Dual Plate Check Valve

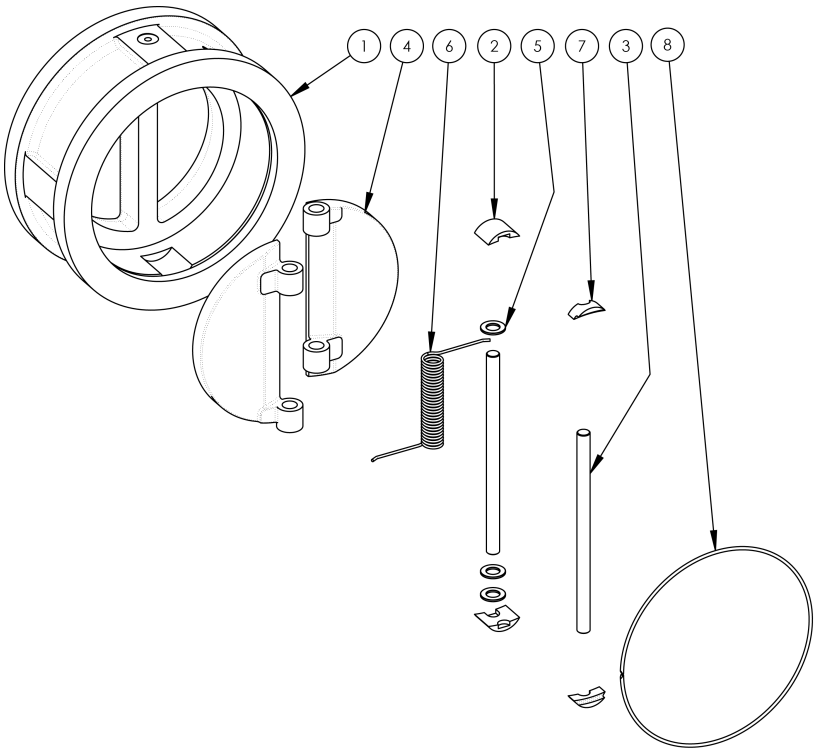
Wafer Design Series Terra

Features and Specifications

Design Standard API 594
Metal to metal seating for inherent fire safety
Comply with ASME B 16.5
ASME B16.34 Pressure/Temperature ratings
Retainerless design as standard, no leak path to atmosphere
PED 2014/68/EU (Cat III and below)
Resilient seat option
ASME Rating Class 150 / 300 / 600 / 900 / 1500 / 2500

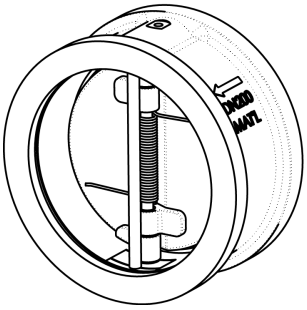
Standard Materials of Parts

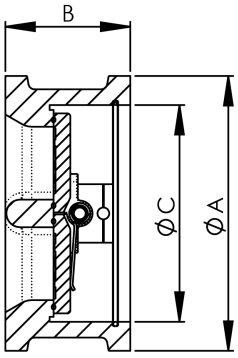
Item No.	Description	Qty
1	BODY	1
2	PIN CARRIER (BTM)	2
3	PIN	2
4	PLATE (DISC)	2
5	BEARING	-
6	TORSION SPRING	1
7	PIN CARRIER (TOP)	2
8	RETAINING CLIP	1



