

PILOT OPERATED PRESSURE SUSTAINING VALVES PS47 (Steel) PS47I (St.Steel)

DESCRIPTION

The ADCA PS47 pilot operated pressure sustaining valves are designed for use on steam, compressed air, nitrogen and other gases compatible with the construction and they can be installed throughout all industries.

The pressure sustaining valves are particularly recommended in those systems where a limited flow rate is available and it is necessary to guaranty the supply to some critical process applications. Installing this valve in the supply of non-critical application limited to the minimum required pressure, they will close in case of excess of consumption and consequent pressure drop in the system, keeping the remaining flow available for the critical application.

In general this valve maintain the upstream pressure under control.

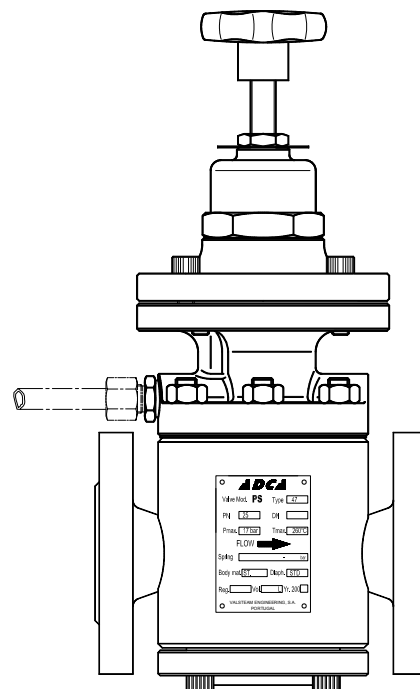
Connections are flanged or threaded.

MAIN FEATURES

Robust totally steel or stainless steel construction.

Guided piston and valve stem

Hardened plug



- OPTIONS:**
- Soft faced valve plug for gases and steam
 - Special pressure top for low pressures
 - Drain connection in bottom cover
 - Stellited plug and seat
- USE:**
- Saturated steam, compressed air and other gases (Group 2) compatible with the construction (except oxygen).

- AVAILABLE MODELS:**
- PS47 - standard model for steam
 - PS47G -compressed air and gases

- VALVE SIZES:** DN15 to DN50
- CONNECTIONS:** Flanged EN1092-1 PN40 or ANSI
Threaded BSP, NPT, SW.

- INSTALLATION:** Horizontal installation.
An "Y" strainer, steam separator and steam trap should be provided upstream the valve.

- 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.

For valve selection please consult the factory.

- VALVE LIMITING CONDITIONS:** Body design conditions: PN40
- 40 bar at 120°C
 - 32 bar at 239°C
 - 28 bar at 300°C
- Min.working temperature: -10°C
- Maximum upstream pressure : 17 bar
- Minimum upstream pressure : 0,7 bar

Pressure and temperature may change if soft seating or piston rings are used.

