

Pneumatic Gripping Modules

Pneumatic · 3-Finger Centric Grippers



3-FINGER CENTRIC GRIPPERS

Series	Size	Page
Grippers for Small Components		
MPZ		390
MPZ	30	394
MPZ	38	398
MPZ	45	402
Universal Grippers		
PZN-plus		406
PZN-plus	40	410
PZN-plus	50	414
PZN-plus	64	418
PZN-plus	80	424
PZN-plus	100	430
PZN-plus	125	436
PZN-plus	160	442
PZN-plus	200	448
PZN-plus	240	454
PZN-plus	300	460
PZN		466
PZN	50	470
PZN	64	474
PZN	80	478
PZN	100	482
PZN	125	488
PZN	160	494
PZN	200	500
PZB		504
PZB	64	508
PZB	80	512
PZB	100	516
PZB	125	520
PZB	160	524
Sealed Grippers		
DPZ-plus		528
DPZ-plus	64	532
DPZ-plus	80	536
DPZ-plus	100	540
DPZ-plus	125	544
DPZ-plus	160	548
DPZ-plus	200	552

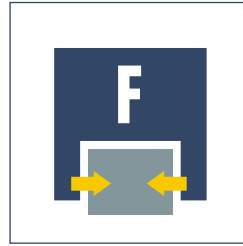




Sizes
30 .. 45



Weight
0.075 kg .. 0.29 kg



Gripping force
55 N .. 310 N

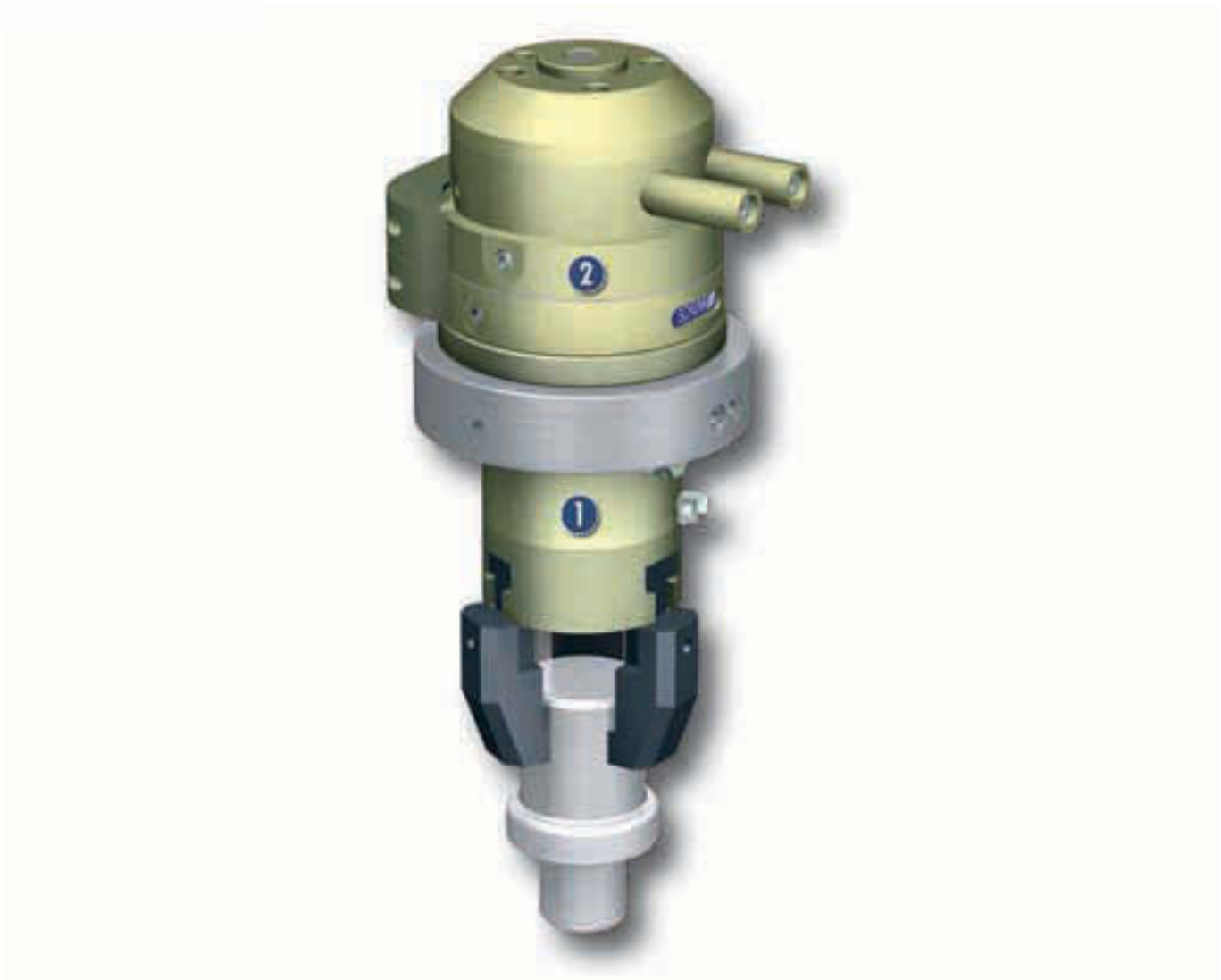


Stroke per finger
3 mm .. 5 mm



Workpiece weight
0.25 kg .. 1.1 kg

Application example



Handling device for direct mounting on a robot for screwing in sealing plugs

1 MPZ 45 3-Finger Centric Gripper

2 DDF 31 Rotary Feed-through

Grippers for small components

Small 3-finger centric gripper with base jaws guided on T-slots

Area of application

For universal use in clean to slightly dirty working environments, especially suitable for gripping small workpieces

Your advantages and benefits

T-slot guidance

for precise gripping with high bearing-load capacity

Finger position monitoring

also possible via FPS

Air supply via hose-free direct connection or fitting connections

for the flexible supply of compressed air in all automation systems



General information on the series

Working principle

Wedge-hook kinematics

Housing material

Aluminum alloy, hard-anodized

Base jaw material

Steel

Actuation

Pneumatic, with filtered compressed air (10 µm): Dry, lubricated or non-lubricated
Pressure medium: Required quality class of compressed air according to DIN ISO 8573-1: Quality class 4

