



Superior Clamping and Gripping



Product Information

Gripper for small components MPG-plus 16

MPG-plus

Gripper for small components

Powerful. Fast. Long fingers.

Gripper for small components MPG-plus

2-finger parallel gripper with smooth roller guides of the base jaws

Field of application

Gripping and moving of small to medium-sized workpieces in low contaminated environments, such as assembly, testing, laboratory and pharmaceutical industry

Advantages – Your benefits

Cross roller guidance for precise gripping through due to a scope-free base jaw guidance

Base jaws guided on double roller bearings ensuring low friction and smoothly running

Optimized basic load rating suitable for using long gripper fingers

Drive concept oval piston for maximum gripping forces

Monitoring with electronic magnetic switches for a maximized process reliability

Mounting from two sides in four 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

Compact dimensions for minimal interfering contours in handling

NEW: food-grade lubrication as a solution for an easy entry into medical technology, lab automation, pharmaceutical and food industry



Sizes
Quantity: 9



Weight
0.01 .. 0.63 kg



Gripping force
9 .. 370 N



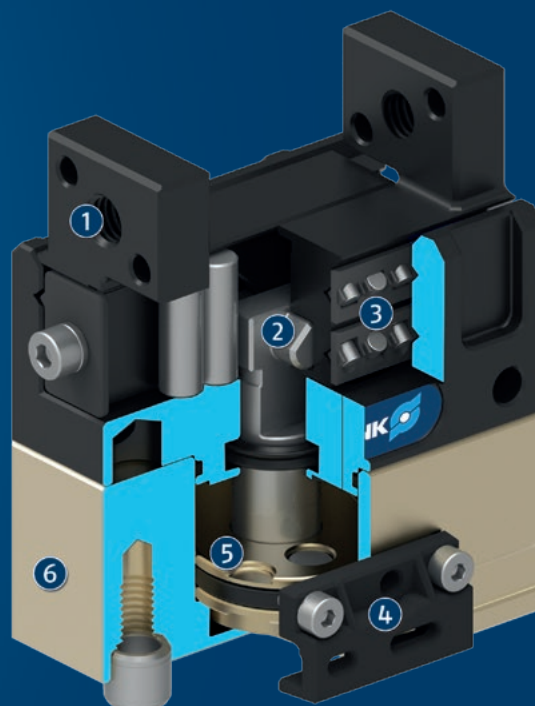
Stroke per jaw
1 .. 10 mm



Workpiece weight
0.05 .. 1.25 kg

Functional description

The oval piston is moved up or down by compressed air. The angled active surfaces of the wedge-hook produce a synchronized, parallel jaw motion.



- ① **Base Jaw**
for the connection of workpiece-specific gripper fingers
- ② **Wedge-hook design**
for high force transmission and centric gripping
- ③ **Cross roller guidance**
precise gripping due to backlash-free base jaw guidance

- ④ **Sensor system**
for monitoring two switching points
- ⑤ **Oval piston drive**
for power generation
- ⑥ **Housing**
is weight-optimized due to the use of high-strength aluminum alloy

General notes about the series

Operating principle: Wedge-hook kinematics

Housing material: Aluminum alloy, anodized

Cover housing material: Steel

Base jaw material: Steel

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

Warranty: 24 months

Service life characteristics: on request

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 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.

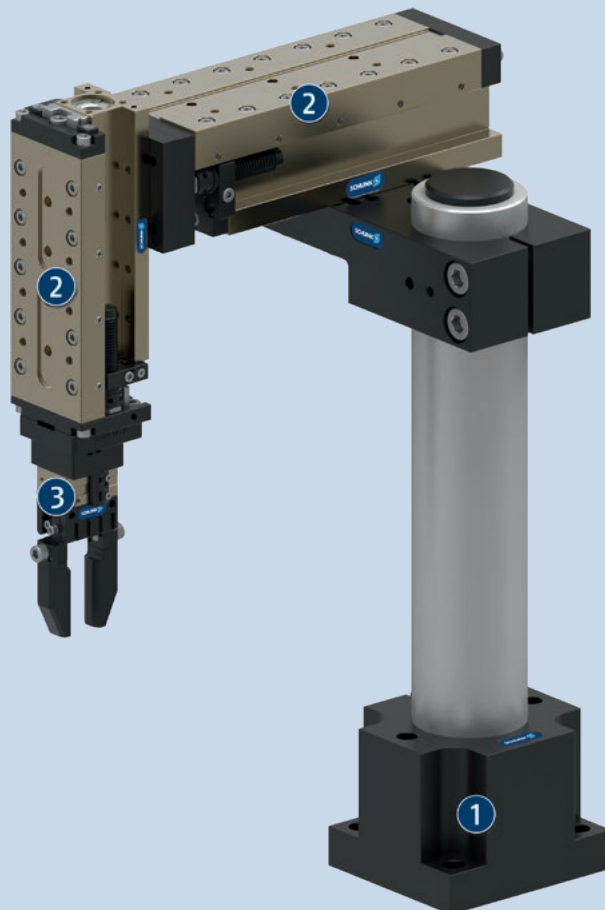
Workpiece weight: is calculated for force-fit gripping with a coefficient of static friction of 0.1 and a safety factor of 2 against workpiece slippage at acceleration due to gravity g. For form-fit or capture gripping, there are significantly higher permissible workpiece weights.

