

DeVal[®] SERIES 40/41

Industrial Split Body Butterfly Valves

Sizes 2"-24" / DN 50 - DN 600

Wafer & Lug Design



Leading the Industry with Innovation by Design

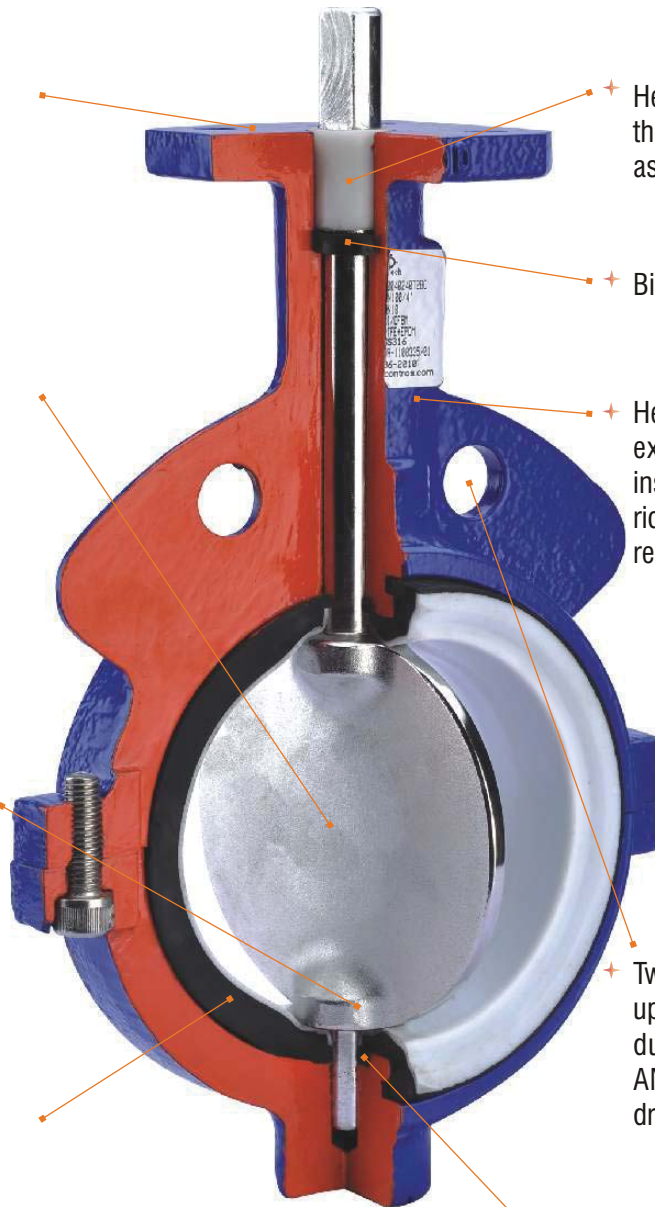
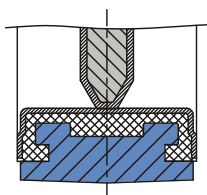


Jamieson Equipment Company
www.jamiesonequipment.com
toll free 800.875.0280

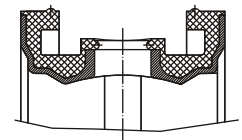
DelTech Controls is pleased to offer top-of-the-line products in pipeline flow control. The DelVal Series 40 (wafer body) and Series 41 (lug body) Industrial Split Body Butterfly Valves have been developed with extensive application, design and manufacturing expertise. These products are produced by employing modern manufacturing practices under a robust quality assurance system. These practices ensure consistent product quality and dependable performance. The DelVal Series 40/41 Industrial Split Body Butterfly Valves have been designed to include state-of-the-art features that are described in this bulletin.

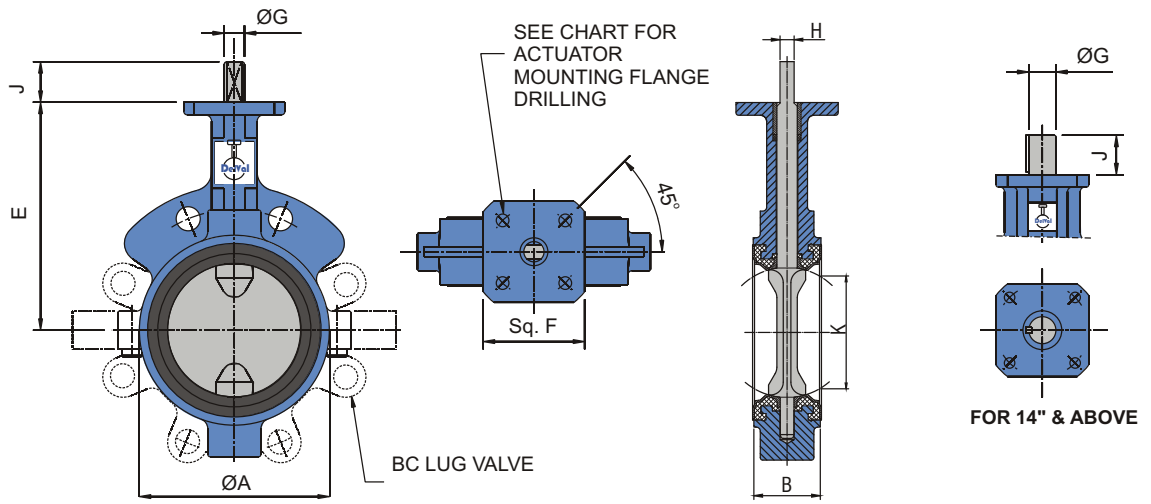
Features

- + Top plate drilled to fit ISO 5211 bolt circle dimensions. All handles, gear operators and DelTorq actuators are designed to mount directly to DelVal Valves.
- + One-piece disc/stem in high strength design. Available in options such as 316 stainless steel (thin profile, with hand polished edge and hubs), PTFE, Nylon 12 Coated or rubber covered with the covering extending on the stem in the sealing area.
- + 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 stem.
- + Unique heavy-duty, square grooved "Center Lock" seat design virtually eliminates any seat movement during the seating and unseating of the disc. Available in PTFE lined EPDM and various elastomer materials.



- + Heavy-duty acetal bushing absorbs the forces acting on the stem/disc assembly due to line pressure.
- + Bi-directional "U" cup stem seal.
- + Heavy-duty, two-piece body with extended neck for 2" piping insulation. Two coats of hard, zinc-rich epoxy for excellent corrosion resistance is optional.
- + Two flange locating holes for sizes up to 12" for easy alignment of valve during installation. They meet ANSI#125/150 or other world drilling standards.
- + O-ring molded in both upper and lower journals provide superior secondary seal.





DIMENSIONS (Inch)

Valve Size		ØA	*B	E	Sq'F	Top Flange Drilling			ØG	H	J	Key Size	K	Lug Bolting Data			Weight in Lbs.	
Inch	DN					BC	No. of Holes	Hole Dia						BC	No. of Holes	Threads UNC-2B	Wafer (Series 40)	Lug (Series 41)
2	50	3.46	1.62	5.51	3.15	2.76	4	0.39	0.55	0.39	1.25	---	1.32	4.75	4	5/8-11	5.07	6.79
2 1/2	65	4.02	1.75	5.98	3.15	2.76	4	0.39	0.55	0.39	1.25	---	2.05	5.50	4	5/8-11	5.80	7.91
3	80	4.72	1.75	6.30	3.15	2.76	4	0.39	0.55	0.39	1.25	---	2.70	6.00	4	5/8-11	6.83	8.92
4	100	5.91	2.00	7.09	3.15	2.76	4	0.39	0.63	0.43	1.25	---	3.61	7.50	8	5/8-11	10.87	16.37
5	125	6.89	2.12	7.56	3.93	2.76/4.01	4	0.39/0.47	0.75	0.51	1.25	---	4.62	8.50	8	3/4-10	13.91	21.56
6	150	7.87	2.12	8.07	3.93	2.76/4.01	4	0.39/0.47	0.75	0.51	1.25	---	5.50	9.50	8	3/4-10	16.31	25.35
8	200	10.04	2.50	9.49	4.72	2.76/4.01/4.92	4	0.39/0.47/0.55	0.87	0.63	1.25	---	7.39	11.75	8	3/4-10	28.00	37.92
10	250	12.21	2.50	10.75	4.72	4.01/4.92	4	0.55	1.18	0.87	2.00	---	9.31	14.25	12	7/8-9	49.09	61.73
12	300	14.17	3.00	12.24	4.72	4.92	4	0.55	1.18	0.87	2.00	---	11.12	17.00	12	7/8-9	60.85	92.26
14	350	16.34	3.00	13.62	4.72	4.92	4	0.55	1.38	---	2.00	0.39x0.39	12.92	18.75	12	1-8	87.96	122.80
16	400	18.58	4.00	14.76	4.72	4.92	4	0.55	1.38	---	2.00	0.39x0.39	14.80	21.25	16	1-8	130.51	184.31
18	450	20.67	4.25	15.98	6.70	6.50	4	0.83	1.97	---	2.50	0.39x0.47	16.59	22.75	16	11/8-7	194.45	239.42
20	500	22.83	5.00	17.24	6.70	6.50	4	0.83	1.97	---	2.50	0.39x0.47	18.61	25.00	20	11/8-7	236.78	306.88
24	600	27.24	5.94	19.49	Ø8.27	6.50	4	0.83	2.50	---	4.00	0.62x0.62	22.55	29.50	20	11/4-7	385.81	477.08

DIMENSIONS (mm)

Valve Size		ØA	*B	E	Sq'F	Top Flange Drilling			ØG	H	J	Key Size	K	Lug Bolting Data			Weight in Kg.	
Inch	DN					BC	No. of Holes	Hole Dia						BC	No. of Holes	Threads UNC-2B	Wafer (Series 40)	Lug (Series 41)
2	50	91	41	140	80	70	4	10	14	10	32	---	33.5	120.7	4	5/8-11	2.30	3.08
2 1/2	65	105	44	152	80	70	4	10	14	10	32	---	52.1	139.7	4	5/8-11	2.63	3.59
3	80	120	44	160	80	70	4	10	14	10	32	---	68.5	152.4	4	5/8-11	3.10	4.05
4	100	150	51	180	80	70	4	10	16	11	32	---	91.7	190.5	8	5/8-11	4.93	7.42
5	125	175	54	192	100	70/102	4	10/12	19	13	32	---	117.3	215.9	8	3/4-10	6.31	9.78
6	150	205	54	205	100	70/102	4	10/12	19	13	32	---	139.7	241.3	8	3/4-10	7.40	11.50
8	200	259	64	241	120	70/102/125	4	10/12/14	22	16	32	---	187.6	298.5	8	3/4-10	12.70	17.20
10	250	310	64	273	120	102/125	4	14	30	22	51	---	236.4	362.0	12	7/8-9	20.00	28.00
12	300	364	76	311	120	125	4	14	30	22	51	---	282.4	431.8	12	7/8-9	27.60	41.85
14	350	415	76	346	120	125	4	14	35	---	51	10x10	328.3	476.2	12	1-8	39.90	55.70
16	400	472	102	375	120	125	4	14	35	---	51	10x10	375.8	539.7	16	1-8	59.20	83.60
18	450	525	108	406	170	165	4	21	50	---	64	10x12	421.4	577.8	16	1 1/8-7	88.20	108.60
20	500	580	127	438	170	165	4	21	50	---	64	10x12	472.6	635.0	20	1 1/8-7	107.40	139.20
24	600	692	151	495	Ø210	165	4	21	63.5	---	102	15.88x15.88	572.7	749.3	20	1 1/4-7	175.00	216.40

*Face to face dimension "B" generally conforming to API 609 Category A/BS EN 558-1 Series 20/ISO 5752 Series 20 / MSS SP 67 / ASME B 16.10

TORQUE (Lbf-Inch)

Valve Size	2"	2.5"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	
Full Rated Pressure Valve ΔP, PSI	50	124	166	281	352	460	627	1221	1957	2948	4060	5582	7685	9815	15640
	100	159	196	331	414	542	737	1437	2302	3468	4777	6567	9253	11547	18400
	150	195	230	389	487	637	867	1690	2708	4080	5620	7726	10886	13585	21647

TORQUE (Nm)

Valve Size	3.5	14	19	32	40	52	71	138	221	333	459	631	889	1109	1767
Full Rated Pressure Valve ΔP, Bar	7	18	22	37	47	61	83	162	260	392	540	742	1046	1305	2079
	10	22	26	44	55	72	98	191	306	461	635	873	1230	1535	2446

Note : Above Torque values are for valves with SS disc and Teflon / elastomer seat.
For torque values with Teflon disc and Teflon seat / Elastomer lined disc and Elastomer seat ,multiply the value by 1.4

Specifications

The Series 40/41 valve has a two-piece (split body) cast iron body available in wafer and full lug construction. All wafer valves have a flange with locating holes that meet ANSI Class 125/150 (or BS 10 Table D and E, BS 4504 PN10/16, DIN PN 10/16, AS 2129 and JIS 10) drilling. The disc/stem is a one-piece design having a thin profile, high flow capacity disc. If a PTFE or rubber covered disc is required, the entire disc material is encapsulated and the encapsulating material is homogeneous up and down a portion of the stem so as not to expose any part of the stem or disc to the line media. The seat is of the heavy-duty, square groove "center lock" seat design with primary hub seal and molded O-ring. The 316 SS disc has spherically machined and hand polished disc edge and hubs for minimum torque and maximum sealing capacity. The valve has a non-corrosive bushing and a self-adjusting stem seal.

Pressure Rating : Valve is bi-directional and tested to 110% of full rating. EPDM or Buna N molded disc/stem with resilient seat are rated at 150 psi. PTFE molded disc/stem with PTFE seat are rated at 150 psi.

Dead-End Service : Lug bodies for use in dead end services with no downstream flanges are equal to bi-directional ratings as stated above. The valve design permits optimum performance without any field adjustment. The valve is a DelVal Series 40 Wafer / 41 Lug Teflon Butterfly valve or equal.

PTFE Advantages and Applications :

PTFE is a superior material for use in highly corrosive applications. It is inert to most chemicals at high temperatures and pressures. It also has a low coefficient of friction. PTFE is ideal for use in the chemical industry, in processes with hazardous fluids, in the food and beverage industry, pharmaceutical facilities, electronics production plants and other industries where the media must not come in contact with any organic or metallic materials.

Codes and Standards :

General Design and Manufacturing Standards : API 609 / BS EN 593 / MSS SP-67

Testing Standards : API 598 / BS EN 12266-1 / MSS SP-67

Material Selection

Body :

- ◆ Epoxy Painted Cast Iron ASTM A126 Class B
- ◆ Ductile Iron ASTM A 536 65-45-12
- ◆ 316 Stainless steel ASTM A 351 CF8M
- ◆ Carbon Steel ASTM A 216 WCB

Seat :

- ◆ Buna-N - Food Grade
- ◆ EPDM - Food Grade
- ◆ VITON® / FKM
- ◆ White Buna-N - Food Grade
- ◆ White EPDM - Food Grade
- ◆ PTFE - Lined EPDM

Seat Temperature Range:

Seat Type	Temperature Range	
	Min.	Max.
EPDM	-13° F (-25°C)	302° F (150°C)
BUNA-N	-13° F (-25°C)	212° F (100°C)
Viton® / FKM	23° F (-5°C)	392° F (200°C)
White BUNA-N	-13° F (-25°C)	212° F (100°C)
PTFE-Lined EPDM	-20° F (-29°C)	302° F (150°C)

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Disc / Stem :

Stainless Steel:

- ◆ 2"-24" (DN50-DN600) SS316 Disc/Stem
- ◆ 2"-12" Investment Cast
- ◆ 14"-24" Fabricated
- ◆ 2"-24" Fabricated (Electro-Polished optional)

Nylon 12 Coated :

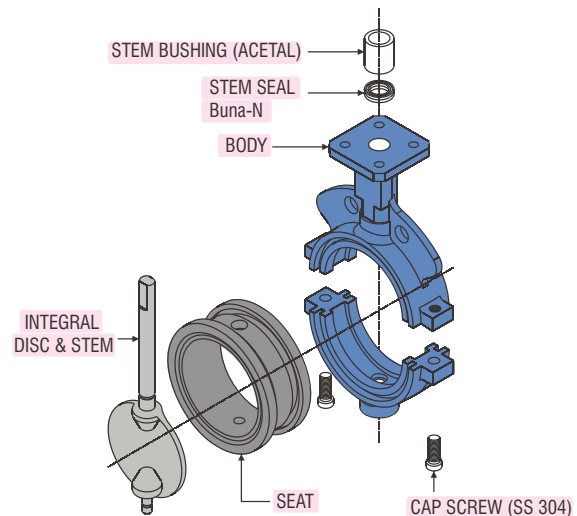
- ◆ 2"-24" (DN50-DN600) with Nylon 12 Coating over one-piece Stainless Steel disc / stem

Rubber Molded :

- ◆ 2"-24" (DN50-DN600) with EPDM, Buna-N rubber molded over One-piece Carbon Steel Disc and 17-4-PH Stem.

