

## SANITARY PRESSURE REDUCING VALVE P161

### DESCRIPTION

The ADCAPure P161 is a series of angle design 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-loaded.
- Non-rising adjustment knob.
- Compact design with clamped body.
- Available with low pressure diaphragm.
- FDA / USP Class VI compliant seals.
- Optimized internal designed to provide high flow capacities and minimum droop.
- Completely machined from bar stock material, no castings or forgings are used.

### 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 sealings for liquids and gases.
- Lock system, allows inline clean-in-place (CIP) and sterilization-in-place (SIP) operations.
- Gauge connection on body.
- Top cap (adjustment screw with cover).
- Dome-loaded version.

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

**AVAILABLE MODELS:** P161.

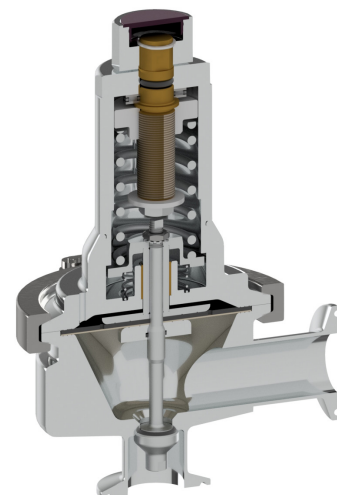
**SIZES:** 1/2" to 2"; DN 15 to 50.

**REGULATING RANGES:** 0,3 to 1,1 bar; 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. Vertical inlet and horizontal outlet angle connection. See IMI.



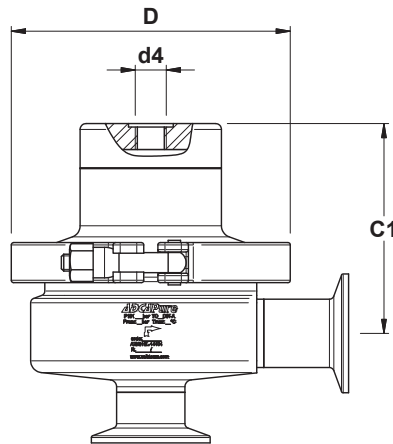
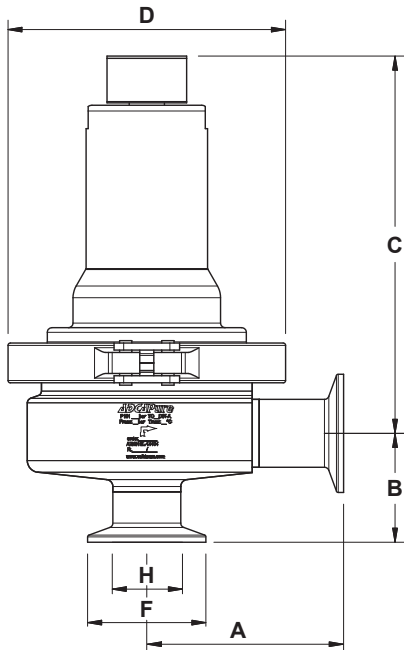
### LIMITING CONDITIONS

Valve model	P161
Body design conditions	PN 16
Maximum upstream pressure	8 bar
Maximum downstream pressure	5 bar
Minimum downstream pressure *	0,3 bar
Maximum operating temperature **	180 °C

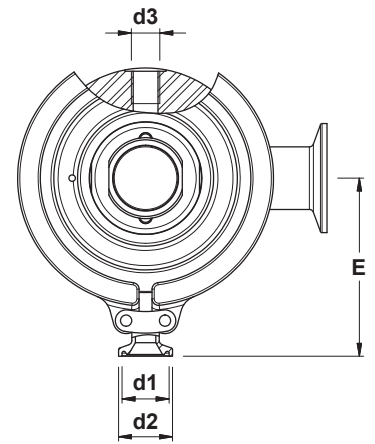
\* For tight shut off, with adjustment spring relaxed, ensure a minimum downstream pressure of 0,2 bar.  
\*\* With PTFE diaphragm and seals. Consult the manufacturer in case of other materials.

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

PN 16	Category
1/2" to 2" – DN 15 to 50	SEP



Optional dome-loaded version.



Optional pressure gauge connections.

