

PILOT OPERATED PRESSURE SUSTAINING VALVES PS47

DESCRIPTION

The ADCA PS47 pilot operated pressure sustaining valves are designed for use with steam, compressed air, nitrogen and other gases compatible with the construction materials.

The PS47 accurately senses upstream pressure and acts to precisely control it to a minimum or disperse excess pressure.

MAIN FEATURES

Precise control of upstream pressure from 0,07 bar to 17 bar.

Robust steel or stainless steel construction.

Guided piston and valve stem.

Hardened plug.

OPTIONS:

- Soft sealing.
- Low pressure top.
- Dome loaded version.
- Bottom cover drain connection.
- Stellite plug and seat.
- External sensing connection.

USE:

Saturated steam, compressed air and other gases (Group 2) compatible with the construction (except oxygen).

AVAILABLE MODELS:

- PS47 – steel versions for steam.
- PS47I – stainless steel versions for steam (only available from DN 15 to DN 50).
- PS47G – steel versions for compressed air and gases.
- PS47GI – stainless steel versions for compressed air and gases.

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

CONNECTIONS:

- Flanged EN 1092-1 PN 40.
- Flanged ASME B16.5 Class 150 or 300.
- Female threaded ISO 7 Rp or NPT.
- Socket weld (SW) ASME B16.11.

INSTALLATION:

Horizontal installation.
See IMI – Installation and maintenance instructions.
In steam applications, a "Y" strainer, humidity separator and steam trap should be installed upstream of the valve.



CE MARKING – GROUP 2 (PED – European Directive)

CLASS 150	PN 40	Category
1/2" to 2"	DN 15 to 32 – 1/2" to 1 1/4"	SEP
–	DN 40 to 50 – 1 1/2" to 2"	1 (CE marked)

BODY LIMITING CONDITIONS					
PS47		PS47i			RELATED TEMPERATURE
CLASS 150 *	PN 40 / CLASS 300 **	CLASS 150 *	PN 40	CLASS 300 **	
ALLOW. PRESS.	ALLOW. PRESS.	ALLOW. PRESS.	ALLOW. PRESS.	ALLOW. PRESS.	
19,3 bar	40 bar	15,3 bar	40 bar	39,9 bar	- 10 / 50 °C
17,7 bar	37,1 bar	11,1 bar	37,9 bar	28,8 bar	100 °C
12,5 bar	31 bar	10,4 bar	30,3 bar	27,1 bar	239 °C
10,2 bar	28 bar	9,7 bar	27,6 bar	25,2 bar	300 °C

Minimum working temperature: -10 °C; * Rating according to EN 1759-1:2004; ** Rating according to EN 1092-1:2018.

LIMITING CONDITIONS	
Valve model	PS47
Body design conditions	PN 40
Maximum upstream pressure	17 bar
Minimum upstream pressure *	0,35
Maximum downstream pressure	17 bar
Maximum operating temperature	250 °C
Maximum hydraulic factory valve body test	60 bar

* 0,07 bar with low pressure top (limited to 7 bar maximum inlet pressure).

Remak: Pressure and temperature limiting conditions may change if "G" version for compressed air and gases is chosen or soft sealing/piston rings are used.

Warning: A pressure sustaining valve is not a safety relief valve and must not be used for that purpose!

REGULATING RANGES				
SPRING COLOUR	GREEN w/ 1 diaphragm	BLUE w/ 1 diaphragm	RED w/ 2 diaphragms	BLACK w/ 2 diaphragms
Regulating range	0,07 to 0,5 bar * 0,35 to 2 bar	1,5 to 5,5 bar	3,5 to 8,5 bar	7 to 17 bar

* With low pressure top.

