

PGN-plus

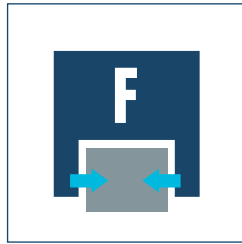
Pneumatic • 2-Finger Parallel Gripper • Universal Gripper



Sizes
40 ... 380



Weight
0.08 kg ... 39.5 kg



Gripping force
123 N ... 21150 N

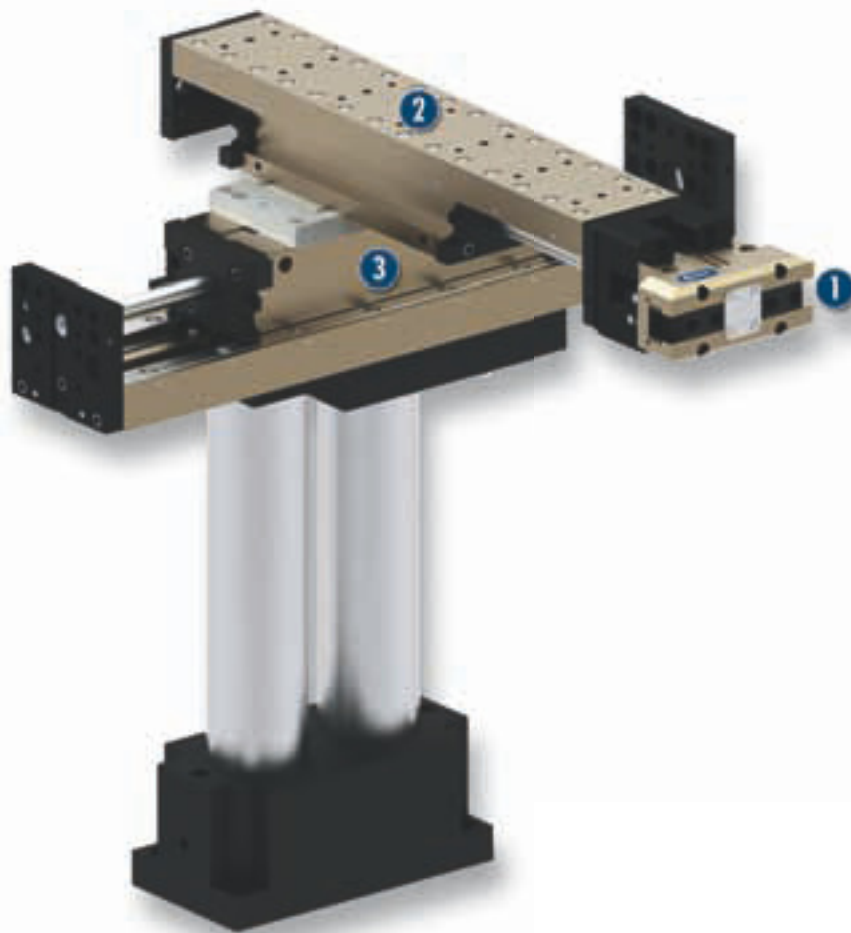


Stroke per finger
2 mm ... 45 mm



Workpiece weight
0.62 kg ... 80.5 kg

Application example



Pick-and-place unit for light to medium-weight components

1 2-Finger Parallel Gripper PGN-plus

2 Linear module LM

3 Linear module LM

Universal Gripper

Universal 2-finger parallel gripper with large gripping force and high maximum moments thanks to multi-tooth guidance.

Field of application

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

Your advantages and 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 possible

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 interrogation possibilities and control of stroke position

Compact dimensions

for minimal interfering contours in handling

Manifold options

for perfect adaption to your case of application (dust protection, high temperature, anti-corrosion and many more)



General note to the series

Principle of function

Wedge-hook kinematics

Housing material

Aluminum

Base jaw material

Steel

Actuation

pneumatic, with filtered compressed air (10 microns): dry, lubricated or non-lubricated
Pressure medium: Required quality class of compressed air according to DIN ISO 8573-1: 6 4 4

Warranty

36 months (details, general terms and conditions and operation manuals can be downloaded under www.schunk.com)

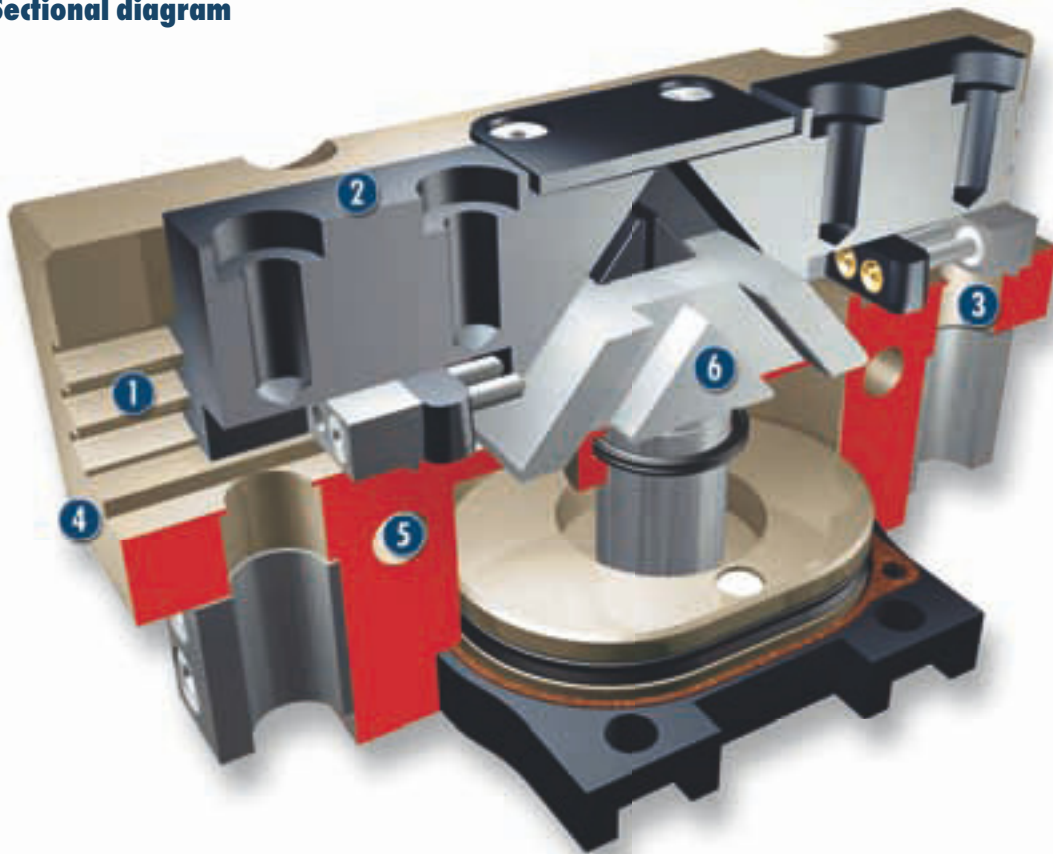
Scope of delivery

Brackets for proximity switches, centering sleeves, O-rings for direct connection, assembly and operating manual with manufacturer's declaration

