

DeVal[®] SERIES 4A/4B/4C and 4D/4E/4F

Triple Eccentric Butterfly Valves
Wafer, Lug and Double Flanged
Sizes 2" to 48"
ASME Class 150 & Class 300



Leading the Industry with Innovation by Design

DelTech Controls is pleased to offer top-of-the-line products in pipeline flow control. The DelVal Series 4A/4B/4C/4D/4E/4F 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 4A/4B/4C/4D/4E/4F 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 300 rating.

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.

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.

Bi-Directional Dead End Service

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

Stem

Robust single -piece shaft location in to the bearings, minimizes shaft deflection which promotes bi-directional sealing.

Bearings

Long bearings are installed on upper and lower part of the body insures centering of the stem and eliminates galling. Graphite ring encased in bearing prevents solid particles from coming in contact with bearing surface.

Seat

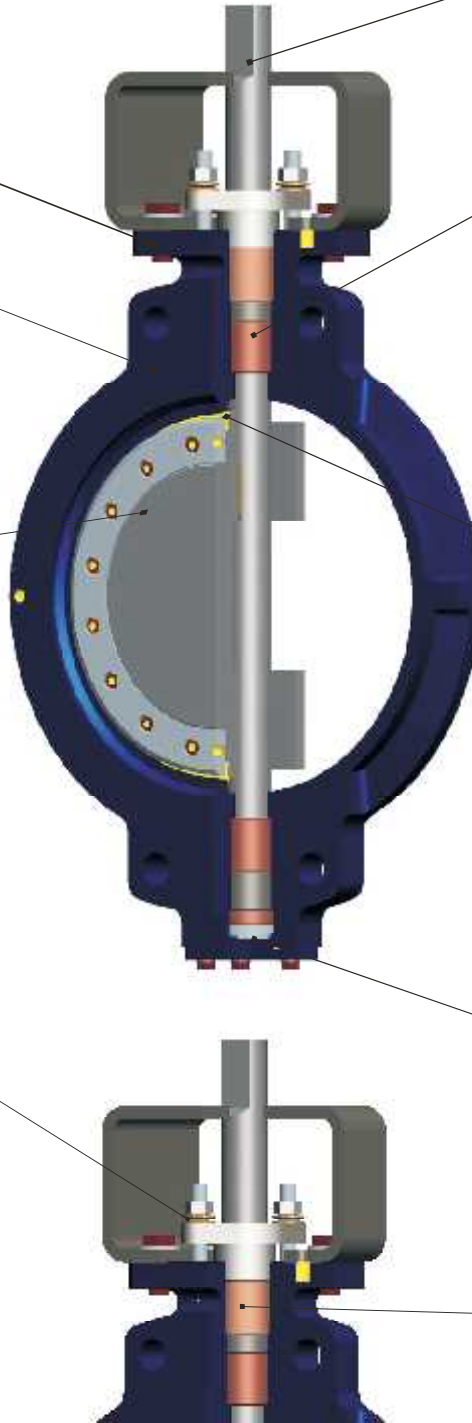
Self centering 'Floating' laminated seat mounted on the disc gives uniform wedging effect, ensures ZERO leakage, element seat erosive effect from the flowing media and easily replaceable without special tools.

Blow-out proof stem

Anti blow out device on stem with both internal and external retaining system.

Stem Packing

Adjustable stem packing with multiple graphite rings, controls fugitive emission and gives longer packing life



