

**Guide unit
DFM-...-B**

1. Applicable documents

All available documents for the product → www.festo.com/pk

2. Safety

- Switch off compressed air before mounting work.
- Protect the positioning range from access.
- Keep foreign objects out of the positioning range.

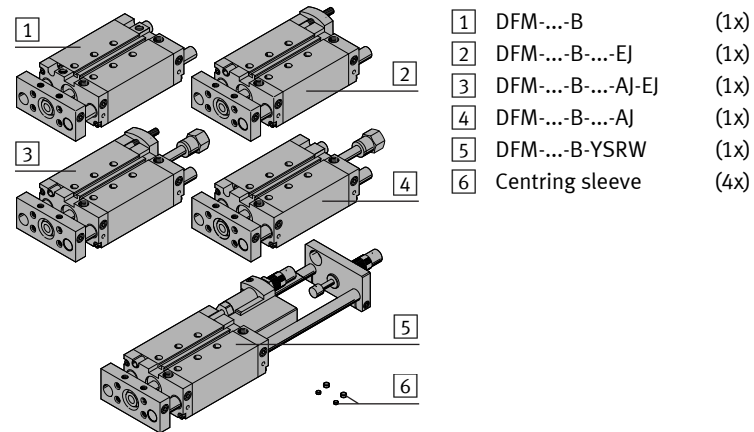
3. Intended use

Stop, stopper cylinder or a single-axis feeding unit with larger loads on the yoke plate.

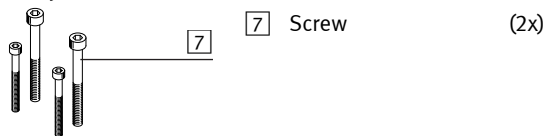
4. Further information

Characteristic curves and permissible limits → www.festo.com/catalogue
Accessories (e.g., slot cover ABP) → www.festo.com/catalogue

5. Scope of delivery



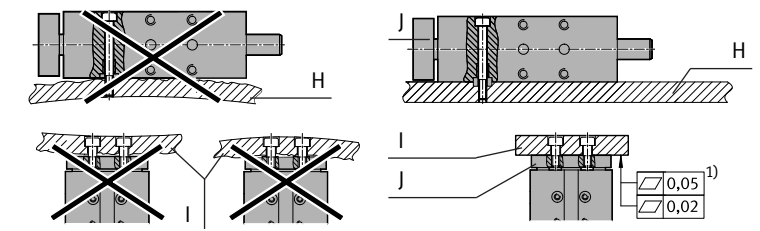
6. Not in scope of delivery



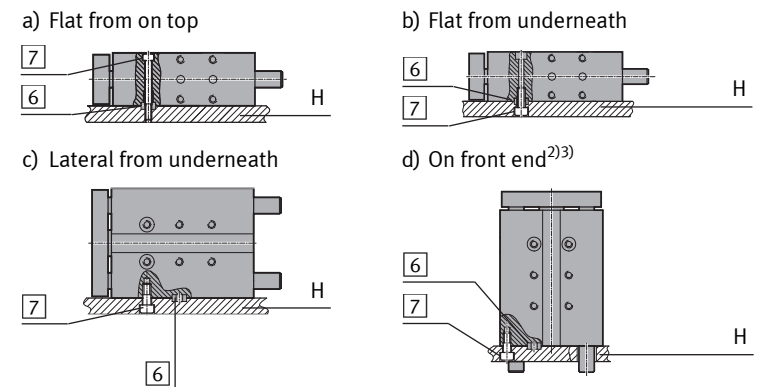
1) Required surface (l) evenness precision only in case of the GF variants:
DFM-12 ... 20-B = 0.02
DFM-25 ... 63-B = 0.05
In case of non-observance of the evenness precision, guide rods can become jammed.
2) The usage of centring sleeves is not possible for DFM-20 ... 40-B and mounting variant d).
3) In the case of DFM-...-B-...-EJ, the mounting variant d) is possible only to a limited extent, since the fastening holes are largely covered.
4) Additional, required dimensions of the guide units 1 through 5 can be found in the catalogue (→ www.festo.com/catalogue).

