

WOOSUNG CHECK VALVES

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PANCHECK

Trademark Registration No. 40-0663823



API 6D-1562

CE 0062

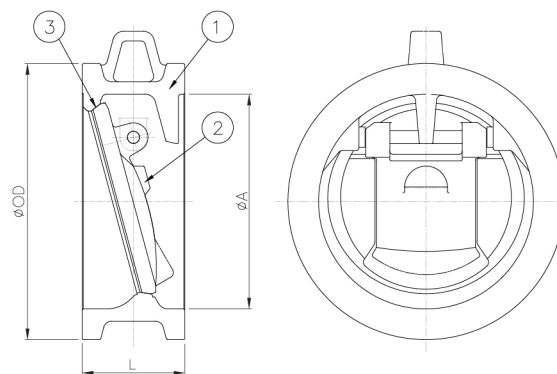


ISO9001 / ISO14001

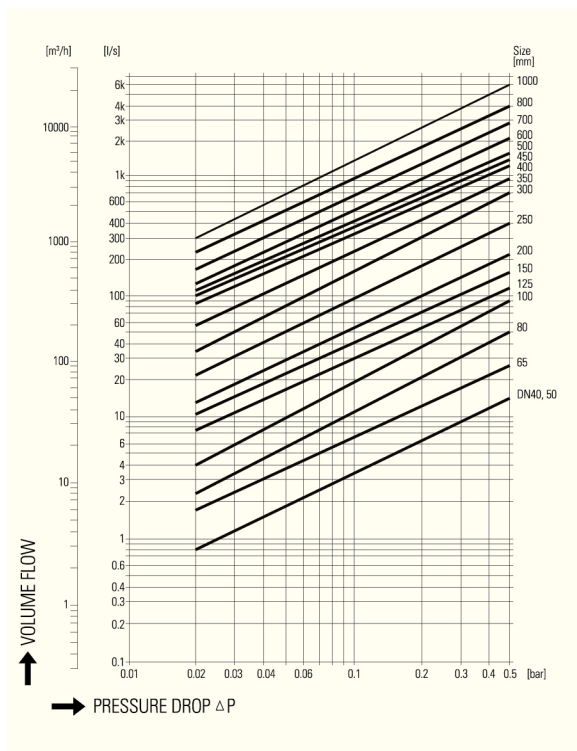
TILTING CHECK VALVE

Model No. TLP / TLC

2"(50A) ~ 66"(1650A)



PRESSURE DROP CHART



SPECIFICATION

Size	2"(50A) ~ 66"(1650A)	
Service	Oil, Water, Air, Sea Water..etc.	
Rating	JIS10K~20K, Class 150 ~ 300, AWWA C207..etc.	
End connections	Wafer, Flanged..etc.	
Materials	① Body	Stainless Steel, Carbon Steel, Duplex, NI_AL_Bronze..etc.
	② Disc	Stainless Steel, Carbon Steel, Duplex, NI_AL_Bronze..etc.
	③ Seat	Rubber, PTFE, Stainless Steel, Stellite Overlay..etc.

DIMENSIONS

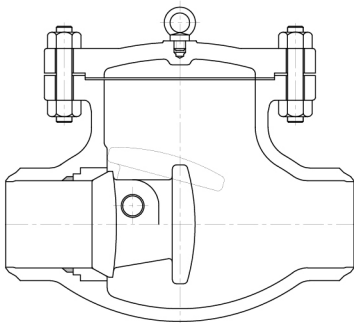
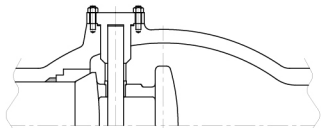
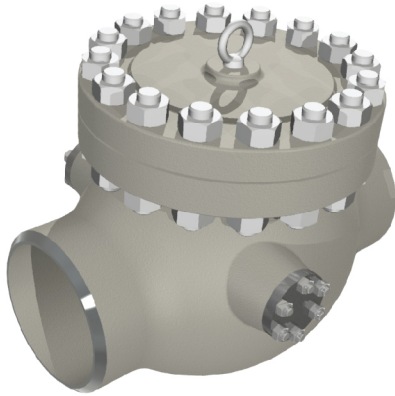
Size mm (Inch)	ØA	JIS 10K		Class 150	
		OD	L	OD	L
50 (2")	60	101	60	105	60
65 (2 1/2")	67	121	67	124	67
80 (3")	80	131	73	137	73
100 (4")	100	156	73	175	73
125 (5")	125	187	86	197	86
150 (6")	150	217	98	222	98
200 (8")	200	267	127	279	127
250 (10")	250	330	146	340	146
300 (12")	300	375	181	410	181
350 (14")	350	420	184	451	184
400 (16")	400	483	191	514	191
450 (18")	450	538	203	549	203
500 (20")	487	593	219	606	219
600 (24")	596	697	222	718	222
700 (28")	684	807	321	832	321

※ Above dimensions are subject to change for improvement.

TILTING CHECK VALVE

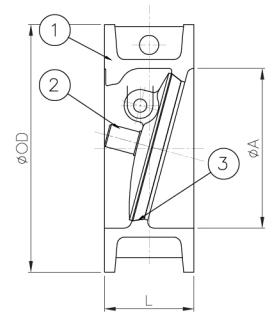
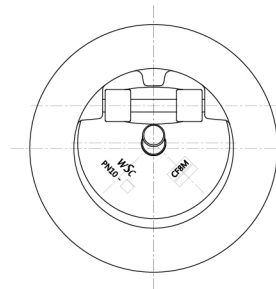
Model No. TLB

2"(50A) ~ 60"(1500A)



Model No. LTP

4"(100A) ~ 10"(250A)



SPECIFICATION

Size	2"(50A) ~ 60"(1500A)
Service	Oil, Water, Air, Sea Water..etc.
Rating	ASME Class 600~4500
End connections	Butt-Welded
Materials	Stainless Steel, Carbon Steel, Duplex, NI_AL_Bronze..etc.

Type	Description
TLP	Tilting Plug Type (Wafer)
TLC	Tilting Cover Type (Wafer)
TLB	Tilting Butt-Welded Type (Butt-Welded)
LTP	Weight Lightening Tilting Plug Type (Wafer)

SPECIFICATION

Size	4"(100A) ~ 10"(250A)	
Service	Water, Sea Water..etc.	
Rating	PN10	
End connections	Wafer	
Materials	① Body	Stainless Steel, WCB..etc.
	② Disc	Stainless Steel, WCB..etc.
	③ Seat	Metal

DIMENSIONS

Size mm (Inch)	ØA	JIS 10K		Weight (kg)
		OD	L	
80 (3")	72	142	64	3
100 (4")	90	162	64	4
125 (5")	112	194	70	6
150 (6")	135	219	76	10
200 (8")	180	273	89	17
250 (10")	225	329	114	24

※ Above dimensions are subject to change for improvement.

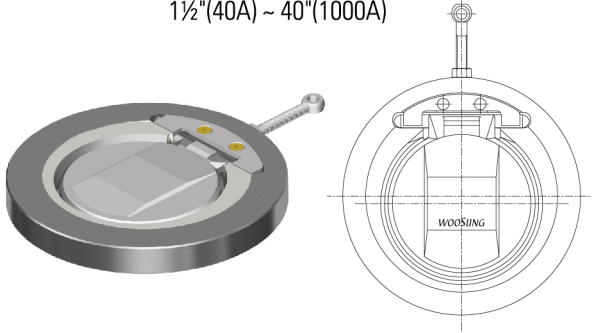
SWING PAN CHECK VALVE

(Wafer Type)



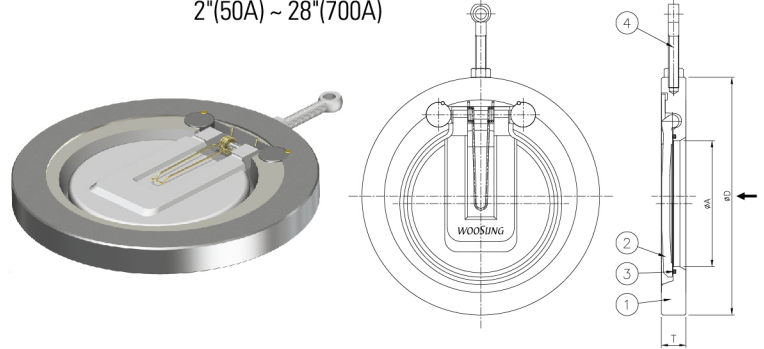
Model No. SP

1½"(40A) ~ 40"(1000A)

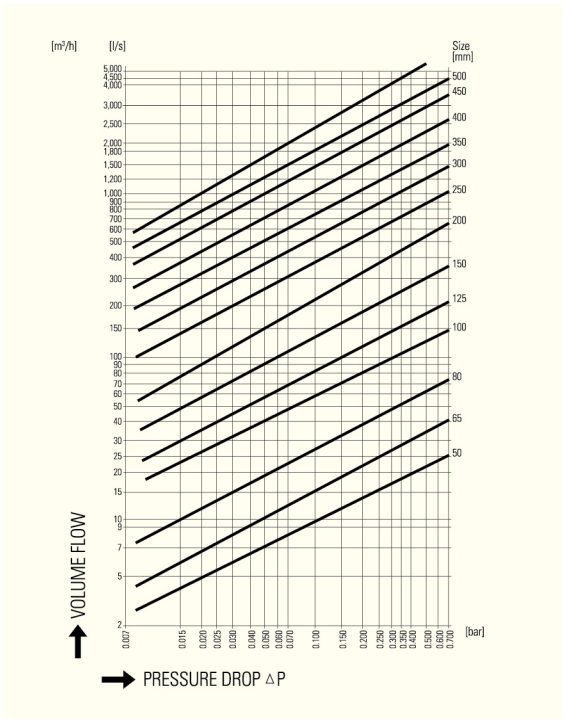


Model No. SPS

2"(50A) ~ 28"(700A)



PRESSURE DROP CHART



SPECIFICATION

Model	SP	SPS
Size	1 ½"(40A) ~ 40"(1000A)	2"(50A) ~ 28"(700A)
Rating	JIS 10K	Class 150 (PN20)
Pressure	15bar	29bar
End connections	Wafer	
Materials	① Body	Stainless Steel, Carbon Steel, NI_AL_Bronze..etc.
	② Disc	Stainless Steel, Carbon Steel, NI_AL_Bronze..etc.
	③ O-Ring	NBR / EPDM / VITON
	④ Bolt	Stainless Steel
Soft Seal	EPDM(E)	-10°C ~ +130°C
	VITON(V)	-20°C ~ +150°C

DIMENSIONS

Size mm (Inch)	ØA mm	SP			SPS		
		JIS 10K		Weight (kg)	Class 150 (PN20)		Weight (kg)
		ØD (mm)	T (mm)		ØD (mm)	T (mm)	
40 (1 ½")	22	89	18	1.1	-	-	-
50 (2")	31	104	18	1.2	104	19	1.3
65 (2 ½")	44	124	19	1.6	124	19	1.7
80 (3")	54	134	19	1.9	137	20	2
100 (4")	76	159	19	2.5	175	22	2.7
125 (5")	90	190	21	3.1	197	24	3.4
150 (6")	110	220	24	4.9	222	26	5.5
200 (8")	143	270	28	11	279	28	13
250 (10")	187	333	30	15	340	34	18
300 (12")	215	378	38	25	410	40	28
350 (14")	260	423	41	35	450	45	40
400 (16")	310	486	48	55	514	51	60
450 (18")	347	541	51	68	549	57	75
500 (20")	390	596	65	108	606	68	120
600 (24")	460	700	75	165	718	78	175
700 (28")	538	810	89	185	832	90	216
800 (32")	610	920	102	333	-	-	-
900 (36")	700	1020	127	462	-	-	-
1000 (40")	795	1124	146	685	-	-	-

※ Above dimensions are subject to change for improvement.

APPLICATION

Air, Oil, Water..etc.

FEATURES

1) Simple Construction 2) Slim Shape 3) Light Weight

NOTICE

- 1) When the valve is installed at the horizontal pipe line, the lifting lug is to be upwardly positioned.
- 2) When connecting with Pump, Bend or Elbow, 5 times distance of pipe's diameter is recommended.

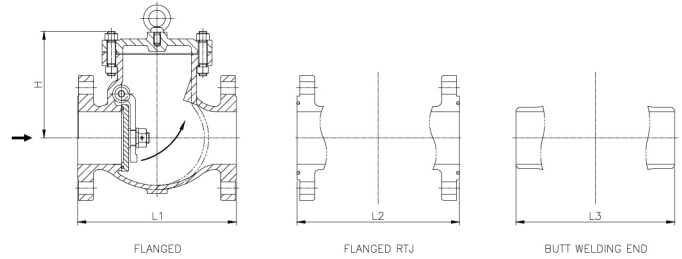
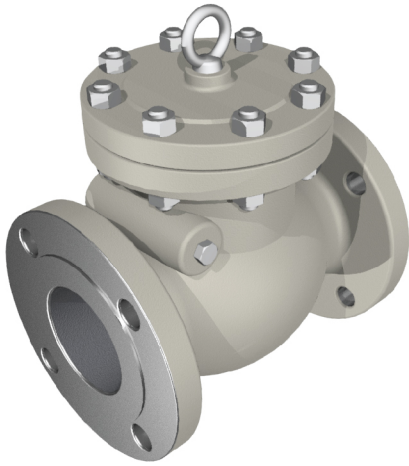
SWING CHECK VALVE

(Inside Hinge Pin & Bolted Cover Type)



Model No. SWB / SWF

2"(50A) ~ 28"(700A)



SPECIFICATION

Size	2"(50A) ~ 28"(700A)	
Service	Oil, Water, Gas, Air, Sea Water, Steam..etc.	
Rating	Class 150~1500	
End connections	Flanged, Flanged RTJ, Butt Welding..etc.	
Materials	① Body	Stainless Steel, Carbon Steel..etc.
	② Cover	Stainless Steel, Carbon Steel..etc.
	③ Disc	Stainless Steel, Alloy Steel..etc.
	④ Seat	Forged Carbon Steel..etc.
	⑤ Hinge	Stainless Steel(R-BAR)..etc.

