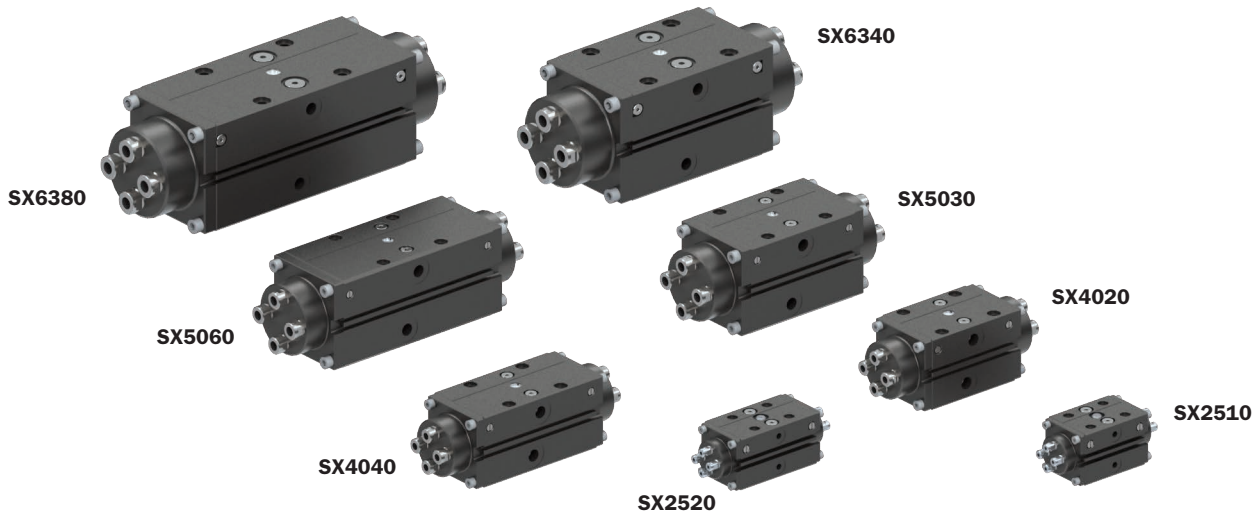


## 2-jaw self-centering pneumatic parallel gripper (series SX)

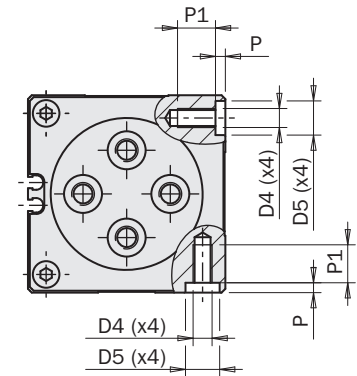
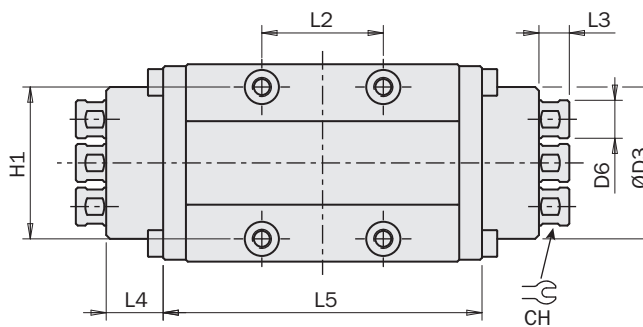
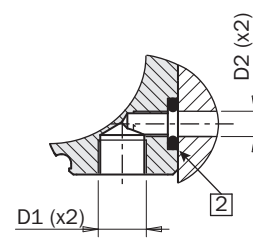
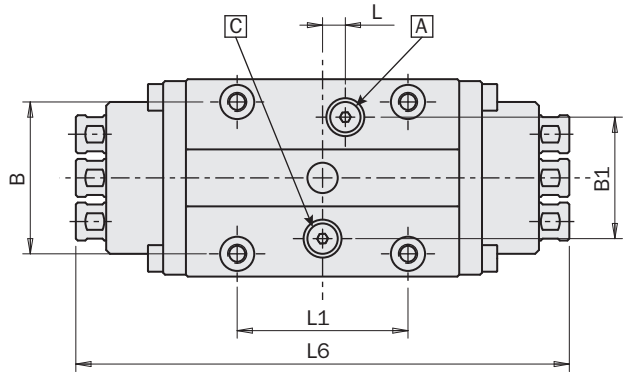
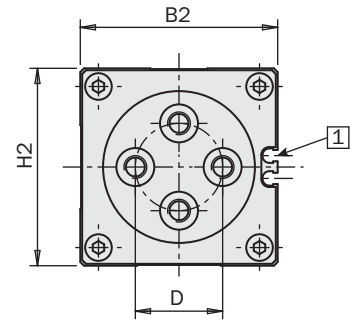
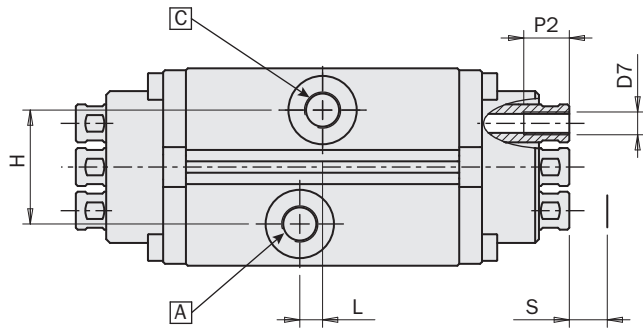
- Double acting (normally closed on request).
- High gripping force.
- Protection class: IP67.
- Double O-Ring sealing on the columns.
- Suitable for harsh environments.
- Optional magnetic sensors.
- Available upon request with food grease FDA-H1 and with high temperature (up to 100 °C.) seals.



