

PNEUMATIC CONTROL VALVES

PV403 DN 15 – DN 50

(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 and EV403S – steel.
PV403I and EV403I – stainless steel.

SIZES: DN 15 to DN 50.

CONNECTION: Flanged EN 1092-1 PN 40.
Flanged ASME B16.5 Class 150 or Class 300.
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 IS EL 20.00 E – Linear electric actuators.

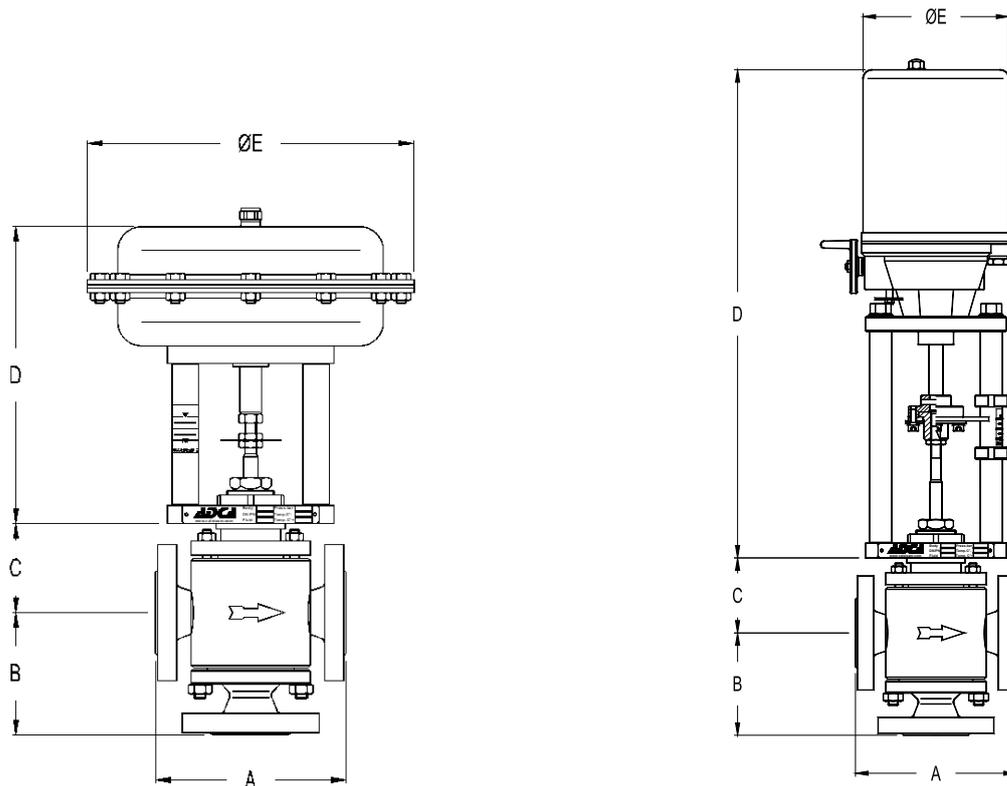


MAX. AIR SUPPLY: 3,5 bar.
AMBIENT TEMP.: -20 °C to 70 °C.
BONNET: Standard – up to 220 °C;
Extended finned – above 220 °C.
STEM SEALING: PTFE/GR V-Rings – up to 220 °C.
Graphite – up to 400 °C.
Bellows sealed.
PLUG TYPE: Linear (PL).
PORT: Full port.
HOW TO SELECT: Never size the valve according to the 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)	
PN 25	Category
DN 15 to DN 40	SEP
DN 50	1 (CE Marked)

BODY LIMITING CONDITIONS *			
V403S		V403I	
ALLOW. PRESSURE	RELATED TEMP.	ALLOW. PRESSURE	RELATED TEMP.
25 bar	-10 / 50 °C	23,6 bar	-10 / 100 °C
20,8 bar	200 °C	19,8 bar	200 °C
19 bar	250 °C	18,6 bar	250 °C
17,2 bar	300 °C	17,2 bar	300 °C

