

## PNEUMATIC CONTROL VALVES V403

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

### DESCRIPTION

The PV403 control valves are three-way valve body for mixing 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 application ranges allow 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-work manual 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 15 to DN 50.

**CONNECTIONS:** Flanged EN 1092-1 PN40 or ANSI Class 150 lb / 300 lb.  
Threaded connections on request.

**PNEUMATIC ACTUATORS:** PA205, PA280, PA340, PA435.

**ACTUATORS 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 - Linear electric actuators.



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

**AMBIENT TEMP.:** -20 °C to 70 °C.

**BONNET:** Standard – up to 220 °C;  
Extended finned – above 220 °C.

**STEM SEALING:** PTFE/GR V-Rings – up to 220 °C;  
Graphite – up to 300 °C;  
Stainless steel bellows.

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

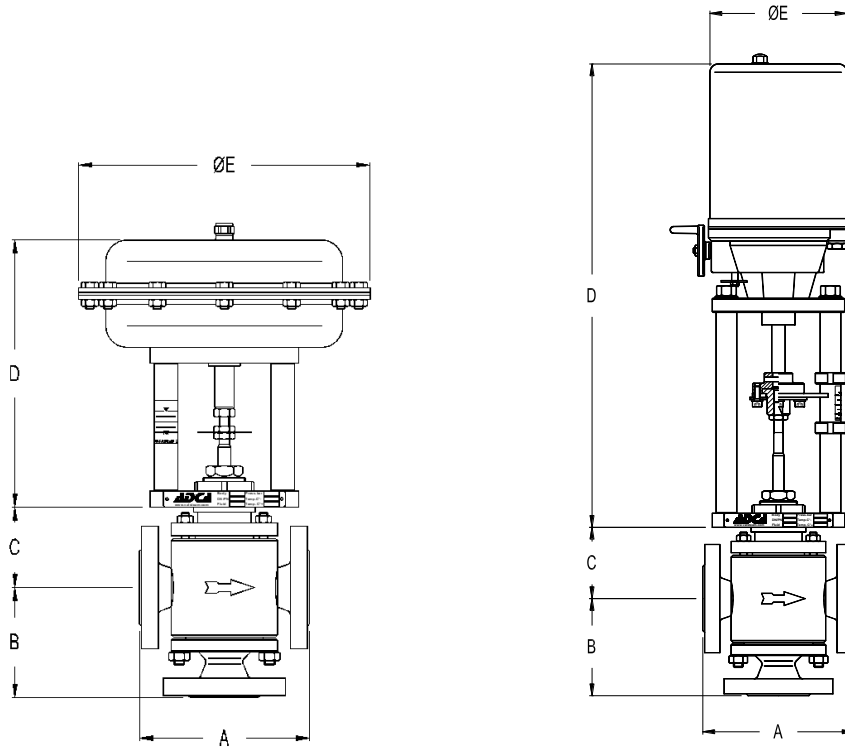
**PORT:** Full port.

**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.

VALVE BODY LIMITING CONDITIONS			
V403S		V403I	
ALLOW. PRESS.	RELATED TEMP.	ALLOW. PRESS.	RELATED TEMP.
25 bar	-10 / 50 °C	25 bar	-10 / 100 °C
20,8 bar	200 °C	21 bar	200 °C
19 bar	250 °C	19,8 bar	250 °C
17,2 bar	300 °C	18,5 bar	300 °C

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

CE MARKING – GROUP 2 (PED – European Directive)	
PN25	Category
DN 15 to DN 40	SEP
DN 50	1 (CE Marked)



**DIMENSIONS – VALVE BODY (mm)**

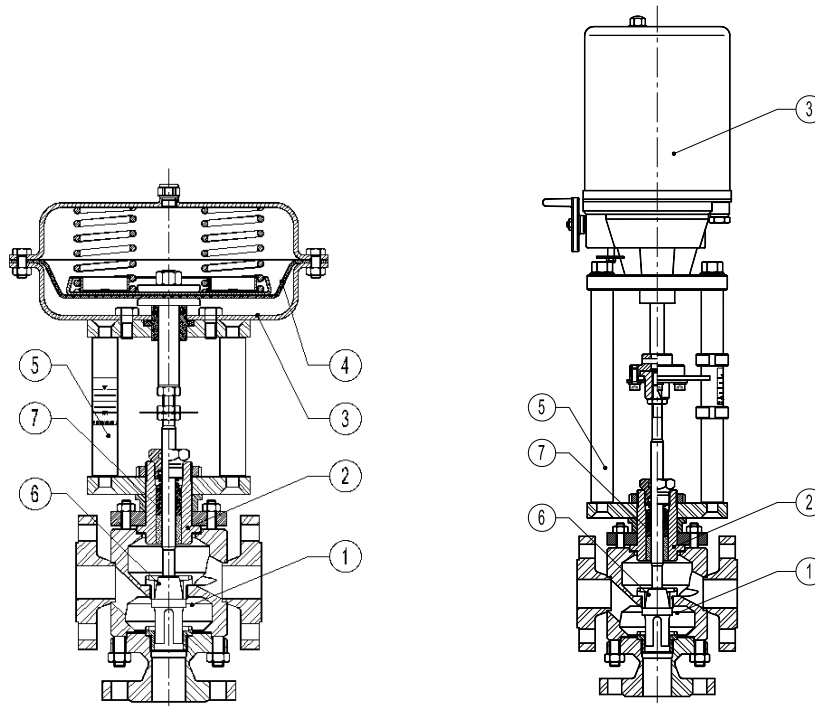
SIZE	A PN40	A ANSI 150 lb	A ANSI 300 lb	B	C BONNET	
					STANDARD PACKING	BELLOWS SEALED
					1/2" – DN 15	150
3/4" – DN 20	150	184	194	103	75	267
1" – DN 25	160	184	197	103	75	267
1 1/4" – DN 32	180	–	–	110	83	285
1 1/2" – DN 40	200	222	235	110	96	285
2" – DN 50	230	254	267	130	100	298

