

SWING CHECK VALVE



Check valves, or non-return valves, are installed in pipeline systems to allow flow in one direction only. They are operated entirely by reaction to the line fluid and therefore do not require any external actuation. In this text, the expected, or desired direction of flow is termed 'forward flow', flow in the opposite direction is 'reverse flow'.

There are a number of reasons for using check valves, which include:

- Protection of any item of equipment that can be affected by reverse flow, such as flow meters, strainers and control valves.
- To check the pressure surges associated with hydraulic forces, for example, water hammer. These hydraulic forces can cause a wave of pressure to run up and down pipe work until the energy is dissipated.
- Prevention of flooding.
- Prevention of reverse flow on system shutdown.
- Prevention of flow under gravity.
- Relief of vacuum conditions.

Construction of a Globe Valve

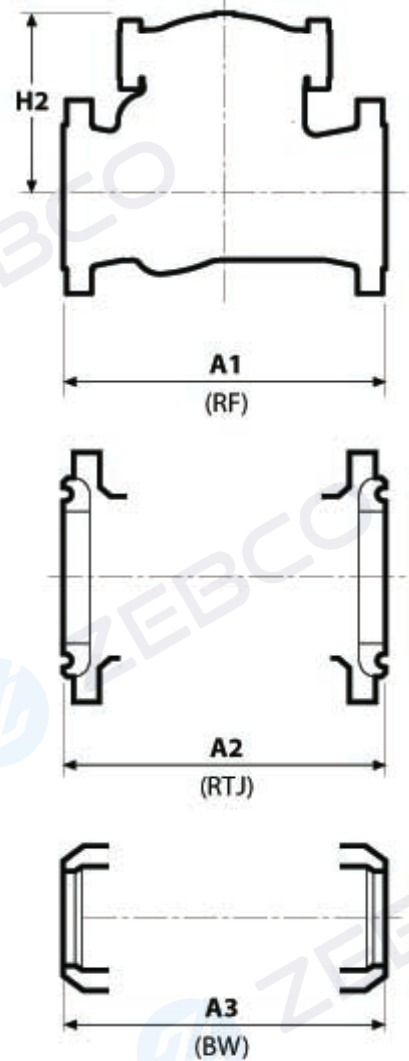
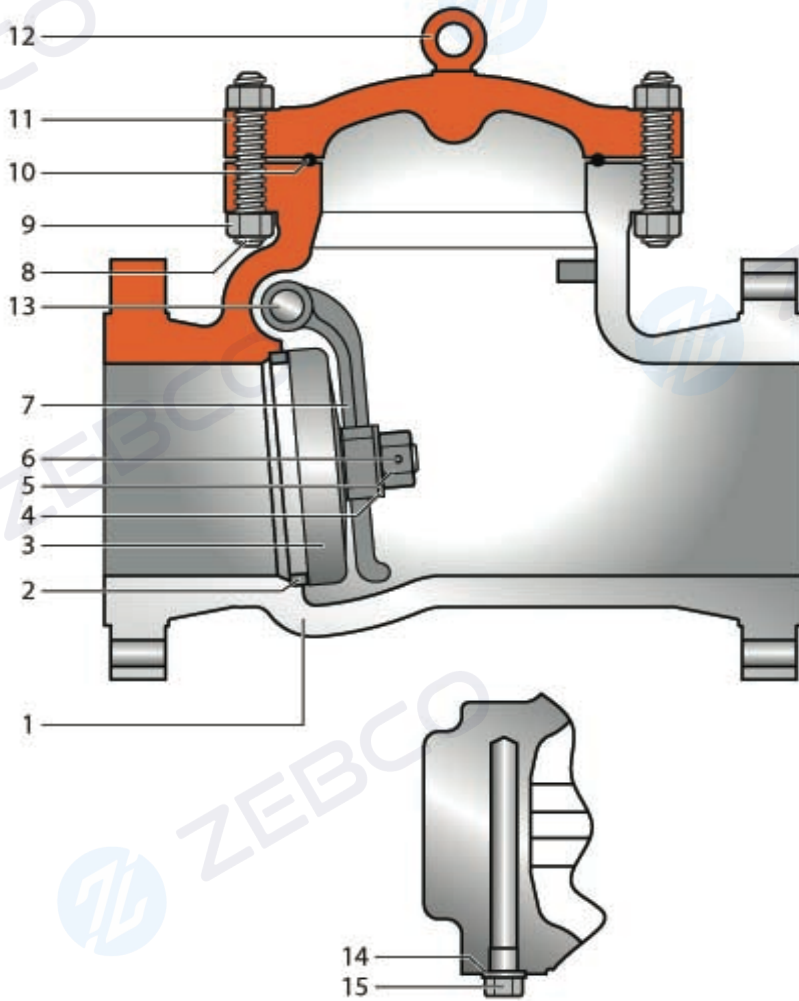
The Swing Check Valve is a one-piece body, top entry design for reliable operation and extended seat seal life. Top entry construction allows field service and in-line maintenance if necessary. All major components of the check valve are normally made from cast and wrought forms, allowing the use of a variety of widely accepted materials. The full bore to API-6D assures unrestricted flow and allows pigging and hot tapping.



