

Vic®-300 Butterfly Valves

PRODUCT DESCRIPTION



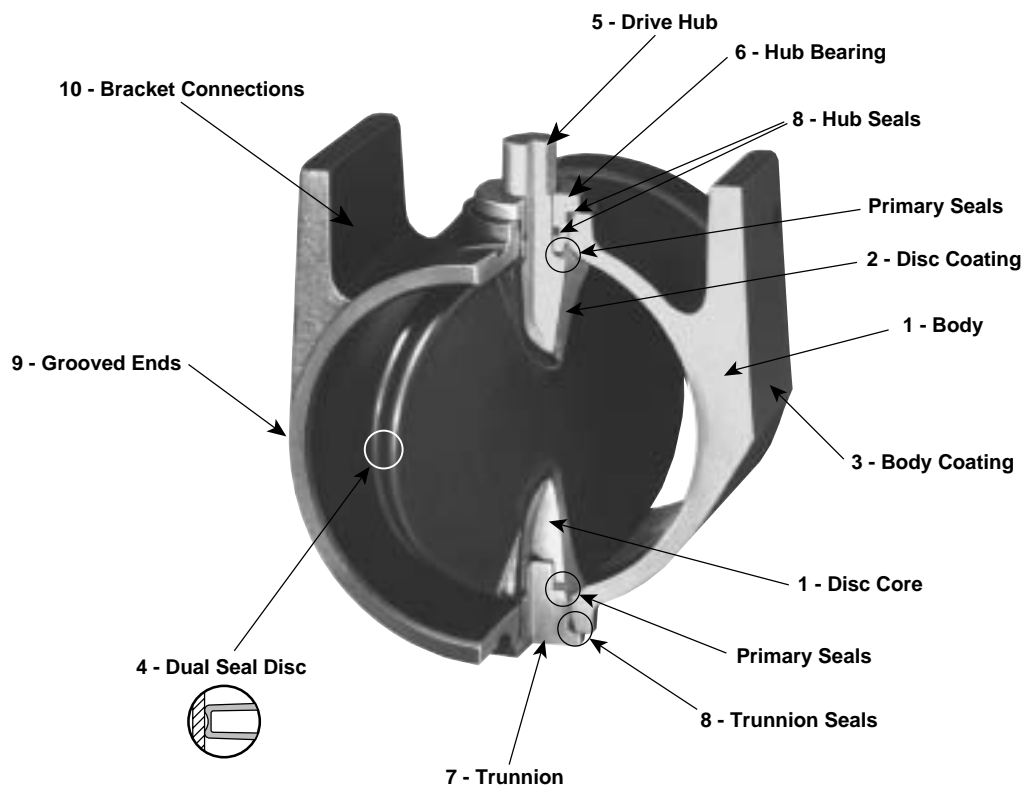
Vic®-300 butterfly valves are designed for pressures ranging from vacuum to 300 psi (2065 kPa). Vic-300 butterfly valves feature a narrow profile disc design with a smooth, coated inner body which combine for superior flow characteristics. This combination results in low break-away torque, reducing gear operator and actuator sizing and costs. Standard polyphenylene sulfide blend (PPS) coating accommodates a wide variety of severe services (epoxy coating is also available for severe services). The dual-seal disc provides bubble-tight sealing up to 300 psi (2065 kPa) in both directions without added valve modifications or cost.

Available disc coatings include EPDM for water service to +230°F (+110°C) and nitrile for oil services with the option of fluoroelastomer for corrosives and aromatics. The Vic-300 butterfly valve is available with manual handles, gear operators or automated in two-way and three-way configurations.

For fire protection services, see Series 705W butterfly valve; refer to Section 10.18.

