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Better Solutions



**ORION** STEEL VALVES  
**Gate Valves**  
API 600

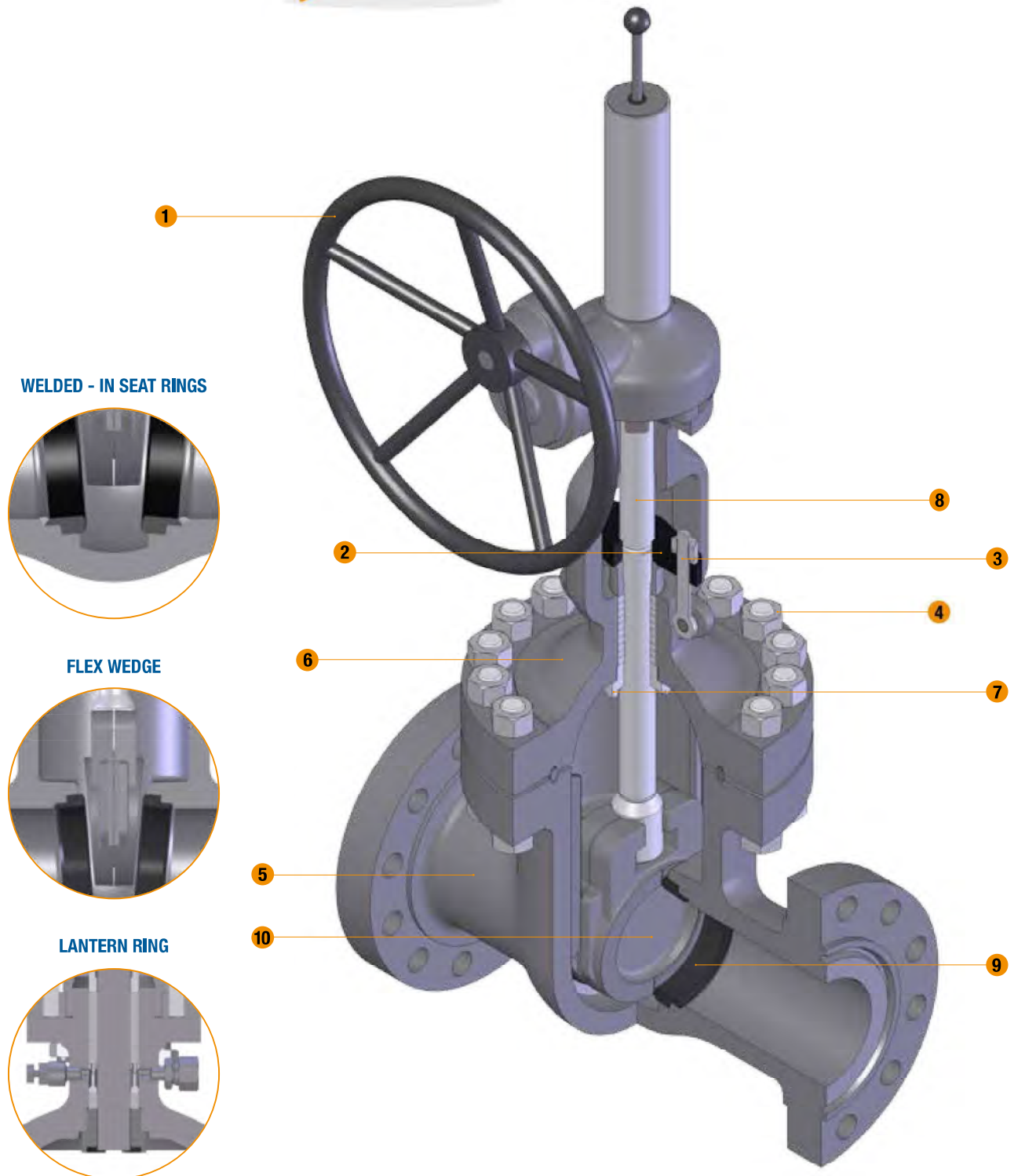
GATE

Design & Technical Partner





ORION STEEL VALVES  
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API 600



## CAST OR FORGED STEEL BODY, OUTSIDE SCREW AND YOKE, RISING STEM, NON-RISING OPERATOR, RENEWABLE SEATS, REMOVABLE YOKE SLEEVE, BACKSEAT FOR 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 normally 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 API and ASME standards. The body-to-bonnet flange is circular, except in the Class 150 where it is oval. The body-to-bonnet joint are flat face on Class 150 valves, male-and-female on Class 300 and ring joint on Class 600 and above. 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 clad 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 sized 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-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.
- 9 SEAT RINGS**