CAST STEEL, SWING TYPE DISC, RENEWABLE BODY SEAT RING, BOLTED BODY – TO – COVER CONNECTION.

- 1 **HANDWHEEL** : The Spoked hand wheel is fabricated from steel pipe. The hub is coupled with the yoke sleeve by means of a tongue.
- 2 **BODY** : The body is in cast steel, carefully designed so as to keep pressure drops to a minimum. A wide opening on the body permits easy inspection and maintenance. The basic dimensions, wall thickness, face to face and flanges. Comply with the relevant API and ASME standards. The body-to-cover flange is circular. The Sealing surface for connection to the cover is recessed in the 150 and 300 lb class and ring joint in the higher class. The body is threaded for a renewable seat and an integral over travel stop for the disc is incorporated. Two threaded bosses are incorporated to ensure correct alignment of the hinge pin.
- 3 **COVER BOLTING** : Cover Studs and nuts are manufactured from alloy steel to the relevant ASTM Standard.
- 4 **HINGE PIN** : The hinge pin is part of the trim, in forged stainless steel and is machined from ground bar. The hinge pin is centered in the body with two threaded NPT plugs. The pin can be easily removed for maintenance of the valve.
- 5 **SEAT RING** : The ring is in forged stainless steel and is part of the trim. Its outer diameter is threaded and its bore is notched to easy installation and dismantling. Special attention is given to the seating surface which is ground and lapped, for a perfectly tight seal. Welded-in-seat ring may be supplied upon request.
- 6 **DISC** : The disc is part of the trim and is in forged stainless steel in diameters up to 12” and in cast steel for larger diameters. On the back face there is a threaded spigot for attachment to the hinge arm by a nut and split pin. The seating surface is ground and lapped.
- 7 **HINGE** : The hinge is in forged steel for small diameters and in cast steel for valves ¼” upwards.

Carbon & Stainless Steel Full Port Check Valves



BILL OF MATERIAL

No.	NAME OF PART	ASTM SPECIFICATION						
		CARBON STEEL	HIGHTEMPTRATURE SERVICE			LOW TEMPRATURE SERVICE	STAINLESS STEEL	
1	BODY	A216 - WCB	A217-WC6	A217-WC9	A217-C5	A352-LCB/LCC/LC2/LC3	CF8M	CF8C
2	BODY SEAT RING	A105 + HARD FACE	A182-F11	A182-F22	A182-F5A	A182-F304	F316	F347
3	DISC	A216 - CR13	A217-WC6	A217-WC9	A217-C5	A352-LCB/LCC/LC2/LC3	CF8M	CF8C
4	DISC WASHER	AISI 304						
5	DISC NUT	AISI 304						
6	DISC PIN	AISI 304						
7	ARM	A216 - WCB	A217-WC6	A217-WC9	A217-C5	A352-LCB/LC2/LC3	CF8M	CF8C
8	BONNET BOLT	A193-B7M	A193-B16	A193-B16	A193-B16	A320-L7M	A193-B8	A193-B8
9	BONNET NUT	A194-2HM	A194-4	A194-4	A194-4	A194-7M	A194-8	A194-8
10	BONNET GASKET	SPIRAL WOUND + GRAPHITE / RING JOINT						
11	COVER	A216 - WCB	A217-WC6	A217-WC9	A217-C5	A352-LCB/LCC/LC2/LC3	CF8M	CF8C
12	EYE BOLT	C5						
13	HINGE PIN	A276 - 410	A276-410	A276-410	A276-410	A276-304	F316	F347
14	GASKET	GRAPHOIL						
15	PLUG	C5						

