



RE SERIES

**PNEUMATIC ACTUATORS
WITH EXTERNAL ADJUSTMENT**

ROTATION 90°



English edition



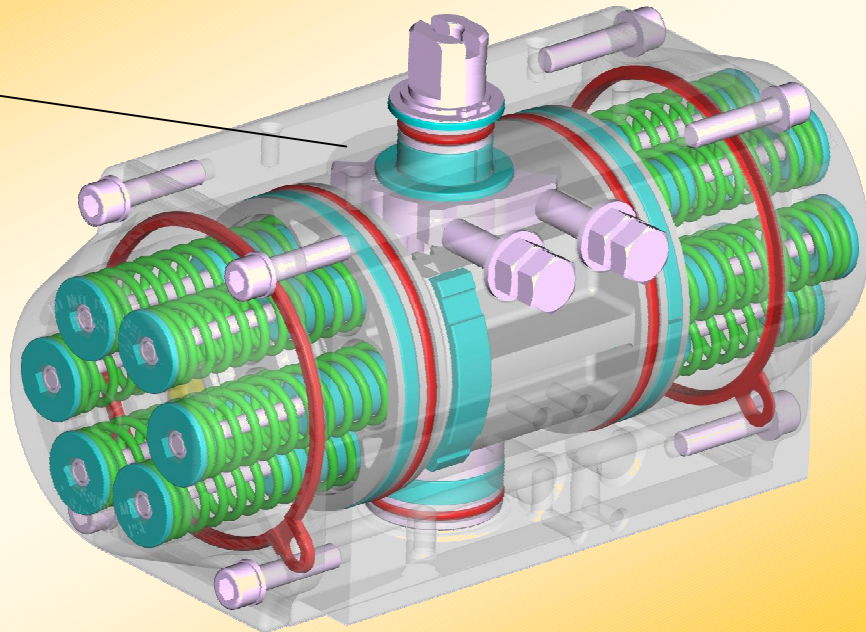
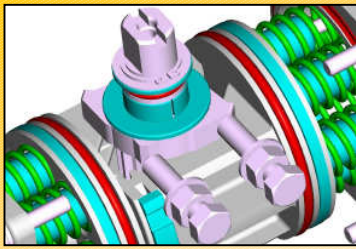
Alphaair



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2017

ALPHAIR PNEUMATIC ACTUATORS EXTERNAL ADJUSTMENT New "RE" SERIES



The new series of ALPHAIR Pneumatic Actuators with special "External Adjustment" system meets every quality and precision requirement.

The new "External Adjustment" system guarantees maximum precision on rotation adjusting, for normal and heavy conditions, in any application field.

Suitable for every requirement, ALPHAIR Pneumatic Actuators with special "External Adjustment" system are carefully designed for maximum torque rating and maximum lifetime.

More compact, heavy and reliable, ALPHAIR Pneumatic Actuators with special "External Adjustment" system can be easily assembled on every kind of valve.

