

**VALTORC**



Wafer & Lug  
Sizes 2" - 20"

**VALTORC SERIES 50/52**  
Resilient Seated Butterfly Valves

## Features

VALTORC is pleased to offer top-of-the-line products in pipeline flow control. The **VALTORC** Series 50 (wafer body) and Series 52 (lug body) Butterfly Valves have been developed with extensive application, design and manufacturing expertise. These products are produced in state-of-the-art manufacturing facilities and under a robust quality assurance system conforming to ISO 9001 and PED 97/23/EC. The VALTORC Series 50/52 Butterfly Valves have been designed to offer excellent features which are described below.

ISO 5211 top plate drilling and stem connection. All handles, gear operators and pneumatic actuators are designed to mount directly to VALTORC Valves.

Bi-directional 'U' cup stem seal.

Two flange locating holes for sizes up to 12" and four flange locating holes from size 14" to 20" for easy alignment of valve during installation.

Nylon PA 12 coated disc option ensures excellent corrosion resistance to several chemical media. The hard, non-porous sintered polymer has very low hygroscopicity and is suitable for use in drinking water and non-alcoholic foodstuffs.

One piece stem with close tolerance double D drive eliminates the need for disc screws or taper pins.

Double O-rings are molded in both upper and lower journals providing a superior secondary seal.

Unique "Center-Lock" seat design virtually eliminates any seat movement during the seating and unseating of the disc.

Unique stem retention system to provide blow-out proof stem assembly and easy disassembly of valve.

Heavy duty acetal bushing absorbs the forces acting on the stem/disc assembly due to line pressure.

Heavy duty one-piece body with extended neck for 2" piping insulation. Standard coating is epoxy polyester powder coat of semi-glossy finish with excellent corrosion resistance.

High strength disc with hand polished disc edge and hubs.

Precision machined radius on the upper and lower disc hubs is pressed against upper and lower seat sealing faces for achieving primary sealing between disc and seat.

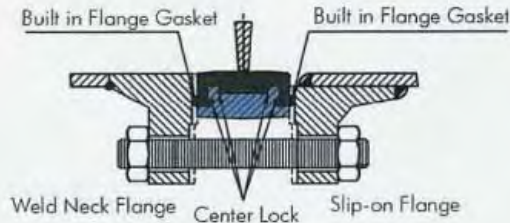
Heavy duty square-grooved seat design with molded O-ring seals to serve as flange gaskets. EPDM and Buna-N seats are peroxide cured to yield the best elastic properties of the elastomer.



## Highlights

### Center-Lock Seat Design

The "Center-Lock" heavy duty seat design incorporates rigid locking of the seat in the body at four points. This virtually eliminates any seat movement during seating and un-seating of the disc. The unique "Center-Lock" seat offers the rigidity of an in-situ molded liner valve and replaceability of a soft seated liner valve.



### Built in Flange Gasket

An O-ring is precisely molded on the face of the seat and serves as a flange gasket. Valves are designed for installation between ANSI class 125/150, BS EN 1092 PN 10 / PN 16 and BS10 Table D or E. Weld neck or slip-on raised face flanges can be used.

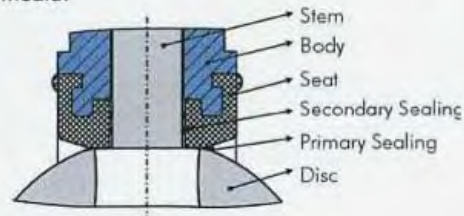
### Stem and Disc Connection

A close tolerance double D disc stem engagement provides all the advantages of a one-piece disc/stem connection. This eliminates the disadvantages associated with other disc/stem engagement methods such as taper pins and disc screws.



### Improved Disc/Seat/Stem Sealing

The disc/seat/stem interfacing area is designed for efficient sealing. A precision radius machined on the upper and lower disc hub is pressed into the seat sealing faces to ensure positive "primary sealing". Two molded O-rings in the upper and lower seat journals press against the stem shaft ensuring positive "secondary sealing". The sealing prevents the stem and body from coming into contact with line media.



### Stem Retention System

The valve stem is securely retained in the body with a stainless steel retaining washer. This washer is located on a step that is precision machined on the stem and is held in place by a high strength circlip fitted into a machined groove in the neck of the valve providing a "blow-out proof" stem assembly.

The stem retention is designed for easy on site disassembly with the use of standard tools only.



## Operators



Valves up to size 12" can be supplied with lever handles for manual operation. Optional accessories for hand-lever operation can be provided for various flow control requirements. Pad locking can also be provided for preventing unauthorized operation.

Valves up to size 20" can be direct mounted with gear operators for manual operation. Gear operators can also be attached with chain-wheel operators for opening or closing valves located on pipelines at high elevations.

All valves can be direct mounted with pneumatic actuators or electric actuators and accessories for complete automation options such as fail open/close & positioner controlled. Valves can be mounted with manual overrides.

## Specifications

Recommended specifications for VALTORC Series 50/52 Resilient Seated Butterfly Valves.

"Center-lock" seat design to prevent movement of seat during seating and un-seating of disc.

