

## PNEUMATIC CONTROL VALVES V403 DN65 – DN100

(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 purpose 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:** DN65 to DN100

**CONNECTION:** Flanged EN 1092-1 or ANSI

**PNEUMATIC ACTUATORS:** PA-205, PA-280, PA-340, PA-435

**ACTUATOR CONN:** 1/4" NPT-F  
**CONTROL SIGNAL:** 0,2 – 1bar; 0,4 – 1,2 bar; 0,4 – 2 bar  
**ELECTRIC ACT:** Consult catalogue IS EL20.00 E

**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.



**MAX.AIR SUPPLY:** 3,5 bar  
**AMBIENT TEMPERATURE:** -20°C ....+70°C  
**STEM SEALING:** PTFE/GR V-Rings-220°C (Standard bonnet)  
Graphite – 400°C (Finned bonnet)  
Stainless steel bellows

**PLUG TYPES:** Linear (PL)  
**PORT:** Full port

CE MARKING (PED - European Directive)			
PN 16	PN 25	PN 40	Category
DN65 to DN100	DN65 to DN100	DN65 to DN100	1 (CE Marked)

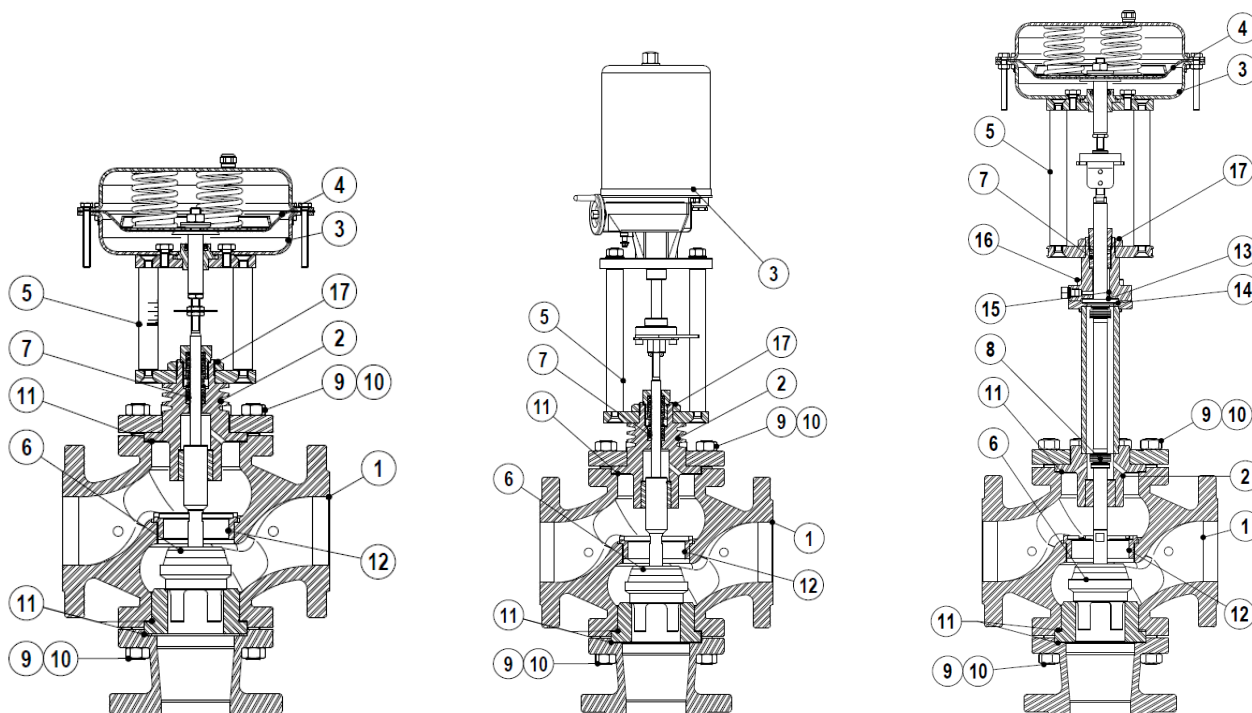
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VALVE BODY LIMITING CONDITIONS							
V403S - PN16 *		V403I - PN16 *		V403S - PN40 *		V403I - PN40 *	
ALLOW. PRESS.	RELATED TEMP.	ALLOW. PRESS.	RELATED TEMP.	ALLOW. PRESS.	RELATED TEMP.	ALLOW. PRESS.	RELATED TEMP.
16 bar	-10/50 °C	16 bar	-10/50 °C	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

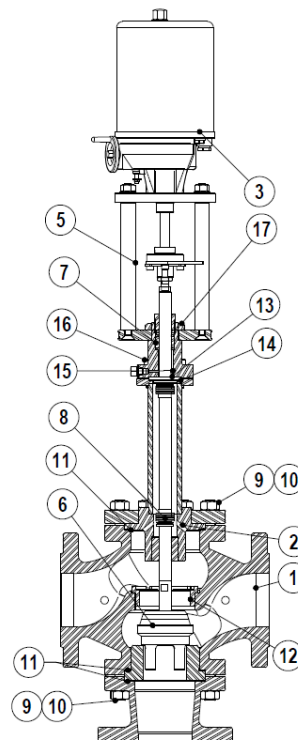
Note: Maximum temperature limited to the valve packing selected. Valves with soft seat, maximum allowable temperature : 200°C

