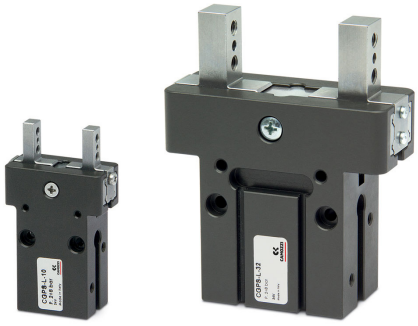
SELF-CENTERING PARALLEL GRIPPERS WITH T-GUIDE
SERIES CGPS

Single and double acting, magnetic, self-centering
Sizes: Ø 10, 16, 20, 25, 32 mm



- Robust, compact and light design
- High closing/opening forces
- Fixing from below and from the side
- Supply on the side
- Self-centering jaws
- High closing and opening repeatability
- High interchangeability (bushes and centering plugs)
- Position detection (front and side) thanks to the use of Series CSD magnetic proximity switches
- Protection against dust (IP40)
- Finger types available: long with through-holes
- High resistance to external loads thanks to the T-guide
- Variants available for use in ATEX zones, high temperatures and FDA approved grease

Thanks to a high performance force transmission system and a robust sliding guide, the gripper Series CGPS are able to provide high gripping forces, guaranteeing repeatability and robustness, even with external static and dynamic loads.

The wide range of sizes, models and versions allows to find the optimal solution for every handling need, also in the food industry and in harsh environments, thanks to the use of specific greases.

General Data

Construction	Self-centering parallel gripper with T-guide
Operation	Double acting, Double acting NO, Double acting NC
Size	Ø 10, 16, 20, 25, 32 mm
Force transmission	Lever
Ports	M3-M5 (M3 for size 10 only)
Operating pressure	2 ÷ 8 bar (double acting), 4 ÷ 8 bar (double acting with spring)
Environmental temperature	Operation : 5°C ÷ 60°C (standard); 5°C ÷ 130°C (high temperature version) Storage: -10°C ÷ 80°C
Repeatability [%FS]	0.02 mm
Interchangeability	0.1 mm
Medium	Filtered air in class [7:4:4] according to ISO 8573-1. In case lubricated air is used, we recommend ISOVG32 oil and to never interrupt lubrication.
Compatibility	ROHS Directive
Certifications	ATEX (II 2GD c IIC 120°C(T4)-20°C≤Ta≤80°C)
Materials	PTFE, Silicone and Copper free
Lubrication	After 10 million cycles, grease the guiding surfaces. Standard = Molykote DX A= Molykote P-1900 W= Krytox GPL 205

N.B. It could take some hundreds of gripping cycles before the full gripping force is available (as indicated in the relative tables)

SELF-CENTERING PARALLEL GRIPPERS WITH T-GUIDE
SERIES CGPS - CODING EXAMPLES

Coding example

CGPS	-	L	-	16	-	NO	-	A	EX

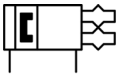
CGPS	SERIES	
L	CONSTRUCTION L = Long finger	
16	SIZES 10 = Ø 10 mm 16 = Ø 16 mm 20 = Ø 20 mm 25 = Ø 25 mm 32 = Ø 32 mm	
NO	OPERATION* = double acting NO = double acting, normally open NC = double acting, normally closed	PNEUMATIC SYMBOLS PNZ1 PNZ2 PNZ3
A	VERSION = standard A = FDA approved grease W = for high temperatures (130°C)	
EX	Add EX to order the certified ATEX version	

*N.B. The NO and NC versions can also be used as single acting

Pneumatic symbols

The pneumatic symbols which have been indicated in the CODING EXAMPLE are shown below.

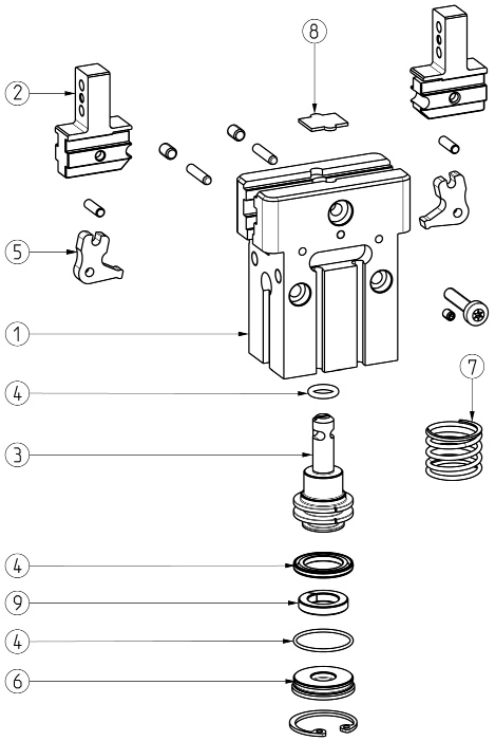
PNZ1



PNZ2

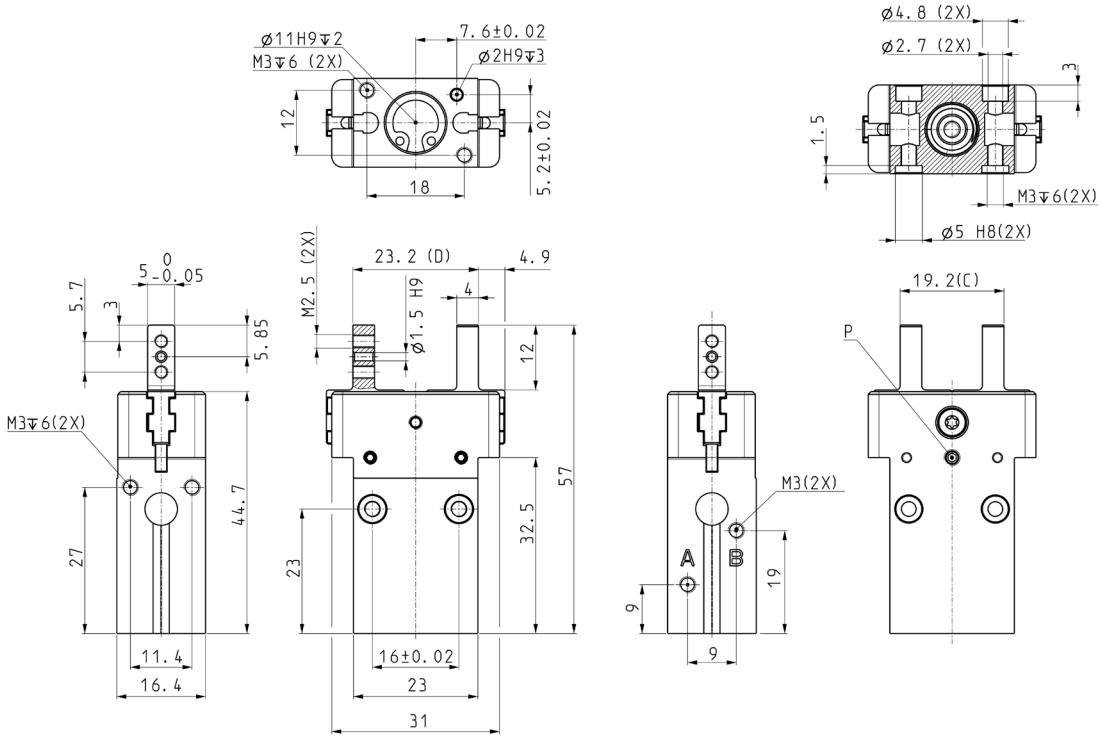
PNZ3

Construction



Num.	Parts	Materials
1	Body	Aluminium
2	Jaw	Stainless steel
3	Piston	Stainless steel
4	Seals	HNBR / FKM
5	Levers	Steel
6	End cap	Standard = POM (Acetal) W = Aluminium
7	Spring	Stainless steel
8	Sliding cover plate	Steel
9	Magnet	Plastoferrite
Various	Screws	Stainless steel
Various	Pins	Hardened steel

