ORION
Steel Valves

ORION STEEL VALVES

Swing Check Valves

BS 1868

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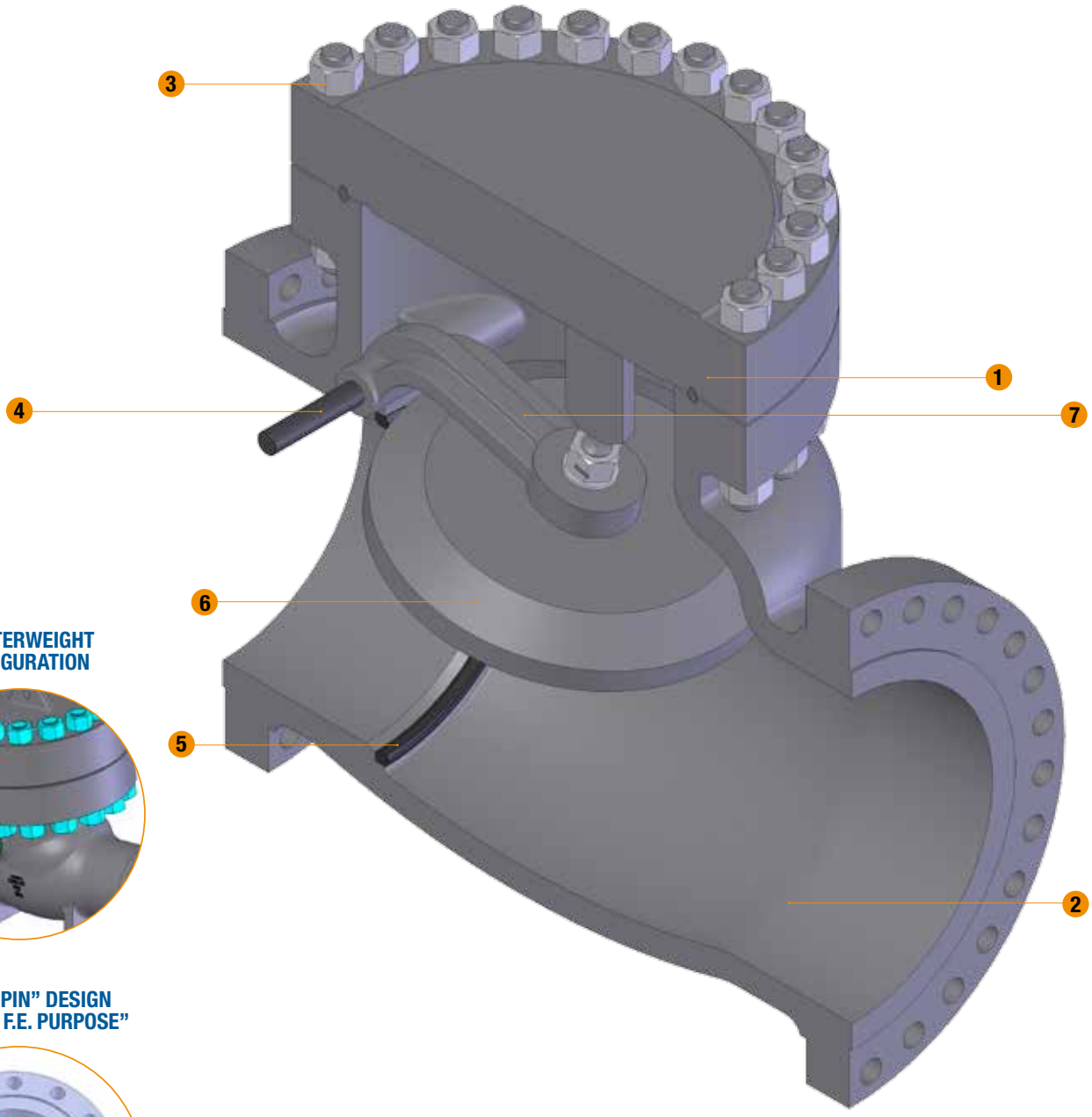


COUNTERWEIGHT CONFIGURATION

"INSIDE PIN" DESIGN FOR "LOW F.E. PURPOSE"

