

## SANITARY PRESSURE REDUCING VALVE P160

### DESCRIPTION

The ADCA P160 series direct acting, spring-loaded, diaphragm sensing pressure reducing valves are designed for use with clean steam, compressed air, water and other gases or liquids compatible with the construction materials.

### MAIN FEATURES

Compact design.  
Completely machined from bar stock material, no castings or forgings are used on the standard version.  
Non-rising adjustment knob.

### STANDARD SURFACE FINISH

Internal wetted parts:  $\leq 0,51$  micron Ra – SF1.  
External:  $\leq 0,76$  micron Ra – SF3.  
Other surface conditions see IS PV20.00 E – Technical information.  
Ultrasonic cleaning.

**OPTIONS:** Leakage line connection 1/8" (captured vent).  
Different soft valves for liquids and gases.  
Lock system, allows clean-in-place (CIP) and sterilization-in-place (SIP) operations with valve inline.  
Gauge connection on body.  
Top cap (adjustment screw with cover).

**USE:** Clean steam, compressed air, water and other gases and liquids compatible with the construction.

**AVAILABLE MODELS:** P160.

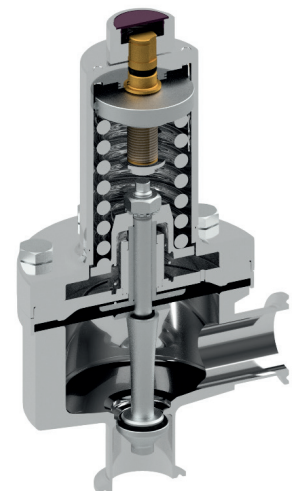
**SIZES:** 3/4" to 2"; DN 20 to 50.

**REGULATING RANGES:** 0,8 – 1,5 bar; 1 – 3 bar; 1,5 – 5 bar.

**CONNECTIONS:** ASME BPE, DIN and ISO clamp ferrules.  
Others on request.

**PACKAGING:** Assembling and packaging in a clean room certified according to ISO 14644-1.  
The product is end capped and sealed with recyclable thermo-shrinkable plastic film, to avoid contamination.

**INSTALLATION:** Horizontal installation. Vertical inlet and horizontal outlet angle connection.  
See IMI – Installation and maintenance instructions.



### LIMITING CONDITIONS

| Valve model                    | P160             |
|--------------------------------|------------------|
| Body design conditions         | PN 16            |
| Maximum upstream pressure      | 8 bar<br>4 bar * |
| Maximum downstream pressure    | 5 bar            |
| Minimum downstream pressure ** | 0,8 bar          |
| Maximum design temperature *** | 150 °C           |

\* See "Flow rate coefficients" table.

\*\* For tight shut off, with adjustment spring relaxed, ensure a minimum 0,2 bar downstream pressure.

\*\*\* Others on request.

### CE MARKING – GROUP 2 (PED – European Directive)

| PN 16                    | Category |
|--------------------------|----------|
| 3/4" to 2" – DN 20 to 50 | SEP      |

**FLOW RATE COEFFICIENTS (m³/h) \***

| SIZE | BPE  |     |        |       | DIN   |       |       |       | ISO   |       |       |
|------|------|-----|--------|-------|-------|-------|-------|-------|-------|-------|-------|
|      | 3/4" | 1"  | 1 1/2" | 2"    | DN 20 | DN 25 | DN 40 | DN 50 | DN 20 | DN 25 | DN 40 |
| Kvs  | 1,3  | 3,5 | 5,5    | 5,5 * | 1,3   | 3,5   | 5,5   | 5,5 * | 1,3   | 3,5   | 5,5   |

\* 8,5 when limited to a maximum 4 bar inlet pressure.