FEATURES

- 1 **Body and Disc Core** – Cast of rugged ductile iron for durability and strength.
- 2 **Disc Coating** – Disc is encapsulated with various synthetic elastomers to accommodate varied service requirements.
- 3 **Body Coating** – Polyphenylene sulfide blend is heat fused to the entire body. Epoxy coating is also available.
- 4 **Dual Seal Disc** – Two molded-in rings assure inner body wiping action and a back-up seal for flow in both directions providing bubble-tight shut-off to 300 psi (2065 kPa).
- 5 **Drive Hub** – Cast integrally with the disc to provide direct disc drive and allow positive location of the disc.
- 6 **Hub Bearing** – 416 stainless steel (316 stainless available) bearing provides positive hub alignment.
- 7 **Trunnion** – 416 stainless steel (316 stainless available) trunnion.
- 8 **Hub and Trunnion Seals** – O-ring seals (of the same material as the disc coating) provide a secondary shaft seal.
- 9 **Grooved Ends** – Permits installation with two Victaulic grooved couplings.
- 10 **Bracket Connections (Vic-300/ Series 608)** – Side-wing connection permits bracket design to accept varied manual or power actuators.

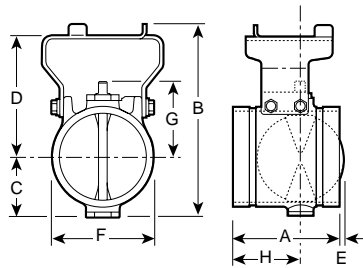


DIMENSIONS

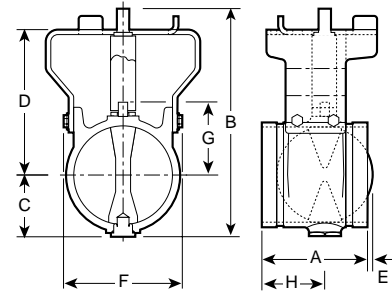
Vic-300 Butterfly Valves



4" with Gear Operator



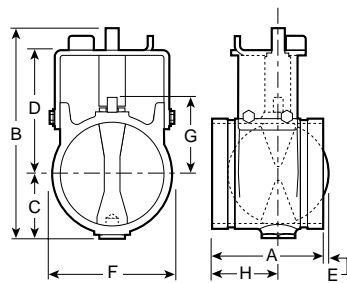
2 - 3" (typical)



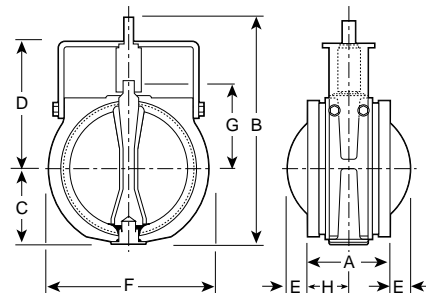
4 - 5" (typical)



2 Position Handle Available 2, 2 1/2 & 3" only



6" (typical)



8 - 12" (typical)



