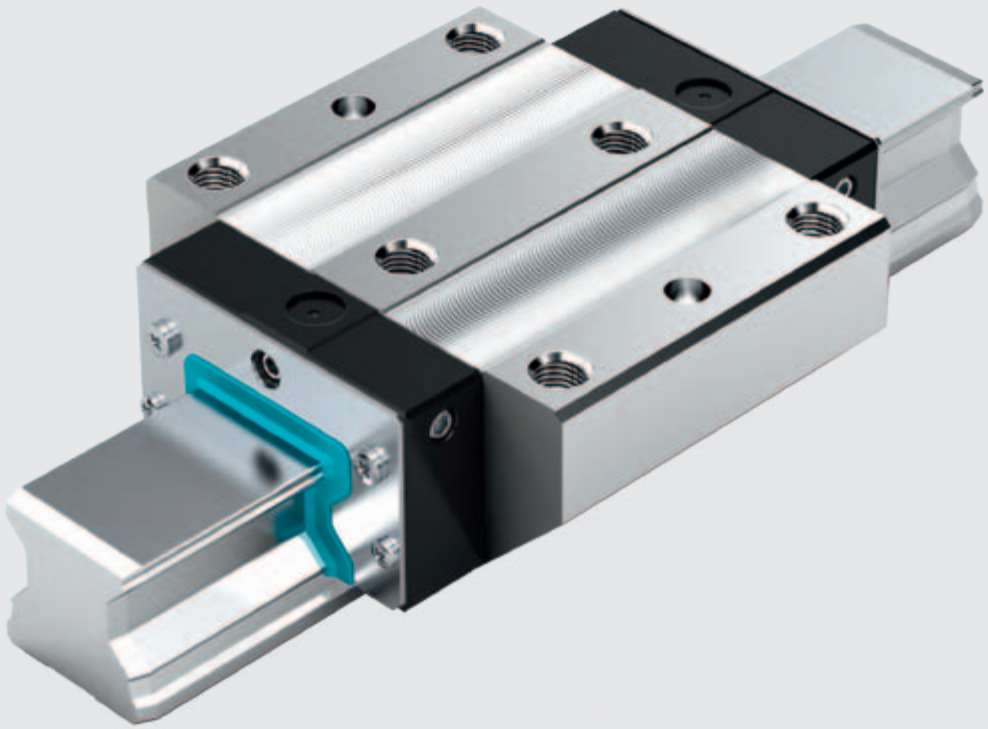
Rexroth
Bosch Group

Roller Rail Systems

R320103096/2011-10
Replaces: 2004-03
EN

Instructions

EN



This data has been provided solely for the purpose of product description. No statement regarding any particular quality or suitability for any particular use can be derived from this information. The information does not release the user from making his/her own inspections and evaluations. It should be noted that our products are subject to a natural process of aging and wear and tear.

The title page contains an illustration of a sample configuration. The product as delivered can differ from the illustration.

The original instructions are in the German language.

Any dissemination of the product must include these instructions.

Die vorliegende Anleitung ist in folgenden Sprachen verfügbar.
These operating instructions are available in the following languages.
Les présentes instructions de service sont disponibles dans les langues suivantes.
Le presenti istruzioni per l'uso sono disponibili nelle lingue seguenti.
El presente manual de instrucciones está disponible en los siguientes idiomas.
As presentes instruções de serviço estão disponíveis nas seguintes línguas.

DE Deutsch (Originaldokumentation)
EN English
FR Français
IT Italiano
ES Español
PT Português

Contents

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1 About these Instructions

1.1 Scope and purpose of the documentation

This documentation applies to the following products:

- Roller Rail Systems as per “Roller Rail Systems” catalog.

This documentation is intended for assembly/installation personnel, line operators and machinery/plant users.

This documentation contains important information for proper and safe installation, operation, maintenance and deinstallation of the product and for troubleshooting simple errors oneself.

▶ Before working with the product, be sure to read these Instructions carefully and completely.

1.2 Required documentation

Documentation which is indicated by the book symbol must be obtained before handling the product and must be adhered to.

	Title	Document number	Document type
	Roller Rail Systems	R310 xx 2302	Catalog
	Instructions for the Rail Seal Cover Strip	R320103110	Instruction
	Material safety data sheet for Dynalub 510	R320103160	Material safety data sheet
	Product data sheet Dynalub 510	R310EN2052	Product data sheet
	Material safety data sheet for Dynalub 520	R320103161	Material safety data sheet
	Product data sheet Dynalub 520	R310EN2053	Product data sheet
	System documentation of the machinery/system manufacturer		
	Manuals for the other machine/system components		

The Rexroth documentation is available for download at www.boschrexroth.com/mediadirectory.

1.3 Presentation of information

To enable users to work rapidly and safely with the product while following these instructions, this documentation uses standardized safety instructions, symbols, terms and definitions, and abbreviations. These are explained in the following sub-sections.

1.4 Safety notices in these Instructions

These Instructions contain safety (warning) notices preceding any actions that involve a risk of personal injury or damage to property. The safety precautions described must be adhered to.
Warning notices are structured as follows:

SIGNAL WORD

Type of hazard!

Consequences if ignored.

▶ Hazard avoidance precautions.

- Safety alert symbol: draws attention to the hazard
- Signal word: indicates the severity of the hazard
- Type of hazard: indicates the type or source of the hazard
- Consequences: describes the consequences that may occur if the hazard avoidance precautions are ignored
- Hazard avoidance precautions: indicates how to avoid the hazard

The warning notices cover the following hazard levels. The hazard level describes the risks involved if the warning notice is ignored.

Hazard levels as per ANSI Z535:

Safety alert symbol, signal word	Meaning
⚠ DANGER	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
⚠ WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
⚠ CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
NOTICE	Damage to property: Risk of damaging the product or the surrounding environment.

1.5 Symbols

The following symbols designate notes or crossreferences that are not safety-relevant but increase the clarity of the documentation.

Meaning of the symbols

Symbol	Meaning
	If this information is not observed, the product will not be used optimally.
▶	Single, independent work step
1. 2. 3.	Numbered work steps The sequence of the work steps is indicated by the numbers.
➠ 7	See section 7
➠ ☒ Fig. 7.1	See figure 7.1
	Screw with strength class...
⊘	Tightening torque
µ	Friction factor for screws
	Take note of the additional information given in the catalogs

1.5.1 Abbreviations / Pictograms

The following abbreviations are used in this document:

Abbreviation/Pictogram	Meaning
RRS	Roller Rail Systems
RB	Runner block
GR	Guide rail
M	Tightening torque
	Risk of injury due to sharp edges
	Wear gloves

2 Overview of Roller Rail Systems

1 Guide rails for standard / heavy duty runner blocks, for mounting from above, mounting holes sealed with cover strip (5), for mounting with clamping strips / wedge profile retaining strips (7).

2 Guide rails for standard runner blocks, for mounting from above, mounting holes closed with mounting hole plugs (6), for mounting with clamping strips / wedge profile retaining strips (7).

3 Guide rails for standard runner blocks, for mounting from below, for mounting with clamping strips / wedge profile retaining strips (7).

4 Guide rails for wide runner blocks, otherwise as (1)

5 Cover strips

6 Mounting hole plugs (for guide rails without cover strip).

7 Clamping strips / wedge profile retaining strips

8 Different runner block designs

9 Metal scraper plates

10 FKM and NBR seals

11 Lube plates

12 Front lube units

13 Bellows

14 Lube fittings

15 End seals

16 Measuring system

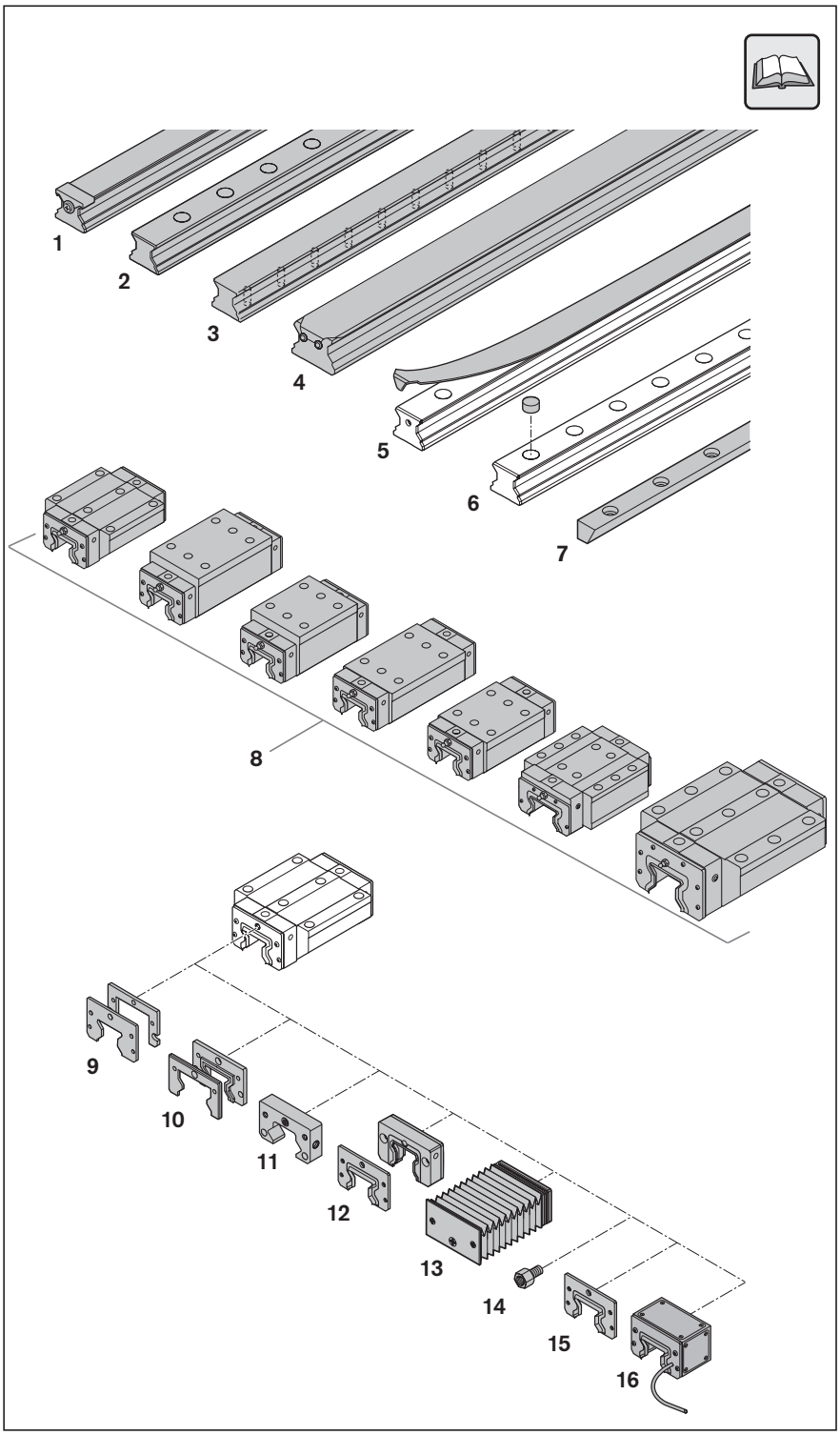

Fig. 1: **Overview**

2.1 Ordering data

- Roller Rail Systems / Accessories: See “Roller Rail Systems” catalog
- Publications: Please contact your local sales partner.

3 Delivery

3.1 Roller guide rails

⚠ WARNING

Roller guide rails are heavy.

Risk of injury.

- Use lifting/hoisting equipment (5/6/7) as appropriate for the weight or length of the guide rail!

⚠ CAUTION

Risk of injury when handling the cover strip

Minor injuries.

- Wear gloves
- Avoid uncontrolled whipping of the cover strip (3) by holding down the cover strip ends.

NOTICE

Deflection of the guide rail

Damage to the product

- Use suitable lifting/hoisting equipment (7) for guide rails > 3000 mm long to avoid deflection.

- One-piece guide rails with cover strip: The cover strip is already clipped on; protective caps are provided in the package (1).
- Composite guide rails: Matching sections of a composite guide rail are identified by a label on the packaging. For guide rails (2) with cover strip, the cover strip is supplied in one piece, matching the overall length, together with protective caps, screws and washers, in its own packaging (4) which is labeled with the same production job number as the guide rails.

Transporting / Unpacking
Do not recycle packaging until mounting has been completed! While mounting work is in progress, the packaging can protect guide rails or cover strips that have not been mounted yet.

Size	Weight (kg/m) Roller guide rail type Standard	Wide	Heavy duty
25	3.1		
35	6.3		
45	10.3		
55	13.1		
65	17.4		
55/85		24.7	
65/100		34.7	
100			42.5
125			75.6

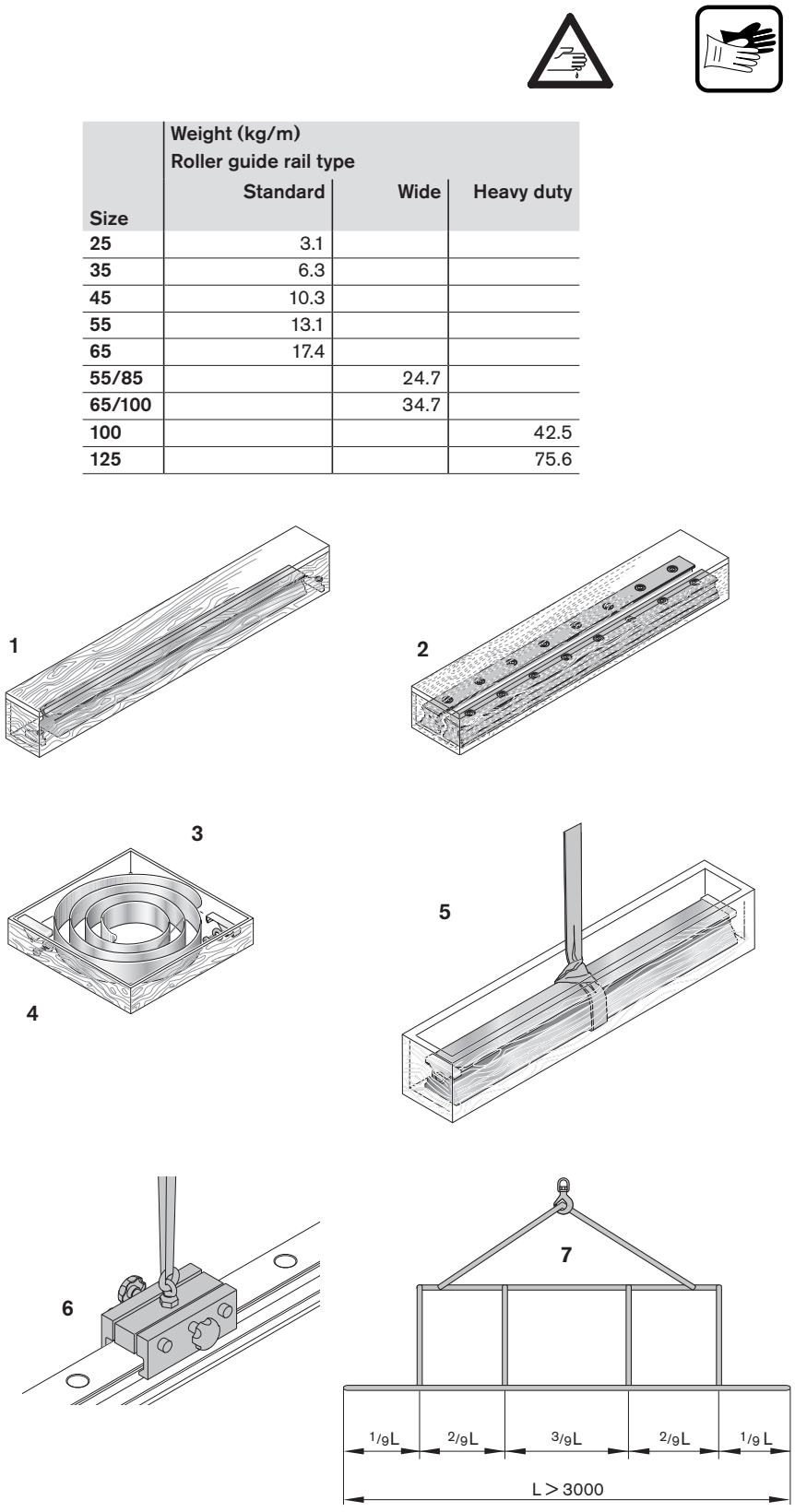

Fig. 2: **Weight and delivery of guide rails**

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3.2 Roller runner blocks

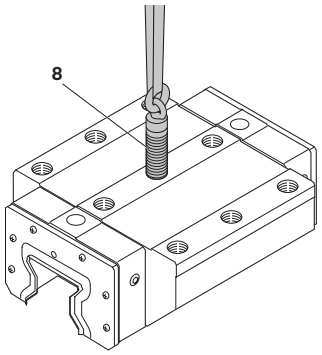
⚠ WARNING

Roller runner blocks are heavy.

Risk of injury.

- Use lifting/hoisting equipment as appropriate for the weight of the runner blocks!
  (Do not damage the runner block surfaces)

When using lifting equipment to transport the runner block, lifting bolts (8) that can be screwed into the threads on the runner block are useful in addition to a suitable sling.



Size	Weight (kg)
25	max. 1.1
35	max. 2.5
45	max. 4.7
55	max. 7.7
65	max. 14.5
55/85	11.5
65/100	20.3
100	max. 42.0
125	max. 89.8

Fig. 3: **Runner block weight**

4 Guide rail mounting

4.1 Preparation

- Take note of the weight and length of the guide rail ➠ 3.1
- Carefully remove guide rails from the packaging.
  Use slings or suitable lifting claws (5/6/7).
  Do not damage the guide rail surfaces.

⚠ CAUTION

Risk of injury when handling the cutter (4)

Minor injuries to hands.

- Wear gloves

NOTICE

Unsuitable tools!

Damage to the guide rail

- Use only the cutter (4) provided to cut the wrapping paper!

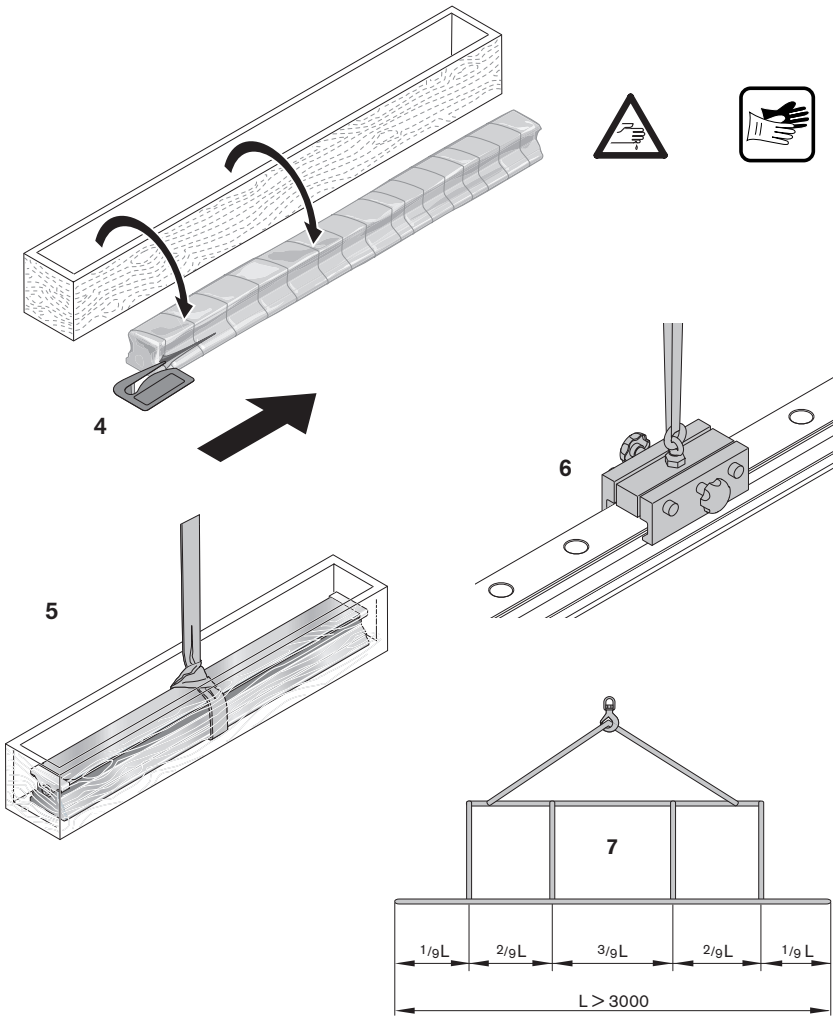


Fig. 4: **Preparations for guide rail mounting**

4.1.1 Preparations for mounting guide rails delivered as sets

- Lay out the guide rails belonging to one set.

