

		Wafer			Lug											
Fig No.	Item	139	140	142	143	140	142	143	140	142	143	140	142	143		
		TGW-Lever Type	TGW-Gear Type	TGL-Lever Type	TGL-Gear Type											
Material and Working Pressure		See(8) Material and Working Pressure														
Appearance																
Dimension		L	H	W	L	H	W	L	H	W	L	H	W	L	H	W
2 inch	50mm	43	193	162	43	198	150	43	193	162	43	198	150	43	198	150
2 1/2	65	46	207	267	46	212	150	46	207	267	46	212	150	46	212	150
3	80	46	213	267	46	218	150	46	213	267	46	218	150	46	218	150
4	100	52	232	267	52	237	150	52	232	267	52	237	150	52	237	150
5	125	56	245	267	56	250	150	56	245	267	56	250	150	56	250	150
6	150	56	258	267	56	263	150	56	258	267	56	263	150	56	263	150
8	200	60	305	361	60	305	300	60	305	361	60	305	300	60	305	300
10	250				68	336	300				68	336	300			
12	300				78	380	300				78	380	300			
14	350				78	411	300				78	411	300			
16	400				102	463	300				102	463	300			
18	450				114	485	400				114	485	400			
20	500				127	557	300				127	557	300			

●TG-Series Butterfly Valve...

- (1) Basic Standard Conforming to JIS B2032(Centric type)
- (2) Face to Face Dimensions Conforming to JIS B2002, ISO 5752-S and BS EN558-1
- (3) Flange Connections Available for JIS-5K, 10K, ASME-125Lb., 150Lb., BS-PN16
(Please clarify Flange std.on order stage)
JIS-5K is not available for size 350mm and larger
- (4) Design of Connections Wafer and Lug
- (5) Size 50~500mm
- (6) Seat Liner Type for easy maintenance(Not suitable for vacuum)
- (7) Coating Powder Epoxy Coating(Blue Color)
- (8) Material and Working Pressure

Item No.	Parts Material				Working Pressure
	Body	Disc	Seat	Shaft	
TG-1	Cast Iron (Ductile Iron for BS-PN16 size 350mm and larger)	Ductile Iron +Ni-Plated	EPDM	431 S/Steel	Size 300mm & below : 1.4MPa Size 350mm & above : 1.0MPa (1.6MPa for BS-PN16)
TG-2			NBR		
TG-3		304 S/Steel	EPDM		
TG-4			NBR		
TG-5		316 S/Steel	EPDM		
TG-6			NBR		
TG-7		ALBC	EPDM		
TG-8			NBR		

(9) Working Temperature

Seat Material	
NBR	EPDM
0~80°C	-10~120°C

- (10) Dewdrops-Proof Insulation is attached between body and actuator on request
- (11) Long Neck Type Sufficient space for insulation

		Wafer			Lug			Flanged								
Fig No.	Item	229	230	231	232	233G	229	230	231	232	233G	229	230	231	232	233G
		VFW-Lever Type	VFW-Gear Type	VFL-Lever Type	VFL-Gear Type	VFF-Gear Type										
Material and Working Pressure		See(7) Material and Working Pressure														
Appearance																
Designation		L	H	W	L	H	W	L	H	W	L	H	W	L	H	W
1 1/2 inch	40mm	33	195	200	33	157	150	33	195	200	33	157	150	—	—	—
2	50	43	218	200	43	180	150	43	218	200	43	180	150	43	180	150
2 1/2	65	46	230	200	46	192	150	46	230	200	46	192	150	46	192	150
3	80	46	237	200	46	199	150	46	237	200	46	199	150	46	199	150
4	100	52	256	200	52	218	150	52	256	200	52	218	150	52	218	150
5	125	56	272	250	56	234	150	56	272	250	56	234	150	100	234	150
6	150	56	285	250	56	247	150	56	285	250	56	247	150	100	247	150
8	200	60	324	355	60	281	200	60	324	355	60	281	200	100	282	200
10	250	68	370	355	68	327	200	68	370	355	68	327	200	110	328	200
12	300	78	393	355	78	350	200	78	393	355	78	350	200	110	351	200
14	350				78	370	310				78	370	310	78	370	310
16	400				102	402	310				102	402	310	102	402	310
18	450				114	445	400				114	445	400	114	445	400
20	500				127	479	400				127	479	400	127	479	400
24	600				154	548	400				154	548	400	154	548	400
28	700													165	619	400
30	750													190	730	400
32	800													190	775	400
36	900													203	805	400
40	1000													216	945	600
42	1100													216	1010	600
48	1200													254	1066	600

●VF-Series Butterfly Valve...

