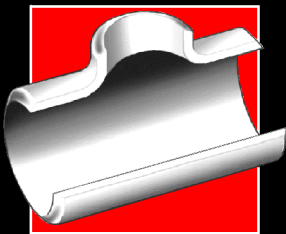


Section 8

Flanges

This section contains extracts from American and British specifications applicable to stainless steel flanges.



Subsections and topics	Pages
Flanges - General Information	8-2
ASME/ANSI Flanges (incl. MSS SP-44 and API 605)	8-4
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BS 10 Flanges	8-71
Pressure/Temperature Ratings (ASME/ANSI)	8-73

Specifications covered in this Section	Page
ASME B16.5-1996 - Pipe Flanges and Flanged Fittings NPS 1/2 through NP 24	8-4 (general) 8-10 to 8-45
ASME B16.47-1996 - Large Diameter Steel Flanges NPS 26 through NPS 60 (Covers MSS SP-44 and API 605 flanges)	8-4 (general) 8-46 to 8-54
MSS SP-44 1996 - Edition, Steel Pipeline Flanges (Covered by ASME B16.47-1996 Series A)	8-46 to 8-50
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BS 10 : 1962 - Specification for Flanges and Bolting for Pipes, Valves, and Fittings	8-71
BS 3293 : 1960 (incorporating amendment 1972) - Specification for Carbon Steel Pipe Flanges (over 24 inches nominal size) for the Petroleum Industry	8-55
BS 4504 : Section 3.1 : 1989 (incorporating amendments) - Circular Flanges for Pipes, Valves and Fittings (PN designated), Section 3.1 Specification for Steel Flanges	8-60
ISO 7005-1 : 1992 (E), Metallic Flanges - Part 1: Steel Flanges (this is substantially the same as BS 4504)	8-60

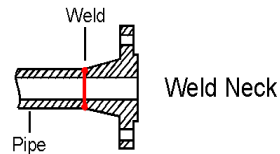
Flanges - General Information

A Flange is a method of connecting pipes, valves, pumps and other equipment to form a pipework system. It also provides easy access for cleaning, inspection or modification. Flanges are usually welded or screwed into such systems and then joined with bolts.

Flange Types

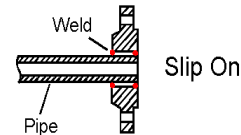
Weld Neck

This flange is circumferentially welded into the system at its neck which means that the integrity of the butt welded area can be easily examined by radiography. The bores of both pipe and flange match, which reduces turbulence and erosion inside the pipeline. The weld neck is therefore favoured in critical applications



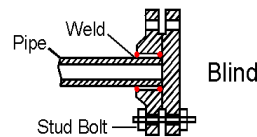
Slip-on

This flange is slipped over the pipe and then fillet welded. Slip-on flanges are easy to use in fabricated applications.



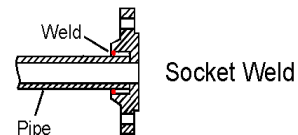
Blind

This flange is used to blank off pipelines, valves and pumps, it can also be used as an inspection cover. It is sometimes referred to as a blanking flange.



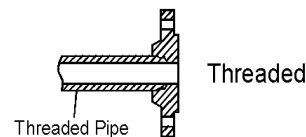
Socket Weld

This flange is counter bored to accept the pipe before being fillet welded. The bore of the pipe and flange are both the same therefore giving good flow characteristics.



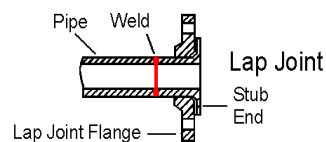
Threaded

This flange is referred to as either threaded or screwed. It is used to connect other threaded components in low pressure, non-critical applications. No welding is required.



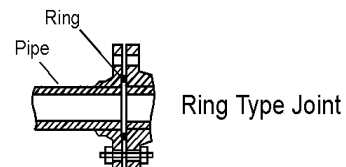
Lap Joint

These flanges are always used with either a stub end or taft which is butt welded to the pipe with the flange loose behind it. This means the stub end or taft always makes the face. The lap joint is favoured in low pressure applications because it is easily assembled and aligned. To reduce cost these flanges can be supplied without a hub and/or in treated, coated carbon steel.



Ring Type Joint

This is a method of ensuring leak proof flange connection at high pressures. A metal ring is compressed into a hexagonal groove on the face of the flange to make the seal. This jointing method can be employed on Weld Neck, Slip-on and Blind Flanges.



Flanges - General Information

Specifications

Refer to page 8-1 for a list of flange specifications (with page references) covered in this Section.

Manufacture

Summary of materials used for flanges

	ASME/ ANSI B16.5	ASME B16.47 Series A (or MSS SP-44 ¹)	ASME B16.47 Series B (or API 605 ²)	BS 4504	BS 3293	BS 10 ³
Forging (ASTM A 182)	✓	✓	✓	✓	✓	✓
Plate (ASTM A 240) ⁴	✓			✓		✓
Bar ⁵						✓
Casting ⁶	✓			✓		✓

Notes

- MSS SP-44 flanges are designated Series A flanges in ASME B16.47.
- API 605 has been cancelled. API 605 flanges are designated Series B flanges in ASME B16.47.
- BS 10, although obsolete, remains in use for light weight economy stainless steel flanges.
- Within specification ANSI B16.5, plate can only be used to provide blind flanges.
- Most small BS 10 flanges are made from bar.
- Castings are not included in this manual.

- **Materials.** Most standards specify the material from which the flange is produced. The purchaser should specify the exact requirements.
- **Flange Sizes.** All sizes and grades compatible to standard pipe ranges and wall thicknesses (pressure ratings) are available. The table below provides a summary.
- **Flange Face.** There are various face configurations for flanges. Typically: flat face, raised face, tongue and groove, ring joint.
- **Face Finish.** The finish on the face of a flange is measured as an Arithmetical Average Roughness Height (AARH). The finish is determined by the standard used. For example, ANSI B16.5 specifies face finishes within a range 125AARH - 500AARH (3.2 Ra to 12.5 Ra). Other finishes are available on request, for example 1.6 Ra max, 1.6/3.2 Ra, 3.2/6.3 Ra or 6.3/12.5 Ra. The range 3.2/6.3 Ra is most common.

Summary of flange sizes specified by common standards

Flange Type	Specifications				
	ASME/ANSI B16.5	ASME B16.47 Series A (or MSS SP-44 ¹)	ASME B16.47 Series B (or API 605 ²)	BS 4504 (ISO 7005-1)	BS 3293
	Nominal Pipe Sizes				
	< NPS 26	≥NPS 26	≥NPS 26	DN 10 to DN 4000	≥ NPS 26
	Nominal Pressure (Class)				
	Class (lb)	Class (lb)	Class (lb)	PN (bar)	Class (lb)
Weld Neck	150-2500	150-900	75-900	2.5-40	150-600
Slip-on	150-1500	-	-	2.5-40	150-600
Blind	150-2500	300-900	300-900	2.5-40	-
Lap Joint	150-2500	-	-	6-40 ³	-
Socket Weld	150-1500	-	-	N/A	-
Threaded	150-2500	-	-	6-40	-
Flat/Raised Facings	As above	As above	As above	As above	As above
Ring Joint Facings	150-2500	300-900	300-900	2.5-40	300-600
Other Facings	150-2500 ³	-	-	2.5-40	-

Notes

- MSS SP-44 flanges are designated Series A flanges in ASME B16.47. It also covers flanges in the range NPS 12 to 24, these being equivalent to ASME/ANSI B16.5 flanges in the same range (except for the addition of NPS 22 in MSS SP-44).
- API 605 has been cancelled. API 605 flanges are designated Series B flanges in ASME B16.47. Ranges quoted are based on ASME B16.47 Series B.
- Dimensions not covered in this summary.

ASME/ANSI B16.5-1996 and B16.47-1996

American national standards ASME/ANSI B16.5 and B16.47 together cover pipe flanges up to NPS 60 (NPS 48 is the largest detailed in this summary). ASME/ANSI B16.47 covers two series of flanges, Series A which is equivalent to MSS SP-44 (the 1996 Edition of MSS SP-44 complies with B16.47 tolerances), and Series B which is equivalent to API 605 (API 605 is now cancelled).

Dimensions and Tolerances

Tolerances on flange dimensions (ASME/ANSI B16.5 and B16.47, and MSS SP-44)

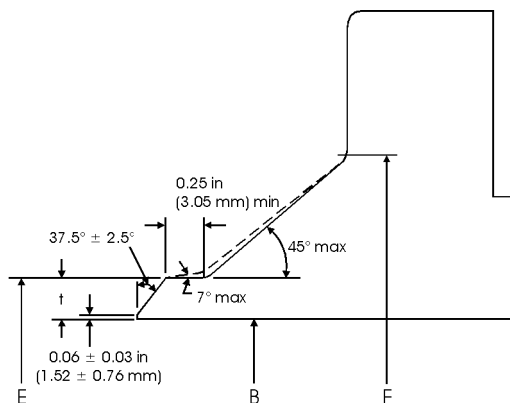
Dimension	Range	Tolerance	
		in	mm
General and Blind Flanges (For blind flange dimensions see page 8-23 for B16.5, page 8-46 for B16.47 Series A / MSS SP-44 and page 8-51 for B16.47 Series B / API 605):			
G (raised face diameter)	≤ NPS 24	±0.03	±0.76
	≥ NPS 26, with 0.06 in raised face	±0.08	±2.03
	≥ NPS 26, with 0.25 in raised face	±0.04	±1.02
I (bolt hole diameter)	All	No tolerance in B16.5 or B16.47	
J (bolt circle diameter)	All	±0.06	±1.52
Centre to centre of adjacent bolt holes	All	±0.03	±0.76
Eccentricity of bolt circle and machined facing diameters	≤ NPS 2½	±0.03	±0.76
	≥ NPS 3	±0.06	±1.52
Weld Neck Flanges ¹ (For dimensions see page 8-10 for B16.5, page 8-46 for B16.47 Series A / MSS SP-44 and page 8-51 for B16.47 Series B / API 605):			
D (overall length)	≤ NPS 4	+0.06	+1.52
	NPS 5 to 10	+0.06, -0.12	+1.52, -3.05
	NPS 12 to 24	+0.12, -0.18	+3.05, -4.57
	≥ NPS 26	±0.19	±4.83
Thickness of hub	All	> 87.5% of pipe nominal wall thickness	
Slip on (see page 8-17), Lap Joint (see page 8-32 for dimensions) and Socket Welding (see page 8-30 for dimensions) Flanges:			
B (inside diameter, or bore)	≤ NPS 10	+0.03, -0.0	+0.76, -0.0
	≥ NPS 12	+0.06, -0.0	+1.52, -0.0
Threaded Flanges (see page 8-40 for dimensions):			
B (counterbore) (Not applicable for Class 150 lb)	≤ NPS 10	+0.03, -0.0	+0.76, -0.0
	≥ NPS 12	+0.06, -0.0	+1.52, -0.0
Ring Joint Facing (See page 8-6 for dimensions; see page 8-9 for tolerances)			

Note

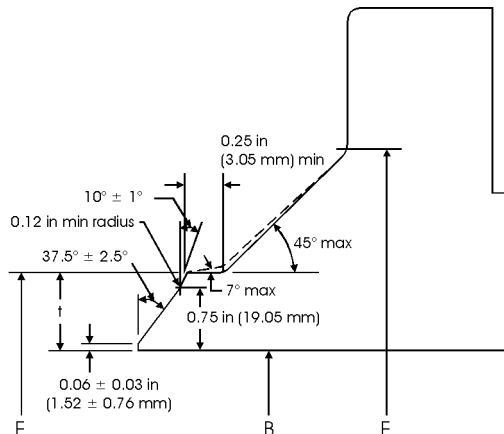
¹ See page 8-5 for weld neck welding end dimension and tolerance data.

General - ASME/ANSI B16.5 & B16.47

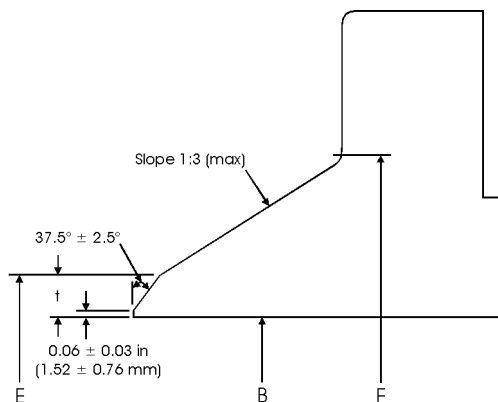
Weld Neck Flanges - Welding Ends



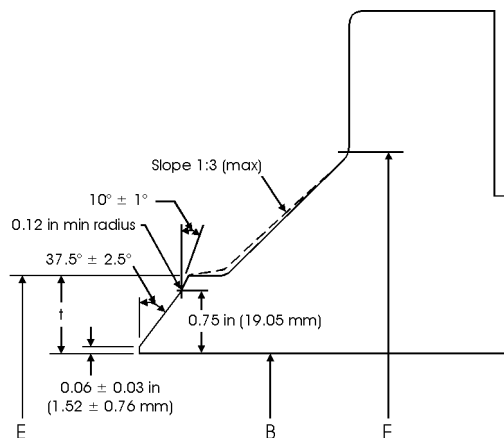
ASME/ANSI B16.5 (NPS $1/2$ to 24) Weld Neck Flange Bevel (with no backing ring) for Wall Thicknesses (t) from 0.19 to 0.88 in (4.83 to 22.35 mm).



ASME/ANSI B16.5 (NPS $1/2$ to 24) Weld Neck Flange Bevel (with no backing ring) for Wall Thicknesses (t) > 0.88 in (22.35 mm).



ASME B16.47 and MSS SP-44 (>NPS 24) Weld Neck Flange Bevel (with no backing ring) for Wall Thickness (t) = 0.19 to 0.88 in (4.83 to 22.35 mm).



ASME B16.47 and MSS SP-44 (>NPS 24) Weld Neck Flange Bevel (with no backing ring) for Wall Thicknesses (t) > 0.88 in (22.35 mm).

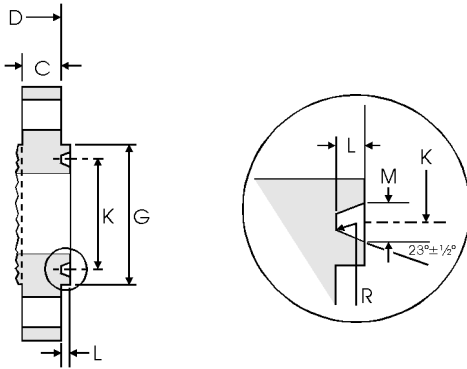
Tolerances on welding end dimensions (ASME/ANSI B16.5 and B16.47, and MSS SP-44)

Dimension	Range	Tolerance	
		in	mm
E (outside diameter at welding end)	≤ NPS 5	+0.09, -0.03	+2.29, -0.76
	NPS 6 to 24	+0.16, -0.03	+4.06, -0.76
	≥ NPS 26	+0.21, -0.06	+5.33, -1.52
B (inside diameter of flange)	B ≤ NPS 10	±0.03	±0.76
	B ≥ NPS 12 to 18	+/-0.03	±0.76
	B ≥ NPS 20	+0.12, -0.06	+3.05, -1.52
t (thickness at weld bevel)	All	>87.5%	

Note

- t = Nominal wall thickness of the pipe. Additional thickness at the weld bevel (up to 0.5 x t) may be provided on the inside or outside diameter (or partially on both) of the hub if it is used with light walled higher strength pipe. Hub diameter, F, may also be increased.

Ring Joint Facings - ASME/ANSI B16.5 & B16.47



Note

- Values for minimum flange thickness, C, and overall length, D, are detailed in the flange tables.
- For ring joint tolerances see page 8-9.