Lug body design to provide full pressure rating in closed position with downstream flange removed.

Seat to have two molded in O-rings in upper and lower journal areas. Standard coating is polyester epoxy powder coat of semi-glossy finish in "VALTORC Blue".

Flange locating holes that meet ANSI #125/150 or other world drilling standards.

Disc / stem engagement by through stem internal Double D drive requiring no disc screws or taper pins and no possible leak paths in disc / stem connections.

Blowout proof stem design utilizing a circlip in body and stem retaining washer. No part of stem or body exposed to media.

Square grooved seat design with primary and secondary seals. Molded O-ring on seat face suitable for weld neck and slip on flanges.

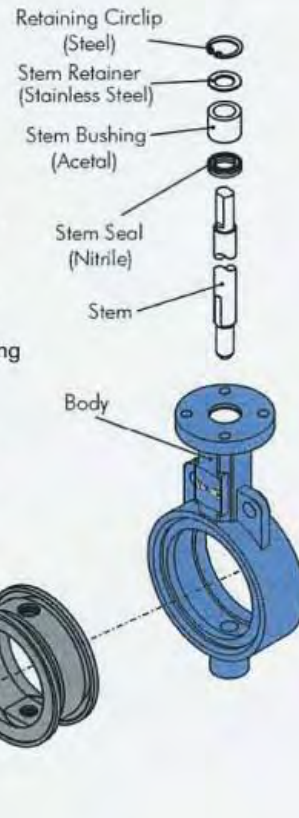
Spherically machined, radiused and hand polished disc edge and hub for minimum torque and maximum seat life.

Stem bushing in acetal and stem sealing with self-adjusting double U cup seal which seals in both directions.

Bi-directional and fully tested for 110% of rated working pressure for seat test and 150% of the rated working pressure for shell test.

Wafer body valves are designated VALTORC Series 50 and Lug body valves are designated VALTORC Series 52.

Nylon PA12 coated discs optionally available for superior corrosion resistance.



### Material Of Construction

#### Body

Cast Iron ASTM A126 Class B  
Ductile Iron ASTM A536 Grade 65-45-12  
Carbon steel ASTM A 216 WCB

#### Disc

Aluminum Bronze ASTM B148-C95400  
Nylon 12 Coated Ductile Iron ASTM A536 Grade 65-45-12  
316 Stainless Steel ASTM A351 Grade CF8M  
DI ASTM A 536 Grade 65-45-12 + Aroxy coated

#### Stem

431 Stainless Steel ASTM A479 Type431  
316 Stainless Steel ASTM A276 Type 316  
Carbon steel BS 970

#### Seat

EPDM - Food Grade  
Buna-N - Food Grade  
White Buna-N - Food Grade  
Viton®/FKM - Food Grade  
Silicone

### Seat Temperature Range

Seat Type	Temperature Range	
	Min.	Max.
EPDM	-13° F (-25°C)	248° F (120°C)
BUNA-N	-13° F (-25°C)	212° F (100°C)
White BUNA-N	-13° F (-25°C)	212° F (100°C)
Viton®/FKM	-23° F (-5°C)	392° F (200°C)
Silicone	-58° F (-50°C)	356° F (180°C)

