ORION
Steel Valves

ORION STEEL VALVES

Pipeline Valves

Single Disc Gate Valves API 6D •
Expanding Gate Valves API 6D •
Swing Check Valves API 6D •

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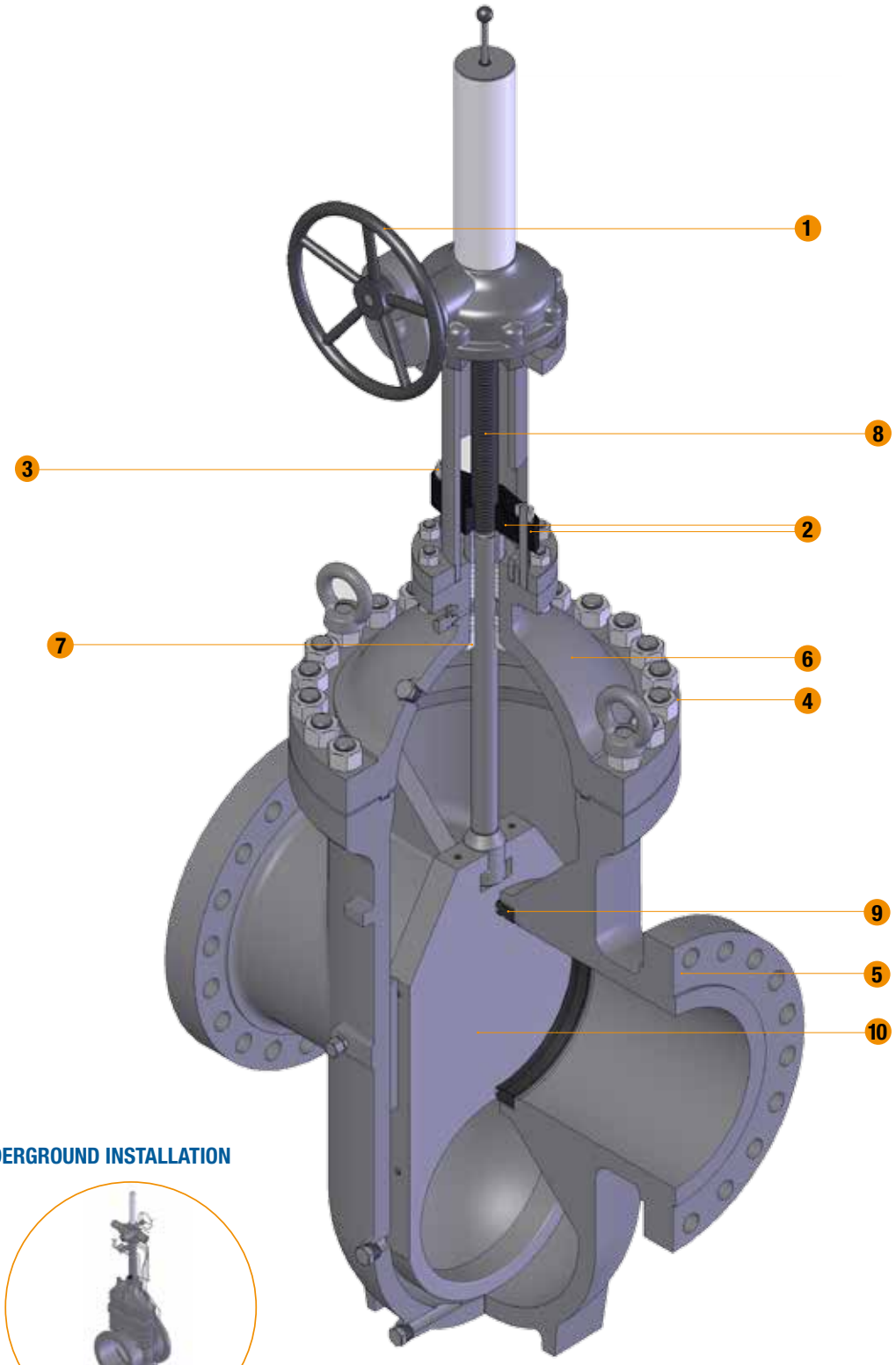
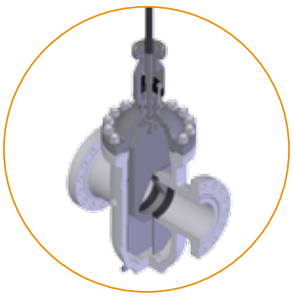
ORION STEEL VALVES

Single Disc Gate Valves

API 6D



MODULATING



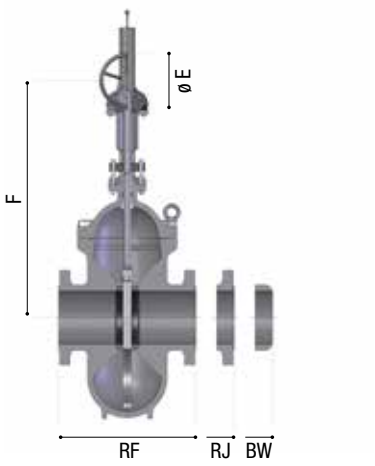
EXTENDED PIPING FOR UNDERGROUND INSTALLATION

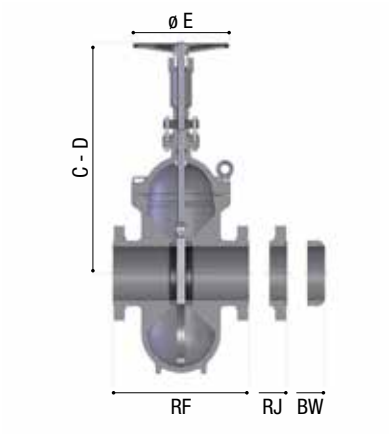
CAST STEEL, CONDUIT TYPE PIPELINE GATE VALVES, SINGLE DISC, NORMAL ACTING OR REVERSE ACTING, OUTSIDE SCREW AND YOKE, RISING STEM, METAL TO METAL OR SOFT INSERT SEATS, REMOVABLE YOKE SLEEVE, GLAND REPACKING UNDER PRESSURE.

1 OPERATOR	The spoked handwheel is fabricated from steel pipe. The hub is coupled with the yoke sleeve by means of a of a key. Larger valves are equipped with a bevel or spur gear gearbox unit.
2 GLAND AND FLANGE	They are in forged steel and are supplied in two pieces, self aligning design to permit the gland to descend parallel to the stem even if the eyebolts are unevenly tightened.
3 GLAND BOLTS AND NUTS	The forged steel gland bolts are of the eyebolt type which can be swung outward for ease of gland repacking. They are fixed to the bonnet by hinge pins.
4 BONNET BOLTING	Bonnet studs and nuts are manufactured from alloy steel to the relevant ASTM standard. The body to bonnet connection is designed according to ASME VIII DIV 1 standard.
5 BODY	The body is in carbon or stainless steel and is available in many other CRA. It is carefully designed for total reliability and simple maintenance. The basic dimension, i.e. wall thickness, face to face and flanges comply with the relevant ASME and API standards, in particular the API 6D standard. The body-to-bonnet flange is circular, except for class 150, where an oval flange is used. Standard “through conduit” design allows for passage of scrapers and spheres. The body-to-bonnet joint are flat face on Class 150 valves, male-and-female on Class 300 and 600 and ring joint on Class 900 and above. Bosses are provided for drain taps or by-pass piping. The internal surfaces in contact with the fluid can be fully lined or cladded for improved corrosion or erosion resistance.
6 BONNET	As the body, the bonnet is in carbon or stainless steel and is available in many other CRA. It is machined to accept yoke sleeve and incorporates a stuffing box dimensioned in accordance with the API standard. Lifting lugs can be provided integrally cast on the bonnet surface.
7 BONNET BUSHING	The bonnet bushing or backseat is part of the valve trim. Its design allows valve repacking without valve’s bleeding or draining. Hardfacing can be provided on stem seating surface.
8 STEM	The stem is part of the trim and is available in a wide range of material in accordance to API 600 or customer’s requirements. The stem is provided with a T head. A ground backseat is provided to ensure a perfectly tight seal to the stuffing box when the valve is fully open. The stem is highly finished to minimize friction and prevent damage to packing. The threading is trapezoidal ACME type.
9 SEAT RING	The seat rings are floating in their respective pockets in the body. These pockets can be lined to avoid corrosion development on sliding surfaces. The seats are sealing against the body through a lip seal or an O-R. Graphite fire safe gasket can be supplied, in addition to the main gasket. A set of coil springs pushes each seat against the gate and allows the bleeding of any overpressure in the body cavity to the upstream, giving the self relieving capability of the valve, without the need of external relief systems. ORION Slab Gate valves are always double block and bleed type, and is possible to isolate the body cavity from the line in both closed or open position, by bleeding the body cavity.
10 SLAB GATE	The slab is part of the trim. It is machined out from plates or forged steel. It is connected to the stem by means of a T- shaped joint. Special care is given to the seating surfaces which are ground and lapped, integral or hardfaced. A cladding or lining can be applied to the larger gates to improve its resistance against erosive and corrosive environments, instead of having those integral in high grades of steel. Seat skirts are installed on valves up to 8” and act both as a gate guide and to limit fluid ingress into the body during open/close operation. Larger sizes can be equipped with skirts as well, but solid sliding guides are holding the gate weight.