- (1) Basic Standard Conforming to JIS B2032(Centric disc & Shaft position)
- (2) Face to Face Dimensions Conforming to JIS B2002, ISO 5752-s and BS EN558-1
- (3) Flange Connections Available for JIS-10K, ASME-125Lb., 150Lb., BS-PN16 (Please clarify Flange Std. on order stage)
- (4) Design of Connections Wafer, Lug and Flange Type
- (5) Size 40~1200mm
- (6) Seat Liner Type for easy maintenance (Not suitable for vacuum)
- (7) Material and Working Pressure

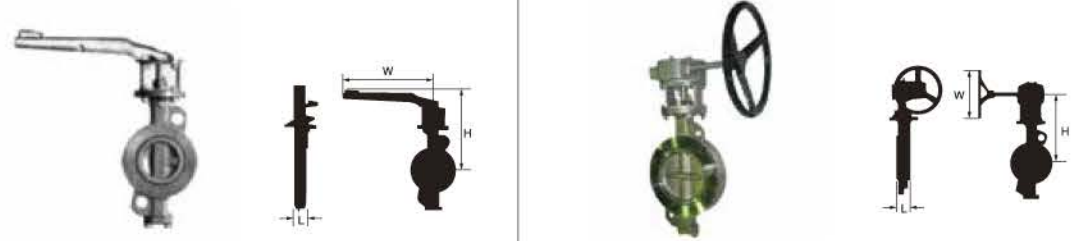
Material No.	Parts Material				Working Pressure	
	Body	Disc	Seat	Shaft		
VFW-1, VFL-1, VFF-1	A126-B	A536 +Nylon11	EPDM	F6a	Size 300mm & below:1.6MPa Size 350mm & above:1.0MPa	
VFW-2, VFL-2, VFF-2			NBR			
VFW-3, VFL-3, VFF-3		CF8	EPDM	F304		
VFW-4, VFL-4, VFF-4			NBR			
VFW-5, VFL-5, VFF-5		CF8M	EPDM	F316		
VFW-6, VFL-6, VFF-6			NBR			
VFW-7, VFL-7, VFF-7		A536	A536 +Nylon11	EPDM		F6a
VFW-8, VFL-8, VFF-8				NBR		
VFW-9, VFL-9, VFF-9			CF8	EPDM		F304
VFW-10, VFL-10, VFF-10				NBR		
VFW-11, VFL-11, VFF-11		CF8M	EPDM	F316		
VFW-12, VFL-12, VFF-12			NBR			
VFW-13, VFL-13, VFF-13		CF8	CF8	F304		
VFW-14, VFL-14, VFF-14			NBR			
VFW-15, VFL-15, VFF-15		CF8M	CF8M	F316		
VFW-16, VFL-16, VFF-16			NBR			

(8) Working Temperature

Seat Material					
NBR	EPDM	CR	SILICON	HYPALON	VITON
0~80°C	-10~120°C	0~80°C	-20~180°C	-20~135°C	-18~204°C

(9) Available for Pneumatic and Electric Ope. Type

Wafer

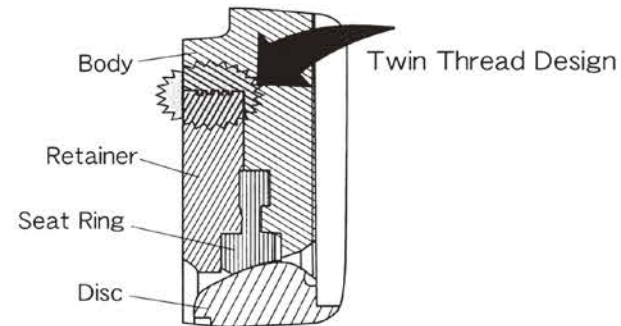
Fig No.	129	130
Item	HPW-Lever Type	HPW-Gear Type
Material	See(7) Material	
Working Pressure	See(8) Working Pressure and Temperature	
Appearance		