Welded-in seat rings are supplied as a standard. The rings are part of the trim 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 WEDGE**

The wedge is the main part of the trim. It is forged or cast in carbon or stainless steel and also available in CRA material. It is normally supplied as the solid wedge type. 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. For improved seating and unseating easiness, it can be machined with the flexible option.
- REMARKS**

A lantern ring is supplied upon request, in this case the stuffing box shall be drilled, tapped and fitted with an 1/4" NPT plug or grease fitting.
- INSTALLATION REMARKS**

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

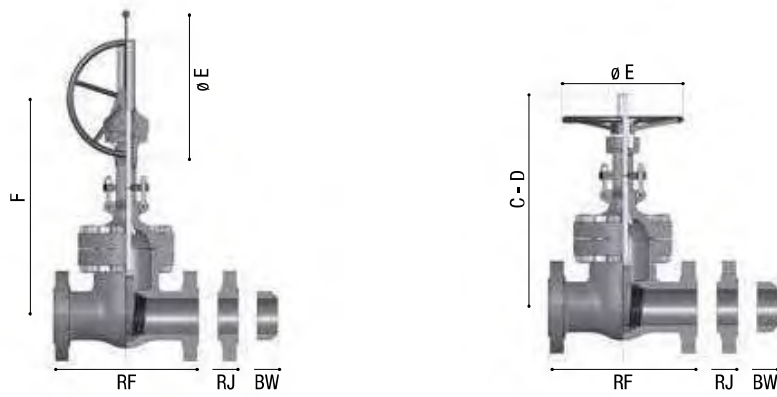
**Class ASME 150 (PN 20)**

FIGURE NUMBERS - CLASS ASME 150 - ALL SIZES

SR 150: RF - RAISED FACE • BW - WELDING ENDS • RJ - RING JOINT

SIZE	2"	2.1/2"	3"	4"	6"	8"	10"	12"	14"
RF	178	190	203	229	267	292	330	356	381
RJ	191	203	216	242	280	305	343	369	394
BW	216	241	282	305	403	419	457	502	572
C-closed	357	415	445	556	712	862	1,020	1,178	1,318
D-open	417	490	530	671	877	1,082	1,290	1,498	1,676
E	204	204	254	305	356	406	457	502	610
F	/	/	/	/	/	/	/	/	/

**Approximate WEIGHT (Kg)**

FLANGED	18	30	32	52	85	131	216	348	391
BW	14	24	27	43	77	123	203	339	370

SIZE	16"	18"	20"	22"	24"	26"	28"	30"	32"
RF	406	432	457	483	508	559	610	610	660
RJ	419	445	470	496	521	/	/	/	/
BW	610	660	711	762	813	864	914	914	965
C-closed	1,440	1,608	1,768	1,940	2,064	2,220	2,375	2,518	2,620
D-open	1,850	2,069	2,271	2,492	2,680	2,876	3,092	3,281	3,435
E	610	BG	BG	BG	BG	BG	BG	BG	BG
F	/	1,779	1,868	1,957	2,046	2,135	2,312	2,488	2,606

**Approximate WEIGHT (Kg)**

FLANGED	468	570	760	880	1,050	1,453	1,650	1,956	2,200
BW	443	558	736	910	1,035	1,329	1,635	1,806	2,095

SIZE	34"	36"	38"	40"	42"	44"	46"	48"	50"
RF	711	711	762	762	787	826	864	864	940
RJ	/	/	/	/	/	/	/	/	/
BW	1,016	1,016	1,067	1,067	1,067	/	/	/	/
C-closed	2,970	2,970	3,228	3,228	3,372	3,558	3,630	3,702	3,915
D-open	3,876	3,876	4,228	4,228	4,415	4,685	4,799	4,912	5,188
E	BG	BG	BG	BG	BG	BG	BG	BG	BG
F	2,701	2,878	3,054	/	3,402	3,574	3,747	3,773	3,916

