SUNGO
Since 1980

How to order

Figure Number

12	MB	1	W	3	WCB	221
①	②	③	④	⑤	⑥	⑦

Sungovalve figure number are designed to cover essential feature.When ordering, please show the figure number to avoid misunderstanding of your requirements. However a detailed description must accompany with any special orders.

① Valve Size

02=2"	(DN50)	12=12"	(DN300)
2.5=2-1/2"	(DN65)	14=14"	(DN350)
03=3"	(DN80)	16=16"	(DN400)
04=4"	(DN100)	18=18"	(DN450)
05=5"	(DN125)	20=20"	(DN500)
06=6"	(DN150)	24=24"	(DN600)
08=8"	(DN200)	30=30"	(DN750)
10=10"	(DN250)	36=36"	(DN900)

② Butterfly Valve Type

Symbol	Type
SB	Soft Seated Concetric Butterfly Valve
MB	Metal Seated Triple offset Butterfly Valve

③ ANSI Class

Code	0	1	3	8	9	15
Class(LB)	125	150	300	300	900	1500

④ End Connection

Symbol	Type
R	Raise face flanged end
B	Butt-welding End
W	Wafer
L	Lug

⑤ Operator

0	Bare shaft
1	Lever handle(by lock)
3	Gear operator
6	Pneumatic actuator
7	Hdraulic actuator
9	Electric actuator

⑥ Shell Material

Material	ASTM Ref
C.I (Cast Iron)	A126-B
D.I (Ductile Iron)	A399-80-45-10
WCB	A216 Grade WCB
LCB	A352 Grade LCB
LCC	A352 Grade LCC
CF8M	A351 Grade CF8M
CF8	A351 Grade CF8
CF3M	A351 Grade CF3M
CF3	A351 Grade CF3
CN7M (Alloy 20)	A351 Grade CN7M

⑦ Trim Code

First Number		Second Number			Third Number		
Stem			Disc (SB series)	Seat (MB series)		Seat (SB series)	Disc Seal (MB series)
Code	Material	Code	Material	Material	Code	Material	Material
1	416ss	1	A339-80-45-10		1	EPDM	
2	F304	2	CF8	F304	2	NBR	
3	F316	3	CF8M	F316	3		
4	MONEL K500	4	MONEL	B127-61	4	VITON	
5	17-4PH	5	B148 C95200	B148 C95200	5	PTFE	Stainless+PTFE
6	F6a	6	WCB		6	NEOPRENE	
7	B148 C95200	7	CA15	F6a	7	HYPALON	
8	F316L	8			8		Stainless+Graphite
		9		EDCoCr-A			

Ser ies MB Butterfly Valve

Design Feature

Industrial valves normally require wider temperature and pressure ranges, which conventional resilient seated butterfly valve can not comply, this have led to development of metal seated butterfly valve. SUNGO MB series butterfly valve is triple off-set design which has a advantage of light weight, compact design and cost effective and low operation torque and can replace traditional gate, globe & ball valve in most of industries application.







Products Range

Size:	3" ~ 48"
Rating:	ANSI 150lb ~ 300lb
Temperature Range:	-196°C ~ +550°C
Body Materials:	Cast steel, Stainless steel, Alloy steel
	Duplex steel.
Disc Sealing:	PTFE, Graphite laminated
End Connection:	Wafer, Lug, Double Flange

Typical application:

- Petrochemical plant
- Refinery
- Offshore platform
- Power plant
- LNG
- Steel Mills







SUNGO MB series butterfly valve is true metal to metal seated design,featured with quarter turn, bi-directional & zero leakage. Because of no Teflon, Viton or other soft seal material used, it is inherently fire safe and can completely eliminate the traditional elastomeric seating butterfly valve leakage problem due to seat aging or deformation, consequently wear. Wide range of available body material selection make this series of valve not only good for isolation service but also ideal for most of process and control application.

