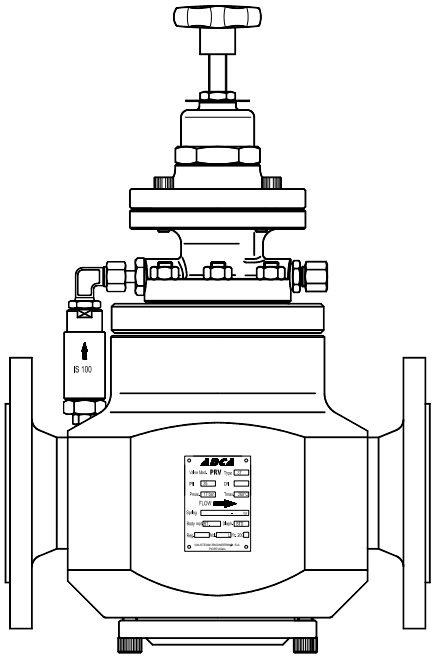
STEAM EQUIPMENT

PILOT OPERATED PRESSURE REDUCING VALVES
PRV47 (Steel) DN65 – DN80



DESCRIPTION
The ADCA PRV47 pilot operated pressure reducing valves are designed for use on steam, compressed air, nitrogen and other gases compatible with the construction and they can be installed on pressure reducing stations throughout all industries.
Connections are flanged or threaded.

MAIN FEATURES
Robust totally steel construction.
Suitable for dead end conditions.
Guided piston and valve stem.
Hardened plug.

OPTIONS: Soft faced valve plug for gases and steam
Special pressure top for low pressures
Stellited plug and seat

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

AVAILABLE MODELS: PRV47 - standard model for steam
PRV47G -compressed air and gases

VALVE SIZES: DN65 to DN80

CONNECTIONS: Flanged EN1092-1 PN25 or ANSI
Threaded BSP, NPT, SW.

INSTALLATION: Horizontal installation.
An "Y" strainer, steam separator and steam trap should be provided upstream the valve.
See IMI, installation and maintenance instructions.

ORDER REQUIREMENTS: Type of fluid
Maximum operating temperature
Inlet and outlet pressure
Flow rate (maximum and minimum)

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 fluid.
Refer to valve calculation table or consult the factory.

CE MARKING (PED - European Directive 97/23/EC)	
PN 25	**Category**
DN65 to DN80	1 (CE Marked)

VALVE LIMITING CONDITIONS: Body design conditions: PN25
25 bar at 120ºC
21 bar at 220ºC
17 bar at 300ºC
Min.working temperature: -10ºC

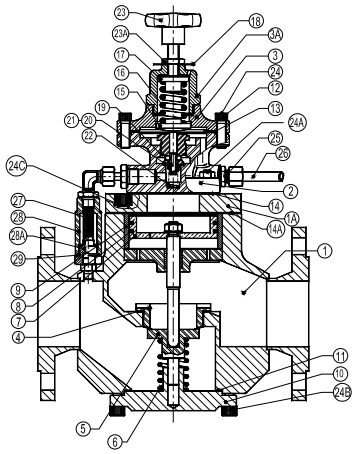
Maximum upstream pressure (steam) : 21 bar
Maximum upstream pressure (air) : 25 bar
Maximum downstream pressure: 17 bar
Minimum downstream pressure : 0,35 bar*
* 0,07 bar with low pressure top (limited at 7 bar inlet).
Pressure and temperature may change if soft seating or piston rings are used.

