

UV800 Triple Offset Butterfly Valve

The UNIVALS UV800 butterfly valve incorporates an advanced innovation concepts, featuring an unique design and high quality manufacturing processes. Engineered for durability and superior sealing performance. it meets stringent safety, emission, and performance standards in the Oil & Gas, Petrochemical and Chemical industries. These engineered valves can be configure with various shaft options to accommodate both high-temperature service and cryogenic applications. They also feature a special sealing ring design.

Features

These advanced features enable the UV800 to deliver longer service life, near-zero leakage and lower operating torque even in the most demanding applications

- Metal composite elastic sealing ring
- Welded valve body seat Construction
- Integral valve shaft design
- Extended double bearings and isolation protection design
- Integral emission control system
 - Fugitive emission packing kits
 - Spring elastic loaded packing design
- Anti-blow-out shaft
- Key driven Disc Connection
- Hydrodynamic Disc Profile

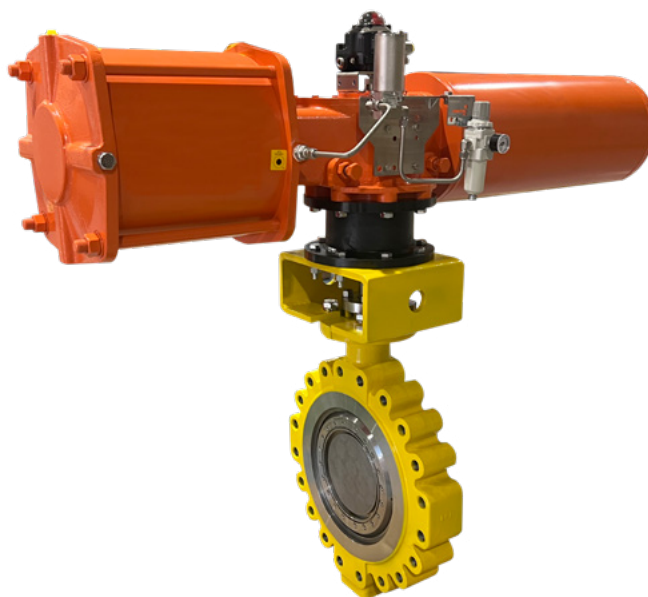
Technical Summary

- Size: 3~48 inch
- Rating: Class 150LB ~ Class 900LB
- Body: Carbon Steel, Alloy Steel, Stainless Steel
- Trim: Carbon Steel, Alloy Steel, Stainless Steel
- Seat: Hard Faced

Additional configuration materials are available, contact UNIVALS engineering for specialized requirements.

Advantages

- No friction loss design
- Site serviceable sealing system
- Bubble-Tight shut-off
- Extended service life
- Space-saving construction
- Fail-Safe reliability
- Universal application range



Design Standard

- Design API 609 or DIN EN 593
- Pressure / Temperature Rating ASME B16.34 or DIN EN 12516-1
- Face-to-face Dimensions ASME 609 or DIN EN 558
- Flange End Dimensions ASME B16.5, ASME B16.47 or DIN EN 1092
- NACE MR 0103 or MR 0175
- Fugitive Emission ISO15848, TA-LUFT
- Fire-safe Type Test API 607

Available Configuration

The UV800 butterfly valves deliver reliable tight shut-off and uncompromising sealing performance across both standard and severe service applications. Our available configurations include:

- Low temperature cryogenic service
- High temperature operation
- Multiple sealing ring configurations
- Multiple end connections
- Customized solutions

Configurations



STANDARD



LOW TEMPERATURE



HIGH TEMPERATURE

Size and Pressure Range

Product supply scope For ASME B16.5 Flange																		
ASME	NPS																	
Class	3	4	5	6	8	10	12	14	16	18	20	24	28	32	36	40	44	48
CL150	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CL300	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CL600	*	*	*	*	✓	✓	✓	✓	✓	✓	✓	✓	*	*	*	*	*	*
CL900	*	*	*	*	✓	✓	✓	✓	✓	✓	✓	✓	*	*	*	*	*	*

NOTE: “✓” Standard products, “×”Not-Available, “*”Please contact sales for relevant data.
Optional connection ends include Wafer Type, Double Flange Type and Lug Type.

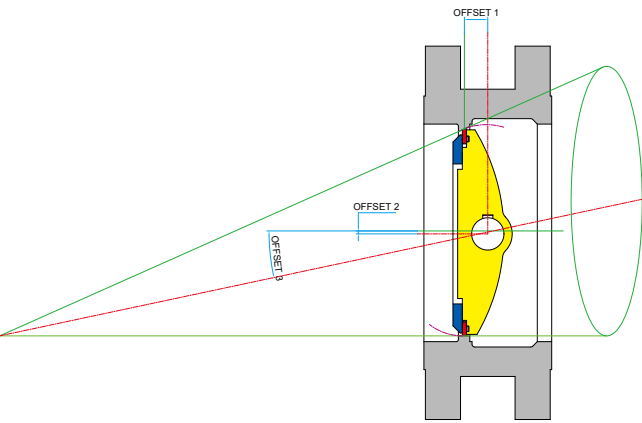
Product supply scope For DIN-EN-1092 Flange																		
DIN	DIN																	
PN	80	100	DN125	150	200	250	300	350	400	450	500	600	700	800	900	1000	1100	1200
PN10	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PN16	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PN25	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	*	*	*	*	*	*
PN40	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	*	*	*	*	*	*
PN63	×	×	×	✓	✓	✓	✓	✓	✓	*	*	*	*	*	*	*	*	*
PN100	×	×	×	✓	✓	✓	✓	✓	*	*	*	*	*	*	*	*	*	*

NOTE: “✓” Standard products, “×”Not-Available, “*”Please contact sales for relevant data.
Optional connection ends include Wafer Type, Double Flange Type and Lug Type.