Gripper - size 10 mm



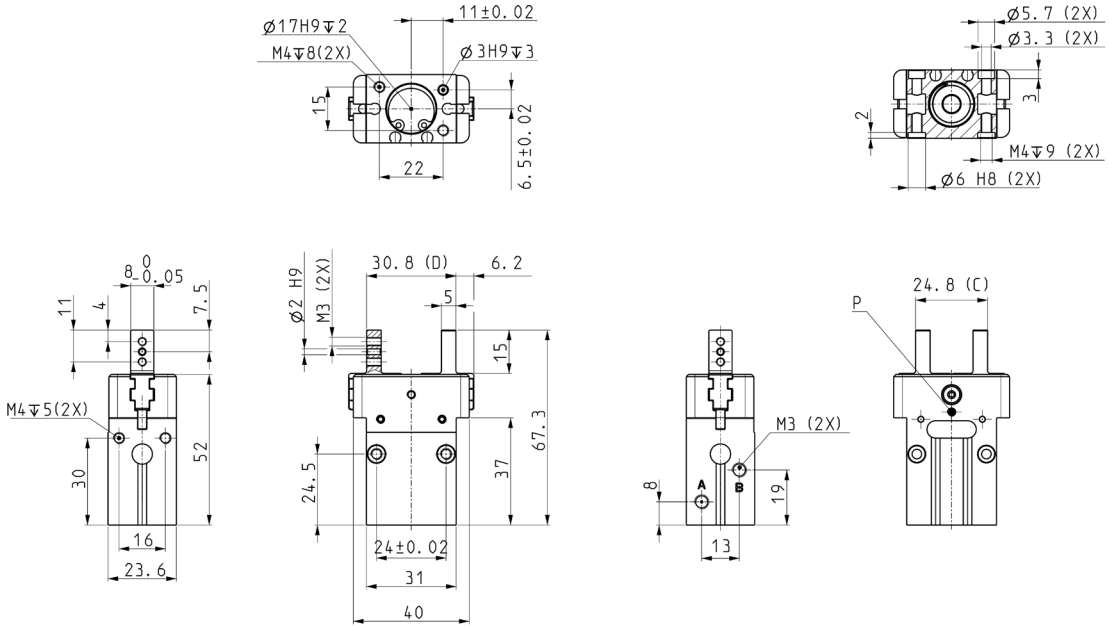
DRAWING LEGEND:
A = Opening of air connection
B = Closing of air connection
C = Closed gripper
D = Open gripper

P = Pressurization/lubrication (M3) hole

Mod.	Total closing gripping force at 6 bar [N]	Total opening gripping force at 6 bar [N]	Stroke per jaw [mm]	Working pressure [bar]	Working temperature [°C]	Repeatability [mm]	Opening time [ms]	Closing time [ms]	Weight [kg]
CGPS-L-10	28	39	2	2 ÷ 8	5 ÷ 60	+/- 0.02	7	11	0,056
CGPS-L-10-NC	40	27	2	4 ÷ 8	5 ÷ 60	+/- 0.02	9	8	0,056
CGPS-L-10-NC*	11	27	2	4 ÷ 8	5 ÷ 60	+/- 0.02	5	8	0,056
CGPS-L-10-NO	16	52	2	4 ÷ 8	5 ÷ 60	+/- 0.02	7	7	0,056
CGPS-L-10-NO*	16	12	2	4 ÷ 8	5 ÷ 60	+/- 0.02	8	6	0,056

*if used as single acting

Gripper - size 16 mm



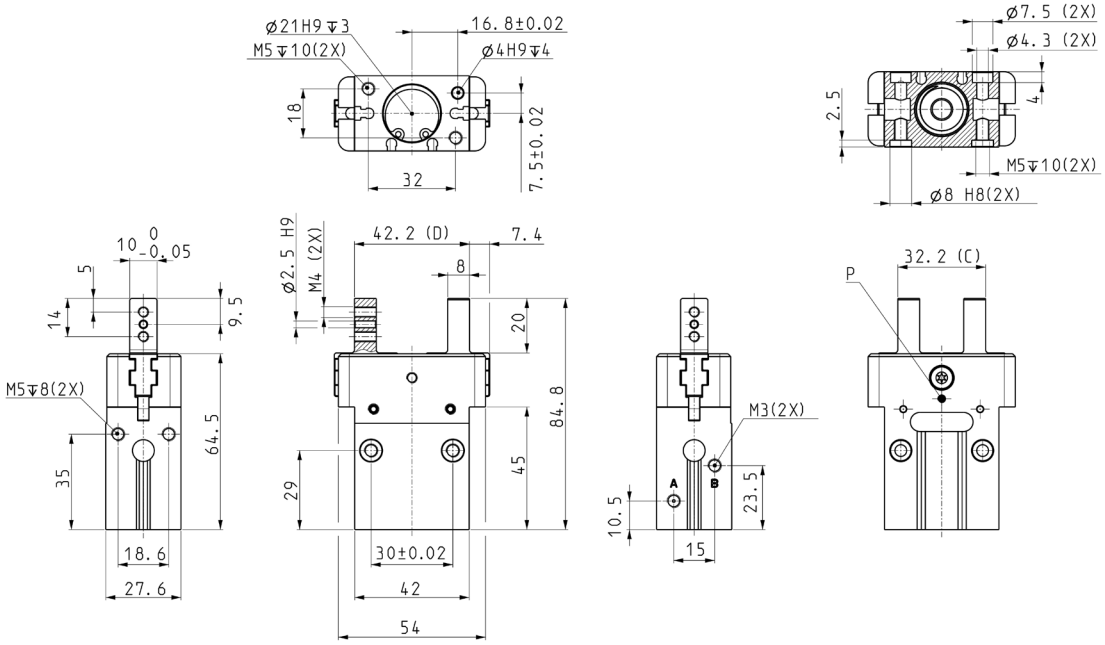
DRAWING LEGEND:
A = Opening of air connection
B = Closing of air connection
C = Closed gripper
D = Open gripper

P = Pressurization/lubrication (M3) hole

Mod.	Total closing gripping force at 6 bar [N]	Total opening gripping force at 6 bar [N]	Stroke per jaw [mm]	Working pressure [bar]	Working temperature [°C]	Repeatability [mm]	Opening time [ms]	Closing time [ms]	Weight [kg]
CGPS-L-16	84	100	3	2 ÷ 8	5 ÷ 60	+/- 0.02	8	13	0,126
CGPS-L-16-NC	106	78	3	4 ÷ 8	5 ÷ 60	+/- 0.02	7	9	0,128
CGPS-L-16-NC*	21	78	3	4 ÷ 8	5 ÷ 60	+/- 0.02	10	19	0,128
CGPS-L-16-NO	62	122	3	4 ÷ 8	5 ÷ 60	+/- 0.02	11	10	0,127
CGPS-L-16-NO*	62	22	3	4 ÷ 8	5 ÷ 60	+/- 0.02	19	8	0,127

