



Superior Clamping and Gripping



Product Information

Long-stroke gripper PFH-mini 30

PFH-mini

Long-stroke gripper

Loadable. Flexible. Reliable.

Long-stroke gripper PFH-mini

2-finger parallel gripper with long jaw stroke for large parts and/or a broad range of parts

Field of application

clean to slightly dirty environments

Advantages – Your benefits

Robust sliding guide for the precise handling of different workpieces

High maximum moments possible suitable for using long gripper fingers

Double piston rack and pinion principle for centric clamping

Mounting from two sides in three screw directions for universal and flexible gripper assembly

Air supply via hose-free direct connection or screw connections for flexible pressure supply in all automated systems



Sizes
Quantity: 3



Weight
2.65 .. 12.6 kg



Gripping force
630 .. 2950 N



Stroke per jaw
30 .. 100 mm



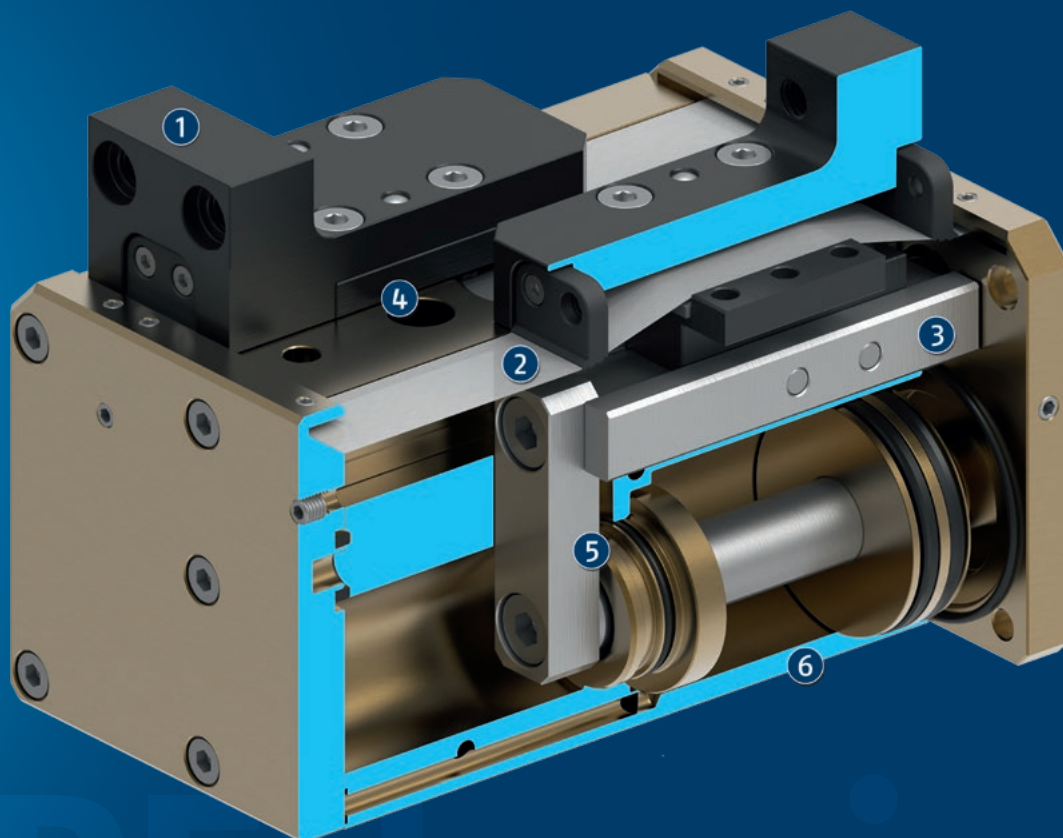
Workpiece weight
3.15 .. 13 kg

Functional description

By pressure actuation of the opposing piston, the base jaws, everyone is guided by a carrier on the piston, are set in motion.

The jaw stroke is synchronized by means of rack and

pinion kinematics.