Gripping force maintenance device

with either mechanical gripping force maintenance or SDV-P pressure maintenance valve

Sectional diagram



- 1 Multiple-tooth guidance**
high-loadable base jaw guidance with minimum play for long fingers
- 2 Base jaw**
for the connection of workpiece-specific gripper fingers
- 3 Sensor system**
Brackets for proximity switches and adjustable control cams in the housing
- 4 Housing**
weight-optimized through application of hard-anodized, high-strength aluminum alloy
- 5 Centering and mounting possibilities**
for universal assembly of the gripper
- 6 Wedge-hook design**
for high power transmission and centric gripping

Functional description

The oval piston is moved up or down by means of compressed air. Through its angled active surfaces, the wedge hook transforms this movement into the lateral, synchronous gripping movement of both base jaws.

Options and special information

Dust-protection version

Absolutely sealed, increased degree of protection against the ingress of materials, for use in dusty environments

Anti-corrosion version

for use in corrosion-inducing atmospheres

High-temperature version

for use in hot environments

Force intensified version

if higher gripping forces are required

Precision version

for a higher accuracy

Accessories

Accessories from SCHUNK – the suitable supplement for maximum functionality, reliability and performance of all automation modules.

Sensor system



Fittings



Universal intermediate jaw



Compensation unit



Protection cover



Sensor cables



Quick-change Jaw System



Sensor Distributor



Pressure maintenance valve



Finger blanks



Force measuring jaws



Analog position sensor



Flexible Position Sensor



① For the exact size of the required accessories, availability of this size and the designation and ID, please refer to the additional views at the end of the size in question. You will find more detailed information on our accessory range in the "Accessories" catalog section.

General note to the series

Gripping force

is the arithmetic total of the gripping force applied to each finger at distance P (see illustration) measured from the upper edge of the gripper.

Finger length

The finger length is measured from the upper edge of the gripper housing in the direction of the main axis.

Repeat accuracy

is defined as the spread of the limit position after 100 consecutive strokes.

Workpiece weight

The recommended workpiece weight is calculated for a force-type connection with a coefficient of friction of 0.1 and a safety factor of 2 against slippage of the workpiece on acceleration due to gravity g. Considerably heavier workpiece weights are permitted with form-fit gripping.

Closing and opening times

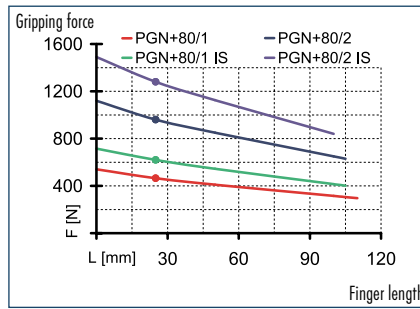
Closing and opening times are purely the times that the base jaws or fingers are in motion. Valve switching times, hose filling times or PLC reaction times are not included in the above times and must be taken into consideration when determining cycle times.

PGN-plus 80

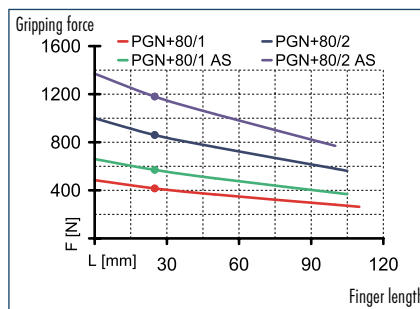
Pneumatic • 2-Finger Parallel Gripper • Universal Gripper



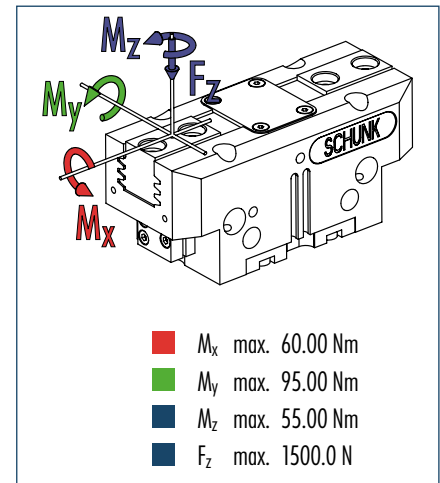
Gripping force, I.D. gripping



Gripping force, O.D. gripping



Finger load



① The indicated moments and forces are static values, apply per base jaw and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself. If the max. permitted finger weight is exceeded, it is imperative to throttle the air pressure so that the jaw movement occurs without any hitting or bouncing. Service life may be reduced.