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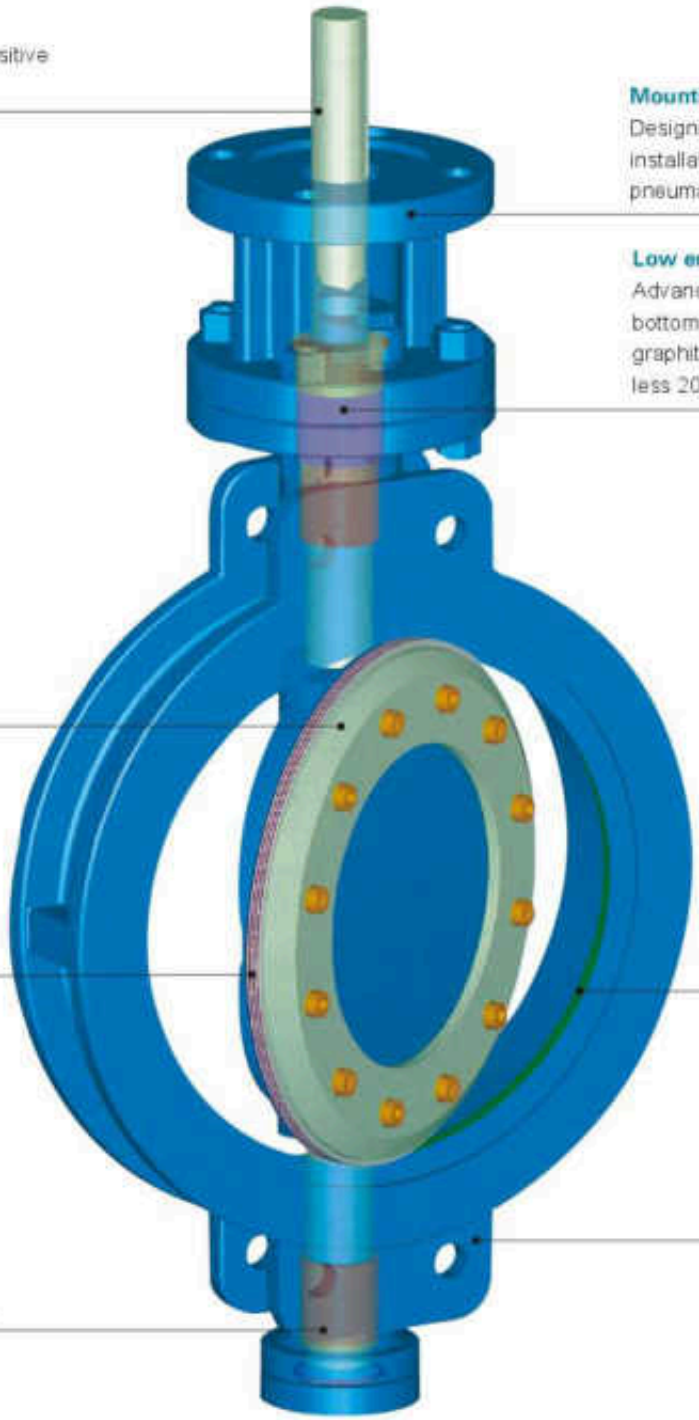
Series MB Butterfly Valve

Design Feature

One-Piece shaft
Anti-blowout proof design,provide positive maximum strength.

Mounting pad
Designed per ISO 5211, easily installation of hand levers, gear box, pneumatic or electric actuators.

Low emission packing
Advanced braided (top and bottom) plus 3~4 dieformed graphite packing rings ensure less 20ppm on fugitive emission



Disc seat design
Allows field replaceable without special tools.

Laminated Seal
PTFE or Graphite plus metal layers; provide an elastic tight seal. Also fire-safe is assured.