CLASS 150 – CARBON & STAINLESS STEEL SWING CHECK VALVES

DIMENSIONS & WEIGHTS

VALVE	Nps	2	2.5	3	4	6	8	10	12	14	16	18	20	24	28	30	36
SIZE	Dn	50	65	80	100	150	200	250	300	350	400	450	500	600	700	750	900
A1 (RF)	In	8.0	8.5	9.5	11.5	14.0	19.5	24.5	27.5	31.0	34.0	38.5	38.5	51.0	57.0	60.0	77.0
	Mm	203	216	241	292	356	495	622	698	787	864	978	978	1295	1448	1524	1956
A3 (RTJ)	In	8.0	8.5	9.5	11.5	14.0	19.5	24.5	27.5	31.0	34.0	38.5	38.5	51.0	57.0	60.0	77.0
	mm	203	216	241	292	356	495	622	698	787	864	978	978	1295	1448	1524	1956
H2	in	5.8	6.4	6.9	8.3	11.3	13.6	16.7	19.5	23.8	25.6	27.9	29.6	38.5	40.0	45.2	53.1
	mm	147	163	176	210	288	346	424	496	605	649	708	752	978	1016	1149	1349
WGT (RF)	lb	35.2	48.5	66.1	97.0	172.0	260.2	520.4	757.8	929.7	1398	1799	2165	3925	4520.3	4643.9	7386.8
	kg	16	22	30	44	78	118	236	344	422	634	816	982	1780	2050	2108	3350
WGT (BW)	lb	26.4	33.0	46.3	57.3	136.7	200.7	449.8	645.5	775.5	1195.0	1579.0	1879.0	3528.0	4300.0	4423.6	6945.8
	kg	12	15	21	26	62	91	204	293	352	542	716	852	1600	1950	2008	3150

CLASS 300 – CARBON & STAINLESS STEEL SWING CHECK VALVES

DIMENSIONS & WEIGHTS

VALVE	nps	2	2.5	3	4	6	8	10	12	14	16	18	20	24	28	30	36
SIZE	dn	50	65	80	100	150	200	250	300	350	400	450	500	600	700	750	900
A1 (RF)	in	10.5	11.5	12.5	14.0	17.5	21.0	24.5	28.0	33.0	34.0	38.5	40.0	53.0	59.0	62.75	82.0
	mm	267	292	318	356	444	553	622	711	838	864	978	1016	1346	1499	1594	2083
A2 (RTJ)	in	11.12	12.12	13.12	14.62	18.12	21.62	25.12	28.62	33.62	34.62	39.12	40.75	53.88	60.0	63.75	83.12
	mm	283	308	333	371	460	549	638	731	854	880	994	1035	1368	1524	1619	2108
A3 (RTJ)	in	10.5	11.5	12.5	14.0	17.5	21.0	24.5	28.0	33.0	34.0	38.5	40.0	53.0	59.0	62.75	82.0
	mm	267	292	318	356	444	553	622	711	838	864	978	1016	1346	1499	1594	2083
H2	in	6.4	7.1	7.8	8.7	12.8	14.5	18.6	20.9	22.8	27.4	31.4	30.6	39.6	45.2	50.0	60.6
	mm	163	180	197	220	326	368	473	530	580	695	797	776	1007	1149	1270	1540
WGT (RF)	lb	52.9	81.5	99.1	149.8	301.8	485.1	595.4	1091.5	1498.0	2094.8	2646.0	3304.5	4851.0	6174.0	7497.0	11025.0
	kg	24	37	45	68	137	220	270	495	680	950	1200	1500	2200	2800	3400	5000
WGT (BW)	lb	46.3	77.1	77.1	112.4	242.3	401.3	463.1	1014.3	1156.6	1764.0	2138.9	2687.7	3924.9	5292.0	6504.8	9481.5
	kg	21	35	35	51	110	182	210	460	525	800	970	1220	1780	2400	2950	4300