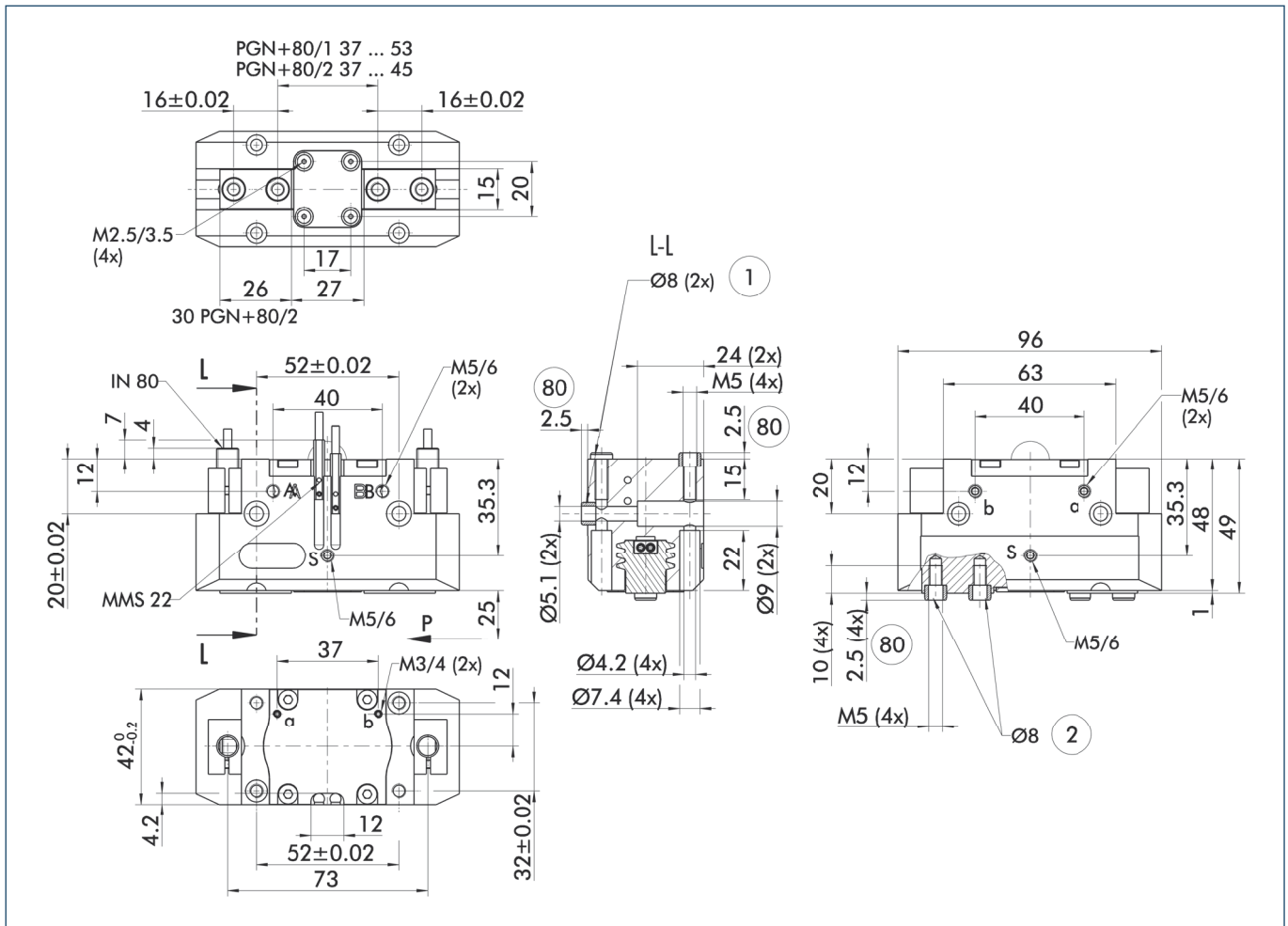
Technical data

Description	PGN-plus 80-1	PGN-plus 80-2	PGN-plus 80-1-AS	PGN-plus 80-2-AS	PGN-plus 80-1-IS	PGN-plus 80-2-IS
ID	0371101	0371151	0371401	0371451	0371461	0371471
Stroke per finger [mm]	8	4	8	4	8	4
Closing force [N]	415	860	570	1180		
Opening force [N]	465	960			620	1280
Min. spring force [N]			155	320	155	320
Weight [kg]	0.5	0.5	0.6	0.6	0.6	0.6
Recommended workpiece weight [kg]	2.1	4.3	2.1	4.3	2.1	4.3
Air consumption per double stroke [cm ³]	21	21	45	45	45	45
Min./max. operating pressure [bar]	2.5/8	2.5/8	4/6.5	4/6.5	4/6.5	4/6.5
Nominal operating pressure [bar]	6	6	6	6	6	6
Closing/opening time [s]	0.04/0.04	0.04/0.04	0.03/0.05	0.03/0.05	0.05/0.03	0.05/0.03
Max. permitted finger length [mm]	110	105	105	100	105	100
Max. permitted weight per finger [kg]	0.6	0.6	0.6	0.6	0.6	0.6
IP class	40	40	40	40	40	40
Min./max. ambient temperature [°C]	-10/90	-10/90	-10/90	-10/90	-10/90	-10/90
Repeat accuracy [mm]	0.01	0.01	0.01	0.01	0.01	0.01
Cleanroom class						
ISO-classification 14644-1	5	5	5	5	5	5

OPTIONS and their characteristics

Dust-protection version	37371101	37371151	37371401	37371451	37371461	37371471
IP class	64	64	64	64	64	64
Weight [kg]	0.6	0.6	0.7	0.7	0.7	0.7
Anti-corrosion version	38371101	38371151	38371401	38371451	38371461	38371471
High-temperature version	39371101	39371151	39371401	39371451	39371461	39371471
Min./max. ambient temperature [°C]	-10/130	-10/130	-10/130	-10/130	-10/130	-10/130
Force intensified version	PGN-plus 80-1-KVZ	PGN-plus 80-2-KVZ	PGN-plus 80-1-AS-KVZ		PGN-plus 80-1-IS-KVZ	
ID	0372101	0372151	0372401		0372461	
Closing force [N]	745	1550	900			
Opening force [N]	835	1730			990	
Weight [kg]	0.65	0.65	0.75		0.75	
Maximum pressure [bar]	6	6	6		6	
Max. permitted finger length [mm]	100	80	80		80	
Precision version	0371123	0371173	0371423	0371438		

Main view



The drawing shows the gripper in the basic version with closed jaws, the dimensions do not include the options described below.

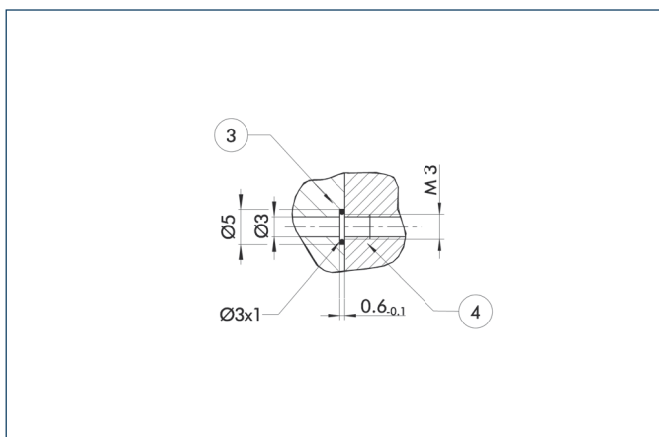
① The SDV-P pressure maintenance valve can also be used for I.D. or O.D. gripping alternatively or in addition to the spring-loaded, mechanical gripping force maintenance device (see "Accessories" catalog section).

