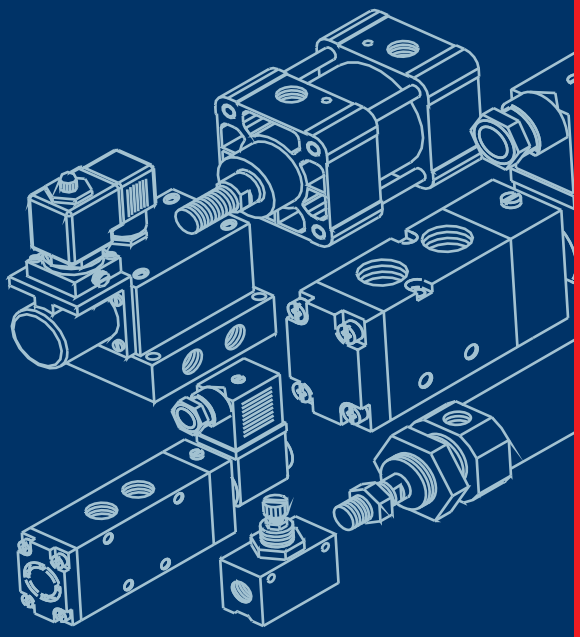


Company Profile

An ISO 9001 company, Duncan Engineering Limited (Formerly Known as Schrader Duncan Limited) is a subsidiary of Oriental Carbon and Chemicals Limited, JP Goenka Group of companies.

Duncan Engineering Limited, is one of India's pioneers in the field of pneumatics and a leading manufacturer of a wide range of pneumatic cylinders, directional control valves, FRLs and accessories. Duncan Engineering Limited also has a full range of rotary actuators with torque capacity 4Nm to 50000Nm. The range is further extended to valve automation by integrating to complete range of butterfly valves and ball valves, including Positioners. It has been serving the Indian industry for more than five decades.

With a state of the art, environment friendly manufacturing plant and a dust free temperature controlled assembly facility at Ranjangaon, Pune, Duncan Engineering is ideally placed to address the future needs of industry.

With a penetrating network of sales executives and dealers spread over all regions, the company's products are widely distributed and used in most segments of the industry such as printing and paper, packaging, pharma, automotive and machine tools, food processing, steel and metal, power, tyre, cement, textiles, petrochemical and other general engineering industries.

In addition to the standard catalogue products, Duncan Engineering's focus has been to offer customized products that meet unique customer application needs. This has been possible and is sustained by a strong technology team that works on comprehensive pneumatic solutions.

High Performance Butterfly Valves

SERIES B

Models

B1: Centric Type
B2: Double Offset
B3: Triple Offset

About Product

DUNCAN

SERIES B

Duncan's high performance butterfly valve are available in Class 150 and Class 300, with carbon or stainless steel body options. The valve's simple design allows for an easy installation to prevent errors. The body and disc are manufactured using investment casting methods adhering to ISO standards. The body features a direct mount pad for actuation and an internally casted stop to prevent over-traveling. Our lug body is suitable for bidirectional dead end service and indicates the preferred flow direction with an arrow.

Duncan's is a double & Tripple offset design that standardizes on a stainless disc and features a one piece blowout proof 17-4 PH stainless steel shaft with a corrosion-resistant graphite meshed coating. The valve includes a gland flange which applies a load against the packing gland to prevent external leakage. If a stem leak occurs, this allows the valve's packing gland to be tightened in the field, stopping the leak.

Seat Options

Reinforced Teflon (RPTFE), Fire-Safe, or Metal seats are available, dependent on model. RPTFE provides a common soft-seated design which is ideal for most of the applications.

The Fire-Safe and Metal Seats are available for Class 150 and are suitable for applications where there is high temperature exposure. These seat options are viable as they ensure the elastomer O-Rings will not swell nor will corrosion occur on the metal.

The flange-facing finish is designed in accordance to ASME B16.5 (6.4.5.3) allowing the retainer ring to provide a tight seal in the valve. Additionally, the outside diameter of the retainer ring is recessed within the body to provide quality sealing and prevent external leakage.These features and more make Duncan's high performance butterfly valve ideal for commercial, industrial and mechanical applications.

CENTRIC BUTTERFLY VALVE
STANDARD FEATURES

Quality & Performance

DUNCAN offers a wide range of high-quality products known for dependable performance. Series B1 valves are manufactured in ISO 9001 certified facilities under a robust quality management system, in compliance with API 609 and BS EN 593 standards.

1. Top Flange

The upper flange is drilled according to EN ISO 5211 standards to allow for the direct installation of various actuators and manual operators.

2. Body

The one piece wafer, lug, or double flanged body design provides standard bidirectional sealing and is available in SASME Class 150 and Class 300 pressure ratings.

3. Disc

Center positioned for higher flow capability. stainless steel type 316 edges for strength and longer life. Rounded machined edge for lower torque.

4. Shaft

Single shaft with close Tolerance double D and Squared connection to increasing cycle life.

5. Seat

The Heavy duty square grooved seat design with molded O-ring seals to serve as flange gasket. EPDM seats are peroxide cured to yield the best elastic properties of the elastomer. Double O-rings are molded in both upper and lower journals providing a superior secondary seal.

6. Bushing

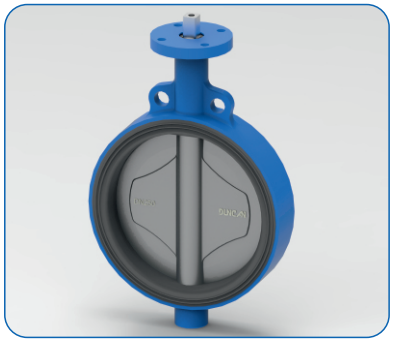
Heavy duty bushing absorbs the forces acting on the disc-stem assembly due to line pressure.

7. Seals

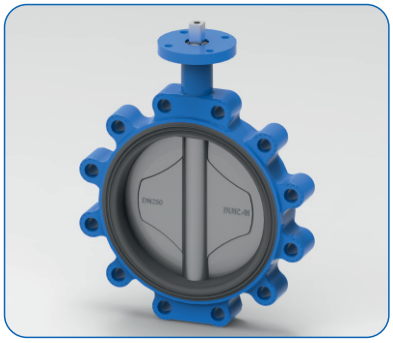
Bi- directional 'U' cup Shaft seal.

8. Stem Retention System

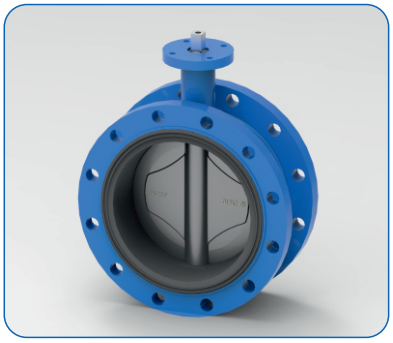
Unique stem retention system provides blow - out Proof stem and easy assembly and disassembly of valve..



Wafer Type



Lug Type



Double Flange

Standards And Specifications

DUNCAN Butterfly Valves are designed and manufactured in accordance with the following industry standards:

Size Range	: 2" to 12"
Design	: API 609, BS EN593, MSS SP 67
Face to Face	: API 609 Category-A, BS En558 Series 20, ISO 5752 Series 20, MSS SP 67, ASME B16.10
Testing	: API 598, BS EN 12266-1, MSS SP 67
Flange Standard	: ASME B16.5 Class 150
*Temp Range	: -29°C to 120°C -20°F to 250°F

Special Applications

Vacuum

Standard soft seat and fire-safe seat valves are designed to provide a tight shut-off for vacuum levels up to 1 mbar.

Oxygen

Valves designated for gaseous oxygen service undergo special preparation, cleaning, inspection, assembly, and testing to guarantee the elimination of all burrs, sharp edges, dirt, hydrocarbon oil or grease, and other contaminants.

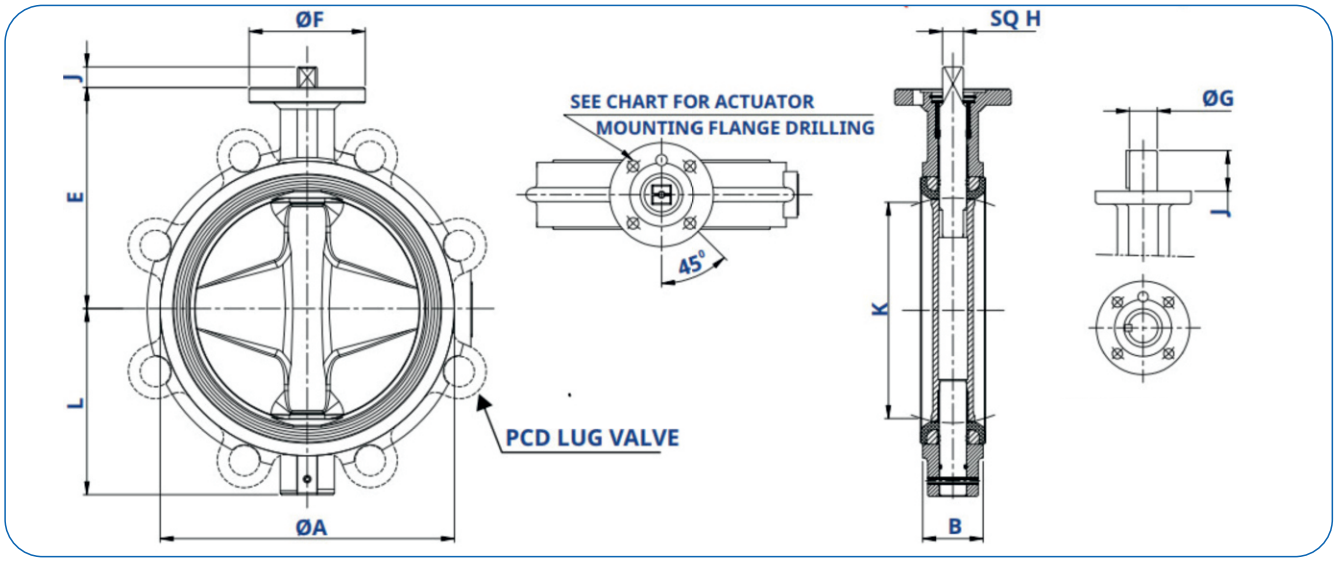
Seat Temperature Limits

Seat Type	Temperature Limits	
	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)

