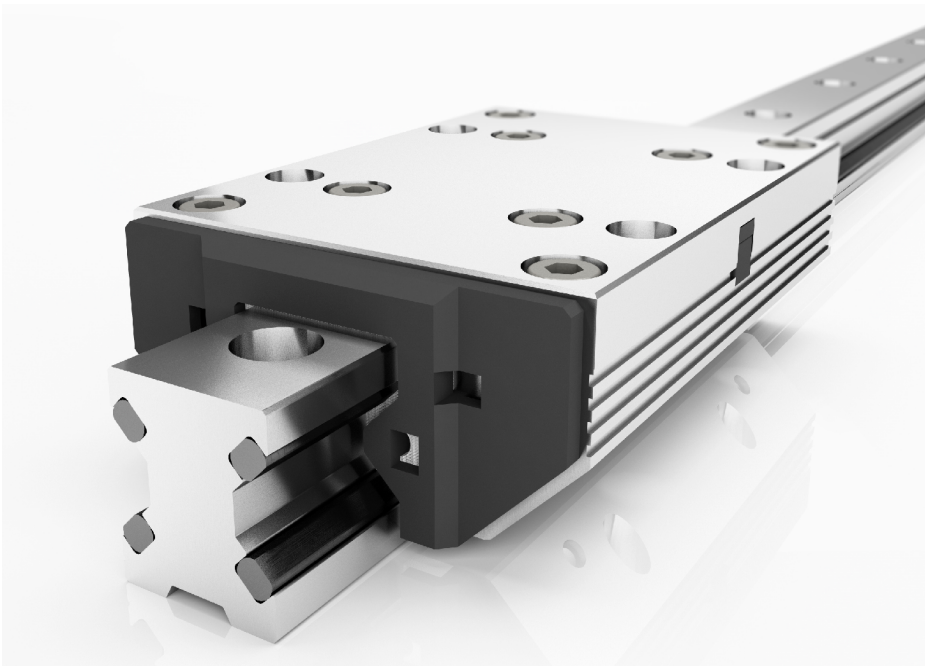


## Franke Aluminum Roller Guides FD

### Mounting and Maintenance Instructions





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## 1. General remarks

### 1.1 Used signs and symbols

1. Marks the first step of an action plot
-  Hints and recommendations (e.g. concerning tightening torques of screws)
-  If the instructions are not followed there is the danger of damages or the function of the guide may be affected.

### 1.2 Due application

Franke aluminium roller guides are designated for precise linear motions of loads as e.g. in machine building, with packing and food producing machines, in handling devices, in the robot construction and transport.

Franke aluminium roller guides should only been used within the provided temperature range from -20°C up to + 100°C.

Franke GmbH will not take any responsibility for damages which might be caused by any unauthorized changes of the guides which are not described in the documents.

### 1.3 Protection and maintenance measures

The Franke aluminium roller guides should be stored in their original packing which protects them from humidity and damages until being mounted. Please do not use any other parts but Franke items for mounting and repair.

Aluminium roller guides are maintenance-free. The cassettes and roller shoes are lubricated for the normal life period.

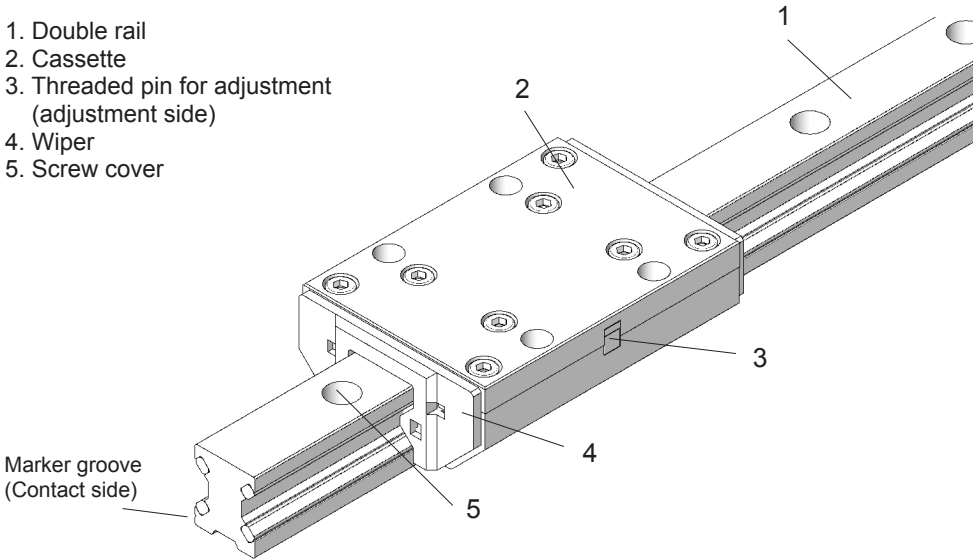
### 1.4 Mounting preparations – tools and accessories

