



Superior Clamping and Gripping

Product Information

Angular gripper PWG-plus 80

Reliable. Robust. Compact. Universal gripper PWG-plus

Robust 2-finger angular gripper with oval piston and bone drive

Field of application

For universal use in clean and slightly dirty environments.

Advantages – Your benefits

Variable top jaw design since grippers are available in jaw version, but also in finger version via intermediate jaws

Gripping force maintenance device for a high process reliability

Stroke limitation while opening optional available for confined spaces and short cycle times

Can be used in tough environments due to the gripper's sturdy set-up













2.5/4 (4x)

Functional description

The kinematics transforms this vertical motion into a synchronous and rotatory gripping motion of the base jaws.



① Base Jaw

for the connection of workpiece-specific gripper fingers

② Housing

is weight-optimized due to the use of high-strength aluminum alloy

③ Drive

pneumatic oval piston for maximum driving force

Lever mechanism for precise and synchronized gripping

SCHUNK

General notes about the series

Operating principle: force-guided lever gear

Housing material: Aluminum

Base jaw material: hard-anodized, high strength aluminum

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

Warranty: 24 months

Scope of delivery: Centering elements, 0-rings for direct connection, fixed throttle (for sizes 50-200), 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

Cross gantry for light to mediumweight components. 1 Line gantry LPP, pneumatic

2 -finger angular gripper PWG-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.





Compensation unit



Tolerance compensation unit





Magnetic switches



Pressure maintenance valve



Inductive proximity switches

Tor more information on these products can be found on the following product pages or at 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.

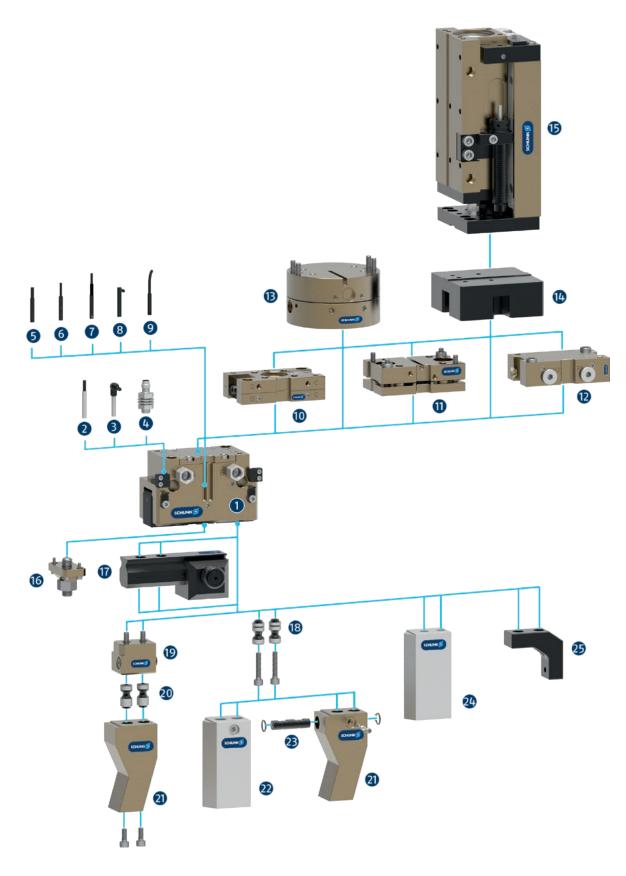
High-temperature version V/HT: for use in hot environments

Power booster version KVZ: if higher gripping forces are required

Additional versions: Various options can be combined with each other. Numerous additional options are also available – just tell us what your task is!

SCHUNK gripper PWG-plus

Overview Accessories



Angular gripper

1 PWG-plus

Universal 2-finger angular gripper with a high gripping force

Sensor system

2 IN ...

Inductive proximity switch with molded cable and straight cable outlet

IN ...-SA

Inductive proximity switch with molded cable and laberal cable outlet

IN-C 80

Inductive proximity switch, directly pluggable

5 MMS 22

Magnetic switch with straight cable outlet for monitoring a position

MMS 22-PI1

Magnetic switch with straight cable outlet for monitoring a freely programmable position

6 MMS 22-PI2

Magnetic switch with straight cable outlet for monitoring two freely programmable position

MMS 22-PI1-HD

MMS 22-PI1 in robust design

MMS 22-PI2-HD

MMS 22-PI2 in robust design

8 MMS 22-SA

Magnetic switch with lateral cable outlet for monitoring a position

MMS 22-PI1-SA

Magnetic switch with side cable outlet for monitoring a freely programmable position

