



Superior Clamping and Gripping



Product Information

Gripper for small components MPG-plus 16

MPG-plus

Gripper for small components

More powerful. Faster. Longer fingers.

MPG-plus gripper for small components

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

Drive concept oval piston for maximum gripping forces

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

Optimized basic load rating suitable for using long gripper fingers

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



MPG-plus 02



Sizes
Quantity: 9



Weight
0.01 .. 0.63 kg



Gripping force
9 .. 370 N



Stroke per jaw
1 .. 10 mm

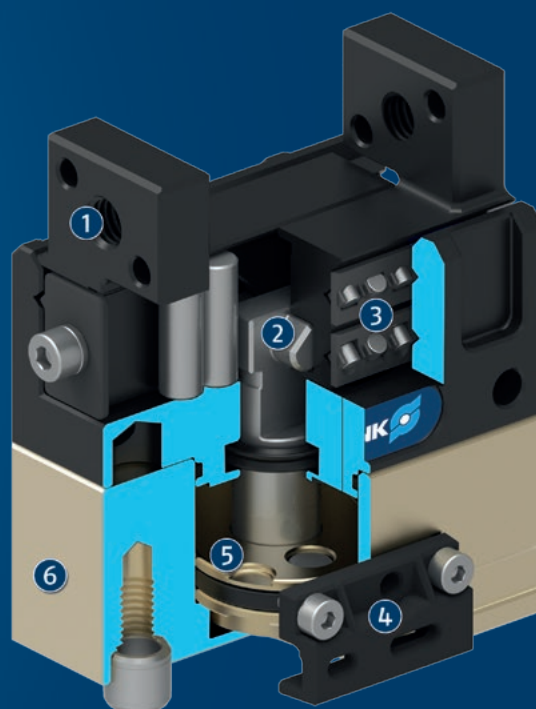


Workpiece weight
0.05 .. 1.25 kg

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**
Weight-optimized due to the use of high-strength aluminum alloy

CAD data, operating manuals and other current product documents can be found online.

MPG-plus

Gripper for small components

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

Scope of delivery: Centering sleeves, O-rings for direct connection, assembly and operating manual with manufacturer's declaration

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

Gripping force: is the arithmetic total of the gripping force applied to each gripper jaw at distance P (see illustration).

Finger length: 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 the spread of the end position during 100 consecutive strokes.

Actuation: Control via digital I/O

Scope of delivery: Pre-assembled units UR plug-in installation modules included in the scope of delivery Assembly and operating manual with declaration of incorporation

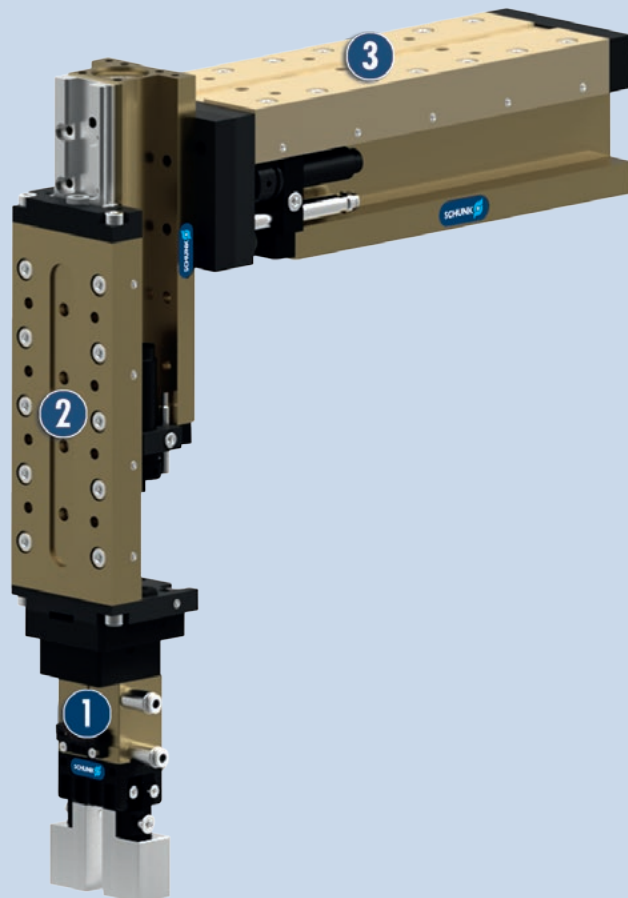
Workpiece weight: is calculated for force-fit gripping with a coefficient of static friction of 0.1 and a safety factor of 2 against workpiece slippage at acceleration due to gravity g. For form-fit or capture gripping, there are significantly higher permissible workpiece weights.

