DelVal Series 51/53 Large Diameter Butterfly Valve

The Series 51/53 is DelVal's resilient seated butterfly valve for big-bore lines, covering 26" to 40" (DN 650 to 1000) at 150 PSIG (PN 10) in a wafer or U-section wafer body.



Key data	
Size range	26" to 40" (DN 650 to 1000)
Pressure rating	150 PSIG (PN 10)
Body style	Series 51 – Wafer; Series 53 – U Section Wafer (lugs drilled not tapped)
Seat	EPDM, Buna-N, FKM, Silicone

Pressure and temperature ratings

Seat temperature limits

Seat type	Lower limit*	Upper limit*
EPDM	-20°F (-29°C)	302°F (150°C)
NBR (BUNA-N)	0°F (-18°C)	212°F (100°C)
Viton®(FKM)	0°F (-18°C)	390°F (200°C)
#Silicone	-58°F (-50°C)	390°F (200°C)

#Maximum pressure rating limited to 6 Bar.
Viton® is registered trademark of E.I. DuPont.
*Temperature range shall be the lesser of the seat temperature or disc coating temperature.
** Flanged body construction conforming to ''U-section wafer'' body as per BS EN 593.
@Consult UEC for sizes not listed.

Pressure rating

Size (inch)	DN	psig	barg
26" to 72"	650-1800	150	10
26" to 72"	650-1800	87	6
26" to 72"	650-1800	50	3.5

End-of-line service (wafer U-section body)

Item	Detail
End-of-Line Service	Wafer U-section body valves may be used in end-of-line service with downstream piping removed.
26" to 72" (DN 650 to DN 1800)	26" to 72" (DN 650 to DN 1800) Wafer U-section type butterfly valves are suitable for operation without a downstream flange installed, the dead-end pressure ratings are equal to the values stated above.

Standards and specifications

Design, testing and flange standards

Item	Detail
Design	Full compliance to BS EN 593, general compliance to API 609, MSS SP 67
Face to Face	General conformance to API 609 Category A, BS EN 558-1 Series 20, ISO 5752 Series 20, MSS SP 67, ASME B16.10 with exceptions.
Testing	BS EN 12266-1, API 598, MSS SP 67
Flange Standard	ASME B16.47 Class 150 Series A, AWWA C207 Class-D, Other International Standards
Body Style	One-Piece
****Body Construction**	Wafer/Flanged End (Wafer U-Section)
***Temp Range**	-29°C to 200°C, -20°F to 390°F
@Size Range	26" to 72"

Dimensions and weights

*Face to face dimension ''B'' generally conforms to API 609 Category A/BS EN 558-1 Series 20/ISO 5752 Series 20/MSS SP67/ASME B 16.10 with exceptions.
'@' indicates 2-keyway and '#' indicates 4-keyway.
Valve sizes from 42'' to 44'' wafer body construction, refer to Series 56.
**Bolting data confirms to ASME B16.47 Series A, consult UEC for other requirement.
Consult UEC for valve size 24'' in Series 53.

Key to dimension letters

Item	Detail
ØA	Wafer body outside diameter
ØC	Flanged body outside diameter
B	Face-to-face length
E	Valve centreline to top of top flange
L	Valve centreline to bottom of body
ØF	Top flange diameter
ØG	Stem diameter
J	Stem projection above top flange

Operating torque

Torque by disc type and differential pressure

Valve size (inch)	DN	Undercut disc, PN 3.5/50 psi (Nm)	Undercut disc, PN 3.5/50 psi (lbf-in)	Standard disc, PN 6/87 psi (Nm)	Standard disc, PN 6/87 psi (lbf-in)	Standard disc, PN 10/150 psi (Nm)	Standard disc, PN 10/150 psi (lbf-in)
26	650	1063	9408	2202	19488	2750	24338
28	700	1266	11204	2640	23364	3320	29382
30	750	1465	12965	3083	27285	3900	34515
32	800	1755	15532	3715	32878	4740	41949
36	900	2342	20727	4975	44029	6420	56817
40	1000	3085	27302	6175	54649	8165	72260
42	1050	4317	38208	8475	75010	11300	100013
44	1100	4995	44209	9797	86710	13368	118316
48	1200	8200	72576	12430	110014	16950	150020
54	1350	11920	105492	19546	172982	31862	281979
56	1400	13926	123241	21524	190483	37172	328972
60	1500	15931	140989	23501	207984	42482	375966
64	1600	19440	172044	33972	300652	50010	442588
66	1650	22959	203187	44448	393365	57555	509362
72	1800	35000	309750	50000	442500	64000	566400

Note: Above torques are for clean media and do not contain any safety factor for the actuator sizing of other condition exist, a service factor should be applied. Please consult UEC for specific service factor.

