771 XS VALVE WITH AP-RE PNEUMATIC ACTUATOR

FEATURES

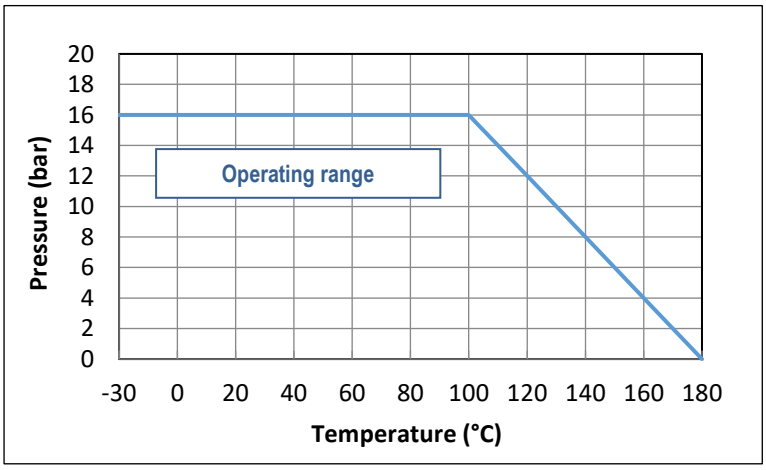
The 771XS+AP-RE ball valve is designed for the automatic opening / closing of pipes with non-loaded industrial fluids, up to a pressure of 16 bar. The narrow “wafer” construction of the valve makes installation easier compared with traditional “flange” models. It is a full-bore, EC- and ATEX-certified valve. The ISO 5211 mounting pad allows the actuator to be directly assembled. The pneumatic motorisation is available in double and spring-return with numerous options.

AVAILABLE MODELS

1.4408 stainless steel body.
DN15 to DN100 diameters.
PN16 RF wafer mounting.

LIMITS OF USE

Fluid pressure: PS	16 bar (20°C)
Fluid temperature: WT°	-30°C / +180°C
Ambient temperature	-20°C / +80°C
Motor compressed air	Mini 6 bar / maxi 10 bar



DIRECTIVES AND MANUFACTURING STANDARDS

OBJECT	Standard	ON	OBJECT	Standard
Pressure Equipment Directive 2014/68/EC	**DN15 and 20**: not subject		Final test	EN 12266
	DN25 to DN100: category III	TÜV 0035	Material certificate	EN 10204
Size	EN 12516-1		Connection Motorisation	ISO 5211
Steel grades	EN 1503-1		Actuator pilot connection	NAMUR
ATEX Directive	II 2G/D Tx zones 1,2,21 and 22	SIRA 0518	Switch box connection	VDI/VDE 3845
	EN 13463-1 and 5		SIL 3 level (the actuator alone)	EN 61508

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

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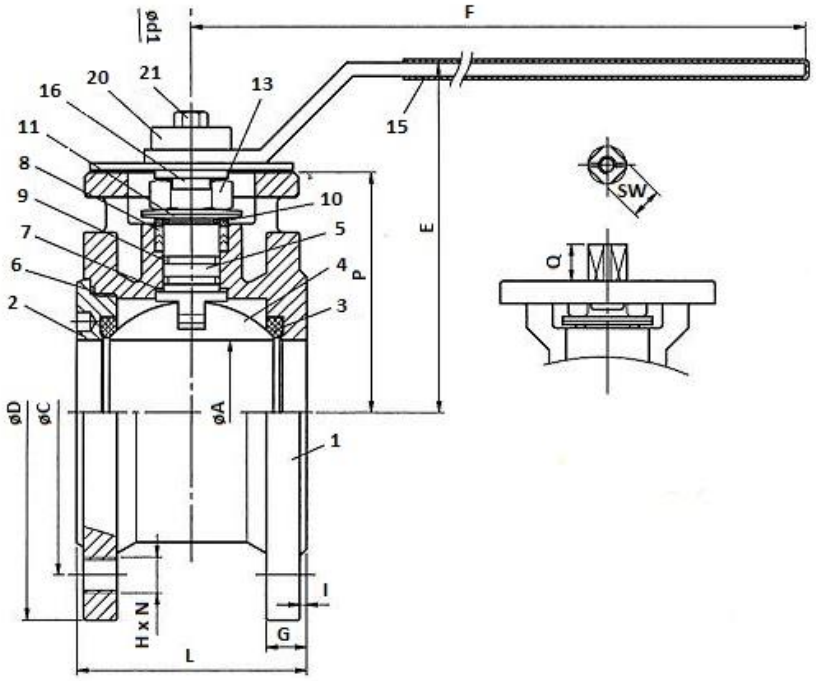
CONSTRUCTION

