CAMOZZI
Automation

PARALLEL GRIPPERS SELF-CENTERING
SERIES CGPL

Double acting, magnetic, self-centering
Bores: 8, 12, 16, 20

- Compact and light design

- Long stroke

- High speed opening and closing

- High repeatability

The long-stroke Series CGPL parallel gripper is a flexible and efficient solution for applications with restricted space.
The integrated ball bearing guide and compact, lightweight design allow fast and precise handling of components, even in high-duty cycle situations.
With its flat construction, this parallel gripper can withstand high loads and rapid acceleration, making it an ideal solution for assembly and industrial robotics.

GENERAL DATA

Type of construction	Self-centering parallel gripper
Operation	Double acting
Bores	8, 12, 16, 20
Air connections	M3 (8) M5 (12, 16, 20)
Working pressure	1,5 ÷ 7 bar (8) 1 ÷ 7 bar (12, 16, 20)
Working temperature	5°C ÷ 60°C (standard)
Store temperature	5°C ÷ 90°C
Maximum use frequency	2Hz (short stroke), 2Hz (medium stroke), 1Hz (long stroke)
Repeatibility	0,05 mm This is the value when the fingers do not grip unbalanced loads. In case of an unbalanced load, the maximum value is 0.15 mm due to the effect of the rack and pinion play.
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

PARALLEL GRIPPERS SELF-CENTERING
SERIES CGPL - STANDARD STROKES

GRIPPERS

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Standard strokes

■ = Double-acting

Ø	8	12	16	20	24	32	40	48	64	80
8	✕		✕			✕				
12		✕			✕			✕		
16			✕			✕			✕	
20				✕			✕			✕

Coding example

CGPL		-		12		-		24

CGPL	SERIES	
12	BORES 8 12 16 20	
24	STROKES (see the standard stokes table)	

Pneumatic symbols

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

PNZ1
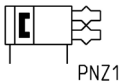
Series CGPL grippers - construction
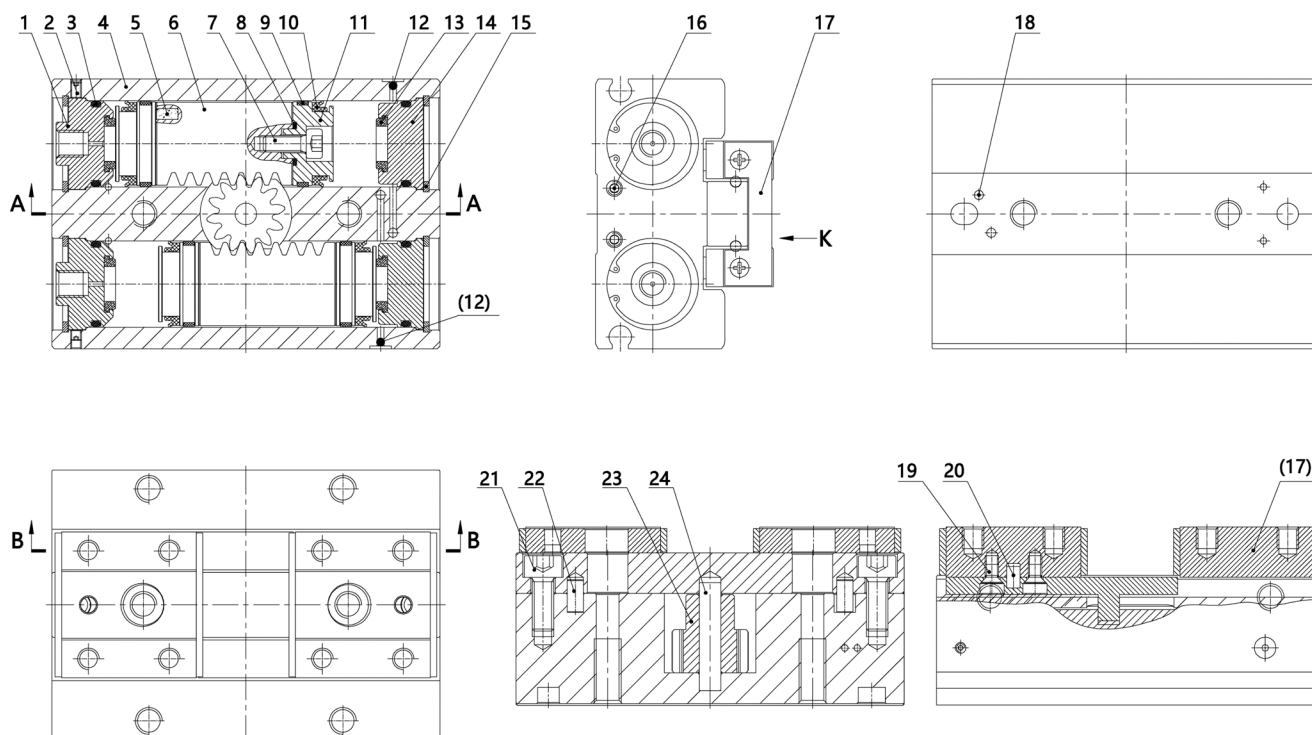
List of Components

PARTS	MATERIALS	PARTS	MATERIALS
1 - Front cover	Aluminium aloy	14 - Rear cover	Aluminium aloy
2 - Hexagon socket set crew	Stainless steel	15 - C type ring	Spring steel
3 - O-ring	NBR	16 - Hexagon socket set screw	Stainless steel
4 - Barrel	Aluminium aloy	17 - Linear ball sliding guide	Combined parts
5 - Magnet	Sintered NdFeB	18 - Steel ball	Stainless steel
6 - Rack	Stainless steel	19 - Screws	Stainless steel
7 - Heagon socket cap screw	Stainless steel	20 - Pin	Bearing steel
8 - O-ring	NBR	21 - Heagon socket cap screw	Stainless steel
9 - Wear ring	PTFE	22 - Positioning pins	Stainless steel
10 - Piston seal	NBR	23 - Gear	Carbon steel
11 - Piston	Aluminum aloy	24 - Pin	Bearing steel
12 - Steel ball	Stainless steel		
13 - Anti-bump cushion	TPU		