Warranty

24 months

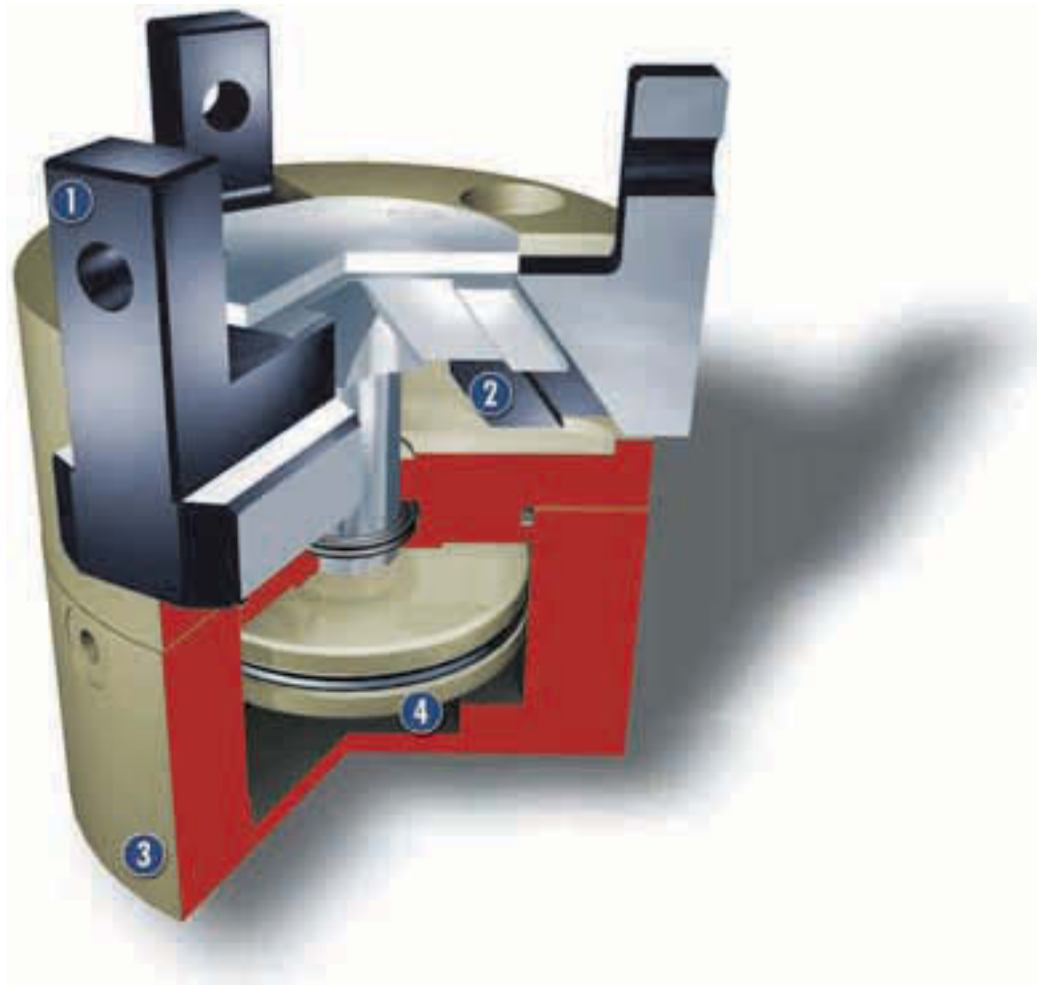
Scope of delivery

Centering sleeves, O-rings for direct connection, assembly and operating manual with manufacturer's declaration

Gripping force safety device

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

Sectional diagram



- 1 T-slot guidance**
precise gripping with high load-bearing capacity
- 2 Kinematics**
wedge-hook principle for high power transmission and synchronized gripping
- 3 Housing**
weight-reduced through the use of a hard-anodized, high-strength aluminum alloy
- 4 Drive**
pneumatic, powerful and easy to handle

Function description

The piston is moved up or down by means of compressed air. Through its angled active surfaces, the wedge hook transforms this motion into the lateral, synchronous movement of the 3 base fingers.

Options and special information

Small, compact 3-finger centric gripper for fast gripping applications.
Monitoring of the smallest differences in stroke possible via FPS system.

Accessories

SCHUNK accessories — the suitable complement for the highest level of functionality, reliability and controlled production of all automation modules.

Centering sleeves



Fittings



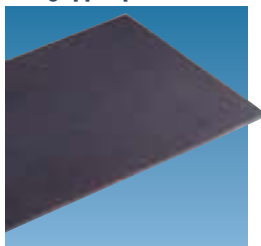
MMS magnetic switch



Quentes plastic inserts



HKI gripper pads



SDV-P pressure maintenance valves



Finger blanks



W/WK/KV/GK sensor cables



V sensor distributors



FPS flexible position sensor



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

General information on the series

Gripping force

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

Finger length

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

Repeat accuracy

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

Workpiece weight

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

Closing and opening times

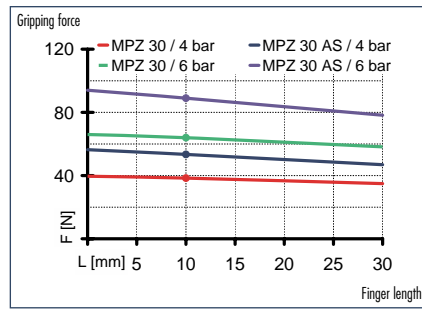
Closing and opening times are purely the times that the base jaws or fingers are in motion. Valve switching times, hose filling times or PLC reaction times are not included in the above times and must be taken into consideration when determining cycle times.