- Torque wrench
- Fastening screws
- Hexagon socket screw
- Dial gauge
- Screw driver
- Auxiliary cylinder with coupled rails
- Plastic mallet and plastic plate for screw covers

## 1.5 Survey of different mounting variants

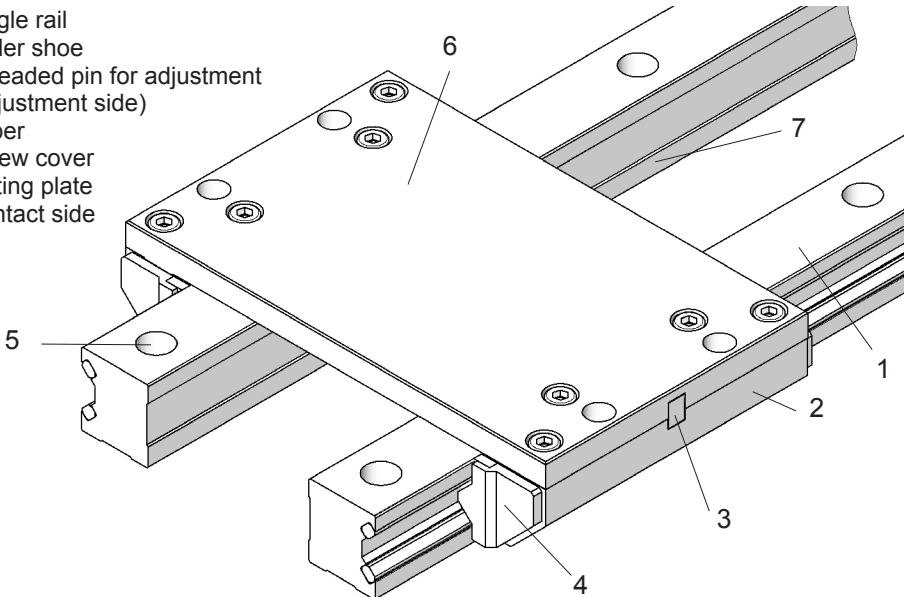
### Double rail with cassette (mounting see chapter 2)

1. Double rail
2. Cassette
3. Threaded pin for adjustment (adjustment side)
4. Wiper
5. Screw cover

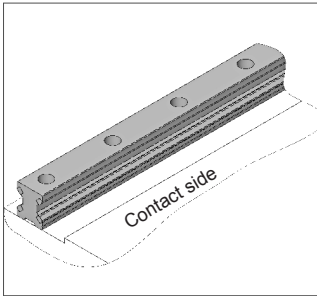


### Single rail with pair of roller shoes (mounting see chapter 3)

1. Single rail
2. Roller shoe
3. Threaded pin for adjustment (adjustment side)
4. Wiper
5. Screw cover
6. Mating plate
7. Contact side



## 2. Mounting of double rail and cassette



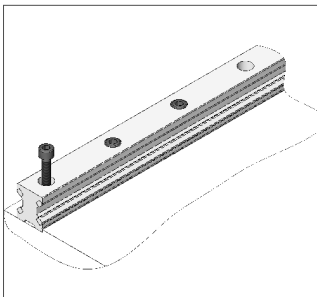
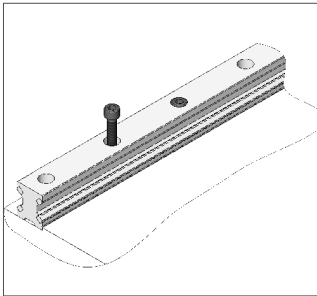
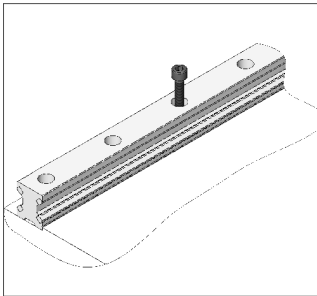
### Mounting of double rails

The rails are fastened by means of screws. If possible fasten the double rails against a contact shoulder.

