spirax /sarco

SRV66HC
High Capacity
Sanitary Pressure Reducing Valve

Description

The SRV66HC all stainless steel sanitary pressure reducing valve is a double seated, high capacity, spring loaded proportional control valve which also benefits from having a quick release body clamp ring. It is designed for hygienic applications in the food processing, brewing/beverage and pharmaceutical industries. The angle design allows for complete draining with no dead pockets and is suitable for use in CIP and SIP systems. The valve does not require an external pilot line.

Valve tightness

Valve tightness is in accordance with VDI/VDE guideline 2174 (leakage rate < 0.5% of K_Vs value).

Standard surface finish

Internal wetted parts - standard surface finish of Ra < 3.2 µm.

Available options

End connections; ASME BPE hygienic clamp, flanged ASME or EN 1092, Aseptic thread, welding spigots.
PN10 rated inlet flange for DN65 – DN100 sizes.

Internal surface finishes; Ra 1.6 µm, 0.80 µm, 0.40 µm and 0.25 µm, electropolished.

EPDM diaphragm and 'O' ring seals for gas and liquid service. Maximum operating temperature when this option is used: 130°C.

Sealed bonnet with leakage line for toxic or hazardous media. For sizes DN65 – DN100 with PN16/PN2.5 (0.3 – 1.1 bar g), PN16/PN6 (0.8 – 2.5 bar g) and PN10 (2.0 – 5.0 bar g).
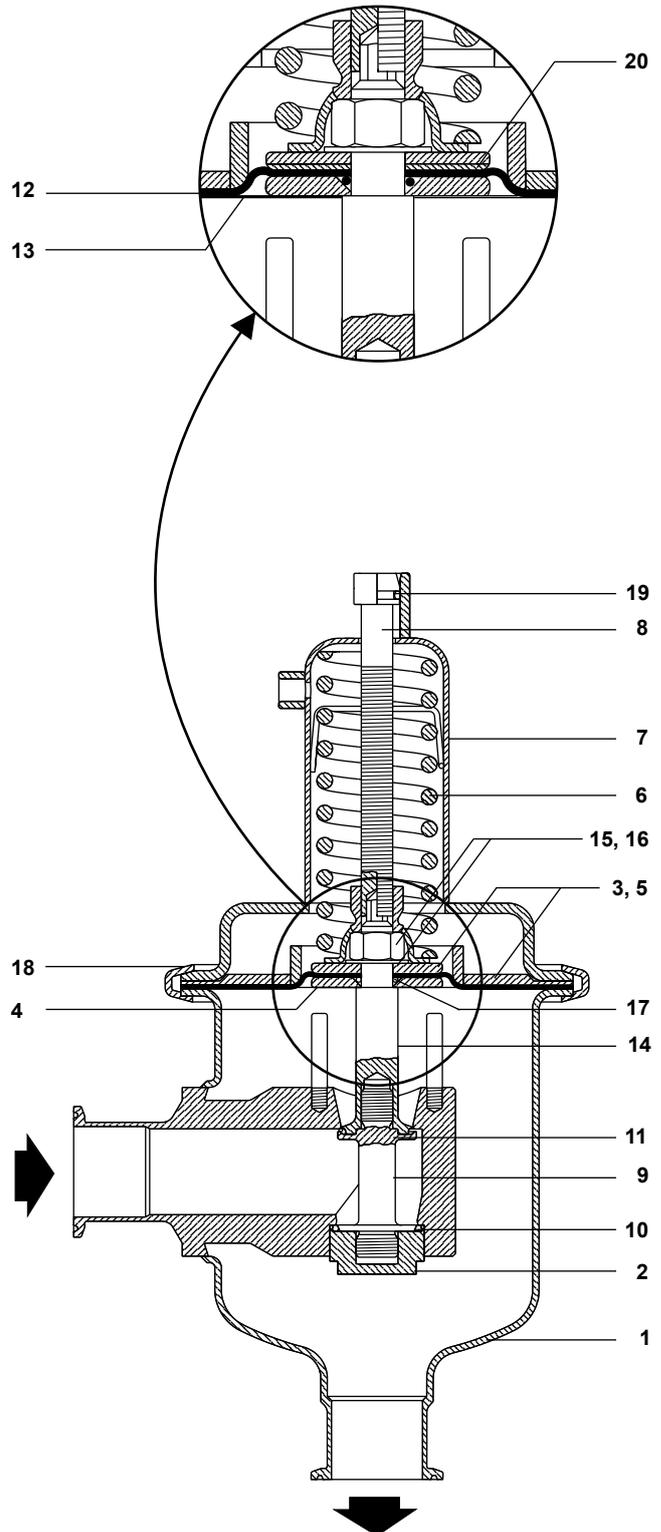
Sizes and end connections