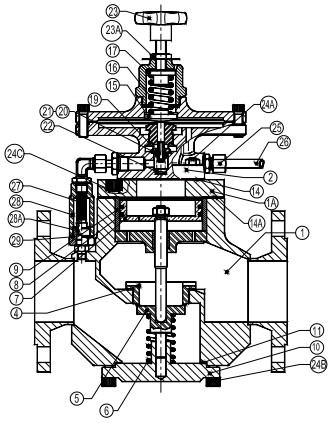
USEFUL NOTES ON VALVE AND PIPE SIZING
A special low pressure top assembly should be fitted for outlet pressures from 0,07 up to 0,5 bar (Fig.2).
Two regulators in parallel should be used on larger systems where minimum flow is less than 10% of maximum. If the flow is unknown it is possible to estimate it based on pipe sizing or equipment heat requirement - please consult.
The balance pipe connection is recommend to enter downstream pipe at a minimum of 1 meter from valve. A spool piece can be supplied to house the balancing pipe.

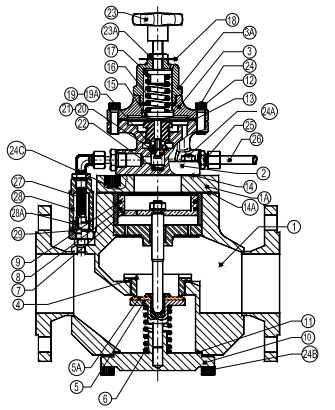
INSTALLATION
Installation instructions are available (IMI-PRV47) and typical assembling drawing. Special assembling design may be produced on request.

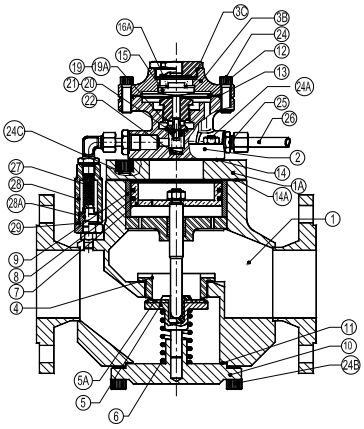
MATERIALS - PRV47 Steel construction		
POS.	***DESIGNATION***	***MATERIAL***
1	VALVE BODY	S355J2G3 / 1.0570) ; P250GH / 1.0460
2	PILOT VALVE BODY	CF8 / 1.4308
3	TOP COVER	C45E / 1.1191
3A	COVER NUT	C45E / 1.1191
3B	TOP COVER	C45E / 1.1191
3C	COVER NUT	C45E / 1.1191
4	*MAIN VALVE SEAT	AISI316 / 1.4401
5	*MAIN VALVE	HARDENED ST.STEEL
5A	*MAIN VALVE (SOFT)	SS316 W/ PTFE/GR; RULON,…
6	*MAIN VALVE SPRING	AISI302 / 1.4300
7	*PISTON	Bronze B62/ASTM B148.97
8	*PISTON RINGS	BRONZE / FKM / EPDM / NBR
9	PISTON LINER	AISI304L / 1.4306
10	BOTTOM COVER	C45E / 1.1191
11	*BOTTOM COVER GASKET	ST.ST/GRAPHITE
12	*DIAPHRAGM	AISI301 / 1.4310
12A	*LOW PRESSURE DIAPHRAGM	AISI301 / 1.4310
13	*DIAPHRAGM GASKET	ST.STEEL/GRAPHITE
13A	*DIAPHRAGM GASKET	ST.STEEL/GRAPHITE
14	*PILOT VALVE GASKET	ST.STEEL/GRAPHITE
15	LOWER SPRING CARRIER	BRASS
16	*ADJUSTMENT SPRING	STEEL
16A	DIAPHRAGM SPRING	STAINLESS STEEL
17	TOP SPRING CARRIER	BRASS
18	SPRING IDENT. PLATE	ALUMINIUM
19	*PILOT VALVE	AISI316 / 1.4401
19A	*PILOT VALVE (SOFT)	PTFE/GR; RULON, ETC
20	*PILOT VALVE SEAT	AISI316 / 1.4401
21	*PILOT VALVE GASKET	COPPER
22	*PILOT VALVE SPRING	AISI302 / 1.4300
23	HANDWHEEL	PLASTIC/ST.STEEL
23A	LOCKNUT	AISI304 / 1.4301
24	BOLTS	STEEL 10.9
24C	BOLTS	STEEL 10.9
25	COMPRESSION FITTING	PLATED CARBON STEEL
26	BALANCE PIPE	COPPER
27	PILOT VALVE STRAINER SCREEN	AISI304 / 1.4301
28	*STRAINER	AISI304 / 1.4301
29	GASKET	COPPER
100	** PRESSURE REGULATOR (Relieving	ADCA P-10
105	SOLENOID VALVE	BRASS
107	*STRAINER	ADCA IS100I-ST.STEEL

