FMDCV

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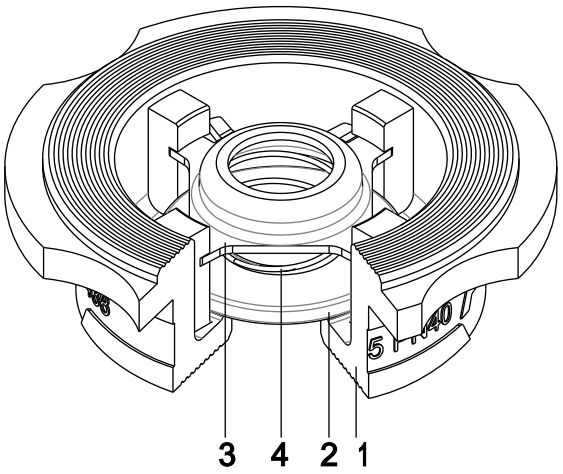
Forbes Marshall Spring-Loaded Disc Check Valve (Metal-to-Metal / Soft / Viton Seating)



Description
The Forbes Marshall Spring - Loaded Disc Check Valve, FMDCV, is of the wafer pattern designed to be sandwiched between flanges. The FMDCV is suitable for use on a wide range of fluids for applications in process lines, Hot water systems, steam and condensate system etc. face-to face dimensions conform to EN558 part 1 series 49

Sizes and Pipe Connections
DN 15, 20, 32, 40, 50, 65, 80, 100 suitable for installation between PN 6, 10, 16, 25,40

Certification
Available with IBR
All certification / inspection requirement must be stated at the time of order placement.

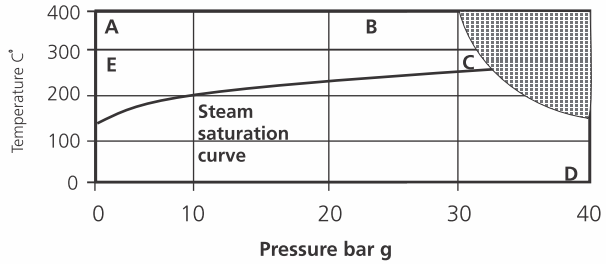
Standard
Designed and manufactured in accordance with BS 7438

Optional Extras
Heavy duty springs 700 m bar opening pressure up to DN 50 for boiler feed applications
Viton soft seats for oil, gas and steam applications
EPDM soft seats for water applications

Limiting Conditions

Body design conditions			PN 40
PMO - Maximum operating pressure			40 bar g
TMO-	Maximum Operating Temperature	Standard Spring	300°C
		Heavy duty spring	300°C
		Without spring	400°C
Minimum operating temperature (standard disc)			-10°C
Temperature Limits	Vition Seat		-10°C to +250°C
	EPDM Seat		-10°C to +150°C
Maximum cold hydraulic test pressure			80 bar g

Operating Range



The product must not be used in this region.

E - C - D FMDCV with standard spring.
A - B - D FMDCV without spring

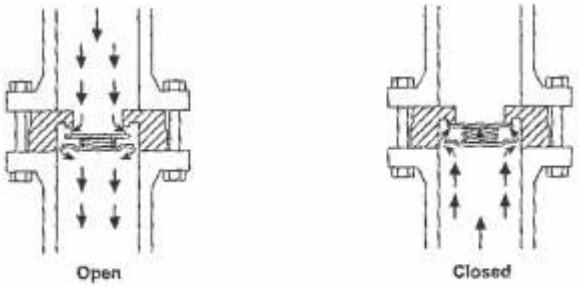
Materials

No	Part	Material	Standard
1	Body	Austentic stainless steel	ASTM A 351 CF8M
2	Disc	Austentic stainless steel	ASTM A 351 CF3M
3	Spring retainer	Austentic stainless steel	ASTM A 240 SS2316L
	Standard spring	Austentic stainless steel	IS4454:IV:GR. 3 SS316
4	Heavy duty	Austentic stainless steel	IS4454:IV:GR. 3 SS316

Standard Shut-off
Standard valves conform to DIN 3230 part 3, BN2 Valves conforming to DIN 3230 part 3, BO3 available on request.

Soft seated versions meet DIN3230 part 3 BN 1 and BO1 provided a differential pressure exists.

Operation
Forbes Marshall spring-loaded disc check valves are opened by the pressure of the fluid and closed by the spring as soon as flow ceases and before the reverse flow occurs.