STANDARD VERSION FEATURES

- **EN AW 6063 extruded aluminium Body**, inside surface finishing Ra= 0,4-0,6. 25 µ Hard Anodizing.
- **EN AB 46100 die-cast aluminium alloy Pistons**, 15 micron Anodizing.
- **EN AB 46100 die-cast aluminium alloy Covers**, painted with 60-80 µ polyester powder.
- **Carbon steel Shaft**, 20 µ nickel-plated. Stainless Steel AISI 304 (A2) or AISI 316 (A4) as Optional.
- **External adjusting gear, made of Stainless Steel AISI 316 (A4).**
- **AISI 316 (A4) Stainless Steel Screws.**
- **NBR nitrile nubber seals.** FPM/FKM or SILICONE on request.
- Acetalic resin + 20% PTFE bearings, for low friction, easily replaceable for maintenance. PA66 or LEXAN on request.
- Pre-compressed Spring Cartridges, easily replaceable for maintenance, 60-80 micron polyester painted.
- High performances Syntetic Grease as standard grease. Special grease supplied for HIGH/LOW/VERY LOW temperatures.
- Several special protections available for chemical, pharmaceutical, food and industrial environments.
- Rotation adjustment $\pm 5^\circ$ in both opening and closing position. Assembly precision $\pm 1^\circ$, made by electronic devices.
- Double lower drilling for valve fastening and centering, according to ISO 5211-DIN 3337 Standards.
- Double square lower female shaft key (starlike), according to ISO 5211-DIN 3337 Standards for assembly on valves with square key on line (0°) and diagonal key (45°).
- Solenoid connections according to NAMUR VDI\VDE-3845 Standards.
- Top drilling for accessories fastening, and upper shaft end according to NAMUR VDI\VDE-3845 Standards.
- Position indicator on request, enabling switch-box assembly on top.
- Aluminium adhesive nameplates, with progressive serial number punched.
- Lubrication carried out by the manufacturer, guaranteed for min. 1.000.000 operations.
- Running test and 100% seal test carried out with electronic equipment and certification of every individual product.
- Standard execution for temperatures from -20°C to $+80^\circ\text{C}$ (optional, special execution for extreme temperatures).
- Conformity for use in explosive environment; Ex II 2 GD "c" protection type.
- According to EN 15714-3 design and manufacture standard requirements.

FEEDING	TEMPERATURE RANGE	SUPPLY PRESSURE	ROT. ADJUSTMENT
Dry or lubricated 50 um filtered compressed air	Standard $-20^\circ +80^\circ\text{C}$ ($-4 +175^\circ\text{F}$) HIGH Temperature $-20^\circ +150^\circ\text{C}$ ($-4 +300^\circ\text{F}$) LOW Temperature $-40^\circ +80^\circ\text{C}$ ($-40 +175^\circ\text{F}$) VERY LOW Temperature $-60^\circ +80^\circ\text{C}$ ($-76 +175^\circ\text{F}$)	8 bar/120 psi Continuous working - 10 bar/142 psi MAXIMUM	$\pm 5^\circ$ in both OPENING and CLOSING position

DOUBLE ACTING TORQUES IN Nm

TYPE	AIR SUPPLY PRESSURE (bar)									
	1	2	3	4	5	6	7	8	9	10
RE 043	-	-	6,5	8,7	10,9	13,0	15,2	17,3	19,5	21,7
RE 051	3,3	6,7	10,0	13,4	16,7	20,1	23,4	26,8	30,1	33,5
RE 064	5,9	11,8	17,8	23,7	29,6	35,5	41,4	47,4	53,3	59,2
RE 076	11,8	23,5	35,3	47,1	58,9	70,6	82,4	94,2	105,9	117,7
RE 086	17,2	34,5	51,7	68,9	86,1	103,4	120,6	137,8	155,0	172,3
RE 101	27,5	54,9	82,4	109,8	137,3	164,8	192,2	219,7	247,1	274,6
RE 116	43,7	87,4	131,1	174,9	218,6	262,3	306,0	349,7	393,4	437,1
RE 126	56,6	113,3	169,9	226,5	283,2	339,8	396,4	453,0	509,7	566,3
RE 146	88,4	176,7	265,1	353,4	441,8	530,1	618,5	706,9	795,2	883,6
RE 161	114,9	229,7	344,6	459,5	574,3	689,2	804,1	918,9	1034	1149
RE 181	156,6	313,1	469,7	626,3	782,9	939,4	1096	1253	1409	1565
RE 201	215,3	430,6	646,0	861,3	1077	1292	1507	1723	1938	2153
RE 241	372,5	745,0	1118	1490	1863	2235	2608	2980	3353	3725
RE 271	539,2	1078	1617	2157	2696	3235	3774	4314	4853	5392
RE 331	911,5	1823	2734	3646	4558	5469	6835	7292	8204	9115
RE 421	1671	3342	5013	6684	8354	10025	11696	13367	-	-

