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Agent







Cat No. 20193

SHOWA

GENERAL CATALOGUE

ISO 9001 BUREAU VERITAS Certification HIKONE — ISO 9001
ISO 14001 BUREAU VERITAS Certification HIKONE — ISO 14001
JIS
JWWA

SHOWA

The Valveman

SHOWA VALVE CO., LTD.

Company Philosophy

We believe in making a contribution to the world in the present and in the future through our business activities as a group of specialist of production, marketing,maintenance and technology concerned with the fluid control to develop our technology,to bring the prosperity of economy and especially to keep the global environment beautiful.

Product Table of Contents

SHOWA

BRONZE

Screwed (PT or NPT)

Fig No.		53			54			55			106			107		
Item		125-Gate N.R.S.			125-Swing Check			125-Globe			125-Gate R.S.			400-Ball (Full Bore)		
Material		※1 Bronze														
Class		125Lb.	10K	16bar	125Lb.	10K	16bar	125Lb.	10K	16bar	125Lb.	10K	16bar	400Lb.		
Connection		NPT	PT		NPT	PT		NPT	PT		NPT	PT		NPT	PT	
Standard		ASME	JIS	BS	ASME	JIS	BS	ASME	JIS	BS	ASME	JIS	BS	ASME	JIS	BS
Working Pressure		● JIS/1.37MPa(−10～120℃) ● BS/16bar(−10～100℃) ● ASME/200PSI-WOG(100°F)												● 2.75MPa-WOG(38℃) ● 0.69MPa-WOG(150℃)		
Appearance																
Dimension		L	H	W	L	H		L	H(Open)	W	L	H(Open)	W	L	H	W
1/4 inch	8mm	43	76	55				45	75	55	43	113	52			
3/8	10	43	76	55				45	75	55	43	113	55			
1/2	15	43	77	55	54	36		48	75	55	48	114	55	51	39	86
3/4	20	49	90	63	61	43		56	83	63	56	144	63	60	50	122
1	25	54	102	63	70	49		65	94	63	62	178	80	73	54	122
1 1/4	32	62	114	70	81	55		74	113	70	67	204	80	84	64	133
1 1/2	40	65	133	80	91	62		84	125	80	71	231	90	92	69	133
2	50	74	165	90	109	70		100	137	90	82	294	110	111	77	156
2 1/2	65	87	202	110	138	82		119	157	110	95	343	125			
3	80	98	224	125	149	94		136	177	125	103	396	140			
4	100	118	286	140	180	105		170	225	140						

Screwed (PT or NPT)

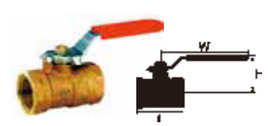
Fig No.		108			109			110			111			56			74		
Item		150-Gate N.R.S			150-Swing Check			150-Globe			150-Gate R.S.			150-Y.Strainer			150-Silent Check		
Material		※1 Bronze																	
Class		150Lb.	16K	25bar	150Lb.	16K	25bar	150Lb.	16K	25bar	150Lb.	16K	25bar	150Lb.	16K	25bar	150Lb.	16K	25bar
Connection		NPT	PT		NPT	PT		NPT	PT		NPT	PT		NPT	PT		NPT	PT	
Standard		ASME	JIS	BS	ASME	JIS	BS	ASME	JIS	BS	ASME	JIS	BS	ASME	JIS	BS	ASME	JIS	BS
Working Pressure		● JIS/1.96MPa(−10～120℃) ● BS/25bar(−10～100℃) ● ASME/300PSI-WOG(100°F)																	
Appearance																			
Dimension		L	H	W	L	H		H	H(Open)	W	L	H(Open)	W	L	H		L	D	
1/4 inch	8mm				51	37		44	73	55									
3/8	10				51	37		44	76	55				70	44				
1/2	15	43	77	52	64	45		53	84	55	48	114	55	80	49		53	15	
3/4	20	49	90	59	73	53		65	82	63	56	144	63	100	57		59	20	
1	25	54	102	59	89	64		77	113	70	62	178	70	115	72		67	25	
1 1/4	32	60	114	69	111	79		85	134	80	67	204	80	135	82		78	32	
1 1/2	40	64	133	75	118	88		100	154	90	71	231	90	160	98		84	40	
2	50	71	163	85	140	105		119	187	110	82	294	110	195	121		98	50	
2 1/2	65	87	202	102							95	343	125	230	150				
3	80	98	224	119							103	396	140	239	180				
4	100																		

※1 Bronze Material

Standard	Designation
ASTM	C83600
JIS	CAC406
BS	EN1982 CC491K

BRASS

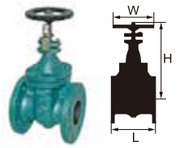
Screwed (PT or NPT)

Fig No.		112			113			75		
Item		125E-Gate N.R.S.			400-Ball (Standard Bore)			600-Ball (Full Bore)		
Material		※2 Brass								
Class		125Lb.	10K	16bar	400Lb.			600Lb.		
Connection		NPT	PT		NPT	PT		NPT	PT	
Standard		ASME	JIS	BS	ASME	JIS	BS	ASME	JIS	BS
Working Pressure		● JIS/1.37MPa(−10～80℃) ● BS/16bar(−10～80℃) ● ASME/200PSI-WOG(100°F)			● 2.75MPa-WOG(38℃) ● 0.98MPa-Saturated Steam			● 4.10MPa-WOG(38℃) ● 0.98MPa-Saturated Steam		
Appearance										
Dimension		L	H	W	L	H	W	L	H	W
1/4 inch	8mm				39	32	60	43	32	60
3/8	10				39	32	60	46	37	80
1/2	15	39	69	54	49	37	80	54	38	80
3/4	20	44	72	54	53	40	80	63	47	110
1	25	47	84	54	63	47	110	76	52	110
1 1/4	32	53	98	61	72	52	110	85	60	130
1 1/2	40	57	116	77	83	60	130	92	65	130
2	50	61	125	77	92	65	130	108	79	200
2 1/2	65	71	153	83	117	79	200	131	89	200
3	80	87	186	105	137	89	200	150	98	200
4	100	101	222	130	157	98	200	159	98	200

※2 Brass Material

Stadard	Designation
ASTM	C37700
JIS	C3771B
BS	EN12165

CAST IRON Gate Valve N.R.S.

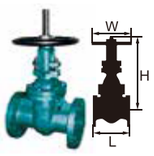
		125Lb.Flanged	10K Flanged	PN16 Flanged	PN25 Flanged
Fig No.		1	3	3	104
Material	Body	A126 Class B	FC200	EN1561 GJL200	EN1561 GJL250
	Trim	C83600	CAC406	EN1982 CC491K	EN1982 CC491K
Standard		ASME		EN1171(BS5150)	EN1171(BS5150)
Working Pressure		● 2"～12"/200PSI-WOG(100°F) 125PSI-Saturated Steam ● 14"～24"/150PSI-WOG(100°F) 125PSI-Saturated Steam	● 1.4MPa(−10～120℃)	● 16bar(−10～120℃)	● 25bar(−10～120℃)
Appearance					

Dimension		L	H	W	L	H	W	L	H	W	L	H	W
1½ inch	40㎜				165	262	158						
2	50	178	245	158	180	276	158	178	245	158	216	290	200
2½	65	190	272	158	190	302	158	190	272	158	241	313	200
3	80	203	297	158	200	332	158	203	297	158	283	350	224
4	100	229	355	195	230	384	195	229	355	195	305	400	250
5	125	254	397	195	250	435	195	254	397	195	381	448	280
6	150	267	465	220	270	497	220	267	465	220	403	520	300
8	200	292	561	280	290	608	280	292	561	280	419	612	355
10	250	330	669	310	330	721	310	330	669	310	457	728	400
12	300	356	778	355	350	838	355	356	778	355	502	835	400
14	350	381	904	450	381	975	450	381	904	450			
16	400	406	1039	500	406	1132	500	406	1039	500			
18	450	432	1151	560	432	1227	560	432	1151	560			
20	500	457	1264	630	457	1341	630	457	1264	630			
24	600	508	1473	710	508	1566	710	508	1473	710			
Remark					With Indicator as Std.			With Indicator as Std.			With Indicator as Std.		

		5K Flanged	10K Flanged		10K Flanged
Fig No.		4		76	37
Material	Body	FC200			FC200
	Trim	CAC406			CAC406
Standard		JIS(L-dim. is SHOWA ORIGINAL)			JIS B2031
Working Pressure		● 0.5MPa(80℃)	● 0.7MPa(80℃)	● 1.4MPa(−10～80℃)	● 1.4MPa(120℃) ● 0.2MPa-Saturated Steam
Appearance					

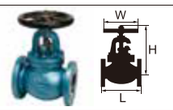
Dimension		L	H	W	L	H	W	L	H	W
1½ inch	40㎜	126	174	115	140	206	140			
2	50	142	207	122	150	235	140	180	343	200
2½	65	146	234	148	160	266	160	190	373	200
3	80	153	265	158	175	293	160	200	424	224
4	100	190	319	165	200	360	224	230	474	250
5	125	205	373	195	225	406	224	250	534	280
6	150	218	429	220	265	453	224	270	601	300
8	200	230	532	245				290	710	355
10	250							330	839	400
12	300							350	949	450
Remark		Compact Type			For Pumping			With indicator as Std.		

