Superior Clamping and Gripping

Product Information

Radial gripper PRG 80

Flexible. Powerful. Slim.

Universal gripper PRG

180° radial gripper with powerful 1-shift slotted link gear and oval piston

Field of application

For areas of application which, in addition to a large gripping force, require the shortest possible motion sequences through the radial design of the jaw stroke.

Advantages – Your benefits

Kinematics the 1-shift slotted link gear assures a consistant closing moment from -5° to +7°.

Optimized cycle time due to innovative damping directly integrated drive chain

Maximum compact performance for higher closing moments, longer and stable gripper fingers

Many options ensure a higher degree of flexibility adjusted to the individual application, the PRG is also available with a mechanic gripping force maintenance, as a high-temperature version, and with three opening angle versions 30°/60°/90°.

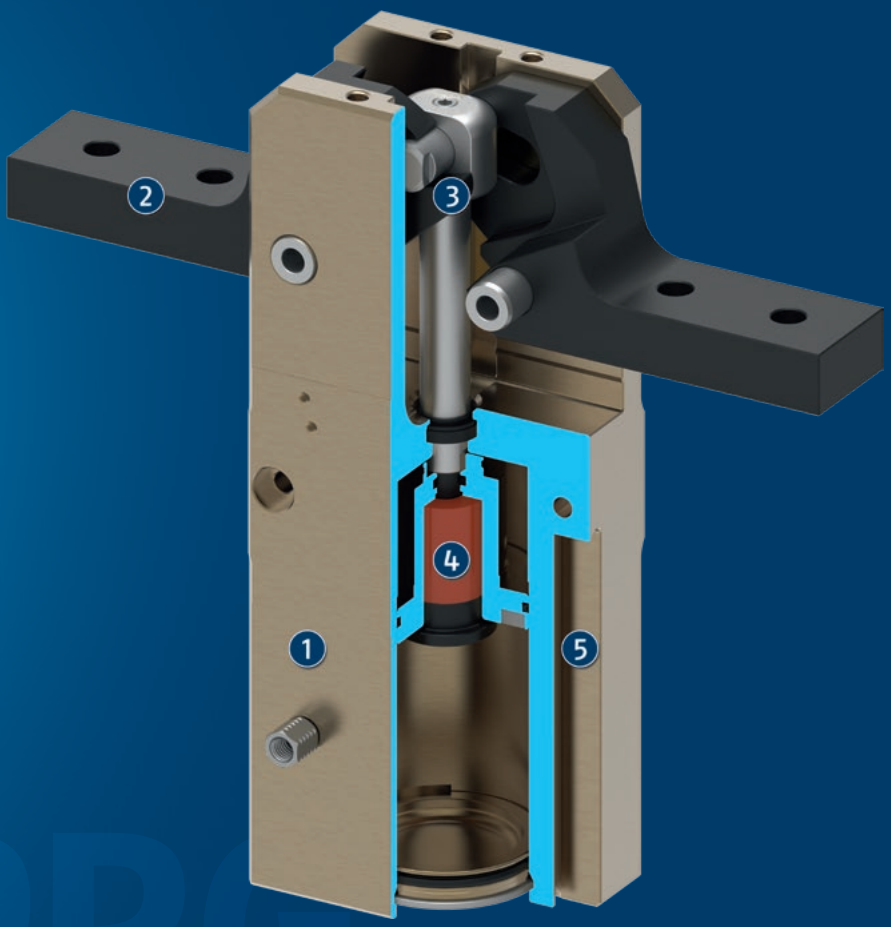
Air supply via hose-free direct connection or screw connections for flexible pressure supply in all automated systems

Sizes	Weight	Gripping moment	Angle per jaw	Workpiece weight
Quantity: 8	0.13 .. 6.72 kg	2 .. 265 Nm	30 .. 90°	0.3 .. 6.96 kg

Functional description

The patented “1-pin link guide” converts the movement into a powerful closing torque. The closing moment is additionally reinforced by the curved shape of the guidance.

In addition to a rapid stroke behaviour the slotted link also assures a nearly constant closing torque over a large closing angle range.