* Available spare parts

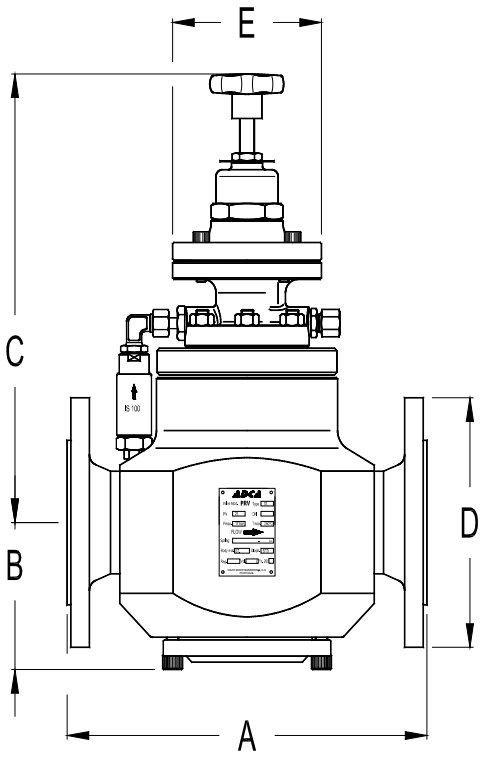


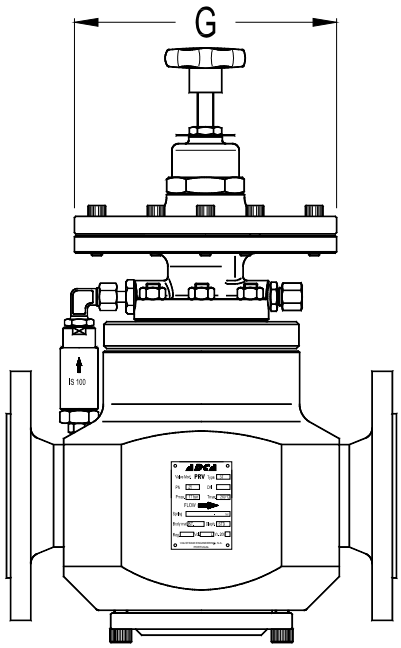






PRESSURE RANGES IN bar		
SPRING COLOUR	***GREEN W/1 Diaphragm***	***BLACK W/2 Diaphragms***
Red. Pressure	0,07 to 0,5 bar *	2 to 17 bar **
Red. Pressure	0,35 to 4 bar **	/
* With low pressure top; **Standard diaphragm.		





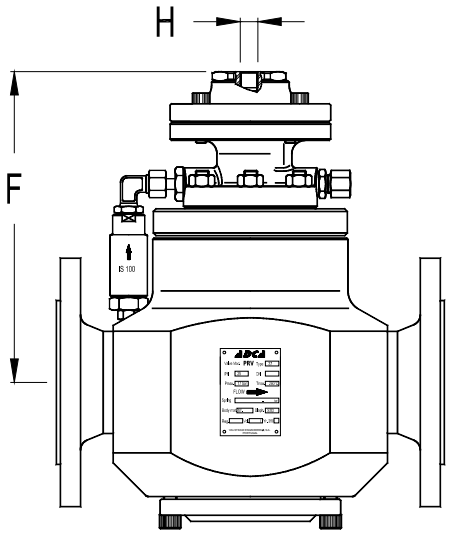


Fig.1 **Fig.2** **Fig.3**

Fig.1 - Valve with standard diaphragm; Fig.2 - Valve with low pressure top; Fig.3 - Valve with compressed air top.