7. Mounting, general

Note
In order to avoid operative malfunctions and increased wear:
• Observe the characteristic curves and permissible limits.
• Handle the guide units 1 through 5 in such a way that the guide rods and piston rod are not damaged.
• Ensure that the mounting surfaces (H) and (l) are flat.
• Install guide units 1 through 5 without distortion.



Mounting variants:



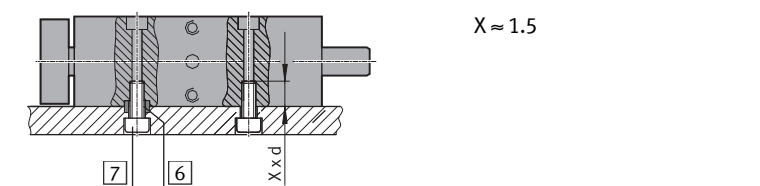
• Use the following screws 7 and centring sleeves 6, depending on the mounting variant:

DFM-...-B	a)	b)	c) + d)	Yoke plate (l)
12	M4	ZBH-9	M5	ZBH-5
16				M5
20	M5		M6	ZBH-7 ²⁾
25				M6
32	M6	ZBH-12	M8	ZBH-9 ²⁾
40				M8
50				ZBH-12
63	M8		M10	M8
				ZBH-12

• Provide mounting holes for the centring sleeves 5 on the surfaces (H) and (l)⁴⁾.

ZBH	5	7	9	12	15
∅ D1 ^{H7} [mm]	5	7	9	12	15
T1 min. [mm]	1.4	1.4	1.9	2.4	2.9

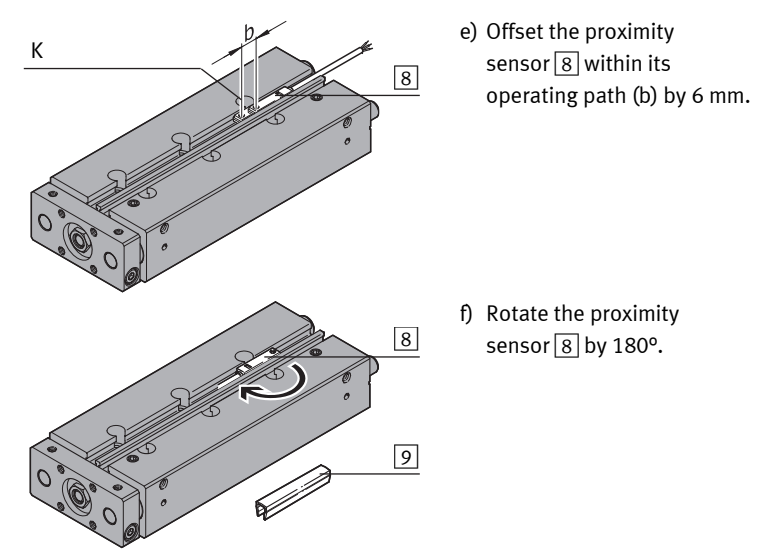
i Information
To mount guide units 1 through 5:
• If possible, use screws 7 with a screw-in length of 1.5 x d⁴⁾.
• Fasten the guide unit according to load, size and stroke length, but with at least 2 screws 7.



Note
To mount the variant d):
With protruding guide rods in the retracted state:
• Ensure there is clear passage of the guide and stop rods, e.g. through grooves in the mounting surface (H).

8. Mounting the proximity sensors

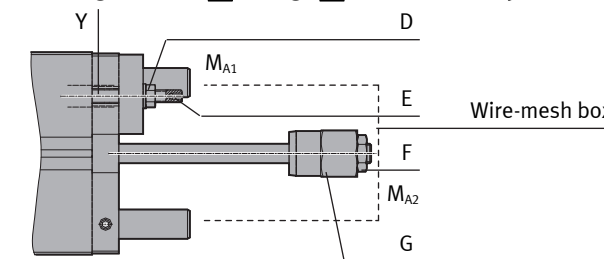
When intermediate strokes are being sensed, the proximity sensor can be at the level of a fastening hole (K) and not fastened.
• Take the following assembly alternatives e) through g) into consideration:



g) Select another permissible proximity sensor (→ www.festo.com/catalogue)
• As required, cover the sensor slots with a slot cover ABP 9 and use them to fix the cables into place (→ More detailed information).

