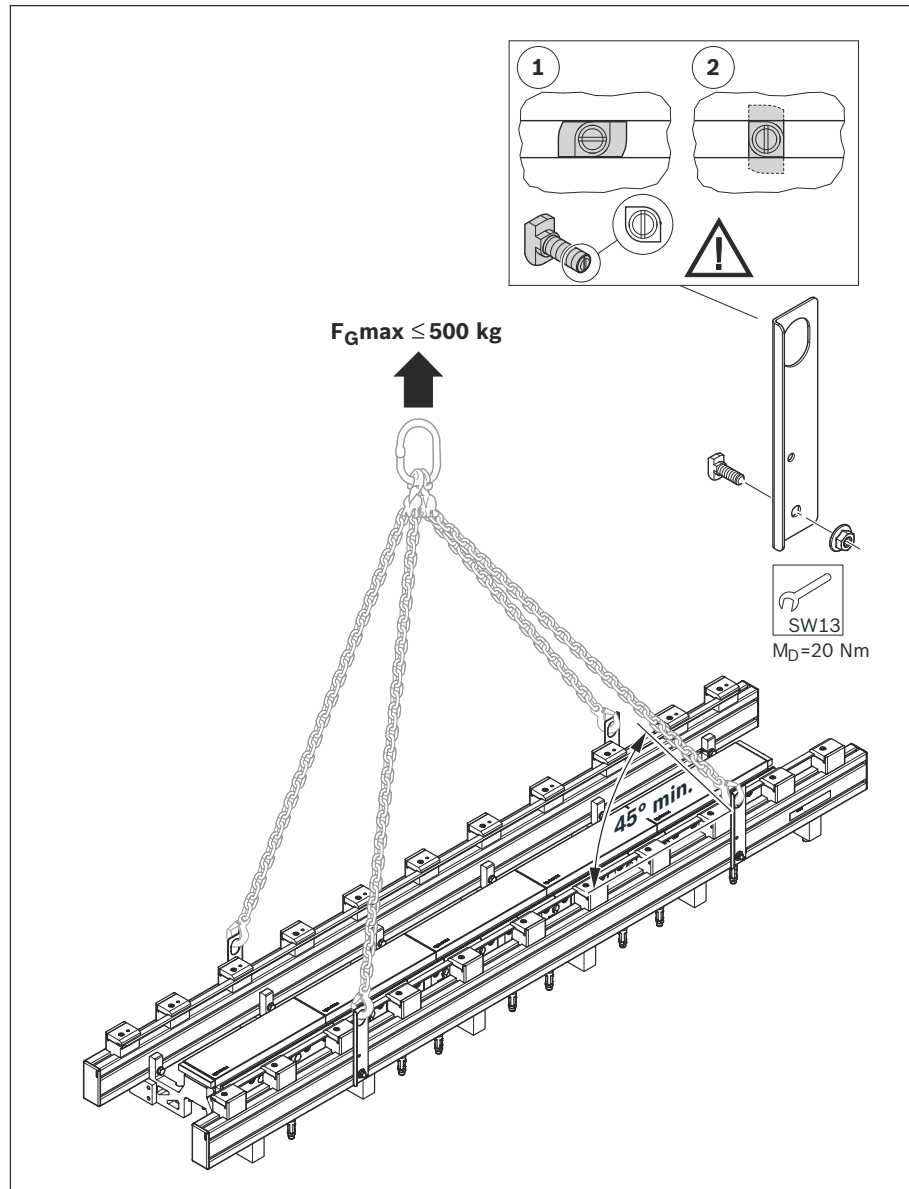


Fig. 7:

9.3 Installation requirements

► [Chapter 17 Technical data on page 62.](#)

9.3.1 Installation position



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

9.4 Tools

- Commercially available standard tools (metric) are required.

Emergency tools

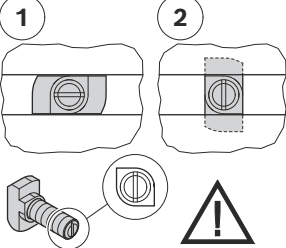
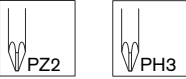
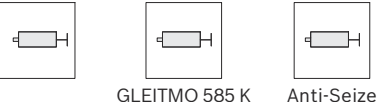
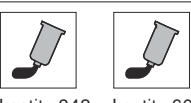
- Hammer made from non-ferromagnetic material.
- Wedges with approx. 10 - 15° wedge angle made from non-ferromagnetic material – for driving into the separating gap.

Additional tools required

- 2 dial gages (scale value 0.01 mm, total deviation 25 µm) for height adjustment of BS 2 to LS 2
- Caliper 500 mm
- Torque wrench

9.5 Symbols for assembly

Table 5: Symbols used

	• Connection with T-bolt and flange nut. • Make sure the T-bolt is in the correct position when inserting it into the slot and tightening it. The notch at the head of the screw indicates the orientation of the T-bolt. • 1 = T-bolt insertion position in the slot • 2 = T-bolt clamping position in the slot • 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
	• Designation of components
	• Detailed view from a different direction, for example, the back or the bottom side of the product.

9.6 Lengths of longitudinal connector LV 2

- For dimensions, see
 ➔ Table 6 Lengths of LV 2
 depending on the number
 of leg sets SZ 2/LS
 on page 30.

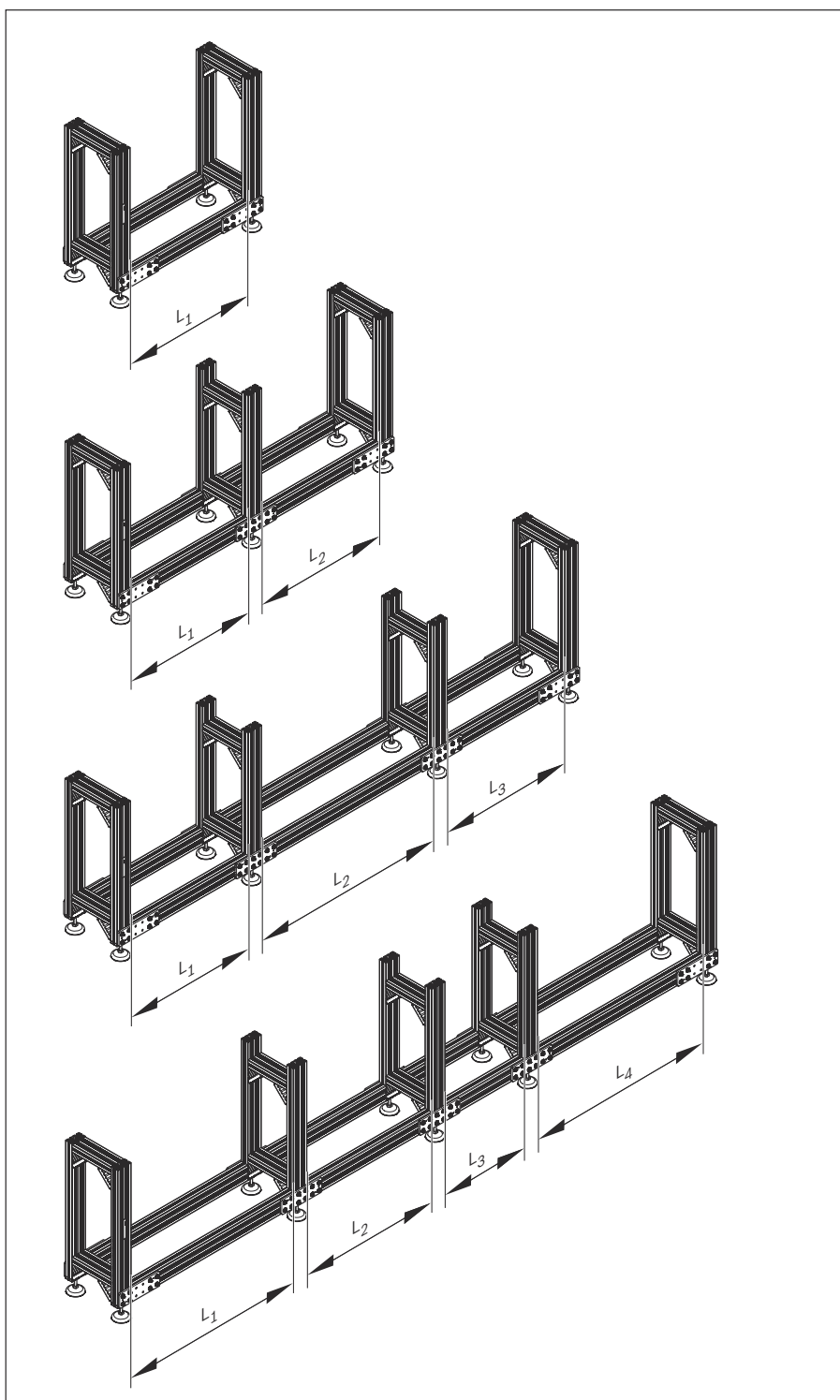


Fig. 8: Lengths of longitudinal connector LV 2

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Table 6: Lengths of LV 2 depending on the number of leg sets SZ 2/LS

Number of leg sets SZ 2/LS...	Version	Total length of motor modules L_{eff} [mm]	Number of longitudinal connectors LV 2 per length	Lengths of longitudinal connectors LV 2			
				L ₁ [mm]	L ₂ [mm]	L ₃ [mm]	L ₄ [mm]
2	SZ 2/LS END	306	2	416	–	–	–
		612	2	722	–	–	–
		918	2	1028	–	–	–
2 1	SZ 2/LS END	1224	2	775	469	–	–
	SZ 2/LS MID	1530	2	775	775	–	–
		1836	2	1081	775	–	–
		2142	2	1081	1081	–	–
2 2	SZ 2/LS END	2448	2	775	828	775	–
	SZ 2/LS MID	2754	2	775	1134	775	–
		3060	2	1081	828	1081	–
		3366	2	1081	1134	1081	–
2 3	SZ 2/LS END	3672	2	1081	828	522	1081
	SZ 2/LS MID						

9.7 Installing the linear section on leg sets



Calculation of the clearances of the leg sets SZ 2/LS or lengths of the longitudinal connectors LV 2: see [Chapter 9.6 Lengths of longitudinal connector LV 2](#) on page 29.

1. Base consisting of leg sets, longitudinal connectors and lower connection plates.
2. Position the linear section on the leg sets SZ 2/LS.
3. Install the upper connection plate.

