



Superior Clamping and Gripping



Product Information

Gripper for small components MPG 80

MPG

Gripper for small components

Precise. Compact. Reliable.

MPG 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

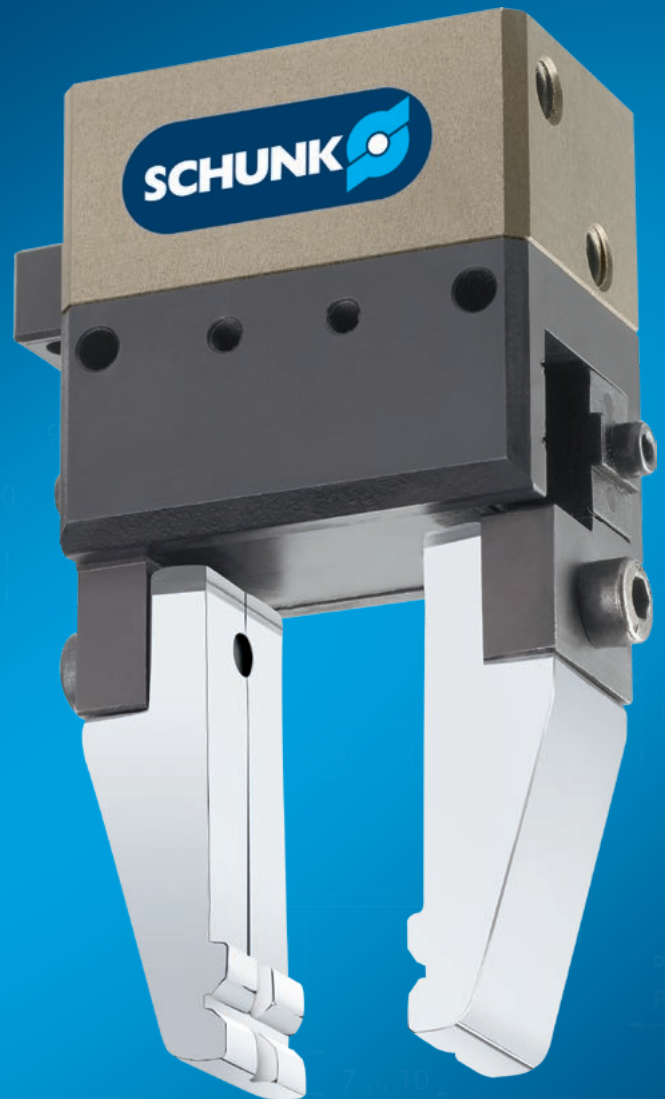
Advantages – Your benefits

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

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

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: 8



Weight
0.03 .. 1.35 kg



Gripping force
25 .. 540 N



Stroke per jaw
1.5 .. 14 mm

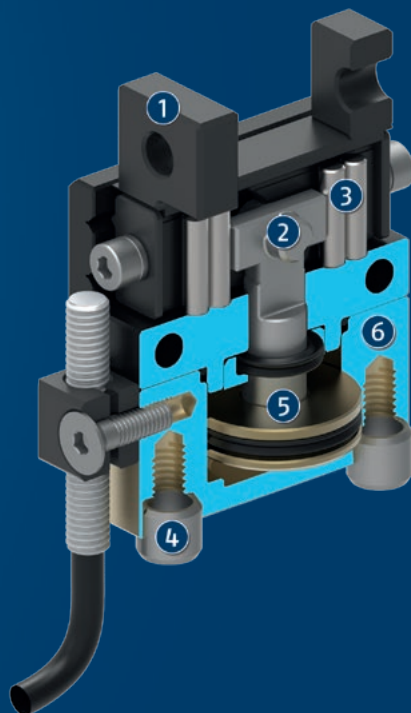


Workpiece weight
0.13 .. 1.9 kg

Functional description

The piston is moved up and down by compressed air. The side hooks at the upper end of the piston rod guide in the angular slots of both base jaws, and thus transform this movement into the synchronized opening or closing of

the base fingers.