Identification scenario 1:
Each guide rail in a set is marked with a consecutive number (on the packaging (1) and on the rail (2)).

Identification scenario 2:
Each guide rail in a set is marked with the same letter-number combination (on the packaging (3) and on the rail (4)).

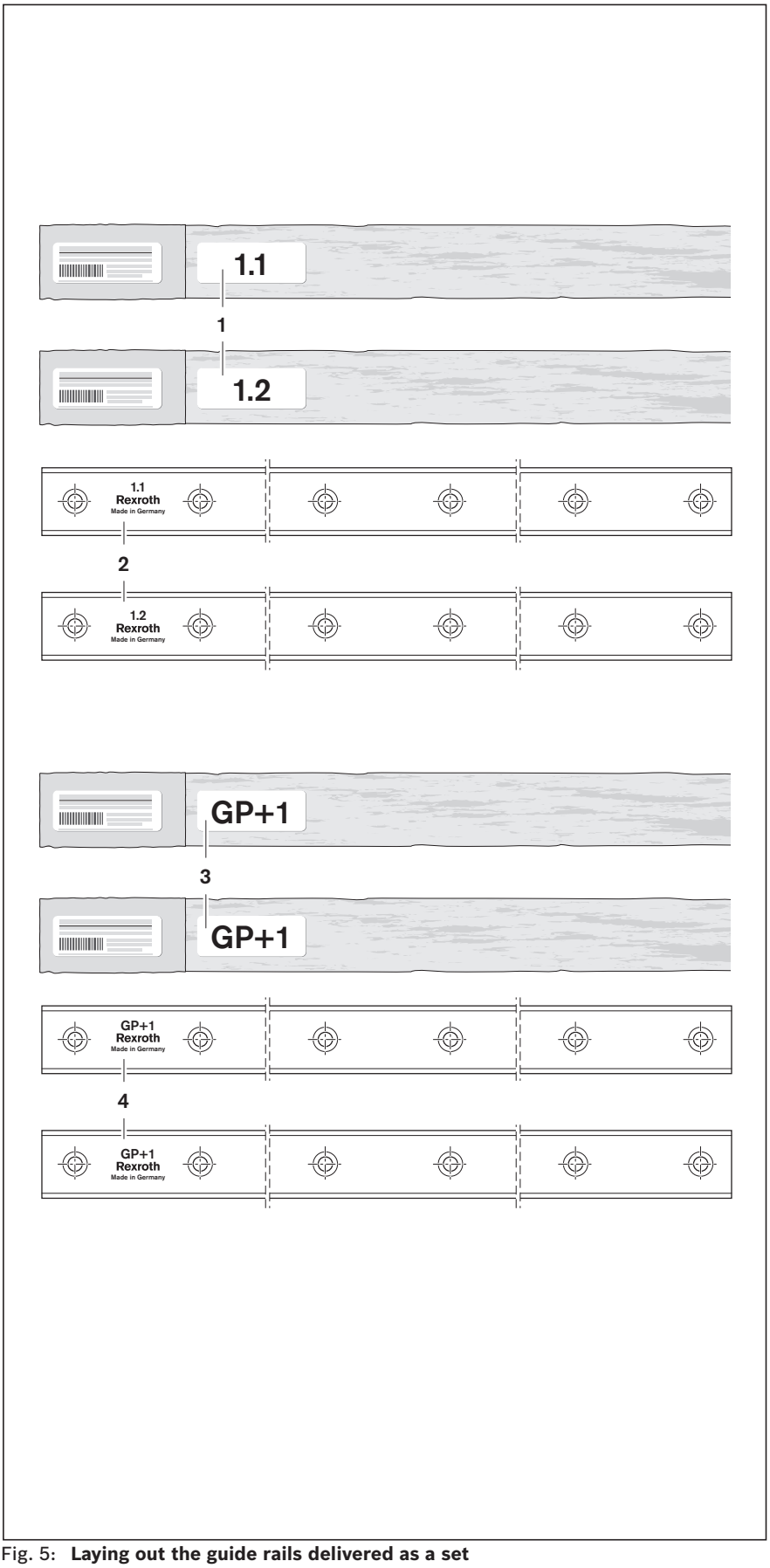


Fig. 5: **Laying out the guide rails delivered as a set**

4.1.2 Preparations for mounting composite guide rails

⚠ CAUTION

Sharp-edged joints (1)

Minor injuries to hands.

- Wear gloves

The joints (1) are numbered with consecutive numbers (2). For guide rails with two sections, the stamp is located on both sections (3). All sections of a guide rail comprising three or more sections have the same number (4). The stamp is located on the two end sections (5).

- Lay out the guide rails that belong together.
- Use aligner bars (6) to align the guide rails when the mounting base (7) has no reference edge (8).

To order aligner bars, see catalog.

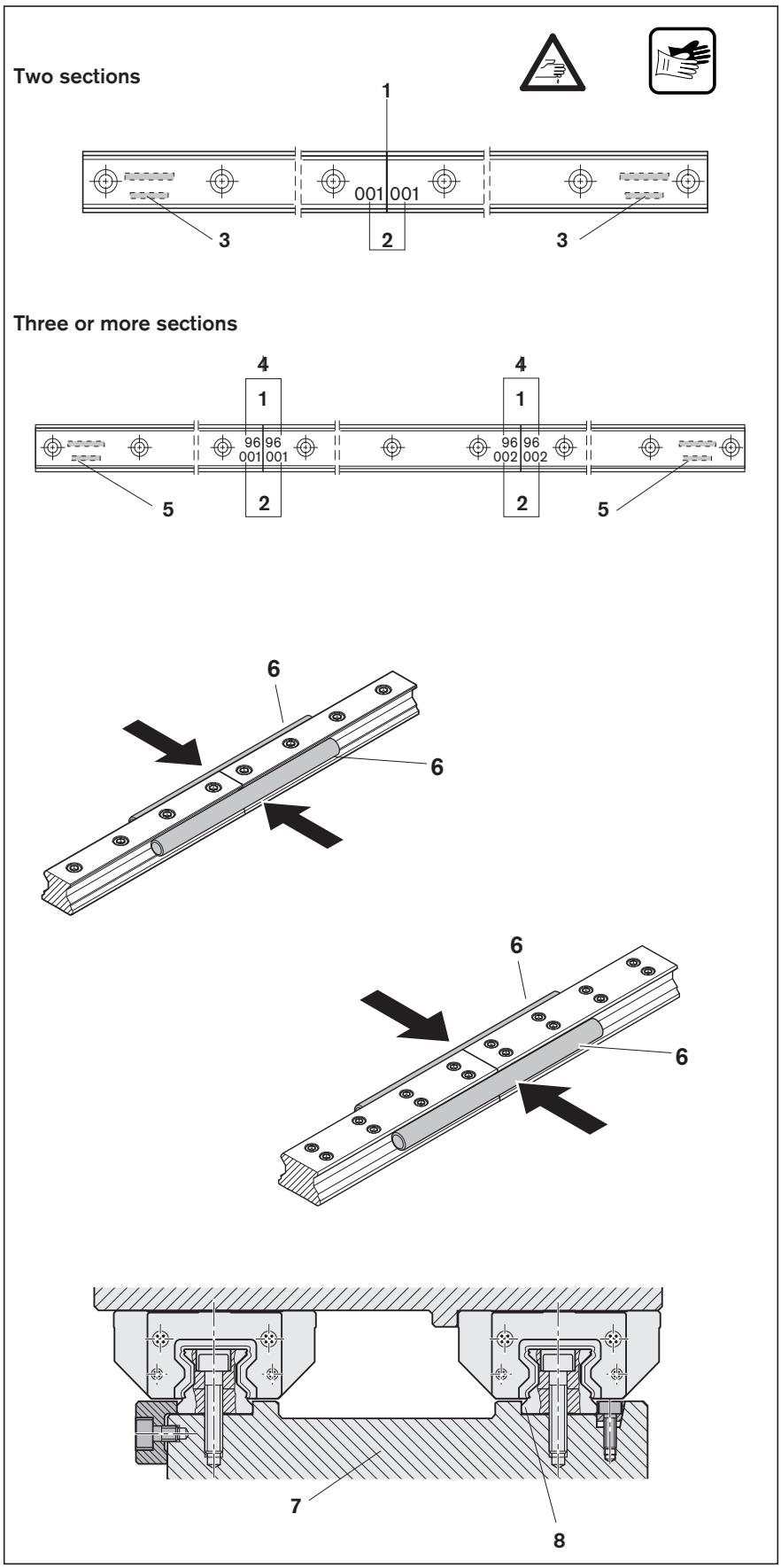


Fig. 6: **Laying out composite guide rails**

4.2 General mounting instructions

Each guide rail has ground reference surfaces on both sides. Each guide rail can be mounted to the left or the right of a reference edge (1) for lateral retention.

Guide rails without lateral retention have to be aligned straight and parallel when mounting, preferably using a straightedge.

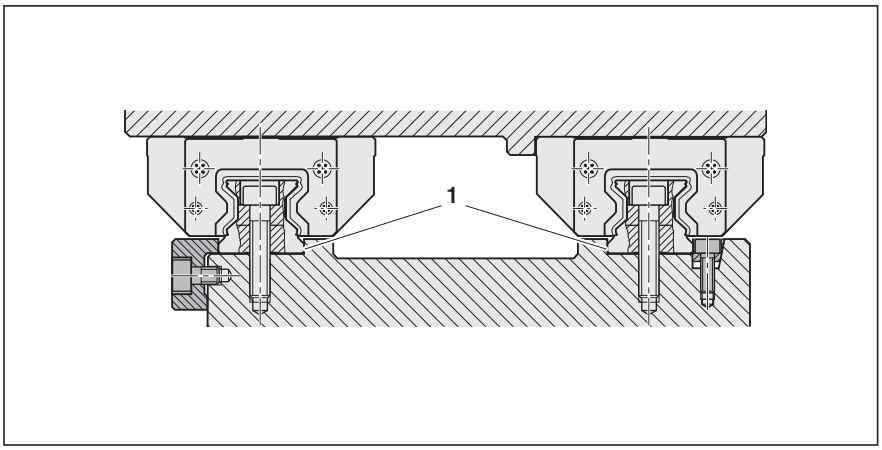


Fig. 7: **General mounting instructions for roller guide rails (example)**

4.3 Preparing the adjoining structure

1. Drill holes / tap threads into the supporting structure for fastening of the guide rails. For detailed dimension data, see catalog.
2. Check the corner radii r_1, heights of reference edges h_1, and supporting and reference surfaces.
3. Carefully hone the mating surfaces for the guide rails and clean them thoroughly.

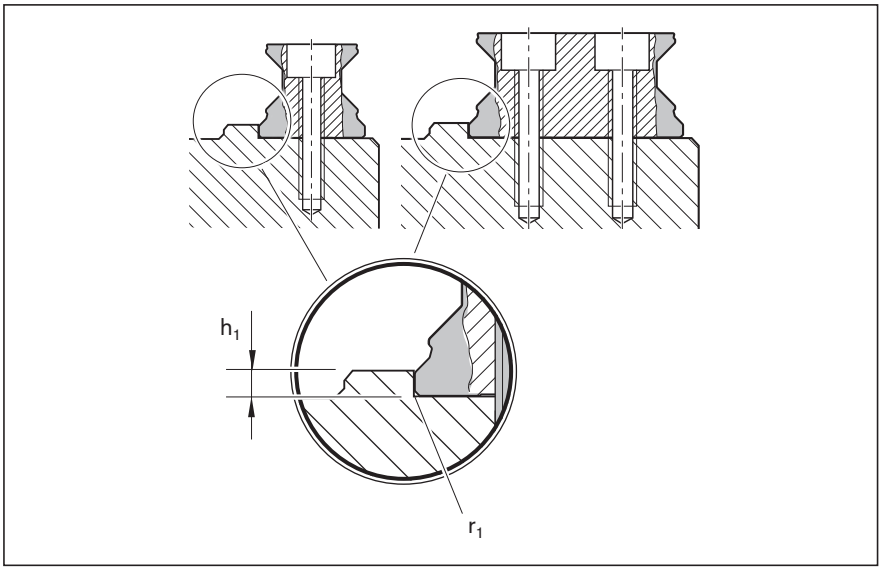


Fig. 8: **Preparing the adjoining structure**

4.4 Mounting the guide rails

⚠ WARNING

Excessively high loads and moments may cause the load limits for screw connections to be exceeded.

Risk of injury or death due to falling Roller Rail System.

- ▶ Screw connections must be recalculated and verified during design calculations. See catalog.

⚠ CAUTION

Risk of injury due to sharp edges on end faces of guide rails

Minor injuries to hands.

- Wear gloves

4.4.1 Preparation

Prepare the reference and mating surfaces for the guide rails

Contamination, out-of-flatness (material displaced by damage to the surface) or burrs are not permitted.

NOTICE

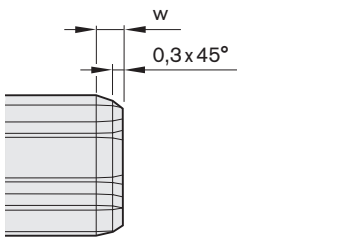
Damage to the runner block! (seals)

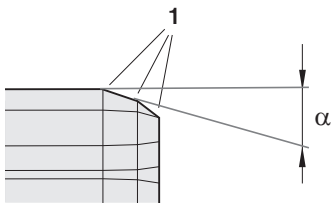
Damage to the product

- For one-piece guide rails, chamfer the end faces and round the transitions of the edges as necessary.
- For composite guide rails, hone the faces of the joints

1. For guide rails with pre-mounted cover strip (Rail Seal), remove the cover strip. See Instructions for the rail seal cover strip. Chamfer the end faces of the guide rails (1) and round off transitions (remove all burrs) to slide on the runner blocks.
2. For composite guide rails, hone the faces of the joints. Then clean the joint faces and apply a thin coat of oil to them.
3. Check the reference and mating surfaces for the guide rails and hone them if necessary. Then clean the surfaces.

Hone using a honing stone (grain size 200/300) or an oil stone.





Size	w (mm)	α (°)
25	3.0…4.0	10°
35	3.5…4.5	12°
45		
55		
65		
55/85		
65/100		
100		
125		

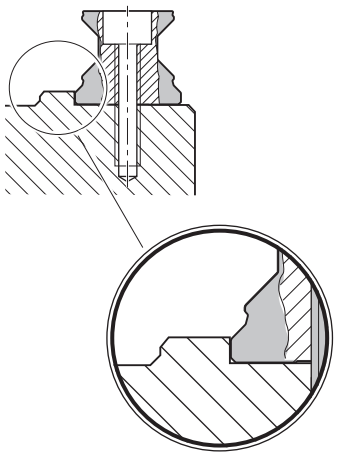


Fig. 9: **Preparing the guide rails**

4.4.2 Mounting standard, wide and heavy duty roller guide rails

▶ Select and line up screws ready to mount the guide rails.

Do not use washers!

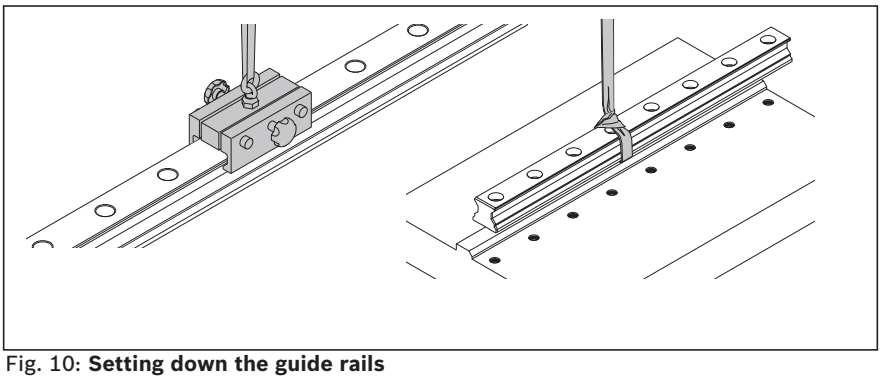


Fig. 10: **Setting down the guide rails**

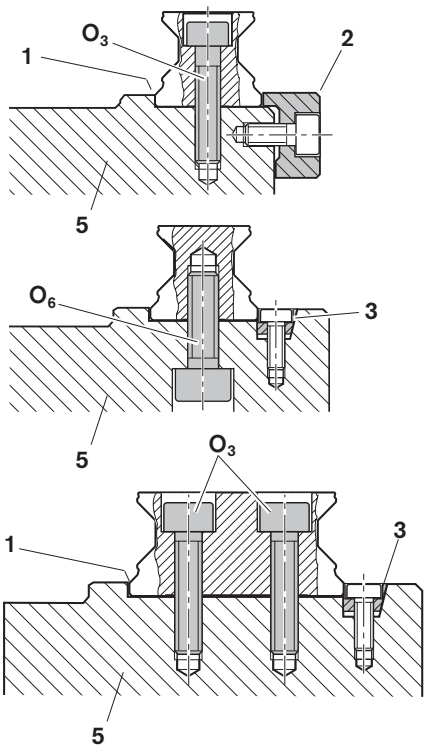
Composite guide rails:

1. Prepare the guide rails for mounting ➠ 4.1.2

Mounting the guide rails:

2. Carefully set the guide rails down on the supporting structure (5) (consider the weight and length of the guide rail) ➠ 3.1.
3. Press the guide rails against the reference edge (1) and tighten the screws (O_3 / O_6) lightly, working from the middle to the outside. For lateral retention, either the right or the left reference edge of the guide rails can be used.
4. If necessary, fix the guide rails in place with clamping strips (2) or wedge profile retaining strips (3).
5. Guide rails without any lateral retention are to be aligned straight and parallel, preferably using a straightedge.
6. Tighten the screws to the specified tightening torque M_A ➠ 10.

In the case of high tightening torques and restricted spaces, the use of a torque multiplier (6) is recommended.



Size	O_3 ISO 4762 (DIN 912) (mm)	O_6 ISO 4762 (DIN 912) (mm)
25	M6x30	M6x20
35	M8x35	M8x25
45	M12x45	M12x30
55	M14x50	M14x40
65	M16x60	M16x45
55/85	M12x30	
65/100	M14x35	
100	M24x100	
125	M30x120	

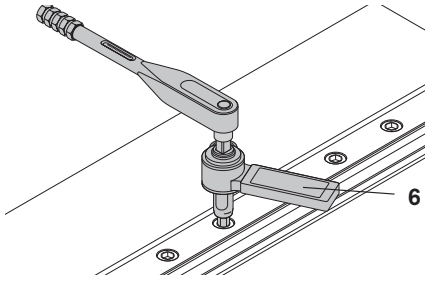


Fig. 11: **Mounting the guide rails**

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4.5 Mounting the wedge profile retaining strips

▶ Mount the wedge profile (1).
Take note of the torque M_A ➠ 10

The wedge effect multiplies the lateral clamping force. Tighten the mounting screws of the guide rail and the wedge profiles in stages, alternating between them.