Pressure Rating

Inch	DN	PSIG	BARG
2" to 12"	50 to 300	175	20

CENTRIC BUTTERFLY VALVE
DIMENSIONS & WEIGHTS



Dimensions (MM)

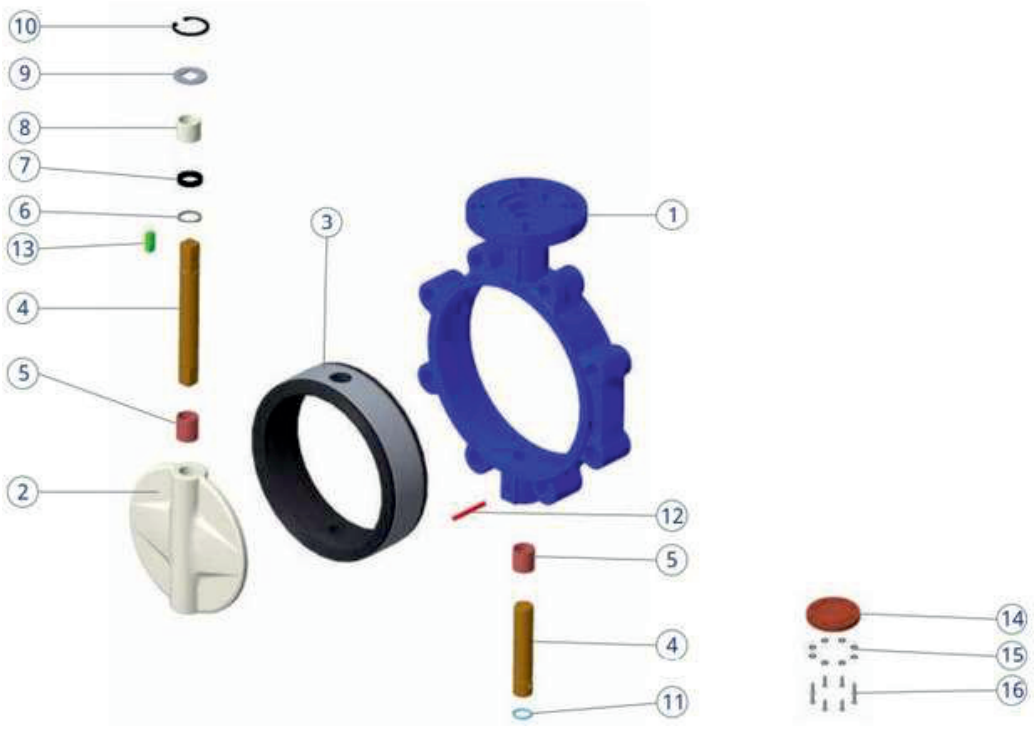
Valve Size		ØA	B	E	L	ØF	Top Flanged Drilling			Sq. H	ØG	J	Key Size	K	Lug Bolting Data			App. Weight (kg)	
INCH	DN						PCD	No. of Holes	Hole Dia.						BC	No. of Holes	Threads UNC/UN - 28	Wafer	Lug
2	50	96	43	116	80	90	70	4	10	14	-	16	-	32.6	120.6	4	5/8-11 UNC	2.5	3.5
2.5	65	108	46	126	82	90	70	4	10	14	-	16	-	48.2	139.7	4	5/8-11 UNC	3.3	3.8
3	80	126	46	132	87	90	70	4	10	14	-	16	-	63.0	152.4	4	5/8-11 UNC	3.6	4.0
4	100	154	52	153	107	90	70	4	10	14	-	16	-	84.2	190.5	8	5/8-11 UNC	6.0	8.0
5	125	195	56	166	131	90	70	4	10	17	-	19	-	117.3	215.9	8	3/4-10 UNC	7.0	11.0
6	150	216	56	182	142	90	70	4	10	17	-	19	-	135.9	241.3	8	3/4-10 UNC	12.0	14.0
8	200	272	60	236	177	150	102/125	4	12/14	19	-	21	-	186.1	398.4	8	3/4-10 UNC	22.5	24.0
10	250	327	68	257	218	150	102/125	4	12/14	22	-	24	-	236.4	362.0	12	7/8-9 UNC	24.0	30.0
12	300	387	78	286	242	150	125	4	14	27	-	29	-	282.6	431.8	12	7/8-9 UNC	37.0.	45.0

CENTRIC BUTTERFLY VALVE TORQUE DATA (Nm)

INCH	DN	Differential Pressure (P)					
		Undercut Disc	Standard Disc			Oversized Disc	
		PN 3.5/50PSI	PN 6/87PSI	PN 10/150PSI	PN 12/175PSI	PN 16/230PSI	PN 20/285PSI
		Nm	Nm	Nm	Nm	Nm	Nm
2	50	-	9	10	11	18	32
2.5	65	-	15	18	18	23	42
3	80	-	17	22	22	33	60
4	100	16	30	32	34	47	83
5	125	22	45	50	52	66	119
6	150	32	63	68	72	112	134
8	200	72	112	125	130	212	254
10	250	88	182	200	210	320	385
12	300	145	305	339	357	470	565

Note: Above torque 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 Duncan for specific service factor.

CENTRIC BUTTERFLY VALVE
EXPLODED VIEW



Item	Description	Standard Material
01	Body	ASTMA126CLASS B CI IS 210 FG 260 DI ASTM A395 60-40-18 ASTM A216 WCB
02	Disc	ASTM A536 65-45-12 NYLON 12 Coated ASTM A216 WCB+nylon 12Coated ASTM A216 WCB+Aroxy Coated ASTM A351 CF8M / CF3M ASTM A995 4a/5a/6a
03	Seat	EPDM, NBR, VITON, SILICON
04	Stem	ASTM A479 SS410-L2 ASTM A564 17-4PH TYPE630 ASTM A182 F51 / F55 ASTM A 479 Ss316
05	Sleeve Bearing	Bear G
06	Packing Support	RPTFE
07	Stem Seal	NBR
08	Stem Bushing	RPTFE

Item	Description	Standard Material
09	Stem Retainer	ASTM A 240 Ss304
10	Retainer Clrclip	ASTM A 684 GR 1070
11	O Ring	NBR
12	Spring Dowel Pin	ASTM A684 GR 1074
13	Key	Bs970 En8
14	Bottom Plate	ASTM A 516 Gr70
15	Punch Washer	ASTM A240 Ss304
16	Hex Hd Screw	ISO 3506 A2-70

Equivalent grade can be used.

DOUBLE OFFSET BUTTERFLY VALVE STANDARD FEATURES

Quality & Performance

DUNCAN offers a wide range of high-quality products known for reliable performance. Series B2 high-performance butterfly valves are manufactured in ISO 9001 certified facilities under a robust quality management system, conforming to ASME B16.34 and API 609 standards.

Design Construction and Features

1. Top Flange

The top flange is drilled as per EN 150 5211 to accommodate direct mounting of a wide range ofactuators and manual operators

2. Body

One-piece wafer, lug, or double flanged style body offersbidirectional sealing as style body offers by directional sealing as standard, available in ASME CL150 and Cl300 pressure classes.

3. Disc Keys

Keys are offset from the center of the stem which places them in compression rather than shear, eliminating potential for failure. The keys are wedge type and precision fit to provide positive mechanical engagement of disc to stem.

4. Disc Stop

The disc stop is designed to prevent disc from rotatingin the wrong direction and avoiding seat damage.

5. Seat Retainer

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

6. Stem Seal

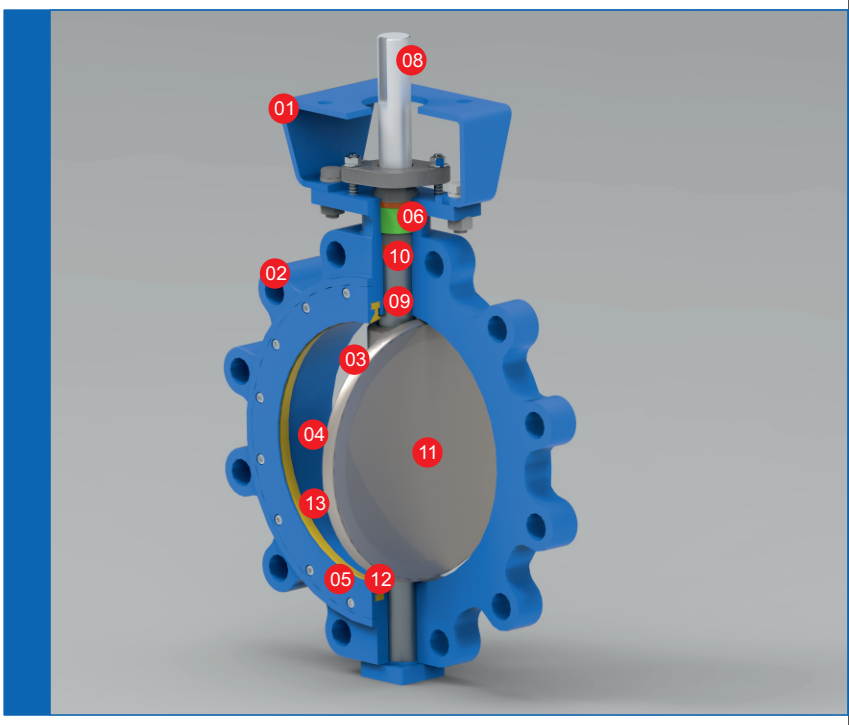
Gland flange assembly is "live loaded" with Belleville springs. This ensures continuous compression of packing and sealing contact at the stem and body. Rocker shaped gland bridge compensates for uneven adjustment of gland bolts

8. Stem

A sturdy, one-piece stem provides increased torsional strength for higher torque applications.

9. Extended Neck

Extended neck allows for DN 50 (2") of pipeline insulation and easy access to stem packing adjustment and actuator mounting.



10. Bearings

The drive and non-drive end stem "Bear-X" bearings are made out of an engineered, high compressive strength composite polymer material having excellent thermal, chemical and wear resistance.

11. Disc

The disc has been engineered to maximize flow and minimize resistance to provide a high flow coefficient (Cv).