4" with Lever Lock Handle

Valve Size		Dimensions - Inches/millimeters											Aprx. Wgt. Each Lbs. kg
Nominal Dia. In./mm	Actual Out. Dia. In./mm	E - E A	Overall Height - B		C	D		E	F	G	H		
			Lever Lock/ Inf. Var. Handle	Gear Operator		Lever Lock/ Inf. Var. Handle	Gear Operator						
2 50	2.375 60.3	3.21 82	5.61 142	5.22 133	1.52 39	3.53 90	3.53 90	-	2.38 60	1.69 43	1.78 45	3.7 1.7	
2 1/2 65	2.875 73.0	3.77 96	6.11 155	5.72 145	1.80 46	3.92 100	3.92 100	-	2.88 73	2.25 57	2.31 59	4.1 1.9	
76,1 mm	3.000 76.1	3.77 96	6.11 155	5.72 145	1.80 46	3.92 100	3.92 100	-	3.02 77	2.25 57	2.31 59	4.8 2.2	
3 80	3.500 88.9	3.77 96	6.75 171	6.36 162	2.14 54	4.22 107	4.22 107	0.08 2	3.50 89	2.59 66	2.31 59	4.8 2.2	
4 100	4.500 114.3	4.63 118	9.03 229	9.25 235	2.71 69	5.15 131	5.28 134	0.07 2	5.88 149	3.19 81	2.79 71	10.5 4.8	
5 125	5.563 141.3	5.88 149	9.94 253	10.17 258	3.12 79	5.67 144	5.80 147	0.43 11	5.88 149	3.70 94	3.92 100	14.0 6.4	
139,7 mm	5.500 139.7	5.88 149	9.94 253	10.17 258	3.12 79	5.67 144	5.80 147	0.43 11	5.88 149	3.70 94	3.92 100	14.0 6.4	
6 150	6.625 168.3	5.88 149	10.89 277	12.05 306	3.61 92	6.15 156	6.94 176	1.00 25	7.50 191	4.16 106	3.96 101	19.0 8.6	
165,1 mm	6.500 165.1	5.88 149	10.89 277	12.05 306	3.61 92	6.15 156	6.94 176	1.00 25	7.50 191	4.16 106	3.96 101	19.0 8.6	
8 200	8.625 219.1	5.33 135	14.53 369	14.44 367	5.00 127	7.93 201	7.93 201	1.28 33	10.20 259	5.50 140	2.67 68	41.0 18.6	
10 250	10.750 273.0	6.40 163	17.20 437	16.67 423	5.94 151	8.68 221	8.68 221	1.72 44	12.20 310	6.69 170	320 81	59.0 26.6	
12 300	12.750 323.9	6.50 165	19.64 499	19.11 485	7.07 180	10.00 254	10.00 254	2.63 67	14.25 362	8.00 203	3.25 83	85.0 38.6	

For 14 - 24" (350 - 600 mm) butterfly valves, refer to 08.03.

Large diameter 14 - 24" (350 - 600 mm) butterfly valves are available rated to 300 psi (2065 kPa). Request publication 08.17.

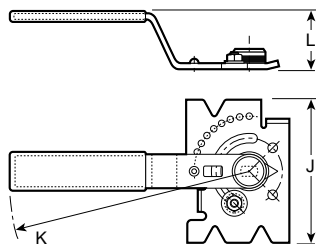
NOTE: Vic-300 valves in 6 - 12" (150 - 300 mm) sizes are not recommended for use in **dry** compressed air services. Contact Victaulic Engineering Services for recommendations.



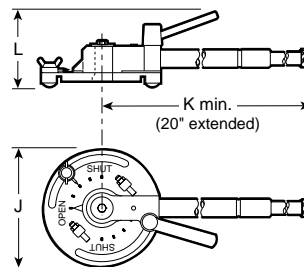
2 - 8" with Locking Device

DIMENSIONS

Lever Lock/Infinitely Variable Handle



2 - 8" Sizes

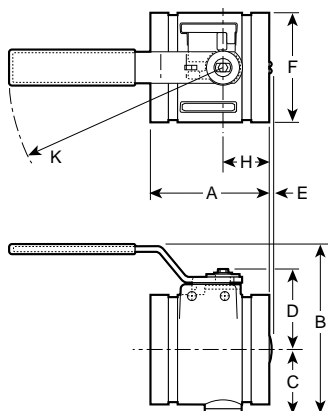


10 - 12" Sizes

Valve Size		Dimensions - Inches/millimeters			Aprx. Wgt. Ea Lbs./kg
Nominal Diameter In./mm	Actual Outside Dia. In./mm	J	K	L	
2 50	2.375 60.3	4.20 107	7.13 181	1.70 43	1.5 0.7
2 1/2 65	2.875 73.0	4.20 107	7.13 181	1.70 43	1.5 0.7
76,1 mm	3.000 76,1	4.20 107	7.13 181	1.70 43	1.5 0.7
3 80	3.500 88,9	4.20 107	7.13 181	1.70 43	1.5 0.7
4 100	4.500 114,3	6.88 175	10.50 267	2.50 64	1.5 0.7
5 125	5.563 141,3	6.88 175	10.50 267	2.50 64	1.5 0.7
139,7 mm	5.500 139,7	6.88 175	10.50 267	2.50 64	1.5 0.7
6 150	6.625 168,3	7.10 180	12.00 305	2.50 64	1.5 0.7
165,1 mm	6.500 165,1	7.10 180	12.00 305	2.50 64	1.5 0.7
8 200	8.625 219,1	8.88 225	16.00 406	2.50 64	4.5 2,0
10 250	10.750 273,0	7.13 181	11.66 296	4.57 116	12.0 5,4
12 300	12.750 323,9	7.13 181	11.66 296	4.57 116	12.0 5,4