Dimension		L	H	W	L	H	W
2 inch	50mm	43	253	200	43	214	150
2 1/2	65	46	260	200	46	221	150
3	80	47	285	200	47	246	150
4	100	53	302	250	53	263	200
5	125	57	324	355	57	276	200
6	150	56	339	355	56	291	200
8	200	62	384	355	62	338	310
10	250				68	378	310
12	300				78/92	429	400
14	350				78	463	400
16	400				102	546	400
18	450				114	571	400
20	500				127	606	400
24	600				154	705	400

●HP Series Butterfly Valve...

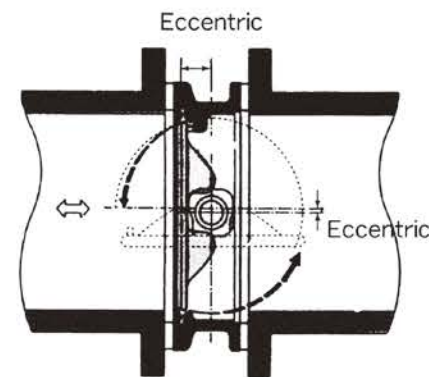
(1) Special Twin Thread Design between body and retainer

- Wider sealing face between flanges
- 100% sealing between retainer and body
- When long time storage, valve is in fully closed position and the seat ring is fixed by retainer, Encapsulated seat will not caused cold flow



(2) Benefit of Double Eccentric Structure

- Longer service life because of few wear and tear
- When the closed position, the force of the disc on the seat ring ensures complete sealing
- Easy operation with less seating torque



- (3) Face to Face Dimensions: Conforming to JIS B2002, ISO 5752-S and API609
- (4) Flange Connections: Available for JIS-10K・16K・20K and ASME-150Lb.・300Lb.
- (5) Design of Connections: Wafer(Available for Lug Type, Flange Type)
- (6) Size: 50~1200mm
- (7) Material

Material No.	Parts Material			
	Body	Disc	※Seat	Shaft
HP-1	CF8	CF8	PTFE	F304
HP-2	CF8M	CF8M	PTFE	F316
HP-3	WCB	CF8	PTFE	F304

