

PNEUMATIC ACTUATORS

Pneumatic actuators

Aluminium spring return "SR" type (new version)

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Designed by

**GIUGIARO
DESIGN**

ASSORTMENT ITEM

Features

TECHNICAL FEATURES

Torque from 15 Nm to 4000 Nm.

Mounting flange according to EN ISO 5211

F03 - F04 - F05 - F07 - F10 - F12 - F14 - F16.

In compliance with EN 15714-3

Rotation angle 90°

Torque: the return torque depends on spring action only notwithstanding the air supply. The spring is provided in four different sizes (see table).

The code numbers after the letters SR, always correspond to the breakaway torque in Nm by 5,6 bar air supply.

The actuator automatic closing takes place in clockwise direction by means of its springs.

ATEX version in conformity with directive 2014/34/EU. Please add YX at the end of the code for ATEX version.

WORKING CONDITION

Temperature: from 0°C to +80°C; from -20°C to +80°C with dry air only. (Special versions: high temperature: -20°C +150°C; low temperature: -50°C +60°)

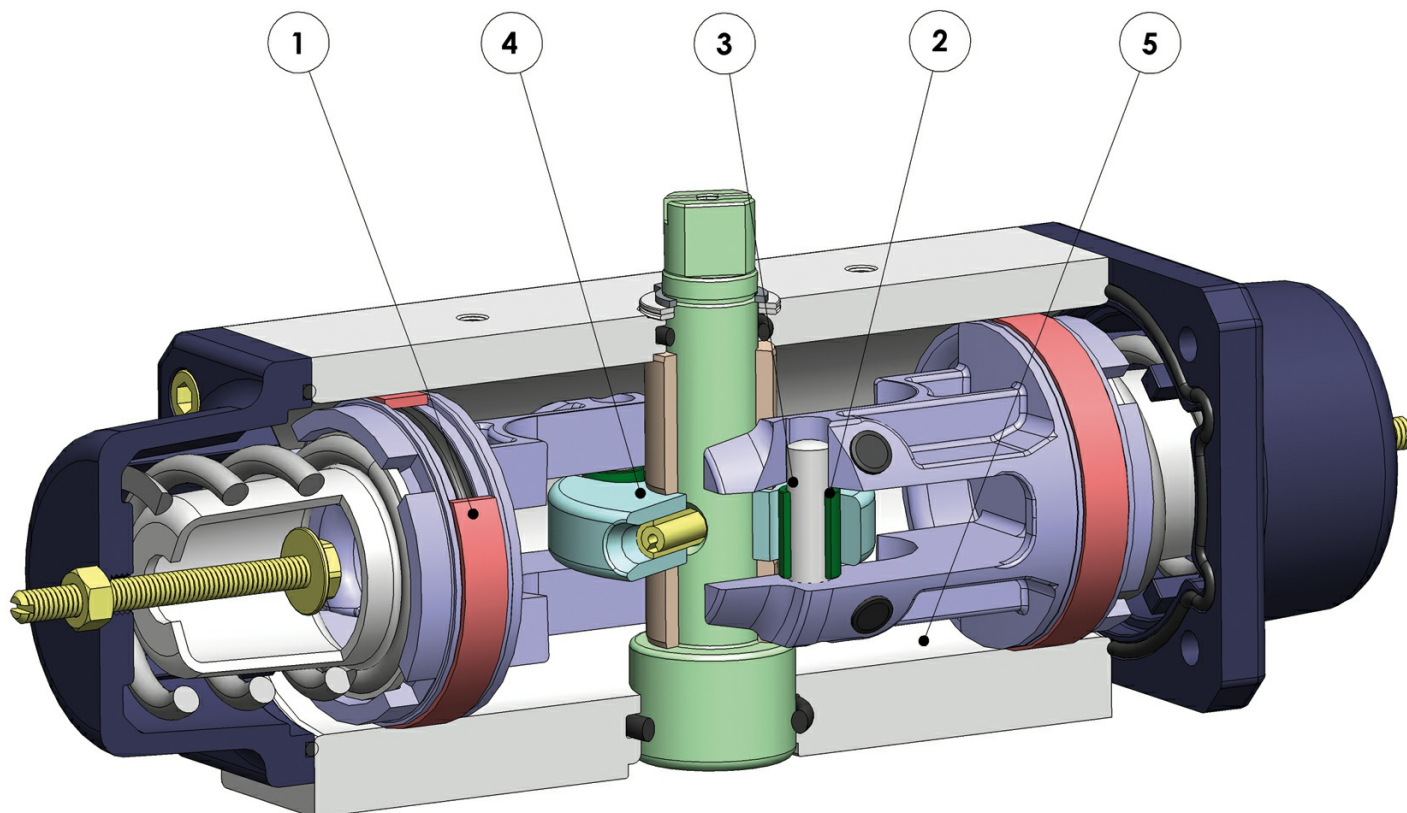
Air supply: 5,6 bar; maximum 8,4 bar.

Operating media: compressed filtered air, not necessarily lubricated.

In case of lubricated air, either non detergent oil or NBR compatible oil, must be used.

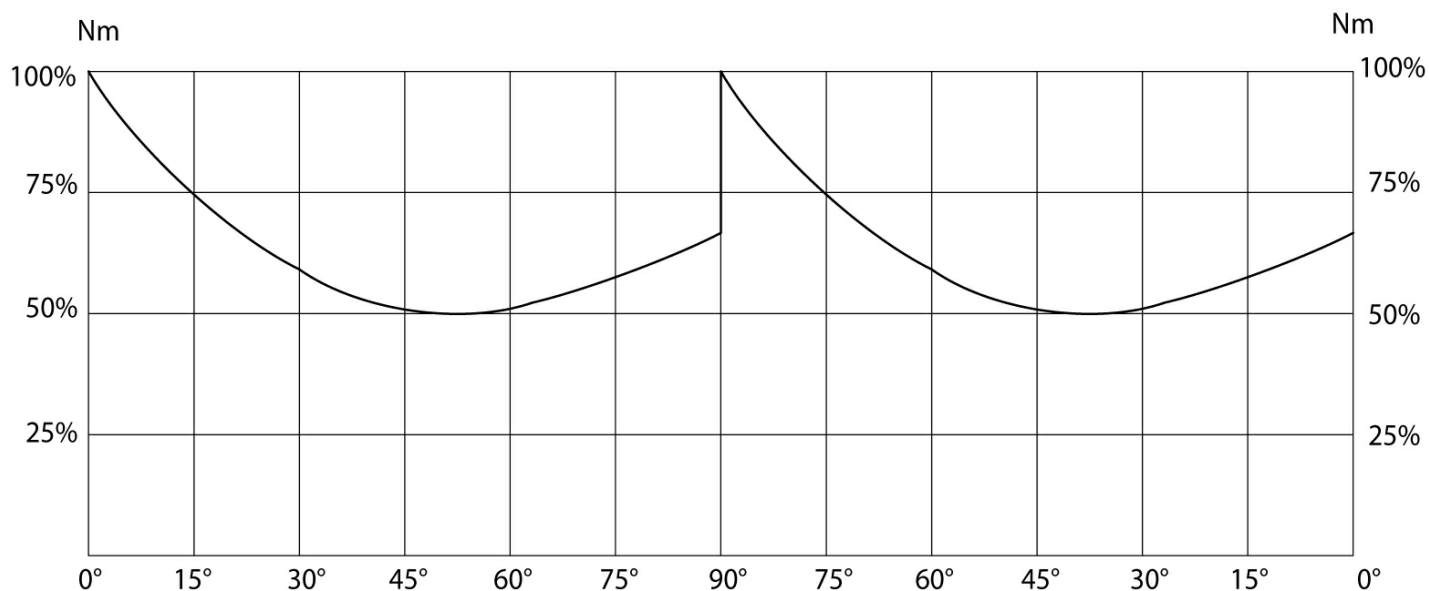
Features & benefits

"The image may not be representative of the product".



FEATURES AND BENEFITS		
1	Energized and self-lubricated strips	<p>Less friction between piston and cylinder</p> <p>It prevents the bonding of the seal to the cylinder even after long periods of inactivity</p>
2	Slots, bushes and pins made by steel with hardness higher than 50 HRC	Higher resistance to the forces inside the actuator
3	Rolling friction between piston and slot	Less friction
4	Scotch yoke with rolling friction (transforming rotary motion into linear motion using piston and shaft without teeth/gears)	Reduced friction between piston and shaft with consequently less wear on the relevant parts
		Empowered Breakaway Torque (BTO & BTC)
		Smaller volume/size than rack and pinion actuators (with the same torque) therefore less space required for installation
		Less weight than the rack and pinion (-30% kg / Nm), with consequent savings on the construction sizing of the plant/equipment
5	Rolled cylinder	Lower air consumption compared to the rack and pinion (-40% air cm ³ /Nm for Double Acting and -20% air cm ³ /Nm for Spring Return) therefore less load on the compressor or the possibility of using a smaller compressor's size.
		Less wear of the energized ties thanks to the low roughness of the surface (0.15 micron Ra)
	100% in- house manufacturing process technology	Maximum control and accuracy in all the stages of the manufacturing process
	ATEX Certificate	Installation is allowed in a potential explosive environment

Output torque diagram



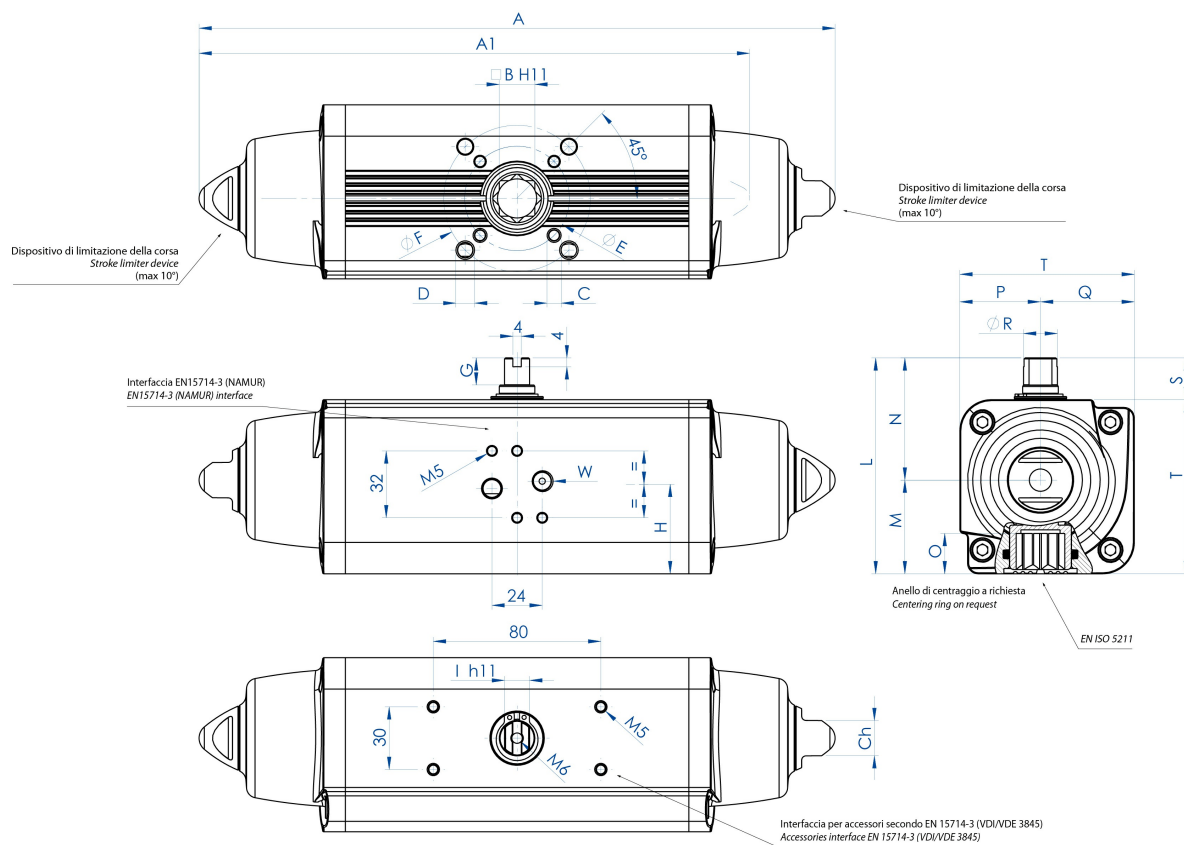
OUTPUT TORQUE TABLE (Nm)