	SX2510	SX2520	SX4020	SX4040	SX5030	SX5060	SX6340	SX6380
Medium	Filtered, lubricated / non lubricated compressed air							
Operating pressure range	2 ÷ 8 bar							
Operating temperature range	5 ÷ 60 °C							
Opening gripping force on each jaw at 6 bar	250 N	250 N	650 N	650 N	1050 N	1050 N	1700 N	1700 N
Total opening gripping force at 6 bar	500 N	500 N	1300 N	1300 N	2100 N	2100 N	3400 N	3400 N
Closing gripping force on each jaw at 6 bar	195 N	195 N	500 N	500 N	800 N	800 N	1250 N	1250 N
Total closing gripping force at 6 bar	390 N	390 N	1000 N	1000 N	1600 N	1600 N	2500 N	2500 N
Total stroke (±0.5 mm)	10 mm	20 mm	20 mm	40 mm	30 mm	60 mm	40 mm	80 mm
Maximum working frequency	2 Hz	2 Hz	2 Hz	2 Hz	2 Hz	1 Hz	1 Hz	1 Hz
Cycle air consumption	11 cm <sup>3</sup>	20 cm <sup>3</sup>	50 cm <sup>3</sup>	95 cm <sup>3</sup>	115 cm <sup>3</sup>	220 cm <sup>3</sup>	230 cm <sup>3</sup>	450 cm <sup>3</sup>
Opening / Closing time without load	0.03 s	0.05 s	0.03 s	0.08 s	0.06 s	0.10 s	0.20 s	0.30 s
Repetition accuracy	0.05 mm							
Weight	260 g	310 g	750 g	900 g	1300 g	1700 g	2800 g	3500 g

Dimensions (mm)

FIRST ANGLE PROJECTION



		SX2510	SX2520	SX4020	SX4040	SX5030	SX5060	SX6340	SX6380
B	±0.02	23	23	40	40	50	50	60	60
B1		22.5	22.5	32	32	38	38	45	45
B2		38	38	52	52	64	64	79	79
D	±0.02	15	15	Ø23	Ø23	Ø33	Ø33	Ø38	Ø38
D1		M5	M5	G1/8	G1/8	G1/8	G1/8	G1/8	G1/8
D2		M5	M5	M5	M5	M5	M5	G1/8	G1/8
D3		27	27	Ø40	Ø40	Ø50	Ø50	Ø63	Ø63
D4		M4	M4	M5	M5	M6	M6	M8	M8
D5	H8	7	7	Ø9	Ø9	Ø9	Ø9	Ø12	Ø12
D6	f7	Ø6	Ø6	Ø10	Ø10	Ø12	Ø12	Ø16	Ø16
D7		M3	M3	M6	M6	M8	M8	M10	M10
H		22.5	22.5	30	30	40	40	45	45
H1	±0.02	23	23	40	40	50	50	60	60
H2		38	38	52	52	64	64	79	79
L		-	-	6	6	10	10	10	10
L1	±0.02	30	30	45	45	50	50	70	70
L2	±0.02	30	30	32	32	35	35	50	50
L3		7.5	7.5	8	8	8.5	8.5	9.5	9.5
L4		7.5	7.5	15	15	18	18	26	26
L5		59	73	84	110	106	146	133	185
L6		89	103	130	156	159	199	204	256
P		2.1	2.1	2.6	2.6	2.6	2.6	2.6	2.6
P1		6.5	6.5	10	10	10	10	15	15
P2		6	6	12	12	20	20	20	20
S (x2)		5	10	10	20	15	30	20	40
CH		5	5	9	9	11	11	14	14

