

## PNEUMATIC CONTROL VALVES V403 DN 65 – DN 100

(V403 globe valves series with linear actuators PA or EL series)

### DESCRIPTION

The PV403 control valves are three-way valves for mixing or diverting service. The PA pneumatic actuator is rubber diaphragm and multi-springs. Its action can be DA – direct action (air to close) or RA – reverse action (air to open). The V403 valves have been designed to assure an accurate control in any process condition. Their wide range of applications allows the use of this valve with the most common process fluids such as water, superheated water, diathermic oil, steam, air, gas and other non corrosive fluids.

### MAIN FEATURES

Mixing or diverting control valve.  
Standard packing or bellows sealed stem sealing.

**OPTIONS:**                   Soft sealing.  
                                  Position transmitter.  
                                  Pneumatic pilot positioner.  
                                  Air filter regulator.  
                                  Top mounted handwheel.

**USE:**                        Hot and superheated water.  
                                  Diathermic oil.  
                                  Saturated and superheated steam.  
                                  Air, gases and other non corrosive fluids.

**AVAILABLE MODELS:**    PV403S / EV403S – steel construction.  
                                  PV403I / EV403I – stainless steel.

**VALVE SIZES:**           DN 65 to DN 100.

**CONNECTION:**           Flanged EN 1092-1.

**PNEUMATIC ACTUATORS:**   PA340, PA435.

**ACTUATOR CONNECTION:**   1/4" NPT-F.

**CONTROL SIGNAL:**        0,2 – 1bar; 0,4 – 1,2 bar; 0,4 – 2 bar.

**ELECTRIC ACT:**         Consult catalogue IS EL 20.00 E.



**MAX. AIR SUPPLY:**           3,5 bar.

**AMBIENT TEMP.:**         -20 °C to 70 °C.

**STEM SEALING:**         PTFE/GR V-Rings – up to 220 °C.  
                                  Graphite – up to 400 °C.  
                                  Bellows sealed.

**PLUG TYPES:**           Linear (PL).

**PORT:**                    Full port.

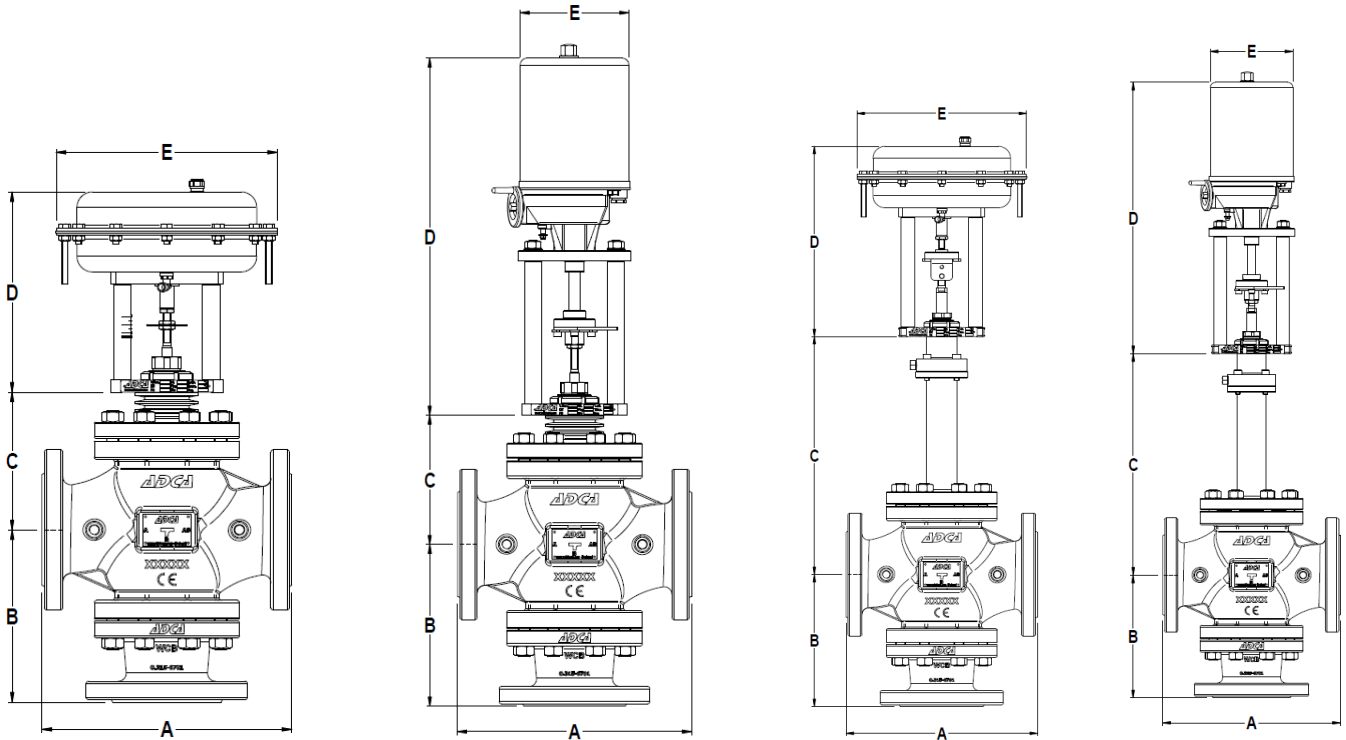
**HOW TO SELECT:** Never size the valve according to the pipe diameter in which it has to be fitted, but according to the required actual flow of steam or water. Refer to the valve calculation data sheet or consult the factory.

