



# PNEUMATIC GRIPPERS

	Page
<b>Angular grippers</b>	
General	3.0
Standard version - series 6301	3.1
180° Angular gripper - series 6302	3.7
180° Angular gripper, rack & pinion style - series 6303	3.13
<b>Parallel style grippers</b>	
Standard version - series 6310	3.19
Wide opening - series 6311	3.25
3 fingers parallel style (air chuck) series 6312	3.31
Magnetic sensors	3.38



## General

Pneumatic grippers from the 6300 series are typically used in complex systems such as assembly machines, robots, manipulators etc.

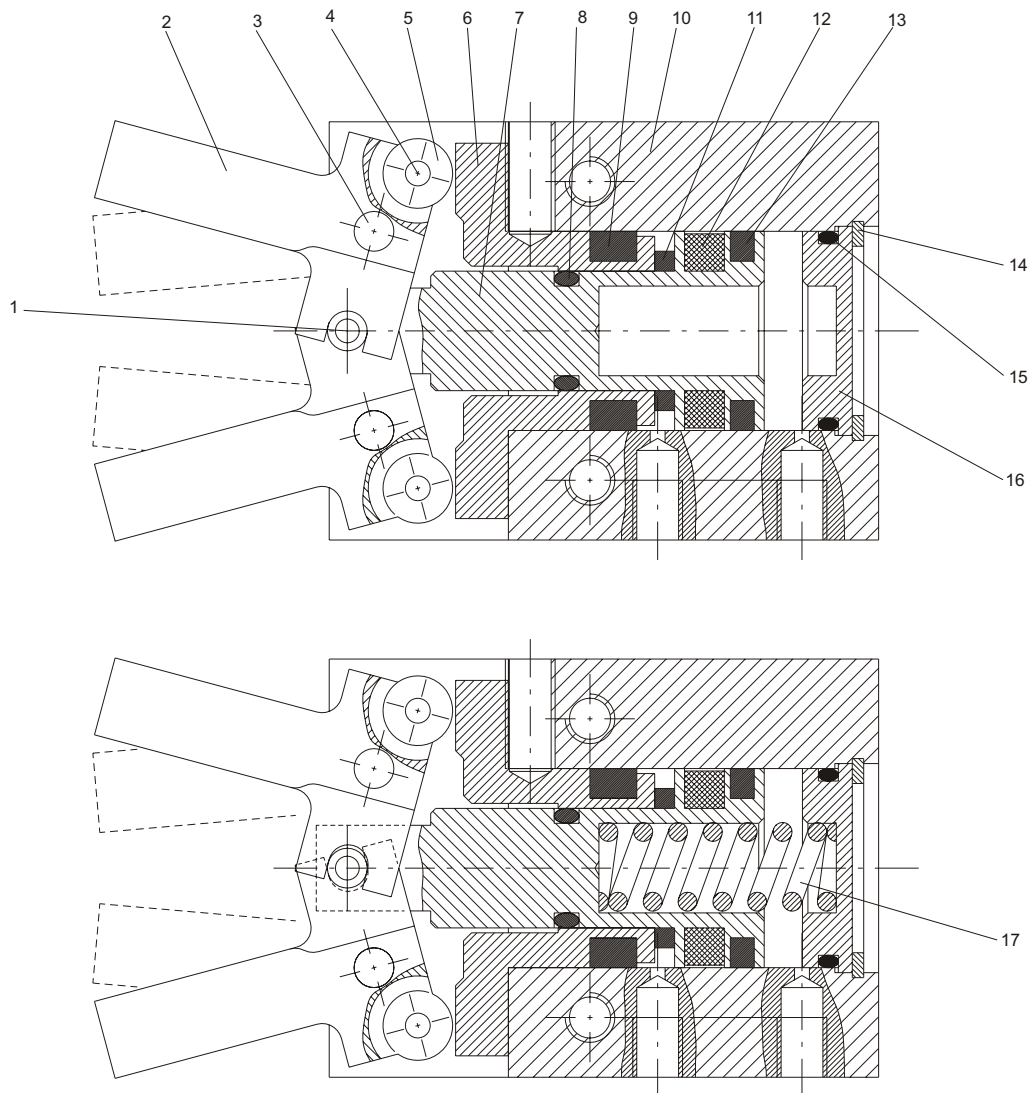
This series covers the wide ranging requirements of this sector, allowing a variety of applications.

The range includes grippers equipped with holding fingers operating from  $-10$  to  $+30$  degrees, with  $180$  degree opening, or a parallel guided gripper with great rigidity throughout the stroke.

The parallel grippers cater for larger openings (three different strokes for each diameter) with synchronised operation via a pinion-rack system with high strength thanks to a double piston mechanism.

For the typical application of supplying a piece upon to a machine tool, make provision for an automatic three-pronged movement carried along by a wedge mechanism, containing the elevated force dimensions.

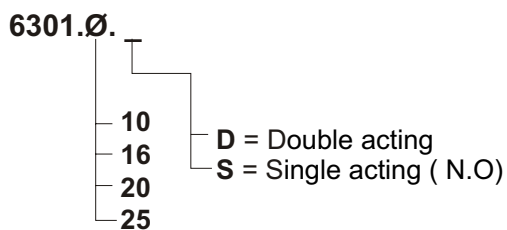
The holding fingers can have a tolerance reference as a precise fixing device for the catching mechanism. Every type of "hand" offers different functional levels of performance at varying diameters and lengths, secondary to the application by the "fingers."



