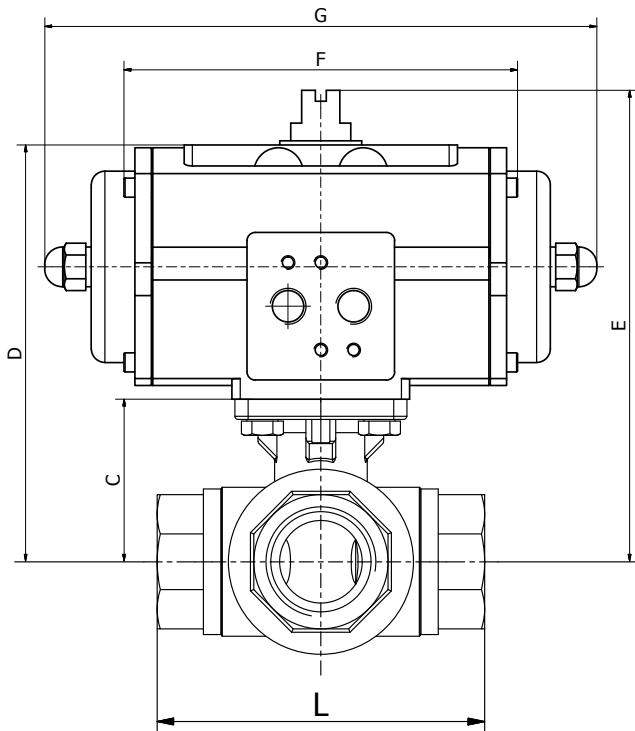


**FIGURE:**
**PD:** Pneumatic actuator, double acting

**PE:** Pneumatic actuator, spring return

**DIMENSIONS:** (mm)

Ø	L	C	PD					PE				
			PD	D	E	F	Kg	PE	D	E	G	Kg
1/2"	72,0	38,5	25	118,5	138,5	159	2,7	25	118,5	138,5	172	3,1
3/4"	83,0	41,0	25	121,0	141,0	159	3,3	40	134,0	154,0	204	5,1
1"	99,0	49,0	25	129,0	149,0	159	4,0	65	154,0	174,0	249	6,3
1 1/4"	112,0	55,0	40	148,0	168,0	180	5,6	100	173,0	193,0	267	8,4
1 1/2"	125,0	63,0	65	168,0	188,0	199	8,2	200	206,0	226,0	360	14,9
2"	149,0	74,0	65	179,0	199,0	199	12,4	200	217,0	237,0	360	19,1

The pneumatic actuator is calculated for 6 bar air supply, safety factor of 30% and max. differential pressure of 64 bar up to 1 1/4", 55 bar from 1 1/2".

**OPTIONS:**

Solenoid valves, limit switches, manual override , pneumatic or electro-pneumatic positioner.

**GENERAL FEATURES:**

- Reduced bore
- 90° turnable handle
- Mounting flange according to ISO 5211
- Anti-blow out stem
- Self-adjusting stem packing
- Seats in RPTFE

**FIGURE:**

**1370T:** BSP according to DIN EN 10266, T-port

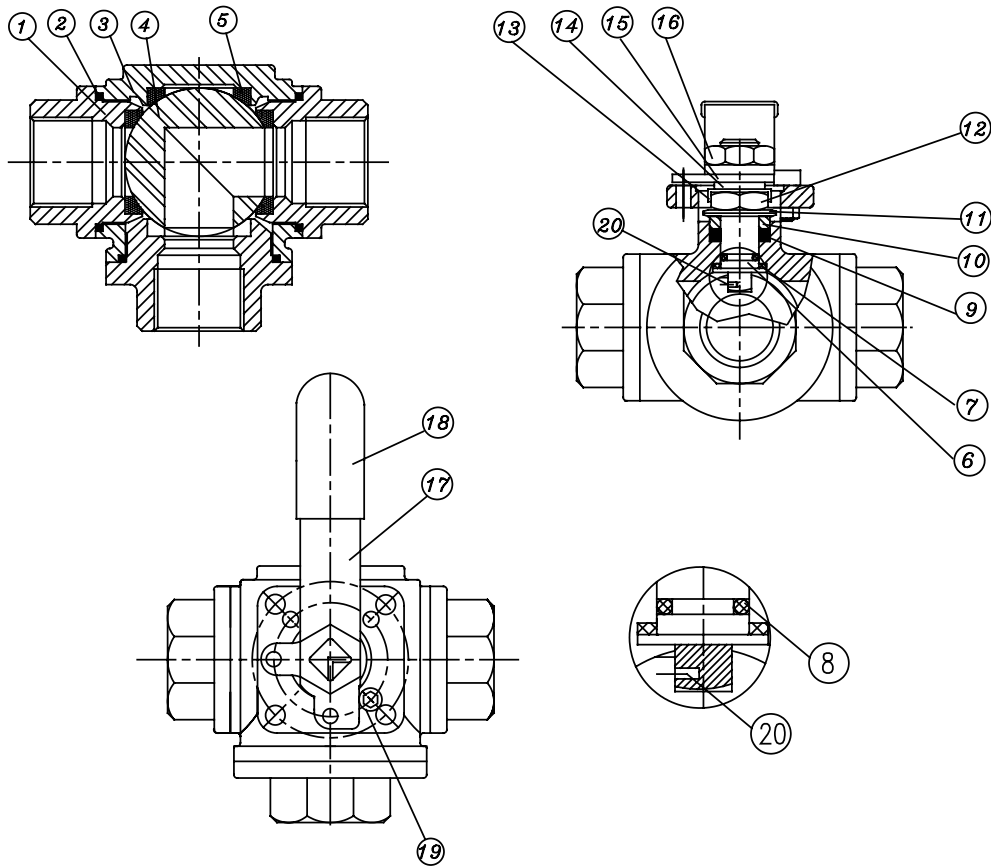
**1372T:** NPT according to ASME B1.20.1, T-port

**1370L:** BSP according to DIN EN 10266, L-port

**1372L:** NPT according to ASME B1.20.1, L-port

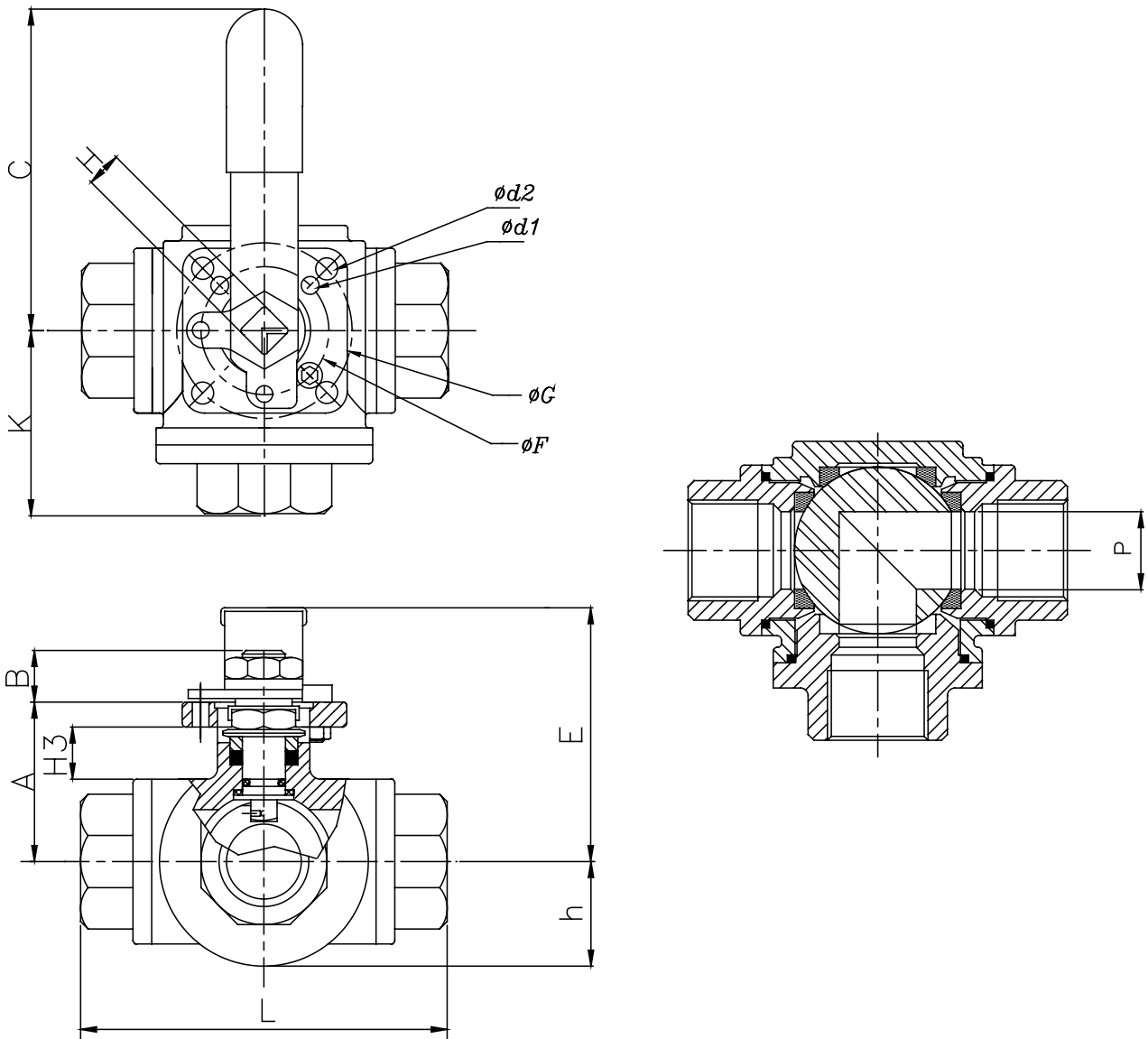


DESIGN STANDARDS	
Compliance	ANSI B16.34, ANSI B1.20, API 6D
Actuator mounting flange	ISO 5211
Marking	ISO 5209, EN 19
TESTS AND CERTIFICATES	
Quality Assurance	ISO 9001
Material certificate	EN 10204-3.1
Pressure test	API 598



