

SAFVAL

VALVE TECHNOLOGY



Gate Valve

Design

Safval cast steel gate valves are designed and manufactured to provide maximum service life and dependability. All gate valves are full ported and meet the design requirements of American Petroleum Institute standard API600&API 6D, British standard BS1414& BS EN 1984 and generally, conform to American Society of Mechanical Engineers standard ASME B16.34. Valves are available in a complete range of body/bonnet materials and trims.

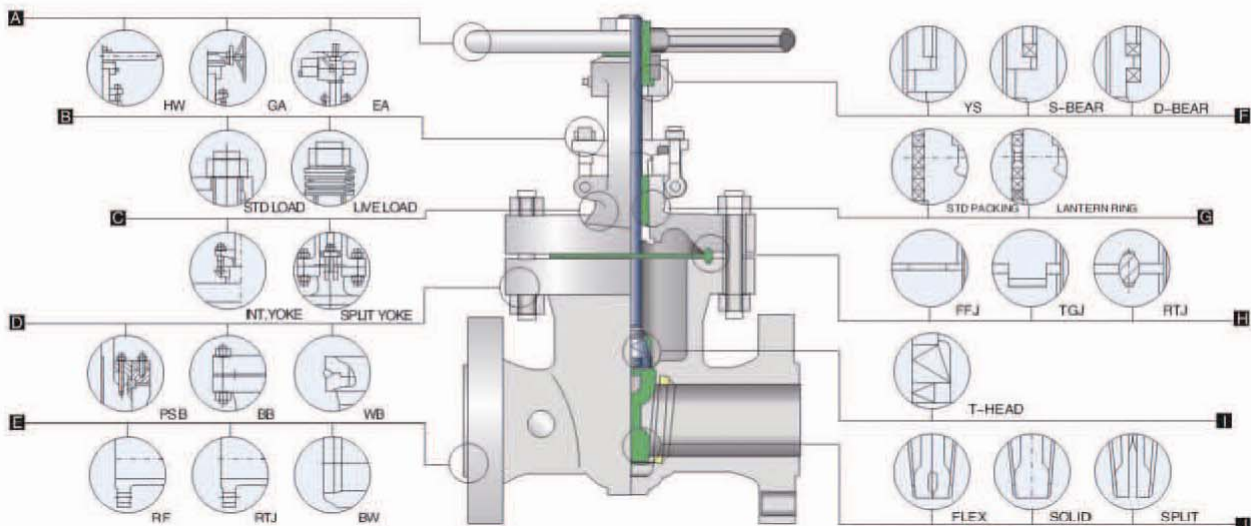
Ranges of materials

Standard body/bonnet materials include nine grades of carbon, low alloy and stainless steels. For special applications they can be supplied in other grades of alloy and stainless steel. There's a full range of trim materials to match any service. optional packing and gasket materials are available for a full range of service conditions.

Available Modifications For KOSEN Cast Steel Valves

Trim Changes
End Connection Modifications
Packing and Gasket Change
Operator Mounting
Handwheel Extensions

Pressure Equalizing
By-Pass
Customer Specified Coatings
Weld End Bore Changes
Oxygen & Chlorine Clearing & Packaging



A Operation

Large handwheels for easy operation, also available with gearing, motor actuators, pneumatic or hydraulic actuators for more difficult services.

B Live Load Packing

In services requiring frequent cycling or with high pressure/temperature variations, live loading extends the service life between maintenance periods by requiring less stemments. Belleville springs are employed to provide constant packing gland stress.

C OS&Y

Outside screw and yoke. Cast steel gate valve yoke integral with bonnet for 150lb-8", 600lb-6", 900lb-4" & small.

D BB

bolted bonnet, welding bonnet and pressure seal bonnet in services requiring frequent cycling or with high pressure/temperature variations.

E End Connections

A choice of flanged, RTJ flanged or buttwelding end for piping flexibility.

F Yokesleeve

Extra long thread engagement between yoke sleeve and stem provide long thread life. valves of sizes larger than 150lb-12", 300lb-10", 600lb-6", 900lb/1500lb/2500lb-4" are regularly provided with roll bearing yokes.

G Lantern Ring And Double Packing Set

lantern ring leak-off fitting connection and double packing stack is optionally available for critical services.

H Body-to-Bonnet Joint

A flat face gasket joint is used in the 150lb valves. A male and female joint is used in 300lb to 600lb valves. ring joint is used in the body to bonnet connections in 900lb & higher rated valves.