No.	Name	Material	No.	Name	Material
1	Body	1.4408 SS	12	Lever	304 SS
2	Flange	1.4408 SS	13	Lever nut	304 SS
3	Seats	PTFE + +15% GF	14	Stop	304 SS
4	Ball	316 SS	15	Plastic coupling	PVC
5	Stem	316 SS	16	Locking device	304 SS
6	Body gasket	PTFE	17	Spring	316 SS
7	Stem gasket	PTFE + +15% GF	18	Antistatic device	316 SS
8	Cable gland gasket	PTFE	19	Stop plate	304 SS
9	O-ring	FKM	20	Spacer	304 SS
10	Spacer	304 SS	21	Screw	304 SS
11	Bellevile spring	301 SS			



DIMENSIONS (mm)

DN	15	20	25	32	40	50	65	80	100
A	16	20	25	32	40	50	65	80	96
C	65	75	85	100	110	125	145	160	180
D	95	105	115	140	150	165	185	200	220
E	89	89	101	112	116	125	154	165	180
F	114	114	187	187	222	222	350	350	350
G	14	16	16	16	16	18	18	20	20
H x N	M12x4	M12x4	M12x4	M16x4	M16x4	M16x4	M16x4	M16x8	M16x8
L	42	44	50	54	68	82	103	122	152
I	2	2	2	2	3	3	3	3	3
P	54	56	62.5	72	78	87.2	107	117.3	132.3
Weight (kg)	01:45	1.92	2.60	3.70	4.65	06:45	10:25	13:55	19.85

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AP-RE PNEUMATIC MOTORISATION

The ALPHAIR 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 mounting is direct (except for DN ½ '' and ¾'' with SE actuator, mounting with yoke according to EN 15081).

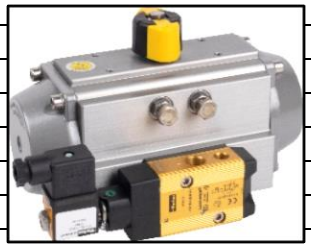
DN	Double-effect	V (litres)	Time (s)*	Spring-return	V (litres)	Time (s)*
15	RE 51	0.23	1	RES 64/6	0.45	1
20	RE 51	0.23	1	RES 64/6	0.45	1
25	RE 64	0.45	1	RES 76/6	0.61	1
32	RE 64	0.45	1	RES 76/6	0.61	1
40	RE 64	0.45	1	RES 86/6	0.98	2
50	RE 76	0.61	1	RES 116/6	2.80	2
65	RE 86	0.98	2	RES 116/6	2.80	2
80	RE 86	0.98	2	RES 126/6	3.70	3
100	RE 101	1.80	2	RES 146/6	4.90	3

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

MOTORISATION OPTIONS

There are many options, so please contact our sales service for more information on these:

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	Automatic safety valve with a reinforced safety coefficient and closing time < 1s,
6	thermal dispersion yoke for high temperature fluids
7	100mm high steel height adjustment for installing heat-insulation
8	special version for ATEX zones
9	manual override with declutchable gear box
10	compressed air filter regulator
11	All types of piloting solenoid valves
12	all types of switch boxes
13	all types of positioner
14	quick exhaust
15	flow-rate limiters - exhaust brakes
16	air lock



INSTALLATION IN AN ATEX ZONE

For 771XS+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.

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ASSEMBLY AND MAINTAINANCE INSTRUCTIONS

1 - Installation

1.1 - Checks

- Check that the material of the valve body is chemically compatible with the fluid.
- Check that the pressure and service conditions are compatible with the (P, T) diagram of the valve. See § “Service limits”
- Check that the fluid is clean and free of particles. The latter could scratch the ball and damage the seats, hence causing the valve to leak. If need be, install an upstream filter.
- Check that there is no risk of thermal expansion of the fluid, which could damage the seats. In the open position, a hole at the top of the ball balances the pressures between the body cavity and the flow of the fluid. As an option, we recommend a relief hole upstream of the valve for equalising the pressures for fluids such as ammonia, LPG, chlorine, etc.
- Check that the valve is not used for flow or pressure control since it is not intended for this use and there is a risk of premature wear of the seats, in particular in the event of high pressure and/or temperature. For this special application, preferably use our ‘”V-port” 746XS version with a V-shaped hole in the ball. Please contact us.
- Check that the valve is not used on a gas which might condense at certain times during the process. In such a case, the pressure within the body cavity could become negative, which could lead to a significant deformation of the seats. Please contact us.
- Static electricity: the valve will be supplied with a ball-stem-body internal electrical continuity tester. If the service conditions require the electrical continuity of the installation, check its earthing.
- Check the perfect alignment of the upstream and downstream pipe installation. Wafer-type valves such as 771XS are sensitive to this parameter. An alignment fault would lead to a ball blockage.
- Also check the pipe installation support. In the event of a fault of the latter, the valve would undergo too high mechanical stress which could lead to a ball blockage or to leaks.
- On pipe installation for hot fluids, check for the presence of an expansion compensator. Their absence would lead to a high mechanical stress which could lead to blocking the ball.
- If the valve is installed in an explosive zone, you must follow the additional “IMEVMATEX” instructions.