**DIMENSIONS (mm) ASME BPE**

SIZE	REGULATING RANGES 0,8 to 1,5 bar, 1 to 3 bar and 1,5 to 5 bar													REGULATING RANGE 0,3 to 1,1 bar			
	A	B	C	C1	D	d1	d2	d3 *	d4 *	E	F	H	WGT. (kg)	A	D	E	WGT. (kg)
1/2"	77	53	156	84	119	25	15,75	1/4"	1/4"	83	25	9,4	4,1	85	134	91	4,9
3/4"	77	56	160	88	119	25	15,75	1/4"	1/4"	83	25	15,75	4,4	85	134	91	5,1
1"	77	52	163	91	119	25	15,75	1/4"	1/4"	83	50,5	22,1	4,6	85	134	91	5,4
1 1/2"	85	61	204	124	134	25	15,75	1/4"	1/4"	96	50,5	34,8	8	101	170	109	11,1
2"	85	67	207	127	134	25	15,75	1/4"	1/4"	96	64	47,5	8,6	101	170	109	12

**DIMENSIONS (mm) DIN**

SIZE	REGULATING RANGES 0,8 to 1,5 bar, 1 to 3 bar and 1,5 to 5 bar													REGULATING RANGE 0,3 to 1,1 bar			
	A	B	C	C1	D	d1	d2	d3 *	d4 *	E	F	H	WGT. (kg)	A	D	E	WGT. (kg)
DN 15	77	45	160	88	119	25	15,75	1/4"	1/4"	83	34	16	4,4	85	134	91	5,1
DN 20	77	40	158	86	119	25	15,75	1/4"	1/4"	83	34	20	4,3	85	134	91	4,9
DN 25	84	47	161	89	119	25	15,75	1/4"	1/4"	83	50,5	26	4,6	92	134	91	5,3
DN 32	84	50	163	91	119	25	15,75	1/4"	1/4"	83	50,5	32	4,8	84	134	83	5,5
DN 40	93	69	202	122	134	25	15,75	1/4"	1/4"	96	50,5	38	8	109	170	109	11
DN 50	93	75	206	126	134	25	15,75	1/4"	1/4"	96	64	50	8,6	109	170	109	12

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

**DIMENSIONS (mm) ISO**

SIZE	REGULATING RANGES 0,8 to 1,5 bar, 1 to 3 bar and 1,5 to 5 bar													REGULATING RANGE 0,3 to 1,1 bar			
	A	B	C	C1	D	d1	d2	d3 *	d4 *	E	F	H	WGT. (kg)	A	D	E	WGT. (kg)
DN 15	84	43	159	87	119	25	15,75	1/4"	1/4"	83	50,5	18,1	4,4	92	134	91	5,1
DN 20	84	46	162	90	119	25	15,75	1/4"	1/4"	83	50,5	23,7	4,6	92	134	91	5,4
DN 25	84	49	164	92	119	25	15,75	1/4"	1/4"	83	50,5	29,7	4,8	92	134	91	5,6
DN 32	93	70	202	122	134	25	15,75	1/4"	1/4"	96	64	38,4	8,2	109	170	109	11,3
DN 40	93	75	206	126	134	25	15,75	1/4"	1/4"	96	64	44,3	8,8	109	170	109	12,1

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

\* As standard, connections d3 and d4 are female threaded ISO 7 Rp.

**FLOW RATE COEFFICIENTS (m³/h)**

SIZE	ASME BPE					DIN						ISO				
	1/2"	3/4"	1"	1 1/2"	2"	DN 15	DN 20	DN 25	DN 32	DN 40	DN 50	DN 15	DN 20	DN 25	DN 32	DN 40
<b>Kvs</b>	1,6	3,2	5,3	13,0	19,8	2,8	3,2	5,3	5,3	13,0	19,8	2,8	5,3	5,3	13,0	13,0

