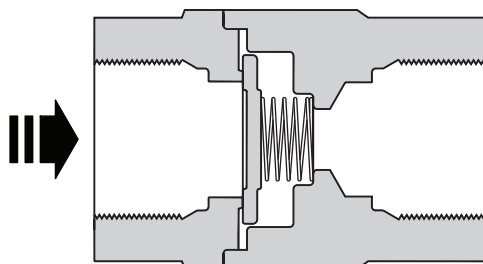


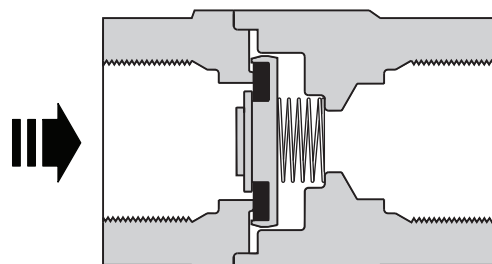


TI-P601-18
CMGT Issue 14

DCV41, DCV41 Food+ Austenitic Stainless Steel Disc Check Valve



Standard DCV41 with metal seat



Soft seat option
(screwed connections only)

Description

The DCV41 is an austenitic stainless steel disc check valve available with either screwed or socket weld end connections. Its function is to prevent reverse flow on a wide variety of fluids for applications in process lines, hot water systems, steam and condensate systems.

For oil and gas applications, a Viton seat is available.

For water applications an EPDM seat is available.

Soft seat versions provide a zero leakage rate or bubble tight shut-off, i.e. they meet EN 12266-1 Rate A, providing a differential pressure exists. Please note that the soft seat options are not available with socket weld ends.

The shut-off of the standard valve conforms to EN 12266-1 Rate E.

When a heavy duty spring is installed with an EPDM seat, the valve is suitable for boiler feedwater check applications.

A high temperature spring version is available to operate at 400 °C (752 °F).

Optional extras

Heavy duty springs (700 mbar (10.2 psi) opening pressure) for boiler feed applications

High temperature springs

Viton soft seats for oils and gas applications - screwed only

EPDM soft seats for water applications - screwed only

Standards

This product fully complies with the requirements of the European Pressure Equipment Directive 2014/68/EU.

Standard shut-off

Standard valves conform to EN 12266-1 rate E.

Soft seated versions meet EN 12266-1 rate A, providing a differential pressure exists.

Certification

This product is available with certification to EN 10204 3.1.

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

Food+ can be supplied with material Certification for all wetted parts at extra cost.

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

DCV41 Food+ ½" to 2" metal seat and EPDM seat range available with a food contact regulation Declaration of Compliance

Designed, manufactured and approved for Steam and Condensate applications, the DCV41 metal seat and EPDM seat range Food+ product complies with:

- (EC)1935:2004 Materials and Articles Intended to come into Contact with Food
- (EC)2023:2006 Good Manufacturing Practice for Materials and Articles Intended to come into Contact with Food
- (EU)10/2011 Plastic Materials and Articles Intended to come into Contact with Food
- FDA Code of Federal Regulations - title 21 - Food and Drugs

This product is intended to be connected into a system that can operate a food contact compliant process.

A list of the materials that could come directly or indirectly into contact with foodstuffs can be found in the Declaration of Compliance available for this product.

Sizes and pipe connections

½", ¾", 1", 1¼", 1½" and 2"

Screwed BSP T Rp (ISO 7-1) to BS 21 female parallel,

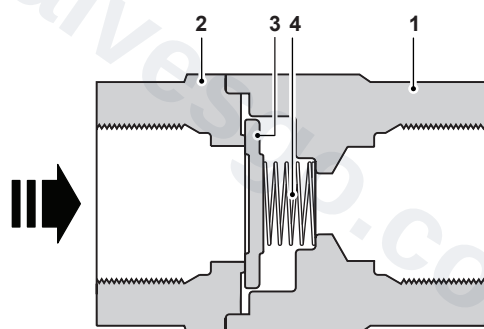
Screwed NPT to ASME B 1.20.1 and

Socket weld to ASME B 16.11 Class 3000.

Operation

Disc check valves are opened by the pressure of the fluid and closed by the spring as soon as the flow ceases and before the reverse flow occurs.

