1111-1112 BUTTERFLY VALVES WITH AP RE PNEUMATIC ACTUATOR

FEATURES

The 1111 steel and 1112 stainless steel butterfly valves are butterfly valves without any elastomer liner, with steel-steel non-sealed seat designed for the shut-off and the control of flow-rates on the networks of neutral gases or smokes. Wafer mounting with centring ears between PN10/16 and ANSI 150 flanges. The ISO 5211 mounting pad allows the actuator to be directly assembled. The AP RE (adjustable stops) pneumatic motorisation is available in double and spring-return with numerous options.

On request

AVAILABLE MODELS

DN 40 to DN 300. (DN350 to DN1400 on request)
PN10/16 and ANSI 150 RF wafer connections up to DN400 included.
PN10 wafer connections starting from DN450.
Double and spring-return actuator.

LIMITS OF USE

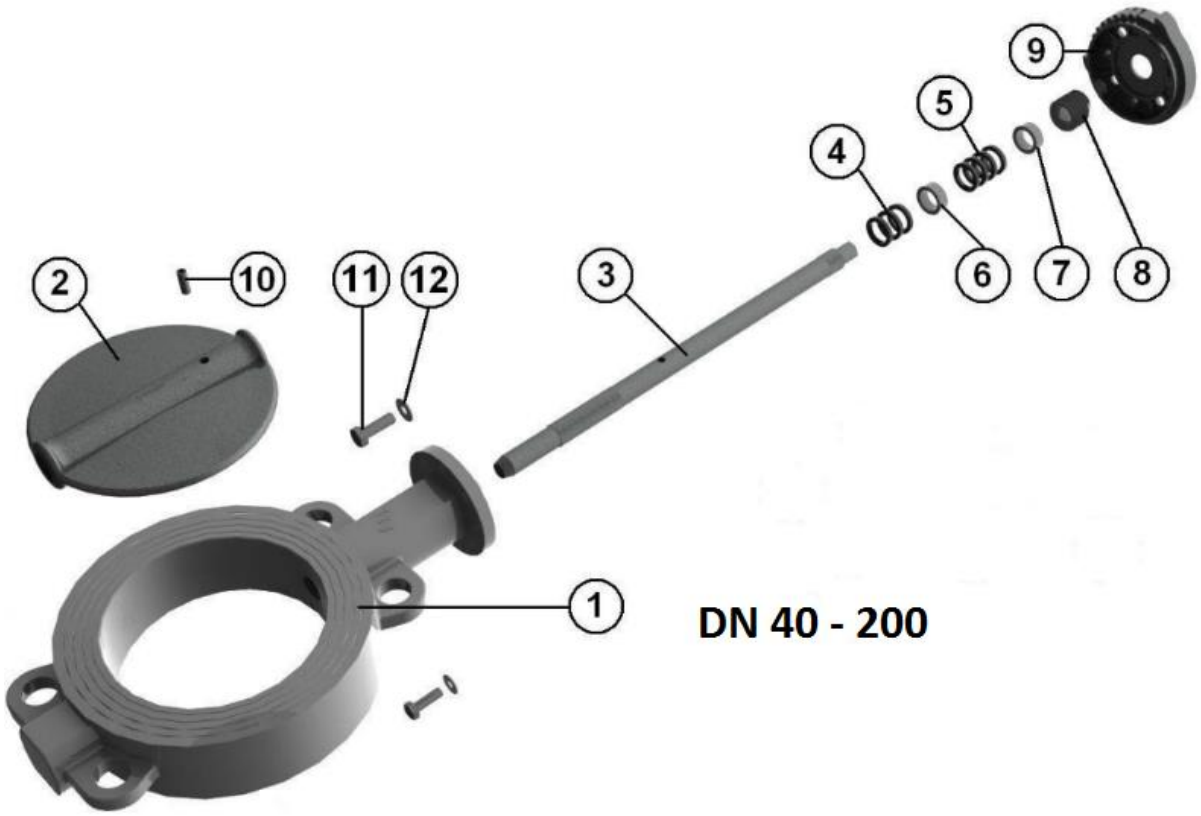
Fluid pressure: PS	16 bar up to DN 300 10 bar beyond
Fluid temperature: WT	**Steel** : -20°C / +350°C
	Stainless steel : -30°C / +350°C
Ambient temperature	-15°C / +80°C
Motor compressed air	mini 6 bar / maxi 10 bar
Leak flow-rate	2% of Kvs

DIRECTIVES AND MANUFACTURING STANDARDS

OBJET	Standard	ON	OBJET	Standard
Pressure Equipment Directive 2014/68/EC	Cat. III modules H	0094	Final test	EN 12266-1
ATEX Directive	II 2G/D Tx zones 1,2,21 and 22	0038	Face-to-face dimension	ISO 5752 series 20
Construction	ISO 10631, EN 593		Actuator pilot connection	NAMUR
Body materials	EN 1503-2		Switch box connection	VDI/VDE 3845
Material certificate	EN 10204		Connection Motorization	ISO 5211
Flange dimension	EN 1092-1 and ASME B16.10		SIL 3 level (the actuator alone)	EN 61508

