

Superior Clamping and Gripping



Product Information

Universal gripper PGN-plus 40

Reliable. Robust. Flexible. Universal gripper PGN-plus

Universal 2-finger parallel gripper with a high gripping force and high maximum moments due to the use of a multi-tooth guidance

Field of application

Optimal standard solution for many fields of application. For universal use in clean to slightly dirty environments. Special versions available for dirty environments.

Advantages – Your benefits

Robust multi-tooth guidance for precise handling

High maximum moments possible suitable for using long gripper fingers

Drive concept oval piston for maximum gripping forces

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 universal and flexible gripper assembly

Comprehensive sensor accessory program for versatile querying possibilities and stroke position monitoring

Compact dimensions for minimal interfering contours in handling

Manifold options for special optimization for your specific case of application (dustproof, high-temperature, corrosion-protected, etc.)







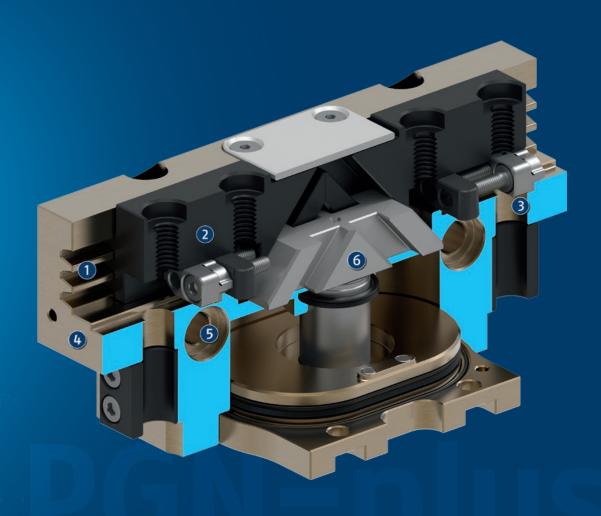






Functional description

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.



- Multi-tooth guidance
 highly loadable, nearly backlash-free base jaw guidance
 for long finger lenghts
- ② Base Jaw for the connection of workpiece-specific gripper fingers
- Sensor system
 Brackets for proximity switches and adjustable control cams in the housing
- Housing is weight-optimized due to the use of high-strength aluminum alloy
- (5) Centering and mounting possibilities for universal assembly of the gripper
- Wedge-hook design for high force transmission and centric gripping

General notes about the series

Operating principle: Wedge gear with surface power

transmission

Housing material: Aluminum

Base jaw material: Steel

Actuation: pneumatic, with filtered compressed air as per

ISO 8573-1:2010 [7:4:4].

Warranty: 36 months

Scope of delivery: Brackets for proximity switches, centering sleeves, 0-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.

Cleanroom class ISO 14644-1: 5



Application example

Handling gantry with multiple grippers for simultaneous removal of several workpieces

- 1 2-finger parallel gripper PGN-plus
- 2 Linear module CLM
- 3 Universal linear module LDN
- 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.



① For 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.