CLASS 600 – CARBON & STAINLESS STEEL SWING CHECK VALVES

DIMENSIONS & WEIGHTS

VALVE	nps	2	2.5	3	4	6	8	10	12	14	16	18	20	24	28	30
SIZE	dn	50	65	80	100	150	200	250	300	350	400	450	500	600	700	750
A1 1651(RF)	in	11.5	13.0	14.0	17.0	22.0	26.0	31.0	33.0	35.0	39.0	43.0	47.0	55.0	63.0	65.0
	mm	292	330	356	432	559	660	787	838	889	991	1092	1194	1397	1600	1651
A2 (RTJ)	in	11.62	13.12	14.12	17.12	22.12	26.12	31.12	33.12	35.12	39.12	43.12	47.25	55.38	63.5	65.5
	mm	295	333	359	435	562	664	791	841	892	994	1095	1200	1407	1613	1664
A3 (RTJ)	in	11.5	13.0	14.0	17.0	22.0	26.0	31.0	33.0	35.0	39.0	43.0	47.0	55.0	63.0	65.0
	mm	292	330	356	432	559	660	787	838	889	991	1092	1194	1397	1600	1651
H2	in	8.0	8.6	10.0	12.5	15.6	20.8	24.6	23.8	26.1	32.0	37.8	40.5	47.3	53.1	56.3
	mm	202	219	253	318	397	529	625	604	664	812	960	1029	1202	1349	1429
WGT (RF)	lb	88.2	121.2	158.6	253.6	550.8	926.1	1349	1786.1	2425.5	3638	3969.0	6168.4	7197	9040.5	11025.0
	kg	40	55	72	115	250	420	612	810	1100	1650	1800	2800	3264	4100	5000
WGT (BW)	lb	68.4	99.1	132.2	176.4	451.6	804.6	1085	1576.6	1940.4	2955	3197.3	5177.1	5654	7717.5	9481.5
	kg	31	45	60	80	205	365	492	715	880	1340	1450	2350	2564	3500	4300

CLASS 900 – CARBON & STAINLESS STEEL SWING CHECK VALVES

DIMENSIONS & WEIGHTS

VALVE SIZE	Nps	2	2.5	3	4	6	8	10	12	14	16	18	20	24	28	30
	dn	50	65	80	100	150	200	250	300	350	400	450	500	600	700	750
A1 1651(RF)	in	14.5	16.5	15.0	18.0	24.0	29.0	33.0	38.0	40.5	44.5	48.0	52.0	61.0	69.0	73.0
	mm	368	419	381	457	610	737	838	965	1029	1130	1219	1321	1549	1753	1854
A2 (RTJ)	in	14.62	16.62	15.12	18.12	24.12	29.12	33.12	38.12	40.88	44.88	48.5	52.5	61.75	69.9	73.9
	mm	371	422	384	460	613	740	841	968	1038	1140	1232	1333	1568	1775	1876
A3 (RTJ)	in	14.5	16.5	15.0	18.0	24.0	29.0	33.0	38.0	40.5	44.5	48.0	52.0	61.0	69.0	73.0
	mm	368	419	381	457	610	737	838	965	1029	1130	1219	1321	1549	1753	1854
H2	in	13.1	13.7	12.6	16.7	18.9	22.2	28.3	30.7	31.8	33.0	36.3	41.4	47.2	55.1	61.8
	mm	333	349	321	423	479	565	721	781	807	838	921	1051	1200	1400	1569
WGT (RF)	Lb	154.4	242.6	242.6	471.4	837.9	1374.7	2535.8	3197.3	3858.8	5336.1	7166.3	8820.0	12789.0	17309.3	19955.3
	kg	70	110	110	214	380	624	1150	1450	1750	2420	3250	4000	5800	7800	9050
WGT (BW)	Lb	110.3	191.8	187.4	383.3	661.5	1088.3	2094.8	2602.0	3197.3	4520.3	5953.5	7275.1	9922.5	14663.3	16868.3
	kg	50	87	85	174	300	494	950	1180	1450	2050	2700	3300	4500	6650	7650