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

Pneumatic pick & place unit for small components.

- ❶ Pillar assembly system
- ❷ Linear module CLM
- ❸ 2-finger parallel gripper MPG-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.



Rotation unit



Linear module



Pick & Place Unit



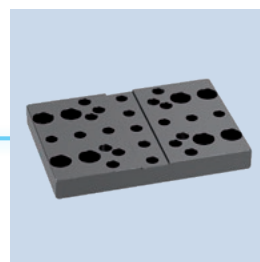
Manual change system



Attachment valve



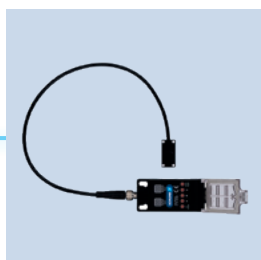
Pressure maintenance valve



Adapter plate



Finger blank



Flexible position sensor



Magnetic switches



Inductive proximity switches

① For more information on these products can be found on the following product pages or at [schunk.com](https://www.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/S version this acts as a closing force, in the IS version as an opening force.

Optional adapter plates: allows frontal mounting of the gripper

Precision version P: for the highest accuracy

Version FPS for flexible position sensor: This version is prepared for the use with the flexible position sensor FPS, and allows monitoring of several gripping positions.

protective cover version HUE: Fully protects the gripper against external influences

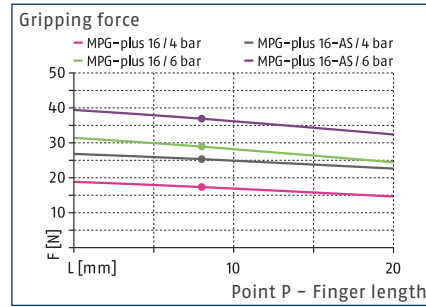
Food-grade lubrication: The requirements of EN 1672-2:2020 are not fully met.

