

## VALTORC V-PORT BALL VALVE SERIES 950

This bulletin covers the 1- through 2-inch, 3- through 12-inch Series, and the 14- through 20-inch Valtorc V-Port Ball Valve Series. The V-Port Ball Valve combines globe valve ruggedness with the efficiency of a rotary valve. A shearing action between the V-Port ball and the ball seal promotes smooth, non-clogging operation. The unrestricted straight-through flow design provides high capacity for gas, steam, liquids, and fibrous slurries.

The Valtorc V-Port Ball Valves mate with a variety of ASME raised face flanges, as well as with DIN flanges (see Specifications).

To meet specific application requirements, a variety of metal and soft ball seal materials are available. A splined drive shaft combines with a variety of power operated and manual actuators to provide reliable, high-performance throttling or on-off operation for many different applications in the process industries.

Unless otherwise noted, all NACE references are to NACE MR0175-2002.



## Specifications

### Valve Sizes and End Connection Styles

**Design:** 1.-12-inch, flanged valves that mate with Class 150 raised-face flanges (see table 1). Also, sizes 3 through 12-inch mate with DIN PN classes

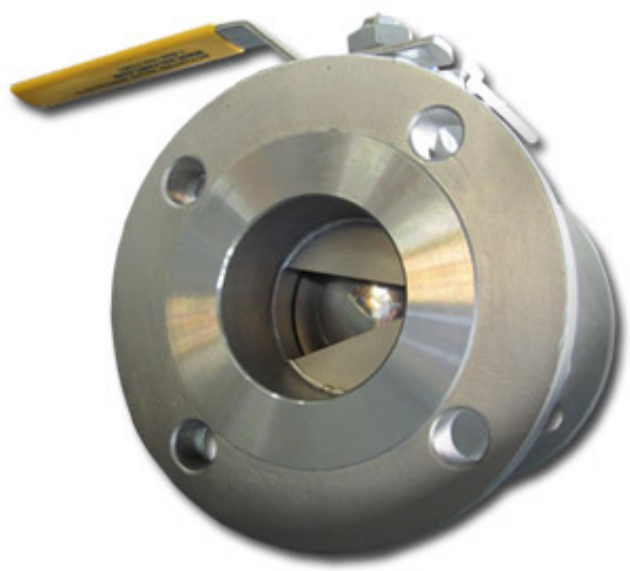
**Valtorc V-Port Ball Valves:** 20-Inch: Flanged raised-face valves. 14 and 16-inch valves are available in ASME B16.10 Short, face-to-face dimensions only

### Maximum Inlet Pressures<sup>(1)</sup>

**Valtorc V-Port Ball Valves, CF3M (316L Stainless Steel) or CG8M (317 Stainless Steel) Valves:** Consistent with Class 150, pressure-temperature ratings per ASME B16.34 or with DIN pressure-temperature ratings shown in table 1 but do not exceed the material temperature capabilities shown below or the pressure drop limitations. CF3M is available in all areas and is the standard material offering in Europe.

### Maximum Shutoff Pressure/Temperature Ratings<sup>(1)</sup>

**Composition Flat Metal (3- through 12-inch valves only), HD and High Temperature HD Metal Ball Seals and Flow Ring:**



### Shutoff Classification<sup>(1)</sup>

- Ultra Ball Seal (Forward Flow):** Class VI per ANSI/FCI 70-2 and per IEC 60534-4,
- Flat Metal Ball Seal for 3 through 12-inch valves only (Forward Flow):** Class IV per ANSI/FCI 70-2 and per IEC 60534-4,
- 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);
- High Temperature HD (Heavy Duty) Metal Seal (Bidirectional Flow):** Class III per ANSI/FCI 70-2 and IEC 60534-4
- Flow Ring Construction (Bidirectional Flow):** 5% of valve capacity at full travel

### Temperature Capabilities<sup>(1,2)</sup>

- Composition Seals:** -46 to 232\_C (-50 to 450\_F)
- HD Metal Seals:** -46 to 288\_C (-50 to 550\_F)
- High Temperature HD Metal Seal:** 288 to 427\_C (550 to 800\_F).
- Ceramic Ball:** -46 to 93\_C (-50 to 200\_F)<sup>(4)</sup>.
- Flow Ring or Flat Metal Seal :** -198 to 425\_C (-325 to 800\_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)
- Graphite:** -198 to 538\_C (-325 to 1000\_F)
- PTFE V-ring:** -46 to 232\_C (-50 to 450\_F)
- Graphite:** -7 to 316\_C (20 to 600\_F)

### Flow Characteristic

Modified equal percentage

## Specifications (continued)

### Optional Face-to-Face Dimensions

ASME B16.10 short face-to-face dimensions are available as an option for 1- through 12-inch valves. Note that ASME B16.10 short dimensions are actually longer than ISA S75.04.