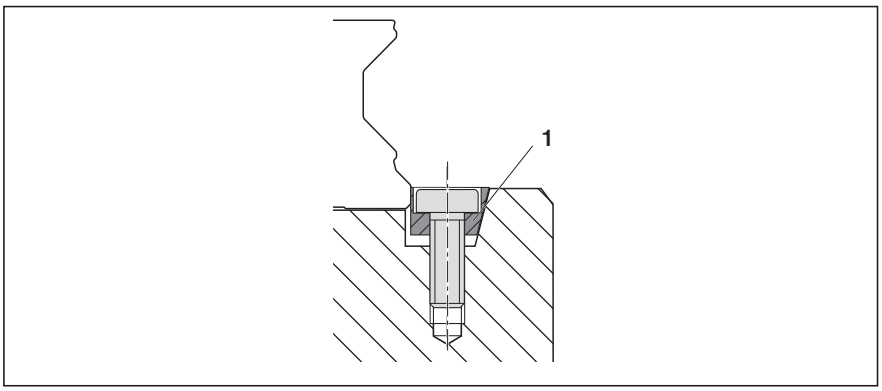

Fig. 12: **Mounting the wedge profile retaining strips**

4.6 Mounting and aligning parallel guide rails

The parallelism of the mounted roller guide rails must be checked using mounting runner blocks or roller runner blocks before plugging the mounting holes.

Requirement: The first guide rail must already be aligned and mounted. See catalog for values.

If roller runner blocks are to be used to check the parallelism, take note of the instructions in section 5. The parallelism offset P_1 causes a slight increase in preload on one side of the assembly. As long as the values specified in the catalog table are met, the effect of this on the service life can generally be neglected.

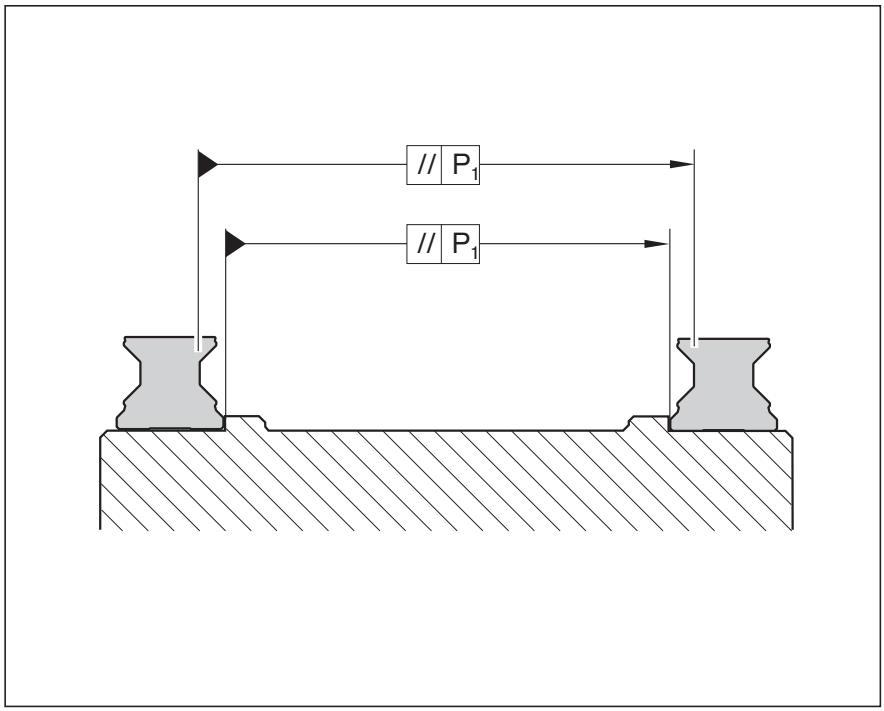

Fig. 13: **Checking the parallelism of the guide rails**

- The central hole D in the mounting runner block allows precise measurement of the relative rail position. The rail mounting screws can also be driven down through this hole.

Aligning the rails

1. Align and mount the first guide rail using a graduated straightedge.
2. Take note of the instructions for mounting the runner blocks ➠ 5.
3. Set up a mounting bridge with dial gauge between the runner blocks.
4. Move both runner blocks in parallel until hole **D** in the mounting runner block is positioned precisely above a mounting hole in the rail.
5. Align the guide rail manually until the dial gauge shows the correct dimension.
6. Screw down the guide rail (through the mounting runner block) to the specified tightening torque M_A.

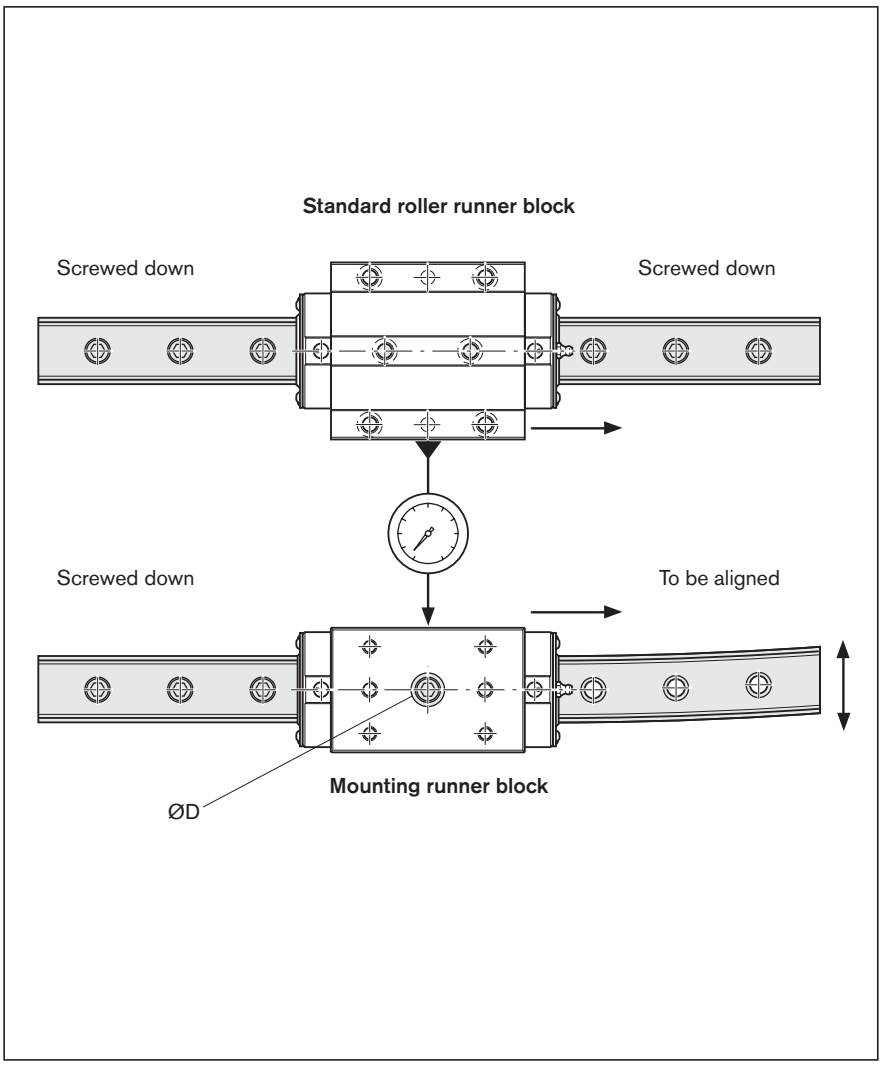

Fig. 14: **Aligning and mounting the roller guide rails**

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4.7 Checking the vertical offset

The actual vertical offsets S_1 and S_2 must be checked using mounting runner blocks or roller runner blocks before plugging the mounting holes in the guide rail (3) ➠ 5.

Provided the vertical offset is kept within the stated maximum tolerances for the transverse (S_1) and longitudinal (S_2) directions, its influence on the service life can generally be neglected. See catalog for values.

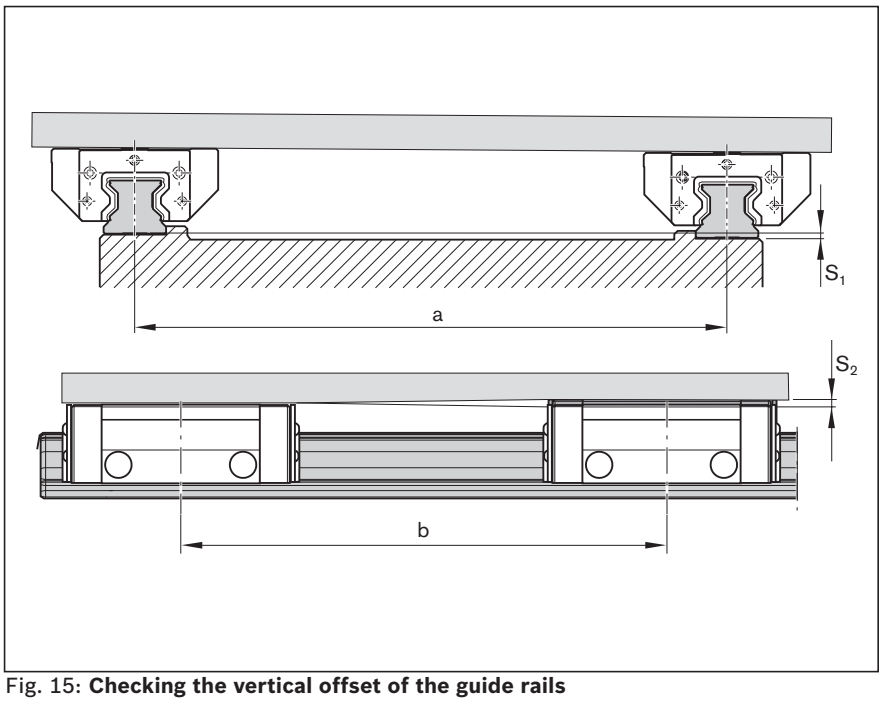


Fig. 15: **Checking the vertical offset of the guide rails**

4.8 Mounting the cover strip (rail seal)

If the guide rail mounting holes (3) are not sealed with mounting hole plugs, a rail seal cover strip (1) and protective caps (2) must be installed.

See mounting instructions for the rail seal cover strip.

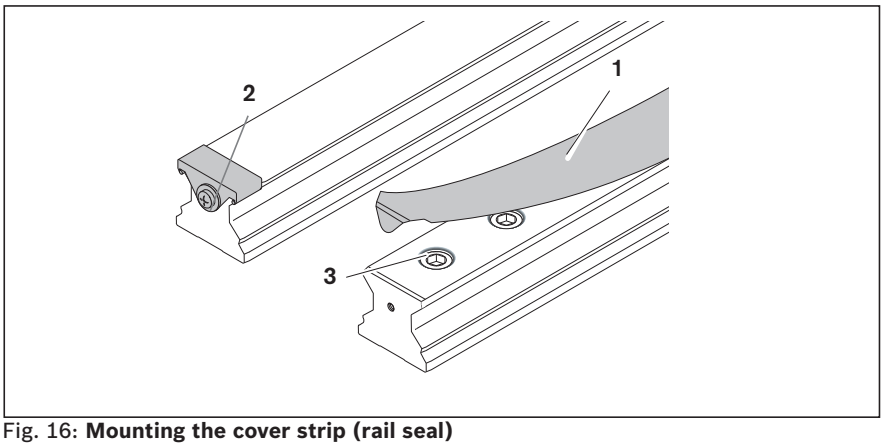


Fig. 16: **Mounting the cover strip (rail seal)**

4.9 Mounting plastic mounting hole plugs

(included in the scope of delivery)

Alternative: Steel mounting hole plugs ➠ 4.10

- ▶ Tap the plastic mounting hole plugs (4) into place with the aid of a plastic pad (5) until flush with the surface of the rail. For size 100 and up, use a mounting tool ➠ 4.10

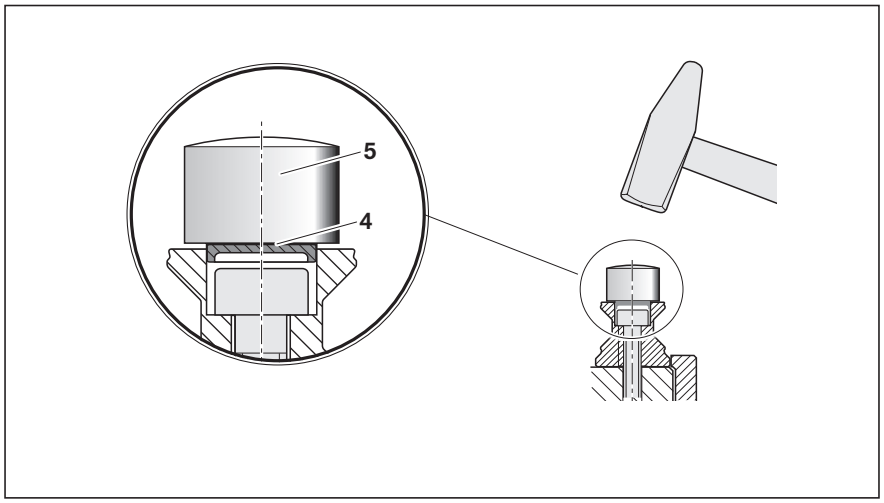
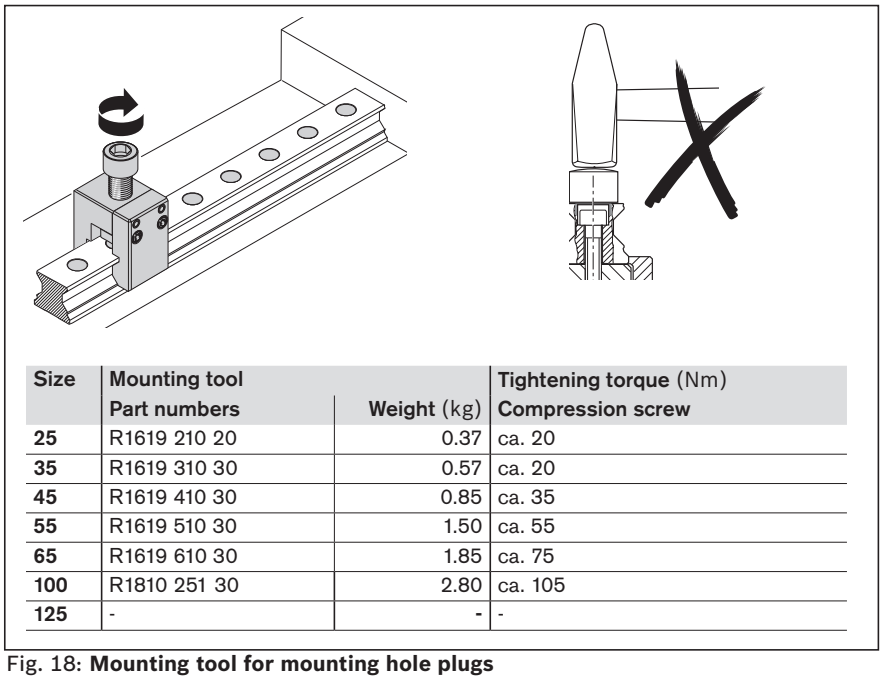


Fig. 17: **Mounting the plastic mounting hole plugs**

4.10 Mounting the steel mounting hole plugs

Steel mounting hole plugs must be inserted using a mounting tool! (Do not use a hammer).

For mounting tools, see table (there are no steel mounting hole plugs for wide roller guide rails).



Size	Mounting tool		Tightening torque (Nm)
	Part numbers	Weight (kg)	Compression screw
25	R1619 210 20	0.37	ca. 20
35	R1619 310 30	0.57	ca. 20
45	R1619 410 30	0.85	ca. 35
55	R1619 510 30	1.50	ca. 55
65	R1619 610 30	1.85	ca. 75
100	R1810 251 30	2.80	ca. 105
125	-	-	-

Fig. 18: **Mounting tool for mounting hole plugs**

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4.10.1 Fitting the mounting tool

If the mounting tool cannot be slid onto one end of the guide rail:

1. Loosen the screws (1) only as far as necessary to allow the mounting tool to be fitted over the guide rail.
2. Pull the mounting tool apart.
3. Fit the mounting tool around the guide rail.
4. Retighten the screws (1).

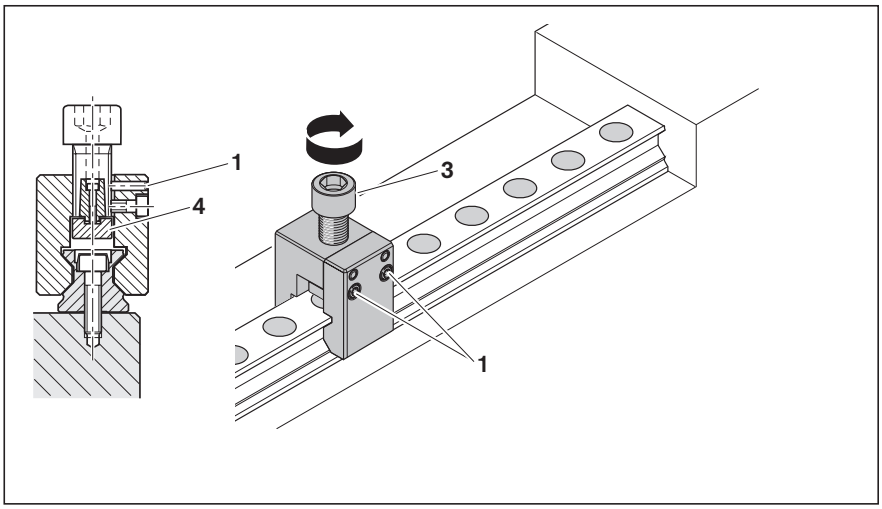

Fig. 19: **Mounting tool for steel mounting hole plugs**

4.10.2 Mounting the mounting hole plugs

1. Insert the mounting hole plugs (2) so that they lie flat.
2. Position the mounting tool centrally over the mounting hole plug.
3. Screw in the compression screw (3) until the pressure plate (4) of the mounting tool lies flat against the guide rail.
4. Loosen the compression screw and slide the mounting tool until it is positioned centrally over the next mounting hole plug.

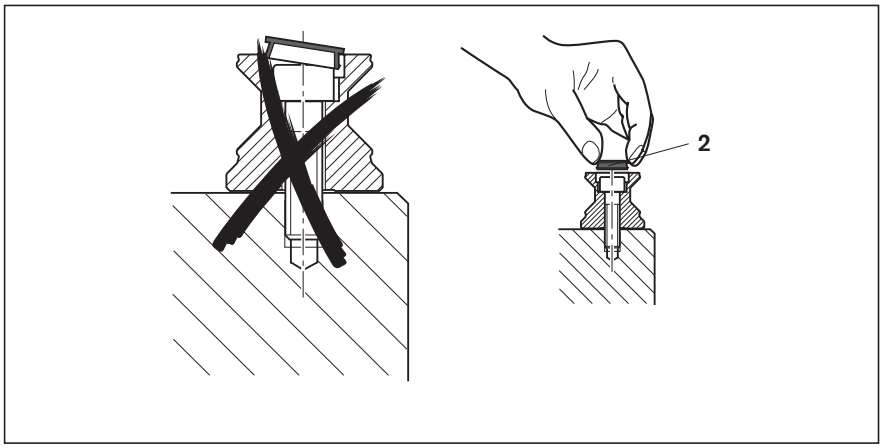

Fig. 20: **Mounting the steel mounting hole plugs**

4.10.3 Completing the mounting procedure

⚠ CAUTION

Risk of injury due to sharp edges.

Minor injuries.

- ▶ Wear gloves!

1. Remove the mounting tool.
2. If there is any slight positive or negative height offset between the mounting hole plugs and the guide rail, smooth the edges using suitable means, e.g. a sanding pad.
3. Using a ruler, check for any height differences between the mounting hole plugs and the guide rail. At points (1) and (2), each mounting hole plug must be flush with the guide rail.
4. Clean the guide rails.