Pos.	Item	Qty.	Pos.	Item	Qty.
1	Central pin	1	10	Body	1
2	Fingers	2	11	Cushioning washer	1
3	Level shaft	2	12	Magnet	1
4	Side roller	2	13	Piston seal	1
5	Supplementary thrust roller	2	14	Circlip	1
6	Supplementary thrust piston	1	15	End cover seal	1
7	Piston	1	16	End cover	1
8	O-Ring seal	1	17	Spring ( single acting version, N.O)	1
9	Supplementary piston seal	1			



### Ordering code



Magnetic sensors : see page 3.38

### Construction characteristics

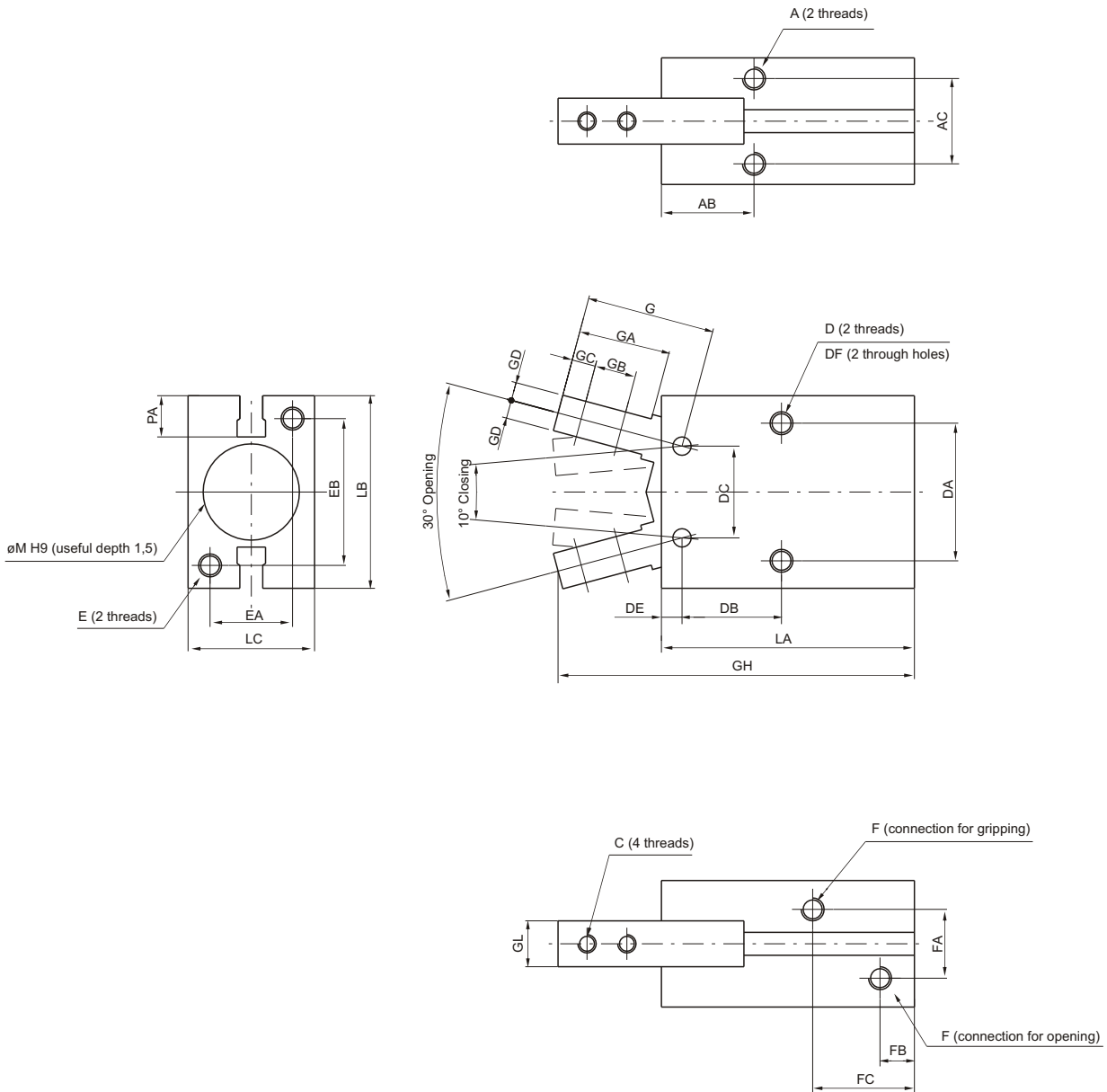
Body	oxidated aluminium
Piston	oxidated aluminium
Fingers	nitrate steel
End cover	aluminium
Seals	oil resistant NBR rubber

### Technical characteristics

Fluid	filtered and lubricated or non lubricated air
Working pressure	1 ÷ 6 bar for double acting 2,5 ÷ 6 bar for single acting
Operating temperature	-5°C ÷ +70°C

### Holding force (Nm) at 5 bar

Bore	Double acting	Single acting	Opening total stroke
10	0,1	0,07	-10° ÷ 30°
16	0,4	0,30	
20	0,7	0,55	
25	1,35	1,08	