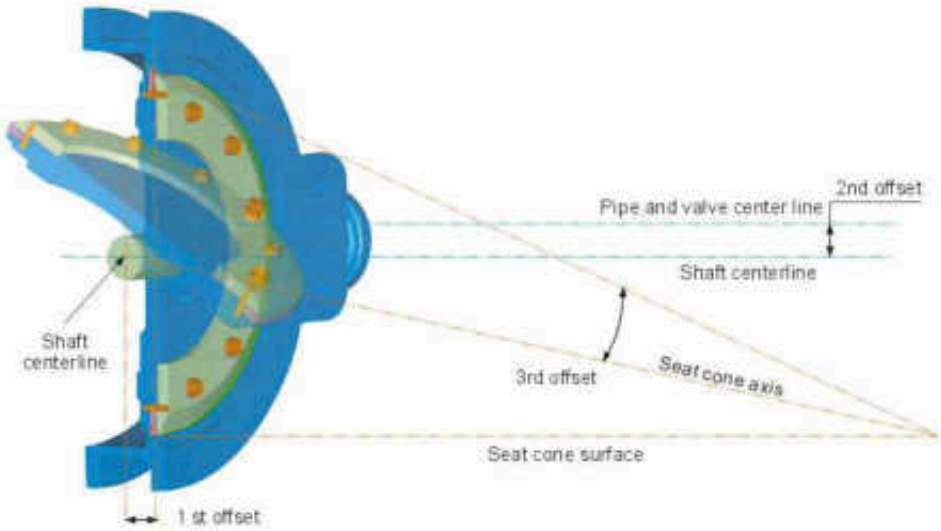
Stellited seat (optional)
Integral hardfaced, provide longer valve life and less maintenance.

Rigid body structure
Available in wafer, lug or double flange connection and various material range. Temperature range: -196℃~550℃

Long-length bearing
Fine-machined and hardened (Nickel-plated) to reduce the stem friction and ensure lower torque.

Series MB Butterfly Valve

Design Feature

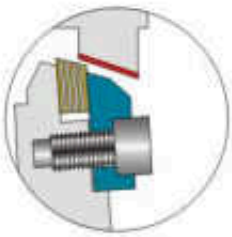


Triple Offset Frictionless Design

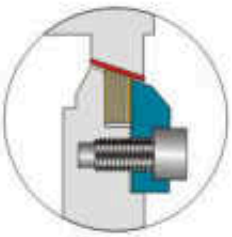
1st offset: Shaft rotation center is offset from the centerline of valve seat, provide a completed sealing contact between discand seat.

2nd offset: Shaft rotation center is offset from centerline of valve body, greatly reduce the friction between disc and seat during valve closing and opening.

3rd offset: Seat cone center is offset from the valve centerline, completely eliminate the mechanical friction between disc and seat. It is a torque seated, process pressureaided frictionless seal valve, ideally suitable for metal seated valves on high temperature, high pressure and firesafe application.



Before seating



After seating



Internally retained



Externally retained

Laminated Disc Seal

Laminated sealing is mounted in the disc, easily for maintenance and replacement. It consists of 3~5 flexible graphite or PTFE layers self adhere with fine machined stainless seal ring,no need traditional phenol resin adhere joint. There is a reasonable clearance between disc seal and disc, provide a floating resilient seal and self centering tight seal both in low & high temperature application. Conical angle & streamline profile of this laminated disc is optimized by computer finite element analysis to eliminate any potential jamming as well as give a greater Cv.

Anti-blowout shaft

Internally & Externally retained, double times blowout proof stem design per API 609.

Internal: Lower end shaft is grooved with Hemicycle Ring, prevent stem blowout.

External: Shaft is designed with an integral collar and was blowout prevented by gland follower.

Inherent Fire Safe

SUNGO triple offset butterfly valves are all metal construction and sealing, it is inherently fire safe design. Fire safe tests to API 607 were successfully performed in SUNGO Research & Development laboratory.