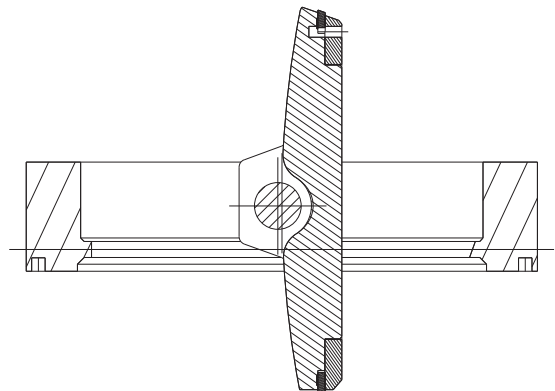
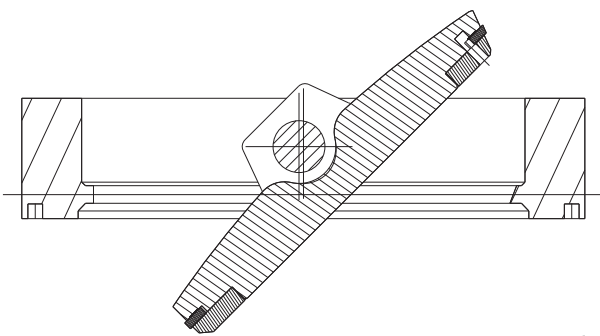
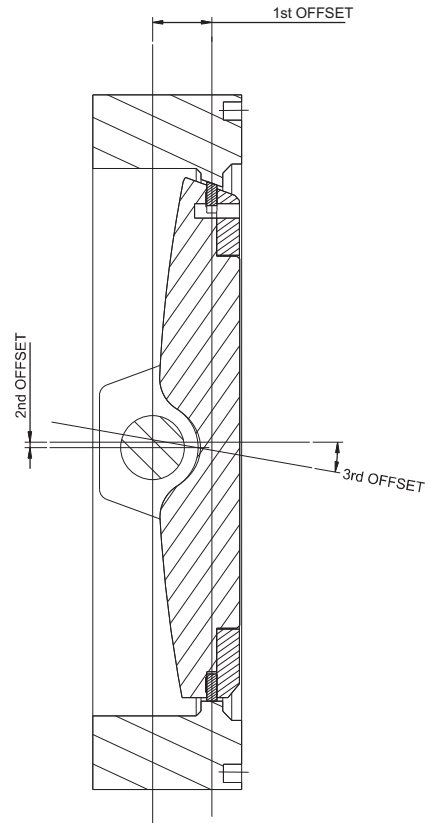
Triple offset Design

Triple offset design eliminates wear associated with sealing surface contact and maintains sealing integrity and high cycle life

Offset 1: The first offset is the stem set away from the disc edge. This construction allows for a continuous sealing surface uninterrupted by the stem.

Offset 2 : The second offset is the stem center line Offset to one side of the center line. This produces a cam-like rotary motion of the disc that pulls the Disc edge from the seat upon opening. As the disc reaches the closed position, this cam like offset converts the rotary motion to a linear motion that pushes the disc into the seat. The disc edge does not contact the seat throughout the full range of travel.

Offset:3 The third offset consist seal and seat edges with both cones tilted away from the axis of the revolution. The offset tilting of the cones facilitates rotary disengagement of the disc from the seat. This cone-in-cone geometry removes the entire disc edge from the seat immediately upon opening rotation of the disc and engages contact only at closing. All interference between disc and seal is eliminated.