Dual Plate Check Valve

Wafer Design Series Terra





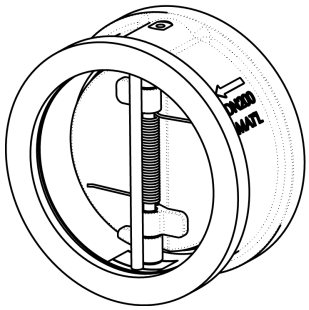
Dimensions and Weights

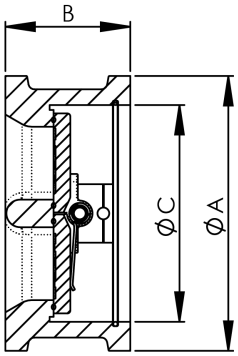
DN	NPS	ASME Rating	End Facing	ØA (mm)	B (mm)	ØC (mm)	Approx Mass (kg)
50	2″	150	RF	105	60	60	3
		300	RF	111	60	60	3
		600	RF/RTJ 23	111	60	60	3
		900	RF/RTJ 24	143	70	60	6
		1500	RF/RTJ 24	143	70	60	6
		2500	RF/RTJ 26	146	70	60	7
65	2.5″	150	RF	124	67	73	4
		300	RF	130	67	73	5
		600	RF/RTJ 26	130	67	73	5
		900	RF/RTJ 27	165	83	73	7
		1500	RF/RTJ 27	165	83	73	7
		2500	RF/RTJ 28	168	83	73	7
80	3″	150	RF	137	73	89	5
		300	RF	149	73	89	7
		600	RF/RTJ 31	149	73	89	7
		900	RF/RTJ 31	168	83	89	11
		1500	RF/RTJ 35	174	83	89	11
		2500	RF/RTJ 32	197	86	89	15
100	4″	150	RF	175	73	114	7
		300	RF	181	73	114	8
		600	RF/RTJ 37	193	79	114	12
		900	RF/RTJ 37	206	102	114	18
		1500	RF/RTJ 39	209	102	114	20
		2500	RF/RTJ 38	235	105	114	25

DN	NPS	ASME Rating	End Facing	ØA (mm)	B (mm)	ØC (mm)	Approx Mass (kg)
125	5″	150	RF	197	86	141	14
		300	RF	216	86	141	16
		600	RF/RTJ 41	241	TBC	141	TBC
		900	RF/RTJ 41	247	TBC	141	TBC
		1500	RF/RTJ 44	254	TBC	141	TBC
		2500	RF/RTJ 42	279	TBC	141	TBC
150	6″	150	RF	222	98	170	15
		300	RF	251	98	170	20
		600	RF/RTJ 45	266	136	170	36
		900	RF/RTJ 45	289	159	170	52
		1500	RF/RTJ 46	282	159	170	50
		2500	RF/RTJ 47	317	159	170	85
200	8″	150	RF	279	127	220	30
		300	RF	308	127	220	37
		600	RF/RTJ 49	320	165	220	61
		900	RF/RTJ 49	359	206	220	104
		1500	RF/RTJ 50	352	206	220	100
		2500	RF/RTJ 51	387	206	220	130
250	10″	150	RF	339	146	275	50
		300	RF	362	146	275	57
		600	RF/RTJ 53	400	213	275	108
		900	RF/RTJ 53	435	241	275	175
		1500	RF/RTJ 54	435	248	275	180
		2500	RF/RTJ 55	476	254	275	230

Dual Plate Check Valve

Wafer Design Series Terra





Dimensions and Weights

DN	NPS	ASME Rating	End Facing	ØA (mm)	B (mm)	ØC (mm)	Approx Mass (kg)
300	12″	150	RF	409	181	321	85
		300	RF	422	181	321	91
		600	RF/RTJ 57	457	229	326	151
		900	RF/RTJ 57	498	292	326	245
		1500	RF/RTJ 58	520	305	326	330
		2500	RF/RTJ 60	549	305	326	440
350	14″	150	RF	451	184	360	100
		300	RF	486	222	360	147
		600	RF/RTJ 61	492	273	356	206
		900	RF/RTJ 62	521	356	356	420
		1500	RF/RTJ 63	578	356	356	430
		2500	-	-	-	-	-
400	16″	150	RF	514	191	406	165
		300	RF	540	232	406	188
		600	RF/RTJ 65	565	305	406	290
		900	RF/RTJ 66	575	384	390	525
		1500	RF/RTJ 67	641	384	390	630
		2500	-	-	-	-	-