Technical Specification

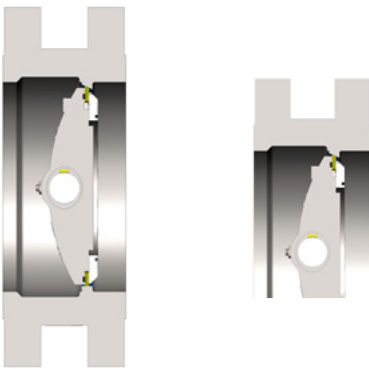
1. Triple Offset Design

- Offset 1:** Radial Shaft Offset. The shaft is positioned behind the seat plane, creates uninterrupted 360° seating surface.
- Offset 2:** Lateral Disc Offset. The shaft centerline is offset from disc centerline to instantaneously lift the disc and enable zero rubbing contact during operation.
- Offset 3:** Conical Angle Offset. The cone axis is offset from seal centerline, eradicating discseat friction.



- a) Triple offset design achieves the separation of the sealing ring and seat during valve operation, avoiding friction and wear on the sealing surface. Therefore, the reliable sealing and long service life of the valve can be achieved.
- b) The triple offset butterfly valve has torque sealing characteristics, ensuring the sealing of the valve through the continuous torque provided by the actuator.

2. Design of Metal Flexible Sealing Ring



Shut Off
The sealing force applied by the shaft is equal distribution to the sealing surface through the flexible sealing ring, ensuring a tight seal.

Solid Metal Sealing Ring Optional



LAMINATED SEAL RING



SOLID METAL SEALING RING

3. Heavy-duty neck

The heavy-duty neck flange provides reliable strength and meets the requirements of high-intensity frequency operation.

4. Integral Welding Seat

The hard faced seat with integral welding can extend the service life of the valve and reduce maintenance.

5. Integral Shaft Design

The robust integral valve shaft has superior rigidity and effectively resists the influence of medium forces.

6. Extended Double Bearings and Isolation

The surface hardened long extended bearing enhanced axial and radial support to the valve shaft minimizing wear and ensuring long-term operational stability. With an internal surface roughness of Ra0.4, it facilitates low-fiction, precise movement. The integrated isolation and protection system prevents ingress of solid/powder particulate media into the bearing housing and mitigates the effects of thermal and pressure cycling on the shaft packing during prolonged service.

7. Fugitive Emission Shaft Sealing

While maintaining the required surface roughness of the valve shaft and packing box, an optional live-load gland flange can be installed to compensate for relaxation caused by temperature and pressure fluctuations during prolonged service life of the packing.

8. Anti-blow-out Shaft

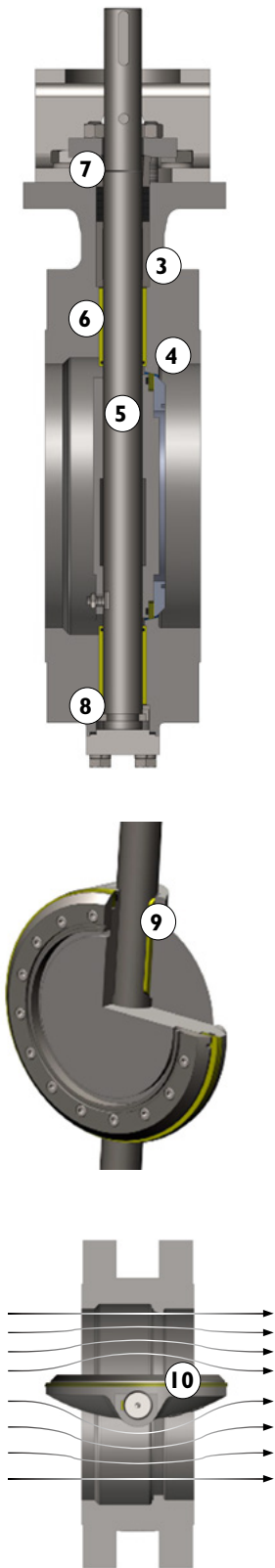
Anti-blow-out design satisfies standard, Bottom of shaft: with tow bolts tightly locking the shaft and prevents shaft blow-out.

9. The Disc is Driven by Key Connection

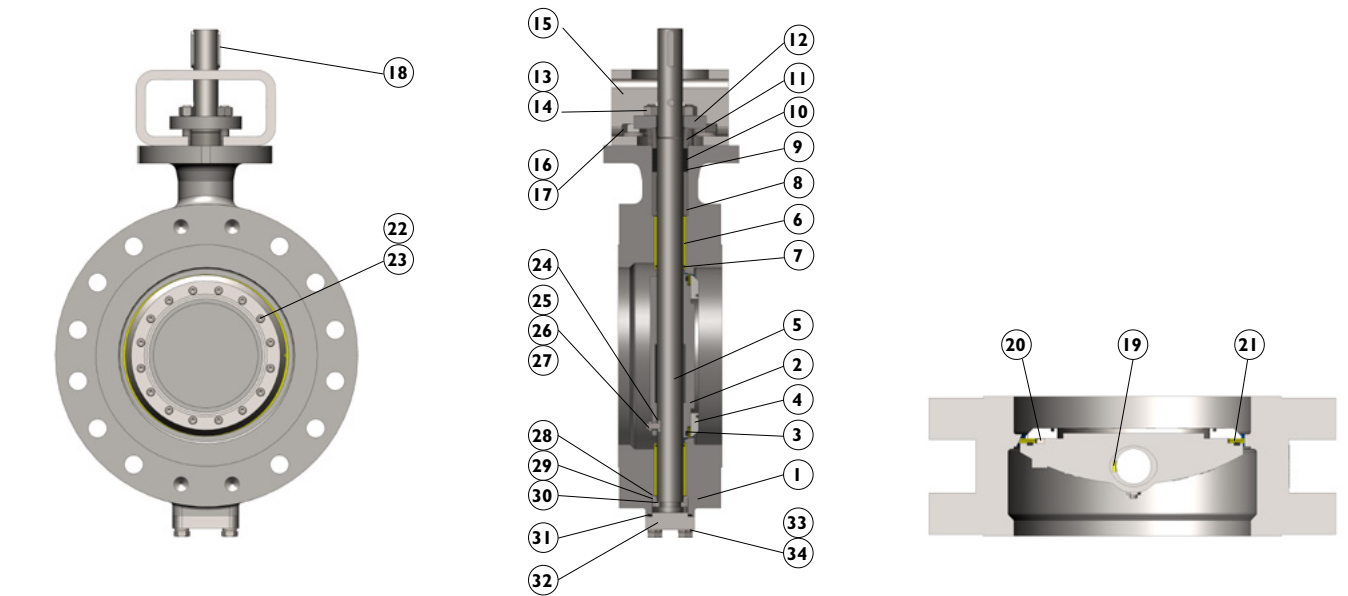
The disc is actuated via a precision-machined use of key connection, offering several advantages including simplified installation, torque transmission efficiency, and superior positioning accuracy.