12. Seat

Unique seat design utilizes a self-energizing, flexible lip seal concept which provides bi-directionalsealing without relying on secondary components, avoiding thermal and chemical incompatibility of dissimilar materials.

13. Bi-Directional Dead End Service

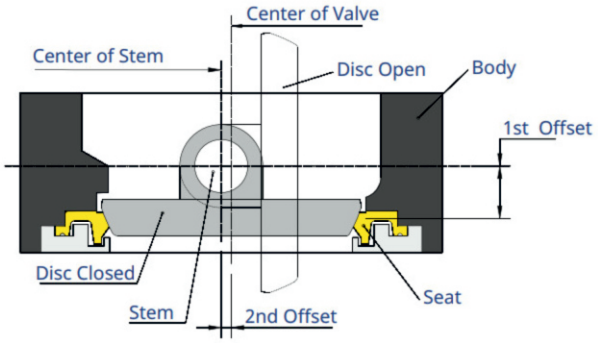
All lug and double flange valves are suitable for dead-end service to full ASME pressure rating, bi-directionally.

DOUBLE OFFSET BUTTERFLY VALVE DESIGN AND SPECIFICATION

Double Offset Design

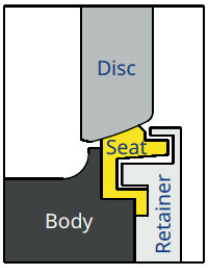
The double offset design produces a cam-like action in disc movement. This action reduces seat wear and eliminates seat deformation, thereby extending service life and reducing operating torques when compared to centric butterfly valves.

Double Offset Design



Seat Design

Soft Seat: Self-energizing flexible lip seat design retains its original shape and maintains a seal against the disc regardless of the flow direction.



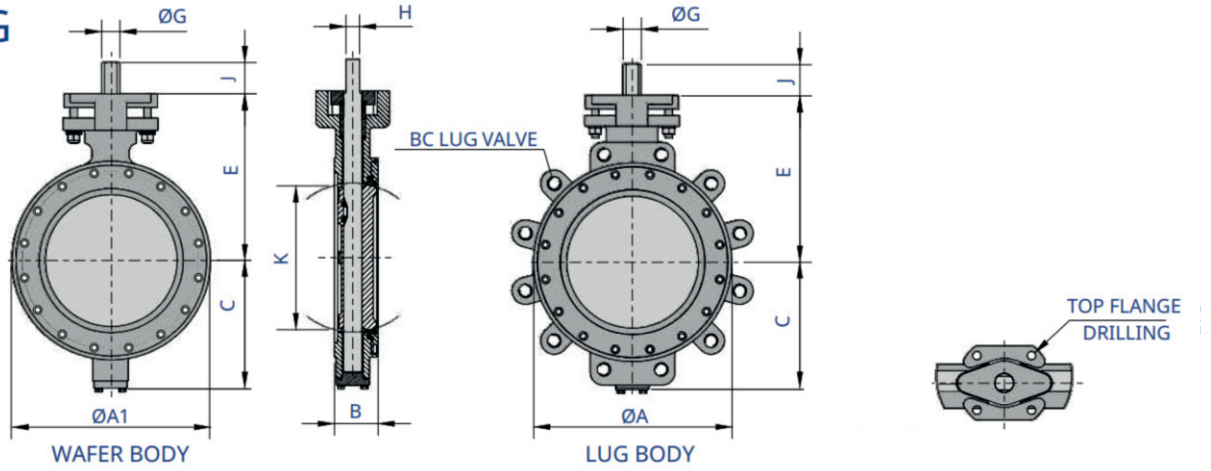
Soft Seat

Standards And Specifications

Design Standards	: API 609, BS EN 593, MSS SP-68
Face to Face	: API 609, ISO 5752, BS EN 558, MSS SP-68
Pressure Temperature	: ASME B16.34
Flange Accommodation	: ASME B16.5, ASME B16.47
NACE (optional)	: ANSI / NACE MR0175/ISO 15156, NACE
Fire Safe Certified (optional)	: API 607 / API 6FA
Fugitive Emission (optional)	: ISO 15848
Body Style	: Wafer, Lug, Flanged
Pressure Rating	:CL150 to CL300
Temp. Range*	: -50°C to 260°C (Soft Seat / Fire Safe Seat) -50°C to 427°C (Metal Seat)
Size Range**	: DN 50 to DN 300 (2" to 12")

DOUBLE OFFSET BUTTERFLY VALVE
DIMENSIONS & WEIGHTS

WAFER & LUG



ASME CLASS 150 WAFER / LUG

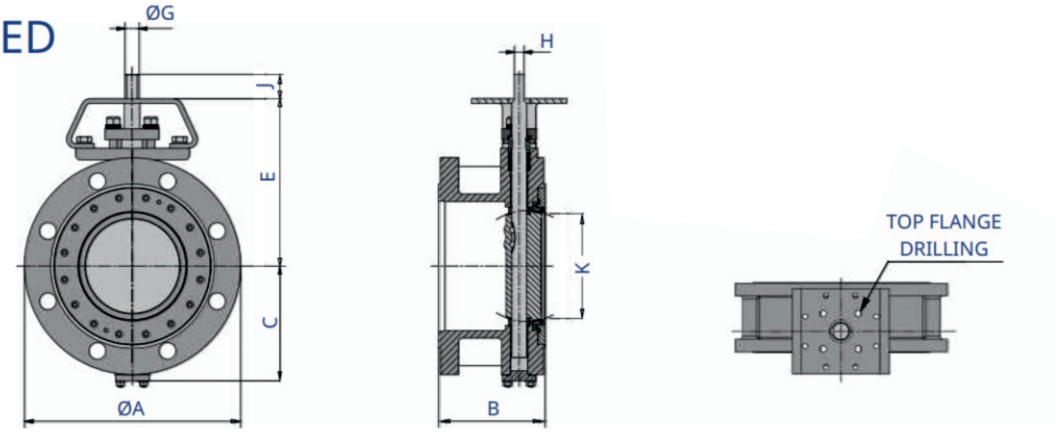
Valve Size		ØA	ØA1	B	C	E	Top Flanged Drilling			ØG	H	J	Key Size	K	Lug Drilling D			App. Weight (kg)	
INCH	DN						BC	No. of Holes	Hole Dia.						BC	No. of Holes	Tapping UNC/UN2B	Wafer	Lug
2	50	97	97	43	68	126	70	4	10	14.0	10	32	-	39.80	120.7	4	5/8-11	3.3	4.3
2.1/2	65	121	121	48	96	132	70	4	10	16.0	11	32	-	51.60	139.7	4	5/8-11	4.5	5.3
3	80	139	139	48	108	152	70	4	10	16.0	11	32	-	68.40	152.4	4	5/8-11	6.3	7.0
4	100	170	170	54	123	174	70	4	10	16.0	11	32	-	89.70	190.5	8	5/8-11	8.3	12.0
5	125	186	186	57	139	190	70/102	4	10/11	19.0	13	32	-	110.80	215.9	8	3/4-10	9.0	13.4
6	150	216	216	57	148	206	70/102	4	10/11	19.0	13	32	-	138.70	241.3	8	3/4-10	14.0	16.0
8	200	269	269	64	173	242	125	4	14	22.0	16	32	-	183.20	298.5	8	3/4-10	22.0	29.0
10	250	324	324	71	217	274	125	4	14	30.0	22	51	-	232.60	362.0	12	7/8-9	32.0	43.0
12	300	381	378	81	249	312	125	4	14	35.0	24	51	-	277.70	431.8	12	7/8-9	48.5	67.0

ASME CLASS 300 WAFER / LUG

2	50	102	102	43	86	133	70	4	10	14	10	32	-	37.80	127.0	8	5/8-11	3.5	5.0
2.1/2	65	125	125	48	108	146	70	4	10	16	11	32	-	50.60	149.2	8	3/4-10	5.3	6.5
3	80	132	139	48	109	158	70	4	10	16	11	32	-	67.80	168.3	8	3/4-10	6.1	8.5
4	100	170	170	54	123	172	70	4	10	16	11	32	-	90.10	200.0	8	3/4-10	8.6	12.0
5	125	186	186	59	139	203	70/102	4	10/12	19	13	32	-	106.00	235.0	8	3/4-10	9.2	16.7
6	150	216	216	59	163	220	70/102	4	10/12	22	16	32	-	137.60	269.9	12	3/4-10	18.0	25.0
8	200	270	270	73	200	278	125	4	14	30	22	51	-	181.80	330.2	12	7/8-9	32.0	43.0
10	250	326	326	83	230	300	125	4	14	35	24	51	-	225.30	387.4	16	1-8	45.0	61.0
12	300	381	381	92	267	341	140/165	4	18/22	40	29	51	-	273.00	450.8	16	1 1/8-8	78.2	100.0

DOUBLE OFFSET BUTTERFLY VALVE
DIMENSIONS & WEIGHTS

DOUBLE FLANGED



DOUBLE FLANGED BODY

ASME CLASS 150 DOUBLE FLANGE

Valve Size		ØA	B	C	E	Top Flanged Drilling			ØG	H	J	Key Size	K	App. Weight (kg)
INCH	DN					BC	No. of Holes	Hole Dia.						
2	50	165	109	94	164	50/70	4	8/9	14.0	10	32	-	35.20	11.0
2.1/2	65	178	112	102	163	70	4	9	16.0	11	32	-	35.08	12.0
3	80	202	114	119	192	70/102	4	9/11	16.0	11	32	-	54.70	15.5
4	100	230	127	140	222	70/102	4	9/11	16.0	11	32	-	79.67	21.5
5	125	255	140	140	222	70/102	4	9/11	19.0	13	32	-	95.71	30.0
6	150	285	140	152	222	70/102	4	9/11	19.0	13	32	-	130.04	33.0
8	200	345	152	185	278	102/125	4	11/13	22.0	-	32	6.00 x 6.00	179.09	53.0
10	250	405	165	218	305	102/125	4	11/13	30.0	22	51	8.00 x 7.00	224.48	73.0
12	300	485	178	266	406	125	4	13	35.0	-	51	10.00 x 8.00	270.22	106.0