MPZ 30

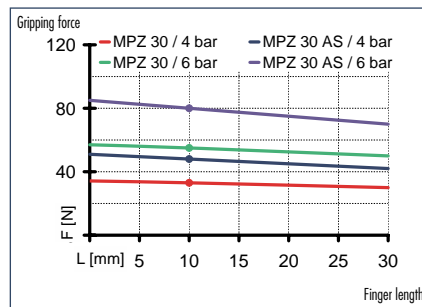
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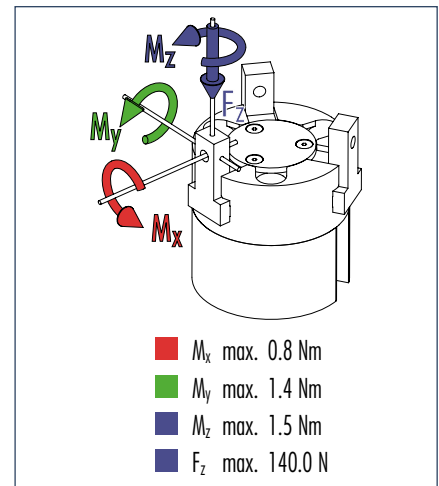
Gripping force, I.D. gripping



Gripping force, O.D. gripping



Finger load

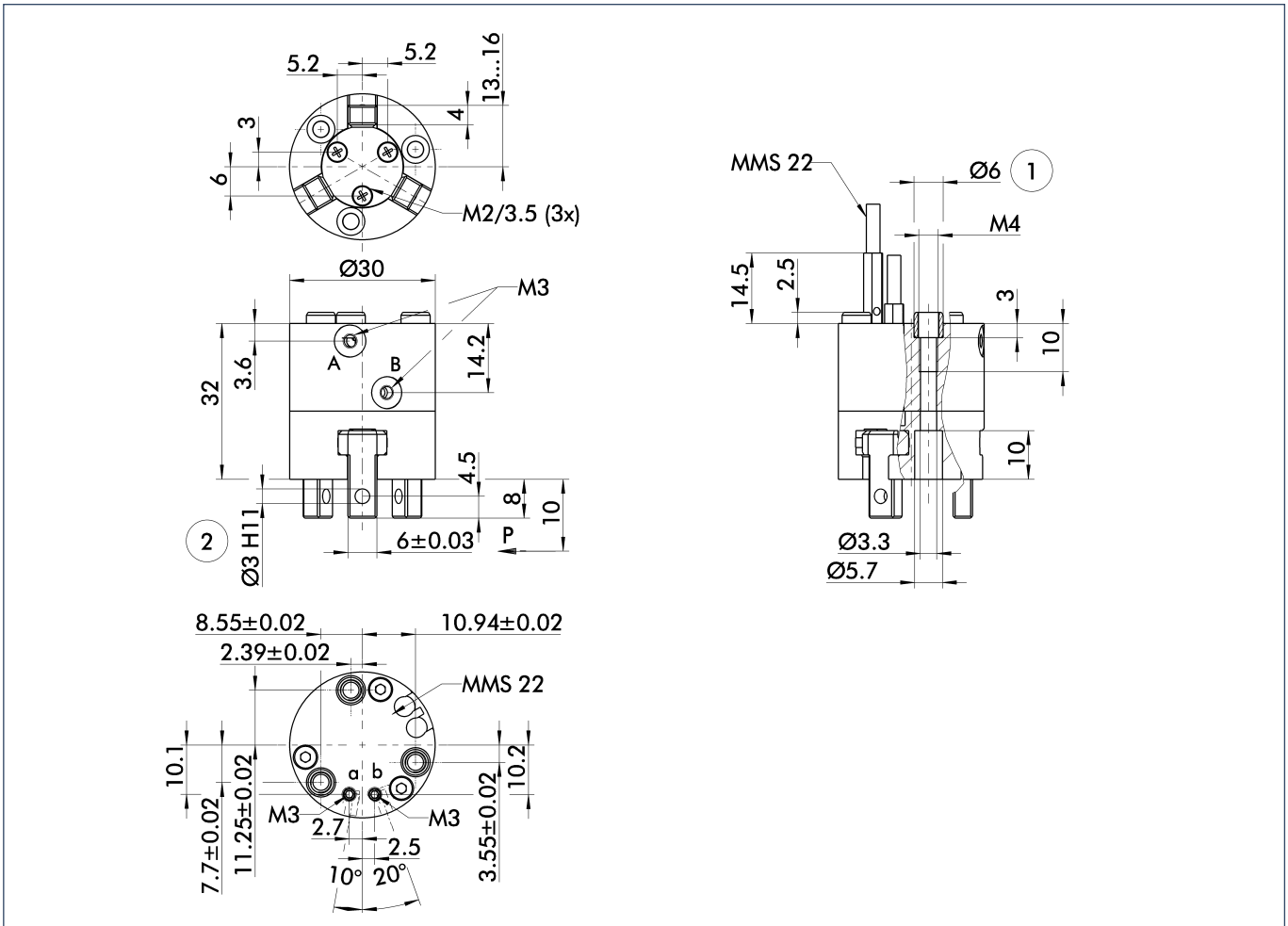


① Moments and forces apply per base jaw and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself. If the max. permitted finger weight is exceeded, it is imperative to throttle the air pressure so that the jaw movement occurs without any hitting or bouncing.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

Technical data

Description	ID	MPZ 30	MPZ 30 AS	MPZ 30 IS	MPZ 30 FPS
		0340510	0340511	0340512	0340513
Stroke per finger	[mm]	3.0	3.0	3.0	3.0
Closing force	[N]	55.0	80.0		55.0
Opening force	[N]	65.0		90.0	65.0
Min. gripping force through spring	[N]		25.0	25.0	
Weight	[kg]	0.075	0.09	0.09	0.096
Recommended workpiece weight	[kg]	0.25	0.25	0.25	0.25
Air consumption per double stroke	[cm ³]	2.011	2.011	2.011	2.011
Nominal pressure	[bar]	6.0	6.0	6.0	6.0
Minimum pressure	[bar]	2.0	4.0	4.0	2.0
Maximum pressure	[bar]	8.0	6.5	6.5	8.0
Closing time	[s]	0.02	0.02	0.04	0.02
Opening time	[s]	0.02	0.04	0.02	0.02
Closing/opening time with spring only	[s]		0.3	0.3	
Max. permitted finger length	[mm]	30.0	30.0	30.0	30.0
Max. permitted weight per finger	[kg]	0.03	0.03	0.03	0.03
IP rating		40	40	40	40
Min. ambient temperature	[°C]	-10.0	-10.0	-10.0	-10.0
Max. ambient temperature	[°C]	90.0	90.0	90.0	90.0
Repeat accuracy	[mm]	0.01	0.01	0.01	0.01

Main views

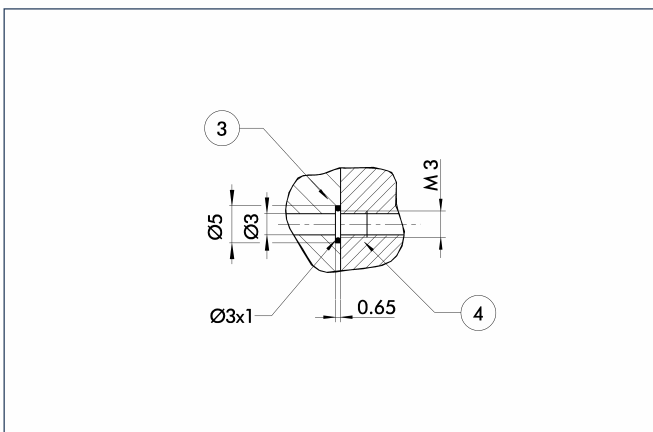


The drawing shows the gripper in the basic version with open jaws, the dimensions do not include the options described below.

