PNEUMATIC CONTROL VALVES
PV25 (EN)
V25G globe control valves with linear actuators PA series

DESCRIPTION

The PV25 control valves are single seated, two-way body constructed with in-line straight connections. 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 PV25 valves have been designed to assure an accurate control in any process condition. Their wide application ranges allows the use of this valve with the most common process fluids such as water, superheated water, steam, air, gas and other non corrosive fluids (group 1).

MAIN FEATURES

Single seated, two way, direct or reverse action valve.
Valve top flange permanently attached to the body, removal is unnecessary for replacing the actuator.
Metal to metal sealing as standard.

OPTIONS:	Position transmitter 4-20 mA Pneumatic pilot positioner Electropneumatic pilot positioner Air filter regulator Top-work manual handwheel Stainless steel construction Soft sealing and stellite seat and plug
USE:	Saturated and superheated steam Hot and superheated water Air, gases and other noncorrosive fluids
AVAILABLE MODELS:	PV25G,PV25S and PV25I
RATINGS:	PN16 and PN40
VALVE SIZES:	DN15 to DN100
CONNECTIONS:	Flanged EN1092-1/-2 PN16 - PN40
ACTUATORS:	PA-205; PA-280; PA-340; PA-435
ACTUATOR CONN:	1/4" NPT-F
CONTROL SIGNAL:	0,2 - 1 bar ; 0,4 - 1,2 bar ; 0,4 - 2 bar
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 valve calculation data sheet or consult the factory.

MAX. AIR SUPPLY PRESSURE:	3,5 bar
AMBIENT TEMPERATURE:	-20ºC ...+70ºC
BONNET :	From -5ºC to +220ºC (standard) Finned for temperature >220ºC
STEM SEALING:	PTFE/GR V-Rings - up to 220ºC (Standard bonnet) Graphite - up to 400ºC (Finned bonnet) Stainless steel bellows
PLUG CHARACT.:	EQP - Equal percentage PL - Linear PT - On-Off
PLUG DESIGN :	Contoured V-ported Perforated (Low noise, anti-cavitation) Microflow
PORT :	Full port or reduced on request
COMPLEMENTARY INFORMATION :	See IS PV10.00 E

CE MARKING (PED - European Directive 97/23/EC)			
PN 16	**PN 25**	**PN 40**	**Category**
DN15 to DN50	DN15 to DN40	DN15 to DN32	SEP - art. 3, paragraph3
DN65 to DN100	DN50 to DN100	DN40 to DN100	1 (CE Marked)

"ADCATROL" CONTROL VALVES
V25 (EN)
(V25 globe control valves suitable for linear actuators PA and EL series)

DESCRIPTION

The V25 control valves are single seated, two-way body constructed with in-line straight connections. The valves can be supplied with PA pneumatic actuator-rubber diaphragm and multi-springs DA-direct action (air to close) or RA-reverse action (air to open) or they can also be supplied with EL electric actuators. The V25 valves have been designed to assure an accurate control in any process condition. Their wide application ranges allows the use of this valve with the most common process fluids such as water, superheated water, steam, air, gas and other non corrosive fluids.

MAIN FEATURES

Single seated, two ways, direct or reverse action valve.
Valve top flange permanently attached to the body, removal is unnecessary for replacing the actuator.
Metal to metal or soft sealing.

OPTIONS:	Perforated low noise plug Bellows seal (DN125 and 150 only) Stainless steel construction.
USE:	Saturated and superheated steam. Hot and superheated water. Air, gases and other noncorrosive fluids.
AVAILABLE MODELS:	V25G and V25S
VALVE SIZES:	DN125 to DN200
CONNECTIONS:	Flanged EN1092-1/-2 PN16 - PN40
ACTUATORS:	PA or EL series

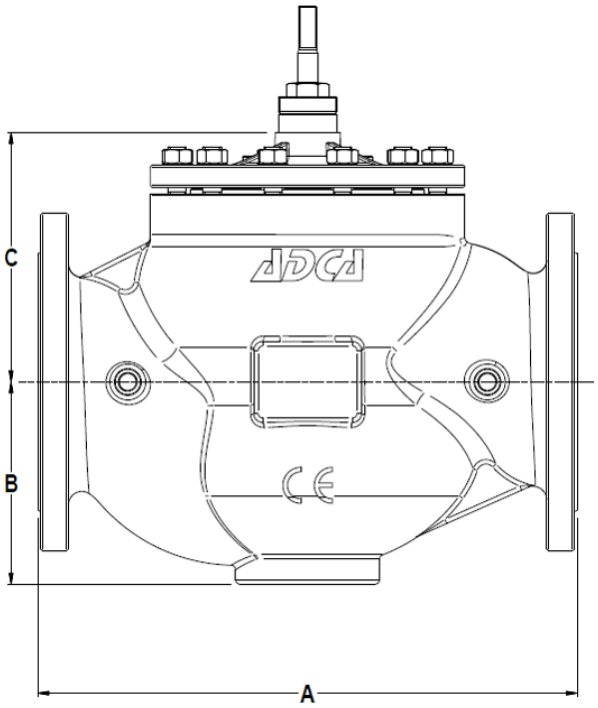
HOW TO SELECT: Never size the valve according to the pipe diameter in which it has to be fitted but according to the required actual flow of steam or water.Refer to valve calculation data sheet or consult the factory.

BONNET :	From -5ºC to +220ºC (standard) Finned for temperature >220ºC
STEM SEALING:	PTFE/GR V-Rings - up to 220ºC (Standard bonnet) Graphite - up to 400ºC (Finned bonnet) Stainless steel bellows
PLUG CHARACTERISTICS:	EQP - Equal percentage PL - Linear PT - On-Off
PLUG DESIGN :	Contoured (on request) V-ported Perforated (Low noise, anti-cavitation)
PORT:	Full port or reduced on request

CE MARKING (PED - European Directive 97/23/EC)		
PN 16	**PN 40**	**Category**
DN125 to DN200	/	1 (CE Marked)
/	DN125 to DN200	2 (CE Marked)

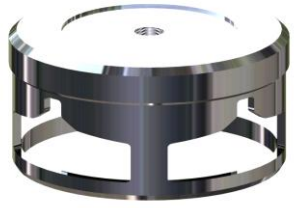
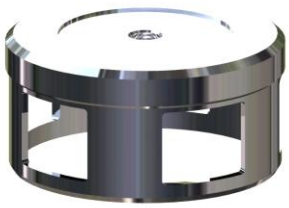
VALVE BODY LIMITING CONDITIONS			
V25G - PN16 *		V25S - PN40 *	
ALLOWABLE PRESSURES	RELATED TEMP.	ALLOWABLE PRESSURES	RELATED TEMP.
16 bar	-10/50 °C	40 bar	-10 /50° C
14,7 bar	200 °C	33,3 bar	200 °C
13,9 bar	250 °C	27,6 bar	300 °C
12,8 bar	300 °C	25,7 bar	350 °C
11,2 bar	350 °C	23,8 bar	400 °C

Note: Maximum temperature limited to the valve packing selected.
Valves with soft seat , maximum allowable temperature : 200°C
*Rating according to EN 1092-1:2007



DIMENSIONS - STROKE - FLOW RATE COEFICIENTS								
DN	A (mm)	B (mm)	C (mm) BONNET		STROKE (mm)	Kvs (m3/h)		
			STANDARD	EXTENDED		V-Ported EQP & PL*	Perforated PL	Perforated EQP
125	400	135	183	580	40	230,6	180	121
150	480	150	200	595	40 / 50	316,1	260	189
200	600	225	278	675	50 / 80	590	402	270

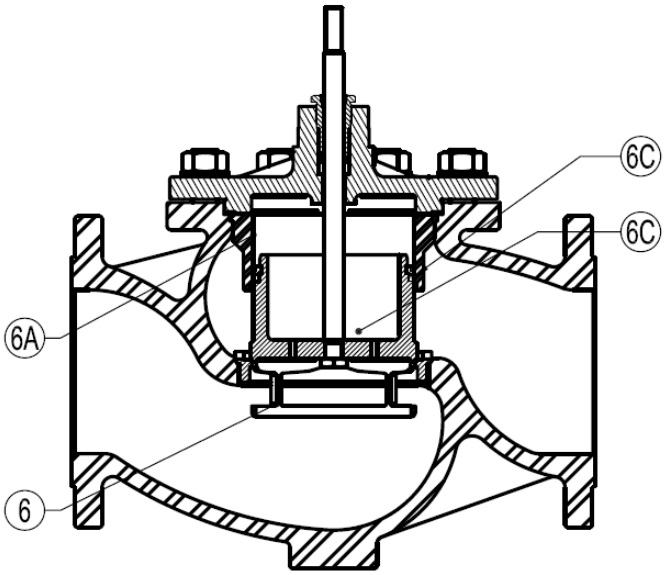
*PL characteristic can be used also for on-off (PT) control.
Perforated plugs and on-off valves may have different strokes, please see IS PV10.00 E or consult factory.
Kvs in m3/h , see data sheet IS PV10.00 E ; For conversion Kvs = Cv(US) x 0,855

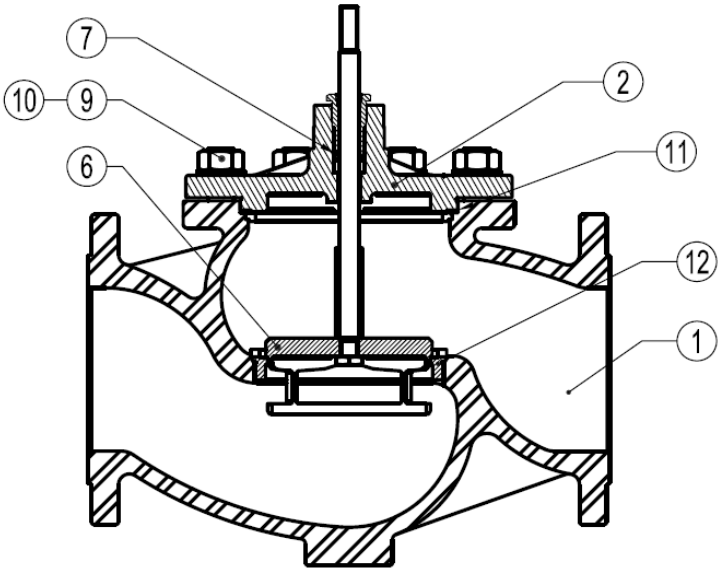
PLUG DESIGN			
V - Ported Equal percentage - EQP	V - Ported Linear - PL	Perforated Equal percentage - EQP	Perforated Linear - PL
			

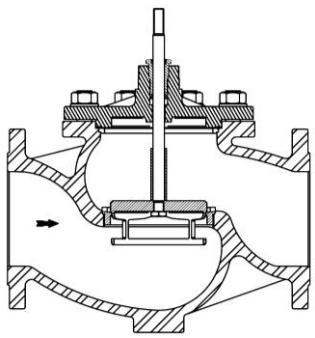
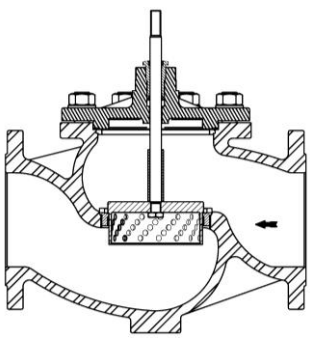
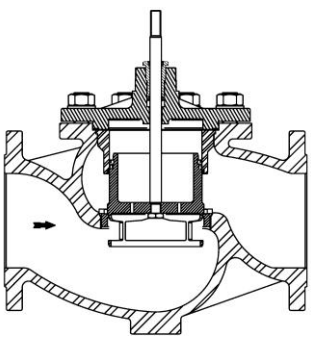
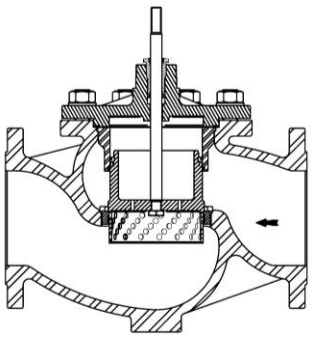
V-Ported and perforated plugs are also available in balanced pressure version.

MATERIALS			
POS.	***DESIGNATION***	***MATERIAL V25G***	***MATERIAL - V25S***
1	Valve Body	GJS-400-15 / 0.7040	ASTM A216WCB / 1.0619 ; GP240GH / 1.0619
2	Bonnet	ASTM A216WCB / 1.0619 ; GP240GH / 1.0619	ASTM A216WCB / 1.0619 ; GP240GH / 1.0619
6	*Valve plug	AISI316 / 1.4401	AISI316 / 1.4401
6A	*Valve sleeve	AISI316 / 1.4401	AISI316 / 1.4401
6B	Balance piston	AISI316 / 1.4401	AISI316 / 1.4401
6C	Sealing rings	St.St. / Graphite	St.St. / Graphite
7	*Standard packing	Graphite	Graphite
9	Studs	34CrNiMo6 / 1.6582	34CrNiMo6 / 1.6582
10	Nuts	Stell 8.8	Steel 8.8
11	*Gasket	St.Steel / Graphite	St.Steel / Graphite
12	*Seat	AISI316 / 1.4401	AISI316 / 1.4401

* Available spare parts





VALVE DESIGN - FLOW DIRECTION			
STANDARD V - PORTED PLUG	**STANDARD PERFORATED PLUG**	**BALANCED V - PORTED PLUG**	**BALANCED PERFORATED PLUG**
			

STEAM EQUIPMENT

PNEUMATIC CONTROL VALVES
PV25 (ANSI)
V25S globe control valves with linear actuators PA series

DESCRIPTION

The PV25 control valves are single seated, two-way body constructed with in-line straight connections. 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 PV25 valves have been designed to assure an accurate control in any process condition. Their wide application ranges allows the use of this valve with the most common process fluids such as water, superheated water, steam, air, gas and other non corrosive fluids (group 1).

MAIN FEATURES

Single seated, two way, direct or reverse action valve.
Valve top flange permanently attached to the body, removal is unnecessary for replacing the actuator.
Metal to metal sealing as standard.

OPTIONS:	Position transmitter 4-20 mA Pneumatic pilot positioner Electropneumatic pilot positioner Air filter regulator Top-work manual handwheel Stainless steel construction. Soft sealing and stellite seat and plug.
USE:	Saturated and superheated steam. Hot and superheated water. Air, gases and other noncorrosive fluids.
AVAILABLE MODELS:	PV25S Cast steel
VALVE SIZES:	1/2" to 6"
CONNECTIONS:	Flanged ANSI B16.5 150# and 300#
ACTUATORS:	PA-205; PA-280; PA-340; PA-435
ACTUATOR CONN:	1/4" NPT-F
CONTROL SIGNAL:	0,2 - 1 bar ; 0,4 - 1,2 bar ; 0,4 - 2 bar.

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 valve calculation data sheet or consult the factory.

MAX. AIR SUPPLY PRESSURE:	3,5 bar
AMBIENT TEMPERATURE:	-20ºC ...+70ºC
BONNET :	From -5ºC to +220ºC (standard) Finned for temperature >220ºC
STEM SEALING:	PTFE/GR V-Rings - up to 220ºC (Standard bonnet) Graphite - up to 400ºC (Finned bonnet) Stainless steel bellows
PLUG CHARACT.:	EQP - Equal percentage PL - Linear PT - On-Off
PLUG DESIGN :	Contoured V-ported Perforated (Low noise, anti-cavitation) Microflow
PORT :	Full port or reduced on request
COMPLEMENTARY INFORMATION :	See IS PV10.00 E

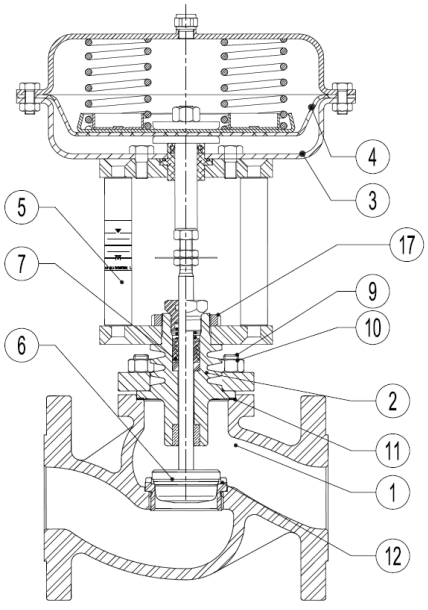
CE MARKING (PED - European Directive 97/23/EC)		
ANSI 150	**ANSI 300**	**Category**
1/2" - 2" (DN15-50)	1/2"-1" (DN15-25)	SEP - art. 3, paragraph3
3"-6" (DN80-150)	11/2"-4" (DN40-100)	1 (CE Marked)
/	6" (DN150)	2 (CE Marked)

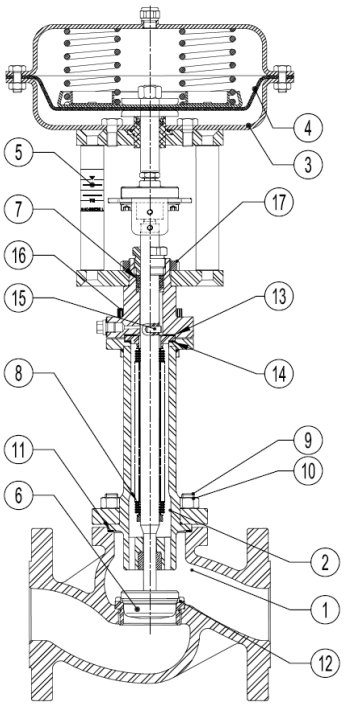
Note: classification for gases - Group 2, for others see IMI

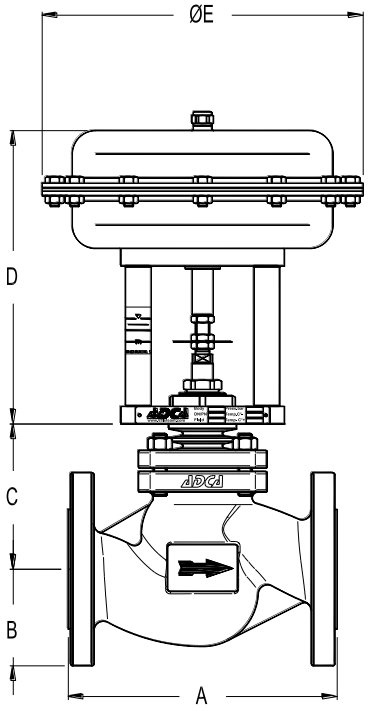
VALVE BODY LIMITING CONDITIONS			
PV25S - ANSI 150		PV25S - ANSI 300	
ALLOWABLE PRESSURES	RELATED TEMP.	ALLOWABLE PRESSURES	RELATED TEMP.
19,3 bar	-10 /50º C	50 bar	-10 /50º C
15,8 bar	150 ºC	43,9 bar	200 ºC
12,1 bar	250 ºC	36,9 bar	350 ºC
8,4 bar	350 ºC	34,6 bar	400 ºC

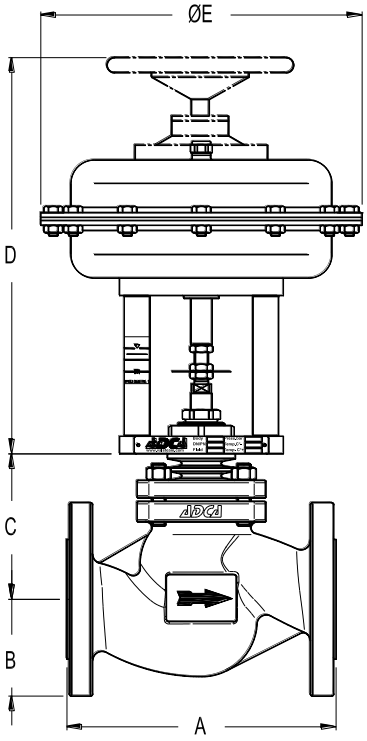
MATERIALS		
POS.	*DESIGNATION*	*MATERIAL V25S*
1	Valve Body	ASTM A216WCB / 1.0619 ; GP240GH / 1.0619
2	Bonnet	CF8 / 1.4308 **
3	Actuator (Steel)	S235JRG2 / 1.0038
	Actuator (Stainless steel)	AISI304 / 1.4301
4	*Diaphragm	NBR 70
5	Yoke (Steel)	C45E / 1.1191
	Yoke (Stainless steel)	AISI304 / 1.4301
6	*Valve 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

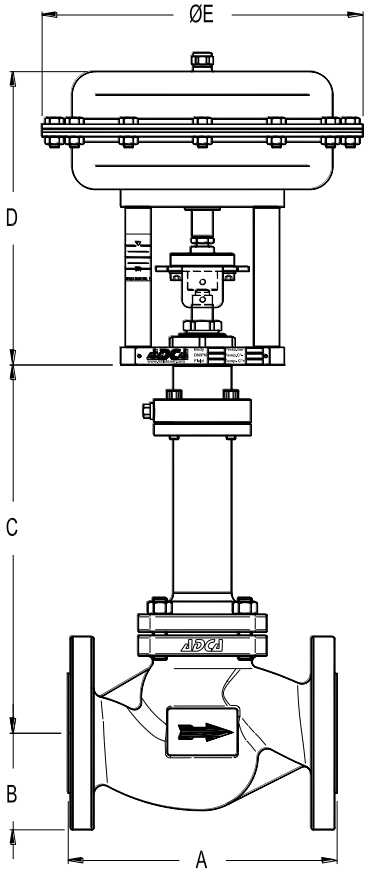
* Available spare parts **Except DN6", totaly in cast steel.

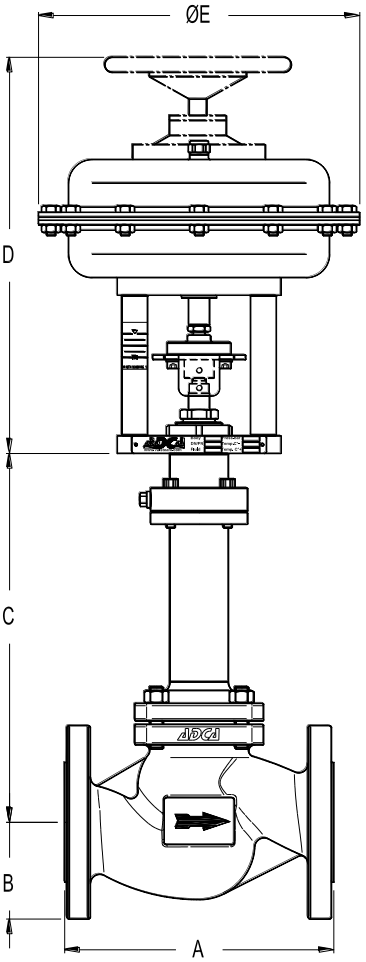












DIMENSIONS (mm) - VALVE BODY

SIZE	A ANSI 300	A ANSI 150	B ANSI 150	B ANSI 300	C BONNET STANDARD	C BONNET FINNED	C BONNET EXTENDED	C BONNET BELLOWS
1/2"	190 a)	184 a)	44,5	47,5	85	150	150	290
3/4"	194 a)	184 a)	49	58,5	85	150	150	290
1"	197	184 a)	54	62	90	170	170	295
11/2"	235	* 235	63,5	78	115	195	195	285
2"	267	* 267	76	82,5	125	215	215	285
3"	318	* 318	95	105	175	275	275	392
4"	368	* 368	114,5	127	190	310	310	400
6"	473	**480	140	159	210	390	390	480

a) Welded-on flanges; * Same lenght as ANSI 300 lbs ;** Same lenght as EN PN16

DIMENSIONS - ACTUATOR

Type	ø E (mm)	D (mm) DN1/2" - 4" DA/RA	WEIGHT Kgs
PA-205	210	235	5,7
PA-280	275	240	8,8
PA-340	335	265	14,3
PA-435	430	295	24,5

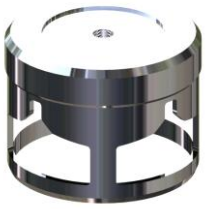
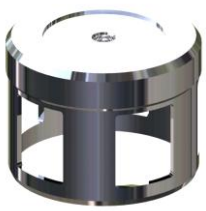
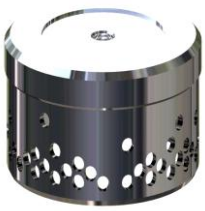
FLOW RATE COEFFICIENTS & VALVE STROKE

	SIZES 1/2"	3/4"	1"	11/4"	11/2"	2"	21/2"	3"	4"	6"
Kvs (m3/h)	3,8	5,1	9,4	-	22,2	40,1	-	89,7	136,7	316,1
Stroke (mm)	20	20	20	-	20	20	-	30	30	40 / 50

Kvs in m3/h , for conversion Kvs = Cv(US) x 0,855

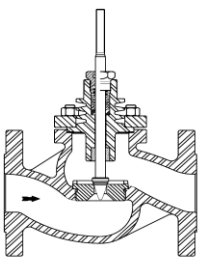
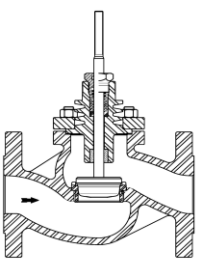
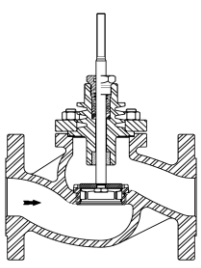
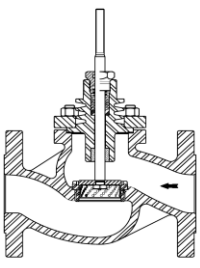
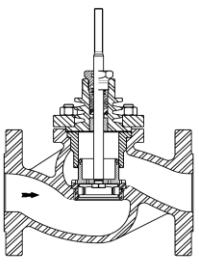
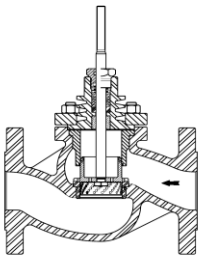
Perforated plugs has different flow rates, see data sheet IS PV10.00 E .

PLUG DESIGN

Microflow Linear PL	Contoured Equal % or Linear EQP - PL	V - Ported Equal percentage EQP	V - Ported Linear PL	Perforated Equal percentage EQP	Perforated Linear PL
					

V-Ported and perforated plugs are also available in balanced pressure version.

VALVE DESIGN - FLOW DIRECTION

Microflow Linear PL	Contoured Equal % or Linear EQP - PL	V - Ported EQP - PL	V - Ported Perforated EQP - PL	V-Ported Balanced EQP - PL	Perforated Balanced EQP - PL
					

MAX. PERM.PRESS.DROP IN bar - N.C.(fluid to open) -Reverse action actuator (air signal to open)								
ACTUATOR	CONTROL SIGNAL	SIZES						
		1/2"	3/4"	1"	11/2"	2"	3"	4"
PA-205	0,2 ÷ 1 bar	6	6	5	—	—	—	—
	0,4 ÷ 1,2 bar	10	10	7	—	—	—	—
	0,4 ÷ 2 bar	12	12	9	—	—	—	—
PA-280	0,2 ÷ 1 bar	28	26	16	6	3,5	—	—
	0,4 ÷ 1,2 bar	40	38	20	10	5	—	—
	0,4 ÷ 2 bar	50	45	25	12	6,5	—	—
PA-340A	0,2 ÷ 1 bar	60	60	50	12	10	—	—
	0,4 ÷ 1,2 bar	80	80	60	16	13	—	—
	0,4 ÷ 2 bar	100	100	80	20	18	—	—
PA-340B	0,2 ÷ 1 bar	—	—	—	—	—	2,5	1
	0,4 ÷ 1,2 bar	—	—	—	—	—	3,5	1,5
	0,4 ÷ 2 bar	—	—	—	—	—	4	2
PA435A	0,2 ÷ 1 bar	—	—	—	40	25	—	—
	0,4 ÷ 1,2 bar	—	—	—	48	30	—	—
	0,4 ÷ 2 bar	—	—	—	55	45	—	—
PA435B	0,2 ÷ 1 bar	—	—	—	—	—	5	3
	0,4 ÷ 1,2 bar	—	—	—	—	—	7	5
	0,4 ÷ 2 bar	—	—	—	—	—	8	6
	0,4 ÷ 2,5 bar	—	—	—	—	—	15	12

* For valve size DN 6” please consult .
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 2,5 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.
If higher differential pressures are required please consult PA45 pneumatic actuators catalogue.

MAX. PERM.PRESS.DROP IN bar - N.O.(fluid to open) -Direct action actuator (air signal to close)								
ACTUATOR	CONTROL SIGNAL	SIZES						
		1/2"	3/4"	1"	11/2"	2"	3"	4"
PA-205	0,2 ÷ 1 bar	16	16	12	—	—	—	—
	0,4 ÷ 2 bar	25	24	16	—	—	—	—
PA-280	0,2 ÷ 1 bar	—	—	19	8	4	—	—
	0,4 ÷ 2 bar	—	—	25	16	7	—	—
PA-340A	0,2 ÷ 1 bar	—	—	—	16	10	—	—
	0,4 ÷ 2 bar	—	—	—	26	25	—	—
PA-340B	0,2 ÷ 1 bar	—	—	—	—	—	3,5	1,5
	0,4 ÷ 2 bar	—	—	—	—	—	7	3
PA435B	0,2 ÷ 1 bar	—	—	—	—	—	5	3
	0,4 ÷ 2 bar	—	—	—	—	—	10	7,5

* For valve size DN 6” please consult.
The actuator pressure drops given with closed valve, are obtained with the following air pressures supply:
Actuator signal 0,2 to 1 bar :air supply 1,2 bar ; Actuator signal 0,4 to 2 bar : air supply 2,5 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 2,5 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 V25

VALVE CODES		V	.25 S						.X.	
Actuator Type (1)										
Pneumatic Actuator	P									
Electric Actuator	E									
Group Designation										
Globe valve, two way, straight body		V								
Valve Model										
ASTM A216 WCB body, stainless steel trim			.25 S							
Stem Sealing										
PTFE/GR-V-Rings / Standard bonnet					1					
Virgin PTFE V-Rings / Standard bonnet					2					
Graphite / Standard bonnet					3					
Graphite / Finned bonnet					4					
Bellows					8					
Valve Plug										
EQP (equal percentage) - Soft (PTFE-GR)						1				
EQP (equal percentage) - Metal AISI316 / 1.4401						3				
EQP (equal percentage) - Stellite						4				
PL (linear) - Soft (PTFE/GR)						6				
PL (linear) - Metal AISI316 / 1.4401						7				
PT (on-off) - Soft (PTFE/GR)						9				
PT (on-off) - Metal AISI316 / 1.4401						10				
Pipe Connection										
Flanged ANSIB16.5 150#							U			
Flanged ANSIB16.5 300#							V			
Size										
1/2"								15		
3/4"								20		
…										
Actuator									(1)	
Extras (3)										E

ACTUATOR CODES (pneumatic)

	P.			
Group Designation				
Multi-spring , pneumatic linear actuator	P.			
Actuator Size				
205		1		
280		3		
340 A - From DN15 to DN50		5		
340 B - From DN65 to DN100		6		
435 A - From DN15 to DN50		7		
435 A - From DN65 to DN100		8		
Actuator				
Direct Action			D	
Reverse Action			R	
Actuator Construtions				
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

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

Example:

V25G valve model EQP soft plug, PTFE/GR stem sealing DN 2" ANSI 150#complete with reverse action actuator signal 0,4-1,2bar, size340A steel.

Code: PV.25G.11U50.5R18

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).

PNEUMATIC CONTROL VALVES
PV25- (Threaded DN 1/2”- 1”)
(V25 globe valves series with linear actuators PA series)

DESCRIPTION

The PV25 control valves are single seated, two-way body constructed with in-line straight connections. The PA pneumatic actuator is rubber diaphragm and multi-springs. It’s action can be DA - direct action (air to close) or RA-reverse action (air to open). The PV25 valves have been designed to assure an accurate control in any process condition. Their wide application ranges allows the use of this valve with the most common process fluids such as water, superheated water, steam, air, gas and other non corrosive fluids.

MAIN FEATURES

Single seated, two way , direct or reverse action valve.
Valve top flange permanently attached to the body, removal is unnecessary for replacing the actuator.
Metal to metal sealing as standard.

OPTIONS:	Position transmitter 4-20 mA Pneumatic pilot positioner Electropneumatic pilot positioner Air filter regulator Top-work manual handwheel Stainless steel actuator. Soft sealing and stellite seat and plug.
USE:	Saturated and superheated steam. Hot and superheated water. Air, gases and other noncorrosive fluids
AVAILABLE MODELS:	PV25S - Carbon steel
.	PV25I - Stainless steel
VALVE SIZES:	DN 1/2" to 1"
CONNECTIONS:	Threaded ISO or ANSI
ACTUATORS:	PA-205; PA-280; PA-340.
ACTUATOR CONN:	1/4" NPT-F
CONTROL SIGNAL:	0,2 - 1 bar ; 0,4 - 1,2 bar ; 0,4 - 2 bar.

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 valve calculation data sheet or consult the factory.

CE MARKING (PED - European Directive 97/23/EC)	
PN 25	**Category**
DN 1/2" to 1"	SEP - art. 3, paragraph3

Maximum temperature limited to the valve packing selected.
Valves with soft seating: max.temperature 200ºC

MAX. AIR SUPPLY PRESSURE:	3,5 bar
AMBIENT TEMPERATURE:	-20ºC ...+70ºC
BONNET :	From -5ºC to +220ºC (standard) Finned for temperature >220ºC
STEM SEALING:	PTFE/GR V-Rings - up to 220ºC (Standard bonnet) Graphite - up to 400ºC (Finned bonnet) Stainless steel bellows
PLUG CHARACT.:	EQP - Equal percentage PL - Linear PT - On-Off
PLUG DESIGN :	Contoured Microflow Perforated (Low noise, anti-cavitation)
PORT :	Full port or reduced on request

VALVE BODY LIMITING CONDITIONS

V25S - PN40 *		V25I - PN40 *	
ALLOWABLE PRESSURES	RELATED TEMP.	ALLOWABLE PRESSURES	RELATED TEMP.
40 bar	-10 /50° C	40 bar	-10 /50° C
33,3 bar	200 °C	33,7 bar	200 °C
27,6 bar	300 °C	29,7 bar	300 °C
25,7 bar	350 °C	28,5 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

FLOW RATE COEFFICIENTS

	SIZES		
	DN15	DN20	DN25
Kvs	3,8	5,1	9,4

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

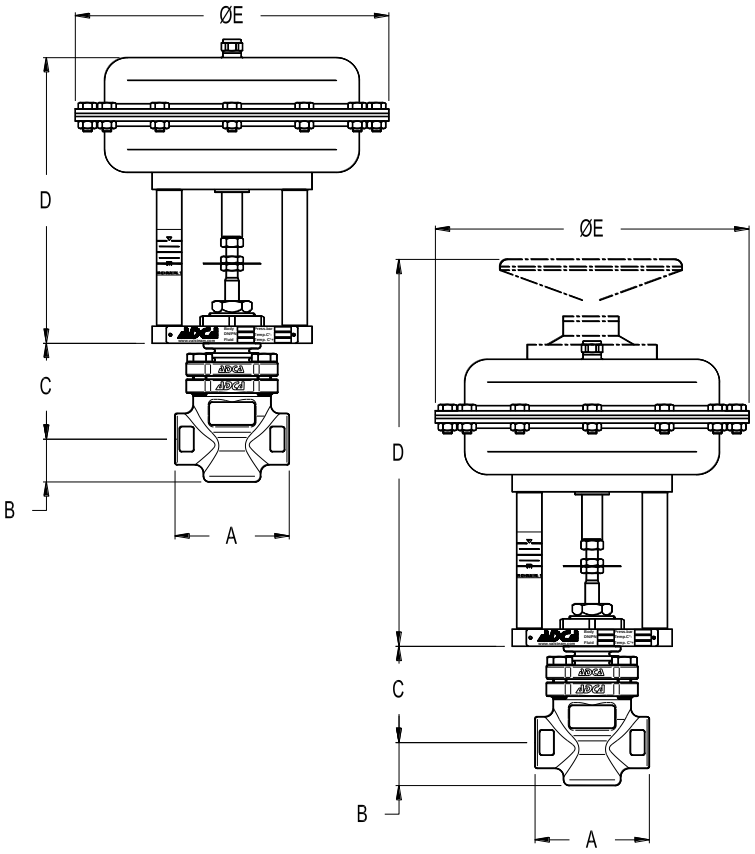
VALVE STROKE IN mm

	SIZES		
	DN15	DN20	DN25
Stroke	20	20	20

Perforated plug and on-off valves may have different strokes, please see literature or consult factory.

DIMENSIONS - ACTUATOR

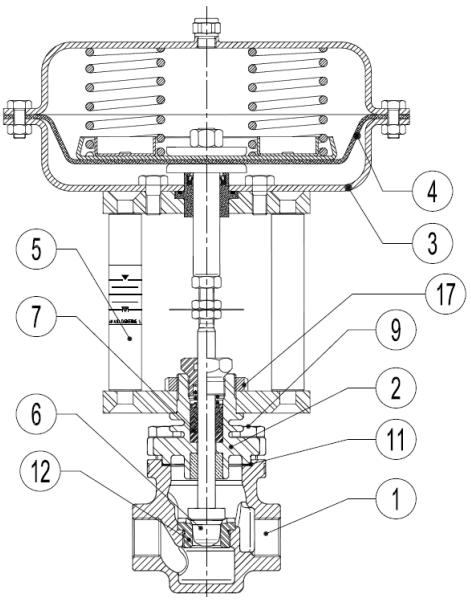
Type	ø E (mm)	D (mm) DN 1/2" - 1" DA/RA	WEIGHT Kgs
PA-205	210	235	5,7
PA-280	275	240	8,8
PA-340	335	265	14,3
PA-435	430	295	24,5



MATERIALS

POS.	DESIGNATION	MATERIAL V25I
1	Valve Body	CF8M / 1.4408
2	Bonnet	CF8 / 1.4308
3	Actuator (Steel)	S235JRG2 / 1.0038
	Actuator (Stainless steel)	AISI304 / 1.4301
4	*Diaphragm	NBR 70
5	Yoke (Steel)	C45E / 1.1191
	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	A4-70
10	Nuts	A4-70
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	A4-70
17	Lock nut	Stainless Steel

* Available spare parts



DIMENSIONS - VALVE BODY

DN	A (mm)	B (mm)	C (mm) BONNET			
			STANDARD	FINNED	EXTENDED	BELLOWS
1/2"	100	37,5	84	145	145	205
3/4"	100	37,5	84	145	145	205
1"	100	37,5	84	165	165	225

MAX. PERM.PRESS.DROP IN bar N.C. (fluid to open) - Reverse action actuator (air signal to open)							
ACTUATOR	CONTROL SIGNAL	SIZES					
		DN1/2"	DN3/4"	DN1"	DN11/4"	DN11/2"	DN2"
PA-205	0,2 ÷ 1 bar	6	6	5	—	—	—
	0,4 ÷ 1,2 bar	10	10	7	—	—	—
	0,4 ÷ 2 bar	12	12	9	—	—	—
PA-280	0,2 ÷ 1 bar	28	26	16	—	—	—
	0,4 ÷ 1,2 bar	40	38	20	—	—	—
	0,4 ÷ 2 bar	50	45	25	—	—	—
PA-340A	0,2 ÷ 1 bar	60	60	50	—	—	—
	0,4 ÷ 1,2 bar	80	80	60	—	—	—
	0,4 ÷ 2 bar	100	100	80	—	—	—

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 2,5 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.

MAX. PERM.PRESS.DROP IN bar N.O. (fluid to open) -Direct action actuator (air signal to close)							
ACTUATOR	CONTROL SIGNAL	SIZES					
		DN1/2"	DN3/4"	DN1"	DN11/4"	DN11/2"	DN2"
PA-205	0,2 ÷ 1 bar	16	16	12	—	—	—
	0,4 ÷ 2 bar	25	24	16	—	—	—
PA-280	0,2 ÷ 1 bar	—	—	19	—	—	—
	0,4 ÷ 2 bar	—	—	25	—	—	—
PA-340A	0,2 ÷ 1 bar	—	—	—	—	—	—
	0,4 ÷ 2 bar	—	—	—	—	—	—

The actuator pressure drops given with closed valve, are obtained with the following air pressures supply:
Actuator signal 0,2 to 1 bar : air supply 1,2 bar
Actuator signal 0,4 to 2 bar : air supply 2,5 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 2,5 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 V25 - THREADED

VALVE CODES		V	.25 S					.X.	
Actuator Type (1)									
Pneumatic Actuator	P								
Electric Actuator	E								
Group Designation									
Globe valve, two way, straight body		V							
Valve Model									
PN25, two way, cast steel valve			.25 S						
PN25, two way, complete stainless steel valve			.25 I						
Stem Sealing									
PTFE/GR-V-Rings / Standard bonnet				1					
Virgin PTFE V-Rings / Standard bonnet				2					
Graphite / Standard bonnet				3					
Graphite / Finned bonnet				4					
Bellows				8					
Valve Plug									
EQP (equal percentage) - Soft (PTFE-GR)					1				
EQP (equal percentage) - Metal AISI316 / 1.4401					3				
EQP (equal percentage) - Stellite					4				
PL (linear) - Soft (PTFE/GR)					6				
PL (linear) - Metal AISI316 / 1.4401					7				
PT (on-off) - Soft (PTFE/GR)					9				
PT (on-off) - Metal AISI316 / 1.4401					10				
Pipe Connection									
Threaded BSP ISO 7/1 Rp						A			
Threaded NPT ANSI B1.20.1						C			
Size									
DN 1/2"							15		
DN 3/4"							20		
DN 1"							25		
Actuator								(1)	
Extras (3)									E

ACTUATOR CODES (pneumatic)	P.				
Group Designation					
Multi-spring , pneumatic linear actuator	P.				
Actuator Size					
205		1			
280		3			
340 A - From DN15 to DN25		5			
Actuator					
Direct Action			D		
Reverse Action			R		
Actuator Constrution					
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

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

Example:

V25I valve model EQP soft plug, PTFE/GR stem sealing DN1"BSP complete with reverse action actuator signal 0,4-1,2bar, size340A steel.

Code: PV.25I.11A25.5R18

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).

"ADCATROL" PNEUMATIC CONTROL VALVES
PV40
(V40 globe valves series with linear actuators PA or EL series)

DESCRIPTION

The PV40 control valves are single seated, two-way body constructed with in-line straight connections. 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 PV40 valves have been designed to assure an accurate control in any process condition. Their wide application ranges allows the use of this valve with the most common process fluids such as water, superheated water, steam, air, gas and other non corrosive fluids.

MAIN FEATURES

Single seated, two way, direct or reverse action valve.
Valve top flange permanently attached to the body, removal is unnecessary for replacing the actuator.
Metal to metal sealing as standard.

OPTIONS:	Soft sealing Position transmitter Pneumatic pilot positioner Air filter regulator Top-work manual handwheel
USE:	Saturated and superheated steam Hot and superheated water Diathermic oil Air, gases and other no corrosive fluids
AVAILABLE MODELS:	PV40S-EV40S – steel construction PV40I-EV40I – stainless steel
VALVE SIZES:	DN15 to DN50
CONNECTION:	Flanged EN 1092-1 or ANSI Threaded connections on request
PNEUMATIC ACTUATORS:	PA-205,PA-280,PA-340,PA-435
ACTUATOR CONN:	¼" NPT-F
CONTROL SIGNAL:	0,2 – 1bar; 0,4 – 1,2 bar ; 0,4 – 2 bar
ELECTRIC ACT.:	Consult catalogue IS EL20.00 E

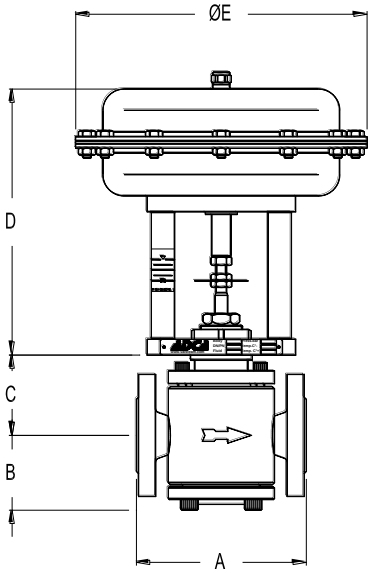
MAX.AIR SUPPLY:	3,5 bar
AMBIENT TEMPERATURE:	-20ºC ….+70ºC
STEM SEALING:	PTFE/GR V-Rings-220ºC (Standard bonnet) Graphite – 300ºC (Extended bonnet)
PLUG CHARACT.:	EQP – Equal percentage PL – Linear PT – On-off
PLUG DESIGN:	Contoured Perforated (Low noise, anti-cavitation) Microflow
PORT:	Full or reduced on request

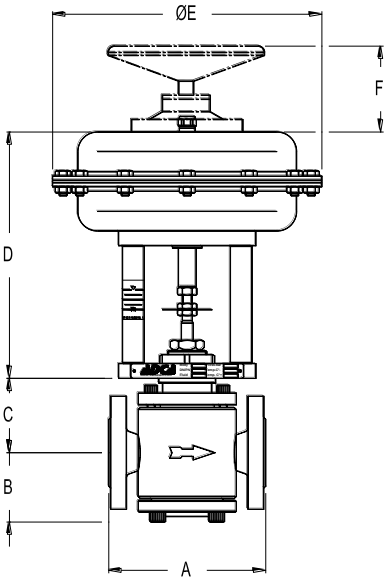
HOW TO SELECT: Never size the valve according to the pipe diameter in which it has to be fitted, but according to the required actual flow of steam or water. Refer to the valve calculation data sheet or consult the factory.

