LRQA CERTIFIED ISO 9001

Valsteam ADCA is an EHEDG Member

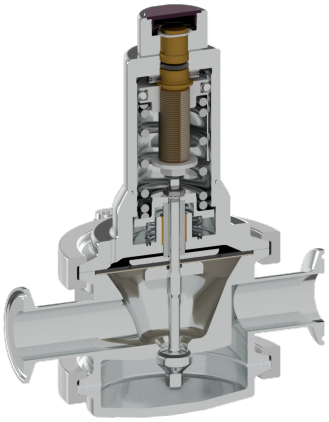
ADCA

ADCAPure

# SANITARY PRESSURE REDUCING VALVES
# P163

## DESCRIPTION

The ADCAPure P163 is a series of inline direct acting, diaphragm sensing pressure reducing valves.
These regulators, available with spring or dome-loading, are designed for use with clean steam, compressed air, water and other gases or liquids compatible with the construction materials and valve design.



## MAIN FEATURES

Spring or dome-loading.
Non-rising adjustment knob.
Compact inline design with clamped body.
FDA / USP Class VI compliant seals.
Completely machined from bar stock material, no castings or forgings are used.

## STANDARD SURFACE FINISH

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

**OPTIONS:**
Leakage line connection.
Dome-loading.
Top cap (adjustment screw with cover).
Gauge connection on body.
Lock system, allows inline clean-in-place (CIP) and sterilization-in-place (SIP) operations.
Bottom cover with drain connection.
Different soft sealings for liquids and gases.
Degreased for oxygen application.

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

**AVAILABLE MODELS:** P163.

**SIZES:** 1/2" to 2"; DN 15 to 50.

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

**CONNECTIONS:** ASME BPE, DIN and ISO clamp ferrules or tube weld (ETO) ends. 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. See IMI – Installation and maintenance instructions.

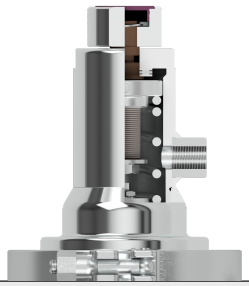
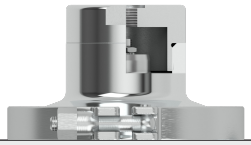
| LIMITING CONDITIONS | |
|---|---|
| **Valve model** | **P163** |
| Body design conditions | PN 16 |
| Maximum upstream pressure | 8 bar |
| Maximum downstream pressure | 5 bar |
| Minimum downstream pressure * | 0,8 bar |
| Maximum operating temperature ** | 180 ºC |

* For tight shut off, with adjustment spring relaxed, ensure a minimum downstream pressure of 0,2 bar.
** With PTFE diaphragm and seals. Consult the manufacturer in case of other elastomer materials.

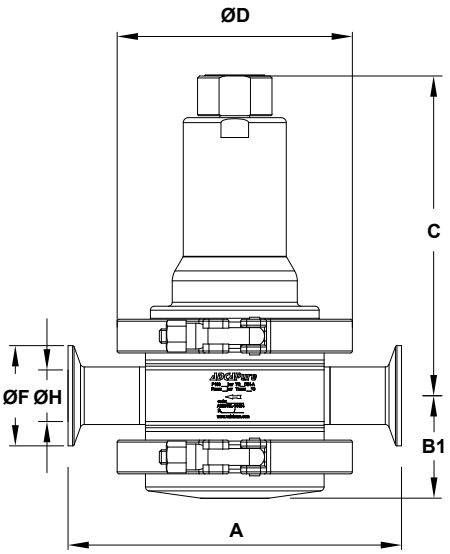
| CE MARKING – GROUP 2 (PED – European Directive) | |
|---|---|
| **PN 16** | **Category** |
| All sizes | SEP |