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PARALLEL GRIPPERS SELF-CENTERING
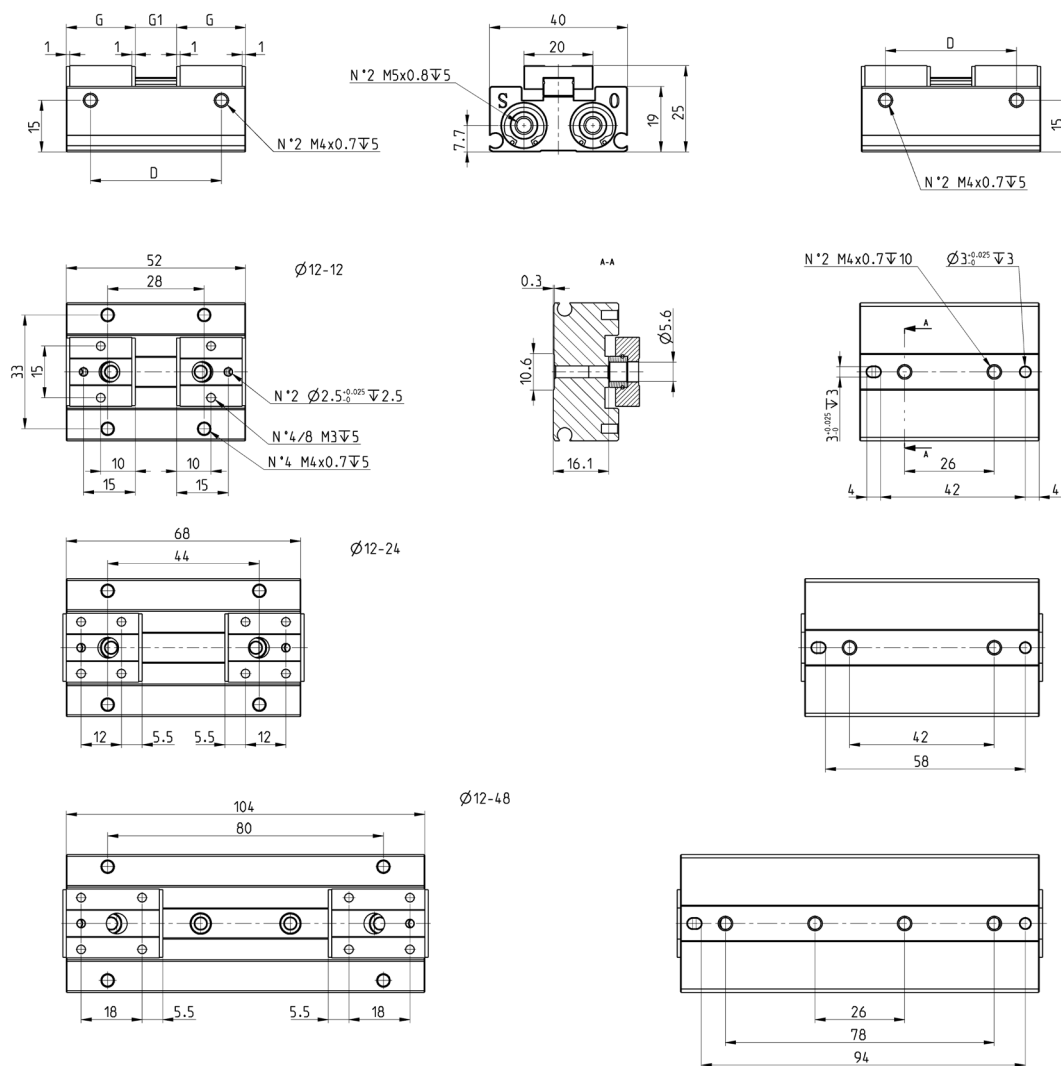### SERIES CGPL - DIMENSIONAL CHARACTERISTICS
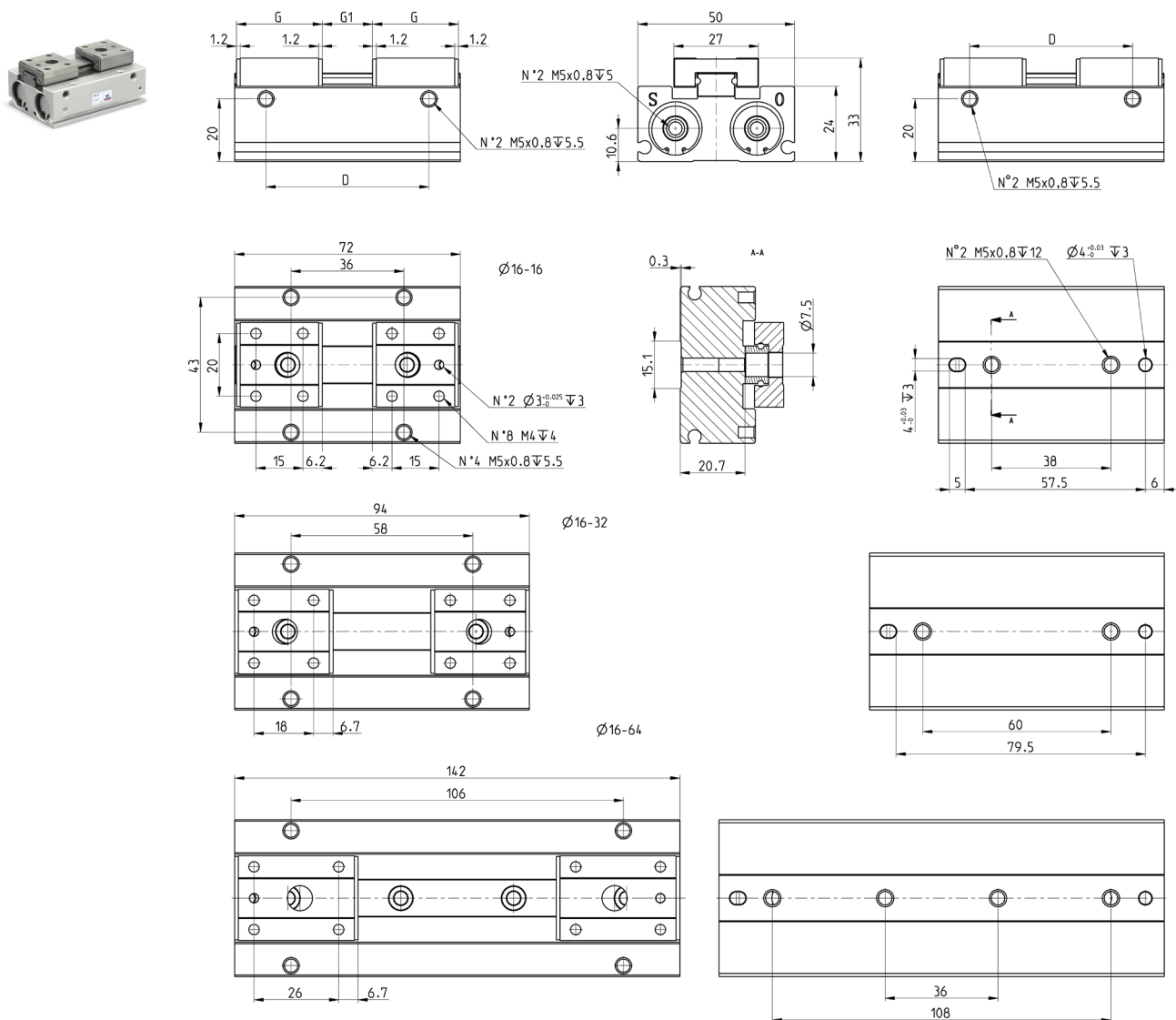
Gripper - size 8
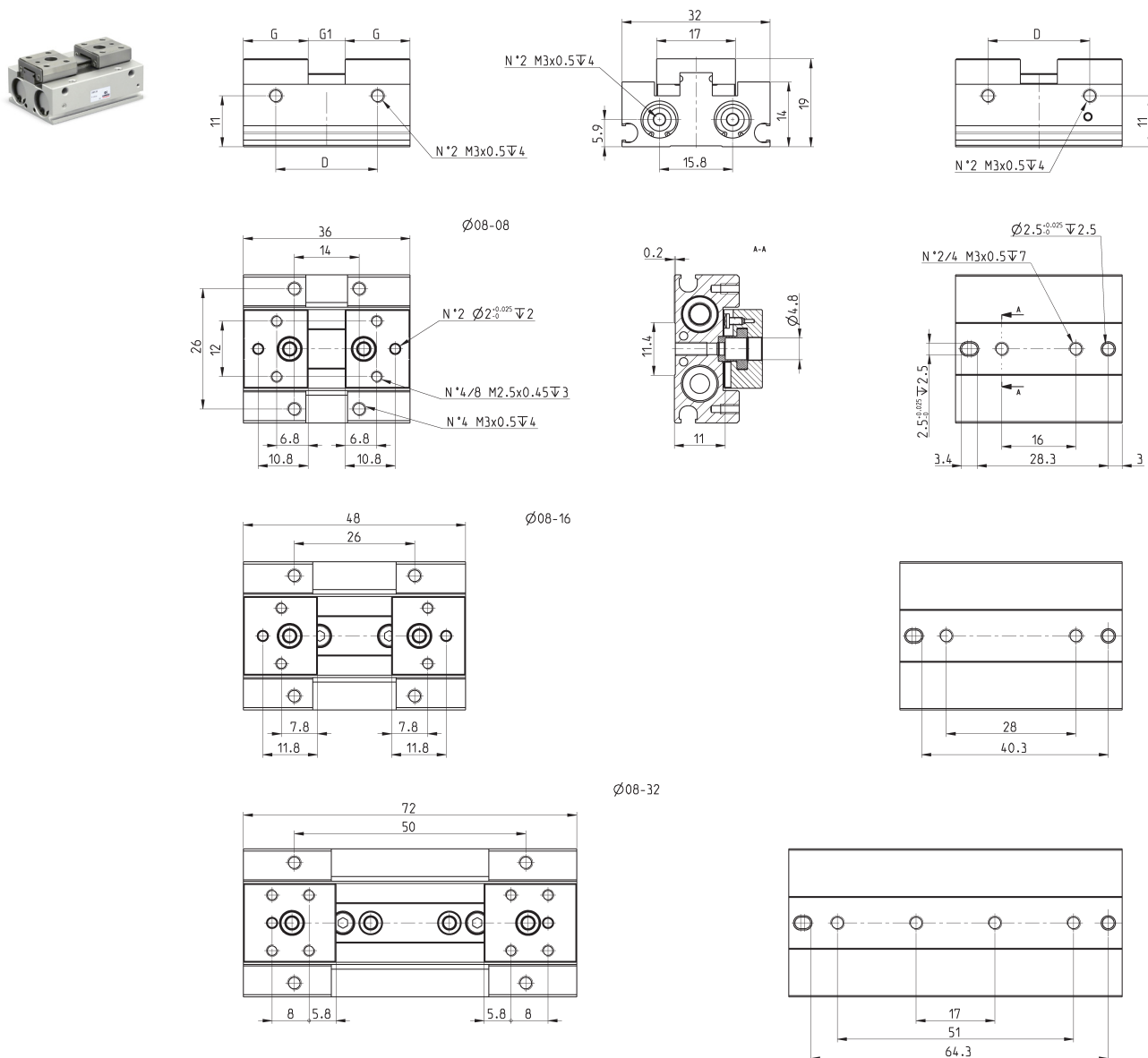
Mod.	G (mm)	Total stroke G1 (mm)	D (mm)	Opening / Closing force jaw (N)*	Working pressure (bar)	Working temperature (°C)	Repeatability (mm) **	Max use frequency (Hz)	Weight (kg)
CGPL-08-08	14	8	22	19	1,5÷7	5÷60	±0,05	2	0,06
CGPL-08-16	16	16	34	19	1,5÷7	5÷60	±0,05	2	0,08
CGPL-08-32	20	32	58	19	1,5÷7	5÷60	±0,05	1	0,115