α° = ROTATION ANGLE

SIZE	α°	2,8 bar ÷ 40 PSI		3,5 bar ÷ 50 PSI		4,2 bar ÷ 60 PSI		5,6 bar ÷ 80 PSI	
		air	spring	air	spring	air	spring	air	spring
SR 15	0°	7,5	5	9,3	6,3	11,3	7,5	15	10
	50°	3,7	3,7	4,7	4,7	5,6	5,6	7,5	7,5
	90°	5	7,5	6,3	9,3	7,5	11,3	10	15
SR 30	0°	15	10	18,8	12,5	22,5	15	30	20
	50°	7,5	7,5	9,4	9,4	11,3	11,3	15	15
	90°	10	15	12,5	18,8	15	22,5	20	30
SR 45	0°	22,5	15	28,1	18,8	33,9	22,5	45	30
	50°	11,1	11,1	13,9	13,9	16,8	16,8	22,5	22,5
	90°	15	22,5	18,8	28,1	22,5	33,9	30	45
SR 60	0°	30	20	37,5	25	45	30	60	40
	50°	15	15	18,8	18,8	22,5	22,5	30	30
	90°	20	30	25	37,5	30	45	40	60
SR 90	0°	45	30	56,4	37,5	67,5	45	90	60
	50°	22,5	22,5	28,2	28,2	33,9	33,9	45	45
	90°	30	45	37,5	56,4	45	67,5	60	90
SR 120	0°	60	40	75	50	90	60	120	80
	50°	30	30	37,5	37,5	45	45	60	60
	90°	40	60	50	75	60	90	80	120
SR 180	0°	90	60	112,5	75	135	90	180	120
	50°	45	45	56,2	56,2	67,5	67,5	90	90
	90°	60	90	75	112,5	90	135	120	180
SR 240	0°	120	80	150	100	180	120	240	160

SR 270	50°	60	60	75	75	90	90	120	120
	90°	80	120	100	150	120	180	160	240
SR 360	0°	180	120	225	150	270	180	360	240
	50°	90	90	112,5	112,5	135	135	180	180
	90°	120	180	150	225	180	270	240	360
SR 480	0°	240	160	300	200	360	240	480	320
	50°	120	120	150	150	180	180	240	240
	90°	160	240	200	300	240	360	320	480
SRN 720	0°	360	240	450	300	540	360	720	480
	50°	180	180	225	225	270	270	360	360
	90°	240	360	300	450	360	540	480	720
SRN 960	0°	480	320	600	400	720	480	960	640
	50°	240	240	300	600	360	360	480	480
	90°	320	480	400	600	480	720	640	960
SR 1440	0°			900	675			1440	180
	50°			450	450			720	720
	90°			675	900			1080	1440
SR 1920	0°	960	640	1200	800	1440	960	1920	1280
	50°	480	480	600	600	720	720	960	960
	90°	640	960	800	1200	960	1440	1280	1920
SR 2880	0°	1440	960	1800	1200	2160	1440	2880	1920
	50°	720	720	900	900	1080	1080	1440	1440
	90°	960	1440	1200	1800	1440	2160	1920	2880
SR 4000	0°	2000	1340	2500	1675	3000	2010	4000	2680
	50°	1000	1000	1250	1250	1500	1500	2000	2000
	90°	1340	2000	1675	2500	2010	3000	2680	4000

Codes, dimensions and materials - SRN15 - SRN180



DIMENSION TABLE

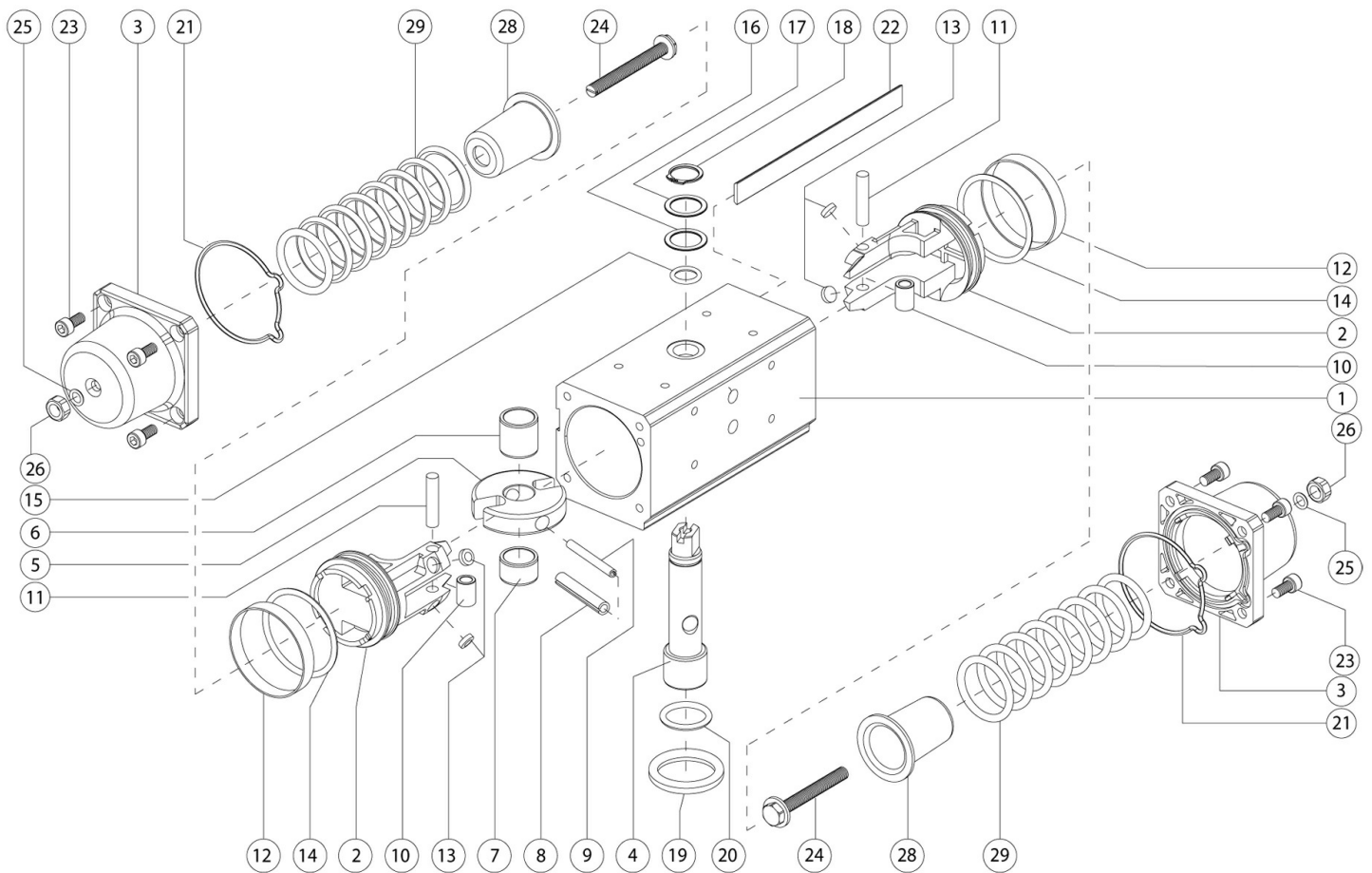
Code	SRN0015401S	SRN0015402S	SRN0030401S	SRN0030402S	SRN0045401S	SRN0053401S
Spare seals	KGGI0014		KGGI0016		KGGI0017	KGGI0060
Size	SRN15		SRN30		SRN45	SRN53
ISO	F03/F05	F04	F04	F05/F07	F05/F07	F05/F07
A	233,3	233,3	259	259	310	304,3
A1 (2,8 Bar)	203,8	203,8	228,5	228,5	265,5	270,7
B	11	11	14	14	14	17
C x depth	M5x8	M5x8	M5x8	M6x9	M6x9	M6x9
D x depth	M6x9	-	-	M8x12	M8x12	M8x12
E	36	42	42	50	50	50
F	50	-	-	70	70	70
G	10	10	13	13	13	13
H	30,3	30,3	35,7	35,7	39,7	42,8
I	9	9	10	10	12	12
L	79,2	79,2	90,4	90,4	97,7	103,3
M	31,5	31,5	37,7	37,7	41,7	44,8
N	47,7	47,7	52,7	52,7	56	58,5
O	13,2	13,2	16,5	16,5	16,5	19,3
P	27,7	27,7	32,7	32,7	36	38,5
Q	31,5	31,5	37,7	37,7	41,7	44,8
R	10,9	10,9	14,5	14,5	16,2	16,2

S	20	20	20	20	20	20
T	59,2	59,2	70,4	70,4	77,7	83,3
W (Gas)	1/8"	1/8"	1/8"	1/8"	1/8"	1/8"
Ch	13	13	13	13	17	17
Weight (Kg)	1,2	1,2	1,95	1,95	2,5	3
Air (dm ³ /cycle)	0,09	0,09	0,17	0,17	0,25	0,3

H = CENTER OF PLATE'S FIXING

Code	SRN0060401S	SRN0090401S	SRN0120401S	SRN0180401S
Spare seals	KGGI0018	KGGI0019	KGGI0020	KGGI0021
Size	SRN60	SRN90	SRN120	SRN180
ISO	F05/F07	F07/F10	F07/F10	F07/F10
A	360,8	393,7	409,6	474
A1 (2,8 Bar)	309,1	341,8	361,6	406,6
B	17	22	22	22
C x depth	M6x9	M8x12	M8x12	M8x12
D x depth	M8x12	M10x15	M10x15	M10x15
E	50	70	70	70
F	70	102	102	102
G	13	16	17	19
H	44,8	54,5	58,1	60
I	12	15	15	19
L	107	137,5	141,1	148
M	46,8	56,5	60,1	62
N	60,2	81	81	86
O	19,3	24,8	24,8	24,3
P	40,2	51	51	56
Q	46,8	56,5	60,1	62
R	18	20,2	22,5	25,5
S	20	30	30	30
T	87	107,5	111,1	118
W (Gas)	1/8"	1/8"	1/8"	1/8"
Ch	22	22	22	22
Weight (Kg)	3,35	5,9	6,8	8,9
Air (dm ³ /cycle)	0,33	0,55	0,8	1