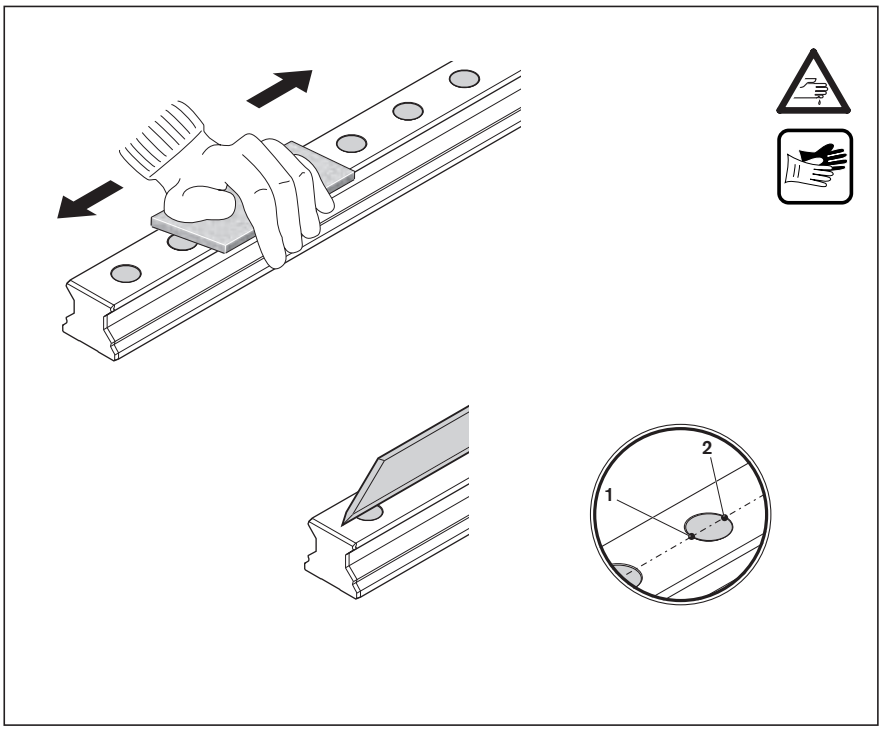

Fig. 21: **Completing the mounting procedure**

5 Runner block mounting

- Consider the weight of the roller runner blocks ➠ 3.2

⚠ WARNING

Risk of injury in the case of vertical installations. Runner block may drop down.

Minor to serious injuries (depending on the weight of the runner blocks).

- Secure the runner blocks against dropping.

⚠ CAUTION

Risk of injury due to unplugged mounting holes in the guide rail

Injury to fingers if a finger becomes jammed a mounting hole and the runner block is moved against it.

- Always cover the guide rail mounting holes. For example with adhesive tape (2) (packaging tape)!

⚠ WARNING

Excessively high loads and moments may cause the load limits for screw connections to be exceeded.

Risk of injury or death due to falling Roller Rail System.

- Screw connections must be recalculated and verified during design calculations. See catalog.

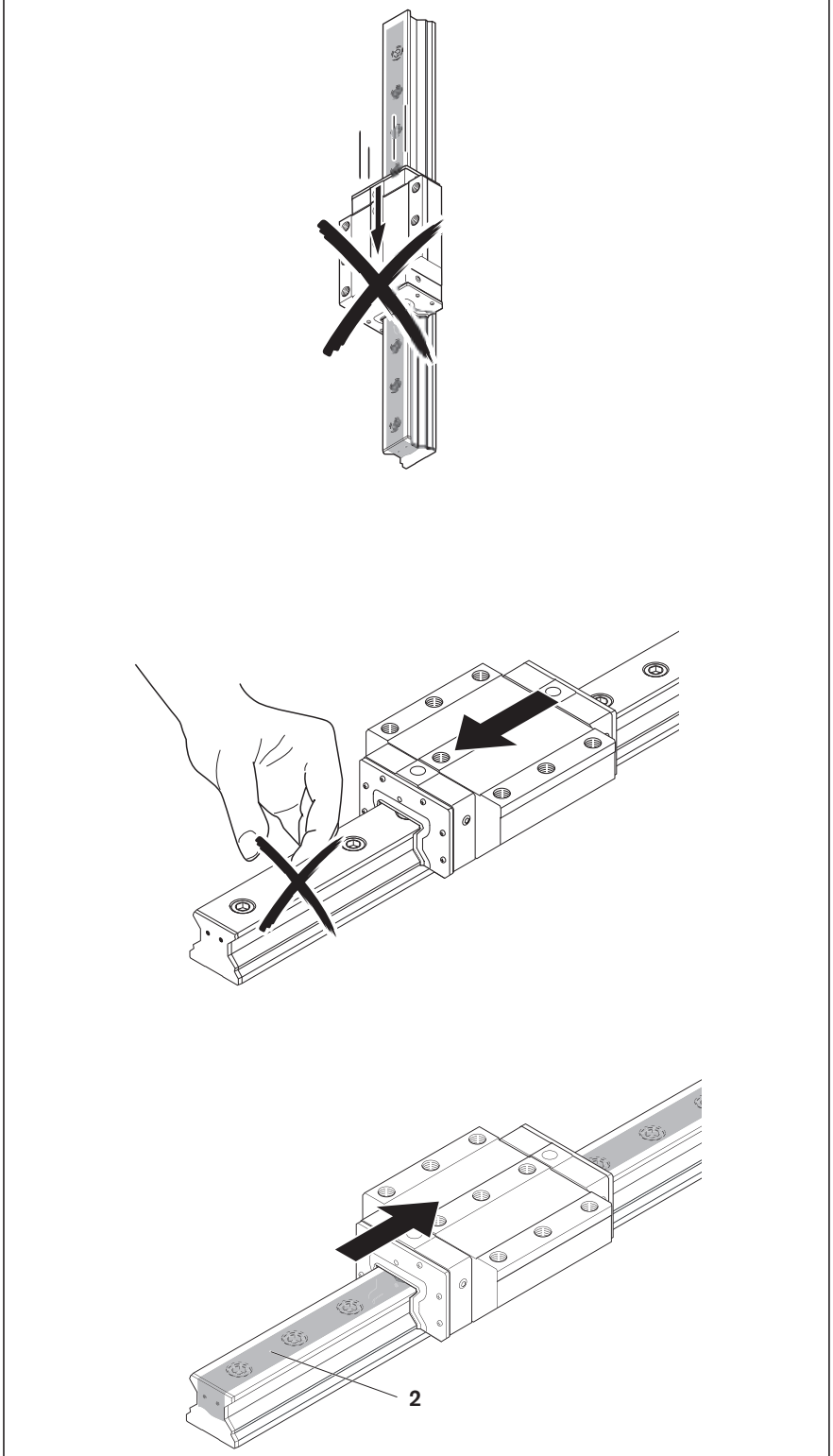

Fig. 22: **Completing the mounting procedure**

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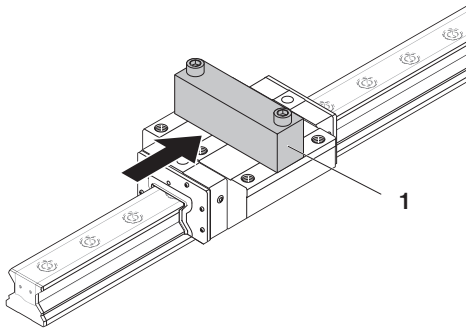
5.1 Preparation

To facilitate the mounting and measurement (e.g. with a mounting runner block) of heavy duty roller runner blocks, use 1 or 2 mounting aids (1).

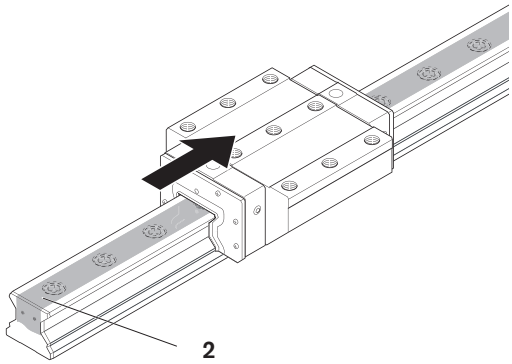
Checking of the parallelism or vertical offset should preferably be done using a mounting runner block. It is also possible to do this with roller runner blocks which will not be used in the production process. If checking is done with runner blocks that will be used in the production process, their sealing lips must be protected, for example by masking the guide rail mounting holes with adhesive tape (2) (packaging tape)!

The runner blocks (3) are delivered mounted on a plastic arbor (4). Do not remove the mounting arbor from the runner block! The runner block must remain on the arbor until it is slid onto the guide rail! Otherwise, the rollers may fall out.

Roller runner blocks are treated with an oil-based preservative before leaving the factory. Clean all reference and mating surfaces.



Size	Screws for mounting aids
125	M27x100



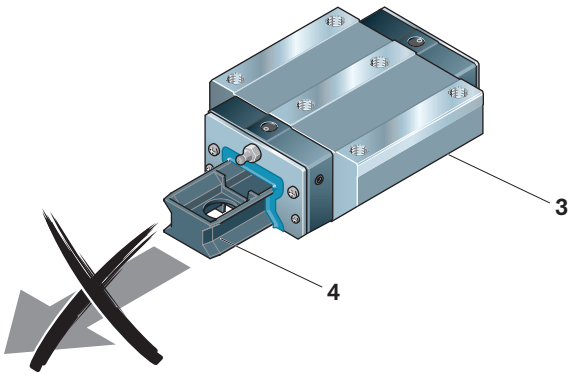


Fig. 23: **Preparations for mounting the runner blocks**

5.2 Sliding the runner block onto the guide rail

If the mounting holes on guide rails for mounting from above have not yet been sealed, this must be done with adhesive tape (3) (e.g. packaging tape).

Runner blocks with measuring system (4) must never be pushed onto the rail with the measuring system side first!Take note of the Instructions for Integrated Measuring System for Ball and Roller Rail Systems.

1. Apply oil or grease to the sealing lips on the runner block. When doing this, shift the mounting arbor only as far as necessary to expose the sealing lips.
2. Make sure that the end faces of the guide rails are chamfered and free of burrs. The transitions at the chamfered edges (1) must be rounded.
3. Check whether a clipped-on cover strip (rail seal) fits snugly along the rail head and at the end faces (2).
4. Check that all steel mounting hole plugs are flush and smoothed.
5. Check that all plastic mounting hole plugs are flush with the rail surface.
6. Apply oil or grease to the chamfers on the guide rail as well as to the end face of any mounted cover strip.
7. Position the runner block with the mounting arbor directly against the end of the guide rail. It must be properly aligned and not tilted.
8. Carefully slide the runner block onto the rail. If necessary, use lifting gear (5).
9. If necessary checking the parallelism and vertical offset of the Roller Rail System ➠ 4.6/4.7.

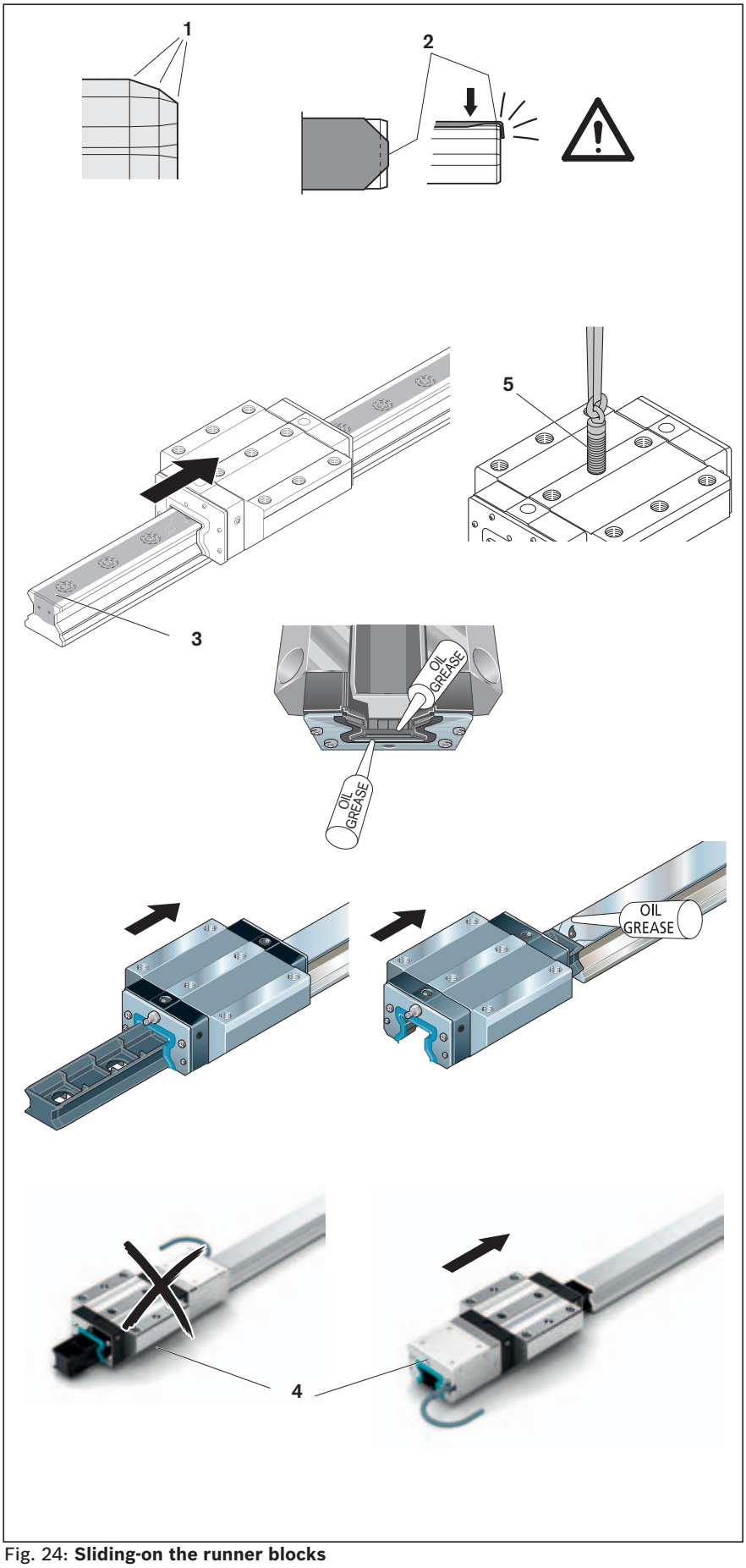


Fig. 24: **Sliding-on the runner blocks**

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5.3 Mounting attachments to runner blocks, general

Standard and heavy duty roller runner blocks have one ground reference edge (1) on each side, while wide runner blocks have two (total of four).

1. Drill holes (2) or tap threads (3) in the attachment (5) for fastening of the runner blocks (4). See catalog for dimensions.
2. Check the corner radii r_2, heights of reference edges (6) h_2, and supporting and reference surfaces. See catalog for dimensions.
3. Thoroughly clean the mating surfaces and mounting face (7) of the runner blocks and the attachment. ➠ 4.4.1
4. Select and line up screws ready to mount the runner blocks to the attachment. Do not apply oil or grease to the screws! Do not use washers!

The screw-fastening scenarios shown here are examples.

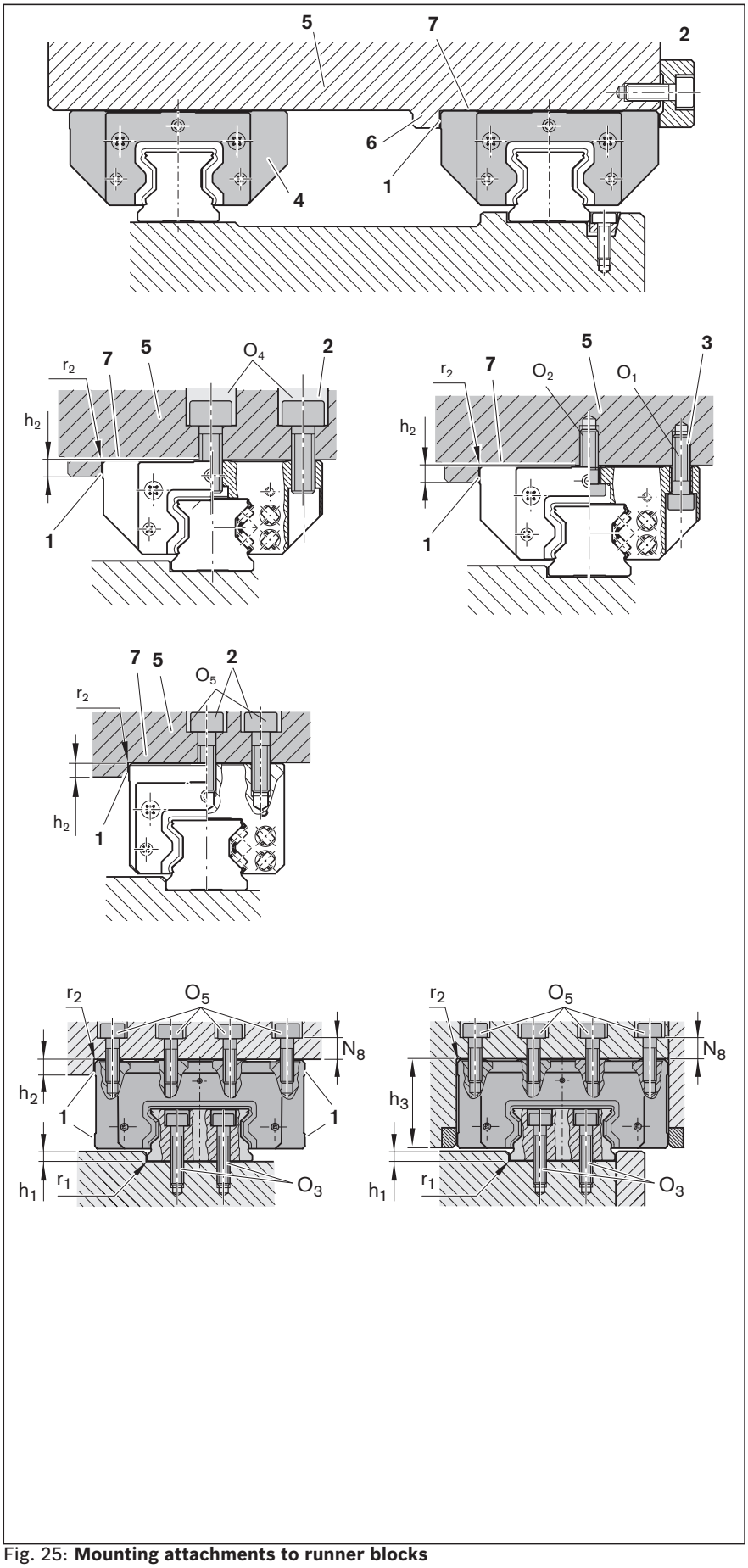

Fig. 25: **Mounting attachments to runner blocks**

5.3.1 Assembly scenarios for attachment mounting

Attachments (5) are normally mounted to several supporting roller runner blocks / guide rails. For the sake of clarity, the assembly scenarios are shown with only one runner block (4) here.The runner blocks can be fastened at a reference edge (6) and with additional lateral retention (2).

5.3.2 Scenario 1: Top-down fastening of attachments to runner block

- The runner blocks have already been mounted onto the guide rails
- The guide rail mounting holes are sealed.

1. Clean the reference edges and contact areas.
2. Lay the attachment on the runner block(s) and align it precisely with the threads in the runner block(s).
3. If necessary, move the runner block on the rail until the holes and threads are lined up.
4. Pre-fasten the screws but do not tighten them yet.
5. If required, press the runner block against the reference edge and mount additional lateral retention.
6. Tighten the screws cross-wise in stages to the specified tightening torque.