9 MMS-P

Magnetic switch with straight cable outlet for monitoring two freely programmable position

Complementary products

D SDV-P-E-P

Pressure maintenance valve for temporary force and position maintenance

B AGE

Compensation unit for compensation of large tolerances along the X and Y axes

🚯 ASG

Adapter plate for combining various automation components in the modular system

CLM

Linear module with pneumatic drive and scope-free pre-loaded junction rollers

16 HVE

Sleeve for protection against dirt

Finger Accessories

😈 UZB

The universal intermediate jaw allows fast tool-free and reliable plugging and shifting of top jaws at the gripper.

BSWS-AR

Adapter coupling of jaw quick-change system for fast, manual change of top jaws

BSWS-B

Locking mechanism of the jaw quick-change system for fast, manual exchange of top jaws

20 BSWS-A

Adapter coupling of the jaw quick-change system for adaptation to the customized finger

2 Customized fingers

BSWS-ABR

Finger blank made of aluminum with interface to the jaw quick-change system

BSWS-SBR

Finger blank made of steel with interface to the jaw quick-change system

BSWS-UR

Locking mechanism for the integration of the jaw quickchange system into customized fingers

ABR/SBR

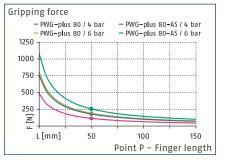
Finger blanks made of steel or aluminum with standardized screw connection diagram

🕭 ZBA

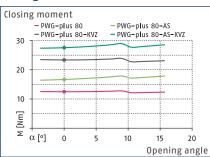
Intermediate jaws for reorientation of the mounting surface



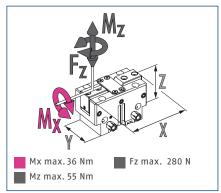
Gripping force O.D. gripping



Closing moment curve



Dimensions and maximum loads



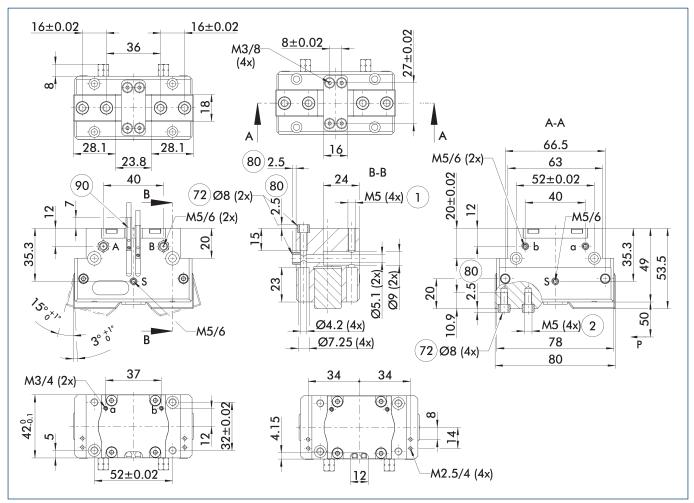
The indicated torques and forces are static values, apply for each base jaw, and may occur simultaneously.

Technical data

Description		PWG-plus 80	PWG-plus 80-AS
ID		0311630	0311631
Opening angle per jaw	[°]	15	15
Closed angle per jaw	[°]	3	3
Closing moment	[Nm]	12.5	16.7
Closing moment generated by spring	[Nm]		4.2
Weight	[kg]	0.39	0.49
Recommended workpiece weight	[kg]	0.97	0.97
Fluid consumption double stroke	[cm³]	20	33.5
Min./nom./max. operating pressure	[bar]	2/6/8	4/6/6.5
Min./max. air purge pressure	[bar]	0.5/1	0.5/1
Closing/opening time	[s]	0.08/0.08	0.08/0.15
Max. permissible finger length	[mm]	100	100
Max. permissible mass moment of inertia per chuck jaw	[kgcm²]	37.3	37.3
IP protection class		30	30
Min./max. ambient temperature	[°C]	5/90	5/90
Repeat accuracy	[mm]	0.02	0.02
Dimensions X x Y x Z	[mm]	80 x 42 x 53.5	80 x 42 x 71.5
Options and their characteristics			
High-temperature version		39311630	39311631
Min./max. ambient temperature	[°C]	5/130	5/130
Power booster version		0311635	0311636
Closing moment	[Nm]	23.4	27.6
Closing moment generated by spring	[Nm]		4.2
Weight	[kg]	0.54	0.64
Maximum pressure	[bar]	6	6
Max. permissible finger length	[mm]	100	100