1. If necessary pull off the cassette from the rail. Check the contact surfaces for contamination and damages.
2. Put the rail with its contact side (marked by a groove) against the contact shoulder.
3. Tighten the screws slightly and control the straightness of the rail. The corresponding values are to be taken from table 1: "straightness double rails/single rail".

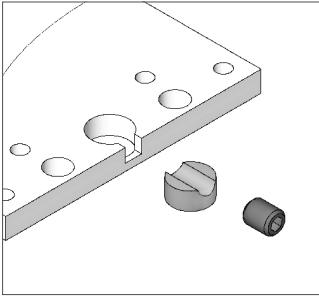
Size of rail	max. tolerance of linearity [mm/m]
12-20	0,5
25-45	0,3

Table 1: "Straightness double rails/single rail"



4. Tighten the fastening screws of the rail alternately **from the centre to the outside**.
  - ☞ Observe the prescribed tightening torques (chapter 9 table 5).
- a. Push the cassette on the double rail.
  - ⚠ Observe the correct arrangement of the stationary side and the adjustment side of the cassette. The marker groove of the rail must be on the opposite side of the threaded adjustment pin.
- b. Traverse the stroke distance with the cassette. It must run uniformly over the whole stroke path, otherwise the mounting procedure has to be revised.

### 3. Mounting of single rails with pair of roller shoes

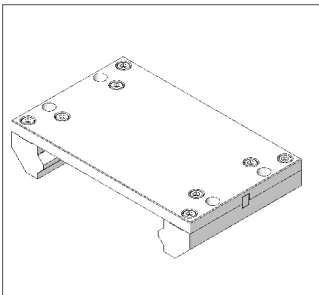
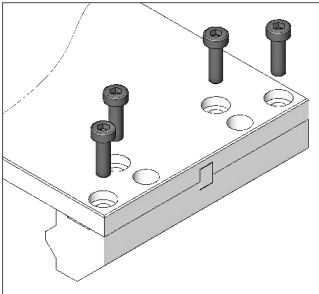
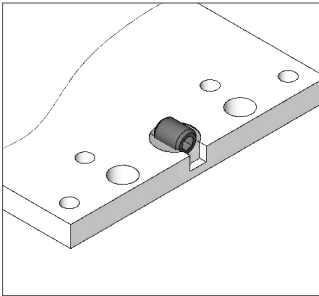


#### 3.1 Mounting of roller shoes (slider)

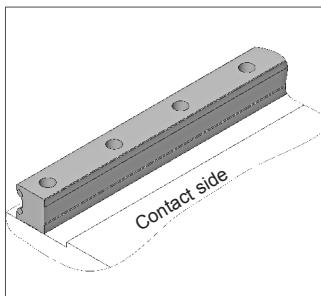
The roller shoes are supplied in pairs. Mount only the one shoe pair on a contact surface which you took out of the same packing. The roller shoes are provided with a centring groove to facilitate fixing on the stationary side.

1. For the mounting of the roller shoe the mating plate with the adapter piece and the adjustment screw is needed.
2. Put the adapter piece and the adjustment screw into the drill holes of the mating plate.
3. Put the roller shoes against the mating plate and fasten the screws. Please use the four fastening screws as well as the two mating screws.
4. Please use the four fastening screws as well as the two mating screws.

👉 Observe the prescribed tightening torques (chapter 9).



### 3. Mounting of single rails with pair of roller shoes



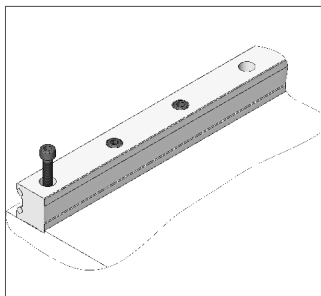
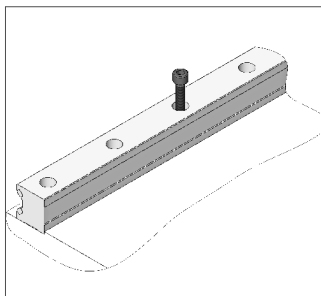
#### 3.2 Mounting of single rails

The rails are fixed by means of screws. If possible the single rails should be screwed against a contact shoulder.