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 **Kinematics**
Slotted link gear for very high gripping forces when the workpiece is contacted

④ **Damping**
decouples the drive, for shorter cycle times

⑤ **Monitoring**
integrated end position monitoring with magnetic switches

General notes about the series

Operating principle: Slotted link gear

Housing material: Aluminum alloy, anodized

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 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

Closing moment: is the arithmetic sum of the individual moment applied to each jaw.
The indicated closing moment will be reached at an opening angle of 0°. A detailed closing moment course depending on the opening angle can be taken out of the diagram "closing moment course".

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

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.

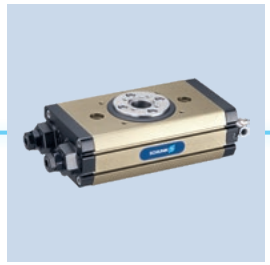
Application example

Gripper swivel combination for handling of small shafts. The 180° opening angle of the gripper replaces a stroke unit which otherwise would be necessary.

1. 2-finger radial gripper PRG
2. Rotary actuator SRU-plus
3. Universal linear module Beta

SCHUNK offers more ...

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



Universal swivel unit

Linear module

Quick change system

Rotary feed-through

Inductive proximity switches

Magnetic switches

Programmable magnetic switch

Pressure maintenance valve

ⓘ For more information on these products can be found on the following product pages or at schunk.com.

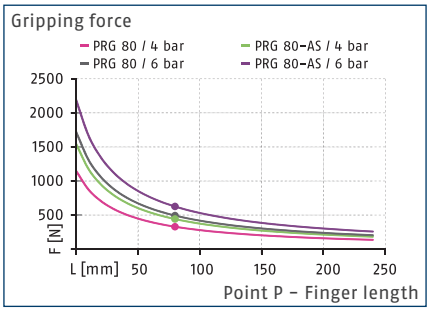
Options and special information

180° radial grippers are advantageous since further stroke motions are no more necessary. Since every jaw swivels away by 90°, the gripper is outside of the working area, and a stroke motion back of the whole gripper is no more necessary.
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.
High-temperature version V/HT: for use in hot environments
Additional versions: Various options can be combined with each other. Numerous additional options are also available – just tell us what your task is!

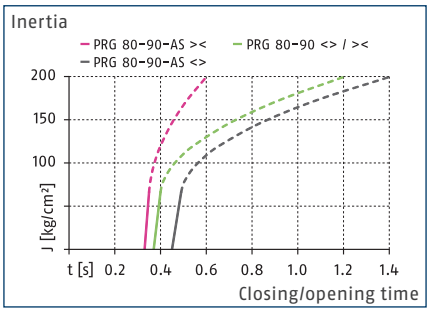
PRG 80

Radial gripper

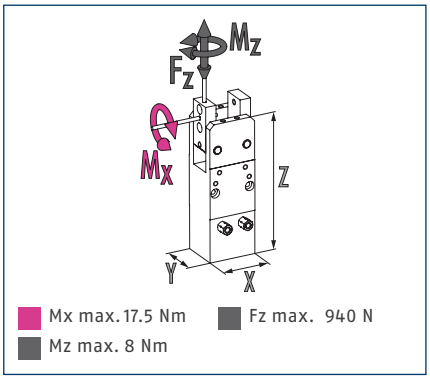
Gripping force O.D. gripping



Max. permissible inertia J*



Dimensions and maximum loads



ⓘ The indicated torques and forces are static values, apply for each base jaw, and may occur simultaneously.

