

SVS

PRODUCT GUIDE BOOK



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SVS CO.,LTD.

High-Performance Butterfly Valve





CONTENTS

04	OVERVIEW
05	CEO MESSAGE
06	CERTIFICATE
07	HISTORY
08	PRODUCTS
10	EC-SERIES
18	CO-SERIES
26	C2-SERIES
34	TR-SERIES
42	WW-SERIES
46	LT-SERIES
48	LP-SERIES



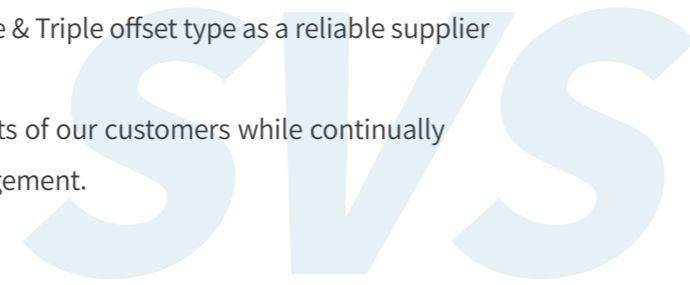
S V S - V A L V E

OVERVIEW

SVS is the leading manufacturer of High-Performance Butterfly Valve in South Korea.

We are exporting especially Butterfly Valve, Double & Triple offset type as a reliable supplier and have a good reputation in this fields.

SVS is focused on meeting the needs and requests of our customers while continually improving the effectiveness of our quality management.



S V S - V A L V E

CEO MESSAGE

SVS is a global company supplying High Performance (Metal, Teflon, Fire Safe Seat), Cargo Eccentric, Triple Eccentric, LNG Cryogenic Butterfly Valves to Shipbuilding & Offshore, Oil & Gas, Power & other industrial plants under the slogan “Let’s pioneer a new markets through continuous technology development.”

SVS is a technology innovative company with ISO 9001, Classification Certificates (ABS, DNV, LR, BV, etc.), Fire Safe Certificates and have lots of patents. Also provide various smart solution for valves together with professional technicians have many experience in developing high performance butterfly valves.

SVS is a company dreams a family-like company.

We will do our best for customer impression with continuous research and development and quality improvement. We hope many love & support.

Many thanks.

CEO & President

Cho Chang-Rae

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CERTIFICATE

Our company is in all production activities, we develop quality management at the company level into customer-oriented quality activities and implement quality organizations, quality policies and quality objectives to efficiently manage quality



ISO 9001 Certification of Registration



Cryogenic Test Record



Certificate of company affiliated research institute



FIRE SAFETY CERT(TUV)



Venture business confirmation



ABS Certification



Certificate of Patent



Certificate of Patent

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HISTORY

- 2017. 02** Established COEGG corporation
- 2018. 05** Registered ISO 9001:2015
- 12** Registered Fire Safety Cert API 607 & API 6FA
- 2019. 06** Contracted with MSC 6700 TEU Container (11 ships, Scrubber)
- Registered Cryogenic Test Cert. (TUV)
- 2020. 01** Certificate of Patent of Quadruple Offset Butterfly Valve
- 03** Company name changed "SVS Co., Ltd"
- 04** Registered as R&D Center
- 05** Registered as a venture company
- 07** Contracted with India ONGC, FPSO. 'Shapooriji KG-DWN-98/2 Development'
- 2021. 01** Certificate of Patent of Double Stem Cryogenic Butterfly Valve

S V S - V A L V E
PRODUCTS

All kinds of butterfly valves conform to KS, JIS, ANSI, API, DIN, BS and ISO
Now we challenge the whole world market of butterfly valve



**EC-Series
MODEL : ECSR**

High-performance
Butterfly Valve
CARGO(Rubber) seat

**EC-Series
MODEL : ECFT**

High-performance
Butterfly Valve
Teflon seat



**CO-Series
MODEL : COWR**

Concentric
Butterfly Valve
Rubber seat

**CO-Series
MODEL : COLR**

Concentric
Butterfly Valve
Rubber seat

**CO-Series
MODEL : COFR**

Concentric
Butterfly Valve
Rubber seat

**C2-Series
MODEL : C2FR**

Concentric
Butterfly Valve
(Dry-Shaft) Rubber seat



**EC-Series
MODEL : ECWF**

High-performance
Butterfly Valve
Fire-Safety seat

**EC-Series
MODEL : ECLM**

High-performance
Butterfly Valve
Metal seat



**TR-Series
MODEL : TRFM**

Triple-Eccentric
Butterfly Valve
Metal seat



**WW-Series
MODEL : WWFR**

Water Works
Butterfly Valve
Disc Rubber seat



**LT-Series
MODEL : LTFM**

Cryogenic
Butterfly Valve
Metal seat

EC - SERIES Double Offset Butterfly Valve



Standard Compliance

- Conform to API 609, EN593 and MSS SP 68
- Fire Safe requirement meets BS 6755 part 2 / API6FA and API Std 607

Production Range

- Size : DN 50 to DN 1000 (2 inch ~ 40 inch)
- Pressure : UP to 50 bar
- Temperature : -80°C ~ +200°C (Depends on soft seat)
: -50°C ~ +400°C (Metal seat)
- End connection : Wafer, Semi-lug, Lug, Double Flange

Connection Flange

- EN 1092 & ISO 7005 PN2.5, PN6, PN10, PN16, PN20, PN25, PN40
- ASME B16.5 CL.150, CL.300 / MSS SP 44 CL.150, CL.300
- AWWA C207 CL. D & E
- KS B 1511 & JIS B 2210 5K, 10K, 16K, 20K, 30K, 40K

Face to Face Dimensions

- Conform to EN558, ISO 5752, MSS SP68, ASME B16.10 and API609

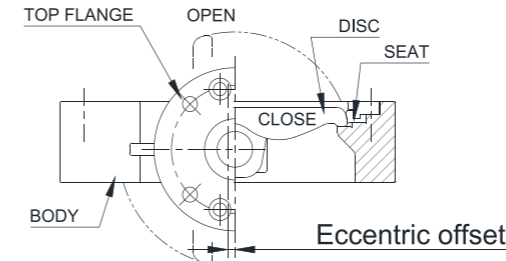
Application

- | | |
|------------------------|-------------------------------------|
| · Nuclear Power Plants | · Fire Safe line |
| · Petrochemical Plants | · Exhaust Gas line & Steam line |
| · Petroleum Refinery | · Cryogenic Services |
| · Fossil Power Plants | · Ballast and bilge system |
| · Desalination plants | · Drinking water |
| · Food and beverage | · HAVC |
| · Paper industry | · Theromo technical water treatment |
| · Chemical processing | · Mining industry |



General Features

- This product allows full closure, and features characteristics such as low valve opening and closing torque and the ability to be used over a wide range of pressures and temperatures. Available in soft, fire-safe and metal seated.
- Positive sealing which is mechanically achieved and does not rely on line pressure assistance.
- Fast and simple seat replacement. The axis of disc rotation is double eccentric offset to the seat ring. When the disc rotates, it unseats at a small turning angle by this cam effect. Long life durability due to double offset operating principle minimizing seat wear.



Top Flange

- Top flange dimensions are in accordance with ISO 5211

Testing

- Butterfly Valves are confirmed to API 598 and BS5155. Body pressure test to be done 150% and seat to be 110% of maximum working pressure.

Operation

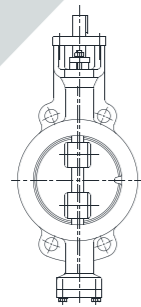
- | | |
|----------------------|---------------------------|
| · Bare stem type | · Lever |
| · Worm gear box | · Electric motor actuator |
| · Pneumatic actuator | · Hydraulic actuator |



EC-SERIES Double Offset Butterfly Valve

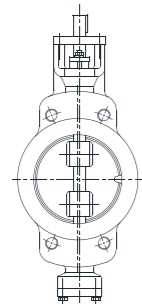
Type Model Numbering

(High-performance Eccentric Butterfly Valve)



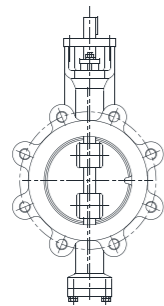
WAFER

- Model ECWR WAFER type
CARGO(Rubber) seat Butterfly Valve
- Model ECWT WAFER type
Teflon seat Butterfly Valve
- Model ECWF WAFER type
Fire Safety seat Butterfly Valve
- Model ECWM WAFER type
Metal seat Butterfly Valve



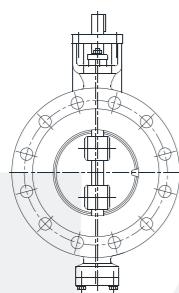
SEMI-LUG

- Model ECSR SEMI-LUG type
CARGO(Rubber) seat Butterfly Valve
- Model ECST SEMI-LUG type
Teflon seat Butterfly Valve
- Model ECSF SEMI-LUG type
Fire Safety seat Butterfly Valve
- Model ECSC SEMI-LUG type
Metal seat Butterfly Valve



FULL-LUG

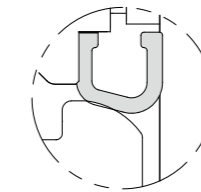
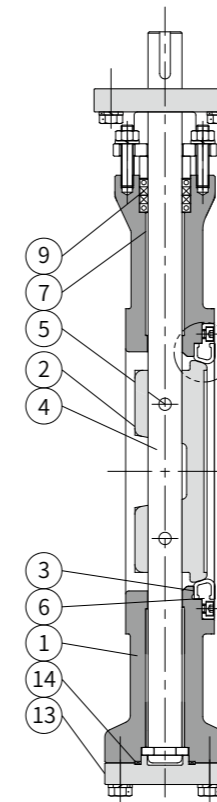
- Model ECLR FULL-LUG type
CARGO(Rubber) seat Butterfly Valve
- Model ECLT FULL-LUG type
Teflon seat Butterfly Valve
- Model ECLF FULL-LUG type
Fire Safety seat Butterfly Valve
- Model ECLM FULL-LUG type
Metal seat Butterfly Valve



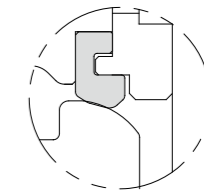
FLANGE

- Model ECFR FLANGE type
CARGO(Rubber) seat Butterfly Valve
- Model ECFT FLANGE type
Teflon seat Butterfly Valve
- Model ECFE FLANGE type
Fire Safety seat Butterfly Valve
- Model ECFM FLANGE type
Metal seat Butterfly Valve

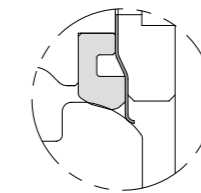
Construction of Materials



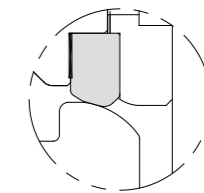
CARGO (RUBBER)
EC_R



TEFLON
EC_T



FIRE SAFETY
EC_F



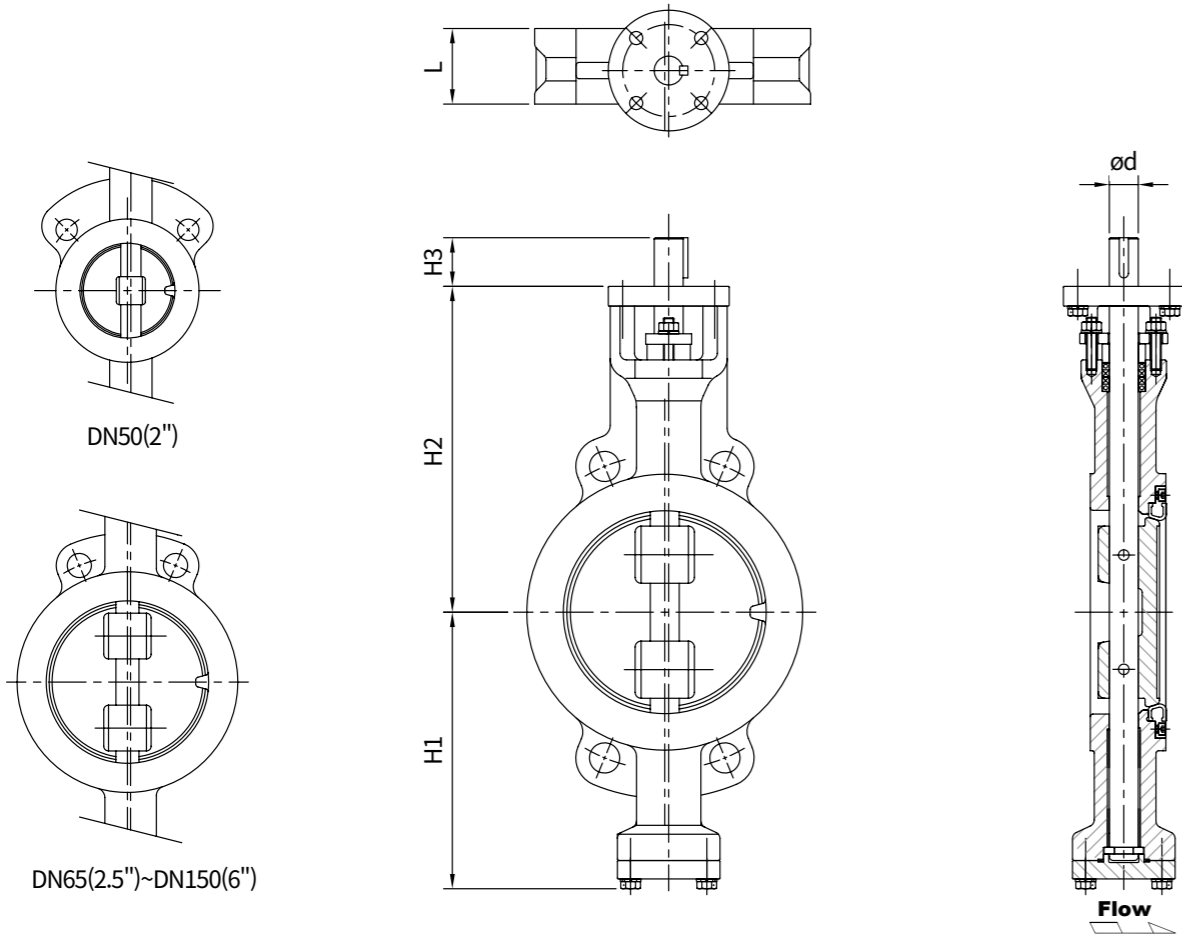
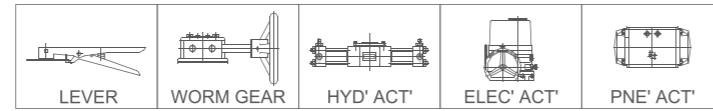
METAL
EC_M