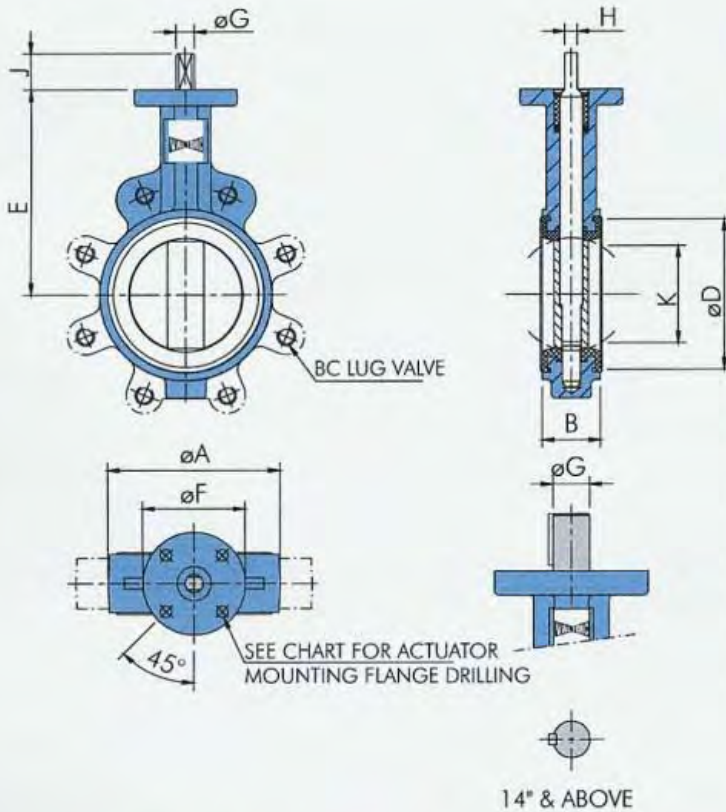
### Pressure Rating

For bi-directional bubble tight shut off with disc in the closed position

Inches	DN	PSIG
2"-12"	50-300	175
14"-20"	350-500	150

Viton® is registered trademark of E.I. DuPont

# Engineering



## Torques (Lb.-Inches)

Valve Size	Full Rated Pressure Valves $\Delta P$ (PSI)					Reduced Disc Dia $\Delta P$ (PSI)
	Inches	DN	50	100	150	175
2	50	89	97	102	106	89
2.5	65	133	159	164	168	133
3	80	177	204	212	221	177
4	100	283	301	319	328	186
5	125	381	416	451	469	283
6	150	566	637	681	726	372
8	200	1098	1221	1354	1416	752
10	250	1761	1983	2195	2301	1151
12	300	2629	2974	3319	3496	1761
14	350	3806	4381	4957	-	2540
16	400	4912	5904	6904	-	3284
18	450	6036	7576	9117	-	4054
20	500	7930	9931	11922	-	5284

- The above anticipated seating and unseating torques are to be used as a guide only and are for CLASS 1 services.
- VALTORC classifies seating and unseating torques in the following categories;
  - CLASS 1: General, clean and highly lubricating, non-corrosive services and the valve being frequently operated.
  - CLASS 2: General, less lubricating, mildly corrosive services and the valve being less frequently operated.
  - CLASS 3: Severe, dry and non-lubricating services, powders, slurries etc and the valve being infrequently operated.
- Dynamic torque values are not considered in the above data. When designing valve systems please consult VALTORC Technical Data Sheets.

## Dimensions (Inches)

Valve Size		$\varnothing A$	B*	D	E	F	Top Plate Drilling			$\varnothing G$	H	J	K	Lug Bolting Data			Weights In Lbs.	
Inches	DN						BC	No of Holes	Hole Dia					BC	No. of Holes	Threads UNC-2B	Wafer (Series 50)	Lug (Series 52)
2	50	3.46	1.62	2.83	5.51	3.54	2.76	4	0.39	0.55	0.39	1.25	1.13	4.75	4	5/8-11	5.50	7.70
2 1/2	65	4.02	1.75	3.43	5.98	3.54	2.76	4	0.39	0.55	0.39	1.25	1.87	5.50	4	5/8-11	6.38	8.36
3	80	4.72	1.75	4.06	6.30	3.54	2.76	4	0.39	0.55	0.39	1.25	2.63	6.00	4	5/8-11	7.70	9.24
4	100	5.94	2.00	5.20	7.09	3.54	2.76	4	0.39	0.63	0.43	1.25	3.41	7.50	8	5/8-11	12.32	17.60
5	125	6.89	2.12	6.14	7.56	3.54	2.76	4	0.39	0.75	0.51	1.25	4.46	8.50	8	3/4-10	14.08	21.56
6	150	7.68	2.12	7.09	8.07	3.54	2.76	4	0.39	0.75	0.51	1.25	5.53	9.50	8	3/4-10	15.84	24.86
8	200	10.31	2.50	9.45	9.49	5.91	4.92	4	0.55	0.87	0.63	1.25	7.40	11.75	8	3/4-10	31.68	40.48
10	250	12.60	2.50	11.50	10.75	5.91	4.92	4	0.55	1.18	0.87	2.00	9.53	14.25	12	7/8-9	47.30	62.70
12	300	14.65	3.00	13.46	12.24	5.91	4.92	4	0.55	1.18	0.87	2.00	11.37	17.00	12	7/8-9	67.10	91.30

Valve Size		$\varnothing A$	B*	D	E	F	Top Plate Drilling			$\varnothing G$	J	Key Size	K	Lug Bolting Data			Weights In Lbs.	
Inches	DN						BC	No of Holes	Hole Dia					BC	No. of Holes	Threads UNC-2B	Wafer (Series 50)	Lug (Series 52)
14	350	16.93	3.00	15.28	13.62	5.91	4.92	4	0.55	1.38	2.00	0.39x0.39	12.98	18.75	12	1-8	103.4	124.3
16	400	19.09	4.00	17.40	14.76	5.91	4.92	4	0.55	1.38	2.00	0.39x0.39	14.81	21.25	16	1-8	147.4	201.3
18	450	21.10	4.25	19.49	15.98	8.27	6.50	4	0.83	1.97	2.50	0.39x0.47	16.66	22.75	16	11/8-7	206.8	242.0
20	500	23.23	5.00	21.57	17.24	8.27	6.50	4	0.83	1.97	2.50	0.39x0.47	18.65	25.00	20	11/8-7	271.0	325.6

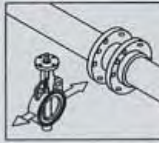
\* Face to Face dimension "B", generally conforming to API 609/ BS EN 558-1 / ISO 5752.

# Assembly / Disassembly

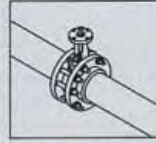
Installation

Note:

1. Prior to installation, clean the pipe flanges and valve faces.
2. Do not use flange gaskets.



Install valve between flanges with disc in 10° open condition.

