



Superior Clamping and Gripping



## Product Information

Gripper for small components KGG 60

# KGG

Gripper for small components

**Compact. Flexible. Slim.**

## Gripper for small components KGG

Narrow 2-finger parallel gripper with large stroke

### Field of application

for universal use in clean environments with light to medium workpiece weights and a large stroke range

### Advantages – Your benefits

**Robust T-slot guidance** for high maximum moments

**Pneumatic 2-piston drive design** for direct power transmission and high efficiency

**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: 7



Weight  
0.09 .. 4.2 kg



Gripping force  
45 .. 540 N



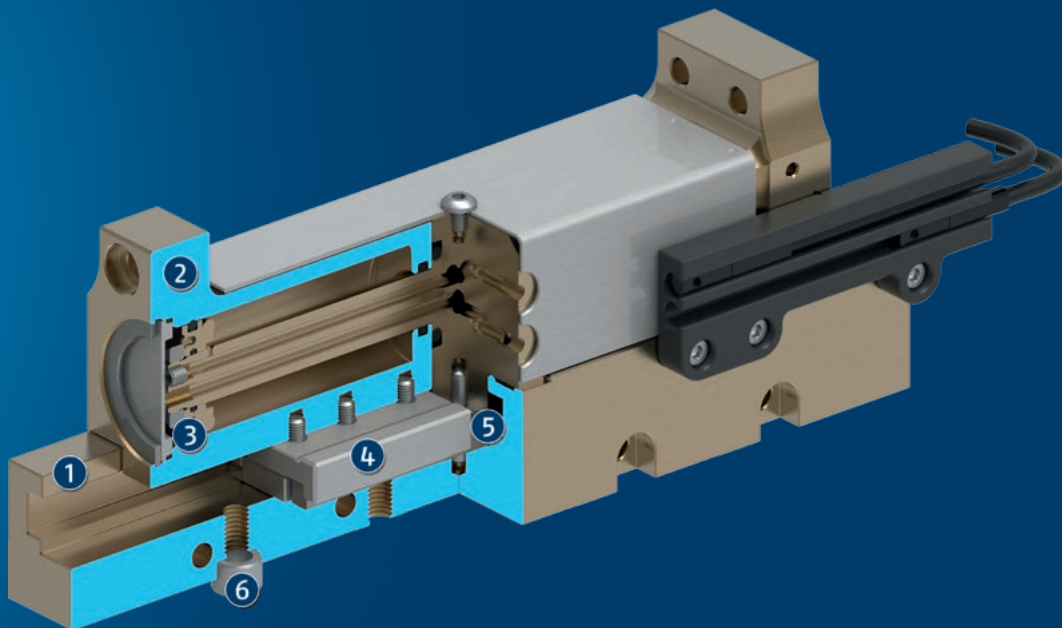
Stroke per jaw  
10 .. 60 mm



Workpiece weight  
0.23 .. 2.7 kg

## Functional description

The aligned base jaws are actuated with compressed air directly by the fixed piston, which opens and closes them. The base jaws are synchronized by the internal rack and pinion arrangement.



- ① **Housing**  
is weight-optimized due to the use of high-strength aluminum alloy
- ② **Base Jaw**  
for the connection of workpiece-specific gripper fingers
- ③ **Drive**  
pneumatic 2-piston system

- ④ **Sliding guide**  
high maximum moments due to the robust T-slot guidance
- ⑤ **Kinematics**  
pinion and rack principle for centric clamping, even at large strokes
- ⑥ **Centering and mounting possibilities**  
for assembly of the gripper to a base area and at the long side

## General notes about the series

**Operating principle:** Directly driven base jaws, synchronized by rack and pinion

**Housing material:** Aluminum alloy, anodized

**Base jaw material:** Aluminum alloy, anodized

**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:** 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).

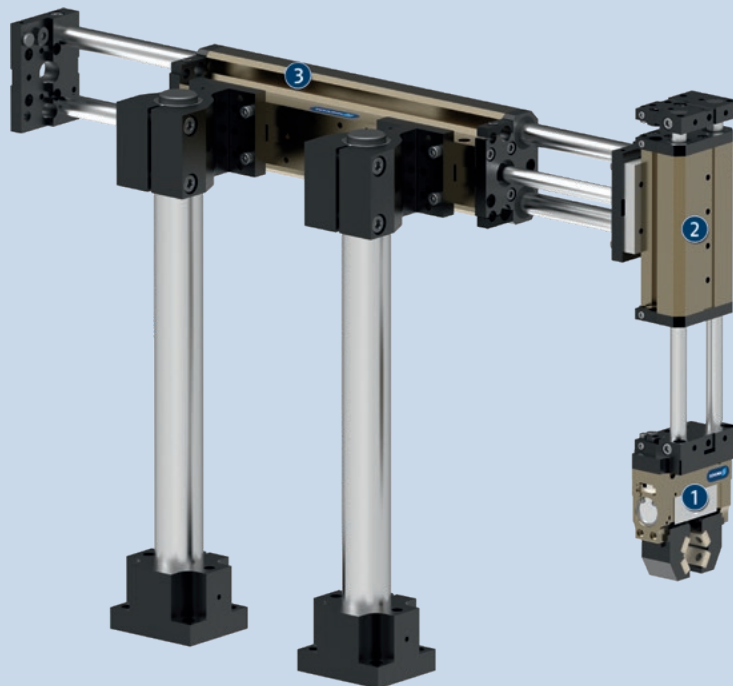
**Finger length:** is measured from the reference surface as the distance P in direction to the main axis.

