



Superior Clamping and Gripping



Product Information

Universal gripper JGZ

Loadable. Reliable. Compact.

JGZ universal gripper

Universal 3-finger centric gripper of the compact class with T-slot guidance and best cost-performance ratio

Field of application

Optimum standard solution for many fields of application. Universal application in clean and slightly dirty surroundings in machine building and plant building industry, assembly and handling as well as automotive industry.

Advantages – Your benefits

A firm focus on the essentials for maximum profitability

Sturdy T-slot guidance for the precise handling of different workpieces

Compact dimensions and low weight for minimal interfering contours in handling

High maximum moments possible suitable for using long gripper fingers

Wedge-hook design for high power transmission and synchronized gripping

Comprehensive sensor accessories for monitoring and control of the stroke position

Fastening at one gripper side in two screw directions for universal and flexible gripper assembly

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



Sizes
Quantity: 7



Weight
0.12 .. 8 kg



Gripping force
255 .. 7990 N



Stroke per jaw
2.5 .. 16 mm

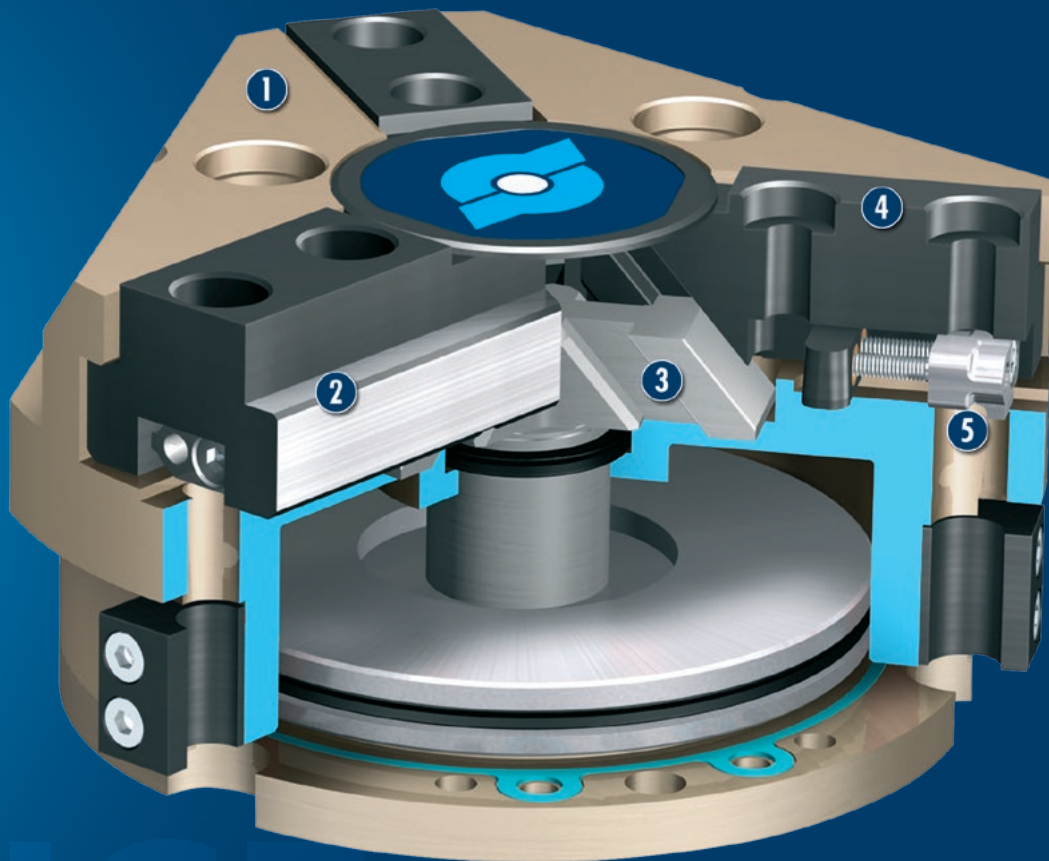


Workpiece weight
1.25 .. 30 kg

Functional description

The piston is moved up and down by compressed air. The angled active surfaces of the wedge-hook produce a

synchronized, centric jaw movement.



- ① **Housing**
Weight-optimized due to the use of high-strength aluminum alloy
- ② **T-slot guidance**
loadable, robust base jaw guidance for extremely long gripper fingers
- ③ **Wedge-hook design**
for high force transmission and centric gripping
- ④ **Base Jaw**
for the connection of workpiece-specific gripper fingers
- ⑤ **Sensor system**
Proximity switch can be assembled without mounting kit

CAD data, operating manuals and other current product documents can be found online.

General notes about the series

Operating principle: Wedge-hook kinematics

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: Bracket for proximity switch, centering sleeves, O-rings for direct connection, assembly and operating manual with Declaration of Incorporation.

Gripping force maintenance: possible by using the version with mechanical gripping force maintenance or SDV-P pressure maintenance valve

Gripping force: is the arithmetic total of the gripping force applied to each gripper 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 the spread of the end position during 100 consecutive strokes.

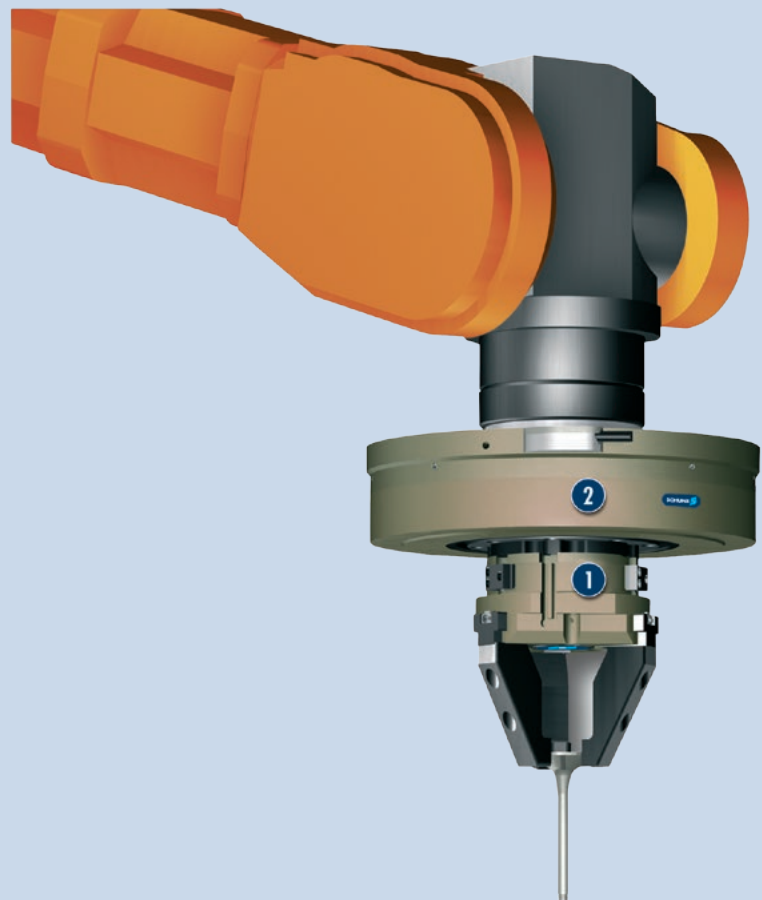
Workpiece weight: is calculated for force-fit gripping with a coefficient of static friction of 0.1 and a safety factor of 2 against workpiece slippage at acceleration due to gravity g. For form-fit or capture gripping, there are significantly higher permissible workpiece weights.

Closing and opening times: are purely the times that the base jaws or fingers are in motion. Valve switching times, hose filling times, or PLC reaction times are not a part of this and are to be considered when cycle times are calculated.

Application example

Tactile assembly of insertion aids in cylinder heads

- 1 JGZ 3-finger centric gripper with workpiece-specific gripper fingers
- 2 FTC-050-80 6-axis force-torque sensor



SCHUNK offers more ...

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



TCU tolerance compensation unit



Compensation unit



Pressure maintenance valve



Universal intermediate jaw



Flexible position sensor



Sensor system



Finger blanks with quick-change jaw system



Jaw quick-change system



Force-measuring jaws



Analog position sensor

① Additional information regarding the products can be found on the following product pages or at www.schunk.com. Please contact us for further information: SCHUNK technical hotline +49-7133-103-2696

Options and special information

Gripping force maintenance version AS / IS: The mechanical gripping force maintenance version ensures a minimum gripping force also in the case of a drop in pressure. In the AS / S version this has the effect of a closing force, in the IS version of an opening force

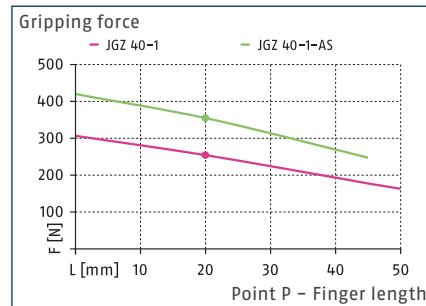
The JGZ series is especially suitable for economic handling solutions and distinguishes by its high cost-benefit ratio.

JGZ 40

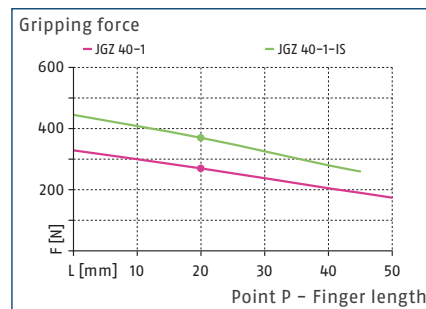
Universal gripper



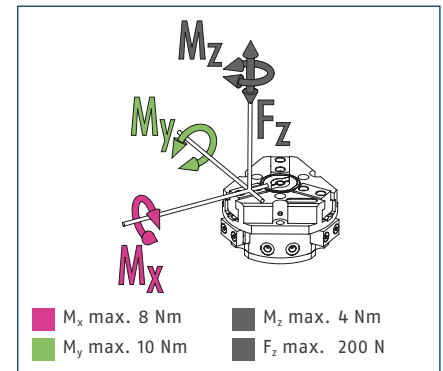
Gripping force, O.D. gripping



Gripping force, I.D. gripping



Finger load

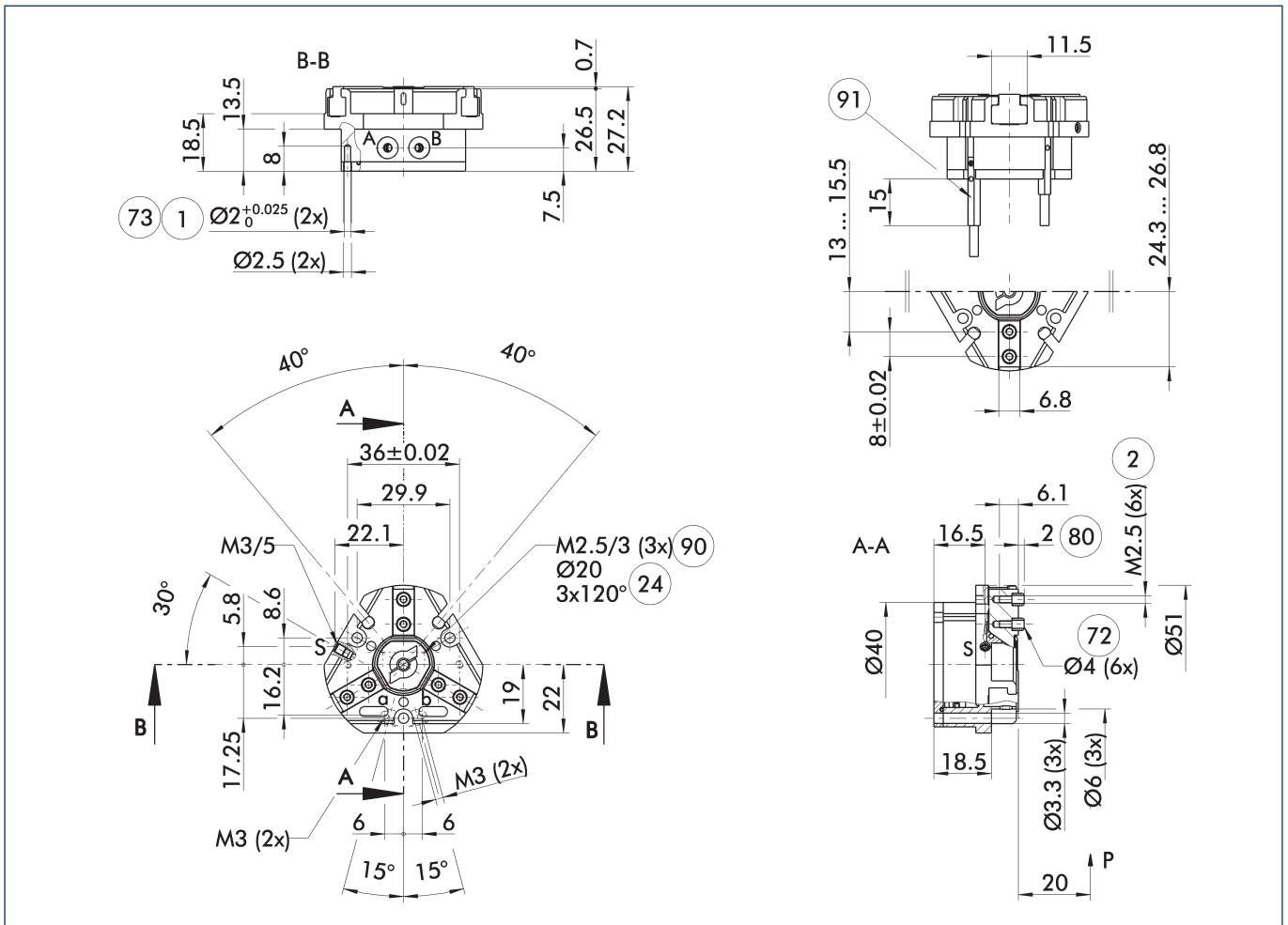


① The specified torques and forces are static values, apply for each base jaw, and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself.

Technical data

Description		JGZ 40-1	JGZ 40-1-AS	JGZ 40-1-IS
ID		0308900	0308901	0308902
Stroke per jaw	[mm]	2.5	2.5	2.5
Closing / opening force	[N]	255/270	355/-	-/370
Min. spring force	[N]		100	100
Weight	[kg]	0.12	0.15	0.15
Recommended workpiece weight	[kg]	1.25	1.25	1.25
Fluid consumption double stroke	[cm ³]	5	9	9
Min./max. operating pressure	[bar]	2/8	4/6.5	4/6.5
Nominal operating pressure	[bar]	6	6	6
Min./max. air purge pressure	[bar]	0.5/1	0.5/1	0.5/1
Closing/opening time	[s]	0.02/0.03	0.02/0.04	0.04/0.02
Closing- / opening time with spring	[s]		0.05	0.05
Max. permissible finger length	[mm]	50	45	45
Max. permissible mass per finger	[kg]	0.1	0.1	0.1
Protection class IP		40	40	40
Min./max. ambient temperature	[°C]	5/90	5/90	5/90
Repeat accuracy	[mm]	0.01	0.01	0.01
Cleanroom class ISO 14644-1		5	5	5

Main view



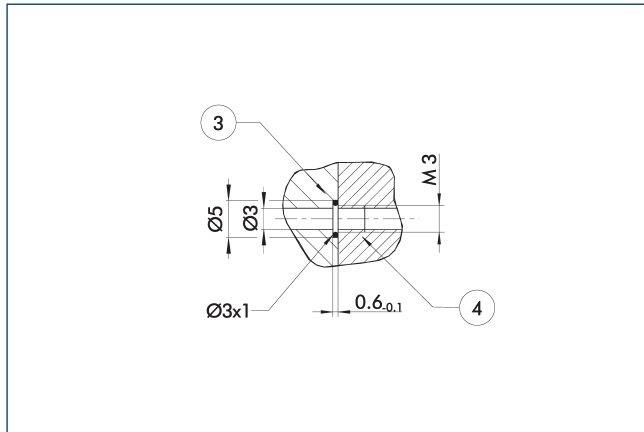
The drawing shows the gripper in the basic version with closed jaws, without dimensional consideration of the options described below.

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
- ② Bolt circle

- ⑦② Fit for centering sleeves
- ⑦③ Fit for centering pins
- ⑧① Depth of the centering sleeve hole in the counter part
- ⑨① Thread below the cover for fastening external attachments
- ⑨① Sensor MMS 22..

Hose-free direct connection M3

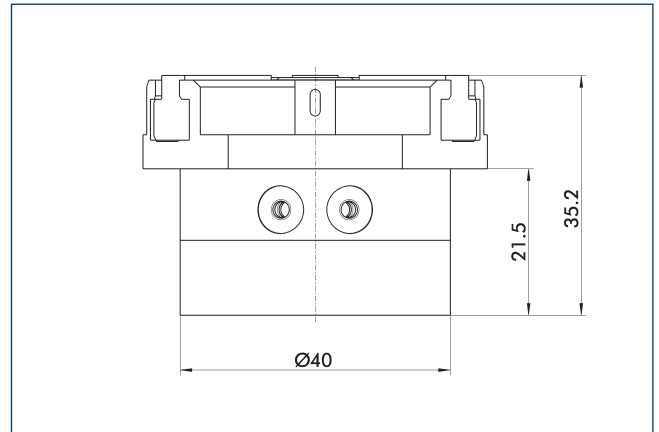


③ Adapter

④ Grippers

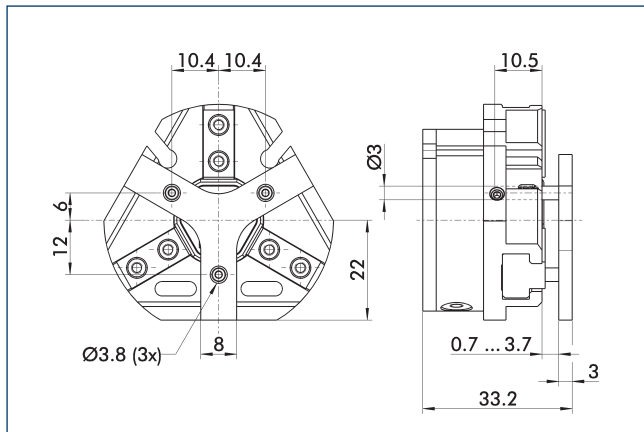
The direct connection is used for supplying compressed air without hoses. Instead, the pressure medium is fed through bore-holes in the mounting plate.

Gripping force maintenance device AS / IS



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.

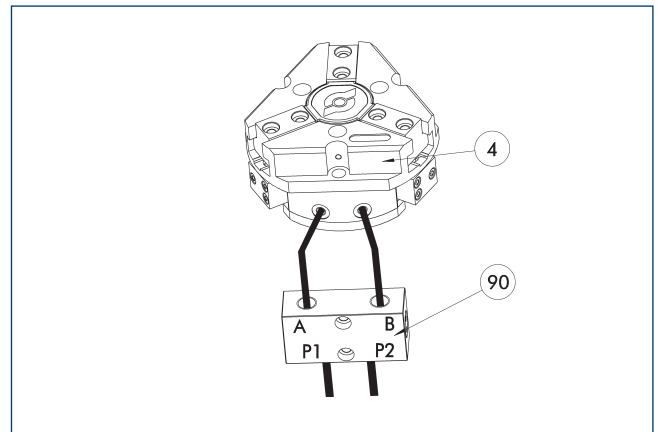
Spring-loaded pressure piece



For spring-supported positioning of the workpiece against a stop after the gripper has opened. Especially developed for loading machines.

Description	ID	Stroke [mm]	Min. force [N]
Spring-loaded pressure piece			
A-PZN-plus 40	0303718	2.5	5

SDV-P pressure maintenance valve



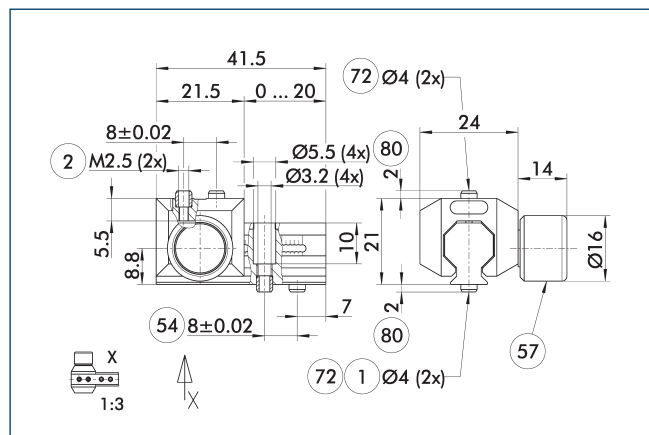
④ Grippers

⑨⑩ SDV-P pressure maintenance valve

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

Description	ID	
Pressure maintenance valve		
SDV-P 04	0403130	
Pressure maintenance valve with air bleed screw		
SDV-P 04-E	0300120	

UZB 40 universal intermediate jaw

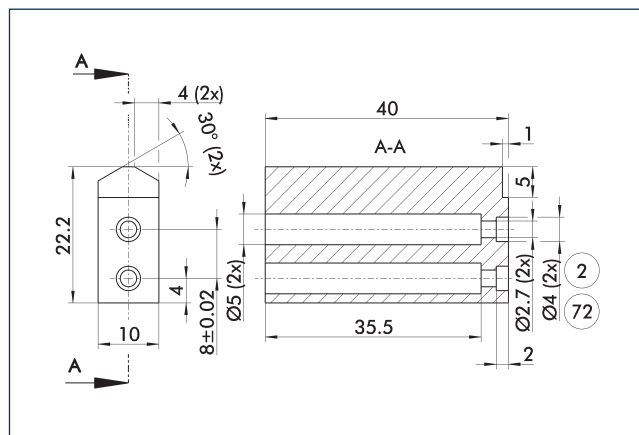


- ① Gripper connection
- ② Finger connection
- ⑤4 Optional right or left connection
- ⑤7 Locking
- ⑦2 Fit for centering sleeves
- ⑧0 Depth of the centering sleeve hole in the counter part

The drawing shows the UZB universal intermediate jaw.

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

Finger blanks ABR- / SBR-PGZN-plus 40

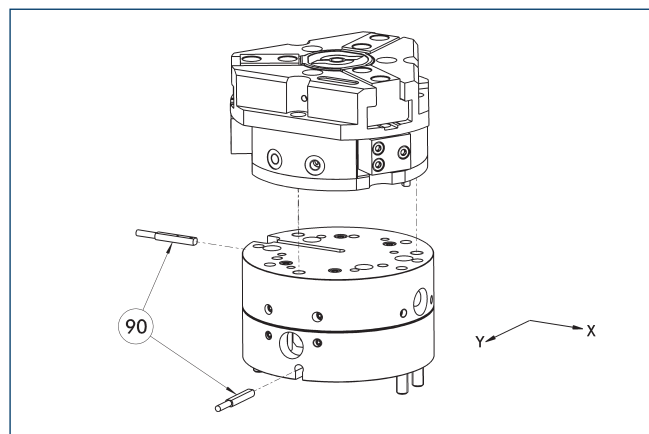


- ② Finger connection
- ⑦2 Fit for centering sleeves

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

Description	ID	Material	Scope of delivery
Finger blanks			
ABR-PGZN-plus 40	0300008	Aluminum	1
SBR-PGZN-plus 40	0300018	16MnCr5	1

XY compensation unit with spring return

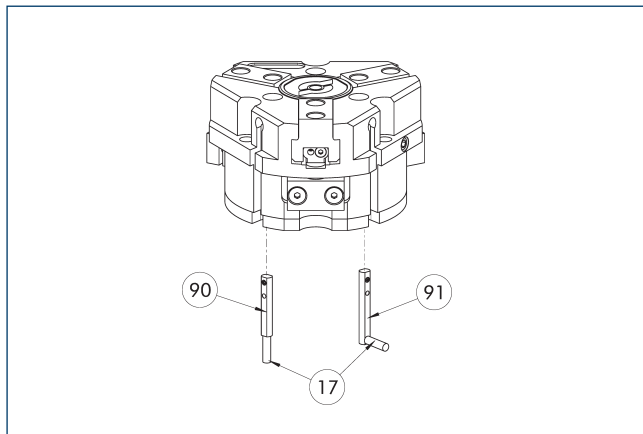


- ⑨0 Monitoring

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-031-1	0324900	± 1.5	0.5	
AGE-F-XY-031-2	0324901	± 1.5	2	
AGE-F-XY-031-3	0324902	± 1.5	5	●

Electronic magnetic switches MMS



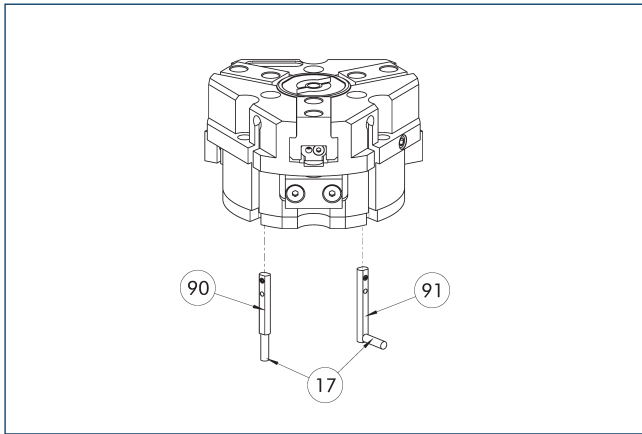
- 17 Cable outlet 91 Sensor MMS 22...-SA
90 Sensor MMS 22..

End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Electronic magnetic switches MMS		
MMS 22-S-M8-PNP	0301032	●
MMSK 22-S-PNP	0301034	
MMS electronic magnetic switches with lateral outlet		
MMS 22-S-M8-PNP-SA	0301042	●
MMSK 22-S-PNP-SA	0301044	
Cable extension		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
clip for plug/socket		
CLI-M8	0301463	
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	
Sensor distributor		
V2-M8	0301775	●
V4-M8	0301746	
V8-M8	0301751	

- ① Two sensors (closer/S) are required for each unit and extension cables are available as an option. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Programmable magnetic switch MMS 22-PI1



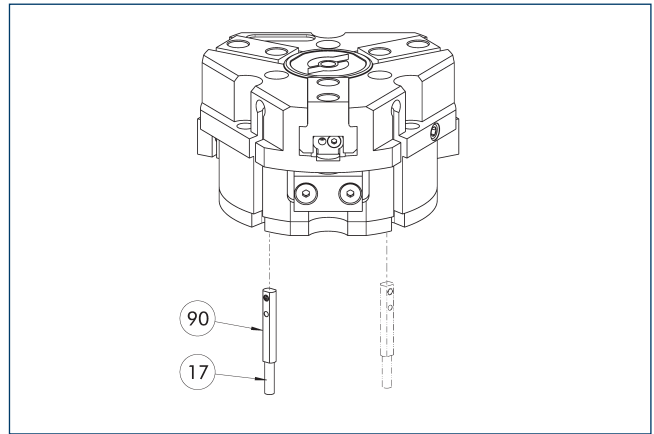
- ①7 Cable outlet
- ①91 Sensor MMS 22 ..-PI1-...-SA
- ①90 Sensor MMS 22 PI1-...