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

Application example

Pneumatically driven, two axis assembly machine for small components.

- 1 MPG-plus 2-finger parallel gripper with standard finger blanks
- 2 CLM compact slide for vertical movement
- 3 CLM compact slide for horizontal movement



SCHUNK offers more ...

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



Rotary modules



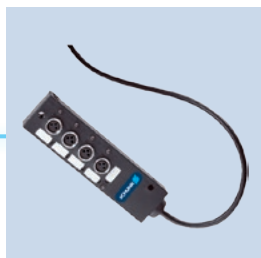
Linear modules



Pick & Place modules



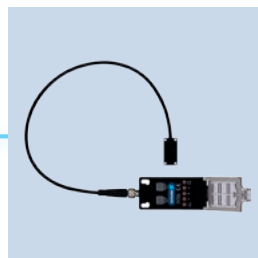
Pillar assembly system



Sensor distributor



Sensor cables



Flexible position sensor



Sensor system



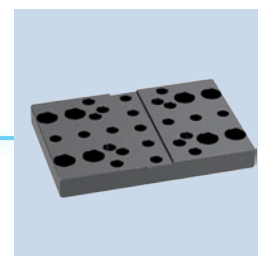
Micro valves



Pressure maintenance valve



Finger blanks



Adapter plates

① 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

Gripping force maintenance version AS / IS: The mechanical gripping force maintenance version ensures a minimum gripping force also in the case of a drop in pressure. In the AS / S version this has the effect of a closing force, in the IS version of an opening force

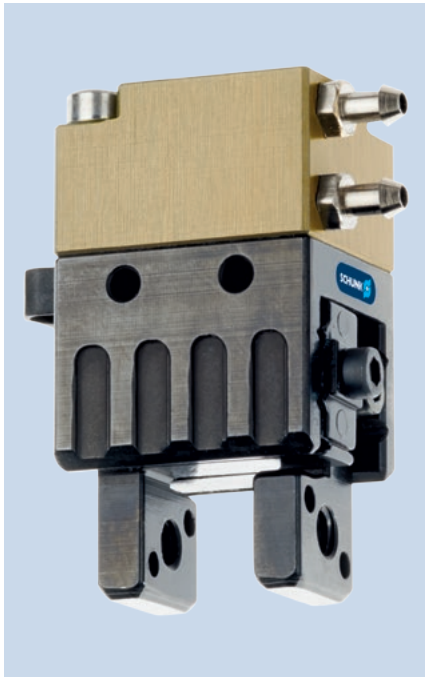
Optional adapter plates: allows frontal mounting of the gripper

Precision version P: for the highest accuracy

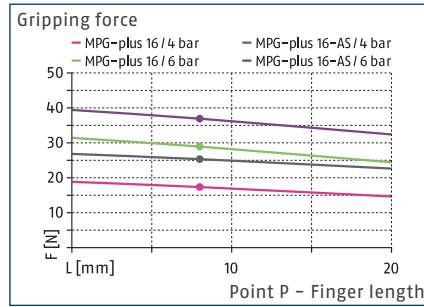
FPS version for flexible position sensor: This version is prepared for use with the flexible FPS position sensor and enables several gripping positions to be monitored.