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

1 COVER	The cover is in carbon or stainless steel and is also available in many other CRA. The connection sealing surfaces are raised face or ring joint to suit the valve rating.
2 BODY	The body is in carbon or stainless steel and is also available in many other CRA. It is carefully designed for total reliability, to keep the pressure drops to a minimum and simple maintenance. The basic dimensions, wall thickness, face to face and flanges, comply with the relevant BS, 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 Class and ring joint for higher ratings. The body is threaded for a renewable seat and an integral over-travel stop for the disc is incorporated. Two threaded bosses are provided for the location of the hinge pin. Bosses are eventually provided for drain threaded connection.
3 COVER BOLTING	Bonnet 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 locked in the body with two threaded NPT plugs. The pin can be removed for maintenance of the valve.
5 SEAT RING	Welded-in-seat ring are supplied as a standard. The rings are part of the trim of the valve. For threaded solution, the outer diameter is threaded and its bore is notched for easy installation and dismantling. Special attention is given to the seating face which is ground and lapped, for a perfectly tight seal.
6 DISC	The disc is part of the trim and is in forged or cast steel. On the back face there is a threaded spigot for the connection to the hinge arm by a nut and cotter pin. The seating surface is ground and lapped.
7 HINGE	The hinge is made by forged steel and in cast steel.
INSTALLATION REMARKS	Swing check valves are best fit for horizontal pipeline installation. Special cases can be evaluated and developed upon request. For small valve sizes, a vertical installation (only with upward flow) is still possible, but for heavier weights of discs chattering issues can occur. Dampers or counterweight shall be then provided.

Class ASME 150 (PN 20)

FIGURE NUMBERS - CLASS ASME 150 - ALL SIZES

RT 150: RF - RAISED FACE • BW - WELDING ENDS

SIZE	2"	2½"	3"	4"	6"	8"	10"	12"	14"
RF-BW	203	216	241	292	356	495	622	699	787
B	162	167	187	207	255	304	352	375	399
Approximate WEIGHT (Kg)									
FLANGED	19	23	33	46	90	133	229	333	370
BW	14	16	23	36	75	114	203	294	303

SIZE	16"	18"	20"	22"	24"	26"	28"	30"	34"
RF-BW	864	978	978	1.067	1.295	1.295	1.448	1.524	1.651
B	422	471	520	569	617	666	715	764	862
Approximate WEIGHT (Kg)									
FLANGED	488	622	800	962	1363,5	1765	2.166,5	2.568	3.371
BW	419	552	709	852	1183,5	1515	1.846,5	2.178	2.841

SIZE	36"	42"	48"	50"	54"	60"	66"
RF-BW	1.956	2.083	1.956	2.359	2.537	2.802	3.068
B	911	1057	1.204	1.253	1.350	1.497	1.643
Approximate WEIGHT (Kg)							
FLANGED	3773	4.977	6.181,5	6.583	7.386	8.591	/
BW	3173	4.167	5.161,5	5.493	6.156	7.150	8.145

Class ASME 300 (PN 50)

FIGURE NUMBERS - CLASS ASME 300 - ALL SIZES

RT 300: RF - RAISED FACE • BW - WELDING ENDS • RJ - RING JOINT

SIZE	2"	2½"	3"	4"	6"	8"	10"	12"	14"
RF-BW	267	292	318	356	445	533	622	711	838
RJ	283	308	14	372	460	549	638	727	854
B	167	179	190	213	260	306	352	399	445
Approximate WEIGHT (Kg)									
FLANGED	24	34	44	65	135	198	333	473	573
BW	18	25	32	46	105	160	276	388	459

SIZE	16"	18"	20"	22"	24"	26"	30"	36"	42"
RF-BW	864	977	1.016	1.118	1.346	1.346	1.594	2.083	2.198
RJ	880	994	1.035	1.140	1.369	1.371	1.622	2.108	/
B	491	538	584	741	761	781	821	881	941
Approximate WEIGHT (Kg)									
FLANGED	744	983	1.171	1.511	1.850	2.190	2.869	3.887	4.906
BW	601	794	951	1.244	1.537	1.830	2.416	3.295	4.174