NOTES: Handles for 2 - 8" (50 - 200 mm) valves come complete with hardware for both variations. 10 and 12" (250 and 300 mm) equipped with infinitely variable handle only.

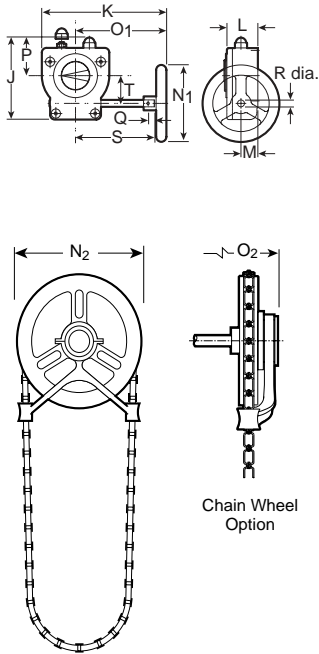
Two-Position Handle



Valve Size		Dimensions - Inches/millimeters								Aprx. Wgt. Ea Lbs./kg
Nominal Dia. In./mm	Actual Outside Dia. In./mm	End to End A	Overall Hgt. B	C	D	E	F	H	K	
2 50	2.375 60.3	3.21 82	4.07 103	1.52 39	2.06 52	-	2.38 60	1.43 36	6.56 167	2.2 1,0
2 1/2 65	2.875 73.0	3.77 96	5.30 135	1.80 46	2.40 61	-	2.88 73	1.46 37	6.81 173	2.9 1,3
76,1 mm	3.000 76,1	3.77 96	5.30 135	1.80 46	2.40 61	-	2.88 73	1.46 37	6.81 173	2.9 1,3
3 80	3.500 88,9	3.77 96	5.39 137	2.14 54	2.40 61	0.08 2	3.50 89	1.46 37	6.81 173	3.6 1,6