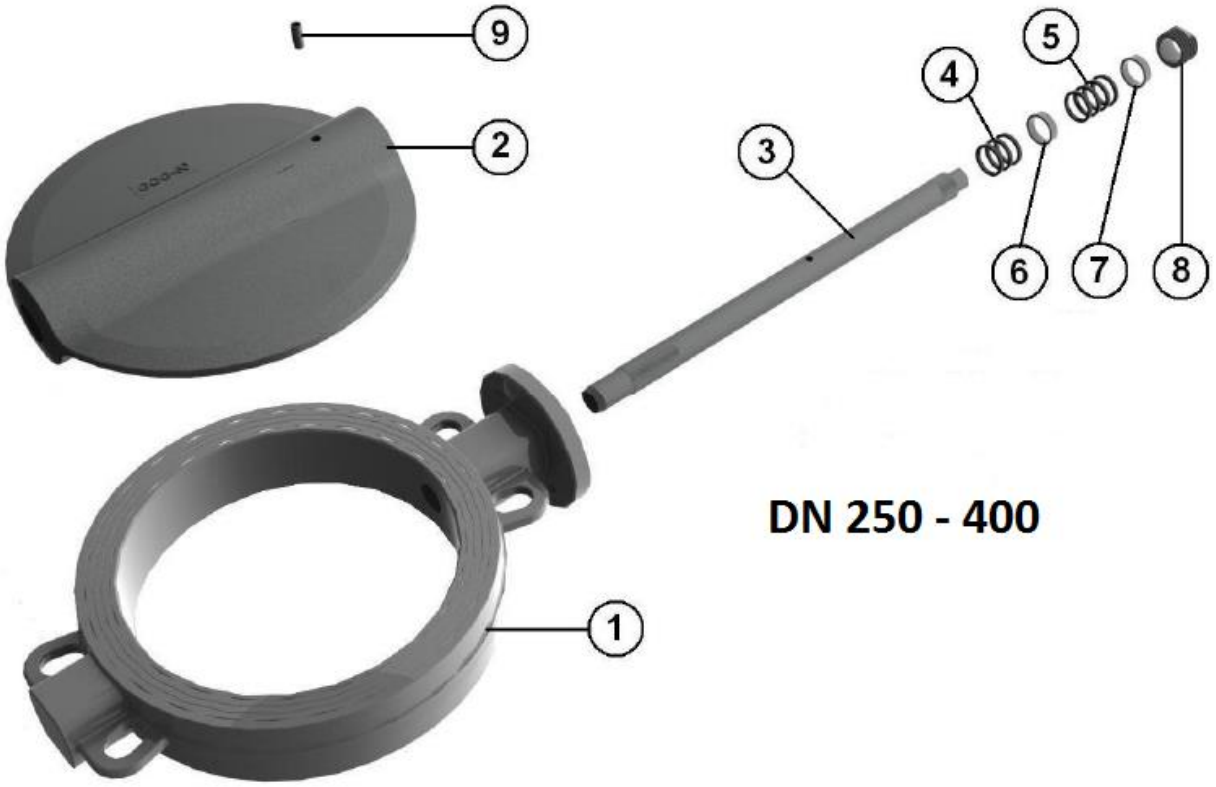
Information given as an indication only, and subject to possible modifications

CONSTRUCTION



No.	Name	Materials 1111	Materials 1112
1	Body	A216 WCB steel	1.4408 SS
2	Butterfly DN40-100	1.4408 SS	1.4408 SS
2	Butterfly DN125-200	Ductile iron EN GJS 500-7 chromed	1.4408 SS
3	Stem	420 SS	316 SS
4	Gaskets	GRAPHITE FILAM.	GRAPHITE FILAM.
5	Gaskets	GRAPHITE FILAM.	GRAPHITE FILAM.
6	Ring	BRONZE	316 SS
7	Ring	BRONZE	316 SS
8	Socket	5.6 steel	316 SS
9	Mounting pad	Aluminium	1.4408 SS
10	Pin	ST-34	316 SS
11	Screw	5.6 steel	304 SS
12	Washer	Steel	316 SS

CONSTRUCTION



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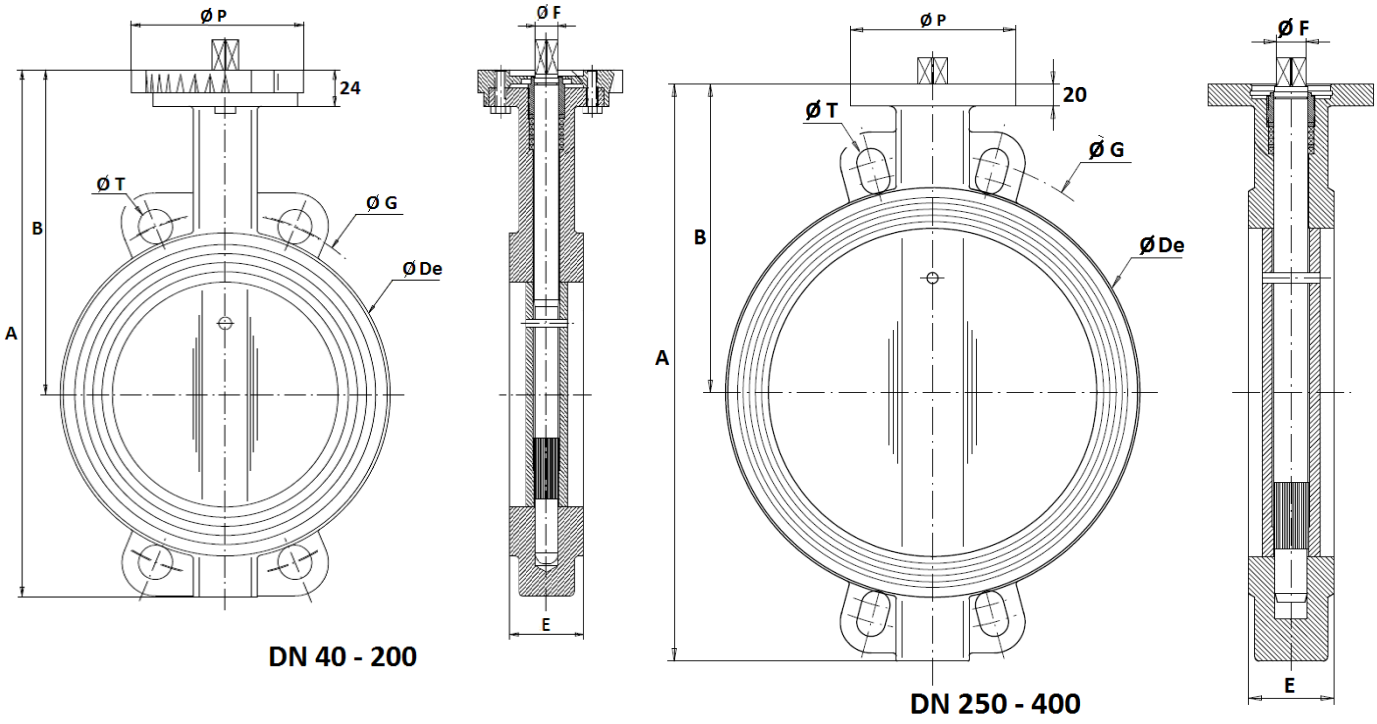
DIMENSIONS (mm)