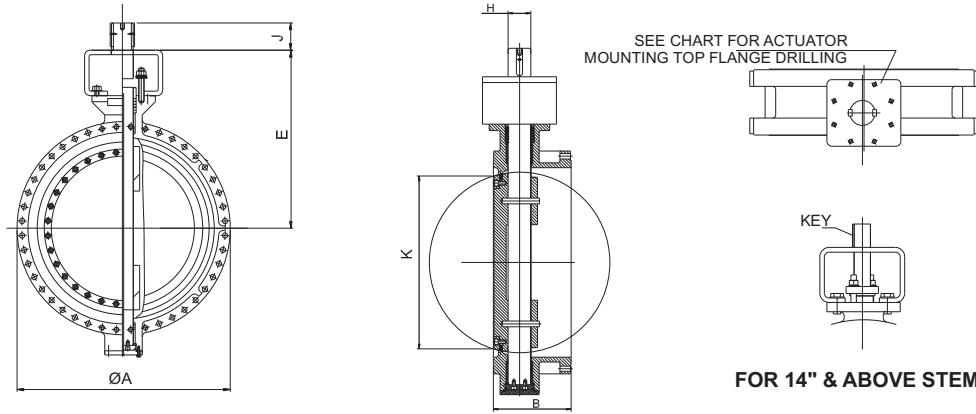
CODES AND STANDARDS

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



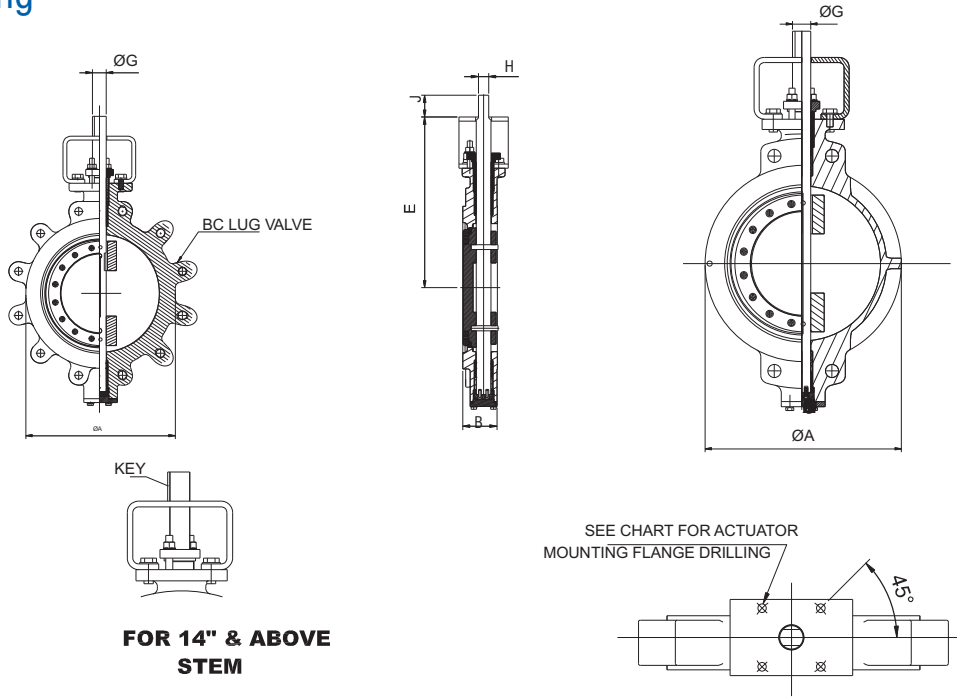
DIMENSIONS (mm)

ASME CLASS 150 (Series 4C)

Valve Size		ØA	* B	E	ØF	TOP FLANGE DRILLING			ØG	H	J	Key Size	Weights In Kg.
Inches	DN					BC	NO. OF HOLES	HOLE DIA.					
3	80	190	114	151	102	70	4	10	16	11	32	-	24
4	100	230	127	172	102	70	4	10	16	11	32	-	35
5	125	255	140	188	102	70	4	10	19	13	32	-	40
6	150	280	140	209	102	70	4	10	19	13	32	-	48
8	200	345	152	239	152	125	4	14	22	16	32	-	56
10	250	405	165	280	152	125	4	14	30	22	51	-	70
12	300	485	178	310	152	125	4	14	35	24	51	-	115
14	350	535	190	335	152	125	4	14	40	-	51	12 x 8	135
16	400	595	216	407	210	165	4	21	50	-	64	12 x 10	165
18	450	635	222	427	210	165	4	21	55	-	64	16 x 10	235
20	500	700	229	450	210	165	4	21	60	-	102	18 x 11	340
24	600	815	267	530	300	254	8	18	70	-	102	20 x 12	485
26	650	870	292	560	300	254	8	18	88-9	-	102	22.23x15.88	590
28	700	927	292	600	300	254	8	18	88-9	-	102	22.23x15.88	680
30	750	985	318	640	350	298	8	21	88-9	-	102	22.23x15.88	790
32	800	1060	318	670	350	298	8	21	102	-	134	25.4x19.05	905
36	900	1170	330	705	350	298	8	21	102	-	134	25.4x19.05	1125
40	1000	1290	410	810	415	356	8	33	120	-	150	32x18	1415
44	1100	1404	470	845	415	356	8	33	120	-	150	32x18	1795
48	1200	1512	470	915	415	356	8	33	120	-	150	32x18	2098

ASME CLASS 300 (Series 4F)