DIMENSIONS - VALVE BODY (mm)									
DN	***A * EN1092-1 Flanges***	***B***	***C***	***D***	***E***	***F***	***G***	***H***	***WEIGHT Kgs***
65	290	105	363	185	120	250	195	1/4"	49
80	310	120	393	200	120	280	195	1/4"	65

*** For ANSI flanges face to face dimensions, please consult.**

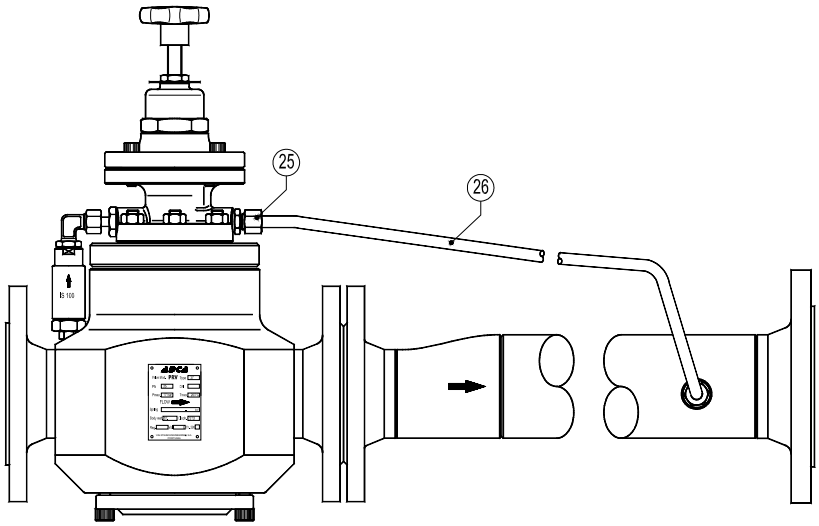


Fig.4

PRV 47 Standard for steam, compressed air or gases (Fig.4)

Description of operation: the high pressure upstream fluid is admitted to the valve and pilot valve. By compressing the regulating spring over the diaphragm, the pilot valve opens admitting regulated pressure on the top of the piston, which opens the main valve allowing the flow. The downstream pressure is then transmitted through the balance pipe, acting on the underside of the diaphragm.

Any downstream pressure increase deflects the diaphragm and the pilot valve closes , thus shutting off regulated gas to the piston which in turn closes the main valve assisted by the upstream pressure and loading spring. When the correct downstream pressure is achieved , the valve opens again , repeating the already described operation.

Important: the balance pipe nr.26 (supplied with the valve) has to be always connected.

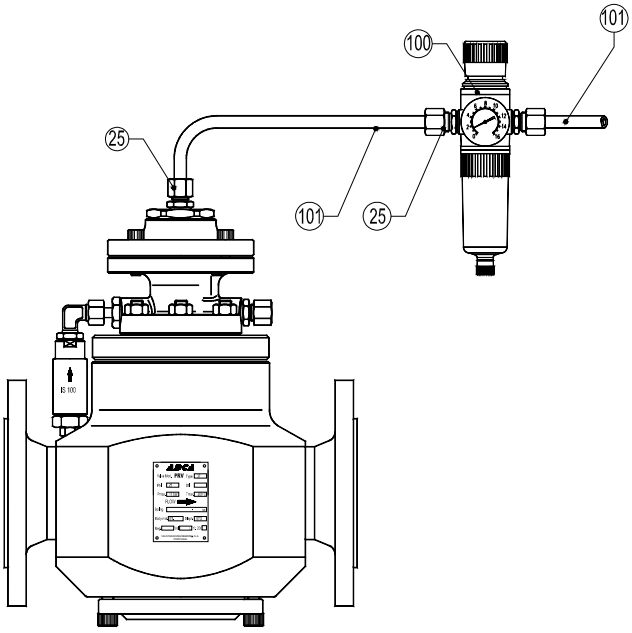


Fig.5

PRV47 valve with compressed air top for remote control (Fig.5)

The regulating spring force is placed by a compressed air signal.