VALVE LIM. CONDITIONS V40S		VALVE LIM. CONDITIONS V40I	
PRESSURE/TEMPERATURE *		PRESSURE/TEMPERATURE *	
40 bar	-10/50ºC	40 bar	-10/100ºC
33,3 bar	200 ºC	33,7 bar	200 ºC
30,4 bar	250 ºC	31,8 bar	250 ºC
27,6 bar	300 ºC	29,7 bar	300 ºC

Maximum temperature limited to the valve packing selected
Valves with soft seat , maximum allowable temperature: 200ºC
*** PN63 and PN100 design on request**

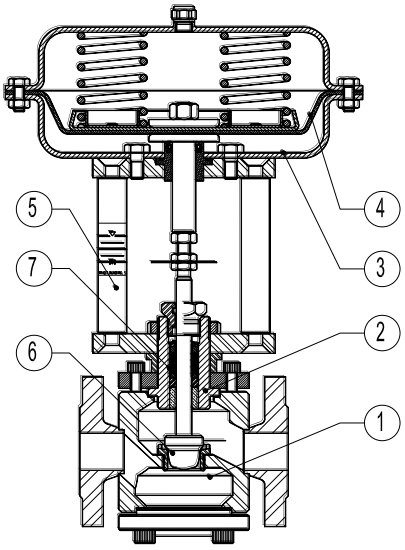
CE MARKING (PED - European Directive 97/23/EC)	
PN 40	Category
DN15 to DN32	SEP - art. 3, paragraph3
DN40 to DN50	1 (CE Marked)





DIMENSIONS - VALVE BODY							
DN	EN FLANGES A (mm)	ANSI 150 FLANGES A (mm)	ANSI 300 FLANGES A (mm)	B (mm)	C (mm) BONNET		
					STAND.	FINNED	EXTEND.
15 - 1/2"	150	184	190	71	75	140	140
20 - 3/4"	150	184	194	71	75	140	140
25 - 1"	160	184	197	71	75	140	140
32	180	-	-	75	83	163	163
40 - 11/2"	200	222	235	82	96	163	163
50 - 2"	230	254	267	97	100	182	182

Note: welded-on flanges EN 1092-1 PN40 or ANSI B16.5 Cl.150 and 300 lbs. RF



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

MATERIALS			
POS.	DESIGNATION	PV40S - EV40S	PV40I - EV40I
1	Valve Body	S355 J2 G3 / 1.0570	AISI 316 / 1.4401
2	Bonnet	CF8 / 1.4308	CF8 / 1.4308
3	* Actuator (Steel)	S235JRG2 / 1.0038	S235JRG2 / 1.0038
	* Actuator (St.steel)	AISI304 / 1.4301	AISI304 / 1.4301
4	Diaphragm	NBR70	NBR70
5	Yoke (steel)	C45E / 1.1191	C45E / 1.1191
	Yoke (st. steel)	AISI304 / 1.4301	AISI304 / 1.4301
6	Valve plug	St.Steel - PTFE/GR	St.Steel - PTFE/GR
7	Standard packing	PTFE/GR	PTFE/GR

*** Electric actuator : see IS EL20.00 E**

FLOW RATE COEFFICIENTS						
	SIZES					
	DN15	DN20	DN25	DN32	DN40	DN50
Kvs	3,8	5,1	9,4	15,4	22,2	40,1

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

ACTUATOR STROKE IN mm						
	SIZES					
	DN15	DN20	DN25	DN32	DN40	DN50
Stroke	20	20	20	20	20	20

MAX. PERM.PRESS.DROP IN bar - N.C.(fluid to open) -Reverse action actuator (air signal to open)										
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	10	10	7	—	—	—	—	—	—
	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	40	38	20	12	10	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	80	80	60	30	16	13	—	—	—
	0,4 ÷ 2 bar	100	100	80	40	20	18	—	—	—
PA435A	0,2 ÷ 1 bar	—	—	—	—	40	25	—	—	—
	0,4 ÷ 1,2 bar	—	—	—	—	48	30	—	—	—
	0,4 ÷ 2 bar	—	—	—	—	55	45	—	—	—

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 2,5 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.

MAX. PERM.PRESS.DROP IN bar - N.O.(fluid to open) -Direct action actuator (air signal to close)										
ACTUATOR	CONTROL SIGNAL	SIZES								
		DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100
PA-205	0,2 ÷ 1 bar	16	16	12	5	—	—	—	—	—
	0,4 ÷ 2 bar	25	24	16	7,5	—	—	—	—	—
PA-280	0,2 ÷ 1 bar	—	—	19	10	8	4	—	—	—
	0,4 ÷ 2 bar	—	—	25	20	16	7	—	—	—
PA-340A	0,2 ÷ 1 bar	—	—	—	17	16	10	—	—	—
	0,4 ÷ 2 bar	—	—	—	28	26	25	—	—	—

The actuator pressure drops given with closed valve, are obtained with the following air pressures supply:
Actuator signal 0,2 to 1 bar : air supply 1,2 bar
Actuator signal 0,4 to 2 bar : air supply 2,5 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 2,5 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 V40

VALVE CODES		V	40 S					.X.	
Actuator Type (1)									
Pneumatic Actuator	P								
Electric Actuator	E								
Group Designation									
Globe valve, two way, straight body		V							
Valve Model									
PN40 steel body			.40 S						
PN40 stainlesssteel body			.40 I						
Stem Sealing									
PTFE/GR-V-Rings / Standard bonnet				1					
Virgin PTFE V-Rings / Standard bonnet				2					
Graphite / Standard bonnet				3					
Graphite / Finned bonnet				4					
Valve Plug									
EQP (equal percentage) - Soft (PTFE-GR)					1				
EQP (equal percentage) - Metal AISI316 / 1.4401					3				
EQP (equal percentage) - Stellite					4				
PL (linear) - Soft (PTFE/GR)					6				
PL (linear) - Metal AISI316 / 1.4401					7				
PT (on-off) - Soft (PTFE/GR)					9				
PT (on-off) - Metal AISI316 / 1.4401					10				
Pipe Connection									
Threaded BSP ISO 7/1 Rp						A			
Flanged EN1092-1 PN40						N			
Flanged ANSI B16.5 300#						V			
Size									
DN15							15		
DN20							20		
…									
Actuator								(1)	
Extras (3)									E

ACTUATOR CODES (pneumatic)	P.				
Group Designation					
Multi-spring , pneumatic linear actuator	P.				
Actuator Size					
205		1			
280		3			
340 A - From DN15 to DN50		5			
435 A - From DN15 to DN50		7			
Actuator					
Direct Action			D		
Reverse Action			R		
Actuator Construtions					
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

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

Example:

V40S valve model EQP soft plug, PTFE/GR stem sealing DN50 complete with reverse action actuator signal 0,4-1,2bar, size340A steel.

Code: PV.40S.11N50.5R18

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).

"ADCATROL" PNEUMATIC CONTROL VALVES
PV253G
(V253G globe valves series with linear actuators PA series)

DESCRIPTION

The PV253G control valves are three-way valve body both for mixing service 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 PV253G valves have been designed to assure an accurate control in any process condition. Their wide application ranges 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

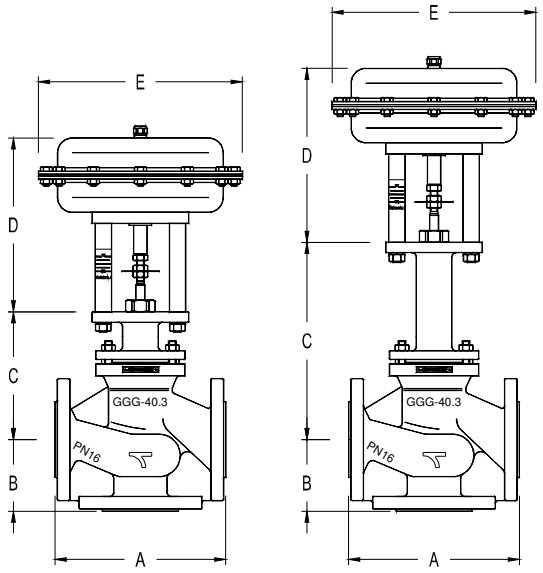
Mixing or diverting purpose control valve.
Standard packing or bellows sealed stem sealing.

OPTIONS:	Soft sealing Position transmiter 4-20 mA Pneumatic or electropneumatic positioner. Air filter regulator Top-work manual handwheel
USE:	Hot and superheated water Diathermic oil Saturated and superheated steam Air, gases and other noncorrosive fluids.
AVAILABLE MODELS:	PV253G
PLUG TYPES:	Linear (PL)
PORT:	Full port
STEM SEALING:	PTFE/GR V-Rings – up to 220ºC (Standard bonnet) Bellows sealed (extended bonnet)
VALVE SIZES:	DN15 to DN150
CONNECTIONS:	Flanged EN 1092-2
PNEUMATIC ACTUATORS:	PA series
ACTUATOR CONNECTIONS:	¼" NPT-F
MAX. AIR SUPPLY:	3,5 bar
CONTROL SIGNAL:	0,2– 1bar ; 0,4– 1,2bar ; 0,4 – 2bar.
AMBIENT TEMP.:	-20ºC ... +70ºC
ELECTRIC ACTUATORS:	Please consult IS EL20.00 E

V253G LIMITING CONDITIONS PN16 - PN25					
V - Rings Packing			Bellows Sealed		
ALLOWABLE PRESSURES		RELATED TEMP.	ALLOWABLE PRESSURES		RELATED TEMP.
PN 16	PN 25		PN 16	PN 25	
16bar	25bar	-10º-120ºC	16bar	25bar	-10º-120ºC
15,5bar	24,3bar	150 ºC	15,5bar	24,3bar	150ºC
14,7bar	23bar	200ºC	14,7bar	23bar	200ºC
14,3bar	22,5bar	220ºC	13,9bar	21,8bar	250ºC
/	/	/	12,8bar	20bar	300ºC
/	/	/	11,2bar	17,5bar	350ºC

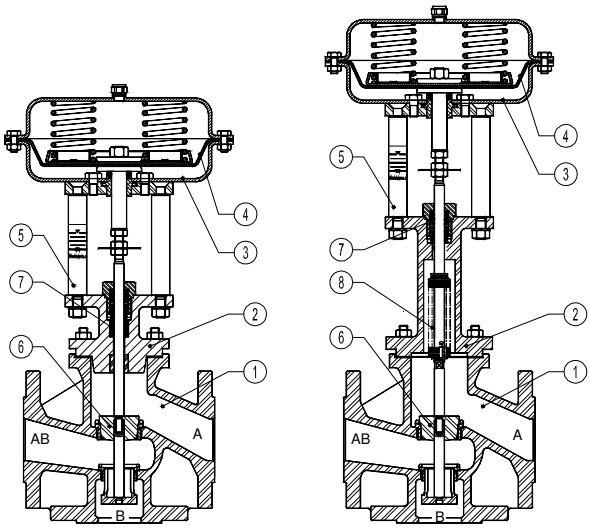
CE MARKING (PED - European Directive 97/23/EC)		
PN 16	PN 25	Category
DN15 to DN50	DN15 to DN40	SEP - art. 3, paragraph3
DN65 to DN150	DN50 to DN125	1 (CE Marked)
/	DN150	2(CE Marked)

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.
Refer to valve calculation data sheet or consult the factory.



V-Rings Packing valve

Bellow sealing valve



DIMENSIONS - VALVE BODY						
DN	A mm	B mm	BONNET			
			Std.Packing		Bellow	Bellow
			C mm	Wgt. Kgs	C mm	Wgt. Kgs
15	130	65	145	8	320	10
20	150	70	160	9	335	11
25	160	75	155	10	326	11,5
32	180	80	160	12,5	335	14,5
40	200	90	165	14	338	16
50	230	100	167	16	340	19
65	290	120	210	32	470	36
80	310	130	212	36	472	40
100	350	150	220	51	478	54
125	400	200	373	107	583	95
150	480	210	388	130	603	125

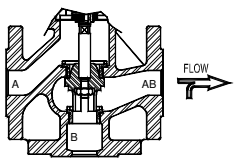
MATERIALS		
POS.	DESIGNATION	MATERIAL
1	Valve Body	GJS-400-18-LT / 0.7043
2	Bonnet	GJS-400-18-LT / 0.7043
3	Actuator (Steel)	S235JRG2 / 1.0038
	Actuator (Stainless steel)	AISI304 / 1.4301
4	Diaphragm	NBR 70
5	Yoke (Steel)	C45E / 1.1191
	Yoke (Stainless steel)	AISI304 / 1.4301
6	Valve Seal	AISI316 / 1.4401
7	Safety Packing	PTFE/GR
8	Bellows	St. Steel

DIMENSIONS - PNEUMATIC ACTUATOR			
Type	ø E (mm)	D (mm)	WEIGHT Kgs
		DN15-100 DA/RA	
PA-205	210	235	6
PA-280	275	240	8,5
PA-340	335	265	14,5
PA-435	430	295	23

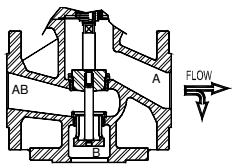
FAILURE POSITION DEPENDING ON VALVE DUTY			
Mixing valve		Diverting valve	
Dir. Action Actuator a)	Rev.Action Actuator b)	Dir. Action Actuator a)	Rev.Action Actuator b)
Port A to AB Closes	Port B to AB Closes	Port AB to B Closes	Port AB to A Closes

a) Retracted stem on air failure

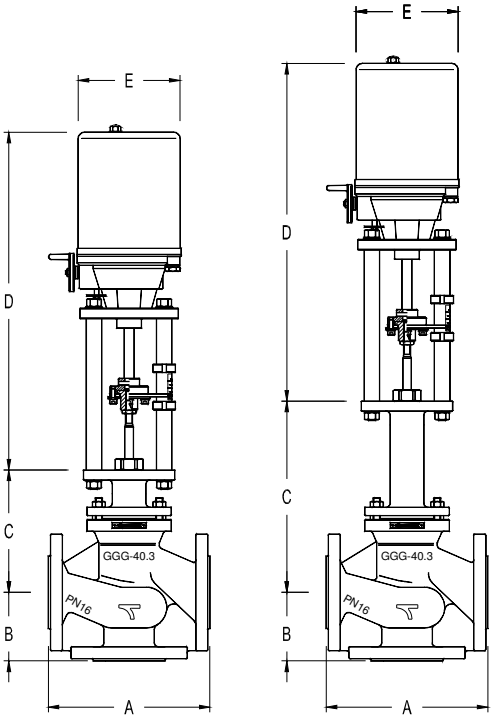
b) Extended stem on air failure



Mixing valve

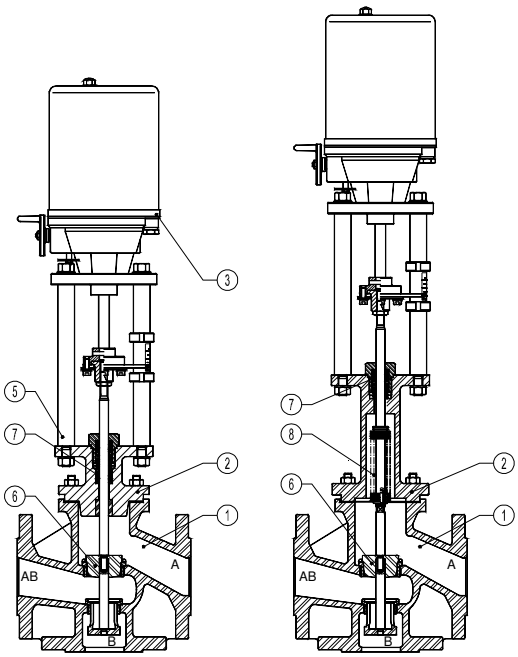


Diverting valve



V-Rings Packing valve

Bellow sealing valve



DIMENSIONS - VALVE BODY						
DN	A mm	B mm	BONNET			
			Std.Packing		Bellow	Bellow
			C mm	Wgt. Kgs	C mm	Wgt. Kgs
15	130	65	145	8	320	10
20	150	70	160	9	335	11
25	160	75	155	10	326	11,5
32	180	80	160	12,5	335	14,5
40	200	90	165	14	338	16
50	230	100	167	16	340	19
65	290	120	210	32	470	36
80	310	130	212	36	472	40
100	350	150	220	51	478	54
125	400	200	373	107	583	95
150	480	210	388	130	603	125

MATERIALS		
POS.	DESIGNATION	MATERIAL
1	Valve Body	GJS-400-18-LT / 0.7043
2	Bonnet	GJS-400-18-LT / 0.7043
3	Actuator (Steel)	S235JRG2 / 1.0038
	Actuator (Stainless steel)	AISI304 / 1.4301
4	Diaphragm	NBR 70
5	Yoke (Seel)	C45E / 1.1191
	Yoke (Stainless steel)	AISI304 / 1.4301
6	Valve Seal	AISI316 / 1.4401
7	Safety Packing	PTFE/GR
8	Bellows	St. Steel

DIMENSIONS - ELECTRIC ACTUATOR			
Type	ø E mm	D mm	WEIGHT Kgs
EL-12	130	340	2,1
EL-20	145	458	8
EL-45	145	458	8
EL-80	188	517	13
EL-120	188	517	13

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	10	10	7	—	—	—	—	—	—
	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	40	38	20	12	10	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	80	80	60	30	16	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	—	—	—	—	—	—	5	3,5	1,5
	0,4 ÷ 2 bar	—	—	—	—	—	—	6	4	2
PA435A	0,2 ÷ 1 bar	—	—	—	—	40	25	—	—	—
	0,4 ÷ 1,2 bar	—	—	—	—	48	30	—	—	—
	0,4 ÷ 2 bar	—	—	—	—	55	45	—	—	—
PA435B	0,2 ÷ 1 bar	—	—	—	—	—	—	6	5	3
	0,4 ÷ 1,2 bar	—	—	—	—	—	—	8	7	5
	0,4 ÷ 2 bar	—	—	—	—	—	—	10	8	6

*** For valve size DN125 and above please consult.**
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 2,5 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											
	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100	DN125	DN150	DN200
Kvs	4	6,3	10	16	25	40	63	100	160	230	330	-

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

ACTUATOR STROKE IN mm												
	SIZES											
	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100	DN125	DN150	DN200
Stroke	20	20	20	20	20	20	30	30	30	35	40	-

ORDERING CODES V253

VALVE CODES		V	.23 G					.X.	
Actuator Type (1)									
Pneumatic Actuator	P								
Electric Actuator	E								
Group Designation									
Globe valve, three way		V							
Valve Model									
GJS-400-18-LT body, stainless still trim			.23G						
Flow									
Mixing				M					
Diverting				D					
Stem Sealing									
PTFE/GR-V-Rings / Standard bonnet					1				
Virgin PTFE V-Rings / Standard bonnet					2				
Graphite / Standard bonnet					3				
Bellows					8				
Valve Plug									
PL (linear) - Soft (PTFE/GR)						6			
PL (linear) - Metal AISI316 / 1.4401						7			
Pipe Connection									
Flanged EN1092-2 PN16							L		
Flanged EN1092-2 PN25							M		
Size									
DN15								15	
DN20								20	
…									
Actuator								(1)	
Extras (3)									E

ACTUATOR CODES (pneumatic)	P.				
Group Designation					
Multi-spring , pneumatic linear actuator	P.				
Actuator Size					
205		1			
280		3			
340 A - From DN15 to DN50		5			
340 B - From DN65 to DN100		6			
435 A - From DN15 to DN50		7			
435 B - From DN65 to DN100		8			
Actuator					
Direct Action			D		
Reverse Action			R		
Actuator Constrution					
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

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

Example:

V253G mixing valve model PL metal plug, PTFE/GR stem sealing DN50 complete with reverse action actuator signal 0,4-1,2bar, size340A steel.

Code: PV.23G.M17L50.5R18

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.

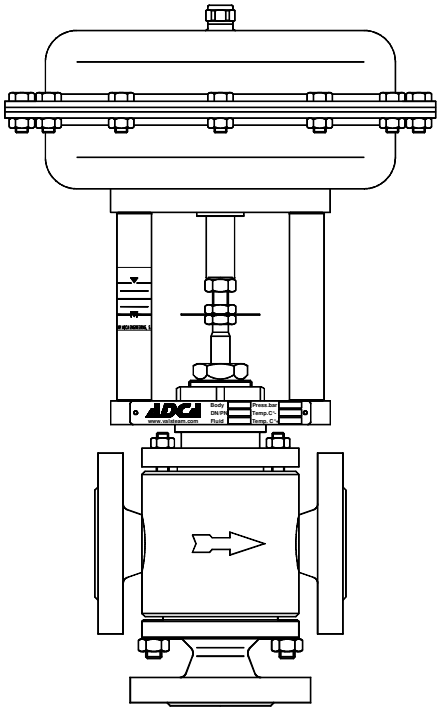
ADCATROL control valves are identified by a serial number on a nameplate, located on the actuator yoke.

Always order spares by using that serial number. If the valve has non-standard extras the serial number has also an E (extras).

"ADCATROL" 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 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 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 no corrosive fluids
AVAILABLE MODELS:	PV403S-EV403S – steel construction PV403I-EV403I – stainless steel
VALVE SIZES:	DN15 to DN50
CONNECTION:	Flanged EN 1092-1 or ANSI Threaded connections on request
PNEUMATIC ACTUATORS:	PA-205,PA-280,PA-340,PA-435
ACTUATOR CONN:	¼" NPT-F
CONTROL SIGNAL:	0,2 – 1bar; 0,4 – 1,2 bar; 0,4 – 2 bar
ELECTRIC ACT:	Consult catalogue IS EL20.00 E

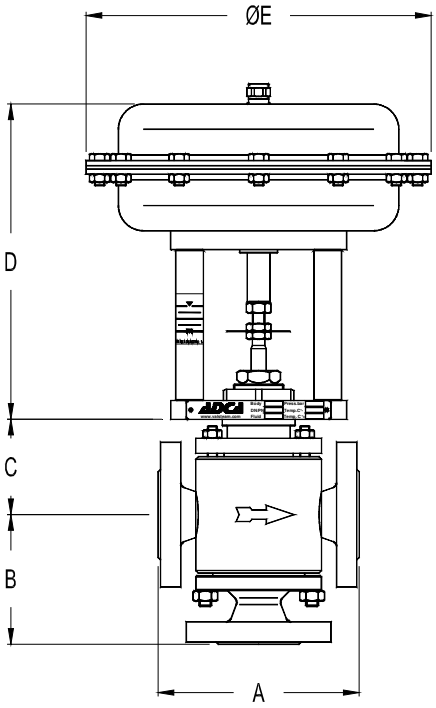
MAX.AIR SUPPLY:	3,5 bar
AMBIENT TEMPERATURE:	-20ºC ….+70ºC
STEM SEALING:	PTFE/GR V-Rings-220ºC (Standard bonnet) Graphite – 300ºC (Extended bonnet)
PLUG TYPES:	Linear (PL)
PORT:	Full port

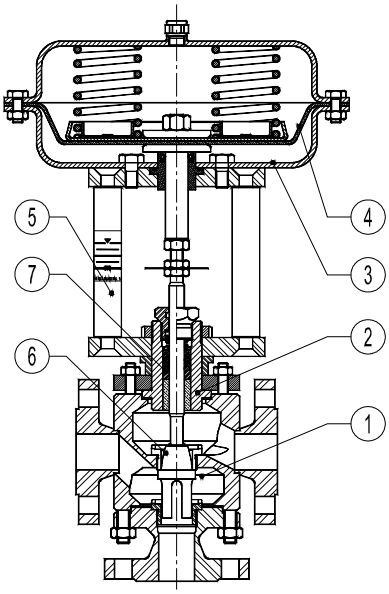
CE MARKING (PED - European Directive 97/23/EC)	
PN 40	**Category**
DN15 to DN32	SEP - art. 3, paragraph3
DN40 to DN50	1 (CE Marked)

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				VALVE BODY LIMITING CONDITIONS V403I			
PRESSURE/TEMPERATURE PN16		PRESSURE/TEMPERATURE PN25		PRESSURE/TEMPERATURE PN16		PRESSURE/TEMPERATURE PN25	
16 bar	-10/50ºC	25 bar	-10/50ºC	16 bar	-10/100ºC	25 bar	-10/100ºC
13,3 bar	200 ºC	20,8 bar	200 ºC	13,4 bar	200 ºC	21 bar	200 ºC
12,1 bar	250 ºC	19 bar	250 ºC	12,7 bar	250 ºC	19,8 bar	250 ºC
11 bar	300 ºC	17,2 bar	300 ºC	11,8 bar	300 ºC	18,5 bar	300 ºC

Maximum temperature limited to the valve packing selected ; Valves with soft seat , maximum allowable temperature: 200ºC





DIMENSIONS - VALVE BODY

DN	A mm	B mm	C (mm) BONNET	
			STANDARD PACKING	BELLOWS SEALED
15	150	100	75	250
20	150	103	75	250
25	160	103	75	250
32	180	110	83	258
40	200	110	96	268
50	230	130	100	272

MATERIALS

POS.	DESIGNATION	PV403S - EV403S	PV403I - EV403I
1	Valve Body	S355 J2 G3 / 1.0570	AISI 316 / 1.4401
2	Bonnet	CF8 / 1.4308	CF8 / 1.4308
3	Actuator (Steel)	S235JRG2 / 1.0038	S235JRG2 / 1.0038
	Actuator (St.steel)	AISI304 / 1.4301	AISI304 / 1.4301
4	Diaphragm	NBR70	NBR70
5	Yoke (steel)	C45E / 1.1191	C45E / 1.1191
	Yoke (st. steel)	AISI304 / 1.4301	AISI304 / 1.4301
6	Valve plug	St.Steel - PTFE/GR	St.Steel - PTFE/GR
7	Standard packing	PTFE/GR	PTFE/GR

DIMENSIONS - ACTUATOR

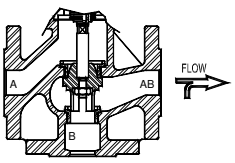
Type	ø E (mm)	D (mm) DN15-50 DA/RA	WEIGHT Kgs
PA-205	210	235	5,7
PA-280	275	240	8,8
PA-340	335	265	14,3
PA-435	430	295	24,5

FAILURE POSITION DEPENDING ON VALVE DUTY

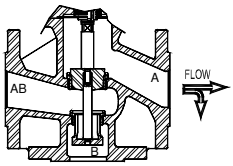
Mixing valve		Diverting valve	
Dir. Action Actuator a)	Rev.Action Actuator b)	Dir. Action Actuator a)	Rev.Action Actuator b)
Port A to AB Closes	Port B to AB Closes	Port AB to B Closes	Port AB to A Closes

a) Retracted stem on air failure

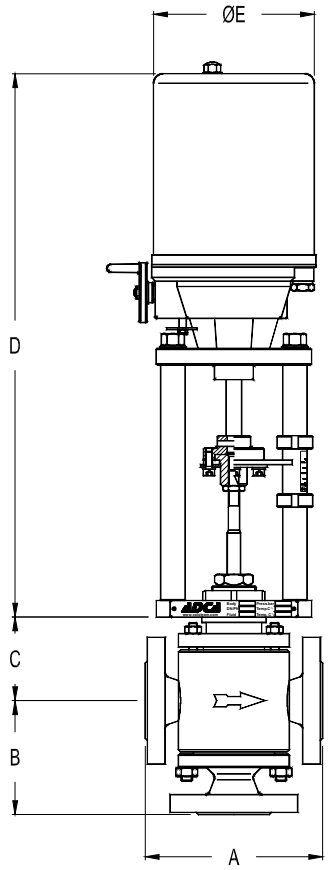
b) Extended stem on air failure

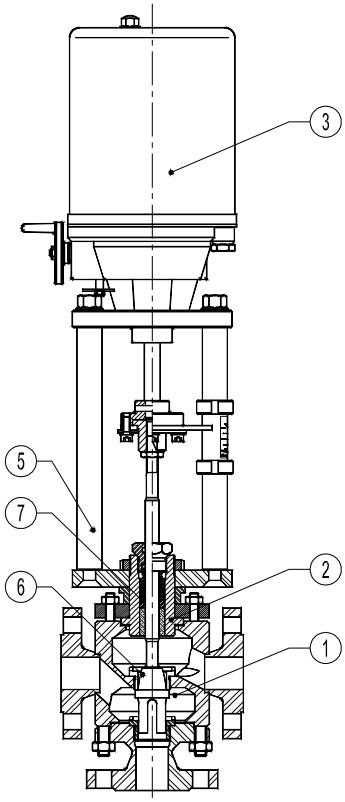


Mixing valve



Diverting valve





DIMENSIONS - VALVE BODY				
DN	A (mm)	B (mm)	C (mm) BONNET	
			STANDARD PACKING	BELLOWS SEALED
15	150	100	75	250
20	150	103	75	250
25	160	103	75	250
32	180	110	83	253
40	200	110	96	268
50	230	130	100	272

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

MATERIALS			
POS.	DESIGNATION	PV403S - EV403S	PV403I - EV403I
1	Valve Body	S355 J2 G3 / 1.0570	AISI 316 / 1.4401
2	Bonnet	CF8 / 1.4308	CF8 / 1.4308
3	Actuator	See IS20.00 E	See IS20.00 E
5	Yoke (steel)	C45E / 1.1191	C45E / 1.1191
	Yoke (st. steel)	AISI304 / 1.4301	AISI304 / 1.4301
6	Valve plug	St.Steel - PTFE/GR	St.Steel - PTFE/GR
7	Standard packing	PTFE/GR	PTFE/GR

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	10	10	7	—	—	—	—	—	—
	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	40	38	20	12	10	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	80	80	60	30	16	13	—	—	—
	0,4 ÷ 2 bar	100	100	80	40	20	18	—	—	—
PA-340B	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 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 2,5 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 IN mm						
	SIZES					
	DN15	DN20	DN25	DN32	DN40	DN50
Stroke	20	20	20	20	20	20

FLOW RATE COEFFICIENTS						
	SIZES					
	DN15	DN20	DN25	DN32	DN40	DN50
Kvs	4	6,3	10	16	25	40

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

ORDERING CODES V403

VALVE CODES		V	.43 S					.X.	
Actuator Type (1)									
Pneumatic Actuator	P								
Electric Actuator	E								
Group Designation									
Globe valve, three way		V							
Valve Model									
PN25, steel body			.43S						
PN25 stainless steel body			.43I						
Flow									
Mixing				M					
Stem Sealing									
PTFE/GR-V-Rings / Standard bonnet					1				
Virgin PTFE V-Rings / Standard bonnet					2				
Graphite / Standard bonnet					3				
Valve Plug									
PL (linear) - Soft (PTFE/GR)						6			
PL (linear) - Metal AISI316 / 1.4401						7			
Pipe Connection									
Flanged EN1092-1 PN16							L		
Flanged EN1092-1 PN40							N		
Flanged ANSI B16.5 300#							V		
Size									
DN15								15	
DN20								20	
…									
Actuator								(1)	
Extras (3)									E

ACTUATOR CODES (pneumatic)	P.				
Group Designation					
Multi-spring , pneumatic linear actuator	P.				
Actuator Size					
205		1			
280		3			
340 A - From DN15 to DN50		5			
435 A - From DN15 to DN50		7			
Actuator					
Direct Action			D		
Reverse Action			R		
Actuator Construtions					
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

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

Example:

V403S mixing valve model PL soft plug, PTFE/GR stem sealing DN50 complete with reverse action actuator signal 0,4-1,2bar, size340A steel.

Code: PV.43S.M16L50.5R18

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).

LINEAR PNEUMATIC ACTUATORS
PA205 – PA435

DESCRIPTION

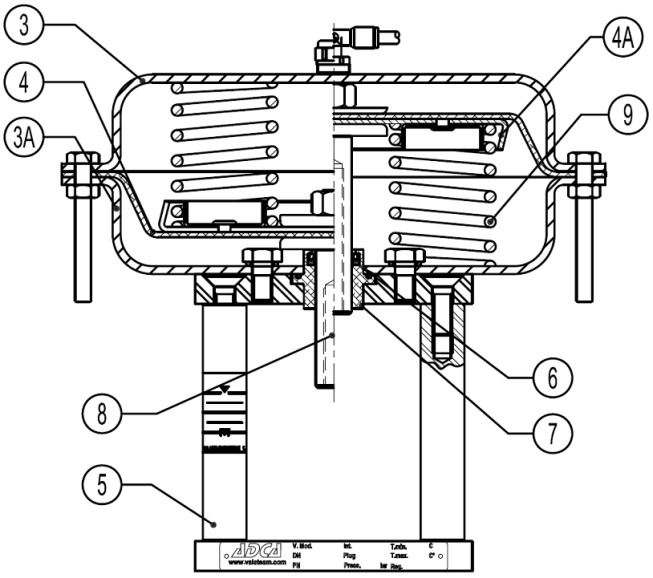
Pneumatic multi-spring linear actuators PA series for modulating and open-close duty of a control and process technology to operate control valves.

MAIN FEATURES

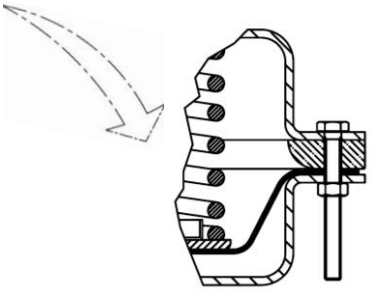
Direct and reverse action actuators for maximum 45mm valve stroke.
Operation with compressed air, nitrogen or clean water.

OPTIONS:	Limit switches Manual operating device Different kind of positioners Stainless steel construction
USE:	Actuating of V series Adcatrol control valves or others on request.
AIR SUPPLY:	Max. 3,5 bar
CONNECTION:	DN ¼”
AVAILABLE MODELS:	PA205, PA280, PA340, PA435
MAX.AMBIENT TEMPERATURE:	-20 ºC to 80 ºC

PA205 – PA435
RA- Reverse action DA – Direct action

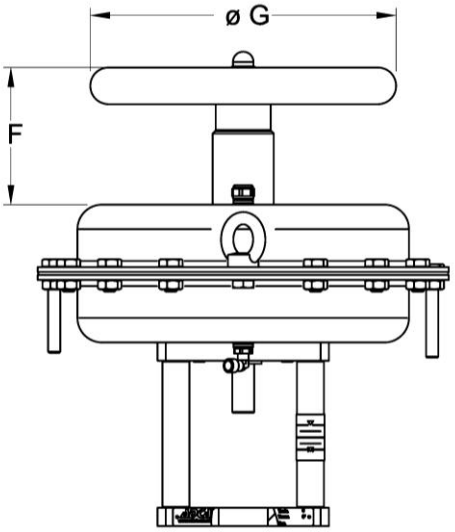


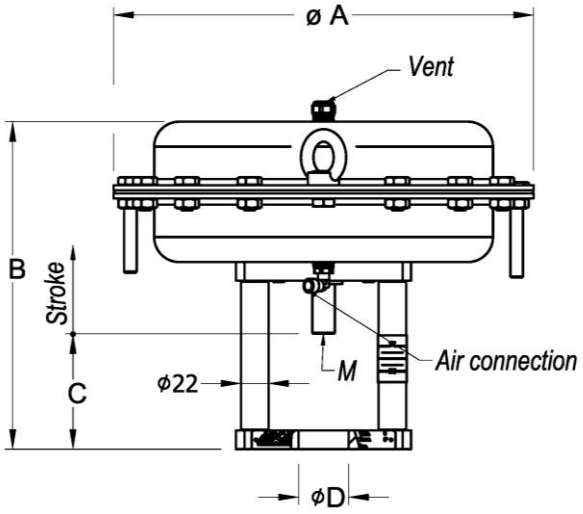
PA 435B (0,4 – 2,5 bar)



MATERIALS		
POS.	***DESIGNATION***	***MATERIAL***
3	Body (Steel)	S235JRG2 / 1.0038
	Body (Stainless steel)	AISI 304 / 1.4301
3A	Body (Steel)	S235JRG2 / 1.0038
	Body (Stainless steel)	AISI 304 / 1.4301
4	*Diaphragm	NBR 70
4A	Diaphragm plate	S235JRG2 / 1.0038
5	Yoke (Steel)	C45E / 1.1191
5	Yoke (Stainless steel)	AISI 304 / 1.4301
6	Seal ring	NBR
7	Guide	Nylon
8	Rod	AISI 316 / 1.4401
9	Spring	Spring steel

* Available spare parts





DIMENSIONS (mm)						
DIMENSIONS	**ACTUATOR MODEL**					
	PA205	**PA280**	**PA340A**	**PA340B**	**PA435A**	**PA435B**
Ø A	210	275	335	335	430	430
B	235	245	265	265	295	315
C	92	92	82	92	72	82
Ø D	40	40	40	45	40	45
M	M10	M10	M10	M10	M10	M10
Ø G	250	250	350	350	350	350
F	100	100	110	110	120	140
STROKE (mm)	20	20	20	30	40	45
WEIGHT (Kgs)	6	10	15	15	25	27

LINEAR PNEUMATIC ACTUATORS
PA45

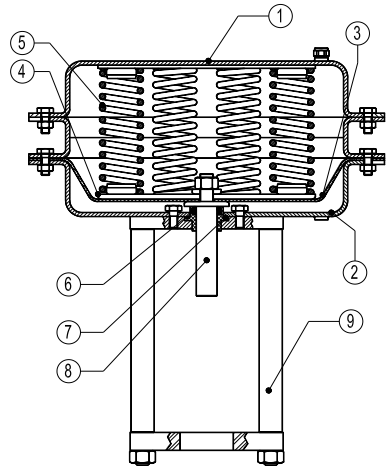
DESCRIPTION

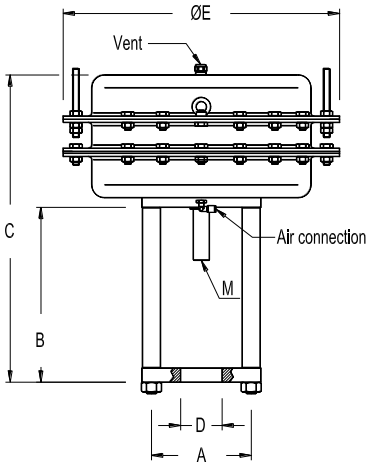
Pneumatic multi-spring linear actuators PA series for modulating and open-close duty of control and process technology to operate control valves.

MAIN FEATURES

Direct and reverse action actuators for maximum 50mm valve stroke.
Operation with compressed air, nitrogen or clean water.

OPTIONS:	Limit switches Manual operating device Different kind of positioners Stainless steel construction
USE:	Actuating of V series Adcatrol control valves or others on request.
AIR SUPPLY:	Max. 6 bar
CONNECTION:	DN ¼”
AVAILABLE MODELS:	PA45
MAX.AMBIENT TEMPERATURE	-20 ºC to 80 ºC





MATERIALS		
POS.	***DESIGNATION***	***MATERIAL***
1	Body (Steel)	S235JRG2 / 1.0038
	Body (Stainless steel)	AISI 304 / 1.4301
2	Body (Steel)	S235JRG2 / 1.0038
	Body (Stainless steel)	AISI 304 / 1.4301
3	*Diaphragm	NBR 70
4	Diaphragm plate	S235JRG2 / 1.0038
5	Spring	Spring steel
6	*Seal ring	NBR
7	Guide	Nylon
8	Rod	AISI316 / 1.4401
9	Yoke (Steel)	C45E / 1.1191
9	Yoke (Stainless steel)	AISI 304 / 1.4301

* Available spare parts

DIMENSIONS								
MODEL	***A***	***B***	***C***	***D***	***E***	***M***	***WGT***	***Max.***
	mm	***mm***	***mm***	***mm***	***mm***	***mm***	***Kgs***	***Stroke***
PA-45.B	110	265	473	45	430	M16	45	50
PA-45.C	155	272	480	65	430	M16	45	50

Kvs VALUES FOR ADCATROL CONTROL VALVES V16, V25 AND V40 - STANDARD PARABOLIC PLUGS

SEAT D. mm	VALVE STROKE mm	VALVE SIZES											
		DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100	DN125	DN150	DN200
4	20	0,1	—	—	—	—	—	—	—	—	—	—	—
4		0,25	—	—	—	—	—	—	—	—	—	—	—
4		0,5	—	—	—	—	—	—	—	—	—	—	—
8		1	—	—	—	—	—	—	—	—	—	—	—
8		1,7	1,7	—	—	—	—	—	—	—	—	—	—
12		2,1	2,5	3	—	—	—	—	—	—	—	—	—
12		2,7	3,7	4	4,3	—	—	—	—	—	—	—	—
15		3,8	4,7	5,8	6,1	6,8	—	—	—	—	—	—	—
20			5,1	6,3	7,8	9,3	10,2	—	—	—	—	—	—
25				9,4	11,7	14,6	17,5	18,7	—	—	—	—	—
32		—	—		15,4	19,2	24	28	30,5	—	—	—	—
40		—	—	—	—	22,2	27.7	34,6	40,8	44,7	—	—	—
50			—	—	—	—	40,1	49	61	68	74,1	—	—
65	30 / 40	—	—	—	—	—	—	63,4	79,2	91	109,3	119	—
80		—	—	—	—	—	—	—	89,7	112,1	139,8	166	182
100		—	—	—	—	—	—	—	—	136,7	170,8	212,5	243
125	40 / 50	—	—	—	—	—	—	—	—	—	230,6	288,2	359,4
150		—	—	—	—	—	—	—	—	—	—	316,1	396
200	50 / 80	—	—	—	—	—	—	—	—	—	—	—	590

MAX. PERM.PRESS.DROP IN bar - NORMALY CLOSED VALVE (fluid to open)
Reverse action PA45 series actuator (air signal to open)

ACT. TYPE	SPRING RANGE bar	Stk mm	Air Sup. bar	SIZES											
				DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100	DN125	DN150	DN200
PA45.5B	1,1 ÷ 2,1	40	2,5	—	—	—	—	—	—	22	16	10	—	—	—
	0,5 ÷ 2,1	50		—	—	—	—	—	—	19	14	8	—	—	—
PA45.5C	1,1 ÷ 2,1	40	2,5	—	—	—	—	—	—	—	—	—	4	3	—
	0,5 ÷ 2,1	50		—	—	—	—	—	—	—	—	—	—	—	1
PA45.8B	1,7 ÷ 3,3	40	3,8	—	—	—	—	—	—	40	28	17	—	—	—
	1,3 ÷ 3,3	50		—	—	—	—	—	—	30	22	13	—	—	—
PA45.8C	1,7 ÷ 3,3	40	3,8	—	—	—	—	—	—	—	—	—	9	6	3
	1,3 ÷ 3,3	50		—	—	—	—	—	—	—	—	—	7	5	2
PA45.10B	2,1 ÷ 4,1	40	4,5	—	—	—	—	—	—	—	—	22	—	—	—
	1,6 ÷ 4,1	50		—	—	—	—	—	—	—	—	18	—	—	—
PA45.10C	2,1 ÷ 4,1	40	4,5	—	—	—	—	—	—	—	—	—	12	8	4
	1,6 ÷ 4,1	50		—	—	—	—	—	—	—	—	—	10	7	3,5
PA45.12C	2,5 ÷ 4,9	40	5,5	—	—	—	—	—	—	—	—	—	15	10,5	5,5
	1,9 ÷ 4,9	50		—	—	—	—	—	—	—	—	—	12	8	4,5
PA45.14C	2,9 ÷ 5,7	40	6	—	—	—	—	—	—	—	—	—	18	12	6,5
	2,2 ÷ 5,7	50		—	—	—	—	—	—	—	—	—	14	10	5,5

Important: The pressure drop values must be used within the body rating limits. The pressure drop values are referred to closed valves.
In case of different valve strokes, plug designs (perforated and on-off) or different actuator, please consult the right table or if not available consult factory.