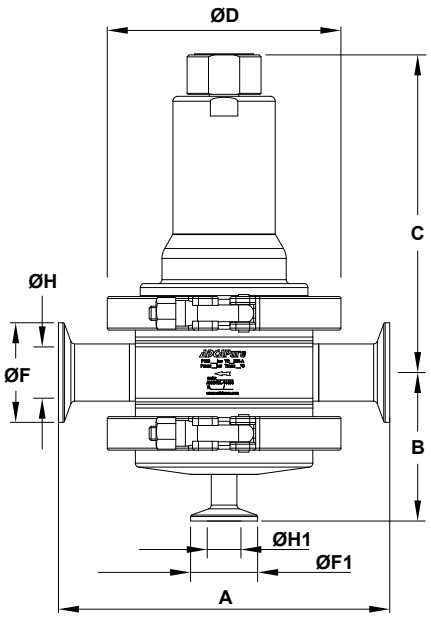
| FLOW RATE COEFFICIENTS (m³/h) | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ASME BPE | | | | | DIN | | | | | | ISO | | | | |
| SIZE | 1/2" | 3/4" | 1" | 11/2" | 2" | DN 15 | DN 20 | DN 25 | DN 32 | DN 40 | DN 50 | DN 15 | DN 20 | DN 25 | DN 32 | DN 40 |
| Kvs | 1,3 | 3 | 4,2 | 7 | 13 | 2,1 | 3 | 4,2 | 4,2 | 7 | 13 | 2,1 | 4,2 | 4,2 | 7 | 7 |

## OPTIONS

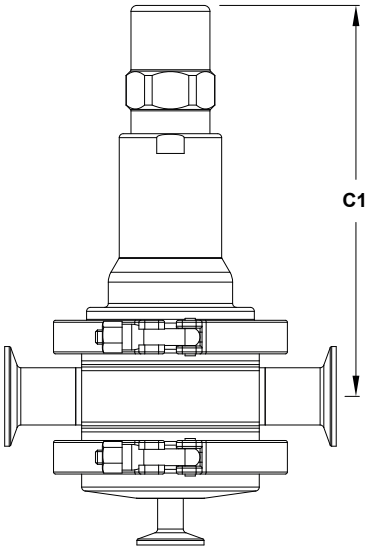
| LEAKAGE LINE CONNECTION | DOME-LOADING | TOP CAP |
|---|---|---|
|  |  |  |
| **PRESSURE GAUGE CONNECTION** | **LOCK SYSTEM** | **BOTTOM COVER WITH DRAIN CONNECTION** |
|  |  |  |