### Standard Flow Direction

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

### Maximum Ball Rotation

90 degrees

### Actuator Mounting

Standard valve construction is for right-hand

mounting, as viewed from upstream end of valve. Left-hand (optional) mounting is available upon request.

### Valve/Actuator Action

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

## Features

**Trim Versatility**—Trim components are interchangeable. This feature allows you to reduce your spare parts inventory and maintenance procedures. The seal assembly can be changed without removing the actuator or without removing the ball from the valve body.

**Easy Installation**—Flanged body design of the V-Port Ball Valves eliminates exposed line flange bolting, reduces alignment and installation time, and promotes secure valve installations and piping integrity.

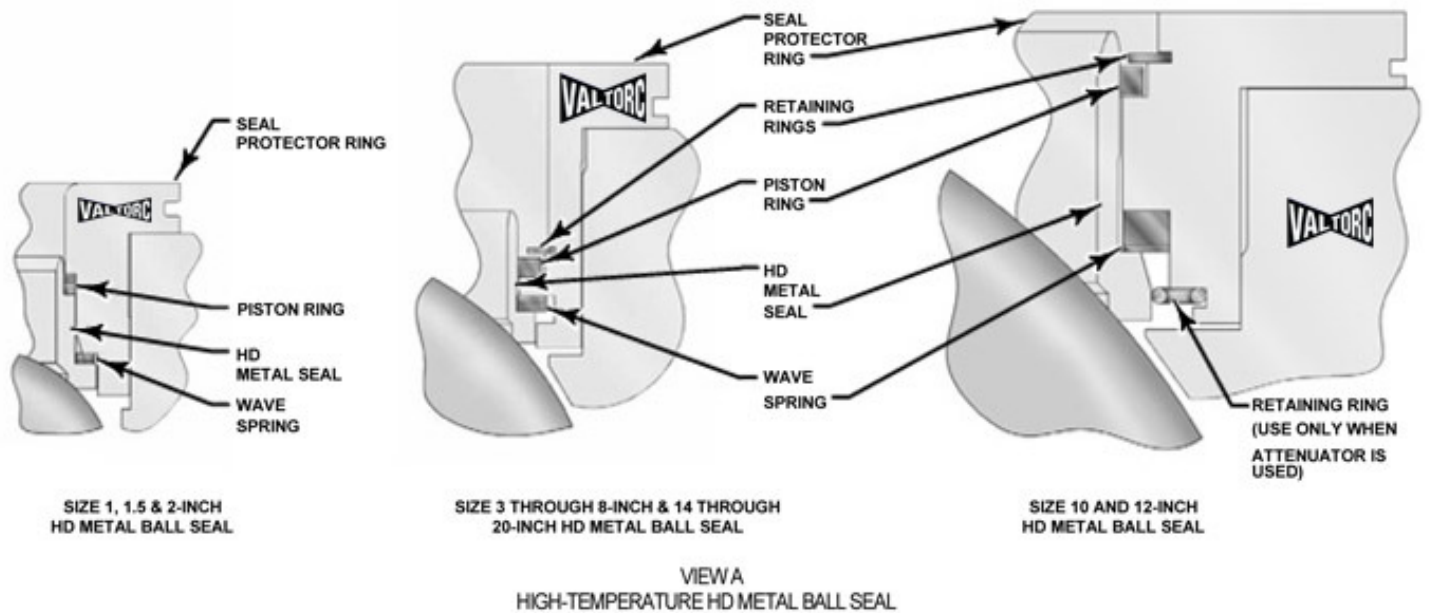
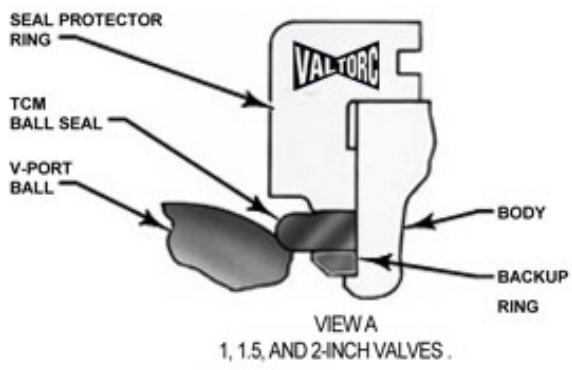
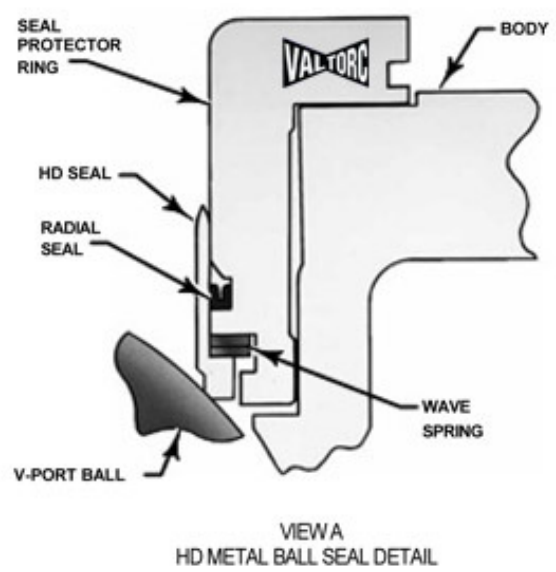
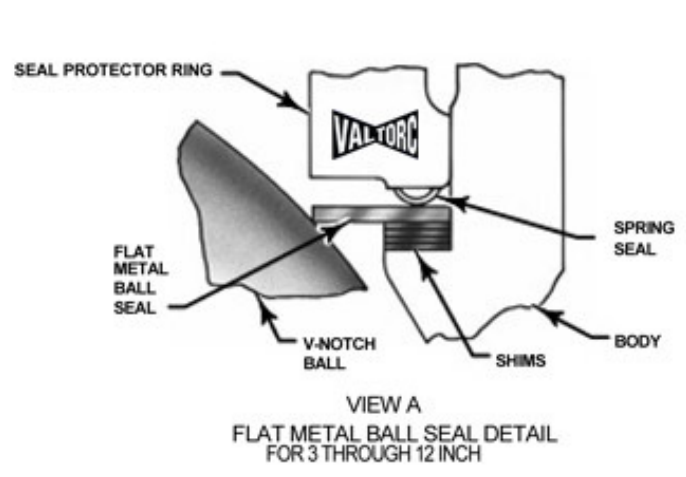
**Application Versatility**—The valves are available with ISA S75.04 and IEC 534-3-2 face-to-face dimensions as a standard construction, and optional ASME B16.10 short face-to-face

