

TI-P029-10
CMGT Issue 5

CVS10 Sanitary Check Valve with Soft Seat

Description

The CVS10 sanitary in-line spring assisted check valve is manufactured from 316L stainless steel and prevents reverse flow in fluid lines. The soft-seated versions are available with either EPDM, FEP-Silicone or Viton seats for tight shut-off and are intended for use in water, process fluid and gas applications within the food, medical and pharmaceutical industries.

For steam applications a metal-seated version is available - See Technical Information sheet TI-P029-21 for further data.

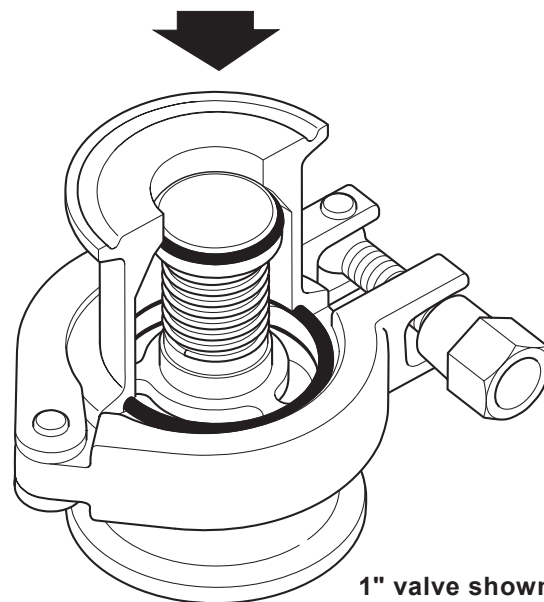
The soft seat versions are suitable for SIP (Sterilisation-In-Place), where steam is used for sterilisation for short periods of time.

Available types and surface finish

CVS10-1 has an internal surface finish of 0.5 micron Ra (within ASME BPE SF1), and external surface finish of 0.8 micron Ra. **CVS10-2** has an electropolished internal surface finish of 0.38 micron RA (within ASME BPE SF4), and external surface finish of 0.8 micron Ra.

In addition both the **CVS10-1** and **CVS10-2** are available with either EPDM, Viton or FEP-Silicone soft seats. The model references have a suffix to denote which soft seat is fitted: 'E' for EPDM, 'V' for Viton or 'F' for FEP-Silicone

For example, the model reference **CVS10-2E** denotes a **CVS10** with electropolished internal finish and EPDM soft seat.



1" valve shown

Standards:

- The CVS10 fully complies with the Pressure Equipment Directive (PED).
- The CVS10 is designed in accordance with ASME-BPE.
- All wetted elastomers/polymers comply with FDA regulation CFR 21, paragraph 177, section 2600 for EPDM and Viton, and section 1550 for FEP-Silicone and TFM PTFE.
- All elastomers/polymers are also USP Class VI compliant, and Animal Derived Ingredient (ADI) free.

Standard shut-off

The standard shut-off of the CVS10 check valve with soft seat conforms to EN 12266-1: 2003 Rate A.

Certification:

- EN 10204 3.1 material certification as standard.
- Typical surface finish certificates.
- FDA approval certificates for elastomers.
- USP class VI approval certificates.
- ADI free certificate.

Note: All certification inspection requirements must be stated at time of order placement.

Packaging

Packaging for this product is conducted in a clean environment segregated from other non stainless steel products, and in accordance with ASME BPE. Inlet and outlet connections are capped and the product is sealed in a plastic bag prior to boxing.

Pipeline ancillaries
Lift check valves

Sizes and pipe connections

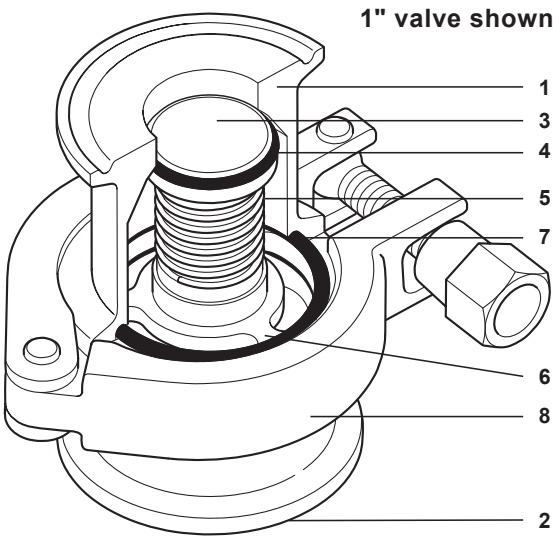
1/2", 3/4", 1", 1 1/2" and 2" to ASME BPE available as standard.
DN15 to DN50 to DIN 32676 available as standard.

- Sanitary clamp:
- ASME BPE clamp.
 - Sanitary clamp to DIN 32676.