10. Hydrodynamic Disc Profile

The disc features a streamline contour that minimizes disc design flow resistance, resulting in improved flow capacity and reduced pressure drop across the valve. This design enhances overall system efficiency, particularly in high-flow or throttling applications.



Section Drawing



No.	Description	No.	Description
1	Body	18	Key
2	Disc	19	Disc key
3	Sealing Ring	20	Pin
4	Ring bearing retainer	21	Disc gasket
5	Shaft	22	Valve-Screw
6	Bushing	23	Spring Washer
7	Consumable packing	24	Square nut
8	Spacer	25	Screw
9	Packing A	26	Nut
10	Packing B	27	Spring Washer
11	Follower	28	Bearing
12	Gland	29	Thrust bearing
13	Valve-Stud	30	Split collar
14	Valve-Nut	31	Gasket
15	Yoke	32	Cover
16	Spring Washer	33	Spring Washer
17	Bolt	34	Valve-bolt

Materials of Construction

Max. Temperature	343°C	343°C	425°C
Min. Temperature	-29°C	-46°C	-46°C
Body	A216 WCB	A351 CF8M	A351 CF3M
Disc	A216 WCB A351 CF8M	A351 CF8M	A351 CF3M
Sealing Ring	S31803+Graphite 17-4PH	S31803+Graphite 17-4PH	S31803+Graphite Inconel 718
Ring bearing retainer	A105N F316L	F316L	F316L
Shaft	17-4PH	17-4PH	Inconel 718
Bushing	316L+Nitrided	316L+Nitrided	316L+Nitrided
Consumable packing	Graphite	Graphite	Graphite
Spacer	316L	316L	316L
Packing A	Graphite	Graphite	Graphite
Packing B	Graphite	Graphite	Graphite
Follower	316L	316L	316L
Gland	316L	316L	316L
Valve-Stud	A193 B8M	A193 B8M	A193 B8M
Valve-Nut	A194 8M	A194 8M	A194 8M
Yoke	Carbon Steel	Carbon Steel	Carbon Steel
Spring Washer	A4	A4	A4
Bolt	8.8+Zn	8.8+Zn	8.8+Zn
Key	1045	1045	1045
Disc key	17-4PH	17-4PH	F53 Inconel 718
Pin	316L	316L	316L
Disc gasket	Graphite	Graphite	Graphite
Valve-Screw	A193 B8M	A193 B8M	A193 B8M
Spring Washer	A4	A4	A4
Square nut	316L	316L	316L
Screw	A193 B8M	A193 B8M	A193 B8M
Nut	A194 8M	A194 8M	A194 8M
Spring Washer	A4	A4	A4
Bearing	316L+Nitrided	316L+Nitrided	316L+Nitrided
Thrust bearing	316L+Nitrided	316L+Nitrided	316L+Nitrided
Split collar	316L	316L	316L
Gasket	Graphite	Graphite	Graphite
Cover	A105N	F316	F316L
Spring Washer	A4	A4	A4
Valve-bolt	A193 B7M	A193 B8M	A193 B8M

Torque (Nm)

Class 150, PN10, PN16

Size		Differential Pressure (bar)								
NPS	DN	RTO,ETO, BTC,RTC	5		10		16		20	
			ETC	BTO	ETC	BTO	ETC	BTO	ETC	BTO
3	80	40	96	96	96	96	96	96	96	96
4	100	51	131	131	131	131	131	131	131	131
5	125	69	189	139	189	156	189	168	189	194
6	150	83	226	167	226	187	226	202	226	232
8	200	111	323	232	323	263	323	303	323	343
10	250	162	596	465	596	535	596	626	596	697
12	300	192	798	677	798	778	798	859	798	949
14	350	232	980	859	980	990	980	1131	980	1273
16	400	384	1333	1040	1333	1283	1333	1576	1333	1869
18	450	475	1656	1293	1656	1687	1656	2040	1656	2414
20	500	576	2252	1576	2252	2030	2252	2616	2252	3151
24	600	859	3202	2363	3202	2990	3202	3777	3202	4525
28	700	1364	6020	3828	6020	5272	6020	7232	6020	8423
32	800	2182	9474	6020	9474	7767	9474	9918	9474	12423
36	900	3010	13554	6979	13554	9029	13554	15019	13554	18422
40	1000	4111	17433	8757	17433	12524	17433	18594	17433	23664
44	1100	4899	22755	12231	22755	16473	22755	23876	22755	30926
48	1200	5747	30926	17483	30926	24472	30926	34320	30926	40885

Class 300, PN25, PN40

Size			Differential Pressure (bar)											
NPS	DN	RTO,ETO, BTC,RTC	5		10		20		30		40		50	
			ETC	BTO	ETC	BTO	ETC	BTO	ETC	BTO	ETC	BTO	ETC	BTO
3	80	40	96	96	96	96	96	96	96	136	96	152	96	162
4	100	51	131	131	131	131	131	131	131	182	131	212	131	237
5	125	93	311	173	311	189	311	227	311	316	311	404	311	492
6	150	111	374	207	374	227	374	273	374	379	374	485	374	591
8	200	192	545	333	545	399	545	525	545	651	545	778	545	909
10	250	232	899	596	899	677	899	869	899	1071	899	1273	899	1475
12	300	384	1394	1101	1394	1232	1394	1525	1394	1808	1394	2101	1394	2394
14	350	475	1757	1222	1757	1424	1757	1879	1757	2333	1757	2788	1757	3242
16	400	859	2485	1434	2485	1778	2485	2596	2485	3414	2485	4232	2485	5050
18	450	1000	3222	2000	3222	2485	3222	3404	3222	4323	3222	5242	3222	6161
20	500	1162	3959	2606	3959	3101	3959	4272	3959	5444	3959	6616	3959	7787
24	600	1364	5666	3272	5666	4131	5666	5939	5666	7747	5666	7535	5666	11363
28	700	2444	9444	5383	9444	6828	9444	9726	9444	12625	9444	15524	9444	18422
32	800	4111	16564	9625	16564	12221	16564	17372	16564	22523	16564	27674	16564	32926
36	900	5747	23028	13332	23028	16362	23028	24038	23028	32219	23028	40400	23028	48581
40	1000	5747	28886	16968	28886	20705	28886	30199	28886	39693	28886	49227	28886	58742
44	1100	6676	38683	22725	38683	28482	38683	40198	38683	51813	38683	63428	38683	75043
48	1200	8716	46561	26765	46561	33431	46561	49692	46561	66155	46561	82517	46561	98879