※ RPTFE, Inconel Seat available

(8) Working Pressure and Temperature

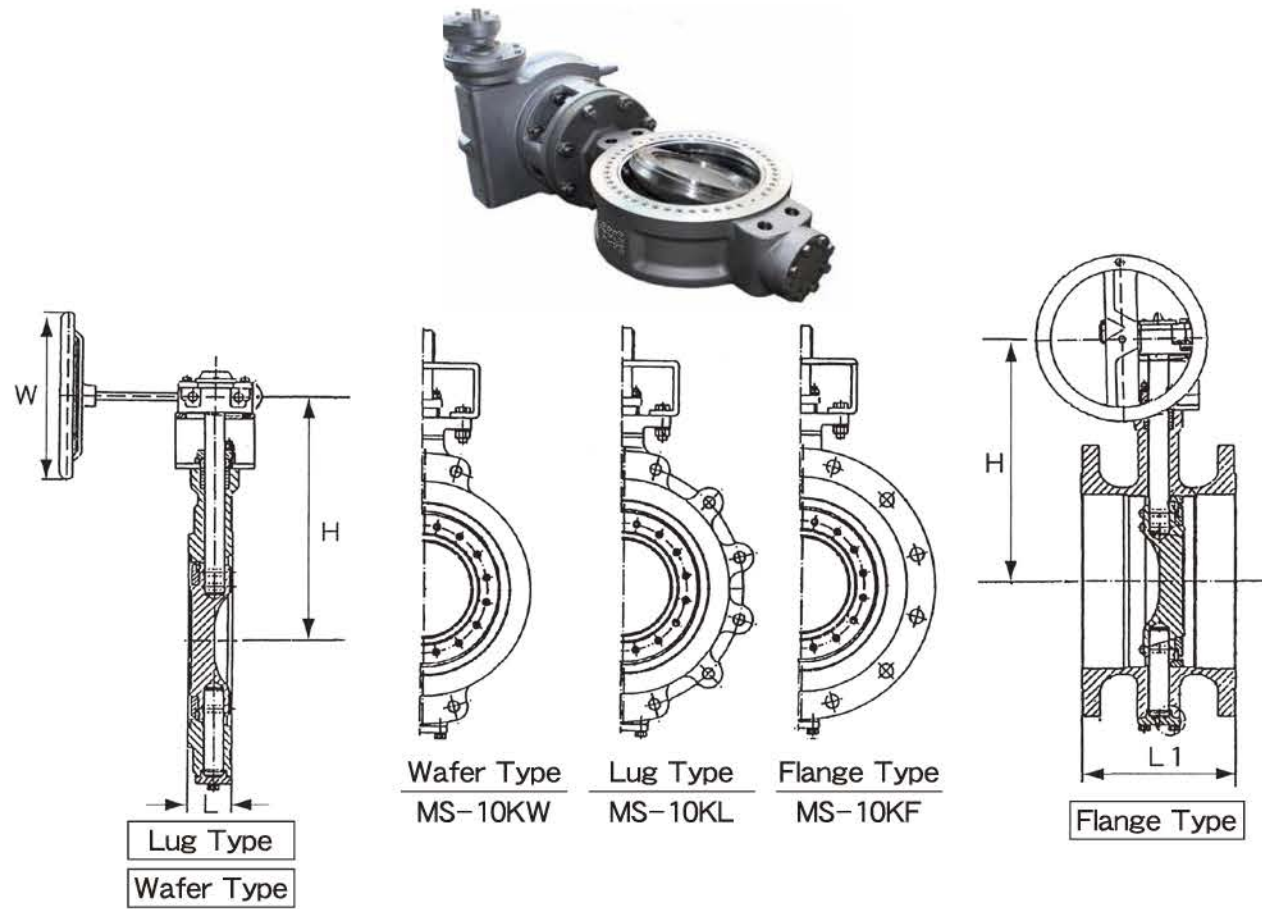
Temperatur(°C)	Working Pressure(MPa)			
	150Lb. Rating		300Lb. Rating	
	PTFE Sheet	RPTFE Sheet	PTFE Sheet	RPTFE Sheet
-46~38	1.97	1.97	5.10	5.10
66	1.88	1.88	4.88	4.88
93	1.79	1.79	3.79	4.65
121	1.69	1.69	2.93	3.65
149	1.59	1.59	2.07	2.69
177	0.97	1.48	1.21	1.72
204	0.34	0.69	0.34	0.69

(9) Flow Characteristics (cv, full opening)

Dimension		150 Lb. Rating	300 Lb. Rating
2 inch	50mm	160	—
2 1/2	65	259	259
3	80	398	398
4	100	613	613
5	125	980	980
6	150	1375	1270
8	200	1750	1631
10	250	2667	2492
12	300	4366	3985
14	350	5964	4792
16	400	7762	6408
18	450	9354	8191
20	500	11824	10928
24	600	19862	15736

(10) Available for Pneumatic and Electric Ope. Type





Wafer Lug Flanged

Fig No.	156			160			164				
Item	MS-10KW Gear			MS-10KL Gear			MS-10KF Gear				
Material	See(9) Material										
Working Pressure	See(8)Working Pressure and Temperature										
Dimension	L	H	W	L	H	W	L1		H	W	
							SHORT	LONG			
3 inch	80mm	47	241	150	47	241	150	114	180	252	150
4	100	53	251	150	53	251	150	127	190	271	150
6	150	56	306	150	56	306	150	140	210	296	150
8	200	63	331	200	63	331	200	152	230	328	200
10	250	69	388	310	69	388	310	165	250	361	310
12	300	79	438	310	79	438	310	178	270	443	310
14	350	79/92	492	400	79/92	492	400	190	290	455	400
16	400	102	561	400	102	561	400	216	310	494	400
18	450	114	591	400	114	591	400	222	330	574	400
20	500	127	631	400	127	631	400	229	350	621	400
24	600	154	755	400	154	755	400	267	390	666	400

●MS-Series Butterfly Valve...