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.



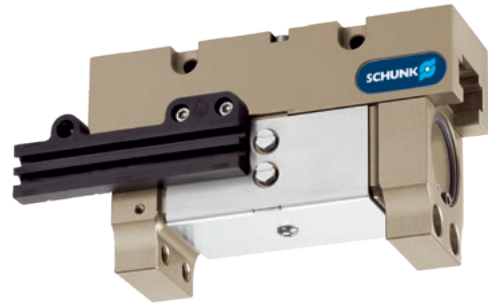
## Application example

Sorting unit for small components which require an especially long gripper stroke due to their variation in size.

- ① 2-finger parallel gripper KGG with workpiece-specific fingers
- ② Linear module KLM for vertical movement
- ③ Linear module KLM for horizontal movement

## SCHUNK offers more ...

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



Miniature swivel unit



Linear module



Pick & Place Unit



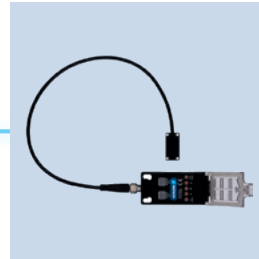
Pressure maintenance valve



Inductive proximity switches



Magnetic switches



Flexible position sensor



Finger blank

① For more information on these products can be found on the following product pages or at [schunk.com](http://schunk.com). Please contact us: SCHUNK technical hotline +49-7133-103-2696

## Options and special information

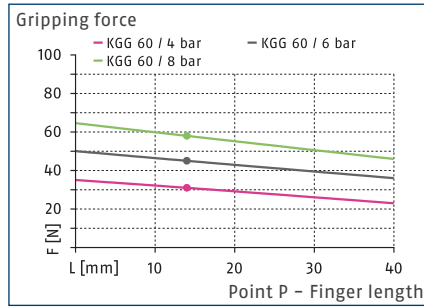
Please note that the weight of the gripper fingers should be as low as possible for long-stroke grippers.