1.2 - Storage before installation

- Follow our general “IMESTOCK” instructions for storage.

1.3 - Installation

- Before any installation, isolate the piping upstream and downstream, depressurize the piping and bring the installation to ambient temperature. Carefully clean the piping of any particle (foreign body, dust, rust, etc.) or shavings by water rinsing or air blowing.
- For valves with a size above DN50, plan to use a hoist.
- Remove the protective masks from the valve flanges.
- Check the cleanliness of the internal surfaces of the valve and if need be, clean them.
- Direction of mounting: the valves do not have a preferred direction of mounting, unless a relief hole was drilled into the ball.
- Check that the standards for the valve flanges (PN16 as per1092-1) and the pipe installation, are the same.
- Select flange gaskets suitable for the fluid and the flange standard for the valve (PN16).

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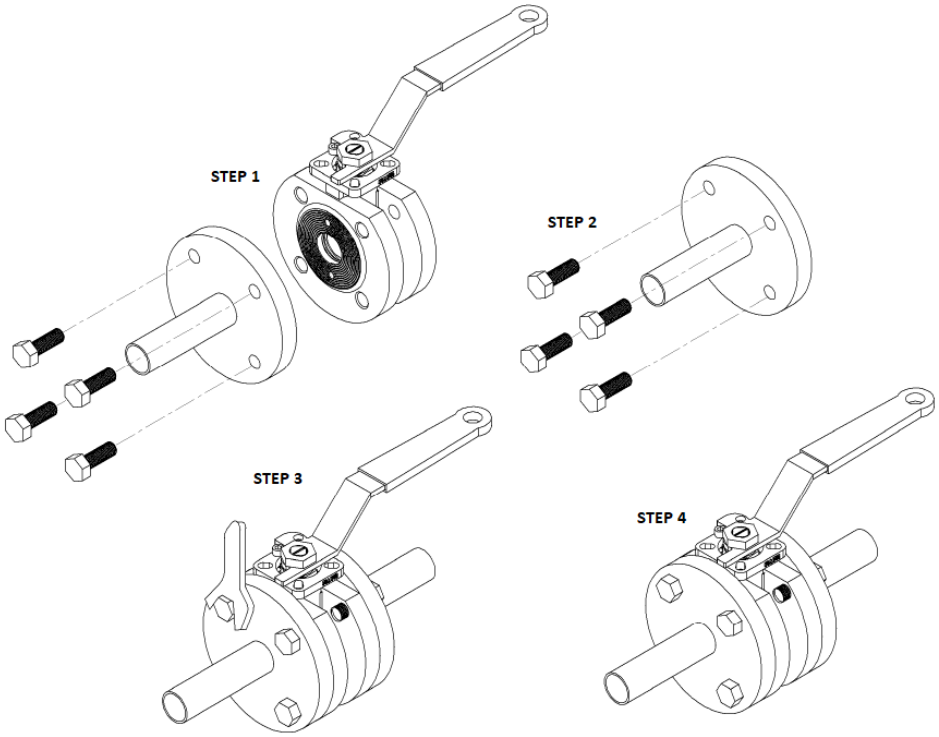
- Stock up on hex-head nuts and bolts as shown in the table below:

DN	Screw	Number	Tightening torque (Nm)	DN	Screw	Number	Tightening torque (Nm)
15	M12 x 30	4	35	50	M16 x 40	4	86
20	M12 x 35	4	35	65	M16 x 40	4	86
25	M12 x 35	4	35	80	M16 x 45	8	86
32	M16 x 35	4	86	100	M16 x 45	8	86
40	M16 x 35	4	86				

- Screw-in the screws through the flanges as shown in the diagram below and apply the torques shown in the table below. Follow a symmetrical tightening cross pattern in order to apply a uniform tightening torque on the gasket seats.



- Check the sealing of the connection using a suitable test (hydrostatic test or leak detection spray).
- Hydraulic test of the installation
  - Valves were tested at the factory at 1.5 x WP.
  - If a hydrostatic test is carried out on the installation, do not exceed the authorised pressure.