Class 600, PN63, PN100

Size			Differential Pressure (bar)											
NPS	DN	RTO,ETO, BTC,RTC	30		40		50		65		80		100	
			ETC	BTO	ETC	BTO	ETC	BTO	ETC	BTO	ETC	BTO	ETC	BTO
3	80	83	249	180	249	200	249	220	249	250	249	281	249	321
4	100	111	364	281	364	315	364	349	364	401	364	452	364	521
6	150	232	782	558	782	651	782	745	782	887	782	1030	782	1172
8	200	384	1374	905	1374	1101	1374	1303	1374	1606	1374	1909	1374	2313
10	250	576	2687	2000	2687	2303	2687	2606	2687	3060	2687	3515	2687	4121
12	300	1000	3575	2576	3575	3000	3575	3444	3575	4111	3575	4777	3575	5666
14	350	1162	4727	3474	4727	4000	4727	4535	4727	5343	4727	6151	4727	7232
16	400	1364	6979	5141	6979	5949	6979	6787	6979	8050	6979	9312	6979	10999
18	450	2444	9989	6636	9989	8151	9989	9706	9989	11211	9989	13534	9989	16665
20	500	3010	11817	7615	11817	9524	11817	11514	11817	14544	11817	17574	11817	21614
24	600	4899	16867	11009	16867	13837	16867	16766	16867	21109	16867	25553	16867	31411

Class 900

Size		Differential Pressure (bar)												
NPS	DN	RTO,ETO, BTC,RTC	30		50		75		100		125		150	
			ETC	BTO	ETC	BTO	ETC	BTO	ETC	BTO	ETC	BTO	ETC	BTO
6	150	495	1141	697	1141	909	1141	1212	1141	1505	1141	1798	1141	2141
8	200	737	2161	1576	2161	2000	2161	2535	2161	3060	2161	3596	2161	4212
10	250	1485	4232	2485	4232	3363	4232	4464	4232	5565	4232	6666	4232	7949
12	300	1707	5303	3394	5303	4626	5303	6161	5303	7696	5303	9231	5303	11009
14	350	3121	8706	5393	8706	7373	8706	9848	8706	12322	8706	14797	8706	17675
16	400	3858	11918	7262	11918	10050	11918	13534	11918	16968	11918	20503	11918	24543
18	450	5131	15251	10070	15251	13736	15251	18281	15251	23028	15251	27573	15251	32926
20	500	6100	19089	12019	19089	16766	19089	22624	19089	28482	19089	34441	19089	41208
24	600	7525	25957	16463	25957	22422	25957	29896	25957	37370	25957	44743	25957	53429

Assumptions:

- Seat ring: S31803+Graphite
- Operating temperature: −29 to 38°C
- Shaft sealing: ISO 15848
- Medium characteristic: Lubricating

Shaft side installation is the preferred direction as the fluid pressure supports the contact force.
In case of torques for Bi-directional application please contact Univals technical staff.

Torque — MAST (Ambient Temperature)

NPS	Material	Class150 PN10 PN16	Class300 PN25 PN40	Class600 PN63 PN100	Class900
		MAST(Nm)	MAST(Nm)	MAST(Nm)	MAST(Nm)
3	17-4PH	560	560	/	/
4	17-4PH	781	781	/	/
5	17-4PH	1386	2002	/	/
6	17-4PH	1386	2002	6249	9054
8	17-4PH	2002	4476	9054	16013
10	17-4PH	3075	6249	16013	34252
12	17-4PH	4476	9054	27141	51991
14	17-4PH	6249	12595	34252	74992
16	17-4PH	9054	21090	42507	100756
18	17-4PH	12595	27141	74992	135636
20	17-4PH	16013	34252	100756	173201
24	17-4PH	21090	42507	173201	222427
28	17-4PH	42507	74992	/	/
32	17-4PH	62791	135636	/	/
36	17-4PH	100756	173201	/	/
40	17-4PH	135636	222427	/	/
48	17-4PH	222427	415930	/	/