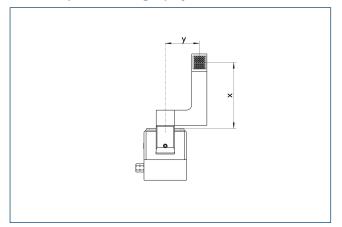
Angular gripper

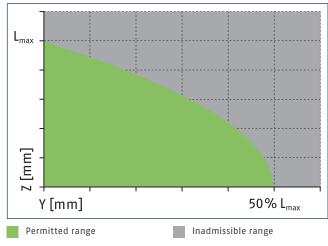
Main view



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 0.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
- S Air purge connection
- (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..



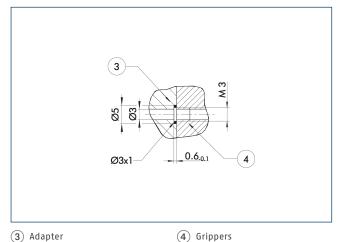


Lmax is equivalent to the maximum permitted finger length, see the technical data table.

Maximum permitted finger projection

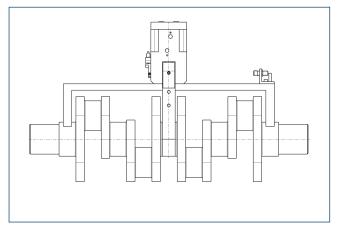
Angular gripper

Hose-free direct connection M3



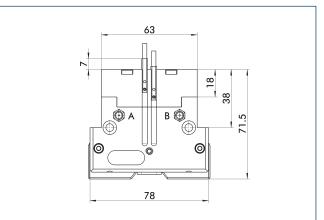
The direct connection is used for supplying compressed air without hoses. Instead, the pressure medium is fed through bore-holes in the mounting plate.

Shaft support



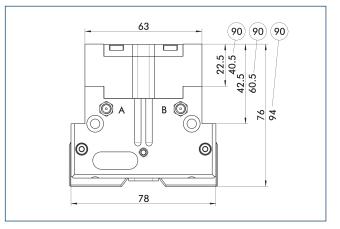
The complete assembly group for handling of cranks and cam shafts can be supplied on request.

Gripping force maintenance device



The mechanical gripping force maintenance ensures that a minimum clamping force will be applied even in case of pressure drop. This acts as closing force in the AS version. Besides this, the gripping force maintenance can be used to increase gripping force or for single actuated gripping.

Power booster version

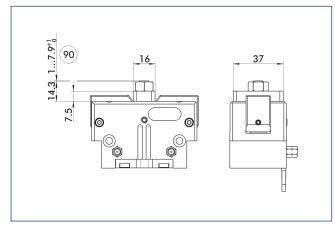


(90) Applies to AS version

The KVZ cylinder increases the gripping forces during opening and closing. A second, in series-connected piston also increases the force on the wedge hook. Please consider that grippers which are equipped with a gripping force maintenance device are higher.

Angular gripper

Attachment kit for opening angle limitation

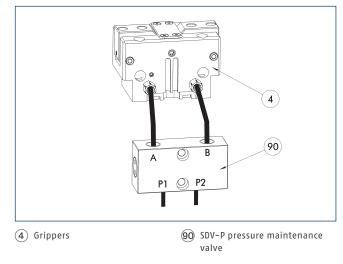


(90) Max. adjustment travel

Stepless adjustment of the opening angle is possible with an attachment kit.

Description	ID
Stroke adjustment	
HVE-PWG-plus 80	0311733

SDV-P pressure maintenance valve

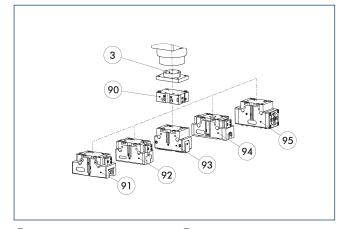


The SDV-P pressure maintenance valve ensures in emergency STOP situations that the pressure in the piston chamber of pneumatic gripper, swivel, linear, and quick-change modules is temporarily maintained.

ID	Recommended hose diameter		
	[mm]		
Pressure maintenance valve			
0403130	6		
Pressure maintenance valve with air bleed screw			
0300120	6		
	0403130 e valve with a		

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.

