

spirax/sarco®

Stainless Steel Direct Operated Pressure Regulator SRV461/463

Types SRV461/463
Direct Acting Pressure
Reducing Valve with
non-rising adjustment
screw, O-ring soft seal
on valve plug for tight
ANSI Class IV shut-
off, and 316 Ti stain-
less steel construction
for wetted parts.

Model ⇄	SRV461	SRV463
Sizes	1/2", 3/4", 1", 1-1/4", 1-1/2", 2"	
Plug Connections	NPT	ANSI 150
Construction	316 Ti Stainless Steel, EPDM Diaphragm, TFE O-ring Seal	
Options	BSP Connections	DIN PN16 or BS4504 flanges
	SRV461S and SRV463S for Hydrocarbon Service - Consult Factory	
	Non-Standard Pressure Ranges	

TYPICAL APPLICATIONS

Clean steam, gas, and liquid supplies to bioreactors, centrifuges, freeze dryers (lyophilizers), sterilizers, autoclaves, process tanks, production suites, humidifiers, and culinary equipment.

SAMPLE SPECIFICATION

Stainless steel direct acting pressure reducing valves shall be diaphragm actuated with all 316Ti grade body and a soft O-ring seal for ANSI Class IV shutoff. Pressure setting on valves shall be adjustable while in service with maximum capacities rated for droop not to exceed 20%. Valve body shall be of packless design. Spirax Sarco SRV461 (screwed) SRV463 (flanged).

CONSTRUCTION MATERIALS

No.	Part	Material	Werkstoff No.	AISI Equivalent*
1	Body	Stainless Steel	1.4571	316 Ti
2	Spring Housing	Stainless Steel	1.4404	316L
3	Cap	Stainless Steel	1.4571	316 Ti
4	Valve Seat	Stainless Steel	1.4571	316 Ti
5	Valve Plug	Stainless Steel	1.4571	316 Ti
6	O-Ring Seal	TFE		
7	Diaphragm	EPDM		
8	Piston	Stainless Steel	1.4571	316 Ti
9	O-Ring	EPDM		
10	Top Spring Plate	Stainless Steel	1.4571	316 Ti
11	Spring	Stainless Steel	1.4310	301
12	Adjustment Screw	Stainless Steel	1.4571	316 Ti

* not direct equivalents, nearest AISI specification is given.

LIMITING OPERATING CONDITIONS

Max. Operating Pressure (PMO) 174 psig (12 barg)

Max. Operating Temperature Steam service: 374°F (190°C)
Liquid and gas service: 266°F (130°C) at all operating pressures

PRESSURE SHELL DESIGN CONDITIONS

PMA 220 psig/0-122°F 15 barg/0-50°C
Max. allowable pressure 187 psig/302°F 13 barg/150°C
174 psig/374°F 12 barg/190°C

TMA 374°F/0-174 psig 190°C/0-12 barg
Max. allowable temperature

PRESSURE RANGES

4 - 16 psi 0.3 - 1.1 bar
12 - 36 psi 0.8 - 2.5 bar
30 - 75 psi 2.0 - 5.0 bar

CAPACITIES

Capacities can be calculated from the fully open capacity indices.

Size	C _v	K _v
1/2" DN15	4.7	4
3/4" DN20	5.9	5
1" DN25	7.0	6
1-1/4" DN32	14.0	12
1-1/2" DN40	18.7	16
2" DN50	21.1	18

SIZING NOTES

- Maximum capacities can be obtained only at the upper end of each pressure range. Therefore, to ensure quoted capacities *always* select lowest pressure range option compatible with required downstream pressure.
- Because of valve droop characteristics, it is recommended that only 80% of the "fully open capacity indices" be used for sizing.
- Required C_v's can be calculated from the following formulae:

For Steam:

Establish whether the flow is critical or non-critical, and calculate the required C_v using one of the following formula:

$$\text{Critical } \Delta P \quad C_v = \frac{Q}{1.6 \times P_1} \\ P_2 < 1/2 P_1$$

$$\text{Noncritical } \Delta P \quad C_v = \frac{Q}{3.2 \times \sqrt{(P_1 - P_2) \times 2}} \\ P_2 > 1/2 P_1$$

