



## RESILIENT SEATED ISO BUTTERFLY VALVES

# ISO SERIES

Butterfly Valves Designed for Direct Mount Automation

Models:

Wafer Type 51I

Lug Type 52I

Size Range

1 1/2" thru 48"

Pressure Rating

1 1/2"-12": 200 WOG

14" - 24": 175 WOG

ISO 5211



- Ease of Automation
- Low Torque Operation
- Wafer Body Features Four Alignment Lugs
- Phenolic Backed Catridge Seats
- 2PC Stem Design

- High Flow Capacity
- High Quality Body Coating for Excellent Corrosion Resistance
- 10 Position Locking Handle 1.5"-8"
- Field Repairable

Max-Seal Concentric Butterfly Valves are backed by the resources and experience of over thirty five years of process valve and automation experience.

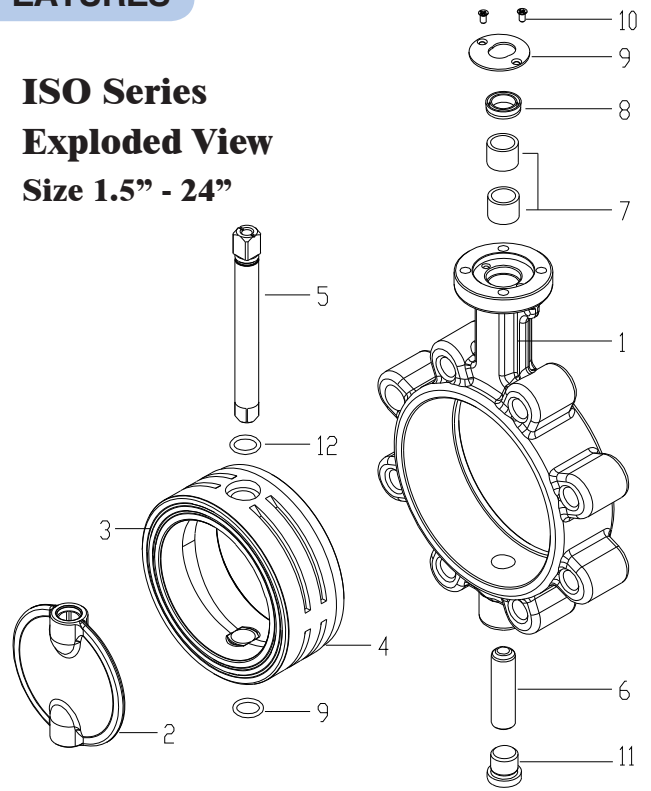
[www.maxsealinc.com](http://www.maxsealinc.com)

# BUTTERFLY VALVE - COMPONENTS/DESIGN FEATURES

## STANDARD PARTS LIST

No	Part Name	Material	Code
1	Body	Ductile Iron	DI
		Cast Iron	CI
2	Disc	Stainless 316 CF8M	SS
		Ductile Iron	DI
		Stainless 304 CF8	S4
		Aluminum Bronze	AB
3	Seat	Buna N (NBR)	N
		EPDM	E
		Viton	V
		PTFE	T
4	Seat Back Up	Phenolic	
5	Upper Shaft	SS420	S2
6	Lower Shaft	SS420	S2
7	Bushing	RPTFE + Graphite	RG
8	Lip Seal	Same as Seat	
9	Lock Plate	Stainless Steel	
10	Screw	SS304	
11	Plug	Steel Zinc Plated	CS
12	O - Ring	Same as Seat	

## ISO Series Exploded View Size 1.5" - 24"



## FEATURES:

One piece body with long neck allows clearance for flanges and easy insulation.

Primary stem seals are formed by preloaded contact between the disc and seat. A secondary seal is effected by having a stem diameter greater than the stem hole in resilient seat. These seals provide a non-wetted body and stem, eliminating the need for corrosion resistant body material.

Field replaceable, phenolic bonded cartridge is blowout proof, stretch resistant and non-collapsible, making it an ideal seat design for high velocity or vacuum service. Our resilient seat design eliminates the need for flange gaskets.

Valve sizes 28" & above are supplied with metal seat back up rings.

**Unique Design for Extreme Pressure Application**

Retaining Step machined in valve body prevents a possible seat blow out under extreme pressures

High strength, square drive (1.5" - 24") ensures a positive shaft to disc connection.  
 Square drive offers direct ISO mounting of gear operator and automation equipment.  
 Disc floats inside the seat for positive sealing and extended seat life.  
 No pins or bolts exposed to flow.  
 A lock plate and two screws mechanically retain the shaft in the body ensuring a blow out proof stem design.