ASME CLASS 300 DOUBLE FLANGE

3	80	210	114	110	176	70	4	10	16	11	32	-	56.32	20
4	100	255	127	125	192	70	4	10	16	11	32	-	79.71	25
5	125	280	140	140	200	70/102	4	10/12	19	13	32	-	84.71	56
6	150	320	140	175	246	70/102	4	10/12	22	-	32	6 x 6	129.91	58
8	200	280	152	208	306	125	4	14	30	-	51	8 x 7	176.91	89
10	250	445	165	242	350	125	4	14	35	-	51	10 x 8	221.20	129
12	300	520	178	278	402	140/165	4	18/22	40	-	51	12 x 8	267.62	161

DOUBLE OFFSET BUTTERFLY VALVE
TORQUE DATA NM

DUNCAN

ASME CLASS 150 Soft Seat

Valve Size		Differential Pressure (P)				
		PN 3.5	PN 7	PN 10	PN 16	PN 20
INCH	DN	Preferred Flow Direction				
2	50	25	28	28	30	30
2.1/2	65	28	30	30	32	33
3	80	17	22	24	26	30
4	100	26	32	35	38	50
5	125	60	66	72	80	85
6	150	63	73	80	88	96
8	200	150	164	177	201	215
10	250	176	192	222	262	292
12	300	208	235	272	325	412

ASME CLASS 300 Soft Seat

Valve Size		Differential Pressure (P)				
		PN 10	PN 20	PN 25	PN 40	PN 50
INCH	DN	Preferred Flow Direction				
2	50	28	30	33	41	42
2.1/2	65	30	32	35	42	48
3	80	35	40	45	55	61
4	100	50	68	75	95	109
5	125	88	112	124	162	188
6	150	120	155	176	235	276
8	200	228	302	342	460	546
10	250	340	462	532	732	878
12	300	474	640	728	1003	1190

ASME CLASS 150 Fire Safe Seat

Valve Size		Differential Pressure (P)				
		PN 3.5	PN 07	PN 10	PN 16	PN 20
INCH	DN	Preferred Flow Direction				
2	50	54	55	58	60	62
2.5	65	56	58	60	62	65
3	80	70	72	75	78	82
4	100	86	92	95	102	108
5	125	98	105	115	128	138
6	150	162	177	192	512	228
8	200	265	294	315	357	390
10	250	400	445	495	575	630
12	300	595	685	770	898	998

ASME CLASS 300 Fire Safe Seat

Valve Size		Differential Pressure (P)				
		PN 10	PN 20	PN 25	PN 40	PN 50
INCH	DN	Preferred Flow Direction				
2	50	56	60	68	71	62
2.5	65	59	64	71	75	65
3	80	74	82	88	92	82
4	100	95	108	145	163	108
5	125	125	146	195	218	138
6	150	206	248	345	390	228
8	200	338	413	577	660	390
10	250	508	612	840	965	630
12	300	827	1080	1616	1900	998

ASME CLASS 150 Metal Seated

Valve Size		Differential Pressure (P)				
		PN 3.5	PN 07	PN 10	PN 16	PN 20
INCH	DN	Preferred Flow Direction				
2	50	58	62	64	67	71
2.5	65	68	71	74	78	80
3	80	85	90	92	95	100
4	100	108	114	118	126	135
5	125	120	130	145	160	170
6	150	202	220	238	266	280
8	200	335	370	396	448	480
10	250	492	555	625	708	796
12	300	745	548	965	1119	1255

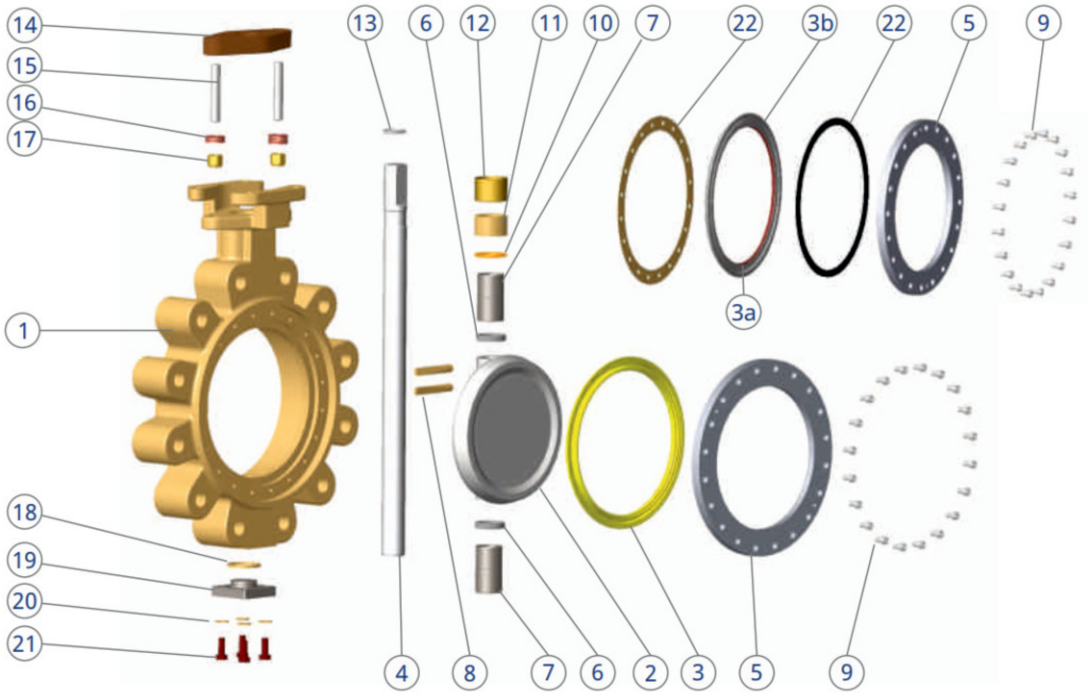
ASME CLASS 300 Metal Seated

Valve Size		Differential Pressure (P)				
		PN 10	PN 20	PN 25	PN 40	PN 50
INCH	DN	Preferred Flow Direction				
2	50	64	71	75	80	84
2.5	65	74	80	84	90	90
3	80	90	100	102	110	115
4	100	18	135	150	242	202
5	125	156	180	198	428	270
6	150	255	310	342	722	490
8	200	423	512	574	1040	820
10	250	528	760	830	2012	1200
12	300	1040	1335	1511	1119	2395

Note:

- The Flow from retainer side is the preferred flow direction. Flow from stem side is non-preferred flow direction.
- BTO-Break to Open, RTO-Run to Open, ETO-End to Open, BTC-Break to Close, RTC-Run to Close, ETC-End to Close.
- For non-preferred flow direction torque values of fire safe seat and metal seat, multiply preferred values by 1.25.

DOUBLE OFFSET BUTTERFLY VALVE
EXPLODED VIEW FOR WAFER AND LUG

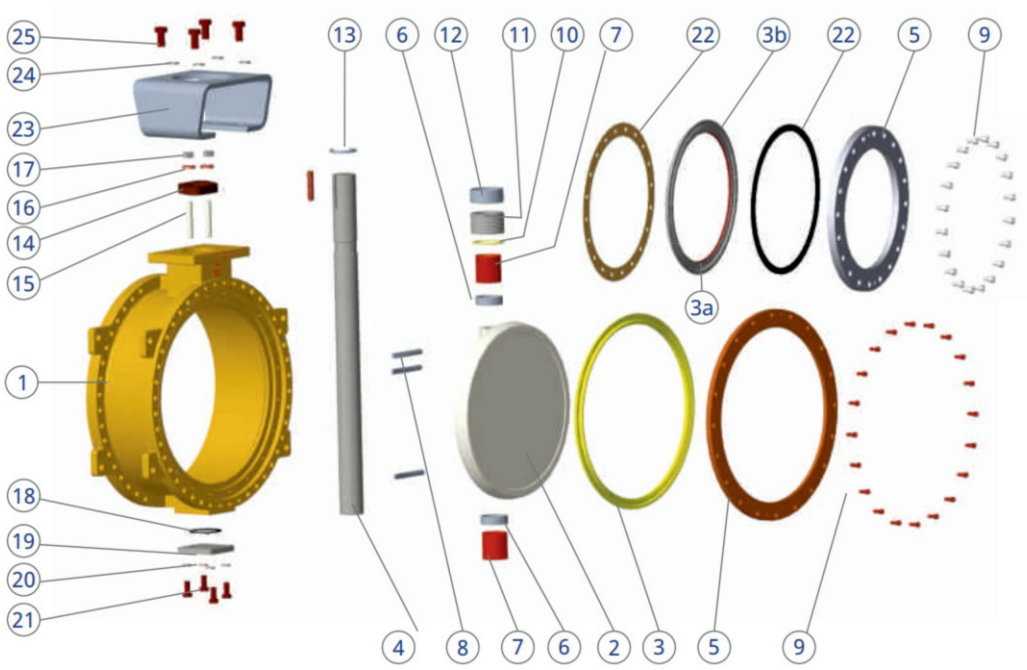


Item	Description	Standard Materials	
		Carbon Steel	Sainless Steel
1	Body	ASTM A16 WCB/WCC ASTM A32 LCC	ASTM A351 CF8M/CF3M
2	Disc	ASTM A351 CF8M/CF3M	ASTM A351CF8M/CF3M
3	Seat (Soft)	PTFE#/ULTRA/RPTFE/UHMWPE	PTFE#/ULTRA/RPTFE/UHMWPE
3a	Seat (Fire Safe)	ASTM A240 SS316 + ULTRA	ASTM A240 SS316 + ULTRA
3b	Seat (Metal)	ASTM A240 SS316	ASTM A240 SS316
4	Stem (Soft Seat)	ASTM A322 4130 + ENP ASTM A479 SS410-cond.3 ASTM A564 Type 630 (17-4PH)	ASTM A564Type 630 (17-4PH) ASTM A479 Xm19 ASTM A479 Ss316 Strain Hardened Level 2
	Stem (Fire Safe Seat)	ASTM A479 SS410 -cond.3 ASTM A564 Type 630 (17-4PH)	ASTM A564 Type 630 (17-4PH) ASTM A479 XM19
	Stem (Metal Seat)	ASTM A564 Type 630 (17-4PH)	ASTM A564 Type 630 (17-4PH) ASTM A479 XM19
5	Seat Retaining Ring	ASTM A516 Gr.70 Steel	ASTM A240 SS316/SS316L ASTM A240 SS304
6	Disc Spacer	ASTM A47 SS316/SS316L	ASTM A479 SS316/SS316L
7	Bearing (Soft Seat)	Bear-X	Bear-X
	Bearing (Fire Safe) Seat & Metal Seat)	Fireproof DFP-D1	Fireproof DFP-D1
8	Wedge Key	ASTM A564 Type 630 (17-4PH)	ASTM A564 Type 630 (17-4PH) ASTM A479 XM19 ASTM A479 SS36
9	Retainer Screw	10 3506 A4-70 ASTM A1082 Type 630 (17-4PH) ASTM A193Gr. B8M	ISO 3506 A4-70 ASTM A1082 Type 630(17-4PH) ASTM A193 Gr. B8M
10	Packing Spacer	ASTMA479 SS316/SS316L	ASTMA479 SS316/SS316L