SINGLE ACTING TORQUES IN Nm

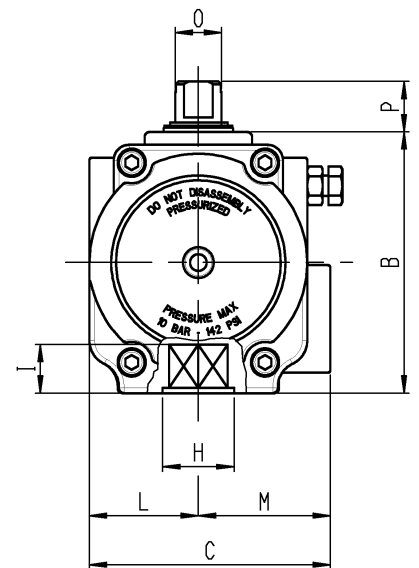
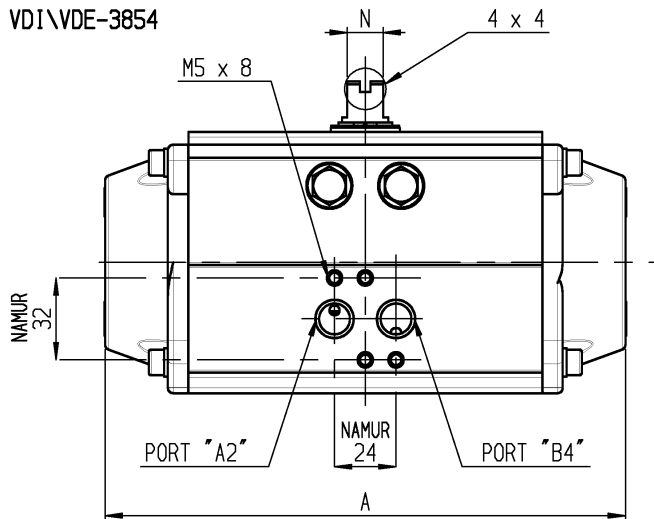
TYPE	SPRING SET	AIR SUPPLY PRESSURE (bar)												SPRING TORQUE	
		3		4		5		6		7		8		90°	0°
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°		
RE 043	SR 3/3 SR 4/4	-	-	-	-	7,1	4,1	9,3	6,3	11,5	8,5	13,7	10,7	6,8	3,8
RE 051	SR 3/3 SR 4/4 SR 5/5 SR 6/6	5,8 4,4	4,3 2,3	9,1 7,8	7,6 5,7	12,5 11,1	10,9 9,0	15,8 14,4	14,3 12,3	19,2 17,8	17,6 15,7	22,5 21,1	21,0 19,0	5,8 7,8	4,3 5,7
RE 064	SR 3/3 SR 4/4 SR 5/5 SR 6/6	10,7 8,4	7,1 3,5	16,6 14,3	13,0 9,4	22,5 20,2	18,9 15,4	28,5 26,1	24,8 21,3	34,4 32,0	30,8 27,2	40,3 38,0	36,7 33,1	10,7 14,3	7,1 9,4
RE 076	SR 3/3 SR 4/4 SR 5/5 SR 6/6	21,1 16,3	14,3 7,2	32,8 28,1	26,0 19,0	44,6 39,8	37,8 30,8	56,4 51,6	49,6 42,5	68,1 63,4	61,3 54,3	79,9 75,2	73,1 66,1	21,1 28,1	14,3 19,0
RE 086	SR 3/3 SR 4/4 SR 5/5 SR 6/6	33,8 27,9	17,8 6,6	51,1 45,1	35,1 23,8	68,3 62,3	52,3 41,0	85,5 79,6	69,5 58,2	102,7 96,8	86,7 75,5	120,0 114,0	104,0 92,7	33,8 45,1	17,8 23,8
RE 101	SR 3/3 SR 4/4 SR 5/5 SR 6/6	50,1 39,3	32,3 15,6	77,5 66,8	59,7 43,0	105,0 94,2	87,2 70,5	132,5 121,7	114,7 98,0	159,9 149,2	142,1 125,4	187,4 176,6	169,6 152,9	50,1 66,8	32,3 43,1
RE 116	SR 3/3 SR 4/4 SR 5/5 SR 6/6	80,7 63,9	50,5 23,5	124,4 107,6	94,2 67,3	168,1 151,3	137,9 111,0	211,8 195,0	181,6 154,7	255,5 238,7	225,3 198,4	299,3 282,4	269,0 242,1	80,7 107,6	50,5 67,3
RE 126	SR 3/3 SR 4/4 SR 5/5 SR 6/6	105,0 83,3	64,9 29,9	161,6 140,0	121,5 86,5	218,2 196,6	178,2 143,2	274,9 253,2	234,8 199,8	331,6 309,9	291,4 256,4	388,1 366,5	348,0 313,0	105,0 140,0	64,9 86,6