H = CENTER OF PLATE'S FIXING



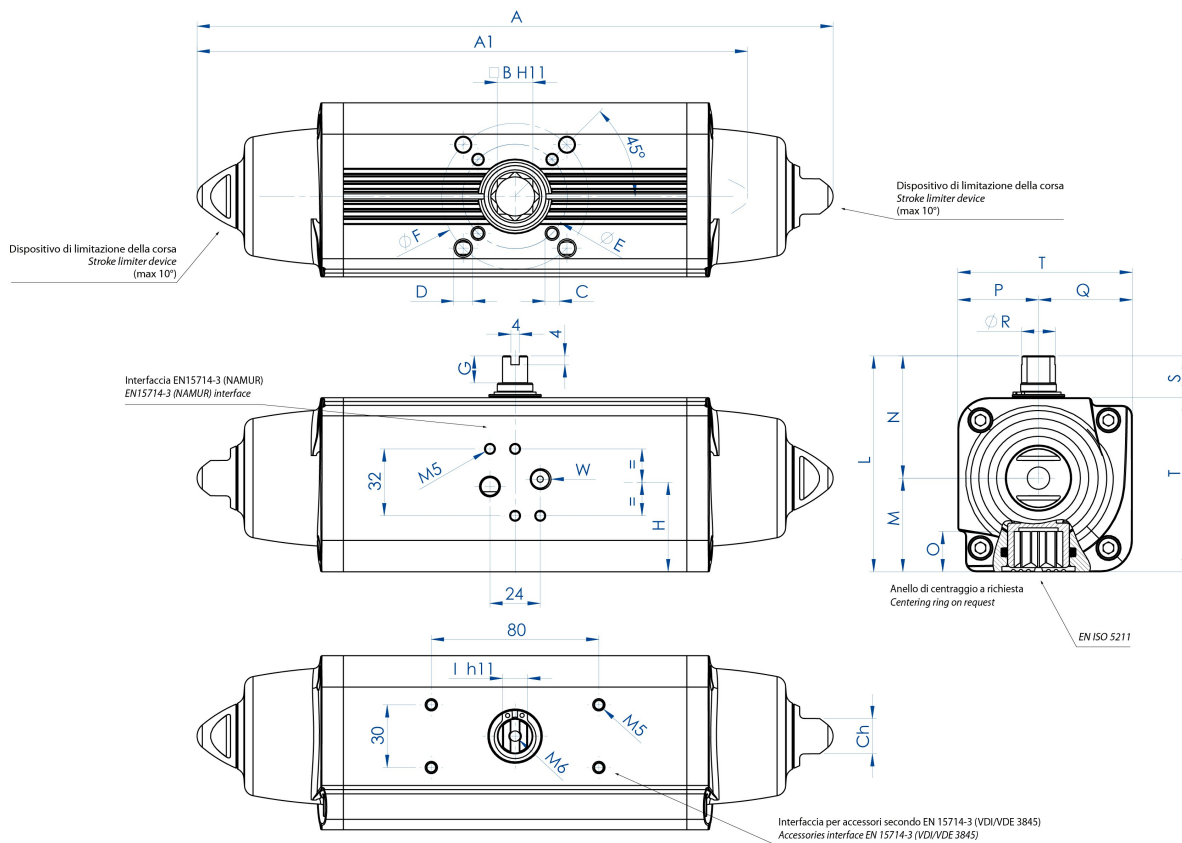
MATERIALS SPECIFICATION

Pos	Denomination	Q.TA'	Material
1	Cylinder	1	Aluminium alloy
2	Piston	2	Aluminium alloy
3	Cap SR	2	Aluminium alloy
4	Shaft	1	Stainless steel
5	Scotch yoke	1	Steel alloy
6	Bush	1	Acetalic resins
7	Bush	1	Acetalic resins
8	Ext.elastic pin	1	Steel alloy
9	Int.elastic pin	1	Steel alloy
10	Bush	2	Steel alloy
11	Sleeve	2	Steel alloy
12*	Dynamic seal	2	Polyurethan
13*	Support disk	4	Carbo-graphite filled PTFE
14*	O-ring	2	NBR
15*	O-ring	1	FKM
16*	Ext.support ring	1	Acetalic resins
17	Washer	1	Stainless steel
18	Seeger	1	Stainless steel
19	Center ring 03	1	Aluminium alloy
20*	O-ring	1	FKM

21*	O-ring	2	NBR
22	Plate	1	Aluminium
23	Screw	8	Stainless steel
24	Spring screw	2	Stainless steel
25	O-ring	2	NBR
26	Nut	2	Stainless steel
28	Spring cap	2	Steel alloy
29	Spring	2	Steel alloy

*Components of spare part kit

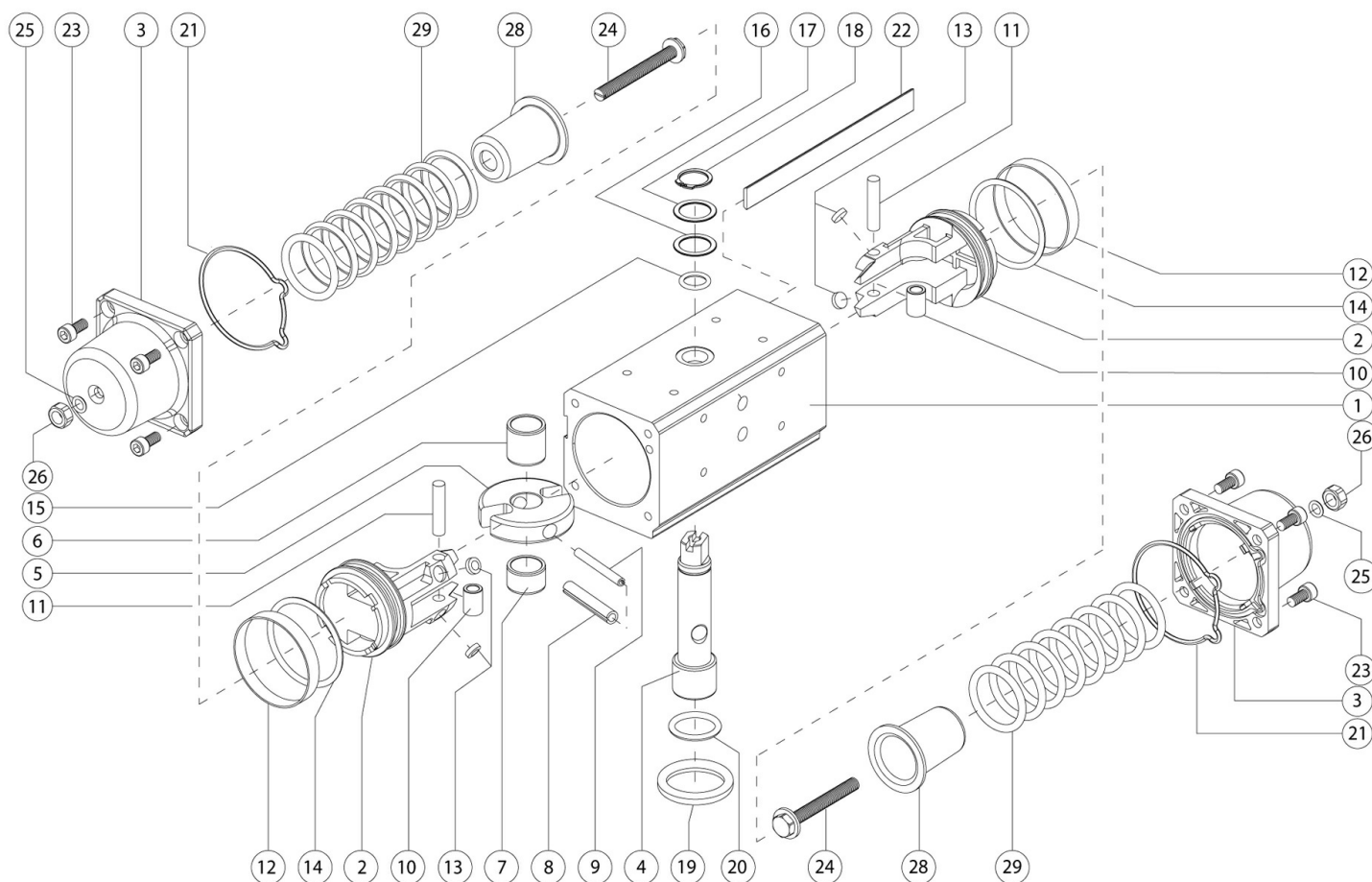
Codes, dimensions and materials - SRN240



DIMENSION TABLE

Code	SRN0240401S
Spare seals	KGGI0022
Size	SRN240
ISO	F10/F12
A	520,5
A1 (2,8 Bar)	454,1
B	27
C x depth	M10x15
D x depth	M12x18
E	102
F	125
G	19
H	57,4
I	19
L	164,9
M	72,9
N	92
O	29,5
P	62
Q	72,9
R	29