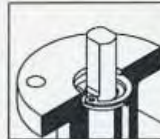


Center valve, install flange bolts and nuts, but do not tighten with wrench. Slowly turn the disc to full open position and ensure that disc OD clears pipe ID. Leave disc in full open position and tighten bolts as per specifications.

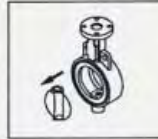
Disassembly

Note:

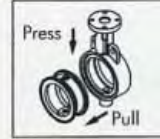
Remove any manual, pneumatic or electric actuator.



Remove circlip and pull stem out with retaining washer.

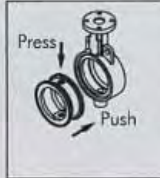


Remove disc as shown.

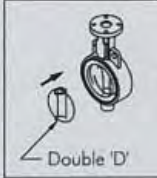


Remove seat as shown by pressing and disengaging the seat from body.

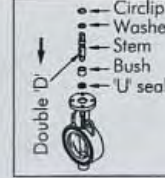
Assembly



Press the seat as shown and push into valve body with seat stem holes aligned to body stem holes. Apply silicone grease on seat ID (As required).



Insert disc taking care that double 'D' is at the bottom of the valve body.



Insert stem ensuring that double 'D' of stem aligns with double 'D' of disc. Insert double "U" cup seal, bushing, retaining washer and then install the circlip.

## How to order VALTORC valves

SERIES	SIZE	TRIM / OTHER VARIABLES / SPECIALS						
VALVE DESCRIPTION	2"=020 TO 20"=200	BODY	DISC	STEM	SEAT	RATING	OPERATOR	SPECIAL
50 : Wafer 1 Pc. Body 52 : Lug 1 Pc. Body	2"=020 14"=140 2 1/2"=025 16"=160 3"=030 18"=180 4"=040 20"=200 5"=050 6"=060 8"=080 10"=100 12"=120	1= C.I. 2= D.I. 3= WCB X= Special	1= D.I.+ Nylon coating 2= D.I.+ Aroxy Coating 3= Aluminium bronze 4= SS316 X= Special	1= SS431 2= SS316 3= CS X= Special	B= BunaN E= EPDM V= Viton® S= Silicone X= Special	1= 150/175PSI 3= 50PSI	B= Bare stem L= Lever G= Gear C= Chain wheel A= Automated	0= No special requirements. S= Special requirements as specified by customer.

For Example:- To order 12", 1 Pc. Body Lug Valve, Body- C.I., Disc- Aluminium bronze, Stem- SS431, Seat- BunaN, 175PSI, Gear operated, with no special requirements.

5 2 1 2 0 1 3 1 B 1 G 0

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DISTRIBUTOR

### VALTORC

P.O Box 1928 • 3105 Carter Circle  
Kennesaw, GA 30144  
Toll Free: 1.800.317.7101  
Phone: 770-423-7100 ~ Fax: 770-499-7483

Website : [www.VALTORC.com](http://www.VALTORC.com)

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# VALTORC

Soft Seat High Performance  
Butterfly Valves



**ACTUATED VALVE SPECIALISTS**  
 Industrial Valve Automation & Control  
 3105 Carter Circle P.O. Box 1928  
 Kennesaw, GA 30144 Kennesaw, GA 30156  
 (800) 317-7101

# VALTORC

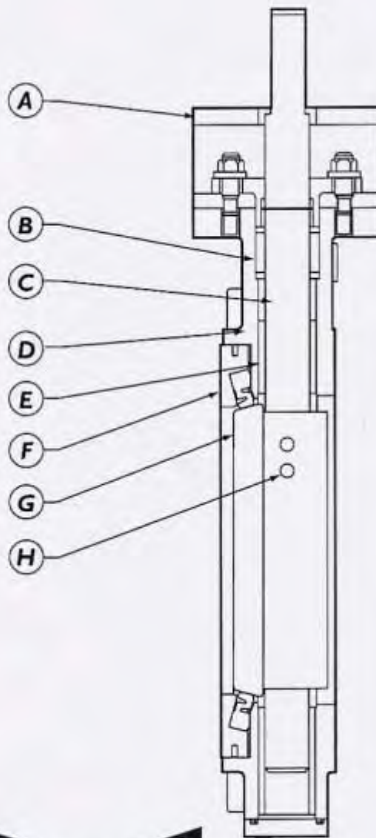
## Design Features

**A Mounting Pad**  
 The four-bolt actuator mounting pad readily accepts all types of actuation.

**B Adjustable Vee-Ring**  
 Multiple Vee-Ring PTFE stem packing is adjustable and easily accessible without requiring removal of the actuator.

**C One-Piece Shaft**  
 Constructed from 316 Stainless Steel. The shaft is internally retained meeting API 609 requirements.

**D Body**  
 Available in a one-piece wafer body or lug style for dead-end service. The valves provide bi-directional sealing at full ASME Class 150 ratings.