INSTALLATION

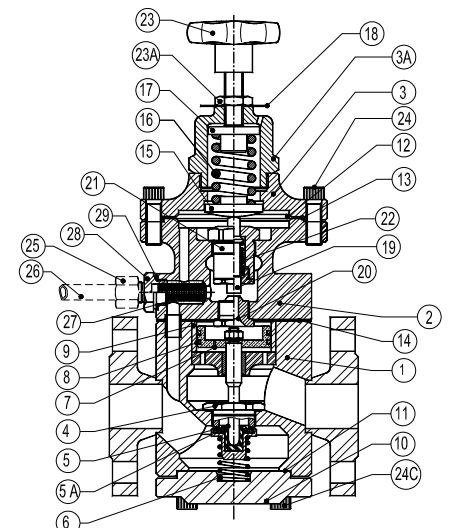
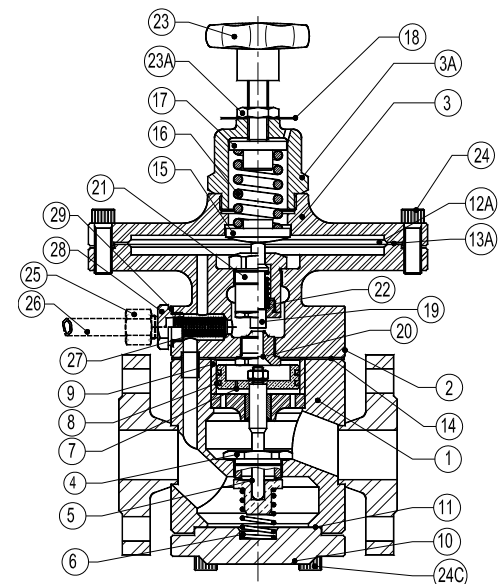
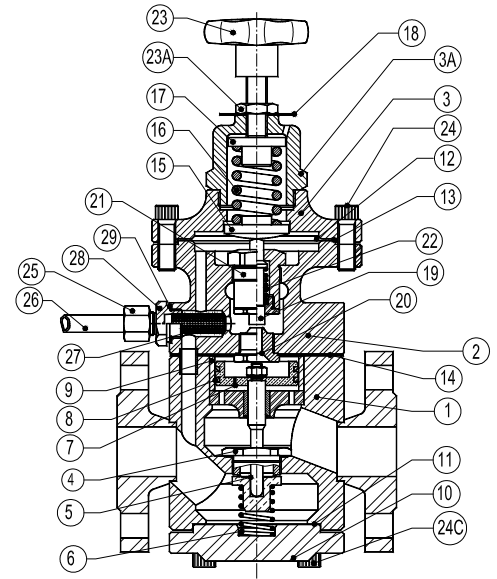
Installation instructions are available (IMI-PS47) and typical assembling drawing. Special assembling design may be produced on request.

| CE MARKING (PED - European Directive 97/23/EC) | |
|--|--------------------------|
| PN 40 | Category |
| DN15 to DN32 | SEP - art. 3, paragraph3 |
| DN40 to DN50 | 1 (CE Marked) |

MATERIALS - PS47 Steel construction

| POS. | DESIGNATION | MATERIAL |
|------|--------------------------|------------------------------------|
| 1 | VALVE BODY | S355J2G3 / 1.0570 ; P20GH / 1.0460 |
| 2 | PILOT VALVE BODY | CF8 / 1.4308 |
| 3 | TOP COVER | C45E / 1.1191 |
| 3A | 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 | BRASS/BRONZE |
| 8 | *PISTON RINGS | BRONZE / FKM / EPDM / NBR |
| 9 | PISTON LINER | AISI304L / 1.4306 |
| 10 | BOTTOM COVER | S355J2G3 / 1.0570 |
| 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 |
| 17 | TOP SPRING CARRIER | BRASS |
| 18 | SPRING IDENT. PLATE | ALUMINIUM |
| 19 | *PILOT VALVE PLUG | AISI316 / 1.4401 |
| 19A | *PILOT VALVE PLUG (SOFT) | PTFE/GR; RULON, ETC |
| 20 | *PILOT VALVE SEAT | AISI316 / 1.4401 |
| 21 | *PILOT VALVE BODY | CF8 / 1.4308 |
| 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 (optional) | COPPER |
| 27 | *PILOT VALVE STRAINER | ST. STEEL |
| 28 | STRAINER NUT | AISI304 / 1.4301 |
| 29 | GASKET | COPPER |