DN	NPS	ASME Rating	End Facing	ØA (mm)	B (mm)	ØC (mm)	Approx Mass (kg)
450	18″	150	RF	549	203	458	185
		300	RF	597	264	458	252
		600	RF/RTJ 69	613	362	458	404
		900	RF/RTJ 70	638	451	458	600
		1500	RF/RTJ 71	705	468	458	860
		2500	-	-	-	-	-
500	20″	150	RF	606	219	508	250
		300	RF	654	292	508	329
		600	RF/RTJ 73	683	368	508	508
		900	RF/RTJ 74	699	451	500	650
		1500	RF/RTJ 75	756	533	500	1250
		2500	-	-	-	-	-
600	24″	150	RF	718	222	610	300
		300	RF	775	318	610	450
		600	RF/RTJ 77	791	438	610	925
		900	RF/RTJ 78	838	495	600	1250
		1500	RF/RTJ 79	902	559	600	2000
		2500	-	-	-	-	-

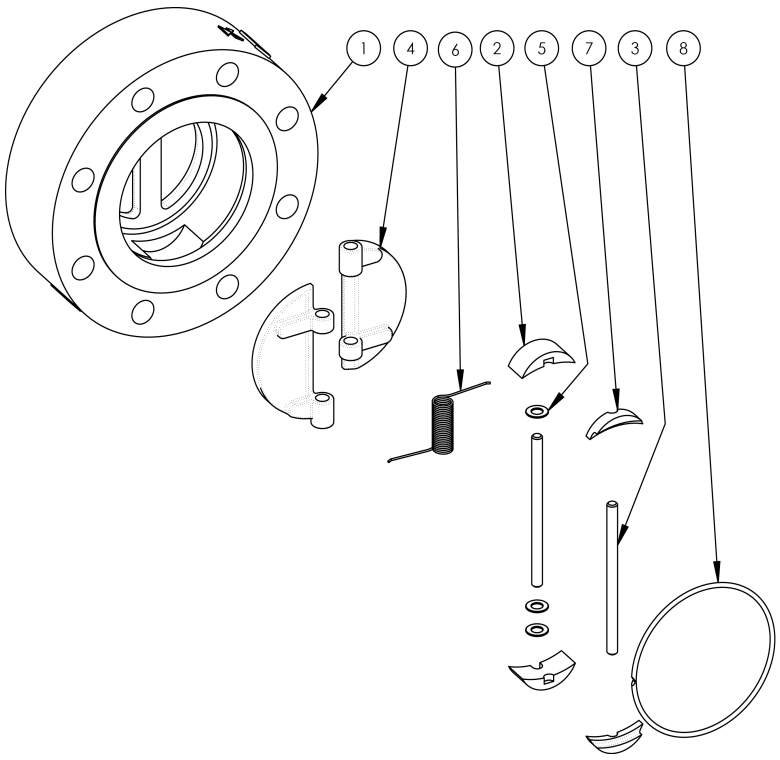
Dual Plate Check Valve — Solid Lugged Design Series Giovi

Features and Specifications

Solid lugged type (through bolting arrangement)
API 594 Design Standard
Metal to metal seating for inherent fire safety
Comply with ASME B 16.5
ASME B16.34 Pressure/ Temperature ratings
Retainerless design as standard (no leak path to atmosphere)
PED 2014/68/EU (Cat III and Below)
Resilient seat option
ASME Rating Class 150 / 300 / 600 / 900 / 1500 / 2500

