

736-746 XS VALVE V-SHAPE CONTROL HOLE WITH ACTUATOR AP-RE

FEATURES

736XS (steel) and 746XS (stainless steel) + AP-RE 2-way ball-valves with V-shaped control ball are designed for controlling networks of industrial fluids. These 3-piece external tie-bolt ball valves are easy to remove for servicing. This full-bore valve has an anti-static device and double sealing at the cable gland. It is EC and TA-LUFT-approved. The ISO 5211 mounting pad allows the actuator to be directly assembled. The pneumatic motorisation AP series is available in Spring-return and double-effect. The smart YT3300 positioner offers further more auto-commissioning function. **Option** : Mounting with ATEX positioner possible. (Consult us)

AVAILABLE MODELS

1/2" to 2" diameters
Spring-return actuator

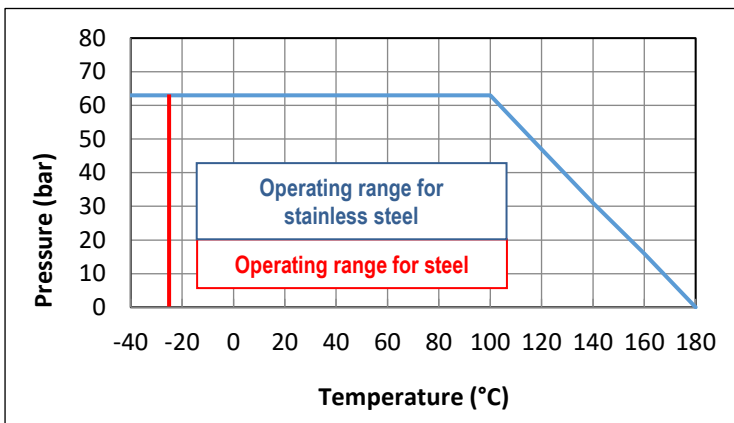


On request

Connection	G	SW	BW
Carbon steel	736 XS	735 XS	734 XS
stainless steel	746 XS	743 XS	745 XS

LIMITS OF USE

Material	steel	stainless steel
Fluid	Use on steam and gas with a speed above 10 m/s isn't recommended	
Fluid pressure: PS	63 bar (20°C)	
Fluid temperature: WT°	-25°C / +180°C	- 40°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	1/4" to 1": not subject		Final test	EN 12266
	1"1/4 to 4": category III	TÜV 0035	Material certificate	EN 10204
Size	EN 12516-1		Motorisation connection	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

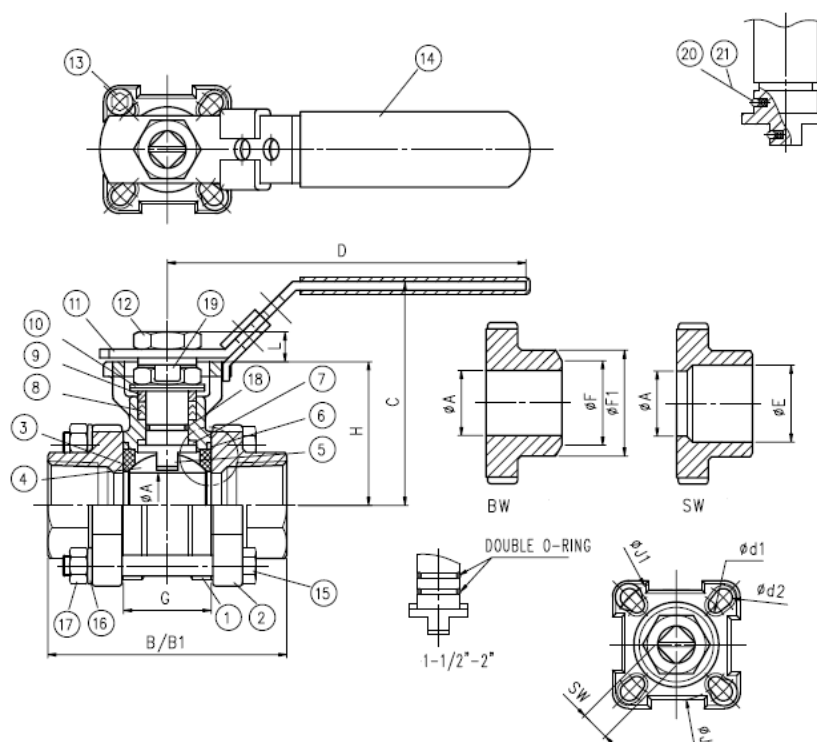
Information given as an indication only, and subject to possible modifications

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		Ref.	TDS746XS-VPort+AP-RE ENG
		Rev.	01
		Date	01/2024

736-746 XS VALVE V-SHAPE CONTROL HOLE WITH ACTUATOR AP-RE

CONSTRUCTION

No.	Name	Steel	Stainless steel	No.	Name	Steel	Stainless steel
1	Body	1.0619	1.4408	12	Nut	304 SS	304 SS
2	Ends	1.0619	1.4408	13	Stop	304 SS	304 SS
3*	Seats	PTFE+15%GF	PTFE+15%GF	14	Coupling	PVC	PVC
4	Ball	CF8M / 316	CF8M / 316	15	Tie-bolts	304 SS	304 SS
5	Stem	316 SS	316 SS	16	Washer	304 SS	304 SS
6*	Body gasket	PTFE	PTFE	17	Nuts	304 SS	304 SS
7*	Washer	PTFE+15%GF	PTFE+15%GF	18*	O-ring	FPM	FPM
8*	Gasket	PTFE	PTFE	19	Tab washer	304 SS	304 SS
9	Spacer	304 SS	304 SS	20	Anti-static	316 SS	316 SS
10	B. washer	301 SS	301 SS	21	Spring	304 SS	304 SS
11	Lever	304 SS	304 SS	* Parts included in the maintenance kit			