1  
Sensor seat

2  
O-Ring (not supplied)

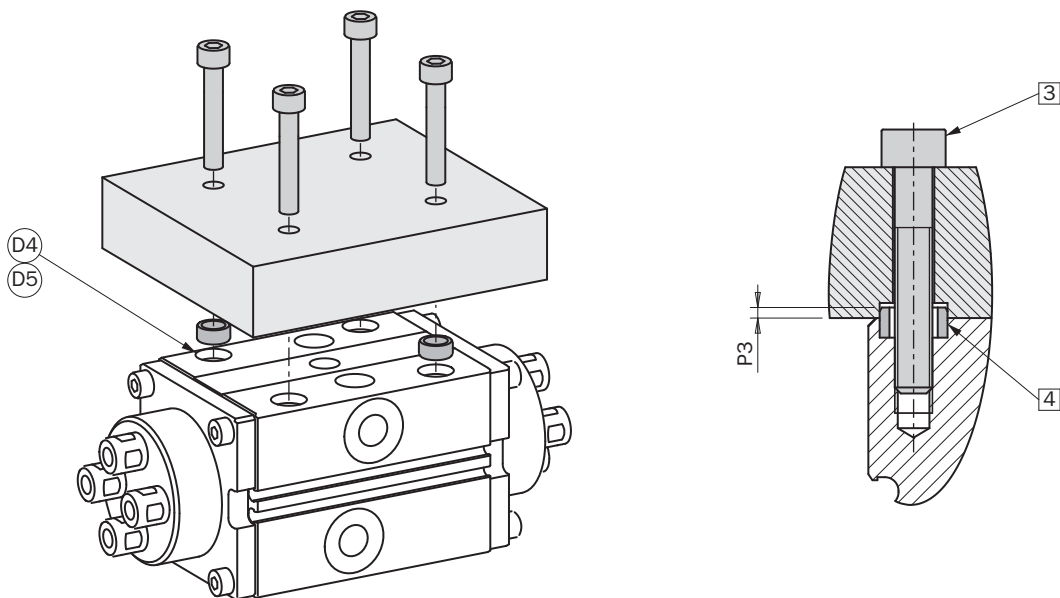
A  
Compressed air in A: gripper opening.

C  
Compressed air in C: gripper closing.

## Gripper fastening

The gripper can be fastened to a static or moving part. When on a moving part, you must pay attention to the inertial force to which the gripper and its load are subjected.

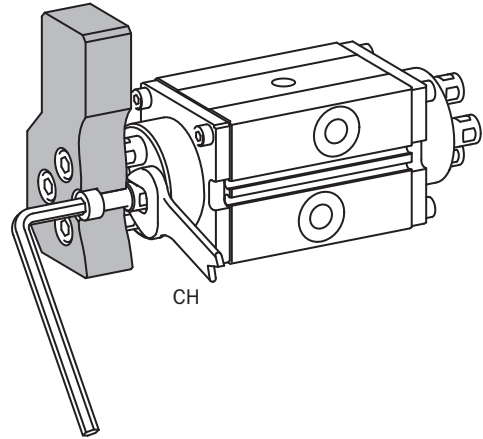
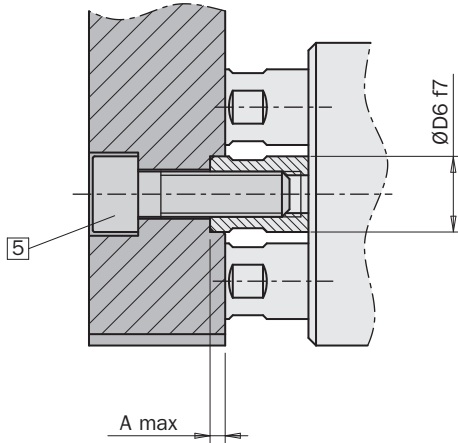
Use 4 screws [3] in the threaded holes (D4) and 2 centering sleeves [4] in the spot faces (D5).



	SX25	SX40	SX50	SX63
[3]	M4	M5	M6	M8
[4]	Ø7h7 x 5.3 x 3	Ø9h7 x 6.4 x 4	Ø9h7 x 6.4 x 4	Ø9h7 x 6.4 x 4
P3	1.2 <sup>-0.2</sup>	1.4 <sup>-0.2</sup>	1.4 <sup>-0.2</sup>	2.4 <sup>-0.2</sup>

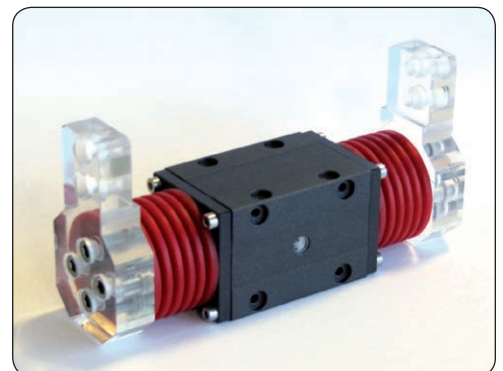
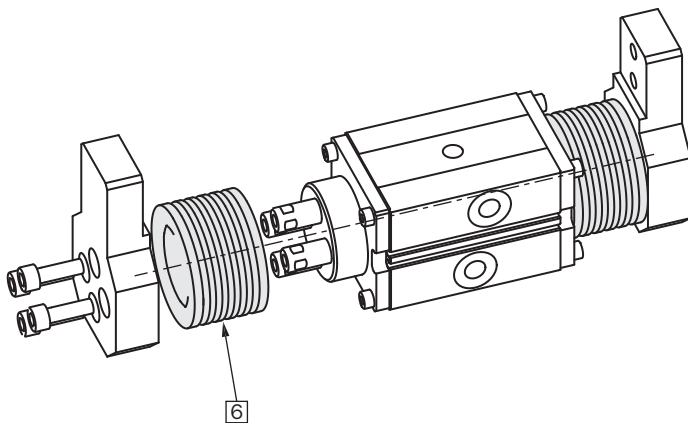
**Gripping tool fastening**

This gripper has no jaws and the gripping tools have to be fastened directly on the columns.  
 The gripping tools must be as short and light as possible.  
 They must be fastened with four screws [5] in the threaded holes (D7) of the columns.  
 Drill centering holes for two of the four columns (D6).  
 Hold the column with a wrench key, to avoid unscrewing it.



