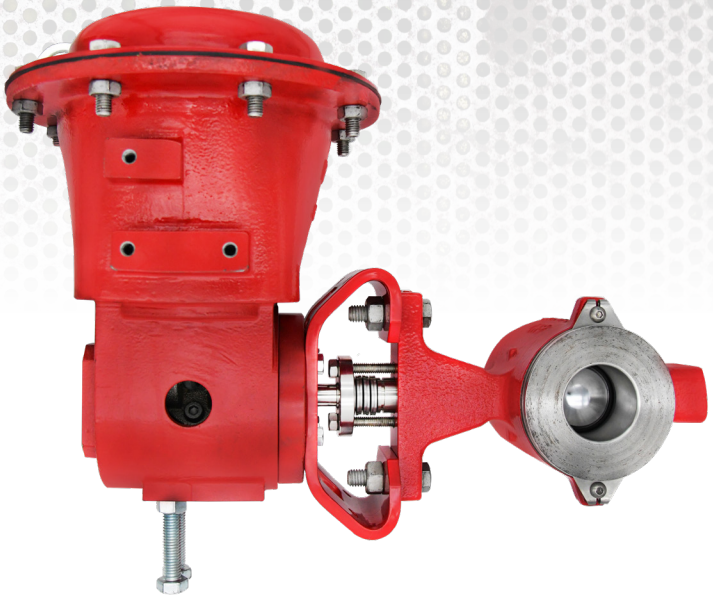
VB10 ROTARY CONTROL VALVE

Beaumont Manufacturing bmd and Distribution Company

The V-Ball valve stands out by merging the robust durability of a globe valve with the efficient, high-speed performance of a rotary design. At its core is a uniquely contoured, segmented V-notch ball. This design creates a powerful shearing action against the seat ring, ensuring exceptionally smooth, nonclogging operation. Its unrestricted, straight-through flow path delivers superior capacity for handling media such as gases, steam, various liquids, and challenging fibrous slurries. To optimize performance for any specific application, the soft seat valve ensures tight shutoff application. Additionally, the square shaft option integrates seamlessly with various power actuators, providing the reliable, high-performance throttling or precise on-off control essential for diverse process industry applications.



FEATURES

- **Easy Installation**
- **Sour Service Capability**
- **Smooth Valve Operation**
- **Quick & Easy Maintenance**
- **Low Temperature Capability**
- **Robust Design**

VALVE SPECIFICATIONS

Sizes:
- 2”-12”
- 150, 300, 600 RF

Maximum Inlet Pressures:
- See Pressure Table

Shutoff Classification:
- Class VI per ANSI/FCI 70-2 - Soft Seat
- Class IV - Metal Seat

Temperature Capabilities:
- -50 to 450 °F (-46 to 232 °C)

Packing Construction:
- PTFE V-ring
- Live-loaded packing

Flow Characteristic:
- Modified equal percentage

Face-to-Face Dimensions:
- Standard Face-to-Face Dimensions comply with ISA S75.08.02

Standard Flow Direction:
- Forward (into the convex face of the
- V-notch ball)

Maximum Ball Rotation:
- 90 degrees

Valve/Actuator Action:
- With diaphragm rotary actuator, the valve is field-reversible between PDTC or PDTO
  - Push-down-to-close (extending actuator rod closes valve) and
  - Push-down-to-open (extending actuator rod opens valve)

VALVE MATERIALS

Valve Body:
- LCC Steel
- CG8M SST (Optional)

Ball:
- Chromium-plated CG8M

Seat Ring:
- BMD Engineered Plastic Soft Seat
- Nitronic 50 Metal Seat

Bearings:
- PEEK/Carbon- filled PTFE liner

Seal Ring Gasket:
- Laminated graphite

Packing:
- BMD Super Red

Shafts:
- Nitronic 50

Taper Key:
- R50550

Seal Retainer Screws and Washers:
- Stainless Steel

Packing Follower and Box Ring:
- 316

Actuator Mounting Bolts and Nuts:
- Grade 5 Steel

ACTUATOR SPECIFICATIONS

Maximum Diaphragm Casing Pressure:
- 73 psig (5 barg)

Actuator Temperature Capabilities:
- Standard: -50 to 176°F (-45 to 80°C)