DIMENSIONS

Gear Operator

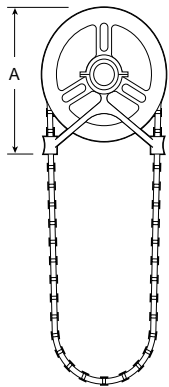


Valve Size		Dimensions - Inches/millimeters														No. Turns to Close	Aprx. Wgt. Each Lbs./kg
Nom. Dia. In. mm	Actual Out. Dia. In. mm	J	K	L	M	Handwheel		Chain Wheel		P	Q	R	S	T			
						N ₁	O ₁	N ₂	O ₂								
2	2.375	4.35	5.67	1.81	0.83	4.00	4.09	4.00	5.84	1.70	0.55	0.47	3.74	1.67	10	1.8 0.8	
50	60,3	111	144	46	21	100	104	100	148	45	14	12	95	43			
2 1/2	2.875	4.35	5.67	1.81	0.83	4.00	4.09	4.00	5.84	1.70	0.55	0.47	3.74	1.67	10	1.8 0.8	
65	73,0	111	144	46	21	100	104	100	148	45	14	12	95	43			
76,1 mm	3.000	4.35	5.67	1.81	0.83	4.00	4.09	4.00	5.84	1.70	0.55	0.47	3.74	1.67	10	1.8 0.8	
3	76,1	111	144	46	21	100	104	100	148	45	14	12	95	43			
80	3.500	4.35	5.67	1.81	0.83	4.00	4.09	4.00	5.84	1.70	0.55	0.47	3.74	1.67	10	1.8 0.8	
3	88,9	111	144	46	21	100	104	100	148	45	14	12	95	43			
4	4.500	4.35	5.67	1.81	0.83	4.00	4.09	4.00	5.84	1.70	0.55	0.47	3.74	1.67	10	1.8 0.8	
100	114,3	111	144	46	21	100	104	100	148	45	14	12	95	43			
5	5.563	4.35	5.67	1.81	0.83	4.00	4.09	4.00	5.84	1.70	0.55	0.47	3.74	1.67	10	1.8 0.8	
125	141,3	111	144	46	21	100	104	100	148	45	14	12	95	43			
139,7 mm	5.500	4.35	5.67	1.81	0.83	4.00	4.09	4.00	5.84	1.70	0.55	0.47	3.74	1.67	10	1.8 0.8	
6	139,7	111	144	46	21	100	104	100	148	45	14	12	95	43			
150	6.625	5.24	6.61	2.28	1.14	5.00	4.65	5.75	6.90	2.28	0.55	0.47	4.21	1.97	9.25	3.9 1.8	
6	168,3	133	168	48	29	125	118	146	175	58	14	12	107	50			
165,1 mm	6.500	5.24	6.61	2.28	1.14	5.00	4.65	5.75	6.90	2.28	0.55	0.47	4.21	1.97	9.25	3.9 1.8	
150	165,1	133	168	48	29	125	118	146	175	58	14	12	107	50			
8	8.625	6.99	10.55	2.87	1.44	6.50	7.68	7.50	10.06	3.25	0.55	0.59	6.69	2.36	11.25	7.2 3.3	
200	219,1	178	268	73	37	160	195	191	255	83	14	15	170	60			
10	10.750	6.99	10.67	2.87	1.44	8.00	7.79	9.00	10.17	3.25	0.55	0.59	6.69	2.36	11.25	7.2 3.3	
250	273,0	178	271	73	37	200	198	229	258	83	14	15	170	60			
12	12.750	6.99	10.67	2.87	1.44	8.00	7.79	9.00	10.17	3.25	0.55	0.59	6.69	2.36	11.25	7.2 3.3	
300	323,9	178	271	73	37	200	198	229	258	83	14	15	170	60			

*Contact Victaulic for details.

ACCESSORIES

Chain wheel and Guide



Chain wheels are mounted to the gear operator handwheels. Sprocket rim and guide arms are made of cast aluminum. Chain is galvanized steel.

HOW TO ORDER:

Specify type valve and operator by valve numbering system shown on back page.

Always specify length of chain required.

For insulation and locking device, contact Victaulic for details.

Valve Size		Dimensions - Inches/millimeters			Uses Chain Trade Size	Aprx. Wgt. Ea. Lbs./kg
Nominal Diameter In./mm	Actual Out. Dia. In./mm	Sprocket Size	Chain Wheel Size (Dia.)	A		
2 - 5 50 - 125	2.375-5.563 60,3 - 141,3	0	4.00 10	4.63 118	2	1.5 0.7
6 150	6.625 168,3	1	5.75 146	6.38 162	1/0	2.0 0.9
165,1 mm	6.500 165,1	1	5.75 146	6.38 162	1/0	2.0 0.9
8 200	8.625 219,1	1 1/2	7.50 191	7.75 197	1/0	2.2 1.0
10 & 12 250 & 300	10.750 & 12.750 273,0 & 323,9	2	9.00 229	10.50 267	1/0	3.5 1.6



Lever Lock with Locking Device



Lever Lock Bracket Insulation

PERFORMANCE

C_v Values

C_v values for flow of water at +60°F (+16°C) with various disc positions are shown in tables at right.