Position monitoring with one programmable position per sensor and electronics integrated in the sensor. Can be programmed using MT magnetic teaching tool (included in scope of delivery) or ST plug teaching tool (optional). End position monitoring is mounted 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
Plug teaching tool		
ST-MMS 22-PI1-PNP	0301025	
Programmable magnetic switch MMS 22-PI1		
MMS 22-PI1-S-M8-PNP	0301160	●
MMSK 22-PI1-S-PNP	0301162	
Programmable magnetic switch MMS 22-PI1 with lateral connection		
MMS 22-PI1-S-M8-PNP-SA	0301166	●
MMSK 22-PI1-S-PNP-SA	0301168	
Programmable magnetic switch MMS 22-PI1 with stainless steel housing		
MMS 22-PI1-S-M8-PNP-HD	0301110	●
MMSK 22-PI1-S-PNP-HD	0301112	

- ① Two sensors (closer/S) are required for each unit and extension cables are available as an option. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Programmable magnetic switch MMS 22-PI2



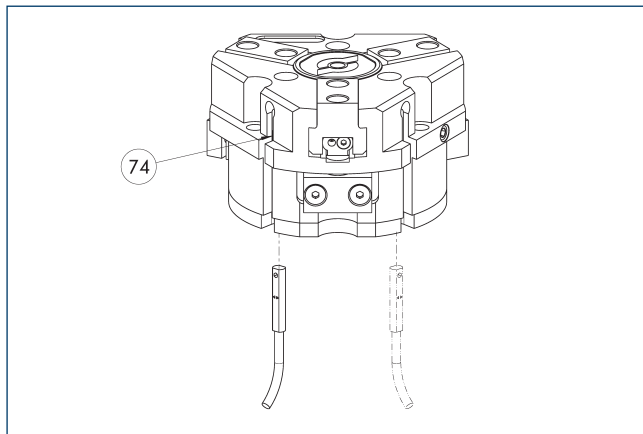
- ①7 Cable outlet
- ①90 MMS 22...-PI2-... sensor

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
Plug teaching tool		
ST-MMS 22-PI2-PNP	0301026	
Programmable magnetic switch MMS 22-PI2		
MMS 22-PI2-S-M8-PNP	0301180	●
MMSK 22-PI2-S-PNP	0301182	
Programmable magnetic switch MMS 22-PI2 with stainless steel housing		
MMS 22-PI2-S-M8-PNP-HD	0301130	●
MMSK 22-PI2-S-PNP-HD	0301132	

- ① Per unit one sensor (closer/S) is required, optionally a cable extension. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Programmable magnetic switches MMS-P



⑦④ Limit stop for sensor

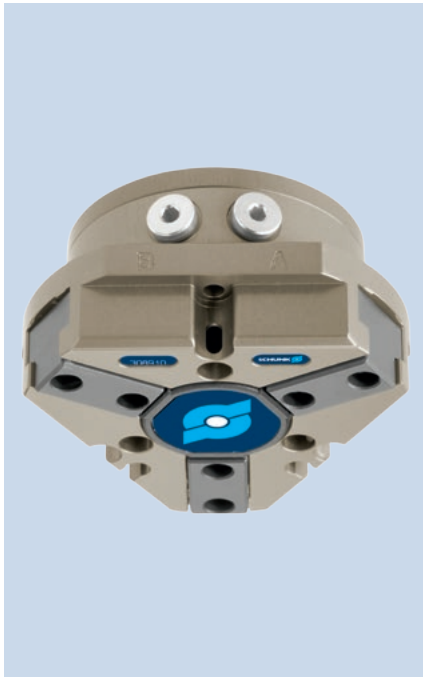
Position monitoring with two programmable positions per sensor. End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Programmable magnetic switches MMS-P		
MMSK-P 22-S-PNP	0301371	
MMS-P 22-S-M8-PNP	0301370	●
clip for plug/socket		
CLI-M8	0301463	
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	

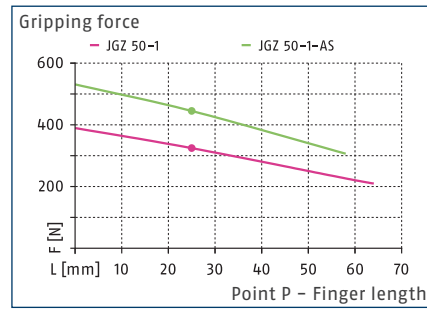
① Per unit one sensor (closer/S) is required, optionally a cable extension. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

JGZ 50

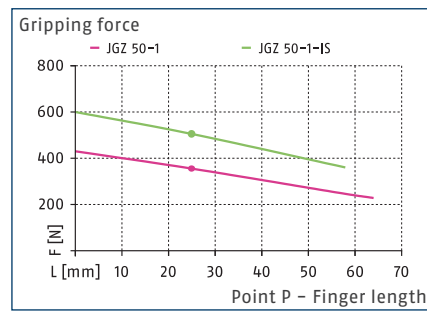
Universal gripper



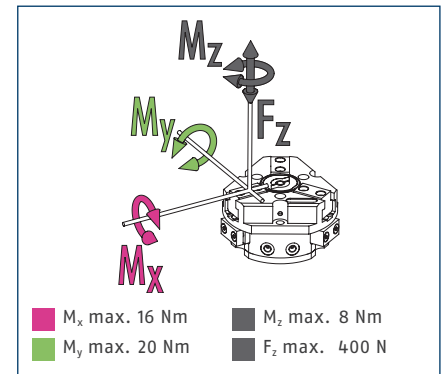
Gripping force, O.D. gripping



Gripping force, I.D. gripping



Finger load

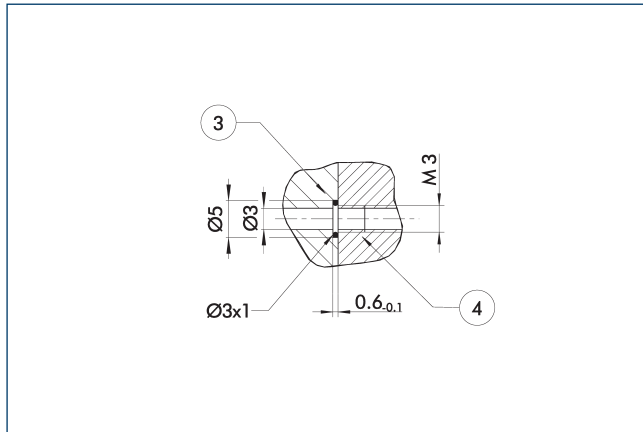


① The specified torques and forces are static values, apply for each base jaw, and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself.

Technical data

Description		JGZ 50-1	JGZ 50-1-AS	JGZ 50-1-IS
ID		0308910	0308911	0308912
Stroke per jaw	[mm]	4	4	4
Closing / opening force	[N]	325/355	445/-	-/505
Min. spring force	[N]		120	150
Weight	[kg]	0.25	0.3	0.3
Recommended workpiece weight	[kg]	1.6	1.6	1.6
Fluid consumption double stroke	[cm ³]	9	18	18
Min./max. operating pressure	[bar]	2/8	4/6.5	4/6.5
Nominal operating pressure	[bar]	6	6	6
Min./max. air purge pressure	[bar]	0.5/1	0.5/1	0.5/1
Closing/opening time	[s]	0.03/0.03	0.02/0.04	0.04/0.02
Closing- / opening time with spring	[s]		0.05	0.05
Max. permissible finger length	[mm]	64	58	58
Max. permissible mass per finger	[kg]	0.18	0.18	0.18
Protection class IP		40	40	40
Min./max. ambient temperature	[°C]	5/90	5/90	5/90
Repeat accuracy	[mm]	0.01	0.01	0.01
Cleanroom class ISO 14644-1		5	5	5

Hose-free direct connection M3

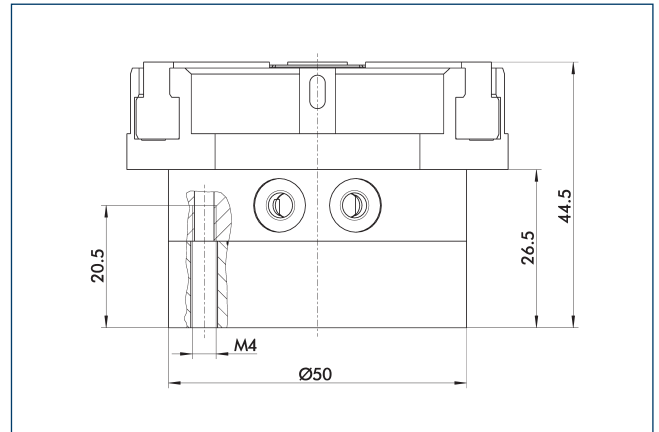


③ Adapter

④ Grippers

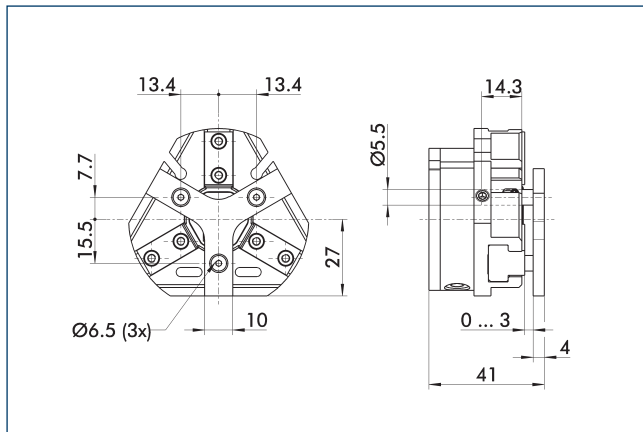
The direct connection is used for supplying compressed air without hoses. Instead, the pressure medium is fed through bore-holes in the mounting plate.

Gripping force maintenance device AS / IS



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.

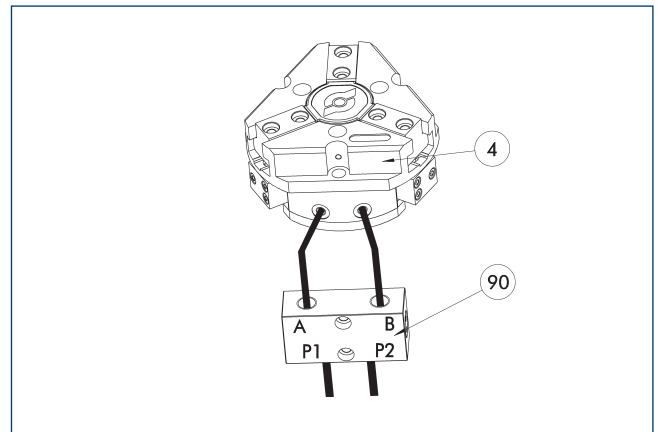
Spring-loaded pressure piece



For spring-supported positioning of the workpiece against a stop after the gripper has opened. Especially developed for loading machines.

Description	ID	Stroke [mm]	Min. force [N]
Spring-loaded pressure piece			
A-PZN-plus 50	0303719	3	12

SDV-P pressure maintenance valve



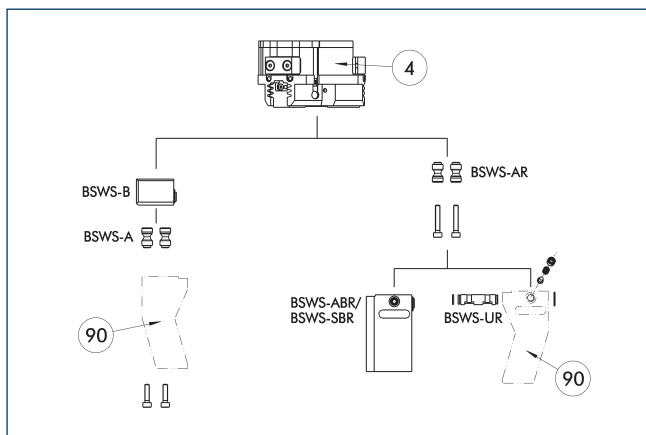
④ Grippers

⑨⑩ SDV-P pressure maintenance valve

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

Description	ID	
Pressure maintenance valve		
SDV-P 04	0403130	
Pressure maintenance valve with air bleed screw		
SDV-P 04-E	0300120	

BSWS jaw quick-change jaw systems



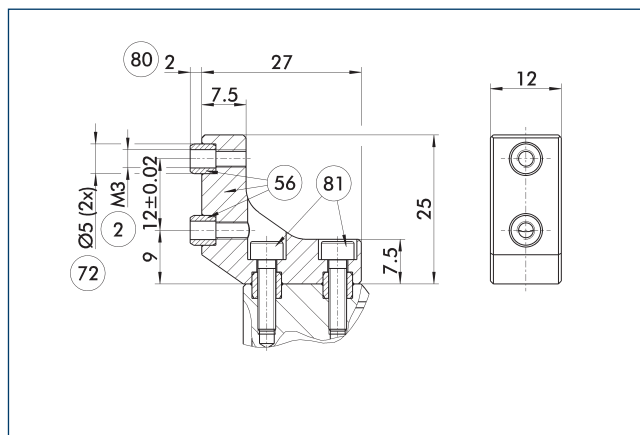
- ④ Grippers
- ⑨⑩ Customized gripper fingers

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

Description	ID	
Quick-change jaw system adapter		
BSWS-A 50	0303020	
BSWS-AR 50	0300091	
Quick-change jaw system base		
BSWS-B 50	0303021	
Jaw quick-change system		
BSWS-ABR-PGZN-plus 50	0300071	
BSWS-SBR-PGZN-plus 50	0300081	
Quick-change Jaw System reversed		
BSWS-UR 50	0302990	

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

ZBA-L-plus 50 intermediate jaws

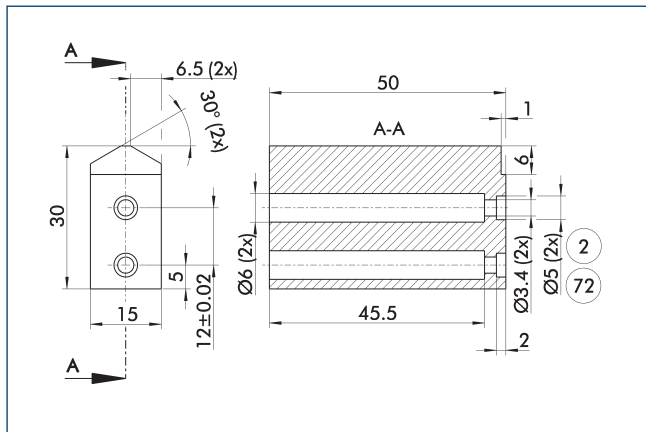


- ② Finger connection
- ⑤⑥ Included in the scope of delivery
- ⑦② Fit for centering sleeves
- ⑧⑩ Depth of the centering sleeve hole in the counter part
- ⑧① Not included in the scope of delivery

The optional ZBA-L-plus intermediate jaws allow the screw connection 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 jaws				
ZBA-L-plus 50	0311712	Aluminum	PGN-plus 50	1

Finger blank ABR- / SBR-PGZN-plus 50

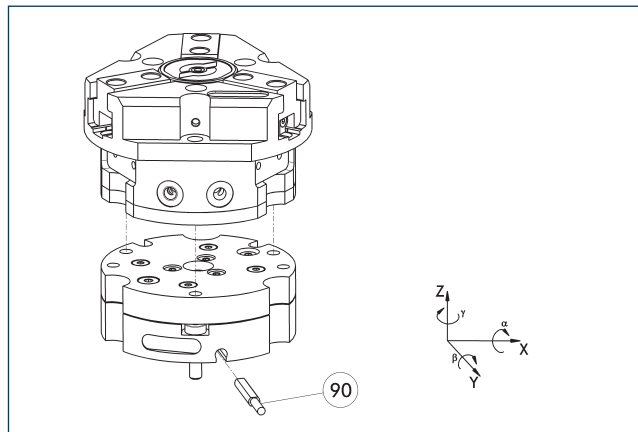


- 2 Finger connection
- 72 Fit for centering sleeves

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

Description	ID	Material	Scope of delivery
Finger blanks			
ABR-PGZN-plus 50	0300009	Aluminum	1
SBR-PGZN-plus 50	0300019	16MnCr5	1

TCU tolerance compensation unit

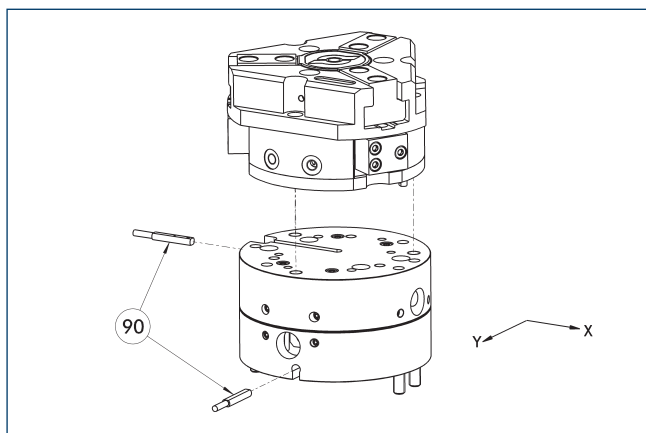


- 90 monitoring of locking

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 please refer to our catalog robot accessories.

Description	ID	Locking	Deflection
Compensation unit			
TCU-Z-050-3-0V	0324749	no	±1°/±1°/±1,5°

XY compensation unit with spring return

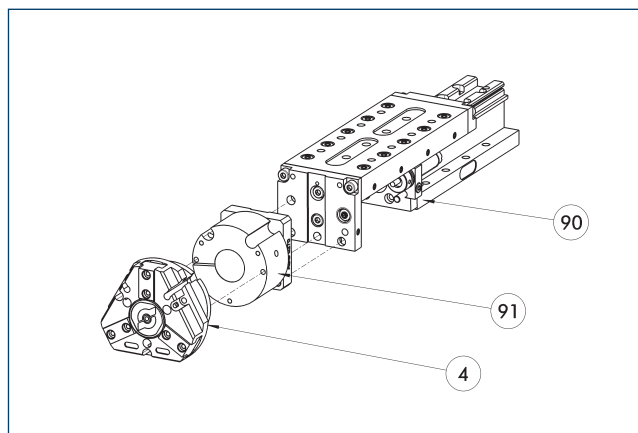


- 90 Monitoring

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-040-1	0324920	± 2	2	
AGE-F-XY-040-2	0324921	± 2	2.5	
AGE-F-XY-040-3	0324922	± 2	3	●

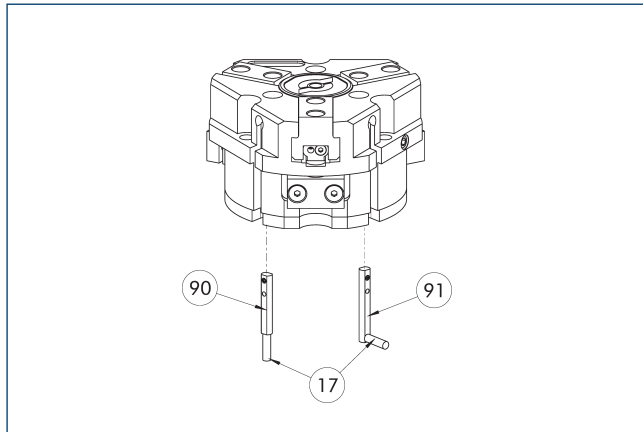
Modular Assembly Automation



- 4 Grippers
- 90 CLM/KLM/LM/ELP/ELM/ELS/HLM linear modules
- 91 ASG adapter plate

Grippers and linear modules can be combined with standard adapter plates from the modular assembly system. For more information see our main catalog "Modular Assembly Automation".

Electronic magnetic switches MMS



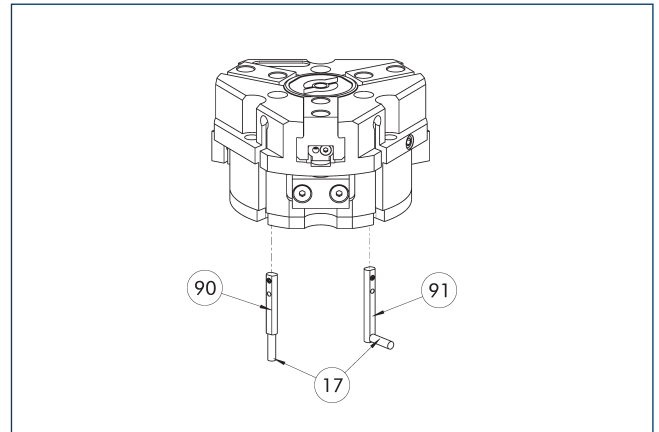
- ① Cable outlet
- ② Sensor MMS 22...-SA
- ③ Sensor MMS 22..

End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Electronic magnetic switches MMS		
MMS 22-S-M8-PNP	0301032	●
MMSK 22-S-PNP	0301034	
MMS electronic magnetic switches with lateral outlet		
MMS 22-S-M8-PNP-SA	0301042	●
MMSK 22-S-PNP-SA	0301044	
Cable extension		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
clip for plug/socket		
CLI-M8	0301463	
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	
Sensor distributor		
V2-M8	0301775	●
V4-M8	0301746	
V8-M8	0301751	

- ④ Two sensors (closer/S) are required for each unit and extension cables are available as an option. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Programmable magnetic switch MMS 22-PI1



- ① Cable outlet
- ② Sensor MMS 22 ..-PI1-...-SA
- ③ Sensor MMS 22 PI1-...

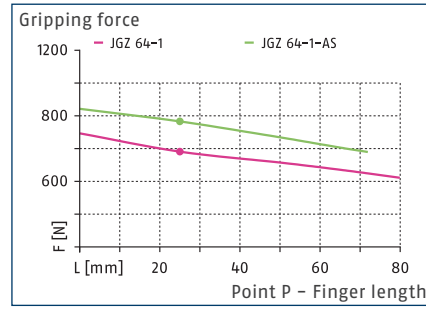
Position monitoring with one programmable position per sensor and electronics integrated in the sensor. Can be programmed using MT magnetic teaching tool (included in scope of delivery) or ST plug teaching tool (optional). End position monitoring is mounted in the C-slot. If the ST plug teaching tools are listed in the table provided, teaching is only possible with the ST teaching tools.

Description	ID	Often combined
Plug teaching tool		
ST-MMS 22-PI1-PNP	0301025	
Programmable magnetic switch MMS 22-PI1		
MMS 22-PI1-S-M8-PNP	0301160	●
MMSK 22-PI1-S-PNP	0301162	
Programmable magnetic switch MMS 22-PI1 with lateral connection		
MMS 22-PI1-S-M8-PNP-SA	0301166	●
MMSK 22-PI1-S-PNP-SA	0301168	
Programmable magnetic switch MMS 22-PI1 with stainless steel housing		
MMS 22-PI1-S-M8-PNP-HD	0301110	●
MMSK 22-PI1-S-PNP-HD	0301112	

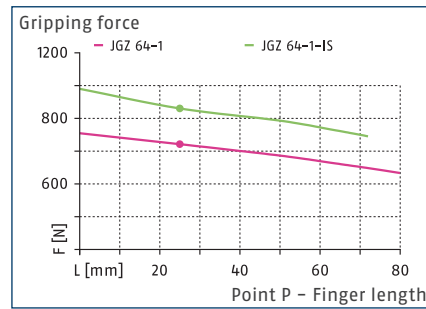
- ④ Two sensors (closer/S) are required for each unit and extension cables are available as an option. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.



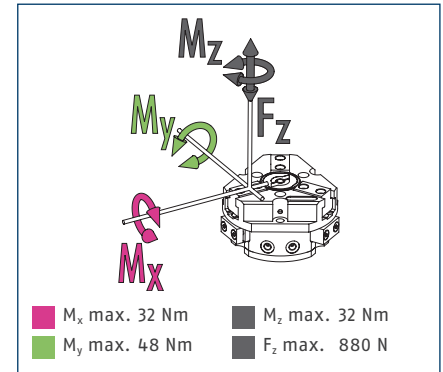
Gripping force, O.D. gripping



Gripping force, I.D. gripping



Finger load

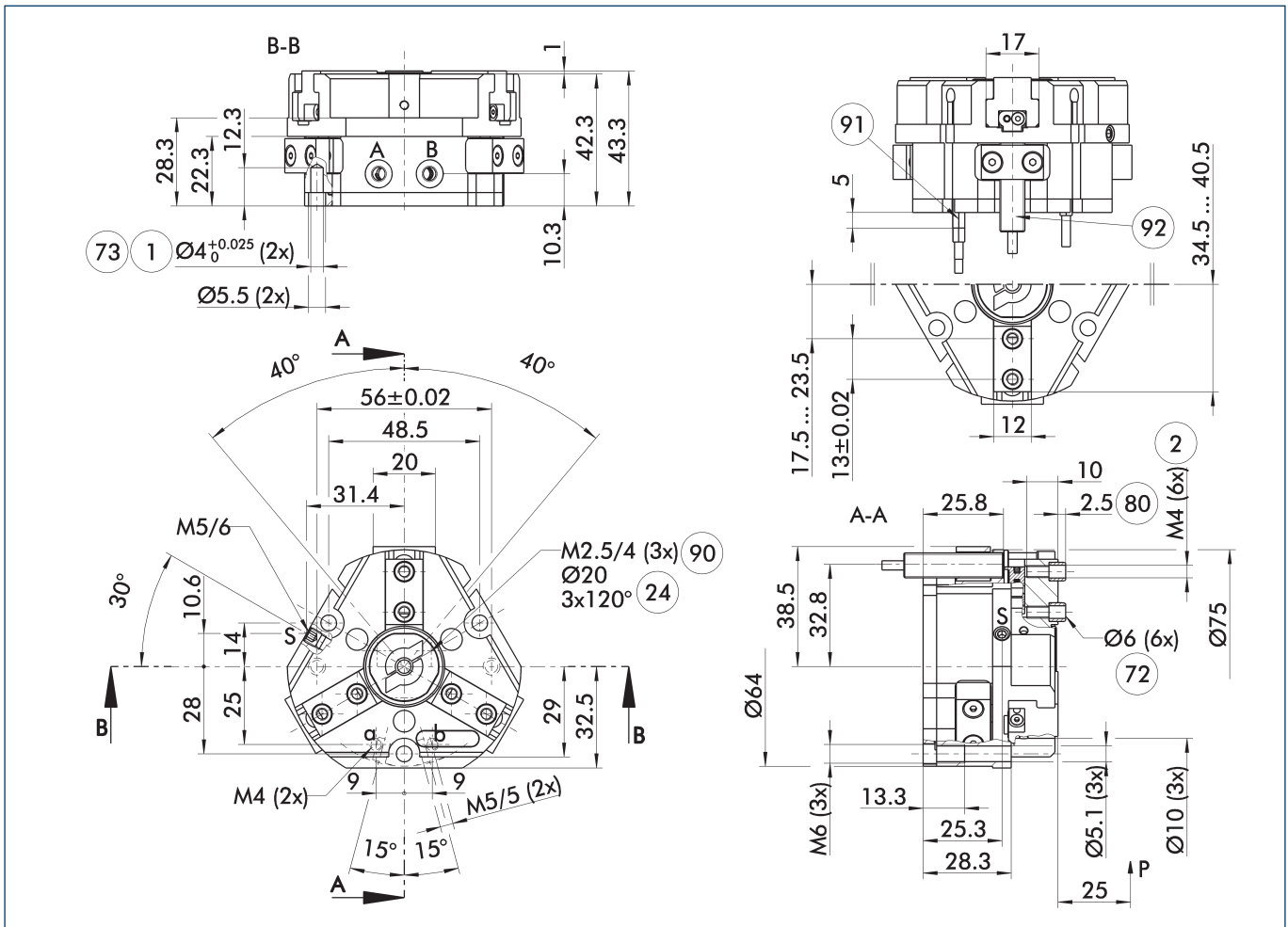


① The specified torques and forces are static values, apply for each base jaw, and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself.