CAST IRON Gate Valve OS&Y

		125Lb.Flanged	10K Flanged	PN16 Flanged	PN25 Flanged	5K Flanged	10K Flanged
Fig No.		6	8		183	7	38
Material	Body	A126B	FC200	EN1561 GJL200		CAC406	FC200
	Trim	C83600 or F6	CAC406orSUS403	EN1982 CC491K or 410S21			CAC406orSUS403orSUS304
Standard		ASME	JIS	EN1171(BS5150)		JIS B2031	JIS B2031
Working Pressure		● 2"~12"/200PSI-WOG(100°F) 125PSI-Saturated Steam ● 14"~24"/150PSI-WOG(100°F) 125PSI-Saturated Steam	● 1.4MPa(−10～120℃)	● 16bar(−10～120℃)	● 25bar(−10～120℃)	● 0.7MPa(120℃) ● 0.2MPa-Saturated Steam	● 1.4MPa(120℃) ● 0.7MPa-Saturated Steam
Appearance							

Dimension		L	H(Open)	W	L	H(Open)	W	L	H(Open)	W	L	H(Open)	W	L	H(Open)	W	L	H(Open)	W
1½ inch	40㎜				165	288	160							150	318	160			
2	50	178	308	160	180	308	160	178	308	160	216	361	200	160	336	160	180	394	200
2½	65	190	358	180	190	358	180	190	358	180	241	400	200	170	391	180	190	436	200
3	80	203	404	180	200	404	180	203	404	180	283	447	224	180	446	180	200	507	224
4	100	229	498	224	230	498	224	229	498	224	305	529	280	200	553	224	230	597	250
5	125	254	588	224	250	588	224	254	588	224	381	633	280	220	645	224	250	686	280
6	150	267	708	250	270	708	250	267	708	250	403	746	300	240	753	250	270	797	300
8	200	292	918	280	290	918	280	292	918	280	419	936	355	260	938	280	290	991	355
10	250	330	1120	300	330	1120	300	330	1120	300	457	1141	400	300	1158	355	330	1194	400
12	300	356	1312	355	350	1312	355	356	1312	355	502	1334	500	330	1381	400	350	1381	450
14	350	381	1539	450	381	1539	450	381	1539	450									
16	400	406	1793	500	406	1793	500	406	1793	500									
18	450	432	1995	560	432	1995	560	432	1995	560									
20	500	457	2194	600	457	2194	600	457	2194	600									
24	600	508	2670	710	508	2670	710	508	2670	710									
Remark																			

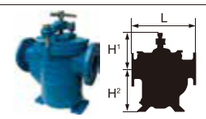
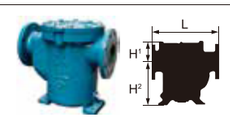
CAST IRON Globe Valve

		125Lb.Flanged	10K Flanged	PN16 Flanged
Fig No.		32	34	
Material	Body	A126B	FC200	EN1561 GJL200
	Trim	C83600 or F6	CAC406orSUS403	EN1982 CC491K or 410S21
Standard		ASME	JIS B2031	EN13789(BS5152)
Working Pressure		● 2"～12"/200PSI-WOG(100°F) 125PSI-Saturated Steam ● 14"～20"/150PSI-WOG(100°F) 100PSI-Saturated Steam	● 1.4MPa(−10～120℃)	● 16bar(−10～120℃)
Appearance				

Dimension		L	H(Open)	W	L	H(Open)	W	L	H(Open)	W
1½ inch	40㎜				190	253	160			
2	50	203	265	180	200	265	180	203	265	180
2½	65	216	289	200	220	289	200	216	289	200
3	80	241	329	224	240	329	224	241	329	224
4	100	292	367	280	290	367	280	292	367	280
5	125	330	398	315	360	398	315	330	398	315
6	150	356	457	355	410	457	355	356	457	355
8	200	495	561	450	500	561	450	495	561	450
10	250	622	665	500	620	665	500	622	665	500
12	300	698	803	560	700	803	560	698	803	560
14	350	787	890	600	787	890	600	787	890	600
16	400	914	1010	710	914	1010	710	914	1010	710
18	450	965	1120	800	965	1120	800	965	1120	800
20	500	978	1230	1000	978	1230	1000	978	1230	1000
Remark										

CAST IRON U-Strainer

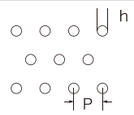
PN16 Flanged

Fig No.		191A	191B	191C
Material	Body	EN1561 GJL200	EN1561 GJL200	EN1561 GJL200
	Screen	EN10088-1,1.4301	EN10088-1,1.4301	EN10088-1,1.4301
Standard		BS	BS	BS
Working Pressure		● 16bar(−10～120℃)	● 16bar(−10～120℃)	● 16bar(−10～120℃)
Appearance				

Dimension		L	H1	H2	L	H1	H2	L	H1	H2
2 inch	50㎜	267	176	194	267	86	194			
2½	65	295	184	223	295	95	223			
3	80	334	202	279	334	112	279	225	190	125
4	100	427	256	273	427	129	273	286	197	195
5	125	—	—	—	—	—	—			
6	150	497	285	469	497	150	469	356	240	270
8	200	685	338	685	685	190	685			
10	250	838	422	790	838	318	790			
12	300	857	450	1114	857	350	1114			
Remark		Non-Bolted Cover type(Quick Open) 10K/125Lb.type is available.			Bolted Cover type 10K/125Lb.type is available.			Non-Bolted Cover type(Quick Open) 10K/125Lb.type is available.		

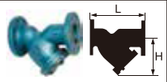
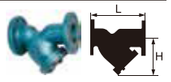
●Punching Screen for U-Strainer

	h	P	equivalent
Size2"～2½"	3.2㎜	4.6㎜	8mesh
Size3"	3.8㎜	4.8㎜	7mesh
Size4"～12"	4.0㎜	5.0㎜	6mesh



CAST IRON Y-Strainer

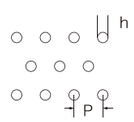
125Lb.Flanged 10K Flanged PN16 Flanged

Fig No.		33		
Material	Body	A126B	FC200	EN1561 GJL200
	Screen	A182 F304	SUS304	EN10088-1,1.4301
Standard		ASME	JIS	BS
Working Pressure		●2"~12"/200PSI-WOG(100°F) 125PSI-Saturated Steam ●14"~20"/150PSI-WOG(100°F) 100PSI-Saturated Steam	● 1.4MPa(−10～120℃)	● 16bar(−10～120℃)
Appearance				

Dimension		L	H	L	H	L	H
1½ inch	40㎜						
2	50	220	135	220	135	220	135
2½	65	270	179	270	179	270	179
3	80	290	190	290	190	290	190
4	100	350	238	350	238	350	238
5	125	390	270	390	270	390	270
6	150	440	321	440	321	440	321
8	200	540	384	540	384	540	384
10	250	680	495	680	495	680	495
12	300	840	574	840	574	840	574
14	350	910	661	910	661	※ 910	661
16	400	1000	760	1000	760	※ 1000	760
18	450	1100	850	1100	850	※ 1100	850
Remark		※Body material shall be Ductile Iron.					

●Punching Screen for Y-Strainer

	h	P	equivalent
Size2"～4"	1.5㎜	2.5㎜	10mesh
Size5"～12"	2.0㎜	3.0㎜	8mesh
Size14"～16"	2.5㎜	3.5㎜	7mesh
Size18"	5.0㎜	8.0㎜	5mesh



CAST IRON Ball Valve

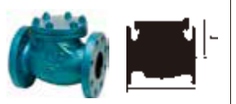
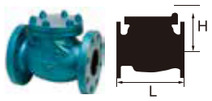
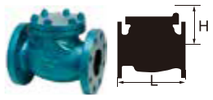
10K Flanged

Fig No.		78
Material	Body	FC200
	Ball	SCS13A
	Seat	PTFE
	Shaft	SUS304
Design		2pcs.
Bore		Full Bore
Working Pressure		● 1.4MPa-WOG(120℃)
Appearance		

Dimension		L	H	W
½ inch	15㎜	110	95	160
¾	20	120	100	160
1	25	130	110	160
1¼	32	140	115	160
1½	40	165	115	230
2	50	180	125	230
2½	65	190	155	350
3	80	200	170	350
4	100	230	200	600
5	125	300	260	1000
6	150	340	290	1000
8	200	450	350	1500
10	250	530	—	—
12	300	620	—	—
Remark		● Gear Ope. for Size 250mm and 300mm		

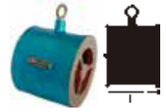
CAST IRON Check Valve

125Lb.Flanged 10K Flanged PN16 Flanged PN25 Flanged

Fig No.		9	10		184
Material	Body	A126B	FC200	EN1561 GJL200	
	Trim	C83600 or F6	CAC406(BC6) or SUS403	EN1982 CC491K or410S21	
Standard		ASME	JIS	EN12334(BS5153)	BS(L-dm. is SHOWA original)
Working Pressure		● 2"～12"/200PSI-WOG(100°F) 125PSI-Saturated Steam ●14"～24"/150PSI-WOG(100°F) 100PSI-Saturated Steam	● 1.4MPa(−10～120℃)	● 16bar(−10～120℃)	● 25bar(−10～120℃)
Appearance					

Dimension		L	H	L	H	L	H	L	H
1½ inch	40㎜			190	105				
2	50	203	110	200	110	203	110	—	—
2½	65	216	120	220	120	216	120	292	140
3	80	241	135	240	135	241	135	318	165
4	100	292	155	290	155	292	155	356	185
5	125	330	180	360	180	330	180	400	215
6	150	356	200	410	200	356	200	444	245
8	200	495	230	500	230	495	230	533	285
10	250	622	305	620	305	622	305		
12	300	698	355	700	355	698	355		
14	350	570	410	570	410	570	410		
16	400	630	470	630	470	630	470		
18	450	700	520	700	520	700	520		
20	500	770	570	770	570	770	570		
24	600	920	650	920	650	920	650		
Type		Swing Check		Swing Check		Swing Check		Swing Check	
Remark									

10K Flanged Wafer

Fig No.		39	23	24	40	68WL
Material	Body	FC200				
	Trim	CAC406(BC6) or SUS403	CAC406/Rubber(NBR)	SUS304/Rubber(NBR)	CAC406 /Rubber(NBR)	Rubber(NBR)/CAC406
Standard		JISB2031	SHOWA original		SHOWA original/EN12334	
Working Pressure		● 1.4MPa(−10～120℃)	● 1.4MPa(−10～80℃)	● 1.4MPa(−10～80℃)	● ASME125 200PSI-WOG(below80℃) ● BS-PN16 16bar(below80℃) ● JIS10K 1.4MPa(below80℃)	
Appearance						

Dimension		L	H	L	H	L	H	L	L
1½ inch	40㎜			145	125	162	100	90	
2	50	200	115	160	135	183	110	90	54
2½	65	220	132	175	145	200	120	100	54
3	80	240	145	185	150	210	135	115	57
4	100	290	170	230	170	217	145	135	64
5	125	360	200	255	185	255	165	150	70
6	150	410	225	290	205	280	180	175	76
8	200	500	260			416	209	220	95
10	250							280	108
12	300								143
14	350								184
16	400								191
18	450								203
20	500								219
24	600								222
Type		Swing Check		Swing Check		Lift Check		Lift Check	Dual Plate Check
Remark				With by-Pass as Std.		Quick Close Type with by-Pass as Std.		Quick Close Type	Quick Close Type

DUCTILE IRON Gate Valve (Bolted Bonnet)

	150Lb.Flanged	10K Flanged	16K Flanged	20K Flanged	PN25 Flanged
Fig No.	192		69	301	183D
Material Body	A536 65-45-12	FCD450-10		FCD-S	EN1563 GJL450-10
Material Trim	C83600 or F6	CAC406 or SUS403		SUS403	EN1982 CC491K or 410S21
Standard	ASME	JIS	JIS(JV)		EN1171(BS5150)
Working Pressure	●250PSI-WOG(−29～38℃) ●150PSI-Steam	●1.4MPa-Water(120℃) ●1.2MPa-WOG(220℃)	●2.2MPa-Water(120℃) ●2.0MPa-WOG(220℃) ●1.6MPa-GAS(220℃)	●2.8MPa-Water(120℃) ●2.5MPa-WOG(220℃) ●2.4MPa-GAS(220℃) ●2.3MPa-WOG(300℃) ●2.0MPa-WOG(350℃)	●25bar(−10～120℃)
Appearance					

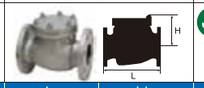
Dimension		L	H(Open)	W	L	H(Open)	W	L	H(Open)	W	L	H(Open)	W	L	H(Open)	W
2 inch	50㎜	178	308	160	178	308	160	178	355	180	216	395	200	216	361	200
2½	65	190	358	180	190	358	180	190	407	180	241	435	200	241	400	200
3	80	203	404	180	203	404	180	203	473	224	283	500	224	283	447	224
4	100	229	498	224	229	498	224	229	556	250	305	595	280	305	529	280
5	125	254	588	224	254	588	224	254	665	280	381	705	300	381	633	280
6	150	267	708	250	267	708	250	267	772	300	403	835	355	403	746	300
8	200	292	918	280	292	918	280	292	965	315	419	1045	450	419	936	355
10	250	330	1120	300	330	1120	300	330	1172	400	457	1240	560	457	1141	400
12	300	356	1312	355	356	1312	355	356	1371	450	502	1430	600	502	1334	500
14	350	381	1539	450	381	1539	450									
16	400	406	1793	500	406	1793	500									
18	450	432	1995	560	432	1995	560									
20	500	457	2194	600	457	2194	600									
24	600	508	2670	710	508	2670	710									
Remark		Bronze trim available only for water 120℃ and below.														