Leakage Allowable

Pressure Class	Size		FCI70-2					API 598		
	NPS	DIN	Leakage rate IV(A) Water (ml/min)	Leakage rate V(B) Water (ml/min)	Leakage rate(B1) Gas (ml/min)	Leakage rate VI (ml/min)	Testing Time (s)	Test Water (ml/min)	Test Gas (ml/min)	Testing Time (s)
Class 150	3	80	686.7	0.44	14.00	0.9	60	0.375	0.12	60
Class 300	3	80	619.9	1.11	14.00	0.9	60	0.375	0.12	60
Class 150	4	100	1055.4	0.53	16.82	1.7	60	0.5	0.16	60
Class 300	4	100	996.6	1.33	16.82	1.7	60	0.5	0.16	60
Class 150	5	100	1527.8	0.73	23.18	2.34	60	0.625	0.2	60
Class 300	5	100	1442.8	1.83	23.18	2.34	60	0.625	0.2	60
Class 150	6	150	2546.3	0.83	26.22	4	60	0.75	0.24	60
Class 300	6	150	2404.7	2.07	26.22	4	60	0.75	0.24	60
Class 600	6	150	1549.7	4.14	26.22	4	60	0.75	0.24	60
Class 900	6	150	1255.8	6.21	26.22	4	60	0.75	0.24	60
Class 150	8	200	4651.7	1.12	35.47	6.75	60	1	0.32	120
Class 300	8	200	4392.5	2.80	35.47	6.75	60	1	0.32	120
Class 600	8	200	2885.6	5.60	35.47	6.75	60	1	0.32	120
Class 900	8	200	2404.7	8.40	35.47	6.75	60	1	0.32	120
Class 150	10	250	7529.3	1.42	44.81	11.1	60	1.25	0.4	120
Class 300	10	250	7109.8	3.54	44.81	11.1	60	1.25	0.4	120
Class 600	10	250	4595.6	7.08	44.81	11.1	60	1.25	0.4	120
Class 900	10	250	3740.6	10.61	44.81	11.1	60	1.25	0.4	120
Class 150	12	300	10527.1	1.65	52.25	16	60	1.5	0.48	120
Class 300	12	300	9942.0	4.13	52.25	16	60	1.5	0.48	120
Class 600	12	300	6839.9	8.25	52.25	16	60	1.5	0.48	120
Class 900	12	300	5610.9	12.38	52.25	16	60	1.5	0.48	120
Class 150	14	350	14123.4	1.93	60.99	21.6	60	1.75	0.56	120
Class 300	14	350	13337.9	4.82	60.99	21.6	60	1.75	0.56	120
Class 600	14	350	11008.0	9.63	60.99	21.6	60	1.75	0.56	120
Class 900	14	350	8282.7	14.45	60.99	21.6	60	1.75	0.56	120
Class 150	16	400	21062.2	2.24	71.01	28.4	60	2	0.64	120
Class 300	16	400	21062.2	5.61	71.01	28.4	60	2	0.64	120
Class 600	16	400	14428.0	11.21	71.01	28.4	60	2	0.64	120
Class 900	16	400	11569.1	16.82	71.01	28.4	60	2	0.64	120
Class 150	18	450	28701.0	2.62	82.84	/	60	2.25	0.72	120
Class 300	18	450	27105.9	6.54	82.84	/	60	2.25	0.72	120
Class 600	18	450	19958.7	13.08	82.84	/	60	2.25	0.72	120
Class 900	18	450	18962.1	19.62	82.84	/	60	2.25	0.72	120
Class 150	20	500	41178.5	2.88	91.24	/	60	2.5	0.8	120
Class 300	20	500	38891.4	7.20	91.24	/	60	2.5	0.8	120
Class 600	20	500	26317.7	14.41	91.24	/	60	2.5	0.8	120
Class 900	20	500	20012.1	21.61	91.24	/	60	2.5	0.8	120
Class 150	24	600	53656.1	3.42	108.45	/	60	3	0.96	120
Class 300	24	600	45605.8	8.56	108.45	/	60	3	0.96	120

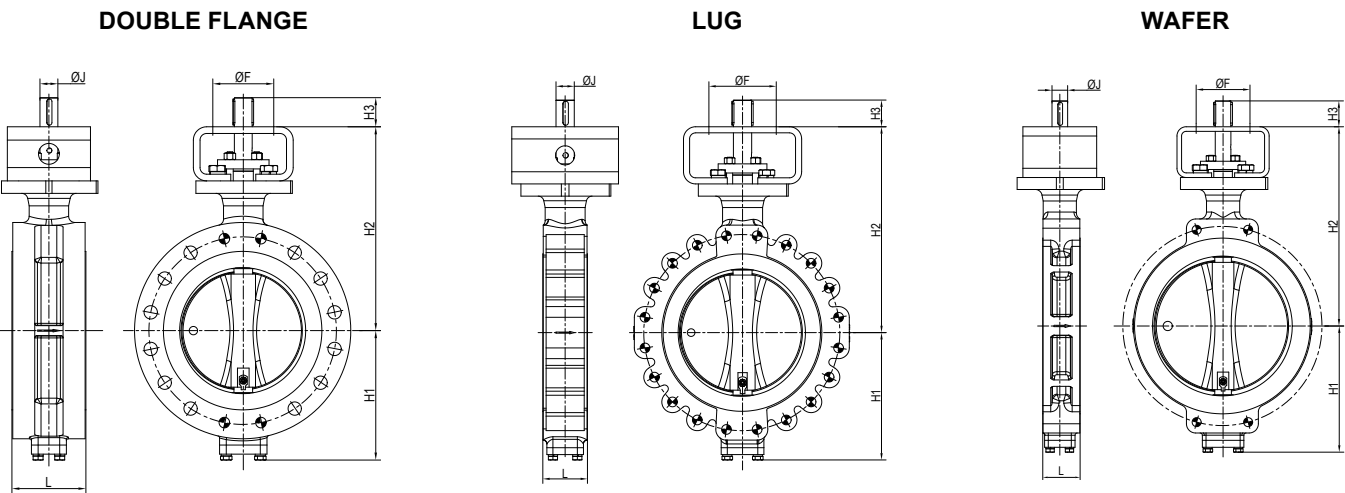
Pressure Class	Size		FCI70-2					API 598		
	NPS	DIN	Leakage rate IV(A) Water (ml/min)	Leakage rate V(B) Water (ml/min)	Leakage rate(B1) Gas (ml/min)	Leakage rate VI (ml/min)	Testing Time (s)	Test Water (ml/min)	Test Gas (ml/min)	Testing Time (s)
Class 600	24	600	39970.9	17.12	108.45	/	60	3	0.96	120
Class 900	24	600	28001.0	25.68	108.45	/	60	3	0.96	120
Class 150	28	700	72033.0	4.02	127.30	/	60	3.5	1.12	120
Class 300	28	700	62895.3	10.05	127.30	/	60	3.5	1.12	120
Class 150	32	800	94075.8	4.62	146.30	/	60	4	1.28	120
Class 300	32	800	87636.6	11.55	146.30	/	60	4	1.28	120
Class 150	36	900	115557.5	5.22	165.30	/	60	4.5	1.44	120
Class 300	36	900	111549.7	13.05	165.30	/	60	4.5	1.44	120
Class 150	40	1000	152936.6	5.82	184.30	/	60	5	1.6	120
Class 300	40	1000	134126.8	14.55	184.30	/	60	5	1.6	120
Class 150	48	1200	217702.3	6.96	220.40	/	60	6	1.92	120
Class 300	48	1200	198892.4	17.40	220.40	/	60	6	1.92	120