Accessories: A lantern ring can be supplied upon request, in this case the stuffing box shall be drilled, tapped and fitted with an 1/4” NPT plug or grease fitting, for emergency stem sealing. The seats as well can be equipped with seat sealant injectors, with giant buttonhead connection grease fitting. Special actuator /handwheel extension can be arranged in order to lift the actuation position, and as well drain / bleed / injection connections can be extended up to the operator level for underground pipeline application.

INSTALLATION REMARKS	Best fit for vertical stem/horizontal flow installation. Special cases can be evaluated and developed on request.





Class ASME 150 (PN 20)

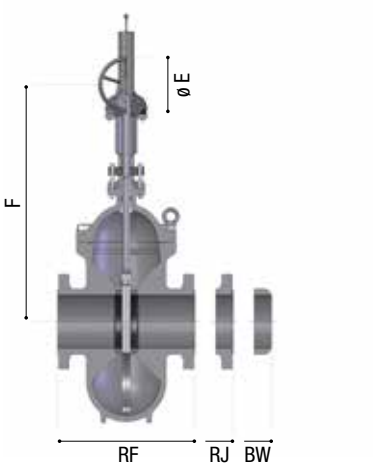
FIGURE NUMBERS - CLASS ASME 150 - ALL SIZES

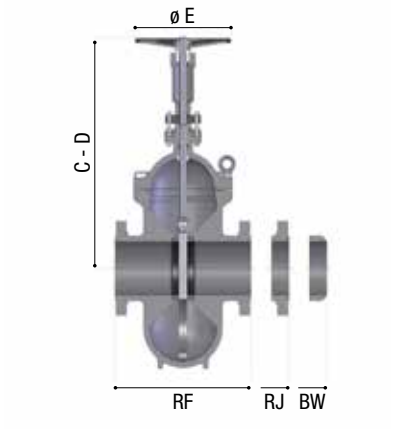
SD 150: RF - RAISED FACE • BW - WELDING ENDS

SIZE	2”	3”	4”	6”	8”	10”	12”	14”	16”
RF	178	203	229	267	292	330	356	394	406
BW	216	282	305	403	419	457	502	572	610
C-closed	544	607	670	795	920	1.046	1.171	1.324	1.477
D-open	610	699	788	966	1.144	1.322	1.500	1.696	1.892
E	200	200	200	250	250	300	300	350	400
F	/	/	/	/	/	/	/	/	/
Approximate WEIGHT (Kg)									
FLANGED	34	54	73	108	196	296	410	550	660
BW	30	47	64	100	188	284	394	530	635

SIZE	18”	20”	24”	26”	28”	30”	32”	34”	36”
RF	432	457	508	559	610	660	711	762	813
BW	660	711	813	864	914	914	965	1.016	1.016
C-closed	1.680	1.883	2.289	2.492	2.538	2.400	2.945	3.489	4.034
D-open	2.147	2.403	2.914	3.169	3.169	3.170	4.097	5.025	5.952
E	430	450	500	550	600	650	700	750	BG
F	/	/	/	/	/	/	/	/	2.896
Approximate WEIGHT (Kg)									
FLANGED	702	920	1230	1.637	2.044	2.370	2.857	3.036	3.214
BW	690	903	1217	1.608	2.000	2.395	2.782	2.923	3.064

SIZE	40”	42”	48”	52”	56”	60”
RF	914	965	1.118	1.301	1.392	1.483
BW	1.067	1.067	/	/	/	/
C-closed	4.403	4.588	5.141	5.510	5.879	6.248
D-open	5.416	5.148	4.344	3.808	3.272	2.736
E	BG	BG	BG	BG	BG	BG
F	3.204	3.358	3.809	4.110	4.410	4.711
Approximate WEIGHT (Kg)						
FLANGED	3.571	3.750	/	/	/	/
BW	3.346	3.488	3.911	4.193	4.475	4.757





Class ASME 300 (PN 50)

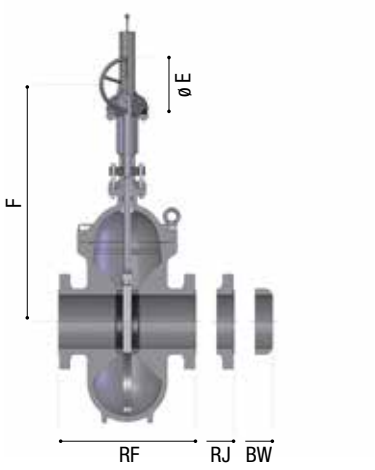
FIGURE NUMBERS - CLASS ASME 300 - ALL SIZES

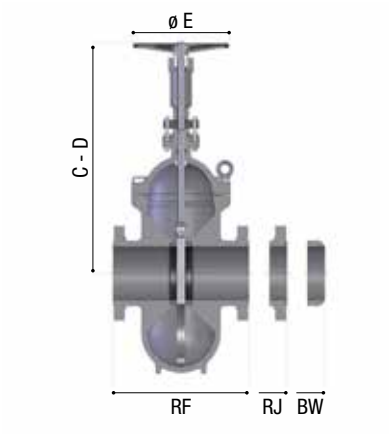
SD 300: RF - RAISED FACE • BW - WELDING ENDS • RJ - RING JOINT

SIZE	2”	3”	4”	6”	8”	10”	12”	16”	20”
RF - BW	216	282	305	403	419	457	502	838	991
RJ	232	298	321	419	435	473	518	854	1.010
C-closed	507	577	646	785	924	1.063	1.202	1.407	1.612
D-open	572	668	764	970	1.148	1.340	1.532	1.891	2.249
E	200	200	250	250	250	300	BG	BG	BG
F	/	/	/	/	/	/	1.150	1.526	1.727
Approximate WEIGHT (Kg)									
FLANGED	38	57	82	173	231	280	410	671	1.370
BW	32	44	63	145	203	235	346	569	1.142