Technical data

Description		JGZ 64-1	JGZ 64-1-AS	JGZ 64-1-IS
ID		0308920	0308921	0308922
Stroke per jaw	[mm]	6	6	6
Closing / opening force	[N]	580/640	765/-	-/860
Min. spring force	[N]		185	220
Weight	[kg]	0.43	0.54	0.54
Recommended workpiece weight	[kg]	2.9	2.9	2.9
Fluid consumption double stroke	[cm ³]	25	25	25
Min./max. operating pressure	[bar]	2/8	4/6.5	4/6.5
Nominal operating pressure	[bar]	6	6	6
Min./max. air purge pressure	[bar]	0.5/1	0.5/1	0.5/1
Closing/opening time	[s]	0.03/0.03	0.02/0.04	0.04/0.02
Closing- / opening time with spring	[s]		0.08	0.08
Max. permissible finger length	[mm]	80	72	72
Max. permissible mass per finger	[kg]	0.35	0.35	0.35
Protection class IP		40	40	40
Min./max. ambient temperature	[°C]	5/90	5/90	5/90
Repeat accuracy	[mm]	0.01	0.01	0.01
Cleanroom class ISO 14644-1		5	5	5

Main view



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

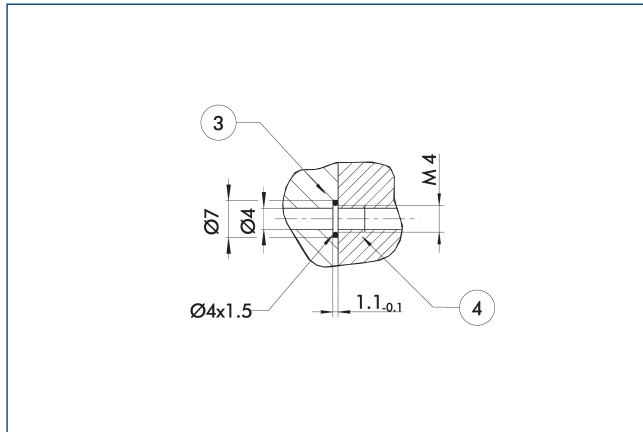
① The SDV-P pressure maintenance valve can also be used for I.D. or O.D. gripping alternatively or in addition to the spring-loaded, mechanical gripping force maintenance device (see catalog section on accessories).

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

① Gripper connection
 ② Finger connection
 ② Bolt circle

⑦② Fit for centering sleeves
 ⑦③ Fit for centering pins
 ⑧① Depth of the centering sleeve hole in the counter part
 ⑨① Thread below the cover for fastening external attachments
 ⑨① Sensor MMS 22..
 ⑨② Sensor IN ...

Hose-free direct connection M4

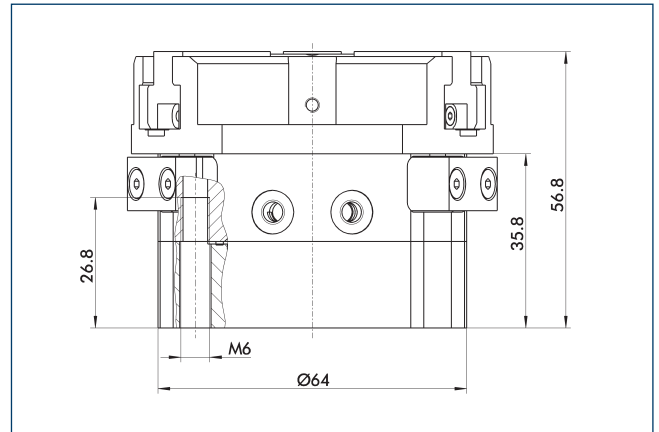


③ Adapter

④ Grippers

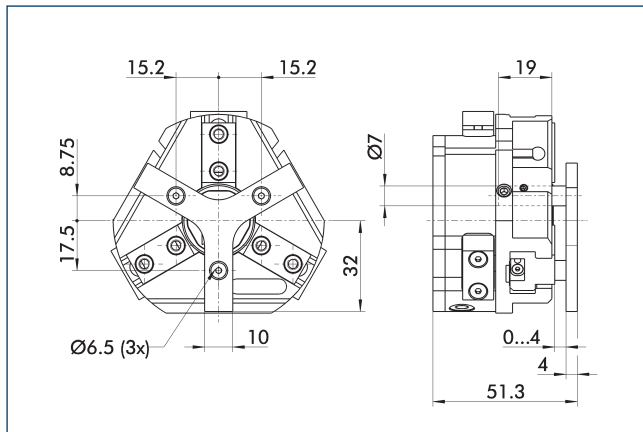
The direct connection is used for supplying compressed air without hoses. Instead, the pressure medium is fed through bore-holes in the mounting plate.

Gripping force maintenance device AS / IS



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.

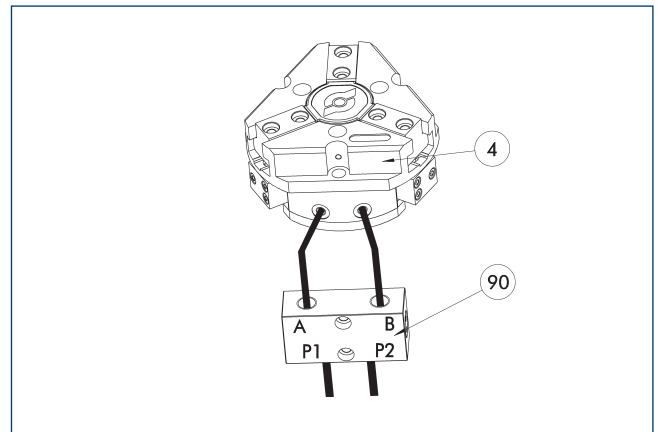
Spring-loaded pressure piece



For spring-supported positioning of the workpiece against a stop after the gripper has opened. Especially developed for loading machines.

Description	ID	Stroke [mm]	Min. force [N]
Spring-loaded pressure piece			
A-PZN-plus/DPZ-plus 64	0303720	4	11

SDV-P pressure maintenance valve



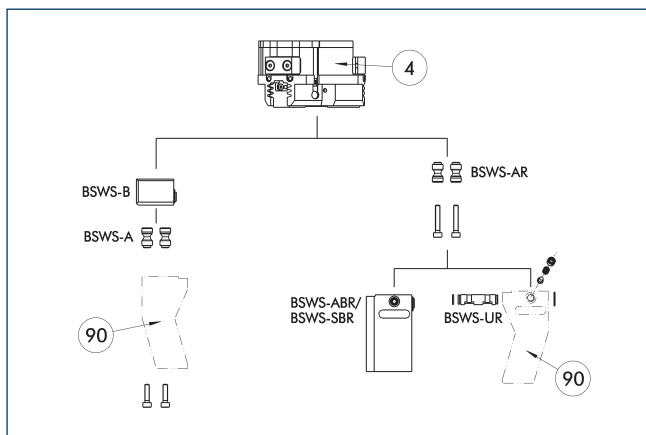
④ Grippers

⑨⑩ SDV-P pressure maintenance valve

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

Description	ID	
Pressure maintenance valve		
SDV-P 04	0403130	
Pressure maintenance valve with air bleed screw		
SDV-P 04-E	0300120	

BSWS jaw quick-change jaw systems



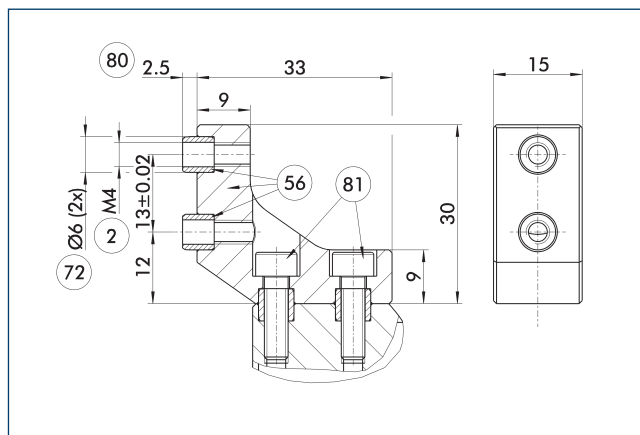
- ④ Grippers
- ⑨⑩ Customized gripper fingers

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

Description	ID	
Quick-change jaw system adapter		
BSWS-A 64	0303022	
BSWS-AR 64	0300092	
Quick-change jaw system base		
BSWS-B 64	0303023	
Jaw quick-change system		
BSWS-ABR-PGZN-plus 64	0300072	
BSWS-SBR-PGZN-plus 64	0300082	
Quick-change Jaw System reversed		
BSWS-UR 64	0302991	

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

ZBA-L-plus 64 intermediate jaws

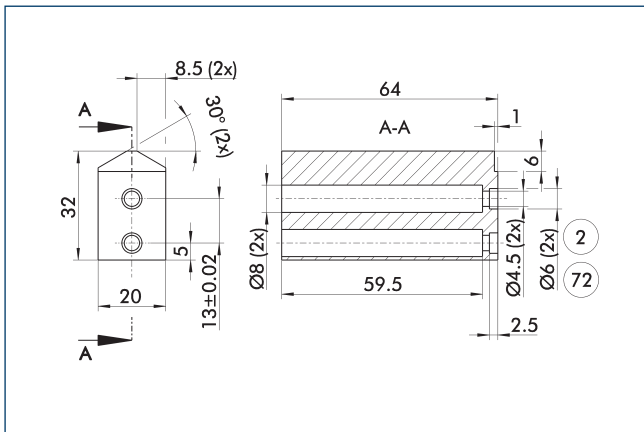


- ② Finger connection
- ⑤⑥ Included in the scope of delivery
- ⑦② Fit for centering sleeves
- ⑧⑩ Depth of the centering sleeve hole in the counter part
- ⑧① Not included in the scope of delivery

The optional ZBA-L-plus intermediate jaws allow the screw connection 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 jaws				
ZBA-L-plus 64	0311722	Aluminum	PGN-plus 64	1

Finger blanks ABR- / SBR-PGZN-plus 64

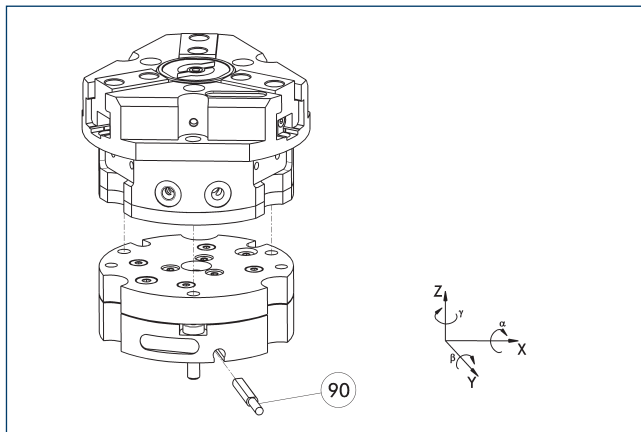


- 2 Finger connection
- 72 Fit for centering sleeves

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

Description	ID	Material	Scope of delivery
Finger blanks			
ABR-PGZN-plus 64	0300010	Aluminum	1
SBR-PGZN-plus 64	0300020	16MnCr5	1

TCU tolerance compensation unit

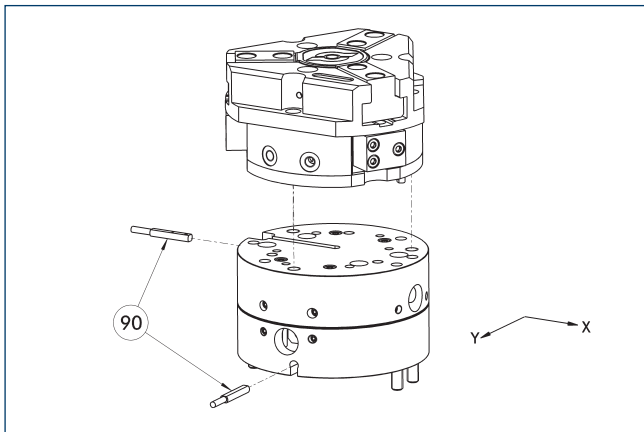


- 90 monitoring of locking

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 please refer to our catalog robot accessories.

Description	ID	Locking	Deflection	Often combined
Compensation unit				
TCU-Z-064-3-MV	0324766	yes	±1°/±1°/±1°	●
TCU-Z-064-3-OV	0324767	no	±1°/±1°/±1°	

XY compensation unit with spring return

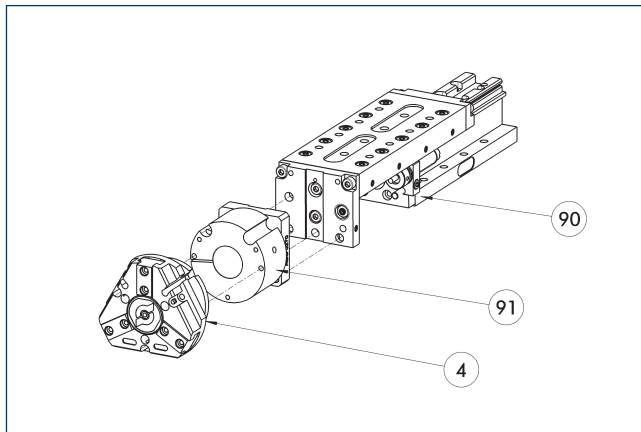


- 90 Monitoring

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	13	
AGE-F-XY-063-3	0324942	± 4	18	●

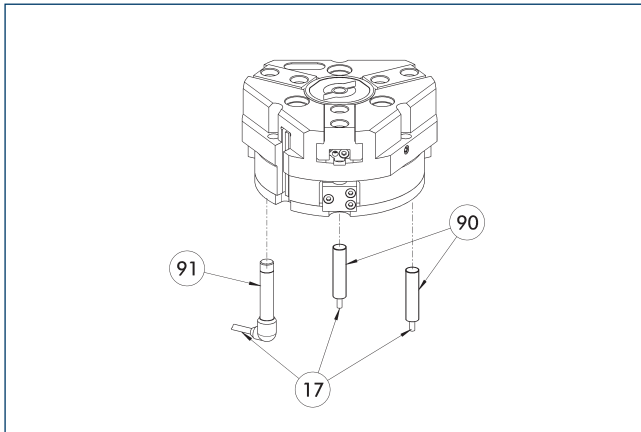
Modular Assembly Automation



- 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".

Inductive Proximity Switches



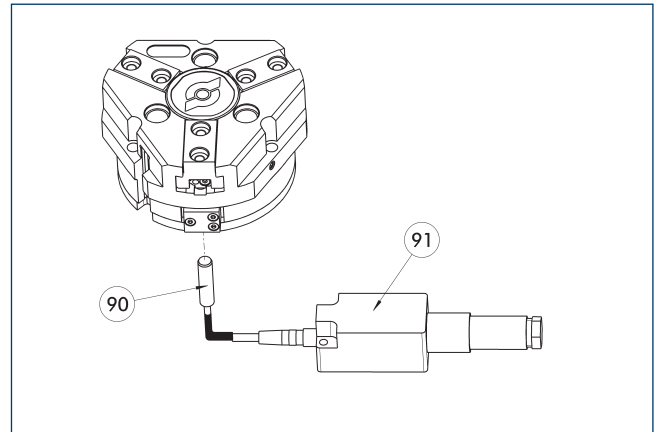
- ①⑦ Cable outlet
- ①⑨ Sensor IN..-SA
- ①⑩ Sensor IN ...

Directly mounted end position monitoring.

Description	ID	Often combined
Inductive Proximity Switches		
IN 80-S-M12	0301578	
IN 80-S-M8	0301478	●
INK 80-S	0301550	
Inductive proximity switch with lateral outlet		
IN 80-S-M12-SA	0301587	
IN 80-S-M8-SA	0301483	●
INK 80-S-SA	0301566	
Cable extension		
KV BG12-SG12 3P-0030-PNP	0301999	
KV BG12-SG12 3P-0060-PNP	0301998	
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
KV BW12-SG12 3P-0030-PNP	0301595	
KV BW12-SG12 3P-0100-PNP	0301596	
KV BW12-SG12 3P-0200-PNP	0301597	
clip for plug/socket		
CLI-M12	0301464	
CLI-M8	0301463	
Connection cables		
KA BG08-L 3P-0300-PNP	0301622	●
KA BG08-L 3P-0500-PNP	0301623	
KA BG12-L 3P-0500-PNP	30016369	
KA BW08-L 3P-0300-PNP	0301594	
KA BW08-L 3P-0500-PNP	0301502	
KA BW12-L 3P-0300-PNP	0301503	
KA BW12-L 3P-0500-PNP	0301507	
Sensor distributor		
V2-M12	0301776	●
V2-M8	0301775	●
V4-M12	0301747	
V4-M8	0301746	
V8-M12	0301752	
V8-M8	0301751	

- ① Two sensors (closer/S) are required for each unit and extension cables are available as an option. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Flexible position sensor



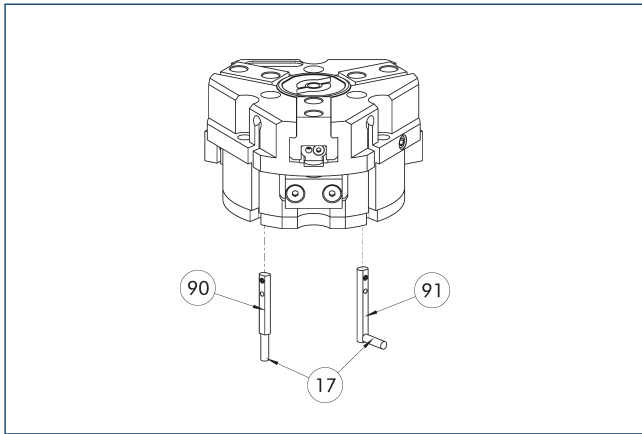
- ①⑩ FPS-S sensor
- ①⑨ FPS-F5 evaluation electronic

Flexible position monitoring of up to five positions.

Description	ID	
Attachment kit for FPS		
AS-FPS-PGZN-plus 64-1/80-2	0301630	
Sensor		
FPS-S M8	0301704	
Cable extension		
KV BG08-SG08 3P-0050	0301598	
KV BG08-SG08 3P-0100	0301599	
Evaluation electronics		
FPS-F5	0301805	

- ① When using an FPS system, an FPS sensor (FPS-S) as well as an electronic processor (FPS-F5 / F5 T) are required for each gripper as well as a mounting kit (AS), if listed. Cable extensions (KV) are optionally available – see catalog chapter “Accessories.”

Electronic magnetic switches MMS



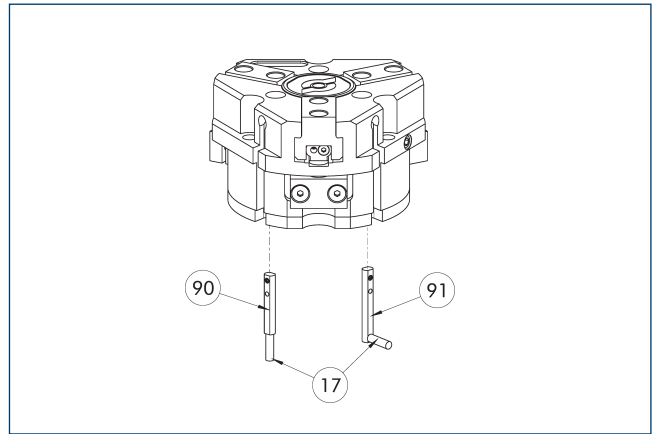
- ⑰ Cable outlet
- ⑲ Sensor MMS 22...-SA
- ① Sensor MMS 22..

End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Electronic magnetic switches MMS		
MMS 22-S-M8-PNP	0301032	●
MMSK 22-S-PNP	0301034	
MMS electronic magnetic switches with lateral outlet		
MMS 22-S-M8-PNP-SA	0301042	●
MMSK 22-S-PNP-SA	0301044	
Cable extension		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
clip for plug/socket		
CLI-M8	0301463	
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	
Sensor distributor		
V2-M8	0301775	●
V4-M8	0301746	
V8-M8	0301751	

- ① Two sensors (closer/S) are required for each unit and extension cables are available as an option. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Programmable magnetic switch MMS 22-PI1



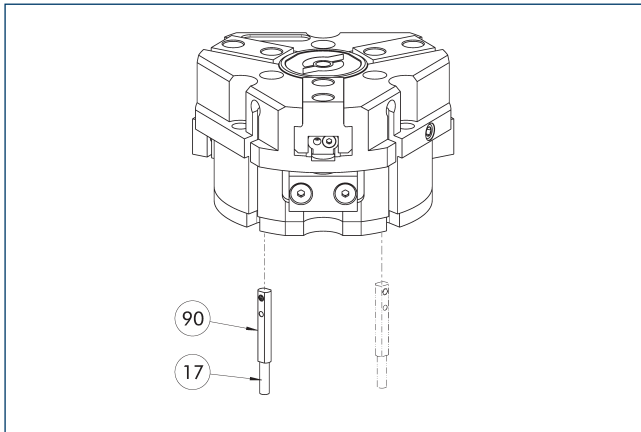
- ⑰ Cable outlet
- ⑲ Sensor MMS 22 ..-PI1-...-SA
- ① Sensor MMS 22 PI1-...

Position monitoring with one programmable position per sensor and electronics integrated in the sensor. Can be programmed using MT magnetic teaching tool (included in scope of delivery) or ST plug teaching tool (optional). End position monitoring is mounted 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
Plug teaching tool		
ST-MMS 22-PI1-PNP	0301025	
Programmable magnetic switch MMS 22-PI1		
MMS 22-PI1-S-M8-PNP	0301160	●
MMSK 22-PI1-S-PNP	0301162	
Programmable magnetic switch MMS 22-PI1 with lateral connection		
MMS 22-PI1-S-M8-PNP-SA	0301166	●
MMSK 22-PI1-S-PNP-SA	0301168	
Programmable magnetic switch MMS 22-PI1 with stainless steel housing		
MMS 22-PI1-S-M8-PNP-HD	0301110	●
MMSK 22-PI1-S-PNP-HD	0301112	

- ① Two sensors (closer/S) are required for each unit and extension cables are available as an option. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Programmable magnetic switch MMS 22-PI2



⑰ Cable outlet

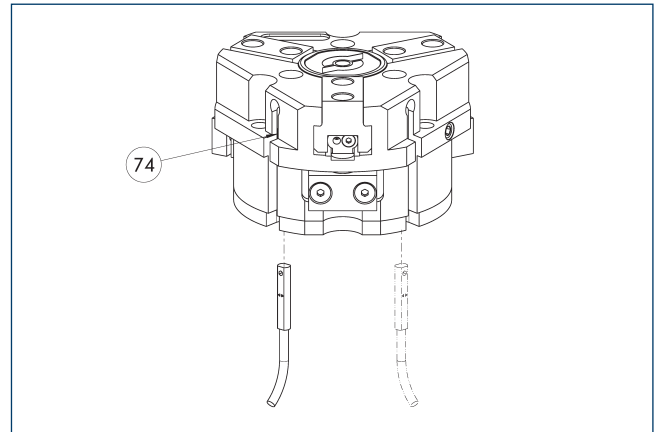
⑨⑩ MMS 22...-PI2-... sensor

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
Plug teaching tool		
ST-MMS 22-PI2-PNP	0301026	
Programmable magnetic switch MMS 22-PI2		
MMS 22-PI2-S-M8-PNP	0301180	●
MMSK 22-PI2-S-PNP	0301182	
Programmable magnetic switch MMS 22-PI2 with stainless steel housing		
MMS 22-PI2-S-M8-PNP-HD	0301130	●
MMSK 22-PI2-S-PNP-HD	0301132	

- ① Per unit one sensor (closer/S) is required, optionally a cable extension. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Programmable magnetic switches MMS-P



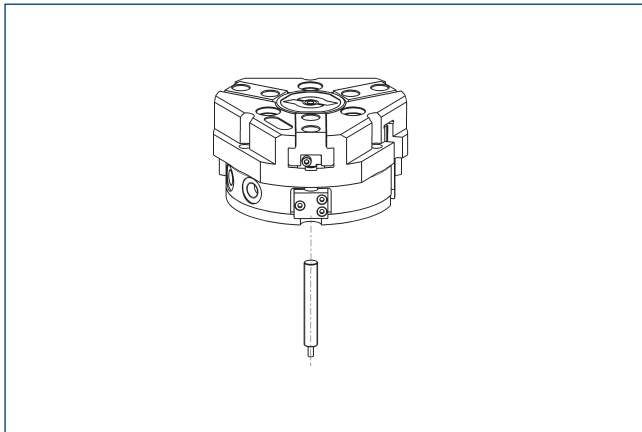
⑦④ Limit stop for sensor

Position monitoring with two programmable positions per sensor. End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Programmable magnetic switches MMS-P		
MMSK-P 22-S-PNP	0301371	
MMS-P 22-S-M8-PNP	0301370	●
clip for plug/socket		
CLI-M8	0301463	
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 Per unit one sensor (closer/S) is required, optionally a cable extension. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

APS-Z80 analog position sensor

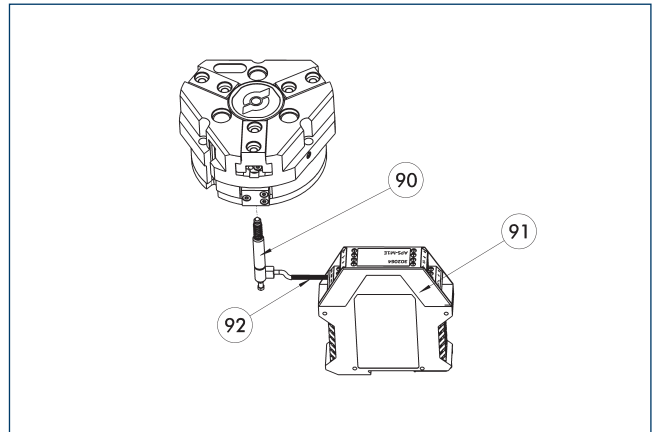


No-contact measuring, analog multi-position monitoring for any number of positions.

Description	ID	Often combined
Mounting kit for APS-Z80		
AS-APS-Z80-PGZN-plus 64-1	0302105	
Sensor		
APS-Z80-K	0302072	
APS-Z80-M8	0302070	●

① When using an APS system, one attachment kit (AS-APS-Z80) and one APS-Z80 sensor are required per gripper.

APS-M1 analog position sensor



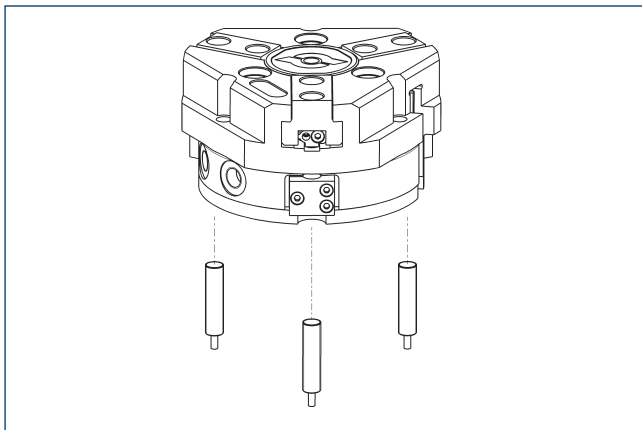
- ⑨⑩ APS-M1S sensor
- ⑨① APS-M1E electronic processor
- ⑨② APS-K extension cable

Analog multi position monitoring for any desired positions

Description	ID	
Mounting kit for APS-M1		
AS-APS-M1-PGZN-plus 64-1	0302075	
Sensor		
APS-M1S	0302062	

① When using an APS system, for each gripper an attachment kit (AS-APS-M1), an APS-M1S sensor (incl. 3 m cable) as well as an electronics (APS-M1e) are required. 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.