*if used as single acting

Gripper - size 20 mm



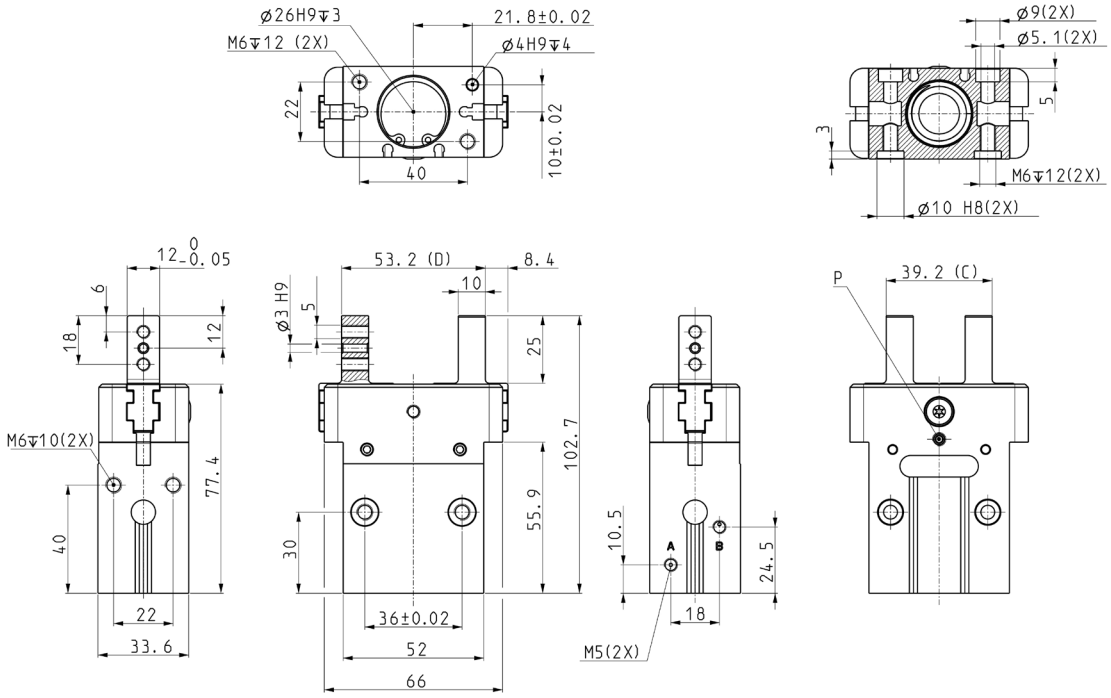
DRAWING LEGEND:
A = Opening of air connection
B = Closing of air connection
C = Closed gripper
D = Open gripper

P = Pressurization/lubrication (M3) hole

Mod.	Total closing gripping force at 6 bar [N]	Total opening gripping force at 6 bar [N]	Stroke per jaw [mm]	Working pressure [bar]	Working temperature [°C]	Repeatability [mm]	Opening time [ms]	Closing time [ms]	Weight [kg]
CGPS-L-20	132	156	5	2 ÷ 8	5 ÷ 60	+/- 0.02	14	13	0,246
CGPS-L-20-NC	166	122	5	4 ÷ 8	5 ÷ 60	+/- 0.02	13	17	0,250
CGPS-L-20-NC*	32	122	5	4 ÷ 8	5 ÷ 60	+/- 0.02	9	24	0,250
CGPS-L-20-NO	102	190	5	4 ÷ 8	5 ÷ 60	+/- 0.02	6	8	0,247
CGPS-L-20-NO*	102	32	5	4 ÷ 8	5 ÷ 60	+/- 0.02	12	8	0,247

*if used as single acting

Gripper - size 25 mm



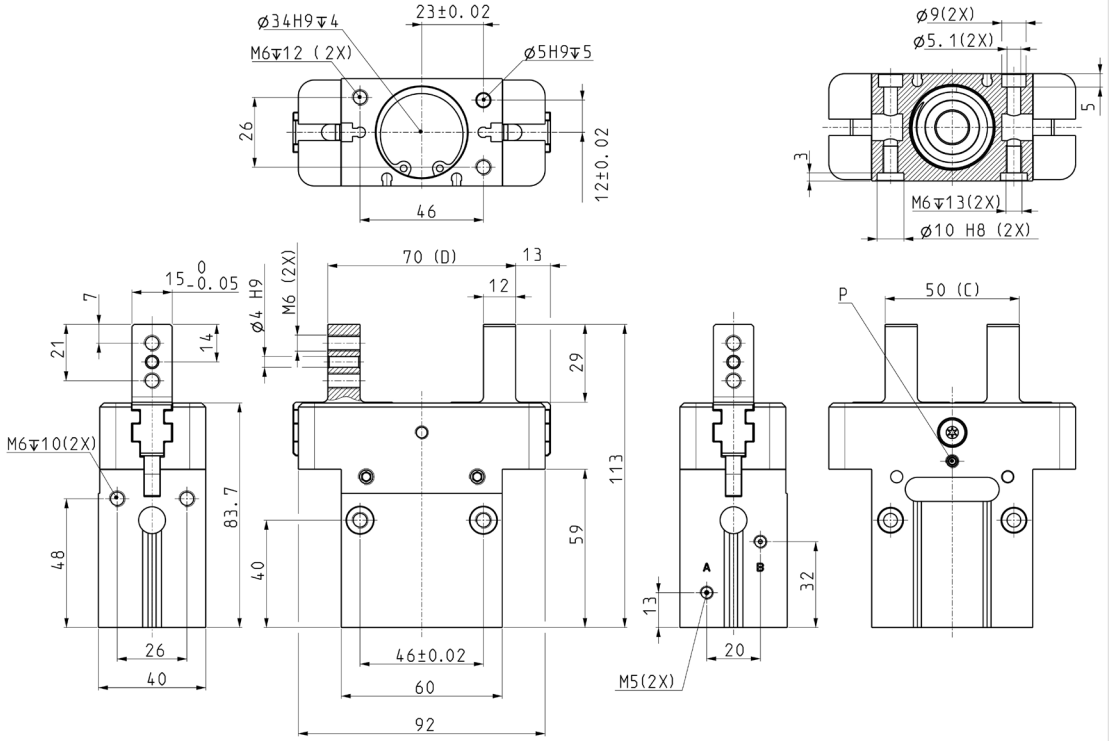
DRAWING LEGEND:
A = Opening of air connection
B = Closing of air connection
C = Closed gripper
D = Open gripper

P = Pressurization/lubrication (M5) hole

Mod.	Total closing gripping force at 6 bar [N]	Total opening gripping force at 6 bar [N]	Stroke per jaw [mm]	Working pressure [bar]	Working temperature [°C]	Repeatability [mm]	Opening time [ms]	Closing time [ms]	Weight [kg]
CGPS-L-25	205	244	7	2 ÷ 8	5 ÷ 60	+/- 0.02	19	22	0,444
CGPS-L-25-NC	250	200	7	4 ÷ 8	5 ÷ 60	+/- 0.02	27	16	0,452
CGPS-L-25-NC*	44	200	7	4 ÷ 8	5 ÷ 60	+/- 0.02	13	35	0,452
CGPS-L-25-NO	164	283	7	4 ÷ 8	5 ÷ 60	+/- 0.02	18	20	0,445
CGPS-L-25-NO*	164	40	7	4 ÷ 8	5 ÷ 60	+/- 0.02	38	15	0,445

*if used as single acting

Gripper - size 32 mm



DRAWING LEGEND:
A = Opening of air connection
B = Closing of air connection
C = Closed gripper
D = Open gripper