**DIMENSIONS (mm) ASME BPE**

| SIZE   | A  | B  | C   | D   | d1 | d2    | E  | F    | H     | WEIGHT (kg) |
|--------|----|----|-----|-----|----|-------|----|------|-------|-------------|
| 3/4"   | 85 | 56 | 192 | 130 | 25 | 15,75 | 89 | 25   | 15,75 | 6,7         |
| 1"     | 85 | 55 | 192 | 130 | 25 | 15,75 | 89 | 50,5 | 22,1  | 6,8         |
| 1 1/2" | 85 | 65 | 199 | 130 | 25 | 15,75 | 89 | 50,5 | 34,8  | 7,6         |
| 2"     | 85 | 69 | 205 | 130 | 25 | 15,75 | 89 | 64   | 47,5  | 7,8         |

**DIMENSIONS (mm) DIN**

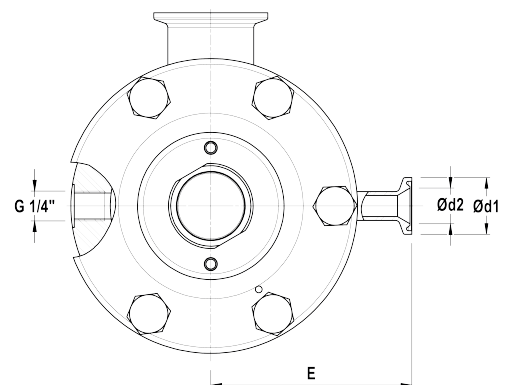
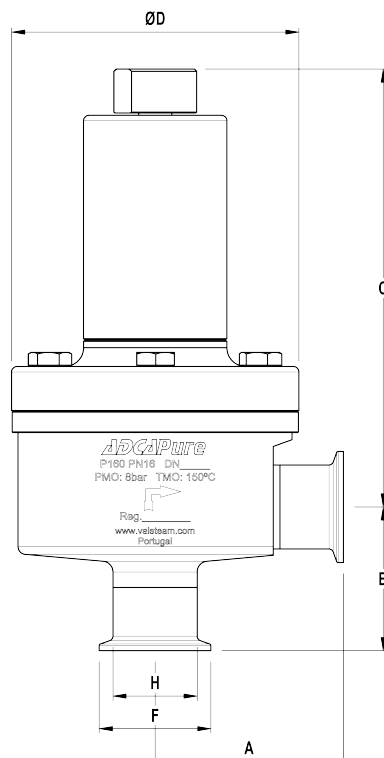
| SIZE  | A  | B  | C   | D   | d1 | d2    | E  | F    | H  | WEIGHT (kg) |
|-------|----|----|-----|-----|----|-------|----|------|----|-------------|
| DN 20 | 89 | 62 | 192 | 130 | 25 | 15,75 | 89 | 34   | 20 | 6,6         |
| DN 25 | 92 | 64 | 192 | 130 | 25 | 15,75 | 89 | 50,5 | 26 | 6,5         |
| DN 40 | 92 | 75 | 199 | 130 | 25 | 15,75 | 89 | 50,5 | 38 | 7,2         |
| DN 50 | 92 | 75 | 205 | 130 | 25 | 15,75 | 89 | 64   | 50 | 7,6         |

Remarks: Clamp ferrules according to DIN 32676-A; Tube weld (ETO) according to DIN 11866-A (DIN 11850-2).

**DIMENSIONS (mm) ISO**

| SIZE  | A  | B  | C   | D   | d1 | d2    | E  | F    | H    | WEIGHT (kg) |
|-------|----|----|-----|-----|----|-------|----|------|------|-------------|
| DN 20 | 81 | 49 | 192 | 130 | 25 | 15,75 | 89 | 50,5 | 23,7 | 6,5         |
| DN 25 | 81 | 51 | 192 | 130 | 25 | 15,75 | 89 | 50,5 | 29,7 | 6,4         |
| DN 40 | 92 | 80 | 199 | 130 | 25 | 15,75 | 89 | 64   | 44,3 | 7,7         |