## MAX SEAL PERFORMANCE SERIES BUTTERFLY VALVE MODEL NUMBER CODES

Model	Body Material		Disc Material		Stem Material		Seat Material		Operator		Size	
Wafer-511	Ductile Iron	DI	Ductile Iron	DI	Stainless 420	S6	EPDM	E	Lever	L	2	50
	Cast Iron	CI	Stainless 316	SS	Stainless 316	SS	NBR	N	Gear	G	3	80
	Stainless Steel	SS	Stainless 304	S4	Stainless 410	S0	VITON	V	Bare stem	N	4	100
Lug-521						S7	TEFLON	T	Actuator	A	6	150
											8	200
											10	250

## ORDERING EXAMPLE BY PART NUMBER

Wafer	Ductile Iron	Stainless 316	Stainless 420	EPDM	Lever	4"
Model	Body	Disc	Stem	Seat	Operator	Size
511	- DI	- SS	- SS	- E	- L	- 100

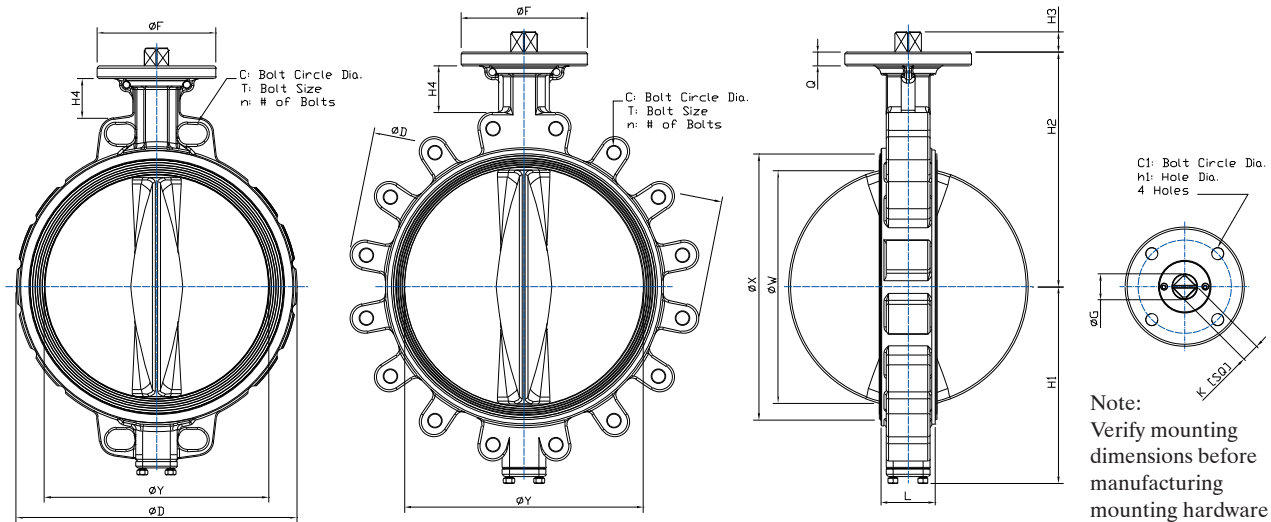
## Performance / Design

Accurate and smooth machined profile of disc edge requires minimal deformation of the resilient elastomer liner to achieve a positive seal. The low deformation results in low torque, less wear of the seat liner and increased operational life.

Max-Seal ISO Series Valves Are Bidirectionally Bubble Tight. They Are Marked With An Arrow Indicating The Preferred High Pressure Side

**DIMENSIONS / TECHNICAL DATA**

**ISO Series**



Note:  
Verify mounting dimensions before manufacturing mounting hardware

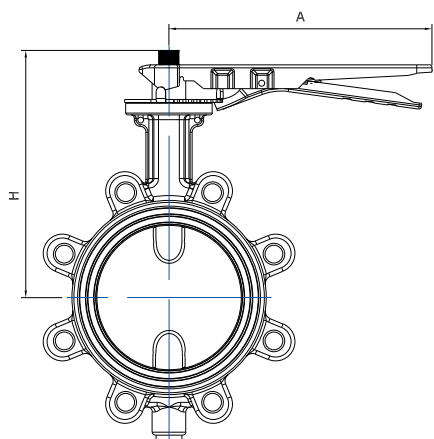
**ANSI Class 125 Concentric Butterfly Valves**

