

Fisher™ V150E Expanded Outlet Vee-Ball™ Control Valve

The Fisher V150E Vee-Ball control valve (figure 3) features a flanged expanded outlet design. The outlet flange is one standard line size diameter larger than the inlet. The expanded outlet geometry streamlines the flow through the valve as the flow area increases from inlet to outlet. This valve body design accommodates requirements when expanded downstream piping is specified.

This bulletin provides details for the V150E Vee-Ball control valves (shown in figure 3). The V150E valve retains many of the favorable traits of the traditional Vee-Ball valve design with the added feature of an expanded outlet. The inherent characteristic and shearing action between the V-notch ball and the ball seal (figure 2) promotes smooth operation over a wide range of flow conditions.

The Fisher V150E control valve assembly features CG8M (S31700) valve body and ball, and R30006 seal materials as standard. The low friction, zero lost motion drive train assembly features a clamped splined shaft, compact spring and diaphragm actuator, and non-contact digital valve controller. This construction will provide reliable, high-performance throttling operation.

Features

- **Trim Versatility** -- Trim components are interchangeable with existing V150, V200, and V300 Series B valves.
- **Easy Installation** -- Flanged valve body design eliminates exposed line flange bolting, reduces alignment and installation time, and promotes secure valve installations and piping integrity.
- **Long Service Life** -- The heavy-duty, metal seal construction provides long service life in demanding applications. The constant wiping action of the seal across the ball's sealing surface provides excellent service on high consistency fibrous slurry applications. Also, low-friction, rigid



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**Fisher V150E Expanded Outlet Vee-Ball Valve
with 2052 Actuator
and FIELDVUE™ DVC6200 Digital Valve Controller**

bearing designs are tested and proven in high-load and high-cycle applications.

- **Smooth Valve Operation** -- Precision machined parts, pressure-balanced seal, and low friction bearing designs allow smooth, precise movement of the ball.
- **Excellent Flow Control** -- Precise contouring of the Vee-Ball provides a modified equal percentage flow characteristic.
- **Expanded Outlet** -- Satisfies installation requirements where expanded down stream piping is specified.
- **Face-to-Face** -- Unique dimensions typical of expanded outlet ball valve designs.
- **Structural Integrity** -- One-piece valve body improves structural integrity of the pressure boundary by eliminating leak paths that could be caused by the gaskets in two-piece, bolted valve designs.

Specifications

Valve Sizes and End Connection Styles

DN ■ 80x100, ■ 100x150, ■ 150x200, ■ 200x250, ■ 250x300 and NPS ■ 3x4, ■ 4x6, ■ 6x8, ■ 8x10, ■ 10x12 flanged valves that mate with PN 10/16 or CL150 raised-face flanges (see table 1)

Maximum Inlet Pressures⁽¹⁾

CG8M (317 Stainless Steel) Valves: Consistent with ASME CL150 pressure-temperature ratings per ASME B16.34 or with PN pressure-temperature ratings shown in table 1, but do not exceed the material temperature capabilities shown below or the pressure drop limitations shown in table 4

Maximum Shutoff Pressure/Temperature Ratings⁽¹⁾

HD (Heavy Duty) Metal Ball Seals and PEEK/PTFE Bearings: See table 4

Shutoff Classification⁽¹⁾

HD (Heavy Duty) Metal Ball Seal (Bidirectional Flow): 0.01% of valve capacity; Class IV per ANSI/FCI 70-2 and IEC 60534-4; Maximum allowable pressure drop in reverse flow is 6.9 bar (100 psi)

Construction Materials

See table 3

Temperature Capabilities⁽¹⁾

HD Metal Seals: -46 to 288°C (-50 to 500°F)

PEEK/PTFE Bearings: -198 to 260°C (-325 to 500°F)

Packing Constructions

PTFE V-ring: -198 to 232°C (-325 to 450°F)

ENVIRO-SEAL™ Single PTFE V-ring: -46 to 232°C (-50 to 450°F)

Flow Characteristic

Modified equal percentage

Dimensions

See table 6 for dimensions

Standard Flow Direction

Forward (into the convex face of the V-notch ball)