DUCTILE IRON Globe Valve (Bolted Bonnet)

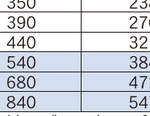
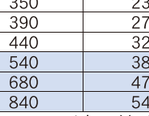
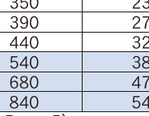
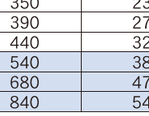
	150Lb.Flanged	10K Flanged	16K Flanged	20K Flanged	PN25 Flanged
Fig No.	193		71	302	71
Material Body	A536 65-45-12	FCD450-10		FCD-S	EN1563 GJL450-10
Material Trim	C83600 or F6	CAC406 or SUS403		STL	EN1982 CC491K or 410S21
Standard	ASME	JIS	JIS(JV)		EN13789(BS5152)
Working Pressure	●250PSI-WOG(−29～38℃) ●150PSI-Steam	●1.4MPa-Water(120℃) ●1.2MPa-WOG(220℃)	●2.2MPa-Water(120℃) ●2.0MPa-WOG(220℃) ●1.6MPa-GAS(220℃)	●2.8MPa-Water(120℃) ●2.5MPa-WOG(220℃) ●2.4MPa-GAS(220℃) ●2.3MPa-WOG(300℃) ●2.0MPa-WOG(350℃)	●25bar(−10～120℃)
Appearance					

Dimension		L	H(Open)	W	L	H(Open)	W	L	H(Open)	W	L	H(Open)	W	L	H(Open)	W
2 inch	50㎜	203	265	180	203	265	180	203	265	180	267	330	224	230	265	180
2½	65	216	289	200	216	289	200	216	289	200	292	380	250	290	289	200
3	80	241	329	224	241	329	224	241	329	224	318	415	300	310	329	224
4	100	292	367	280	292	367	280	292	367	280	356	465	315	350	367	280
5	125	356	398	315	356	398	315	356	398	315	400	545	355	400	398	315
6	150	406	457	355	406	457	355	406	457	355	444	620	450	480	457	355
8	200	495	561	450	495	561	450	495	561	450	559	725	500	600	561	450
10	250	622	665	500	622	665	500	622	665	500						
12	300	698	800	560	698	800	560	698	800	560						
Remark		Bronze trim available only for water 120℃ and below.														

DUCTILE IRON Check Valve

	150Lb.Flanged	10K Flanged	16K Flanged	20K Flanged	PN25 Flanged
Fig No.	194		70	303	70
Material Body	A536 65-45-12	FCD450-10		FCD-S	EN1563 GJL450-10
Material Trim	C83600 or F6	CAC406 or SUS403		SUS403	EN1982 CC491K or 410S21
Standard	ASME	JIS	JIS(JV)		BS(L-dm.is SHOWA original)
Working Pressure	●250PSI-WOG(−29～38℃) ●150PSI-Steam	●1.4MPa-Water(120℃) ●1.2MPa-WOG(220℃)	●2.2MPa-Water(120℃) ●2.0MPa-WOG(220℃) ●1.6MPa-GAS(220℃)	●2.8MPa-Water(120℃) ●2.5MPa-WOG(220℃) ●2.4MPa-GAS(220℃) ●2.3MPa-WOG(300℃) ●2.0MPa-WOG(350℃)	●25bar(−10～120℃)
Appearance					

Dimension		L	H	L	H	L	H	L	H	L	H
2 inch	50㎜	203	110	230	110	230	115	267	140	200	110
2½	65	216	120	216	120	216	130	292	170	220	120
3	80	241	135	241	135	241	155	318	180	240	155
4	100	292	155	292	155	292	180	356	220	290	178
5	125	330	180	330	180	330	215	400	250	360	205
6	150	356	200	356	200	356	240	444	275	410	241
8	200	495	230	495	230	495	295	533	314	500	290
10	250	622	305	622	305	622	335	622	362	600	355
12	300	698	355	698	355	698	380	711	418	700	375
Remark		Bronze trim available only for water 120℃ and below.									

	150Lb.Wafer	10K Wafer	16K Wafer	PN25 Wafer
Fig No.	114W		116WL	
Material Body	A536 65-45-12	FCD450-10		EN1563 GJL450-10
Material Trim	Rubber(NBR)/C83600	Rubber(NBR)/CAC406		Rubber/EN1982 CC491K
Standard	ASME	JIS		EN12334
Working Pressure	●250PSI-WOG(below80℃)	●1.4MPa(below80℃)	●2.2MPa(below80℃)	●25bar(below80℃)
Appearance				

Dimension		L	L	L	L
2 inch	50㎜	54	54	54	54
2½	65	54	54	60	54
3	80	57	57	67	57
4	100	64	64	67	64
5	125	70	70	83	70
6	150	76	76	95	76
8	200	95	95	127	95
10	250	108	108	140	108
12	300	143	143	181	143

DUCTILE IRON Y-Strainer

	150Lb.Flanged	10K Flanged	16K Flanged	PN25 Flanged
Fig No.	195		196	
Material Body	A536 65-45-12	FCD450-10		EN1563 GJL450-10
Material Screen	A182 F304	SUS304		EN10088-1,1.4301
Standard	ASME	JIS		BS
Working Pressure	●250PSI-WOG(−29～38℃) ●150PSI-Steam	●1.4MPa-Water(120℃) ●1.2MPa-WOG(220℃)	●2.2MPa-Water(120℃) ●2.0MPa-WOG(220℃) ●1.6MPa-GAS(220℃)	●25bar(−10～120℃)
Appearance				

Dimension		L	H	L	H	L	H	L	H
2 inch	50㎜	220	135	220	135	220	135	220	135
2½	65	270	179	270	179	270	179	270	179
3	80	290	189	290	189	290	189	290	189
4	100	350	238	350	238	350	238	350	238
5	125	390	270	390	270	390	270	390	270
6	150	440	321	440	321	440	321	440	321
8	200	540	384	540	384	540	384	540	384
10	250	680	472	680	472	680	472	680	472
12	300	840	547	840	547	840	547	840	547
Remark		Punching dimensions of screen same as cast iron Y-strainer.(See Page 5)							

DUCTILE IRON Gate Valve (Screw Bonnet)

		PT.Screwed	10K Flanged
Fig No.		270	271
Material	Body	FCD-S	
	Trim	13Cr.	
Standard		JIS(JV)	
Working Pressure		●1.4MPa-Water(120℃) ●1.0MPa-WOG(220℃)	
Appearance		JV 	JV 

Dimension		L	H(Open)	W	L	H(Open)	W
1/2 inch	15㎜	60	165	90	90	165	90
3/4	20	70	180	90	100	180	90
1	25	75	215	90	110	215	90
1 1/4	32	85	242	100	120	242	100
1 1/2	40	95	280	135	130	280	135
2	50	105	320	135	140	320	135

DUCTILE IRON Globe Valve (Screw Bonnet)

		PT.Screwed	10K Flanged
Fig No.		272	273
Material	Body	FCD-S	
	Trim	13Cr.	
Standard		JIS(JV)	
Working Pressure		● 1.4MPa-Water(120℃) ● 1.0MPa-WOG(220℃)	
Appearance		JV 	JV 

Dimension		L	H(Open)	W	L	H(Open)	W
1/2 inch	15㎜	65	116	90	85	116	90
3/4	20	80	130	90	95	130	90
1	25	90	150	90	110	150	90
1 1/4	32	105	165	100	130	165	100
1 1/2	40	120	187	135	150	187	135
2	50	140	206	135	180	206	135

DUCTILE IRON Lift Check Valve (Screw Bonnet)

		PT.Screwed	10K Flanged
Fig No.		274	275
Material	Body	FCD-S	
	Trim	13Cr.	
Standard		JIS(JV)	
Working Pressure		● 1.4MPa-Water(120℃) ● 1.0MPa-WOG(220℃)	
Appearance		JV  	JV  

Dimension		L	H	L	H
1/2 inch	15㎜	65	40	85	40
3/4	20	80	45	95	45
1	25	90	52	110	52
1 1/4	32	105	58	130	58
1 1/2	40	120	68	150	68
2	50	140	76	180	76

DUCTILE IRON Globe Valve (Union Bonnet)

		PT.Screwed	10K Flanged
Fig No.		276	277
Material	Body	FCD-S	
	Trim	13Cr	
Standard		JIS(JV)	
Working Pressure		●1.4MPa-Water(120℃) ●1.2MPa-WOG(220℃) ●1.0MPa-WOG(300℃)	
Appearance			

Dimension		L	H(Open)	W	L	H(Open)	W
1/2 inch	15㎜	70	112	90	108	112	90
3/4	20	80	123	90	117	123	90
1	25	90	136	90	127	136	90
1 1/4	32	110	153	100	140	153	100
1 1/2	40	120	166	100	165	166	100
2	50	140	196	135	203	196	135

DUCTILE IRON Lift Check Valve (Union Bonnet)

		PT.Screwed	10K Flanged
Fig No.		278	279
Material	Body	FCD-S	
	Trim	13Cr	
Standard		JIS(JV)	
Working Pressure		●1.4MPa-Water(120℃) ●1.2MPa-WOG(220℃) ●1.0MPa-WOG(300℃)	
Appearance			

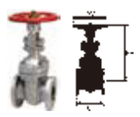
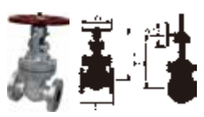
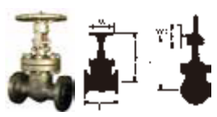
Dimension		L	H(Open)	L	H
1/2 inch	15㎜	70	48	108	48
3/4	20	80	53	117	53
1	25	90	60	127	60
1 1/4	32	110	67	140	67
1 1/2	40	120	76	165	76
2	50	140	89	203	89