Ring joint facing dimensions - ASME/ANSI B16.5 and B16.47 Series A (MSS SP-44) and Series B (API 605)

Class (lb)						Groove/Ring Number	Raised Face	Groove				
150	300	400	600	900	1500		2500	G	K	L	M	R
Nominal Pipe Size (NPS)							Face Diameter min	Pitch Diameter	Depth ¹	Width	Radius at Bottom	
							in mm	in mm	in mm	in mm	in mm	
ASME/ANSI B16.5 covers NPS 1/2 to 24:												
	1/2		1/2			R11	2.000 50.80	1.344 34.14	0.219 5.56	0.281 7.14	0.03 0.76	
				1/2		R12	2.380 60.45	1.562 39.67	0.250 6.35	0.344 8.74	0.03 0.76	
	3/4		3/4			R13	2.500 63.50	1.688 42.88	0.250 6.35	0.344 8.74	0.03 0.76	
				1/2		R13	2.560 65.02	1.688 42.88	0.250 6.35	0.344 8.74	0.03 0.76	
				3/4		R14	2.620 66.55	1.750 44.45	0.250 6.35	0.344 8.74	0.03 0.76	
1						R15	2.500 63.50	1.875 47.63	0.250 6.35	0.344 8.74	0.03 0.76	
	1		1			R16	2.750 69.85	2.000 50.80	0.250 6.35	0.344 8.74	0.03 0.76	
				1		R16	2.810 71.37	2.000 50.80	0.250 6.35	0.344 8.74	0.03 0.76	
					3/4	R16	2.880 73.15	2.000 50.80	0.250 6.35	0.344 8.74	0.03 0.76	
	1 1/4		1 1/4			R17	2.880 73.15	2.250 57.15	0.250 6.35	0.344 8.74	0.03 0.76	
						R18	3.120 79.25	2.375 60.33	0.250 6.35	0.344 8.74	0.03 0.76	
				1 1/4		R18	3.190 81.03	2.375 60.33	0.250 6.35	0.344 8.74	0.03 0.76	
					1	R18	3.250 82.55	2.375 60.33	0.250 6.35	0.344 8.74	0.03 0.76	
	1 1/2		1 1/2			R19	3.250 82.55	2.562 65.07	0.250 6.35	0.344 8.74	0.03 0.76	
				1 1/2		R20	3.560 90.42	2.688 68.28	0.250 6.35	0.344 8.74	0.03 0.76	
					1 1/2	R20	3.620 91.95	2.688 68.28	0.250 6.35	0.344 8.74	0.03 0.76	
					1 1/4	R21	4.000 101.60	2.844 72.24	0.312 7.92	0.469 11.91	0.03 0.76	
						R22	4.000 101.60	3.250 82.55	0.250 6.35	0.344 8.74	0.03 0.76	
						R23	4.250 107.95	3.250 82.55	0.312 7.92	0.469 11.91	0.03 0.76	
					1 1/2	R23	4.500 114.30	3.250 82.55	0.312 7.92	0.469 11.91	0.03 0.76	
				2		R24	4.880 123.95	3.750 95.25	0.312 7.92	0.469 11.91	0.03 0.76	
	2 1/2		2 1/2			R25	4.750 120.65	4.000 101.60	0.250 6.35	0.344 8.74	0.03 0.76	
						R26	5.000 127.00	4.000 101.60	0.312 7.92	0.469 11.91	0.03 0.76	
					2	R26	5.250 133.35	4.000 101.60	0.312 7.92	0.469 11.91	0.03 0.76	

Use Class 600 for sizes ≤ 3 1/2

Use Class 1500 for sizes ≤ 2 1/2

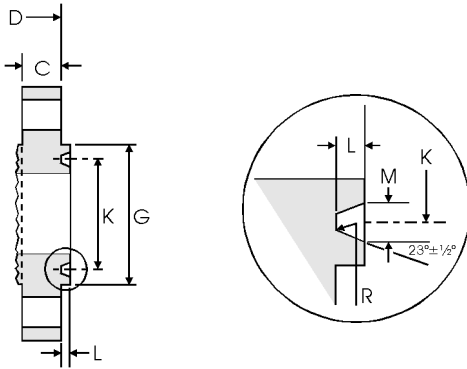
Ring Joint Facings - ASME/ANSI B16.5 & B16.47

Ring joint facing dimensions - ASME/ANSI B16.5 and B16.47 Series A (MSS SP-44) and Series B (API 605) (Continued)

Class (lb)							Groove/Ring Number	Raised Face	Groove				
150	300	400	600	900	1500	2500		G	K	L	M	R	
Nominal Pipe Size (NPS)								Face Diameter min	Pitch Diameter	Depth ¹	Width	Radius at Bottom	
								in mm	in mm	in mm	in mm	in mm	
					2 1/2		R27	5.380 136.65	4.250 107.95	0.31 27.92	0.469 11.91	0.03 0.76	
						2 1/2	R28	5.880 149.35	4.37511 1.13	0.375 9.53	0.531 13.49	0.06 1.52	
3							R29	5.250 133.35	4.500 114.30	0.250 6.35	0.344 8.74	0.03 0.76	
	2						R30	-	4.625 117.48	0.312 7.92	0.469 11.91	0.03 0.76	
	3 ²						R31	5.750 146.05	4.875 123.83	0.312 7.92	0.469 11.91	0.03 0.76	
				3			R31	6.120 155.45	4.875 123.83	0.312 7.92	0.469 11.91	0.03 0.76	
					3		R32	6.620 168.15	5.000 127.00	0.375 9.53	0.531 13.49	0.06 1.52	
3 1/2							R33	6.060 153.92	5.188 131.78	0.250 6.35	0.344 8.74	0.03 0.76	
	3 1/2						R34	6.250 158.75	5.188 131.78	0.312 7.92	0.469 11.91	0.03 0.76	
					3		R35	6.620 168.15	5.375 136.53	0.312 7.92	0.469 11.91	0.03 0.76	
4							R36	6.750 171.45	5.875 149.23	0.250 6.35	0.344 8.74	0.03 0.76	
	4	4	4				R37	6.880 174.75	5.875 149.23	0.312 7.92	0.469 11.91	0.03 0.76	
				4			R37	7.120 180.85	5.875 149.23	0.312 7.92	0.469 11.91	0.03 0.76	
					4		R38	8.000 203.20	6.1881 57.18	0.438 11.13	0.656 16.66	0.06 1.52	
					4		R39	7.620 193.55	6.375 161.93	0.312 7.92	0.469 11.91	0.03 0.76	
5							R40	7.620 193.55	6.750 171.45	0.250 6.35	0.344 8.74	0.03 0.76	
	5	5	5				R41	8.250 209.55	7.125 180.98	0.312 7.92	0.469 11.91	0.03 0.76	
				5			R41	8.500 215.90	7.125 180.98	0.312 7.92	0.469 11.91	0.03 0.76	
					5		R42	9.500 241.30	7.500 190.50	0.500 12.70	0.781 19.84	0.06 1.52	
6							R43	8.620 218.95	7.625 193.68	0.250 6.35	0.344 8.74	0.03 0.76	
					5		R44	9.000 228.60	7.625 193.68	0.312 7.92	0.469 11.91	0.03 0.76	
	6	6	6				R45	9.500 241.30	8.312 211.12	0.312 7.92	0.469 11.91	0.03 0.76	
				6			R45	9.500 241.30	8.312 211.12	0.312 7.92	0.469 11.91	0.03 0.76	
					6		R46	9.750 247.65	8.312 211.12	0.375 9.53	0.531 13.49	0.06 1.52	
					6		R47	11.000 279.40	9.000 228.60	0.500 12.70	0.781 19.84	0.06 1.52	
8							R48	10.750 273.05	9.750 247.65	0.250 6.35	0.344 8.74	0.03 0.76	
	8	8	8				R49	11.880 301.75	10.625 269.88	0.312 7.92	0.469 11.91	0.03 0.76	
				8			R49	12.120 307.85	10.625 269.88	0.312 7.92	0.469 11.91	0.03 0.76	
					8		R50	12.500 317.50	10.625 269.88	0.438 11.13	0.656 16.66	0.06 1.52	
					8		R51	13.380 339.85	11.000 279.40	0.562 14.27	0.906 23.01	0.06 1.52	
10							R52	13.000 330.20	12.000 304.80	0.250 6.35	0.344 8.74	0.03 0.76	
	10	10	10				R53	14.000 355.60	12.750 323.85	0.312 7.92	0.469 11.91	0.03 0.76	
				10			R53	14.250 361.95	12.750 323.85	0.312 7.92	0.469 11.91	0.03 0.76	
					10		R54	14.620 371.35	12.750 323.85	0.438 11.13	0.656 16.66	0.06 1.52	

Use Class 600 for sizes < 3 1/2

Ring Joint Facings - ASME/ANSI B16.5 & B16.47



- Note**
- Values for minimum flange thickness, C, and overall length, D, are detailed in the flange tables.
 - For ring joint tolerances see page 8-9.

Ring joint facing dimensions - ASME/ANSI B16.5 and B16.47 Series A (MSS SP-44) and Series B (API 605) (Continued)

Class (lb)							Groove/Ring Number	Raised Face	Groove			
150	300	400	600	900	1500	2500		G	K	L	M	R
Nominal Pipe Size (NPS)								Face Diameter min	Pitch Diameter	Depth ¹	Width	Radius at Bottom
								in mm	in mm	in mm	in mm	in mm
						10	R55	16.750 425.45	13.500 342.90	0.688 17.48	1.188 30.18	0.09 2.29
12							R56	16.000 406.40	15.000 381.00	0.250 6.35	0.344 8.74	0.03 0.76
	12	12	12				R57	16.250 412.75	15.000 381.00	0.312 7.92	0.469 11.91	0.03 0.76
				12			R57	16.500 419.10	15.000 381.00	0.312 7.92	0.469 11.91	0.03 0.76
					12		R58	17.250 438.15	15.000 381.00	0.562 14.27	0.906 23.01	0.06 1.52
14							R59	16.750 425.45	15.625 396.88	0.250 6.35	0.344 8.74	0.03 0.76
						12	R60	19.500 495.30	16.000 406.40	0.688 17.48	1.312 33.32	0.09 2.29
	14	14	14				R61	18.000 457.20	16.500 419.10	0.312 7.92	0.469 11.91	0.03 0.76
				14			R62	18.380 466.85	16.500 419.10	0.438 11.13	0.656 16.66	0.06 1.52
					14		R63	19.250 488.95	16.500 419.10	0.625 15.88	1.062 26.97	0.09 2.29
16							R64	19.000 482.60	17.875 454.03	0.250 6.35	0.344 8.74	0.03 0.76
	16	16	16				R65	20.000 508.00	18.500 469.90	0.312 7.92	0.469 11.91	0.03 0.76
				16			R66	20.620 523.75	18.500 469.90	0.438 11.13	0.656 16.66	0.06 1.52
					16		R67	21.500 546.10	18.500 469.90	0.688 17.48	1.188 30.18	0.09 2.29
18							R68	21.500 546.10	20.375 517.53	0.250 6.35	0.344 8.74	0.03 0.76
	18	18	18				R69	22.620 574.55	21.000 533.40	0.312 7.92	0.469 11.91	0.03 0.76
				18			R70	23.380 593.85	21.000 533.40	0.500 12.70	0.781 19.84	0.06 1.52
					18		R71	24.120 612.65	21.000 533.40	0.688 17.48	1.188 30.18	0.09 2.29
20							R72	23.500 596.90	22.000 558.80	0.250 6.35	0.344 8.74	0.03 0.76
	20	20	20				R73	25.000 635.00	23.000 584.20	0.375 9.53	0.531 13.49	0.06 1.52
				20			R74	25.500 647.70	23.000 584.20	0.500 12.70	0.781 19.84	0.06 1.52
					20		R75	26.500 673.10	23.000 584.20	0.688 17.48	1.312 33.32	0.09 2.29
24							R76	28.000 711.20	26.500 673.10	0.250 6.35	0.344 8.74	0.03 0.76
	24	24	24				R77	29.500 749.30	27.250 692.15	0.438 11.13	0.656 16.66	0.06 1.52
				24			R78	30.380 771.65	27.250 692.15	0.625 15.88	1.062 26.97	0.09 2.29

Ring Joint Facings - ASME/ANSI B16.5 & B16.47

Ring joint facing dimensions - ASME/ANSI B16.5 and B16.47 Series A (MSS SP-44) and Series B (API 605) (Continued)

Class (lb)							Groove/Ring Number	Raised Face		Groove				
150	300	400	600	900	1500	2500		G	K	L	M	R		
Nominal Pipe Size (NPS)								Face Diameter min	Pitch Diameter	Depth ¹	Width	Radius at Bottom		
								in mm	in mm	in mm	in mm	in mm		
					24		R79	31.250 793.75	27.250 692.15	0.812 20.62	1.438 36.53	0.09 2.29		
MSS SP-44 only, covers NPS 22:														
	22	22	22				R81	27.000 685.80	25.000 635.00	0.438 11.13	0.594 15.09	0.06 1.52		
ASME/ANSI B16.47 (MSS SP-44 & API 605) covers NPS 26 to 36. (There are no ring joint facings >NPS 36)														
	26	26	26				R93	31.880 809.75	29.500 749.30	0.500 12.70	0.781 19.84	0.06 1.52		
	28	28	28				R94	33.880 860.55	31.500 800.10	0.500 12.70	0.781 19.84	0.06 1.52		
	30	30	30				R95	36.120 917.45	33.750 857.25	0.500 12.70	0.781 19.84	0.06 1.52		
	32	32	32				R96	38.750 984.25	36.000 914.40	0.562 14.27	0.906 23.01	0.06 1.52		
	34	34	34				R97	40.750 1035.1	38.000 965.20	0.562 14.27	0.906 23.01	0.06 1.52		
	36	36	36				R98	43.000 1092.2	40.250 1022.4	0.562 14.27	0.906 23.01	0.06 1.52		
				26			R100	32.750 831.85	29.500 749.30	0.688 17.48	1.188 30.18	0.09 2.29		
				28			R101	35.000 889.00	31.500 800.10	0.688 17.48	1.312 33.32	0.09 2.29		
				30			R102	37.250 946.15	33.750 857.25	0.688 17.48	1.312 33.32	0.09 2.29		
				32			R103	39.500 1003.3	36.000 914.40	0.688 17.48	1.312 33.32	0.09 2.29		
				34			R104	42.000 1066.8	38.000 965.20	0.812 20.62	1.438 36.53	0.09 2.29		
				36			R105	44.250 1124.0	40.250 1022.4	0.812 20.62	1.438 36.53	0.09 2.29		

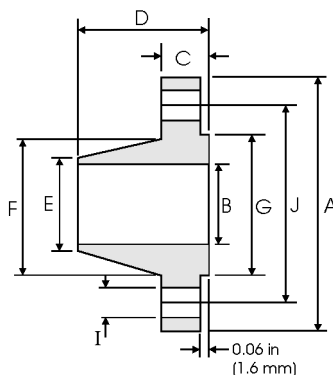
Notes

- Ring joint gasket dimensions conform to ASME B16.20 (not covered in this summary).
 - Use Class 600 lb in sizes NPS 1/2 to NPS 3 1/2 for Class 400 lb.
 - Use Class 1500 lb in sizes NPS 1/2 to NPS 2 1/2 for Class 900 lb.
 - Tolerances are as shown in the table below.
- The height of the raised portion is equal to the depth of groove dimension L, but is not subject to the tolerances for L.
 - Ring joints with lapped flanges in Classes 300 lb and 600 lb use R30 instead of R31.

Ring joint facing tolerances (ASME/ANSI B16.5 and B16.47)

Dimension	Range	Tolerance	
		in	mm
L (depth)	All	+0.016, -0	+0.406, -0
M (width)	All	±0.008	±0.203
K (pitch diameter)	All	±0.005	±0.127
R (radius at bottom)	R ≤ 0.06 in	+0.03, -0	+0.762, -0
	R > 0.06 in	±0.03	±0.762
D (overall length) for flanges with ring joint	≤ NPS 10	±0.06	±1.52
	≥ NPS 12	±0.12	±3.05

Weld Neck Flanges - ANSI B16.5



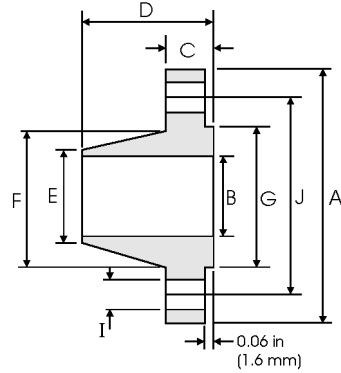
Class 150 lb

Pipe		Flange Data				Hub Data		Raised Face	Drilling Data			Weight
Nominal Pipe Size		A	B	C	D	E	F	G	H	I	J	
	Outside Diameter	Overall Diameter	Inside Diameter	Flange Thickness min	Overall Length	Diameter at Weld Bevel	Hub Diameter	Face Diameter	Number of Holes	Bolt Hole Diameter	Diameter of Circle of Holes	kg/ piece
	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm				
1/2	0.840	3.500	0.620	0.440	1.880	0.840	1.190	1.380	4	0.620	2.380	0.48
	21.30	88.90	15.70	11.20	47.80	21.30	30.20	35.00				
3/4	1.050	3.880	0.820	0.500	2.060	1.050	1.500	1.690	4	0.620	2.750	0.71
	26.70	98.60	20.80	12.70	52.30	26.70	38.10	42.90				
1	1.315	4.250	1.050	0.560	2.190	1.320	1.940	2.000	4	0.620	3.120	1.01
	33.40	108.0	26.70	14.20	55.60	33.50	49.30	50.80				
1 1/4	1.660	4.620	1.380	0.620	2.250	1.660	2.310	2.500	4	0.620	3.500	1.33
	42.20	117.3	35.10	15.70	57.15	42.20	58.70	63.50				
1 1/2	1.900	5.000	1.610	0.690	2.440	1.900	2.560	2.880	4	0.620	3.880	1.72
	48.30	127.0	40.90	17.50	62.00	48.30	65.00	73.15				
2	2.375	6.000	2.070	0.750	2.500	2.380	3.060	3.620	4	0.750	4.750	2.58
	60.30	152.4	52.60	19.10	63.50	60.45	77.70	91.90				
2 1/2	2.875	7.000	2.470	0.880	2.750	2.880	3.560	4.120	4	0.750	5.500	4.11
	73.00	177.8	62.70	22.40	69.85	73.15	90.40	104.6				
3	3.500	7.500	3.070	0.940	2.750	3.500	4.250	5.000	4	0.750	6.000	4.92
	88.90	190.5	78.00	23.90	69.85	88.90	108.0	127.0				
3 1/2	4.000	8.500	3.550	0.940	2.810	4.000	4.810	5.500	8	0.750	7.000	6.08
	101.6	215.9	90.20	23.90	71.40	101.6	122.2	139.7				
4	4.500	9.000	4.030	0.940	3.000	4.500	5.310	6.190	8	0.750	7.500	6.84
	114.3	228.6	102.4	23.90	76.20	114.3	134.9	157.2				
5	5.563	10.00	5.050	0.940	3.500	5.560	6.440	7.310	8	0.880	8.500	8.56
	141.3	254.0	128.3	23.90	88.90	141.2	163.6	185.7				
6	6.625	11.00	6.070	1.000	3.500	6.630	7.560	8.500	8	0.880	9.500	10.6
	168.3	279.4	154.2	25.40	88.90	168.4	192.0	215.9				
8	8.625	13.50	7.980	1.120	4.000	8.630	9.690	10.62	8	0.880	11.75	17.6
	219.1	342.9	202.7	28.40	101.6	219.2	246.1	269.7				
10	10.75	16.00	10.02	1.190	4.000	10.75	12.00	12.75	12	1.000	14.25	24.0
	273.0	406.4	254.5	30.20	101.6	273.0	304.8	323.8				
12	12.75	19.00	12.00	1.250	4.500	12.75	14.38	15.00	12	1.000	17.00	36.5
	323.8	482.6	304.8	31.75	114.3	323.8	365.3	381.0				
14	14.00	21.00		1.380	5.000	14.00	15.75	16.25	12	1.120	18.75	48.4
	355.6	533.4		35.10	127.0	355.6	400.1	412.7				
16	16.00	23.50		1.440	5.000	16.00	18.00	18.50	16	1.120	21.25	60.6
	406.4	596.9		36.60	127.0	406.4	475.2	469.9				
18	18.00	25.00		1.560	5.500	18.00	19.88	21.00	16	1.250	22.75	68.3
	457.2	635.0		39.60	139.7	457.2	505.0	533.4				
20	20.00	27.50		1.690	5.690	20.00	22.00	23.00	20	1.250	25.00	84.5
	508.0	698.5		42.90	144.5	508.0	558.8	584.2				
24	24.00	32.00		1.880	6.000	24.00	26.12	27.25	20	1.380	29.50	115
	609.6	812.8		47.80	152.4	609.6	663.4	692.1				

Notes

- Dimension B corresponds to the pipe inside diameter. Values quoted assume 40S/Standard wall thickness.
- Weights are based on manufacturer's data and are approximate.
- Flat face flanges may be provided at full thickness, C, or with raised face removed (the latter is nonstandard).
- For ring joint facings see page 8-6. For weld end bevel see page 8-5.
- For tolerances see page 8-4.