- A,a Main/direct connection, gripper opening
- B,b Main/direct connection, gripper closing
- ① Gripper connection
- ② Finger connection

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

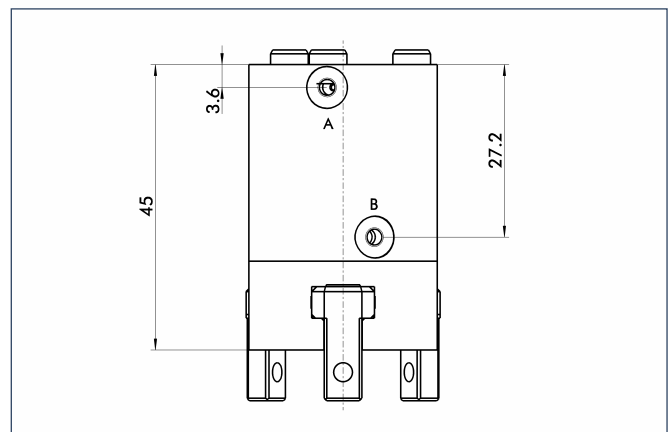
Hoseless direct connection



- ③ Adapter
- ④ Gripper

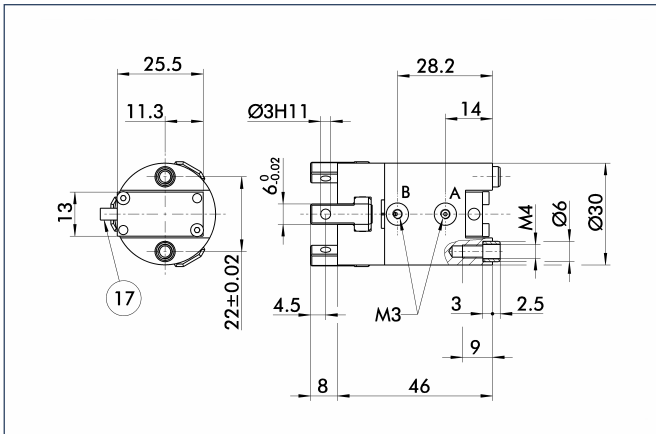
The direct connection is used for supplying compressed air to the gripper without hoses. Instead, the pressure medium is fed through bore-holes in the mounting plate.

AS/IS gripping force safety device



Springs integrated in the gripper ensure a minimum gripping force even if there is a drop in pressure.

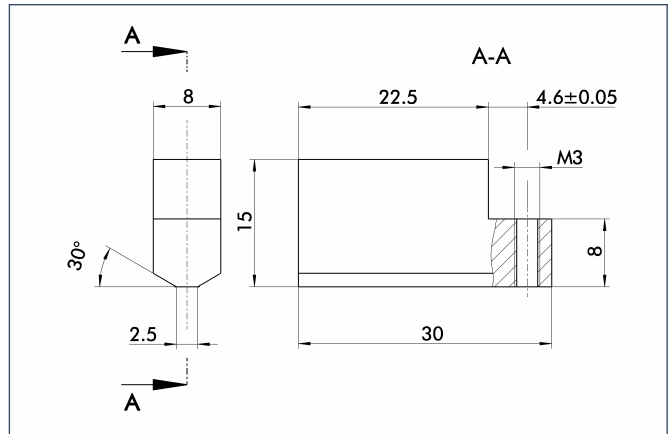
FPS measuring system



17 Cable outlet

The FPS flexible position sensor can distinguish between five freely programmable ranges or switching points for the stroke of a gripper and can be used in conjunction with a PC as a measuring system.

Finger blanks



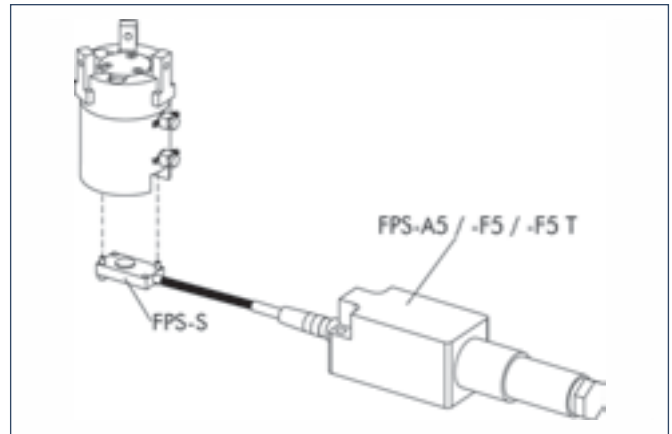
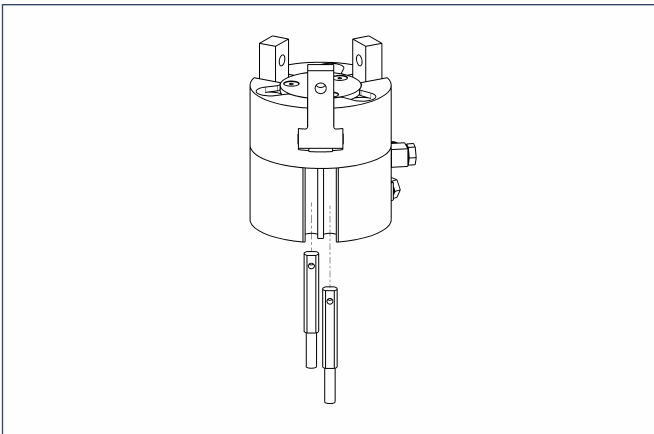
Finger blanks for customized subsequent machining

Description	Material	Scope of delivery	ID
ABR 30	Aluminum	3	0340519



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

Sensor system



End position monitoring:

Electronic magnetic switches, for mounting in C-slot

Description	ID	Recommended product
MMS 22-S-M5-NPN	0301455	
MMS 22-S-M5-NPN-SA	0301461	
MMS 22-S-M5-PNP	0301454	
MMS 22-S-M5-PNP-SA	0301460	
MMS 22-S-M8-NPN	0301451	
MMS 22-S-M8-NPN-SA	0301457	
MMS 22-S-M8-PNP	0301450	•
MMS 22-S-M8-PNP-SA	0301456	
MMSK 22-S-NPN	0301453	
MMSK 22-S-NPN-SA	0301459	
MMSK 22-S-PNP	0301452	
MMSK 22-S-PNP-SA	0301458	

Measuring system:

FPS position monitor

Description	ID
FPS-A5	0301802
FPS-F5	0301805
FPS-F5 T	0301807
FPS-S 13	0301705

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

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

Extension cables for proximity switches/magnetic switches

Description	ID
GK 3-M5-PNP/NPN	0301652
GK 3-M8	0301622
KV 10-M8	0301496
KV 20-M8	0301497
W 3-M5-PNP/NPN	0301650
WK 3-M8	0301594
WK 3-M8 NPN	0301602
WK 5-M8	0301502
WK 5-M8 NPN	9641116

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



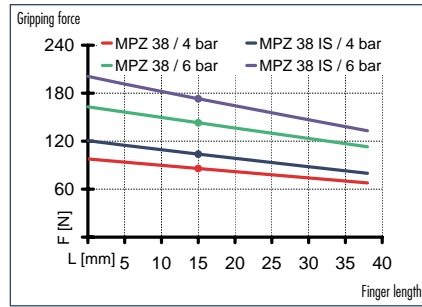
You can find more detailed information and individual parts of the above-mentioned accessories in the "Accessories" catalog section.

MPZ 38

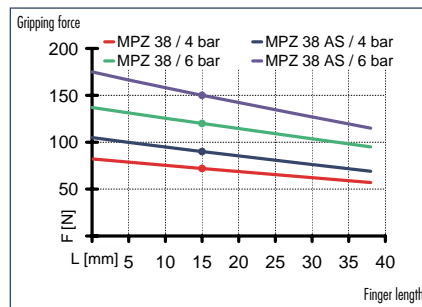
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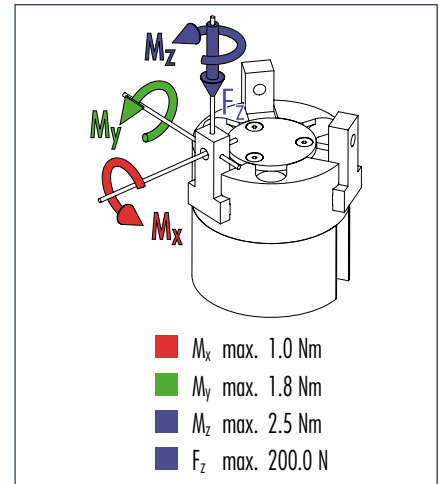
Gripping force, I.D. gripping



Gripping force, O.D. gripping



Finger load

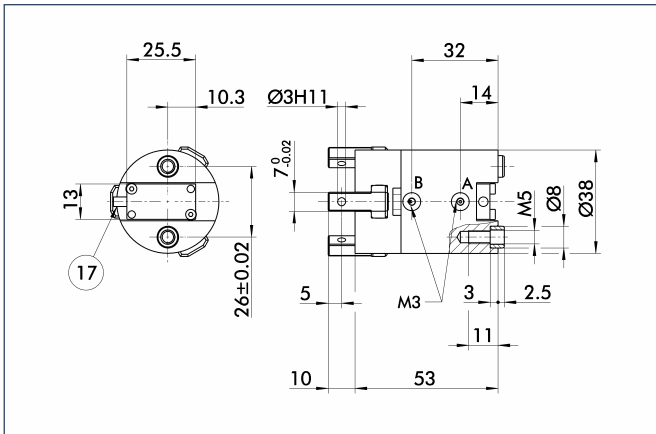


① Moments and forces apply per base jaw and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself. If the max. permitted finger weight is exceeded, it is imperative to throttle the air pressure so that the jaw movement occurs without any hitting or bouncing.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

Technical data

Description		MPZ 38	MPZ 38 AS	MPZ 38 IS	MPZ 38 FPS
	ID	0340520	0340521	0340522	0340523
Stroke per finger	[mm]	4.0	4.0	4.0	4.0
Closing force	[N]	120.0	150.0		120.0
Opening force	[N]	140.0		180.0	140.0
Min. gripping force through spring	[N]		30.0	40.0	
Weight	[kg]	0.14	0.19	0.19	0.19
Recommended workpiece weight	[kg]	0.6	0.6	0.6	0.6
Air consumption per double stroke	[cm ³]	4.084	4.084	4.084	4.084
Nominal pressure	[bar]	6.0	6.0	6.0	6.0
Minimum pressure	[bar]	2.0	4.0	4.0	2.0
Maximum pressure	[bar]	8.0	6.5	6.5	8.0
Closing time	[s]	0.02	0.02	0.04	0.02
Opening time	[s]	0.02	0.04	0.02	0.02
Closing/opening time with spring only	[s]		0.2	0.2	
Max. permitted finger length	[mm]	38.0	38.0	38.0	38.0
Max. permitted weight per finger	[kg]	0.05	0.05	0.05	0.05
IP rating		40	40	40	40
Min. ambient temperature	[°C]	-10.0	-10.0	-10.0	-10.0
Max. ambient temperature	[°C]	90.0	90.0	90.0	90.0
Repeat accuracy	[mm]	0.01	0.01	0.01	0.01

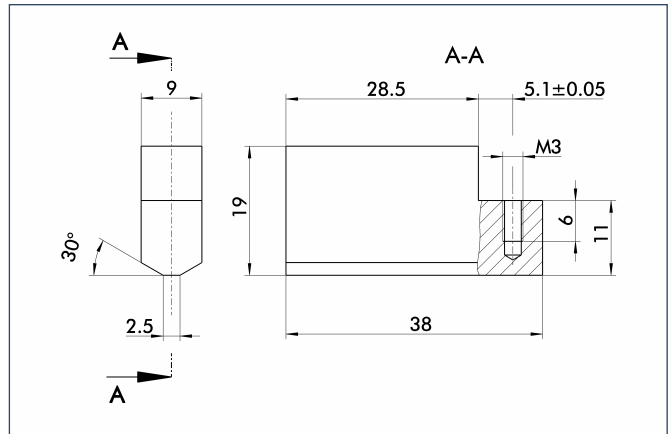
FPS measuring system



17 Cable outlet

The FPS flexible position sensor can distinguish between five freely programmable ranges or switching points for the stroke of a gripper and can be used in conjunction with a PC as a measuring system.