SIZE	48"	50"	54"	60"
RF-BW	2.493	2.591	2.788	3.082
RJ	/	/	/	/
B	1.001	1.021	1.061	1.121
Approximate WEIGHT (Kg)				
FLANGED	5.924	6.264	6.943	7.961
BW	5.053	5.346	5.932	6.811

Class ASME 600 (PN 100)

FIGURE NUMBERS - CLASS ASME 600 - ALL SIZES

RT 600: RF - RAISED FACE • BW - WELDING ENDS • RJ - RING JOINT

SIZE	2”	2½”	3”	4”	5”	6”	8”	10”	12”
RF-BW	292	330	356	432	508	559	660	787	838
RJ	295	333	359	435	511	562	664	791	841
B	175	188	200	224	273	321	370	419	467
Approximate WEIGHT (Kg)									
FLANGED	33	48	58	88	138	187	318	520	721
BW	23	38	47	64	101	138	252	404	590

SIZE	14”	16”	18”	20”	24”	36”	40”	46”	50”
RF-BW	889	991	1.092	1.194	1.397	2.083	2.286	2.540	2.756
RJ	892	994	1.095	1.200	1.406	2.099	/	/	/
B	515	563	611	659	755	1.043	1.139	1.283	1.379
Approximate WEIGHT (Kg)									
FLANGED	1.074	1.216	1.590	1.963	3.800	9.310	/	/	/
BW	919	975	1.284	1.593	3.310	8.460	10.177	12.752	14.469

SIZE	54”	60”
RF-BW	2.959	3.263
RJ	/	/
B	1.475	1.619
Approximate WEIGHT (Kg)		
FLANGED	/	/
BW	16.185	18.761

Class ASME 900 (PN 150)

FIGURE NUMBERS - CLASS ASME 900 - ALL SIZES

RT 900: RF - RAISED FACE • BW - WELDING ENDS • RJ - RING JOINT

SIZE	2”	2½”	3”	4”	5”	6”	8”	10”	12”
RF-BW	368	419	381	457	559	610	737	838	965
RJ	372	422	384	460	562	613	740	841	968
B	235	252	267	300	366	431	495	561	628
Approximate WEIGHT (Kg)									
FLANGED	65	110	84	143	206	269	507	740	1.470
BW	49	86	64	120	156,5	193	403	306	1.280

SIZE	14”	16”	20”	24”	30”	36”	40”	42”	46”
RF-BW	1.029	1.130	1.321	1.549	1.930	2.233	2.451	2.560	2.779
RJ	1.038	1.140	1.334	1.569	/	/	/	/	/
B	679	730	832	934	1.087	1.240	1.342	1.393	1.495
Approximate WEIGHT (Kg)									
FLANGED	1.890	2.300	3.331	5.471	/	/	/	/	/
BW	1.665	1.975	2.912	4.894	6.721	13.864	18.626	21.007	25.769

SIZE	48”
RF-BW	2.888
RJ	/
B	1.546
Approximate WEIGHT (Kg)	
FLANGED	/
BW	28.150

Class ASME 1500 (PN 250)

FIGURE NUMBERS - CLASS ASME 1500 - ALL SIZES

RT 1500: RF - RAISED FACE • BW - WELDING ENDS • RJ - RING JOINT

SIZE	2”	2½”	3”	4”	5”	6”	8”	10”	12”
RF-BW	368	419	470	546	673	705	832	991	1.130
RJ	372	422	473	549	676	711	841	1.000	1.146
B	223	256	288	353	418	483	550	646	741
Approximate WEIGHT (Kg)									
FLANGED	65	110	124	225	276	480	871	1.640	2.080
BW	49	86	98	188	222	412	723	1.390	1.713

SIZE	14”	16”	18”	20”	24”	30”	36”	42”
RF-BW	1.257	1.384	1.537	1.664	1.943	2.378	2.800	3.222
RJ	1.276	1.407	1.559	1.686	1.972	/	/	/
B	837	933	1.028	1.124	1.315	1.602	1.889	2.176
Approximate WEIGHT (Kg)								
FLANGED	2.815	3.705	5.310	6.690	9.260	/	/	/
BW	2.265	3.020	4.490	5.490	7.533	10.597	13.661	16.725