Cylindrical reed switches



End position monitoring can be mounted with an attachment kit.

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

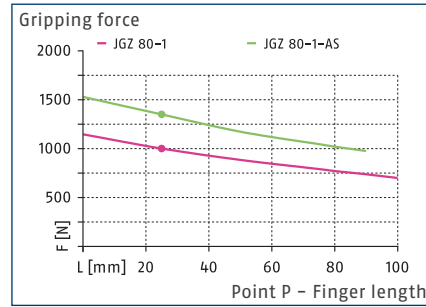
① Two sensors (closer/S) are required for each unit and extension cables are available as an option. This attachment kit needs to be ordered optionally as an accessory. Two mounting kits are required for each gripper. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

JGZ 80

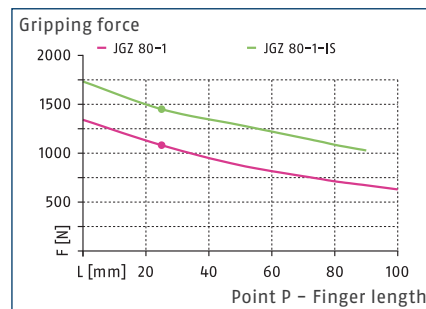
Universal gripper



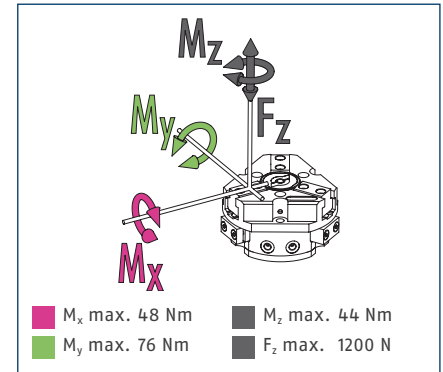
Gripping force, O.D. gripping



Gripping force, I.D. gripping



Finger load

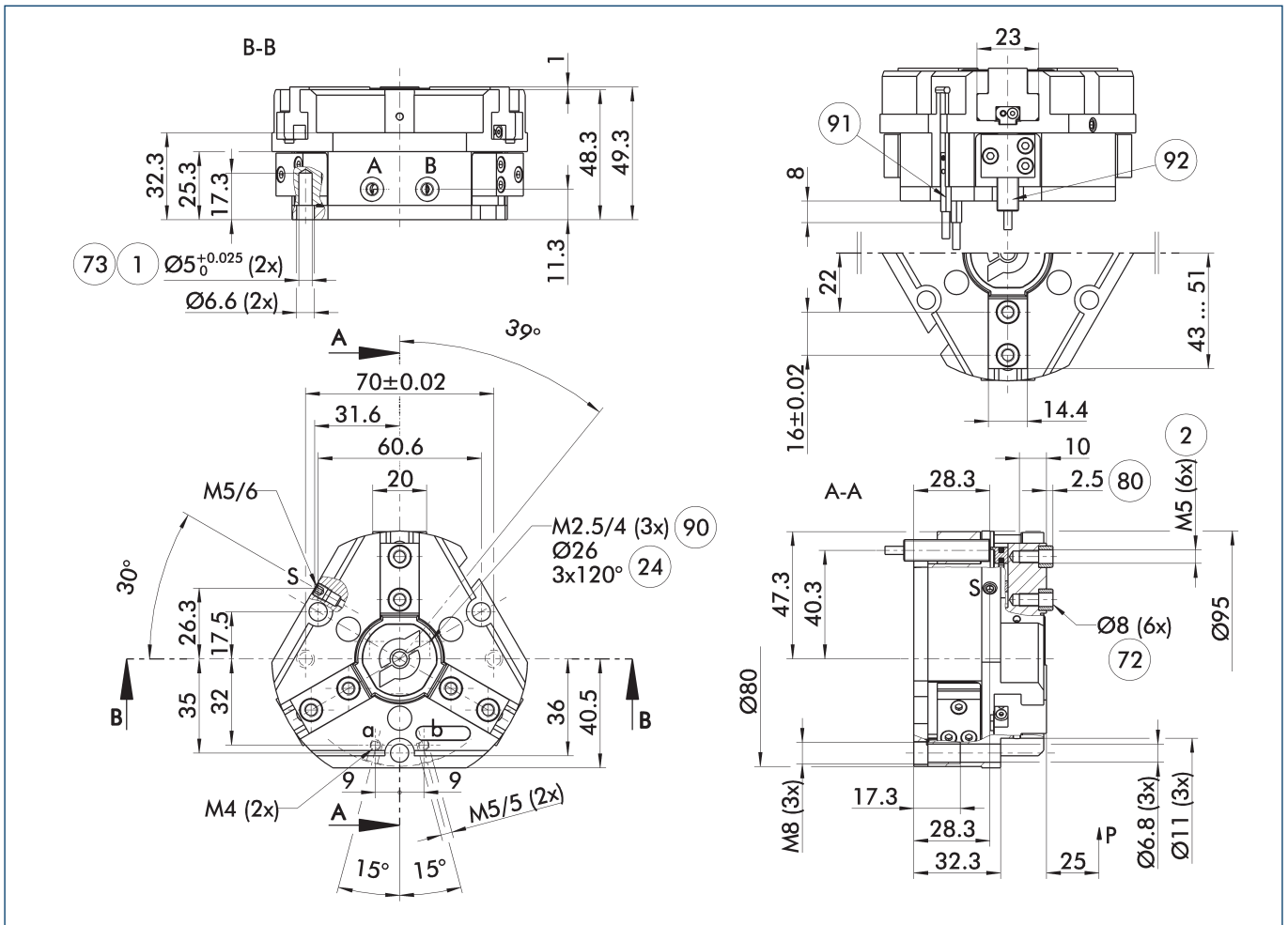


① The specified torques and forces are static values, apply for each base jaw, and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself.

Technical data

Description		JGZ 80-1	JGZ 80-1-AS	JGZ 80-1-IS
ID		0308930	0308931	0308932
Stroke per jaw	[mm]	8	8	8
Closing / opening force	[N]	1000/1080	1350/-	-/1450
Min. spring force	[N]		350	370
Weight	[kg]	0.79	0.96	0.96
Recommended workpiece weight	[kg]	5	5	5
Fluid consumption double stroke	[cm ³]	60	60	60
Min./max. operating pressure	[bar]	2/8	4/6.5	4/6.5
Nominal operating pressure	[bar]	6	6	6
Min./max. air purge pressure	[bar]	0.5/1	0.5/1	0.5/1
Closing/opening time	[s]	0.05/0.05	0.03/0.05	0.06/0.04
Closing- / opening time with spring	[s]		0.19	0.19
Max. permissible finger length	[mm]	100	90	90
Max. permissible mass per finger	[kg]	0.6	0.6	0.6
Protection class IP		40	40	40
Min./max. ambient temperature	[°C]	5/90	5/90	5/90
Repeat accuracy	[mm]	0.01	0.01	0.01
Cleanroom class ISO 14644-1		5	5	5

Main view



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

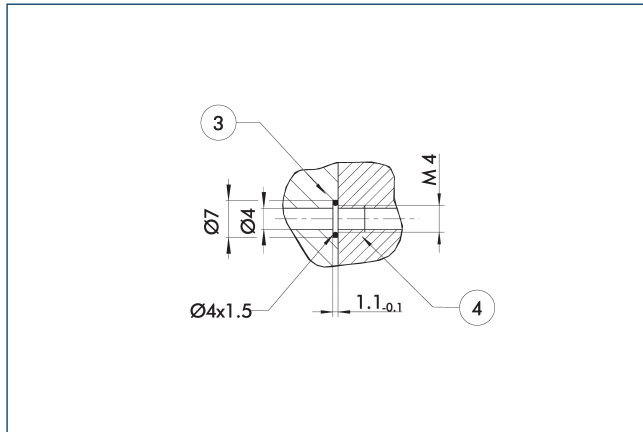
① The SDV-P pressure maintenance valve can also be used for I.D. or O.D. gripping alternatively or in addition to the spring-loaded, mechanical gripping force maintenance device (see catalog section on accessories).

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

① Gripper connection
 ② Finger connection
 ② Bolt circle

⑦② Fit for centering sleeves
 ⑦③ Fit for centering pins
 ⑧① Depth of the centering sleeve hole in the counter part
 ⑨① Thread below the cover for fastening external attachments
 ⑨① Sensor MMS 22..
 ⑨② Sensor IN ...

Hose-free direct connection M4

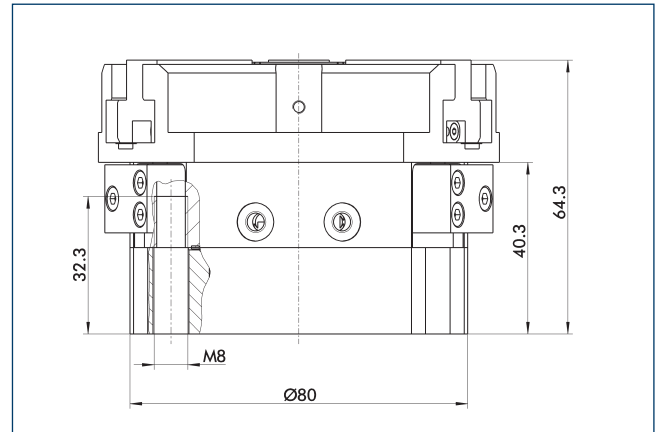


③ Adapter

④ Grippers

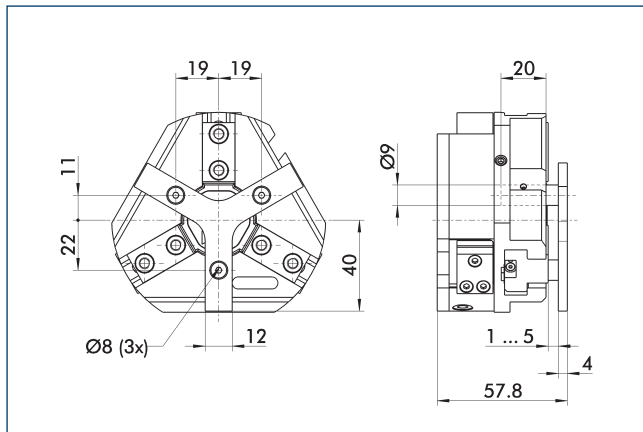
The direct connection is used for supplying compressed air without hoses. Instead, the pressure medium is fed through bore-holes in the mounting plate.

Gripping force maintenance device AS / IS



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.

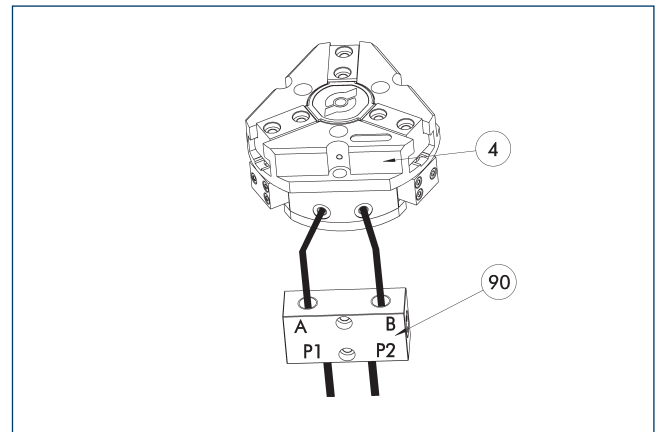
Spring-loaded pressure piece



For spring-supported positioning of the workpiece against a stop after the gripper has opened. Especially developed for loading machines.

Description	ID	Stroke [mm]	Min. force [N]
Spring-loaded pressure piece			
A-PZN-plus/DPZ-plus 80	0303721	4	18

SDV-P pressure maintenance valve



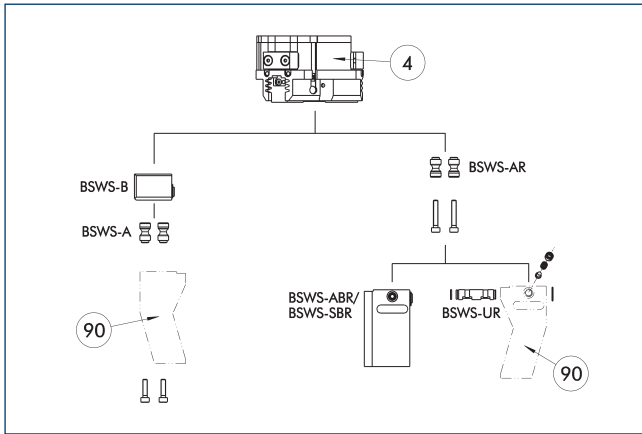
④ Grippers

⑨⑩ SDV-P pressure maintenance valve

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

Description	ID	
Pressure maintenance valve		
SDV-P 04	0403130	
Pressure maintenance valve with air bleed screw		
SDV-P 04-E	0300120	

BSWS jaw quick-change jaw systems



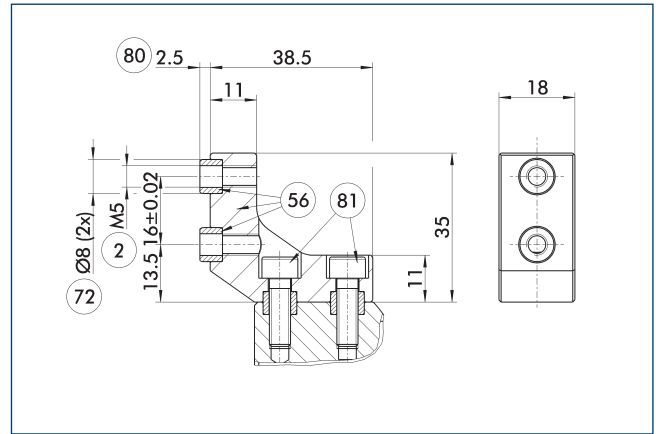
- ④ Grippers
- ⑨⑩ Customized gripper fingers

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

Description	ID	
Quick-change jaw system adapter		
BSWS-A 80	0303024	
BSWS-AR 80	0300093	
Quick-change jaw system base		
BSWS-B 80	0303025	
Jaw quick-change system		
BSWS-ABR-PGZN-plus 80	0300073	
BSWS-SBR-PGZN-plus 80	0300083	
Quick-change Jaw System reversed		
BSWS-UR 80	0302992	

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

ZBA-L-plus 80 intermediate jaws

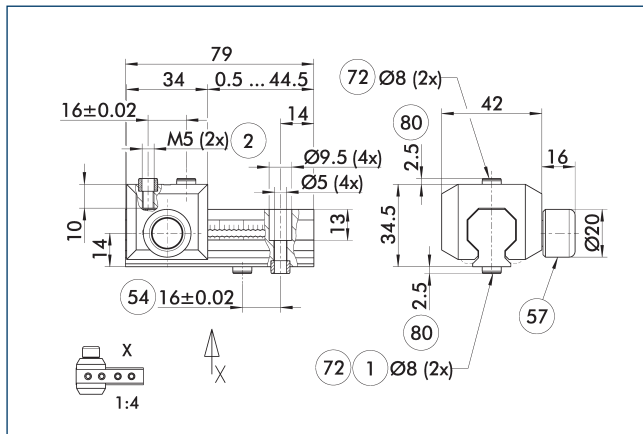


- ② Finger connection
- ⑤⑥ Included in the scope of delivery
- ⑦② Fit for centering sleeves
- ⑧⑩ Depth of the centering sleeve hole in the counter part
- ⑧① Not included in the scope of delivery

The optional ZBA-L-plus intermediate jaws allow the screw connection 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 jaws				
ZBA-L-plus 80	0311732	Aluminum	PGN-plus 80	1

UZB 80 universal intermediate jaw

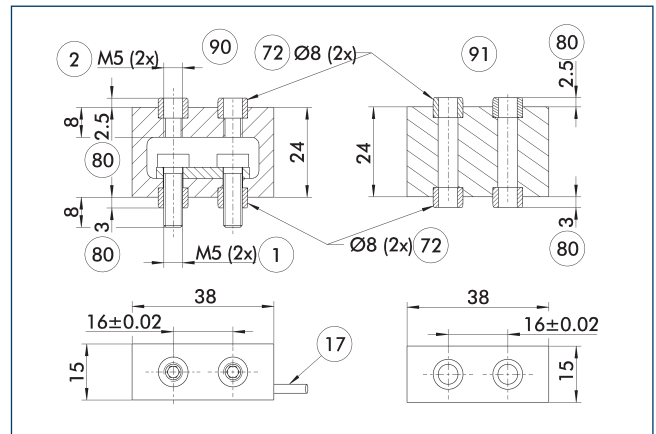


- ① Gripper connection
- ② Finger connection
- ⑤④ Optional right or left connection
- ⑤⑦ Locking
- ⑦② Fit for centering sleeves
- ⑧① Depth of the centering sleeve hole in the counter part

The drawing shows the UZB universal intermediate jaw. The fully removable UZB-S slide (can also be ordered separately) allows for a quick jaw change.

Description	ID	Grid dimension
		[mm]
Universal intermediate jaw		
UZB 80	0300043	2
UZB-S 80	5518271	2
Finger blanks		
ABR-PGZN-plus 80	0300011	
SBR-PGZN-plus 80	0300021	

Force-measuring jaws FMS-ZBA/ ZBP 80



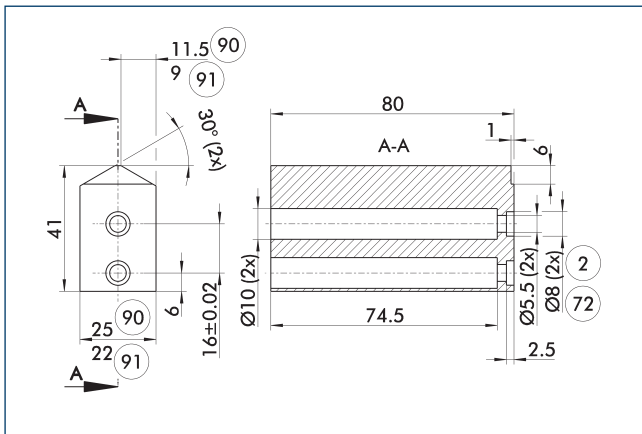
- ① Gripper connection
- ② Finger connection
- ①⑦ Cable outlet
- ⑦② Fit for centering sleeves
- ⑧① Depth of the centering sleeve hole in the counter part
- ⑨① Active intermediate jaws
- ⑨② Passive intermediate jaws

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 evaluation unit and a FMS-A connection cable are required.

Description	ID	Often combined
Active intermediate jaws		
FMS-ZBA 80	0301834	
Passive intermediate jaws		
FMS-ZBP 80	0301835	
Connection cables		
FMS-AK0200	0301820	●
FMS-AK0500	0301821	
FMS-AK1000	0301822	
FMS-AK2000	0301823	
Evaluation electronics		
FMS-A1	0301810	

- ① Due to the screw length, the FMS system can not be used in combination with the option dust-proof (SD) of the gripper. Please note that the admissible force range of the force measuring jaw (see catalog chapter FMS) should not be exceeded for the chosen gripper version.

Finger blanks ABR- / SBR-PGZN-plus 80

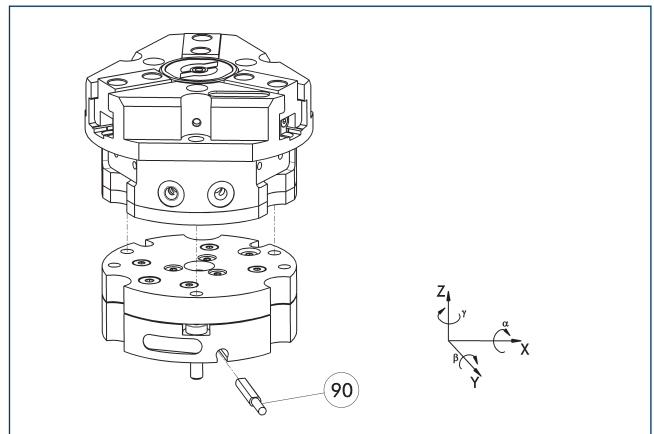


- ② Finger connection
- ⑦② Fit for centering sleeves
- ⑨① ABR-PGZN-plus
- ⑨② SBR-PGZN-plus

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

Description	ID	Material	Scope of delivery
Finger blanks			
ABR-PGZN-plus 80	0300011	Aluminum	1
SBR-PGZN-plus 80	0300021	16MnCr5	1

TCU tolerance compensation unit

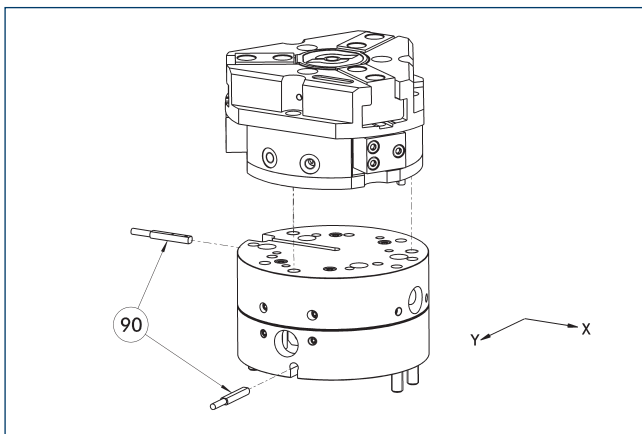


- ⑨① monitoring of locking

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-Z-080-3-MV	0324784	yes	±1°/±1°/±1°	●
TCU-Z-080-3-OV	0324785	no	±1°/±1°/±1°	

XY compensation unit with spring return

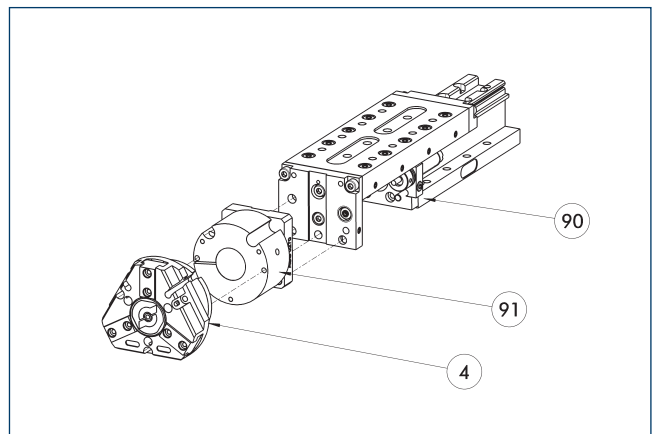


- ⑨① Monitoring

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	13	
AGE-F-XY-063-3	0324942	± 4	18	●

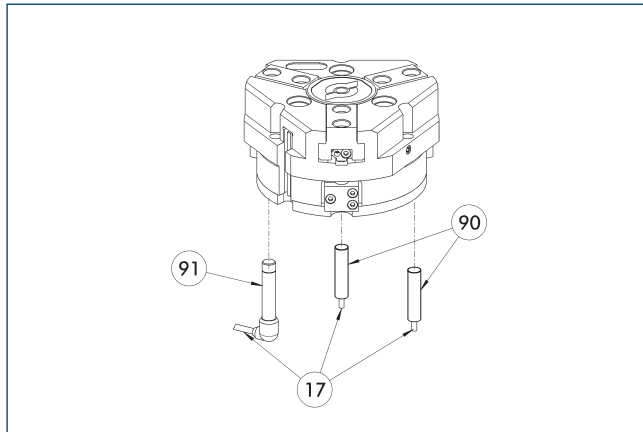
Modular Assembly Automation



- ④ Grippers
- ⑨① CLM/KLM/LM/ELP/ELM/ELS/HLM linear modules
- ⑨① ASG adapter plate

Grippers and linear modules can be combined with standard adapter plates from the modular assembly system. For more information see our main catalog "Modular Assembly Automation".

Inductive Proximity Switches



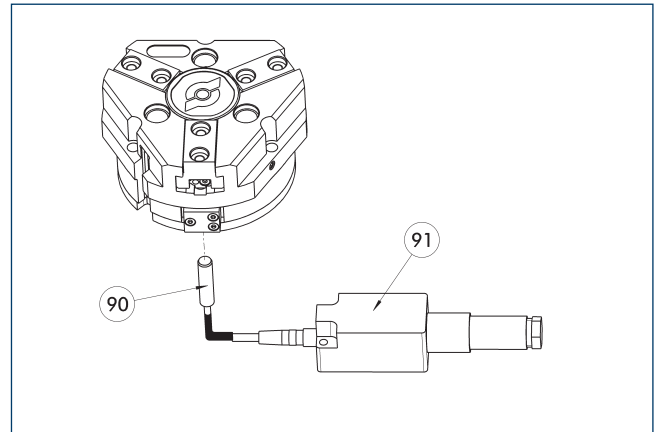
- 17 Cable outlet
- 91 Sensor IN..-SA
- 90 Sensor IN ...

Directly mounted end position monitoring.

Description	ID	Often combined
Inductive Proximity Switches		
IN 80-S-M12	0301578	
IN 80-S-M8	0301478	●
INK 80-S	0301550	
Inductive proximity switch with lateral outlet		
IN 80-S-M12-SA	0301587	
IN 80-S-M8-SA	0301483	●
INK 80-S-SA	0301566	
Cable extension		
KV BG12-SG12 3P-0030-PNP	0301999	
KV BG12-SG12 3P-0060-PNP	0301998	
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
KV BW12-SG12 3P-0030-PNP	0301595	
KV BW12-SG12 3P-0100-PNP	0301596	
KV BW12-SG12 3P-0200-PNP	0301597	
clip for plug/socket		
CLI-M12	0301464	
CLI-M8	0301463	
Connection cables		
KA BG08-L 3P-0300-PNP	0301622	●
KA BG08-L 3P-0500-PNP	0301623	
KA BG12-L 3P-0500-PNP	30016369	
KA BW08-L 3P-0300-PNP	0301594	
KA BW08-L 3P-0500-PNP	0301502	
KA BW12-L 3P-0300-PNP	0301503	
KA BW12-L 3P-0500-PNP	0301507	
Sensor distributor		
V2-M12	0301776	●
V2-M8	0301775	●
V4-M12	0301747	
V4-M8	0301746	
V8-M12	0301752	
V8-M8	0301751	

- ① Two sensors (closer/S) are required for each unit and extension cables are available as an option. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Flexible position sensor



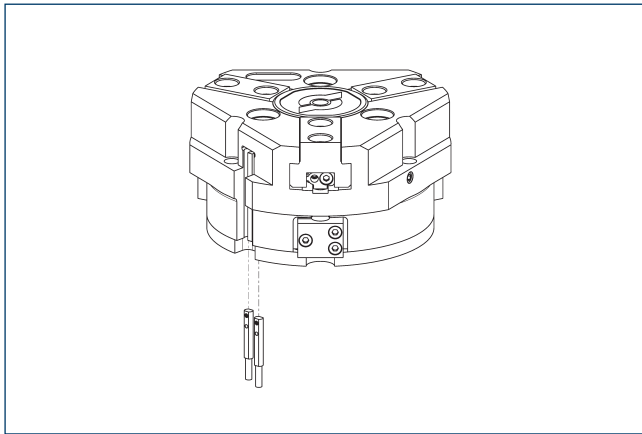
- 90 FPS-S sensor
- 91 FPS-F5 evaluation electronic

Flexible position monitoring of up to five positions.