CAST STEEL(API/ASME/BS) General Specification and Standard

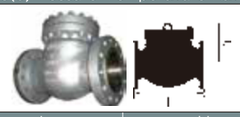
(1) Basic Standard ● Gate Valve : API 600/ASME B16.34/BS1414
● Swing Check Valve : API 6D/ASME B16.34/BS1868
● Globe Valve : ASME B16.34/BS1873
(2) Shell Wall Thickness : API 600
(3) Face To Face Dimensions : ASME B16.10/BS2080/ISO5752
(4) Flange Dimensions : ASME B16.5/BS1560/ISO2229
(5) Pressure-Temperature Ratings : ASME B16.5/ASME B16.34

Temperature(℃)		-29~38	50	100	150	200	250	300	325	350	375	400	425
Working Pressure (MPa)	class 150	1.96	1.92	1.77	1.58	1.38	1.21	1.02	0.93	0.84	0.74	0.65	0.55
	class 300	5.11	5.01	4.66	4.51	4.38	4.19	3.98	3.87	3.76	3.64	3.47	2.88
	class 600	10.21	10.02	9.32	9.02	8.76	8.39	7.96	7.74	7.51	7.27	6.94	5.75

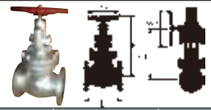
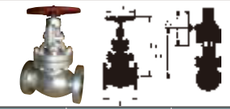
CAST STEEL(API/ASME/BS) Gate Valve OS&Y

		150Lb.Flanged			300Lb.Flanged			600Lb.Flanged		
Fig No.		14			17			20		
Material	Body	ASTM A216 WCB								
	Trim	API Trim No8.(Body Seat=Stl.,Disc Seat=13Cr., Stem=13Cr.)								
Working Pressure		See(5)Pressure-Temperature Ratings								
Appearance										
Dimension		L	H(Open)	W	L	H(Open)	W	L	H(Open)	W
2 inch	50㎜	178	415	250	216	413	220	292	440	250
2½	65	190	480	250	241	476	220	330	480	250
3	80	203	525	280	283	535	275	356	520	300
4	100	229	620	300	305	618	320	432	650	350
6	150	267	765	350	403	805	350	559	840	400
8	200	292	955	400	419	995	400	660	1025	450
10	250	330	1195	400	457	1210	430	787	1230	500
12	300	356	1380	500	502	1416	480	838	1450	600
14	350	381	1522	500						
16	400	406	1713	600						
18	450	432	1892	600						
20	500	457	2119	700						
24	600	508	2500	700						

CAST STEEL(API/ASME/BS) Swing Check Valve

		150Lb.Flanged		300Lb.Flanged		600Lb.Flanged	
Fig No.		15		18		21	
Material	Body			ASTM A216 WCB			
	Trim	API Trim No8.(Body Seat=Stl.,Disc Seat=13Cr., Stem=13Cr.)					
Working Pressure		See(5)Pressure-Temperature Ratings					
Appearance							
Dimension		L	H	L	H	L	H
2 inch	50㎜	203	152	267	176	292	185
2½	65	216	165	292	185	330	210
3	80	241	175	318	216	356	235
4	100	292	204	356	259	432	265
6	150	356	293	445	317	559	375
8	200	495	353	533	380	660	430
10	250	622	420	622	434	787	520
12	300	698	480	711	511		

CAST STEEL(API/ASME/BS) Globe Valve

		150Lb.Flanged			300Lb.Flanged			600Lb.Flanged		
Fig No.		16			19			22		
Material	Body				ASTM A216 WCB					
	Trim	API Trim No8.(Body Seat=Stl.,Disc Seat=13Cr., Stem=13Cr.)								
Working Pressure		See(5)Pressure-Temperature Ratings								
Appearance										
Dimension		L	H(Open)	W	L	H(Open)	W	L	H(Open)	W
2inch	50㎜	203	380	200	267	393	200	292	375	210
2½	65	216	388	250	292	427	200	330	446	300
3	80	241	434	250	318	505	250	356	535	350
4	100	292	515	300	356	570	250	432	625	400
6	150	406	560	350	445	640	350	559	720	Gear
8	200	495	800	Gear	559	800	Gear	660	800	Gear
10	250	622	930	Gear	622	930	Gear	787	930	Gear
12	300	698	1080	Gear	711	1080	Gear	838	1080	Gear

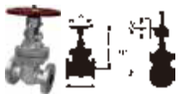
CAST STEEL(JIS) General Specification and Standard

(1) Basic Standard : JIS B2071 for 10K/20K Flanged
: ASME B16.34 Class 300 for 30K Flanged
(2) Shell Wall Thickness : JIS B2071 a1 for 10K/20K Flanged
: API 600 Class 300 for 30K Flanged
(3) Face To Face Dimensions : JIS B2071 for 10K/20K Flanged
: ASME B16.10 Class 300 for 30K Flanged
(4) Flange Dimensions : JIS B2220

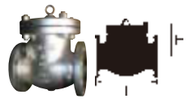
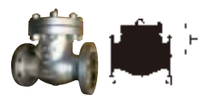
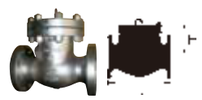
(5) Pressure-Temperature Ratings

Max.Working Temperature	Max.Working Pressure(MPa)		
	class 10K	class 20K	class 30K
Steam, Air, Gas, Oil(425℃)	—	2.0	3.0
Steam, Air, Gas, (400℃)	—	2.3	3.4
Steam, Air, Gas, Water(350℃)	—	2.6	3.9
Steam, Air, Gas, Water(300℃)	1.0	2.9	4.3
Steam, Air, Gas, Water(220℃)	1.2	3.1	4.6
Water(120℃)	1.4	3.4	5.1

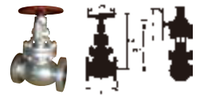
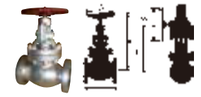
CAST STEEL(JIS) Gate Valve OS&Y

		10K Flanged			20K Flanged			30K Flanged		
Fig No.		84			87			118		
Material	Body	SCPH2								
		13Cr.								
Working Pressure		See(5)Pressure-Temperature Ratings								
Appearance										
Dimension		L	H(Open)	W	L	H(Open)	W	L	H(Open)	W
2 inch	50㎜	178	420	250	216	413	224	216	440	224
2½	65	190	440	250	241	476	224	241	480	224
3	80	203	525	280	283	535	250	283	520	250
4	100	229	610	300	305	618	300	305	650	300
5	125	254	650	300	381	685	300	381	770	300
6	150	267	785	350	403	810	355	403	840	355
8	200	292	980	400	419	991	400	419	1025	400
10	250	330	1190	400	457	1210	450	457	1230	450
12	300	356	1375	500	502	1416	510	502	1450	510
14	350	381	1522	500	762	1705	Gear	762	1705	Gear
16	400	406	1713	600	838	1869	Gear	838	1875	Gear
18	450	432	1892	600	914	2018	Gear	914	2020	Gear
20	500	457	2119	700	991	2225	Gear	991	2229	Gear
24	600	508	2500	700	1143	2766	Gear	1143	2751	Gear

CAST STEEL(JIS) Swing Check Valve

		10K Flanged		20K Flanged		30K Flanged	
Fig No.		85		88		120	
Material	Body	SCPH2					
	Trim	13Cr.					
Working Pressure		See(5)Pressure-Temperature Ratings					
Appearance							
Dimension		L	H	L	H	L	H
2 inch	50㎜	203	152	267	176	267	185
2½	65	216	165	292	185	292	210
3	80	241	175	318	216	318	235
4	100	292	215	356	259	356	265
5	125	330	252	400	298	400	305
6	150	356	293	444	317	444	375
8	200	495	353	533	380	533	430
10	250	622	420	622	434	622	520
12	300	698	480	711	511	711	570

CAST STEEL(JIS) Globe Valve

		10K Flanged			20K Flanged			30K Flanged		
Fig No.		86			89			141		
Material	Body	SCPH2								
	Trim	13Cr.								
Working Pressure		See(5)Pressure-Temperature Ratings								
Appearance										
Dimension		L	H(Open)	W	L	H(Open)	W	L	H(Open)	W
2 inch	50㎜	203	380	200	267	393	220	267	375	210
2½	65	216	388	250	292	427	250	292	446	300
3	80	241	434	250	318	505	280	318	535	350
4	100	292	515	300	356	570	350	356	625	400
5	125	356	545	320	400	610	400	400	700	400
6	150	406	560	400	444	640	450	444	720	Gear
8	200	495	800	Gear	559	800	Gear	559	800	Gear
10	250	622	930	Gear	622	930	Gear	622	930	Gear
12	300	699	1080	Gear	711	1080	Gear	711	1080	Gear

FORGED STEEL General Specification and Standard

(1) Basic Standard
- Gate Valve : API 602/ASME B16.34
- Check Valve : API 602/ASME B16.34
- Globe Valve : API 602/ASME B16.34

(2) Face To Face Dimensions (Flange Type) : ASME B16.10 , ASME B16.10 Class 300 for 10K/150Lb. Flanged

(3) Flange Dimensions (Flange Type) : JIS B2220 10K/20K/30K/40KF and ASME B16.5 Class 150/300/600

(4) Screw Dimensions (Screw Type) : JIS B0203Rc (PT) or ASME B16.11 as option

(5) Socket Weld Dimensions (Socket Weld Type) : JIS B2316 or ASME B16.11 as option

(6) Pressure-Temperature Ratings

● Screw Type and Socket Weld Type (class 800)

Temperature(℃)	−29 ~38	50	100	150	200	250	300	325	350	375	400	425
Working Pressure(MPa)	13.62	13.37	12.43	12.02	11.68	11.18	10.62	10.32	10.02	9.70	9.26	7.67

● JIS Flange Type

Flow and Temperature	Working Pressure(MPa)			
	10K	20K	30K	40K
Steam,Air,Gas,Oil(425℃)	—	2.0	3.0	4.0
Steam,Air,Gas,Oil(400℃)	—	2.3	3.4	4.6
Steam,Air,Gas,Oil, Water(350℃)	—	2.6	3.9	5.2
Steam,Air,Gas,Oil, Water(300℃)	1.0	2.9	4.3	5.7
Steam,Air,Gas,Oil, Water(220℃)	1.2	3.1	4.6	6.2
Water(120℃)	1.4	3.4	5.1	6.8

● ASME Flange Type

Temperature(℃)		−29 ~38	50	100	150	200	250	300	325	350	375	400	425
Working Pressure (MPa)	Class 150	1.96	1.92	1.77	1.58	1.38	1.21	1.02	0.93	0.84	0.74	0.65	0.55
	Class 300	5.11	5.01	4.66	4.51	4.38	4.19	3.98	3.87	3.76	3.64	3.47	2.88
	Class 600	10.21	10.02	9.32	9.02	8.76	8.39	7.96	7.74	7.51	7.27	6.94	5.75