① **Base Jaw**
for the connection of workpiece-specific gripper fingers

② **Dust cover**
along the whole guidance length against coarse dirt

③ **Sliding guide**
for precise gripping with minimal play at a high load capacity

④ **Centering and mounting possibilities**
for universal assembly of the gripper

⑤ **Kinematics**
Double piston rack and pinion principle for centric clamping

⑥ **Housing**
is weight-optimized due to the use of high-strength aluminum alloy

General notes about the series

Operating principle: Double piston rack and pinion principle

Housing material: Aluminum alloy, anodized

Base jaw material: Steel

Actuation: pneumatic, with filtered compressed air as per ISO 8573-1:2010 [7:4:4].

Warranty: 24 months

Scope of delivery: Brackets for proximity switches, centering sleeves, O-rings for direct connection, assembly instructions (operating manual with declaration of incorporation is available online)

Gripping force maintenance device: possible by using the version with mechanical gripping force maintenance or pressure maintenance valve SDV-P

Gripping force: is the arithmetic sum of the individual force applied to each jaw at distance P (see illustration).

Finger length: is measured from the reference surface as the distance P in direction to the main axis.

The maximum permissible finger length applies until the nominal operating pressure is achieved. With higher pressures, the finger length must be reduced proportionally to the nominal operating pressure.

Repeat accuracy: is defined as a distribution of the end Position for 100 consecutive strokes.

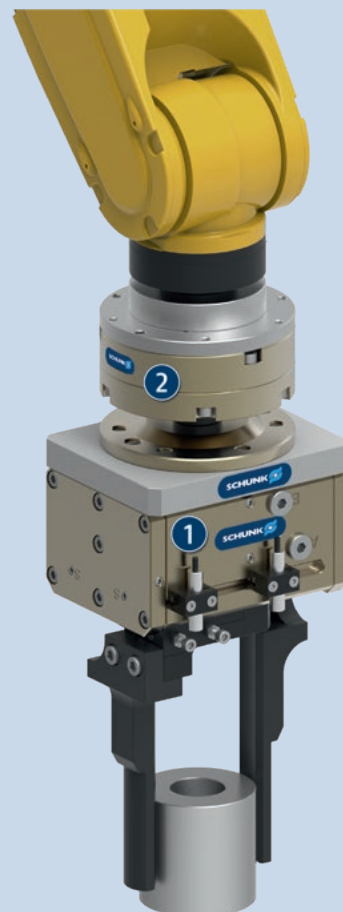
Workpiece weight: is calculated for force-fit gripping with a coefficient of static friction of 0.1 and a safety factor of 2 against workpiece slippage at acceleration due to gravity g. For form-fit or capture gripping, there are significantly higher permissible workpiece weights.

Closing and opening times: are purely the times that the base jaws or fingers are in motion. Valve switching times, hose fill times, or PLC reaction times are not included, and are to be considered when cycle times are calculated.

Application example

Assembly unit for intermediate sleeves with various diameters. The unit is equipped with a collision sensor to prevent damages.

- 1 2-finger parallel gripper PFH-mini with workpiece-specific gripper fingers
- 2 Collision sensor OPS



SCHUNK offers more ...

The following components make the product even more productive – the suitable addition for the highest functionality, flexibility, reliability, and controlled production.



Anti-collision and overload protection sensor



Tolerance compensation unit



Pressure maintenance valve



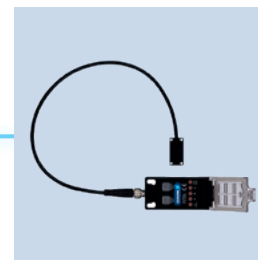
Finger blank



Inductive proximity switches



Magnetic switches



Flexible position sensor

① For more information on these products can be found on the following product pages or at schunk.com.

Options and special information

Gripping force maintenance version AS/IS: The mechanical gripping force maintenance version ensures minimum gripping force even in the event of a pressure drop. In the AS/IS version this acts as a closing force, in the IS version as an opening force.