- 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 **Centering and mounting possibilities**
for assembly of the gripper to a base area and at the long side
- ⑤ **Drive**
double-acting piston drive system
- 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

Scope of delivery: Bracket for proximity switch, centering sleeves, O-rings for direct connection, assembly and operating manual with declaration of incorporation.

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.

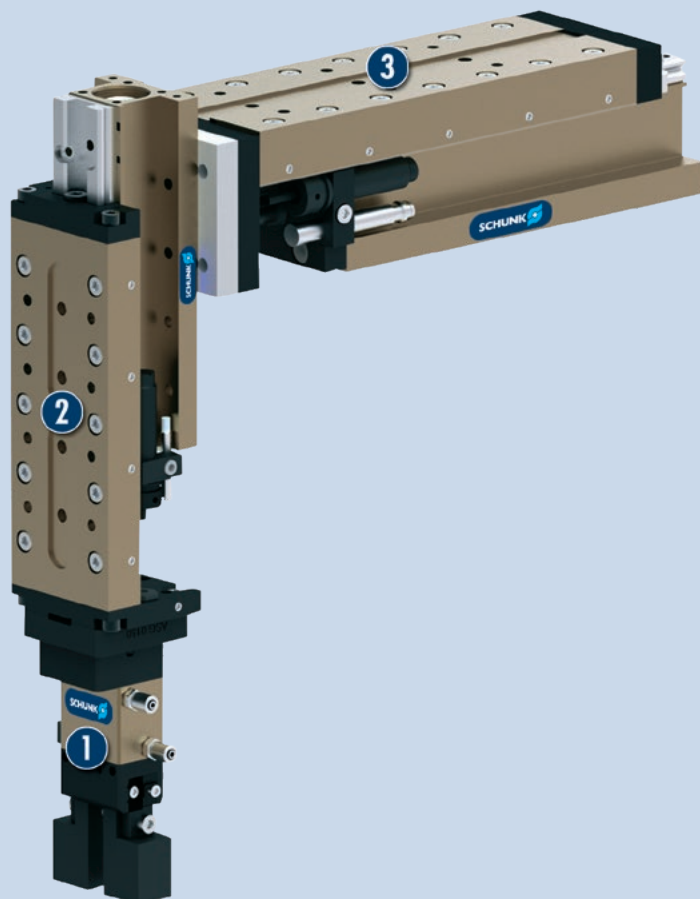
Workpiece weight: is calculated for force-fit gripping with a coefficient of static friction of 0.1 and a safety factor of 2 against workpiece slippage at acceleration due to gravity g. For form-fit or capture gripping, there are significantly higher permissible workpiece weights.

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

Pneumatically driven, two axis assembly machine for small components.

- ❶ MPG 2-finger parallel gripper with standard finger blanks
- ❷ CLM compact slide for vertical movement
- ❸ CLM compact slide for horizontal movement



SCHUNK offers more ...

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



Miniature swivel unit



Linear module



Pick & Place Unit



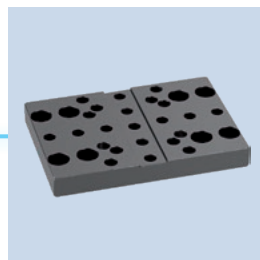
Manual change system



Attachment valves



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. 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 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.

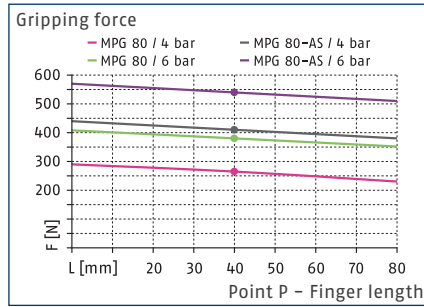
Additional fitting bores: for centering the fingers via sleeves, instead of normal fitting surfaces. Customized versions available on request.

