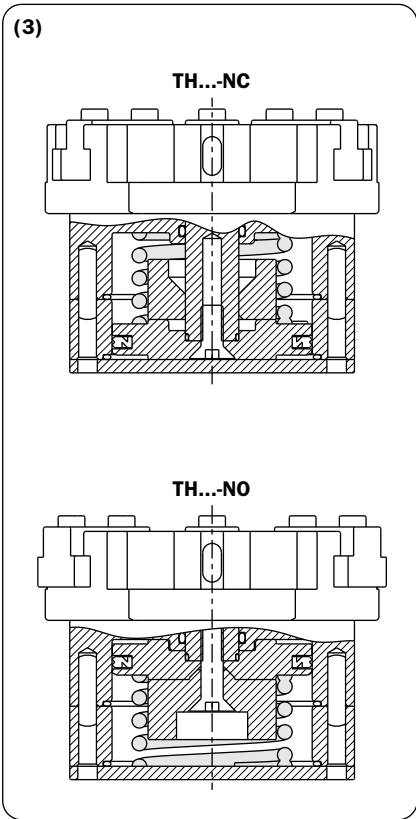
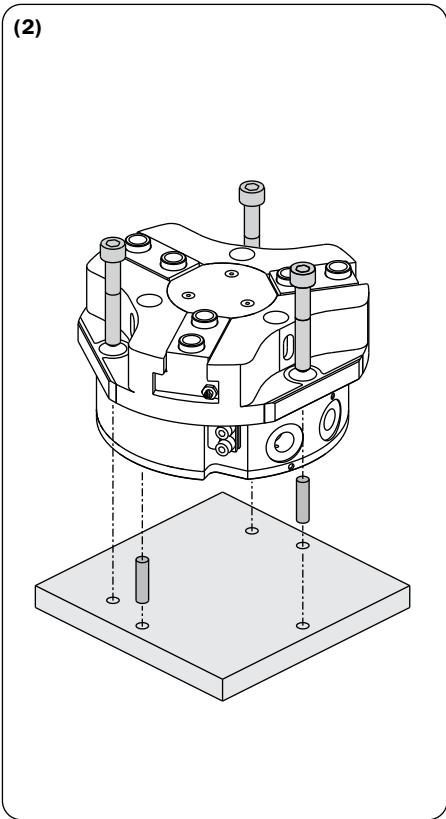
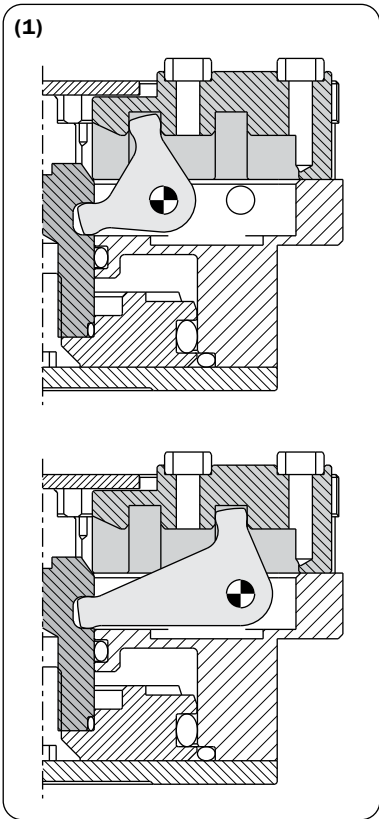


3-jaw self-centring pneumatic gripper (series TH)

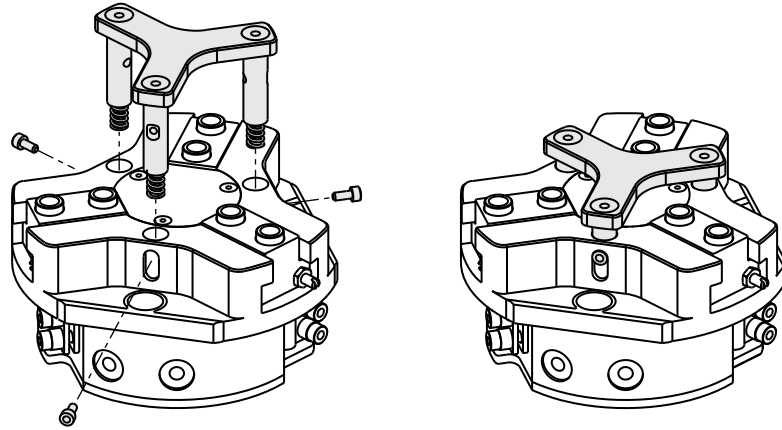
- Double acting with optional springs (normally closed or normally open) (3).
- Long stroke or short stroke (1).
- Possibility of front fastening with through screws (2).
- High efficiency force transmission (1).
- Optional magnetic or inductive sensors.
- FDA-H1 food-grade grease.



Rotary Units
Quick Changer
Profiles and Brackets
Grippers
Linear Actuators
Suspensions
Nippers
Robot Kit
Options
Sensors

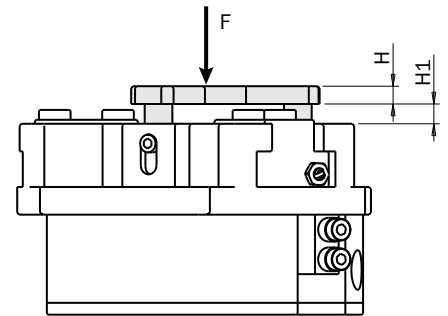
Optional pusher

This accessory can be installed in the TH grippers, to hold the payload during the gripper release, by a pushing force F. As an example, when the chuck of a machining equipment is loaded. It is supplied disassembled, with the codes in the table below.



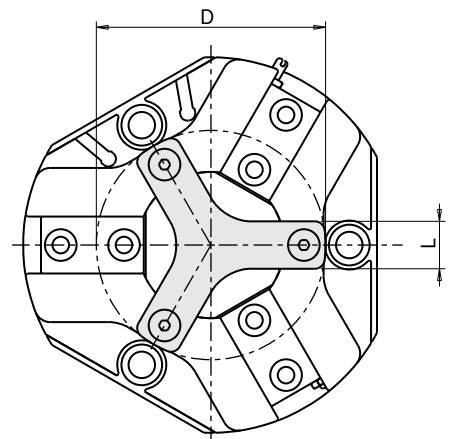
Force

	TH27K	TH33K	TH45K	TH54K	TH76K	TH96K	TH125K
F	10N	15N	20N	30N	50N	100N	200N



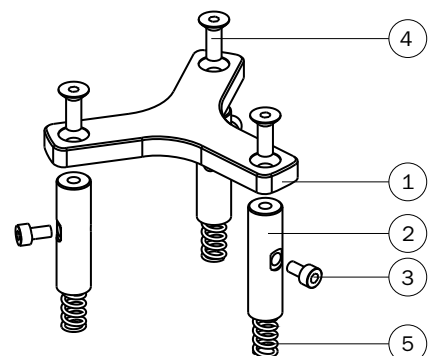
Dimensions (mm)

	TH27K	TH33K	TH45K	TH54K	TH76K	TH96K	TH125K
D	Ø28	Ø37	Ø44	Ø58	Ø74	Ø86	Ø118
H	3.5	4	4	4.5	5.5	5.5	6
H1	0÷2.5	0÷3	0÷4	0÷5	0÷5	0÷6	0÷6
L	6.5	8	10	12	14	16	19
m	10g	20g	30g	50g	100g	170g	285g



Part list

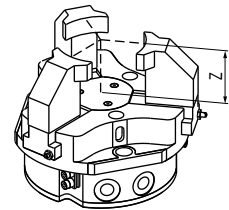
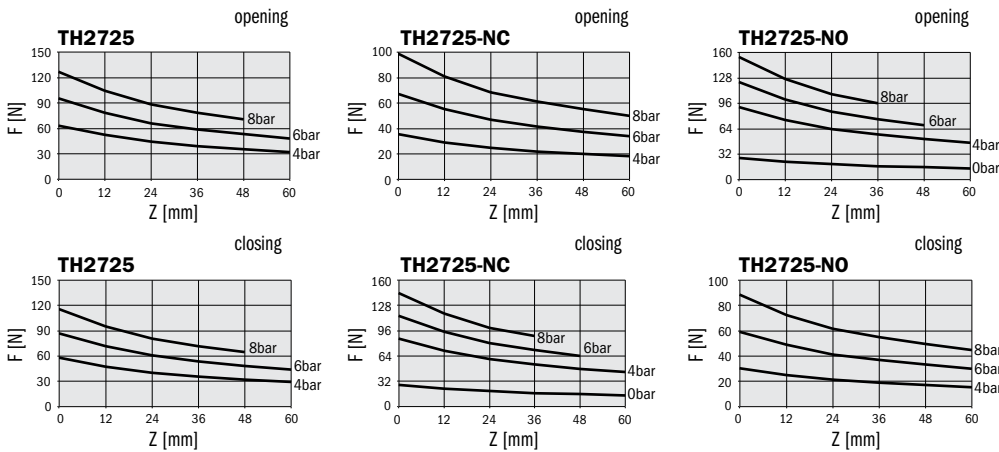
	TH27K	TH33K	TH45K	TH54K	TH76K	TH96K	TH125K
1	TH2725-14	TH3304-15	TH4506-09	TH5408-22	TH7610-10	TH9613-10	TH12516-17
2	TH2725-15	TH3304-14	TH4506-10	TH5408-23	TH7610-11	TH9613-11	TH12516-18
3	VITE-434 M1.6x3 DIN7985	VITE-435 M2x4 DIN7985	VITE-436 M2x5 DIN912	VITE-217 M2.5x6 DIN912	VITE-017 M3x6 DIN912	VITE-009 M4x8 DIN912	VITE-275 M4x8 DIN912
4	VITE-068 M2x6 DIN965	VITE-170 M2.5x6 DIN965	VITE-306 M3x8 DIN7991	VITE-305 M4x8 DIN7991	VITE-437 M4x12 DIN7991	VITE-438 M5x12 DIN7991	VITE-438 M5x12 DIN7991
5	TH2725-16	TH3304-16	TH4506-11	TH5408-24	TH7610-12	TH9613-12	TH12516-19



	TH2725	TH2725-NC	TH2725-NO
Medium	Compressed air in compliance with ISO 8573-1:2010 [7:4:4]		
Operating pressure range	1.5 ÷ 8bar	3.5 ÷ 8bar	3.5 ÷ 8bar
Operating temperature range	5 ÷ 100°C.		
Opening gripping force on each jaw at 6 bar	95N	65 ÷ 70N	121 ÷ 125N
Opening total gripping force at 6 bar	285N	195 ÷ 210N	363 ÷ 375N
Closing gripping force on each jaw at 6 bar	87N	112 ÷ 117N	57 ÷ 61N
Closing total gripping force at 6 bar	261N	336 ÷ 351N	171 ÷ 183N
Stroke	3x2.5mm	3x2.5mm	3x2.5mm
Maximum working frequency	3Hz	3Hz	3Hz
Cycle air consumption	3cm ³	6cm ³	6cm ³
Closing / opening minimum time	0.02s / 0.02s	0.01s / 0.02s	0.03s / 0.01s
Repetition accuracy	0.02mm	0.02mm	0.02mm
Weight	117g	140g	139g