SIZE	24”	26”	28”	30”	32”	34”	36”	40”	42”
RF - BW	1.143	1.245	1.346	1.397	1.524	1.626	1.727	1.930	1.981
RJ	1.165	1.270	1.371	1.422	1.552	1.654	1.755	/	/
C-closed	2.046	2.262	2.479	2.696	2.698	2.824	2.950	3.273	3.434
D-open	2.739	2.983	3.228	3.473	3.510	3.693	3.875	4.534	4.864
E	BG	BG	BG	BG	BG	BG	BG	BG	BG
F	2.145	2.273	2.417	2.562	2.706	2.850	2.975	3.398	3.609
Approximate WEIGHT (Kg)									
FLANGED	2.100	2.538	2.976	3.414	4.586	5.757	6.929	10.352	12.064
BW	1.750	2.179	2.607	3.036	4.176	5.317	6.457	9.771	11.429

SIZE	48”	52”	56”	60”
RF - BW	2.235	2.335	2.438	2.540
RJ	/	/	/	/
C-closed	3.731	3.683	3.635	3.587
D-open	6.778	8.054	9.330	10.606
E	BG	BG	BG	BG
F	4.150	4.511	4.872	5.233
Approximate WEIGHT (Kg)				
FLANGED	/	/	/	/
BW	16.400	19.714	22.857	27.619





Class ASME 600 (PN 100)

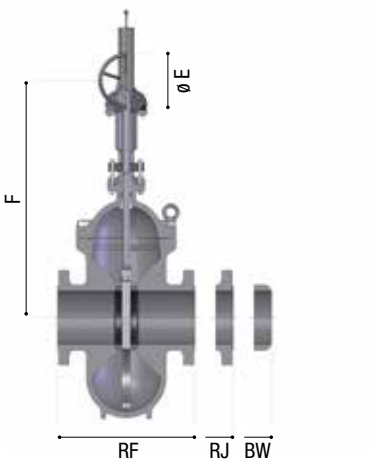
FIGURE NUMBERS - CLASS ASME 600 - ALL SIZES

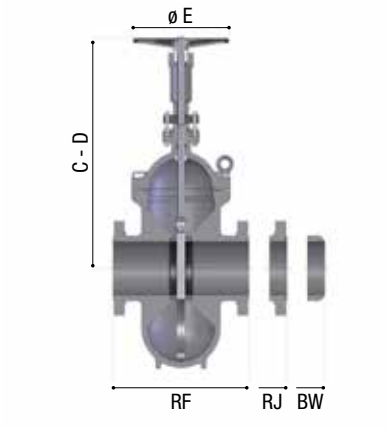
SD 600: RF - RAISED FACE • BW - WELDING ENDS • RJ - RING JOINT

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
C-closed	460	544	628	796	965	1.133	1.302	1.470	1.645
D-open	531	640	749	967	1.185	1.404	1.622	1.840	2.066
E	200	200	200	300	400	450	BG	BG	BG
F	/	/	/	/	/	/	1.298	1.475	1.615
Approximate WEIGHT (Kg)									
FLANGED	53	87	148	270	462	462	1.005	1.547	2.090
BW	43	74	121	216	391	391	884	1.377	1.870

SIZE	18”	20”	24”	26”	28”	30”	32”	34”	36”
RF - BW	1.092	1.194	1.295	1.397	1.549	1.651	1.778	1.930	2.083
RJ	1.095	1.200	1.305	1.407	1.562	1.664	1.794	1.946	2.099
C-closed	1.820	1.995	2.170	2.345	2.695	2.870	3.398	3.926	4.454
D-open	2.291	2.517	2.743	2.968	3.419	3.645	4.223	4.802	5.380
E	BG	BG	BG	BG	BG	BG	BG	BG	BG
F	1.781	1.946	2.112,5	2.279	2.789	2.953	3.298	3.553	3.808
Approximate WEIGHT (Kg)									
FLANGED	3.622	5.153	6.685	8.216	11.279	9.458	14.342	15.874	17.405
BW	3.237	4.604	5.971	7.338	10.072	8.250	12.807	14.174	15.541

SIZE	42”	48”	52”	56”	60”
RF - BW	2.438	2.540	2.805	2.692	3.203
RJ	/	/	/	/	/
C-closed	6.038	7.622	8.678	9.734	10.790
D-open	7.115	8.850	10.007	11.163	12.320
E	BG	BG	BG	BG	BG
F	4.573	5.337	5.847	6.356	6.866
Approximate WEIGHT (Kg)					
FLANGED	22.000	26.595	/	/	/
BW	19.642	23.743	26.477	39.212	41.946





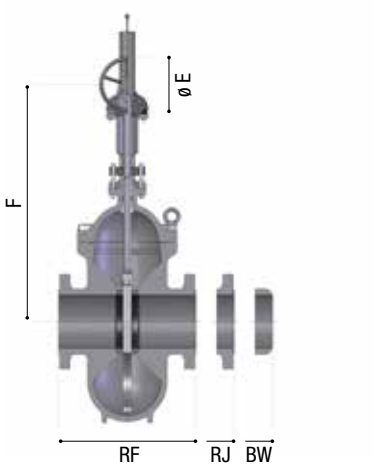
Class ASME 900 (PN 150)

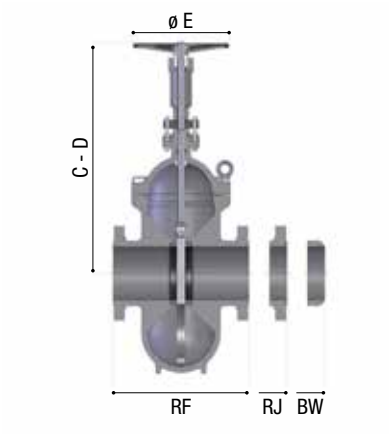
FIGURE NUMBERS - CLASS ASME 900 - ALL SIZES

SD 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	371	384	460	613	740	841	968	1.039	1.140
C-closed	820	864	907	994	1.081	1.245	1.409	1.573	1.737
D-open	881	953	1024	1.167	310	1.529	1.748	1.967	2.186
E	300	300	400	BG	BG	BG	BG	BG	BG
FLANGED	/	/	/	805	1.062	1.212	1.362	1.512	1.662
Approximate WEIGHT (Kg)									
FLANGED	88	140	250	405	740	1.250	1.450	1.960	2.580
BW	77	122	217	352	643	1.087	1.261	1.704	2.243

SIZE	20”	24”	26”	32”	36”	40”	48”	56”
RF - BW	1.321	1.549	1.676	1.981	2.083	2.380	2.799	3.200
RJ	1.334	1.568	/	/	/	/	/	/
C-closed	2.065	2.393	2.557	3.049	3.377	3.705	4.361	5.017
D-open	2.624	3.062	3.281	3.938	4.376	4.814	5.690	6.566
E	BG	BG	BG	BG	BG	BG	BG	BG
FLANGED	1.962	2.662	2.412	2.862	3.162	3.462	4.062	4.662
Approximate WEIGHT (Kg)								
FLANGED	4.900	8.200	/	/	/	/	/	/
BW	4.261	7.130	8.609	13.043	18.609	24.174	35.304	46.435





Class ASME 1500 (PN 250)

FIGURE NUMBERS - CLASS ASME 1500 - ALL SIZES

SD 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	371	473	549	711	842	1.001	1.146	1.276	1.406
C-closed	553	629	705	983	1.260	1.538	1.815	2.093	2.370
D-open	614	757	899	1.188	1.476	1.800	2.130	2.550	2.800
E	BG	BG	BG	BG	BG	BG	BG	BG	BG
F	539	647	755	933	1.115	1.283	1.451	1.618	1.786
Approximate WEIGHT (Kg)									
FLANGED	108	231	354	672	1.260	1.980	3.200	4.200	5.800
BW	94	201	308	584	1.096	1.722	2.783	3.652	5.043

SIZE	18”	20”	24”
RF - BW	1.537	1.664	1.943
RJ	1.559	1.686	/
C-closed	2648	2.925	3.480
D-open	3.150	3.485	4.280
E	BG	BG	/
FLANGED	1.954	2.122	2.457
Approximate WEIGHT (Kg)			
FLANGED	8.100	11.333	17.800
BW	7.043	9.855	15.478