DIMENSIONS

Size mm (Inch)	Rating	Flanged	Flanged RTJ	Butt-Welded	H (mm)	Weight (kg)
		L1(mm)	L2(mm)	L3(mm)		
50 (2")	150	203	-	203	155	15
	300	267	283	267	175	19
	600	299	295	299	190	35
	900	368	371	368	321	70
	1500	368	371	368	333	123
65 (2½")	150	216	-	216	170	22
	300	292	208	292	190	30
	600	330	333	330	210	54
	900	381	384	381	333	110
	1500	419	422	419	349	155
80 (3")	150	241	-	241	185	27
	300	318	333	318	205	35
	600	356	359	356	235	64
	900	419	422	419	349	160
	1500	470	473	470	389	180
100 (4")	150	292	-	292	200	41
	300	356	371	356	220	54
	600	432	435	432	300	104
	900	457	460	457	423	214
	1500	546	549	546	419	340
150 (6")	150	356	-	356	255	80
	300	444	460	444	326	128
	600	559	562	559	400	204
	900	610	613	610	479	380
	1500	705	711	705	587	627
200 (8")	150	495	-	495	305	142
	300	533	549	533	368	210
	600	660	664	660	430	360
	900	737	740	737	565	624
	1500	832	841	832	680	2100

Size mm (Inch)	Rating	Flanged	Flanged RTJ	Butt-Welded	H (mm)	Weight (kg)
		L1(mm)	L2(mm)	L3(mm)		
250 (10")	150	622	-	622	345	177
	300	622	638	622	473	268
	600	787	791	787	525	620
	900	838	841	838	721	1150
	1500	991	1000	991	750	3200
300 (12")	150	698	-	698	380	290
	300	711	727	711	530	415
	600	838	841	838	615	805
	900	965	968	965	781	1450
	1500	1130	1146	1130	1008	4400
350 (14")	150	787	-	787	460	391
	300	838	854	838	580	682
	600	889	892	889	700	1046
	900	1029	1038	1029	807	1750
	1500	1257	1276	1257	1035	5400
400 (16")	150	864	-	864	545	461
	300	864	880	864	695	747
	600	991	994	991	812	1350
	900	1130	1140	1130	838	2420
450 (18")	150	978	-	978	650	640
	300	978	994	978	797	1250
	600	1092	1095	1092	960	2020
500 (20")	150	1016	-	1016	670	780
	300	1016	1035	1016	876	1500
	600	1194	1200	1194	1029	2390
600 (24")	150	1295	-	1295	900	1490
	300	1346	1368	1346	1007	2230
	600	1397	1407	1397	1202	3500
700 (28")	150	1448	-	1448	1016	2050
	300	1499	1524	1499	1149	2950

※ Above dimensions are subject to change for improvement.

SWING PAN CHECK VALVE

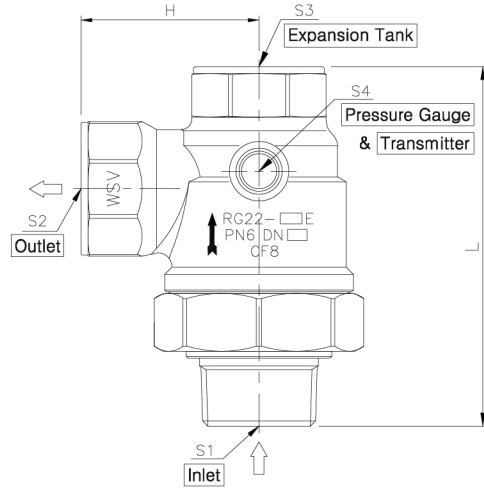
SWING CHECK VALVE

5-WAY UNION CHECK VALVE

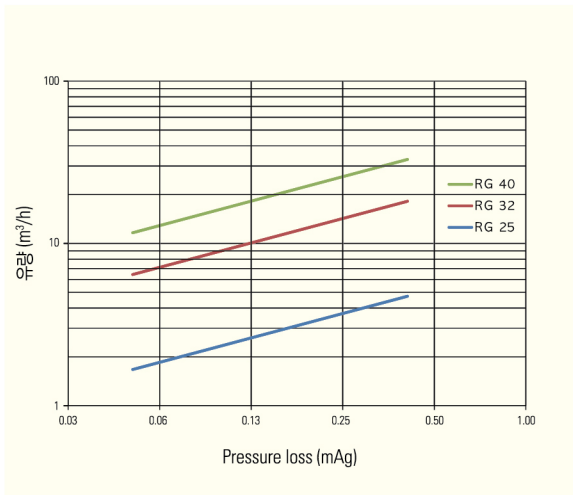


Model No. RG

1"(25A) ~ 1½"(40A)



PRESSURE DROP CHART



SPECIFICATION

Size	1"(25A)~1 ½"(40A)	
Pipe connections	Screwed	
Pressure	10bar	
Test Pressure	Shell	15bar
	Seat	11bar
Materials	Body	Stainless Steel
	Nipple	Stainless Steel
	Union Nut	Stainless Steel
	Valve Unit	POM
	Seat	NBR / EPDM / VITON
	Spring	Stainless Steel
Max. Temp	80°C	

DIMENSIONS

Size		Dimensions					
mm	Inch	L	H	S1	S2	S3	S4
25	1"	103	51	R 1"	Rc 1"	Rc 1"	G ¼"
32	1 ¼"	129	60	R 1 ¼"	Rc 1 ¼"	Rc 1"	G ¼"
40	1 ½"	138	69	R 1 ½"	Rc 1 ½"	Rc 1"	G ¼"

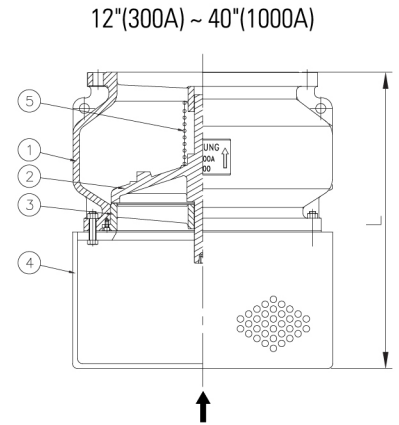
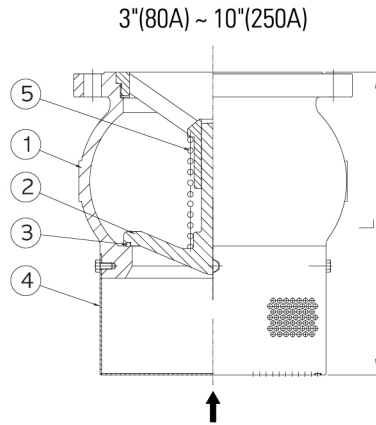
APPLICATION

- Inverter Pump
- Booster Pump
- Electronic control Pump

FOOT VALVE

Model No. NSF

3"(80A) ~ 40"(1000A)



SPECIFICATION

Size	3"(80A) ~ 40"(1000A)		
Pipe connections	FLANGED		
Pressure	10K	Class 150	
Test Pressure	Shell	15bar	29bar
	Seat	11bar	21bar
Materials	① Body	Carbon Steel, Stainless Steel, Bronze..etc.	
	② Disc	Carbon Steel, Stainless Steel, Bronze..etc.	
	③ Seat	Rubber, PTFE, Stainless Steel, Stellite Overlay..etc.	
	④ Screen	Stainless Steel, Bronze	
	⑤ Spring	Stainless Steel, Inconel	

DIMENSIONS

Size mm (Inch)	JIS 10K		Class 150	
	L (mm)	Weight (kg)	L (mm)	Weight (kg)
80 (3")	213.8	17	213.8	19
100 (4")	241	25	241	30
125 (5")	257	30	257	35
150 (6")	275	43	275	46
200 (8")	375	75	375	80
250 (10")	482	128	482	135
300 (12")	590	179	590	188
350 (14")	653	222	653	230
400 (16")	734	298	734	313
450 (18")	787	423	787	432
500 (20")	900	521	900	535
600 (24")	1054	715	1054	756
700 (28")	1200	1152	1200	1250
900 (36")	2045	2387	2045	2479
1000 (40")	2200	3565	2200	3898

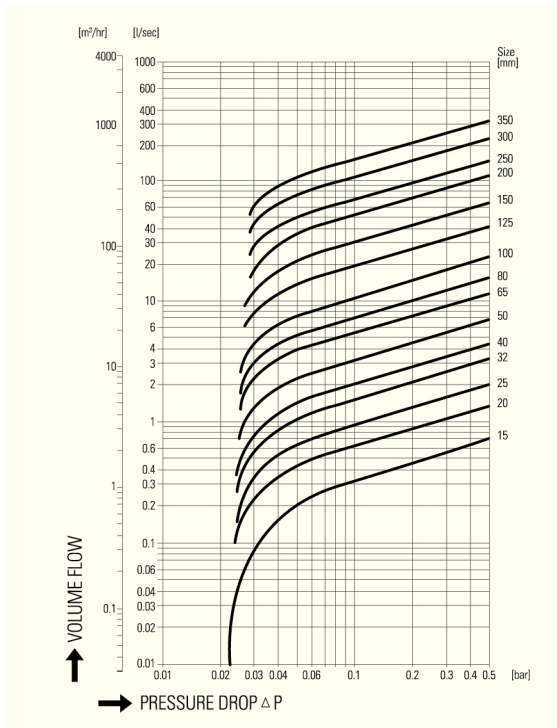
※ Above dimensions are subject to change for improvement.

PAN CHECK VALVE

PAN CHECK VALVE FEATURE

- 1) No water hammering effect
There is no water hammering effect since the valve is closed by spring before water backflow takes place.
- 2) Thin, Small and Light Structure
PAN Check Valves have much shorter length and lighter than those of swing or lift check valves because the disc stroke is short and body has no flange.
- 3) Either Horizontal or Vertical Installation
PAN Check Valves can be horizontally or vertically installed because of their spring compression structure. They can also be installed at the vertical downflow sections.
- 4) Free alteration of opening pressure
Alteration of opening pressure is available upon customer's request.

PRESSURE DROP CHART



WEIGHT & DIMENSIONS

Size		50	65	80	100	125	150	200	250
Weight (kg)	Pan Check	1.0	1.5	2.1	3.6	9.3	14	29	44
	Swing Check	12	17	21	31	50	70	110	–
	Lift Check	10	14	16	20	30	40	80	–
F to F (mm)	Pan Check	40	46	50	60	90	106	140	170
	Swing Check	200	220	240	290	360	410	500	–
	Lift Check	300	216	241	292	356	406	495	–

CONNECTIONS BOLTS DIMENSIONS (10K)

Size	mm	15	20	25	32	40	50	65	80	100	125	150	200	250
	inch	½	¾	1	1 ¼	1 ½	2	2 ½	3	4	5	6	8	10
Bolt	Q'ty	4	4	4	4	4	4	4	8	8	8	8	12	12
	M	12	12	16	16	16	16	16	16	16	20	20	20	22
	L	65	70	75	85	90	100	110	120	130	170	190	220	260

PAN CHECK VALVE OVERVIEW TABLE

Model	Size mm	Max. Pressure	Materials	Internal fittings Material	Fold Genus	Connection sheets
PC	15-80	16	Forged Brass	Stainless Steel	W	Metal to Metal
	100	16	Bronze casting	Stainless Steel	W	Metal to Metal
	15-100	40	Stainless Steel	Stainless Steel	W	Metal to Metal
PA	25-80	10	Stainless Steel	Stainless Steel	W	Rubber to Metal
	25-80	10	Forged Brass	Stainless Steel	W	Rubber to Metal
	25-80	16	Forged Brass	Stainless Steel	W	Metal to Metal
	25-80	40	Stainless Steel	Stainless Steel	W	Metal to Metal
	100	10	Stainless Steel	Stainless Steel	W	Rubber to Metal
	100	10	Bronze casting	Stainless Steel	W	Rubber to Metal
	100	16	Bronze casting	Stainless Steel	W	Metal to Metal
	100	40	Stainless Steel	Stainless Steel	W	Metal to Metal
	25-350	10	Stainless Steel	Stainless Steel	W	Rubber to Metal
	125-250	10	Ductile	Stainless Steel	W	Rubber to Metal
	25-200	40	Stainless Steel	Stainless Steel	W	Metal to Metal
	250-350	10-20	Stainless Steel	Stainless Steel	W	Metal to Metal
ANA	15-100	150-300 Class	Stainless Steel	Stainless Steel	W	Metal to Metal
CV	15-50	10 Bar	Forged Brass	Stainless Steel	S	Metal to Metal
PCS	8-50	20 Bar	Stainless Steel	Stainless Steel	S	Metal to Metal
UCV	15-50	10 Bar	Forged Brass	POM	S	Rubber to Metal
PAS	25-50	20 Bar	Stainless Steel	Stainless Steel	S	Metal to Metal
BU	08-20	20 Bar	Stainless Steel	Stainless Steel	S	Rubber to Metal
KAI	08-25	20 Bar	Stainless Steel	Stainless Steel	S	Rubber to Metal

NOTICE

- 1) Please contact us when the valve is used in high pressure and temperature.
- 2) Please contact us when the valve is used in excessively frequent open and close condition.

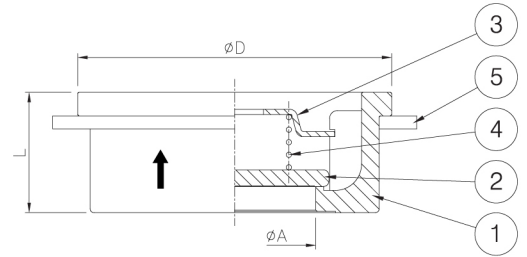
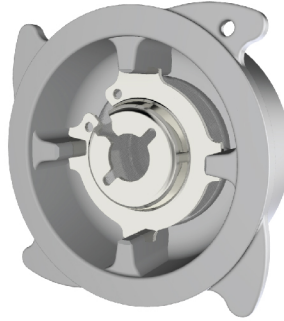
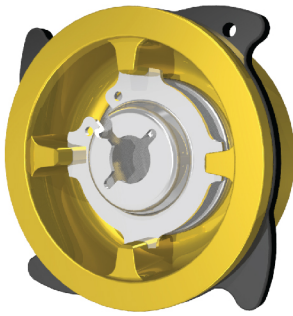
W : Wafer S : Screw

PAN CHECK VALVE

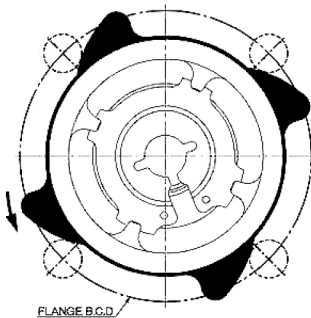


Model No. PC

½"(15A) ~ 4"(100A)



CENTER RUBBER HOW TO USE



When four points of center rubbers have simultaneous contact with four bolts, it is properly centered.