RE 146	SR 3/3 SR 4/4 SR 5/5 SR 6/6	162,5 128,3	102,6 48,4	250,8 216,6	190,9 136,8	339,2 305,0	279,3 225,1	427,5 393,3	367,7 313,5	515,9 481,7	456,0 401,9	604,3 570,1	544,4 490,2	162,5 216,6	102,6 136,8
RE 161	SR 3/3 SR 4/4 SR 5/5 SR 6/6	202,7 155,3	141,9 74,3	317,5 270,2	256,8 189,2	432,4 385,1	371,6 304,1	547,3 499,9	486,5 418,9	662,1 614,8	601,4 533,8	777,0 729,7	716,2 648,7	202,7 270,2	141,9 189,2
RE 181	SR 3/3 SR 4/4 SR 5/5 SR 6/6	281,6 218,8	188,2 94,3	438,1 375,4	344,7 250,9	594,7 532,0	501,3 407,5	751,3 688,5	657,9 564,0	907,8 845,1	814,5 720,6	1064 1002	971,0 877,2	281,6 375,4	188,2 250,9
RE 201	SR 3/3 SR 4/4 SR 5/5 SR 6/6	386,2 299,6	259,8 131,1	601,5 514,9	475,13 46,4	816,8 730,2	690,5 561,8	1032 945,5	905,8 777,1	1247 1160	1436 1376	1712 1609	1566 1436	386,2 514,9	259,8 346,4
RE 241	SR 3/3 SR 4/4 SR 5/5 SR 6/6	664,0 521,8	453,6 232,3	1037 885,4	826,2 604,8	1409 1258	1199 977,4	1782 1630	1571 1350	2154 2003	1944 1722	2527 2376	2316 2095	664,0 885,4	453,6 604,8
RE 271	SR 3/3 SR 4/4 SR 5/5 SR 6/6	912,5 677,5	705,1 400,8	1452 1217	1244 940,2	1991 1756	1783 1479	2530 2295	2323 2019	3069 2834	2862 2558	3608 3373	3401 3097	912,5 1217	705,1 940,1
RE 331	SR 3/3 SR 4/4 SR 5/5 SR 6/6	1626 1257	1108 565,8	2538 2168	2020 1477	3450 3080	2931 2389	4361 3992	3843 3301	5273 4903	4755 4212	6184 5815	5666 5123	1626 2168	1108 1477
RE 421	SR 3/3 SR 4/4 SR 5/5 SR 6/6	2999 2327	2014 1014	4670 3998	3685 2685	6340 5669	5356 4356	8011 7340	7026 6027	9682 9011	8697 7698	11353 9369	10368 9369	2999 3998	2014 2685
				3327	1685	4998	3356	6669	5027	8340	6698	8369	8369	4998	3356
				4327	2357	5997	4028	7668	5698	7369	7369			5997	4028