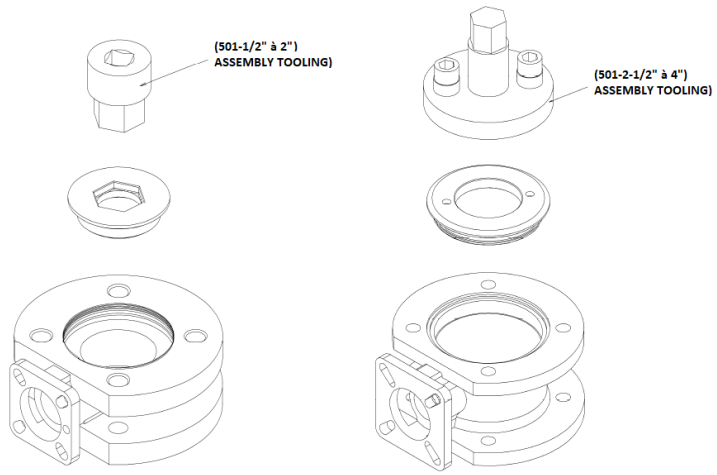
2 - Service

- If a hot fluid flows across the valve, do not touch the valve surface.
- Always operate the valve slowly and smoothly.
- Opening clockwise, closing anti-clockwise.

3 - Servicing

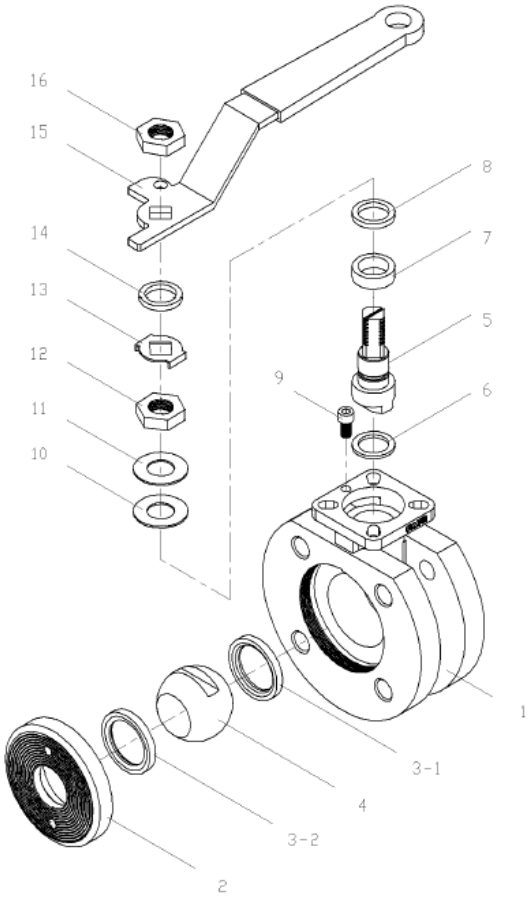
3.1 - Frequency of servicing

- The servicing frequency depends upon the use of the valve, of the type of fluid, of its velocity, of its frequency of operation, of the cycles of rise and fall in pressure and temperature.
- Before any intervention, isolate the upstream and downstream pipe installation using the valves provided for this purpose. Depressurize the pipe installation and bring it to ambient temperature.
- If the lever has to be removed, do that before disassembling the body.
- To remove the body, unscrew the lateral tip with special tools as shown in the diagram below. If you do not have such tools, contact our after-sales department.
- To remove the ball from the body, turn the stem by a quarter turn.



3.2 - Inspecting the state of the valve and possible repair

- Check the state of the ball (Item 4): it has to be clean and unscratched. If the cleaning or polishing is not possible, replace it (see the § on spare parts).
- Check the state of the seats (3.1 and 3.2): they must not be deformed, nor scratched, nor worn, or dirty. Otherwise, replace them with parts from the gasket kit.
- Check the state of the packing gland (7 and 8): no leak should be found at the stem and the rings should not be excessively worn. If need be, replace the gaskets.
- Check the state of the body gasket. Replace it, if need be.
- Reassemble the different parts of the valve, following the tightening torques shown in the table below.
- Check that the stem manoeuvring is smooth. Perform about ten manoeuvres.