DN25, DN40, DN50, DN65, DN80 and DN100
ISO 2852 sanitary clamp compatible.
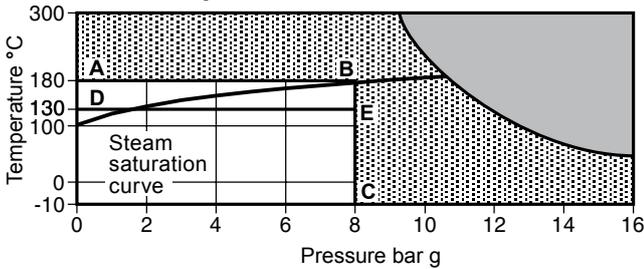
Pressure/temperature limits

See overleaf

Materials

No.	Part	Material	
1	Body	Stainless steel	1.4404
2	Seat	Stainless steel	1.4404
3	Spacer, upper	Stainless steel	1.4404
4	Spacer, lower	Stainless steel	1.4404
5	Diaphragm disc	Stainless steel	1.4404
6	Spring	Stainless steel	1.4310
7	Spring cap	Stainless steel	CrNiMo
8	Adjusting screw	Stainless steel	A4-70
9	Lower stem	Stainless steel	1.4404
10	'O' ring	Elastomer	FEPM 75
11	'O' ring	Elastomer	FEPM 75
12	Diaphragm	Elastomer	FPM
13	Protective film	PTFE	PTFE
14	Upper stem	Stainless steel	1.4404
15	Spring washer	Stainless steel	A2
16	Nut	Stainless steel	A4-70
17	'O' ring	Elastomer	FEPM 75
18	Clamp	Stainless steel	1.4404
19	Screw	Stainless steel	1.4404
20	Gasket	Composite	Nova-Uni

Pressure/temperature limits

Temperature °C vs Pressure bar g

The product must not be used in this region.

The product should not be used in this region or beyond its operating range as damage to the internals may occur.

A-B-C Maximum operating conditions for steam
D-E-C Maximum operating conditions for liquids and gases

Body design conditions	Inlet	PN16
	Outlet see 'Pressure setting range' below	
Maximum design pressure		15.2 bar @ 50°C
Maximum design temperature		300°C @ 9 bar g
Minimum design temperature		-10°C
Maximum operating temperature	EPDM diaphragm	130°C
	FPM diaphragm	180°C
Maximum operating pressure (inlet)		8 bar g
Minimum operating temperature		-10°C
Designed for a maximum cold hydraulic test pressure of 24 bar g		

Pressure setting range

| Size	DN40 - DN100	DN25 - DN100	DN25 - DN100
Inlet/outlet	PN16 / PN2.5	PN16 / PN6	PN16 / PN10
Spring range	0.3 - 1.1 bar g	0.8 - 2.5 bar g	2.0 - 5.0 bar g

K_V values

To maximise the control accuracy (especially for large load variations) use the K_V values given at 20% offset. For safety valve sizing use the maximum K_V values.