I Stem

All wedge gate valves are provided with upset forged T-head stems. By forging the T-head, the stem at the stem-wedge connection is strengthened, this design also allows the wedge possibility of a bent stem jamming the wedge.

J Wedge

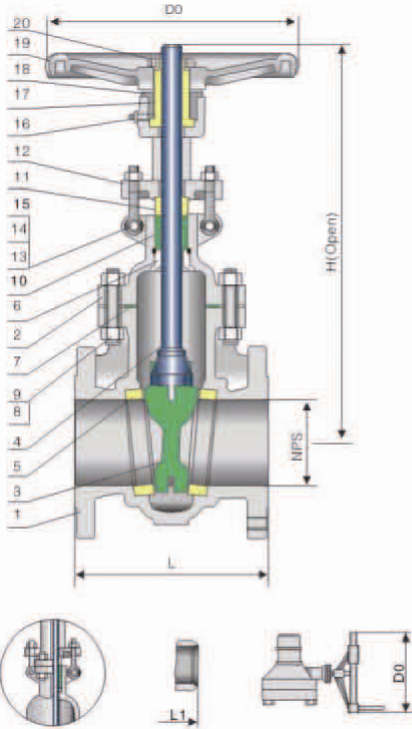
Integral guide rib faces assure self-centering of wedge. flexible wedge gate valve has a one-piece, twin-disc wedge, which is designed so that each half flexes independently. available in solid, flex split and his designs.

Applicable standards:

- STEEL GATE VALVES API 600/API 6D
- STEEL GATE VALVES ISO 10434/ISO 14313
- STEEL VALVES, ASME B16.34
- FACE TO FACE, ASME B16.10
- END FLANGES, ASME B16.5
- BUTTWELDING ENDS, ASME B16.25
- INSPECTION AND TEST API 598/API 6D

Design descriptions:

- FULL PORT DESIGN
- OS&Y OUTSIDE SCREW AND YOKE
- BB BOLTED BONNET
- FLEXIBLE WEDGE, FULLY GUIDED
- CHOICE OF SOLID OR SPLIT WEDGE
- RENEWABLE SEAT RINGS
- FORGED T-HEAD STEM
- RISING STEM AND NON-RISING HANDWHEEL
- FLANGED OR BUTTWELDING ENDS
- AVAILABLE WITH BG OPERATOR



Materials of parts

No	Part Name	Carbon steel	ASTM Material 1 ^{1/2} /cr-1/2mo	Carbon Steel
1	Body	A216-WCB	A217-WC6	A352-LCB
2	Bonnet	A216-WCB	A217-WC6	A352-LCB
3	Wedge	A216-WCB+CR13	A217-WC6+HF	A352-LCB+CR13
4	Stem	A182-F6a	CR-MO-V	A182-F6a
5	Seat ring	A105+CR13	A182-F11+HF	A350-LF2+CR13
6	Stem Backseat	A276-420	A276-304	A276-420
7	Bonnet Gasket	Spiral wound(Graphite+304)		
8	Bonnet Stud	A193-B7	A193-B16	A320-L7
9	Bonnet Stud Nut	A194-2H	A194-7	A194-4
10	Packing	Graphite		
11	Gland	A276-420	A276-304	A276-420
12	Gland Flange	A216-WCB	A217-WC6	A352-LCB
13	EyeBolt Pin	Carbon steel	A276-420	Carbon steel
14	Eyebolt	Carbon steel	A193-B7	Carbon steel
15	Eyebolt Nut	Carbon steel	A194-2H	Carbon steel
16	Grease Fitting	Brass+Steel		
17	Yoke Sleeve	Aluminum-Bronze		
18	Yokesleeve Jam nut	Carbon Steel		
19	Handwheel	Malleable Iron		
20	Handwheel Nut	Carbon Steel		

Note: 1) ductile ni-resist optional

2) wedge and seat ring may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.