DN	40	50	65	80	100	125	150	200	250	300	350	400
A	205	228	248	265	298	331	349	430	461	524	570	644
B	140	156	161	169	187	206	215	255	248	280	300	340
Ø De	82	102	119	135	155	185	208	270	328	381	437	486
E	33	43	46	46	52	56	56	60	68	78	78	102
Ø F	9.5	9.5	12	14	14	17	17	21	23	26.5	26.5	33
Ø G (PN10)	110	125	145	160	180	210	240	295	350	400	460	515
Ø G (PN16)									355	410	470	525
Ø P	88	88	88	88	88	105	105	105	150	150	170	170
Ø T (PN10)	18	18	18	18	18	18	23	23	23	23	23	27
Ø T (PN16)									27	27	27	30
1111 Weight (kg)	3.1	4.27	5.27	5.78	7.4	10.15	11.74	19.6	30	40	54	75
1112 Weight (kg)	3.07	4.57	4.89	5.95	7.58	10.22	12.23	19	30	40	54	75

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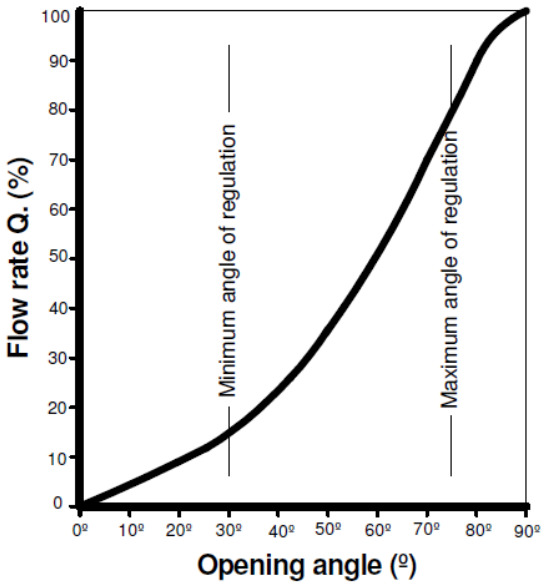
FLOW-RATE COEFFICIENT Kv (m3/h)

DN	Opening angle									
	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°
40	2	3	5	10	16	26	48	35	35	35
50	3	10	11	19	39	61	75	61	61	61
65	5	12	15	27	47	64	94	109	109	109
80	7	14	22	47	72	118	179	246	246	246
100	10	16	29	59	96	143	195	265	345	345
125	14	39	51	110	173	253	357	500	598	598
150	19	45	69	149	281	302	498	702	1015	1072
200	21	61	138	260	427	638	910	1388	1751	1751
250	23	95	213	407	673	1015	1473	2062	2993	2993
300	34	135	310	508	990	1490	2135	3013	4224	4507
350	76	153	341	766	881	1772	2783	3963	6190	6199
400	88	202	563	1081	1785	2687	3856	5482	8368	8792

Head loss calculations :

Δp = (Q / Kv)² x SG
Q : flow in m³/h
Δp : Head loss in bar
SG : Specific gravity (= 1 for water)
Kv : Volume of water in m³/h, that will flow through a given restriction or valve opening with a pressure drop of 1 bar at 20°C.



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AP RE PNEUMATIC MOTORIZATION

The ALPHAIR RE motorisation proposed as standard comprises:
- rack and pinion actuator of anodised aluminium.
- a safety coefficient of 1.3 minimum compared to the nominal torque of the valve.
- air non-lubricated dry motor, minimum 6 bar pressure.
- an upstream / downstream pressure difference ΔP=10 bar max.

The actuator assembly is of the following types:
- direct assembly with DN 32 to DN 300 aluminium motorisation mounting pad.
- yoke + stainless steel drive according to the EN 15081 standard for DN 300 with RES.

DN	Double-effect	V (litres)	Time (s)*	Spring-return	V (litres)	Time (s)*
40	RE 51	0.23	1	RES 64/6	0.45	1
50	RE 51	0.23	1	RES 64/6	0.45	1
65	RE 64	0.45	1	RES 76/6	0.61	1
80	RE 64	0.45	1	RES 76/6	0.61	1
100	RE 76	0.61	1	RES 86/6	0.98	2
125	RE 76	0.61	1	RES 101/6	1.80	2
150	RE 86	0.98	2	RES 116/6	2.80	2
200	RE 101	1.80	2	RES 126/6	3.70	3
250	RE 116	2.80	2	RES 146/6	4.90	3
300	RE 126	3.70	3	RES 181/6	11.1	5

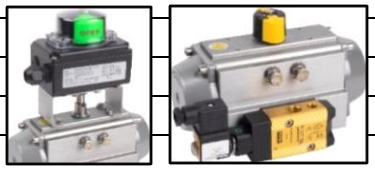
For any other operating conditions, please contact us.
*indicative time of the no-load actuator for opening or closing.

INSTALLATION IN AN ATEX ZONE

For 1111-1112+AP RE automatic valves to be installed in ATEX 1, 2, 21 or 22 zones, this has to be specified when ordering. Our services will check of the assembly, the installation of an earthing braid, and will issue an assembly certificate. Our authorised technicians carry out these operations in the workshop. Please contact us.
The special assembly and maintenance instructions for motorised valves in the ATEX zones must be followed.

