

# MODEL : VPA-26S [ Intermittent Blowdown Valve ]

Connection : Flange PN 40

## 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.



### 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.

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

\* Rating according to EN1092-1:2007

### MAX. AIR/WATER

SUPPLY PRESS.: 3,5 bar

### AMBIENT

TEMPERATURE: -20°C ...+70°C

### STEM SEALING:

Graphite - up to 400°C

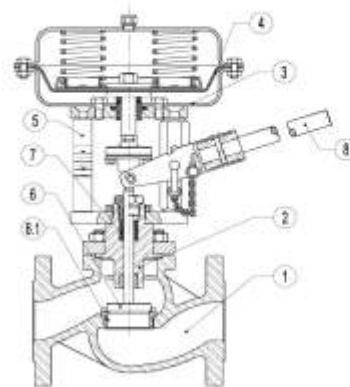
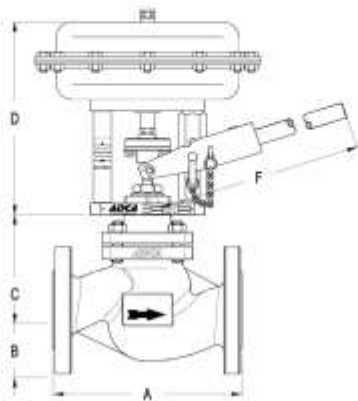
### PLUG

CHARACTERISTIC: PT - On-off

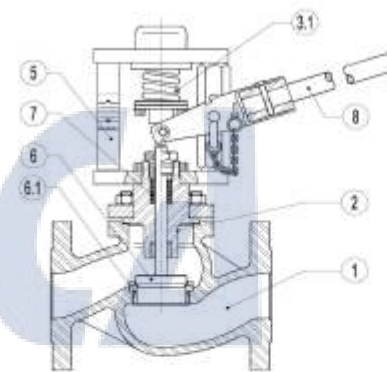
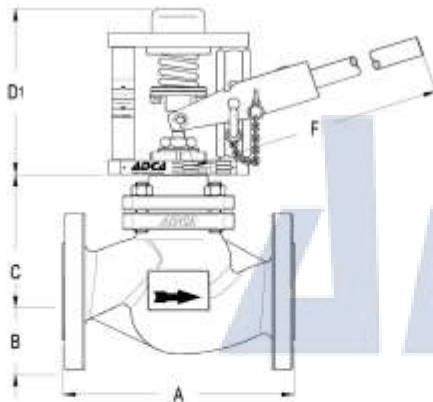
### PORT:

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 |
| <b>Kvs</b>             | -     | 6    | 7,5  | 11   | 24   | 30   |

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

| VALVE STROKE IN mm |       |      |      |      |      |      |
|--------------------|-------|------|------|------|------|------|
|                    | SIZES |      |      |      |      |      |
|                    | DN15  | DN20 | DN25 | DN32 | DN40 | DN50 |
| <b>Stroke</b>      | -     | 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.

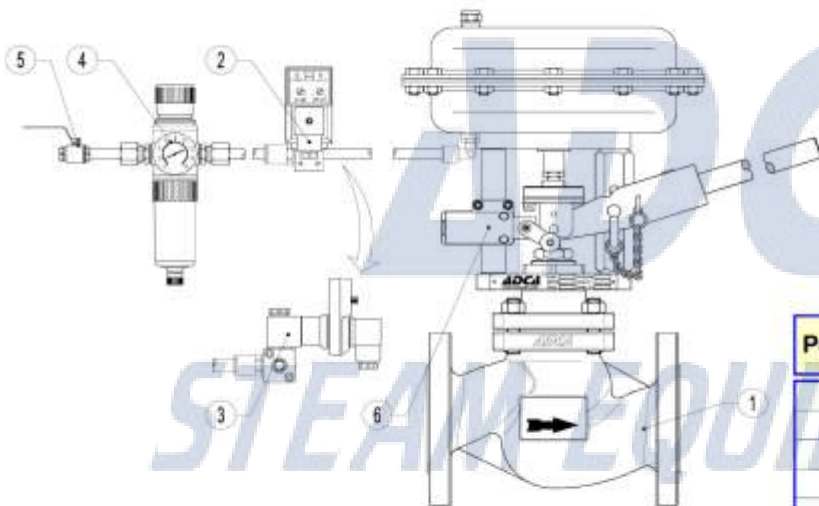
| DIMENSIONS - ACTUATOR |          |                |              |
|-----------------------|----------|----------------|--------------|
| Type                  | ø E (mm) | D (mm)         |              |
|                       |          | DN15-100 DA/RA | DN125-200 DA |
| PA-205                |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