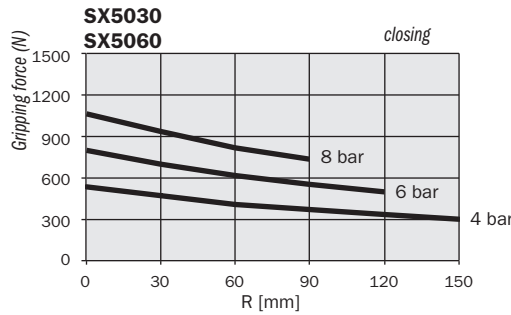
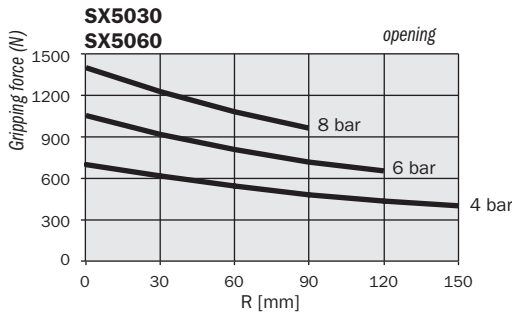
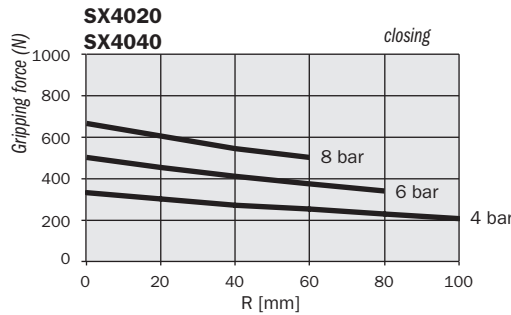
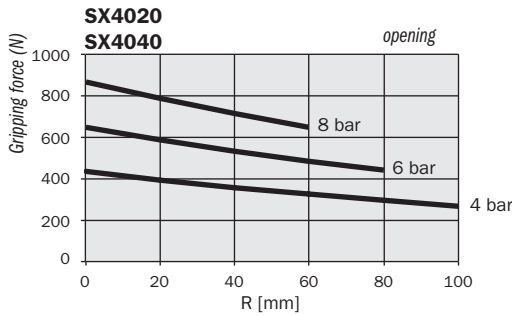
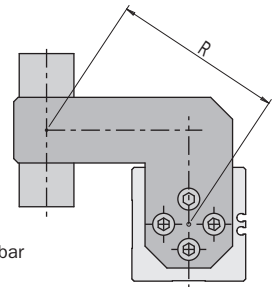
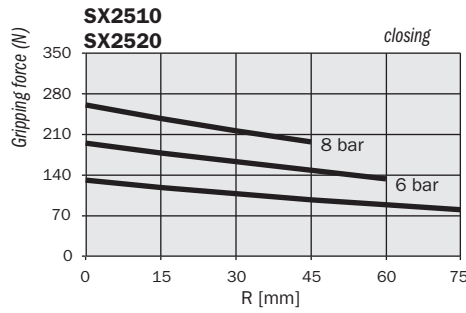
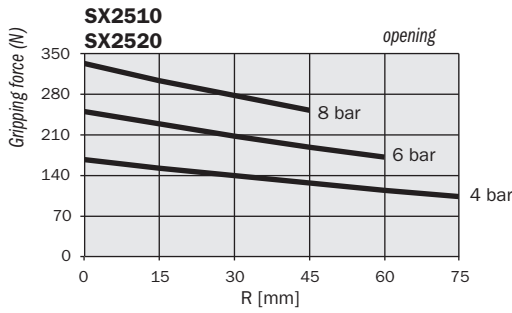
	SX25	SX40	SX50	SX63
A	1.5	2	2	2
[5]	M3	M6	M8	M10

An optional bellow in silicone [6] is available to protect columns.  
 Code SX25S01 for the gripper SX2510.  
 Code SX40S01 for the gripper SX4020.  
 Code SX50S01 for the gripper SX5030.  
 Code SX63S01 for the gripper SX6340.

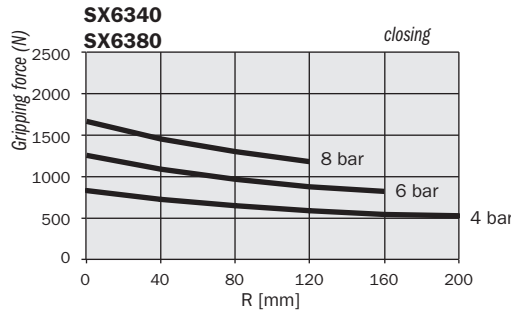
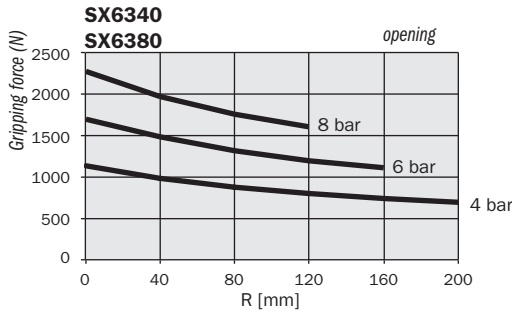


**Gripping force**

The graphs show the medium gripping force on each jaw, as a function of the operating pressure and the distance R of the gripping point.