MPG-plus 16

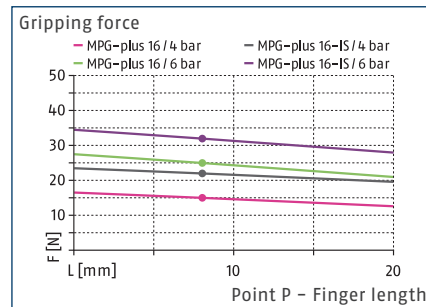
Gripper for small components



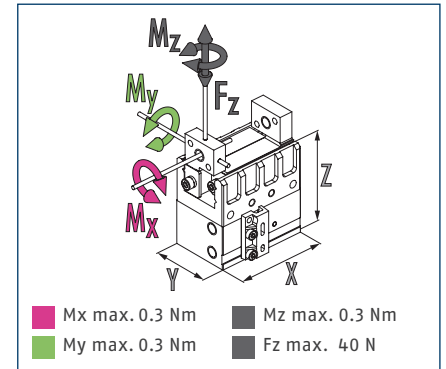
Gripping force O.D. gripping



Gripping force I.D. gripping



Dimensions and maximum loads

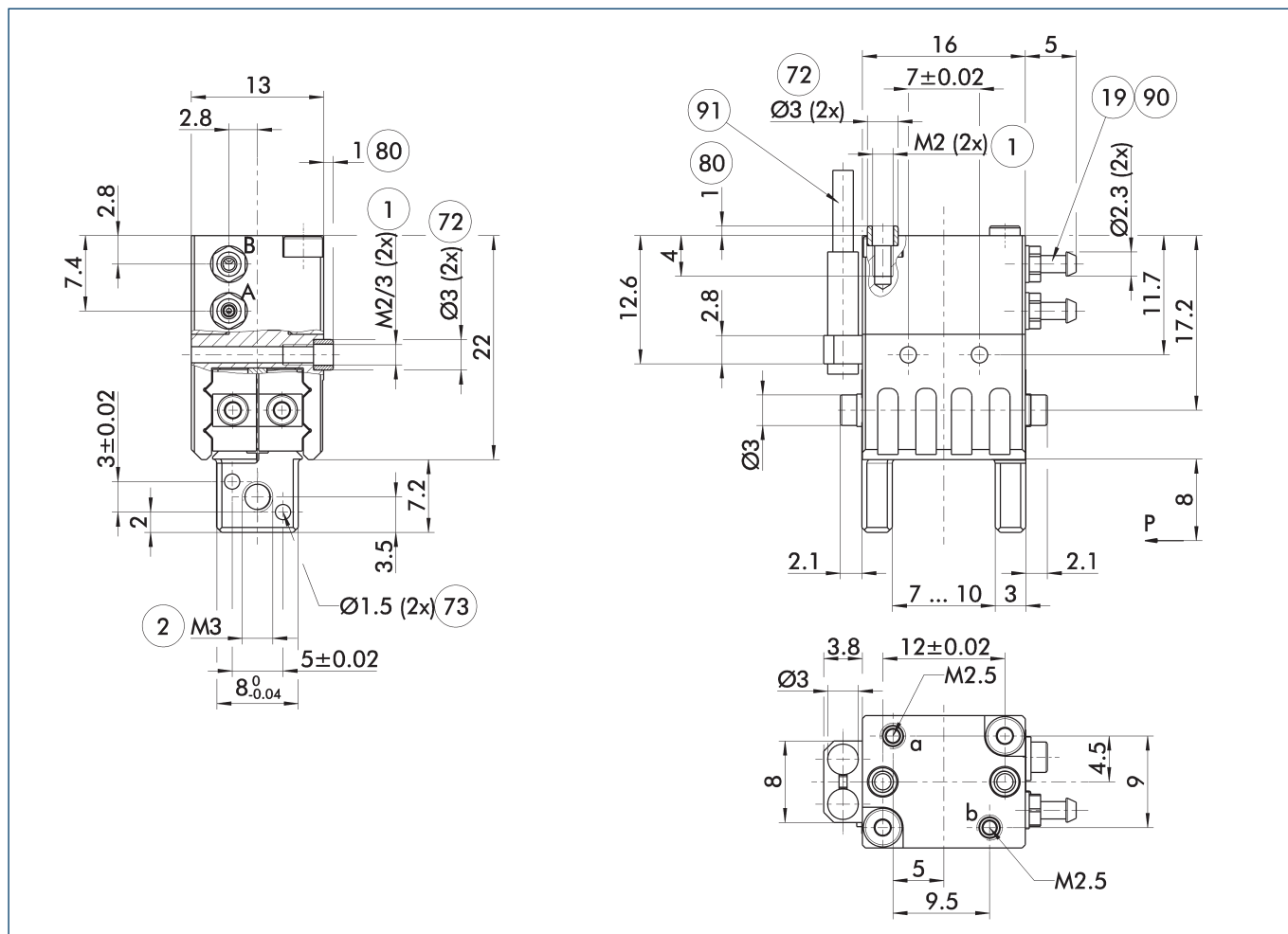


① The indicated moments and forces are static values, apply for each base jaw and may appear simultaneously. Loads may additionally occur to the moment produced by the gripping force itself.

