Product Information
Long-stroke gripper PZH-plus 20
**PZH-plus**
Long-stroke gripper

**Flexible. Robust. Flat.**

**Universal gripper PZH-plus**
Universal gripper with long travel and high maximum moment due to multi-tooth guidance

**Field of application**
multi-purpose thanks to a diverse range of accessories. Can also be used in fields of application with special requirements to the gripper (temperature, chemical resistance, dirt, and many more).

**Advantages – Your benefits**

- Robust multi-tooth guidance for precise handling
- High maximum moments possible suitable for using long gripper fingers
- Sensitive gripping for handling or large, sensitive workpieces
- 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
- Long stroke for a flexible range of parts
- Flat design for less interfering contours
- Center through-hole for feed-through of workpieces, supply hoses, sensor systems, optical workpiece recognition systems, etc.

**Sizes**

- Quantity: 4

**Weight**

- 1.5 .. 33 kg

**Gripping force**

- 375 .. 4200 N

**Stroke per jaw**

- 20 .. 75 mm

**Workpiece weight**

- 1.9 .. 22 kg
**Functional description**

The base jaws form the moving cylinder housing while the oval cylinder pistons are fixed. The piston areas are actuated with compressed air so that they are opened or closed. The base jaws are synchronized by a toothed belt which is connected to one carrier per jaw.

1. **Multi-tooth guidance**
   - Highly loadable, nearly backlash-free base jaw guidance for long finger lengths

2. **Base Jaws**
   - For the connection of workpiece-specific gripper fingers

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

4. **Toothed belt for synchronization**
   - For centric gripping

5. **Drive**
   - Pneumatic oval piston for maximum driving force
PZH–plus
Long-stroke gripper

General notes about the series

**Housing material:** Aluminum alloy, anodized

**Base jaw material:** Steel

**Actuation:** pneumatic, with filtered compressed air as per ISO 8573–1:2010 [7;4;14].

**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:** 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.

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Application example

SCHUNK end–of–arm competence.

Assembly unit for large, thin–walled, rotationally symmetric components.

1. 3–finger centric gripper PZH–plus
2. Quick–change system SWS
3. Electric feed–through
SCHUNK offers more ...

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

Quick change system  
Universal swivel unit  
Compensation unit  
Linear module  
Inductive proximity switches  
Magnetic switches  
Pressure maintenance valve

For more information on these products can be found on the following product pages or at schunk.com. Please contact us: SCHUNK technical hotline +49-7133-103-2696

Options and special information

Please note that the weight of the gripper fingers should be as low as possible for long-stroke grippers.
Technical data

<table>
<thead>
<tr>
<th>Description</th>
<th>PZH–plus 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>0305360</td>
</tr>
<tr>
<td>Stroke per jaw</td>
<td>[mm] 20</td>
</tr>
<tr>
<td>Closing/opening force</td>
<td>[N] 375/400</td>
</tr>
<tr>
<td>Weight</td>
<td>[kg] 1.5</td>
</tr>
<tr>
<td>Recommended workpiece weight</td>
<td>[kg] 1.9</td>
</tr>
<tr>
<td>Fluid consumption double stroke</td>
<td>[cm³] 65</td>
</tr>
<tr>
<td>Min./nom./max. operating pressure</td>
<td>[bar] 2/6/8</td>
</tr>
<tr>
<td>Min./max. air purge pressure</td>
<td>[bar] 0.5/1</td>
</tr>
<tr>
<td>Closing/opening time</td>
<td>[s] 0.25/0.2</td>
</tr>
<tr>
<td>Max. permissible finger length</td>
<td>[mm] 150</td>
</tr>
<tr>
<td>Max. permissible mass per finger</td>
<td>[kg] 0.9</td>
</tr>
<tr>
<td>Protection class IP</td>
<td>40</td>
</tr>
<tr>
<td>Min./max. ambient temperature</td>
<td>[°C] 5/90</td>
</tr>
<tr>
<td>Repeat accuracy</td>
<td>[mm] 0.02</td>
</tr>
<tr>
<td>Dimensions Ø D x Z</td>
<td>[mm] 176.6 x 55.1</td>
</tr>
</tbody>
</table>

It may take a few 100 gripping cycles until the full gripping force (as indicated in the data table) will be available.
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 be used to maintain the position in the case of a loss of pressure (see "Accessories" catalog section).

A, a Main / direct connection, gripper opening
B, b Main / direct connection, gripper closing
S Air purge connection
1 Gripper connection
2 Finger connection
24 Bolt circle
72 Fit for centering sleeves
78 Fit for centering
80 Depth of the centering sleeve hole in the counter part
Hose-free direct connection M3

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

Spring-loaded pressure piece

For spring-supported positioning of the workpiece against a stop after the gripper has opened. Especially developed for loading machines.