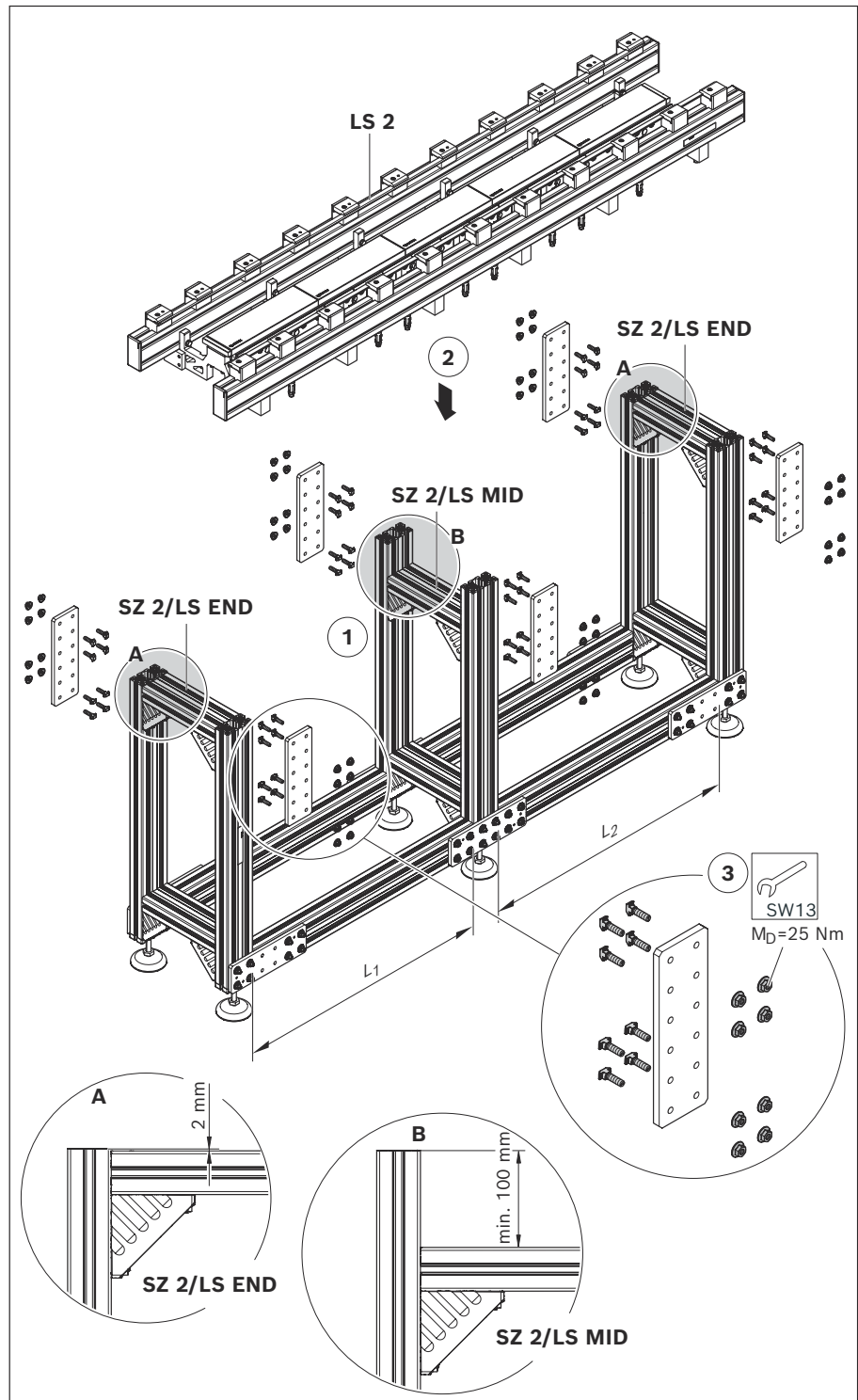
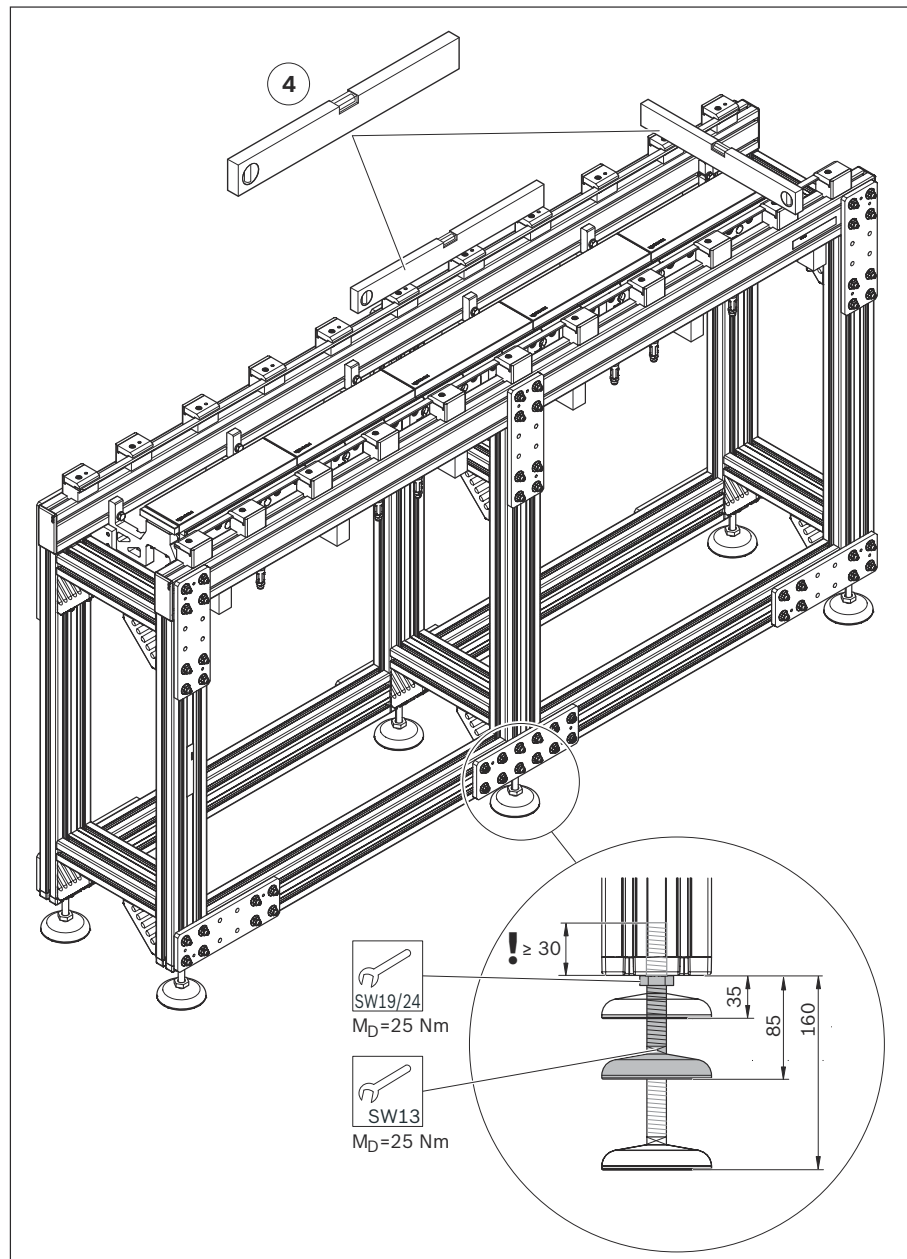


Fig. 9: shown here, track width $b = 240 \text{ mm}$)

562 367-11

4. Align the linear section flush, horizontally and by height.



562 367-12

Fig. 10: Alignment of linear section (here, track width $b = 240 \text{ mm}$)

9.8 Connection of BS 2 and fine adjustment of BS 2 to LS 2

- i** – The installation steps described for connection and fine adjustment of the BS 2 apply to both sides of the LS 2.
- Observe the minimum length of the belt section → Table 7 Minimum length l_{min} of BS 2 on page 33.

1. Set the leg sets of the BS 2 to the height "h" of the cross connector of SZ 2/LS END.
2. Fit the leg set to BS 2.
3. Move the cross connector of BS 2 to dimension "A".

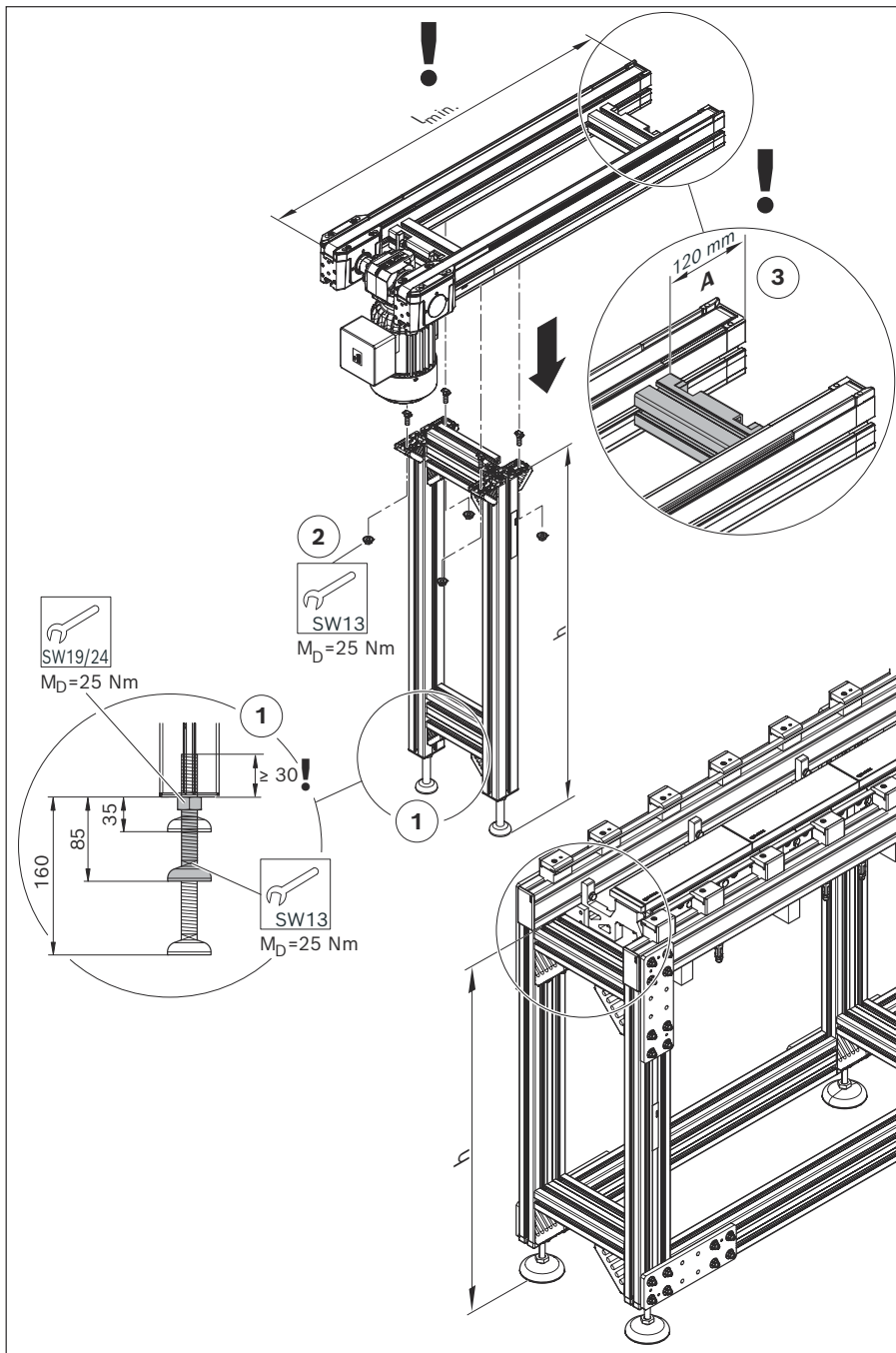


Fig. 11: Connection of BS 2 and fine adjustment of BS 2 to LS 2 (1/6)

Table 7: Minimum length l_{min} of BS 2

l_{WT}	l_{min}	l_{WT}	l_{min}
160	310	400	480
240	320	480	560

l_{WT}	l_{min}	l_{WT}	l_{min}
320	400	640	720

4. Place BS 2 on the cross connector of the leg set SZ 2/LS END. Observe dimension "B".
5. Preassemble the mounting bracket of the belt section.

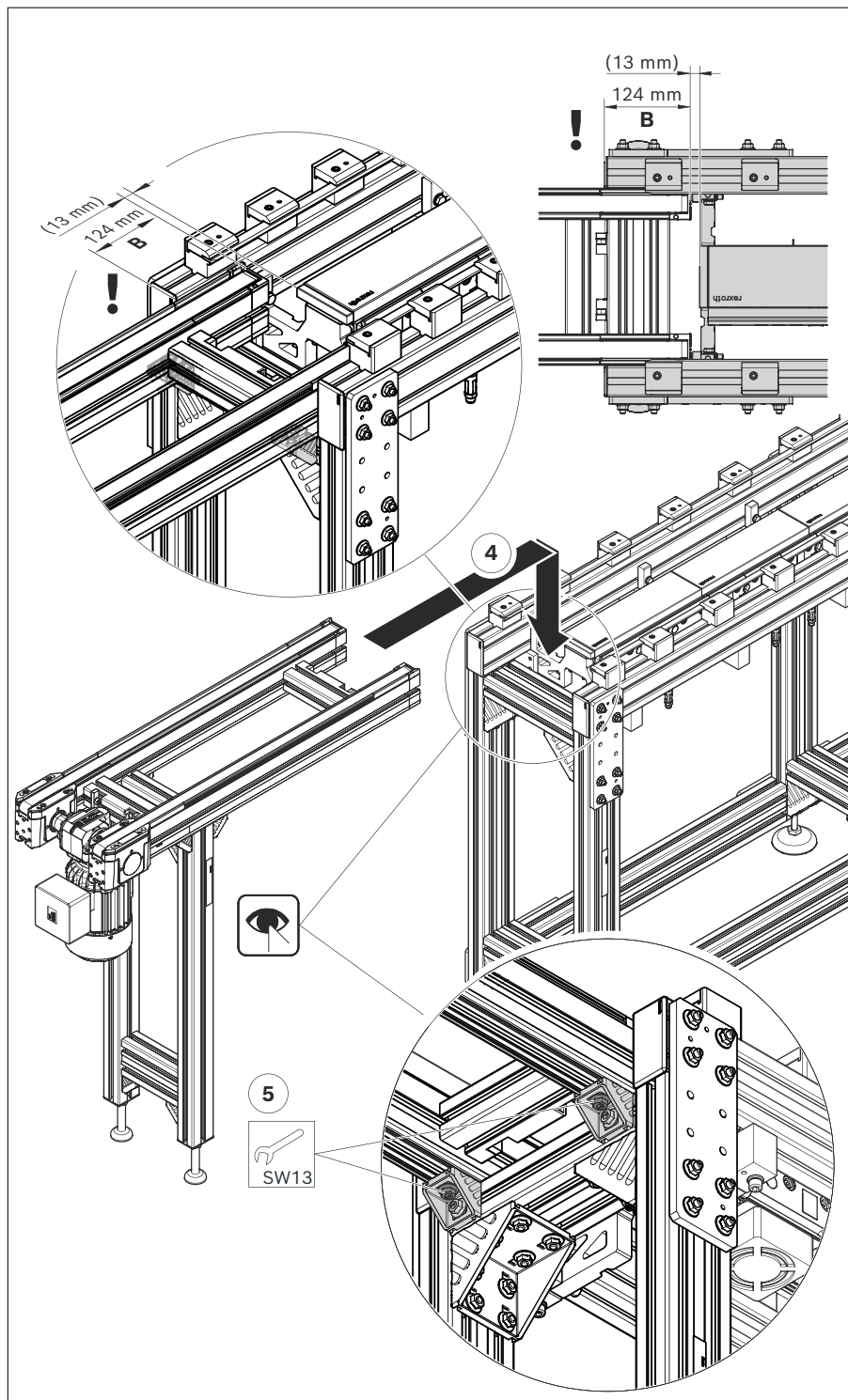


Fig. 12: Connection of BS 2 and fine adjustment of BS 2 to LS 2
(2/6)

Accessories

- Inner guide WT2 L=45 COMPLETE (3842525634)



- The inner guide (pre-centering; accessory, not included in scope of delivery) must be installed on each side of the LS 2 at which WTs run into the section.
- The inner guide only needs to be installed at belt sections with a track width of $b \geq 240$ mm.
- The inner guide is installed at the Hall sensor side of the motor modules.

6. Install the inner guide for the WTs directly in front of the first bearing pedestal of the guide rail "X" on the BS 2.