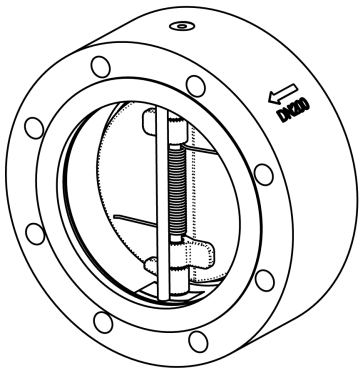
Standard Materials of Parts

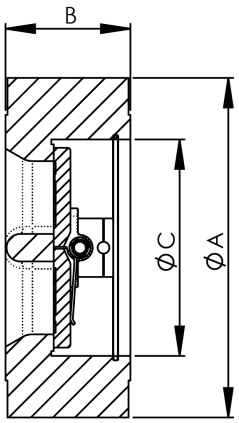
Item No.	Description	Qty
1	BODY	1
2	PIN CARRIER (BTM)	2
3	PIN	2
4	PLATE (DISC)	2
5	BEARING	-
6	TORSION SPRING	1
7	PIN CARRIER (TOP)	2
8	RETAINING CLIP	1



Dual Plate Check Valve

Solid Lugged Design Series Giovi



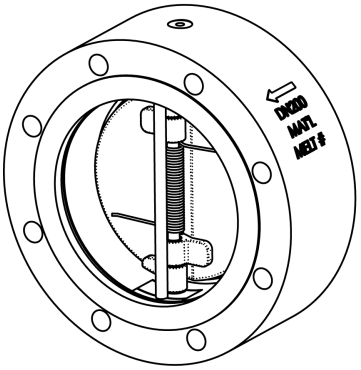


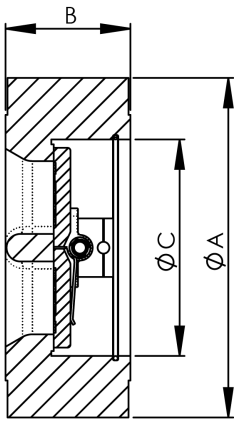
Dimensions and Weights

DN	NPS	ASME Rating	End Facing	ØA (mm)	B (mm)	ØC (mm)	Approx Mass (kg)
50	2″	150	RF	150	60	60	8
		300	RF	165	60	60	9
		600	RF/RTJ 23	165	60	60	9
		900	RF/RTJ 24	215	70	60	12
		1500	RF/RTJ 24	215	70	60	12
		2500	RF/RTJ 26	235	70	60	16
65	2.5″	150	RF	180	67	73	9
		300	RF	190	67	73	11
		600	RF/RTJ 26	190	67	73	11
		900	RF/RTJ 27	245	83	73	16
		1500	RF/RTJ 27	245	83	73	16
		2500	RF/RTJ 28	265	83	73	24
80	3″	150	RF	190	73	89	13
		300	RF	210	73	89	15
		600	RF/RTJ 31	210	73	89	15
		900	RF/RTJ 31	240	83	89	22
		1500	RF/RTJ 35	265	83	89	26
		2500	RF/RTJ 32	305	86	89	35
100	4″	150	RF	230	73	114	18
		300	RF	255	73	114	25
		600	RF/RTJ 37	275	79	114	30
		900	RF/RTJ 37	290	102	114	40
		1500	RF/RTJ 39	310	102	114	55
		2500	RF/RTJ 38	355	105	114	70
125	5″	150	RF	255	86	141	22
		300	RF	280	86	141	30
		600	RF/RTJ 41	330	TBC	141	TBC
		900	RF/RTJ 41	350	TBC	141	TBC
		1500	RF/RTJ 44	375	TBC	141	TBC
		2500	RF/RTJ 42	420	TBC	141	TBC
150	6″	150	RF	280	98	170	35
		300	RF	320	98	170	45
		600	RF/RTJ 45	355	136	170	77
		900	RF/RTJ 45	380	159	170	105
		1500	RF/RTJ 46	395	159	170	120
		2500	RF/RTJ 47	485	159	170	170
200	8″	150	RF	345	127	220	65
		300	RF	380	127	220	85
		600	RF/RTJ 49	420	165	220	130
		900	RF/RTJ 49	470	206	220	210
		1500	RF/RTJ 50	485	206	220	215
		2500	RF/RTJ 51	550	206	220	280
250	10″	150	RF	405	146	275	95
		300	RF	445	146	275	125
		600	RF/RTJ 53	510	213	275	235
		900	RF/RTJ 53	545	241	275	325
		1500	RF/RTJ 54	585	248	275	380
		2500	RF/RTJ 55	675	254	275	500