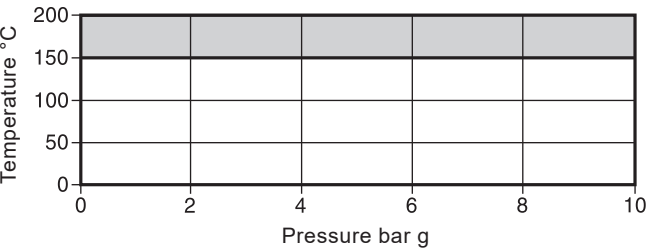
Note: Alternative connections and sizes are available on request.

Materials

No.	Part	Material
1	Body (inlet)	Stainless steel 316L
2	Body (outlet)	Stainless steel 316L
3	Valve head	Stainless steel 316L
4	Valve seat	EPDM, Viton or FEP-Silicone
5	Spring	Stainless steel 316
6	Valve guide and Bush	Stainless steel 316L and TFM-PTFE
7	Body seal (2 off)	EPDM, Viton or FEP-Silicone
8	Body clamp	Stainless steel 316L



Pressure/temperature limits



The CVS10 with EPDM seats **must not** be used in this region.

Body design conditions		PN10	
PMA	Maximum allowable pressure	Viton	10 bar g @ 200 °C
		FEP-Silicone	10 bar g @ 200 °C
		EPDM	10 bar g @ 150 °C
TMA	Maximum allowable temperature	Viton	200 °C @ 10 bar g
		FEP-Silicone	200 °C @ 10 bar g
		EPDM	150 °C @ 10 bar g
Minimum allowable temperature		-20 °C	
PMO	Maximum operating pressure for saturated steam service		10 bar g
TMO	Maximum operating temperature	Viton	200 °C @ 10 bar g
		FEP-Silicone	200 °C @ 10 bar g
		EPDM	150 °C @ 10 bar g
Minimum operating temperature		0 °C	
Designed for a maximum cold hydraulic test pressure of:		15 bar g	

Dimensions/weights (approximate) in mm and kg

Sanitary clamp

Size	A	B		C	Weight
		ASME	DIN		
½"	80	25.0	34.0	60	0.5
¾"	80	25.0	34.0	60	0.5
1"	70	50.5	50.5	60	0.6
1½"	80	50.5	50.5	78	0.9
2"	80	64.0	64.0	90	1.2

K_v values

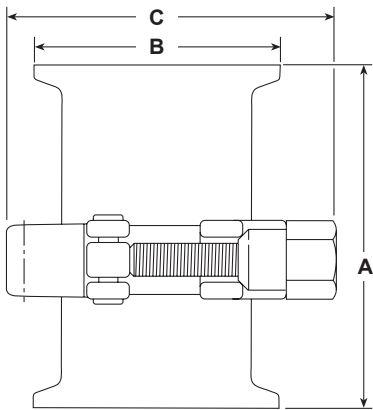
Size	½"	¾"	1"	1½"	2"
K _v	8.2	8.2	17.3	27.3	40.5

For conversion:
C_v (UK) = K_v x 0.963
C_v (US) = K_v x 1.156

Opening pressures

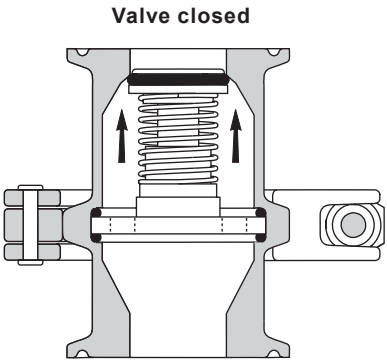
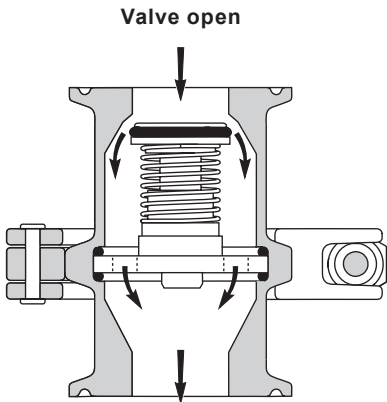
Differential pressure with zero flow in mbar.
→ Flow direction

Size	½"	¾"	1"	1½"	2"
→	35	35	35	35	35
↑	39	39	41	43	43
↓	31	31	29	27	27



Operation

The valve is opened by the pressure of the fluid. When fluid flow stops the spring closes the valve before reverse flow can occur.



Pipeline ancillaries
Lift check valves

Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions (IM-P029-11) supplied with the product.

Installation note

The standard soft seat versions of the CVS10 are intended for use in a vertical position, as they will not be self-draining in a horizontal line.

Self-draining versions are available to special order. They are dimensionally different with an offset outlet.

How to order

Example: 1 off Spirax Sarco 1" CVS10-1E sanitary check valve with EPDM seat, ASME BPE sanitary clamp connections, and having an internal surface finish of 0.5 micron Ra (20 micro inch).
Complete with certification dossier.

Spare parts

The spare parts available are shown in solid outline. Parts drawn in a grey line are not supplied as spares.

Available spares

Seal kit	4 and 7
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How to order spares

Always order spares by using the description given in the column headed 'Available spares' and state the size and type of check valve.

Example: 1 off Seal kit for a 1" Spirax Sarco CVS10-1E sanitary check valve with EPDM seat having ASME BPE clamp ends.