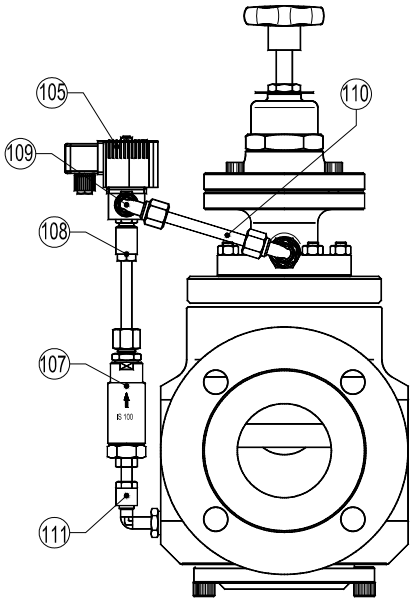


Fig.7

PRV47E with solenoid valve for electric remote control (Fig.7)

This valve version operates like the standard valve but it aloud a remote control closure by means of a switching or timer control.

When closing the solenoid valve, the pressure signal to the pilot

valve is interrupted and thus also the main valve remain close.

PRV 47 - STEAM CAPACITY TABLE (Kg/h)									
INLET bar	OUTLET bar	SATURATED STEAM							
		DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80
0,7	0,35	40	75	125	190	280	480	-	-
1	0,4	45	95	160	240	355	620	-	-
	0,6	40	83	140	210	308	535	-	-
2	0,4 ÷ 1	75	150	250	380	545	960	1490	1880
	1,2	65	138	230	345	515	900	1335	1685
	1,6	50	105	175	265	393	685	-	-
3	0,4 ÷ 1,5	100	200	335	510	750	1310	1980	2475
	2	85	170	290	450	660	1155	1732	2175
	2,2	80	165	277	416	613	1050	1585	1981
	2,6	60	127	203	315	467	818	-	-
4	0,4 ÷ 2	125	250	420	630	920	1580	2530	3170
	2,5	114	225	385	580	850	1465	2328	2923
	3,2	92	183	309	482	708	1205	1735	2179
	3,6	68	137	237	353	536	932	-	-
5	0,4 ÷ 2	150	310	512	755	1114	1895	3022	3765
	3	144	295	488	743	1095	1835	2869	3615
	4	115	225	373	578	846	1430	2130	2675
	4,2	105	213	343	525	770	1342	-	-
6	0,4 ÷ 3	175	355	602	919	1358	2298	3566	4453
	4	159	314	538	827	1217	2142	3219	4012
	5	119	250	411	637	941	1644	2276	2870
	5,2	109	217	360	568	839	1465	-	-
7	0,4 ÷ 3,5	197	410	670	1005	1540	2644	3959	4952
	5	178	358	587	908	1345	2306	3513	4405
	6	132	271	452	688	1027	1773	2764	3022
	6,2	122	251	416	635	934	1618	-	-
8	0,4 ÷ 4	225	471	778	1169	1759	3043	4605	5745
	5	221	339	730	1118	1659	2884	4305	5395
	6	192	385	639	976	1451	2513	3761	4704
	7	146	293	481	732	1085	1887	2727	3168
	7,2	137	274	453	692	1011	1782	-	-
9	0,4 ÷ 5	251	518	856	1325	1923	3358	5051	6334
	6	241	500	788	1222	1766	3095	4653	5794
	7	206	398	679	1068	1559	2676	4060	5051
	8	156	314	514	794	1142	2053	2671	3319
	8,2	145	292	483	741	1090	1888	-	-
10	0,4 ÷ 5	275	561	944	1468	2127	3718	5592	7031
	6	272	551	917	1419	2074	3619	5443	6830
	7	252	508	838	1268	1871	3249	4951	6187
	8	213	431	722	1118	1659	2831	4108	5149
	9	163	333	548	843	1244	2152	2721	3466
	9,2	150	298	493	756	1143	1929	-	-
12	1 ÷ 6	330	680	1124	1732	2541	4407	6631	8216
	8	311	629	1023	1575	2332	4034	6090	7573
	10	265	533	812	1271	1867	3202	4503	5592
	11	175	364	568	924	1350	2359	2920	3612
15	1 ÷ 8	408	839	1373	2138	3118	5403	8164	10393
	12	339	656	1068	1629	2441	4250	6385	7968
	14	199	401	662	1017	1503	2619	2968	3661
17	1 ÷ 9	425	863	1460	2178	3165	5343	9204	11360
	15	347	709	1190	1816	2694	4712	5870	7363
	16	207	416	717	1217	1608	2824	3598	4312
20	1 ÷ 12	541	1062	1774	2746	4001	6971	10390	13363
	15	459	931	1552	2335	3476	6184	9156	11382
	17	391	648	988	1748	2840	4698	6098	7628
25	2,5 ÷ 12	685	1337	2191	3360	4971	8392	-	-
	15	680	1320	2183	3356	4877	8284	-	-
	17	641	1256	2084	3156	4670	7866	-	-
28	5 ÷ 15	781	1521	3355	3864	5611	9862	-	-
	17	763	1471	3259	3768	5506	9652	-	-