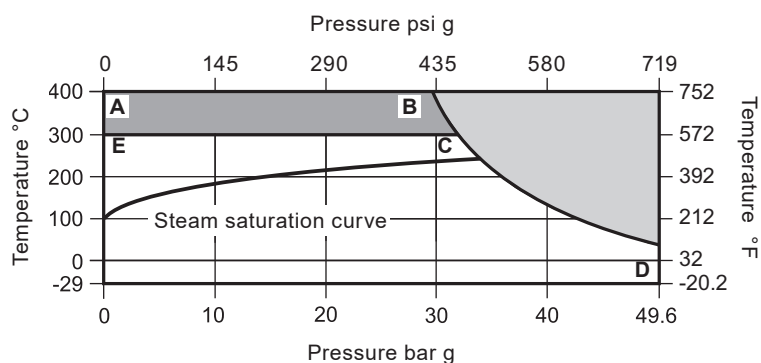
Materials



Standard DCV41 with metal seat

No.	Part	Material	
1	Body	Austenitic stainless steel	ASTM A351 CF3M
2	Seat	Austenitic stainless steel	ASTM A351 CF3M
3	Disc	Austenitic stainless steel	ASTM A276 316
4	Standard spring	Austenitic stainless steel	BS 2056 316 S42
	Heavy duty spring	Austenitic stainless steel	BS 2056 316 S42
	High temperature spring	Nickel alloy	Nimonic 90

Pressure/temperature limits



 The product **must not** be used in this region.

 For use in this area use a DCV41 with high temperature spring or DCV41 without spring.

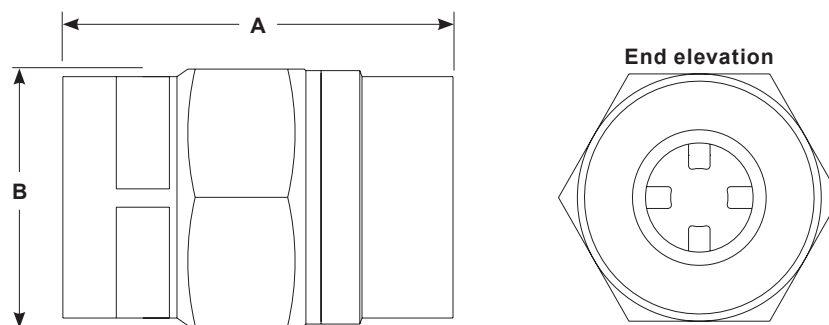
A-B-D High temperature spring and without spring.

E-C-D Standard spring.

Please note: Special testing to allow lower temperature operation can be provided at extra cost. Consult Spirax Sarco.

Body design conditions		PN50	
PMA	Maximum allowable pressure	49.6 bar g @ 38 °C	719 psi g @ 100 °F
TMA	Maximum allowable temperature	400 °C @ 29.4 bar g	752 °F @ 426 psi g
Minimum allowable temperature		-29 °C	-20.2 °F
PMO	Maximum operating pressure (bar g)	49.6 bar g @ 38 °C	719 psi g @ 100 °F
TMO	With metal seat and standard spring (including Food+ metal seat)	300 °C	572 °F
	With metal seat and high temperature spring (including Food+ metal seat)	400 °C	752 °F
	Without spring (including Food+ metal seat)	400 °C	752 °F
	Viton seat	205 °C	401 °F
	EPDM seat (including Food+ EPDM seat)	120 °C	248 °F
Minimum operating temperature		-29 °C	-20.2 °F
(Note: Special testing to allow lower temperature operation can be provided at extra cost. Consult Spirax Sarco).		With viton seat	-25 °C to +205 °C
		With EPDM seat (including Food+ EPDM seat)	-40 °C to +120 °C
Product is safe for use under full vacuum conditions			
Designed for a maximum cold hydraulic test pressure of		76 bar g	1102 psi g

Dimensions/weight (approximate) in mm (inches) and kg (lbs)



Size	A Socket weld	A Screwed	B A/F	Weight
1/2"	50 (1.97)	51 (2.01)	34 (1.34)	0.2 (0.44)
3/4"	55 (2.17)	57 (2.24)	41 (1.61)	0.3 (0.66)
1"	67 (2.64)	68 (2.68)	50 (1.97)	0.5 (1.1)
1 1/4" to 2"	100 (3.94)	100 (3.94)	80 (3.15)	2.0 (4.4)

Kv values

Size	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	For conversion: Cv (UK) = Kv x 0.963 Cv (US) = Kv x 1.156
Kv	4.4	7.5	12	30	35	35	

Opening pressures in mbar (mpsi)

Differential pressures with zero flow for standard and high temperature springs.