PTFE Molded :

- ◆ 2"-24" (DN 50-DN 600) with PTFE material molded over one-piece CB7CU-1 (17-4-PH) Disc/Stem.



DelVal[®] SERIES 44/45 and 47/48

Double Eccentric High Performance Butterfly Valves
Wafer and Lug

Sizes 2 1/2" to 24"

ASME Class 150 & Class 300



Leading the Industry with Innovation by Design



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DelTech Controls is pleased to offer top-of-the-line products in pipeline flow control. The DeVal Series 44/45, 47/48 has been developed with extensive application, design and manufacturing expertise. These products are produced by employing modern manufacturing practices under a robust quality assurance system. These practices ensure consistent product quality and dependable performance. The DeVal Series 44/45, 47/48 has been designed to include state-of-the-art features that are described in this bulletin.

Features

Top Flange

The top flange is drilled as per EN ISO 5211 to accommodate direct mounting of a wide range of actuators.

Body

One-piece wafer body style or full lug style for dead end service. Both body styles offer bidirectional sealing as standard in conformance with full ASME class 150 and class 300 rating.

Pin

Pins are offset from the center of the stem which places them in compression rather than shear thus eliminating potential for failure. The pins are precision fit and wedge types which provide positive mechanical attachment of disc to stem.

Disc Stop

The disc stop is a machined position stop on the body that locates the disc in the seat to achieve maximum seat and seal life. The disc stop is designed to prevent disc from rotating in to the wrong direction and minimizing possible seat damage.

Seat Retainer

Retains seat in the body and is supplied in the same material as the body.

Stem Seal

Stem assembly is "live loaded" with two Bellville Spring Washers. This ensures continuous compression of packing and sealing contact at the stem and body. Rocker shaped gland bridge compensates for uneven adjustment of gland bolts.

Blow-out proof stem

Retainer circlip provides blow-out proof stem.

Stem

The high-strength stem is SS 316 or 17-4 ph stainless steel that provides maximum strength for high torque applications.

Extended Neck

Extended neck allows for 2" of pipeline insulation and easy access to stem packing adjustment and actuator mounting.

Bearings

Top and bottom bearings, consisting of a 316 stainless steel / TFE glass fabric liner bearing surface, securely support the stem.

Disc

The disc has been engineered to maximize flow and minimize resistance to provide a high flow coefficient (Cv). The standard disc material is 316 stainless steel.

Seat

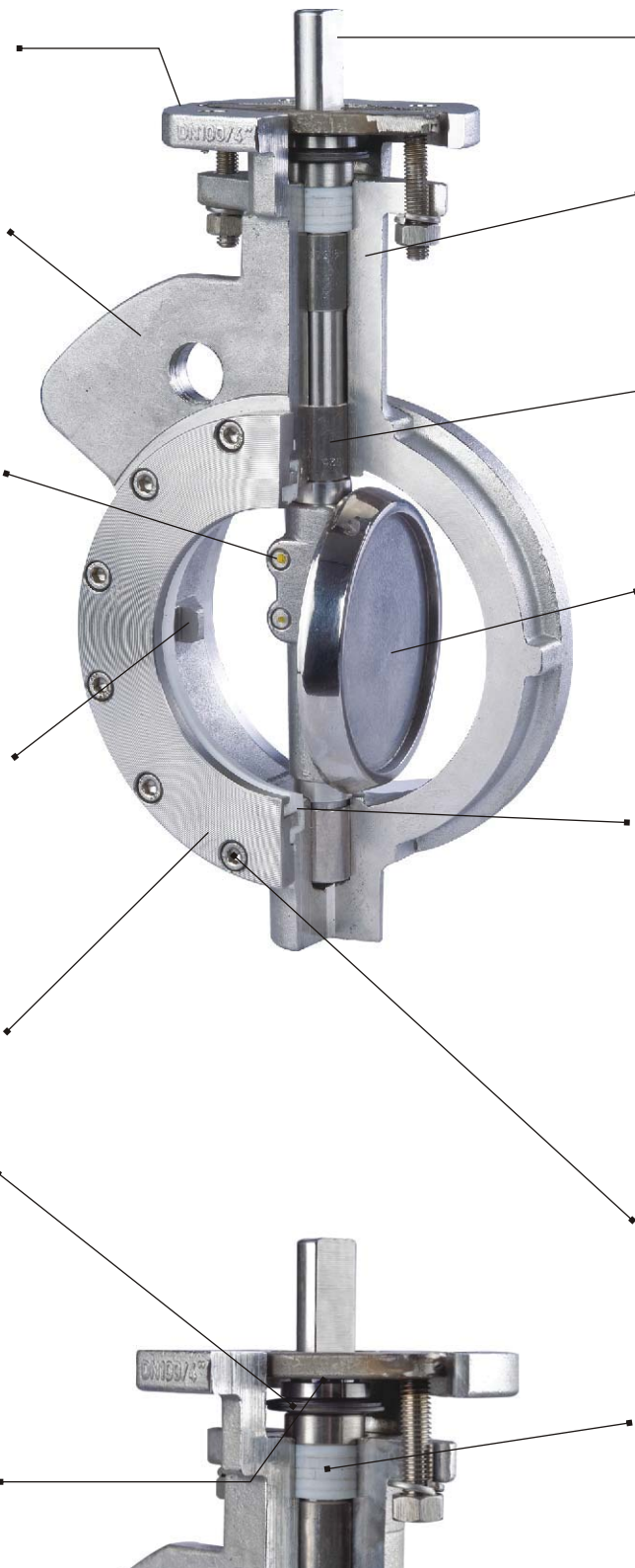
The unique seat design utilizes a flexible lip seal concept. When the disc closes, this action causes a slight deflection in the seat, energizing the seat. During this energized position, the seat has a stored energy force constantly pushing against the disc. In addition to this "energized" force, when pressure is on the insert side, the pressure pushes under the lip which further amplifies the sealing force between the disc and the seat.

Bi-Directional Dead End Service

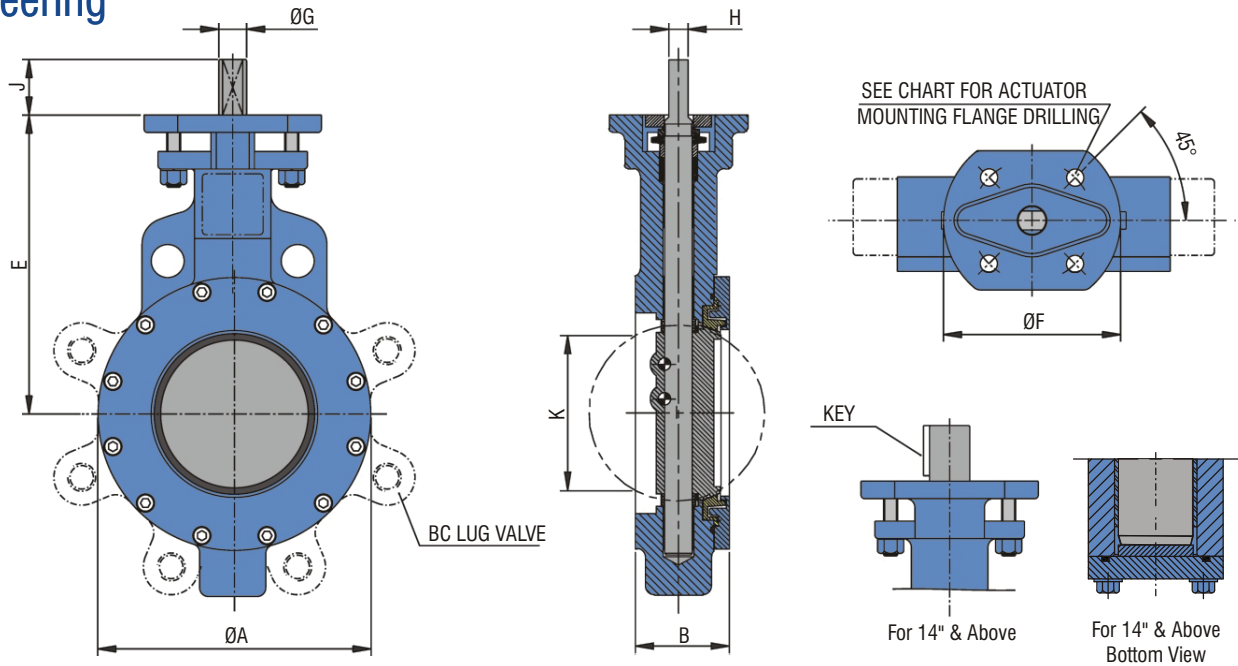
All lug valves are suitable for dead-end service to pull ANSI pressure rating, bi-directionally.

Adjustable Stem Packing

The stem packing system features a pull down gland with easy access to the adjusting hex head nuts without removal of the actuator.



Engineering



ASME CLASS 150 (Series 44/45)

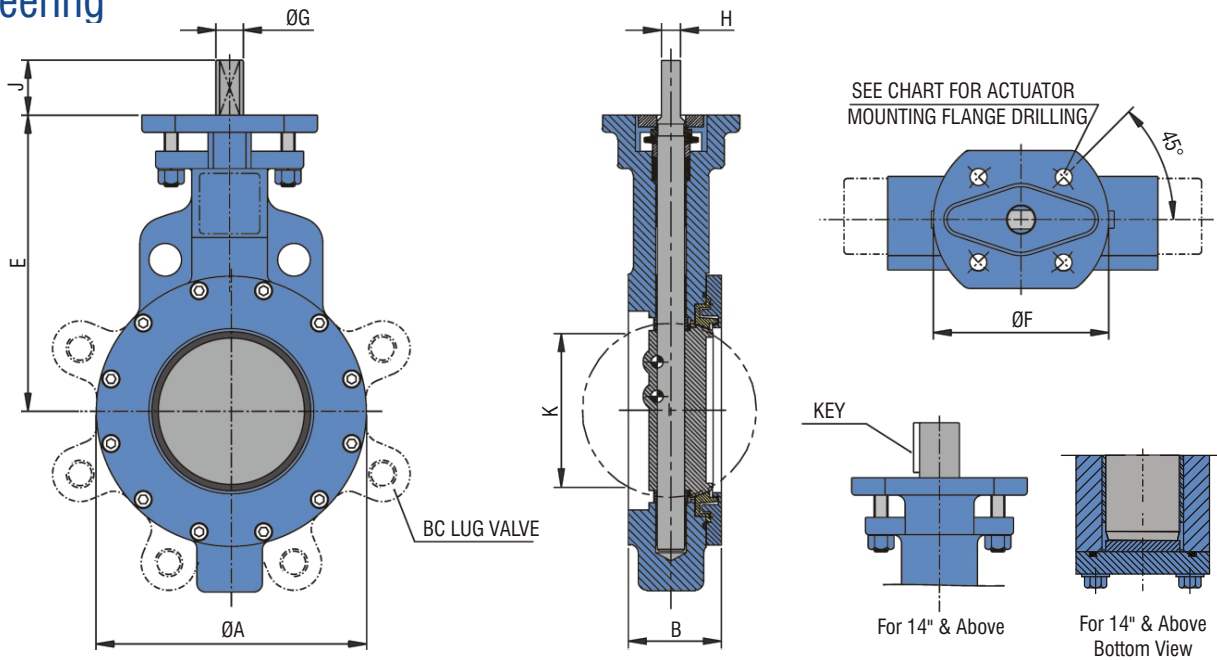
Valve Size	ØA	* B	E	ØF	Top Flange Drilling			ØG	H	J	Key Size	K	Lug Bolting Data			Weights In Lbs	
					BC	No. of holes	Hole Dia.						BC	No. of holes	Threads UNC/UN-2B	Wafer (Series 44)	Lug (Series 45)
2 1/2	4.13	1.81	5.75	4.00	2.76	4	0.39	0.63	0.43	1.25	-	2.1	5.50	4	5/8-11	8.8	10.8
3	5.00	1.88	5.94	4.00	2.76	4	0.39	0.63	0.43	1.25	-	2.6	6.00	4	5/8-11	10.8	13.2
4	6.18	2.12	6.77	4.00	2.76	4	0.39	0.63	0.43	1.25	-	3.4	7.50	8	5/8-11	15.8	24.5
5	7.32	2.25	7.40	4.92	2.76/4.01	4	0.39/0.47	0.75	0.51	1.25	-	4.5	8.50	8	3/4-10	19.6	29.5
6	8.50	2.25	8.23	4.92	2.76/4.01	4	0.39/0.47	0.75	0.51	1.25	-	5.5	9.50	8	3/4-10	24.8	35.5
8	10.63	2.50	9.41	6.00	4.92	4	0.55	0.87	0.63	1.25	-	7.3	11.75	8	3/4-10	25.6	47.0
10	12.76	2.81	11.02	6.00	4.92	4	0.55	1.18	0.87	2.00	-	9.2	14.25	12	7/8-9	61.0	89.9
12	15.00	3.19	12.20	6.00	4.92	4	0.55	1.38	0.94	2.00	-	11.7	17.00	12	7/8-9	111.1	126.1
14	16.65	3.62	13.19	8.27	4.92/6.50	4	0.55/0.83	1.57	-	2.00	0.47x0.31	12.7	18.75	12	1-8	136.7	182.3
16	18.50	4.00	16.02	8.27	6.50	4	0.83	1.97	-	2.50	0.47x0.39	14.6	21.25	16	1-8	205.0	248.0
18	21.02	4.50	16.81	8.27	6.50	4	0.83	2.16	-	2.50	0.63x0.39	16.4	22.75	16	1 1/8-8	233.2	306.4
20	23.00	5.00	17.71	8.27	6.50	4	0.83	2.36	-	4.00	0.71x0.43	18.35	25.00	20	1 1/8-8	252.0	412.9
24	27.24	6.06	20.87	11.81	10.00	8	0.71	2.75	-	4.00	0.79x0.47	21.8	29.50	20	1 1/4-8	507.1	701.5

* Face to Face dimension "B", generally conforming to MSS SP 68 TABLE 1 / API 609 Category B / BS EN 558-1 / ISO 5752 / ASME B 16.10
All bolt holes 1 1/8" and larger have an 8-UN thread series as per MSS SP 68 & API 609.

Cv VALUES - VALVE SIZING COEFFICIENT

Disc Position (degrees)	Valve Size													
	2.5"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	
10	2.6	4.1	8.4	13	26	48	76	114	133	181	171	204	278	
20	9	14	29	42	74	145	231	340	421	556	592	734	1090	
30	19	32	63	89	147	285	471	689	862	1125	1388	1731	2570	
40	34	57	115	163	248	488	793	1150	1448	1880	3047	3149	4586	
50	53	87	173	285	375	735	1193	1734	2186	2891	3926	4872	7265	
60	79	124	249	376	559	1098	1782	2595	3246	4283	5685	7045	10560	
70	105	163	327	518	789	1587	2534	3689	4599	6072	7755	8575	14275	
80	139	200	401	684	1070	2116	3431	5010	6315	8353	10185	12750	19050	
90	153	207	413	752	1227	2432	3909	5744	7254	9544	10950	13960	21025	

Engineering



ASME CLASS 300 (Series 47/48)

Valve Size	ØA	★ B	E	ØF	Top Flange Drilling			ØG	H	J	Key Size	K	Lug Bolting Data			Weights In Lbs	
					BC	No. of holes	Hole Dia.						BC	No. of holes	Threads UNC/UN-2B	Wafer (Series 47)	Lug (Series 48)
2 1/2	4.13	1.81	5.75	4.00	2.76	4	0.39	0.63	0.43	1.25	-	2.1	5.88	8	3/4-10	8.8	15.0
3	5.00	1.88	5.94	4.00	2.76	4	0.39	0.63	0.43	1.25	-	2.6	6.63	8	3/4-10	10.8	18.1
4	6.18	2.12	6.77	4.00	2.76	4	0.39	0.63	0.43	1.25	-	3.4	7.88	8	3/4-10	15.8	24.9
5	7.32	2.31	7.60	4.92	2.76/4.01	4	0.39/0.47	0.75	0.51	1.25	-	4.5	9.25	8	3/4-10	20.2	31.3
6	8.50	2.31	8.66	6.00	4.92	4	0.55	0.87	0.63	1.25	-	5.5	10.63	12	3/4-10	31.3	68.8
8	11.02	2.88	10.43	6.00	4.92	4	0.55	1.18	0.87	1.25	-	7.1	13.00	12	7/8-9	53.1	79.1
10	13.22	3.25	11.80	6.00	4.92	4	0.55	1.38	0.94	2.00	-	9.0	15.25	16	1-8	88.6	116.4
12	15.35	3.62	13.39	8.27	4.92/6.50	4	0.55/0.83	1.57	1.14	2.00	-	10.7	17.75	16	1 1/8-8	151.7	201.1
14	16.26	4.62	14.76	8.27	6.50	4	0.83	2.17	-	2.50	0.63x0.39	12.1	20.25	20	1 1/8-8	285.9	326.3
16	18.50	5.25	16.73	8.27	6.50	4	0.83	2.17	-	2.50	0.63x0.39	13.7	22.50	20	1 1/4-8	337.5	403.0
18	21.46	5.88	18.70	11.81	10.00	8	0.71	2.75	-	4.00	0.79x0.47	15.6	24.75	24	1 1/4-8	391.3	515.4
20	23.00	6.25	19.88	11.81	10.00	8	0.71	3.50	-	5.25	0.88x0.62	17.2	27.00	24	1 1/4-8	508.8	737.4
24	27.24	7.12	22.83	13.78	11.73	8	0.82	4.00	-	5.25	1.00x0.75	20.6	32.00	24	1 1/2-8	735.0	1015.9

* Face to Face dimension "B", generally conforming to MSS SP 68 TABLE 1 / API 609 Category B / BS EN 558-1 / ISO 5752 / ASME B 16.10
All bolt holes 1 1/8" and larger have an 8-UN thread series as per MSS SP 68 & API 609.