ORDERING CODES PA45

ACTUATOR CODES (electric)	P.			
Group Designation				
Multi-spring, pneumatic linear actuator	**P.**			
Actuator Size				
PA45.2B *		**12**		
PA45.2C *		**22**		
PA45.5B		**15**		
PA45.5C		**25**		
PA45.8B		**18**		
PA45.8C		**28**		
PA45.10B		**110**		
PA45.10C		**210**		
PA45.12C		**212**		
PA45.14C		**214**		
Actuator				
Direct Action			**D**	
Reverse Action			**R**	
Control Signal				
Option A				**A**
Option B				**B**

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

Example:

V25S valve model EQP metal plug, PTFE/GR stem sealing DN125 complete with PA45.5C reverse action actuator 1,1-2,1bar spring range.

Code: PV.25S13N125.25RA

* Only direct action

PA45 SPRING RANGES (bar)					
	2B, C	5B, C	8B, C	10B, C	12C
A	0,4 - 4	1,1-2,1	1,7-3,3	2,1-4,1	2,5-4,9
B	/	0,5-2,1	1,3-3,3	1,6-4,1	1,9-4,9

LINEAR ELECTRIC ACTUATORS
Type EL
EL12, EL20, EL45, EL80, EL120, EL250

DESCRIPTION

Electric linear actuators EL series for modulating and open-close duty of control and process technology to operate control valves.
The self-locking stem/stem nut is driven by an electric motor via a gearing. Load and limit switches define the stops for the end positions.

MAIN FEATURES

- Valve protection against excessive force due to load-dependent seating.
- Comfortable manual operation when disengaging the actuator motor.
- Mounting to valve made via yoke or mounting flange DIN 3358. The design enables easy connection to all types of valves. Standard version is suitable for Adcatrol valves.
- Generating a defined closing force in the end position leads to constantly tight shut-off of the valve.
- A robust metal cover protects efficiently against external contamination and manipulation.
- The actuators are in enclosure protection IP 65 (EL12 IP43) and are designed for rugged industrial use.
- Stall proof synchronous motors (or brake motors for higher positioning forces) ensure highest positioning accuracy.
- Mechanical stroke indication via anti-rotation bar.
- Exact, backlash-free measurement of actual valve stroke by direct coupling to the valve stem.
- Universally usable actuators due to control via 3-point-step controllers, analogue input signals (0…10 V, 0 (4)…20 mA), or fieldbus systems.
- Easy supplement to actuator with optional devices due to modular design.
- Limit switches, easily adjustable, for stroke limitation (not necessary for Adcatrol valves) or as signal for intermediate positions.
- Integrated, adjustable stroke setting to nominal stroke over the complete stroke range (without exchanging pinions, …).

TECHNICAL DATA						
Type		**EL12**	**EL20**	**EL45**	**EL45.1**	**EL45.2**
Positioning force	kN	1,2	2,0	4,5		
Positioning speed [1]	mm/min (mm/s)	8 (0,14)	15 (0,25)	17 (0,28)	25 (0,4)	50 (0,8)
Power consumption (230 V)	A	4	6,6	28	28	32
Nominal current (230 V)	A	0,017	0,029	0,135	0,135	0.160
Type of motor [3]		syn	syn	asyn	asyn	asyn
Motor protection [4]		B	B	B	B	B
Max. stroke	mm	35 mm	75 (standard 50mm)			
Supply voltages [2]		24 V / 115 V / 230 V / 400 V 50/60 Hz, 24 V DC				
Type of duty acc. to IEC 34-1		S1 – 100%		S4 – 30% c.d.f. 600 c/h		
Cable entry		3 x M16 x 1,5	2 x M16x1.5 and 1 dummy plug M16x1.5			
Electrical connection		Inside terminal board, terminal configuration according to electrical connection wiring diagram				
Switch off in end position		2 load-dependent switches, max. 250 V AC, rating for resistive load, max. 5 A, for inductive load, max. 3 A				
Mounting position		as desired, however downward position not possible				
Ambient temperature		–20 °C to +60 °C				
Lubricant for gearing		Klüber Mickrolube GL 261 grease				
Position indicator		by anti-rotation bar				
Manual adjustment		crank handle	by means of lateral hand wheel			
Enclosure protection acc. to EN 60529		IP 43	IP 65			
Trapezoidal thread		Tr 8 x 1,5	Tr 14 x 3			
Connection type		EN ISO 5210 F05 (also refer to options)				
Weight	kg	2,1	8,0			

TECHNICAL DATA							
Type		**EL80**	**EL80.1**	**EL80.2**	**EL120**	**EL120.1**	**EL120.2**
Positioning force	kN	8,0			12		
Positioning speed [1]	mm/min (mm/s)	13,5 (0,2)	25 (0,4)	50 (0,8)	13,5 (0,2)	25 (0,4)	50 (0,8)
Power consumption (230 V)	A	25	34	152	25	34	152
Nominal current (230 V)	A	0,11	0,15	0,78	0.11	0.15	0.78
Type of motor [3]		syn	syn	asyn	syn	syn	asyn
Motor protection [4]		B	B	T	B	B	T
Max. stroke	mm	80					
Supply voltages [2]		24 V / 115 V / 230 V / 400 V 50/60 Hz, 24 V DC					
Type of duty acc. to IEC 34-1		S4 – 30% c.d.f. 600 c/h					
Cable entry		2 x M16x1.5 and 1 dummy plug M16x1.5					
Electrical connection		Inside terminal board, terminal configuration according to electrical connection wiring diagram					
Switch off in end position		2 load-dependent switches, max. 250 V AC, rating for resistive load, max. 5 A, for inductive load, max. 3 A					
Mounting position		as desired, however downward position not possible					
Ambient temperature		–20 °C to +60 °C					
Lubricant for gearing		Klüber Microlube GL 261 grease					
Position indicator		by anti-rotation bar					
Manual adjustment		by means of lateral hand wheel					
Enclosure protection according to EN 60529		IP 65					
Trapezoidal thread		Tr 20 x 4					
Connection type		DIN 3210 G0 (also refer to options)					
Weight	kg	13,0					

TECHNICAL DATA							
Type		**-**	**-**	**-**	**-**	**EL250.1**	**EL250.2**
Positioning force	kN	-			25		
Positioning speed [1]	mm/min (mm/s)	-	-	-	-	25 (0,4)	50 (0,8)
Power consumption (230 V)	A	-	-	-	-	157	218
Nominal current (230 V)	A	-	-	-	-	0.73	1.0
Type of motor [3]		-	-	-	-	asyn	asyn
Motor protection [4]		-	-	-	-	T	T
Max. stroke mm		100					
Supply voltages [2]		115 V / 230 V 50/60 Hz, 24 V DC					
Type of duty acc. to IEC 34-1		S4 – 30% c.d.f. 600 c/h					
Cable entry		2 x M20x1.5 and 1 dummy plug M20x1.5					
Electrical connection		Inside terminal board, terminal configuration according to electrical connection wiring diagram					
Switch off in end position		2 load-dependent switches, max. 250 V AC, rating for resistive load, max. 5 A, for inductive load, max. 3 A					
Mounting position		as desired, however downward position not possible					
Ambient temperature		–20 °C to +60 °C					
Lubricant for gearing		Klüber Microlube GL 261 grease					
Position indicator		by anti-rotation bar					
Manual adjustment		by means of lateral hand wheel					
60529		IP 65					
Trapezoidal thread		Tr 26 x 5					
Connection type		DIN 3210 G0 (also refer to options)					
Weight	kg	19,0					

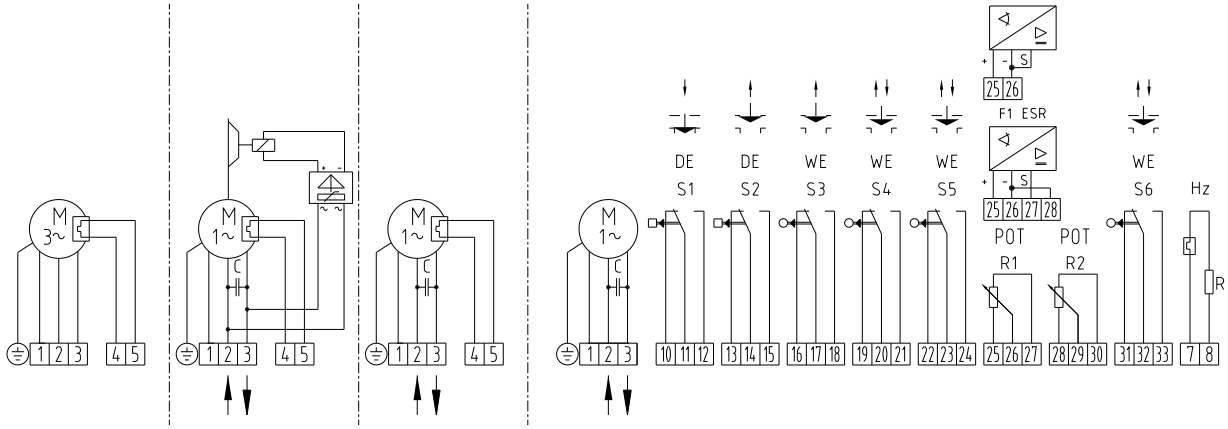
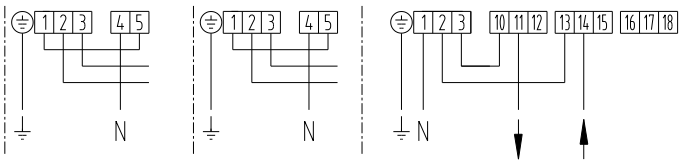
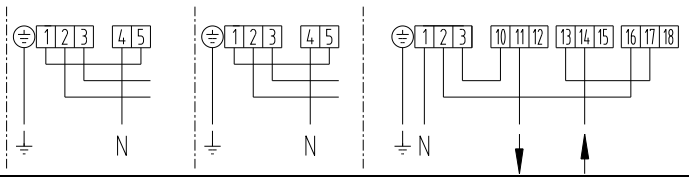
1) at 60 Hz, the positioning speeds and input power increase by 20%
2) other supply voltages on request

3) syn synchronous motor
asyn asynchronous motor
4) B stallproof motor
T thermoswitch for temperature monitoring

ACCESSORIES AND OPTIONS		
Accessories for actuators		
	Yoke for adaptation to valves refer to dimension sheet.	STALA/ FLA
	Mounting flange with central attachment Mxx refer to dimension sheet (thrust rod must be secured against revolving).	ZFLA
	Compact plug 10/24 poles with additional housing at actuator Voltages ≤ 500 V.	KS
	Special finish coating for use in the tropics "tropics coating".	LA-TR
	Version with bellows at thrust rod (for EL20, EL45, EL80, EL120).	A-FAB

Options for actuators		
	Additional limit switches for signalling end positions or intermediate positions, freely adjustable, max. 250 V AC, rating for resistive load max. 5 A, for inductive load max. 3 A, max. 2 switches for EL20 and EL45, max. 4 switches for EL80 and EL120.	WE
	Additional limit switches for signalling end positions or intermediate positions, freely adjustable, with gold-plated contacts for low voltage, max. 30 V AC, rating for resistive load max. 0.1 A, max. 2 switches for EL20 and EL45, max. 4 switches for EL80 and EL120.	WE-G
	Potentiometer 100/130/200/500/1000/5000 Ohms or 10 kOhms Linearity error ≤ 0.5 %, max. 1.5 W, contact current 30 mA max. 2 pieces	POT
	Electronic position feedback 2-/3-/4-wire system Inductive travel measuring, output 0 (4)…20 mA Connection 24 V DC	ESR
	Positioning electronics for actuator control Input 0…10 V, 0 (4)…20 mA, output 0…10 V, 0 (4)…20 mA Supply voltage 24, 115, 230 V 50/60 Hz	PEL
	Heating resistor with thermoswitch against moisture with automatic temperature regulation, max. 15 Watts Supply voltage 24, 115, 230 V 50/60 Hz	HZ/WP

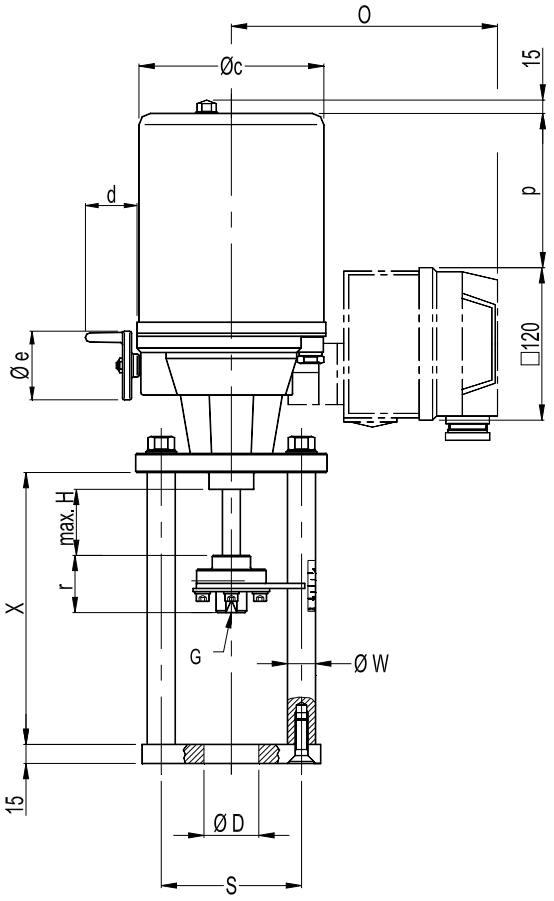
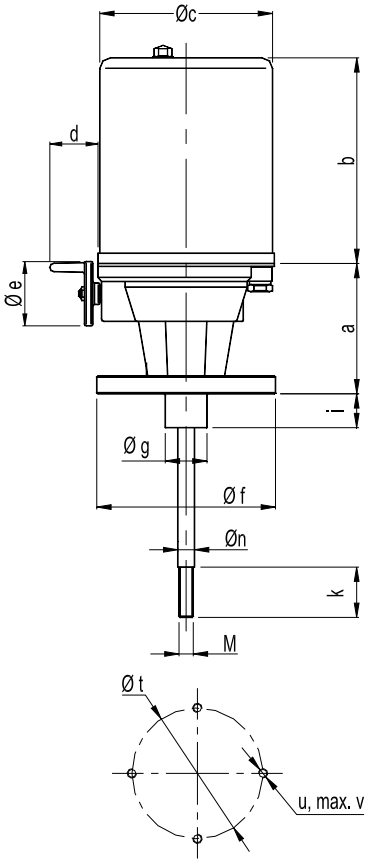
ELECTRICAL CONNECTION

3 ~ asynchronous motor with brake and thermoswitch	1 ~ asynchronous motor with brake and thermoswitch	Synchronous motor with thermoswitch	synchronous motor	Basic wiring diagram including options
				
				Switch off in end postion via two load-dependant switches to control e.g. three-way mixing valves.
				Switch off in end position via a load-dependent switch and a limit switch to control e.g. full-way valves without upper stop. Monitoring blocking in OPEN direction.
				Control of three-phase actuators with thermoswitch. Switch off in end position via two load-dependant switches to control e.g. three-way mixing valves. For motors without thermoswitch, the wiring to terminal 4 and 5 is not applicable.
				Control of three-phase actuators with thermoswitch. Switch off in end position via a load-dependent switch and a limit switch to control e.g. full-way valves without upper stop. Monitoring blocking in OPEN direction. For motors without thermoswitch, the wiring to terminal 4 and 5 is not applicable.

WE	Limit switch
HZ	Heater with thermoswitch
POT	Potentiometer
ESR	Electronic position feedback
PEL	Positioning electronics
WSE	External reversing contactor unit
REG	Process controller

DIMENSIONS

EL20 - EL45- EL80 – EL120

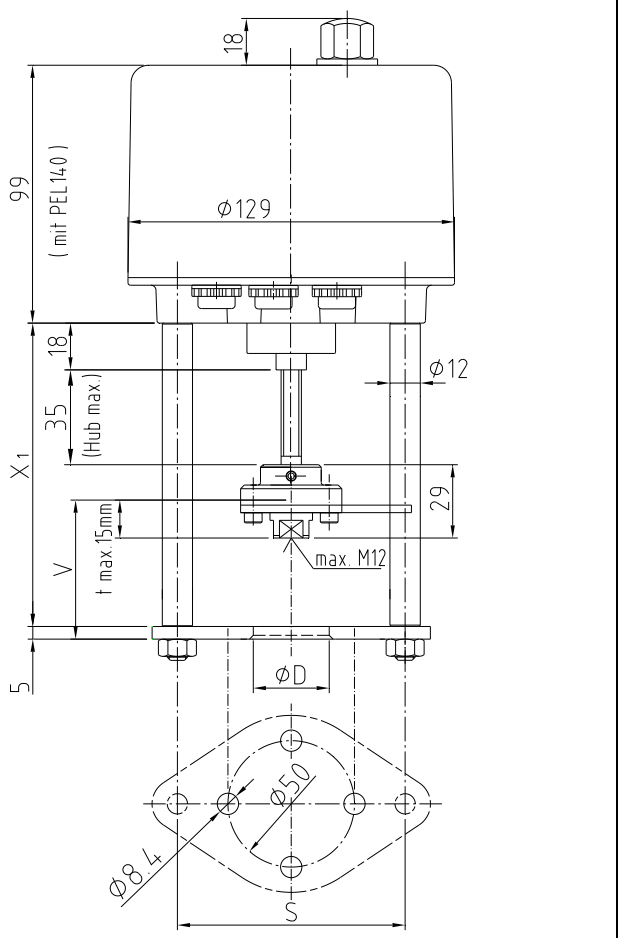
Mounting with yoke – for Adcatrol valves	Mounting according to EN ISO 5210 G0
	

DIMENSIONS							
Type	**EL20- EL45**	**EL80 - EL120**	**EL250**	**Type**	**EL20 - EL45**	**EL80 - EL120**	**EL250**
a	94.5	130	190	o	210	220	240
b	173	197	226	p	115	179	164
Ø c	145	188	216	r	45	45	51
d	42	69	70	Ø w	22	22	22
Ø e	54	100	100	M		M16x1,5	M20x1,5
Ø f	74	130	130	max. G	M20	M20	M20
Ø g	35 f8	60	60	Ø D	Ø 40, Ø 45	Ø 40, Ø 45	Ø 45, 65
i	3	26	3	G	M10	M10	M16
k		16	22	S	110 (100)	110 (100)	125
n	14	20	26	X	190 - 228		235
Ø t	50	102	102				
u	M6	M10	M10				
v							
H	Stroke actuators (see technical data)						

DIMENSIONS

EL12

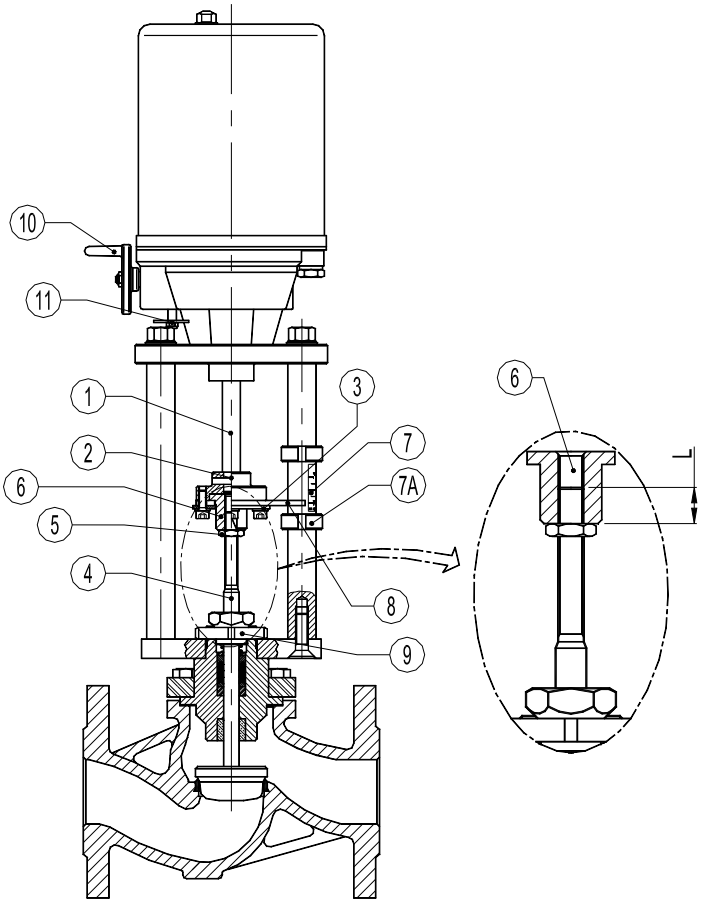
Mounting with yoke – for Adcatrol valves



Type	EL 12
Ø D	40
S	100
X1	160
X2	55

COMBINATION WITH A CONTROL VALVE (short instruction)

On delivery the driving rod (1) is driven out to the bottom end limit (anti-rotation flange at bottom mark).
Further procedure:
-Insert valve stem (4) into the valve all the way to limit stop
-Move the driving rod (1) up by rotating the hand wheel anti-clockwise by about 20 mm (see manual operation).
-Lift the actuator and yoke over the valve stem, place onto the top of the valve and secure using the mounting nut (9)
-Unscrew the locking plate (3) and the anti-rotation flange (8) in succession from the coupling flange (2) and allow it to fall over the stem.
-Remove the threaded socket (6) from the coupling flange and screw it onto the stem according to dimension L from table 1.
-Drive out the rod by rotating the hand wheel clockwise until the threaded socket (6) stops in the coupling flange (2).
Screw the anti-rotation flange (8) and the locking plate (3) onto the coupling flange
-Tighten the stem with the nut (5) against the threaded socket.
- When mounting pay attention that the valve plug is not pressed onto the seat and is not turned.
For electrical connections please report to IMI EL20.00



MANUAL OPERATION

The manual adjustment must not be disengaged or engaged while the motors is running.
Execute the manual adjustment only with motor being at standstill, hereto:
-With the left hand press the disengaging rod (11) with plate in direction of the outgoing driving rod toward the bottom
-Simultaneously turn the handwheel (10) with the right hand until the coupling-in has sensible been executed
-To actuate the linear actuator now turn the handwheel, hold the disengaging rod with the plate in engaged position
Turning crank handle to the right (clockwise), the driving rod moves out of the actuator
Turning crank handle to the left (anti-clockwise), the driving rod moves into the actuator
(The linear actuator is automatically switched back to motoric operation, as soon as the disengaging rod will be released).

(L) Dimensions in mm												
Valve Type	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100	DN125	DN150	DN200
EV16G	18	18	18	13	12	14	25	25	19	-	-	-
EV40S	18	18	18	13	12	14	25	25	19	-	-	-

Table1

Actuator selection for two way valves type EV16G, EV25G and EV40S

Actuator Type	Differential pressure (bar)											
	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100	DN125	DN150	DN200
EL12	38	20	12	6,5	3,5	1,8	-	-	-	-	-	-
EL20	40	40	28	16	9,9	5,8	3	1,7	0,6	-	-	-
EL45	40	40	40	40	29,8	18,5	10,5	6,6	3,8	-	-	-
EL80	40	40	40	40	40	36,4	21	13,6	8,2	-	-	-
EL120	-	-	-	-	40	40	33,1	21,6	13,3	8,3	5,6	3
EL250	-	-	-	-	-	-	40	40	30,2	19,1	12,1	5,5

Remarks: V-rings stem packing.

Actuator selection for three way valves type EV253G and EV403S

Actuator Type	Differential pressure (bar)											
	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100	DN125	DN150	DN200
EL12	25	22	13,2	7,1	3,8	1,9	-	-	-	-	-	-
EL20	25	25	25	17,3	10,8	6,6	3,4	2	1,1	-	-	-
EL45	-	-	-	25	25	19,8	11,6	7,3	3,8	2,4	1,5	-
EL80	-	-	-	-	25	25	23,1	14,8	8.9	5,5	3,6	-
EL120	-	-	-	-	25	25	25	23,1	14,5	9,1	6,1	-
EL250	-	-	-	-	-	-	-	-	-	-	-	-

ORDERING CODES EL - ELR

ACTUATOR CODES (Electric)	E.					
Group Designation						
EL Series electric linear actuator	**E.**					
Valve Model						
V16G, V16I		**16**				
V25G, V25S, V25I		**25**				
V40S, V40I, WV40I		**40**				
V253G		**23**				
Valve Size						
DN15 to DN50			**D.**			
DN65 to DN100			**J.**			
DN125 to DN200			**M.**			
Actuator Type						
EL12				**12**		
EL20				**20**		
EL45				**40**		
EL45.1				**41**		
EL45.2				**42**		
EL80				**60**		
EL80.1				**61**		
EL80.2				**62**		
EL120				**70**		
EL120.1				**71**		
EL120.2				**72**		
EL250				**80**		
EL250.1				**81**		
EL250.2				**82**		
ELR2.1				**2A**		
ELR2.2				**2B**		
ELR2.3				**2C**		
Actuator Voltage						
230 VAC					**1**	
115 VAC					**2**	
24 VAC					**3**	
24 VDC					**4**	
400 V3~					**5**	
Control Signal						
Actuator without positioner (standard)						**(2)**
4 - 20 mA with positioner PEL (not for DC)						**3**
0 - 1 0 V with positioner PEL (not for DC)						**4**
Positioner PEL (DC)						**5**

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

Example:

V16G valve model EQP soft plug, PTFE/GR stem sealing DN50 complete with 230V electric actuator EL20 with positioner for 4-20mA signal.

Code: EV.16G11L50.2013

REMARKS:

(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. Always order spares by using that serial number. If the valve has non-standard extras the serial number has also an E (extras).

LINEAR ELECTRIC ACTUATORS WITH FAIL-SAFE FUNCTION
Type ELR2.1, ELR2.2, ELR2.3

DESCRIPTION

Electric linear actuators ELR series for modulating and open-close duty of control and process technology to operate control valves.
The self-locking stem/stem nut is driven by an electric motor via a gearing. Load and limit switches define the stops for the end positions.
In case of power failure, the electric linear actuator runs spring driven into the respective fail-safe position (thrust rod either extended or retracted). In modulating duty, the end position seating is made via limit switches.

MAIN FEATURES

- Electric manual operation with OPEN/CLOSE buttons.
- Mounting to valve made via yoke or mounting flange DIN 3358. The design enables easy connection to all types of valves. Standard version is suitable for Adcatrol valves.
- Generating a defined closing force in the end position leads to constantly tight shut-off of the valve.
- The actuators are in enclosure protection IP 54 and are designed for rugged industrial use.
- Stall proof synchronous motors (or brake motors for higher positioning forces) ensure highest positioning accuracy.
- Mechanical stroke indication via anti-rotation bar.
- Exact, backlash-free measurement of actual valve stroke by direct coupling to the valve stem.
- Universally usable actuators due to control via 3-point-step controllers, analogue input signals (0…10 V, 0 (4)…20 mA).
- Easy supplement to actuator with optional devices due to modular design.
- Limit switches, easily adjustable, for stroke limitation or as signal for intermediate positions.
- Integrated, adjustable stroke setting to nominal stroke over the complete stroke range (without exchanging pinions, …).

TECHNICAL DATA

Type	ELR 2.1	ELR 2.2	ELR 2.3
Positioning force (CLOSED) kN	⩾ 0,9	⩾ 2,2	⩾ 2,2
Opening force (OPEN) kN	⩽ 5,3	⩽ 4,0	⩽ 4,0
Max. stroke mm	35 mm	35 mm	46 mm
Positioning speed modulating duty [1] mm/min (mm/s)	17,5 (0,29)	17,5 (0,29)	17,5 (0,29)
Positioning speed in case of power failure Fail-safe function mm/s	~4,1	~4,1	~4,1
Power consumption (230 V) motor VA	8,5	8,5	8,5
Power consumption (230 V) magnet VA	15	15	15
Type of motor [3]	syn		
Motor protection [4]	B	B	B
Supply voltages [2]	24 V / 115 V / 230 V 50/60 Hz		
Closing direction fail-safe function	extending thrust rod or retracting thrust rod		
Cable entry	2 x M16x1.5 and 2 dummy plug M20x1.5		
Type of duty acc. to IEC 34-1	S1 – 100% c.d.f., S4 – 30% c.d.f. 1200 c/h		
Electrical connection	Inside terminal board, terminal configuration according to electrical connection wiring diagram		
Switch off in end position	2 limit switches, max. 250 V AC, rating for resistive load, max. 10 A, for inductive load, max. 10 A		
Mounting position	as desired, however downward position not possible		
Ambient temperature	–20 °C to +50 °C		
Lubricant for gearing	Renolit AL-WIK 260 X		
Position indicator	by anti-rotation bar		
Manual adjustment	electrical adjustment via push buttons (only possible when voltage is present)		
Enclosure protection acc. to EN 60529	IP 54		
Connection type	EN ISO 5210 F05 (also refer to options)		
Test/approvals	actuator has been tested by the TÜV [German Technical control board) according to DIN 32730 (safety functions against excessive temperature in heating facilities)		
Weight kg	8,7	9,3	10

1) at 60 Hz, the positioning speeds and input power increase by 20%
2) other supply voltages on request

3) syn synchronous motor
asyn asynchronous motor
4) B stallproof motor
T thermoswitch for temperature monitoring

ACCESSORIES AND OPTIONS

Accessories for actuators

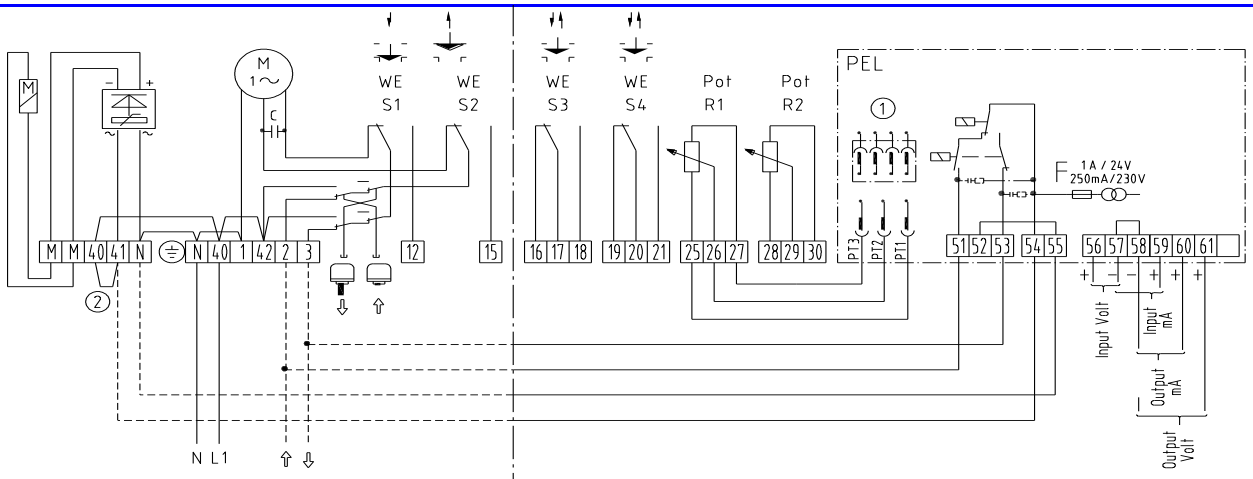
	Yoke for adaptation to valves refer to dimension sheet.	STALA/ FLA
	Version IP 65 (with round cover)	A-IP65
	Elastic thrust rod coupling effective on both sides (use for thrust seating in both directions, e.g. three-way valve)	KUP-EL2
	Special finish coating for use in the tropics "tropics coating" (version IP 65 required).	LA-TR
	Version with bellows at thrust rod	A-FAB

Options for actuators

	Additional limit switches for signalling end positions or intermediate positions, freely adjustable, max. 250 V AC, rating for resistive load max. 10 A, for inductive load max. 5 A, max. 2 switches	WE
	Additional limit switches for signalling end positions or intermediate positions, freely adjustable, with gold-plated contacts for low voltage, max. 30 V AC, rating for resistive load max. 0.1 A, max. 2 switches	WE-G
	Potentiometer 100/130/200/500/1000/5000 Ohms or 10 kOhms Linearity error ≤ 0.5 %, max. 1.5 W, contact current 30 mA max. 2 pieces	POT
	Electronic position feedback 2-/3-/4-wire system output 0 (4)…20 mA Connection 24 V DC	ESR
	Positioning electronics for actuator control Input 0…10 V, 0 (4)…20 mA, output 0…10 V, 0 (4)…20 mA Supply voltage 24, 115, 230 V 50/60 Hz	PEL

ELECTRICAL CONNECTION

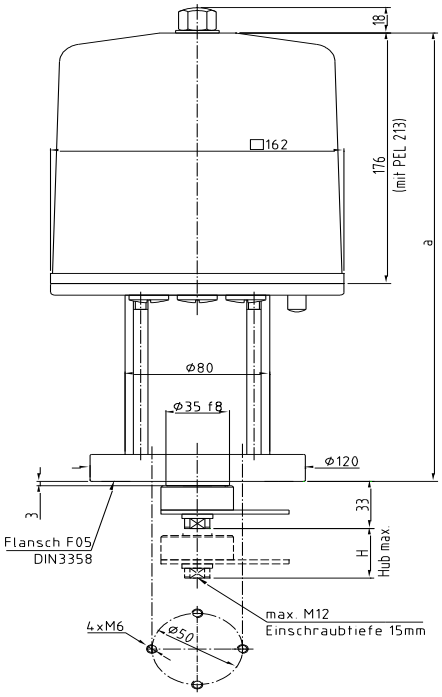
Basic wiring diagram	Options



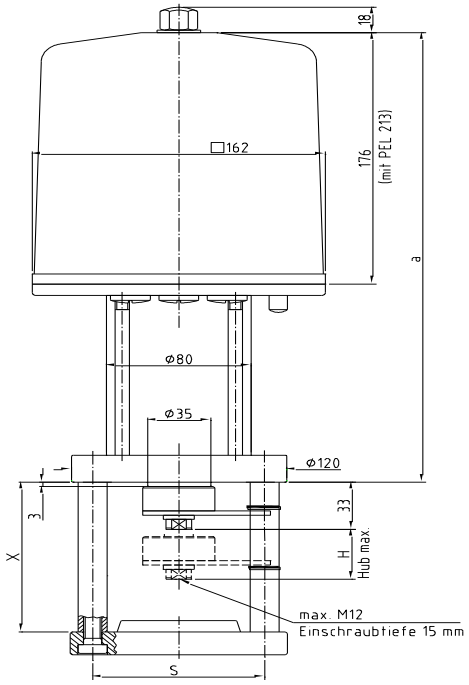
WE	Limit switch
HZ	Heater with thermoswitch
POT	Potentiometer
ESR	Electronic position feedback
PEL	Positioning electronics

ACTUATOR DIMENSIONS

Actuator ELR2.x according to EN ISO 5210 F05



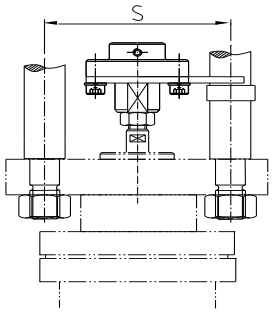
Actuator ELR2.x with yoke



Dimensions			
Type	**ELR2.1**	**ELR2.2**	**ELR2.3**
a	315	333	354
a 1)	352	370	390
S	110		
H	refer to thecnical data		

1) Dimensions with PEL (positioning electronics)

Yoke without bottom flange



Actuator selection for two way valves type EV16G

Actuator Type	Stroke [mm]	Differential pressure (bar)										
		DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100	DN125	DN150
ELR2.1	20	22,8	22,8	12,2	6,5	3,7	1,7	-	-	-	-	-
ELR2.2	20	-	-	41	24,2	15,2	8,7	-	-	-	-	-
ELR2.2	30							3,6	2,2	1	-	-
ELR2.3	20	-	-	47	28	17,7	10,3				-	-
ELR2.3	30							4,7	3	1,4	-	-
ELR2.3	40										0,58	0,27

Remarks: V-rings stem packing.

Actuator selection for two way valves type EV25G, EV40S

Actuator Type	Stroke [mm]	Differential pressure (bar)										
		DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100	DN125	DN150
ELR2.1	20	22,8	22,8	12,2	6,5	4,1	1,7	-	-	-	-	-
ELR2.2	20	-	-	41	24,2	16,6	8,7	-	-	-	-	-
ELR2.2	30							3,9	2,6	1	-	-
ELR2.3	20	-	-	47	28	19,3	10,3				-	-
ELR2.3	30							5,1	3,5	1,6	-	-
ELR2.3	40										0,59	0,27

Remarks: V-rings stem packing.

ORDERING CODES EL - ELR

ACTUATOR CODES (Electric)	E.					
Group Designation						
EL Series electric linear actuator	E.					
Valve Model						
V16G, V16I		16				
V25G, V25S, V25I		25				
V40S, V40I, WV40I		40				
V253G		23				
Valve Size						
DN15 to DN50			D.			
DN65 to DN100			J.			
DN125 to DN200			M.			
Actuator Type						
EL12				12		
EL20				20		
EL45				40		
EL45.1				41		
EL45.2				42		
EL80				60		
EL80.1				61		
EL80.2				62		
EL120				70		
EL120.1				71		
EL120.2				72		
EL250				80		
EL250.1				81		
EL250.2				82		
ELR2.1				2A		
ELR2.2				2B		
ELR2.3				2C		
Actuator Voltage						
230 VAC					1	
115 VAC					2	
24 VAC					3	
24 VDC					4	
400 V3~					5	
Control Signal						
Actuator without positioner (standard)						(2)
4 - 20 mA with positioner PEL (not for DC)						3
0 - 10 V with positioner PEL (not for DC)						4
Positioner PEL (DC)						5

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

Example:

V16G valve model EQP soft plug, PTFE/GR stem sealing DN50 complete with 230V electric actuator EL20 with positioner for 4-20mA signal.

Code: EV.16G11L50.2013

REMARKS:

(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. Always order spares by using that serial number. If the valve has non-standard extras the serial number has also an E (extras).

"ADCATROL" ELECTRO-PNEUMATIC POSITIONERS
PE 986

DESCRIPTION

The ADCATROL PE986 positioner requires an input signal of 4÷20 mA for proportional control actuator. The positioner compares the output signal from a controller with the position feedback, and varies a pneumatic output signal to the actuator accordingly. The actuator position is therefore guaranteed for any controller output signal and the effects of varying differential pressure.

MAIN FEATURES

Independent adjustment of stroke range and zero

- Adjustable amplification and damping
- Split range up to 3-fold possible
- Input signal 4 to 20 mA; 2 to 10 V on request
- Supply pressure up to 6 bar (90 psig)
- Low vibration effect in all directions
- Mounting according to IEC 534, part 6 (NAMUR)
- Rotation adapter for angles up to 120°
- EMC in accordance with the international standards and laws
- Modular system of additional equipment

- Limit switches
- Position transmitter
- Booster
- Connection manifold

OPTIONS: Inductive limit switch, two wire system
Inductive limit switch, three-wire system
Limit switch assembly with Micro-switch
Connection manifold with gauges
Electrical position transmitter 4-20mA
Explosion protection:
II 2 G EEx ia IIC T6 according to ATEX or intrinsic safe according to FM and CSA
II 2G EEx d (flame proof) according to Atex (PE983)
Booster relay to minimize stroke time

AVAILABLE
MODELS: PE 986

CONNECTIONS:

Pneumatic
Female G 1/8 ISO 228

Electric
Line entry . . . . . 1 or 2 cable glands M20 x 1.5 or 1/2-14 NPT
(others with Adapter AD-...)
Cable diameter.. 6 -12 mm …...(0.24 - 0.47 in)
Screw terminals . . . . . Screw terminals for wires up to 2.5 mm2 (AWG 14)

INSTALLATION: Any position

TECHNICAL DATA

Input

Signal range . . . . . 4 ... 20 mA or 2 ... 10 V

Input resistance . . . . . < 200 Ohm at 20ºC

Stroke range . . . . . 8 ... 100 mm (0.3 ... 4 in)

Angular range

linear. . . . . 30 ° ... 120 °

equal percentage . . . . . 90 °; from 70 ° linear

Output

Output to actuator . . . . . 0 ... 100 % supply air pressure

Supply

Supply air pressure . . . . . 1.4 ... 6 bar (20 ... 90 psig)

Air supply [1] . . . . . according to ISO 8573-1

Solid particle size and density class 2.

Oil rate . . . . . class 3

For air supply, we recommend the ADCA P10 filter regulator.

Ambient conditions

Ambient temperature [2]. . . . . -40 ... 80ºC (-40 ... 176ºF)

Relative humidity . . . . . up to 100 %

Operating conditions

according to IEC 654-1. . . . . The device can be operated

at a class D2 location

Transport and

storage temperature. . . . . -50 ... 80 °C (-58 ... 176 °F)

Storage conditions

acc. to IEC 60 721-3-1 . . . . 1K5, 1B1, 1C2, 1S3, 1M2

Protection class . . . . . IP 54; IP 65 on request

CE marking

Electromagnetic compatibility 89/336/EWG

Low-voltage regulation . . . . . 73/23/EWG not applicable

Materials

Housing . . . . . Aluminium (Alloy No. 230)

finished with DD-varnish black or grey blue

All moving parts of

feedback system . . . . . WNr. 1.4305 / 1.4571

Mounting bracket . . . . . Aluminium (Alloy No. 230)

Response characteristic [3]

Amplification . . . . . adjustable

Sensitivity . . . . . < 0.1 % F.S.

Non-linearity (terminal

based adjustment) . . . . . < 1.0 % F.S.

Hysteresis . . . . . < 0.3 % F.S.

Supply air dependency. . . . . < 0.3 % / 0.1 bar (1.5 psi)

Temperature effect. . . . . < 0.5 % / 10 K

Air consumption

Air consumption single acting

Supply air 1.4 bar (20 psig) 200 l_N/h (7.1 scfh)

Supply air 3.0 bar (45 psig) 400 l_N/h (12.4 scfh)

Supply air 6.0 bar (90 psig) 600 l_N/h (21.2 scfh)

Air consumption double acting

Supply air 1.4 bar (20 psig) 350 l_N/h (10.6 scfh)

Supply air 3.0 bar (45 psig) 550 l_N/h (17.7 scfh)

Supply air 6.0 bar (90 psig) 750 l_N/h (33.5 scfh)

Air output

Load effect [4] . . . . . -3 % for delivery flow

2350 l_N/h (83 scfh)

. . . . . .+3 % for exhausted flow

1900 l_N/h (67 scfh)

Electromagnetic compatibility EMC

Operating conditions . . . . . industrial environment

Immunity according to

- EN 61326, EN 61000-6-2 . . fulfilled

Emission according to

- EN 61326, Class A,

- EN 61000-6-3 . . . . . fulfilled

NAMUR recommendation. . fulfilled

1) Pressure dew point 10K under ambient temperature
2) Note the section “Explosion Protection” on pages 5 and 6
3) Data based on the following parameters: stroke 30 mm, feedback lever 117,5 mm, max. amplification, supply air pressure 3 bar.
4) Measured at air supply 1.4 bar and 50 % of the signal range

Weight

single acting. . . . . approx. 1.5 kg (3.3 lbs)

double acting . . . . . approx. 1.8 kg (3.9 lbs)

Attachment kit

for diaphragm actuators. . . approx. 0.3 kg (0.6 lbs)

for rotary actuators . . . . . approx. 0.5 kg (1.1 lbs)

Capacity at maximum deviation				
Supply air pressure bar	***1,4***	***2***	***4***	***6***
Without booster ln/h	2700	3500	5500	7500
With booster LEXG-FN/GN ln/h	18000	24000	40000	55000
With booster LEXG-HN ln/h	38000	48000	80000	110000

ADDITIONAL EQUIPMENT

Inductive Limit Switch, two-wire system

Input . . . . . Stroke / angle from actuator via positioner feedback lever

Output . . . . . 2 inductive proximity sensors acc. to DIN 19 234 resp. NAMUR for connection to a switching amplifier with an intrinsically safe control circuit 1) 2) 3)

Current consumption
Vane clear. . . . . > 3 mA
Vane interposed . . . . . < 1 mA
for control circuit with the following electrical values

Supply voltage . . . . . DC 8 V, R_i approx. 1 kOhm
Residual ripple . . . . . < 5 %
Permissible line resistance . . . . . < 100 Ohm

Response characteristic 6)
Gain . . . . . continuously adjustable from 1:1 to approx. 7:1
Switching differential . . . . . < 1 %
Switching point repeatability. . . . . < 0.2 %
EMC . . . . . acc. to EN 60 947-5-2

Limit Switch Assembly with Micro-switches

Input . . . . . Stroke / angle from actuator via positioner feedback lever

Output . . . . . 2 micro switches 2) 5)

Connected load, alternating current
Switching capacity. . . . . max. 250 VA
Switching voltage . . . . . max. 250 V
Switching current with ohmic resistance . . . . . max. 5 A
inductive resistance . . . . max. 2 A
Bulb, metal filament . . . . max. 0.5 A

Inductive Limit Switch, three-wire system

Input . . . . . Stroke / angle from actuator via positioner feedback lever

Output . . . . . 2 inductive proximity sensors, three-wire system, LED indication, contact, pnp 2) 4)

Supply voltage U_S . . . . . DC 10 ... 30 V
Residual ripple . . . . . ± 10 %, U_S = 30 V
Switching frequency . . . . . 2 kHz
Constant current . . . . . 100 mA

Response characteristic 6)
Gain . . . . . continuously adjustable from 1:1 to approx. 7:1
Switching differential . . . . . < 1 %
Switching point repeatability. . . . . < 0.2 %

Connection Manifold with Gauges
Indicating range . . . . . 0 ... 10 bar (0 ... 150 psig)
Error limit . . . . . class 1.6
Pneumatic connections. . . . . Female threads Q1/4-18 NPT acc. to DIN 45 141

1)For the standard version one switching amplifier is required. For the security version fail-safe amplifier for each inductive proximity sensor is required.