Dual Plate Check Valve

Solid Lugged Design Series Giovi





Dimensions and Weights

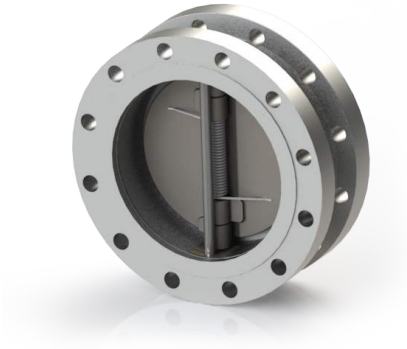
DN	NPS	ASME Rating	End Facing	ØA (mm)	B (mm)	ØC (mm)	Approx Mass (kg)
300	12″	150	RF	485	181	321	170
		300	RF	520	181	321	198
		600	RF/RTJ 57	560	229	326	294
		900	RF/RTJ 57	610	292	326	464
		1500	RF/RTJ 58	675	305	326	585
		2500	RF/RTJ 60	760	305	326	800?
350	14″	150	RF	535	184	360	200
		300	RF	585	222	360	315
		600	RF/RTJ 61	605	273	356	315
		900	RF/RTJ 62	640	356	356	775
		1500	RF/RTJ 63	750	356	356	910
		2500	-	-	-	-	-
400	16″	150	RF	595	191	406	285
		300	RF	650	232	406	490
		600	RF/RTJ 65	685	305	406	660
		900	RF/RTJ 66	705	384	390	800
		1500	RF/RTJ 67	825	384	390	1120
		2500	-	-	-	-	-

DN	NPS	ASME Rating	End Facing	ØA (mm)	B (mm)	ØC (mm)	Approx Mass (kg)
450	18″	150	RF	635	203	458	290
		300	RF	710	264	458	560
		600	RF/RTJ 69	745	362	458	1100
		900	RF/RTJ 70	785	451	458	1170
		1500	RF/RTJ 71	915	468	458	1670
		2500	-	-	-	-	-
500	20″	150	RF	700	219	508	350
		300	RF	775	292	508	700
		600	RF/RTJ 73	815	368	508	950
		900	RF/RTJ 74	855	451	500	1960
		1500	RF/RTJ 75	985	533	500	2250
		2500	-	-	-	-	-
600	24″	150	RF	815	222	610	400
		300	RF	915	318	610	1100
		600	RF/RTJ 77	940	438	610	1550
		900	RF/RTJ 78	1040	495	600	2350
		1500	RF/RTJ 79	1170	559	600	3250
		2500	-	-	-	-	-