Weld Neck Flanges - ANSI B16.5



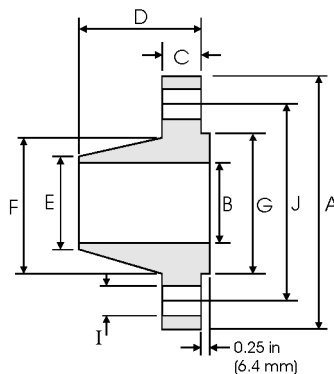
Class 300 lb

Nominal Pipe Size	Pipe		Flange Data				Hub Data		Raised Face	Drilling Data			Weight
	Outside Diameter	Overall Diameter	Inside Diameter	Flange Thickness min	Overall Length	Diameter at Weld Bevel	Hub Diameter	Face Diameter	Number of Holes	Bolt Hole Diameter	Diameter of Circle of Holes	kg/ piece	
													A
1/2	0.840 21.30	3.750 95.20	0.620 15.70	0.560 14.20	2.060 52.30	0.840 21.30	1.500 38.10	1.380 35.00	4	0.620 15.70	2.620 66.55	0.75	
3/4	1.050 26.70	4.620 117.3	0.820 20.80	0.620 15.70	2.250 57.15	1.050 26.70	1.880 47.70	1.690 42.90	4	0.750 19.00	3.250 82.50	1.26	
1	1.315 33.40	4.880 123.9	1.050 26.70	0.690 17.50	2.440 62.00	1.320 33.50	2.120 53.80	2.000 50.80	4	0.750 19.00	3.500 88.90	1.52	
1 1/4	1.660 42.20	5.250 133.3	1.380 35.10	0.750 19.00	2.560 65.00	1.660 42.20	2.500 63.50	2.500 63.50	4	0.750 19.00	3.880 98.50	2.03	
1 1/2	1.900 48.30	6.120 155.4	1.610 40.90	0.810 20.60	2.690 68.30	1.900 48.30	2.750 69.85	2.880 73.15	4	0.880 22.30	4.500 114.3	2.89	
2	2.375 60.30	6.500 165.1	2.070 52.60	0.880 22.30	2.750 69.85	2.380 60.45	3.310 84.00	3.620 91.90	8	0.750 19.00	5.000 127.0	3.40	
2 1/2	2.875 73.00	7.500 190.5	2.470 62.70	1.000 25.40	3.000 76.20	2.880 73.15	3.940 100.0	4.120 104.6	8	0.880 22.30	5.880 149.3	5.17	
3	3.500 88.90	8.250 209.5	3.070 78.00	1.120 28.40	3.120 79.25	3.500 88.90	4.620 117.3	5.000 127.0	8	0.880 22.30	6.620 168.1	6.93	
3 1/2	4.000 101.6	9.000 228.6	3.550 90.20	1.190 30.20	3.190 81.00	4.000 101.6	5.250 133.3	5.500 139.7	8	0.880 22.30	7.250 184.1	8.67	
4	4.500 114.3	10.00 254.0	4.030 102.4	1.250 31.70	3.380 85.80	4.500 114.3	5.750 146.0	6.190 157.2	8	0.880 22.30	7.880 200.1	11.2	
5	5.563 141.3	11.00 279.4	5.050 128.3	1.380 35.00	3.880 98.50	5.560 141.2	7.000 177.8	7.310 185.7	8	0.880 22.30	9.250 234.9	15.1	
6	6.625 168.3	12.50 317.5	6.070 154.2	1.440 36.50	3.880 98.50	6.630 168.4	8.120 206.2	8.500 215.9	12	0.880 22.30	10.62 269.7	19.1	
8	8.625 219.1	15.00 381.0	7.980 202.7	1.620 41.10	4.380 111.2	8.630 219.2	10.25 260.3	10.62 269.7	12	1.000 25.40	13.00 330.2	29.9	
10	10.75 273.0	17.50 444.5	10.02 254.5	1.880 47.70	4.620 117.3	10.75 273.0	12.62 320.5	12.75 323.8	16	1.120 28.40	15.25 387.3	42.7	
12	12.75 323.8	20.50 520.7	12.00 304.8	2.000 50.80	5.120 130.0	12.75 323.8	14.75 374.6	15.00 381.0	16	1.250 31.70	17.75 450.8	61.8	
14	14.00 355.6	23.00 584.2	To be specified by Purchaser	2.120 53.80	5.620 142.7	14.00 355.6	16.75 425.4	16.25 412.7	20	1.250 31.70	20.25 514.3	85.8	
16	16.00 406.4	25.50 647.7		2.250 57.15	5.750 146.0	16.00 406.4	19.00 482.6	18.50 469.9	20	1.380 35.00	22.50 571.5	106	
18	18.00 457.2	28.00 711.2		2.380 60.45	6.250 158.7	18.00 457.2	21.00 533.4	21.00 533.4	24	1.380 35.00	24.75 628.6	131	
20	20.00 508.0	30.50 774.7		2.500 63.50	6.380 162.0	20.00 508.0	23.12 587.2	23.00 584.2	24	1.380 35.00	27.00 685.8	158	
24	24.00 609.6	36.00 914.4		2.750 69.85	6.620 168.1	24.00 609.6	27.62 701.5	27.25 692.1	24	1.620 41.10	32.00 812.8	230	

Notes

- Dimension B corresponds to the pipe inside diameter. Values quoted assume 40S/Standard wall thickness.
- Weights are based on manufacturer's data and are approximate.
- Flat face flanges may be provided at full thickness, C, or with raised face removed (the latter is nonstandard).
- For ring joint facings see page 8-6. For weld end bevel see page 8-5.
- For tolerances see page 8-4.

Weld Neck Flanges - ANSI B16.5



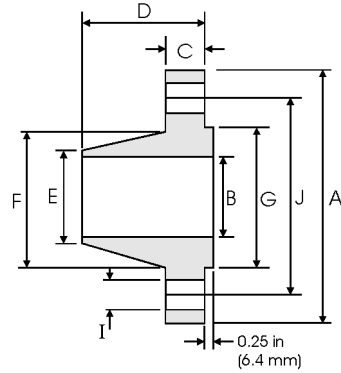
Class 400 lb

Pipe		Flange Data				Hub Data		Raised Face	Drilling Data			Weight
Nominal Pipe Size	Outside Diameter	A	B	C	D	E	F	G	H	I	J	kg/ piece
	in mm	Overall Diameter in mm	Inside Diameter in mm	Flange Thickness min in mm	Overall Length in mm	Diameter at Weld Bevel in mm	Hub Diameter in mm	Face Diameter in mm	Number of Holes	Bolt Hole Diameter in mm	Diameter of Circle of Holes in mm	
1/2	0.840	3.750	To be specified by Purchaser	0.560	2.060	0.840	1.500	1.380	4	0.620	2.620	0.87
	21.30	95.30		14.20	52.30	21.30	38.10	35.00		15.70	66.55	
3/4	1.050	4.620		0.620	2.250	1.050	1.880	1.690	4	0.750	3.250	1.45
	26.70	117.3		15.70	57.15	26.70	47.80	42.90		19.10	82.60	
1	1.315	4.880		0.690	2.440	1.320	2.120	2.000	4	0.750	3.500	1.76
	33.40	124.0		17.50	62.00	33.50	53.80	50.80		19.10	88.90	
1 1/4	1.660	5.250		0.810	2.620	1.660	2.500	2.500	4	0.750	3.880	2.49
	42.20	133.4		20.60	66.55	42.20	63.50	63.50		19.10	98.60	
1 1/2	1.900	6.120		0.880	2.750	1.900	2.750	2.880	4	0.880	4.500	3.49
	48.30	155.4		22.40	69.85	48.30	69.85	73.15		22.40	114.3	
2	2.375	6.500		1.000	2.880	2.380	3.310	3.620	8	0.750	5.000	4.36
	60.30	165.1		25.40	73.15	60.45	84.10	91.90		19.10	127.0	
2 1/2	2.875	7.500		1.120	3.120	2.880	3.940	4.120	8	0.880	5.880	6.43
	73.00	190.5		28.40	79.25	73.15	100.1	104.6		22.40	149.4	
3	3.500	8.250		1.250	3.250	3.500	4.620	5.000	8	0.880	6.620	8.53
	88.90	209.6		31.75	82.60	88.90	117.3	127.0		22.40	168.1	
3 1/2	4.000	9.000		1.380	3.380	4.000	5.250	5.500	8	1.000	7.250	10.7
	101.6	228.6		35.10	85.90	101.6	133.4	139.7		25.40	184.2	
4	4.500	10.00		1.380	3.500	4.500	5.750	6.190	8	1.000	7.880	12.8
	114.3	254.0		35.10	88.90	114.3	146.1	157.2		25.40	200.2	
5	5.563	11.00	1.500	4.000	5.560	7.000	7.310	8	1.000	9.250	16.9	
	141.3	279.4	38.10	101.6	141.2	177.8	185.7		25.40	235.0		
6	6.625	12.50	1.620	4.060	6.630	8.120	8.500	12	1.000	10.62	22.0	
	168.3	317.5	41.10	103.1	168.4	206.2	215.9		25.40	269.7		
8	8.625	15.00	1.880	4.620	8.630	10.25	10.62	12	1.120	13.00	34.7	
	219.1	381.0	47.80	117.3	219.2	260.4	269.7		28.40	330.2		
10	10.75	17.50	2.120	4.880	10.75	12.62	12.75	16	1.250	15.25	48.5	
	273.0	444.5	53.80	124.0	273.0	320.5	323.8		31.75	387.4		
12	12.75	20.50	2.250	5.380	12.75	14.75	15.00	16	1.380	17.75	69.6	
	323.8	520.7	57.15	136.7	323.8	374.7	381.0		35.10	450.9		
14	14.00	23.00	2.380	5.880	14.00	16.75	16.25	20	1.380	20.25	95.5	
	355.6	584.2	60.45	149.4	355.6	425.5	412.7		35.10	514.4		
16	16.00	25.50	2.500	6.000	16.00	19.00	18.50	20	1.500	22.50	118	
	406.4	647.7	63.50	152.4	406.4	482.6	469.9		38.10	571.5		
18	18.00	28.00	2.620	6.500	18.00	21.00	21.00	24	1.500	24.75	145	
	457.2	711.2	66.55	165.1	457.2	533.4	533.4		38.10	628.7		
20	20.00	30.50	2.750	6.620	20.00	23.12	23.00	24	1.620	27.00	173	
	508.0	774.7	69.85	168.1	508.0	587.2	584.2		41.10	685.8		
24	24.00	36.00	3.000	6.880	24.00	27.62	27.25	24	1.880	32.00	249	
	609.6	914.4	76.20	174.8	609.6	701.5	692.1		47.80	812.8		

Notes

- Dimension B corresponds to the pipe inside diameter. Values quoted assume 40S/Standard wall thickness.
- Weights are based on manufacturer's data and are approximate.
- For ring joint facings see page 8-6. For weld end bevel see page 8-5.
- For tolerances see page 8-4.

Weld Neck Flanges - ANSI B16.5



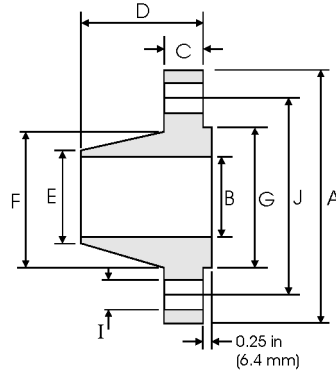
Class 600 lb

Nominal Pipe Size	Pipe		Flange Data				Hub Data		Raised Face	Drilling Data			Weight
	Outside Diameter	Overall Diameter	A	B	C	D	E	F	G	H	I	J	kg/ piece
1/2	0.840	3.750	To be specified by Purchaser	0.560	2.060	0.840	1.500	1.380	4	0.620	2.620	0.87	
	21.30	95.30		14.20	52.30	21.30	38.10	35.00		15.70	66.55		
3/4	1.050	4.620	0.620	2.250	1.050	1.880	1.690	4	0.750	3.250	1.45		
	26.70	117.3	15.70	57.15	26.70	47.80	42.90		19.10	82.60			
1	1.315	4.880	0.690	2.440	1.320	2.120	2.000	4	0.750	3.500	1.76		
	33.40	124.0	17.50	62.00	33.50	53.80	50.80		19.10	88.90			
1 1/4	1.660	5.250	0.810	2.620	1.660	2.500	2.500	4	0.750	3.880	2.49		
	42.20	133.4	20.60	66.55	42.20	63.50	63.50		19.10	98.60			
1 1/2	1.900	6.120	0.880	2.750	1.900	2.750	2.880	4	0.880	4.500	3.49		
	48.30	155.4	22.40	69.85	48.30	69.85	73.15		22.40	114.3			
2	2.375	6.500	1.000	2.880	2.380	3.310	3.620	8	0.750	5.000	4.36		
	60.30	165.1	25.40	73.15	60.45	84.10	91.90		19.10	127.0			
2 1/2	2.875	7.500	1.120	3.120	2.880	3.940	4.120	8	0.880	5.880	6.43		
	73.00	190.5	28.40	79.25	73.15	100.1	104.6		22.40	149.4			
3	3.500	8.250	1.250	3.250	3.500	4.620	5.000	8	0.880	6.620	8.53		
	88.90	209.6	31.75	82.60	88.90	117.3	127.0		22.40	168.1			
3 1/2	4.000	9.000	1.380	3.380	4.000	5.250	5.500	8	1.000	7.250	10.7		
	101.6	228.6	35.10	85.90	101.6	133.4	139.7		25.40	184.2			
4	4.500	10.75	1.500	4.000	4.500	6.000	6.190	8	1.000	8.500	17.4		
	114.3	273.1	38.10	101.6	114.3	152.4	157.2		25.40	215.9			
5	5.563	13.00	1.750	4.500	5.560	7.440	7.310	8	1.120	10.50	29.2		
	141.3	330.2	44.50	114.3	141.2	189.0	185.7		28.40	266.7			
6	6.625	14.00	1.880	4.620	6.630	8.750	8.500	12	1.120	11.50	34.9		
	168.3	355.6	47.80	117.3	168.4	222.3	215.9		28.40	292.1			
8	8.625	16.50	2.190	5.250	8.630	10.75	10.62	12	1.250	13.75	53.9		
	219.1	419.1	55.60	133.4	219.2	273.1	269.7		31.75	349.3			
10	10.75	20.00	2.500	6.000	10.75	13.50	12.75	16	1.380	17.00	86.5		
	273.0	508.0	63.50	152.4	273.0	342.9	323.8		35.10	431.8			
12	12.75	22.00	2.620	6.120	12.75	15.75	15.00	20	1.380	19.25	103		
	323.8	558.8	66.55	155.4	323.8	400.1	381.0		35.10	489.0			
14	14.00	23.75	2.750	6.500	14.00	17.00	16.25	20	1.500	20.75	122		
	355.6	603.3	69.85	165.1	355.6	431.8	412.7		38.10	527.1			
16	16.00	27.00	3.000	7.000	16.00	19.50	18.50	20	1.620	23.75	170		
	406.4	685.8	76.20	177.8	406.4	495.3	469.9		41.10	603.3			
18	18.00	29.25	3.250	7.250	18.00	21.50	21.00	20	1.750	25.75	204		
	457.2	743.0	82.60	184.2	457.2	546.1	533.4		44.50	654.1			
20	20.00	32.00	3.500	7.500	20.00	24.00	23.00	24	1.750	28.50	254		
	508.0	812.8	88.90	190.5	508.0	609.6	584.2		44.50	723.9			
24	24.00	37.00	4.000	8.000	24.00	28.25	27.25	24	2.000	33.00	358		
	609.6	939.8	101.6	203.2	609.6	717.6	692.1		50.80	838.2			



Notes

- Dimension B corresponds to the pipe inside diameter. Values quoted assume 40S/Standard wall thickness.
- Weights are based on manufacturer's data and are approximate.
- For ring joint facings see page 8-6. For weld end bevel see page 8-5.
- For tolerances see page 8-4.