Item	Description	Materials
1	End cap	A351 Gr CF8M
2	Joint gasket	PTFE
3	Body	A351 Gr CF8M
4	Ball	Stainless steel 316
5	Seat	RPTFE
6	Stem	Stainless steel 316
7	Stem seal	RPTFE
8	O-ring	Viton
9	Stem packing	PTFE + 15% graphite
10	Gland	Stainless steel 304
11	Belleville washer	Stainless steel 301
12	Stem nut	Stainless steel 304
13	Nut stop	Stainless steel 304
14	Washer	Stainless steel 304
15	Stop plate	Stainless steel 304
16	Nut	Stainless steel 304
17	Handle	Stainless steel 304
18	Handle sleeve	Vinyl
19	Stop pin	Stainless steel 304
20	Anti-static device	Stainless steel 316

Subject to changes

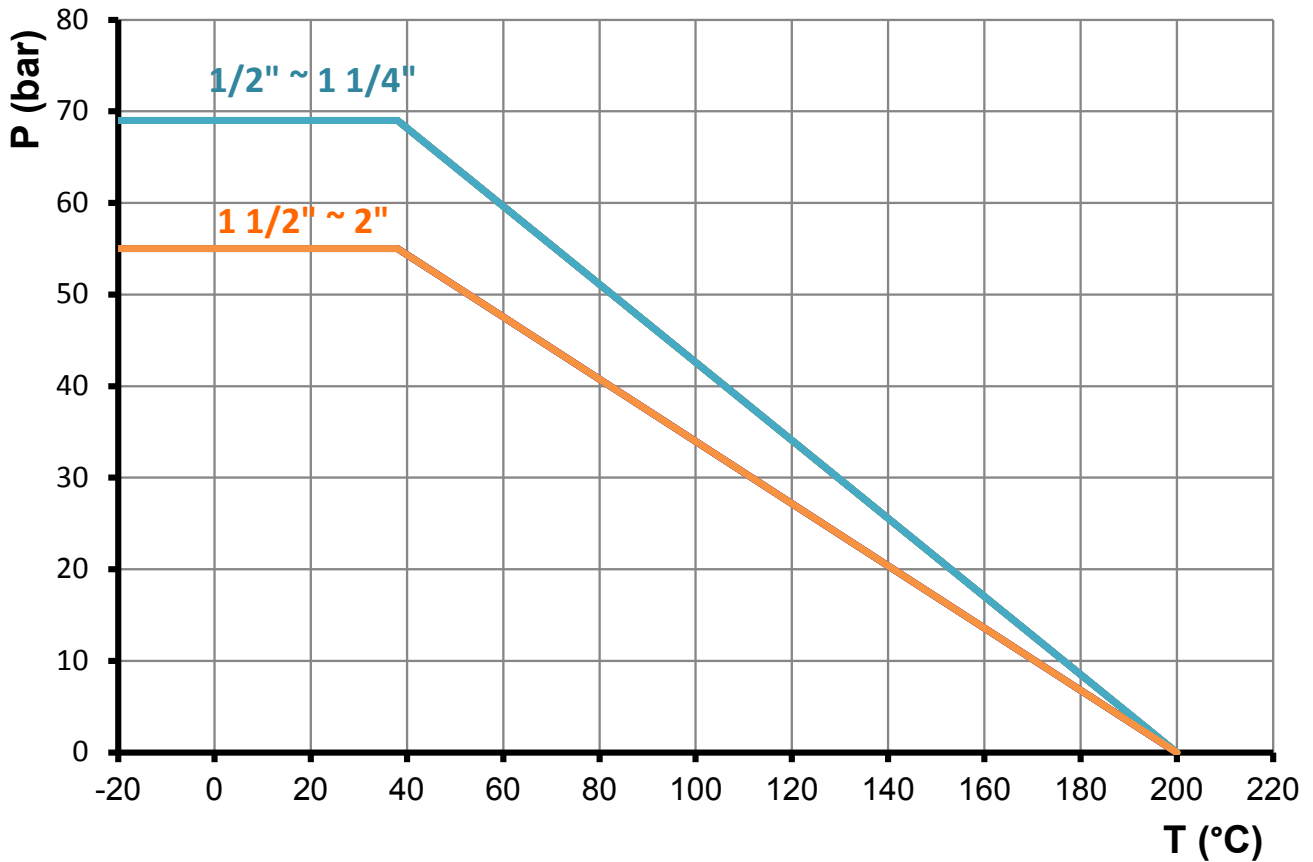

**DIMENSIONS:** (mm)

Ø	DN	A	B	C	Ød1	Ød2	E	ØF	ØG
1/2"	15	38,5	11	130	6,0	6,0	62	36	42
3/4"	20	41,0	11	130	6,0	6,0	64	36	42
1"	25	49,0	14	165	6,0	7,1	82	42	50
1 1/4"	32	55,0	14	165	6,0	7,1	89	42	50
1 1/2"	40	63,0	18	205	7,1	9,2	98	50	70
2"	50	74,0	18	205	7,1	9,2	108	50	70

Ø	DN	H	K	L	H3	h	P	ISO5211	Kg
1/2"	15	9	36,0	72	11,8	20,0	12	F03/F04	0,9
3/4"	20	9	41,5	83	13,4	23,2	15	F03/F04	1,5
1"	25	11	49,5	99	14,8	28,0	20	F04/F05	2,2
1 1/4"	32	11	56,0	112	15,0	34,0	25	F04/F05	3,3
1 1/2"	40	14	62,5	125	16,2	39,0	32	F05/F07	5,2
2"	50	14	74,5	149	16,5	48,0	38	F05/F07	9,5

Subject to changes

### PRESSURE-TEMPERATURE CHART:



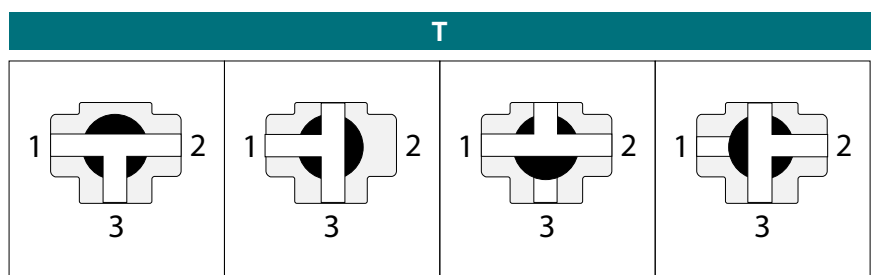
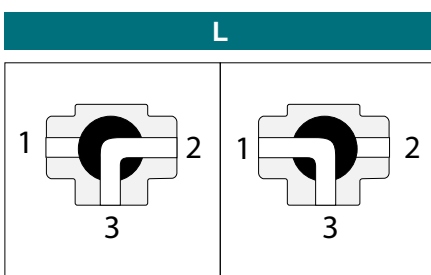
### TORQUES: (in Nm)

Ø	T (Nm)
1/2"	10
3/4"	13
1"	23
1 1/4"	42
1 1/2"	51
2"	59

### Kv VALUES:

Ø	L-port	T-port (through)	T-port (branch)
1/2"	9,5	11,2	6,9
3/4"	13,0	16,4	9,5
1"	26,0	29,4	19,0
1 1/4"	40,7	46,7	35,5
1 1/2"	60,6	72,7	46,7
2"	115,0	136,7	83,9

### CONFIGURATIONS:



**New design (EI-O-Matic type F)**



Single acting type PE (+ PD up to 200)

Available from size 12 up to 350



Double acting type PD

Available in size 350

**Old design (EI-O-Matic type E)**



Single acting type PE

Available from size 600 up to 4000

Soon to be replaced with new design



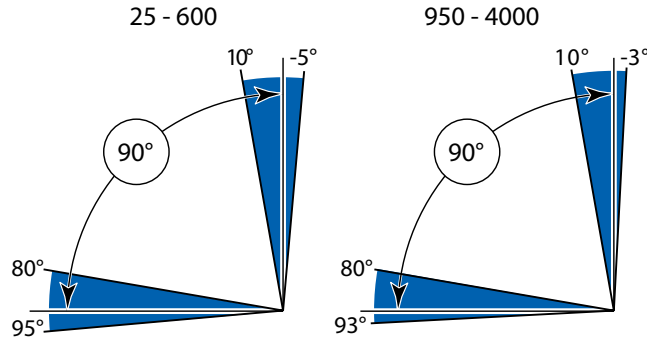
Double acting type PD

Available from size 600 up to 4000

Soon to be replaced with new design

### GENERAL FEATURES:

- Rack and pinion actuator
- Travel stop adjustment:
  - 0°~90° -5°/+10° and +80° ~ +95° (size 25 ~ size 600)
  - 0°~90° -3°/+10° and +80° ~ +93° (size 950 ~ size 4000)



- Working temperature:
  - Standard: -20 °C ~ 80 °C
  - Low temperature version: -40°C ~ 80°C
  - High temperature version: -20°C ~ 120°C)
- Working pressure: 3 ~ 8 bar
- Coupling according to ISO 5211 and DIN 3337
- Mounting of solenoid valves according to Namur Std.
- Mounting of limit switches according to Namur
- Min. 500.000 cycles

### FIGURE:

- PD:** double acting
- PE:** spring return, normally closed
- PEO:** spring return, normally open