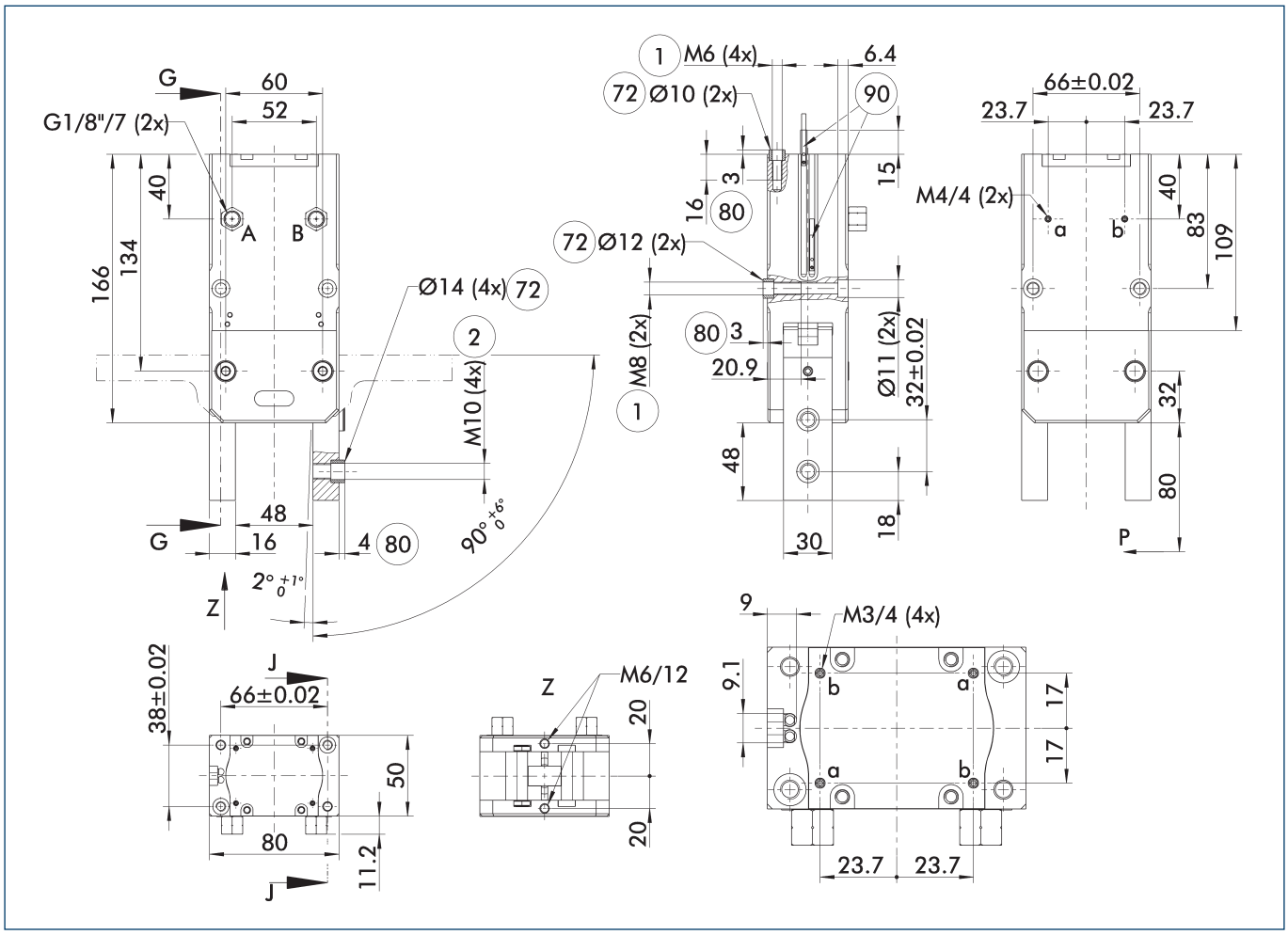
Technical data

Description		PRG 80-30	PRG 80-30-AS	PRG 80-60	PRG 80-60-AS	PRG 80-90	PRG 80-90-AS
ID		0303656	0303666	0303696	0303706	0303676	0303686
Opening angle per jaw	[°]	30	30	60	60	90	90
Closed angle per jaw	[°]	3	3	3	3	3	3
Closing moment	[Nm]	55	70	55	70	55	70
Closing moment generated by spring	[Nm]		15		15		15
Weight	[kg]	2.17	2.26	2.16	2.25	2.15	2.24
Recommended workpiece weight	[kg]	2.5	2.5	2.5	2.5	2.5	2.5
Fluid consumption double stroke	[cm³]	128	128	143	143	160	160
Min./nom./max. operating pressure	[bar]	2/6/8	4/6/6.5	2/6/8	4/6/6.5	2/6/8	4/6/6.5
Closing/opening time	[s]	0.17/0.17	0.17/0.25	0.27/0.27	0.24/0.34	0.37/0.37	0.33/0.45
Closing time with spring only	[s]		0.18		0.35		0.52
Max. permissible finger length	[mm]	160	160	160	160	160	160
Max. permissible mass moment of inertia per chuck jaw	[kgcm²]	66.44	66.44	66.44	66.44	66.44	66.44
IP protection class		20	20	20	20	20	20
Min./max. ambient temperature	[°C]	5/90	5/90	5/90	5/90	5/90	5/90
Repeat accuracy	[mm]	0.1	0.1	0.1	0.1	0.1	0.1
Dimensions X x Y x Z	[mm]	80 x 50 x 166	80 x 50 x 166	80 x 50 x 166	80 x 50 x 166	80 x 50 x 166	80 x 50 x 166
Options and their characteristics							
High-temperature version		39303656	39303666	39303696	39303706	39303676	39303686
Min./max. ambient temperature	[°C]	5/130	5/130	5/130	5/130	5/130	5/130

