ORION
Steel Valves

ORION STEEL VALVES

Pressure Seal Valves

Pressure Seal Bonnet Gate Valves • ASME B16.34/API 600

Pressure Seal Bonnet Globe Valves • ASME B16.34/BS 1873

Pressure Seal Cover Swing Check Valves • ASME B16.34/BS 1868

Pressure Seal Cover Tilting Disc Check Valves • ASME B16.34/BS 1868

Pressure Seal Bonnet Gate Double Disc • ASME B16.34/API 600

PRESSURE SEAL BONNET GATE VALVES
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Class ASME 600 (PN 100) • 900 (PN 150) • 1500 (PN 250) • 2500 (PN 420)

PRESSURE SEAL BONNET GLOBE VALVES
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PRESSURE SEAL COVER SWING CHECK VALVES
ASME B16.34/API 1868 - p. 118
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PRESSURE SEAL COVER TILTING DISC CHECK VALVES - TOP ENTRY
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PRESSURE SEAL BONNET GATE DOUBLE DISC
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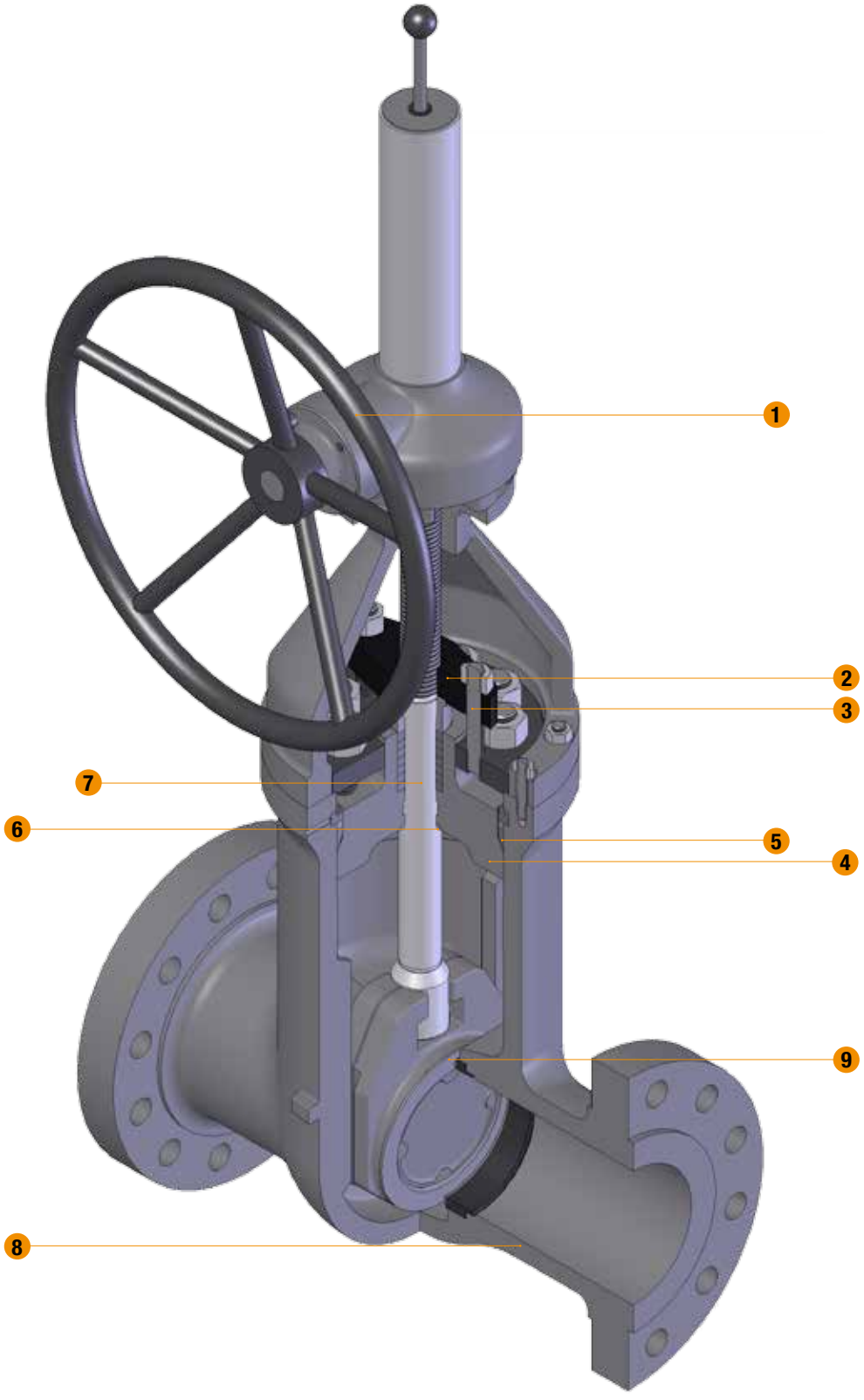
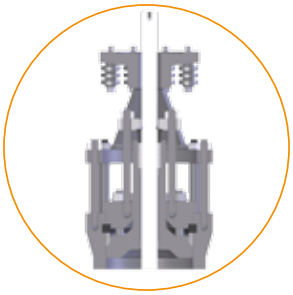
ORION STEEL VALVES

Pressure Seal Bonnet Gate Valves

ASME B16.34/API 600



EXTENDED BONNET FOR HIGH TEMPERATURE



CAST OR CARBON ALLOY STEEL, OUTSIDE SCREW AND YOKE, RISING STEM, NON-RISING HANDWHEEL, WELDED-IN SEAT RINGS, REMOVABLE YOKE SLEEVE, GLAND REPACKING UNDER PRESSURE.

1 OPERATOR	The spoked handwheel is fabricated from steel pipe. The hub is coupled to the yoke sleeve by means 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 allow the gland to slide 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	It is machined in the same grade of the body or in superior alloys, if required. The pressure seal design keeps it tight to the body at high pressures even if bolts are loose or material dilatation occurs. It can be cast or machined from bar. It incorporates a stuffing box sized in accordance with the API standard, and in case can be extended for very high temperature applications. A locking flange with a set of bolts pulls the bonnet outward, against the gasket, giving a preload for initial sealing between body and bonnet.
5 PRESSURE SEAL RING	It is basically supplied in graphite for best fit up to class 1500 and in AISI 316L stainless steel for 2500, carefully machined to provide a perfect tight seal. Upon request, AISI 316L can be installed on every pressure rating.
6 BACKSEAT	It is integral with the bonnet and hardfaced and will provide a perfect tight seal between stem and bonnet, which will allow emergency repacking operation even under pressure.
7 STEM	The stem is part of the trim and is available in a wide range of materials in accordance to API 600 or customer's requirements. The stem is provided with a T-shaped 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 in order to minimize friction and prevent damage to the packing. The thread is trapezoidal ACME type. All the stem sizes comply with the API 600 standard.
8 BODY	The body is in carbon or stainless steel and is available in many other CRA. It is carefully designed for total reliability, low pressure drop and simple maintenance. The basic dimension, i.e. wall thickness, face to face and flanges comply with the relevant API and ASME standards. Wall thickness and design can be both B16.34 or API600. The body neck is cylindrical in order to host the pressure seal bonnet. The body is basically supplied with renewable welded-in 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.
9 WEDGE	The wedge is the main part of the trim. It is forged steel, alloy or cast. It is normally supplied as flexible wedge type for improved seating and unseating capability. It is connected to the stem by means of a T-shaped joint. The guides on each side of the wedge are machined. 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 wedge to improve its resistance against erosive and corrosive environments. it can be machined with the flexible option.
INSTALLATION REMARKS	Pressure seal 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

SZ 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
BW (short)	178	254	305	457	584	711	813	/	/
RJ	295	359	435	562	663	790	841	892	994
C-closed	403	487	571	848	946	1.140	1.315	1.427	1.665
D-open	459	571	683	1.010	1.164	1.398	1.634	1.779	2.106
E	300	350	350	BG	BG	BG	BG	BG	BG
F	/	/	/	811	957	1.128	1.382	1.496	1.650
Approximate WEIGHT (Kg)									
FLANGED	24	48	87	182	313	541	876	1.211	1.546
BW	17	35	60	133	242	426	745	1.064	1.383