Dimensional datas of ANSI Class 150Lb

NPS DN	2 50	2 1/2 65	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400	18 450	20 500	24 600	26 650	28 700	30 750	32 800	36 900	in mm
L (RF)	7.00 178	7.50 191	8.00 203	9.00 229	10.50 267	11.50 292	13.00 330	14.00 356	15.00 381	16.00 406	17.00 432	18.00 457	20.00 508	22.00 559	24.00 610	24.00 610	28.00 711	28.00 711	in mm
L1 (BW)	85 216	9.50 241	11.12 283	12.00 305	15.88 403	16.50 419	18.00 457	19.75 502	22.50 572	24.00 610	26.00 660	28.00 711	32.00 813	34.00 864	36.00 914	36.00 914	38.00 965	40.00 1016	in mm
H (open)	15.25 386	17.00 434	18.88 480	23.00 584	30.50 765	37.62 956	45.50 1149	53.12 1350	59.38 1508	67.00 1703	74.50 1892	83.50 2119	98.25 2500	110.50 2806	116.50 2960	124.00 3150	129.00 3280	146.50 3720	in mm
Do	8 200	8 200	10 250	12 300	12 300	14 350	16 400	15 450	20 500	22 550	24 600	26 640	29 700	29 720	32 800	32 800	38 950	40 1000	in mm
wt(kg)	18 15	25 18	32 26	50 41	77 69	121 108	178 156	265 248	463 424	463 424	621 587	792 752	1521 1570	1521 1570	1838 1900	2261 3310	2490 2540	3310 3380	RF BW

Dimensional datas of ANSI Class 300Lb

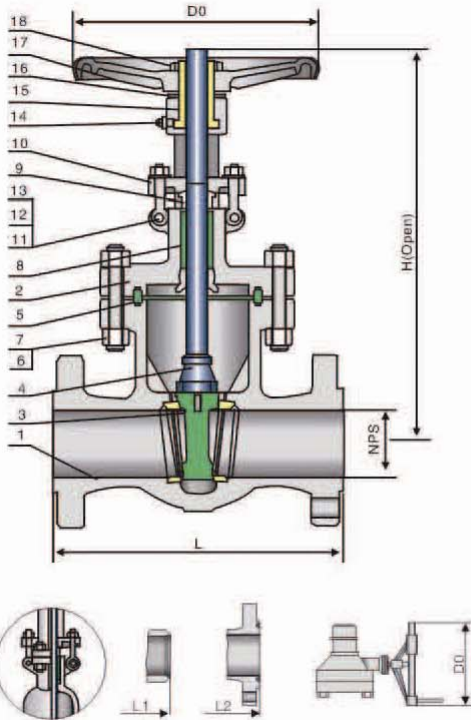
NPS DN	2 50	2 1/2 65	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400	18 450	20 500	24 600	26 650	28 700	30 750	32 800	36 900	in mm
L1 (RF/BW)	8.50 216	9.50 241	11.12 283	12.00 305	15.88 403	16.50 419	18.00 457	19.75 502	30.00 762	33.00 838	36.00 914	39.00 991	45.00 1143	49.00 1245	53.00 1346	55.00 1397	60.00 1524	68.00 1727	in mm
L2 (RTJ)	9.12 232	10.12 257	11.75 298	12.62 321	16.50 419	17.12 435	18.62 473	20.38 518	30.62 778	33.62 854	36.62 930	39.75 1010	45.88 1165	50.00 1270	54.00 1372	56.00 1422	61.12 1553	69.12 1756	in mm
H (open)	16.12 410	17.88 453	20.00 509	24.00 612	31.75 805	39.38 1000	47.62 1210	55.75 1415	62.25 1580	67.88 1725	77.12 1960	86.38 2195	102.00 2590	117.00 2975	122.00 3100	126.00 3200	130.00 3300	152.00 3860	in mm
Do	8 200	8 200	10 250	12 300	14 350	16 400	18 450	20 500	22 550	22 550	24 600	26 640	29 720	29 720	32 800	32 800	38 950	40 1000	in mm
wt(kg)	23 17	35 26	50 39	71 53	144 113	209 164	322 256	482 390	683 565	950 805	1145 965	1635 1410	2660 2305	3090 2540	3310 2725	3595 3055	3720 3360	3985 3630	RF BW

Applicable Standards:

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- STEEL GATE VALVES ISO 10434/ISO 14313
- STEEL VALVES, ASME B16.34
- FACE TO FACE, ASME B16.10
- END FLANGES, ASME B16.5
- BUTTWELDING ENDS, ASME B16.25
- INSPECTION AND TEST API 598/API 6D