Adjustable Travel Stops:
- Standard adjustable up and down stops capable of 30 degrees of adjustment per stop

Pressure Connection:
- Size 1 and 2: 1/4 NPT Standard
- Size 3: 1/2 NPT Standard

ACTUATOR MATERIALS

Top Casing:
- Steel

Housing:
- Ductile Iron

Diaphragm:
- Nitrile with nylon reinforcement

Cam:
- Steel

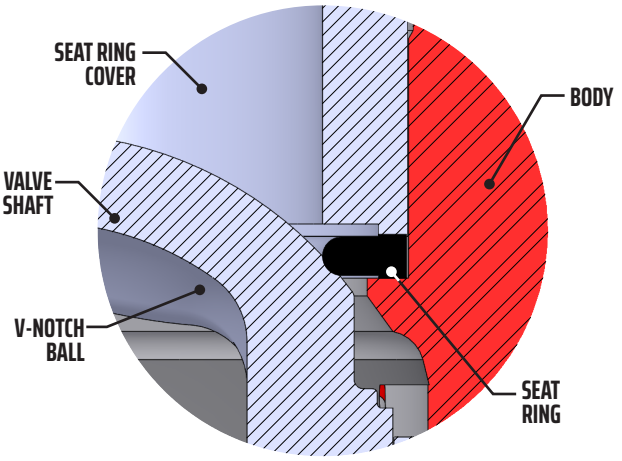
Diaphragm Plate:
- Ductile Iron

PRESSURE RATINGS

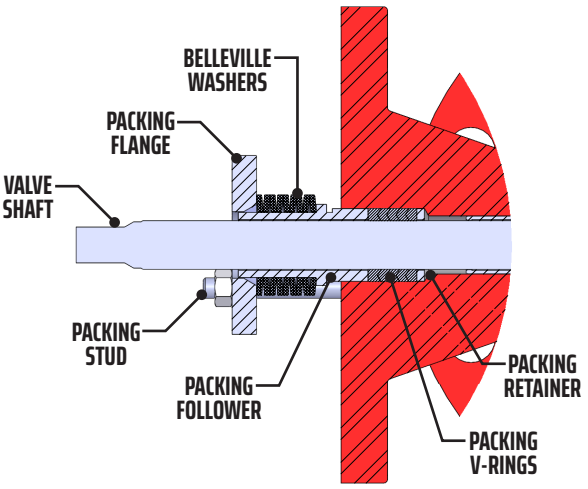
VALVE BODY PRESSURE RATINGS

TEMPERATURE RANGE	LCC PRESSURE CLASS			CG8M PRESSURE CLASS		
	150	300	600	150	300	600
°F	psi			psi		
-50 to 100	290	750	1500	275	720	1440
200	260	750	1500	235	620	1240
300	230	730	1455	215	560	1120
400	200	705	1410	195	515	1025
450	185	685	1370	185	500	995
500	170	665	1330	170	480	930
550	155	635	1270	155	465	905
600	140	605	1210	140	450	890
650	125	590	1175	125	445	870
°C	bar			bar		
-46 to -38	20	51.7	103	19.0	49.6	99.3
93	17.9	51.7	103	16.2	42.7	85.5
149	15.9	50.3	100	14.8	38.6	77.2
204	13.8	48.6	97.2	13.4	35.5	70.6
232	12.8	47.2	94.5	12.8	34.5	68.6
260	11.7	45.9	91.7	11.7	33.1	65.8
316	10.7	43.8	87.6	10.7	32.1	64.1
343	9.65	41.7	83.4	8.62	31.0	62.4