Technical data

Description		MPG-plus 16	MPG-plus 16-AS	MPG-plus 16-IS
ID		0305481	0305482	0305483
Stroke per jaw	[mm]	1.5	1.5	1.5
Closing/opening force	[N]	29/25	37/-	-/32
Min. spring force	[N]		8	7
Weight	[kg]	0.022	0.025	0.025
Recommended workpiece weight	[kg]	0.14	0.14	0.14
Fluid consumption double stroke	[cm³]	0.32	0.69	0.53
Min./nom./max. operating pressure	[bar]	2/6/8	4/6/6.5	4/6/6.5
Closing/opening time	[s]	0.011/0.011	0.011/0.015	0.015/0.011
Closing/opening time with spring	[s]		0.03	0.03
Max. permissible finger length	[mm]	20	20	20
Max. permissible weight per finger	[kg]	0.01	0.01	0.01
IP protection class		30	30	30
Min./max. ambient temperature	[°C]	5/90	5/90	5/90
Repeat accuracy	[mm]	0.02	0.02	0.02
Cleanroom class ISO 14644-1:2015		6	6	6
Dimensions X x Y x Z	[mm]	16 x 13 x 22	16 x 13 x 27	16 x 13 x 27
Options and their characteristics				
High-temperature version		39305481	39305482	39305483
Min./max. ambient temperature	[°C]	5/100	5/100	5/100
Precision version		0305486	0305488	0305489

Main view



The drawing shows the basic version of the gripper with open 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

① Gripper connection

② Finger connection

①⑨ Air connection

⑦② Fit for centering sleeves

⑦③ Fit for centering pins

⑧① Depth of the centering sleeve hole in the counter part

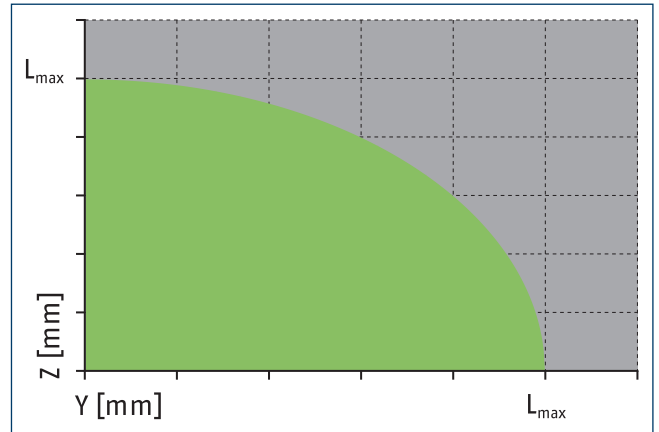
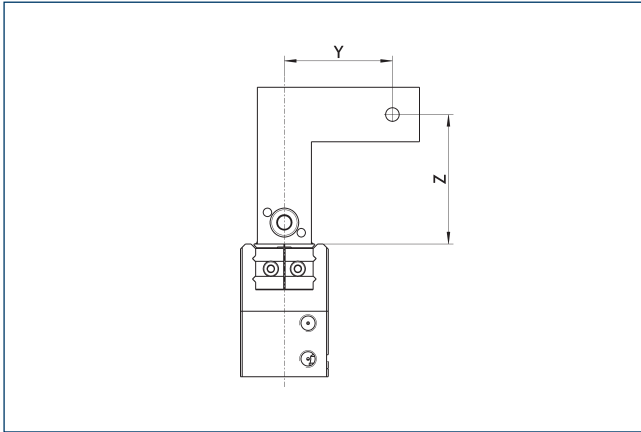
⑨① Bosch-Rexroth compressed air hose, TU1-S (Ø 3.0-0.6) series, Order no.: 1820712066 (-67/-68/-69)

⑨① Sensor IN ...