MPG 80

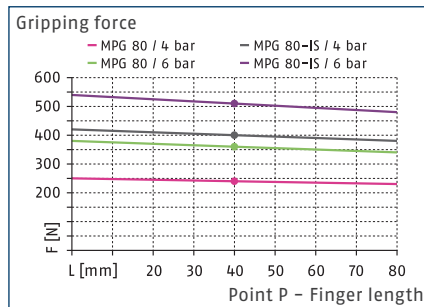
Gripper for small components



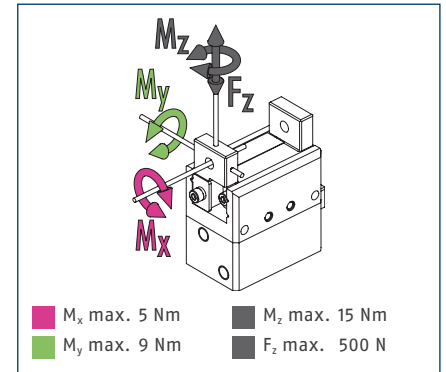
Gripping force O.D. gripping



Gripping force I.D. gripping



Max. loads

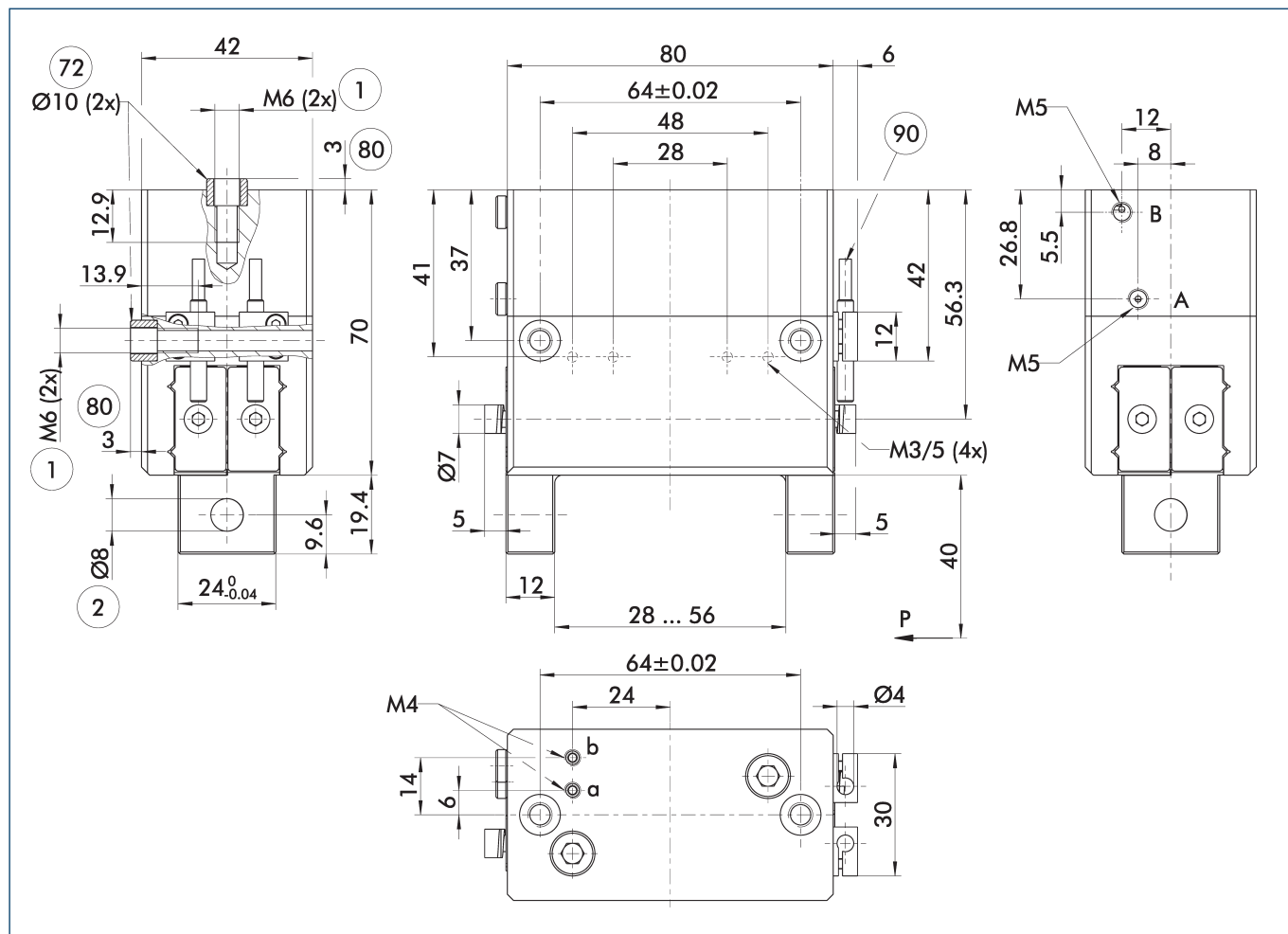


① The indicated moments and forces are statical values, apply for each base jaw and should not appear simultaneously. Loads may additionally occur to the moment produced by the gripping force itself.

Technical data

Characterization		MPG 80	MPG 80-AS	MPG 80-IS
ID		0340015	0340045	0340065
Stroke per jaw	[mm]	14	14	14
Closing/opening force	[N]	380/360	540/-	-/510
Min. spring force	[N]		160	150