**Approximate WEIGHT (Kg)**

FLANGED	2,741	3,060	3,770	4,000	4,420	5,400	6,620	6,850	7,605
BW	2,665	2,850	3,430	3,665	4,070	5,886	6,120	6,350	7,060

SIZE	52"	54"	56"	58"	60"	66"
RF	1,016	1,067	1,110	1,140	1,168	1,270
RJ	/	/	/	/	/	/
BW	/	/	/	/	/	/
C-closed	4,127	4,305	4,305	4,550	4,691	5,156
D-open	5,462	5,693	5,693	5,980	6,196	6,823
E	BG	BG	BG	BG	BG	BG
F	4,059	4,303	4,346	4,489	4,632	5,057

**Approximate WEIGHT (Kg)**

FLANGED	8,360	9,360	10,360	11,360	11,200	14,500
BW	7,770	9,750	9,750	10,740	10,467	13,551

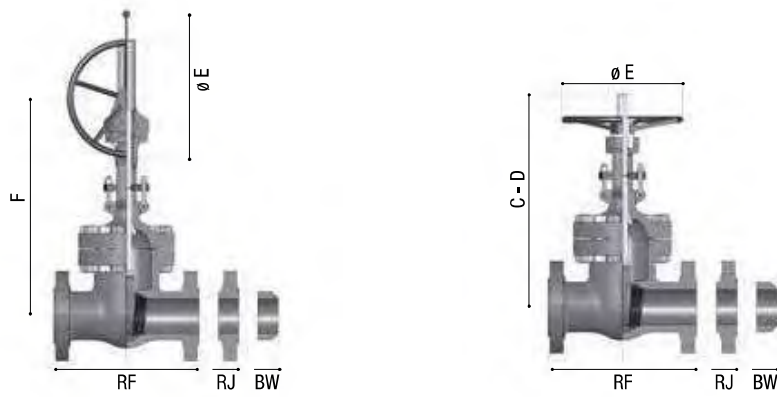
**Class ASME 300 (PN 50)**

FIGURE NUMBERS - CLASS ASME 300 - ALL SIZES

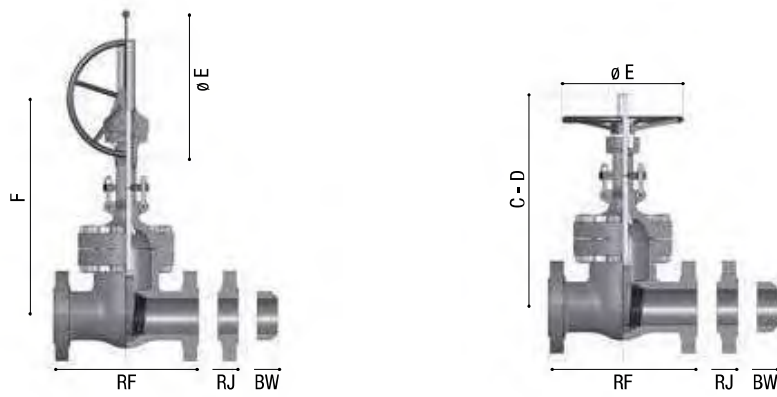
SR 300: RF - RAISED FACE • BW - WELDING ENDS • RJ - RING JOINT

SIZE	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"
RF-BW	216	241	282	305	403	419	457	502	762
RJ	232	257	298	321	419	435	473	518	778
C-closed	370	430	445	556	712	890	1 069	1 245	1 325
D-open	430	510	530	671	877	1 110	1 339	1 580	1685
E	204	204	254	305	406	457	457	BG	BG
F	/	/	/	/	/	/	/	1 102	1 288
Approximate WEIGHT (Kg)									
FLANGED	23	41	52	76	142	220	325	545	710
BW	17	32	40	57	119	180	268	439	598

SIZE	16"	18"	20"	22"	24"	26"	28"	30"	32"
RF-BW	838	914	991	1,092	1,143	1,245	1,346	1,397	1,524
RJ	854	930	1,010	1,114	1,165	1,270	1,371	1,422	1,552
C-closed	1,480	1,620	1,796	1,948	2,122	2,430	2,430	2,596	2,705
D-open	1,890	2,069	2,287	2,500	2,729	3,146	3,146	3,355	3,515
E	BG	BG	BG	BG	BG	BG	BG	BG	BG
F	1,474	1,660	1,793	1,925	2,091	2,256	2,441	2,569	2,705
Approximate WEIGHT (Kg)									
FLANGED	914	1,239	1,457	1,810	2,316	2,833	3,350	3,868	4,336
BW	771	1,076	2,43	1,555	2,003	2,437	2,870	3,338	3,806