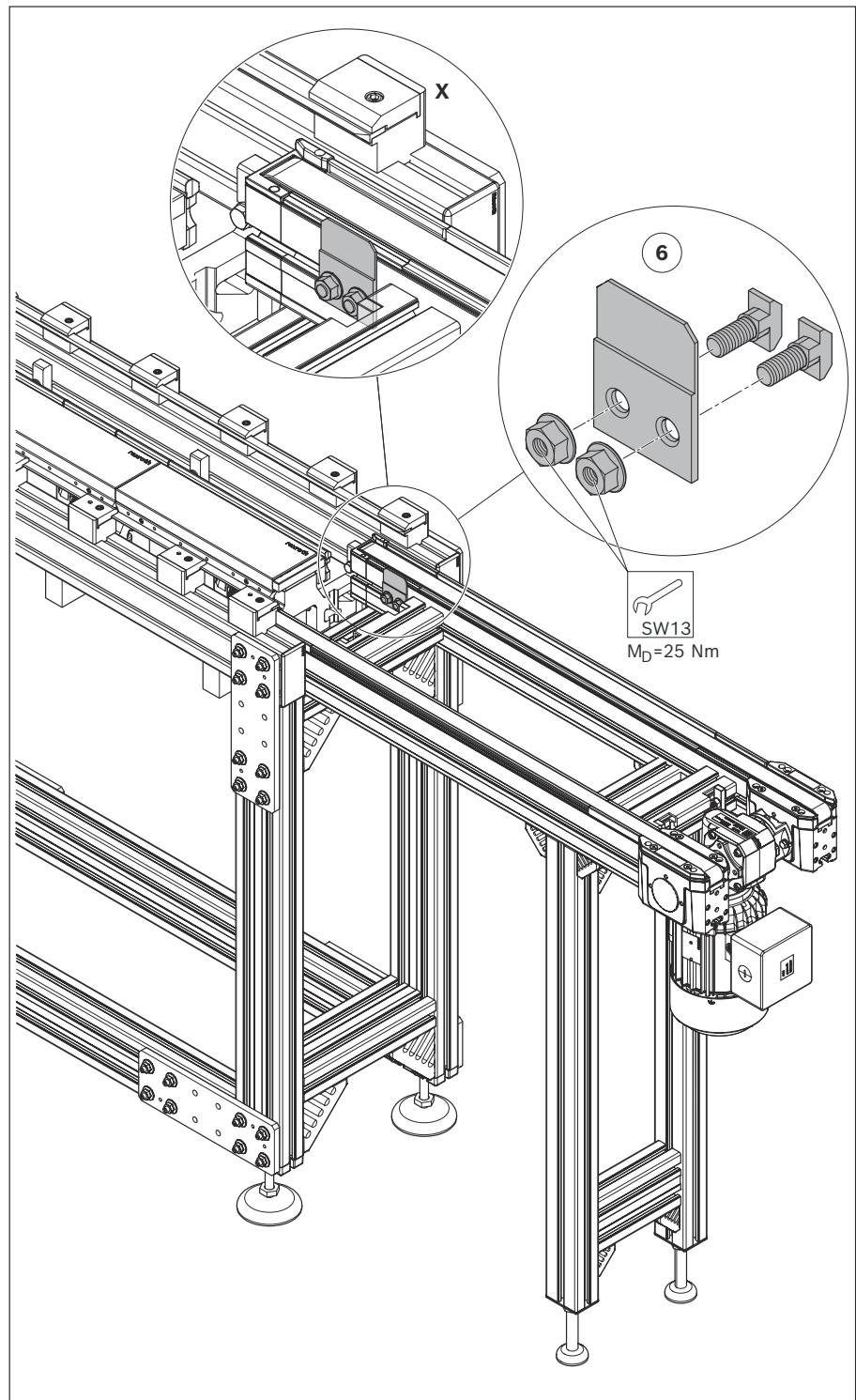


Fig. 13: Connection of BS 2 and fine adjustment of BS 2 to LS 2 (6/6)

562 367-21

7. Fit Adjuster auxiliary kit (3842562433) for height adjustment (included in scope of delivery) to the BS 2. Observe dimension "C".
8. On the Hall sensor side of the motor modules (detail "X"), apply the BS 2 to the section profile of the LS 2 and align the BS 2 parallel to the LS 2.



The WT 2/LS must not become jammed between the LS 2 guide and the Inner guide WT2 L=45 COMPLETE (3842525634) or the guide profile of the BS 2 during insertion. If necessary, move the BS 2 on the motor side in small increments relative to the section profile. Ensure parallel alignment!

9. Roughly adjust the height of BS 2 with the adjusting screws on both sides so that the WT 2/LS can be inserted from BS 2 into LS 2 without jamming (see also [Chapter 9.14 Inserting/removing WT 2/LS on page 43](#)).

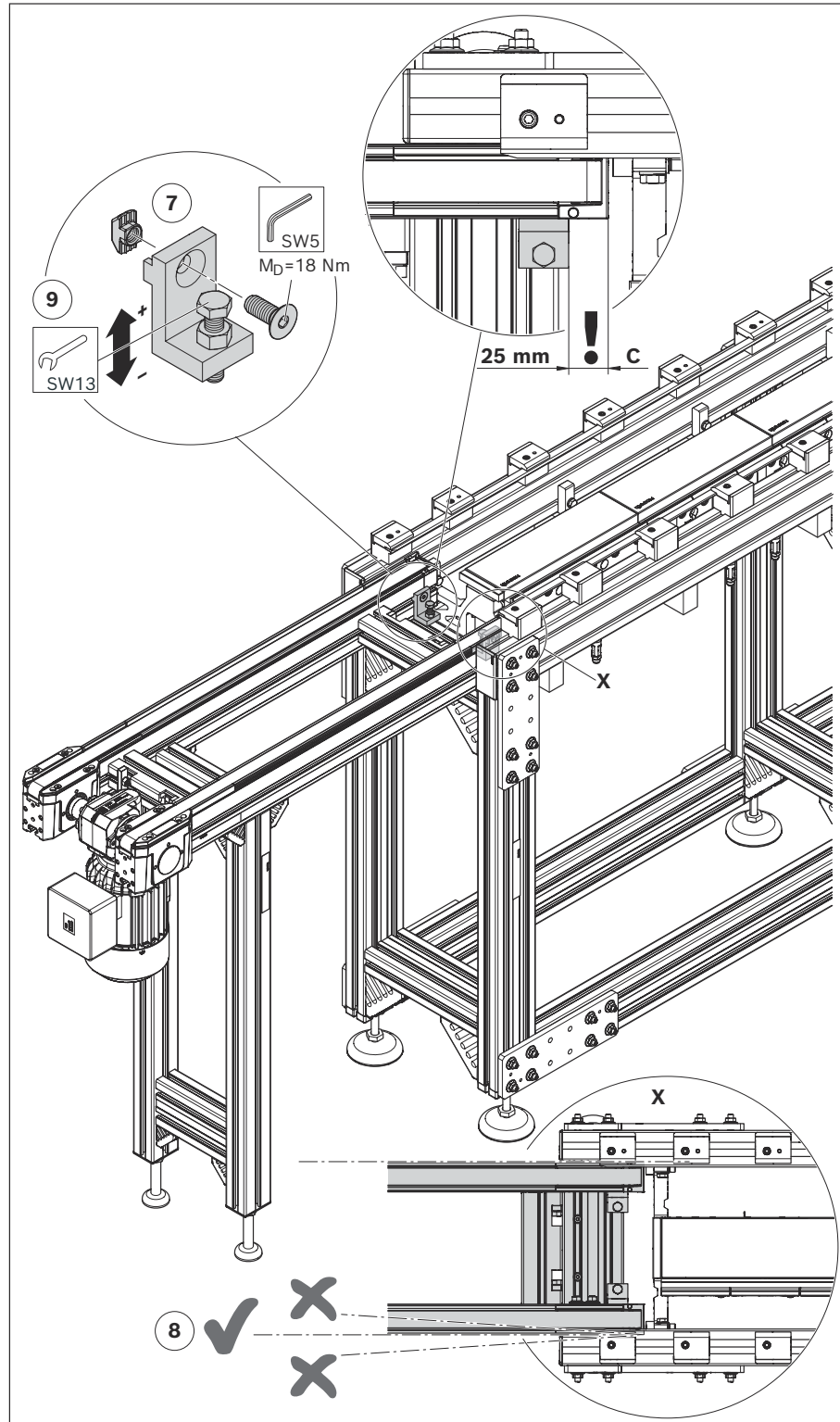


Fig. 14: Connection of BS 2 and fine adjustment of BS 2 to LS 2 (3/6)

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- The following measurement should be made as close as possible to the edges of the WT 2/LS.
- Pressing the WT 2/LS down onto the toothed belt is not permitted.

10. Using two dial gages, adjust the transition from the BS 2 to the LS 2 with the adjusting screws so that the WT 2/LS is raised evenly by a maximum of 0.1 mm on both sides in the transition to the guide rails.

- If the transition of the WT 2/LS from the BS 2 to the LS 2 does not proceed smoothly, without noise and without jamming, repeat steps 7 to 9.

11. Lock the height adjustment screws.

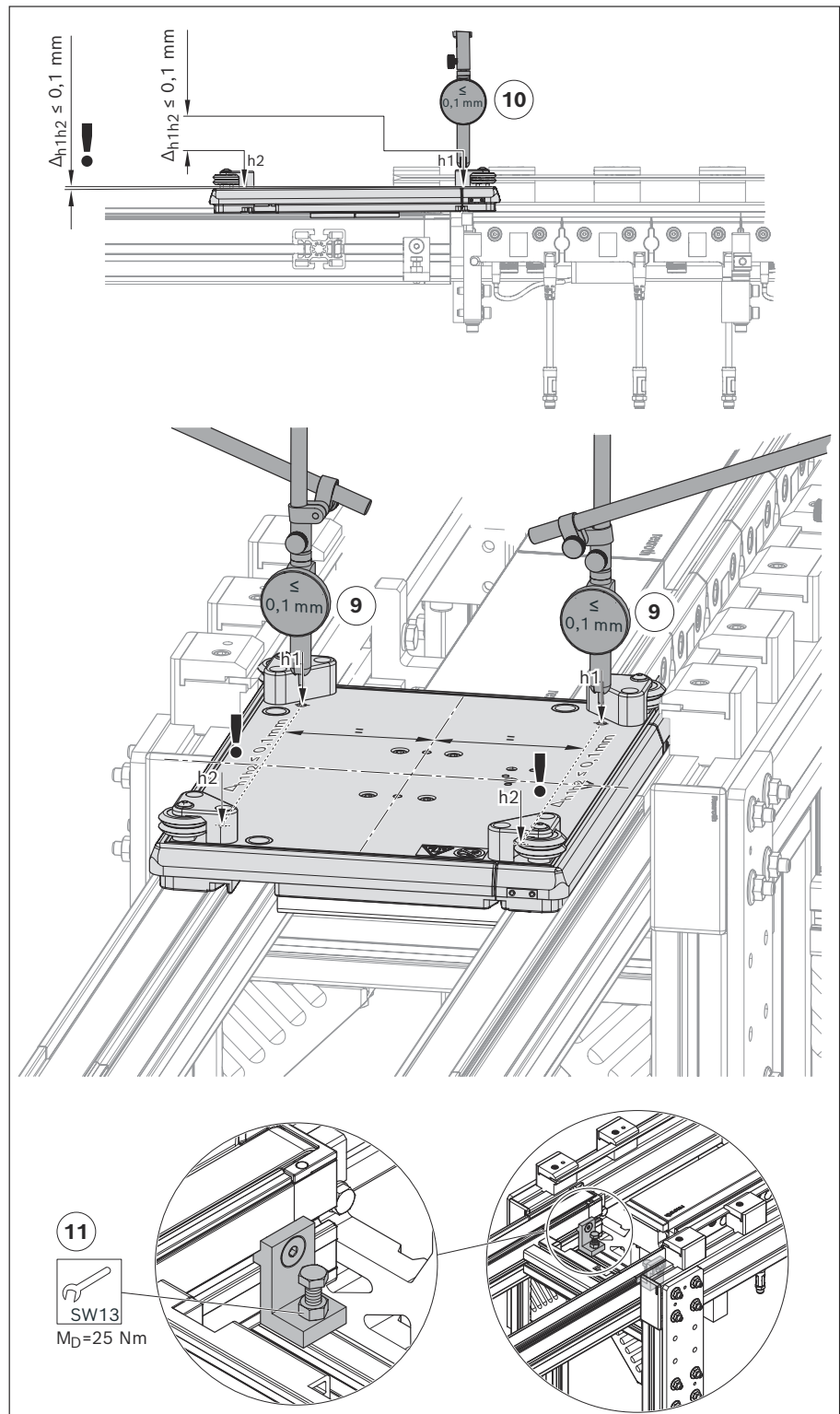


Fig. 15: Connection of BS 2 and fine adjustment of BS 2 to LS 2 (4/6)

12. Tighten the mounting bracket of the BS 2.
Check the dimension "B" again.
13. Adjust the BS 2 via leg sets if necessary.