SDV-P E-P pressure maintenance valve



(3) Adapter

- 90 SDV-P E-P pressure maintenance valve
- 91 PGN-plus / PGN-plus-P 2-finger parallel gripper
- (92) JGP 2-finger parallel grippers
- (93) 2-finger angular gripper PWG-plus
- (94) 2-finger parallel gripper PGB(95) Sealed DPG-plus gripper

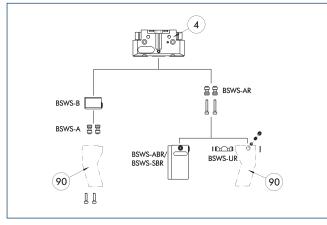
The SDV-P E-P pressure maintenance valves ensure that the pressure in the piston chamber is maintained temporarily during an emergency stop. SDV-P E-P can be directly connected to the listed grippers without the need for additional pneumatic hoses.

DescriptionIDPressure mainterance valveSDV-P 80-E-P0300125

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Angular gripper

BSWS jaw quick-change jaw systems



4 Grippers

90 Customized gripper fingers

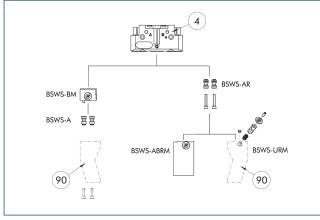
There are various jaw quick-change systems available for the gripper. For detailed information, please refer to the corresponding product.

Description	ID	Scope of delivery			
Jaw quick-change system adapter pin					
BSWS-A 80	0303024	2			
BSWS-AR 80	0300093	2			
Quick-change jaw system base	2				
BSWS-B 80	0303025	1			
Jaw quick-change system fing	er blank				
BSWS-ABR-PGZN-plus 80	0300073	1			
BSWS-SBR-PGZN-plus 80	0300083	1			
Jaw quick-change system locking mechanism					
BSWS-UR 80	0302992	1			

Only systems that are listed in the table, can be used.

Angular gripper

Jaw quick-change system BSWS-M



(4) Grippers

(90) Customized gripper fingers

There are various jaw quick-change systems available for the gripper. For detailed information, please refer to the corresponding product.

ID	Scope of delivery				
Jaw quick-change system adapter pin					
0303024	2				
0300093	2				
Quick-change jaw system base					
1313901	1				
Jaw quick-change system finger blank					
1420852	1				
Jaw quick-change system locking mechanism					
1398402	1				
	ter pin 0303024 0300093 1313901 r blank 1420852 ng mechanism				

① Only systems that are listed in the table, can be used.

ZBA-L-plus 80 intermediate jaws

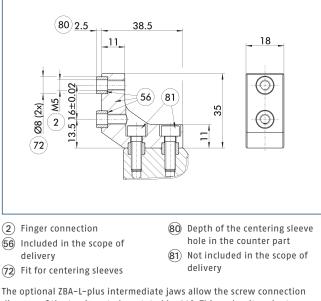
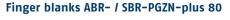
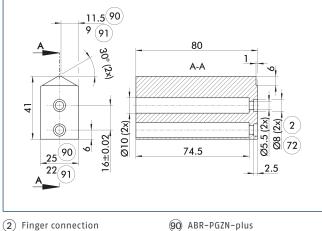


diagram of the top jaws to be rotated by 90°. This makes it easier to design and produce top jaws (particularly for long versions) because no deep through-bores are required.

Description	ID	Material	Finger interface	Scope of delivery
Intermediate jaw				
ZBA-L-plus 80	0311732	Aluminum	PGN-plus 80	1





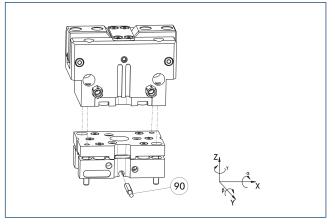
(2) Finger connection(72) Fit for centering sleeves

(91) SBR-PGZN-plus

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

Description	ID	Material	Scope of delivery
Finger blank			
ABR-PGZN-plus 80	0300011	Aluminum	1
SBR-PGZN-plus 80	0300021	Steel	1

Tolerance compensation unit TCU



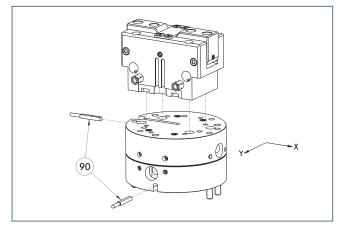
(90) Monitoring of locking

Grippers can be directly mounted without an adapter plate. Tolerance compensation unit and gripper have an identical screw connection diagram. Therefore the tolerance compensation units can be assembled later. Please consider the additional assembly height of the tolerance compensation unit. For details please refer to our catalog robot accessories.