V-BALL CONSTRUCTION FEATURES, SEAL



LIVE LOADED PACKING ARRANGEMENTS



MAXIMUM PRESSURE DROPS

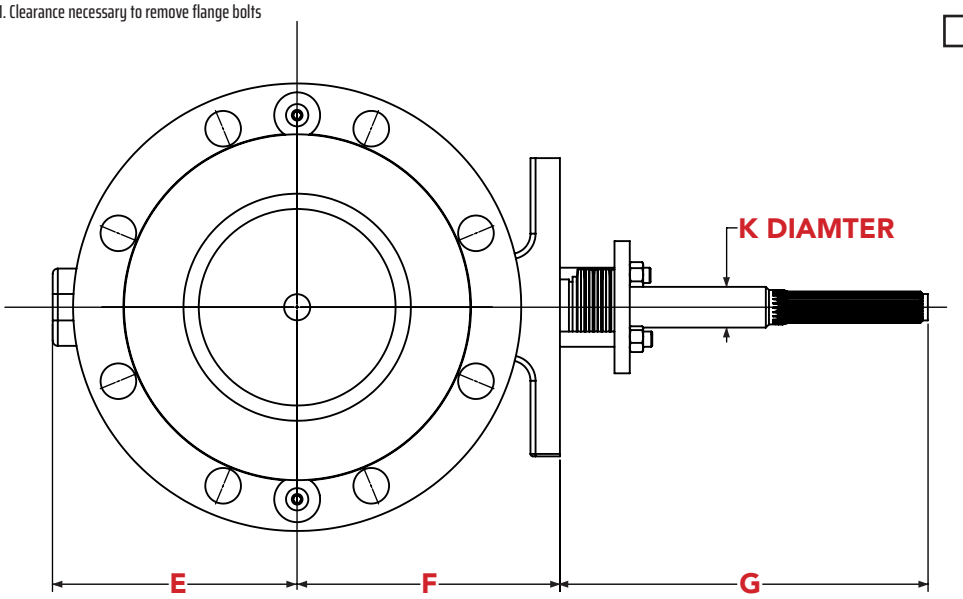
NOTE: DO NOT EXCEED THE PN OR ASME PRESSURE/TEMPERATURE RATING OF THE VALVE OR MATING FLANGES

TEMPERATURE RANGE	SHAFT SIZE						
	⅝	¾		1	1 ¼	1 ¼	1 ½
°F	VALVE SIZE (INCHES)						
	2	3	4	6	8	10	12
	psi						
-50 to 100	750	750		750	750	583	545
200	550	550		550	550	550	545
300	350	350		350	350	350	350
400	150	150		150	150	150	150
450	50	50		50	50	50	50
°C	VALVE SIZE (mm)						
	50	80	100	150	200	250	300
	bar						
-46 to -38	51.7	51.7		51.7	51.7	40.2	37.6
93	37.9	37.9		37.9	37.9	37.9	37.6
149	24.1	24.1		24.1	24.1	24.1	24.1
240	10.3	10.3		10.3	10.3	10.3	10.3
232	3.45	3.45		3.45	3.45	3.45	3.45

V-BALL DIMENSIONS

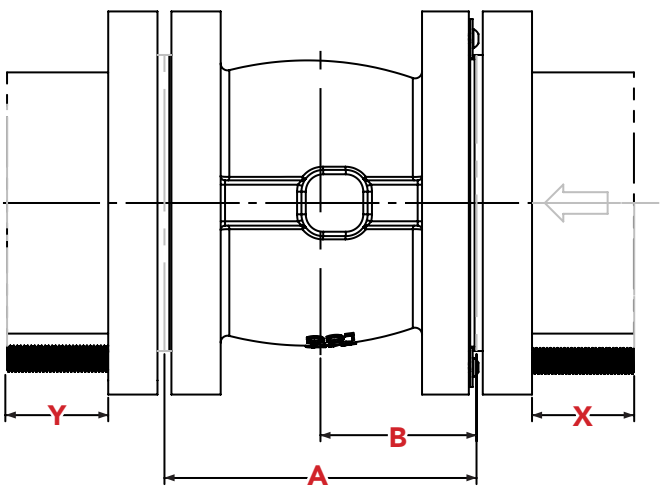
VALVE SIZE	A	B	G	E	F	X[1]			Y[1]			K	H	J	L
						CL 150	CL 300	CL 600	CL 150	CL 300	CL 600				
NPS	Inch														
2	4.88	2.63	7.38	4.19	5.00	3.94	4.19	4.75	3.44	3.94	4.75	⅝	4.62	--	0.56
3	6.50	3.10	8.44	4.62	5.12	4.19	5.25	5.50	3.94	4.75	5.50	¾	6.00	1.25	0.56
4	7.62	3.99	8.44	5.25	5.56	4.69	5.50	6.50	3.94	5.00	6.50	¾	6.00	1.25	0.56
6	9.00	4.29	8.44	5.94	.44	5.00	6.00	7.75	4.50	5.50	7.75	1	6.00	1.25	0.56
8	9.56	4.88	8.19	7.69	9.12	5.25	6.50	8.50	5.00	6.00	8.50	1 ¼	9.25	1.81	0.69
10	11.69	5.77	8.19	8.75	10.25	5.75	7.31	8.50	5.25	6.81	8.50	1 ¼	9.25	1.81	0.69
12	13.31	6.87	8.19	10.56	11.94	6.00	7.81	8.75	5.25	7.31	8.75	1 ½	9.25	1.81	0.69
DN	mm														
50	124	67	188	106	127	100	106	121	87	100	121	15.9	117	--	14.2
80	165	79	214	117	130	106	133	140	100	121	140	19.1	152	31.8	14.2
100	194	101	214	133	141	119	140	165	100	127	165	19.1	152	31.8	14.2
150	229	109	214	159	164	127	152	196	114	140	196	25.4	152	31.8	14.2
200	243	124	208	195	232	133	165	216	127	152	216	31.8	235	46.0	17.5
250	297	147	208	222	260	146	186	216	133	173	216	31.8	235	46.0	17.5
300	338	174	208	268	303	152	198	222	133	186	222	38.1	235	46.0	17.5