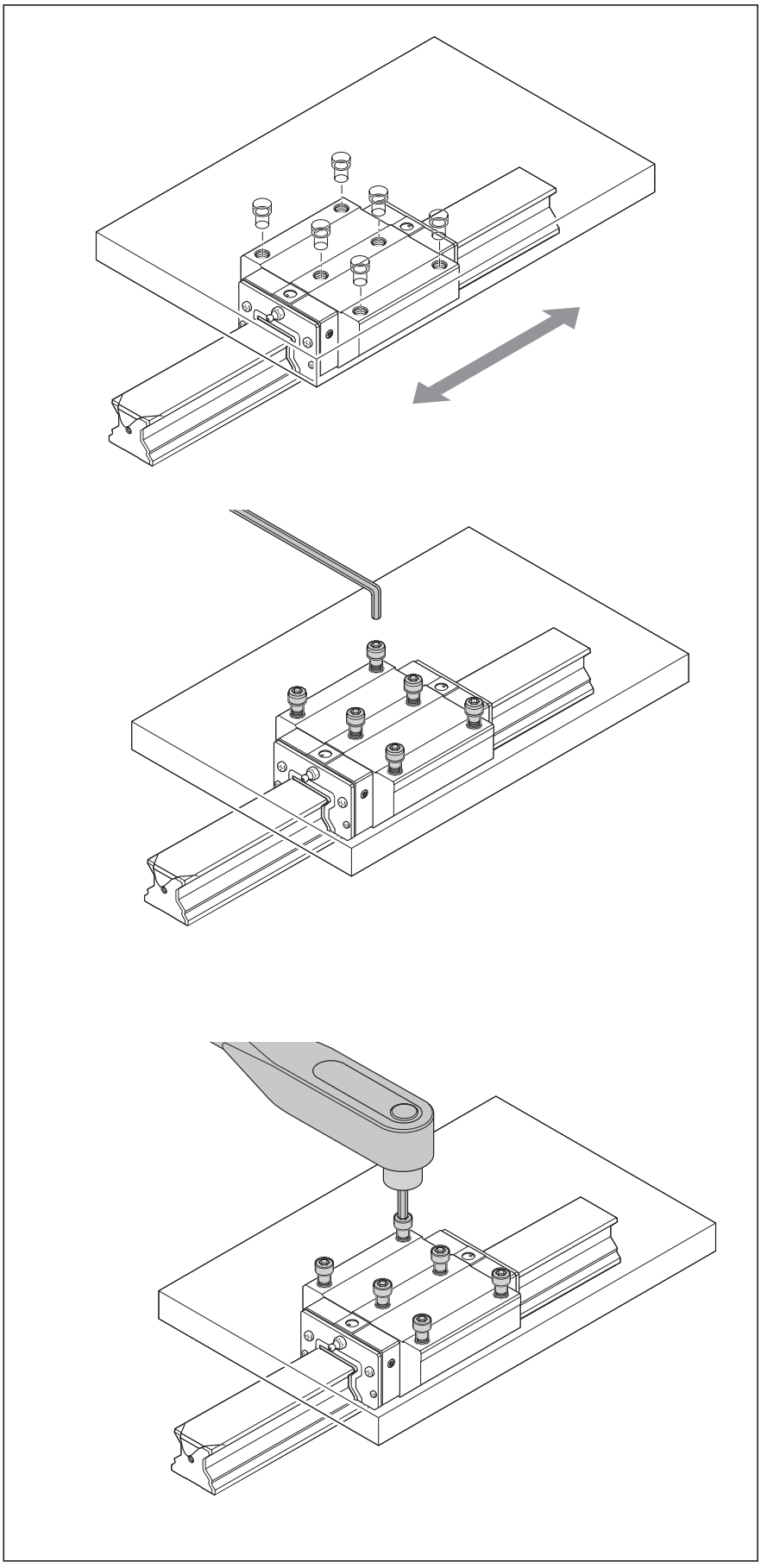

Fig. 26: **Fastening attachments to runner blocks (Scenario 1)**

5.3.3 Scenario 2: Bottom-up fastening of runner block (standard runner block) to attachment, for spaces with restricted access

With the bottom-up fastening method, the roller block is first mounted to the attachment and the whole assembly then slid onto the roller rail.

Do not remove the mounting arbor from the runner block! Holes are present in the mounting arbor to allow fastening of the centerline screws.

1. Lay the attachment (1) down on a non-slip surface (2).
2. If necessary, clean the reference edges and contact areas.
3. Carefully place the runner block with its attachment mounting face downwards (mounting arbor visible) and align it precisely with the threads in the attachment.
4. Pre-fasten the screws but do not tighten them yet.
5. If required, press the runner block against the reference edge (3) and mount additional lateral retention ➠ ☒ 5.3.
6. Tighten the screws to the specified tightening torque.
7. Slide the runner block assembly (runner block with attachment) onto the guide rail ➠ 5.5.

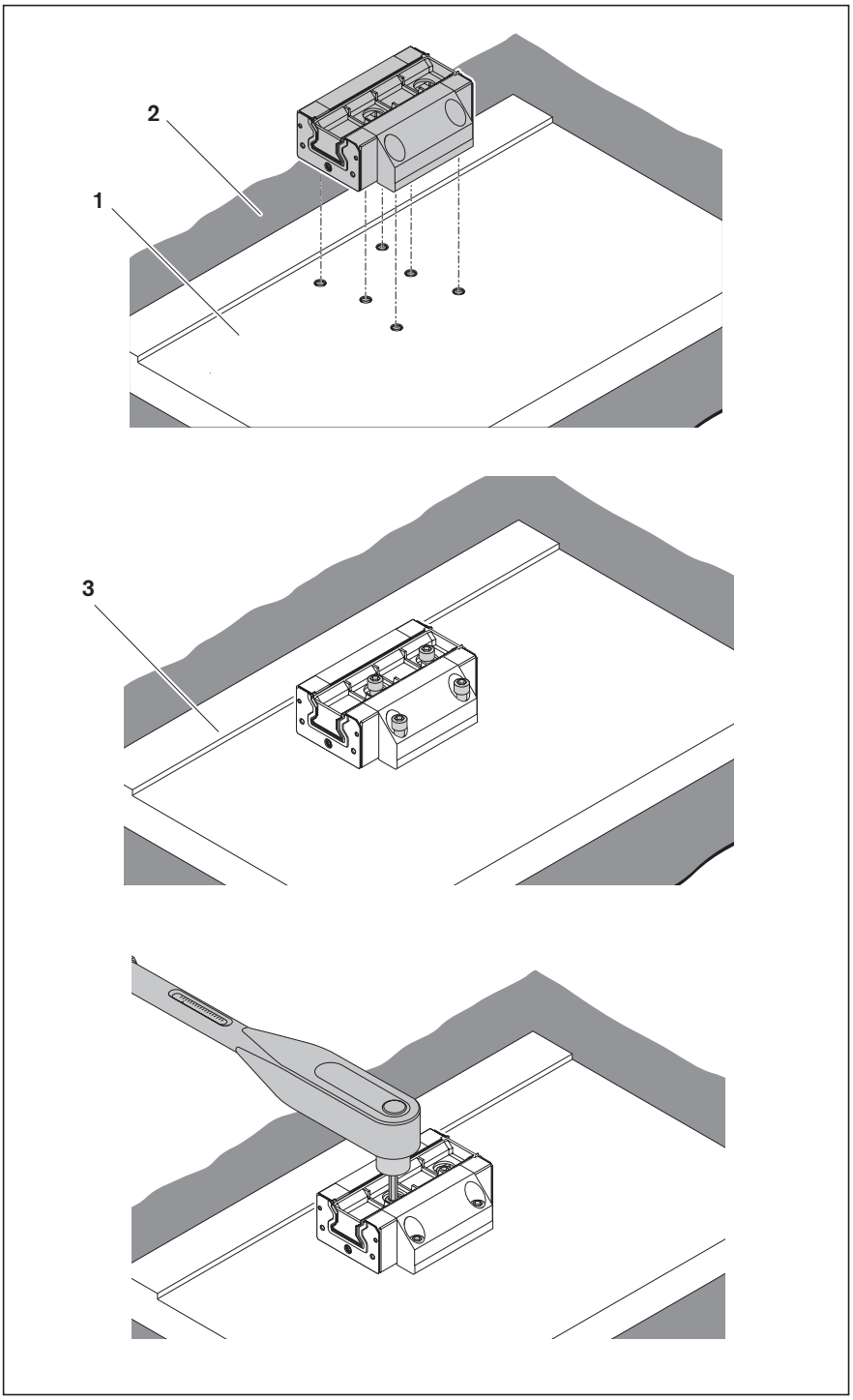

Fig. 27: **Fastening standard runner blocks to attachment (Scenario 2)**

5.3.4 Scenario 2: Bottom-up fastening of runner block (heavy duty runner block) to attachment, for spaces with restricted access

Consider the weight of the roller runner block ➠ 3.2

With the bottom-up fastening method, the roller block is first mounted to the attachment and the whole assembly then slid onto the roller rail.

Do not remove the mounting arbor from the runner block! Holes are present in the mounting arbor to allow fastening of the centerline screws.

Locating aids are recommended to facilitate fastening of heavy duty runner blocks. Produce the locating aids according to the specified dimensions.

1. Lay the attachment (1) on a solid worktop and clamp it securely in place (2) since the runner block screws will be tightened at high torque levels.
2. Clean the reference edges and contact areas.
3. Carefully place the runner block with its attachment mounting face downwards (mounting arbor visible) and align it precisely with the threads in the attachment.
4. Pre-fasten the screws but do not tighten them yet.
5. If required, press the runner block against the reference edge and mount additional lateral retention ➠ 5.3.
6. Press the locating aid into the mounting hole and insert a socket wrench through the locating aid into the head of the screw.
7. Tighten the screws to the specified tightening torque.
8. If necessary, use a torque multiplier.
9. Slide the runner block assembly (runner block with attachment) onto the guide rail ➠ ☒ 5.5.

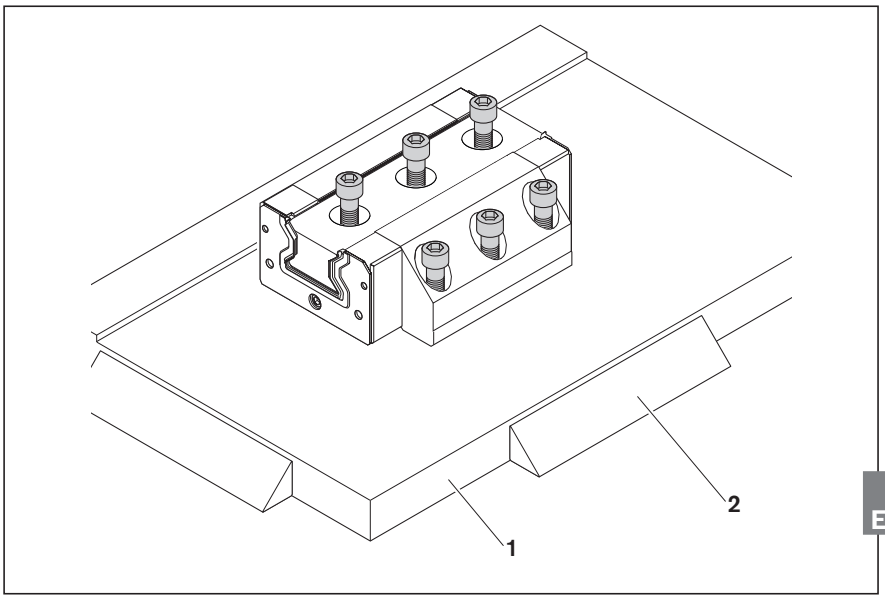

Fig. 28: **Pre-mounting the heavy duty runner block**

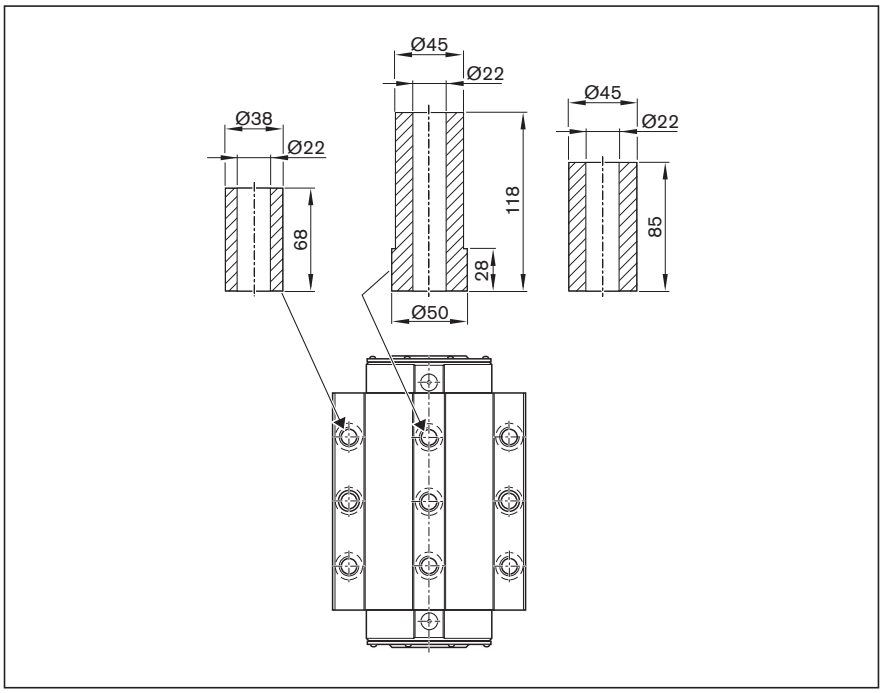

Fig. 29: **Locating aid for heavy duty runner block**

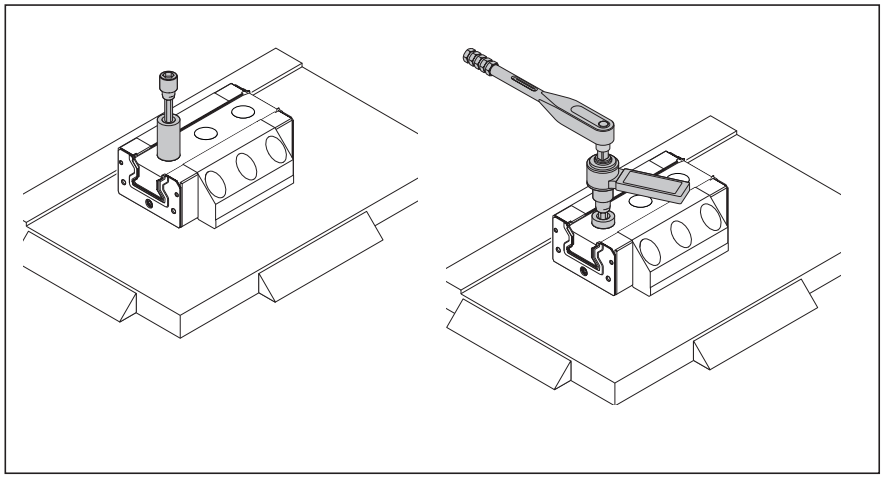

Fig. 30: **Fastening the heavy duty runner block to the attachments (Scenario 2)**

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5.3.5 Scenario 3: Bottom-up fastening of runner blocks to attachment (with free access to mounting holes O_1)

Because of the high tightening torques required with heavy duty runner blocks, this mounting option will only work with standard runner blocks.

Rollers may fall out!
When removing the runner blocks from the guide rail, they must be slid onto the mounting arbors again.

1. The runner blocks have already been mounted onto the guide rails.
2. Clean the reference edges and contact areas.
3. Align reference edge (1) of the attachment (7) with the reference edges (3) of all runner blocks on one rail (4) and press them together.
4. If necessary, provide additional lateral retention (2).
5. Tighten the outside screws O_1 to the specified tightening torque. Leave the tightening of the centerline O_2 screws until later. ➠ ☒ Fig. 33.
6. Drive in the outer screws of all the runner blocks (5) on the second guide rail (5) with tightening torque M_A. Leave the tightening of the centerline O_2 screws until later. ➠ ☒ Fig. 33.

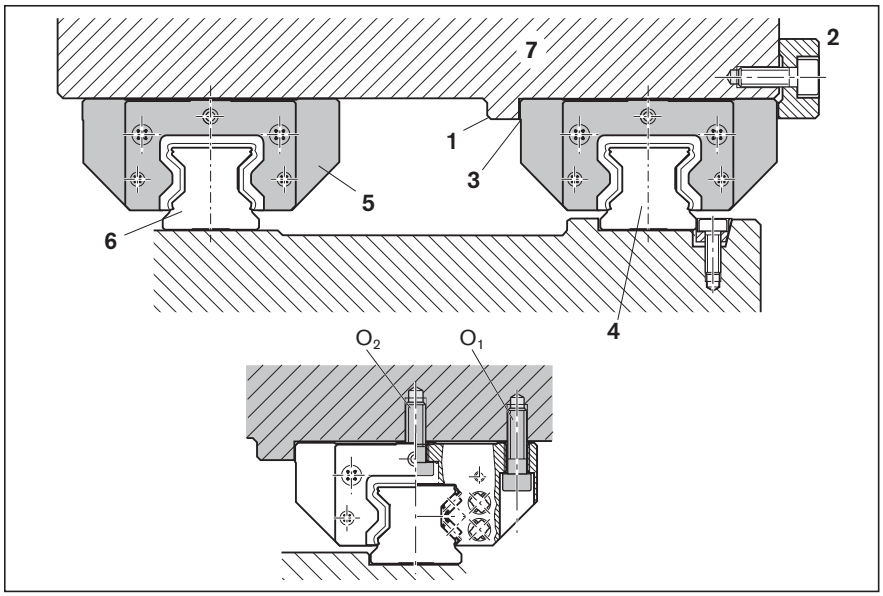

Fig. 31: **Fastening the attachment to the runner blocks (Scenario 3)**

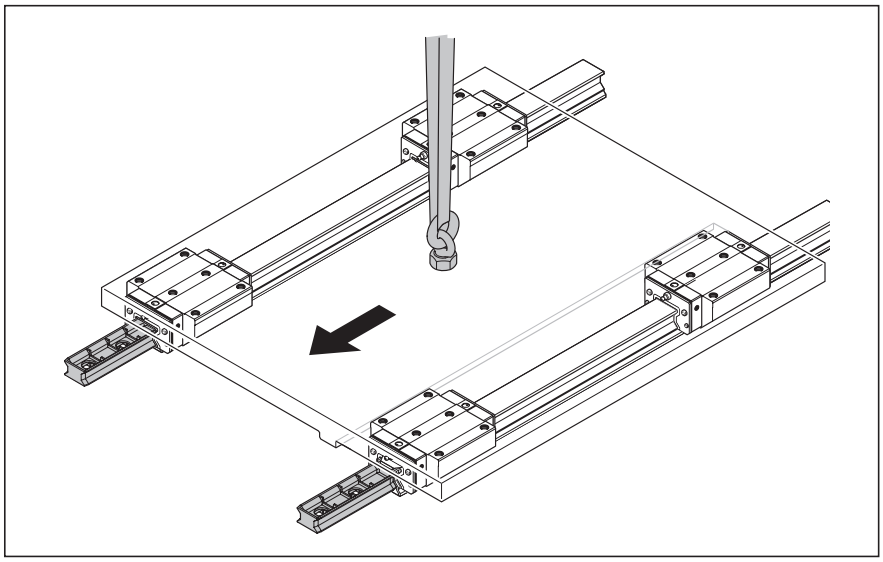
Fig. 32: **Sliding the runner blocks off the rails (Scenario 3)**

Fixing the centerline O_2 (DIN 6912) screws in bottom-up mounting:

Use suitable lifting gear and a suitable worktop for the complete runner block assembly (runner blocks with attachment).

1. Carefully remove the runner block assembly in a straight line off the guide rails, sliding each runner block onto its mounting arbor. ➠ ☒ Fig. 32.
2. Tighten the centerline O_2 screws to the specified tightening torque. ➠ 10.
3. Slide the runner block assembly onto the guide rails ➠ 5.5.

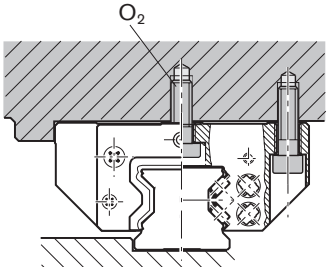

Fig. 33: **Fastening the centerline O_2 screws**

5.4 Sliding the runner block assembly onto the guide rails (for Scenario 2 and 3)

1. Apply oil or grease to the sealing lips. ➠ 5.2.
2. Carefully slide the runner block assembly onto the guide rails. This will push the mounting arbors back out of the runner blocks.

Rollers may fall out!
Do not remove the mounting arbors before sliding the runner blocks onto the guide rails!