Weight	[kg]	1.2	1.35	1.35
Recommended workpiece weight	[kg]	1.9	1.9	1.9
Fluid consumption double stroke	[cm ³]	29	45.5	40.5
Min./nom./max. operating pressure	[bar]	2/6/8	4/6/6.5	4/6/6.5
Closing/opening time	[s]	0.06/0.06	0.055/0.085	0.085/0.055
Closing/opening time with spring	[s]		0.30	0.30
Max. permissible finger length	[mm]	80	80	80
Max. permissible mass per finger	[kg]	0.4	0.4	0.4
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		5	5	5

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

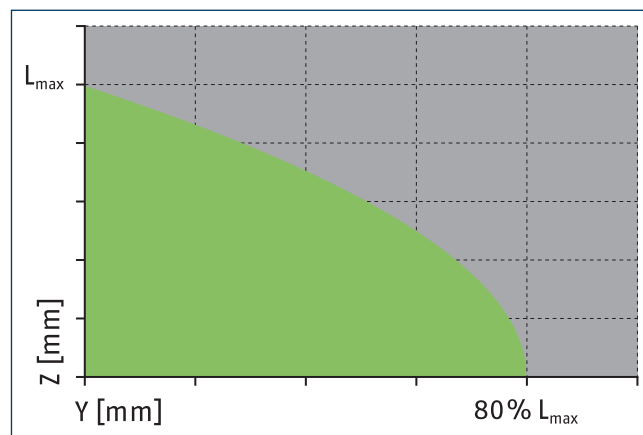
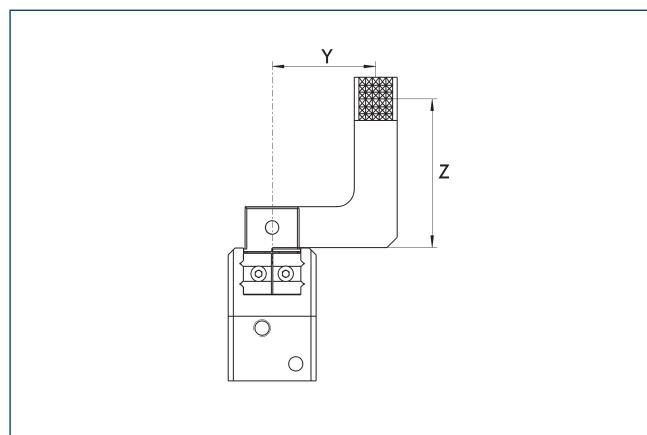
② Finger connection