DIMENSIONS (mm)

DN	A	B (G)	B (SW)	B1 (BW)	C	D	E	F	F1	G	H	J1	SW
1/2"	16	75	75	75	70.9	110	21.9	17	22.4	25.2	42.3	42	9
3/4"	20	80	80	90	73.4	110	27.2	22	28.2	27.7	44.8	42	9
1"	24.5	90	90	100	84.1	135	34.0	28	33.7	33.0	54.0	50	11
1" 1/4	32	110	110	110	89.3	135	42.7	37	44.0	41.2	59.2	50	11
1" 1/2	38	120	120	125	109.5	165	48.8	43	50.8	49.3	73.5	70	14
2"	50	140	140	150	118.9	165	61.3	54	62.6	63.6	82.9	70	14

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AP PNEUMATIC MOTORISATION

The ALPHAIR motorisation proposed as standard comprises:

- Spring return actuator NC.
- a safety coefficient of 1.3 minimum compared to the nominal torque of the valve.
- 6 bar air non-lubricated dry motor.
- an upstream / downstream pressure difference $\Delta P=10$ bar max.

The actuator assembly is direct.

DN	Spring-return	V (litres)	Time (s)*
1/2"	RES 43/6	0.18	1
3/4"	RES 51/6	0.23	1
1"	RES 64/6	0.45	1
1"1/4	RES 76/6	0.61	1
1"1/2	RES 86/6	0.98	1
2"	RES 101/6	1.80	2

For any other operating conditions, please contact us.

* indicative time for actuator running empty

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 coating, stainless steel actuator
4	Actuator for very low (-60°C) or very high (+150°C) ambient temperatures.

INSTALLATION IN AN ATEX ZONE

For 736-746XS+APS-RES 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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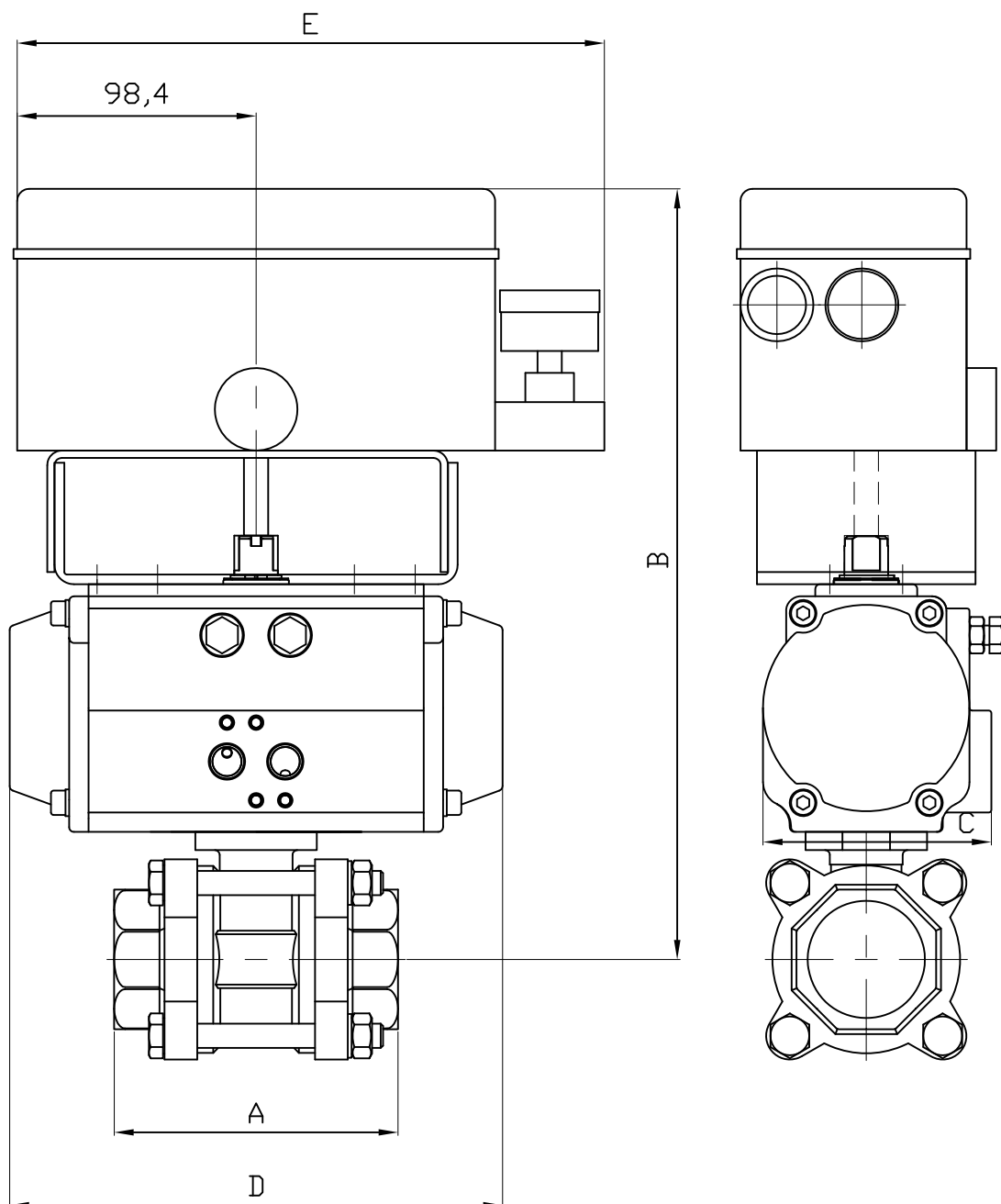
FLOW-RATE COEFFICIENT (Kv)

The Kv (m3/h) values as a function of the degree of opening, are the following:

DN	Ball	Kv (m3/h) per opening angle																		
		0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°
15	30°	0	0	0	0	0	0	0	0.1	0.1	0.2	0.4	0.8	1.1	1.5	1.8	2.5	3.1	4.1	5.1
	60°	0	0	0	0	0	0	0	0.2	0.4	0.6	0.9	1.4	1.9	2.6	3.3	4.6	5.9	8.0	10.1
20	30°	0	0	0	0	0	0.1	0.2	0.4	0.6	0.9	1.2	1.6	1.9	2.5	3.1	3.8	4.6	5.7	6.8
	60°	0	0	0	0	0	0.2	0.3	0.6	0.9	1.3	1.8	2.4	2.9	4.0	5.0	6.7	8.4	11.5	14.5
25	30°	0	0.03	0.04	0.3	0.5	0.9	1.2	1.7	2.2	2.8	3.4	4.2	5.0	6.3	7.5	8.9	10.2	11.9	13.7
	60°	0	0.03	0.05	0.4	0.7	1.1	1.5	2.0	2.6	3.2	3.9	5.1	6.2	8.0	9.7	12.6	15.5	20.0	24.5
40	30°	0	0.01	0.02	0.4	0.7	1.3	2.0	2.7	3.4	4.7	5.9	7.4	8.9	11.3	13.7	16.3	18.8	22.1	25.3
	60°	0	0.01	0.02	0.5	0.9	1.7	2.4	3.8	5.2	6.4	7.6	10.1	12.6	15.7	18.8	24.7	30.6	39.3	47.9
50	30°	0	0.16	0.32	1.1	1.9	2.9	3.9	5.0	6.1	7.5	9.0	11.3	13.6	17.0	20.4	24.6	28.8	33.6	38.4
	60°	0	0.22	0.44	1.3	2.1	3.4	4.7	6.7	8.7	11.2	13.6	17.9	22.3	28.6	34.9	43.7	52.4	66.9	81.4
80	30°	0	0.30	0.60	1.7	2.9	5.1	7.4	10.4	13.5	18.2	22.9	29.0	35.1	43.4	51.8	62.6	73.4	85.4	97.4
	60°	0	0.41	0.82	2.1	3.4	6.4	9.3	14.4	19.5	26.6	33.8	45.1	56.3	73.7	91.0	114	137	176	216
100	30°	0	0.37	0.74	2.8	4.8	8.3	11.8	17.7	23.5	31.5	39.5	50.3	61.2	75.6	90	106	123	145	167
	60°	0	0.82	1.6	3.3	5.0	10.3	15.5	24.0	32.5	44.5	56.5	75.7	94.9	123	151	194	236	297	358

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DN	1/2"	3/4"	1"	1 1/2"	2"
ALPHAIR	RES43	RES51	RES64	RES86	RES101
A	75	80	90	120	140
B	276.3	283.8	312	357.5	372
C	63.5	75	86	104	120
D	141	138	155	239	261
E	240	240	240	240	240
KG	4.41	5.11	6.2	11.14	15.6

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

Ech: /	Date :20/09/2019	Dessiné par : E.D.	Tolérances générales : +/- 0.2	Modifications	Date	REV.
ROBINET A TOURNANT SPHERIQUE 746XS V-PORT /V-PORT BALL VALVE 746XS + ACTIONNEUR ALPHAIR RES+YTC/PNEUMATIC ACTUATOR RES+ POSITIONER YTC				Matière :		
				Poids (Kg) :		
				Traitement : SANS		
 45, Rue du Ruisseau 38297 SAINT QUENTIN FALLAVIER				Plan n° Ens 1399		

ROTARY ELECTROPNEUMATIC POSITIONER YTC YT3300R

FEATURES

The YT3300R positioner is intended for proportional control of single or double-acting 1/4 turn control valves.

The 4 to 20 mA proportional control signal is compared to the valve position and the pressure in the actuator is adjusted accordingly to match the valve position proportionally to the signal, independent of the differential pressure across the valve. The electrical power supply is provided by the voltage carrying the control signal (2 wires).



The YT3300R positioner has an LCD display and self-calibration and manual adjustment functions. Different executions are available, including the HART communication protocol.

The positioners are delivered equipped with a pressure gauge block and have a manual mode.

AVAILABLE MODELS

	Standard
Control signal	4÷20 mA
Pneumatic connections	1/4" NPT-F
Electric connections	G1/2
Valve stroke	2 à 35 mm > 35 mm
Body	Aluminium
Cover	Aluminium



LIMITS OF USE

	Standard	ATEX
Protection rating	IP66	Ex ia IIC T6 / T5
Temperature	-30 ... +85°C	
Air pressure	1,4 à 7 bar	
Voltage	8,5 ÷ 30V	
Maximum flow	70 l/min	
Impédance	4500 Ω @ 30VCC	

EXECUTIONS

	Control 4÷20 mA	Feedback 4÷20 mA	2 limit switches	2 limit switches + 4÷20 mA feedback
IP66	3267001	3267002	3267003	3267005

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ROTARY ELECTROPNEUMATIC POSITIONER YTC YT3300R

IDENTIFICATION

Model	Motion Type	Acting Type	Explosion Protection	Lever Type		Conduit - Air Connection *2	Communication	Option	Operating Temp
YT-3300	L Linear	S Single	N Non-Explosion	0 10~40mm	1 M6 × 34L	1 G1/2 - PT1/4	0 NONE	0 NONE	S -30°C ~ 85°C
YT-3350	R Rotary	D Double	I ATEX, IECEx, NEPSI, KCs	1 20~100mm	2 M6 × 63L	2 G1/2 - NPT1/4	2 + HART	1 + PTM	L -40°C ~ 85°C
			A CSA, FM	2 90~150mm	3 M8 × 34L	3 G1/2 - G1/4		2 + L/S (Mechanical Type)	
				3 16~30mm	4 M8 × 63L	4 M20 - NPT1/4 *3		3 + L/S (Proximity Type)	
				4 16~60mm	5 NAMUR	5 NPT1/2 - NPT1/4		4 + PTM+L/S (Mechanical Type)	
				5 16~100mm				5 + PTM+L/S (Proximity Type)	
				6 90~150mm					

*1 Lever 3~6 is adapter lever type.

