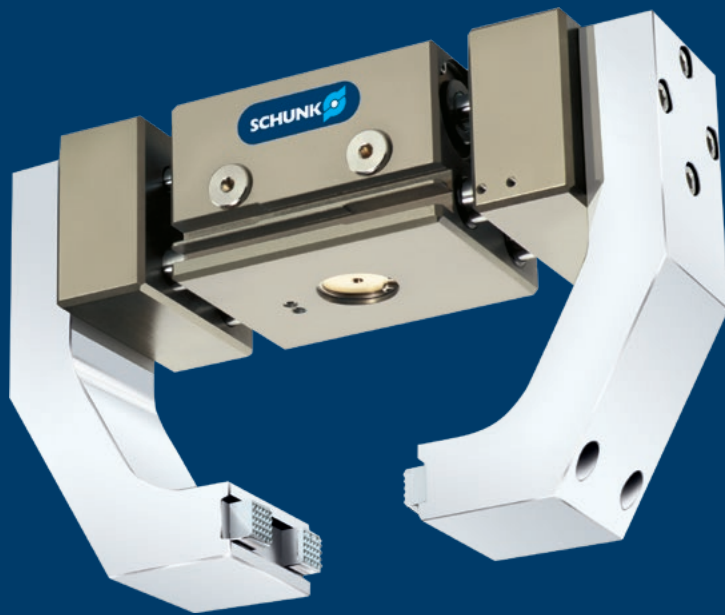




Superior Clamping and Gripping



## Product Information

Long-stroke gripper PSH 22

**Compact. Flexible. Fully encapsulated.**

## Long-stroke gripper PSH

2-finger parallel gripper with long jaw stroke and dirt-resistant round guidance

### Field of application

in contaminated work environments and for a large parts spectrum



### Advantages – Your benefits

**High maximum moments possible** suitable for using long gripper fingers

**Dirt-protected round guidances** sealed, for long strokes

**Fastening at two gripper sides with centering** for universal and flexible gripper assembly

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

**Comprehensive sensor accessory program** for versatile querying possibilities and stroke position monitoring



Sizes  
Quantity: 4



Weight  
0.77 .. 8.05 kg



Gripping force  
320 .. 1760 N



Stroke per jaw  
14 .. 100 mm



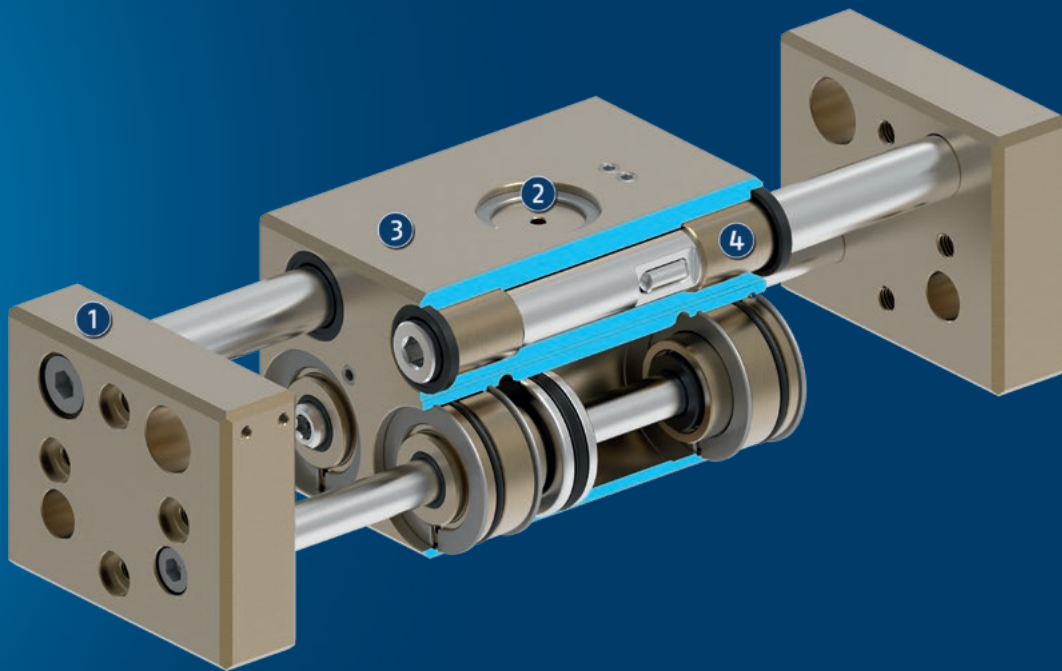
Workpiece weight  
1.6 .. 8.8 kg

## Functional description

By actuating the pistons with compressed air, the base jaws, which are located at the piston and the rack, are moved.