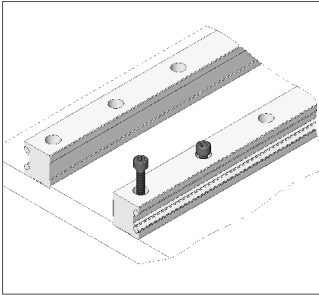
#### Mounting of the first rail (stationary side):

1. Check the contact surfaces for contamination and damages.
2. Put the rail with its contact side to the contact shoulder.
3. Tighten the screws slightly and control the linearity of the rail (tolerances see table 1 on page 5).
4. Fasten the screws alternately **from the centre to the outside**.


☞ Observe the prescribed tightening torques (chapter 9).

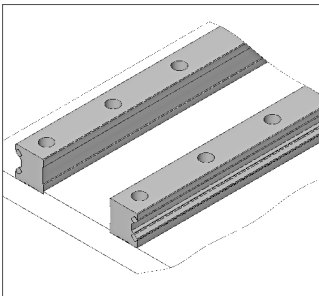


### 3. Mounting of single rails with pair of roller shoes



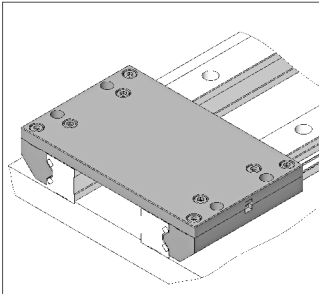
#### Mounting of the second rail (adjustment side):

1. Put the second rail into its position. It has to be parallel to the first rail. Fasten the screws slightly.
2. Check the parallelism of the two rails. The tolerances are found in table 2 "Parallelism of double rails". Fasten the screws alternately from the centre outside.  
 Observe the prescribed tightening torques (chapter 9 table 5).

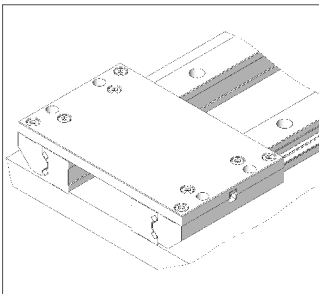


Size of rail	max. tolerance of linearity [mm/m]
12-20	0,03
25-45	0,05

Table 2: Parallelism of double rails

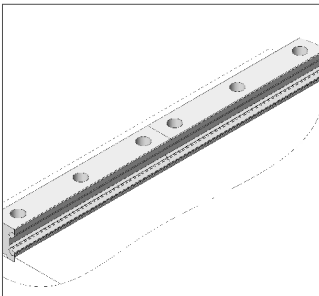


3. Push in the slider onto the rails and adjust the slide resistance approximately by means of the threaded adjustment pin. Precise adjustment is made later.
4. Traverse the stroke path with the slider. It has to run uniformly over the whole distance; otherwise the mounting procedure has to be revised.





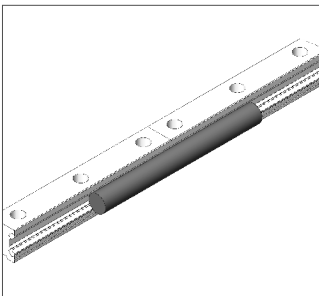
## 4. Mounting of coupled double rails or single rails



The rail path of aluminium roller guides can also consist of several single rails. For the rail length over 4000mm the rails must be butt jointed.

1. Check the contact surfaces for contamination and damages.

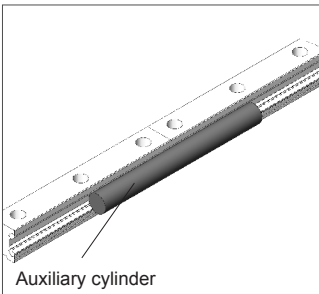
⚠ Butt jointed rails are matched to each other and must be assembled with consecutive marks in order (e.g. A/1-1/1-2/2-2/E). It is not possible to arrange them at will. The marker groove has to be continuously on the same side.



2. Align the rails without gap and tighten the screws slightly.
3. Afterwards use the auxiliary cylinder in order to align the joints exactly (see table 3: "Diameter of cylinder")

Size of rail	12	15	20	25	35	45
Cylinder Ø [mm]	11	11	14	16	27	35
Length [mm]	60	60	60	60	100	100

Table 3: Dimensions of auxiliary cylinder

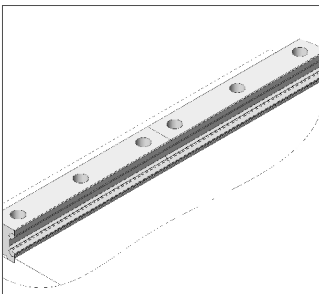


Auxiliary cylinder

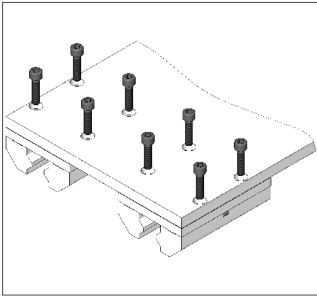
- a. Put the cylinders in the raceways at the joint of the rails.
- b. Clamp them by means of a clamping device.
4. Check the linearity (tolerances see table 1 on page 5). With single rails the parallelism of the rails has also to be checked (tolerances see table 2, page 8).
- a. Fasten the screws now.