SIZE	34"	36"	38"	40"	42"	44"	46"	48"	50"
RF-BW	1,626	1,727	1,829	1,930	1,981	2,066	2,151	2,235	2,285
RJ	1,654	1,755	/	/	/	/	/	/	/
C-closed	2,868	2,970	3,113	3,550	3,468	3,594	3,732	3,870	4,023
D-open	3,730	3,885	4,064	4,551	4,525	4,723	4,900	5,100	5,298
E	BG	BG	BG	BG	BG	BG	BG	BG	BG
F	2,840	2,995	3,150	3,304	3,459	3,616	3,773	3,930	4,087
Approximate WEIGHT (Kg)									
FLANGED	4,996	5,655	7,112	8,570	9,164	11,053	12,294	/	/
BW	4,351	4,895	6,392	7,890	7,890	9,905	10,912	11,919	129,26

SIZE	52"	54"	56"	58"	60"
RF-BW	2,335	2,387	2,438	2,488	2,540
RJ	/	/	/	/	/
C-closed	4,176	4,330	4,503	4,650	4,810
D-open	5,500	5,700	5,928	6,122	6,330
E	BG	BG	BG	BG	BG
F	4,244	4,401	4,558	4,715	4,872
Approximate WEIGHT (Kg)					
FLANGED	/	/	/	/	/
BW	13,934	14,941	15,948	16,956	17,963



### Class ASME 600 (PN 100)

FIGURE NUMBERS - CLASS ASME 600 - ALL SIZES

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

SIZE	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"
RF-BW	292	330	356	432	559	660	787	838	889
RJ	295	333	359	435	562	663	790	841	892
C-closed	371	448	515	600	840	925	1,120	1,318	1,429
D-open	431	528	620	720	1,003	1,138	1,400	1,644	1,781
E	204	254	305	356	502	BG	BG	BG	BG
F	/	/	/	/	/	918	1,073	1,227	1,382
Approximate WEIGHT (Kg)									
FLANGED	32	48	65	120	254	426	660	861	1,190
BW	27	39	55	96	200	355	531	730	1,037

SIZE	16"	18"	20"	22"	24"	26"	28"	30"	32"
RF-BW	991	1,092	1,194	1,295	1,397	1,448	1,549	1,651	1,778
RJ	994	1,095	1,200	1,305	1,407	1,461	1,562	1,664	1,794
C-closed	1,588	1,700	1,775	1,960	2,183	2,380	2,472	2,698	2,855
D-open	1,998	2,138	2,253	2,495	2,771	3,026	3,144	3,478	3,668
E	BG	BG	BG	BG	BG	BG	BG	BG	BG
F	1,547	1,690	1,766	1,954	2,141	2,294	2,447	2,600	2,753
Approximate WEIGHT (Kg)									
FLANGED	1,547	1,820	2,520	3,189	3,858	4,693	5,900	7,730	8,837
BW	1,292	1,528	2,178	2,785	3,391	4,193	5,200	6,980	8,053

SIZE	34"	36"	38"	40"	42"	44"	46"	48"	50"
RF-BW	1,930	2,082	2,185	2,286	2,438	2,438	2,489	2,540	2,540
RJ	1,946	2,099	/	/	/	/	/	/	/
C-closed	3,012	3,168	3,342	3,516	3,690	3,655	3,903	4,100	4,174
D-open	3,870	4,078	4,298	4,493	4,720	4,724	5,042	5,280	5,414
E	BG	BG	BG	BG	BG	BG	BG	BG	BG
F	2,906	3,058	3,211	3,364	3,517	3,670	3,915	3,976	4,248
Approximate WEIGHT (Kg)									
FLANGED	9,943	11,050	12,365	13,679	14,994	16,309	17,623	/	/
BW	9,127	10,200	12,215	14,229	16,244	18,258	202,73	22,287	24,302

SIZE	52"	54"	56"	58"	60"
RF-BW	2,805	2,905	2,692	2,743	3,203
RJ	/	/	/	/	/
C-closed	4,443	4,604	4,764	4,751	5,084
D-open	5,723	5,932	6,140	6,187	6,558
E	BG	BG	BG	BG	BG
F	4,388	4,529	4,671	4,809	4,949
Approximate WEIGHT (Kg)					
FLANGED	/	/	/	/	/
BW	26,316	28,331	30,345	32,360	34,374



