

“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.

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



VPC-32



VPC-25

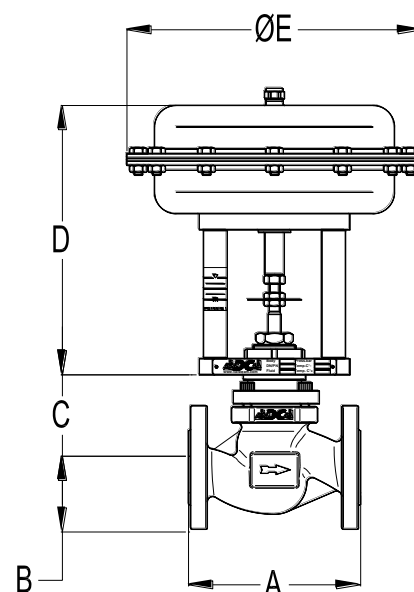
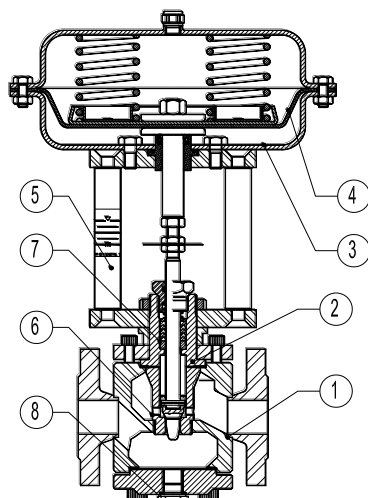
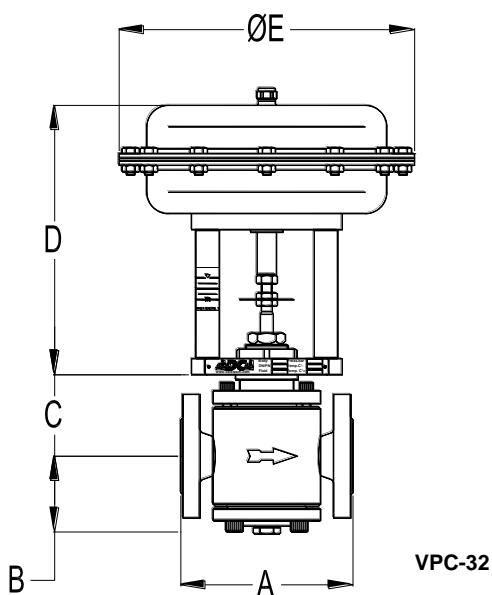
- MAX.AIR SUPPLY:** 3,5 bar
AMBIENT TEMPERATURE: -20°C+70°C
STEM SEALING: PTFE/GR V-Rings-220°C (Standard bonnet)
Graphite – up to 300°C (Extended bonnet)
PLUG CHARACT.: PL - Linear
PLUG DESIGN: Contoured
Microflow
PORT: Full port or reduced on request

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	-10/50°C	40 bar	-10/50°C
33,3 bar	200 °C	30,2 bar	200 °C
30,4 bar	250 °C	25,8 bar	300 °C
27,6 bar	300 °C	24 bar	350 °C

Maximum temperature limited to the valve packing selected

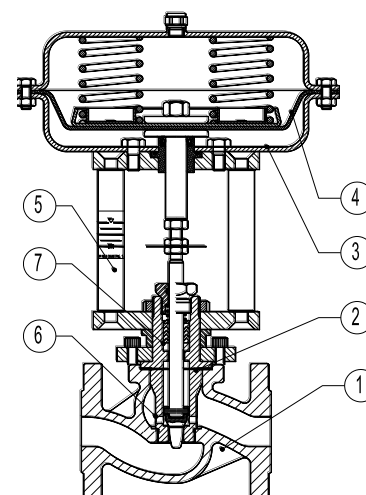
CE MARKING (PED - European Directive 97/23/EC)	
PN 40	Category
DN15 to DN25	SEP - art. 3, paragraph3
DN40	1 (CE Marked)


VPC-25

DIMENSIONS - VALVE BODY VPC-32						
DN	EN FL. A (mm)	ANSI 150 FL. A (mm)	ANSI 300 FL. A (mm)	B (mm)	C (mm) BONNET	
					STANDARD	FINNED
15 - 1/2"	150	184	190	71	75	140
20 - 3/4"	150	184	194	71	75	140
25 - 1"	160	184	197	71	75	140
40 - 1 1/2"	200	222	235	82	96	163

Sample take off (nr.8) DN 1/4" as standard, others on request.

DIMENSIONS - VALVE BODY VPC-25				
DN	A (mm)	B (mm)	C (mm) BONNET	
			STANDARD	FINNED
15	130	48	85	150
20	150	53	85	150
25	160	58	90	170
40	200	75	115	190



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 $Kvs = Cv(US) \times 0,855$

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 $\mu S/cm$. 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

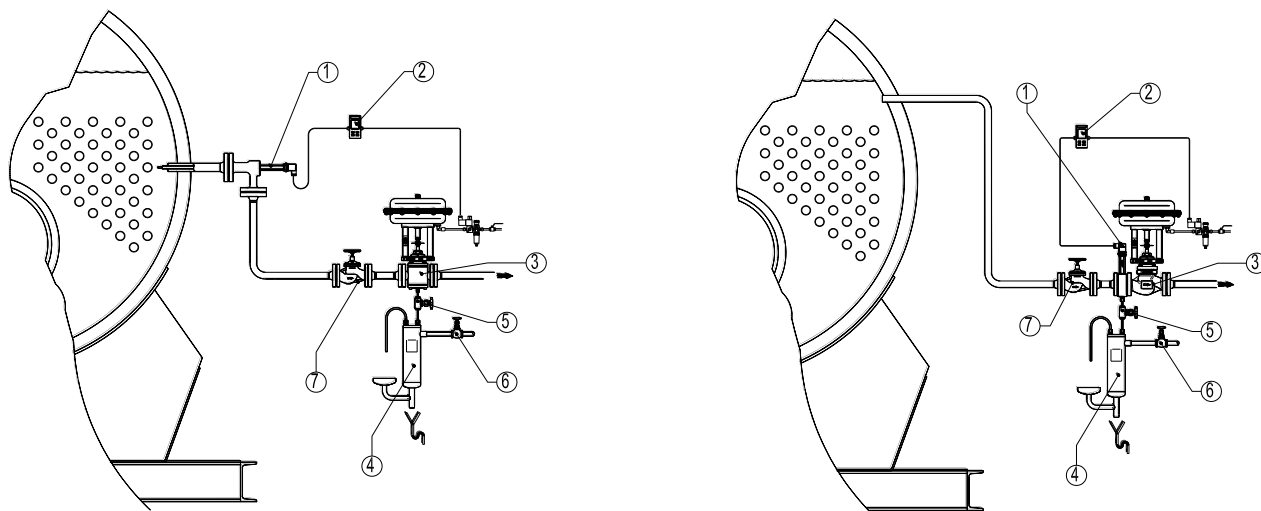
Fs - Conductivity of feed water: 100 $\mu S/cm$

Rs - Recommended boiler water TDS 3000 $\mu S/cm$

$$Br = 12000 \cdot 100 / 3000 - 100; Br = 413,8 \text{ Kgs/h}$$

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 Construction										
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).