Class ASME 2500 (PN 420)

FIGURE NUMBERS - CLASS ASME 2500 - ALL SIZES

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

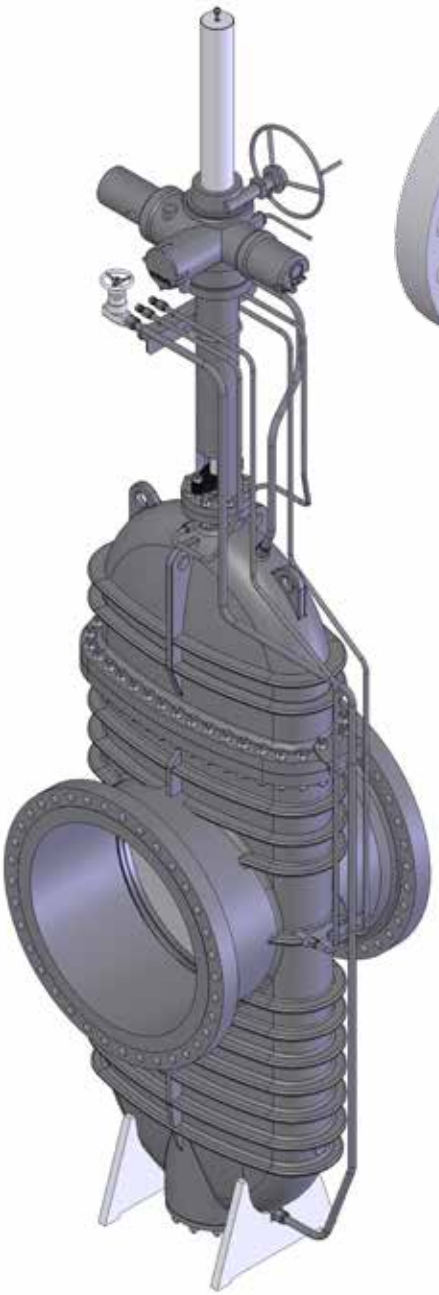
SIZE	2”	4”	6”	8”	10”	12”
RF - BW	451	673	914	1.022	1.270	1.422
RJ	454	683	927	1.038	1.292	1.444
C-closed	1.000	1.107	1.255	1.322	2.959	3.664
D-open	1.050	1.208	1.439	1.544	3.250	4.000
E	BG	BG	BG	BG	BG	BG
F	578	851	1.124	1.286	1.448	1.610
Approximate WEIGHT (Kg)						
FLANGED	193	590	1.340	2.240	3.850	6.100
BW	168	513	1.165	1.948	3.348	5.304

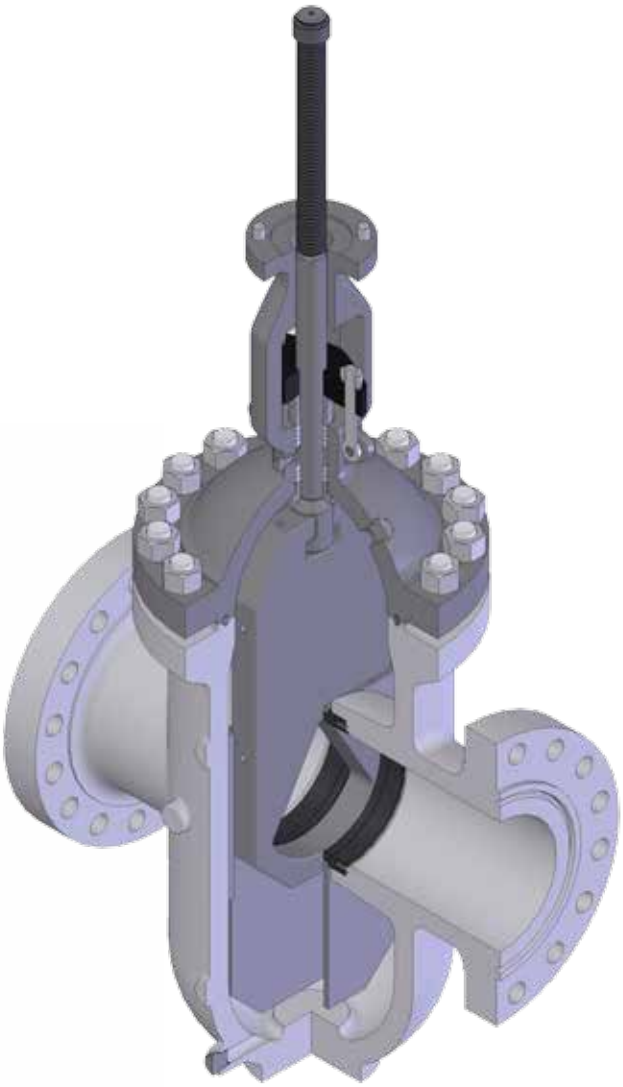
For size and pressure classes non mentioned in the above tables please contact ORION.

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.