Finger blanks



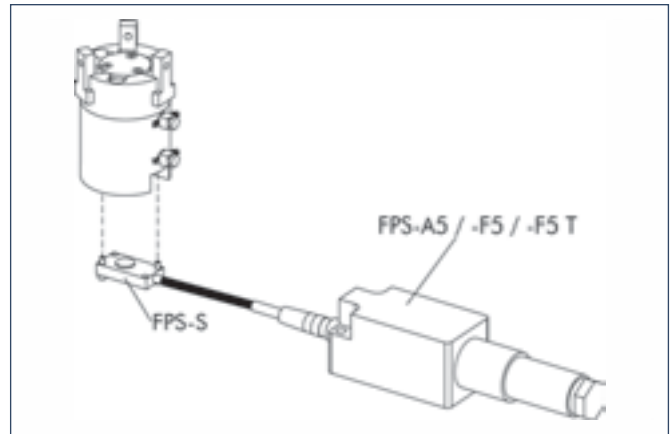
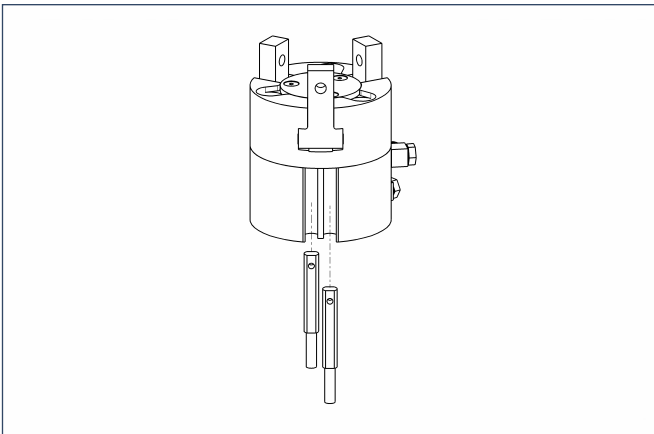
Finger blanks for customized subsequent machining

Description	Material	Scope of delivery	ID
ABR 38	Aluminum	3	0340529



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

Sensor system



End position monitoring:

Electronic magnetic switches, for mounting in C-slot

Description	ID	Recommended product
MMS 22-S-M5-NPN	0301455	
MMS 22-S-M5-NPN-SA	0301461	
MMS 22-S-M5-PNP	0301454	
MMS 22-S-M5-PNP-SA	0301460	
MMS 22-S-M8-NPN	0301451	
MMS 22-S-M8-NPN-SA	0301457	
MMS 22-S-M8-PNP	0301450	•
MMS 22-S-M8-PNP-SA	0301456	
MMSK 22-S-NPN	0301453	
MMSK 22-S-NPN-SA	0301459	
MMSK 22-S-PNP	0301452	
MMSK 22-S-PNP-SA	0301458	

Measuring system:

FPS position monitor

Description	ID
FPS-A5	0301802
FPS-F5	0301805
FPS-F5 T	0301807
FPS-S 13	0301705

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

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

Extension cables for proximity switches/magnetic switches

Description	ID
GK 3-M5-PNP/NPN	0301652
GK 3-M8	0301622
KV 10-M8	0301496
KV 20-M8	0301497
W 3-M5-PNP/NPN	0301650
WK 3-M8	0301594
WK 3-M8 NPN	0301602
WK 5-M8	0301502
WK 5-M8 NPN	9641116

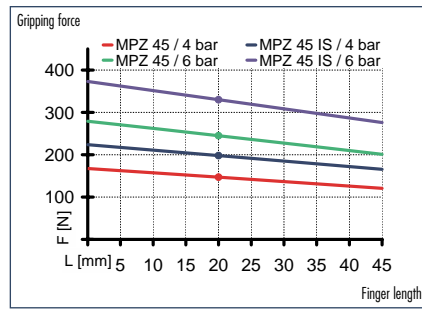
① Please note the minimum permitted bending radii for the sensor cables, which are generally 35 mm.



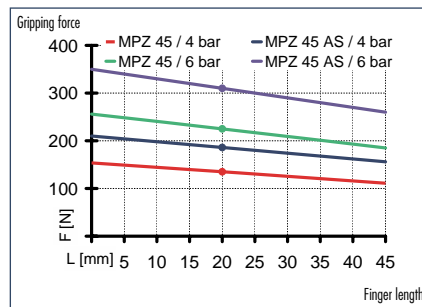
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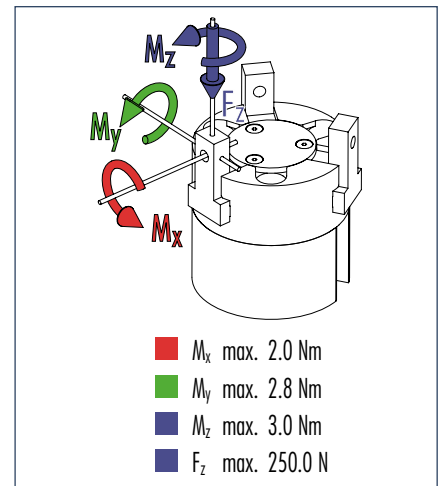
Gripping force, I.D. gripping