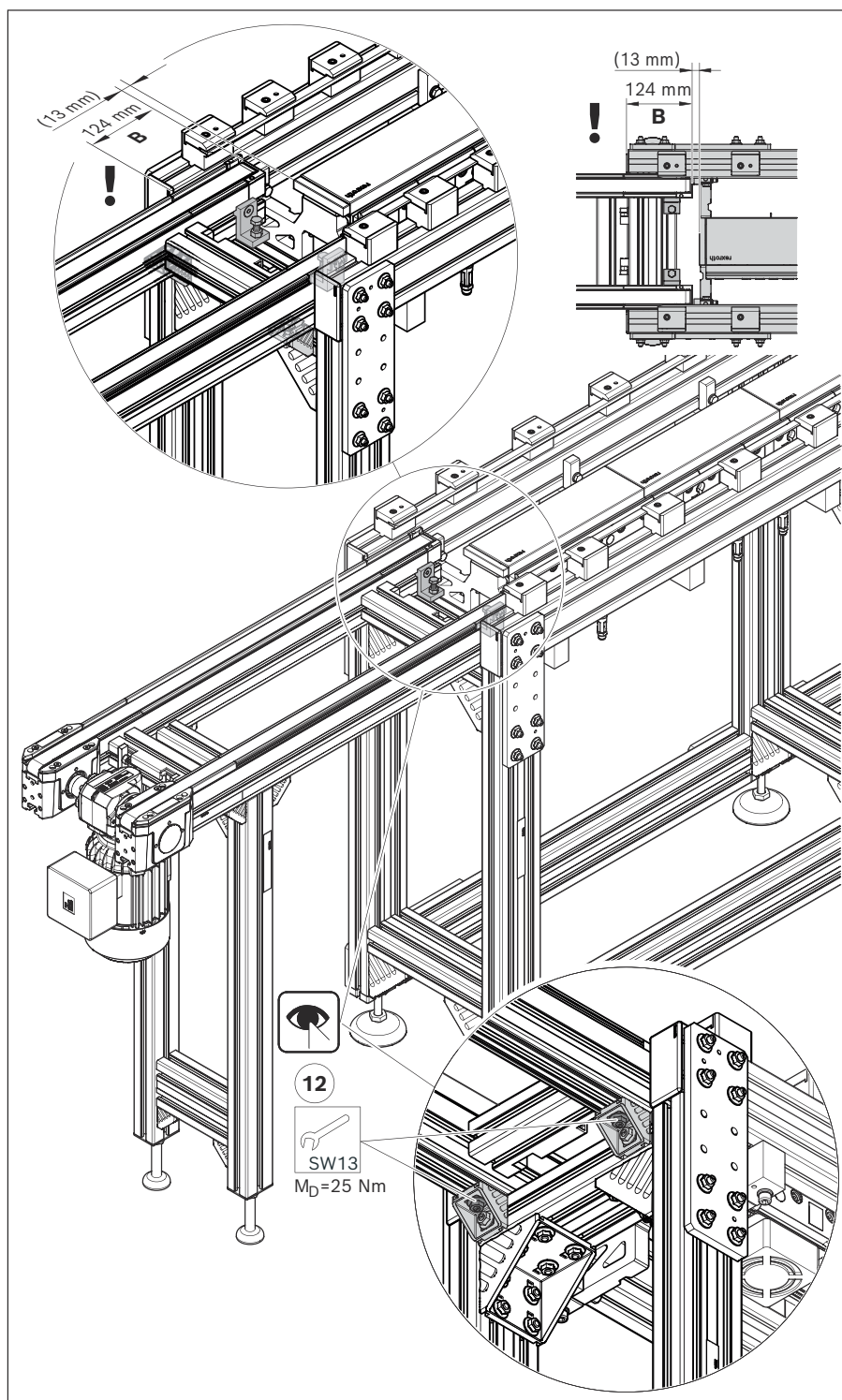


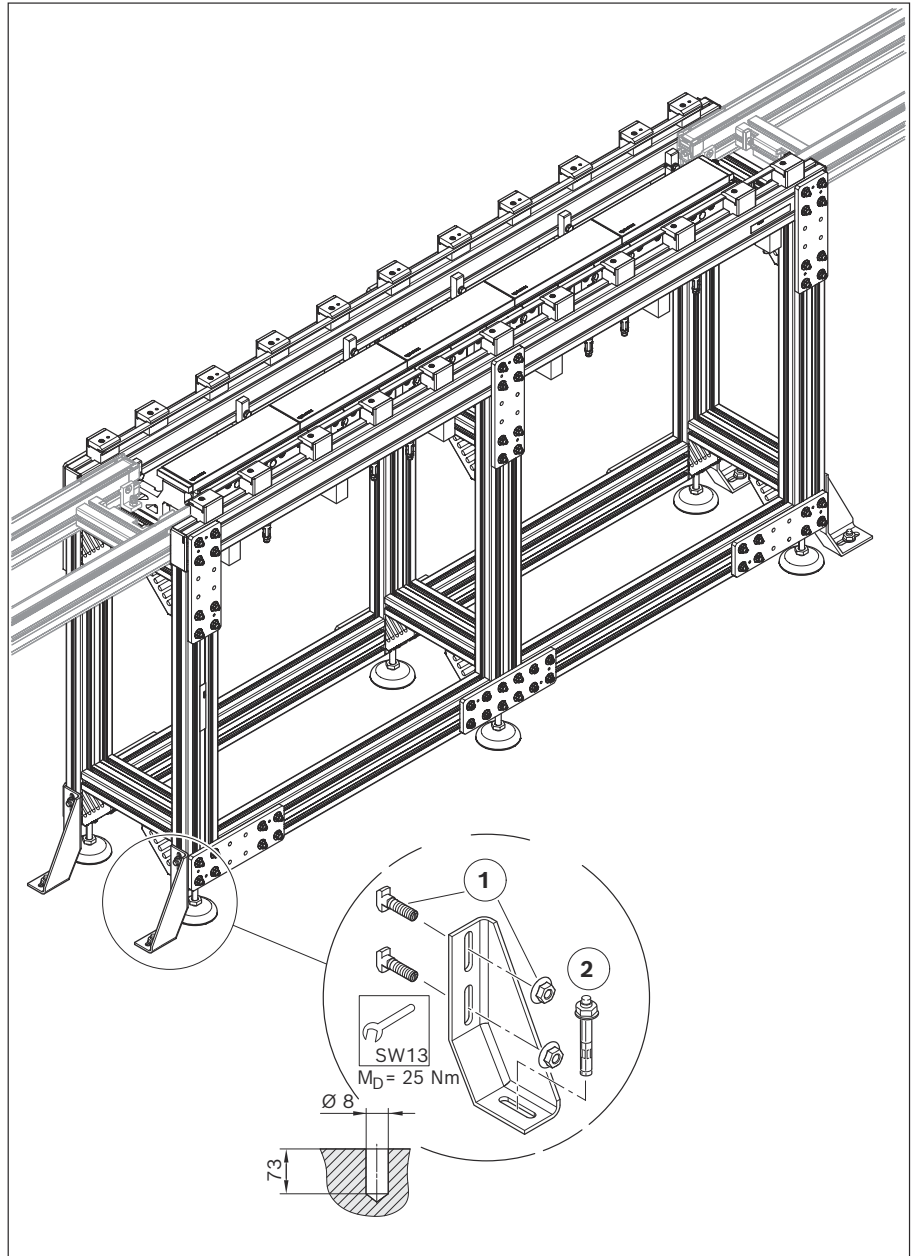
Fig. 16: Connection of BS 2 and fine adjustment of BS 2 to LS 2
(5/6)

9.9 Fixing the linear section LS 2

Accessories (per 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)

- Screw LS 2 to the floor on both sides of each SZ 2/LS END.



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Fig. 17: Shown here, track width $b = 240$ mm

9.10 Initial lubrication of the LS 2 guide rails

- Coat the guide rails of the LS 2 with a thin layer of grease suitable for roller bearings and with NLGI consistency class 2 (included in the scope of delivery) to protect against corrosion. This is also required if the operational Lubrication unit LU 2/LS (3842562436) are used.

9.11 Checking the ease of movement of the workpiece pallet

- Move WT 2/LS over the entire length of the LS 2 (see also [Chapter 9.14 Inserting/removing WT 2/LS on page 43](#)).
- ➔ The WT 2/LS must be able to move smoothly and without play over the entire length of the LS 2.

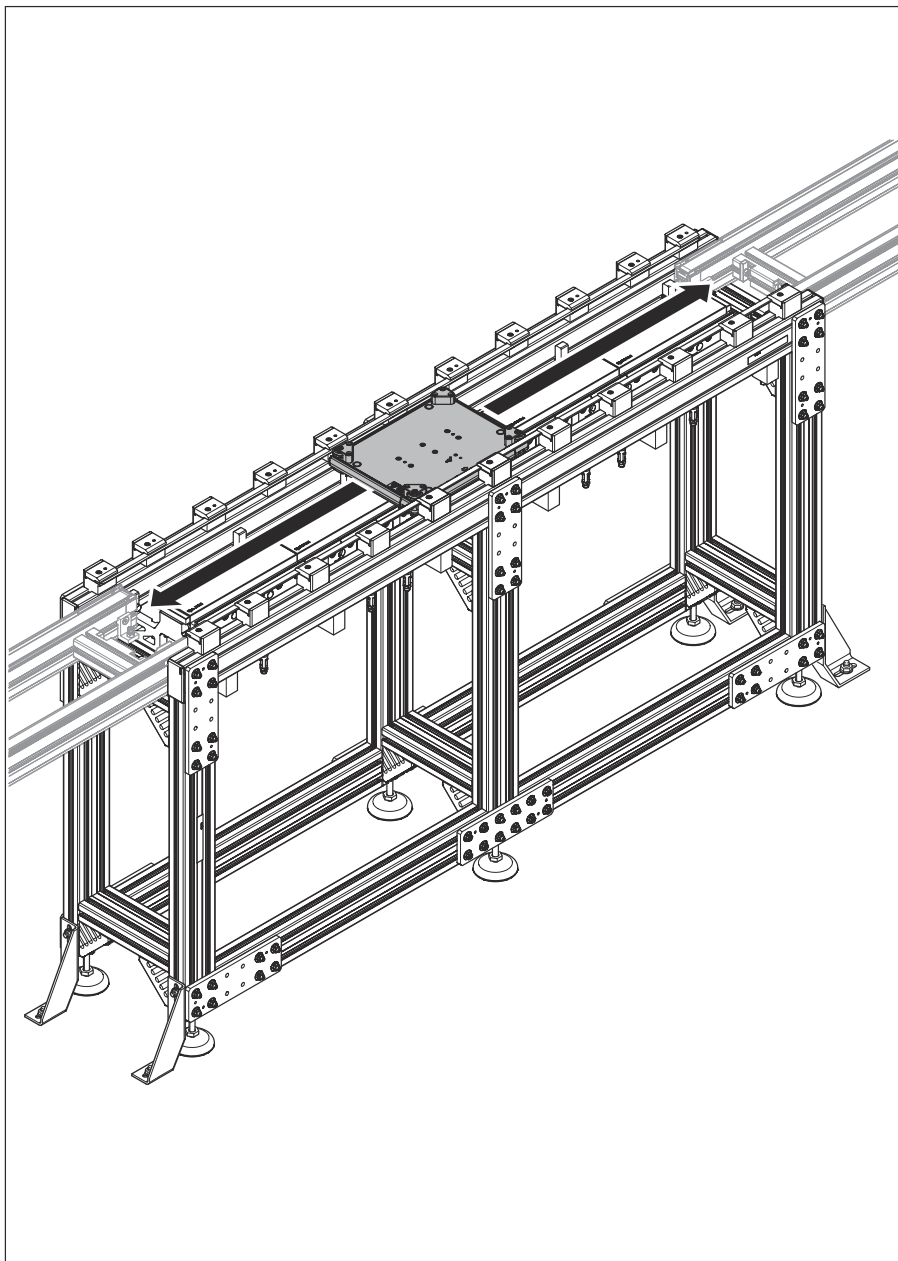


Fig. 18: Shown here, track width $b = 240$ mm

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9.12 Guide rail readjustment



Readjustment of the guide rail is only possible at one side of the LS 2.

1. Loosen the clamping screws "A" of all clamping jaws with the eccentric screws "B."
➔ The guide rail can now be moved.
2. Screw in all eccentric screws "B" clockwise without applying force (do not overtighten!).
3. Turn each eccentric screw counterclockwise one turn.



The greatest possible clearance for the WT 2/LS should be selected as close as possible to this setting position of the eccentric screw. The eccentric screw should not be tightened or loosened excessively.

4. Using your finger, gently push the guide rail towards the clamping jaw and set the maximum possible clearance for the WT 2/LS with the eccentric screw "B". Repeat for all clamping blocks.