DIMENSIONS

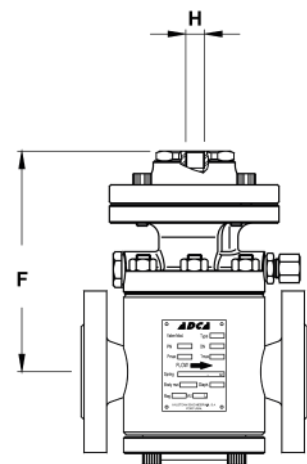
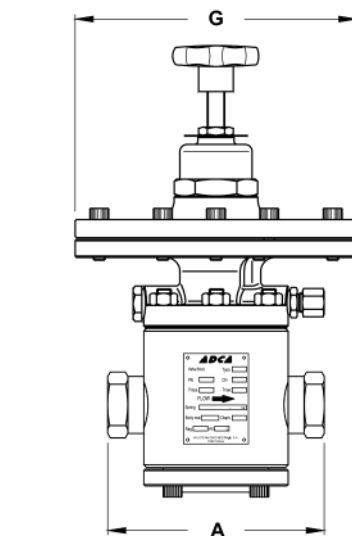
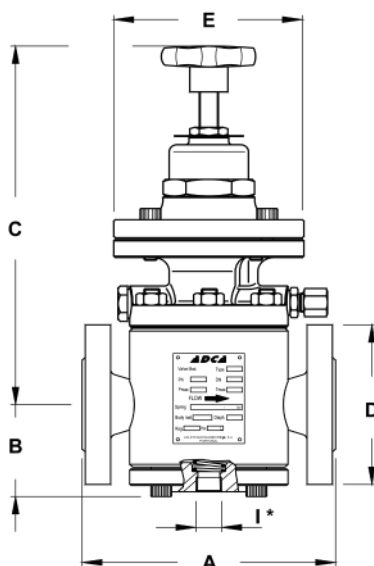


Fig. 1 - Valve with standard diaphragm

Fig. 2 - Valve with low pressure top

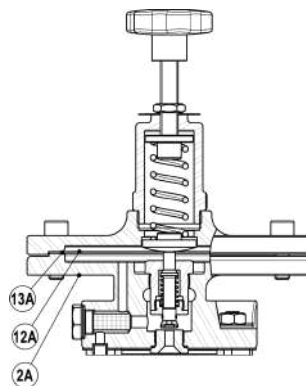
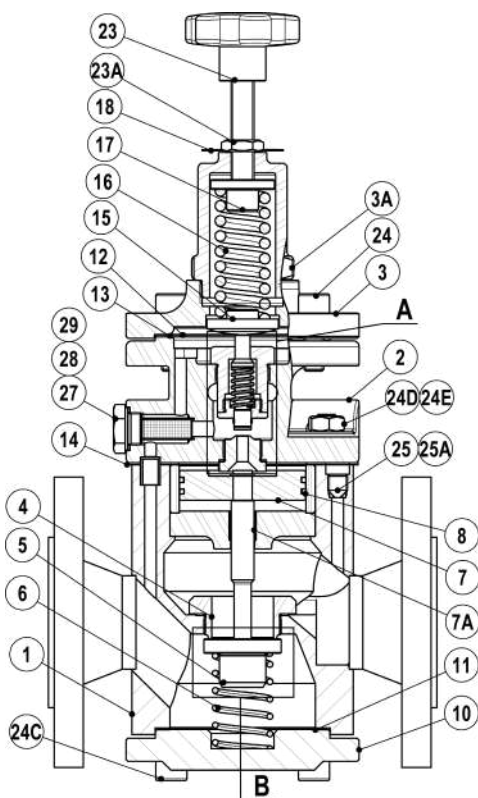
Fig. 3 - Dome loaded valve

DIMENSIONS (mm)