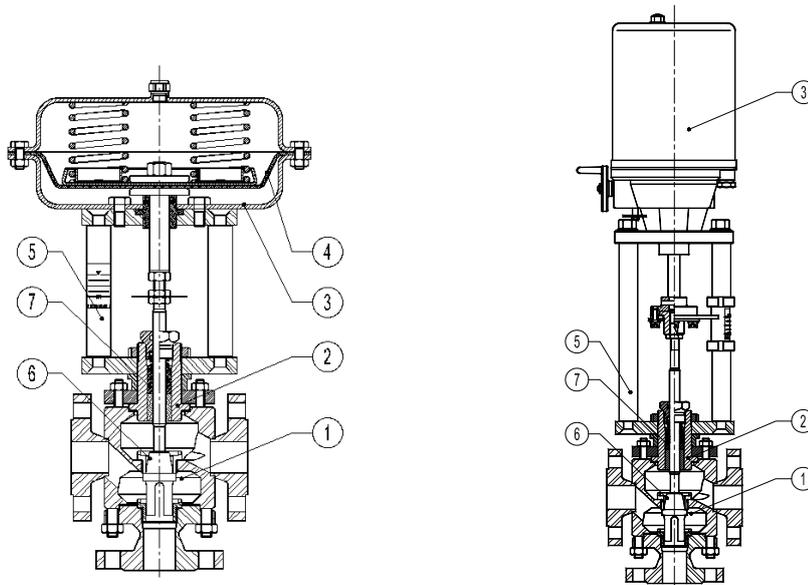
* Rating according to EN 1092-1:2018;
Maximum temperature limited to the valve packing selected.
Valves with soft seal: max. allowable temperature: 200 °C.



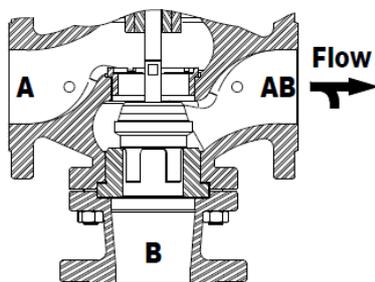
DIMENSIONS (mm)							
SIZE	A PN 40	A CLASS 150	A CLASS 300	B	C - BONNET		
					STANDARD PACKING	BELLOWS SEALED	
1/2" – DN 15	150	184	190	100	75	267	
3/4" – DN 20	150	184	194	103	75	267	
1" – DN 25	160	184	197	103	75	267	
1 1/4" – DN 32	180	–	–	110	83	285	
1 1/2" – DN 40	200	222	235	110	96	285	
2" – 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

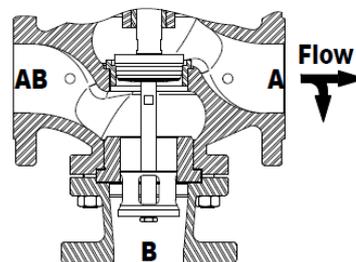
DIMENSIONS – ELECTRIC ACTUATOR		
TYPE	E (mm)	D (mm)
EL12	130	340
EL20	145	458
EL45	145	458
EL80	188	517
EL120	188	517



MATERIALS			
POS. N°	DESIGNATION	V403S	V403I
1	Valve body	S355JR / 1.0045	AISI 316 / 1.4401
2	Bonnet	A351 CF8 / 1.4308	A351 CF8 / 1.4308
3	Pneum. actuator (steel)	S235JR / 1.0038	S235JR / 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	Stainless steel; PTFE/GR	Stainless steel; PTFE/GR
7	Standard packing	PTFE/GR	PTFE/GR



Mixing valve



Diverting valve

FAILURE POSITION DEPENDING ON VALVE DUTY			
Mixing valve		Diverting valve	
Direct action actuator (a)	Reverse action actuator (b)	Direct action actuator (a)	Reverse 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.

VALVE STROKE (mm)						
	SIZES					
	DN 15	DN 20	DN 25	DN 32	DN 40	DN 50
STROKE	20					

FLOW RATE COEFFICIENTS						
	SIZES					
	DN 15	DN 20	DN 25	DN 32	DN 40	DN 50
Kvs	4	6,3	10	16	25	40

Kvs in m³/h, see IS PV10.00 E – Technical information.