Dimensions / Weights (approximate) in mm and kg

SIZE	A	B	C	D	E	F	G	Weight
DN15	60.0	45	43	38	16.0	29.0	15	0.13
DN20	69.5	55	53	45	19.0	35.7	20	0.19
DN25	80.5	65	63	55	22.0	44.0	25	0.32
DN32	84	78	75	68	28.0	54.5	32	0.53
DN40	101.0	88	85	79	31.5	65.5	40	0.74
DN50	115.0	98	95	93	40.0	77.0	50	1.25
DN65	129	118	115	113	46.0	97.5	65	1.84
DN80	154	134	133	128	50	111.5	80	2.42
DN100	184	154	154	148	60	130	100	3.81

Kv Values

DN	15	20	25	32	40	50	65	80	100
Kv	4.4	6.8	10.8	17	26	43	60	80	113

For conversion : Cv (UK)=Kv x 0.963 Cv(US)=kv x 1.158

Opening Pressures in mbar

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

→ Flow direction

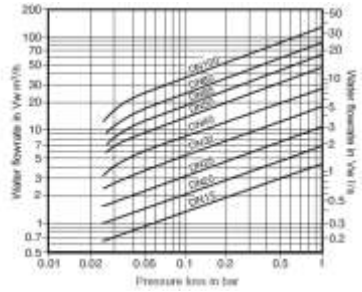
DN	15	20	25	32	40	50	65	80	100
↑	24	24	24	24	27	29	29	30	30
→	22	22	22	22	23	25	25	25	25
↓	19	19	19	19	19	19	19	19	19

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

↑	2.5	2.5	3	3	4.0	4.5	4.5	5	6

Heavy duty springs approximately 700 mbar

Pressure Loss Diagram



Pressure loss diagram with open valve at 20 °C. The valves 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.

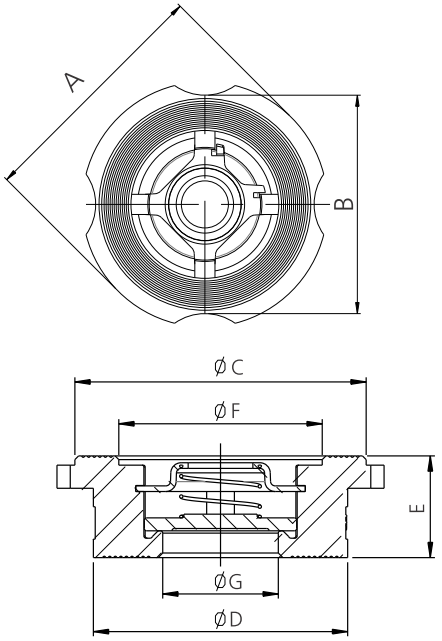
$$Vw = \sqrt{\frac{r}{1000}} \times V$$

Where : Vw = Equivalent water volume flow in l/s or m/h
r = Density of fluid kh/cm
V = Volume of fluid l/s or m/h

Pressure loss information for steam, compressed air and gases is available from Forbes Marshall.

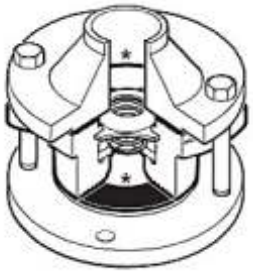
How to Order

Example : 1 No. Forbes Marshall spring loaded disk check valve DN 50 FMDCV (DIN) austenitic stainless steel for fitting between PN 40 flanges.



Safety Information, Installation and Maintenance

For full details see the user manual supplied with the product. FMDCV spring loaded disc check valves must be fitted in accordance with the indicating correct fluid flow direction. When fitted with a spring they can be installed in any plane. When supplied without a spring they must be fitted in a vertical flow line with the flow from bottom-to-top.



The 'cam' design of the body allows the various flange types to be accommodated. The body is rotated to touch the flange joint bolts ensuring that the valve is centered in the pipeline.

Note : Flanges, bolts (or studs), nuts and joint gaskets are to be provided by the installer. Forbes Marshall spring loaded disc check valves are non-maintainable (no spares are available) and are not suitable for use where heavily pulsating flow exists, such as close to a compressor.

The available options are denoted by a marking on the valve body

W.	Without spring	Standard metal disc
H.	Heavy duty spring	Standard metal disc
'V'	Standard spring	Viton soft faced disc
'E'	Standard spring	EPDM soft faced disc
'WV'	Without spring	Viton soft faced disc
'WE'	Without spring	EPDM soft faced disc
'HV'	Heavy duty spring	Viton soft faced disc
'HE'	Heavy duty spring	EPDM soft faced disc
'T'	Valves tested to DIN 3230 part 3, B03	

No identification indicates a standard spring with a metal disc

Disposal

If a product containing 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 damages to the respiratory system.

DOC # FMSS/0515/TIS-FMDCV/V1.R0

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Forbes Marshall
B-85, Phase II, Chakan Industrial Area
Sawardari, Chakan
Tal. Khed, Dist. Pune 410501. INDIA.
Tel : +91 02135 393400

Email : seg@forbesmarshall.com

Forbes Marshall Steam Systems Pvt. Ltd.
(Formerly Spirax Marshall Pvt. Ltd.)
Regd Office: Opp 106th Milestone
Bombay Poona Road, Kasarwadi,
Pune 411 034. INDIA.
Tel.: 91(0)20-27145595, 39858555
Fax: 91(0)20-27147413
CIN No : U27109PN1959PTC011334
www.forbesmarshall.com