SPECIFICATION

Model		PC12	PC22
Seat		Metal	Metal
Size		½"(15A) ~ 4"(100A)	½"(15A) ~ 4"(100A)
Max. Pressure		16bar	40bar
Test. Pressure	Shell	24bar	60bar
	Seat	18bar	44bar
Pipe connections		Wafer	
Materials	① Body	Forged Brass (100A:Bronze)	Stainless Steel
	② Disc	Stainless Steel	
		Solid Teflon (-40°C ~ +180°C, Pressure 7bar)	
	③ Spring Seat	Stainless Steel	
	④ Spring	Stainless Steel, Inconel	
⑤ Center Rubber	NBR	Stainless Steel	
Pressure Drop		Please refer to Pressure drop Chart table of Page18.	

NOTICE

Please only use for in-compressible fluid.

APPLICATION

- Water, Oil
- Vacuum Breaker, Foot valve
- Onshore, Offshore

DIMENSIONS

Size mm(Inch)	D mm	L mm	A mm	Weight (kg)
15 (½)	40	16	15	0.09
20 (¾)	50	19	20	0.12
25 (1)	61	22	25	0.3
32 (1¼)	72.5	28	32	0.5
40 (1½)	87	32	39	0.7
50 (2)	102	40	49	1.14
65 (2½)	120	46	63	1.83
80 (3)	132.5	50	75	2.45
100 (4)	158	60	93	3.97

OPENING PRESSURE (bar)

With spring			With spring
↑	→	↓	↑
0.053	0.050	0.045	0.004
0.053	0.050	0.045	0.004
0.054	0.050	0.044	0.005
0.053	0.050	0.045	0.004
0.054	0.050	0.044	0.005
0.055	0.050	0.043	0.006
0.055	0.051	0.043	0.006
0.056	0.051	0.042	0.007
0.057	0.051	0.041	0.008

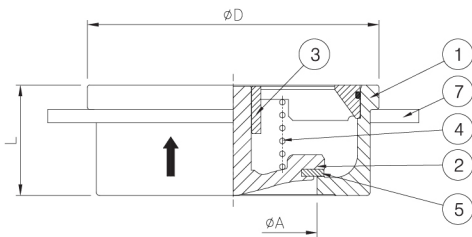
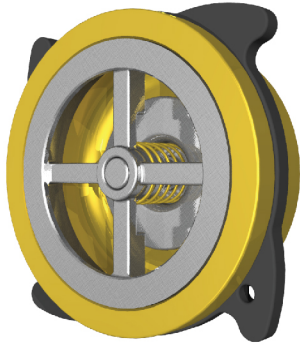
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※ Above dimensions are subject to change for improvement

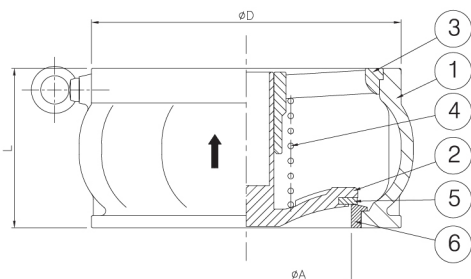
PAN CHECK VALVE

Model No. PA12 / PA32

1"(25A) ~ 4"(100A)



5"(125A) ~ 10"(250A)



SPECIFICATION

Model	PA12		PA32	
Seat	Metal	Rubber	Metal	Rubber
Size	1"(25A) ~ 4"(100A)		5"(125A) ~ 10"(250A)	
Max. Pressure	16bar	10bar	10bar	
Test. Pressure	Shell	24bar	15bar	15bar
	Seat	18bar	11bar	11bar
Pipe connections	Wafer			
Materials	① Body	Forged Brass (100A:Bronze)		Ductile Cast Iron
	② Cone Disc	Stainless Steel		
	③ Guide	Stainless Steel		
	④ Spring	Stainless Steel, Inconel		
	⑤ Disc Rubber	EPDM -10°C ~ +130°C VITON -20°C ~ +150°C PTFE -40°C ~ +180°C		
	⑥ Valve Seat	-		Bronze Ring
	⑦ Center Rubber	NBR(25A-80A)		-
Pressure Drop	Please refer to Pressure drop Chart table of Page18.			

DIMENSIONS

Size mm(Inch)	D mm	L mm	A mm	Weight (kg)
25 (1)	61	22	25	0.35
32 (1¼)	72.5	28	32	0.55
40 (1½)	87	32	39	0.8
50 (2)	102	40	49	1.1
65 (2½)	120	46	63	1.6
80 (3)	132.5	50	76	2.3
100 (4)	158	60	94	3.8
125 (5)	187	90	120	9
150 (6)	217	106	140	13.5
200 (8)	267	140	184	28.3
250 (10)	330	170	223	44

OPENING PRESSURE

(bar)

With spring			With spring
↑	→	↓	↑
0.055	0.051	0.043	0.006
0.052	0.048	0.041	0.005
0.055	0.050	0.042	0.006
0.055	0.050	0.041	0.007
0.056	0.050	0.040	0.008
0.057	0.050	0.039	0.009
0.058	0.051	0.038	0.010
0.060	0.051	0.035	0.012
0.060	0.050	0.032	0.014
0.062	0.049	0.027	0.018
0.064	0.050	0.025	0.019

- L : Din 3202, Sheet3, Series K4

※ Above dimensions are subject to change for improvement

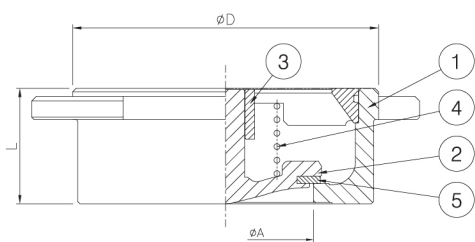
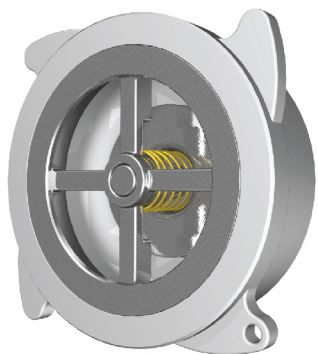
APPLICATION

- Water, Oil
- Vacuum Breaker, Foot valve
- Onshore, Offshore

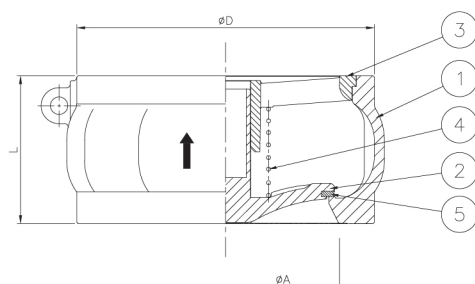
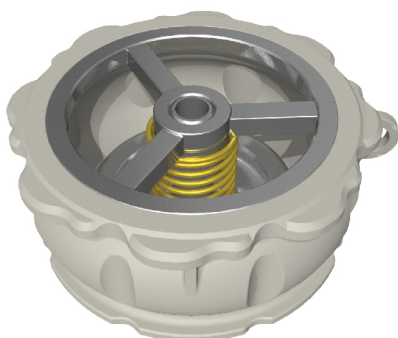
PAN CHECK VALVE

Model No. PA

1"(25A) ~ 3"(80A)



4"(100A) ~ 14"(350A)



SPECIFICATION

Seat		Metal			Rubber
Size		1"(25A) ~ 8"(200A)	10"(250A) ~ 14"(350A)	4"(100A) ~ 14"(350A)	
Max. Pressure		40bar	20bar	10bar	
Test. Pressure	Shell	60bar	30bar	15bar	
	Seat	44bar	22bar	11bar	
Pressure and Temperature		40bar 120°C	34bar 200°C	32bar 300°C	Disc Rubber
End connections		Wafer			
Materials	① Body	Stainless Steel			
	② Cone Disc	Stainless Steel			
	③ Guide	Stainless Steel			
	④ Spring	Stainless Steel, Inconel			
	⑤ Disc Rubber	EPDM -10°C ~ +130°C VITON -20°C ~ +150°C PTFE -40°C ~ +180°C			
Pressure Drop		Please refer to Pressure drop Chart table of Page18.			

DIMENSIONS

Size mm(Inch)	D mm	L mm	A mm	Weight (kg)
25 (1)	61	22	25	0.35
32 (1¼)	72	28	32	0.55
40 (1½)	87	32	39	0.8
50 (2)	101	40	49	1.1
65 (2½)	120	46	63	1.6
80 (3)	133	50	76	2.3
100 (4)	158	60	94	3.8
125 (5)	186	90	120	9
150 (6)	216	106	140	13.5
200 (8)	267	140	184	28.3
250 (10)	330	170	223	44
300 (12)	403	192	251	75
350 (14)	447	222	293	94

OPENING PRESSURE (bar)

With spring			With spring
↑	→	↓	↑
0.055	0.051	0.043	0.006
0.052	0.048	0.041	0.005
0.055	0.050	0.042	0.006
0.055	0.050	0.041	0.007
0.056	0.050	0.040	0.008
0.057	0.050	0.039	0.009
0.058	0.051	0.038	0.010
0.060	0.051	0.035	0.012
0.060	0.050	0.032	0.014
0.062	0.049	0.027	0.018
0.064	0.050	0.025	0.019
0.068	0.048	0.016	0.026
0.068	0.050	0.019	0.024

- L : Din 3202, Sheet3, Series K4

※ Above dimensions are subject to change for improvement

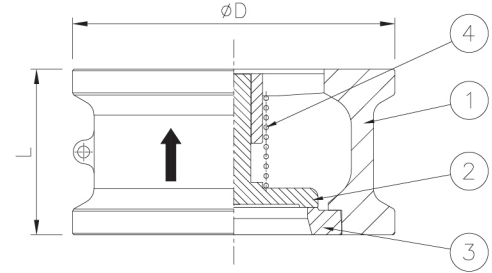
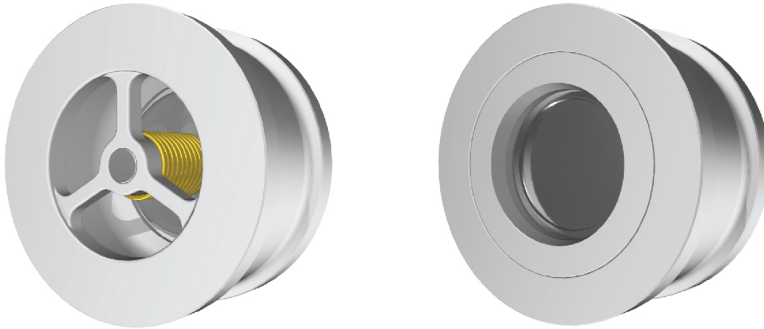
APPLICATION

- Water, Oil
- Vacuum Breaker, Foot valve
- Onshore, Offshore

PAN CHECK VALVE

Model No. ANA

1/2"(15A) ~ 4"(100A)



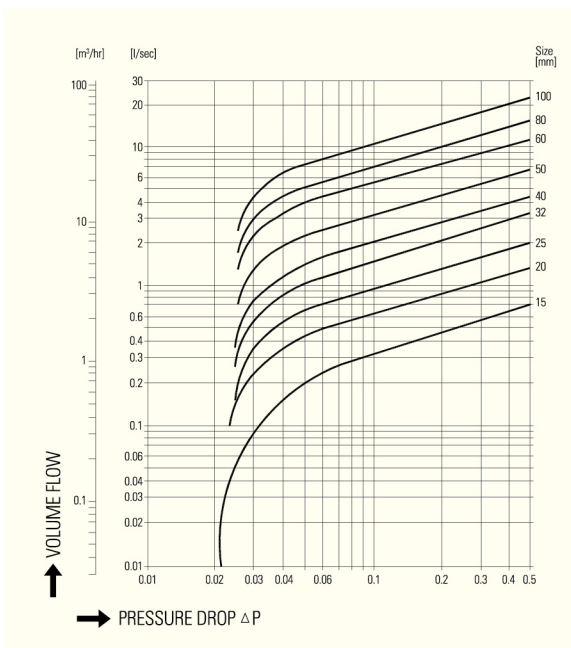
SPECIFICATION

Seat		Metal		
Size		1/2"(15A) ~ 4"(100A)		
Max. Pressure		Class 150 (PN20)	Class 300 (PN50)	Class 600 (PN100)
Test. Pressure	Body	15bar	30bar	60bar
	Disc seat	11bar	22bar	44bar
Pressure and Temperature		ASME B16.34 Pressure and Temperature Reference		
End connections		Wafer		
Materials	① Body	Stainless Steel		
	② Cone Disc	Stainless Steel		
	③ Guide	Stainless Steel		
	④ Spring	Stainless Steel, Inconel, etc.		

DIMENSIONS

Size mm (Inch)	Class (PN)	D (mm)	L (mm)	W.t (kg)
15 (1/2)	150 (20)	48	25	0.2
	300 (50)	53	25	0.25
	600 (100)	53	25	0.3
20 (3/4)	150 (20)	57	31.5	0.37
	300 (50)	65	31.5	0.46
	600 (100)	65	31.5	0.55
25 (1)	150 (21)	65	35.5	0.47
	300 (51)	70	35.5	0.54
	600 (101)	70	35.5	0.65
32 (1-1/4)	150 (21)	76	40	0.7
	300 (51)	80	40	0.77
	600 (101)	80	40	0.92
40 (1-1/2)	150 (22)	85.5	45	1
	300 (52)	92	45	1.2
	600 (102)	92	45	1.44
50 (2)	150 (22)	104	60 (56)	1.8
	300 (52)	109	60 (56)	2
	600 (102)	109	60 (56)	2.4
65 (2-1/2)	150 (23)	123.5	67 (63)	2.7
	300 (53)	127.5	67 (63)	2.9
	600 (103)	127.5	67 (63)	3.48
80 (3)	150 (23)	136.5	73 (71)	3.7
	300 (53)	146	73 (71)	4.3
	600 (103)	146	73 (71)	5.16
100 (4)	150 (24)	174.5	73 (80)	6.8
	300 (54)	178	73 (80)	7.1
	600 (104)	191	73 (80)	8.52

PRESSURE DROP CHART



- L (surface spacing) : The ASME B16.10 standards and () inside dimensions Din 3202, Sheet 3, Series K5 standards.