P = Pressurization/lubrication (M5) hole

Mod.	Total closing gripping force at 6 bar [N]	Total opening gripping force at 6 bar [N]	Stroke per jaw [mm]	Working pressure [bar]	Working temperature [°C]	Repeatability [mm]	Opening time [ms]	Closing time [ms]	Weight [kg]
CGPS-L-32	341	408	10	2 ÷ 8	5 ÷ 60	+/- 0.02	34	29	0,723
CGPS-L-32-NC	385	358	10	4 ÷ 8	5 ÷ 60	+/- 0.02	35	29	0,738
CGPS-L-32-NC*	45	358	10	4 ÷ 8	5 ÷ 60	+/- 0.02	18	70	0,738
CGPS-L-32-NO	300	450	10	4 ÷ 8	5 ÷ 60	+/- 0.02	27	31	0,726
CGPS-L-32-NO*	300	41	10	4 ÷ 8	5 ÷ 60	+/- 0.02	67	21	0,726

*if used as single acting

Gripping force (F) per single jaw

The gripping force refers to a single jaw of the gripper.
To calculate the total force developed by the gripper, you need to multiply the found value by 2:

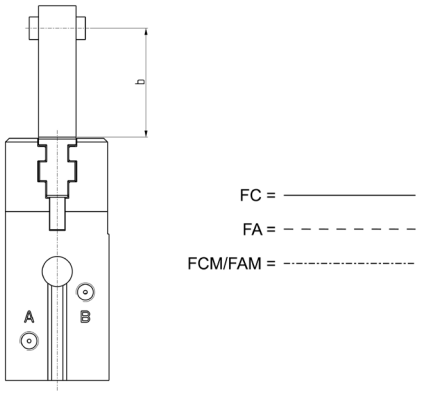
Total F = F × 2

The graphs shown represent the trend of the supplied force *F*, per single jaw, according to distance *b*, where:

- *F* is the force developed by the single jaw, both during opening and during closing;
- *b* is the distance between the gripping point of the workpiece and the finger-jaw surface area (reference for the lever arm), expressed in mm.

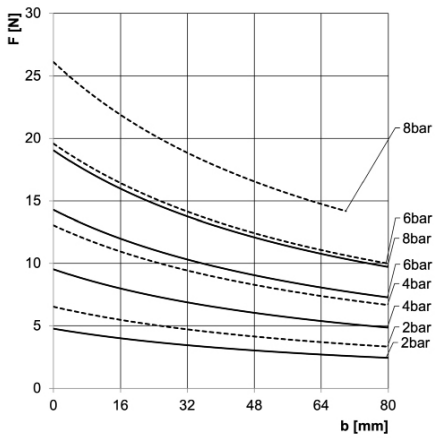
Notes:

- The curves refer both to opening and closing force;
- Performance does not vary according to the stroke.

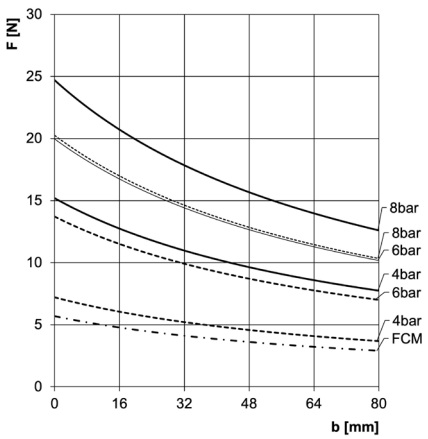


LEGEND:
b = gripping point
FA = Opening force
FC = Closing force
FAM = Opening force (spring)
FCM = Closing force (spring)

CGPS-L-10



CGPS-L-10-NC



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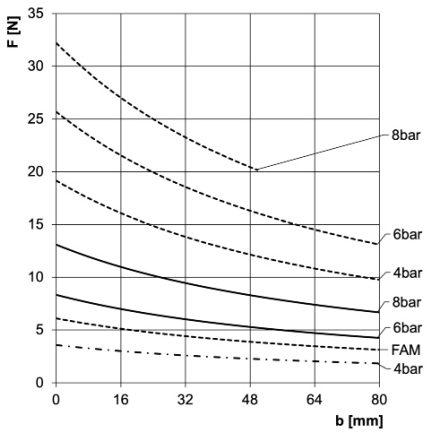
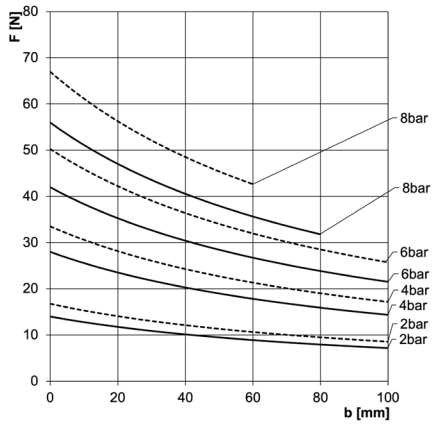
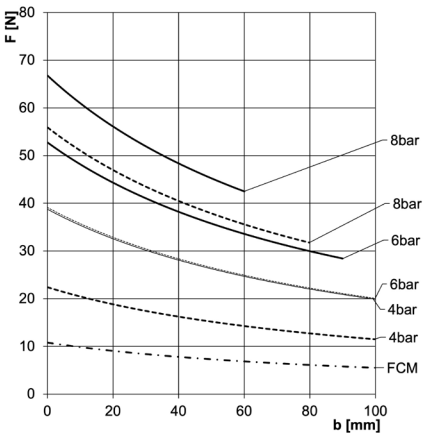


CGPS-L-16



CGPS-L-16-NC



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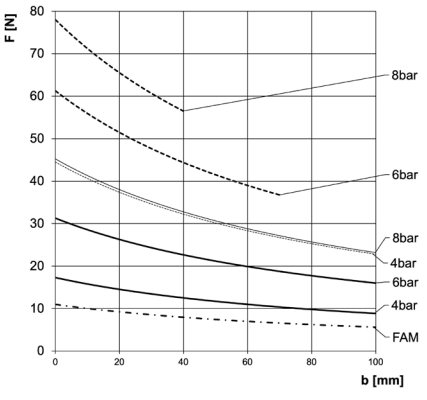
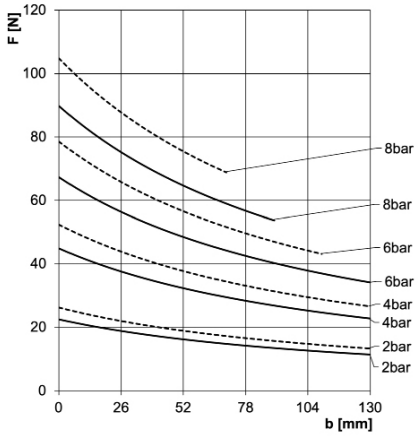
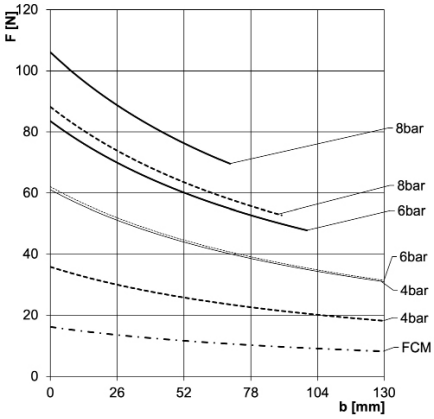