Description	ID	
Attachment kit for FPS		
AS-FPS-PGZN-plus 80-1/PZB 80/PZB 100	0301632	
Sensor		
FPS-S M8	0301704	
Cable extension		
KV BG08-SG08 3P-0050	0301598	
KV BG08-SG08 3P-0100	0301599	
Evaluation electronics		
FPS-F5	0301805	

- ① When using an FPS system, an FPS sensor (FPS-S) as well as an electronic processor (FPS-F5 / F5 T) are required for each gripper as well as a mounting kit (AS), if listed. Cable extensions (KV) are optionally available – see catalog chapter “Accessories.”

Electronic magnetic switches MMS

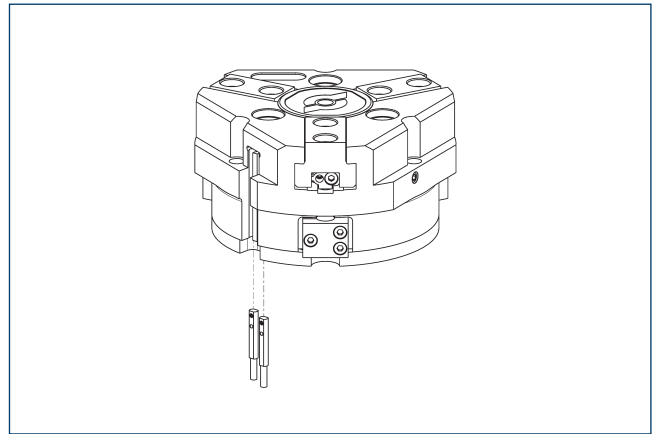


End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Electronic magnetic switches MMS		
MMS 22-S-M8-PNP	0301032	●
MMSK 22-S-PNP	0301034	
MMS electronic magnetic switches with lateral outlet		
MMS 22-S-M8-PNP-SA	0301042	●
MMSK 22-S-PNP-SA	0301044	
Reed Switches		
RMS 22-S-M8	0377720	●
Cable extension		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
clip for plug/socket		
CLI-M8	0301463	
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	
RSS Wireless sensor system		
RSS-T2	0377715	
RSS-T2-US/CA	0377717	
Sensor distributor		
V2-M8	0301775	●
V4-M8	0301746	
V8-M8	0301751	

① Two sensors (closer/S) are required for each unit and extension cables are available as an option. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Programmable magnetic switch MMS 22-PI1



①7 Cable outlet

①91 Sensor MMS 22 ..-PI1-...-SA

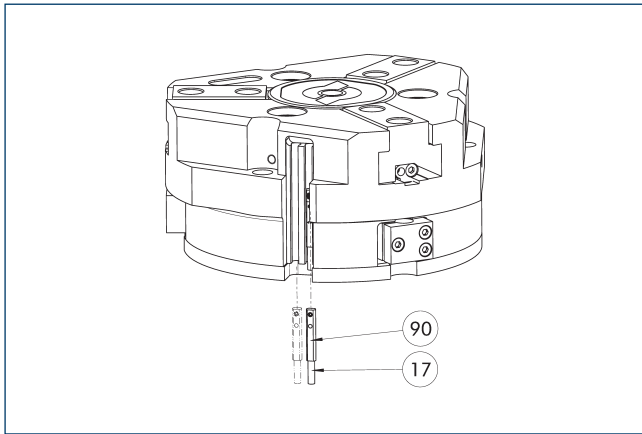
①90 Sensor MMS 22 PI1-...

Position monitoring with one programmable position per sensor and electronics integrated in the sensor. Can be programmed using MT magnetic teaching tool (included in scope of delivery) or ST plug teaching tool (optional). End position monitoring is mounted 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		
MMS 22-PI1-S-M8-PNP	0301160	●
MMSK 22-PI1-S-PNP	0301162	
Programmable magnetic switch MMS 22-PI1 with lateral connection		
MMS 22-PI1-S-M8-PNP-SA	0301166	●
MMSK 22-PI1-S-PNP-SA	0301168	
Programmable magnetic switch MMS 22-PI1 with stainless steel housing		
MMS 22-PI1-S-M8-PNP-HD	0301110	●
MMSK 22-PI1-S-PNP-HD	0301112	

① Two sensors (closer/S) are required for each unit and extension cables are available as an option. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Programmable magnetic switch MMS 22-PI2



17 Cable outlet

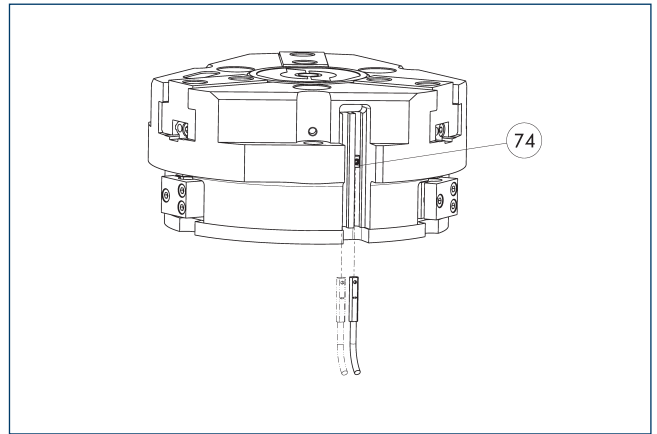
90 MMS 22...-PI2-... sensor

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		
MMS 22-PI2-S-M8-PNP	0301180	●
MMSK 22-PI2-S-PNP	0301182	
Programmable magnetic switch MMS 22-PI2 with stainless steel housing		
MMS 22-PI2-S-M8-PNP-HD	0301130	●
MMSK 22-PI2-S-PNP-HD	0301132	

- ① Per unit one sensor (closer/S) is required, optionally a cable extension. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Programmable magnetic switches MMS-P



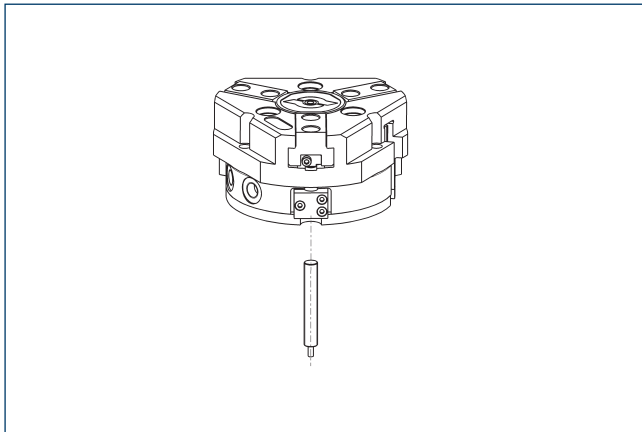
74 Limit stop for sensor

Position monitoring with two programmable positions per sensor. End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Programmable magnetic switches MMS-P		
MMSK-P 22-S-PNP	0301371	
MMS-P 22-S-M8-PNP	0301370	●
clip for plug/socket		
CLI-M8	0301463	
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 Per unit one sensor (closer/S) is required, optionally a cable extension. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

APS-Z80 analog position sensor

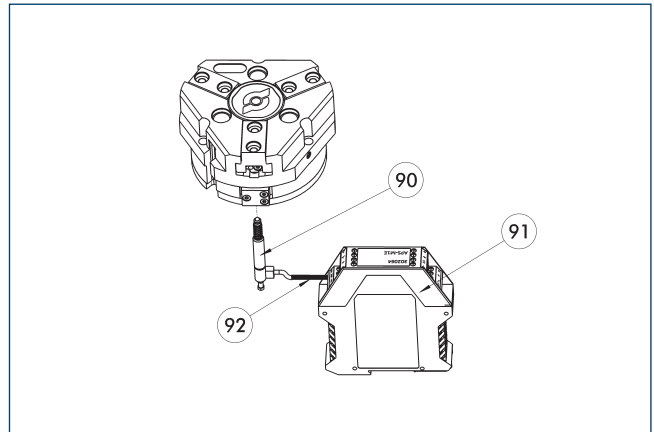


No-contact measuring, analog multi-position monitoring for any number of positions.

Description	ID	Often combined
Mounting kit for APS-Z80		
AS-APS-Z80-PGZN-plus 80-1	0302107	
Sensor		
APS-Z80-K	0302072	
APS-Z80-M8	0302070	●

① When using an APS system, one attachment kit (AS-APS-Z80) and one APS-Z80 sensor are required per gripper.

APS-M1 analog position sensor



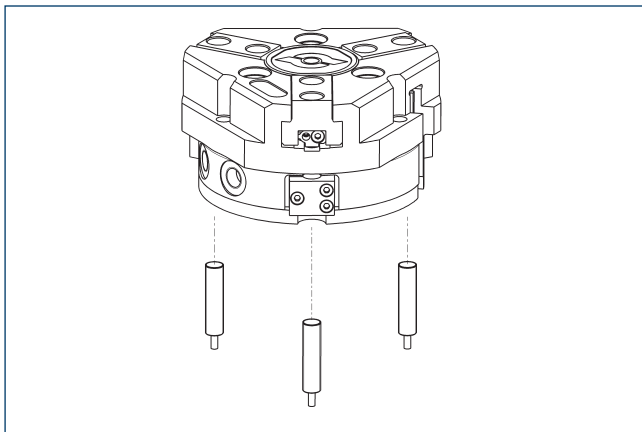
- ⑨⑩ APS-M1S sensor
- ⑨① APS-M1E electronic processor
- ⑨② APS-K extension cable

Analog multi position monitoring for any desired positions

Description	ID	
Mounting kit for APS-M1		
AS-APS-M1-PGZN-plus 80-1	0302077	
Sensor		
APS-M1S	0302062	

① When using an APS system, for each gripper an attachment kit (AS-APS-M1), an APS-M1S sensor (incl. 3 m cable) as well as an electronics (APS-M1e) are required. 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.

Cylindrical reed switches



End position monitoring can be mounted with an attachment kit.

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

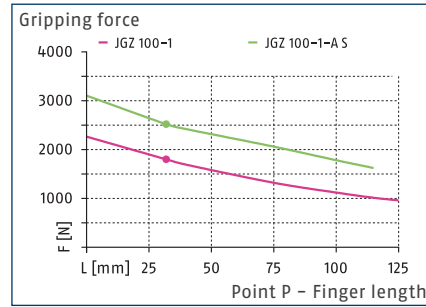
① Two sensors (closer/S) are required for each unit and extension cables are available as an option. This attachment kit needs to be ordered optionally as an accessory. Two mounting kits are required for each gripper. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

JGZ 100

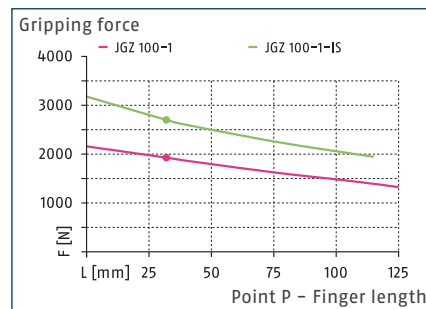
Universal gripper



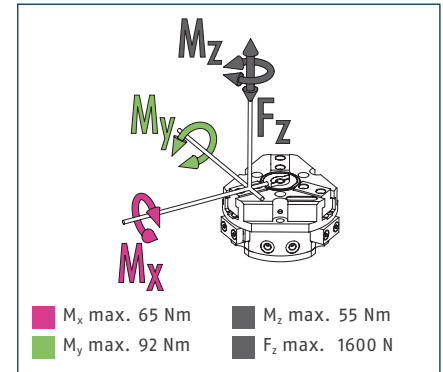
Gripping force, O.D. gripping



Gripping force, I.D. gripping



Finger load

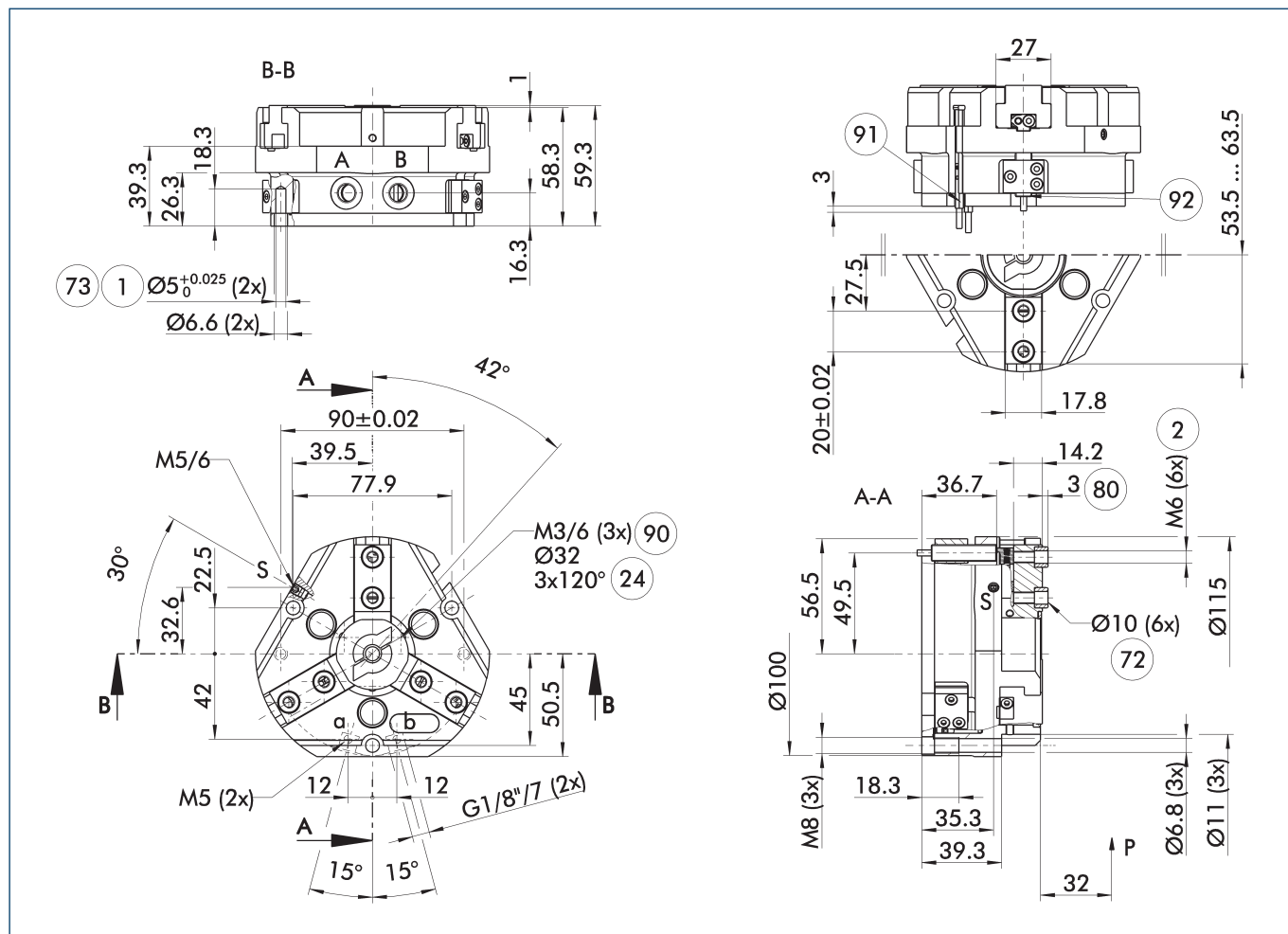


① The specified torques and forces are static values, apply for each base jaw, and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself.

Technical data

Description		JGZ 100-1	JGZ 100-1-AS	JGZ 100-1-IS
ID		0308940	0308941	0308942
Stroke per jaw	[mm]	10	10	10
Closing / opening force	[N]	1800/1920	2520/-	-/2700
Min. spring force	[N]		720	780
Weight	[kg]	1.41	1.95	1.95
Recommended workpiece weight	[kg]	9	9	9
Fluid consumption double stroke	[cm ³]	120	120	120
Min./max. operating pressure	[bar]	2/8	4/6.5	4/6.5
Nominal operating pressure	[bar]	6	6	6
Min./max. air purge pressure	[bar]	0.5/1	0.5/1	0.5/1
Closing/opening time	[s]	0.1/0.1	0.1/0.2	0.2/0.1
Closing- / opening time with spring	[s]		0.25	0.25
Max. permissible finger length	[mm]	125	115	115
Max. permissible mass per finger	[kg]	1.1	1.1	1.1
Protection class IP		40	40	40
Min./max. ambient temperature	[°C]	5/90	5/90	5/90
Repeat accuracy	[mm]	0.01	0.01	0.01
Cleanroom class ISO 14644-1		5	5	5

Main view

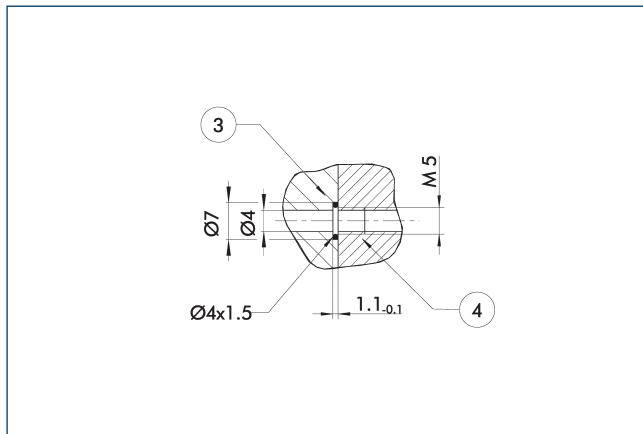


The drawing shows the gripper in the basic version with closed jaws, without dimensional consideration of the options described below.

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 | 72 Fit for centering sleeves |
| B, b Main / direct connection, gripper closing | 73 Fit for centering pins |
| S Air purge connection | 80 Depth of the centering sleeve hole in the counter part |
| 1 Gripper connection | 90 Thread below the cover for fastening external attachments |
| 2 Finger connection | 91 Sensor MMS 22.. |
| 24 Bolt circle | 92 Sensor IN ... |

Hose-free direct connection M5

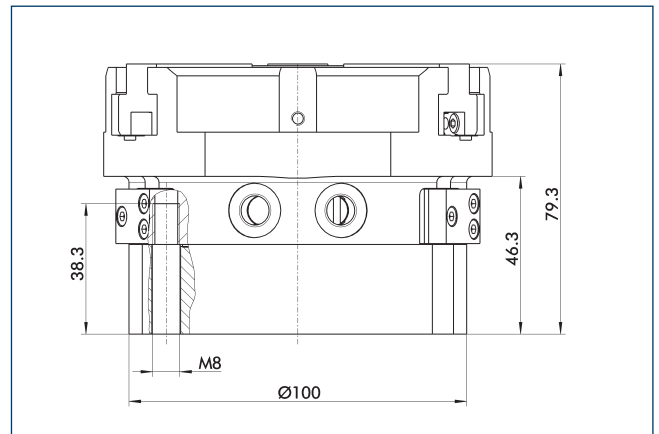


③ Adapter

④ Grippers

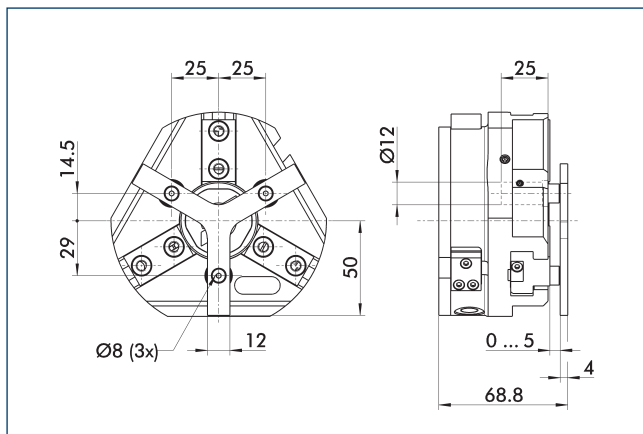
The direct connection is used for supplying compressed air without hoses. Instead, the pressure medium is fed through bore-holes in the mounting plate.

Gripping force maintenance device AS / IS



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.

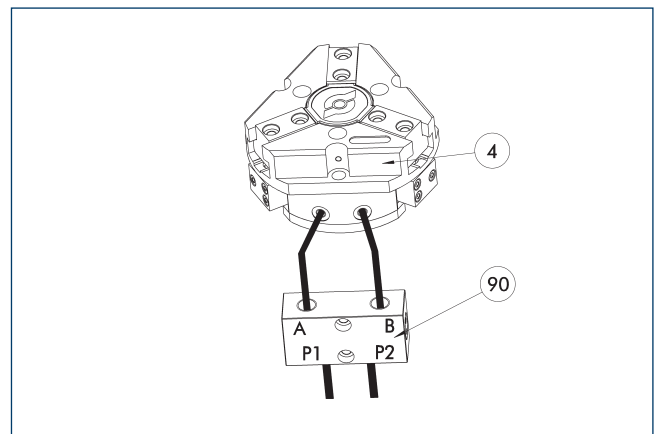
Spring-loaded pressure piece



For spring-supported positioning of the workpiece against a stop after the gripper has opened. Especially developed for loading machines.

Description	ID	Stroke [mm]	Min. force [N]
Spring-loaded pressure piece			
A-PZN-plus/DPZ-plus 100	0303722	5	35

SDV-P pressure maintenance valve



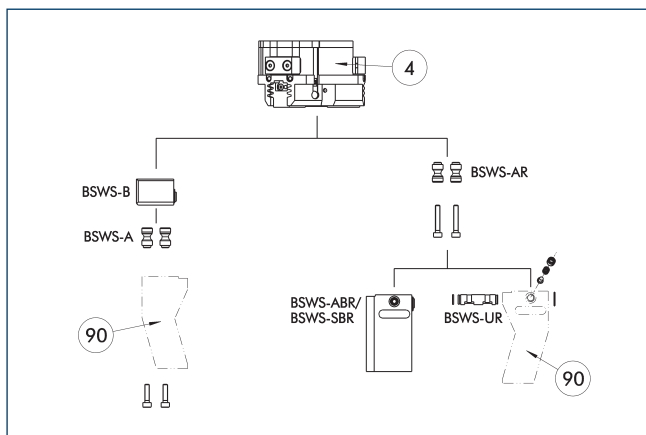
④ Grippers

⑨⑩ SDV-P pressure maintenance valve

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

Description	ID	
Pressure maintenance valve		
SDV-P 04	0403130	
Pressure maintenance valve with air bleed screw		
SDV-P 04-E	0300120	

BSWS jaw quick-change jaw systems



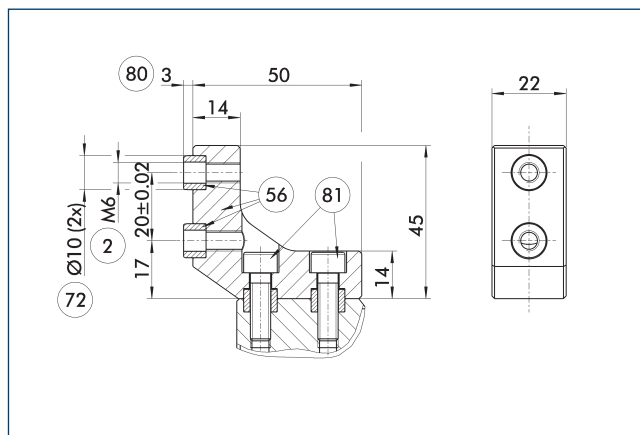
- ④ Grippers
- ⑨⑩ Customized gripper fingers

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

Description	ID	
Quick-change jaw system adapter		
BSWS-A 100	0303026	
BSWS-AR 100	0300094	
Quick-change jaw system base		
BSWS-B 100	0303027	
Jaw quick-change system		
BSWS-ABR-PGZN-plus 100	0300074	
BSWS-SBR-PGZN-plus 100	0300084	
Quick-change Jaw System reversed		
BSWS-UR 100	0302993	

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

ZBA-L-plus 100 intermediate jaws

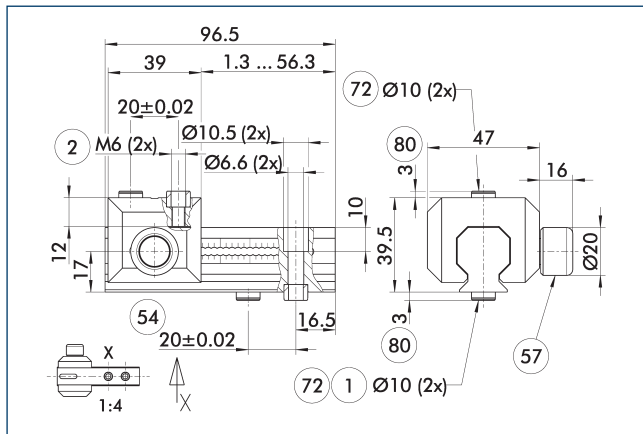


- ② Finger connection
- ⑤⑥ Included in the scope of delivery
- ⑦② Fit for centering sleeves
- ⑧⑩ Depth of the centering sleeve hole in the counter part
- ⑧① Not included in the scope of delivery

The optional ZBA-L-plus intermediate jaws allow the screw connection 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 jaws				
ZBA-L-plus 100	0311742	Aluminum	PGN-plus 100	1

UZB 100 universal intermediate jaw

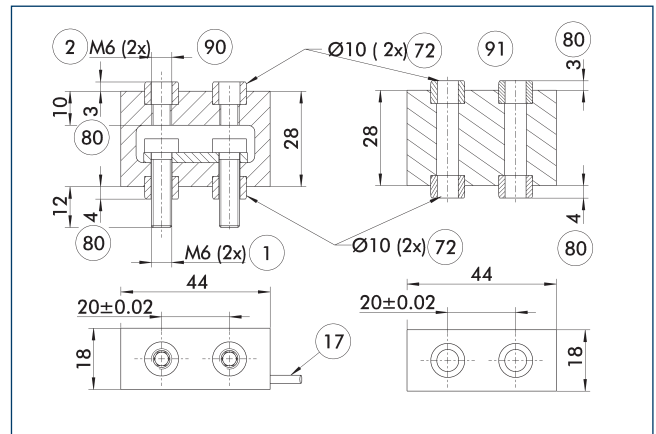


- ① Gripper connection
- ② Finger connection
- ⑤④ Optional right or left connection
- ⑤⑦ Locking
- ⑦② Fit for centering sleeves
- ⑧① Depth of the centering sleeve hole in the counter part

The drawing shows the UZB universal intermediate jaw. The fully removable UZB-S slide (can also be ordered separately) allows for a quick jaw change.

Description	ID	Grid dimension [mm]
Universal intermediate jaw		
UZB 100	0300044	2.5
UZB-S 100	5518272	2.5
Finger blanks		
ABR-PGZN-plus 100	0300012	
SBR-PGZN-plus 100	0300022	

Force-measuring jaws FMS-ZBA/ ZBP 100



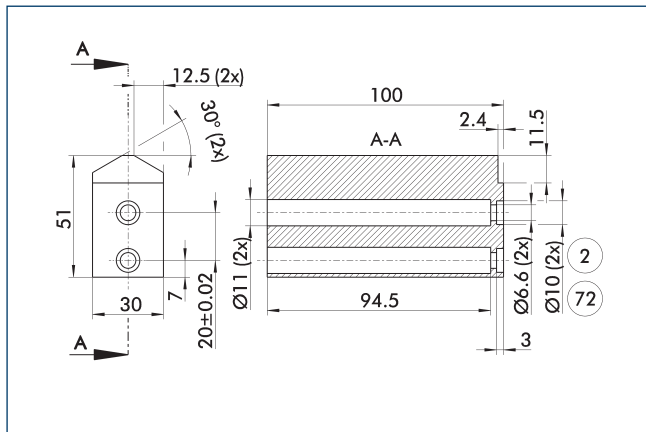
- ① Gripper connection
- ② Finger connection
- ①⑦ Cable outlet
- ⑦② Fit for centering sleeves
- ⑧① Depth of the centering sleeve hole in the counter part
- ⑨① Active intermediate jaws
- ⑨① Passive intermediate jaws

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 evaluation unit and a FMS-A connection cable are required.