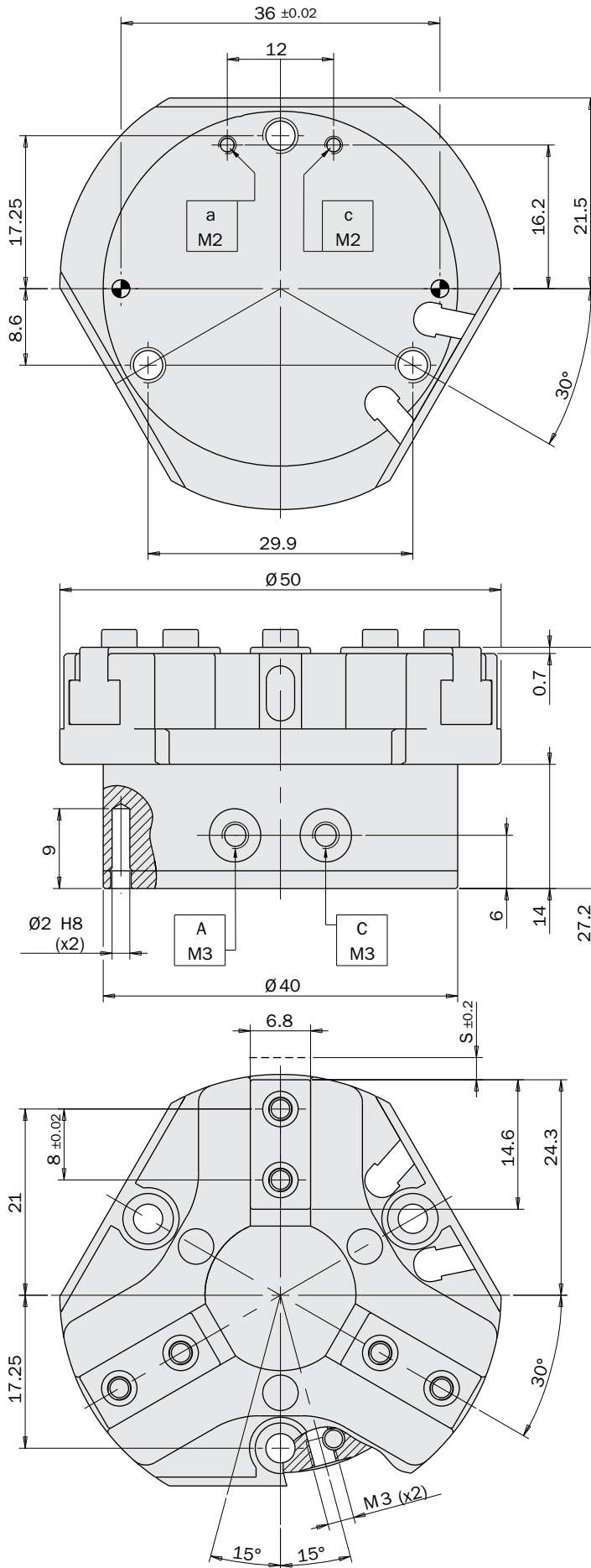
Gripping force

The graphs show the gripping force on each jaw, as a function of the operating pressure and the gripping tool length Z.

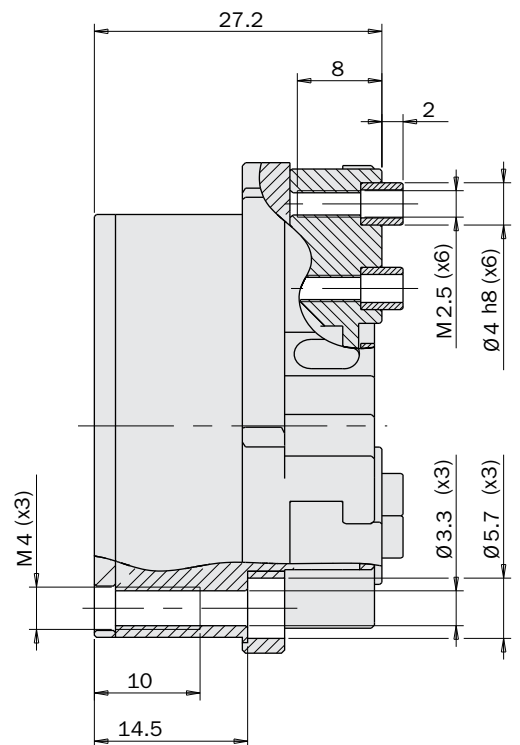
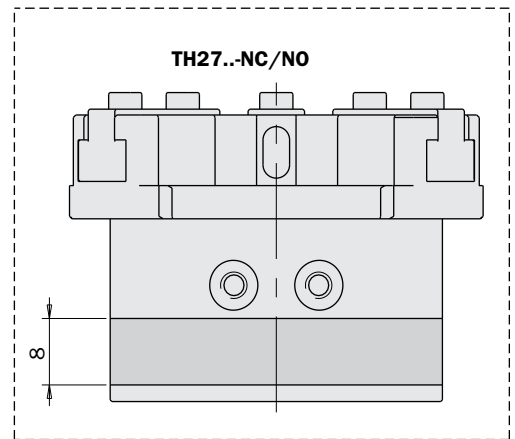


The force shown in these graphs refers to one jaw. The total force is triple.

Dimensions (mm)



	TH2725	TH2725-NC	TH2725-NO
S	3x2.5mm	3x2.5mm	3x2.5mm

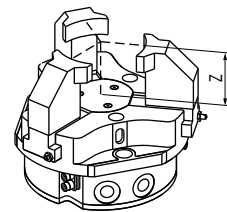
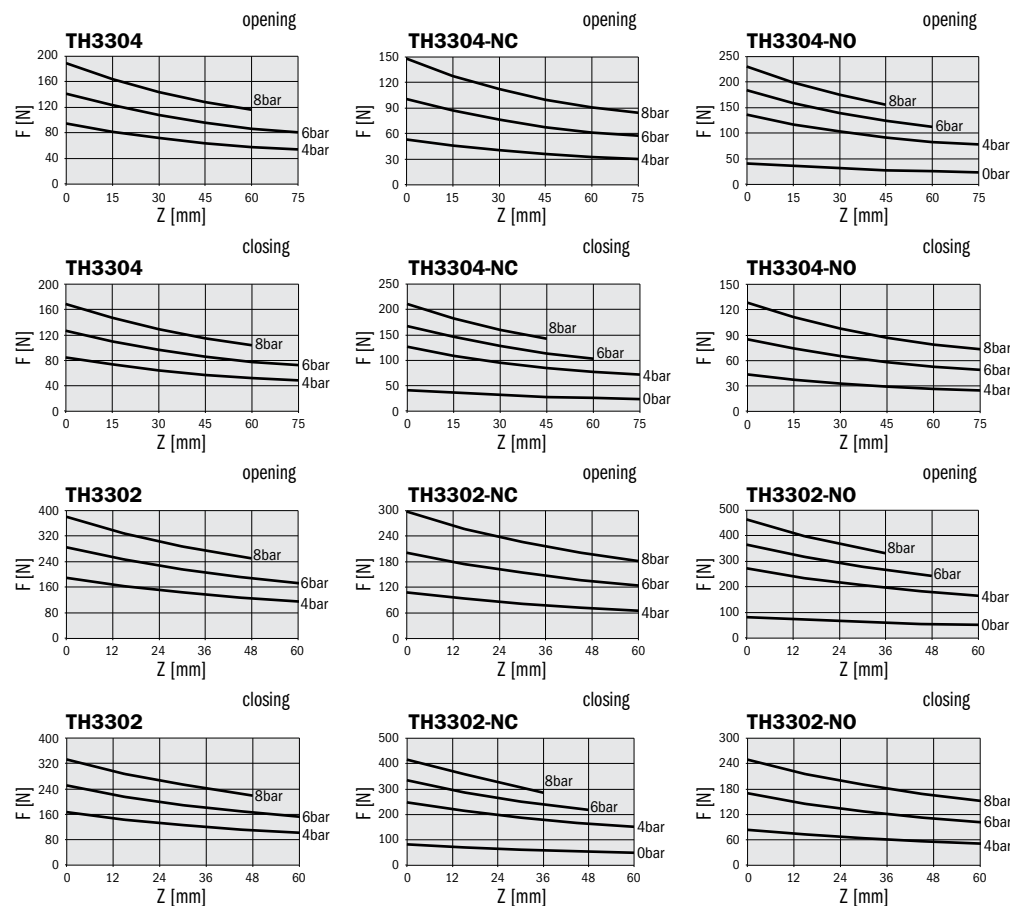


FIRST ANGLE PROJECTION

	TH3304	TH3304-NC	TH3304-NO	TH3302	TH3302-NC	TH3302-NO
Medium	Compressed air in compliance with ISO 8573-1:2010 [7:4:4]					
Operating pressure range	1.5 ÷ 8bar	3.5 ÷ 8bar	3.5 ÷ 8bar	1.5 ÷ 8bar	3.5 ÷ 8bar	3.5 ÷ 8bar
Operating temperature range	5 ÷ 100°C.					
Opening gripping force on each jaw at 6 bar	142N	97 ÷ 106N	179 ÷ 188N	285N	192 ÷ 210N	358 ÷ 375N
Opening total gripping force at 6 bar	426N	291 ÷ 318N	537 ÷ 564N	855N	576 ÷ 630N	1074 ÷ 1125N
Closing gripping force on each jaw at 6 bar	127N	164 ÷ 172N	81 ÷ 90N	250N	326 ÷ 344N	161 ÷ 179N
Closing total gripping force at 6 bar	381N	492 ÷ 516N	243 ÷ 270N	750N	978 ÷ 1032N	483 ÷ 537N
Stroke	3x4mm	3x4mm	3x4mm	3x2mm	3x2mm	3x2mm
Maximum working frequency	3Hz	3Hz	3Hz	3Hz	3Hz	3Hz
Cycle air consumption	8cm ³	13cm ³	13cm ³	8cm ³	13cm ³	13cm ³
Closing / opening minimum time	0.02s / 0.02s	0.02s / 0.02s	0.02s / 0.02s	0.02s / 0.02s	0.02s / 0.02s	0.02s / 0.02s
Repetition accuracy	0.02mm	0.02mm	0.02mm	0.02mm	0.02mm	0.02mm
Weight	237g	293g	285g	240g	296g	288g

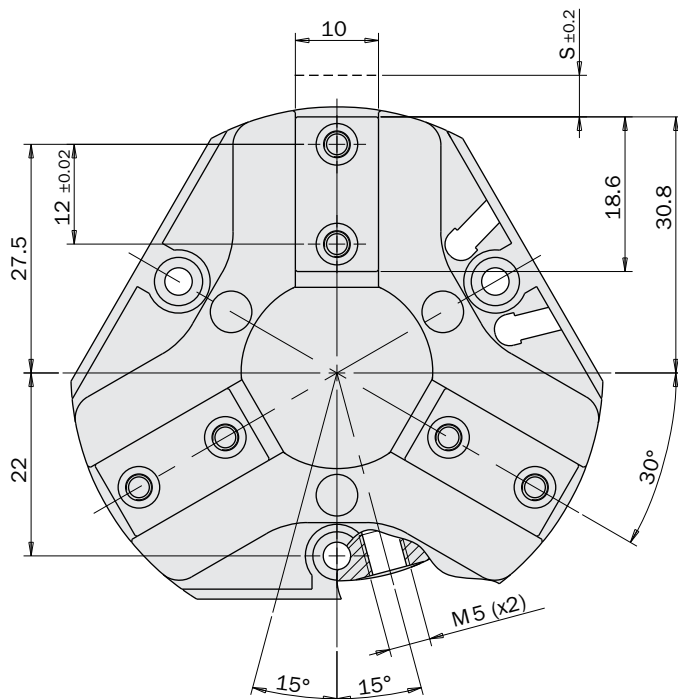
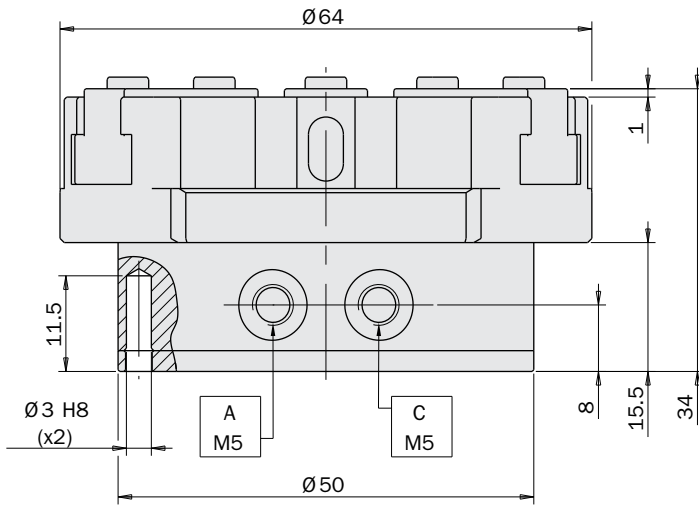
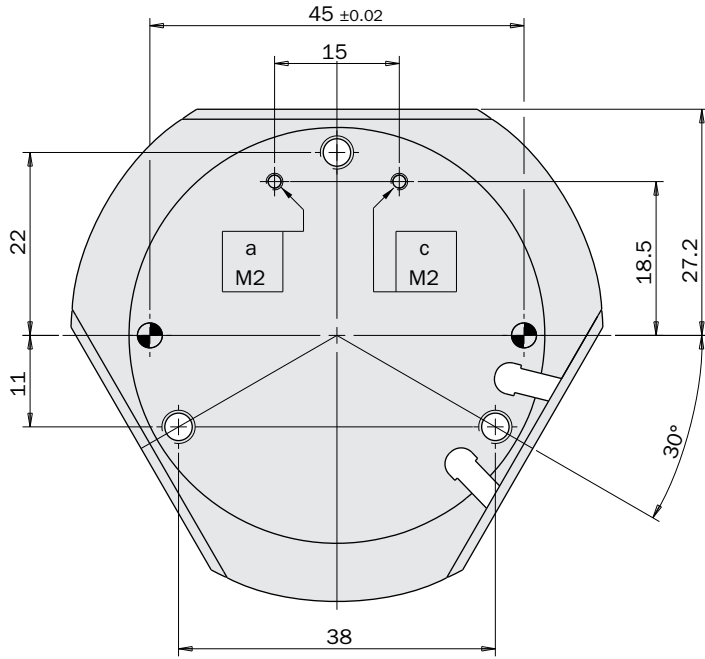
Gripping force

The graphs show the gripping force (F) on each jaw, as a function of the operating pressure and the gripping tool length Z.