Formulas for C_v Values:

$$\Delta P = \frac{Q^2}{C_v^2}$$

$$Q = C_v \times \sqrt{\Delta P}$$








Where:

Q = Flow (GPM)

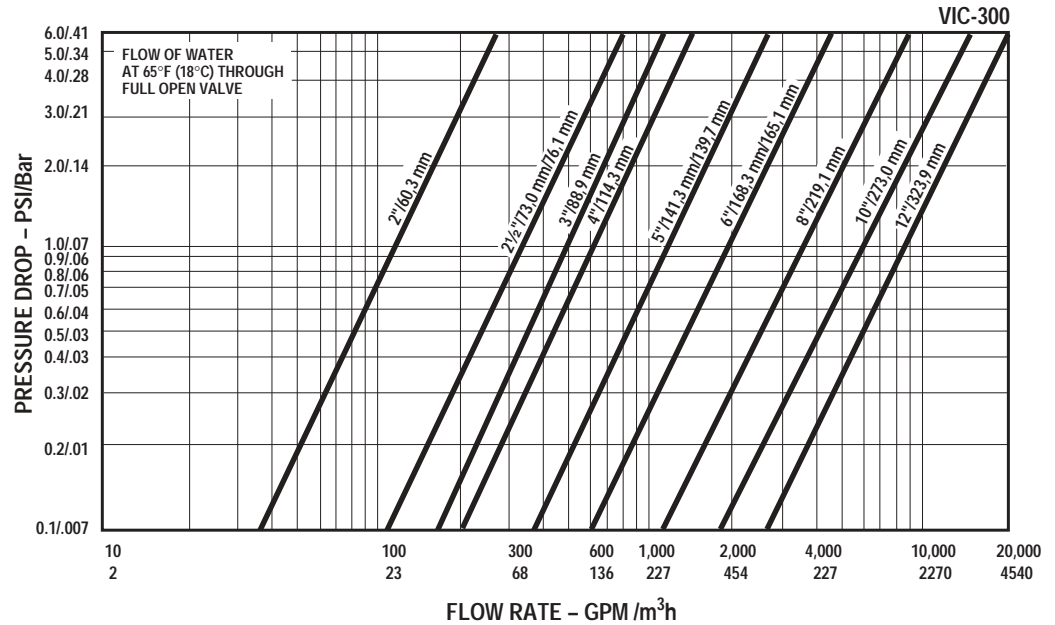
C_v = Flow Coefficient

ΔP = Pressure Drop (PSI)

Valve Size			Valve Size			Valve Size			Valve Size		
Nom. Dia. In./mm	Actual Outside Dia. In./mm	C _v (Full Open)	Nom. Dia. In./mm	Actual Outside Dia. In./mm	C _v (Full Open)	Nom. Dia. In./mm	Actual Outside Dia. In./mm	C _v (Full Open)	Nom. Dia. In./mm	Actual Outside Dia. In./mm	C _v (Full Open)
2 50	2.375 60,3	115	3 80	3.500 88,9	482	139,7 mm	5.500 139,7	1150	8 200	8.625 219,1	3400
2½ 65	2.875 73,0	325	4 100	4.500 114,3	600	6 150	6.625 168,3	1850	10 250	10.750 273,0	5750
76,1 mm	3.000 76,1	325	5 125	5.563 141,3	1150	165,1 mm	6.500 165,1	1850	12 300	12.750 323,9	8300

Valve Size		FLOW COEFFICIENTS - C _v						
Nominal Dia. In./mm	Actual Outside Dia. In./mm	Disc Position (Degrees open)						
		90° 	70° 	60° 	50° 	40° 	30° 	20° 
2 50	2.375 60,3	115	80	40	17	10	5	1
2½ 65	2.875 73,0	325	160	84	48	27	10	2
76,1 mm	3.000 76,1	325	160	84	48	27	10	2
3 80	3.500 88,9	482	196	114	73	44	18	3
4 100	4.500 114,3	600	450	230	148	85	42	3
5 125	5.563 141,3	1150	560	330	210	120	60	15
139,7 mm	5.500 139,7	1150	560	330	210	120	60	15
6 150	6.625 168,3	1850	960	600	380	240	130	45
165,1 mm	6.500 165,1	1850	960	600	380	240	130	45
8 200	8.625 219,1	3400	1910	1170	780	470	260	104
10 250	10.750 273,0	5750	3220	1980	1320	800	440	180
12 300	12.750 323,9	8300	4650	2850	1900	1150	640	250

FLOW CHARACTERISTICS



VALVE TORQUE REQUIREMENTS

Victaulic Vic-300 valves have low torque requirements for operating the valve. This results in less manual effort, smaller gear operators or smaller, less expensive actuators to open and close the valve.