Cv VALUES - VALVE SIZING COEFFICIENT

Disc Position (degrees)	Valve Size												
	2.5"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
10	2.6	4.1	8.4	13	20	37	53	77	91	145	117	134	211
20	9	14	29	42	70	115	167	237	283	428	498	580	898
30	19	32	63	89	139	248	361	510	625	873	1188	1360	2127
40	34	57	115	163	245	432	639	887	1099	1494	2151	2488	3879
50	53	87	173	285	374	661	968	1351	1632	2298	3313	3855	6019
60	79	124	249	376	538	976	1437	2005	2378	3479	4809	5588	8713
70	105	163	327	518	727	1363	2011	2832	3336	4994	6554	7588	11738
80	139	200	401	684	934	1770	2646	3809	4465	7195	8625	9860	15600
90	153	207	413	752	1021	1956	2922	4214	4901	8022	9606	10829	17103

Rated Cv = The volume of water in USgpm that will pass through a given valve at a pressure drop of 1 Psi.



Torque

Maximum Seating and Unseating Torques for ASME class 150

Soft Seat Design

Maximum Torques Lbs - Inch						
Valve Size		Differential Pressure (Psi)				
Inch	DN	50	100	150	230	285
2.5	65	243	249	260	270	284
3	80	284	295	304	327	358
4	100	384	409	434	472	601
5	125	518	571	616	690	734
6	150	778	842	920	1025	1094
8	200	1313	1431	1548	1765	1893
10	250	1705	1941	2158	2509	2785
12	300	2080	2526	2977	3659	4117
14	350	3442	4262	5125	6505	7398
16	400	4391	5473	6588	8285	9523
18	450	5715	7152	8546	10835	12471
20	500	7624	9623	11467	14720	16791
24	600	11548	14587	17773	22639	26178

Maximum Seating and Unseating Torques for ASME class 300

Soft Seat Design

Maximum Torques Lbs - Inch						
Valve Size		Differential Pressure (Psi)				
Inch	DN	150	285	360	585	740
2.5	65	260	284	302	373	420
3	80	304	358	389	476	534
4	100	434	601	656	839	956
5	125	781	982	1087	1427	1649
6	150	1062	1363	1551	2075	2436
8	200	2015	2658	3015	4066	4825
10	250	2992	4081	4686	6468	7752
12	300	4186	5653	6456	8866	10526
14	350	6407	9359	11130	15992	19419
16	400	7776	11238	13205	19301	23407
18	450	10049	14617	17126	24652	29838
20	500	13280	19389	23053	33283	40615
24	600	18112	26366	30846	45141	54495

Fire Safe Seat Design

Maximum Torques Lbs - Inch						
Valve Size		Differential Pressure (Psi)				
Inch	DN	50	100	150	230	285
2.5	65	482	501	515	541	555
3	80	607	630	646	677	706
4	100	751	796	835	895	948
5	125	849	917	999	1127	1209
6	150	1424	1548	1681	1881	1998
8	200	2340	2590	2787	3145	3425
10	250	3523	3916	4368	5058	5561
12	300	5248	6035	6796	7931	8826
14	350	6229	7140	8009	9554	10534
16	400	7188	8350	9683	11620	13051
18	450	9148	11408	13900	17523	20223
20	500	12944	16447	19817	25626	29348
24	600	20391	24109	28074	34394	38251

Fire Safe Seat Design

Maximum Torques Lbs - Inch						
Valve Size		Differential Pressure (Psi)				
Inch	DN	150	285	360	585	740
2.5	65	515	555	587	624	653
3	80	646	706	727	771	812
4	100	835	948	1071	1278	1433
5	125	1093	1284	1389	1713	1920
6	150	1817	2182	2398	3009	3439
8	200	2980	3646	4011	5099	5832
10	250	4479	5396	5917	7420	8527
12	300	7302	9537	10639	14300	16816
14	350	8197	10679	12052	16168	21993
16	400	9934	13406	15312	21296	25401
18	450	15287	22589	26735	38803	47426
20	500	21287	32025	37587	55613	67082
24	600	34193	50493	59313	85917	104127

Metal Seat Design

Maximum Torques Lbs - Inch						
Valve Size		Differential Pressure (Psi)				
Inch	DN	50	100	150	230	285
2.5	65	603	616	649	676	700
3	80	747	788	808	833	875
4	100	946	1003	1036	1110	1190
5	125	1053	1137	1269	1407	1516
6	150	1780	1936	2085	2342	2477
8	200	2949	3263	3484	3948	4266
10	250	4333	4817	5525	6261	7032
12	300	6613	7484	8529	9894	11099
14	350	7787	9032	10017	11919	13141
16	400	8985	10479	12079	14641	16272
18	450	11527	14488	17202	22176	25037
20	500	16050	20395	24682	32192	36717
24	600	25488	30378	35022	43151	47680

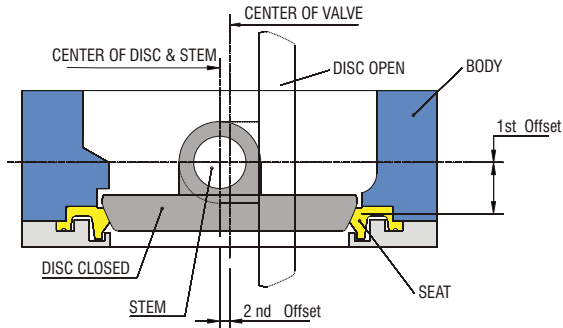
Metal Seat Design

Maximum Torques Lbs - Inch						
Valve Size		Differential Pressure (Psi)				
Inch	DN	150	285	360	585	740
2.5	65	649	700	734	786	810
3	80	808	875	905	956	1015
4	100	1036	1190	1326	1582	1787
5	125	1377	1590	1733	2133	2382
6	150	2253	2731	3006	3773	4323
8	200	3734	4520	5068	6380	7244
10	250	5552	6725	7331	9197	10622
12	300	9201	11802	13371	17803	21188
14	350	10145	13349	15075	20380	23770
16	400	12324	16724	19137	26630	31753
18	450	19109	28469	33146	48096	58836
20	500	26830	39922	47359	69850	83685
24	600	42587	63621	74195	107276	130200

Note :- Above torque values are indicative and defined for flow in preferred direction i.e. Seat retainer upstream.
Torque values for flow in non-preferred direction i.e. seat retainer downstream, multiply the above values by 1.25

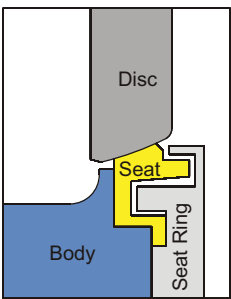
Feature and Selection

Double Offset Disc Design



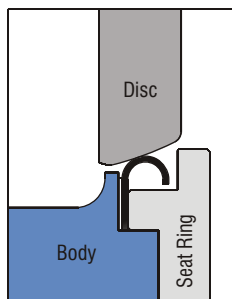
The offset disc produces a cam-like action, pulling the disc from the seat. This action reduces seat wear and eliminates seat deformation when the disc is in the open position. The disc does not contact the seat when the valve is in the open condition; therefore, seat service life is extended and torques are reduced. As the valve closes, the cam-like action converts the rotary motion of the disc to a linear type motion effectively pushing the disc onto the seat.

Seat Designs



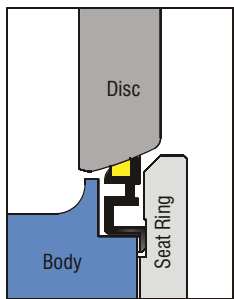
▲ Teflon Seat

Teflon Seat : Flexible lip seat design retains its original shape and maintain a seal against the disc regardless of the flow direction



▲ Metal Seat

Metal Seat : Flexible metal seat offers a very high sealing capability with low leakage rates. The mechanical properties and the shape of the metal seat allows it to flex and maintain a constant positive sealing against the disc.



Fire Safe Seat

◀ Fire Safe Seat : During and after fire, when the resilient material has been partially or completely destroyed, the metal seat ring provides a positive seal by remaining in constant contact with the disc in either direction of media flow.

CODES AND STANDARDS

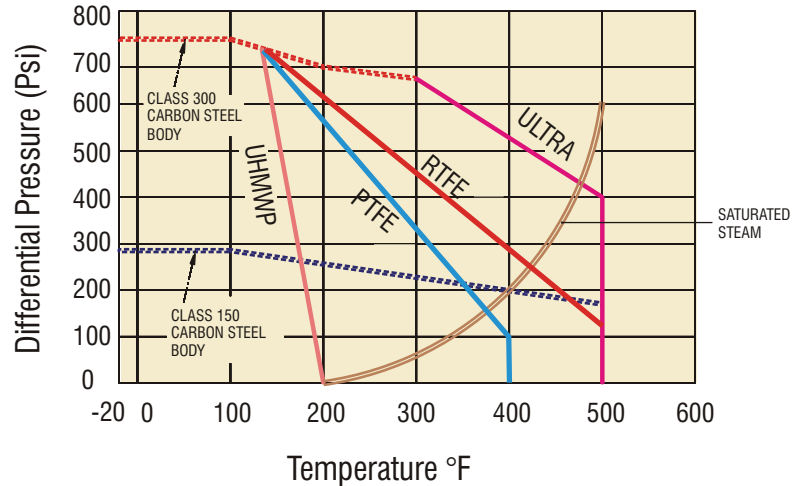
General design and manufacturing :- API 609 Category B / MSS-SP-68 / EN 593

Inspection and Testing :- API 598 / MSS-SP-68 / EN 12266-1 / AISI / FCI 70-2

Fire safe testing :- API 607 / ISO 10497 / EN 12266-2

Pressure temperature rating :- ASME B 16.34 / BS EN 12516 -1

Seat Pressure / Temperature



Special Applications

ULTRA seat

An engineered fluorocarbon polymer that is rated for 500 °F. Excellent for handling aggressive fluids at high pressures. Ultra is recommended for extended service in hostile environments involving chemical, thermal, and mechanical stress. Ultra has excellent thermal stability and is ideal for steam, hot gases, and a variety of process chemicals where service can also be subject to pressure cycling.

NACE service

All valves conform to NACE MRO 103 standard. These valves are well suited for oil and gas industry applications requiring resistant materials to sulfide stress cracking.

Steam

Valves are available for saturated steam at 200 psi rating for series 44 / 45 and 450 psi for series 47 / 48.

Vacuum

Standard valves are rated for tight shut-off of vacuum to 2×10^{-2} torr.

Oxygen

Valves for critical gaseous oxygen service are specially prepared, cleaned, inspected, assembled and tested to ensure removal of all burrs, sharp edges, dirt, hydrocarbon oil or grease and other contaminants.

Materials of Construction

BODY - CARBON STEEL, ASTM A 216 WCB / ASTM A352 LCB
 STAINLESS STEEL, ASTM A 351 CF8M / CF8

DISC - STAINLESS STEEL, ASTM A 351 CF8M / CF8

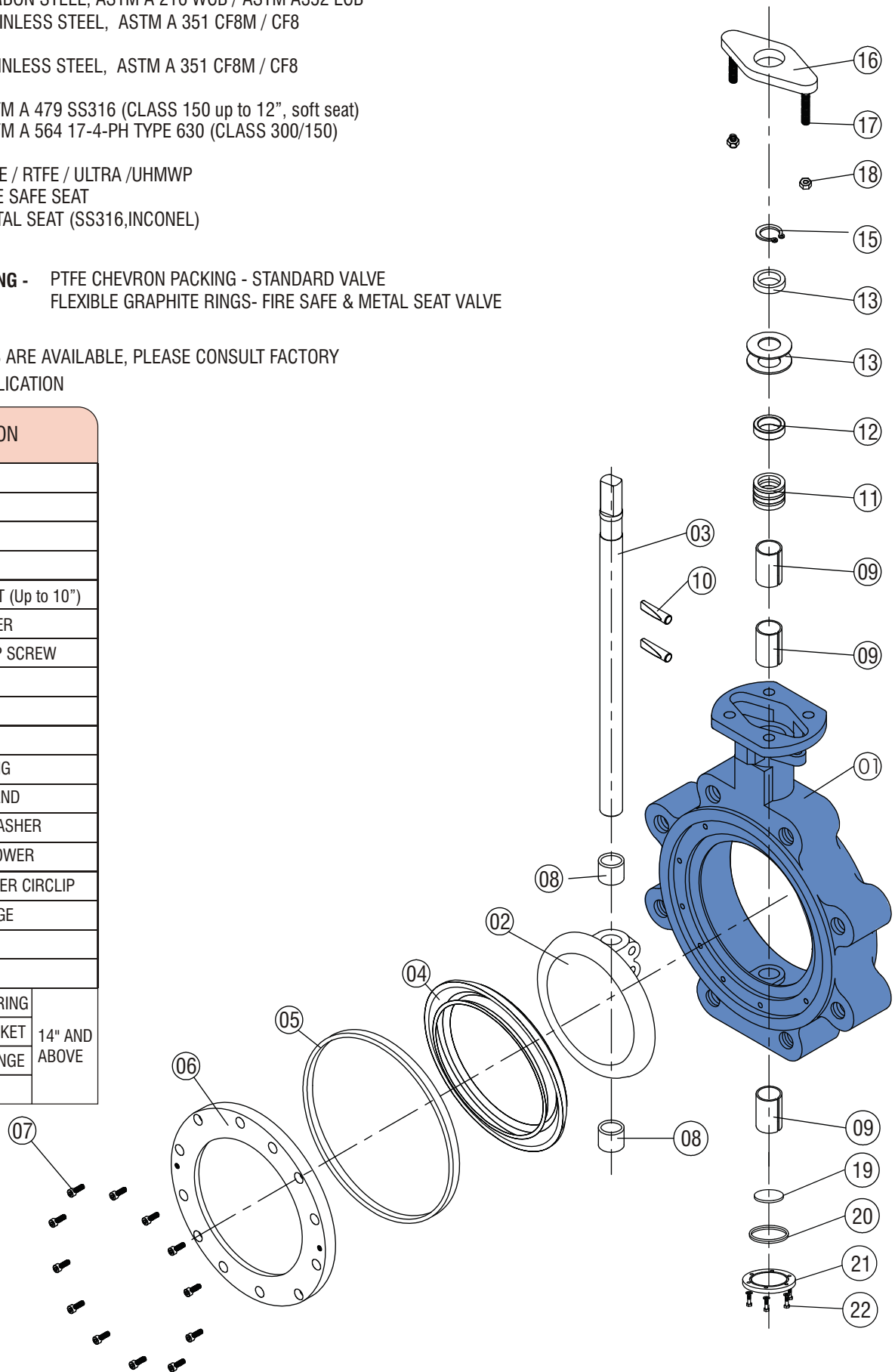
STEM - ASTM A 479 SS316 (CLASS 150 up to 12", soft seat)
 ASTM A 564 17-4-PH TYPE 630 (CLASS 300/150)

SEAT - PTFE / RTFE / ULTRA / UHMWP
 FIRE SAFE SEAT
 METAL SEAT (SS316, INCONEL)

STEM PACKING - PTFE CHEVRON PACKING - STANDARD VALVE
 FLEXIBLE GRAPHITE RINGS- FIRE SAFE & METAL SEAT VALVE

OTHER MATERIALS ARE AVAILABLE, PLEASE CONSULT FACTORY
 FOR SPECIFIC APPLICATION

Sr. No.	DESCRIPTION	
01	BODY	
02	DISC	
03	STEM	
04	SEAT	
05	BODY GASKET (Up to 10")	
06	SEAT RETAINER	
07	SOC. HD. CAP SCREW	
08	DISC SPACER	
09	BEARING	
10	DISC PIN	
11	STEM PACKING	
12	PACKING GLAND	
13	BELLVILLE WASHER	
14	GLAND FOLLOWER	
15	STEM RETAINER CIRCLIP	
16	GLAND FLANGE	
17	STUD	
18	HEX NUT	
19	THRUST BEARING	14" AND ABOVE
20	BOTTOM GASKET	
21	BOTTOM FLANGE	
22	HEX BOLT	



Operators



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



Valves up to size 24" 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.



