Model VB Series, Segment V-Ball Control Valves with V Series Actuators

Valution model VB Series is a Segment Ball control valve de signed to form openings in seats and balls in 'V' shape accor ding to the rotation of the valve stem, enabling precision control.

It is a control valve that has simple internal flow paths in the con centric ball trim structure, so it can have good effects not only in c lean fluid conditions but also in highly corrosive slurry service s.

Depending on the characteristics of the V-type ball, the flow ch aracteristics are basically EQ-% characteristics as standard, and Line ar is possible by positioner.

According to the Required seat tightness, it is also possible to a pply metal or soft seat and to support the fulfillment of the leak age class IV, V, and IV.

The body has a straight shape structure, which has low fluid res istance and enough space around the trim. This model can apply spring-diaphragm, cylinder and electric motor type actuators.

It mainly performs modulating functions with traditional E/P, smart a nd HART positioners.

1. Numbering System

V70	-	VB	1	1	1	1

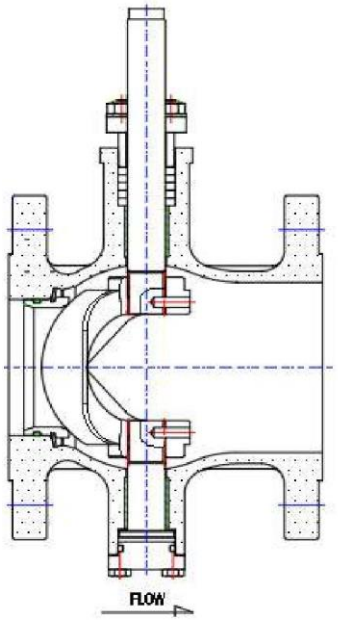
Actuator Type	Model	Body Type	Trim Type	Flow Characteristics	Plug Type
V40. Spring Diaphragm V50. Spring Cylinder Rack & Pinion V60. Cylinder, Double Rack & Pinion V70. Spring Cylinder Scotch Yoke V80. Cylinder, Double Scotch Yoke V90. Electric Motor V01. Other Type	VB	1. Wafer (Flangeless) 2. RF Flanged 3. Other	0. Undefined 1. Metal Seat / Metal Disc 2. Soft Seat / Metal Disc 3. Other	0. Undefined 1. Equal % 2. Linear(Option) 3. Other	0. Undefined 1. V-Ball 2. V-Ball + 1 Stage 3. V-Ball + 2 Stage 4. Other

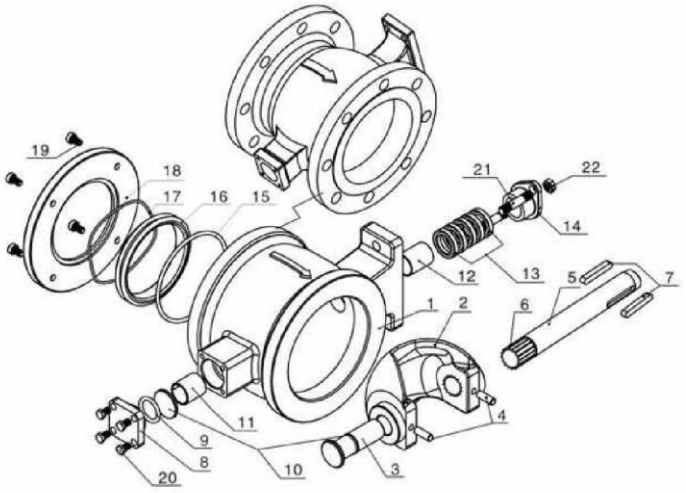
2. Features

1. The precision contoured of V-notch provides excellent control characteristics for a wide range of flow applications.
2. The detachable seat retainer design provides easy access to the trim parts of the valve through the valve inlet by simp ly removing the retainer screw, thus allowing users to save a lot of costs by maintenance the seat spare instead of rep lacing the entire valve body.
3. Spring loaded seat maintains constant contact with the ball to improve sealing performance.
4. Rugged self-adjusting metal seating options are ideal for high temperature applications or slurries.
5. The shear action between the ball and the seal facilitates smooth and non-clogging operation, perfect for fiber or slur ry application.
6. The splined connection between the stem and the ball ensures correct control and a hysteresis.
7. Excellent trunnion bearing technology is designed to provide excellent wear resistance.
8. Applicable to the latest smart positioners as well as traditional P/P and E/P positioners with other instruments