Description	ID	Locking	Deflection	Often combined
Compensation unit				
TCU-P-080-3-MV	0324792	yes	±1°/±1,5°/±2°	•
TCU-P-080-3-0V	0324793	no	±1°/±1,5°/±2°	

Angular gripper

Compensation unit AGE-F

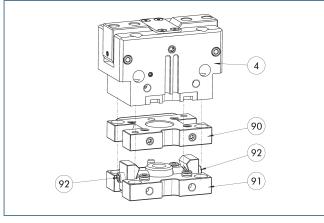


(90) Monitoring

Grippers can be directly mounted without an adapter plate. For details see our catalog Gripping or Robot Accessories.

Description	ID	Compensation XY	Reset force	Often combined
		[mm]	[N]	
Compensation unit				
AGE-F-XY-063-1	0324940	± 4	12	
AGE-F-XY-063-2	0324941	± 4	16	
AGE-F-XY-063-3	0324942	± 4	20	•

Compact change system for grippers



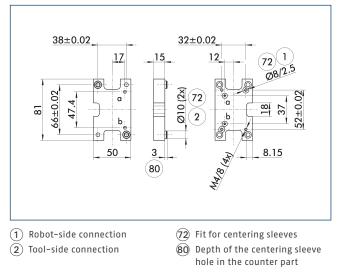
(4) Grippers

(91) CWK compact change master (90) CWA compact change adapter (92) Locking mechanism

Grippers can be directly mounted without an adapter plate. For details see our catalog Gripping or Robot Accessories.

Description	ID	
Tool side		
A-CWA-100-080-P	0305804	
CWA compact change	adapter	
CWA-080-P	0305781	
CWK compact change master		
CWK-080-P	0305780	

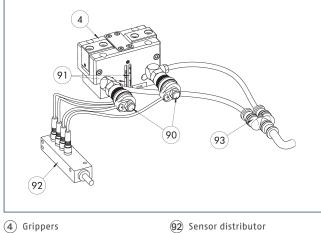
Adapter plate PGN-plus 80



The adapter plate has integrated air feed-throughs in order to be able to use the hose-free direct connection of the appropriate gripper.

Description	ID	
Tool side		
A-CWA-100-080-P	0305804	

Attachment valves



(90) Micro valves (91) Sensor

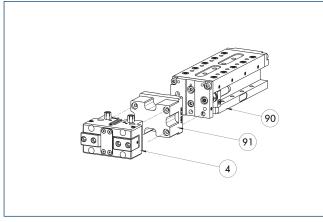
(93) Y distributor

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.

Description	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



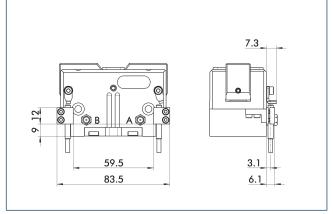
(4) Grippers

(91) ASG adapter plate

(90) 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 IN 40



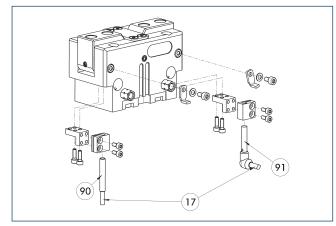
End position monitoring can be mounted with an attachment kit.

Description	ID	
Attachment kit for proxin	nity switch	
AS-IN40-PWG-plus 80	0311730	

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

Angular gripper

IN 40 inductive proximity switches



(17) Cable outlet

(91) Sensor IN..-SA

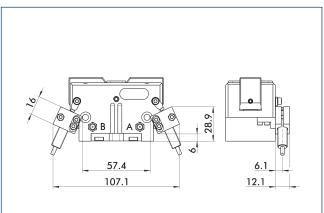
90 Sensor IN ...

End position monitoring can be mounted with an attachment kit.

Description	ID	Often combined
Attachment kit for proximi	ty switch	
AS-IN40-PWG-plus 80	0311730	
Inductive proximity switch	es	
IN 40-S-M12	0301574	
IN 40-S-M8	0301474	•
INK 40-S	0301555	
Inductive proximity switch	with lateral c	able outlet
IN 40-S-M12-SA	0301577	
IN 40-S-M8-SA	0301473	•
INK 40-S-SA	0301565	

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.