Valves upto 6" for class 150 and upto 4" for class 300 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.

How to order DeVal valves

Series □ □		Size □ □ □		Trim / Other Variables / Special □ □ □ □ □ □ □				
Valve Description	Valve Description	Body	Disc	Stem	Seat	Rating	Operator	Special
44 : Wafer class 150	025 : 2.5" 140 : 14"	3- WCB	4-CF8M(SS316)	4-SS316	T-PTFE	5 - Class 150	B-BARE	0-NO SPECIAL
45 : Lug class 150	030 : 3" 160 : 16"	4- CF8M(SS316)	8- CF8(SS304)	6- 17-4-PH	U-ULTRA	6 - Class 300	L - LEVER	REQUIREMENT
47 : Wafer class 300	040 : 4" 180 : 18"	8- CF8(SS304)			G-UHMWP		G - GEAR	S - SPECIAL
48 : Lug class 300	050 : 5" 200 : 20"				R-RTFE		REQUIREMENT	
	060 : 6" 240 : 24"				M-METAL (SS)		AS SPECIFIED	
	080 : 8"				N-METAL (INCONEL)		BY CUSTOMER	
	100 : 10"				F-FIRE SAFE			
	120 : 12"							

FOR Example :- To order 300/12" , wafer body valve, Body-CF8M, Disc- CF8M, Stem-SS316, Seat-RTFE, Rating-Class 150, Gear operated, with no special requirements.

4 4 1 2 0 4 4 4 R 5 G 0

DelVal[®] SERIES 44/45, 47/48 & 4M/4N



**Double Eccentric High Performance Butterfly Valves
Wafer and Lug**

Sizes 2" - 48" / DN 50 - DN 1200

ASME Class 150, Class 300 & Class 600



Leading the Industry with Innovation by Design



Jamieson Equipment Company
www.jamiesonequipment.com
toll free 800.875.0280

DelTech Controls is pleased to offer top-of-the-line products in pipeline flow control. The DelVal Series 44/45, 47/48, 4M/4N has been developed with extensive application, design and manufacturing expertise. These products are produced by employing modern manufacturing practices under a robust quality assurance system. These practices ensure consistent product quality and dependable performance. The DelVal Series 44/45, 47/48, 4M/4N has been designed to include state-of-the-art features that are described in this bulletin.

Features

Top Flange

The top flange is drilled as per EN ISO 5211 to accommodate direct mounting of a wide range of actuators.

Body

One-piece wafer body style or full lug style for dead end service. Both body styles offer bidirectional sealing as standard in conformance with full ASME class 150, class 300 and class 600 rating.

Pin

Pins are offset from the center of the stem which places them in compression rather than shear thus eliminating potential for failure. The pins are precision fit and wedge types which provide positive mechanical attachment of disc to stem.

Disc Stop

The disc stop is a machined position stop on the body that locates the disc in the seat to achieve maximum seat and seal life. The disc stop is designed to prevent disc from rotating in to the wrong direction and minimizing possible seat damage.

Seat Retainer

Retains seat in the body and is supplied in the same material as the body.

Stem Seal

Stem assembly is "live loaded" with two Bellville Spring Washers. This ensures continuous compression of packing and sealing contact at the stem and body. Rocker shaped gland bridge compensates for uneven adjustment of gland bolts.

Blow-out proof stem

Retainer circlip provides blow -out proof stem.

Stem

The high -strength stem is SS 316 or 17-4 ph stainless steel that provides maximum strength for high torque applications.

Extended Neck

Extended neck allows for 2" of pipeline insulation and easy access to stem packing adjustment and actuator mounting.

Bearings

Top and bottom bearings, consisting of a 316 stainless steel /TFE glass fabric liner bearing surface, securely support the stem.

Disc

The disc has been engineered to maximize flow and minimize resistance to provide a high flow coefficient (Cv). The standard disc material is 316 stainless steel.

Seat

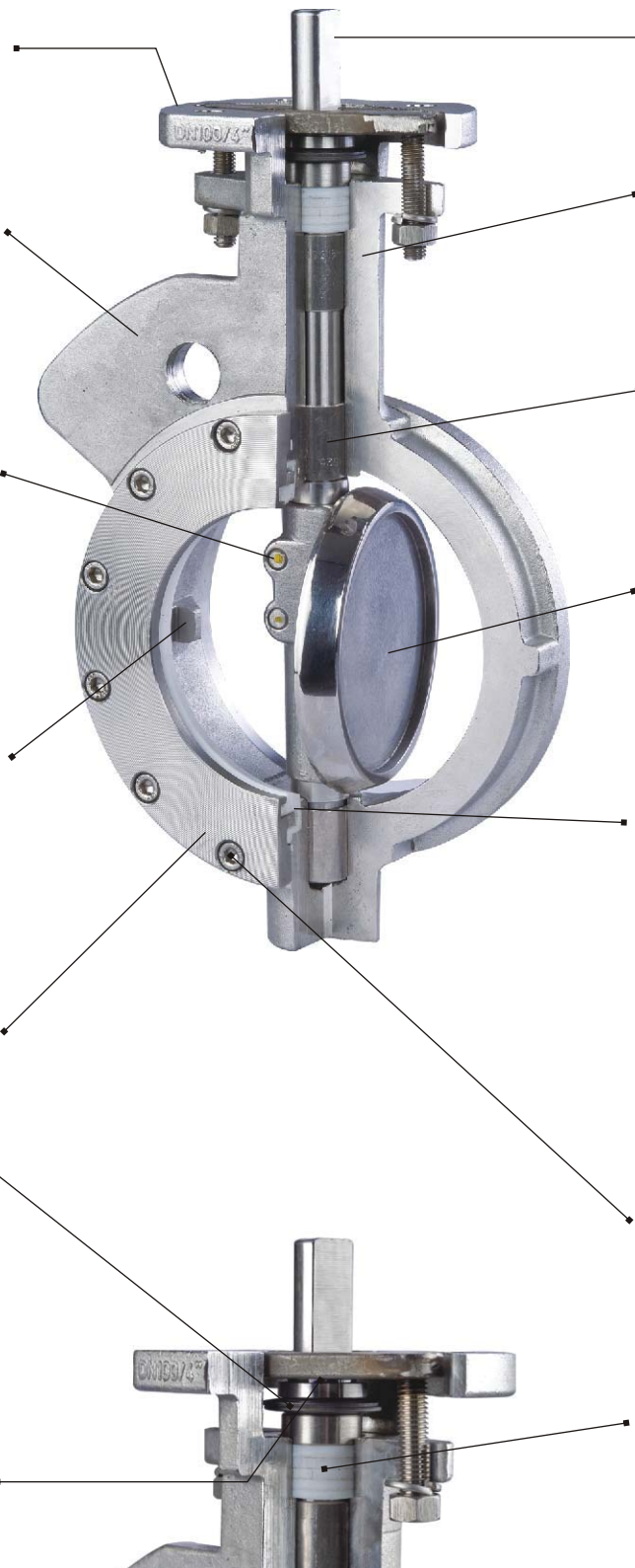
The unique seat design utilizes a flexible lip seal concept. When the disc closes, this action causes a slight deflection in the seat, energizing the seat. During this energized position, the seat has a stored energy force constantly pushing against the disc. In addition to this "energized" force, when pressure is on the insert side, the pressure pushes under the lip which further amplifies the sealing force between the disc and the seat.

Bi-Directional Dead End Service

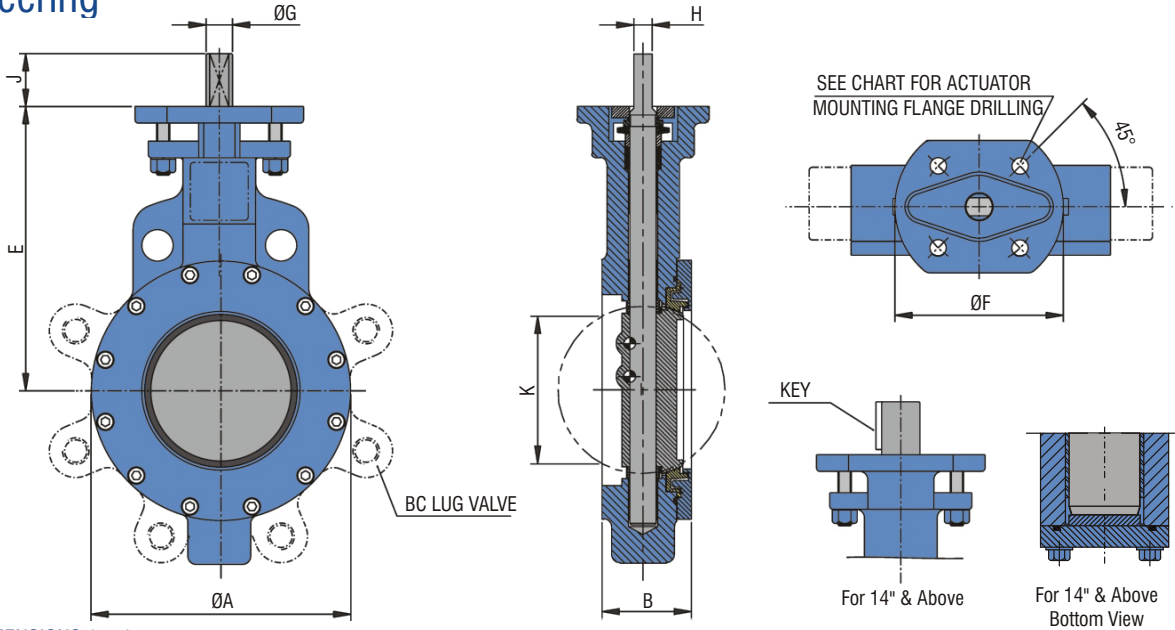
All lug valves are suitable for dead-end service to pull ANSI pressure rating, bi-directionally.

Adjustable Stem Packing

The stem packing system features a pull down gland with easy access to the adjusting hex head nuts without removal of the actuator.



Engineering



DIMENSIONS (mm)

Valve Size		ØA	*B	E	ØF	Top Flange Drilling			ØG	H	J	Key Size	K	Lug Bolting Data			Weights In Kg.	
Inch	DN					BC	No. of holes	Hole Dia.						BC	No. of holes	Threads UNC/UN-2B	Wafer	Lug
2	50	95	43	125	102	70	4	10	14	10	32	-	39.8	120.7	4	5/8-11	3.5	4.0
2 1/2	65	105	46	146	102	70	4	10	16	11	32	-	53.3	139.7	4	5/8-11	4.0	4.9
3	80	127	48	151	102	70	4	10	16	11	32	-	66.0	152.4	4	5/8-11	4.9	6.0
4	100	157	54	172	102	70	4	10	16	11	32	-	86.4	190.5	8	5/8-11	7.1	11.1
5	125	186	57	188	125	70/102	4	10/12	19	13	32	-	114.3	215.9	8	3/4-10	8.9	13.4
6	150	216	57	209	125	70/102	4	10/12	19	13	32	-	139.7	241.3	8	3/4-10	11.3	16.1
8	200	270	64	239	152	125	4	14	22	16	32	-	185.4	298.5	8	3/4-10	11.6	21.3
10	250	324	71	280	152	125	4	14	30	22	51	-	233.7	362.0	12	7/8-9	27.7	40.8
12	300	381	81	310	152	125	4	14	35	24	51	-	297.2	431.8	12	7/8-9	50.4	57.2
14	350	423	92	335	210	125/165	4	14/21	40	-	51	12 x 8	322.6	476.2	12	1-8	62.0	82.7
16	400	470	102	407	210	165	4	21	50	-	64	12 x 10	370.8	539.7	16	1-8	93.0	112.5
18	450	534	114	427	210	165	4	21	55	-	64	16 x 10	416.6	577.8	16	1 1/8-8	105.8	139.0
20	500	584	127	450	210	165	4	21	60	-	102	18 x 11	466.1	635.0	20	1 1/8-8	114.3	187.3
24	600	692	154	530	300	254	8	18	70	-	102	20 x 12	553.7	749.3	20	1 1/4-8	230	318.2
26	650	750	165	560	300	254	8	18	88.9	-	102	22.23x15.88	605.0	-	-	-	300	-
28	700	805	165	600	300	254	8	18	88.9	-	102	22.23x15.88	660.5	-	-	-	385	-
30	750	860	191	640	350	298	8	21	88.9	-	102	22.23x15.88	715.0	-	-	-	450	-
32	800	911	191	670	350	298	8	21	101.6	-	134	25.4 x 19.05	767.0	-	-	-	525	-
36	900	1028	203	705	350	298	8	21	101.6	-	134	25.4 x 19.05	864.2	-	-	-	775	-
40	1000	1125	217	810	415	356	8	33	120	-	150	32 x 18	945.0	-	-	-	1100	-
44	1100	1250	254	845	415	356	8	33	120	-	150	32 x 18	1040	-	-	-	1275	-
48	1200	1360	254	915	415	356	8	33	120	-	150	32 x 18	1125	-	-	-	1435	-

ASME CLASS 150 (Series 44/45)