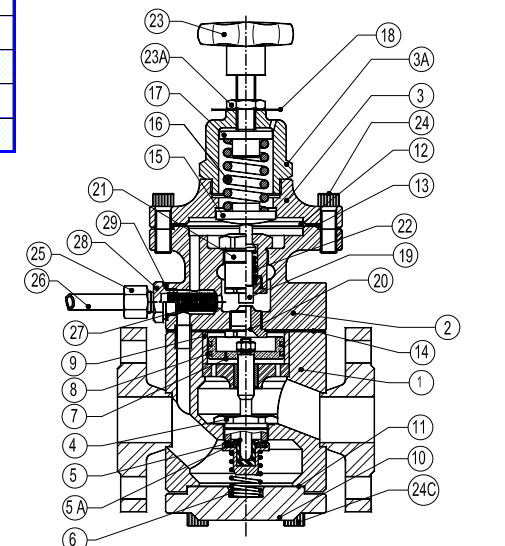
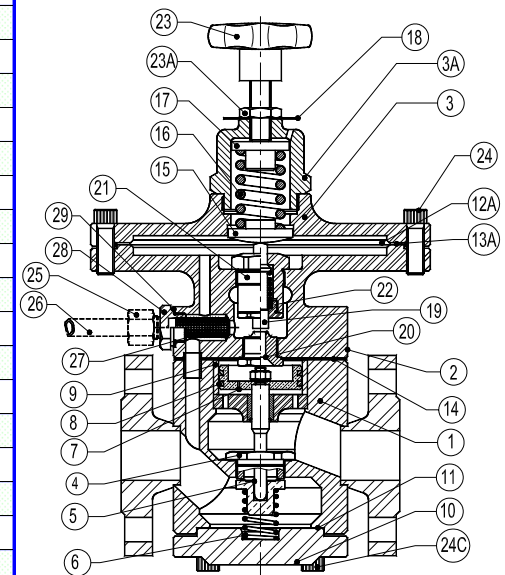
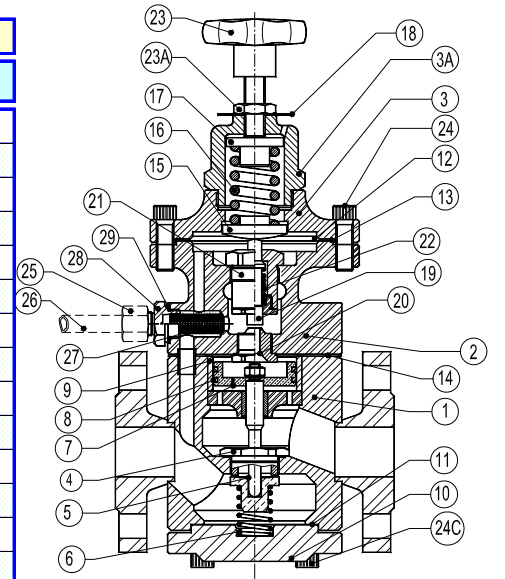
* Available spare parts



MATERIALS - PS47I Stainless steel construction

| POS. | DESIGNATION | MATERIAL |
|------|--------------------------|------------------------------|
| 1 | VALVE BODY | AISI316 / 1.4401 |
| 2 | PILOT VALVE BODY | CF8 / 1.4308 |
| 3 | TOP COVER | AISI316 / 1.4401 |
| 3A | COVER NUT | AISI316 / 1.4401 |
| 4 | *MAIN VALVE SEAT | AISI316 / 1.4401 |
| 5 | *MAIN VALVE | HARDENED ST. STEEL |
| 5A | *MAIN VALVE (SOFT) | SS317 W/ PTFE/GR / RULON,... |
| 6 | *MAIN VALVE SPRING | AISI302 / 1.4300 |
| 7 | *PISTON | STAINLESS STEEL |
| 8 | *PISTON RINGS | BRONZE / FKM / EPDM / NBR |
| 9 | PISTON LINER | AISI304L / 1.4306 |
| 10 | *BOTTOM COVER | AISI316 / 1.4401 |
| 11 | *BOTTOM COVER GASKET | ST.ST/GRAPHITE / PTFE |
| 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 / ST. STEEL |
| 16 | *ADJUSTMENT SPRING | STEEL / ST. STEEL |
| 17 | TOP SPRING CARRIER | BRASS |
| 18 | SPRING IDENT. PLATE | ALUMINIUM / ST. STEEL |
| 19 | *PILOT VALVE PLUG | ST. STEEL |
| 19A | *PILOT VALVE PLUG (SOFT) | PTFE/GR; RULON, ETC |
| 20 | *PILOT VALVE SEAT | AISI316 / 1.4401 |
| 21 | *PILOT VALVE BODY | CF8 / 1.4308 |
| 22 | *PILOT VALVE SPRING | AISI302 / 1.4300 |
| 23 | HANDWHEEL | PLASTIC/ST. STEEL |
| 23A | LOCKNUT | AISI304 / 1.4301 |
| 24 | BOLTS | ST. STEEL A-4 |
| 24C | BOLTS | ST. STEEL A-4 |
| 25 | COMPRESSION FITTING | STAINLESS STEEL |
| 26 | BALANCE PIPE (optional) | STAINLESS STEEL |
| 27 | *PILOT VALVE STRAINER | AISI304 / 1.4301 |
| 28 | STRAINER NUT | AISI304 / 1.4301 |
| 29 | GASKET | COPPER / PTFE |