9. Stroke adjustment

9a. For guide units 2 through 4 (no metallic stop)



• Vent the guide units 2 through 4.

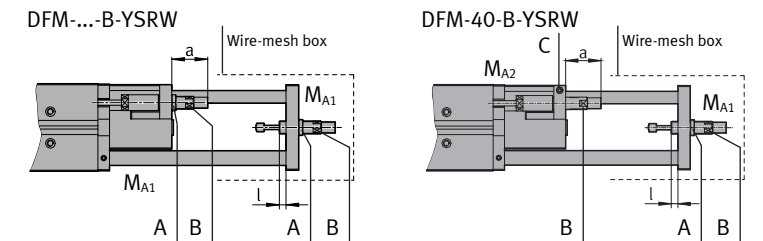
Note
To avoid the unintentional loosening of the piston rod:
• When loosening and tightening the lock nut (F), counterhold the stop nut (G).

Retracted end position (E)	Extended end position (A)
• Loosen the lock nut (D).	• Loosen the lock nut (F).
• Adjust the stop rod (Y) with the internal hexagon socket (E).	• Adjust the stop nut (G).
• Shorten the stroke by a maximum of 10 mm.	• Shorten the stroke by a maximum of 10 mm.
• Tighten the lock nut (D). Observe the tightening torque M _{A1} (→ Table).	• Tighten the lock nut (F). Observe the tightening torque M _{A2} (→ Table).

• Vent the guide units 2 through 4.
• Start the test run. Check the set stroke.

⁵⁾ Tolerance for tightening torques M_A with no indication of tolerance: ± 20 %

9b. For guide unit 5 (metallic stop)



• Vent the guide unit 5.

Note
• To reduce the shortening of the stroke dimension a by a maximum of 10 mm and enlarge it by dimension l by a maximum of 10 mm (→ Section 11).
• Do not exceed fall short of dimension a/l since the shock absorber performance is otherwise strongly reduced.
• Adjust the shock absorber (B) to dimension a/l as follows:

Retracted end position	Extended end position
• Loosen the lock nut (A)/screw (C).	• Loosen the lock nut (A)
• Adjust the shock absorber (B).	• Adjust the shock absorber (B).
• Observe dimension a. Shortened the factory-set stroke by a maximum of 10 mm (→ Table).	• Observe dimension l. Increase the factory-set stroke by a maximum of 10 mm (→ Table).
• Tighten the lock nut (A)/screw (C). Observe the tightening torque M _{A1} (→ Table).	• Tighten the lock nut (A). Observe the tightening torque M _{A2} (→ Table).

• Vent the guide unit 5.
• Start the test run. Check the set stroke.

10. Maintenance and care

10a. In case of guide unit 5

During operation, the viscosity of the hydraulic oil reduces due to friction heat.

→ Shock absorber reset times become shorter (hard knocking).
At low temperatures around 0°C, the viscosity of the hydraulic oil rises.
→ Shock absorber reset times become longer.

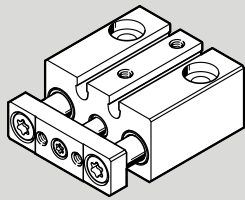
The moving mass should always reach the end position safely, but not knock hard against it.

- The shock absorbers should be replaced when their functioning / shock-absorbing performance is no longer ensured due to excessive wear.
- Check the cushioning regularly for the following signs of wear:
 - Oil leakage
 - Hard knocking
 - Stop rod remains in retracted end position / moves slowly from end position
- The following environmental conditions shorten the test intervals:
 - High thermal stress
 - Severe accumulation of dirt
 - Proximity of grease-dissolving liquids or vapours.
- Exchange the shock absorber (B) after 10 million strokes (→ Section 9b).