Anti-corrosion version K: for use in corrosion-inducing atmospheres

High-temperature version WHT: for use in hot environments

Power booster version KVZ: if higher gripping forces are required

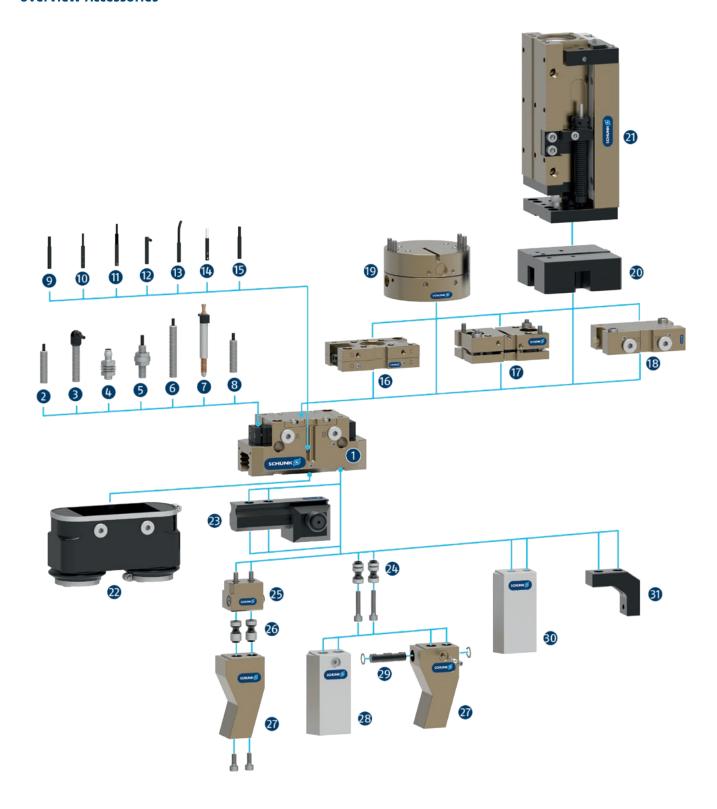
Precision version P: for the highest accuracy **ATEX version EX:** for explosive environments

Dustproof version SD: absolutely dustproof, increased degree of protection against ingress of materials.

Additional versions: Various options can be combined with each other.

SCHUNK gripper PGN-plus

Overview Accessories



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PGN-plus

Universal 2-finger parallel gripper with a high gripping force and high maximum moments due to the use of a multi-tooth guidance

Sensor system

2 IN ...

Inductive proximity switch with molded cable and straight cable outlet

Inductive proximity switch with molded cable and laberal cable outlet

IN-C 80

Inductive proximity switch, directly pluggable

G FPS

Flexible position sensor for monitoring up to five different, freely selectable positions

APS-Z80

Inductive position sensor for precise position detection of the gripper jaws with analog output

APS-M1S

Mechanical measuring system for precise position detaction of the gripper jaw with analog output

RMS 80

Reed switch in round version

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

10 MMS 22-PI2

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

11 MMS 22-PI1-HD

MMS 22-PI1 in robust design

MMS 22-PI2-HD

MMS 22-PI2 in robust design

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

MMS-P

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

MMS 22-A

Analog magnetic switch with straight cable outlet for measuring the gripper jaw position with analog output and teach function

(B) RMS 22

Reed switch for direct assembly in the C-slot

Complementary products

6 CWS

Manual change system with integrated air feed-through for simple exchange of the handling components

TCU

Tolerance compensation unit for compensating small tolerances in the plane

® SDV-P-E-P

Pressure maintenance valve for temporary force and position maintenance

AGE

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

20 ASG

Adapter plate for combining various automation components in the modular system

2 CLM

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

2 HUE

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

26 BSWS-A

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

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 quick-change system into customized fingers

ABR/SBF

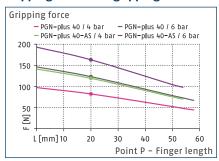
Finger blanks made of steel or aluminum with standardized screw connection diagram

ZBA

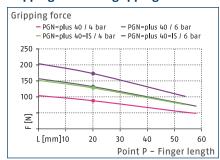
Intermediate jaws for reorientation of the mounting surface