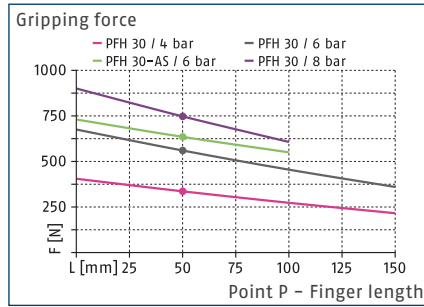
Gripper with guide cover: against heavy contamination

PFH-mini 30

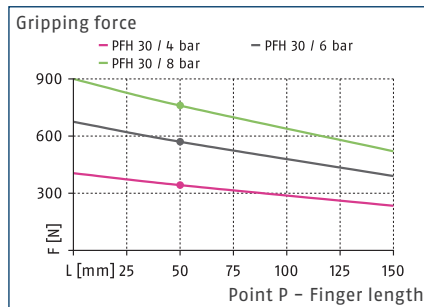
Long-stroke gripper



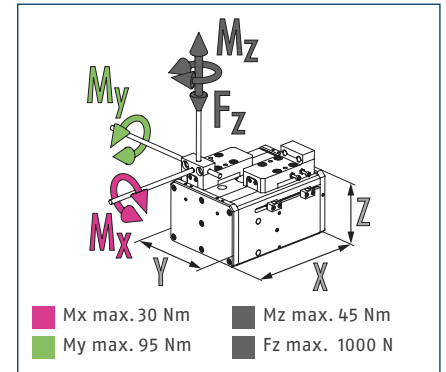
Gripping force O.D. gripping



Gripping force I.D. gripping



Dimensions and maximum loads



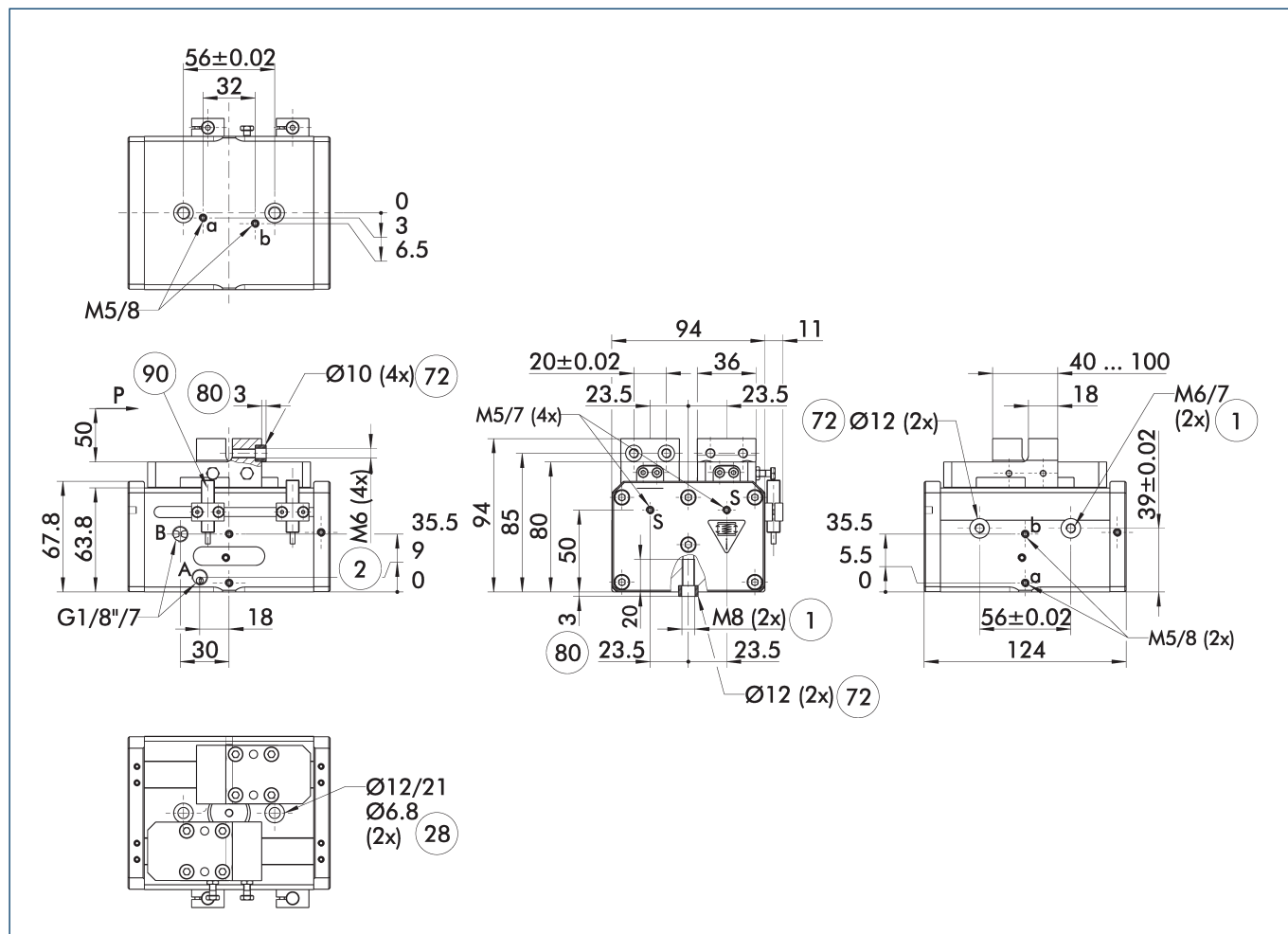
① The indicated moments and forces are static values, apply for each base jaw and may appear simultaneously. Loads may additionally occur to the moment produced by the gripping force itself.