MOTORIZATION OPTIONS

1	actuators dimensioned for a compressed air pressure of 3, 4 or 5 bar
2	actuator dimensioned for an upstream / downstream pressure difference ΔP greater than 10 bar
3	actuator with special coatings, stainless steel actuator
4	Actuator for very low (-60°C) or very high (+150°C) ambient temperatures.
5	manual override with declutchable gear box
6	compressed air filter regulator
7	All types of piloting solenoid valves
8	all types of switch boxes
9	all types of positioner
10	rapid exhaust, flow-rate limiters - exhaust brakes



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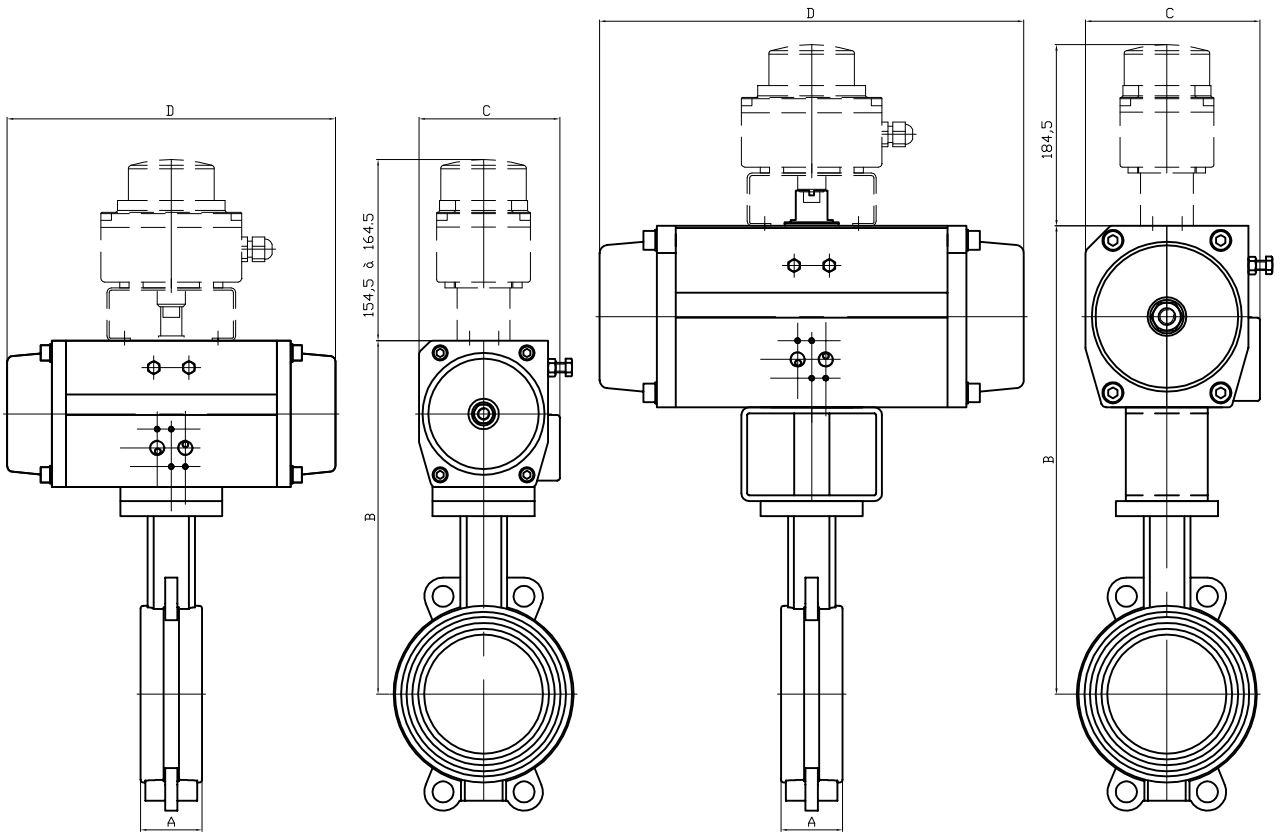


* : montage avec platine H=80mm

DN	40		50		65		80		100		125	
ALPHAIR	51 RE	64 RES	51 RE	64 RES	64 RE	76 RES	64 RE	76 RES	76 RE	86 RES	76 RE	101RES
A	33		43		46		46		52		56	
B	209	226	225	242	247	263	255	271	289	299	308	333
C	75	86	75	86	86	94	86	94	94	104	94	120
D	138	155	138	155	155	203	155	203	203	239	203	261
KG	4.8	5.5	5.1	5.8	6.8	8.4	7.9	9.4	10.5	12.3	13.1	16.8

DN	150		200		250		300	
ALPHAIR	86 RE	116RES	101 RE	126RES	116 RE	146RES	126 RE	181RES
A	56		60		68		78	
B	327	361	382	413	394	425	438	580*
C	104	134	120	145	134	165	145	204
D	239	304	261	333	304	398	333	482
KG	15.9	22.3	25.4	32.5	38.6	46.6	51.1	63.8

Informations données à titre indicatif et sous réserve de modifications éventuelles
data subject to alteration

				Ajout 1112 dans titre	17 02 2023	A
Ech:/	Date :06/03/2017	Dessiné par :E.D.	Tolérances générales : +/- 0.2	Modifications	Date	REV.

RÔBINET A PAPILLON 1111-1112/BUTTERFLY VALVE 1111-1112 +
ACTIONNEUR ALPHAIR RE/PNEUMATIC ACTUATOR ALPHAIR RE + BFC/LIMIT SWITCH BOX

Matière :

Poids (Kg) :

Traitement : SANS

SECTORIEL

45, Rue du Ruisseau

38297 SAINT QUENTIN FALLAVIER

Plan n° Ens 1282A

Alphair

RE SERIES

PNEUMATIC ACTUATORS
WITH EXTERNAL ADJUSTMENT

ROTATION 90°

ALPHA POMPE s.p.a.