*2 YT-3350 is available for No.2 ONLY.

*3 M20 adapter is attached to conduit entry

DIRECTIVES AND MANUFACTURING STANDARDS

Subject	Standard	Subject	Standard
CE	EN 61000-6-4:2007 + A1:2011 EN 61000-6-4:2005	Protection rating	IEC 60529:2001 IEC 60529:2006
CEM Directive	2014/30/UE	ATEX 2014/34 UE (option)	II 2G Ex ia IIC T5/T6 Gb II 2D Ex ia IIIC T100°C/T85°C Db IP6X
SIL2	IEC 61508-1-2-4-7:2010	Quality assurance	ISO 9001:2009 ISO 9001:2008

CONSTRUCTION

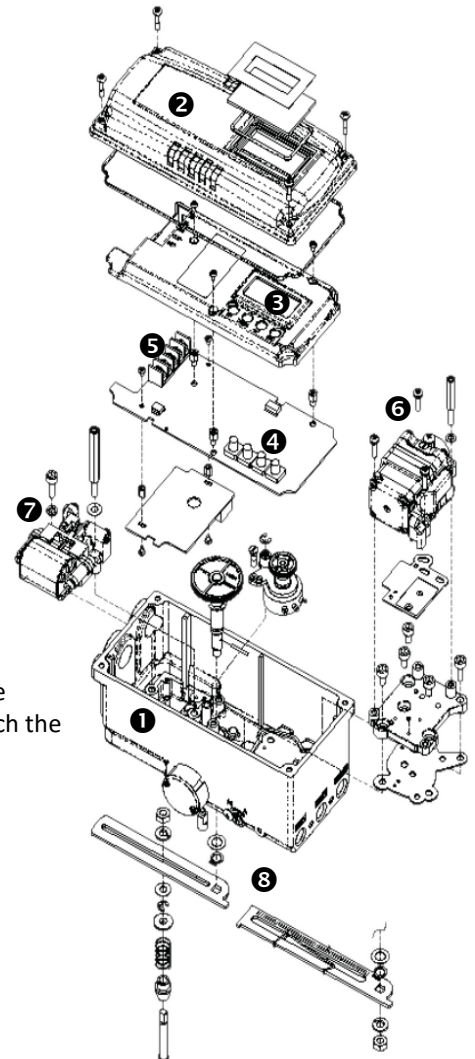
	Item
1	Aluminium epoxy coated body
2	Aluminium epoxy coated cover
3	LCD display
4	Controls
5	Terminals
6	Pilot block
7	Position sensor
8	Lever

FUNCTIONNING

The pneumatic power supply of the YT3300R positioner must be at least Class 2 or 3 (ISO8573.1)

The control signal is compared to the valve position and, depending on the result of the comparison, the air pressure in the engine is adjusted to match the position to the signal.

The LCD display shows the position in percentage of travel



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ROTARY ELECTROPNEUMATIC POSITIONER YTC YT3300R

ASSEMBLY

The positioner can be adapted to all types of linear actuator, the coupling kits available are particularly intended for actuators with NAMUR yoke

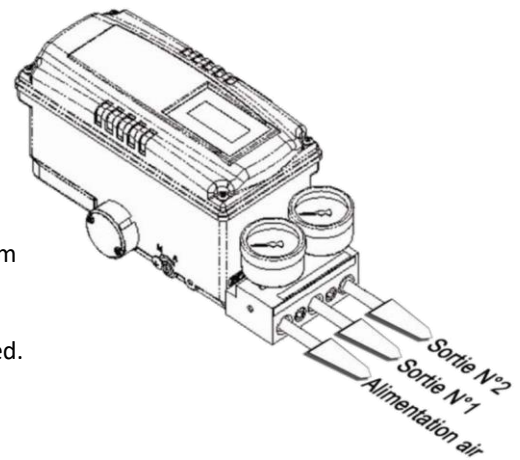
PNEUMATIC CONNECTIONS

The supply air quality of the YT3300R positioner must be at least Class 2 or 3 (ISO8573.1), the installation of a regulator filter is recommended (30 µ).

The pneumatic supply (7 bar maximum) is connected to the left ¼"NPT port of the pressure gauge block. The recommended tube size is 6x8 mm

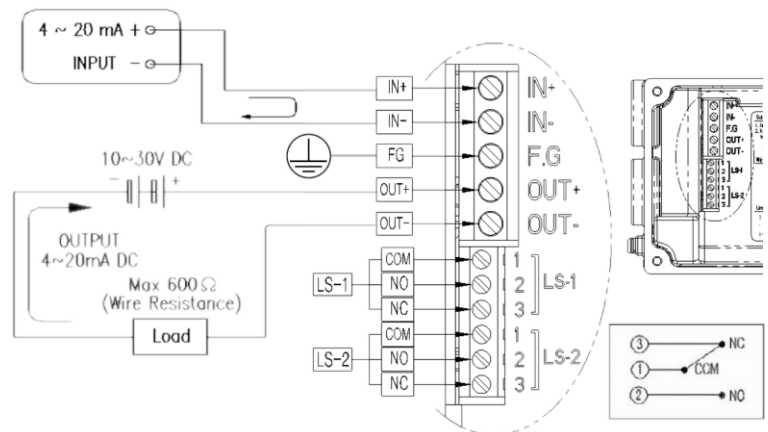
Outputs 1 and 2 correspond to direct (1) and reverse (2) output.

In the case of a single-acting actuator, the unused output must be closed.