Dual Plate Check Valve

Double Flange Series Luna

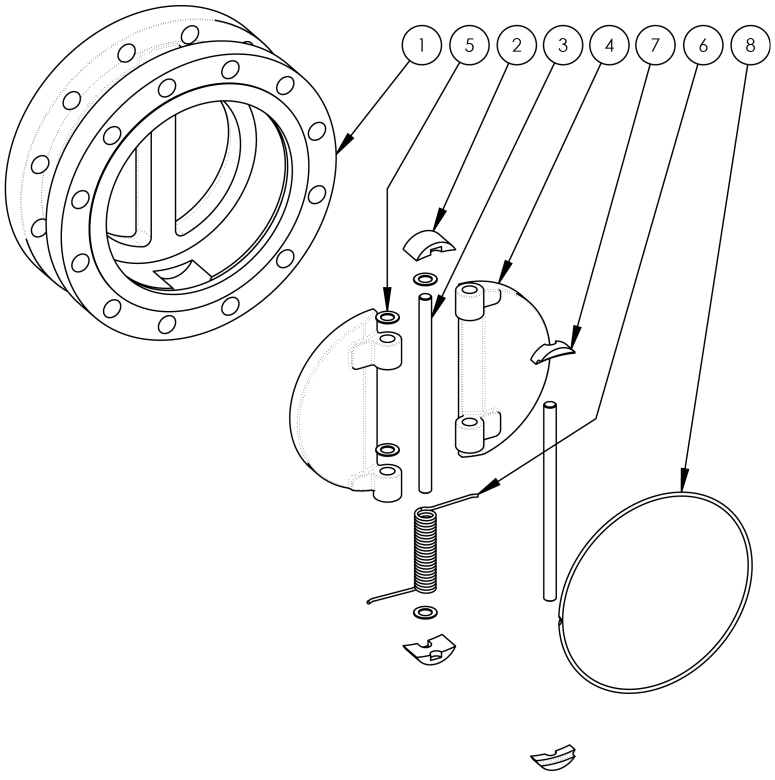
Features and Specifications



Design Standard API 594
Metal to metal seating for inherent fire safety
Comply with ASME B 16.5
ASME B16.34 Pressure/Temperature ratings
Retainerless design as standard, no leak path to atmosphere
PED 2014/68/EU (Cat III and below)
Resilient seat option
ASME Rating Class 150 / 300 / 600 / 900

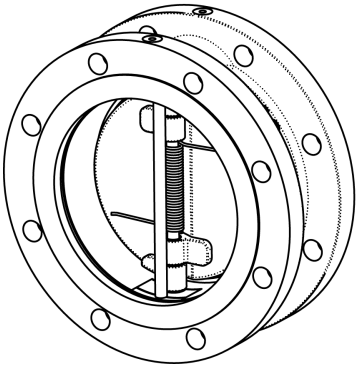
Standard Materials of Parts

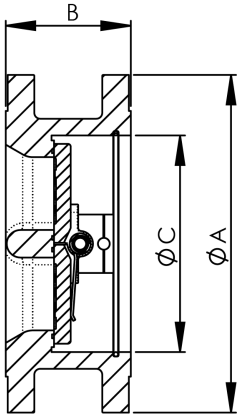
Item No.	Description	Qty
1	BODY	1
2	PIN CARRIER (BTM)	2
3	PIN	2
4	PLATE (DISC)	2
5	BEARING	-
6	TORSION SPRING	1
7	PIN CARRIER (TOP)	2
8	RETAINING CLIP	1