For sizes DN15 to DN 50 please consult Cat. IS PRV47.10

ORDERING CODES PRV47

Valve Model	VR.47		E	S.	1			1.	A	15	
PRV47-standard steam use	VR.47										
PRV47G-compressed air and gases	VR.47G										
Material Construction											
Standard steel construction		(1)									
Stainless steel construction		I									
Remote Control and Pilots											
Solenoid valve 220V for remote closure up to 10 bar-180ºC			E								
Pressure sustaining / reducing **a)**			S								
Pressure sustaining / reducing / solenoid			ES								
Diaphragm Type											
Standard diaphragm				S.							
Low pressure diaphragm				L.							
Outlet Pressure											
Green spring 0,35 to 5 bar - single diaphragm					1						
Black spring 2 to 17 bar - double diaphragm					4						
Pneumatic control top 0,35 to 5 bar - single diaphragm					6						
Pneumatic control top 2 to 17 bar - double diaphragm					7						
Piston Rings											
Bronze **c)**						(1)					
FKM **c)**						V					
EPDM **c)**						E					
NBR **c)**						N					
Drain Connection											
Standard valve							(1)				
Drain connection DN 3/8"							D				
Valve Plug											
Standard metal to metal with hardened plug								1.			
Stellited valve and plug								2.			
Soft plug - Virgin PTFE								3.			
Soft plug - PTFE/GR								4.			
Soft plug - Rulon								5.			
Connections											
Threaded BSP ISO 7/1 Rp									A		
Threaded NPT ANSI B1.20.1									C		
Flanged EN 1092-1 PN40									N		
Flanged 150# ANSI B16.5									U		
Flanged 300# ANSI B16.5									V		
SIZE											
DN 1/2" or DN15										15	
DN 3/4" or DN20										20	
DN …..											
Special valves / Extras b)											E

Remarks:

(1) Omitted if a standard valve is requested

a)PS15 Sustaining valve standard spring : 0,2 to 10 bar

b)Full description or aditional codes has to be hadded in case of a a non-standard combination .

c)Valve limited to maximum operating temperature materials