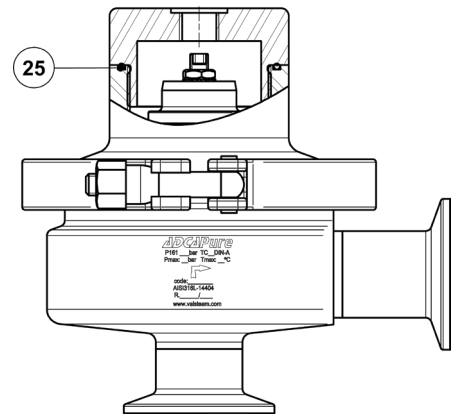
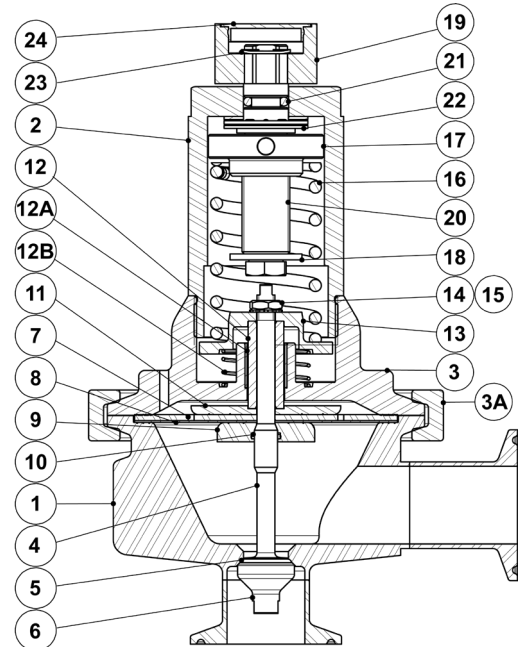
**MATERIALS**

POS. N°	DESIGNATION	MATERIAL
1	Valve body	AISI 316L / 1.4404
2	Cover	AISI 316L / 1.4404
3	Intermediate flange	AISI 316L / 1.4404
3A	Clamp	AISI 316 / 1.4401
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	Diaphragm plate	AISI 316L / 1.4404
10	* O-ring	EPDM
11	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	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	* O-ring	EPDM

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

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.



*Dome-loaded top*

**OPTIONS**

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

ORDERING CODES P161

Valve model	P16	1	3	1	T	M	I	X	X	X	DI	15	E
P161 – AISI 316L / 1.4404 diaphragm sensing pressure reducing valve	P16												
<b>Valve series</b>													
Series 1		1											
<b>Regulating range</b>													
0,3 to 1,1 bar			3										
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) <b>a)</b>			A										
0,3 to 1,1 bar (dome-loaded) <b>a)</b>			B										
<b>Flow rate coefficient</b>													
Kvs 1,3 (only applicable to ASME BPE 1/2" size)				1									
Kvs 2,8 (applicable to sizes DIN DN 15 and ISO DN 15)				2									
Kvs 3,2 (applicable to sizes ASME BPE 3/4" and DIN DN 20)				3									
Kvs 5,3 (applicable to sizes ASME BPE 1", DIN DN 25 to DN 32 and ISO DN 20 to DN 25)				4									
Kvs 13,0 (applicable to sizes ASME BPE 1 1/2", DIN DN 40 and ISO DN 32 to DN 40)				6									
Kvs 19,8 (applicable to sizes ASME BPE 2" and DIN DN 50)				8									
<b>Diaphragm</b>													
PTFE (Gylon)					T								
EPDM (non-standard)					E								
<b>Seat material b)</b>													
Metal to metal (non-standard, except in ASME BPE 1/2" size)						M							
EPDM							E						
PTFE								T					
FPM / Viton (FDA approval only)									V				
<b>Adjustment knob, top cap and captured vent</b>													
Stainless steel adjustment knob										I			
Top cap (adjustment screw with cover)											T		
Stainless steel adjustment knob w/ diaphragm cover leakage connection in case of diaphragm failure												L	
Top cap (adjustment screw with cover) w/ diaphragm cover leakage connection in case of diaphragm failure													U
Dome-loaded top <b>c)</b>													X
<b>Gauge port options</b>													
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 7 Rp 1/4"													4
Threaded gauge port on the right side (rel. to the flow direction) – downstream pressure – ISO 7 Rp 1/4"													3
Threaded gauge port on both sides – downstream pressure – ISO 7 Rp 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
<b>Surface finish d)</b>													
Standard surface finish													X
Mirror mechanical polished external surfaces (SF1)													P
Electropolished internal wetted parts (SF5)													E
<b>Special features</b>													
None													X
Degreased for oxygen													O
CIP / SIP lock system													C
<b>Pipe connections</b>													
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
<b>Size</b>													
1/2" or DN 15													15
3/4" or DN 20													20
1" or DN 25													25
DN 32													32
1 1/2" or DN 40													40
2" or DN 50													50
<b>Special valves / Extras</b>													
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)** Must be chosen in case of dome-loaded version; **d)** Consult IS PV20.00 (Technical information) for further details and other surface finish options.