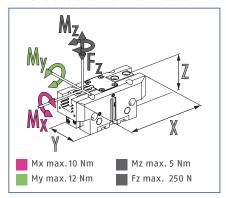
Gripping force O.D. gripping



Gripping force I.D. gripping



Dimensions and maximum loads



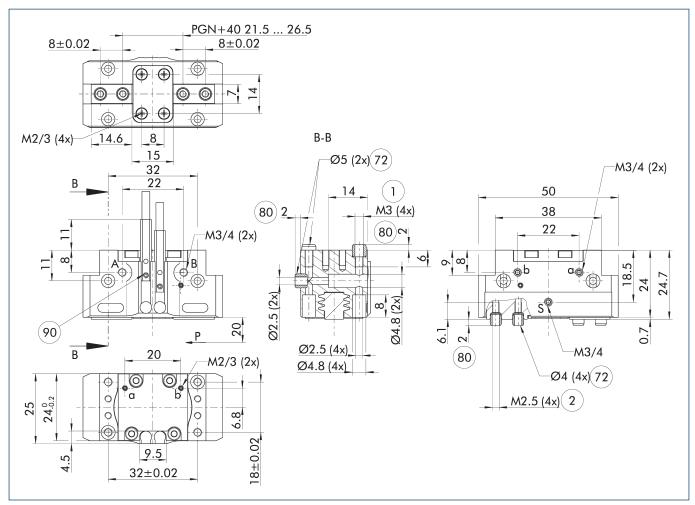
The indicated moments and forces are statical values, apply for each base jaw and may appear simultaneously. Loads may additionally occur to the moment produced by the gripping force itself.

Technical data

Description		PGN-plus 40	PGN-plus 40-AS	PGN-plus 40-IS
ID		0371080	0371082	0371084
Stroke per jaw	[mm]	2.5	2.5	2.5
Closing/opening force	[N]	123/132	163/-	-/182
Min. spring force	[N]		40	50
Weight	[kg]	0.08	0.1	0.1
Recommended workpiece weight	[kg]	0.62	0.62	0.62
Fluid consumption double stroke	[cm³]	2.5	4.5	5.5
Min./nom./max. operating pressure	[bar]	2.5/6/8	4/6/6.5	4/6/6.5
Min./max. air purge pressure	[bar]	0.5/1	0.5/1	0.5/1
Closing/opening time	[s]	0.02/0.02	0.02/0.03	0.03/0.02
Closing/opening time with spring	[s]		0.05	0.05
Max. permissible finger length	[mm]	58	54	54
Max. permissible mass per finger	[kg]	0.1	0.1	0.1
IP protection class		40	40	40
Min./max. ambient temperature	[°C]	5/90	5/90	5/90
Repeat accuracy	[mm]	0.01	0.01	0.01
Dimensions X x Y x Z	[mm]	50 x 25 x 24.6	50 x 25 x 33.7	50 x 25 x 33.7
Options and their characteristics				
Dustproof version		37371080	37371082	37371084
IP protection class		64	64	64
Weight	[kg]	0.1	0.12	0.12
Corrosion-protected version		38371080	38371082	38371084
High-temperature version		39371080	39371082	39371084
Min./max. ambient temperature	[°C]	5/130	5/130	5/130
Power booster version		0372098	0372398	0372458
Closing/opening force	[N]	202/210	235/-	-/254
Weight	[kg]	0.11	0.13	0.13
Maximum pressure	[bar]	6	6	6
Max. permissible finger length	[mm]	50	50	50
Precision version		0371120	0371420	

① It may take a few 100 gripping cycles until the full gripping force (as indicated in the data table) will be available.

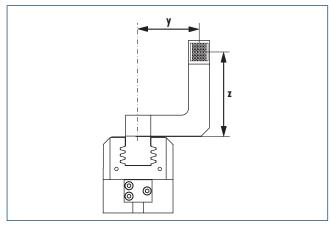
Main view

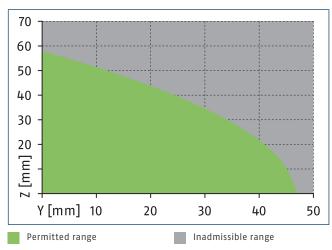


The drawing shows the gripper in the basic version with closed jaws, without dimensional consideration of the options described below.

- 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
- 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..

Maximum permitted finger projection



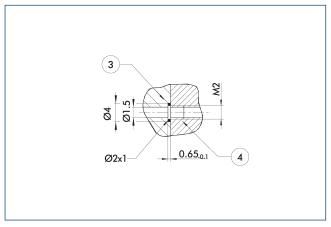


The curve applies for stroke version 1. For other versions, the curve must be parallely off-set to the max. permissible finger length.