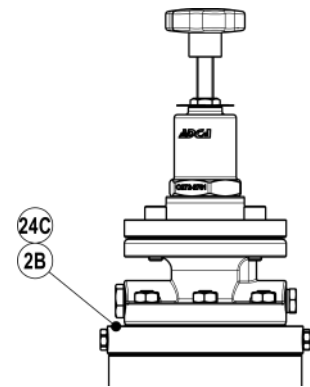
SIZE	A				B	C	D	E	F	G	H	I*	WEIGHT (kg)
	PN 40	CLASS 150	CLASS 300	THREADED									
DN 15 – 1/2"	150	184	190	140	56	275	95	120	162	195	1/4"	3/8"	13
DN 20 – 3/4"	150	184	194	140	56	287	105	120	174	195	1/4"	3/8"	13,5
DN 25 – 1"	160	184	197	150	56	287	115	120	174	195	1/4"	3/8"	14
DN 32 – 1 1/4"	180	-	-	170	68	299	140	120	186	195	1/4"	3/8"	18
DN 40 – 1 1/2"	200	222	235	190	75	307	150	130	194	195	1/4"	3/8"	22
DN 50 – 2"	230	254	267	230	84	323	165	160	210	195	1/4"	3/8"	31

* Optional drain connection for steam trapping. This drain connection does not replace the humidity separator, but can be useful if, e.g., the valve stops operating for long periods of time (see Fig.6).

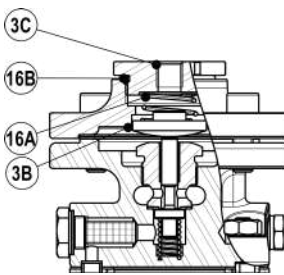
Remarks: As standard, connections H and I, in valves manufactured with ASME B16.5 flanges, SW or NPT threads, are female threaded NPT. In valves manufactured with EN 1092-1 flanges or ISO 7 Rp threads, these connections are also female threaded ISO 7 Rp.



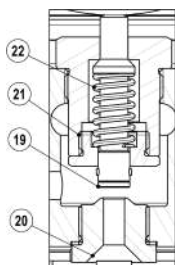
Low pressure top



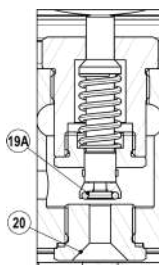
Adapting flange (DN50)



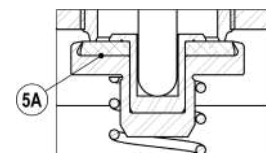
Dome loaded top



Detail A
 Pilot valve



Detail A
 Pilot valve (soft)



Detail B
 Main valve (soft)

MATERIALS			
POS. N°	DESIGNATION	PS47	PS47I
1	Valve body	S355JR / 1.0045 ; P250GH / 1.0460	AISI 316 / 1.4401
2	Pilot valve body	A351 CF8 / 1.4308	A351 CF8 / 1.4308
2A	Low pressure pilot valve body	A351 CF8 / 1.4308	A351 CF8 / 1.4308
2B	Adapting flange	C45E / 1.1191	AISI 316 / 1.4401
3	Top cover	A351 CF8 / 1.4308	A351 CF8 / 1.4308
3A	Spring cover	A351 CF8 / 1.4308	A351 CF8 / 1.4308
3B	Top cover	C45E / 1.1191	AISI 316 / 1.4401
3C	Cover nut	C45E / 1.1191	AISI 316 / 1.4401
4	* Main valve seat	AISI 316 / 1.4401	AISI 316 / 1.4401
5	* Main valve plug	Hardened st. steel	Hardened st. steel
5A	* Main valve plug (soft)	AISI 316 w/ PTFE/GR; Rulon	AISI 316 w/ PTFE/GR; Rulon
6	* Main valve spring	AISI 302 / 1.4300	AISI 302 / 1.4300
7	* Piston	Brass / Bronze	Brass / Bronze
7A	Piston guide	AISI 316 / 1.4401	AISI 316 / 1.4401
8	* Piston Rings	Bronze / FKM / EPDM / NBR	Bronze / FKM / EPDM / NBR
9	Piston liner	AISI 304 / 1.4301	AISI 304 / 1.4301
10	Bottom cover	S355JR / 1.0045	AISI 316 / 1.4401
11	* Bottom cover gasket	Stainless steel / Graphite	Stainless steel / Graphite
12	* Diaphragm	AISI 301 / 1.4310	AISI 301 / 1.4310
12A	* Low pressure diaphragm	AISI 301 / 1.4310	AISI 301 / 1.4310
13	* Diaphragm gasket	Stainless steel / Graphite	Stainless steel / Graphite
13A	* Low press. diaphragm gasket	Stainless steel / Graphite	Stainless steel / Graphite
14	* Pilot valve gasket	Stainless steel / Graphite	Stainless steel / Graphite
15	Lower spring carrier	Brass	Brass
16	* Adjustment spring	Steel	Steel
16A	Diaphragm spring	Stainless steel	Stainless steel
16B	O-ring	Viton	Viton
17	Top spring carrier	Brass	Brass
18	Spring ID plate	Aluminium	Aluminium
19	* Pilot valve plug	AISI 316 / 1.4401	AISI 316 / 1.4401
19A	* Pilot valve plug (soft)	PTFE/GR; Rulon, etc.	PTFE/GR; Rulon, etc.
20	* Pilot valve seat	AISI 316 / 1.4401	AISI 316 / 1.4401
21	* Pilot valve body	A351 CF8 / 1.4308	Copper / PTFE
22	* Pilot valve spring	AISI 302 / 1.4300	AISI 302 / 1.4300
23	Handwheel	Plastic / Stainless steel	Plastic / Stainless steel
23A	Locknut	AISI 304 / 1.4301	AISI 304 / 1.4301
24	Bolts	Steel 10.9	Stainless steel A2
24C	Bolts	Steel 10.9	Stainless steel A2
24D	Studs	34CrNiMo / 1.6582	AISI 316 / 1.4401
24E	Nuts	Steel 8.8	Stainless steel A2-70
25	Socket set screw	Stainless steel	Stainless steel
25A	O-ring	Viton	Viton
26	Sensing pipe	Copper	Stainless steel
27	* Pilot valve strainer	AISI 304 / 1.4301	AISI 304 / 1.4301
28	Strainer nut	AISI 304 / 1.4301	AISI 304 / 1.4301
29	Gasket	Copper	Copper / PTFE