The jaw stroke is synchronized by means of rack and

pinion kinematics.



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

② **Kinematics**  
Rack and pinion principle for centric gripping

③ **Housing**  
is weight-optimized due to the use of high-strength aluminum alloy

④ **Round guidances**  
sealed, for long strokes

## General notes about the series

**Operating principle:** Rack and pinion principle

**Housing material:** hard-anodized, high strength aluminum

**Base jaw material:** hard-anodized, high strength aluminum

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

**Warranty:** 24 months

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

**Gripping force maintenance device:** possible with 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.

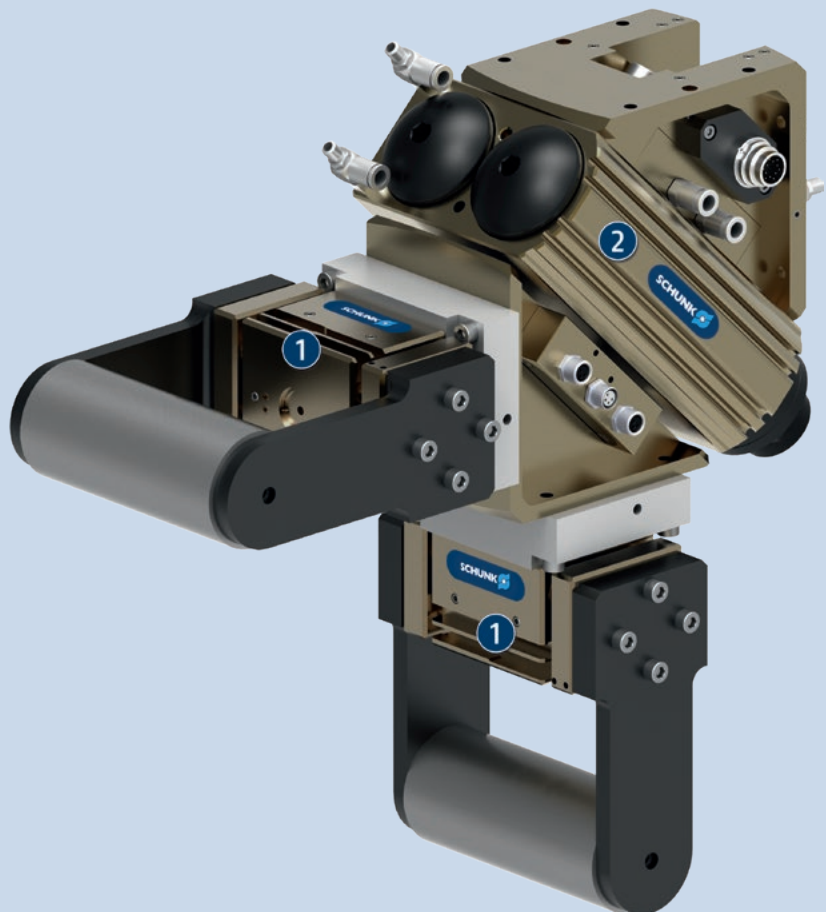
**Workpiece weight:** is calculated for force-fit gripping with a coefficient of static friction of 0.1 and a safety factor of 2 against workpiece slippage at acceleration due to gravity g. For form-fit or capture gripping, there are significantly higher permissible workpiece weights.