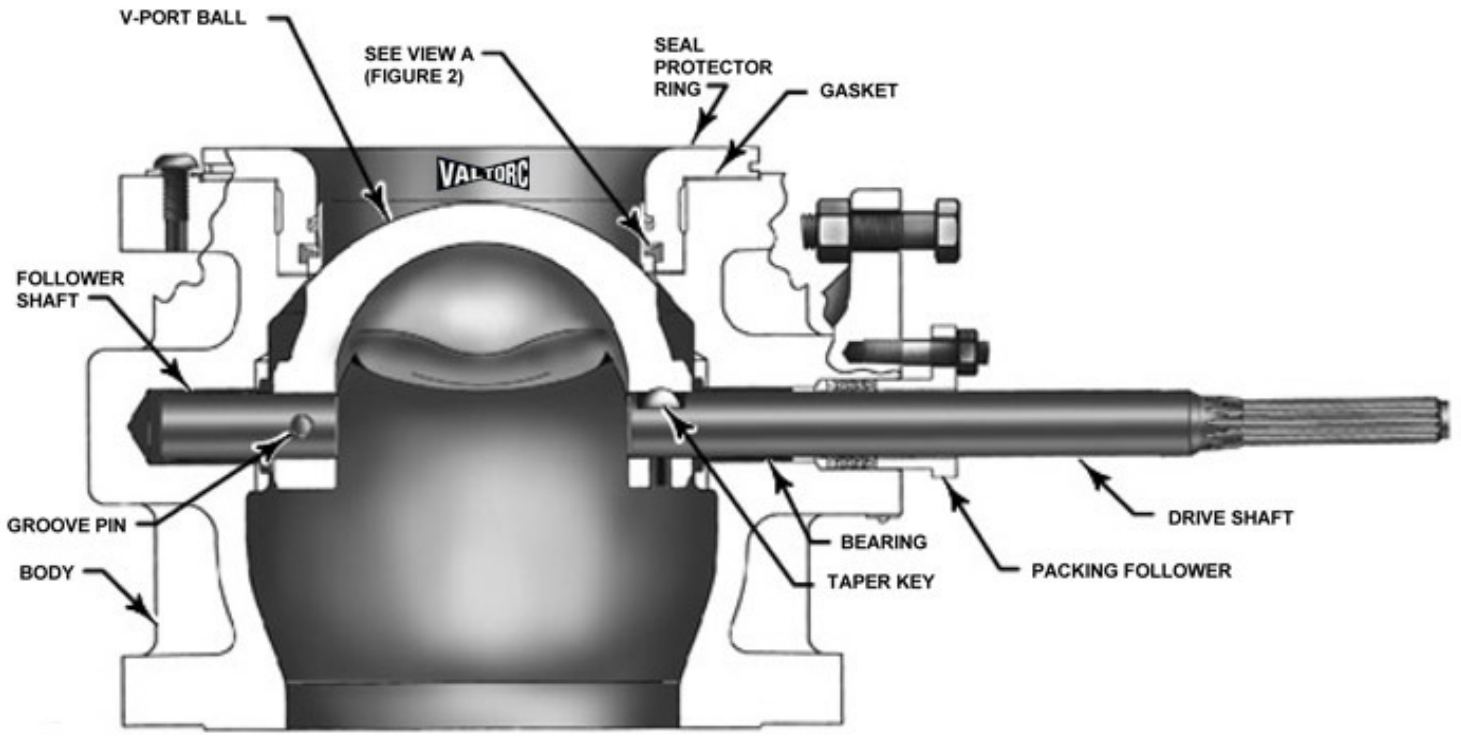
dimensions. IEC 534.3.2 face-to-face dimensions are equivalent to S75.04 face-to-face dimensions.