The force shown in these graphs refers to one jaw. The total force is triple.

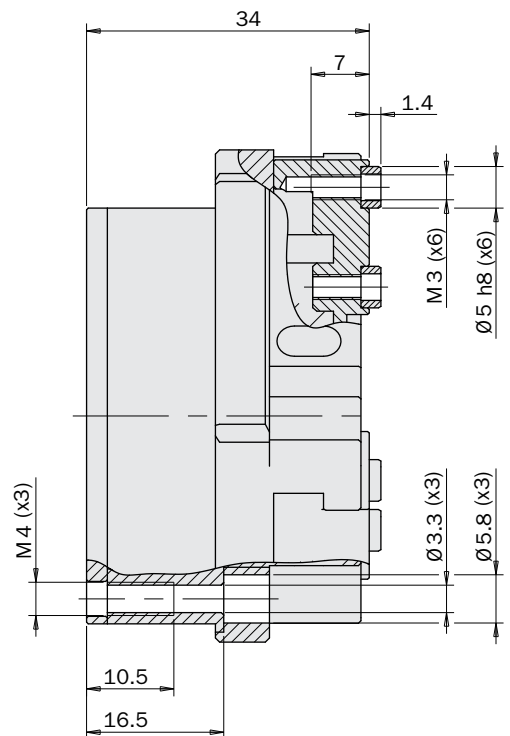
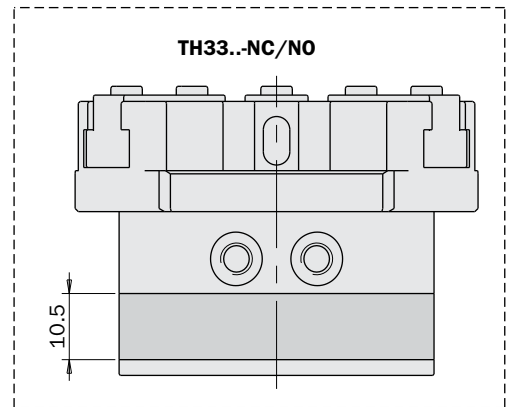
Dimensions (mm)



FIRST ANGLE PROJECTION

	TH3304	TH3304-NC	TH3304-N0
S	3x4mm	3x4mm	3x4mm

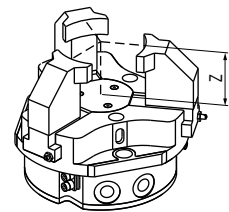
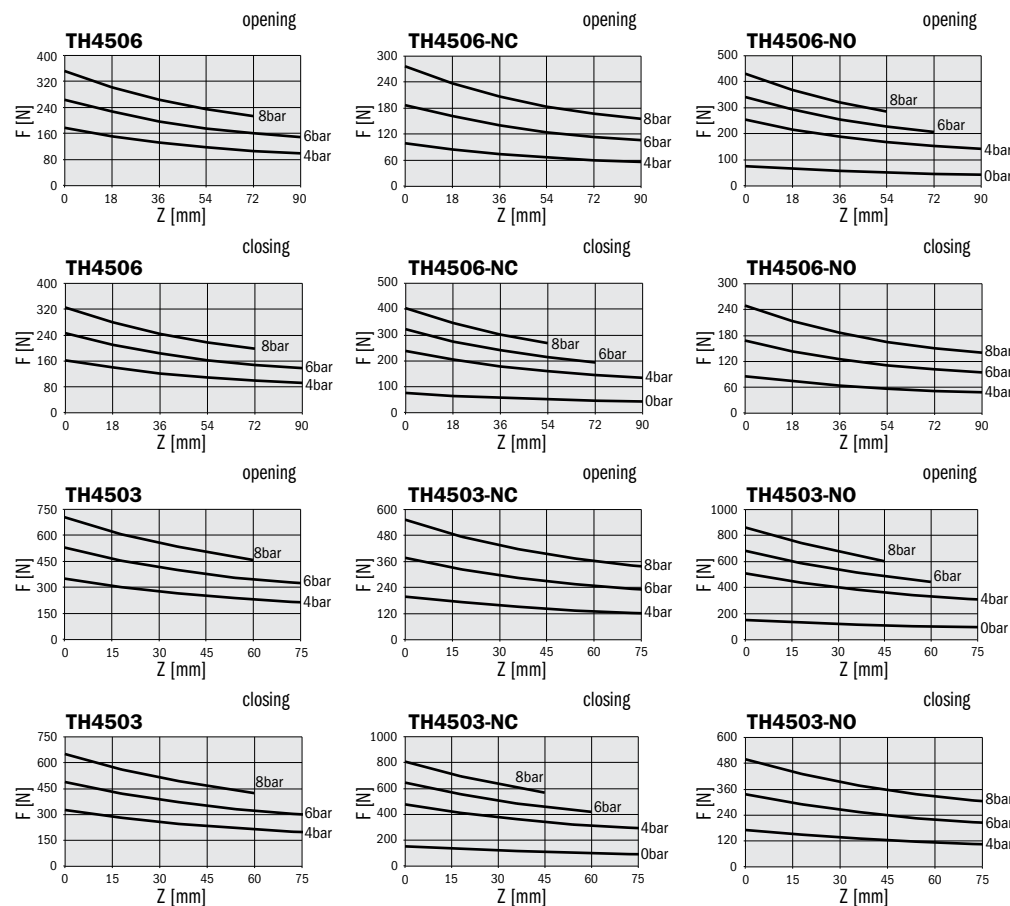
	TH3302	TH3302-NC	TH3302-N0
S	3x2mm	3x2mm	3x2mm



	TH4506	TH4506-NC	TH4506-NO	TH4503	TH4503-NC	TH4503-NO
Medium	Compressed air in compliance with ISO 8573-1:2010 [7:4:4]					
Operating pressure range	1.5 ÷ 8bar	3.5 ÷ 8bar	3.5 ÷ 8bar	1.5 ÷ 8bar	3.5 ÷ 8bar	3.5 ÷ 8bar
Operating temperature range	5 ÷ 100°C.					
Opening gripping force on each jaw at 6 bar	265N	173 ÷ 202N	328 ÷ 356N	530N	346 ÷ 403N	653 ÷ 710N
Opening total gripping force at 6 bar	795N	519 ÷ 606N	984 ÷ 1068N	1590N	1038 ÷ 1209N	1959 ÷ 2130N
Closing gripping force on each jaw at 6 bar	245N	309 ÷ 337N	155 ÷ 184N	490N	615 ÷ 673N	308 ÷ 366N
Closing total gripping force at 6 bar	735N	927 ÷ 1011N	465 ÷ 552N	1470N	1845 ÷ 2019N	924 ÷ 1098N
Stroke	3x6mm	3x6mm	3x6mm	3x3mm	3x3mm	3x3mm
Maximum working frequency	2Hz	2Hz	2Hz	2Hz	2Hz	2Hz
Cycle air consumption	22cm ³	37cm ³	37cm ³	22cm ³	37cm ³	37cm ³
Closing / opening minimum time	0.05s / 0.05s	0.05s / 0.07s	0.07s / 0.05s	0.05s / 0.05s	0.05s / 0.07s	0.07s / 0.05s
Repetition accuracy	0.02mm	0.02mm	0.02mm	0.02mm	0.02mm	0.02mm
Weight	430g	540g	530g	440g	550g	530g

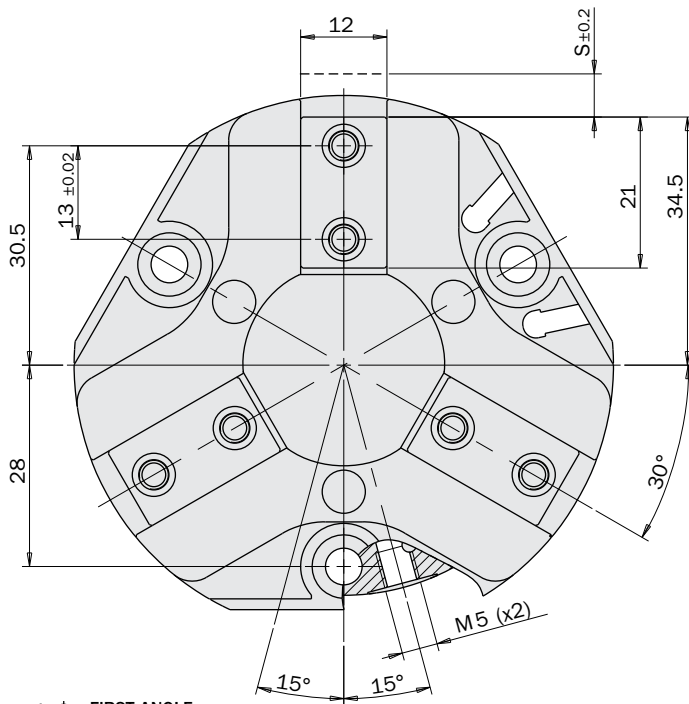
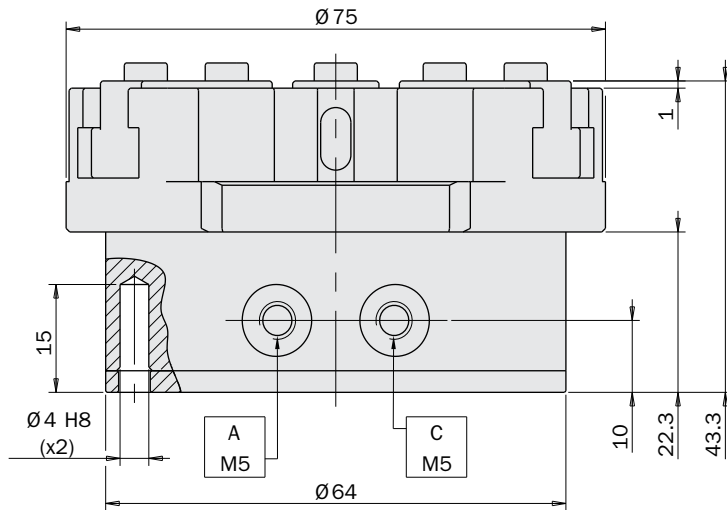
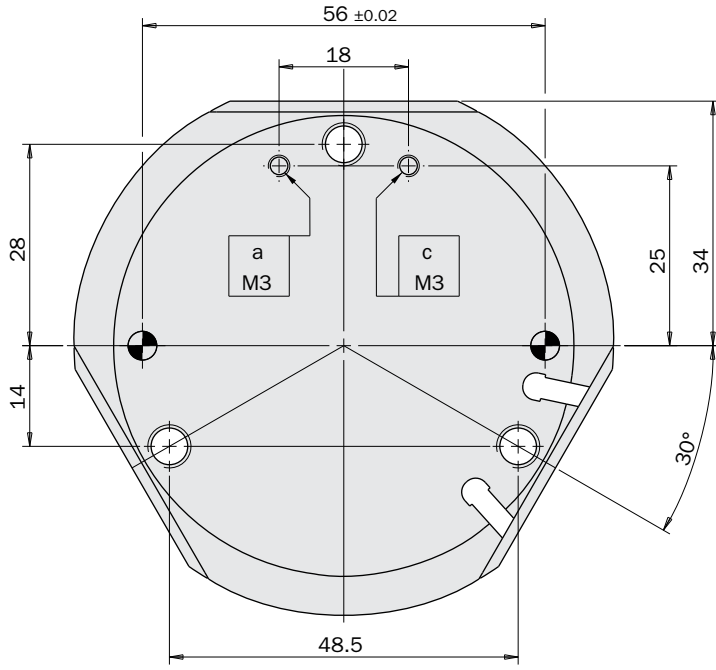
Gripping force

The graphs show the gripping force on each jaw, as a function of the operating pressure and the gripping tool length Z.