** Is the value of the gripper without the role of bias load state; conversely affected by the tooth gap beetween the rack and gear, the maximum value is +-0,15 mm
* Pressure 5bar, clamping point L = 20, and the value at the center of the stroke.

Gripper - size 12

GRIPPERS

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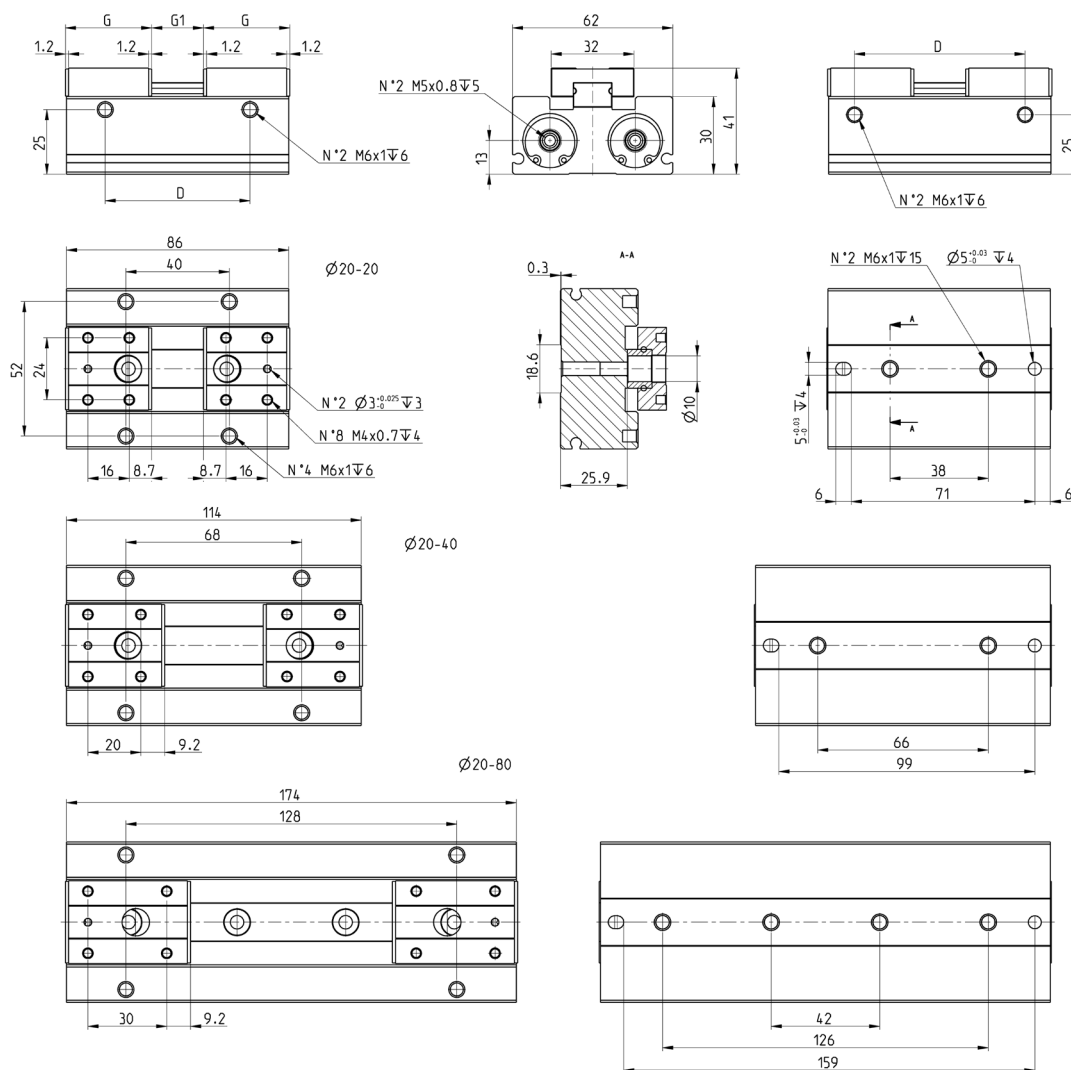| Mod.	G (mm)	Total stroke G1 (mm)	D (mm)	Opening / Closing force jaw (N)*	Working pressure (bar)	Working temperature (°C)	Repeatability (mm) **	Max use frequency (Hz)	Weight (kg)
CGPL-12-12	18	12	38	48	1÷7	5÷60	±0,05	2	0,145
CGPL-12-24	21	24	54	48	1÷7	5÷60	±0,05	2	0,185
CGPL-12-48	27	48	90	48	1÷7	5÷60	±0,05	1	0,27

** Is the value of the gripper without the role of bias load state; conversely affected by the tooth gap beetween the rack and gear, the maximum value is 0,15 mm
* Pressure 5bar, clamping point L = 20, and the value at the center of the stroke.