Alphair

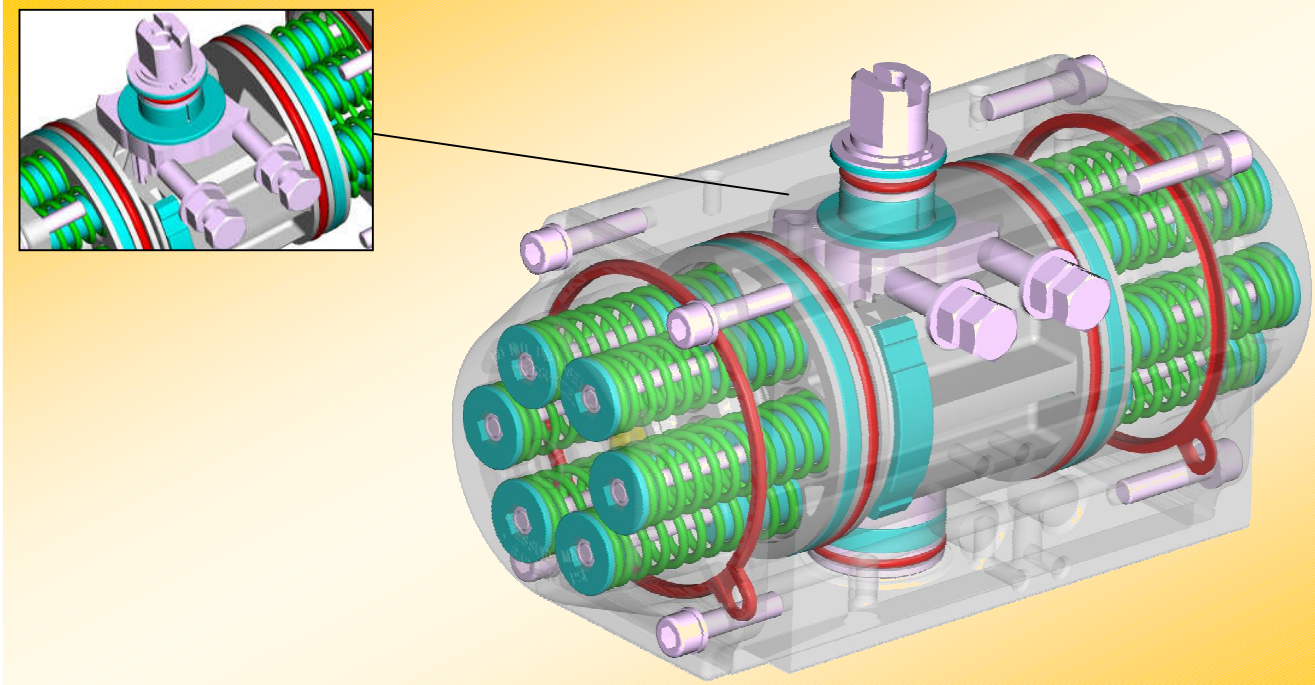
IR 3

Distributed in FRANCE by SECTORIEL

English edition

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 +\-5° in both opening and closing position. Assembly precision +\-1°, 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°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° +80°C (-4 +175°F) HIGH Temperature -20° +150°C (-4 + 300°F) LOW Temperature -40° +80°C (-40 + 175°F) VERY LOW Temperature -60° +80°C (-76 + 175°F)	8 bar/120 psi Continuous working - 10 bar/142 psi MAXIMUM	+/- 5° in both OPENING and CLOSING position

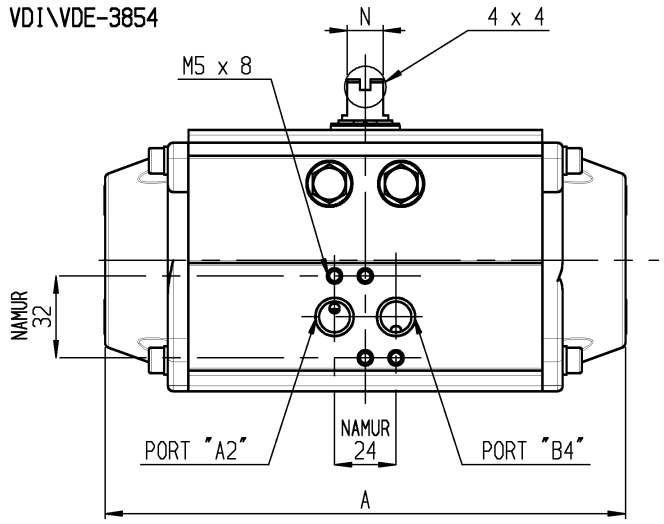
DOUBLE ACTING TORQUES IN Nm

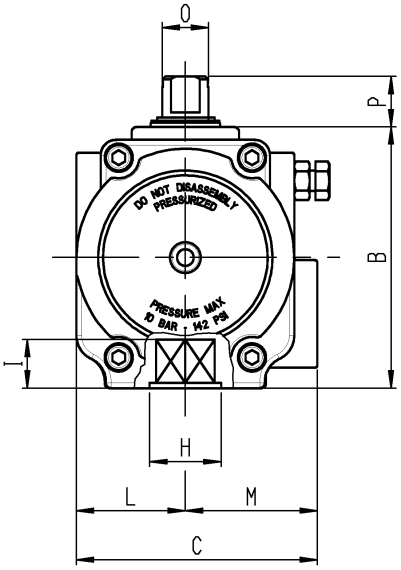
TYPE	AIR SUPPLY PRESSURE (bar)									
	1	2	3	4	5	6	7	8	9	10
RE 043	-	-	6,5	8,7	10,9	**13,0**	15,2	17,3	19,5	21,7
RE 051	3,3	6,7	10,0	13,4	16,7	**20,1**	23,4	26,8	30,1	33,5
RE 064	5,9	11,8	17,8	23,7	29,6	**35,5**	41,4	47,4	53,3	59,2
RE 076	11,8	23,5	35,3	47,1	58,9	**70,6**	82,4	94,2	105,9	117,7
RE 086	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	-	-