MODULATING SLAB GATE



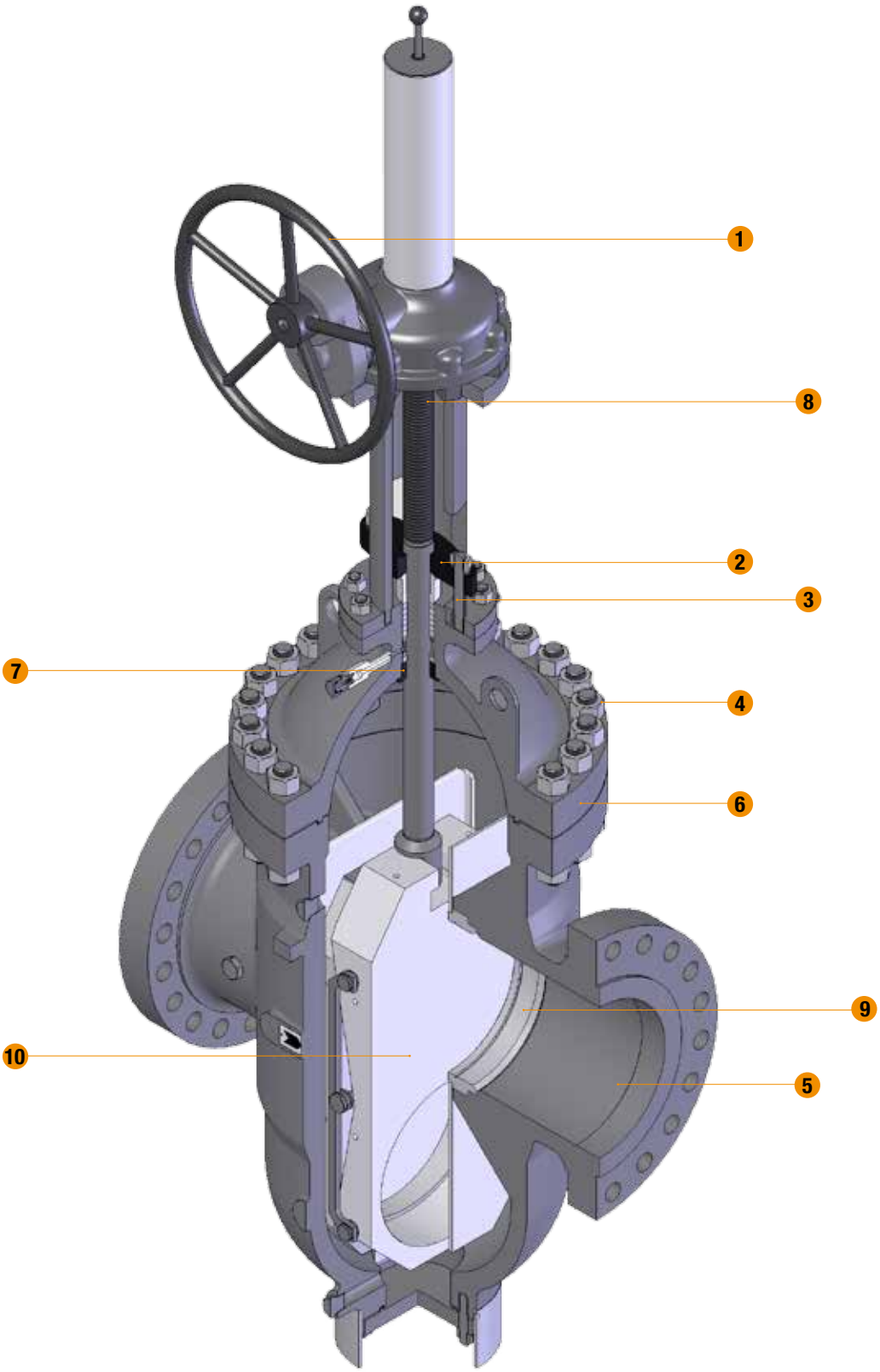


EXTENDED PIPING FOR UNDERGROUND INSTALLATION

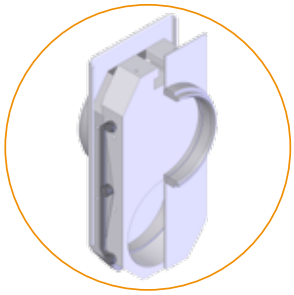
ORION STEEL VALVES

Expanding Gate Valves

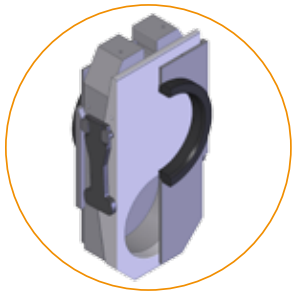
API 6D



SPRING RETURN SYSTEM



MECHANICAL RETURN SYSTEM

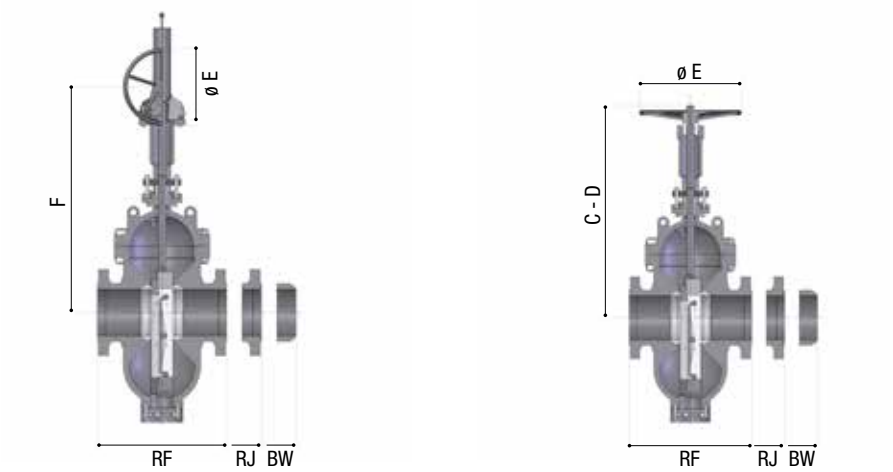


CAST STEEL, CONDUIT TYPE PIPELINE EXPANDING GATE VALVES, OUTSIDE SCREW AND YOKE, RISING SYSTEM, METAL TO METAL OR SOFT SEATS, REMOVABLE YOKE SLEEVE, GLAND REPACKING UNDER PRESSURE.

1 OPERATOR	The spoked handwheel is fabricated from steel pipe. The hub is coupled with the yoke sleeve by means of a a key. Larger valves are equipped with a bevel or spur gear gearbox unit.
2 GLAND AND FLANGE	They are in forged steel and are supplied in two pieces, self aligning design to permit the gland to descend parallel to the stem even if the eyebolts are unevenly tightened.
3 GLAND BOLTS AND NUTS	The forged steel gland bolts are of the eyebolt type which can be swung outward for ease of gland repacking. They are fixed to the bonnet by hinge pins.
4 BONNET BOLTING	Bonnet studs and nuts are manufactured from alloy steel to the relevant ASTM standard. The body to bonnet connection is designed according to ASME VIII DIV 1 standard.
5 BODY	The body is in carbon or stainless steel and is available in many other CRA. It is carefully designed for total reliability and simple maintenance. The basic dimension, i.e. wall thickness, face to face and flanges comply with the relevant ASME and API standards, in particular the API 6D standard. The body-to-bonnet flange is circular. Standard “through conduit” design allows for passage of scrapers and spheres. The body is basically supplied with renewable seats. Bosses are provided for drain taps or by-pass piping. The internal surfaces in contact with the fluid can be fully lined or cladded for improved corrosion or erosion resistance.
6 BONNET	As the body, the bonnet is in carbon or stainless steel and is available in many other CRA. It is machined to accept yoke sleeve and incorporates a stuffing box dimensioned in accordance with the API standard. Lifting lugs can be provided integrally cast on the bonnet surface.
7 BONNET BUSHING	The bonnet bushing is part of the valve trim. Its design allows on request safe valve repacking without valve’s bleeding or draining using auxiliary seals. It doesn’t allow the classical backseating position in contact with the stem head, but if the application allows to use O-R or lip seals, it is possible to include an auxiliary seal for repacking.
8 STEM	The stem is part of the trim and is available in a wide range of material in accordance to API 600 or customer’s requirements. The stem is provided with a T-shaped head. The stem is highly finished to minimize friction and prevent damage to gland packing. The thread is trapezoidal ACME type. Because of the intrinsic design of the valve, it is not possible to create a backseating position.
9 SEAT RING	Welded-in seat rings are supplied as a standard, and floating seats can be supplied as well. The rings are part of the trim of the valve and are usually hardfaced or coated by tungsten carbide.
10 DISC	The concave and convex disc are part of the trim. They are forged in stainless steel. They are connected to the stem by means of a T joint. Special attention is given to the seating surfaces which are grounded and lapped, and can be hardfaced or coated with tungsten carbide.

Accessories: The double block and bleed feature of this valve and the seats fixed in the body require always to provide a body pressure relief system. Usually, an external piping with a check valve is supplied to bleed upstream any overpressure may be trapped in body cavity. A manual drain/vent valve or connection is always suggested. A lantern ring is supplied only upon request, in this case the stuffing box shall be drilled, tapped and fitted with an ¼” NPT plug or grease fitting. Special actuator /handwheel extension can be arranged in order to lift the actuation position, and as well drain / bleed / injection connections can be extended up to the operator level for underground pipeline application.

INSTALLATION REMARKS	Pipeline valves are best fit for vertical stem / horizontal flow installation. Special cases can be evaluated and developed on request.