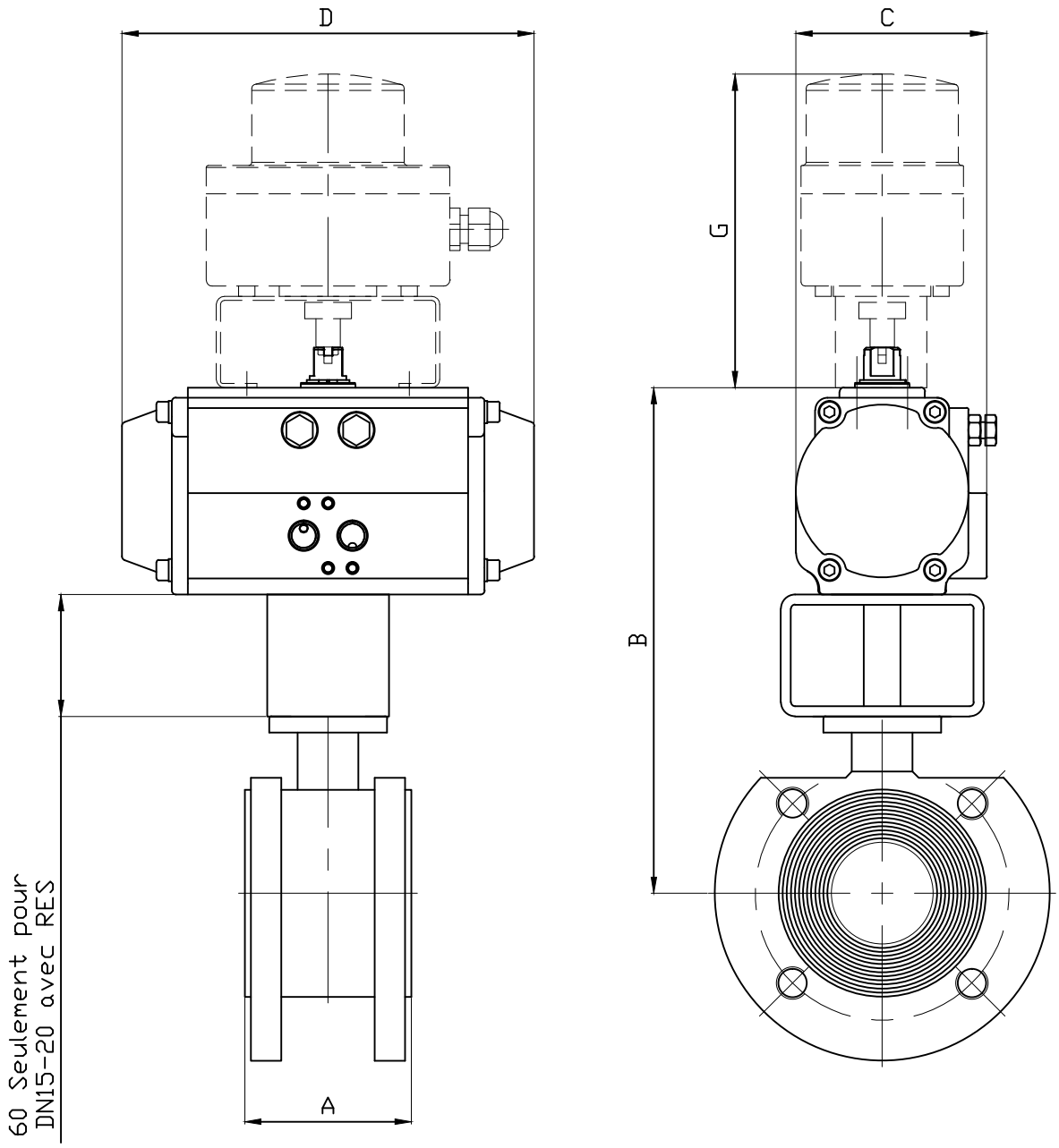
Information given as an indication only, and subject to possible modifications

TABLE OF THE TIGHTENING TORQUES OF THE TIE-BOLTS AND OF THE LEVER NUT

DN	Tightening torque for the insert (Nm, item 2)	Lever nut (Nm)
15	29.4	3.4
20	58.8	3.4
25	88.2	4
32	196.1	4
40	294.1	5
50	490.2	5
65	588.2	6
80	686.3	6
100	686.3	6

SPARE PARTS

DN	Gasket kit	Ball	Handle
Reference mark	**3-6-7-8**	**4**	**11**
15	982702	Please contact us.	982802
20	982703	Please contact us.	982802
25	982704	980034	982804
32	982705	980035	982804
40	982706	Please contact us.	982806
50	982707	980037	982806
65	982708	980038	982808
80	982709	980039	982808
100	982710	Please contact us.	982808



DN	15		20		25		32		40		50		65		80		100	
ALPHAIR	RE51	RES64	RE51	RES64	RE64	RES76	RE64	RES76	RE64	RES86	RE76	RES116	RE86	RES116	RE86	RES126	RE101	RES146
A	42		44		50		54		68		82		103		122		152	
B	183	200	185	202	148.5	164.5	158	174	164	190	189.2	232.7	219	252.5	229.3	274.8	259.3	309.3
C	75	86	75	86	86	94	86	94	86	104	94	134	104	134	120	141	134	163
D	138	138	138	138	155.5	210	155.5	210	155.5	228	210	310	228	310	280.5	362	310	390
G	154.5		154.5		154.5		154.5		154.5		154.5	164.5	154.5	164.5	154.5	164.5	154.5	164.5
POIDS KG	3.16	3.89	3.56	4.3	4.27	6.4	5.38	6.98	6.52	9.54	9.49	16.6	14.4	20.36	17.85	26.78	27.79	36.7

Informations données à titre indicatif et sous réserve de modifications éventuelles
Data subjet to alteration

Ech: /	Date :16/07/20191	Dessiné par : E.D.	Tolérances générales : +/- 0.2	Modifications	Date	REV.