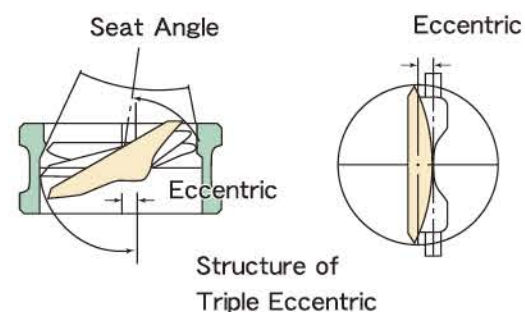
(1) Benefit of triple Eccentric Structure

- Suitable for using high Pressure flow
- Better sealing by metal seat
- Lower wear and tear of the seat
- Available to open and close by small torque
- As result, Sealing of metal seat was realized

(2) Body Seat is finished by geometrical spherical surface structure

- Spherical surface processing computer aided machine guarantee the reliable sealing of metal seat butterfly valves

(3) Available to use for high temperature and pressure



- (4) Basic Std. Metal Seal-Triple Eccentric Structure, conforming to API 609, API 598 & ASME B 16. 34
- (5) Face to Face Dimensions ●10KW/10KL : ISO5752 Table5-S, API 609 Table2-Class150
●10KF/150F : ISO5752 Table4-S, 4-L
- (6) Flange Connections ●JIS 10K for 10KW/10KL/10KF (JIS 16K, 20K, 30K, 40K, ASME 150, 300, 600)
- (7) Design of Connections Wafer,Lug and Flanged
- (8) Size 80~1200mm
- (9) Material

Material No.	Parts Material			
	Body	Disc	Seat	Shaft
MS-1	CF8	CF8	SS32205 (Metal Seat)	A564 Gr.630
MS-2	CF8M	CF8M		
MS-3	WCB	WCB		

- (10) Seat Leak Rate ●ANSI FCI 70-2-2006 Table 1
ISO 5208 Rate D/A
- (11) Working pressure and Temperature

Temperatur(°C)	Working Pressure(MPa)					
	150Lb. Rating		300Lb. Rating		600Lb. Rating	
	Body WCB	Body CF8-CF8M	Body WCB	Body CF8-CF8M	Body WCB	Body CF8-CF8M
-28~39	1.97	1.90	5.10	4.96	10.20	9.93
93	1.79	1.59	4.69	4.14	9.38	8.27
149	1.59	1.41	4.52	3.72	9.03	7.41
204	1.38	1.31	4.38	3.41	8.72	6.86
260	1.17	1.17	4.17	3.21	8.31	6.41
316	0.97	0.97	3.93	3.03	7.83	6.10
343	0.86	0.86	3.79	2.96	7.58	5.96
371	0.76	0.76	3.65	2.90	7.31	5.83
399	0.66	0.66	3.48	2.86	7.00	5.69
427	0.55	0.55	2.83	2.79	5.69	5.58
454	—	0.49	—	2.72	—	5.45
482	—	0.34	—	2.69	—	5.38
510	—	0.24	—	2.62	—	5.27
538	—	0.14	—	2.45	—	4.90

(12) Flow Characteristics (cv, full opening)

Designation (inch)	Designation (mm)	150Lb. Rating	300Lb. Rating	600Lb. Rating
3inch	80mm	117	123	80
4inch	100mm	296	196	512
6inch	150mm	893	601	605
8inch	200mm	1525	1240	1225
10inch	250mm	2687	2401	1845
12inch	300mm	3810	2797	2886
14inch	350mm	6843	4336	3483
16inch	400mm	9280	6942	4710
18inch	450mm	11170	9117	5547
20inch	500mm	13386	12736	6812
24inch	600mm	21216	16356	12011

(13) Available for Pneumatic and Electric Ope. Type