FORGED STEEL Gate Valve OS&Y

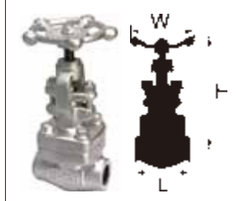
Screw | Socket Weld | 10K Flanged | 20K Flanged | 30K Flanged | 40K Flanged | 150Lb. Flanged | 300Lb. Flanged | 600Lb. Flanged

Fig No.		201	202	203	204	205	206	207	208	209
Material	Body	SFVC2A(ASME A105)								
	Trim	API Trim No.8(Body Seat=Stl. Disc Seat=13Cr. Stem=13Cr.)								
Working Pressure		See(6)Pressure-Temperature Ratings								
Appearance										

Dimension		L	H(Open)	W	L							H(Open)	W
					10K	20K	30K	40K	150Lb.	300Lb.	600Lb.		
1/2 inch	15㎜	79	159	100	140	140	165	165	140	140	165	159	100
3/4	20	92	163	100	152	152	190	190	152	152	190	163	100
1	25	111	201	125	165	165	216	216	165	165	216	201	125
1 1/4	32	120	221	160	178	178	229	229	178	178	229	221	160
1 1/2	40	120	248	160	190	190	241	241	190	190	241	248	160
2	50	140	283	180	216	216	292	292	216	216	292	283	180

FORGED STEEL Globe Valve

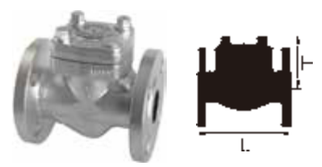
Screw | Socket Weld | 10K Flanged | 20K Flanged | 30K Flanged | 40K Flanged | 150Lb. Flanged | 300Lb. Flanged | 600Lb. Flanged

Fig No.		210	211	212	213	214	215	216	217	218
Material	Body	SFVC2A(ASME A105)								
	Trim	API Trim No.8(Body Seat=Stl. Disc Seat=13Cr. Stem=13Cr.)								
Working Pressure		See(6)Pressure-Temperature Ratings								
Appearance										

Dimension		L	H(Open)	W	L							H(Open)	W
					10K	20K	30K	40K	150Lb.	300Lb.	600Lb.		
1/2 inch	15㎜	79	168	100	152	152	165	165	152	152	165	168	100
3/4	20	92	169	100	178	178	190	190	178	178	190	169	100
1	25	111	212	125	203	203	216	216	203	203	216	212	125
1 1/4	32	120	235	160	216	216	229	229	216	216	229	235	160
1 1/2	40	152	267	160	229	229	241	241	229	229	241	267	160
2	50	172	300	180	267	267	292	292	267	267	292	300	180

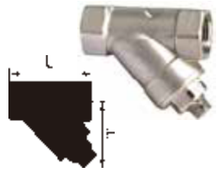
FORGED STEEL Lift Check Valve

Screw | Socket Weld | 10K Flanged | 20K Flanged | 30K Flanged | 40K Flanged | 150Lb. Flanged | 300Lb. Flanged | 600Lb. Flanged

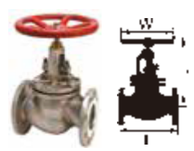
Fig No.		219	220	221	223	224	225	226	227	228
Material	Body	SFVC2A(ASME A105)								
	Trim	API Trim No.8(Body Seat=Stl. Disc Seat=13Cr. Stem=13Cr.)								
Working Pressure		See(6)Pressure Temperature Ratings								
Appearance										

Dimension		L	H	L							H
				10K	20K	30K	40K	150Lb.	300Lb.	600Lb.	
1/2 inch	15㎜	79	63	152	152	165	165	152	152	165	63
3/4	20	92	64	178	178	190	190	178	178	190	64
1	25	111	79	203	203	216	216	203	203	216	79
1 1/4	32	120	84	216	216	229	229	216	216	229	84
1 1/2	40	152	105	229	229	241	241	229	229	241	105
2	50	172	124	267	267	292	292	267	267	292	124

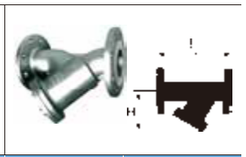
Screwed (PT or NPT)

Fig No.		95			96			97			98		
Item		200 Gate N.R.S			200 Swing			200 Globe			200 Y-Strainer		
Material	Body	CF8M(SCS14A)											
	Trim	316 S/Steel											
Class		10K	16bar	150Lb.	10K	16bar	150Lb.	10K	16bar	150Lb.	10K	16bar	150Lb.
Screw		PT		NPT	PT		NPT	PT		NPT	PT		NPT
Standard		JIS	BS	ASME	JIS	BS	ASME	JIS	BS	ASME	JIS	BS	ASME
Working Pressure		●JIS/1.4MPa(−10～120℃) ●BS/16bar(−10～100℃) ●ASME/275PSI-WOG(100°F)											
Appearance													
Dimension		L	H	W	L	H	L	H(Open)	W	L	H		
1/2 inch	15㎜	55	101	70	65	43	52	103	70	65	45		
3/4	20	60	108	70	80	51	66	111	80	80	53		
1	25	65	115	80	89	60	76	121	80	90	68		
1 1/4	32	75	132	80	105	66	86	156	90	105	72		
1 1/2	40	85	149	90	120	75	94	147	90	120	80		
2	50	95	175	100	139	80	118	175	100	140	97		
2 1/2	65	116	213	140	181	99				170	112		
3	80	130	241	140	200	104				195	129		

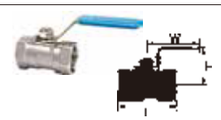
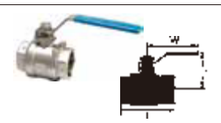
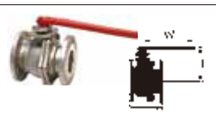
150Lb./10K/PN16 Flanged

Fig No.		99-3	99-4	100-3	100-4	101-3	101-4	102-3	102-4
Item		Gate OS&Y		Swing		Globe		Y-Strainer	
Material	Body	CF8(SCS13A)	CF8M(SCS14A)	CF8(SCS13A)	CF8M(SCS14A)	CF8(SCS13A)	CF8M(SCS14A)	CF8(SCS13A)	CF8M(SCS14A)
	Trim	304 S/Steel	316 S/Steel	304 S/Steel	316 S/Steel	304 S/Steel	316 S/Steel	304 S/Screen	316 S/Screen
Working Pressure		●10K/1.4MPa(−10～120℃) ●PN16/16bar(−10～100℃) ●150Lb./275PSI-WOG(100°F)							
Appearance									
Dimension		L	H(Open)	W	L	H	L	H(Open)	W	L	H		
1/2 inch	15㎜	108	190	120	108	51	108	186	140	120	85		
3/4	20	117	195	120	117	54	117	197	140	140	87		
1	25	127	234	120	127	64	127	212	140	150	114		
1 1/4	32	140	297	200	140	68	140	236	160	180	114		
1 1/2	40	165	300	200	165	75	165	236	160	190	135		
2	50	178	331	200	203	98	203	252	200	210	155		
2 1/2	65	190	393	200	216	112	216	308	200	250	189		
3	80	203	470	250	241	124	241	327	250	280	200		
4	100	229	545	250	292	161	292	384	250	340	232		
5	125	254	640	300	330	180	356	484	300	380	274		
6	150	267	740	300	356	205	406	547	350	420	326		
8	200	292	910	350	495	236	495	669	350	500	397		
10	250	330	1097	400	622	302	622	824	400	730	512		
12	300	356	1285	400	698	340	698	736	500	850	562		

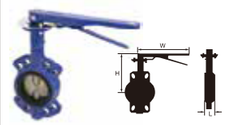
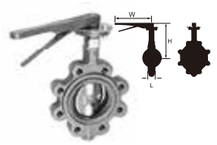
300Lb. /20K Flanged

Fig No.		121-3	121-4	122-3	122-4	123-3	123-4	124-3	124-4
Item		Gate OS&Y		Swing		Globe		Y-Strainer	
Material	Body	CF8(SCS13A)	CF8M(SCS14A)	CF8(SCS13A)	CF8M(SCS14A)	CF8(SCS13A)	CF8M(SCS14A)	CF8(SCS13A)	CF8M(SCS14A)
	Trim	304 S/Steel	316 S/Steel	304 S/Steel	316 S/Steel	304 S/Steel	316 S/Steel	304 S/S Screen	316 S/S Screen
Working Pressure		●20K/3.4MPa(−10～120℃) ●300Lb./720PSI(100°F)							
Appearance		JV 		JV 		JV 			
Dimension		L	H(Open)	W	L	H	L	H(Open)	W	L	H		
1/2 inch	15㎜	140	236	120	152	61	152	186	140	120	85		
3/4	20	152	236	120	178	61	178	186	140	140	87		
1	25	165	236	120	216	79	203	187	140	150	114		
1 1/4	32	178	355	250	229	93	216	215	140	180	114		
1 1/2	40	190	355	250	241	93	229	236	140	190	135		
2	50	216	356	250	267	128	267	289	250	210	155		
2 1/2	65	241	415	250	292	146	292	297	250	250	189		
3	80	283	471	250	318	168	318	343	300	290	200		
4	100	305	568	300	356	200	356	398	300	386	232		
5	125	381	677	300	400	228	400	487	450	400	274		
6	150	403	791	350	445	271	444	558	450	480	326		
8	200	419	1006	400	533	323	559	665	500	600	397		
10	250	457	1214	400	622	355				730	512		
12	300	502	1408	500	711	406				850	562		

Screwed (PT or NPT) / 150Lb./10K Flanged / 300Lb./20K Flanged

Fig No.		92	93	144-3	144-4	125-3	125-4
Item		1000R Ball	1000F Ball	150Lb./10K Ball		300Lb./20K Ball	
Material	Body	CF8M(SCS14A)		CF8(SCS13A)	CF8M(SCS14A)	CF8(SCS13A)	CF8M(SCS14A)
	Trim	CF8M(SCS14A)		CF8(SCS13A)	CF8M(SCS14A)	CF8(SCS13A)	CF8M(SCS14A)
	Seat	R PTFE		R PTFE			
	Stem	316 S/Steel		304 S/Steel	316 S/Steel	304 S/Steel	316 S/Steel
Design		1-PC.Body	2-PC.Body	2-PC.Body			
Bore		Reduce	Full	Full			
Working Pressure		●6.86MPa(−10～38℃)	●6.86MPa(−10～38℃)	●10K/1.4MPa(−10～120℃) ●150Lb./275PSI(100°F)		●20K/3.4MPa(−10～120℃) ●300Lb./425PSI(100°F)	
Appearance							
Dimension		L	H	W	L	H	W	L		H	W	L	H	W
								10K	150Lb.					
1/4 inch	8㎜	39	34	69	52	56	102							
3/8	10	44	38	83	52	56	102							
1/2	15	59	41	96	58	65	123	110	108	85	160	140	94	160
3/4	20	60	45	96	67	68	123	120	117	90	160	152	99	160
1	25	72	52	116	78	79	153	130	127	100	160	165	108	160
1 1/4	32	77	57	116	90	84	153	140	140	105	160	178	108	160
1 1/2	40	84	62	158	104	93	183	165	165	110	206	190	112	230
2	50	100	68	158	127	99	183	180	178	120	206	216	122	230
2 1/2	65				158	136	246	190	190	160	324	241	151	350
3	80				187	146	246	200	203	170	324	283	163	350
4	100							230	229	185	324	305	172	350
5	125							300	356	260	650			
6	150							340	394	280	650	403	247	750
8	200							450	457	340	850	502	305	1000
10	250							530	533	※	※			
12	300							610	610	※	※			
Remark				※Gear Ope. as Std. PN25/PN40 Flanged available										