Technical data

Description		PFH 30	PFH 30-60	PFH 30-AS
ID		0302030	0302033	0302031
Stroke per jaw	[mm]	30	60	30
Closing/opening force	[N]	630/570	630/570	720/-
Min. spring force	[N]			90
Weight	[kg]	2.65	3.5	2.7
Recommended workpiece weight	[kg]	3.15	3.15	3.15
Fluid consumption double stroke	[cm ³]	95	187	95
Min./nom./max. operating pressure	[bar]	2/6/8	2/6/8	5/6/6.5
Min./max. air purge pressure	[bar]	0.5/1	0.5/1	0.5/1
Closing/opening time	[s]	0.3/0.3	0.4/0.5	0.35/0.35
Closing/opening time with spring	[s]			0.40
Max. permissible finger length	[mm]	150	150	100
Max. permissible mass per finger	[kg]	2	2	2
IP protection class		41	41	41
Min./max. ambient temperature	[°C]	5/90	5/90	5/90
Repeat accuracy	[mm]	0.05	0.05	0.05
Dimensions X x Y x Z	[mm]	124 x 94 x 67.8	187 x 94 x 67.8	124 x 94 x 67.8

① It may take a few 100 gripping cycles until the full gripping force (as indicated in the data table) will be available.

Main view PFH 30



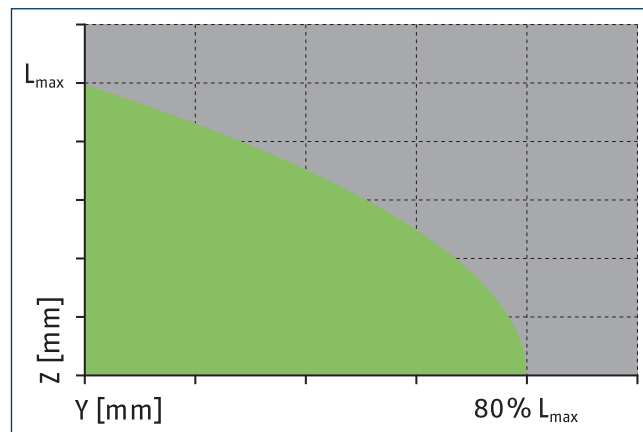
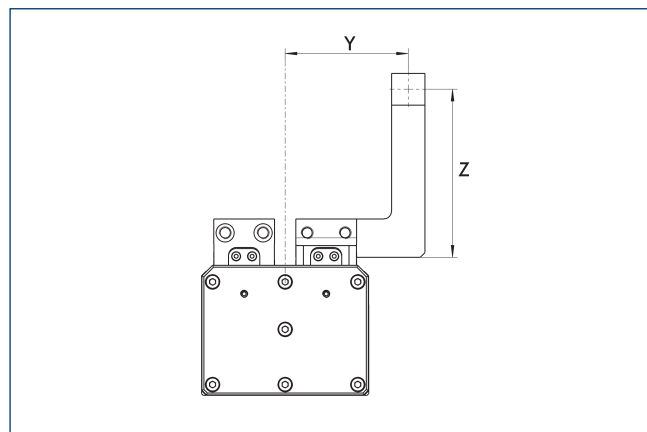
The drawing shows the gripper in the basic version with closed jaws, without dimensional consideration of the options described below.