* The unit can be actuated without an external customized throttling at the given value of max. mass moment of inertia per jaw. In case of higher mass moments of inertia, an additional throttling is possible.

The curve applies for 90° versions. For other versions the curve must be parallely off-set according to the opening and closing times.

Main view



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

ⓘ 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

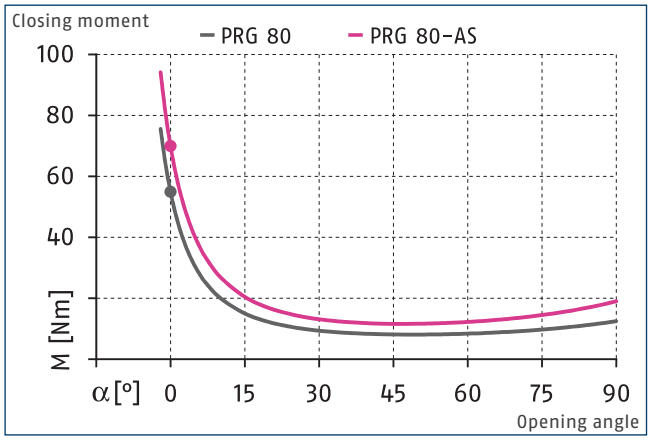
(2) Finger connection

(72) Fit for centering sleeves

(80) Depth of the centering sleeve hole in the counter part

(90) Sensor MMS 22..

Closing torque curve**

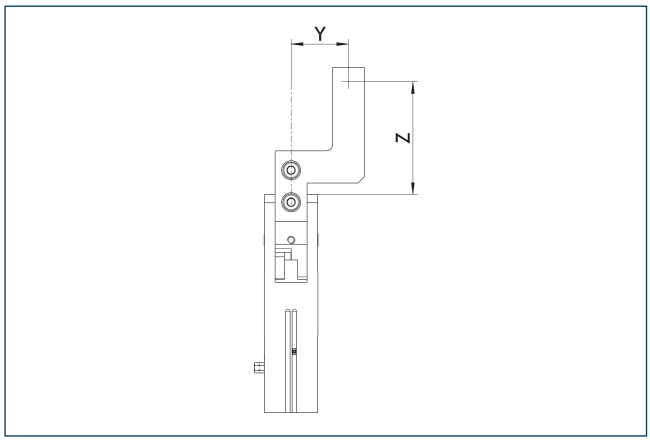


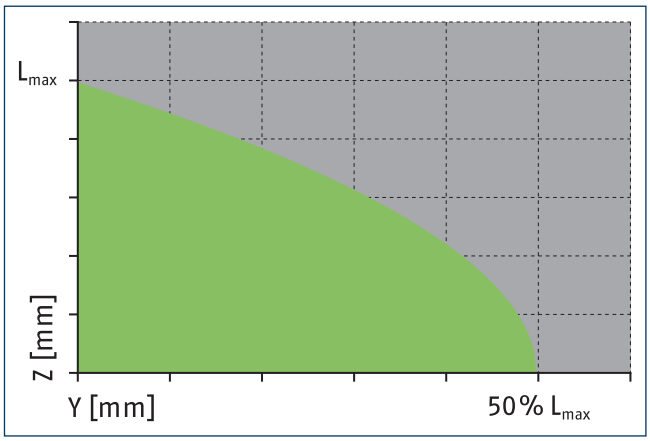
** The diagramm is valid for all opening angle variants.