MPG-plus 16

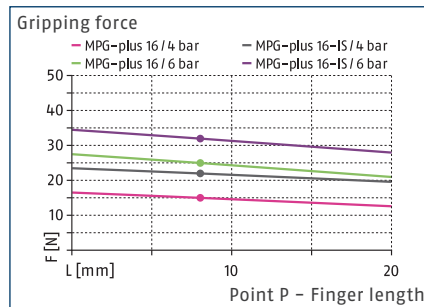
Gripper for small components



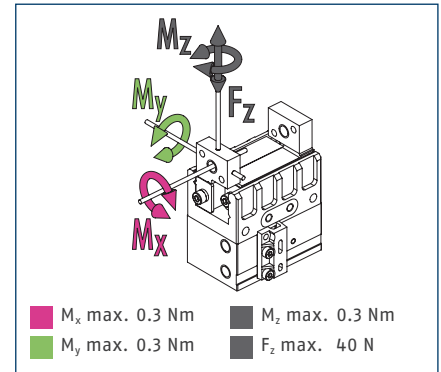
Gripping force, O.D. gripping



Gripping force, I.D. gripping



Finger load

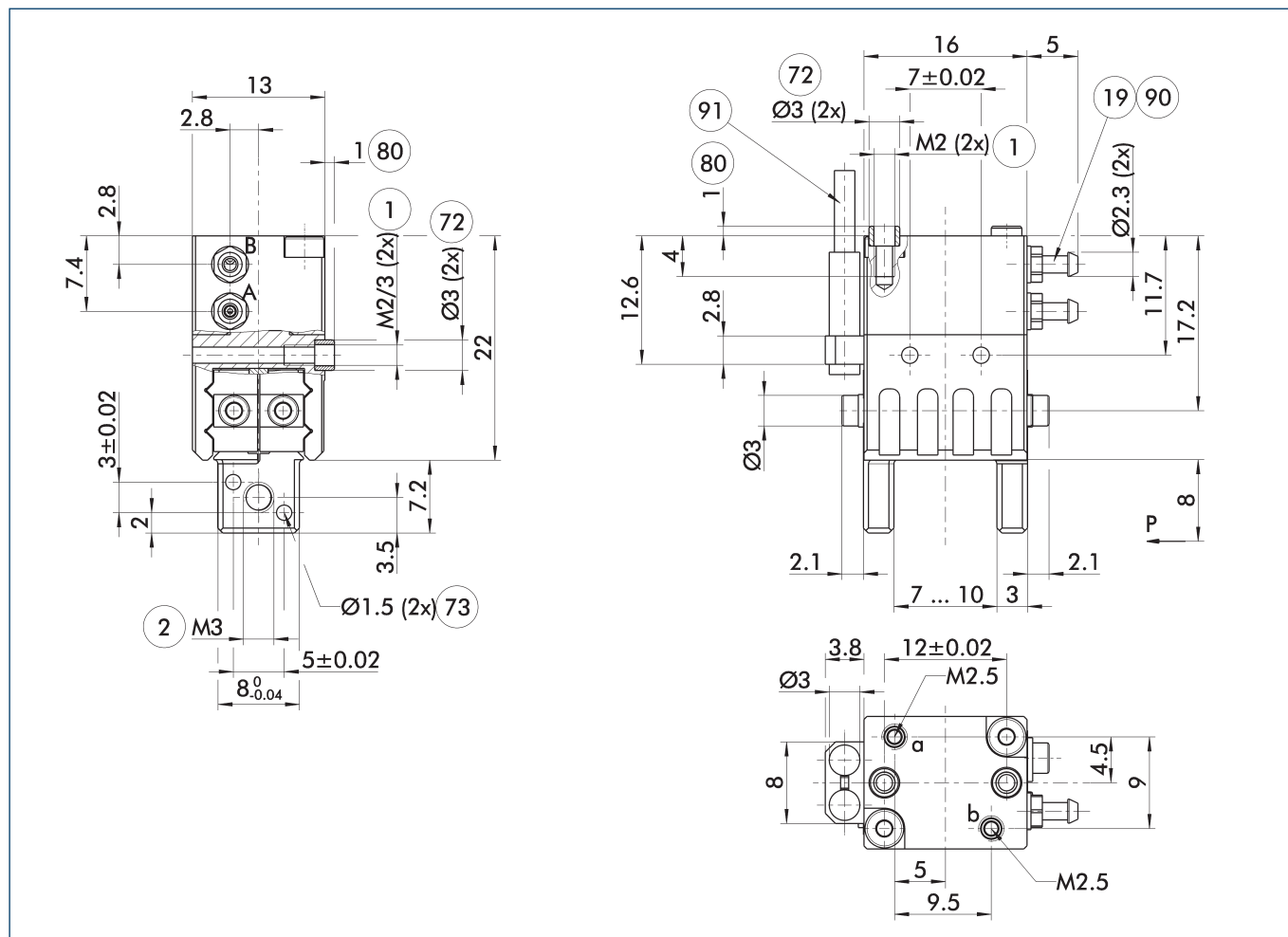


① The specified torques and forces are static values, apply for each base jaw, and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself.

Technical data

Description		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	[cm ³]	0.32	0.69	0.53
Min./max. operating pressure	[bar]	2/8	4/6.5	4/6.5
Nominal operating pressure	[bar]	6	6	6
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 mass per finger	[kg]	0.01	0.01	0.01