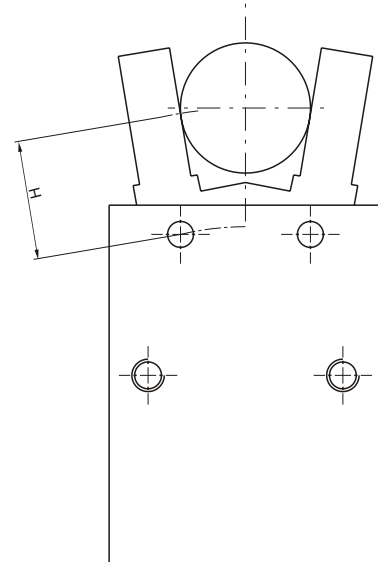
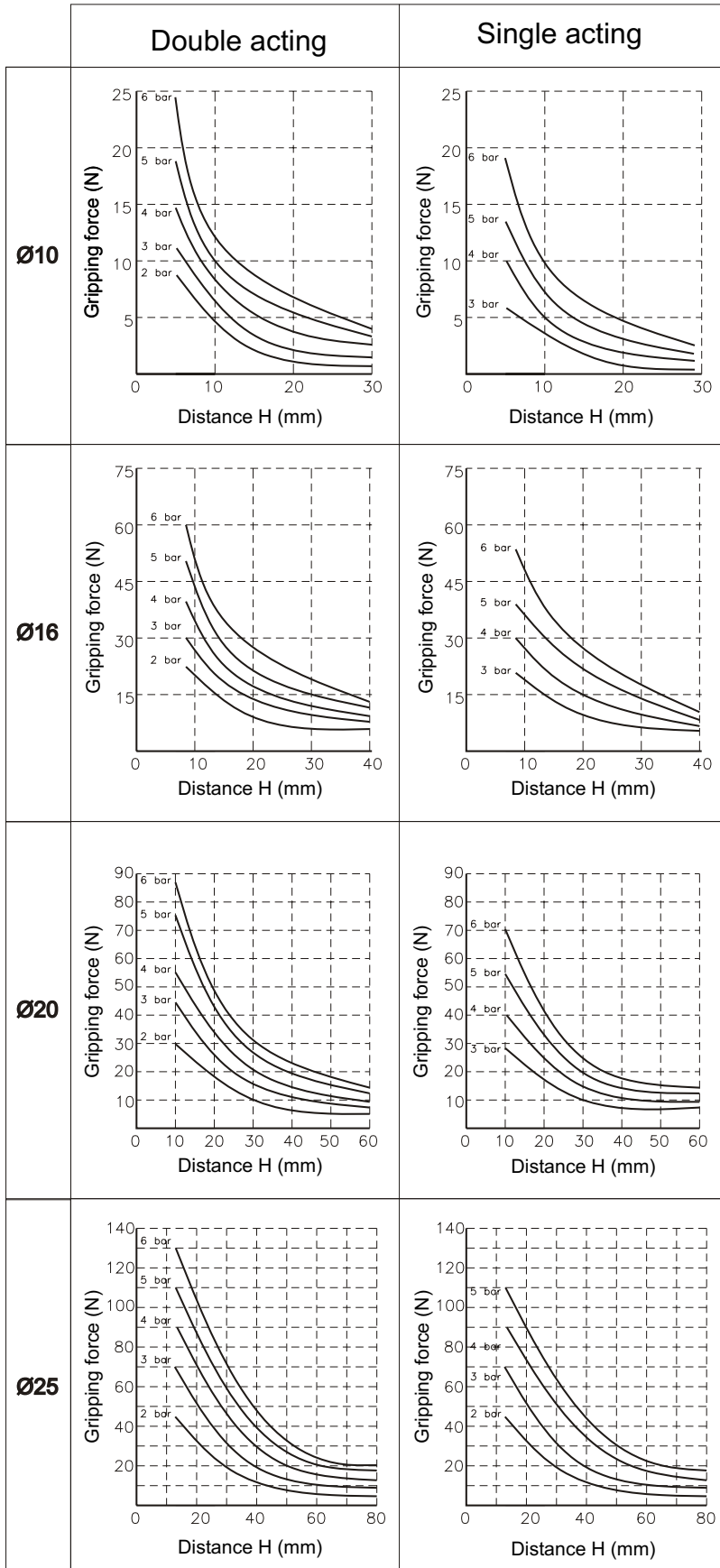
Bore	A	AB	AC	C	D	DA	DB	DC	DE	DF	E	EA	EB
10	M3x0,5 (useful depth 6)	11,6	11,4	M2,5x0,45	M3x0,5 (useful depth 5)	16	12,8	10	2,8	2,6	M3x0,5 (useful depth 6)	12	18
16	M4x0,7 (useful depth 6,5)	14,6	16	M3x0,5	M4x0,7 (useful depth 8)	24	16,2	16	3,9	3,4	M4x0,7 (useful depth 8)	15	22
20	M5x0,8 (useful depth 8)	20,2	18,6	M4x0,7	M5x0,8 (useful depth 10)	30	21,7	20	4,5	4,3	M5x0,8 (useful depth 10)	18	32