SIZE	18”	20”	22”	24”	26”	28”	30”	32”	34”
RF-BW	1.092	1.194	1.295	1.397	1.448	1.549	1.651	1.778	1.930
BW (short)	/	/	/	/	/	/	/	/	/
RJ	1.095	1.200	1.305	1.407	1.461	1.562	1.664	1.794	1.946
C-closed	1.840	2.015	2.190	2.365	2.540	2.715	2.890	3.065	3.240
D-open	2.342	2.578	2.814	3.050	3.286	3.522	3.758	3.994	4.230
E	BG	BG	BG	BG	BG	BG	BG	BG	BG
F	1.824	1.998	2.172	2.346	2.520	2.694	2.868	3.042	3.216
Approximate WEIGHT (Kg)									
FLANGED	1.881	2.216	2.551	2.886	3.221	3.556	3.891	4.226	4.561
BW	1.702	2.021	2.340	2.659	2.978	3.297	3.616	3.935	4.254

SIZE	36”
RF-BW	2.082
BW (short)	/
RJ	2.099
C-closed	3.415
D-open	4.466
E	BG
F	3.390
Approximate WEIGHT (Kg)	
FLANGED	4.896
BW	4.573

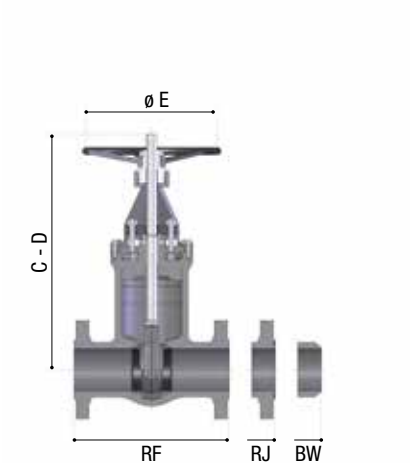
Class ASME 900 (PN 150)

FIGURE NUMBERS - CLASS ASME 900 - ALL SIZES

SZ 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
BW (short)	216	305	356	508	660	787	914	991	1.092
RJ	371	384	460	613	740	841	968	1.039	1.140
C-closed	416	480	594	829	948	1.096	1.156	1.480	1.783
D-open	476	558	698	982	1.143	1.356	1.316	1.795	2.171
E	300	350	450	BG	BG	BG	BG	BG	BG
F	/	/	/	808	907	1.224	1.275	1.433	1.894
Approximate WEIGHT (Kg)									
FLANGED	28	66	130	210	289	620	962	1.588	2.213
BW	21	50	101	171	240	466	822	1.388	1.953

SIZE	18”	20”	24”	26”	28”	30”	32”	34”	36”
RF-BW	1.219	1.321	1.549	1.676	1.803	1.930	1.981	2.032	2.083
BW (short)	/	/	/	/	/	/	/	/	/
RJ	1.232	1.334	1.568	/	/	/	/	/	/
C-closed	1.765	1.900	2.384	2.360	2.536	2.712	2.888	2.903	3.239
D-open	2.193	2.345	2.921	2.999	3.229	3.459	3.689	3.709	4.229
E	BG	BG	BG	BG	BG	BG	BG	BG	BG
F	1.732	1.972	2.354	2.431	2.609	2.788	2.966	3.070	3.610
Approximate WEIGHT (Kg)									
FLANGED	2.839	3.465	4.090	/	/	/	/	/	/
BW	2.519	3.085	3.650	7.731	8.564	9.396	10.228	11.061	11.893



Class ASME 1500 (PN 250)

FIGURE NUMBERS - CLASS ASME 1500 - ALL SIZES

SZ 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
BW (short)	216	305	406	559	711	864	991	1.067	1.194
RJ	371	422	473	549	711	842	1.001	1.146	1.276
C-closed	376	480	594	775	1.064	1.189	1.316	1.586	1.777
D-open	428	558	698	930	1.256	1.433	1.606	1.898	2.130
E	300	350	BG	BG	BG	BG	BG	BG	BG
F	/	/	614	764	1.135	1.174	1.459	1.745	1.909
Approximate WEIGHT (Kg)									
FLANGED	32	90	144	330	638	1.072	1.783	2.493	3.204
BW	23	58	105	243	490	822	1.388	1.953	2.519

SIZE	18”	20”	24”	26”	28”	30”	32”	34”	36”
RF-BW	1.537	1.664	1.943	2.090	2.237	2.383	2.525	2.666	2.808
BW (short)	1.346	1.473	/	/	/	/	/	/	/
RJ	1.406	1.559	/	/	/	/	/	/	/
C-closed	1.840	1.959	2.384	2.567	2.750	2.933	3.116	3.299	3.482
D-open	2.240	2.468	2.921	3.154	3.387	3.620	3.853	4.086	4.319
E	BG	BG	BG	BG	BG	BG	BG	BG	BG
F	1.998	2.156	2.693	2.655	2.899	3.143	3.387	3.631	3.875
Approximate WEIGHT (Kg)									
FLANGED	4.056	5.484	8.340	/	/	/	/	/	/
BW	3.380	4.570	6.950	8.140	9.330	10.520	11.710	12.900	14.090

Class ASME 2500 (PN 420)

FIGURE NUMBERS - CLASS ASME 900 - ALL SIZES

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

SIZE	2”	2½”	3”	4”	6”	8”	10”	12”	14”
RF-BW	451	508	578	673	914	1.022	1.270	1.422	1.637
BW (short)	279	330	368	457	610	762	914	1.041	1.118
RJ	454	514	584	683	927	1.038	1.292	1.444	/
C-closed	487	467	594	684	9.52	1.202	1.453	1.716	1.904
D-open	564	657	666	775	1.086	1.368	1.666	1.967	2.182
E	300	350	BG	BG	BG	BG	BG	BG	BG
F	/	/	606	676	1.041	1.191	1.549	1.876	2.018
Approximate WEIGHT (Kg)									
FLANGED	98	123	147	196	587	1.960	2.217	3.396	/
BW	70	88	105	140	419	1.400	1.584	2.426	2.511

SIZE	16”	18”	20”	24”	26”
RF-BW	1.756	2.024	2.218	2.606	2.800
BW (short)	1245	1397	/	/	/
RJ	/	/	/	/	/
C-closed	2.004	2.148	2.292	2.615	2.724
D-open	2.313	2.421	2.583	3.092	3.069
E	BG	BG	BG	BG	BG
F	2.134	2.107	2.249	2.835	2.675
Approximate WEIGHT (Kg)					
FLANGED	/	/	/	/	/
BW	2.595	2.680	2.764	2.934	3.019