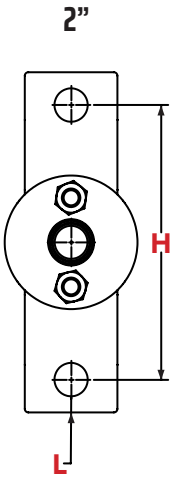
1. Clearance necessary to remove flange bolts

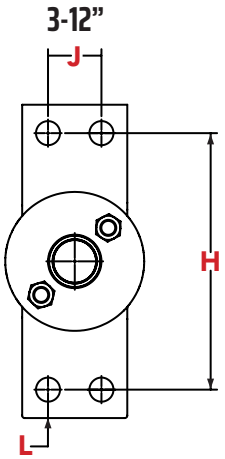


VALVE SIZE		# of Threaded Holes		BOLT SIZE
		CLASS		
NPS	DN	300	600	
2	50	4	4	⅝ - 11
3	80	4	4	¾ - 10
4	100	--	--	--
6	150	--	2	1 - 8
8	200	--	4	1 ⅛ - 8
10	250	--	4	1 ¼ - 8

NOTE: DUE TO SPACE CONSTRAINTS SOME FLANGE HOLES ARE THREADED



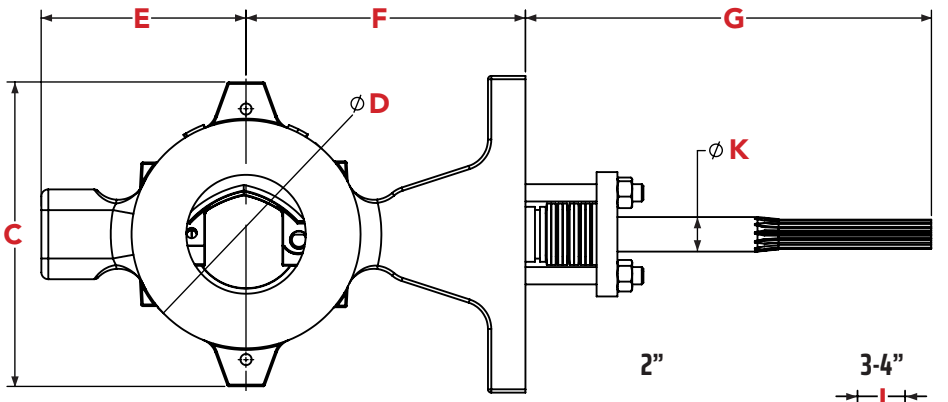


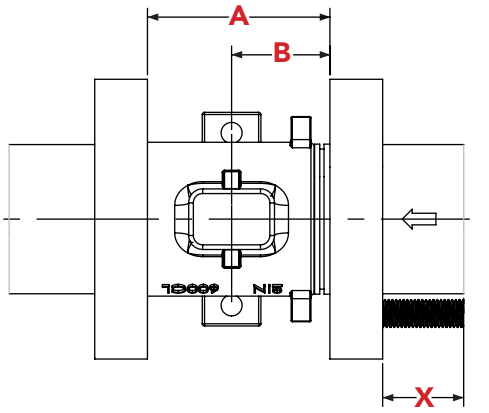


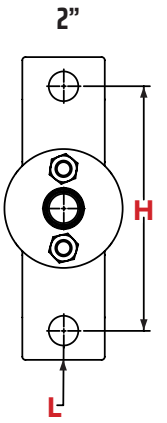
V-BALL DIMENSIONS (CONT.)