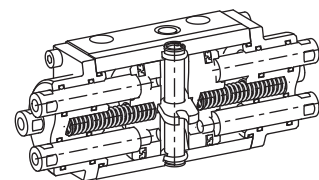
The force shown in these graphs refers to one jaw. The total force is double.



**Spring option**

A version with a normally closed (-NC) spring is also available, on request. In the case of a pressure black-out, the spring provides about one tenth of the output force at 6 bar.

	SX4020-NC	SX5030-NC	SX6340-NC
Closing force on each jaw at 6 bar	527÷556 N	903÷966 N	1379÷1448 N
Opening force on each jaw at 6 bar	592÷621 N	889÷952 N	1517÷1586 N
Closing force on each jaw at 0 bar	35÷64 N	96÷159 N	116÷185 N
Opening force on each jaw at 0 bar	0 N	0 N	0 N



### Safety loads

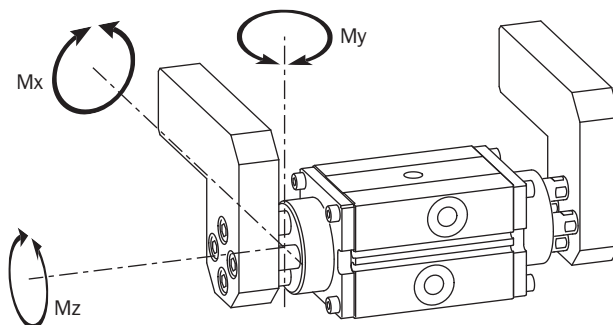
Check the table for maximum permitted loads.

Excessive forces or torques can damage the gripper, cause functioning troubles and endanger the safety of the operator.

$M_x s$ ,  $M_y s$ ,  $M_z s$ , are the maximum permitted static loads, that is when the jaws are still.

$M_x d$ ,  $M_y d$ ,  $M_z d$ , are the maximum permitted dynamic loads, that is when the jaws are operating.

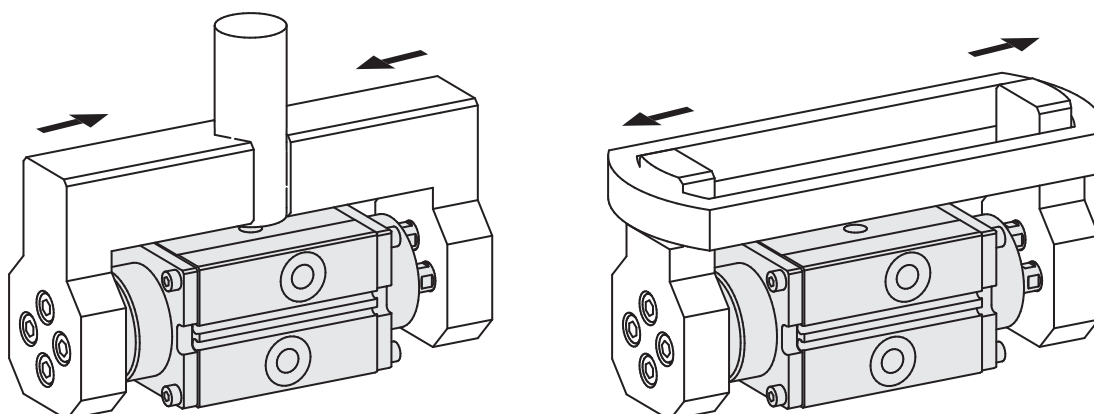
$m$  is the maximum permitted weight of each gripping tool, when the gripper operates without speed adjustment. If the weight exceeds the permitted value, the jaw speed must be decreased by means of flow controllers (not supplied).



	SX2510	SX2520	SX4020	SX4040	SX5030	SX5060	SX6340	SX6380
$M_x s$	10 Nm	10 Nm	40 Nm	40 Nm	90 Nm	90 Nm	190 Nm	190 Nm
$M_y s$	10 Nm	10 Nm	40 Nm	40 Nm	90 Nm	90 Nm	190 Nm	190 Nm
$M_z s$	5 Nm	7 Nm	20 Nm	30 Nm	40 Nm	60 Nm	100 Nm	150 Nm
$M_x d$	0.1 Nm	0.1Nm	0.5 Nm	0.5 Nm	1.2 Nm	1.2 Nm	2.7 Nm	2.7 Nm
$M_y d$	0.1 Nm	0.1Nm	0.5 Nm	0.5 Nm	1.2 Nm	1.2 Nm	2.7 Nm	2.7 Nm
$M_z d$	0.1 Nm	0.1Nm	0.5 Nm	0.5 Nm	1.2 Nm	1.2 Nm	2.7 Nm	2.7 Nm
$m$	400 g	400 g	700 g	700 g	1400 g	1400 g	2100 g	2100 g

### Gripping

The gripper is double-acting for either internal or external gripping applications. The gripping force is higher when opening.



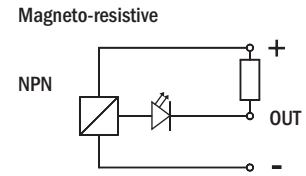
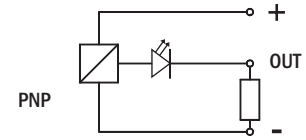
**Sensors**

The operating position is detected by magnetic proximity sensors (optional) through a magnet placed on the piston.