Dual Plate Check Valve

Double Flange Series Luna



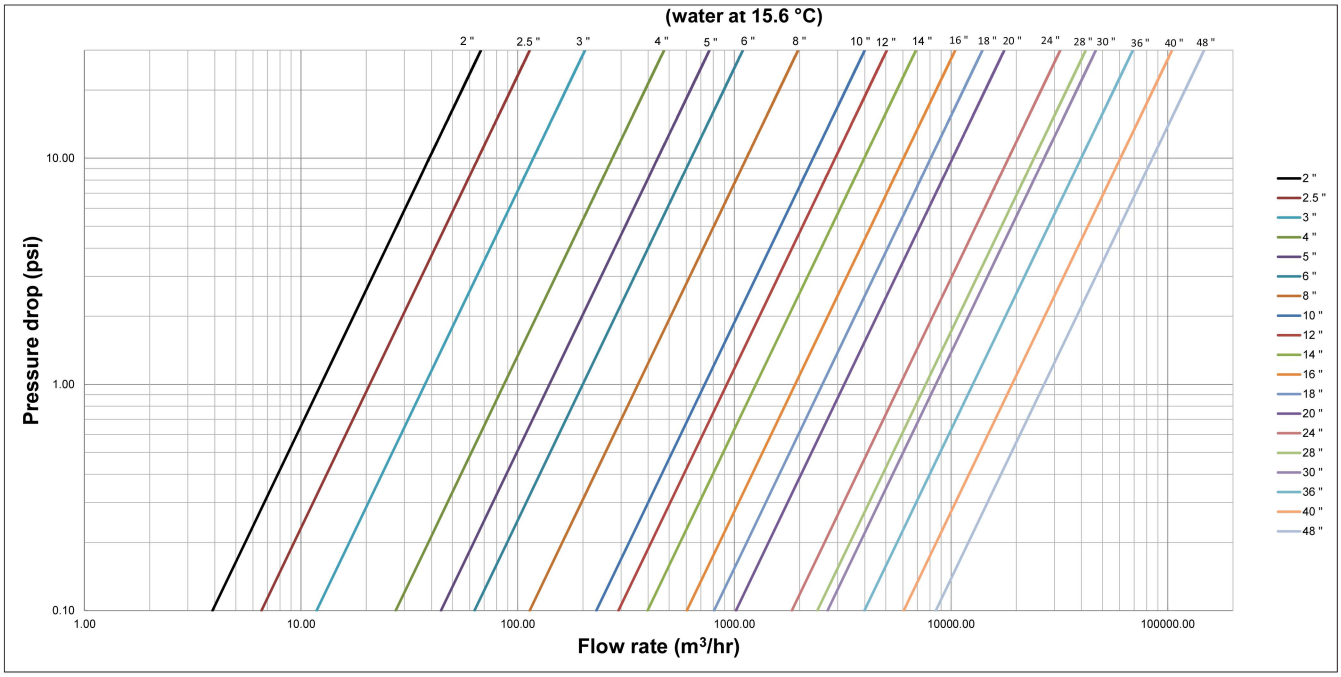


Dimensions and Weights

DN	NPS	ASME Rating	End Facing	ØA (mm)	B (mm)	ØC (mm)	Approx Mass (kg)
200	8″	150	RF	345	127	220	42
		300	-	-	-	-	-
		600	-	-	-	-	-
		900	-	-	-	-	-
250	10″	150	RF	405	146	275	86
		300	-	-	-	-	-
		600	RF/RTJ 53	510	213	275	185
		900	RF/RTJ 53	545	241	275	205
300	12″	150	RF	485	181	321	115
		300	RF	520	181	321	145
		600	RF/RTJ 57	560	229	326	225
		900	RF/RTJ 57	610	292	326	350
350	14″	150	RF	535	184	360	140
		300	RF	585	222	360	210
		600	RF/RTJ 61	605	273	360	315
		900	RF/RTJ 62	640	356	356	560

DN	NPS	ASME Rating	End Facing	ØA (mm)	B (mm)	ØC (mm)	Approx Mass (kg)
400	16″	150	RF	595	191	406	170
		300	RF	650	232	406	310
		600	RF/RTJ 65	685	305	406	430
		900	RF/RTJ 66	705	384	390	600
450	18″	150	RF	635	203	458	210
		300	RF	710	264	458	400
		600	RF/RTJ 69	745	362	458	605
		900	RF/RTJ 70	785	451	458	860
500	20″	150	RF	700	219	508	290
		300	RF	775	292	508	490
		600	RF/RTJ 73	815	368	508	760
		900	RF/RTJ 74	855	451	500	1055
600	24″	150	RF	815	222	610	380
		300	RF	915	318	610	690
		600	RF/RTJ 77	940	438	610	1250
		900	RF/RTJ 78	1040	495	600	1890

Dual Plate Check Valve Pressure Chart



Kv: The flow of water through a valve at 15.6°C in cubic metres per hour (m^3/hr) with a pressure drop of 1 bar.
Cv: The flow of water through a valve at 60°F in US gallons/minute (USgpm) with a pressure drop of 1 psi.