MPG-plus 16

Gripper for small components

Maximum permitted finger projection

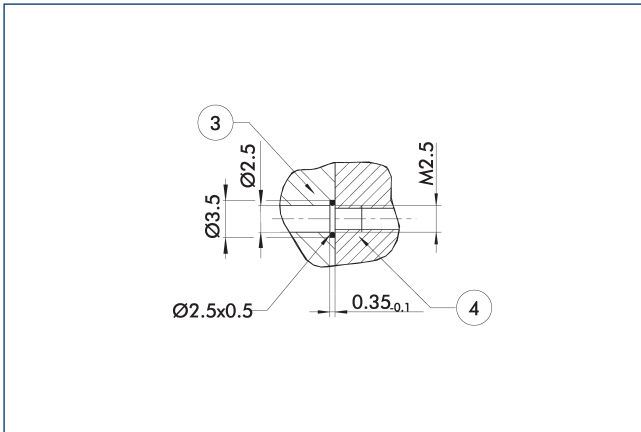


■ Permitted range

■ Inadmissible range

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

Hose-free direct connection M2.5

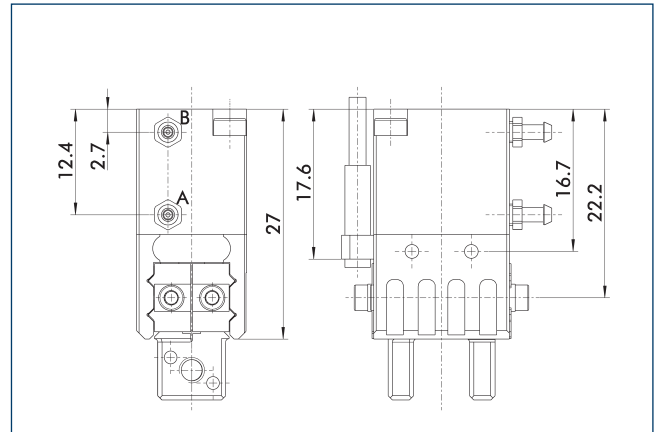


③ Adapter

④ Grippers

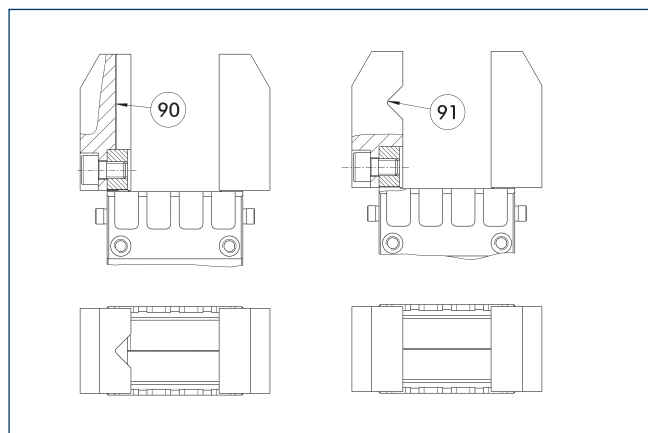
The direct connection is used for supplying compressed air without hoses. Instead, the pressure medium is fed through bore-holes in the mounting plate.

Gripping force maintenance device AS / IS



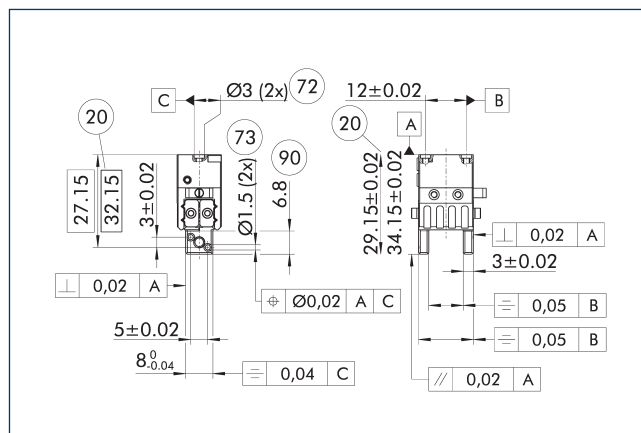
The mechanical gripping force maintenance device ensures that a minimum clamping force will be applied even if there is a drop in pressure. This acts as closing force in the AS / S version, and as opening force in the IS version. Besides this, the gripping force maintenance device can be used to increase the gripping force or for single actuated gripping.

Precision version



- ⑨0 Vertically positioned prism ⑨1 Horizontally positioned prism

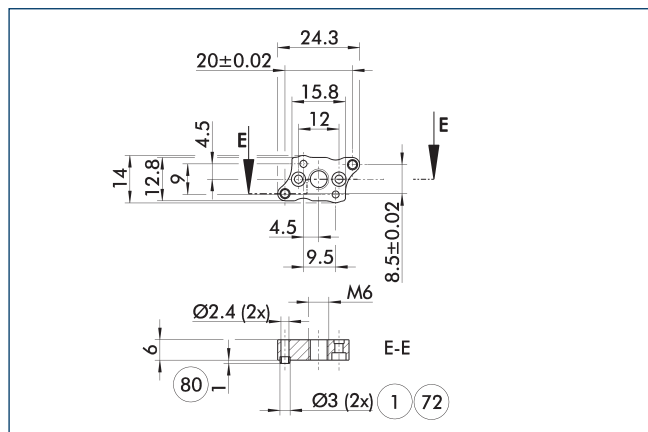
A workpiece, which is gripped using three points of contact, can be reliably gripped with high repeatability. A system with more than three points of contact is overdetermined. The drawing shows two alternative gripper finger designs for coaxial and radial gripping of a cylindrical part.