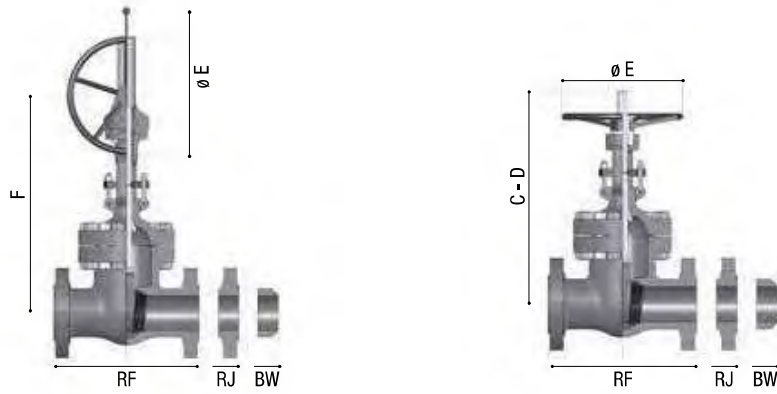
**Class ASME 900 (PN 150)**

FIGURE NUMBERS - CLASS AINSI 900 - ALL SIZES

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

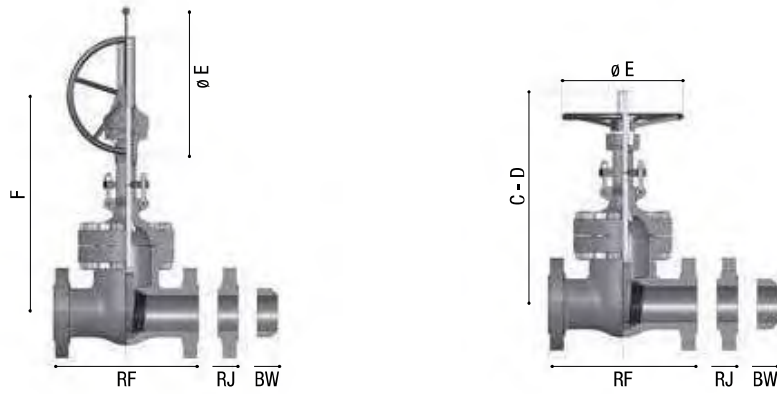
SIZE	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"
RF-BW	368	419	381	457	610	737	838	965	1029
RJ	371	422	384	460	613	740	841	968	1039
C-closed	505	530	530	655	875	1,070	1,180	1,305	1,400
D-open	575	615	618	780	1,040	1,305	1,440	1,607	1,746
E	305	356	356	406	BG	BG	BG	BG	BG
F	/	/	/	/	840	969	1,099	1,228	1,358
Approximate WEIGHT (Kg)									
FLANGED	92	110	105	170	343	570	950	1,204	1,630
BW	75	90	89	141	280	466	810	1,014	1,407

SIZE	16"	18"	20"	24"	26"	28"	30"	32"	34"
RF-BW	1,130	1,219	1,321	1,549	1,676	1,803	1,930	1,981	2,032
RJ	1,140	1,232	1,334	1,568	1,688	1,815	1,953	/	/
C-closed	1,518	1,730	1,896	2,260	2,423	2,587	2,750	2,917	3,084
D-open	1,901	21,60	2,370	2,830	3,041	3,249	3,455	3,674	3,885
E	BG	BG	BG	BG	BG	BG	BG	BG	BG
F	1,487	1,780	1,923	2,279	24,56	2,634	2,812	3,004	3,197
Approximate WEIGHT (Kg)									
FLANGED	2,254	3,330	3,440	4,626	5,219	5,812	6,405	/	/
BW	1,824	3,844	2,980	4,136	4,714	5,292	5,870	6,448	7,026

SIZE	36"	38"	40"	42"	44"	46"	48"	50"	52"
RF-BW	2,083	2,232	2,380	2,485	2,589	2,695	2,799	2,904	3,009
RJ	/	/	/	/	/	/	/	/	/
C-closed	3,250	3,389	3,528	3,687	3,847	4,007	4,166	4,326	4,485
D-open	4,200	4,353	4,506	4,714	4,982	5,165	5,337	5,569	5,752
E	BG	BG	BG	BG	BG	BG	BG	BG	BG
F	3,389	3,581	3,774	3,966	4,158	4,351	4,543	4,735	4,928
Approximate WEIGHT (Kg)									
FLANGED	/	/	/	/	/	/	/	/	/
BW	7,604	8,182	8,760	9,338	9,916	10,494	11,072	11,650	12,228