S	30
T	134,9
W (Gas)	1/4"
Ch	27
Weight (Kg)	11,8
Air (dm3/cycle)	1,5



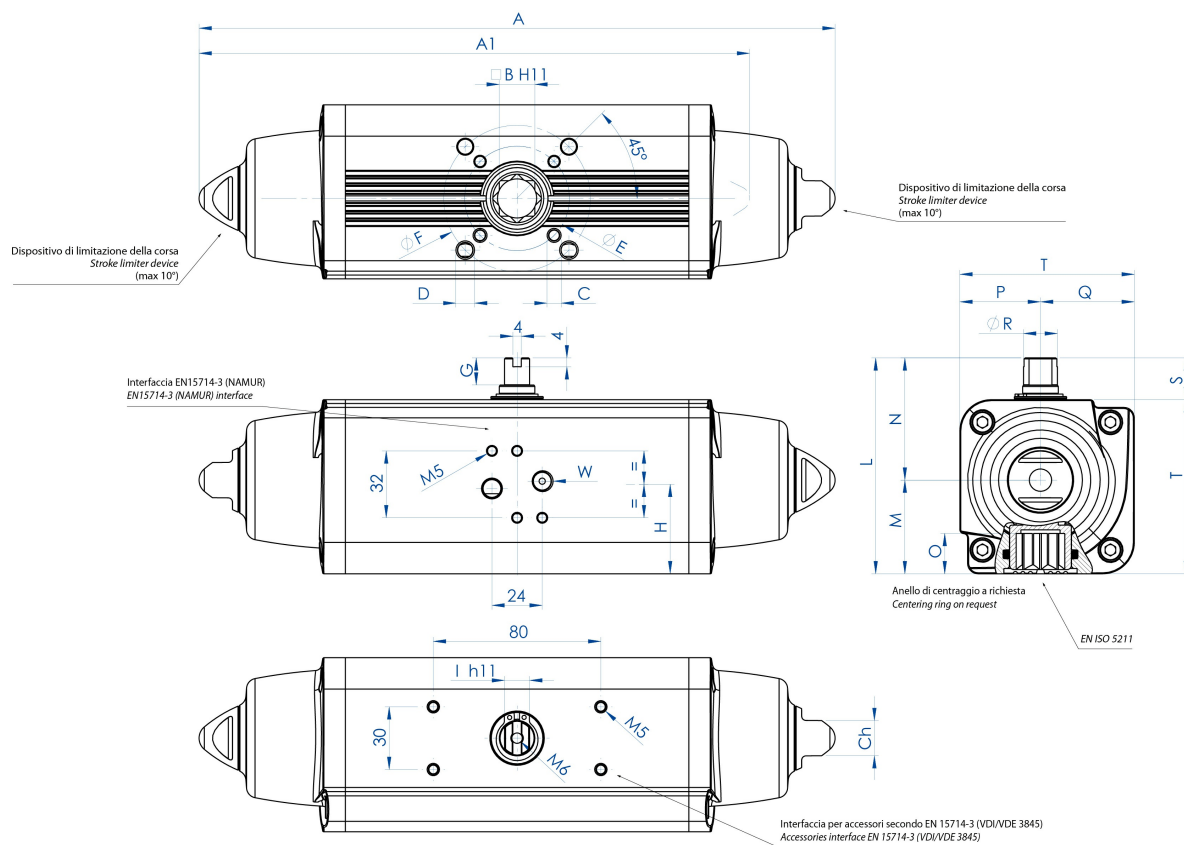
MATERIALS SPECIFICATION

Pos	Denomination	Q.TA'	Material
1	Cylinder	1	Aluminium alloy
2	Piston	2	Aluminium alloy
3	Cap SR	2	Aluminium alloy
4	Shaft	1	Stainless steel
5	Scotch yoke	1	Steel alloy
6	Bush	1	Acetalic resins
7	Bush	1	Acetalic resins
8	Ext.elastic pin	1	Steel alloy
9	Int.elastic pin	1	Steel alloy
10	Bush	2	Steel alloy
11	Sleeve	2	Steel alloy
12*	Dynamic seal	2	Carbo-graphite filled PTFE
13*	Support disk	4	Carbo-graphite filled PTFE

14*	O-ring	2	NBR
15*	O-ring	1	FKM
16*	Ext.support ring	1	Acetalic resins
17	Washer	1	Stainless steel
18	Seeger	1	Stainless steel
19	Center ring 03	1	Aluminium alloy
20*	O-ring	1	FKM
21*	O-ring	2	NBR
22	Plate	1	Aluminium
23	Screw	8	Stainless steel
24	Spring screw	2	Stainless steel
25	O-ring	2	NBR
26	Nut	2	Stainless steel
28	Spring cap	2	Steel alloy
29	Spring	2	Steel alloy

*Components of spare part kit

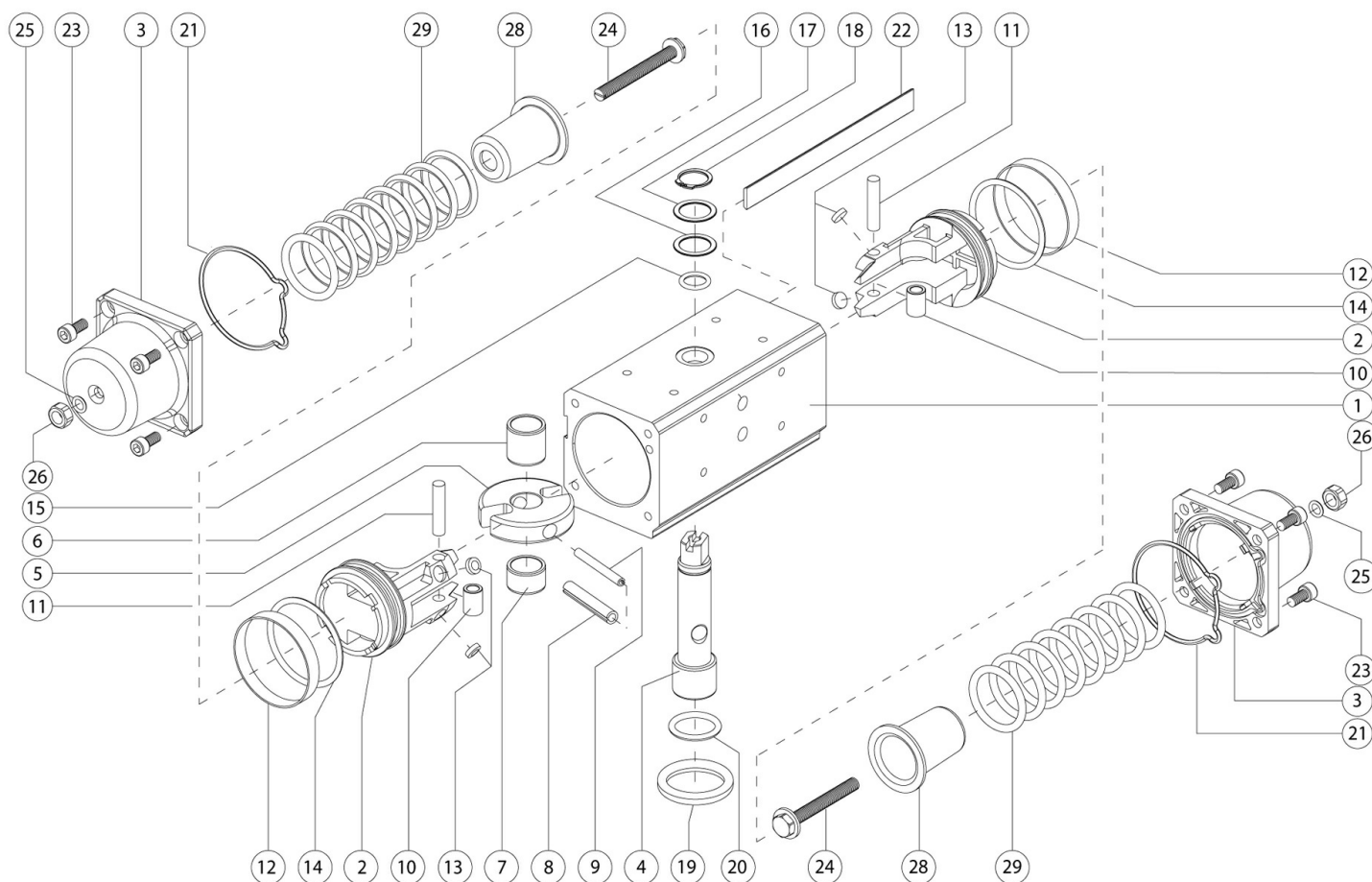
Codes, dimensions and materials - SRN360



DIMENSION TABLE

Code	SRN0360401S
Spare seals	KGGI0023
Size	SRN360
ISO	F10/F12
A	613
A1 (2,8 Bar)	523
B	27
C x depth	M10x15
D x depth	M12x18
E	102
F	125
G	19,5
H	61,5
I	22
L	178
M	78,5
N	99,5
O	29,5
P	69,5
Q	72,9
R	31,8

S	30
T	148
W (Gas)	1/4"
Ch	27
Weight (Kg)	16,5
Air (dm3/cycle)	2



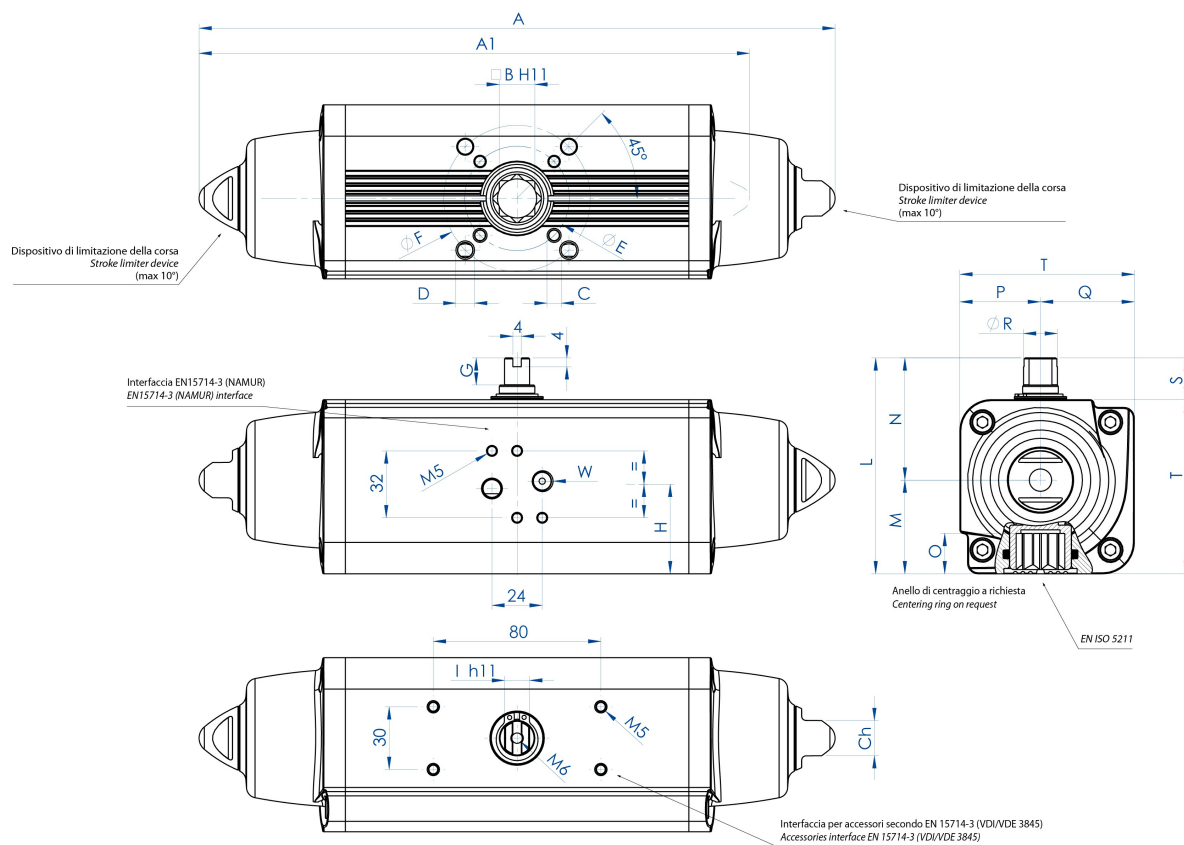
MATERIALS SPECIFICATION

Pos	Denomination	Q.TY	Material
1	Cylinder	1	Aluminium alloy
2	Pyston	2	Aluminium alloy
3	Cap SR	2	Aluminium alloy
4	Shaft	1	Stainless steel
5	Scotch yoke	1	Steel alloy
6	Bush	1	Acetalic resins
7	Bush	1	Acetalic resins
8	Ext. elastic pin	1	Steel alloy
9	Int. elastic pin	1	Steel alloy
10	Bush	2	Steel alloy
11	Sleeve	2	Steel alloy
12*	Dynamic seal	2	Polyurethan
13*	Support disk	4	Carbo-graphite filled PTFE