* Available spare parts.

ORDERING CODES PS47										
Valve model	PS.47			S.	1			1.	A	15
PS47 – steam (standard)	PS.47									
PS47G – compressed air and gases	PS.47G									
Body material										
A216 WCB / 1.0619 carbon steel	(1)									
A351 CF8M / 1.4408 stainless steel	I									
Options										
Standard valve with internal sensing line	(1)									
Valve for external sensing connection	B									
Diaphragm										
Standard diaphragm	S.									
Low pressure diaphragm	L.									
Regulating range										
Green spring – 0,35 to 2 bar – single diaphragm					1					
Blue spring – 1,5 to 5,5 bar – single diaphragm					2					
Red spring – 3,5 to 8,5 bar – double diaphragm					3					
Black spring – 7 to 17 bar – double diaphragm					4					
Dome loaded – 0,35 to 4 bar – single diaphragm a)					6					
Dome loaded – 2 to 17 bar – double diaphragm a)					7					
Piston rings b)										
Bronze					(1)					
FKM					V					
EPDM					E					
NBR					N					
Drain connection										
Standard valve					(1)					
Drain connection ISO 7 Rp 3/8"					D					
Valve sealing										
Standard metal to metal with hardened plug								1.		
Stellited plug and seat								2.		
Soft sealed with virgin PTFE b)								3.		
Soft sealed with PTFE/GR b)								4.		
Soft sealed with Rulon b)								5.		
Soft sealed with FPM/Viton b)								6.		
Pipe connection										
Threaded ISO 7 Rp									A	
Threaded NPT ASME B1.20.1									C	
Socket weld (SW) ASME B16.11									H	
Flanged EN 1092-1 PN 40									N	
Flanged ASME B16.5 Class 150									U	
Flanged ASME B16.5 Class 300									V	
Size										
DN 15 or 1/2"										15
DN 20 or 3/4"										20
...										
Special valves / Extras										
Full description or additional codes have to be added in case of non-standard combination.										E

a) The loading control pressure is approximately the same as the required upstream set-point pressure ($\pm 0,2$ bar).
b) Valve limited to the materials maximum operating temperature. Consult manufacturer for more details.