Test Procedures

ANSI/FCI 70-2	Rate IV	Type A	Water	3.5 bar
ANSI/FCI 70-2	Rate V	Type B	Water	1.0 PN
ANSI/FCI 70-2	Rate V	Type B1	Air—N2	3.5 bar
ANSI/FCI 70-2	Rate VI	Type C	Air—N2	3.5 bar
API598	Test water		Water	1.1 PN
API598	Test gas		Air-N2	1.1 PN or 5.5 bar

Triple Offset Butterfly Valve Dimension

ASME Class Series Approximate Dimension



Size-Class150		L(mm)			Valve Dimensions(mm)					Weight(Kg)		
NPS	mm	WAFER	LUG	DF	H1	H2	ΦJ	H3	ΦF	WAFER	LUG	DF
3	80	48	48	114	123	240	17	32	F10	9	11	21
4	100	54	54	127	140	270	19	32	F10	12	15	27
5	125	57	57	140	168	287	23	45	F12	17	19	34
6	150	57	57	140	181	300	23	45	F12	20	21	38
8	200	64	64	152	210	345	26	46	F12	30	34	58
10	250	71	71	165	238	390	30	45	F14	47	47	79
12	300	81	81	178	274	432	34	56	F16	68	81	122
14	350	92	92	190	312	525	38	56	F16	93	115	158
16	400	102	102	216	350	545	43	62	F25	126	158	188
18	450	114	114	222	383	580	48	70	F25	174	192	218
20	500	127	127	229	420	620	52	86	F25	217	268	293
24	600	154	154	267	482	690	57	86	F25	321	385	485
28	700	165	165	292	558	755	72	108	F35	*	*	*
32	800	190	190	318	602	883	82	135	F35	*	*	*
36	900	203	203	330	670	955	96	150	F40	*	*	*
40	1000	216	216	410	706	1015	106	150	F40	*	*	*
48	1200	254	254	470	901	1215	125	170	F48	*	*	*

*Depends on the flange standard is series A or Series B

Size-Class300		L(mm)			Valve Dimensions(mm)					Weight(Kg)		
NPS	mm	WAFER	LUG	DF	H1	H2	ΦJ	H3	ΦF	WAFER	LUG	DF
3	80	48	48	114	123	240	17	32	F10	9	16	20
4	100	54	54	127	140	270	19	32	F10	12	20	29
5	125	59	59	140	168	295	26	46	F12	22	29	38
6	150	59	59	140	188	324	26	46	F12	26	37	46
8	200	73	73	152	224	380	34	56	F16	45	50	61
10	250	83	83	165	268	425	38	56	F16	66	69	129
12	300	92	92	178	310	490	43	70	F16	99	107	188
14	350	117	117	190	335	540	48	70	F25	149	196	259
16	400	133	133	216	389	575	57	86	F25	207	270	305
18	450	149	149	222	422	660	62	96	F30	258	410	460
20	500	159	159	229	461	700	67	108	F30	322	449	504
24	600	181	181	267	531	785	72	108	F35	468	709	793
28	700	229	229	292	588	825	87	150	F35	*	*	*
32	800	241	241	318	684	965	106	150	F40	*	*	*
36	900	241	241	330	771	1115	115	170	F40	*	*	*
40	1000	300	300	410	806	1170	125	170	F48	*	*	*
48	1200	350	350	470	1088	1409	154	210	F48	*	*	*

*Depends on the flange standard is series A or Series B

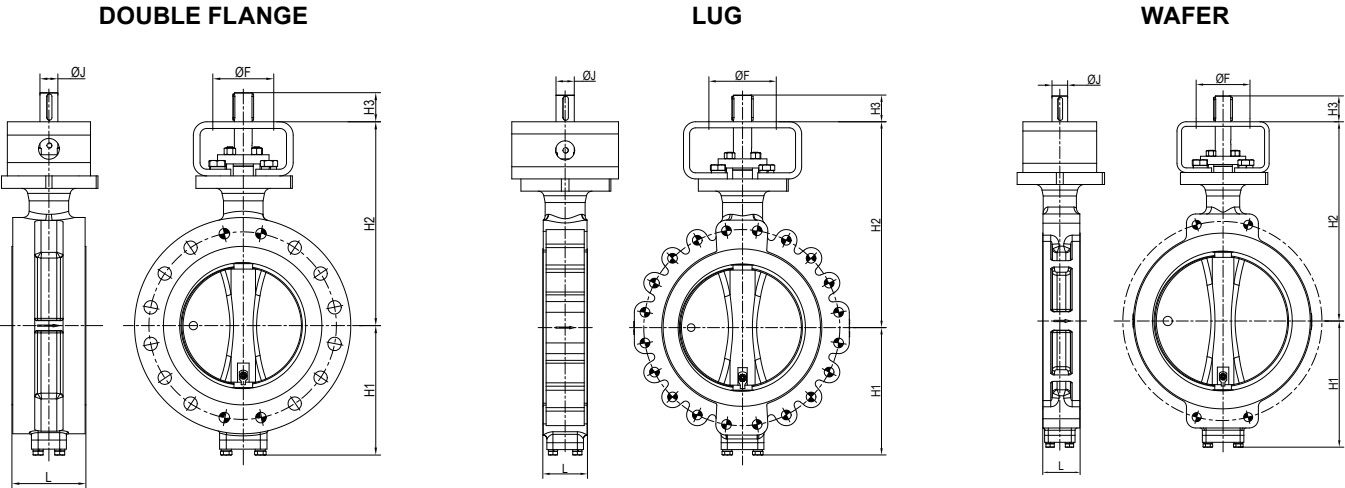
Size-Class600		L(mm)			Valve Dimensions(mm)					Weight(Kg)		
NPS	mm	WAFER	LUG	DF	H1	H2	ΦJ	H3	ΦF	WAFER	LUG	DF
6	150	78	78	210	229	430	38	56	F16	59	70	127
8	200	102	102	230	269	475	43	62	F25	95	116	208
10	250	117	117	250	307	520	52	86	F25	158	199	313
12	300	140	140	270	366	558	62	96	F30	210	263	397
14	350	155	155	290	391	600	67	108	F30	240	315	467
16	400	178	178	310	436	640	72	108	F35	322	420	704
18	450	200	200	330	482	765	87	150	F35	465	690	788
20	500	216	216	350	515	815	96	150	F40	600	825	1050
24	600	232	232	390	564	850	115	170	F40	684	896	1523