ROBINET A TOURNANT SPHERIQUE 771XS/BALL VALVE 771XS +
ACTIONNEUR ALPHAIR RE/ALPHAIR ACTUATOR RE +
BFC /LIMIT SWITCH BOX

Matiére :

Poids (Kg) :

Traitement : SANS

SECTORIEL

45, Rue du Ruisseau

38297 SAINT QUENTIN FALLAVIER

Plan n° Ens 1367

Alphair

RE SERIES

PNEUMATIC ACTUATORS
WITH EXTERNAL ADJUSTMENT

ROTATION 90°

ALPHA POMPE s.p.a.

Alphair

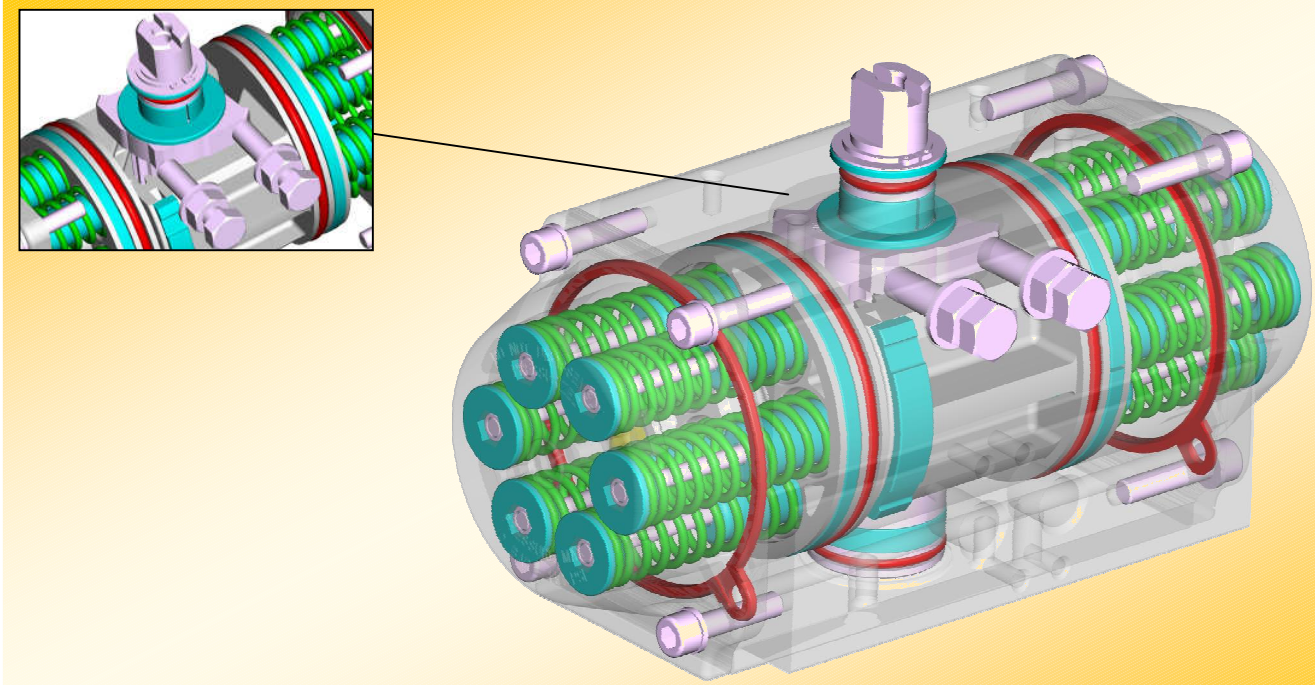
IR 3

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

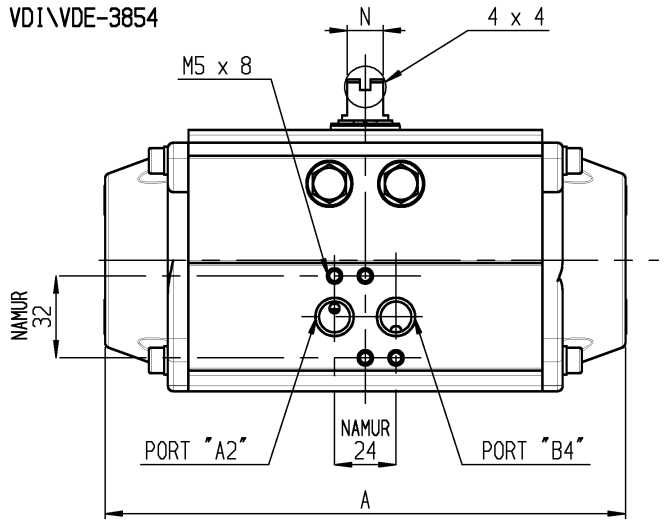
DOUBLE ACTING TORQUES IN Nm

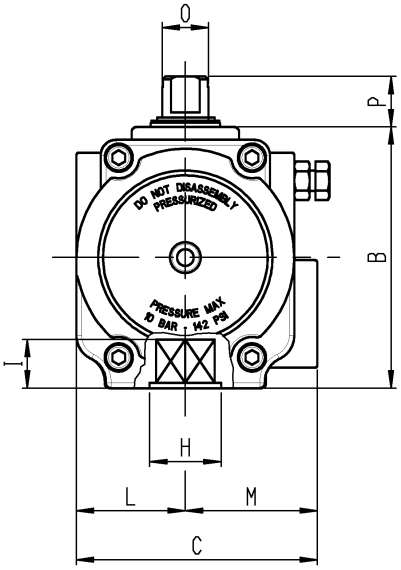
TYPE	AIR SUPPLY PRESSURE (bar)									
	1	2	3	4	5	6	7	8	9	10
RE 043	-	-	6,5	8,7	10,9	**13,0**	15,2	17,3	19,5	21,7