**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

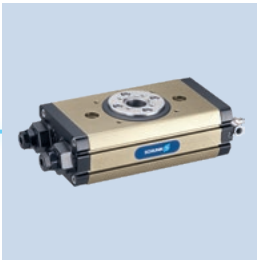
Rapid loading and unloading unit on a swivel head base. Due to the robustness of this unit, it is particularly suitable for use in machine tools.

- ❶ 2-finger parallel gripper PSH
- ❷ Swivel head SRH-plus



## SCHUNK offers more ...

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



Universal swivel unit



Quick change system



Tolerance compensation unit



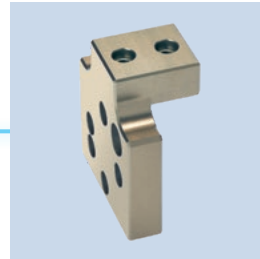
Pressure maintenance valve



Magnetic switches



Finger blank



Intermediate jaw



Jaw quick-change system



Inductive proximity switches

① For more information on these products can be found on the following product pages or at [schunk.com](http://schunk.com).

## Options and special information

**Finger position:** can be monitored by magnetic and/or inductive proximity switches. Unsynchronized version possible upon request as application-specific design.

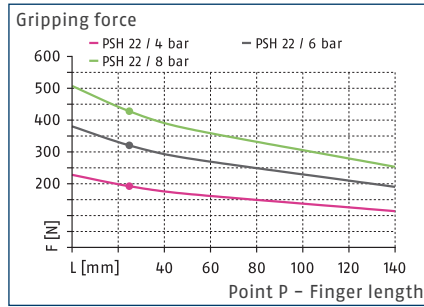
**High-temperature version V/HT:** for use in hot environments

**ATEX version EX:** for explosive environments

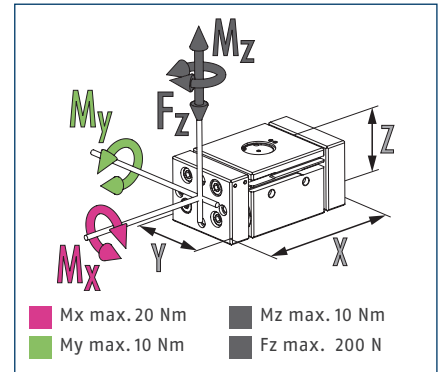
**Additional versions:** Various options can be combined with each other. Numerous additional options are also available – just tell us what your task is!



### Gripping force



### Dimensions and maximum loads



① The indicated moments and forces are statical 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