Class ASME 2500 (PN 420)

FIGURE NUMBERS - CLASS ASME 2500 - ALL SIZES

RT 2500: RF - RAISED FACE • BW - WELDING ENDS • RJ - RING JOINT

SIZE	2”	3”	4”	6”	8”	10”	12”	16”	18”
RF-BW	451	578	673	914	1.022	1.270	1.422	1.826	2.019
RJ	454	584	683	927	1.038	1.292	1.445	/	/
B	381	413	445	597	723	849	967	1.203	1.321
Approximate WEIGHT (Kg)									
FLANGED	91	280	477	1.068	1.477	2.890	4.302	/	/
BW	63	205	395	855	1.175	2.242	3.309	5.443	6.510

SIZE	20”	24”
RF-BW	2.211	2.596
RJ	/	/
B	1.439	1.675
Approximate WEIGHT (Kg)		
FLANGED	/	/
BW	7.577	9.711

For size and pressure classes non mentioned in the above tables please contact ORION.

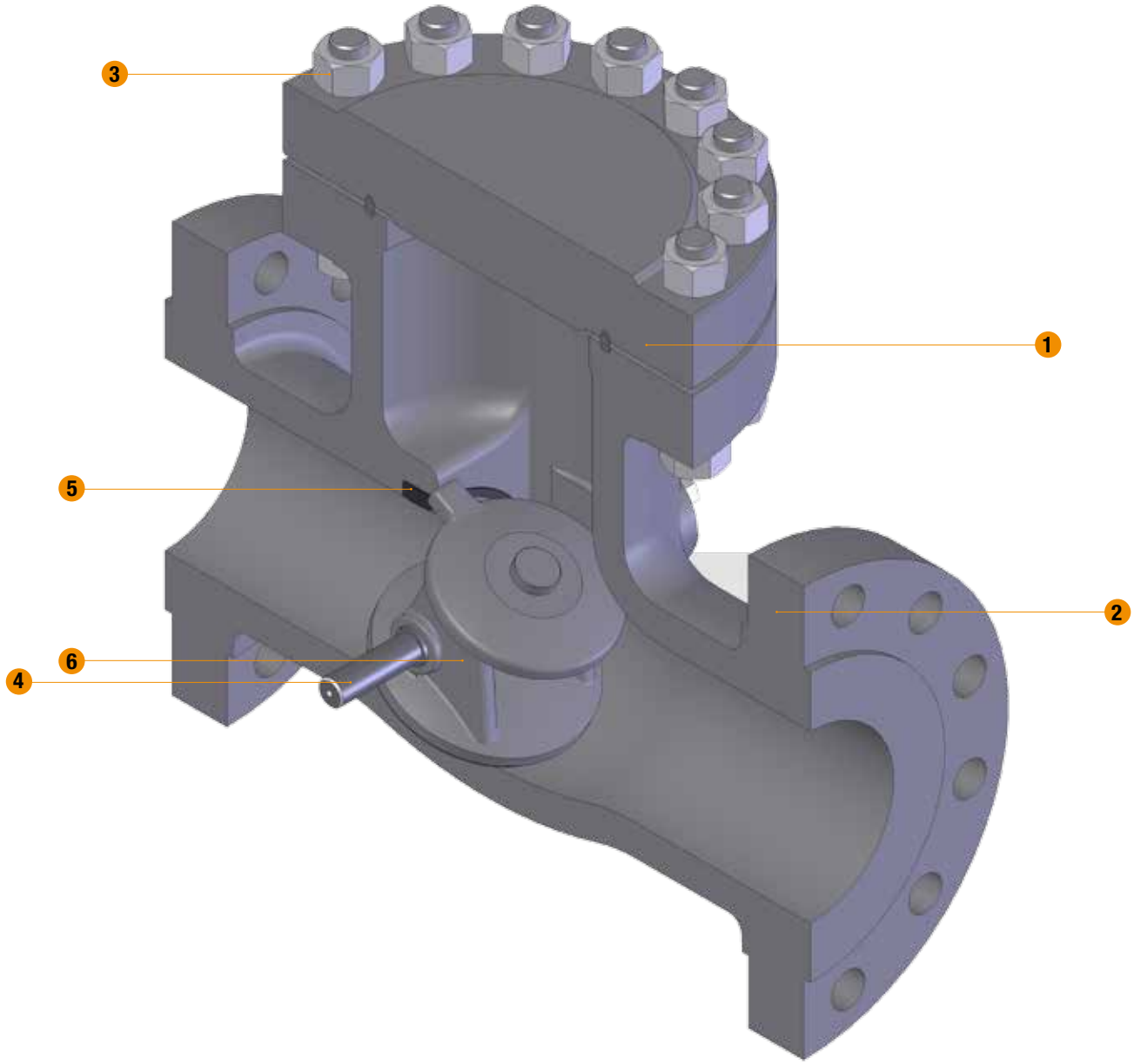
N.B. All dimension are given in millimeters, weight are expressed in Kg. and are not including the operator.