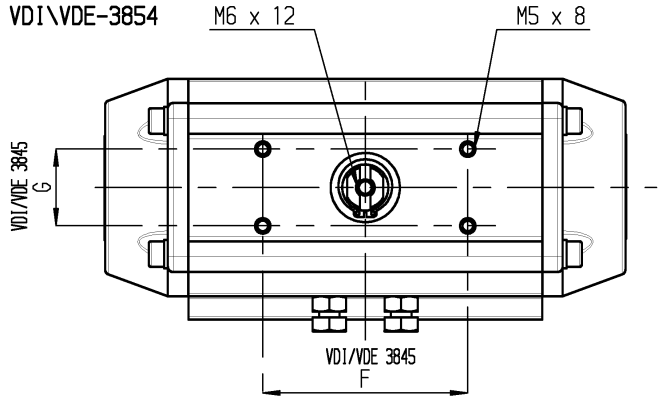
SINGLE ACTING TORQUES IN Nm

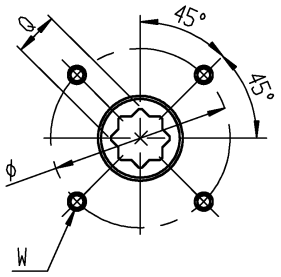
TYPE	SPRING SET	AIR SUPPLY PRESSURE (bar)												SPRING TORQUE	
		3		4		5		6		7		8			
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	90°	0°
RE 043	SR 3/3	-	-	-	-	**7,1**	**4,1**	9,3	6,3	11,5	8,5	13,7	10,7	**6,8**	**3,8**
	SR 4/4							**8,1**	**4,1**	10,2	6,2	12,4	8,4	**9,0**	**5,0**
RE 051	SR 3/3	**5,8**	**4,3**	9,1	7,6	12,5	10,9	15,8	14,3	19,2	17,6	22,5	21,0	**5,8**	**4,3**
	SR 4/4	4,4	2,3	**7,8**	**5,7**	11,1	9,0	14,4	12,3	17,8	15,7	21,1	19,0	**7,8**	**5,7**
	SR 5/5			6,3	3,7	**9,7**	**7,1**	13,0	10,4	16,4	13,8	19,7	17,1	**9,7**	**7,1**
	SR 6/6					8,2	5,1	**11,6**	**8,5**	14,9	11,8	18,3	15,2	**11,6**	**8,5**
RE 064	SR 3/3	**10,7**	**7,1**	16,6	13,0	22,5	18,9	28,5	24,8	34,4	30,8	40,3	36,7	**10,7**	**7,1**
	SR 4/4	8,4	3,5	**14,3**	**9,4**	20,2	15,4	26,1	21,3	32,0	27,2	38,0	33,1	**14,3**	**9,4**
	SR 5/5			11,9	5,9	**17,8**	**11,8**	23,8	17,7	29,7	23,6	35,6	29,6	**17,8**	**11,8**
	SR 6/6					15,5	8,2	**21,4**	**14,1**	27,3	20,1	33,2	26,0	**21,4**	**14,1**
RE 076	SR 3/3	**21,1**	**14,3**	32,8	26,0	44,6	37,8	56,4	49,6	68,1	61,3	79,9	73,1	**21,1**	**14,3**
	SR 4/4	16,3	7,2	**28,1**	**19,0**	39,8	30,8	51,6	42,5	63,4	54,3	75,2	66,1	**28,1**	**19,0**
	SR 5/5			23,3	12,0	**35,1**	**23,8**	46,9	35,5	58,6	47,3	70,4	59,1	**35,1**	**23,8**
	SR 6/6					30,3	16,7	**42,1**	**28,5**	53,9	40,3	65,6	52,0	**42,1**	**28,5**
RE 086	SR 3/3	**33,8**	**17,8**	51,1	35,1	68,3	52,3	85,5	69,5	102,7	86,7	120,0	104,0	**33,8**	**17,8**
	SR 4/4	27,9	6,6	**45,1**	**23,8**	62,3	41,0	79,6	58,2	96,8	75,5	114,0	92,7	**45,1**	**23,8**
	SR 5/5			39,2	12,5	**56,4**	**29,7**	73,6	47,0	90,8	64,2	108,1	81,4	**56,4**	**29,7**
	SR 6/6					50,4	18,5	**67,7**	**35,7**	84,9	52,9	102,1	70,1	**67,7**	**35,7**
RE 101	SR 3/3	**50,1**	**32,3**	77,5	59,7	105,0	87,2	132,5	114,7	159,9	142,1	187,4	169,6	**50,1**	**32,3**
	SR 4/4	39,3	15,6	**66,8**	**43,0**	94,2	70,5	121,7	98,0	149,2	125,4	176,6	152,9	**66,8**	**43,1**
	SR 5/5			56,0	26,4	**83,5**	**53,8**	110,9	81,3	138,4	108,7	165,9	136,2	**83,5**	**53,8**
	SR 6/6					72,7	37,1	**100,2**	**64,6**	127,6	92,0	155,1	119,5	**100,2**	**64,6**
RE 116	SR 3/3	**80,7**	**50,5**	124,4	94,2	168,1	137,9	211,8	181,6	255,5	225,3	299,3	269,0	**80,7**	**50,5**
	SR 4/4	63,9	23,5	**107,6**	**67,3**	151,3	111,0	195,0	154,7	238,7	198,4	282,4	242,1	**107,6**	**67,3**
	SR 5/5			90,8	40,4	**134,5**	**84,1**	178,2	127,8	221,9	171,5	265,6	215,2	**134,5**	**84,1**
	SR 6/6					117,7	57,2	**161,4**	**100,9**	205,1	144,6	248,8	188,3	**161,4**	**100,9**
RE 126	SR 3/3	**105,0**	**64,9**	161,6	121,5	218,2	178,2	274,9	234,8	331,6	291,4	388,1	348,0	**105,0**	**64,9**
	SR 4/4	83,3	29,9	**140,0**	**86,5**	196,6	143,2	253,2	199,8	309,9	256,4	366,5	313,0	**140,0**	**86,6**
	SR 5/5			118,3	51,5	**175,0**	**108,2**	231,6	164,8	288,2	221,4	344,8	278,1	**175,0**	**108,2**
	SR 6/6					153,3	73,2	**210,0**	**129,8**	266,6	186,4	323,2	243,1	**210,0**	**129,8**
RE 146	SR 3/3	**162,5**	**102,6**	250,8	190,9	339,2	279,3	427,5	367,7	515,9	456,0	604,3	544,4	**162,5**	**102,6**