※ Above dimensions are subject to change for improvement

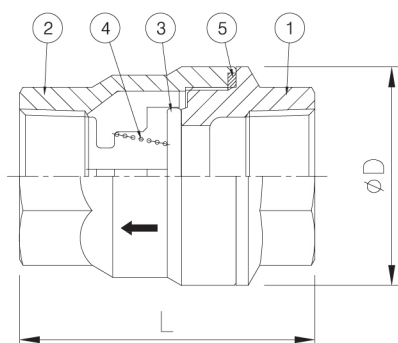
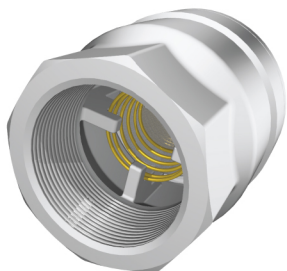
APPLICATION

- Water, Oil
- Vacuum Breaker, Foot valve
- Onshore, Offshore

PAN CHECK VALVE

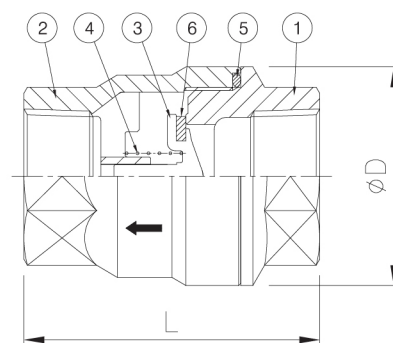
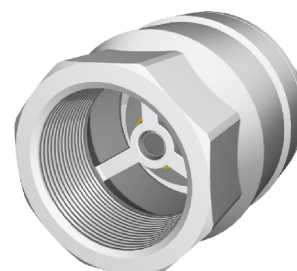
Model No. PCS

¼"(8A) ~ 2"(50A)



Model No. PAS

1"(25A) ~ 2"(50A)



SPECIFICATION

Seat	Metal	
Size	¼"(8A) ~ 2"(50A)	
Max. Pressure	20bar	
Test. Pressure(Body)	30bar	
End connection	Screwed	
Materials	① Body	Stainless Steel
	② Cap	Stainless Steel
	③ Disc	Stainless Steel
		Solid Teflon (-40°C~+180°C, Pressure 7bar)
	④ Spring	Stainless Steel
⑤ O-Ring	NBR	

DIMENSIONS

Size mm (Inch)	D (mm)	L (mm)	Weight (kg)
8 (¼), 10(¾)	27	42	0.13
15 (½)	35	48	0.18
20 (¾)	43	61	0.3
25 (1)	54	73	0.6
32 (1¼)	62	81	0.8
40 (1½)	75	87	1.2
50 (2)	90	100	1.8

※ Above dimensions are subject to change for improvement

SPECIFICATION

Seat	Metal Touch	Rubber Touch
Size	1"(25A) ~ 2"(50A)	
Max. Pressure	20bar	10bar
Test. Pressure(Body)	30bar	15bar
Pipe connections	Screwed	
Materials	① Body	Stainless Steel
	② Cap	Stainless Steel
	③ Disc	Stainless Steel
	④ Spring	Stainless Steel
	⑤ O-Ring	NBR
	⑥ Disc Rubber	EPDM (-10°C ~ +130°C)
VITON (-20°C ~ +150°C)		

DIMENSIONS

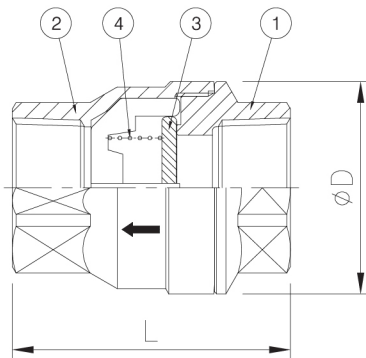
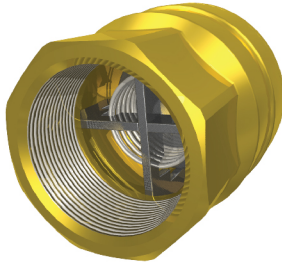
Size mm (Inch)	D (mm)	L (mm)	Weight (kg)
25 (1)	54	73	0.6
32 (1¼)	62	81	0.8
40 (1½)	75	87	1.2
50 (2)	90	100	1.8

※ Above dimensions are subject to change for improvement

PAN CHECK VALVE

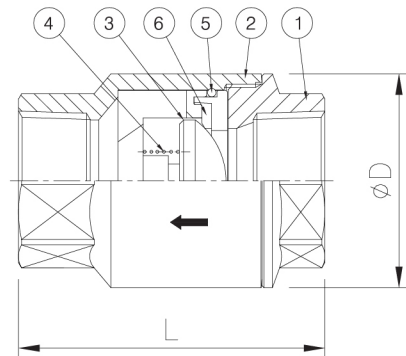
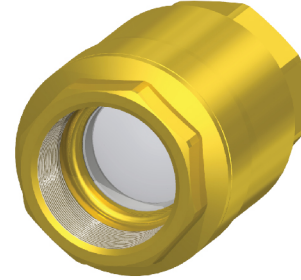
Model No. CV

½"(15A) ~ 2"(50A)



Model No. UCV

½"(15A) ~ 2"(50A)



SPECIFICATION

Seat	Metal	
Size	½"(15A) ~ 2"(50A)	
Max. Pressure	10bar	
Test. Pressure	15bar	
End connections	Screwed	
Materials	① Body	Forged Brass
	② Cap	Forged Brass
	③ Disc	Stainless Steel
		Solid Teflon (-40°C~+180°C, Pressure 7bar)
④ Spring	Stainless Steel	

SPECIFICATION

Seat	Rubber Touch	
Size	½"(15A) ~ 2"(50A)	
Max. Pressure	10bar	
Test. Pressure	15bar	
End connections	Screwed	
Materials	① Body	Forged Brass
	② Cap	Forged Brass
	③ Valve Unit	POM
	④ Spring	Stainless Steel
	⑤ O-Ring	NBR
	⑥ Disc Rubber	EPDM
Max. Temp	Max, 80°C	

DIMENSIONS

Size mm (Inch)	D (mm)	L (mm)	Weight (kg)
15 (½)	33	48	0.15
20 (¾)	41	58	0.26
25 (1)	50.4	66	0.49
32 (1¼)	58	74.5	0.65
40 (1½)	71	84.5	0.88
50 (2)	88	95.5	1.2

OPENING PRESSURE
0.05bar

DIMENSIONS

Size mm (Inch)	D (mm)	L (mm)	Weight (kg)
15 (½)	31.6	51	0.11
20 (¾)	40	58	0.25
25 (1)	51.7	69	0.4
32 (1¼)	60	80	0.6
40 (1½)	75	93	1.1
50 (2)	94	102	1.5

OPENING PRESSURE
0.05bar

FEATURES
1) Suitable for low working pressure
2) Less noise

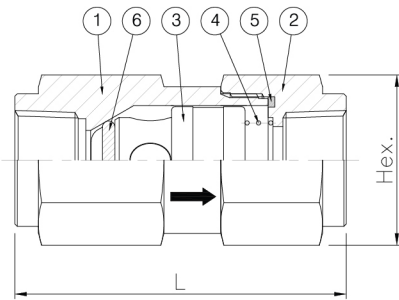
※ Above dimensions are subject to change for improvement

※ Above dimensions are subject to change for improvement

PAN CHECK VALVE

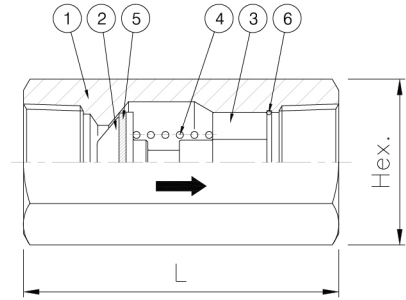
Model No. BU

1/4"(8A) ~ 3/4"(20A)



MODEL NO. KAI

1/4"(8A) ~ 1"(25A)



SPECIFICATION

Materials	Stainless Steel
Max. Pressure	Rubber : 20bar
Test. Pressure	30bar
Part name	① Body ② Cap ③ Poppet ④ Spring ⑤ O-Ring ⑥ Seat O-Ring

DIMENSIONS

Size mm (Inch)	Hex. (mm)	L (mm)	Weight (kg)
8 (¼)	22	57	0.13
10 (¾)	22	57	0.13
15 (½)	32	70	0.31
20 (¾)	38	82	0.48

※ Above dimensions are subject to change for improvement

OPENING PRESSURE

0.1bar (Horizontal pipe standards)

SPECIFICATION

Materials	Stainless Steel / C3604
Max. Pressure	20bar
Test. Pressure	30bar
Part name	① Body ② Disc ③ Guide ④ Spring ⑤ Seat O-Ring ⑥ Stop Ring

DIMENSIONS

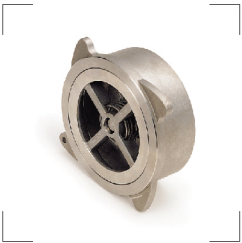
Size mm (Inch)	Hex. (mm)	L (mm)	Weight (kg)
8 (¼)	16	41.6	0.06
10 (¾)	22	52	0.15
15 (½)	27	62	0.25
20 (¾)	36	73	0.55
25 (1)	41	90	0.84

※ Above dimensions are subject to change for improvement

OPENING PRESSURE

0.1bar (Horizontal pipe standards)

CHECK VALVES

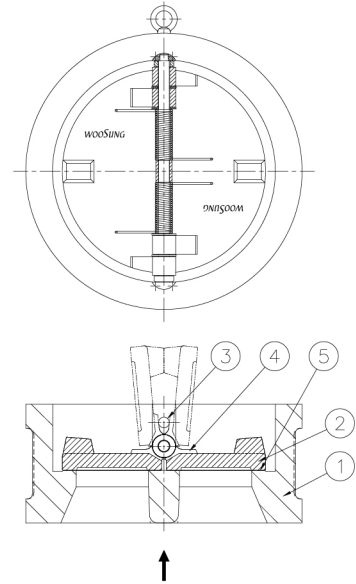
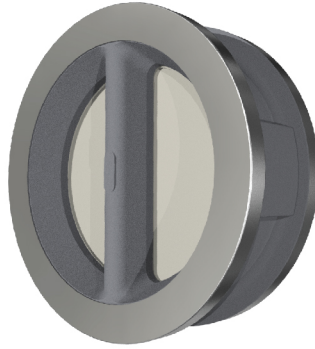
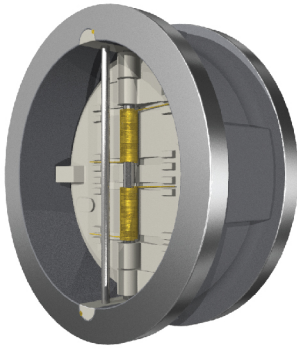


CONTENTS

DUAL PLATE CHECK VALVE	DD	P4
NON-SLAM NOZZLE CHECK	CNZ, PCN SNF, DNF WNF	P7
TILTING CHECK VALVE	TLP / TLC TLB LTP	P12
SWING PAN CHECK VALVE	SP / SPS	P14
SWING CHECK VALVE	SWB / SWF	P15
5-WAY UNION CHECK VALVE	RG	P16
FOOT VALVE	NSF	P17
PAN CHECK VALVE	PC, PA, ANA, PCS, PAS, CV, UCV, BU, KAI,	P18
OTHER VALVES	SAFETY VALVE (SA) BALL FLOAT VALVE (LF) STRAINER (SCW-F, SCW-S)	P26

DUAL PLATE CHECK VALVE

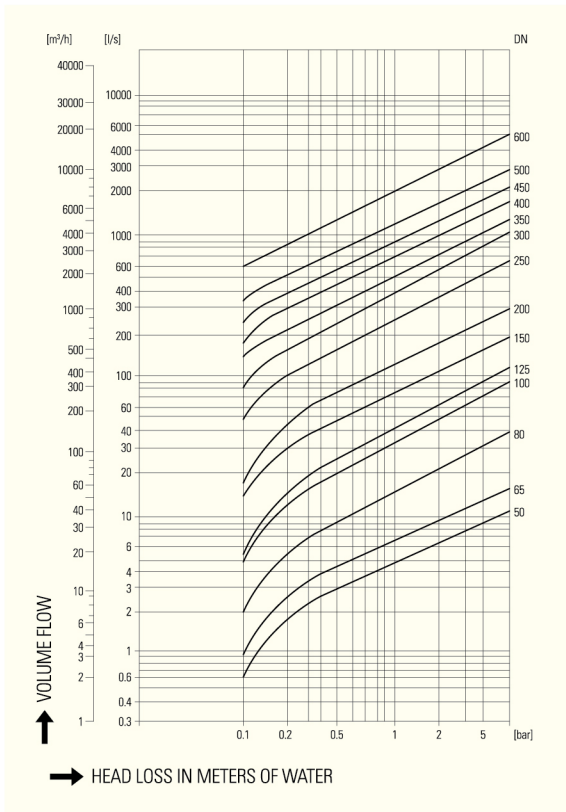
Model No. DD



NOTICE

When the valve is installed at horizontal pipe-line, the eye bolt is to be upwardly positioned.
When connecting with Pump, Bend or Elbow, 5 times distance of pipe's diameter is recommended.

PRESSURE DROP CHART



SPECIFICATION

Size	2"(50A) ~ 60"(1500A)	
Service	Oil, Water, Air, Steam, Sea Water..etc.	
Rating	JIS 10K, JIS 20K, Class 150 ~ 2500, AWWA C207..etc.	
End connections	Wafer, Lug, Double Flange, Butt welding, Hub	
Materials	① Body	Cast Iron, Stainless Steel, Duplex, NI_AL_Bronze..etc.
	② Disc	Stainless Steel, Duplex, NI_AL_Bronze..etc.
	③ Pin	Stainless Steel, Duplex, NI_AL_Bronze..etc.
	④ Spring	Stainless Steel, Inconel..etc.
	⑤ Seat	Rubber, PTFE, Stainless Steel, Stellite Overlay.. etc.