PARALLEL GRIPPERS SELF-CENTERING
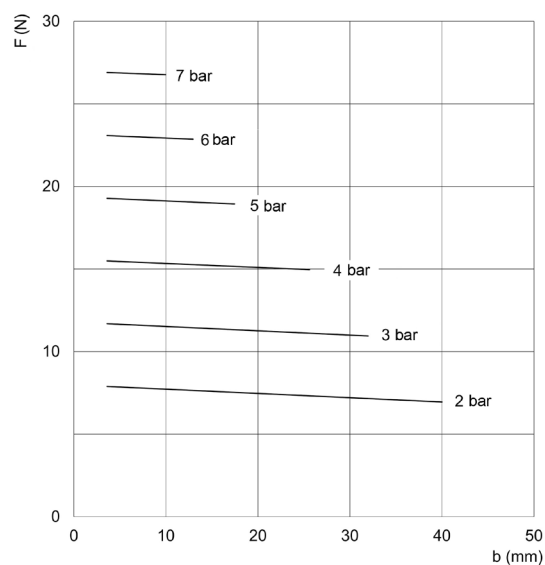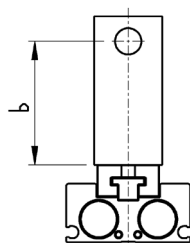**SERIES CGPL - DIMENSIONAL CHARACTERISTICS**

Gripper - size 16

Mod.	G (mm)	Total stroke G1 (mm)	D (mm)	Opening / Closing force jaw (N)*	Working pressure (bar)	Working temperature (°C)	Repeatability (mm) **	Max use frequency (Hz)	Weight (kg)
CGPL-16-16	25	16	52	90	1÷7	5÷60	±0,05	2	0,344
CGPL-16-32	29	32	74	90	1÷7	5÷60	±0,05	2	0,441
CGPL-16-64	37	64	122	90	1÷7	5÷60	±0,05	1	0,642

** Is the value of the gripper without the role of bias load state; conversely affected by the tooth gap beetween the rack and gear, the maximum value is 0,15 mm
* Pressure 5bar, clamping point L = 20, and the value at the center of the stroke.

Gripper - size 20

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Mod.	G (mm)	Total stroke G1 (mm)	D (mm)	Opening / Closing force jaw (N)*	Working pressure (bar)	Working temperature (°C)	Repeatability (mm) **	Max use frequency (Hz)	Weight (kg)
CGPL-20-20	31	20	56	141	1÷7	5÷60	±0,05	2	0,659
CGPL-20-40	36	40	84	141	1÷7	5÷60	±0,05	2	0,847
CGPL-20-80	46	80	144	141	1÷7	5÷60	±0,05	1	1,221

** Is the value of the gripper without the role of bias load state; conversely affected by the tooth gap beetween the rack and gear, the maximum value is 0,15 mm
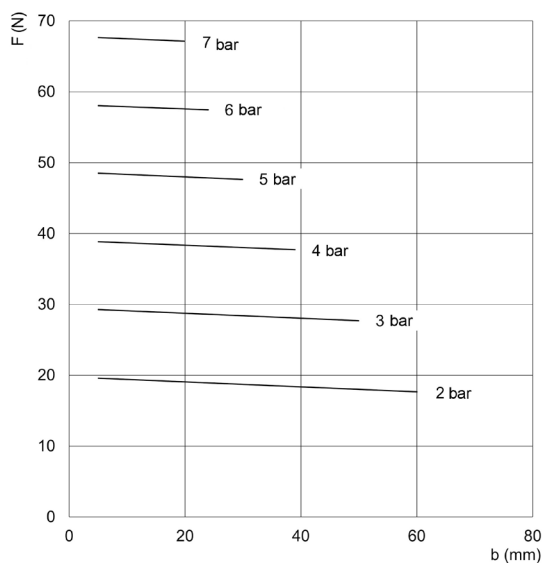* Pressure 5bar, clamping point L = 20, and the value at the center of the stroke.
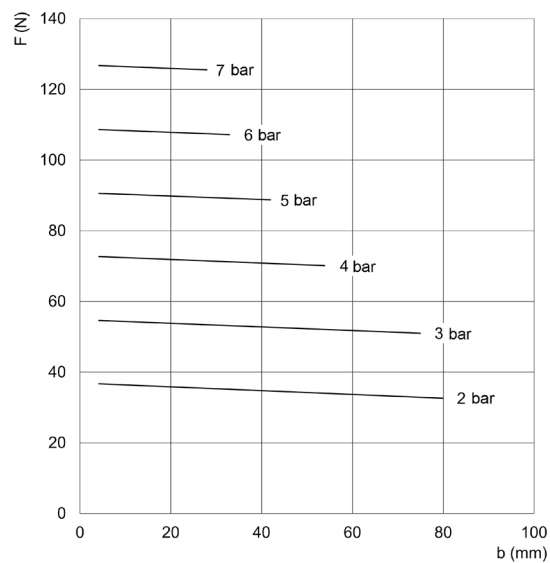
PARALLEL GRIPPERS SELF-CENTERING
SERIES CGPL - DIAGRAMS

GRIPPERS

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Gripping force (F) per single jaw

The total gripping force has to be calculated as follows:
Total F = F x 2

CGPL-8

b = Gripping point
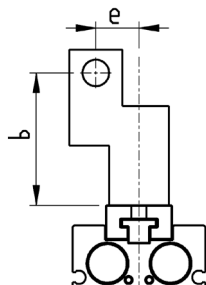**F = Gripping force**

CGPL-12

b = Gripping point
F = Gripping force

CGPL-16

b = Gripping point
F = Gripping force
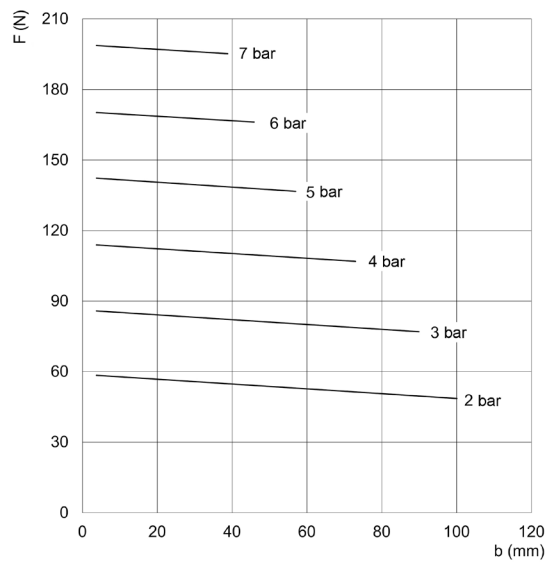
CGPL-20

