Cert. No. LRQ 0963008
ISO 9001

DCV41
Austenitic Stainless Steel Disc Check Valve

Description
DCV41 is an austenitic stainless steel disc check valve with 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 oils and gases, a Viton seat is available and for water an EPDM seat is available. Soft seat versions provide a zero leakage rate or bubble tight shut-off, i.e. they meet DIN 3230 BN1 and DIN 3230 BO1, provided a differential pressure exists (**Note:** Soft seat options are not available with socket weld ends). The shut-off of the standard valve conforms to DIN 3230 BN2. 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.

Sizes and pipe connections
½", ¾" and 1" screwed BSP to BS 21 female taper, screwed NPT to ANSI B 1.20.1 and socket weld to ANSI B 16.11 Class 3000.

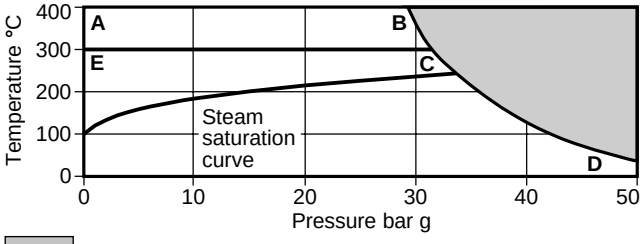
Optional extras
Heavy duty springs (700 mbar opening pressure) for boiler feed applications.
High temperature spring.
Viton soft seats for oil and gas applications - screwed connections only
EPDM soft seals for water applications - screwed connections only

Limiting conditions

Maximum body design condition		PN50
PMO - Maximum operating pressure		50 bar g
TMO - Maximum operating temperature	With metal seat and standard spring	300°C
	With metal seat and high temperature spring	400°C
	Without spring	400°C
	Viton seat	250°C
	EPDM seat	150°C
Minimum operating temperature	With metal seat	-29°C
	With viton seat	-15 to +250°C
	With EPDM seat	-29 to +250°C
Designed for a maximum cold hydraulic test pressure of 76 bar g		

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

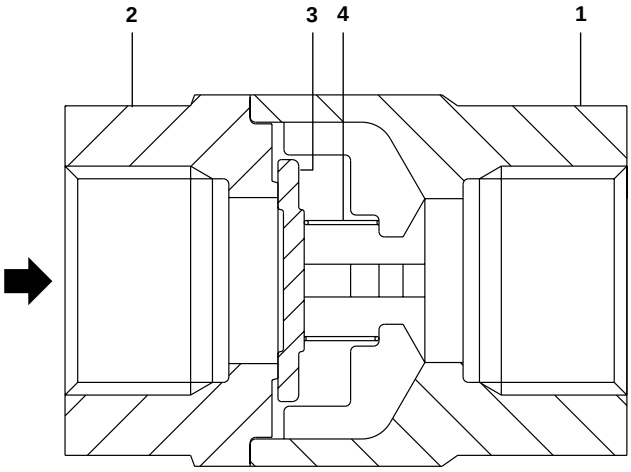
Operating range



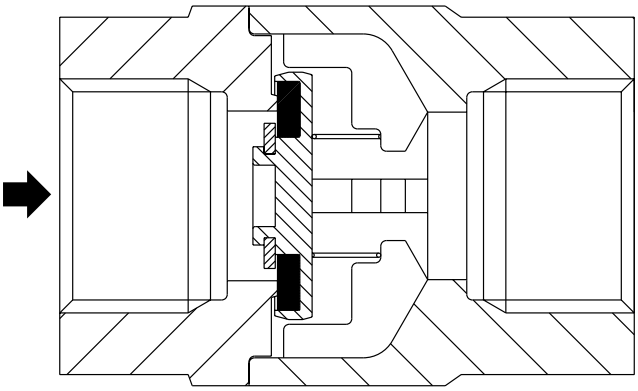
This product must not be used in this region.
A-B-D High temperature spring and without spring
E-C-D Standard spring

Materials

No.	Part	Material	
1	Body	Austenitic stainless steel	ASTM A351 CF3M
2	Seat	Austenitic stainless steel	ASTM A351 CF3M
3	Disc	Austenitic stainless steel	BS 1449 316 S11
	Standard spring	Austenitic stainless steel	BS 2056 316 S42
4	Heavy duty spring	Austenitic stainless steel	BS 2056 316 S42
	High temp. spring	Nickel alloy	Nimonic 90



Soft seat option (screwed connections only)



Certification
The product is available with certification to EN 10204 3.1.B for body as standard.