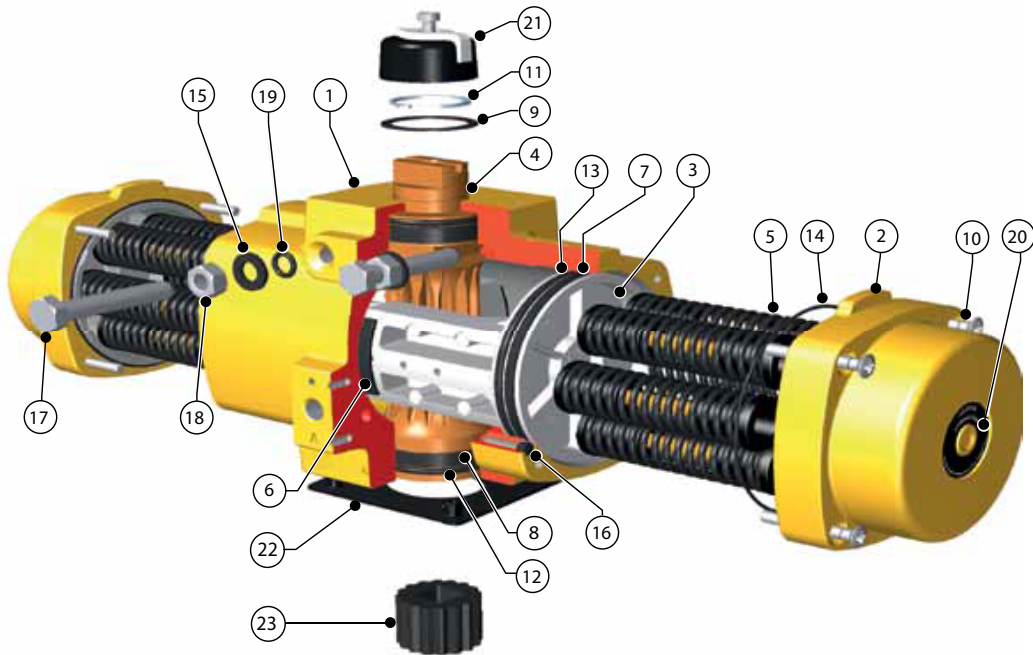


### DESIGN STANDARDS

Mounting of solenoid valves	NAMUR Std.
Mounting of devices	NAMUR VDI, NAMUR VDE 3845 Std.
Coupling according	ISO 5211, DIN 3337

### TESTS AND CERTIFICATES

Safety	ATEX II 2 GD, SIL3
Quality Assurance	CE/PED, ISO9001



### MATERIALS:

Item	Description	Material
1	Body	Cast aluminium alloy, chromated and polyurethane powder coated
2	End cap	Cast aluminium alloy, chromated and polyurethane powder coated
3	Piston	Cast aluminium alloy
4	Pinion	High grade aluminium, hard anodized
5	Spring cartridge	Spring steel, electrophoretic coated
6*	Bearing strip piston rack	POM
7*	Bearing piston	PTFE 25% carbon filled
8*	Bearing pinion	POM
9*	Thrust washer	POM, black UV stabilized
10	End cap screw	Stainless steel
11*	Circlip	Spring steel, Deltatone® coated
12*	O-ring seal pinion	Nitrile rubber
13*	O-ring seal piston	Nitrile rubber
14*	O-ring seal end cap	Nitrile rubber
15*	O-ring seal limit stop	Nitrile rubber
16*	B-port seal	Silicon rubber
17	Limit stop screw	Stainless steel
18	Limit stop nut	Stainless steel
19	Limit stop washer	PA66
20	Warning sticker	Polyester
21	Indicator assembly	ABS + stainless steel screw
22	Center plate (optional)	Nylon PA6, black
23	Insert drive	Aluminium Alloy

\*included in repair kit

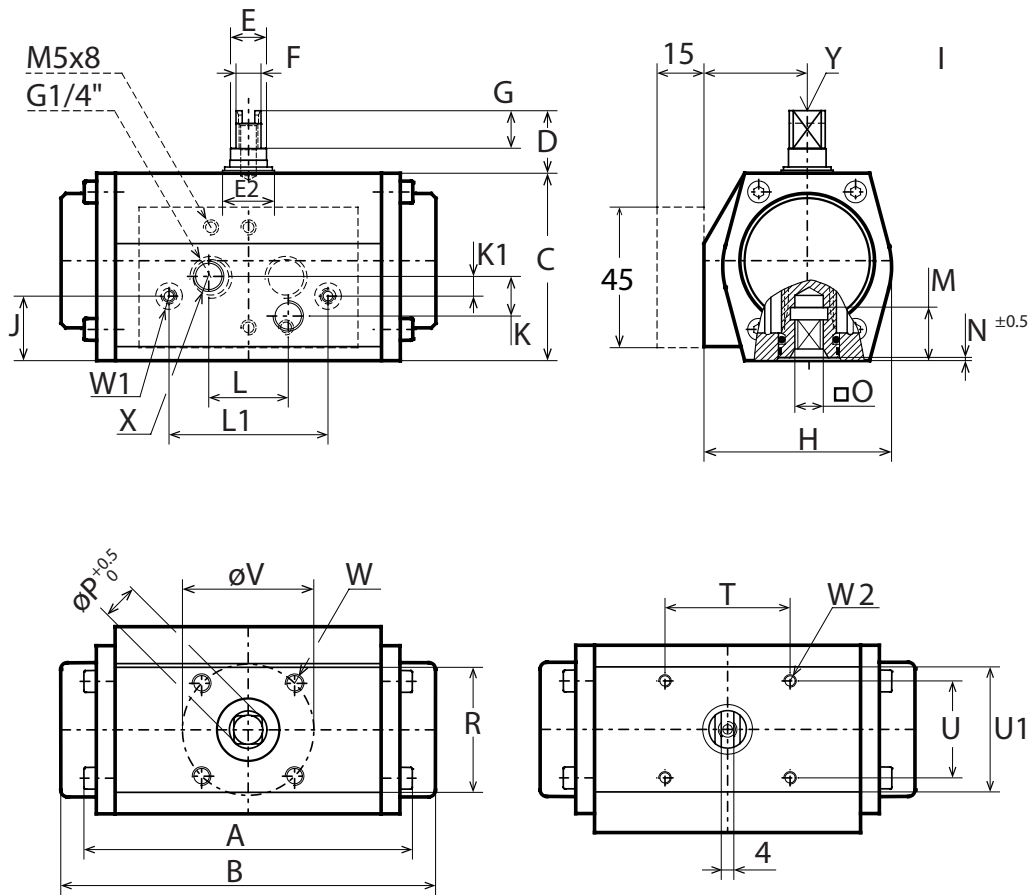
Low temperature components:  
 - Castrol Optitemp TT1 grease  
 - Silicone (MVQ70 rubber) O-ring seals

High temperature components:  
 - Castrol high temperature grease  
 - Viton (FPM) O-ring seals  
 - PTFE 25% carbon filled piston rings  
 - Nylon 66 + aramid fibre & PTFE bearing strip piston rack and pinion bearing

Subject to changes



**TYPE 12:**

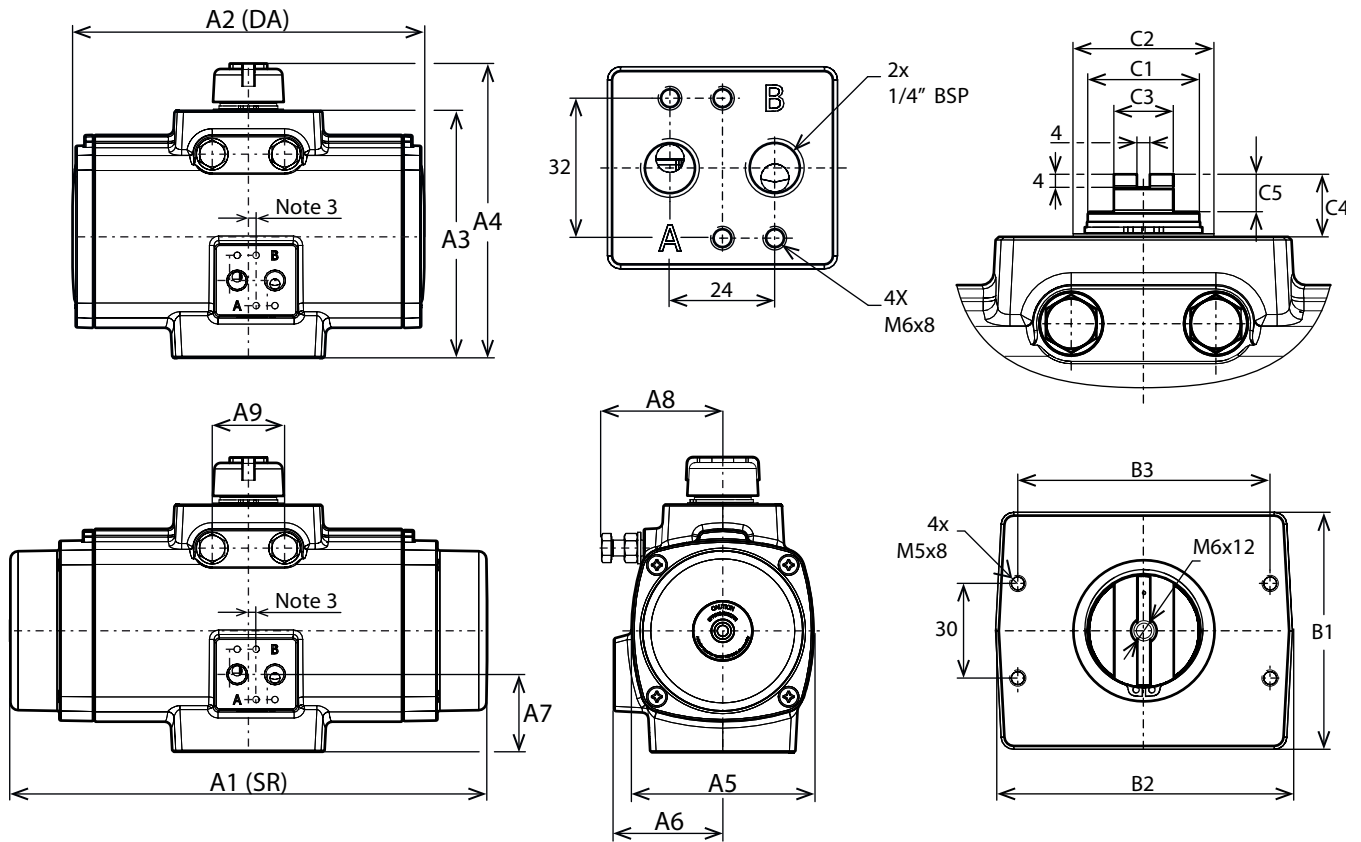


**DIMENSIONS:** (mm)

TYPE	A	B	C	D	E	F	G	H	I	J	K	K1	L	L1	M
0012	103	118	60	20	16	10	12	60	33,0	21	12,7	6,4	25,4	50,8	16,5

TYPE	N	O Max.	O Min.	P	T	U	V	W	W1	W2	X	Y	Kg (PD)	Kg (PE)
0012	1	9,14	9,05	12,1	40	31	42	M6x8	M4x7	M4x7	G 1/8"	M6x12	0,6	0,7