Series MB Butterfly Valve

Design Feature

Low Emission Shaft Seal

SUNGO standard emission control is 20 PPM

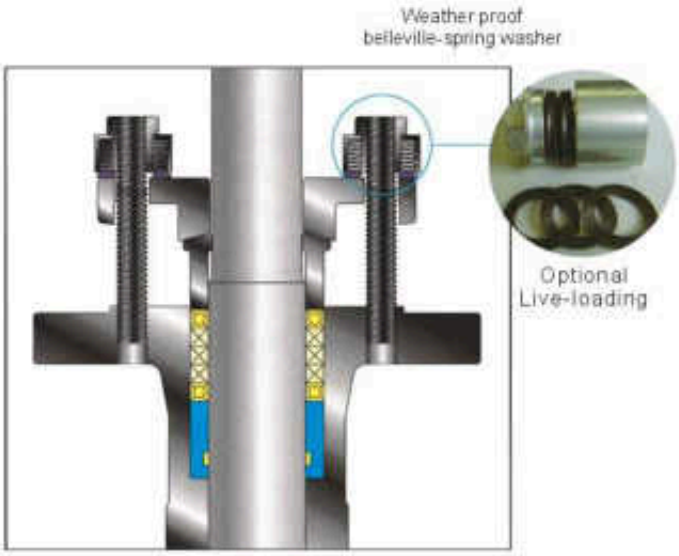
a.) Shaft is fully guided by shaft bearing & gland follower to avoid any side jiggle due to line pressure thrust.

b.) The packing set is pre-compressed and is a combination of braided graphite rings top and bottom with die formed flexible graphite rings between.

c.) Controlled shaft & stuffing box finish with Ra0.4~Ra0.8 on shaft and Ra3.2 on stuffing box which allow a better holding of packing ring and results in a better shaft sealing performance.

d.) Optional Live Loaded gland flange is available for providing constant packing compresion to reduce fugitive emission from shaft seal.

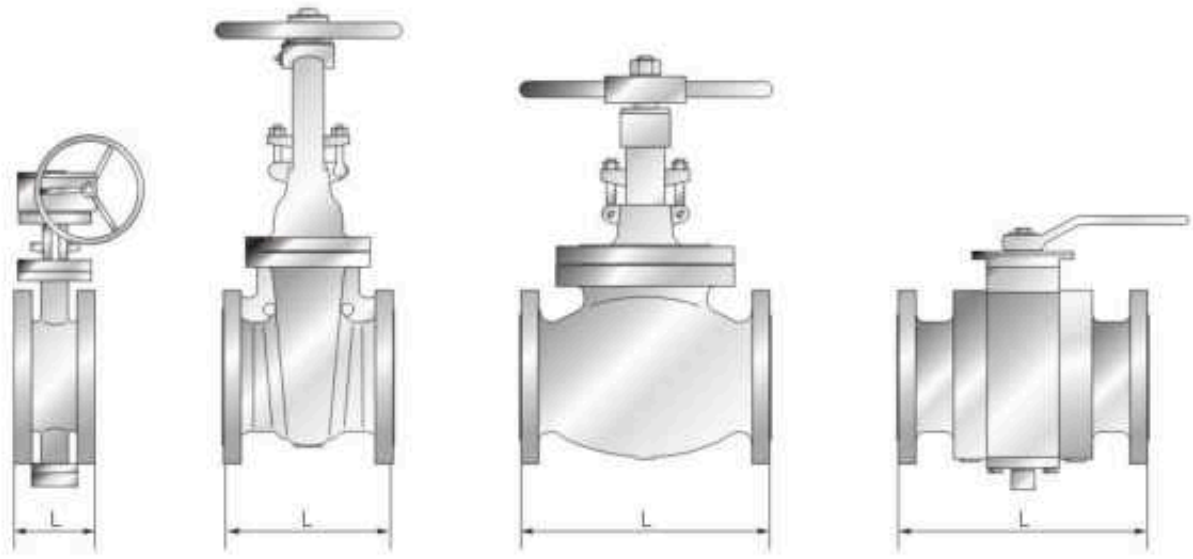
e.) Optional shaft seal design per Shell MESC 77/312 & TA-Luft is also available upon request.



Compact & light Design

SUNGO series MB butterfly valve was designed per API 609, due to its compact & light design. It is an economical replacement for gate, globe and ball valves. Below is a comparison table based on a SUNGO design 6" valve.