CE MARKING – GROUP 2 (PED – European Directive)		
PN16	PN40	Category
DN 65 to DN 100	DN 65 to DN 100	1 (CE marked)

VALVE BODY LIMITING CONDITIONS *							
V403S – PN16		V403I – PN16		V403S – PN40		V403I – PN40	
ALLOW. PRESS.	RELATED TEMP.	ALLOW. PRESS.	RELATED TEMP.	ALLOW. PRESS.	RELATED TEMP.	ALLOW. PRESS.	RELATED TEMP.
16 bar	-10 / 50 °C	16 bar	-10 / 50 °C	40 bar	-10 / 50 °C	40 bar	-10 / 50 °C
13,3 bar	200 °C	13,4 bar	200 °C	33,3 bar	200 °C	33,7 bar	200 °C
12,1 bar	250 °C	12,7 bar	250 °C	27,6 bar	300 °C	29,7 bar	300 °C
11 bar	300 °C	11,8 bar	300 °C	25,7 bar	350 °C	28,5 bar	350 °C
10,2 bar	350 °C	11,4 bar	350 °C	23,8 bar	400 °C	27,4 bar	400 °C

Maximum temperature limited to the valve packing selected; Valves with soft seat, max. allowable temperature: 200 °C.

\* Rating according to EN 1092-1:2018.



**DIMENSIONS – VALVE BODY**

SIZE DN	A (mm)	B (mm)	BONNET			
			STANDARD PACKING		BELLOWS SEALED	
			C (mm)	WGT. (kg)	C (mm)	WGT. (kg)
65	290	215	172	43	383	45
80	310	215	172	49	388	52
100	350	240	187	65	390	69

**DIMENSIONS – PNEUMATIC ACTUATOR**

TYPE	E (mm)	D (mm)	WEIGHT (kg)
PA205	210	235	5,7
PA280	275	240	8,8
PA340	335	265	14,3
PA435	430	295	24,5