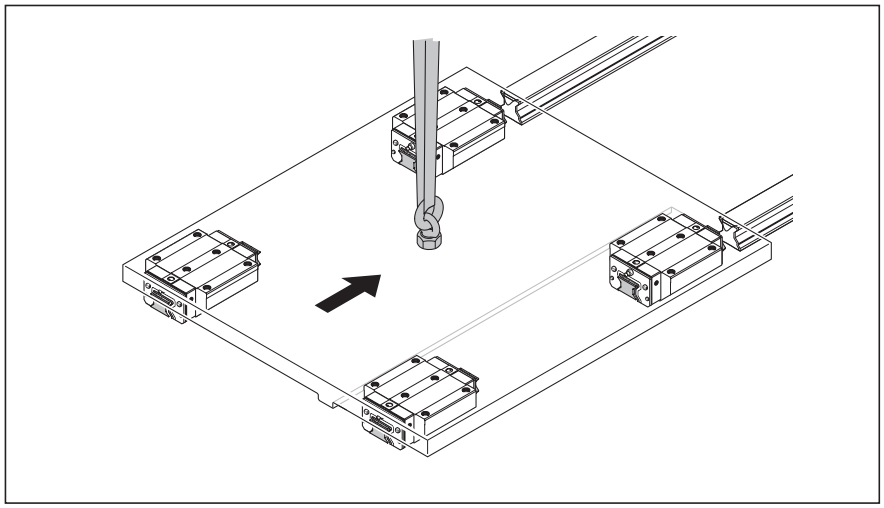

Fig. 34: **Sliding-on the runner blocks (Scenario 2 and 3)**

5.5 Securing the runner blocks

- If the recommended values for permitted lateral forces are exceeded, the runner block must be secured by additional reference edges or pins. (See catalog.)

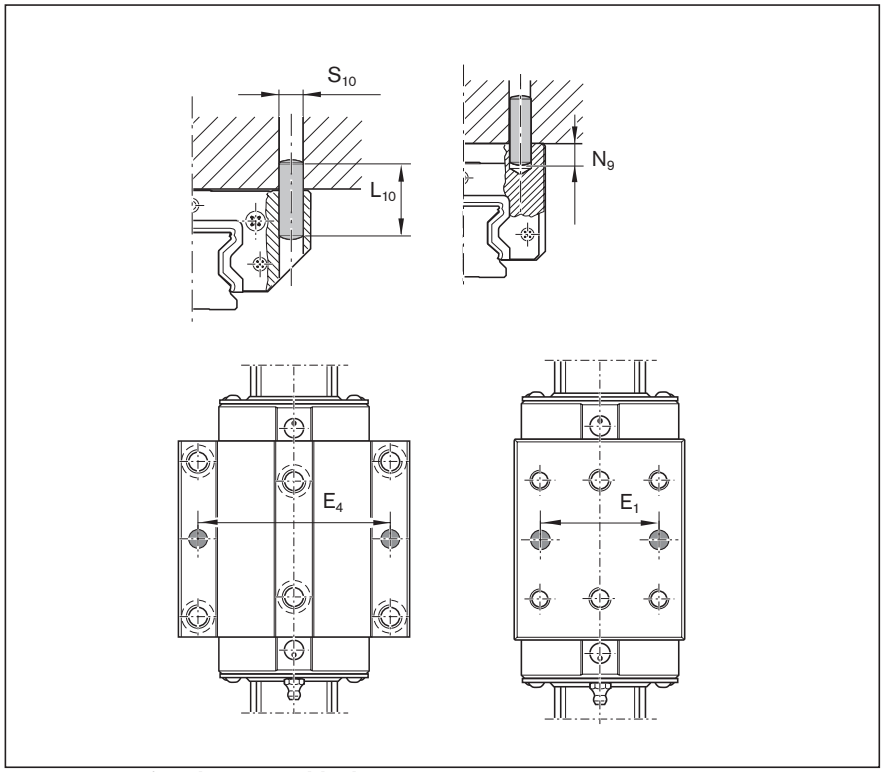

Fig. 35: **Securing the runner blocks**

5.6 Removing the runner block from the guide rail

Use the mounting arbors (1) when removing runner blocks from the guide rails.

The removed roller runner blocks must always remain on the mounting arbors! Otherwise, rollers may be lost!

- Carefully slide the runner blocks or the runner block assembly from the guide rails onto the mounting arbors.

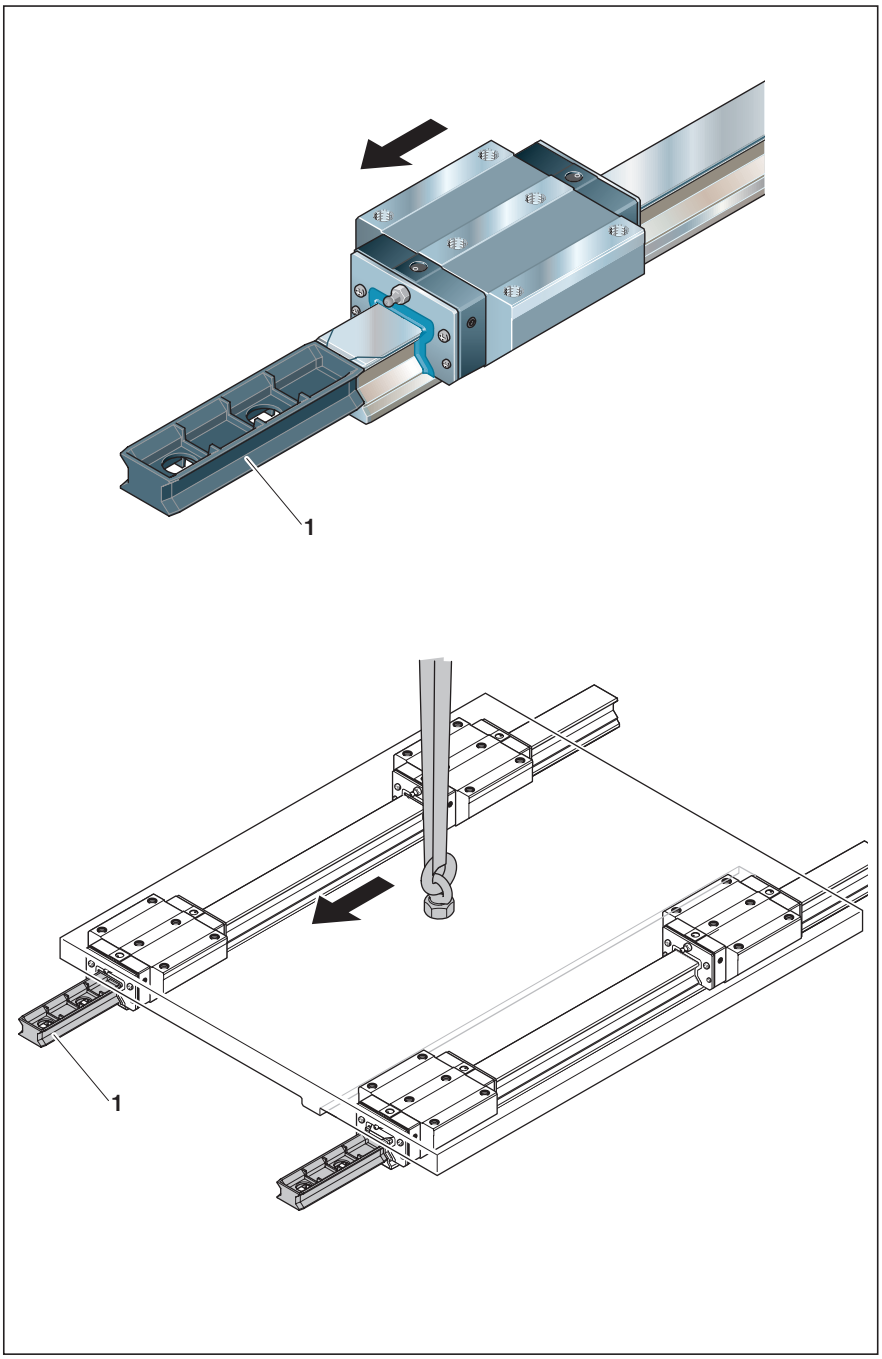

Fig. 36: **Removing the runner blocks**

6 Mounting the accessories

General notes for mounting of accessories:

Size 35-125:
If there is a lube nipple in the front lube hole (1), remove it and screw it into a lateral lube hole (relubrication side) (3). Use a set screw (2) to plug the open lube hole.

Size 25:
is designed for lubrication from either the end face or the top.
If lubrication from the side is necessary, use a lubrication plate.
For lubrication from the front, use a special lube nipple or adapter.

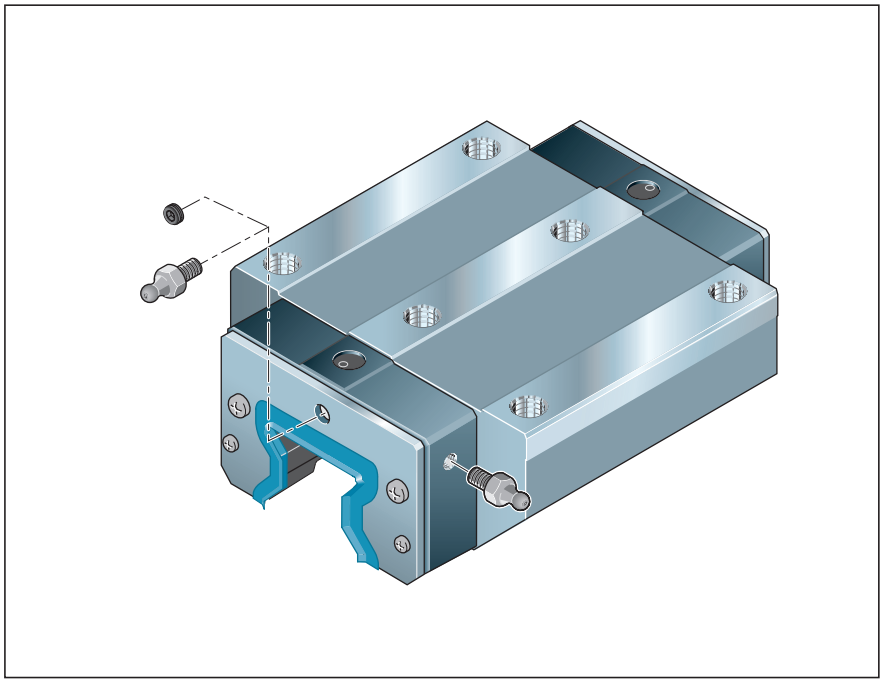

Fig. 37: **Mounting of accessories, general**

6.1 Mounting the lubrication plate

Only required for size 25, since all other sizes have lateral lube ports.

Lubrication plates are necessary when the lube hole on the runner block is hidden by protective bellows.

1. Remove the lube nipple (1) or set screw (2) from the lube port and remove the upper fastening screws (3) of the end seal.
2. With a force not exceeding 1 Nm, screw in the lube fitting (4) through the end seal until it is flush with the runner block.
3. The lubricating plate has only one lateral lube port (5). If necessary, turn the lubricating plate around.
4. If required, screw in lube nipple (6).
5. Insert the O-ring (7) into the lube hole facing toward the runner block.
6. Tighten the screws for the lubricating plate (8) with tightening torque $\mathbf{M}_A$ 0.8 Nm.
7. Plug unused lube holes with set screws (9).

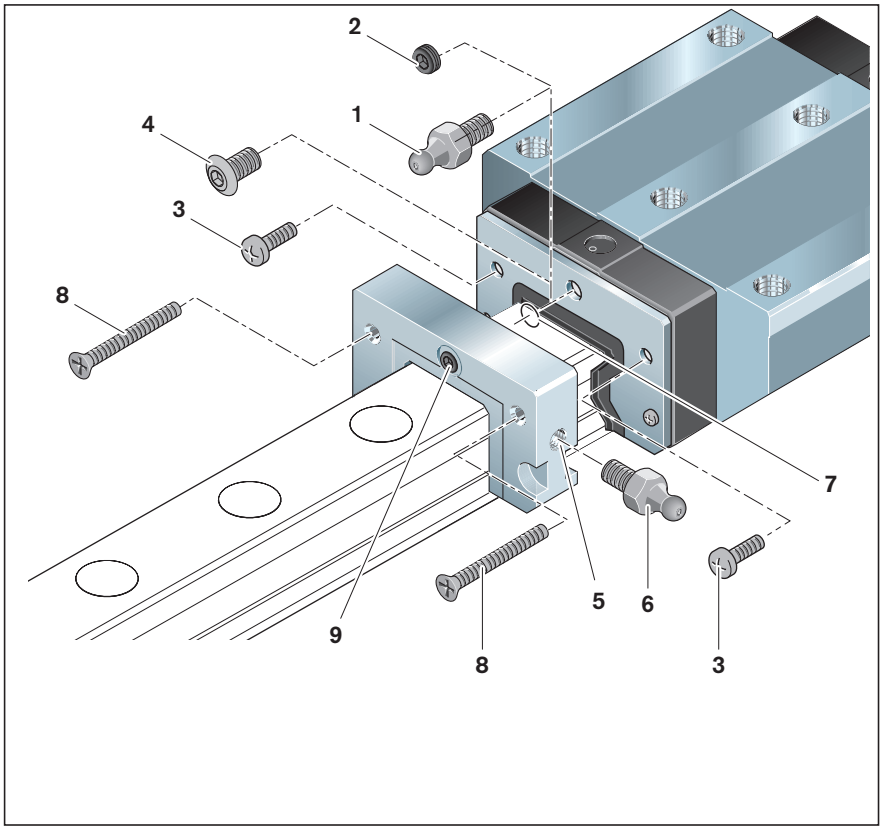

Fig. 38: **Mounting the lubrication plate (size 25)**

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6.2 Mounting the front lube units

Take note of the “General notes for mounting of accessories” in section 6.

Preparations

- The runner blocks must already be prelubricated (basic lubrication) with grease. ➠ 7
- Carry out initial filling of a front lube unit shipped without oil (no. R1810...10). For instructions regarding initial filling, see the “Roller Rail Systems” catalog.

Coated screws (3), a lube nipple and additional end seals (5) are provided.

One front lube unit (4) must be mounted to each end of the runner block!

Do not remove the runner block from the guide rail!

1. Remove the screws (3) – in size 65, there are four screws in each case. Discard these screws (3)!
2. If there are any end seals (2) already mounted on the runner block, leave them in place.
3. Slide on the front lubrication units (at each end) (4) and the additional end seals (5) and align them with the runner block.
4. For size 25, remove the set screws (1) and insert the O-rings (7) between the runner block and the front lubrication units.
5. Mount the additional end seals (5) so that the sealing lips fit snugly all around the guide rail.
6. Tighten the screws (6) with tightening torque M_A. In size 65, there are four screws in each case.

⚠ **Do not allow the guide rails or runner blocks to come into contact with water-based metalworking fluids!**

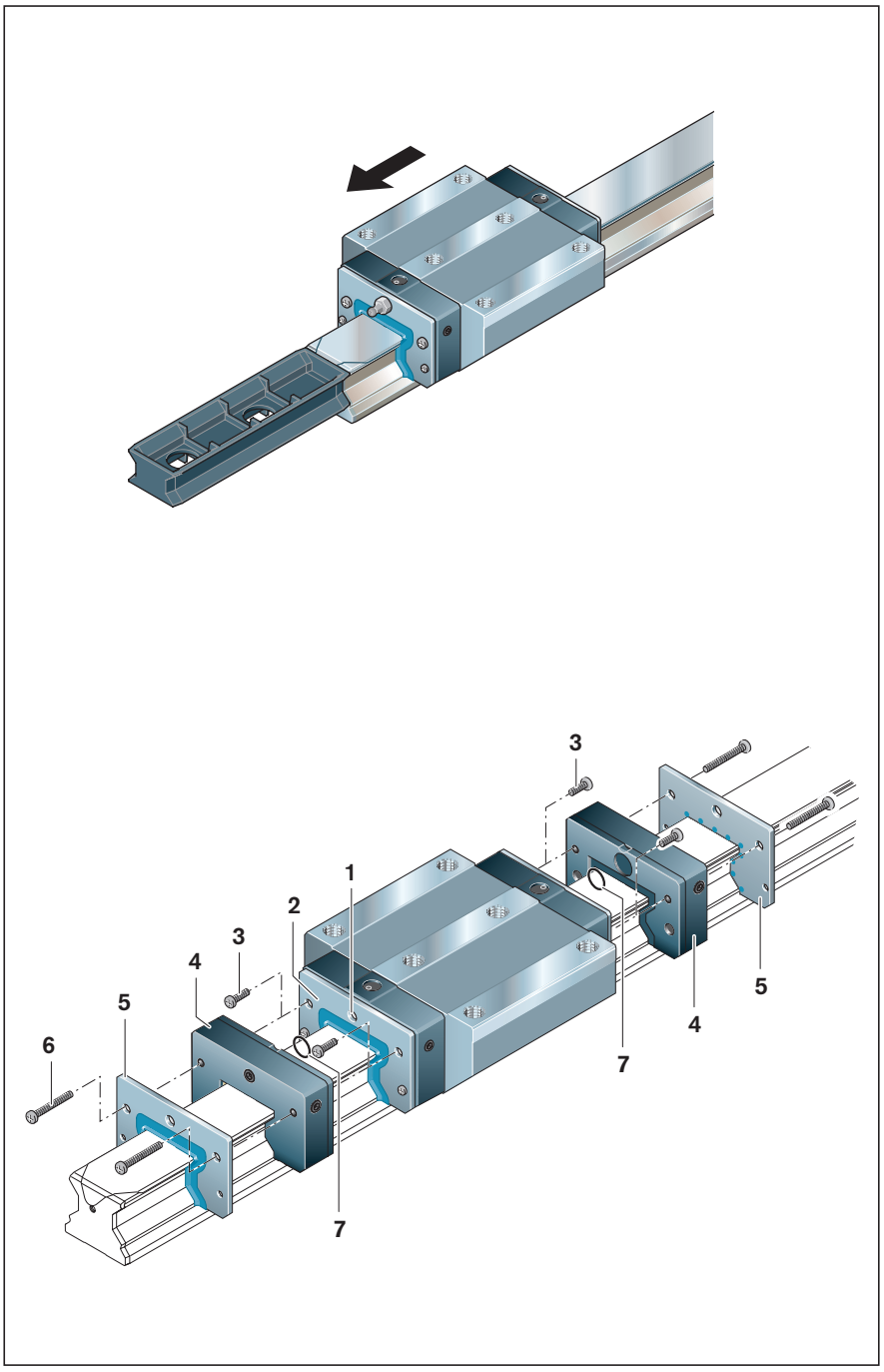


Fig. 39: **Mounting the front lube units**

Size	(6)	M_A ⊘ (Nm)
25	M3 x 18	0.7
35	M3 x 22	0.7
45	M4 x 25	1.0
55	M5 x 30	1.3
65	M4 x 30	1.0

6.3 Mounting the bellows

Types of bellows:

- Type 1:
  with lubrication plate (S) and end plate (E)
- Type 2:
  with mounting frame (B) and end plate (E)
- Type 3:
  with 2 lubrication plates (S)
- Type 4:
  with 2 mounting frames (B)
- Type 5:
  with lubrication plate (S) and mounting frame (B)

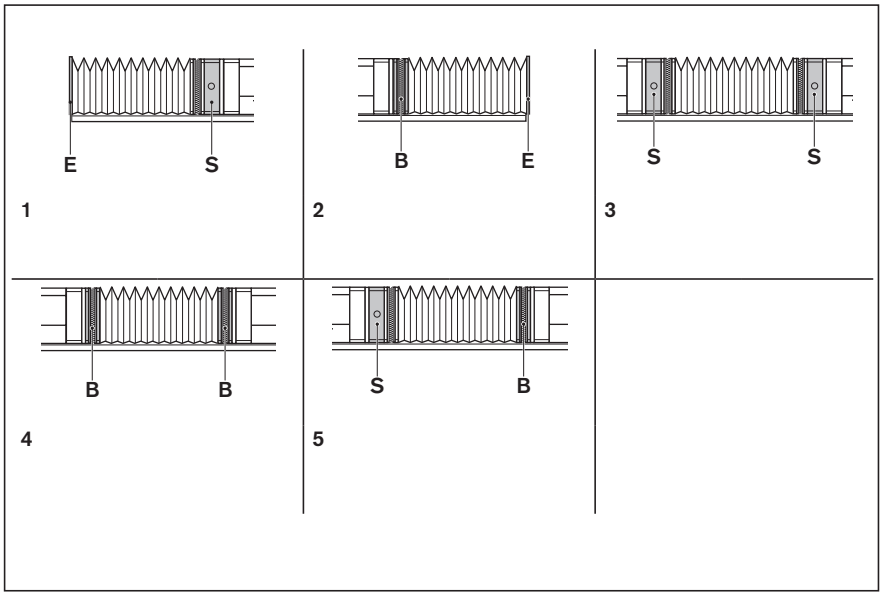
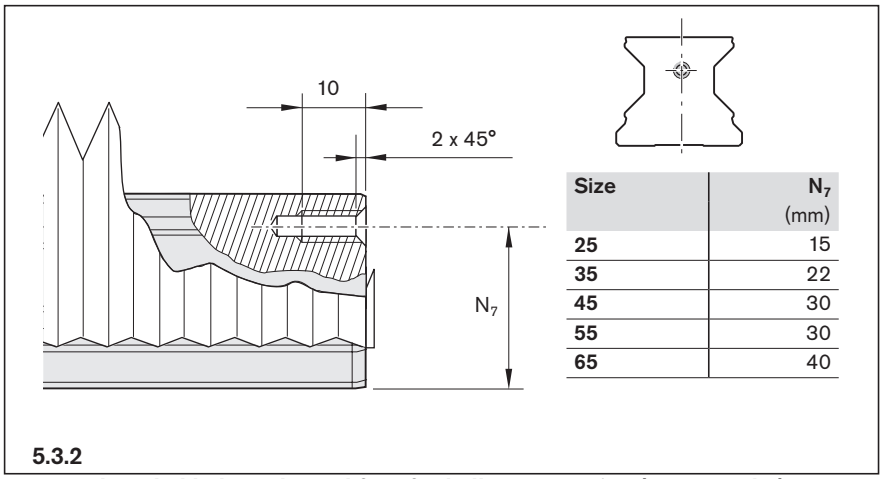


Fig. 40: **Types of bellows**

Type 1 and 2:

1. Drill and tap a hole M4 in the end face of the guide rail.
2. If a tapped hole already exists, make a bevel 2x45°.



Size	N_7 (mm)
25	15
35	22
45	30
55	30
65	40

Fig. 41: **Threaded hole at the end face for bellows mounting (type 1 and 2)**

Type 2 and 4:

1. Remove the upper mounting screws from the scraper plate.
2. Screw the mounting frame (with hook and loop fastener (4)) to the runner block using the screws supplied along with the bellows.
3. Push on the bellows.