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

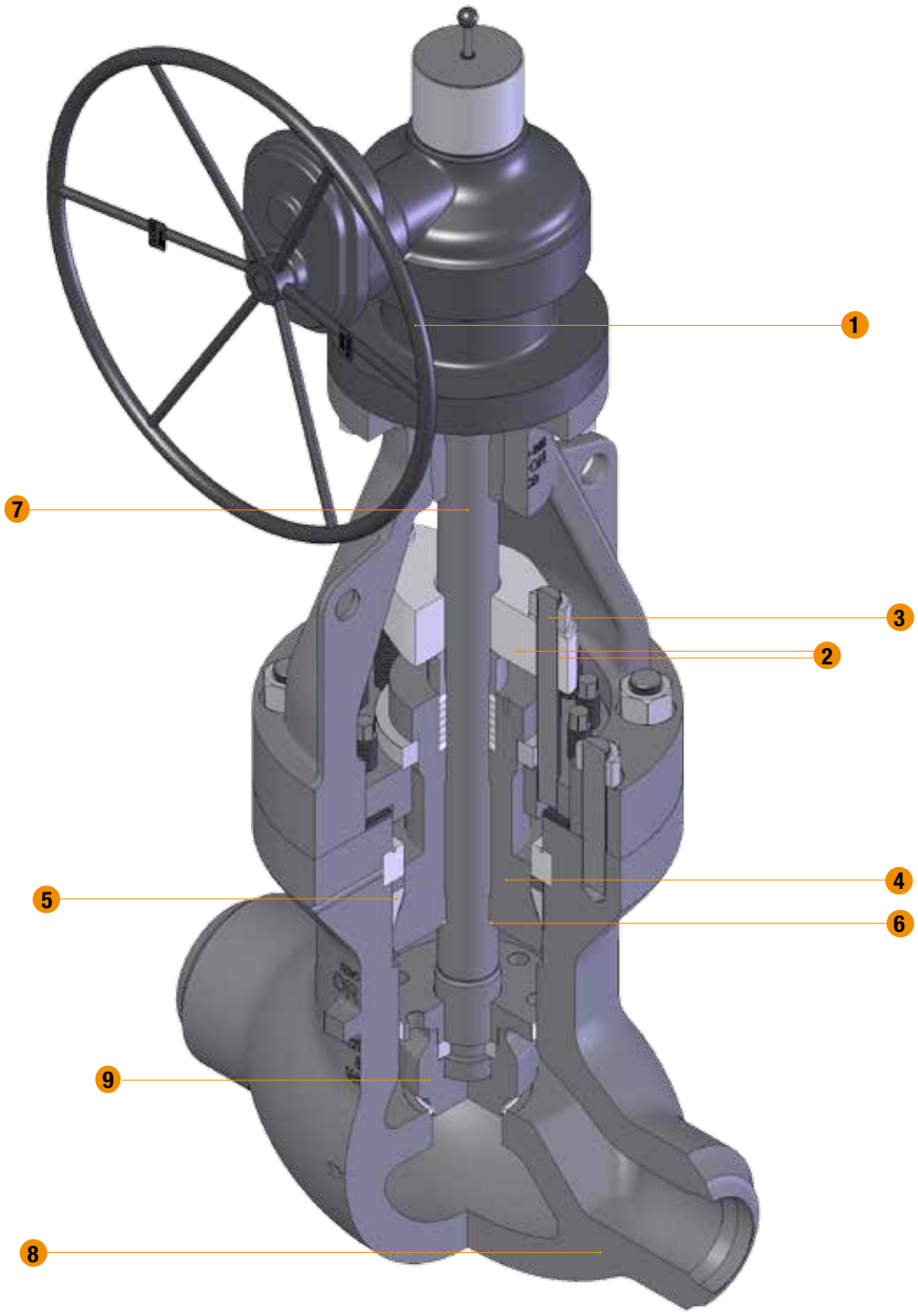
N.B. All dimension are given in millimeters, weight are expressed in Kg. and are not including the operator.

Dimensions and weight may change from above values without notice.

ORION STEEL VALVES

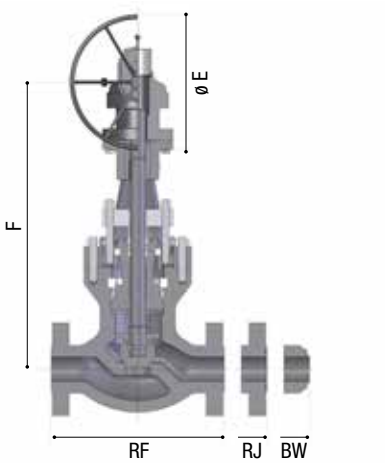
Pressure Seal Bonnet Globe Valves

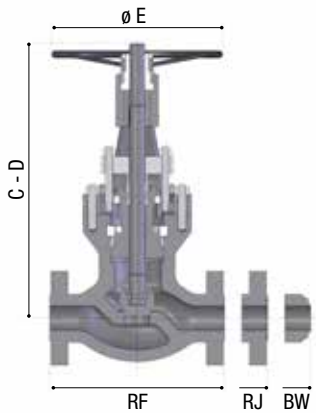
ASME B16.34/BS 1873



CAST OR CARBON ALLOY STEEL, OUTSIDE SCREW AND YOKE, RISING STEM, GUIDED SWIVEL PLUG DISC, WELDED-IN SEAT RING, GLAND REPACKING UNDER PRESSURE.

1 OPERATOR	The spoked handwheel is fabricated from steel pipe. The hub is coupled to the yoke sleeve by means 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 in order to allow the gland to slide 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	It is machined in the same grade of the body or in superior alloys, if required. The pressure seal design keeps it tight to the body at high pressures even if bolts are loose or material dilatation occurs. It can be cast or machined from bar. It incorporates a stuffing box sized in accordance with the BS standard, and in case can be extended for very high temperature applications. A locking flange with a set of bolts pulls the bonnet outward, against the gasket, giving a preload for initial sealing between body and bonnet.
5 PRESSURE SEAL RING	It is basically supplied in graphite for best fit up to class 1500 and in AISI 316L stainless steel for 2500, carefully machined to provide a perfect tight seal. Upon request, AISI 316L can be installed on every pressure rating. It is integral with the bonnet and hardfaced and will provide a perfect tight seal between stem and bonnet, which will allow emergency repacking operation even under pressure.
6 BACKSEAT	It is integral with the bonnet and hardfaced and will provide a perfect tight seal between stem and bonnet, which will allow emergency repacking operation even under pressure.
7 STEM	The stem is part of the trim and is available in a wide range of material in accordance to BS1873, API 600 or customer's requirements. The stem is provided with a ground backseat in order to ensure a perfectly tight seal to the stuffing box when the valve is fully open. The stem is highly finished in order to minimize friction and prevent damage to the packing. The thread is trapezoidal ACME type. All the stem sizes comply with the BS 1873 standard.
8 BODY	The body is in carbon or stainless steel and is also 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, butt-weld ends and flanges comply with the relevant BS and ASME standards. The body neck is cylindrical in order to host the pressure seal bonnet. Disc guides are integral, and the seat ring can be hardfaced integrally or threaded and welded in the body. The connection ends are typically butt welding type for high temperature applications.
9 DISC	The disc is the main part of the trim. It is connected to the stem by means of a swiveling half rings coupling and is guided in the body from 4" and above. The standard sealing profile is a spherical surface seating against a conical seat. If required a conical to conical seating can be supplied, and for flow throttling operations a regulating disc is adopted, shaped in order to give a linear opening. The stop check execution shows an externally guided disc, disconnected from the stem. A cladding or lining can be applied to larger discs to improve its resistance against erosive and corrosive environments.
INSTALLATION REMARKS	Pressure seal valves are best fit for vertical stem / horizontal flow installation. Special cases can be evaluated and developed on request.





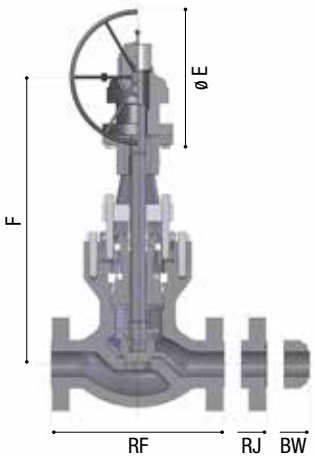
Class ASME 600 (PN 100)

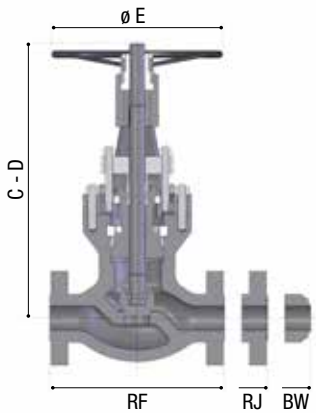
FIGURE NUMBERS - CLASS ASME 600 - ALL SIZES

GZ 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
BW (short)	178	254	305	457	584	711	813	/	/
RJ	295	359	435	562	663	790	841	892	994
C-closed	427	521	616	806	995	1.121	1.247	1.373	1.499
D-open	456	559	662	869	1.075	1.221	1.367	1.513	1.659
E	300	350	400	BG	BG	BG	BG	BG	BG
F	/	/	/	824	844	986	1.128	1.269	1.410
Approximate WEIGHT (Kg)									
FLANGED	24	53	92	232	396	625	843	1.265	1.686
BW	18	40	68	178	325	510	680	1.020	1.360

SIZE	18”	20”	22”	24”	26”	28”
RF-BW	1.092	1.194	1.295	1.397	1.448	1.600
BW (short)	/	/	/	/	/	/
RJ	1.095	1.200	1.305	1.407	1.473	1.625
C-closed	1.625	1.751	1.877	2.003	2.129	2.255
D-open	1.805	1.951	2.097	2.243	2.389	2.535
E	BG	BG	BG	BG	BG	BG
F	1.552	1.694	1.835	1.976	2.118	2.259
Approximate WEIGHT (Kg)						
FLANGED	2.232	2.976	3.720	4.464	5.208	5.952
BW	1.800	2.400	3.000	3.600	4.200	4.800