72 Fit for centering sleeves

80 Depth of the centering sleeve hole in the counter part

90 Sensor IN ...

Maximum permitted finger projection

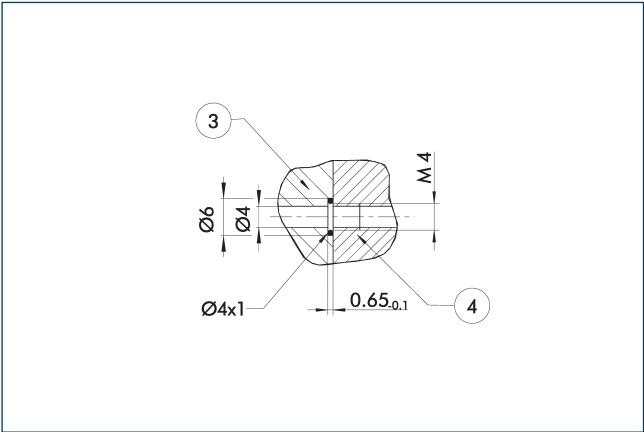


Permitted range

Inadmissible range

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

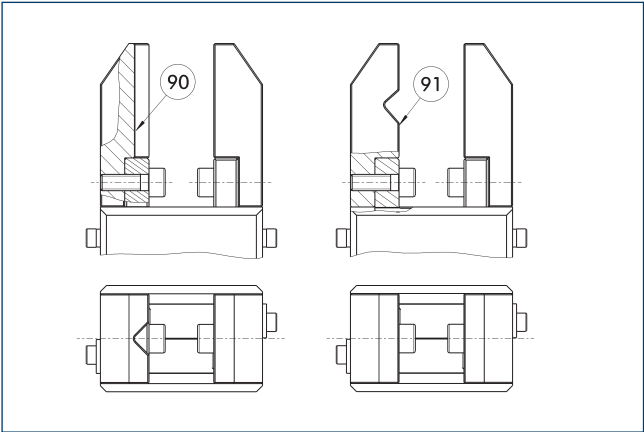
Hose-free direct connection M4



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.