PRG 80

Radial gripper

Maximum permitted finger projection



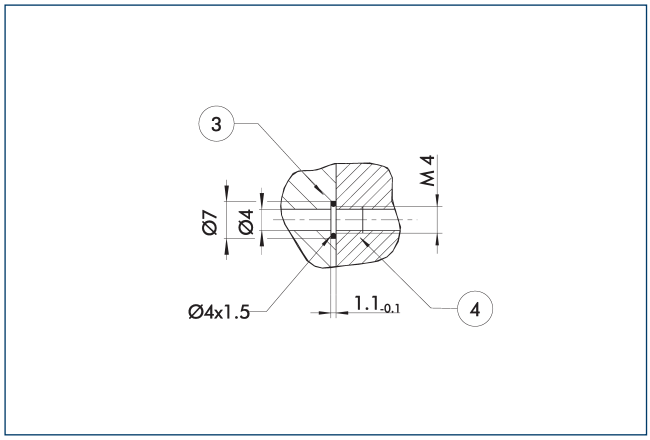


Permitted range

Inadmissible range

Lmax is equivalent to the maximum permitted finger length, see the technical data table.

Hose-free direct connection M4

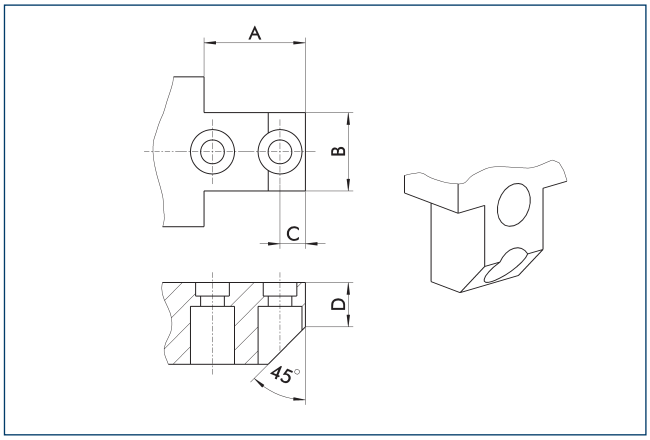


(3) Adapter

(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.

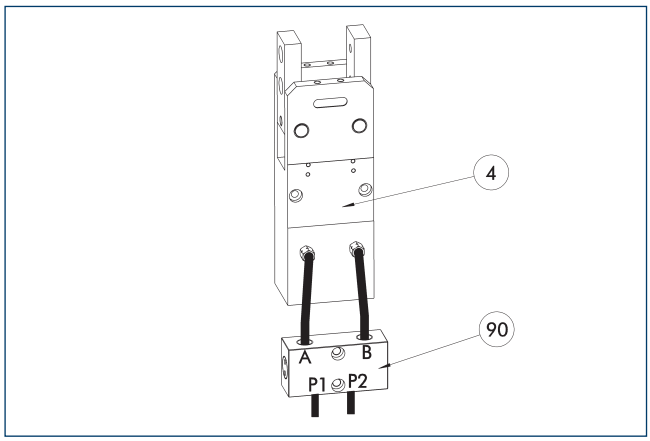
Finger design



The drawing shows a suggerstionof how to design the gripper fingers.

A	B	C	D
[mm]	[mm]	[mm]	[mm]
16	29.5	12	18.5

SDV-P pressure maintenance valve



(4) Grippers

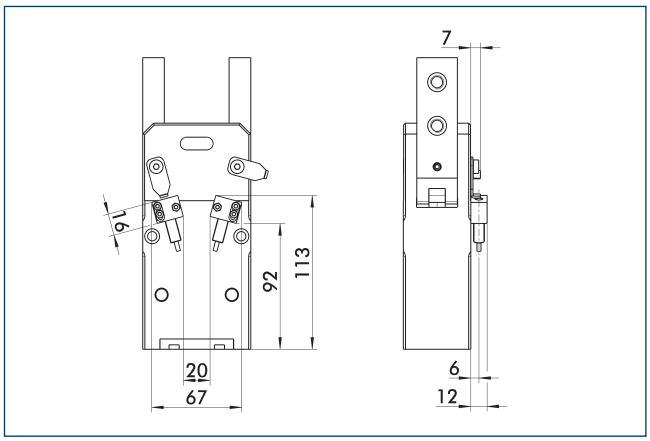
(90) SDV-P pressure maintenance valve

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

ⓘ 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.