25	M6 (useful depth 10)	23,9	22	M5x0,8	M6 (useful depth 12)	36	25,8	25	4,6	5,1	M6 (useful depth 12)	22	40

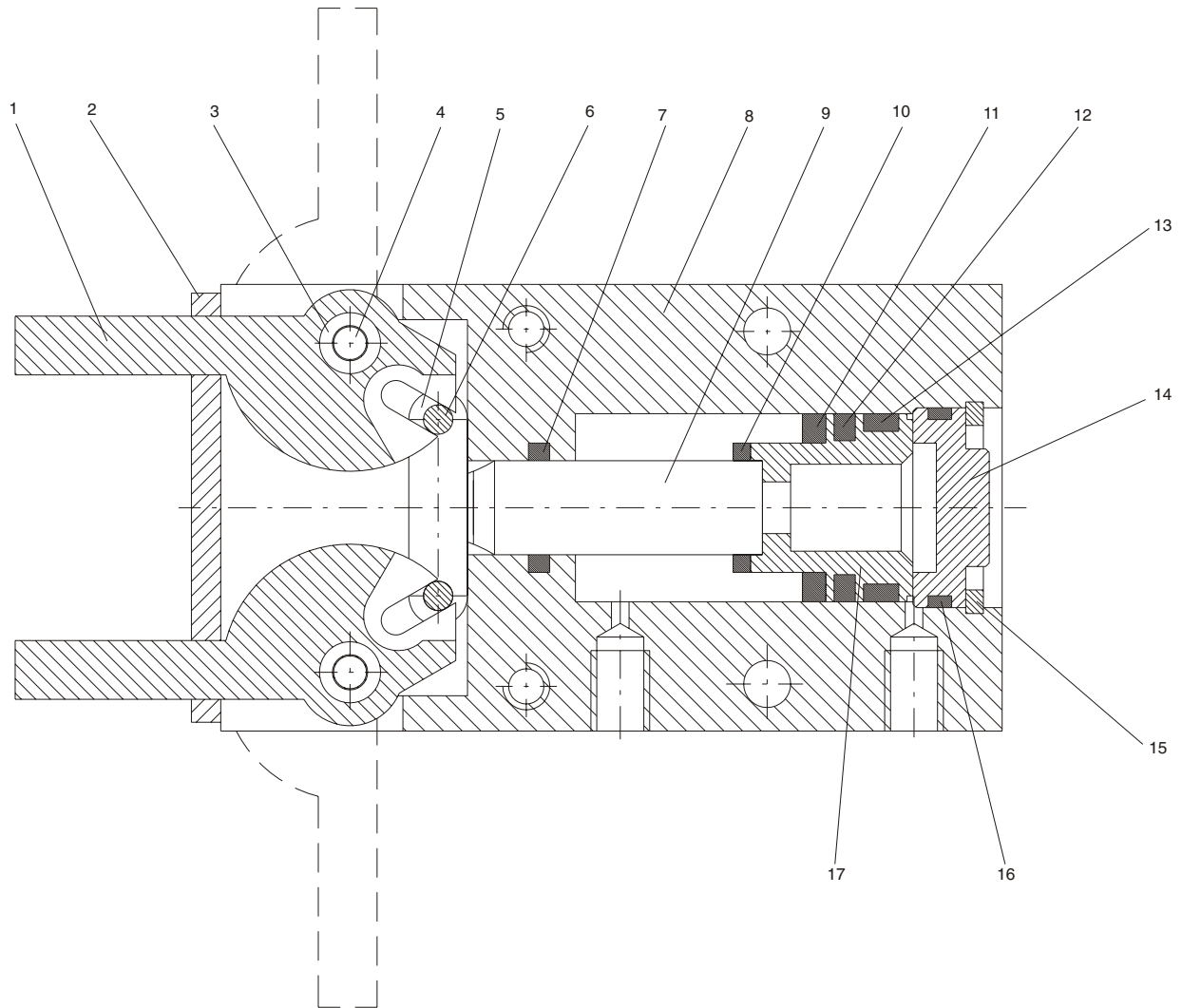
Bore	F	FA	FB	FC	G	GA	GB	GC	GD	GH	GL	LA	LB	LC	M	PA	Weight (gr.)
10	M3x0,5	10,4	7,2	18,8	17,2	12	5,7	3	2	52,4	6,4 <sup>0/-0,1</sup>	38,6	23	16,4	11 H9	5,4	40
16	M5x0,8	13	7	18,3	22,6	16	7	4	3,5	62,5	8 <sup>0/-0,1</sup>	44,6	30,6	23,6	17 H9	5,8	90
20	M5x0,8	15	7,5	22,2	28	20	9	5,2	4	78,7	10 <sup>0/-0,1</sup>	55,2	42	27,6	21 H9	9	180
25	M5x0,8	20	7,7	23,5	37,5	27	12	8	5	92	12 <sup>0/-0,1</sup>	60,4	52	33,6	26 H9	11,5	315