Valve Size		ØA	* B	E	ØF	TOP FLANGE DRILLING			ØG	H	J	Key Size	Weights In Kg.
Inches	DN					BC	NO. OF HOLES	HOLE DIA.					
3	80	210	114	151	102	70	4	10	16	11	32	-	34
4	100	255	127	172	102	70	4	10	16	11	32	-	49
5	125	280	140	193	102	70	4	10	19	13	32	-	56
6	150	320	140	220	152	125	4	14	22	16	32	-	67
8	200	380	152	165	152	125	4	14	30	22	51	-	78
10	250	445	165	290	152	125	4	14	35	24	51	-	98
12	300	520	178	340	152	125	4	14	40	29	51	-	161
14	350	585	190	375	210	165	4	21	55	-	64	16 x 10	189
16	400	650	216	425	210	165	4	21	55	-	64	16 x 10	231
18	450	710	222	465	300	254	8	18	70	-	102	20 x 12	330
20	500	775	229	505	350	298	8	21	88.9	-	134	22.23x15.88	475
24	600	915	267	580	350	298	8	21	101.6	-	134	25.4x19.05	675



**FOR 14" & ABOVE
STEM**

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 THRADES	UNC/UN-2B	Wafer	Lug
2	50	95	43	125	102	70	4	10	16	11	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	102	70	4	10	19	13	32	-	114.3	215.9	8	3/4-10	8.9	13.4
6	150	216	57	209	102	70	4	10	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	413	92	335	152	125	4	14	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 4A/4B)

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 THRADES	UNC/UN-2B	Wafer	Lug
2	50	95	43	125	102	70	4	10	16	11	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	102	70	4	10	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	270	73	265	152	125	4	14	30	22	32	-	180.3	330.2	12	7/8-9	24.1	35.9
10	250	324	83	290	152	125	4	14	35	24	51	-	228.6	387.4	16	1-8	40.2	52.8
12	300	381	92	325	152	125	4	14	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	534	149	465	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	350	298	8	21	88.9	-	134	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 4D/4E)

* 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.

TORQUE (Nm)

MAXIMUM TORQUE FOR ASME CLASS 150

SIZE INCHES	PRE. DIRECTION		NONPRE. DIRECTION	
	UNSEATING	SEATING	UNSEATING	SEATING
2	61	49	34	72
2.5	70	60	43	92
3	88	82	51	118
4	117	108	68	153
5	132	122	78	187
6	155	142	92	264
8	357	265	102	440
10	590	506	306	918
12	933	788	392	1182
14	1372	1178	609	1568
16	1974	1782	867	2646
18	2845	1870	1071	3613
20	3728	2365	1624	4545
24	6420	3200	2788	700

MAXIMUM TORQUE FOR ASME CLASS 300

SIZE INCHES	PRE. DIRECTION		NONPRE. DIRECTION	
	UNSEATING	SEATING	UNSEATING	SEATING
2	88	73	54	107
2.5	123	105	65	165
3	153	132	73	255
4	202	172	103	312
5	274	245	117	414
6	382	344	196	564
8	970	714	403	1238
10	1478	1083	696	1764
12	2690	1632	1307	2856
14	3775	1871	1812	3712
16	5970	3655	2881	6844
18	8955	4554	4284	9326
20	11269	5783	5615	11484
24	18814	8372	9200	17868

CV VALUES CLASS 150

SIZE INCHES	DISC OPENING ANGLE (IN DEGREES)								
	10	20	30	40	50	60	70	80	90
2	1.1	2.3	3.8	6	10	17	22	26	28
2.5	4	7	11	16	27	44	59	69	75
3	5	21	38	56	69	93	125	155	167
4	10	39	70	100	125	72	230	282	300
6	32	55	98	175	295	440	631	777	804
8	59	105	181	321	555	833	1152	1418	1438
10	102	185	312	577	928	1392	1989	2458	2522
12	150	275	469	867	1382	2099	2862	3546	3855
14	205	389	638	1138	1949	2933	4040	4939	5243
16	315	583	1005	1764	3050	4600	6303	7755	7940
18	420	767	1353	2347	3880	5881	8343	10302	10659
20	515	960	1674	2964	4788	7450	9999	12276	12805
24	752	1417	2345	4126	7105	10441	14717	18258	19176