Weld Neck Flanges - ANSI B16.5



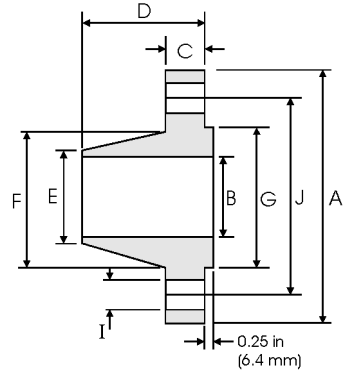
Class 900 lb

Pipe		Flange Data				Hub Data		Raised Face	Drilling Data			Weight
Nominal Pipe Size		A	B	C	D	E	F	G	H	I	J	
	Outside Diameter	Overall Diameter	Inside Diameter	Flange Thickness min	Overall Length	Diameter at Weld Bevel	Hub Diameter	Face Diameter	Number of Holes	Bolt Hole Diameter	Diameter of Circle of Holes	kg/ piece
	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm		in mm	in mm	
1/2	0.840	4.750	To be specified by Purchaser	0.880	2.380	0.840	1.500	1.380	4	0.880	3.250	1.87
	21.30	120.6		22.30	60.45	21.30	38.10	35.00		22.30	82.50	
3/4	1.050	5.120		1.000	2.750	1.050	1.750	1.690	4	0.880	3.500	2.56
	26.70	130.0		25.40	69.85	26.70	44.00	42.90		22.30	88.90	
1	1.315	5.880		1.120	2.880	1.320	2.060	2.000	4	1.000	4.000	3.74
	33.40	149.3		28.40	73.15	33.50	52.30	50.80		25.40	101.6	
1 1/4	1.660	6.250		1.120	2.880	1.660	2.500	2.500	4	1.000	4.380	4.33
	42.20	158.7		28.40	73.15	42.20	63.50	63.50		25.40	111.2	
1 1/2	1.900	7.000		1.250	3.250	1.900	2.750	2.880	4	1.120	4.880	5.94
	48.30	177.8		31.70	82.50	48.30	69.85	73.15		28.40	123.9	
2	2.375	8.500		1.500	4.000	2.380	4.120	3.620	8	1.000	6.500	10.8
	60.30	215.9		38.10	101.6	60.45	104.6	91.90		25.40	165.1	
2 1/2	2.875	9.620		1.620	4.120	2.880	4.880	4.120	8	1.120	7.500	15.0
	73.00	244.3		41.10	104.6	73.15	123.9	104.6		28.40	190.5	
3	3.500	9.500		1.500	4.000	3.500	5.000	5.000	8	1.000	7.500	13.7
	88.90	241.3		38.10	101.6	88.90	127.0	127.0		25.40	190.5	
4	4.500	11.50		1.750	4.500	4.500	6.250	6.190	8	1.250	9.250	22.5
	114.3	292.1		44.40	114.3	114.3	158.7	157.2		31.70	234.9	
5	5.563	13.75		2.000	5.000	5.560	7.500	7.310	8	1.380	11.00	37.4
	141.3	349.2		50.80	127.0	141.2	190.5	185.7		35.00	279.4	
6	6.625	15.00	2.190	5.500	6.630	9.250	8.500	12	1.250	12.50	47.7	
	168.3	381.0	55.60	139.7	168.4	234.9	215.9		31.70	317.5		
8	8.625	18.50	2.500	6.380	8.630	11.75	10.62	12	1.500	15.50	81.3	
	219.1	469.9	63.50	162.0	219.2	298.4	269.7		38.10	393.7		
10	10.75	21.50	2.750	7.250	10.75	14.50	12.75	16	1.500	18.50	119	
	273.0	546.1	69.85	184.1	273.0	368.3	323.8		38.10	469.9		
12	12.75	24.00	3.120	7.880	12.75	16.50	15.00	20	1.500	21.00	157	
	323.8	609.6	79.25	200.1	323.8	419.1	381.0		38.10	533.4		
14	14.00	25.25	3.380	8.380	14.00	17.75	16.25	20	1.620	22.00	180	
	355.6	641.3	85.80	212.8	355.6	450.8	412.7		41.10	558.8		
16	16.00	27.75	3.500	8.500	16.00	20.00	18.50	20	1.750	24.25	217	
	406.4	704.8	88.90	215.9	406.4	508.0	469.9		44.40	615.9		
18	18.00	31.00	4.000	9.000	18.00	22.25	21.00	20	2.000	27.00	292	
	457.2	787.4	101.6	228.6	457.2	565.1	533.4		50.80	685.8		
20	20.00	33.75	4.250	9.750	20.00	24.50	23.00	20	2.120	29.50	362	
	508.0	857.2	107.9	247.6	508.0	622.3	584.2		53.80	749.3		
24	24.00	41.00	5.500	11.50	24.00	29.50	27.25	20	2.620	35.50	665	
	609.6	1041.4	139.7	292.1	609.6	749.3	692.1		66.55	901.7		

Notes

- Dimension B corresponds to the pipe inside diameter. Values quoted assume 40S/Standard wall thickness.
- Weights are based on manufacturer's data and are approximate.
- For ring joint facings see page 8-6. For weld end bevel see page 8-5.
- For tolerances see page 8-4.

Weld Neck Flanges - ANSI B16.5



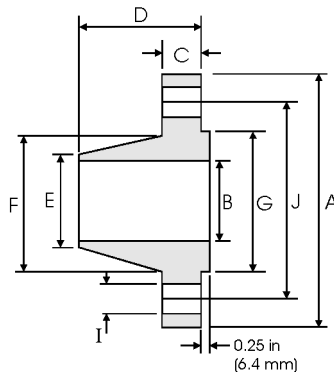
Class 1500 lb

Nominal Pipe Size	Pipe		Flange Data				Hub Data		Raised Face	Drilling Data			Weight
	Outside Diameter	Overall Diameter	A	B	C	D	E	F	G	H	I	J	kg/ piece
1/2	0.840 21.30	4.750 120.6	To be specified by Purchaser	0.880 22.30	2.380 60.45	0.840 21.30	1.500 38.10	1.380 35.00	4	0.880 22.30	3.250 82.50	1.87	
3/4	1.050 26.70	5.120 130.0		1.000 25.40	2.750 69.85	1.050 26.70	1.750 44.00	1.690 42.90	4	0.880 22.30	3.500 88.90	2.56	
1	1.315 33.40	5.880 149.3		1.120 28.40	2.880 73.15	1.320 33.50	2.060 52.30	2.000 50.80	4	1.000 25.40	4.000 101.6	3.74	
1 1/4	1.660 42.20	6.250 158.7		1.120 28.40	2.880 73.15	1.660 42.20	2.500 63.50	2.500 63.50	4	1.000 25.40	4.380 111.2	4.33	
1 1/2	1.900 48.30	7.000 177.8		1.250 31.70	3.250 82.50	1.900 48.30	2.750 69.85	2.880 73.15	4	1.120 28.40	4.880 123.9	5.94	
2	2.375 60.30	8.500 215.9		1.500 38.10	4.000 101.6	2.380 60.45	4.120 104.6	3.620 91.90	8	1.000 25.40	6.500 165.1	10.8	
2 1/2	2.875 73.00	9.620 244.3		1.620 41.10	4.120 104.6	2.880 73.15	4.880 123.9	4.120 104.6	8	1.120 28.40	7.500 190.5	15.0	
3	3.500 88.90	10.50 266.7		1.880 47.70	4.620 117.3	3.500 88.90	5.250 133.3	5.000 127.0	8	1.250 31.70	8.000 203.2	19.9	
4	4.500 114.3	12.25 311.1		2.120 53.80	4.880 123.9	4.500 114.3	6.380 162.0	6.190 157.2	8	1.380 35.00	9.500 241.3	29.9	
5	5.563 141.3	14.75 374.6		2.880 73.15	6.120 155.4	5.560 141.2	7.750 196.8	7.310 185.7	8	1.620 41.10	11.50 292.1	55.4	
6	6.625 168.3	15.50 393.7		3.250 82.50	6.750 171.4	6.630 168.4	9.000 228.6	8.500 215.9	12	1.500 38.10	12.50 317.5	68.4	
8	8.625 219.1	19.00 482.6		3.620 91.90	8.380 212.8	8.630 219.2	11.50 292.1	10.62 269.7	12	1.750 44.40	15.50 393.7	117	
10	10.75 273.0	23.00 584.2		4.250 107.9	10.00 254.0	10.75 273.0	14.50 368.3	12.75 323.8	12	2.000 50.80	19.00 482.6	194	
12	12.75 323.8	26.50 673.1		4.880 123.9	11.12 282.4	12.75 323.8	17.75 450.8	15.00 381.0	16	2.120 53.80	22.50 571.5	288	
14	14.00 355.6	29.50 749.3		5.250 133.3	11.75 298.4	14.00 355.6	19.50 495.3	16.25 412.7	16	2.380 60.45	25.00 635.0	380	
16	16.00 406.4	32.50 825.5		5.750 146.0	12.25 311.1	16.00 406.4	21.75 552.4	18.50 469.9	16	2.620 66.55	27.75 704.8	485	
18	18.00 457.2	36.00 914.4		6.380 162.0	12.88 327.1	18.00 457.2	23.50 596.9	21.00 533.4	16	2.880 73.15	30.50 774.7	644	
20	20.00 508.0	38.75 984.2		7.000 177.8	14.00 355.6	20.00 508.0	25.25 641.3	23.00 584.2	16	3.120 79.25	32.75 831.8	775	
24	24.00 609.6	46.00 1168.4		8.000 203.2	16.00 406.4	24.00 609.6	30.00 762.0	27.25 692.1	16	3.620 91.90	39.00 990.6	1232	



Notes

- Dimension B corresponds to the pipe inside diameter. Values quoted assume 40S/Standard wall thickness.
- Weights are based on manufacturer's data and are approximate.
- For ring joint facings see page 8-6. For weld end bevel see page 8-5.
- For tolerances see page 8-4.

Weld Neck Flanges - ANSI B16.5



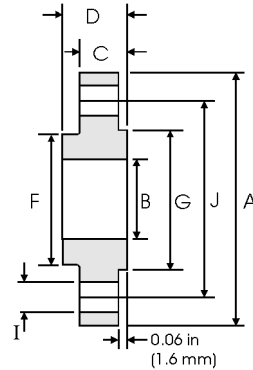
Class 2500 lb

Nominal Pipe Size	Pipe		Flange Data				Hub Data		Raised Face	Drilling Data			Weight
		A	B	C	D	E	F	G	H	I	J		
	Outside Diameter	Overall Diameter	Inside Diameter	Flange Thickness min	Overall Length	Diameter at Weld Bevel	Hub Diameter	Face Diameter	Number of Holes	Bolt Hole Diameter	Diameter of Circle of Holes	kg/ piece	
1/2	0.840 21.30	5.250 133.4	To be specified by Purchaser	1.190 30.20	2.880 73.15	0.840 21.30	1.690 42.90	1.380 35.00	4	0.880 22.40	3.500 88.90	3.12	
3/4	1.050 26.70	5.500 139.7		1.250 31.75	3.120 79.25	1.050 26.70	2.000 50.80	1.690 42.90	4	0.880 22.40	3.750 95.30	3.70	
1	1.315 33.40	6.250 158.8		1.380 35.10	3.500 88.90	1.320 33.50	2.250 57.15	2.000 50.80	4	1.000 25.40	4.250 108.0	5.24	
1 1/4	1.660 42.20	7.250 184.2		1.500 38.10	3.750 95.30	1.660 42.20	2.880 73.15	2.500 63.50	4	1.120 28.40	5.120 130.0	7.74	
1 1/2	1.900 48.30	8.000 203.2		1.750 44.50	4.380 111.3	1.900 48.30	3.120 79.25	2.880 73.15	4	1.250 31.75	5.750 146.1	10.9	
2	2.375 60.30	9.250 235.0		2.000 50.80	5.000 127.0	2.380 60.45	3.750 95.30	3.620 91.90	8	1.120 28.40	6.750 171.5	16.2	
2 1/2	2.875 73.00	10.50 266.7		2.250 57.15	5.620 142.7	2.880 73.15	4.500 114.3	4.120 104.6	8	1.250 31.75	7.750 196.9	23.7	
3	3.500 88.90	12.00 304.8		2.620 66.55	6.620 168.1	3.500 88.90	5.250 133.4	5.000 127.0	8	1.380 35.10	9.000 228.6	36.2	
4	4.500 114.3	14.00 355.6		3.000 76.20	7.500 190.5	4.500 114.3	6.500 165.1	6.190 157.2	8	1.620 41.10	10.75 273.1	55.3	
5	5.563 141.3	16.50 419.1		3.620 91.90	9.000 228.6	5.560 141.2	8.000 203.2	7.310 185.7	8	1.880 47.80	12.75 323.9	92.5	
6	6.625 168.3	19.00 482.6		4.250 108.0	10.75 273.1	6.630 168.4	9.250 235.0	8.500 215.9	8	2.120 53.80	14.50 368.3	143	
8	8.625 219.1	21.75 552.5		5.000 127.0	12.50 317.5	8.630 219.2	12.00 304.8	10.62 269.7	12	2.120 53.80	17.25 438.2	215	
10	10.75 273.0	26.50 673.1		6.500 165.1	16.50 419.1	10.75 273.0	14.75 374.7	12.75 323.8	12	2.620 66.55	21.25 539.8	406	
12	12.75 323.8	30.00 762.0		7.250 184.2	18.25 463.6	12.75 323.8	17.38 441.5	15.00 381.0	12	2.880 73.15	24.38 619.3	572	

Notes

- Dimension B corresponds to the pipe inside diameter. Values quoted assume 40S/Standard wall thickness.
- Weights are based on manufacturer's data and are approximate.
- For ring joint facings see page 8-6. For weld end bevel see page 8-5.
- For tolerances see page 8-4.

Slip On Flanges - ANSI B16.5



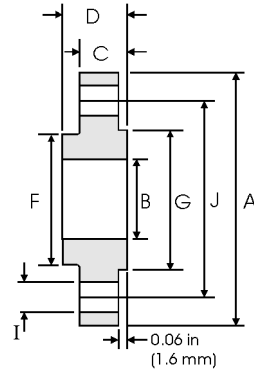
Class 150 lb

Pipe		Flange Data				Hub	Raised Face	Drilling Data			Weight
Nominal Pipe Size		A	B	C	D	F	G	H	I	J	
	Outside Diameter	Overall Diameter	Inside Diameter	Flange Thickness min	Overall Length	Hub Diameter	Face Diameter	Number of Holes	Bolt Hole Diameter	Diameter of Circle of Holes	kg/ piece
	in mm	in mm	in mm	in mm	in mm	in mm	in mm		in mm	in mm	
1/2	0.840 21.30	3.500 88.90	0.880 22.40	0.440 11.20	0.620 15.70	1.190 30.20	1.380 35.10	4	0.620 15.70	2.380 60.45	0.39
3/4	1.050 26.70	3.880 98.60	1.090 27.70	0.500 12.70	0.620 15.70	1.500 38.10	1.690 42.90	4	0.620 15.70	2.750 69.85	0.56
1	1.315 33.40	4.250 108.0	1.360 34.50	0.560 14.20	0.690 17.50	1.940 49.30	2.000 50.80	4	0.620 15.70	3.120 79.25	0.78
1 1/4	1.660 42.20	4.620 117.3	1.700 43.20	0.620 15.70	0.810 20.60	2.310 58.70	2.500 63.50	4	0.620 15.70	3.500 88.90	1.03
1 1/2	1.900 48.30	5.000 127.0	1.950 49.50	0.690 17.50	0.880 22.40	2.560 65.00	2.880 73.15	4	0.620 15.70	3.880 98.60	1.32
2	2.375 60.30	6.000 152.4	2.440 62.00	0.750 19.10	1.000 25.40	3.060 77.70	3.620 91.90	4	0.750 19.10	4.750 120.7	2.06
2 1/2	2.875 73.00	7.000 177.8	2.940 74.70	0.880 22.40	1.120 28.40	3.560 90.40	4.120 104.6	4	0.750 19.10	5.500 139.7	3.28
3	3.500 88.90	7.500 190.5	3.570 90.70	0.940 23.90	1.190 30.20	4.250 108.0	5.000 127.0	4	0.750 19.10	6.000 152.4	3.85
3 1/2	4.000 101.6	8.500 215.9	4.070 103.4	0.940 23.90	1.250 31.75	4.810 122.2	5.500 139.7	8	0.750 19.10	7.000 177.8	4.81
4	4.500 114.3	9.000 228.6	4.570 116.1	0.940 23.90	1.310 33.30	5.310 134.9	6.190 157.2	8	0.750 19.10	7.500 190.5	5.30
5	5.563 141.3	10.00 254.0	5.660 143.8	0.940 23.90	1.440 36.60	6.440 163.6	7.310 185.7	8	0.880 22.40	8.500 215.9	6.07
6	6.625 168.3	11.00 279.4	6.720 170.7	1.000 25.40	1.560 39.60	7.560 192.0	8.500 215.9	8	0.880 22.40	9.500 241.3	7.45
8	8.625 219.1	13.50 342.9	8.720 221.5	1.120 28.40	1.750 44.50	9.690 246.1	10.62 269.7	8	0.880 22.40	11.75 298.5	12.1
10	10.75 273.0	16.00 406.4	10.88 276.3	1.190 30.20	1.940 49.30	12.00 304.8	12.75 323.9	12	1.000 25.40	14.25 362.0	16.5
12	12.75 323.8	19.00 482.6	12.88 327.1	1.250 31.75	2.190 55.60	14.38 365.3	15.00 381.0	12	1.000 25.40	17.00 431.8	26.2
14	14.00 355.6	21.00 533.4	14.14 359.1	1.380 35.10	2.250 57.15	15.75 400.1	16.25 412.8	12	1.120 28.40	18.75 476.3	34.6
16	16.00 406.4	23.50 596.9	16.16 410.5	1.440 36.60	2.500 63.50	18.00 457.2	18.50 469.9	16	1.120 28.40	21.25 539.8	44.8
18	18.00 457.2	25.00 635.0	18.18 461.8	1.560 39.60	2.690 68.30	19.88 505.0	21.00 533.4	16	1.250 31.75	22.75 577.9	48.9
20	20.00 508.0	27.50 698.5	20.20 513.1	1.690 42.90	2.880 73.15	22.00 558.8	23.00 584.2	20	1.250 31.75	25.00 635.0	61.9
24	24.00 609.6	32.00 812.8	24.25 616.0	1.880 47.80	3.250 82.60	26.12 663.4	27.25 692.2	20	1.380 35.10	29.50 749.3	86.9

Notes

- Weights are based on manufacturer's data and are approximate.
- Flat face flanges may be provided at full thickness, C, or with raised face removed (the latter is nonstandard).
- For ring joint facings see page 8-6.
- For tolerances see page 8-4.