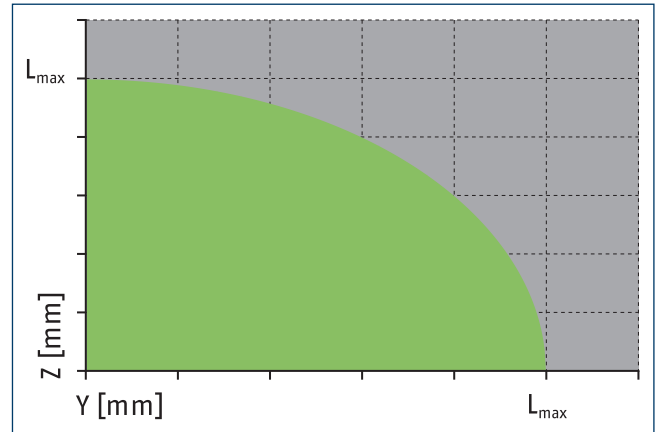
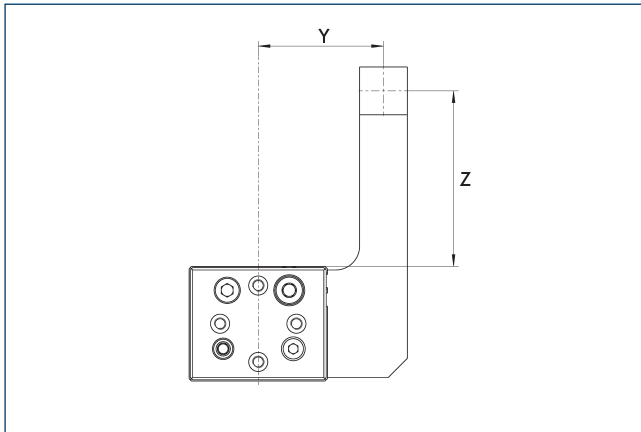
| Description                              |       | PSH 22-1      | PSH 22-2     |
|------------------------------------------|-------|---------------|--------------|
| ID                                       |       | 0302122       | 0302123      |
| Stroke per jaw                           | [mm]  | 28            | 14           |
| Closing/opening force                    | [N]   | 320/320       | 320/320      |
| Weight                                   | [kg]  | 0.95          | 0.77         |
| Recommended workpiece weight             | [kg]  | 1.6           | 1.6          |
| Fluid consumption double stroke          | [cm³] | 36            | 18           |
| Min./nom./max. operating pressure        | [bar] | 3/6/8         | 3/6/8        |
| Closing/opening time                     | [s]   | 0.15/0.15     | 0.12/0.12    |
| Max. permissible finger length           | [mm]  | 140           | 140          |
| Max. permissible mass per finger         | [kg]  | 0.8           | 0.8          |
| IP protection class                      |       | 67            | 67           |
| Min./max. ambient temperature            | [°C]  | 5/90          | 5/90         |
| Repeat accuracy                          | [mm]  | 0.1           | 0.1          |
| Dimensions X x Y x Z                     | [mm]  | 137 x 58 x 48 | 95 x 58 x 48 |
| <b>Options and their characteristics</b> |       |               |              |
| High-temperature version                 |       | 39302122      | 39302123     |
| Min./max. ambient temperature            | [°C]  | 5/130         | 5/130        |

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

[illegible]