P.No.	PART NAME	(*) MATERIAL
1	BODY	DUCTILE IRON / CAST STEEL STAINLESS STEEL / ALLOY STEEL / DUPLEX
2	DISC	STAINLESS STEEL / ALLOY STEEL / DUPLEX
3	RUBBER SEAT	VULCANIZED RUBBER(NBR / EPDM / VITON)
	TEFLON SEAT	TEFLON (PTFE / RTFE)
	FIRE SAFETY SEAT	S.S. / ALLOY STEEL with TEFLON (PTFE / RTFE)
	METAL SEAT	S.S. / S.S.+GRAPHITE / ALLOY STEEL / DUPLEX
4	STEM	STAINLESS STEEL / ALLOY STEEL / DUPLEX
5	DISC PIN or BOLT	STAINLESS STEEL / ALLOY STEEL / DUPLEX
6	RETAINER	STAINLESS STEEL / ALLOY STEEL / DUPLEX
7	STEM BEARING	STAINLESS STEEL with TEFLON
9	PACKING	TEFLON / GRAPHITE
13	END COVER	STEEL / STAINLESS STEEL / ALLOY STEEL / DUPLEX
14	COVER GASKET	TEFLON / GRAPHITE

* Other Material are available upon request

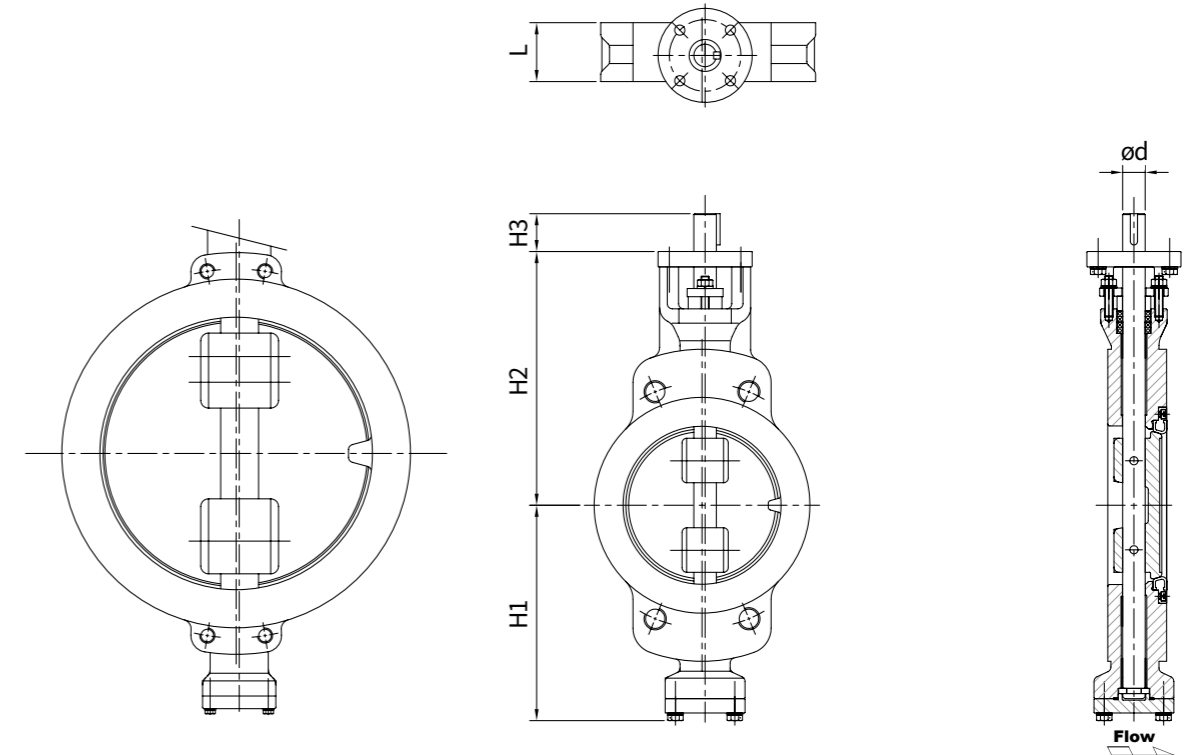
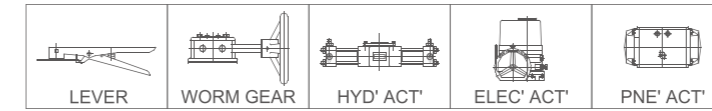
EC-SERIES Dimension Table

MODEL : ECW_(WAFER)



DIMENSIONS		REFERENCE						UNIT : mm		WEIGHT (KG)
SIZE		L	H1	H2	H3	ød	TOP F/G (ISO 5211)			
inch	mm									
2"	50	43	120	170	35	14	F07	5		
2.5"	65	46	130	175	35	14	F07	6		
3"	80	48	150	180	35	16	F07	9.5		
4"	100	54	160	195	35	16	F07	11		
5"	125	57	185	225	35	19	F07	14		
6"	150	57	200	235	50	22	F10	18		
8"	200	64	230	280	50	28	F10	27		
10"	250	71	295	300	50	32	F10	42		

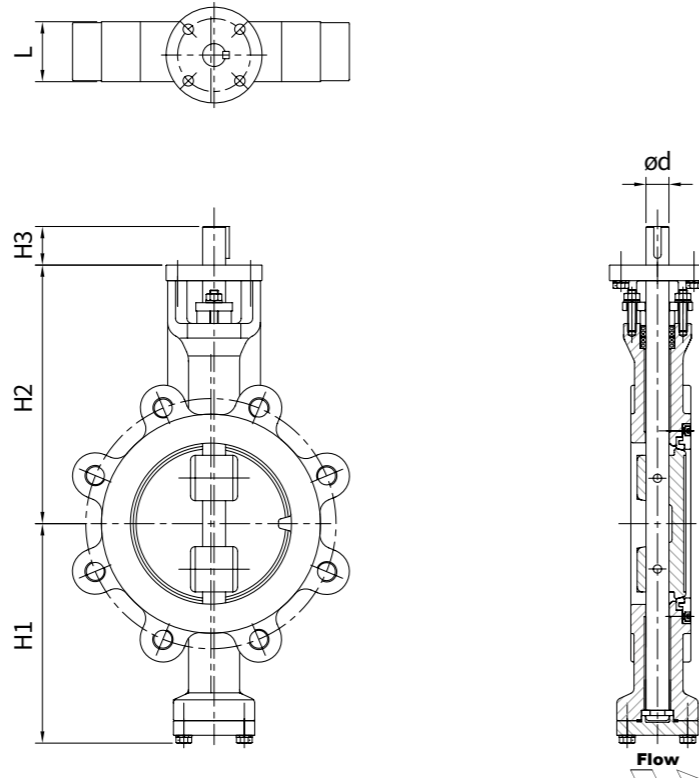
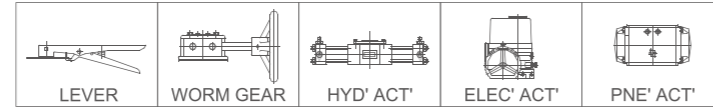
MODEL : ECS_(SEMI-LUG)



DIMENSIONS		REFERENCE				UNIT : mm		WEIGHT (KG)
SIZE		L	H1	H2	H3	ød	TOP F/G (ISO 5211)	
inch	mm							
2"	50	43	120	170	35	14	F07	5.5
2.5"	65	46	130	175	35	14	F07	6.5
3"	80	48	150	180	35	16	F07	11
4"	100	54	160	195	35	16	F07	16
5"	125	57	185	225	35	19	F07	19
6"	150	57	200	235	50	22	F10	26
8"	200	64	230	280	50	28	F10	38
10"	250	71	295	320	50	32	F10	59
12"	300	81	312	385	70	38	F14	71
14"	350	92	350	405	70	45	F14	98
16"	400	102	380	455	90	50	F16	127
18"	450	114	415	500	90	55	F16	151
20"	500	127	460	535	100	65	F16	168
22"	550	154	500	550	100	65	F16	239
24"	600	154	530	585	100	65	F25	298
28"	700	165	600	650	120	80	F25	407
32"	800	190	645	730	130	90	F30	637
36"	900	203	710	805	140	100	F35	903
40"	1000	216	770	870	150	110	F35	1239

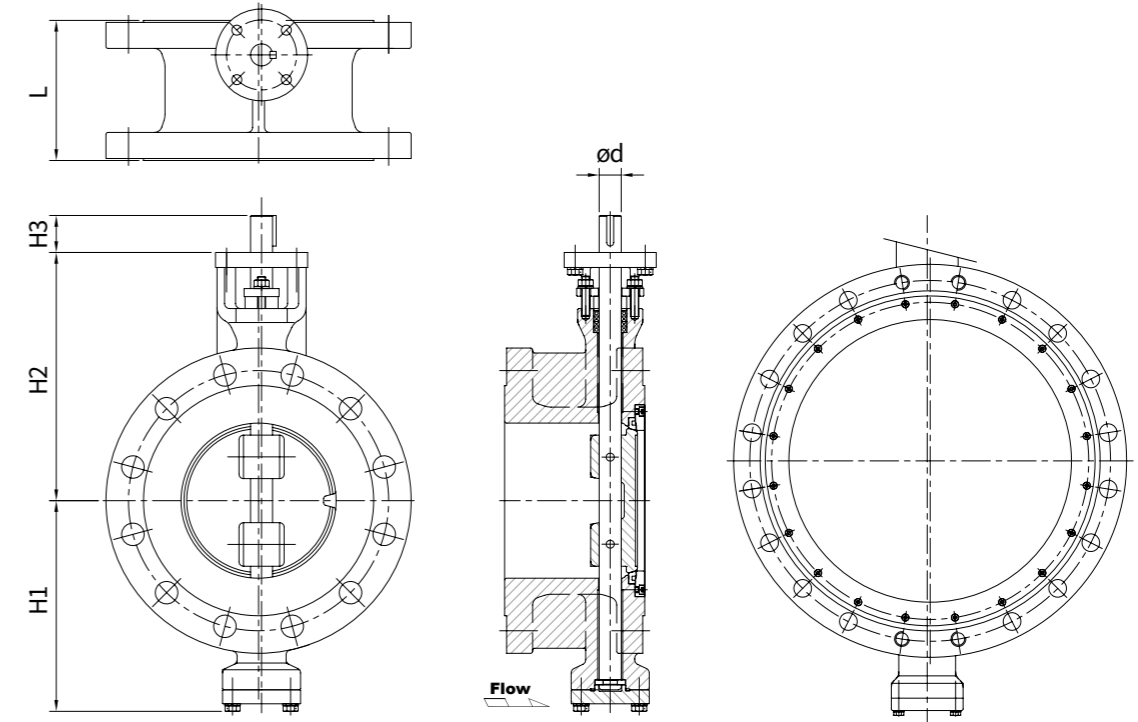
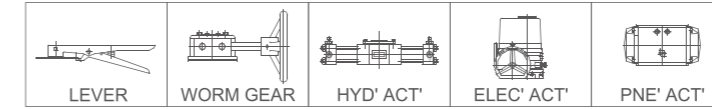
EC-SERIES Dimension Table

MODEL : ECL_(LUG)



DIMENSIONS		REFERENCE						UNIT : mm		WEIGHT (KG)
SIZE		L	H1	H2	H3	ød	TOP F/G (ISO 5211)			
inch	mm									
2"	50	43	120	170	35	14	F07	8.5		
2.5"	65	46	130	175	35	14	F07	9.5		
3"	80	48	150	180	35	16	F07	13		
4"	100	54	160	195	35	16	F07	16		
5"	125	57	185	225	35	19	F07	21		
6"	150	57	200	235	50	22	F10	30		
8"	200	64	230	280	50	28	F10	46		
10"	250	71	295	320	50	32	F10	68		
12"	300	81	315	385	70	38	F14	84		
14"	350	92	350	405	70	45	F14	137		
16"	400	102	380	455	90	50	F16	151		
18"	450	114	415	500	90	55	F16	201		
20"	500	127	460	535	100	65	F16	237		
22"	550	154	500	550	100	65	F16	292		
24"	600	154	530	585	100	65	F25	356		
28"	700	165	600	650	120	80	F25	545		
32"	800	190	645	730	130	90	F30	822		
36"	900	203	710	805	140	100	F35	1157		
40"	1000	216	770	870	150	110	F35	1522		

MODEL : ECF_(FLANGE)



DIMENSIONS		REFERENCE						UNIT : mm		WEIGHT (KG)
SIZE		L	H1	H2	H3	ød	TOP F/G (ISO 5211)			
inch	mm									
2"	50	108	120	170	35	14	F07	15		
2.5"	65	112	130	175	35	14	F07	19		
3"	80	114	150	180	35	16	F07	23		
4"	100	127	160	195	35	16	F07	29		
5"	125	140	185	225	35	19	F07	39		
6"	150	140	200	235	50	22	F10	46		
8"	200	152	230	280	50	28	F10	67		
10"	250	165	295	320	50	32	F10	91		
12"	300	178	315	385	70	38	F14	129		
14"	350	190	350	405	70	45	F14	163		
16"	400	216	380	455	90	50	F16	235		
18"	450	222	415	500	90	55	F16	268		
20"	500	229	460	535	100	65	F16	337		
22"	550	229	500	550	100	65	F16	431		
24"	600	267	530	585	100	65	F25	499		
28"	700	292	600	650	120	80	F25	719		
32"	800	318	645	730	130	90	F30	1102		
36"	900	330	710	805	140	100	F35	1418		
40"	1000	410	770	870	150	110	F35	1806		



CO - SERIES Rubber Lined Butterfly Valve

Standard Compliance

- Conform to MSS SP67, API 609, EN593, in general.