CGPS-L-20



CGPS-L-20-NC



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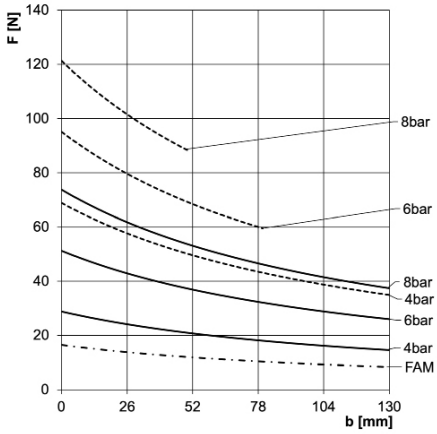
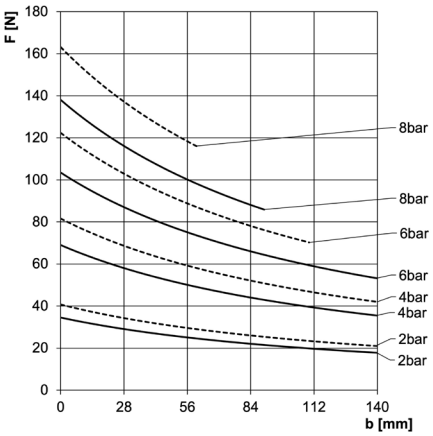


CGPS-L-25



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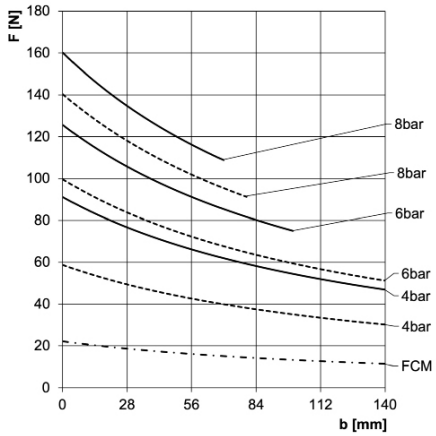
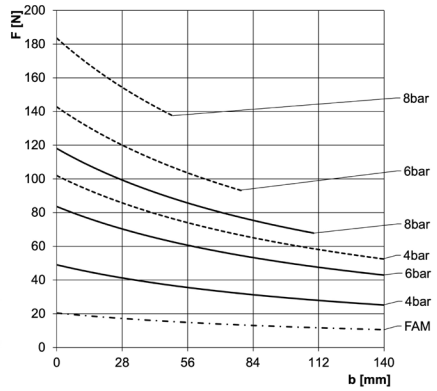
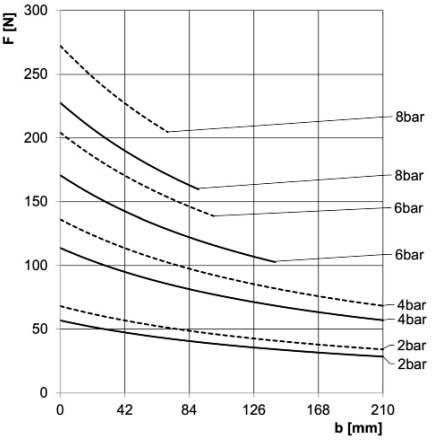


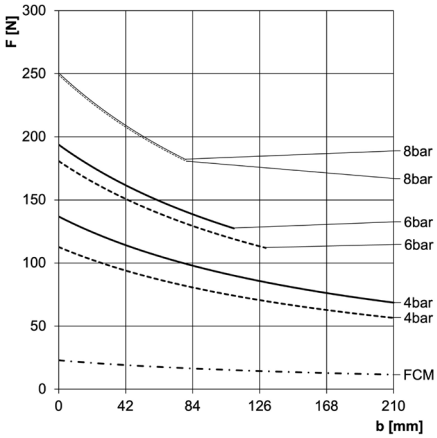
CGPS-L-25-NO



CGPS-L-32



CGPS-L-32-NC



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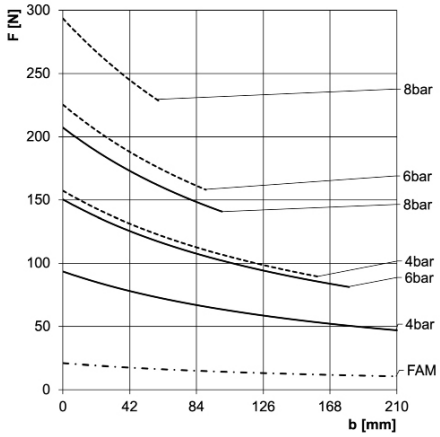


Gripper's use area

The effective gripping force developed by the gripper is affected by the position of the gripping point, described by:

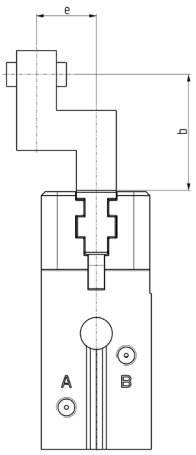
- *b* is the distance between the gripping point of the workpiece and the finger-jaw surface area (reference for the lever arm), expressed in mm.
- *e* is the eccentricity, i.e. the misalignment of the load with respect to the longitudinal axis of the gripper.

To calculate the total force developed by the gripper, you need to multiply the found value by 2:

Total F = F × 2

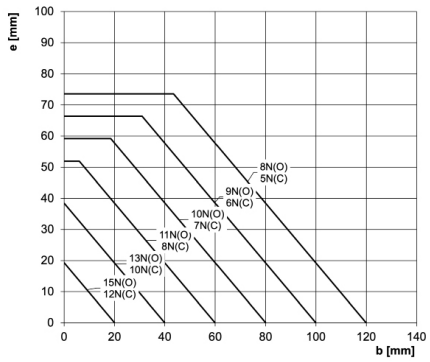
The graphs show the curves illustrating the combinations of lever arm *b* and eccentricity *e* that allow the gripper to develop certain gripping forces *F* per jaw, obtained with a constant supply pressure of 6 bar.

Note:
The values shown on the curves refer to closing (C) and opening (O) forces.

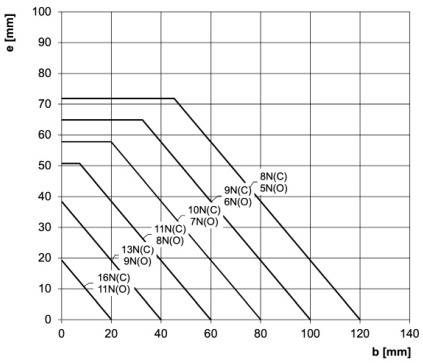


LEGEND:
b = gripping point
e = arm

CGPS-L-10



CGPS-L-10-NC



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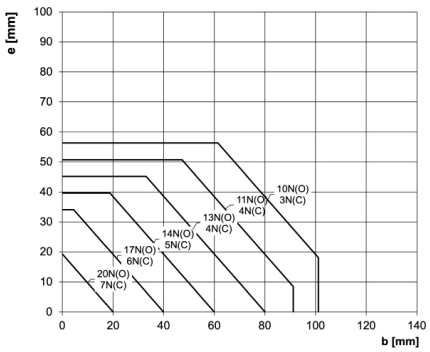
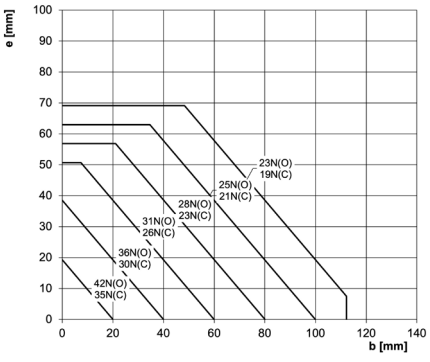
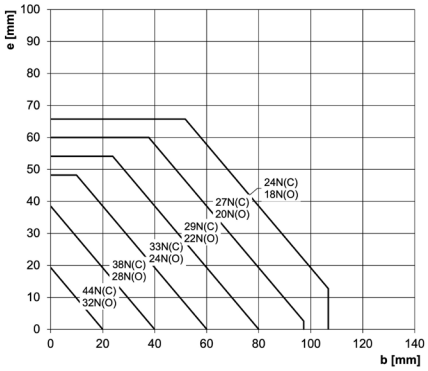