91) MMS 30... sensor

### Maximum permitted finger projection

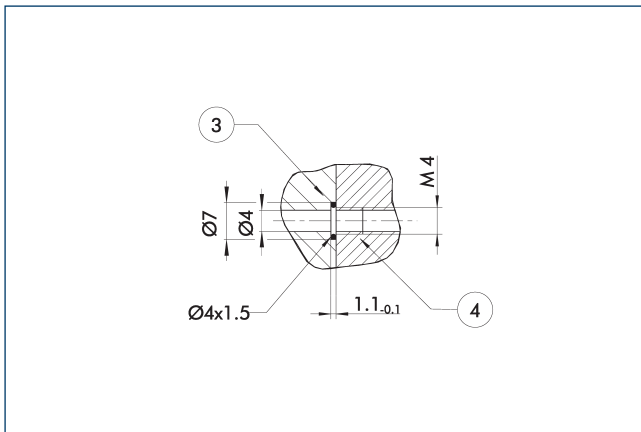


■ Permitted range

■ Inadmissible range

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

### Hose-free direct connection M4

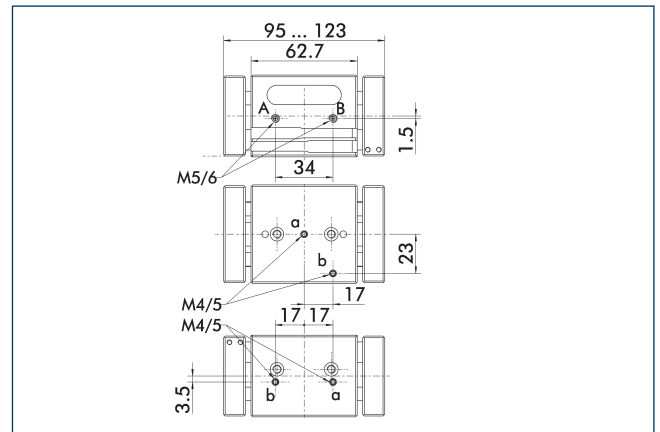


③ Adapter

④ Grippers

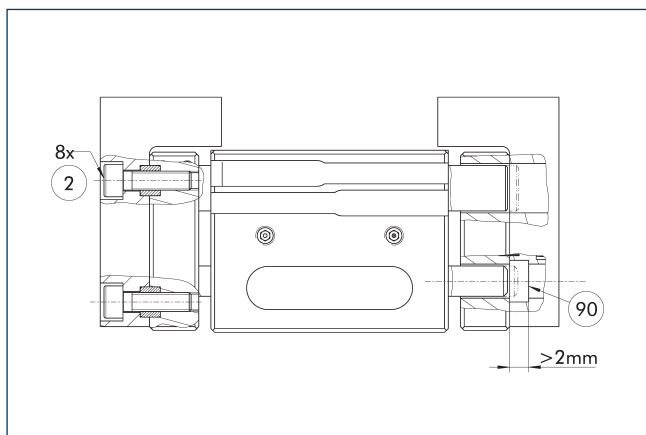
The direct connection is used for supplying compressed air without hoses. Instead, the pressure medium is fed through bore-holes in the mounting plate.

### Stroke variant PSH 22-2



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

## Finger design

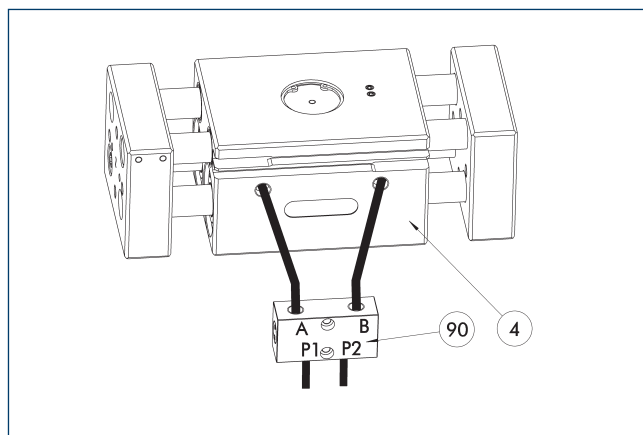


② Finger connection

⑨⑩ Recess

When closing the gripper completely, the piston rod can project beyond the end. If the entire closing stroke is required in the application, the recess is essential.

## SDV-P pressure maintenance valve



④ Grippers

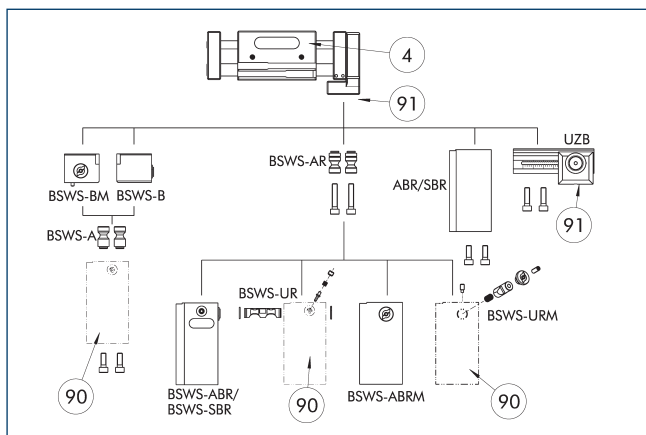
⑨⑩ SDV-P pressure maintenance valve

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<br>[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](http://schunk.com).