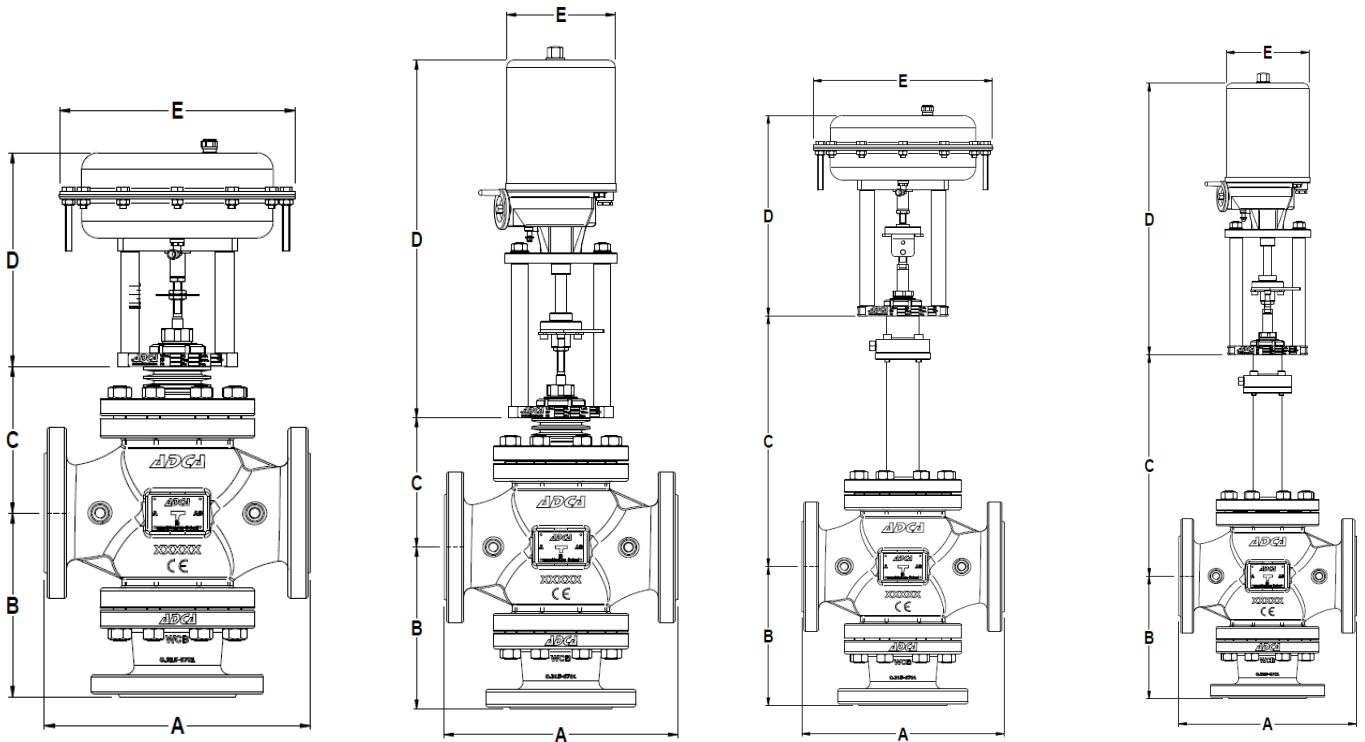
\* Rating according to EN1092-1:2007; \*\* EN1092-2:1997



MATERIALS		
POS.	DESIGNATION	MATERIAL V403
1	Valve Body	WCB / 1.0619
2	Bonnet	CF8 / 1.4308
3	Actuator (pneumatic)	S235JRG2 / 1.0038
3	Actuator (Stainless steel)	AISI304 / 1.4301
3	Actuator (Elect.)	Aluminium
4	*Diaphragm	NBR 70
5	Yoke (Steel)	C45E / 1.1191
5	Yoke (Stainless steel)	AISI304 / 1.4301
6	*Valve plug	PTFE/GR ; St. Steel
7	*Standard packing	PTFE/GR
8	*Metal bellows	AISI316Ti / 1.4571
9	Studs	34CrNiMo6 / 1.6582
10	Nuts	Steel 8.8
11	*Gasket	St. Steel / Graphite
12	*Seat	Stainless Steel
13	*Gasket	St. Steel / Graphite
14	*Gasket	St. Steel / Graphite
15	Straight pin	Stainless Steel
16	Bolts	Steel 10.9
17	Lock nut	Stainless Steel

\* Available spare parts




**DIMENSIONS - VALVE BODY**

DN	A mm	B mm	BONNET			
			Std.Packing		Bellow	
			C mm	Wgt. Kgs	C mm	Wgt. Kgs
65	290	215	172	43	383	45
80	310	215	172	49	388	52
100	350	240	187	65	390	69