Materials of construction

#Silicone seat configuration applicable up to PN6 rating only.
*Other materials may be available on request.

Parts and materials, replaceable seat

Item	Description	Standard material* (CI/DI/CS)	Standard material* (SS)
1	Body	CI ASTM A126 CLASS B; CI IS 210 FG 260; DI ASTM A395 60-40-18; ASTM A216 WCB	ASTM A351 CF8/CF8M/CF3M
****2**	Seat (Replaceable)	EPDM/NBR (BUNA-N)/Viton®(FKM)/#Silicone	EPDM/NBR (BUNA-N)/Viton®(FKM)/#Silicone
3	Disc	ASTM A536 65-45-12+Nylon 12 ctd.; ASTM A536 65-45-12+Aroxy ctd.; ASTM A216 WCB+Nylon 12 ctd.; ASTM A216 WCB+Aroxy ctd.; ASTM A351 CF8M/CF8/CF3M; ASTM A995 4A/5A/6A	ASTM A351 CF8M/CF8/CF3M; ASTM A995 4A/5A/6A
4	Stem (Upper/ Lower)	ASTM A479 SS410 - L2; ASTM A479 SS316 SH; ASTM A564 17-4 PH Type 630; ASTM A182 F51/F55	ASTM A479 SS410-L2; ASTM A479 SS316 SH; ASTM A564 17-4 PH Type 630; ASTM A182 F51/F55
****5**	U-Cup Seal	NBR (BUNA-N)	NBR (BUNA-N)
****6**	Stem Bearing	Phosphor Bronze BS 1400 PB4	Phosphor Bronze BS 1400 PB4
****7**	External Circlip	Spring Steel IS 2507 70C6	Spring Steel IS 2507 70C6
8	Top Cover	Carbon Steel IS 2062 Gr-B	ASTM A240 SS304
9	Socket Head Cap Screw	IS 1367 HTS 12.9	ISO 3506 A2-70
10	Bearing Spacer	Carbon Steel IS 2062 Gr-B	ASTM A240 SS304/SS316
11	Thrust Bearing	Phosphor Bronze BS 1400 PB4	Phosphor Bronze BS 1400 PB4
****12**	'O' Ring	NBR (BUNA-N)	NBR (BUNA-N)
13	Bottom Plate	Carbon Steel IS 2062 Gr-B	ASTM A240 SS304/SS316
14	Punch Washer	Carbon Steel IS 2062 Gr-B	ASTM A240 SS304
15	Hex Head Bolt	IS 1367 HTS 8.8	ISO 3506 A2-70
16	Plug	ISO 3506 A2 -70	ISO 3506 A2 -70
17	Key	BS 970 En8	BS 970 En8
18	Socket Head Cap Screw	IS 1367 HTS 12.9	ISO 3506 A2-70

**Recommended spares.
CI = Cast Iron, DI = Ductile Iron, CS = Carbon Steel, SS = Stainless Steel, Ctd. = Coated.

Parts and materials, in-situ molded seat

Item	Description	Standard material* (CI/DI/CS)	Standard material* (SS)
1	Body	CI ASTM A126 CLASS B; CI IS 210 FG 260; DI ASTM A395 60-40-18; ASTM A216 WCB	ASTM A351 CF8/CF8M/CF3M
1a	Seat (in-situ molded)	EPDM/NBR (BUNA-N)/Viton®(FKM)/#Silicone	EPDM/NBR (BUNA-N)/Viton®(FKM)/#Silicone
2	Disc	ASTM A216 WCB+Epoxy painted; ASTM A351 CF8M/CF8/CF3M; ASTM A995 4A/5A/6A	ASTM A351 CF8M/CF8/CF3M; ASTM A995 4A/5A/6A
3	Stem (Upper/ Lower)	ASTM A479 SS410 - L2; ASTM A479 SS316 SH; ASTM A564 17-4 PH Type 630; ASTM A182 F51/F55	ASTM A479 SS316 SH; ASTM A564 17-4 PH Type 630; ASTM A182 F51/F55
4	U-Cup Seal	NBR (BUNA-N)	NBR (BUNA-N)
5	Stem Bearing	Phosphor Bronze BS 1400 PB4	Phosphor Bronze BS 1400 PB4
6	External Circlip	Spring Steel IS 2507 70C6	Spring Steel IS 2507 70C6
7	Top Cover	Carbon Steel IS 2062 Gr-B	ASTM A240 SS304
8	Socket Head Cap Screw	IS 1367 HTS 12.9	ISO 3506 A2-70
9	Bearing Spacer	Carbon Steel IS 2062 Gr-B	ASTM A240 SS304/SS316
10	Thrust Bearing	Phosphor Bronze BS 1400 PB4	Phosphor Bronze BS 1400 PB4
11	'O' Ring	NBR (BUNA-N)	NBR (BUNA-N)
12	Bottom Plate	Carbon Steel IS 2062 Gr-B	ASTM A240 SS304/SS316
13	Punch Washer	Carbon Steel IS 2062 Gr-B	ASTM A240 SS304
14	Hex Head Bolt	IS 1367 HTS 8.8	ISO 3506 A2-70
15	Plug	ISO 3506 A2 -70	ISO 3506 A2 -70
16	Key	BS 970 En8	BS 970 En8