BUTTERFLY VALVE TG-Series

	Wafer			Lug								
Fig No.	139			140			142			143		
Item	TGW-Lever Type			TGW-Gear Type			TGL-Leven 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
2 inch 50㎜	43	193	162	43	198	150	43	193	162	43	198	150
2½ 65	46	207	267	46	212	150	46	207	267	46	212	150
3 80	46	213	267	46	218	150	46	213	267	46	218	150
4 100	52	232	267	52	237	150	52	232	267	52	237	150
5 125	56	245	267	56	250	150	56	245	267	56	250	150
6 150	56	258	267	56	263	150	56	258	267	56	263	150
8 200	60	305	361	60	305	300	60	305	361	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 300㎜ & below : 1.4MPa Size 350㎜ & 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	431 S/Steel	
TG－6			NBR		
TG－7		ALBC	EPDM		
TG－8			NBR		

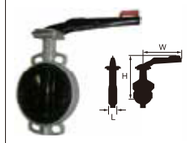
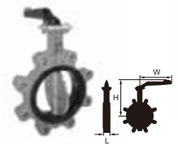
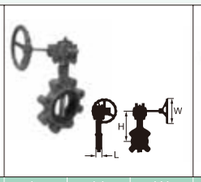
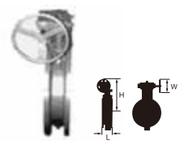
(9) Working Temperature

Seat Material	
NBR	EPDM
0～80℃	-10～120℃

(10) Dewdrops-Proof — Insulation is attached between body and actuater on request

(11) Long Neck Type — Sufficient space for insulation

BUTTERFLY VALVE VF-Series

	Wafer			Lug									Flanged		
Fig No.	229			230			231			232			233G		
Item	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
1½ inch 40㎜	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
2½ 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 Butterfry 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

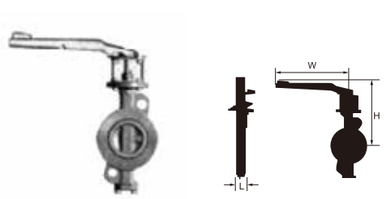
Material No.	Parts Material				Working Pressure
	Body	Disc	Seat	Shaft	
VFW-1、VFL-1、VFF-1	A126-B	A536 +Nylon11	EPDM	F6a	Size 300mm &.,below:1.6MPa Size 350mm &.,above:1.0MPa
VFW-2、VFL-2、VFF-2			NBR		
VFW-3、VFL-3、VFF-3		CF8	EPDM	F304	
VFW-4、VFL-4、VFF-4			NBR		
VFW-5、VFL-5、VFF-5		CF8M	EPDM	F316	
VFW-6、VFL-6、VFF-6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

(8) Working Temperature

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

(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	50㎜	43	253	200	43	214	150
2½	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

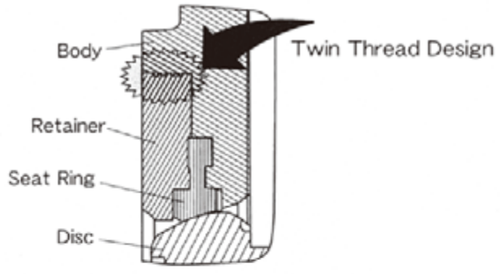
●HP Series Butterfly Valve…

(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

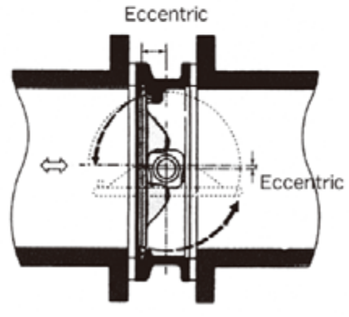


(2) Benefit of Double Eccentric Structure

●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

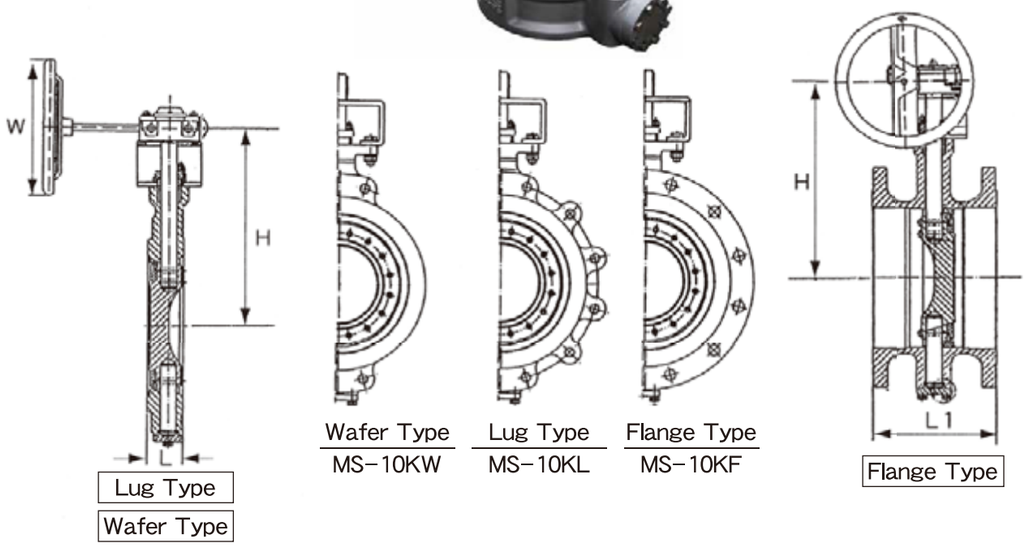
(8) Working Pressure and Temperature

Temperatur(℃)	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	—
2½	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

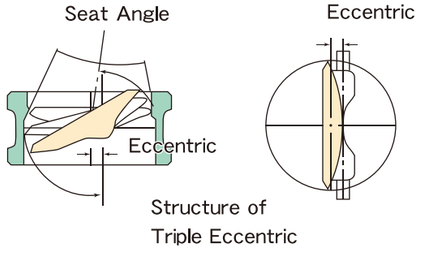
Material		See(9) Material									
Working Pressure		See(8)Working Pressure and Temperature									
Dimension		L	H	W	L	H	W	L1 SHORT	L1 LONG	H	W
3 inch	80㎜	47	241	150	47	241	150	114	180	252	150
4	100	53	251	150	53	251	150	127	190	271	150
6	150	56	306	150	56	306	150	140	210	296	150
8	200	63	331	200	63	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 ot 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(℃)	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

Fig No.		30	80	90
Item		SHOWA-FLEX SCREWED	SHOWA-FLEX SINGLE SPHERE	SHOWA-FLEX DOUBLE SPHERE
Conection		PT or NPT	125Lb. or PN16 or 10K	
Material	Body	EPDM		
	Flange	——	Mild Steel	
	Union	Malleable Iron	——	
Appearamce				
Dimension		L	L	L
3／4 inch	20㎜	200		
1	25	200		
1 1／4	32	200		
1 1／2	40	200	95	175
2	50	200	105	175
2 1／2	65		115	175
3	80		130	175
4	100		135	225
5	125		170	225
6	150		180	225
8	200		205	325
10	250		240	325
12	300		260	325

● Operating Condition

Fig No.	30			80			90		
Operating Pressure	125Lb.	PN16	10K	125Lb.	PN16	10K	125Lb.	PN16	10K
	●1.38MPa	●1.57MPa	●1.37MPa	●1.38MPa	●1.57MPa	●1.37MPa	●1.38MPa	●1.57MPa	●1.37MPa
Burst Pressure	4.90MPa			●5.88MPa (size40～200㎜) ●3.92MPa (size250～300㎜)			5.88MPa		
Vacuum Rating	400㎜Hg								
Temp.	－10～105℃								

Fig63 Ringset Butterfly Valve

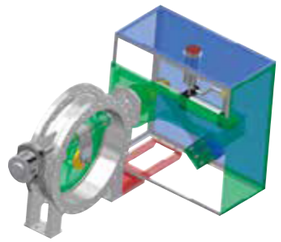
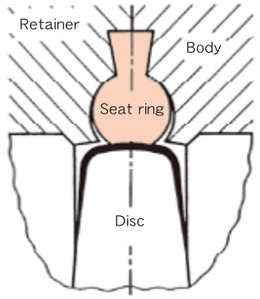


Fig67 Ringset Check Valve



1. What is Ringset?

The body of a ringset valve is provided with a seat ring which is a non-integral seating to the body as shown in the right figure. The seat ring is replaceable at a site, so that easier maintenance of the valve can be get. This replaceability also brings a longservice life of the valve.

2. Body Materials

The body and the disc are of grey cast iron as a basic material. Other materials, such as, cast steel, stainless steel, spheroidal graphite iron, and carbon steel are available on request. Rubber linings for the body and the disc are also available.

3. Materials of Seat Ring and Temperature Ratings

Seat ring material	Applicable fluid	Temperature range(℃)
NR	water, weak acid, weak alkali, etc.	−20 ～60
CR	water, air, weak acid, alkali, etc.	−10 ～80
NBR	mineral oil, gasoline, benzine, etc.	0 ～80
FPM	hot oil, steam, air, etc.	−20 ～200
EPDM	steam, air, etc.	−10 ～120
PTFE	any kind of fluid	−196 ～200

4. Pressure Ratings

We have two types of valves designated by pressure. Type RBL is for low pressure use and type RBH for high pressure use. The relation between nominal diameter and pressure is shown in the right figure.