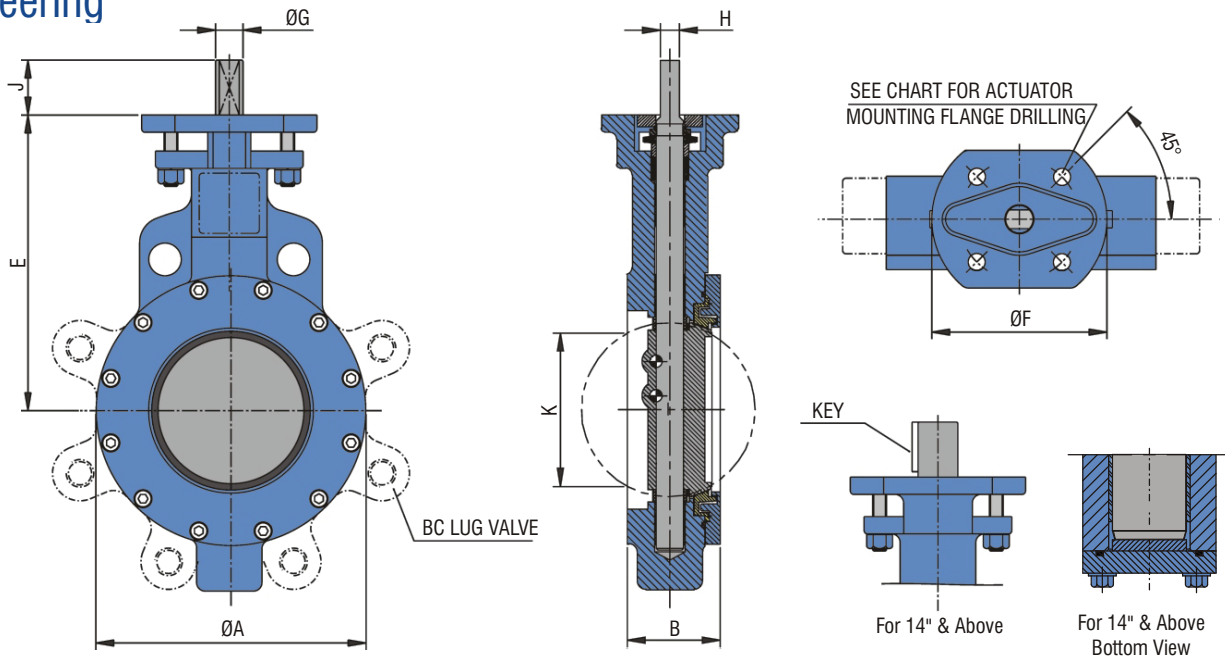
Valve Size		ØA	*B	E	ØF	Top Flange Drilling			ØG	H	J	Key Size	K	Lug Bolting Data			Weights In Kg.	
Inch	DN					BC	No. of holes	Hole Dia.						BC	No. of holes	Threads UNC/UN-2B	Wafer	Lug
2	50	95	43	125	102	70	4	10	14	10	32	-	39.8	127.0	8	5/8-11	3.5	4.0
2 1/2	65	105	46	146	102	70	4	10	16	11	32	-	53.3	149.2	8	3/4-10	4.0	4.9
3	80	127	48	151	102	70	4	10	16	11	32	-	66.0	168.3	8	3/4-10	4.9	6.0
4	100	157	54	172	102	70	4	10	16	11	32	-	86.4	200.0	8	3/4-10	7.1	11.1
5	125	186	59	193	125	70/102	4	10/12	19	13	32	-	114.3	235.0	8	3/4-10	9.2	14.2
6	150	216	59	220	152	125	4	14	22	16	32	-	139.7	269.9	12	3/4-10	14.2	31.2
8	200	280	73	265	152	125	4	14	30	22	51	-	180.3	330.2	12	7/8-9	24.1	35.9
10	250	336	83	300	152	125	4	14	35	24	51	-	228.6	387.4	16	1-8	40.2	52.8
12	300	390	92	340	210	125/165	4	14/21	40	29	51	-	271.8	450.8	16	1 1/8-8	68.8	91.2
14	350	413	117	375	210	165	4	21	55	-	64	16 x 10	307.3	514.4	20	1 1/8-8	129.7	148.0
16	400	470	133	425	210	165	4	21	55	-	64	16 x 10	348.0	571.5	20	1 1/4-8	153.1	182.8
18	450	545	149	475	300	254	8	18	70	-	102	20 x 12	396.2	628.6	24	1 1/4-8	177.5	233.8
20	500	584	159	505	300	254	8	18	88.9	-	102	22.23x15.88	436.9	685.8	24	1 1/4-8	230.8	334.5
24	600	692	181	580	350	298	8	21	101.6	-	134	25.4x19.05	523.2	812.8	24	1 1/2-8	333.4	460.8

ASME CLASS 300 (Series 47/48)

* Face to Face dimension "B", generally conforming to MSS SP 68 TABLE 1 / API 609 Category B / BS EN 558-1 / ISO 5752 / ASME B 16.10

All bolt holes 1 1/8" and larger have an 8-Un thread series as per MSS SP 68 & API 609.





DIMENSIONS (mm)

ASME CLASS 600 (Series 4M/4N)

Valve Size		ØA	*B	E	ØF	Top Flange Drilling			ØG	H	J	Key Size	K	Lug Bolting Data			Weights In Kg.	
Inch	DN					BC	No. of holes	Hole Dia.						BC	No. of holes	Threads UNC/UN-2B	Wafer	Lug
3	80	145	54	178	102	70	4	10	19	13	32	-	66.0	168.3	8	3/4-10	10.5	13.6
4	100	175	64	216	152	125	4	14	22	16	32	-	86.4	215.9	8	7/8-9	18	25
5	125	205	78	235	152	125	4	14	30	22	51	-	114.3	266.7	8	1-8	28	40.5
6	150	236	78	250	152	125	4	14	30	22	51	-	139.7	292.1	12	1-8	35	53.5
8	200	295	102	310	152	125	4	14	35	24	51	-	175.3	349.2	12	1 1/8-8	69	102
10	250	350	117	360	210	165	4	21	50	-	64	12 x 10	218.6	431.8	16	1 1/4-8	126	180
12	300	415	140	400	210	165	4	21	50	-	64	12 x 10	261.8	489.0	20	1 1/4-8	173	246
14	350	450	155	475	300	254	8	17	63.5	-	102	15.88 x 15.88	277.4	527.0	20	1 3/8-8	250	338
16	400	520	178	550	300	254	8	17	76.2	-	102	19.05x19.05	325.0	603.2	20	1 1/2-8	340	495
18	450	590	200	600	350	298	8	21	88.9	-	102	22.23x15.88	374.8	654.0	20	1 5/8-8	492	663
20	500	640	216	652	350	298	8	21	101.6	-	134	25.4x19.05	418.4	723.9	24	1 5/8-8	615	835
24	600	745	232	785	415	356	8	33	120	-	150	32 x 18	506.5	838.2	24	1 7/8-8	975	1310

* Face to Face dimension "B", generally conforming to MSS SP 68 TABLE 1 / API 609 Category B / BS EN 558-1 / ASME B 16.10
All bolt holes 1/8" and larger have an 8-Un thread series as per MSS SP 68 & API 609.

TORQUE (Nm)

Maximum Seating & Unseating Torque for ASME Class 600

Valve Size		Soft Seat Design (Teflon / Elastomer)			Fire Safe Seat Design			Metal Seat Design		
		Differential Pressure			Differential Pressure			Differential Pressure		
Inch	DN	Class 300	PN64	Class 600	Class 300	PN64	Class 600	Class 300	PN64	Class 600
3	80	81	91	116	113	130	164	136	156	197
4	100	140	175	232	215	245	305	258	294	366
5	125	238	278	336	340	375	480	408	450	576
6	150	322	395	485	463	520	655	556	624	786
8	200	711	810	1073	888	1020	1243	1066	1224	1492
10	250	1073	1265	1597	1205	1375	1687	1446	1650	2024
12	300	1480	1707	2259	2050	2250	2730	2460	2700	3276
14	350	2632	3026	3685	2660	3192	3724	2954	3397	3988
16	400	3174	3618	4602	3444	3960	4650	3947	4539	5328
18	450	4045	4651	5865	5895	6780	7960	7313	8410	9873
20	500	5506	6332	7984	8717	10024	11757	10402	11962	14043
24	600	7390	8495	10715	13530	15560	18265	16184	18611	21848

Note :- Above torque values are indicative and defined for flow in preferred direction i.e. Seat retainer upstream.
Torque values for flow in non preferred direction i.e. seat retainer downstream, multiply the above values by 1.25

TORQUE (Nm)

Maximum Seating and Unseating Torque for ASME Class 150

Soft Seat Design (Teflon / Elastomer)

Valve Size		Differential Pressure				
Inch	DN	PN3.5	PN7	PN10	PN16	Class 150
2	50	24	26	27	28	29
2.5	65	27	28	29	31	32
3	80	32	33	34	37	40
4	100	43	46	49	53	68
5	125	59	65	70	78	83
6	150	88	95	104	116	124
8	200	148	162	175	199	214
10	250	193	219	244	283	315
12	300	235	285	336	413	465
14	350	389	482	579	735	836
16	400	496	618	744	936	1076
18	450	646	808	966	1224	1409
20	500	862	1087	1296	1663	1897
24	600	1305	1648	2008	2558	2958
26	650	1597	1950	2210	2610	3170
28	700	1755	2150	2490	2830	3360
30	750	2395	2912	3429	4256	4825
32	800	3099	3762	4529	5456	6325
36	900	3865	4762	5659	7094	8081
40	1000	6102	7601	9100	11499	13152
44	1100	7725	8960	10320	13040	14910
48	1200	9950	12450	14770	18806	21420

Maximum Seating and Unseating Torque for ASME Class 300

Soft Seat Design (Teflon / Elastomer)

Valve Size		Differential Pressure				
Inch	DN	PN10	Class 150	PN25	PN40	Class 300
2	50	27	29	32	40	42
2.5	65	29	32	34	42	47
3	80	34	40	44	54	60
4	100	49	68	74	95	108
5	125	88	111	123	161	186
6	150	120	154	175	234	275
8	200	228	300	341	459	545
10	250	338	461	530	731	876
12	300	473	639	729	1002	1189
14	350	724	1058	1258	1807	2194
16	400	879	1270	1492	2181	2645
18	450	1136	1652	1935	2786	3371
20	500	1501	2191	2605	3761	4589
24	600	2047	2979	3485	5101	6158

Fire Safe Seat Design

Valve Size		Differential Pressure				
Inch	DN	PN3.5	PN7	PN10	PN16	Class 150
2	50	52	54	56	59	61
2.5	65	54	57	58	61	63
3	80	69	71	73	77	80
4	100	85	90	94	101	107
5	125	96	104	113	127	137
6	150	161	175	190	213	226
8	200	264	293	315	355	387
10	250	398	443	494	572	628
12	300	593	682	768	896	997
14	350	704	807	905	1080	1190
16	400	812	944	1094	1313	1475
18	450	1034	1289	1571	1980	2285
20	500	1463	1858	2239	2896	3316
24	600	2304	2724	3172	3886	4322

Fire Safe Seat Design

Valve Size		Differential Pressure				
Inch	DN	PN10	Class 150	PN25	PN40	Class 300
2	50	56	61	63	67	70
2.5	65	58	63	66	70	74
3	80	73	80	82	87	92
4	100	94	107	121	144	162
5	125	124	145	157	194	217
6	150	205	247	271	340	389
8	200	337	412	453	576	659
10	250	506	610	669	838	964
12	300	825	1078	1202	1616	1900
14	350	926	1207	1362	1827	2485
16	400	1123	1515	1730	2406	2870
18	450	1727	2552	3021	4385	5359
20	500	2405	3619	4247	6284	7580
24	600	3864	5705	6702	9708	11766

Metal Seat Design

Valve Size		Differential Pressure				
Inch	DN	PN3.5	PN7	PN10	PN16	Class 150
2	50	58	60	63	66	70
2.5	65	68	70	73	76	79
3	80	84	89	91	94	99
4	100	107	113	117	125	134
5	125	119	129	143	159	171
6	150	201	219	236	265	280
8	200	333	369	394	446	482
10	250	490	544	624	707	795
12	300	747	846	964	1118	1254
14	350	880	1021	1132	1347	1485
16	400	1015	1184	1365	1654	1839
18	450	1302	1637	1944	2506	2829
20	500	1814	2304	2789	3638	4149
24	600	2880	3432	3957	4876	5388

Metal Seat Design

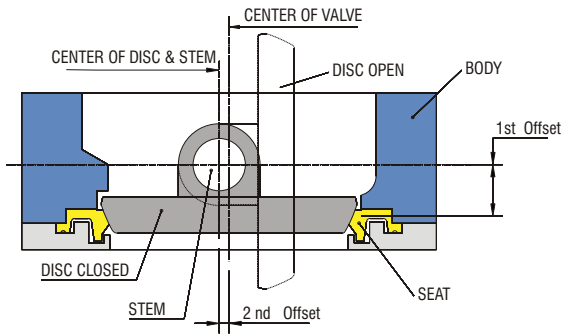
Valve Size		Differential Pressure				
Inch	DN	PN10	Class 150	PN25	PN40	Class 300
2	50	63	70	75	79	83
2.5	65	73	79	83	89	91
3	80	91	99	102	108	115
4	100	117	134	150	179	202
5	125	156	180	196	241	269
6	150	255	309	340	426	488
8	200	422	511	573	721	818
10	250	627	760	828	1039	1200
12	300	1040	1334	1511	2012	2394
14	350	1146	1508	1703	2303	2686
16	400	1392	1890	2162	3009	3588
18	450	2159	3217	3745	5435	6648
20	500	3032	4511	5351	7893	9456
24	600	4812	7189	8384	12122	14712

Note :- Above torque values are indicative and defined for flow in preferred direction i.e. Seat retainer upstream.

Torque values for flow in non preferred direction i.e. seat retainer downstream, multiply the above values by 1.25

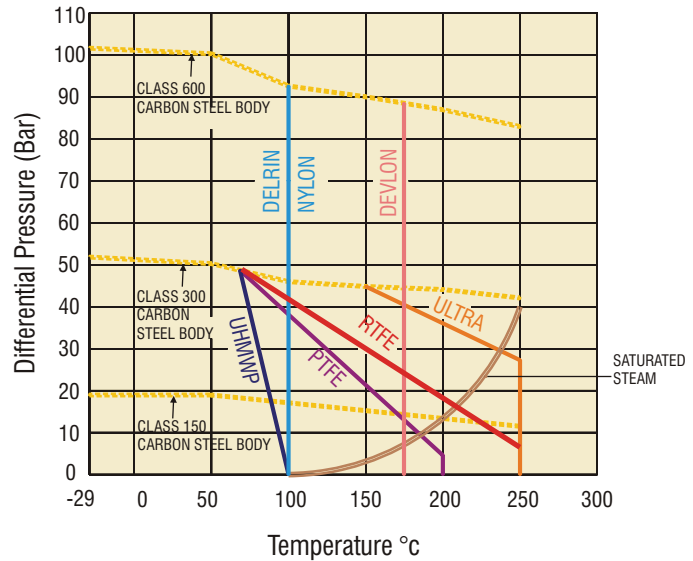
Feature and Selection

Double Offset Disc Design

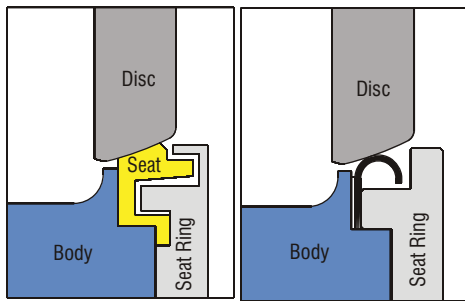


The offset disc produces a cam-like action, pulling the disc from the seat. This action reduces seat wear and eliminates seat deformation when the disc is in the open position. The disc does not contact the seat when the valve is in the open condition; therefore, seat service life is extended and torques are reduced. As the valve closes, the cam-like action converts the rotary motion of the disc to a linear type motion effectively pushing the disc onto the seat.

SEAT PRESSURE / TEMPERATURE



Seat Designs

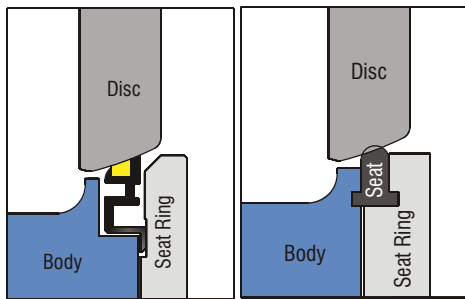


1. Teflon Seat
2" - 24"

2. Metal Seat
2" - 24"

1. **Teflon Seat** : Flexible lip seat design retains its original shape and maintain a seal against the disc regardless of the flow direction

2. **Metal Seat** : Flexible metal seat offers a very high sealing capability with an unusually low leakage rate. The mechanical properties and the shape of the metal seat allows it to flex and maintain constant positive sealing against the disc.



3. Fire Safe Seat
2" - 24"

4. Elastomer Seat
2" - 48"

3. **Fire Safe Seat** : During and after fire, when the resilient material has been partially or completely destroyed, the metal seat ring provides a positive seal by remaining in constant contact with the disc in either direction of media flow.

4. **Elastomer Seat** : The heavy 'T' section seal ring is designed to eliminate the potential extrusion due to high shut-off delta P or high velocity.

CODES AND STANDARDS

General design and manufacturing :- API 609 Category B / MSS-SP-68 / EN 593

Inspection and Testing :- API 598 / MSS-SP-68 / EN 12266-1 / AISI / FCI 70-2

Fire safe testing :- API 607 / ISO 10497 / EN 12266-2

Pressure temperature rating :- ASME B 16.34 // BS EN 12516-1

Special Applications

ULTRA seat

An engineered fluorocarbon polymer that is rated for 260 °C. Excellent for handling aggressive fluids at high pressures. Ultra is recommended for extended service in hostile environments involving chemical, thermal, and mechanical stress. Ultra has excellent thermal stability and is ideal for steam, hot gases, and a variety of process chemicals where service can be also be subject to pressure cycling.

NACE service

All valves conform to NACE MRO 103 standard. These valves are well suited for oil and gas industry applications requiring resistant materials to sulfide stress cracking.

Steam

Valves are available for saturated steam at 14 Bar rating for series 44 / 45 and 31 Bar for series 47 / 48.

Vacuum

Standard valves are rated for tight shut-off of vacuum to 2×10^{-2} torr.

Oxygen

Valves for critical gaseous oxygen service are specially prepared, cleaned, inspected, assembled and tested to ensure removal of all burrs, sharp edges, dirt, hydrocarbon oil or grease and other contaminants.