PGN-plus 40

Universal gripper

Hose-free direct connection M2

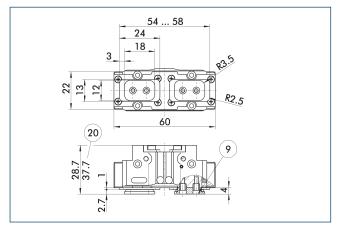


3 Adapter

(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

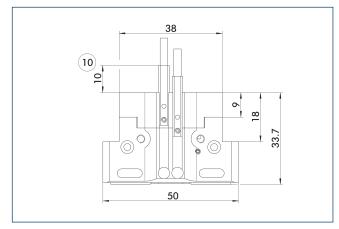
Dustproof version



(9) For mounting screw connection (20) For AS / IS version diagram, see basic version

The "dustproof" option increases the degree of protection against penetrating substances. The assembly diagram shifts by the height of the $\ensuremath{^{\circ}}$ intermediate jaw. The finger length is still measured from the upper edge of the gripper housing.

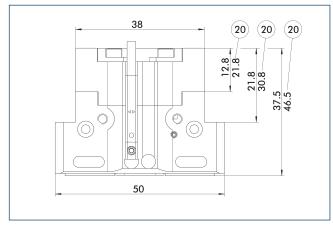
Gripping force maintenance device AS / IS



(10) Projection applies only for AS version

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.

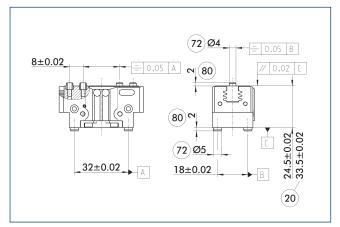
Power booster version



(20) For AS / IS 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.

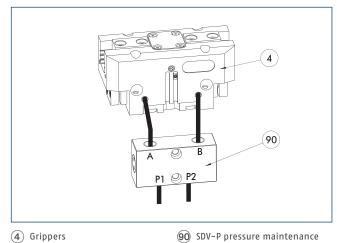
Precision version



- 20 For AS / IS version
- $\overline{(72)}$ Fit for centering sleeves
- 80 Depth of the centering sleeve hole in the counter part

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.

SDV-P pressure maintenance valve

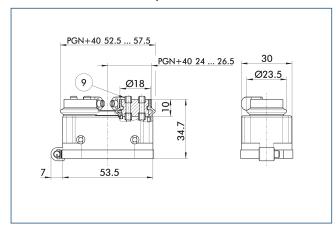


The SDV-P pressure maintenance valve ensures in emergency STOP situations that the pressure in the piston chamber of pneumatic gripper, swivel, linear, and quick-change modules is temporarily maintained.

Description	ID	Recommended hose diameter	
		[mm]	
Pressure maintenance	e 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.

Protective cover HUE PGN-plus 40



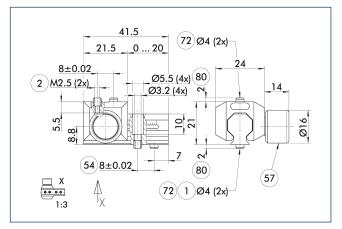
(9) For mounting screw connection diagram, see basic version

The HUE protective cover fully protects the gripper against external influences. The cover is suitable for applications of up to IP65 if an additional sealing of the cover bottom is provided. For detailed information, please see the HUE series. The connection diagram shifts by the height of the intermediate jaw.

Description	ID	IP protection class
Protection cover		
HIIF PGN-plus 40	0371490	65

The HUE protective cover is not suitable for use on grippers with gripping force maintenance. An inductive monitoring of the gripper in connection with the HUE protective cover is not possible. SCHUNK recommends the use of magnetic sensors that are approved for the respective gripper variant.

UZB 40 universal intermediate jaw



- 1 Gripper connection
- (2) Finger connection
- (54) Optional right or left connection
- 57 Locking
- 72) Fit for centering sleeves
- 80 Depth of the centering sleeve hole in the counter part

The drawing shows the UZB universal intermediate jaw.