Size	D		F	G	H1	H2	H3	H4		K	L	Q	W	X	Y	Flange Dimension			Mounting Base			Weight Lbs	
	51I	52I						51I	52I							C	T	n	C1	h1	ISO	51I	52I
2"	3.96	4.84	2.56	0.48	2.99	4.96	0.53	1.77	2.16	0.354	1.69	0.39	1.17	3.33	2.08	4.75	5/8-11unc	4	1.97	0.30	F05	4.4	7.3
2.5"	4.53	5.39	2.56	0.56	3.23	5.28	0.53	1.68	2.19	0.433	1.81	0.39	1.69	3.80	2.50	5.50	5/8-11unc	4	1.97	0.30	F05	5.7	9.0
3"	5.03	7.09	2.56	0.56	3.76	5.43	0.53	2.23	3.02	0.433	1.81	0.39	2.60	4.29	3.15	6.00	5/8-11unc	4	1.97	0.30	F05	7.1	10.8
4"	6.14	7.83	2.56	0.56	4.47	6.57	0.53	1.98	1.97	0.433	2.05	0.39	3.31	5.37	3.90	7.50	5/8-11unc	8	1.97	0.30	F05	10.1	18.5
5"	7.48	8.90	3.54	0.71	5.08	7.09	0.69	1.72	2.12	0.55	2.20	0.51	4.50	6.65	4.99	8.50	3/4-10unc	8	2.76	0.39	F07	14.1	19.2
6"	8.43	10.31	3.54	0.71	5.59	7.99	0.69	1.73	2.33	0.55	2.20	0.51	5.60	7.48	5.95	9.50	3/4-10unc	8	2.76	0.39	F07	16.8	24.5
8"	10.55	12.40	3.54	0.87	6.77	8.98	0.81	1.78	2.19	0.67	2.36	0.51	7.46	9.53	7.78	11.75	3/4-10unc	8	2.76	0.39	F07	26.7	39.0
10"	12.76	14.96	4.92	1.11	8.39	10.47	0.96	1.81	2.05	0.87	2.68	0.59	9.39	11.65	9.72	14.25	7/8-9unc	12	4.02	0.47	F10	40	67.5
12"	14.84	16.89	4.92	1.11	9.53	11.46	0.96	1.65	1.72	0.87	3.07	0.59	11.35	13.65	11.73	17.00	7/8-9unc	12	4.02	0.47	F10	57.3	97.7
14"	16.21	19.41	5.91	1.43	10.16	13.07	1.18	2.19	2.61	1.06	3.07	0.67	12.94	15.00	13.35	18.75	1-8unc	12	4.92	0.55	F12	88.2	128
16"	18.55	21.89	5.91	1.43	11.87	14.29	1.18	2.01	1.97	1.06	4.02	0.67	14.75	17.25	15.26	21.25	1-8unc	16	4.92	0.55	F12	123.5	192
18"	20.79	25.08	6.89	1.43	12.70	15.63	1.54	2.16	2.13	1.06	4.49	0.83	16.71	19.24	17.24	22.75	1 1/8-7unc	16	5.51	0.71	F14	174.2	240.3
20"	22.85	27.80	6.89	1.90	14.00	16.73	1.93	1.98	1.87	1.42	5.00	0.83	18.65	21.25	19.24	25.00	1 1/8-7unc	20	5.51	0.71	F14	211.6	293.2
24"	27.08	32.72	8.27	1.90	16.40	19.61	1.93	2.40	2.10	1.42	6.06	0.98	22.51	25.26	23.19	29.50	1 1/4-7unc	20	6.50	0.87	F16	359.4	527.8

- Larger sizes available through 120", consult factory
- **Pressure Ratings:**  
1.5"-6" 230 psi; 8"-24" 150 psi
- Lug Body for Dead End Service:  
1.5"-6", 150 psi; 8"-24" 125 psi
- Higher Pressure Option:  
280 WOG, Sizes 2" - 6"; 230 or 280 WOG, Sizes 8" - 24" with disc modification & 17-4Ph stem
- Vacuum Service up to 28" Hg
- Max-Seal valves are designed for bubble tight shutoff in either direction of flow. Each valve is factory tested to 110% of their pressure rating.
- Blow out proof stem design
- A heavy duty butterfly valve, designed for ANSI Class 125/150 flanges. These valves comply with MSS-SP25, MSS-SP67 & the requirements of MIL-V-22133C (ship) Type 1, Class A-D
- Valve sizes up to 16" meet API 609; Sizes 18" - 24" meet API 609 also with fine thread drilling
- Positive Valve Position: When the handle is perpendicular to the pipe, the valve is shut. When the handle is parallel to the pipe, the valve is fully open. The orientation of the disc is indicated by a groove at the shaft end that is in line with the disc.