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

MAX. PERM. PRESSURE DROP (bar) – N.C. (fluid to open) – Reverse action actuator (air signal to open)							
ACTUATOR	CONTROL SIGNAL	SIZES					
		DN 15	DN 20	DN 25	DN 32	DN 40	DN 50
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.

ORDERING CODES V403										
VALVE CODES	P	V	.43S	M	1	6	N	15	.X.	
Actuator type										
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					
Graphite / Extended bonnet					4					
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 PN 16/40							N			
Flanged ASME B16.5 Class 300							V			
Size										
DN 15								15		
DN 20								20		
...										
Actuator										(1)
Extras										
Full description or additional codes have to be added in case of non-standard combination.										E

ACTUATOR CODES (PNEUMATIC) *					
VALVE CODES	P.	1	D		15
Group designation					
Multi-spring, pneumatic linear actuator	P.				
Actuator size					
205		1			
280		3			
340A – From DN 15 to DN 50		5			
435A – From DN 15 to DN 50		7			
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 50, complete with reverse action actuator signal 0,4 – 1,2 bar, size 340A steel:

Code: PV.43S.M16L50.5R18

REMARKS:

- (1) – Indicate actuator.
- (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 has also an E (extras).

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

**PNEUMATIC CONTROL VALVES
PV403 DN 65 – DN 100
(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 and EV403S – steel.
PV403I and EV403I – stainless steel.

VALVE SIZES: DN 65 to DN 100.

CONNECTION: Flanged EN 1092-1 PN 16 or PN 40.

PNEUMATIC ACTUATORS: PA340 and PA435.

ACTUATOR CONN: 1/4" NPT-F.
CONTROL SIGNAL: 0,2 – 1 bar; 0,4 – 1,2 bar; 0,4 – 2 bar.



ELECTRIC ACTUATORS: Consult catalogue IS EL 20.00 E – Linear electric actuators.

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 TYPE: Linear (PL).

PORT: Full port.

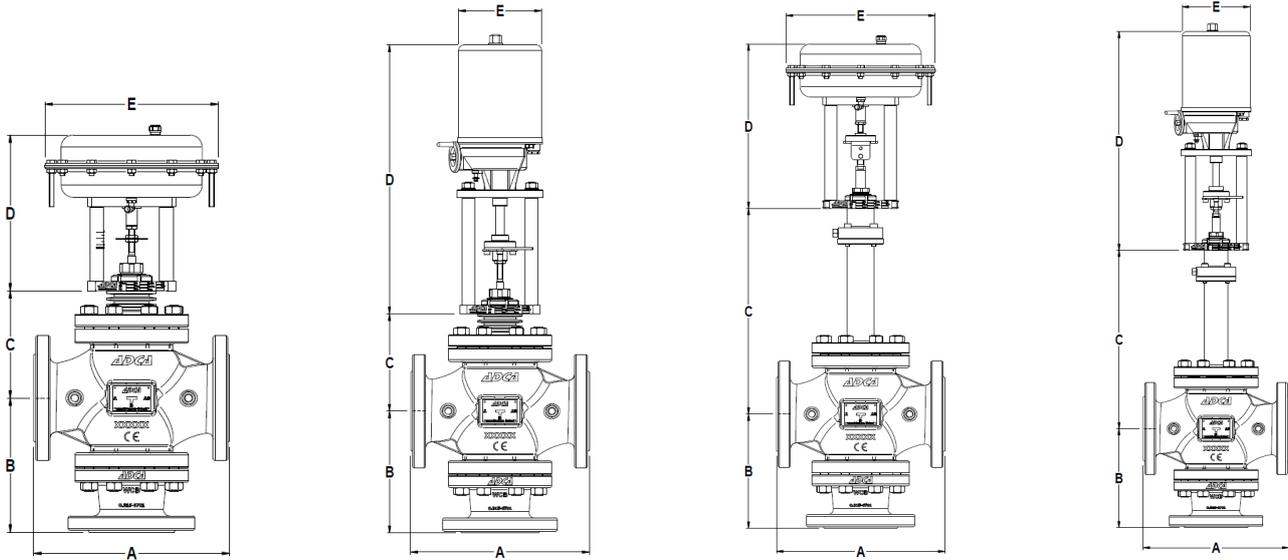
CE MARKING – GROUP 2 (PED – European Directive)