*Available spare parts



| PRESSURE RANGES IN bar | | |
|------------------------|------------------------|-------------------------|
| SPRING COLOUR | GREEN W/1 Diaphragm | BLACK W/2 Diaphragms |
| Relieving Press. | 0,35 to 4 bar ** | 2 to 17 bar ** |

**Standard diaphragm.

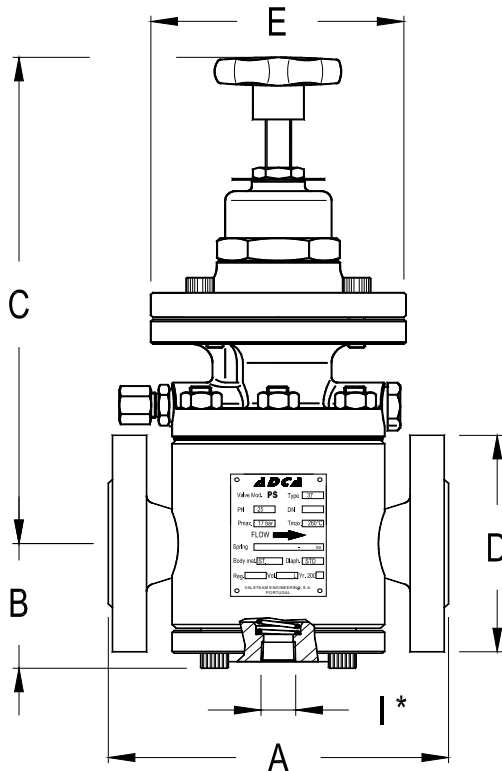


Fig.1

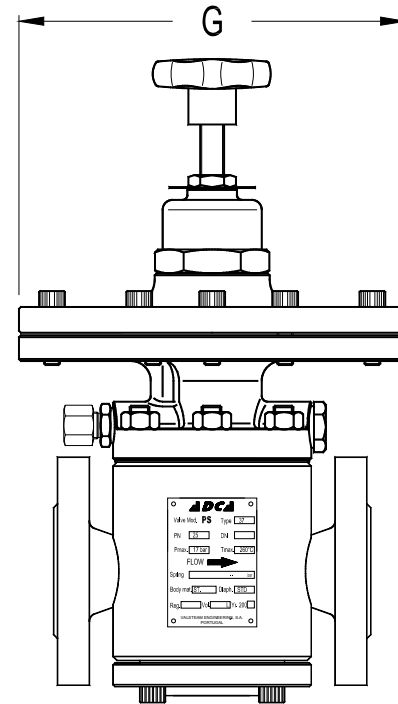


Fig.2

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

Important: the PS47 valve can be supplied with internal orifice or external pipe for pilot valve upstream pressure signal supply.