	SR 4/4	128,3	48,4	**216,6**	**136,8**	305,0	225,1	393,3	313,5	481,7	401,9	570,1	490,2	**216,6**	**136,8**
	SR 5/5			182,4	82,6	**270,8**	**171,0**	359,1	259,3	447,5	347,7	535,9	436,0	**270,8**	**171,0**
	SR 6/6					236,6	116,8	**324,9**	**205,2**	413,3	293,5	501,7	381,9	**325,0**	**205,2**
RE 161	SR 3/3	**202,7**	**141,9**	317,5	256,8	432,4	371,6	547,3	486,5	662,1	601,4	777,0	716,2	**202,7**	**141,9**
	SR 4/4	155,3	74,3	**270,2**	**189,2**	385,1	304,1	499,9	418,9	614,8	533,8	729,7	648,7	**270,2**	**189,2**
	SR 5/5			222,9	121,6	**337,8**	**236,5**	452,6	351,4	567,5	466,2	682,4	581,1	**337,8**	**236,5**
	SR 6/6					290,4	168,9	**405,3**	**283,8**	520,2	398,6	635,0	513,5	**405,3**	**283,8**
RE 181	SR 3/3	**281,6**	**188,2**	438,1	344,7	594,7	501,3	751,3	657,9	907,8	814,5	1064	971,0	**281,5**	**188,2**
	SR 4/4	218,8	94,3	**375,4**	**250,9**	532,0	407,5	688,5	564,0	845,1	720,6	1002	877,2	**375,4**	**250,9**
	SR 5/5			312,7	157,0	**469,3**	**313,6**	625,8	470,2	782,4	626,8	939,0	783,3	**469,3**	**313,6**
	SR 6/6					406,5	219,8	**563,1**	**376,3**	719,7	532,9	876,2	689,5	**563,1**	**376,3**
RE 201	SR 3/3	**386,2**	**259,8**	601,5	475,13	816,8	690,5	1032	905,8	1247	1121	1436	1336	**386,2**	**259,8**
	SR 4/4	299,6	131,1	**514,9**	**46,4**	730,2	561,8	945,5	777,1	1160	992,4	1376	1208	**514,9**	**346,4**
	SR 5/5			428,3	217,7	**643,6**	**433,0**	858,9	648,4	1074	863,7	1290	1079	**643,6**	**433,0**
	SR 6/6					557,0	304,3	**772,3**	**519,6**	987,6	735,0	1203	950,3	**772,3**	**519,6**
RE 241	SR 3/3	**664,0**	**453,6**	1037	826,2	1409	1199	1782	1571	2154	1944	2527	2316	**664,0**	**453,6**
	SR 4/4	521,8	232,3	**885,4**	**604,8**	1258	977,4	1630	1350	2003	1722	2376	2095	**885,4**	**604,8**
	SR 5/5			734,2	383,5	**1107**	**756,0**	1479	1129	1852	1501	2224	1874	**1107**	**756,0**
	SR 6/6					955,5	534,7	**1328**	**907,2**	1701	1280	2073	1653	**1328**	**907,2**
RE 271	SR 3/3	**912,5**	**705,1**	1452	1244	1991	1783	2530	2323	3069	2862	3608	3401	**912,5**	**705,1**
	SR 4/4	677,5	400,8	**1217**	**940,2**	1756	1479	2295	2019	2834	2558	3373	3097	**1217**	**940,1**
	SR 5/5			981,7	635,8	**1521**	**1175**	2060	1714	2599	2144	3138	2793	**1521**	**1175**
	SR 6/6					1286	871,0	**1825**	**1410**	2364	1954	2903	2489	**1825**	**1410**
RE 331	SR 3/3	**1626**	**1108**	2538	2020	3450	2931	4361	3843	5273	4755	6184	5666	**1626**	**1108**
	SR 4/4	1257	565,8	**2168**	**1477**	3080	2389	3992	3301	4903	4212	5815	5123	**2168**	**1477**
	SR 5/5			1799	935,2	**2711**	**1847**	3622	2759	4534	3670	5445	4582	**2711**	**1847**
	SR 6/6					2341	1305	**3253**	**2216**	4165	3128	5076	4040	**3253**	**2216**
RE 421	SR 3/3	**2999**	**2014**	4670	3685	6340	5356	8011	7026	9682	8697	11353	10368	**2999**	**2014**
	SR 4/4	2327	1014	**3998**	**2685**	5669	4356	7340	6027	9011	7698	9369	9369	**3998**	**2685**
	SR 5/5			3327	1685	**4998**	**3356**	6669	5027	8340	6698	8369	8369	**4998**	**3356**
	SR 6/6					4327	2357	**5997**	**4028**	7668	5698	7369	7369	**5997**	**4028**
Torque by air														Torque by springs	