RE 051	3,3	6,7	10,0	13,4	16,7	**20,1**	23,4	26,8	30,1	33,5
RE 064	5,9	11,8	17,8	23,7	29,6	**35,5**	41,4	47,4	53,3	59,2
RE 076	11,8	23,5	35,3	47,1	58,9	**70,6**	82,4	94,2	105,9	117,7
RE 086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

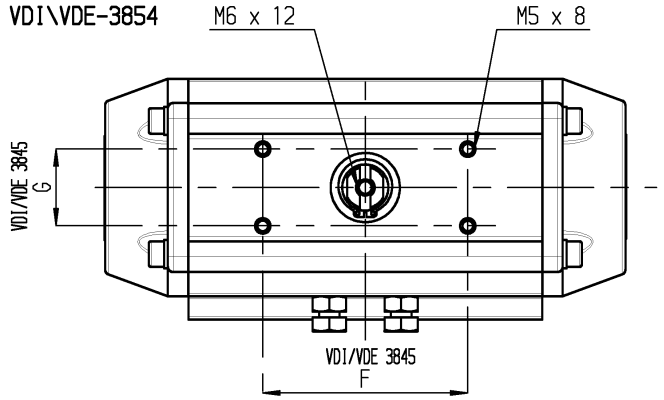
SINGLE ACTING TORQUES IN Nm

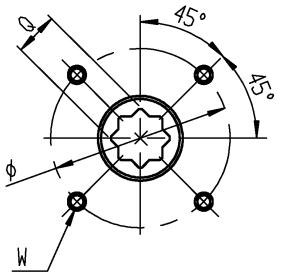
TYPE	SPRING SET	AIR SUPPLY PRESSURE (bar)												SPRING TORQUE	
		3		4		5		6		7		8			
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	90°	0°
RE 043	SR 3/3	-	-	-	-	**7,1**	**4,1**	9,3	6,3	11,5	8,5	13,7	10,7	**6,8**	**3,8**
	SR 4/4							**8,1**	**4,1**	10,2	6,2	12,4	8,4	**9,0**	**5,0**
RE 051	SR 3/3	**5,8**	**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