Valve size	DN25	DN40	DN50	DN65	DN80	DN100
K_V at 20% offset	3.1	16.9	16.9	46.2	53.9	61.6
Maximum K_V	4.0	22.0	22.0	60.0	70.0	80.0
For conversion:	C_V (UK) = K_V x 0.93			C_V (US) = K_V x 1.156		

Dimensions/weights (approximate) in mm and kg

Leakage line, ⅛" BSP
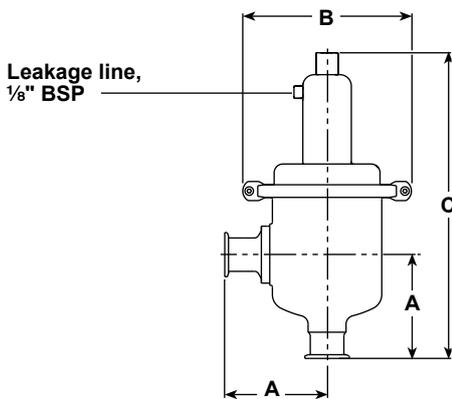
Size	A	B	C	Weight
DN25	100	138	305	2.5
DN40	115	200	345	6.5
DN50	125	200	355	6.5
DN65	175	240	690	26.0
DN80	175	240	690	26.0
DN100	175	240	690	26.0

Sizing

The required K_V can be calculated from the following formulae,

where:

$\dot{m}_s$ = Steam mass flow (kg/h)

$\dot{V}$ = Liquid volume flow (m³/h)

$\dot{V}_g$ = Gas flow at standard conditions: 0°C @ 1.013 bar a (m³/h)

P_1 = Upstream pressure (bar absolute)

P_2 = Downstream pressure (bar absolute)

c = $\dfrac{P_1 - P_2}{P_1}$ (pressure drop factor)

S = Specific gravity

T = Absolute average gas temperature (Kelvin = °C + 273)

Steam

Critical pressure drop: $P_2 \leq 0.58 P_1$

$$K_V = \frac{\dot{m}_s}{12 P_1}$$

Non-critical pressure drop: $P_2 \geq 0.58 P_1$

$$K_V = \frac{\dot{m}_s}{12 P_1 \sqrt{1 - 5.67 (0.42 - \chi)^2}}$$

Gas

$$K_V = \frac{\dot{V}_g}{287} \sqrt{\frac{ST}{(P_1 - P_2)(P_1 + P_2)}}$$

Liquid

$$K_V = \dot{V} \sqrt{\frac{S}{P_1 - P_2}}$$

Calculating the K_V and selecting a suitable valve

Using your maximum flowrate and smallest differential pressure $(P_1 - P_2)$, calculate the required K_V from one of the above formulae. Select a valve K_V that is 30% greater than the calculated K_V. The optimum working range of the selected valve should ideally be within the range of 10 to 70% of its K_V.

Recommended fluid velocities

Steam	Saturated	10 to 40 m/s
	Superheated	15 to 60 m/s
Gas	up to 2 bar g	2 to 10 m/s
	above 2 bar g	5 to 40 m/s
Liquids		1 to 5 m/s

Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions (IM-P186-11) supplied with the product.

How to order

Example: 1 off, Spirax Sarco DN40 SRV66HC direct acting pressure reducing valve having a pressure range of 0.8 – 2.5 bar g and a PN16 / PN6 rating and FPM diaphragm.

Spare parts

The spare parts available are detailed below. No other parts are supplied as spares.

Available spares

Diaphragm, 'O' ring and gasket kit	**10**, **11**, **12**, **13**, **17**, **20**

How to order spares

Always order spares by using the description given in the column headed 'Available spares' and state the size, model, pressure range and PN rating.

Example: 1 - Diaphragm, 'O' ring and gasket kit for a Spirax Sarco DN40 SRV66HC direct acting pressure reducing valve having a pressure range of 0.8 – 2.5 bar g and a PN16/PN6 rating and FPM diaphragm.