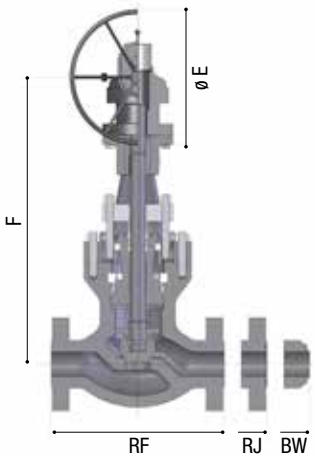
Class ASME 900 (PN 150)

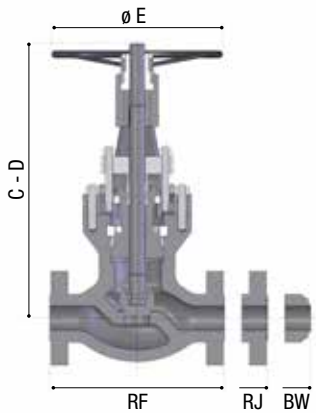
FIGURE NUMBERS - CLASS ASME 900 - ALL SIZES

GZ 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
BW (short)	/	305	356	508	660	787	914	991	1.092
RJ	371	384	460	613	740	841	968	1.039	1.140
C-closed	428	575	739	1.070	1.398	1.474	1.549	1.625	1.700
D-open	468	613	753	1.038	1.322	1.421	1.520	1.620	1.719
E	400	500	BG	BG	BG	BG	BG	BG	BG
F	/	/	748	910	1.072	1.233	1.371	1.509	1.646
Approximate WEIGHT (Kg)									
FLANGED	34	77	149	399	694	843	1.265	1.897	2.530
BW	25	61	120	306	560	680	1.020	1.530	2.040

SIZE	18”	20”	24”
RF-BW	1.219	1.321	1.549
BW (short)	/	/	/
RJ	1.238	1.334	1.562
C-closed	1.776	1.852	2.002
D-open	1.818	1.917	2.116
E	BG	BG	BG
F	1.784	1.922	2.197
Approximate WEIGHT (Kg)			
FLANGED	3.348	4.464	6.696
BW	2.700	3.600	5.400





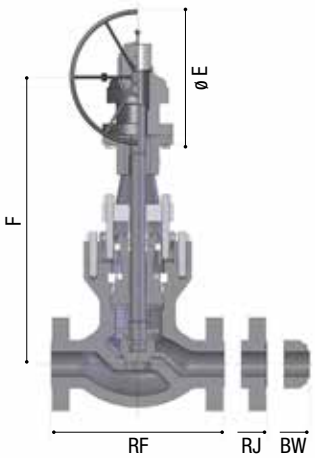
Class ASME 1500 (PN 250)

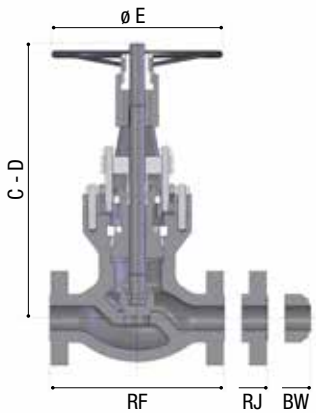
FIGURE NUMBERS - CLASS ASME 1500 - ALL SIZES

GZ 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
BW (short)	/	305	356	508	660	787	914	991	1.092
RJ	371	473	549	711	842	1.001	1.146	1.276	1.406
C-closed	538	575	683	1.119	1.092	1.336	1.421	1.719	2.018
D-open	578	613	728	1.220	1.248	1.466	2.036	2.196	2.356
E	BG	BG	BG	BG	BG	BG	BG	BG	BG
F	560	588	797	1.089	1.270	1.454	1.640	1.825	2.011
Approximate WEIGHT (Kg)									
FLANGED	54	87	160	571	1.064	1.423	2.128	3.192	4.256
BW	40	61	120	438	800	1.070	1.600	2.400	3.200

SIZE	18”	20”	24”
RF-BW	1.537	1.664	1.943
BW (short)	/	/	/
RJ	1.559	1.686	1.971
C-closed	2.316	2.615	3.211
D-open	2.516	2.713	3.329
E	BG	BG	BG
F	2.195	2.380	2.751
Approximate WEIGHT (Kg)			
FLANGED	5.586	7.448	11.305
BW	4.200	5.600	8.500





Class ASME 2500 (PN 420)

FIGURE NUMBERS - CLASS ASME 2500 - ALL SIZES

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

SIZE	2”	3”	4”	6”	8”	10”	12”	14”	16”
RF-BW	451	578	673	914	1.022	1.270	1.422	1.638	1.831
B (short)	216	305	406	559	711	864	991	1.067	1.194
RJ	454	584	683	927	1.038	1.292	1.444	/	/
C-closed	786	1.050	1.222	1.566	1.910	2.254	2.598	2.942	3.286
D-open	864	1.122	1.306	1.674	2.042	2.400	2.778	3.146	3.514
E	BG	BG	BG	BG	BG	BG	BG	BG	BG
F	653	836	1.018	1.383	1.613	1.847	2.083	2.318	2.554
Approximate WEIGHT (Kg)									
FLANGED	86	186	306	838	1.729	2.394	3.724	/	/
BW	65	140	230	630	1.300	1.800	2.800	3.650	4.400

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

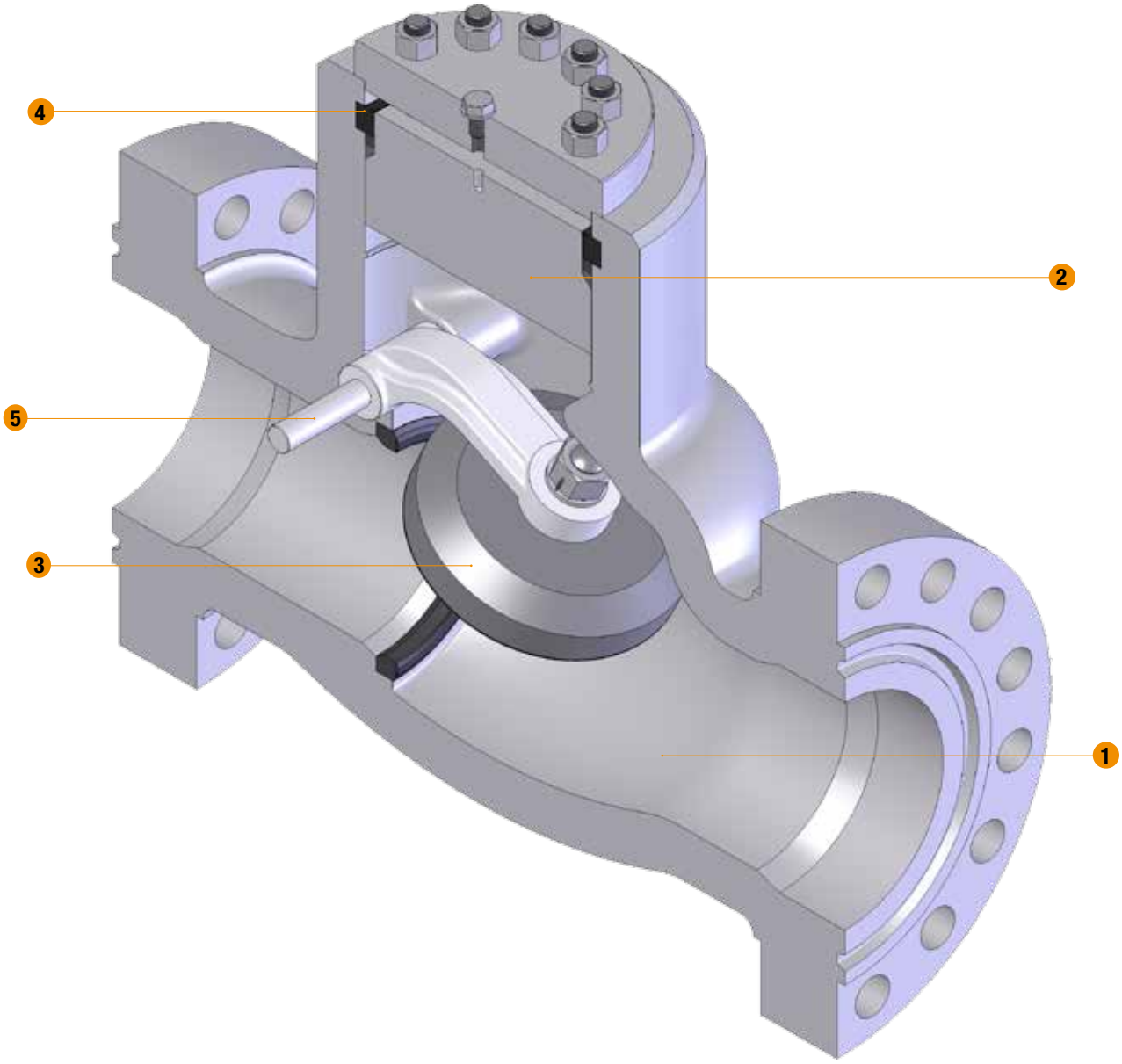
N.B. All dimension are given in millimeters, weight are expressed in Kg. and are not including the operator.