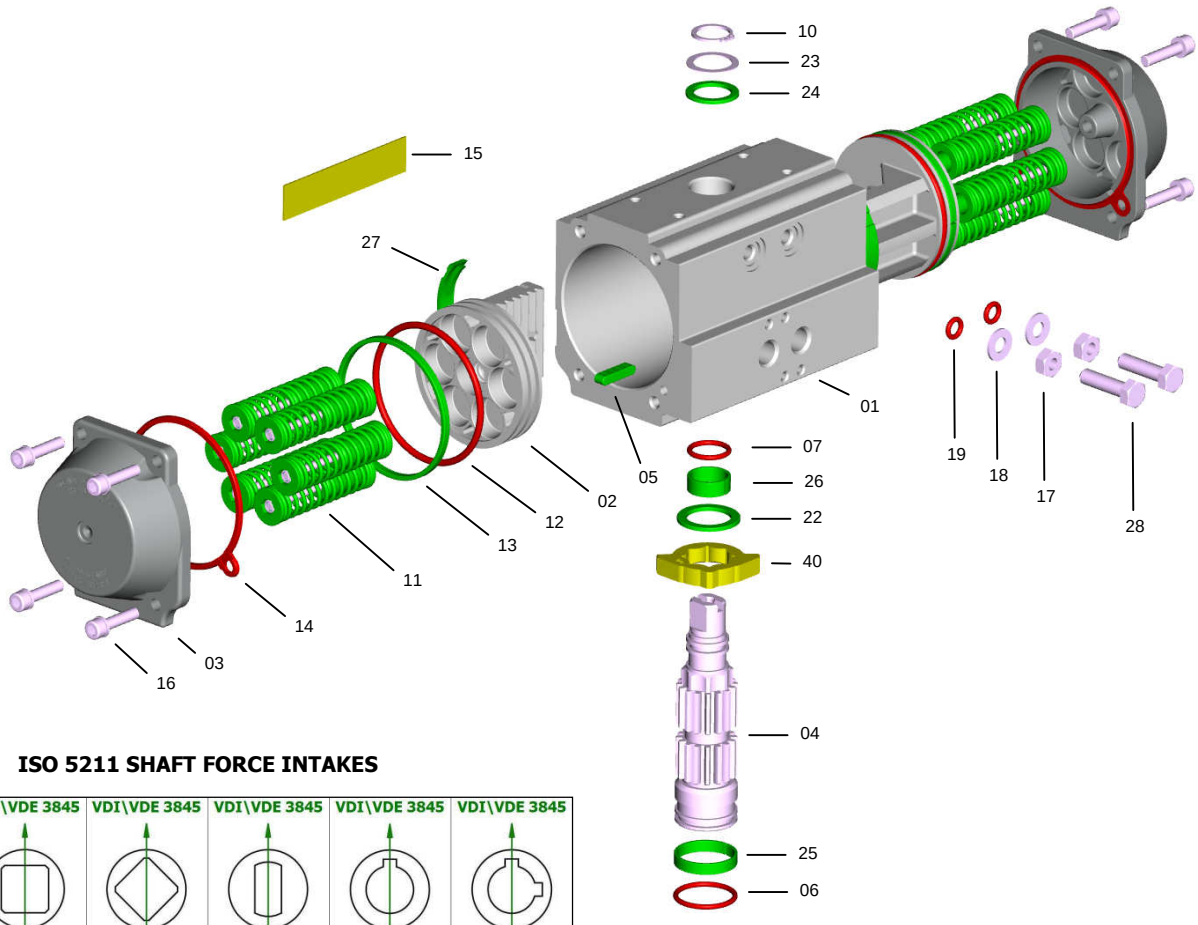




POSITION	TYPE															
	RE 043	**RE 051**	**RE 064**	**RE 076**	**RE 086**	**RE 101**	**RE 116**	**RE 126**	**RE 146**	**RE 161**	**RE 181**	**RE 201**	**RE 241**	**RE 271**	**RE 331**	**RE 421**
A	141	138	155	203	239	261	304	333	398	424	482	528	604	684	850	940
B	62	69	86	102	112	127	145,5	157,5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

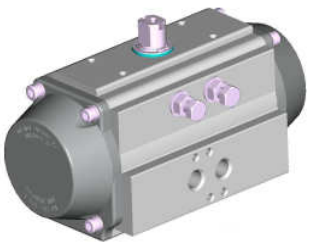
PART	QUANTITY	DESCRIPTION	MATERIAL	SPECIFICATION	PROTECTION
1	1	Body	Extruded aluminium alloy	EN AW 6063 T6	A - N - TF
2	2	Piston	Aluminium alloy	EN AB 46100 T6	A
3	2	Cover	Aluminium alloy	EN AB 46100 T6	N - V - TF
4	1	Shaft	Carbon steel Stainless Steel – optional	ASTM A-105 AISI 304 (A2) AISI 316 (A4)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

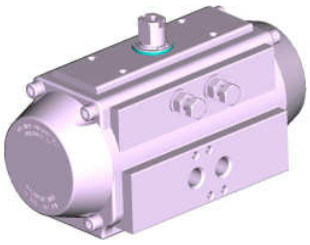
*** SPARE PARTS SET:** Standard, Special HIGH Temperatures, Special LOW Temperatures, Special EXTRA LOW Temperatures

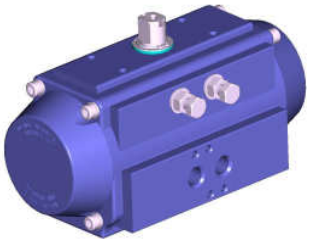
PROTECTIONS

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.

Via Molino Emili, 16 - 25030 MACLODIO (BS) Italy - Tel. +39 030 97 86 61/2- Fax +39 030 97 86 63
www.alphair.it - www.alphapompe.it

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001 =

EN UNI 10204 3.1