# KGG 60

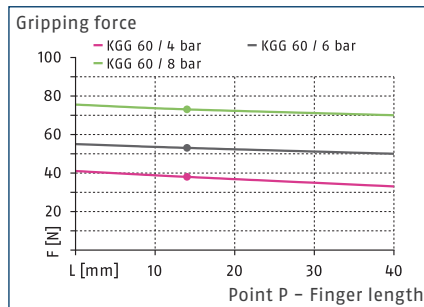
Gripper for small components



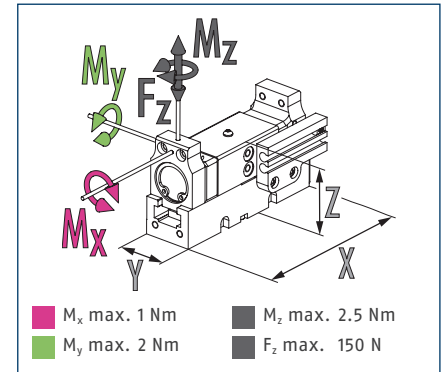
## Gripping force O.D. gripping



## Gripping force I.D. gripping



## Dimensions and maximum loads



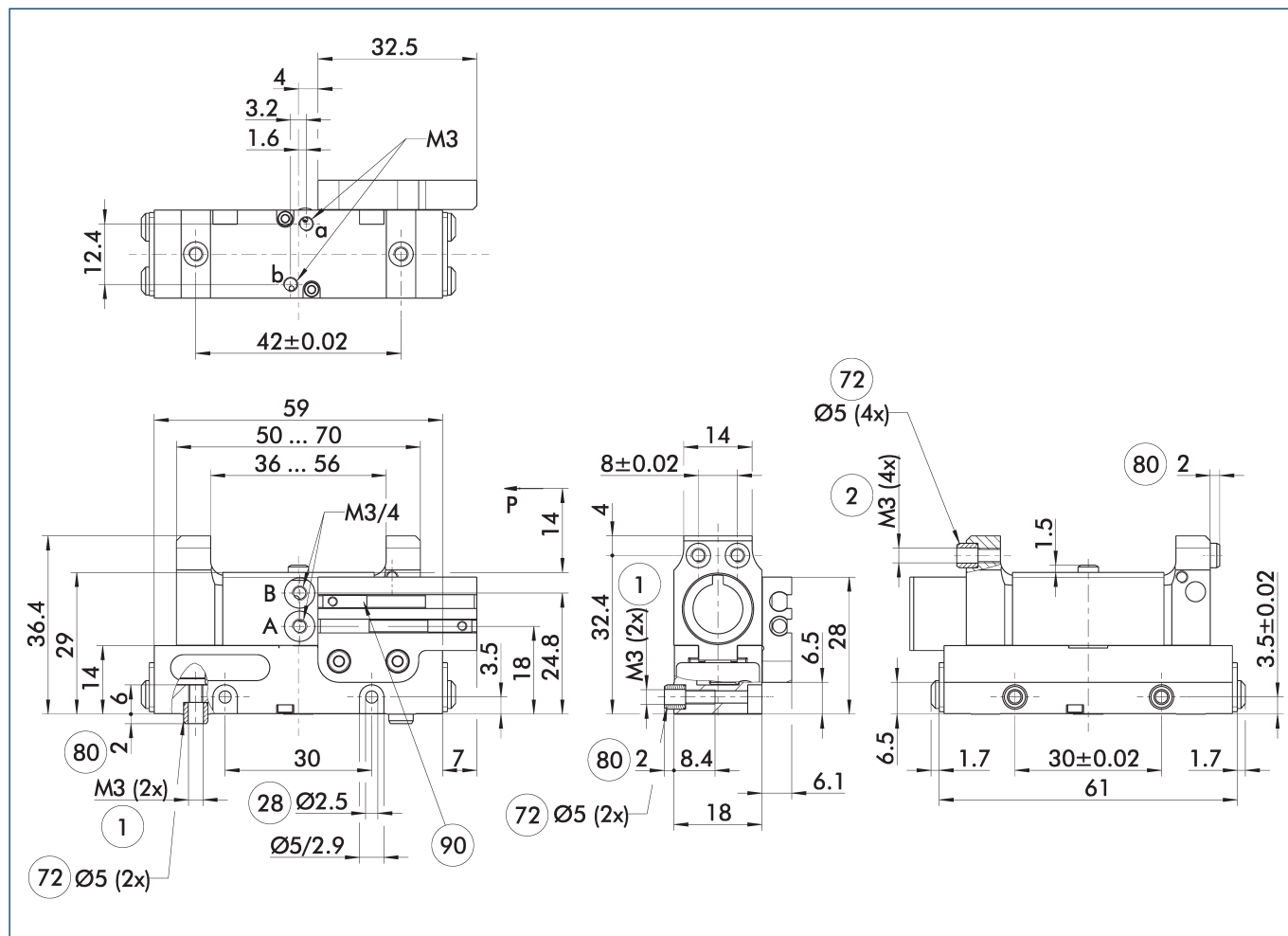
① The specified torques and forces are static values, apply for each base jaw, and may occur simultaneously.  $M_y$  may arise in addition to the moment generated by the gripping force itself.

## Technical data

| Description                       |                    | KGG 60-20      | KGG 60-40      |
|-----------------------------------|--------------------|----------------|----------------|
| ID                                |                    | 0303075        | 0303076        |
| Stroke per jaw                    | [mm]               | 10             | 20             |
| Closing/opening force             | [N]                | 45/53          | 45/53          |
| Weight                            | [kg]               | 0.09           | 0.11           |
| Recommended workpiece weight      | [kg]               | 0.23           | 0.23           |
| Fluid consumption double stroke   | [cm <sup>3</sup> ] | 3              | 6              |
| Min./nom./max. operating pressure | [bar]              | 2.5/6/8        | 2.5/6/8        |
| Closing/opening time              | [s]                | 0.03/0.03      | 0.04/0.04      |
| Max. permissible finger length    | [mm]               | 40             | 40             |
| Max. permissible mass per finger  | [kg]               | 0.04           | 0.04           |
| Protection class IP               |                    | 40             | 40             |
| Min./max. ambient temperature     | [°C]               | 5/90           | 5/90           |
| Repeat accuracy                   | [mm]               | 0.02           | 0.02           |
| Dimensions X x Y x Z              | [mm]               | 64.4 x 18 x 29 | 84.4 x 18 x 29 |

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 KGG 60-20



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 as a gripping force maintenance device (see catalog section on accessories).

A, a Main / direct connection, gripper opening

B, b Main / direct connection, gripper closing

① Gripper connection

② Finger connection

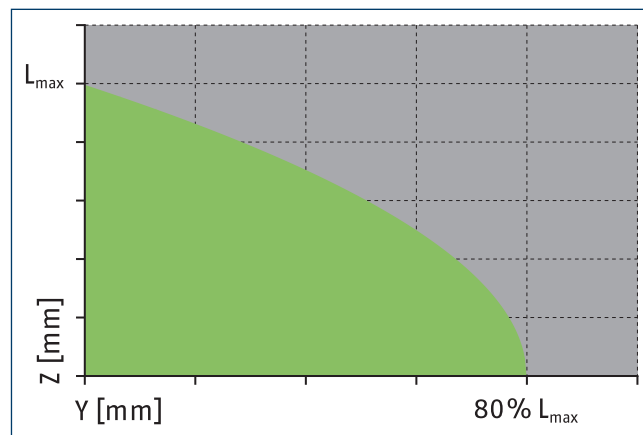
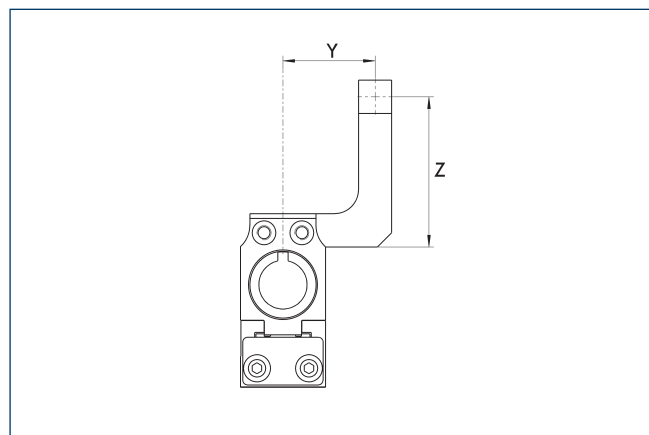
②8 Through-hole