Type 1 and 2:

- ▶ Once the bellows are installed, screw them tight to the end of the rail (5).

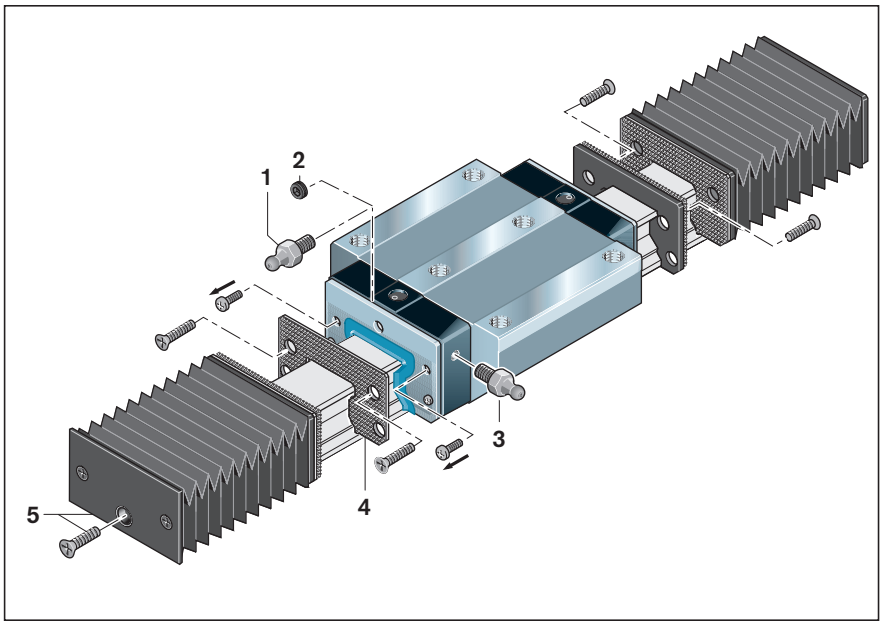


Fig. 42: **Mounting the bellows**

EN

b) Size 25 only:
Mounting the lubrication plate and the bellows (types 1, 3 and 5)

In size 25, the lube port on the runner block is hidden by the bellows. Consequently, a lubrication plate has to be fitted to at least one end of a runner block for in-service lubrication. The lube plate can be turned round, thus allowing lubrication from the preferred side.

1. Remove the lube nipple (1) or set screw (2) from the lube hole on the runner block (relubrication side).
2. Screw the lube nipple (3) into the side of the lube plate (6).
3. Insert the O-ring (7) into the recess.
4. Screw the lube plate (6) and the mounting frame (4) to the runner block.
5. Plug the unused lube hole with a set screw.

Set screws must lie flush with the outer surface of the lube plate!

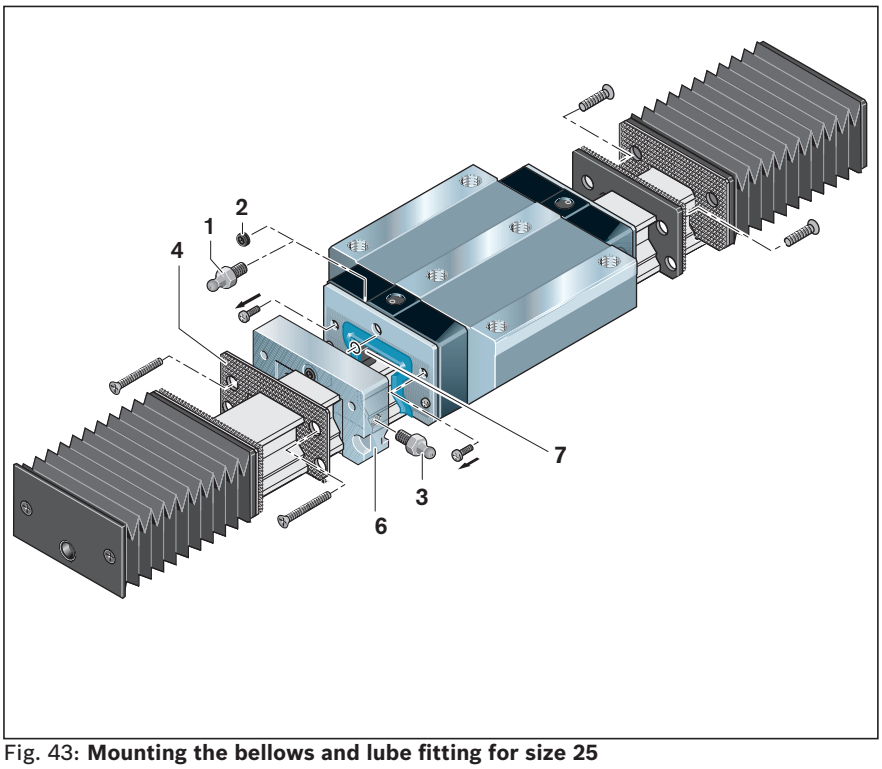
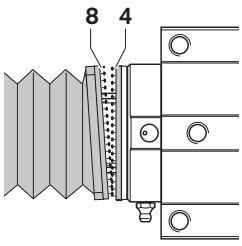


Fig. 43: **Mounting the bellows and lube fitting for size 25**

6.3.1 Mounting lube fittings

- Screw in lube fittings with a tightening torque of 1.2 Nm.

For available lube nipples and lube fittings, their dimensions and part numbers, see the Roller Rail Systems catalog.



All bellows types:
Hook and loop fastener for the mounting frame (4)

Closing the hook and loop fastener:

1. Position one edge of the hook and loop fastener part on the bellows side (8) against the mating part on the mounting frame side (4).
2. Make sure the two parts are properly positioned!
3. Press the bellows firmly up against the mounting frame!

Opening the hook and loop fastener:

1. Using a flat tool, start at one side (preferably a corner).
2. Carefully lever the two halves apart.

Be careful not to shear off the hooks and loops!

Fig. 44: **Closing and opening the hook and loop fastener**

6.4 Mounting/removing the end seals and end caps

Rollers may fall out when the end cap is not mounted!
For this reason, do not move the runner block!

If the runner blocks have already been in service, always replace the entire seal kit!

The following are available:
End caps with integrated seals including all necessary screws.

- End seals including all necessary screws.
- Complete seal kits (end cap and end seal) including all necessary screws.

Removal procedure:

▶ Removing the end seals and end caps.

Discard used screws, end seals and end caps with integrated seals.

Mounting procedure:

1. Mount the new end cap (1) with new screws (2). ➠ ☒ Fig. 47. Tightening torques: ➠ ☒ Fig. 49.
2. Mount the new end seal (3) with new screws (4) so that the sealing lips fit snugly all around the guide rail. ➠ ☒Fig. 48. Tightening torques: ➠ ☒Fig. 49.

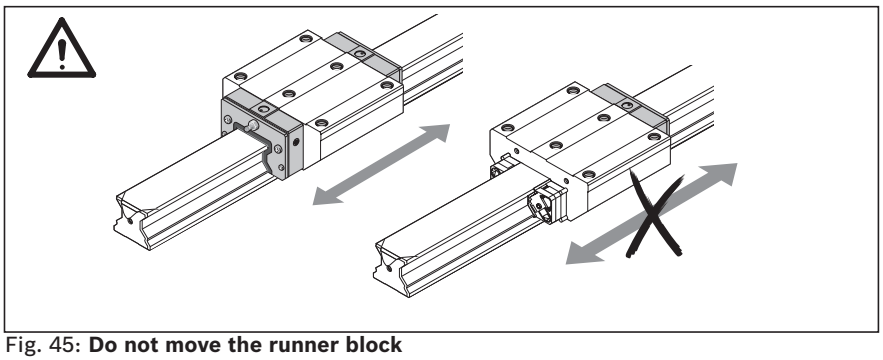


Fig. 45: **Do not move the runner block**

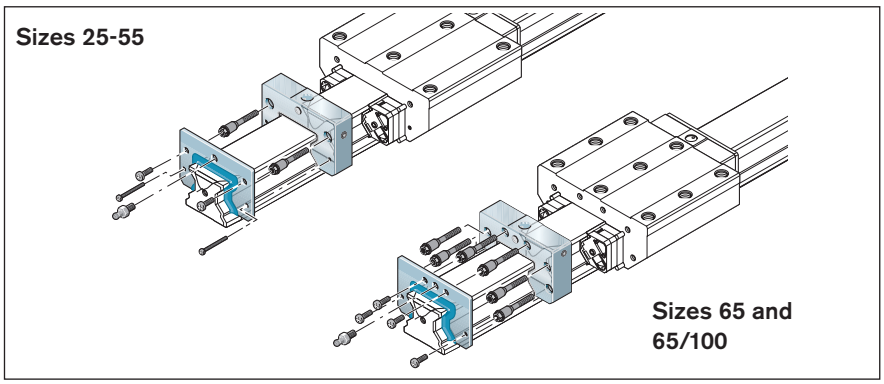


Fig. 46: **Removing the end cap and end seal**

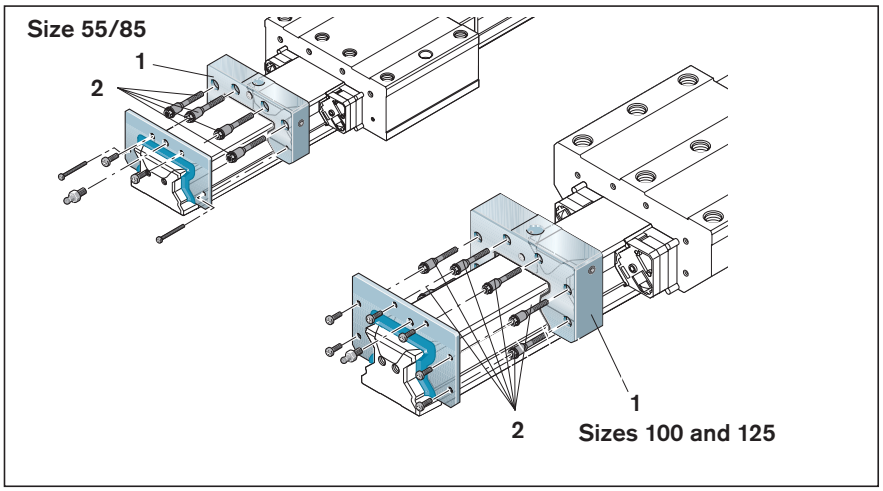


Fig. 47: **Mounting the end cap and end seal**

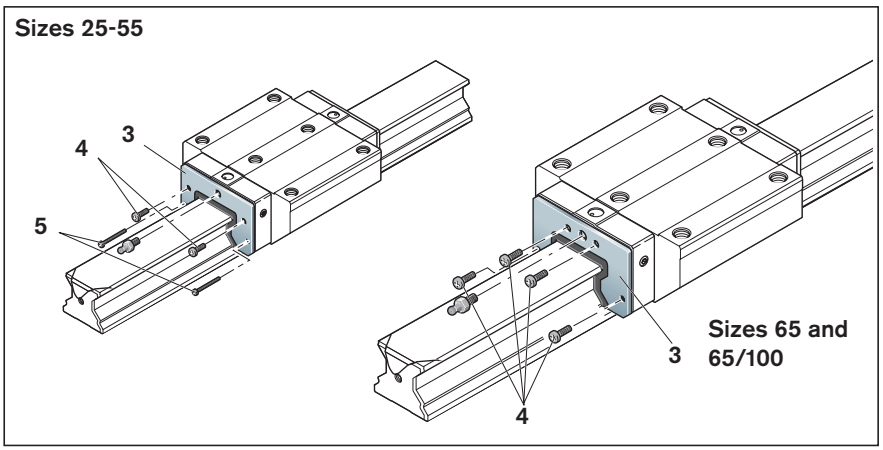


Fig. 48: **Mounting the end seal**

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Tightening torques for end seals and end caps (screws 2, 4, 5 (Fig. 47/48))

Size	(2) M_A		(4) M_A		(5) M_A	
		⊘ (Nm)		⊘ (Nm)		⊘ (Nm)
25	M4 x 16	1.1	M3 x 5	0.5	M2.5 x 20	0.25
35	M4 x 18.5	1.1	M3 x 5	0.5	M2.5 x 25	0.5
45	M5 x 22	1.8	M4 x 8	0.9	M3 x 25	0.6
55	M6 x 26	3.3	M5 x 8	1.2	M3 x 30	0.6
55/85	M6 x 26	3.3	M5 x 8	1.2		
65	M5 x 35	1.8	M4 x 8	0.9		
65/100	M5 x 35	1.8	M4 x 8	0.9		
100	M6 x 45	9.0	M5 x 12	1.2		
125	M8 x 60	7.0	M6 x 10	4.2		

Fig. 49: **Tightening torques for screws 2, 4, 5 (Fig. 47/48)**

6.5 Mounting the two-piece FKM/NBR seal

Take note of the “General notes for mounting of accessories” in section 6

Sizes 25 – 55

- Remove the upper fastening screws (6) from the end seal ➠ ☒ Fig. 50.

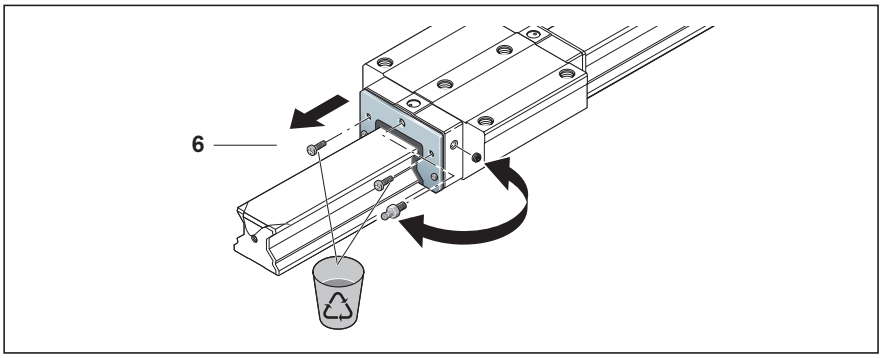

Fig. 50: **Mounting the FKM / NBR seal in size 25-55**

Size 65

- Remove all fastening screws (7) from the end seal ➠ ☒ Fig. 51.

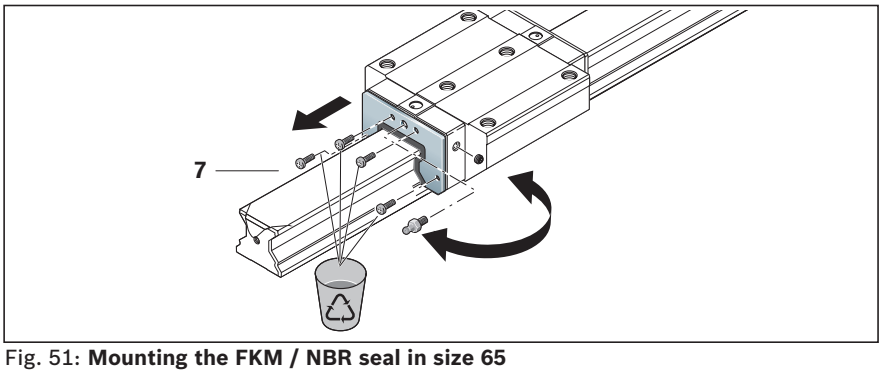

Fig. 51: **Mounting the FKM / NBR seal in size 65**

1. Push the seal (2 A) ➠ ☒ Fig. 52) on to the guide rail up to the runner block or twist the seal and carefully push it down around the guide rail (2 B).
2. Push the reinforcing plate (3) onto the guide rail from above and slide it up against the seal.
3. Secure at the top using the screws (5) provided.

Lube fitting at the end face:

- Screw in the special lube nipple (6) or adapter.

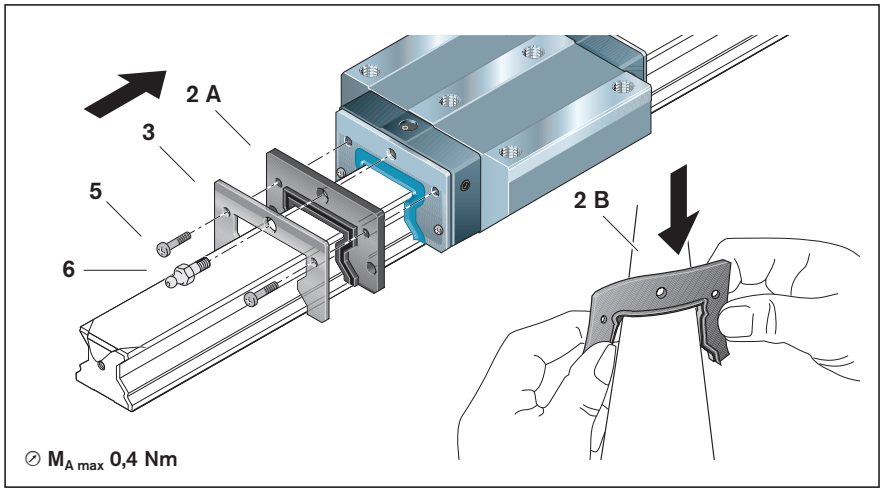

Fig. 52: **Mounting the FKM / NBR seal “from above”**

6.6 Mounting the FKM seal kit with metal scraper

Take note of the “General notes for mounting of accessories” in section 6.

1. Premount the two-piece FKM/ NBR seal (1) but do not tighten it yet.
2. Push the metal scraper (2) onto the guide rail up to the reinforcing plate.
3. Make sure there is a uniform gap (x) between the guide rail and the metal scraper!

Sizes 25 – 55

- Secure at the top using the 2 screws (3) provided ➠ ☒ Fig. 53.

