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 VI shutoff, and 316 Ti stainless 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	

** flanged only*

Typical Applications

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

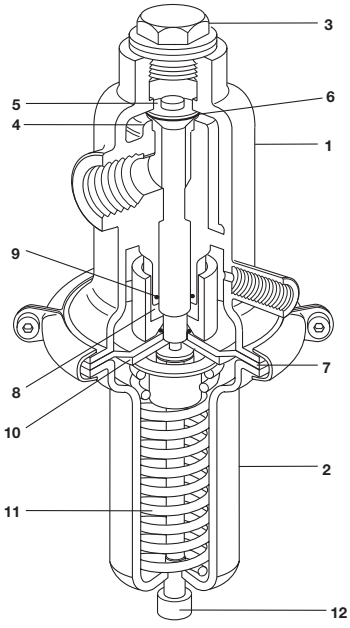
Sample Specification

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 VI 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
Max. allowable pressure

220 psig/0-122˚F	*15 barg/0-50˚C*
187 psig/302˚F	*13 barg/150˚C*
174 psig/374˚F	*12 barg/190˚C*

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

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 20% offset (droop) values below

Size	Cv	Kv
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

1) 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.
2) Because of valve droop characteristics, it is recommended that only 80% of the "fully open capacity indices" be used for sizing.
3) 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:

For Liquids

$$Cv = GPM \sqrt{\frac{\text{Sp. Gr}}{\text{Pressure Drop, psi}}}$$

Where Sp. Gr. Water = 1
GPM = Gallons per minute

For Steam (Saturated)

a. Critical Flow
When ΔP is greater than $F_L^2 (P_1/2)$

$$Cv = \frac{W}{1.83\, F_L P_1}$$

b. Noncritical Flow
When ΔP is less than $FL^2 (P_1/2)$

$$Cv = \frac{W}{2.1\sqrt{\Delta P\,(P_1 + P_2)}}$$

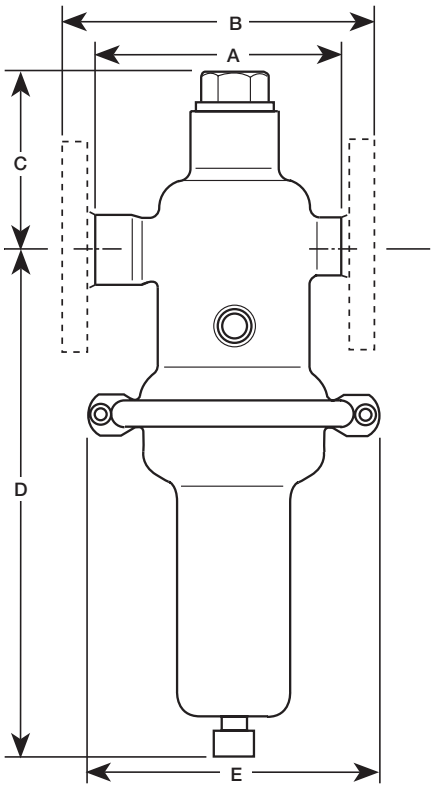
Where:
P_1 = Inlet Pressure psia
P_2 = Outlet Pressure psia
W = Capacity lb/hr
F_L = Pressure Recovery Factor
(.9 on globe pattern valves for flow to open)
(.85 on globe pattern valves for flow to close)

Local regulation may restrict the use of this product below the conditions quoted. Limiting conditions refer to standard connections only.
In the interests of development and improvement of the product, we reserve the right to change the specification.

Stainless Steel Direct Operated Pressure Regulator SRV461/463

Dimensions (nominal) in inches and millimeters

Size	A	B	C	D 4-16	D 12-36 30-75	E 4-16	E 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*

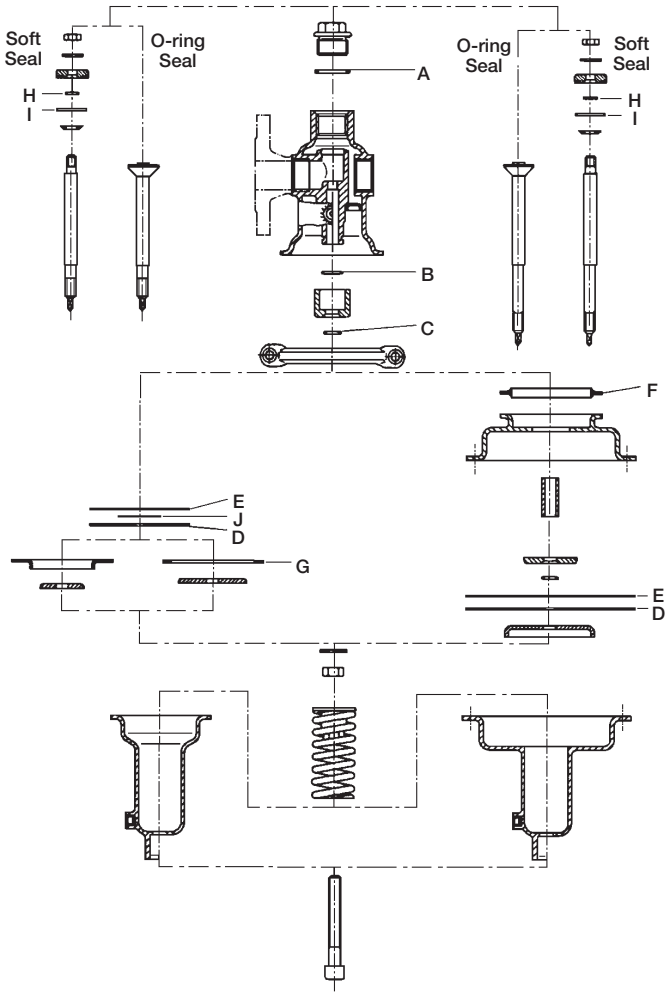


Weight lb/kg

setting ranges		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*

Valves with pressure ranges 12-36 psi and 30-75 psi

Valves with pressure range 4-16 psi



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.

Spirax Sarco, Inc., 1150 Northpoint Blvd., Blythewood, SC 29016 • Phone: (803) 714-2000 • Fax: (803) 714-2222