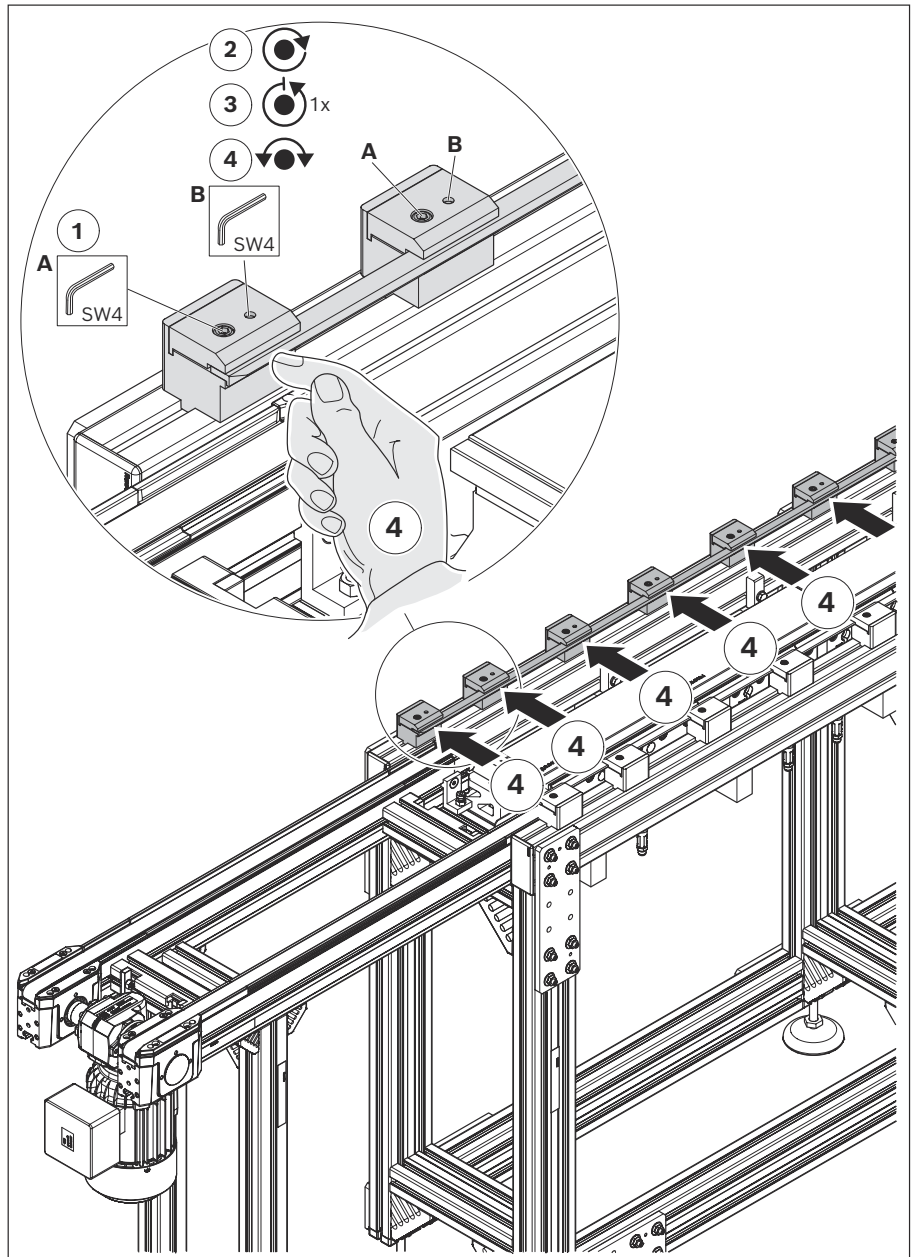


Fig. 19: Shown here, track width $b = 240 \text{ mm}$ (1/2)

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5. Insert a WT 2/LS into the LS 2 as an adjustment reference (see [Chapter 9.14 Inserting/removing WT 2/LS on page 43](#)) and slide from clamping block to clamping block. The cam rollers of the WT 2/LS must be located on the clamping jaw
6. At each WT position, adjust the guide rail by turning the eccentric screw "B" clockwise so that the WT 2/LS is free of play and moves smoothly.
 - ➡ The WT 2/LS must be able to move smoothly and without play over the entire length of the LS 2.
7. Tighten the clamping screws of the clamping jaws.

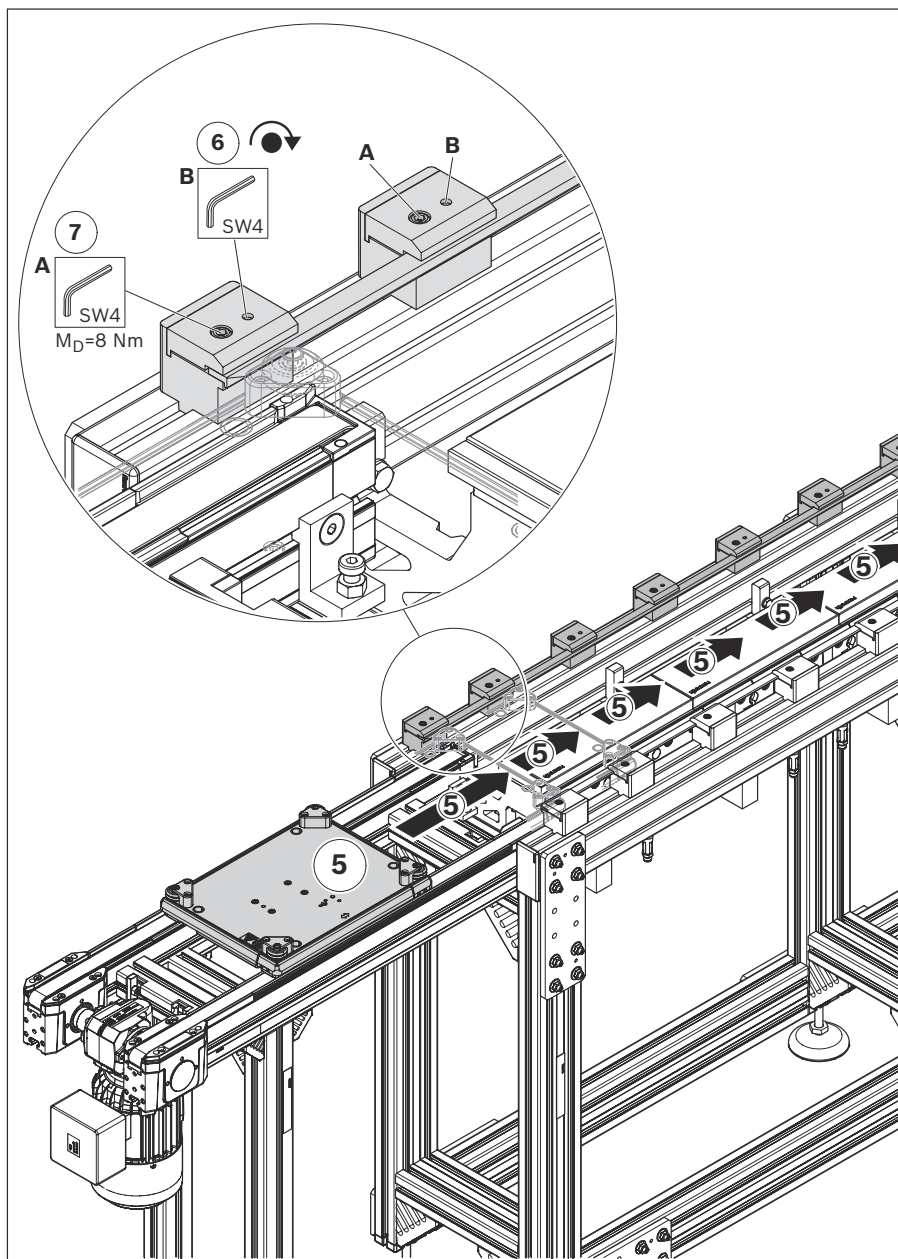


Fig. 20: Shown here, track width $b = 240 \text{ mm}$ (2/2)

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9.13 Assembly of automatic lubrication unit LU 2/LS (optional)

Accessories

- 2x Lubrication unit LU 2/LS (3842562436)
- 2x Grease cartridge LU 2/LS (3842562441)



- For each LS 2, two LU 2/LS are required for lubrication of the cam rollers on both sides of the WT 2/LS.
- For lubrication of the guide rails, suitable grease for roller bearings, NLGI consistency class 2, must be used.

Assembly instructions for workpiece pallet booster WB 2, automatic lubrication unit LU 2/LS (3842571804) see download center at www.boschrexroth.com/mediadirectory.

9.14 Inserting/removing WT 2/LS



- Keep the magnetic guard handy and reapply it with the **magnetic foil side** after removing the WT.
- Never handle two WTs simultaneously.

CAUTION

Risk of crushing when inserting the workpiece pallets into the belt section

Due to the high magnetic forces, interaction with ferromagnetic parts of the belt section is possible.

- Wear personal protective equipment.
- Be prepared for high attractive force.
- Always insert the workpiece pallets before or after the linear section in the belt section BS 2/.... Insertion into the linear section from the top is not possible.
- Do not place body parts between the workpiece pallet and the belt section.

1. Remove the magnetic protection from the feed magnet.
2. Place the WT 2/LS on the belt section before or after the WB 2. Ensure correct alignment of the WT 2/LS to the motor modules and to the Hall sensor. The measuring magnet "A" must run over the Hall sensor "B."

Removal is done in the reverse order.

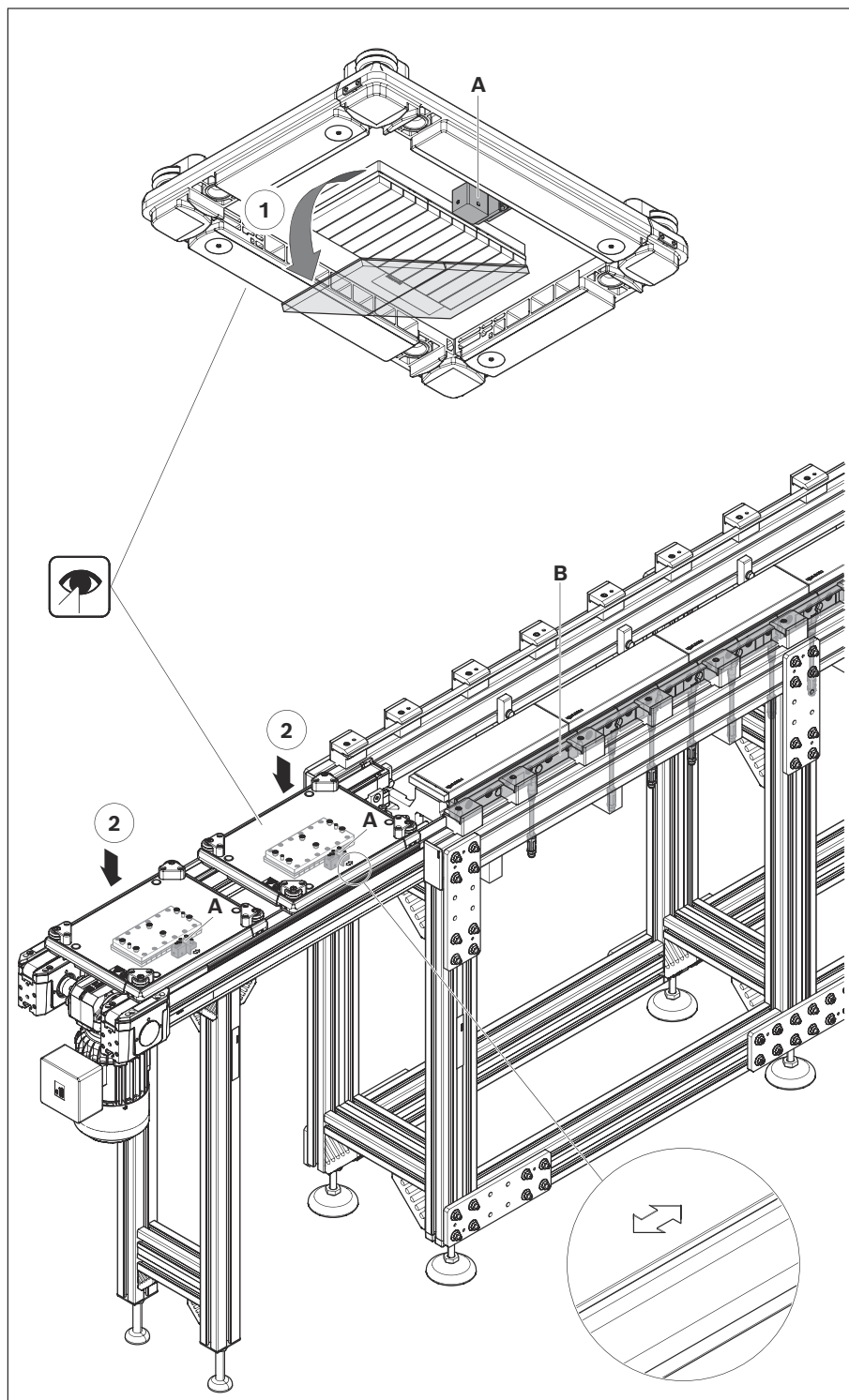


Fig. 21: Shown here: track width $b = 240$ mm

562 367-15

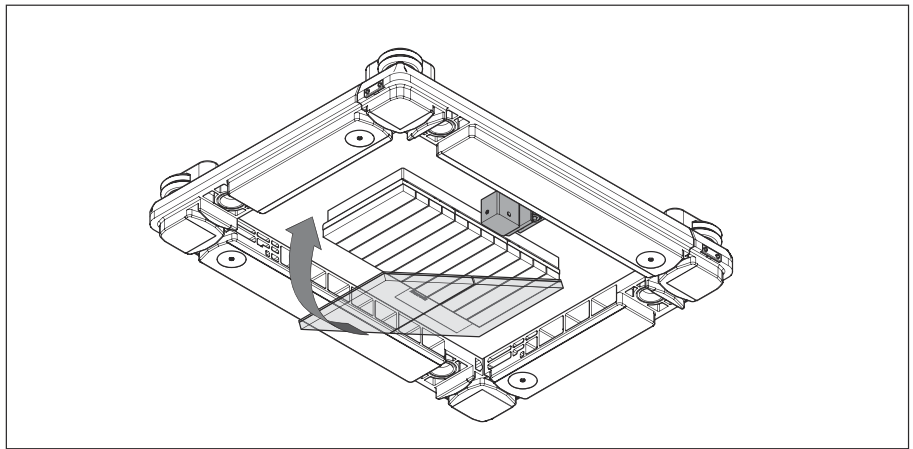
9.15 Processing the WT carrying plate / removing magnets

- On the underside of the WT 2/LS, **no** ferromagnetic materials must be used for customer-specific modifications and attachments.
- On the top of the WT 2/LS, ferromagnetic materials can be used for customer-specific fittings and attachments.



- Do not subject the feed magnet and measuring magnet to mechanical processing.
- To process the WT 2/LS, the feed magnet and measuring magnet must be removed.
- The number and size of the feed magnets depends on the size of the WT 2/LS.
- The feed magnet consists of the magnet and magnet holder – do not separate the components.
- In the area of the magnet, no fastening elements must protrude downwards beyond the carrying plate. Carrying plate thickness: 8 mm. For WT 400 x 640 mm, the thickness is 12.7 mm.