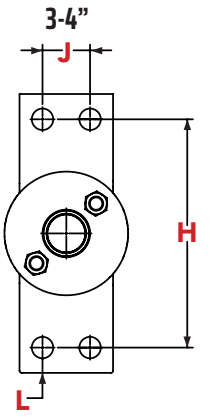
FLANGELESS WAFER STYLE

VALVE SIZE	A	B	G	E	F	X			D	C	K	H	J	L
						CL 150	CL 300	CL 600						
NPS	Inch													
2	4.88	2.63	7.38	4.19	5.00	8.31	9.31	9.31	3.63	5.38	⅝	4.62	--	0.56
3	6.50	3.10	8.44	4.62	5.12	10.00	11.00	11.25	5.00	6.56	¾	6.00	1.25	0.56
4	7.62	3.99	8.44	5.25	5.56	11.25	12.00	13.50	6.19	7.76	¾	6.00	1.25	0.56
DN	mm													
50	124	67	188	106	127	211	236	236	92	137	15.7	117	--	14.2
80	165	79	214	117	130	254	279	286	127	167	19.1	152	32	14.2
100	194	101	214	133	141	286	305	343	157	197	19.1	152	32	14.2



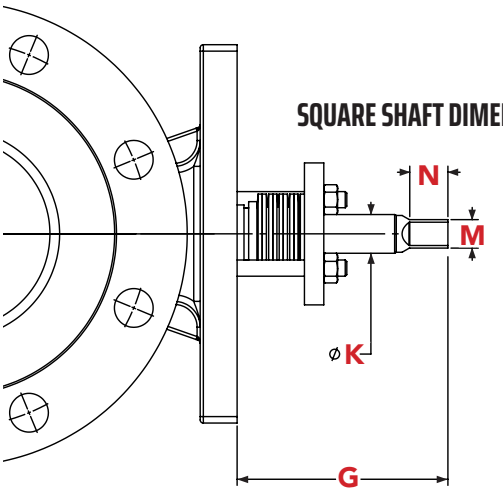






SQUARE SHAFT

VALVE SIZE		M		G		N		K	
NPS	DN	inches	mm	inches	mm	inches	mm	inches	mm
2	50	0.4	11.0	2.99	76.0	.59	15.0	⅝	15.9
3	80	0.6	14.0	4.06	103.0	.75	19.0	¾	19.1
4	100	0.6	14.0	4.06	103.0	.75	19.0	¾	19.1
6	150	0.8	19.0	4.25	108.0	0.94	25.0	1	25.4
8	200	0.9	22.0	4.29	109.0	1.18	30.0	1 ¼	31.8
10	250	0.9	22.0	4.29	109.0	1.18	30.0	1 ¼	31.8
12	300	1.1	27.0	4.49	114.0	1.38	35.0	1 ½	38.1