Specification is subject to change without prior notice

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

## “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.

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



VPC-32



VPC-25

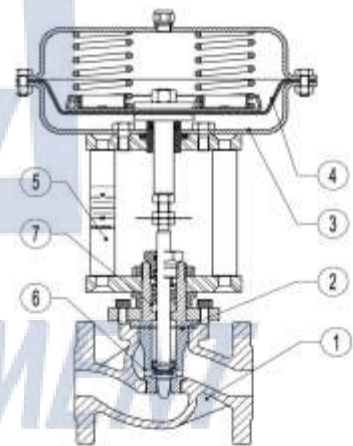
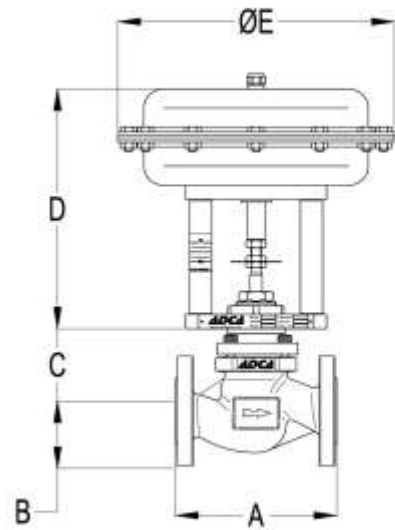
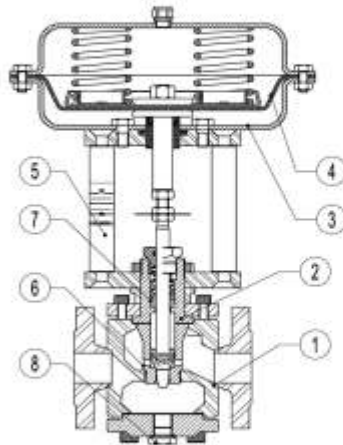
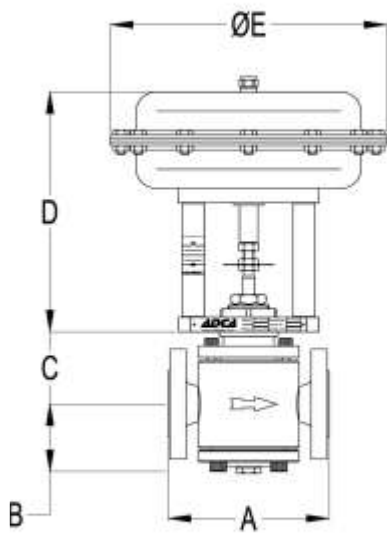
|                             |   |
|-----------------------------|---|
| <b>MAX.AIR SUPPLY:</b>      | 3,5 bar   |
| <b>AMBIENT TEMPERATURE:</b> | -20°C ....+70°C   |
| <b>STEM SEALING:</b>        | PTFE/GR V-Rings-220°C<br>(Standard bonnet)<br>Graphite – up to 300°C<br>(Extended bonnet) |
| <b>PLUG CHARACT.:</b>       | PL - Linear   |
| <b>PLUG DESIGN:</b>         | Contoured<br>Microflow  |
| <b>PORT:</b>                | 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)            |



| DIMENSIONS - VALVE BODY VPC-32 |        |        |                  |        |          |
|--------------------------------|--------|--------|------------------|--------|----------|
| DN                             | A (mm) | B (mm) | C (mm)<br>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)<br>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<br>PNEUMATIC ACTUATOR |          |                    |
|----------------------------------|----------|--------------------|
| Type                             | ø E (mm) | D (mm)             |
|                                  |          | DN15-DN50<br>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<br>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

Specification is subject to change without prior notice

| 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

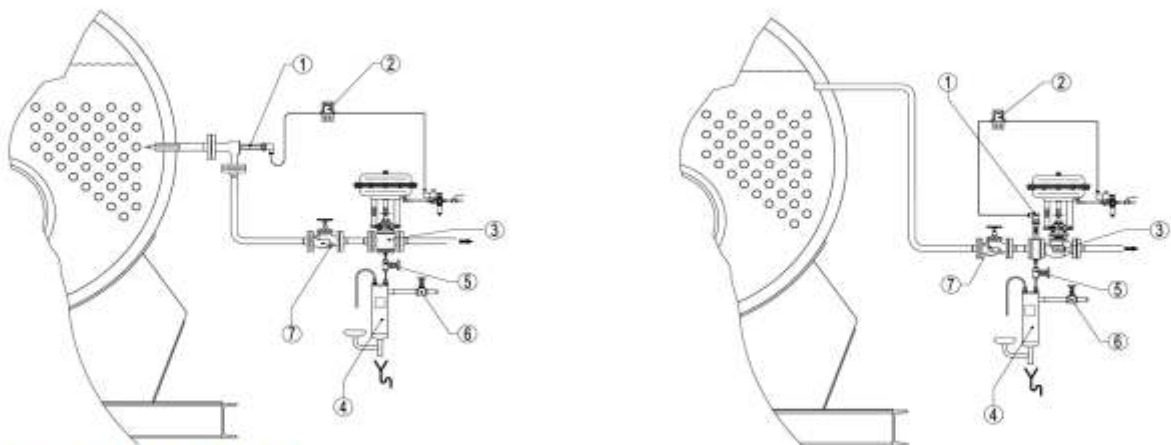
Fs - Conductivity of feed water: 100  $\mu S/cm$

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



Specification is subject to change without prior notice