The force shown in these graphs refers to one jaw. The total force is triple.

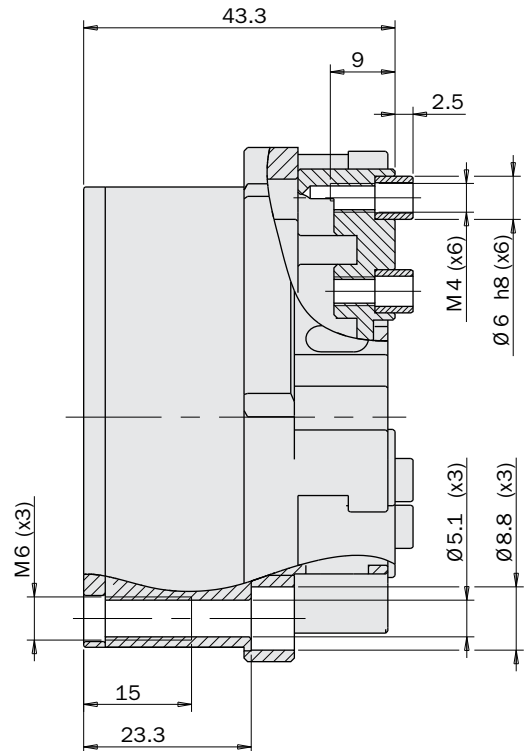
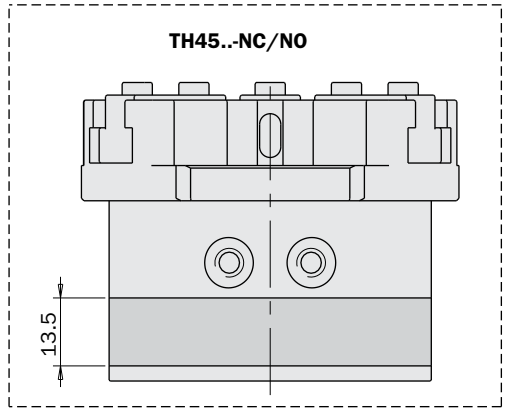
Dimensions (mm)



FIRST ANGLE PROJECTION

	TH4506	TH4506-NC	TH4506-NO
S	3x6mm	3x6mm	3x6mm

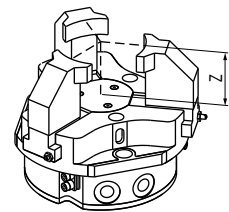
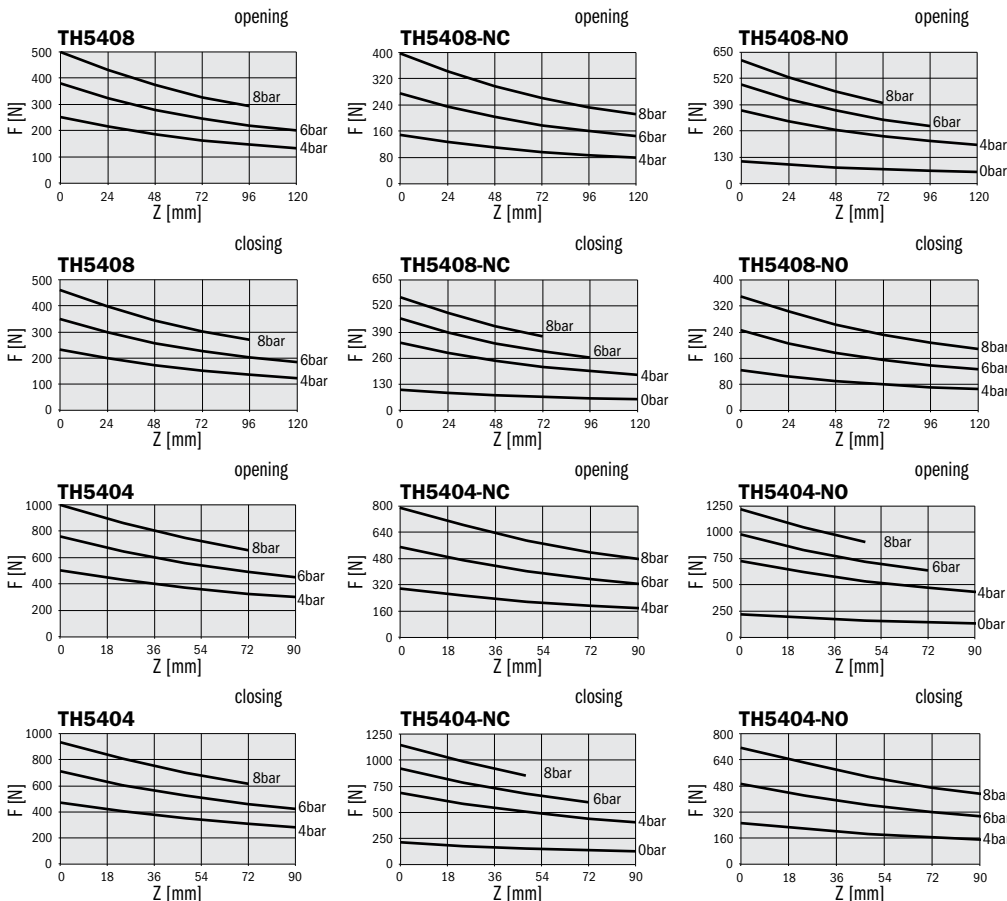
	TH4503	TH4503-NC	TH4503-NO
S	3x3mm	3x3mm	3x3mm



	TH5408	TH5408-NC	TH5408-NO	TH5404	TH5404-NC	TH5404-NO
Medium	Compressed air in compliance with ISO 8573-1:2010 [7:4:4]					
Operating pressure range	1.5 ÷ 8bar	3.5 ÷ 8bar	3.5 ÷ 8bar	1.5 ÷ 8bar	3.5 ÷ 8bar	3.5 ÷ 8bar
Operating temperature range	5 ÷ 100°C.					
Opening gripping force on each jaw at 6 bar	380N	252 ÷ 299N	466 ÷ 514N	760N	504 ÷ 597N	931 ÷ 1029N
Opening total gripping force at 6 bar	1140N	756 ÷ 897N	1398 ÷ 1542N	2280N	1512 ÷ 1791N	2793 ÷ 3087N
Closing gripping force on each jaw at 6 bar	350N	436 ÷ 483N	220 ÷ 269N	710N	872 ÷ 966N	441 ÷ 538N
Closing total gripping force at 6 bar	1050N	1308 ÷ 1449N	660 ÷ 807N	2130N	2616 ÷ 2898N	1323 ÷ 1614N
Stroke	3x8mm	3x8mm	3x8mm	3x4mm	3x4mm	3x4mm
Maximum working frequency	2Hz	2Hz	2Hz	2Hz	2Hz	2Hz
Cycle air consumption	42cm ³	67cm ³	67cm ³	42cm ³	67cm ³	67cm ³
Closing / opening minimum time	0.05s / 0.05s	0.05s / 0.07s	0.07s / 0.05s	0.05s / 0.05s	0.05s / 0.07s	0.07s / 0.05s
Repetition accuracy	0.02mm	0.02mm	0.02mm	0.02mm	0.02mm	0.02mm
Weight	760g	930g	920g	770g	940g	930g

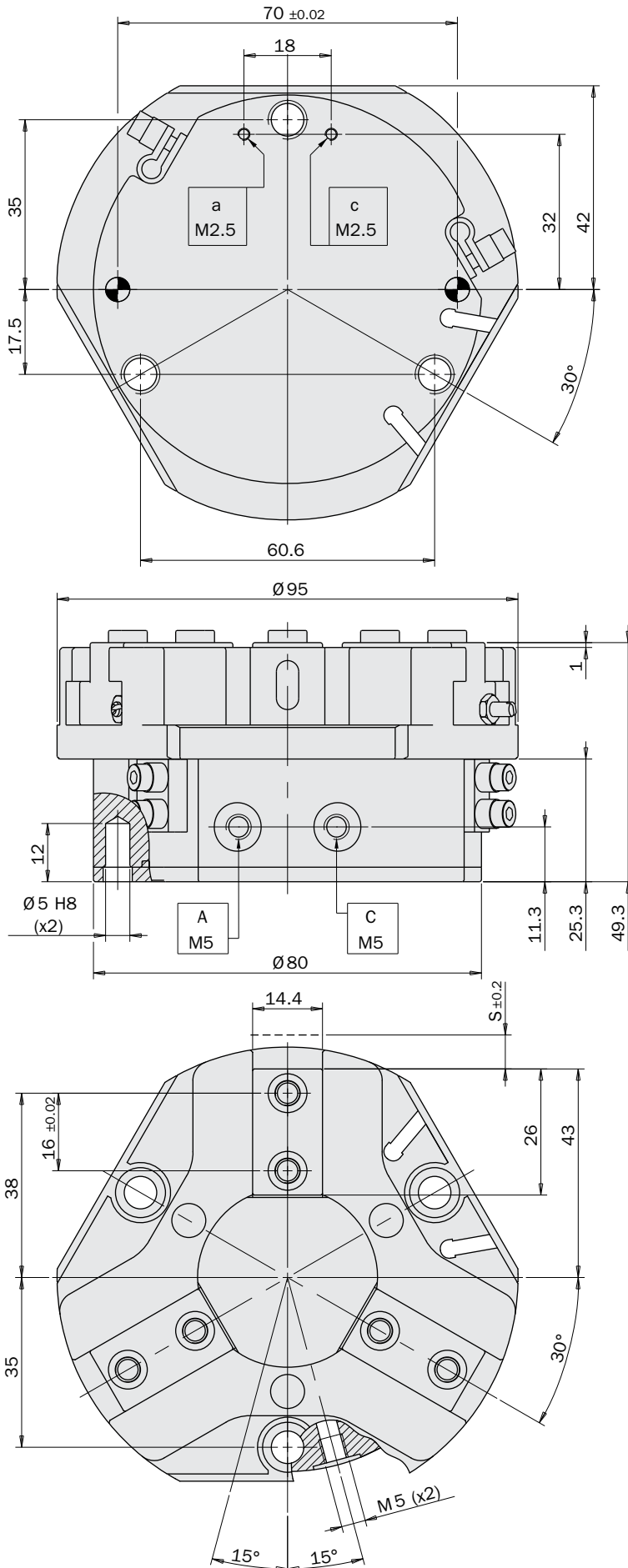
Gripping force

The graphs show the gripping force on each jaw, as a function of the operating pressure and the gripping tool length Z.