CGPS-L-16



CGPS-L-16-NC



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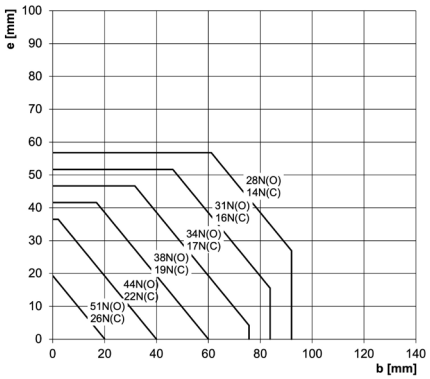
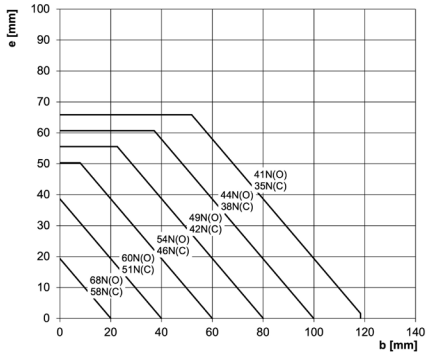
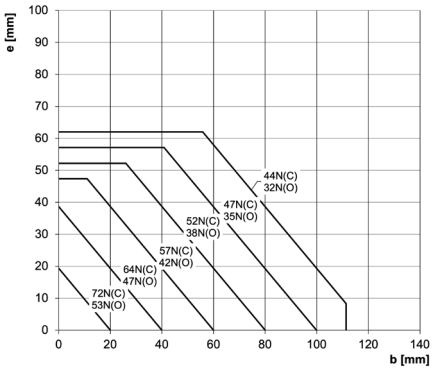


CGPS-L-20



CGPS-L-20-NC



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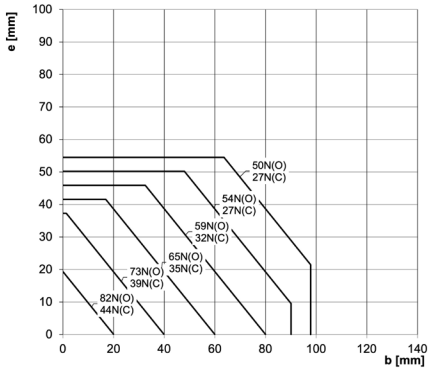
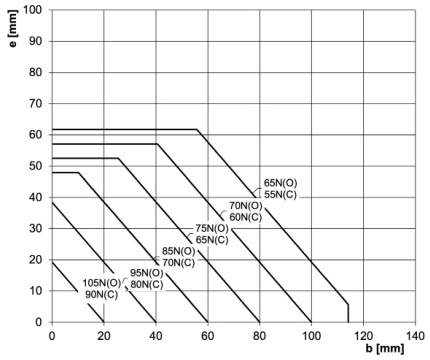
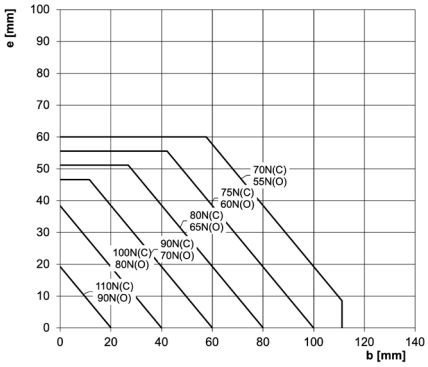


CGPS-L-25



CGPS-L-25-NC



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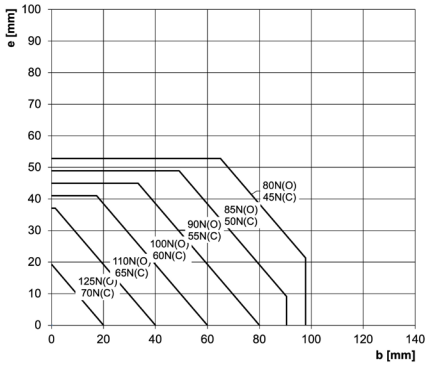
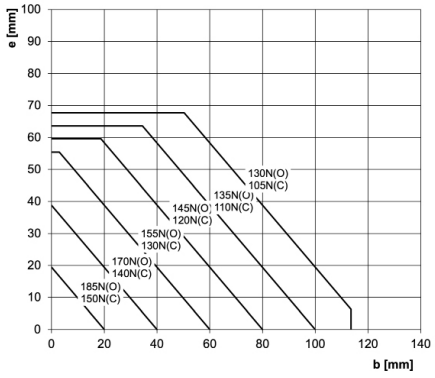
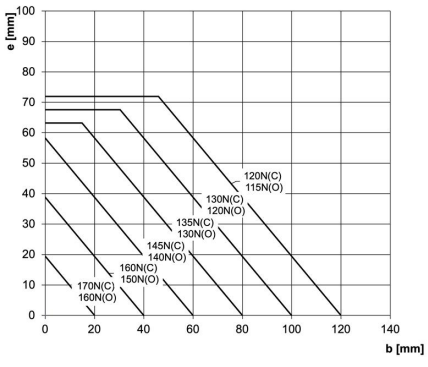


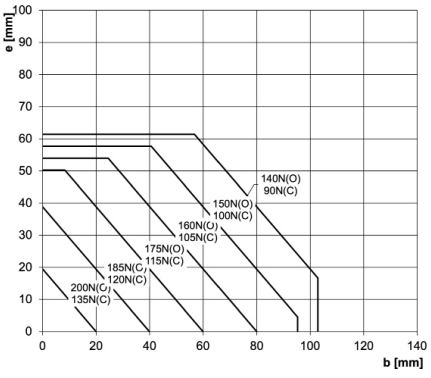
CGPS-L-32



CGPS-L-32-NC



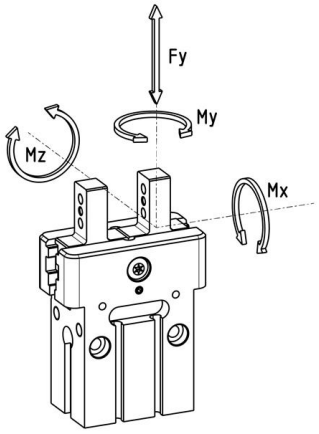
CGPS-L-32-NO



Maximum permissible loads

The indicated force and moment values refer to a single jaw of the gripper and are calculated under static conditions, i.e. with the gripper and jaw in a stationary position.
When calculating the acting loads, the following factors must be carefully considered:

- Additional loads caused by the weight of the workpiece and the fingers applied to the jaw;
- Gripping force generated during the gripping of the workpiece;
- The effect of the lever arm, i.e. the distance between the point of force application and the reference system indicated on the jaw;



Permissible yield strength loads (low number of cycles)