Size 65

- Secure using the 4 screws (4) provided ➠ ☒ Fig. 54.

For lubricating from the end face (B):

- Use a special lube nipple (5) or adapter.

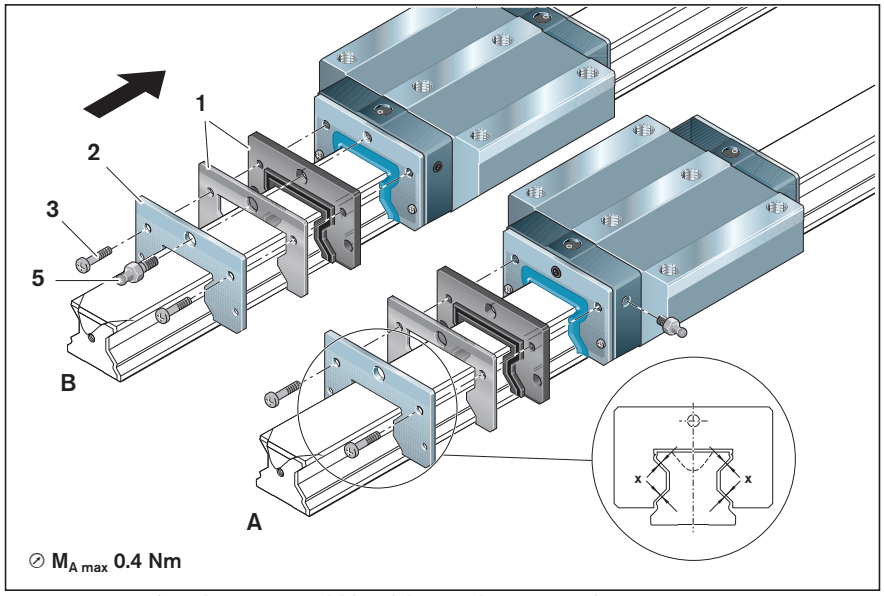

Fig. 53: **Mounting the FKM seal kit with metal scraper, sizes 25-55**

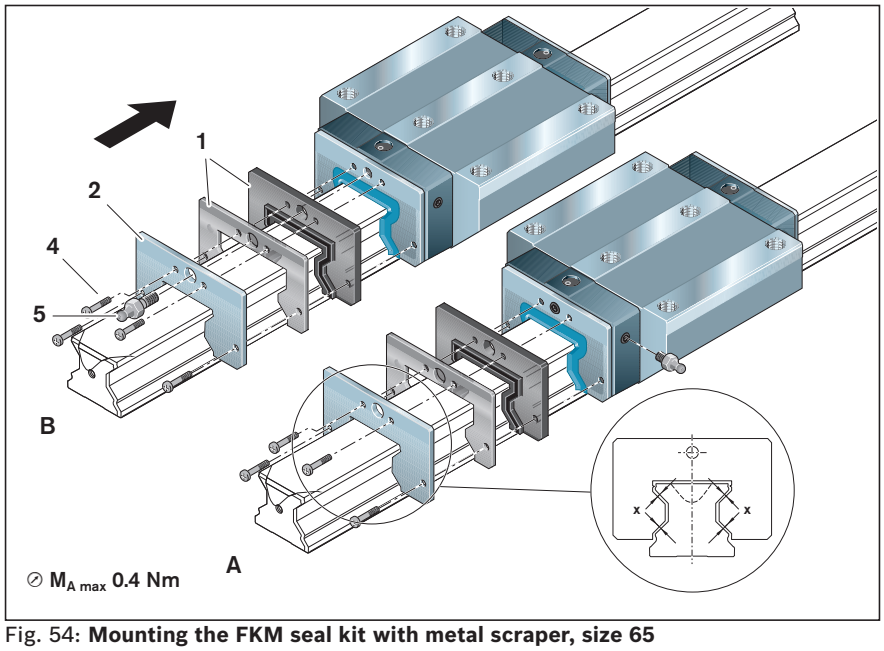

Fig. 54: **Mounting the FKM seal kit with metal scraper, size 65**

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6.7 Mounting the metal scraper plate

Sizes 25 – 55

- ▶ Remove the upper screws and any lube nipple fitted on the end face.

Size 65

1. Remove all screws and any lube nipple fitted on the end face.
2. Push the spacer plate (1) onto the guide rail from above and slide it up against the end seal.
3. Push the metal scraper (2) onto the guide rail up to the spacer plate. Make sure there is a uniform gap (x) between the guide rail and the metal scraper!

Lube port at the end face:

1. Bore open the hole in the spacer plate (1 B).
2. Use a special lube nipple or adapter.

Sizes 25 – 55

- ▶ Secure the metal scraper at the top using the 2 screws provided. ➠ ☒ Fig. 55.

Size 65

- ▶ Secure the metal scraper using the 4 screws provided ➠ ☒ Fig. 56.

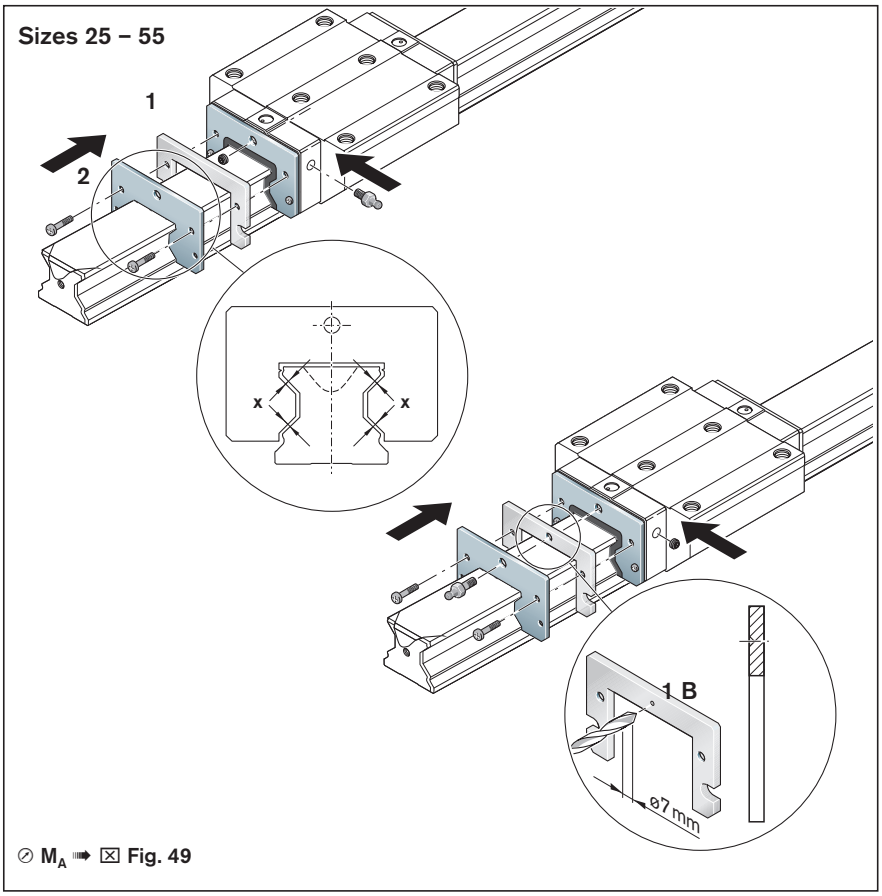


Fig. 55: **Mounting the FKM seal kit with metal scraper, sizes 25-55**

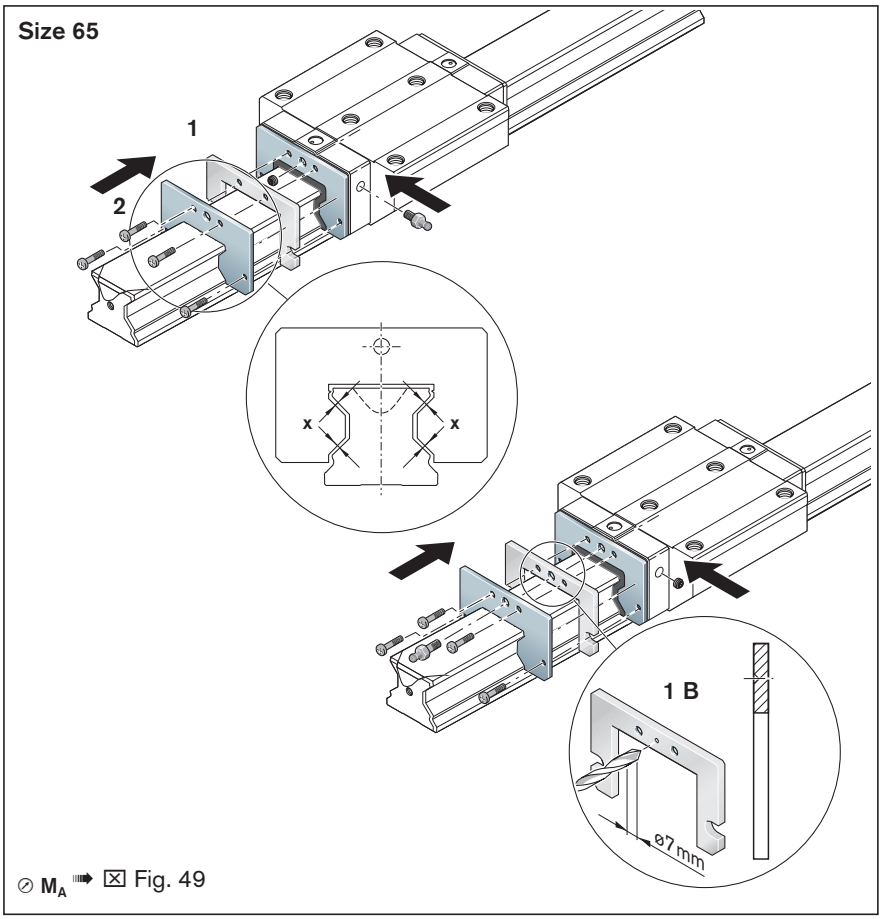


Fig. 56: **Mounting the FKM seal kit with metal scraper, size 65**

7 Lubrication

7.1 Preparations for lubrication from above

A For lubrication from above, the standard roller runner blocks with the part numbers
R18.. ... 16 or **... 66**

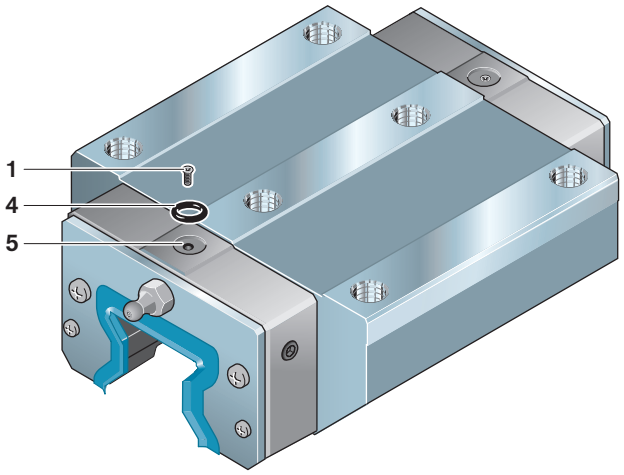
R18.. ... 17 or **... 67**
are delivered with a lube hole already bored open and closed by a screw plug.

- Remove screw (1) from the lube hole (5).
- Insert the O-ring (4) (provided with the runner block) into the recess.

B For high runner blocks S.H, lubrication is done using the lube adapter (2) integrated in-factory before shipment.

- Lever out the plug (3) from the lube hole (5).
- Insert the O-ring (4) (provided with the runner block) into the recess.

A Standard roller runner block FNS R1851 ... 16 / ... 66 (example)



B High roller runner block SNH R1821 ... 16 / ... 66 (example)

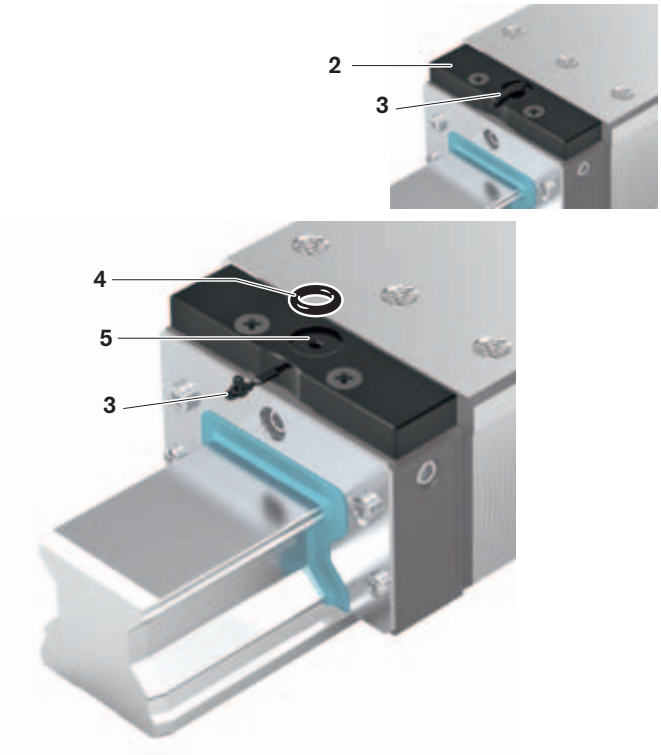


Fig. 57: **Preparations for lubrication from above**

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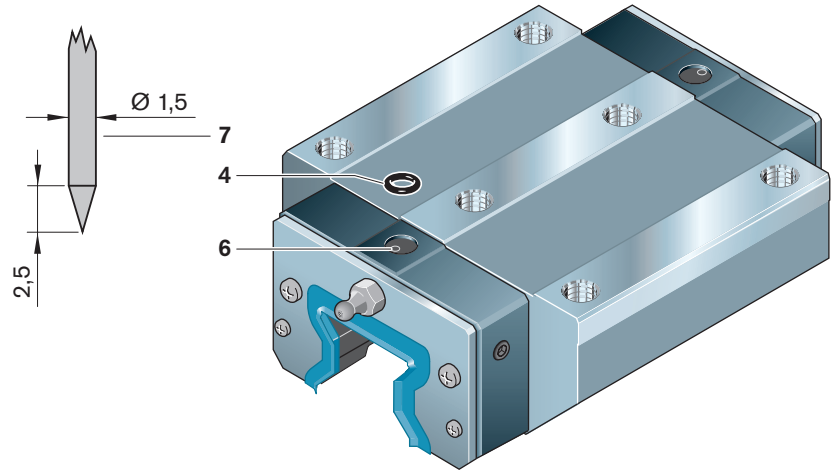
7.1.1 Subsequent opening of a lube hole at the top for standard roller runner blocks F.S and S.H and for heavy duty roller runner blocks Size 100

In the O-ring recess (4) there is a further pre-formed small recess (6). Do not use a drill to open this. Risk of contamination!

- Heat up a pointed metal punch (7) (diameter 1.5 mm).
- Carefully punch through the recess (6) to open the lube hole. Do not exceed the permitted depth T_{max} as specified in the table!
- Insert an O-ring (4) (**not** provided with the runner block) into the recess.

For high runner blocks, use a lube adapter (not included in the scope of delivery; please ask).

FNS R185. ... 10 / ... 60 (example)



Size	Lube hole at top: Maximum permitted depth for punching open T_{max} (mm)
25	4
35	5
45	5
55	5
65	5
100	5

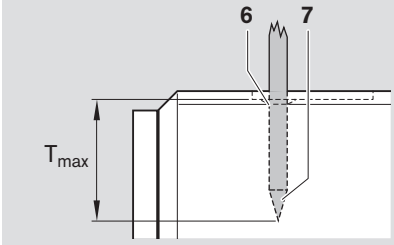


Fig. 58: **Subsequent opening of a lube hole**

7.2 Lubricating the runner blocks

Lubrication depends on many factors (mounting orientation, load, etc.).
See catalog for detailed information on lubrication. Do not use greases containing solid particles (e.g., graphite or MoS_2)! If the time between mounting and start-up is several weeks, basic lubrication must be performed immediately after mounting the roller runner blocks.

Basic lubrication is required:

- before start-up
- before the runner blocks are operated for the first time under load.

Relubrication is required:

- at specific intervals depending on the dyn. load capacity **C** and the dyn. equivalent load on bearing **F**, see catalog.

Lube ports:

- 1 on the left end cap (alternatively, on the end face, at the top[2)], at the side[1)]).
- 2 on the right end cap (alternatively, on the end face, at the top[2)], at the side[1)]).
- 3 on the runner block

Perform basic lubrication:

- Carry out the following steps per lubricating cycle:

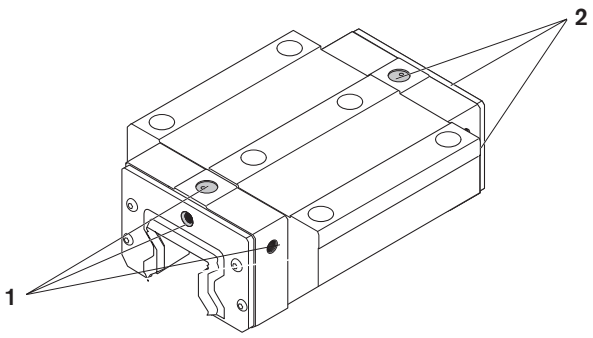
1. Lubricate the runner blocks with the partial quantity. When using a grease gun, press slowly!
2. Move the runner block back and forth over at least 3 times its length for 3 full cycles. (Size 125: min. 300 mm).
3. Make sure there is a visible film of lubricant on the guide rail.

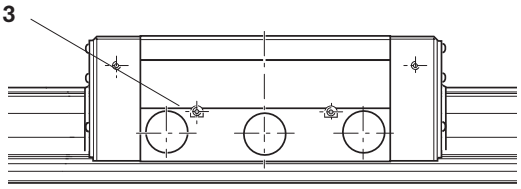
Recommended lube oil:

- Shell Tonna S 220

Recommended lube grease:

- Dynalub 510 or 520 (Bosch Rexroth AG)
- Castrol Longtime PD2 or PD00





Size	Lubricating cycles		Port	Partial quantity (cm³)		Stroke[1)]
	Oil	Grease		Oil	Grease	
25	2	3	1 or 2	1.2	0.8	Normal
			1 and 2			Short
35	2	3	1 or 2	1.3	0.9	Normal
			1 and 2			Short
45	2	3	1 or 2	1.5	1.0	Normal
			1 and 2			Short
55	2	3	1 or 2	2.0	1.4	Normal
			1 and 2			Short
65	2	3	1 or 2	4.0	2.7	Normal
			1 and 2			Short
55/85	2	3	1 or 2	2.7	1.8	Normal
			1 and 2			Short
56/100	2	3	1 or 2	4.8	3.2	Normal
			1 and 2			Short
100	2	3	1 or 2	11.0	15.0	Normal
			1 and 2			Short
125	1	3	1 or 2	38.0	25.0	Normal
			3	9	7.5	
			1 and 2	38.0	25.0	Short
			3	9	7.5	

1) Normal stroke: Stroke ≥ 2 x runner block length (B1)
Short stroke: Stroke < 2 x runner block length (B1)
2) Not present in runner block R18.. ... 18

Fig. 59: **Lubricating the runner blocks**

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8 Technical data

Technical data ➠ “Roller Rail Systems” catalog.

9 Operating conditions

Operating condition	Value
Operating temperature range	–10 °C ... 80 °C
Recommended load F_{comb}	≤ 0.2 C
Travel speed v_{max}	3 m/s (Sizes 100 and 125: 2 m/s)
Acceleration a_{max}	150 m/s²

Fig. 60: **Operating conditions**

10 Tightening torques

If not specified here, please refer to the corresponding publications for tightening torques for fastening screws.

11 Disposal

The Roller Rail System contains a number of different materials: aluminum, steel, plastics, grease.

NOTICE

Environmentally hazardous materials can pollute the environment if not disposed of properly!

Environmental pollution.

- Collect any escaping lubricant and dispose of it correctly.
- The Roller Rail System must be disposed of correctly and in compliance with all applicable national and international guidelines and regulations.

12 Service and support

Our Customer Service helpdesk staff will be happy to assist you in any way they can.

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