Dimensions and weight may change from above values without notice.

ORION STEEL VALVES

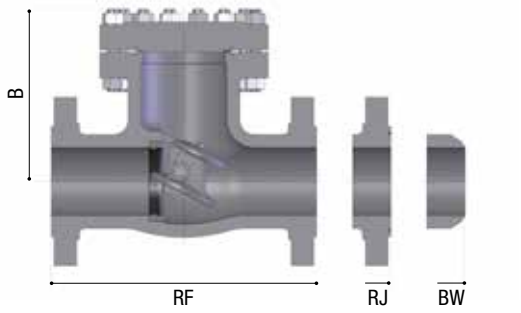
Tilting Disc Check Valve - Top Entry

BS 1868



CAST STEEL, BALANCED DISC, RENEWABLE BODY SEAT RING, BOLTED BODY-TO-COVER CONNECTION.

1 COVER	The cover is in carbon or stainless steel and is also available in many other CRA materials. The connection sealing surfaces are raised face or ring joint to suit the valve rating.
2 BODY	The body is in carbon or stainless steel and is also available in many other CRA. It is carefully designed for total reliability, to keep the pressure drops to a minimum and simple maintenance. The basic dimensions, wall thickness, face to face and flanges, comply with the relevant BS, 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 Class and ring joint for higher ratings. The body is threaded for a renewable seat and an integral over-travel stop for the disc is incorporated. Two threaded or flanged hubs are provided sideways for the location of the hinge pins. Bosses are eventually provided for drain connections.
3 COVER BOLTING	Bonnet studs and nuts are manufactured from alloy steel to the relevant ASTM standard.
4 HINGE PIN	The disc pins are part of the trim. They are in forged stainless steel machined from ground bar. The disc pins are centred in position with two flanges and they can be easily removed for maintenance of the valve.
5 SEAT RING	The ring is part of the trim of the valve, and is supplied as welded-in as a standard. In case the outer diameter is threaded and its bore is notched to easy installation and dismantling. Special attention is given to the seating face which is ground and lapped, for a perfectly tight seal.
6 DISC	The tilting disc is part of the trim. The disc's balanced design allows to keep it in the open position by a minimum fluid flow and lets this one to return to closed position quickly, before flow reversal starts, and so far not causing a sudden water hammer effect (non slam effect). The conical seating surface is ground and lapped.
INSTALLATION REMARKS	Tilting disc check valves (top entry) are best fit for horizontal pipeline installation, thus they can be used even in vertical piping with upward flow. Check anyway with ORION if the valve is suitable for the desired installed position.



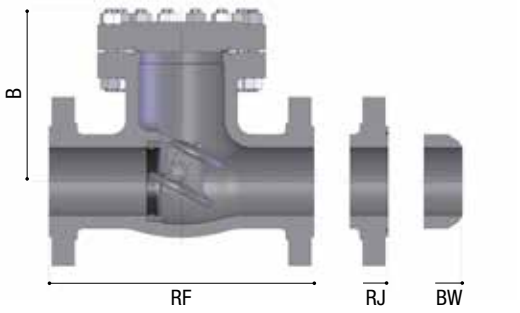
Class ASME 600 (PN 100)