ELECTRICAL CONNECTIONS

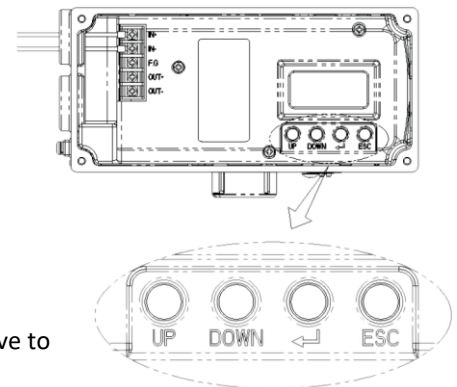
Terminal	Description
IN+	+ 4÷20 mA Control signal
IN-	- 4÷20 mA Control signal
F.G	Earth connection
OUT+	+ 4÷20 mA Feedback
OUT-	- 4÷20 mA Feedback
LS-1	1 - COM Limit switch common N°1
	2 - NO NO limit switch terminal N°1
	3 - NC NC limit switch terminal N°1
LS-2	1 - COM Limit switch common N°2
	2 - NO NO limit switch terminal N°2
	3 - NC NC limit switch terminal N°2



SETTINGS

The YT3300 positioner has as standard an LCD display and four keys allowing you to display and configure the different settings.

UP	Menu navigation,
DOWN	selection of values
↵	Validation, access to submenus
ESC	Return to previous menu



Numerous settings are available to the user to adapt the behavior of the valve to the characteristics of the installation.

In particular, it is possible to adjust the PID, the valve curve, the dead zone (hysteresis), the split-range mode, etc.

Optional equipment such as limit switches, position transmitter or HART communication can also be configured, if installed.

The YT3300R positioner has several self-learning modes.

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SELF-CALIBRATION

Auto calibration allows the positioner to find and adjust zero and travel, as well as other parameters (PID).

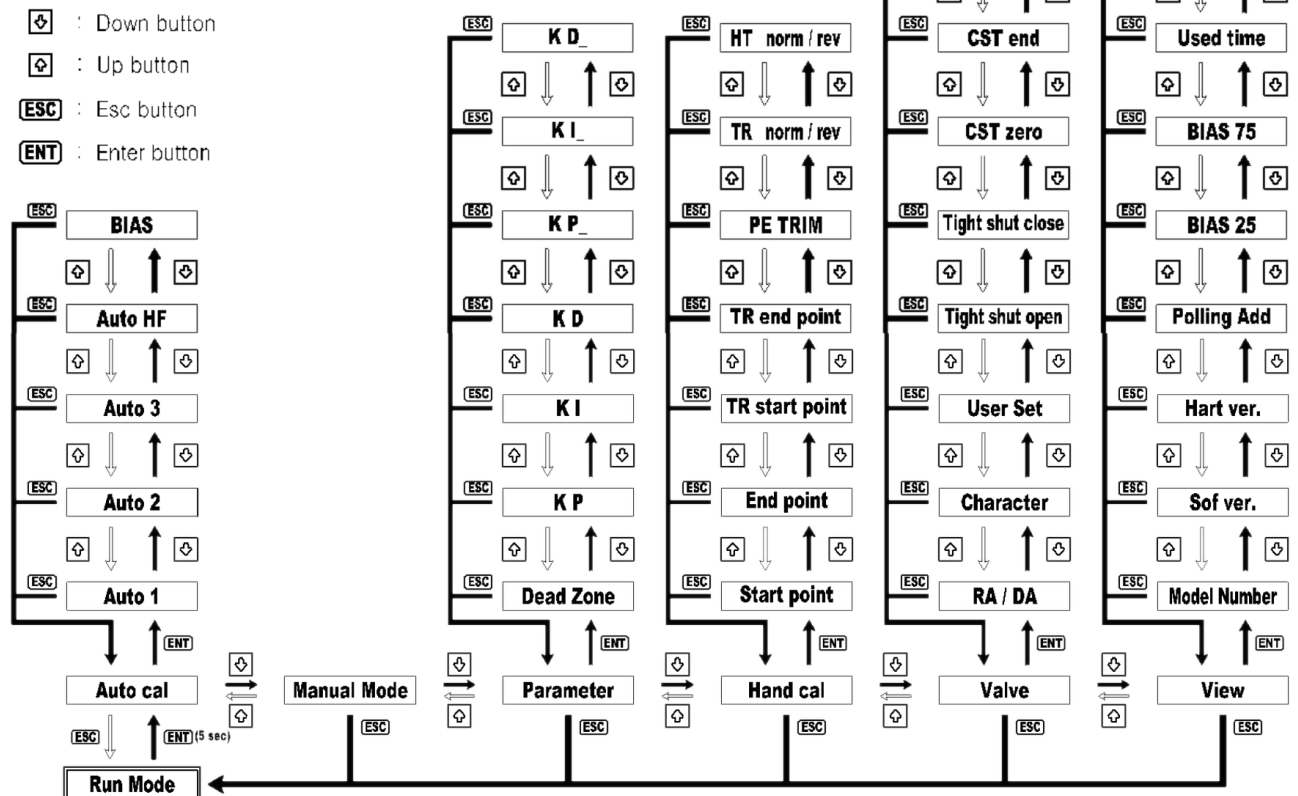
During the first start-up after assembly it is recommended to run the AUTO2 self-calibration, which adjusts all parameters.

The AUTO1 self-calibration adjusts the zero and the travel without modifying the other parameters, this choice is suitable after maintenance (skip step 4).