Flow Coefficients

See Fisher Catalog 12

Actuator Sizing

See Catalog 14, section D for torque sizing factors. Use the inlet NPS of the V150E to determine appropriate factors from the Vee-Ball tables

Noise Levels

See Catalog 12

Maximum Ball Rotation

90 degrees

Actuator Mounting

Standard valve construction is for right-hand mounting, as viewed from upstream end of valve with the shaft horizontal. Actuator can be mounted in any of four quadrants. Left-hand actuator mounting is available upon request

Valve/Actuator Action

With compact 2052 spring and diaphragm or 1061 piston rotary actuator, the valve is field-reversible between PDTC or PDT0: push-down-to-close (extending actuator rod closes valve) and push-down-to-open (extending actuator rod opens valve)

Approximate Weight

See table 2

Options

■ Flushing connection, ■ ENVIRO-SEAL packing system, ■ JIS 10K flanges

1. The pressure/temperature limits in this bulletin and any applicable standard or code limitation for valve should not be exceeded.

Table 1. Valve Body Material, End Connections, and Ratings

VALVE DESIGN	VALVE BODY MATERIAL	VALVE SIZE	FLANGE END CONNECTIONS
V150E	CG8M	DN 80x100, 100x150, 150x200, 200x250, 250x300	Compatible with PN 10/16 raised-face flanges
		NPS 3x4, 4x6, 6x8, 8x10, 10x12	Compatible with CL150 raised-face flanges

Table 2. Fisher V150E Valve Weights, Approximate

VALVE SIZE		V150E	
DN	NPS	kg	lbs
80x100	3x4	26	58
100x150	4x6	28	61
150x200	6x8	46	100
200x250	8x10	87	192
250x300	10x12	123	271