## DIMENSIONS

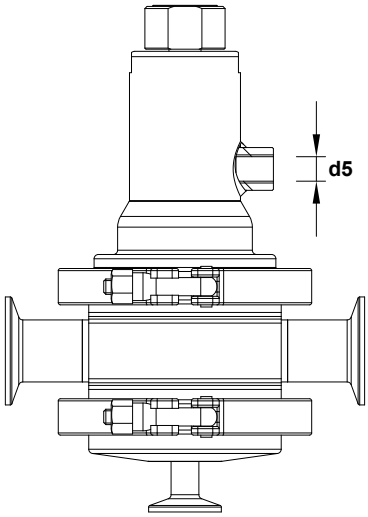


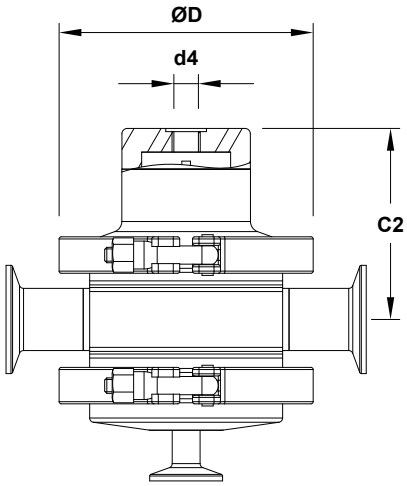

*Optional bottom cover with drain connection*



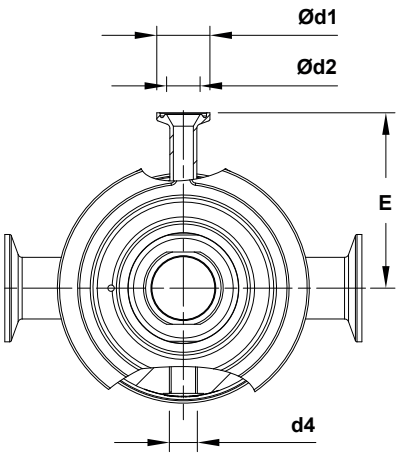

*Optional top cap*




*Optional leakage line connection*




*Optional dome loading*




*Optional gauge connection*

**DIMENSIONS – ASME BPE (mm)**

| SIZE | A | B | B1 | C | C1 | C2 | ØD | Ød1 | Ød2 | d3 | d4 | d5 | E | ØF | ØF1 | ØH | ØH1 | WGT. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1/2"** | 153 | 70 | 47 | 156 | 193 | 84 | 119 | 25 | 15,75 | 1/4" | 1/4" | 1/4" | 83 | 25 | 25 | 9,4 | 9,4 | 5 |
| **3/4"** | 153 | 74 | 51 | 160 | 197 | 88 | 119 | 25 | 15,75 | 1/4" | 1/4" | 1/4" | 83 | 25 | 25 | 15,75 | 9,4 | 5,6 |
| **1"** | 153 | 77 | 54 | 163 | 200 | 91 | 119 | 25 | 15,75 | 1/4" | 1/4" | 1/4" | 83 | 50,5 | 25 | 22,1 | 9,4 | 5,7 |
| **11/2"** | 170 | 95 | 71 | 204 | 247 | 124 | 134 | 25 | 15,75 | 1/4" | 1/4" | 1/4" | 96 | 50,5 | 25 | 34,8 | 9,4 | 9,8 |
| **2"** | 170 | 99 | 74 | 207 | 244 | 127 | 134 | 25 | 15,75 | 1/4" | 1/4" | 1/4" | 96 | 64 | 25 | 47,5 | 9,4 | 9,8 |

**DIMENSIONS – DIN (mm)**

| SIZE | A | B | B1 | C | C1 | C2 | ØD | Ød1 | Ød2 | d3 | d4 | d5 | E | ØF | ØF1 | ØH | ØH1 | WGT. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **DN 15** | 153 | 74 | 51 | 160 | 197 | 88 | 119 | 25 | 15,75 | 1/4" | 1/4" | 1/4" | 83 | 34 | 34 | 16 | 10 | 5,6 |
| **DN 20** | 153 | 72 | 49 | 158 | 195 | 86 | 119 | 25 | 15,75 | 1/4" | 1/4" | 1/4" | 83 | 34 | 34 | 20 | 10 | 5,3 |
| **DN 25** | 168 | 75 | 52 | 161 | 198 | 89 | 119 | 25 | 15,75 | 1/4" | 1/4" | 1/4" | 83 | 50,5 | 34 | 26 | 10 | 5,6 |
| **DN 32** | 168 | 77 | 54 | 163 | 200 | 91 | 119 | 25 | 15,75 | 1/4" | 1/4" | 1/4" | 83 | 50,5 | 34 | 32 | 10 | 5,8 |
| **DN 40** | 185 | 94 | 70 | 202 | 239 | 122 | 134 | 25 | 15,75 | 1/4" | 1/4" | 1/4" | 96 | 50,5 | 34 | 38 | 10 | 9,5 |
| **DN 50** | 185 | 98 | 74 | 206 | 243 | 126 | 134 | 25 | 15,75 | 1/4" | 1/4" | 1/4" | 96 | 64 | 34 | 50 | 10 | 9,8 |

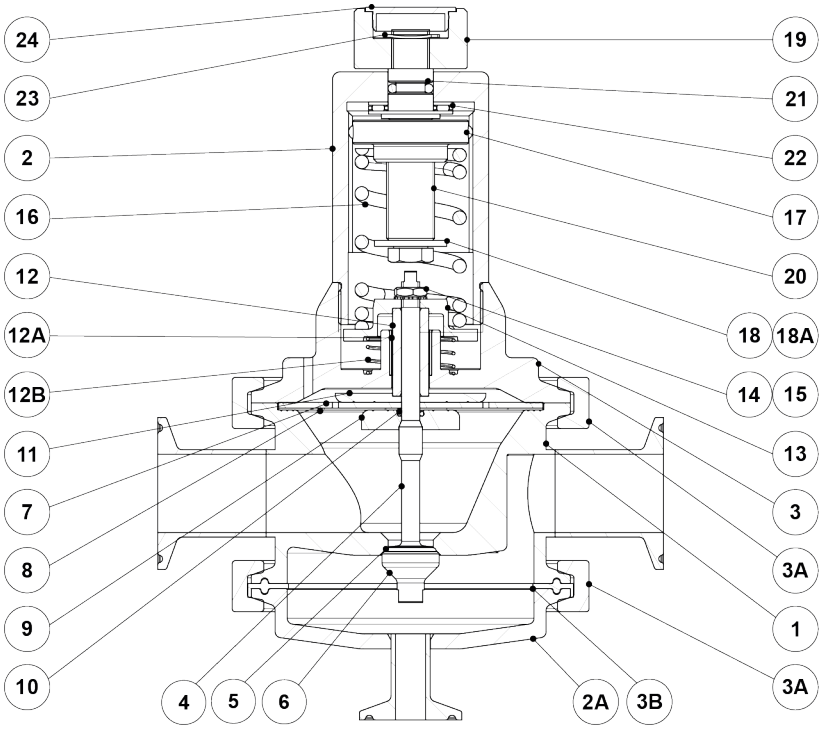
Remarks: Clamp ferrules according to DIN 32676-A. Tube weld (ETO) according to DIN 11866-A (DIN 11850-2).