① The SDV-P pressure maintenance valve can also be used for I.D. or O.D. gripping alternatively or in addition to the spring-loaded, mechanical gripping force maintenance device (see catalog section on accessories).

- A, a Main / direct connection, gripper opening
- B, b Main / direct connection, gripper closing
- S Air purge connection
- ① Gripper connection

- ② Finger connection
- ②⑧ Through-hole
- ⑦② Fit for centering sleeves
- ⑧① Depth of the centering sleeve hole in the counter part
- ⑨① Sensor IN ...

Maximum permitted finger projection



■ Permitted range

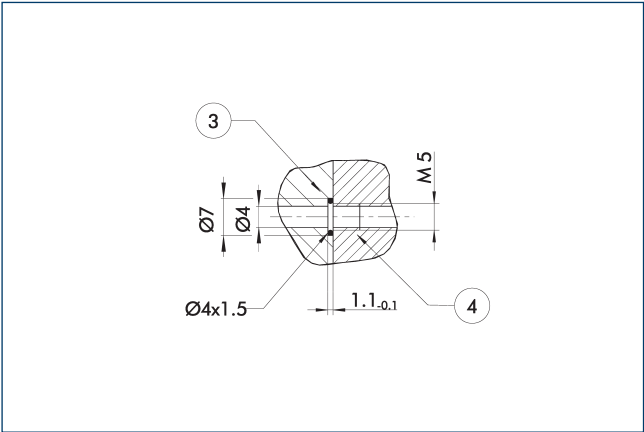
■ Inadmissible range

L_{max} is equivalent to the maximum permitted finger length, see the technical data table.

PFH-mini 30

Long-stroke gripper

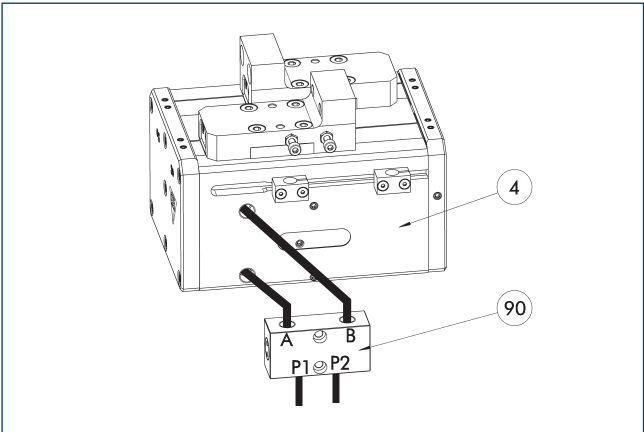
Hose-free direct connection M5



- ③ Adapter ④ Grippers

The direct connection is used for supplying compressed air without hoses. Instead, the pressure medium is fed through bore-holes in the mounting plate.