11. Dimensions, widths across flats and tightening torques M_A⁵⁾

DFM-...-B		12/16	20	25	32	40	50	63
EJ	D ≅	–	8	13	13	13	17	17
	M _{A1} [Nm]	–	3	7	10	10	24	24
	E ≅	–	2.5	4	4	4	5	5
AJ	F ≅	10	13	17	17	17	19	19
	M _{A2} [Nm]	1.7	3	6	10	10	16.5	19
	G ≅	17	19	24	30	30	36	36
YSRW	A ≅	–	15	17	19	27	27	32
	M _{A1} [Nm]	–	5	8	20	35	35	55
	B ≅	–	11	13	15	20	20	24
	C ≅	–				4	–	
	M _{A2} [Nm]	–				10	–	
	a [mm]	–	34 ^{±10}	37.1 ^{±10}	48.1 ^{±10}	56.5 ^{±10}	58.5 ^{±10}	74 ^{±10}
	l [mm]	–	4.9 ^{±10}	5.2 ^{±10}	4.7 ^{±10}	3.2 ^{±10}	10.4 ^{±10}	11.2 ^{±10}

Guided drive DFM-6/-10



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Instructions | Assembly

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Translation of the original instructions

1 Further applicable documents

- All available documents for the product → www.festo.com/pk.
- Assembly instructions for proximity sensor

2 Safety

2.1 Safety instructions

- Before carrying out any work on the product, switch off the compressed air supply and secure it against being switched back on.
- Protect the positioning range from access.
- Keep foreign objects out of the positioning range.

2.2 Intended use

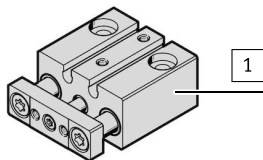
Recording lateral forces on the yoke plate for clamping, press-fitting, feeding or as protection against rotation.

3 Further information

Characteristic curves and permissible limits → www.festo.com/catalogue
Dimensions of guided drive → www.festo.com/catalogue
Accessories (e.g. QS push-in fittings) → www.festo.com/catalogue

4 Product range overview

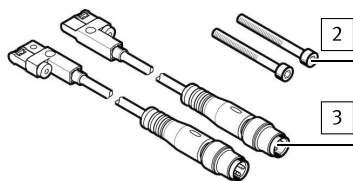
4.1 Included in delivery



1 Guided drive (1x)

Fig. 1

4.2 Not included in the delivery



2 Screw (2x)

3 Proximity sensor (2x)
SMT-10G

Fig. 2

5 Mounting

5.1 Assembly conditions

- Observe the characteristic curves and permissible limits → www.festo.com/catalogue.
- Handle the guided drive in such a way that the guide rods and piston rod are not damaged.
- Ensure that the surfaces (H) and (I) are flat.
- Install the guided drive without deformation.

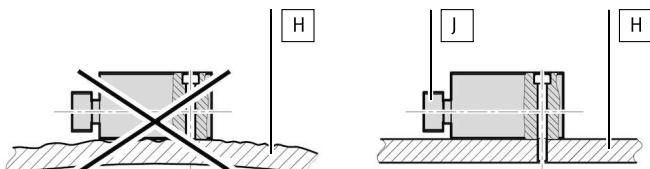


Fig. 3

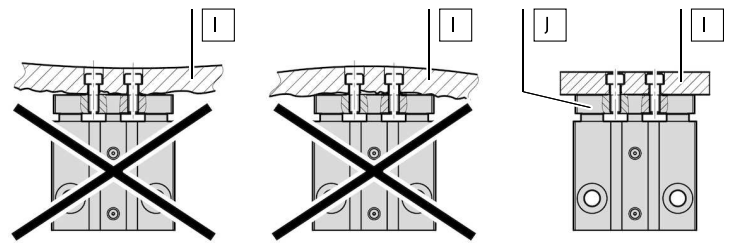


Fig. 4

5.2 Assembly variants Flat from above

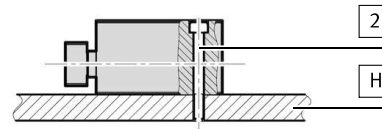


Fig. 5

Via end face

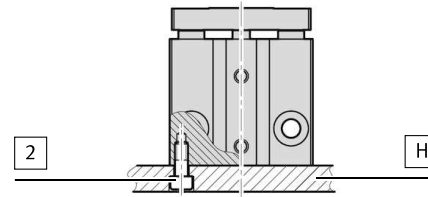


Fig. 6

5.3 Mounting

Select mounting accessories

- Use the following screws [2] depending on the assembly variant:

DFM	Flat from above	Via end face	Yoke plate (J)
6	M3	M3	M2.5
10	M3	M4	M3

Tab. 1 Mounting accessories

Assemble guide unit

- Position guided drive [1] on the assembly surfaces (H) and (I).
- Mount guided drive [1] using the screws [2].