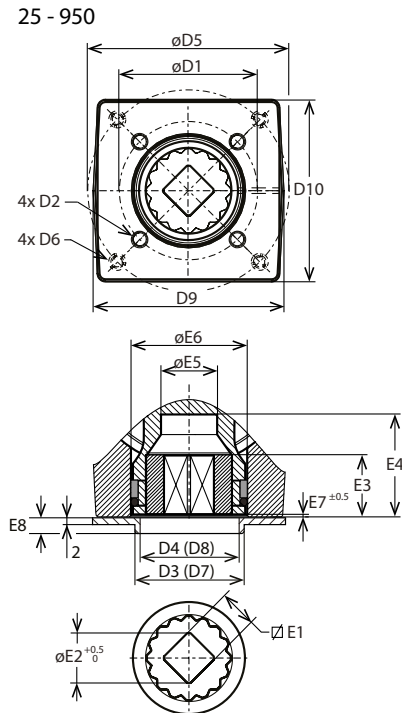
**TYPE 25-4000:**



**DIMENSIONS:** (mm)

TYPE	A1	A2	A3	A4	A5	A6	A7	A8	A9	B1	B2	B3	C1	C2	C3	C4	C5	Kg (PD)	Kg (PE)
0025	166	166	91	119	82	49	30	48	18	43	94	80	16	23	10	20	12	1,4	1,6
0040	192	192	112	139	95	55	34	58	25	45	94	80	22	30	14	20	12	2,1	2,3
0065	217	217	124	151	104	58	38	69	27	50	94	80	22	30	14	20	12	2,8	3,3
0100	247	247	131	158	115	64	38	69	28	60	97	80	22	30	14	20	12	3,5	4,3
0150	304	223	157	185	127	69	49	75	46	75	94	80	34	45	14	20	12	4,9	6,6
0200	362	256	163	191	134	72	49	87	46	75	94	80	36	45	19	20	12	6,0	8,3
0350	385	269	201	230	165	85	42	109	46	85	100	80	36	45	19	20	12	10,2	14,5
0600	476	336	248	292	199	102	67	132	60	98	148	130	55	65	19	30	10	20,0	28,0
0950	-	-	-	-	-	-	-	-	-	-	-	130	55	65	36	30	10	27,0	39,0
1600	-	-	-	-	-	-	-	-	-	-	-	130	64	75	36	30	10	43,0	66,0
2500	-	-	-	-	-	-	-	-	-	-	-	130	55	65	36	30	10	57,0	88,0
4000	-	-	-	-	-	-	-	-	-	-	-	130	64	80	36	30	10	87,0	131,0

### TYPE 25-4000:



### DIMENSIONS: (mm)

TYPE	ISO1	D5	D2	ISO2	D1	D6	D3	D4	D7	D8	D9	D10
0025	F05	50	M6x10	F03	36	M5x8	35	29	-	-	50	48
0040	F05	50	M6x10	F07	70	M8x13	35	32	40	55	68	65
0065	F05	50	M6x10	F07	70	M8x13	35	32	40	55	68	65
0100	F07	70	M8x13	F05	50	M6x10	55	40	32	35	66	63
0150	F07	70	M8x13	F10	102	M10x15	55	50	54	70	97	92
0200	F10	102	M10x15	F07	70	M8x13	70	54	50	55	94	90
0350	F10	102	M10x15	F07	70	M8x13	70	54	50	55	94	94
0600	F12	125	M12x18	F10	102	M10x15	85	68	-	-	118	113
0950	F14	125	M12x18	F10	102	M10x15	100	75	-	-	-	-
1600	F16	165	M20x20	-	-	-	130	95	-	-	-	-
2500	F16	165	M20x20	-	-	-	130	95	-	-	-	-
4000	F25	254	M16x25	-	-	-	200	120	-	-	-	-

TYPE	E1 Max.	E1 Min.	E2	E3	E4	E5	E6	E7	E8
0025	11,00	11,0	14,0	15,0	34	14	25	1	5,0
0040	14,00	14,0	18,0	15,0	34	18	35	1	5,0
0065	14,00	14,0	18,0	15,0	34	21	35	1	5,0
0100	17,00	17,0	25,0	18,0	34	24	38	1	5,0
0150	17,00	17,0	26,0	28,0	50	29	57	1	5,0
0200	22,00	22,0	28,0	28,0	50	32	57	1	5,0
0350	22,00	22,0	36,0	28,0	50	32	57	1	5,0
0600	27,00	27,0	36,0	28,0	50	37	68	1	5,0
0950	36,16	36,0	58,2	x	x	x	x	xx	6
1600	46,16	46,0	60,2	x	x	x	x	xx	7
2500	46,16	46,0	60,2	x	x	x	x	xx	-
4000	55,24	55,0	72,2	x	x	x	x	xx	-

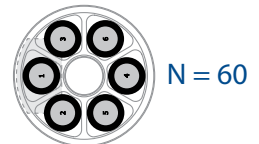
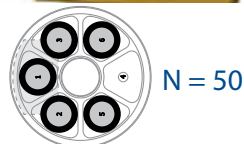
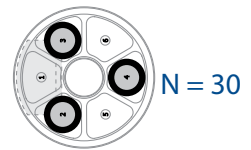
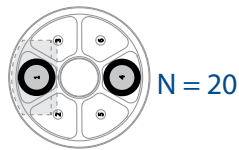
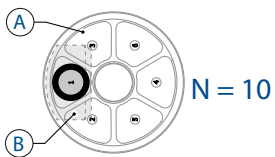
x:  $\pm 0,1$  mm  
 xx:  $\pm 0,25$  mm

TYPE PD	Output Torque For Double Acting in Nm																					
	2 bar		3 bar		3,5 bar		4 bar		4,5 bar		5 bar		5,5 bar		6 bar		6,5 bar		7 bar		8 bar	
	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°
12	4,8		7,3		8,5		9,7		10,9		12,2		13,4		14,6		15,9		17,1		19,6	
25	9		13		16		18		20		23		25		27		29		32		36	
40	17		25		29		34		38		42		47		51		55		59		68	
65	25		38		45		51		58		64		71		77		84		90		103	
100	38		57		66		76		86		95		105		115		124		134		153	
150	60		91		106		122		137		153		168		183		199		214		245	
200	82		124		146		167		188		209		230		251		272		293		335	
350	143		216		253		290		326		363		400		436		473		510		583	
600	243		368		430		492		554		617		679		741		804		866		991	
950	377		570		667		764		861		957		1054		1151		1247		1344		1537	
1600	617		934		1092		1250		1408		1567		1725		1883		2041		2200		2516	
2500	995		1505		1760		2015		2270		2525		2780		3036		3291		3546		4056	
4000	1592		2408		2816		3225		3633		4041		4449		4857		5265		5673		6490	

TYPE PE	Spring set	Output Torque For Spring Return in Nm																		Spring stroke	
		3 bar		3,5 bar		4 bar		4,5 bar		5 bar		5,5 bar		6 bar		7 bar		8 bar		END	START
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°		
12	20	2	-	4	1	5	2	6	3	8	5	9	6	10	7	13	10	15	12	5	7
25	10	12	10	14	13	17	15	19	17	21	20	24	22	26	25	31	29	36	34	2	4
	20	9	6	12	9	14	11	16	13	19	16	21	18	24	21	28	25	33	30	4	7
	30	7	2	9	4	11	7	14	9	16	12	19	14	21	17	26	21	31	26	7	11
	40	-	-	-	-	9	3	11	5	14	8	16	12	19	14	21	17	26	21	9	14
	50	-	-	-	-	-	-	9	1	11	4	14	6	16	8	21	13	26	18	11	18
	60	-	-	-	-	-	-	-	-	-	-	-	11	2	13	4	18	9	23	14	13
40	10	22	19	26	24	31	28	36	33	40	37	45	42	49	46	58	55	67	64	4	7
	20	17	12	22	16	26	21	31	25	35	30	40	34	44	39	53	48	62	57	8	13
	30	12	4	17	9	21	13	26	18	31	22	35	27	40	31	49	40	58	49	12	20
	40	-	-	12	1	17	6	21	10	26	15	30	19	35	24	44	33	53	42	17	26
	50	-	-	-	-	-	-	17	3	21	7	26	12	30	16	39	25	48	34	21	33
	60	-	-	-	-	-	-	-	-	-	-	-	21	4	25	9	34	18	43	27	25
65	10	33	29	40	36	47	43	54	50	61	57	68	63	75	70	88	84	102	98	6	10
	20	26	17	33	24	40	31	47	38	53	45	60	52	67	59	81	72	95	86	13	20
	30	19	5	25	12	32	19	39	26	46	33	53	40	60	47	74	61	87	74	19	31
	40	-	-	-	-	25	8	32	14	39	21	46	28	52	35	66	49	80	63	26	41
	50	-	-	-	-	-	-	24	3	31	10	38	17	45	23	59	37	73	51	32	51
	60	-	-	-	-	-	-	-	-	-	-	-	31	5	38	12	52	25	65	39	39
100	10	49	43	60	53	70	64	80	74	90	84	100	94	111	104	131	125	151	145	9	15
	20	39	26	49	36	59	47	69	57	79	67	90	77	100	87	120	108	141	128	19	30
	30	28	9	38	19	48	30	59	40	69	50	79	60	89	70	109	91	130	111	28	44
	40	-	-	27	2	38	13	48	23	58	33	68	43	78	53	99	74	119	94	37	59
	50	-	-	-	-	-	-	37	6	47	16	57	26	68	36	88	57	108	77	47	74
	60	-	-	-	-	-	-	-	-	-	-	-	47	9	57	19	77	40	98	60	56
150	10	79	69	96	86	112	102	128	118	145	135	161	151	177	167	210	200	243	233	15	24
	20	62	42	79	59	95	75	111	91	128	108	144	124	160	140	193	173	226	206	30	47
	30	45	15	62	32	78	48	94	64	111	81	127	97	143	113	176	146	209	179	44	71
	40	-	-	45	5	61	21	77	37	94	54	110	70	126	86	159	119	192	152	59	94
	50	-	-	-	-	-	-	60	10	77	26	93	43	109	59	142	92	175	124	74	118
	60	-	-	-	-	-	-	-	-	-	-	-	76	16	92	32	125	65	158	97	89
200	10	108	94	131	117	153	139	175	161	198	184	220	206	242	228	287	273	332	318	21	33
	20	85	57	107	79	129	102	152	124	174	146	196	169	219	191	263	236	308	280	41	65
	30	61	19	83	42	106	64	128	86	150	109	173	131	195	153	240	198	284	243	62	98
	40	-	-	-	-	82	26	104	49	127	71	149	93	171	116	216	161	261	205	82	131
	50	-	-	-	-	-	-	81	11	103	34	125	56	148	78	192	123	237	168	103	163
	60	-	-	-	-	-	-	-	-	-	-	-	102	18	124	41	169	85	213	130	124