Production Range

- Size : DN 50 to DN 3000 (2 inch ~ 120 inch)
- Working Pressure : Up to 10 bar
- Working Temperature : -20 °C ~ +160°C (Depends on seat material)
- End Connection : Wafer, Semi-lug, Lug, Double Flange

Connection Flange

- ANSI B16.1 CL. 125 & B16.5 CL. 150 / MSS SP44 CL. 150
- AS129 Table D & E / EN 1092 PN6, PN10
- BS10 Table D & E / DIN2501 PN6, PN10
- ISO 7005 PN6, PN10 / KS B 1511 / JIS B 2210 5K, 10K
- SABS 1123 Table 1000/3 & Table 1600/3

Face to Face Dimension

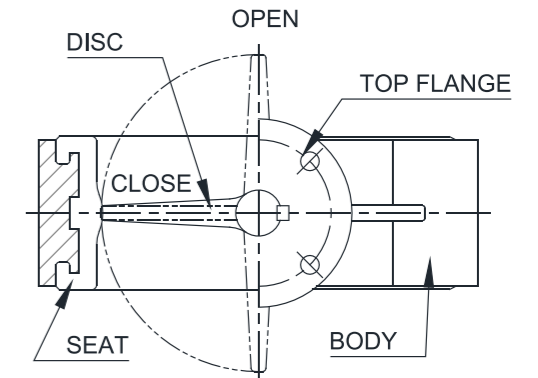
- Conform to EN 558, ISO 5752, MSS SP67, JIS F7480, ASME B16.10 and API 609

Application

- | | | |
|----------------------------|-------------------------|--------------------|
| · Air Conditioning | · Shipbuilding Industry | · Paper Industry |
| · Air Line | · Drilling Rigs | · Sand Handling |
| · Water Works | · Dry Powder | · Sugar Industry |
| · Ballast and Bilge system | · Food and Beverage | · Waste Water |
| · Chemical Processing | · Gas Plant | · Water and Others |
| · Power Plants | · Heating Line | · Thermo Technical |
| · Desalination Plants | · Mining Industry | · Watertreatment |

General Features

- 100% bi-directional tight shut off.
- Installation without restriction in direction of flow.
- Reduced Weight and overall dimensions.
- Low pressure loss and reduced energy costs.
- High Kv / Cv values.
- Easy to clean and disinfect for portable water systems etc.
- Self cleaning(No residue will be trapped).
- Good resistance to corrosion.
- High reliability



No Gasket Required

- Flange gaskets are not required when installation of pipeline.

Low Torque

- Valve discs are spherical machined and polished. Every parts of sealing surface is spherical.
- These fit together with a smooth and low Torque when close and open. The raised center seat has the cosine-curve structure.

Perfect Sealing

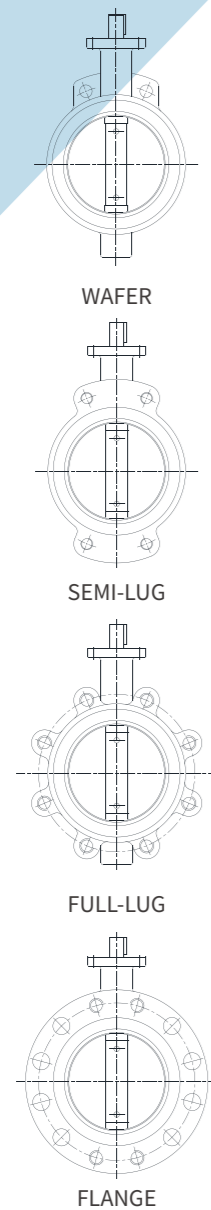
- Seat and Disc is sealed as flat surface matched both top and bottom stem point This unique sealing give perfect tight at low torque and smooth touch. And gasket with 3 molded O-rings gives self-adjusting and positive sealing in both directions.

Top Flange

- Top flange dimensions are in accordance with ISO 5211



CO - SERIES Rubber Lined Butterfly Valve



CO-Series Construction

- Taper pin(or bolt) to provided to fix disc into the stem.

Type Model Numbering

- Model COWR · Concentric WAFER type Rubber lined Butterfly Valve
- Model COSR · Concentric SEMI-LUG type Rubber lined Butterfly Valve
- Model COLR · Concentric FULL-LUG type Rubber lined Butterfly Valve
- Model COFR · Concentric FLANGE type Rubber lined Butterfly Valve

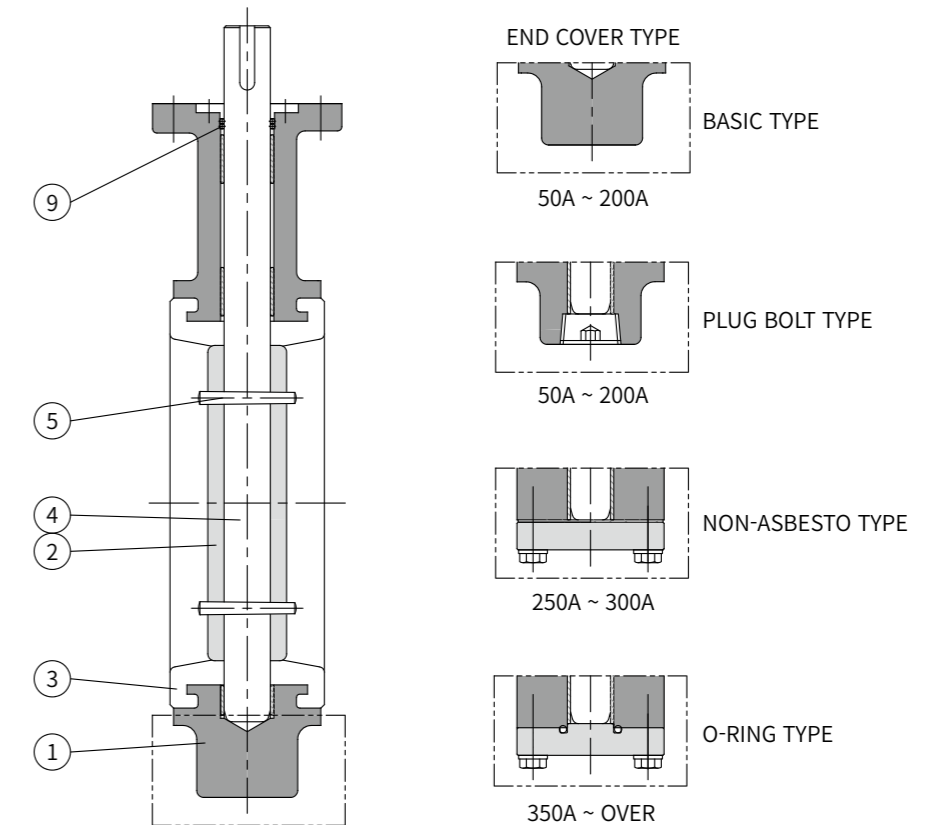
Testing

- Butterfly Valves are confirmed to API 598 and BS5155.
- Body pressure test to be done 150% and seat to be 110% of maximum working pressure.

Operation

- Bare stem type · Lever
- Worm gear box · Electric motor actuator
- Pneumatic actuator · Hydraulic actuator

Construction of Materials

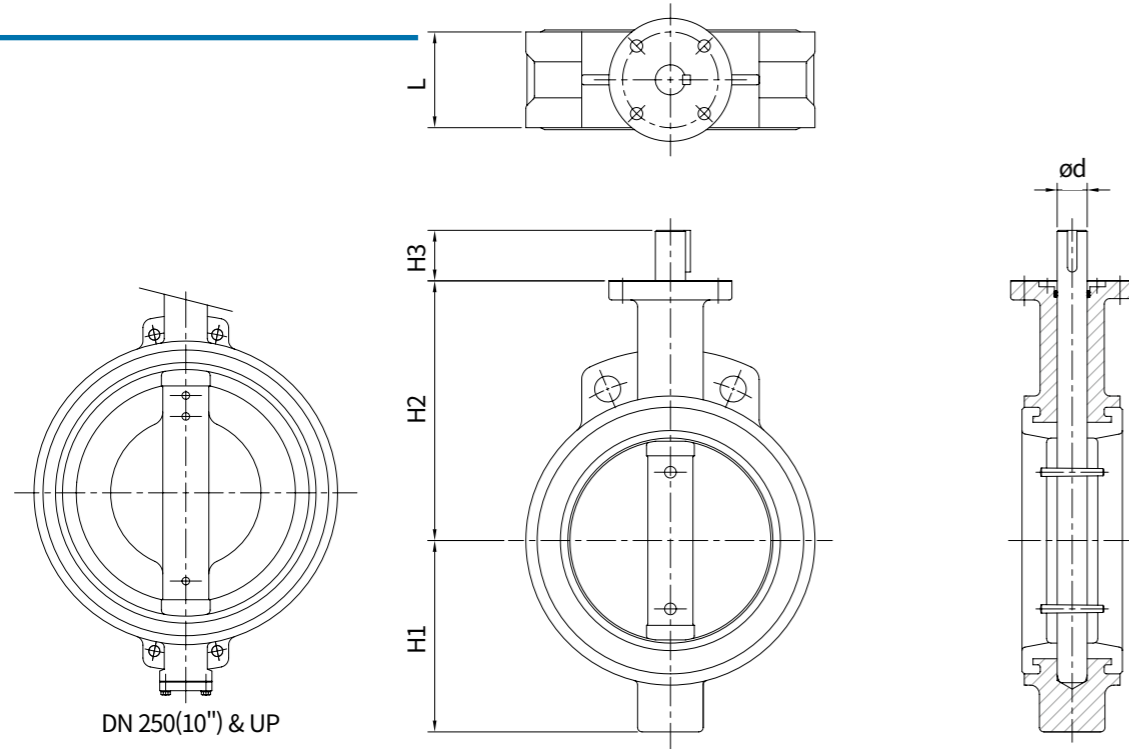
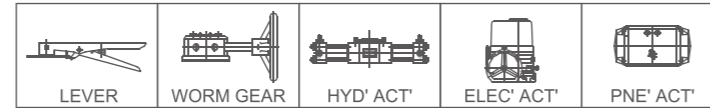


P.No.	PART NAME	(*) MATERIAL
1	BODY	CAST IRON / DUCTILE IRON CAST STEEL / STAINLESS STEEL DUPLEX / ALLOY STEEL
2	DISC	STAINLESS STEEL / ALLOY STEEL / DUPLEX
3	SEAT	RUBBER (NBR / SILICON / EPDM / VITON / NEOPRENE)
4	STEM	STAINLESS STEEL / ALLOY STEEL / DUPLEX
5	DISC PIN or BOLT	STAINLESS STEEL / ALLOY STEEL / DUPLEX
9	PACKING (O-RING)	RUBBER

* Other Material are available upon request

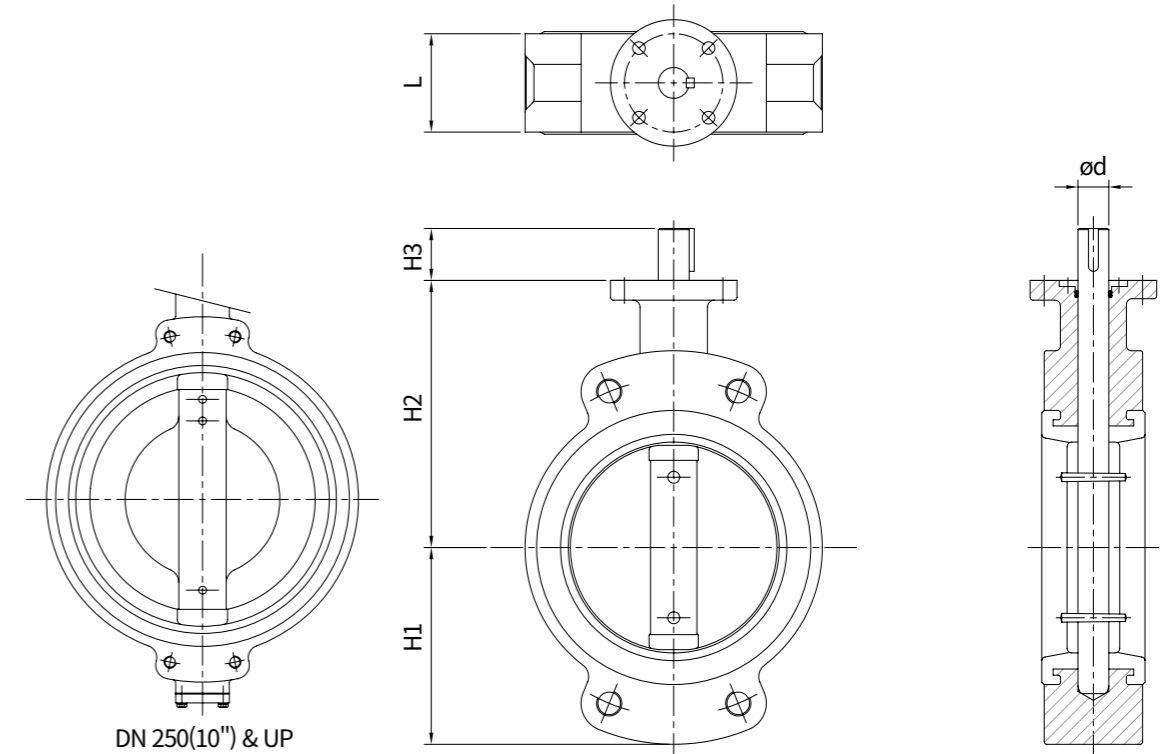
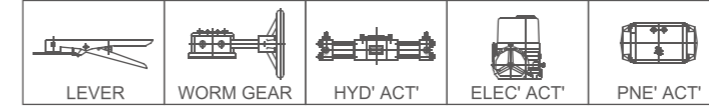
CO - SERIES Dimension Table

MODEL : COWR (WAFER)