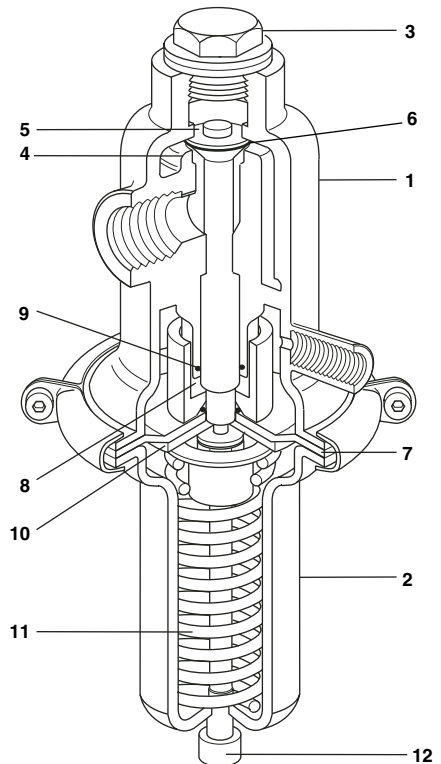
All pressures in psi absolute

For Liquids:

Calculate the required C_v using the following formula:

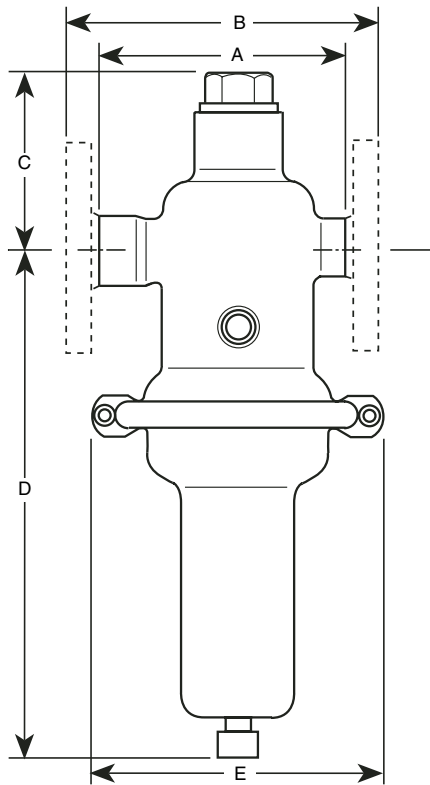
$$C_v = W \sqrt{\frac{S.G.}{\Delta P}}$$

Q = Steam load lb/h
P1 = Primary pressure (psia)
P2 = Secondary pressure (psia)
W = Liquid flow rate (GPM)
SG = Specific gravity of liquid
ΔP = Pressure differential