DIMENSIONS – European Sizes in millimetres





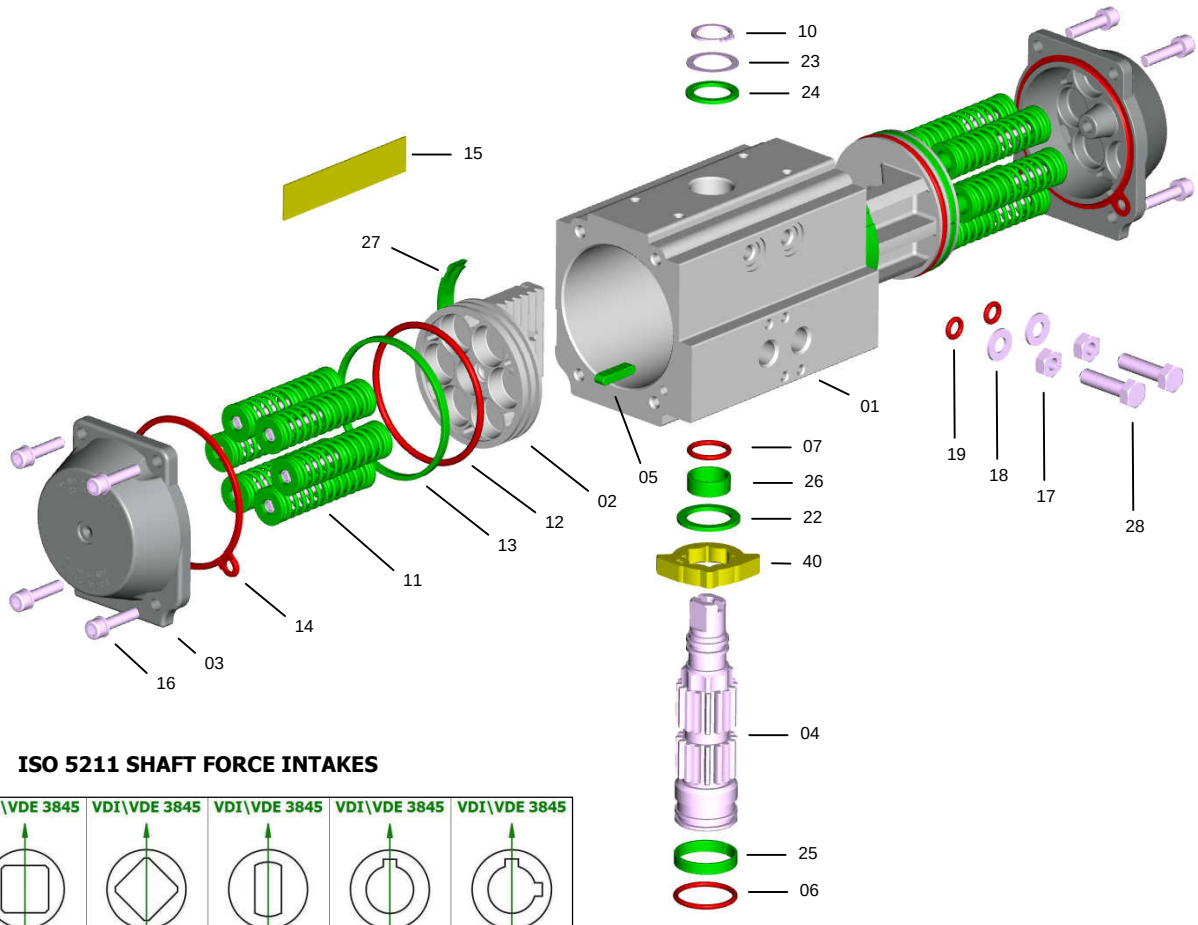




POSITION	TYPE															
	RE 043	**RE 051**	**RE 064**	**RE 076**	**RE 086**	**RE 101**	**RE 116**	**RE 126**	**RE 146**	**RE 161**	**RE 181**	**RE 201**	**RE 241**	**RE 271**	**RE 331**	**RE 421**
A	141	138	155	203	239	261	304	333	398	424	482	528	604	684	850	940
B	62	69	86	102	112	127	145,5	157,5	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

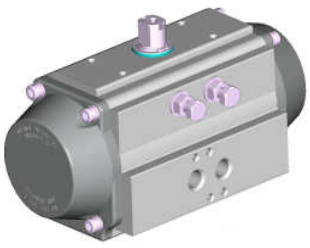
PART	QUANTITY	DESCRIPTION	MATERIAL	SPECIFICATION	PROTECTION
1	1	Body	Extruded aluminium alloy	EN AW 6063 T6	A - N - TF
2	2	Piston	Aluminium alloy	EN AB 46100 T6	A
3	2	Cover	Aluminium alloy	EN AB 46100 T6	N - V - TF
4	1	Shaft	Carbon steel Stainless Steel – optional	ASTM A-105 AISI 304 (A2) AISI 316 (A4)	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)	

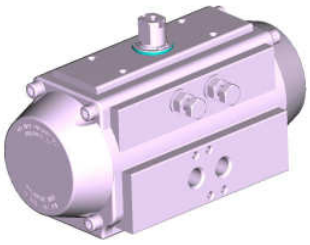
*** SPARE PARTS SET:** Standard, Special HIGH Temperatures, Special LOW Temperatures, Special EXTRA LOW Temperatures

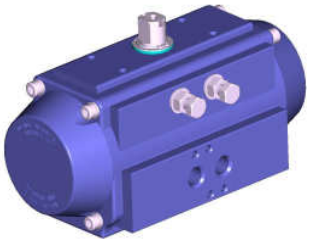
PROTECTIONS

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

COATINGS – MATERIAL TREATMENTS

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

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

		DESCRIPTION				APPLICATION FIELD
	**TF TF**	**Body**	**Covers**	**Pistons**	**Shaft**	- Industry, general use. - Low alcaline and low acid solutions. - Marine environments. - High temperatures.
		Anodizing + PTFE coating	Anodizing + PTFE coating	Anodizing	High phosporous nickel-plating (12%) opt. AISI 304 (A2) opt. AISI 316 (A4)	
	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 phospor at a percentage of 12% (hig-phospor). The obtained surface hardness is about 400-480 HV (45-55 HRC).

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

POLYESTER PAINTING

Polyester painting is obtained throug 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 appearence 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 environnements.**

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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www.alphair.it - www.alphapompe.it

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EN UNI 10204 3.1