CLASS 300

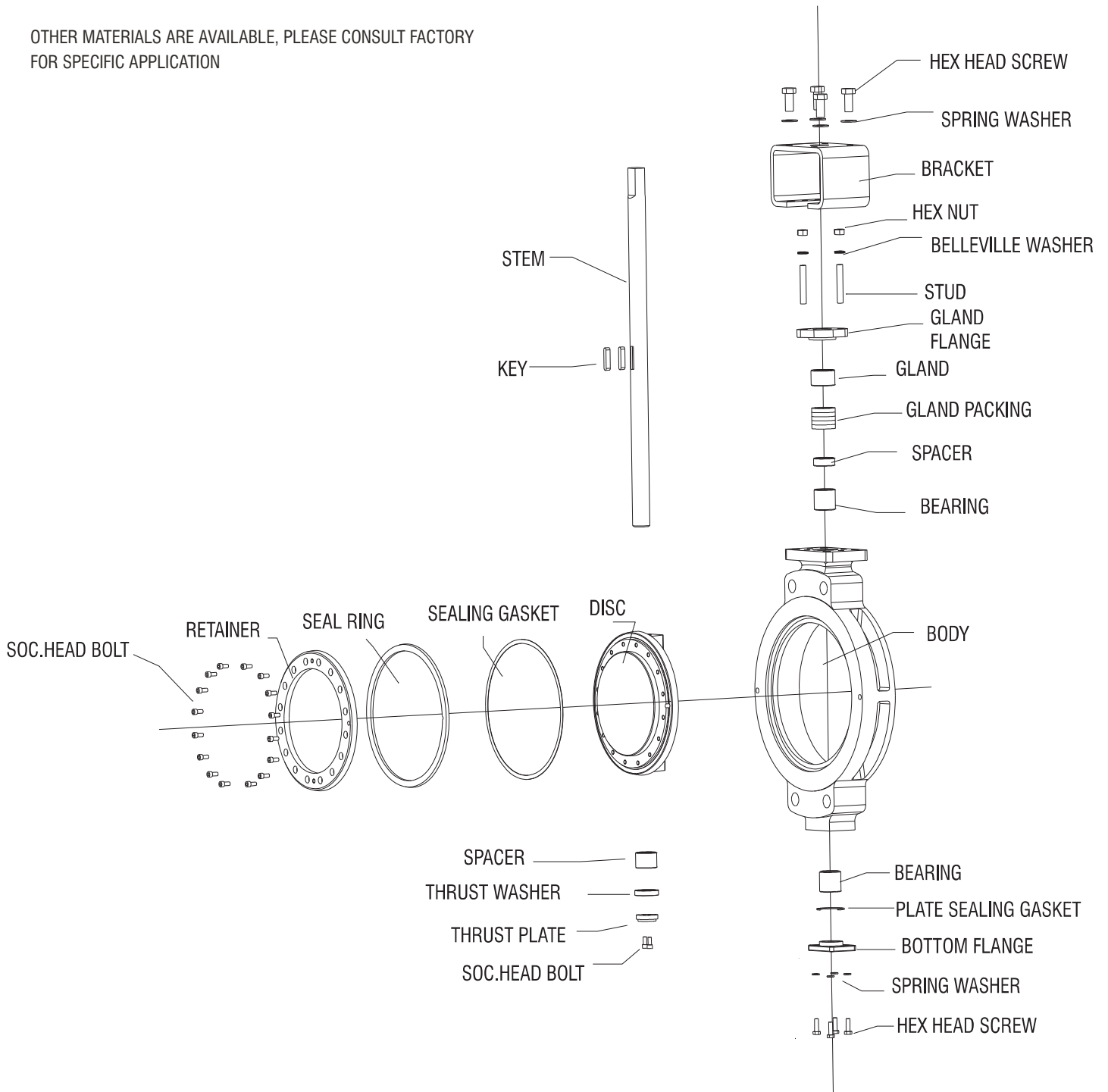
SIZE INCHES	DISC OPENING ANGLE (IN DEGREES)								
	10	20	30	40	50	60	70	80	90
2	1.1	2.3	3.8	6	10	17	22	26	28
2.5	4	7	11	16	27	44	59	69	75
3	5	20	42	51	68	90	125	150	170
4	10	40	75	95	125	180	240	290	300
6	27	50	95	165	270	400	573	703	732
8	42	95	160	300	504	760	1045	1277	1350
10	85	175	295	553	913	1330	1897	2313	2362
12	120	260	459	802	1363	2040	2739	3352	3690
14	165	372	603	1122	1846	2791	3742	4590	4851
16	245	528	900	1650	2730	4172	5526	6817	7389
18	334	720	1218	2196	3515	5460	7511	9246	9399
20	395	867	1510	2716	4467	6541	9312	11130	11977
24	591	1279	2172	3877	6404	9474	13296	16443	17442