	Steps of auto-calibration	Display
1	The control signal is activated at 50% (12 mA), the positioner is in RUN mode, the display indicates:	300% RUN PV
2	Press the key $\leftarrow$ for 6 seconds the display indicates:	AUTO CAL
3	Press the key $\leftarrow$ the display indicates:	AUTO 1
4	Press the key DOWN, the display indicates:	AUTO 2
5	Press the key $\leftarrow$, the positioner controls the valve to search for its references (2 to 3 minutes) then stops the self-calibration is completed. The display indicates:	COMPLETE

OTHER PARAMÈTERS

Other parameters can be adjusted in the menu, following the displayed tree:



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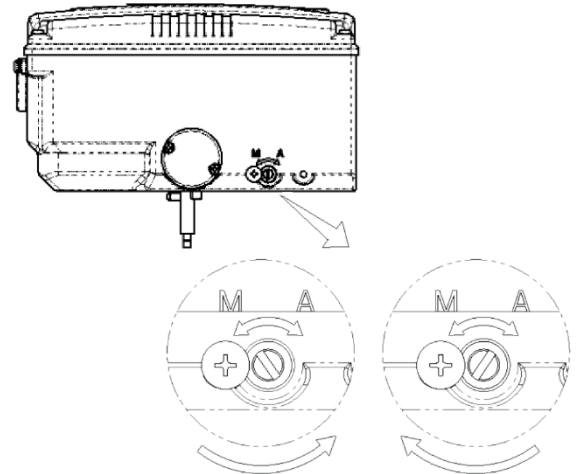
MANUAL OPERATION

The AUTO/MANUAL (A/M) selector allows you to bypass the positioner and direct the supply pressure directly to the actuator.

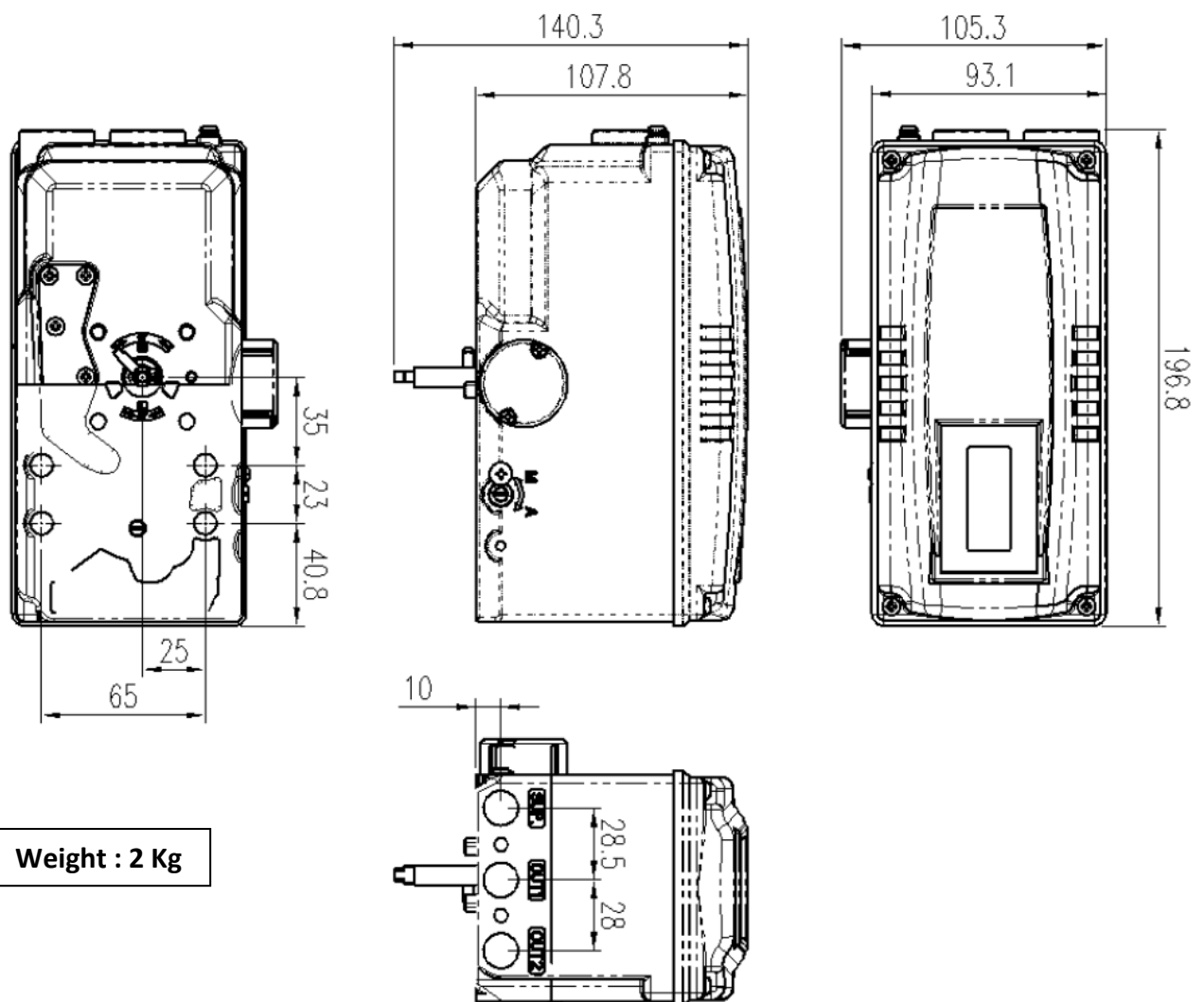
In the AUTO position, the 4÷20 mA signal controls the valve

In MANUAL mode, the valve position can be adjusted by modulating the supply pressure using the pressure regulator.

Loosen the lock using a Phillips screwdriver, orient the A/M control using a flat screwdriver.