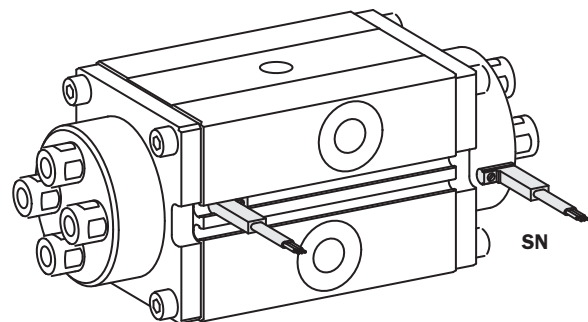
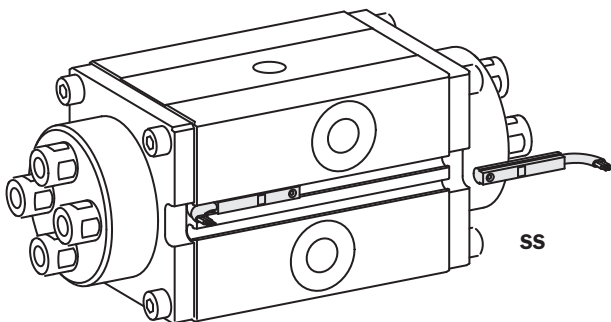
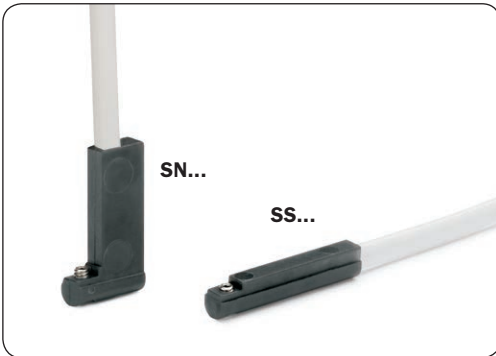
The use of magnetic proximity sensors is to be avoided in the vicinity of large masses of ferromagnetic material or intense magnetic fields as this may cause detection problems.

The sensors that can be used are:

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

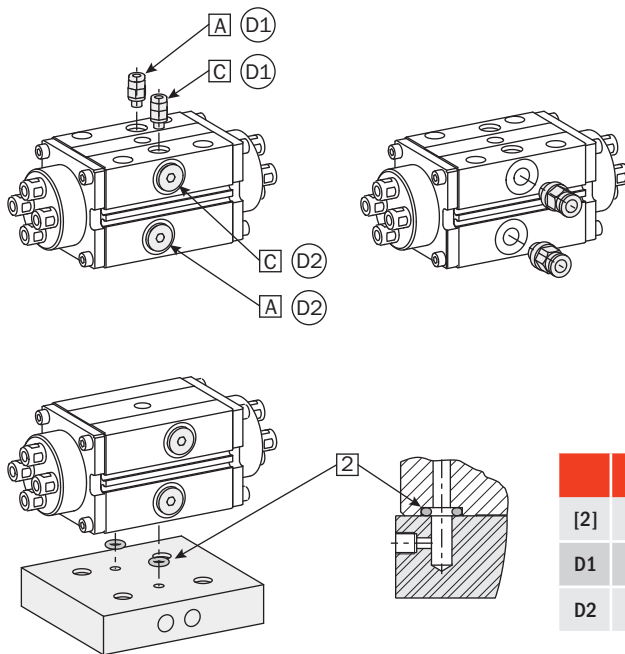


They are all provided with a 3-wire flat cable and a LED.



**Compressed air feeding**

The gripper can be fed with compressed air from the side air ports with fittings and relevant hoses (not supplied).  
 Alternatively, compressed air can be supplied directly from the mounting plate, after removing the plugs and placing O-rings (not supplied) in between.  
 Compressed air in A: gripper opening.  
 Compressed air in C: gripper closing.  
 Compressed air must be supplied filtered (5÷40 µm), not necessarily lubricated.  
 The initial choice on air lubrication (lubricated or not) must be kept for the complete service life of the gripper.  
 The pneumatic circuit must be pressurized gradually, to avoid uncontrolled movements.



	SX25	SX40	SX50	SX63
[2]	Ø2.62x5.23	Ø2.62x5.23	Ø2.62x5.23	Ø1.78x15.6
D1	M5	G1/8	G1/8	G1/8
D2	M5	M5	M5	G1/8

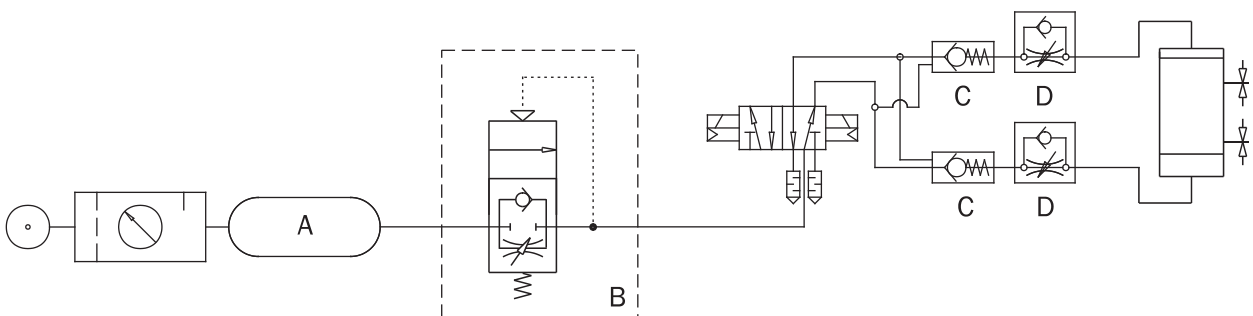
**Pneumatic circuit**

Possible problems on a compressed air circuit:

- 1- Pressure fluctuations.
- 2- Pressurizing with empty gripper.
- 3- Sudden absence of pressure.
- 4- Excessive operation speed.

Possible solutions:

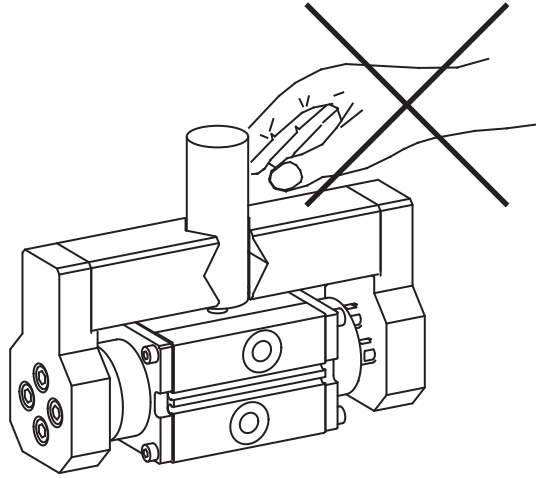
- 1- Compressed air storage (A).
- 2- Start-up valve (B).
- 3- Safety valve (C).
- 4- Flow controllers (D).





### Cautions

Never let personnel or objects stand within the operating range of the gripper.  
 Never operate the gripper if the machine on which it is fitted does not comply with safety laws and standards of your country.



### Maintenance

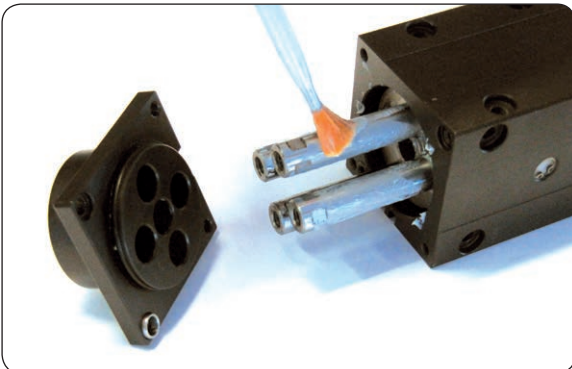
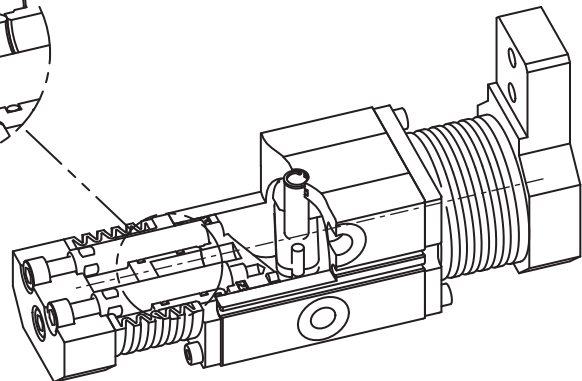
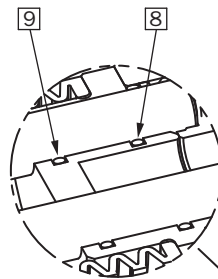
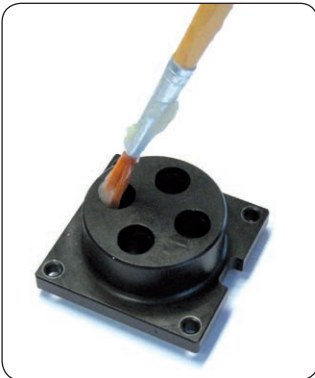
Grease the gripper after 5 million cycles with:

- BERULUB FG-H 2 EP  
 (Lubricant NSF H1 Registration No. 140486).