CV VALUES

COEFFICENTS	VALVE SIZE, NPS	VALVE ROTATION, DEGREES								
		10	20	30	40	50	60	70	80	90
Cv	2	0.028	2.640	9.600	19.10	31.40	46.10	67.20	93.60	123.00
Fl		0.940	0.890	0.900	0.850	0.840	0.830	0.780	0.750	0.750
Xt		0.386	0.490	0.585	0.628	0.597	0.559	0.474	0.409	0.366
Cv	3	1.910	12.50	28.40	49.90	78.00	116.00	168.00	229.00	364.00
Fd		0.510	0.650	0.750	0.820	0.870	0.920	0.950	0.980	0.990
Fl		0.900	0.900	0.890	0.870	0.830	0.780	0.750	0.750	0.650
Xt		0.455	0.619	0.667	0.618	0.555	0.490	0.424	0.388	0.235
Cv	4	5.210	25.40	52.60	90.40	135.00	189.00	260.00	352.00	523.00
Fd		0.510	0.650	0.750	0.820	0.870	0.920	0.950	0.980	0.990
Fl		0.870	0.880	0.870	0.840	0.820	0.790	0.770	0.740	0.650
Xt		0.546	0.677	0.684	0.603	0.561	0.516	0.446	0.371	0.255
Cv	6	9.450	41.90	88.80	153.00	230.00	329.00	461.00	646.00	1,080.00
Fd		0.510	0.620	0.730	0.810	0.860	0.910	0.950	0.970	0.990
Fl		0.880	0.930	0.900	0.880	0.850	0.810	0.770	0.720	0.550
Xt		0.633	0.737	0.761	0.665	0.599	0.521	0.436	0.346	0.194
Cv	8	6.270	44.00	111.00	200.00	319.00	466.00	649.00	924.00	1,750.00
Fd		0.510	0.620	0.730	0.810	0.860	0.910	0.950	0.970	0.990
Fl		0.930	0.940	0.930	0.900	0.860	0.830	0.790	0.740	0.510
Xt		0.703	0.795	0.745	0.678	0.615	0.555	0.481	0.378	0.156
Cv	10	21.80	110.00	251.00	433.00	659.00	947.00	1,300.00	1,780.00	2,710.00
Fd		0.510	0.640	0.750	0.820	0.870	0.910	0.950	0.980	0.990
Fl		0.950	0.950	0.920	0.870	0.840	0.800	0.770	0.720	0.610
Xt		0.733	0.759	0.697	0.661	0.594	0.499	0.433	0.367	0.233
Cv	12	34.00	163.00	359.00	619.00	936.00	1,340.00	1,860.00	2,580.00	4,100.00
Fd		0.510	0.650	0.750	0.820	0.870	0.920	0.950	0.980	0.990
Fl		0.940	0.980	0.940	0.910	0.880	0.830	0.800	0.750	0.600
Xt		0.766	0.819	0.795	0.723	0.653	0.559	0.471	0.389	0.233

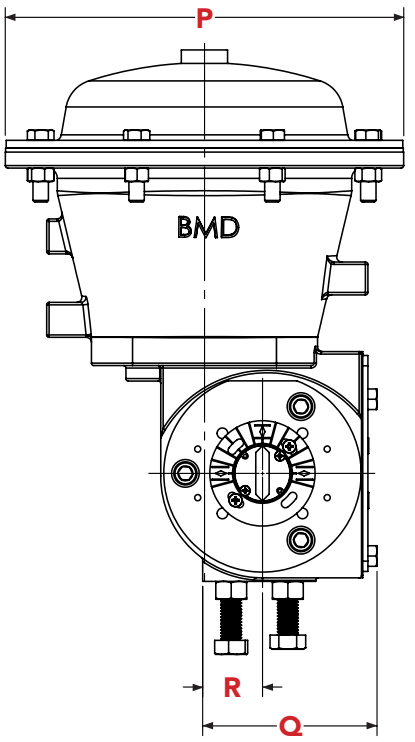
ACTUATOR SIZE

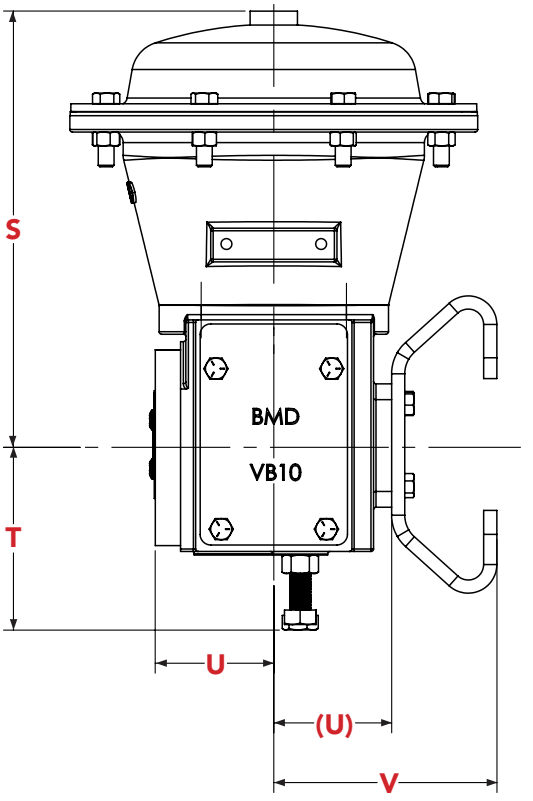
VALVE SIZE	SHAFT SIZE		ACTUATOR SIZE		
	Inches	mm	1	2	3
2	⅝	15.9	X	X	--
3	¾	19.1	X	X	X
4					
6	1	25.4	--	X	X
8	1 ¼	31.8	--	X	X
10					
12	1 ½	38.1	--	--	X