A, a Main/direct connection, gripper opening
 B, b Main/direct connection, gripper closing
 S Air purge connection, or deaeration bore

② Finger connection
 Ⓢ Depth of the centering sleeve hole in the matching part

① Gripper connection

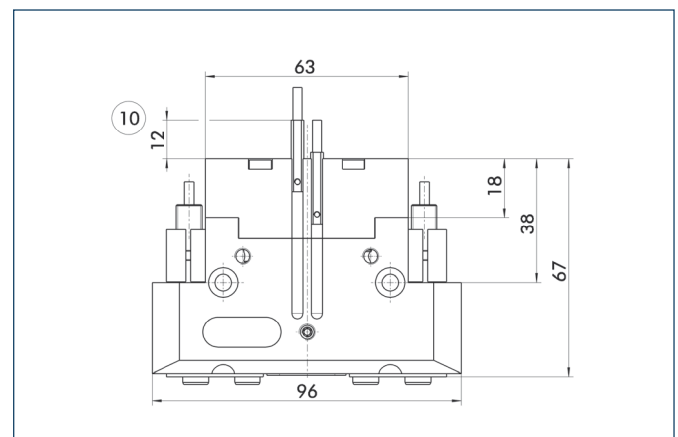
Hose-free direct connection



③ Adapter
 ④ Gripper

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

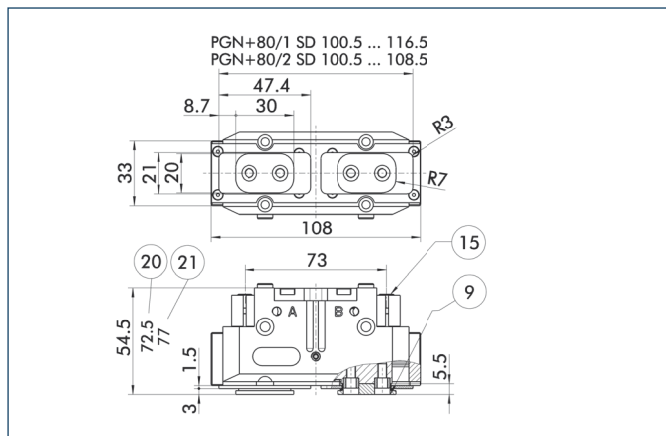
AS/IS gripping force maintenance device



⑩ Projection applies only for AS version

The mechanical gripping force maintenance device ensures a minimum gripping force even in case of pressure drop. This acts as closing force in the AS version, and as opening force in the IS version. In addition, the gripping force maintenance device can also be used for increasing the gripping force or for single-acting gripping.

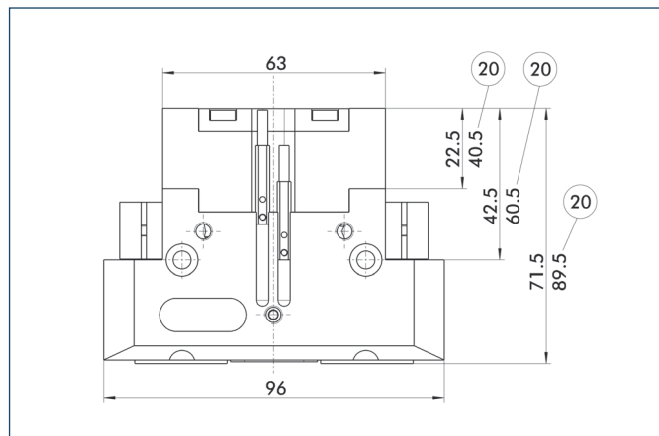
Dust-protection version



- ⑨ For mounting screw connection diagram, see basic version
- ⑩ For AS / IS version
- ⑪ Sealing bolt
- ⑫ Applies for KVZ version

The "dust-protection" option increases the degree of protection against penetrating substances. The screw connection diagram shifts by the height of the intermediate jaw. The finger length is still measured from the upper edge of the gripper housing.

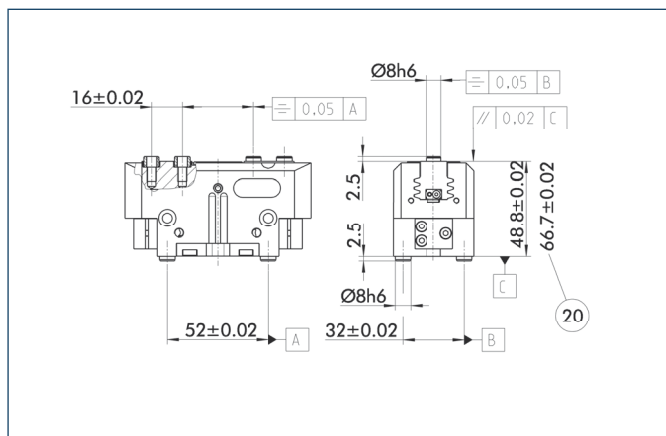
Force intensified version



- ⑩ 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. The full gripping force shown in the data table is sometimes only reached after a few hundred gripping cycles. Please consider that grippers which are equipped with a gripping force maintenance device (AS / IS) are higher.

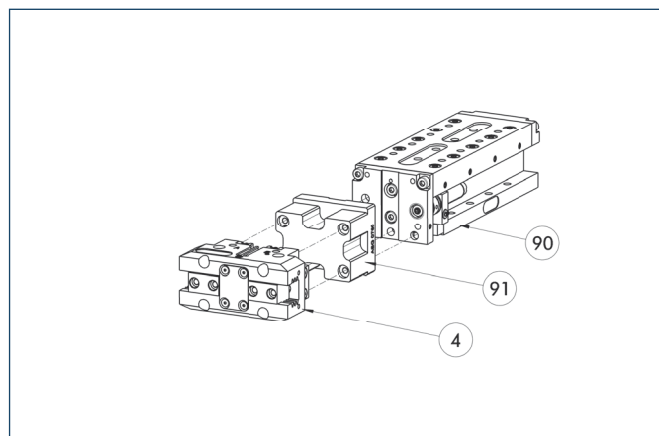
Precision version



- ⑩ For AS / IS version

The indicated tolerances just refer to the types of precision versions shown in the chart of technical specifications. All other types of precision versions are available on request.