FIGURE NUMBERS - CLASS ASME 900 - ALL SIZES

TR 600: RF - RAISED FACE • BW - WELDING ENDS • RJ - RING JOINT

SIZE	2”	3”	4”	6”	8”	10”	12”	14”	16”
RF-BW	292	356	432	559	660	787	838	889	991
RJ	295	359	435	562	663	790	841	892	994
B	245	302	359	472	491	550	609	654	726
Approximate WEIGHT (Kg)									
FLANGED	55	72	123	259	433	606	780	959	1.320
BW	42	55	104	219	366	513	660	812	1.279

SIZE	20”
RF-BW	1.194
RJ	1.200
B	869
Approximate WEIGHT (Kg)	
FLANGED	2.160
BW	2.215



Class ASME 900 (PN 150)

FIGURE NUMBERS - CLASS ASME 900 - ALL SIZES

TR 900: RF - RAISED FACE • BW - WELDING ENDS • RJ - RING JOINT

SIZE	2”	3”	4”	6”	8”	10”	12”	14”	16”
RF-BW	368	381	457	610	737	838	965	1.029	1.130
RJ	372	384	460	613	740	841	968	1.038	1.140
B	249	307	365	481	500	560	620	666	739
Approximate WEIGHT (Kg)									
FLANGED	94	122	208	440	735	1.029	1.324	1.628	2.566
BW	71	93	176	372	622	871	1.120	1.377	2.171

SIZE	20”	24”
RF-BW	1.321	1.549
RJ	1.334	1.569
B	885	1.092
Approximate WEIGHT (Kg)		
FLANGED	4.442	6.318
BW	3.758	5.345

Class ASME 1500 (PN 250)

FIGURE NUMBERS - CLASS ASME 1500 - ALL SIZES

TR 1500: RF - RAISED FACE • BW - WELDING ENDS • RJ - RING JOINT

SIZE	2”	3”	4”	6”	8”	10”	12”	14”	16”
RF-BW	368	470	546	705	832	991	1.130	1.257	1.384
RJ	372	473	549	711	841	1.000	1.146	1.276	1.407
B	227	296	365	486	608	730	852	974	1.096
Approximate WEIGHT (Kg)									
FLANGED	111	144	245	518	865	1.572	1.558	1.916	3.020
BW	84	110	207	438	732	1.025	1.318	1.621	2.555

For size and pressure classes non mentioned in the above tables please contact ORION.