Protection class IP		30	30	30
Min./max. ambient temperature	[°C]	5/90	5/90	5/90
Repeat accuracy	[mm]	0.02	0.02	0.02
Options and their characteristics				
High-temperature version		39305481	39305482	39305483
Min./max. ambient temperature	[°C]	5/100	5/100	5/100

Main view



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

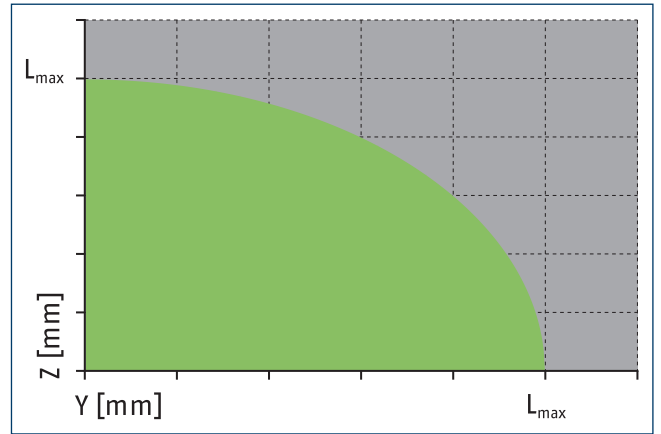
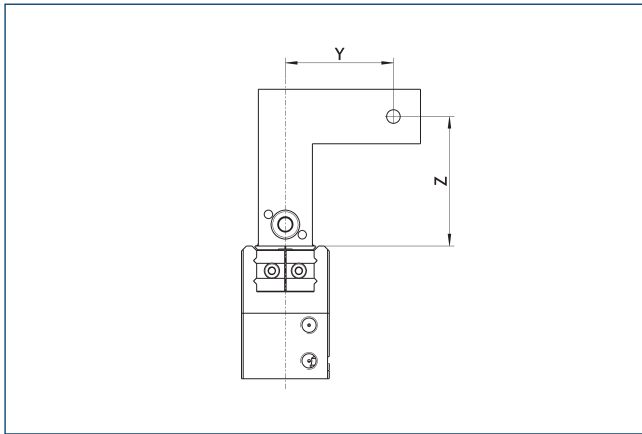
① The SDV-P pressure maintenance valve can also be used for I.D. or O.D. gripping alternatively or in addition to the spring-loaded, mechanical gripping force maintenance device (see catalog section on accessories).