	150LB				300LB			
	Butterfly	Gate	Globe	Ball	Butterfly	Gate	Globe	Ball
Face to Face (mm)	140	267	406	394	140	403	445	403
Approximate Weight (kg)	39	77	100	101	62	130	165	128

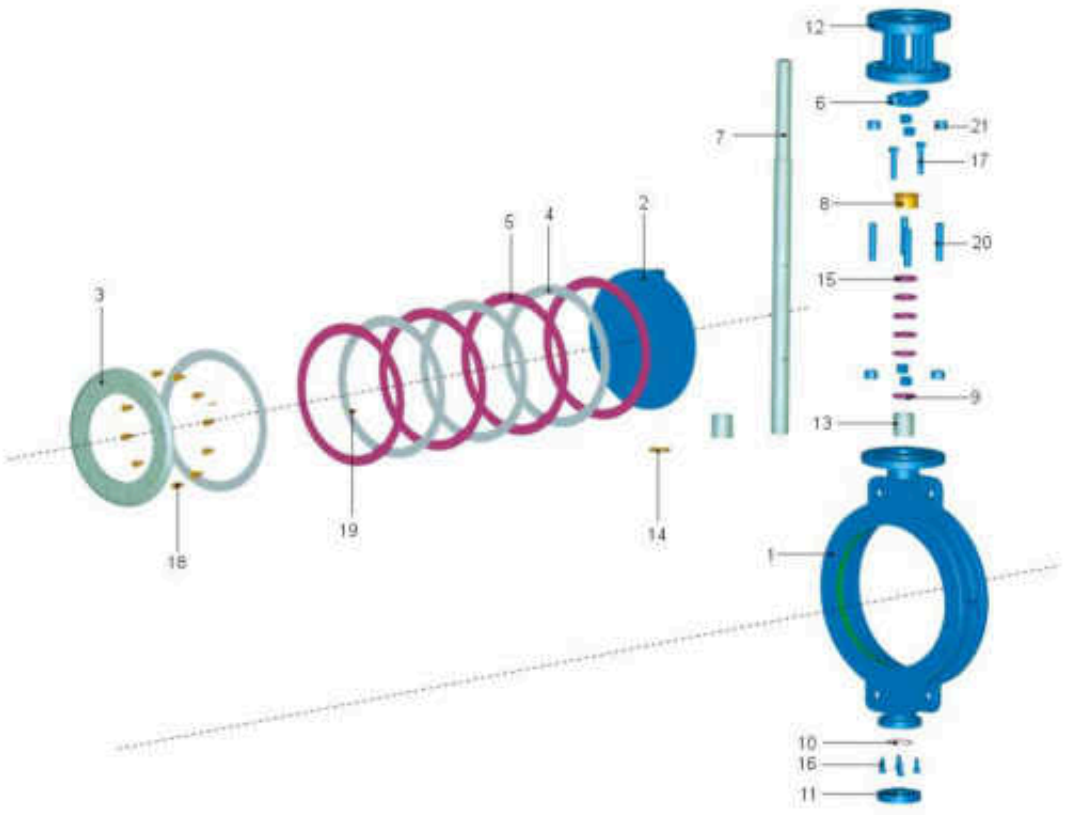


Butterfly Gate Globe Ball

Series MB Butterfly Valve

Material Specifications

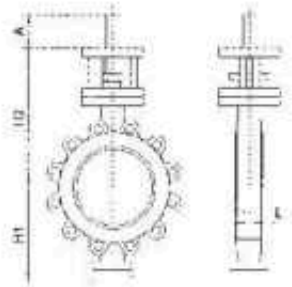
No	Part	Standard	Stainless steel
1	Body	ASTM A216-WCB/316 overlay	ASTM A351-CF8M
2	Disc	ASTM A216-WCB	ASTM A351-CF8M
3	Disc Retaining Ring	ASTM A182-F316	ASTM A182-F316
4	Steel Seat Ring	ASTM A182-F316	ASTM A182-F316
5	Seal Ring	Graphite/PTFE	Graphite/PTFE
6	Gland Flange	ASTM A216-WCB	ASTM A351-CF8
7	Shaft	ASTM A182-F316	ASTM A182-F316
8	Gland	ASTM A182-F316	ASTM A182-F316
9	Spacer Ring	ASTM A182-F316	ASTM A182-F316
10	Gasket	316SS+Graphite	316SS+Graphite
11	End Cover	ASTM A105	ASTM A182-F316
12	Yoke	ASTM A216-WCB	ASTM A351-CF8M
13	Bearing	ASTM A182-F316/Cr plated	ASTM A182-F316/Cr plated
14	Hemicycle Ring	ASTM A182-F316	ASTM A182-F316
15	Packing	Graphite/PTFE	Graphite/PTFE
16	Screw	ASTM A193-B7	ASTM A193-B8
17	Gland bolt	ASTM A193-B7	ASTM A193-B8
18	Disc Screw	S.S.	S.S.
19	Disc Pin	S.S.	S.S.
20	Body Stud	ASTM A193-B7	ASTM A193-B8
21	Body Nut	ASTM A194-2H	ASTM A194-8