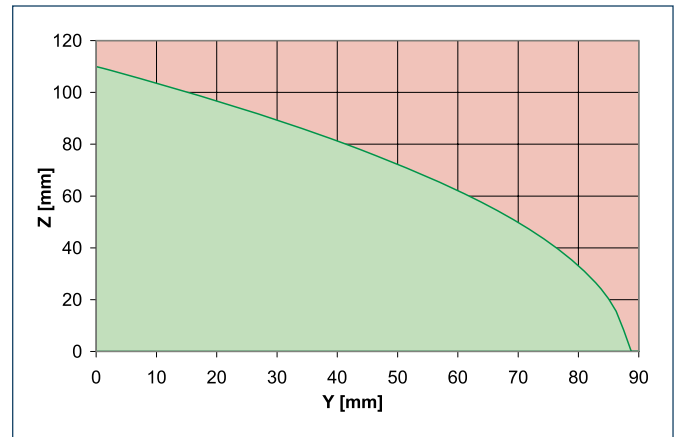
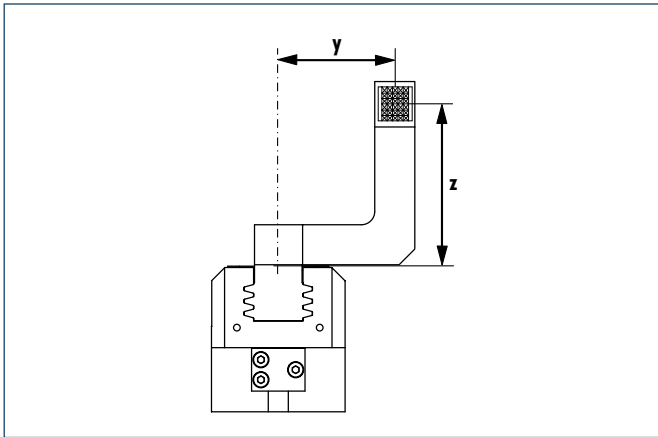
Modular Assembly Automation



- ④ Gripper
- ⑨⑩ CLM
- ⑨① ASG

This gripper can be combined with the standard linear modules LM, KLM, CLM and ELM of the GEMOTEC modular system. For more information see our main catalog "Modular Assembly Automation".

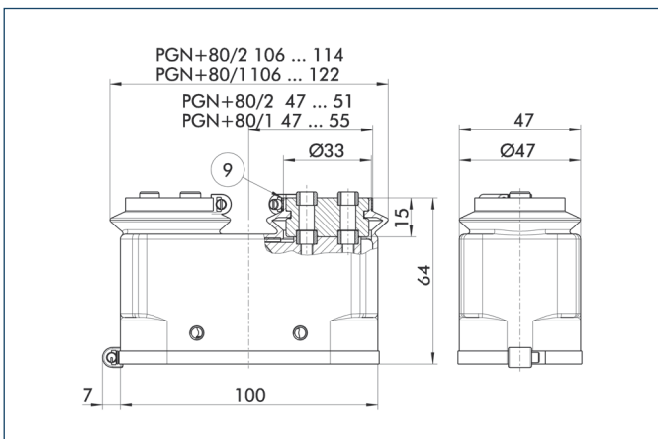
Maximum permitted finger projection



■ Permitted range
■ Inadmissible range

The curve applies to the basic version (stroke-1). For other versions, the curve will be parallel but offset in line with the max. permitted finger length.

Protection cover

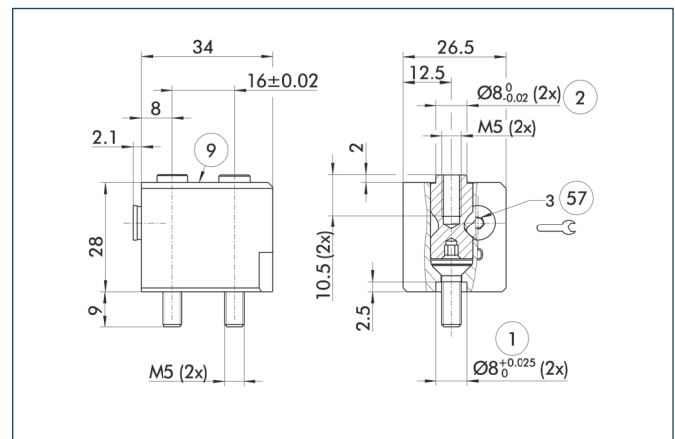


⑨ For mounting screw connection diagram, see basic version

The HUE protective cover completely protects the gripper against external influences up to IP65 if an additional sealing of the cover bottom is provided as part of the application. The mounting diagram shifts by the height of the intermediate jaw.

Description	ID	Cleanroom class ISO-classification 14644-1
Protection cover		
HUE PGN-plus 80	0371481	2

Quick-change Jaw System



① Gripper connection

② Finger connection

⑨ For mounting screw connection diagram, see basic version

⑤7 Locking

The BSWs quick-change jaw system enables top jaws to be changed on the gripper manually and rapidly. An adapter (BSWS-A) and a base (BSWS-B) are required for each gripper jaw.

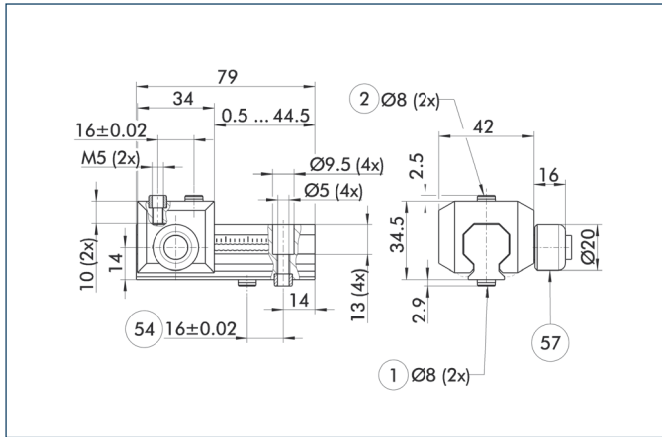
For a reverse assembly without height set-up, one adapter (BSWS-A) and a kit (BSWS-U) per gripper jaw are required. Another effect of the BSWS-U is, that there are no disturbing fastening bores in the finger contour.