**NOTE:**

Bore selection should be made considering a holding force 10 to 20 times the component weight.

In case of acceleration/deceleration a further margin of safety should be considered.





Pos.	Item	Qty.	Pos.	Item	Qty.
1	Fingers	2	10	Cushioning	1
2	Closing plate	1	11	Magnet	1
3	Bearing	2	12	Piston seal	1
4	Pin	2	13	Sliding block	1
5	Thrust lever	1	14	End cover	1
6	Thrust pin	2	15	Circlip	1
7	Rod seal	1	16	End cover seal	1
8	Body	1	17	Piston	1
9	Rod	1			



**Ordering code**

6302.Ø.D

- 10
- 16
- 20
- 25

Magnetic sensors : see page 3.39

**Construction characteristics**

Body	aluminium
Piston	aluminium
Fingers	steel
End cover	aluminium

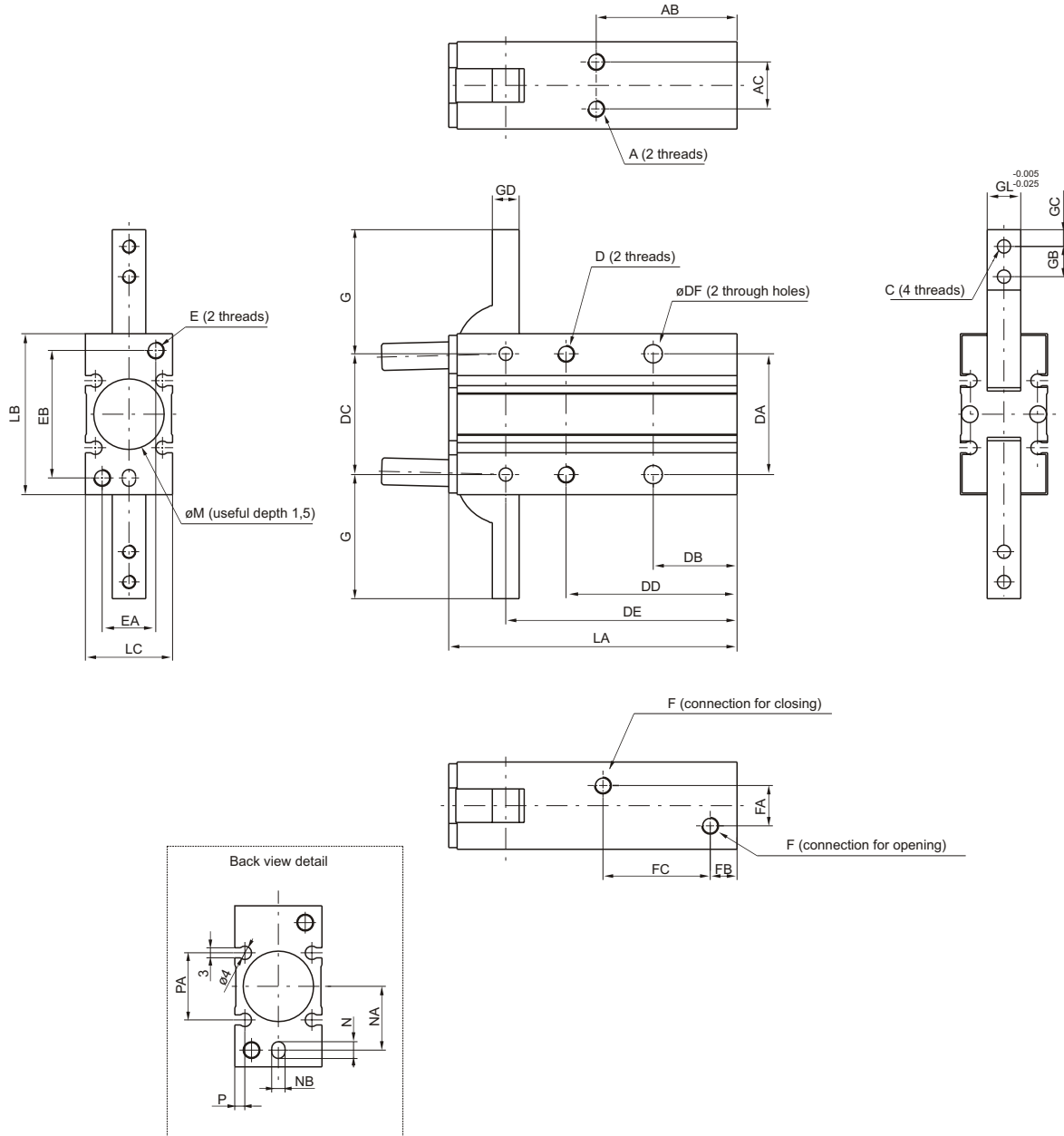
**Technical characteristics**

Fluid	filtered and non lubricated air
Function	double acting
Working pressure	1 ÷ 6 bar
Working temperature	-5°C ÷ +70°C

**Holding force (Nm) at 5 bar**

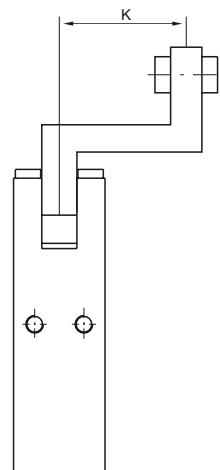
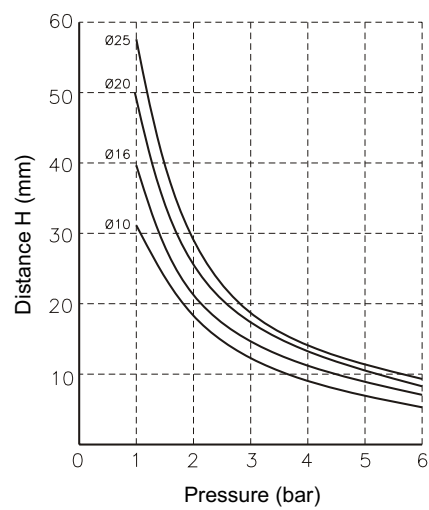
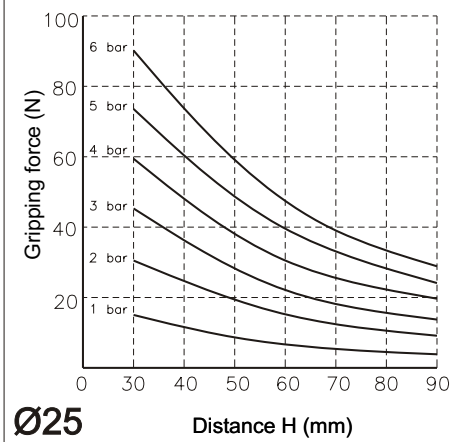
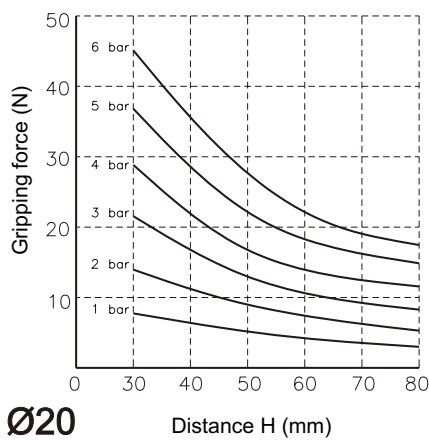
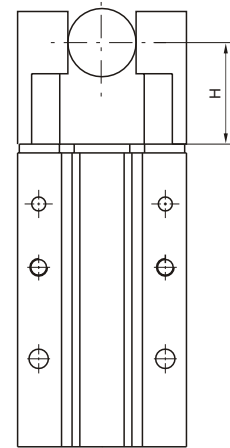
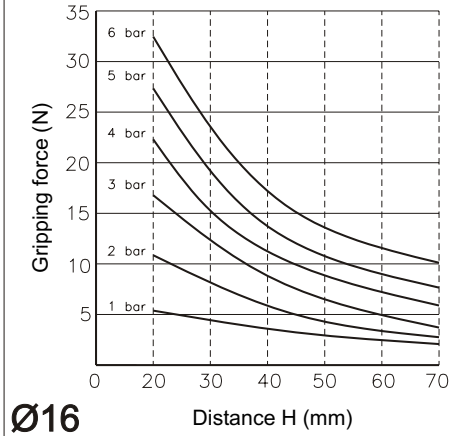
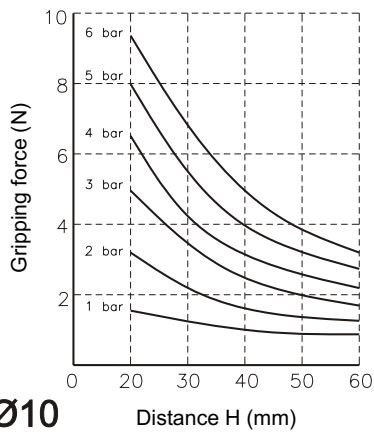
Bore	Holding force	Opening total Stroke
10	0,16	-3° ÷ 180°
16	0,54	
20	1,1	
25	2.28	