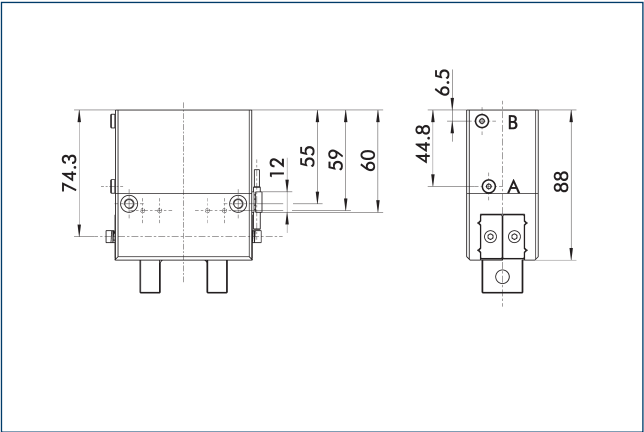
Jaw design



⑨⑩ Vertically positioned prism ⑨⑪ Horizontally positioned prism

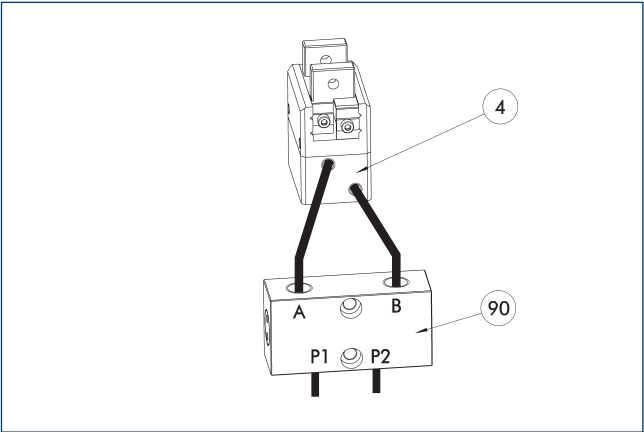
A workpiece, which is gripped using three points of contact, can be reliably gripped with high repeatability. A system with more than three points of contact is overdetermined. The drawing shows two alternative gripper finger designs for coaxial and radial gripping of a cylindrical part.

Gripping force maintenance device AS / S



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.

SDV-P pressure maintenance valve



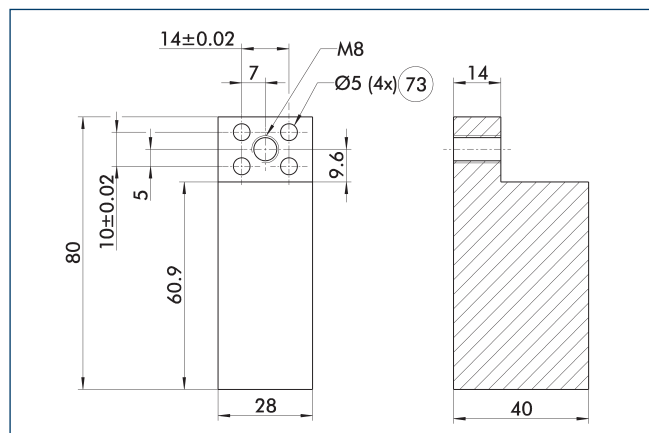
④ Grippers ⑨⑩ SDV-P pressure maintenance valve

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.

Characterization	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 ABR-MPG-plus 80

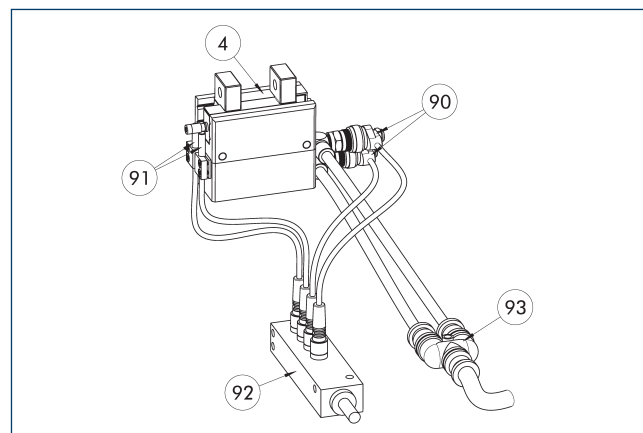


73 Fit for centering pins

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

Characterization	ID	Material	Scope of delivery
Finger blank			
ABR-MPG-plus 80	0340216	Aluminum	2

Attachment valves



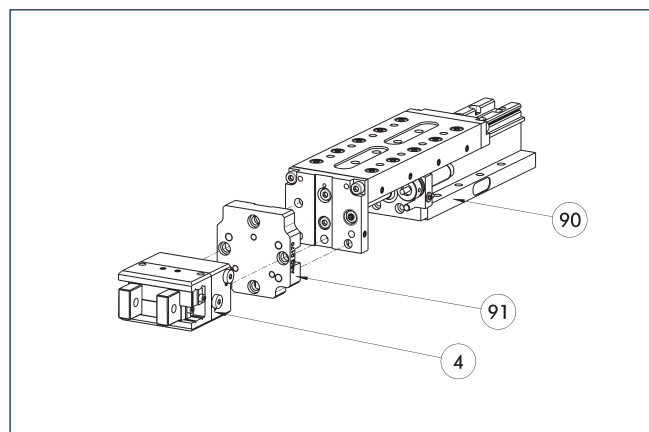
- 4 Grippers
- 90 Micro valves
- 91 Sensor
- 92 Sensor distributor
- 93 Y distributor