* Drain connection (option) for steam trapping . This drain connection does not replace the separator but can be useful if for example the valve stops operation for large periods.

| DIMENSIONS - VALVE BODY (mm) | | | | | | | | |
|------------------------------|--------------------------|----|-----|-----|-----|-----|------|---------------|
| DN | A EN1092-1 Flanges | B | C | D | E | G | I | WEIGHT Kgs |
| 15 | 150 | 56 | 275 | 95 | 120 | 195 | 3/8" | 13 |
| 20 | 150 | 56 | 287 | 105 | 120 | 195 | 3/8" | 13,5 |
| 25 | 160 | 56 | 287 | 115 | 120 | 195 | 3/8" | 14 |
| 32 | 180 | 68 | 299 | 140 | 120 | 195 | 3/8" | 18 |
| 40 | 200 | 75 | 307 | 150 | 130 | 195 | 3/8" | 22 |
| 50 | 230 | 84 | 323 | 165 | 160 | 195 | 3/8" | 31 |



STEAM EQUIPMENT

| PS 47 - STEAM CAPACITY TABLE (Kg/h) | | | | | | | |
|---------------------------------------|------------|-----------------|------|------|------|------|------|
| INLET bar | OUTLET bar | SATURATED STEAM | | | | | |
| | | DN15 | DN20 | DN25 | DN32 | DN40 | DN50 |
| 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 |
| | 1,2 | 65 | 138 | 230 | 345 | 515 | 900 |
| 3 | 1,6 | 50 | 105 | 175 | 265 | 393 | 685 |
| | 0,4 ÷ 1,5 | 100 | 200 | 335 | 510 | 750 | 1310 |
| | 2 | 85 | 170 | 290 | 450 | 660 | 1155 |
| 4 | 2,2 | 80 | 165 | 277 | 416 | 613 | 1050 |
| | 2,6 | 60 | 127 | 203 | 315 | 467 | 818 |
| | 0,4 ÷ 2 | 125 | 250 | 420 | 630 | 920 | 1580 |
| | 2,5 | 114 | 225 | 385 | 580 | 850 | 1465 |
| 5 | 3,2 | 92 | 183 | 309 | 482 | 708 | 1205 |
| | 3,6 | 68 | 137 | 237 | 353 | 536 | 932 |
| | 0,4 ÷ 2 | 150 | 310 | 512 | 755 | 1114 | 1895 |
| | 3 | 144 | 295 | 488 | 743 | 1095 | 1835 |
| 6 | 4 | 115 | 225 | 373 | 578 | 846 | 1430 |
| | 4,2 | 105 | 213 | 343 | 525 | 770 | 1342 |
| | 0,4 ÷ 3 | 175 | 355 | 602 | 919 | 1358 | 2298 |
| 7 | 4 | 159 | 314 | 538 | 827 | 1217 | 2142 |
| | 5 | 119 | 250 | 411 | 637 | 941 | 1644 |
| | 5,2 | 109 | 217 | 360 | 568 | 839 | 1465 |
| | 0,4 ÷ 3,5 | 197 | 410 | 670 | 1005 | 1540 | 2644 |
| 8 | 5 | 178 | 358 | 587 | 908 | 1345 | 2306 |
| | 6 | 132 | 271 | 452 | 688 | 1027 | 1773 |
| | 6,2 | 122 | 251 | 416 | 635 | 934 | 1618 |
| | 0,4 ÷ 4 | 225 | 471 | 778 | 1169 | 1759 | 3043 |
| | 5 | 221 | 339 | 730 | 1118 | 1659 | 2884 |
| 9 | 6 | 192 | 385 | 639 | 976 | 1451 | 2513 |
| | 7 | 146 | 293 | 481 | 732 | 1085 | 1887 |
| | 7,2 | 137 | 274 | 453 | 692 | 1011 | 1782 |
| | 0,4 ÷ 5 | 251 | 518 | 856 | 1325 | 1923 | 3358 |
| | 6 | 241 | 500 | 788 | 1222 | 1766 | 3095 |
| 10 | 7 | 206 | 398 | 679 | 1068 | 1559 | 2676 |
| | 8 | 156 | 314 | 514 | 794 | 1142 | 2053 |
| | 8,2 | 145 | 292 | 483 | 741 | 1090 | 1888 |
| | 0,4 ÷ 5 | 275 | 561 | 944 | 1468 | 2127 | 3718 |
| 12 | 6 | 272 | 551 | 917 | 1419 | 2074 | 3619 |
| | 7 | 252 | 508 | 838 | 1268 | 1871 | 3249 |
| | 8 | 213 | 431 | 722 | 1118 | 1659 | 2831 |
| | 9 | 163 | 333 | 548 | 843 | 1244 | 2152 |
| | 9,2 | 150 | 298 | 493 | 756 | 1143 | 1929 |
| 15 | 1 ÷ 6 | 330 | 680 | 1124 | 1732 | 2541 | 4407 |
| | 8 | 311 | 629 | 1023 | 1575 | 2332 | 4034 |
| | 10 | 265 | 533 | 812 | 1271 | 1867 | 3202 |
| | 11 | 175 | 364 | 568 | 924 | 1350 | 2359 |
| 17 | 1 ÷ 8 | 408 | 839 | 1373 | 2138 | 3118 | 5403 |
| | 12 | 339 | 656 | 1068 | 1629 | 2441 | 4250 |
| | 14 | 199 | 401 | 662 | 1017 | 1503 | 2619 |
| 17 | 1 ÷ 9 | 425 | 863 | 1460 | 2178 | 3165 | 5343 |
| | 15 | 347 | 709 | 1190 | 1816 | 2694 | 4712 |
| | 16 | 207 | 416 | 717 | 1217 | 1608 | 2824 |