SDV-P pressure maintenance valve



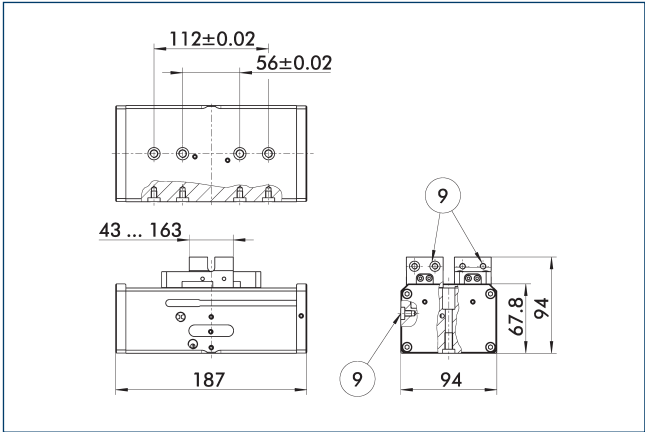
- ④ Grippers ⑨⑩ SDV-P pressure maintenance valve

The SDV-P pressure maintenance valve ensures in emergency STOP situations that the pressure in the piston chamber of pneumatic gripper, swivel, linear, and quick-change modules is temporarily maintained.

Description	ID	Recommended hose diameter
		[mm]
Pressure maintenance valve		
SDV-P 04	0403130	6
Pressure maintenance valve with air bleed screw		
SDV-P 04-E	0300120	6

① In order to achieve the specified closing and opening time for each gripper variant, the recommended hose diameter must be used. The direct allocation of the respective variant of the gripper for the respective SDV-P can be found at schunk.com.

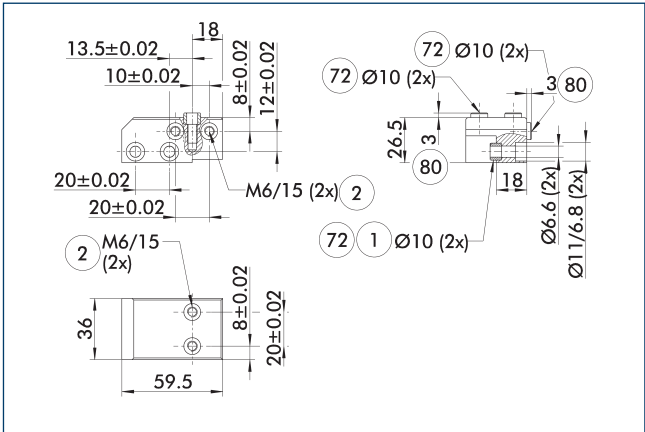
Stroke variant PFH 30-60



- ⑨ For mounting screw connection diagram, see basic version

The drawing shows changes in dimensions of the version with a different stroke compared to the version shown in the main view.

ZBA-PFH 30-100 intermediate jaws

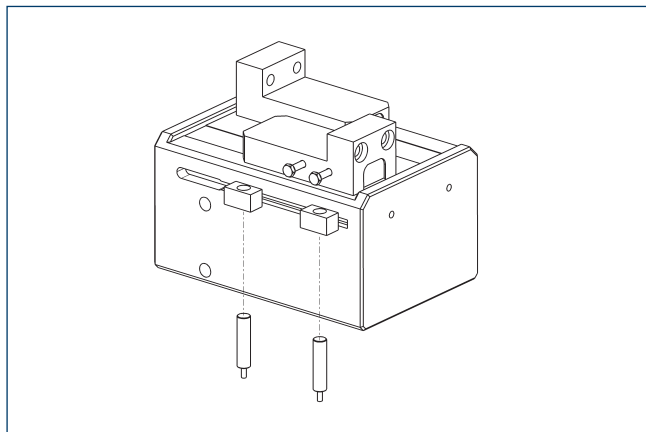


- ① Gripper connection ⑦② Fit for centering sleeves
② Finger connection ⑧⑩ Depth of the centering sleeve hole in the counter part

The optional intermediate jaw makes a screw connection of the gripper fingers in Z-direction possible. Furthermore, the intermediate jaws compensate the parallel offset of the base jaws in Y- direction and enable an aligned connection. The design of the customer-specific gripper fingers is simplified as a result.