Standards
Designed and manufactured in accordance with BS 7438.

Standard shut-off
Standard valves conform to DIN 3230 BN2.
Soft seated versions meet DIN 3230 BN1 and DIN 3230 BO1 provided a differential pressure exists.

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.

Local regulations may restrict the use of this product to below the conditions quoted.
In the interests of development and improvement of the product, we reserve the right to change the specification.

K_V values

Size	½"	¾"	1"
K_V	4.4	7.5	12

For conversion C_V (UK) = K_V x 0.97 C_V (US) = K_V x 1.17

Opening pressures in mbar

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

Flow direction

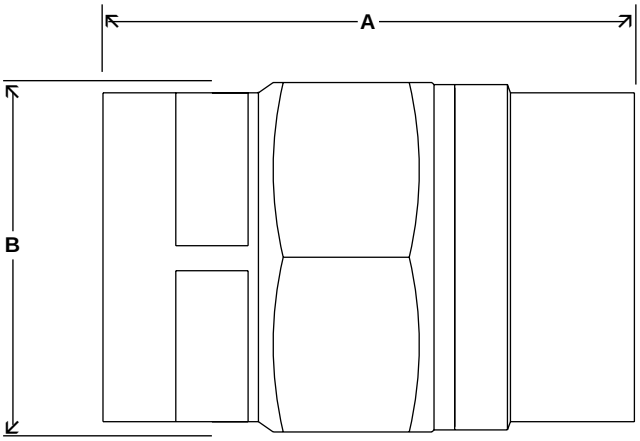
Size	½"	¾"	1"
↓	25	25	25
↗	22.5	22.5	22.5
→	20	20	20

Where lower opening pressures are required, valves without springs can be installed in vertical pipes with bottom-to-top flow.

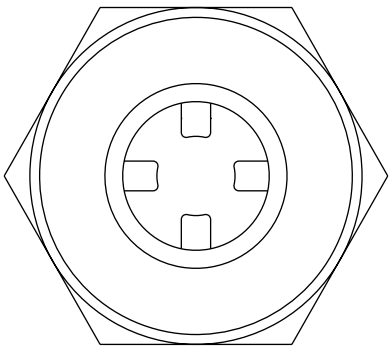
Without spring			
↓	3	2.5	4

Dimensions/weight (approximate) in mm and kg

Size	A Socket weld	A Screwed	B A/F	Weight
½"	50	51	34	0.2
¾"	55	57	41	0.3
1"	67	68	50	0.5



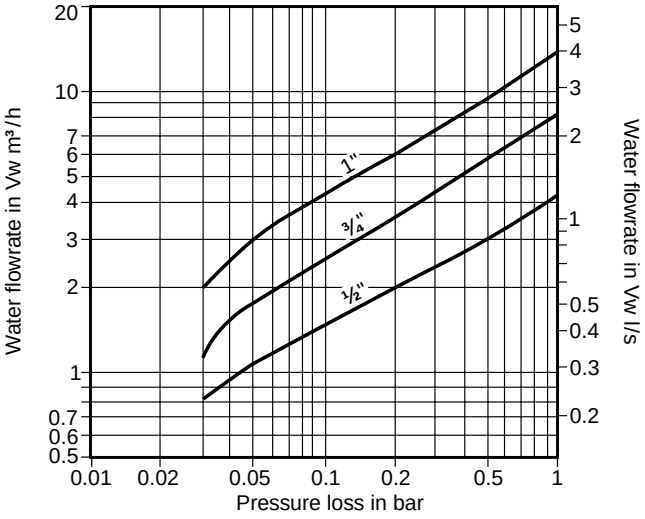
End elevation



How to order

Example: 1 off Spirax Sarco DCV41 in an austenitic stainless steel body fitted with a Viton soft seat, having ½" screwed BSP connections and complete with certification to EN 10204 3.1.B for the body.

Pressure loss diagram



Pressure loss diagram with open valve at 20°C. 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. 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
ρ = Density of fluid kg/m³
$\dot{V}$ = Volume flow of fluid l/s or m³/h.

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

Installation

For more detailed installation and maintenance instructions please refer to IM-P601-19 which is supplied with the product.
The DCV41 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
'H'	- Heavy duty spring	- Standard metal 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.