CLASS 1500 – CARBON & STAINLESS STEEL SWING CHECK VALVES

DIMENSIONS & WEIGHTS

VALVE SIZE	Nps	2	2.5	3	4	6	8	10	12	14	16	18	20	24
	Dn	50	65	80	100	150	200	250	300	350	400	450	500	600
A1 (RF)	In	14.5	16.5	18.5	21.5	27.75	32.75	39.0	44.5	49.5	54.5	60.5	65.5	76.5
	Mm	368	419	470	546	705	832	991	1130	1257	1383	1537	1664	1943
A2 (BW)	In	14.62	16.62	18.62	21.62	28.0	33.13	39.38	45.12	50.25	55.38	61.38	66.38	77.62
	Mm	371	422	473	549	711	841	1000	1146	1276	1407	1559	1686	1972
A3 (RTJ)	In	14.5	16.5	18.5	21.5	27.75	32.75	39.0	44.5	49.5	54.5	60.5	65.5	76.5
	Mm	368	419	470	546	705	832	991	1130	1257	1383	1537	1664	1943
H2	In	13.1	13.7	15.3	16.5	23.1	26.8	29.8	39.7	40.8	42.0	47.1	51.1	57.1
	Mm	333	349	389	419	587	680	756	1008	1035	1067	1197	1299	1451
WGT (RF)	Lb	154.4	242.6	374.9	661.5	1531.1	2624.0	4079.3	7336	7938.0	10804.5	14553.0	17970.8	25908.8
	Kg	70	110	170	300	695	1190	1850	3330	3600	4900	6600	8150	11750
WGT (BW)	Lb	110.3	191.8	297.7	540.2	1233.7	2127.8	3263.4	6080.3	6251.2	8599.5	11576.3	14222.3	19845.0
	Kg	50	87	135	245	560	965	1480	2760	2835	3900	5250	6450	9000

CLASS 2500 – CARBON & STAINLESS STEEL SWING CHECK VALVES

DIMENSIONS & WEIGHTS

VALVE SIZE	Nps	2	2.5	3	4	6	8	10	12	14	16
	Dn	50	65	80	100	150	200	250	300	350	400
A1 (RF)	In	17.75	20.0	22.75	26.5	36.0	40.25	50.0	56.0	62.0	68.0
	Mm	451	508	578	673	914	1022	1270	1422	-	-
A2 (BW)	In	17.87	20.25	23.0	26.88	36.5	40.87	50.88	56.88	-	-
	Mm	454	514	584	683	927	1038	1292	1445	-	-
A3 (RTJ)	In	17.75	20.0	22.75	26.5	36.0	40.25	50.0	56.0	62.0	68.0
	Mm	451	508	578	673	914	1022	1270	1422	-	-
H2	In	16.4	16.5	17.4	18.9	20.1	28.0	33.5	39.4	47.2	51.1
	Mm	416	419	441	479	511	711	851	1000	1200	1299
WGT (RF)	Lb	330.8	529.2	771.8	1433.3	3197.3	5622.8	8709.8	12568.5	-	-
	Kg	150	240	350	650	1450	2550	3950	5700	-	-
WGT (BW)	Lb	264.6	430.0	617.4	1190.7	2646.0	4851.0	6945.8	10032.8	13671.0	17860.5
	Kg	120	195	280	540	1200	2200	3150	4550	6200	8100