2)Operating mode min. (=low) / max. (=high) selectable by adjustment of switch vanes

3)Operating mode normally closed circuit / normally open circuit selectable at switch amplifier output

4)Contact closed within the positive range

5)Contact open within the positive range

6)For feedback lever effective length 117.5 mm (4.63 in), stroke 30 mm (1.28 in) and maximum gain

Connected load, direct current		
Switching voltage, max.	***Ohmic load***	***Inductive load***
V	A	A
30	5	3
50	1	1
75	0,75	0,75
125	0,5	0,03
250	0,25	0,03

Response characteristic 6)
Gain . . . . . continuously adjustable from 1:1 to approx. 7:1
Switching differential . . . . . < 2.5 %
Switching point repeatability. . . . . < 0.2 %

Electrical Position Transmitter

Sensor. . . . . resistive precision conductive plastic element

Input . . . . . Stroke / angle from actuator via positioner feedback lever
Stroke range . . . . . 8 ... 100 mm (0.3 ... 4 in)
Angular range . . . . . 60 ... 120ºC

Output . . . . . two-wire system
Signal range . . . . . 4 ... 20 mA
Permitted load. . . . . $R_{B\max} = \frac{U_S - 12V}{0.02A}$
(U_S = Supply voltage)

Power supply
Supply voltage . . . . . DC 12 ... 36 V
Permitted ripple . . . . . < 10 % p.p.
Supply voltage dependency . . . . . < 0.2 %

Response characteristic 1)
Non-linearity with terminal based setting . . . . < 1.0 % F.S.
Hysteresis. . . . . < 0.5 % F.S.

External resistance dependency . . . . . < 0.2 % /□Δ $R_B$max
Temperature effect . . . . . < 0.3 % / 10 K

Common data 2)

Ambient conditions
Ambient temperature 3) 4) . . -25 ... 80ºC (-13 ... 176ºF)
-40 ... 80ºC (-40 ... 176ºF)
Relative humidity. . . . . up to 100 %

Operating conditons
according to IEC 654-1 . . . The device can be operated at a class D2 location
Transport and storage temperature . . . . . -40 ... 80 °C (-40 ... 176 °F)

Protection class. . . . . IP 54, IP65

Mounting . . . . . attachment to positioner

Electrical connections
Line entry . . . . . 1 or 2 cable glands M20 x 1.5 or 1/2-14 NPT (others with Adapter AD-...)
Cable diameter. . . . . 6 -12 mm (0.24 - 0.47 in)
Screw terminals . . . . . Screw terminals for wires up to 2.5 mm^2 (AWG 14)

Optionally . . . . . Screwed gland made of stainless steel WNr. 1.4305

Materials
Base plate. . . . . galvanized steel
Control vane . . . . . Aluminium

Setting mechanism . . . . . Fibre-glass reinforced polyamide

1)For feedback lever with effective length 117.5 mm (4.63 in) and stroke 30 mm (1.28 in)

2)Except manifold with gauges

3)Note the section "Explosion protection" at page 5 with respect to explosion-protected equipment.

4)-40 ... 80ºC (-40 ... 176ºF) for the fail-safe version of inductive limit switch

SAFETY REQUIREMENTS

Acc. to EN 61 010-1 (resp. IEC 1010-1) . . . . . safety class III, pollution degree 2, over voltage category I

Limit Switch Code V
(additional equipment) . . . . . safety class II, pollution degree 2, over voltage category II

Explosion protection type EEx ia/ib
Basic device Type . . . . . AI 633

Type of protection . . . . . II 2 G EEx ib/ia IIB/IIC T4/T6
Certificate of conformity . . . PTB 02 ATEX 2153
For operation in certified intrinsically safe circuits with the following maximum values of input circuit:
U_i . . . . . 30 V
I_i. . . . . 150 mA
P_i. . . . . refer to following table:

Pi [W]	*T6 [°C]*	*T6 [°C]*
2	40	90
1,5	50	90
1	57,5	90

Internal inductance . . . . . negligible
Internal capacitance . . . . . negligible

The control circuit is galvanically separate from earth and all other electric circuits

Explosion protection Zone 2

It is recommended that the instrument version for protection type EEx ia is used.
In the Federal Republic of Germany these instruments may be operated in Zone 2 with non-intrinsically safe circuits if the operating values do not exceed the maximum reference values.

Explosion protection according to FM and CSA

Electro-pneumatic positioner type BIM 633
Intrinsically safe, Class I, Division 1,
Groups A, B, C, D, hazardous locations

Limit Switch

Type of protection Intrinsic safety EEx ib/ia IIB/IIC with the following maximum values:

U_i . . . . . 16 V
I_i. . . . . 25 mA
P_i. . . . . 64 mW
Internal inductance . . . . . 100∞H
Internal capacitance . . . . . 30 nF

The signal circuits are galvanically separate from earth, from each other and from all other electric circuits.

Position Transmitter

Type of protection Intrinsic safety EEx ib/ia IIB/IIC with the following maximum values:

for temperature class T4 and a maximally permissible outside ambient temperature of 80 °C:

U_i . . . . . 30 V
I_i. . . . . 130 mA
P_i. . . . . 0.9 W

for temperature class T4 and a maximally permissible outside ambient temperature of 60 °C:
U_i . . . . . 22 V
I_i. . . . . 66 mA
P_i. . . . . 0.5 W

The effective internal inductance L_i left amounts to 9 µH, the effective capacity C_i against earth amounts to 10 nF and/or differential 6 nF.

The supply- and signal circuits are galvanically separate from earth and from all other electric circuits.

PI991 Intelligent Positioner with HART, PROFIBUS PA, FOUNDATION Fieldbus H1 or FoxCom for EEx ia Intrinsically Safe Applications

DESCRIPTION

The microprocessor controlled positioner PI991 is designed to control pneumatic valve actuators and can be operated locally or by means of control systems. The advanced diagnostic can be partially shown on the local LCD of the positioner or fully on a PC or a DCS workstation with a DTM based software (VALcare or Valve Monitor). The positioner is available with different communication protocols. This includes versions with analog setpoint (4 to 20 mA) and superimposed HART- or FoxCom signal; digital with FoxCom protocol, or fieldbus communication according to PROFIBUS-PA and FOUNDATION fieldbus H1 according to IEC 1158-2 based on FISCO. The PI991 also has the capability to control a Partial Stroke Test (PST) that offers to operators a tool to identify the trouble-proof function of ESD (Emergency Shut Down) valves.

Version “Intelligent”

- Autostart with self calibration
- Self diagnostic, status and diagnostic messages

Version “Intelligent with Communication”

- Communication HART, FOUNDATION Fieldbus H1, PROFIBUS-PA or FoxCom
- Configuration by means of local keys, Hand Held Terminal, PC or I/A Series system or with an infrared interface by means of IRCOM

Version “Intelligent without Communication”

- Input signal 4-20 mA

For all Versions

- Stroke range 8 to 260 mm (0.3 to 10.2 in)
- Angle range up to 95°
- Supply air pressure up to 6 bar (90 psig), with “Spool Valve” up to 7 bar (105 psig)
- Single or double acting
- Mounting on linear actuators according to NAMUR:
  - IEC 534 Part 6
  - VDI/VDE 3847
- Direct mounting on actuators FlowPak and FlowTop
- Mounting on rotary actuators acc. to VDI/VDE 3845
- Protection class IP 65, NEMA 4X
- Explosion protection:
  - II 2 G EEx i / II 2 G EEx n (intrinsic safety) according to ATEX
  - Intrinsic safety according to FM and CSA
- Ambient temperature –40 to 80°C (–40 to 176°F)
- Display and Local User Interface:
  - Multilingual Full-Text Graphic LCD or LEDs
  - Status- and Diagnostic-Messages displayed on LCD
  - Easy configuration by means of 3 pushbuttons

- Mechanical travel indicator
- Suitable for safety applications up to SIL 3
- Partial Stroke Test (PST) for Emergency Shut Down applications
- Infrared Interface for wireless communication
- Stainless Steel housing for Offshore or Food and Beverage applications
- Additional Inputs/outputs (optional):
    - 2 binary outputs (limits)
    - Position feedback 4 to 20 mA, 1 Alarm output
    - 2 binary inputs
    - Built-in independent inductive limit switches (2- 3-wire) or micro switches
    - Sensors for supply air pressure and output pressure
    - Binary Inputs/Outputs dedicated to SIS logic solvers
- Accessories
  • Booster relay to minimize stroke time
  • Gauge Manifold

Input

All “intelligent” versions are with micro controller

With HART communication

Two-wire system
Reverse polarity protection . . built-in standard feature
Signal range . . . . . 4 to 20 mA
Operating range . . . . . 3.6 to 21 mA
Voltage . . . . . DC 12 to 36 V (unloaded circuit)
Max. load. . . . . 420 Ohms (8.4 V at 20 mA)
Communication signal . . . . . HART, 1200 Baud, FSK modulated on 4 to 20 mA

With Fieldbus communication (acc. to FISCO)

Input signal . . . . . digital fieldbus
Supply voltage . . . . . DC 9 to 32 V
Operating current . . . . . 10.5 mA ±0.5 mA (base current)
Current amplitude. . . . . ±8 mA
Fault current . . . . . base current +0 mA
(+4 mA by means of independent FDE-safety circuit)

PROFIBUS-PA

Data transfer . . . . . acc. to PROFIBUS- PA
profileclass B based on EN
50170 and DIN 19245 part 4

FOUNDATION Fieldbus H1

Data transfer . . . . . FF Specification Rev. 1.4, Link-Master (LAS)
Function blocks . . . . . AO, PID, Transducer, Resource, 2xDI, DO

With FoxCom communication

Operating mode digital
Input signal . . . . . digital
Supply voltage . . . . . DC 13 to 36 V
Supply current . . . . . ~ 9 mA at 24 V
Communication signal . . . . . FoxCom digital, 4800 Baud, FSK modulated on supply Voltage

Without communication 4 to 20 mA

Two-wire system
Reverse polarity protection . . built-in standard feature
Signal range . . . . . 4 to 20 mA
Operating range . . . . . 3.8 to 21.5 mA
Voltage . . . . . DC 8 to 36 V (unloaded circuit)
Max. load . . . . . 300 Ohms (6 V at 20 mA)

Common data for all versions

Supply

Supply air pressure . . . . . 1.4 to 6 bar (29 to 90 psig)
with spool valve . . . . . 1.4 to 7 bar (20 to 105 psig)
Supply air quality . . . . . according to ISO 8573-1
Max. particle size and density . . Class 2
Max. oil contents. . . . . Class 3

Response characteristics

Min. Sensitivity. . . . . <0.1% of travel span
Non-linearity
terminal based adjustment. <0.4% of travel span
Hysteresis . . . . . <0.3% of travel span
Supply air dependence. . . . . <0.1%/1 bar (15 psi)
Temperature effect . . . . . <0.3%/10 K
Mechanical effect
10 to 60 Hz up to 0.14 mm,
60 to 500 Hz up to 2 g . . . <0.25 of travel span

Pneumatic connection

NAMUR mounting . . . . . 3x female threads 1⁄4-18 NPT or G1⁄4 for pipe diameter 6 to 12 mm (0.24 to 0.47 in)
Direct mounting . . . . . Instead of output y1 an air connection on the backside with O-ring is used (closed at NAMUR mounting).

Electrical connection

Line entry . . . . . 1 or 2 cable glands M20 x1.5
or 1⁄2-14 NPT (with Adapter) (for additional Adapter see AD-...)
Cable diameter . . . . . 6 to 12 mm (0.24 to 0.47 in)
Screw terminals . . . . . 2 terminals for input,
4 terminals for additional inputs/outputs
Wire cross section 0.3 to 2.5 mm2 (AWG 22-14)
Test Sockets . . . . . for connection of communicator

Technical Data for Stainless Steel Housing

Material Stainless Steel . . . . 1.4404/316, 1.25 mm
Protection Class . . . . . IP 66 acc. to EN 60529
Impact Resistance . . . . . 7 Joule acc. to EN 50014
Seals. . . . . VMQ (Silicone)
Weight (Complete Positioner) . . . . . 3.5 kg
Pneumatic Connection . . . . . 1/4–18 NPT on manifold, prepared for gauges (option)
Electrical Connection . . . . . M20 x 1.5 (others with Adapter AD...)

"ADCATROL" PNEUMATIC POSITIONERS
PP 981

DESCRIPTION

The ADCATROL PP 981 positioner requires an input signal of 0,2÷1bar (3÷15psi) for proportional control actuator. The positioner compares the output signal from a controller with the position feedback, and varies a pneumatic output signal to the actuator accordingly. The actuator position is therefore guaranteed for any controller output signal and the effects of varying differential pressure.

MAIN FEATURES

- Independent adjustment of stroke range and zero
- Adjustable amplification and damping
- Split range up to 4-fold possible
- Supply pressure up to 6 bar (90 psig)
- Low vibration effect in all directions
- Mounting according to IEC 534, part 6 (NAMUR)
- Rotation adapter for angles up to 120 °
- Ambient temperature -40 ... 80 °C (-40 ... 176 °F)
- Travel 8 to 100 mm (0.3 to 4 in)
- Angular range 30 ° to 120 °
- Modular system of additional equipment

- Electrical limit switches
- Electrical position transmitter
- Booster
- Connection manifold

- Protection class IP54 (IP 65 on request)
- Certificate No. 90/20226(E2) Lloyd's Register of Shipping for use on vessels
- Base device: II 2 G c IIB/IIC T4/T6 according to Atex
- When with electrical options:

II 2 G EEx ib/ia IIB/IIC T4/T6 according to Atex

OPTIONS: Inductive limit switch, two wire system
Inductive Limit Switch, three-wire system
Limit switch assembly with Micro-switch
Connection manifold with gauges
Electrical position transmitter 4-20 mA

AVAILABLE
MODELS: PP 981

PNEUMATIC CONNECTIONS: Female G 1/8 ISO 228

INSTALLATION: Any position

TECHNICAL DATA

Input
Signal range . . . . . 0.2 ... 1 bar (3 ... 15 psig)
or split range down to Δw 0.2 bar (3 psi)
Stroke range . . . . . 8 ... 100 mm (0.3 ... 4 in)
Angular range
linear . . . . . .30 ° ... 120 °
equal percentage . . . . . 90 °; from 70 ° linear

Output
Output to actuator . . . . . 0 ... 100 % supply air pressure

Supply
Supply air pressure . . . . . 1.4 ... 6 bar (20 ... 90 psig)
Supply air. . . . . free of oil, dust, water according to IEC 654-2

Ambient conditions
Ambient temperature . . . . . -40 ... 80 °C (-40 ... 176 °F)
Relative humidity . . . . . up to 100 %
Operating conditions
as per IEC 654-1 . . . . . The device can be operated at a class D2 location
Transport and storage
temperature . . . . . -50 ... 80 °C (-58 ... 176 °F)
Protection class . . . . . IP 54 (IP 65 on request)

Materials
Base plate . . . . . Aluminium (Alloy No. 230) finished with DD-varnish grey blue
Cover. . . . . . impact resistant polyester black or grey blue
All moving parts of feedback system . . . . . 1.4305 / 1.4571
Mounting bracket 1.4301

Weight
single acting
without gauges. . . . . approx. 0.7 kg (1.5 lbs)
with gauges . . . . . approx. 0.8 kg (1.8 lbs)
double acting . . . . . approx. 0.9 kg (2.0 lbs)
attachment kit
for diaphragm actuators . . . . approx. 0.3 kg (0.6 lbs)
for rotary actuators . . . . . approx. 0.5 kg (1.1 lbs)

Data measured according to VDI/VDE 2177
1) Data based on following parameters:
stroke 30 mm, feedback lever, effective length 117.5, max. amplification, supply air pressure 3 bar
2) measured at air supply 1.4 bar and 50 % of signal range

Response characteristic[1)]
Amplification . . . . . adjustable
Sensitivity . . . . . < 0.1 % F.S.
Non-linearity (terminal based adjustment) . . . . < 1.0 % F.S.
Hysteresis . . . . . < 0.3 % F.S.
Supply air dependency. . . . . < 0.2 % / 0.1 bar (1.5 psi)
Temperature effect. . . . . < 0.3 % / 10 K

Air consumption
supply air pressure
air consumption
single acting
1.4 bar (20 psig). . . . . 200 l_n/h (7.1 scfh)
3.0 bar (45 psig). . . . . 400 l_n/h (12.4 scfh)
6.0 bar (90 psig). . . . . 600 l_n/h (21.2 scfh)
double acting
1.4 bar (20 psig). . . . . 350 l_n/h (10.6 scfh)
3.0 bar (45 psig). . . . . 550 l_n/h (17.7 scfh)
6.0 bar (90 psig). . . . . 750 l_n/h (33.5 scfh)

Air output
Load effect [2)] . . . . . -3 % for delivery flow 2 350 l_n/h (83 scfh)
. . . . . +3 % for exhausted flow 1 900 l_n/h (67 scfh)

Capacity at maximum deviation

Supply air pressure bar	*1,4*	*2*	*4*	*6*
Without booster ln/h	2700	3500	5500	7500
With booster LEXG-FN/GN ln/h	18000	24000	40000	55000
With booster LEXG-HN ln/h	36000	48000	80000	110000

Gauges
Indicating range
Input. . . . . 0 ... 1.6 bar (0 ... 23 psig)
Output . . . . . 0 ... 10 bar (0 ... 150 psig)
Error limit . . . . . class 1.6

ADDITIONAL EQUIPMENT

Inductive Limit Switch, two-wire system

Input . . . . . Stroke / angle from actuator via positioner feedback lever

Output . . . . . 2 inductive proximity sensors acc. to DIN 19 234 resp. NAMUR for connection to a switching amplifier with an intrinsically safe control circuit 1) 2) 3)

Current consumption
Vane clear. . . . . > 3 mA
Vane interposed . . . . . < 1 mA
for control circuit with the following electrical values

Supply voltage . . . . . DC 8 V, R_i approx. 1 kOhms
Residual ripple . . . . . < 5 %
Permissible line resistance . . . . . < 100 Ohms

Response characteristic 6)
Gain . . . . . continuously adjustable from 1:1 to approx. 7:1
Switching differential . . . . . < 1 %
Switching point repeatability. . . . . < 0.2 %

Explosion protection 7) 8)
Type of protection . . . . . II 2 G EEx ib/ia IIB/IIC T4/T6
Certificate of conformity . . . . PTB 02 ATEX 2153
For operation in certified intrinsically safe circuits with the following maximum values:
U_{max} . . . . . 16 V
I_{max}. . . . . 25 mA
P_{max}.. . . . . 64 mW
Internal inductance . . . . . 100∝H
Internal capacitance . . . . . 30 nF
Ambient temperature
Temperature class T6 . . . -40 ... 65 °C (-4 ... 149 °F)
T1 to T5 . . . -40 ... 80 °C (-4 ... 176 °F)

1) For the standard version, one switching amplifier is required
For the security version a fail-safe switching amplifier for each inductive proximity sensor is required
2) Operating mode min. (= low) / max. (= high) selectable by adjustment of switch vanes
3) Operating mode normally closed circuit / normally open circuit selectable at switch amplifier output
4) Contact closed within the positive range
5) Contact open within the positive range
6) For feedback lever effective length of 117.5 mm, stroke 30 mm and maximum gain
7) National installation regulations must be observed
8) For retrofitting the product must be tested by a qualified inspector as a special version in accordance with ElexV.

Inductive Limit Switch, three-wire system

Input . . . . . Stroke / angle from actuator via positioner feedback lever

Output . . . . . 2 inductive proximity sensors, three-wire system, LED indication, contact, pnp 2) 4)

Supply voltage U_S . . . . . DC 10 ... 30 V
Residual ripple . . . . . ± 10 %, U_S = 30 V
Switching frequency . . . . . 2 kHz
Constant current . . . . . 100 mA

Response characteristic 6)
Gain . . . . . continuously adjustable from 1:1 to approx. 7:1
Switching differential . . . . . < 1 %
Switching point repeatability. . . . . < 0.2 %

Limit Switch Assembly with Micro-switches

Input . . . . . Stroke / angle from actuator via positioner feedback lever

Output . . . . . 2 micro switches 2) 5)

Connected load, alternating current
Switching capacity. . . . . max. 250 VA
Switching voltage . . . . . max. 250 V
Switching current with ohmic resistance . . . . . max. 5 A
inductive resistance . . . . max. 2 A
Bulb, metal filament . . . . max. 0.5 A

Connected load, direct current

Switching voltage, max.	*Ohmic load*	*Inductive load*
V	A	A
30	5	3
50	1	1

Response characteristic 6)
Gain . . . . . continuously adjustable from 1:1 to approx. 7:1
Switching differential . . . . . < 2.5 %
Switching point repeatability. . . . . < 0.2 %

Electrical Position Transmitter

Input . . . . . Stroke / angle from actuator via positioner feedback lever
Sensor. . . . . resistive precision conductive plastic element
Stroke range . . . . . 15 ... 80 mm (0.6 ...3.15 in)
. . . . . < 15 mm (0.6 in) on request
Angular range . . . . . 60 ... 120 °
Output . . . . . Two-wire system
Signal range . . . . . 4 ... 20 mA
Permitted load. . . . . $R_{B\max} = \frac{U_S - 12V}{0.02A}$
(U_S = Supply voltage

Power supply
Supply voltage . . . . . DC 12 ... 36 V
Permitted ripple . . . . . < 10 % p.p.
Supply voltage dependency < 0.2 %

Response characteristic[1)]
Non-linearity with terminal based setting. . . . < 1.0 % F.S.
Hysteresis . . . . . < 0.5 % F.S.
External resistance dependency . . . . . < 0.2 %/Δ R_B max
Temperature effect . . . . . < 0.3 % / 10 K

Explosion protection [2) 3)]
Type of protection . . . . . II 2 G EEx ib/ia IIB/IIC T4/T6
Certificate of conformity . . . . PTB 02 ATEX 2153
For operation in certified intrinsically safe circuits with the following maximum values:
U_{max} . . . . . T4: 30 V; T6: 22 V
I_{max} . . . . . T4: 130 mA ; T6: 66 mA
P_{max} . . . . . T4: 0,9 W ; T6: 0,5 W
Internal inductance . . . . . 9 µH
Internal capacitance . . . . . to earth 10 nF or 6 nF differential

Ambient temperature
Temperature class T6 . . . -40 ... 40 °C (-40 ... 104 °F)
T5 . . . . -40 ... 55 °C (-40 ... 131 °F)
T4 . . . . -40 ... 80 °C (-40 ... 176 °F)

1) For feedback lever effective length of 117.5 mm (4.63 in) and stroke 30 mm (1.28 in)
2) National installation regulations must be observed
3) For retrofitting, the product must be tested by a qualified inspector as a special version in accordance with ElexV
4) Except manifold with gauges
5) Without explosion protection
6) -40 ... 80 °C (-40 ... 176 °F) for the fail-safe version of inductive limit switch

Common Data [4)]

Ambient conditions
Ambient temperature [5) 6)]. . -25 ... 80 °C (-13 ... 176 °F)
-40 ... 80 °C (-40 ... 176 °F)
Relative humidity . . . . . up to 100 %
Operating conditions as per IEC 654-1 . . . . . The device can be operated at a class D2 location

Transport and storage
Temperature. . . . . -40. 80 °C (-40…..176 ºF)
Protection class . . . . . IP 54 (IP 65 on request)

Electrical connection
Line entry . . . . . 1 or 2 cable glands M20x1.5 (others with Adapter AD-...)
Cable diameter. . . . . 6 to 12 mm (0.24 to 0.47 in)
Screw terminals . . . . . Screw terminals for wires up to 2.5 mm2 (AWG 14)

Materials
Base plate . . . . . Galvanized steel
Control vane. . . . . Aluminium
Setting mechanism . . . . . Fibre glass-reinforced polyamide

Electromagnetic compatibility EMC
Operating conditions. . . . . industrial environment
Immunity according to
- NAMUR recommendation NE21 fulfilled
- EN 61 326 . . . . . fulfilled
- EN 61 000-6-2 . . . . . fulfilled
Emission according to
- EN 55 011,
Group 1, Class A . . . . . fulfilled
- EN 61 000-6-2 . . . . . fulfilled

CE marking
Electromagnetic compatibility 89/336/EWG
Low voltage regulations . . w/o Ex: 73/23/EWG fulfilled (with Ex: not applicable)

Safety
as per DIN EN 61010-1 (DIN IEC 61010-1)
(VDE 0411 part 1). . . . . safety class III
over voltage category 1
internal fuses . . . . . none
external fuses. . . . . Limitation of power supplies for fire protection has to be observed due to EN 61010-1 9.3. ff

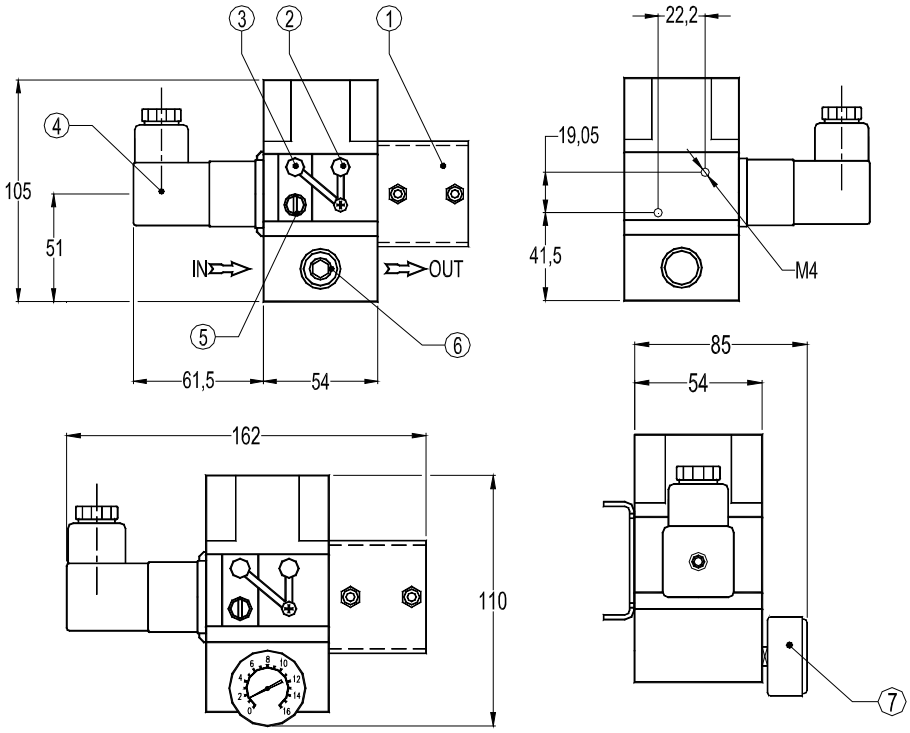
ADCATROL FIELD I TO P CONVERTER
PC 25

DESCRIPTION
Instrument for conversion of a standard d.c. current signal into a standard pneumatic signal, for the change-over from electrical controllers to pneumatic control valves, or from electrical measuring system to pneumatic controllers.
The PC25 is a force balance device, which converts the input signal 4...20 mA, a proportional output signal 3..15 psi (0,2...1 bar) or 6...18 psi (0,4...1,2 bar) , with a respective supply pressure of 1,7 - 5bar .

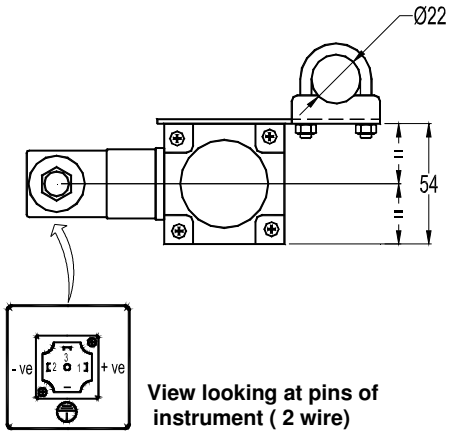
MAIN FEATURES
Particularly compact design
Good dynamic response
Insensitive to mechanic vibrations
Low maintenance and low consumption
High reliability
Adjustable output measuring span

TECHNICAL DATA		
Pneumatic	Output pressure	Ranges 0,2 - 1bar ; 0,4 - 1,2 bar
	Air supply	Oil free, dry air, filtered to 5 microns, 1,7 to 5 bar.
	Flow capacity	Up to 300nl/min forward flow, 150 nl/min relief
	Air consumption	1,4 l/min typical
	Linearity	Maximum 0,5% of span
	Hysteresis	Maximum 0,35% of span
	Response time	Typically less than 0,5 seconds (dependent on input for 10-90% step change in outlet pressures) into a 10cc load.
	Temperature sensitivity	< 0,1% span/ºC for span and zero over operating range
	Supply sensitivity	Better than 0,075% span output change per % supply pressure change
	Port sizes	1/4" NPT
Physical	Operating temperature	-40C to 85ºC
	I.P. Rating	IP65 in normal operation
	Electromagnetic compatibility	This is a passive electro-pneumatic instrument and is unaffected by interfering high frequency signals
	Material of construction	Zinc diecasting passivated and epoxy paint, nitrile diaphragms, Be2Cu flapper nozzle and supply valve
	Weight	825 g
	Mounting position	Integral surface mounting bracket provided for preferred vertical mounting.
	Vibration effect	<5% of span: 4mm 5-15Hz & 2g sine 15-150Hz, vertical, horizontal and inverted, in accordance with ISA-S75.13-1996
Electrical	Input signal	4-20mA
	Failure model	Output pressure falls to bleed pressure when electrical supply fails
	Connections	30mm square connector DN 43650
	Span/zero	Adjustable 20% output range
	Input impedance	11kohms for a 0-10V

MOUNTING DIMENSIONS



Assembling with pressure gauge (on request).



View looking at pins of instrument (2 wire)

POS.	DESIGNATION
1	Mounting bracket
2	Range adj.screw
3	Zero adj.screw
4	Electrical connector *
5	Removable orifice
6	Gauge connection
7	Pressure gauge (Optional)
8	ADCA P10 regulator

* Plug orients 4 ways

Calibration

When the instrument is first installed or after a long period of downtime, a moderate zero shift is normal. This is due to the rubber diaphragms which are stretched by the internal springs. After a few operations, the instrument will settle into its normal operating condition. It is recommended that, under these circumstances, instruments should be exercised by alternately applying zero and full scale signals several times. Zero calibration should then be carried out.

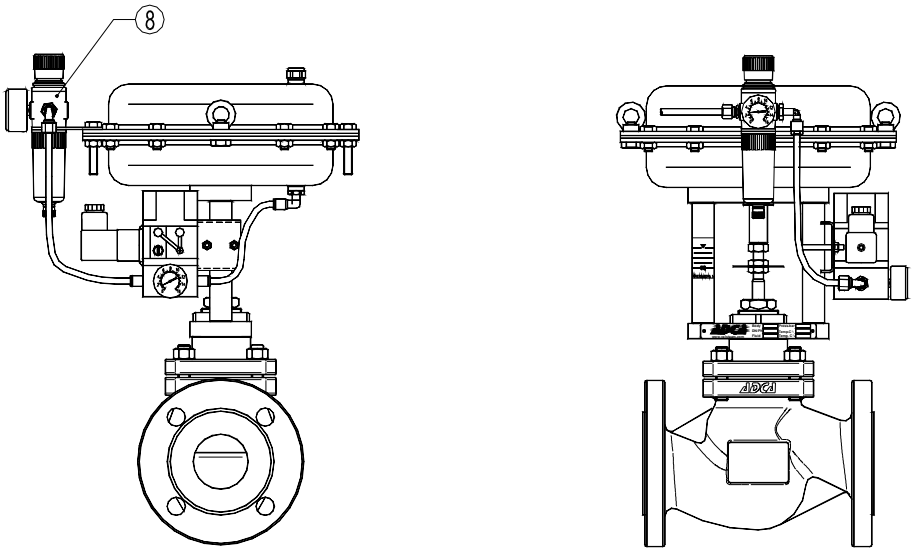
Adjust zero control Nr.2 (anti-clockwise) to give minimum required output pressure.

Adjust range control Nr.3 (anti-clockwise) to give maximum required output pressure.

Note : Reverse acting operation

About 20 turns of the zero screw may be required to reset the zero point.

TYPICAL INSTALLATION



"ADCATROL" PNEUMATIC CONTROL VALVES
PV25 – ON-OFF
(V25 globe valves series with linear actuators PA series)

DESCRIPTION

The PV25 On-Off valves are single seated, two-way body constructed with in-line straight connections. 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).
Their wide application ranges allows to use this valve with the most common process fluids such as water, superheated water, steam, air, gas and other non corrosive fluids.

MAIN FEATURES

Single seated, two way, direct or reverse action valve.
Valve top flange permanently attached to the body, removal is unnecessary for replacing the actuator.
Soft sealing as standard.

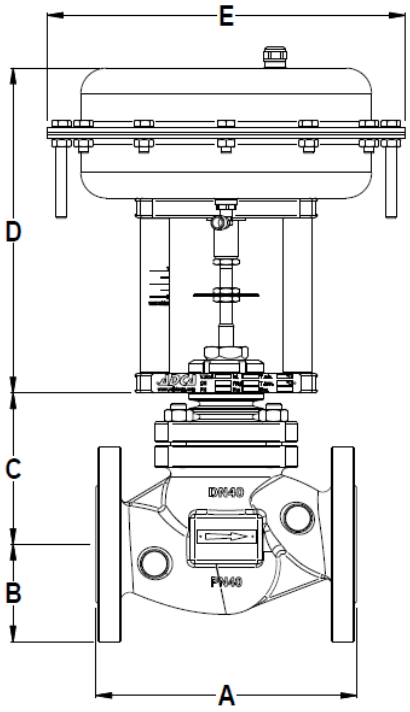
OPTIONS:	Air filter regulator Top-work manual handwheel Stainless steel construction.
USE:	Saturated and superheated steam. Hot and superheated water. Air, gases and other noncorrosive fluids.
AVAILABLE MODELS:	PV25G-OF - SG iron PV25I-OF - Stainless steel
VALVE SIZES:	DN15 to DN100
CONNECTIONS:	Flanged EN1092-1/-2 PN16
ACTUATORS:	PA-205; PA-280; PA-340; PA-435
ACTUATOR CONNECTION:	1/4" NPT-F

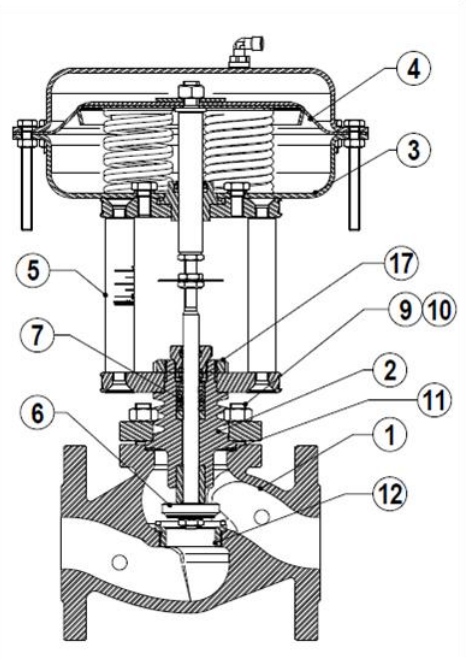
VALVE BODY LIMITING CONDITIONS			
PV25G-OF		PV25I-OF	
Press.	Temp.	Press.	Temp.
16 bar	-10 / 120ºC	16 bar	-10 / 100ºC
15,5 bar	150ºC	14,5 bar	150ºC
14,7 bar	200ºC	13,4 bar	200ºC
13,9 bar	250ºC	12,7 bar	250ºC
12,8 bar	300ºC	11,8 bar	300ºC

MAX. AIR SUPPLY PRESSURE:	3,5 bar
AMBIENT TEMPERATURE:	-20ºC ...+70ºC
BONNET :	From -5ºC to +220ºC (standard) Finned for temperature >220ºC (from DN32 to DN100)
STEM SEALING:	PTFE/GR V-Rings - up to 220ºC (Standard bonnet)
PLUG DESIGN:	PT - On-off
PORT:	Full port

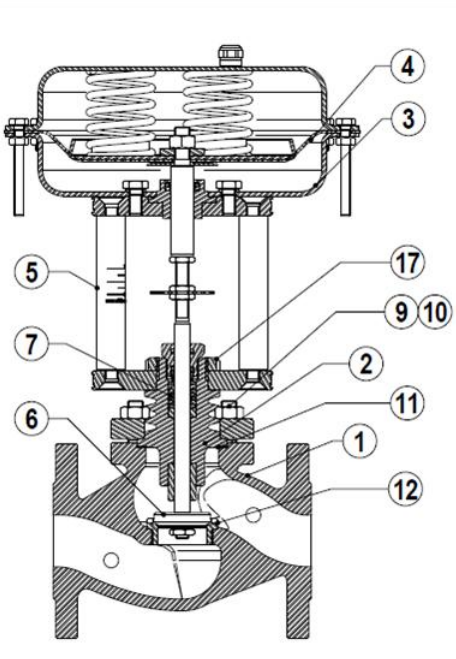
HOW TO SELECT:
Never size the valve according to the pipe diameter in which it has to be fitted but according to the required actual flow of steam or water.Refer to valve calculation data sheet or consult the factory.

CE MARKING (PED - European Directive 97/23/EC)	
PN 16	Category
DN15 to DN50	SEP - art. 3, paragraph3
DN65 to DN100	1 (CE Marked)





PV25 DA – Direct action



PV25 RA – Reverse action

DIMENSIONS - VALVE BODY

DN	A (mm)	B (mm)	C (mm) BONNET	
			STD.	EXT.
15	130	48	85	150
20	150	53	85	150
25	160	58	85	150
32	180	70	107	167
40	200	75	115	175
50	230	83	125	185
65	290	93	175	278
80	310	100	175	278
100	350	110	185	288

DIMENSIONS - ACTUATOR

Type	ø E (mm)	D (mm) DN15-100 DA/RA	WEIGHT Kgs
PA-205	210	235	5,7
PA-280	275	240	8,8
PA-340	335	265	14,3
PA-435	430	295	24,5

MATERIALS

POS.	DESIGNATION	MATERIAL PV25G-OF	MATERIAL PV25I-OF
1	Valve Body	GJS-400-15 / 0.7040	CF8M / 1.4408
2	Bonnet	CF8 / 1.4308	CF8 / 1.4308
3	Actuator (Steel)	S235JRG2 / 1.0038	S235JRG2 / 1.0038
	Actuator (St.steel)	AISI 304 / 1.4301	AISI 304 / 1.4301
4	Diaphragm	NBR 70	NBR 70
5	Yoke (Steel)	C45E / 1.1191	C45E / 1.1191
	Yoke (St.Steel)	AISI 304 / 1.4301	AISI 304 / 1.4301
6	Valve plug (Soft)	St.Steel / PTFE/GR	St.Steel / PTFE/GR
6	Valve plug (Metal)	AISI316 / 1.4401	AISI316 / 1.4401
7	Standard packing	PTFE/GR	PTFE/GR
9	Studs	34CrNiMo6 / 1.6582	A4 - 70
10	Nuts	Steel 8.8	A4 - 70
11	Gasket	St.Steel / Graphite	St.Steel / Graphite
12	Seat	AISI316 / 1.4401	AISI316 / 1.4401
17	Lock nut	St.Steel	St.Steel

ACTUATOR STROKE IN mm

	SIZES								
	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100
Stroke	5	5	7	8	10	13	17	20	25

FLOW RATE COEFFICIENTS

	SIZES								
	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100
Kvs	3,8	5,1	9,4	15,4	22,2	40,1	63,4	89,7	136,7

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

MAX. PERMISSIBLE PRESS.DROP IN bar - Normally closed valve (fluid to open) - Reverse action actuator (air signal to open)										
ACTUATOR (Pressure)	MIN. AIR PRESSURE	SIZES								
		DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100
PA-205 (0 - 2,5 bar)	3,5 bar	12	12	9	6,5	4	—	—	—	—
PA-280A (0 - 2,5 bar)	3,5 bar	25	25	25	16	12	6,5	—	—	—
PA-280B (0 - 2,5 bar)	3,5 bar	—	—	—	—	—	—	5,7	4	2
PA-340A (0 - 2,5 bar)	3,5 bar	—	—	—	25	20	18	—	—	—
PA-340B (0 - 2,5 bar)	3,5 bar	—	—	—	—	—	—	6,2	5	3

For valve sizes DN125 and above please consult.
Special spring drops available on request.
The pressure drop values must be used within the body rating limits

MAX. PERMISSIBLE PRESS.DROP IN bar - Normally closed valve (fluid to close) - Reverse action actuator (air signal to open)										
ACTUATOR (Pressure)	MIN. AIR PRESSURE	SIZES								
		DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100
PA-205 (0 - 1 bar)	3,5 bar	25	25	25	25	25	15	—	—	—
PA-280B (0 - 1 bar)	3,5 bar	—	—	—	—	—	—	21	14	7
PA-340B (0 - 1 bar)	3,5 bar	—	—	—	—	—	—	25	19	12

Important: not recommended for water and other liquids if fluid direction is over the plug (fluid to close).
The pressure drop values are referred to closed valves.

MAX. PERMISSIBLE PRESS.DROP IN bar - Normally open valve (fluid to open) - Direct action actuator (air signal to close)										
ACTUATOR (Pressure)	MIN. AIR PRESSURE	SIZES								
		DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100
PA-205 (0 - 1 bar)	3,5 bar	25	25	25	25	17	14,5	—	—	—
PA-280A (0 - 1 bar)	3,5 bar	—	—	—	—	25	24	—	—	—
PA-280B (0 - 1 bar)	3,5 bar	—	—	—	—	—	—	13	7,5	4
PA-340B (0 - 1 bar)	3,5 bar	—	—	—	—	—	—	25	16	10

For valve sizes DN125 and above please consult.
The actuator pressure drops given with closed valve, are obtained with the following air pressures supply:
Actuator signal 0,2 to 1 bar :air supply 3,5 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 V25/OF

VALVE CODES		V	.25 G					.X.	
Actuator Type (1)									
Pneumatic Actuator	P								
Electric Actuator	E								
Group Designation									
Globe valve, two way, straight body		V							
Valve Model									
Class PN16, GJS-400-15 body, stainless steel trim			.25 G						
Class PN16, CF8M body, stainless steel trim			.25 I						
Stem Sealing									
PTFE/GR-V-Rings / Standard bonnet				1					
Virgin PTFE V-Rings / Standard bonnet				2					
Graphite / Standard bonnet				3					
Graphite / Finned bonnet				4					
Valve Plug									
PT (on-off) - Soft (PTFE/GR)					9				
PT (on-off) - Metal AISI 316 / 1.4401					10				
Pipe Connection									
Flanged EN1092-2 PN16						L			
Size									
DN15							15		
DN20							20		
…									
Actuator								(1)	
Extras (3)									E

ACTUATOR CODES (pneumatic)	P.				
Group Designation					
Multi-spring , pneumatic linear actuator	P.				
Actuator Size					
205		1			
280		3			
340 A - From DN15 to DN50		5			
340 B - From DN65 to DN100		6			
435 A - From DN15 to DN50		7			
435 B - From DN65 to DN100		8			
Actuator					
Direct Action			D		
Reverse Action			R		
Actuator Constrution					
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

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

Example:

V25G valve model PT soft plug, PTFE/GR stem sealing DN50 complete with reverse action actuator signal 0,4-1,2bar, size340A steel.