Gripping force, O.D. gripping



Finger load

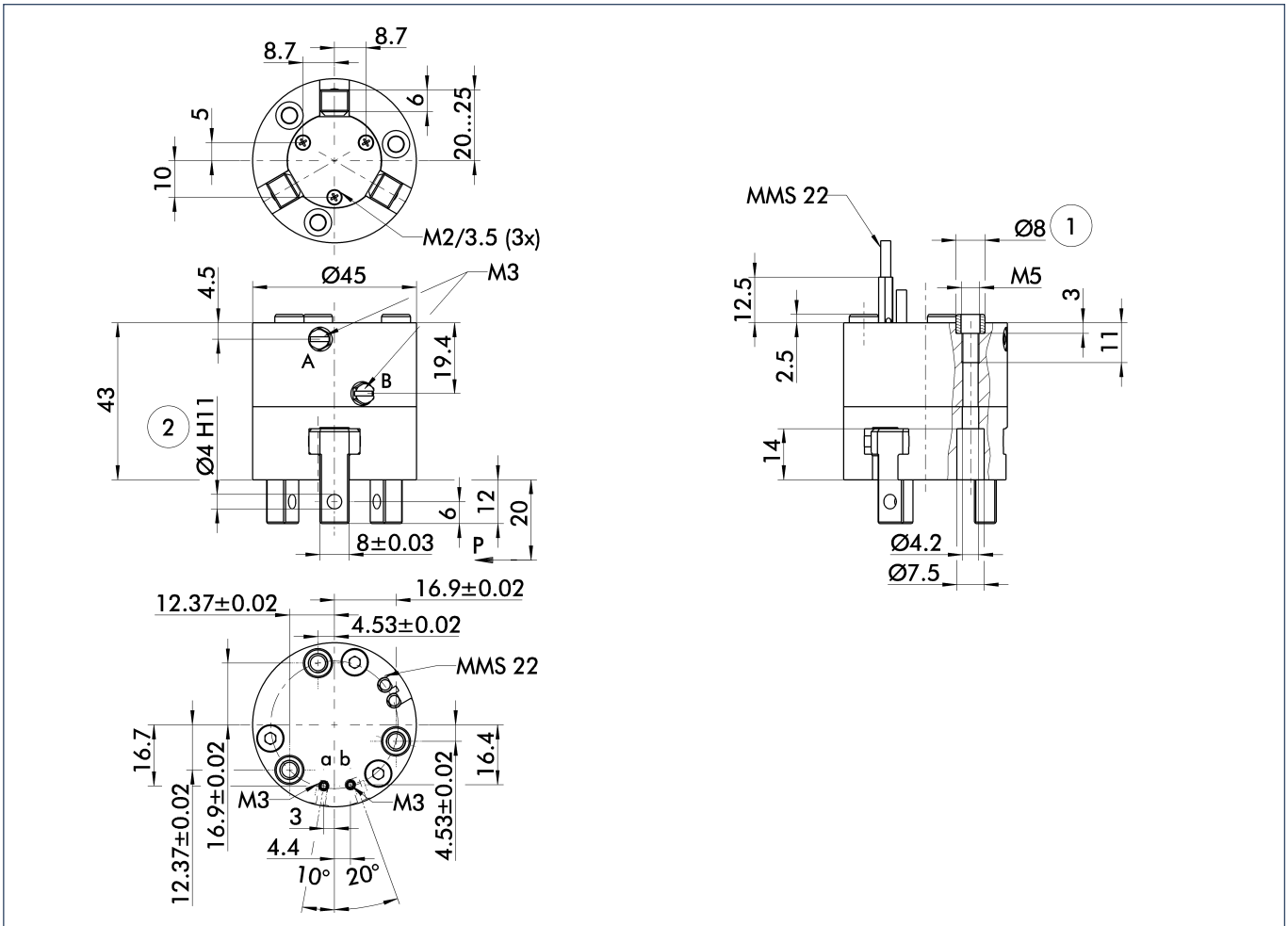


① Moments and forces apply per base jaw and may occur simultaneously. M_y may arise in addition to the moment generated by the gripping force itself. If the max. permitted finger weight is exceeded, it is imperative to throttle the air pressure so that the jaw movement occurs without any hitting or bouncing.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

Technical data

Description	ID	MPZ 45	MPZ 45 AS	MPZ 45 IS	MPZ 45 FPS
		0340530	0340531	0340532	0340533
Stroke per finger	[mm]	5.0	5.0	5.0	5.0
Closing force	[N]	225.0	310.0		225.0
Opening force	[N]	245.0		340.0	245.0
Min. gripping force through spring	[N]		85.0	95.0	
Weight	[kg]	0.22	0.28	0.28	0.29
Recommended workpiece weight	[kg]	1.1	1.1	1.1	1.1
Air consumption per double stroke	[cm ³]	9.852	9.852	9.852	9.852
Nominal pressure	[bar]	6.0	6.0	6.0	6.0
Minimum pressure	[bar]	2.0	4.0	4.0	2.0
Maximum pressure	[bar]	8.0	6.5	6.5	8.0
Closing time	[s]	0.05	0.04	0.05	0.05
Opening time	[s]	0.05	0.05	0.04	0.05
Closing/opening time with spring only	[s]		0.3	0.3	
Max. permitted finger length	[mm]	45.0	45.0	45.0	45.0
Max. permitted weight per finger	[kg]	0.08	0.08	0.08	0.08
IP rating		40	40	40	40
Min. ambient temperature	[°C]	-10.0	-10.0	-10.0	-10.0
Max. ambient temperature	[°C]	90.0	90.0	90.0	90.0
Repeat accuracy	[mm]	0.01	0.01	0.01	0.01

Main views

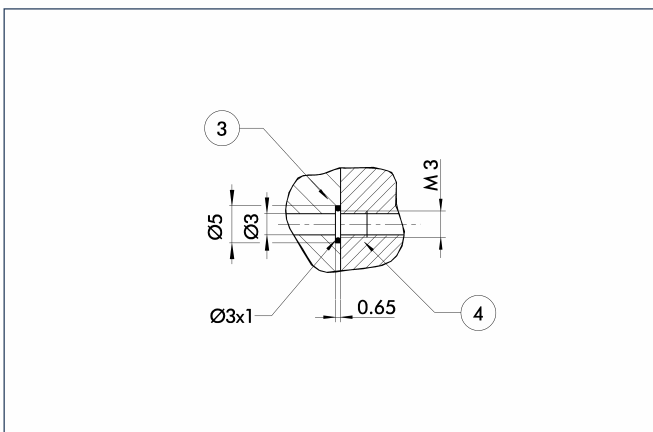


The drawing shows the gripper in the basic version with open jaws, the dimensions do not include the options described below.