TYPE PE	Spring set	Output Torque For Spring Return in Nm																		Spring	
		3 bar		3,5 bar		4 bar		4,5 bar		5 bar		5,5 bar		6 bar		7 bar		8 bar		stroke	
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	END	START
350	10	189	165	227	204	266	243	305	281	344	320	383	359	422	398	499	476	577	553	35	56
	20	148	101	187	139	226	178	265	217	303	256	342	295	381	334	459	411	537	489	70	112
	30	108	36	146	75	185	114	224	153	263	192	302	231	341	269	418	347	496	425	106	168
	40	-	-	106	11	145	50	184	89	222	127	261	166	300	205	378	283	455	360	141	224
	50	-	-	-	-	-	-	143	24	182	63	221	102	260	141	337	218	415	296	176	280
	60	-	-	-	-	-	-	-	-	-	-	-	180	38	219	77	297	154	374	232	211
600	10																				
	20																				
	30																				
	40																				
	50																				
	60																				
950	10																				
	20																				
	30																				
	40																				
	50																				
	60																				
1600	10																				
	20																				
	30																				
	40																				
	50																				
	60																				
2500	10																				
	20																				
	30																				
	40																				
	50																				
	60																				
4000	10																				
	20																				
	30																				
	40																				
	50																				
	60																				

PE0025 - PE4000



A: Piston top view

B: Position of piston rack

TYPE	Cycle time in seconds			
	Spring return		Double acting	
	A-port pressurized	Spring stroke	A-port pressurized	B-port pressurized
12	0,4	0,4	0,4	0,4
25	0,5	0,4	0,5	0,4
40	0,6	0,5	0,6	0,5
65	0,7	0,5	0,6	0,6
100	0,8	0,6	0,8	0,7
150	1,0	0,8	0,9	0,8
200	1,3	0,9	0,0	1,0
350	1,9	1,3	1,4	1,5
600	3,2	1,9	2,2	2,2
950	4,6	3,2	3,9	3,6
1600	6,9	4,8	5,9	4,8
2500	9,0	6,3	7,8	7,9
4000	15,4	10,8	13,3	13,0

### TEST CONDITIONS:

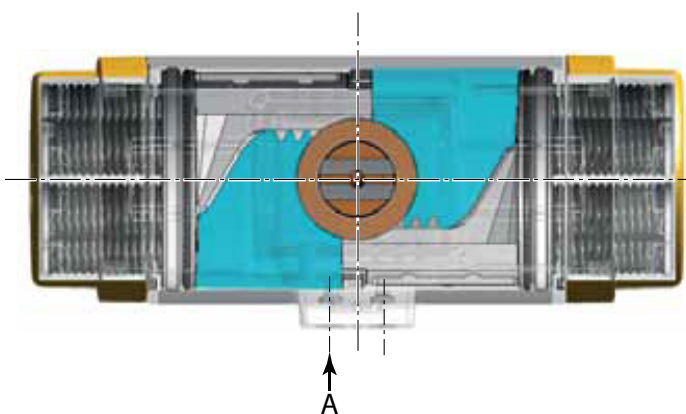
1. Solenoid valve capacity: 0.6m<sup>3</sup>/h
2. Pipe diameter: 6 mm
3. Medium: Clean air
4. Supply pressure: 5.5 bar
5. Load: Average load
6. Stroke: 90°
7. Temperature: Room temperature



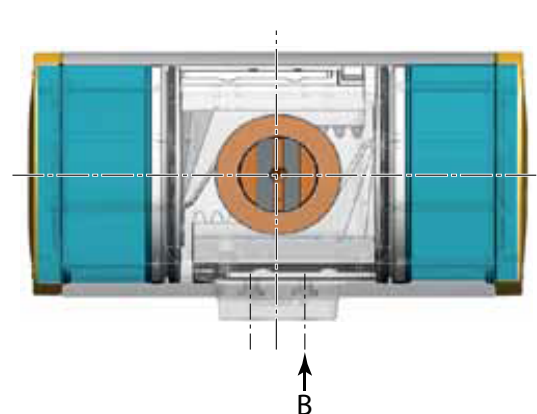
TYPE	Actuator volumes		
	Max. volume (liters)		
	Central chamber	End cap chamber	Volume displaced
12	0,05	0,06	0,04
25	0,11	0,19	0,08
40	0,16	0,36	0,15
65	0,36	0,55	0,22
100	0,40	0,80	0,30
150	0,80	0,70	0,50
200	0,80	1,00	0,70
350	1,90	1,70	1,20
600	3,10	2,90	2,10
950	5,10	4,30	3,20
1600	7,80	7,00	5,20
2500	10,40	11,10	8,20
4000	18,40	18,90	14,00

TYPE	Consumption per stroke (liters)					
	Outward stroke			Inward stroke		
	2 bar	4 bar	8 bar	2 bar	4 bar	8 bar
12	0,14	0,24	0,40	0,16	0,28	0,50
25	0,29	0,50	0,90	0,46	0,85	1,60
40	0,47	0,80	1,50	0,87	1,60	3,00
65	0,90	1,60	3,10	1,30	2,40	4,60
100	1,00	1,70	3,20	2,00	3,60	6,90
150	2,10	3,60	6,80	1,90	3,40	6,20
200	2,40	4,00	7,30	2,70	4,60	8,00
350	5,10	9,00	17,00	5,00	8,00	15,00
600	8,00	14,00	27,00	8,00	14,00	25,00
950	13,00	23,00	44,00	12,00	20,00	37,00
1600	21,00	36,00	68,00	19,00	33,00	62,00
2500	29,00	50,00	92,00	30,00	53,00	97,00
4000	51,00	87,00	161,00	52,00	89,00	165,00

**Volume central chamber**  
 Single and double acting



**Volume end cap chamber**  
 Double acting



Subject to changes

**GENERAL FEATURES:**

- Rack and pinion actuator
- Travel stop adjustment: 0°~90° +1°/-10° (0~80°... 91°)
- Working temperature: -30 °C ~ 100 °C
- Working pressure: 3 ~ 8 bar
- Coupling according to ISO 5211 and DIN 3337
- Mounting of solenoid valves according to Namur Std.
- Mounting of limit switches according to Namur
- **Type 12 up to type 350: new design**

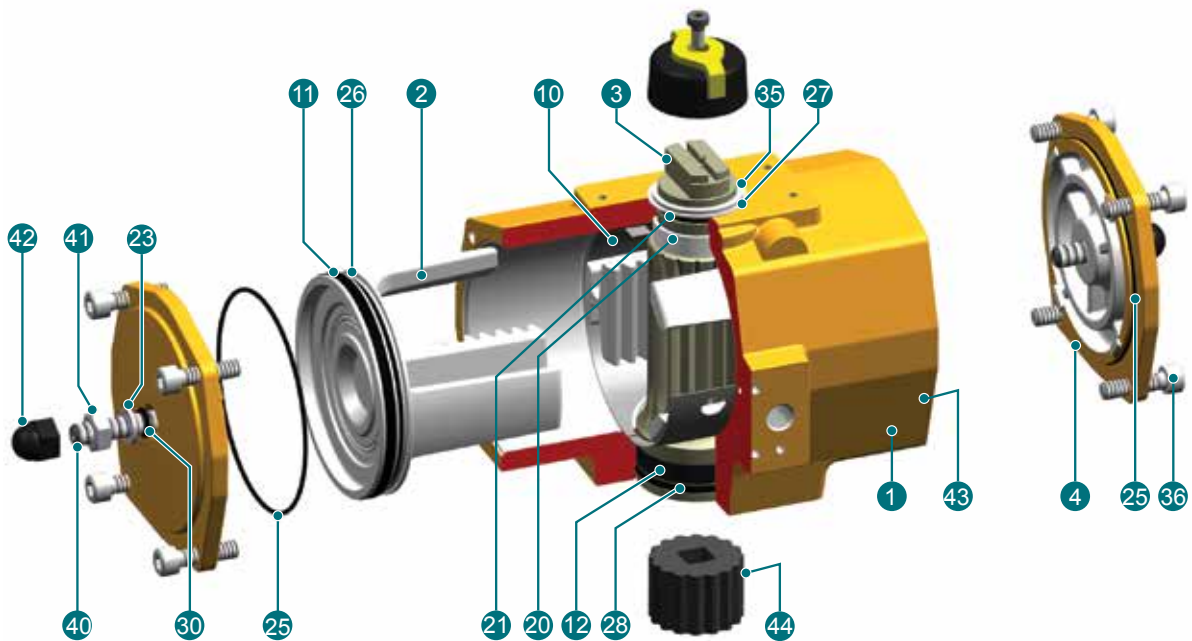
**FIGURE:**

- PD:** double acting
- PE:** spring return, normally closed
- PEO:** spring return, normally open