5.4 Assembly of the proximity sensors SMT-10G

Positioning the proximity sensors in the slots

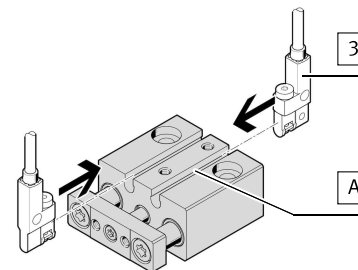


Fig. 7

- Align the proximity sensors [3] with the mounting attachment facing inwards.
- Slide the proximity sensors [3] into the slots (A).

Assembling the proximity sensors

Permitted QS push-in fittings (B): → www.festo.com/catalogue

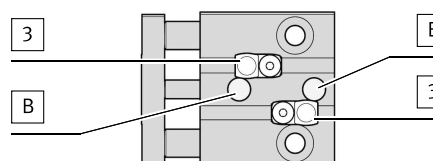


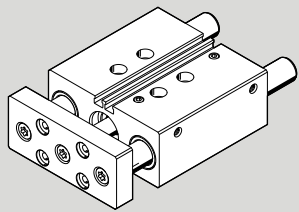
Fig. 8

- Mount the proximity sensors [3] → Further applicable documents.

Guided drive DFM-12...-100

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Instructions | Assembly

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Translation of the original instructions

1 Further applicable documents

- All available documents for the product → www.festo.com/pk.
- Assembly instructions for proximity sensor

2 Safety

2.1 Safety instructions

- Before carrying out any work on the product, switch off the compressed air supply and secure it against being switched back on.
- Protect the positioning range from access.
- Keep foreign objects out of the positioning range.

2.2 Intended use

Recording lateral forces on the yoke plate for clamping, press-fitting, feeding or as protection against rotation.

3 Further information

Characteristic curves and permissible limits → www.festo.com/catalogue
Accessories (e.g. slot cover ABP) → www.festo.com/catalogue
Dimensions of guided drive → www.festo.com/catalogue

4 Product range overview

4.1 Included in delivery

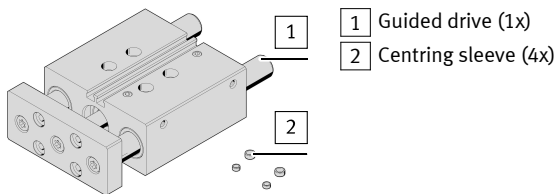


Fig. 1

4.2 Not included in the delivery

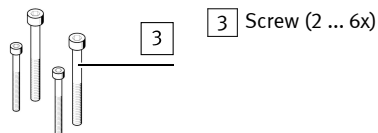


Fig. 2

5 Mounting

5.1 Assembly conditions

- Observe the characteristic curves and permissible limits → www.festo.com/catalogue.
- Handle the guided drive in such a way that the guide rods and piston rod are not damaged.
- Ensure that the surfaces (H) and (I) are flat.
- Install the guided drive without deformation.