Description	ID
Quick-change Jaw System adapter	
BSWS-A 80	0303024
Quick-change Jaw System base	
BSWS-B 80	0303025
Quick-change Jaw System reversed	
BSWS-U 80	0303042



You can find more detailed information and individual parts of the above-mentioned accessories in the "Accessories" catalog section.

Universal intermediate jaw



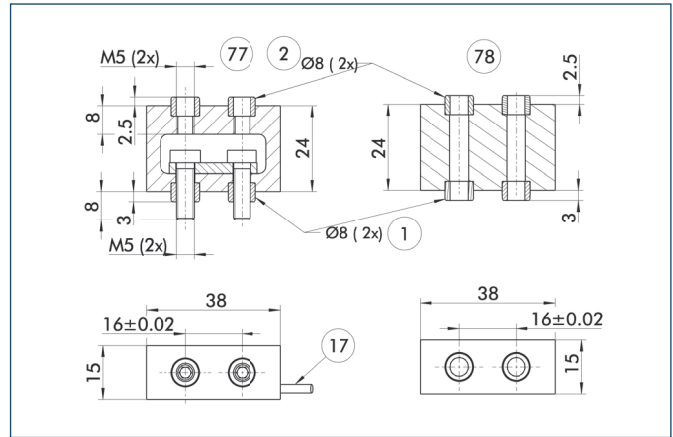
- ① Gripper connection
- ② Finger connection
- ⑤④ Optional right or left connection
- ⑤⑦ Locking

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

Description	ID	Grid dimension
Universal intermediate jaw		
UZB 80	0300043	2 mm
UZB-S 80	5518271	2 mm

① The slide UZB-S can be removed completely and has to be ordered separately. Moreover, it allows a fast jaw change.

Force measuring jaws

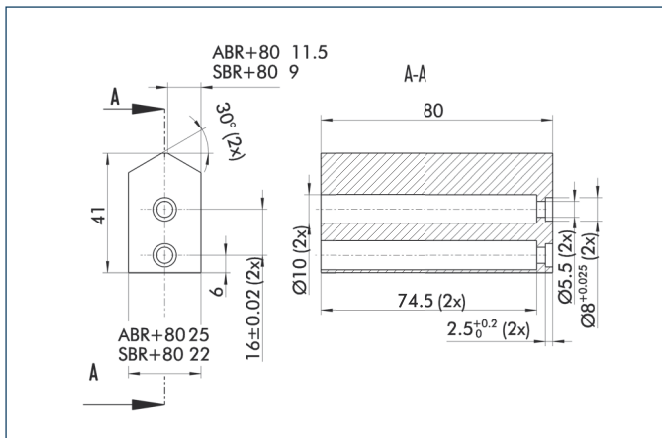


- ① Gripper connection
- ② Finger connection
- ①⑦ Cable outlet
- ⑦⑦ Active intermediate jaws
- ⑦⑧ Passive intermediate jaws

Force measuring jaws measure gripping forces, but can also determine workpiece weights or dimensional deviations. There are active and passive intermediate jaws (FMS-ZBA or FMS-ZBP). At least one active force measuring jaw is required per gripper, the rest can be passive. For each active jaw, a FMS-A1 control unit and a FMS-A connection cable are required.

Description	ID
Active intermediate jaws	
FMS-ZBA 80	0301834
Passive intermediate jaws	
FMS-ZBP 80	0301835
Electronic Processor	
FMS-A1	0301810
Connection cables	
FMS-AK0200	0301820
FMS-AK0500	0301821
FMS-AK1000	0301822
FMS-AK2000	0301823

Finger blanks

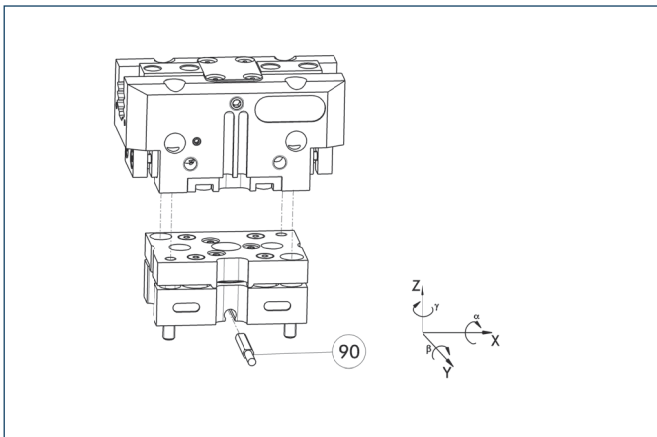


Finger blanks for customized subsequent machining

Description	ID	Material	Scope of delivery
Finger blanks			
ABR-plus 80	0300011	Aluminum	1
SBR-plus 80	0300021	16 MnCr 5	1

You can find more detailed information and individual parts of the above-mentioned accessories in the "Accessories" catalog section.

Tolerance compensation unit

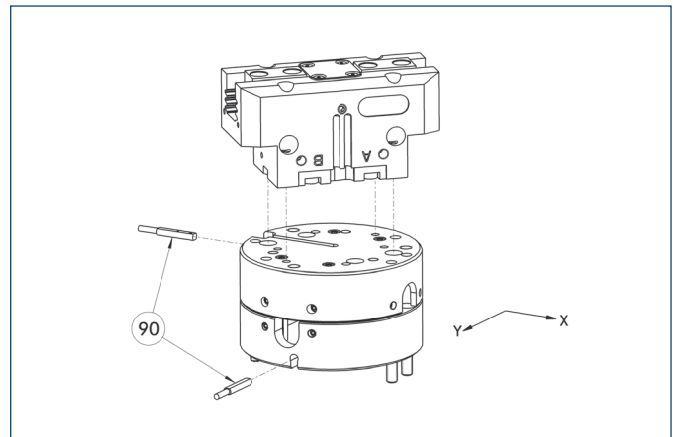


90 Monitoring of locking

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 see catalog "Robot Accessories".