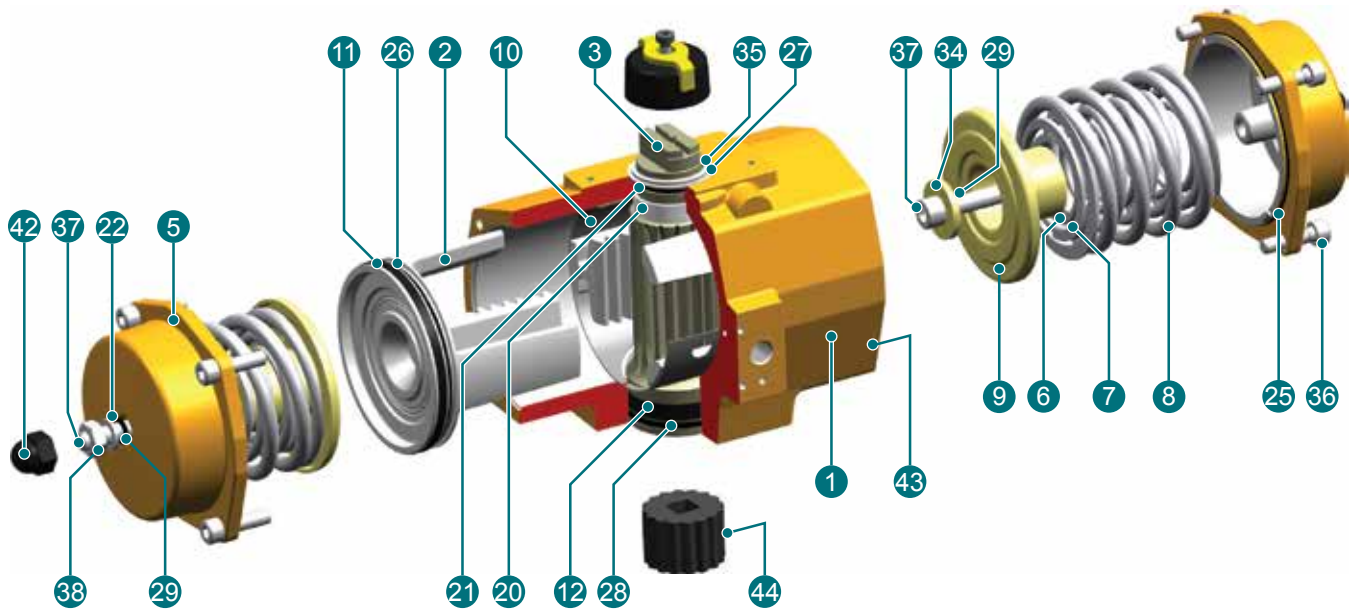


DESIGN STANDARDS	
Mounting of solenoid valves	NAMUR Std.
Mounting of devices	NAMUR VDI, NAMUR VDE 3845 Std.
Coupling according	ISO 5211, DIN 3337
TESTS AND CERTIFICATES	
Safety	ATEX II 2 GD, SIL3
Quality Assurance	CE/PED, ISO9001

Subject to changes

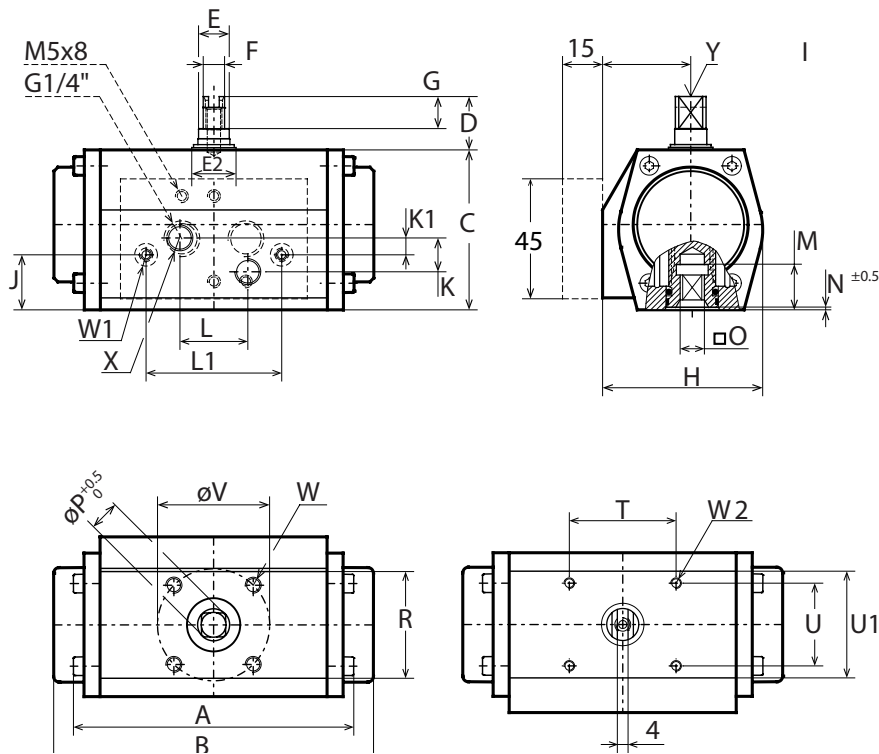

**MATERIALS:**

Item	Description	Material
1	Body	Cast aluminium
2	Pistons	Cast aluminium
3	Drive shaft	High grade aluminium
4	End Cap	Cast aluminium
10	Guide band - body	Nylatron
11	Guide band - piston	PTFE, Carbon filled
12	Bearing bush	Nylatron
20	Bearing bush	Delrin
21	O-ring - drive shaft top	Nitrile Rubber
23	Washer - ED limit stops	Nylon
25	O-ring - end cap	Nitrile Rubber
26	O-ring - piston	Nitrile Rubber
27	Thrust washer - drive shaft top	ZEDEX 100 K
28	O-ring - drive shaft bottom	Nitrile Rubber
30	O-ring - ED limit stops	Nitrile Rubber
35	Spring clip	Carbon Spring Steel
36	End cap bolt ED/ES	Stainless Steel
40	Limit stop bolt ED	Stainless Steel
41	Nut limit stop bolt	Stainless Steel
42	Nut cover	Polyethylene
43	O-ring - B-port / Steel ball	Nitrile Rubber
44	Insert	Aluminium Alloy


**MATERIALS:**

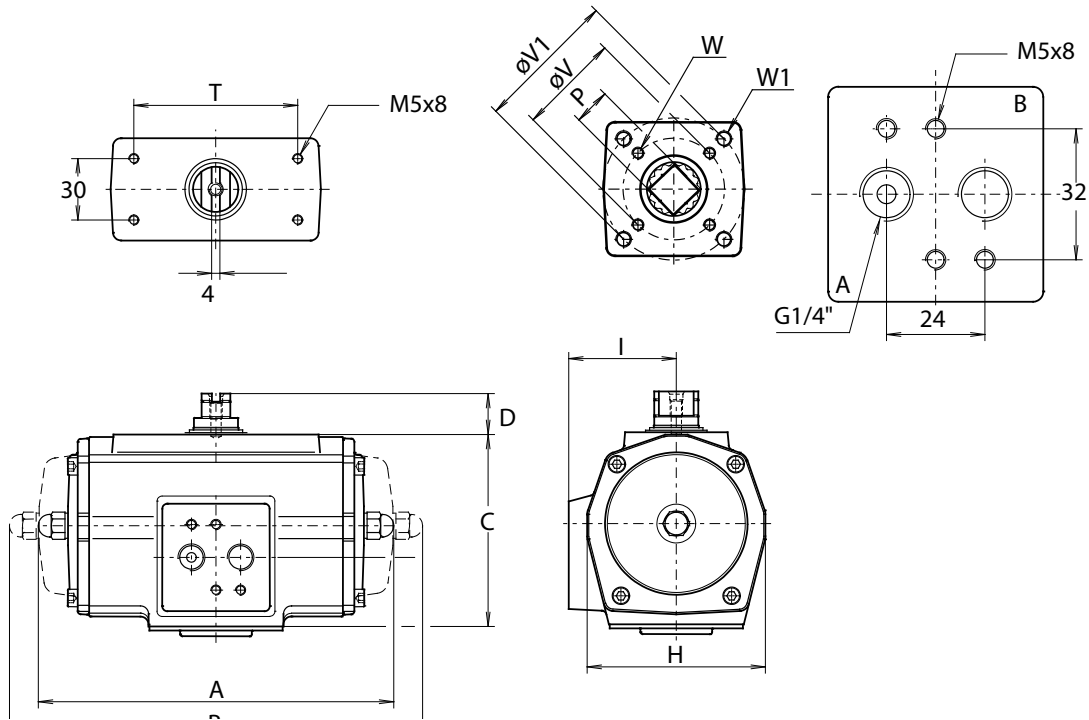
Item	Description	Material
1	Body	Cast aluminium
2	Pistons	Cast aluminium
3	Drive shaft	High grade aluminium
5	End Cap	Cast aluminium
6	Spring - inner	Carbon Spring Steel
7	Spring - mid	Carbon Spring Steel
8	Spring - outer	Carbon Spring Steel
9	Spring holder	Steel
10	Guide band - body	Nylatron
11	Guide band - piston	PTFE, Carbon filled
12	Bearing bush	Nylatron
20	Bearing bush	Delrin
21	O-ring - drive shaft top	Nitrile Rubber
22	Washer - ES limit stops	Nylon
25	O-ring - end cap	Nitrile Rubber
26	O-ring - piston	Nitrile Rubber
27	Thrust washer - drive shaft top	ZEDEX 100 K
28	O-ring - drive shaft bottom	Nitrile Rubber
29	O-ring - ES end cap	Nitrile Rubber
34	Washer - ES	Steel
35	Spring clip	Carbon Spring Steel
36	End cap bolt ED/ES	Stainless Steel
37	Limit stop bolt ES	Stainless Steel
38	Nut limit stop bolt	Stainless Steel
42	Nut cover	Polyethylene
43	O-ring - B-port / Steel ball 6	Nitrile Rubber / Steel
44	Insert	Aluminium Alloy