## Intermediate jaw interface



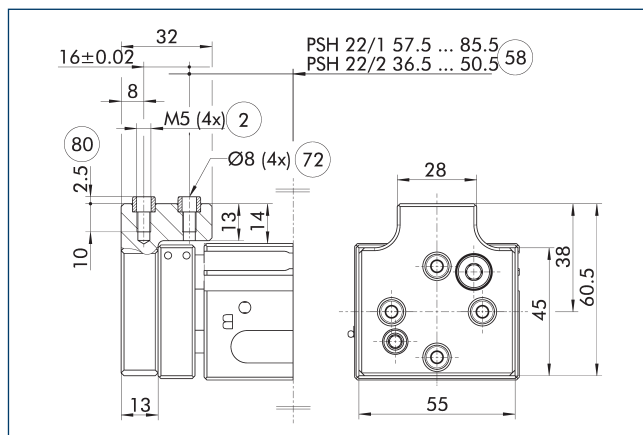
④ Grippers

⑨⑩ Customized gripper fingers

⑨⑩ Uniform screw connection pattern

By using the intermediate jaw, you have the possibility of directly connecting a wide range of accessories directly. This includes jaw quick-change systems, finger blanks, and universal intermediate jaws.

## ZBA PSH 22-80 intermediate jaw



② Finger connection

⑦② Fit for centering sleeves

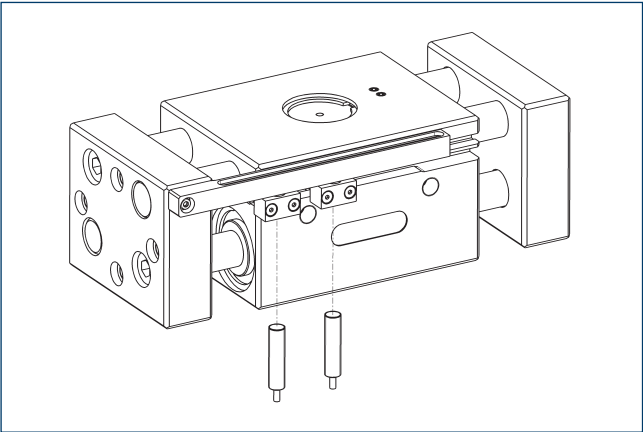
⑤⑧ Distance from center of gripper

⑧⑩ Depth of the centering sleeve hole in the counter part

Optionally intermediate jaws can be used, enabling direct connection and alignment of top jaws and various standard accessories in Z-direction.

| Description      | ID      | Material | Finger interface | Scope of delivery |
|------------------|---------|----------|------------------|-------------------|
| Intermediate jaw |         |          |                  |                   |
| ZBA-PSH-22-80    | 0300225 | Aluminum | PGN-plus 80 2    |                   |

Inductive Proximity Switches

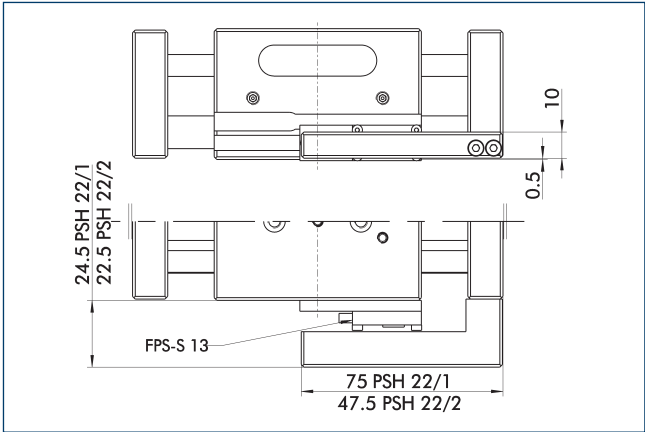


End position monitoring can be mounted with an attachment kit.

| Description                         | ID      | Often combined |
|-------------------------------------|---------|----------------|
| Attachment kit for proximity switch |         |                |
| HG-PSH 22-1                         | 0300754 |                |
| HG-PSH 22-2                         | 0300755 |                |
| Inductive proximity switches        |         |                |
| IN 80-S-M12                         | 0301578 |                |
| IN 80-S-M8                          | 0301478 | ●              |
| IN-C 80-S-M8-PNP                    | 0301475 |                |
| INK 80-S                            | 0301550 |                |
| INK 80-SL                           | 0301579 |                |