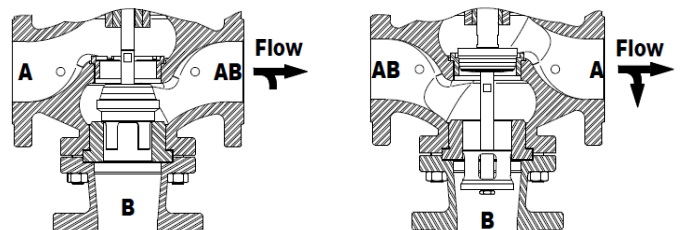
**DIMENSIONS – ELECTRIC ACTUATOR**

TYPE	E (mm)	D (mm)
EL20	145	458
EL45	145	458
EL80	188	517
EL120	188	517

**FAILURE POSITION DEPENDING ON VALVE DUTY**

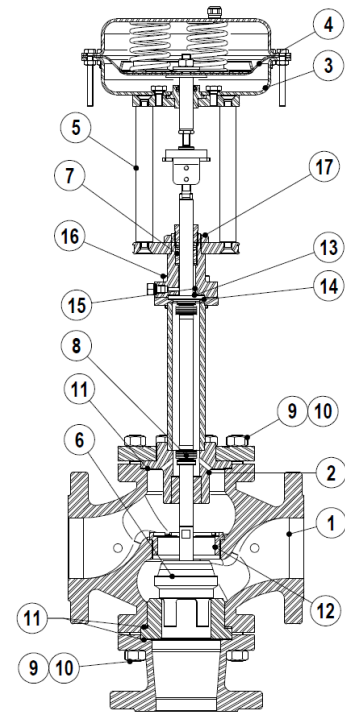
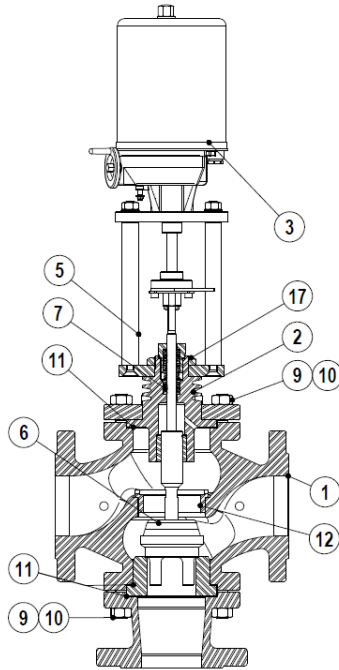
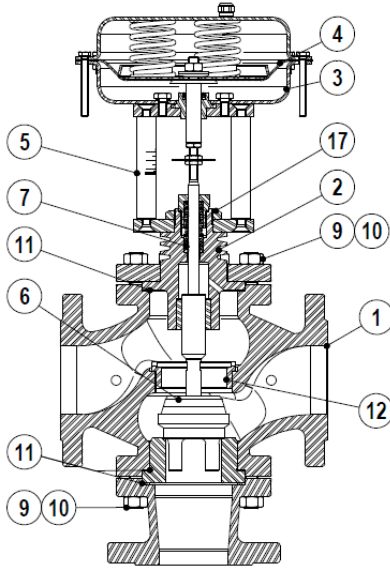
Mixing valve		Diverting valve	
Dir. action actuator (a)	Rev. action actuator (b)	Dir. action actuator (a)	Rev. action actuator (b)
Port A to AB closes	Port B to AB closes	Port AB to B closes	Port AB to A closes

- a) Retracted stem on air failure.
- b) Extended stem on air failure.



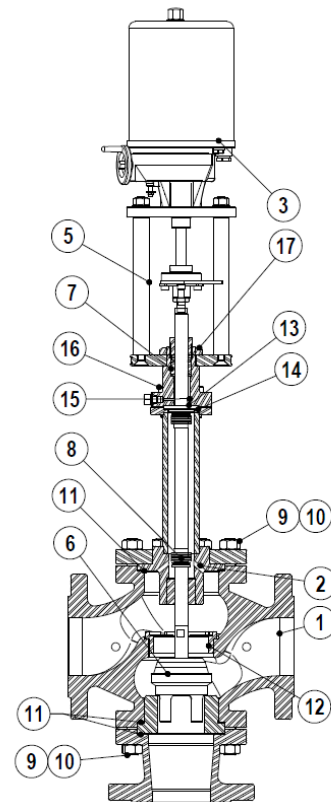
Mixing valve

Diverting valve



MATERIALS		
POS. N°	DESIGNATION	MATERIAL
1	Valve body	WCB / 1.0619
2	Bonnet	CF8 / 1.4308
3	Pneum. actuator (steel)	S235JRG2 / 1.0038
	Pneum. actuator (st. steel)	AISI304 / 1.4301
	Electrical actuator casing	Aluminium
4	* Diaphragm	NBR 70
5	Yoke (steel)	C45E / 1.1191
	Yoke (stainless steel)	AISI 304 / 1.4301
6	* Valve plug	PTFE/GR ; Stainless steel
7	* Standard packing	PTFE/GR
8	* Metal bellows	AISI 316 Ti / 1.4571
9	Studs	34CrNiMo6 / 1.6582
10	Nuts	Steel 8.8
11	* Gasket	Stainless steel / Graphite
12	* Seat	Stainless steel
13	* Gasket	Stainless steel / Graphite
14	* Gasket	Stainless steel / Graphite
15	Straight pin	Stainless steel
16	Bolts	Steel 10.9
17	Lock nut	Stainless steel

\* Available spare parts.