- A,a Main/direct connection, gripper opening
- B,b Main/direct connection, gripper closing
- ① Gripper connection
- ② Finger connection

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

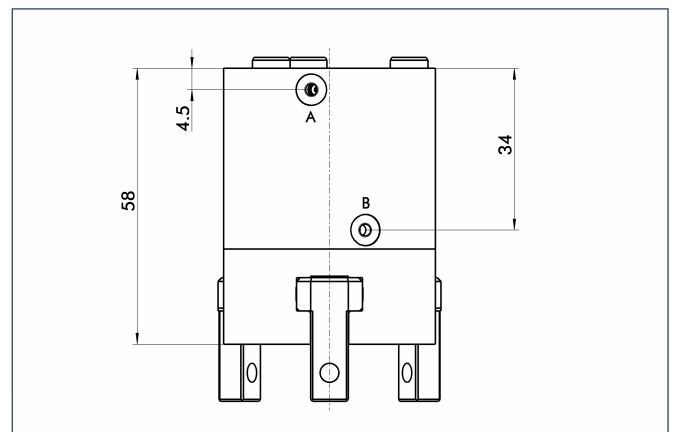
Hoseless direct connection



- ③ Adapter
- ④ Gripper

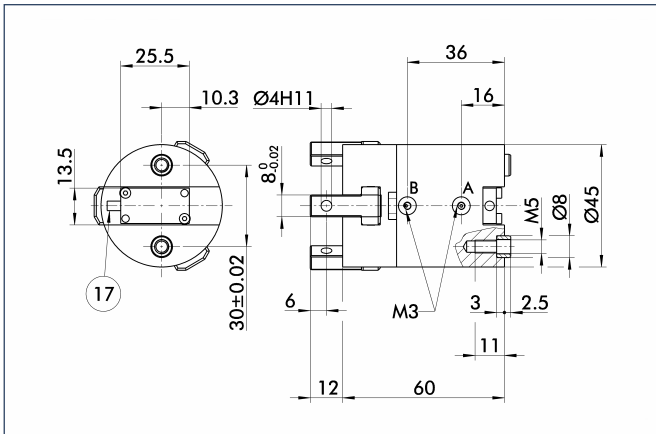
The direct connection is used for supplying compressed air to the gripper without vulnerable hoses. Instead, the pressure medium is fed through bore-holes in the mounting plate.

AS/IS gripping force safety device



The mechanical gripping force safety device ensures a minimum gripping force even if there is a drop in pressure. This acts as closing force in the AS version, and as opening force in the IS version. In addition, the gripping force safety device can also be employed as a gripping force booster or for single-acting gripping.

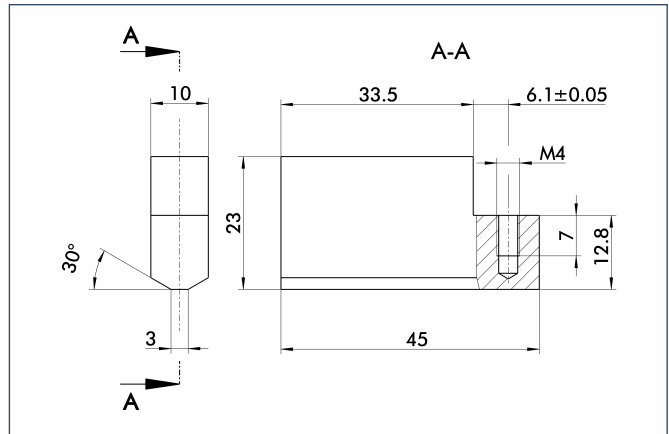
FPS measuring system



17 Cable outlet

The FPS flexible position sensor can distinguish between five freely programmable ranges or switching points for the stroke of a gripper and can be used in conjunction with a PC as a measuring system.

Finger blanks



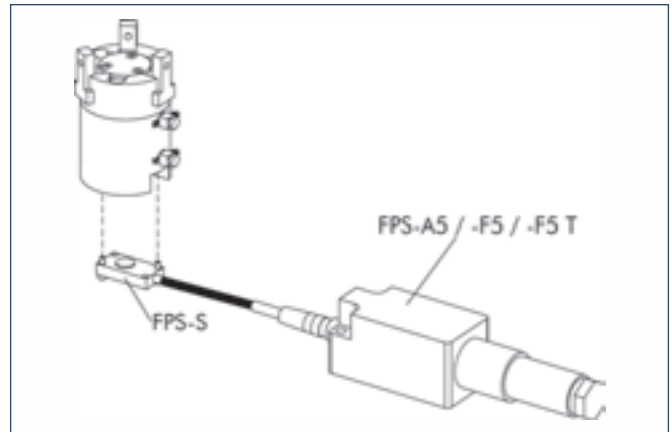
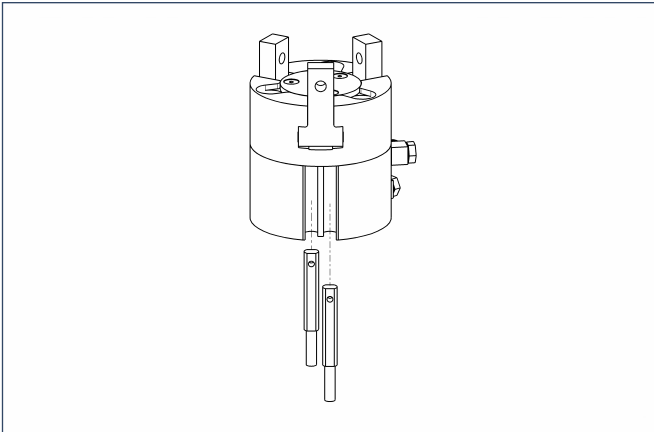
Finger blanks for customized subsequent machining

Description	Material	Scope of delivery	ID
ABR 45	Aluminum	3	0340539



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

Sensor system



End position monitoring:

Electronic magnetic switches, for mounting in C-slot

Description	ID	Recommended product
MMS 22-S-M5-NPN	0301455	
MMS 22-S-M5-NPN-SA	0301461	
MMS 22-S-M5-PNP	0301454	
MMS 22-S-M5-PNP-SA	0301460	
MMS 22-S-M8-NPN	0301451	
MMS 22-S-M8-NPN-SA	0301457	
MMS 22-S-M8-PNP	0301450	•
MMS 22-S-M8-PNP-SA	0301456	
MMSK 22-S-NPN	0301453	
MMSK 22-S-NPN-SA	0301459	
MMSK 22-S-PNP	0301452	
MMSK 22-S-PNP-SA	0301458	

Measuring system:

FPS position monitor

Description	ID
FPS-A5	0301802
FPS-F5	0301805
FPS-F5 T	0301807
FPS-S 13	0301705

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

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

Extension cables for proximity switches/magnetic switches

Description	ID
GK 3-M5-PNP/NPN	0301652
GK 3-M8	0301622
KV 10-M8	0301496
KV 20-M8	0301497
W 3-M5-PNP/NPN	0301650
WK 3-M8	0301594
WK 3-M8 NPN	0301602
WK 5-M8	0301502
WK 5-M8 NPN	9641116

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