Max-Seal ISO Series offers longer service life, greater reliability, ease of parts replacement and interchangeability of components.

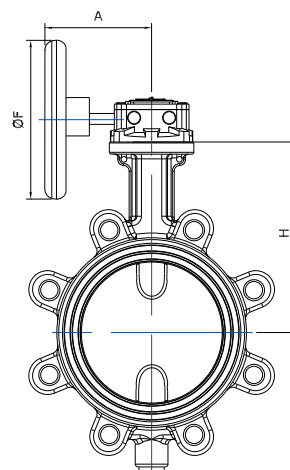
## HANDLE AND GEAR OPERATOR DIMENSIONS



### ISO Series



### Die Cast Alluminum Handles



#### Lever-Lock 10 Position Type Handle

SIZE	2"	2.5"	3"	4"	5"	6"	8"	10"	12"
H	6.44	6.75	6.91	8.05	8.68	9.59	10.57	12.32	13.31
A	8.66	8.66	8.66	8.66	10.24	10.24	10.24	14.57	14.57

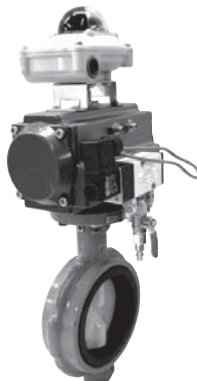
#### Gear Operator

SIZE	2"	2.5"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
H	5.98	6.30	6.46	7.64	8.15	9.06	10.47	11.97	12.95	14.72	16.26	17.60	18.70	21.57
F	3.94	3.94	3.94	4.72	4.72	4.72	11.81	11.81	11.81	11.81	15.75	19.69	19.69	19.69
A	3.90	3.90	3.90	4.53	4.53	4.53	8.66	8.66	8.66	8.15	10.91	14.06	14.06	15.04

## VALVE FLOW COEFFICIENTS & TECHNICAL DATA

### SEAT TEMPERATURE RANGE

Material	Temperature Range
EPDM-H	5° to 245°F
NBR	15° to 175°F
Natural Rubber	-20° to 175°F
Hypalon	-4° to 165°F
Silicone	-40° to 335°F
FPM	-4° to 335°F
PTFE	-40° to 355°F



### Max-Seal Valves Are Ideally Suited for Actuated Applications

#### ACTUATOR MOUNTING

Max-Seal Offers A broad line of automation systems for precise proportioning or on-off control in either pneumatic or electrically powered units.

Cast mounting flange conforms with ISO 5211. Many actuator sizes can be directly mounted to valve top flange without the need of a bracket

### MAX SEAL Models 51I, 52I Cv Value

SIZE		Angle of Opening								
Inch	mm	10°	20°	30°	40°	50°	60°	70°	80°	90°
1 1/2	40	1	1	5	14	20	37	53	62	72
2	50	1	1	6	16	34	55	83	114	125
2 1/2	65	1	2	13	32	58	90	142	200	249
3	80	4	7	33	63	106	163	249	351	471
4	100	6	16	67	126	204	306	471	693	932
5	125	7	32	98	182	289	449	728	1113	1446
6	150	8	60	151	261	424	668	1140	1791	2251
8	200	26	133	267	468	746	1188	2048	3361	4066
10	250	39	200	390	740	1132	1786	3093	5138	6714
12	300	57	292	572	1079	1652	2604	4510	7750	10302
14	350	138	351	736	1320	2238	3596	5792	10368	12029
16	400	179	459	962	1725	2925	4696	7564	13541	15712
18	450	228	581	1217	2183	3699	5944	9581	17139	19887
20	500	280	718	1503	2695	4566	7337	11819	21158	24551
24	600	403	1033	2162	3881	6576	10566	17020	30469	35354

### ISO Series Torque Value

These wet seating valve torques are figured for wet service defined as lubricated with clean non-abrasive line media

SIZE		Pressure Differential				
Inch	mm	0 psi	50 psi	100 psi	150 psi	200 psi
1 1/2	40	97	97	106	115	124
2	50	106	106	115	124	133
2 1/2	65	159	177	186	195	204
3	80	212	230	248	265	283
4	100	327	372	389	407	425
5	125	522	602	628	655	681
6	150	841	841	885	929	973
8	200	1239	1268	1332	1416	
10	250	2212	2301	2345	2748	
12	300	2566	2655	2743	2848	
14	350	5398	5929	6991	7611	
16	350	6637	7788	8407	10177	
18	450	7611	8407	10177	11504	
20	500	19956	20885	21770	22655	
24	600	27434	30000	32301	35398	



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