Slip On Flanges - ANSI B16.5



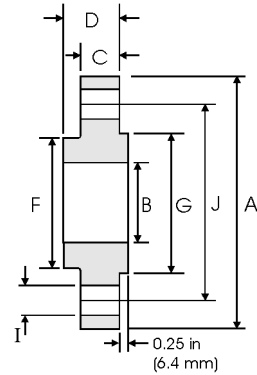
Class 300 lb

Nominal Pipe Size	Pipe	Flange Data				Hub	Raised Face	Drilling Data			Weight
		A	B	C	D	F	G	H	I	J	
	Outside Diameter	Overall Diameter	Inside Diameter	Flange Thickness min	Overall Length	Hub Diameter	Face Diameter	Number of Holes	Bolt Hole Diameter	Diameter of Circle of Holes	kg/ piece
	in mm	in mm	in mm	in mm	in mm	in mm	in mm		in mm	in mm	
1/2	0.840	3.750	0.880	0.560	0.880	1.500	1.380	4	0.620	2.620	0.64
	21.30	95.20	22.40	14.20	22.40	38.10	35.10		15.70	66.55	
3/4	1.050	4.620	1.090	0.620	1.000	1.880	1.690	4	0.750	3.250	1.12
	26.70	117.3	27.70	15.70	25.40	47.70	42.90		19.10	82.50	
1	1.315	4.880	1.360	0.690	1.060	2.120	2.000	4	0.750	3.500	1.36
	33.40	123.9	34.50	17.50	26.90	53.80	50.80		19.10	88.90	
1 1/4	1.660	5.250	1.700	0.750	1.060	2.500	2.500	4	0.750	3.880	1.68
	42.20	133.3	43.20	19.00	26.90	63.50	63.50		19.10	98.60	
1 1/2	1.900	6.120	1.950	0.810	1.190	2.750	2.880	4	0.880	4.500	2.49
	48.30	155.4	49.50	20.60	30.20	69.85	73.15		22.40	114.3	
2	2.375	6.500	2.440	0.880	1.310	3.310	3.620	8	0.750	5.000	2.87
	60.30	165.1	62.00	22.30	33.20	84.00	91.90		19.10	127.0	
2 1/2	2.875	7.500	2.940	1.000	1.500	3.940	4.120	8	0.880	5.880	4.32
	73.00	190.5	74.70	25.40	38.10	100.0	104.6		22.40	149.4	
3	3.500	8.250	3.570	1.120	1.690	4.620	5.000	8	0.880	6.620	5.85
	88.90	209.5	90.70	28.40	42.90	117.3	127.0		22.40	168.1	
3 1/2	4.000	9.000	4.070	1.190	1.750	5.250	5.500	8	0.880	7.250	7.34
	101.6	228.6	103.4	30.20	44.40	133.3	139.7		22.40	184.2	
4	4.500	10.00	4.570	1.250	1.880	5.750	6.190	8	0.880	7.880	9.61
	114.3	254.0	116.1	31.70	47.70	146.0	157.2		22.40	200.1	
5	5.563	11.00	5.660	1.380	2.000	7.000	7.310	8	0.880	9.250	12.3
	141.3	279.4	143.8	35.00	50.80	177.8	185.7		22.40	234.9	
6	6.625	12.50	6.720	1.440	2.060	8.120	8.500	12	0.880	10.62	15.6
	168.3	317.5	170.7	36.50	52.30	206.2	215.9		22.40	269.7	
8	8.625	15.00	8.720	1.620	2.440	10.25	10.62	12	1.000	13.00	24.2
	219.1	381.0	221.5	41.10	61.90	260.3	269.7		25.40	330.2	
10	10.75	17.50	10.88	1.880	2.620	12.62	12.75	16	1.120	15.25	34.1
	273.0	444.5	276.3	47.70	66.55	320.5	323.9		28.40	387.3	
12	12.75	20.50	12.88	2.000	2.880	14.75	15.00	16	1.250	17.75	49.8
	323.8	520.7	327.1	50.80	73.15	374.6	381.0		31.70	450.8	
14	14.00	23.00	14.14	2.120	3.000	16.75	16.25	20	1.250	20.25	69.9
	355.6	584.2	359.1	53.80	76.20	425.4	412.8		31.70	514.4	
16	16.00	25.50	16.16	2.250	3.250	19.00	18.50	20	1.380	22.50	88.1
	406.4	647.7	410.5	57.15	82.50	482.6	469.9		35.00	571.5	
18	18.00	28.00	18.18	2.380	3.500	21.00	21.00	24	1.380	24.75	109
	457.2	711.2	461.8	60.45	88.90	533.4	533.4		35.00	628.7	
20	20.00	30.50	20.20	2.500	3.750	23.12	23.00	24	1.380	27.00	134
	508.0	774.7	513.1	63.50	95.20	587.2	584.2		35.00	685.8	
24	24.00	36.00	24.25	2.750	4.190	27.62	27.25	24	1.620	32.00	201
	609.6	914.4	616.0	69.85	106.4	701.5	692.2		41.00	812.8	

Notes

- Weights are based on manufacturer's data and are approximate.
- Flat face flanges may be provided at full thickness, C, or with raised face removed (the latter is nonstandard).
- For ring joint facings see page 8-6.
- For tolerances see page 8-4.

Slip On Flanges - ANSI B16.5



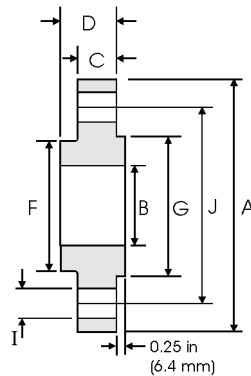
Class 400 lb

Pipe		Flange Data				Hub	Raised Face	Drilling Data			Weight
Nominal Pipe Size		A	B	C	D	F	G	H	I	J	
	Outside Diameter	Overall Diameter	Inside Diameter	Flange Thickness min	Overall Length	Hub Diameter	Face Diameter	Number of Holes	Bolt Hole Diameter	Diameter of Circle of Holes	kg/ piece
	in mm	in mm	in mm	in mm	in mm	in mm	in mm		in mm	in mm	
1/2	0.840	3.750	0.880	0.560	0.880	1.500	1.380	4	0.620	2.620	0.74
	21.30	95.30	22.40	14.20	22.40	38.10	35.10		15.70	66.55	
3/4	1.050	4.620	1.090	0.620	1.000	1.880	1.690	4	0.750	3.250	1.27
	26.70	117.3	27.70	15.70	25.40	47.70	42.90		19.10	82.50	
1	1.315	4.880	1.360	0.690	1.060	2.120	2.000	4	0.750	3.500	1.52
	33.40	124.0	34.50	17.50	26.90	53.80	50.80		19.10	88.90	
1 1/4	1.660	5.250	1.700	0.810	1.120	2.500	2.500	4	0.750	3.880	2.03
	42.20	133.4	43.20	20.60	28.40	63.50	63.50		19.10	98.60	
1 1/2	1.900	6.120	1.950	0.880	1.250	2.750	2.880	4	0.880	4.500	2.96
	48.30	155.4	49.50	22.40	31.75	69.85	73.15		22.40	114.3	
2	2.375	6.500	2.440	1.000	1.440	3.310	3.620	8	0.750	5.000	3.62
	60.30	165.1	62.00	25.40	36.60	84.00	91.90		19.10	127.0	
2 1/2	2.875	7.500	2.940	1.120	1.620	3.940	4.120	8	0.880	5.880	5.28
	73.00	190.5	74.70	28.40	41.10	100.0	104.6		22.40	149.4	
3	3.500	8.250	3.570	1.250	1.810	4.620	5.000	8	0.880	6.620	7.00
	88.90	209.6	90.70	31.75	46.00	117.3	127.0		22.40	168.1	
3 1/2	4.000	9.000	4.070	1.380	1.940	5.250	5.500	8	1.000	7.250	8.84
	101.6	228.6	103.4	35.10	49.30	133.3	139.7		25.40	184.2	
4	4.500	10.00	4.570	1.380	2.000	5.750	6.190	8	1.000	7.880	11.1
	114.3	254.0	116.1	35.10	50.80	146.0	157.2		25.40	200.1	
5	5.563	11.00	5.660	1.500	2.120	7.000	7.310	8	1.000	9.250	13.9
	141.3	279.4	143.8	38.10	53.80	177.8	185.7		25.40	234.9	
6	6.625	12.50	6.720	1.620	2.250	8.120	8.500	12	1.000	10.62	18.3
	168.3	317.5	170.7	41.10	57.15	206.2	215.9		25.40	269.7	
8	8.625	15.00	8.720	1.880	2.690	10.25	10.62	12	1.120	13.00	28.6
	219.1	381.0	221.5	47.80	68.30	260.3	269.7		28.40	330.2	
10	10.75	17.50	10.88	2.120	2.880	12.62	12.75	16	1.250	15.25	39.2
	273.0	444.5	276.3	53.80	73.15	320.5	323.9		31.75	387.3	
12	12.75	20.50	12.88	2.250	3.120	14.75	15.00	16	1.380	17.75	57.0
	323.8	520.7	327.1	57.15	79.25	374.6	381.0		35.10	450.8	
14	14.00	23.00	14.14	2.380	3.310	16.75	16.25	20	1.380	20.25	79.1
	355.6	584.2	359.1	60.05	84.10	425.4	412.8		35.10	514.4	
16	16.00	25.50	16.16	2.500	3.690	19.00	18.50	20	1.500	22.50	101
	406.4	647.7	410.5	63.50	93.70	482.6	469.9		38.10	571.5	
18	18.00	28.00	18.18	2.620	3.880	21.00	21.00	24	1.500	24.75	123
	457.2	711.2	461.8	66.55	98.60	533.4	533.4		38.10	628.7	
20	20.00	30.50	20.20	2.750	4.000	23.12	23.00	24	1.620	27.00	146
	508.0	774.7	513.1	69.85	101.6	587.2	584.2		41.10	685.8	
24	24.00	36.00	24.25	3.000	4.500	27.62	27.25	24	1.880	32.00	219
	609.6	914.4	616.0	76.20	114.3	701.5	692.2		47.80	812.8	

Notes

- Weights are based on manufacturer's data and are approximate.
- For ring joint facings see page 8-6.
- For tolerances see page 8-4.

Slip On Flanges - ANSI B16.5



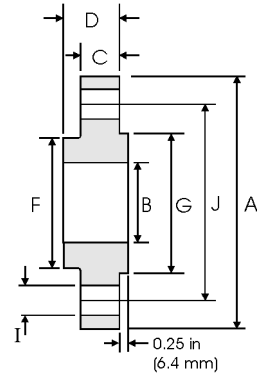
Class 600 lb

Nominal Pipe Size	Pipe	Flange Data				Hub	Raised Face	Drilling Data			Weight
		A	B	C	D	F	G	H	I	J	
	Outside Diameter	Overall Diameter	Inside Diameter	Flange Thickness min	Overall Length	Hub Diameter	Face Diameter	Number of Holes	Bolt Hole Diameter	Diameter of Circle of Holes	kg/ piece
	in mm	in mm	in mm	in mm	in mm	in mm	in mm		in mm	in mm	
1/2	0.840	3.750	0.880	0.560	0.880	1.500	1.380	4	0.620	2.620	0.74
	21.30	95.30	22.40	14.20	22.40	38.10	35.10		15.70	66.55	
3/4	1.050	4.620	1.090	0.620	1.000	1.880	1.690	4	0.750	3.250	1.27
	26.70	117.3	27.70	15.70	25.40	47.80	42.90		19.10	82.60	
1	1.315	4.880	1.360	0.690	1.060	2.120	2.000	4	0.750	3.500	1.52
	33.40	124.0	34.50	17.50	26.90	53.80	50.80		19.10	88.90	
1 1/4	1.660	5.250	1.700	0.810	1.120	2.500	2.500	4	0.750	3.880	2.03
	42.20	133.4	43.20	20.60	28.40	63.50	63.50		19.10	98.60	
1 1/2	1.900	6.120	1.950	0.880	1.250	2.750	2.880	4	0.880	4.500	2.96
	48.30	155.4	49.50	22.40	31.75	69.85	73.15		22.40	114.3	
2	2.375	6.500	2.440	1.000	1.440	3.310	3.620	8	0.750	5.000	3.62
	60.30	165.1	62.00	25.40	36.60	84.10	91.90		19.10	127.0	
2 1/2	2.875	7.500	2.940	1.120	1.620	3.940	4.120	8	0.880	5.880	5.28
	73.00	190.5	74.70	28.40	41.10	100.1	104.6		22.40	149.4	
3	3.500	8.250	3.570	1.250	1.810	4.620	5.000	8	0.880	6.620	7.00
	88.90	209.6	90.70	31.75	46.00	117.3	127.0		22.40	168.1	
3 1/2	4.000	9.000	4.070	1.380	1.940	5.250	5.500	8	1.000	7.250	8.84
	101.6	228.6	103.4	35.10	49.30	133.4	139.7		25.40	184.2	
4	4.500	10.75	4.570	1.500	2.120	6.000	6.190	8	1.000	8.500	14.5
	114.3	273.1	116.1	38.10	53.80	152.4	157.2		25.40	215.9	
5	5.563	13.00	5.660	1.750	2.380	7.440	7.310	8	1.120	10.50	24.4
	141.3	330.2	143.8	44.50	60.45	189.0	185.7		28.40	266.7	
6	6.625	14.00	6.720	1.880	2.620	8.750	8.500	12	1.120	11.50	28.7
	168.3	355.6	170.7	47.80	66.55	222.3	215.9		28.40	292.1	
8	8.625	16.50	8.720	2.190	3.000	10.75	10.62	12	1.250	13.75	43.4
	219.1	419.1	221.5	55.60	76.20	273.1	269.7		31.75	349.3	
10	10.75	20.00	10.88	2.500	3.380	13.50	12.75	16	1.380	17.00	70.3
	273.0	508.0	276.3	63.50	85.90	342.9	323.9		35.10	431.8	
12	12.75	22.00	12.88	2.620	3.620	15.75	15.00	20	1.380	19.25	84.2
	323.8	558.8	327.1	66.55	91.90	400.1	381.0		35.10	489.0	
14	14.00	23.75	14.14	2.750	3.690	17.00	16.25	20	1.500	20.75	98.7
	355.6	603.3	359.1	69.85	93.70	431.8	412.8		38.10	527.1	
16	16.00	27.00	16.16	3.000	4.190	19.50	18.50	20	1.620	23.75	142
	406.4	685.8	410.5	76.20	106.4	495.3	469.9		41.10	603.3	
18	18.00	29.25	18.18	3.250	4.620	21.50	21.00	20	1.750	25.75	173
	457.2	743.0	461.8	82.60	117.3	546.1	533.4		44.50	654.1	
20	20.00	32.00	20.20	3.500	5.000	24.00	23.00	24	1.750	28.50	220
	508.0	812.8	513.1	88.90	127.0	609.6	584.2		44.50	723.9	
24	24.00	37.00	24.25	4.000	5.500	28.25	27.25	24	2.000	33.00	312
	609.6	939.8	616.0	101.6	139.7	717.6	692.2		50.80	838.2	



Notes

- Weights are based on manufacturer's data and are approximate.
- For ring joint facings see page 8-6.
- For tolerances see page 8-4.