☞ Observe the prescribed tightening torques (chapter 9).

- b. Put the cassette or the slider on the rails and adjust the slide resistance as described in chapt. 7.

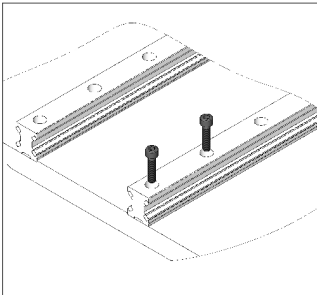


## 5. Mounting of multi-track arrangements

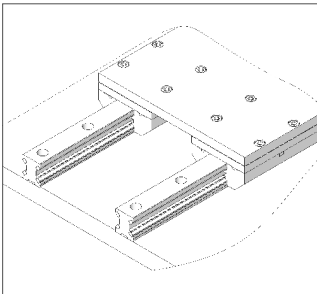
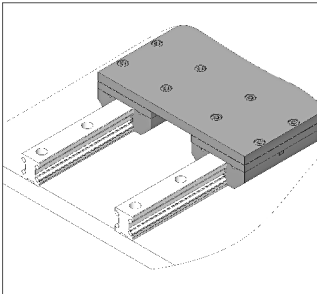


The cassettes are already mounted on the rails when being delivered; the correct slide resistance is already adjusted.

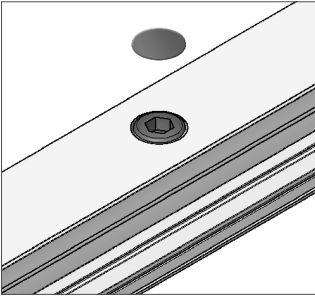
⚠ Therefore please do not exchange cassettes and rails at will.



1. Screw the cassettes on the connecting plate.
2. Mount one of the two double rails (guide rail) as described in chapter 2.
  - a. Put the second rail in its position. Align it approximately and fasten the screws slightly.
  - b. Push the cassettes with the connecting plate (slider) on the rails.
3. The whole rail distance has to be traversed by the slider in order to align the second rail parallel. Please take the permissible tolerances from table 2 on page 7.
4. Fasten the screws of the second rail now.  
☞ Observe the prescribed tightening torques (chapter 9).

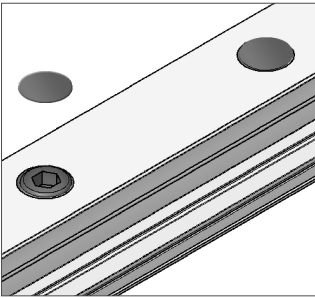


## 6. Mounting of screw covers

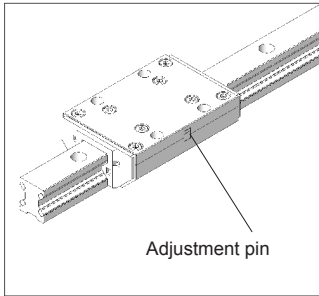


Please use the delivered covers in order to avoid damages on the cassette wipers or on the slider.

1. Put the covers into the mounting holes of the rail.
2. Cover the rail by means of a plastic plate and hammer the covers evenly into the rails with a plastic mallet.
3. If necessary remove the burr.



## 7. Adjustment of cassette or slider



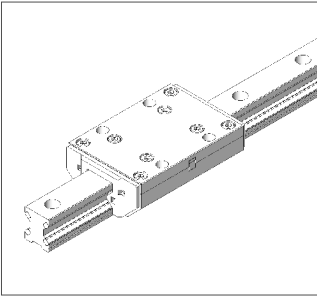
If the cassettes are already mounted on the rail when being delivered the correct slide resistance is already adjusted. Do not exchange cassettes and rails at will. Loose cassettes which are supplied individually have to be adjusted on the respective rails:

1. If necessary remove the wiper from the cassette or from the roller shoes (chapter 8.2). Push the cassette or the slider onto the rail.