Torque by air

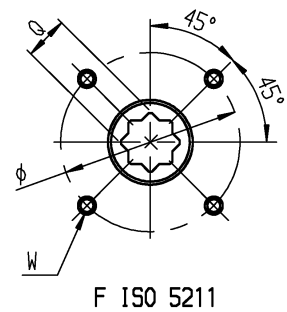
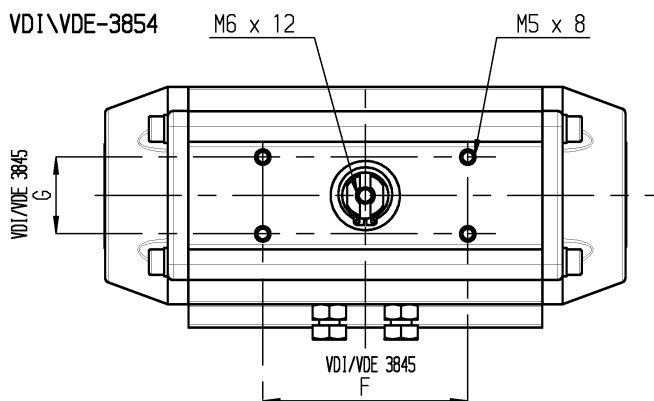
Torque by springs

DIMENSIONS – European Sizes in millimetres

VDI/VDE-3854



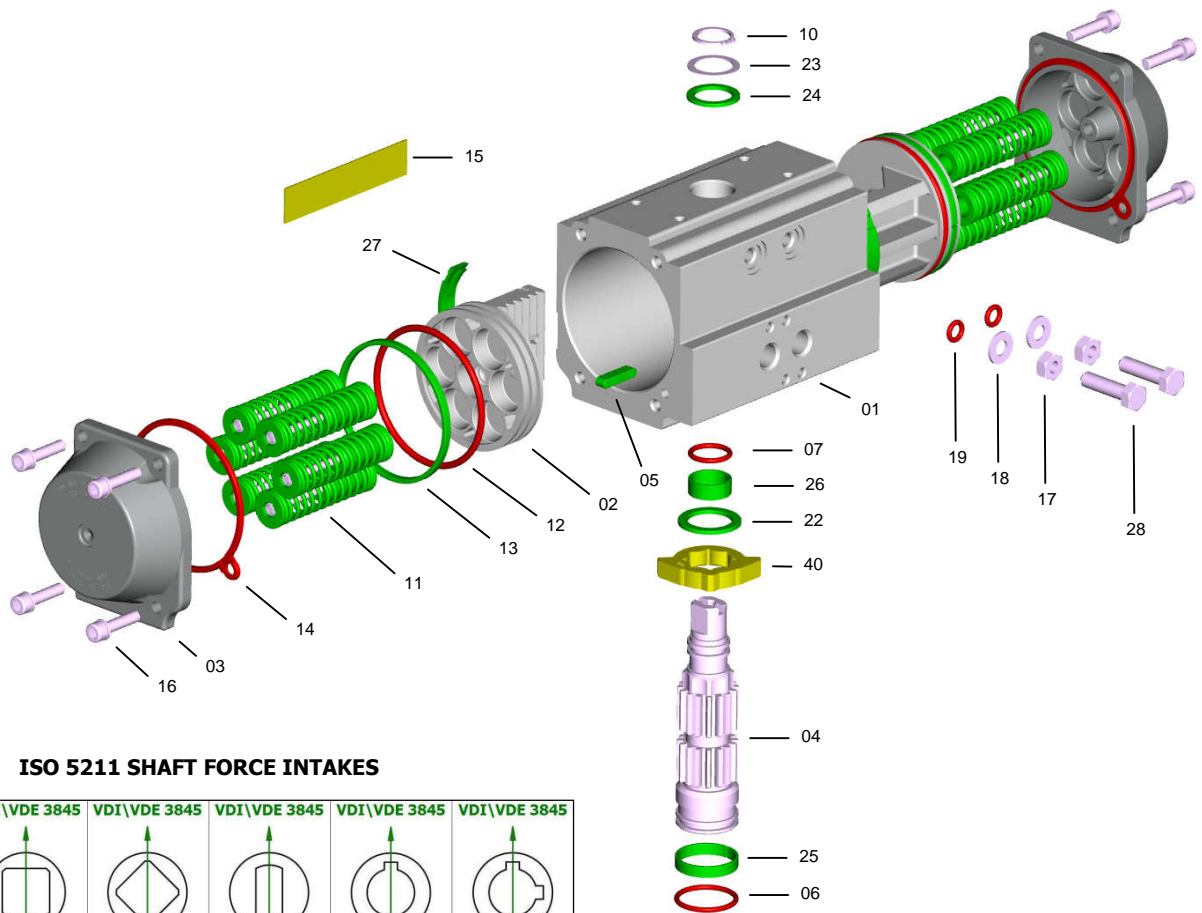
VDI/VDE-3854



POSITION	TYPE															
	RE 043	RE 051	RE 064	RE 076	RE 086	RE 101	RE 116	RE 126	RE 146	RE 161	RE 181	RE 201	RE 241	RE 271	RE 331	RE 421
A	141	138	155	203	239	261	304	333	398	424	482	528	604	684	850	940
B	62	69	86	102	112	127	145,5	157,5	177	196	220	246	298	332	414	542
C	63,5	75	86	94	104	120	133,5	144,5	164,5	182	203,5	222	300	352	400	528
VDI/VDE 3845 F x G	80 x 30 50 x 25	80 x 30					80 x 30 130 x 30			130 x 30						200 x 50
L	27	33,5	38	42,5	49	55	63,5	69,5	80,5	89	99,5	110	150	176	190	234
M	36,5	41,5	48	51,5	55	65	70	75	84	93	104	112	150	176	210	294
Port A Port B DIN 259	1/8" GAS-NPT			1/4" GAS-NPT									1/2" GAS-NPT			
N x O	8 x 12			14 x 18			27 x 36			32 x 42		42 x 60	55 x 80			
P	20						30			50						80