Description	ID	Locking	Deflection
Compensation unit			
TCU-080-3-MV-P	0324792	Yes	$\pm 1.5^\circ / \pm 1^\circ / \pm 2^\circ$
TCU-080-3-OV-P	0324793	No	$\pm 1.5^\circ / \pm 1^\circ / \pm 2^\circ$

Compensation unit with spring reset

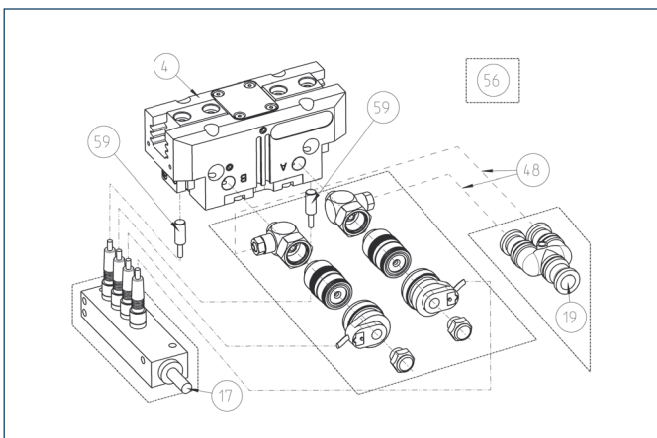


90 Monitoring

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

Description	ID	Compensation travel	Reset force
Compensation unit			
AGE-F-XY-063-1	0324940	± 4 mm	9 N
AGE-F-XY-063-2	0324941	± 4 mm	10 N
AGE-F-XY-063-3	0324942	± 4 mm	19.3 N

Attachment valves

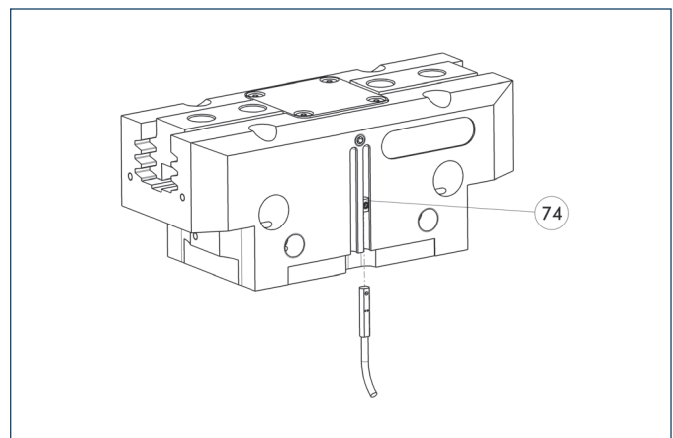


- 4 Gripper
- 17 Cable outlet
- 19 Air connection
- 48 Hose
- 56 Included in delivery
- 59 Monitoring "gripping"

For each gripper one attachment valve ABV is required, optional with distributor for sensors and valves. Attachment valves increase the efficiency, reduce the installation work and air consumption and simplify air supply. For details please refer to the "Accessories" catalog section.

Description	ID
Attachment valves	
ABV-MV25-M5	0303326
ABV-MV25-M5-V2-M8	0303392
ABV-MV25-M5-V4-M8	0303362
ABV-MV25-M5-V8-M8	0303363

Programmable magnetic switch



74 Stop for MMS-P

Position monitoring with two programmable positions per sensor. The end position monitoring is mounted in the C-slot.

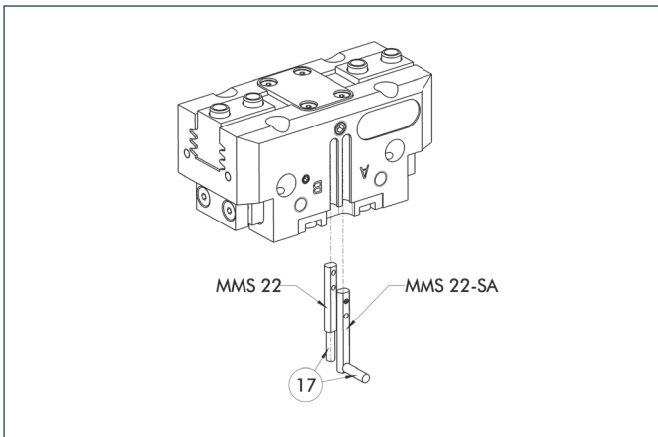
Description	ID	Recommended product
Programmable magnetic switch		
MMS-P 22-S-M8-PNP	0301370	•
MMSK-P 22-S-PNP	0301371	
Connection cables		
KA BG08-L 4P-0500	0307767	
KA BG08-L 4P-1000	0307768	
KA BW08-L 4P-0500	0307765	
KA BW08-L 4P-1000	0307766	
Sensor Distributor		
V2-M8-4P-2XM8-3P	0301380	

- ① Please note the minimum permitted bending radii for the sensor cables, which are generally 35 mm.
- ① Per gripper one sensor (closer/NO) is required, optionally a cable extension.



You can find more detailed information and individual parts of the above-mentioned accessories in the "Accessories" catalog section.

Electronic magnetic switches



⑰ Cable outlet

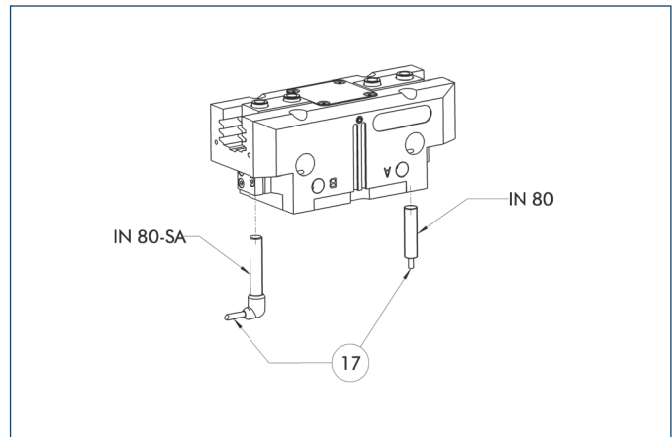
End position monitoring for mounting in the C-slot

Description	ID	Recommended product
Electronic magnetic switches		
MMS 22-S-M5-PNP	0301438	
MMS 22-S-M5-NPN	0301439	
MMS 22-S-M8-PNP	0301432	•
MMS 22-S-M8-NPN	0301433	
MMSK 22-S-PNP	0301434	
MMSK 22-S-NPN	0301435	
Electronic magnetic switches with lateral cable outlet		
MMS 22-S-M5-PNP-SA	0301448	
MMS 22-S-M5-NPN-SA	0301449	
MMS 22-S-M8-PNP-SA	0301442	•
MMS 22-S-M8-NPN-SA	0301443	
MMSK 22-S-PNP-SA	0301444	
MMSK 22-S-NPN-SA	0301445	
Connection cables		
KA BG05-L 3P-0300	0301652	
KA BG08-L 3P-0300-PNP	0301622	
KA BG08-L 3P-0500-PNP	0301623	
KA BW05-L 3P-0300	0301650	
KA BW08-L 3P-0300-NPN	0301602	
KA BW08-L 3P-0300-PNP	0301594	
KA BW08-L 3P-0500-NPN	9641116	
KA BW08-L 3P-0500-PNP	0301502	
Cable extensions		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	

① Two sensors (closer/NO) are required for each gripper, plus extension cables as an option.