The torque data listed below is the highest required to operate the valve at the given pressures in wet service. These torque values are based on extensive testing by Victaulic. These values are for normal wet service only and may vary for dry services or for lubricating fluids. Contact Victaulic for other services.

Valve Size		Torque Inch Pounds/Newton Meters				
Nominal Diameter In./mm	Actual Outside Dia. In./mm	*Differential Pressure – PSI/Bar				
		50/3	100/7	150/10	200/14	300/21
2	2.375	30	40	50	60	70
50	60.3	3,4	4,5	5,7	6,8	7,9
2½	2.875	50	60	80	95	120
65	73.0	5,7	6,8	9,0	10,7	13,6
76,1 mm	3.000	50	60	80	95	120
	76,1	5,7	6,8	9,0	10,7	13,6
3	3.500	70	90	110	130	170
80	88,9	7,9	10,2	12,4	14,7	19,2
4	4.500	150	250	250	350	500
100	114,3	17,0	28,3	28,3	39,5	56,5
5	5.563	300	350	350	450	550
125	141,3	33,9	39,5	39,5	50,8	62,1
139,7 mm	5.500	300	350	350	450	550
	139,7	33,9	39,5	39,5	50,8	62,1
6	6.625	500	600	700	800	950
150	168,3	56,5	67,8	79,1	90,4	107,3
165,1 mm	6.500	500	600	700	800	950
	165,1	56,5	67,8	79,1	90,4	107,3
8	8.625	1100	1150	1200	1250	1400
200	219,1	124	130	136	141	158
10	10.750	1550	1675	1800	1925	2150
250	273,0	175	189	203	217	243
12	12.750	1900	2000	2175	2350	2700
300	323,9	215	226	246	266	305

MATERIAL SPECIFICATIONS

Body: Ductile iron conforming to ASTM A-395, grade 65-45-15, and ASTM A-536, grade 65-45-12

Body Coating: PPS–Polyphenylene sulfide blend, UL classified in accordance with ANSI/NSF 61 for cold +86°F (+30°C) and hot +180°F (+82°C) potable water service.

- **Optional:** Epoxy

Disc: Ductile iron conforming to ASTM A-536

Disc Coating: (specify choice)

- **Grade “E” EPDM**

EPDM (Green color code). Temperature range –30°F to +230°F (–34°C to +110°C). Recommended for cold and hot water service within the specified temperature range plus a variety of dilute acids, oil-free air and many chemical services. UL classified in accordance with ANSI/NSF 61 for cold +86°F (+30°C) and hot +180°F (+82°C) potable water service. NOT RECOMMENDED FOR PETROLEUM SERVICES.

- **Grade “T” nitrile**

Nitrile (Orange color code). Temperature range –20°F to +180°F (–29°C to +82°C). Recommended for petroleum products, air with oil vapors, vegetable and mineral oils within the specified temperature range. Not recommended for hot water services over +150°F (+66°C) or for hot dry air over +140°F (+60°C).

- **Optional: Grade “O” fluoroelastomer**

Fluoroelastomer (Blue color code). Temperature range for continuous service up to +300°F (+149°C). Recommended for many oxidizing acids, petroleum oils, halogenated hydrocarbons, lubricants, hydraulic fluids, organic liquids and air with hydrocarbons to +300°F (+149°C).

*Services listed are General Service Recommendations only. It should be noted that there are services for which these gaskets are not recommended. Reference should always be made to the latest Victaulic Gasket Selection Guide for specific gasket service recommendations and for a listing of services which are not recommended.

NOTE: When connecting Vic-300 butterfly valves to Style 741 or Style 743 Vic-Flange® adapters, please contact Victaulic.