⑦2 Fit for centering sleeves

⑧0 Depth of the centering sleeve hole in the counter part

⑨0 Sensor MMS 22..

## Maximum permitted finger projection



■ Permitted range

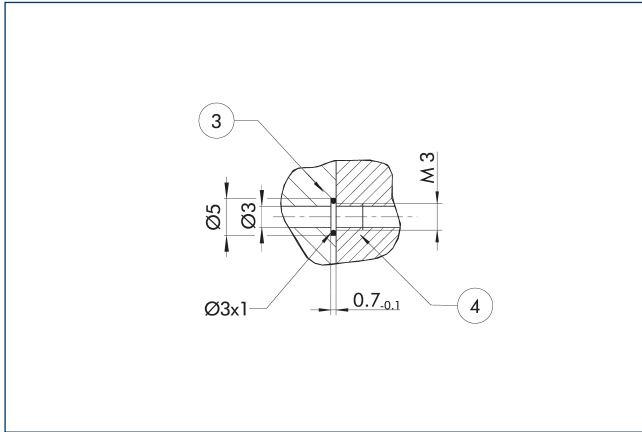
■ Inadmissible range

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

# KGG 60

Gripper for small components

## Hose-free direct connection M3

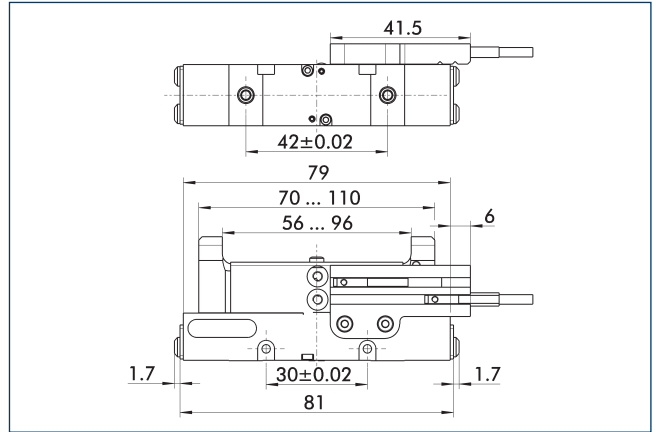


③ Adapter

④ Grippers

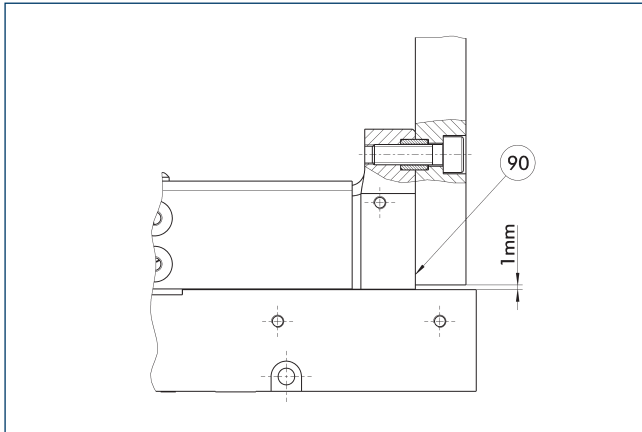
The direct connection is used for supplying compressed air without hoses. Instead, the pressure medium is fed through bore-holes in the mounting plate.

## Stroke variant KGG 60-40



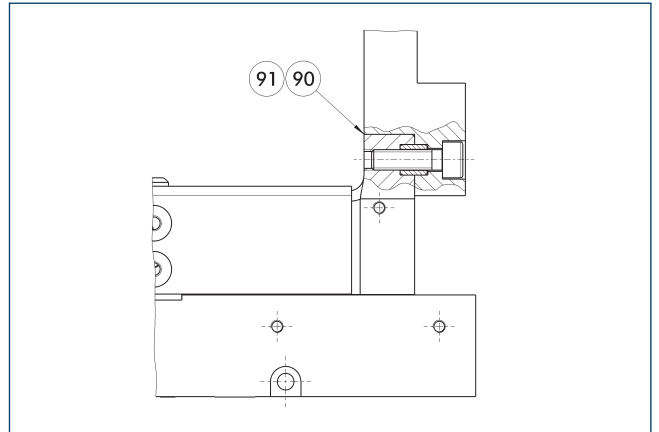
The drawing shows changes in dimensions of the version with a different stroke compared to the version shown in the main view.