Materials of Construction

BODY - D.I. ASTM A536 65-45-12 / Carbon Steel, ASTM A 216 WCB / ASTM A352 LCB
Stainless Steel, ASTM A 351 CF8M / CF8

DISC - Stainless Steel, ASTM A 351 CF8M / CF8

STEM - ASTM A 479 SS316 (Class 150 up to 12", soft seat)
ASTM A479 SS 410 (Class 150 / 300)
ASTM A 564 17-4-PH TYPE 630 (Class 600 / 300 / 150)

SEAT - * PTFE / RTFE / ULTRA / UHMWP
Fire Safe Seat (2" - 24")
Metal Seat (SS316, INCONEL)(2" - 24")
EPDM / BUNA-N / SILICONE / VITON / (PN 25 Max.)

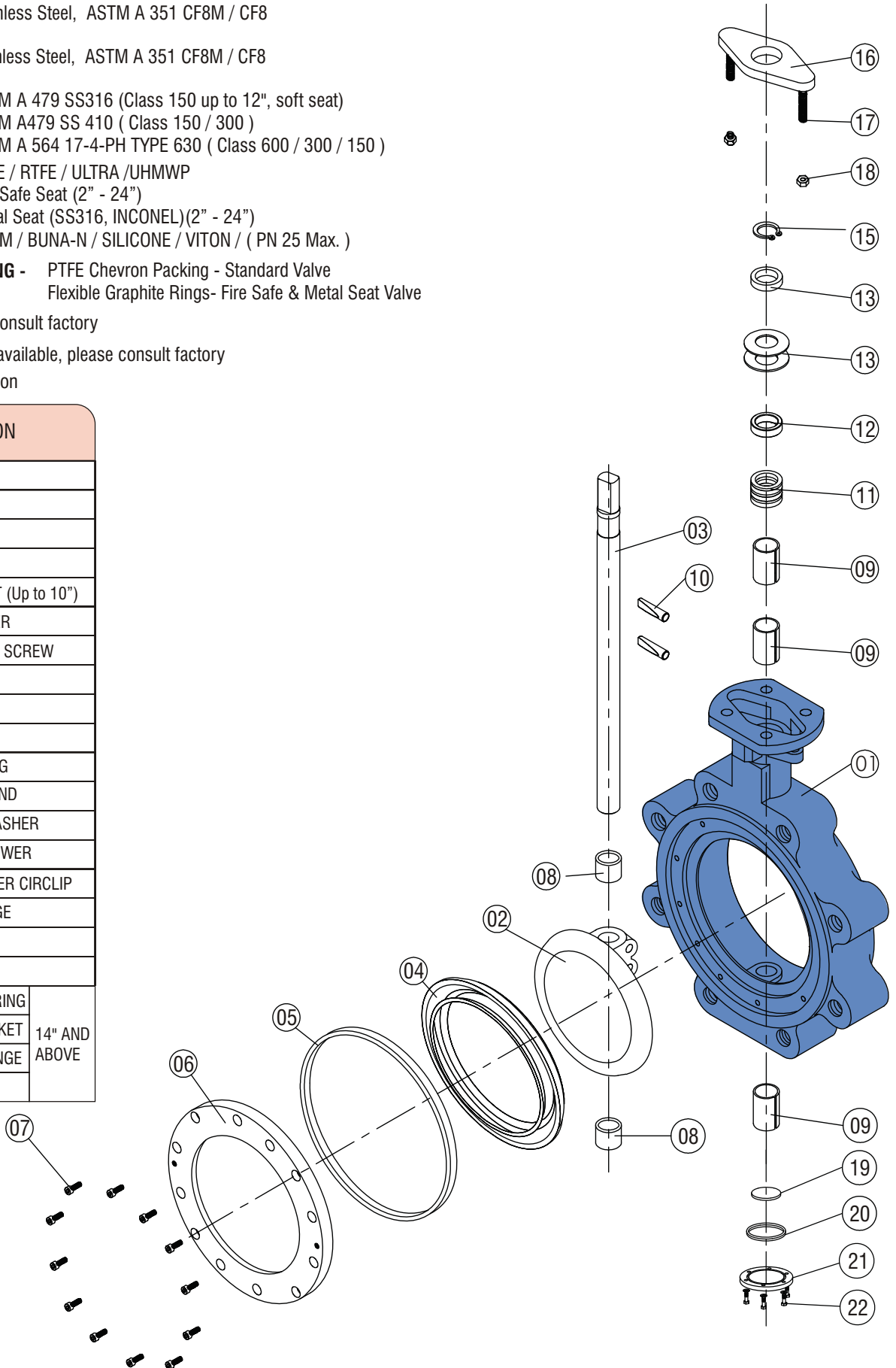
STEM PACKING - PTFE Chevron Packing - Standard Valve
Flexible Graphite Rings- Fire Safe & Metal Seat Valve

* For 26" & above consult factory

Other materials are available, please consult factory
for specific application

Sr. No.	DESCRIPTION
01	BODY
02	DISC
03	STEM
04	SEAT
05	BODY GASKET (Up to 10")
06	SEAT RETAINER
07	SOC. HD. CAP SCREW
08	DISC SPACER
09	BEARING
10	DISC PIN
11	STEM PACKING
12	PACKING GLAND
13	BELLVILLE WASHER
14	GLAND FOLLOWER
15	STEM RETAINER CIRCLIP
16	GLAND FLANGE
17	STUD
18	HEX NUT
19	THRUST BEARING
20	BOTTOM GASKET
21	BOTTOM FLANGE
22	HEX BOLT

14" AND ABOVE



Operators



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



Valves up to size 48" 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.



Valves upto 6" for class 150 and upto 4" for class 300 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.

How to order DeVal valves

Series <input type="checkbox"/> <input type="checkbox"/>		Size <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		Trim / Other Variables / Special <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>					
Valve Description	Valve Description	Body	Disc	Stem	Seat	Rating	Operator	Special	
44 : Wafer class 150	020 : 2"	140 : 14"	2 - D.I.	4-CF8M(SS316)	1-SS410	T- PTFE	5 - Class 150	B-BARE	0-NO SPECIAL
45 : Lug class 150	025 : 2.5"	160 : 16"	3- WCB	8- CF8(SS304)	4-SS316	U-ULTRA	6 - Class 300	L - LEVER	REQUIREMENT
47 : Wafer class 300	030 : 3"	180 : 18"	4- CF8M(SS316)		6- 17-4-PH	G-UHMWP	7 - Class 600	G - GEAR	S - SPECIAL
48 : Lug class 300	040 : 4"	200 : 20"	8- CF8(SS304)			R-RTFE			REQUIREMENT
4M : Wafer class 600	050 : 5"	240 : 24"				M-METAL (SS)			AS SPECIFIED
4N : Lug class 600	060 : 6"	260 : 26"				N-METAL (INCONEL)			BY CUSTOMER
	080 : 8"	280 : 28"				F-FIRE SAFE			
	100 : 10"	300 : 30"				E - EPDM			
	120 : 12"	320 : 32"				B - BUNA-N			
		360 : 36"				S - SILICONE			
		400 : 40"				V - VITON			
		440 : 44"							
		480 : 48"							

FOR Example :- To order 300/12" , wafer body valve, Body-CF8M, Disc- CF8M, Stem-SS316, Seat-RTFE, Rating-Class 150, Gear operated, with no special requirements.

DelVal[®] SERIES 50/52

Resilient Seated Butterfly Valves

Wafer & Lug

Sizes 2"-24" / DN 50 - DN 600



Leading the Industry with Innovation by Design

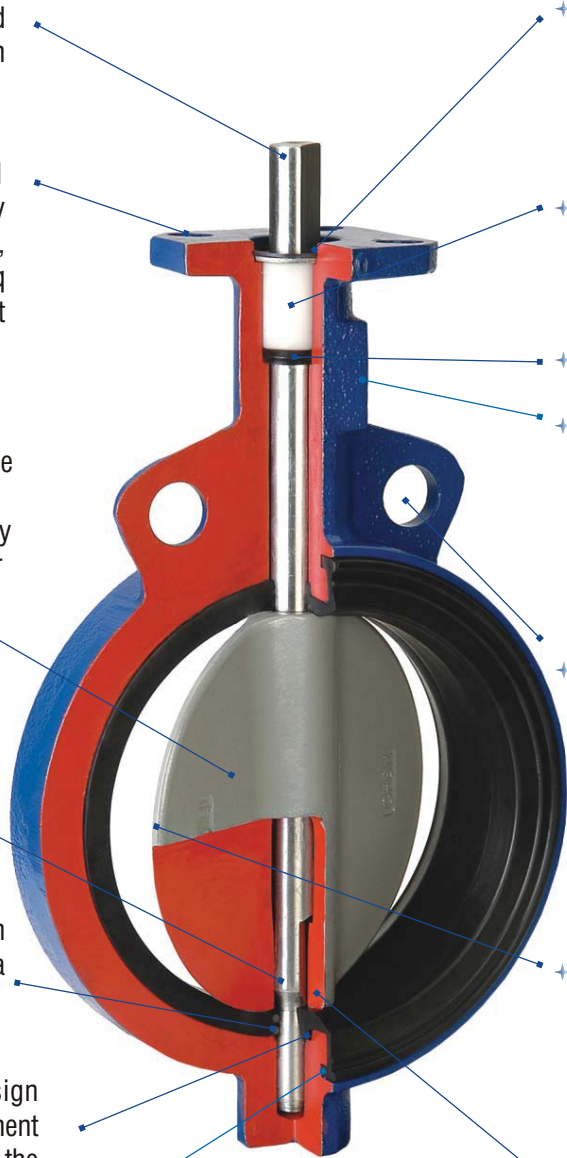


Jamieson Equipment Company
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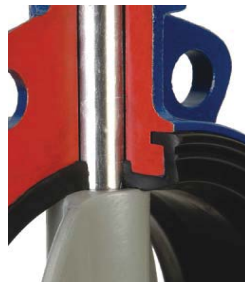
DelTech Controls is pleased to offer top-of-the-line products in pipeline flow control. The DelVal Series 50 (wafer body) and Series 52 (lug body) Butterfly Valves have been developed with extensive application, design and manufacturing expertise. These products are produced by employing modern manufacturing practices under a robust quality assurance system. These practices ensure consistent product quality and dependable performance. The DelVal Series 50/52 Butterfly Valves have been designed to include state-of-the-art features that are described in this bulletin.

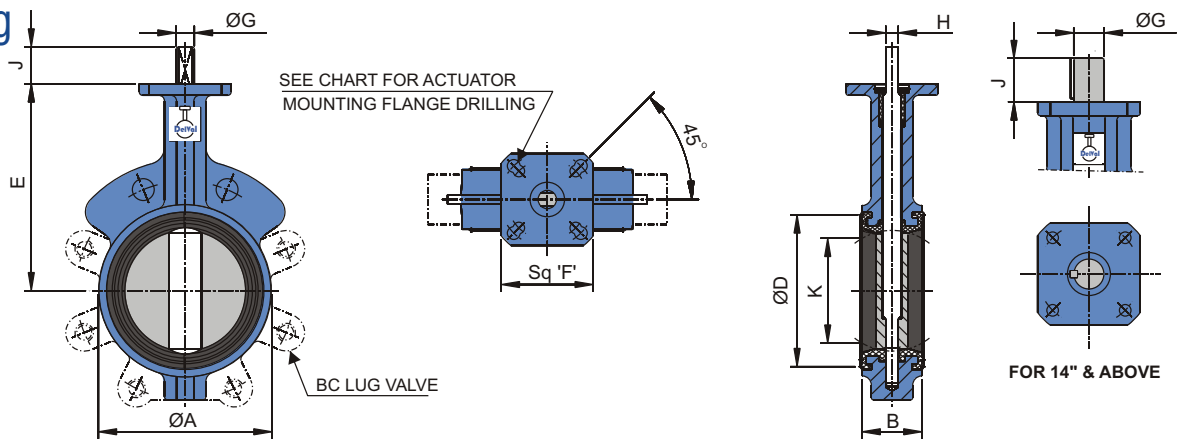
Features

- + Stem connection available in standard DelVal sizes or optional sizes to match standard secondary top plate drilling.
- + Top plate double drilled to fit ISO 5211 dimensions and standard secondary bolt circle dimensions. All handles, gear operators and pneumatic DelTorq actuators are designed to mount directly to DelVal Valves.
- + 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 un-seating of the disc.
- + Heavy duty square-grooved seat design with molded O-ring seals to serve as flange gaskets. EPDM seats are peroxide cured to yield the best elastic properties of the elastomer.
- + Unique stem retention system to provide blow-out proof stem and easy assembly and disassembly of valve.
- + Heavy duty acetal bushing absorbs the forces acting on the stem/disc assembly due to line pressure.
- + Bi-directional 'U' cup stem seal.
- + Heavy duty one-piece body with extended neck for 2" piping insulation. Standard coating is two coats of hard, Zinc-rich epoxy for excellent corrosion resistance.
- + Two flange locating holes for sizes up to 12" and four flange locating holes from size 14" to 24" for easy alignment of valve during installation. They meet ANSI #125/150 or other world drilling standards.
- + 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.



+ "Center-Lock" seat design





DIMENSIONS (Inch)

Valve Size		ØA	*B	ØD	E	Sq'F'	Top Plate Drilling			ØG	H	J	Key Size	K	Lug Bolting Data			Weight in Lbs.	
Inch	DN						BC	No. of Holes	Hole Dia						BC	No. of Holes	Threads UNC-2B	Wafer (Series 50)	Lug (Series 52)
2	50	3.58	1.62	2.99	5.51	3.15	2.76/3.25	4	0.39/0.438	0.55	0.39	1.25	---	1.32	4.75	4	5/8-11	5.07	6.79
2 1/2	65	4.13	1.75	3.54	5.98	3.15	2.76/3.25	4	0.39/0.438	0.55	0.39	1.25	---	2.05	5.50	4	5/8-11	5.80	7.91
3	80	4.72	1.75	4.17	6.30	3.15	2.76/3.25	4	0.39/0.438	0.55	0.39	1.25	---	2.70	6.00	4	5/8-11	6.83	8.92
4	100	5.91	2.00	5.20	7.09	3.15	2.76/3.25	4	0.39/0.438	0.63	0.43	1.25	---	3.61	7.50	8	5/8-11	10.87	16.37
5	125	6.89	2.12	6.30	7.56	3.15	2.76/3.25	4	0.39/0.438	0.75	0.51	1.25	---	4.62	8.50	8	3/4-10	13.91	21.56
6	150	8.07	2.12	7.36	8.07	3.15	2.76/3.25	4	0.39/0.438	0.75	0.51	1.25	---	5.50	9.50	8	3/4-10	16.31	25.35
8	200	10.20	2.50	9.45	9.49	4.72	2.76/4.92/5.00	4	0.39/0.55/0.563	0.87	0.63	1.25	---	7.39	11.75	8	3/4-10	28.00	37.92
10	250	12.21	2.50	11.50	10.75	4.72	4.92/5.00	4	0.55/0.563	1.18	0.87	2.00	---	9.31	14.25	12	7/8-9	44.09	61.73
12	300	14.33	3.00	13.58	12.24	4.72	4.92/5.00	4	0.55/0.563	1.18	0.87	2.00	---	11.12	17.00	12	7/8-9	60.85	92.26
14	350	16.34	3.00	15.28	13.62	4.72	4.92/5.00	4	0.55/0.563	1.38	---	2.00	0.39x0.39	12.92	18.75	12	1-8	87.96	122.80
16	400	18.58	4.00	17.40	14.76	4.72	4.92	4	0.55	1.38	---	2.00	0.39x0.39	14.80	21.25	16	1-8	130.51	184.31
18	450	20.67	4.25	19.49	15.98	6.70	6.50	4	0.83	1.97	---	2.50	0.39x0.47	16.59	22.75	16	1 1/8-7	194.45	239.42
20	500	22.83	5.00	21.57	17.24	6.70	6.50	4	0.83	1.97	---	2.50	0.39x0.47	18.61	25.00	20	1 1/8-7	236.78	306.88
24	600	27.24	5.94	25.75	19.49	Ø8.27	6.50	4	0.83	2.50	---	4.00	0.62x0.62	22.55	29.50	20	1 1/4-7	385.81	477.08

*Face to face dimension "B" generally conforming to API 609 Category A/BS EN 558-1 Series 20/ISO 5752 Series 20 / MSS SP 67 / ASME B 16.10

DIMENSIONS (mm)