Code: PV.25G.19L50.5R18

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).

"ADCATROL" PNEUMATIC CONTROL VALVES
PPV25 – ON-OFF
(V25 globe valves series with linear piston actuators PPI series)

DESCRIPTION

The PPV25 on-off valves are single seated, two-way body constructed with in-line straight connections. The PPI pneumatic actuators are of the piston type.
Their wide application ranges allows the use of this valve with the most common process fluids such as water, superheated water, steam, air, gas and other fluids.

MAIN FEATURES

Single seated, two ways, direct or reverse action valve.
Soft sealing as standard.
Actuator housing 360º rotation (clockwise).

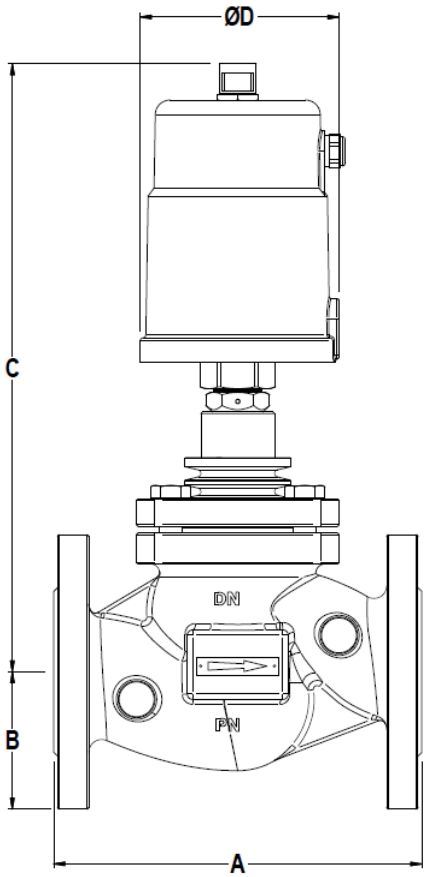
OPTIONS:	Air filter regulator Stainless steel construction. Normally open and double effect version. Limit switch Pilot solenoid valve
USE:	Saturated and superheated steam. Hot and superheated water. Air, gases and other noncorrosive fluids.
AVAILABLE MODELS:	PPV25G - Nodular iron PPV25I - Stainless steel
VALVE SIZES:	DN15 to DN50
CONNECTIONS:	Flanged EN1092-2 PN16 (PPV25G) Flanged EN1092-1 PN16 (PPV25I)
ACTUATORS:	PPI-63 , PPI-90 (Stainless steel)
AIR SUPPLY:	5 - 8 bar
ACTUATOR CONNECTIONS:	PPI-63 G1/8" NPT;PPI-90 G1/4"NPT

VALVE BODY LIMITING CONDITIONS			
PPV25G		PPV25I	
Press.	Temp.	Press.	Temp.
16 bar	-10 / 120ºC	16 bar	-10 / 100ºC
15,5 bar	150ºC	14,5 bar	150ºC
14,7 bar	200ºC	13,4 bar	200ºC
13,9 bar	250ºC	12,7 bar	250ºC
12,8 bar	300ºC	11,8 bar	300ºC

MAX. AIR SUPPLY PRESSURE:	8 bar
AMBIENT TEMPERATURE:	-20ºC ...+70ºC
BONNET :	From -5ºC to +220ºC (standard)
STEM SEALING:	PTFE/GR V-Rings - up to 220ºC (Standard bonnet)
PLUG DESIGN:	PT - On-off
PORT:	Full port

FLOW RATE COEFFICIENTS						
	SIZES					
	DN15	DN20	DN25	DN32	DN40	DN50
Kvs	5,2	7,3	11,7	18	27	43

CE MARKING (PED - European Directive 97/23/EC)	
PN 16	Category
DN15 to DN50	SEP - art. 3, paragraph3



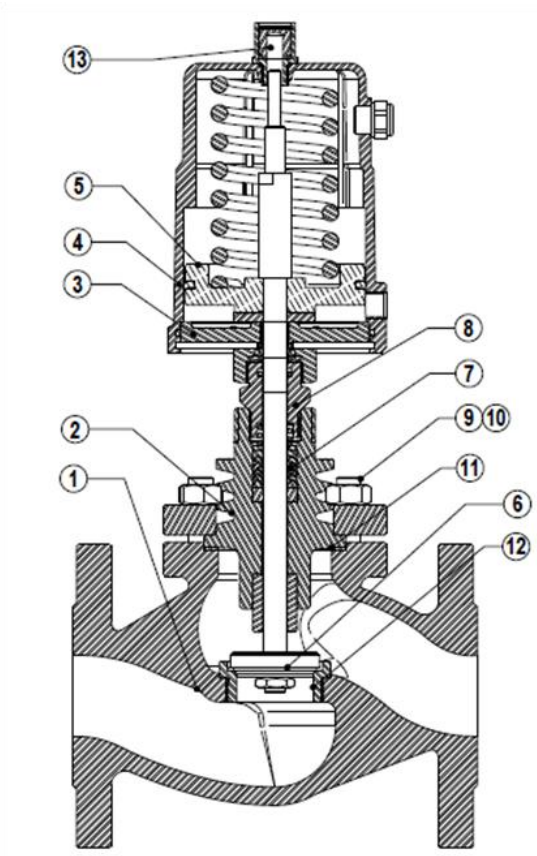
MAX. PERMISSIBLE PRESS.DROP IN bar Normally closed valve (fluid to open) Reverse action actuator (air signal to open)							
ACT. Type	AIR PRESSURE	SIZES					
		DN15	DN20	DN25	DN32	DN40	DN50
PPI-63	5 - 8 bar	18	18	8	4	3	-
PPI-90	5 - 8 bar	-	-	24	18	13	9

Note: Waterhammer free design.

MAX. PERMISSIBLE PRESS.DROP IN bar Normally closed valve (fluid to close) Reverse action actuator (air signal to open)							
ACT. Type	AIR PRESSURE	SIZES					
		DN15	DN20	DN25	DN32	DN40	DN50
PPI-63	5 - 8 bar	16	16	16	-	-	-
PPI-63	6 - 8 bar	16	16	16	16	-	-
PPI-63	7 - 8 bar	16	16	16	16	16	10
PPI-90	5 - 8 bar	-	-	-	16	-	-
PPI-90	6 - 8 bar	-	-	-	16	16	-
PPI-90	7 - 8 bar	-	-	-	16	16	16

Note: not recommended when controlling liquids at high speed due to waterhammer occurrence.

DIMENSIONS (mm)								
DN	A	B	C	Ø D	C	Ø D	WHT. Kgs w/PPI63	WHT. Kgs w/PPI90
			Actuator PPI-63		Actuator PPI-90			
15	130	48	250	75	300	110	3,7	5,2
20	150	53	250	75	300	110	4,5	6
25	160	58	250	75	300	110	5,5	7
32	180	70	270	75	325	110	7	8,5
40	200	75	280	75	330	110	9,7	11,2
50	230	83	290	75	340	110	11,7	13,2



MATERIALS			
POS.	DESIGNATION	MATERIAL PPV25G	MATERIAL PPV25I
1	Valve body	GJS-400-15 / 0.7040	CF8M / 1.4408
2	Bonnet	CF8 / 1.4308	CF8 / 1.4308
3	Actuator flange	CF8 / 1.4308	CF8 / 1.4308
4	Actuator cover	CF8 / 1.4308	CF8 / 1.4308
5	Piston	Aluminium	Aluminium
6	* Valve plug	1,4401 / PTFE/GR	1.4401 / PTFE-GR
7	* Packing	PTFE / GR	PTFE / GR
8	Gland nut	AISI 316 / 1.4401	AISI 316 / 1.4401
9	Studs	34CrNiMo6 / 1.6582	A4 - 70
10	Nuts	Steel 8.8	A4 - 70
11	Gasket	St.Steel / Graphite	St.Steel / Graphite
12	Seat	AISI 316 / 1.4401	AISI 316 / 1.4401
13	Indication stem	Plastic	Plastic

* Available spare parts

ORDERING CODES PPV25

VALVE CODES	PPV					.X.		
Group Designation								
Pneumatic on-off valve	**PPV**							
Valve Model								
GJS-400-15 body, stainless steel trim		**.25G**						
ASTM A216 WCB body, stainless steel trim		**.25I**						
Valve Plug								
PT (on-off) - Soft (PTFE/GR)			**9**					
PT (on-off) - Metal AISI316 / 1.4401			**10**					
Pipe Connection								
Flanged EN1092 PN16				**L**				
Size								
DN 15					**15**			
DN 20					**20**			
…								
Fluid Direction								
Normally closed valve,fluid enter above the seat						**A**		
Normally closed valve,fluid enter below the seat						**B**		
Actuator							**(1)**	
Extras (3)								**E**

ACTUATOR CODES (pneumatic)	PI.			
Group Designation				
Piston linear actuator	**PI.**			
Actuator Size				
Piston pneumatic actuator PPI 63		**.63**		
Piston pneumatic actuator PPI 90		**.90**		
Actuator Type				
Direct action (air to close)			**.D**	
Reverse action (air to open)			**.R**	
Actuator Construtution				
Stainless steel				**(2)**

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

(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

PNEUMATIC ANGLE TYPE INTERCEPTION VALVE
Type PAV 21

DESCRIPTION

The PAV series angle seat interception valves are designed for steam, gas and other fluids used on the process industry and they are the effective response to fluid interception when flexibility and cost is requested. Connections are female screwed.

MAIN FEATURES

Stainless steel body with high coefficient of flow.
Resistance to corrosion
Low air consumption
Nylon rotational servo control
Self-centring plug with soft sealing
Live loading packing gland

OPTIONS:	Pilot solenoid valves Electromechanical switches
USE:	Saturated steam, water and other fluids compatible with the construction.
AIR SUPPLY:	5 bar / 8 bar
ACTUATOR CONNECTIONS:	PPI-63 G1/8" NPT PPI-90 G1/4" NPT
AVAILABLE MODELS:	PAV 21 - Pneumatic angle valve
SIZES:	DN ½" – DN 2"
CONNECTIONS:	Threaded ISO
VALVE LIMITING CONDITIONS:	Body design conditions: PN16 Max. Working temperature: 190 ºC Min. Working temperature: -10 ºC Ambient temp. : -10 ºC …+ 80 ºC

FLOW RATE COEFFICIENTS

	SIZES					
	DN15	DN20	DN25	DN32	DN40	DN50
Kvs	4,8	9,5	18	23,2	32,7	52,6

MAX. PERMISSIBLE PRESS.DROP IN bar
Normally closed valve (fluid to open)
Reverse action actuator (air signal to open)

ACT. Type	AIR PRESSURE	SIZES					
		DN15	DN20	DN25	DN32	DN40	DN50
PPI-63	5 - 8 bar	16	16	16	-	-	-
PPI-90	5 - 8 bar	-	-	-	16	16	10

Note: Waterhammer free design.

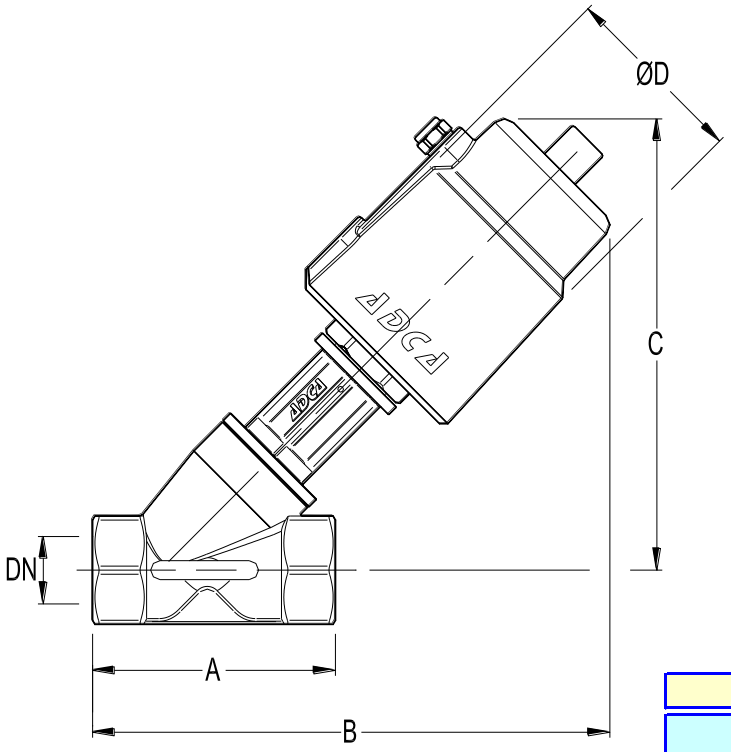
Kvs in m3/h , see data sheet IS PV10.00 E ;
For conversion Kvs = Cv(US) x 0,855

CE MARKING (PED - European Directive 97/23/EC)	
PN 16	Category
DN15 to DN50	SEP - art. 3, paragraph3

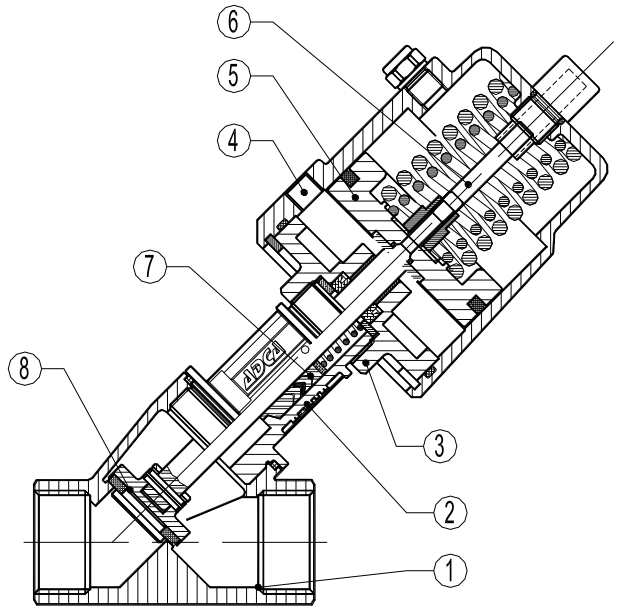
MAX. PERMISSIBLE PRESS.DROP IN bar
Normally closed valve (fluid to close)
Reverse action actuator (air signal to open)

ACT. Type	AIR PRESSURE	SIZES					
		DN15	DN20	DN25	DN32	DN40	DN50
PPI-63	5 - 8 bar	16	16	16	-	-	-
PPI-63	6 - 8 bar	16	16	16	-	-	-
PPI-63	7 - 8 bar	16	16	16	-	-	-
PPI-90	5 - 8 bar	-	-	-	16	-	-
PPI-90	6 - 8 bar	-	-	-	16	16	-
PPI-90	7 - 8 bar	-	-	-	16	16	16

Note: not recommended when controlling liquids at high speed due to waterhammer occurrence.



DIMENSIONS (mm)								
DN	A	B	C Actuator PPI-63	Ø D Actuator PPI-63	C Actuator PPI-90	Ø D Actuator PPI-90	WHT. Kgs w/PPI63	WHT. Kgs w/PPI90
15	68	174	155	75	155	110	1,35	2,4
20	75	182	158	75	158	110	1,45	2,5
25	90	190	166	75	166	110	1,65	2,7
32	116	261	227	75	227	110	2,3	3,3
40	116	265	229	75	229	110	2,55	3,5
50	138	282	238	75	238	110	3,6	4,7



MATERIALS		
POS.	DESIGNATION	MATERIAL
1	Valve Body	CF8M / 1.4408
2	Bonnet	CF8 / 1.4308
3	Actuator Flange	CF8 / 1.4308
4	Actuator Cover	CF8 / 1.4308
5	Piston	Aluminium
6	Indication Stem	Plastic
7	* Packing	PTFE / GR
8	* Valve Plug	1.4401 / PTFE-GR

* Available spare parts

ORDERING CODES PAV21

VALVE CODES	PAV					.X.		
Group Designation								
Pneumatic on-off angle valve	**PAV**							
Valve Model								
Two way straight design,stainless steel construction		**.21**						
Valve Plug								
Soft (PTFE/GR) PT Type			**1**					
Pipe Connection								
Threaded BSP ISO 7/1 Rp				**A**				
Size								
DN 15					**15**			
DN 20					**20**			
…								
Fluid Direction								
Normally closed valve,fluid enter above the seat						**A**		
Normally closed valve,fluid enter below the seat						**B**		
Actuator							**(1)**	
Extras (3)								**E**

ACTUATOR CODES (pneumatic)	PI.			
Group Designation				
Piston linear actuator	**PI.**			
Actuator Size				
Piston pneumatic actuator PPI 63		**.63**		
Piston pneumatic actuator PPI 90		**.90**		
Actuator Type				
Direct action (air to close)			**.D**	
Reverse action (air to open)			**.R**	
Actuator Construtions				
Stainless steel				**(2)**

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

(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

AIR FILTER REGULATOR
P 10

DESCRIPTION

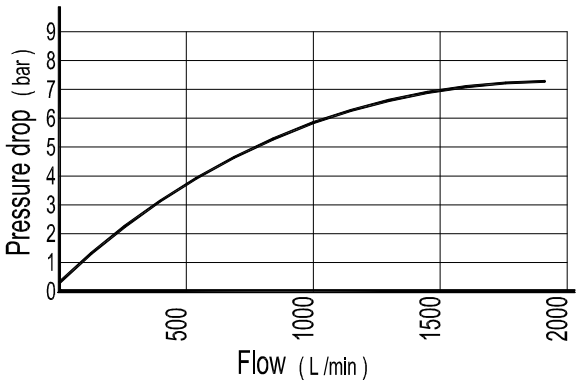
The P10 air filter regulators are used to remove both solid and liquid impurities from the air and to regulate the output pressure to the required value for general purpose pneumatic systems.
The filter bowl which is transparent allows easy monitoring of the condensate level.

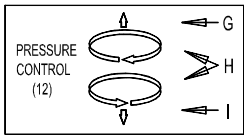
MAIN FEATURES

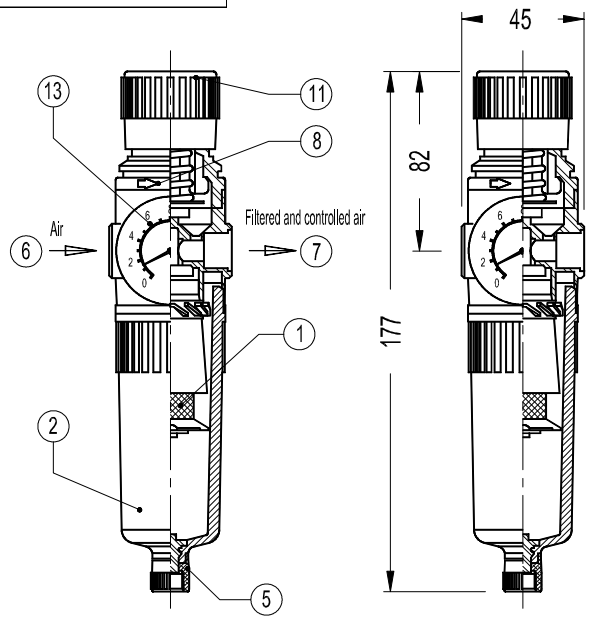
Self relieving.
Compact combined filter/regulator.
5 micron large surface area element.
Manual and automatic condensate exhaust easier when there is no pressure.
Pressure gauge D.42 x 1/8"
Mounting bracket

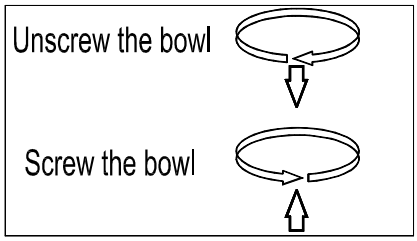
USE: Pneumatic systems
AVAILABLE MODELS: P 10
VALVE SIZES: DN ¼"
CONNECTIONS: BSP (BS21-Rp)

LIMITING CONDITIONS	
Valve model	**P10**
Max.upstream pressure	12 bar
Max.downstream pressure	10 bar
Min.downstream pressure	0,5 bar
Max.design temperature	60 °C
Min.Operating temperature	-10 °C









POS.Nr.	DESIGNATION
1	Filtering element
2	Bowl (including bowl guard)
5	Exhaust ring
6	Air inlet connection
7	Low pressure air outlet
8	Flow indicator arrow
11	Pressure regulating knob
13	Pressure gauge

MATERIALS	
Body	Aluminium die cast
Bowl	Polycarbonate

TDS CONDUCTIVITY PROBE
DIRECT BOILER CONDUCTIVITY MEASUREMENT
(Two-pole cells with ATC Pt 100)
SPS-32

DESCRIPTION

The ADCATROL SPS-32 conductivity probe is used to measure the conductivity (TDS) of the superheated water of boilers or condensate.
The probe is used in conjunction with the ADCATROL BCS controller and VPC valve series.
Two-pole cells for conductivity measurement of water in steam generators or boilers.
It is provided with Pt100 sensor for ATC temperature compensation in order to obtain an accurate reading of conductivity while operating with controllers provided with ATC input such as BCS-210 series.

The water contains impurities in form of dissolved solids and solid in suspension whose concentration increases when it is vaporized. Water treatment can reduce impurities to a certain level but it does not eliminate them completely and in certain conditions it might even increase them. As steam starts to be produced, the concentration of total solid in suspension (TDS) increases in the boiler's water. In case the TDS concentration is too high, dissolved salts concentration will be increased. This effect can contaminate the steam and cause damage to the system due to corrosion and salts incrustation of on thermal transference surfaces, (among other problems).

This high concentration is harmful and it is not acceptable in applications where steam is used for treatment of food, drinks and sterilization processes.
In order to limit the concentration of TDS to a suitable level a certain amount of the water of the boiler must be periodically eliminated (purge action) and replace by treated water.

SPS-32 probe together with BCS controller has been developed to purge all types of steam generators based on the measurement of TDS in the water of boiler. It activates the purge valve with a controlled cadence to avoid that an excess of purges generate energy losses and high consumption of treated water.

MAIN FEATURES

Cell constant K=0,5
Range 100 µS/cm to 9999 µS/cm (Lower range available upon request).
Two-pole electrodes in SS316L
Body in SS316 and PFA (PEEK in option)
Pressure 25 BAR (max. 32 bar)
Temperature 200 ºC (max. 240 ºC)
Temperature compensation (ATC) by Pt100 (optional Pt1000)
Calibration by buffers in the controller
Design for direct mounting in the boiler
Process connection DIN 43650 (IEC 4440)
Resistance to vibrations: ..... max. 5 G RMS
Protected against aggressive environments

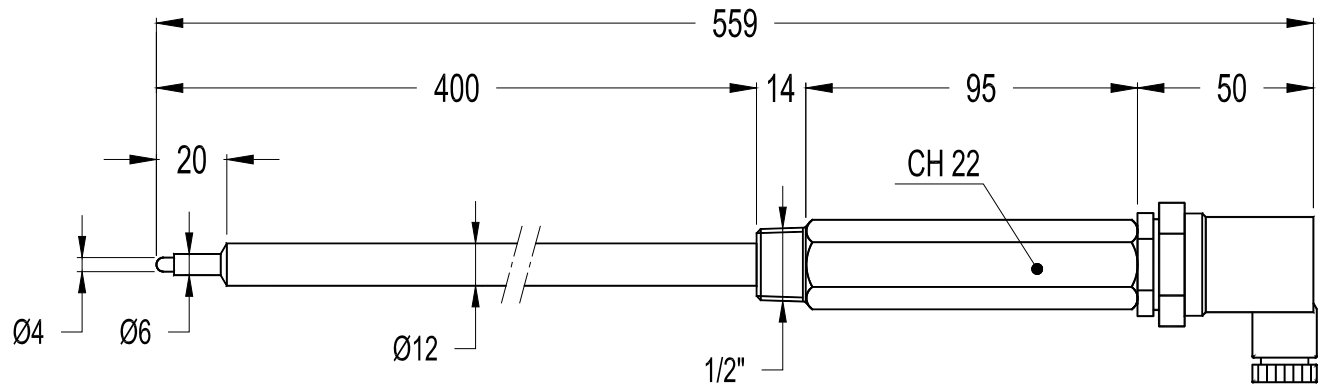
OPTIONS:	Connection Tee for boiler and blowdown valve connection
USE:	Superheated boiler water and condensate
AVAILABLE MODELS:	SPS-32
SIZES:	DN ½"
CONNECTIONS:	Screwed ISO 7/1 RP (BS21) ANSI B1.20.1 (NPT)
INSTALLATION:	Horizontal or vertical installation
ORDER REQUIREMENTS :	SPS-32 probe for TDS with PT100 sensor for measurements up to 10000 µS/cm process connection 1/2" GAS, or 1/2" NPT

LIMITING CONDITIONS	
Maximum boiler pressure	32 bar
Maximum temperature	240 °C
Maximum ambient temperature	80 °C
Minimum distance from boiler tubes	20 mm
Maximum cable length (from probe to controller)	20 to 30 m
Minimum conductivity *	100 uS/cm
Protection rating	IP65

* Lower range available upon request

MATERIALS	
DESIGNATION	***MATERIAL***
Body	AISI 316L / 1.4404
EC electrodes	AISI 316L / 1.4404
Insulation	FPA (PEEK on request)

DIMENSIONS :

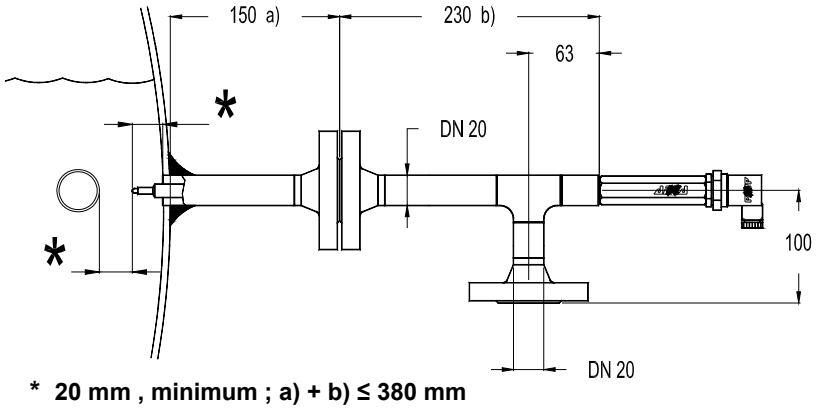


WEIGHT: 0,51 Kg

INSTALLATION: Directly to the boiler, in the way that the probe is always in contact with the water.
Any metallic parts near the probe must be at a minimum of 20mm from the central end pole.

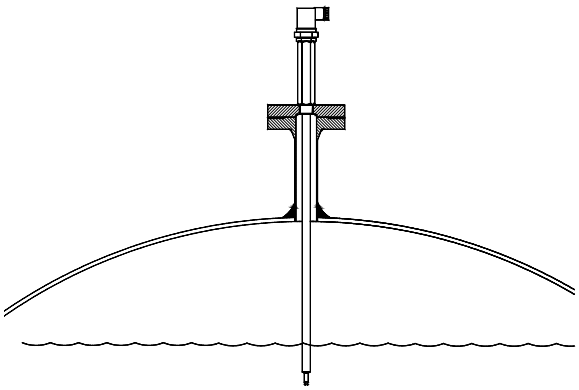
INSTALLATION EXAMPLES:

Horizontal installation with a Tee piece type F-3220

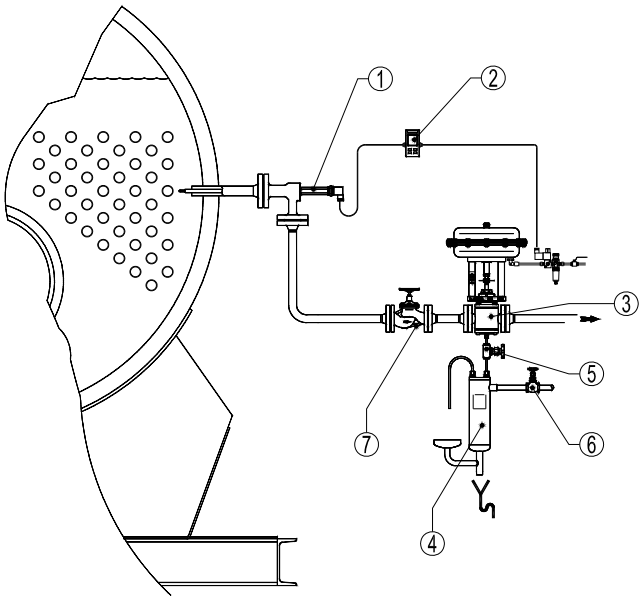


*** 20 mm , minimum ; a) + b) ≤ 380 mm**

Vertical installation on a boiler standpipe with a probe flange

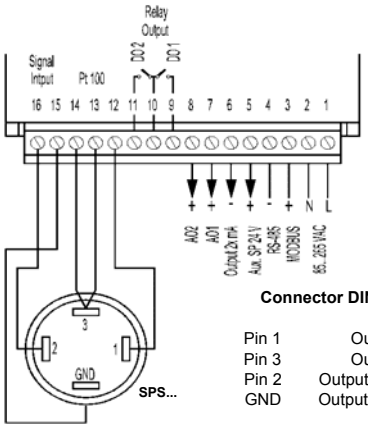


TYPICAL INSTALLATION



WIRING DIAGRAM

EXAMPLE OF CONNECTION CONTROLLER BCS-210



Connector DIN 43650

Pin 1	Output Pt100
Pin 3	Output Pt100
Pin 2	Output Pole of EC
GND	Output Pole of EC

1	-----	Power supply 85…265 V ac/dc
2	-----	optional: 12 or 24 V ac/dc
3	+	RS-485 Modbus RTU communication
4	-	
5	+	Auxiliary power supply 24 Vdc 40 mA
6	-	Common to 24 Vdc and AO1 - AO2 outputs (option)
7	+	AO1 Analog output 4-20 mA of Conduct. (option)
8	+	AO2 Analog output 4-20 mA of Temp. (option)
9		DO1 Blow-down output of TDS. SPST Relay
10		Common
11		DO2 Hi and Lo Limit output of EC. SPST Relay
12		ATC by Pt100 input (Pt1000 in option)
13		
14		
15	Without Polarity	Performing input for sensors of:
16		2-poles Conductivity EC probes

Position	Designation
1	Adcatrol SPS-32 TDS probe
2	Adcatrol BSC-210 TDS controller
3	Adcatrol VPC-32 Blowdown valve
4	Adca SC32SS Sample cooler
5	Adca NV-400 Needle valve
6	GV32B Bronze globe valve
7	Adca VF Bellow sealed globe valve

OPERATION

The BCS controller (2) is programmed to continuously measure the electrical conductivity (1) of boiler water (closed related to the TDS) and compare it with the set point selected in the controller. It will open the blowdown valve (3) if the measured value is higher, or keep the valve closed until the measured value exceeds the set point.

It is recommended to install a heat recovery system (flash vessel, heat exchanger, etc) before connecting the wasted water to the BEX.

TDS CONDUCTIVITY PROBE
IN-LINE CONDUCTIVITY MEASUREMENT
(Two-pole cells with ATC Pt 100)
SPS-20

DESCRIPTION

The ADCATROL SPS-20 conductivity probe is used to measure the conductivity (TDS) of the superheated water of boilers or condensate.
The probe is used in conjunction with the ADCATROL BCS controller and VPC valve series.
Two-pole cells for conductivity measurement of water in steam generators or boilers.
It is provided with Pt100 sensor for ATC temperature compensation in order to obtain an accurate reading of conductivity while operating with controllers provided with ATC input such as BCS-210 series.

The water contains impurities in form of dissolved solids and solid in suspension whose concentration increases when it is vaporized. Water treatment can reduce impurities to a certain level but it does not eliminate them completely and in certain conditions it might even increase them. As steam starts to be produced, the concentration of total solid in suspension (TDS) increases in the boiler's water. In case the TDS concentration is too high, dissolved salts concentration will be increased. This effect can contaminate the steam and cause damage to the system due to corrosion and salts incrustation of on thermal transference surfaces, (among other problems).

This high concentration is harmful and it is not acceptable in applications where steam is used for treatment of food, drinks and sterilization processes.
In order to limit the concentration of TDS to a suitable level a certain amount of the water of the boiler must be periodically eliminated (purge action) and replace by treated water.

SPS-20 probe together with BCS controller has been developed to purge all types of steam generators based on the measurement of TDS in the water of boiler. It activates the purge valve with a controlled cadence to avoid that an excess of purges generate energy losses and high consumption of treated water.

MAIN FEATURES

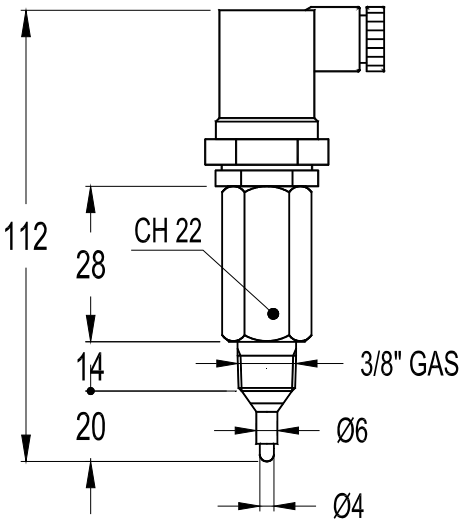
Cell constant K=2
Range 100 µS/cm to 9999 µS/cm (Lower range available upon request).
Two-pole electrodes in SS316L
Body in SS316 and PFA (PEEK in option)
Pressure 25 BAR (max. 32 bar)
Temperature 200 ºC (max. 240 ºC)
Temperature compensation (ATC) by Pt100 (optional Pt1000)
Calibration by buffers in the controller
Compact design for piping installation
Process connection DIN 43650 (IEC 4440)
Resistance to vibrations: ..... max. 5 G RMS
Protected against aggressive environments

OPTIONS:	Flanged or threaded probe chambers
USE:	Superheated boiler water and condensate
AVAILABLE MODELS:	SPS-20
SIZES:	DN 3/8” and DN ½”
CONNECTIONS:	Screwed ISO 7/1 RP (BS21) ANSI B1.20.1 (NPT)
INSTALLATION:	Horizontal or vertical installation
ORDER REQUIREMENTS :	SPS-20 probe for TDS with Pt100 sensor for measurements up to 10000 µS/cm, process connection 3/8” GAS or 1/2" NPT.

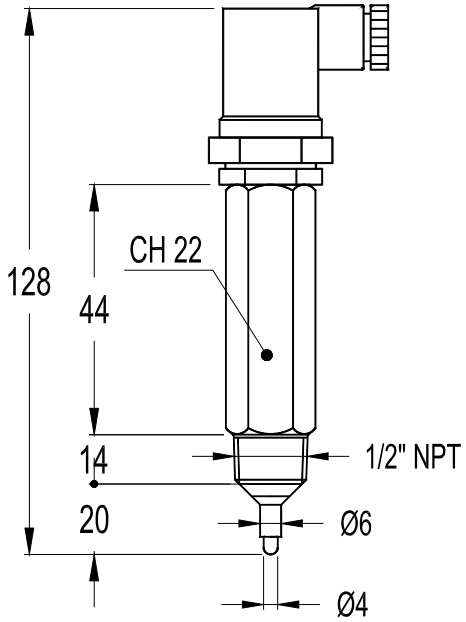
LIMITING CONDITIONS	
Maximum boiler pressure	32 bar
Maximum temperature	240 °C
Maximum ambient temperature	80 °C
Minimum distance from boiler tubes	20 mm
Maximum cable length (from probe to controller)	20 to 30 m
Minimum conductivity *	100 uS/cm
Protection rating	IP65

* Low er range available upon request

MATERIALS	
DESIGNATION	***MATERIAL***
Body	AISI 316L / 1.4404
EC electrodes	AISI 316L / 1.4404
Insulation	FPA (PEEK on request)



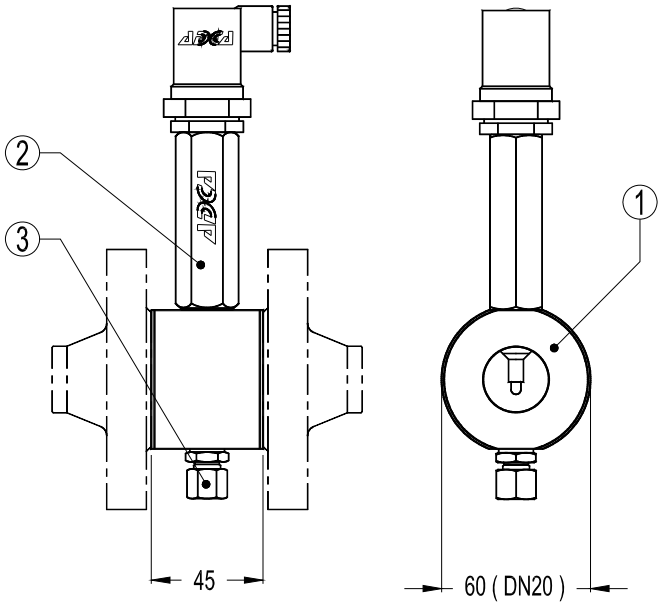
WEIGHT: 0,12 Kg



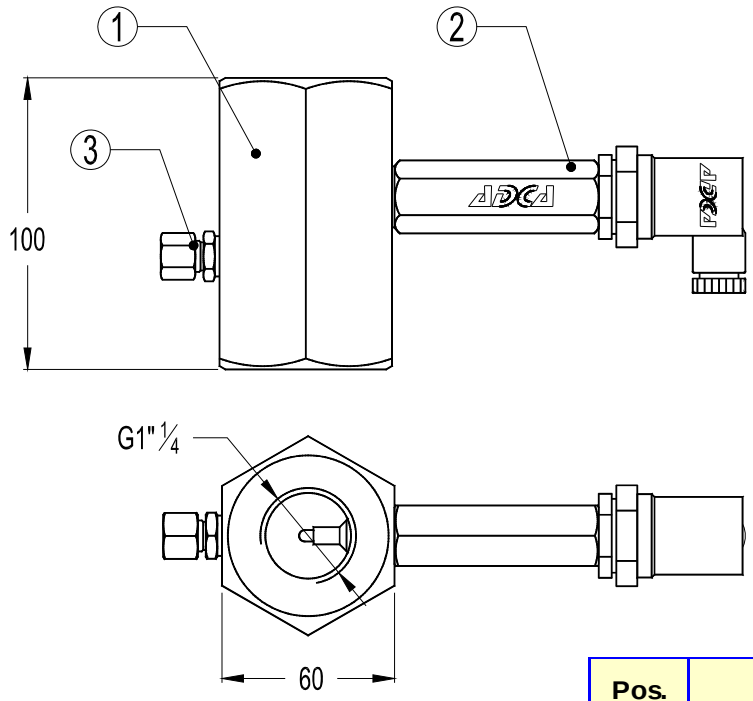
WEIGHT: 0,16 Kg

INSTALLATION: Can be fit into a “T” connection or into our standard chamber providing that the probe is always in contact with the water.
Any metallic parts near the probe must be at a minimum of 20mm from the central end pole.

TYPE F-2020 FLANGED SENSOR CHAMBER (SANDWICHED DESIGN)

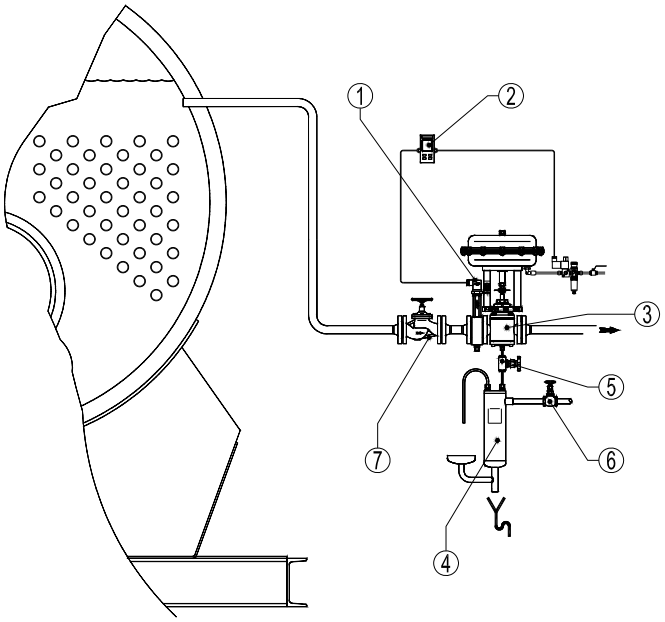


TYPE T-2032 THREADED SENSOR CHAMBER



Pos.	Designation
1	Sensor chamber
2	SPS-20 Conductiwy probe
3	Compression fitting for sample collection (optional)

TYPICAL INSTALLATION
FIRETUBE BOILER AND PNEUMATIC ACTUATED VALVE



OPERATION

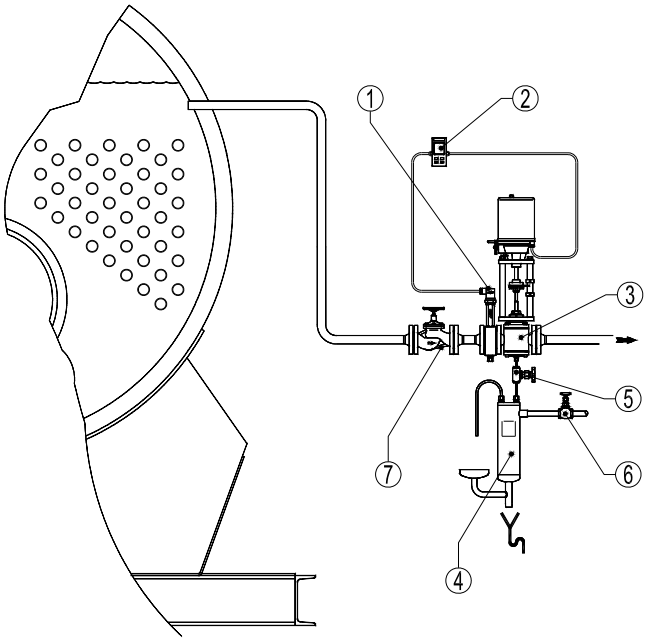
The VPC blowdown valve is programmed to open periodically in order to purge a certain amount of water. The BCS controller will then measure the electrical conductivity of boiler water (closed related to the TDS) and compare it with the set point selected in the controller. It close the valve after the purge if the measured value is lower, or it will keep the valve open until the measured value stay below the set point, if it is higher.

To avoid energy waste due to boiler stand-by or low load, it is recommended to relate the system operation to the burner firing.

It is also recommended to install a heat recovery system (flash vessel, heat exchanger, etc) before connecting the wasted water to the BEX.

Pos.	Designation
1	Adcatrol SPS-20 TDS probe with chamber
2	Adcatrol BSC-210 TDS controller
3	Adcatrol VPC-32 Blowdown valve
4	Adca SC32SS Sample cooler
5	Adca NV-400 Needle valve
6	GV32B Bronze globe valve
7	Adca VF Bellow sealed globe valve

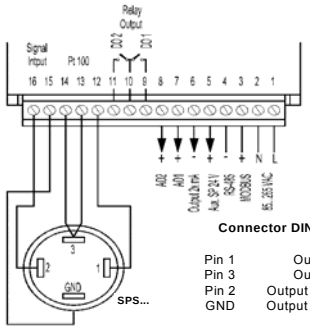
TYPICAL INSTALLATION
FIRETUBE BOILER AND ELECTRIC ACTUATED VALVE



Note: Sensor chamber is rotated 90º for catalogue only.