b = Gripping point
F = Gripping force

GRIPPERS

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PARALLEL GRIPPERS SELF-CENTERING
SERIES CGPL - DIAGRAMS

Gripper's use area

GRIPPERS

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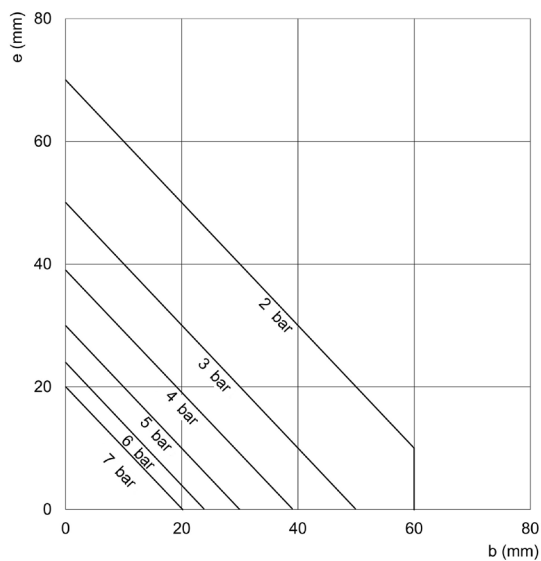

The total gripping force has to be calculated as follows: **Total F = F x 2**

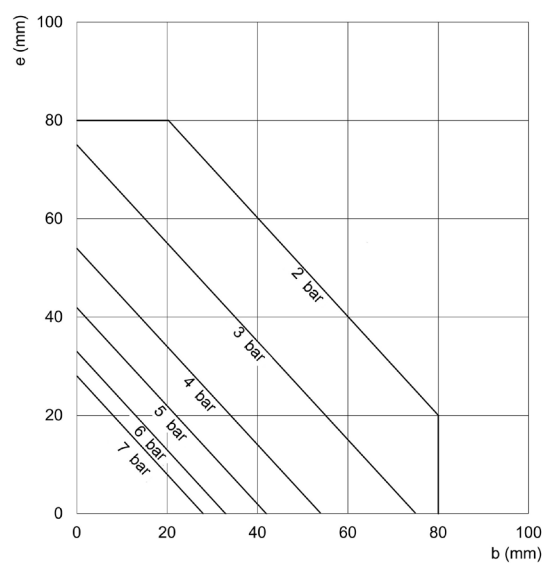**Gripper's use area according to the gripping point (b) and the arm (e)**
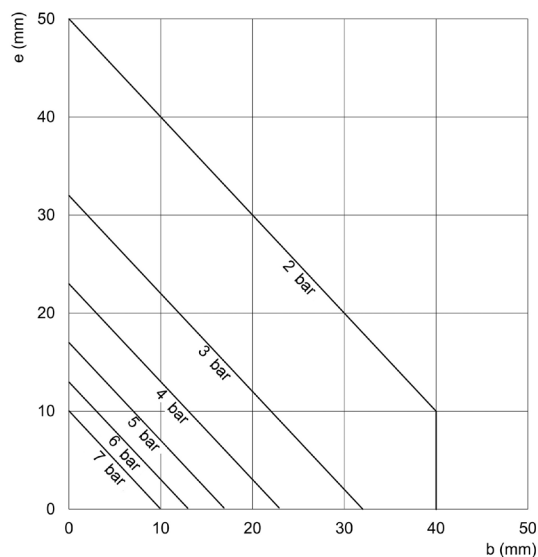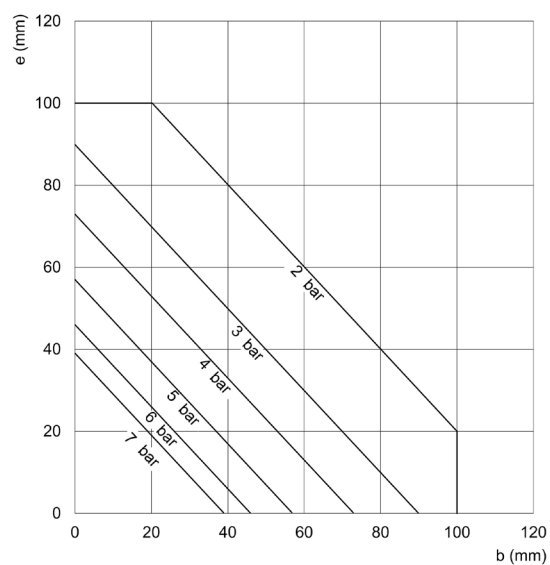

CGPL-8

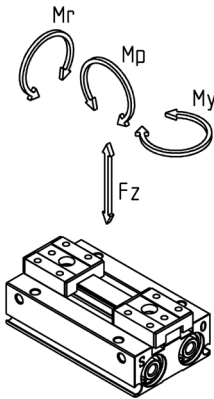**b = Gripping point**
e = Arm

CGPL-12

b = Gripping point
e = Arm

CGPL-16

b = Gripping point
e = Arm

CGPL-20

b = Gripping point
e = Arm

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PARALLEL GRIPPERS SELF-CENTERING
SERIES CGPL - TECHNICAL CHARACTERISTICS

Maximum allowable torque

Mod.	Fz (N)	Mp (Nm)	My (Nm)	Mr (Nm)
CGPL-8	58	0,26	0,26	0,53
CGPL-12	98	0,68	0,68	1,4
CGPL-16	176	1,4	1,4	2,8
CGPL-20	294	2	2	4