DIMENSIONS		REFERENCE						WEIGHT (KG)
SIZE		L	H1	H2	H3	ød	TOP F/G (ISO 5211)	
inch	mm							
2"	50	43	80	130	35	14	F07	6
2.5"	65	46	90	140	35	14	F07	7
3"	80	46	95	150	35	14	F07	7
4"	100	52	110	165	35	16	F07	9
5"	125	56	130	180	35	19	F07	11
6"	150	56	145	195	35	19	F07	14
8"	200	60	170	230	50	22	F10	21
10"	250	68	220	295	50	25	F10	31
12"	300	78	260	315	50	28	F10	44
14"	350	78	285	340	50	32	F10	52
16"	400	102	325	375	70	35	F14	81
18"	450	114	340	395	70	38	F14	98
20"	500	127	410	430	90	45	F16	138

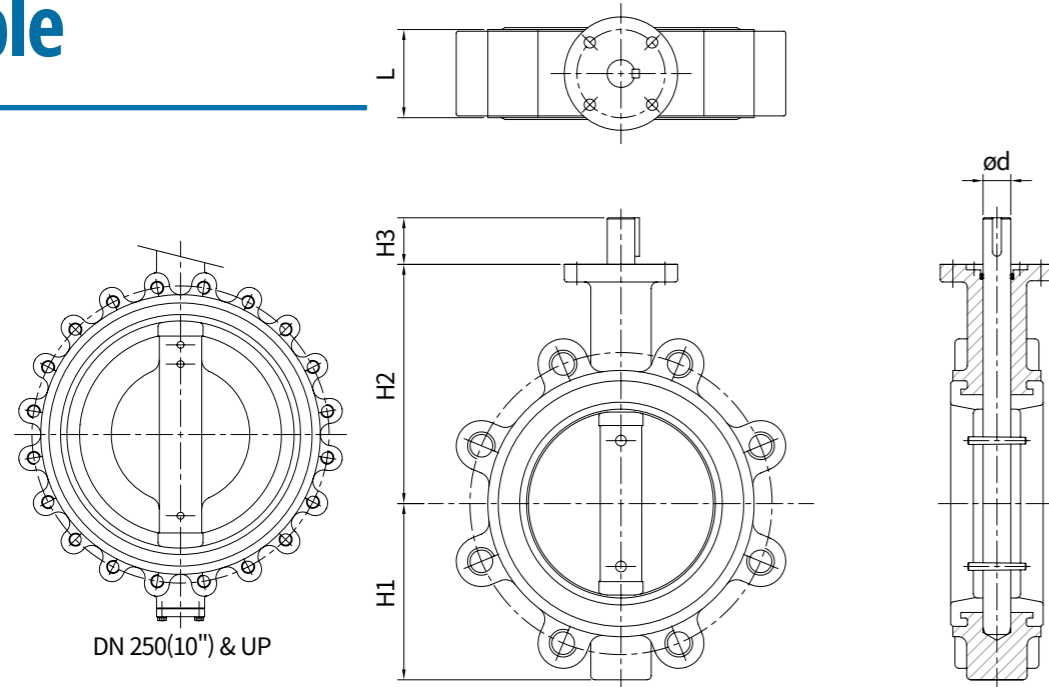
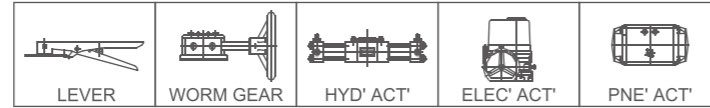
MODEL : COSR (SEMI-LUG)



DIMENSIONS		REFERENCE				UNIT : mm		WEIGHT (KG)
SIZE		L	H1	H2	H3	ød	TOP F/G (ISO 5211)	
inch	mm							
2"	50	43	80	130	35	14	F07	7
2.5"	65	46	90	140	35	14	F07	8
3"	80	46	95	150	35	14	F07	9
4"	100	52	110	165	35	16	F07	11
5"	125	56	130	180	35	19	F07	13
6"	150	56	145	195	35	19	F07	17
8"	200	60	170	230	50	22	F10	26
10"	250	68	220	295	50	25	F10	37
12"	300	78	260	315	50	28	F10	46
14"	350	78	285	340	50	32	F10	59
16"	400	102	325	375	70	35	F14	81
18"	450	114	340	395	70	38	F14	110
20"	500	127	410	430	90	45	F16	151
22"	550	154	430	470	90	50	F16	191
24"	600	154	445	510	90	50	F16	235
28"	700	165	515	555	90	65	F16	279
32"	800	190	595	640	120	80	F25	399
36"	900	203	660	700	120	80	F25	557
40"	1000	216	725	770	130	95	F30	882

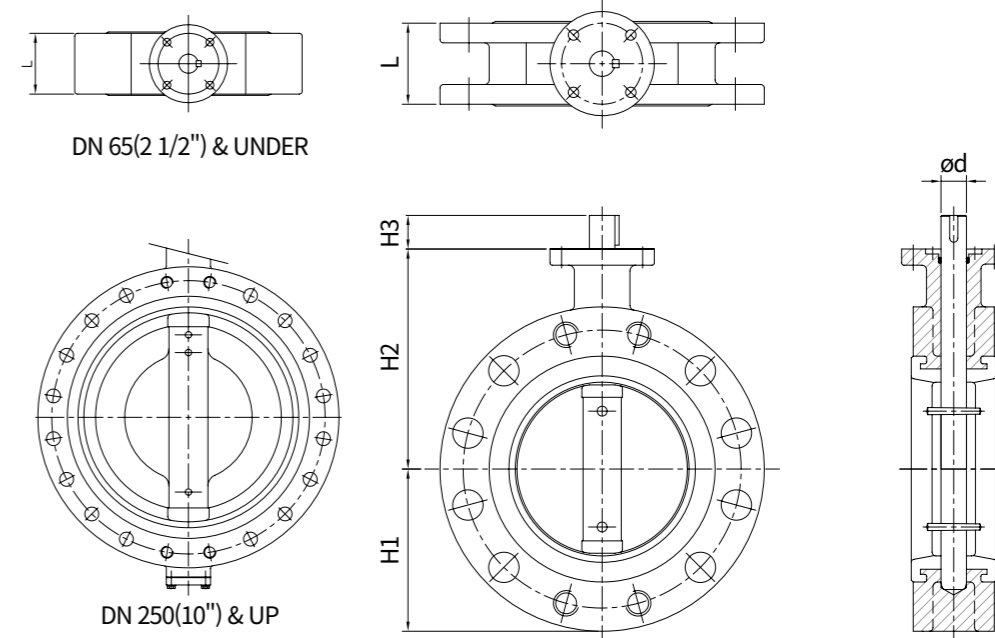
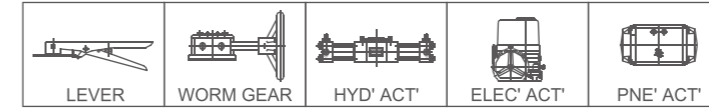
CO - SERIES Dimension Table

MODEL : COLR (LUG)



DIMENSIONS		REFERENCE						WEIGHT (KG)
SIZE		L	H1	H2	H3	ød	TOP F/G (ISO 5211)	
inch	mm							
2"	50	43	80	130	35	14	F07	8
2.5"	65	46	90	140	35	14	F07	8
3"	80	46	95	150	35	14	F07	9
4"	100	52	110	165	35	16	F07	14
5"	125	56	130	180	35	19	F07	16
6"	150	56	145	195	35	19	F07	20
8"	200	60	170	230	50	22	F10	32
10"	250	68	220	295	50	25	F10	47
12"	300	78	260	315	50	28	F10	73
14"	350	78	285	340	50	32	F10	89
16"	400	102	325	375	70	35	F14	125
18"	450	114	340	395	70	38	F14	156
20"	500	127	410	430	90	45	F16	233
22"	550	154	430	470	90	50	F16	269
24"	600	154	445	510	90	50	F16	319
28"	700	165	515	555	90	65	F16	468
32"	800	190	595	640	120	80	F25	651
36"	900	203	660	700	120	80	F25	924
40"	1000	216	725	770	130	95	F30	1302

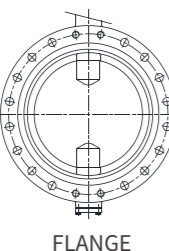
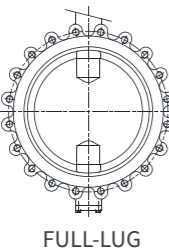
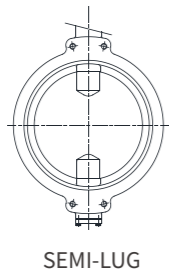
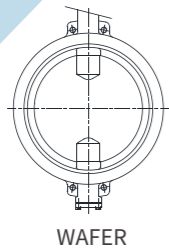
MODEL : COFR (FLANGE)



DIMENSIONS		REFERENCE					UNIT : mm		WEIGHT (KG)
SIZE		L	H1	H2	H3	ød	TOP F/G (ISO 5211)		
inch	mm								
2"	50	40	80	130	35	14	F07	11	
2.5"	65	40	90	140	35	14	F07	14	
3"	80	60	95	150	35	14	F07	18	
4"	100	60	110	165	35	16	F07	22	
5"	125	100	130	180	35	19	F07	36	
6"	150	100	145	195	35	19	F07	40	
8"	200	100	170	230	50	22	F10	61	
10"	250	110	220	295	50	25	F10	80	
12"	300	110	260	315	50	28	F10	121	
14"	350	120	285	340	50	32	F10	161	
16"	400	130	325	375	70	35	F14	190	
18"	450	150	340	395	70	38	F14	223	
20"	500	160	410	430	90	45	F16	251	
22"	550	170	430	470	90	50	F16	268	
24"	600	170	445	510	90	50	F16	373	
28"	700	180	515	555	90	65	F16	485	
32"	800	200	595	640	120	80	F25	670	
36"	900	230	660	700	130	95	F25	910	
40"	1000	250	725	770	130	95	F30	1490	
60"	1500	330	1025	1055	170	140	F35	3800	
72"	1800	360	1220	1270	210	160	F35	4800	
120"	3000	580	1880	1950	290	240	F60	21000	



C 2 - S E R I E S Rubber Lined Butterfly Valve



C2-Series Construction (Non-Disc pin & two stem)

- Non-Disc pin to fix disc into the two-stem.
- Easy replaceable & assemble valve part.
- Self cleaning(No residue will be trapped)

Type Model Numbering

- Model C2WR · Concentric WAFER type Rubber lined Butterfly Valve
- Model C2SR · Concentric SEMI-LUG type Rubber lined Butterfly Valve
- Model C2LR · Concentric FULL-LUG type Rubber lined Butterfly Valve
- Model C2FR · Concentric FLANGE type Rubber lined Butterfly Valve

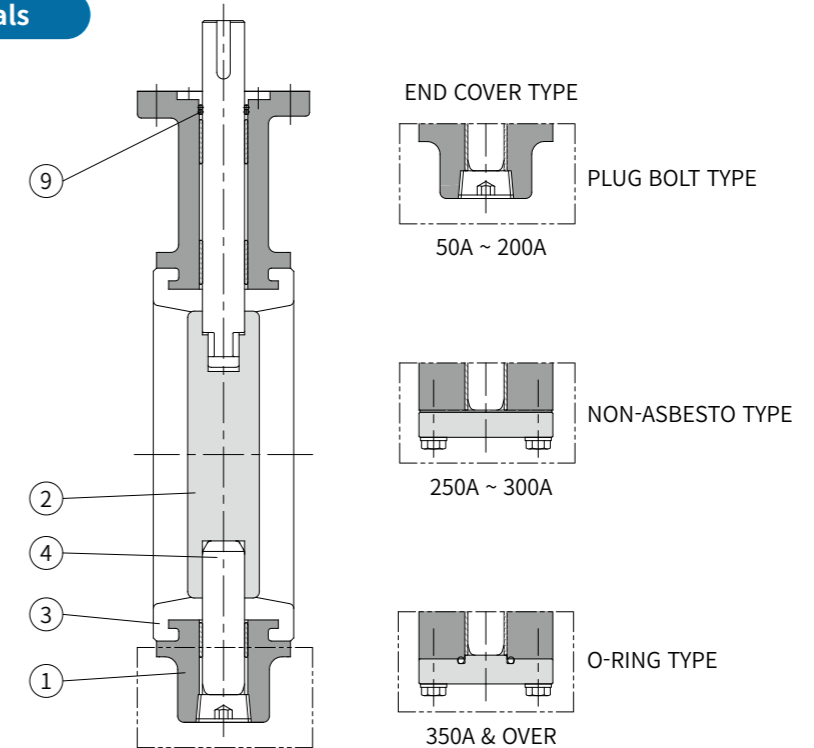
Testing

- Butterfly Valves are confirmed to API 598 and BS5155.
- Body pressure test to be done 150% and seat to be 110% of maximum working pressure.