Q x I	9 x 10 11 x 13	9 x 10 11 x 13	9 x 10 11 x 13 14 x 16	11 x 13 14 x 16 17 x 20	14 x 16 17 x 20	14 x 16 17 x 20 22 x 25	17 x 20 22 x 25	17 x 20 22 x 25 27 x 29	22 x 25 27 x 29	22 x 25 27 x 29	27 x 29 36 x 39	27 x 29 36 x 39	36 x 39 46 x 50	36 x 39 46 x 50	*46 x 50 55 x 60	*55 x 60 75 x 80
F ISO 5211	F04	F04	F05/07	F05/07	F05/07	F07/10	F07/10	F07/10	F10/12	F10/12	F10/12	F14	F14	F16	F16/25	F25/30
Optional	F03/05	F03/05	F3/5/7			F5/7/10		F7/10/12			F14	F10/12	F(12)/16	F(12)/16		F(16)
Volume DE	0,180 lt	0,300 lt	0,500 lt	0,700 lt	1,000 lt	1,800 l	2,900 lt	3,700 lt	6,100 lt	7,900 lt	11,2 lt	14,4 lt	19,2 lt	32,2 lt	62,8 lt	131 lt
Volume SE	0,072 lt	0,120 lt	0,200 lt	0,280 lt	0,400 lt	0,720 l	1,160 lt	1,480 lt	2,440 lt	3,160 lt	4,480 lt	5,760 lt	7,680 lt	12,9 lt	25,1 lt	52,4 lt

POSITION	F ISO 5211											
	F03	F04	F03/05	F05	F05/07	F5/7/10	F07/10	F10/12	F14	F16	F25	F30
Ø (W)	Ø 36 (M5x8)	Ø 42 (M5x8)	Ø 36 (M5x8) Ø 50 (M6x9)	Ø 50 (M6x9)	Ø 50 (M6x9) Ø 70 (M8x12)	Ø 50 (M6x9) Ø 70 (M8x12) Ø 102 (M10x15)	Ø 70 (M8x12) Ø 102 (M10x15)	Ø 102 (M10x15) Ø 125 (M12x18)	Ø 140 (M16x24)	Ø 165 (M20x30)	Ø 254 (M16x24) N°8 FORI	Ø 298 (M20x35) N°8 FORI
H	25	30	25	35	35 (RE 086=40)	40	55	85 (RE 161=75)	100	130	200	200