Examples of mounting
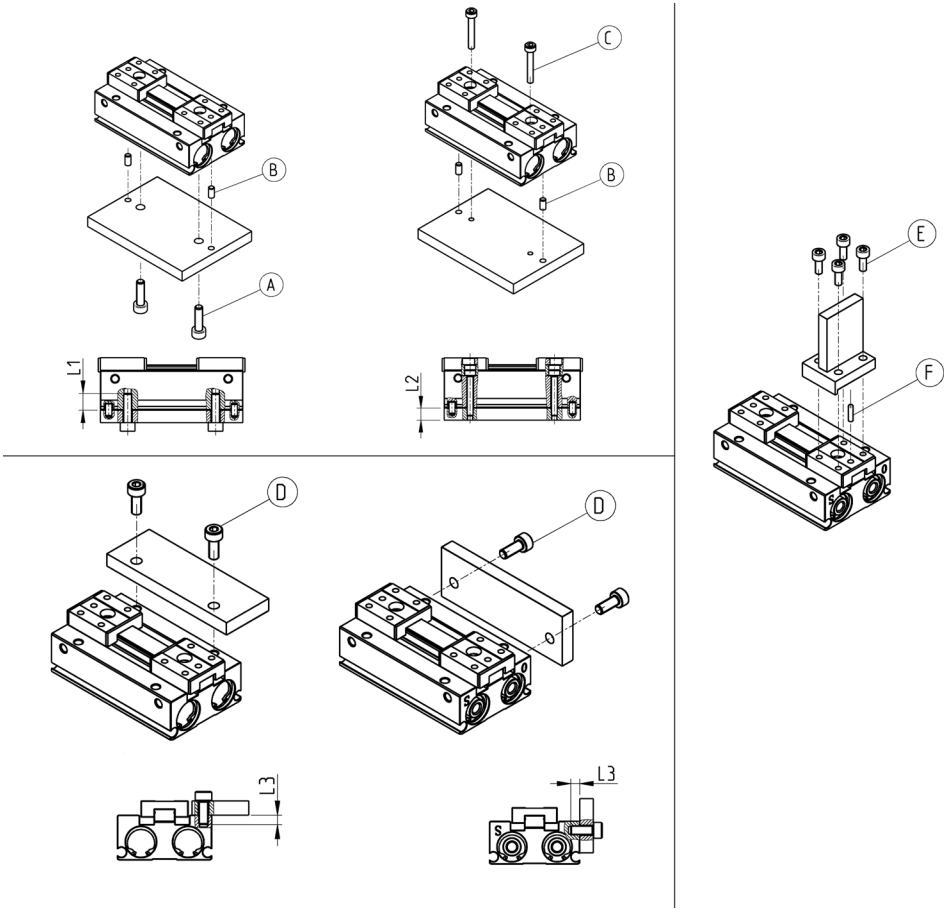
Mod.	A	B	C	D	E	F	L1	L2	L3
CGPL-8	M3	Ø2,5	M2,5	M3	M2,5	Ø2	7	4	4
CGPL-12	M4	Ø3	M3	M4	M3	Ø2,5	10	5,2	5
CGPL-16	M5	Ø4	M4	M5	M4	Ø3	12	-	5,5
CGPL-20	M6	Ø5	M5	M6	M5	Ø3	15	-	6

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Example of mounting: sensors

Series CSD
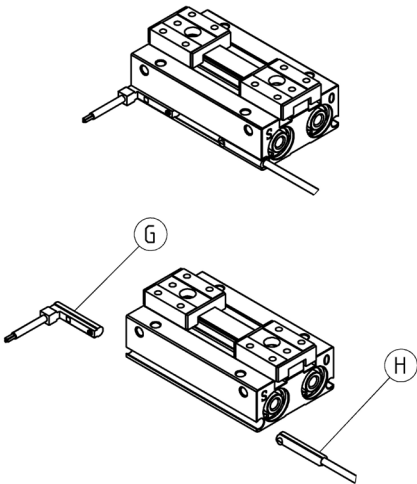
Mod.	
G = CSD-H-334 **CSD-H-364**	
H = CSD-D-334 **CSD-D-364**	

Air supply ports
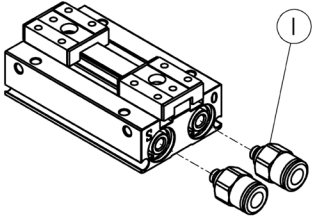
Mod.	I
CGPL-8	M3
CGPL-12	M5
CGPL-16	M5
CGPL-20	M5
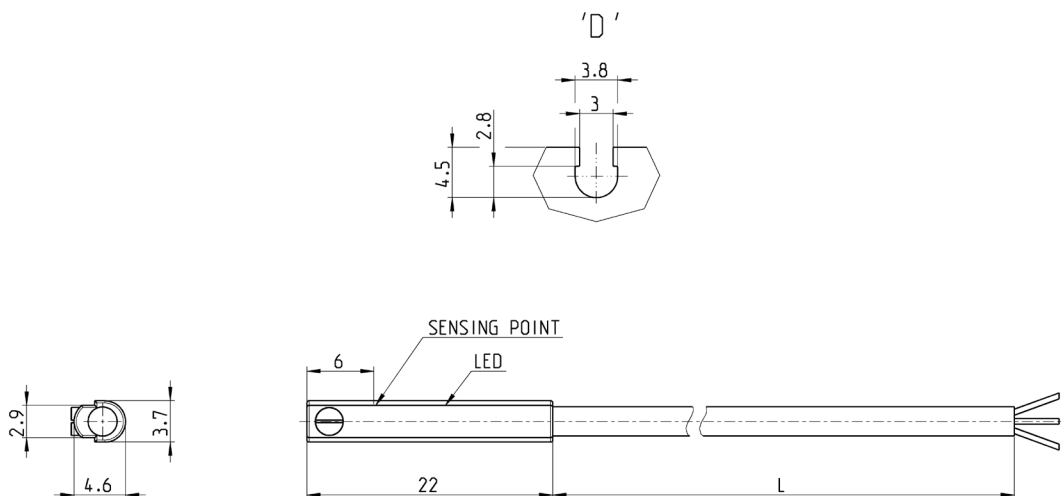
PARALLEL GRIPPERS SELF-CENTERING
SERIES CGPL - ACCESSORIES