Operation

- Bare stem type · Lever
- Worm gear box · Electric motor actuator
- Pneumatic actuator · Hydraulic actuator

Construction of Materials



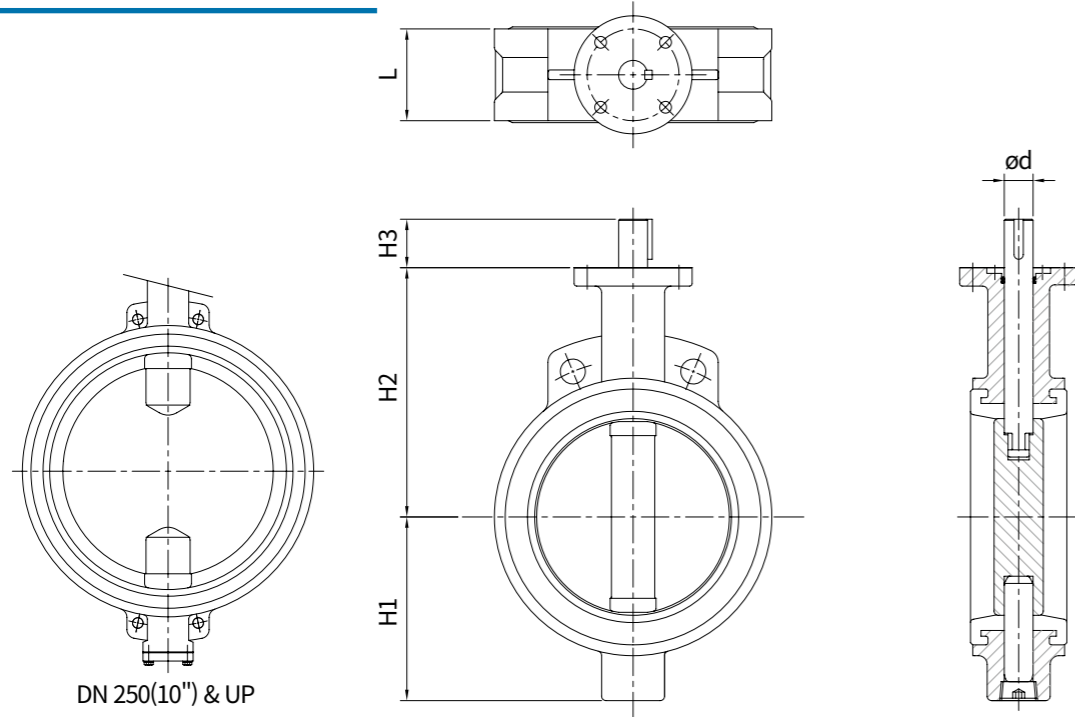
P.No.	PART NAME	(*) MATERIAL
1	BODY	CAST IRON / DUCTILE IRON CAST STEEL / STAINLESS STEEL DUPLEX / ALLOY STEEL
2	DISC	STAINLESS STEEL / ALLOY STEEL / DUPLEX
3	SEAT	RUBBER (NBR / SILICON / EPDM / VITON / NEOPRENE)
4	STEM	STAINLESS STEEL / ALLOY STEEL / DUPLEX
5	PACKING(O-RING)	RUBBER

* Other Material are available upon request

C 2 - S E R I E S

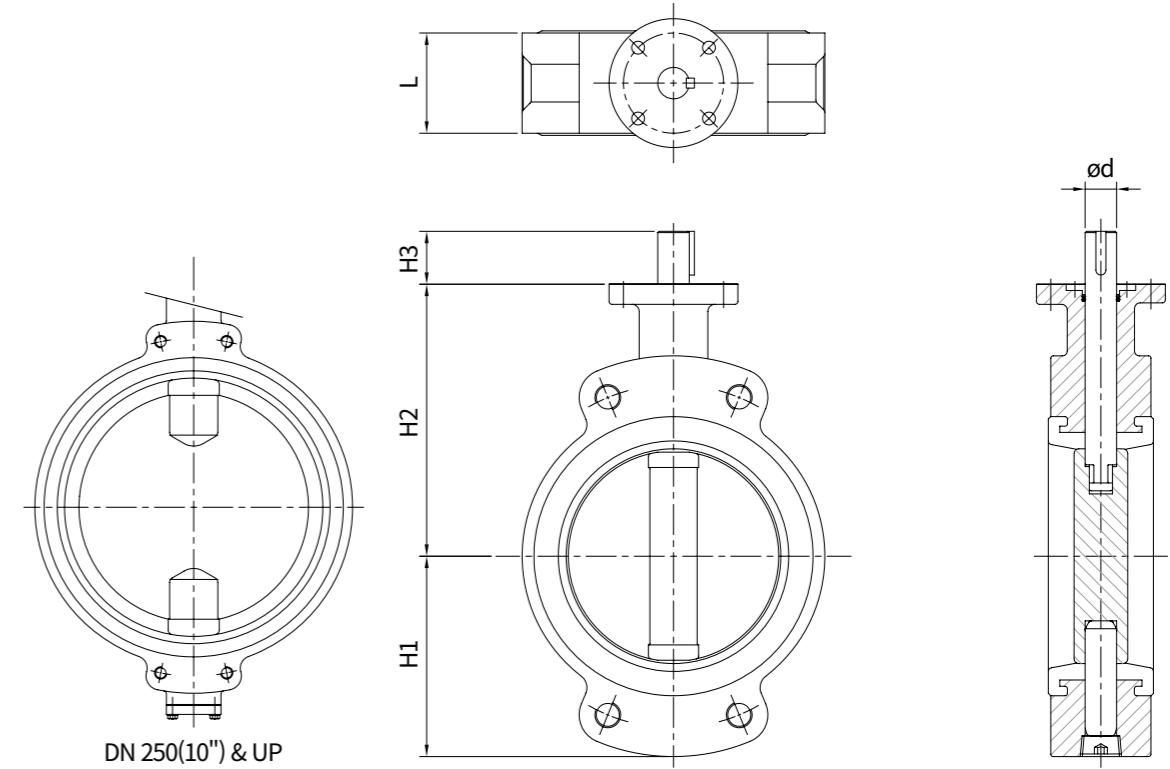
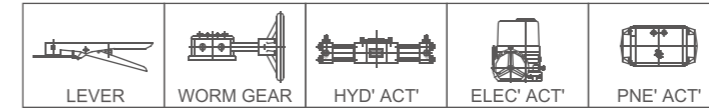
Dimension Table

MODEL : C2WR (WAFER)



DIMENSIONS		REFERENCE						UNIT : mm	WEIGHT (KG)
SIZE		L	H1	H2	H3	ød	TOP F/G (ISO 5211)		
inch	mm								
2"	50	43	80	130	35	14	F07	6	
2.5"	65	46	90	140	35	14	F07	7	
3"	80	46	95	150	35	14	F07	7	
4"	100	52	110	165	35	16	F07	9	
5"	125	56	130	180	35	19	F07	11	
6"	150	56	145	195	35	19	F07	14	
8"	200	60	170	230	50	22	F10	21	
10"	250	68	220	295	50	25	F10	31	
12"	300	78	260	315	50	28	F10	44	
14"	350	78	285	340	50	32	F10	52	
16"	400	102	325	375	70	35	F14	81	
18"	450	114	340	395	70	38	F14	98	
20"	500	127	410	430	90	45	F16	138	

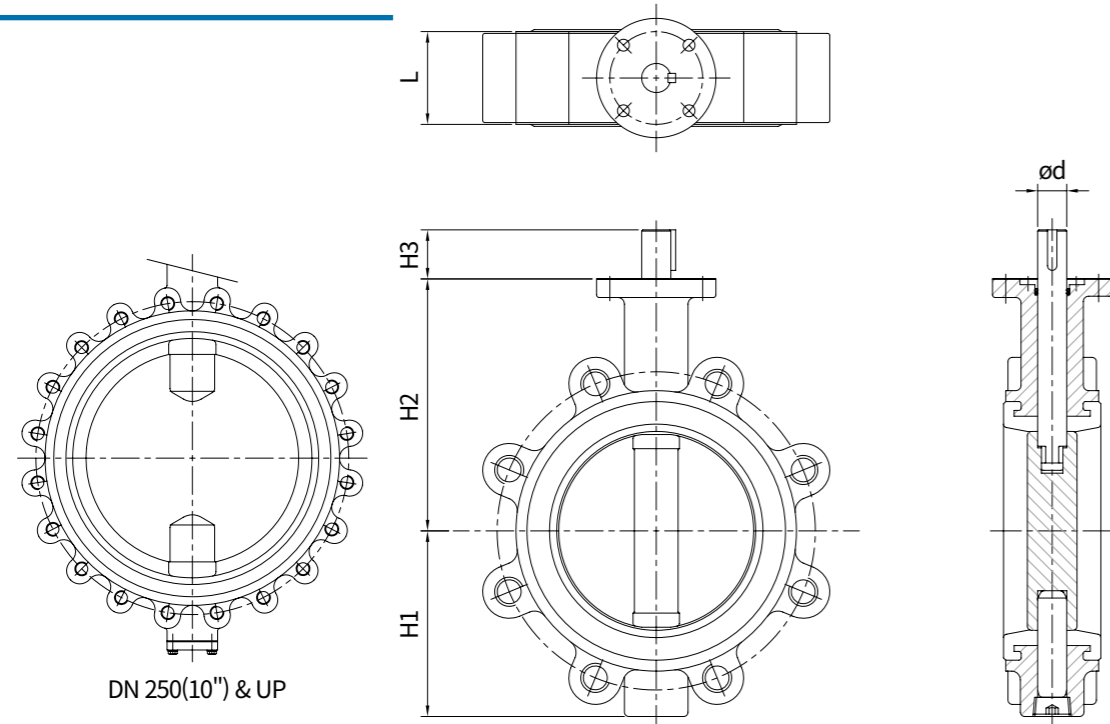
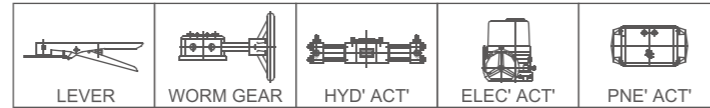
MODEL : C2SR (SEMI-LUG)



DIMENSIONS		REFERENCE						UNIT : mm	WEIGHT (KG)
SIZE		L	H1	H2	H3	ød	TOP F/G (ISO 5211)		
inch	mm								
2"	50	43	80	130	35	14	F07	7	
2.5"	65	46	90	140	35	14	F07	8	
3"	80	46	95	150	35	14	F07	9	
4"	100	52	110	165	35	16	F07	11	
5"	125	56	130	180	35	19	F07	13	
6"	150	56	145	195	35	19	F07	17	
8"	200	60	170	230	50	22	F10	26	
10"	250	68	220	295	50	25	F10	37	
12"	300	78	260	315	50	28	F10	46	
14"	350	78	285	340	50	32	F10	59	
16"	400	102	325	375	70	35	F14	81	
18"	450	114	340	395	70	38	F14	110	
20"	500	127	410	430	90	45	F16	151	

C 2 - SERIES Dimension Table

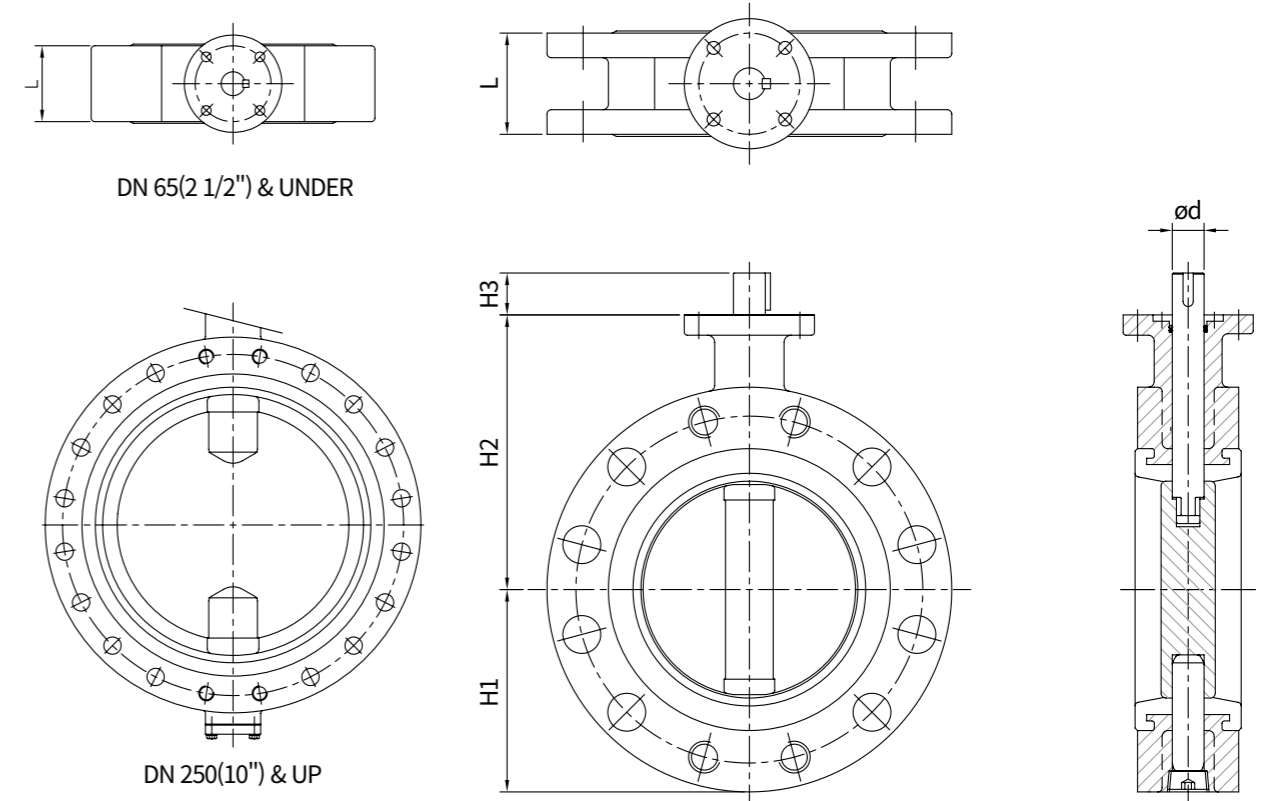
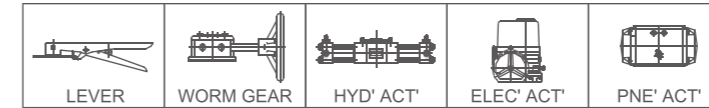
MODEL : C2LR (LUG)



DN 250(10") & UP

DIMENSIONS		REFERENCE						UNIT : mm		WEIGHT (KG)
SIZE		L	H1	H2	H3	ød	TOP F/G (ISO 5211)			
inch	mm									
2"	50	43	80	130	35	14	F07	8		
2.5"	65	46	90	140	35	14	F07	6		
3"	80	46	95	150	35	14	F07	9		
4"	100	52	110	165	35	16	F07	14		
5"	125	56	130	180	35	19	F07	16		
6"	150	56	145	195	35	19	F07	20		
8"	200	60	170	230	50	22	F10	32		
10"	250	68	220	295	50	25	F10	47		
12"	300	78	260	315	50	28	F10	73		
14"	350	78	285	340	50	32	F10	89		
16"	400	102	325	375	70	35	F14	125		
18"	450	114	340	395	70	38	F14	156		
20"	500	127	410	430	90	45	F16	233		

MODEL : C2FR (FLANGE)



DN 65(2 1/2") & UNDER

DN 250(10") & UP

DIMENSIONS		REFERENCE						UNIT : mm		WEIGHT (KG)
SIZE		L	H1	H2	H3	ød	TOP F/G (ISO 5211)			
inch	mm									
2"	50	40	80	130	35	14	F07	11		
2.5"	65	40	90	140	35	14	F07	14		
3"	80	60	95	150	35	14	F07	18		
4"	100	60	110	165	35	16	F07	22		
5"	125	100	130	180	35	19	F07	36		
6"	150	100	145	195	35	19	F07	40		
8"	200	100	170	230	50	22	F10	61		
10"	250	110	220	295	50	25	F10	80		
12"	300	110	260	315	50	28	F10	121		
14"	350	120	285	340	50	32	F10	161		
16"	400	130	325	375	70	35	F14	190		
18"	450	150	340	395	70	38	F14	223		
20"	500	160	410	430	90	45	F16	251		

Installation Instruction



1. Storage

- Be careful not to get a scratch on Disc edge and Seat ring. The flange must be protected by plywood or other things when carrying valve.
- Valve must not be shocked and shaken too much. (It may cause the cracking neck, lever, handle and body)
- Valve must be protected from sunlight.
- It is recommended to be kept and carried under the condition of opening.
- Keep them indoors in as cool and dark a place as possible (temperature : -10°C to 60°C, humidity : 70% or less)
- In keeping valve, must check the operation once every three months.