Description	ID	Often combined
Active intermediate jaws		
FMS-ZBA 100	0301836	
Passive intermediate jaws		
FMS-ZBP 100	0301837	
Connection cables		
FMS-AK0200	0301820	●
FMS-AK0500	0301821	
FMS-AK1000	0301822	
FMS-AK2000	0301823	
Evaluation electronics		
FMS-A1	0301810	

- ① Due to the screw length, the FMS system can not be used in combination with the option dust-proof (SD) of the gripper. Please note that the admissible force range of the force measuring jaw (see catalog chapter FMS) should not be exceeded for the chosen gripper version.

Finger blanks ABR- / SBR-PGZN-plus 100

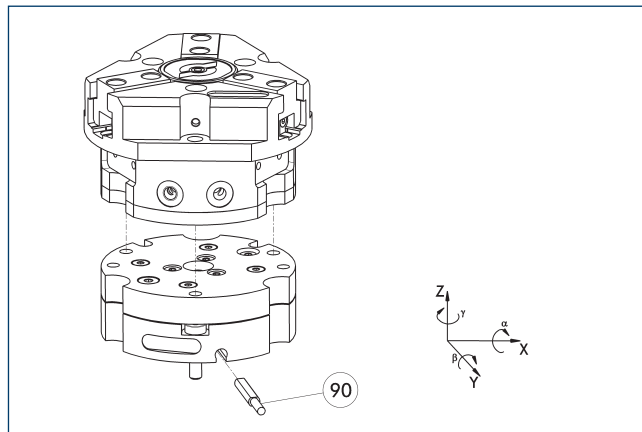


- ② Finger connection
- ⑦② Fit for centering sleeves

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

Description	ID	Material	Scope of delivery
Finger blanks			
ABR-PGZN-plus 100	0300012	Aluminum	1
SBR-PGZN-plus 100	0300022	16MnCr5	1

TCU tolerance compensation unit

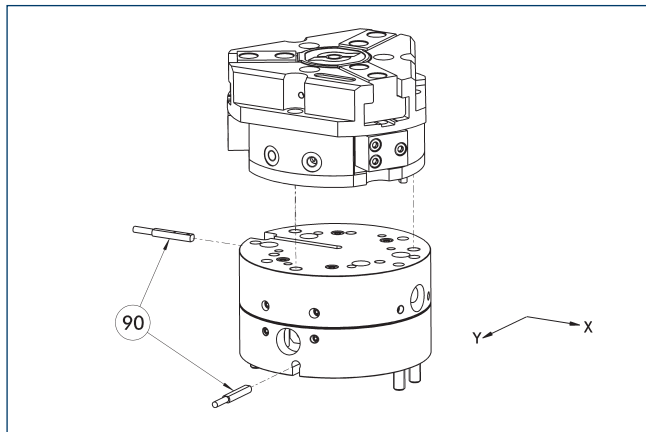


- ⑨⑩ monitoring of locking

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-Z-100-2-MV	0324798	yes	±1°/±1°/±1°	●
TCU-Z-100-2-OV	0324799	no	±1°/±1°/±1°	

XY compensation unit with spring return

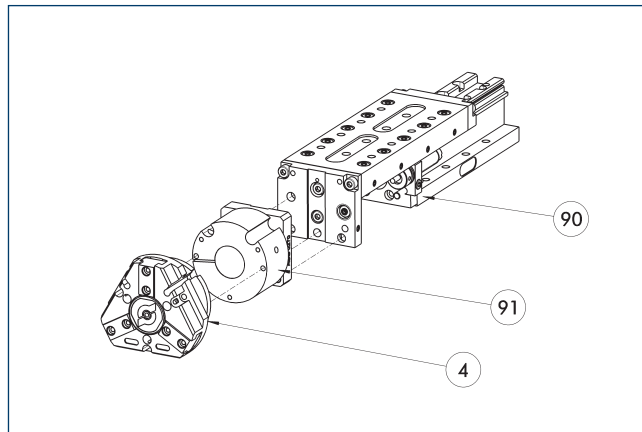


- ⑨⑩ Monitoring

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-080-1	0324960	± 5	36	
AGE-F-XY-080-2	0324961	± 5	55	
AGE-F-XY-080-3	0324962	± 5	65	●

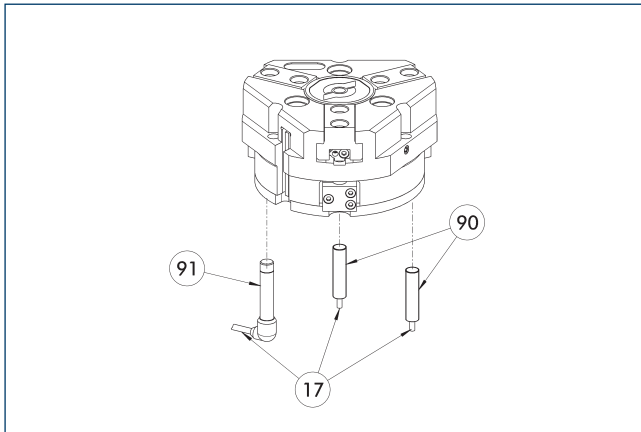
Modular Assembly Automation



- ④ Grippers
- ⑨⑩ CLM/KLM/LM/ELP/ELM/ELS/HLM linear modules
- ⑨① ASG adapter plate

Grippers and linear modules can be combined with standard adapter plates from the modular assembly system. For more information see our main catalog "Modular Assembly Automation".

Inductive Proximity Switches



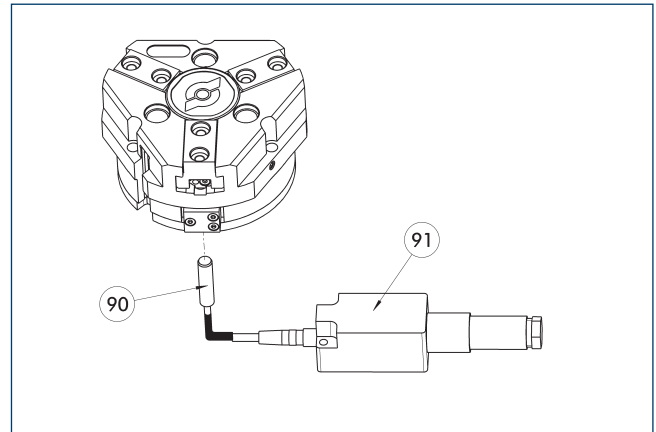
- 17 Cable outlet
- 91 Sensor IN..-SA
- 90 Sensor IN ...

Directly mounted end position monitoring.

Description	ID	Often combined
Inductive Proximity Switches		
IN 80-S-M12	0301578	
IN 80-S-M8	0301478	●
INK 80-S	0301550	
Inductive proximity switch with lateral outlet		
IN 80-S-M12-SA	0301587	
IN 80-S-M8-SA	0301483	●
INK 80-S-SA	0301566	
Cable extension		
KV BG12-SG12 3P-0030-PNP	0301999	
KV BG12-SG12 3P-0060-PNP	0301998	
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
KV BW12-SG12 3P-0030-PNP	0301595	
KV BW12-SG12 3P-0100-PNP	0301596	
KV BW12-SG12 3P-0200-PNP	0301597	
clip for plug/socket		
CLI-M12	0301464	
CLI-M8	0301463	
Connection cables		
KA BG08-L 3P-0300-PNP	0301622	●
KA BG08-L 3P-0500-PNP	0301623	
KA BG12-L 3P-0500-PNP	30016369	
KA BW08-L 3P-0300-PNP	0301594	
KA BW08-L 3P-0500-PNP	0301502	
KA BW12-L 3P-0300-PNP	0301503	
KA BW12-L 3P-0500-PNP	0301507	
Sensor distributor		
V2-M12	0301776	●
V2-M8	0301775	●
V4-M12	0301747	
V4-M8	0301746	
V8-M12	0301752	
V8-M8	0301751	

- ① Two sensors (closer/S) are required for each unit and extension cables are available as an option. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Flexible position sensor



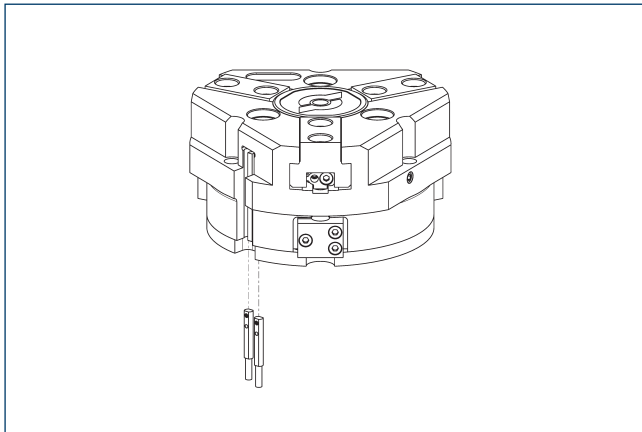
- 90 FPS-S sensor
- 91 FPS-F5 evaluation electronic

Flexible position monitoring of up to five positions.

Description	ID	
Attachment kit for FPS		
AS-FPS-PGZN-plus 100-1	0301634	
Sensor		
FPS-S M8	0301704	
Cable extension		
KV BG08-SG08 3P-0050	0301598	
KV BG08-SG08 3P-0100	0301599	
Evaluation electronics		
FPS-F5	0301805	

- ① When using an FPS system, an FPS sensor (FPS-S) as well as an electronic processor (FPS-F5 / F5 T) are required for each gripper as well as a mounting kit (AS), if listed. Cable extensions (KV) are optionally available – see catalog chapter “Accessories.”

Electronic magnetic switches MMS

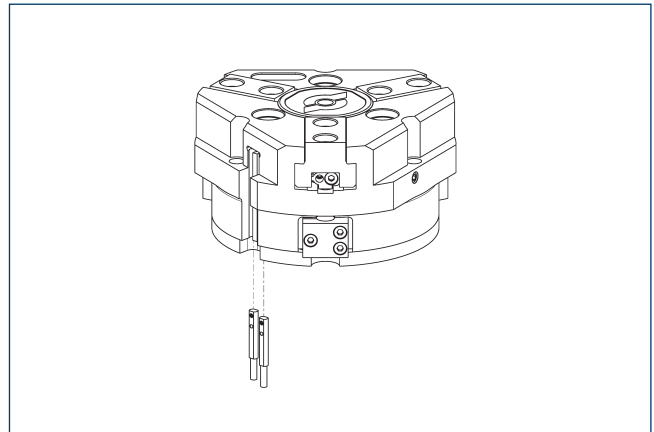


End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Electronic magnetic switches MMS		
MMS 22-S-M8-PNP	0301032	●
MMSK 22-S-PNP	0301034	
MMS electronic magnetic switches with lateral outlet		
MMS 22-S-M8-PNP-SA	0301042	●
MMSK 22-S-PNP-SA	0301044	
Reed Switches		
RMS 22-S-M8	0377720	●
Cable extension		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
clip for plug/socket		
CLI-M8	0301463	
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	
RSS Wireless sensor system		
RSS-T2	0377715	
RSS-T2-US/CA	0377717	
Sensor distributor		
V2-M8	0301775	●
V4-M8	0301746	
V8-M8	0301751	

① Two sensors (closer/S) are required for each unit and extension cables are available as an option. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Programmable magnetic switch MMS 22-PI1



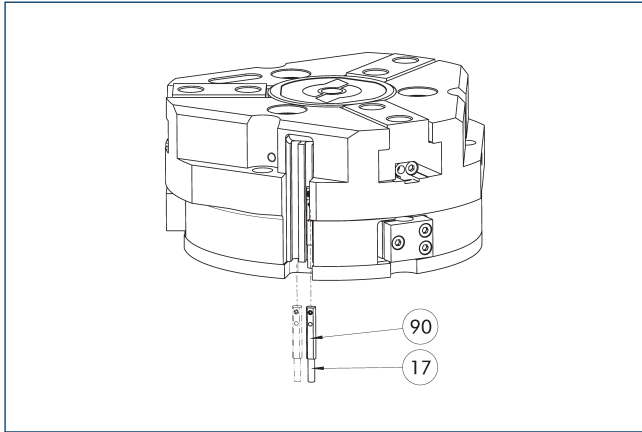
- ①7 Cable outlet
- ①90 Sensor MMS 22 PI1-...
- ①91 Sensor MMS 22 ..-PI1-...-SA

Position monitoring with one programmable position per sensor and electronics integrated in the sensor. Can be programmed using MT magnetic teaching tool (included in scope of delivery) or ST plug teaching tool (optional). End position monitoring is mounted 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		
MMS 22-PI1-S-M8-PNP	0301160	●
MMSK 22-PI1-S-PNP	0301162	
Programmable magnetic switch MMS 22-PI1 with lateral connection		
MMS 22-PI1-S-M8-PNP-SA	0301166	●
MMSK 22-PI1-S-PNP-SA	0301168	
Programmable magnetic switch MMS 22-PI1 with stainless steel housing		
MMS 22-PI1-S-M8-PNP-HD	0301110	●
MMSK 22-PI1-S-PNP-HD	0301112	

① Two sensors (closer/S) are required for each unit and extension cables are available as an option. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Programmable magnetic switch MMS 22-PI2



17 Cable outlet

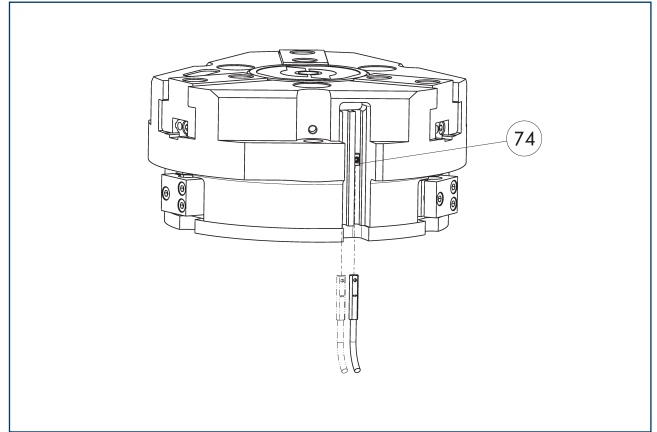
90 MMS 22...-PI2-... sensor

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		
MMS 22-PI2-S-M8-PNP	0301180	●
MMSK 22-PI2-S-PNP	0301182	
Programmable magnetic switch MMS 22-PI2 with stainless steel housing		
MMS 22-PI2-S-M8-PNP-HD	0301130	●
MMSK 22-PI2-S-PNP-HD	0301132	

- ① Per unit one sensor (closer/S) is required, optionally a cable extension. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Programmable magnetic switches MMS-P



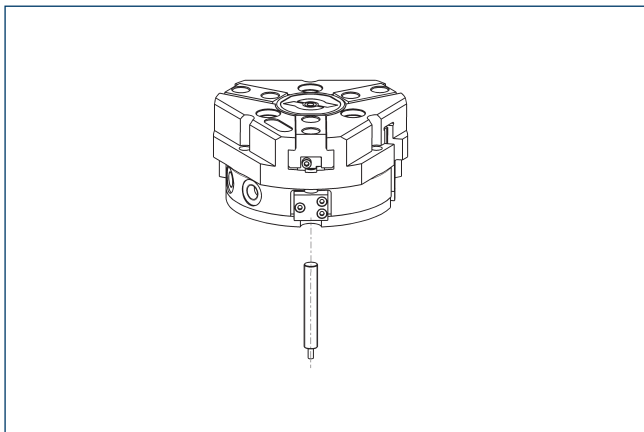
74 Limit stop for sensor

Position monitoring with two programmable positions per sensor. End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Programmable magnetic switches MMS-P		
MMSK-P 22-S-PNP	0301371	
MMS-P 22-S-M8-PNP	0301370	●
clip for plug/socket		
CLI-M8	0301463	
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 Per unit one sensor (closer/S) is required, optionally a cable extension. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

APS-Z80 analog position sensor

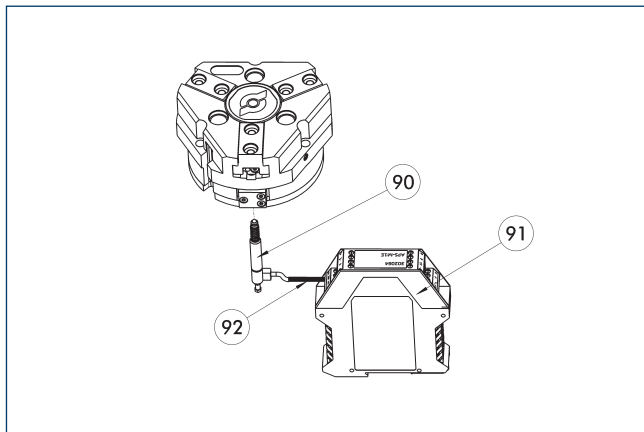


No-contact measuring, analog multi-position monitoring for any number of positions.

Description	ID	Often combined
Mounting kit for APS-Z80		
AS-APS-Z80-PGZN-plus 100-1	0302109	
Sensor		
APS-Z80-K	0302072	
APS-Z80-M8	0302070	●

① When using an APS system, one attachment kit (AS-APS-Z80) and one APS-Z80 sensor are required per gripper.

APS-M1 analog position sensor



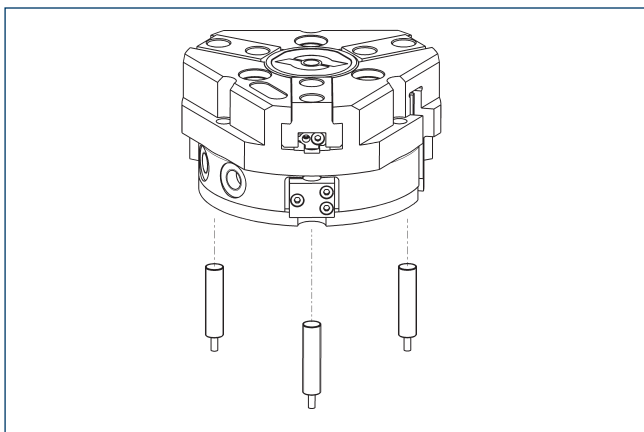
- ⑨⑩ APS-M1S sensor
- ⑨① APS-M1E electronic processor
- ⑨② APS-K extension cable

Analog multi position monitoring for any desired positions

Description	ID	
Mounting kit for APS-M1		
AS-APS-M1-PGZN-plus 100-1	0302079	
Sensor		
APS-M1S	0302062	

① When using an APS system, for each gripper an attachment kit (AS-APS-M1), an APS-M1S sensor (incl. 3 m cable) as well as an electronics (APS-M1e) are required. 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.

Cylindrical reed switches



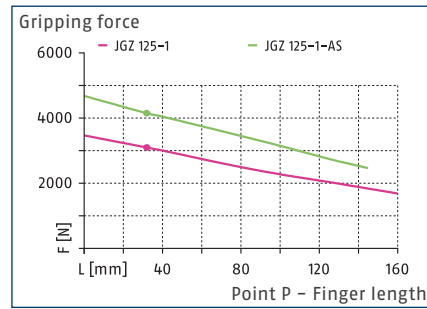
End position monitoring can be mounted with an attachment kit.

Description	ID	
Attachment kit for proximity switch		
AS-RMS 80 PGN/PZN-plus 100/125	0377726	
Reed Switches		
RMS 80-S-M8	0377721	

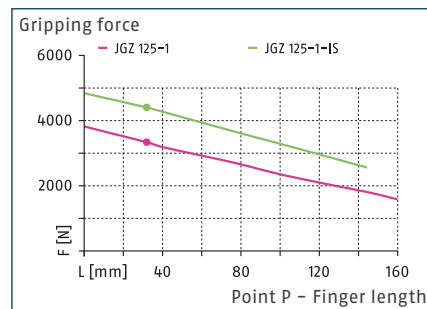
① Two sensors (closer/S) are required for each unit and extension cables are available as an option. This attachment kit needs to be ordered optionally as an accessory. Two mounting kits are required for each gripper. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.



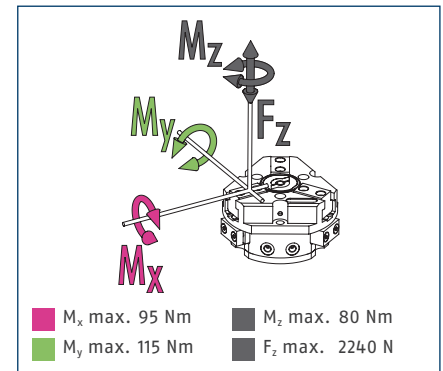
Gripping force, O.D. gripping



Gripping force, I.D. gripping



Finger load

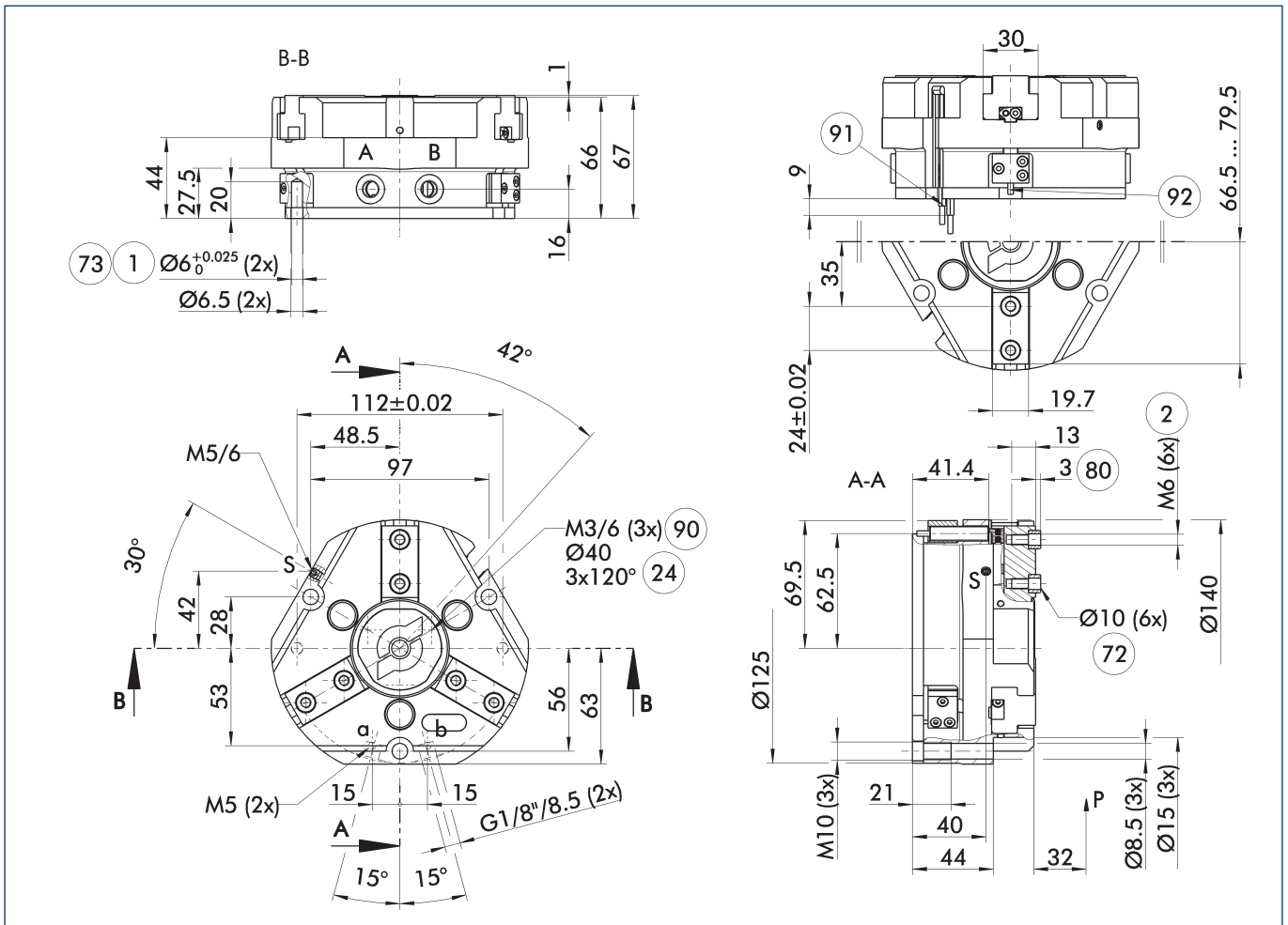


① The specified torques and forces are static values, apply for each base jaw, and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself.

Technical data

Description		JGZ 125-1	JGZ 125-1-AS	JGZ 125-1-IS
ID		0308950	0308951	0308952
Stroke per jaw	[mm]	13	13	13
Closing / opening force	[N]	3100/3330	4150/-	-/4400
Min. spring force	[N]		1050	1070
Weight	[kg]	2.8	3.6	3.6
Recommended workpiece weight	[kg]	15.5	15.5	15.5
Fluid consumption double stroke	[cm ³]	230	230	230
Min./max. operating pressure	[bar]	2/8	4/6.5	4/6.5
Nominal operating pressure	[bar]	6	6	6
Min./max. air purge pressure	[bar]	0.5/1	0.5/1	0.5/1
Closing/opening time	[s]	0.2/0.2	0.17/0.35	0.35/0.17
Closing- / opening time with spring	[s]		0.40	0.40
Max. permissible finger length	[mm]	160	145	145
Max. permissible mass per finger	[kg]	2.1	2.1	2.1
Protection class IP		40	40	40
Min./max. ambient temperature	[°C]	5/90	5/90	5/90
Repeat accuracy	[mm]	0.01	0.01	0.01
Cleanroom class ISO 14644-1		5	5	5

Main view



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

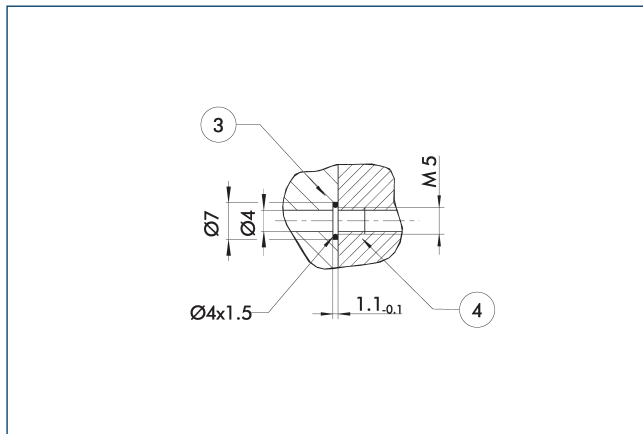
① The SDV-P pressure maintenance valve can also be used for I.D. or O.D. gripping alternatively or in addition to the spring-loaded, mechanical gripping force maintenance device (see catalog section on accessories).

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

① Gripper connection
 ② Finger connection
 ② Bolt circle

⑦② Fit for centering sleeves
 ⑦③ Fit for centering pins
 ⑧⑩ Depth of the centering sleeve hole in the counter part
 ⑨⑩ Thread below the cover for fastening external attachments
 ⑨① Sensor MMS 22..
 ⑨② Sensor IN ...