Valve Size		ØA	**B	ØD	E	Sq'F'	Top Plate Drilling			ØG	H	J	Key Size	K	Lug Bolting Data			Weight in Kg.	
Inch	DN						BC	No. of Holes	Hole Dia						BC	No. of Holes	Threads UNC-2B	Wafer (Series 50)	Lug (Series 52)
2	50	91	43	76	140	80	70/82.5	4	10/11	14	10	32	---	33.5	120.7	4	5/8-11	2.30	3.08
2 1/2	65	105	46	90	152	80	70/82.5	4	10/11	14	10	32	---	52.1	139.7	4	5/8-11	2.63	3.59
3	80	120	46	106	160	80	70/82.5	4	10/11	14	10	32	---	68.5	152.4	4	5/8-11	3.10	4.05
4	100	150	52	132	180	80	70/82.5	4	10/11	16	11	32	---	91.7	190.5	8	5/8-11	4.93	7.42
5	125	175	56	160	192	80	70/82.5	4	10/11	19	13	32	---	117.3	215.9	8	3/4-10	6.31	9.78
6	150	205	56	187	205	80	70/82.5	4	10/11	19	13	32	---	139.7	241.3	8	3/4-10	7.40	11.50
8	200	259	60	240	241	120	70/125/127	4	10/14/14.3	22	16	32	---	187.6	298.5	8	3/4-10	12.70	17.20
10	250	310	68	292	273	120	125/127	4	14/14.3	30	22	51	---	236.4	362.0	12	7/8-9	20.00	28.00
12	300	364	78	345	311	120	125/127	4	14/14.3	30	22	51	---	282.4	431.8	12	7/8-9	27.60	41.85
14	350	415	78	388	346	120	125/127	4	14/14.3	35	---	51	10x10	328.3	476.2	12	1-8	39.90	55.70
16	400	472	102	442	375	120	125	4	14	35	---	51	10x10	375.8	539.7	16	1-8	59.20	83.60
18	450	525	114	495	406	170	165	4	21	50	---	64	10x12	421.4	577.8	16	1 1/8-7	88.20	108.60
20	500	580	127	548	438	170	165	4	21	50	---	64	10x12	472.6	635.0	20	1 1/8-7	107.40	139.20
24	600	692	154	654	495	Ø210	165	4	21	63.5	---	102	15.88x15.88	572.7	749.3	20	1 1/4-7	175.00	216.40

** Metric valve face to face dimension 'B' conforms to API 609 Category A / BS EN 558-1 Series 20 / ISO 5752 Series 20 / MSS SP 67 / ASME B 16.10

TORQUE (Lbf-Inch)

Valve Size		2"	2.5"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
Full Rated Pressure Valve ΔP, PSI	50	62	106	115	241	360	484	878	1409	2366	3064	3684	5795	6741	9601
	100	72	124	142	256	393	545	977	1586	2677	3527	4428	7273	8441	12482
	150	80	142	177	271	426	582	1083	1756	2987	3980	5178	8756	10126	15576
	175	91	150	197	279	443	620	1133	1841	3146	---	---	---	---	---
Reduced Disc Dia. ΔP, PSI		50	---	---	133	187	267	623	771	1259	2159	2627	3649	4285	6500

TORQUE (Nm)

Full Rated Pressure Valve ΔP, Bar	3.5	7	12	13	27	41	55	99	159	267	346	416	655	762	1085
	7	8	14	16	29	44	62	110	179	302	398	500	822	954	1410
	10	9	16	20	31	48	66	122	198	337	450	585	989	1144	1760
	12	10	17	22	32	50	70	128	208	355	---	---	---	---	---
Reduced Disc Dia. ΔP, Bar		3.5	---	---	15	21	30	70	87	142	244	297	412	484	734

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

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

Stem

- 410 Stainless Steel ASTM A479 Type 410
- 316 Stainless Steel ASTM A276 Type 316
- Carbon steel BS 970
- ASTM A564 17-4-PH TYPE 630

Seat Temperature Range:

Seat Type	Temperature Range	
	Min.	Max.
EPDM	-13° F (-25°C)	302° F (150°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)

Viton® is registered trademark of E.I. DuPont.

Seat

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

General Design and Manufacturing

Standard: API 609 / BS EN -593

Testing Standard: API 598 / BS EN 12266-1

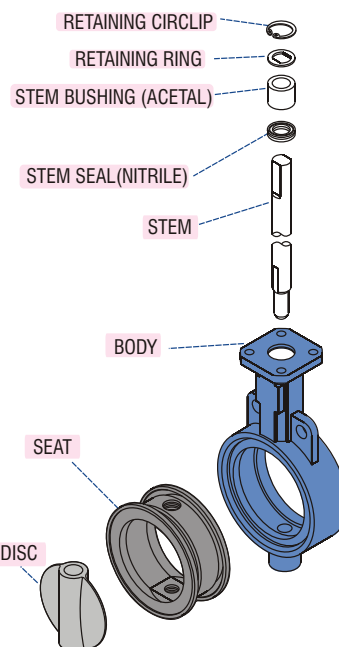
Pressure Rating:

For bi-directional bubble tight shut off and full vacuum service with disc in the closed position.

Inch	DN	PSIG	BARG
2" - 12"	50-300	175	12
2" - 24"	50-600	150	10
2" - 24"	50-600	50	3.5
* 2" - 12"	50-300	230	16
* 2" - 12"	50-300	285	Class 150

*Optional, contact factory for details.

Dead-End Service : Without a downstream flange installed, the dead-end pressure ratings are equal to the values stated above.



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 24" 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.

DelVal[®] SERIES 51/53

Resilient Seated Butterfly Valves

Wafer & Flanged End

Sizes 26" - 40" / DN 650 - DN 1000



Leading the Industry with Innovation by Design

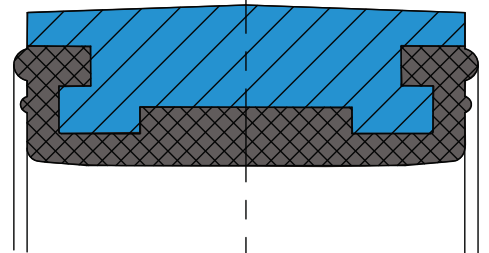


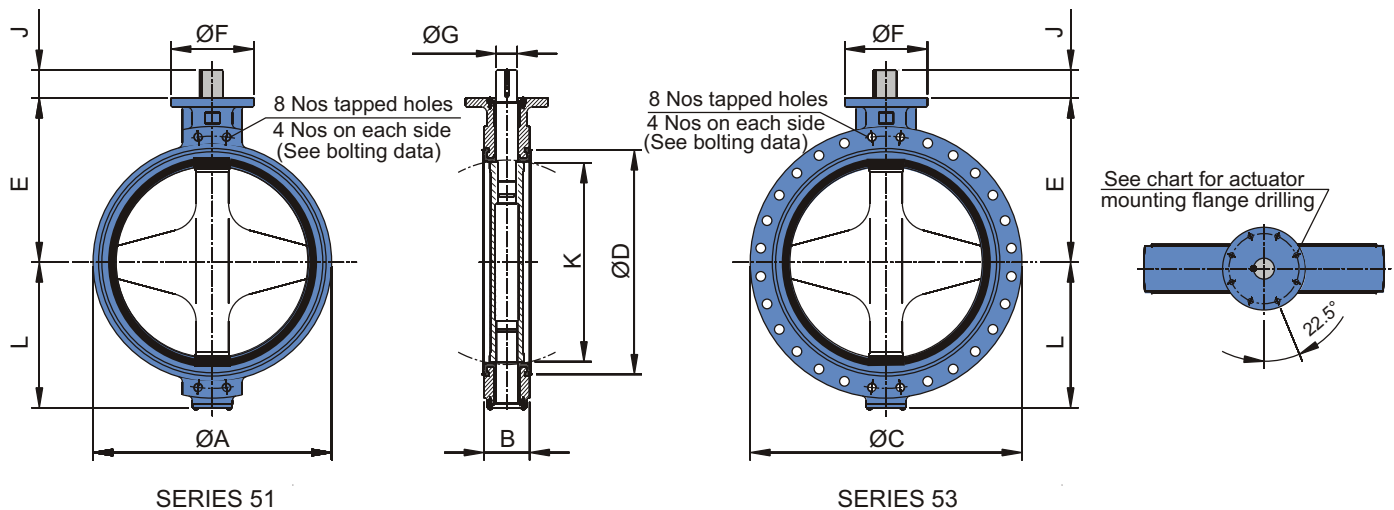
Jamieson Equipment Company
www.jamiesonequipment.com
toll free 800.875.0280

DelTech Controls is pleased to offer top-of-the-line products in pipeline flow control. The DelVal Series 51 (Wafer Body) and Series 53 (Flanged End) Butterfly Valves have been developed with extensive application, design and manufacturing expertise. These products are produced by employing modern manufacturing practices under a robust quality assurance system. These practices ensure consistent product quality and dependable performance. The DelVal Series 51/53 Butterfly Valves have been designed to include state-of-the-art features that are described in this bulletin.

Features

- + ISO 5211 top plate drilling and stem connection. All gear operators and pneumatic DelTorq actuators are designed to mount directly to DelVal valves.
- + Self-adjusting bi-directional 'U' cup stem sealing prevents entry of external substances from upper stem bore. This packing acts as the tertiary pressure seal.
- + Heavy-duty bronze sleeve bearing to reduce bearing friction and operating torque.
- + Unique stem retention system to provide blow-out stem and easy assembly and disassembly of valve.
- + Heavy-duty one-piece body. Standard coating is an epoxy polyester powder coat of semi-glossy finish with excellent corrosion resistance.
- + High strength disc with hand polished disc edge and hubs for bubble-tight shut off and longer service life.
- + Precision machined radius provided on the upper and lower disc hubs presses against upper and lower seat sealing faces. This achieves primary sealing between disc and seat which isolates the flowing media from stem and body material at all angles of valve disc seating.
- + 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.
- + Thick bronze bushing absorbs actuator side thrusts.
- + Heavy-duty square grooved seat design with molded o-ring seals to serve as flange gaskets. EPDM seats are peroxide cured to yield the best elastic properties of the elastomer.
- + Bronze vertical thrust bearing eliminates disc displacement due to weight of stem and disc.
- + Unique "Center-Lock" seat design virtually eliminates any seat movement during the seating and unseating of the disc and isolates the body and stem from line media.
- + Double o-rings are molded in both upper and lower journals providing a superior secondary seal.





DIMENSIONS (Inch)	Valve Size		ØA	ØC	*B	ØD	E	L	ØF	Top Flange Drilling			ØG	J	Keysize	K	Bolting Data		Weights In Lbs.	
	Inches	DN								BC	No. of holes	Hole Dia.					BC	Threads UNC-2B	Wafer (Series 51)	Flanged End (Series 53)
	26	650								29.33	34.25	6.50					27.83	21.85	18.70	11.81
28	700	31.30	36.50	6.50	29.76	22.83	19.37	11.81	10.00	8	0.71	2.50	4.00	0.62 x 0.62	25.69	34.00	1 1/4-7	620	871	
30	750	33.86	38.75	6.50	32.00	23.43	20.78	11.81	10.00	8	0.71	3.00	4.00	0.75 x 0.75	28.23	36.00	1 1/4-7	730	930	
32	800	35.43	41.75	7.48	33.82	26.38	22.24	11.81	10.00	8	0.71	3.00	4.00	0.75 x 0.75	29.76	38.50	1 1/2-6	849	1049	
36	900	40.35	46.00	8.00	38.27	27.76	25.20	13.78	11.73	8	0.82	3.50	5.25	0.88 x 0.62	34.25	42.75	1 1/2-6	1069	1516	
40	1000	44.09	50.75	8.50	41.57	30.79	26.57	13.78	11.73	8	0.82	4.00	5.25	1.00 x 0.75	37.48	47.25	1 1/2-6	1738	2178	

DIMENSIONS (mm)	Valve Size		ØA	ØC	*B	ØD	E	L	ØF	Top Flange Drilling			ØG	J	Keysize	K	Bolting Data		Weights In Kg.	
	Inches	DN								BC	No. of holes	Hole Dia.					BC	Threads UNC-2B	Wafer (Series 51)	Flanged End (Series 53)
	26	650								745	870	165					707	555	475	300
28	700	795	927	165	756	580	492	300	254	8	18	63.5	102	15.88 x 15.88	651	863.60	1 1/4-7	282	396	
30	750	860	985	165	813	595	528	300	254	8	18	76.2	102	19.05 x 19.05	717	914.40	1 1/4-7	332	423	
32	800	900	1060	190	859	670	565	300	254	8	18	76.2	102	19.05 x 19.05	756	977.90	1 1/2-6	386	477	
36	900	1025	1170	203	972	705	640	350	298	8	21	88.9	134	22.23 x 15.88	870	1085.85	1 1/2-6	486	689	
40	1000	1120	1290	216	1056	782	675	350	298	8	21	101.6	134	25.4 x 19.05	952	1200.15	1 1/2-6	790	990	

*Face to Face dimension "B", generally conforming to API 609 Category A /BS EN 558-1 Series 20,/ ISO 5752Series 20

Cv VALUES	Valve Size		Disc Opening Angle (In Degree)								
	Inch	DN	10°	20°	30°	40°	50°	60°	70°	80°	90°
26	650	278	1096	2705	4757	7759	12121	19167	28611	35264	
28	700	286	1309	3011	5379	8536	13695	22258	33907	40598	
30	750	416	1607	3855	6936	11158	17566	28717	42467	50744	
32	800	528	1947	4527	7813	12508	20253	31947	48473	59094	
36	900	732	2684	5753	9568	15045	24669	39184	58676	75992	
40	1000	737	2895	6889	11805	19079	30253	50242	73405	86598	

Note :- Rated Cv = The volume of water in USgpm that will pass through a given valve opening at a pressure drop of 1 psi.

TORQUE (Lb-Inch)	Valve Size		26"	28"	30"	32"	36"	40"
	Full Rated Pressure Valve ΔP, PSI	50	14691	17364	20090	23762	31241	37037
		100	19488	23364	27285	32878	44029	54649
		150	24338	29382	34515	41949	56817	72260
Reduced Disc Dia. ΔP, PSI	50	9408	11204	12965	15532	20727	27302	

TORQUE (Nm)	Valve Size		26"	28"	30"	32"	36"	40"
	Full Rated Pressure Valve ΔP, Bar	3.5	1660	1962	2270	2685	3530	4185
		7	2202	2640	3083	3715	4975	6174
		10	2750	3320	3900	4740	6420	8165
Reduced Disc Dia. ΔP, Bar	3.5	1063	1266	1465	1755	2342	3085	

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

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

Stem

- 410 Stainless Steel ASTM A479 Type 410
- 316 Stainless Steel ASTM A276 Type 316
- Carbon Steel BS 970

Seat

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

Operators:

- Gear Operators can be direct mounted to valves for manual operation.
- 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.

Seat Temperature Range:

Seat Type	Temperature Range	
	Min.	Max.
EPDM	-13° F (-25°C)	302° F (150°C)
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)

Viton® is registered trademark of E.I. DuPont.

Parts List:

Item No.	Part Description	Qty
1	BODY	1
2	DISC	1
3	SEAT	1
4	STEM	1
5	'U' CUP SEAL	1
6	BEARING	2
7	RETAINER CIRCLIP	1
8	RETAINING RING	1
9	SOC. HD. SCREW	6
10	BEARING SPACER	1
11	THRUST BEARING	1
12	'O' RING	1
13	BOTTOM PLATE	1
14	WASHER	6
15	HEX. BOLT	6
16	KEY	1
17	SOC. SCREW	1

General Design and Manufacturing Standard:

API 609 / BS EN -593

Note : Flanged body construction conforming to 'U' section wafer body as per EN-593

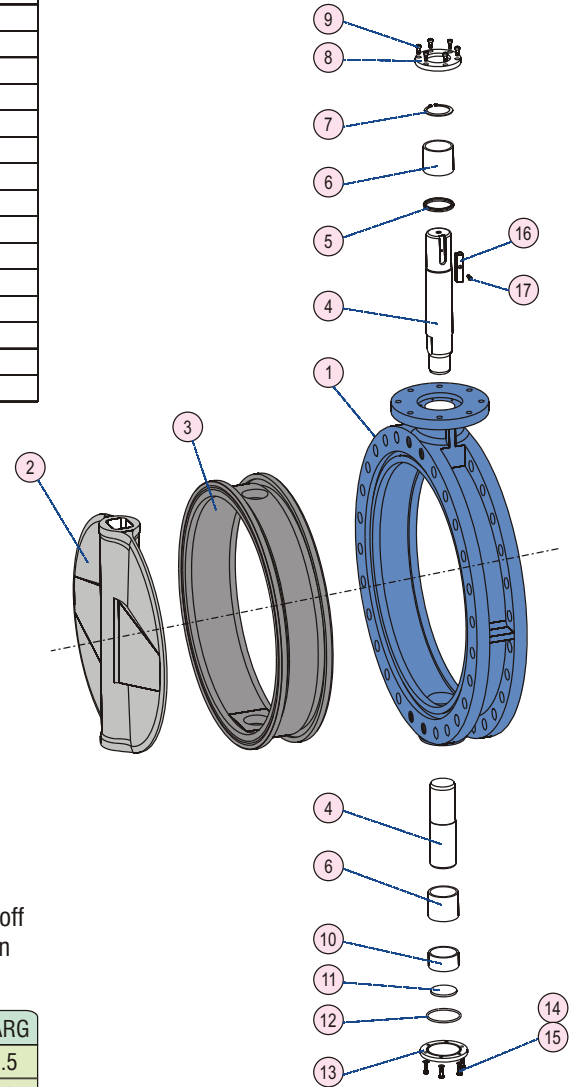
Testing Standard:

API 598 / BS EN 12266-1

Pressure Rating:

For bi-directional bubble tight shut off and full vacuum service with disc in the closed position.