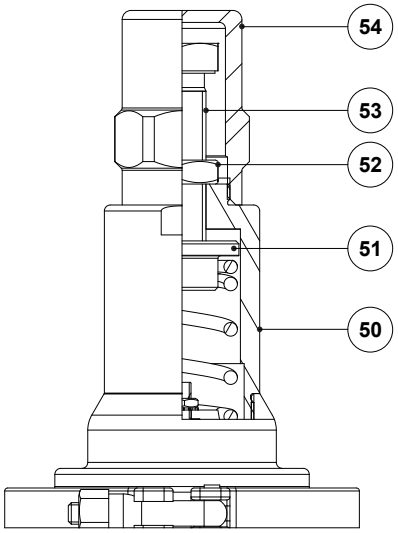
**DIMENSIONS – ISO (mm)**

| SIZE | A | B | B1 | C | C1 | C2 | ØD | Ød1 | Ød2 | d3 | d4 | d5 | E | ØF | ØF1 | ØH | ØH1 | WGT. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **DN 15** | 168 | 73 | 50 | 159 | 196 | 87 | 119 | 25 | 15,75 | 1/4" | 1/4" | 1/4" | 83 | 50,5 | 25 | 18,1 | 10,3 | 5,4 |
| **DN 20** | 168 | 76 | 53 | 162 | 199 | 90 | 119 | 25 | 15,75 | 1/4" | 1/4" | 1/4" | 83 | 50,5 | 25 | 23,7 | 10,3 | 5,6 |
| **DN 25** | 168 | 78 | 55 | 164 | 201 | 92 | 119 | 25 | 15,75 | 1/4" | 1/4" | 1/4" | 83 | 50,5 | 25 | 29,7 | 10,3 | 6 |
| **DN 32** | 185 | 93 | 69 | 202 | 239 | 122 | 134 | 25 | 15,75 | 1/4" | 1/4" | 1/4" | 96 | 64 | 25 | 38,4 | 10,3 | 9,6 |
| **DN 40** | 185 | 100 | 76 | 206 | 243 | 126 | 134 | 25 | 15,75 | 1/4" | 1/4" | 1/4" | 96 | 64 | 25 | 44,3 | 10,3 | 10 |

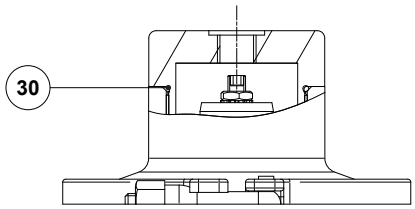
Remarks: Clamp ferrules according to DIN 32676-B. Tube weld (ETO) according to DIN 11866-B (ISO 1127).