| PS 47 - COMP. AIR CAPACITY TABLE (Nm ³ /h-0°C-1,013bar) | | | | | | | |
|--|------------|----------------|------|------|------|------|------|
| INLET bar | OUTLET bar | COMPRESSED AIR | | | | | |
| | | DN15 | DN20 | DN25 | DN32 | DN40 | DN50 |
| 0,7 | 0,35 | 15 | 31 | 50 | 70 | 111 | 191 |
| 1 | 0,4 | 16 | 33 | 51 | 79 | 113 | 194 |
| | 0,6 | 27 | 55 | 90 | 138 | 199 | 343 |
| 2 | 0,4 ÷ 1 | 60 | 122 | 201 | 307 | 444 | 763 |
| | 1,2 | 54 | 109 | 180 | 276 | 399 | 686 |
| 3 | 1,6 | 45 | 91 | 150 | 230 | 333 | 572 |
| | 0,4 ÷ 1,5 | 120 | 240 | 300 | 460 | 666 | 1150 |
| | 2 | 105 | 210 | 251 | 384 | 555 | 1050 |
| 4 | 2,2 | 48 | 93 | 152 | 232 | 334 | 570 |
| | 2,6 | 45 | 61 | 101 | 154 | 223 | 384 |
| | 0,4 ÷ 2 | 150 | 238 | 499 | 739 | 1089 | 1825 |
| | 2,5 | 135 | 208 | 449 | 568 | 978 | 1635 |
| 5 | 3,2 | 119 | 177 | 398 | 492 | 867 | 1444 |
| | 3,6 | 60 | 124 | 202 | 154 | 444 | 763 |
| | 0,4 ÷ 2 | 180 | 360 | 505 | 768 | 1110 | 1908 |
| | 3 | 165 | 330 | 556 | 691 | 997 | 1716 |
| 6 | 4 | 151 | 298 | 404 | 613 | 885 | 1526 |
| | 4,2 | 136 | 285 | 383 | 582 | 840 | 1449 |
| | 0,4 ÷ 3 | 210 | 468 | 696 | 1046 | 1523 | 2580 |
| 7 | 4 | 195 | 437 | 646 | 969 | 1412 | 2389 |
| | 5 | 150 | 345 | 494 | 738 | 1079 | 1817 |
| | 5,2 | 135 | 315 | 443 | 664 | 968 | 1627 |
| | 0,4 ÷ 3,5 | 240 | 480 | 804 | 1200 | 1740 | 2989 |
| 8 | 5 | 210 | 421 | 701 | 1046 | 1524 | 2640 |
| | 6 | 150 | 301 | 499 | 756 | 1104 | 1829 |
| | 6,2 | 105 | 211 | 349 | 529 | 773 | 1280 |
| | 0,4 ÷ 4 | 270 | 546 | 798 | 1353 | 1746 | 3411 |
| | 5 | 265 | 516 | 747 | 1276 | 1635 | 3220 |
| 9 | 6 | 225 | 449 | 710 | 1125 | 1635 | 2762 |
| | 7 | 180 | 361 | 600 | 892 | 1296 | 2184 |
| | 7,2 | 156 | 312 | 540 | 768 | 1128 | 1978 |
| | 0,4 ÷ 5 | 301 | 612 | 1011 | 1507 | 2244 | 3789 |
| | 6 | 270 | 553 | 910 | 1359 | 1980 | 3474 |
| 10 | 7 | 240 | 492 | 816 | 1230 | 1798 | 2970 |