Class ASME 600 (PN 100)

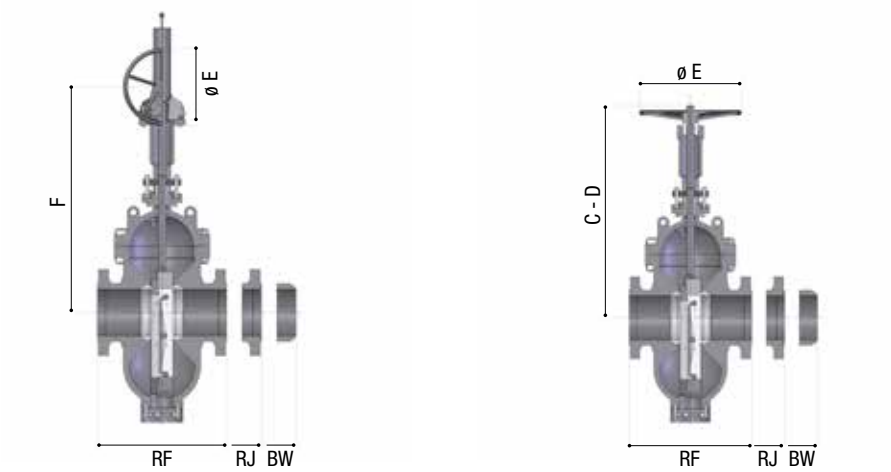
FIGURE NUMBERS - CLASS ASME 600 - ALL SIZES

EG 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
C-closed	626	698	771	917	1.062	1.208	1.353	1.499	1.644
D-open	775	866	958	1.142	1.325	1.509	1.692	1.876	2.059
E	200	300	350	500	BG	BG	BG	BG	BG
F	/	/	/	/	1082	1.227	1.371	1.564	1.757
Approximate WEIGHT (Kg)									
FLANGED	141	263	385	630	874	1.119	1.363	2.381	3.398
BW	131	250	361	576	803	10.04	1.232	2.230	3.150

SIZE	18”	20”	22”	24”	28”	32”	34”	36”	42”
RF - BW	1.092	1.194	1.295	1.397	1.549	1.778	1.930	2.082	2.438
RJ	1.095	1.200	1.305	1.407	1.562	1.794	1.946	2.099	/
C-closed	1.790	1.935	2.081	2.518	2.906	3.295	3.489	3.683	4.266
D-open	2.243	2.426	2.610	3.153	3.640	4.127	4.371	4.614	5.345
E	BG	BG	BG	BG	BG	BG	BG	BG	BG
F	1.951	2.144	2.337	2.670	2.917	3.303	3.496	3.689	4.269
Approximate WEIGHT (Kg)									
FLANGED	4.416	5.433	6.451	7.468	9.503	11.538	12.556	13.573	/
BW	4.148	5.091	6.051	7.001	8.803	10.748	11.726	12.723	15.584,808

SIZE	48”	52”	56”	60”
RF - BW	2.540	2.805	2.692	3.203
RJ	/	/	/	/
C-closed	4.848	5.236	5.625	6.013
D-open	6.075	6.562	7.049	7.536
E	BG	BG	BG	BG
F	4.849	5.235	5.621	6.008
Approximate WEIGHT (Kg)				
FLANGED	/	/	/	/
BW	18.445,678	20.353,238	22.260,797	24.168,357



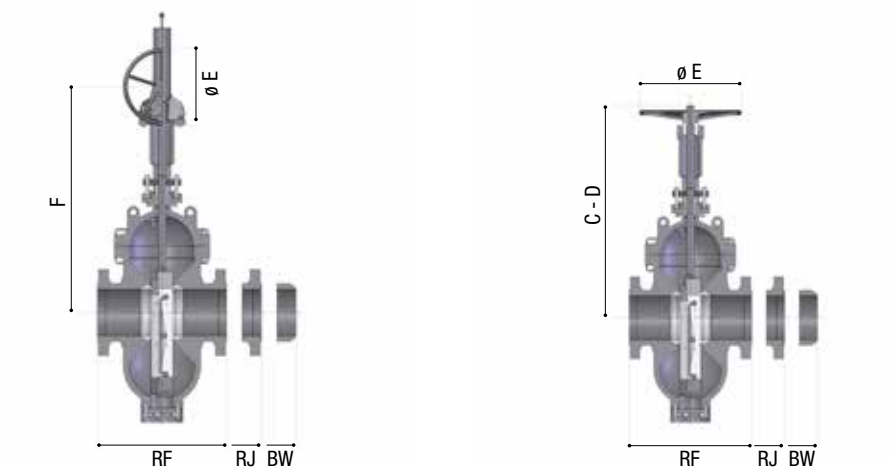
Class ASME 900 (PN 150)

FIGURE NUMBERS - CLASS ASME 900 - ALL SIZES

EG 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	371	384	460	613	740	841	968	1.039	1.140
C-closed	443	523	628	778	1.068	1.228	1.299	1.466	1.708
D-open	689	792	896	1.104	1.311	1.519	1.726	1.934	2.141
E	350	350	400	BG	BG	BG	BG	BG	BG
F	/	/	/	762	1.048	1.211	1.374	1.537	1.700
Approximate WEIGHT (Kg)									
FLANGED	115	242	366	651	932	1.536	2.141	2.745	3.349
BW	98	217	336	586	828	1.396	1.951	2.520	2.917

SIZE	20”	24”	26”	32”	36”	40”	48”	56”
RF - BW	1.321	1.549	1.676	1.981	2.083	2.380	2.799	3.200
RJ	1.334	1.568	/	/	/	/	/	/
C-closed	1.950	2.210	2.450	2.900	3.240	3.565	3.726	4.865
D-open	2.556	2.971	3.179	3.801	4.216	4.631	5.461	6.291
E	BG	BG	BG	BG	BG	BG	BG	BG
F	2.026	2.352	2.515	3.004	3.330	3.656	4.308	4.960
Approximate WEIGHT (Kg)								
FLANGED	4.558	5.766	/	/	/	/	/	/
BW	4.098	5.131	5.520	7.163	8.272	9.336	11.465	13.593



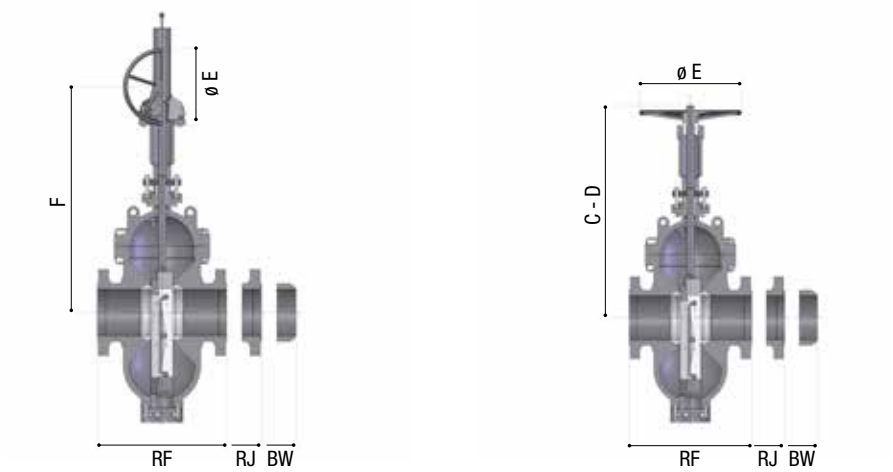
Class ASME 1500 (PN 250)

FIGURE NUMBERS - CLASS ASME 1500 - ALL SIZES

EG 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	371	473	549	711	842	1.001	1.146	1.276	1.406
C-closed	443	667	765	930	1.148	1.340	1.532	1.527	1.621
D-open	689	769	893	1.116	1.385	1.632	1.879	1.874	1.995
E	350	450	500	BG	BG	BG	BG	BG	BG
F	/	/	/	940	1.143	1.345	1.437	1.528	1.686
Approximate WEIGHT (Kg)									
FLANGED	115	418	366	820	1.518	2.342	3.582	3.990	5.490
BW	98	392	336	683	1.370	2.092	3.215	3.440	4.805

SIZE	18”	20”	24”	26”	28”	36”	42”
RF - BW	1.537	1.664	1.943	2.090	2.237	2.808	3.233
RJ	1.559	1.686	1.971	/	/	/	/
C-closed	1.714	1.808	1.995	2.088	2.182	2.556	2.836
D-open	2.116	2.237	2.479	2.600	2.731	3.205	3.568
E	BG	BG	BG	BG	BG	BG	BG
F	1.844	2.002	2.318	2.476	2.634	3.266	3.740
Approximate WEIGHT (Kg)							
FLANGED	6.990	8.490	11.490	/	/	/	/
BW	6.170	72.90	9.590	10.842	10.842	17.102	18.698