CRITICAL VELOCITY

For a horizontally orientated twin plate valve fitted with standard torsion springs:

Critical mean inlet velocity = 3m/s (water)

For fluids other than water at standard conditions, the following formula can be used to best approximate the equivalent water velocity:

$$\nu_{water\_equiv} = \nu_{fluid} \sqrt{\frac{\rho_{fluid}}{\rho_{water}}}$$

Valves are sized to be operated in the fully open position to ensure maximum service life and performance.

For valves which are installed for inclined or vertical up-flow, then gravity effects must be considered when evaluating the mean inlet velocity required to fully open the valve in addition to the dynamic force required to overcome the spring force.

Incorrectly sized valves can experience disc flutter and seat chatter.

FLOW COEFFICIENT (Cv) and FLOW FACTOR (Kv)			
NPS	DN	KV	CV
2	50	47	55
2 ½	65	79	93
3	80	142	166
4	100	329	385
5	125	533	624
6	150	760	890
8	200	1367	1600
10	250	2776	3250
12	300	3511	4110
14	350	4783	5600
16	400	7260	8500
18	450	9695	10610
20	500	12232	14320
24	600	22166	25950
28	700	29067	34030
30	750	32373	37900
36	900	47961	56150
40	1000	72775	85200
48	1200	102286	119750

Dual Plate Check Valve Pressure Chart

MATERIAL

Part	Material
Body	ASTM A216 WCB / ASTM A105
Pin Carriers	ASTM A351 CF8M
Hinge & Stop Pins	ASTM A182 F316
Disc Plates	ASTM A351 CF8M
Spring	UNS N07750
Bearings	AISI 316
Retaining Clip	AISI 316

Part	Material
Body	ASTM A351 CF8M / ASTM A182 F316
Pin Carriers	ASTM A351 CF8M
Hinge & Stop Pins	ASTM A182 F316
Disc Plates	ASTM A351 CF8M
Spring	UNS N07750
Bearings	AISI 316
Retaining Clip	AISI 316

Part	Material
Body	ASTM A352 LCC
Pin Carriers	ASTM A351 CF8M
Hinge & Stop Pins	ASTM A182 F316
Disc Plates	ASTM A351 CF8M
Spring	UNS N07750
Bearings	AISI 316
Retaining Clip	AISI 316

Part	Material
Body	EN-GJS-500-7 / EPDM Integral Seat
Pin Carriers	ASTM A351 CF8M
Hinge & Stop Pins	ASTM A182 F316
Disc Plates	ASTM A351 CF8M
Spring	UNS N07750
Bearings	AISI 316
Retaining Clip	AISI 316

MATERIAL ON REQUEST

Part	Material
Body	ASTM B148 C95800
Pin Carriers	ASTM A494 M35-1
Hinge & Stop Pins	UNS N04400
Disc Plates	ASTM B148 C95800
Spring	UNS N07750
Bearings	UNS N04400
Retaining Clip	UNS N07750

Part	Material
Body	ASTM A995 Gr4A / ASTM A182 F51
Pin Carriers	ASTM A995 Gr4A
Hinge & Stop Pins	ASTM A182 F51
Disc Plates	ASTM A995 Gr4A
Spring	UNS N07750
Bearings	ASTM A182 F51
Retaining Clip	UNS N07750

Part	Material
Body	ASTM A494 CW6MC
Pin Carriers	ASTM A494 CW6MC
Hinge & Stop Pins	UNS N06625
Disc Plates	ASTM A494 CW6MC
Spring	UNS N06625
Bearings	UNS N06625
Retaining Clip	UNS N06625

Part	Material
Body	ASTM A995 Gr6A / ASTM A182 F55
Pin Carriers	ASTM A995Gr6A
Hinge & Stop Pins	ASTM A182 F55
Disc Plates	ASTM A995 Gr6A
Spring	UNS N07750
Bearings	ASTM A182 F55
Retaining Clip	UNS N07750