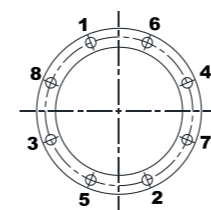
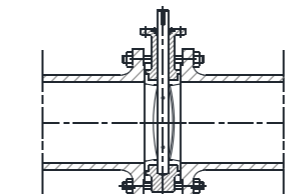
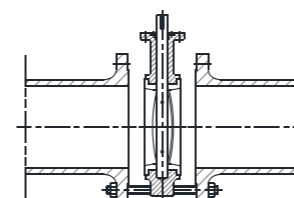
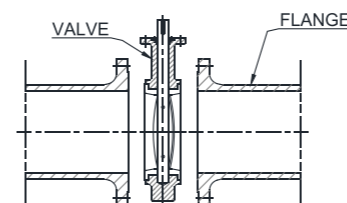
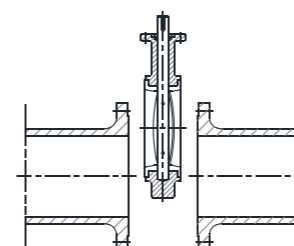
2. Lifting & Transporating

- The valve shall not be lifted by operator or handwheel.
- When the valve shall be installed with horizontal shaft, we use :
A flexible strap around the neck of the valve and if possible also around the bottom of the valve. If not possible to fasten around the bottom, a flexible strap is used in one of the free hole for flange drilling.
- When the valve shall be installed with vertical shaft and operator shall be upwards :
A flexible strap is used around the neck of the valve.
- When the valve shall be installed with vertical shaft and operator shall be downwards :
The valve is lifted by flexible strap in the free holes flange drilling.

3. Installation Instructions

General

- Valve can be installed in the pipeline in any position.
- Before installing valve, the pipeline must be cleaned from dirt and welding residues, otherwise seat may be damaged.
- Also the pipeline must be free from tension and electric current.
- When handling valve, be careful to avoid contact with or impact by other equipment, vault walls or trench walls.
- Check carefully to see if valve seat/disc surface as well as flange are all clean.
- Tighten again, if any, all bolts loosened during transport and/or handling.



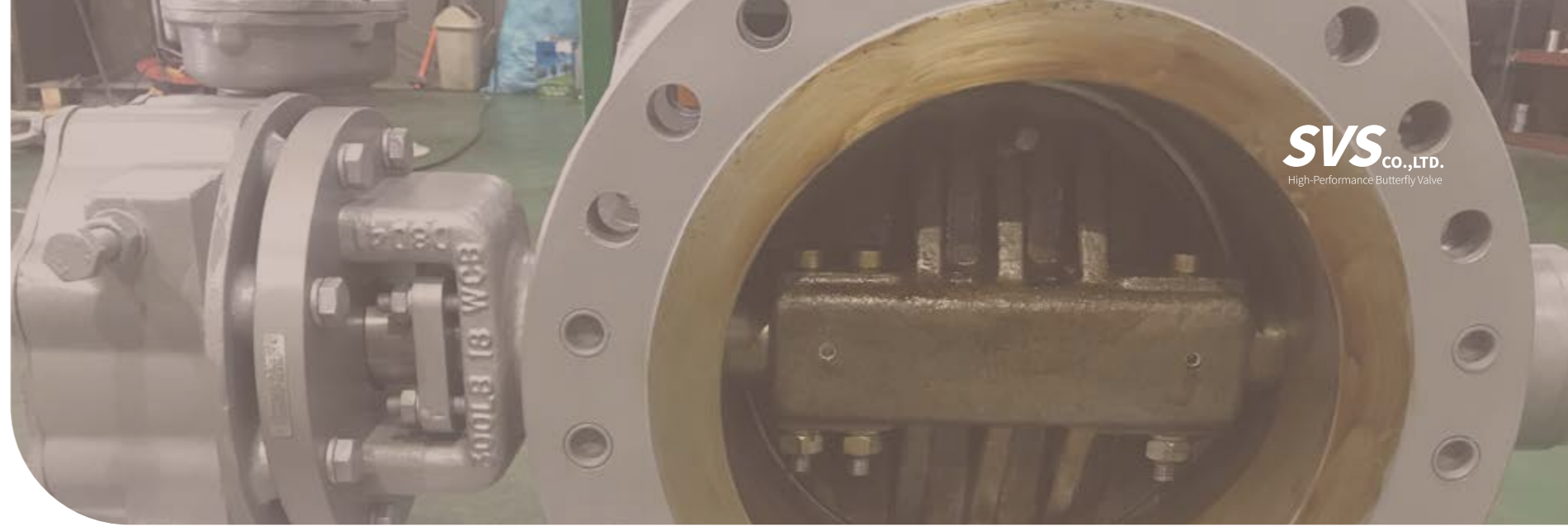
- Open and close valve to check for proper operation.
- Do not use valve as a substitute for jack when putting pipes alignment.
- The span of pipeline having connection between valve and pipe should be free from such excessive loading as may cause serious bending.
- Do not weld the piping around the valve area under the condition that the valve is installed.

Installation on the existing pipeline

- Verify the distance between two flanges to be equal to face to face valve dimension.
 - In order to facilitate installation of the valve, allow with adequate tools a sufficient room in between flanges.
 - Insert at least two flange-bolts through the two bottom pipe flange holes to rest valve on during installation.
 - Close valve disc partially so that disc edge is at least 10mm within the body.
 - Insert valve in between flanges. Flange should be positioned, and aligned valve bore.
 - Valve will be held by the two flange-bolts previously fitted in the lower part of flanges.
 - Insert the flange-bolt through centering lugs/tapped holes of valve.
 - Insert the remaining flange-bolts aligning the valve with the flanges and tightening bolts partially.
 - Maintain the valve aligned, remove flange spreaders gradually and tighten bolts partially.
 - Adjust open and close operation of valve to be easy and smooth.
 - Open the valve complete and close tight the bolts adequate torque.
- Installation of lug type butterfly valves has same procedure of wafer type using studs instead of bolts and nuts.

Installation of butterfly valve in the new pipeline

- Close valve disc partially until disc profile is at least 10mm within the body.
- Align the two flanges with the valve body.
- Flange should be positioned and aligned with valve bore.
- Span the body with some flange-bolts and tighten the bolts partially. Finish tightening by uniform cross bolting.
- Use the flange-valve-flange unit for pipe centering.
- Install the valve following the installation instruction on existing pipeline.



TR - SERIES Triple Offset Butterfly Valve



Standard Compliance

- Conform to API 609 in general.
- Fire Safe requirement meets BS 6755 part 2 / API 6FA
- Stellite overlay on body seat of valve is available to manufacture

Production Range

- Size : DN 100 to DN 2000 (4 inch ~ 80 inch)
- Pressure : UP to 260 bar
- Temperature : -100°C ~ +650°C (Depends on material)
- End connection : Wafer, Semi-lug, Lug, Double Flange

Connection Flange

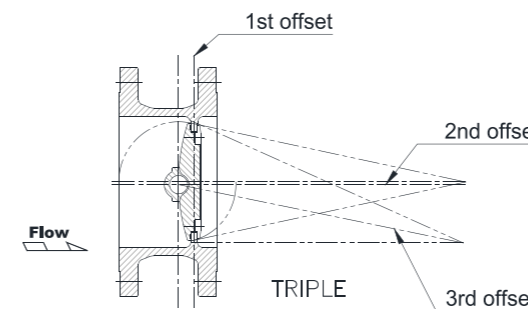
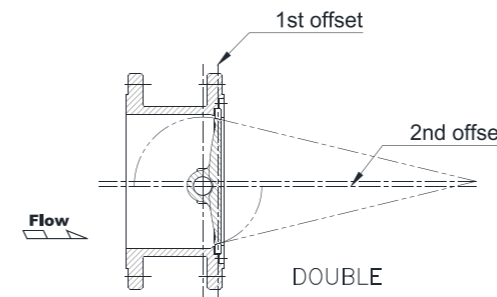
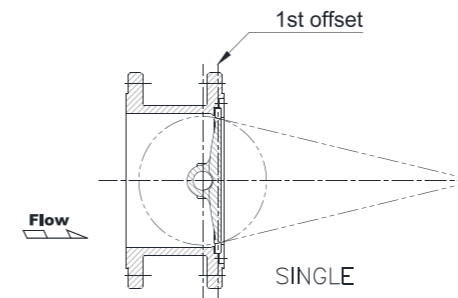
- ISO 7005 PN2.5, PN6, PN10, PN16, PN20, PN50, PN100, PN150, PN260
- ASME B16.5 CL.150, CL.300, CL.600, CL.900, CL.1500, CL.2500
- AWWA C207 CL. D & E
- KS B 1511 & JIS B 2210 5K, 10K, 16K, 20K, 30K, 40K, 63K

Face to Face Dimension

- Conform to EN558, ISO 5752, MSS SP68, ASME B16.10 and API609, BS 5155

Application

- Fire safe line
- Steam line
- Nuclear power plants
- Exhaust gas line
- Petroleum plants
- Fossil power plants



Single Offset

- The centre of rotation is moved back from the centreline of the valve disc.
- The seat and seal are designed conically and on centre.
- This design relies on a frictional, interference seal and so is applicable only to soft seated valves.

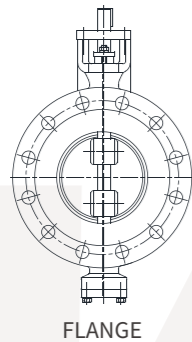
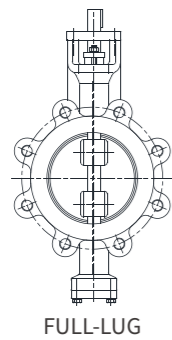
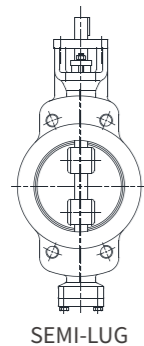
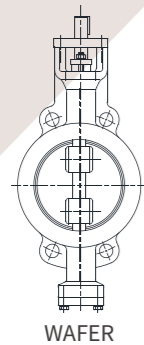
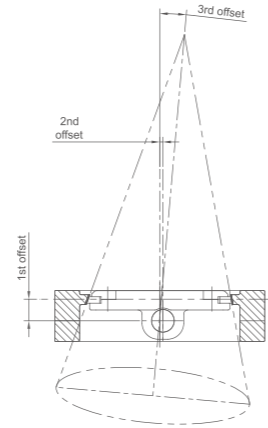
Double Offset

- The centre of rotation is moved from the centerline of the valve body.
- The seat and seal design remains conical and on centre.
- This design again relies on a frictional, interference seal, but the length of rotation over which this friction occurs is reduced,
- allowing a larger range of process resistant seat materials to be used.

Triple Offset

- The centreline of the cone is rotated away from the valve centreline resulting in an ellipsoidal profile and providing the third offset. With this geometry, seat seal interference is completely eliminated ensuring long sealing life. The result is a torque seated, process pressure aided FRICTIONLESS seal.

TR - SERIES Triple Offset Butterfly Valve



General Features

- The centerline of the cone is rotated away from the valve centerline resulting in an ellipsoidal profile and providing the third offset. With this geometry, seat seal interference is completely eliminated ensuring long sealing life.
- The result is a torque seated, process-pressure-aided frictionless seal.
- The geometry allows the body seat to be used as the closed limit stop, aiding operator adjustment. The triple offset design is ideally suited to metal seated valves providing bubble-tight performance in high temperature, high pressure and firesafe applications.