WIRING DIAGRAM

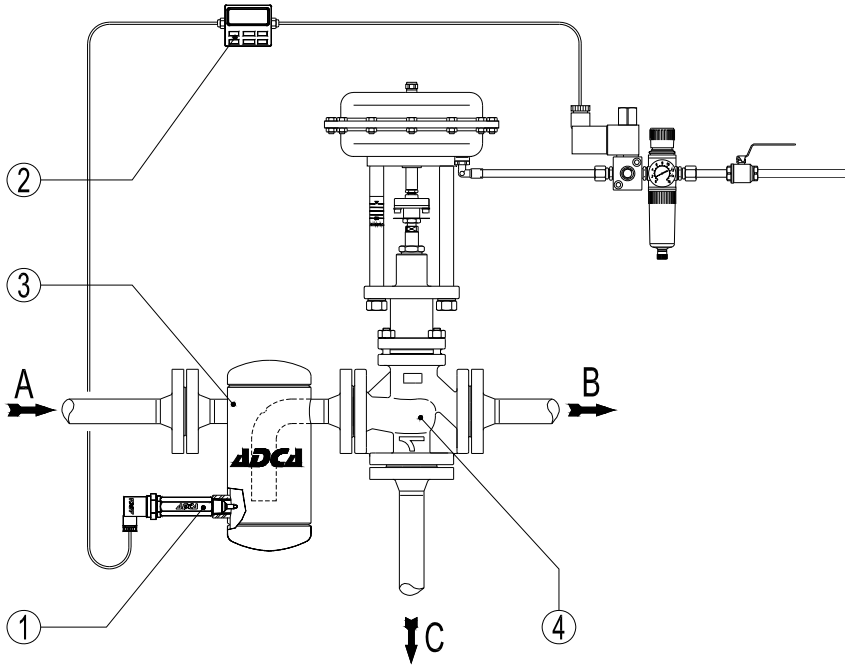
EXAMPLE OF CONNECTION CONTROLLER BCS-210



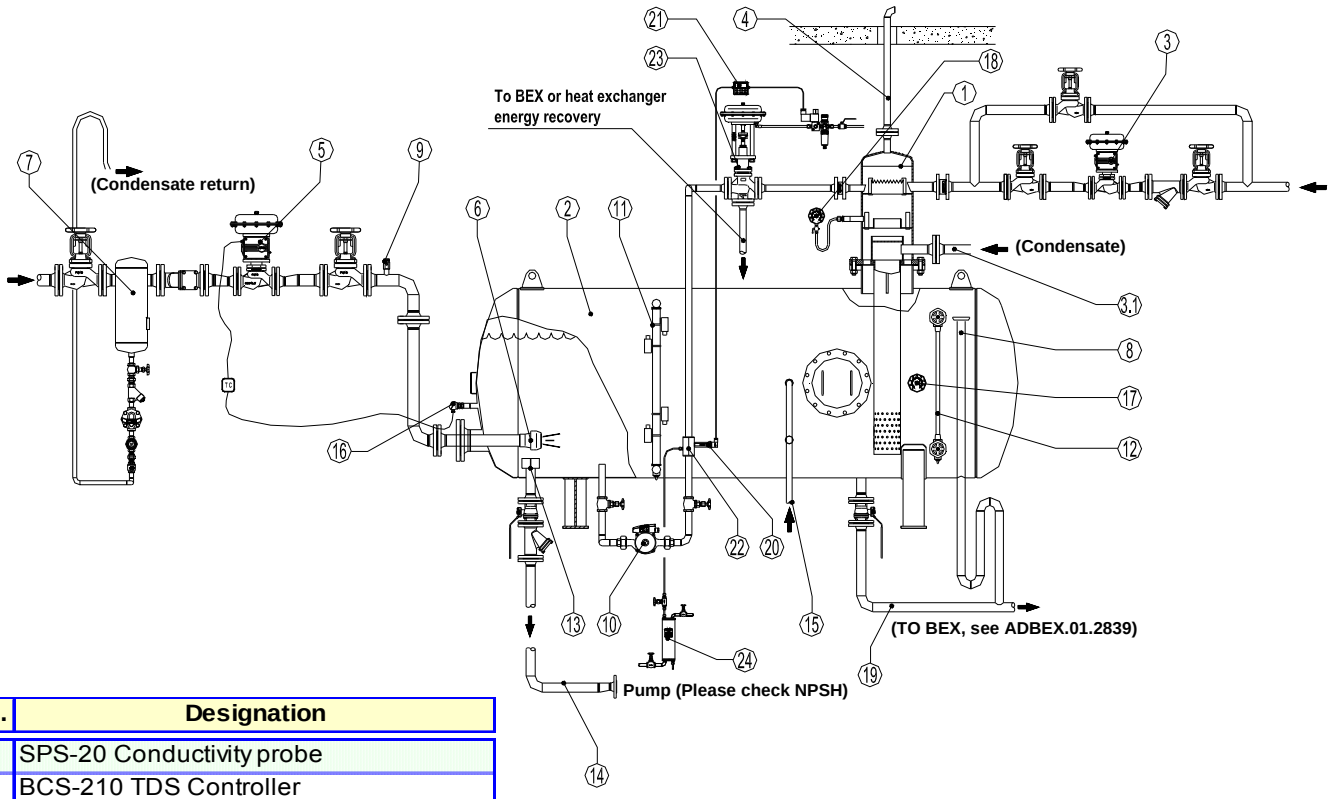
1	-----	Power supply 85…265 V ac/dc
2	-----	optional: 12 or 24 V ac/dc
3	+	RS-485 Modbus RTU communication
4	-	
5	+	Auxiliary power supply 24 Vdc 40 mA
6	-	Common to 24 Vdc and AO1 - AO2 outputs (option)
7	+	AO1 Analog output 4-20 mA of Conduct. (option)
8	+	AO2 Analog output 4-20 mA of Temp. (option)
9		DO1 Blow-down output of TDS. SPST Relay
10		Common
11		DO2 Hi and Lo Limit output of EC. SPST Relay
12		ATC by Pt100 input (Pt1000 in option)
13		
14		
15	Without Polarity	Performing input for sensors of:
16		2-poles Conductivity EC probes

TYPICAL INSTALLATION
WATER TUBE COIL BOILER – PROBE INSTALLED IN THE CONDENSATE RETURN LINE

OPERATION
The BCS controller (2) is programmed to continuously measure (1) the electrical conductivity of boiler return condensate (closed related to the TDS) and, compare it with the set point selected in the controller, it will invert the flow of the three way valve (4) from B to C if the measured value is higher, or keep the valve flow from A to B until the measured value exceed the set point .
The chamber (3) guaranties that the probe (1) is always in contact with the measured medium (condensate).
It is recommended to install a heat recovery system (flash vessel, heat exchanger, etc) before connecting the wasted condensate (C) to the BEX.



TYPICAL INSTALLATION
WATER TUBE COIL BOILER – PROBE INSTALLED IN THE RECIRCULATING PIPE



Pos.	Designation
20	SPS-20 Conductivity probe
21	BCS-210 TDS Controller
22	Probe chamber
23	Adcatrol PV253 3 way control valve
24	SC32 Sample cooler system

Complete description: ADADGV.06.3676

OPERATION
Similar to the previous one but in this case the pump (10) is re-circulating the make-up water across the probe (22).

TDS CONTROLLERS
FOR STEAM GENERATORS
(Automatic purge of dissolved solids)
BCS-210

DESCRIPTION

Adcatrol BCS controllers are part of the dissolved solids (TDS) control systems of steam boilers water.
The complete system is formed by a special conductivity probe SPS series, BCS-210 controller (with display and ATC) and a VPC blowdown valve.
The system measures the conductivity of the water based on the type of steam generator. When it exceeds a predefined value, drives the blow-down valve by ON/OFF or time proportional control with the purpose of maintaining the water in an optimum TDS value.
The controllers can be configured by means of RS-485 Modbus communication, from a supervisory system of the boiler total control such as, low level safety, continuous level control, mud purge, temperature, etc.

MAIN FEATURES

Maintains the TDS level at optimum value reducing the purges to the minimum.
One TDS blow-down relay output and one alarm relay output
Power supply 85…265 Vac (others in option)
RS-485 Modbus communication.

AVAILABLE MODELS
BSC-210A – 4 -20 mA analogue output
BCS-210R – relay

The controllers can work in two ways according with the type of steam generator, probe used or system design.

When the probe is installed in the pipe (Fig.1) the controller drives the blow-down valve with a pre-programmed cadence, opening the valve 10 sec. and closing it during 30 min. (configurable). As the water circulates the system detects when the TDS is over the preset value. The valve remains open until the TDS reaches the predefined minimum value, closing when it reaches a suitable value.

In case of direct installation in the boiler (Fig.2), when the dissolved solids reaches the value set at 3000 µS/cm (adjustable), a relay activates the blow-down valve in a proportional time until the TDS concentration goes below 2800 µS/cm.

It is provided with one alarm relay outputs activated by maximum (to 5000 µS/cm) and by minimum (to 1000 µS/cm), giving a stop signal to the boiler when the limits are exceeded, in case of some abnormality in the control system.

The control values, alarms, valve activation and alert status can be supervised from a remote PC or PLC by the RS-485 Modbus communication port included as standard.

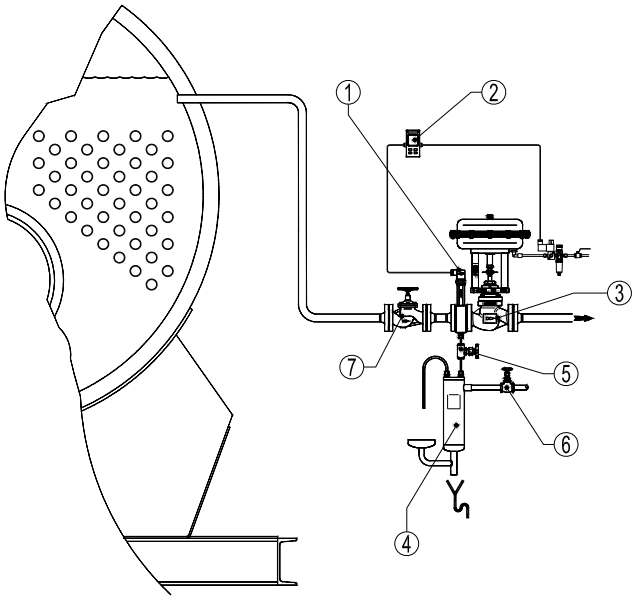


Fig. 1

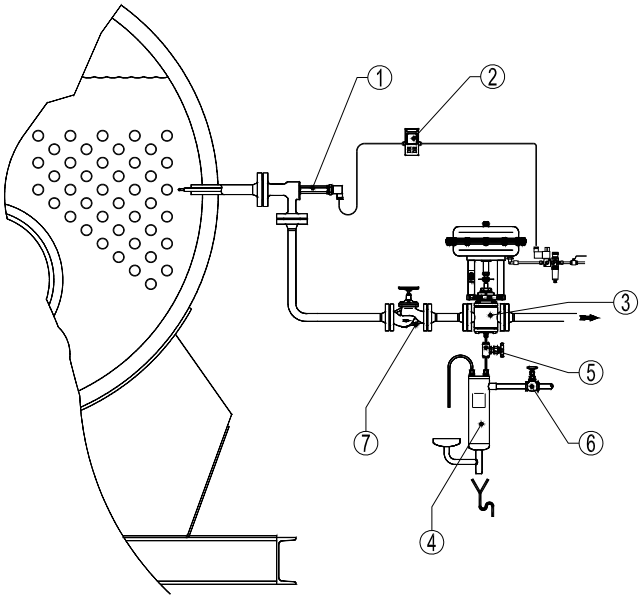


Fig. 2

Note: Sensor chamber is rotated 90º for catalogue only.

Pos.	Designation
1	Adcatrol TDS Probes SPS-20 (Fig.1) and SPS-32 (Fig.2)
2	Adcatrol BSC-210 TDS controller
3	Adcatrol VPC-25(Fig.1) and VPC-32 (Fig.2)blowdown valve
4	Adca SC32FSS Sample cooler
5	Adca NV-400 Needle valve
6	Adca GV32B Bronze globe valve
7	Adca VF Bellow sealed globe valve

SPECIFICATIONS

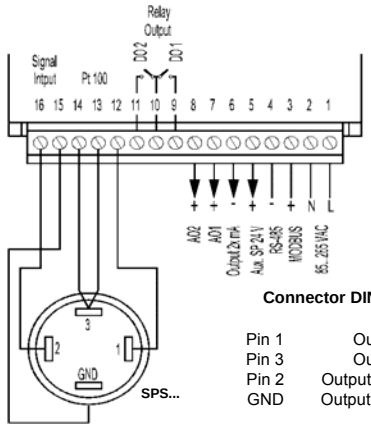
TDS CONTROLLER BCS-210	
Input EC	SPS probes
Input ATC	Pt100 (Pt1000 as option)
Operating range *	100 µS/cm to 9999 µS/cm
Temperature compensation	Automatic ATC
Purge time	Configurable from 1 to 60 sec.
Pause time	Configurable from 1 to 100 min.
Blow-down output	Relay DO1 3 A 250 V
High-Low alarm	Relay DO2 1 A 250 V
Analog outputs	4-20mA EC and Temp.(Option)

COMMON FEATURES	
Power supply	85 to 265 Vac (3,5 VA)
Dimensions	48 x 96 x 110 mm
Comunication	RS-485 Modbus
Weight	0,38 kg

* Lower range available upon request

WIRING DIAGRAM

EXAMPLE OF CONNECTION CONTROLLER BCS-210



Connector DIN 43650

Pin 1	Output Pt100
Pin 3	Output Pt100
Pin 2	Output Pole of EC
GND	Output Pole of EC

1	-----	Power supply 85…265 V ac/dc
2	-----	optional: 12 or 24 V ac/dc
3	+	RS-485 Modbus RTU communication
4	-	
5	+	Auxiliary power supply 24 Vdc 40 mA
6	-	Common to 24 Vdc and AO1 - AO2 outputs (option)
7	+	AO1 Analog output 4-20 mA of Conduct. (option)
8	+	AO2 Analog output 4-20 mA of Temp. (option)
9		DO1 Blow-down output of TDS. SPST Relay
10		Common
11		DO2 Hi and Lo Limit output of EC. SPST Relay
12		ATC by Pt100 input (Pt1000 in option)
13		
14		
15	Without Polarity	Performing input for sensors of:
16		2-poles Conductivity EC probes

STEAM EQUIPMENT

"ADCATROL" TDS BLOWDOWN CONTROL VALVES
VPC Series

DESCRIPTION

The Adcatrol VPC series control valves are specially designed for the blowdown of steam boilers in order to control the TDS concentration in combination with a TDS controller (BCS) and probe (SPS series).
These valves can also be used for any application where high pressure drop and low flow rates are present.

VPC-32

VPC-25

MAIN FEATURES

Single seated, two way, direct action valve.
Valve top flange permanently attached to the body, removal is unnecessary for replacing the actuator.
Metal to metal hardened sealing as standard.

OPTIONS:	Pneumatic or electric actuators Air filter regulator
USE:	Saturated and superheated steam Hot and superheated water
AVAILABLE MODELS:	VPC-32-Fabricated steel construction VPC-25-Cast steel
VALVE SIZES:	DN15,20,25 and 40
CONNECTIONS:	Flanged EN 1092-1 ANSI Class 150 and 300 lbs
PNEUMATIC ACTUATORS:	PA-205, PA-280.
ACTUATOR CONN:	¼" NPT-F
CONTROL SIGNAL:	0,4 – 2 bar
ELECTRIC ACT.:	Consult catalogue IS EL20.00 E and IS ELR21.00 E

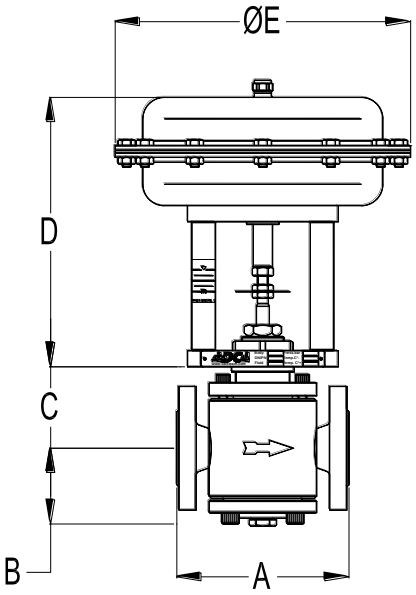
MAX.AIR SUPPLY:	3,5 bar
AMBIENT TEMPERATURE:	-20ºC ….+70ºC
STEM SEALING:	PTFE/GR V-Rings-220ºC (Standard bonnet) Graphite – up to 300ºC (Extended bonnet)
PLUG CHARACT.:	PL - Linear
PLUG DESIGN:	Contoured Microflow
PORT:	Full port or reduced on request

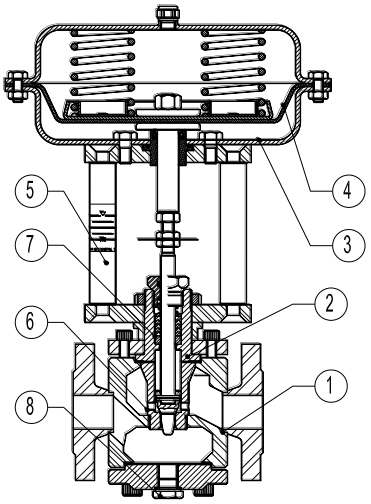
HOW TO SELECT: Never size the valve according to the pipe diameter in which it has to be fitted, but according to the required actual flow. Refer to the valve calculation data sheet or consult the factory.

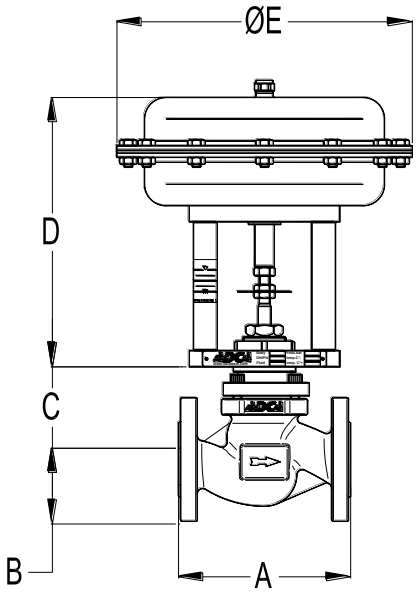
VALVE BODY LIMITING CONDITIONS VPC 32		VALVE BODY LIMITING CONDITIONS VPC 25	
PRESSURE/TEMPERATURE		PRESSURE/TEMPERATURE	
40 bar	-10/50ºC	40 bar	-10/50ºC
33,3 bar	200 ºC	30,2 bar	200 ºC
30,4 bar	250 ºC	25,8 bar	300 ºC
27,6 bar	300 ºC	24 bar	350 ºC

Maximum temperature limited to the valve packing selected

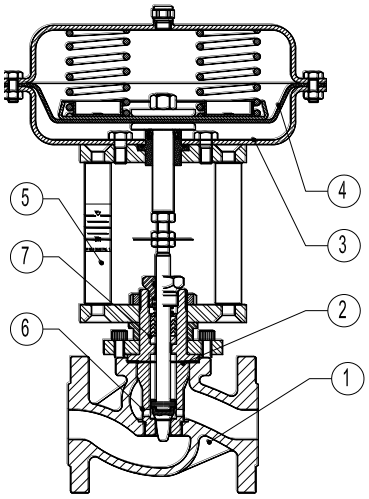
CE MARKING (PED - European Directive 97/23/EC)	
PN 40	Category
DN15 to DN25	SEP - art. 3, paragraph3
DN40	1 (CE Marked)







DIMENSIONS - VALVE BODY VPC-32					
DN	A (mm)	B (mm)	C (mm) BONNET		
			STANDARD	FINNED	EXTENDED
15	150	71	75	140	140
20	150	71	75	140	140
25	160	71	75	140	140
40	200	82	96	163	163



DIMENSIONS - VALVE BODY VPC-25					
DN	A (mm)	B (mm)	C (mm) BONNET		
			STANDARD	FINNED	EXTENDED
15	130	48	85	150	150
20	150	53	85	150	150
25	160	58	90	170	170
40	200	75	115	195	195

DIMENSIONS PNEUMATIC ACTUATOR		
Type	ø E (mm)	D (mm)
		DN15-DN50 DA/RA
PA-205	210	235
PA-280	275	240

MATERIALS			
POS.	DESIGNATION	VPC 32	VPC 25
1	Valve Body	S355 J2 G3 / 1.0570	ASTM A216WCB / 1.0619 GP240GH / 1.0619
2	Bonnet	CF8 / 1.4308	CF8 / 1.4308
3	* Actuator (Steel)	S235JRG2 / 1.0038	S235JrG2 / 1.0038
	* Actuator (St.steel)	AISI304 / 1.4301	AISI304 / 1.4301
4	Diaphragm	NBR70	NBR 70
5	Yoke (steel)	C45E / 1.1191	C45E / 1.1191
	Yoke (st. steel)	AISI304 / 1.4301	AISI304 / 1.4301
6	Valve plug	Hardened St.Steel	Hardened St.Steel
7	Standard packing	Graphite	Graphite
8	Sample take off	AISI304 / 1.4301	-

*** Electric actuator : see IS EL20.00 E**

Kvs VALUES FOR ADCATROL CONTROL VALVES VPC					
SEAT D. mm	VALVE STROKE mm	VALVE SIZES			
		DN15	DN20	DN25	DN40
4A	20	0,1	—	—	—
4B		0,25	—	—	—
4C		0,5	—	—	—
8A		1	1	—	—
8B		1,7	1,7	—	—
12A		2,1	2,5	3	—
12B		2,7	3,7	4	—
15A		3,8	4,7	5,8	6,8
20A			5,1	6,3	9,3
25A				9,4	14,6

Letters after the Kvs are for codification purposes only.

MAX. PERM.PRESS.DROP IN bar - N.C.(fluid to open) - Reverse action actuator (air signal to open)					
ACTUATOR	CONTROL SIGNAL	SIZES			
		DN15	DN20	DN25	DN40
PA-205	0,4 ÷ 2 bar	18	15	12	8
PA-280	0,4 ÷ 2 bar	45	40	35	25

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

CALCULATING THE AMOUNT OF BOILER BLOWDOWN

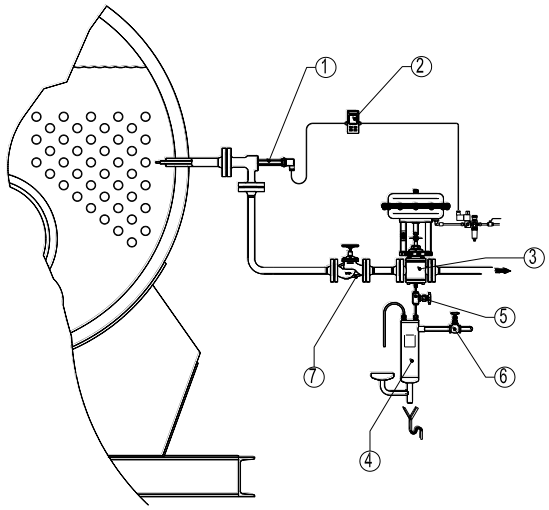
The boiler blowdown system design depends on the amount of boiler water which has to be blown down. This amount depends on:
(Rs)-Recommended boiler water TDS in ppm (parts per million) or µS/cm. Usually recommended by the boiler manufacturer or water treatment specialist.
(Fs)-Feed water TDS (same units) .Sample for analysis must be taken from fresh water feed tank or feed water line. Do not use a sample of the make-up feed water otherwise wrong figures can be obtained.
(Q)-Steam boiler maximum flow rate in Kgs/h
(Br)- The blow down rate or amount of water to be discharged in Kgs/h can be obtained using the following formula:

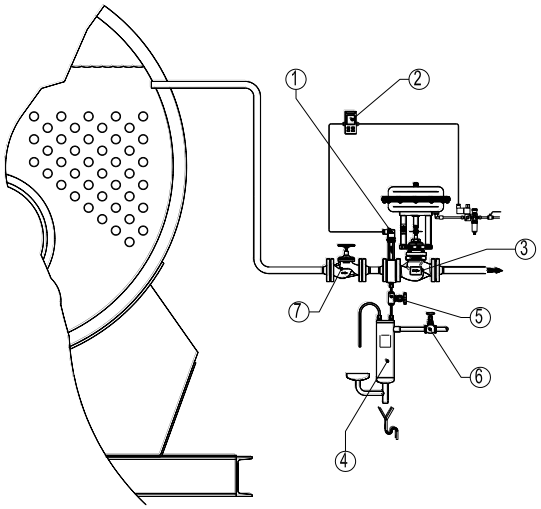
$Br = Q \cdot Fs / (Rs – Fs)$

Example:
Boiler pressure: 12 bar
Q - Boiler capacity: 12 000 Kg/h
Fs - Conductivity of feed water: 100 µS/cm
Rs - Recommended boiler water TDS 3000 µS/cm

$Br = 12000 \cdot 100 / 3000 – 100$; Br = 413,8 Kgs/h
Using the formula available in IS PV10.00 E, it is now possible to determine the necessary Kv valve value and select the right valve size (IS VPC.50 E).

TYPICAL INSTALLATION





ORDERING CODES VPC

VALVE CODES	VPC	25.						.X.
Group Designation								
Blowdown control valves, two way, straight body	VPC							
Valve Model								
ASTM A216 WCB body, stainless steel trim		25.						
Steel body,stainless steel trim		32.						
Stem Sealing								
PTFE/GR-V-Rings / Standard bonnet			1					
Virgin PTFE V-Rings / Standard bonnet			2					
Graphite / Standard bonnet			3					
Graphite / Finned bonnet			4					
Valve Plug								
PL (linear) - Stellite				8				
Seat Diameter								
4 A					1			
4 B					2			
4 C					3			
8 A					4			
8 B					5			
12 A					7			
12 B					8			
15 A					10			
20 A					13			
25 A					16			
Pipe Connection								
Flanged EN1092-2 PN16						L		
Flanged EN1092-1 PN40						N		
Flanged ANSI B16.5 300#						V		
Size								
DN15							15	
DN20							20	
…								
Actuator								(1)
Extras (3)								E

ACTUATOR CODES (pneumatic)	P.			
Group Designation				
Multi-spring , pneumatic linear actuator	P.			
Actuator Size				
205		1		
280		3		
340 A - From DN15 to DN50		5		
435 A - From DN15 to DN50		7		
Actuator				
Reverse Action			R	
Actuator Constrution				
Steel construction (painted) - standard				(2)
Stainless steel construction				I
Control Signal				
0,4 - 2 bar (6/30 psi)				30

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

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).

INTERMITTENT BLOWDOWN VALVES
VPA 26
(Fabricated steel)

DESCRIPTION

The VPA26 blowdown valve was specially designed for application on steam boilers removing the concentrations of solids avoiding boiler damages, unstable water level control and other typical problems.
The valves are provided with a diaphragm actuator suitable for compressed air motive fluid.
The opening signal is supplied by an automatic intermittent control unit or manually (optional).
Connections are flanged or threaded on request.

OPERATION

The valve can be operated manually or using a pneumatic actuator. Valve aperture depends from the boiler manufacturer specification (example: once a day during five seconds).

MAIN FEATURES
High quality hardened valve and seat.
Manual or automatic control.
Can be locked in the open position if supplied with the manual operation lever.

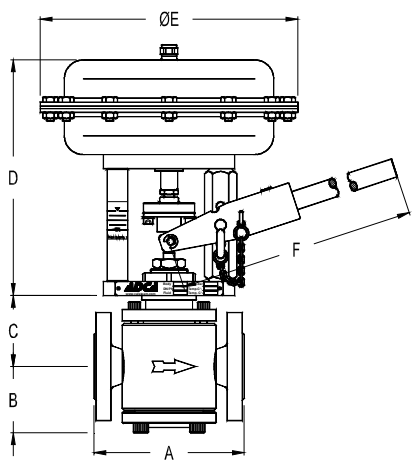
OPTIONS:	Air filter regulator Solenoid valve with cycling timer . Mechanical limit switch Water powered actuator Stainless steel construction.
USE:	Intermittent blowdown of steam boilers.
AVAILABLE MODELS:	VPA 26
VALVE SIZES:	DN20 to DN50 ; DN 3/4" to DN2"
CONNECTIONS:	Flanged EN 1092-1 or ANSI
ACTUATORS:	PA-205; PA-280.
ACTUATOR CONN:	1/4" NPT-F

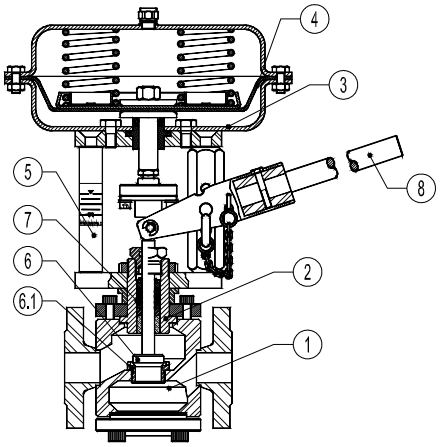
HOW TO SELECT: Never size the valve according to the pipe diameter in which it has to be fitted but according to the required actual flow of steam or water.Refer to valve calculation data sheet or consult the factory.

VALVE BODY LIMITING CONDITIONS VPA26	
ALLOWABLE PRESSURES	**RELATED TEMPERATURE**
40 bar	-10 /50º C
33,3 bar	200 ºC
30,4 bar	250 ºC
27,6 bar	300 ºC

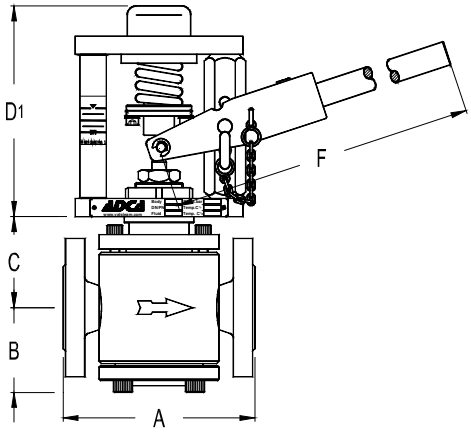
MAX. AIR/WATER SUPPLY PRESS.:	3,5 bar
AMBIENT TEMPERATURE:	-20ºC ...+70ºC
STEM SEALING:	Graphite - up to 300ºC
PLUG CHARACTERISTIC:	PT - On-off
PORT:	Full port or reduced on request

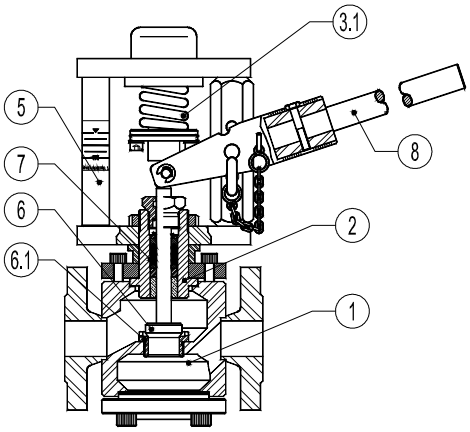
CE MARKING (PED - European Directive 97/23/EC)	
PN 40	**Category**
DN20 to DN32	SEP - art. 3, paragraph3
DN40 to DN50	1 (CE Marked)





VPA26 – with pneumatic actuator and manual operation





VPA26 – manual operation only

DIMENSIONS (mm) - VALVE BODY EN FLANGES

DN	A PN40	A PN63	B	C	D1	F	* WGT. Kgs	**WGT Kgs
20	150	/	71	75	175	490	22	19
25	160	190	71	75	175	490	22	19
32	180	/	75	83	175	490	26	23
40	200	220	82	97	175	640	30	28
50	230	250	97	100	175	640	40	38

DIMENSIONS (mm) - VALVE BODY ANSI FLANGES

DN	A ANSI 150	A ANSI 300	B	C	D1	F	* WGT. Kgs	**WGT Kgs
3/4"	150	150	71	75	175	490	22	19
1"	160	160	71	75	175	490	22	19
11/4"	180	180	75	83	175	490	26	23
11/2"	230	230	82	97	175	640	30	28
2"	230	230	97	100	175	640	40	38

* Valve with pneumatic actuator ; ** Valve with manual lever only
Consult factory for certified dimensions
Some face to face dimensions are not standard,due to market trend.
Other dimensions under request.

MATERIALS

POS.	DESIGNATION	MATERIAL
1	Valve Body	Steel S355J2G3 / 1.0570
2	Bonnet	CF8 / 1.4308
3	* Actuator	Steel Fe410.1/St.Steel
3.1	* Spring	Spring Steel
4	* Diaphragm	NBR 70
5	Yoke	Carbon Steel/St.Steel
6	* Valve Plug	Hardened St. Steel
6.1	* Valve Seat	Hardened St. Steel
7	Packing	Graphite
8	Valve Lever	Stainless steel / 1.4301

* Available spare parts.

DIMENSIONS - ACTUATOR

Type	ø E (mm)	D (mm)	
		DN15-100 DA/RA	DN125-200 DA
PA-205	210	235	N/A
PA-280	275	240	N/A

FLOW RATE COEFFICIENTS					
	DN20	DN25	DN32	DN40	DN50
Kvs	6	9,4	15,4	24	30

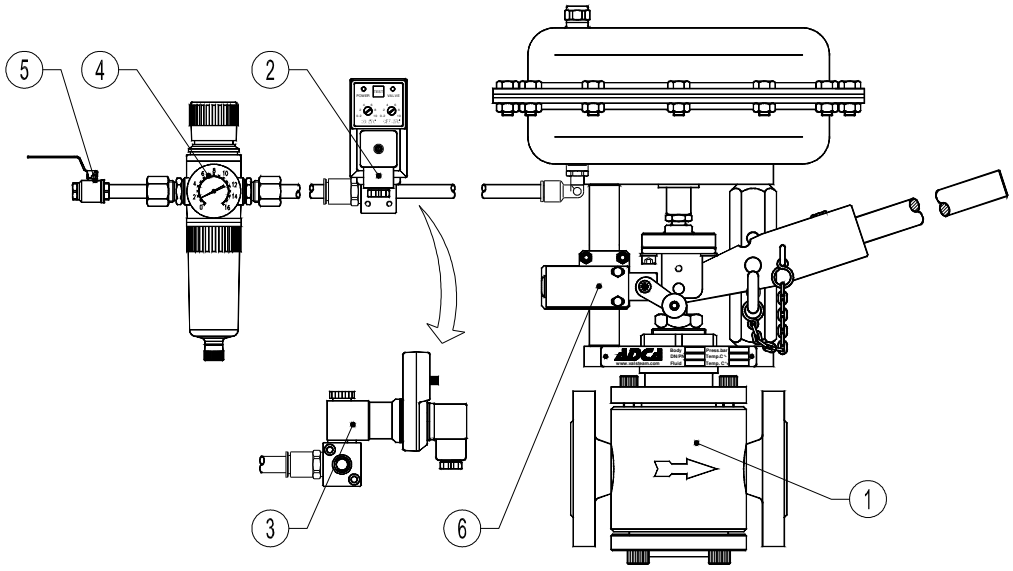
Kvs in m3/h, see data sheet IS PV10.00 E;
For conversion Kvs = Cv(US) x 0,855

VALVE STROKE IN mm					
	DN20	DN25	DN32	DN40	DN50
Stroke	12	12	12	12	12

MAX. PERMISSIBLE PRESS.DROP IN bar - Normally closed valve (fluid to close) - Reverse action actuator (air signal to open)						
ACTUATOR (Pressure)	MIN. AIR PRESSURE	DN20	DN25	DN32	DN40	DN50
PA-205 (0 - 1 bar)	3,5 bar	25	25	25	25	15
PA-280 (0 - 1 bar)	3,5 bar	—	—	—	—	25

Important:
The pressure drop values are referred to closed valves.
For valve sizes DN65 and above please consult.
Special spring drops available on request.
The pressure drop values must be used within the body rating limits.

TYPICAL INSTALLATION



Position	Designation
1	VPA26 Blowdown Valve
2	ADCA Digital Timer plus Connector
3	ADCA Solenoid Valve 3/2
4	ADCA P10 Air Filter Regulator
5	Ball Valve
6	Limit Switch

INTERMITTENT BLOWDOWN VALVES
VPA 26 S
(Cast steel)

DESCRIPTION

The VPA26S blowdown valve was specially designed for application on steam boilers removing the concentrations of solids avoiding boiler damages, unstable water level control and other typical problems.
The valves are provided with a diaphragm actuator suitable for compressed air motive fluid.
The opening signal is supplied by an automatic intermittent control unit or manually (optional).
Connections are flanged.

OPERATION

The valve can be operated manually or using a pneumatic actuator. Valve aperture depends from the boiler manufacturer specification (example: once a day during five seconds).

MAIN FEATURES

High quality hardened valve and seat.
Manual or automatic control.
Can be locked in the open position if supplied with the manual operation lever.

VALVE BODY LIMITING CONDITIONS VPA26S - PN25		VALVE BODY LIMITING CONDITIONS VPA26S - PN40	
ALLOWABLE PRESSURES	RELATED TEMP.	ALLOWABLE PRESSURES	RELATED TEMP.
25 bar	-10 /50º C	40 bar	-10 /50º C
20,8 bar	200 ºC	33,3 bar	200 ºC
19 bar	250 ºC	30,4 bar	250 ºC
17,2 bar	300 ºC	27,6 bar	300 ºC
16 bar	350 ºC	23,8 bar	400 ºC

* Rating according to EN1092-1:2007

OPTIONS: Air filter regulator
Solenoid valve with cycling timer .
Mechanical limit switch
Water powered actuator
Stainless steel construction.

USE: Intermittent blowdown of steam boilers.

AVAILABLE MODELS: VPA 26S

VALVE SIZES: DN20 to DN50
CONNECTIONS: Flanged EN 1092-1

ACTUATORS: PA-205; PA-280.
ACTUATOR CONN: 1/4" NPT-F

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 valve calculation data sheet or consult the factory.

MAX. AIR/WATER SUPPLY PRESS.: 3,5 bar

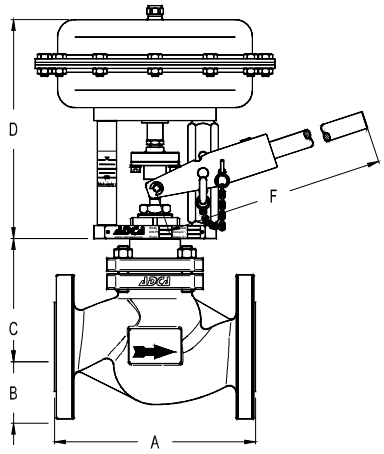
AMBIENT TEMPERATURE: -20ºC ...+70ºC

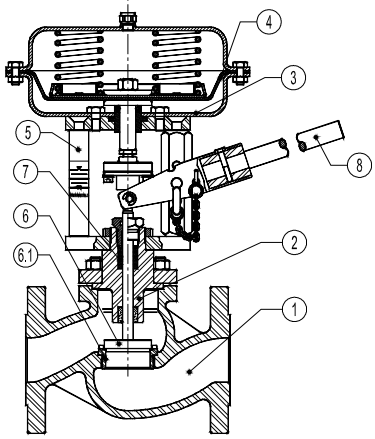
STEM SEALING: Graphite - up to 400ºC

PLUG CHARACTRERISTIC: PT - On-off

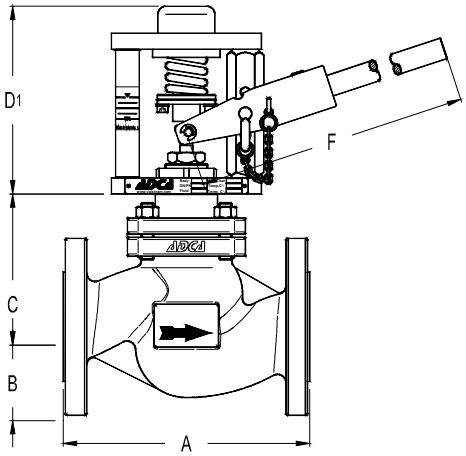
PORT: Full port or reduced on request

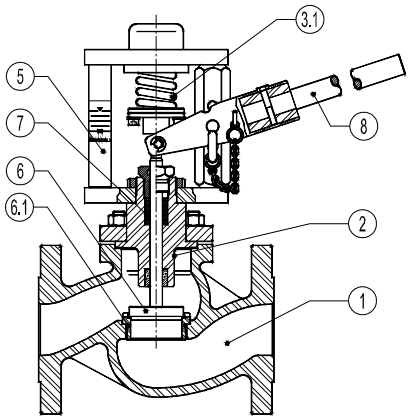
CE MARKING (PED - European Directive 97/23/EC)		
PN 25	PN 40	Category
DN20 to DN40	DN20 to DN32	SEP - art. 3, paragraph3
DN50	DN40 to DN50	1 (CE Marked)





VPA26S– with pneumatic actuator and manual operation





VPA26S– manual operation only

DIMENSIONS (mm) - VALVE BODY							
DN	***A***	***B***	***C***	***D1***	***F***	**** WGT. Kgs***	*****WGT Kgs***
20	150	53	80	175	380	15	12
25	160	58	85	175	380	16	13
32	180	70	90	175	380	20	17
40	200	75	95	175	650	25	22
50	230	83	105	175	650	34	31

* Valve with pneumatic actuator; ** Valve with manual lever only

FLOW RATE COEFFICIENTS						
	SIZES					
	DN15	***DN20***	***DN25***	***DN32***	***DN40***	***DN50***
Kvs	-	6	7,5	11	24	30

Kvs in m3/h , see data sheet IS PV10.00 E

VALVE STROKE IN mm						
	SIZES					
	DN15	***DN20***	***DN25***	***DN32***	***DN40***	***DN50***
Stroke	-	12	12	12	12	12

MATERIALS		
POS.	***DESIGNATION***	***MATERIAL***
1	Valve Body	A216 WCB / 1.0619
2	Bonnet	CF8 / 1.4308
3	* Actuator	Steel Fe410.1/St.Steel
3.1	* Spring	Spring Steel
4	* Diaphragm	NBR 70
5	Yoke	Carbon Steel/St.Steel
6	* Valve Plug	Hardened St. Steel
6.1	* Valve Seat	Hardened St. Steel
7	Packing	Graphite
8	Valve Lever	Stainless steel / 1.4301

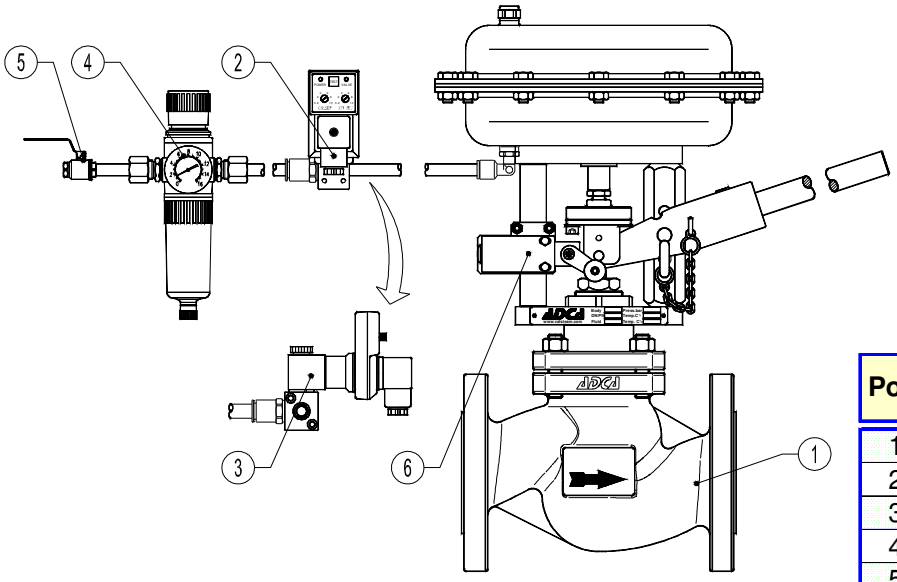
* Available spare parts.

DIMENSIONS - ACTUATOR			
Type	***ø E (mm)***	***D (mm)***	
		DN15-100 DA/RA	***DN125-200 DA***
PA-205	210	235	N/A
PA-280	275	240	N/A

MAX. PERMISSIBLE PRESS.DROP IN bar - Normally closed valve (fluid to close) - Reverse action actuator (air signal to open)							
ACTUATOR (Pressure)	MIN. AIR PRESSURE	SIZES					
		DN15	DN20	DN25	DN32	DN40	DN50
PA-205 (0 - 1 bar)	3,5 bar	—	25	25	25	25	15
PA-280 (0 - 1 bar)	3,5 bar	—	—	—	—	—	25

Important:
The pressure drop values are referred to closed valves.
For valve sizes DN65 and above please consult.
Special spring drops available on request.
The pressure drop values must be used within the body rating limits.