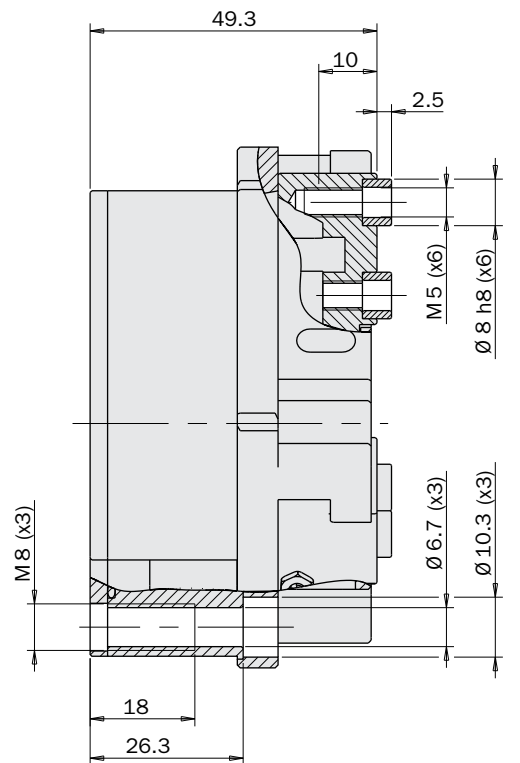
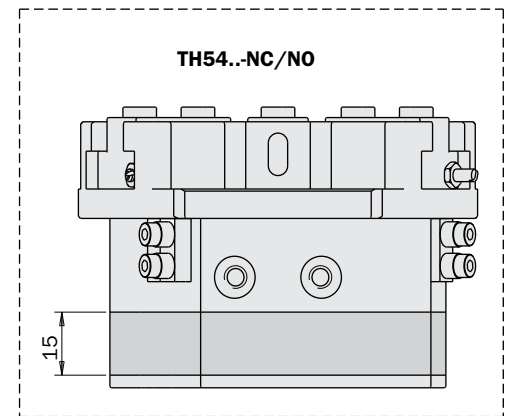
The force shown in these graphs refers to one jaw. The total force is triple.

Dimensions (mm)



	TH5408	TH5408-NC	TH5408-NO
S	3x8mm	3x8mm	3x8mm

	TH5404	TH5404-NC	TH5404-NO
S	3x4mm	3x4mm	3x4mm

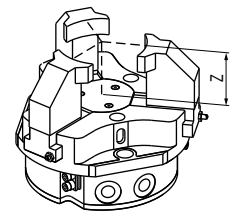
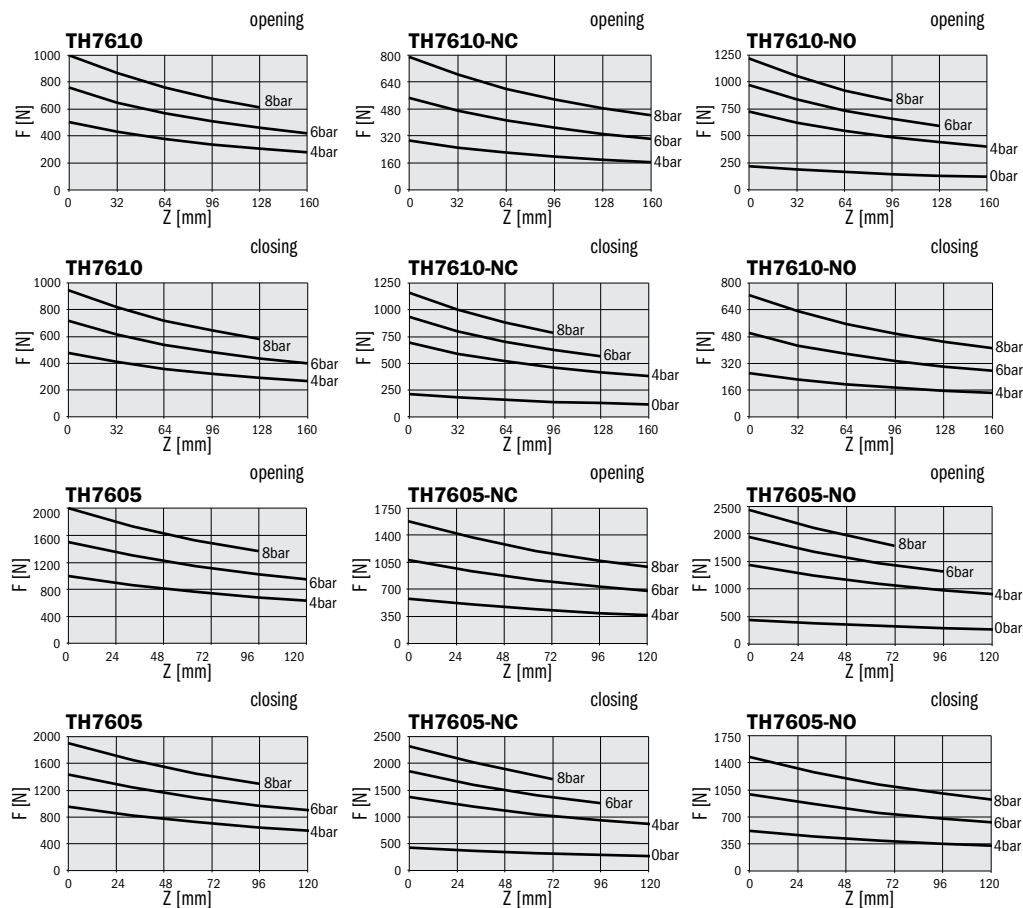


FIRST ANGLE PROJECTION

	TH7610	TH7610-NC	TH7610-NO	TH7605	TH7605-NC	TH7605-NO
Medium	Compressed air in compliance with ISO 8573-1:2010 [7:4:4]					
Operating pressure range	1.5 ÷ 8bar	3.5 ÷ 8bar	3.5 ÷ 8bar	1.5 ÷ 8bar	3.5 ÷ 8bar	3.5 ÷ 8bar
Operating temperature range	5 ÷ 100°C.					
Opening gripping force on each jaw at 6 bar	760N	515 ÷ 577N	954 ÷ 1000N	1500N	1024 ÷ 1148N	1896 ÷ 1989N
Opening total gripping force at 6 bar	2280N	1545 ÷ 1731N	2862 ÷ 3000N	4500N	3072 ÷ 3444N	5688 ÷ 5967N
Closing gripping force on each jaw at 6 bar	720N	890 ÷ 962N	477 ÷ 524N	1430N	1789 ÷ 1913N	948 ÷ 1041N
Closing total gripping force at 6 bar	2160N	2670 ÷ 2886N	1431 ÷ 1572N	4290N	5367 ÷ 5739N	2844 ÷ 3123N
Stroke	3x10mm	3x10mm	3x10mm	3x5mm	3x5mm	3x5mm
Maximum working frequency	1Hz	1Hz	1Hz	1Hz	1Hz	1Hz
Cycle air consumption	106cm ³	174cm ³	174cm ³	106cm ³	174cm ³	174cm ³
Closing / opening minimum time	0.2s / 0.2s	0.2s / 0.3s	0.3s / 0.2s	0.2s / 0.2s	0.2s / 0.3s	0.3s / 0.2s
Repetition accuracy	0.02mm	0.02mm	0.02mm	0.02mm	0.02mm	0.02mm
Weight	1420g	1870g	1840g	1430g	1880g	1850g

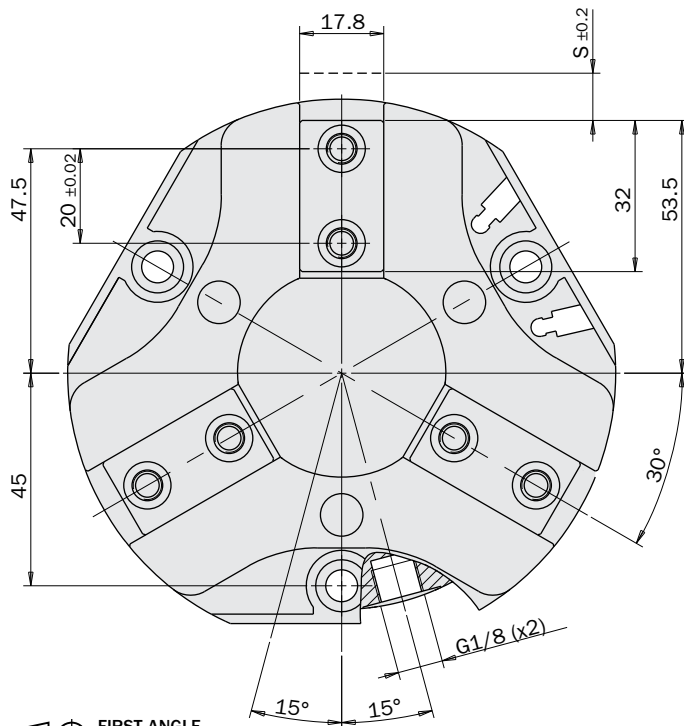
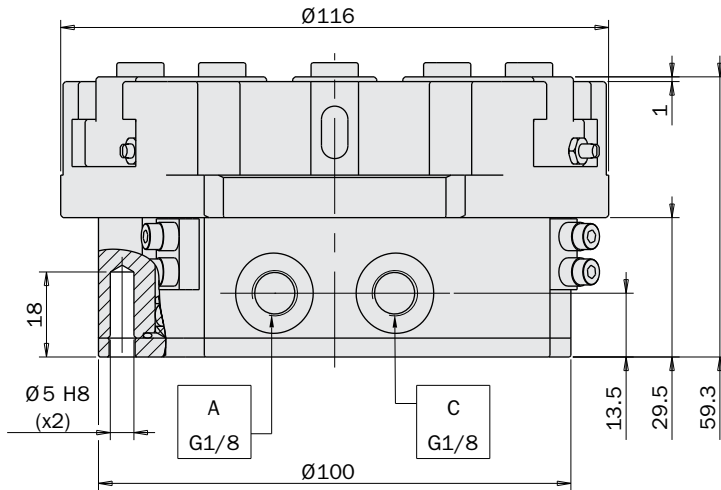
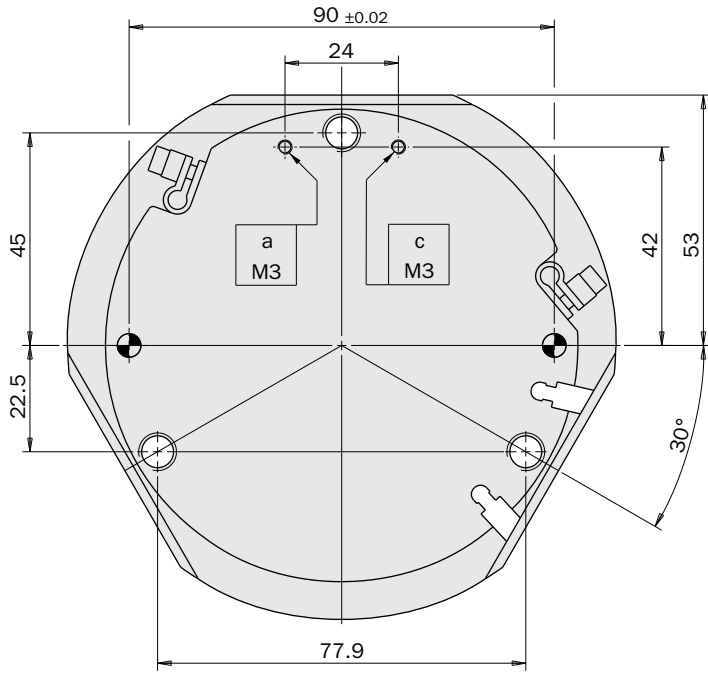
Gripping force

The graphs show the gripping force on each jaw, as a function of the operating pressure and the gripping tool length Z.



The force shown in these graphs refers to one jaw. The total force is triple.