TORQUE VERSUS ACTUATOR SIZE

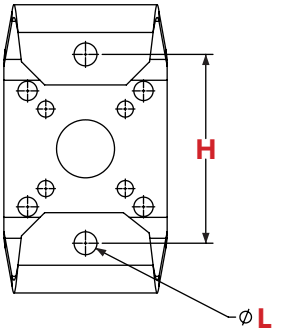
ACTUATOR SIZE AND ACTION	ACTUATOR SIZE							
	29 psig (2 barg)		44 psig (3 barg)		58 psig (4 barg)		68 (4.7 barg)	
	TORQUE							
	lbf·in	N·m	lbf·in	N·m	lbf·in	N·m	lbf·in	N·m
1 (PDTO)	226	25.5	226	25.5	453	51.2	453	51.2
1 (PDTC)	226	25.5	320	36.2	453	51.2	641	72.4
2 (PDTO)	930	105	930	105	1860	210	1860	210
2 (PDTC)	930	105	1550	175	1860	210	2840	320
3 (PDTO)	2890	327	2890	327	5580	631	5580	631
3 (PDTC)	2480	280	4930	557	5170	584	8230	930

ACTUATOR DIMENSIONS

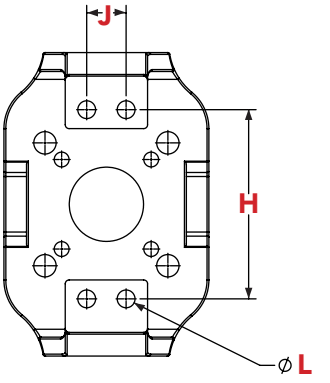




MOUNTING HARDWARE A



MOUNTING HARDWARE B



ACTUATOR SIZE	P		S		R		T		Q		U	
	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm
1	9.65	245	10.51	267	1.14	29	4.06	103	4.21	107	2.80	71
2	13.78	350	16.69	424	1.93	49	7.36	187	6.69	170	3.33	84.5
3	19.53	496	23.31	592	2.52	64	10.0	254	7.28	185	3.62	92

ACTUATOR/VALVE BODY MOUNTING DIMENSIONS

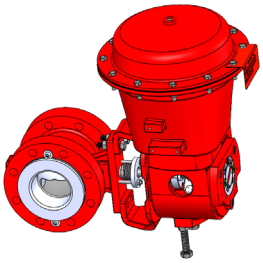
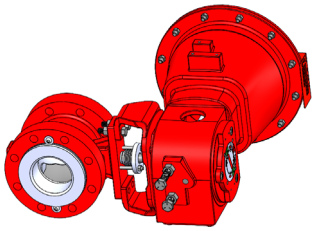
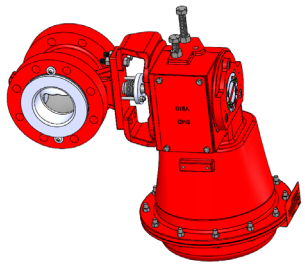
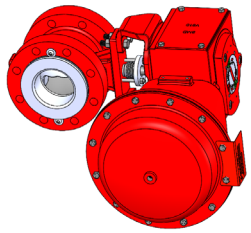
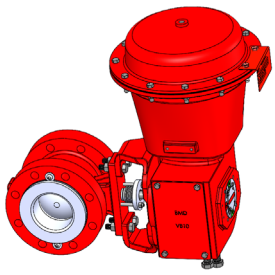
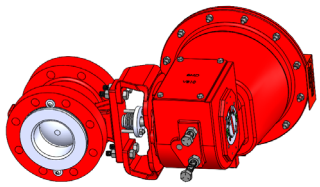
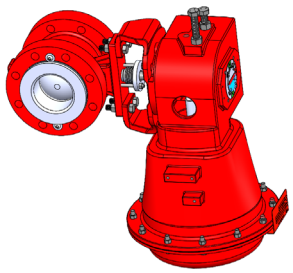
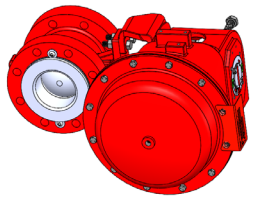
VALVE SHAFT DIAMETER		MOUNTING HARDWARE REFERENCE	H		J		L	
inches	mm		inches	mm	inches	mm	inches	mm
⅝	12.7 - 15.9	A	4.62	117	--	--	0.56	14.2
¾ - 1	19.1 - 25.4	B	6.00	152	1.25	32	0.56	14.2
1 ¼ - 1 ½	31.8 - 38.1	C	9.25	235	1.81	46	0.69	17.5