Slip On Flanges - ANSI B16.5



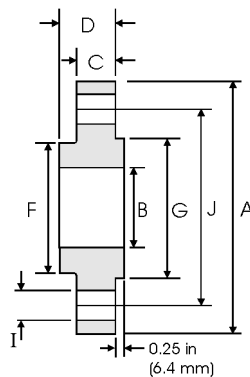
Class 900 lb

Pipe		Flange Data				Hub	Raised Face	Drilling Data			Weight
Nominal Pipe Size		A	B	C	D	F	G	H	I	J	
	Outside Diameter	Overall Diameter	Inside Diameter	Flange Thickness min	Overall Length	Hub Diameter	Face Diameter	Number of Holes	Bolt Hole Diameter	Diameter of Circle of Holes	kg/ piece
	in mm	in mm	in mm	in mm	in mm	in mm	in mm		in mm	in mm	
1/2	0.840 21.30	4.750 120.6	0.880 22.40	0.880 22.40	1.250 31.70	1.500 38.10	1.380 35.10	4	0.880 22.40	3.250 82.50	1.74
3/4	1.050 26.70	5.120 130.0	1.090 27.70	1.000 25.40	1.380 35.00	1.750 44.40	1.690 42.90	4	0.880 22.40	3.500 88.90	2.34
1	1.315 33.40	5.880 149.3	1.360 34.50	1.120 28.40	1.620 41.10	2.060 52.30	2.000 50.80	4	1.000 25.40	4.000 101.6	3.44
1 1/4	1.660 42.20	6.250 158.7	1.700 43.20	1.120 28.40	1.620 41.10	2.500 63.50	2.500 63.50	4	1.000 25.40	4.380 111.2	3.91
1 1/2	1.900 48.30	7.000 177.8	1.950 49.50	1.250 31.70	1.750 44.50	2.750 69.85	2.880 73.15	4	1.120 28.40	4.880 123.9	5.36
2	2.375 60.30	8.500 215.9	2.440 62.00	1.500 38.10	2.250 57.15	4.120 104.6	3.620 91.90	8	1.000 25.40	6.500 165.1	9.85
2 1/2	2.875 73.00	9.620 244.3	2.940 74.70	1.620 41.10	2.500 63.50	4.880 123.9	4.120 104.6	8	1.120 28.40	7.500 190.5	13.7
3	3.500 88.90	9.500 241.3	3.570 90.70	1.500 38.10	2.120 53.80	5.000 127.0	5.000 127.0	8	1.000 25.40	7.500 190.5	11.6
4	4.500 114.3	11.50 292.1	4.570 116.1	1.750 44.40	2.750 69.85	6.250 158.7	6.190 157.2	8	1.250 31.70	9.250 234.9	19.7
5	5.563 141.3	13.75 349.2	5.660 143.8	2.000 50.80	3.120 79.25	7.500 190.5	7.310 185.7	8	1.380 35.00	11.00 279.4	31.9
6	6.625 168.3	15.00 381.0	6.720 170.7	2.190 55.60	3.380 85.80	9.250 234.9	8.500 215.9	12	1.250 31.70	12.50 317.5	41.1
8	8.625 219.1	18.50 469.9	8.720 221.5	2.500 63.50	4.000 101.6	11.75 298.4	10.62 269.7	12	1.500 38.10	15.50 393.7	70.7
10	10.75 273.0	21.50 546.1	10.88 276.3	2.750 69.85	4.250 107.9	14.50 368.3	12.75 323.9	16	1.500 38.10	18.50 469.9	101
12	12.75 323.8	24.00 609.6	12.88 327.1	3.120 79.25	4.620 117.3	16.50 419.1	15.00 381.0	20	1.500 38.10	21.00 533.4	133
14	14.00 355.6	25.25 641.3	14.14 359.1	3.380 85.80	5.120 130.0	17.75 450.8	16.25 412.8	20	1.620 41.10	22.00 558.8	153
16	16.00 406.4	27.75 704.8	16.16 410.5	3.500 88.90	5.250 133.3	20.00 508.0	18.50 469.9	20	1.750 44.40	24.25 615.9	185
18	18.00 457.2	31.00 787.4	18.18 461.8	4.000 101.6	6.000 152.4	22.25 565.1	21.00 533.4	20	2.000 50.80	27.00 685.8	258
20	20.00 508.0	33.75 857.2	20.20 513.1	4.250 107.9	6.250 158.7	24.50 622.3	23.00 584.2	20	2.120 53.80	29.50 749.3	317
24	24.00 609.6	41.00 1041.4	24.25 616.0	5.500 139.7	8.000 203.2	29.50 749.3	27.25 692.2	20	2.620 66.55	35.50 901.7	606



Notes

- Weights are based on manufacturer's data and are approximate.
- For ring joint facings see page 8-6.
- For tolerances see page 8-4.

Slip On Flanges - ANSI B16.5



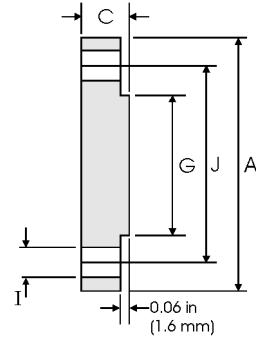
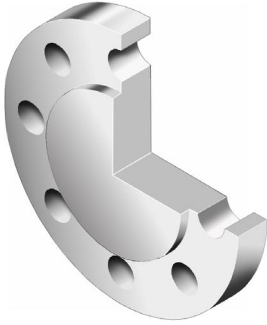
Class 1500 lb

Pipe		Flange Data				Hub	Raised Face	Drilling Data			Weight
Nominal Pipe Size		A	B	C	D	F	G	H	I	J	
	Outside Diameter	Overall Diameter	Inside Diameter	Flange Thickness min	Overall Length	Hub Diameter	Face Diameter	Number of Holes	Bolt Hole Diameter	Diameter of Circle of Holes	kg/ piece
	in mm	in mm	in mm	in mm	in mm	in mm	in mm		in mm	in mm	
1/2	0.840	4.750	0.880	0.880	1.250	1.500	1.380	4	0.880	3.250	1.74
	21.30	120.6	22.40	22.40	31.70	38.10	35.10		22.40	82.50	
3/4	1.050	5.120	1.090	1.000	1.380	1.750	1.690	4	0.880	3.500	2.34
	26.70	130.0	27.70	25.40	35.00	44.40	42.90		22.40	88.90	
1	1.315	5.880	1.360	1.120	1.620	2.060	2.000	4	1.000	4.000	3.44
	33.40	149.3	34.50	28.40	41.10	52.30	50.80		25.40	101.6	
1 1/4	1.660	6.250	1.700	1.120	1.620	2.500	2.500	4	1.000	4.380	3.91
	42.20	158.7	43.20	28.40	41.10	63.50	63.50		25.40	111.2	
1 1/2	1.900	7.000	1.950	1.250	1.750	2.750	2.880	4	1.120	4.880	5.36
	48.30	177.8	49.50	31.70	44.50	69.85	73.15		28.40	123.9	
2	2.375	8.500	2.440	1.500	2.250	4.120	3.620	8	1.000	6.500	9.85
	60.30	215.9	62.00	38.10	57.15	104.6	91.90		25.40	165.1	
2 1/2	2.875	9.620	2.940	1.620	2.500	4.880	4.120	8	1.120	7.500	13.7
	73.00	244.3	74.70	41.10	63.50	123.9	104.6		28.40	190.5	



Notes

- Weights are based on manufacturer's data and are approximate.
- For ring joint facings see page 8-6.
- For tolerances see page 8-4.

Blind Flanges - ANSI B16.5



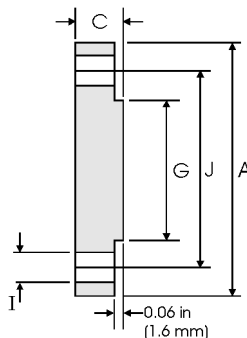
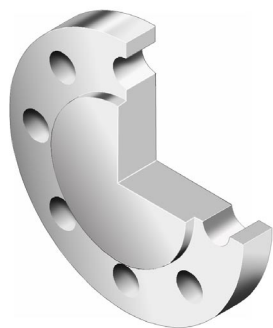
Class 150 lb

Pipe		Flange Data			Raised Face	Drilling Data			Weight
Nominal Pipe Size		A	C	G	H	I	J		
	Outside Diameter	Overall Diameter	Flange Thickness min	Face Diameter	Number of Holes	Bolt Hole Diameter	Diameter of Circle of Holes	kg/piece	
	in mm	in mm	in mm	in mm		in mm	in mm		
1/2	0.840	3.500	0.440	1.380	4	0.620	2.380	0.42	
	21.30	88.90	11.20	35.10		15.70	60.45		
3/4	1.050	3.880	0.500	1.690	4	0.620	2.750	0.61	
	26.70	98.60	12.70	42.90		15.70	69.85		
1	1.315	4.250	0.560	2.000	4	0.620	3.120	0.86	
	33.40	108.0	14.20	50.80		15.70	79.25		
1 1/4	1.660	4.620	0.620	2.500	4	0.620	3.500	1.17	
	42.20	117.3	15.70	63.50		15.70	88.90		
1 1/2	1.900	5.000	0.690	2.880	4	0.620	3.880	1.53	
	48.30	127.0	17.50	73.15		15.70	98.60		
2	2.375	6.000	0.750	3.620	4	0.750	4.750	2.42	
	60.30	152.4	19.10	91.90		19.10	120.7		
2 1/2	2.875	7.000	0.880	4.120	4	0.750	5.500	3.94	
	73.00	177.8	22.40	104.6		19.10	139.7		
3	3.500	7.500	0.940	5.000	4	0.750	6.000	4.93	
	88.90	190.5	23.90	127.0		19.10	152.4		
3 1/2	4.000	8.500	0.940	5.500	8	0.750	7.000	6.17	
	101.6	215.9	23.90	139.7		19.10	177.8		
4	4.500	9.000	0.940	6.190	8	0.750	7.500	7.00	
	114.3	228.6	23.90	157.2		19.10	190.5		
5	5.563	10.00	0.940	7.310	8	0.880	8.500	8.63	
	141.3	254.0	23.90	185.7		22.40	215.9		
6	6.625	11.00	1.000	8.500	8	0.880	9.500	11.3	
	168.3	279.4	25.40	215.9		22.40	241.3		
8	8.625	13.50	1.120	10.62	8	0.880	11.75	19.6	
	219.1	342.9	28.40	269.7		22.40	298.5		
10	10.75	16.00	1.190	12.75	12	1.000	14.25	28.8	
	273.0	406.4	30.20	323.9		25.40	362.0		
12	12.75	19.00	1.250	15.00	12	1.000	17.00	43.2	
	323.8	482.6	31.75	381.0		25.40	431.8		
14	14.00	21.00	1.380	16.25	12	1.120	18.75	58.1	
	355.6	533.4	35.10	412.8		28.40	476.3		
16	16.00	23.50	1.440	18.50	16	1.120	21.25	76.0	
	406.4	596.9	36.60	469.9		28.40	539.8		
18	18.00	25.00	1.560	21.00	16	1.250	22.75	93.7	
	457.2	635.0	39.60	533.4		31.75	577.9		
20	20.00	27.50	1.690	23.00	20	1.250	25.00	122	
	508.0	698.5	42.90	584.2		31.75	635.0		
24	24.00	32.00	1.880	27.25	20	1.380	29.50	185	
	609.6	812.8	47.80	692.2		35.10	749.3		



Notes

- Weights are based on manufacturer's data and are approximate.
- Flat face flanges may be provided at full thickness, C, or with raised face removed (the latter is nonstandard).
- For ring joint facings see page 8-6.
- For tolerances see page 8-4.

Blind Flanges - ANSI B16.5



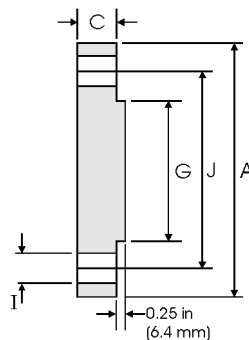
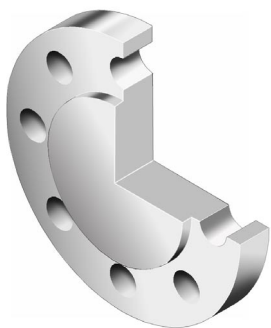
Class 300 lb

Nominal Pipe Size	Pipe	Flange Data			Raised Face	Drilling Data		Weight
		A	C	G	H	I	J	
	Outside Diameter	Overall Diameter	Flange Thickness min	Face Diameter	Number of Holes	Bolt Hole Diameter	Diameter of Circle of Holes	kg/piece
in mm	in mm	in mm	in mm	in mm		in mm		
1/2	0.840	3.750	0.560	1.380	4	0.620	2.620	0.64
	21.30	95.20	14.20	35.10		15.70	66.55	
3/4	1.050	4.620	0.620	1.690	4	0.750	3.250	1.11
	26.70	117.3	15.70	42.90		19.00	82.50	
1	1.315	4.880	0.690	2.000	4	0.750	3.500	1.39
	33.40	123.9	17.50	50.80		19.00	88.90	
1 1/4	1.660	5.250	0.750	2.500	4	0.750	3.880	1.79
	42.20	133.3	19.00	63.50		19.00	98.50	
1 1/2	1.900	6.120	0.810	2.880	4	0.880	4.500	2.66
	48.30	155.4	20.60	73.15		22.3	114.3	
2	2.375	6.500	0.880	3.620	8	0.750	5.000	3.18
	60.30	165.1	22.30	91.90		19.10	127.0	
2 1/2	2.875	7.500	1.000	4.120	8	0.880	5.880	4.85
	73.00	190.5	25.40	104.6		22.30	1.493	
3	3.500	8.250	1.120	5.000	8	0.880	6.620	6.81
	88.90	209.5	28.40	127.0		22.30	168.1	
3 1/2	4.000	9.000	1.190	5.500	8	0.880	7.250	8.71
	101.6	228.6	30.20	139.7		22.30	184.1	
4	4.500	10.00	1.250	6.190	8	0.880	7.800	11.5
	114.3	254.0	31.70	157.2		22.30	200.1	
5	5.563	11.00	1.380	7.310	8	0.880	9.250	15.6
	141.3	279.4	35.00	185.7		22.30	234.9	
6	6.625	12.50	1.440	8.500	12	0.880	10.62	20.9
	168.3	317.5	36.50	215.9		22.30	269.7	
8	8.625	15.00	1.620	10.62	12	1.000	13.00	34.3
	219.1	381.0	41.10	269.7		25.40	330.2	
10	10.75	17.50	1.880	12.75	16	1.120	15.25	53.3
	273.0	444.5	47.70	323.9		28.40	387.3	
12	12.75	20.50	2.000	15.00	16	1.250	17.75	78.8
	323.8	520.7	50.80	381.0		31.70	450.8	
14	14.00	23.00	2.120	16.25	20	1.250	20.25	105
	355.6	584.2	53.80	412.8		31.70	514.3	
16	16.00	25.50	2.250	18.50	20	1.380	22.50	137
	406.4	647.7	57.15	469.9		35.00	571.5	
18	18.00	28.00	2.380	21.00	24	1.380	24.75	175
	457.2	711.2	60.45	533.4		35.00	628.6	
20	20.00	30.50	2.500	23.00	24	1.380	27.00	221
	508.0	774.7	63.50	584.2		35.00	685.8	
24	24.00	36.00	2.750	27.25	24	1.620	32.00	339
	609.6	914.4	69.85	692.2		41.10	812.8	



Notes

- Weights are based on manufacturer's data and are approximate.
- Flat face flanges may be provided at full thickness, C, or with raised face removed (the latter is nonstandard).
- For ring joint facings see page 8-6.
- For tolerances see page 8-4.

Blind Flanges - ANSI B16.5



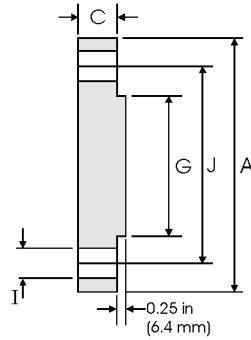
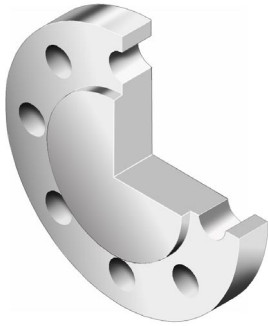
Class 400 lb

Pipe		Flange Data			Raised Face	Drilling Data			Weight
Nominal Pipe Size		A	C	G	H	I	J		
	Outside Diameter	Overall Diameter	Flange Thickness min	Face Diameter	Number of Holes	Bolt Hole Diameter	Diameter of Circle of Holes	kg/piece	
	in mm	in mm	in mm	in mm		in mm	in mm		
1/2	0.840	3.750	0.560	1.380	4	0.620	2.620	0.76	
	21.30	95.20	14.20	35.10		15.70	66.55		
3/4	1.050	4.620	0.620	1.690	4	0.750	3.250	1.28	
	26.70	117.3	15.70	42.90		19.10	82.60		
1	1.315	4.880	0.690	2.000	4	0.750	3.500	1.60	
	33.40	123.9	17.50	50.80		19.10	88.90		
1 1/4	1.660	5.250	0.810	2.500	4	0.750	3.880	2.23	
	42.20	133.3	20.60	63.50		19.10	98.60		
1 1/2	1.900	6.120	0.880	2.880	4	0.880	4.500	3.25	
	48.30	155.4	22.30	73.15		22.40	114.3		
2	2.375	6.500	1.000	3.620	8	0.750	5.000	4.15	
	60.30	165.1	25.40	91.90		19.10	127.0		
2 1/2	2.875	7.500	1.120	4.120	8	0.880	5.880	6.13	
	73.00	190.5	28.40	104.6		22.40	149.4		
3	3.500	8.250	1.250	5.000	8	0.880	6.620	8.44	
	88.90	209.5	31.70	127.0		22.40	168.1		
3 1/2	4.000	9.000	1.380	5.500	8	1.000	7.250	11.0	
	101.6	228.6	35.00	139.7		25.40	184.2		
4	4.500	10.00	1.380	6.190	8	1.000	7.880	13.7	
	114.3	254.0	35.10	157.2		25.40	200.2		
5	5.563	11.00	1.500	7.310	8	1.000	9.250	18.5	
	141.3	279.4	38.10	185.7		25.40	235.0		
6	6.625	12.50	1.620	8.500	12	1.000	10.62	25.5	
	168.3	317.5	41.10	215.9		25.40	269.7		
8	8.625	15.00	1.880	10.62	12	1.120	13.00	42.6	
	219.1	381.0	47.80	269.7		28.40	330.2		
10	10.75	17.50	2.120	12.75	16	1.250	15.25	64.5	
	273.0	444.5	53.80	323.9		31.75	387.4		
12	12.75	20.50	2.250	15.00	16	1.380	17.75	94.30	
	323.8	520.7	57.15	381.0		35.10	450.9		
14	14.00	23.00	2.380	16.25	20	1.380	20.25	124	
	355.6	584.2	60.45	412.8		35.10	514.4		
16	16.00	25.50	2.500	18.50	20	1.500	22.50	162	
	406.4	647.7	63.50	469.9		38.10	571.5		
18	18.00	28.00	2.620	21.00	24	1.500	24.75	205	
	457.2	711.2	66.55	533.4		38.10	628.7		
20	20.00	30.50	2.750	23.00	24	1.620	27.00	254	
	508.0	774.7	69.85	584.2		41.10	685.8		
24	24.00	36.00	3.000	27.25	24	1.880	32.00	386	
	609.6	914.4	76.20	692.2		47.80	812.8		

Notes

- Weights are based on manufacturer's data and are approximate.
- For ring joint facings see page 8-6.
- For tolerances see page 8-4.