*Depends on the flange standard is series A or Series B

Size-Class900		L(mm)	Valve Dimensions(mm)					Weight(Kg)
NPS	mm	DF	H1	H2	ΦJ	H3	ΦF	DF
6	150	225	239	473	43	62	F25	175
8	200	275	295	523	52	86	F25	312
10	250	325	348	572	67	108	F30	404
12	300	375	482	614	77	135	F35	617
14	350	425	489	660	87	150	F35	835
16	400	475	496	704	96	150	F40	1289
18	450	525	512	842	106	150	F40	1514
20	500	575	590	897	115	170	F40	2024
24	600	675	675	935	125	170	F48	2985

Triple Offset Butterfly Valve Dimension

DIN PN Series Approximate Dimension



Size-PN10		L(mm)			Valve Dimensions(mm)					Weight(Kg)		
NPS	mm	WAFER	LUG	DF	H1	H2	ΦJ	H3	ΦF	WAFER	LUG	DF
3	80	48	48	114	123	240	17	32	F10	9	12	22
4	100	54	54	127	140	270	19	32	F10	13	16	28
5	125	57	57	140	168	287	23	45	F12	18	20	36
6	150	57	57	140	181	300	23	45	F12	21	22	40
8	200	64	64	152	210	345	26	46	F12	32	36	61
10	250	71	71	165	238	390	30	45	F14	45	45	75
12	300	81	81	178	274	432	34	56	F16	65	77	116
14	350	92	92	190	312	525	38	56	F16	88	109	150
16	400	102	102	216	350	545	43	62	F25	120	150	179
18	450	114	114	222	383	580	48	70	F25	165	182	207
20	500	127	127	229	420	620	52	86	F25	206	255	278
24	600	154	154	267	482	690	57	86	F25	305	366	461
28	700	165	165	292	558	755	72	108	F35	335	399	615
32	800	190	190	318	602	883	82	135	F35	405	525	870
36	900	203	203	330	670	955	96	150	F40	578	683	1110
40	1000	216	216	410	706	1015	106	150	F40	705	945	1366
48	1200	254	254	470	901	1215	125	170	F48	1055	1278	1833

Size-PN16		L(mm)			Valve Dimensions (mm)					Weight(Kg)		
NPS	mm	WAFER	LUG	DF	H1	H2	ΦJ	H3	ΦF	WAFER	LUG	DF
3	80	48	48	114	123	240	17	32	F10	9	12	22
4	100	54	54	127	140	270	19	32	F10	13	16	28
5	125	57	57	140	168	287	23	45	F12	18	20	36
6	150	57	57	140	181	300	23	45	F12	21	22	40
8	200	64	64	152	210	345	26	46	F12	32	36	61
10	250	71	71	165	238	390	30	45	F14	49	49	83
12	300	81	81	178	274	432	34	56	F16	71	85	128
14	350	92	92	190	312	525	38	56	F16	98	121	166
16	400	102	102	216	350	545	43	62	F25	132	166	198
18	450	114	114	222	383	580	48	70	F25	183	202	228
20	500	127	127	229	420	620	52	86	F25	228	281	307
24	600	154	154	267	482	690	57	86	F25	337	404	509
28	700	165	165	292	558	755	72	108	F35	646	419	646
32	800	190	190	318	602	883	82	135	F35	914	551	914
36	900	203	203	330	670	955	96	150	F40	1166	717	1166
40	1000	216	216	410	706	1015	106	150	F40	1434	992	1434
48	1200	254	254	470	901	1215	125	170	F48	1925	1342	1925

Size-PN25		L(mm)			Valve Dimensions (mm)					Weight(Kg)		
NPS	mm	WAFER	LUG	DF	H1	H2	ΦJ	H3	ΦF	WAFER	LUG	DF
3	80	48	48	114	123	240	17	32	F10	9	17	21
4	100	54	54	127	140	270	19	32	F10	13	21	31
5	125	59	59	140	168	295	26	46	F12	23	30	40
6	150	59	59	140	188	324	26	46	F12	27	39	48
8	200	73	73	152	224	380	34	56	F16	47	53	64
10	250	83	83	165	268	425	38	56	F16	63	66	123
12	300	92	92	178	310	490	43	70	F16	94	102	179
14	350	117	117	190	335	540	48	70	F25	142	186	246
16	400	133	133	216	389	575	57	86	F25	197	257	290
18	450	149	149	222	422	660	62	96	F30	245	389	437
20	500	159	159	229	461	700	67	108	F30	306	427	479
24	600	181	181	267	531	785	72	108	F35	445	674	753

Size-PN40		L(mm)			Valve Dimensions (mm)					Weight(Kg)		
NPS	mm	WAFER	LUG	DF	H1	H2	ΦJ	H3	ΦF	WAFER	LUG	DF
3	80	48	48	114	123	240	17	32	F10	34	17	21
4	100	54	54	127	140	270	19	32	F10	34	21	31
5	125	59	59	140	168	295	26	46	F12	48	30	40
6	150	59	59	140	188	324	26	46	F12	48	39	48
8	200	73	73	152	224	380	34	56	F16	59	53	64
10	250	83	83	165	268	425	38	56	F16	59	73	135
12	300	92	92	178	310	490	43	70	F16	74	112	197
14	350	117	117	190	335	540	48	70	F25	74	206	272
16	400	133	133	216	389	575	57	86	F25	90	284	320
18	450	149	149	222	422	660	62	96	F30	101	430	483
20	500	159	159	229	461	700	67	108	F30	113	472	529
24	600	181	181	267	531	785	72	108	F35	113	745	833