Dimensions and weight may change from above values without notice.

ORION STEEL VALVES

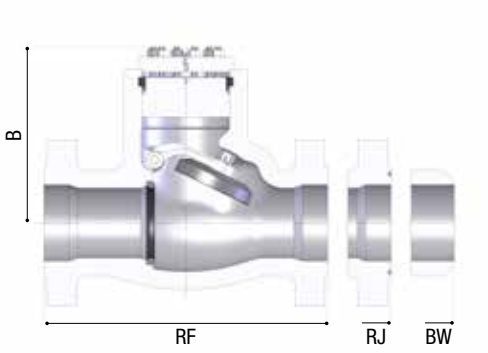
Pressure Seal Cover Swing Check Valves

ASME B16.34/BS 1868



CAST CARBON OR ALLOY STEEL, SWING TYPE DISC, RENEWABLE SEAT RING.

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 basic dimensions, wall thickness, face to face and flanges, comply with the relevant BS, API and ASME standards. The body neck is cylindrical in order to host the pressure seal bonnet. The seat is welded in or threaded if required and an integral over-travel stop for the disc is incorporated. Two threaded bosses are provided for the location of the hinge pin, closed by threaded or welded plugs for absolute tightness in temperature. Valves are eventually provided with drain threaded or welded connection. The connection ends are typically butt-welding type for high temperature applications.
2 COVER	The cover is in forged or cast steel. It is cylindrical, generally machined from bar-stock material and accommodates a conical surface for body gasket seating at the lower peripheral edge. A locking flange with a set of bolts pulls the cover outward, against the gasket, giving a preload for initial sealing.
3 DISC	The disc is part of the trim and is in forged or cast steel. Opposite to the seating surface 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.
4 PRESSURE SEAL RING	It is basically supplied in graphite for best fit up to class 1500 and in AISI 316L stainless steel for 2500, carefully machined to provide a perfect tight seal. Upon request, AISI 316L can be installed on every pressure rating.
5 HINGE PIN	The hinge pin is part of the trim. It is machined from ground bar in stainless steel. The hinge pin is centred in the body with two threaded NPT plugs. The pin can be easily removed for valve maintenance. If welded plugs are required, a better tightness and safety is ensured, despite of accessibility. On larger valves, blind flanges or pressure seal blinds are provided as well.
INSTALLATION REMARKS	Swing check valves are best fit for horizontal pipeline installation. For small valve sizes, a vertical installation (up to 4 “) with upward flow only is still possible, but for heavier weights of discs chattering and high noise issues can occur, so far balanced discs are more indicated (tilting type) in vertical applications. Check anyway with ORION if the valve is suitable for the desired installed position.



Class ASME 600 (PN 100)

FIGURE NUMBERS - CLASS ASME 600 - ALL SIZES

RC 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	664	791	841	892	994
B	203	234	265	327	388	450	475	537	634
Approximate WEIGHT (Kg)									
FLANGED	31	57	103	241	252	342	518	691	864
BW	19	43	78	183	191	261	393	524	656

SIZE	18”	20”	22”	24”	26”	28”	30”	32”	34”
RF-BW	1.069	1.433	2.163	2.163	2.772	3.381	3.991	4.600	5.209
RJ	901	1.224	1.871	1.871	2.440	3.010	3.579	4.149	4.718
B	710	788	846	904	959	1.013	1.068	822	1.177
Approximate WEIGHT (Kg)									
FLANGED	1.069	1.433	2.163	2.163	2.772	3.381	3.991	4.600	5.209
BW	901	1.224	1.871	1.871	2.440	3.010	3.579	4.149	4.718

SIZE	36”
RF-BW	2.083
RJ	2.111
B	1.232
Approximate WEIGHT (Kg)	
FLANGED	5.819
BW	5.288

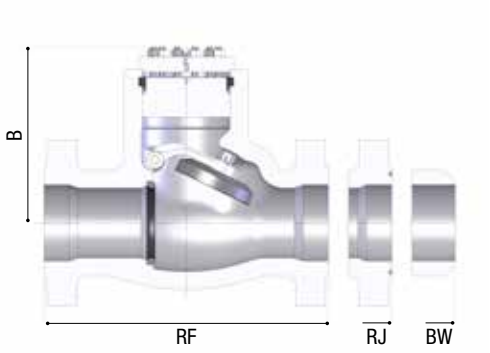
Class ASME 900 (PN 150)

FIGURE NUMBERS - CLASS ASME 900 - ALL SIZES

RC 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	1.139
B	223	251	279	335	390	446	480	532	640
Approximate WEIGHT (Kg)									
FLANGED	37	68	123	289	454	620	786	951	1.117
BW	23	52	94	219	345	470	595	721	846

SIZE	20”	24”	26”	28”	36”
RF-BW	1.321	1.549	1.930	2.290	2.343
RJ	1.334	1.569	/	/	/
B	928	1.100	1.116	1.133	1.198
Approximate WEIGHT (Kg)					
FLANGED	1.448	1.780	/	/	/
BW	1.097	1.347	1.473	1.598	2.099



Class ASME 1500 (PN 250)

FIGURE NUMBERS - CLASS ASME 1500 - ALL SIZES

RC 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	246	204	255	355	421	480	593	679	765
Approximate WEIGHT (Kg)									
FLANGED	44	78	133	310	592	874	1.156	1.438	1.720
BW	27	52	94	242	444	646	848	1.050	1.252

Class ASME 2500 (PN 420)

FIGURE NUMBERS - CLASS ASME 2500 - ALL SIZES

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

SIZE	2”	3”	4”	6”	8”	10”	12”	14”	16”
RF-BW	451	578	673	914	1.022	1.270	1.422	1.574	1.826
RJ	454	584	683	927	1.038	1.292	1.445	/	/
B	295	296	296	519	580	640	701	761	822
Approximate WEIGHT (Kg)									
FLANGED	81	109	137	386	636	885	1.305	/	/
BW	49	73	97	291	486	680	990	1.069	1.263