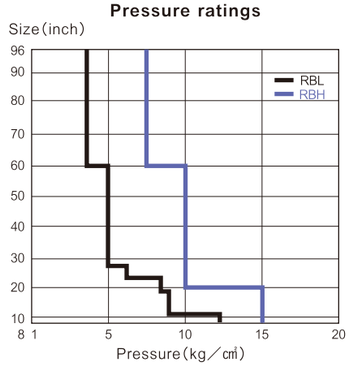


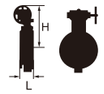
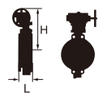
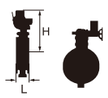
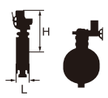
Fig No.		61			62			63			64		
Item		Ringset Butterfly Gear Ope.						Ringset Butterfly Electric Ope.					
Material		Cast Iron・Cast Steel・Ductile Iron・Stainless											
Type		Flanged			Wafer			Flanged			Wafer		
Flange		10K・125Lb・10bar・16bar											
Standard		AWWA C-504											
Appearance													
Dimension		L	H		L	H		L	H		L	H	
			RBL	RBH		RBL	RBH		RBL	RBH		RBL	RBH
8 inch	200㎜	152	380	380	95	380	380	152	719	743	95	719	743
10	250	203	415	415	100	415	415	203	754	781	100	754	781
12	300	203	468	468	110	468	468	203	790	808	110	790	808
14	350	203	493	493	120	493	493	203	824	854	120	824	854
16	400	203	558	573	135	558	573	203	870	920	135	870	920
18	450	203	578	593	145	578	593	203	900	945	145	900	945
20	500	203	628	678	155	628	678	203	970	978	155	970	978
22	550	203	653	703	155	653	703	203	988	1011	155	988	1011
24	600	203	683	733	180	683	733	203	1020	1046	180	1020	1046
26	650	305	763	785	180	763	785	305	1081	1104	180	1081	1104
28	700	305	798	825	185	798	825	305	1101	1159	185	1101	1159
30	750	305	828	850	185	828	850	305	1141	1191	185	1141	1191
32	800	305	905	905	205	905	905	305	1176	1939	205	1176	1939
34	850	305	930	930	215	930	930	305	1215	1282	215	1215	1282
36	900	305	955	965	225	955	965	305	1270	1354	225	1270	1354
38	950	305	1015	990	235	1015	990	305	1375	1460	235	1375	1460
40	1000	305	1015	1025	250	1015	1025	305	1405	1496	250	1405	1496
44	1100	305	1085	1085	270	1085	1085	305	1420	1539	270	1420	1539
48	1200	381	1150	1180	280	1150	1180	381	1562	1617	280	1562	1617
54	1350	381	1235	1345	320	1235	1345	381	1673	1713	320	1673	1713
60	1500	381	1350	1495	340	1350	1495	381	1821	1881	340	1821	1881
64	1600	457	1480	1564	355	1480	1564	457	1866	1950	355	1866	1950
72	1800	457	1620	1744	380	1620	1744	457	2091	2190	380	2091	2190
80	2000	559	1755	1864	410	1755	1864	559	2195	2304	410	2195	2304
88	2200	559	1895	2044	435	1895	2044	559	2398	2522	435	2398	2522
96	2400	559	2035	2174	460	2035	2174	559	2526	2684	460	2526	2684

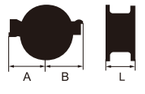
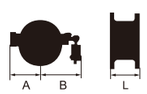
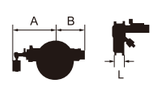
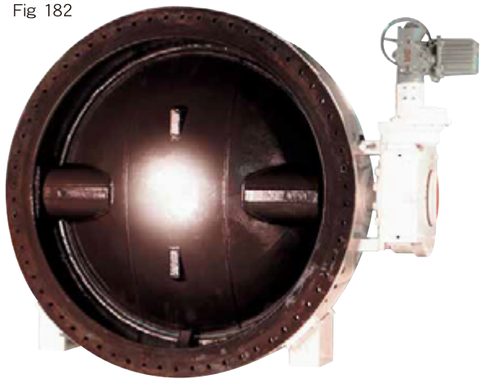
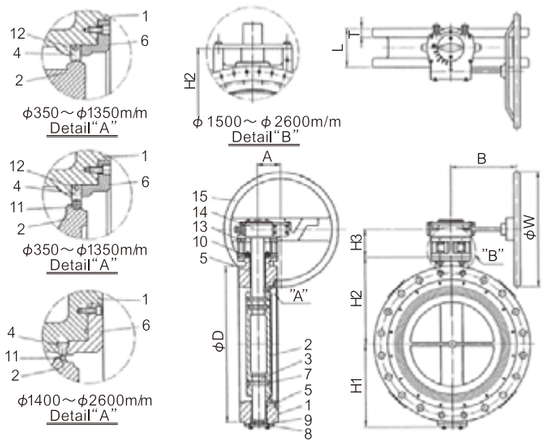
Fig No.		65			66			67		
Item		Ringset Check								
Material		Cast Iron・Cast Steel・Ductile Iron・Stainless								
Type		Standard			With Counter Weight			With Dash Pot		
Flange		10K・125Lb・10bar・16bar								
Standard		SHOWA Original								
Appearance										
Dimension		L	A	B	L	A	B	L	A	B
14 inch	350㎜	203	339	312	203	339	490			
16	400	203	385	405	203	385	575			
18	450	203	405	422	203	405	605			
20	500	203	440	520	203	440	650			
22	550	203	465	547	203	465	685			
24	600	203	503	561	203	503	735	203	890	650
26	650				305	540	775	305	930	687
28	700				305	580	825	305	1155	740
30	750				305	605	860	305	1180	780
32	800				305	658	925	305	1210	820
34	850				305	683	975	305	1240	850
36	900				305	708	1000	305	1260	870
40	1000				305	768	1065	305	1350	930
44	1100				305	833	1130	305	1555	990
48	1200				381	910	1200	381	1600	1100
54	1350				381	1015	1320	381	1680	1180

Fig 182





● AWWA Butterfly Valve…

Conforming to AWWA C504 (DN350～PN1800) and AWWA C516 (DN2000～DN2600)

● Material

No.	Part Name	Standard Material	Available Material	No.	Part Name	Standard Material
1	Body	A126-B	A536	9	O-Ring	NBR
2	Disc	A536	CF8, CF8M, WCB	10	Gland	B62
3	Shaft	A182 F6a	F316, Monel	11	Disc Edge Ring	A182 F316
4	Seat	NBR	EPDM･CR･VITON	12	Metal Ring	SS400
5	Bushing	B62	—	13	Stand	A536
6	Retainer	A536	—	14	Gear	Cast Iron
7	Pin	A182 F6a	F316, Monel	15	Handwheel	Ductile Iron
8	Bottom Cover	A126-B	A536			

● Dimensions

Size	Dimensions (㎜)								
mm	L	ΦD	H1	H2	H3	T	A	B	ΦW
350	203	535	302	320	152	35	123	345	600
400	203	597	332	326	152	37	123	345	600
450	203	640	366	395	206	40	123	345	600
500	203	700	391	400	206	43	123	345	600
600	203	815	449	455	206	45	123	345	600
700	305	927	549	552	295	48	160	360	600
750	305	985	551	575	295	54	160	360	600
800	305	1060	602	616	295	57	160	360	600
900	305	1170	632	690	346	60	215	415	600
1000	305	1289	734	789	346	64	215	415	600
1050	305	1347	733	789	346	64	215	415	600
1100	305	1405	773	800	346	67	215	415	600
1200	381	1512	822	880	310	70	282	574	600
1350	381	1626	871	930	310	76	330	826	600
1500	381	1854	998	1100	161	79	330	826	600
1650	457	2032	1078	1185	161	86	330	826	600
1800	457	2197	1177	1280	314	89	462	865	600
2000	508	2362	1277	1380	314	99	462	865	600
2200	580	2642	1397	1500	314	89	462	865	600
2400	580	2877	1558	1650	221	108	462	865	600
2600	580	3048	1596	1700	221	117	462	865	600

● Working Pressure

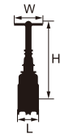
1.0Mpa-Water Size 350～1500㎜
0.75Mpa-Water Size 1600㎜ &over

● Test Pressure

Size	350～1500㎜	1600㎜&over
Shell	1.5Mpa	1.13Mpa
Seat	1.1Mpa	0.83Mpa

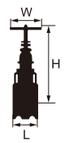
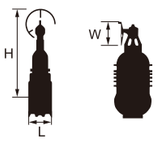
● Available for Electric Operation Type

Outside Screw & Yoke Rising Stem

Fig No.		6 or 8	6G or 8G
Operation		Manual	Gear
Material	Body	Cast Iron or Ductile Iron	
	Trim	Bronze or Aluminium Bronze or Z･F･Bronze or S/Steel	
Flange Standard & Working Pressure		Fig6-ANSI125 : 150PSI-WOG(100°F)100PSI-Steam Fig8-BS-PN16 : 16bar(−10～120℃) Fig8-JIS10K : 1.0MPa(−10～120℃)	
Appearance			

Dimension		L	H(Open)	W	L	H	W
14inch	350㎜	381	1544	450	381	1636	460
16	400	406	1800	500	406	1830	460
18	450	432	2002	560	432	2064	460
20	500	457	2212	600	457	2207	610
24	600	508	2690	710	508	2633	610
28	700	610	3060	750	610	3125	760
32	800				660	3625	760
36	900				711	3995	760
40	1000				811	4375	760

Non-Rising Stem

Fig No.		1 or 3	1G or 8G
Operation		Manual	Gear
Material	Body	Cast Iron or Ductile Iron	
	Trim	Bronze or Aluminium Bronze or Z･F･Bronze or S/Steel	
Flange Standard & Working Pressure		Fig1-ANSI125 : 150PSI-WOG(100°F)100PSI-Steam Fig3-BS-PN16 : 16bar(−10～120℃) Fig3-JIS10K : 1.0MPa(−10～120℃)	
Appearance			

Dimension		L	H	W	L	H	W
14inch	350㎜	381	975	450	381	1153	308
16	400	406	1132	500	406	1345	460
18	450	432	1227	560	432	1445	460
20	500	457	1339	600	457	1648	610
24	600	508	1566	710	508	1852	610
28	700	610	1780	710	610	2140	760
32	800				660	2396	760
36	900				711	2605	760
40	1000				811	2777	760

WATER WORKS Gate Valve (BS EN1074-2)

		PN16 Flanged			PN25 Flanged		
Fig No.		35	35R		104W	104WR	
Item		Gate N.R.S.			Gate N.R.S.		
Material	Body	Cast Iron			Cast Iron		
	Trim	Bronze	316SS		Bronze	316SS	
	Stem	13Cr. S/S			13Cr. S/S		
Working Pressure		16bar(60℃)			25bar(60℃)		
Appearance		 Cap Operation as option			 Cap Operation as option		

Dimension		L	H	W	L	H	W
2 inch	50㎜	178	297	200	216	290	200
2 1／2	65	190	325	224	241	313	200
3	80	203	348	224	283	350	224
4	100	229	399	250	305	400	250
5	125	254	451	280	381	448	280
6	150	267	516	315	403	520	300
8	200	292	612	355	419	612	355
10	250	330	719	355	457	728	400
12	300	356	820	400	502	835	400
Remark		With Indicator as Std. Epoxy Powder Coated (WRAS #1701509)			With Indicator as Std. Epoxy Powder Coated (WRAS #1701509)		

WATER WORKS Globe Valve (BS EN13789)