Size-PN63		L(mm)			Valve Dimensions (mm)					Weight(Kg)		
NPS	mm	WAFER	LUG	DF	H1	H2	ΦJ	H3	ΦF	WAFER	LUG	DF
6	150	78	78	210	229	430	38	56	F16	56	88	115
8	200	102	102	230	269	475	43	62	F25	90	147	188
10	250	117	117	250	307	520	52	86	F25	150	252	283
12	300	140	140	270	366	558	62	96	F30	200	333	359
14	350	155	155	290	391	600	67	108	F30	228	399	423
16	400	178	178	310	436	640	72	108	F35	306	532	637

Size-PN100		L(mm)			Valve Dimensions (mm)					Weight(Kg)		
NPS	mm	WAFER	LUG	DF	H1	H2	ΦJ	H3	ΦF	WAFER	LUG	DF
6	150	78	78	210	229	430	38	56	F16	61	98	127
8	200	102	102	230	269	475	43	62	F25	100	163	208
10	250	117	117	250	307	520	52	86	F25	165	278	313
12	300	140	140	270	366	558	62	96	F30	221	368	397
14	350	155	155	290	391	600	67	108	F30	252	441	467

Bolting Torque

Metric (Nm)

Body Stud Torque (N*M)															
MATERIAL ASTM	Stud Size														
	M8	M10	M12	M14	M16	M20	M24	M27	M30	M33	M36×3	M39×3	M42×3 ^a	M45×3 ^a	M48×3 ^a
A193 B7	20	38	64	103	157	305	527	768	1048	1409	1888	2425	3054	3783	4621
A193 B8M	23	44	74	118	181	354	513	613	836	864	1162	1494	1420	1761	2153

Body Stud Torque (N*M)										
MATERIAL ASTM	Stud Size									
	5/16UNC	3/8UNC	7/16UNC	1/2UNC	9/16UNC	5/8UNC	3/4UNC	7/8 UNC	1-8 UNC	
A193 B7	19	33	53	79	112	154	269	429	640	
A193 B8M	23	38	61	91	130	178	311	417	510	

Body Stud Torque (N*M)									
MATERIAL ASTM	Stud Size								
	1-1/8 UN	1-1/4 UN	1-3/8 UN	1-1/2 UN	1-5/8 UN ^a	1-3/4 UN ^a	1-7/8 UN ^a	2UN ^a	3UN ^a
A193 B7	962	1266	1728	2262	2895	3637	4495	5477	17158
A193 B8M	739	789	1062	1271	1345	1691	2092	2552	8824

NOTE: ^a>40mm for A193 B8M Class1

Flow Coefficients (Cv)

Class 150, PN10, PN16

Size		Disc Opening Angle							
NPS	DN	10°	20°	30°	40°	50°	60°	70°	90°
3	80	16	36	56	85	126	193	238	257
4	100	22	47	74	113	166	253	341	395
5	125	32	68	106	162	239	367	493	572
6	150	53	114	177	270	399	611	821	953
8	200	100	213	349	544	810	1136	1472	1741
10	250	153	329	532	821	1236	1767	2325	2818
12	300	223	533	856	1278	1855	2576	3335	3940
14	350	295	710	1180	1735	2475	3383	4346	5286
16	400	324	724	1200	1881	2847	4148	5760	7883
18	450	355	710	1220	2025	3219	4911	7175	10742
20	500	590	1141	1921	3153	4940	7538	10974	15412
24	600	826	1573	2621	4280	6660	10166	14774	20082
28	700	1078	2696	4044	5931	8627	12671	18870	26960
32	800	1408	3521	5281	7746	11261	16540	24640	35210
36	900	1730	4325	6488	9516	13840	20330	30280	43250
40	1000	2289	5724	8586	12590	18310	26903	40060	57240
48	1200	3259	8148	12222	17920	26070	38290	57040	81480

Class 300, PN25, PN40

Size		Disc Opening Angle							
NPS	DN	10°	20°	30°	40°	50°	60°	70°	90°
3	80	15	33	51	77	114	174	214	232
4	100	21	45	70	106	157	239	322	373
5	125	30	64	100	153	226	346	466	540
6	150	50	107	167	255	377	577	776	900
8	200	94	201	329	514	765	1073	1390	1644
10	250	144	310	502	776	1168	1669	2196	2661
12	300	211	503	809	1207	1752	2433	3150	3721
14	350	278	697	1115	1639	2337	3195	4104	4992
16	400	306	724	1200	1881	2847	4148	5760	7883
18	450	335	670	1153	1912	3040	4638	6777	10145
20	500	557	1078	1814	2978	4665	7120	10365	14556
24	600	701	1337	2228	3638	5661	8641	12558	17069
28	700	942	2354	3534	5179	7533	11064	16478	23540
32	800	1312	3280	4919	7215	10495	15414	22957	32800
36	900	1670	4175	6262	9185	13360	19622	29224	41750
40	1000	2008	5020	7530	11044	16064	23594	35140	50200
48	1200	2978	7444	11167	16378	23822	34989	52111	74440

Class 600, PN63, PN100

Size		Disc Opening Angle							
NPS	DN	10°	20°	30°	40°	50°	60°	70°	90°
6	150	23	70	116	203	267	348	406	580
8	200	43	130	216	378	497	648	907	1080
10	250	69	206	344	602	791	1032	1445	1720
12	300	102	307	512	896	1178	1536	2150	2560
14	350	165	494	824	1442	1895	2472	3461	4120
16	400	216	648	1080	1890	2484	3240	4536	5400
18	450	298	745	1120	2100	2753	3513	5236	7470
20	500	394	1182	1970	3448	4531	5910	8274	9850
24	600	598	1795	2992	5236	6882	8976	12566	14960

Class 900

Size		Disc Opening Angle							
NPS	DN	10°	20°	30°	40°	50°	60°	70°	90°
6	150	19	56	94	165	216	282	395	470
8	200	36	108	180	315	414	540	756	900
10	250	56	168	280	490	644	840	1176	1400
12	300	84	252	420	735	966	1260	1764	2100
14	350	124	372	620	1085	1426	1860	2604	3100
16	400	173	520	866	1516	1992	2598	3637	4330
18	450	283	708	1064	1995	2615	3337	4974	7097
20	500	300	899	1498	2622	3445	4494	6292	7490
24	600	419	1258	2096	3668	4821	6288	8803	10480

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