Item	Description	Standard material* (CI/DI/CS)	Standard material* (SS)
17	Socket Head Cap Screw	IS 1367 HTS 12.9	ISO 3506 A2-70

CI = Cast Iron, DI = Ductile Iron, CS = Carbon Steel, SS = Stainless Steel.

Dimensions and weights

Wafer and flanged end, Series 51/53 (mm) (columns 1 of 2)

Valve size (inch)	DN	ØA	ØC	*B	E	L	ØF	Top flange PCD	Top flange no. of holes	Top flange hole dia.	ØG	J
26	650	745	870	165	555	475	300	254	8	18	63.5	102
28	700	795	927	165	580	492	300	254	8	18	63.5	102
30	750	860	984	165	595	528	300	254	8	18	76.2	102
32	800	900	1060	190	670	565	300	254	8	18	76.2	102
36	900	1025	1168	203	705	640	350	298	8	21	88.9	134
40	1000	1120	1289	216	782	675	350	298	8	21	101.6	134
42	1050	–	1346	251	815	726	415	298	8	21	101.6	134
44	1100	–	1403	251	845	740	415	298	8	21	101.6	134
48	1200	1293	1511	276	915	800	on request	298	8	21	101.6	134
54	1350	–	1683	381	1030	950	415	356	8	33	101.6	134
56	1400	–	1746	381	1060	970	on request	356	8	33	101.6	134
60	1500	–	1854	381	1125	995	475	406	8	on request	130.0	150
64	1600	–	1915	381	1140	1050	475	406	8	on request	130.0	150
66	1650	–	2032	457	1240	1115	560	483	12	on request	150.0	200
72	1800	–	2197	457	1330	1195	560	483	12	on request	150.0	200

Wafer and flanged end, Series 51/53 (mm) (columns 2 of 2)

Valve size (inch)	DN	Key size	K	**Bolting PCD	**Bolting thread (UNC/UN-2B)	Approx. weight, wafer Series 51 (kg)	Approx. weight, flanged end Series 53 (kg)
26	650	15.88 x 15.88	598	806.40	1¼ - 7UNC	264	350
28	700	15.88 x 15.88	651	863.60	1¼ - 7UNC	275	375
30	750	19.05 x 19.05	717	914.40	1¼ - 7UNC	332	405
32	800	19.05 x 19.05	756	977.90	1½ - 6UNC	360	510
36	900	22.23 x 15.88	870	1085.80	1½ - 6UNC	525	640
40	1000	25.40 x 19.05	952	1200.20	1½ - 6UNC	720	890
42	1050	@25.40 x 19.05	1020	1257.30	1½ - 8UN	–	1160
44	1100	@25.40 x 19.05	1070	1314.40	1½ - 8UN	–	1280
48	1200	@25.4 x 19.05	1120	1422.40	1½ - 8 UN	1200	1450
54	1350	@25.4 x 19.05	1250	1593.80	1¾ - 8UN	–	2550

Valve size (inch)	DN	Key size	K	**Bolting PCD	**Bolting thread (UNC/UN-2B)	Approx. weight, wafer Series 51 (kg)	Approx. weight, flanged end Series 53 (kg)
56	1400	@25.4 x 19.05	1270	1651.00	1¾ - 8UN	–	2700
60	1500	@32.00 x 18.00	1440	1759.00	1¾ - 8UN	–	3180
64	1600	@32.00 x 18.00	1452	Consult UEC	Consult UEC	–	3400
66	1650	#36.00 x 20.00	1600	Consult UEC	Consult UEC	–	3630
72	1800	#36.00 x 20.00	1700	Consult UEC	Consult UEC	–	5100

For a quotation, send the size, pressure rating, materials, operator and quantity to UEC by phone, WhatsApp or email. Inch and pound tables are on the product page at www.unitedengg.co.in/valves/delval/series-51-53-large-diameter-butterfly-valve. Data as published by DelVal Flow Controls; DelVal and DelTorq are trademarks of DelVal Flow Controls.