3. Body Type

■ Model VB Segment V-Ball, Sectional View & Exploded View





■ Model VB Segment V-Ball, Parts & Materials

No.	Part Name	Q`ty(EA)	Materials
1	Body	1	CF8, CF8M, CF3M, Others
2	V - Ball	1	CF8M, CF3M, HCr or Stellite Surfacing, Others
3	Lower Stem	1	316(L)SS, 317(L)SS, 630SS, Others
4	Pin	1	304SS, 316SS
5	Upper Stem	1	316(L)SS, 317(L)SS, 630SS, Others
6	Spline	1	316(L)SS, 317(L)SS, 630SS, Others
7	Flat Key	2	304SS, 45C
8	Bottom Cover	1	CF8, CF8M, CF3M, Others
9	O-Ring	1	Viton, NBR, Graphite
10	Bottom Gasket	1	PTFE, Graphite
11	Bearing	1	Bearing Material
12	Bearing	1	Bearing Material
13	Packing	1 Kit	PTFE, Graphite
14	Gland	1	CF8
15	O-Ring	1	Viton, NBR, Graphite
16	Seat Ring	1	316(L), 317(L), HCr or Stellite Surfacing, PTFE Inserted
17	Wavy Spring	1	316SS
18	Seat Retainer	1	316SS, 317SS, Others
19	Socket Head Screw	4	A193 B7, A193 B8
20	Hexagon Screw	4	A193 B7, A193 B8
21	Gland Stud Bolt	2	A193 B7, A193 B8
22	Gland Nut	2	A194 2H, A194 8

4. Specifications

■ General Specifications

Size Range	1" ~ 20" (other sizes are available)
Pressure Range	ASME 150#~600#
Temperature Range	-20 ~ 350 ℃ according to the material spec.
Body Materials	A351 CF8M, CF3M, Inconel, Titanium & others
Trim Materials	316, 316L, 317L, Inconel, W-Co. overlay, Titanium & others
Trim Design	Segment V-Ball
Trim Characteristics	E-Q%, Linear(Option)
Seat Leakage Class	ANSI/FCI 70-2, Class IV, V, VI according to the spec.
Applicable Actuators	Pneumatic Diaphragm, Cylinder, Electric Motor, others
Applicable Instruments	P/P & E/P & Smart Positioners, SOV & other Relays
Options	Handwheel, Limit Stopper, Special NDT

■ Trim Material Combinations

Code No.	Trim Materials				Temp. Range(℃)
	Disc	Seat Ring	Seat Insert	Stem	
TR1	316SS + HCr	316SS + HCr	-	316 SS	-20 ~ +350
TR2	316 SS + Stellite	316SS + Stellite	-	316 SS	-20 ~ +350
TR3	316SS + HCr	316SS	PTFE	316 SS	-20 ~ +160
TR4	316SS + HCr	316SS	RTFE	316 SS	-20 ~ +230
TR5	317SS + HCr	317SS + HCr	-	317 SS	-20 ~ +350
TR6	317 SS + Stellite	317 SS + Stellite	-	317 SS	-20 ~ +350
TR7	317SS + HCr	317 SS	PTFE	317 SS	-20 ~ +160
TR8	317SS + HCr	317 SS	RTFE	317 SS	-20 ~ +230

■ Seat Leakage Classifications (per ANSI FCI 70-2)

Code No.	Trim Style	Leakage Class
SL1	Metal to metal seat, TR1, TR-2, TR-5, TR-6	Class IV
SL2	Soft seal & metal seat, TR-3,4 & TR-7,8	Class V
SL3	Metal to metal seat(o), TR1, TR-2, TR-5, TR-6	Class V
SL4	Soft seal & metal seat(o), TR-3,4 & TR-7,8	Class VI

***. Note**

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2. All data shown above are subject to change without notice.