Table 3. Fisher V150E Standard Construction Materials

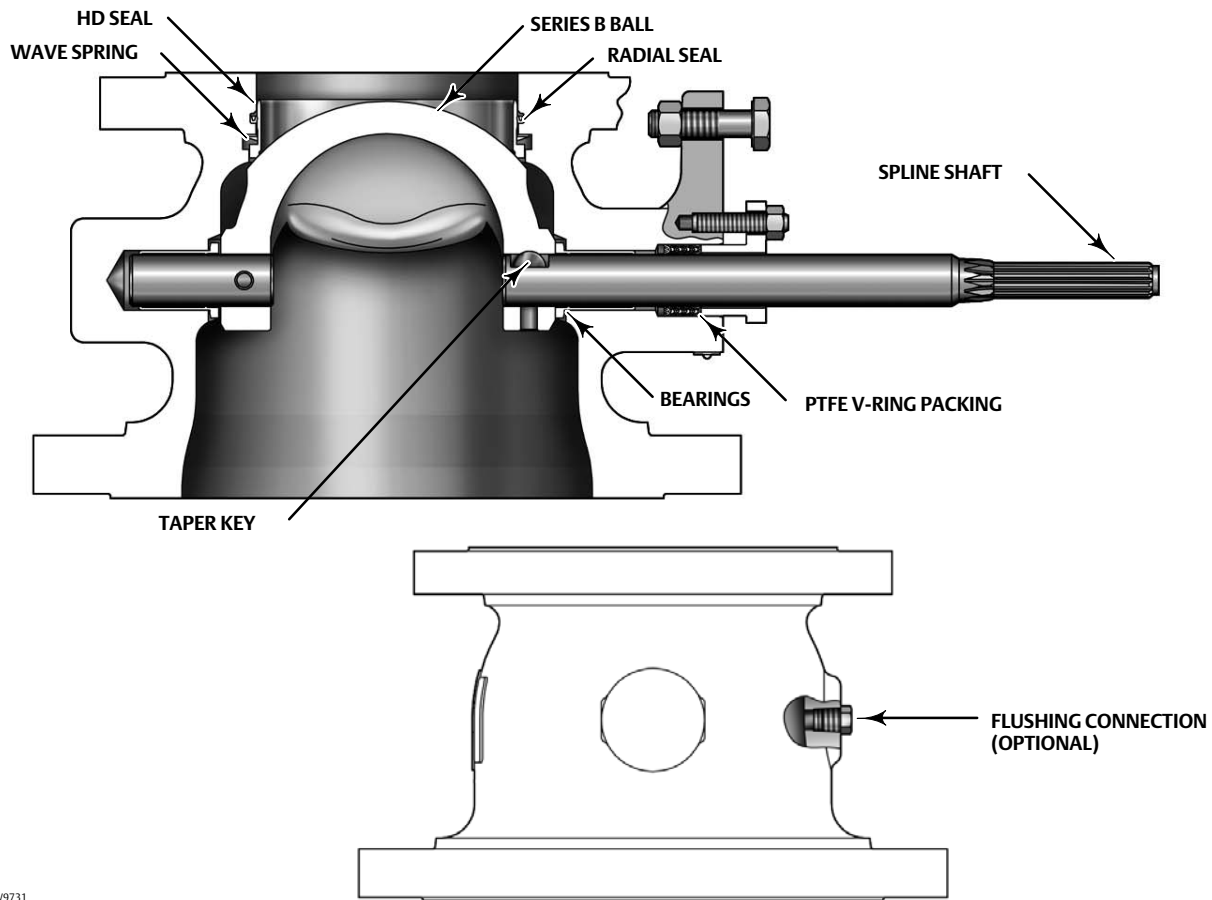
Part	Material
Valve body	CG8M (317 SST)
V-Notch Ball	Chromium-plated CG8M
Seal – Heavy Duty Metal	R30006 (Alloy 6)
Wave Spring	N07750
Radial Seal	Graphite reinforced PTFE
Bearings	PEEK/Carbon-filled PTFE liner
Packing	PTFE V-ring with one carbon-filled PTFE ring
Shaft	S20910
Groove Pin	S31600
Taper Key	R30006
Packing Follower and Packing Box Ring	CF8M (316 SST)
Actuator Mounting Bolts and Nuts	Grade 5 steel or strain hardened B8M stainless steel
Spacer and Bushing	S31700
Packing Follower Bolting	Strain hardened SA-193-B8M
Pipe Plug (optional flushing connection)	S31600

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Figure 1. Fisher V150E Construction Features



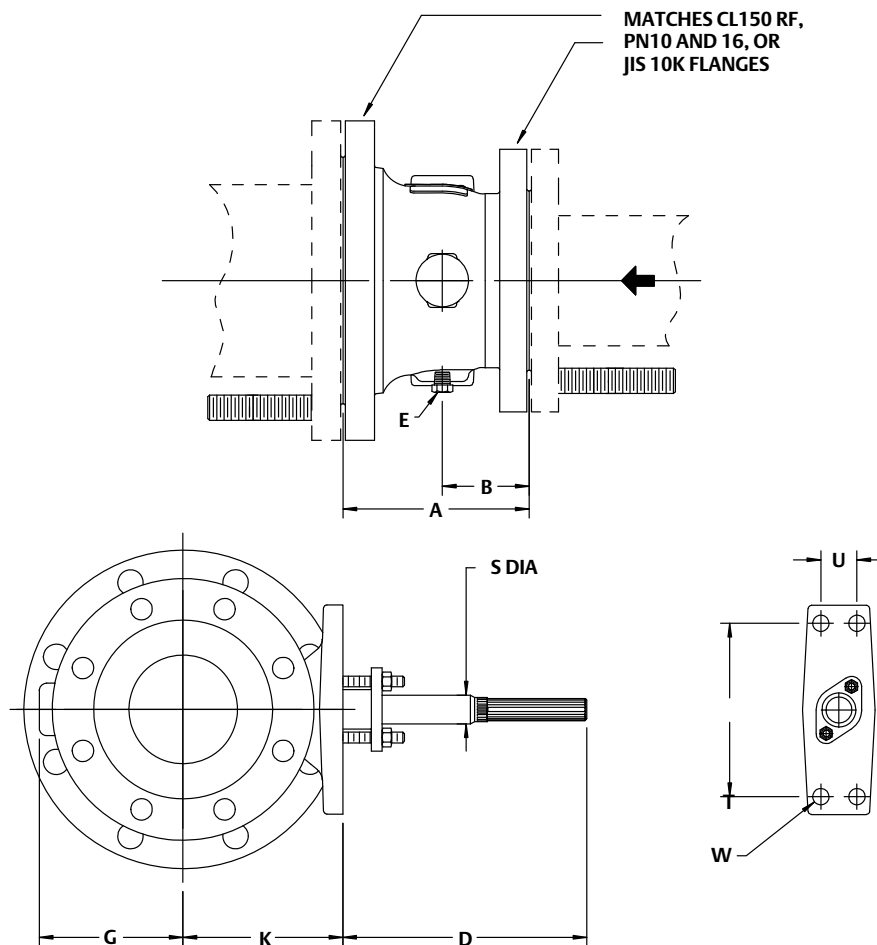
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Table 4. Fisher V150E Maximum Allowable Shutoff Pressure Drop
(based on trim [bearing and seal] and ASME pressure temperature rating of the valve material [CG8M])