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

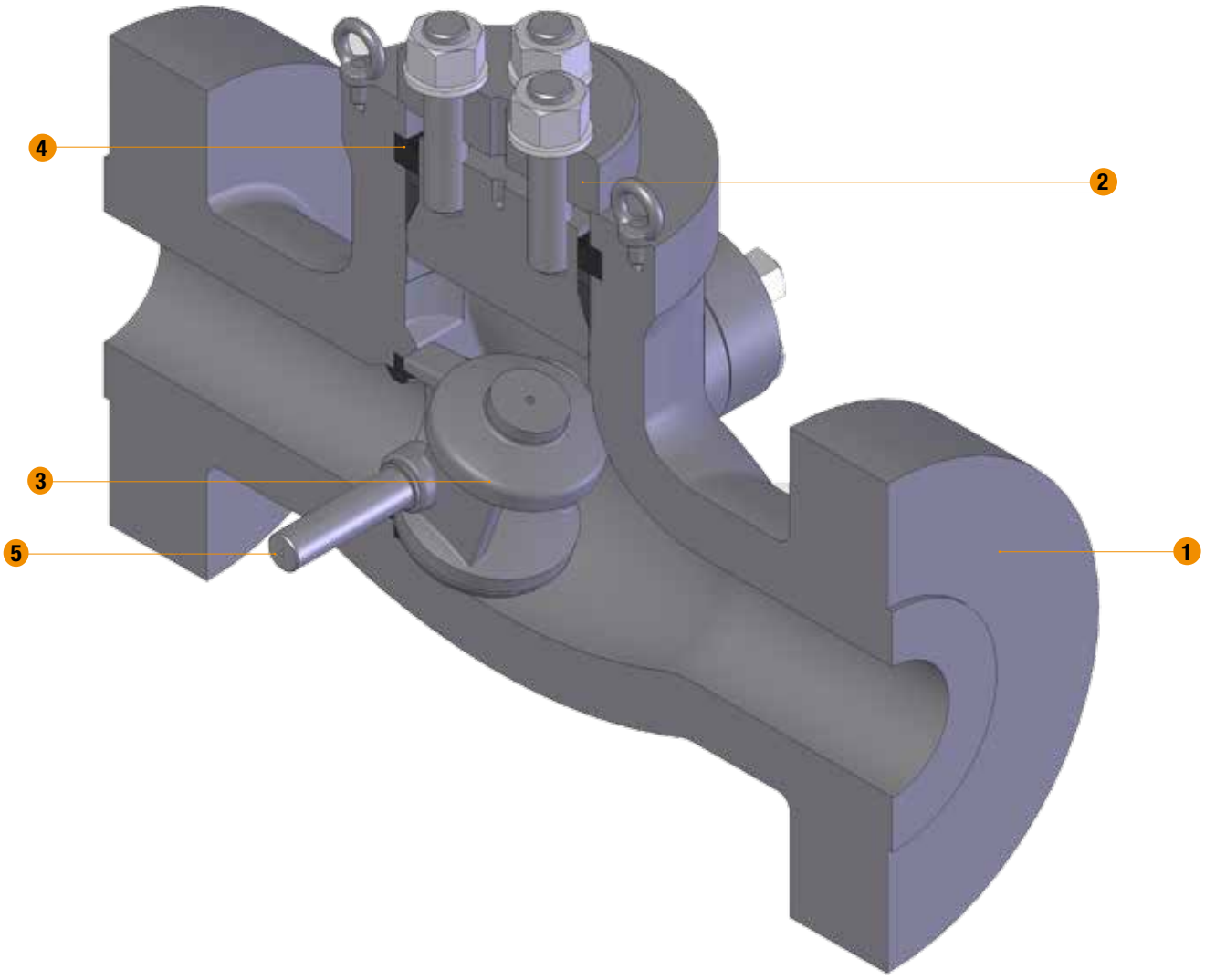
N.B. All dimension are given in millimeters, weight are expressed in Kg. and are not including the operator.

Dimensions and weight may change from above values without notice.

ORION STEEL VALVES

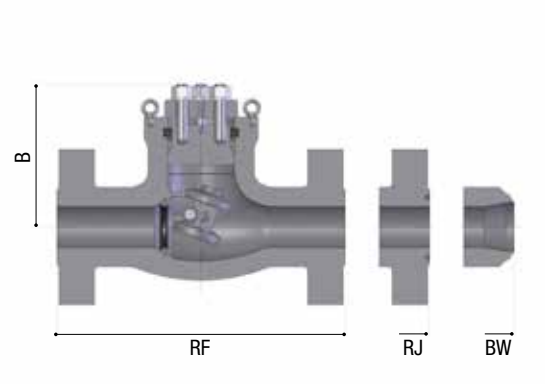
Pressure Seal Cover Tilting Disc Check Valves - Top Entry

ASME B16.34/BS 1868



CAST CARBON OR ALLOY STEEL, BALANCED DISC, NON SLAM EFFECT, RENEWABLE SEAT.

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 basic dimensions, wall thickness, face to face and flanges, comply with the relevant BS, API and ASME standards. The body neck is cylindrical in order to host the pressure seal bonnet. The seat is welded-in as a standard or is threaded upon request. Two flanged hubs are provided for the location of the hinge pins. Bosses are eventually provided for drain threaded connection.
2 COVER	The cover is in forged or cast steel. It is cylindrical, generally machined from bar-stock material and accommodates a conical surface for body gasket seating at the lower peripheral edge. A locking flange with a set of bolts pulls the cover outward, against the gasket, giving a preload for initial sealing.
3 DISC	The tilting disc is part of the trim. It is generally supplied as cast, machined from bar material for small sizes (up to 2”). 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.
4 PRESSURE SEAL RING	It is basically supplied in graphite for best fit up to class 1500 and in AISI 316L stainless steel for 2500, carefully machined to provide a perfect tight seal. Upon request, AISI 316L can be installed on every pressure rating.
5 HINGE PIN	The disc pins are part of the trim. They are in forged stainless steel machined from ground bar. The disc pins are held in position with two small blind flanges and they can be easily removed for valve maintenance.
INSTALLATION REMARKS	Tilting disc check valves 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 600 - ALL SIZES

TS 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	664	791	841	892	994
B	103	124	159	226	316	305	355	584	674
Approximate WEIGHT (Kg)									
FLANGED	33	45	88	186	362	599	911	1.306	1.701
BW	17	27	72	126	259	427	658	943	1.228

SIZE	20”	24”	26”	28”	36”
RF-BW	1.194	1.397	1.448	1.549	2.083
RJ	1.200	1.407	1.473	1.574	2.111
B	764	854	896	941	1.120
Approximate WEIGHT (Kg)					
FLANGED	2.096	2.491	2.689	2.886	3.677
BW	1.514	1.799	1.942	2.085	2.655

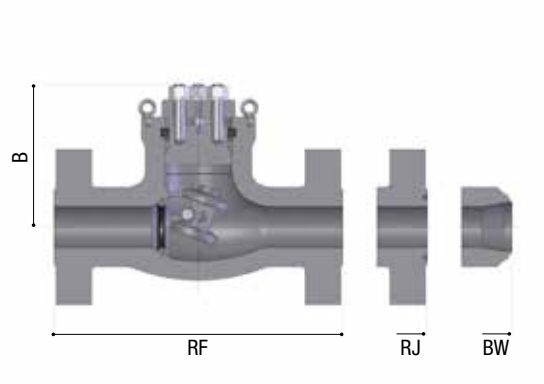
Class ASME 900 (PN 150)

FIGURE NUMBERS - CLASS ASME 900 - ALL SIZES

TS 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	1.139
B	117	141	181	256	359	347	403	665	767
Approximate WEIGHT (Kg)									
FLANGED	34	52	101	214	416	689	1.048	1.502	1.956
BW	18	31	72	145	298	490	756	1.085	1.413

SIZE	20”	24”	26”	28”	36”
RF-BW	1.321	1.549	1.930	2.290	2.343
RJ	1.334	1.569	/	/	/
B	869	971	1.022	1.073	1.277
Approximate WEIGHT (Kg)					
FLANGED	2.411	2.865	/	/	/
BW	1.741	2.069	2.233	2.397	3.054



Class ASME 1500 (PN 250)

FIGURE NUMBERS - CLASS ASME 1500 - ALL SIZES

TS 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	145	175	224	318	445	430	500	824	951
Approximate WEIGHT (Kg)									
FLANGED	36	65	127	270	524	868	1.320	1.893	2.465
BW	19	39	72	183	376	618	953	1.367	1.780

SIZE	18”	20”
RF-BW	1.537	1.664
RJ	1.558	1.685
B	1.077	1.204
Approximate WEIGHT (Kg)		
FLANGED	3.038	3.610
BW	2.194	2.607

Class ASME 2500 (PN 420)

FIGURE NUMBERS - CLASS ASME 2500 - ALL SIZES

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

SIZE	2”	3”	4”	6”	8”	10”	12”	14”	16”
RF-BW	451	578	673	914	1.022	1.270	1.422	1.574	1.826
RJ	454	584	683	927	1.038	1.292	1.445	/	/
B	192	233	298	423	506	571	665	1.096	1.264
Approximate WEIGHT (Kg)									
FLANGED	40	65	303	1.067	1.255	1.731	2.207	/	/
BW	21	60	236	900	940	1.292	1.644	1.996	2.348