Hose-free direct connection M5

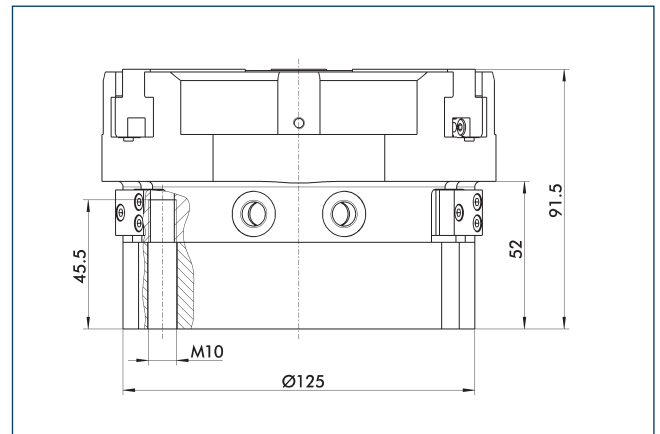


③ Adapter

④ Grippers

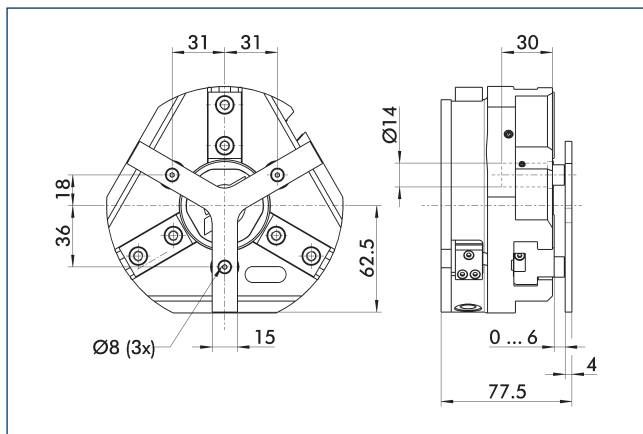
The direct connection is used for supplying compressed air without hoses. Instead, the pressure medium is fed through bore-holes in the mounting plate.

Gripping force maintenance device AS / IS



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.

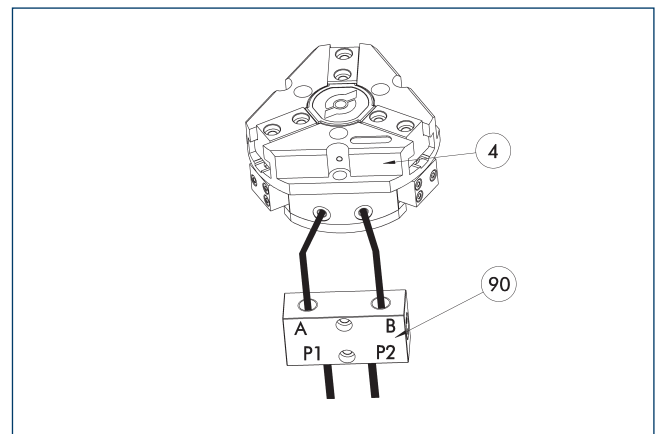
Spring-loaded pressure piece



For spring-supported positioning of the workpiece against a stop after the gripper has opened. Especially developed for loading machines.

Description	ID	Stroke [mm]	Min. force [N]
Spring-loaded pressure piece			
A-PZN-plus/DPZ-plus 125	0303723	6	105

SDV-P pressure maintenance valve



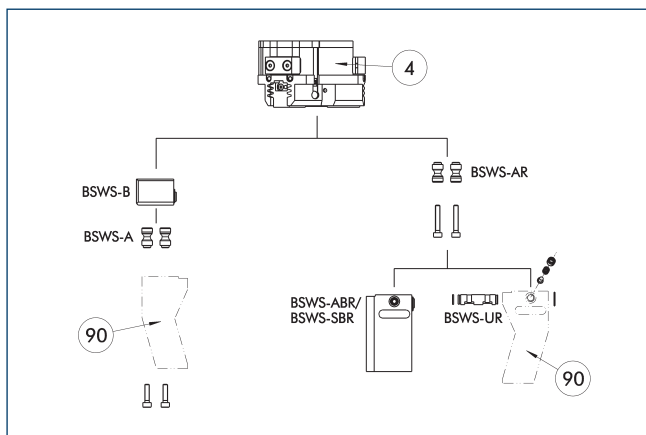
④ Grippers

⑨⑩ SDV-P pressure maintenance valve

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

Description	ID	
Pressure maintenance valve		
SDV-P 04	0403130	
Pressure maintenance valve with air bleed screw		
SDV-P 04-E	0300120	

BSWS jaw quick-change jaw systems



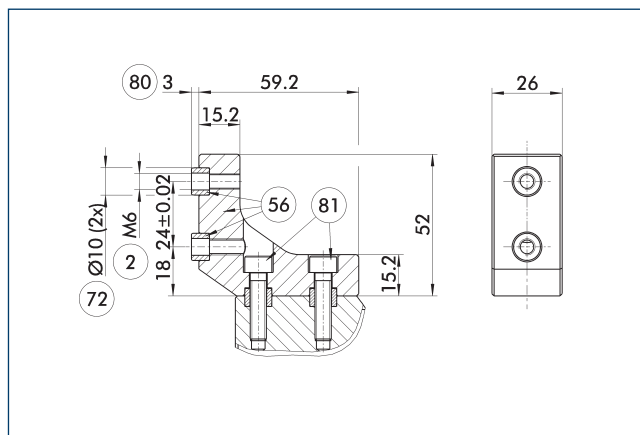
- ④ Grippers
- ⑨⑩ Customized gripper fingers

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

Description	ID	
Quick-change jaw system adapter		
BSWS-A 125	0303028	
BSWS-AR 125	0300095	
Quick-change jaw system base		
BSWS-B 125	0303029	
Jaw quick-change system		
BSWS-ABR-PGZN-plus 125	0300075	
BSWS-SBR-PGZN-plus 125	0300085	
Quick-change Jaw System reversed		
BSWS-UR 125	0302994	

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

ZBA-L-plus 125 intermediate jaws

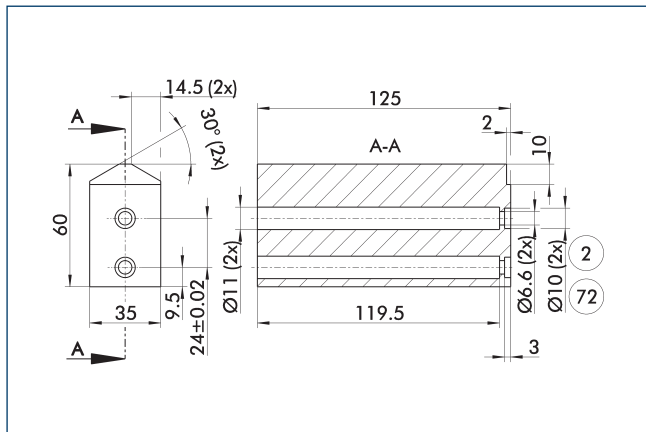


- ② Finger connection
- ⑤⑥ Included in the scope of delivery
- ⑦② Fit for centering sleeves
- ⑧⑩ Depth of the centering sleeve hole in the counter part
- ⑧① Not included in the scope of delivery

The optional ZBA-L-plus intermediate jaws allow the screw connection 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 jaws				
ZBA-L-plus 125	0311752	Aluminum	PGN-plus 125	1

Finger blanks ABR- / SBR-PGZN-plus 125

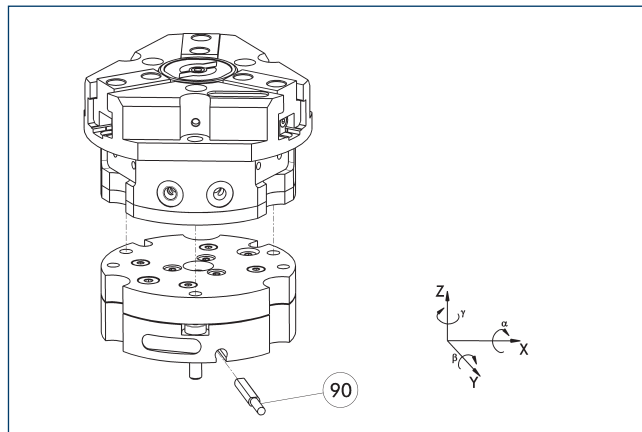


- 2 Finger connection
- 72 Fit for centering sleeves

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

Description	ID	Material	Scope of delivery
Finger blanks			
ABR-PGZN-plus 125	0300013	Aluminum	1
SBR-PGZN-plus 125	0300023	16MnCr5	1

TCU tolerance compensation unit

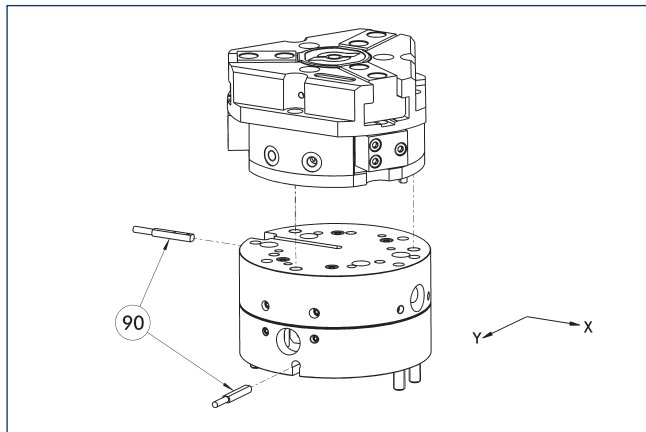


- 90 monitoring of locking

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 please refer to our catalog robot accessories.

Description	ID	Locking	Deflection	Often combined
Compensation unit				
TCU-Z-125-3-MV	0324820	yes	±1°±1°±1°	●
TCU-Z-125-3-0V	0324821	no	±1°±1°±1°	

XY compensation unit with spring return

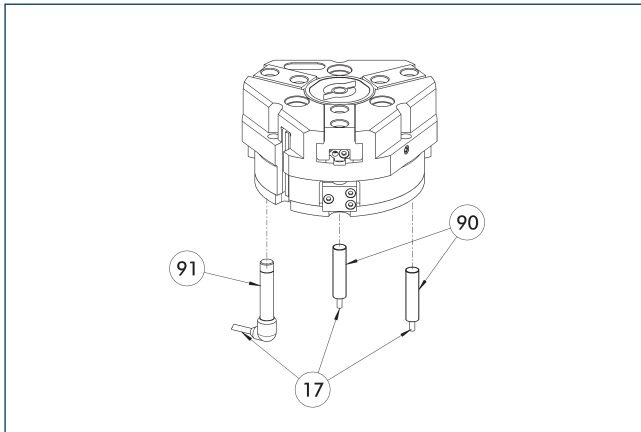


- 90 Monitoring

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-080-1	0324960	± 5	36	
AGE-F-XY-080-2	0324961	± 5	55	
AGE-F-XY-080-3	0324962	± 5	65	●

Inductive Proximity Switches



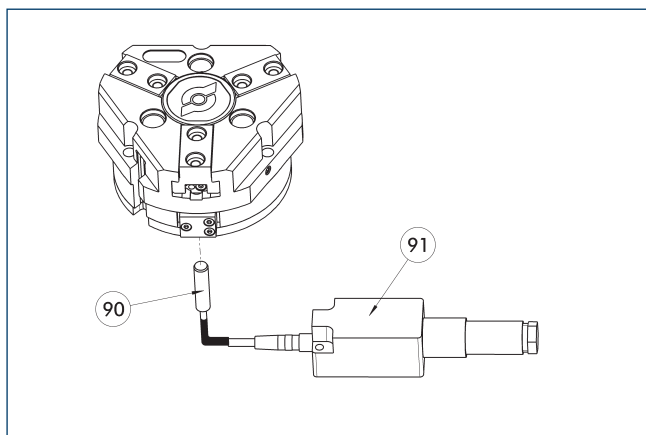
- 17 Cable outlet
91 Sensor IN..-SA
90 Sensor IN ...

Directly mounted end position monitoring.

Description	ID	Often combined
Inductive Proximity Switches		
IN 80-S-M12	0301578	
IN 80-S-M8	0301478	●
INK 80-S	0301550	
Inductive proximity switch with lateral outlet		
IN 80-S-M12-SA	0301587	
IN 80-S-M8-SA	0301483	●
INK 80-S-SA	0301566	
Cable extension		
KV BG12-SG12 3P-0030-PNP	0301999	
KV BG12-SG12 3P-0060-PNP	0301998	
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
KV BW12-SG12 3P-0030-PNP	0301595	
KV BW12-SG12 3P-0100-PNP	0301596	
KV BW12-SG12 3P-0200-PNP	0301597	
clip for plug/socket		
CLI-M12	0301464	
CLI-M8	0301463	
Connection cables		
KA BG08-L 3P-0300-PNP	0301622	●
KA BG08-L 3P-0500-PNP	0301623	
KA BG12-L 3P-0500-PNP	30016369	
KA BW08-L 3P-0300-PNP	0301594	
KA BW08-L 3P-0500-PNP	0301502	
KA BW12-L 3P-0300-PNP	0301503	
KA BW12-L 3P-0500-PNP	0301507	
Sensor distributor		
V2-M12	0301776	●
V2-M8	0301775	●
V4-M12	0301747	
V4-M8	0301746	
V8-M12	0301752	
V8-M8	0301751	

- i Two sensors (closer/S) are required for each unit and extension cables are available as an option. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Flexible position sensor



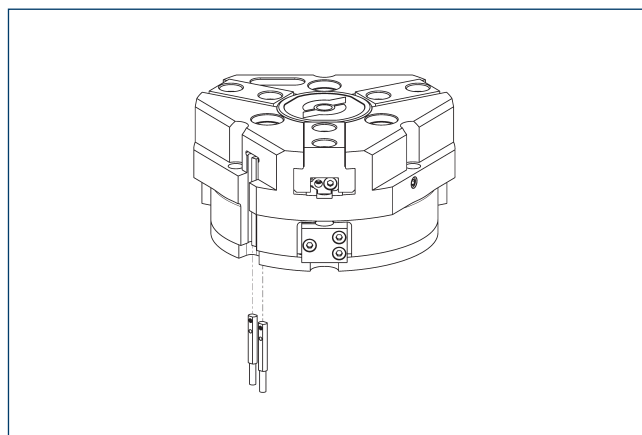
90 FPS-S sensor 91 FPS-F5 evaluation electronic

Flexible position monitoring of up to five positions.

Description	ID	
Attachment kit for FPS		
AS-FPS-PGZN-plus 125-1/PZB 160	0301636	
Sensor		
FPS-S M8	0301704	
Cable extension		
KV BG08-SG08 3P-0050	0301598	
KV BG08-SG08 3P-0100	0301599	
Evaluation electronics		
FPS-F5	0301805	

- ① When using an FPS system, an FPS sensor (FPS-S) as well as an electronic processor (FPS-F5 / F5 T) are required for each gripper as well as a mounting kit (AS), if listed. Cable extensions (KV) are optionally available – see catalog chapter “Accessories.”

Electronic magnetic switches MMS

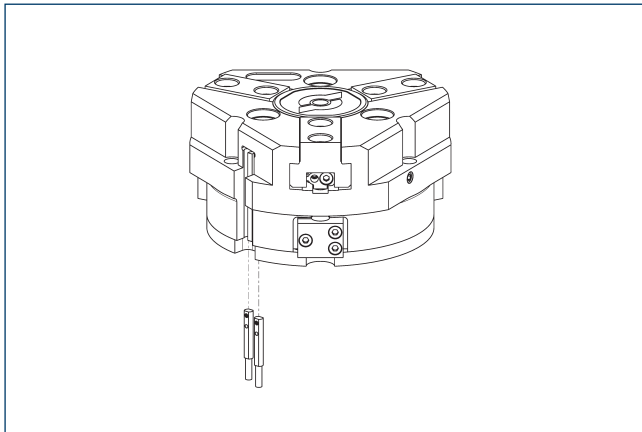


End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Electronic magnetic switches MMS		
MMS 22-S-M8-PNP	0301032	●
MMSK 22-S-PNP	0301034	
MMS electronic magnetic switches with lateral outlet		
MMS 22-S-M8-PNP-SA	0301042	●
MMSK 22-S-PNP-SA	0301044	
Reed Switches		
RMS 22-S-M8	0377720	●
Cable extension		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
clip for plug/socket		
CLI-M8	0301463	
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	
RSS Wireless sensor system		
RSS-T2	0377715	
RSS-T2-US/CA	0377717	
Sensor distributor		
V2-M8	0301775	●
V4-M8	0301746	
V8-M8	0301751	

- ① Two sensors (closer/S) are required for each unit and extension cables are available as an option. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Programmable magnetic switch MMS 22-PI1



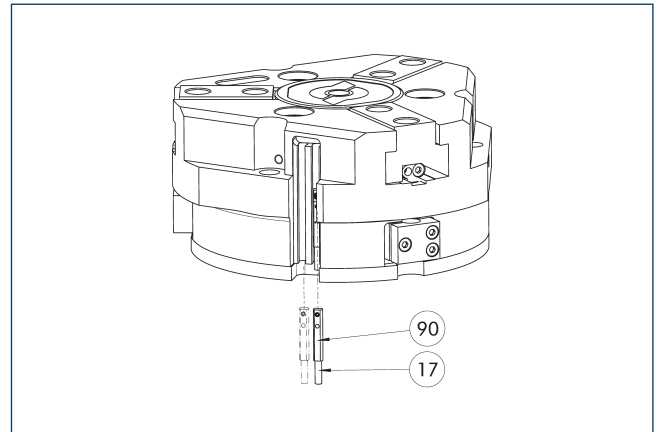
- ①⑦ Cable outlet
- ①⑨ Sensor MMS 22 ..-PI1-...-SA
- ①⑩ Sensor MMS 22 PI1-...

Position monitoring with one programmable position per sensor and electronics integrated in the sensor. Can be programmed using MT magnetic teaching tool (included in scope of delivery) or ST plug teaching tool (optional). End position monitoring is mounted 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		
MMS 22-PI1-S-M8-PNP	0301160	●
MMSK 22-PI1-S-PNP	0301162	
Programmable magnetic switch MMS 22-PI1 with lateral connection		
MMS 22-PI1-S-M8-PNP-SA	0301166	●
MMSK 22-PI1-S-PNP-SA	0301168	
Programmable magnetic switch MMS 22-PI1 with stainless steel housing		
MMS 22-PI1-S-M8-PNP-HD	0301110	●
MMSK 22-PI1-S-PNP-HD	0301112	

- ① Two sensors (closer/S) are required for each unit and extension cables are available as an option. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Programmable magnetic switch MMS 22-PI2



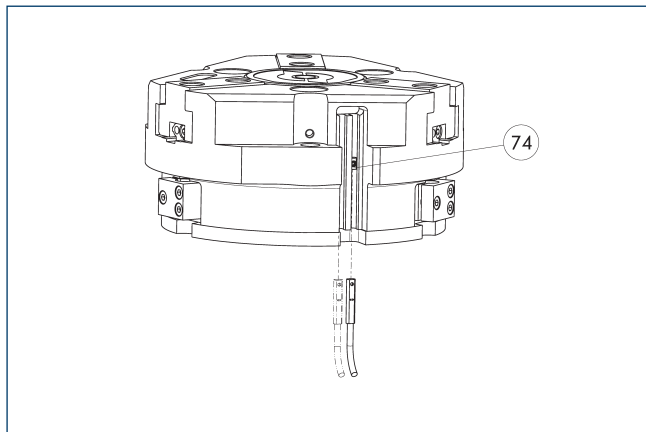
- ①⑦ Cable outlet
- ①⑩ MMS 22...-PI2-... sensor

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		
MMS 22-PI2-S-M8-PNP	0301180	●
MMSK 22-PI2-S-PNP	0301182	
Programmable magnetic switch MMS 22-PI2 with stainless steel housing		
MMS 22-PI2-S-M8-PNP-HD	0301130	●
MMSK 22-PI2-S-PNP-HD	0301132	

- ① Per unit one sensor (closer/S) is required, optionally a cable extension. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Programmable magnetic switches MMS-P



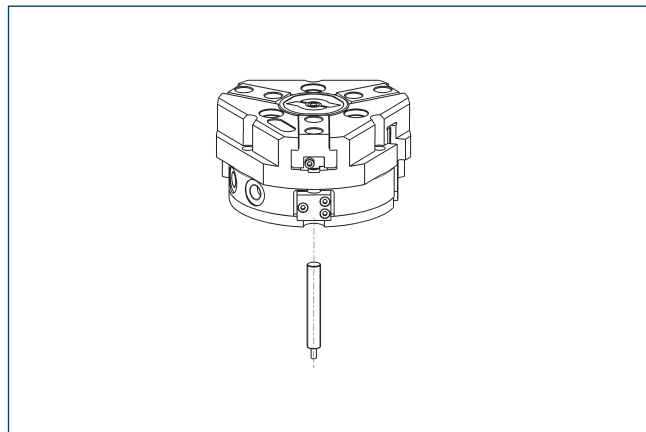
⑦④ Limit stop for sensor

Position monitoring with two programmable positions per sensor. End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Programmable magnetic switches MMS-P		
MMSK-P 22-S-PNP	0301371	
MMS-P 22-S-M8-PNP	0301370	●
clip for plug/socket		
CLI-M8	0301463	
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 Per unit one sensor (closer/S) is required, optionally a cable extension. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

APS-Z80 analog position sensor

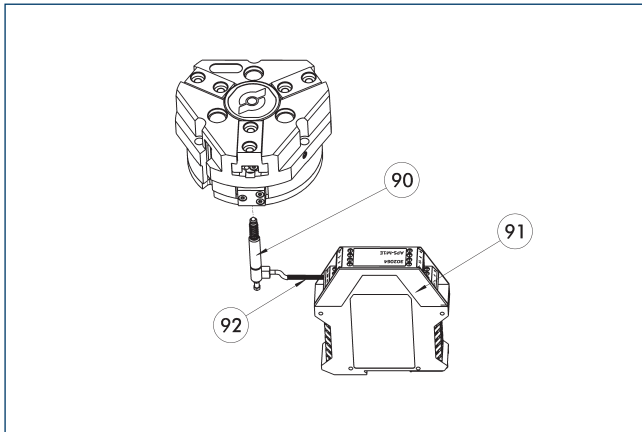


No-contact measuring, analog multi-position monitoring for any number of positions.

Description	ID	Often combined
Mounting kit for APS-Z80		
AS-APS-Z80-PGZN-plus 125-1	0302111	
Sensor		
APS-Z80-K	0302072	
APS-Z80-M8	0302070	●

① When using an APS system, one attachment kit (AS-APS-Z80) and one APS-Z80 sensor are required per gripper.

APS-M1 analog position sensor



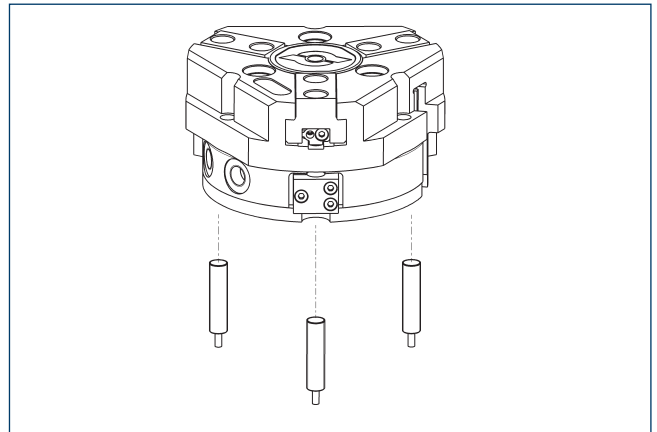
- ⑨⑩ APS-M1S sensor
- ⑨② APS-K extension cable
- ⑨① APS-M1E electronic processor

Analog multi position monitoring for any desired positions

Description	ID	
Mounting kit for APS-M1		
AS-APS-M1-PGZN-plus 125-1	0302081	
Sensor		
APS-M1S	0302062	

- ① When using an APS system, for each gripper an attachment kit (AS-APS-M1), an APS-M1S sensor (incl. 3 m cable) as well as an electronics (APS-M1e) are required. 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.

Cylindrical reed switches



End position monitoring can be mounted with an attachment kit.

Description	ID	
Attachment kit for proximity switch		
AS-RMS 80 PGN/PZN-plus 100/125	0377726	
Reed Switches		
RMS 80-S-M8	0377721	

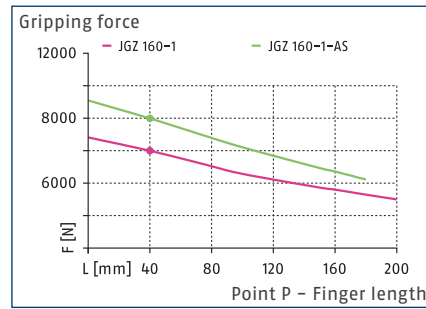
- ① Two sensors (closer/S) are required for each unit and extension cables are available as an option. This attachment kit needs to be ordered optionally as an accessory. Two mounting kits are required for each gripper. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

JGZ 160

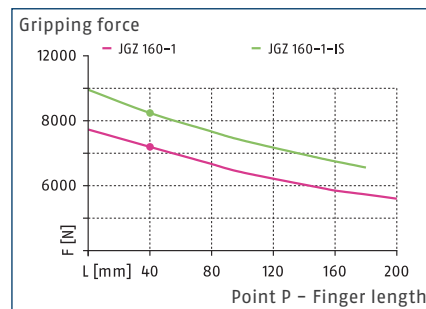
Universal gripper



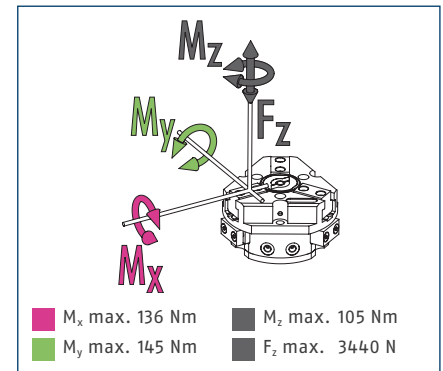
Gripping force, O.D. gripping



Gripping force, I.D. gripping



Finger load

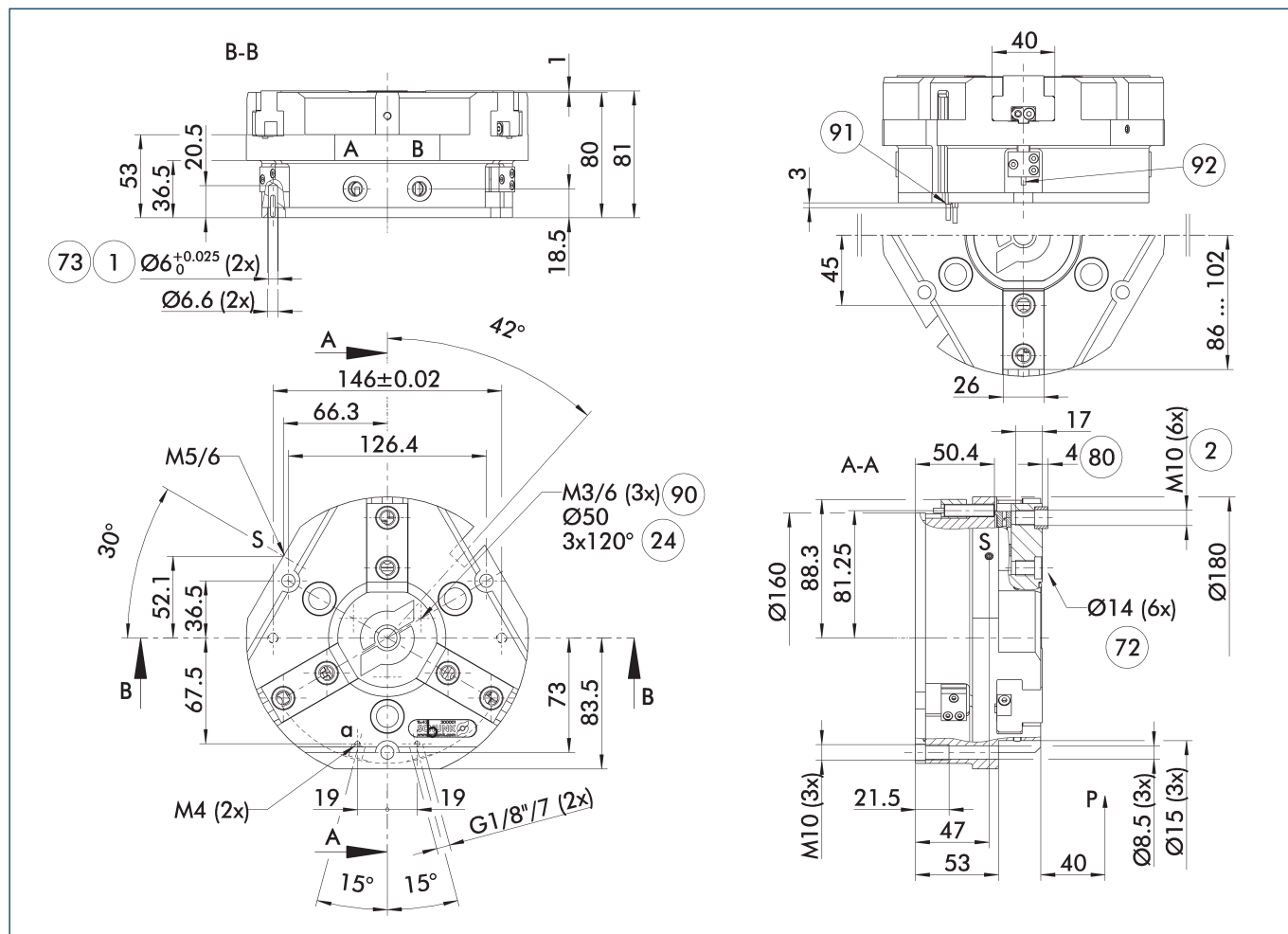


① The specified torques and forces are static values, apply for each base jaw, and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself.