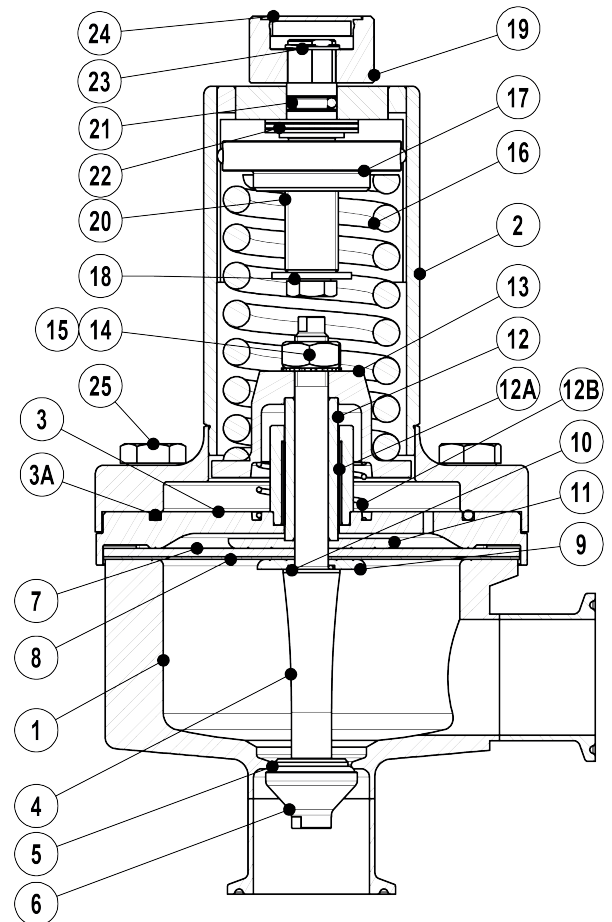
Remarks: Clamp ferrules according to DIN 32676-B; Tube weld (ETO) according to DIN 11866-B (ISO 1127).



Optional pressure gauge connections.

**MATERIALS**

| POS. N° | DESIGNATION           | MATERIAL                  |
|---------|-----------------------|---------------------------|
| 1       | Valve body            | AISI 316L / 1.4404        |
| 2       | Cover                 | AISI 316L / 1.4404        |
| 3       | Centering plate       | AISI 316L / 1.4404        |
| 3A      | *** O-ring            | EPDM                      |
| 4       | * Valve stem          | AISI 316L / 1.4404        |
| 5       | * Soft plug           | ** EPDM; PTFE             |
| 6       | * Valve plug          | AISI 316L / 1.4404        |
| 7       | * Upper diaphragm     | EPDM                      |
| 8       | * Lower diaphragm     | PTFE (Gylon)              |
| 9       | Diaphragm plate       | AISI 316L / 1.4404        |
| 10      | * O-ring              | EPDM                      |
| 11      | Diaphragm plate       | AISI 316L / 1.4404        |
| 12      | Stem guide            | AISI 316 / 1.4401         |
| 12A     | Plain bearing         | Bronze                    |
| 12B     | Spring                | AISI 302 / 1.4300         |
| 13      | Spring plate          | AISI 316 / 1.4401         |
| 14      | Nut                   | Stainless steel A2-70     |
| 15      | Washer                | AISI 316 / 1.4401         |
| 16      | * Adjustment spring   | AISI 302 / 1.4300         |
| 17      | Top spring plate      | AISI 316 / 1.4401         |
| 18      | Retaining washer      | Stainless steel A2-70     |
| 19      | Adjustment nut        | AISI 316L / 1.4404        |
| 20      | Adjustment screw      | Brass                     |
| 21      | O-ring                | NBR                       |
| 22      | Bearing               | Corrosion resistant steel |
| 23      | Ext. bowed shaft ring | Stainless steel           |
| 24      | Cover nut             | Plastic                   |
| 25      | Bolts                 | Stainless steel A2-70     |



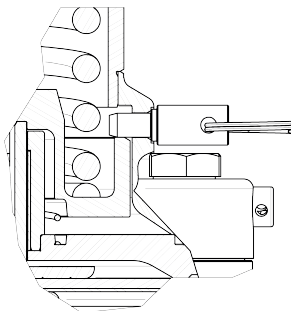
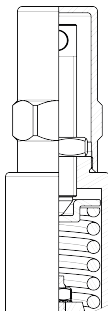
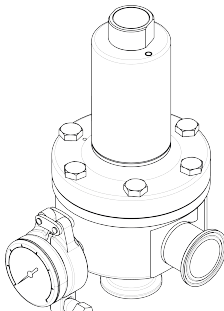
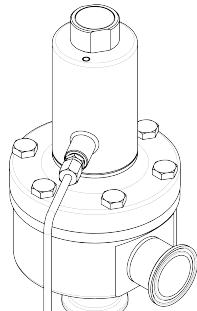
\* Available spare parts ; \*\* Others according to fluid;

\*\*\* Applied only with optional leakage line connection.