BEARING MATERIAL	BALL SEAL	TEMPERATURE RANGE, °C	VALVE SIZE, DN				
			80x100	100x150	150x200	200x250	250x300
			Bar				
PEEK/PTFE	HD Metal (R30006) ⁽¹⁾	-46 to -29	19	19	19	19	19
		-29 to 38	19	19	19	19	19
		93	16.2	16.2	16.2	16.2	16.2
		149	14.8	14.8	14.8	14.8	14.8
		204	13.4	13.4	13.4	13.4	13.4
		232	12.8	12.8	12.8	12.8	12.8
		260	11.7	11.7	11.7	11.7	11.7
BEARING MATERIAL	BALL SEAL	TEMPERATURE RANGE, °F	VALVE SIZE, NPS				
			3X4	4X6	6X8	8X10	10X12
			Psi				
PEEK/PTFE	HD Metal (R30006) ⁽¹⁾	-50 to -20	275	275	275	275	275
		-20 to 100	275	275	275	275	275
		200	235	235	235	235	235
		300	215	215	215	215	215
		400	195	195	195	195	195
		450	185	185	185	185	185
		500	170	170	170	170	170

1. Pressure drops for HD seals are for forward flow only. For reverse flow with HD metal seal limit pressure drop to 6.9 bar (100 psi).

Figure 2. Fisher V150E Dimensions



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Table 5. Fisher V150E Dimensions (see figure 2)

DN ⁽¹⁾	mm										APPROXIMATE WEIGHT
	A	B	D	G	K	SØ	T	U	W	E (optional)	kg
80x100	165	82	214	111	130	19.1	152	31.8	14.2	12.7	26
100x150	163	76	214	127	141	19.1	152	31.8	14.2	12.7	28
150x200	207	101	214	154	164	25.4	152	31.8	17.5	12.7	46
200x250	248	123.5	208	189	232	31.8	235	46	17.5	19.1	87
250x300	297	147	208	216	260	31.8	235	46	17.5	19.1	123
NPS ⁽¹⁾	Inch										APPROXIMATE WEIGHT
	A	B	D	G	K	SØ	T	U	W	E (optional)	lbs
3x4	6.50	3.23	8.43	4.37	5.12	0.75	5.98	1.25	0.56	1/2 NPT	58
4x6	6.42	2.99	8.43	5.00	5.55	0.75	5.98	1.25	0.56	1/2 NPT	61
6x8	8.15	3.98	8.43	6.06	6.46	1.00	5.98	1.25	0.69	1/2 NPT	100
8x10	9.76	4.86	8.19	7.44	9.13	1.25	9.25	1.81	0.69	3/4 NPT	192
10x12	11.69	5.79	8.19	8.50	10.24	1.25	9.25	1.81	0.69	3/4 NPT	271

1. Valve Inlet size x Outlet size

Figure 3. Fisher V150E Expanded Outlet Vee-Ball Valve



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