**DIMENSIONS  
 PNEUMATIC ACTUATOR**

TYPE	E (mm)	D (mm)	WEIGHT (kg)
PA205	210	235	6
PA280	275	245	10
PA340	335	265	15
PA435	430	295	25

**DIMENSIONS  
 ELECTRIC ACTUATOR**

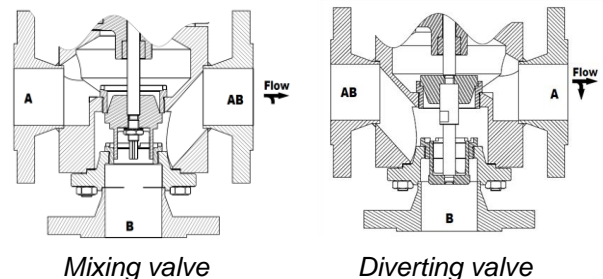
TYPE	E (mm)	D (mm)
EL12	130	340
EL20	145	458
EL45	145	458
EL80	188	517
EL120	188	517



MATERIALS			
POS. Nº	DESIGNATION	PV403S / EV403S	PV403I / EV403I
1	Valve body	S355J2G3 / 1.0570	AISI 316 / 1.4401
2	Bonnet	CF8 / 1.4308	CF8 / 1.4308
3	Pneum. actuator (steel)	S235JRG2 / 1.0038	S235JRG2 / 1.0038
	Pneum. actuator (st. steel)	AISI 304 / 1.4301	AISI 304 / 1.4301
	Electrical actuator casing	Aluminium	Aluminium
4	Diaphragm	NBR70	NBR70
5	Yoke (steel)	C45E / 1.1191	C45E / 1.1191
	Yoke (st. steel)	AISI 304/ 1.4301	AISI 304/ 1.4301
6	Valve plug	St. steel – PTFE/GR	St. steel – PTFE/GR
7	Standard packing	PTFE/GR	PTFE/GR

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.



**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	6	6	5	–	–	–	–	–	–
	0,4 ÷ 1,2 bar	10	10	7	–	–	–	–	–	–
	0,4 ÷ 2 bar	12	12	9	–	–	–	–	–	–
PA280	0,2 ÷ 1 bar	28	26	16	8	6	3,5	–	–	–
	0,4 ÷ 1,2 bar	40	38	20	12	10	5	–	–	–
	0,4 ÷ 2 bar	50	45	25	16	12	6,5	–	–	–
PA340A	0,2 ÷ 1 bar	60	60	50	20	12	10	–	–	–
	0,4 ÷ 1,2 bar	80	80	60	30	16	13	–	–	–
	0,4 ÷ 2 bar	100	100	80	40	20	18	–	–	–
PA340B	0,2 ÷ 1 bar	–	–	–	–	–	–	–	–	–
	0,4 ÷ 1,2 bar	–	–	–	–	–	–	–	–	–
	0,4 ÷ 2 bar	–	–	–	–	–	–	–	–	–
PA435A	0,2 ÷ 1 bar	–	–	–	–	40	25	–	–	–
	0,4 ÷ 1,2 bar	–	–	–	–	48	30	–	–	–
	0,4 ÷ 2 bar	–	–	–	–	55	45	–	–	–

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 15	DN 20	DN 25	DN 32	DN 40	DN 50
<b>STROKE</b>	20	20	20	20	20	20

**FLOW RATE COEFFICIENTS**

	SIZES					
	DN 15	DN 20	DN 25	DN 32	DN 40	DN 50
<b>Kvs</b>	4	6,3	10	16	25	40

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

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

ORDERING CODES V403										
VALVE CODES	P	V	.43S	M	1	6	L	50	.X.	
<b>Actuator type (1)</b>										
Pneumatic actuator	P									
Electric actuator	E									
<b>Group designation</b>										
Globe valve, three way	V									
<b>Valve model</b>										
Steel body			.43S							
Stainless steel body			.43I							
<b>Flow</b>										
Mixing				M						
Diverting (only available for DN 40 and above)				D						
<b>Stem sealing</b>										
PTFE/GR-V-Rings / Standard bonnet					1					
Virgin PTFE V-Rings / Standard bonnet					2					
Graphite / Standard bonnet					3					
Graphite / Extended bonnet					4					
Stainless steel bellows					8					
<b>Valve plug</b>										
PL (linear) – Soft (PTFE/GR)					6					
PL (linear) – Metal AISI 316 / 1.4401					7					
<b>Pipe connection</b>										
Flanged EN 1092-1 PN40							N			
Flanged ANSI B16.5 300 lb							V			
<b>Size</b>										
DN 15								15		
DN 20								20		
...										
<b>Actuator</b>										(1)
<b>Extras (3)</b>										
Full description or additional codes have to be added in case of non-standard combination.										E

ACTUATOR CODES (PNEUMATIC) *	P.	5	R	18
<b>Group designation</b>				
Multi-spring, pneumatic linear actuator	P.			
<b>Actuator size</b>				
205		1		
280		3		
340A – From DN 15 to DN 50		5		
435A – From DN 15 to DN 50		7		
<b>Actuator type</b>				
Direct action (air to close)			D	
Reverse action (air to open)			R	
<b>Actuator Construction</b>				
Steel construction (painted) – standard				(2)
Stainless steel construction				I
<b>Control signal</b>				
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

→ 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 50, complete with reverse action actuator signal 0,4 – 1,2 bar, size 340A steel:

Code: PV.43S.M16L50.5R18

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.