① Please note the minimum permitted bending radii for the sensor cables, which are generally 35 mm.

Inductive proximity switches



⑰ Cable outlet

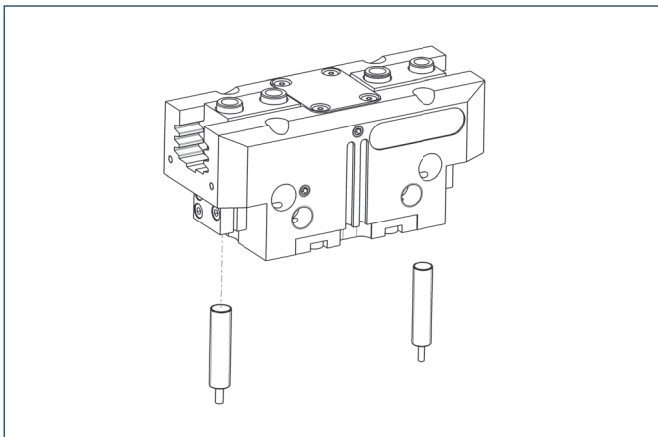
End position monitoring for direct mounting

Description	ID	Recommended product
Inductive proximity switches		
IN 80-S-M8	0301478	•
IN 80-S-M12	0301578	
INK 80-S	0301550	
IN-C 80-S-M8	0301475	
Inductive proximity switch with lateral outlet		
IN 80-S-M12-SA	0301587	
IN 80-S-M8-SA	0301483	•
INK 80-S-SA	0301566	
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	
Cable extensions		
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	

① Two sensors (closer/NO) are required for each gripper, plus extension cables as an option.

① Please note the minimum permitted bending radii for the sensor cables, which are generally 35 mm.

Cylindrical Reed Switches

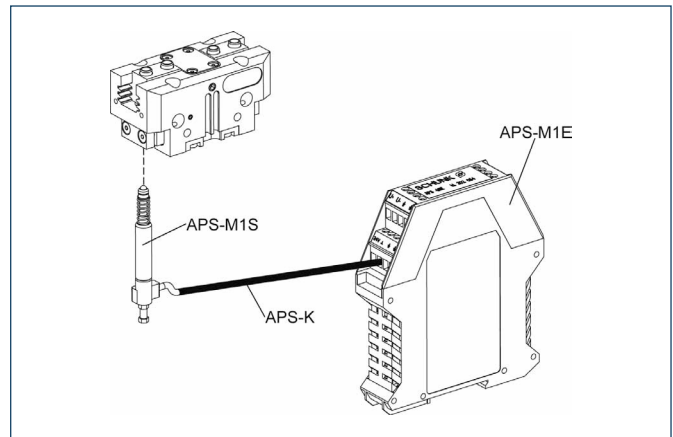


End position monitoring mounted with mounting kit

Description	ID
Mounting kit for proximity switch	
AS-RMS 80 PGN/PZN-plus 64/80	0377725
Reed Switches	
RMS 80-S-M8	0377721

- ① Two sensors (closer/NO) are required for each gripper, plus extension cables as an option.
- ① This mounting kit needs to be ordered optionally as an accessory.
- ① Please note the minimum permitted bending radii for the sensor cables, which are generally 35 mm.

Analog position sensor

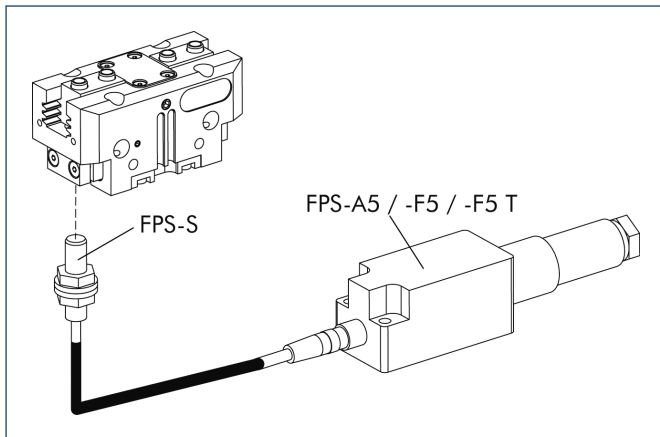


Analog multi position monitoring for any desired positions

Description	ID
Mounting kit	
AS-APS-M1-80/1	0302077
AS-APS-M1-80/2	0302078
Connection cables	
APS-K0200	0302066
APS-K0700	0302068
Electronic Processor	
APS-M1E	0302064
Sensor	
APS-M1S	0302062

- ① When using an APS system, for each gripper a mounting kit (AS-APS), an APS sensor (APS-M1S, incl. 3 m cable) as well as an electronics (APS-M1E) are required.
- ① An extension cable (APS-K) can be connected between the sensor and the electronics as an option. The max. cable length between the sensor and the electronics is 10 m, between the electronics and their control unit (PLC) it is max. 1 m.

Flexible Position Sensor



Flexible position monitoring of up to five positions

Description	ID
Mounting kit for FPS	
AS-PGN/PZN-plus 64/1, PGN/PZN-plus 80/2	0301630
AS-PGN-plus/PZN-plus 80/1, PZB 80/100	0301632
Electronic Processor	
FPS-F5	0301805
FPS-F5 T	0301807
Sensor	
FPS-S M8	0301704

① When using a FPS system, a FPS sensor (FPS-S) and a control unit (FPS-F5 / F5 T or A5) are required for each gripper as well as a mounting kit (AS), if listed. Cable extensions (KV) are available as options in the "Accessories" catalog section.