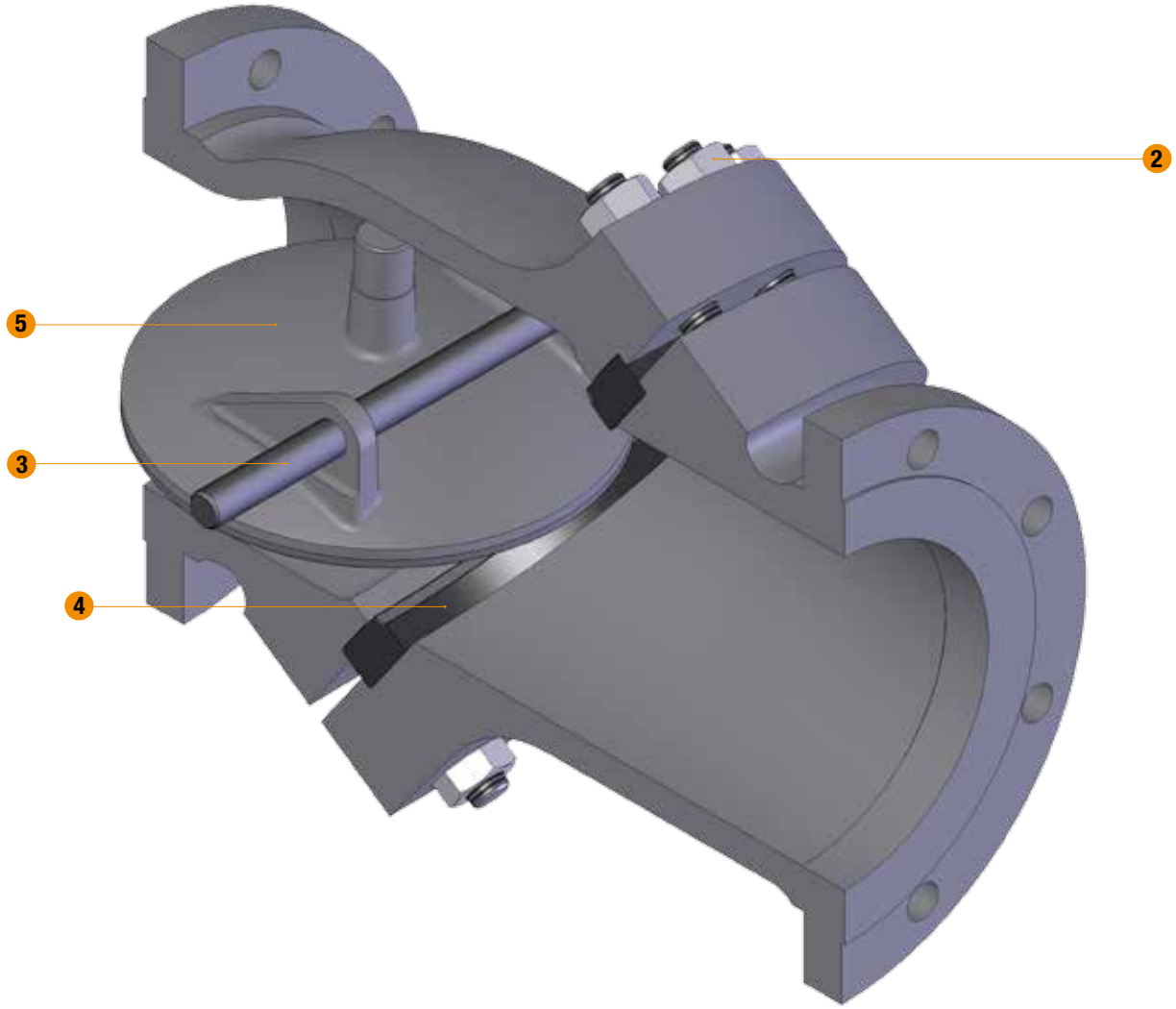
N.B. All dimension are given in millimeters, weight are expressed in Kg. and are not including the operator.

Dimensions and weight may change from above values without notice.

ORION STEEL VALVES

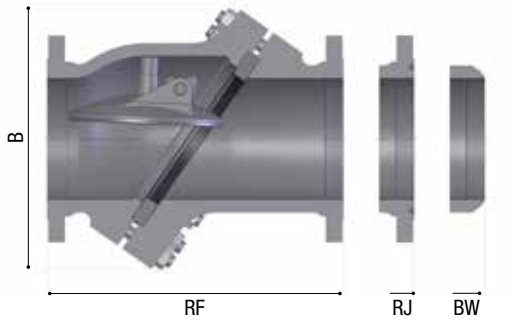
Tilting Disc Check Valve - Split Body

BS 1868



CAST STEEL, TWO PIECES BODY, RENEWABLE SEAT RING, BALANCED DISC.
THIS VALVE TYPE IS RECOMMENDED WHEN CHECK VALVES OPERATE AT LOW DIFFERENTIAL PRESSURE OR WHEN IT IS NECESSARY TO REDUCE PRESSURE DROP AND TO AVOID THE SLAMMING PROBLEM AND REDUCE THE WEAR OF MOVING PARTS.

1 BODY	The body is in carbon or stainless steel and is also available in many other CRA. It is carefully designed for total reliability, to keep the pressure drops to a minimum and simple maintenance. The body shall be two-piece, consisting of an entrance and a discharge section bolted together at an angle with the pipeline. The basic dimensions, wall thickness, face to face and flanges, comply with the relevant BS, API and ASME standards. Two threaded bosses are incorporated to ensure correct alignment of the hinge disc.
2 BODY BOLTING	Bonnet studs and nuts are manufactured from alloy steel to the relevant ASTM standard.
3 DISC PINS	The disc pins are part of the trim. They are in forged stainless steel machined from ground bar. The two disc pins are centred in position with two flanges and they can be easily removed for maintenance of the valve.
4 SEAT RING	The rings are part of the trim of the valve Special attention is given to the seating face which is ground and lapped, for a perfectly tight seal.
5 DISC	The disc is part of the trim and it is in forged steel or cast steel. The disc is balanced so that as flow decreases, it will pivot towards its closed position, closing before reverse flow actually commences.The seating surface is ground and lapped.
INSTALLATION REMARKS	Tilting disc check valve (top entry) is best fit for horizontal pipeline installation, it can be used even in vertical piping with flow up. Check anyway with ORION if the valve is suitable for the desired installed position.