14*	O-ring		NBR
15*	O-ring	1	FKM
16*	Ext.support ring	1	Acetalic resins
17	Washer	1	Stainless steel
18	Seeger	1	AISI 420
19	Center ring F12	1	Aluminium alloy
20*	O-ring	1	FKM
21*	O-ring	2	NBR
22	Screws	8	Stainless steel
23	Spring screw	2	Steel alloy
24	Washer	2	Steel alloy
25	Nut Spring	2	Steel alloy
26	Spring	2	Steel alloy
27	O-ring	2	NBR
28	Nut	2	Stainless steel
29	Grease		

*Components of spare part kit

Codes, dimensions and materials - SRN480

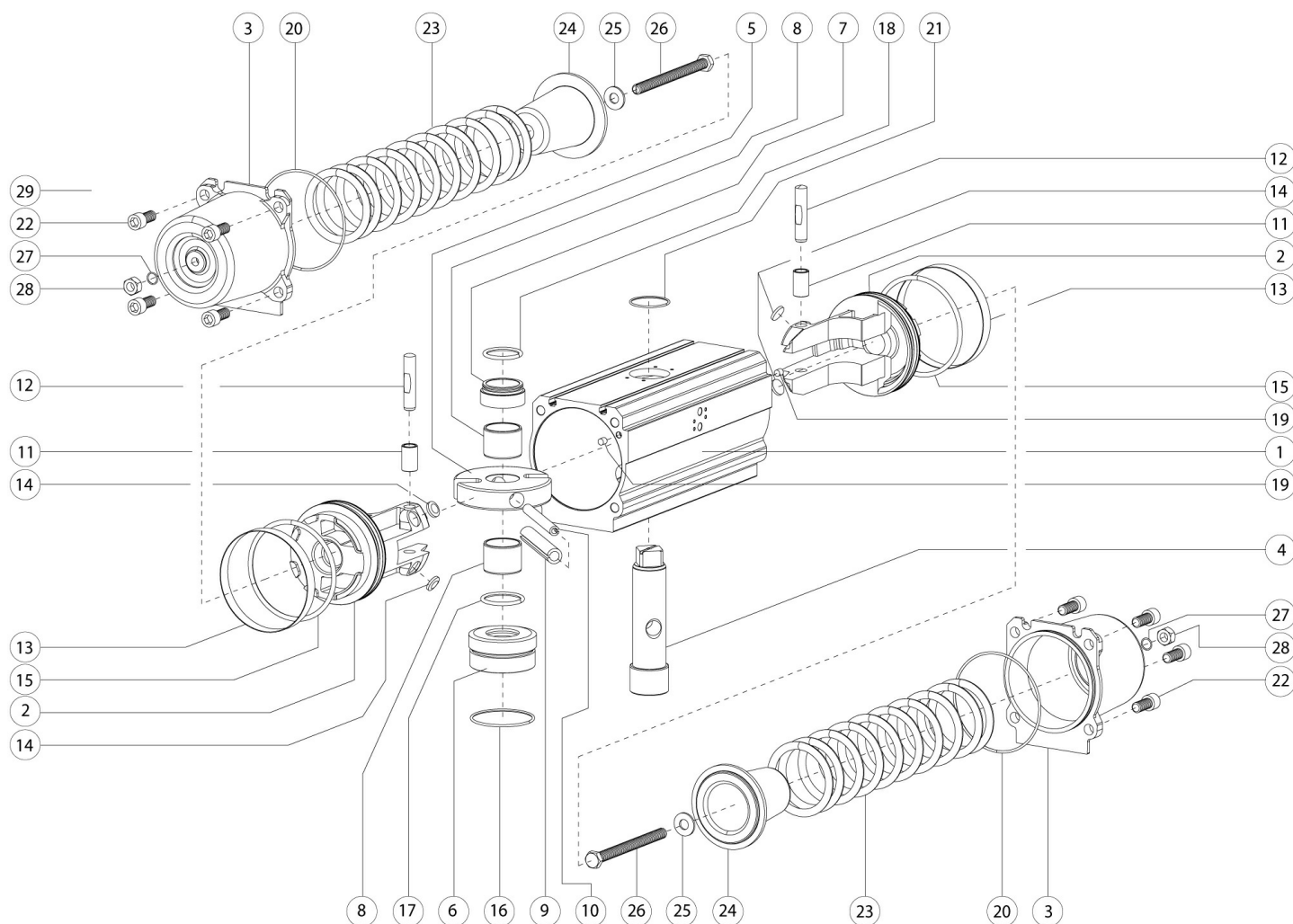


DIMENSION TABLE

Code	SRN0480401S	SRN0480402S
Spare seals	KGGI0024	
Size	SRN480	
ISO	F10/F12	F14
A	648,2	648,2
A1 (2,8 Bar)	563,8	563,8
B	36	36
C x depth	M10x15	M16x24
D x depth	M12x18	-
E	102	140
F	125	-
G	19,5	19,5
H	78	78
I	24	24
L	198	198
M	93,5	93,5
N	104,5	104,5
O	38,5	38,5
P	74,5	74,5
Q	93,5	93,5
R	36,5	36,5

S	30	30
T	168	168
W (Gas)	1/4"	1/4"
Ch	27	27
Weight (Kg)	22,7	22,7
Air (dm3/cycle)	2,8	2,8

H = CENTER OF PLATE'S FIXING



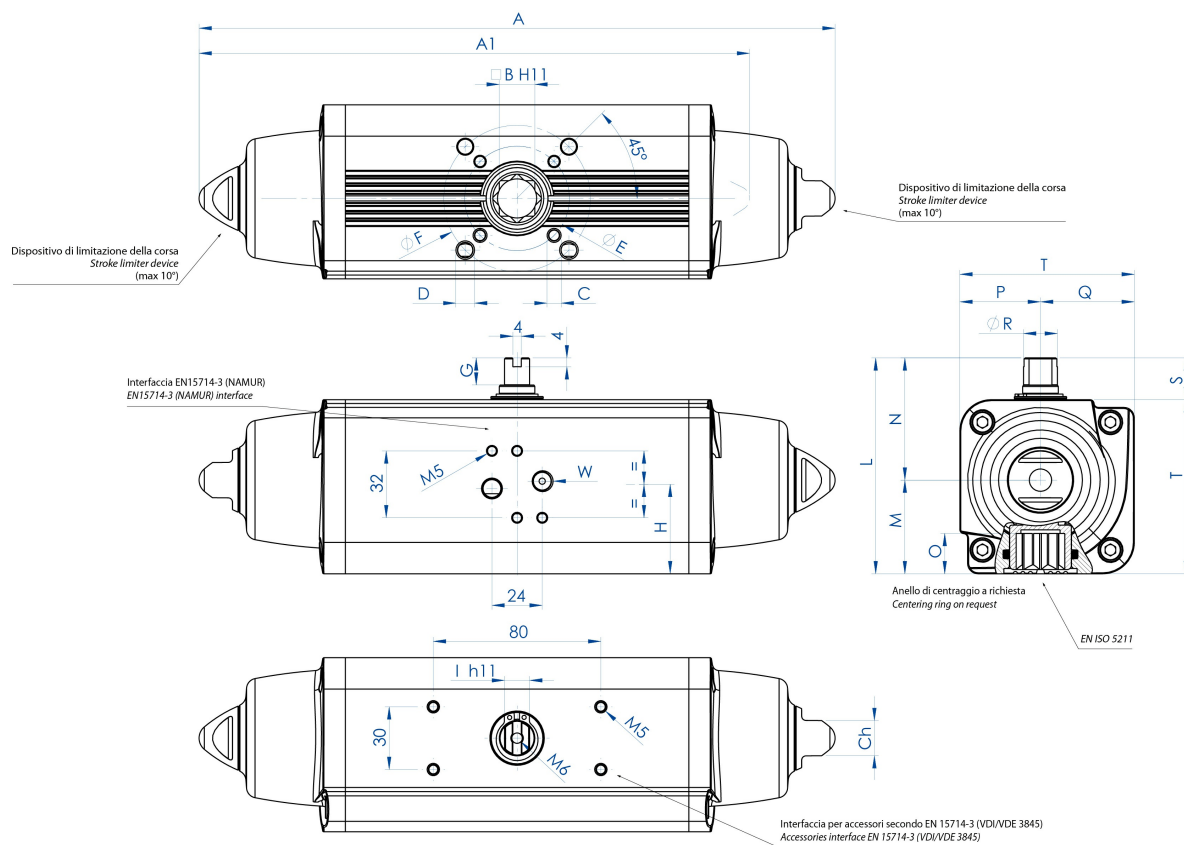
MATERIALS SPECIFICATION

Pos	Denomination	Q.TA'	Material
1	Cylinder	1	Aluminium alloy
2	Pyston	2	Aluminium alloy
3	Cap SR	2	Aluminium alloy
4	Shaft	1	Stainless steel
5	Scotch yoke	1	Steel alloy
6	Bush	1	Aluminium alloy
7	Bush	1	Aluminium alloy
8	Bush	2	Acetalic resins
9	Ext. elastic pin	1	Steel alloy
10	Int. elastic pin	1	Steel alloy

11	Bush	2	Steel alloy
12	Sleeve	2	Steel alloy
13*	Dynamic seal	2	Polyurethan
14*	Support disk	4	Carbo-graphite filled PTFE
15*	O-ring	2	NBR
16	O-ring	1	NBR
17*	O-ring	1	FKM
18*	O-ring	1	FKM
19	Plug	2	NBR
20*	O-ring	2	NBR
21	O-ring	1	NBR
22	Screws	8	Stainless steel
23	Spring	2	Steel alloy
24	Springs cap	2	Aluminium alloy
25	Washer	2	Steel alloy
26	Screw	2	Steel alloy
27	O-ring	2	NBR
28	Nut	2	Stainless steel
29	Grease		