**DIMENSIONS - ACTUATOR**

Type	ø E (mm)	D (mm)	WEIGHT Kgs
		DN15-50 DA/RA	
PA-205	210	235	5,7
PA-280	275	240	8,8
PA-340	335	265	14,3
PA-435	430	295	24,5

**DIMENSIONS - ELECTRIC ACTUATOR**

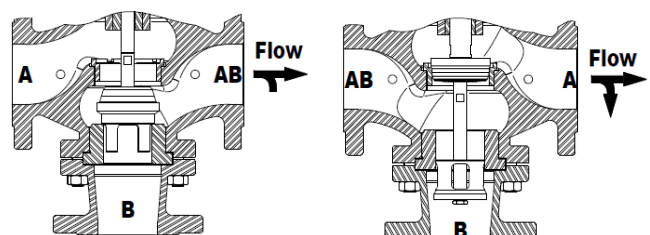
Type	ø E (mm)	D (mm)
EL-12	130	340
EL-20	145	458
EL-45	145	458
EL-80	188	517
EL-120	188	517

**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**



MAX. PERM.PRESS.DROP IN bar - Fluid to open -Reverse or direct action actuator										
ACTUATOR	CONTROL SIGNAL	SIZES								
		DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100
PA-205	0,2 ÷ 1 bar	6	6	5	—	—	—	—	—	—
	0,4 ÷ 1,2 bar	<b>10</b>	10	<b>7</b>	—	—	—	—	—	—
	0,4 ÷ 2 bar	12	12	9	—	—	—	—	—	—
PA-280	0,2 ÷ 1 bar	28	26	16	8	6	3,5	—	—	—
	0,4 ÷ 1,2 bar	<b>40</b>	38	<b>20</b>	12	<b>10</b>	5	—	—	—
	0,4 ÷ 2 bar	50	45	25	16	12	6,5	—	—	—
PA-340A	0,2 ÷ 1 bar	60	60	50	20	12	10	—	—	—
	0,4 ÷ 1,2 bar	<b>80</b>	80	<b>60</b>	30	<b>16</b>	13	—	—	—
	0,4 ÷ 2 bar	100	100	80	40	20	18	—	—	—
PA-340B	0,2 ÷ 1 bar	—	—	—	—	—	—	4	2,5	1
	0,4 ÷ 1,2 bar	—	—	—	—	—	—	<b>5</b>	3,5	<b>1,5</b>
	0,4 ÷ 2 bar	—	—	—	—	—	—	6	4	2
PA435A	0,2 ÷ 1 bar	—	—	—	—	40	25	—	—	—
	0,4 ÷ 1,2 bar	—	—	—	—	<b>48</b>	30	—	—	—
	0,4 ÷ 2 bar	—	—	—	—	55	45	—	—	—
PA435B	0,2 ÷ 1 bar	—	—	—	—	—	—	6	5	3
	0,4 ÷ 1,2 bar	—	—	—	—	—	—	<b>8</b>	7	<b>5</b>
	0,4 ÷ 2 bar	—	—	—	—	—	—	10	8	6

The pressure drop values are referred 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 press. 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.

FLOW RATE COEFFICIENTS			
	SIZES		
	DN65	DN80	DN100
<b>Kvs</b>	63	100	160

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

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

VALVE STROKE IN mm			
	SIZES		
	DN65	DN80	DN100
<b>Stroke</b>	30	30	30



**ORDERING CODES V403**

VALVE CODES		V	.43	S						.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>										
PN25, steel body			.43S							
PN25 stainless steel body			.43I							
<b>Flow</b>										
Mixing					M					
Diverting					D					
<b>Stem Sealing</b>										
PTFE/GR-V-Rings / Standard bonnet						1				
Virgin PTFE V-Rings / Standard bonnet						2				
Graphite / Standard bonnet						3				
Bellows						8				
<b>Valve Plug</b>										
PL (linear) - Soft (PTFE/GR)							6			
PL (linear) - Metal AISI316 / 1.4401							7			
<b>Pipe Connection</b>										
Flanged EN1092-1 PN16								L		
Flanged EN1092-1 PN40								N		
<b>Size</b>										
DN15									15	
DN20									20	
...										
<b>Actuator</b>										(1)
<b>Extras (3)</b>										E

ACTUATOR CODES ( pneumatic )		P								
<b>Group Designation</b>										
Multi-spring , pneumatic linear actuator	P.									
<b>Actuator Size</b>										
340 B - From DN65 to DN100						6				
435 B - From DN65 to DN100						8				
<b>Actuator</b>										
Direct Action								D		
Reverse Action								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
0,4 - 2,4 bar (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 DN65 complete with reverse action actuator signal 0,4-1,2bar, size340B steel.

Code: PV.43S.M16L65.6R18

REMARKS:  
 (1)- Indicate actuator type.  
 (2)- Omitted if the standard actuator is selected.  
 (3)- To be used only when a non-standard combination valve is supplied.  
 ADCATROL control valves are identified by a serial number on a nameplate, located on the actuator yoke.  
 Always order spares by using that serial number. If the valve has non-standard extras the serial number has also an E (extras).