4. Specifications

■ O-Ring Applications

Code No.	Material & Style	Temp. Range(℃)
SR1	EPDM O-Ring	-20 ~ +120
SR2	Viton O-Ring	-20 ~ +230
SR3	PFA O-Ring	-20 ~ +230
SR4	FEP Ring	-20 ~ +160
SR5	Graphite Ring	-20 ~ +350

■ Packing Applications (This is a general specification, not a VB model)

Code No.	Material & Style	Gasket Materials	Temp. Range(℃)
PK1	PTFE + Carbon fiber, Braided	#150 ~ #900	-196 ~ +260
PK2	PTFE V-Ring	#150 ~ #600	-196 ~ +235
PK3	Graphite(Braided + Mold)	#150 ~ #2500	-196 ~ +410
PK4	Hi-Graphite(Braided + Mold)	#150 ~ #2500	-196 ~ +592
PK5	GTFE V-Ring + SPC	#150 ~ #2500	-196 ~ +260

■ Bolt(Stud) & Nut Applications (This is a general specification, not a VB model)

Code No.	Body, Bonnet 5Materials	Bolt(Stud) / Nut Materials	Temp. Range(℃)
BN1	WCB, A105 Carbon steel	Stud : ASTM A193, B7 Nut : ASTM A194, 2H	-29 ~ +425
BN2	CF8,CF8M,CF3,CF3M Stainless steel	Stud : ASTM A193(320), B8(M) Nut : ASTM A194(320), 8(M)	-196 ~ +592
BN3	WC6,WC9,C12A,F91 Cr-Mo. steel	Stud : ASTM A193, B16 Nut : ASTM A194, 4	-29 ~ +592

■ Gaskets Applications (This is a general specification, not a VB model)

Code No.	Body, Bonnet Materials	Gasket Materials	Temp. Range(℃)
GS1	WCB, A105 Carbon steel	316 SS + Graphite S/W	-29 ~ +425
GS2	CF8,CF8M,CF3,CF3M Stainless steel	316 SS + Graphite S/W	-196 ~ +592
GS3		316 SS + PTFE S/W	-196 ~ +235
GS4	WC6,WC9,C12A,F91 Cr-Mo. steel	316 SS + Graphite S/W	-29 ~ +592

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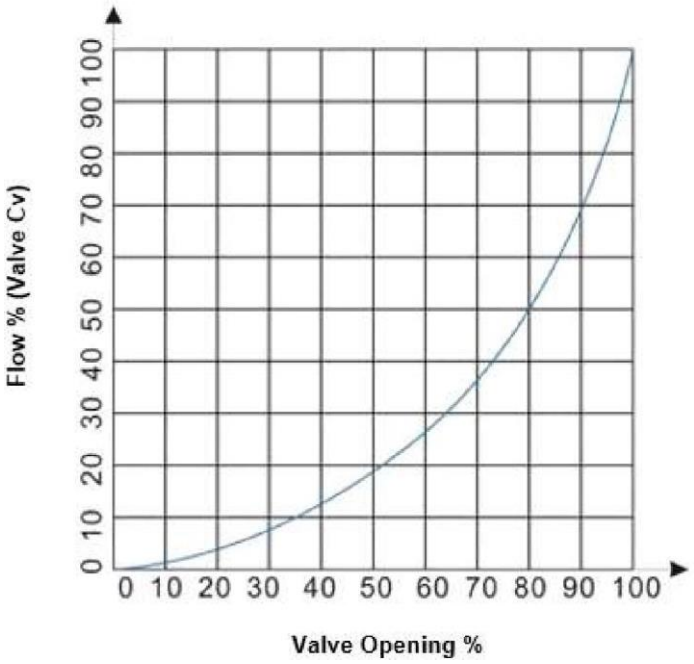
5. Flow Coefficients - Rated Cv

Flow Coefficients - Rated Cv Model VB

Valve Size (inch/mm)	Rated Cv
1(25)	27
1-1/4(32)	47
1-1/2(40)	70
2(50)	135
2-1/2(65)	210
3(80)	390
4(100)	560
5(125)	790
6(150)	1130
8(200)	1860
10(250)	2900
12(300)	4320
14(350)	6640
16(400)	8000
18(450)	10000
20(500)	17270

Flow Characteristics - EQ %



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