FLOW CHARACTERISTICS

Flow Coefficient

Size		Kv	Cv
in	mm		
2	50	54	62
2 ½	65	76	88
3	80	148	171
4	100	318	368
5	125	420	485
6	150	738	853
8	200	1323	1530
10	250	2418	2795
12	300	3598	4160
14	350	4963	5738
16	400	7382	8534
18	450	9290	10740
20	500	12240	14150
24	600	19800	22890

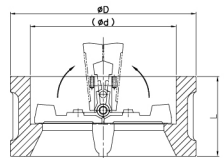
Flow rate for full open

Size		Critical velocity (m/s)	Critical Flow rate (m³/hr)
in	mm		
2	50	1.5	11
2 ½	65	1.5	18
3	80	1.7	30
4	100	2.2	61
5	125	2.0	87
6	150	2.1	136
8	200	2.4	268
10	250	2.2	395
12	300	2.2	560
14	350	2.0	687
16	400	2.2	987
18	450	2.0	1129
20	500	2.3	1642
24	600	2.4	2487

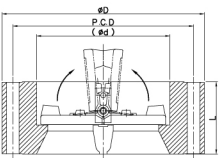
DUAL PLATE CHECK VALVE
[ASME B 16.5]

DUAL PLATE CHECK VALVE

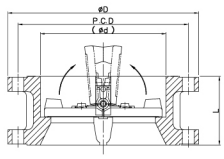
Size in.(mm)	Rating	Facing	Face to Face(L) (W/L/F)	Diameter (Ø)Id	O.D (ØD)			PCD	Hole No.	Weight (KG)		
					W	L	F			W	L	F
2"(50)	150	RF	60	57	105	150	-	120.6	4	3	11	-
	300	RF	60	57	111	165	-	127	8	4	11	-
	600	RF/RJ	60	57	111	165	-	127	8	5	12	-
	900	RF/RJ	70	57	143	215	-	165.1	8	8	17	-
	1500	RF/RJ	70	57	143	215	-	165.1	8	13	22	-
2 1/2"(65)	2500	RF/RJ	70	57	146	235	-	171.4	8	14	29	-
	150	RF	67	73	124	180	-	139.7	4	4	13	-
	300	RF	67	73	130	190	-	149.3	8	4	14	-
	600	RF/RJ	67	73	130	190	-	149.3	8	4	20	-
	900	RF/RJ	83	73	165	245	-	190.5	8	7	24	-
3"(80)	1500	RF/RJ	83	73	165	245	-	190.5	8	8	30	-
	150	RF	73	87	137	190	-	152.4	4	6	13	-
	300	RF	73	87	149	210	-	168.3	8	8	23	-
	600	RF/RJ	73	87	149	210	-	168.3	8	9	23	-
	900	RF/RJ	83	87	168	240	-	190.5	8	13	30	-
4"(100)	1500	RF/RJ	83	87	175	265	-	203.2	8	24	35	-
	2500	RF/RJ	86	87	197	305	-	228.6	8	27	40	-
	150	RF	73	113	175	230	-	190.5	8	9	26	-
	300	RF	73	113	181	255	-	200	8	12	49	-
	600	RF/RJ	79	113	194	275	-	215.9	8	15	55	-
5"(125)	900	RF/RJ	102	113	206	290	-	235	8	37	61	-
	1500	RF/RJ	102	113	210	310	-	241.3	8	40	70	-
	2500	RF/RJ	105	113	235	355	-	273	8	40	82	-
	150	RF	86	141	197	255	-	215.9	8			
	300	RF	86	141	216	280	-	235	8			
6"(150)	600	RF/RJ	105	141	241	330	-	266.7	8			
	900	RF/RJ	Maker Std.	141	248	350	-	279.4	8			
	1500	RF/RJ	Maker Std.	141	254	375	-	292.1	8			
	2500	RF/RJ	Maker Std.	141	279	420	-	323.8	8			
	150	RF	98	166	222	280	-	241.3	8	18	42	-
8"(200)	300	RF	98	166	251	320	-	269.9	12	29	55	-
	600	RF/RJ	136	166	267	355	-	292.1	12	40	98	-
	900	RF/RJ	159	166	289	380	-	317.5	12	55	131	-
	1500	RF/RJ	159	166	283	395	-	317.5	12	70	135	-
	2500	RF/RJ	159	166	317	485	-	368.3	8	90	197	-
10"(250)	150	RF	127	207	279	345	345	298.5	8	33	60	51
	300	RF	127/152	207	308	380	-	330.2	12	42	98	96
	600	RF/RJ	165/219	207	321	420	-	349.2	12	68	134	146
	900	RF/RJ	206/254	207	359	470	-	393.7	12	132	200	219
	1500	RF/RJ	206/340	207	352	485	-	393.7	12	133	212	328
12"(300)	2500	RF/RJ	206/489	207	387	550	-	438.2	12	146	300	515
	150	RF	146	260	340	405	405	362	12	60	88	85
	300	RF	146/178	260	362	445	-	387.4	16	65	148	123
	600	RF/RJ	213/244	260	400	510	-	431.8	16	140	245	235
	900	RF/RJ	241/267	260	435	545	-	469.9	16	201	350	310
14"(350)	1500	RF/RJ	248/387	260	435	585	-	482.6	12	210	380	585
	2500	RF/RJ	254/622	260	476	675	-	539.8	12	225	512	1300
	150	RF	181	300	410	485	485	431.8	12	92	180	130
	300	RF	181	300	422	520	520	450.8	16	105	205	155
	600	RF/RJ	229	300	457	560	560	489	20	179	330	250
16"(400)	900	RF/RJ	292	300	498	610	610	533.4	20	379	529	349
	1500	RF/RJ	305/435	300	521	675	675	571.5	16	384	752	891
	2500	RF/RJ	305/686	300	549	760	760	619.1	12	410	880	1815
	150	RF	184	339	451	535	535	476.3	12	107	223	148
	300	RF	222	339	486	585	585	514.4	20	160	312	210
18"(450)	600	RF/RJ	273	339	492	605	605	527	20	227	442	389
	900	RF/RJ	356	339	541	640	640	558.8	20	450	795	480
	1500	RF/RJ	356/476	339	578	750	750	635	16	550	923	1180
	150	RF	191	387	514	595	595	539.8	16	149	284	161
	300	RF	232	387	540	650	650	571.5	20	208	512	285
20"(500)	600	RF/RJ	305	387	565	685	685	603.2	20	354	680	447
	900	RF/RJ	384	387	575	705	705	616	20	550	850	550
	1500	RF/RJ	384/537	387	641	825	825	704.8	16	635	1274	1565
	150	RF	203	438	549	635	635	577.9	16	171	290	205
	300	RF	264	438	597	710	710	628.6	24	301	538	388
24"(600)	600	RF/RJ	362	438	613	745	745	654	20	474	857	560
	900	RF/RJ	451	438	638	785	785	685.8	20	770	1350	850
	1500	RF/RJ	468/565	438	705	915	915	774.7	16	1062	1760	2075
	150	RF	219	487	606	700	700	635	20	205	313	282
	300	RF	292	487	654	775	775	685.8	24	381	770	499
24"(600)	600	RF/RJ	368	487	683	815	815	723.9	24	640	1033	776
	900	RF/RJ	451	487	699	855	855	749.3	20	884	2050	1780
	1500	RF/RJ	533/629	487	755	985	985	831.8	16	1478	2396	2644
	150	RF	222	579	718	815	815	749.3	20	315	800	410
	300	RF	318	579	775	915	915	812.8	24	605	1166	760
24"(600)	600	RF/RJ	438	579	791	940	940	838.2	24	964	1488	1154
	900	RF/RJ	495	579	838	1040	1040	901.7	20	1500	2300	1890
	1500	RF/RJ	559/733	579	901	1170	1170	990.6	16	3010	3528	4270



Wafer (W)



Lug (L)



Flange (F)

W:Wafer L:Lug F:Flange

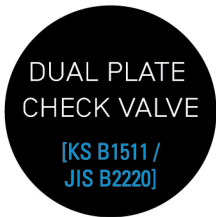
※ Above dimensions are subject to change for improvement.



Size in.(mm)	Rating	Facing	Face to Face (L)	Diameter (Ø)d	O.D (ØD)			PCD	Hole No.	Weight (KG)		
					W	L	F			W	L	F
26"(650)	150	RF	279	629	775	870	870	806.4	24	452	987	895
	300	RF/RJ	356	629	834	971	971	876.3	28	710	1649	1354
	600	RF/RJ	457	629	866	1015	1015	914.4	28	918	1890	1422
	900	RF/RJ	533	629	883	1085	1085	952.5	20	1255	2355	2148
28"(700)	150	RF	279	680	832	983	983	863.6	28	584	1254	1080
	300	RF/RJ	381	680	898	1090	1090	939.8	28	775	1540	1260
	600	RF/RJ	483	680	913	1129	1129	965.2	28	925	2022	1610
	900	RF/RJ	572	680	945	1231	1231	1022.4	20	1320	3176	2589
30"(750)	150	RF	305	735	882	983	983	914.4	28	662	1276	1123
	300	RF/RJ	368	735	952	1090	1090	997	28	920	2033	1422
	600	RF/RJ	505	735	972	1129	1129	1022.4	28	1679	3250	1685
	900	RF	635	735	1010	1231	1231	1085.9	20	2328	4055	3265
32"(800)	150	RF	356	784	939	1059	1059	950	28	857	1394	1095
	300	RF/RJ	406	784	1005	1148	1148	1054.1	28	1228	2460	1481
	600	RF/RJ	533	784	1021	1192	1192	1079.5	28	1640	4255	2130
	900	RF/RJ	660	784	1072	1312	1312	1155.7	20	2101	4498	3652
36"(900)	150	RF	368	865	1047	1166	1166	1085.8	32	956	1511	1142
	300	RF/RJ	483	865	1118	1269	1269	1168.4	32	1267	2890	2139
	600	RF/RJ	635	865	1129	1312	1312	1193.8	28	2761	4720	2863
	900	RF/RJ	718	865	1199	1460	1460	1289.1	20	3542	6434	-
40"(1000)	150	RF	432	987	1161	1290	1290	1200.2	36	1385	1571	1590
	300	RF	546	987	1113	1240	1240	1155.7	32	2087	2760	2730
	600	RF	660	987	1154	1320	1320	1212.9	32	3578	-	-
	900	RF	762	987	1251	1510	1510	1339.9	21	4570	-	-
48"(1200)	150	RF	524	1193	1383	1510	1510	1422.4	44	2177	4255	2885
	300	RF	629	1193	1324	1465	1465	1371.6	32	2950	6487	5210
60"(1500)	150	RF	660	1422	1715	1855	1855	1759	52	4350	8756	-
	300	RF	838	1422	1644	1810	1810	1701.8	32	5315	11540	-

W:Wafer L:Lug F:Flange

※ Above dimensions are subject to change for improvement.



Size in.(mm)	Rating	Facing	Face to Face (L)	Diameter (Ø)d	O.D (ØD)			PCD	Hole No.	Weight (KG)		
					W	L	F			W	L	F
2"(50)	10K	RF/FF	54	57	101	-	-	120	4	2.5	-	-
	20K	RF/FF	60	57	101	-	-	120	8	2.5	-	-
2 ½"(65)	10K	RF/FF	54	73	121	-	-	140	4	4	-	-
	20K	RF/FF	67	73	121	-	-	140	8	5	-	-
3"(80)	10K	RF/FF	57	87	131	-	-	150	8	6.5	-	-
	20K	RF/FF	73	87	137	-	-	160	8	6.5	-	-
4"(100)	10K	RF/FF	64	113	156	-	-	175	8	8.1	-	-
	20K	RF/FF	73	113	162	-	-	185	8	8.1	-	-
5"(125)	10K	RF/FF	70	141	187	-	-	210	8	13	-	-
	20K	RF/FF	86	141	200	-	-	225	8	14	-	-
6"(150)	10K	RF/FF	76	166	217	-	-	240	8	16	-	-
	20K	RF/FF	98	166	235	-	-	260	12	16.2	-	-
8"(200)	10K	RF/FF	95	207	267	-	-	290	12	29	-	-
	20K	RF/FF	127	207	279	-	-	305	12	29.2	-	-
10"(250)	10K	RF/FF	108	260	330	-	-	355	12	48.5	-	-
	20K	RF/FF	146	260	353	-	-	380	12	49	-	-
12"(300)	10K	RF/FF	143	300	375	-	-	400	16	91	-	-
	20K	RF/FF	181	300	403	-	-	430	16	92	-	-
14"(350)	10K	RF/FF	184	339	420	-	-	445	16	96	-	-
	20K	RF/FF	222	339	447	-	-	480	16	100	-	-
16"(400)	10K	RF/FF	191	387	483	-	-	510	16	125	-	-
	20K	RF/FF	232	387	507	-	-	540	16	127	-	-
18"(450)	10K	RF/FF	203	438	538	-	-	565	20	132	-	-
	20K	RF/FF	264	438	572	-	-	605	20	134	-	-
20"(500)	10K	RF/FF	213	487	593	-	-	620	20	185	-	-
	20K	RF/FF	292	487	627	-	-	660	20	188	-	-
24"(600)	10K	RF/FF	222	579	697	-	-	730	24	285	-	-
	20K	RF/FF	318	579	731	-	-	770	24	289	-	-
28"(700)	10K	RF/FF	321	680	807	-	-	840	24	442	-	-
	20K	RF/FF	381	680	852	-	-	900	24	447	-	-
30"(750)	10K	RF/FF	305	735	867	-	-	900	24	576	-	-
	20K	RF/FF	368	735	914	-	-	970	24	579	-	-
32"(800)	10K	RF/FF	356	784	917	-	-	950	28	640	-	-
	20K	RF/FF	406	784	974	-	-	1030	24	647	-	-
36"(900)	10K	RF/FF	368	865	1017	-	-	1050	28	1319	-	-
	20K	RF/FF	483	865	1084	-	-	1140	28	1325	-	-

W:Wafer L:Lug F:Flange

※ Above dimensions are subject to change for improvement.