*Components of spare part kit

Codes, dimensions and materials - SRN720 - SRN960

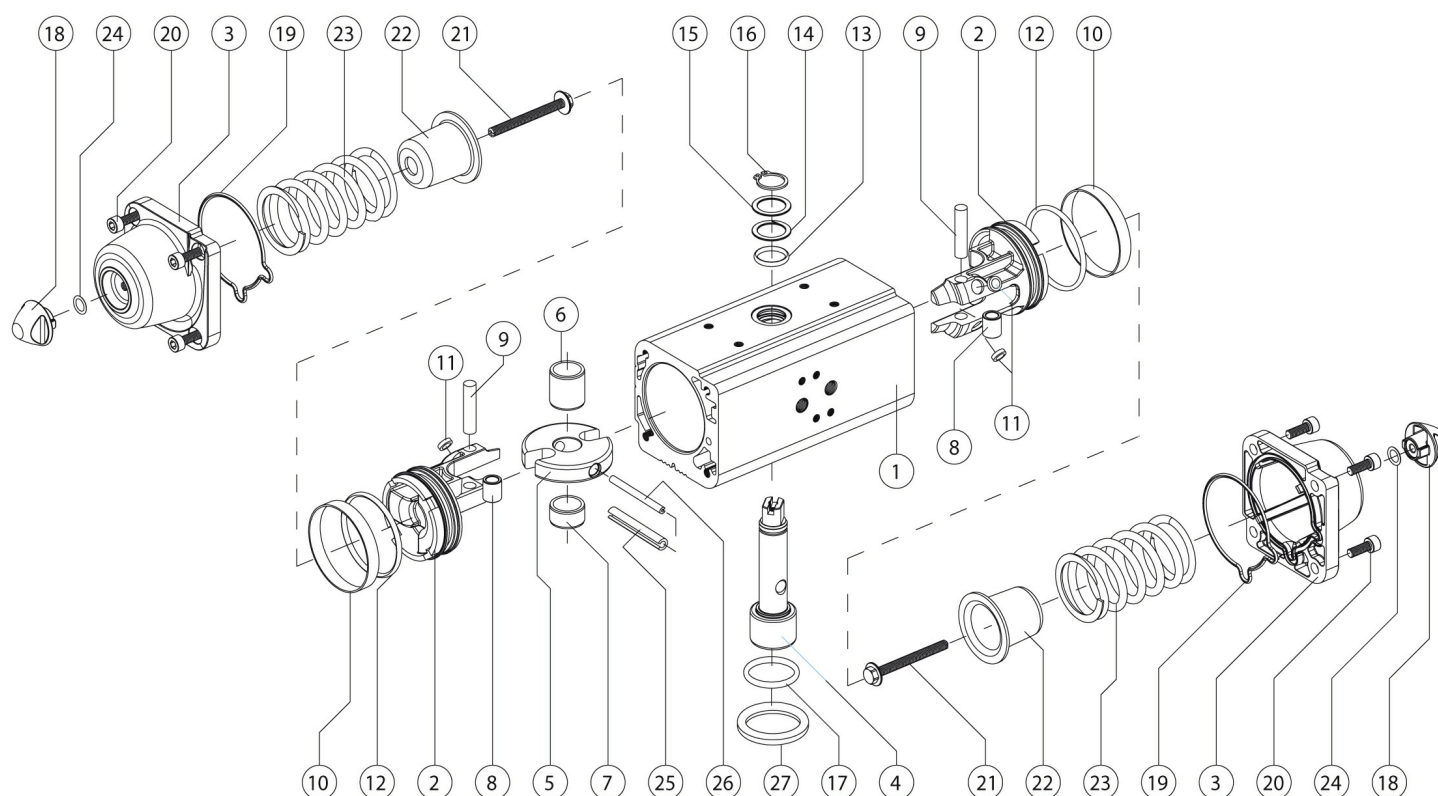


DIMENSION TABLE

Code	SRN0720402S	SRN0720401S	SRN0960402S	SRN0960401S
Spare seals	KGGI0025		KGGI0026	
Size	SRN720		SRN960	
A	798	798	828	828
ISO	F12	F14	F12/F16	F14
A	798	798	828	828
A1 (2,8 Bar)	683	683	714,4	714,4
B	36	36	46	46
C x depth	M12x18	M16x24	M12x18	M16x24
D x depth	-	-	M20x30	-
E	125	140	125	140
F	-	-	165	-
G	19,5	19,5	18,5	18,5
H	86,5	86,5	99,2	99,2
I	27	27	32	32
L	216	216	237,7	237,7
M	101,5	101,5	114,7	114,7
N	114,5	114,5	123	123
O	38,5	38,5	48,5	48,5
P	84,5	84,5	93	93
Q	101,5	101,5	114,7	114,7

R	41	41	46	46
S	30	30	30	30
T	186	186	207,7	207,7
W (Gas)	1/4"	1/4"	1/4"	1/4"
Ch	36	36	36	36
Weight (Kg)	33	33	42	42
Air (dm3/cycle)	4,2	4,2	5,9	5,9

H = CENTER OF PLATE'S FIXING

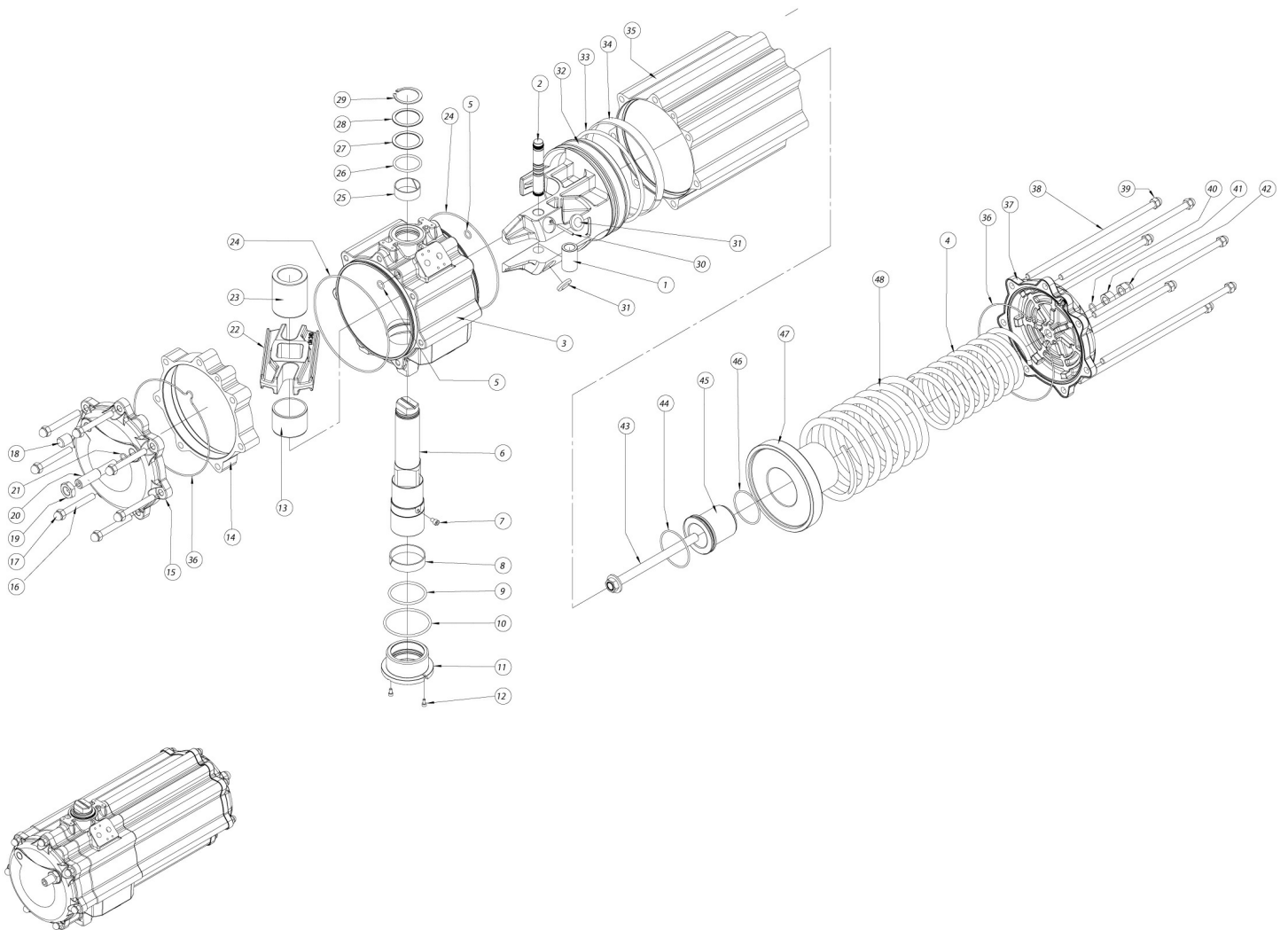


MATERIALS SPECIFICATION

Pos	Denomination	Q.TA'	Material
1	Cylinder	1	Aluminium alloy
2	Piston	2	Aluminium alloy
3	Cap	2	Aluminium alloy
4	Shaft	1	Stainless steel
5	Scotch yoke	1	Steel alloy
6	Support bush	1	Acetalic resin
7	Shaft support	1	Acetalic resin
8	Bush	2	Steel alloy
9	Rotative sleeve	2	Steel alloy
10*	Dynamic seal	2	Polyurethan
11*	Piston's suport	4	PTFE caric carbo-grafite
12*	O-ring	2	Nitrilic rubber
13*	O-ring (upper sealing shaft)	1	FKM

14*	External support ring	1	Acetalic resins
15	Washer	1	Stainless steel
16	Seeger	1	Stainless steel
17*	O-ring (low sealing shaft)	1	FKM
18	Nut	2	Aluminium alloy
19*	Tappo o-ring	2	Nitrilic rubber
20	Screws	8	Stainless steel
21	Spring loading screw	2	Steel alloy
22	Spring cap	2	Steel alloy
23	Spring	2	Steel alloy
24	O-ring	2	Nitrilic rubber
25	External elastic pin of the yoke	1	Steel alloy
26	Internal elastic pin of the yoke	1	Steel alloy
27	Centering ring	1	Aluminium alloy