Blind Flanges - ANSI B16.5



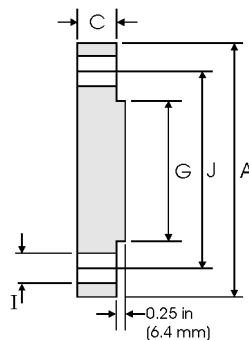
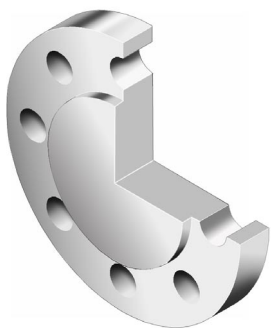
Class 600 lb

Nominal Pipe Size	Pipe	Flange Data			Raised Face	Drilling Data		Weight
		A	C	G	H	I	J	
	Outside Diameter	Overall Diameter	Flange Thickness min	Face Diameter	Number of Holes	Bolt Hole Diameter	Diameter of Circle of Holes	kg/piece
in mm	in mm	in mm	in mm	in mm		in mm	in mm	
1/2	0.840	3.750	0.560	1.380	4	0.620	2.620	0.76
	21.30	95.20	14.20	35.10		15.70	66.55	
3/4	1.050	4.620	0.620	1.690	4	0.750	3.250	1.28
	26.70	117.3	15.70	42.90		19.10	82.60	
1	1.315	4.880	0.690	2.000	4	0.750	3.500	1.60
	33.40	123.9	17.50	50.80		19.10	88.90	
1 1/4	1.660	5.250	0.810	2.500	4	0.750	3.880	2.23
	42.20	133.3	20.60	63.50		19.10	98.60	
1 1/2	1.900	6.120	0.880	2.880	4	0.880	4.500	3.25
	48.30	155.4	22.30	73.15		22.40	114.3	
2	2.375	6.500	1.000	3.620	8	0.750	5.000	4.15
	60.30	165.1	25.40	91.90		19.10	127.0	
2 1/2	2.875	7.500	1.120	4.120	8	0.880	5.880	6.13
	73.00	190.5	28.40	104.6		22.40	149.4	
3	3.500	8.250	1.250	5.000	8	0.880	6.620	8.44
	88.90	209.5	31.70	127.0		22.40	168.1	
3 1/2	4.000	9.000	1.380	5.500	8	1.000	7.250	11.0
	101.6	228.6	35.00	139.7		25.40	184.2	
4	4.500	10.75	1.500	6.190	8	1.000	8.500	17.3
	114.3	273.1	38.10	157.2		25.40	215.9	
5	5.563	13.00	1.750	7.310	8	1.120	10.50	29.4
	141.3	330.2	44.50	185.7		28.40	266.7	
6	6.625	14.00	1.880	8.500	12	1.120	11.50	36.1
	168.3	355.6	47.80	215.9		28.40	292.1	
8	8.625	16.50	2.190	10.62	12	1.250	13.75	58.9
	219.1	419.1	55.60	269.7		31.75	349.3	
10	10.75	20.00	2.500	12.75	16	1.380	17.00	97.5
	273.0	508.0	63.50	323.9		35.10	431.8	
12	12.75	22.00	2.620	15.00	20	1.380	19.25	124
	323.8	558.8	66.55	381.0		35.10	489.0	
14	14.00	23.75	2.750	16.25	20	1.500	20.75	151
	355.6	603.3	69.85	412.8		38.10	527.1	
16	16.00	27.00	3.000	18.50	20	1.620	23.75	214
	406.4	685.8	76.20	469.9		41.10	603.3	
18	18.00	29.25	3.250	21.00	20	1.750	25.75	272
	457.2	743.0	82.60	533.4		44.50	654.1	
20	20.00	32.00	3.500	23.00	24	1.750	28.50	349
	508.0	812.8	88.90	584.2		44.50	723.9	
24	24.00	37.00	4.000	27.25	24	2.000	33.00	533
	609.6	939.8	101.6	692.2		50.80	838.2	



Notes

- Weights are based on manufacturer's data and are approximate.
- For ring joint facings see page 8-6.
- For tolerances see page 8-4.

Blind Flanges - ANSI B16.5



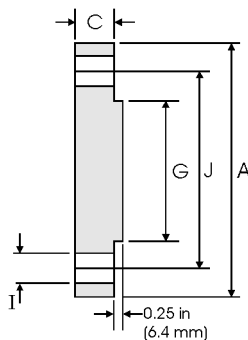
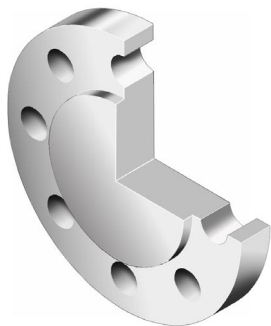
Class 900 lb

Pipe		Flange Data			Raised Face	Drilling Data			Weight
Nominal Pipe Size		A	C	G	H	I	J		
	Outside Diameter	Overall Diameter	Flange Thickness min	Face Diameter	Number of Holes	Bolt Hole Diameter	Diameter of Circle of Holes	kg/piece	
	in mm	in mm	in mm	in mm		in mm	in mm		
1/2	0.840	4.750	0.880	1.380	4	0.880	3.250	1.77	
	21.30	120.6	22.30	35.10		22.30	82.50		
3/4	1.050	5.120	1.000	1.690	4	0.880	3.500	2.42	
	26.70	130.0	25.40	42.90		22.30	88.90		
1	1.315	5.880	1.120	2.000	4	1.000	4.000	3.57	
	33.40	149.3	28.40	50.80		25.40	101.6		
1 1/4	1.660	6.250	1.120	2.500	4	1.000	4.380	4.15	
	42.20	158.7	28.40	63.50		25.40	111.2		
1 1/2	1.900	7.000	1.250	2.880	4	1.120	4.880	5.75	
	48.30	177.8	31.70	73.15		28.40	123.9		
2	2.375	8.500	1.500	3.620	8	1.000	6.500	10.1	
	60.30	215.9	38.10	91.90		25.40	165.1		
2 1/2	2.875	9.620	1.620	4.120	8	1.120	7.500	14.0	
	73.00	244.3	41.10	104.6		28.40	190.5		
3	3.500	9.500	1.500	5.000	8	1.000	7.500	13.1	
	88.90	241.3	38.10	127.0		25.40	190.5		
4	4.500	11.50	1.750	6.190	8	1.250	9.250	26.9	
	114.3	292.1	44.50	157.2		31.70	234.9		
5	5.563	13.75	2.000	7.310	8	1.380	11.00	36.5	
	141.3	349.2	50.80	185.7		35.00	279.4		
6	6.625	15.00	2.190	8.500	12	1.250	12.50	47.40	
	168.3	381.0	55.60	215.9		31.70	317.0		
8	8.625	18.50	2.500	10.62	12	1.500	15.50	82.5	
	219.1	469.9	63.50	269.7		38.10	393.7		
10	10.75	21.50	2.750	12.75	16	1.500	18.50	122	
	273.0	546.1	69.85	323.9		38.10	469.9		
12	12.75	24.00	3.120	15.00	20	1.500	21.00	173	
	323.8	609.6	79.25	381.0		38.10	533.4		
14	14.00	25.25	3.380	16.25	20	1.620	22.00	206	
	355.6	641.3	85.80	412.8		41.10	558.8		
16	16.00	27.75	3.500	18.50	20	1.750	24.25	259	
	406.4	704.8	88.90	469.9		44.40	615.9		
18	18.00	31.00	4.000	21.00	20	2.000	27.00	367	
	457.2	787.4	101.6	533.4		50.80	685.8		
20	20.00	33.75	4.250	23.00	20	2.120	29.50	463	
	508.0	857.2	107.9	584.2		53.80	749.3		
24	24.00	41.00	5.500	27.25	20	2.620	35.50	876	
	609.6	1041.4	139.7	692.2		66.55	901.7		



Notes

- Weights are based on manufacturer's data and are approximate.
- For ring joint facings see page 8-6.
- For tolerances see page 8-4.

Blind Flanges - ANSI B16.5



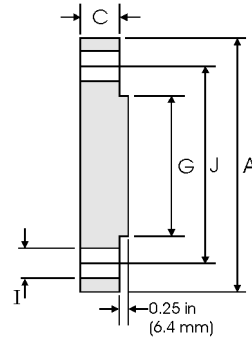
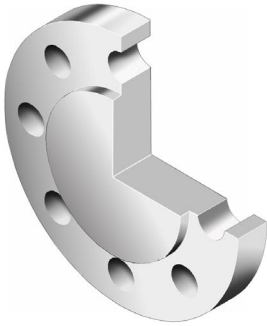
Class 1500 lb

Nominal Pipe Size	Pipe	Flange Data			Raised Face	Drilling Data		Weight
		A	C	G	H	I	J	
	Outside Diameter	Overall Diameter	Flange Thickness min	Face Diameter	Number of Holes	Bolt Hole Diameter	Diameter of Circle of Holes	kg/piece
	in mm	in mm	in mm	in mm		in mm	in mm	
1/2	0.840	4.750	0.880	1.380	4	0.880	3.250	1.77
	21.30	120.6	22.30	35.10		22.30	82.50	
3/4	1.050	5.120	1.000	1.690	4	0.880	3.500	2.42
	26.70	130.0	25.40	42.90		22.30	88.90	
1	1.315	5.880	1.120	2.000	4	1.000	4.000	3.57
	33.40	149.3	28.40	50.80		25.40	101.6	
1 1/4	1.660	6.250	1.120	2.500	4	1.000	4.380	4.15
	42.20	158.7	28.40	63.50		25.40	111.2	
1 1/2	1.900	7.000	1.250	2.880	4	1.120	4.880	5.75
	48.30	177.8	31.70	73.15		28.40	123.9	
2	2.375	8.500	1.500	3.620	8	1.000	6.500	10.1
	60.30	215.9	38.10	91.90		25.40	165.1	
2 1/2	2.875	9.620	1.620	4.120	8	1.120	7.500	14.0
	73.00	244.3	41.10	104.6		28.40	190.5	
3	3.500	10.50	1.880	5.000	8	1.250	8.000	19.1
	88.90	266.7	47.70	127.0		31.70	203.2	
4	4.500	12.25	2.120	6.190	8	1.380	9.500	29.9
	114.3	311.1	53.80	157.2		35.00	241.3	
5	5.563	14.75	2.880	7.310	8	1.620	11.50	58.4
	141.3	374.6	73.15	185.7		41.10	292.1	
6	6.625	15.50	3.250	8.500	12	1.500	12.50	71.8
	168.3	393.7	82.50	215.9		38.10	317.5	
8	8.625	19.00	3.620	10.62	12	1.750	15.50	122
	219.1	482.6	91.90	269.7		44.40	393.7	
10	10.75	23.00	4.250	12.75	12	2.000	19.00	210
	273.0	584.2	107.9	323.9		50.80	482.6	
12	12.75	26.50	4.880	15.00	16	2.120	22.50	316
	323.8	673.1	123.9	381.0		53.8	571.5	
14	14.00	29.50	5.250	16.25	16	2.380	25.00	420
	355.6	749.3	133.3	412.8		60.45	635.0	
16	16.00	32.50	5.750	18.50	16	2.620	27.75	558
	406.4	825.5	146.0	469.9		66.55	704.8	
18	18.00	36.00	6.380	21.00	16	2.880	30.50	760
	457.2	914.4	162.0	533.4		73.15	774.7	
20	20.00	38.75	7.000	23.00	16	3.120	32.75	965
	508.0	984.2	177.8	584.2		79.25	831.8	
24	24.00	46.00	8.000	27.25	16	3.620	39.00	1558
	609.6	1168.4	203.2	692.2		91.90	990.6	

Notes

- Weights are based on manufacturer's data and are approximate.
- For ring joint facings see page 8-6.
- For tolerances see page 8-4.

Blind Flanges - ANSI B16.5



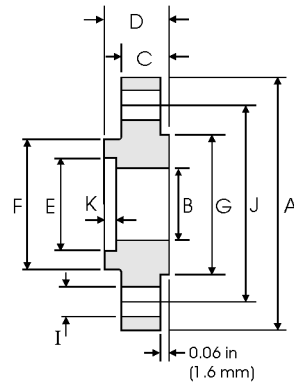
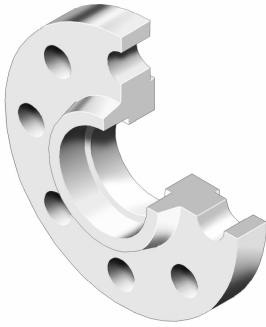
Class 2500 lb

Nominal Pipe Size	Pipe	Flange Data			Raised Face	Drilling Data			Weight
		A	C	G	H	I	J		
	Outside Diameter	Overall Diameter	Flange Thickness min	Face Diameter	Number of Holes	Bolt Hole Diameter	Diameter of Circle of Holes	kg/piece	
in mm	in mm	in mm	in mm	in mm		in mm			
1/2	0.840	5.250	1.190	1.380	4	0.880	3.500	2.99	
	21.30	133.4	30.20	35.10		22.40	88.90		
3/4	1.050	5.500	1.250	1.690	4	0.880	3.750	3.50	
	26.70	139.7	31.70	42.90		22.40	95.30		
1	1.315	6.250	1.380	2.000	4	1.000	4.250	4.96	
	33.40	158.8	35.10	50.80		25.40	108.0		
1 1/4	1.660	7.250	1.500	2.500	4	1.120	5.120	7.35	
	42.20	184.2	38.10	63.50		28.40	130.0		
1 1/2	1.900	8.000	1.750	2.880	4	1.250	5.750	10.4	
	48.30	203.2	44.50	73.15		31.75	146.1		
2	2.375	9.250	2.000	3.620	8	1.120	6.750	15.6	
	60.30	235.0	50.80	91.90		28.40	171.5		
2 1/2	2.875	10.50	2.250	4.120	8	1.250	7.750	22.6	
	73.00	266.7	57.15	104.6		31.75	196.9		
3	3.500	12.00	2.620	5.000	8	1.380	9.000	34.8	
	88.90	304.8	66.55	127.0		35.10	228.6		
4	4.500	14.00	3.000	6.190	8	1.620	10.75	53.9	
	114.3	355.6	76.20	157.2		41.10	273.1		
5	5.563	16.50	3.620	7.310	8	1.888	12.75	90.8	
	141.3	419.1	91.90	185.7		47.88	323.9		
6	6.625	19.00	4.250	8.500	8	2.120	14.50	141	
	168.3	482.6	108.0	215.9		53.80	368.3		
8	8.625	21.75	5.000	10.62	12	2.120	17.25	214	
	219.1	552.5	127.0	269.7		53.80	438.2		
10	10.75	26.50	6.500	12.75	12	2.620	21.25	411	
	273.0	673.1	165.1	323.9		66.55	539.8		
12	12.75	30.00	7.250	15.00	12	2.880	24.38	592	
	323.8	762.0	184.2	381.0		73.15	619.3		

Notes

- Weights are based on manufacturer's data and are approximate.
- For ring joint facings see page 8-6.
- For tolerances see page 8-4.