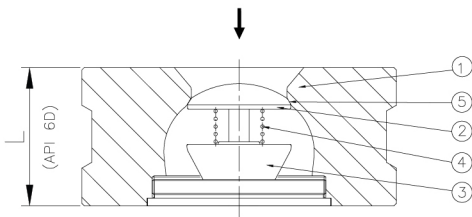
NON-SLAM NOZZLE CHECK



(Wafer Type)

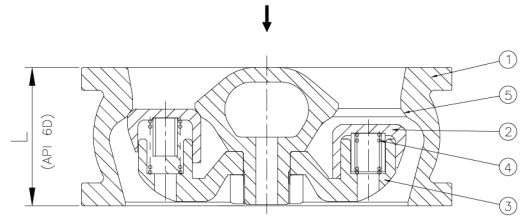
Model No. CNZ (Wafer)

1"(25A) ~ 10"(250A)



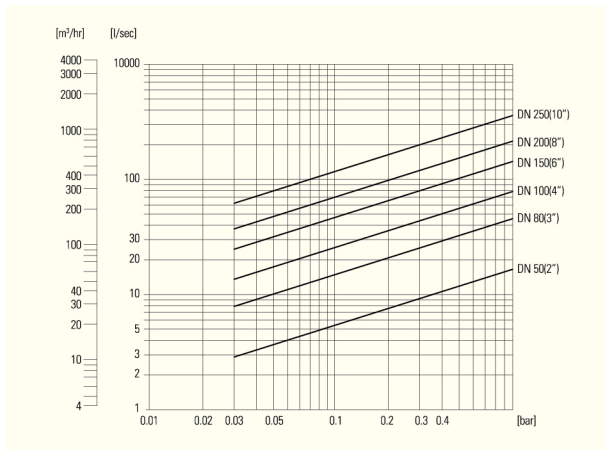
Model No. PCN (Wafer)

12"(300A) ~ 60"(1500A)

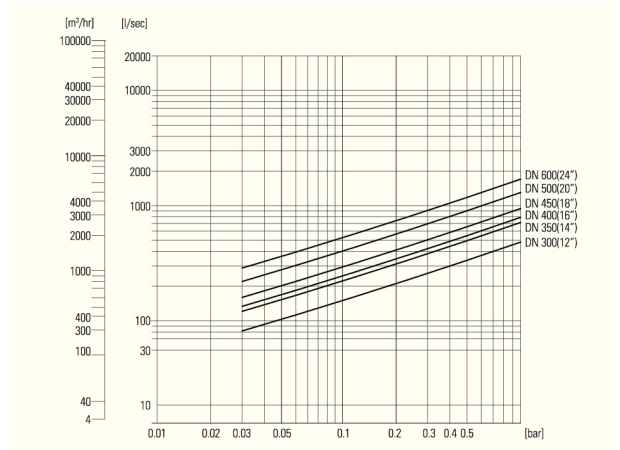


NON-SLAM NOZZLE CHECK VALVE

PRESSURE DROP CHART



PRESSURE DROP CHART



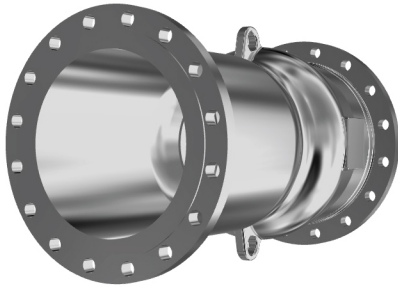
SPECIFICATION

Size	1"(25A) ~ 60"(1500A)	
Service	Oil&Gas, Water, Air, Steam, Sea Water..etc.	
Rating	Class 150 ~ 2500	
End connections	Wafer, Lug, Double Flange	
Materials	① Body	Carbon Steel, Stainless Steel, Duplex, NI_AL_Bronze..etc.
	② Disc	Stainless Steel, Duplex, NI_AL_Bronze..etc.
	③ Pin	Stainless Steel, Duplex, NI_AL_Bronze..etc.
	④ Spring	Stainless Steel, Inconel..etc.
	⑤ Seat	Rubber, PTFE, Stainless Steel, Stellite Overlay..etc.

NON-SLAM NOZZLE CHECK VALVE

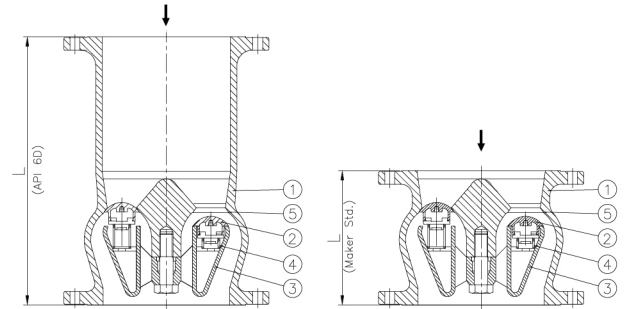
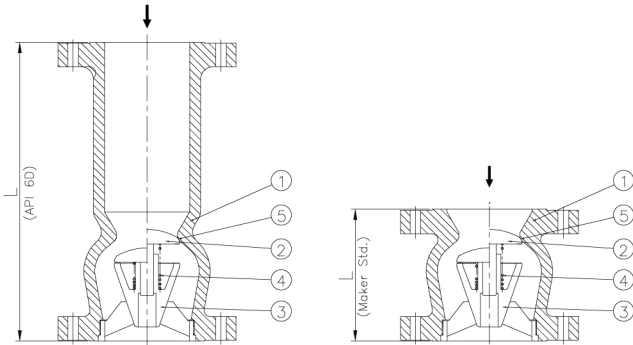
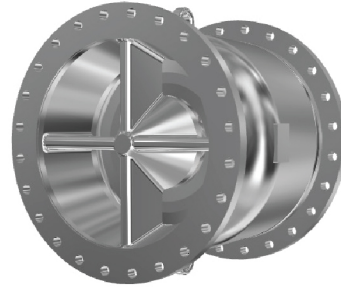
Model No. SNF (Single Seat Nozzle)

1"(25A) ~ 10"(250A)

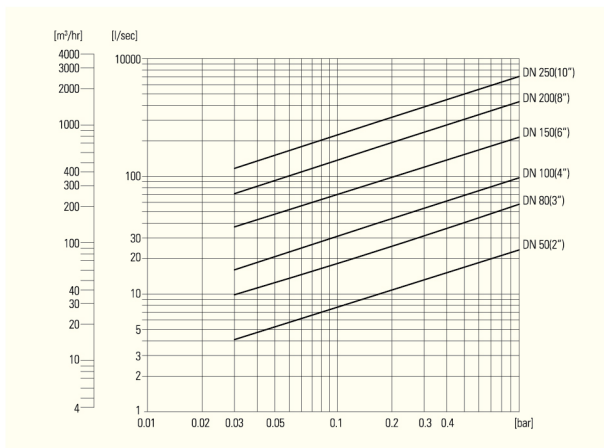


Model No. DNF (Double Seat Nozzle)

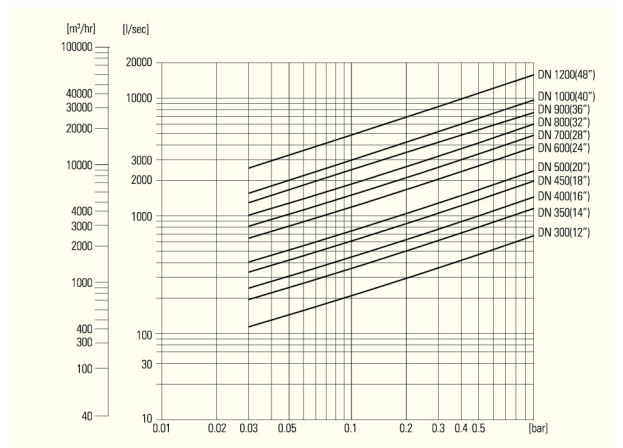
12"(300A) ~ 60"(1500A)



PRESSURE DROP CHART



PRESSURE DROP CHART



SPECIFICATION

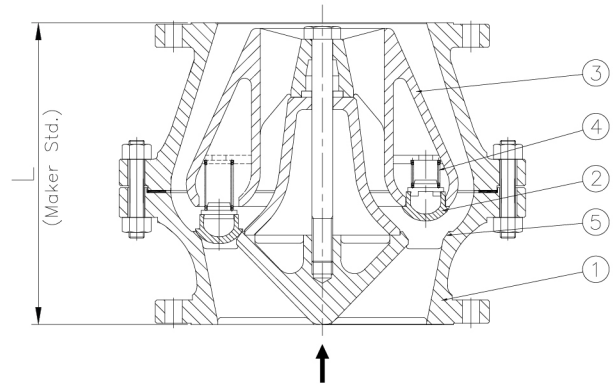
Size	1"(25A) ~ 60"(1500A)	
Service	Oil&Gas, Water, Air, Steam, Sea Water..etc.	
Rating	Class 150 ~ 2500	
End connections	Double Flange, Buttwelding, Hub	
Materials	① Body	Carbon Steel, Stainless Steel, Duplex, NI_AL_Bronze..etc.
	② Disc	Stainless Steel, Duplex, NI_AL_Bronze..etc.
	③ Pin	Stainless Steel, Duplex, NI_AL_Bronze..etc.
	④ Spring	Stainless Steel, Inconel..etc.
	⑤ Seat	Rubber, PTFE, Stainless Steel, Stellite Overlay..etc.

NON-SLAM NOZZLE CHECK VALVE



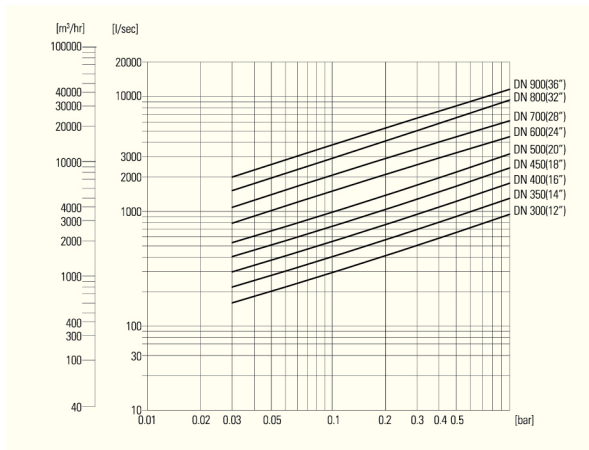
Model No. WNF

12"(300A) ~ 60"(1500A)



NON-SLAM NOZZLE CHECK VALVE

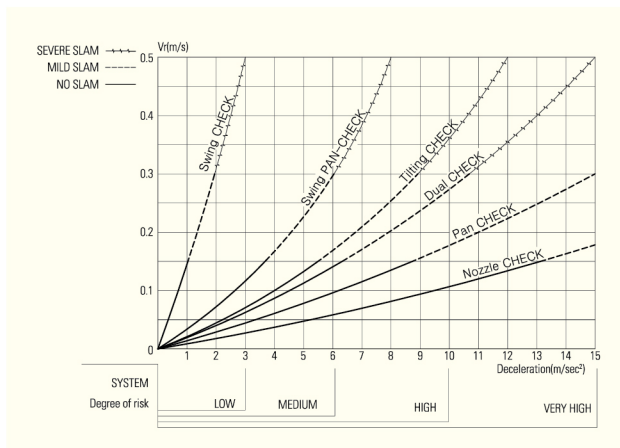
PRESSURE DROP CHART



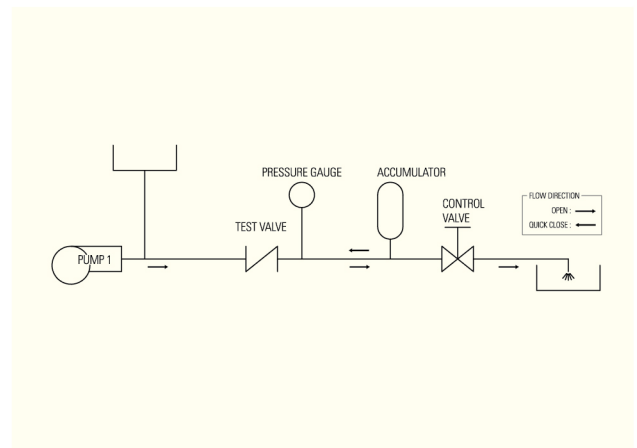
SPECIFICATION

Size	12"(300A) ~ 60"(1500A)	
Service	Oil, Water, Air, Steam, Sea Water..etc.	
Rating	Class 150 ~ 300	
End connections	Double Flange	
Materials	① Body	Cast Iron, Stainless Steel, Duplex, NI_AL_Bronze..etc.
	② Disc	Stainless Steel, Duplex, NI_AL_Bronze..etc.
	③ Guide	Stainless Steel, Duplex, NI_AL_Bronze..etc.
	④ Spring	Stainless Steel, Inconel..etc.
	⑤ Seat	Rubber, PTFE, Stainless Steel, Stellite Overlay..etc.

SLAMMING CHART BY CHECK VALVES

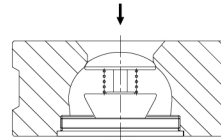


CIRCUIT DIAGRAM

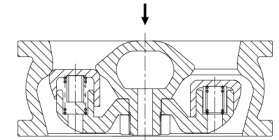


NON-SLAM NOZZLE CHECK VALVE

Type	Description
CNZ	Single seat Nozzle (Wafer)
PCN	Double seat Nozzle (Wafer)
DNF	Double seat Nozzle (Flanged)
SNF	Single seat Nozzle (Flanged)
WNF	2 Body Nozzle (Flanged)