Class ASME 2500 (PN 420)

FIGURE NUMBERS - CLASS ASME 2500 - ALL SIZES

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

SIZE	2”	4”	6”	8”	10”	12”	14”	16”	24”
RF - BW	451	673	914	1.022	1.270	1422	1.637	1.756	2.606
RJ	454	683	927	1.038	1.292	1.444	/	/	/
C-closed	443	628	1.135	1.427	1.773	2.119	2.465	2.811	4.320
D-open	503	732	1.315	1.662	2.068	2.474	2.880	3.286	4.929
E	400	500	BG	BG	BG	BG	BG	BG	BG
F	/	/	1.129	1.291	1.473	1.625	17.53	1.880	2.390
Approximate WEIGHT (Kg)									
FLANGED	162	590	1.367	2.712	4.058	5.403	/	/	/
BW	134	508	1.154	2.410	3.473	4.573	5.548	6.393	10.644

SIZE	30”	36”
RF - BW	3.244	3.881
RJ	/	/
C-closed	4.887	5.200
D-open	5.649	6.100
E	BG	BG
F	2.773	3.155
Approximate WEIGHT (Kg)		
FLANGED	/	/
BW	13.832	17.020

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

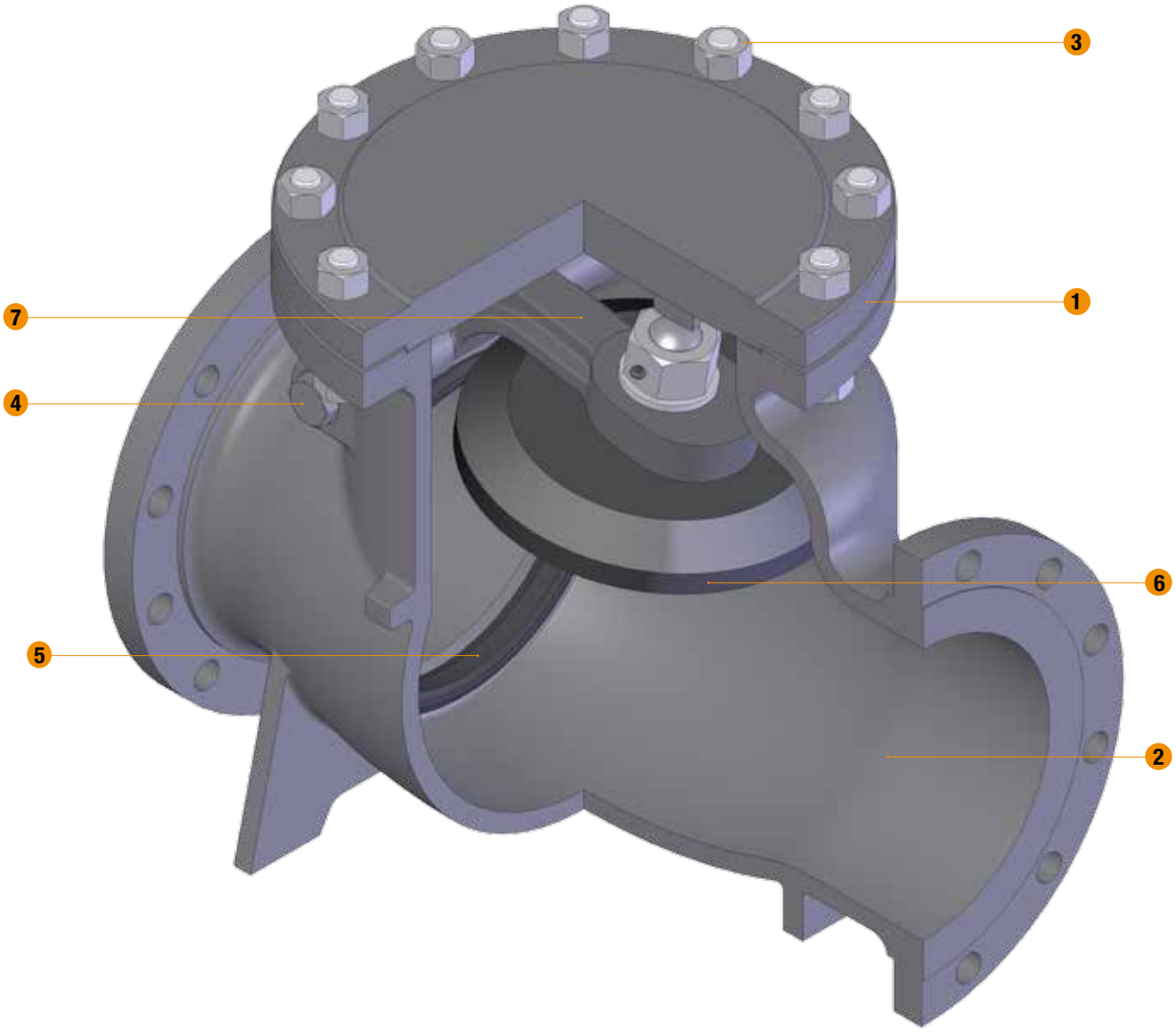
N.B. All dimension are given in millimeters, weight are expressed in Kg. and are not including the operator.

Dimensions and weight may change from above values without notice.

ORION STEEL VALVES

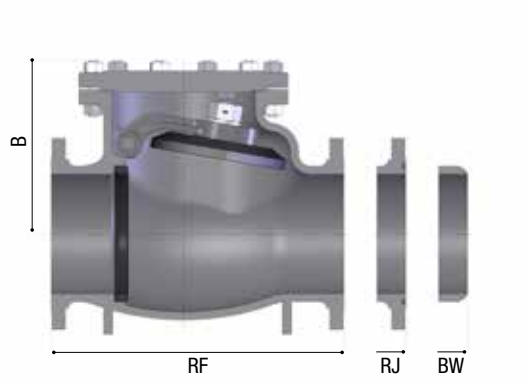
Swing Check Valves Full Opening

API 6D



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

1 COVER	The cover is in or forged steel. 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 materials. 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, ASME and API 6D standard. 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. Standard “full opening” design allows for passage of scrapers and spheres.
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 easily removed for maintenance of the valve. The pin can be replaced by a grooved shaft capable of giving control to the disc from the external. For instance, an hydraulic damper can be installed to avoid chattering, or a lock-open lever can be provided, as well as an external counterweight.
5 SEAT RING	The rings are part of the trim of the valve. Welded-in-seat ring are supplied as a standard. In alternative, the seat outer diameter can be 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 comes in forged steel for small diameters and in cast steel for valves from 14” upwards.
INSTALLATION REMARKS	Swing check valves are best fit for horizontal pipeline installation. For small valve sizes (up to 4”), a vertical flow 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. 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

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

SIZE	2”	2.1/2”	3”	4”	6”	8”	10”	12”	14”
RF-BW	203	216	241	292	356	495	622	699	787
B	166	177	187	211	259	314	369	396	430
Approximate WEIGHT (Kg)									
FLANGED	20	29	39	58	95	264	433	602	771
BW	15	23	31	48	80	203	326	449	572

SIZE	16”	18”	20”	22”	24”	26”	28”	30”	32”
RF-BW	864	978	978	1.067	1.295	1.295	1.448	1.524	1.524
B	467	503	538	570	601	672	734	764	836
Approximate WEIGHT (Kg)									
FLANGED	939	1.108	1.277	1.446	1.615	1.520	1.735	2.330	2.500
BW	694	817	940	1.063	1.186	1.275	1.460	2.045	2.188

SIZE	34”	36”	42”	48”	52”	56”	60”	66”
RF-BW	1.651	1.956	2.083	1.956	2.448	2.625	2.803	3.068
B	908	980	1.196	1.412	1.556	1.700	1.844	2.060
Approximate WEIGHT (Kg)								
FLANGED	2.670	4.100	4.900	/	/	/	/	/
BW	2.330	3.740	4.290	4.556	4.733	4.911	5.088	5.354