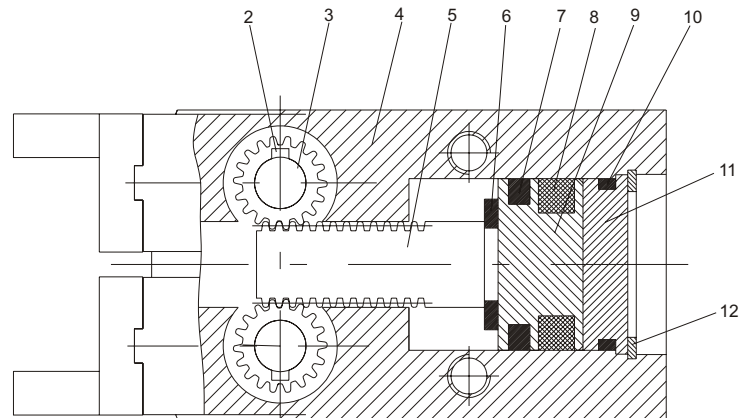
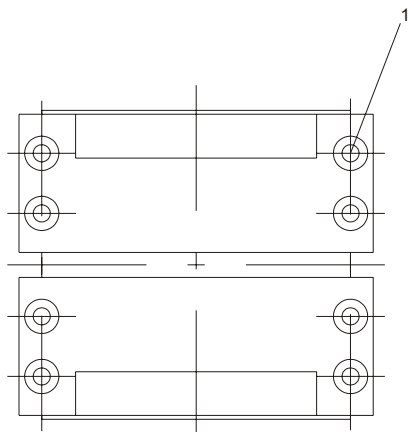
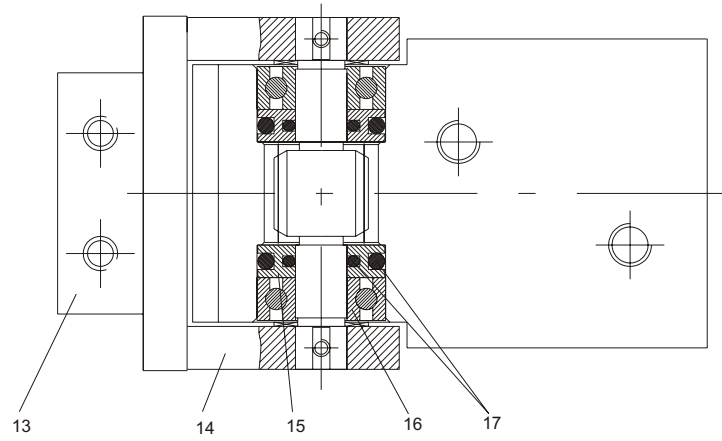




Bore	A	AB	AC	C	D	DA	DB	DC	DD	DE	DF	E	EA	EB
10	M3x0,5 (useful depth 4)	30	9	M3x0,5	M3x0,5 (useful depth 6)	24	18	22	35	47,5	3,4	M3x0,5 (useful depth 6)	9	24
16	M4x0,7 (useful depth 5)	33	12	M3x0,5	M4x0,7 (useful depth 8)	30	20	28	41	55,5	4,5	M4x0,7 (useful depth 8)	12	30
20	M5x0,8 (useful depth 8)	42	14	M4x0,7	M5x0,8 (useful depth 10)	36	25	36	51	69	5,5	M5x0,8 (useful depth 10)	16	38
25	M6x1 (useful depth 10)	50	16	M5x0,8	M6x1 (useful depth 12)	42	30	45	60	86	6,6	M6x1 (useful depth 12)	18	46

Bore	F	FA	FB	FC	G	GB	GC	GD	GL	LA	LB	LC	N	NA	ØM (H9)	ØNB (H9)	P	PA	Weight (gr.)
10	M5x0,8	3	7	23	23,5	6	3	4	6	58	30	15	4	9	11	3 (useful depth 3)	2	13	70
16	M5x0,8	8	7	25	28,5	7	4	5	8	69	38	20	4	15	17	3 (useful depth 3)	2,5	18	150
20	M5x0,8	2	8	32	37	9	5	8	10	86	48	26	5	19	21	4 (useful depth 4)	3	20	320
25	M5x0,8	14	8	42	45	12	6	10	12	107	58	30	5	23	26	4 (useful depth 4)	3	24	550





Pos.	Item	Qty.	Pos.	Item	Qty.
1	Finger fixing screw	8	10	End cover seal	1
2	Key	2	11	End cover	1
3	Pinion	2	12	Circlip	1
4	Body	1	13	Interchangeable tinger	2
5	Rack	1	14	Fix tinger	2
6	Cushioning washer	1	15	Seal bushing	2
7	Piston seal	1	16	Bearing	2
8	Magnet	1	17	Seal	4
9	Piston	1			



**Ordering code**

6303.Ø.D.  
 — F = Fingers, end fixing  
 — L = Fingers, side fixing  
 — 20  
 — 25  
 — 32  
 — 40  
 — 50