Description	ID	Grid dimension
		[mm]
Universal intermediate	jaw	
UZB 40	0300040	1
Finger blank		
ABR-PGZN-plus 40	0300008	
SBR-PGZN-plus 40	0300018	

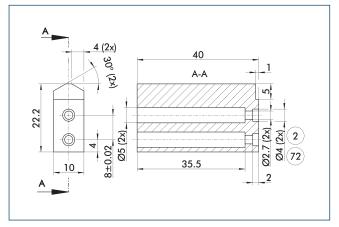
Fields of application

Series	Size	Variant	Suitability	
PGN-plus	40	-1 (6 bar)		
PGN-plus	40	-1-AS / -1-IS (6 bar)	••••	
PGN-plus	40	KVZ (6 bar)	0000	
Legend				
	Can be combined without restrictions			
	Use with restrictions (see loading limits)			
0000	cannot be combined			

The load limits for describing the application limits can be found in the catalog chapter of the corresponding accessories.

If the operating pressure is higher than 6 bar, suitability for use above the application limits must be checked.

Finger blanks ABR- / SBR-PGZN-plus 40



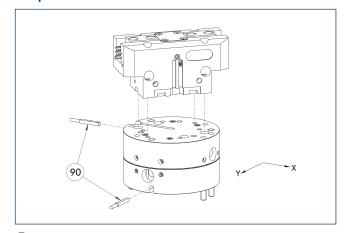
2 Finger connection

72 Fit for centering sleeves

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

Description	ID	Material	Scope of delivery
Finger blank			
ABR-PGZN-plus 40	0300008	Aluminum	1
SBR-PGZN-plus 40	0300018	Steel	1

Compensation unit AGE-F



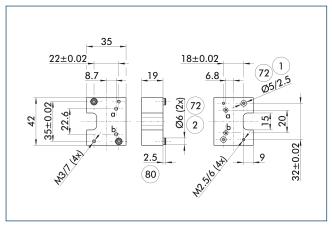
90 Monitoring

The unit has direct connection possibilities for different grippers of the PGN-plus, PGN-plus-P and PZN-plus series. For more detailed information, please refer to the main view.

Description	ID	Compensation XY	Reset force	Often combined
		[mm]	[N]	
Compensation unit				
AGE-F-XY-031-1	0324900	± 1.5	1.5	
AGE-F-XY-031-2	0324901	± 1.5	4	
AGE-F-XY-031-3	0324902	± 1.5	5.5	•

① Due to the interfering contour, monitoring of the gripper is not possible.

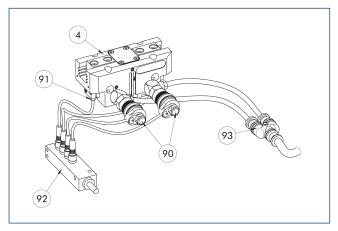
Adapter plate for PGN-plus 40



- 1 Robot-side connection
- (72) Fit for centering sleeves
- 2 Tool-side connection
- 80 Depth of the centering sleeve hole in the counter part

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

Attachment valves



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

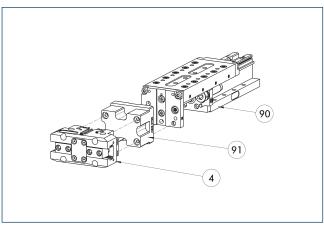
(91) Sensor

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-MV15-M3	0303322	
ABV-MV15-M3-V2-M8	0303384	
ABV-MV15-M3-V4-M8	0303354	•
ABV-MV15-M3-V8-M8	0303355	

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.

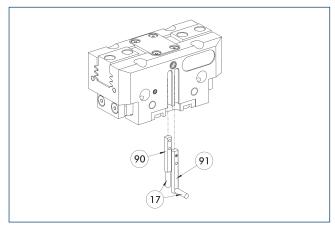
Modular Assembly Automation



- (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".