- | | |
|--|---|
| A, a Main / direct connection, gripper opening | ⑦③ Fit for centering pins |
| B, b Main / direct connection, gripper closing | ⑧① Depth of the centering sleeve hole in the counter part |
| ① Gripper connection | ⑨① Bosch-Rexroth compressed air hose, TU1-S (Ø 3.0 - 0.6) series, Order no.: 1820712066 (-67/-68/-69) |
| ② Finger connection | ⑨② Sensor IN ... |
| ①⑨ Air connection | |
| ⑦② Fit for centering sleeves | |

MPG-plus 16

Gripper for small components

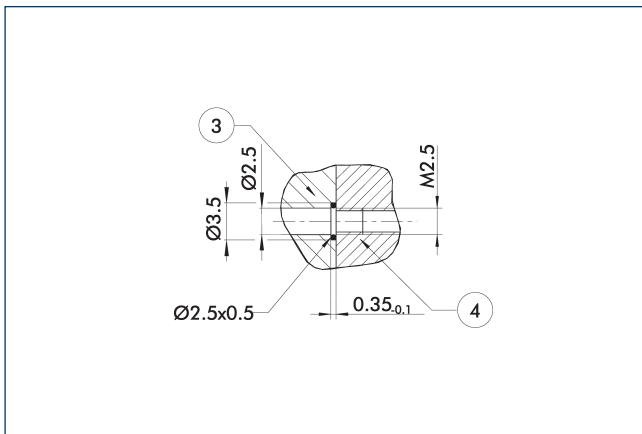
Maximum permitted finger projection



■ 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

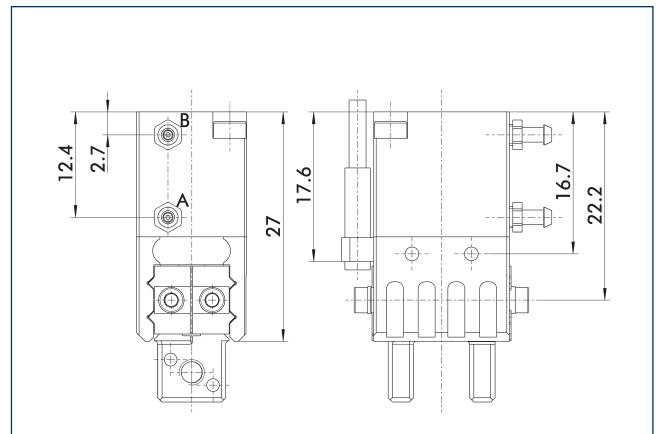


③ Adapter

④ Grippers

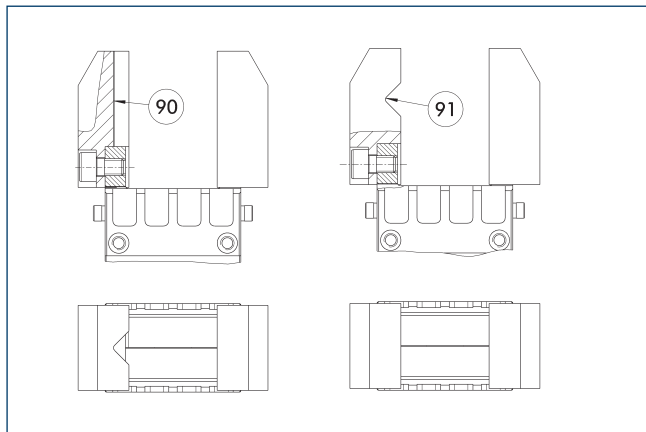
The direct connection is used for supplying compressed air without hoses. Instead, the pressure medium is fed through bore-holes in the mounting plate.

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.