→ Flow direction

All sizes	↑ 25 (0.36 psi)	→ 22.5 (0.33 psi)	↓ 20 (0.29 psi)
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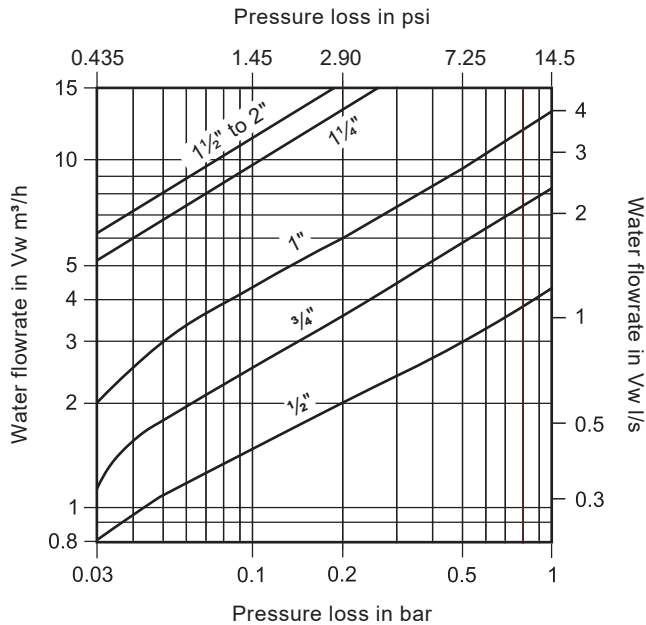
Where lower opening pressures are required, valves without springs can be installed in vertical pipes with bottom-to-top flow.

Without spring and ↑ flow direction

Size	1/2"	3/4"	1"	1 1/4" to 2"
mbar	3.0 (0.044)	2.5 (0.036)	4.0 (0.058)	6.5 (0.094)

Heavy duty springs approximately 700 mbar (10.2)

Pressure loss diagram



Pressure loss diagram with open valve at 20 °C (68 °F). The values indicated are applicable to spring loaded valves with horizontal flow. With vertical flow, insignificant deviations occur only within the range of partial opening.

The curves given in the chart are valid for water at 20 °C (68 °F). To determine the pressure for other fluids the equivalent water volume flowrate must be calculated and used in the graph.

$$\dot{V}_w = \sqrt{\frac{\rho}{1000}} \times \dot{V}$$

$\dot{V}_w$ = Equivalent water volume flow in l/s or m³/h

Where: ρ = Density of fluid kg/m³

$\dot{V}$ = Volume of fluid l/s or m³/h

Pressure loss information for steam, compressed air and gases is available from Spirax Sarco.

How to order

Example: 1 off Spirax Sarco DCV41 austenitic stainless steel bodied disc check valve having 1/2" screwed BSP connections supplied fitted with a Viton soft seat and certification to EN 10204 3.1 for the body.

Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions (IM-P601-19) supplied with the product.

The DCV41 disc check valve must be fitted in accordance with the direction of flow arrow indicating correct fluid flow direction. When fitted with a spring, they can be installed in any plane. When supplied without spring, they must be fitted in a vertical flow line with the flow from bottom-to-top.

Note: Disc check valves are non-maintainable (no spares are available). Disc check valves are not suitable for use where heavily pulsating flow exists, such as close to a compressor.

Various options are denoted by a marking on the valve body:-

'N'	- High temperature spring	- Standard metal seat
'W'	- Without spring	- Standard metal seat
'WV'	- Without spring	- Viton seat
'WE'	- Without spring	- EPDM seat
'H'	- Heavy duty spring	- Standard metal seat
'HV'	- Heavy duty spring	- Viton seat
'HE'	- Heavy duty spring	- EPDM seat
'V'	- Standard spring	- Viton seat
'E'	- Standard spring	- EPDM seat

No identification indicates a standard spring with a metal disc.

Disposal

If a product which contains a Viton component has been subjected to a temperature approaching 315 °C or higher, then it may have decomposed and formed hydrofluoric acid. Avoid skin contact and inhalation of any fumes as the acid will cause deep skin burns and damage to the respiratory system. Viton must be disposed of in a recognised manner as stated in the Installation and Maintenance Instructions (IM-P601-19). No other ecological hazard is anticipated with the disposal of this product providing due care is taken.