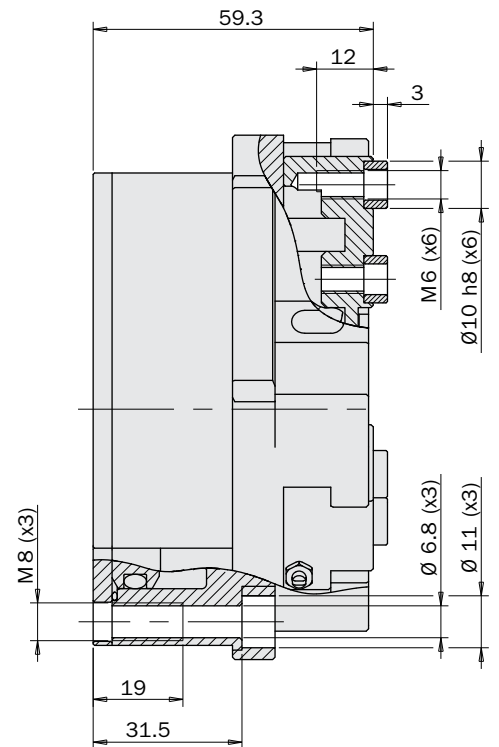
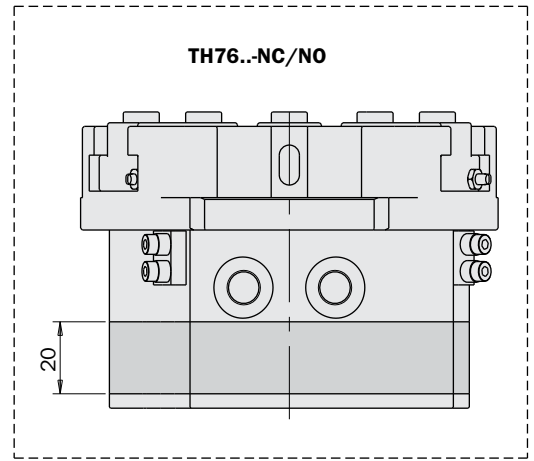
Dimensions (mm)



FIRST ANGLE PROJECTION

	TH7610	TH7610-NC	TH7610-NO
S	3x10mm	3x10mm	3x10mm

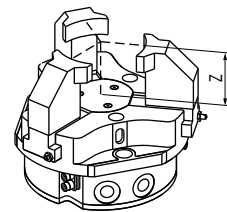
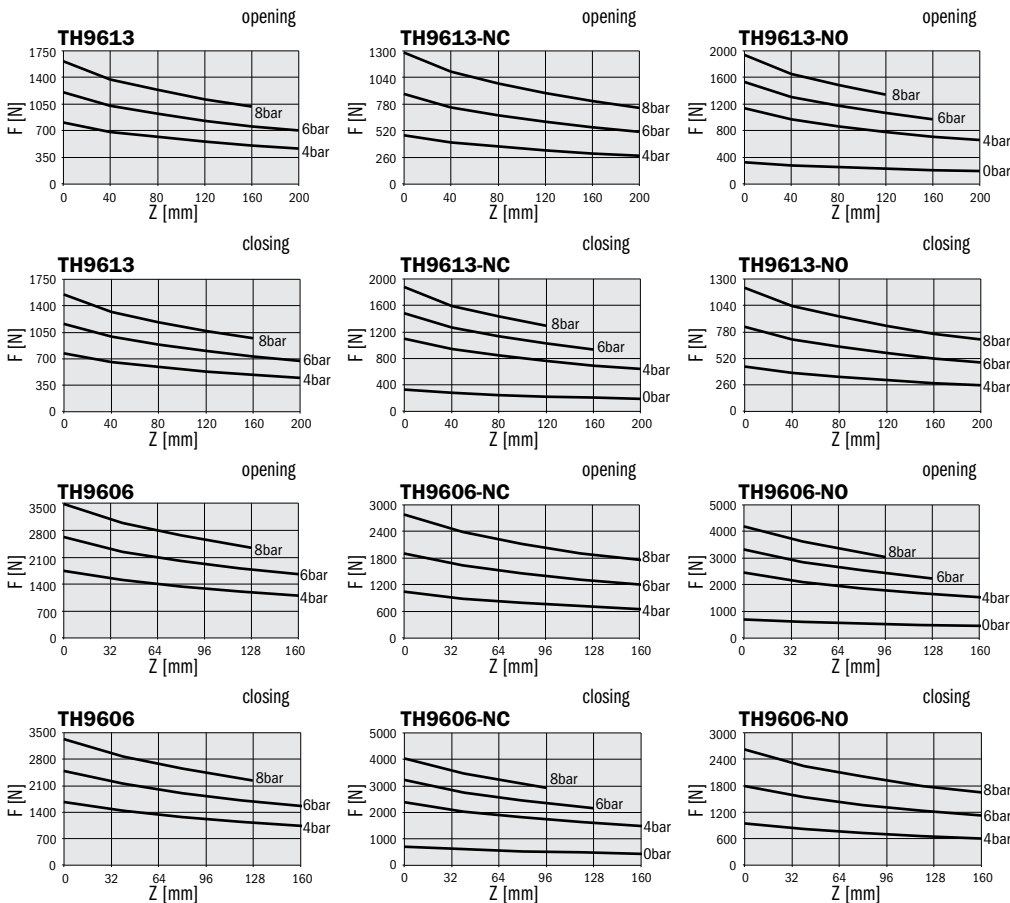
	TH7605	TH7605-NC	TH7605-NO
S	3x5mm	3x5mm	3x5mm



	TH9613	TH9613-NC	TH9613-NO	TH9606	TH9606-NC	TH9606-NO
Medium	Compressed air in compliance with ISO 8573-1:2010 [7:4:4]					
Operating pressure range	1.5 ÷ 8bar	3.5 ÷ 8bar	3.5 ÷ 8bar	1.5 ÷ 8bar	3.5 ÷ 8bar	3.5 ÷ 8bar
Operating temperature range	5 ÷ 100°C.					
Opening gripping force on each jaw at 6 bar	1210N	821 ÷ 946N	1485 ÷ 1594N	2620N	1779 ÷ 2048N	3216 ÷ 3451N
Opening total gripping force at 6 bar	3630N	2463 ÷ 2838N	4455 ÷ 4782N	7860N	5337 ÷ 6144N	9648 ÷ 10353N
Closing gripping force on each jaw at 6 bar	1160N	1422 ÷ 1564N	774 ÷ 883N	2500N	3079 ÷ 3348N	1675 ÷ 1911N
Closing total gripping force at 6 bar	3480N	4266 ÷ 4638N	2322 ÷ 2649N	7500N	9327 ÷ 10044N	5025 ÷ 5733N
Stroke	3x13mm	3x13mm	3x13mm	3x6mm	3x6mm	3x6mm
Maximum working frequency	1Hz	1Hz	1Hz	1Hz	1Hz	1Hz
Cycle air consumption	221cm ³	335cm ³	335cm ³	221cm ³	335cm ³	335cm ³
Closing / opening minimum time	0.2s / 0.2s	0.2s / 0.3s	0.3s / 0.2s	0.2s / 0.2s	0.2s / 0.3s	0.3s / 0.2s
Repetition accuracy	0.02mm	0.02mm	0.02mm	0.02mm	0.02mm	0.02mm
Weight	2450g	3230g	3140g	2490g	3270g	3180g

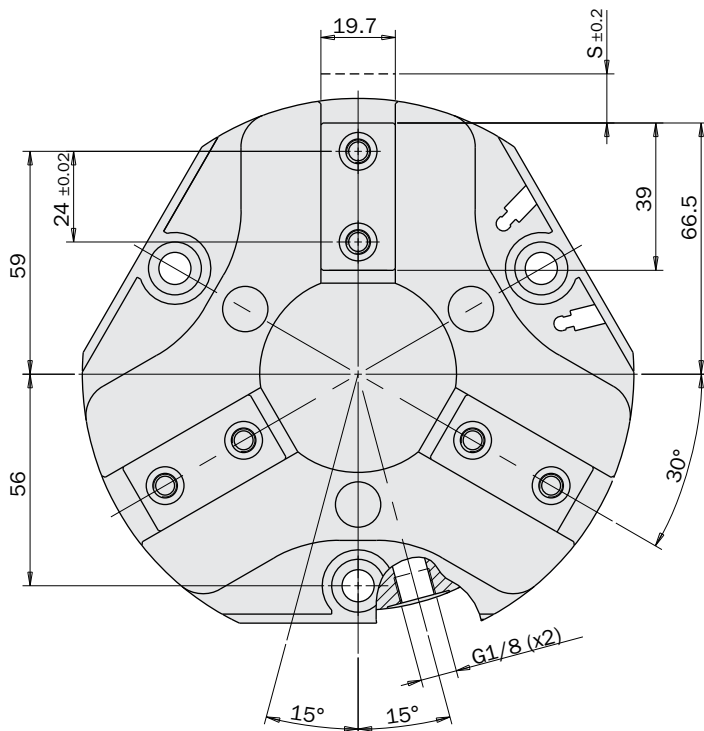
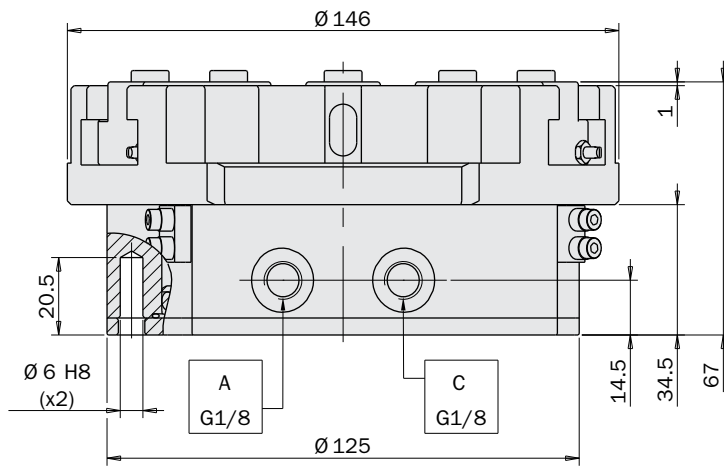
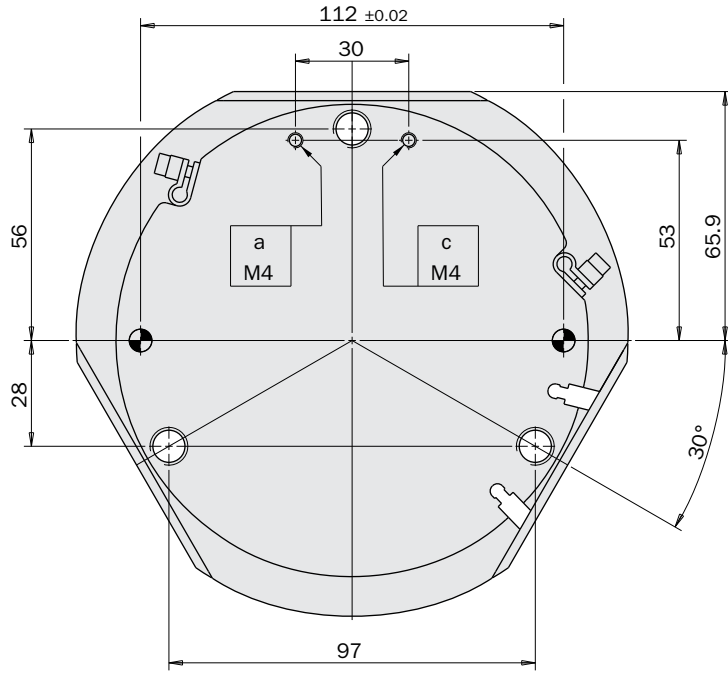
Gripping force

The graphs show the gripping force on each jaw, as a function of the operating pressure and the gripping tool length Z.



The force shown in these graphs refers to one jaw. The total force is triple.