**E Bushings**  
 High temperature fiberglass composite backed RPTFE ensuring maximum shaft support.

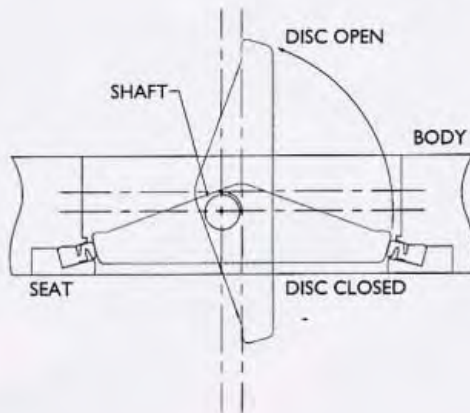
**F Seat Retainer**  
 Employs an uninterrupted gasket surface meeting API 609 requirements.

**G Disc Edge**  
 Machined and polished 360° to assure leak-proof positive shut-off. Standard material of construction is type 316 Stainless Steel.

**H Taper Pins**  
 Used to provide a solid mechanical connection between the disc and shaft.



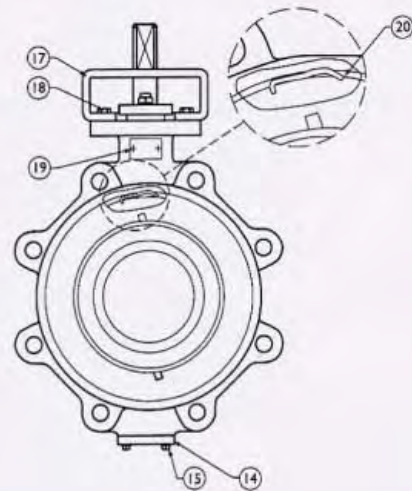
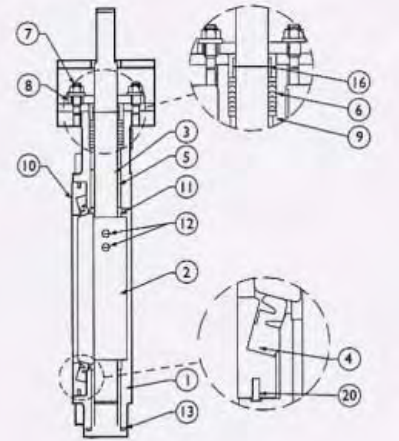
high performance butterfly valve is available in sizes 2 1/2" thru 12", wafer or lug body design. Available body materials are A216-WCB Carbon Steel and A351-CF8M Stainless Steel. These valves were designed to meet the stringent requirements for HVAC, Oil and Gas and Industrial applications.



The double offset shaft design assures bi-directional sealing throughout the full pressure range of the valve. The cam-like action produced by the offset disc effectively lifts the disc off the seat during the initial opening of the valve thus reducing seat wear and eliminating seat deformation. When the disc is in the open position no contact exists with the valve seat. This effectively reduces operating torques while extending seat life.

**Material Specifications**

Part No.	Part Name	Material	
		Carbon Steel	Stainless Steel
1	Body	ASTM A216-WCB	ASTM A351-CF8M (316 SS)
2	Disc	ASTM A351-CF8M (316 SS)	ASTM A351-CF8M (316 SS)
3	Shaft	ASTM A276-316	ASTM A276-316
4	Seat	PTFE/RPTFE	PTFE/RPTFE
5	Bushings x 2	High Temperature Fiberglass Composite Backed RPTFE	High Temperature Fiberglass Composite Backed RPTFE
6	Packing	PTFE - V-Type	PTFE - V-Type
7	Packing Hardware	300 Series Stainless Steel	300 Series Stainless Steel
8	Gland Retainer	ASTM A216-WCB	ASTM A351-CF8M (316 SS)
9	Inner Gland Ring	ASTM A276-316	ASTM A276-316
10	Seat Retainer	ASTM A351-CF8M (316 SS)	ASTM A351-CF8M (316 SS)
11	Thrust Washer	ASTM A276-316	ASTM A276-316
12	Disc Pin	ASTM A276-316	ASTM A276-316
13	O-Ring	Viton	Viton
14	End Cap	ASTM A351-CF8M (316 SS)	ASTM A351-CF8M (316 SS)
15	End Cap Hardware	300 Series Stainless Steel	300 Series Stainless Steel
16	Shaft Retainer Ring	ASTM A276-302	ASTM A276-302
17	Support	ASTM A216-WCB	ASTM A351-CF8M (316 SS)
18	Support Hardware	Plated Carbon Steel	300 Series Stainless Steel
19	Name Plate	300 Series Stainless Steel	300 Series Stainless Steel
20	Spring	Inconel X750	Inconel X750



**Standards of Construction**

Component	Standard
General Design	API 609, ASME B16.34
Laying Length	MSS-SP-68
Inspection and Testing	API 598

**Steam Rating (Saturated)**

Seat Material	W.S.P. psig (Bars)
RPTFE	150 (10.34)
PTFE	70 (4.82)