Item	Description	Standard Materials	
		Carbon Steel	Sainless Steel
11	Gland Packing	PTFE (CHEVRON V- RING) Graphite	PTFE (CHEVRON V-RING) Graphite
12	Gland	ASTM A479 SS316/SS316L	ASTM A479 SS316/SS316L
13	Stem Retainer	ASTM A313 SS302	ASTM A313 SS302
14	Gland Flange	ASTM A516 Gr. 70 ASTM A105 ASTM A216 WCB Steel	ASTM A240 Ss316 ASTM A351 CF8M ASTM A182 F316
15	Stud	ASTM A193 Gr. B7 ASTM A193 Gr. B7M ASTM A193 Gr. B8M	ASTM A193 Gr. B8M ASTM A1082 Type 630 (17-4PH)
16	Belleville Spring	ASTM A666 SS304	ASTM A666 SS316
17	Hex Nut	ASTM A194 Gr. 8M ASTM A194 Gr. 2H ASTM A194 Gr. 2HM	ASTM A194 Gr. 8M ASTM A1082 Type 630 (17-4PH)
18	Cover Gasket	PTFE/Graphite	PTFE/Graphite
19	Bottom Cover	ASTM A516 Gr. 70 ASTM A240 SS304 Steel	ASTM A240 SS316/SS316L
20	Spring Washer	ASTM A580 SS304	ASTM A580 SS304
21	Hex Hd Screw	ISO 3506 A4-70 ASTM A193 Gr. B7 ASTM A193 Gr. B7M ASTM A193 Gr. B8M	ISO 3506 A4-70 ASTM A1082 Type 630(17-4PH) ASTM A193 Gr. B8M
22	Seat Gasket (Fire-safe Seat & Metal Seat)	Graphite	Graphite

**Gland Packing / Cover Gasket MOC Is Depend On Application Service

DOUBLE OFFSET BUTTERFLY VALVE
EXPLODED VIEW FOR FLANGED

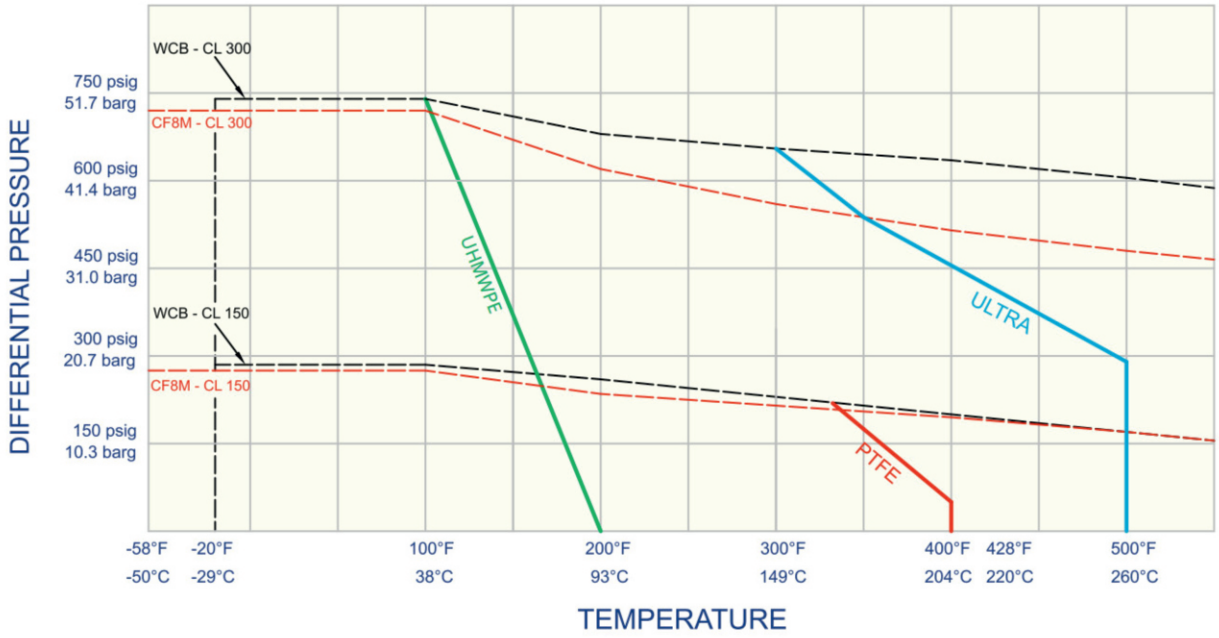


Item	Description	Standard Materials	
		Carbon Steel	Sainless Steel
1	Body	ASTM A16 WCB/WCC ASTM A32 LCC	ASTM A351 CF8M/CF3M
2	Disc	ASTM A351 CF8M/CF3M	ASTM A351CF8M/CF3M
3**	Seat (Soft)	PTFE#/ULTRA/RPTFE/UHMWPE	PTFE#/ULTRA/RPTFE/UHMWPE
3a**	Seat (Fire Safe)	ASTM A240 SS316 + ULTRA	ASTM A240 SS316 + ULTRA
3b**	Seat (Metal)	ASTM A240 SS316	ASTM A240 SS316
4	Stem (Soft Seat)	ASTM A322 4130 + ENP ASTM A479 SS410-cond.3 ASTM A564 Type 630 (17-4PH)	ASTM A564Type 630 (17-4PH) ASTM A479 Xm19 ASTM A479 Ss316 Strain Hardened Level 2
	Stem (Fire Safe Seat)	ASTM A479 SS410 -cond.3 ASTM A564 Type 630 (17-4PH)	ASTM A564 Type 630 (17-4PH) ASTM A479 XM19
	Stem (Metal Seat)	ASTM A564 Type 630 (17-4PH)	ASTM A564 Type 630 (17-4PH) ASTM A479 XM19
5	Seat Retaining Ring	ASTM A516 Gr.70 Steel	ASTM A240 SS316/SS316L ASTM A240 SS304
6	Disc Spacer	ASTM A47 SS316/SS316L	ASTM A479 SS316/SS316L
7**	Bearing (Soft Seat)	Bear-X	Bear-X
	Bearing (Fire Safe) Seat & Metal Seat)	Fireproof DFP-D1	Fireproof DFP-D1
8**	Wedge Key	ASTM A564 Type 630 (17-4PH)	ASTM A564 Type 630 (17-4PH) ASTM A479 XM19 ASTM A479 SS36
9	Retainer Screw	10 3506 A4-70 ASTM A1082 Type 630 (17-4PH) ASTM A193Gr. B8M	ISO 3506 A4-70 ASTM A1082 Type 630(17-4PH) ASTM A193 Gr. B8M
10	Packing Spacer	ASTMA479 SS316/SS316L	ASTMA479 SS316/SS316L

Item	Description	Standard Materials	
		Carbon Steel	Sainless Steel
11*	Gland Packing	PTFE (CHEVRON V- RING) Graphite	PTFE (CHEVRON V-RING) Graphite
12	Gland	ASTM A479 SS316/SS316L	ASTM A479 SS316/SS316L
13**	Stem Retainer	ASTM A313 SS302	ASTM A313 SS302
14	Gland Flange	ASTM A516 Gr. 70 ASTM A105 ASTM A216 WCB Steel	ASTM A240 Ss316 ASTM A351 CF8M ASTM A182 F316
15	Stud	ASTM A193 Gr. B7 ASTM A193 Gr. B7M ASTM A193 Gr. B8M	ASTM A193 Gr. B8M ASTM A1082 Type 630 (17-4PH)
16**	Belleville Spring	ASTM A666 SS304	ASTM A666 SS316
17	Hex Nut	ASTM A194 Gr. 8M ASTM A194 Gr. 2H ASTM A194 Gr. 2HM	ASTM A194 Gr. 8M ASTM A1082 Type 630 (17-4PH)
18**	Cover Gasket	PTFE/Graphite	PTFE/Graphite
19	Bottom Cover	ASTM A516 Gr. 70 ASTM A240 SS304 Steel	ASTM A240 SS316/SS316L
20	Spring Washer	ASTM A580 SS304	ASTM A580 SS304
21	Hex Hd Screw	ISO 3506 A4-70 ASTM A193 Gr. B7 ASTM A193 Gr. B7M ASTM A193 Gr. B8M	ISO 3506 A4-70 ASTM A1082 Type 630(17-4PH) ASTM A193 Gr. B8M
22**	Seat Gasket (Fire-safe Seat & Metal Seat)	Graphite	Graphite
23	Bracket	Steel ASTM A240 SS304	ASTM A240 SS316/SS316L
24	Spring Washer	ASTM A240 SS304	ASTM A240 SS304
25	Hex Hd Screw	ISO 3506 A4-70	ISO 3506 A4-70

**Gland Packing / Cover Gasket MOC Is Depend On Application Service

DOUBLE OFFSET BUTTERFLY VALVE
PRESSURE TEMPRETURE RATING



Temperature Limit

		Lower Limit	Upper Limit
		Deg C	Deg C
BODY	WCB	-29	425
	LCB	-46	345
	CF8	-196	538
	CF8M	-196	538
SEAT	PTFE	-50	204
	ULTRA	-50	260
	UHMWPE	-29	93