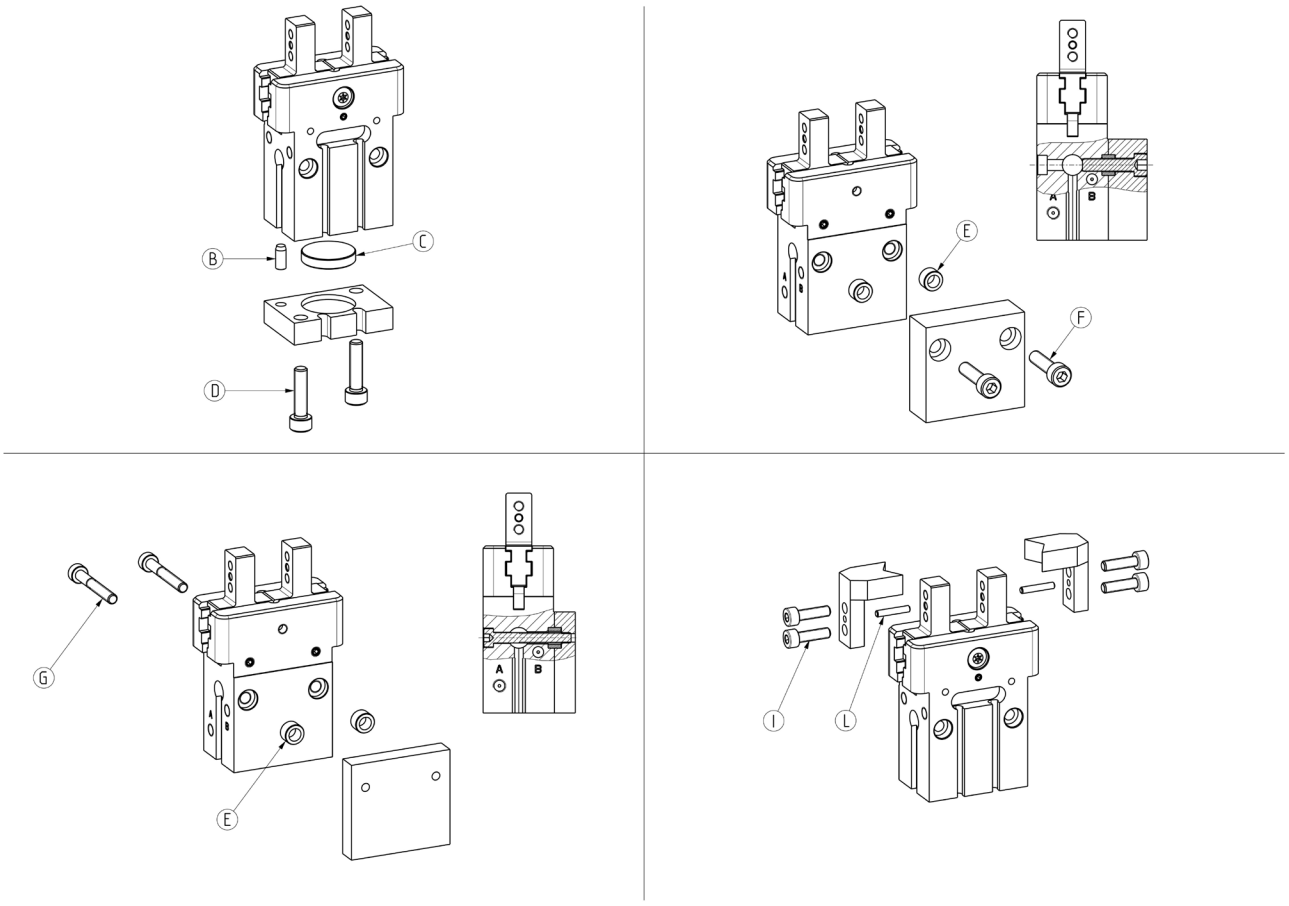
Mod.	Mx [Nm]	My [Nm]	Mz [Nm]	Fy [N]
CGPS-L-10	1,3	1,1	1,9	450
CGPS-L-16	3,4	2,9	4,7	650
CGPS-L-20	6,1	4,9	8,7	900
CGPS-L-25	9	7,4	13,8	1090
CGPS-L-32	15,9	15,6	26,1	1880

Permissible fatigue load limits (10,000,000 cycles)

Mod.	Mx [Nm]	My [Nm]	Mz [Nm]	Fy [N]
CGPS-L-10	0,7	0,6	1,1	250
CGPS-L-16	1,9	1,6	2,6	360
CGPS-L-20	3,4	2,7	4,9	500
CGPS-L-25	5,1	4,2	7,7	610
CGPS-L-32	8,9	8,8	14,7	1050

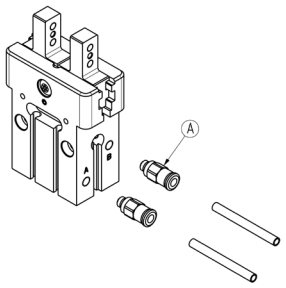
**For load conditions that differ from those indicated, it is advisable to contact Camozzi Automation's technical support.

Examples of mounting



Mod.	B	C	D	E	Centering ring	F	G	H	I	L
CGPS-L-10	Ø2	Ø11	M3	Ø5	TR-CG-05	M3	M2.5	M2.5	M2.5	Ø1.5
CGPS-L-16	Ø3	Ø17	M4	Ø6	TR-CG-06	M4	M3	M3	M3	Ø2
CGPS-L-20	Ø4	Ø21	M5	Ø8	TR-CG-08	M5	M4	M4	M4	Ø2.5
CGPS-L-25	Ø4	Ø26	M6	Ø10	TR-CG-10	M6	M5	M5	M5	Ø3
CGPS-L-32	Ø5	Ø34	M6	Ø10	TR-CG-10	M6	M5	M6	M6	Ø4

Air supply ports

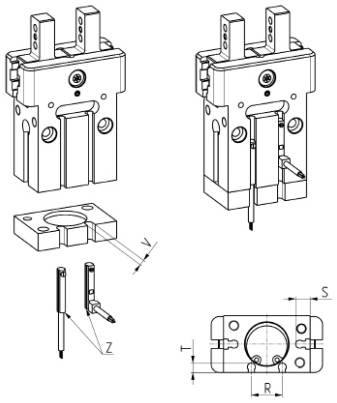


Mod.	A
CGPS-L-10	M3
CGPS-L-16	M5
CGPS-L-20	M5
CGPS-L-25	M5
CGPS-L-32	M5

Example of mounting: sensors

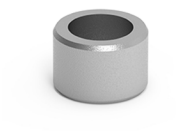
Z = sensor mod. CSD-D-334 or mod. CSD-D-364

In order to position the sensor correctly, a channel must be created in the base.

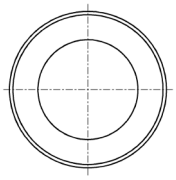


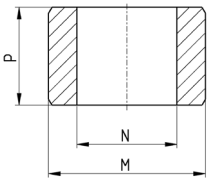
Mod.	R	S	T	V
CGPS-L-10	-	4.6	-	5
CGPS-L-16	11	4.8	3.8	5
CGPS-L-20	15	7	4.6	5
CGPS-L-25	19	9	4.8	5
CGPS-L-32	26	9	4.8	5

Centering sleeve



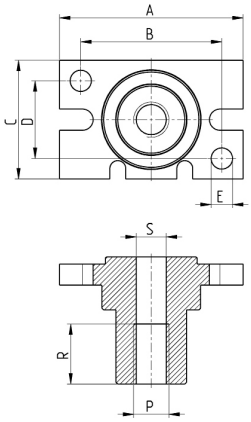
Supplied with:
2x centering rings in stainless steel