*Components of spare part kit



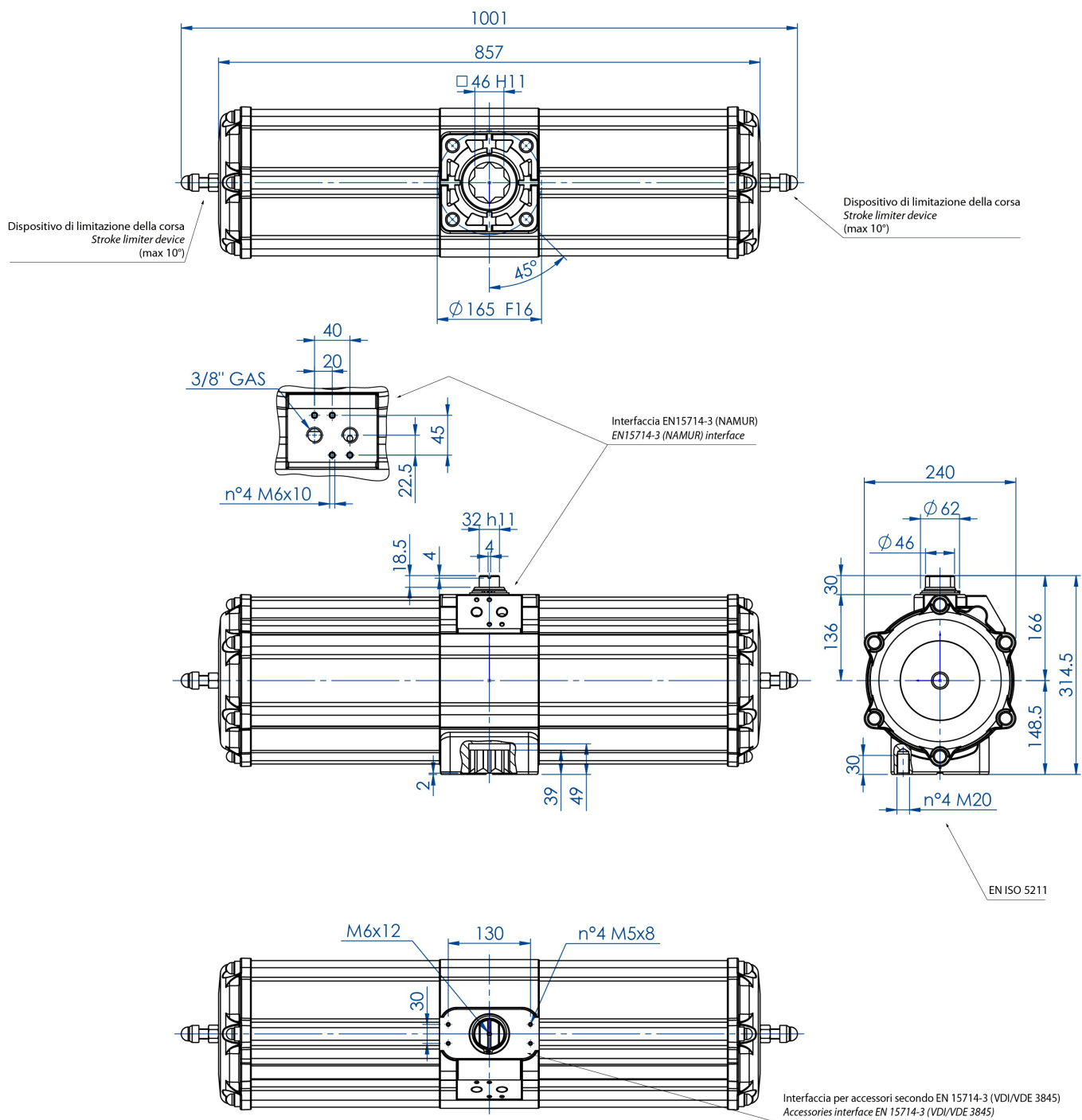
MATERIALS SPECIFICATION

Pos	Denomination	Q.TA'	Material
1	Steel bush	1	Steel alloy
2	Steel pin	1	Steel alloy
3	Body	1	Aluminium
4	Spring inside	1	Steel alloy
5*	O-ring	2	NBR
6	Shaft	1	Steel alloy
7	Screw	1	Steel alloy
8*	Bearing (shaft bottom)	1	Acetalic resin
9*	O-ring	1	FKM
10*	O-ring	1	FKM
11	Low bearing bush	1	Aluminium
12	Screw	2	Steel alloy
13	Bearing shaft	1	Acetalic resin
14	Spacer	1	Aluminium
15	Cap	1	Aluminium
16	Cap screw	7	Steel alloy
17	Cap nut	7	Steel alloy

18	Grub screw	1	Steel alloy
19	Nut	1	Steel alloy
20	Grub screw	1	Steel alloy
21*	O-ring	1	NBR
22	Scotch yoke	1	Steel alloy
23	Bearing shaft	1	Acetalic resin
24*	O-ring	2	NBR
25*	Bearing (shaft top)	1	Acetalic resin
26*	O-ring	1	FKM
27*	Trusth bearing	1	Acetalic resin
28	Washer	1	Steel alloy
29	Seeger	1	Steel alloy
30	Spring pin	1	Steel alloy
31*	Bearing (piston back)	2	Acetalic resin
32	Piston	1	Aluminium
33*	O-ring	1	NBR
34*	Bearing (piston head)	1	Acetalic resin
35	Lateral Cylinder	1	Aluminium
36*	O-ring	2	NBR
37	Cap	1	Aluminium
38	Cap screws	7	Steel alloy
39	Nut	7	Steel alloy
40*	O-ring	1	NBR
41	Nut	1	Steel alloy
42	Cap Nut	1	Steel alloy
43	Screw	1	Steel alloy
44	O-ring	1	NBR
45	Spring cap	1	Aluminium
46	O-ring	1	NBR
47	Spring cup	1	Aluminium
48	Spring outside	1	Steel alloy

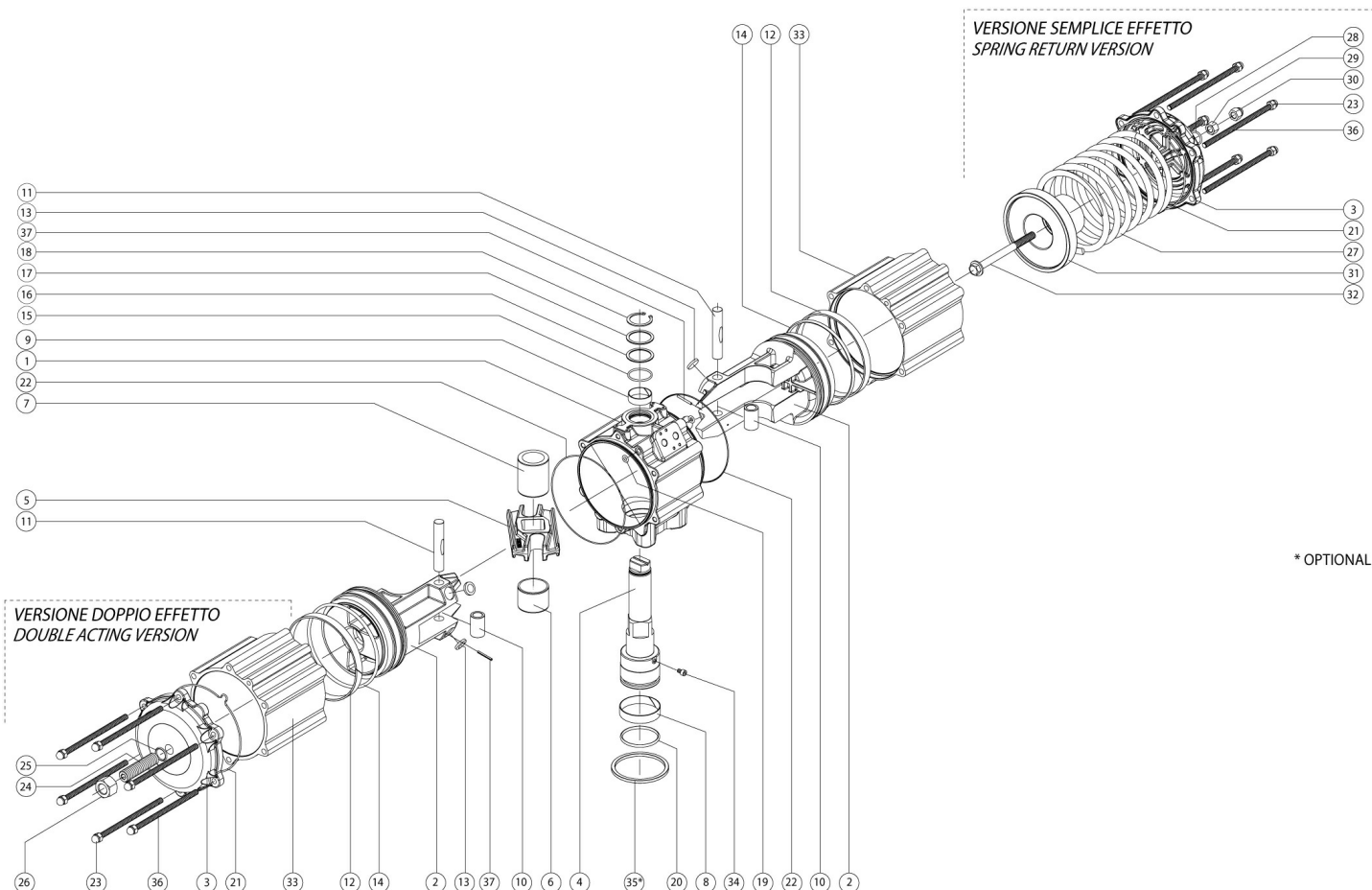
*Components of spare part kit

Codes, dimensions and materials - SR1920



DIMENSION TABLE

Code	SR1920E1608A
Weight (Kg)	67,0
Air volume (dm ³ /cycle)	12,0
Spare seals	KGDI0030