- | | |
|-------------------------------------|---|
| 20 For AS / IS version | 73 Fit for centering pins |
| 72 Fit for centering sleeves | 90 Length of the usable finger surface |

The indicated tolerances just refer to the variants of precision versions shown in the chart of technical specifications. All other variants of precision versions are available on request.

Adapter plate



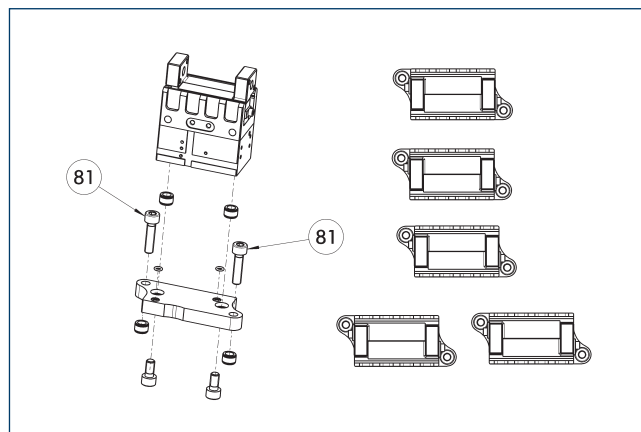
- ① Gripper connection
⑦② Fit for centering sleeves
- ⑧⑩ Depth of the centering sleeve hole in the counter part

The adapter plate includes an O-ring* for a direct air connection, additional centering sleeves, and screws for mounting the gripper.

*Optional only with pneumatic actuators

Description	ID	
Adapter plate		
APL-MPG-plus 16	0305487	

① The adapter plate is a separately ordered, optional accessory.



- ⑧1 Not included in the scope of delivery

The adapter plate includes an O-ring* for a direct air connection, additional centering sleeves, and screws for mounting the gripper.*Optional only with pneumatic actuators

gripper.*Optional only with pneumatic actuators

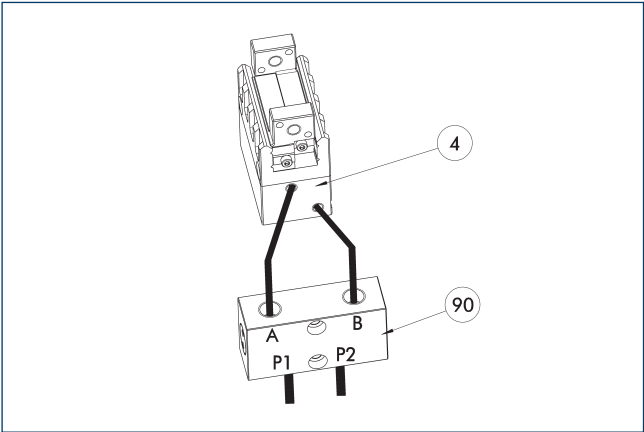
Description	ID	
Adapter plate		
APL-MPG-plus 16	0305487	

① The adapter plate is a separately ordered, optional accessory.

MPG-plus 16

Gripper for small components

SDV-P pressure maintenance valve



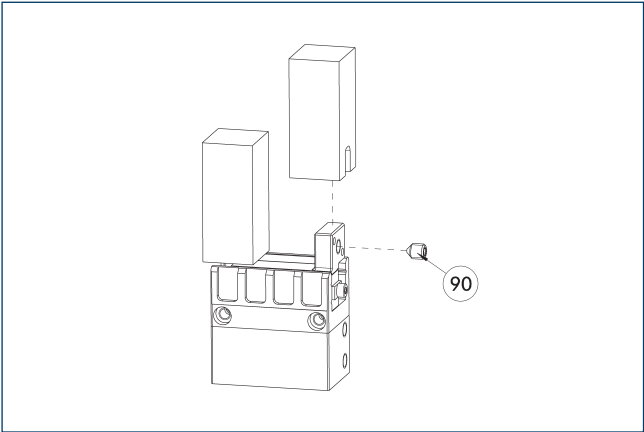
- ④ Grippers
- ⑨⑩ SDV-P pressure maintenance valve

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.