Type Model Numbering

- Model TRWM · High-performance Triple-Eccentric WAFLER type Metal seat Butterfly Valve
- Model TRSM · High-performance Triple-Eccentric SEMI-LUG type Metal seat Butterfly Valve
- Model TRLM · High-performance Triple-Eccentric FULL-LUG type Metal seat Butterfly Valve
- Model TRFM · High-performance Triple-Eccentric FLANGE type Metal seat Butterfly Valve

Top Flange

- Top flange dimensions are in accordance with ISO 5211

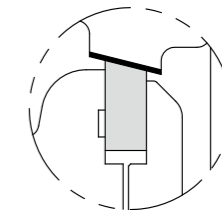
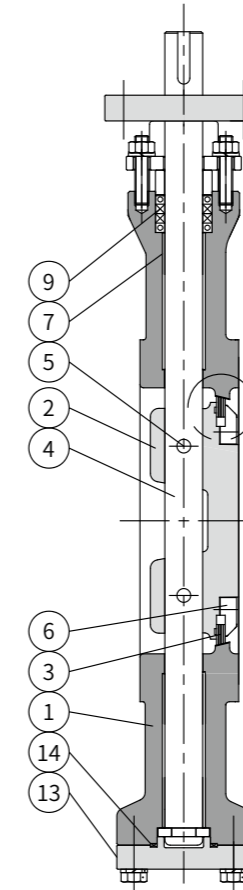
Testing

- Butterfly Valves are confirmed to API 598

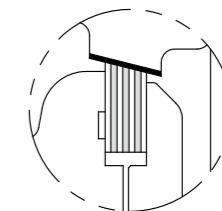
Operation

- Bare stem type · Electric motor actuator
- Worm gear box · Hydraulic actuator
- Pneumatic actuator

Construction of Materials



SOLID METAL SEAT



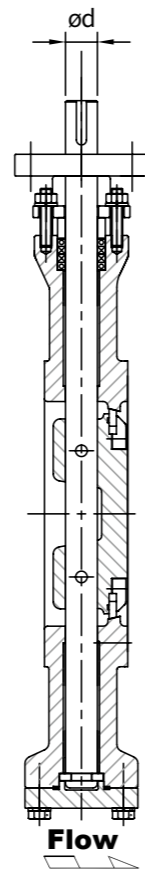
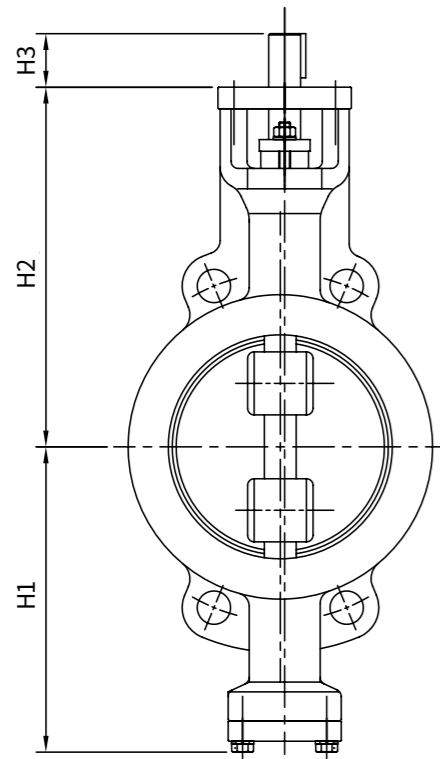
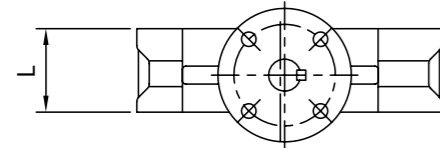
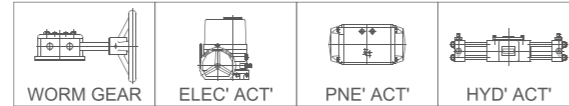
LAMINATED METAL SEAT

P.No.	PART NAME	(*) MATERIAL
1	BODY	CAST STEEL STAINLESS STEEL / ALLOY STEEL / DUPLEX
2	DISC	CAST STEEL STAINLESS STEEL / ALLOY STEEL / DUPLEX
3	SEAT	S.S / S.S+GRAPHITE / ALLOY STEEL / DUPLEX
4	STEM	STAINLESS STEEL / ALLOY STEEL / DUPLEX
5	DISC PIN or BOLT	STAINLESS STEEL / ALLOY STEEL / DUPLEX
6	RETAINER	STEEL / STAINLESS STEEL / ALLOY STEEL / DUPLEX
7	STEM BEARING	STAINLESS STEEL with TEFLON
9	PACKING	GRAPHITE
13	END COVER	STEEL / STAINLESS STEEL / ALLOY STEEL / DUPLEX
14	COVER GASKET	GRAPHITE

* Other Material are available upon request

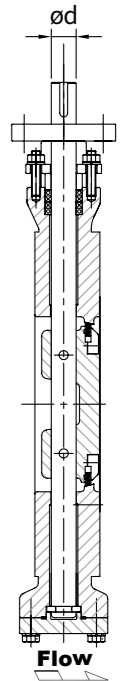
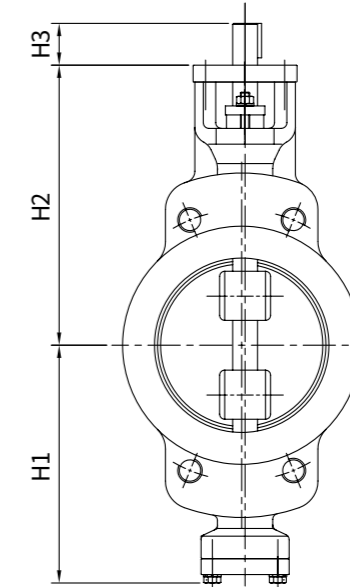
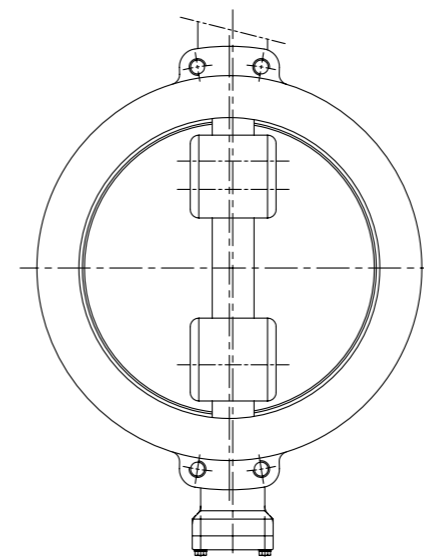
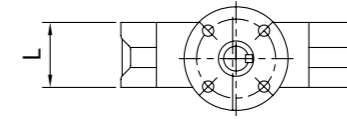
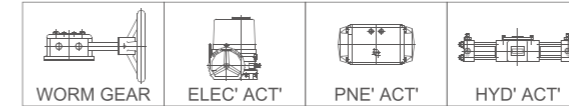
TR-SERIES Dimension Table

MODEL : TRWM (WAFER)



DIMENSIONS		REFERENCE						WEIGHT (KG)
SIZE		L	H1	H2	H3	ød	TOP F/G (ISO 5211)	
inch	mm							
4"	100	54	160	195	35	16	F07	12
5"	125	57	185	225	35	19	F07	15
6"	150	57	200	235	50	22	F10	20
8"	200	64	230	280	50	28	F10	30
10"	250	71	295	300	50	32	F10	46

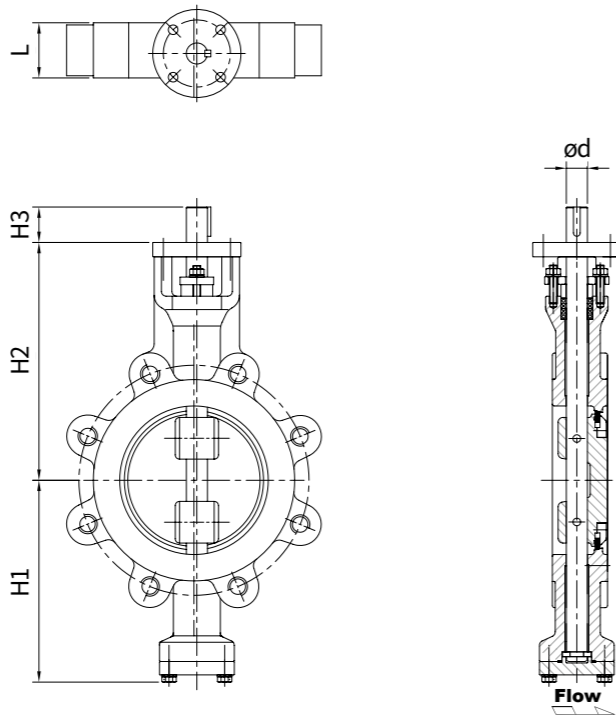
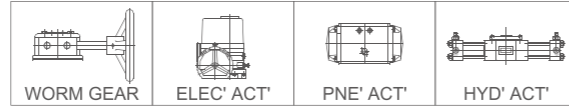
MODEL : TRSM (SEMI-LUG)



DIMENSIONS		REFERENCE				UNIT : mm		WEIGHT (KG)
SIZE		L	H1	H2	H3	ød	TOP F/G (ISO 5211)	
inch	mm							
4"	100	54	160	195	35	16	F07	18
5"	125	57	185	225	35	19	F07	21
6"	150	57	200	235	50	22	F10	29
8"	200	64	230	280	50	28	F10	42
10"	250	71	295	320	50	32	F10	65
12"	300	81	315	385	70	38	F14	78
14"	350	92	350	405	70	45	F14	108
16"	400	102	380	455	90	50	F16	140
18"	450	114	415	500	90	55	F16	161
20"	500	127	460	535	100	65	F16	185
22"	550	154	500	550	100	65	F16	263
24"	600	154	600	650	120	80	F25	328
28"	700	229	600	650	120	80	F25	538
32"	800	241	645	730	130	90	F30	761
36"	900	241	710	805	140	100	F35	1073
40"	1000	300	770	870	150	110	F35	1463

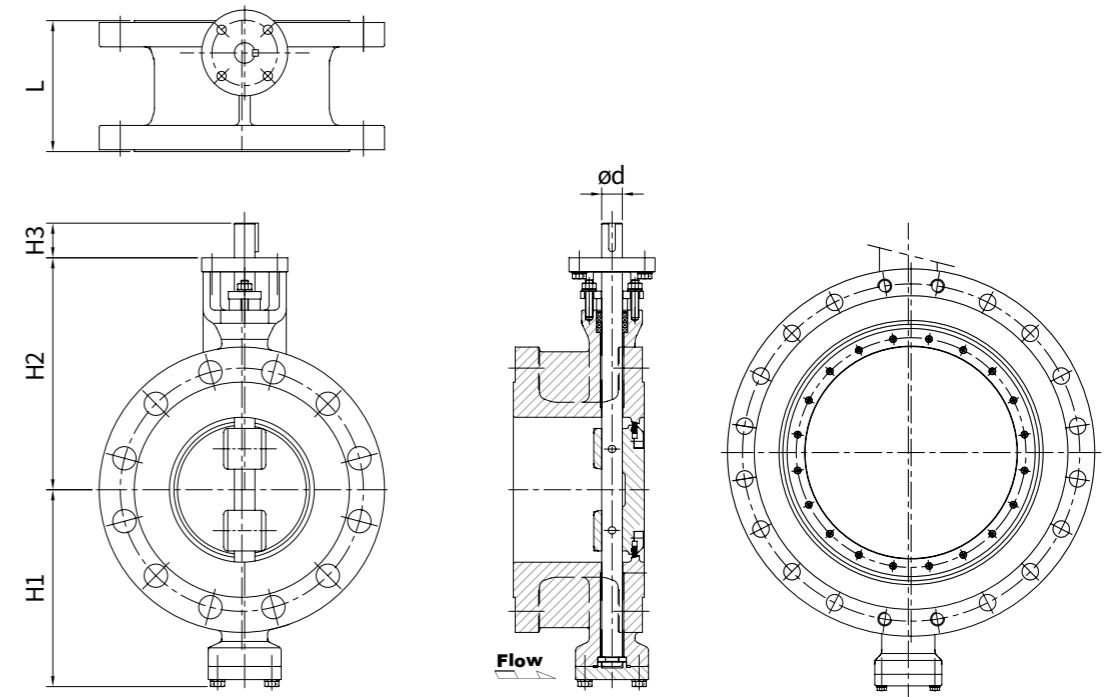
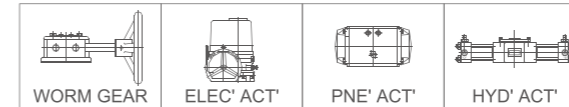
TR-SERIES Dimension Table

MODEL : TRLM (LUG)



DIMENSIONS		REFERENCE		UNIT : mm				WEIGHT (KG)
SIZE		L	H1	H2	H3	ød	TOP F/G (ISO 5211)	
inch	mm							
4"	100	54	160	195	35	16	F07	18
5"	125	57	185	225	35	19	F07	23
6"	150	57	200	235	50	22	F10	33
8"	200	64	230	280	50	28	F10	51
10"	250	71	295	320	50	32	F10	75
12"	300	81	315	385	70	38	F14	92
14"	350	92	350	405	70	45	F14	151
16"	400	102	380	455	90	50	F16	166
18"	450	114	415	500	90	55	F16	221
20"	500	127	460	535	100	65	F16	261
22"	550	154	500	550	100	65	F25	321
24"	600	154	530	585	100	65	F25	392
28"	700	229	600	650	120	80	F25	700
32"	800	241	645	730	130	90	F30	994
36"	900	241	710	805	140	100	F35	1393
40"	1000	300	770	870	150	110	F35	1794

MODEL : TRFM (FLANGE)



DIMENSIONS		REFERENCE		UNIT : mm				WEIGHT (KG)
SIZE		L	H1	H2	H3	ød	TOP F/G (ISO 5211)	
inch	mm							
4"	100	127	160	195	35	16	F07	32
5"	125	140	185	225	35	19	F07	43
6"	150	140	200	235	50	22	F10	51
8"	200	152	230	280	50	28	F10	74
10"	250	165	295	320	50	32	F10	100
12"	300	178	315	385	70	38	F14	142
14"	350	190	350	405	70	45	F14	179
16"	400	216	380	455	90	50	F16	258
18"	450	222	415	500	90	55	F16	295
20"	500	229	460	535	100	65	F16	371
22"	550	229	500	550	100	65	F25	474
24"	600	267	530	585	100	65	F25	549
28"	700	292	600	650	120	80	F25	791
32"	800	318	645	730	130	90	F30	1212
36"	900	330	710	805	140	100	F35	1560
40"	1000	410	770	870	150	110	F35	1987



WW - SERIES Water Works Butterfly Valve

Standard Compliance

- Conform to EN 593, BS 5155, AWWA C504 & AWWA C516 in general. And other standard are available upon request.
- Hard rubber lining on body & disc of valve is available to manufacture.