Attachment kit for proximity switch IN 80



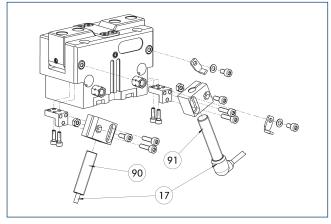
End position monitoring can be mounted with an attachment kit.

Description	ID	
Attachment kit for proximit	y switch	
AS-ING-DWG-plus 90	0211721	

 $\ensuremath{\textcircled{}}$ This attachment kit needs to be ordered optionally as an accessory.

Angular gripper

IN 80 inductive proximity switches



(17) Cable outlet

(91) Sensor IN..-SA

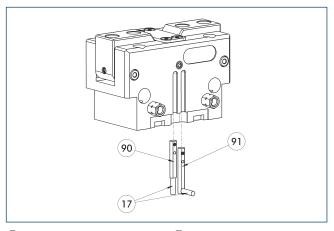
90 Sensor IN ...

End position monitoring can be mounted with an attachment kit.

Description	ID	Often combined
Attachment kit for proxim	ity switch	
AS-IN80-PWG-plus 80	0311731	
Inductive proximity swite	hes	
IN 80-S-M12	0301578	
IN 80-S-M8	0301478	•
IN-C 80-S-M8-PNP	0301475	
INK 80-S	0301550	
INK 80-SL	0301579	
Inductive proximity swite	h with lateral c	able 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..

1111J 22..

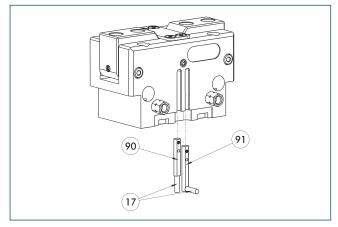
End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Electronic magnetic switch		
MMS 22-S-M8-PNP	0301032	•
MMSK 22-S-PNP	0301034	
Electronic magnetic switches with	lateral cable o	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.

Angular gripper

Programmable magnetic switch MMS 22-PI1



(17) Cable outlet

(91) Sensor MMS 22 ..- PI1-...-SA

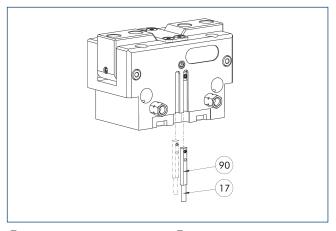
(90) Sensor MMS 22 PI1-...

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 c	able outlet
MMS 22-PI1-S-M8-PNP-SA	0301166	•
MMSK 22-PI1-S-PNP-SA	0301168	
Programmable magnetic switch	with stainles	s 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.

Programmable magnetic switch MMS 22-PI2



(17) Cable outlet

90 MMS 22...-PI2-... sensor

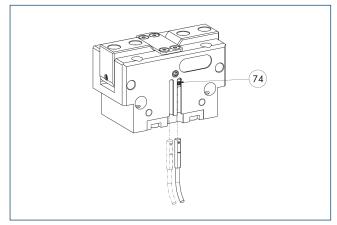
Position monitoring with two programmable positions per sensor and electronics built into the sensor. Can be programmed using MT magnetic teaching tool (included in the scope of delivery) or ST plug teaching tool (optional). End position monitoring for mounting in the C-slot. If the ST plug teaching 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 lateral o	able outlet
MMS 22-PI2-S-M8-PNP-SA	0301186	•
MMSK 22-PI2-S-PNP-SA	0301188	
Programmable magnetic switch	with stainles	s steel housing
MMS 22-PI2-S-M8-PNP-HD	0301130	•
MMSK 22-PI2-S-PNP-HD	0301132	

One sensor is required per unit for monitoring two positions.
Extension cables and sensor distributors are optionally available.
Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor systems.

Angular gripper

MMS-P programmable magnetic switch



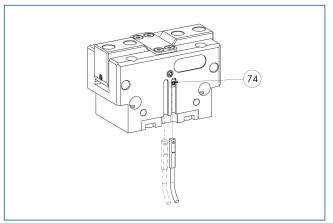
(74) Limit stop for sensor

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	•
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	
clip for plug/socket		
CLI-M8	0301463	
Sensor distributor		
V2-M8-4P-2XM8-3P	0301380	

One sensor is required per unit for monitoring two positions.
Extension cables and sensor distributors are optionally available.
Additional product variants of the sensor, and further information and technical data can be found in the catalog chapter sensor systems.

Programmable magnetic switch MMS-IO-Link



(74) Limit stop for sensor

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 22-10L-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.





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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