PN 16 and PN 40	Category
DN 65 to DN 100	1 (CE marked)

BODY LIMITING CONDITIONS *

V403S – PN 16		V403I – PN 16		V403S – PN 40		V403I – PN 40	
ALLOW. PRESSURE	RELATED TEMP.						
16 bar	50 °C	16 bar	50 °C	40 bar	50 °C	40 bar	50 °C
13,3 bar	200 °C	12,7 bar	200 °C	33,3 bar	200 °C	31,8 bar	200 °C
12,1 bar	250 °C	12 bar	250 °C	27,6 bar	300 °C	27,6 bar	300 °C
11 bar	300 °C	11 bar	300 °C	25,7 bar	350 °C	26,4 bar	350 °C
10,2 bar	350 °C	10,5 bar	350 °C	23,8 bar	400 °C	25,7 bar	400 °C

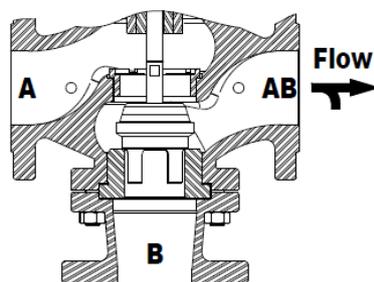
* Rating according to EN1092-1:2018; Maximum temperature limited to the valve packing selected. Valves with soft seal: max. allow. temp: 200 °C.



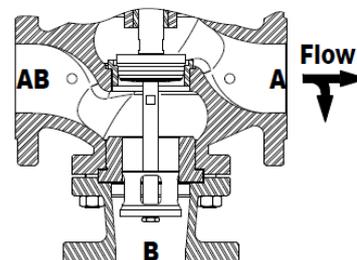
DIMENSIONS (mm)						
SIZE	A	B	C - BONNET			
			STANDARD PACKING	WEIGHT (kg)	BELLOWS SEALED	WEIGHT (kg)
DN 65	290	215	172	43	383	45
DN 80	310	215	172	49	388	52
DN 100	350	240	187	65	390	69

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)
EL20	145	458
EL45	145	458
EL80	188	517
EL120	188	517