Inch	DN	PSIG	BARG
26"- 40"	650 - 1000	50	3.5
26"- 40"	650 - 1000	150	10



DelVal[®] SERIES 56/57

High Flow Resilient Seated Butterfly Valves

Wafer & Lug , Sizes 2"-24" / DN50-DN600

2"-12" Class 150 / 285 PSI

14"-24" PN16 / 230 PSI



Leading the Industry with Innovation by Design



Jamieson Equipment Company
www.jamiesonequipment.com
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DelTech Controls is pleased to offer top-of-the-line products in pipeline flow control. The DelVal Series 56 (wafer body) and Series 57 (lug body) Butterfly Valves have been developed with extensive application, design and manufacturing expertise. These products are produced by employing modern manufacturing practices under a robust quality assurance system. These practices ensure consistent product quality and dependable performance. The DelVal Series 56/57 Butterfly Valves have been designed to include state-of-the-art features that are described in this bulletin.

Features

1. High Strength Stem - Stem connection available in standard DelVal sizes .

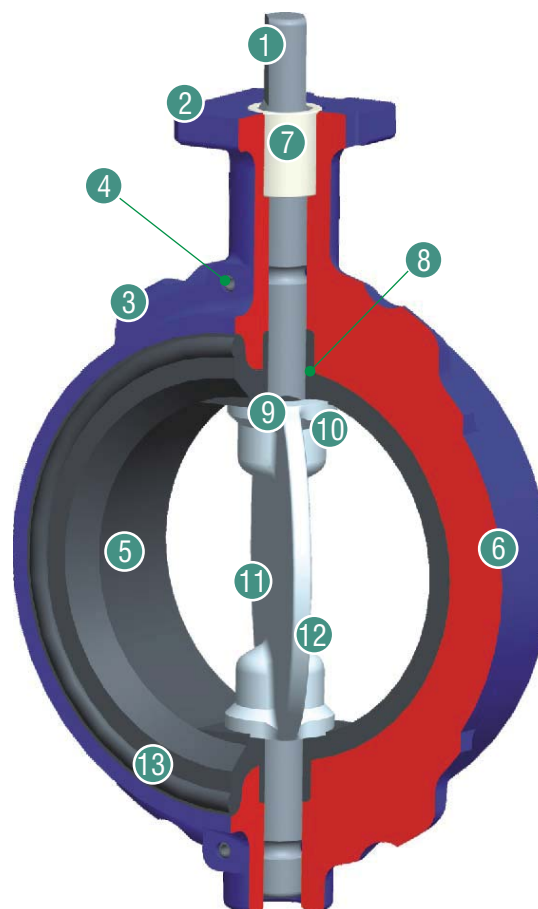
2. Top plate drilled to fit ISO 5211 dimensions. All handles, gear operators, pneumatic and electric DelTorq actuators are designed to mount directly to DelVal Valves.

3. Four flange locating ribs for sizes up to 12" and four flange locating holes from size 14" to 24" for easy alignment of valve during installation. They meet ANSI #125 /150 or other world drilling standards.

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

5. Unique "integral rubber rich seat" in various elastomeric materials provides ultimate sealing in a wide variety of applications. Integral rubber rich seat offers all the advantages of a cartridge seat and the integrity of one-piece body/seat design. This construction allows easy installation between tightly spaced flanges without using flange spreader. Offers 100% bi-directional sealing against vacuum and dead end service to full rated pressure without the use of a downstream flange.

6. Heavy duty one-piece body. Standard coating is two coats of hard, zinc-rich epoxy for excellent corrosion resistance.



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

8. The secondary sealing is achieved through double integrally molded 'O' rings which are compressed around the stem.

9. Positive disc stem engagement by a precision machined square drive, eliminating potential leak path and failure of stem joint.

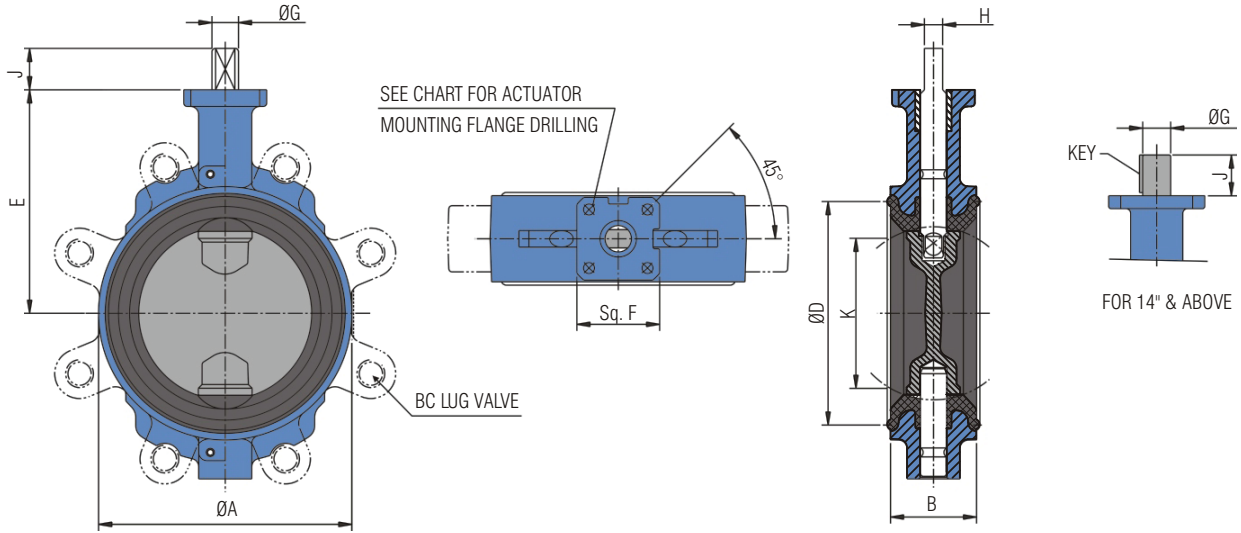
10. Precision machined radius on the upper and lower disc hubs is pressed against upper and lower seat sealing faces for achieving primary sealing between disc and seat.

11. High flow disc design provides a streamlined flow passage, enhanced flow characteristics and reduced resistance to flow especially for control applications.

12. 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 food grade applications.

13. Flange gasket ('O' ring) is integral to the body lining which eliminates the need of separate gasket.

Engineering



DIMENSIONS (Inch)

Valve Size		ØA	*B	ØD	E	Sq'F'	TOP FLANGE DRILLING			ØG	H	J	Key Size	K	LUG BOLTING DATA			Weights In Lbs	
Inches	DN						BC	NO. OF HOLES	HOLE DIA.						BC	NO. OF HOLES	THREADS UNC/UN-2B	Wafer (Series 56)	Lug (Series 57)
2	50	3.54	1.69	2.83	4.13	1.96	4	0.27	0.55	0.39	0.78	-	1.29	4.75	4	5/8-11	4.96	6.61	
2 1/2	65	4.13	1.81	3.46	4.48	1.96	4	0.27	0.55	0.39	0.78	-	2.02	5.50	4	5/8-11	5.73	7.82	
3	80	4.80	1.81	4.13	4.72	1.96	4	0.27	0.55	0.39	0.78	-	2.67	6.00	4	5/8-11	6.83	8.92	
4	100	6.02	2.06	5.31	5.31	1.96	4	0.27	0.63	0.43	0.78	-	3.52	7.50	8	5/8-11	9.92	15.43	
5	125	7.24	2.19	6.45	5.90	2.75	4	0.39	0.75	0.51	1.25	-	4.54	8.50	8	3/4-10	15.87	23.58	
6	150	8.26	2.19	7.40	6.49	2.75	4	0.39	0.75	0.51	1.25	-	5.45	9.50	8	3/4-10	17.19	26.23	
8	200	10.39	2.38	9.52	8.07	3.93	4	0.39/0.47	0.87	0.63	1.25	-	7.38	11.75	8	3/4-10	31.41	41.33	
10	250	12.44	2.69	11.49	9.25	3.93	4	0.47	1.18	0.87	2.0	-	9.30	14.25	12	7/8-9	47.61	65.25	
12	300	14.56	3.06	13.62	10.82	3.93	4	0.47	1.18	0.87	2.0	-	11.11	17.00	12	7/8-9	66.13	97.00	
14	350	16.22	3.06	15.11	12.20	4.72	4	0.55	1.38	-	2.00	0.39x0.39	12.70	18.75	12	1-8	88.18	123.01	
16	400	18.42	4.00	17.24	13.38	4.72	4	0.55	1.38	-	2.00	0.39x0.39	14.65	21.25	16	1-8	132.71	186.51	
18	450	20.66	4.48	19.40	14.56	Ø6.89	5.51	4	0.70	1.57	-	2.36	0.31x0.47	16.52	22.75	16	1 1/8-8	196.21	240.30
20	500	22.75	5.00	21.57	15.74	Ø6.89	5.51	4	0.70	1.57	-	2.36	0.31x0.47	18.43	25.00	20	1 1/8-8	239.20	309.08
24	600	26.96	6.06	25.59	18.30	Ø8.27	6.50	4	0.83	1.97	-	2.76	0.39x0.47	22.55	29.50	20	1 1/4-8	385.80	477.07

DIMENSIONS (mm)

Valve Size		ØA	*B	ØD	E	Sq'F'	TOP FLANGE DRILLING			ØG	H	J	Key Size	K	LUG BOLTING DATA			Weights In Kg	
Inches	DN						BC	NO. OF HOLES	HOLE DIA.						BC	NO. OF HOLES	THREADS UNC/UN-2B	Wafer (Series 56)	Lug (Series 57)
2	50	90	43	72	105	50	4	7	14	10	20	-	32.7	120.7	4	5/8-11	2.25	3.00	
2.5	65	105	46	88	114	50	4	7	14	10	20	-	51.4	139.7	4	5/8-11	2.60	3.55	
3	80	122	46	105	120	50	4	7	14	10	20	-	67.8	152.4	4	5/8-11	3.10	4.05	
4	100	153	52	135	135	50	4	7	16	11	20	-	89.5	190.5	8	5/8-11	4.50	7.00	
5	125	184	56	164	150	70	4	10	19	13	32	-	115.3	215.9	8	3/4-10	7.20	10.70	
6	150	210	56	188	165	70	4	10	19	13	32	-	138.4	241.3	8	3/4-10	7.80	11.90	
8	200	264	60	242	205	100	4	10/12	22	16	32	-	187.6	298.5	8	3/4-10	14.25	18.75	
10	250	316	68	292	235	100	4	12	30	22	51	-	236.4	362.0	12	7/8-9	21.60	29.60	
12	300	370	78	346	275	100	4	12	30	22	51	-	282.4	431.8	12	7/8-9	30.00	44.00	
14	350	412	78	384	310	120	4	14	35	-	51	10x10	322.4	476.2	12	1-8	40.00	55.80	
16	400	468	102	438	340	120	4	14	35	-	51	10x10	372.3	539.7	16	1-8	60.20	84.60	
18	450	525	114	493	370	Ø175	140	4	18	40	-	60	8x12	419.8	577.8	16	1 1/8-8	89.00	109.00
20	500	578	127	548	400	Ø175	140	4	18	40	-	60	8x12	468.1	635.0	20	1 1/8-8	108.50	140.20
24	600	685	154	650	465	Ø210	165	4	21	50	-	70	10x12	572.7	749.3	20	1 1/4-8	175.00	216.40

* Face to Face dimension "B", generally conforming to API 609 Category A/BS EN 558-1 Series 20/ISO 5752 Series 20/MSS SP 67/ASME B 16.10
All bolt holes 1 1/8" and larger have a 8-UN thread series as per API 609

TORQUE (lb.-Inch)

Valve Size	2"	2.5"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	
Full Rated Pressure Valve ΔP, PSI	50	62	106	115	241	360	484	878	1409	2366	3064	3684	5795	6741	9601
	100	72	124	142	256	393	545	977	1586	2677	3527	4428	7273	8441	12482
	150	80	142	177	271	426	582	1083	1756	2987	3980	5178	8756	10126	15576
	230	150	212	283	478	575	1062	1859	2823	4142	6106	8187	10550	13329	26809
	285	177	248	354	540	637	1150	2168	3098	4673	-	-	-	-	-
Reduced Disc Dia. ΔP, PSI	50	-	-	-	133	187	267	623	771	1259	2159	2627	3649	4285	6500

TORQUE (Nm)

Full Rated Pressure Valve ΔP, Bar	3.5	7	12	13	27	41	55	99	159	267	346	416	655	762	1085
	7	8	14	16	29	44	62	110	179	302	398	500	822	954	1410
	10	9	16	20	31	48	66	122	198	337	450	585	989	1144	1760
	16	17	24	32	54	65	120	210	319	468	690	925	1192	1506	3029
	Class 150	20	28	40	61	72	130	245	350	528	-	-	-	-	-
Reduced Disc Dia. ΔP, Bar	3.5	-	-	-	15	21	30	70	87	142	244	297	412	484	734



Material of Construction

Body

- Cast Iron ASTM A126 Class B
- Ductile Iron ASTM A536 Grade 65-45-12

Disc

- DI ASTM A 536 Grade 65-45-12 + Epoxy coated
- 316 Stainless Steel ASTM A351 Grade CF8M
- Nylon 12 Coated Ductile Iron ASTM A536 Grade 65-45-12 (Optional)

General Design and Manufacturing

Standard: API 609 / BS EN -593

Testing Standard: API 598 / BS EN 12266-1

Seat Temperature Range:

Seat Type	Temperature Range	
	Min.	Max.
EPDM	-13° F (-25°C)	302° F (150°C)
BUNA-N	-13° F (-25°C)	212° F (100°C)

Stem

- 410 Stainless Steel ASTM A479 Type 410
- ASTM A564 17-4-PH

Seat

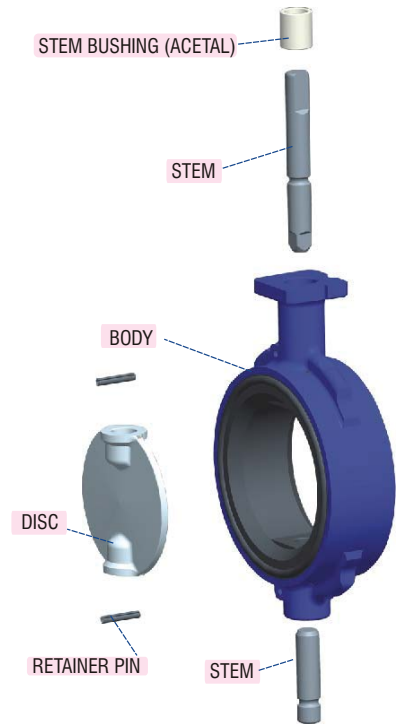
- EPDM - Food Grade
- Buna-N - Food Grade

Pressure Rating:

For bi-directional bubble tight shut off and full vacuum service with disc in the closed position.

Inch	DN	PSIG	BARG
2" - 24"	50-600	50	3.5
2" - 24"	50-600	150	10
2" - 24"	50-600	230	16
2" - 12"	50-300	285	Class150

Dead-End Service : Without a downstream flange installed, the dead-end pressure ratings are equal to the values stated above.



Operators



Valves up to size 8" 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 24" 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.