**Note:** Steam ratings refer to On-Off service only. For throttling applications, consult factory.

**Upper Pressure Limits (Non-Shock)**

Body Material	M.A.W.P. psig (Bars) <sup>1</sup>
WCB	285 (19.65)
CF8M	275 (18.96)

**Lower Temperature Limits**

Body Material	Lower Limit °F (°C)
WCB	-20 (-28.9)
CF8M	-20 (-28.9)

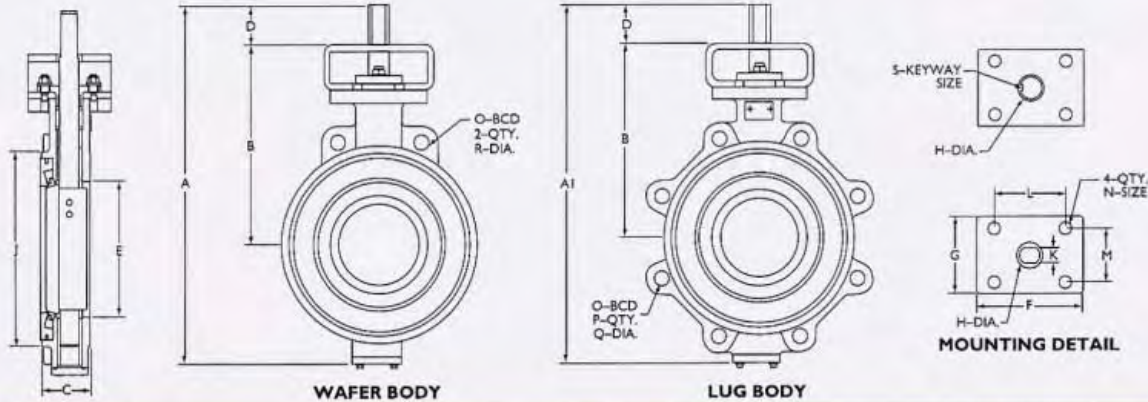
**Notes:** 1. Pressures refer to valve body only. Seat ratings may limit M.A.W.P.  
 2. Standard vacuum rating is 10 mm Hg.



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 (800) 317-7101



## Dimensions - Sizes 2 1/2" to 12"



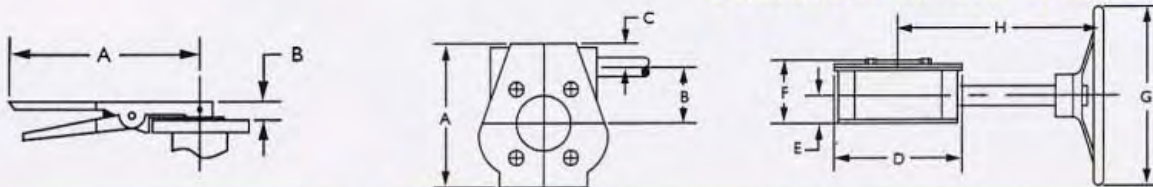
### Valve Dimensions

Size	A	A1	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S
in	in	in	in	in	in	in	in	in	in	in	in	in	in	in	in	in	in	in	in
(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
2 1/2"	10.91	10.91	6.61	1.88	1	2.75	3.56	2.75	0.5625	4.41	0.375	3.25	1.50	0.35	5.5	4	5/8"-11 UNC	0.69	-
65	277	277	168	48	25	70	90	70	14	112	10	83	38	9	140			18	
3"	11.75	11.75	7.00	1.88	1	3.38	3.56	2.75	0.5625	5.19	0.375	3.25	1.50	0.35	6	4	5/8"-11 UNC	0.69	-
75	298	298	178	48	25	86	90	70	14	132	10	83	38	9	152			18	
4"	13.88	14.38	8.56	2.13	1	4.31	3.56	2.75	0.6250	6.38	0.500	3.50	2.00	0.41	7.5	8	5/8"-11 UNC	0.69	-
100	353	365	217	54	25	109	90	70	16	162	13	89	51	10	191			18	
6"	16.13	16.56	9.75	2.25	1	6.25	5.31	3.75	0.8750	8.56	0.625	3.50	2.00	0.41	9.5	8	3/4"-11 UNC	0.81	-
150	410	421	248	57	25	159	135	95	22	217	16	89	51	10	241			21	
8"	18.75	19.25	10.63	2.5	1.75	8.25	5.31	3.75	1.1250	10.63	0.875	4.00	2.50	0.56	11.75	8	3/4"-11 UNC	0.81	-
200	476	489	270	64	44	210	135	95	29	270	22	102	64	14	298			21	
10"	22.75	23.63	12.25	2.81	2.93	10.31	5.31	3.75	1.1250	12.81	0.875	4.75	3.25	0.56	14.25	12	7/8"-11 UNC	0.94	-
250	578	600	311	71	74	262	135	95	29	325	22	121	83	14	362			24	
12"	26.25	27.38	14.38	3.19	3.03	12.25	4.93	3.75	1.2500	15.25	-	5.00	3.50	0.69	17	12	7/8"-11 UNC	0.94	0.25x1.38
300	667	695	365	81	77	311	125	95	32	387		127	89	18	432			24	

- Notes: 1. Quantity P and dimension Q refer to lug style. Dimension R refers to wafer style.  
 2. Valves are designed for installation between ASME B16.5 Class 150 flanges.  
 3. Gaskets are required.