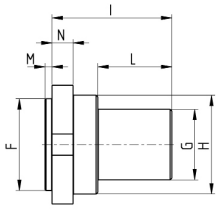


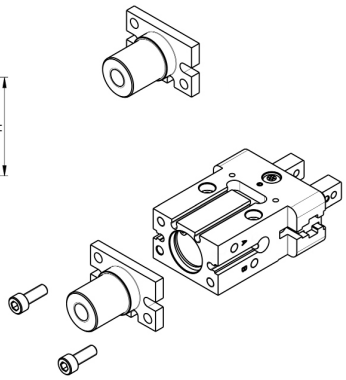


Mod.	M (h8)	N	P
TR-CG-04	Ø4	Ø2,6	2.5
TR-CG-05	Ø5	Ø3,1	3
TR-CG-06	Ø6	Ø4,1	4
TR-CG-08	Ø8	Ø5,1	5
TR-CG-10	Ø10	Ø6,1	6

Mounting shaft Mod. C-CGPS

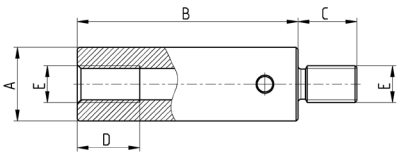


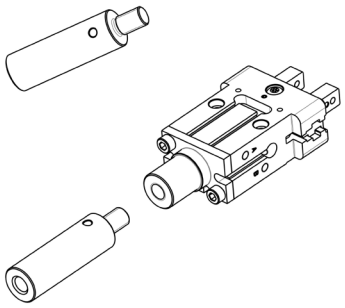




Mod.	A	B	C	D	E	F	G	H	I	L	M	N	P	R	S
C-CGPS-10	23	18	16,4	12	Ø3	Ø11	Ø10	Ø12,8	18,5	11	1,5	3,5	M6	10	Ø5
C-CGPS-16	31	22	23,6	15	Ø4	Ø17	Ø14	Ø17,8	25	16	1,5	4	M8	13	Ø6,8
C-CGPS-20	42	32	27,6	18	Ø5	Ø21	Ø20	Ø22	32	21	2	5	M10	17	Ø8,5
C-CGPS-25	52	40	33,6	22	Ø6	Ø26	Ø20	Ø28	34	21	2	6	M10	17	Ø8,5
C-CGPS-32	60	46	40	26	Ø6	Ø34	Ø30	Ø37	45	31	2	7	M16	25	Ø14

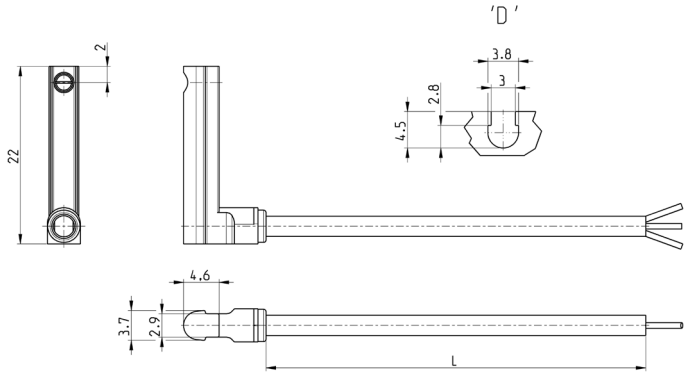
Extension for mounting shaft Mod. L-CGPS





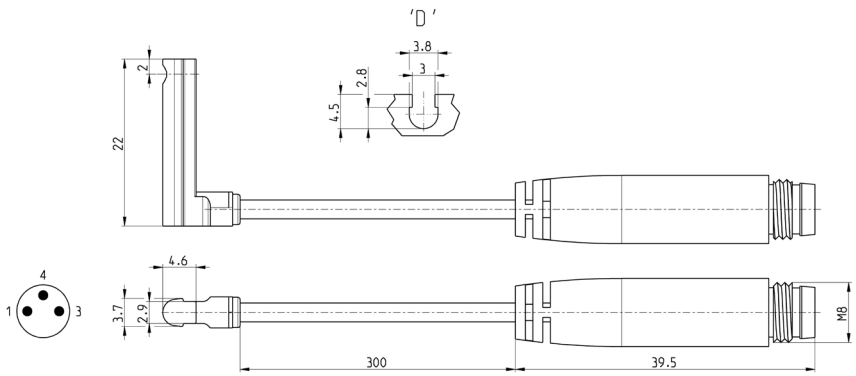
Mod.	A	B	C	D	E
L-CGPS-10	Ø10	40	9	10	M6
L-CGPS-16	Ø14	60	12	13	M8
L-CGPS-20/25	Ø20	60	16	17	M10
L-CGPS-32	Ø30	70	24	25	M16

Magnetic proximity switches, 3-wire cable, D-slot with 90° cable



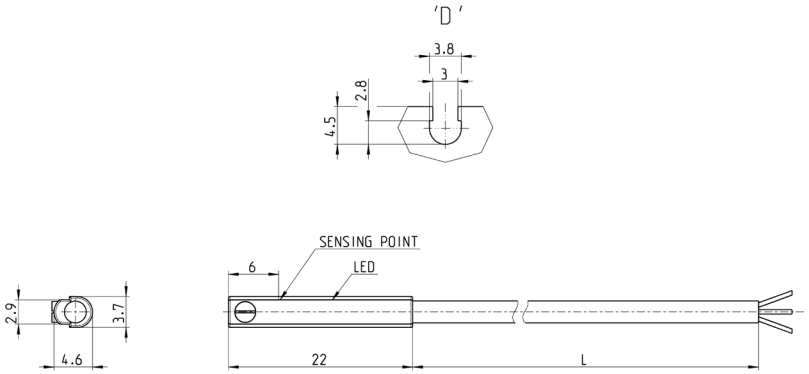
Mod.	Operation	Connections	Voltage	Output	Max. current	Max Load	Protection	L = length cable
CSD-H-334	Magnetoresistive	3 wires	10 ÷ 27 V DC	PNP	200 mA	6 W	Against polarity reversing and overvoltage	2 m
CSD-H-334-5	Magnetoresistive	3 wires	10 ÷ 27 V DC	PNP	200 mA	6 W	Against polarity reversing and overvoltage	5 m

Magnetic proximity switches, male M8 3-pin conn., D-slot, 90°



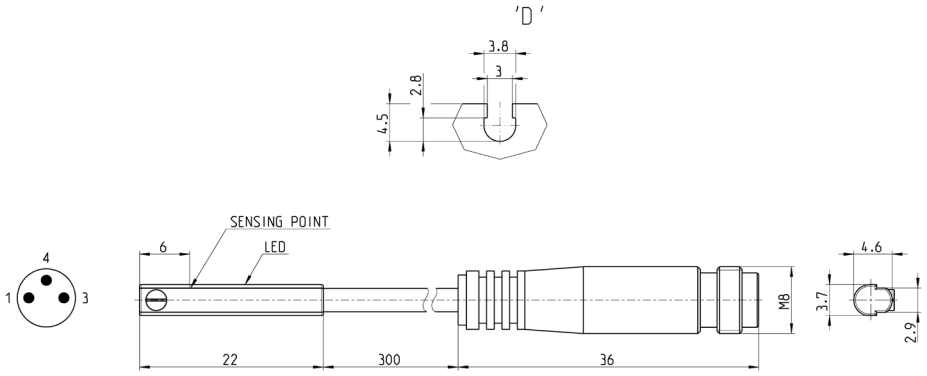
Mod.	Operation	Connection	Voltage	Output	Max current	Max load	Protection
CSD-H-364	Magnetoresistive	3 wires with M8 connector	10 ÷ 27 V DC	PNP	200 mA	6 W	Against polarity reversing and overvoltage

Magnetic proximity switches, 3-wire cable, D-slot



Mod.	Operation	Connections	Voltage	Output	Max. current	Max Load	Protection	L = length cable
CSD-D-334	Magnetoresistive	3 wires	10 ÷ 27 V DC	PNP	200 mA	6W	Against polarity reversing and overvoltage	2 m

Magnetic proximity switches, male M8 3-pin conn., D-slot, straight



Mod.	Operation	Connection	Voltage	Output	Max. current	Max Load	Protection
CSD-D-364	Magnetoresistive	3 wires with M8 connector	10 ÷ 27 V DC	PNP	200 mA	6 W	Against polarity reversing and overvoltage