TYPICAL INSTALLATION



Pos.	Designation
1	VPA26S Blowdown Valve
2	ADCA Digital Timer plus Connector
3	ADCA Solenoid Valve 3/2
4	ADCA P10 Air Filter Regulator
5	Ball Valve
6	Limit Switch

Design with actuator and manual operation

Manual operation only

STEAM EQUIPMENT

ADCATrol

"ADCATROL" OVERFLOW VALVE
(By-pass valve)
OVF-40

DESCRIPTION

The OVF-40 overflow (by-pass) valves are single seated, two-way body constructed with in-line straight connections. The valve plug opens against outside regulating spring when the pre-selected differential pressure on the valve rises.

MAIN FEATURES
Stainless steel bellows sealed
Valve top flange permanently attached to the body, removal is unnecessary for replacing the spring.
Metal to metal sealing as standard.

OPTIONS:	Soft sealing and stellite seat and plug.
USE:	Diathermic heat transfer oil and other fluids compatible with the construction
AVAILABLE MODELS:	OVF40S OVF40I
VALVE SIZES:	DN25 to DN100
CONNECTIONS:	Flanged EN1092-1 - PN16-40
STEM SEALING:	Stainless steel bellows
PLUG CHARACT.:	PL - Linear
PLUG DESIGN :	V-ported
PORT :	Full port as standard
OPENING PRESSURE:	DN 15 to DN 50 : 1 - 7 bar ; DN 65 to DN 100 : 1 - 4 bar

CE MARKING (PED - European Directive 97/23/EC)			
PN 16	**PN 25**	**PN 40**	**Category**
DN15 to DN50	DN15 to DN40	DN15 to DN32	SEP - art. 3, paragraph3
DN65 to DN100	DN50 to DN100	DN40 to DN100	1 (CE Marked)

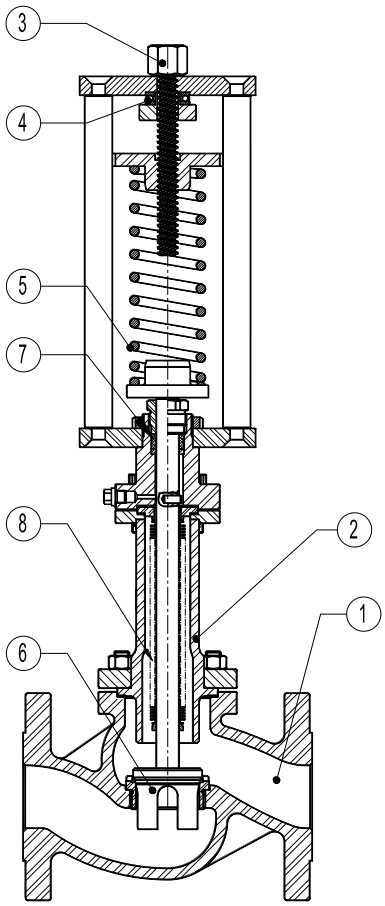
VALVE BODY LIMITING CONDITIONS

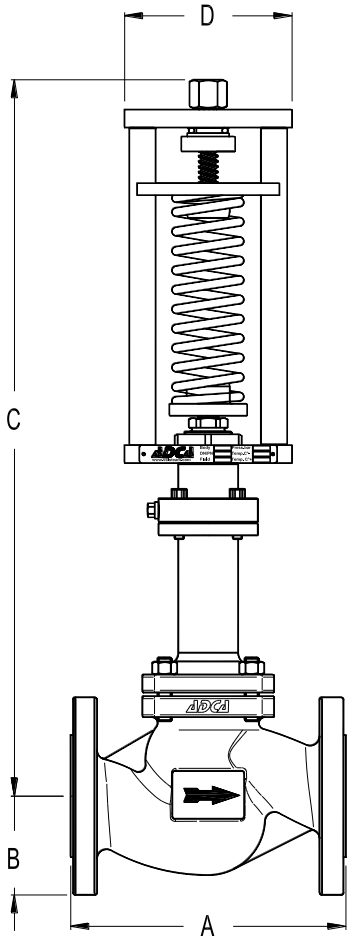
OVF-40S - PN16*		OVF-40I - PN16*		OVF-40S - PN40*		OVF-40I - PN40*	
ALLOW. PRESS.	**RELATED TEMP.**	**ALLOW. PRESS.**	**RELATED TEMP.**	**ALLOW. PRESS.**	**RELATED TEMP.**	**ALLOW. PRESS.**	**RELATED TEMP.**
16 bar	-10/50 °C	16 bar	-10/50 °C	40 bar	-10 /50° C	40 bar	-10 /50° C
13,3 bar	200 °C	13,4 bar	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

MATERIALS			
POS.	***DESIGNATION***	***MATERIAL OVF40S***	***MATERIAL OVF40I***
1	Valve Body	ASTM A216WCB / 1.0619	CF8M / 1.4408
2	Bonnet	CF8 / 1.4308	CF8 / 1.4308
3	Adjusting nut	Steel 5	Steel 5
4	Bearing	Steel	Steel
5	*Spring	AISI 301 / 1.4310	AISI 301 / 1.4310
6	Trim	Stainless steel	Stainless steel
7	*Standard packing	Graphite	Graphite
8	*Metal bellows	AISI316Ti / 1.4571	AISI316Ti / 1.4571

* Available spare parts





DIMENSIONS				
DN	***A (mm)***	***B (mm)***	***C (mm)***	***D (mm)***
25	160	58	485	140
32	180	70	495	140
40	200	75	505	140
50	230	83	570	140
65	290	93	660	140
80	310	100	675	140
100	350	118	685	140

FLOW RATE COEFFICIENTS							
	DN25	***DN32***	***DN40***	***DN50***	***DN65***	***DN80***	***DN100***
Kvs	9,4	15,4	22,2	40,1	63,4	89,7	136,7

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

VALVE STROKE IN mm							
	DN25	***DN32***	***DN40***	***DN50***	***DN65***	***DN80***	***DN100***
Stroke	20	20	20	20	30	30	30

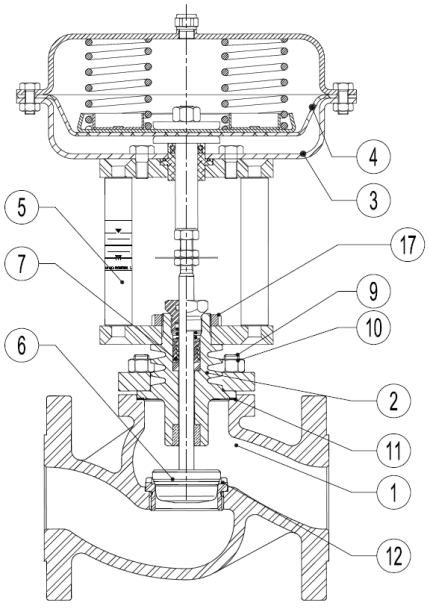
VALVE BODY LIMITING CONDITIONS									
V25G - PN16 **		V25S - PN16 *		V25I - PN16 *		V25S - PN40 *		V25I - PN40 *	
ALLOW. PRESS.	RELATED TEMP.	ALLOW. PRESS.	RELATED TEMP.	ALLOW. PRESS.	RELATED TEMP.	ALLOW. PRESS.	RELATED TEMP.	ALLOW. PRESS.	RELATED TEMP.
16 bar	-10/50 ºC	16 bar	-10/50 ºC	16 bar	-10/50 ºC	40 bar	-10 /50º C	40 bar	-10 /50º C
14,7 bar	200 ºC	13,3 bar	200 ºC	13,4 bar	200 ºC	33,3 bar	200 ºC	33,7 bar	200 ºC
13,9 bar	250 ºC	12,1 bar	250 ºC	12,7 bar	250 ºC	27,6 bar	300 ºC	29,7 bar	300 ºC
12,8 bar	300 ºC	11 bar	300 ºC	11,8 bar	300 ºC	25,7 bar	350 ºC	28,5 bar	350 ºC
11,2 bar	350 ºC	10,2 bar	350 ºC	11,4 bar	350 ºC	23,8 bar	400 ºC	27,4 bar	400 ºC

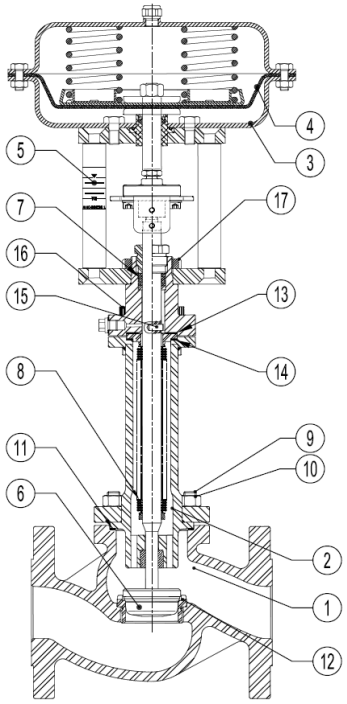
Note: Maximum temperature limited to the valve packing selected. Valves with soft seat , maximum allowable temperature : 200ºC

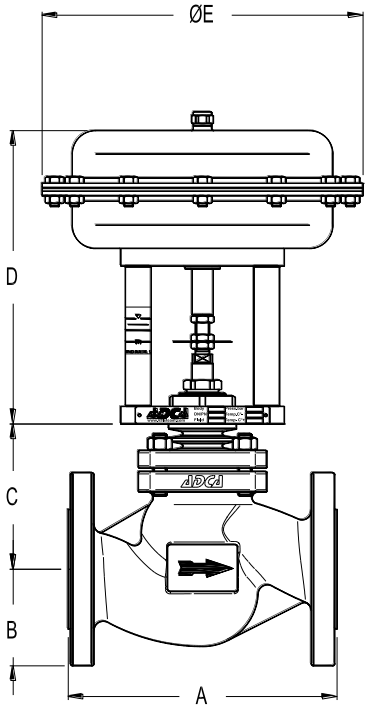
* Rating according to EN1092-1:2007; ** EN1092-2:1997

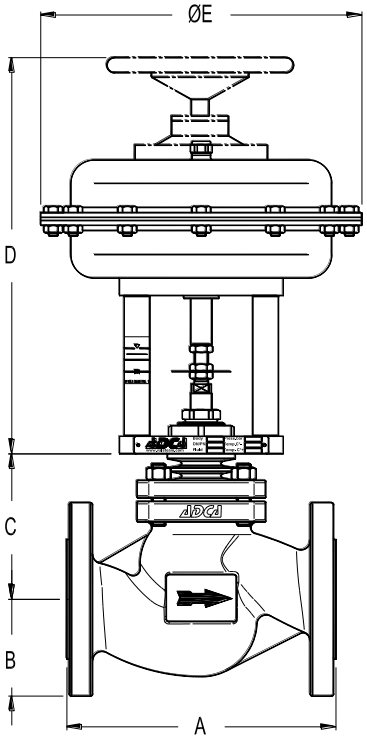
MATERIALS				
POS.	DESIGNATION	MATERIAL V25G	MATERIAL V25S	MATERIAL V25I
1	Valve Body	GJS-400-15 / 0.7040	ASTM A216WCB / 1.0619 ; GP240GH / 1.0619	CF8M / 1.4408
2	Bonnet	CF8 / 1.4308	CF8 / 1.4308	CF8 / 1.4308
3	Actuator (Steel)	S235JRG2 / 1.0038	S235JRG2 / 1.0038	S235JRG2 / 1.0038
	Actuator (Stainless steel)	AISI304 / 1.4301	AISI304 / 1.4301	AISI304 / 1.4301
4	*Diaphragm	NBR 70	NBR 70	NBR 70
5	Yoke (Steel)	C45E / 1.1191	C45E / 1.1191	C45E / 1.1191
	Yoke (Stainless steel)	AISI304 / 1.4301	AISI304 / 1.4301	AISI304 / 1.4301
6	*Valve plug	PTFE/GR ; St.Steel	PTFE/GR ; St.Steel	PTFE/GR ; St.Steel
7	*Standard packing	PTFE/GR	PTFE/GR	PTFE/GR
8	*Metal bellows	AISI316Ti / 1.4571	AISI316Ti / 1.4571	AISI316Ti / 1.4571
9	Studs	34CrNiMo6 / 1.6582	34CrNiMo6 / 1.6582	A4-70
10	Nuts	Steel 8.8	Steel 8.8	A4-70
11	Gasket	St.Steel / Graphite	St.Steel / Graphite	St.Steel / Graphite
12	Seat	Stainless Steel	Stainless Steel	Stainless Steel
13	Gasket	St.Steel / Graphite	St.Steel / Graphite	St.Steel / Graphite
14	Gasket	St.Steel / Graphite	St.Steel / Graphite	St.Steel / Graphite
15	Straight pin	Stainless Steel	Stainless Steel	Stainless Steel
16	Bolts	Steel 10.9	Steel 10.9	A4-70
17	Lock nut	Stainless Steel	Stainless Steel	Stainless Steel

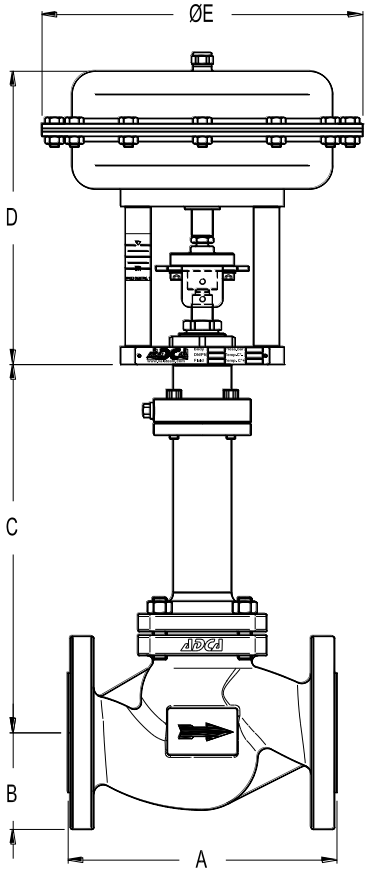
* Available spare parts

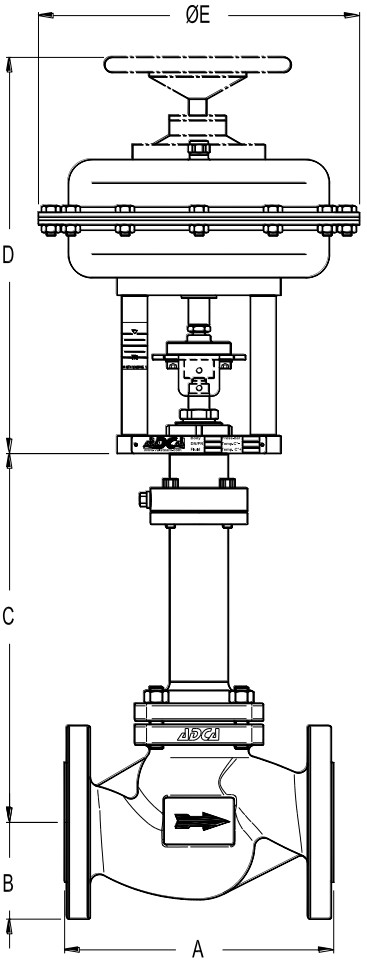












DIMENSIONS - VALVE BODY

DN	A (mm)	B (mm)	C (mm) BONNET			
			STANDARD	FINNED	EXTENDED	BELLOWS
15	130	48	85	150	150	290
20	150	53	85	150	150	290
25	160	58	90	170	170	295
32	180	70	110	190	190	280
40	200	75	115	195	195	285
50	230	83	125	215	215	285
65	290	93	175	275	275	392
80	310	100	175	275	275	392
100	350	118	190	310	310	400

PV25 DA - Direct action from DN15 to DN200, PV25 RA - Reverse action from DN15 to DN100

DIMENSIONS - ACTUATOR

Type	ø E (mm)	D (mm) DN15-100 DA/RA	WEIGHT Kgs
PA-205	210	235	5,7
PA-280	275	240	8,8
PA-340	335	265	14,3
PA-435	430	295	24,5

FLOW RATE COEFFICIENTS

	SIZES								
	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100
Kvs	3,8	5,1	9,4	15,4	22,2	40,1	63,4	89,7	136,7

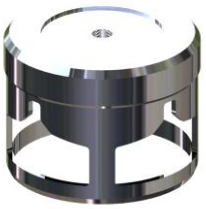
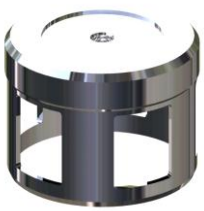
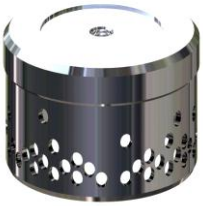
Kvs in m3/h , see data sheet IS PV10.00 E ; For conversion Kvs = Cv(US) x 0,855

VALVE STROKE IN mm

	SIZES								
	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100
Stroke	20	20	20	20	20	20	30	30	30

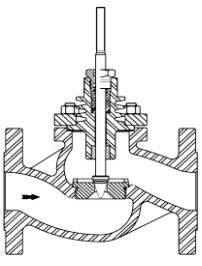
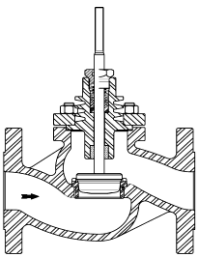
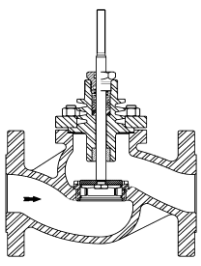
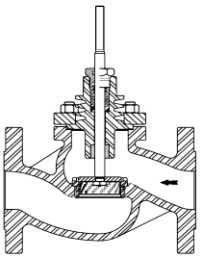
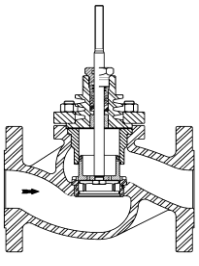
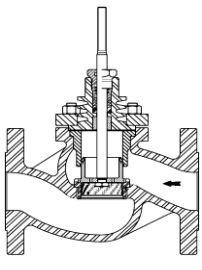
Perforated plug and on-off valves may have different strokes, please see literature or consult factory.

PLUG DESIGN

Microflow Linear PL	Contoured Equal % or Linear EQP - PL	V - Ported Equal percentage EQP	V - Ported Linear PL	Perforated Equal percentage EQP	Perforated Linear PL
					

V-Ported and perforated plugs are also available in balanced pressure version.

VALVE DESIGN - FLOW DIRECTION

Microflow Linear PL	Contoured Equal % or Linear EQP - PL	V - Ported EQP - PL	V - Ported Perforated EQP - PL	V-Ported Balanced EQP - PL	Perforated Balanced EQP - PL
					

MAX. PERM.PRESS.DROP IN bar - N.C.(fluid to open) -Reverse action actuator (air signal to open)										
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	10	10	7	—	—	—	—	—	—
	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	40	38	20	12	10	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	80	80	60	30	16	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	—	—	—	—	—	—	5	3,5	1,5
	0,4 ÷ 2 bar	—	—	—	—	—	—	6	4	2
PA435A	0,2 ÷ 1 bar	—	—	—	—	40	25	—	—	—
	0,4 ÷ 1,2 bar	—	—	—	—	48	30	—	—	—
	0,4 ÷ 2 bar	—	—	—	—	55	45	—	—	—
PA435B	0,2 ÷ 1 bar	—	—	—	—	—	—	6	5	3
	0,4 ÷ 1,2 bar	—	—	—	—	—	—	8	7	5
	0,4 ÷ 2 bar	—	—	—	—	—	—	10	8	6
	0,4 ÷ 2,5 bar	—	—	—	—	—	—	16	15	12

* For valve size DN125 and above please consult catalogue IS PV25G.125 E.
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 2,5 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.
If higher differential pressures are required please consult PA45 pneumatic actuators catalogue.

MAX. PERM.PRESS.DROP IN bar - N.O.(fluid to open) -Direct action actuator (air signal to close)										
ACTUATOR	CONTROL SIGNAL	SIZES								
		DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100
PA-205	0,2 ÷ 1 bar	16	16	12	5	—	—	—	—	—
	0,4 ÷ 2 bar	25	24	16	7,5	—	—	—	—	—
PA-280	0,2 ÷ 1 bar	—	—	19	10	8	4	—	—	—
	0,4 ÷ 2 bar	—	—	25	20	16	7	—	—	—
PA-340A	0,2 ÷ 1 bar	—	—	—	17	16	10	—	—	—
	0,4 ÷ 2 bar	—	—	—	28	26	25	—	—	—
PA-340B	0,2 ÷ 1 bar	—	—	—	—	—	—	5	3,5	1,5
	0,4 ÷ 2 bar	—	—	—	—	—	—	8	7	3
PA435B	0,2 ÷ 1 bar	—	—	—	—	—	—	8	5	3
	0,4 ÷ 2 bar	—	—	—	—	—	—	16	10	7,5

* For valve size DN125 and above please consult.
The actuator pressure drops given with closed valve, are obtained with the following air pressures supply:
Actuator signal 0,2 to 1 bar :air supply 1,2 bar ; Actuator signal 0,4 to 2 bar : air supply 2,5 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 2,5 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 V25

VALVE CODES		V	.25 G						.X.	
Actuator Type (1)										
Pneumatic Actuator	P									
Electric Actuator	E									
Group Designation										
Globe valve, two way, straight body		V								
Valve Model										
GJS-400-15 body, stainless steel trim			.25 G							
ASTM A216 WCB body, stainless steel trim			.25 S							
CF8M body, stainless steel trim			.25 I							
Stem Sealing										
PTFE/GR-V-Rings / Standard bonnet					1					
Virgin PTFE V-Rings / Standard bonnet					2					
Graphite / Standard bonnet					3					
Graphite / Finned bonnet					4					
Bellows					8					
Valve Plug										
EQP (equal percentage) - Soft (PTFE-GR)						1				
EQP (equal percentage) - Metal AISI316 / 1.4401						3				
EQP (equal percentage) - Stellite						4				
PL (linear) - Soft (PTFE/GR)						6				
PL (linear) - Metal AISI316 / 1.4401						7				
PT (on-off) - Soft (PTFE/GR)						9				
PT (on-off) - Metal AISI316 / 1.4401						10				
Pipe Connection										
Flanged EN1092 PN16							L			
Flanged EN1092 PN40							N			
Size										
DN15								15		
DN20								20		
…										
Actuator									(1)	
Extras (3)										E

ACTUATOR CODES (pneumatic)	P.			
Group Designation				
Multi-spring , pneumatic linear actuator	P.			
Actuator Size				
205		1		
280		3		
340 A - From DN15 to DN50		5		
340 B - From DN65 to DN100		6		
435 A - From DN15 to DN50		7		
435 B - From DN65 to DN100		8		
Actuator				
Direct Action			D	
Reverse Action			R	
Actuator Construtions				
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

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

Example:

V25G valve model EQP soft plug, PTFE/GR stem sealing DN50 complete with reverse action actuator signal 0,4-1,2bar, size340A steel.

Code: PV.25G.11L50.5R18

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).

"ADCATROL" TEMPERATURE REGULATORS

SELF ACTING - NON BALANCED SIMPLE SEAT

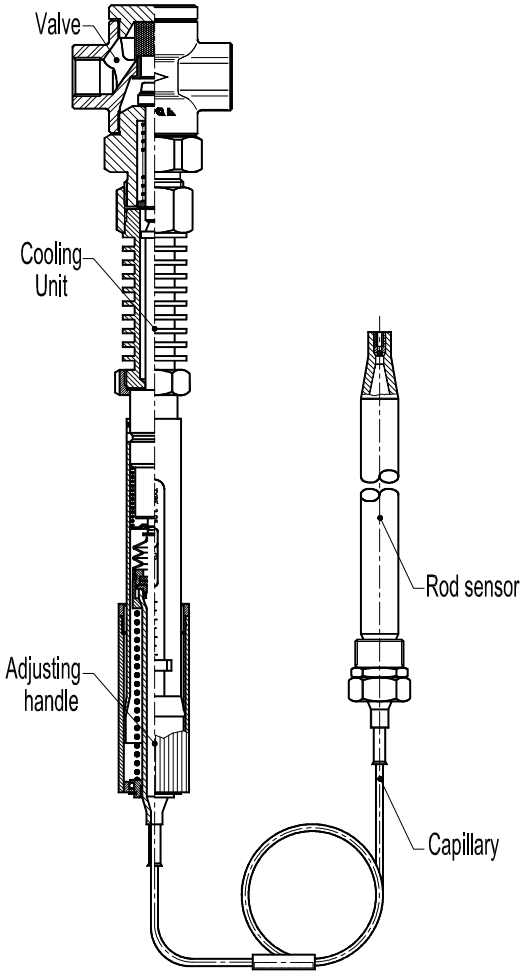
TR25S forged steel valves & T series thermostats

DESCRIPTION

The series TR25 valves are designed for direct acting temperature control systems where the valve closes on temperature rising. They are single seat type in order to guarantee an excellent tightness and are to be coupled with the thermostats model T.205 and T.405.The liquid filling in the thermostat expands with a rise in the temperature thus operating the valve.

The valves are used for controlling the temperature in central heating systems, district heating systems and industrial plants.

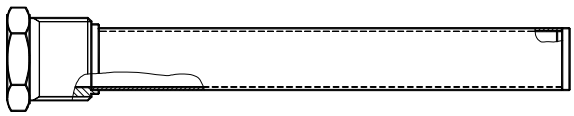
Connections are female screwed.



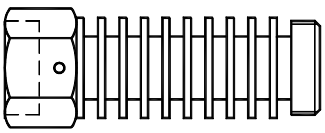
MAIN FEATURES

Single seated, two way, direct action valve.
Leakage less than 0,05% of full Kv
Built-in strainer.

OPTIONS :	Valves for cooling applications.
USE:	Saturated and superheated steam. Hot and superheated water.
AVAILABLE MODELS:	TR25S - Steel construction valve body
SIZES:	DN 1/2" - DN 1"
CONNECTIONS:	Female screwed ISO7/1Rp(BS 21) .
CONTROL MODE:	Proportional
THERMOSTATS:	T.205 - 200N (max. closing force) T.405 - 400N (max. closing force)
THERMOSTAT RANGES:	T.205 - 0-60 ; 30-90 and 60-120ºC T.405 - 0-120 ; 40-160 ºC
CAPILLARY LENGHTS:	3 m as standard
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 valve calculation data sheet or consult the factory.
VALVE LIMITING CONDITIONS:	Body design conditions: PN40 40 bar at 120ºC 24 bar at 350 ºC Min. working temperature: -10ºC
COOLING UNITS:	Cooling unit protects the stuffing box of the thermostat. Type K1 is recommended at valve temperatures between 150 and 250ºC.



Sensor pocket PK



Cooling unit K1

INSTALLATION:

Horizontal installation with the thermostat in the vertical position, in order to reduce wear. In case of valve temperatures up to 150ºC, the thermostat may be fitted below or above the valve. In case of valve temperatures between 150 and 250ºC a cooling unit type K1 has to be applied with connection downwards. An "Y" strainer should be provided upstream the valve. See IMI, installation and maintenance instructions.

SPECIFICATIONS				
Type	Conn. DN	Opening Ø (mm)	Kvs m3/h	Valve stroke
TR25-15/4	15	4	0,2	6
TR25-15/6	15	6	0,45	6
TR25-15/9	15	9	0,95	6
TR25-15/12	15	12	1,7	6
TR25-15	15	15	2,75	6
TR25-20/9	20	9	0,95	6,5
TR25-20/15	20	15	2,75	6,5
TR25-20/20	20	20	5	6,5
TR25-25/20	25	20	5	7

MAX.PERMISSIBLE DIF.PRESSURES With T.205 Thermostat		
Press. bar	valve Size	Seat Ø(mm)
21	15	4 and 6
13	15	9
9,3	15	12
5,3	15	15
5,3	20	15
2,9	20	20
2,9	25	20

MAX.PERMISSIBLE DIF.PRESSURES With T.405 Thermostat		
Press. bar	valve Size	Seat Ø(mm)
40	15	4 and 6
38	15	9
24	15	12
15	15	15
15	20	15
9	20	20
9	25	20

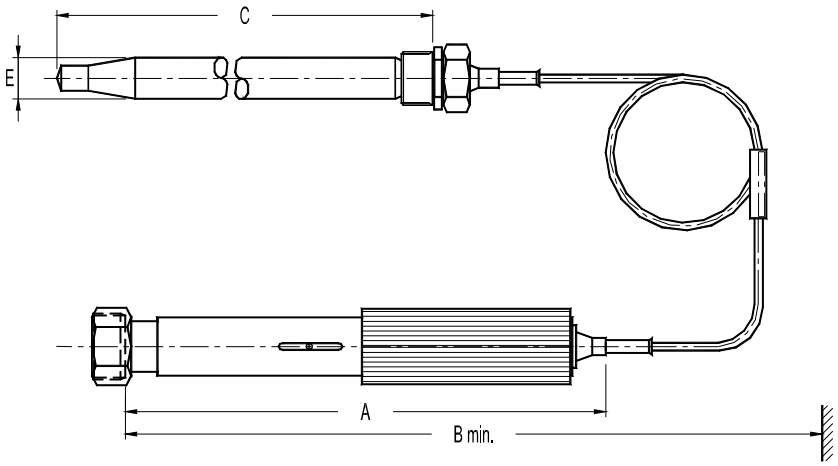
PROPORTIONAL BAND

The proportional band is the temperature change required for the valve to move from fully open to fully closed. It depends on the valve stroke and on the thermostat movement per ºC, and is calculated as follows:

Proportional band: $\frac{\text{Valve stroke (mm)}}{\text{Thermostat mov. (mm/ºC)}}$

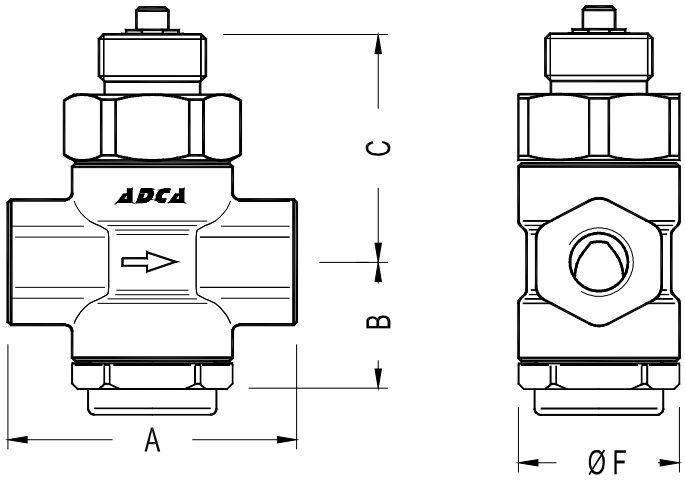
Thermostat movement in mm per ºC:
T.205 and T.405: 0,5 mm / ºC
A proportional band in the range 8-13ºC is suitable for most applications. A smaller proportional band is not ideal where heat load varies rapidly.

THERMOSTAT DIMENSIONS (mm)					
TYPE	A	B	C	ØF	Wgt Kg
T.205	305	405	210	22	1,8
T.405	385	525	390	22	2,6



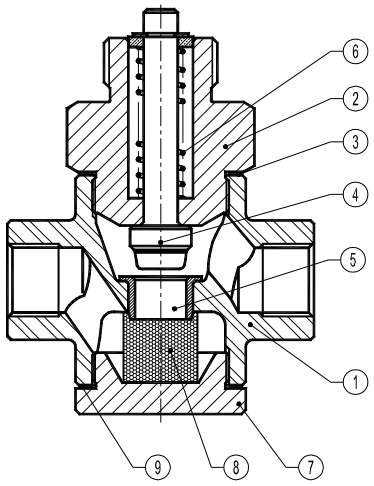
VALVE DIMENSIONS (mm)					
SIZE DN	A	B	C	ØF	WGT. Kgs
1/2"	90	40	70	50	1,2
3/4"	90	40	70	50	1,2
* 3/4"	100	45	75	55	1,6
1"	100	45	75	55	1,6

* Only model TR25-20/20



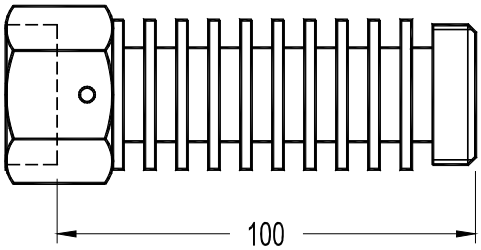
MATERIALS		
POS.	***DESIGNATION***	***MATERIAL***
1	Body	P250GH / 1.0460
2	Bonnet	CK45 / 1.1191
3	* Gasket	St.St./Graphite
4	* Valve plug	AISI 316 / 1.4401
5	Seat	AISI 316 / 1.4401
6	* Spring	AISI 302 / 1.4300
7	Cap	CK45 / 1.1191
8	* Strainer screen	AISI 304 / 1.4301
9	* Cap gasket	St.St./Graphite

*Available spare parts



COOLING UNITS K1

The cooling units are used in connection with control valves and thermostats to protect the stuffing box. At valve temperatures between 150ºC and 250ºC a cooling unit of type K1 connected downwards should be applied.
For higher temperatures as well as for all hot oil systems please consult.



SENSOR POCKETS PK

Sensor pockets of stainless steel can be supplied to all TR series self-acting thermostats with rod sensors. They are used where it is impossible to empty the system or the tank.
Use of sensor pockets implies delay of heat transfer to the rod sensors and thus a longer reaction time for the controllers. This is to some extent counteracted by filling up the sensor pockets with paste or oil.

POCKET DIMENSIONS (mm)					
TYPE	***D***	***H***	***L***	***S***	***R***
PK2	25	9	218	36	1"
PK4	25	10	390	45	11/4"

INSTALLATION

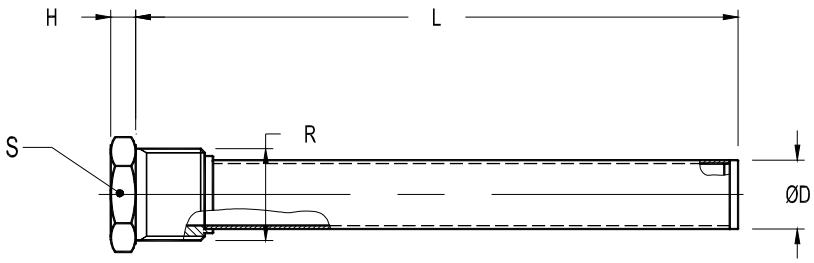
The installation site for the sensor pocket is arbitrary when paste is applied. When oil is used, the sensor pocket must point somewhat downwards.

MATERIAL

Stainless steel 1.4436

LIMITING CONDITIONS

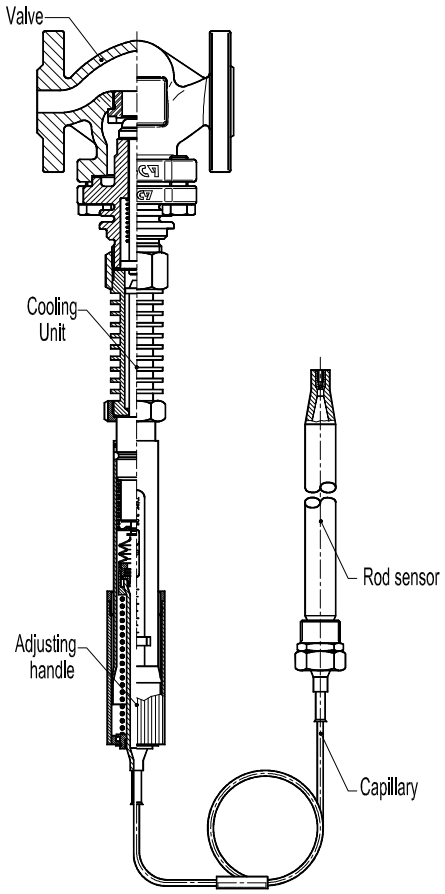
40 bar at 120ºC
24 bar at 350ºC



"ADCATROL" TEMPERATURE REGULATORS
SELF ACTING - NON BALANCED SIMPLE SEAT
TR40 valves & T series thermostats

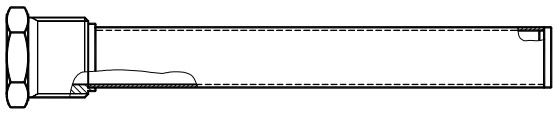
DESCRIPTION

The series TR40 valves are designed for direct acting temperature control systems where the valve closes on temperature rising. They are single seat type in order to guarantee an excellent tightness and are to be coupled with the thermostats model T.205 and T.405.The liquid filling in the thermostat expands with a rise in temperature operating the valve.
The valves are used for controlling the temperature in central heating systems, district heating systems and industrial plants.
Connections are flanged.

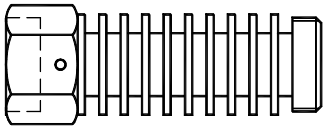


MAIN FEATURES
Single seated, two way, direct action valve.
Leakage less than 0,05% of full Kv

USE:	Saturated and superheated steam. Hot and superheated water.
AVAILABLE MODELS:	TR40S - PN40 cast steel valve body. TR40SS - PN40 Stainless steel valve body.
SIZES:	DN15 to DN 25.
CONNECTIONS:	Flanged EN 1092-1 PN16 – PN40
CONTROL MODE:	Proportional
THERMOSTATS:	T.205 - 200N (max. closing force) T.405 - 400N (max. closing force)
THERMOSTAT RANGES:	T.205 - 0-60; 30-90 and 60-120ºC T.405 - 0-120; 40-160 ºC
CAPILLARY LENGHTS:	3 m as standard
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 valve calculation data sheet or consult the factory.
COOLING UNITS:	Cooling unit protects the stuffing box of the thermostat. Type K1 is recommended at valve temperatures between 150 and 250ºC. .



Sensor pocket PK



Cooling unit K1

INSTALLATION:
Horizontal installation with the thermostat in the vertical position in order to reduce wear. In case of valve temperatures up to 150ºC, the thermostat may be fitted below or above the valve. In case of valve temperatures between 150 and 250ºC a cooling unit type K1 has to be applied with connection downwards. An "Y" strainer should be provided upstream the valve.
See IMI, installation and maintenance instructions.

VALVE BODY LIMITING CONDITIONS TR-40S - PN40		VALVE BODY LIMITING CONDITIONS TR40SS - PN40	
ALLOWABLE PRESSURES	RELATED TEMPERATURE	ALLOWABLE PRESSURES	RELATED TEMPERATURE
40 bar	-10 /50º C	40 bar	-10 /50º C
30,2 bar	200 ºC	30,2 bar	200 ºC
25,8 bar	300 ºC	25,8 bar	300 ºC
24 bar	350 ºC	24 bar	350 ºC
23,1 bar	400 ºC	23,1 bar	400 ºC

SPECIFICATIONS				
Type	*Conn. DN*	*Opening Ø (mm)*	*Kvs m3/h*	*Valve stroke*
TR40-15/4	15	4	0,2	6
TR40-15/6	15	6	0,45	6
TR40-15/9	15	9	0,95	6
TR40-15/12	15	12	1,7	6
TR40-15	15	15	2,75	6
TR40-20/9	20	9	0,95	6,5
TR40-20/15	20	15	2,75	6,5
TR40-20/20	20	20	5	6,5
TR40-25/20	25	20	5	7
TR40-25/25	25	25	7,5	7

MAX.PERMISSIBLE DIF.PRESSURES With T.205 Thermostat		
Press. bar	*valve Size*	*Seat Ø(mm)*
21	15	4 and 6
13	15	9
9,3	15	12
5,3	15	15
5,3	20	15
2,9	20	20
2,9	25	20
1,3	25	25

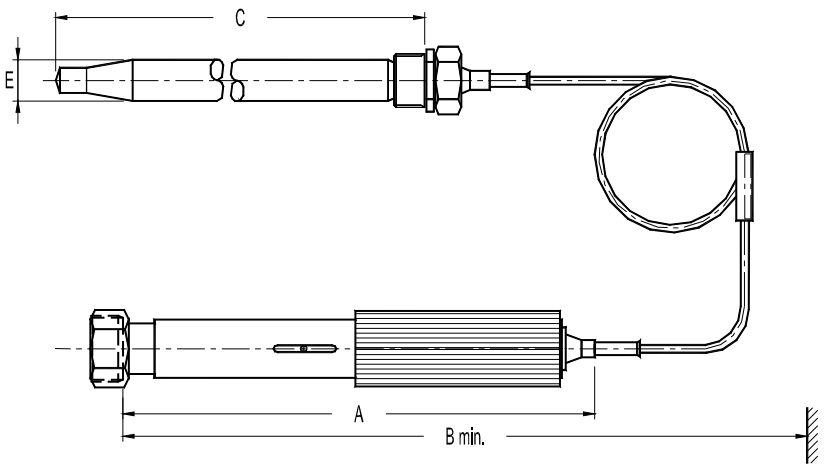
MAX.PERMISSIBLE DIF.PRESSURES With T.405 Thermostat		
Press. bar	*valve Size*	*Seat Ø(mm)*
40	15	4 and 6
38	15	9
24	15	12
15	15	15
15	20	15
9	20	20
9	25	20
4,7	25	25

PROPORTIONAL BAND
The proportional band is the temperature change required for the valve to move from fully open to fully closed. It depends on the valve stroke and on the thermostat movement per ºC, and is calculated as follows:

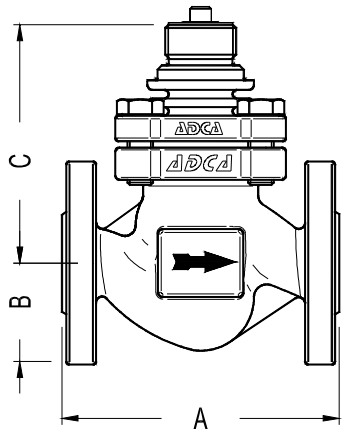
Proportional band: $\frac{\text{Valve stroke (mm)}}{\text{Thermostat mov. (mm/ºC)}}$

Thermostat movement in mm per ºC:
T.205 and T.405: 0,5 mm / ºC
A proportional band in the range 8-13ºC is suitable for most applications. A smaller proportional band is not ideal where heat load varies rapidly.

THERMOSTAT DIMENSIONS (mm)					
TYPE	*A*	*B*	*C*	*E*	*Wgt Kg*
T.205	305	405	210	22	1,8
T.405	385	525	390	22	2,6

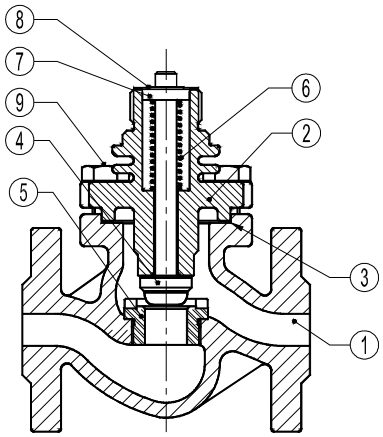


DIMENSIONS (mm)				
SIZE DN	**A**	**B**	**C**	**WGT. Kgs**
15	130	48	115	4,8
20	150	53	115	4,9
25	160	58	120	5,9



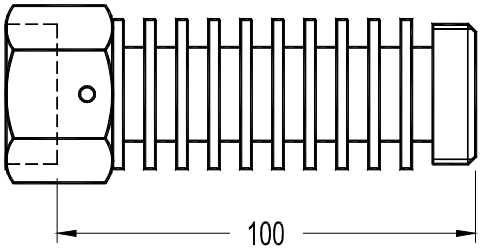
MATERIALS			
POS.	**DESIGNATION**	**MATERIAL TR40S**	**MATERIAL TR40SS**
1	Valve Body	ASTM A216WCB / 1.0619 ; GP240GH / 1.0619	CF8M / 1.4408
2	Bonnet	CF8 / 1.4308	CF8 / 1.4308
3	* Gasket	St.St./Graphite	St.St./Graphite
4	* Valve plug	AISI 316 / 1.4401	AISI 316 / 1.4401
5	Seat	AISI 316 / 1.4401	AISI 316 / 1.4401
6	* Spring	AISI 302 / 1.4300	AISI 302 / 1.4300
7	Guide	AISI 316 / 1.4401	AISI 316 / 1.4401
8	Washer	AISI 304 / 1.4301	AISI 304 / 1.4301
9	Bolts	Steel 8.8	A-2

* Available spare parts



COOLING UNITS K1

The cooling units are used in connection with control valves and thermostats to protect the stuffing box. At valve temperatures between 150ºC and 250ºC a cooling unit of type K1 connected downwards should be applied. For higher temperatures as well as for all hot oil systems please consult.