Subject to changes

**TYPE 12:**

**DIMENSIONS:** (mm)

TYPE	A	B	C	D	H	I	O	T	ISO 5211	ØV	W	kg
0012	103	118	60	20	60	33	9	40	F04	42	M6x8	

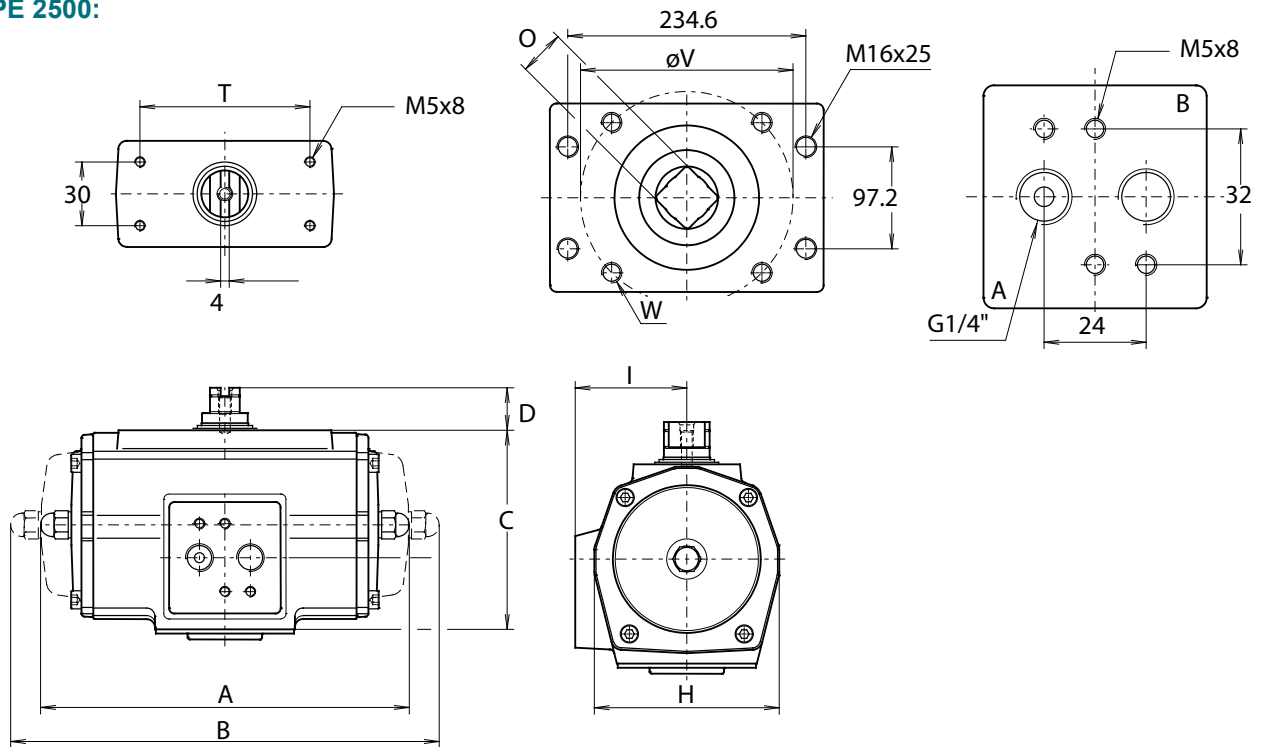
TYPE 25-1600:



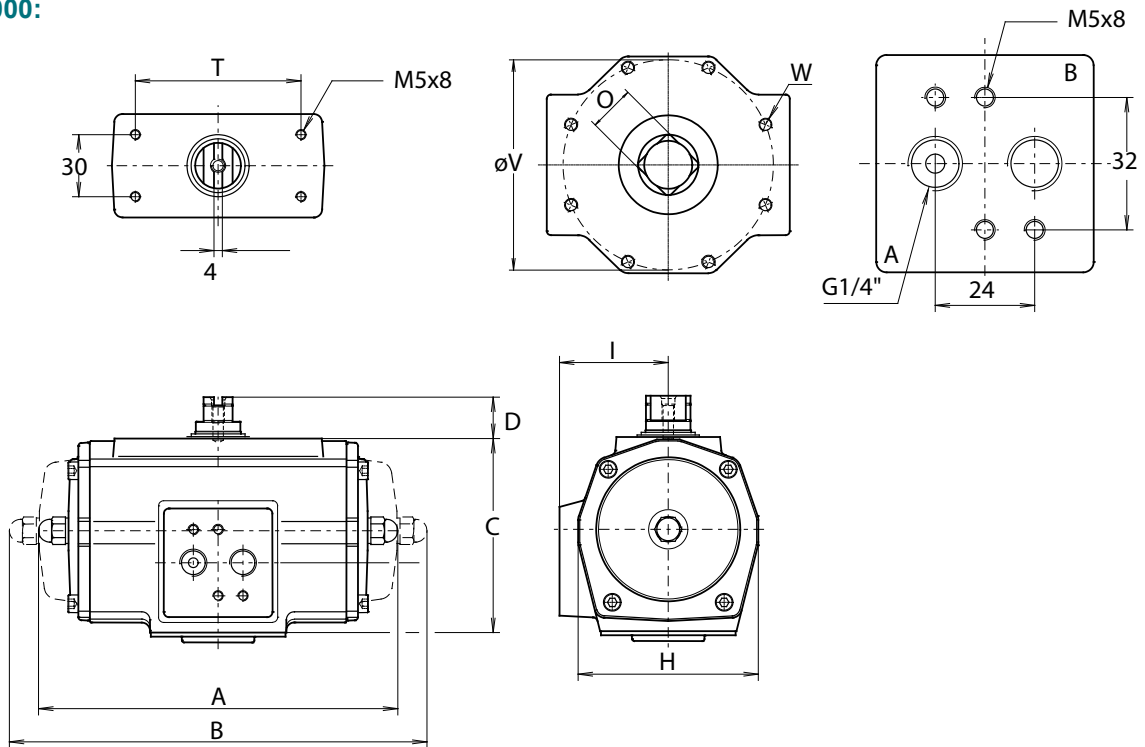
**DIMENSIONS:** (mm)

TYPE	A	B	C	D	H	I	P	T	ISO 5211	ØV / ØV1	W / W1	kg
0025	159	172	80	20	74	46	11	80	F03	36	M5x8	
									F05	50	M6x10	
0040	180	204	93	20	86	53	14	80	F05	50	M6x10	
									F07	70	M8x13	
0065	199	249	105	20	98	58	14	80	F05	50	M6x10	
									F07	70	M8x13	
0100	221	267	118	20	108	63	17	80	F05	50	M6x10	
									F07	70	M8x13	
0150	254	310	140	20	121	70	17	80	F07	70	M8x13	
									F10	102	M10x16	
0200	283	360	143	20	128	73	22	80	F07	70	M8x13	
									F10	102	M10x16	
0350	305	387	181	20	173	95	22	80	F07	70	M8x13	
									F10	102	M10x16	
0600	387	477	220	30	207	113	27	130	F10	102	M10x16	
									F12	125	M12x20	
0950	424	517	259	30	231	126	36	130	F10	102	M10x16	
									F14	140	M16x25	
1600	516	637	297	30	265	142	46	130	F16	165	M20x30	

Subject to changes

**TYPE 2500:**

**DIMENSIONS:** (mm)

TYPE	A	B	C	D	H	I	O	T	ISO 5211	ØV	W	kg
2500	378	570	356	30	350	183	46	130	F16	165	M20x30	

**TYPE 4000:**

**DIMENSIONS:** (mm)

TYPE	A	B	C	D	H	I	O	T	ISO 5211	ØV	W	kg
4000	502	834	380	30	380	200	55	130	F25	254	M16x25	



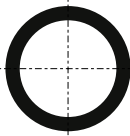
TYPE PD	Output Torque For Double Acting in Nm																				Kg		
	2 bar		3 bar		3,5 bar		4 bar		4,5 bar		5 bar		5,5 bar		6 bar		6,5 bar		7 bar			8 bar	
	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°		0°	90°
12	5		7		9		10		11		12		13		15		16		17		20		0,6
25	9		13		16		18		20		23		25		27		29		32		36		1,3
40	17		25		29		34		38		42		47		51		55		59		68		1,8
65	25		38		45		51		58		64		71		77		84		90		104		2,4
100	38		57		66		76		86		95		105		115		124		134		153		3,1
150	60		91		106		122		137		153		168		183		199		214		245		4,8
200	82		124		146		167		188		209		230		251		272		293		335		5,8
350	143		216		253		290		326		363		400		436		473		510		583		10,4
600	243		368		430		492		554		617		679		741		804		866		991		19,4
950	363		549		642		735		828		921		1014		1107		1200		1293		1479		26,4
1600	600		907		1061		1214		1368		1522		1676		1829		1983		2137		2444		42,7
2500	958		1449		1694		1940		2186		2431		2677		2922		3168		3413		3904		56,8
4000	1623		2456		2872		3289		3705		4121		4537		4954		5370		5786		6619		86,6

TYPE PE	Spring set	Output Torque For Spring Return in Nm																Spring stroke		Kg
		3 bar		3,5 bar		4 bar		4,5 bar		5 bar		5,5 bar		6 bar		7 bar		END	START	
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°			
12	2	-	-	4	1	5	2	6	4	8	5	9	6	10	8	13	10	5	7	0,7
25	2	9	6	12	9	14	11	16	13	19	16	21	18	24	21	29	25	4	7	1,7
	3	7	2	9	5	12	7	14	9	16	12	19	14	21	17	26	21	7	11	
	4	-	-	-	-	9	3	11	5	14	8	16	10	19	13	23	17	9	14	
	5	-	-	-	-	-	-	-	-	11	4	14	6	16	8	21	13	11	18	
	6	-	-	-	-	-	-	-	-	-	-	-	-	14	4	18	9	13	21	
40	2	17	12	22	16	26	21	31	25	35	30	40	34	44	39	53	48	8	13	2,4
	3	12	4	17	8	22	13	26	18	31	22	35	27	40	31	49	40	12	20	
	4	-	-	-	-	17	5	21	10	26	14	30	19	35	23	44	33	17	26	
	5	-	-	-	-	-	-	-	-	21	7	26	11	30	16	39	25	21	33	
	6	-	-	-	-	-	-	-	-	-	-	-	-	25	8	34	17	25	40	
65	2	26	17	32	23	39	30	46	37	53	44	60	51	67	58	81	72	13	21	3,6
	3	18	5	25	11	32	18	39	25	46	32	52	39	59	46	73	60	20	32	
	4	-	-	-	-	24	6	31	13	38	20	45	27	52	34	66	48	26	42	
	5	-	-	-	-	-	-	-	-	30	8	37	15	44	22	58	36	33	53	
	6	-	-	-	-	-	-	-	-	-	-	-	-	37	10	50	23	40	63	
100	2	39	27	49	37	60	47	70	57	80	67	90	78	100	88	121	108	18	29	4,6
	3	29	10	39	20	49	30	59	41	70	51	80	61	90	71	110	92	27	44	
	4	-	-	-	-	39	14	49	24	59	34	69	44	80	54	100	75	37	58	
	5	-	-	-	-	-	-	-	-	49	17	59	27	69	38	89	58	46	73	
	6	-	-	-	-	-	-	-	-	-	-	-	-	59	21	79	41	55	88	
150	2	63	41	79	58	95	74	112	90	128	107	144	123	161	139	193	172	29	48	6,9
	3	46	14	62	30	79	47	95	63	111	79	128	96	144	112	177	145	44	72	
	4	-	-	-	-	62	19	78	36	95	52	111	68	127	85	160	117	58	95	
	5	-	-	-	-	-	-	-	-	78	24	94	41	110	57	143	90	73	119	
	6	-	-	-	-	-	-	-	-	-	-	-	-	94	30	126	62	88	143	
200	2	85	57	107	79	130	101	152	124	174	146	197	169	219	191	264	236	41	65	9,1
	3	62	19	84	42	106	64	129	86	151	109	173	131	196	153	240	198	61	98	
	4	-	-	-	-	83	26	105	49	127	71	150	93	172	116	217	160	82	131	
	5	-	-	-	-	-	-	-	-	104	33	126	56	149	78	193	123	102	164	
	6	-	-	-	-	-	-	-	-	-	-	-	-	125	41	170	85	123	196	