Production Range

- Size : DN 400 to DN 4000 (16 inch ~ 160 inch)
- Pressure : UP to 40 bar
- Temperature : -20°C ~ +160°C (Depends on soft seat)
- End connection : Double Flange

Connection Flange

- EN 1092 & ISO 7005 PN2.5, PN6, PN10, PN16, PN20, PN25, PN40
- ASME B16.5 CL.150, CL.300 / MSS SP 44 CL.150, CL.300
- AWWA C207 CL. D & E
- KS B 1511 & JIS B 2210 5K, 10K, 16K, 20K, 30K, 40K

Face to Face Dimension

- Conform to EN558, ISO 5752, BS5155, AWWA C504, AWWA C516

Application

- | | |
|----------------------|---------------------------|
| · Water Works | · Power Plant |
| · Sewage Plant | · Heating and Ventilation |
| · Desalination Plant | · Marine Dock Gate |
| · Air Conditioning | · Shipbuilding Industry |
| · Irrigation | · Gas Plant |

General Features

- Suitable for large size diameter valve.
- Bi-directional tight shut off.
- Two stems and bearing with self-lubrication, and operate with low torque.
- Simple seat replacement.
- The axis of disc rotation is double eccentric offset to the seat ring.
- When the disc rotates, it unseats at a small turning angle by this cam effect.
- Long life durability due to double offset operating principle minimizing seat wear.
- Not suitable for Fire Safety

Type Model Numbering

- Model WWFR · Water Works Eccentric FLANGE type Disc Rubber seat Butterfly Valve

Top Flange

- Top flange dimensions are in accordance with ISO 5211.

Testing

- Butterfly Valves are confirmed to BS 5155, AWWA C504, C516 & API 598

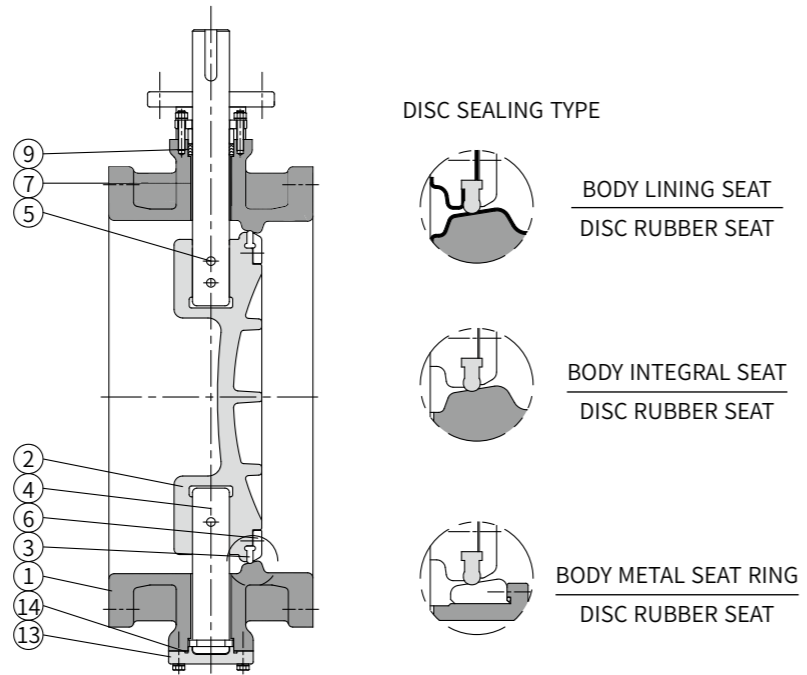
Operation

- Bare stem type
- Worm gear box
- Pneumatic actuator
- Electric motor actuator
- Hydraulic actuator



WW - SERIES Water Works Butterfly Valve

Construction of Materials

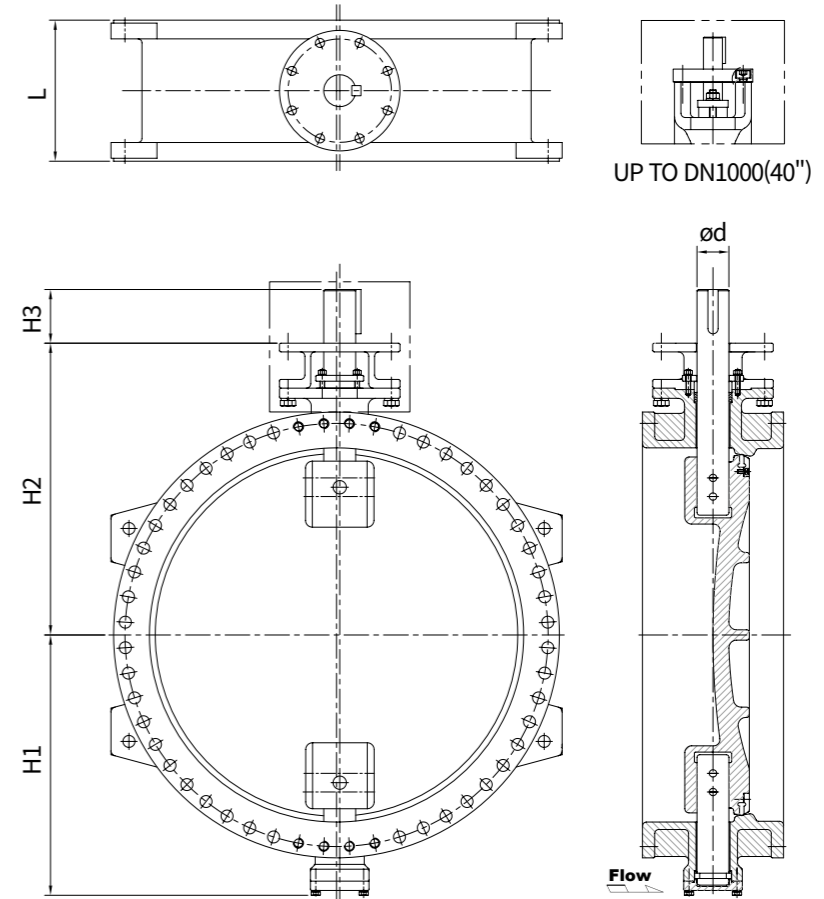
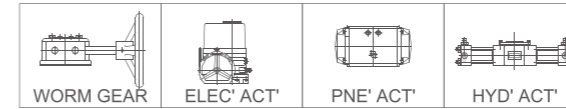


P.No.	PART NAME	(*) MATERIAL
1	BODY	DUCTILE IRON / CAST STEEL STAINLESS STEEL / ALLOY STEEL
		(**) INSIDE HARD RUBBER LINING
2	DISC	DUCTILE IRON / CAST STEEL STAINLESS STEEL / ALLOY STEEL
		(**) HARD RUBBER LINING
3	DISC SEAT	RUBBER (NBR / EPDM / VITON)
3M	OPTION - BODY SEAT	STAINLESS STEEL / ALLOY STEEL
4	STEM	STAINLESS STEEL / ALLOY STEEL
5	DISC PIN or BOLT	STAINLESS STEEL / ALLOY STEEL
6	RETAINER	STAINLESS STEEL / ALLOY STEEL
7	STEM BEARING	STAINLESS STEEL with TEFLON
9	PACKING	RUBBER
13	END COVER	STEEL / STAINLESS STEEL / ALLOY STEEL
14	COVER GASKET	RUBBER

* Other Material are available upon request

** LINING : SHORE "A" <95 ± 5>

MODEL : WWFR (FLANGE)



DIMENSIONS				REFERENCE			UNIT : mm		WEIGHT (KG)
SIZE		L		H1	H2	H3	ød	TOP F/G (ISO 5211)	
inch	mm	AWWA C504	BS5155(SHORT)						
16"	400	203	216	380	455	90	50	F16	255
20"	500	203	229	460	535	100	35	F16	360
24"	600	203	267	530	585	100	65	F25	485
28"	700	305	292	600	650	120	80	F25	890
32"	800	305	318	645	730	130	90	F30	1260
36"	900	305	330	710	805	140	100	F35	1590
40"	1000	305	410	770	870	150	110	F35	1970
44"	1100	305	410	880	1000	160	120	F35	2900
48"	1200	381	470	910	1070	170	130	F35	3610
52"	1300	381	530	1010	1140	180	140	F40	4550
56"	1400	381	530	1040	1230	180	150	F40	5370
60"	1500	381	530	1110	1245	190	160	F40	6260
84"	2100	457(*)	610(*)	1550	1700	220	190	F60	9020
120"	3000	660(*)	813(*)	2100	2300	280	250	F80	21500
144"	3600	813(*)	965(*)	2500	2700	330	300	F80	34000

(*) AWWA C516 LAYING LENGTH. (Min. & Max)



LT - SERIES

Cryogenic (LNG) Butterfly Valve

Standard compliance

- Conform BS 6364 valve for cryogenic service
- Fire Safe requirement meets BS 6755 part 2 / API6FA and API Std 607

Production Range

- Size : DN 80 to DN 1000 (3 inch ~ 40 inch)
- Pressure : UP to 50 bar
- Temperature : -196°C ~ +250°C
- End connection : Double Flange, Butt-Welding

Connection Flange & Butt-welding

- EN 1092 & ISO 7005 PN2.5, PN6, PN10, PN16, PN20, PN25, PN40
- ASME B16.5 CL.150, CL.300 / MSS SP 44 CL.150, CL.300
- AWWA C207 CL. D & E
- KS B 1511 & JIS B 2210 5K, 10K, 16K, 20K, 30K, 40K
- ASME B16.25 Butt-Welding Bevel Design

Application

- LNG/LPG/LEG
- Gas carrier
- Liquefied oxygen plant
- LNG terminal

Top flange

- Top flange dimensions are in accordance with ISO 5211.



General Features

- Cryogenic butterfly valves are widely used throughout the world, LNG/LPG/LEG, Gas carriers, Liquefied oxygen plant, LNG terminals and temperatures as low as -196°C.
- Double Eccentric Design / Side Entry / Top Entry
- Bi-directional
- Metal seat
- Fire safety seat
- Bonnet extension

Testing

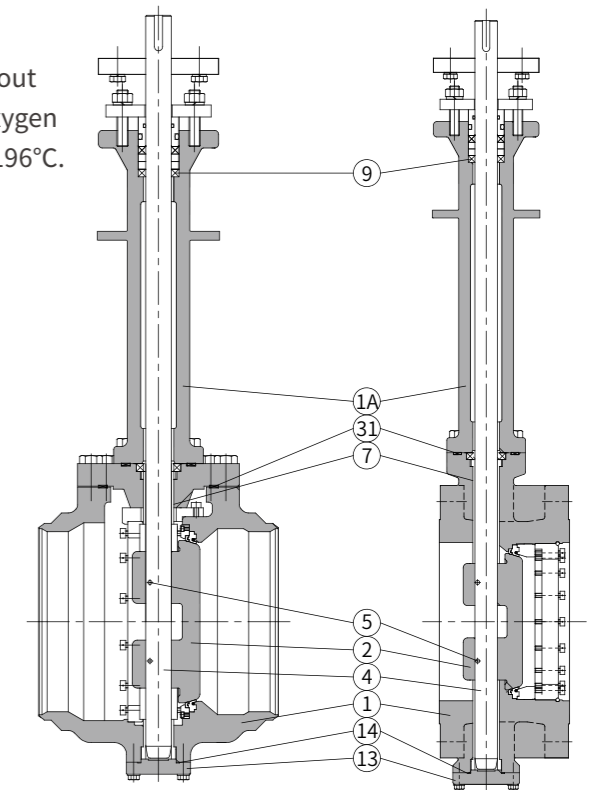
- Butterfly Valves are confirmed to BS 6364 & API 598

Operation

- Bare stem type
- Worm gear box
- Pneumatic actuator
- Electric motor actuator
- Hydraulic actuator

Construction of Materials

P.No.	PART NAME	MATERIAL
1	BODY	STAINLESS STEEL
1A	BONNET	STAINLESS STEEL
2	DISC	STAINLESS STEEL
4	STEM	STAINLESS STEEL
5	DISC PIN or BOLT	STAINLESS STEEL
7	STEM BEARING	STAINLESS STEEL with TEFLON
9	PACKING	TEFLON+GRAPHITE
13	END COVER	STAINLESS STEEL
14	COVER GASKET	SPIRAL WOUND / VALFLON TEFLON
31	BONNET GASKET	SPIRAL WOUND / VALFLON TEFLON





LP-SERIES LPG Butterfly Valve

Standard compliance

- Conform API 609 CATEGORY 'B' & ASME B16.34
- Fire Safe requirement meets BS 6755 part 2 / API Std 607

Production Range

- Size : DN 50 to DN 1000 (2 inch ~ 40 inch)
- Pressure : UP to 50 bar
- Temperature : -80°C ~ +200°C
- End connection : Wafer, Lug, Double Flange

Connection Flange

- EN 1092 & ISO 7005 PN2.5, PN6, PN10, PN16, PN20, PN25, PN40
- ASME B16.5 CL.150, CL.300 / MSS SP 44 CL.150, CL.300
- AWWA C207 CL. D & E
- KS B 1511 & JIS B 2210 5K, 10K, 16K, 20K, 30K, 40K

Application

- LPG/LEG
- Gas carrier
- Chemical
- Receiving terminal

Top flange

- Top flange dimensions are in accordance with ISO 5211.

General Features

- LPG butterfly valves are widely used throughout the world, LPG/LEG, Gas carriers, Chemical, Receiving terminals and temperatures as low as -80°C.
- Double Eccentric Design.
- Bi-directional
- Fire safety seat.

Testing

- Butterfly Valves are confirmed to API 598

Operation

- Bare stem type
- Worm gear box
- Pneumatic actuator
- Electric motor actuator
- Hydraulic actuator

Construction of Materials

P.No.	PART NAME	MATERIAL
1	BODY	STAINLESS STEEL / ALLOY STEEL
2	DISC	STAINLESS STEEL / ALLOY STEEL
3	FIRE SAFETY SEAT	STAINLESS STEEL + TEFLON (PTFE/RTFE)
4	STEM	STAINLESS STEEL / ALLOY STEEL
5	DISC PIN or BOLT	STAINLESS STEEL / ALLOY STEEL
7	STEM BEARING	STAINLESS STEEL with TEFLON
9	PACKING	TEFLON / GRAPHITE
13	END COVER	STAINLESS STEEL / ALLOY STEEL
14	COVER GASKET	TEFLON / GRAPHITE