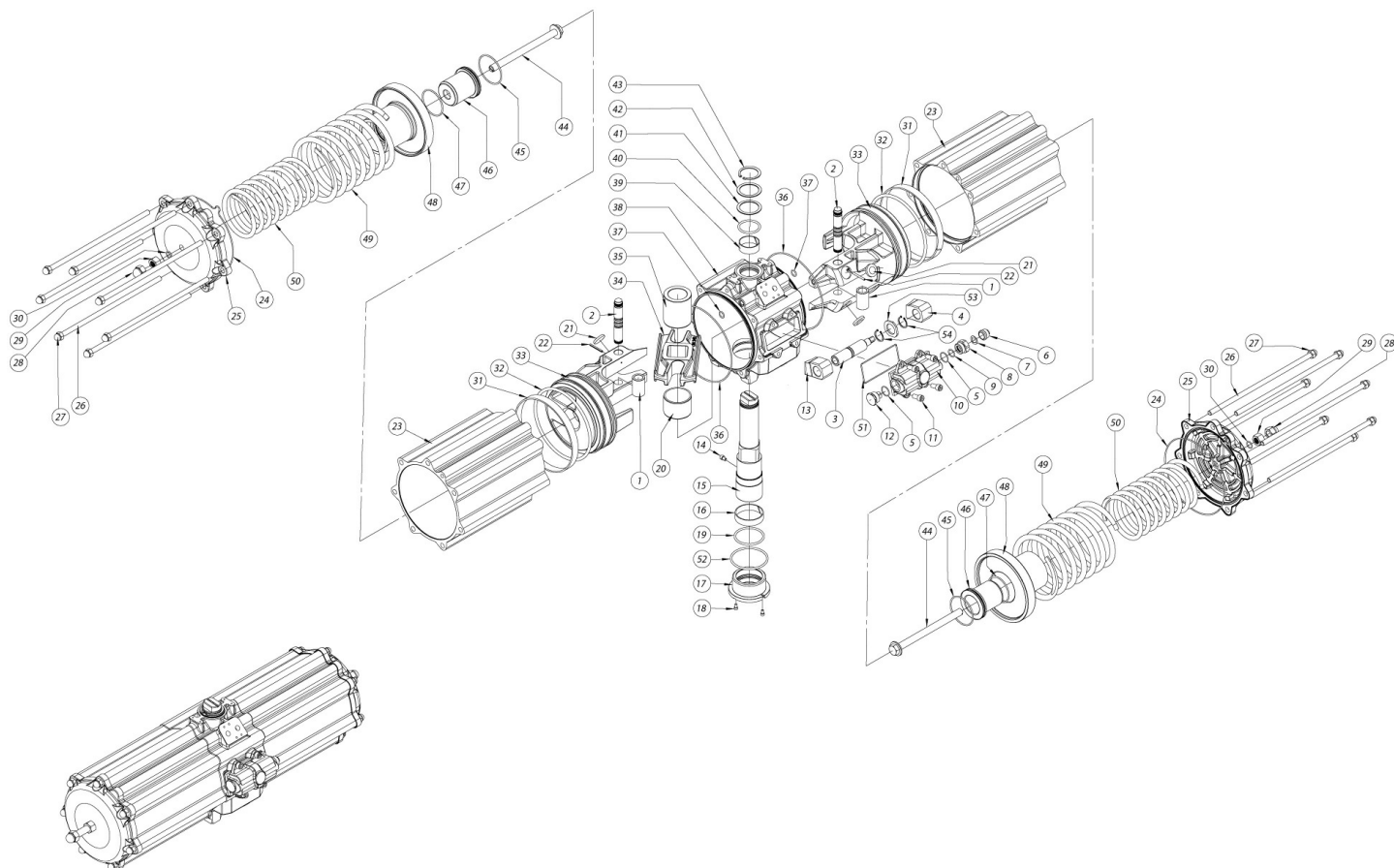


MATERIALS SPECIFICATION

Pos	Denomination	Q.TA'	Material
1	Cylinder	1	Aluminium alloy
2	Piston	2	Aluminium alloy
3	Cap	2	Aluminium alloy
4	Shaft	1	Stainless steel
5	Scotch yoke	1	Steel alloy
6	Bearing shaft	1	Acetalic resins
7	Bearing shaft	1	Acetalic resins
8*	Bearing (shaft bottom)	1	Acetalic resins
9*	Bearing (shaft top)	1	Acetalic resins
10	Steel bush	2	Steel alloy
11	Steel pin	2	Lega acciaio
12*	Bearing (piston head)	2	Acetalic resins
13*	Bearing (piston back)	4	Acetalic resins
14*	O-ring	2	NBR
15*	O-ring	1	FKM
16*	Thrust bearing	1	Acetalic resins
17	Washer	1	Stainless steel
18	Seeger	1	Stainless steel
19*	O-ring	2	NBR
20*	O-ring	1	FKM

21*	O-ring	2	NBR
22*	O-ring	2	NBR
23	Cap nut	12	Stainless steel
24	Grub screws	2	Stainless steel
25*	O-ring	2	NBR
26	Nut	2	Stainless steel
27	Spring	4	Steel alloy
28*	O-ring	2	NBR
29	Nut	2	Stainless steel
30	Cap nut	2	Stainless steel
31	Spring cap	2	Aluminium alloy
32	Screw	2	Stainless steel
33	Cylinder	2	Aluminium alloy
34	Screw	1	Stainless steel
35	Center ring	1	Aluminium alloy
36	Cap screw	12	Steel alloy
37	Spring pin	2	Steel alloy

*Components of spare part kit

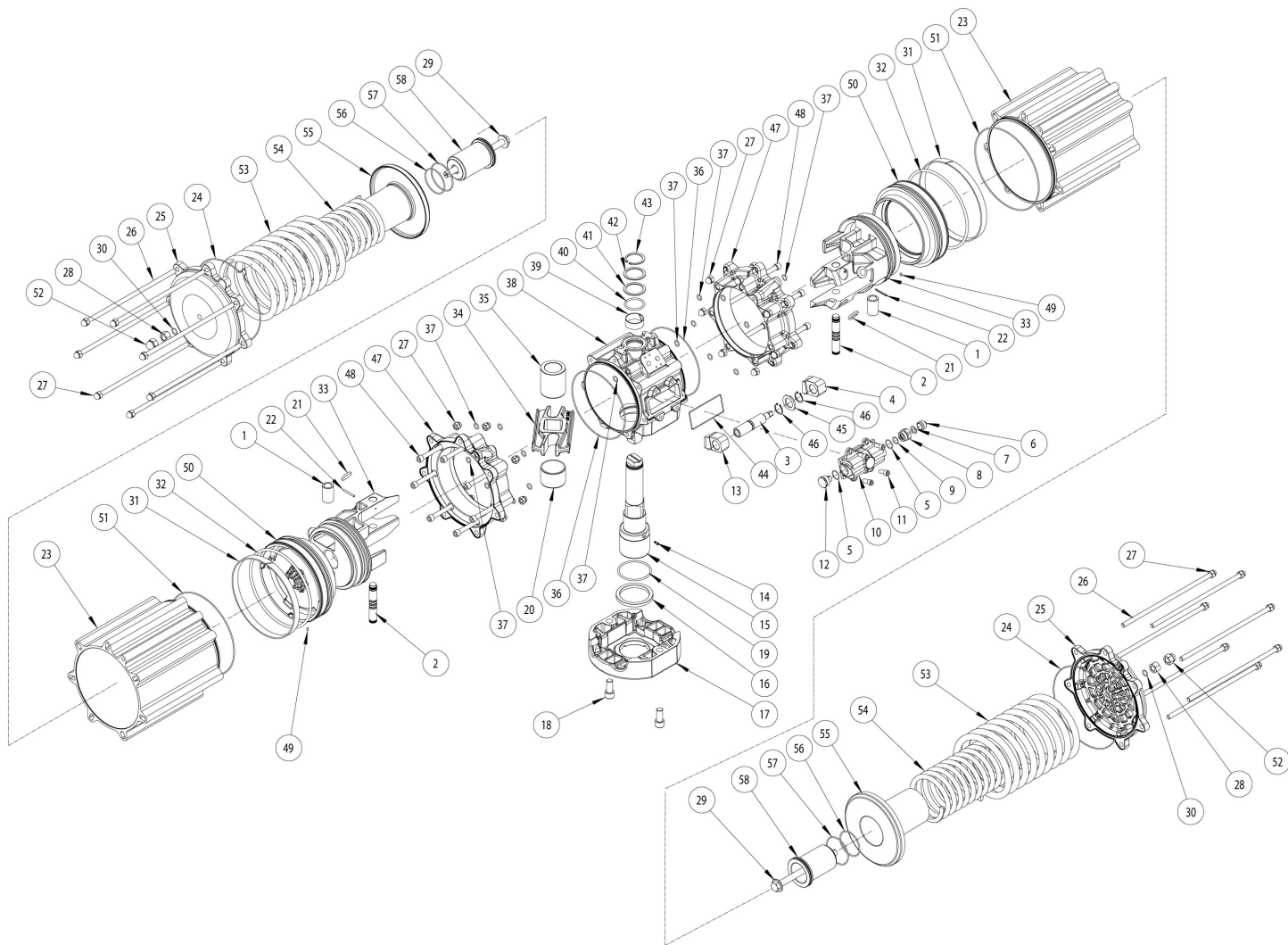


MATERIALS SPECIFICATION

Pos	Denomination	Q.TY	Material
1	Steel bush	2	Steel alloy
2	Steel pin	2	Steel alloy
3	Regulation screw	1	Steel alloy
4	Left stopo	1	Steel alloy
5*	O-ring	2	NBR
6	Protection cap	1	Aluminium
7	Antirotation washer	1	Steel alloy
8	Metal ring	1	Stainless steel
9*	O-ring	1	NBR
10	Carter	1	Aluminium
11	Screw	4	Steel alloy
12	Metal ring	1	Stainless steel
13	Right stop	1	Steel alloy
14	Screw	1	Steel alloy
15	Shaft	1	Steel alloy
16	Bearing (shaft bottom)	1	Acetalic resins
17	Low bearing bush	1	Aluminium
18	Screw	2	Steel alloy
19*	O-ring	1	FKM
20	Bearing shaft	1	Acetalic resins

21*	Bearing (piston back)	4	Acetalic resins
22	Spring pin	2	Steel alloy
23	Lateral cylinder	2	Aluminium
24*	P-ring	2	NBR
25	Cap	2	Aluminium
26	Cap screws	14	Steel alloy
27	Cap nut	14	Steel alloy
28	Cap nut	2	Steel alloy
29	Nut	2	Steel alloy
30*	O-ring	2	NBR
31*	Bearing (piston head)	2	Acetalic resins
32*	O-ring	2	NBR
33	Piston	2	Aluminium
34	Scotch yoke	1	Steel alloy
35	Bearing shaft	1	Acetali resins
36*	O-ring	2	NBR
37*	O-ring	2	NBR
38	Body	1	Aluminium
39*	Bearing (shaft top)	1	Acetalic resins
40*	O-ring	1	FKM
41*	Thrust bearing	1	acetalic resins
42	Washer	1	Steel alloy
43	Seeger	1	Steel alloy
44	Scerw	2	Steel alloy
45*	O-ring	2	NBR
46	Spring cap	2	Aluminium
47*	O-ring	2	NBR
48	Spring cap	2	Aluminium
49	Spring outside	2	Steel alloy
50	Spring inside	2	Steel alloy
51*	Gasket	1	NBR
52*	O-ring	1	FKM
53	Washer	1	Steel alloy
54	Seeger	2	Steel alloy

*Components of spare part kit



MATERIALS SPECIFICATION

Pos	Denomination	Q.TA'	Material
1	Steel bush	2	Steel Alloy
2	Steel pin	2	Steel Alloy
3	Regulation screw	1	Steel Alloy
4	Left stop	1	Steel Alloy
5*	O-ring	2	NBR
6	Protection cap	1	Aluminium
7	Antirotation washer	1	Steel Alloy
8	Metal ring	1	Stainless steel
9*	Oring	1	NBR
10	Carter	1	Aluminium
11	Screw	4	Steel Alloy
12	Metal ring	1	Stainless steel
13	Right stop	1	Steel Alloy
14	Screw	1	Steel Alloy
15	Shaft	1	Steel Alloy
16	Bearing (shaft bottom)	1	Acetalic resins
17	Interface F25	1	Aluminium

18	Screw	2	Steel Alloy
19*	O-ring	1	FKM
20	Bearing shaft	1	Acetalic resins
21	Bearing (piston back)	4	Acetalic resins
22	Spring pin	2	Steel Alloy
23	Lateral cylinder	2	Aluminium
24*	O-ring	2	NBR
25	Cap	2	Aluminium
26	Cap screws	14	Steel Alloy
27	Cap nut	28	Steel Alloy
28	Nut	2	Steel Alloy
29	Screw	2	Steel Alloy
30*	O-ring	2	NBR
31*	Bearing (piston head)	2	Acetalic resins
32*	O-ring	2	NBR
33	Piston	2	Aluminium
34	Scotch Yoke	1	Steel Alloy
35	Bearing shaft	1	Acetalic resins
36*	O-ring	2	NBR
37*	O-ring	18	NBR
38	Body	1	Aluminium
39*	Bearing (Shaft top)	1	Acetalic resins
40*	O-ring	1	FKM
41*	Thrust bearing	1	Acetalic resins
42	Washer	1	Steel Alloy
43	Seeger	1	Steel Alloy
44*	Gasket	1	NBR
45	Washer	1	Steel Alloy
46	Seeger	2	Steel Alloy
47	Flange	2	Aluminium
48	Screw	14	Steel Alloy
49	Grub screw	2	Steel Alloy
50	Flange	2	Aluminium
51*	O-ring	2	NBR
52	Cap nut	2	Steel Alloy
53	Spring outside	2	Steel Alloy
54	Spring inside	2	Steel Alloy
55	Spring cap	2	Aluminium
56*	O-ring	2	NBR
57*	O-ring	2	NBR

58

Spring cap

2

Aluminium

*Components of spare part kit