Drive Hub Adapter: Hot rolled steel, black enamel coated

Upper Bearing/Lower Trunnion Seals: Same as Disc Coating

Upper Bearing/Lower Trunnion: 416 stainless steel

- **Optional:** Type 316 stainless steel (standard when Grade “O” fluoroelastomer is specified)

Operator Bracket: Hot rolled steel, black enamel coated

Bracket Bolts/Washers: Cold rolled steel, zinc plated

Operator: (specify choice)

- **2 - 3" (50 - 80 mm) Two-position detent manual handle:** Hot rolled steel, black enamel coated
- **Manual lever lock/ininitely variable handle:** Hot rolled steel, black enamel coated
- **Manual gear operator with handwheel**
- **Optional:** Memory stop
- **Optional:** Chain wheel

Electric actuator §

Pneumatic actuator §

§ Sizing of actuator is dependent on service. Contact Victaulic for details.

IMPORTANT INSTALLATION CONSIDERATIONS

For installing a Victaulic butterfly valve into a piping system, follow the instructions supplied with the coupling. Refer to the notes below for applications/limitations.



DO NOT INSTALL BUTTERFLY VALVES INTO THE SYSTEM WITH THE DISC IN THE FULLY OPEN POSITION.

When using butterfly valves for throttling service, Victaulic recommends the disc be positioned not less than 30 degrees open. For best results, the disc should be between 30 and 70 degrees open. High pipeline velocities and/or throttling with the disc less than 30 degrees open may result in noise, vibration, cavitation, severe line erosion, and/or loss of control. For details regarding throttling services, contact Victaulic.

Victaulic recommends that flow velocities for water service are limited to 20 ft/sec (6,1 m/sec). When higher flow velocities are necessary, contact Victaulic. When dealing with flow media other than water, contact Victaulic.

NOTE: Vic-300 valves in 6 - 12" (150 - 300 mm) sizes are not recommended for use in **dry** compressed air services. Contact Victaulic Engineering Services for recommendations.

Victaulic Butterfly Valves are designed with grooved ends for use with grooved pipe couplings. If flange connections are required, refer to the following notes regarding Vic-Flange Adapter restrictions.

- Style 741 Vic-Flange Adapters can be used only on one side of 2 - 8 inch (50 - 200 mm) Vic-300 Butterfly Valves.
- Style 741 Vic-Flange Adapters **cannot** be used on 10 - 12 inch (250 - 300 mm) Vic-300 Butterfly Valves.
- Vic-300 Butterfly Valves cannot be directly connected to flanged components with Style 743 Vic-Flange Adapters. A No. 46 ANSI 300 groove by flange adapter is required.

Butterfly Valve Numbering System for Vic-300

Size		Fig. No.	Pressure Rating	Body	Disc/Trim	Bracket	Operator
Type	Actual In.						
V	2"	020	3 - 300 psi	3 - Epoxy coated iron 5 - PPS coated iron 9 - Special*	1 - Nitrile/Bronze-"T" 2 - EPDM/Bronze-"E" 3 - Fluoroelastomer/ Stainless Steel-"O" 4 - Nitrile/Stainless Steel-"T" 5 - EPDM/Stainless Steel-"E" 9 - Special*	0 - No Bracket (2) 2 - Standard 3 - Standard with insulation 9 - Special*	00 - Bare 11 - Lever handle with memory stop 15 - 2 position detent handle (sizes 2", 2½", 76.1 mm & 3" only) 20 - Gear operator 21 - Gear operator with memory stop 22 - Gear operator with chain wheel 23 - Gear operator with AWWA square oper. nut 24 - Gear operator with memory stop and chain wheel 29 - Non-std. gear operator* VV - Pneumatic* WW - Electric* YY - Hydraulic* LD - 10 position handle with tamper-proof lever handle
	2½"	024					
	76,1 mm	076					
	3"	030					
	4"	040					
	5"	050					
	139,7 mm	139					
	6"	060					
	165,1 mm	165					
	8"	080					
	10"	100					
	12"	120					

NOTES: (2) Used with 2 position detent handle only * Details required