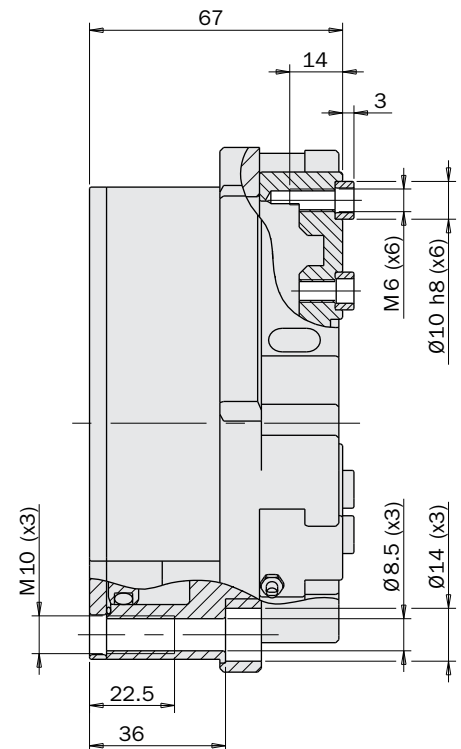
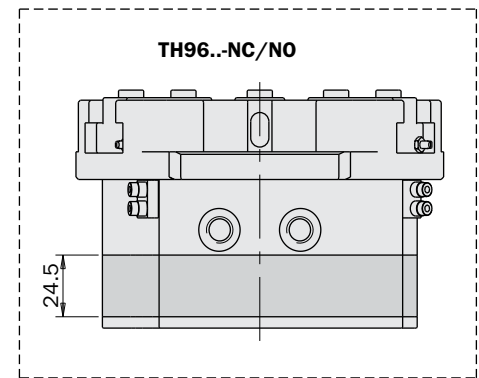
Dimensions (mm)



FIRST ANGLE PROJECTION

	TH9613	TH9613-NC	TH9613-NO
S	3x13mm	3x13mm	3x13mm

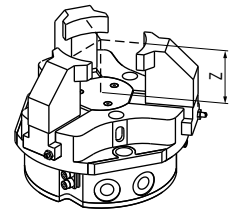
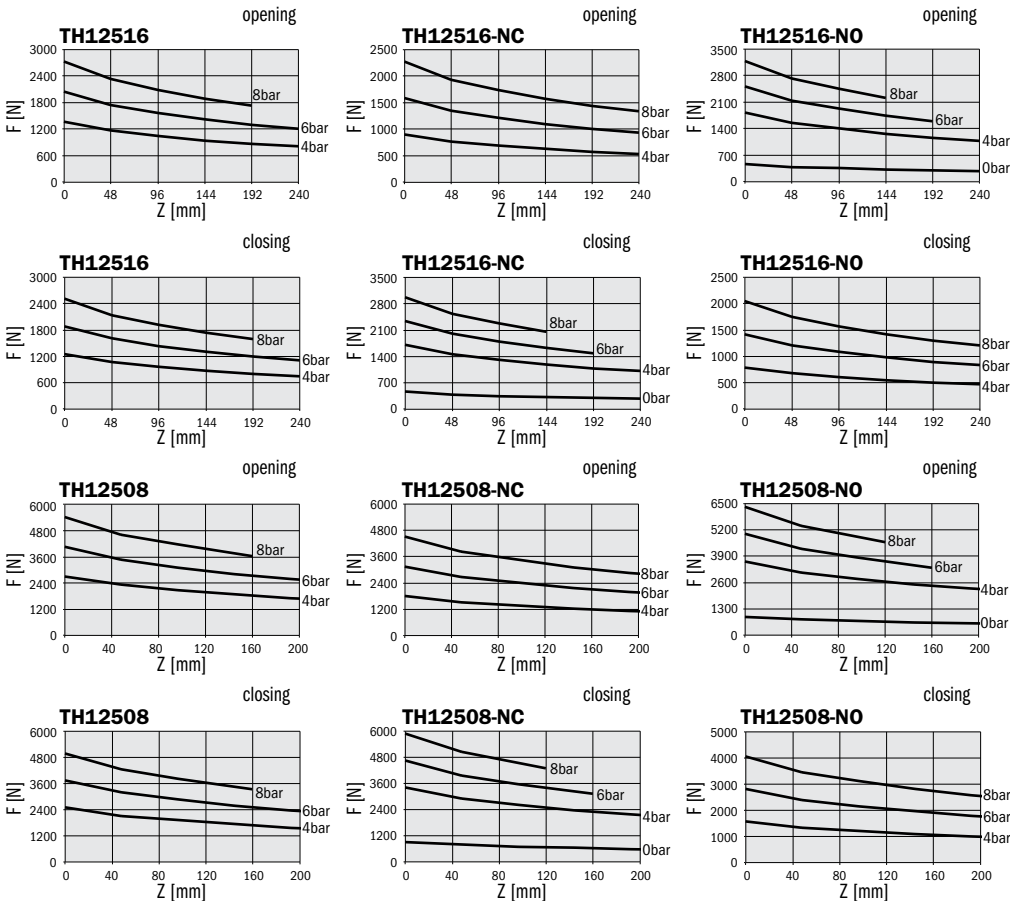
	TH9606	TH9606-NC	TH9606-NO
S	3x6mm	3x6mm	3x6mm



	TH12516	TH12516-NC	TH12516-NO	TH12508	TH12508-NC	TH12508-NO
Medium	Compressed air in compliance with ISO 8573-1:2010 [7:4:4]					
Operating pressure range	1.5 ÷ 8bar	3 ÷ 8bar	3 ÷ 8bar	1.5 ÷ 8bar	3 ÷ 8bar	3z ÷ 8bar
Operating temperature range	5 ÷ 100°C.					
Opening gripping force on each jaw at 6 bar	2050N	1538 ÷ 1644N	2465 ÷ 2571N	4070N	3050 ÷ 3260N	4888 ÷ 5099N
Opening total gripping force at 6 bar	6150N	4614 ÷ 4932N	7395 ÷ 7713N	12210N	9150 ÷ 9780N	14664 ÷ 15297N
Closing gripping force on each jaw at 6 bar	1880N	2294 ÷ 2400N	1367 ÷ 1473N	3740N	4550 ÷ 4761N	2712 ÷ 2922N
Closing total gripping force at 6 bar	5640N	6882 ÷ 7200N	4101 ÷ 4419N	11220N	13650 ÷ 14283N	8136 ÷ 8766N
Stroke	3x16mm	3x16mm	3x16mm	3x8mm	3x8mm	3x8mm
Maximum working frequency	1Hz	1Hz	1Hz	1Hz	1Hz	1Hz
Cycle air consumption	452cm ³	700cm ³	700cm ³	452cm ³	700cm ³	700cm ³
Closing / opening minimum time	0.3s / 0.3s	0.3s / 0.4s	0.4s / 0.3s	0.3s / 0.3s	0.3s / 0.4s	0.4s / 0.3s
Repetition accuracy	0.02mm	0.02mm	0.02mm	0.02mm	0.02mm	0.02mm
Weight	4920g	6640g	6460g	4990g	6710g	6530g

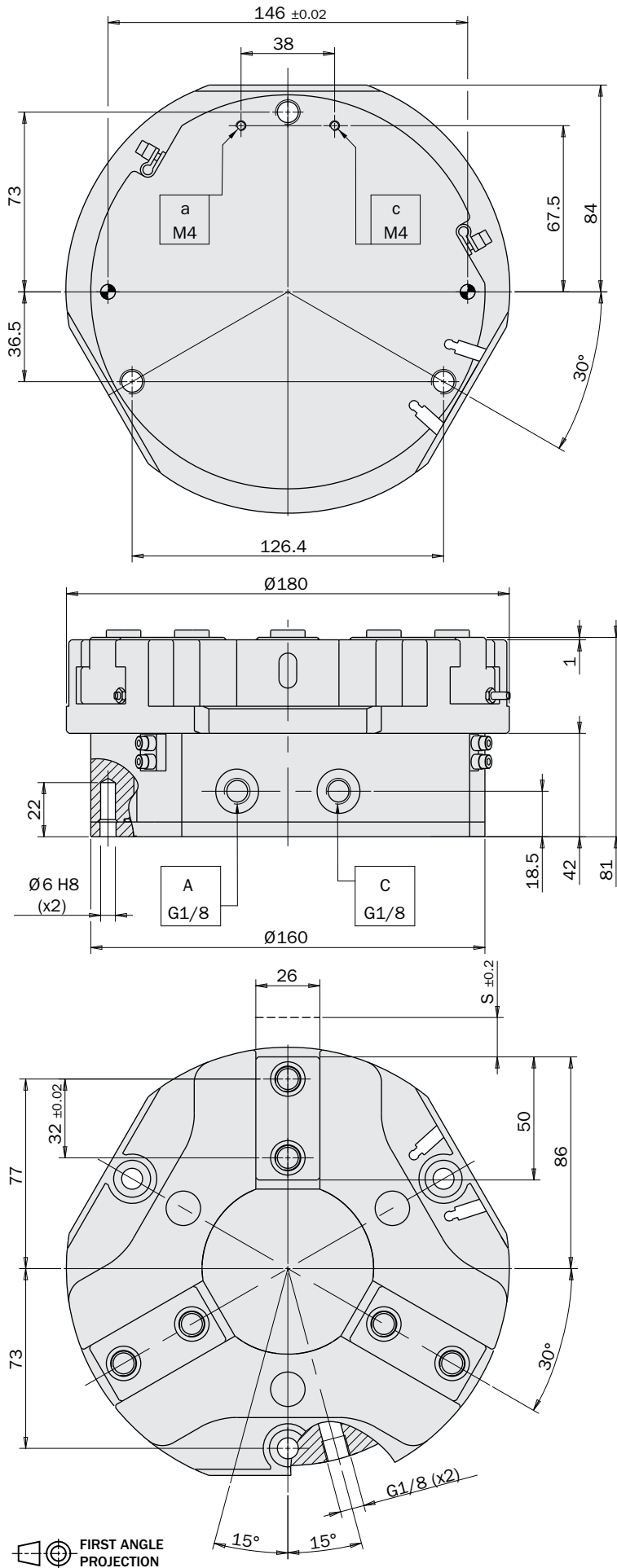
Gripping force

The graphs show the gripping force on each jaw, as a function of the operating pressure and the gripping tool length Z.



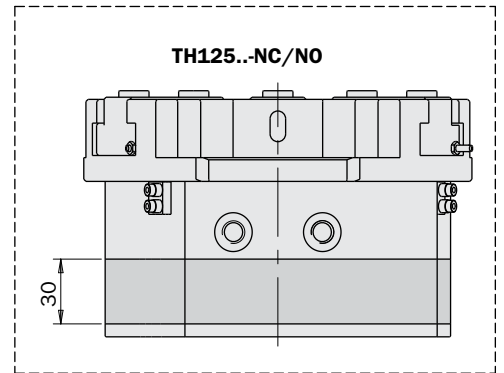
The force shown in these graphs refers to one jaw. The total force is triple.

Dimensions (mm)



	TH12516	TH12516-NC	TH12516-NO
S	3x16mm	3x16mm	3x16mm

	TH12508	TH12508-NC	TH12508-NO
S	3x8mm	3x8mm	3x8mm

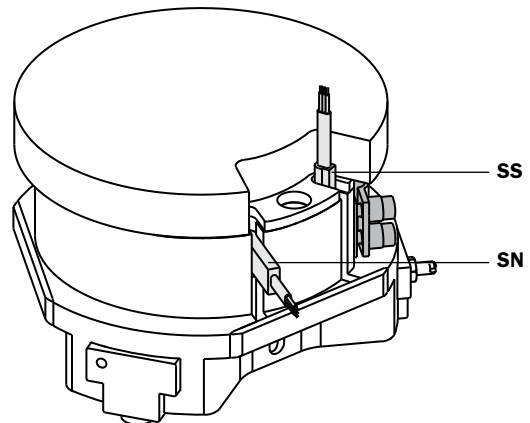
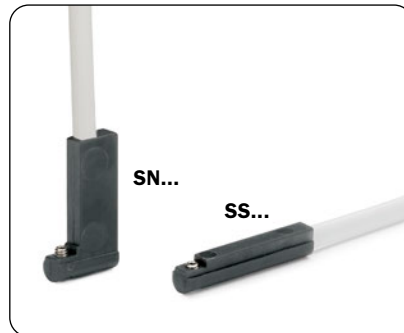
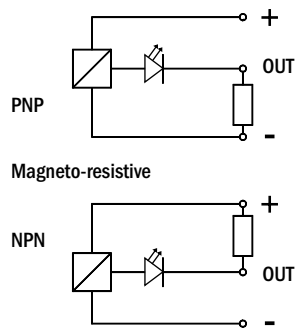
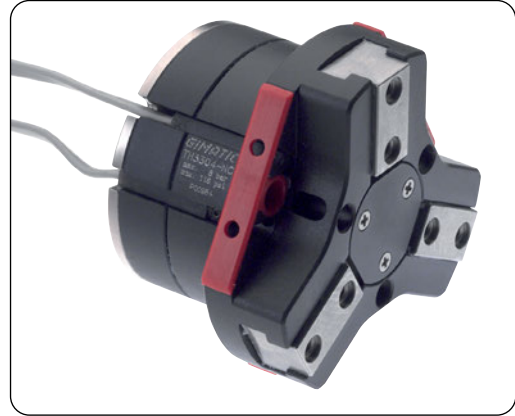


Magnetic sensors (optional)

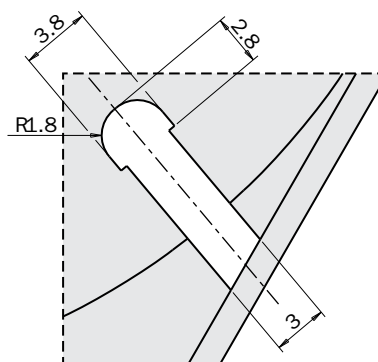
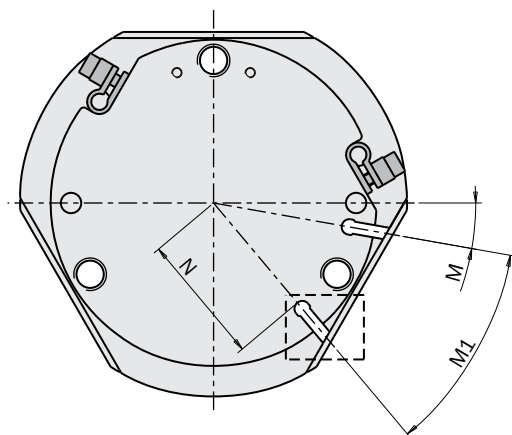
The operating position can be checked by one or two magnetic sensors, that detect the magnet on the piston inside. Therefore a near big mass of ferromagnetic material or intense magnetic fields may cause sensing troubles.