**Long Service Life**—The solid HD metal seal (figures 2 and 3) construction provides long service life in demanding applications. The constant wiping action of the seal across the ball's sealing surface prevents scale and sludge buildup, and provides excellent service on steam, gases, slurries, and various liquid applications.

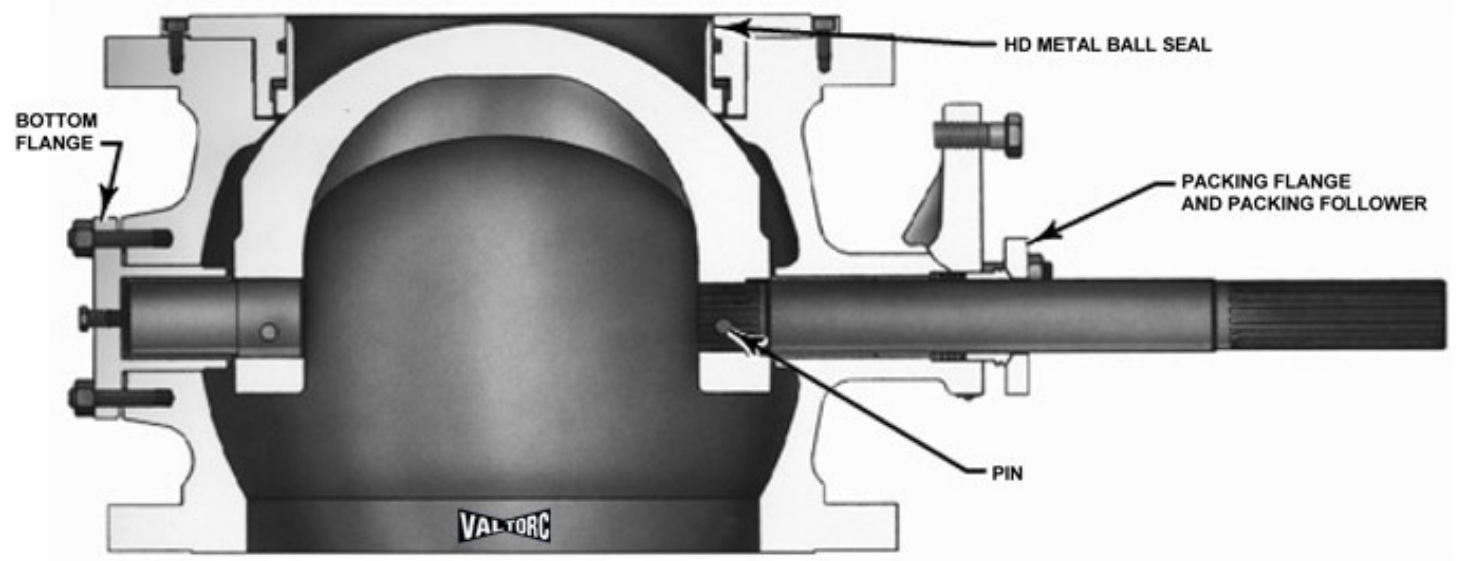
**Smooth Valve Operation**—Precision machined parts and pressure balanced seal designs allow smooth, precise movement of the ball.

**Excellent Flow Control**—Precise contouring of the V-Port Ball Valves provides a modified equal percentage flow characteristic.