ACTUATOR/VALVE BODY MOUNTING DIMENSIONS

VALVE SHAFT DIAMETER		V					
		SIZE 1		SIZE 2		SIZE 3	
inches	mm	inches	mm	inches	mm	inches	mm
⅝	15.9	5.3	135	5.8	148.5	--	--
¾	19.1	6.2	15.8	6.8	171.5	7.0	179
1	25.4	--	--	6.8	171.5	7.0	179
1 ¼	31.8	--	--	6.7	169.5	7.0	177
1 ½	38.1	--	--	--	--	7.0	177

ACTUATOR MOUNTING STYLES

Standard actuator mounting is on the right-hand side, as viewed from the valve inlet. The standard ball design and actuator action is counter-clockwise to close so the ball will rotate to the top of the valve body when open for a horizontal pipe run with the valve shaft positioned horizontal.

	POSITION 1	POSITION 2	POSITION 3	POSITION 4
PDTC (FAIL OPEN)				
PDTO (FAIL CLOSED)				

WEIGHTS

VALVE SIZE		CL 150		CL 300		CL 600		Flangeless	
NPS	DN	lbs	kg	lbs	kg	lbs	kg	lbs	kg
2	50	21	9.1	23	10	38	17	23	10
3	80	43	13	34	15	61	28	--	--
4	100	57	26	48	22	81	37	--	--
6	150	93	42	80	36	133	60	--	--
8	200	158	72	136	62	226	103	--	--
10	250	235	107	252	114	440	200	--	--
12	300	347	157	--	--	645	293	--	--

ACTUATOR SIZE	lbs	kg
1	49	22.2
2	120	54.4
3	250	113

HOW TO ORDER

EXAMPLE MODEL NO. ***VB10-04F10L-1T1-12A1***

VB10 Series Valve, 4" Flanged Body, LCC Material Body, Standard Splined Shaft, Soft Seat, BMD Super Red Packing With 29 Psi Spring, Push Down To Open Actuator Mounted In Position 1

VB10 - 04 F 10 L - 1 T 1 - 12 A 1

SERIES

BODY SIZE
02 - 2" **04** - 4" **08** - 8" **12** - 12"
03 - 3" **06** - 6" **10** - 10"

CONNECTION
W - Wafer (2", 3" & 4" only) **F** - RFF

CLASS
10 - 150 **30** - 300 **60** - 600

MATERIAL
L - LCC (Carbon Steel) **T** - CG8M SST (Stainless Steel)

SHAFT CONNECTION
1 - Spline (Std.) **2** - Square

SEAT TYPE
T - Soft Seat **M** - Metal Seat

PACKING
1 - Standard

CONTINUE FOR ACTUATOR

ACTUATOR SIZE
1 - Size 1 **2** - Size 2 **3** - Size 3

SPRING
2 - 29 PSI **5** - 58 PSI

ACTUATOR POSITION
A - PDTO (Fail Closed) **B** - PDTC (Fail Open)

ACTUATOR POSITION
1 - 1 **2** - 2 **3** - 3 **4** - 4

BEAUMONTMANUFACTURING.COM

PHONE: 409.225.5863
850 FANNIN STREET, BEAUMONT, TEXAS 77701

Beaumont Manufacturing bmd and Distribution Company