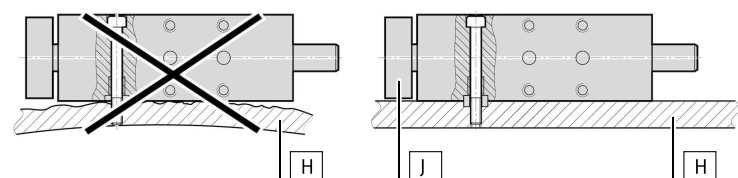


Fig. 3

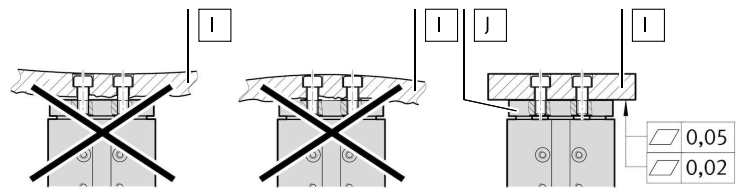


Fig. 4

Required evenness precision of the assembly surface (I) of the payload in case of the GF variants only:

DFM-12 ... 20 = 0.02 mm

DFM-25 ... 100 = 0.05 mm

If the evenness precision is not complied with, the guide rods may become jammed.

5.2 Assembly variants

Flat from above

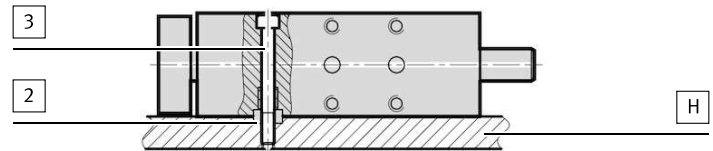


Fig. 5

Flat from underneath

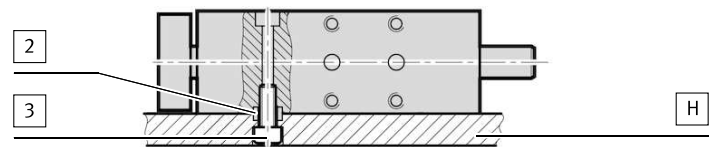


Fig. 6

Laterally from underneath

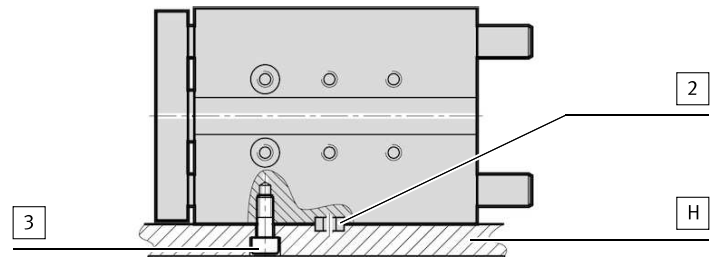


Fig. 7

Via end face

If the guide rods protrude in the retracted state:

- Make sure there is free passage for the guide rods, e.g. through cut-outs in the assembly surface (H).

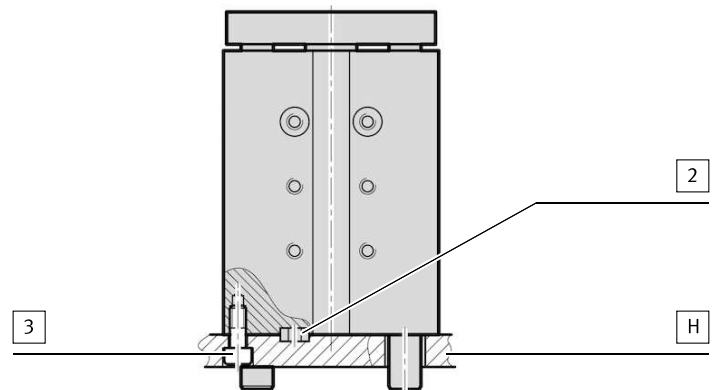


Fig. 8

5.3 Mounting

Select mounting accessories

- Use the following screws [3] with a screw-in length of approx. $1.5 \times d$ and centring sleeves [2], according to the type of assembly:

DFM	Flat from above		Flat from underneath		Laterally from underneath/via end face		Yoke plate (J)	
12	M4	ZBH-9	M5	ZBH-9	M4	ZBH-5	M4	ZBH-5
16					M5		M5	
20	M5	ZBH-9	M6	ZBH-9	M6	ZBH-7	M6	ZBH-9
25					M6		M6	
32	M6	ZBH-12	M8	ZBH-12	M8	ZBH-9	M8	ZBH-12
40					M8		M8	
50	M8	ZBH-12	M10	ZBH-12	M10	ZBH-12	M8	ZBH-12
63					M10		M10	
80	M10	ZBH-15	M12	ZBH-15	M12	ZBH-15	M10	ZBH-15
100					M12		M12	

Tab. 1 Mounting accessories

- Mount according to load, size and stroke length, but using at least 2 screws [3].