Class ASME 300 (PN 50)

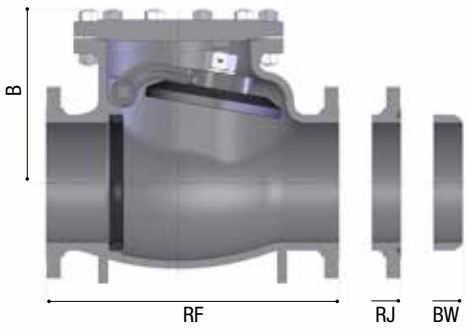
FIGURE NUMBERS - CLASS ASME 300 - ALL SIZES

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

SIZE	2”	2.1/2”	3”	4”	6”	8”	10”	12”	14”
RF-BW	267	292	318	356	445	533	622	711	838
RJ	283	308	333	372	460	549	638	727	854
B	200	212	224	248	295	343	390	438	485
Approximate WEIGHT (Kg)									
FLANGED	24	35	46	68	112	282	451	621	791
BW	16	25	34	52	87	233	379	525	672

SIZE	16”	18”	20”	22”	24”	30”	32”	36”	42”
RF-BW	864	977	1.016	1.118	1.346	1.594	1.594	2.083	2.215
RJ	880	994	1.035	1.140	1.369	1.622	1.622	2.108	/
B	533	580	628	685	742	878	914	985	1.213
Approximate WEIGHT (Kg)									
FLANGED	961	1.130	1.300	1.590	1.590	2.750	3.613	5.340	/
BW	818	964	1.110	1.332	1.332	2.220	3.040	4.680	5820

SIZE	48”	52”	56”	60”
RF-BW	2.513	2.712	2.910	20
RJ	/	/	/	/
B	1.441	1.593	1.745	1.897
Approximate WEIGHT (Kg)				
FLANGED	/	/	/	/
BW	6.960	7.720	7.720	9.240



Class ASME 600 (PN 100)

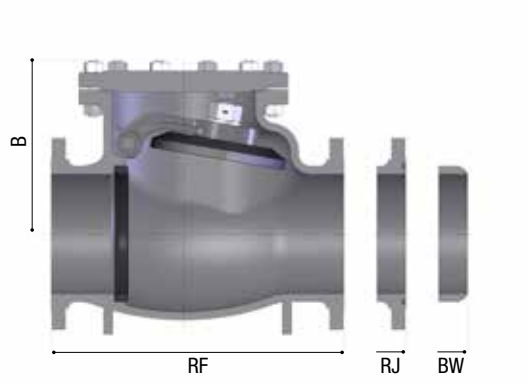
FIGURE NUMBERS - CLASS ASME 600 - ALL SIZES

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

SIZE	2”	2.1/2”	3”	5”	4”	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	225	232	239	280	308	336	393	449	477
Approximate WEIGHT (Kg)									
FLANGED	43	74	106	168	231	294	419	545	670
BW	38	63	88	138	188	238	339	439	539

SIZE	14”	16”	18”	20”	24”	30”	32”	36”	42”
RF-BW	889	991	1.092	1.194	1.397	1.651	1.778	2.083	2.267
RJ	892	994	1.095	1.200	1.406	1.664	1.806	2.099	/
B	555	633	710	788	904	762	813	1.232	1.396
Approximate WEIGHT (Kg)									
FLANGED	992	1.314	1.710	2.293	3.460	6.385	7.360	9.310	/
BW	817	1.094	1.442	1.959	2.993	5.727	6.638	8.460	10.111

SIZE	46”	52”	56”	60”
RF-BW	2.460	2.750	2.943	3.136
RJ	/	/	/	/
B	1.505	1.669	1.779	1.888
Approximate WEIGHT (Kg)				
FLANGED	/	/	/	/
BW	17.083	27.541	34.513	41.485



Class ASME 900 (PN 150)

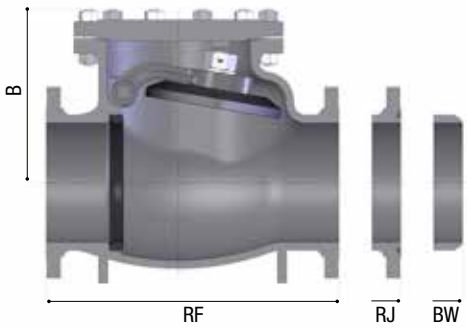
FIGURE NUMBERS - CLASS ASME 900 - ALL SIZES

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

SIZE	2”	2.1/2”	3”	5”	4”	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	260	277	293	327	360	393	460	526	622
Approximate WEIGHT (Kg)									
FLANGED	71	83	95	158	247	336	517	814	1.384
BW	54	67	79	132	207	281	413	664	1.172

SIZE	14”	16”	20”	24”	26”	28”	30”	34”	36”
RF-BW	1.029	1.130	1.321	1.549	1.930	2.290	1.930	2.134	2.343
RJ	1.038	1.140	1.334	1.569	/	/	/	/	/
B	718	814	913	1.071	1.145	1.223	1.301	1.456	1.533
Approximate WEIGHT (Kg)									
FLANGED	1.954	2.524	3.664	6.018	/	/	/	/	/
BW	1.680	2.188	3.204	5.383	6.288	7.194	8.550	9.430	10.815

SIZE	42”	48”	52”	60”
RF-BW	2.693	3.043	3.276	3.861
RJ	/	/	/	/
B	1.765	1.997	2.152	2.462
Approximate WEIGHT (Kg)				
FLANGED	/	/	/	/
BW	13.531	16.247	18.058	21.679



Class ASME 1500 (PN 250)

FIGURE NUMBERS - CLASS ASME 1500 - ALL SIZES

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

SIZE	2”	2.1/2”	3”	5”	4”	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	295	320	345	394	444	493	743	993	1.021
Approximate WEIGHT (Kg)									
FLANGED	71	110	149	226	304	495	887	1.484	2.080
BW	54	86	117	181	244	408	738	1.226	1.713

SIZE	14”	16”	18”	20”	24”	28”	30”	34”	42”
RF-BW	1.257	1.384	1.537	1.664	1.943	2.237	2.378	2.659	3.222
RJ	1.276	1.407	1.559	1.686	1.972	/	/	/	/
B	1.048	1.076	1.108	1.139	1.202	1.265	1.297	1.360	1.486
Approximate WEIGHT (Kg)									
FLANGED	3.233	4.385	5.538	6.690	10.186	/	/	/	/
BW	2.657	3.602	4.546	5.490	8.286	11.082	12.480	15.276	20.868

SIZE	48”
RF-BW	3.790
RJ	/
B	1.580
Approximate WEIGHT (Kg)	
FLANGED	/
BW	25.062

Class ASME 2500 (PN 420)

FIGURE NUMBERS - CLASS ASME 2500 - ALL SIZES

RP 2500 RF... RAISED FACE • RP 2500 BW... WELDING ENDS • RP 2500 RJ... RING JOIN

SIZE	2”	3”	4”	6”	8”	10”	12”	14”	16”
RF-BW	406	578	673	914	1.022	1.252	1.447	1.641	1.835
RJ	454	584	683	927	1.038	1.274	1.469	/	/
B	354	384	414	473	1.263	1.688	1.736	1.782	1.829
Approximate WEIGHT (Kg)									
FLANGED	87	183	279	374	729	1.522	2.374	/	/
BW	66	144	222	300	601	1.266	1.961	2.574	4.252

SIZE	18”	20”	24”	30”
RF-BW	2.030	2.224	2.613	3.230
RJ	/	/	/	/
B	1.884	1.936	2.043	2.205
Approximate WEIGHT (Kg)				
FLANGED	/	/	/	/
BW	5.762	6.939	9.292	21.124

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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