- Apply the magnetic protection with the **magnetic foil side**.



562 367-15.5

Fig. 22:

1. Remove the feed magnet.

⚠ CAUTION

Risk of crushing between feed magnets: Due to the high attractive force, magnets can attract each other suddenly.

- Wear personal protective equipment.
- Be prepared for high attractive force.
- Only handle magnets individually – screw each magnet securely.
- Shield adjacent magnets from each other by suitable means.

2. Remove the measuring magnet.



When processing the carrying plate, note the later position of the magnets → [Table 8 Feed and measuring magnet position on page 47](#)

- For installation of the feed magnet and measuring magnet, proceed in reverse order.

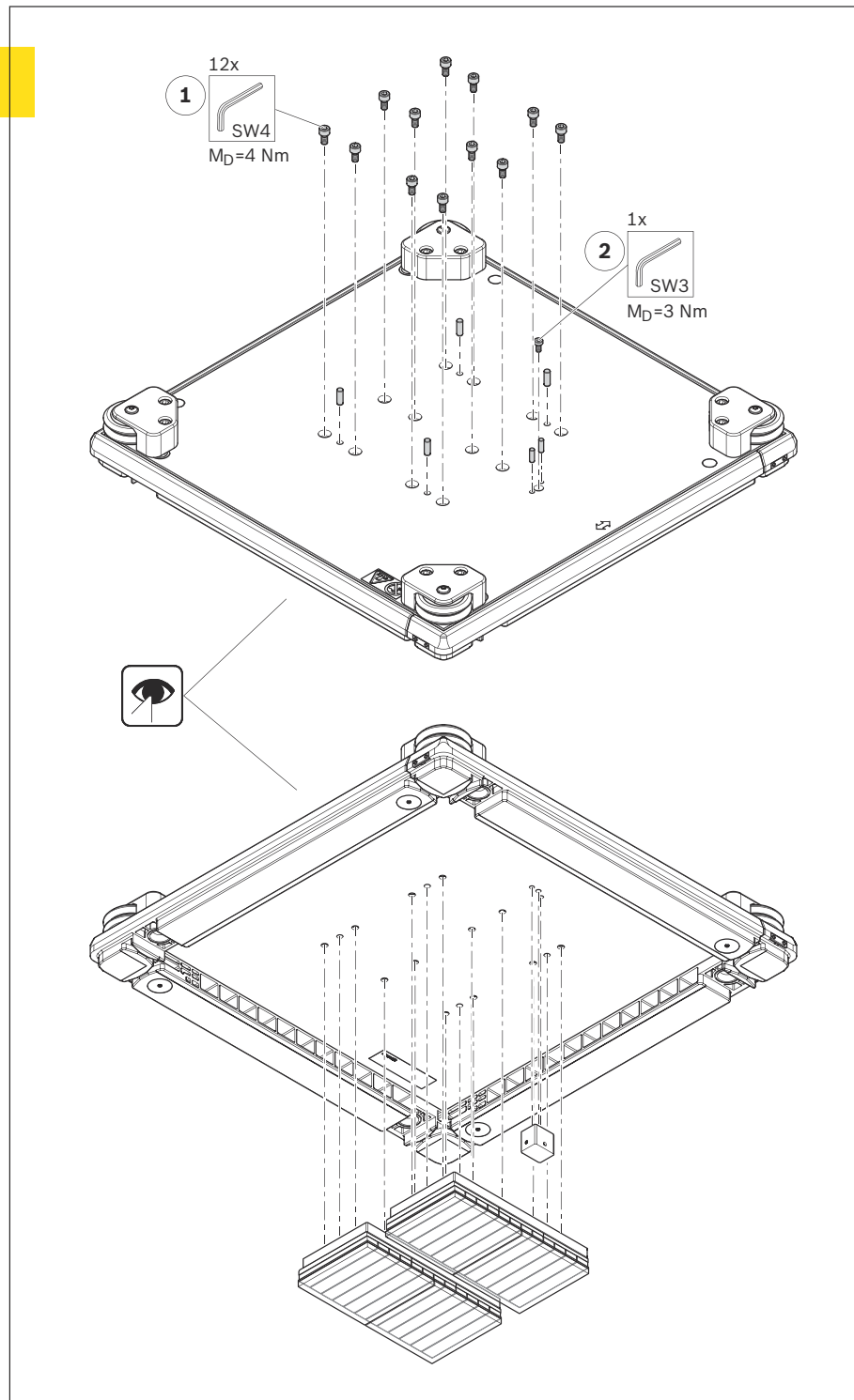
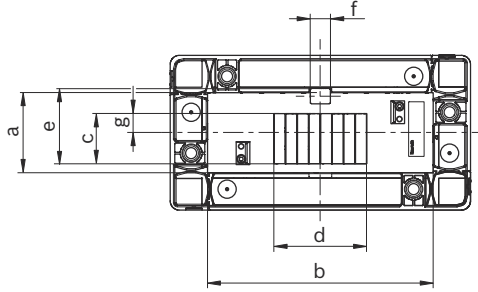
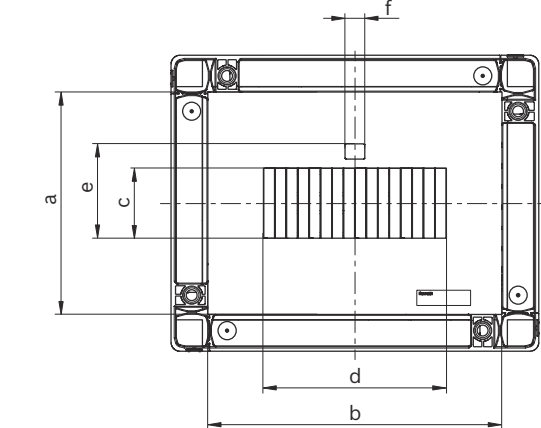
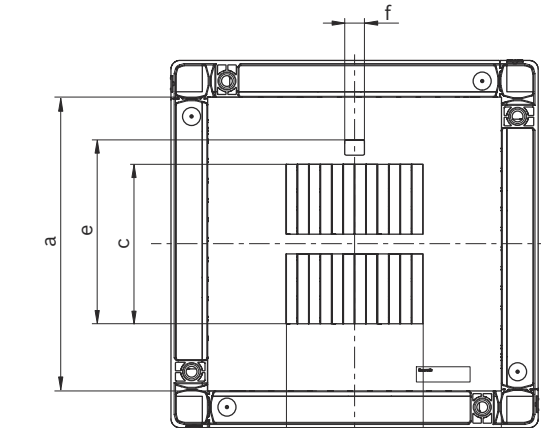


Fig. 23: Shown here, track width $b = 400 \text{ mm}$

Table 8: Feed and measuring magnet position

Track width b (b _{WT}) [mm]	l _{WT} [mm]	Dimension [mm]							Version WT 2/LS
		a	b	c	d	e	f	g	
160	160	88	88	55	51	82.75	22	21	
	240	88	168	55	51	82.75	22	21	
	320	88	248	55	102	82.75	22	21	
240	160	168	88	78	51	105.2	22	—	
	240	168	168	78	102	105.2	22	—	
	320	168	248	78	153	105.2	22	—	
	400	168	328	78	153	105.2	22	—	
320	240	248	168	78	102	105.2	22	—	
	320	248	248	78	153	105.2	22	—	
	400	248	328	78	204	105.2	22	—	
	480	248	408	78	204	105.2	22	—	
400	320	328	248	178	102	205.2	22	—	
	400	328	328	178	153	205.2	22	—	
	480	328	408	178	153	205.2	22	—	
	640	328	568	178	153	205.2	22	—	

9.16 Sensor options and separation on BS 2 with WT 2/LS

Table 9: Sensor options for WT 2/LS

Track width b (b_{WT}) [mm]	l_{WT} [mm]	Sensor option WT 2/LS		
		Laterally over the section	From below Longitudinal con- veyor	Transverse con- veyor
160	160	●	–	–
	240	●	–	●
	320	●	–	●
240	160	●	–	–
	240	●	○	●
	320	●	○	●
	400	●	○	●
320	240	●	●	●
	320	●	●	●
	400	●	●	●
	480	●	●	●
400	320	●	●	●
	400	●	●	●
	480	●	●	●
	640	●	●	●

- Sensor possible
- Sensor possible but not on measuring magnet side
- Sensor not possible

Table 10: Separation for WT 2/LS

Track width b (b _{WT}) [mm]	l _{WT} [mm]	Separation WT 2/LS	
		Longitudinal conveyor	Transverse conveyor
160	160	D	D
	240	D	S
	320	D	S
240	160	D	D
	240	SD	S
	320	SD	S
	400	S	S
320	240	S	S
	320	S	S
	400	S	S
	480	S	S
400	320	S	S
	400	S	S
	480	S	S
	640	S	S

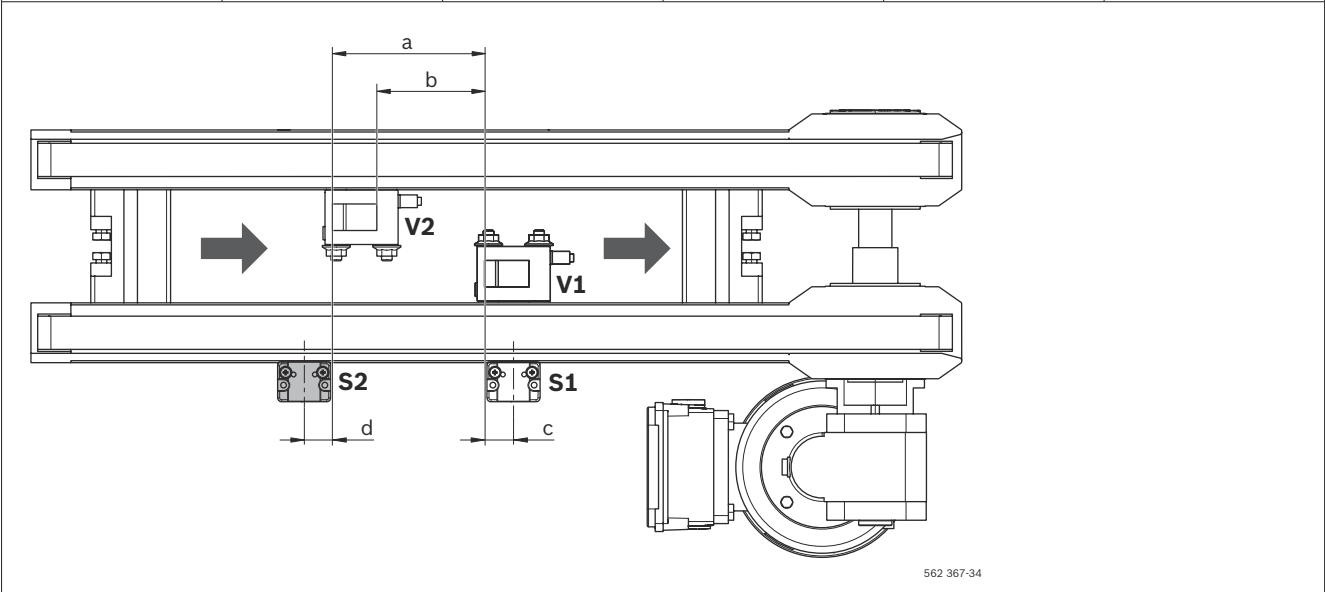
S Standard

SD Standard, but with double separation on measuring magnet side

D Double separation

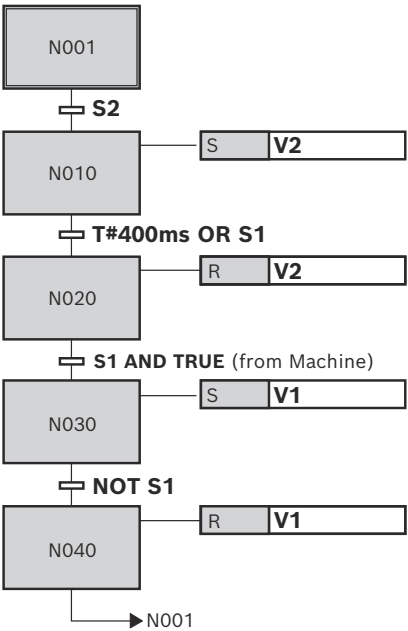
Table 11: Assembly positions with double separation

Track width b (b _{WT}) [mm]	l _{WT} [mm]	Dimension [mm]			
		a	b	c	d
160	160	114.5	81	21.8	21
	240	94.5	61	69.4	21
	320	196.5	163	58.5	21
240	160	114.5	81	19.5	21
	240	114.5	81	19.5	21
	320	194.5	161	19.5	21



Function plan for double separation

- S1 Sensor 1
- S2 Sensor 2
- V1 Stop gate 1
- V2 Stop gate 2



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9.17 Electrical connection of the product

- Select the control and sensor elements according to EN ISO 13849 – note the load to be transported and the transport speed.
- Observe standard DIN EN 60204, VDE regulation VDE 0100 (for Germany), EU Directive 2014/35/EU and the corresponding regulations in the country of use.
- Observe safety regulations.