4. Dimension H is +/- 0.0008"  
 5. Dimension K is +/- 0.001"  
 6. Dimension S is +/- 0.001"

### Manual Actuator Dimensions



#### Lever

Valve Size	A	B	Weight
in	in	in	Lb.
(mm)	(mm)	(mm)	(Kg)
2 1/2" - 4"	10.50	1.25	2
65-100	267	32	0.9
6" - 12"	14.13	1.97	5
150-300	359	50	2.3

#### Gear

Valve Size	A	B	C	D	E	F	G	H	Weight
in	in	in	in	in	in	in	in	in	Lb.
(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(Kg)
2 1/2" - 6"	5.00	1.75	1.13	4.13	1.31	2.63	6.00	7.63	10.4
65-150	127	44	29	105	33	67	152	194	4.7
8" - 12"	7.00	2.63	1.38	6.00	1.69	3.38	12.00	10.57	26.5
200-300	178	67	35	152	43	86	305	268	12

Note: It is recommended that handles be used thru 6" valve size for liquid or rated pressure service. 8" - 12" valves with handles should only be used on gas and low pressure applications.



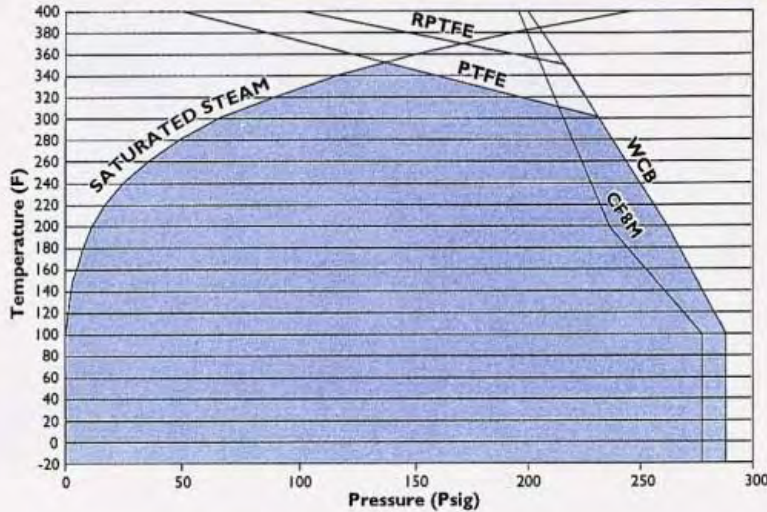


**ACTUATED VALVE SPECIALISTS**  
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 Kennesaw, GA 30144 Kennesaw, GA 30156  
 (800) 317-7101

# VALTORC

## Valve Sizing Data

### Pressure Temperature Chart



### CV Values (US-GPM @ 1 Psid)

Size in.	CV Rating
2 1/2"	90
3"	205
4"	403
6"	1075
8"	2243
10"	3885
12"	5925

**Note:** CV is defined as the volume of water in USGPM that will flow through a given restriction or valve opening with a pressure drop of one (1) psi at room temperature.

### Method Of Calculating Flow

#### Liquid Flow

$$Q_L = C_v \sqrt{\frac{\Delta P}{g}}$$

$Q_L$  = flow rate of liquid (gal./min.)  
 $\Delta P$  = differential pressure across the valve (psi)  
 $g$  = specific gravity of liquid; water = 1.000

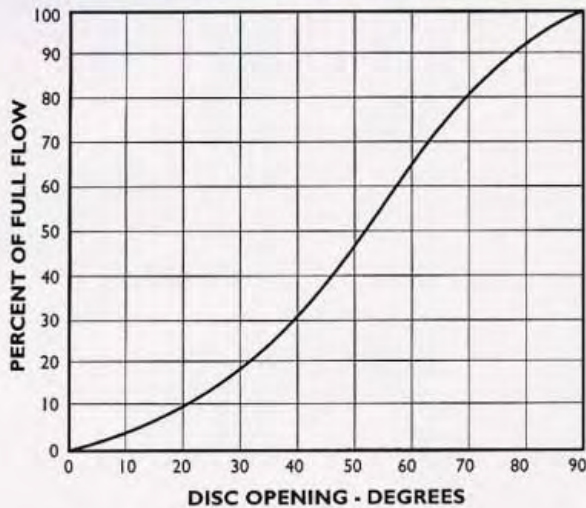
#### Gas Flow

For non-critical flow ( $\frac{\Delta P}{P_2} < 1.0$ )