Finger blanks with BSWS

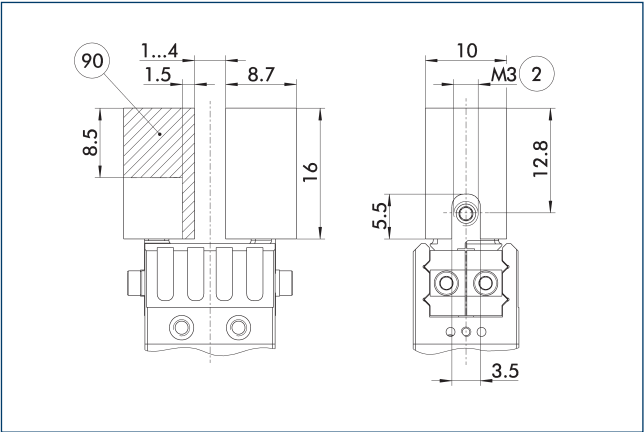


- ⑨⑩ Included in the jaw quick-change system's scope of delivery

The finger blanks with jaw quick-change system allow fast and manual gripper finger changes. The mechanical interface to the gripper is already integrated. Only the specific workpiece geometry needs to be machined into the finger blank.

Description	ID	Scope of delivery
Finger blank with jaw quick-change system		
ABR-BSWS-MPG-plus 16	0302892	2

Finger blanks with BSWS ABR-BSWS-MPG-plus 16

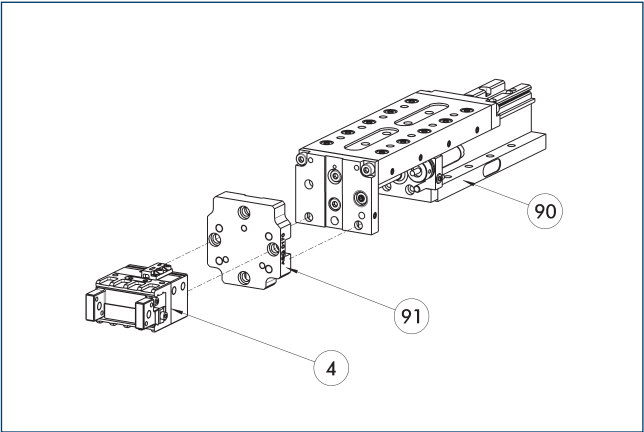


- ② Finger connection
- ⑨⑩ Machining volume

Finger blanks for customized subsequent machining with integrated jaw quick-change system for precise and fast finger changes.

Description	ID	Scope of delivery
Finger blank with jaw quick-change system		
ABR-BSWS-MPG-plus 16	0302892	2

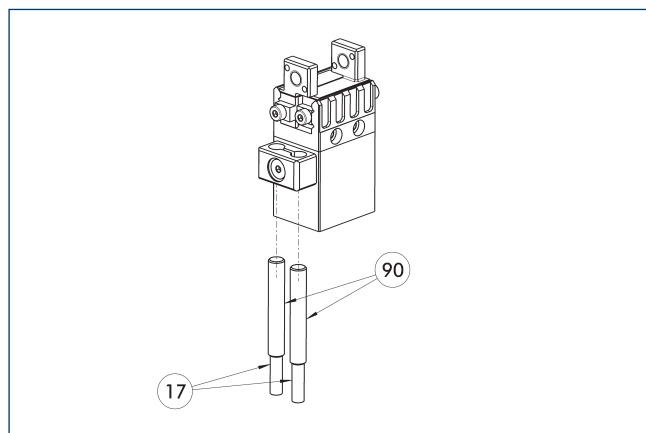
Modular Assembly Automation



- ④ Grippers
- ⑨⑩ CLM/KLM/LM/ELP/ELM/ELS/HLM linear modules
- ⑨① ASG adapter plate

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".

Inductive proximity switches



17 Cable outlet

90 Sensor IN ...

Description	ID	Often combined
Inductive proximity switches		
IN 30K-S-M8-PNP	1001272	●
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	
clip for plug/socket		
CLI-M8	0301463	
Cable extension		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
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.



SCHUNK GmbH & Co. KG
Spann- und Greiftechnik

Bahnhofstr. 106 - 134
D-74348 Lauffen/Neckar
Tel. +49-7133-103-0
Fax +49-7133-103-2399
info@de.schunk.com
schunk.com

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