DIMENSIONS



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RE SERIES

**PNEUMATIC ACTUATORS
WITH EXTERNAL ADJUSTMENT**

ROTATION 90°



English edition



Alphaair



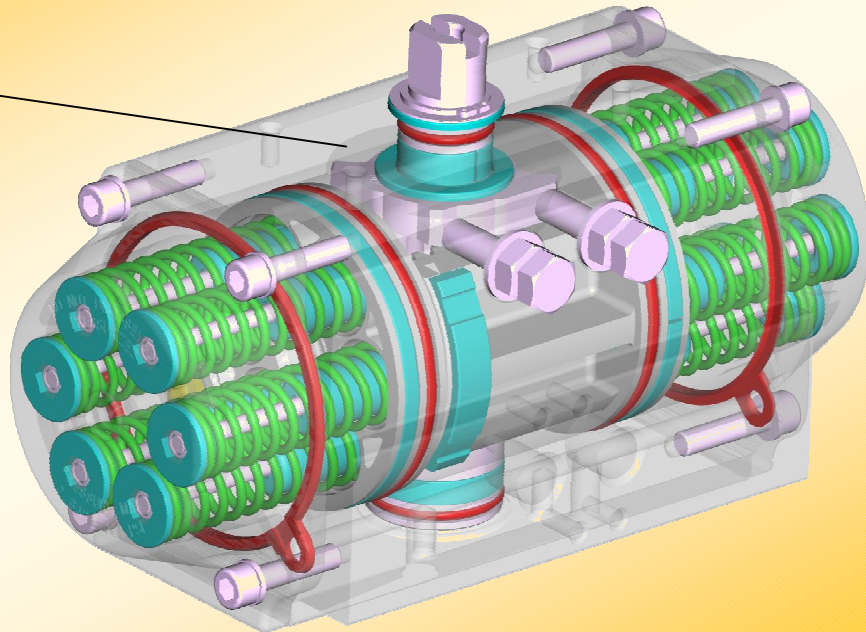
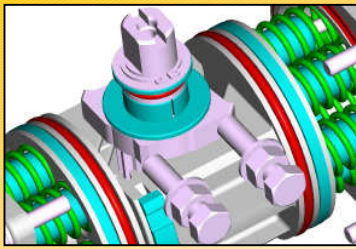
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2017

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 rubber 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

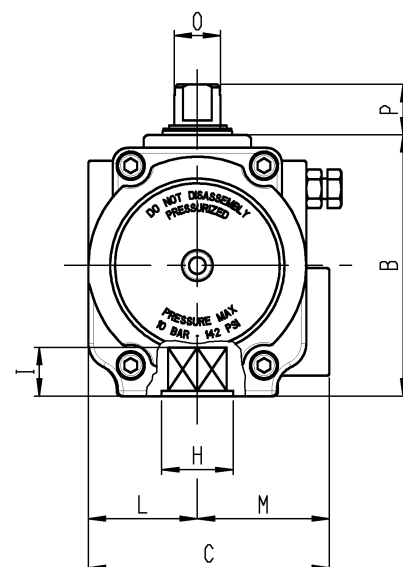
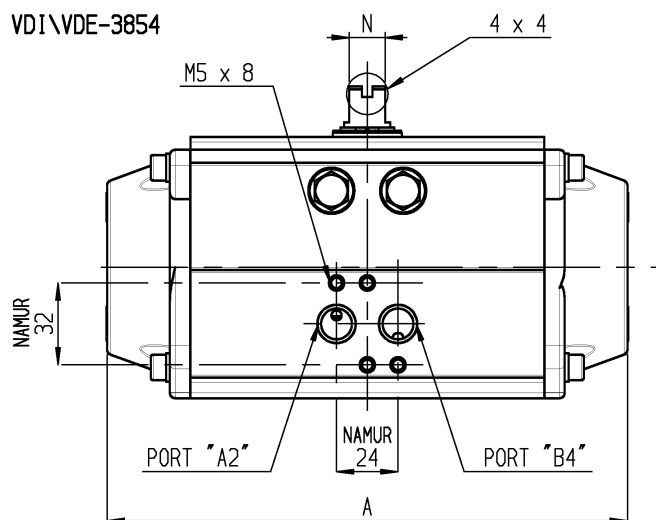
TYPE	AIR SUPPLY PRESSURE (bar)									
	1	2	3	4	5	6	7	8	9	10
RE 043	-	-	6,5	8,7	10,9	13,0	15,2	17,3	19,5	21,7
RE 051	3,3	6,7	10,0	13,4	16,7	20,1	23,4	26,8	30,1	33,5
RE 064	5,9	11,8	17,8	23,7	29,6	35,5	41,4	47,4	53,3	59,2
RE 076	11,8	23,5	35,3	47,1	58,9	70,6	82,4	94,2	105,9	117,7
RE 086	17,2	34,5	51,7	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	6385	7292	8204	9115
RE 421	1671	3342	5013	6684	8354	10025	11696	13367	-	-

SINGLE ACTING TORQUES IN Nm

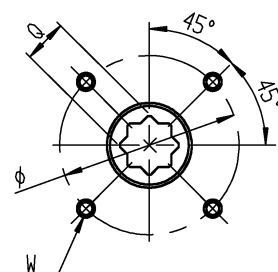
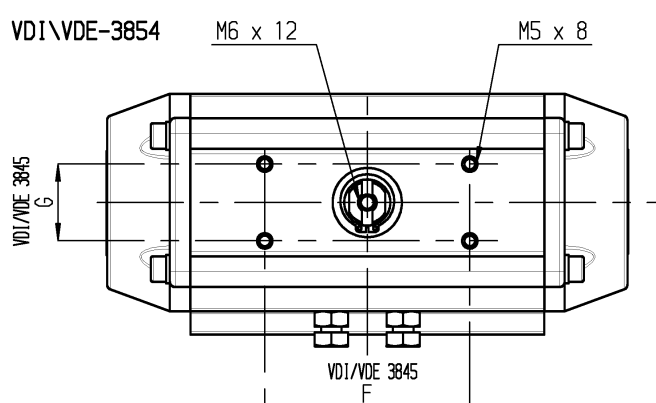
TYPE	SPRING SET	AIR SUPPLY PRESSURE (bar)												SPRING TORQUE	
		3		4		5		6		7		8			
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	90°	0°
RE 043	SR 3/3	-	-	-	-	7,1	4,1	9,3	6,3	11,5	8,5	13,7	10,7	6,8	3,8
	SR 4/4	-	-	-	-	7,1	4,1	8,1	4,1	10,2	6,2	12,4	8,4	9,0	5,0
RE 051	SR 3/3	5,8	4,3	9,1	7,6	12,5	10,9	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	281,6	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	8369	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