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

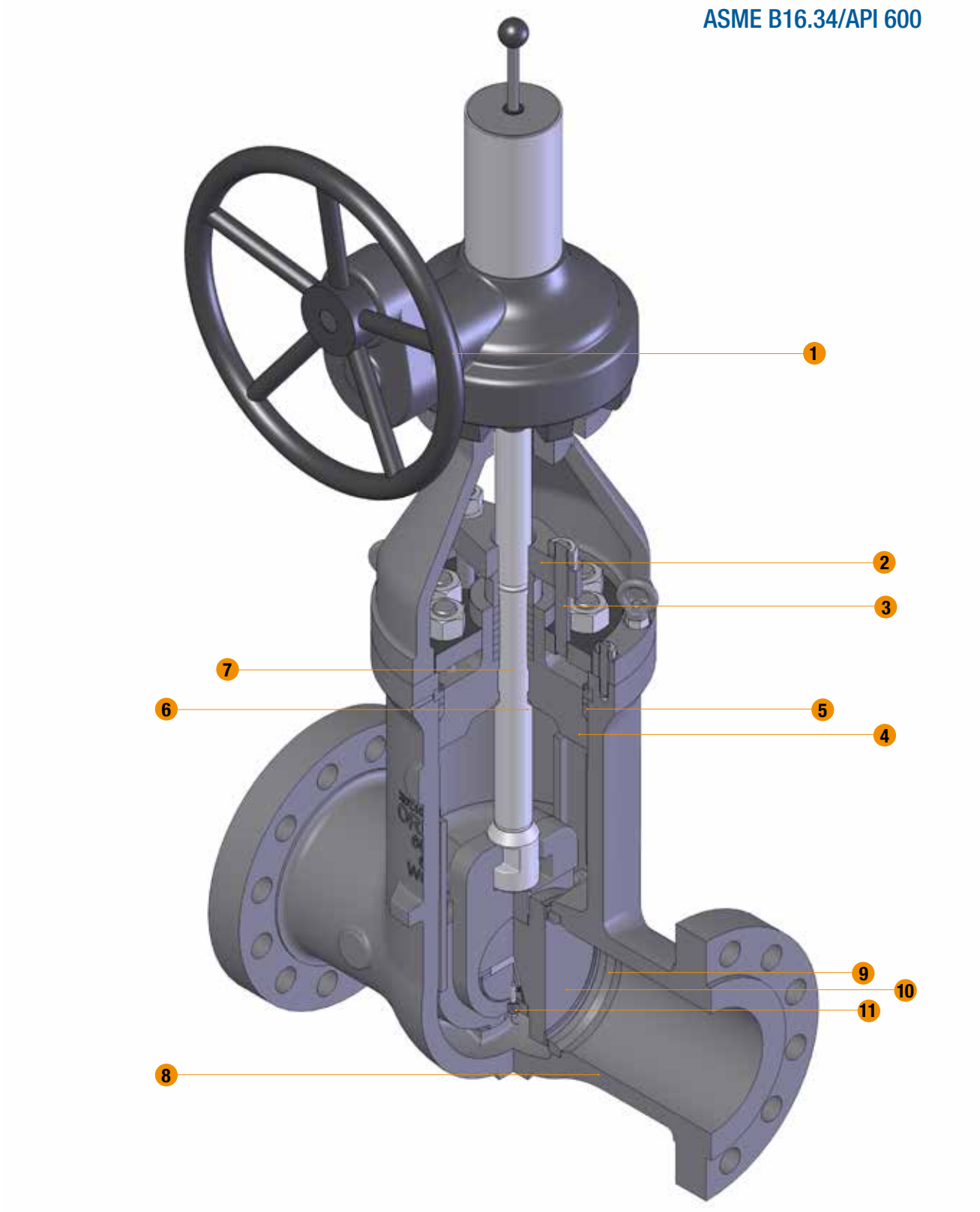
N.B. All dimension are given in millimeters, weight are expressed in Kg. and are not including the operator.

Dimensions and weight may change from above values without notice.

ORION STEEL VALVES

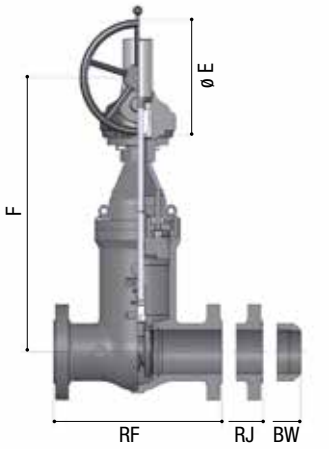
Pressure Seal Bonnet Gate Double Disc

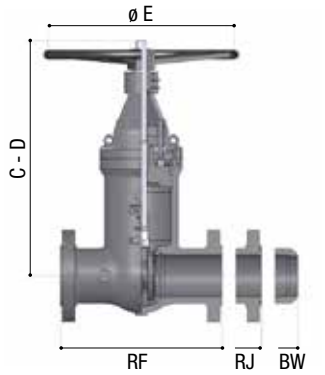
ASME B16.34/API 600



CAST OR CARBON ALLOY STEEL, OUTSIDE SCREW AND YOKE, RISING STEM, NON-RISING HANDWHEEL, WELDED-IN SEAT RINGS, REMOVABLE YOKE SLEEVE, GLAND REPACKING UNDER PRESSURE.

1 OPERATOR	The spoked handwheel is fabricated from steel pipe. The hub is coupled to the yoke sleeve by means 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 allow the gland to slide 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	It is machined in the same grade of the body or in superior alloys, if required. The pressure seal design keeps it tight to the body at high pressures even if bolts are loose or material dilatation occurs. It can be cast or machined from bar. It incorporates a stuffing box sized in accordance with the API standard, and in case can be extended for very high temperature applications. A locking flange with a set of bolts pulls the bonnet outward, against the gasket, giving a preload for initial sealing between body and bonnet.
5 PRESSURE SEAL RING	It is basically supplied in graphite for best fit up to class 1500 and in AISI 316L stainless steel for 2500, carefully machined to provide a perfect tight seal. Upon request, AISI 316L can be installed on every pressure rating.
6 BACKSEAT	It is integral with the bonnet and hardfaced and will provide a perfect tight seal between stem and bonnet, which will allow emergency repacking operation even under pressure.
7 STEM	The stem is part of the trim and is available in a wide range of materials in accordance to API 600 or customer's requirements. The stem is provided with a T-shaped 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 in order to minimize friction and prevent damage to the packing. The thread is trapezoidal ACME type. All the stem sizes comply with the API 600 standard.
8 BODY	The body is in carbon or stainless steel and is available in many other CRA. It is carefully designed for total reliability, low pressure drop and simple maintenance. The basic dimension, i.e. wall thickness, face to face and flanges comply with the relevant API and ASME standards. Wall thickness and design can be both B16.34 or API600. The body neck is cylindrical in order to host the pressure seal bonnet. The body is basically supplied with renewable welded-in 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.
9 SEAT RINGS	The rings are part of the trim of the valve. Welded-in seat rings are supplied as a standard. The two seating surfaces in the closed position provide a seal against pressure from both ends of the valve. They can be externally threaded and internally notched for easy installation and dismantling. Special attention is given to the seating surfaces which are ground and lapped for a tight seal.
10 PARALLEL DISCS	The wedge effect between the two discs converts downward stem force into axial force and forces the parallel discs firmly against the valve seats, providing a seal against pressure at both ends of the valve. The central yoke ring forces one of the two discs during seating action and transmits the stem action to the disc assembly. It also keeps the discs aligned together during the travel.
11 BELLEVILLE SPRINGS	Belleville springs packing ensures rapid unseating during opening operation.
INSTALLATION REMARKS	Pressure seal valves are best fit for vertical stem / horizontal flow installation. Special cases can be evaluated and developed on request.





Class ASME 600 (PN 100)

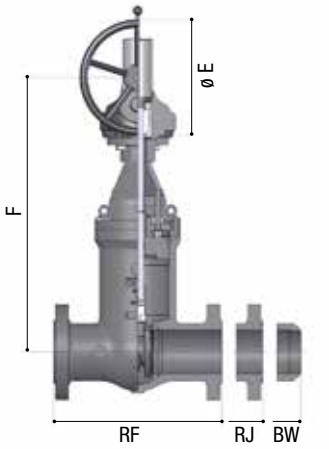
FIGURE NUMBERS - CLASS ASME 600 - ALL SIZES

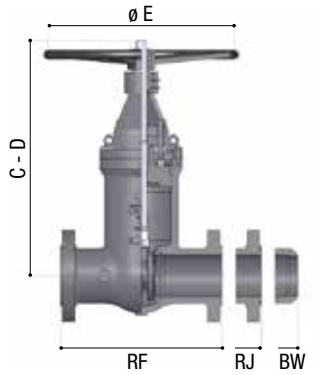
DZ 600: RF - RAISED FACE • BW - WELDING ENDS • RJ - RING JOINT