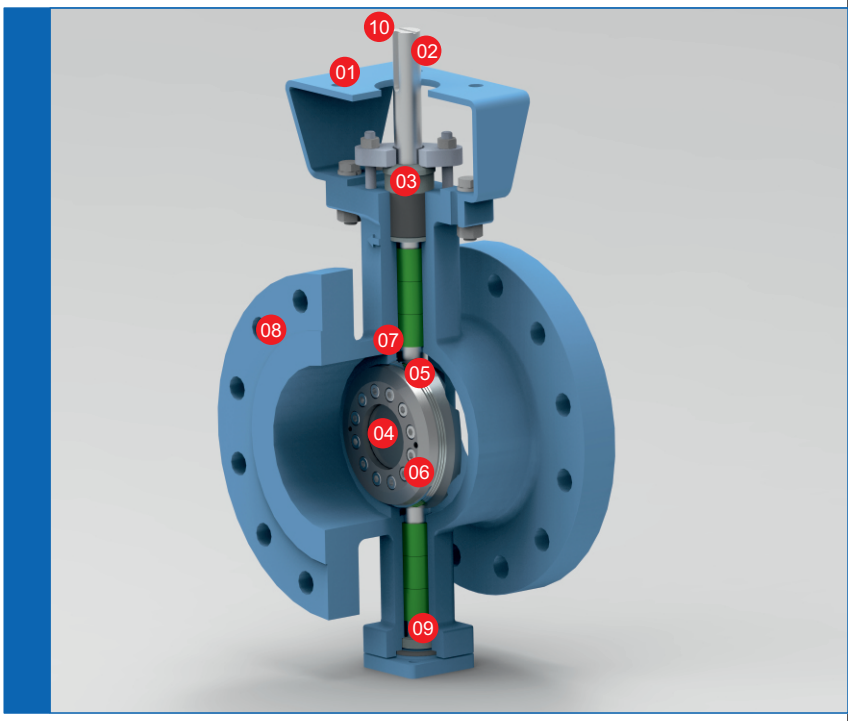
Pressure temperature rating shall be lesser of the shell rating or the seat rating.

TRIPLE OFFSET BUTTERFLY VALVE STANDARD FEATURES

Quality & Performance

DUNCAN offers a broad range of high-quality products known for dependable performance. Series B3 Triple Offset Butterfly Valves are manufactured in ISO 9001 certified facilities under a robust quality management system, complying with ASME B16.34 and API 609 standards

Design Construction and Features



1. ISO Top Flange

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

2. Stem

Robust single piece stem, secured in stem bearing at drive a non drive end of the body, supports the disc against the pressure exerted by the fluid and minimize disc and stem deflection.

3. Stem Seal

Stem seal assembly is live loaded with Belleville springs. This ensures continues compression of packing and sealing.

4. Disc

The Disc is designed with a profile to minimize resistance to flow and pressure drop across the valve and maximize flow capacity.

5. Seal Ring

Elliptical laminated seat ring is located on the disc. It is precision machined for bi directional, zero leakage sealing.

6. Retainer Ring

Seal ring is clamped rigidly on the disc face by the retainer ring. The retainer is made of identical metal as the disc and combines the disc, seal ring and retainer into a robust, composite unit for zero leakage, bi directional sealing.

7. Seat

Seat is integral on body and is hard faced with Satellite gr 21 on suitable alloy.

8. Body

Body is of single piece cast construction, with options of wafer, lug and double flanged. Face to face dimensions and pressure ratings are conforming to international standards.

9. Bearing

Heavy duty bearings are designed to withstand high radial and axial stem loads due to pressure and wear.

10. External Position Indicator for Disc Position

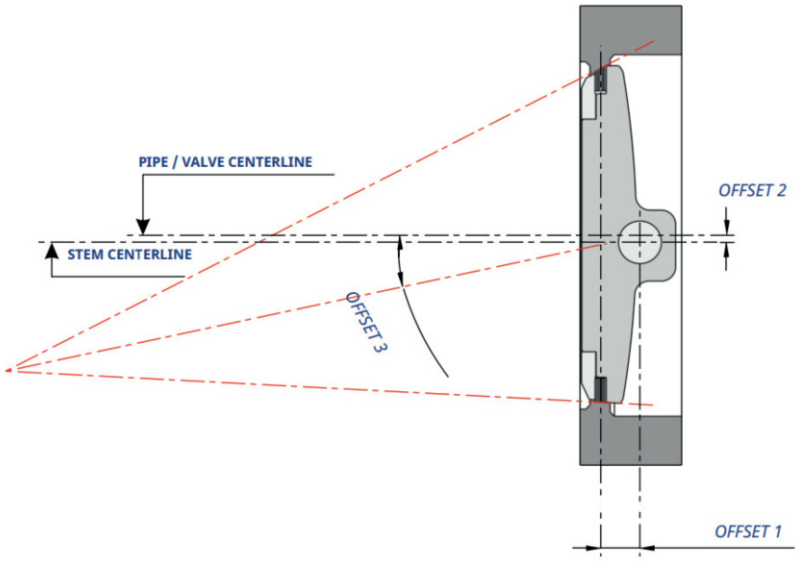
Disc position is indicated by a dimple on the shaft. When the dimple is in-line with flow axis, the disc is open.

TRIPLE OFFSET BUTTERFLY VALVE
PRINCIPLE OF OPERATION

Offset 1: The shat is located with an offset behind the sealing plane allowing complete sealing contact around the entire seat periphery.

Offset 2: The shaft axis is offset with respect to the pipe and disc centerline providing interference free opening and closing of the valve.

Offset 3: The seat cone axis is offset from the disc centerline to eliminate friction during opening and closing and to achieve uniform compressive sealing around the entire seat.

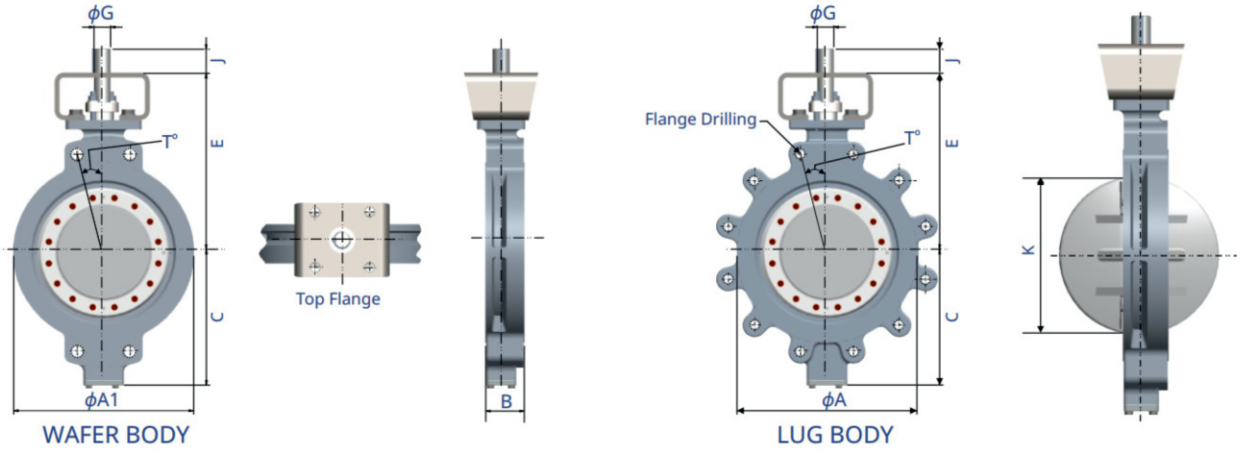


Standards And Specifications

Design Standard	: API 609, ASME B16.34, BS EN 593, MSS SP-68
Face to Face	: API 609, ISO 5752, BS EN 558, MSS SP-68
Pressure Temperature	: ASME B16.34
Flange Accommodation	: ASME B16.5
NACE (optional)	: ANSI / NACE MR 0175 / ISO 15156
Fire Safe Certified (optional)	: API 607
Fugitive Emission (Optional)	: ISO 15848, API 641
	:
Body Style	: Wafer, Lug, Flanged
Rating	: Class 150 / 300
Temp Range	: -29°C to 425°C (Standard)
Size Range	: DN50 to DN300

TRIPLE OFFSET BUTTERFLY VALVE DIMENSIONS & WEIGHTS

WAFER & LUG



ASME CLASS 150 WAFER/LUG

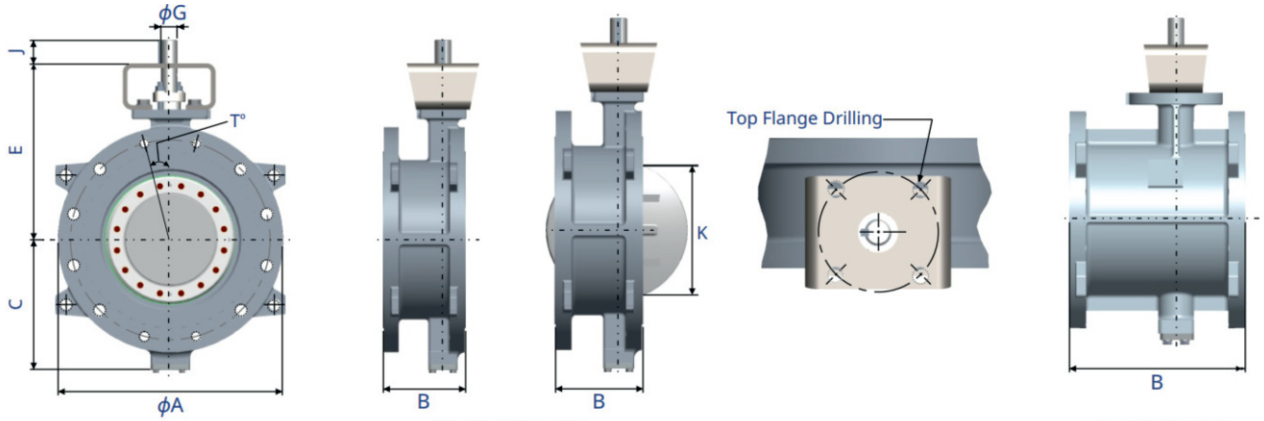
Valve Size		ØA	ØA1	B	C	E	Top Flange Details	ØG	J	Key Size	K	End Flange Drilling						App. Weight (Kg)	
												PCD		Wafer		Lug			
INCH	DN						Type					PCD	T°	Nos.	Hole Ø * / Tapping UNC/UN-28	Nos.	Tapping UNC / UN-28	Wafer	Lug
3	80	127	127	48	117	190	F07/F10	16.0	32	5.00 x 5.00	64	152.4	45.0	2	5/8-11	4	5/8-11	9	11
4	100	157	157	54	144	225	F07/F10	20.0	32	6.00 x 6.00	86	190.5	22.5	2	5/8-11	8	5/8-11	15	17
5	125	186	186	57	145	220	F07/F10	22.0	32	6.00 x 6.00	114	215.9*	22.5	2	5/8-10	8	5/8-10	16	18
6	150	216	216	57	155	230	F07/F10	22.0	32	6.00 x 6.00	142	241.3	22.5	2	5/8-10	8	5/8-10	17	20
8	200	270	270	64	186	285	F010/F12	25.0	32	8.00 x 7.00	186	298.5	22.5	2	5/8-10	8	5/8-10	26	32
10	250	324	324	70	225	328	F12	30.0	51	8.00 x 7.00	232	362.0	15.0	2	7/8-9	12	7/8-9	45	52
12	300	381	381	80	280	380	F12/16	35.0	51	10.00 x 8.00	280	431.8	15.0	4	7/8-9	12	7/8-9	70	80