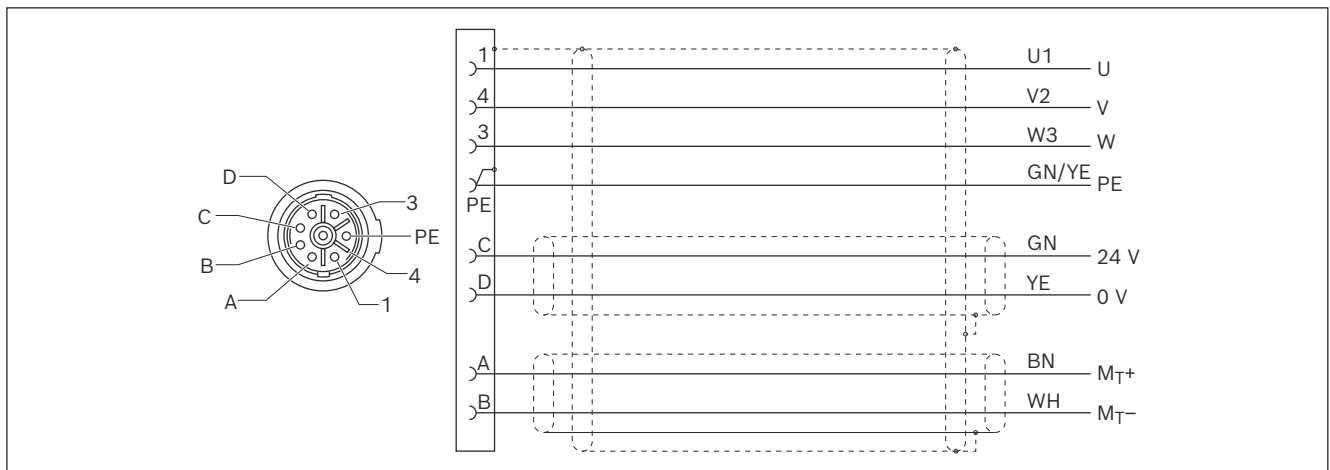


Separation of the motor and sensor lines of the motor modules

- The temperature sensors Pt1000 of the motor modules are spatially and electrically separated from the motor phases U-V-W.
- The motor and sensor lines are routed via a common plug and a common cable.
- If the application demands increased requirements for safe protective separation between the motor and sensor lines, additional protective measures (e.g. input isolators) must be provided for the sensor lines.
- For further information, refer to the SIEMENS¹⁾ manual "SINAMICS S120 control units and additional system components."

1) SIEMENS is a registered trademark of SIEMENS AG, Munich

Pin assignment of motor cables FMK...



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Fig. 24:

Pin	Wire marking	Connection	Function
1	U1	U	3-phase linear motor
4	V2	V	
3	W3	W	
PE	GN/YE	PE	Protective earth
C	GN	+24 V	Fan ¹⁾
D	YE	0 V	
A	BN	M _T +	Temperature sensor
B	WH	M _T -	

1) For size 306 mm only

Pin assignment of sensor cables FSK...

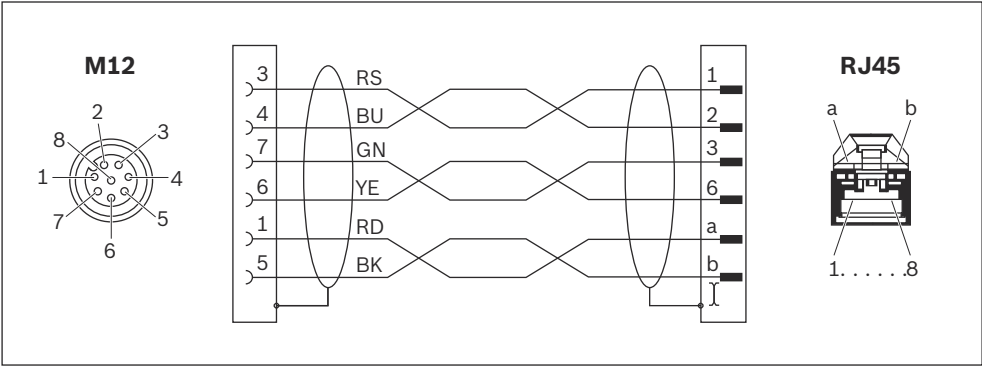
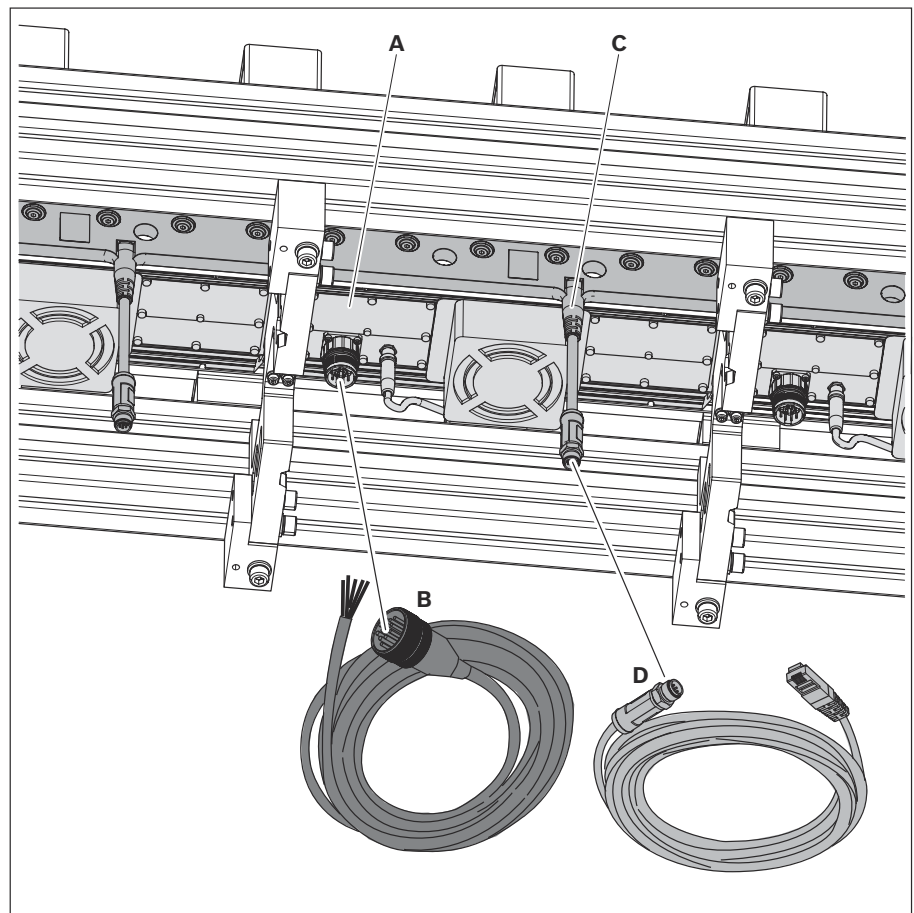


Fig. 25:

Socket M12			Plug RJ45	
Pin	Connection	Wire marking	Pin	Connection
3	RX-P	PK	1	TX-P
4	RX-N	BU	2	TX-N
7	TX-P	GN	3	RX-P
6	TX-N	YE	6	RX-N
1	+24 V	RD	a	+24 V
5	0 V	BK	b	0 V

Motor connection

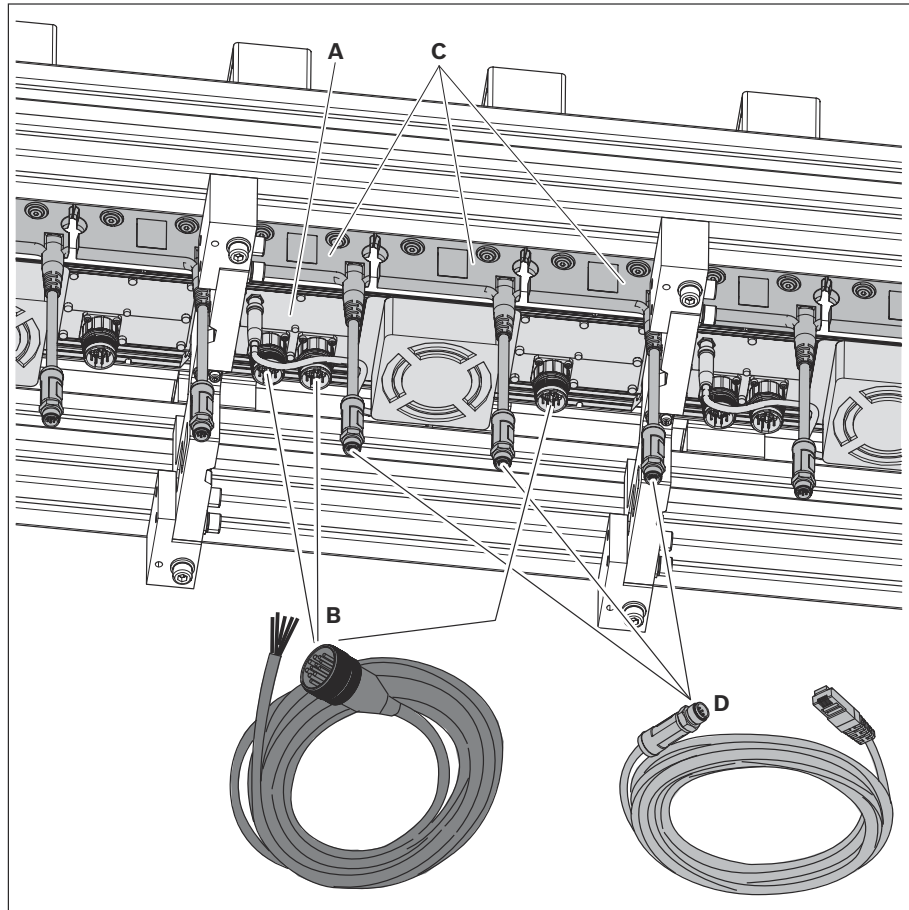
- A** Motor modules
- B** Motor cable FMK...; connection of motor ➔ control cabinet
- C** Hall sensor
- D** Sensor cable FSK...; connection of Hall sensor ➔ control cabinet



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Fig. 26: Shown here, track width $b = 240 \text{ mm}$, $MC = 0$

- A** Motor modules
- B** Motor cable FMK...; connection of motor ➡ control cabinet
- C** Hall sensor
- D** Sensor cable FSK...; connection of Hall sensor ➡ control cabinet



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Fig. 27: Shown here, track width $b = 320 \text{ mm}$, $MC = 1$

- A** Motor modules
- B** Motor cable FMK...; connection of motor ➔ control cabinet
- C** Hall sensor
- D** Sensor cable FSK...; connection of Hall sensor ➔ control cabinet

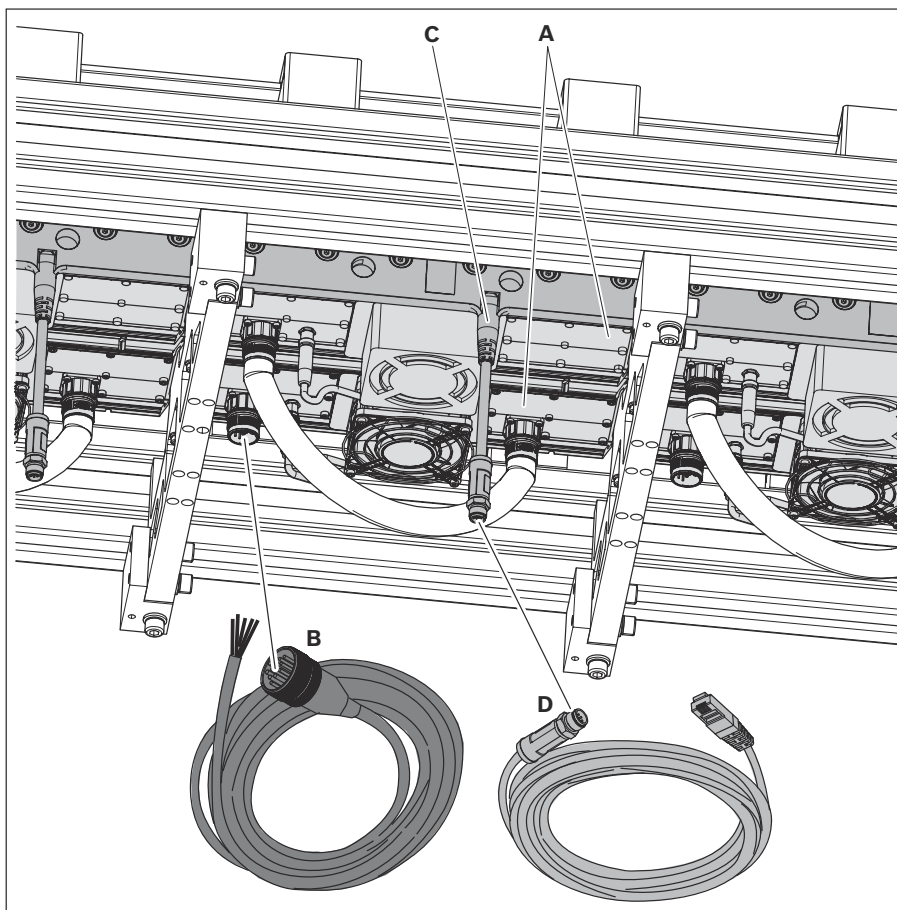


Fig. 28: Shown here, track width $b = 400 \text{ mm}$, $MC = 0$

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Electrical connection of BS 2/...

See assembly instructions BS 2/... belt section 3842572376.

10 Commissioning

10.1 Initial commissioning

- Carry out a risk assessment according to DIN EN ISO 12100.
- Remove any protruding or sharp-edged parts.
- Follow the "Safety instructions" chapter.
- Let the system run for max. 2 s to verify the correct conveying direction.

10.2 Recommissioning after standstill

Proceed in the same way as for initial commissioning.

11 Operation

Hot surfaces on electric motors and motor modules

- Set up protective devices.
- Allow the motor to cool before handling.

11.1 Information on operation

11.1.1 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 malfunction and lead to the premature breakdown of motors and gears.
- If pneumatically activated components are overloaded, their function cannot be guaranteed.