## Jaw design O.D. gripping



⑨⑩ Support of the top jaws at the base jaw

## Jaw design I.D. gripping

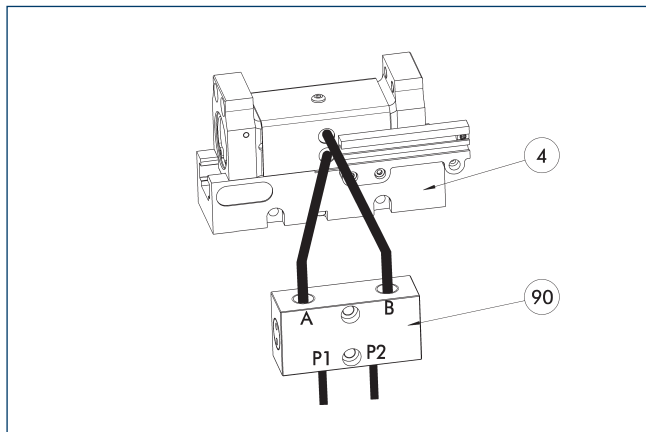


⑨⑩ Support of the top jaws at the base jaw

⑨① For dimensions of steps at the top jaw see drawings of finger blanks



### SDV-P pressure maintenance valve



④ Grippers

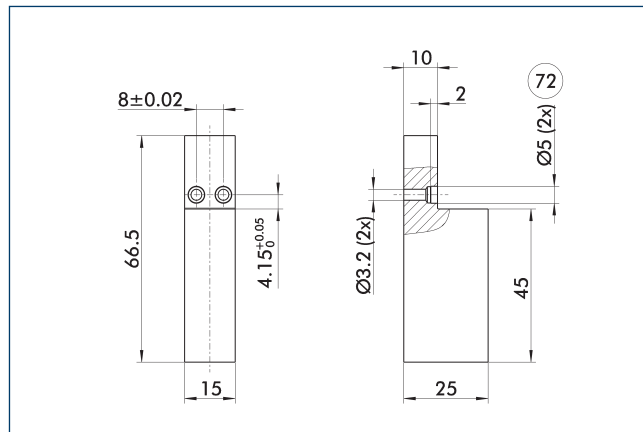
⑨⑩ SDV-P pressure maintenance valve

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).

### Finger blank RB 60s

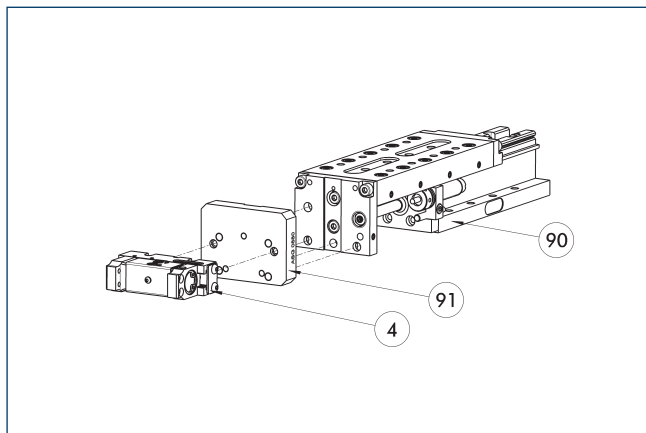


⑦② Fit for centering sleeves

The drawing shows the finger blank which can be reworked by the customer.

| Description  | ID      | Material | Scope of delivery |
|--------------|---------|----------|-------------------|
| Finger blank |         |          |                   |
| RB 60        | 0303087 | Aluminum | 2                 |

### Modular Assembly Automation



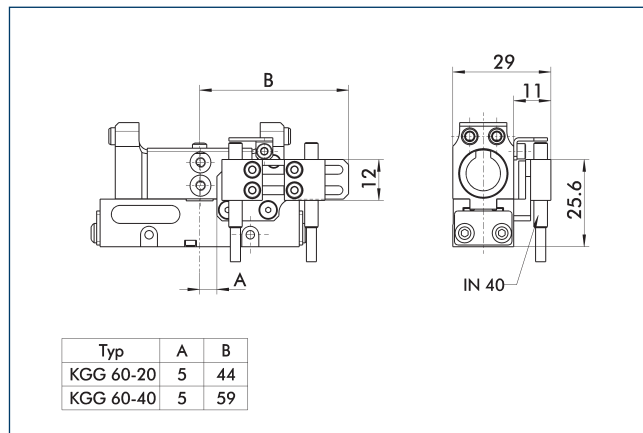
④ Grippers

⑨① ASG adapter plate

⑨⑩ CLM/KLM/LM/ELP/ELM/ELS/HLM linear modules

Grippers and linear modules can be combined with standard adapter plates from the modular assembly system. For more information see our main catalog "Modular Assembly Automation".