Electronic magnetic switch MMS



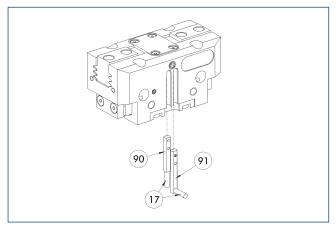
- $\widehat{17}$ Cable outlet
- 91) Sensor MMS 22...-SA
- 90 Sensor MMS 22..

End position monitoring for mounting in the C-slot.

301032	
301032	
	•
301034	
iteral cable c	outlet
301042	•
301044	
301622	•
301623	
301594	
301502	
301463	
301495	
301496	
301497	•
301775	•
301746	
301751	
111111111111111111111111111111111111111	801622 801623 801594 801502 801463 801495 801497 801775 801746

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

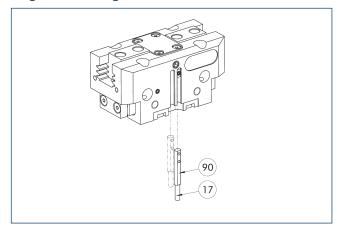
90 Sensor MMS 22 PI1-...

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 c	able 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.

Programmable magnetic switch MMS 22-PI2



(17) Cable outlet

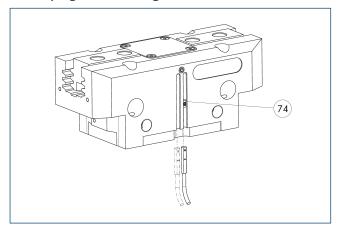
90 MMS 22...-PI2-... sensor

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 cable outlet					
MMS 22-PI2-S-M8-PNP-SA	0301186	•			
MMSK 22-PI2-S-PNP-SA	0301188				
Programmable magnetic switch with stainless steel housing					
MMS 22-PI2-S-M8-PNP-HD	0301130	•			
MMSK 22-PI2-S-PNP-HD	0301132				

① 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.

MMS-P programmable magnetic switch



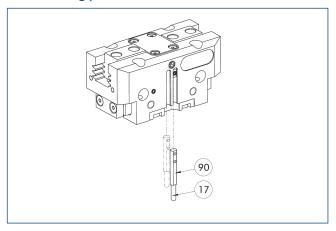
74 Limit stop for sensor

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	

① 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.

MMS-A analog position sensor



(17) Cable outlet

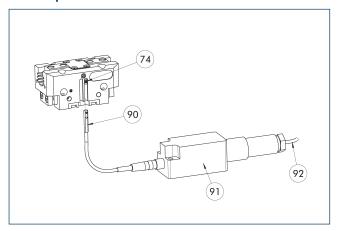
90 MMS 22-A-... sensor

No-contact measuring, analog multi-position monitoring for any number of positions.

Description	ID
Analog position sensor	
MMS 22-A-10V-M08	0315825
MMS 22-A-10V-M12	0315828

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.

Flexible position sensor with MMS-A



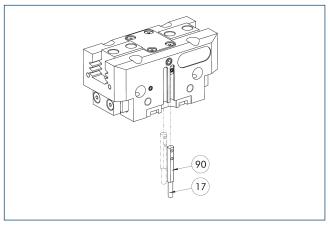
- 74 Limit stop for sensor
- (91) FPS-F5 evaluation electronic
- 90 MMS 22-A-... sensor
- **92** Connection cables

Flexible position monitoring of up to five positions.

Description	ID
Analog position sensor	
MMS 22-A-05V-M08	0315805
Evaluation electronics	
FPS-F5	0301805
Connection cables	
KA BG16-L 12P-1000	0301801

When using an FPS system, one MMS 22-A-05V and one electronic processor (FPS-F5) are required per each gripper, as well as a mounting kit (AS), if listed. Cable extensions (KV) are optionally available - see catalog chapter "Accessories."

Programmable magnetic switch MMS-I0-Link



(17) Cable outlet

90 Sensor MMS 22-I0L-...

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-I0L-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.

Universal gripper



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