The set of attachment valves reduces the compressed air consumption as there is no need to ventilate or bleed the supply lines. This can also reduce cycle time. The hose-free direct assembly of the micro valves reduces the hosing effort for the gripper. To further simplify electrical connection of the valves and sensors, their signals can be bundled via an optional distributor.

Characterization	ID	Often combined
Attachment valve		
ABV-MV25-M5	0303326	
ABV-MV25-M5-V2-M8	0303392	
ABV-MV25-M5-V4-M8	0303362	●
ABV-MV25-M5-V8-M8	0303363	

- ① A set of attachment valves ABV is required per actuator. The ABV set contains two 3/2 micro valves, an Y-distributor for compressed air supply and optionally a sensor distributor with two, four or eight inputs or outputs. Sensors for monitoring the gripper need to be ordered separately. Pneumatic hoses are not included in the scope of delivery.

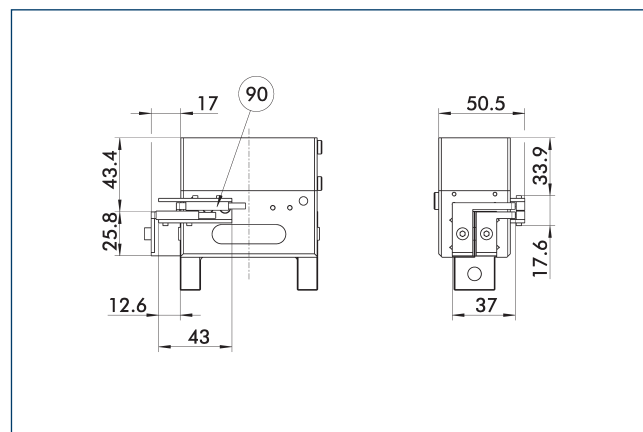
Modular Assembly Automation



- 4 Grippers
- 90 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".

Attachment kit for proximity switch



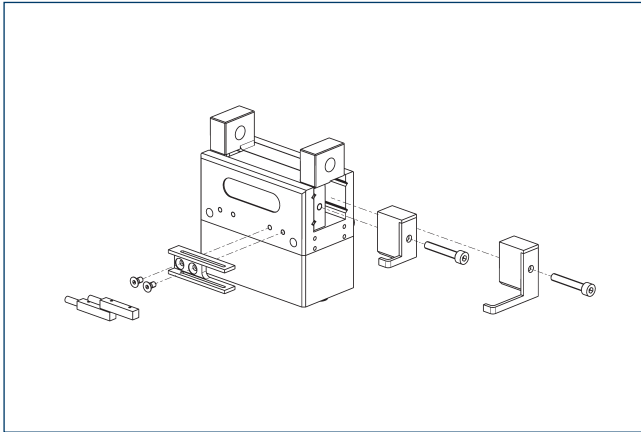
- 90 Sensor IN ...

End position monitoring can be mounted with an attachment kit.

Characterization	ID	
Attachment kit for proximity switch		
AS-MPG 80	0340155	

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

Inductive Proximity Switches

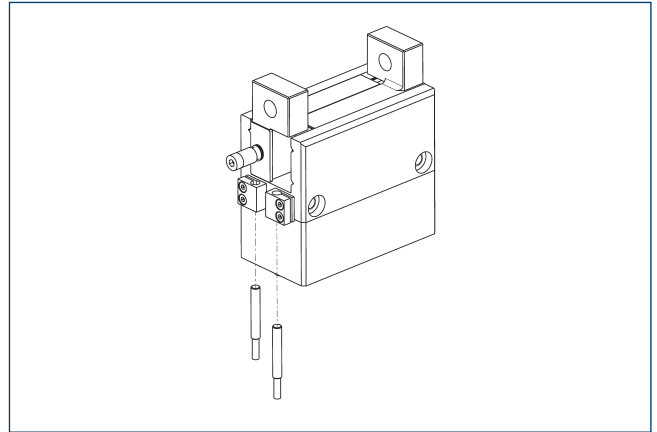


End position monitoring can be mounted with an attachment kit.