| | 8 | 180 | 360 | 598 | 903 | 1288 | 2247 |
| | 8,2 | 165 | 329 | 547 | 826 | 1176 | 2056 |
| | 0,4 ÷ 5 | 330 | 659 | 1116 | 1692 | 2412 | 4173 |
| 12 | 6 | 314 | 628 | 1065 | 1615 | 2301 | 3983 |
| | 7 | 288 | 599 | 1004 | 1503 | 2202 | 3810 |
| | 8 | 240 | 492 | 806 | 1212 | 1770 | 3022 |
| | 9 | 192 | 360 | 658 | 898 | 1350 | 2280 |
| | 9,2 | 181 | 342 | 628 | 852 | 1283 | 2165 |
| 15 | 1 ÷ 6 | 390 | 792 | 1300 | 1978 | 2844 | 4917 |
| | 8 | 360 | 732 | 1219 | 1827 | 2622 | 4497 |
| | 10 | 270 | 553 | 910 | 1359 | 1980 | 3474 |
| | 11 | 210 | 468 | 696 | 1046 | 1523 | 2580 |
| 17 | 1 ÷ 8 | 480 | 972 | 1602 | 2427 | 3564 | 6072 |
| | 12 | 375 | 762 | 1272 | 1923 | 2784 | 4692 |
| | 14 | 255 | 528 | 889 | 1332 | 1896 | 3398 |
| 17 | 1 ÷ 9 | 540 | 912 | 1819 | 2737 | 3984 | 6818 |
| | 15 | 315 | 708 | 1179 | 1764 | 2520 | 4418 |
| | 16 | 255 | 528 | 889 | 1332 | 1896 | 3398 |

Remarks:

A pressure sustaining valve is normally sized on the minimum allowable pressure drop across the valve.

A pressure sustaining valve is not a safety valve and should not be used for that purpose.



| ORDERING CODES PS47 | | | | | | | | | | |
|---|-------|-----|--|-----------|----------|--|--|-----------|----------|-----------|
| Valve Model | PS.47 | | | S. | 1 | | | 1. | A | 15 |
| PS47-standard steam use | PS.47 | | | | | | | | | |
| Material Construction | | | | | | | | | | |
| Standard steel construction | | (1) | | | | | | | | |
| Stainless steel construction | | I | | | | | | | | |
| Remote Control and Pilots | | | | | | | | | | |
| Not available | | | | | | | | | | |
| 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 | | | | | |
| 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 ANSI B16.5 150# | | | | | | | | | U | |
| Flanged ANSI B16.5 300# | | | | | | | | | 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

c) Valve limited to maximum operating temperature materials