### Attachment kit for proximity switch

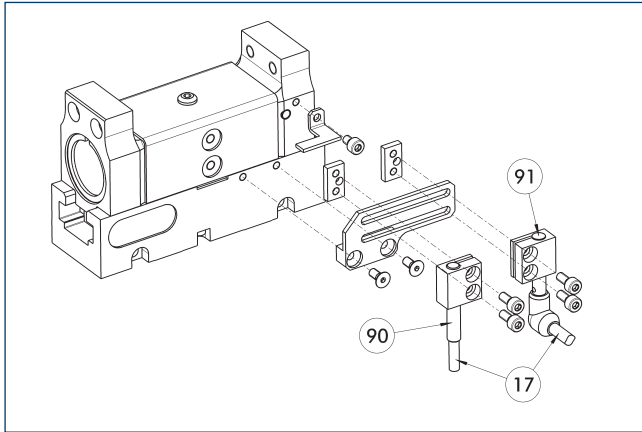


The attachment kit includes a bracket, switch cams, and mounting screws. Proximity switches have to be ordered separately.

| Description                         | ID      |
|-------------------------------------|---------|
| Attachment kit for proximity switch |         |
| AS-KGG 60-20/70-24                  | 0303081 |
| AS-KGG 60-40/70-48                  | 0303080 |

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

### Inductive Proximity Switches



17 Cable outlet

91 Sensor IN...-SA

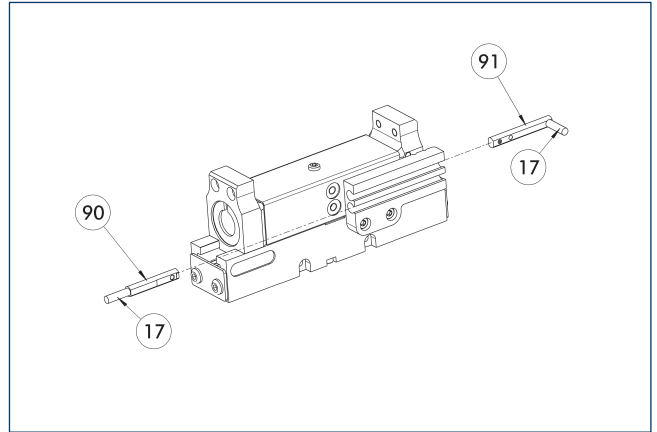
90 Sensor IN ...

End position monitoring can be mounted with an attachment kit.

| Description  | ID      | Often combined |
|--|---------|----------------|
| Attachment kit for proximity switch                  |         |                |
| AS-KGG 60-20/70-24                                   | 0303081 |                |
| AS-KGG 60-40/70-48                                   | 0303080 |                |
| Inductive proximity switches                         |         |                |
| IN 40-S-M12  | 0301574 |                |
| IN 40-S-M8   | 0301474 | ●              |
| INK 40-S   | 0301555 |                |
| Inductive proximity switch with lateral cable outlet |         |                |
| IN 40-S-M12-SA                                       | 0301577 |                |
| IN 40-S-M8-SA  | 0301473 | ●              |
| INK 40-S-SA  | 0301565 |                |

① 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



17 Cable outlet

91 Sensor MMS 22...-SA

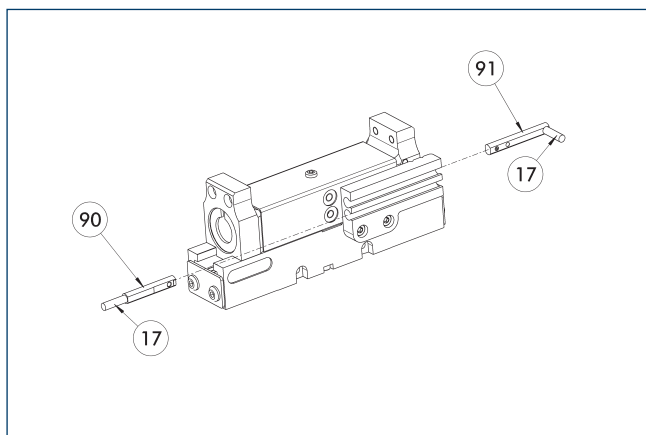
90 Sensor MMS 22..

End position monitoring for mounting in the C-slot.

| Description  | ID      | Often combined |
|--|---------|----------------|
| Electronic magnetic switch                             |         |                |
| MMS 22-S-M8-PNP  | 0301032 | ●              |
| MMSK 22-S-PNP  | 0301034 |                |
| Electronic magnetic switches with lateral cable outlet |         |                |
| MMS 22-S-M8-PNP-SA                                     | 0301042 | ●              |
| MMSK 22-S-PNP-SA                                       | 0301044 |                |
| Reed Switches  |         |                |
| RMS 22-S-M8  | 0377720 | ●              |
| Cable extension  |         |                |
| KV BW08-SG08 3P-0030-PNP                               | 0301495 |                |
| KV BW08-SG08 3P-0100-PNP                               | 0301496 |                |
| KV BW08-SG08 3P-0200-PNP                               | 0301497 | ●              |
| clip for plug/socket                                   |         |                |
| CLI-M8   | 0301463 |                |
| 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 |                |
| Sensor distributor                                     |         |                |
| V2-M8  | 0301775 | ●              |
| V4-M8  | 0301746 |                |
| V8-M8  | 0301751 |                |
| Wireless sensor system                                 |         |                |
| RSS-T2   | 0377715 |                |
| RSS-T2-US/CA   | 0377717 |                |

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.