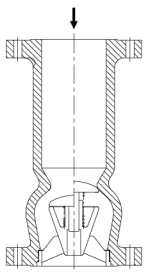


CNZ

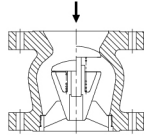


PCN

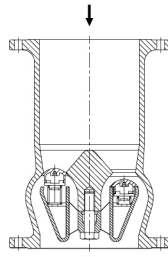
NPS	DN	Type	Face to Face Standard	Class 150		Class 300		Class 600		Class 900		Class 1500		Class 2500	
				L(mm)	W(kg)	L(mm)	W(kg)	L(mm)	W(kg)	L(mm)	W(kg)	L(mm)	W(kg)	L(mm)	W(kg)
1	25	SNF	API 6D	-	-	-	-	-	-	-	-	-	-	-	-
			Maker Std.	100	4	100	4	100	5	150	9	150	16	160	28
		CNZ	Maker Std. (wafer)	35.5	0.7	35.5	0.8	35.5	1	-	-	-	-	-	-
1 1/4	32	SNF	API 6D	-	-	-	-	-	-	-	-	-	-	-	-
			Maker Std.	100	5	100	5	100	9	150	11	150	20	180	35
		CNZ	Maker Std. (wafer)	40	0.9	40	1	40	1.2	-	-	-	-	-	-
1 1/2	40	SNF	API 6D	-	-	-	-	-	-	-	-	-	-	-	
			Maker Std.	120	7	120	7	120	11	170	13	170	23	210	40
		CNZ	Maker Std. (wafer)	45	1.3	45	1.6	45	2	-	-	-	-	-	-
2	50	SNF	API 6D	203	9	267	13	292	15	368	37	368	37	451	54
			Maker Std.	120	7	120	9	120	10	170	26	170	26	210	37
		CNZ	API 6D (wafer)	60	2.5	60	3	60	4	70	6	70	8	70	10
2 1/2	65	SNF	API 6D	216	15	292	19	330	23	419	52	419	67	508	81
			Maker Std.	120	10	150	10	150	17	190	25	190	35	240	65
		CNZ	API 6D (wafer)	67	4	67	5	67	6	83	8	83	10	83	13
3	80	SNF	API 6D	241	16	318	26	356	30	381	43	470	65	578	119
			Maker Std.	120	13	150	18	150	20	190	32	220	45	270	83
		CNZ	API 6D (wafer)	73	5	73	7	73	8	83	11	83	18	86	23
4	100	SNF	API 6D	292	28	356	41	432	63	457	73	546	107	673	178
			Maker Std.	140	20	170	31	170	40	210	53	240	69	310	131
		CNZ	API 6D (wafer)	73	7	73	10	79	12	102	28	102	30	105	35
5	125	SNF	API 6D	-	-	-	-	-	-	-	-	-	-	-	
			Maker Std.	210	31	210	31	210	55	230	85	310	140	370	225
		CNZ	Maker Std. (wafer)	86	9	86	18	105	27	-	-	-	-	-	-
6	150	SNF	API 6D	356	44	445	80	559	137	610	171	705	231	914	487
			Maker Std.	210	38	210	55	210	82	230	107	310	160	430	324
		CNZ	API 6D (wafer)	98	20	98	30	137	38	159	53	159	68	159	92
8	200	SNF	API 6D	495	90	533	120	660	213	737	307	832	390	1022	743
			Maker Std.	280	71	280	91	280	135	280	189	350	269	460	480
		CNZ	API 6D (wafer)	127	31	127	40	165	71	206	130	206	138	206	142
10	250	SNF	API 6D	622	151	622	184	787	380	838	461	991	710	1270	1442
			Maker Std.	350	120	350	152	350	252	350	303	400	461	580	952
		CNZ	API 6D (wafer)	146	62	146	68	213	145	241	205	248	212	254	230
12	300	DNF	API 6D	699	341	711	400	838	623	965	966	1130	1638	1422	2975
			Maker Std.	350	175	350	235	375	310	440	390	440	650	580	1286
		WNF	Special	438	305	438	382	-	-	-	-	-	-	-	-
		PCN	API 6D (wafer)	181	95	181	110	229	180	292	385	305	391	-	-
14	350	DNF	API 6D	787	480	838	601	889	819	1029	1211	1257	2114	-	-
			Maker Std.	405	245	405	330	440	410	400	510	490	1040	-	-
		WNF	Special	475	432	475	581	-	-	-	-	-	-	-	-
		PCN	API 6D (wafer)	184	110	222	168	273	230	356	467	356	580	-	-
16	400	DNF	API 6D	864	714	864	805	991	1120	1130	1407	1384	1417	-	-
			Maker Std.	455	345	455	435	500	610	470	760	530	1280	-	-
		WNF	Special	545	691	545	786	-	-	-	-	-	-	-	-
18	450	PCN	API 6D (wafer)	191	156	232	231	305	372	384	582	384	662	-	-
			DNF	API 6D	978	868	978	1036	1092	1442	1219	1960	1537	3955	-
		WNF	Special	610	825	610	1010	-	-	-	-	-	-	-	-
20	500	PCN	API 6D (wafer)	203	183	264	325	362	487	451	810	468	1265	-	-
			DNF	API 6D	978	970	1016	1217	1194	1840	1321	2422	1664	5124	-
		WNF	Special	850	895	850	1165	-	-	-	-	-	-	-	-
		PCN	API 6D (wafer)	219	228	292	392	368	375	451	892	533	1587	-	-
24	600	DNF	API 6D	1295	1691	1346	2177	1397	2513	1549	3661	1943	8183	-	-
			Maker Std.	685	890	685	1240	745	1630	665	1980	750	3300	-	-
		WNF	Special	900	1600	900	2095	-	-	-	-	-	-	-	-
26	650	PCN	API 6D (wafer)	222	336	318	635	438	998	495	1626	559	3120	-	-
			DNF	API 6D	1295	-	1346	-	1448	-	-	-	-	-	-
		WNF	Special	685	-	-	-	-	-	-	-	-	-	-	-
28	700	PCN	API 6D (wafer)	356	598	356	732	457	951	533	1360	-	-	-	-
			DNF	API 6D	1448	1996	1499	2860	1600	4212	-	-	-	-	-
		WNF	Special	800	1330	800	1800	870	2450	860	2890	-	-	-	-
		PCN	API 6D (wafer)	381	615	381	782	483	945	572	1380	-	-	-	-



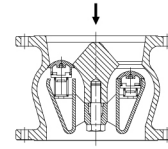
SNF (API 6D)



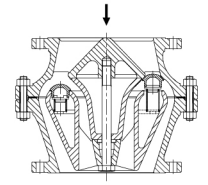
SNF (Maker Std)



DNF (API 6D)



DNF (Maker Std)



WNF (Special)

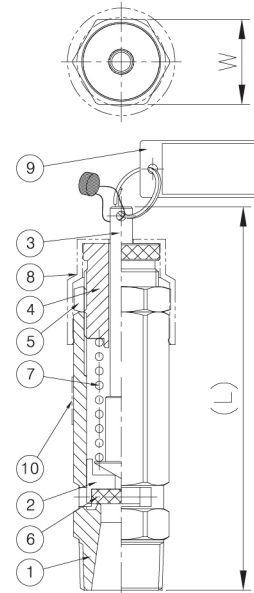
NPS	DN	Type	Face to Face Standard	Class 150		Class 300		Class 600		Class 900		Class 1500		Class 2500		
				L(mm)	W(kg)	L(mm)	W(kg)	L(mm)	W(kg)	L(mm)	W(kg)	L(mm)	W(kg)	L(mm)	W(kg)	
30	750	DNF	API 6D	1524	2353	1594	3523	1651	4784							
			Maker Std.	855	1590	855	2150	1130	930	1232	925					
		WNF	Special	-	-	-	-	-	-	-	-					
		PCN	API 6D (wafer)	305	697	368	943	505	1720	635	2450					
32	800	DNF	API 6D	-	-	-	-	-	-	-	-					
			Maker Std.	1060	910	1149	910	1194	990	1314	925					
		WNF	Special	1010	-	1010	-	-	-	-	-					
		PCN	API 6D (wafer)	356	-	406	-	533	-	660	-					
34	850	DNF	API 6D	-	-	-	-	-	-	-	-					
			Maker Std.	-	-	-	-	-	-	-	-					
		WNF	Special	-	-	-	-	-	-	-	-					
		PCN	API 6D (wafer)	-	-	-	-	-	-	-	-					
36	900	DNF	API 6D	1956	3556	2083	5727	2083	7261							
			Maker Std.	1030	2300	1030	3100	1120	4100	1050	5900					
		WNF	Special	1050	-	1050	-	-	-	-	-					
		PCN	API 6D (wafer)	368	-	483	-	635	-	718	-					
38	950	DNF	API 6D	-	-	-	-	-	-	-	-					
			Maker Std.	-	-	-	-	-	-	-	-					
		WNF	Special	-	-	-	-	-	-	-	-					
		PCN	API 6D (wafer)	-	-	-	-	-	-	-	-					
40	1000	DNF	API 6D	-	-	-	-	-	-	-	-					
			Maker Std.	1135	3400	1135	3900	1240	5400	1185	-					
		WNF	Special	1185	-	1185	-	-	-	-	-					
		PCN	API 6D (wafer)	432	-	546	-	660	-	762	-					
42	1050	DNF	API 6D	-	-	-	-	-	-	-	-					
			Maker Std.	1195	3600	1195	4100	1300	5800	1250	-					
		WNF	Special	-	-	-	-	-	-	-	-					
		PCN	API 6D (wafer)	432	-	568	-	702	-	787	-					
44	1100	DNF	API 6D	-	-	-	-	-	-	-	-					
			Maker Std.	-	-	-	-	-	-	-	-					
		WNF	Special	-	-	-	-	-	-	-	-					
		PCN	API 6D (wafer)	-	-	-	-	-	-	-	-					
46	1150	DNF	API 6D	-	-	-	-	-	-	-	-					
			Maker Std.	-	-	-	-	-	-	-	-					
		WNF	Special	-	-	-	-	-	-	-	-					
		PCN	API 6D (wafer)	-	-	-	-	-	-	-	-					
48	1200	DNF	API 6D	-	-	-	-	-	-	-	-					
			Maker Std.	1365	5200	1365	6000	1485	8800	-	-					
		WNF	Special	-	-	-	-	-	-	-	-					
		PCN	API 6D (wafer)	524	-	629	-	787	-	-	-					
50	1250	DNF	API 6D	-	-	-	-	-	-	-	-					
			Maker Std.	-	-	-	-	-	-	-	-					
		WNF	Special	-	-	-	-	-	-	-	-					
		PCN	API 6D (wafer)	-	-	-	-	-	-	-	-					
52	1300	DNF	API 6D	-	-	-	-	-	-	-	-					
			Maker Std.	-	-	-	-	-	-	-	-					
		WNF	Special	-	-	-	-	-	-	-	-					
		PCN	API 6D (wafer)	-	-	-	-	-	-	-	-					
54	1350	DNF	API 6D	-	-	-	-	-	-	-	-					
			Maker Std.	-	-	-	-	-	-	-	-					
		WNF	Special	-	-	-	-	-	-	-	-					
		PCN	API 6D (wafer)	591	-	718	-	-	-	-	-					
56	1400	DNF	API 6D	-	-	-	-	-	-	-	-					
			Maker Std.	-	-	-	-	-	-	-	-					
		WNF	Special	-	-	-	-	-	-	-	-					
		PCN	API 6D (wafer)	-	-	-	-	-	-	-	-					
58	1450	DNF	API 6D	-	-	-	-	-	-	-	-					
			Maker Std.	-	-	-	-	-	-	-	-					
		WNF	Special	-	-	-	-	-	-	-	-					
		PCN	API 6D (wafer)	-	-	-	-	-	-	-	-					
60	1500	DNF	API 6D	-	-	-	-	-	-	-	-					
			Maker Std.	-	-	-	-	-	-	-	-					
		WNF	Special	-	-	-	-	-	-	-	-					
		PCN	API 6D (wafer)	660	-	838	-	-	-	-	-					

NON-SLAM NOZZLE CHECK VALVE

SAFETY VALVE

Model No. SA

¼"(8A), ½"(15A), ¾"(20A), 1"(25A)



SPECIFICATION

Max. Pressure	1 Mpa	
Set pressure	Set within 1 Mpa	
Stop spewing pressure	More than 10% of the set pressure	
Materials	① Body	Brass bar
	② Disc	Brass bar
	③ Stem	SM45C
	④ Guide	SM45C
	⑤ Lock Nut	SM45C
	⑥ Seat	Rubber
	⑦ Spring	PW-2 / SWOSC
	⑧ Cap	PE
	⑨ Tag	AL
	⑩ Label	
Temperature	-20°C ~ +80°C	

DIMENSIONS

Size mm (Inch)	H (open) (mm)	L (mm)	Weight (kg)
8 (¼)	16	49	0.05
15 (½)	22	80	0.16
20 (¾)	27	121	0.37
25 (1)	34	124	0.60

※ Above dimensions are subject to change for improvement

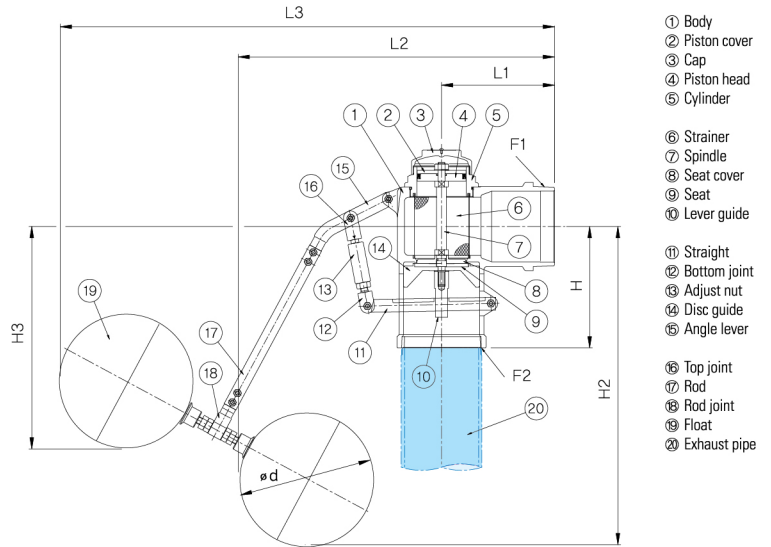
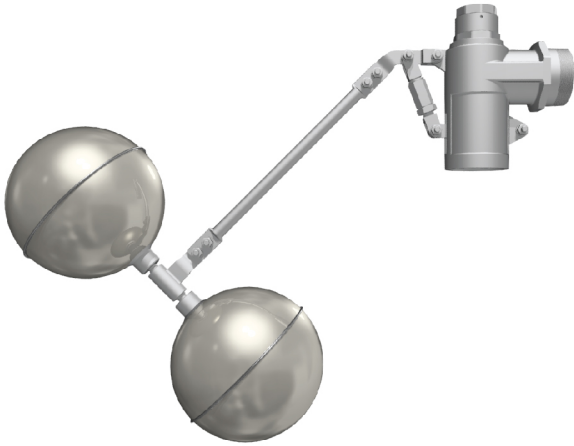
FEATURES

- Designed according to KS B 6216
- Opening Pressure is revisable upon request
- Approval of KOSHA
(GLI1 10-AV2BL-0235, GLI3 12-AV2BL-0010)

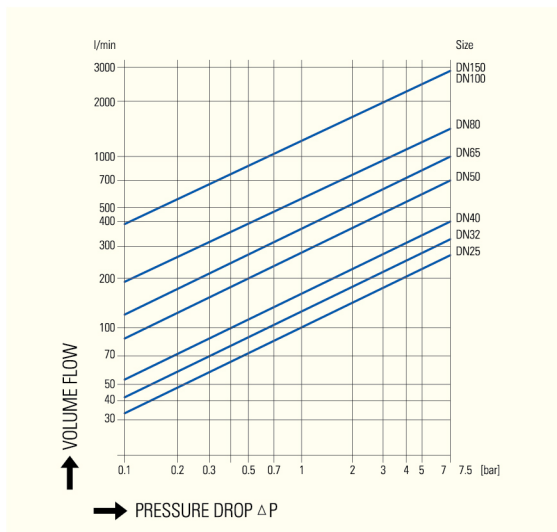
BALL FLOAT VALVE

Model No. LF

½"(15A) ~ 6"(150A)



PRESSURE DROP CHART



DIMENSIONS

Size mm (Inch)	25 (1")	32 (1¼")	40 (1½")	50 (2")	65 (2½")	80 (3")	100 (4")	150 (6")
Ød (mm)	120	120	120	160	160	190	190	190
F1, F2	PF1", PF¼"	PT¼", PF¼"	PT1, ½", PF1, ½"	PT2", PF2"	PF2, ½"	PF3"	PF4"	PF6"
H1 (mm)	78	80	87	97	122	138	172	211
H2 (mm)	190	266	302	324	286	312	329	329
H3 (mm)	110	180	186	188	195	243	266	266
L1 (mm)	85	72	78	93	118	129	160	163
L2 (mm)	466	424	471	526	724	875	972	974
L3 (mm)	490	477	541	599	760	900	994	996
W.T (kg)	-	-	-	3.8	5.9	8.1	12.3	15.2

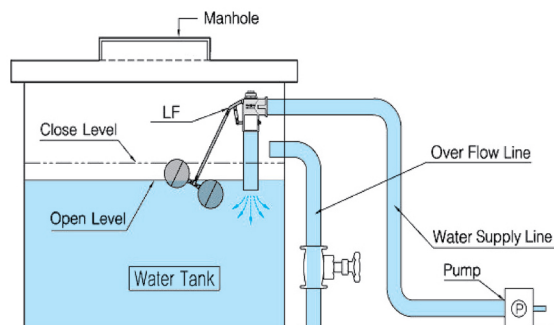
※ 25 (1"), 40 (1½") is being developed.