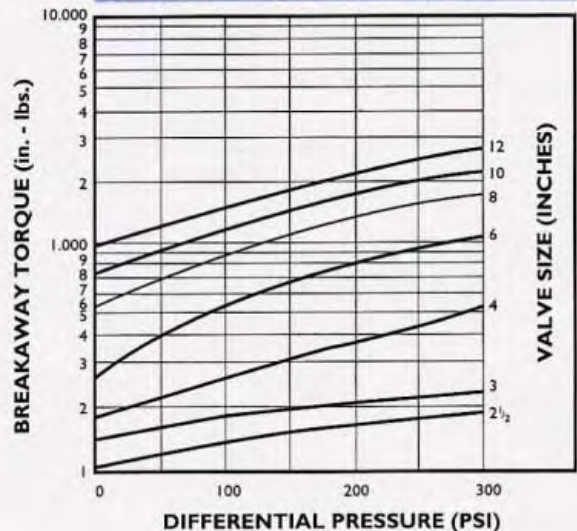
$$Q_g = 61 C_v \sqrt{\frac{P_2 \Delta P}{g}}$$

$Q_g$  = flow rate of gas (CFH at STP)  
 $P_2$  = outlet pressure (psia)  
 $g$  = specific gravity of gas; air = 1.000

### Typical Flow Characteristic Curve



### Valve Breakaway Torque (In. Lbs.)



- Notes:**
- Selection of actuator torque output must meet or exceed the maximum torque required by the valve.
  - Under certain conditions, hydrodynamic torque can exceed the breakaway torque and must be considered in selection of actuators.

# SANITARY BUTTERFLY

## 316L BUTTERFLY SERIES

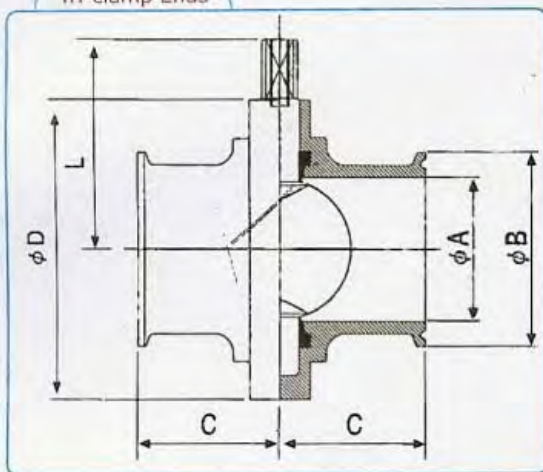
# VALTORC



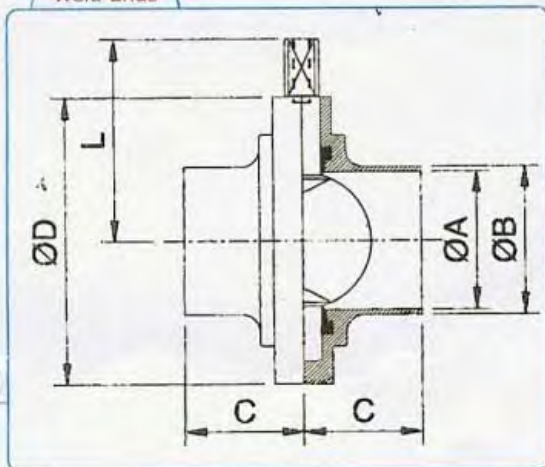
### FEATURES/SPECIFICATIONS:

- ASTM 316L grade stainless steel material
- Surface finish meets all 3-A, FDA & USDA standards and requirements
- 316L mirror finish disc helps provides an even flow preventing obstructions and restrictions
- VALTORC butterfly valve features a special "opposing" body bolt design that prevents the loosening between body sections due to vibration and usage. This positive sealing prevents the usual leaking and maintenance worries that are common in other sanitary butterfly valves.
- Body bolting is flush with the body's surface preventing obstruction or modifications needing to be made to the valve during actuation or when space is limited for installation
- FDA approved Silicone, EPDM and Viton Seals are available
- Special 304ss 13-position, spring loaded, lever lock handle
- Standard Connections are Tri-Clamp and Butt-Weld. Other end connections are available upon request
- Suitable for actuation with pneumatic, electric and canister actuators
- Pressure - 150 PSI @ 200 degrees F. (Approx. 95C)

Tri-clamp Ends



Weld Ends



size	A	B	C	D	L
1.0"	22.1	50.5	44.5	79	61
1.5"	34.8	50.5	44.5	85	64.3
2.0"	47.5	64.0	47.6	105	74.3
2.5"	60.2	77.5	48.4	112	77.6
3.0"	72.2	91.0	51.5	125	84.3
4.0"	97.6	119.0	51.5	157	101.6
6.0"	148.3	166.9	76.2	208.3	76.2



Description	Material	Qty
Body Half	316L	1
Disc	316L	1
Seal	Silicone/EPDM/Viton	1
Body Bolts	304	1
Notch Plate	304	1
Body Cap	Buna	1
Handle Cap	Buna	1
Handle Screw	304	1
13 Position Handle	304	1

size	A	B	C	D	L
1.0"	22.1	25.4	34	79	61
1.5"	34.8	38.1	38	85	64.3
2.0"	47.5	50.8	40	105	74.3
2.5"	60.2	63.5	40	112	77.6
3.0"	72.2	76.2	41	125	84.3
4.0"	97.6	101.6	44	157	101.6

Note: 6" Weld End also available