Characterization	ID	Often combined
Attachment kit for proximity switch		
AS-MPG 80	0340155	
Inductive proximity switches		
IN 5-S-M12	0301569	
IN 5-S-M8	0301469	●

- 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.

Inductive Proximity Switches

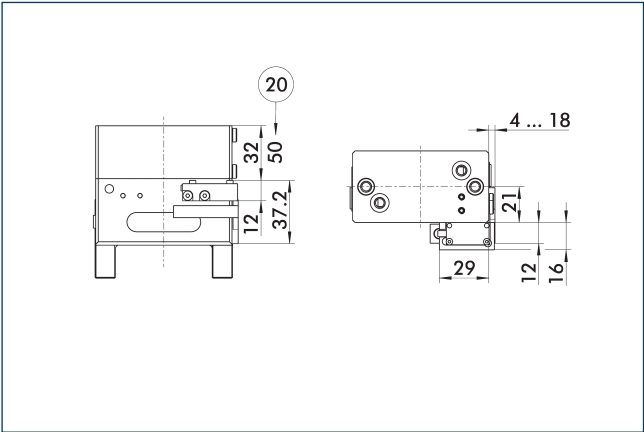


Directly mounted end position monitoring.

Characterization	ID	Often combined
Inductive proximity switches		
IN 40-S-M12	0301574	
IN 40-S-M8	0301474	●
INK 40-S	0301555	
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	
clip for plug/socket		
CLI-M12	0301464	
CLI-M8	0301463	
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	
KA BW12-L 3P-0300-PNP	0301503	
KA BW12-L 3P-0500-PNP	0301507	
Sensor distributor		
V2-M12	0301776	●
V2-M8	0301775	●
V4-M12	0301747	
V4-M8	0301746	
V8-M12	0301752	
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.

Attachment kit for FPS



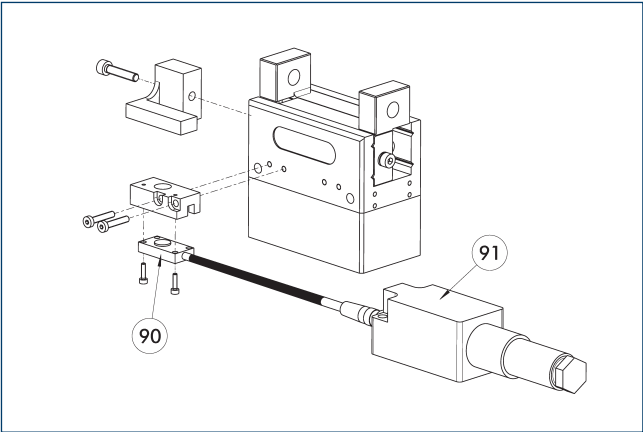
20 For AS / IS version

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.

Characterization	ID
Attachment kit for FPS	
AS-FPS-MPG 80	0301765

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

Flexible position sensor



90 FPS-S sensor

91 FPS-F5 evaluation electronic

Flexible position monitoring of up to five positions.

Characterization	ID	Often combined
Attachment kit for FPS		
AS-FPS-MPG 80	0301765	
Sensor		
FPS-S 13	0301705	
Cable extension		
KV BG08-SG08 3P-0050	0301598	
KV BG08-SG08 3P-0100	0301599	
Evaluation electronics		
FPS-F5	0301805	●

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.”

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