Attachment kit for proximity switch IN 80



The attachment kit consists of brackets, control cams, and appropriate fastening materials. The proximity switches must be ordered separately.

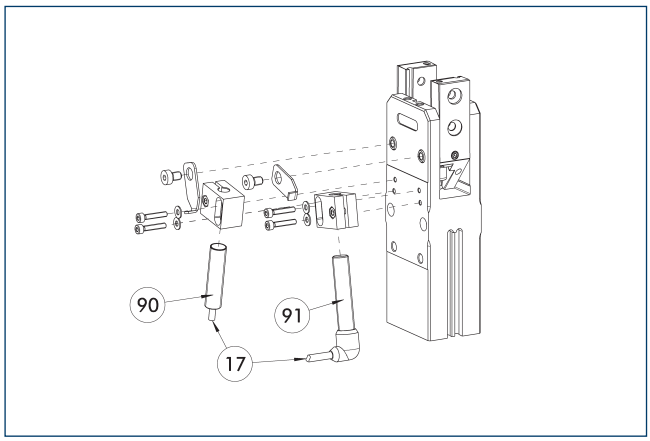
Description	ID	
Attachment kit for proximity switch		
AS-PRG 80-IN80	0303626	

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

PRG 80

Radial gripper

IN 80 inductive proximity switches



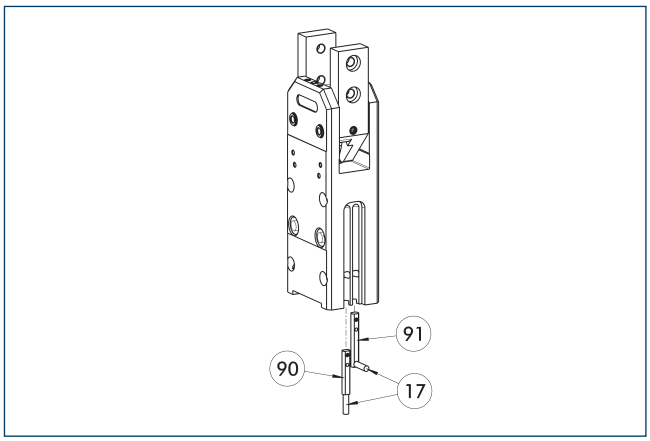
(17) Cable outlet
(91) Sensor IN..-SA
(90) Sensor IN ...

End position monitoring can be mounted with an attachment kit.

Description	ID	Often combined
Attachment kit for proximity switch		
AS-PRG 80-IN80	0303626	
Inductive proximity switches		
IN 80-S-M12	0301578	
IN 80-S-M8	0301478	●
INK 80-S	0301550	
Inductive proximity switch with lateral cable outlet		
IN 80-S-M12-SA	0301587	
IN 80-S-M8-SA	0301483	●
INK 80-S-SA	0301566	

ⓘ 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



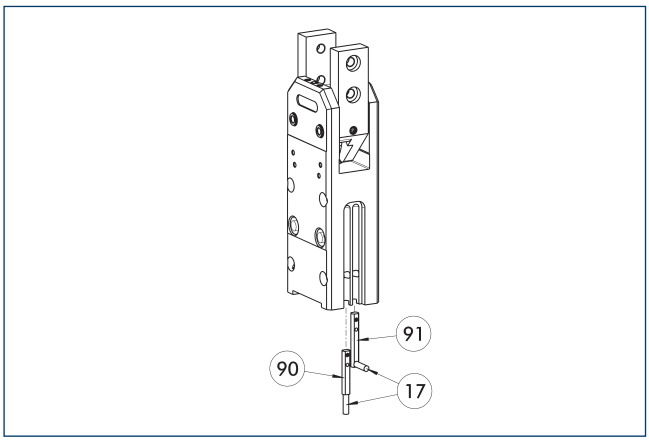
(17) Cable outlet
(91) Sensor MMS 22...-SA
(90) Sensor MMS 22..

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	
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	

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

ⓘ 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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