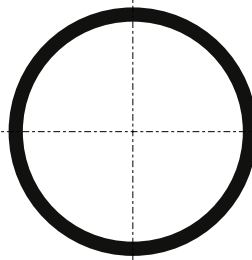
Subject to changes

TYPE PE	Spring set	Output Torque For Spring Return in Nm																Spring		Kg
		3 bar		3,5 bar		4 bar		4,5 bar		5 bar		5,5 bar		6 bar		7 bar		stroke		
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	END	START	
350	2	144	96	183	135	221	174	260	213	299	252	338	290	377	329	454	407	74	116	16,9
	3	101	30	140	68	179	107	217	146	256	185	295	224	334	263	412	340	112	174	
	4	-	-	-	-	136	41	175	80	214	118	252	157	291	196	369	274	149	232	
	5	-	-	-	-	-	-	-	-	171	52	210	91	249	130	326	207	186	289	
	6	-	-	-	-	-	-	-	-	-	-	-	-	206	63	283	141	223	347	
600	2	249	166	315	232	381	298	447	364	513	430	579	496	645	562	777	694	122	195	27,6
	3	179	54	245	120	311	186	377	252	443	318	509	384	575	450	707	582	183	292	
	4	-	-	-	-	240	74	306	140	372	206	438	272	504	338	636	470	245	389	
	5	-	-	-	-	-	-	-	-	302	94	368	160	434	226	566	358	306	487	
	6	-	-	-	-	-	-	-	-	-	-	-	-	364	114	496	246	367	584	
950	2	375	249	474	347	572	446	671	544	769	643	868	741	966	840	1163	1037	179	290	38,6
	3	272	82	371	181	469	279	568	378	666	476	765	575	863	673	1060	870	269	434	
	4	-	-	-	-	366	113	465	211	563	310	662	408	760	507	957	704	359	579	
	5	-	-	-	-	-	-	-	-	460	143	559	242	657	340	854	537	448	724	
	6	-	-	-	-	-	-	-	-	-	-	-	-	554	174	751	371	538	869	
1600	2	617	416	780	579	943	742	1106	905	1269	1068	1432	1231	1594	1394	1920	1719	299	474	65,8
	3	445	144	608	307	771	470	934	633	1097	796	1260	959	1423	1121	1748	1447	449	711	
	4	-	-	-	-	599	198	762	361	925	523	1088	686	1251	849	1577	1175	598	947	
	5	-	-	-	-	-	-	-	-	753	251	916	414	1079	577	1405	903	748	1184	
	6	-	-	-	-	-	-	-	-	-	-	-	-	907	305	1233	630	897	1421	
2500	6	896	602	1142	848	1387	1093	1633	1339	1879	1585	2124	1830	2370	2076	2861	2567	497	792	88,2
	8	712	320	958	566	1203	811	1449	1057	1694	1302	1940	1548	2186	1794	2677	2285	663	1056	
	10	-	-	774	284	1019	529	1265	775	1510	1020	1756	1266	2001	1511	2492	2002	829	1321	
	12	-	-	-	-	835	247	1081	492	1326	738	1572	984	1817	1229	2308	1720	995	1585	
	14	-	-	-	-	-	-	-	-	1142	456	1387	701	1633	947	2124	1438	1160	1849	
4000	6	1524	1028	1940	1444	2356	1860	2772	2276	3189	2693	3605	3109	4021	3525	4854	4358	839	1337	131,8
	8	1213	551	1629	968	2045	1384	2462	1800	2878	2216	3294	2633	3710	3049	4543	3882	1119	1783	
	10	-	-	1318	491	1734	908	2151	1324	2567	1740	2983	2157	3400	2573	4232	3405	1399	2229	
	12	-	-	-	-	1424	431	1840	848	2256	1264	2672	1680	3089	2097	3921	2929	1679	2674	
	14	-	-	-	-	-	-	-	-	1945	788	2362	1204	2778	1620	3610	2453	1958	3120	

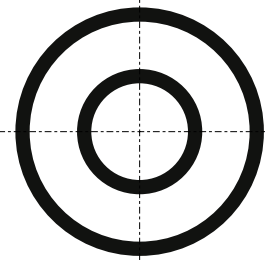
PE0025 - PE1600



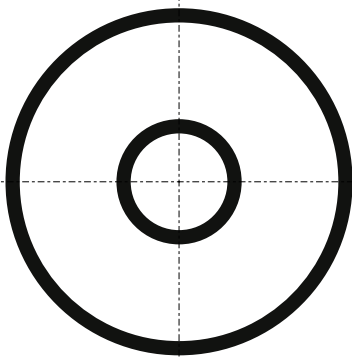
Spring set 1  
Inner spring



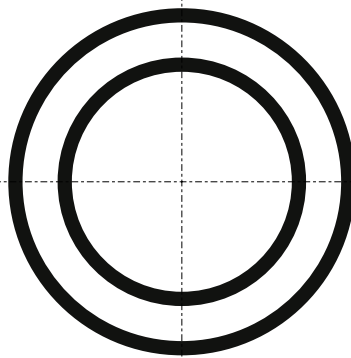
Spring set 2  
Mid spring



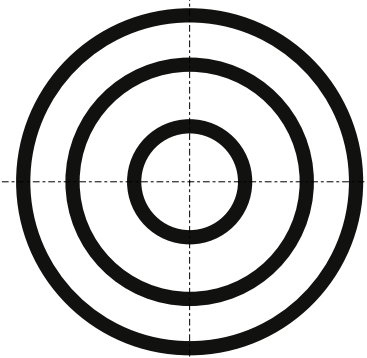
Spring set 3  
Inner & mid spring



Spring set 4  
Inner & outer spring

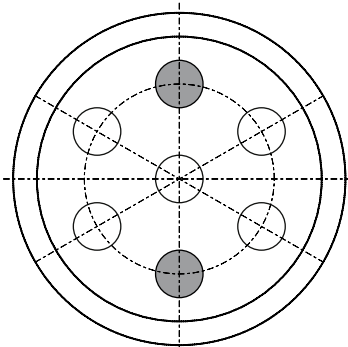


Spring set 5  
Mid & outer spring

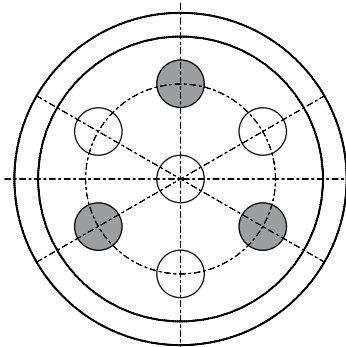


Spring set 6  
Inner, mid & outer spring

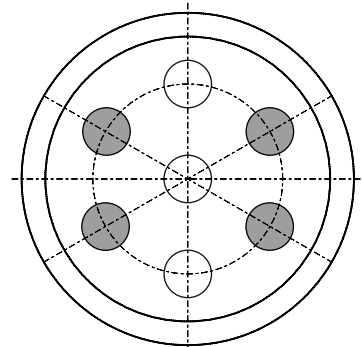
PE2500 - PE4000



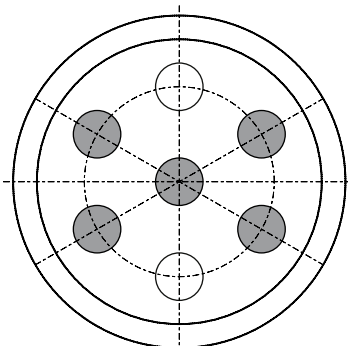
4 springs



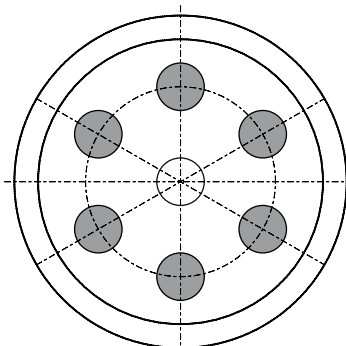
6 springs



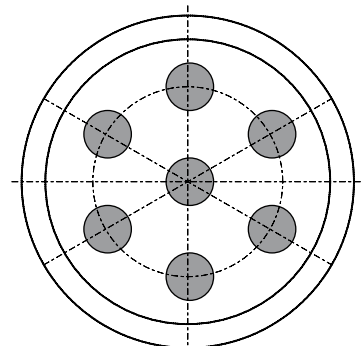
8 springs



10 springs



12 springs



14 springs



Subject to changes

TYPE	Air volume (l)		Operating time (s)
	Opening	Closing	
12	0,1	0,1	0,4
25	0,1	0,1	0,5
40	0,2	0,2	0,7
65	0,3	0,4	1,1
100	0,4	0,5	1,2
150	0,73	0,65	1,8
200	0,8	1	2,3
350	1,8	1,9	3,6
600	2,9	3,1	4,5
950	4,7	4,9	5,4
1600	7,3	8	6,9
2500	8	9,3	7,0
4000	13,5	17,5	12,0

Operating time is average with actuator under load and solenoid valve fitted

Air consumption is the actual free air volume at 1 atm