Remarks: FDA / USP Class VI seals certificate on request.

All valves have a serial number. In case of non-standard valves, this number must be supplied if spare parts are ordered.

**OPTIONS**

| LOCK SYSTEM   | ADJUSTMENT SCREW WITH TOP CAP   | PRESSURE GAUGE CONNECTION  | LEAKAGE LINE CONNECTION   |
|---|---|--|---|
|  |  |  |  |

ORDERING CODES P160

| Valve model  | P16        | 4        | 1        | T        | M        | I        | X        | X        | X        | DI | 20        | E        |
|--|------------|----------|----------|----------|----------|----------|----------|----------|----------|----|-----------|----------|
| P160 – AISI 316L / 1.4404 diaphragm sensing pressure reducing valve                                      | <b>P16</b> |          |          |          |          |          |          |          |          |    |           |          |
| <b>Regulating range</b>  |            |          |          |          |          |          |          |          |          |    |           |          |
| 0,8 to 1,5 bar   |            | <b>4</b> |          |          |          |          |          |          |          |    |           |          |
| 1 to 3 bar   |            | <b>5</b> |          |          |          |          |          |          |          |    |           |          |
| 1,5 to 5 bar   |            | <b>6</b> |          |          |          |          |          |          |          |    |           |          |
| <b>Flow rate coefficient</b>   |            |          |          |          |          |          |          |          |          |    |           |          |
| Kvs 1,3 (3/4" – DN 20)   |            |          | <b>1</b> |          |          |          |          |          |          |    |           |          |
| Kvs 3,5 (1" – DN 25)   |            |          | <b>3</b> |          |          |          |          |          |          |    |           |          |
| Kvs 5,5 (1 1/2" and 2" – DN 40 and DN 50)  |            |          | <b>4</b> |          |          |          |          |          |          |    |           |          |
| Kvs 8,5 (2" – DN 50, when limited to a max. 4 bar inlet pressure)  |            |          | <b>6</b> |          |          |          |          |          |          |    |           |          |
| <b>Diaphragm</b>   |            |          |          |          |          |          |          |          |          |    |           |          |
| PTFE (Gylon)   |            |          |          | <b>T</b> |          |          |          |          |          |    |           |          |
| EPDM (non-standard)  |            |          |          | <b>E</b> |          |          |          |          |          |    |           |          |
| <b>Valve head</b>  |            |          |          |          |          |          |          |          |          |    |           |          |
| Metal to metal (non standard)  |            |          |          |          | <b>M</b> |          |          |          |          |    |           |          |
| EPDM   |            |          |          |          | <b>E</b> |          |          |          |          |    |           |          |
| PTFE   |            |          |          |          | <b>T</b> |          |          |          |          |    |           |          |
| FPM / Viton  |            |          |          |          | <b>V</b> |          |          |          |          |    |           |          |
| <b>Adjustment knob, top cap and captured vent</b>  |            |          |          |          |          |          |          |          |          |    |           |          |
| Stainless steel adjustment knob  |            |          |          |          |          | <b>I</b> |          |          |          |    |           |          |
| Top cap (adjustment screw with cover)  |            |          |          |          |          | <b>T</b> |          |          |          |    |           |          |
| Stainless steel adjustment knob w/ diaphragm cover leakage connection in case of diaphragm failure       |            |          |          |          |          | <b>L</b> |          |          |          |    |           |          |
| Top cap (adjustment screw with cover) w/ diaphragm cover leakage connection in case of diaphragm failure |            |          |          |          |          | <b>U</b> |          |          |          |    |           |          |
| <b>Gauge port options</b>  |            |          |          |          |          |          |          |          |          |    |           |          |
| Without gauge ports  |            |          |          |          |          |          | <b>X</b> |          |          |    |           |          |
| Tri-clamp gauge port on the left side (rel. to the flow direction) – downstream pressure                 |            |          |          |          |          |          | <b>7</b> |          |          |    |           |          |
| Tri-clamp gauge port on the right side (rel. to the flow direction) – downstream pressure                |            |          |          |          |          |          | <b>6</b> |          |          |    |           |          |