11.1.2 Measures to reduce wear

The following obvious measures will reduce wear:

- When retracting and extending the WT 2/LS, adjust the speed of the LS 2 to the speed of the BS 2.
- Switch off conveyor sections when the system is not running, e.g. during breaks, overnight, or at the weekend.
- Do not set the speed, acceleration and deceleration of the conveyor section higher than required for the respective function.
- Particularly important: Avoid contamination by abrasive media; reduce contamination through regular cleaning.

11.1.3 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.

12 Maintenance and repair

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
Hot surfaces on electric motors and motor modules	• Set up protective devices. • Allow the motor to cool before handling.

- Continuous conveyors that are in motion or operation must only be inspected or adjusted when the protective equipment is in place.
- Protective equipment: DIN EN ISO 13857.
- Test runs with open panels are only allowed if they are carried out by a competent person using tip-over switches and there is no possibility of interference from other switching elements.

12.1 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.

Guide rails LS 2

Clean the guide rails every month with a clean, soft cloth.

Then coat the guide rails with a thin layer of grease suitable for roller bearings and with NLGI consistency class 2 – corrosion protection.

This is also required if the operational Lubrication unit LU 2/LS (3842562436) are used.

Workpiece pallets, Hall sensors, motor modules

Clean components every month with a clean, soft cloth.

12.2 Inspection

12.2.1 Checking the ease of movement WT 2/LS

- ▶ Move the WT 2/LS over the entire length of the LS 2 (see also [Chapter 9.14 Inserting/removing WT 2/LS on page 43](#)).
- ➔ The WT 2/LS must be able to move smoothly and without play over the entire length of the LS 2. Adjustment of the guide rail, [Chapter 9.12 Guide rail readjustment on page 41](#).

12.2.2 Workpiece pallet

Check the workpiece pallets for damage and wear on a regular basis and after disassembly.

12.2.3 Motor modules

- ▶ Regularly check the surface of the motor modules for damage. In particular, check for abrasion caused by the workpiece pallets.
- ➔ If abrasion is visible, readjust the motor modules, [Chapter 12.5.1 Adjusting the motor module on page 58](#).

12.3 Maintenance

12.3.1 Guide rails of the LS 2

Every 200 operating hours, coat the guide rails with a thin layer of grease suitable for roller bearings and with NLGI consistency class 2 – corrosion protection. This does not apply when using the Lubrication unit LU 2/LS (3842562436).

12.3.2 Guide rollers of the WT 2/LS

Every 500 operating hours, lubricate the guide rollers of the WT 2/LS with grease of NLGI consistency class 2 suitable for roller bearings. This does not apply when using the Lubrication unit LU 2/LS (3842562436).

12.3.3 Motor modules

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

- On surfaces
- At intake ports
- Between cooling ribs

12.4 Spare parts

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

12.5 Replacement of wear parts

12.5.1 Adjusting the motor module



- Only adjust the motor modules in case of a loss of power or if the motor modules show signs of abrasion caused by workpiece pallets.
- The motor modules are adjusted by readjustment of the respective motor bridge.

Accessories

- Adjustment set LS 2 (3842562442)
1. Screw the spindle screws of the adjustment set (accessory, not included in the scope of delivery) into the motor bridge on both sides.
 2. Install the holder from the adjustment set on both sides, and lightly tighten the spindle screws.
 3. Loosen the motor bridge slightly on both sides, so that the motor bridge is movable but not loose.

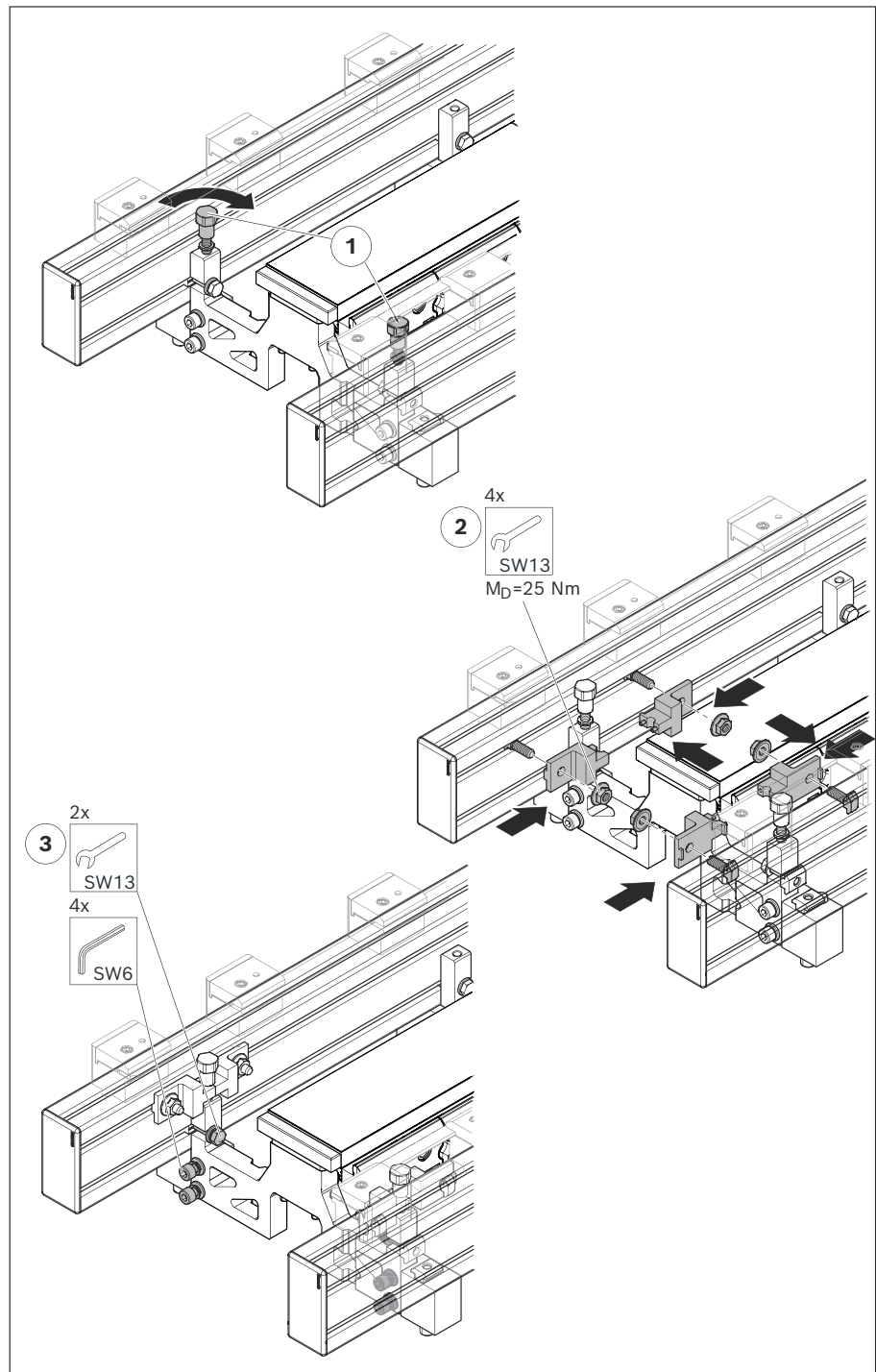


Fig. 29: Adjusting the motor module (1/2)

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- The distance measurement must be carried out at the measuring points "X", offset inwards by approximately 10 mm from the edges of the motor module.
- Use alternative measuring option 2 only if measuring option 1 is not usable due to super-structures or for other reasons.
- Dimension "D" and "E" → [Table 12 Adjusting the motor modules, dimensions D and E on page 60](#)

Measuring option 1, dimension "D"

from top of WT 2/LS to top of motor module

4.1 Insert the work-piece pallet WT 2/LS (→ Chapter 9.14 Inserting/removing WT 2/LS on page 43) and slide it to the motor bridge.

4.2 On each motor bridge, set the dimension "D" on both sides with the spindle screws.

Alternative measuring option 2, dimension "E" from top edge of profile LS 2 to top of motor module

4. On each motor bridge, set the dimension "E" on both sides with the spindle screws.

5. First, tighten the hex screws and then the hex socket screws of the motor bridge.

6. Check the setting dimensions.
If the dimensions are out of tolerance, repeat steps 3 to 5.

7. Remove the adjustment set.

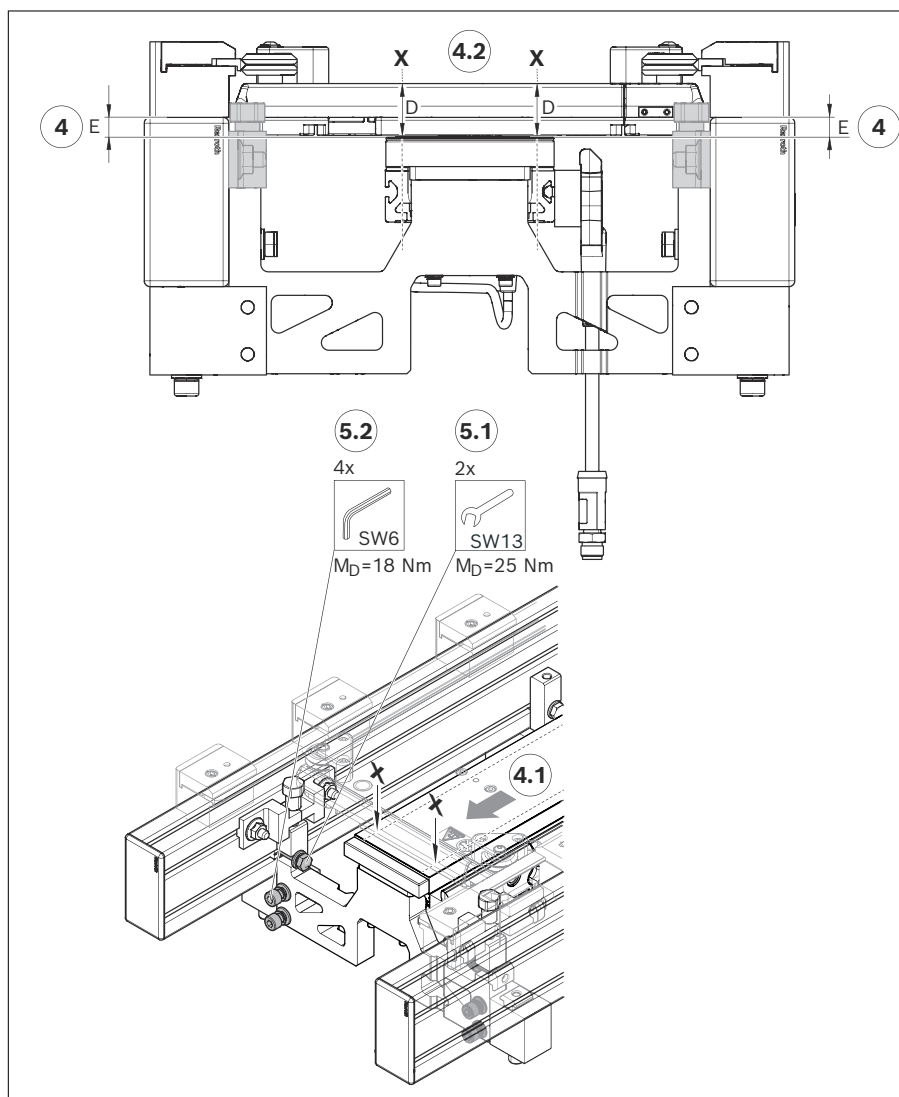


Fig. 30: Adjusting the motor module (2/2)

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Table 12: Adjusting the motor modules, dimensions D and E

Track width b (b_{WT}) [mm]	Length WT l_{WT} [mm]	Dimension D ± 0.1 [mm]	Dimension E ± 0.1 [mm]
160	160, 240, 320	28.5	10.5
240	160, 240, 320, 400	28.8	10.8
320	240, 320, 400, 480	29.0	11.0

Track width b (b_{WT}) [mm]	Length WT l_{WT} [mm]	Dimension D ± 0.1 [mm]	Dimension E ± 0.1 [mm]
400	320, 400, 480	29.5	11.5
	640	33.7	11

13 Disassembly and replacement

Electrical current	• De-energize • Secure against reactivation • Ensure absence of voltage on all poles • Ground and short-circuit • Cover or block off any adjacent live parts
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13.1 Preparing the product for storage/later use

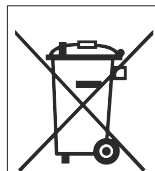
- ▶ Only set the product down on a flat surface.
- ▶ Protect the product from mechanical stress, dirt and humidity.
- ▶ Observe the ambient conditions (see ➔ [Chapter 17.1 Ambient conditions on page 62](#)).
- ▶ Do not subject the assembled motor to mechanical stress.

14 Disposal



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

14.1 Disposal of electrical components



- ▶ Do not dispose of electrical equipment and accumulators/batteries with household waste.
- ▶ You are legally obligated to dispose of electrical equipment and accumulators/batteries properly. You can do this free of charge at a local collection point or via Bosch Rexroth.

14.2 Disposal of magnetic components

For disposal of workpiece pallets WT 2/LS with magnets, pay particular attention to the instructions in ➔ [Chapter 2.6 Product-specific safety instructions on page 10](#).

15 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.

16 Troubleshooting

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

17 Technical data



More technical data:

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

17.1 Ambient conditions

Data	Value	Unit
Operating temperature ¹⁾	-10 ... +30	°C
Storage temperature	-10 ... +70	°C
Relative humidity	40 ... 95	% (non-condensing)
Max. load capacity of floor	1,000	kg/m ²

1) Reduced technical data at temperatures > 30 °C

- 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.

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