Description	ID	Material	Finger interface	Scope of delivery
Intermediate jaw				
ZBA-PFH 30-100	0300220	Steel	PGN-plus 100	2

Inductive Proximity Switches

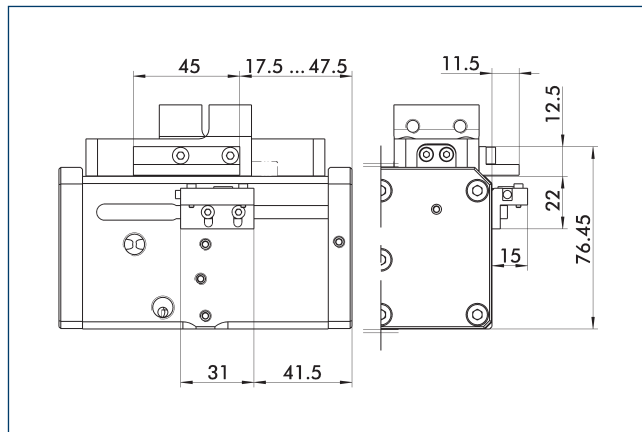


Directly mounted end position monitoring.

Description	ID	Often combined
Inductive proximity switches		
IN 80-S-M12	0301578	
IN 80-S-M8	0301478	●
INK 80-S	0301550	
Connection cables		
KA BG08-L 3P-0300-PNP	0301622	●
KA BG08-L 3P-0500-PNP	0301623	
KA BG12-L 3P-0500-PNP	30016369	
KA BW08-L 3P-0300-PNP	0301594	
KA BW08-L 3P-0500-PNP	0301502	
KA BW12-L 3P-0300-PNP	0301503	
KA BW12-L 3P-0500-PNP	0301507	
clip for plug/socket		
CLI-M12	0301464	
CLI-M8	0301463	
Cable extension		
KV BG12-SG12 3P-0030-PNP	0301999	
KV BG12-SG12 3P-0060-PNP	0301998	
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
KV BW12-SG12 3P-0030-PNP	0301595	
KV BW12-SG12 3P-0100-PNP	0301596	
KV BW12-SG12 3P-0200-PNP	0301597	
Sensor distributor		
V2-M12	0301776	●
V2-M8	0301775	●
V4-M8	0301746	
V8-M8	0301751	

- ① Two sensors are required per unit for monitoring two positions. On option, extension cables and sensor distributors are available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor system.

Attachment kit for FPS

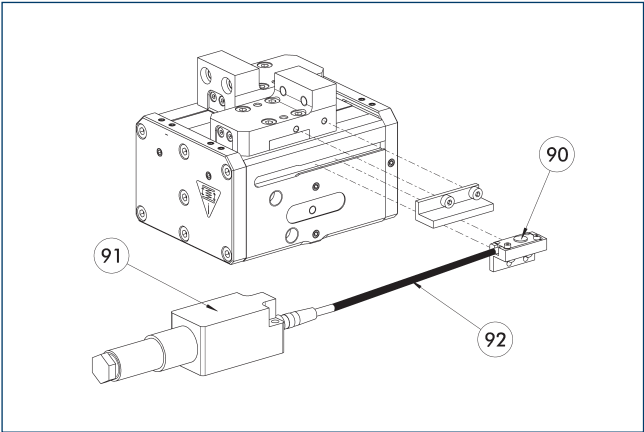


The following FPS position sensor can differentiate between five programmable areas or switching points for the stroke of a gripper, and can be used in connection with a PC as a measuring system.

Description	ID	
Attachment kit for FPS		
AS-FPS-PFH 30	0301733	

- ① This attachment kit needs to be ordered optionally as an accessory.

Flexible position sensor



- 90 FPS-S sensor
- 91 FPS-F5 evaluation electronic
- 92 Cable extension

Flexible position monitoring of up to five positions.

Description	ID	Often combined
Attachment kit for FPS		
AS-FPS-PFH 30	0301733	
Sensor		
FPS-S 13	0301705	
Evaluation electronics		
FPS-F5	0301805	●
Cable extension		
KV BG08-SG08 3P-0050	0301598	
KV BG08-SG08 3P-0100	0301599	

ⓘ When using an FPS system, an FPS sensor (FPS-S) as well as an electronic processor (FPS-F5 / F5 T) are required for each gripper as well as a mounting kit (AS), if listed. Cable extensions (KV) are optionally available – see catalog chapter “Accessories.”



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