ASME CLASS 300 WAFER/LUG

Valve Size		ØA	ØA1	B	C	E	Top Flange Details	ØG	J	Key Size	K	End Flange Drilling						App. Weight (Kg)	
												PCD		Wafer		Lug			
INCH	DN						Type					PCD	T°	Nos.	Hole Ø * / Tapping UNC/UN-28	Nos.	Tapping UNC / UN-28	Wafer	Lug
3	80	127	137.0	48	118	190	F70/F10	16	32	5 X 5	66	168..3	22.5	2	22.3	8	3/4-10	10.0	12.0
4	100	157	157.0	54	145	225	F70/F10	20	32	6 X 6	92	200	22.5	2	22.3	8	3/4-10	20.0	25.0
5	125	216	216.0	59	191	275	F12	25	32	8 X 7	142	235	15.0	2	22.3	12	3/4-10	34.0	45.0
6	150	270	270.0	59	206	310	F12	35	32	10 X 8	185	269.9	150	4	25.4	12	7/8-9	50.0	56.0
8	200	324	324.0	73	262	385	F16	35	51	10 X 8	227	330.2	11.3	4	1.8	16	1-8	80.0	104.0
10	250	381	381.0	83	287	425	F16	40	51	12 X 8	278	387.4	11.3	4	1 1/8-8	16	1-1/8-8	130.0	160.0
12	300	413	413.0	92	316	480	F25	5	51	16 X 10	298	450.8	9.0	4	1 1/8.8	20	1-1/8-8	165.0	235.0

TRIPLE OFFSET BUTTERFLY VALVE DIMENSIONS & WEIGHTS

DOUBLE FLANGE



SHORT PATTERN DOUBLE FLANGED

LONG PATTERN DOUBLE FLANGED

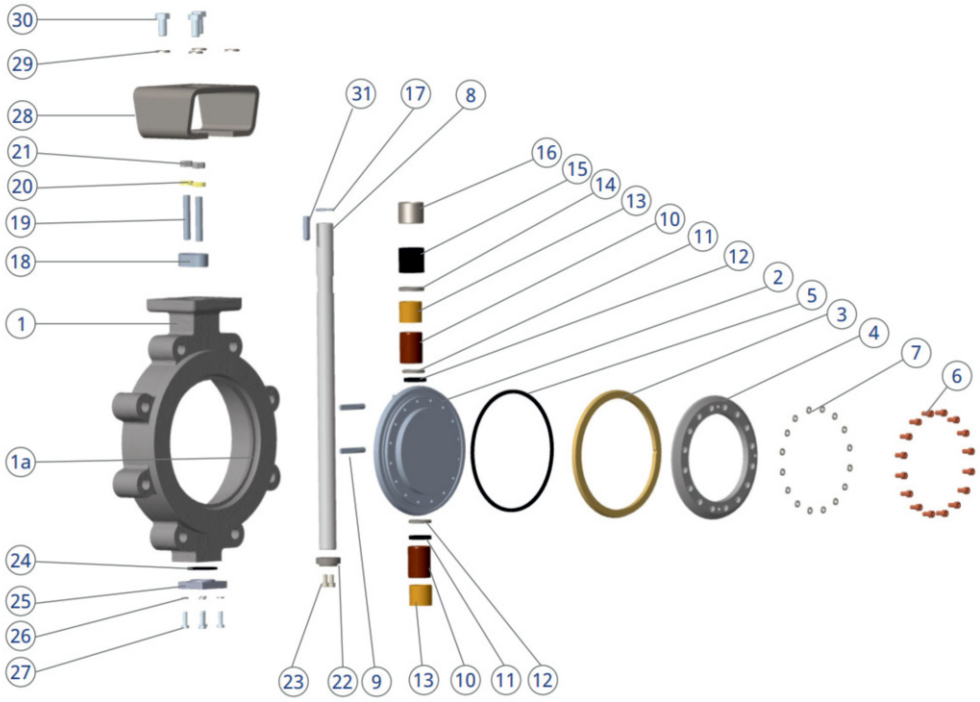
ASME CLASS 150 SHORT PATTERN/LONG PATTERN

Valve Size		ØA			C	E	Top Flange Details	ØG	J	Key Size	K (Short Pattern)	End Flange Drilling						App. Weight (Kg)	
																Short Pattern			
INCH	DN		SP	LP			Type					PCD	Nos.	T°	Hole Ø	Nos.	Tapping UNC / UN2B	DF (SP)	DF (LP)
3	80	190	114	203	117	190	F07/F10	16.0	32	5.00 x 5.00	64	152.4	4	45.00	19.05	NA	5/8-11	18	19
4	100	230	127	229	144	225	F07/F10	20.0	32	6.00 x 6.00	86	190.5	8	22.50	19.05	4	5/8-11	28	30
5	125	254	140	267	145	220	F07/F10	22.0	32	6.00 x 6.00	114	215.9*	8	22.50	22.30	NA	3/4-10	28	30
6	150	280	140	267	155	230	F07/F10	22.0	32	6.00 x 6.00	142	241.3	8	22.50	22.30	NA	3/4-10	38	42
8	200	345	152	292	186	285	F010/F12	25.0	32	8.00 x 7.00	185	298.5	8	22.50	22.30	NA	3/4-10	55	60
10	250	405	165	330	225	328	F12	30.0	51	8.00 x 7.00	232	362.0	12	15.00	25.40	4	7/8-9	90	100
12	300	485	178	356	280	380	F12/16	35.0	51	10.00 x 8.00	279	431.8	12	15.00	25.40	4	7/8-9	152	167

ASME CLASS 300 SHORT PATTERN/LONG PATTERN

Valve Size		ØA	B		C	E	Top Flange Details	ØG	J	Key Size	K (Short Pattern)	End Flange Drilling						App. Weight (Kg)	
																Short Pattern			
INCH	DN		SP	LP			Type					PCD	Nos.	T°	Hole Ø	Nos.	Tapping UNC / UN2B	DF (SP)	DF (LP)
3	80	210	114	282	117	190	F07/F10	16.0	32	5.00 x 5.00	66	168.1	8	22.5	22.3	NA	3/4-10	18	20
4	100	255	127	305	144	225	F07/F10	20.0	32	6.00 x 6.00	92	200.2	8	22.5	22.3	NA	3/4-10	32	36
6	150	320	140	403	190	275	F12	25.0	32	8.00 x 7.00	142	269.7	12	15.0	22.3	NA	3/4-10	84	95
8	200	380	152	419	205	310	F12	35.0	51	10.00 x 8.00	185	330.2	12	15.0	25.4	NA	7/8-9	100	117
10	250	445	165	457	260	385	F16	35.0	51	10.00 x 8.00	227	387.4	16	11.3	28.6	4	1-8	130	154
12	300	520	178	502	285	425	F16	40.0	51	12.00 x 8.00	278	450.8	16	11.3	31.8	4	1-1/8-8	225	257

TRIPLE OFFSET BUTTERFLY VALVE
EXPLODED VIEW



Item	Description	Standard Materials	
		Carbon Steel	Sainless Steel
1	Body	ASTM A16 WCB/WCC ASTM A352 LCC/LCB	ASTM A351 CF8M/CF3M
1a	Body seat	ASTM A351 CF8M/CF3M	Stellite Gr. 21
2	Disc	ASTM A16 WCB/WCC ASTM A352 LCC/LCB	ASTM A351 CF8M/CF3M
3**	Seal Ring	ASTM A240 S31803 (Duplex) +Graphite ASTM A240 S20910 (XM-19) +hard faced ASTM A240 S20910 (XM-19) +hard faced	ASTM A240 S31803 (Duplex) +Graphite ASTM A240 S20910 (XM-19) +hard faced ASTM A240 S20910 (XM-19) +hard faced
4	Retainer Ring	ASTM A516 Gr.70/ASTM A240 SS304	ATM A240 SS316/SS316L
5**	Seal Gasket	SS316+Graphite	SS316+Graphite
6	Retainer Screw	ISO 3506 A4-70***/ASTM A1082 Type 630 H1150M (17-4PH)	ISO 3506 A4-70***/ASTM A1082 Type 630 H1150M (17-4PH)
7	Spring Washer	ASTM A580 SS304	ASTM A580 Ss316
8	Stem	ASTM A322 4130 ASTM A479 SS410-cond.3 ASTM A564 Type 630 (17-4PH)	ASTM A564 Type 630 (17-4PH) ASTM A479 XM19
9**	Wedge Key	ASTM A322 4130 ASTM A479 SS410-cond.3 ASTM A564 Type 630 (17-4PH)	ASTM A564 Type 630 (17-4PH) ASTM A479 XM19
10**	Stem Bearing	ASTM A479 SS316/SS36L+Nitriding	ASTM A479 SS316/SS36L+Nitriding
11**	Bearing Protector	Graphite	Graphite
12	Bearing Protector Support	ASTM A479 SS316/SS36L	ASTM A479 SS316/SS36L
13	Bearing Spacer	ASTM A479 SS316/SS36L	ASTM A479 SS316/SS36L
14	Packing Spacer	ASTM A479 SS316/SS36L	ASTM A479 SS316/SS36L