## MATERIALS

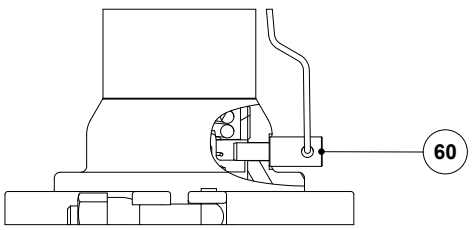



*Optional top cap*




*Optional dome-loading*




*Optional lock system*

| MATERIALS | | |
|---|---|---|
| **POS. Nº** | **DESIGNATION** | **MATERIAL** |
| **1** | Valve body | AISI 316L / 1.4404 |
| **2** | Cover | AISI 316L / 1.4404 |
| **2A** | Bottom cover | AISI 316L / 1.4404 |
| **3** | Intermediate flange | AISI 316L / 1.4404 |
| **3A** | Clamp | AISI 316 / 1.4401 |
| **3B** | * Gasket | ** PTFE / FPM Envelope |
| **4** | * Valve stem | AISI 316L / 1.4404 |
| **5** | * Soft plug | ** EPDM; PTFE; FPM |
| **6** | * Valve plug | AISI 316L / 1.4404 |
| **7** | * Upper diaphragm | EPDM |
| **8** | * Lower diaphragm | PTFE (Gylon) |
| **9** | Lower diaphragm plate | AISI 316L / 1.4404 |
| **10** | * O-ring | ** EPDM |
| **11** | Upper diaphragm plate | AISI 316L / 1.4404 |
| **12** | Stem guide | AISI 316L / 1.4404 |
| **12A** | Plain bearing | Bronze |
| **12B** | Spring | AISI 302 / 1.4300 |
| **13** | Spring plate | AISI 316L / 1.4404 |
| **14** | Nut | AISI 304 / 1.4301 |
| **15** | * Washer | AISI 304 / 1.4301 |
| **16** | * Adjustment spring | AISI 302 / 1.4300 |
| **17** | Top spring plate | AISI 316L / 1.4404 |
| **18** | Washer | Stainless steel A2 |
| **18A** | Bolt | Stainless steel A2-70 |
| **19** | Adjustment knob | AISI 316L / 1.4404 |
| **20** | Adjustment screw | Brass |
| **21** | O-ring | NBR |
| **22** | Bearing | Corrosion resistant steel |
| **23** | Shaft ring | Stainless steel |
| **24** | Cover nut | Plastic |
| **30** | * O-ring | EPDM |
| **50** | Cover | AISI 316L / 1.4404 |
| **51** | Spring guide | Brass |
| **52** | Lock nut | Stainless steel A2-70 |
| **53** | Adjustment screw | Stainless steel A2-70 |
| **54** | Top cap | AISI 316L / 1.4404 |
| **60** | Locking pin | AISI 316L / 1.4404 |

* Available spare parts. ** Others on request.
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.