**MAX. PERM. PRESSURE DROP (bar) – Fluid to open – Reverse or direct action actuator**

ACTUATOR	CONTROL SIGNAL	SIZES								
		DN 15	DN 20	DN 25	DN 32	DN 40	DN 50	DN 65	DN 80	DN 100
PA205	0,2 ÷ 1 bar	–	–	–	–	–	–	–	–	–
	0,4 ÷ 1,2 bar	–	–	–	–	–	–	–	–	–
	0,4 ÷ 2 bar	–	–	–	–	–	–	–	–	–
PA280	0,2 ÷ 1 bar	–	–	–	–	–	–	–	–	–
	0,4 ÷ 1,2 bar	–	–	–	–	–	–	–	–	–
	0,4 ÷ 2 bar	–	–	–	–	–	–	–	–	–
PA340A	0,2 ÷ 1 bar	–	–	–	–	–	–	–	–	–
	0,4 ÷ 1,2 bar	–	–	–	–	–	–	–	–	–
	0,4 ÷ 2 bar	–	–	–	–	–	–	–	–	–
PA340B	0,2 ÷ 1 bar	–	–	–	–	–	–	4	2,5	1
	0,4 ÷ 1,2 bar	–	–	–	–	–	–	5	3,5	1,5
	0,4 ÷ 2 bar	–	–	–	–	–	–	6	4	2
PA435A	0,2 ÷ 1 bar	–	–	–	–	–	–	–	–	–
	0,4 ÷ 1,2 bar	–	–	–	–	–	–	–	–	–
	0,4 ÷ 2 bar	–	–	–	–	–	–	–	–	–
PA435B	0,2 ÷ 1 bar	–	–	–	–	–	–	6	5	3
	0,4 ÷ 1,2 bar	–	–	–	–	–	–	8	7	5
	0,4 ÷ 2 bar	–	–	–	–	–	–	10	8	6

The pressure drop values refer to closed valves. They have been verified by a control signal coming from an electro-pneumatic converter with an enduring minimum signal of 0,2 bar.

The actuator pressure drops given with closed valve for the actuator signal 0,4 - 2 bar are also valid for ON-OFF service with air supply at 2,4 bar.

Special spring drops available on request.

The pressure drop values must be used within the body rating limits.

For electric actuator selection please consult catalogue IS EL.20.00 E or our technical department.

VALVE STROKE (mm)			
	SIZES		
	DN 65	DN 80	DN 100
STROKE	30	30	30

FLOW RATE COEFFICIENTS			
	SIZES		
	DN 65	DN 80	DN 100
Kvs	63	100	160

Kvs in m<sup>3</sup>/h, see IS PV10.00 E ;

For conversion Kvs = Cv (US) x 0,855.

ORDERING CODES V403									
VALVE CODES		V	.43S	M	1	6	L	65	.X.
Actuator type (1)									
Pneumatic actuator		P							
Electric actuator		E							
Group designation									
Globe valve, three way		V							
Valve model									
Steel body			.43S						
Stainless steel body			.43I						
Flow									
Mixing				M					
Diverting (only available for DN 40 and above)				D					
Stem sealing									
PTFE/GR V-Rings / Standard bonnet					1				
Virgin PTFE V-Rings / Standard bonnet					2				
Graphite / Standard bonnet					3				
Stainless steel bellows					8				
Valve plug									
PL (linear) – Soft (PTFE/GR)						6			
PL (linear) – Metal AISI 316 / 1.4401						7			
Pipe connection									
Flanged EN 1092-1 PN16							L		
Flanged EN 1092-1 PN40							N		
Size									
DN 65								65	
DN 80								80	
DN 100								100	
Actuator									(1)
Extras									
Full description or additional codes have to be added in case of non-standard combination.									E

ACTUATOR CODES (pneumatic) *	P.	6	R	18
Group designation				
Multi-spring, pneumatic linear actuator	P.			
Actuator size				
340B – From DN 65 to DN 100		6		
435B – From DN 65 to DN 100		8		
Actuator type				
Direct action (air to close)			D	
Reverse action (air to open)			R	
Actuator Construction				
Steel construction (painted) – standard				(2)
Stainless steel construction				I
Control signal				
0,2 – 1 bar (3/15 psi)				15
0,4 – 1,2 bar (6/18 psi)				18
0,4 – 2 bar (6/30 psi)				30
0,4 – 2,4 (6/35 psi)				35

→ To be introduced on ".X.", if supplied in combination with the valve.

Example:

V403S mixing valve model, PL soft plug, PTFE/GR stem sealing, DN 65, complete with reverse action actuator signal 0,4 – 1,2 bar, size 340A steel:

Code: PV.43S.M16L65.6R18

REMARKS:

- (1) – Indicate actuator type.
- (2) – Omitted if the standard actuator is selected.

ADCATrol control valves are identified by a serial number on a nameplate, located on the actuator yoke. When ordering spares, always use that serial number. If the valve has non-standard extras the serial number also has an E (extras).

\* For electric actuator ordering codes, consult our technical department.