Item	Description	Standard Materials	
		Carbon Steel	Sainless Steel
15**	Gland Packing	Graphite	Graphite
16	Gland	ASTM A479 SS316/SS316L	ASTM A479 SS316/SS316L
17**	Stem Retainer	ASTM A313 SS302	ASTM A313 Ss302
18	Gland Flange	ASTM A516 Gr. 70/WCB/ ASTM A105	ASTM A240 SS316/SS316L /CF8M/CF3M
19	Stud	ASTM A193 Gr. B7M	ASTM A1082 Type 630 H1150M (17-4PH)
20**	Belleville Spring	ASTM A666 SS304	ASTM A666 SS316
21	Hex Nut	ASTM A194 Gr 2HM	ASTM A1082 Type 630 H1150M (17-4PH)
22**	Thrust Bearing	ASTM A479 SS316/SS316L+Nitriding	ASTM A479 SS316/SS316L+Nitriding
23	Bearing Screw	ASTM A193 Gr. B8M	ASTM A193 Gr. B8M
24**	Cover Gasket	Graphite, SS316/ SS316L+Graphite	Graphite, SS316/ SS316L+Graphite
25	Bottom Cover	ASTM A516 Gr.70 ASTM A240 SS304	ASTM A240 SS316/SS316L
26	Spring Washer	ASTM A580 SS304	ASTM A580 SS316
27	Hex Hd Screw	ISO 3506 A4-70***/ ASTM A193 Gr B7M	ISO 3506 A4-70***/ ASTM A1082 Type 630 H1150M (17-4PH)
28	Bracket	Carbon steel	Stainless steel
29	Spring Washer	ASTM A580 SS304	ASTM A580 SS316
30	Hex Hd Screw	ISO 3506 A4-70	ISO 3506 A4-70
31	Key	ASTM A322 4130 ASTM A479 Ss410-cond.3 ASTM A564 Type 630 (17-4PH)	ASTM A564 Type 630 (17-4PH) ASTM A479 XM19

Other materials are available on request.
**Recommended spares..
***Non Nace application

ASME CLASS 150

Valve Size		Flow Direction*	Torque (Nm)									
			3.5 Bar		7 Bar		10 Bar		16 Bar		20 Bar	
INCH	DN		ETC	BTO	ETC	BTO	ETC	BTO	ETC	BTO	ETC	BTO
3	80	Shaft Side	24	29	39	48	86	106	90	112	94	119
		Disc Side	30	26	52	43	118	94	124	99	130	105
4	100	Shaft Side	30	38	49	60	109	135	115	144	122	155
		Disc Side	41	33	68	55	150	120	160	126	168	135
6	150	Shaft Side	52	64	116	107	186	234	200	251	212	265
		Disc Side	71	58	130	95	256	206	278	221	292	236
8	200	Shaft Side	78	97	178	162	264	330	305	380	322	401
		Disc Side	108	95	295	142	364	290	420	335	441	352
10	250	Shaft Side	178	221	405	368	560	698	685	858	734	918
		Disc Side	243	195	378	235	768	615	942	754	1010	810
12	300	Shaft Side	228	285	522	475	663	828	825	1029	946	1180
		Disc Side	313	250	503	418	912	728	1130	906	1300	1040

ASME CLASS 300

Valve Size		Flow Direction*	Torque (Nm)									
			3.5 Bar		7 Bar		10 Bar		20 Bar		30 Bar	
INCH	DN		ETC	BTO	ETC	BTO	ETC	BTO	ETC	BTO	ETC	BTO
3	80	Shaft Side	45	55	82	104	110	138	154	191	166	208
		Disc Side	61	49	114	90	150	120	210	168	228	182
4	100	Shaft Side	70	88	131	164	175	215	195	245	212	265
		Disc Side	95	77	180	144	239	190	270	215	291	234
6	150	Shaft Side	116	145	271	271	289	361	239	412	361	451
		Disc Side	160	128	295	239	398	318	455	363	496	398
8	200	Shaft Side	235	292	440	548	586	730	690	860	803	1002
		Disc Side	322	257	605	482	805	645	947	757	1102	882
10	250	Shaft Side	314	392	590	736	786	981	1033	1290	1208	1510
		Disc Side	432	345	810	648	1080	864	1420	1135	1661	1320
12	300	Shaft Side	423	530	794	992	1060	1322	1398	1746	1819	2275
		Disc Side	582	465	1090	873	1454	1164	1417	1538	2500	2000

Flow direction stem side is the preferred flow direction.
BTO - Break To Open, RTO- Run To Open, ETO- End To Open, BTC - Break To Close, RTC-Run To Close, ETC-End To Close

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ORDERING CODE

1	
SERIES	
CODE	DESCRIPTION
B1	CENTRIC BUTTERFLY VALVE
B2	DOUBLE OFFSET BUTTERFLY VALVE
B3	TRIPLE OFFSET BUTTERFLY VALVE

2	
PRESSURE CLASS	
CODE	DESCRIPTION
01	ASME CLASS 150
02	ASME CLASS 300
03	ASME CLASS 600
04	ASME CLASS 900
05	ASME CLASS 1200
06	ASME CLASS 1500
07	ASME CLASS 2500

3	
VALVE TYPE	
CODE	DESCRIPTION
W	WAFER
L	LUG
F	FLANGED
D	DOUBLE FLANGED

4	
SEAT TYPE	
CODE	DESCRIPTION
R	RPTFE
F	FIRE SAFE
M	METAL

5	
BODY & END PIECE MATERIAL	
CODE	DESCRIPTION
015	1/2" (DN 15)
020	3/4" (DN 20)
025	1" (DN 25)
032	1 1/4" (DN 32)
040	1 1/2" (DN 40)
050	2" (DN 50)
065	2 1/2" (DN 65)
080	3" (DN 80)
100	4" (DN 100)
150	6" (DN 150)
200	8" (DN 200)
250	10" (DN 250)
300	12" (DN 300)
400	16" (DN 400)
500	20" (DN 500)
600	24" (DN 600)

6	
BODY MOC	
CODE	DESCRIPTION
1	SS 316/ASTM A351GR CF8M
2	ASTM A351 GR CG8M
3	ASTM A 216 GR WCB
4	SS304 / CF8
5	ASTM A352 GR WCB
I	CAST IRON
G	SG IRON
C	CARBON STEEL
O	OTHERS

7	
DISC MOC	
CODE	DESCRIPTION
1	SS 316/ASTM A351GR CF8M
2	ASTM A351 GR CG8M
3	ASTM A 216 GR WCB
I	CAST IRON
G	SG IRON
4	SS304 / CF8
7	AL BRONZE
C	CARBON STEEL
O	OTHERS

8	
SHAFT PIN	
CODE	DESCRIPTION
1	SS 316
2	17-4PH
3	DUPLEX (1.4460) EQUIVALENT TO TO SS 329
4	SS304 / CF8
5	NIMONIC
6	ASTM A 479 GR WCB
7	XM-19 (NITRONIC 50)
C	CARBON STEEL (EN8)
8	SS 410
9	MONEL
O	OTHERS

9	
FIRE SAFE	
CODE	DESCRIPTION
1	NON-FIRE SAFE
2	FIRE SAFE

10	
OPERATOR	
CODE	DESCRIPTION
1	LEVER
2	GEAR UNIT
3	MOTORISED
4	DOUBLE ACTING PNEUMATIC CYLINDER
5	SPRING RETURN PNEUMATIC CYLINDER
6	BARE SHAFT

ORDERING CODE FOR BUTTERFLY VALVE
B1-02-W-F-25-3-I-4-2-6

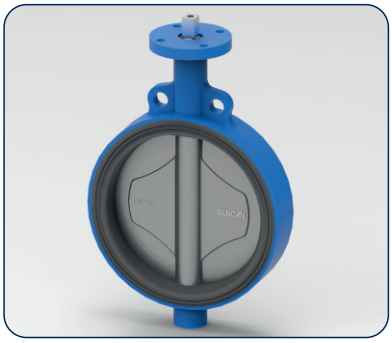
CODE	DESCRIPTION
B1	CENTRIC BUTTERFLY VALVE
02	ASME CLASS 300
W	WAFER
F	FIRE SAFE
25	1" (DN 25)
3	ASTM A 216 GR WCB
I	CAST IRON
4	SS304 / CF8
2	FIRE SAFE
6	BARE SHAFT

Available Variety

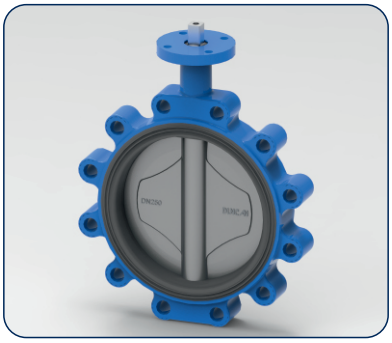
S-Series Scotch Yoke Actuator

Please note that the images are intended for conceptual purposes only and do not represent any specific brand. Products will be supplied according to standard specifications or customers pacified brands, with the exception of the hand lever. This represents the fundamental automation setup, and additional accessories can be included based on the general assembly drawing or the specific requirements of the actuation system.

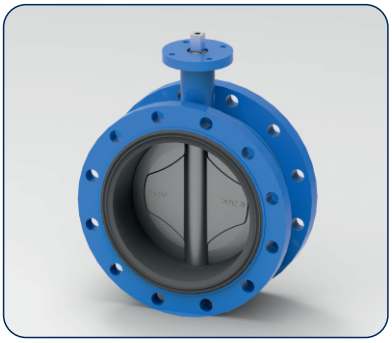
M-Series Rack & Pinion Actuator



Wafer Type



Lug Type



Double Flange

Caution

CAUTION !

Pressure-temperature ratings and other performance data published in this catalog have been developed from our design calculation, In-house testing, and field reports provided by our customers and/or published official standards or specifications. They are good only to cover typical applications as a general guideline to users of DUNCAN products introduced in this catalog.

For any specific application, users are kindly requested to contact DUNCAN Engineering Limited for technical advice, or to carry out their own study and evaluation for providing suitability of these products to such an application failure to follow this request could result in property damage and/or personal injury, for which we shall not be liable.

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