Magnetic sensors : see page 3.38

**Construction characteristics**

Body	aluminium
Piston	steel
Fingers	steel
End cover	aluminium

**Technical characteristics**

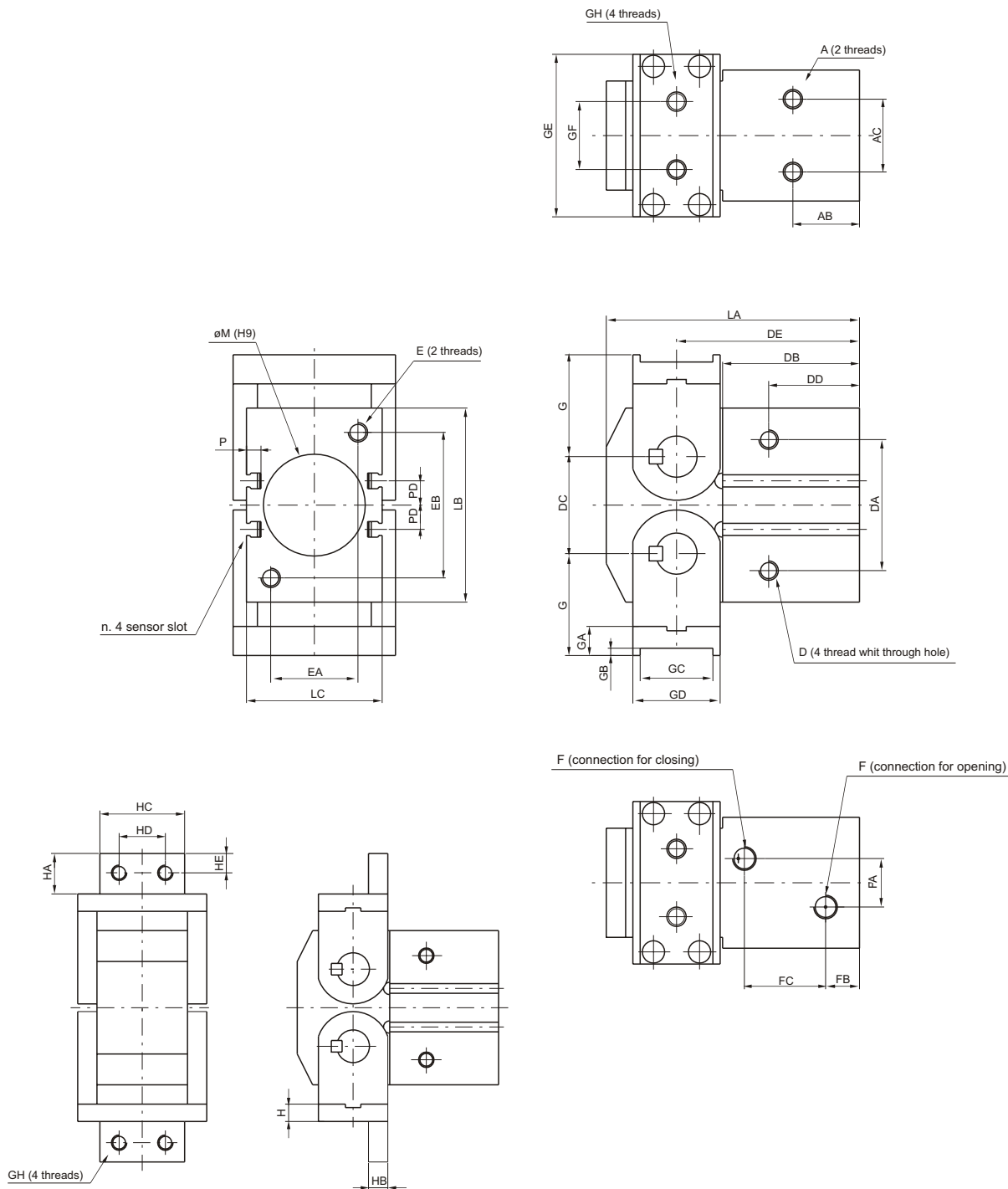
Fluid	filtered and non lubricated air
Function	double acting
Working pressure	1 ÷ 6 bar
Working temperature	-5°C ÷ +70°C

**Holding force (Nm) at 5 bar**

Bore	Holding force	Opening total Stroke
20	0,30	-5° ÷ 180°
25	0,7	-6° ÷ 180°
32	1,6	-5° ÷ 180°
40	3,7	-5° ÷ 180°
50	8,3	-4° ÷ 180°

180° angular gripper rack & pinion style  
Overall dimensions

Series 6303



Bore	A	AB	AC	D	DA	DB	DC	DD	DE	E	EA	EB	F	FA	FB	FC
20	M5 (useful depth 7)	17	20	M5 (useful depth 10)	27	35	18	23	45	M5 (useful depth 10)	26	26	M5	12	9	20
25	M6 (useful depth 10)	20	24	M6 (useful depth 12)	34	40	24	27	51	M6 (useful depth 12)	30	30	M5	16	10	23
32	M6 (useful depth 10)	21	24	M6 (useful depth 12)	42	47	30	29	61,5	M6 (useful depth 12)	30	45	G1/8	20	13	25
40	M8 (useful depth 15)	27,5	30	M8 (useful depth 16)	54	56,5	40	37,5	75,5	M8 (useful depth 15)	36	60	G1/8	20	14	33,5
50	M10 (useful depth 20)	36	40	M10 (useful depth 20)	70	69	56	48	96	M10 (useful depth 20)	40	80	G1/4	30	16	44

Bore	G	GA	GB	GC	GD	GE	GF	GH	H	HA	HB	HC	HD	LA	LB	LC	$\varnothing M (H9)$	P	PD	Weight (gr.)
20	23	7	2	12	16	41	18	M4	5	10	5	28	14	60	36	36	21 (useful depth 3)	6	4	300
25	27	8	2	17	21	45	20	M5	6	12	6	30	16	69	45	40	26 (useful depth 3)	5,5	4,5	500
32	32	9	2	23	27	51	20	M6	7	14	7	34	18	83,5	58	45	34 (useful depth 4)	5,5	11	900
40	42	12	3	30	36	67	28	M8	9	21	10	44	24	104,5	80	56	42 (useful depth 4)	6	10	2100
50	58	17	4	44	52	85	38	M10	13	24	13	58	30	136	112	66	52 (useful depth 5)	6	13	5000