		PN16 Flanged
Fig No.		34RB
Item		Globe
Material	Body	Cast Iron
	Trim	Bronze
	Stem	Brass
Working Pressure		16bar(60℃)
Appearance		

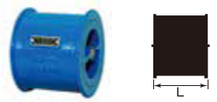
Dimension		L	H	W
2 inch	50㎜	203	265	180
2 1／2	65	216	289	200
3	80	241	329	224
4	100	292	367	280
5	125	330	398	315
6	150	356	457	355
8	200	495	561	450
10	250	622	665	500
Remark		Epoxy Powder Coated (WRAS #1701509)		

WATER WORKS Check Valve (BS EN12334)

		PN16 Flanged		
Fig No.		10RB	10R	24R
Item		Swing Check		Globe Type Silent
Material	Body	Cast Iron		Cast Iron
	Trim	Bronze	316SS	316SS/NBR
Working Pressure		16bar(60℃)		16bar(60℃)
Appearance				

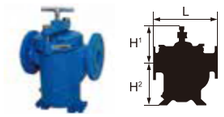
Dimension		L	H	L
2 inch	50㎜	203	115	183
2 1／2	65	216	120	200
3	80	241	135	210
4	100	292	160	217
5	125	330	185	255
6	150	356	205	280
8	200	495	235	416
10	250	622	310	
12	300	698	360	
Remark		Epoxy Powder Coated (WRAS #1701509)		Epoxy Powder Coated (WRAS #1701509)

WATER WORKS Check Valve (BS EN12334)

		PN16 Wafer	
Fig No.		40RB	40R
Item		Silent Check	
Material	Body	Cast Iron	
	Trim	Bronze/NBR	316SS/NBR
Working Pressure		16bar(60℃)	
Appearance			

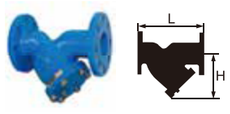
Dimension		L
2 inch	50㎜	90
2 1／2	65	100
3	80	115
4	100	135
5	125	150
6	150	175
8	200	220
10	250	280
Remark		Epoxy Powder Coated (WRAS #1701509)

PN16 Flanged

Fig No.		191Aa(R)	191Ab(R)	191Ca(R)	191Cb(R)
Item		U-Strainer		U-Strainer	
Material	Body	Cast Iron		Cast Iron	
	Screen	304SS	316SS	304SS	316SS
Working Pressure		16bar(60℃)		16bar(60℃)	
Appearance					

Dimension		L	H1	H2	L	H1	H2
2 inch	50㎜	267	176	194	—	—	—
2½	65	295	184	223	—	—	—
3	80	334	202	279	225	190	125
4	100	427	256	273	286	197	195
5	125	—	—	—	—	—	—
6	150	497	285	469	356	240	270
8	200	685	338	685	—	—	—
10	250	838	422	790	—	—	—
12	300	857	450	1114	—	—	—
Remark		Epoxy Powder Coated (WRAS #1701509) Quick Open Type			Epoxy Powder Coated (WRAS #1701509) Quick Open Type Compact Type		

PN16 Flanged

Fig No.		33R
Item		Y-Strainer
Material	Body	Cast Iron
	Screen	316SS
Working Pressure		16bar(60℃)
Appearance		

Dimension		L	H
2 inch	50㎜	220	135
2½	65	270	179
3	80	290	190
4	100	350	238
5	125	390	270
6	150	440	321
8	200	540	384
10	250	680	495
12	300	840	574
Remark		Epoxy Powder Coated (WRAS #1701509)	

Punching Screen Dimension

Fig, 191Aa(R), 191Ab(R)

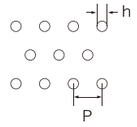
Size	h(㎜)	P(㎜)	equivalent
50~65㎜	3.2	4.6	8mesh
80㎜	3.8	4.8	7mesh
100~300㎜	4.0	5.0	6mesh

Fig, 191Ca(R), 191Cb(R)

Size	h(㎜)	P(㎜)	equivalent
80~100㎜	1.5	2.5	10mesh
150㎜	2.0	3.0	8mesh

Fig, 33R

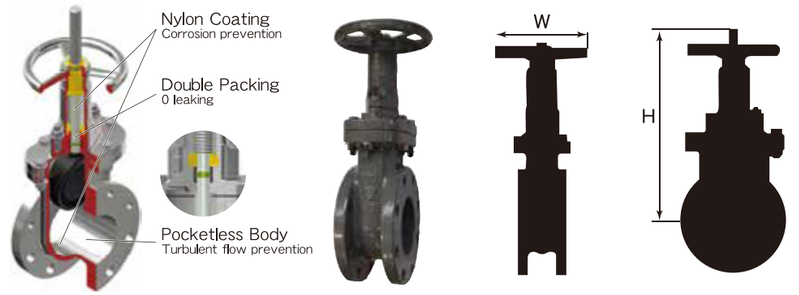
Size	h(㎜)	P(㎜)	equivalent
50~100㎜	1.5	2.5	10mesh
125~300㎜	2.0	3.0	8mesh



ES Type Soft Seal Gate Valve…

- OS & Y Gate Valve with NBR lining Disc
- Available to open and close by small torque
- Suitable for various fluid like water, sea water, sewage, chemical liquid, powder, oil
- 100% sealing

Fig No.		41
Connection		JIS10K Flanged
Size		40~300㎜
Material	Body	FC200 or FCD450-10 + Internal & External Nylon coating
	Disc	FC200 + NBR lining
	Stem	SUS304 + Nylon coating
Max. W/P		1.0Mpa
Range W/T		0~80℃



Dimension	L	H	W
40㎜	80	270	160
50	85	290	160
65	90	330	160
80	100	400	180
100	100	470	180
125	125	560	180
150	150	670	224
200	180	860	224
250	190	1060	300
300	200	1240	300

WATER WORKS VALVE

1. Conveyance

a) Avoid damage by throw, fall, drag, push down, contact, etc.

b) Do not damage to the protector for valve to avoid its function falls off.

c) When hanging valve, use suitable equipment, and hang valve body or prescribed position, do not hang hand wheel or gear.

d) Handle carefully the valve which is coated by corrosion-resistance or heat-resistance paint / rubber lined / powder epoxy paint made of ceramic or synthetic resin.

e) Handle carefully the valve which has bypass valve or attached apparatus as it tends to be damaged easily.

2. Storage

a) Store the valve in dry, dark and cool conditions, preferably indoors with the actual valve temperature higher than the dew point. If outdoor storage is unavoidable, support the valves off the ground and protect the valves with a watertight cover.

b) Shelter valve from direct sunlight ; especially packing, gasket, rubber products, resin powder paint article and electric apparatus.

c) Do not put on the place with vibration.

d) Do not remove the valve packaging or end port protection until necessary for installation to protect against dust, rain, water dew.

e) In case storage period exceeds one month, suitable lubricant or rust prevention oil onto connection part, stem, etc. is required.

3. Mounting

a) Use appropriate support, fixation or joint so as to avoid superfluous stress.

b) Take following essential factors in piping design into consideration to avoid functional deterioration of valve. installation of strainer / draining / proper slope / branch method / flow velocity / water hammer & surging.

c) In case of mounting Butterfly Valve or Dual Plate Check Valve close to elbow, preferably mount to upstream side. Unavoidably mounting to downstream side, flow velocity must be equal in between left & right side of disc against stem.(see fig.1)

d) In order to preserve fluid conditions and prevent freezing, install insulations, ice-free plug, draining etc., if necessary.

e) Ensure a proper selection of piping gasket and bolts as flanges of cast iron valve might be damaged by over tightening of bolts.

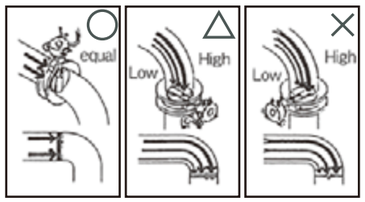


Fig.1

f) Before mounting valve, check the followings ;

-When opening the package, check the contents with prescribed documents, tag, name plate, etc.

-Appearance; whether it has harmful foreign substance, damage, corrosion, etc.

-Remove all protections for valves,.

-Clean inside completely and remove slag in order to prevent bite of foreign substance to disc seat.

-Valve and accessories(gasket, bolt, etc) conform to the definite standard.

g) Mounting of screwed end valve

-Taper thread of pipe should be held regular effective length, no scratch, cleaned by brush or cloth.

-Use suitable seal tape or compound for screw part in order to prevent leakage,rust,etc.

-Ensure suitable quantity of seal tape or compound and correct winding method.

-Check thread matching between valve and pipe, slightly screw by hand. Then, hang a wrench on the connection end of valve to be screwed to pipe. (see fig.2)

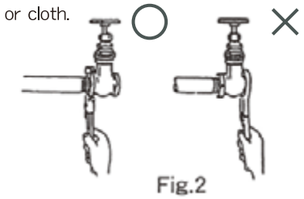


Fig.2

-Do not tighten with superfluous torque, It causes damage by interference with tip of screw part and partition of valve. (see fig.3)

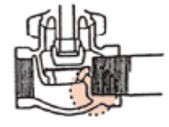


Fig.3

h) Mounting of flanged & wafer type valve

-Clean the flange and gasket surface, no adhesion of harmful scratch and foreign substance.

-Use regular material, form & size of bolt and nut.

-Use appropriate gasket against condition of use.

-Do not use gasket for butterfly valve which gasket surface is covered by rubber seat.

-When tightening bolt, keep parallel of flange faces within proper degree.

-Do not adjust piping distortion(ex. flange center, face to face distance etc.) by bolting. Tighten bolt by hand lightly as gasket is fastened uniformity. Then, tighten again little by little and equally by torque wrench or spanner from the diagonal lined position. This procedure must be divided into 4~5 steps to reach to proper torque. (see fig.4)


Fig.4

-When mounting external rubber- lined or coated valve, use chamfered flat washer in order to avoid damage of the surface.

4. Operation

a) Before operating valve, make sure to get sufficient knowledge about followings from drawing, instruction manual, related data for safe and continuous operation.

-Function & operation method of valve.

-System of apparatus and valve operation

-Valve operation in emergency

b) Do not operate recklessly and wrongly.

c) When operation valve, pay attention to passage sound of fluid/motion of stem. Check smooth valve operation without harmful vibration and unusual noise.

d) At start of operation, check leakage from apparatus, pipe, valve and those connected part with careful attention.

e) In case temperature rises after start of operation, to check timely whether there is any leakage from the bolted part with gasket. Re-tightening should be carried out, if necessary.

f) Carry out regular check of gland part during operation, and re-tighten gland with proper torque, if it is leaked. (see fig.5)

g) In case state of valve is unchanged over long period, take regular operation to fully open and close position to avoid operational function falls and adherence of movable part,

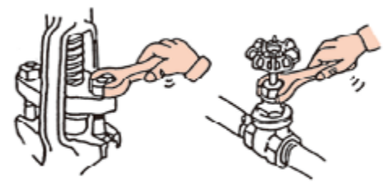


Fig.5