3 THROUGH 12-INCH VALVES  
(HD BALL SEAL SHOWN)



14, 16, AND 20-INCH VALVES  
(HD METAL BALL SEAL)

Figure 3.

Table 9. Dimensions

VALVE SIZE	DESIGN V-PORT BALL VALVE DIMENSIONS (ISA S75.04) <sup>(1)</sup>										
	A	B	D	G	K	M(3)	N(3)	S Diameter	T	U	W
<b>DN</b>	mm										
25	102	56		83	95	78	71	13			
40	114	62	188	90	121	90	78	15.9 and 15.9 x 12.7	117	---	14.2
50	124	67		87	127	104	92	15.9 and 15.9 x 12.7			
80	165	79		100	130	104	98	19.1			14.2
100	194	101	214	133	141	117	98	19.1	152	31.8	14.2
150	229	109		151	164	124	112	25.4			17.5
200	243	124		184	232	131	124	31.8			
250	297	147	208	222	260	145	132	31.8	235	46.0	17.5
300	338	174		268	303	151	132	38.1			
<b>Inch</b>	Inch										
1	4.00	2.21		3.19	3.75	3.06	2.81	1/2			
1.5	4.50	2.46	7.38	3.38	4.75	3.56	3.06	5/8 and 5/8 x 1/2	4.62	---	0.56
2	4.88	2.63		4.19	5.00	4.11	3.61	5/8 and 5/8 x 1/2			
3	6.50	3.10		4.62	5.12	4.11	3.86	3/4			0.56
4	7.62	3.99	8.44	5.25	5.56	4.61	3.86	3/4	6.00	1.25	0.56
6	9.00	4.29		5.94	6.44	4.90	4.40	1			0.69
8	9.56	4.88		7.69	9.12	5.15	4.90	1-1/4			
10	11.69	5.77	8.19	8.75	10.25	5.69	5.19	1-1/4	9.25	1.81	0.69
12	13.31	6.87		10.56	11.94	5.94	5.19	1-1/2			
14 (2)	15.00	8.12		11.62	13.50	6.00	5.25	1-3/4	10.75	2.00	0.75
16 (2)	16.00	9.00	14.00	13.00	14.38	6.00	5.25	2-1/8	10.75	2.00	0.75
20	20.00	9.25		16.00	18.00	7.00	6.25	2-1/2	13.25	3.00	0.88

1. Inlet flange stud bolt length is longer than the standard length specified in ASME B16.5. See dimension M below.  
 2. 14- and 16-inch valves are available in ASME B16.10 short, only. See dimension A for ASME B16.10 short shown in figure 9.  
 3. Clearance necessary to remove flange bolts.

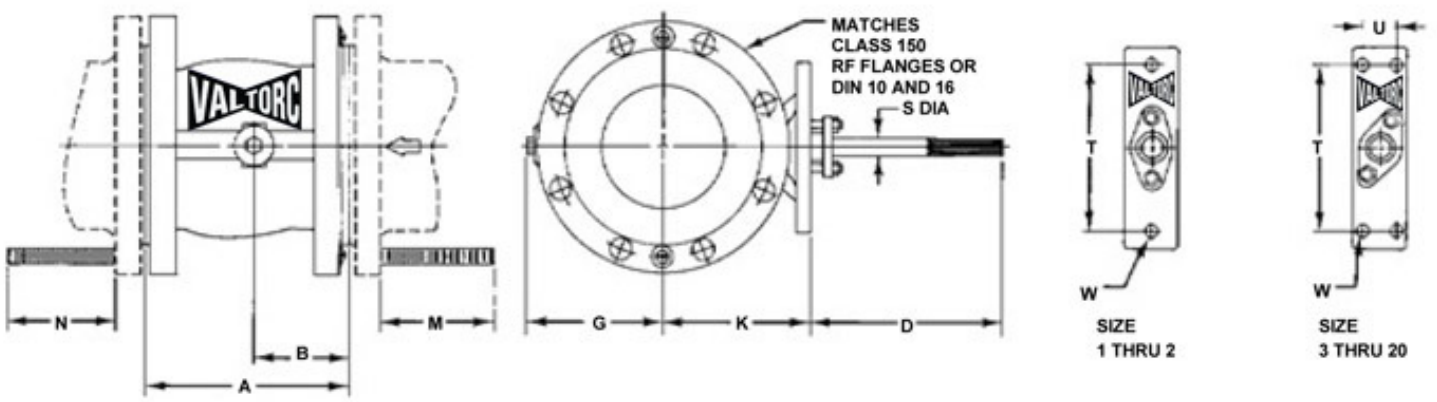


Figure 6