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Materials of parts

No	Part Name	Carbon Steel	ASTM Material 1 1/4cr-1/2mo	Carbon Steel
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2	Bonnet	A216-WCB	A217-WC6	A352-LCB
3	Wedge	A216-WCB+CR13	A217-WC6+HF	A352-LCB+CR13
4	Stem	A182-F6a	CR-MO-V	A182-F6a
5	Seat Ring	A105+CR13	A182-F11+HF	A350-LF2+CR13
6	Stem Backseat	A276-420	A276-304	A276-420
7	Bonnet Gasket	Spiral Wound(Graphite+304)		
8	Bonnet Stud	A193-B7	A193-B16	A320-L7
9	Bonnet Stud Nut	A194-2H	A194-7	A194-4
10	Packing	Graphite		
11	Gland	A276-420	A276-304	A276-420
12	Gland Flange	A216-WCB	A217-WC6	A352-LCB
13	Eyebolt Pin	Carbon steel	A276-420	Carbon steel
14	Eyebolt	Carbon steel	A193-B7	Carbon steel
15	Eyebolt Nut	Carbon steel	A194-2H	Carbon steel
16	Grease Fitting	Brass-steel		
17	Yokesleeve	Aluminum-bronze		
18	Yokesleeve Jam Nut	Carbon Steel		
19	Handwheel	Malleable Iron		
20	Handwheel Nut	Carbon Steel		

Note: 1) Ductile Ni-resist optional

2) Wedge and seat ring may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.

Dimensional datas of ANSI Class 600Lb

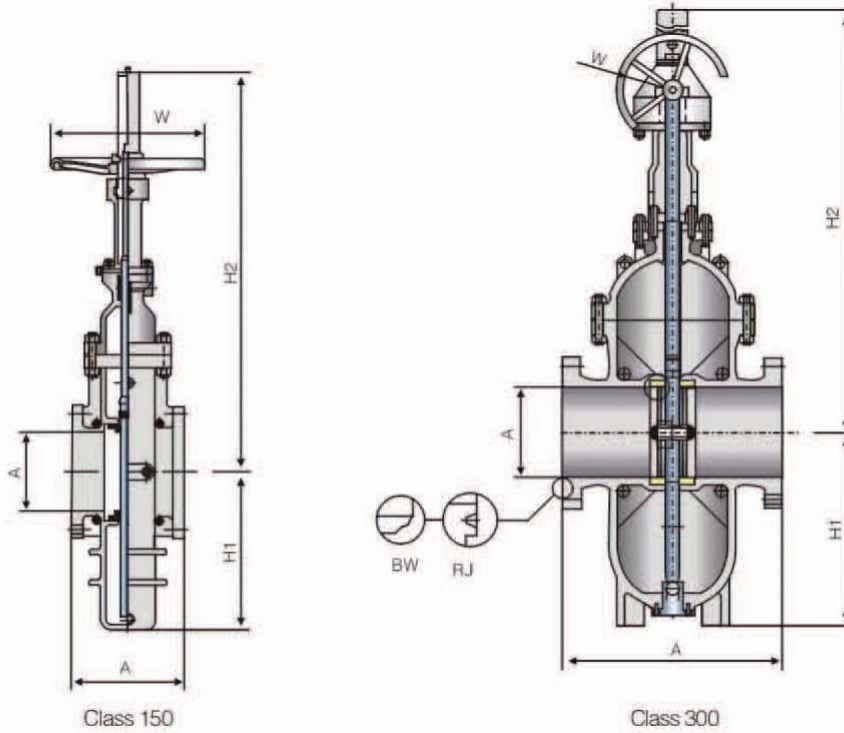
NPS DN	2 50	2 1/2 65	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400	18 450	20 500	24 600	26 650	28 700	30 750	32 800	36 900	in mm
L1 (RF/BW)	11.50 292	13.00 330	14.00 356	17.00 432	22.00 559	26.00 660	31.00 787	33.00 838	35.00 889	39.00 991	43.00 1092	47.00 1194	55.00 1397	57.00 1448	61.00 1549	65.00 1651	70.00 1778	82.00 2083	in mm
L2 (FT/J)	11.62 295	13.12 333	14.12 359	17.12 435	22.12 562	26.12 664	31.12 791	33.12 841	35.12 892	39.12 994	43.12 1095	47.25 1200	55.38 1407	57.50 1461	61.50 1562	65.50 1664	70.62 1794	82.62 2099	in mm
H (open)	16.50 418	18.75 476	20.38 518	25.50 646	33.00 840	40.38 1025	48.38 1230	57.00 1450	62.00 1575	70.62 1795	76.00 1930	87.00 2210	101.50 2580	105.00 2665	109.50 2780	114.00 2895	124.00 3150	140.00 3560	in mm
Do	8 200	10 250	10 250	12 300	18 450	20 500	24 600	24 600	24 600	24 600	26 640	26 640	29 720	29 720	32 800	32 800	38 950	40 1000	in mm
wt(kg)	36 29	52 42	67 53	112 83	170 125	393 310	610 472	890 730	1245 1055	1530 1240	1965 1625	2450 2030	2995 2590	3475 2855	3725 3065	4045 3440	4185 3780	4480 4085	RF BW