Provide centring holes

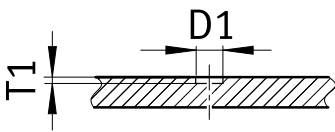


Fig. 9

- Provide centring holes for the centring sleeves [2] on the surfaces (H) and (I). Required dimensions of the guided drive (→ 3 Further information).

ZBH		5	7	9	12	15
∅ D1 H7	[mm]	5	7	9	12	15
T1 min.	[mm]	1.4	1.4	1.9	2.4	2.9

Tab. 2

Assembling the guided drive and payload

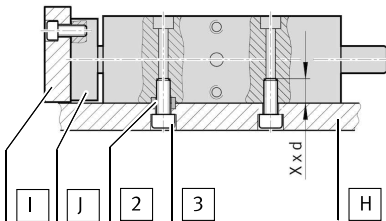


Fig. 10

- Position the guided drive [1] on the assembly surface (H) using the centring sleeves [2].
- Mount the guided drive [1] using the screws [3] ($X \approx 1.5$).
- Position the assembly surface (I) of the payload on the yoke plate (J) using the centring sleeves [2].
- Mount the assembly surface (I) of the payload using the screws [3] ($X \approx 1.5$).

5.4 Assembly of the proximity sensors for DFM-12

When it is sensing intermediate strokes, the proximity sensor can be at the level of a mounting hole (K) and not fastened.

- Consider the following assembly alternatives:

Offset the proximity sensor

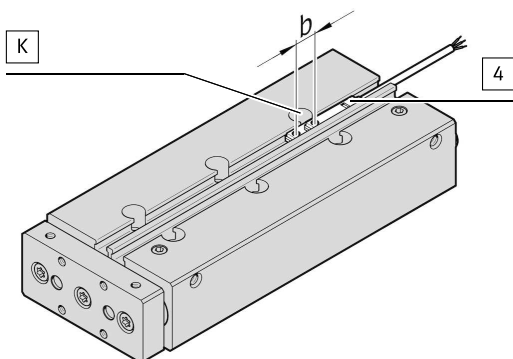


Fig. 11

- Offset the proximity sensor [4] by 6 mm within its operating path (b).

Rotate the proximity sensor

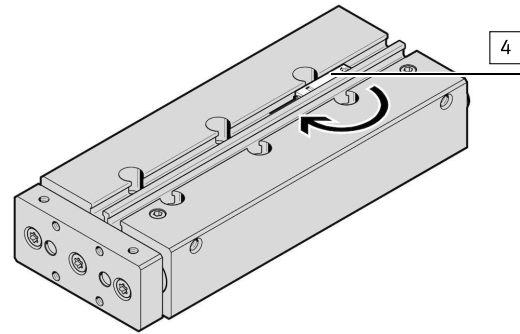


Fig. 12

- Rotate the proximity sensor [4] by 180°.

Swap the proximity sensor

- Select another permissible proximity sensor → www.festo.com/catalogue.

5.5 Using a slot cover

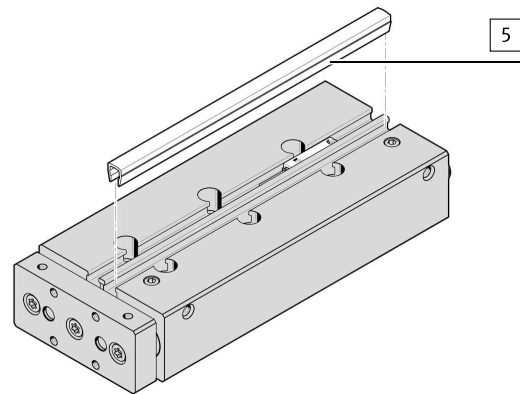


Fig. 13

- If required, cover the sensor slots with a slot cover ABP [5], thereby fixing the cables in place (→ Further information).