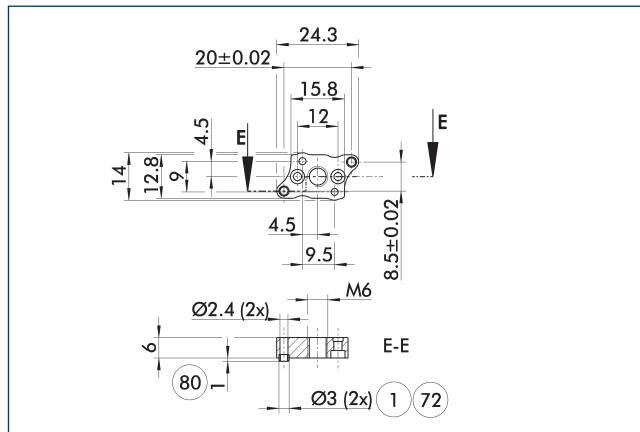
Jaw design



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.

Adapter plate



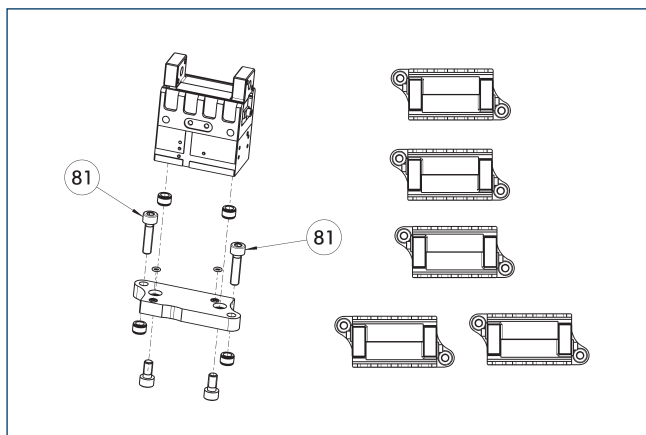
1 Gripper connection 80 Depth of the centering sleeve hole in the counter part
72 Fit for centering sleeves

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.

Adapter plate



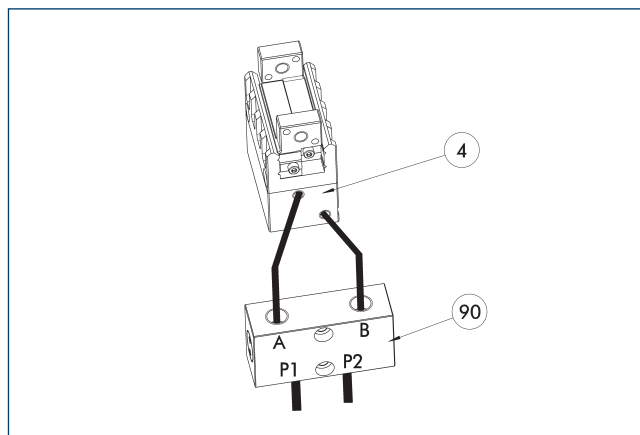
81 Not included in the scope of delivery

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

Description	ID
Adapter plate	
APL-MPG-plus 16	0305487

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SDV-P pressure maintenance valve



4 Grippers 90 SDV-P pressure maintenance valve

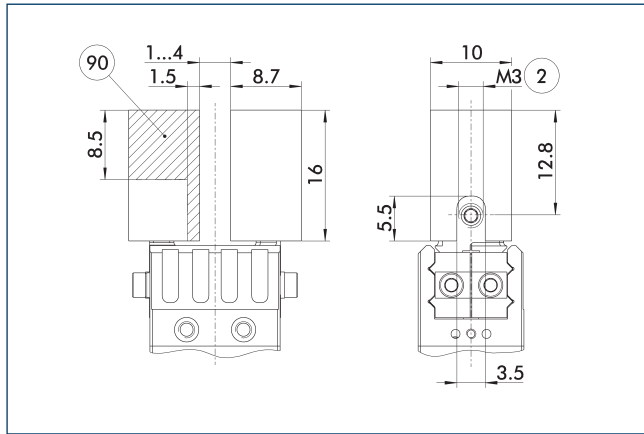
The SDV-P pressure maintenance valve ensures in emergency STOP situations that the pressure in the piston chamber of pneumatic gripper, swivel, linear, and quick-change modules is temporarily maintained.