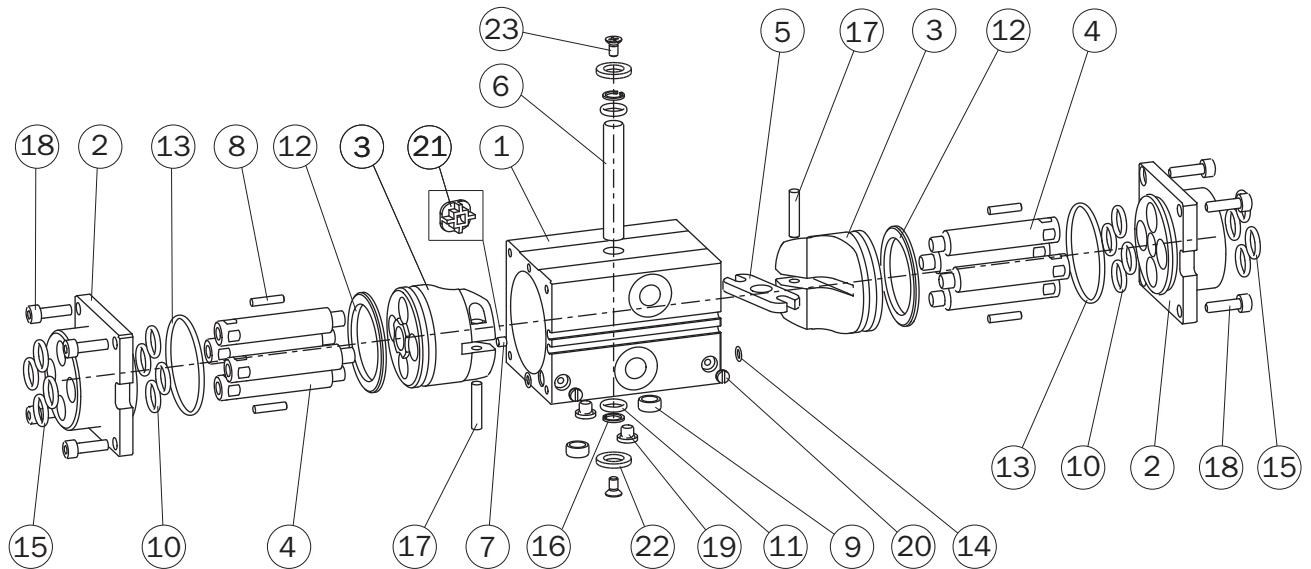
After removing the end caps, the columns can be greased and the O-Rings can be replaced.

The inner O-Ring is in NBR [8], the outer one in Viton [9].

By pulling the columns, also the pistons can be removed and the mechanism can be accessed.



Part list



		SX2510	SX2520	SX4020	SX4040	SX5030	SX5060	SX6340	SX6380	
1	Gripper body	SX2510-01	SX2520-01	SX4020-01	SX4040-01	SX5030-01	SX5060-01	SX6340-01	SX6380-01	1
2	End cap	SX2520-02		SX4040-02		SX5060-02		SX6380-02		2
3	Piston	SX2510-04	SX2520-04	SX4020-04	SX4040-04	SX5030-04	SX5060-04	SX6340-04	SX6380-04	3
4	Column	SX2510-06	SX2520-06	SX4020-06	SX4040-06	SX5030-06	SX5060-06	SX6340-06	SX6380-06	4
5	Lever	SX2520-05		SX4040-05		SX5060-05		SX6380-05		5
6	Pin	SX2520-07		SX4040-07		SX5060-07		SX6380-07		6
7	Magnet	EPP12-13		R63-180-20		R63-180-20				7
8	Dowel pin	SPINA-065 (Ø2.5x10 DIN6325)		SPINA-007 (Ø3x14 DIN6325)		SPINA-042 (Ø3x16 DIN6325)		SPINA-097 (Ø4x21.8 DIN5402)		8
9	Bush	ZBH-7 (390677)		ZBH-9 (343453)		ZBH-12 (354236)				9
10	O-Ring	GUAR-039H (Ø1.78x6.07)		GUAR-186H (Ø1.78x9.75)		GUAR-095H (Ø1.78x11.89)		GUAR-023H (Ø1.78x15.6)		10
11	O-Ring	GUAR-039H (Ø1.78x6.07)		GUAR-045H (Ø1.78x7.66)		GUAR-065H (Ø1.78x9.25)				11
12	Dynamic gasket	GUAR-061H (Ø2.62x20.29)		GUAR-006P (40x31x3)		GUAR-015P (50x41x3)		GUAR-068 (63x51x4)		12
13	O-Ring	GUAR-025 (Ø1.78x21.95)		GUAR-062 (Ø1.78x34.65)		GUAR-017 (Ø1.78x47.35)		GUAR-146 (Ø1.78x60.05)		13
14	O-Ring	GUAR-082 (Ø1x3)		GUAR-091 (Ø1x4)		GUAR-029 (Ø1.78x4.48)		GUAR-011 (Ø1.78x5.28)		14
15	O-Ring	GUAR-039V (Ø1.78x6.07)		GUAR-186V (Ø1.78x9.75)		GUAR-095V (Ø1.78x11.89)		GUAR-023V (Ø1.78x15.6)		15
16	Snap-ring			SEEGER-008 (Ø8 DIN472 INOX)		SEEGER-038 (Ø10 DIN472 Z/B)				16
17	Dowel pin	SPINA-042 (Ø3x16 DIN6325)		SPINA-012 (Ø4x20 DIN6325)		SPINA-115 (Ø5x36 DIN6325)				17
18	Screw	VITE-016 (M3x10 DIN912 INOX A2)		VITE-004 (M4x14 DIN912 INOX A2)		VITE-015 (M5x16 DIN912 INOX A2)		VITE-011 (M6x20 DIN912 INOX A2)		18
19	Plug			107-M5		107-G1/8				19
20	Plug			DT-205		107-M5				20
21	Magnet housing					R63-180-16				21
22	Spacer	SX2520-11								22
23	Screw	VITE-058 (M2.5x5 DIN965 INOX A2)								23