Dimensional datas of ANSI Class 900Lb

NPS DN	2 50	2 1/2 65	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400	18 450	20 500	24 600	in mm
L1 (RF/BW)	14.50 368	16.50 419	15.00 381	18.00 457	24.00 610	29.00 737	33.00 838	38.00 965	40.50 1029	44.50 1130	48.00 1219	52.00 1321	61.00 1549	in mm
L2 (FT/J)	14.62 371	16.62 422	15.12 384	18.12 460	24.12 613	29.12 740	33.12 841	38.12 968	40.88 1038	44.88 1140	48.50 1232	52.50 1334	61.75 1568	in mm
H (open)	19.62 498	21.50 547	22.50 573	26.62 678	35.50 900	45.00 1108	53.00 1345	60.00 1525	74.88 1900	81.00 2055	87.00 2215	101.00 2565	104.00 264.00	in mm
Do	10 250	10 250	12 300	18 450	20 500	24 600	26 640	29 720	32 800	32 800	38 950	38 950	40 1000	in mm
wt(kg)	74 54	131 105	101 78	172 135	335 260	640 515	1100 920	1600 1380	2250 2010	2850 2565	3060 3485	3935 3250	49.00 4065	RF BW

Applicable Standards:

DESIGN & MANUFACTURE CONFORM WITH: API 6D/ISO 14313, ASME B16.34
 CONNECTION DIMENSION CONFORMS WITH: ASME B16.5 DIN EN 1092
 FIRE RESISTANCE DESIGN CONFORMS WITH: API 607/ISO 10497
 INSPECTION & TEST CONFORMS WITH: API 6D, ISO 5208, API 598
 MATERIAL CONFORMS WITH: ISO 15156



Dimensional datas

NPS inch	DN	A mm	B mm	H1 mm	H2 mm	W mm	WT kg	T N.m	NPS inch	DN	A mm	B mm	H1 mm	H2 mm	W mm	WT kg	T N.m
ANSI Class 150Lb																	
2	50	178	51	125	452	200	25	23	16	400	406	385	685	1854	560	630	572
3	80	203	76	175	605	250	43	50	18	450	432	436	790	2088	650	836	728
4	100	229	100	202	680	280	65	60	★20	500	457	487	880	2420	460	1190	910
6	150	267	150	282	890	300	95	78	★24	600	508	589	1050	2688	460	1580	1313
8	200	292	201	355	1128	350	146	143	★28	700	610	684	1192	3078	460	2400	2028
10	250	330	252	445	1296	400	245	211	★30	750	610	735	1268	3252	600	3200	2305
12	300	356	303	518	1483	450	343	289	★32	800	711	779	1355	3495	600	3700	2795
14	350	381	334	606	1668	500	480	403	★36	900	711	874	1515	3898	600	4600	3783