SIZE	2”	3”	4”	6”	8”	10”	12”	14”	16”
RF-BW	292	356	432	559	660	787	838	889	991
BW (short)	178	254	305	457	584	711	813	/	/
RJ	295	359	435	562	663	790	841	892	994
C-closed	403	493	571	847	997	1.140	1.315	1.427	1.665
D-open	459	576	683	1.011	1.212	1.398	1.634	1.779	2.106
E	300	350	350	BG	BG	BG	BG	BG	BG
F	/	/	/	811	996	1.128	1.382	1.496	1.650
Approximate WEIGHT (Kg)									
FLANGED	24	48	87	182	313	541	876	1.211	1.546
BW	17	35	60	133	242	426	745	1.064	1.383

SIZE	18”	20”	22”	24”	26”	28”	30”	32”	34”
RF-BW	1.092	1.194	1.295	1.397	1.448	1.549	1.651	1.778	1.930
BW (short)	/	/	/	/	/	/	/	/	/
RJ	1.095	1.200	1.305	1.407	1.461	1.562	1.664	1.794	1.946
C-closed	1.840	1.988	2.190	2.365	2.540	2.715	2.890	3.065	3.240
D-open	2.342	2.530	2.814	3.050	3.286	3.522	3.758	3.994	4.230
E	BG	BG	BG	BG	BG	BG	BG	BG	BG
F	1.824	1.998	2.172	2.346	2.520	2.694	2.868	3.042	3.216
Approximate WEIGHT (Kg)									
FLANGED	1.881	2.216	2.551	2.886	3.221	3.556	3.891	4.226	4.561
BW	1.702	2.021	2.340	2.659	2.978	3.297	3.616	3.935	4.254

SIZE	36”
RF-BW	2.082
BW (short)	/
RJ	2.099
C-closed	3.415
D-open	4.466
E	BG
F	3.390
Approximate WEIGHT (Kg)	
FLANGED	4.896
BW	4.573





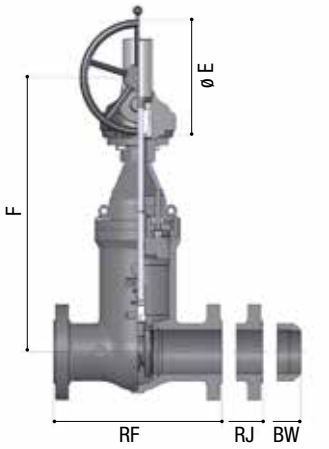
Class ASME 900 (PN 150)

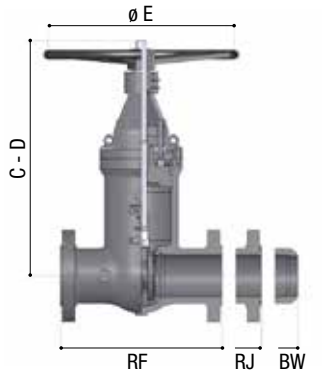
FIGURE NUMBERS - CLASS ASME 900 - ALL SIZES

DZ 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
BW (short)	216	305	356	508	660	787	914	991	1.092
RJ	371	384	460	613	740	841	968	1.039	1.140
C-closed	416	559	594	902	948	1.096	1.353	1.480	1.782
D-open	476	642	698	1.059	1.143	1.356	1.645	1.795	2.161
E	300	350	450	BG	BG	BG	BG	BG	BG
F	/	/	/	878	907	1.224	1.467	1.433	1.894
Approximate WEIGHT (Kg)									
FLANGED	28	66	130	210	289	620	962	1.588	2.213
BW	21	50	101	171	240	466	822	1.388	1.953

SIZE	18”	20”	24”	26”	28”	30”	32”	34”	36”
RF-BW	1.219	1.321	1.549	1.676	1.803	1.930	1.981	2.032	2.083
BW (short)	/	/	/	/	/	/	/	/	/
RJ	1.232	1.334	1.568	/	/	/	/	/	/
C-closed	1.765	1.900	2.384	2.360	2.536	2.712	2.888	2.903	3.239
D-open	2.193	2.345	2.921	2.999	3.229	3.459	3.689	3.709	4.229
E	BG	BG	BG	BG	BG	BG	BG	BG	BG
F	1.732	1.972	2.354	2.431	2.609	2.788	2.966	3.070	3.610
Approximate WEIGHT (Kg)									
FLANGED	2.839	3.465	4.090	/	/	/	/	/	/
BW	2.519	3.085	3.650	7.731	8.564	9.396	10.228	11.061	11.893





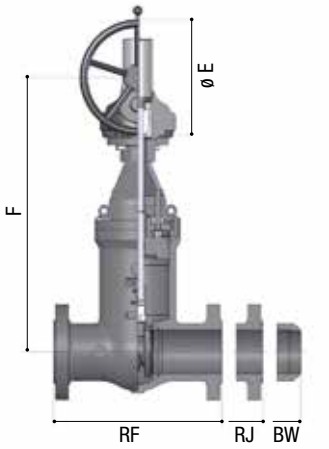
Class ASME 1500 (PN 250)

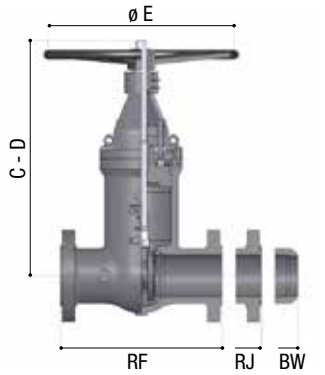
FIGURE NUMBERS - CLASS ASME 1500 - ALL SIZES

DZ 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
BW (short)	216	305	406	559	711	864	991	1.067	1.194
RJ	371	422	473	549	711	842	1.001	1.146	1.276
C-closed	376	724	613	775	1.013	1.189	1.316	1.586	1.777
D-open	428	807	720	930	1.222	1.433	1.606	1.898	2.130
E	300	BG	BG	BG	BG	BG	BG	BG	BG
F	/	679	614	764	1.106	1.174	1.459	1.745	1.909
Approximate WEIGHT (Kg)									
FLANGED	32	90	144	330	638	1.072	1.783	2.493	3.204
BW	23	58	105	243	490	822	1.388	1.953	2.519

SIZE	18”	20”	24”	26”	28”	30”	32”	34”	36”
RF-BW	1.537	1.664	1.943	2.090	2.237	2.383	2.525	2.666	2.808
BW (short)	1.346	1.473	/	/	/	/	/	/	/
RJ	1.406	1.559	/	/	/	/	/	/	/
C-closed	1.840	1.959	2.384	2.567	2.750	2.933	3.116	3.299	3.482
D-open	2.240	2.468	2.921	3.154	3.387	3.620	3.853	4.086	4.319
E	BG	BG	BG	BG	BG	BG	BG	BG	BG
F	1.998	2.156	2.693	2.655	2.899	3.143	3.387	3.631	3.875
Approximate WEIGHT (Kg)									
FLANGED	4.056	5.484	8.340	/	/	/	/	/	/
BW	3.380	4.570	6.950	8.140	9.330	10.520	11.710	12.900	14.090





Class ASME 2500 (PN 420)

FIGURE NUMBERS - CLASS ASME 900 - ALL SIZES

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

SIZE	2”	2½”	3”	4”	6”	8”	10”	12”	14”
RF-BW	451	508	578	673	914	1.022	1.270	1.422	1.637
BW (short)	279	330	368	457	610	762	914	1.041	1.118
RJ	454	514	584	683	927	1.038	1.292	1.444	/
C-closed	487	467	594	684	952	1.202	1.453	1.716	1.904
D-open	564	657	666	775	1.086	1.368	1.666	1.967	2.182
E	300	350	BG	BG	BG	BG	BG	BG	BG
F	/	/	606	676	1.081	1.191	1.549	1.876	2.018
Approximate WEIGHT (Kg)									
FLANGED	98	123	147	196	587	1.960	2.217	3.396	/
BW	70	88	105	140	419	1.400	1.584	2.426	2.511

SIZE	16”	18”	20”	24”	26”
RF-BW	1.756	2.024	2.218	2.606	2.800
BW (short)	1.245	1.397	/	/	/
RJ	/	/	/	/	/
C-closed	2.004	2.148	2.292	2.615	2.724
D-open	2.313	2.421	2.583	3.092	3.069
E	BG	BG	BG	BG	BG
F	2.134	2.107	2.249	2.835	2.675
Approximate WEIGHT (Kg)					
FLANGED	/	/	/	/	/
BW	2.595	2.680	2.764	2.934	3.019

BG: bevel gear operated

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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