| Tri-clamp gauge port on both sides – downstream pressure   |            |          |          |          |          |          | <b>5</b> |          |          |    |           |          |
| Threaded gauge port on the left side (rel. to the flow direction) – downstream pressure – ISO 7 Rp 1/4"  |            |          |          |          |          |          | <b>4</b> |          |          |    |           |          |
| Threaded gauge port on the right side (rel. to the flow direction) – downstream pressure – ISO 7 Rp 1/4" |            |          |          |          |          |          | <b>3</b> |          |          |    |           |          |
| Threaded gauge port on both sides – downstream pressure – ISO 7 Rp 1/4"                                  |            |          |          |          |          |          | <b>2</b> |          |          |    |           |          |
| Threaded gauge port on the left side (rel. to the flow direction) – downstream pressure – 1/4" NPT       |            |          |          |          |          |          | <b>W</b> |          |          |    |           |          |
| Threaded gauge port on the right side (rel. to the flow direction) – downstream pressure – 1/4" NPT      |            |          |          |          |          |          | <b>Y</b> |          |          |    |           |          |
| Threaded gauge port on both sides – downstream pressure – 1/4" NPT                                       |            |          |          |          |          |          | <b>Z</b> |          |          |    |           |          |
| <b>Surface finish (a)</b>  |            |          |          |          |          |          |          |          |          |    |           |          |
| Standard surface finish  |            |          |          |          |          |          |          | <b>X</b> |          |    |           |          |
| Mirror mechanical polished external surfaces (SF1)   |            |          |          |          |          |          |          | <b>P</b> |          |    |           |          |
| Electropolished internal wetted parts (SF5)  |            |          |          |          |          |          |          | <b>E</b> |          |    |           |          |
| <b>Special features</b>  |            |          |          |          |          |          |          |          |          |    |           |          |
| None   |            |          |          |          |          |          |          |          | <b>X</b> |    |           |          |
| Degreased for oxygen   |            |          |          |          |          |          |          |          | <b>O</b> |    |           |          |
| CIP / SIP lock system  |            |          |          |          |          |          |          |          | <b>C</b> |    |           |          |
| <b>Pipe connections</b>  |            |          |          |          |          |          |          |          |          |    |           |          |
| Clamp ferrule ASME BPE   |            |          |          |          |          |          |          |          |          |    | <b>D</b>  |          |
| Clamp ferrule DIN (DIN 32676-A)  |            |          |          |          |          |          |          |          |          |    | <b>F</b>  |          |
| Clamp ferrule ISO (DIN 32676-B)  |            |          |          |          |          |          |          |          |          |    | <b>E</b>  |          |
| Tube weld (ETO) according to ASME BPE  |            |          |          |          |          |          |          |          |          |    | <b>DI</b> |          |
| Tube weld (ETO) according to DIN 11866-A (DIN 11850-2)   |            |          |          |          |          |          |          |          |          |    | <b>FI</b> |          |
| Tube weld (ETO) according to DIN 11866-B (ISO 1127)  |            |          |          |          |          |          |          |          |          |    | <b>EI</b> |          |
| <b>Size</b>  |            |          |          |          |          |          |          |          |          |    |           |          |
| 3/4" or DN 20  |            |          |          |          |          |          |          |          |          |    | <b>20</b> |          |
| 1" or DN 25  |            |          |          |          |          |          |          |          |          |    | <b>25</b> |          |
| 1 1/2" or DN 40  |            |          |          |          |          |          |          |          |          |    | <b>40</b> |          |
| 2" or DN 50  |            |          |          |          |          |          |          |          |          |    | <b>50</b> |          |
| <b>Special valves / Extras</b>   |            |          |          |          |          |          |          |          |          |    |           |          |
| Full description or additional codes have to be added in case of a non-standard combination              |            |          |          |          |          |          |          |          |          |    |           | <b>E</b> |

a) Consult IS PV20.00 (Technical information) for further details and other surface finish options.