Note : For Torques and Cv Values above 26" consult factory

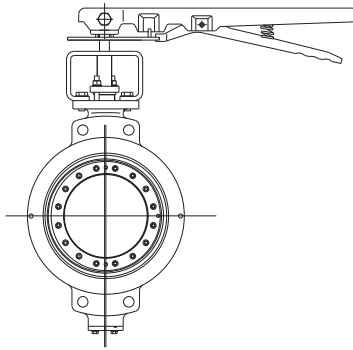
Materials of Construction

- BODY -** 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 / SS410
ASTM A 564 17-4-PH TYPE 630
- SEAL RING -** SS316+GRAPHITE
- STEM PACKING -** FLEXIBLE GRAPHITE RINGS- FIRE SAFE

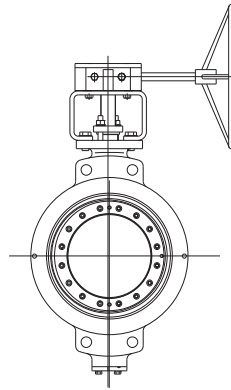
OTHER MATERIALS ARE AVAILABLE, PLEASE CONSULT FACTORY FOR SPECIFIC APPLICATION



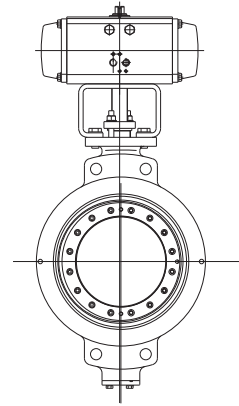
Operators



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.



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.



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.

How to order DelVal valves

SERIES		SIZE		TRIM / OTHER VARIABLES / SPECIAL						
□ □		□ □ □		□	□	□	□	□	□	□
VALVE DESCRIPTION	VALVE DESCRIPTION	BODY	DISC	STEM	SEAL	RATING	OPERATOR	SPECIAL		
4A : Wafer class 150	020 : 2" 120 : 12"	3- WCB	4-CF8M(SS316)	1-SS410	T-SS316+GRAPHITE	5 - Class 150	B-BARE	0-NO SPECIAL		
4B : Lug class 150	025 : 2.5" 140 : 14"	4- CF8M(SS316)	8- CF8(SS304)	4-SS316	U-STELLITE+GRAPHITE	6 - Class 300	L - LEVER	REQUIREMENT		
4D : Wafer class 300	030 : 3" 160 : 16"				G-INCONEL+GRAPHITE		G - GEAR	S - SPECIAL		
4E : Lug class 300	040 : 4" 180 : 18"	8- CF8(SS304)		6- 17-4-PH	R-SS DUPLEX, F51+GRAPHITE			REQUIREMENT		
4C : Flange class 150	050 : 5" 200 : 20"							AS SPECIFIED		
4F : Flange class 300	060 : 6" 240 : 24"							BY CUSTOMER		
	080 : 8" 260 : 26"									
	100 : 10" 280 : 28"									
	300 : 30"									
	320 : 32"									
	360 : 36"									
	400 : 40"									
	440 : 44"									
	480 : 48"									

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

4 **A** **1** **2** **0** **4** **4** **4** **T** **5** **G** **0**

All statements, technical information and recommendations in the bulletin are for general use. DelTech is not responsible for suitability or compatibility of these products in relation to system requirements. Consult DelTech Distributors or factory for the specific requirements and material selection for your intended application. DelTech reserves the right to change or modify product design or product without prior notice. DelVal - Registered trademark of DelTech Controls.

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