### Programmable magnetic switch MMS 22-PI1



⑰ Cable outlet

⑨① Sensor MMS 22 ..-PI1-...-SA

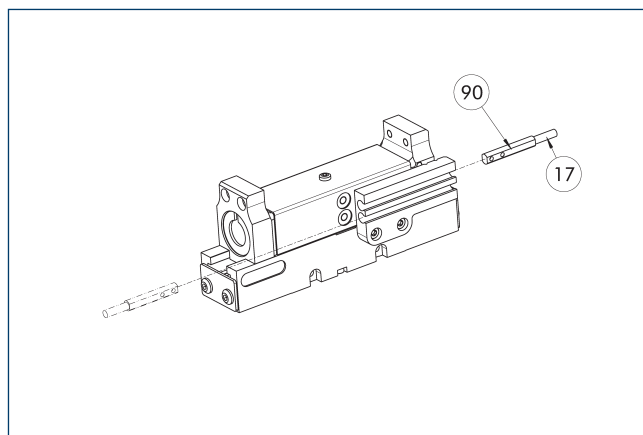
⑨② Sensor MMS 22 PI1-...

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 | ●              |
| MMSK 22-PI1-S-PNP   | 0301162 |                |
| Programmable magnetic switch with stainless steel housing |         |                |
| MMS 22-PI1-S-M8-PNP-HD                                    | 0301110 | ●              |
| MMSK 22-PI1-S-PNP-HD                                      | 0301112 |                |
| Programmable magnetic switch with lateral cable outlet    |         |                |
| MMS 22-PI1-S-M8-PNP-SA                                    | 0301166 | ●              |
| MMSK 22-PI1-S-PNP-SA                                      | 0301168 |                |

- 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.

### Programmable magnetic switch MMS 22-PI2



⑰ Cable outlet

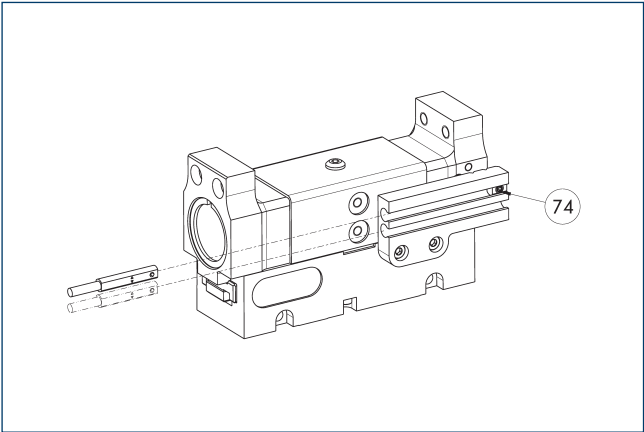
⑨② MMS 22...-PI2-... sensor

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 | ●              |
| MMSK 22-PI2-S-PNP   | 0301182 |                |
| Programmable magnetic switch with stainless steel housing |         |                |
| MMS 22-PI2-S-M8-PNP-HD                                    | 0301130 | ●              |
| MMSK 22-PI2-S-PNP-HD                                      | 0301132 |                |
| Programmable magnetic switch with lateral cable outlet    |         |                |
| MMS 22-PI2-S-M8-PNP-SA                                    | 0301186 | ●              |
| MMSK 22-PI2-S-PNP-SA                                      | 0301188 |                |

- ① Per unit one sensor (closer/S) is required, optionally a cable extension. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm. The MMS 22-PI2 can only cover the whole stroke range of the KGG series for KGG 60-20/70-24.

**MMS-P programmable magnetic switch**



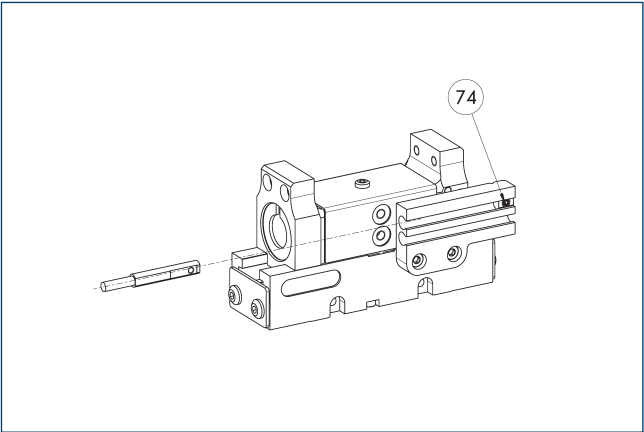
74 Limit stop for sensor

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

| Description                  | ID      | Often combined |
|------------------------------|---------|----------------|
| Programmable magnetic switch |         |                |
| MMSK-P 22-S-PNP              | 0301371 |                |
| MMS-P 22-S-M8-PNP            | 0301370 | ●              |
| clip for plug/socket         |         |                |
| CLI-M8                       | 0301463 |                |
| Connection cables            |         |                |
| KA BG08-L 4P-0500            | 0307767 | ●              |
| KA BG08-L 4P-1000            | 0307768 |                |
| KA BW08-L 4P-0500            | 0307765 |                |
| KA BW08-L 4P-1000            | 0307766 |                |
| Sensor distributor           |         |                |
| V2-M8-4P-2XM8-3P             | 0301380 |                |

ⓘ Per unit one sensor (closer/S) is required, optionally a cable extension. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm. MMS-P can only cover the whole range of stroke within the KGG series for KGG 60-20 / 70-24 / 80-30.