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

'D'

SENSING POINT
LED

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
CSD-D-334-5	Magnetoresistive	3 wires	10 ÷ 27 V DC	PNP	200 mA	6W	Against polarity reversing and overvoltage	5 m

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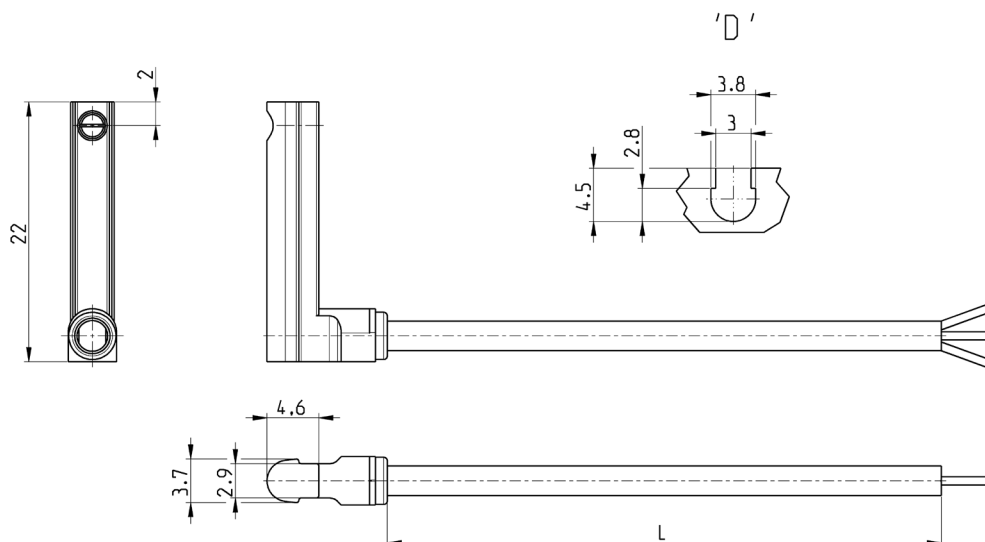
'D'

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

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Magnetic proximity switches, male M8 3-pin conn., D-slot, straight
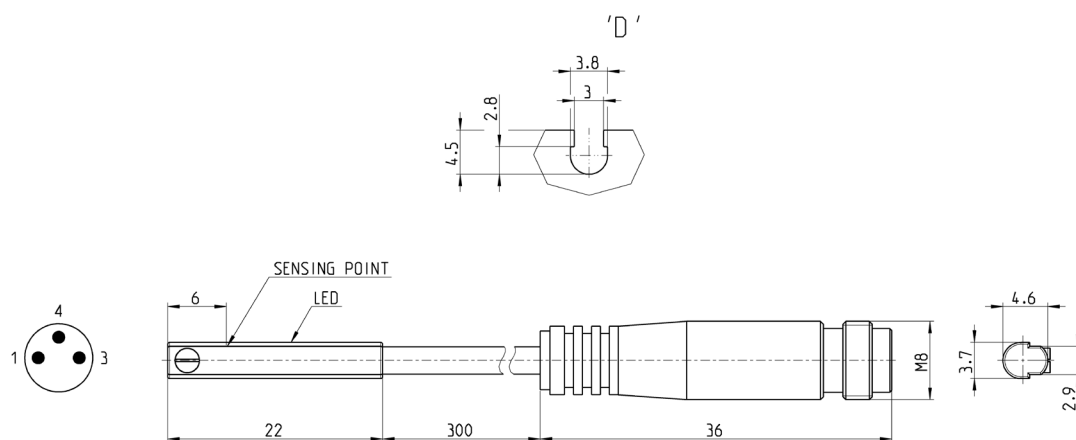
Mod.	Operation	Connection	Voltage	Output	Max. current	Max Load	Protection
CSD-D-364	Magnetoresistive	3 wires with M8 connector	10 ÷ 27 V DC	PNP	200 mA	6 W	Against polarity reversing and overvoltage

Magnetic proximity switches, male M8 3-pin conn., D-slot, 90°
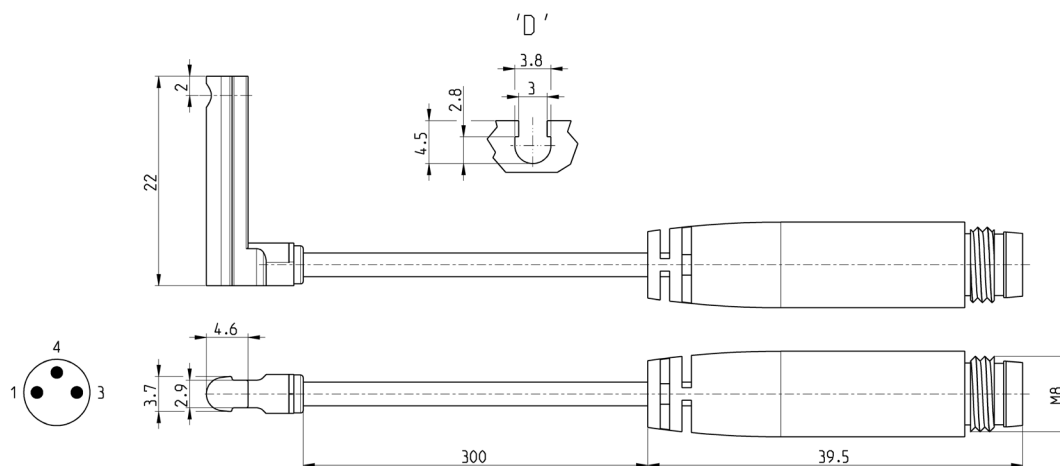
Mod.	Operation	Connection	Voltage	Output	Max current	Max load	Protection
CSD-H-364	Magnetoresistive	3 wires with M8 connector	10 ÷ 27 V DC	PNP	200 mA	6 W	Against polarity reversing and overvoltage