CONSTRUCTION PARTS – SPECIFICATIONS



ISO 5211 SHAFT FORCE INTAKES

VDI\VDE 3845	VDI\VDE 3845	VDI\VDE 3845	VDI\VDE 3845	VDI\VDE 3845	VDI\VDE 3845
STANDARD ALPHAIR S = L/D	L	D	H	V	W

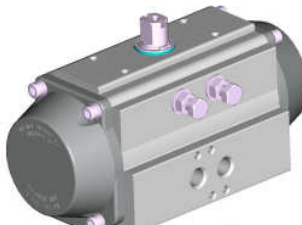
PART	QUANTITY	DESCRIPTION	MATERIAL	SPECIFICATION	PROTECTION
1	1	Body	Extruded aluminium alloy	EN AW 6063 T6	A - N - TF
2	2	Piston	Aluminium alloy	EN AB 46100 T6	A
3	2	Cover	Aluminium alloy	EN AB 46100 T6	N - V - TF
4	1	Shaft	Carbon steel Stainless Steel – optional	ASTM A-105 AISI 304 (A2) AISI 316 (A4)	N
5 *	2	Antiejection key	Acetalic resin – PA66 – PA66 – LEXAN		
6 *	1	Lower shaft O-Ring	NBR – FPM\FKM – Silicone – Silicone		
7 *	1	Upper shaft O-Ring	NBR – FPM\FKM – Silicone – Silicone		
10 *	1	Seeger ring	Carbon steel		N
11	0 ... 12	Spring cartridge	Carbon steel, PA 66, Stainless Steel	C-98	V
12 *	2	Piston O-Ring	NBR – FPM\FKM – Silicone – Silicone		
13 *	2	Piston head bearing	Acetalic resin – PA66 – PA66 – LEXAN		
14 *	2	Cover gasket	NBR – FPM\FKM – Silicone – Silicone		
15	1	Nameplate	Aluminium		
16	4 + 4	Cover fastening screw	Stainless Steel	AISI 304 (A2)	
17	2	Nut	Stainless Steel	AISI 304 (A2)	
18	2	Washer	Stainless Steel	AISI 304 (A2)	
19 *	2	O-Ring	NBR – FPM\FKM – Silicone – Silicone		
22 *	1	Gear antifriction washer	Acetalic resin – PA66 – PA66 – LEXAN		
23 *	1	Shaft thrust washer	Stainless Steel	AISI 304 (A2)	
24 *	1	Shaft antifriction washer	Acetalic resin – PA66 – PA66 – LEXAN		
25 *	1	Lower shaft pilot ring	Acetalic resin – PA66 – PA66 – LEXAN		
26 *	1	Upper shaft pilot ring	Acetalic resin – PA66 – PA66 – LEXAN		
27 *	2	Piston bearing	Acetalic resin – PA66 – PA66 – LEXAN		
28	2	Adjusting gear screw	Stainless Steel	AISI 304 (A2)	
40	1	Adjusting gear	Stainless Steel	AISI 316 (A4)	

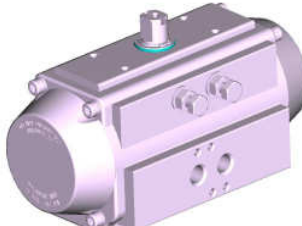
* SPARE PARTS SET: Standard, Special HIGH Temperatures, Special LOW Temperatures, Special EXTRA LOW Temperatures