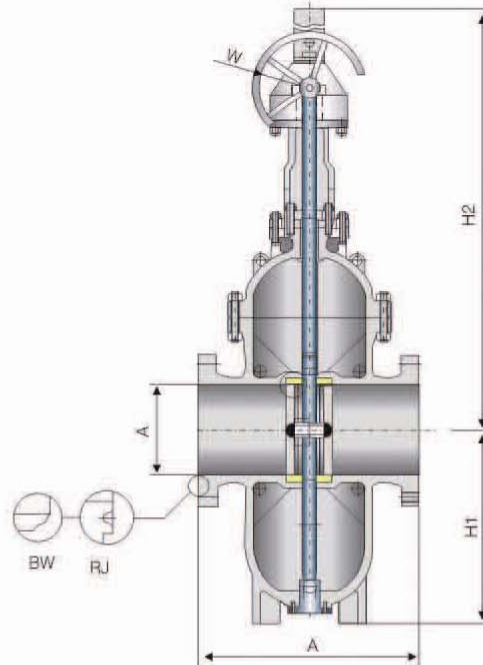
Dimensional datas

NPS inch	DN	A mm	B mm	H1 mm	H2 mm	W mm	WT kg	T N.m	NPS inch	DN	A mm	B mm	H1 mm	H2 mm	W mm	WT kg	T N.m
ANSI Class 300Lb																	
2	50	292	51	135	456	200	30	25	16	400	902	385	730	1884	650	1280	735
3	80	356	76	182	618	250	48	71	★18	450	978	436	802	2163	460	1665	988
4	100	406	100	216	713	280	78	95	★20	500	1054	487	935	2420	460	2168	1235
6	150	495	150	315	903	350	152	117	★24	600	1232	589	1103	2810	460	2980	1963
8	200	597	201	382	1133	400	240	185	★28	700	1397	684	1262	3203	460	4060	2990
10	250	673	252	480	1403	450	420	292	★30	750	1524	735	1342	3412	600	4980	3566
12	300	762	303	545	1582	500	525	366	★32	800	1651	779	1422	3646	600	5800	4121
14	350	826	334	645	1688	560	810	576	★36	900	1880	874	1513	4055	600	7790	5785

Note: ★ Worm-gear actuator

Applicable Standards:

DESIGN & MANUFACTURE CONFORMS WITH: API 6D/ISO 14313, ASME B16.34
 CONNECTION DIMENSION CONFORMS WITH: ASME B16.5 DIN EN 1092
 FIRE RESISTANCE DESIGN CONFORMS WITH: API 607/ISO 10497
 INSPECTION & TEST CONFORMS WITH: API 6D, ISO 5208, API 598
 MATERIAL CONFORMS WITH: ISO 15156



Dimensional datas

NPS inch	DN	A mm	B mm	H1 mm	H2 mm	W mm	WT kg	T N.m	NPS inch	DN	A mm	B mm	H1 mm	H2 mm	W mm	WT kg	T N.m
ANSI Class 600Lb																	
2	50	292	51	160	466	250	60	32	★14	350	889	334	654	1745	460	1680	1453
3	80	356	76	228	622	280	106	117	★16	400	991	385	740	1978	460	2230	2103
4	100	432	100	258	724	350	160	169	★18	450	1092	436	812	2268	600	2700	2808
6	150	559	150	332	913	450	395	234	★20	500	1194	487	1040	2509	600	3100	3653
8	200	660	201	411	1148	560	605	319	★24	600	1397	589	1160	2820	600	5100	4953
10	250	787	252	493	1412	600	960	737	★28	700	1549	684	1288	3233	1000	7050	6253
12	300	838	303	577	1596	650	1520	1274	★30	750	1651	735	1330	3442	1000	8200	7163

Dimensional datas

NPS inch	DN	A mm	B mm	H1 mm	H2 mm	W mm	WT kg	T N.m	NPS inch	DN	A mm	B mm	H1 mm	H2 mm	W mm	WT kg	T N.m
ANSI Class 900Lb																	
2	50	368	49	162	476	300	133	71	12	300	965	303	577	1600	460	1850	1296
3	80	381	74	230	638	350	198	150	14	350	1029	322	660	1755	460	2580	1482
4	100	457	100	262	730	400	260	181	16	400	1130	373	750	2028	600	3500	2139
6	150	610	150	336	920	560	565	413	18	450	1219	423	822	2288	600	4400	2919
8	200	737	201	415	1152	600	965	767	20	500	1321	471	1058	2525	600	5560	4486
★10	250	838	252	496	1418	460	1280	1021	24	600	1549	589	1176	2850	1000	7480	5195

Dimensional datas

NPS inch	DN	A mm	B mm	H1 mm	H2 mm	W mm	WT kg	T N.m	NPS inch	DN	A mm	B mm	H1 mm	H2 mm	W mm	WT kg	T N.m
ANSI Class 1500Lb																	
2	50	368	49	162	476	300	133	107	★6	150	705	144	338	930	460	830	618
3	80	470	74	230	638	400	235	225	★8	200	832	192	420	1160	460	1380	1151
4	100	546	100	270	745	500	398	272	★10	250	991	239	500	1428	460	2230	1532

Note: ★ Turbine drives