Technical data

Description		JGZ 160-1	JGZ 160-1-AS	JGZ 160-1-IS
ID		0308960	0308961	0308962
Stroke per jaw	[mm]	16	16	16
Closing / opening force	[N]	6000/6390	7990/-	-/8480
Min. spring force	[N]		1990	2090
Weight	[kg]	5.6	8	8
Recommended workpiece weight	[kg]	30	30	30
Fluid consumption double stroke	[cm ³]	520	520	520
Min./max. operating pressure	[bar]	2/8	4/6.5	4/6.5
Nominal operating pressure	[bar]	6	6	6
Min./max. air purge pressure	[bar]	0.5/1	0.5/1	0.5/1
Closing/opening time	[s]	0.5/0.5	0.4/0.8	0.8/0.4
Closing- / opening time with spring	[s]		0.80	0.80
Max. permissible finger length	[mm]	200	180	180
Max. permissible mass per finger	[kg]	3.5	3.5	3.5
Protection class IP		40	40	40
Min./max. ambient temperature	[°C]	5/90	5/90	5/90
Repeat accuracy	[mm]	0.02	0.02	0.02
Cleanroom class ISO 14644-1		5	5	5

Main view



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

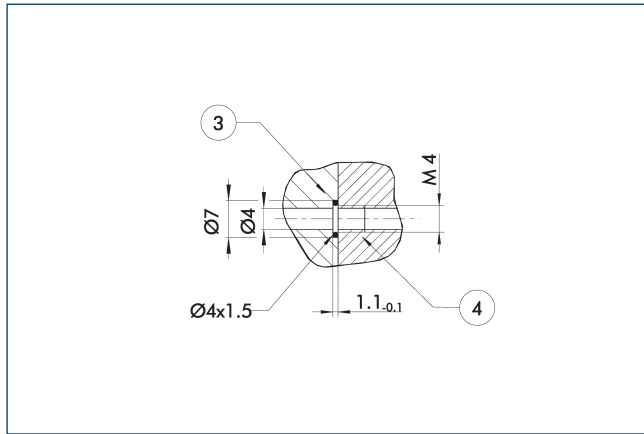
- ① The SDV-P pressure maintenance valve can also be used for I.D. or O.D. gripping alternatively or in addition to the spring-loaded, mechanical gripping force maintenance device (see catalog section on accessories).

- A, a Main / direct connection, gripper opening
- B, b Main / direct connection, gripper closing
- S Air purge connection
- ① Gripper connection
- ② Finger connection
- ② Bolt circle
- ⑦② Fit for centering sleeves
- ⑦③ Fit for centering pins
- ⑧① Depth of the centering sleeve hole in the counter part
- ⑨① Thread below the cover for fastening external attachments
- ⑨① Sensor MMS 22..
- ⑨② Sensor IN ...

JGZ 160

Universal gripper

Hose-free direct connection M4

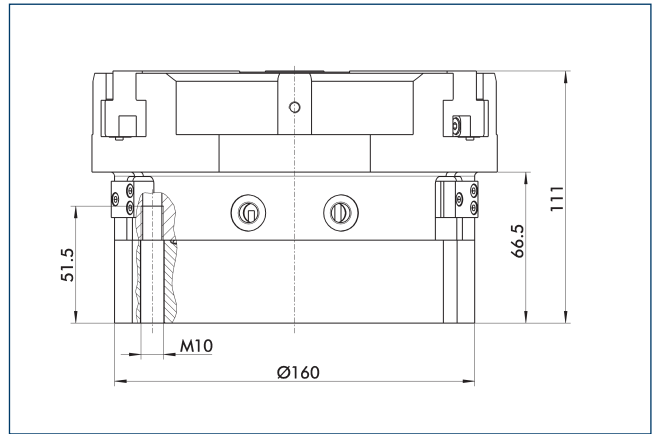


③ Adapter

④ Grippers

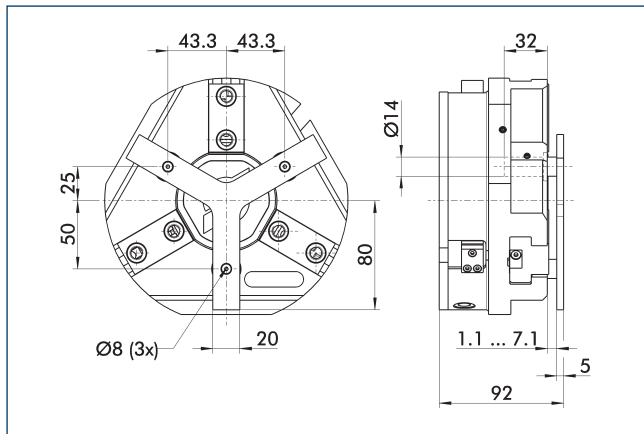
The direct connection is used for supplying compressed air without hoses. Instead, the pressure medium is fed through bore-holes in the mounting plate.

Gripping force maintenance device AS / IS



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.

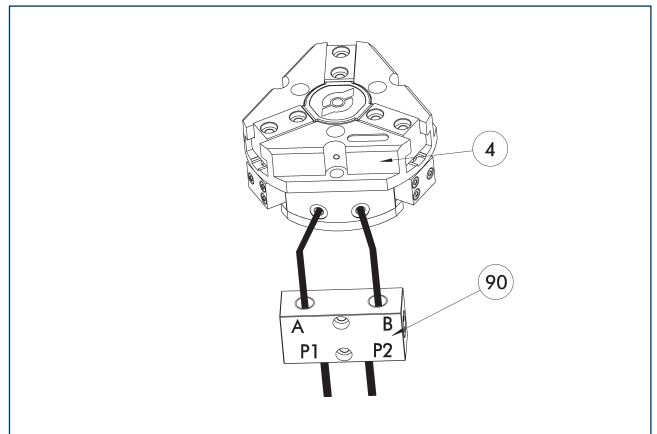
Spring-loaded pressure piece



For spring-supported positioning of the workpiece against a stop after the gripper has opened. Especially developed for loading machines.

Description	ID	Stroke [mm]	Min. force [N]
Spring-loaded pressure piece			
A-PZN-plus/DPZ-plus 160	0303724	6	150

SDV-P pressure maintenance valve



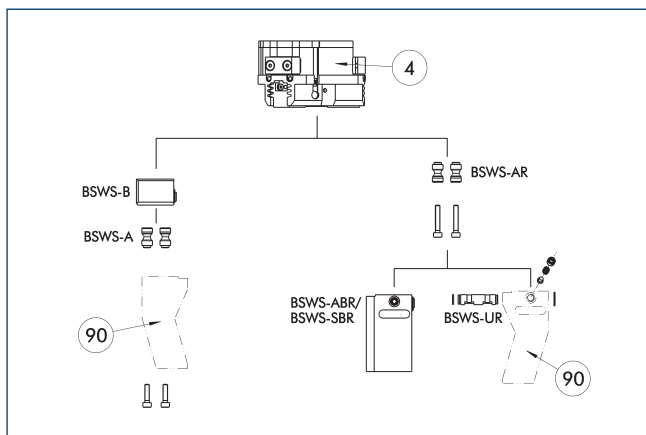
④ Grippers

⑨ 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	
Pressure maintenance valve		
SDV-P 04	0403130	
Pressure maintenance valve with air bleed screw		
SDV-P 04-E	0300120	

BSWS jaw quick-change jaw systems



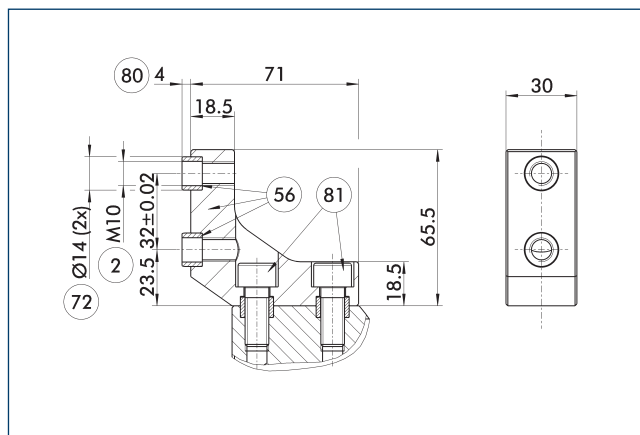
- ④ Grippers
- ⑨⑩ Customized gripper fingers

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

Description	ID
Quick-change jaw system adapter	
BSWS-A 160	0303030
BSWS-AR 160	0300096
Quick-change jaw system base	
BSWS-B 160	0303031
Jaw quick-change system	
BSWS-ABR-PGZN-plus 160	0300076
BSWS-SBR-PGZN-plus 160	0300086
Quick-change Jaw System reversed	
BSWS-UR 160	0302995

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

ZBA-L-plus 160 intermediate jaws

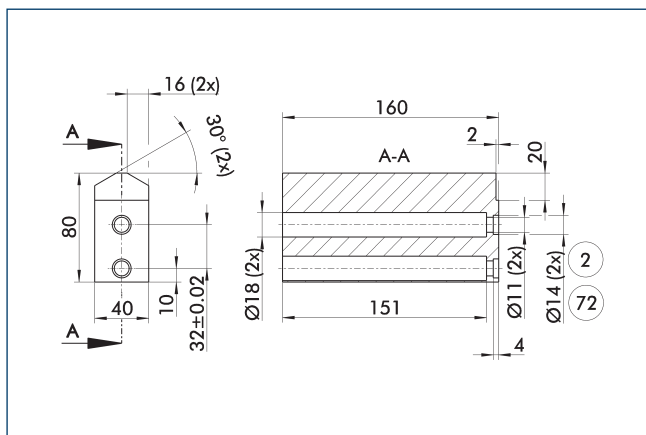


- ② Finger connection
- ⑤⑥ Included in the scope of delivery
- ⑦② Fit for centering sleeves
- ⑧⑩ Depth of the centering sleeve hole in the counter part
- ⑧① Not included in the scope of delivery

The optional ZBA-L-plus intermediate jaws allow the screw connection 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 jaws				
ZBA-L-plus 160	0311762	Aluminum	PGN-plus 160	1

Finger blanks ABR- / SBR-PGZN-plus 160

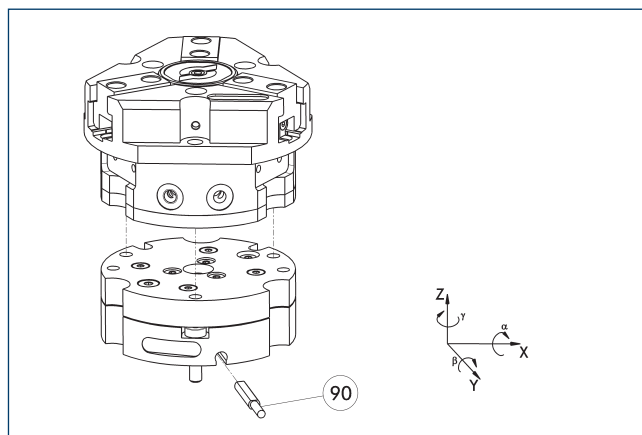


- ② Finger connection
- ⑦② Fit for centering sleeves

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

Description	ID	Material	Scope of delivery
Finger blanks			
ABR-PGZN-plus 160	0300014	Aluminum	1
SBR-PGZN-plus 160	0300024	16MnCr5	1

TCU tolerance compensation unit

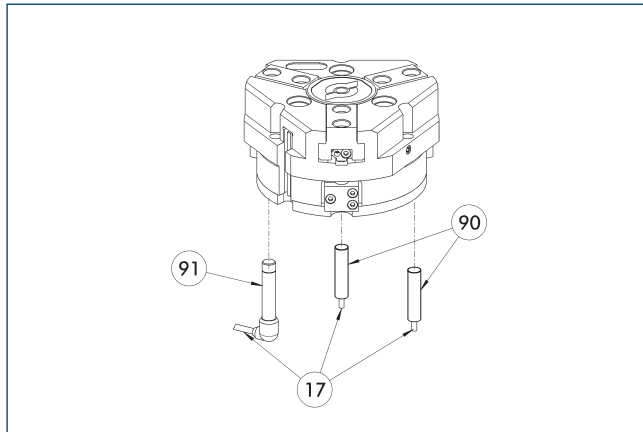


- ⑨⑩ monitoring of locking

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-Z-160-3-MV	0324838	yes	±1°/±1°/±1°	●
TCU-Z-160-3-0V	0324839	no	±1°/±1°/±1°	

Inductive Proximity Switches



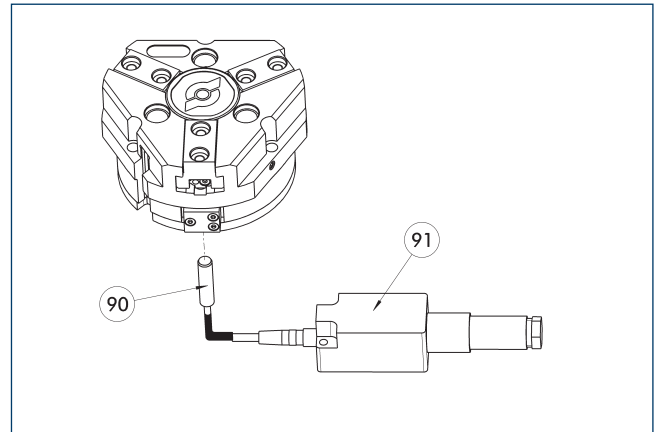
- ①⑦ Cable outlet
- ①⑨ Sensor IN..-SA
- ①⑩ Sensor IN ...

Directly mounted end position monitoring.

Description	ID	Often combined
Inductive Proximity Switches		
IN 80-S-M12	0301578	
IN 80-S-M8	0301478	●
INK 80-S	0301550	
Inductive proximity switch with lateral outlet		
IN 80-S-M12-SA	0301587	
INK 80-S-SA	0301566	
Cable extension		
KV BG12-SG12 3P-0030-PNP	0301999	
KV BG12-SG12 3P-0060-PNP	0301998	
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
KV BW12-SG12 3P-0030-PNP	0301595	
KV BW12-SG12 3P-0100-PNP	0301596	
KV BW12-SG12 3P-0200-PNP	0301597	
clip for plug/socket		
CLI-M12	0301464	
CLI-M8	0301463	
Connection cables		
KA BG08-L 3P-0300-PNP	0301622	●
KA BG08-L 3P-0500-PNP	0301623	
KA BG12-L 3P-0500-PNP	30016369	
KA BW08-L 3P-0300-PNP	0301594	
KA BW08-L 3P-0500-PNP	0301502	
KA BW12-L 3P-0300-PNP	0301503	
KA BW12-L 3P-0500-PNP	0301507	
Sensor distributor		
V2-M12	0301776	●
V2-M8	0301775	●
V4-M12	0301747	
V4-M8	0301746	
V8-M12	0301752	
V8-M8	0301751	

- ① Two sensors (closer/S) are required for each unit and extension cables are available as an option. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Flexible position sensor



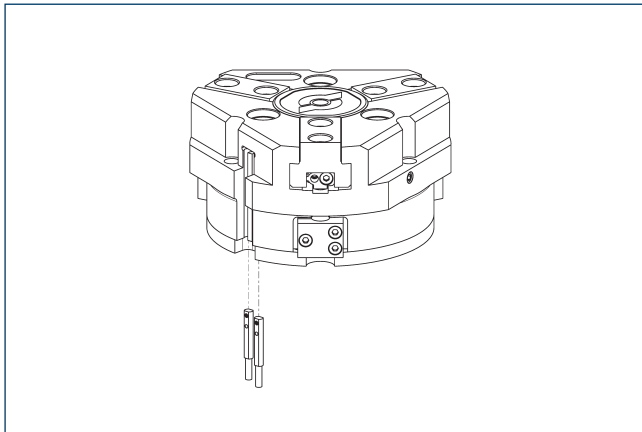
- ①⑩ FPS-S sensor
- ①⑨ FPS-F5 evaluation electronic

Flexible position monitoring of up to five positions.

Description	ID	
Attachment kit for FPS		
AS-FPS-PGZN-plus 160-1	0301638	
Sensor		
FPS-S M8	0301704	
Cable extension		
KV BG08-SG08 3P-0050	0301598	
KV BG08-SG08 3P-0100	0301599	
Evaluation electronics		
FPS-F5	0301805	

- ① When using an FPS system, an FPS sensor (FPS-S) as well as an electronic processor (FPS-F5 / F5 T) are required for each gripper as well as a mounting kit (AS), if listed. Cable extensions (KV) are optionally available – see catalog chapter “Accessories.”

Electronic magnetic switches MMS

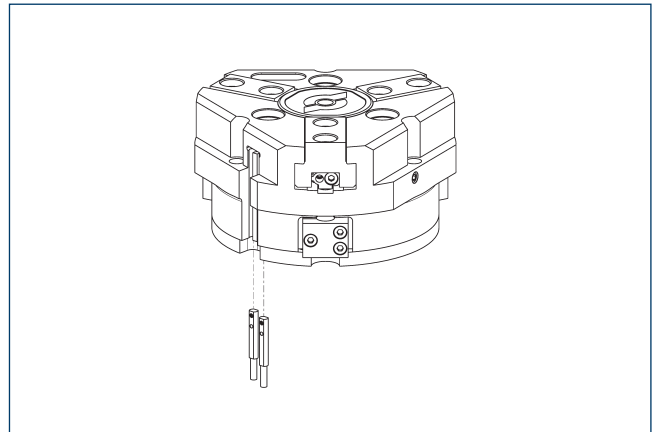


End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Electronic magnetic switches MMS		
MMS 22-S-M8-PNP	0301032	●
MMSK 22-S-PNP	0301034	
MMS electronic magnetic switches with lateral outlet		
MMS 22-S-M8-PNP-SA	0301042	●
MMSK 22-S-PNP-SA	0301044	
Reed Switches		
RMS 22-S-M8	0377720	●
Cable extension		
KV BW08-SG08 3P-0030-PNP	0301495	
KV BW08-SG08 3P-0100-PNP	0301496	
KV BW08-SG08 3P-0200-PNP	0301497	●
clip for plug/socket		
CLI-M8	0301463	
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	
RSS Wireless sensor system		
RSS-T2	0377715	
RSS-T2-US/CA	0377717	
Sensor distributor		
V2-M8	0301775	●
V4-M8	0301746	
V8-M8	0301751	

① Two sensors (closer/S) are required for each unit and extension cables are available as an option. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Programmable magnetic switch MMS 22-PI1



①7 Cable outlet

⑨1 Sensor MMS 22 ..-PI1-...-SA

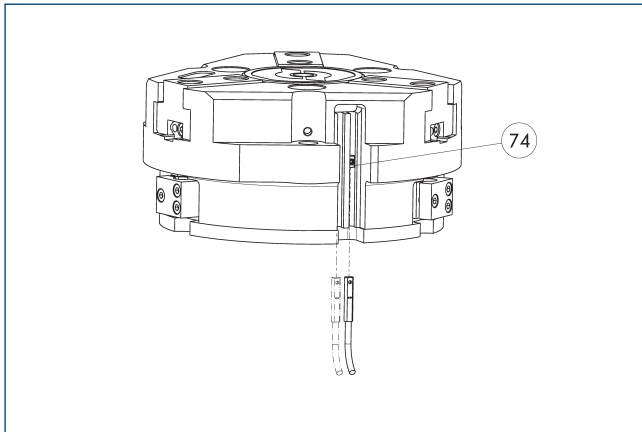
⑨0 Sensor MMS 22 PI1-...

Position monitoring with one programmable position per sensor and electronics integrated in the sensor. Can be programmed using MT magnetic teaching tool (included in scope of delivery) or ST plug teaching tool (optional). End position monitoring is mounted 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
Plug teaching tool		
ST-MMS 22-PI1-PNP	0301025	
Programmable magnetic switch MMS 22-PI1		
MMS 22-PI1-S-M8-PNP	0301160	●
MMSK 22-PI1-S-PNP	0301162	
Programmable magnetic switch MMS 22-PI1 with lateral connection		
MMS 22-PI1-S-M8-PNP-SA	0301166	●
MMSK 22-PI1-S-PNP-SA	0301168	
Programmable magnetic switch MMS 22-PI1 with stainless steel housing		
MMS 22-PI1-S-M8-PNP-HD	0301110	●
MMSK 22-PI1-S-PNP-HD	0301112	

① Two sensors (closer/S) are required for each unit and extension cables are available as an option. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

Programmable magnetic switches MMS-P



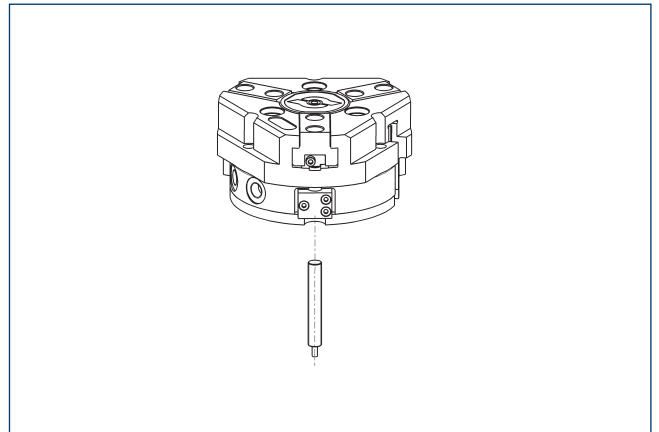
⑦④ Limit stop for sensor

Position monitoring with two programmable positions per sensor. End position monitoring for mounting in the C-slot.

Description	ID	Often combined
Programmable magnetic switches MMS-P		
MMSK-P 22-S-PNP	0301371	
MMS-P 22-S-M8-PNP	0301370	●
clip for plug/socket		
CLI-M8	0301463	
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 Per unit one sensor (closer/S) is required, optionally a cable extension. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

APS-Z80 analog position sensor

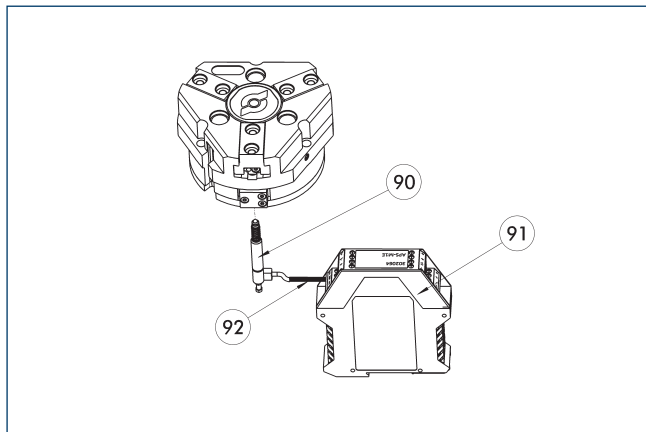


No-contact measuring, analog multi-position monitoring for any number of positions.

Description	ID	Often combined
Mounting kit for APS-Z80		
AS-APS-Z80-PGZN-plus 160-1/200-2/240-2	0302113	
Sensor		
APS-Z80-K	0302072	
APS-Z80-M8	0302070	●

① When using an APS system, one attachment kit (AS-APS-Z80) and one APS-Z80 sensor are required per gripper.

APS-M1 analog position sensor



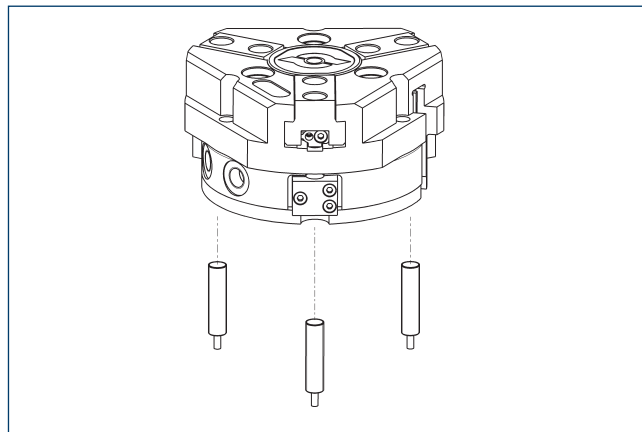
- 90 APS-M1S sensor
- 91 APS-M1E electronic processor
- 92 APS-K extension cable

Analog multi position monitoring for any desired positions

Description	ID	
Mounting kit for APS-M1		
AS-APS-M1-PGZN-plus 160-1/240-2	0302083	
Sensor		
APS-M1S	0302062	

- ① When using an APS system, for each gripper an attachment kit (AS-APS-M1), an APS-M1S sensor (incl. 3 m cable) as well as an electronics (APS-M1e) are required. 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.

Cylindrical reed switches



End position monitoring can be mounted with an attachment kit.

Description	ID	
Attachment kit for proximity switch		
AS-RMS 80 PGN/PZN-plus 160-380	0377727	
Reed Switches		
RMS 80-S-M8	0377721	

- ① Two sensors (closer/S) are required for each unit and extension cables are available as an option. This attachment kit needs to be ordered optionally as an accessory. Two mounting kits are required for each gripper. For sensor cables, note the minimum permissible bending radii. These are generally 35 mm.

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