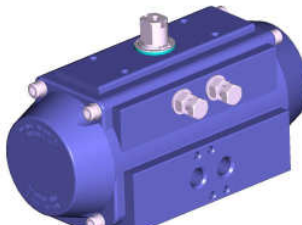
PROTECTIONS

A = Anodizing N = chemical Nickel-plating V = Painting TF = Anodizing+PTFE

COATINGS – MATERIAL TREATMENTS

	AV standard	DESCRIPTION				APPLICATION FIELD
		Body	Covers	Pistons	Shaft	
	Anodizing	Polyester painting	Anodizing	High phosphorous nickel-plating (12%) opt. AISI 304 (A2) opt. AISI 316 (A4)	- Industry, general use.	
	Colour	Gray	Gray	Brown		Polished steel
Thickness	25 µ	60/80 µ	15 µ	20 µ		

	NN	DESCRIPTION				APPLICATION FIELD
		Body	Covers	Pistons	Shaft	
	High phosphorous nickel-plating (12%)	High phosphorous nickel-plating (12%)	Anodizing	High phosphorous nickel-plating (12%) opt. AISI 304 (A2) opt. AISI 316 (A4)	- Industry, general use. - Caustic soda. - Detergents. - Low alkaline solutions.	
	Colour	Polished steel	Polished steel	Brown		Polished steel
Thickness	20 µ	20 µ	15 µ	20 µ		

	TF TF	DESCRIPTION				APPLICATION FIELD
		Body	Covers	Pistons	Shaft	
	Anodizing + PTFE coating	Anodizing + PTFE coating	Anodizing	High phosphorous nickel-plating (12%) opt. AISI 304 (A2) opt. AISI 316 (A4)	- Industry, general use. - Low alkaline and low acid solutions. - Marine environments. - High temperatures.	
	Colour	Blue	Blue	Brown		Polished steel
Thickness	Anodizing 25 µ PTFE 15 µ	Anodizing 15 µ PTFE 15 µ	15 µ	20 µ		

ANODIZING

Anodizing is an electrolytic process that produces anodic coating on aluminum, called alumine, with high thickness. Alumine is one of the most hard known materials, with resistance values up to 400-600 HV (45-65 HRC); properties and features of Anodizing (alumine thickness 25 micron) are well know and appreciated both for mechanical and chemical resistance.

- **Best friction and corrosion resistance, best surface hardness, good thermic and electrical insulation.**

ELECTROLESS NICKEL-PLATING

Chemical nickel-plating is an electroless coating process that gives nickel layers at extremely constant thickness also on sharp angles, blind-holes, threads and grooves recess. During the process, nickel is combined with phosphor at a percentage of 12% (high-phosphor). The obtained surface hardness is about 400-480 HV (45-55 HRC).

- **Best friction and corrosion resistance, best surface hardness, best external appearance similar to S.S., increased resistance to alcali and detergents in sanitary and food applications.**

POLYESTER PAINTING

Polyester painting is obtained through powder coatings on polarized parts, by means of light differences in electrical potentials. After applications, parts are baked in order to polymerize and let the painting be spread to avoid micro-porosity. The best elasticity can be obtained at 60/80 micron thickness; a satisfactory adhesion can be assured by sandblasting or brushing, and by special degreasing baths of the rough pieces to be treated.

- **Better corrosion resistance, protection against crashes, better external appearance and several available colours, resistance to chemicals.**

ANODIZING + PTFE COATING

As further improvement of the hard anodising treatment on aluminium alloys, protective coatings made of PTFE are used; this material is known for its particular chemical and physical features. On these double treated surfaces, oxide hardness and low roughness (internal slipping parts) is summed to the chemical resistance and the excellent qualities as a thermic barrier of PTFE (external surface, subject to corrosion).

- **Better corrosion resistance, protection against high temperatures and crashes, extreme resistance to chemicals and in marine environments.**

AISI 304 (A2) OR AISI 316 (A4) STAINLESS STEEL SHAFT - OPTIONAL

AISI 304 (A2) and AISI 316 (A4) Stainless Steel shafts, with their great corrosion resistance, are recommended for special applications such as: marine and chemical environments, food and pharmaceutical industry, high temperature applications.



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