SENSOR POCKETS PK

Sensor pockets of stainless steel can be supplied to all TR series self-acting thermostats with rod sensors. They are used where it is impossible to empty the system or the tank.
Use of sensor pockets implies delay of heat transfer to the rod sensors and thus a longer reaction time for the controllers. This is to some extent counteracted by filling up the sensor pockets with paste or oil.

POCKET DIMENSIONS (mm)					
TYPE	**D**	**H**	**L**	**S**	**R**
PK2	25	9	218	36	1"
PK4	25	10	390	45	11/4"

INSTALLATION

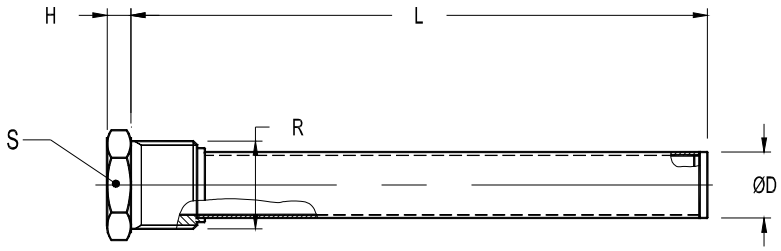
The installation site for the sensor pocket is arbitrary when paste is applied. When using oil the sensor pocket must point somehow downwards.

MATERIAL

Stainless steel 1.4436

LIMITING CONDITIONS

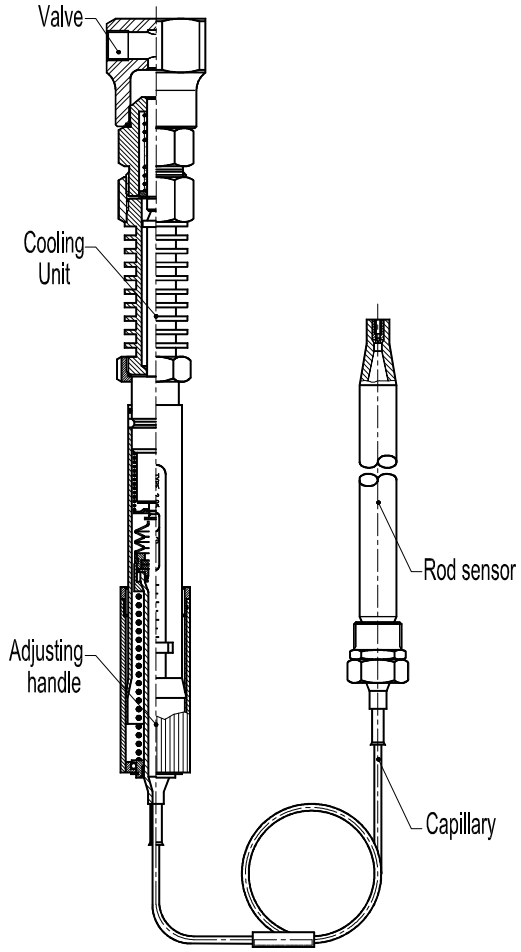
40 bar at 120ºC
24 bar at 350ºC



"ADCATROL" TEMPERATURE REGULATORS
SELF ACTING - NON BALANCED SIMPLE SEAT
TR25SS stainless steel valves & T series thermostats

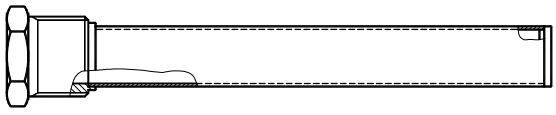
DESCRIPTION

The series TR25 valves are designed for direct acting temperature control systems where the valve closes on temperature rising. They are single seat type in order to guarantee an excellent tightness and are to be coupled with the thermostats model T.205 .The liquid filling in the thermostat expands with a rise in temperature operating the valve.
The valves are used for controlling the temperature in central heating systems, district heating systems and industrial plants.
Connections are female screwed.

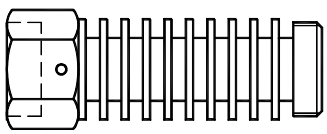


MAIN FEATURES
Single seated, two way, direct action valve.
Leakage less than 0,05% of full Kv

OPTIONS :	Valves for cooling applications.
USE:	Saturated and superheated steam. Hot and superheated water.
AVAILABLE MODELS:	TR25SS – Stainless steel construction valve body
SIZES:	DN 1/4" - DN 3/8"
CONNECTIONS:	Female screwed ISO7/1Rp(BS 21) .
CONTROL MODE:	Proportional
THERMOSTATS:	T.205 - 200N (max. closing force)
THERMOSTAT RANGES:	T.205 - 0-60; 30-90 and 60-120ºC
CAPILLARY LENGHTS:	3 m as standard
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 valve calculation data sheet or consult the factory.
VALVE LIMITING CONDITIONS:	Body design conditions: PN40 40 bar at 120ºC 24 bar at 350 ºC Min. working temperature: -10ºC
COOLING UNITS:	Cooling unit protects the stuffing box of the thermostat. Type K1 is recommended at valve temperatures between 150 and 250ºC.



Sensor pocket PK



Cooling unit K1

INSTALLATION:
Horizontal installation with the thermostat in the vertical position in order to reduce wear. In case of valve temperatures up to 150ºC the thermostat may be fitted below or above the valve. In case of valve temperatures between 150 and 250ºC a cooling unit type K1 has to be applied with connection downwards. An "Y" strainer should be provided upstream the valve.
See IMI, installation and maintenance instructions.

SPECIFICATIONS				
Type	**Conn. DN**	**Opening Ø (mm)**	**Kvs m3/h**	**Valve stroke**
TR25-8/4	1/4"	4	0,2	6
TR25-8/6	1/4"	6	0,45	6
TR25-10/9	3/8"	9	0,95	6

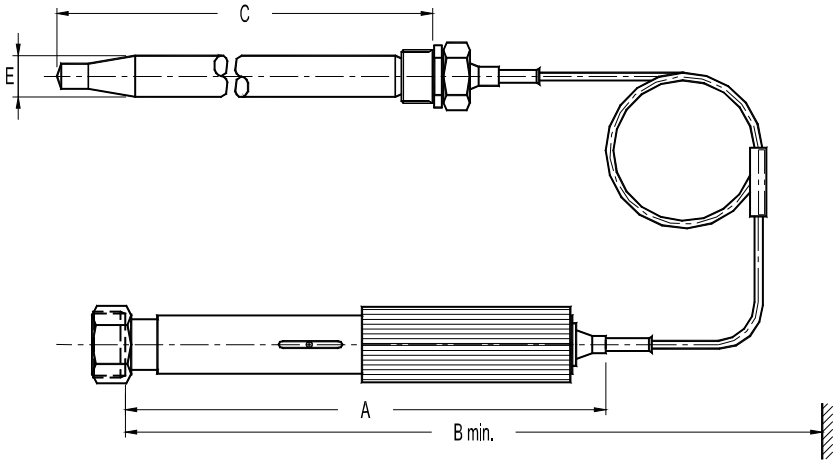
MAX.PERMISSIBLE DIF.PRESSURES		
With T.205 Thermostat		
Press. bar	**valve Size**	**Seat Ø(mm)**
21	1/4"	4 and 6
13	3/8"	9

PROPORTIONAL BAND
The proportional band is the temperature change required for the valve to move from fully open to fully closed. It depends on the valve stroke and on the thermostat movement per ºC, and is calculated as follows:

Proportional band: $\frac{\text{Valve stroke (mm)}}{\text{Thermostat mov. (mm/ºC)}}$

Thermostat movement in mm per ºC:
T.205 and T.405: 0,5 mm / ºC
A proportional band in the range 8-13ºC is suitable for most applications. A smaller proportional band is not ideal where heat load varies rapidly.

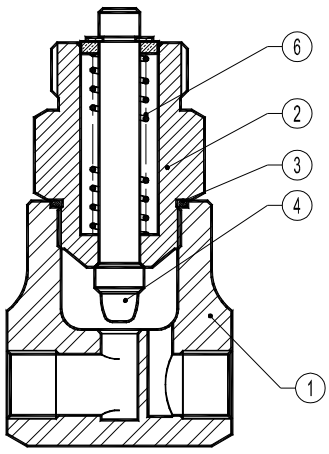
THERMOSTAT DIMENSIONS (mm)					
TYPE	**A**	**B**	**C**	**E**	**Wgt Kg**
T.205	305	405	210	22	1,8

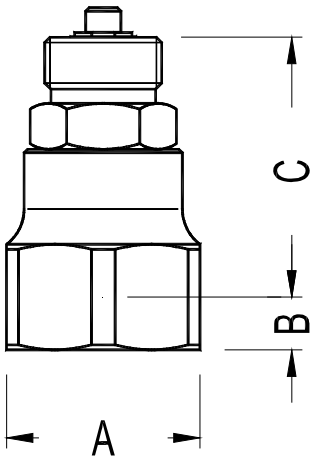


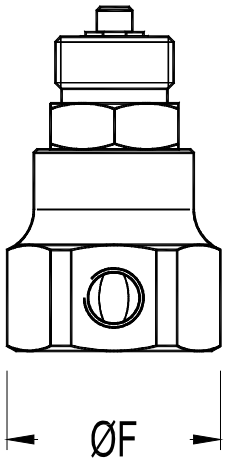
VALVE DIMENSIONS (mm)					
SIZE DN	**A**	**B**	**C**	**ØF**	**WGT. Kgs**
1/4"	45	15	93	49	1,1
3/8"	55	15	93	60	1,1

MATERIALS		
POS.	**DESIGNATION**	**MATERIAL**
1	Body	AISI316 / 1.4401
2	Bonnet	AISI 304 / 1.4301
3	* Gasket	St.St./Graphite
4	* Valve plug	AISI 316 / 1.4401
6	* Spring	AISI 302 / 1.4300

*Available spare parts

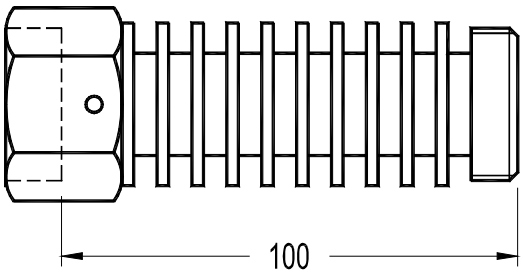






COOLING UNITS K1

The cooling units are used in connection with control valves and thermostats to protect the stuffing box. At valve temperatures between 150ºC and 250ºC a cooling unit of type K1 connected downwards should be applied. For higher temperatures as well as for all hot oil systems please consult.



SENSOR POCKETS PK

Sensor pockets of stainless steel can be supplied to all TR series self-acting thermostats with rod sensors. They are used where it is impossible to empty the system or the tank.
Use of sensor pockets implies delay of heat transfer to the rod sensors and thus a longer reaction time for the controllers. This is to some extent counteracted by filling up the sensor pockets with paste or oil.

INSTALLATION

The installation site for the sensor pocket is arbitrary when paste is applied. When using oil the sensor pocket must point somehow downwards.

MATERIAL

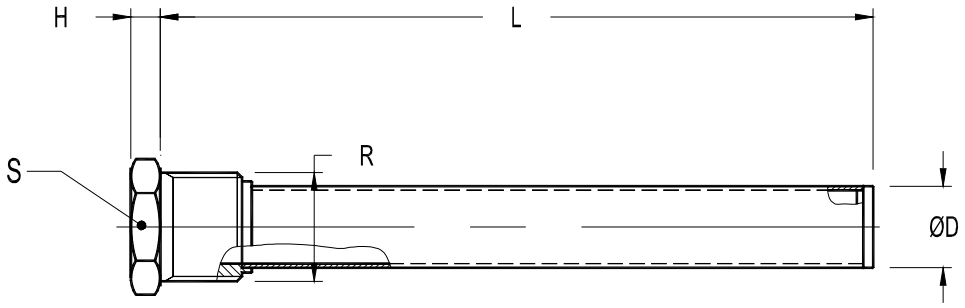
Stainless steel 1.4436

LIMITING CONDITIONS

40 bar at 120ºC
24 bar at 350ºC

POCKET DIMENSIONS (mm)

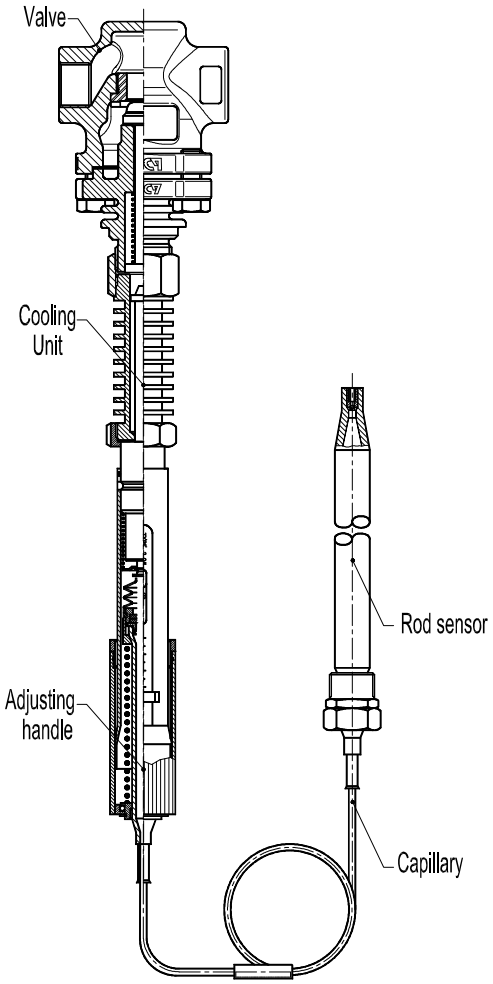
TYPE	*D*	*H*	*L*	*S*	*R*
PK2	25	9	218	36	1"
PK4	25	10	390	45	11/4"



"ADCATROL" TEMPERATURE REGULATORS
SELF ACTING - NON BALANCED SIMPLE SEAT
TR25SS stainless steel valves & T series thermostats

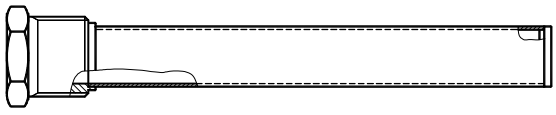
DESCRIPTION

The series TR25 valves are designed for direct acting temperature control systems where the valve closes on temperature rising. They are single seat type in order to guarantee an excellent tightness and are to be coupled with the thermostats model T.205 and T.405.The liquid filling in the thermostat expands with a rise in temperature operating the valve.
The valves are used for controlling the temperature in central heating systems, district heating systems and industrial plants.
Connections are female screwed.

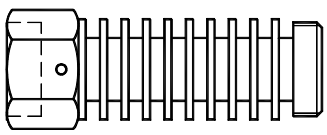


MAIN FEATURES
Single seated, two way, direct action valve.
Leakage less than 0,05% of full Kv

OPTIONS :	Valves for cooling applications.
USE:	Saturated and superheated steam. Hot and superheated water.
AVAILABLE MODELS:	TR25SS – Stainless steel construction valve body
SIZES:	DN 1/2" - DN 1"
CONNECTIONS:	Female screwed ISO7/1Rp(BS 21) .
CONTROL MODE:	Proportional
THERMOSTATS:	T.205 - 200N (max. closing force) T.405 - 400N (max. closing force)
THERMOSTAT RANGES:	T.205 - 0-60; 30-90 and 60-120ºC
CAPILLARY LENGHTS:	T.405 - 0-120; 40-160 ºC 3 m as standard
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 valve calculation data sheet or consult the factory.



Sensor pocket PK



Cooling unit K1

VALVE LIMITING CONDITIONS:

Body design conditions: PN25
25 bar at 100ºC
21 bar at 200ºC
19,8 bar at 250ºC
18,5 bar at 300ºC
Min. working temperature: -10ºC

INSTALLATION:
Horizontal installation with the thermostat in the vertical position in order to reduce wear. In case of valve temperatures up to 150ºC the thermostat may be fitted below or above the valve. In case of valve temperatures between 150 and 250ºC a cooling unit type K1 has to be applied with connection downwards. An "Y" strainer should be provided upstream the valve.
See IMI, installation and maintenance instructions.

SPECIFICATIONS				
Type	*Conn. DN*	*Opening Ø (mm)*	*Kvs m3/h*	*Valve stroke*
TR25-15/4	15	4	0,2	6
TR25-15/6	15	6	0,45	6
TR25-15/9	15	9	0,95	6
TR25-15/12	15	12	1,7	6
TR25-15	15	15	2,75	6
TR25-20/9	20	9	0,95	6,5
TR25-20/15	20	15	2,75	6,5
TR25-20/20	20	20	5	6,5
TR25-25/20	25	20	5	7
TR25-25/25	25	25	7,5	7

MAX.PERMISSIBLE DIF.PRESSURES With T.205 Thermostat		
Press. bar	*valve Size*	*Seat Ø(mm)*
21	15	4 and 6
13	15	9
9,3	15	12
5,3	15	15
5,3	20	15
2,9	20	20
2,9	25	20
1,3	25	25

MAX.PERMISSIBLE DIF.PRESSURES With T.405 Thermostat		
Press. bar	*valve Size*	*Seat Ø(mm)*
40	15	4 and 6
38	15	9
24	15	12
15	15	15
15	20	15
9	20	20
9	25	20
4,7	25	25

PROPORTIONAL BAND

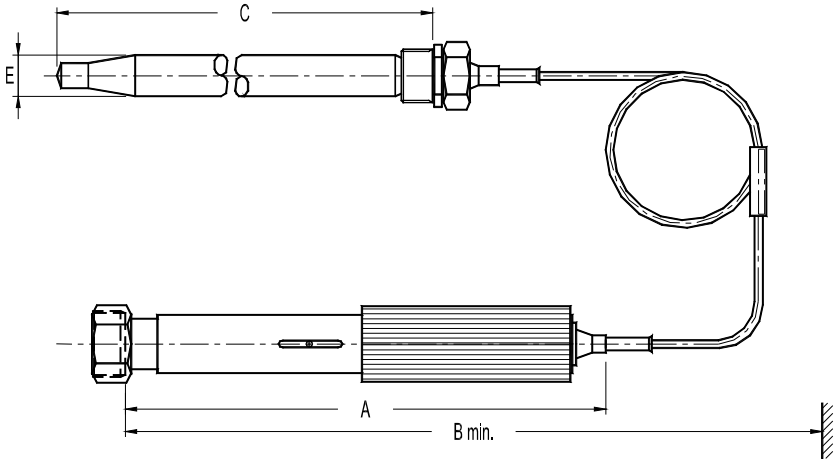
The proportional band is the temperature change required for the valve to move from fully open to fully closed. It depends on the valve stroke and on the thermostat movement per ºC, and is calculated as follows:

$$\text{Proportional band:} \quad \frac{\text{Valve stroke (mm)}}{\text{Thermostat mov. (mm/ºC)}}$$

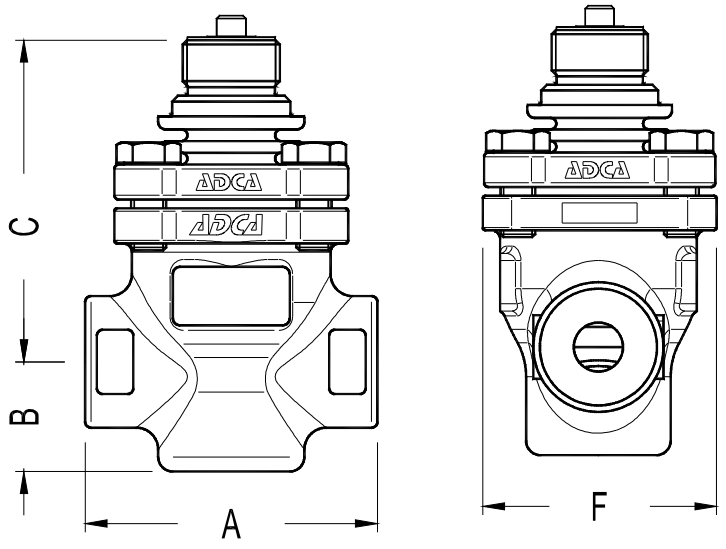
Thermostat movement in mm per ºC:
T.205 and T.405: 0,5 mm / ºC

A proportional band in the range 8-13ºC is suitable for most applications. A smaller proportional band is not ideal where heat load varies rapidly.

THERMOSTAT DIMENSIONS (mm)					
TYPE	*A*	*B*	*C*	*ØF*	*Wgt Kg*
T.205	305	405	210	22	1,8
T.405	385	525	390	22	2,6

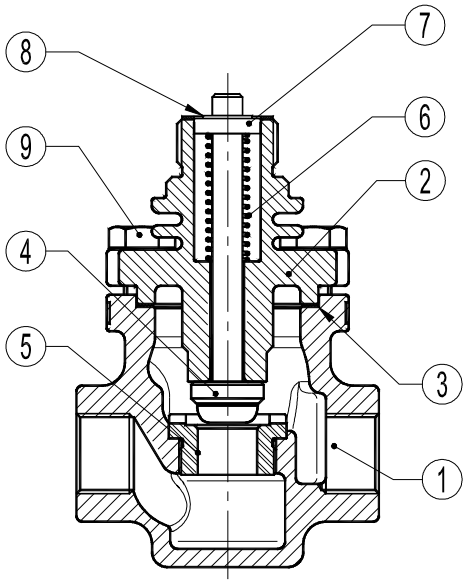


VALVE DIMENSIONS (mm)					
SIZE DN	*A*	*B*	*C*	*F*	*WGT. Kgs*
1/2"	100	40	112	80	2,8
3/4"	100	40	112	80	2,8
1"	100	40	112	80	2,9



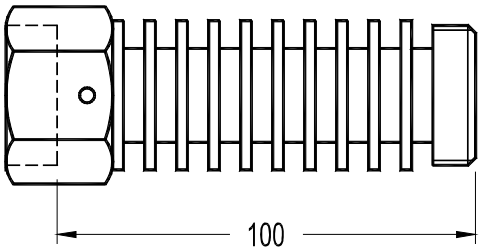
MATERIALS		
POS.	***DESIGNATION***	***MATERIAL***
1	Body	CF8M / 1.4408
2	Bonnet	CF8 / 1.4308
3	* Gasket	St.St./Graphite
4	* Valve plug	AISI 316 / 1.4401
5	Seat	AISI 316 / 1.4401
6	* Spring	AISI 302 / 1.4300
7	Cap	AISI 304 / 1.4301
8	Washer	AISI 304 / 1.4301
9	Bolts	A-2

*Available spare parts



COOLING UNITS K1

The cooling units are used in connection with control valves and thermostats to protect the stuffing box. At valve temperatures between 150ºC and 250ºC a cooling unit of type K1 connected downwards should be applied.
For higher temperatures as well as for all hot oil systems please consult.



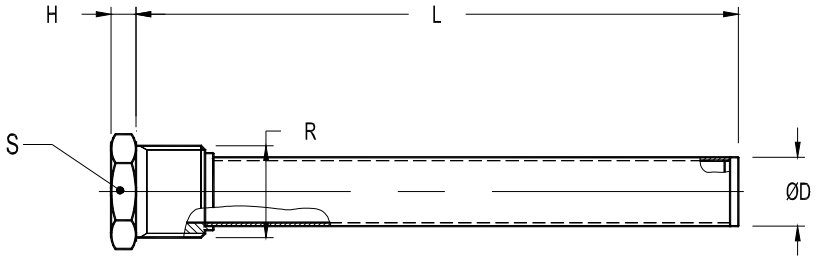
SENSOR POCKETS PK

Sensor pockets of stainless steel can be supplied to all TR series self-acting thermostats with rod sensors. They are used where it is impossible to empty the system or the tank.
Use of sensor pockets implies delay of heat transfer to the rod sensors and thus a longer reaction time for the controllers. This is to some extent counteracted by filling up the sensor pockets with paste or oil.

POCKET DIMENSIONS (mm)					
TYPE	***D***	***H***	***L***	***S***	***R***
PK2	25	9	218	36	1"
PK4	25	10	390	45	11/4"

INSTALLATION

The installation site for the sensor pocket is arbitrary when paste is applied. When using oil the sensor pocket must point somehow downwards.



MATERIAL

Stainless steel 1.4436

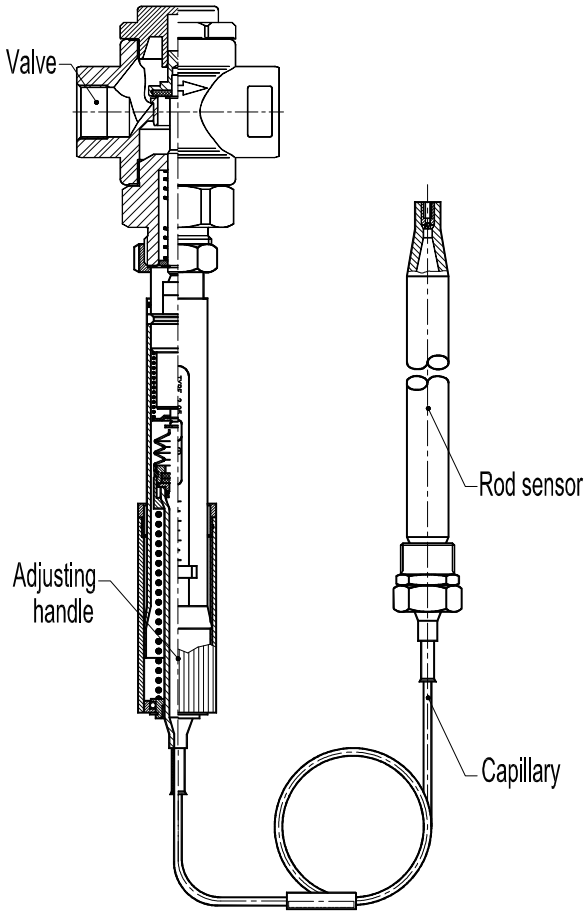
LIMITING CONDITIONS

40 bar at 120ºC
24 bar at 350ºC

"ADCATROL" TEMPERATURE REGULATORS
SELF ACTING - NON BALANCED SIMPLE SEAT
TR25S/R – Reverse action for cooling systems
(Forged steel valves & T series thermostats)

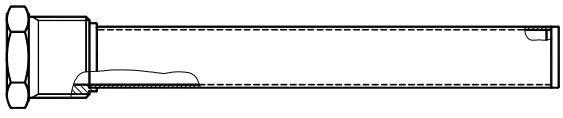
DESCRIPTION

The series TR25-R valves are designed for temperature control of cooling systems where the valve open on temperature rising. They are single seat type in order to guarantee an excellent tightness and are to be coupled with the thermostats model T.205 and T.405.The liquid filling in the thermostat expands with a rise in temperature operating the valve.
The valves are used for temperature control in cooling systems.
Connections are female screwed or flanged.



MAIN FEATURES
Single seated, two way, reverse action valve.
Leakage less than 0,05% of full Kv

OPTIONS :	Valves for heating process.
USE:	Water and other compatible fluids.
AVAILABLE MODELS:	TR25S-R - Steel construction valve body
SIZES:	DN 1/2" - DN 1" – DN15 - DN 25.
CONNECTIONS:	Female screwed ISO7/1Rp(BS 21) . Flanged EN 1092-1 or ANSI.
CONTROL MODE:	Proportional
THERMOSTATS:	T.202 - 200N (max. closing force) T.405 - 400N (max. closing force)
THERMOSTAT RANGES:	T.205 - 0-60; 30-90 and 60-120ºC T.405 - 0-120; 40-160 ºC
CAPILLARY LENGHTS:	3 m as standard
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 valve calculation data sheet or consult the factory.
VALVE LIMITING CONDITIONS:	Body design conditions: PN40 40 bar at 120ºC 24 bar at 350 ºC Min. working temperature: -10ºC



Sensor pocket PK

INSTALLATION:
Horizontal installation with the thermostat in the vertical position in order to reduce wear. In case of valve temperatures up to 150ºC the thermostat may be fitted below or above the valve.
An "Y" strainer should be provided upstream the valve.
See IMI, installation and maintenance instructions.

SPECIFICATIONS				
Type	**Conn. DN**	**Opening Ø (mm)**	**Kvs m3/h**	**Valve stroke**
TR25-15	15	15	1,9	6
TR25-20/15	20	15	1,9	6,5
TR25-20/20	20	20	4,2	6,5
TR25-25/20	25	20	4,2	7

MAX.PERMISSIBLE DIF.PRESSURES		
Press. bar	**Valve Size**	**Seat Ø (mm)**
With T.205 Thermostat		
5,3	15	15
5,3	20	15
2,9	20	20
2,9	25	20
With T.405 Thermostat		
15	15	15
15	20	15
9	20	20
9	25	20

PROPORTIONAL BAND

The proportional band is the temperature change required for the valve to move from fully open to fully closed. It depends on the valve stroke and on the thermostat movement per ºC, and is calculated as follows:

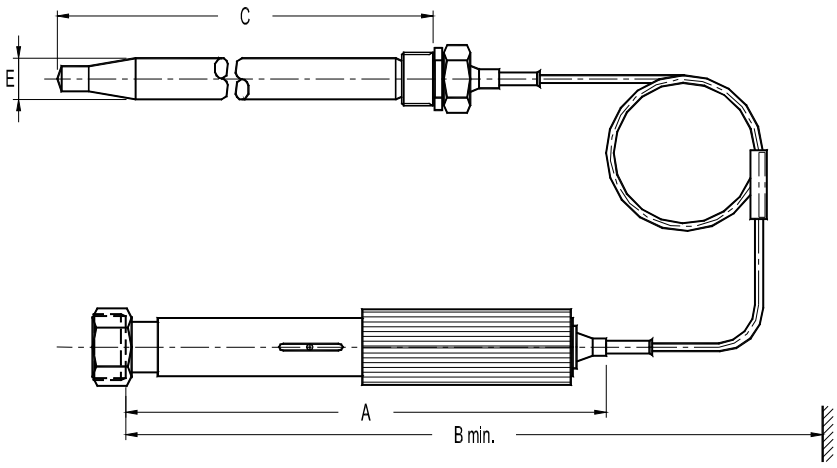
Proportional band: $\frac{\text{Valve stroke (mm)}}{\text{Thermostat mov. (mm/ºC)}}$

Thermostat movement in mm per ºC:

T.205 and T.405: 0,5 mm / ºC

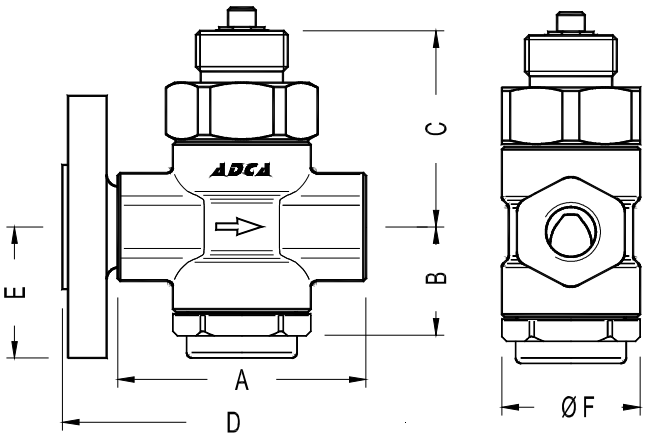
A proportional band in the range 8-13ºC is suitable for most applications. A smaller proportional band is not ideal where heat load varies rapidly.

THERMOSTAT DIMENSIONS (mm)					
TYPE	**A**	**B**	**C**	**E**	**Wgt Kg**
T.205	305	405	210	22	1,8
T.405	385	525	390	22	2,6



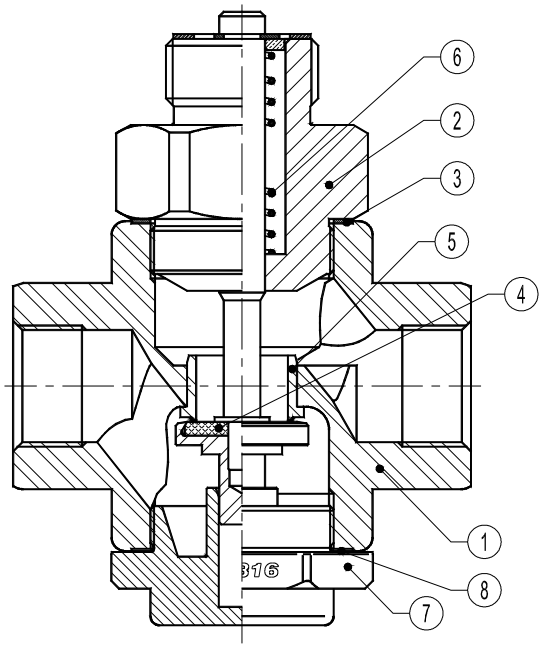
DIMENSIONS (mm)-Screwed						EN 1092-1 Flanges		
SIZE DN	**A**	**B**	**C**	**F**	**WGT. Kgs**	**D**	**E**	**WGT. Kgs**
1/2"	90	40	70	50	1,2	130	47,5	2,6
3/4"	90	40	70	50	1,2	150	52,5	3,2
* 3/4"	100	45	75	55	1,6	150	52,5	3,6
1"	100	45	75	55	1,6	160	57,5	4,2

* Only model TR25-20/20



MATERIALS		
POS.	***DESIGNATION***	***MATERIAL***
1	Body	P250GH / 1.0460
2	Bonnet	C45E / 1.1191
3	* Gasket	St.St./ Graphite
4	* Valve plug	St.St./NBR/PTFE
5	Seat	AISI 316 / 1.4401
6	* Spring	AISI 302 / 1.4300
7	Cap	AISI 316 / 1.4401
8	* Cap gasket	St.St./Graphite

*Available spare parts



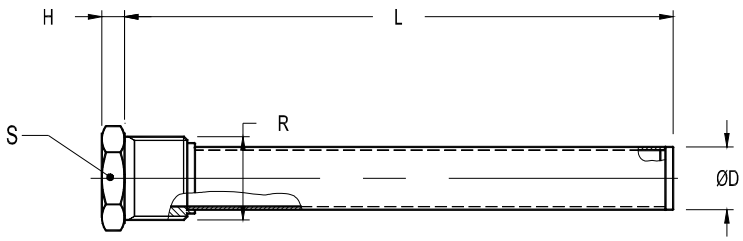
SENSOR POCKETS PK

Sensor pockets of stainless steel can be supplied to all TR series self-acting thermostats with rod sensors. They are used where it is impossible to empty the system or the tank.
Use of sensor pockets implies delay of heat transfer to the rod sensors and thus a longer reaction time for the controllers. This is to some extent counteracted by filling up the sensor pockets with paste or oil.

POCKET DIMENSIONS (mm)					
TYPE	***D***	***H***	***L***	***S***	***R***
PK2	25	9	218	36	1"
PK4	25	10	390	45	11/4"

INSTALLATION

The installation site for the sensor pocket is arbitrary when paste is applied. When using oil the sensor pocket must point somewhat downwards.



MATERIAL

Stainless steel 1.4436

LIMITING CONDITIONS

40 bar at 120ºC
24 bar at 350ºC

PNEUMATIC CONTROL VALVES
PWV40I
(WV40I globe valves series with linear actuators PA series)

DESCRIPTION

The PWV40I control valves are single seated, two-way body constructed with in-line straight connections. 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 PWV40I valves have been designed to assure an accurate control in any process condition. Their wide application ranges allows the use of this valve with the most common process fluids such as water, superheated water, steam, air, gas and other non corrosive fluids.

MAIN FEATURES

Single seated, two ways, direct or reverse action valve.
Valve top flange permanently attached to the body, removal is unnecessary for replacing the actuator.
Stainless steel construction and soft sealing as standard.

OPTIONS:	Position transmitter 4-20 mA Pneumatic pilot positioner Electropneumatic pilot positioner Air filter regulator Top-work manual handwheel
USE:	Saturated and superheated steam. Hot and superheated water. Air, gases and other noncorrosive fluids.
AVAILABLE MODELS:	PWV40I
VALVE SIZES:	DN15 to DN25
CONNECTIONS:	Sandwhished between flanges as per EN 1092-1 PN16/40
ACTUATORS:	PA-205; PA-280; PA-340.
ACTUATOR CONN:	1/4" NPT-F
CONTROL SIGNAL:	0,2 - 1 bar ; 0,4 - 1,2 bar ; 0,4 - 2 bar .

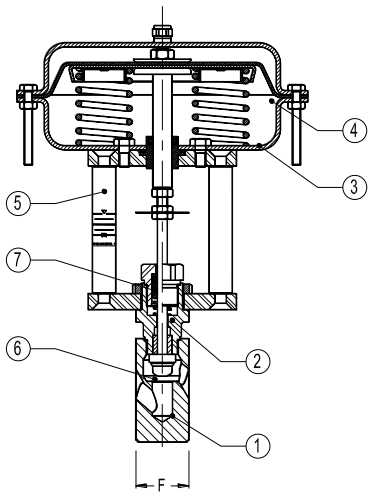
HOW TO SELECT: Never size the valve according to the pipe diameter in which it has to be fitted but according to the required actual flow of steam or water.Refer to valve calculation data sheet or consult the factory.

CE MARKING (PED - European Directive 97/23/EC)	
PN 40	**Category**
DN 1/2" to 1"	SEP - art. 3, paragraph3

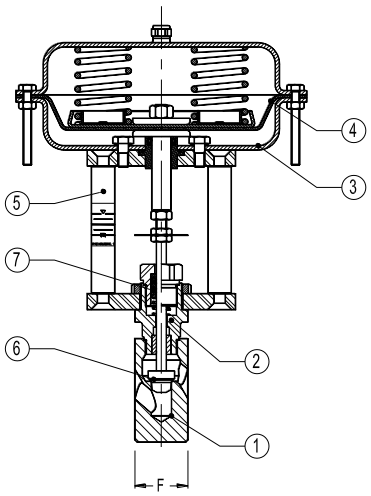
VALVE LIMITING CONDITIONS	
PRESSURE / TEMPERATURE	
40 bar	-10/100ºC
33,7 bar	200 ºC
31,8 bar	250 ºC
29,7 bar	300 ºC

Maximum temperature limited to the valve packing selected.
Valves with soft seating: max.temperature 200ºC

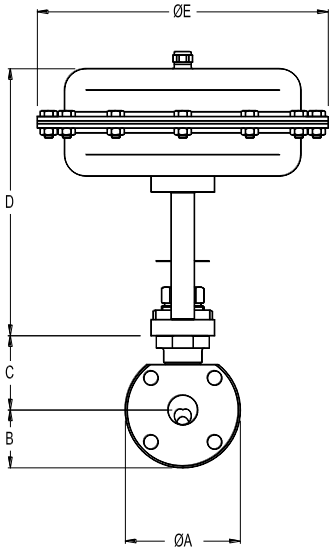
MAX. AIR SUPPLY PRESSURE:	3,5 bar
AMBIENT TEMPERATURE:	-20ºC ...+70ºC
BONNET :	From -5ºC to +200ºC (standard) Finned for temperature >200ºC
STEM SEALING:	PTFE/GR V-Rings - up to 220ºC (Standard bonnet) Graphite - up to 300ºC (Finned bonnet)
PLUG CHARACT.:	PL - Linear
PLUG DESIGN:	Contoured Microflow
PORT:	Reduced port



PWV40I DA - Direct action



PWV40I RA - Reverse action



PWV40I - Direct and reverse action from DN15 to DN25

DIMENSIONS - VALVE BODY

DN	A (mm)	B (mm)	F (mm)	C (mm) BONNET	
				STANDARD	EXTENDED
15	99	45	38	70	140
20	99	45	38	70	140
25	109	55	50	70	140

DIMENSIONS - ACTUATOR

Type	ø E (mm)	D (mm) DN15-25 DA/RA	WEIGHT Kgs
PA-205	210	235	5,7
PA-280	275	240	8,8
PA-340	335	265	14,3

MATERIALS

POS.	DESIGNATION	MATERIAL
1	Valve Body	AISI 316 / 1.4401
2	Bonnet	AISI316 / 1.4401
3	* Actuator (Steel)	S235JRG2 / 1.0038
	* Actuator (St.steel)	AISI304 / 1.4301
4	Diaphragm	NBR70
5	Yoke (steel)	C45E / 1.1191
	Yoke (st. steel)	AISI304 / 1.4301
6	Valve plug	St.Steel - PTFE/GR
7	Standard packing	PTFE/GR

*** Electric actuator : see IS EL20.00 E**

MAX. PRESSURE DROPS IN BAR (Fluid Open)

ACTUATOR	CONTROL SIGNAL	SIZES DN15	DN20	DN25
PA-205	0,2 ÷ 1 bar	8	8	7,5
	0,4 ÷ 1,2 bar	12	12	9
	0,4 ÷ 2 bar	14	14	11
PA-280	0,2 ÷ 1 bar	32	27	18
	0,4 ÷ 1,2 bar	41	40	22
	0,4 ÷ 2 bar	52	47	27
PA-340	0,2 ÷ 1 bar	60	60	50
	0,4 ÷ 1,2 bar	80	80	60
	0,4 ÷ 2 bar	100	100	80

ACTUATOR STROKE IN mm

	SIZES DN15	DN20	DN25
Stroke	15	15	15

FLOW RATE COEFFICIENTS

	SIZES DN15	DN20	DN25
Kvs	1,7	2,2	5,5

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

ORDERING CODES WV40I

VALVE CODES		WV	.40 I					.X.	
Actuator Type (1)									
Pneumatic Actuator	P								
Electric Actuator	E								
Group Designation									
Globe valve, two way, straight body,wafer type		WV							
Valve Model									
PN40, two way, complete stainless steel valve			.40 I						
Stem Sealing									
PTFE/GR-V-Rings / Standard bonnet				1					
Virgin PTFE V-Rings / Standard bonnet				2					
Graphite / Standard bonnet				3					
Graphite / Finned bonnet				4					
Valve Plug									
EQP (equal percentage) - Soft (PTFE-GR)					1				
EQP (equal percentage) - Metal AISI316 / 1.4401					3				
EQP (equal percentage) - Stellite					4				
PL (linear) - Soft (PTFE/GR)					6				
PL (linear) - Metal AISI316 / 1.4401					7				
Pipe Connection									
Flanged EN 1092-1 PN40						N			
Size									
DN 15							15		
DN 20							20		
DN 25							25		
Actuator								(1)	
Extras (3)									E

ACTUATOR CODES (pneumatic)	P.				
Group Designation					
Multi-spring , pneumatic linear actuator	P.				
Actuator Size					
205		1			
280		3			
340 A - From DN15 to DN25		5			
Actuator					
Direct Action			D		
Reverse Action			R		
Actuator Constrution					
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

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

Example:

WV40I valve model EQP soft plug, PTFE/GR stem sealing DN25 complete with reverse action actuator signal 0,4-1,2bar, size340A steel.

Code: PWV40I.11N25.5R18

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).

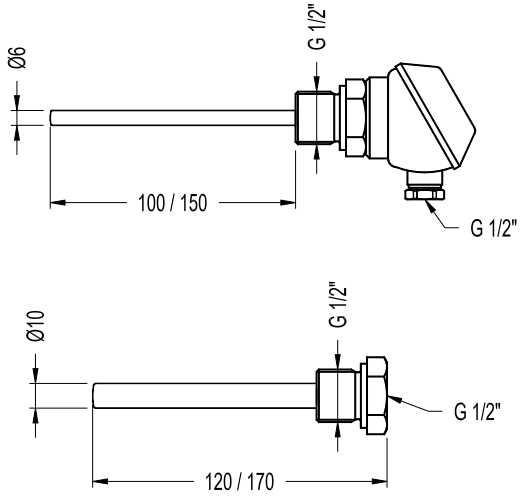
RESISTANCE THERMOMETER FOR LIQUID MEDIA WITH TERMINAL HEAD FORM B
PT100

DESCRIPTION

Screw-in resistance
thermometer with terminal head.

MAIN FEATURES

Terminal head: form B, DIN 43 729
Max. ambient temperature: 100 ºC
Max. media temperature: 400 ºC
Connection: R ½”
Immersion length: 100 and 150mm.



DIRECT SOLENOID VALVE
SV32C

DESCRIPTION

3/2 Way solenoid valves are available as single station units. Standard valve is normally closed and comes with one plug.

MAIN FEATURES
Port size: ¼”
Fluid: compressed air (filtered through 40 microns filter elements)
Sectional area: 1,5mm2
Operating: Inner spring return
Max. pressure: 10 bar
Temperature range: -10 ºC to 60 ºC
Coil type: DIN
Protection: IP65 (DIN 40 050)
Standard voltage: 220VAC, 24 VDC, 24 VAC

BODY MATERIAL
Aluminium alloy