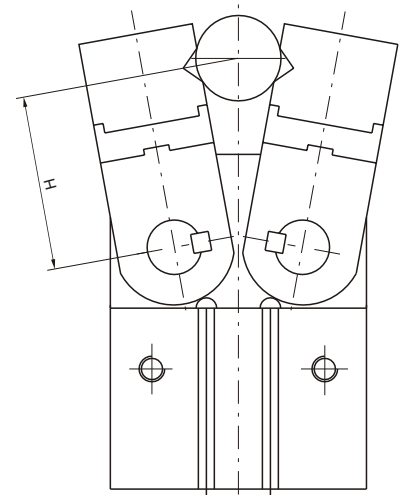
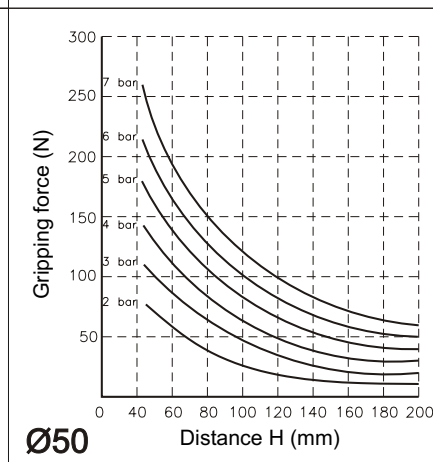
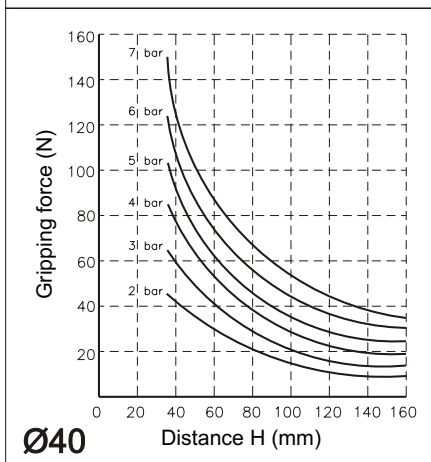
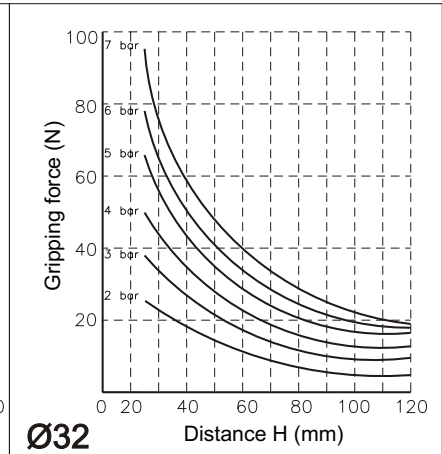
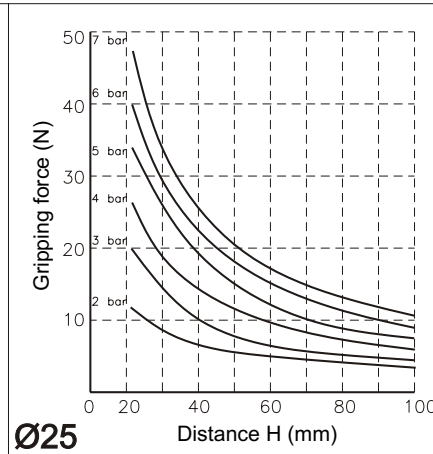
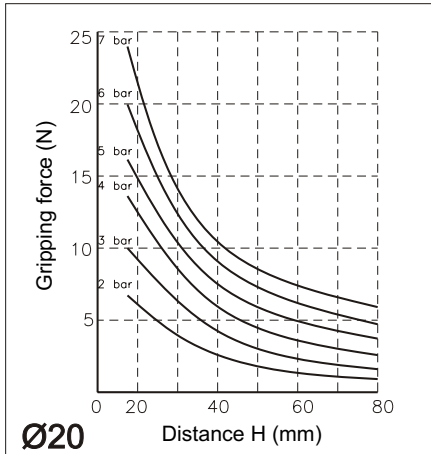


### Gripping force

#### NOTE:

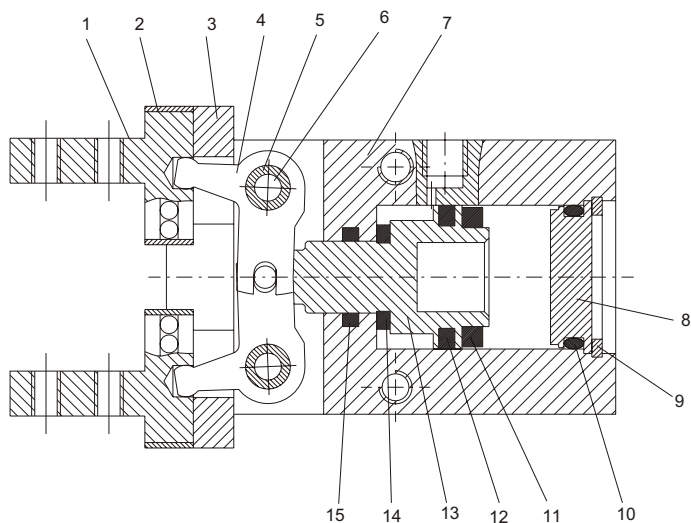
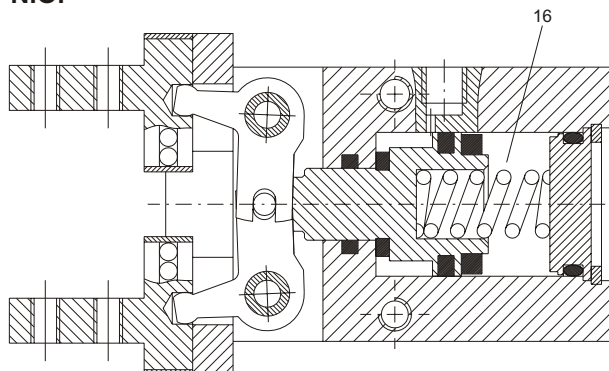
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In case of acceleration/deceleration a further margin of safety should be considered.

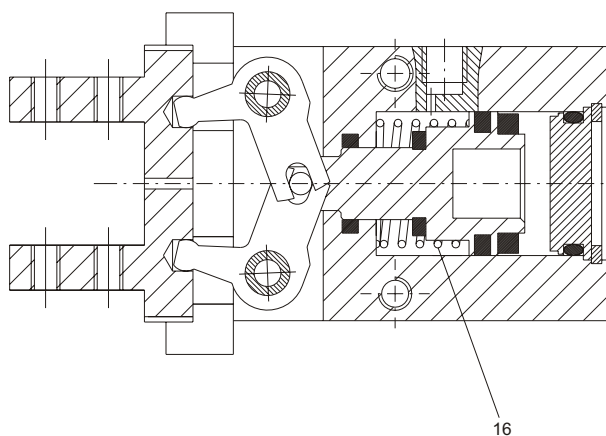




**Single acting version  
N.O.**



**Single acting version  
N.C.**



Pos.	Item	Qty.	Pos.	Item	Qty.
1	Finger	2	10	End cover seal	1
2	Closing plate	4	11	Magnet	1
3	Guide	1	12	Piston seal	1
4	Lever	1	13	Piston	1
5	Bushing	2	14	Cushioning washer	1
6	Pin	2	15	Rod seal	1
7	Body	1	16	Spring	1
8	End cover	1			
9	Circlip	1			