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

MPG-plus 16

Gripper for small components

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

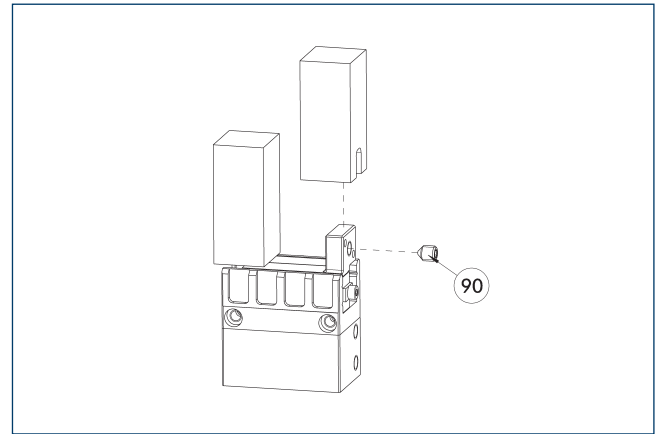


- ② Finger connection
- ⑨⑩ Machining volume

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

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

Finger blanks with BSWS

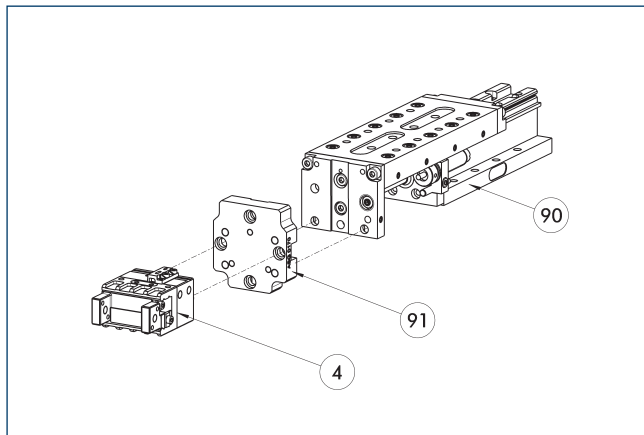


- ⑨⑩ Included in the jaw quick-change system's scope of delivery

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 blanks with quick-change jaw system		
ABR-BSWS-MPG-plus 16	0302892	2

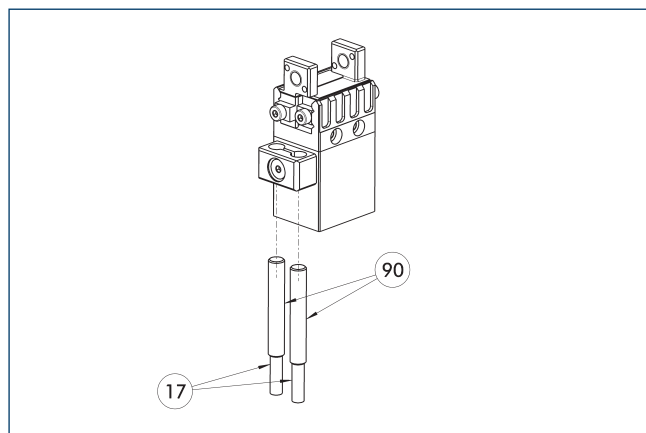
Modular Assembly Automation



- ④ Grippers
- ⑨⑩ CLM/KLM/LM/ELP/ELM/ELS/HLM linear modules
- ⑨⑩ 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	●
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	

① Two sensors (closer/S) are required for each unit and extension cables are available as an option. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

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Folgen Sie uns



J. Lehmann

Jens Lehmann, German goalkeeper legend, SCHUNK brand ambassador since 2012 for safe, precise gripping and holding.
schunk.com/Lehmann