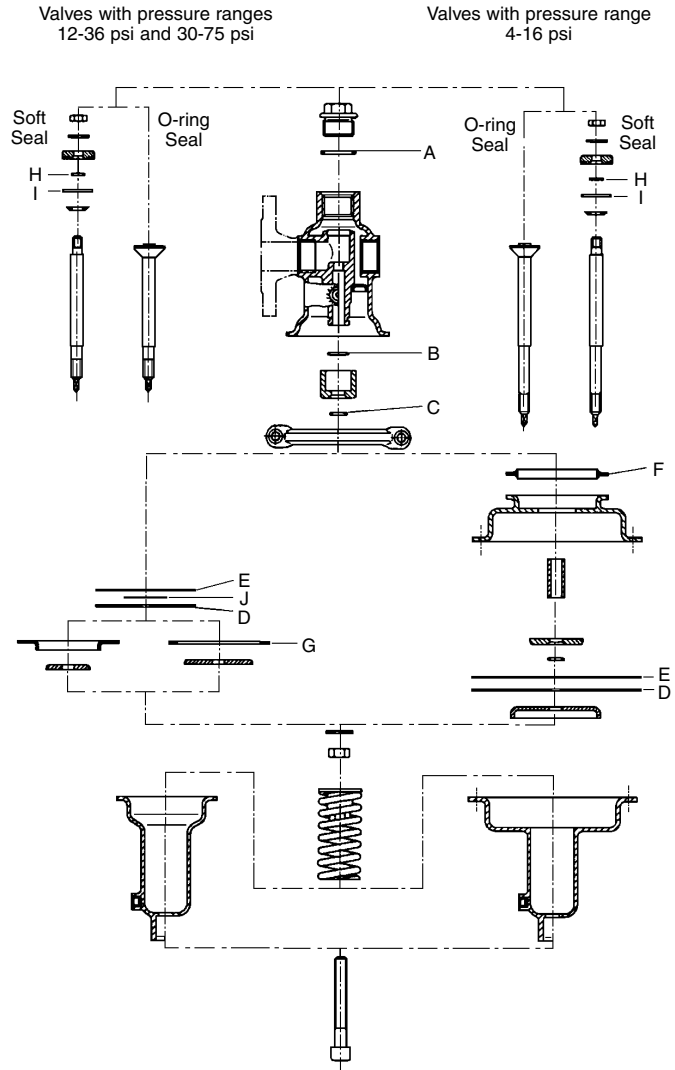
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Size	DIMENSIONS (NOMINAL) IN INCHES AND MILLIMETERS						
	A	B	C	D	D	E	E
				4-16	12-36 30-75	4-16	12-36 30-75
1/2"	3.4	5.1	3.0	11.8	9.3	7.9	5.4
	85	130	76	300	235	200	138
3/4"	—	5.9	3.0	11.8	9.3	7.9	5.4
	—	150	76	300	235	200	138
1"	3.4	6.3	3.0	11.8	9.3	7.9	5.4
	85	160	76	300	235	200	138
1-1/4"	5.1	7.1	3.5	11.8	9.3	7.9	5.4
	130	180	90	300	235	200	138
1-1/2"	5.7	7.9	3.5	11.8	9.3	7.9	5.4
	145	200	90	300	235	200	138
2"	7.3	9.1	3.5	11.8	9.3	7.9	5.4
	185	230	90	300	235	200	138



setting ranges		WEIGHT lb/kg			
		screwed		flanged	
psi	bar	1/2"-1"	1-1/4"-2"	1/2"-1"	1-1/4"-2"
4-16	0.3-1.1	13.5 6.1	15.4 7	17.4 7.9	24.2 11.0
12-36	0.8-2.5	6.5 3.1	8.8 4.0	10.8 4.9	13.2 6.0
30-75	2.0-5.0	6.5 3.1	8.8 4.0	10.8 4.9	13.2 6.0

SPARE PARTS



INSTALLATION

See Installation & Maintenance Instructions IMI 3.110 supplied with each valve.

MAINTENANCE

This product can be maintained without disturbing the piping connections. Complete isolation of the valve from supply is required before any servicing is performed.

The valve should be disassembled periodically for inspection and cleaning of the valve head and seat.

Worn or damaged parts should be replaced. Please refer to Spare Parts list for replacement parts. **Complete installation and maintenance instructions are given in IMI 3.110 which accompanies the product.**

Repair Kit – SRV461/463	1/2"-1" DN 15-25	A, B, C, D, E, F, G
Repair Kit – SRV461S/463S	1/2"-1" DN 15-25	A, B, C, D, E, F, G, H, I
Repair Kit – SRV461/463	1-1/4"-2" DN 32-50	A, B, C, D, E, F, G, J
Repair Kit – SRV461S/463S	1-1/4"-2" DN 32-50	A, B, C, D, E, F, G, H, I, J
Item J—Sizes 1-1/4" and larger only		

Standard spare parts are those shown numbered in the diagram. Additional spares may be available upon request. Always order spares by using the description in the first column, and by stating size, type, pressure range and valve seal type for the reducing valve.

TI-3-110-US 11.99