Class ASME 150 (PN 20)

FIGURE NUMBERS - CLASS ASME 150 - ALL SIZES

TT 150: RF - RAISED FACE • BW - WELDING ENDS

SIZE	2”	2½”	3”	4”	5”	6”	8”	10”	12”
RF-BW	203	216	241	292	330	356	495	622	699
B	84	95	105	126	143	159	196	232	269
Approximate WEIGHT (Kg)									
FLANGED	14	19	23	36	49,5	63	163	230	300
BW	9	11	13	26	37	48	142	204	261

SIZE	14”	16”	18”	20”	24”	28”	30”	32”
RF-BW	787	864	978	978	1.050	1.257	1.257	1.524
B	302	334	367	400	465	518	544	570
Approximate WEIGHT (Kg)								
FLANGED	534	696	858	1.020	1.200	2.100	2.280	1.955
BW	469	622	776	929	1.071	1.825	1.995	1.635

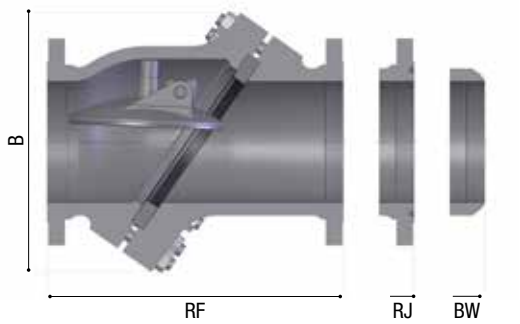
Class ASME 300 (PN 50)

FIGURE NUMBERS - CLASS ASME 300 - ALL SIZES

TT 300: RF - RAISED FACE • BW - WELDING ENDS • RJ - RING JOINT

SIZE	2”	2½”	3”	4”	5”	6”	8”	10”	12”
RF-BW	267	292	318	356	400	445	533	622	711
RJ	283	308	333	372	416	460	549	638	727
B	107	119	130	153	158	162	201	240	280
Approximate WEIGHT (Kg)									
FLANGED	18	28	38	60	78	96	173	250	392
BW	12	19	26	41	54	66	130	193	306

SIZE	14”	16”	18”	20”	24”
RF-BW	838	921	978	1.016	1.260
RJ	854	936	966	999	1.282
B	345	380	415	450	520
Approximate WEIGHT (Kg)					
FLANGED	685	670	975	1.208	1.785
BW	555	527	800	988	1.472



Class ASME 600 (PN 100)

FIGURE NUMBERS - CLASS ASME 600 - ALL SIZES

TT 600: RF - RAISED FACE • BW - WELDING ENDS • RJ - RING JOINT

SIZE	2”	2½”	3”	4”	5”	6”	8”	10”	12”
RF-BW	292	330	356	432	508	559	660	787	838
RJ	295	333	359	435	511	562	664	791	841
B	117	129	141	165	188	211	254	296	335
Approximate WEIGHT (Kg)									
FLANGED	23	35	47	87	139	190	293	480	625
BW	18	26	34	63	102	141	222	365	494

SIZE	14”	16”	18”	20”	24”
RF-BW	889	991	1.092	1.194	1.397
RJ	892	994	1.095	1.200	1.406
B	374	413	452	491	569
Approximate WEIGHT (Kg)					
FLANGED	770	915	1.060	1.205	1.495
BW	623	752	881	1.010	1.268

For size and pressure classes non mentioned in the above tables please contact ORION.

N.B. All dimension are given in millimeters, weight are expressed in Kg. and are not including the operator.

Dimensions and weight may change from above values without notice.

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