**⚠** Please observe the correct arrangement of stationary and adjustment side of the cassette. With double rails the marker groove has to be on the opposite side of the threaded adjustment pin.

2. Unfasten the four fastening screws on the adjustment side and tighten them again without tension.
3. Adjust the slide resistance by means of the threaded pin and move the cassette along the rail during adjustment to ensure a smooth motion.
4. Tighten again the four screws on the adjustment side.

## 7. Adjustment of cassette or slider

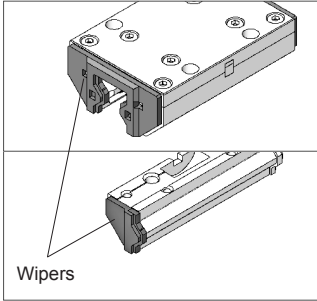


5. Check the slide resistance by means of a spring balance. The values can be taken from table 4: "Approximate values for slide resistances [N]".
  - ☞ Repeat steps 2 to 4 until the correct slide resistance is obtained. After that tighten all fastening screws with the prescribed tightening torques (chapter 9). At the end mount the wipers.

Sizes /	Series	FDA	FDB	FDG	FDC	FDD	FDE	FDH
12	Min.	0,7	0,2	0,2	0,5	-	0,5	-
	Max.	1,0	0,3	0,3	1,0	-	2,0	-
15	Min.	0,5	0,2	0,2	0,5	-	0,8	-
	Max.	2,0	0,3	0,3	2,0	-	2,0	-
20	Min.	1,5	0,5	0,5	1,5	-	1,0	-
	Max.	2,5	0,9	0,9	2,5	-	2,5	-
25	Min.	1,5	1,0	1,0	1,5	1,5	1,5	2,5
	Max.	3,0	1,5	1,5	3,0	3,0	3,0	5,0
35	Min.	2,0	1,0	3,0	2,0	-	2,0	4,0
	Max.	4,0	1,5	4,0	4,0	-	4,0	6,0
45	Min.	5,0	2,0	3,0	5,0	-	5,0	5,0
	Max.	8,0	3,0	4,0	8,0	-	8,0	8,0

Table 4: Approximate values for slide resistances [N] (without wipers).

## 8. Wipers

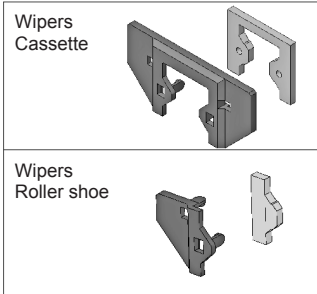


The wipers are delivered loose they have to be mounted on the cassette or the roller shoes.

### 8.1 Mounting of wipers

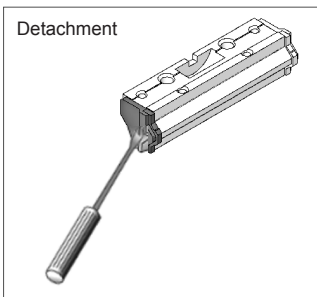
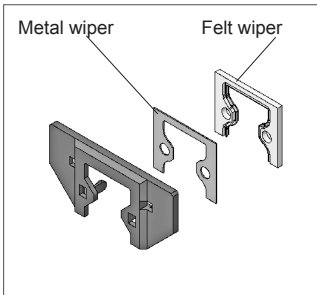
1. Draw the cassette from the guide rail.
  - a. If necessary drench the felt wiper with oil.
  - b. Put the felt wiper into the wiper plate and take the snap catches of the plate through the slot of the wiper. If you use a metal wiper, put it into the wiper plate in front of the felt wiper.
  - c. Now clip the wiper with the locks onto the roller shoes, respectively on the cassette.

Take care that the wiper is not damaged. After having passed a distance of 6000 km the felt wipers should be exchanged.



### 8.2 Detachment of wipers

1. Draw the cassette or the slider from the guide rail.
2. Put a screw driver on the same side of the wiper first into the inner and afterwards into the outer recess and unlock the snap catches with it.
  - a. Repeat the procedure on the other side of the wiper.
  - b. Take off the wiper.



## 9. Tightening torques for screwed connections

Screw size	Tightening torque [Nm]
M3	1,1
M4	2,5
M5	5,0
M6	8,5
M8	21,0
M10	41,0
M12	71,0

Table 5: Tightening torques for screwed connections [Nm]

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