Use sensors:

SN4N225-G	PNP	2.5m cable
SN4M225-G	NPN	
SN3N203-G	PNP	M8 snap plug connector
SN3M203-G	NPN	
SS4N225-G	PNP	2.5m cable
SS4M225-G	NPN	
SS3N203-G	PNP	M8 snap plug connector
SS3M203-G	NPN	



	TH27...	TH33...	TH46...	TH54...	TH76...	TH96...	TH125...
N	15.4	19.6	25.5	32	41.2	53.5	67
M	11.5°	14°	12°	10°	13°	14°	18°
M1	37°	32°	36°	40°	34°	32°	24°

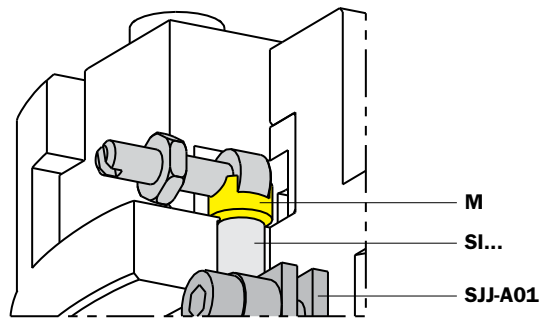
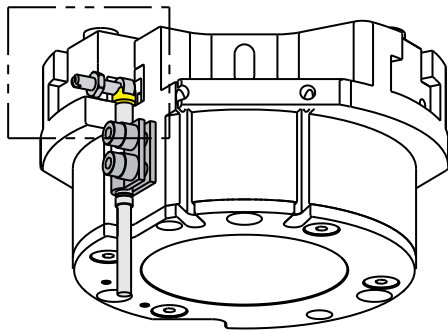
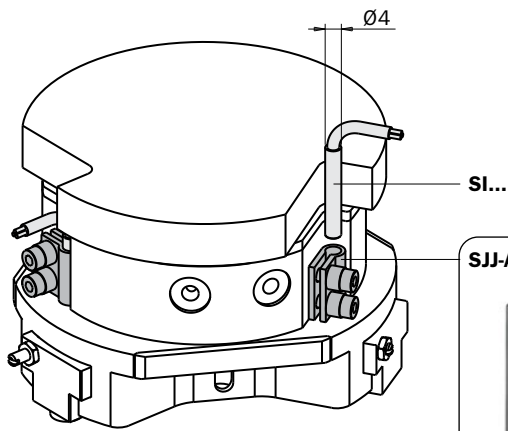
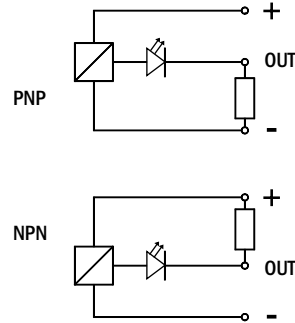


Inductive sensors (optional)

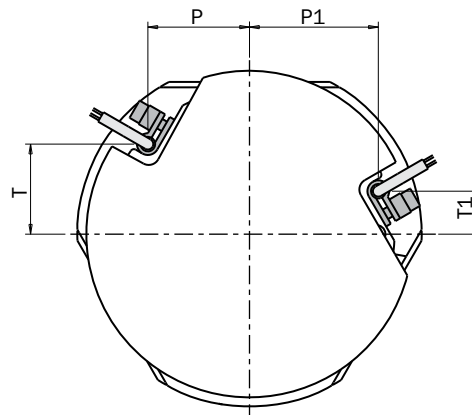
With the larger sizes it is also possible to use inductive sensors diameter 4mm, which can be fastened by the holders SJJ-A01 (supplied).

After the sensor fastening, the position of the metal part (M) must be adjusted to select the on point.

			TH54... TH76... TH96... TH125...
SI4M225-G	NPN	2.5m cable	<input checked="" type="checkbox"/>
SI4N225-G	PNP		<input checked="" type="checkbox"/>

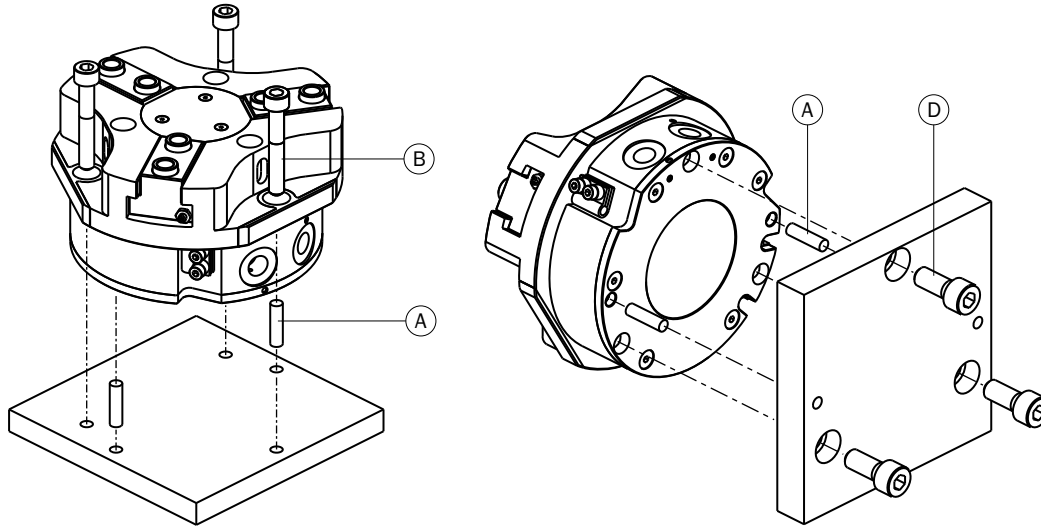


	TH54...	TH76...	TH96...	TH125...
P	28	34.8	45.6	56.8
P1	35.5	44.1	56.2	71.3
T	10.9	14.7	20.2	24.4
T1	24.9	30.8	38.6	49.6



Gripper fastening

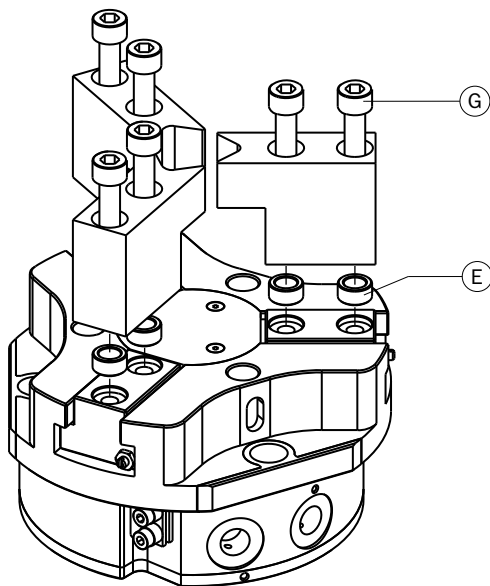
The gripper can be fastened to a static or moving part. When on a moving part, you must pay attention to the forces created by inertia on the gripper and its load. Use 3 screws and 2 centering pins (A), for the gripper fastening. The screws can go through the gripper (B), or through the mounting plate (D).



	TH27...	TH33...	TH46...	TH54...	TH76...	TH96...	TH125...
A	Ø2	Ø3	Ø4	Ø5	Ø5	Ø6	Ø6
B	M3	M3	M5	M6	M6	M8	M8
D	M4	M4	M6	M8	M8	M10	M10

Gripping tool fastening

The gripping tools must be as short and light as possible. They must be fastened by 2 screws (G) and 2 centering sleeves (E).



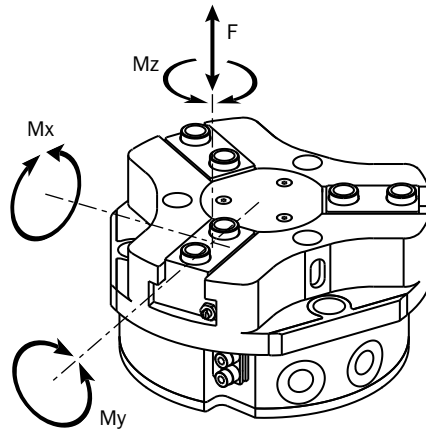
	G	E
TH27...	M2.5	Ø4h8
TH33...	M3	Ø5h8
TH45...	M4	Ø6h8
TH54...	M5	Ø8h8
TH76...	M6	Ø10h8
TH96...	M6	Ø10h8
TH125...	M10	Ø14h8



6 centering rings for the gripping tools are supplied in the packaging.

Safety loads

Check the table for maximum permitted loads.
 Excessive forces or torques can damage the gripper, cause functioning troubles and endanger the safety of the operator.
 F s, Mx s, My s, Mz s, are maximum permitted static loads.
 Static means motionless jaws.
 F d, Mx d, My d, Mz d, are maximum permitted dynamic loads.
 Dynamic means running jaws.
 The following table shows the specified maximum loads (m) on each gripping tool as a function of closing or opening time.
 Use flow controllers (not supplied) to get the proper speed.



	TH2725 TH2725-NC TH2725-NO	TH3304 TH3304-NC TH3304-NO	TH3302 TH3302-NC TH3302-NO	TH4506 TH4506-NC TH4506-NO	TH4503 TH4503-NC TH4503-NO	TH5408 TH5408-NC TH5408-NO	TH5404 TH5404-NC TH5404-NO
F s	200N	350N	350N	600N	600N	900N	900N
Mx s	3.4Nm	7Nm	11Nm	16Nm	25Nm	28Nm	47Nm
My s	2.8Nm	5.8Nm	5.8Nm	13Nm	13Nm	24Nm	24Nm
Mz s	2.8Nm	5.8Nm	5.8Nm	13Nm	13Nm	24Nm	24Nm
F d	2N	4N	4N	6N	6N	9N	9N
Mx d	0.06Nm	0.12Nm	0.12Nm	0.25Nm	0.25Nm	0.5Nm	0.5Nm
My d	0.06Nm	0.12Nm	0.12Nm	0.25Nm	0.25Nm	0.5Nm	0.5Nm
Mz d	0.06Nm	0.12Nm	0.12Nm	0.25Nm	0.25Nm	0.5Nm	0.5Nm
m	100g	180g	180g	350g	350g	600g	600g

	TH7610 TH7610-NC TH7610-NO	TH7605 TH7605-NC TH7605-NO	TH9613 TH9613-NC TH9613-NO	TH9606 TH9606-NC TH9606-NO	TH12516 TH12516-NC TH12516-NO	TH12508 TH12508-NC TH12508-NO
F s	1500N	1500N	2500N	2500N	4000N	4000N
Mx s	79Nm	130Nm	160Nm	280Nm	330Nm	540Nm
My s	65Nm	65Nm	130Nm	130Nm	270Nm	270Nm
Mz s	65Nm	65Nm	130Nm	130Nm	270Nm	270Nm
F d	15N	15N	25N	25N	40N	40N
Mx d	1Nm	1Nm	2Nm	2Nm	4Nm	4Nm
My d	1Nm	1Nm	2Nm	2Nm	4Nm	4Nm
Mz d	1Nm	1Nm	2Nm	2Nm	4Nm	4Nm
m	1100g	1100g	2100g	2100g	3500g	3500g