<table>
<thead>
<tr>
<th>Description</th>
<th>ID</th>
<th>Stroke</th>
<th>Min. force</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring-loaded pressure piece</td>
<td>A-PZH-plus 20</td>
<td>0305363</td>
<td>4.75 14</td>
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</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Description</th>
<th>ID</th>
<th>Recommended hose diameter [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure maintenance valve</td>
<td>SDV-P 04</td>
<td>0400130 6</td>
</tr>
<tr>
<td>Pressure maintenance valve with air bleed screw</td>
<td>SDV-P 04+E</td>
<td>0300120 6</td>
</tr>
</tbody>
</table>

Attachment kit for proximity switch IN 80

The attachment kit includes a bracket, switch cams, and mounting screws. Proximity switches have to be ordered separately.

<table>
<thead>
<tr>
<th>Description</th>
<th>ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attachment kit for proximity switch</td>
<td>AS-IN80-PZH-plus 20-50</td>
</tr>
</tbody>
</table>

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.

This attachment kit needs to be ordered optionally as an accessory.
### Inductive Proximity Switches

- **Description**: Attachment kit for proximity switch
  - **ID**: 0305364

- **Description**: 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

- **Description**: Inductive proximity switch with lateral cable outlet
  - **IN 80-S-M12-SA**: 0301587
  - **IN 80-S-M8-SA**: 0301483
  - **INK 80-S-SA**: 0301566

- **Note**: 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.

### Electronic magnetic switch MMS

- **Description**: Electronic magnetic switch MMS
  - **MMS 22-S-M8-PNP**: 0301032
  - **MMSK 22-S-PNP**: 0301034

- **Description**: Electronic magnetic switches with lateral cable outlet
  - **MMS 22-S-M8-PNP-SA**: 0301042
  - **MMSK 22-S-PNP-SA**: 0301044

- **Description**: Cable extension
  - **KY BW08-SG08 3P-0030-PNP**: 0301495
  - **KY BW08-SG08 3P-0100-PNP**: 0301496
  - **KY BW08-SG08 3P-0200-PNP**: 0301497

- **Description**: Clip for plug/socket
  - **CLI-M8**: 0301463

- **Description**: Connection cables
  - **KA BG08-L 3P-0300-PNP**: 0301622
  - **KA BG08-L 3P-0500-PNP**: 0301623
  - **KA BW08-L 3P-0300-PNP**: 0301594
  - **KA BW08-L 3P-0500-PNP**: 0301502

- **Description**: Sensor distributor
  - **V2-M8**: 0301775
  - **V4-M8**: 0301766
  - **V8-M8**: 0301751

- **Note**: 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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Long-stroke gripper

Programmable magnetic switch MMS 22–PI1

Position monitoring with one programmable position per sensor and integrated electronic system in the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

Description | ID | Often combined
--- | --- | ---
Programmable magnetic switch | MMS 22–PI1-S-M8-PNP | 0301160 ●
Programmable magnetic switch with lateral cable outlet | MMS 22–PI1-S-M8-PNP-SA | 0301166 ●
Programmable magnetic switch with stainless steel housing | MMS 22–PI1-S-M8-PNP-HD | 0301110 ●

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 systems.

Programmable magnetic switch MMS 22–PI2

Position monitoring with two programmable positions per sensor and electronics built into the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

Description | ID | Often combined
--- | --- | ---
Programmable magnetic switch | MMS 22–PI2-S-M8-PNP | 0301180 ●
Programmable magnetic switch with lateral cable outlet | MMS 22–PI2-S-M8-PNP-SA | 0301186 ●
Programmable magnetic switch with stainless steel housing | MMS 22–PI2-S-M8-PNP-HD | 0301130 ●

One sensor is required per unit for monitoring two positions. Extension cables and sensor distributors are optionally available. Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor systems.
MMS-P programmable magnetic switch

Position monitoring with two programmable positions per sensor. End position monitoring for mounting in the C-slot.

<table>
<thead>
<tr>
<th>Description</th>
<th>ID</th>
<th>Often combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programmable magnetic switch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MMSK-P 22-S-PNP</td>
<td>0301371</td>
<td></td>
</tr>
<tr>
<td>MMS-P 22-S-M8-PNP</td>
<td>0301370</td>
<td></td>
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<tr>
<td>Clip for plug/socket</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CL1-M8</td>
<td>0381463</td>
<td></td>
</tr>
<tr>
<td>Connection cables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KA BG08-L 4P-0500</td>
<td>0307767</td>
<td></td>
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<tr>
<td>KA BG08-L 4P-1000</td>
<td>0307768</td>
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</tr>
<tr>
<td>KA BW08-L 4P-0500</td>
<td>0307765</td>
<td></td>
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<tr>
<td>KA BW08-L 4P-1000</td>
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<tr>
<td>Sensor distributor</td>
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<tr>
<td>V2-M8-4P-2XMB-3P</td>
<td>0301380</td>
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</tbody>
</table>

One sensor is required per unit for monitoring two positions.

Extension cables and sensor distributors are optionally available.

Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor systems.
Jens Lehmann, German goalkeeper legend, SCHUNK brand ambassador since 2012 for safe, precise gripping and holding.

schunk.com/Lehmann