Mixing valve



Diverting valve

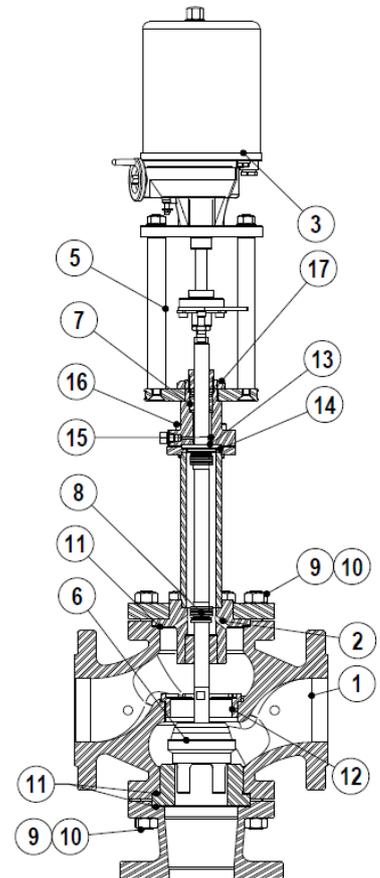
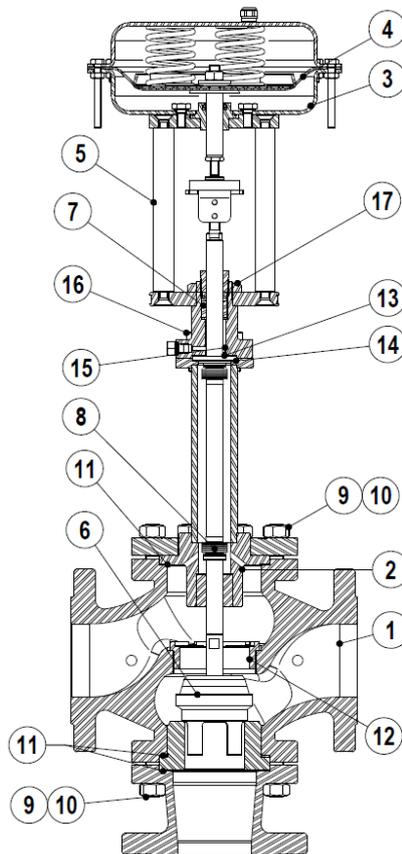
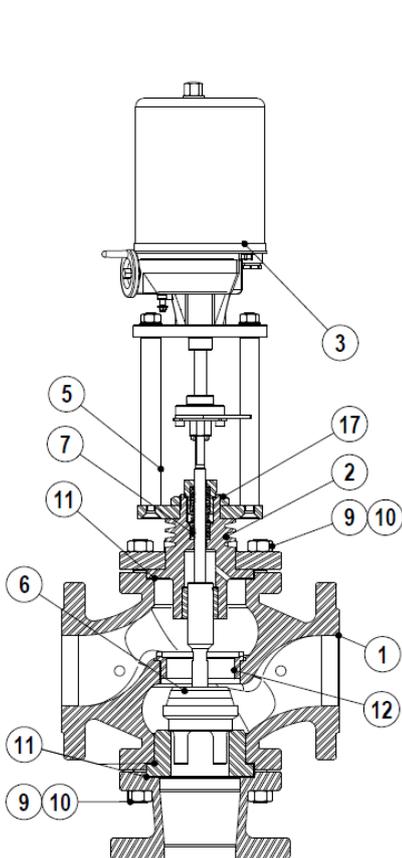
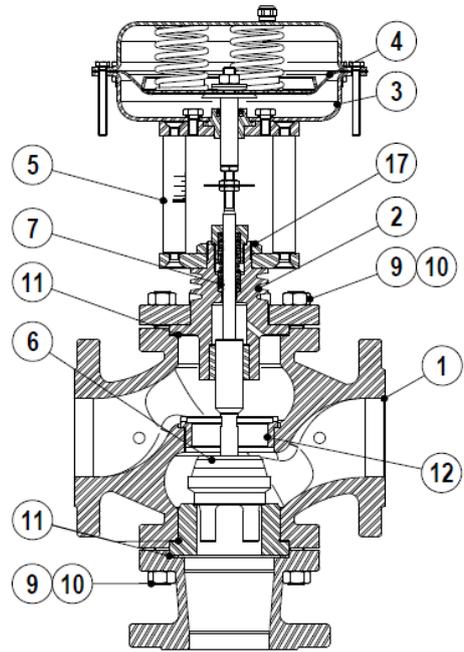
FAILURE POSITION DEPENDING ON VALVE DUTY			
Mixing valve		Diverting valve	
Direct action actuator (a)	Reverse action actuator (b)	Direct action actuator (a)	Reverse action actuator (b)
Port A to AB closes	Port B to AB closes	Port AB to B closes	Port AB to A closes

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

MATERIALS

POS. N°	DESIGNATION	MATERIAL
1	Valve body	A216 WCB / 1.0619
2	Bonnet	A351 CF8 / 1.4308
3	Pneum. actuator (steel)	S235JR / 1.0038
	Pneum. actuator (st. steel)	AISI 304 / 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	Locknut	Stainless steel

* Available spare parts.



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

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

Kvs in m³/h, see IS PV10.00 E – Technical information;
 For conversion Kvs = Cv (US) x 0,855.

MAX. PERM. PRESSURE DROP (bar) – N.C. (fluid to open) – Reverse action actuator (air signal to open)				
ACTUATOR	CONTROL SIGNAL	SIZES		
		DN 65	DN 80	DN 100
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
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 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.

ORDERING CODES V403										
VALVE CODES	P	V	.43S	M	1	6	L	65	.X.	
Actuator type										
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 PN 16							L			
Flanged EN 1092-1 PN 40							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) *					
VALVE CODES	P.	6	D		15
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.
- (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 has also an E (extras).

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