VDI/VDE-3854



VDI/VDE-3854

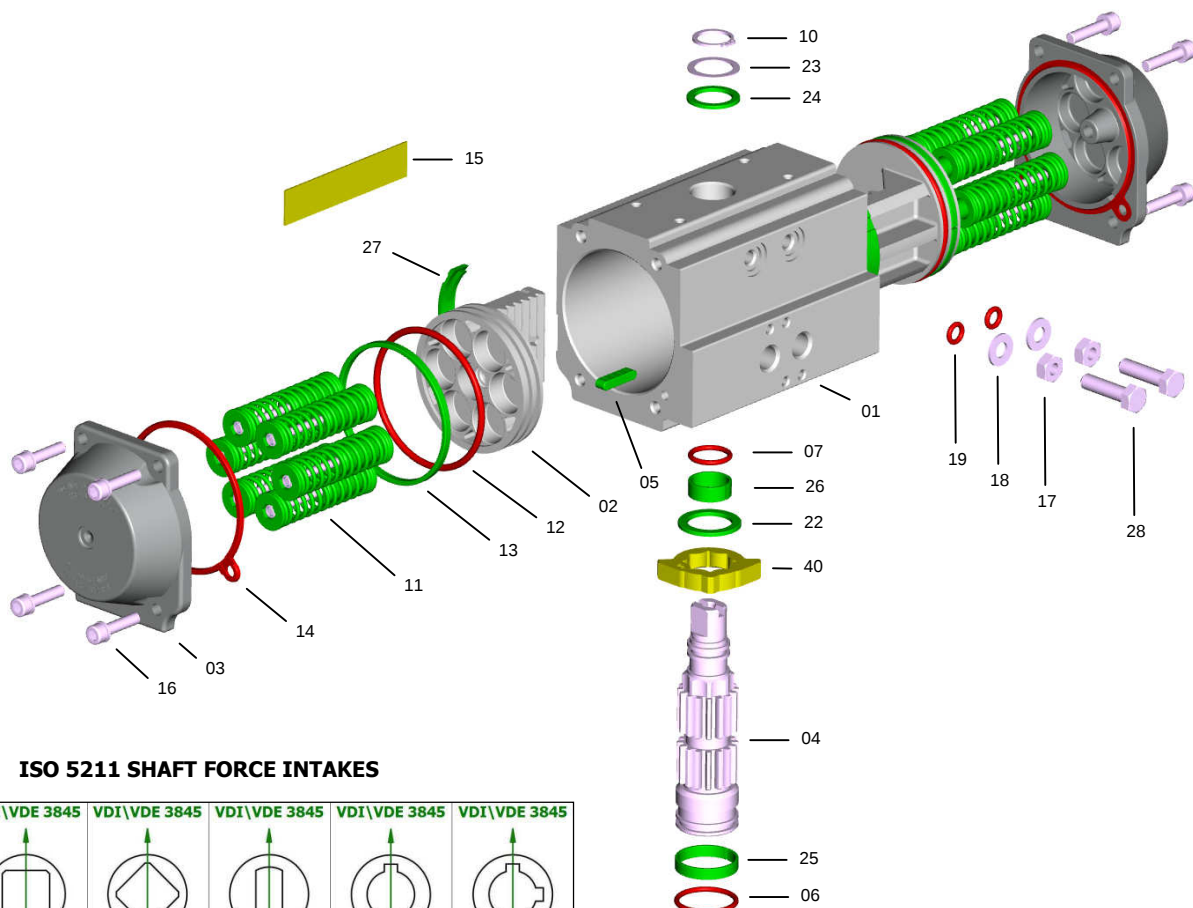


F ISO 5211

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

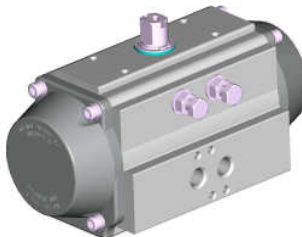
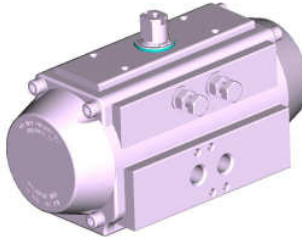
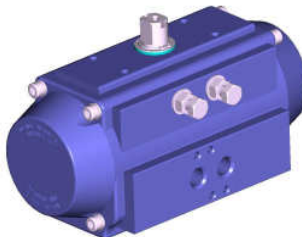
PART	QUANTITY	DESCRIPTION	MATERIAL	SPECIFICATION	PROTECTION
1	1	Body	Extruded aluminium alloy	EN AW 6063 T6	A - N - TF
2	2	Piston	Aluminium alloy	EN AB 46100 T6	A
3	2	Cover	Aluminium alloy	EN AB 46100 T6	N - V - TF
4	1	Shaft	Carbon steel Stainless Steel – optional	ASTM A-105 AISI 304 (A2) AISI 316 (A4)	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
		Body	Covers	Pistons	Shaft	
	AV					- Industry, general use.
	standard	Anodizing	Polyester painting	Anodizing	High phosphorous 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	
	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)	
		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)	
		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 known 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 alkali 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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COMPANY WITH
QUALITY SYSTEM
CERTIFIED BY DNV GL
= ISO 9001 =