### Class ASME 1500 (PN 250)

FIGURE NUMBERS - CLASS ASME 1500 - ALL SIZE

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

SIZE	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"
RF-BW	368	419	470	546	705	832	991	1,130	1,257
RJ	371	422	473	549	711	842	1,001	1,146	1,276
C-closed	505	530	557	715	915	1,065	1,270	1,318	1,450
D-open	575	615	636	845	1,085	1,263	1,515	1,604	1,760
E	305	356	406	457	BG	BG	BG	BG	BG
F	/	/	/	/	1,010	1,121	1,232	1,343	1,454
Approximate WEIGHT (Kg)									
FLANGED	92	110	143	261	560	1,052	1,650	2,210	3,040
BW	75	90	109	222	473	904	1,400	1,800	2,490

SIZE	16"	18"	20"	24"	26"	28"	30"	32"	34"
RF-BW	1,384	1,537	1,664	1,943	2,090	2,237	2,383	2,525	2,666
RJ	1,406	1,559	1,686	1,971	2,111	2,258	2,404	/	/
C-closed	1,565	1,760	2,075	2,330	2,533	2,736	2,940	2,964	3,126
D-open	1,925	2,158	2,540	2,860	3,108	3,360	3,605	3,662	3,866
E	BG	BG	BG	BG	BG	BG	BG	BG	BG
F	1,565	1,877	2,079	2,484	2,686	2,889	3,091	3,293	3,496
Approximate WEIGHT (Kg)									
FLANGED	4,123	6,412	8,700	13,277	15,566	1,854	20,143	/	/
BW	3,438	5,469	7,500	11,562	13,593	15,624	17,655	19,686	21,717

SIZE	36"	38"	40"	42"
RF-BW	2,808	2,950	3,091	3,233
RJ	/	/	/	/
C-closed	3,289	3,452	3,614	3,776
D-open	4,070	4,274	4,478	4,682
E	BG	BG	BG	BG
F	3,698	3,900	4,103	4,305
Approximate WEIGHT (Kg)				
FLANGED	/	/	/	/
BW	23,748	25,779	27,810	29,841



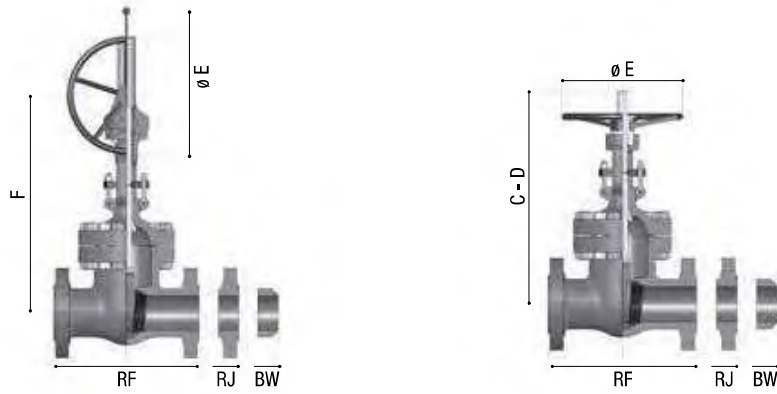
**Class ASME 2500 (PN 420)**

FIGURE NUMBERS - CLASS AINSI 2500 - ALL SIZES

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

SIZE	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"
RF-BW	451	508	578	673	914	1,022	1,270	1,422	1,637
RJ	454	514	584	683	927	1,038	1,292	1,444	1,659
C-closed	504	554	620	716	1,070	1,386	1,502	1,639	1,983
D-open	568	620	700	816	1,215	1,556	1,717	1,889	2,272
E	300	350	400	450	BG	BG	BG	BG	BG
F	/	/	/	/	1,109	1,291	1,473	1,625	1,753
Approximate WEIGHT (Kg)									
FLANGED	143	217	290	451	1,030	1,874	2,964	4,640	6,316
BW	115	172	229	369	817	1,572	2,380	3,810	5,240

SIZE	16"	18"	20"	24"	26"
RF-BW	1,756	2,024	2,218	2,606	2,800
RJ	1,778	/	/	/	/
C-closed	2,227	2,471	2,715	3,204	3,448
D-open	2,554	2,836	3,118	3,682	3,964
E	BG	BG	BG	BG	BG
F	1,880	2,008	2,135	2,390	2,518
Approximate WEIGHT (Kg)					
FLANGED	7,992	/	/	/	/
BW	6,670	8,100	9,530	12,390	13,820

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.