- ❗ Two sensors (closer/S) are required for each unit and extension cables are available as an option. This attachment kit needs to be ordered optionally as an accessory. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Attachment kit for FPS

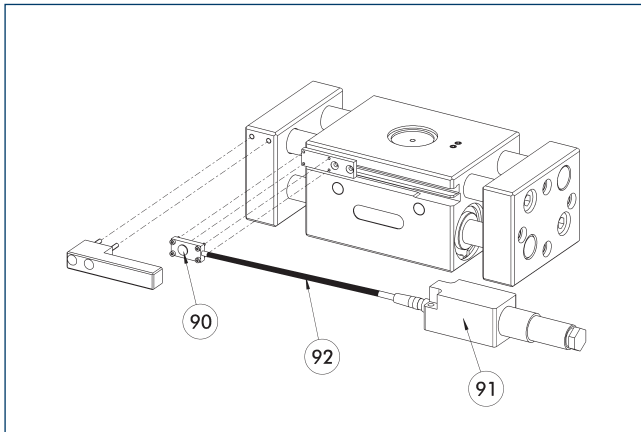


The following FPS position sensor can differentiate between five programmable areas or switching points for the stroke of a gripper, and can be used in connection with a PC as a measuring system.

| Description            | ID      |  |
|------------------------|---------|--|
| Attachment kit for FPS |         |  |
| AS-FPS-PSH 22-1        | 0301736 |  |
| AS-FPS-PSH 22-2        | 0301737 |  |

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

## Flexible position sensor



90 FPS-S sensor

92 Cable extension

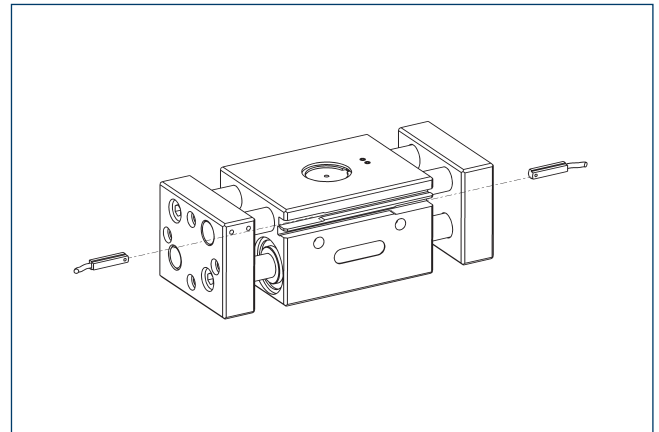
91 FPS-F5 evaluation electronic

Flexible position monitoring of up to five positions.

| Description            | ID      | Often combined |
|------------------------|---------|----------------|
| Attachment kit for FPS |         |                |
| AS-FPS-PSH 22-1        | 0301736 |                |
| AS-FPS-PSH 22-2        | 0301737 |                |
| Sensor                 |         |                |
| FPS-S 13               | 0301705 |                |
| Evaluation electronics |         |                |
| FPS-F5                 | 0301805 | ●              |
| Cable extension        |         |                |
| KV BG08-SG08 3P-0050   | 0301598 |                |
| KV BG08-SG08 3P-0100   | 0301599 |                |

- ① 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."

## Electronic magnetic switch MMS



End position monitoring for mounting in the T-slot

| Description                | ID       | Often combined |
|----------------------------|----------|----------------|
| Electronic magnetic switch |          |                |
| MMS 30-S-M12-PNP           | 0301571  |                |
| MMS 30-S-M8-PNP            | 0301471  | ●              |
| MMSK 30-S-PNP              | 0301563  |                |
| 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  |                |
| 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-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.



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