**MMS-A analog position sensor**



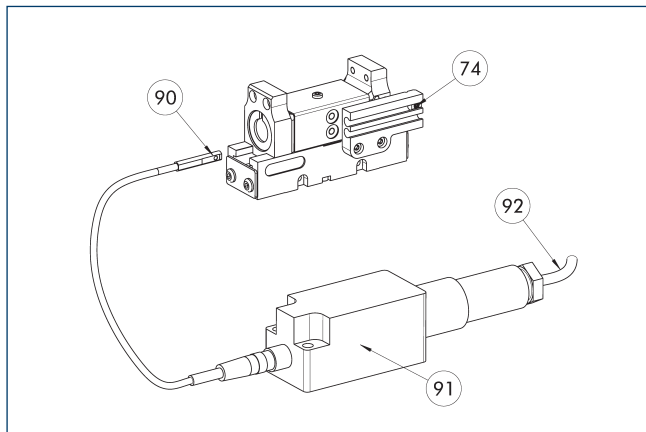
74 Limit stop for sensor

No-contact measuring, analog multi-position monitoring for any number of positions.

| Description            | ID      |  |
|------------------------|---------|--|
| Analog position sensor |         |  |
| MMS 22-A-10V-M08       | 0315825 |  |
| MMS 22-A-10V-M12       | 0315828 |  |

ⓘ One sensor is needed for each gripper. No additional mounting kit is needed – the standard gripper is equipped for use of the MMS-A. The MMS-P 22-A can only cover the whole range of stroke within the KGG series for KGG 60-20 / 70-24.

### Flexible position sensor with MMS-A



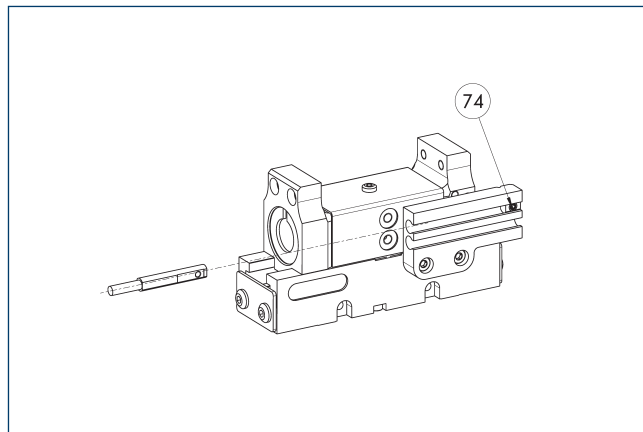
- ⑦④ Limit stop for sensor
- ⑨① FPS-F5 evaluation electronic
- ⑨① MMS 22-A-... sensor
- ⑨② Connection cables

Flexible position monitoring of up to five positions.

| Description            | ID      |  |
|------------------------|---------|--|
| Analog position sensor |         |  |
| MMS 22-A-05V-M08       | 0315805 |  |
| Evaluation electronics |         |  |
| FPS-F5                 | 0301805 |  |
| Connection cables      |         |  |
| KA BG16-L 12P-1000     | 0301801 |  |

- ① When using an FPS system, one MMS 22-A-05V as well as one evaluation electronics (FPS-F5) are required per each gripper, as well as an attachment kit (AS), if listed. On option, cable extensions (KV) are available – see catalog chapter “Accessories.” The MMS-P 22-A can only cover the whole stroke range within the KGG series for KGG 60-20/70-24.

### Programmable magnetic switch MMS-I0-Link



Sensor for multi-position monitoring through detection of the complete gripper stroke. The sensor is mounted directly in the C-slot of the gripper. Sensor programming on the gripper takes place via the IO-Link interface or the MT magnetic teach tool (included in scope of delivery). An IO-Link master is required for operation.

| Description                  | ID      |  |
|------------------------------|---------|--|
| Programmable magnetic switch |         |  |
| MMS 22-I0L-M08               | 0315830 |  |
| MMS 22-I0L-M12               | 0315835 |  |

- ① One sensor is required for each gripper. No additional mounting kit is required – the gripper is equipped for use of the sensor by default. Further information and technical data can be found in the catalog chapter sensor systems. The MMS-I0 link can only cover the whole stroke range within the KGG series for KGG 60-20 and 70-24.

**SCHUNK GmbH & Co. KG**  
**Spann- und Greiftechnik**

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