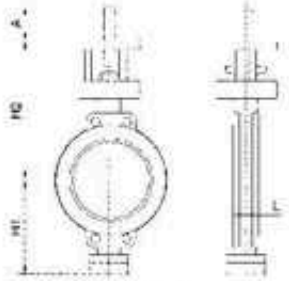
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Series MB Butterfly Valve

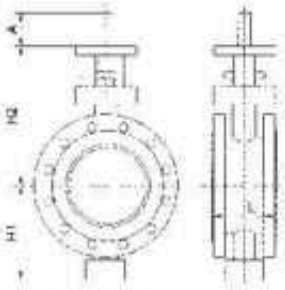
Dimensions & Weights



Lug type



Wafer type



Double Flanged Type

Class 150-ISO PN20 (PN6, PN10, PN16) — Dimensions (mm)

Valves Size		H1	H2	A	L			Approximate Weight (kg)		
inch	mm				Lug	Wafer	Flanged (Short pattern)	Lug	Wafer	Flanged
3"	80	157	239	45	48	48	114	17	15	22
4"	100	179	280	45	54	54	127	19	17	25
6"	150	194	310	45	57	57	140	30	27	39
8"	200	230	330	75	64	64	152	37	33	48
10"	250	280	380	80	71	71	165	50	45	65
12"	300	310	450	100	81	81	178	81	69	100
14"	350	340	500	110	92	92	190	96	86	125
16"	400	365	510	110	102	102	216	137	122	177
18"	450	436	640	135	114	114	222	158	141	205
20"	500	450	660	150	127	127	229	214	191	277
24"	600	530	820	170	154	154	267	291	260	377
28"	700	600	903	170	165	165	292	426	380	551
30"	750	630	930	170	190	190	318	616	550	798
32"	800	696	967	175	190	190	318	728	650	943
36"	900	760	1105	175	203	203	330	930	830	1204
40"	1000	830	1175	175	216	216	410	1176	1050	1523
42"	1050	860	1210	175	229	229	410	1344	1200	1740
48"	1200	960	1320	200	254	254	470	1568	1400	2030

Class 300-ISO PN50 (PN25, PN40) — Dimensions (mm)

Valves Size		H1	H2	A	L				Approximate Weight (kg)			
inch	mm				Lug	Wafer	Flanged (Short pattern I)	Flanged (Short pattern II)	Lug	Wafer	Flanged (Short pattern I)	Flanged (Short pattern II)
3"	80	157	239	45	48	48	114	180	18	16	23	30
4"	100	179	280	45	54	54	127	190	20	18	26	34
6"	150	220	356	60	59	59	140	210	37	33	48	62
8"	200	260	420	80	73	73	152	230	52	46	67	87
10"	250	310	430	90	83	83	165	250	71	63	91	118
12"	300	345	480	100	92	92	178	270	109	97	141	183
14"	350	370	450	110	117	117	190	290	134	120	174	226
16"	400	390	550	120	133	133	216	310	213	190	276	359
18"	450	490	705	130	149	149	222	330	347	310	450	585
20"	500	520	750	140	159	159	229	350	431	385	558	725
24"	600	590	910	150	181	181	267	390	525	470	682	887

Note: If PN>50 according to the client's request.