## ORDERING CODES P163

| Valve model | P63 | 1 | 4 | 1 | T | M | I | X | X | X | DI | 15 | E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P163 – AISI 316L / 1.4404 diaphragm sensing press. reducing valve without drain | **P63** | | | | | | | | | | | | |
| P163 – AISI 316L / 1.4404 diaphragm sensing press. reducing valve with drain | **P63D** | | | | | | | | | | | | |
| **Valve series** | | | | | | | | | | | | | |
| Series 1 | | **1** | | | | | | | | | | | |
| **Regulating range** | | | | | | | | | | | | | |
| 0,8 to 1,5 bar | | | **4** | | | | | | | | | | |
| 1 to 3 bar | | | **5** | | | | | | | | | | |
| 1,5 to 5 bar | | | **6** | | | | | | | | | | |
| 0,8 to 5 bar (dome-loaded) **a)** | | | **A** | | | | | | | | | | |
| **Flow rate coefficient** | | | | | | | | | | | | | |
| Kvs 1,3 (only applicable to ASME BPE 1/2" size) | | | | **1** | | | | | | | | | |
| Kvs 2,1 (applicable to sizes DIN DN 15 and ISO DN 15) | | | | **2** | | | | | | | | | |
| Kvs 3 (applicable to sizes ASME BPE 3/4" and DIN DN 20) | | | | **3** | | | | | | | | | |
| Kvs 4,2 (applicable to sizes ASME BPE 1", DIN DN 25 to DN 32 and ISO DN 20 to DN 25) | | | | **4** | | | | | | | | | |
| Kvs 7 (applicable to sizes ASME BPE 11/2", DIN DN 40 and ISO DN 32 to DN 40) | | | | **6** | | | | | | | | | |
| Kvs 13 (applicable to sizes ASME BPE 2" and DIN DN 50) | | | | **8** | | | | | | | | | |
| **Diaphragm** | | | | | | | | | | | | | |
| PTFE (Gylon) | | | | | **T** | | | | | | | | |
| EPDM (non-standard) | | | | | **E** | | | | | | | | |
| **Seat material b)** | | | | | | | | | | | | | |
| Metal to metal (non-standard, except in ASME BPE 1/2" size) | | | | | | **M** | | | | | | | |
| EPDM | | | | | | **E** | | | | | | | |
| PTFE | | | | | | **T** | | | | | | | |
| FPM / Viton (UPS Class VI on request) | | | | | | **V** | | | | | | | |
| **Adjustment knob, top cap and leakage line connection** | | | | | | | | | | | | | |
| Stainless steel adjustment knob | | | | | | | **I** | | | | | | |
| Top cap (adjustment screw with cover) | | | | | | | **T** | | | | | | |
| Stainless steel adjustment knob w/ ISO 228 G 1/4" leakage line connection | | | | | | | **L** | | | | | | |
| Stainless steel adjustment knob w/ 1/4" NPT leakage line connection | | | | | | | **M** | | | | | | |
| Top cap (adjustment screw with cover) w/ ISO 228 G 1/4" leakage line connection | | | | | | | **U** | | | | | | |
| Top cap (adjustment screw with cover) w/ 1/4" NPT leakage line connection | | | | | | | **V** | | | | | | |
| Dome-loading – ISO 228 G 1/4" **c)** | | | | | | | **X** | | | | | | |
| Dome-loading – 1/4" NPT **c)** | | | | | | | **C** | | | | | | |
| **Gauge ports** | | | | | | | | | | | | | |
| Without gauge ports | | | | | | | | **X** | | | | | |
| Tri-clamp gauge port on the left side (rel. to the flow direction) – downstream pressure | | | | | | | | **7** | | | | | |
| Tri-clamp gauge port on the right side (rel. to the flow direction) – downstream pressure | | | | | | | | **6** | | | | | |
| Tri-clamp gauge port on both sides – downstream pressure | | | | | | | | **5** | | | | | |
| Threaded gauge port on the left side (rel. to the flow direction) – downstream pressure – ISO 228 G 1/4" | | | | | | | | **4** | | | | | |
| Threaded gauge port on the right side (rel. to the flow direction) – downstream pressure – ISO 228 G 1/4" | | | | | | | | **3** | | | | | |
| Threaded gauge port on both sides – downstream pressure – ISO 228 G 1/4" | | | | | | | | **2** | | | | | |
| Threaded gauge port on the left side (rel. to the flow direction) – downstream pressure – 1/4" NPT | | | | | | | | **W** | | | | | |
| Threaded gauge port on the right side (rel. to the flow direction) – downstream pressure – 1/4" NPT | | | | | | | | **Y** | | | | | |
| Threaded gauge port on both sides – downstream pressure – 1/4" NPT | | | | | | | | **Z** | | | | | |
| **Surface finish d)** | | | | | | | | | | | | | |
| Standard surface finish | | | | | | | | | **X** | | | | |
| Mirror mechanical polished external surfaces (SF1) | | | | | | | | | **P** | | | | |
| Electropolished internal wetted parts (SF5) | | | | | | | | | **E** | | | | |
| **Special features** | | | | | | | | | | | | | |
| None | | | | | | | | | | **X** | | | |
| Degreased for oxygen | | | | | | | | | | **O** | | | |
| CIP / SIP lock system | | | | | | | | | | **C** | | | |
| **Pipe connections** | | | | | | | | | | | | | |
| Clamp ferrule ASME BPE | | | | | | | | | | | **D** | | |
| Clamp ferrule DIN (DIN 32676-A) | | | | | | | | | | | **F** | | |
| Clamp ferrule ISO (DIN 32676-B) | | | | | | | | | | | **E** | | |
| Tube weld (ETO) according to ASME BPE | | | | | | | | | | | **DI** | | |
| Tube weld (ETO) according to DIN 11866-A (DIN 11850-2) | | | | | | | | | | | **FI** | | |
| Tube weld (ETO) according to DIN 11866-B (ISO 1127) | | | | | | | | | | | **EI** | | |
| **Size** | | | | | | | | | | | | | |
| 1/2" or DN 15 | | | | | | | | | | | | **15** | |
| 3/4" or DN 20 | | | | | | | | | | | | **20** | |
| 1" or DN 25 | | | | | | | | | | | | **25** | |
| DN 32 | | | | | | | | | | | | **32** | |
| 11/2" or DN 40 | | | | | | | | | | | | **40** | |
| 2" or DN 50 | | | | | | | | | | | | **50** | |
| **Special valves / Extras** | | | | | | | | | | | | | |
| Full description or additional codes have to be added in case of a non-standard combination | | | | | | | | | | | | | **E** |

**a)** The loading control pressure can be up to a maximum of 0,2 bar above the required downstream pressure. **b)** ASME BPE 1/2" size is only available with metal to metal sealing. **c)** Mandatory in case of dome-loading. **d)** Consult IS PV20.00 – Technical information – for further details and other surface finish options.