※ Flange Type is the option in the "F1" part.

SPECIFICATION

Size	½"(15A) ~ 6"(150A)	
Max. Pressure	7bar	
Hydrostatic Test	Body	11bar
	Disc seat	8bar
Max. Temp	60°C	
Pipe connections	Screwed end	
Materials	1-8, 10-19	Stainless steel
	9	Rubber (EPDM, Viton)

PIPING DIAGRAM



FEATURES

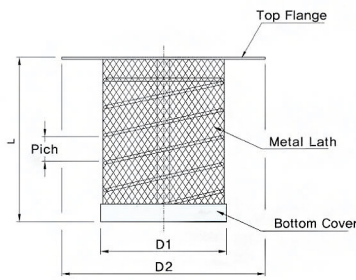
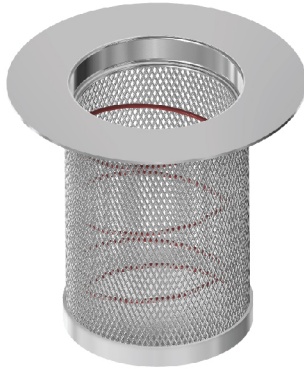
LF Ball Float Valve has many features as follows :

- Anti Corrosion : Long life is guaranteed with stainless steel material.
- No water hammering, No chattering : Smooth operation on the balanced pressure construction brings no water hammering and no chattering.
- Enhanced Stability : The one submerged ball of 2 float balls helps the valve keep stable.
- Teflon coating effect : Teflon coated cylinder inside ensures perfect sealing and smooth operation.
- Internal strainer : Internal strainer prevents inflow of foreign substances.
- Extra exhaust-pipe available : Extra pipe can be connected for little noise and wave in the water tank.
- Long lasting structure

STRAINER

Model No. SCW-F

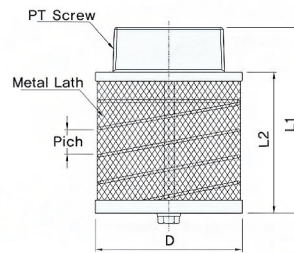
1 ½"(40A) ~ 10"(250A)
Flange type



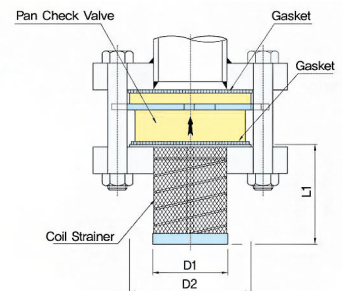
< SCW-F >

Model No. SCW-S

1 ½"(40A) ~ 2"(50A)
Screwed type



< SCW-S >



<SCW-F Assembled shapes>

SPECIFICATION

Model	SCW-F	SCW-S
Size	1 ½"(40A) ~ 10"(250A)	1 ½"(40A) ~ 2"(50A)
Connections	JIS 10K Flange	Screwed End
Materials	Stainless Steel	Stainless Steel

DIMENSIONS (SCW-S)

Size (mm)	L1	L2 (mm)	D (mm)	W.T (kg)
40	86	65	65	0.29
50	100	76	79	0.45

※ Above dimensions are subject to change for improvement

DIMENSIONS (SCW-F)

Size (mm)	L	D1 (mm)	D2 (mm)	W.T (kg)
40	62	46	80	0.07
50	77	58	95	0.13
65	102	74	114	0.17
80	118	87	124	0.23
100	143	112	149	0.38
125	183	137	181	0.54
150	213	163	210	0.77
200	283	214	259	1.51
250	353	265	320	2.96

※ Above dimensions are subject to change for improvement

FEATURES

- Coil strainer is very strong and elegant because of being made up of stainless steel coil spring.
- Because filtering surface areas are 4-5 times larger than nominal size areas of each size. There is no suction resistance.
- A much lighter and reliable foot valve is created from assembling a pancheck valve and a coil strainer.
- It is possible to make very fine mesh by putting a fine wire mesh over the coil strainer.

Fluid name	Materials	Valve materials				Seat Material		
		Bronze	Cast iron	Stainless	Pearl	NBR	VITON	EPDM
Water		⊙	○	⊙	○	⊙	○	⊙
Hot Water		⊙	○	⊙	○	⊙	⊙	⊙
Sea Water		○	△	○	△	⊙	⊙	⊙
Alcohol		⊙	○	⊙	○	△	△	⊙
Ether		○	○	⊙	○	X	X	X
Acetone		⊙	⊙	⊙	⊙	X	X	△
Benzene		○	○	⊙	○	X	△	X
Sulfuric acid		X	X	X	X	X	○	△
Nitric acid		X	X	○	X	X	○	X
Hydrochloric acid		X	X	X	X	X	○	○
Acetic acid		X	X	X	X	X	X	X
Acetic acid 100%		△	X	⊙	X	△	○	△
Formic acid		X	X	○	X	X	△	X
Potassium carbonate (Strong)		△	△	○	△	⊙	-	-
Potassium carbonate (Weak)		△	△	○	△	⊙	⊙	⊙
Caustic soda		△	△	○	△	△	△	X
Gasoline		⊙	○	⊙	⊙	X	○	X
Light oil (Diesel)		○	⊙	⊙	⊙	○	⊙	X
Heavy oil		○	⊙	⊙	⊙	○	⊙	X
Lubricating oil		○	⊙	⊙	⊙	○	⊙	X
Oxygen gas		⊙	⊙	⊙	⊙	△	⊙	⊙
Hydrogen gas		⊙	⊙	⊙	⊙	⊙	⊙	⊙
Nitrogen gas		⊙	⊙	⊙	⊙	⊙	⊙	⊙
Sulphite gas (Dry)		○	○	○	○	△	○	○
Carbon monoxide (Dry)		△	⊙	⊙	⊙	⊙	⊙	△
Carbon dioxide (Dry)		○	⊙	⊙	⊙	○	⊙	⊙
Ammonia		X	○	○	○	△	X	-
Chlorine (Dry)		○	○	○	○	△	○	X
Chlorine (Wet)		X	X	X	X	△	○	△

⊙: Very good ○: good △: Usually X: Inadequate -: No data

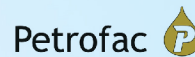
REQUIREMENT FOR MODEL SELECTION

- | | | |
|-----------------|---------------------|------------------|
| ① Size | ⑥ Flow rate | ⑪ Delivery time |
| ② Working Press | ⑦ Operating cycle | ⑫ Flow direction |
| ③ Opening Press | ⑧ Leakage allowance | ⑬ Space |
| ④ Sort of Fluid | ⑨ Usage | ⑭ Pipe Diagram |
| ⑤ Temperature | ⑩ Quantity | ⑮ Etc. |

FLOW RATE (WATER)

Size (mm)	1"	1¼"	1½"	2"	2½"	3"	4"	5"	6"	8"	10"	12"
Flow rate(m³/hr)	2.4	5	9	14	20	32	50	70	120	210	330	520
Size (mm)	14"	16"	18"	20"	24"	26"	28"	30"				
Flow rate(m³/hr)	690	900	1100	1440	2100	2340	2770	3120				

MAJOR CUSTOMERS



CERTIFICATE

G-CERTI Certificate


G-CERTI hereby certifies that
WOOSUNG VALVE CO., LTD.
46, Noksansandan 135-ro, Gangseo-gu, Busan, Korea

Has been audited by G-CERTI and has implemented
Environmental Management System

ISO 14001:2004

Scope of Registration
DESIGN, DEVELOPMENT AND MANUFACTURE OF INDUSTRIAL VALVE

SA Code	1 M	Feb. 2016
Issue Date	17 Feb. 2016	
Expiry Date	17 Feb. 2019	
SA Code	1 M	Feb. 2016
Issue Date	17 Feb. 2016	
Expiry Date	17 Feb. 2019	



Korea Certification Center (KCC) Inc. 100, Seongnam-daero, Seongnam-si, Gyeonggi-do, Korea
KCC-100, Seongnam-daero, Seongnam-si, Gyeonggi-do, Korea

G-CERTI Certificate


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WOOSUNG VALVE CO., LTD.
46, Noksansandan 135-ro, Gangseo-gu, Busan, Korea

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Quality Management System

ISO 9001:2008

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Korea Certification Center (KCC) Inc. 100, Seongnam-daero, Seongnam-si, Gyeonggi-do, Korea
KCC-100, Seongnam-daero, Seongnam-si, Gyeonggi-do, Korea

Certificate of Reliability

Certificate No. : 2016-3

Product - Check valve
- Category/Process : Ball check valve for hydro compression (PQ2045)
- Class : Product Life 6000 cycles (Ba. C.L. 70%)

Company : **WOOSUNG VALVE Co., Ltd.**
Representative : **Chan Sea Oh**
#0251, Songgong-dong, Gangseo-gu, Busan, Korea
Assessment Standard : **RS B 0218**

This is to certify that the above mentioned product has been recognized as a reliable product in accordance with the clause 1 Article 25 of the Act on Special Measures for the Promotion of Specialized Enterprise for Convergence and Materials and the clause 3 Article 17 of the Enforcement Regulation of the Act.

Jan. 22, 2019


 Chan Sea Oh
Administrator


Korean Agency for Technology and Standards
 Ministry of Knowledge Economy
 Republic of Korea

BUREAU VERITAS

Attestation d'Approbation de Systeme de Qualite
CERTIFICATE OF QUALITY SYSTEM APPROVAL

N° CE-PEE-H-WV 00111-KOR

BUREAU VERITAS S.A., agissant en vertu de son autorisation de certification n°002, atteste que le systeme de qualite mis en place par le fabricant est conforme, en ce qui concerne le respect de la norme ISO 9001:2015, aux exigences de la norme ISO 9001:2015. Le fabricant s'engage a maintenir le systeme de qualite en conformite avec les exigences de la norme ISO 9001:2015. Le fabricant s'engage a maintenir le systeme de qualite en conformite avec les exigences de la norme ISO 9001:2015. Le fabricant s'engage a maintenir le systeme de qualite en conformite avec les exigences de la norme ISO 9001:2015.

Fabricant (Client) / Manufacturer (Client): **WOOSUNG VALVE CO., LTD.**
Adresse / Address: **#1628-1, Songgong-Dong, Gangseo-Gu, Busan, 416-270, KOREA**

Description des Equipements / Equipment description: **Pan check valve and swing pan check valve**

Validite / Validity: **09/23/2011**


 Hye Chang Shin
 Responsable des Services Clients / Client Services Manager

VELOSI INTERNATIONAL KOREA

FIRE TEST CERTIFICATE


Certificate No. VFI-001-2019-0011
Date Test Report Issued: 09/23/2019

This is to certify that the above mentioned item has been tested and found to be satisfactory in the Fire Test in accordance with API 607, Test Method, 11th Edition, 11th Edition, 11th Edition.

Manufacturer: **WOOSUNG VALVE Co., Ltd.**
Location: **#16, Noksansandan 135-ro, Gangseo-gu, Busan City, South Korea**

1. Description of Test Item	Item Name
Valve Model No.	Ball Valve
Type of Test Valve	Ball Valve
Description of Test Valve	Ball Valve
Valve Size (DN)	40
Pressure Rating (MPa Class)	1.6
Valve Body Material	CF8M (A182 F304)
Valve Seal Material	EPDM
Test Configuration	Swivel
Valve Height	100
Flaming No.	0000000000000000
Test Date	September 19, 2019

2. Qualified Range of Test Item	Qualified Test Item
Qualified Test Item	Ball Valve
Qualified Pressure Rating (MPa Class)	1.6, 2.5, 4.0
Qualified Valve Material	Flange


 Hye Chang Shin
 Director

VELOSI INTERNATIONAL KOREA

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Qualified Valve Material	Flange


 Hye Chang Shin
 Director

Certificate of Authority to use the Official API Monogram

License Number: **ED-1562** ORIGINAL

The American Petroleum Institute hereby grants to
WOOSUNG VALVE CO., LTD.
#46 (Songjeong-Dong) Noksansandan 135 Ro, Gangseo-Gu
Busan
South Korea

the right to use the Official API Monogram on manufactured products under the conditions in the official publication of the American Petroleum Institute entitled API Spec Q1 and API-QD and in accordance with the provisions of the License Agreement.

If all goods where the Official API Monogram is applied, the API Monogram shall be used in conjunction with this certificate number: **ED-1562**

The American Petroleum Institute reserves the right to revoke this authorization to use the Official API Monogram for any reason satisfactory to the Board of Directors of the American Petroleum Institute.


The scope of this license includes the following: Check Valves

GMS Exclusions: Servicing, Customer Property

Effective Date: **APRIL 21, 2015**
Expiration Date: **APRIL 21, 2018**


 John H. Parks
 Vice President, Check Valves Division

Date: **23-06-2015**
No: **GA162-0504**


NIGC
 National Inspection Council for
 Goods Handling

To: **Woosung Int. Co. Ltd**
Attn: President
Subject: **NIGC FAVORABLE ATTENTION LETTER**

Dear Sir,


Please be informed that your company will be remained on the NIGC V.L., as a manufacturer of following product / products for one more year.

- Check Valve : 1. Class 150 up to 4"
- 2. Class 600 up to 24"

Hope for future business relations.

N.B: The validity of this letter is for one year, from the date of issue.

Best Regards,


 NIGC Representative
 Director & Contractor Manager

C/o: Park Ave Smart Suite Co

NIGC Main Building 9/Floor 9, 11, Seokcho-dong, Seoul, Korea
 P.O. Box 118-000, Seoul 000-118, Korea
 Tel: 02-3771-1000, Fax: 02-3771-1001
 Internet: www.nigc.or.kr



PANCHECK

Since 1981



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