Socket Welding Flanges - ANSI B16.5



Class 150 lb

Pipe	Flange						Hub	Raised Face	Drilling Data			Weight	
Nominal Pipe Size	A	B	C	D	E	K	F	G	H	I	J	kg/piece	
Outside Diameter	Overall Diameter	Inside Diameter	Flange Thickness min	Overall Length	Socket Diameter	Depth of Socket	Hub Diameter	Face Diameter	No. of Holes	Bolt Hole Diameter	Diameter of Circle of Holes	kg/piece	
in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm		in mm	in mm		
1/2	0.840 21.30	3.500 88.90	0.620 15.70	0.440 11.20	0.620 15.70	0.880 22.40	0.380 9.600	1.190 30.20	1.380 35.10	4	0.620 15.70	2.380 60.45	0.42
3/4	1.050 26.70	3.880 98.60	0.820 20.80	0.500 12.70	0.620 15.70	1.090 27.70	0.440 11.10	1.500 38.10	1.690 42.90	4	0.620 15.70	2.750 69.85	0.59
1	1.315 33.40	4.250 108.0	1.050 26.70	0.560 14.20	0.690 17.50	1.360 34.50	0.500 12.70	1.940 49.30	2.000 50.80	4	0.620 15.70	3.120 79.25	0.81
1 1/4	1.660 42.20	4.620 117.3	1.380 35.10	0.620 15.70	0.810 20.60	1.700 43.20	0.560 14.20	2.310 58.70	2.500 63.50	4	0.620 15.70	3.500 88.90	1.07
1 1/2	1.900 48.30	5.000 127.0	1.610 40.90	0.690 17.50	0.880 22.30	1.950 49.50	0.620 15.70	2.560 65.00	2.880 73.15	4	0.620 15.70	3.880 98.60	1.36
2	2.375 60.30	6.000 152.4	2.070 52.60	0.750 19.10	1.000 25.40	2.440 62.00	0.690 17.50	3.060 77.70	3.620 91.90	4	0.750 19.10	4.750 120.7	2.10
2 1/2	2.875 73.00	7.000 177.8	2.470 62.70	0.880 22.40	1.120 28.40	2.940 74.70	0.750 19.00	3.560 90.40	4.120 104.6	4	0.750 19.10	5.500 139.7	3.33
3	3.500 88.90	7.500 190.5	3.070 78.00	0.940 23.90	1.190 30.20	3.570 90.70	0.810 20.60	4.250 108.0	5.000 127.0	4	0.750 19.10	6.000 152.4	3.90

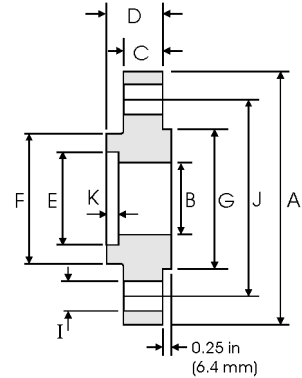
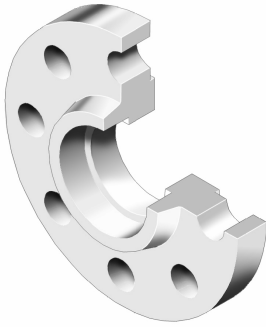
Class 300 lb

Pipe	Flange						Hub	Raised Face	Drilling Data			Weight	
Nominal Pipe Size	A	B	C	D	E	K	F	G	H	I	J	kg/piece	
Outside Diameter	Overall Diameter	Inside Diameter	Flange Thickness min	Overall Length	Socket Diameter	Depth of Socket	Hub Diameter	Face Diameter	No. of Holes	Bolt Hole Diameter	Diameter of Circle of Holes	kg/piece	
in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm		in mm	in mm		
1/2	0.840 21.30	3.750 95.20	0.620 15.70	0.560 14.20	0.880 22.30	0.880 22.40	0.380 9.600	1.500 38.10	1.380 35.10	4	0.620 15.70	2.620 66.55	0.66
3/4	1.050 26.70	4.620 117.3	0.820 20.80	0.620 15.70	1.000 25.40	1.090 27.70	0.440 11.10	1.880 47.70	1.690 42.90	4	0.750 19.10	3.250 82.50	1.15
1	1.315 33.40	4.880 123.9	1.050 26.70	0.690 17.50	1.060 26.90	1.360 34.50	0.500 12.70	2.120 53.80	2.000 50.80	4	0.750 19.10	3.500 88.90	1.40
1 1/4	1.660 42.20	5.250 133.3	1.380 35.10	0.750 19.00	1.060 26.90	1.700 43.20	0.560 14.20	2.500 63.50	2.500 63.50	4	0.750 19.10	3.880 98.60	1.75
1 1/2	1.900 48.30	6.120 155.4	1.610 40.90	0.810 20.60	1.190 30.20	1.950 49.50	0.620 15.70	2.750 69.85	2.880 73.15	4	0.880 22.30	4.500 114.3	2.55
2	2.375 60.30	6.500 165.1	2.070 52.60	0.880 22.30	1.310 33.20	2.440 62.00	0.690 17.50	3.310 84.00	3.620 91.90	8	0.750 19.10	5.000 127.0	2.93
2 1/2	2.875 73.00	7.500 190.5	2.470 62.70	1.000 25.40	1.500 38.10	2.940 74.70	0.750 19.00	3.940 100.0	4.120 104.6	8	0.880 22.30	5.880 149.3	4.40
3	3.500 88.90	8.250 209.5	3.070 78.00	1.120 28.40	1.690 42.90	3.570 90.70	0.810 20.60	4.620 117.3	5.000 127.0	8	0.880 22.30	6.620 168.1	5.92

Notes

- Dimension B corresponds to the pipe inside diameter. Values quoted assume 40S/Standard wall thickness.
- Weights are based on manufacturer's data and are approximate.
- For ring joint facings see page 8-6. For tolerances see page 8-4.

Socket Welding Flanges - ANSI B16.5



Class 600 lb

Nominal Pipe Size	Pipe	Flange						Hub	Raised Face	Drilling Data			Weight
		A	B	C	D	E	K	F	G	H	I	J	
	Outside Diameter	Overall Diameter	Inside Diameter	Flange Thickness min	Overall Length	Socket Diameter	Depth of Socket	Hub Diameter	Face Diameter	No. of Holes	Bolt Hole Diameter	Diameter of Circle of Holes	kg/ piece
	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm		in mm	in mm	
1/2	0.840	3.750	To be specified by the Purchaser	0.560	0.880	0.880	0.380	1.500	1.380	4	0.620	2.620	0.76
	21.30	95.20		14.20	22.30	22.40	9.600	38.10	35.10		15.70	66.55	
3/4	1.050	4.620		0.620	1.000	1.090	0.440	1.880	1.690	4	0.750	3.250	1.29
	26.70	117.3		15.70	25.40	27.70	11.10	47.70	42.90		19.10	82.50	
1	1.315	4.880		0.690	1.060	1.360	0.500	2.120	2.000	4	0.750	3.500	1.55
	33.40	123.9		17.50	26.90	34.50	12.70	53.80	50.80		19.10	88.90	
1 1/4	1.660	5.250		0.810	1.120	1.700	0.560	2.500	2.500	4	0.750	3.880	2.06
	42.20	133.3		20.60	28.40	43.20	14.20	63.50	63.50		19.10	98.60	
1 1/2	1.900	6.120		0.880	1.250	1.950	0.620	2.750	2.880	4	0.880	4.500	3.00
	48.30	155.4		22.30	31.75	49.50	15.70	69.85	73.15		22.30	114.3	
2	2.375	6.500		1.000	1.440	2.440	0.690	3.310	3.620	8	0.750	5.000	3.67
	60.30	165.1		25.40	36.60	62.00	17.50	84.00	91.90		19.10	127.0	
2 1/2	2.875	7.500		1.120	1.620	2.940	0.750	3.940	4.120	8	0.880	5.880	5.35
	73.00	190.5		28.40	41.10	74.70	19.00	100.0	104.6		22.30	149.3	
3	3.500	8.250	1.250	1.810	3.570	0.810	4.620	5.000	8	0.880	6.620	7.06	
	88.90	209.5	31.75	46.00	90.70	20.60	117.3	127.0		22.30	168.1		

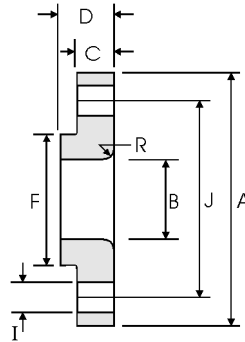
Class 1500 lb

Nominal Pipe Size	Pipe	Flange						Hub	Raised Face	Drilling Data			Weight
		A	B	C	D	E	K	F	G	H	I	J	
	Outside Diameter	Overall Diameter	Inside Diameter	Flange Thickness min	Overall Length	Socket Diameter	Depth of Socket	Hub Diameter	Face Diameter	No. of Holes	Bolt Hole Diameter	Diameter of Circle of Holes	kg/ piece
	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm		in mm	in mm	
1/2	0.840	4.750	To be specified by the Purchaser	0.880	1.250	0.880	0.380	1.500	1.380	4	0.880	3.250	1.80
	21.30	120.6		22.30	31.70	22.40	9.600	38.10	35.10		22.30	82.50	
3/4	1.050	5.120		1.000	1.380	1.090	0.440	1.750	1.690	4	0.880	3.500	2.41
	26.70	130.0		25.40	35.00	27.70	11.10	44.40	42.90		22.30	88.90	
1	1.315	5.880		1.120	1.620	1.360	0.500	2.060	2.000	4	1.000	4.000	3.55
	33.40	149.3		28.40	41.10	34.50	12.70	52.30	50.80		25.40	101.6	
1 1/4	1.660	6.250		1.120	1.620	1.700	0.560	2.500	2.500	4	1.000	4.380	4.02
	42.20	158.7		28.40	41.10	43.20	14.20	63.50	63.50		25.40	111.2	
1 1/2	1.900	7.000		1.250	1.750	1.950	0.620	2.750	2.880	4	1.120	4.880	5.45
	48.30	177.8		31.75	44.50	49.50	15.70	69.85	73.15		28.40	123.9	
2	2.375	8.500		1.500	2.250	2.440	0.690	4.120	3.620	8	1.000	6.500	10.2
	60.30	215.9		38.10	57.15	62.00	17.50	104.6	91.90		25.40	165.1	
2 1/2	2.875	9.620		1.620	2.500	2.940	0.750	4.880	4.120	8	1.120	7.500	13.9
	73.00	244.3		41.10	63.50	74.70	19.00	123.9	104.6		28.40	190.5	

Notes

- Class 400 socket weld flanges may be provided in NPS 1/2 to 2 1/2 using Class 600 dimensions
- Dimension B corresponds to the pipe inside diameter. Values quoted assume 40S/Standard wall thickness.
- Weights are based on manufacturer's data and are approximate.
- For ring joint facings see page 8-6. For tolerances see page 8-4.

Lap Joint Flanges - ANSI B16.5



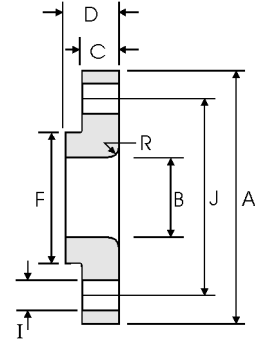
Class 150 lb

Nominal Pipe Size	Pipe	Flange Data				Lap	Hub	Drilling Data			Weight
		A	B	C	D	R	F	H	I	J	
	Outside Diameter	Overall Diameter	Inside Diameter	Flange Thickness min	Overall Length	Lap Radius	Hub Diameter	Number of Holes	Bolt Hole Diameter	Diameter of Circle of Holes	kg/ piece
	in mm	in mm	in mm	in mm	in mm	in mm	in mm		in mm	in mm	
1/2	0.840	3.500	0.900	0.440	0.620	0.120	1.190	4	0.620	2.380	0.38
	21.30	88.90	22.90	11.20	15.70	3.000	30.20		15.70	60.45	
3/4	1.050	3.880	1.110	0.500	0.620	0.120	1.500	4	0.620	2.750	0.55
	26.70	98.60	28.20	12.70	15.70	3.000	38.10		15.70	69.85	
1	1.315	4.250	1.380	0.560	0.690	0.120	1.940	4	0.620	3.120	0.76
	33.40	108.0	35.10	14.20	17.50	3.000	49.30		15.70	79.25	
1 1/4	1.660	4.620	1.720	0.620	0.810	0.190	2.310	4	0.620	3.500	1.01
	42.20	117.3	43.70	15.70	20.60	4.800	58.70		15.70	88.90	
1 1/2	1.900	5.000	1.970	0.690	0.880	0.250	2.560	4	0.620	3.880	1.30
	48.30	127.0	50.00	17.50	22.40	6.400	65.00		15.70	98.60	
2	2.375	6.000	2.460	0.750	1.000	0.310	3.060	4	0.750	4.750	2.03
	60.30	152.4	62.50	19.10	25.40	7.900	77.70		19.10	120.7	
2 1/2	2.875	7.000	2.970	0.880	1.120	0.310	3.560	4	0.750	5.500	3.25
	73.00	177.8	75.40	22.40	28.40	7.900	90.40		19.10	139.7	
3	3.500	7.500	3.600	0.940	1.190	0.380	4.250	4	0.750	6.000	3.81
	88.90	190.5	91.40	23.90	30.20	9.700	108.0		19.10	152.4	
3 1/2	4.000	8.500	4.100	0.940	1.250	0.380	4.810	8	0.750	7.000	4.76
	101.6	215.9	104.1	23.90	31.75	9.700	122.2		19.10	177.8	
4	4.500	9.000	4.600	0.940	1.310	0.440	5.310	8	0.750	7.500	5.25
	114.3	228.6	116.8	23.90	33.30	11.20	134.9		19.10	190.5	
5	5.563	10.00	5.690	0.940	1.440	0.440	6.440	8	0.880	8.500	6.02
	141.3	254.0	114.5	23.90	36.60	11.20	163.6		22.40	215.9	
6	6.625	11.00	6.750	1.000	1.560	0.500	7.560	8	0.880	9.500	7.40
	168.3	279.4	171.5	25.40	39.60	12.70	192.0		22.40	241.3	
8	8.625	13.50	8.750	1.120	1.750	0.500	9.690	8	0.880	11.75	12.1
	219.1	342.9	222.3	28.40	44.50	12.70	246.1		22.40	298.5	
10	10.75	16.00	10.92	1.190	1.940	0.500	12.00	12	1.000	14.25	16.4
	273.0	406.4	277.4	30.20	49.30	12.70	304.8		25.40	362.0	
12	12.75	19.00	12.92	1.250	2.190	0.500	14.38	12	1.000	17.00	26.1
	323.8	482.6	328.2	31.75	55.60	12.70	365.3		25.40	431.8	
14	14.00	21.00	14.18	1.380	3.120	0.500	15.75	12	1.120	18.75	34.5
	355.6	533.4	360.2	35.10	79.25	12.70	400.1		28.40	476.3	
16	16.00	23.50	16.19	1.440	3.440	0.500	18.00	16	1.120	21.25	44.6
	406.4	596.9	411.2	36.60	87.40	12.70	457.2		28.40	539.8	
18	18.00	25.00	18.20	1.560	3.810	0.500	19.88	16	1.250	22.75	48.7
	457.2	635.0	462.3	39.60	96.80	12.70	505.0		31.75	577.9	
20	20.00	27.50	20.25	1.690	4.060	0.500	22.00	20	1.250	25.00	61.6
	508.0	698.5	514.4	42.90	103.1	12.70	558.8		31.75	635.0	
24	24.00	32.00	24.25	1.880	4.380	0.500	26.12	20	1.380	29.50	86.6
	609.6	812.8	616.0	47.80	111.3	12.70	663.4		35.10	749.3	

Notes

- Weights are based on manufacturer's data and are approximate.
- For tolerances see page 8-4.

Lap Joint Flanges - ANSI B16.5



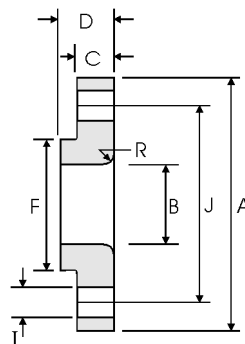
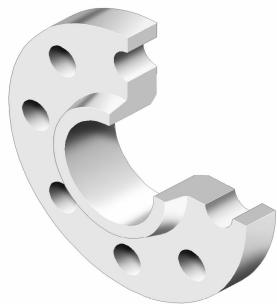
Class 300 lb

Nominal Pipe Size	Pipe	Flange Data				Lap	Hub	Drilling Data			Weight
		A	B	C	D	R	F	H	I	J	
	Outside Diameter	Overall Diameter	Inside Diameter	Flange Thickness min	Overall Length	Lap Radius	Hub Diameter	Number of Holes	Bolt Hole Diameter	Diameter of Circle of Holes	kg/ piece
	in mm	in mm	in mm	in mm	in mm	in mm	in mm		in mm	in mm	
1/2	0.840	3.750	0.900	0.560	0.880	0.120	1.500	4	0.620	2.620	0.62
	21.30	95.20	22.90	14.20	22.30	3.000	38.10		15.70	66.55	
3/4	1.050	4.620	1.110	0.620	1.000	0.120	1.880	4	0.750	3.250	1.10
	26.70	117.3	28.20	15.70	25.40	3.000	47.70		19.00	82.50	
1	1.315	4.880	1.380	0.690	1.060	0.120	2.120	4	0.750	3.500	1.33
	33.40	123.9	35.10	17.50	26.90	3.000	53.80		19.0	88.90	
1 1/4	1.660	5.250	1.720	0.750	1.060	0.190	2.500	4	0.750	3.880	1.65
	42.20	133.3	43.70	19.00	26.90	4.800	63.50		19.00	98.50	
1 1/2	1.900	6.120	1.970	0.810	1.190	0.250	2.750	4	0.880	4.500	2.44
	48.30	155.4	50.00	20.60	30.20	6.400	69.85		22.30	114.3	
2	2.375	6.500	2.460	0.880	1.310	0.310	3.310	8	0.750	5.000	2.83
	60.30	165.1	62.50	22.30	33.20	7.900	84.00		19.10	127.0	
2 1/2	2.875	7.500	2.970	1.000	1.500	0.310	3.940	8	0.880	5.880	4.25
	73.00	190.5	75.40	25.40	38.10	7.900	100.0		22.30	149.3	
3	3.500	8.250	3.600	1.120	1.690	0.380	4.620	8	0.880	6.620	5.78
	88.90	209.5	91.40	28.40	42.90	9.700	117.3		22.30	168.1	
3 1/2	4.000	9.000	4.100	1.190	1.750	0.380	5.250	8	0.880	7.250	7.27
	101.6	228.6	104.1	30.20	44.40	9.700	133.3		22.30	184.1	
4	4.500	10.00	4.600	1.250	1.880	0.440	5.750	8	0.880	7.880	9.55
	114.3	254.0	116.8	31.70	47.70	11.20	146.0		22.30	200.1	
5	5.563	11.00	5.690	1.380	2.000	0.440	7.000	8	0.880	9.250	12.2
	141.3	279.4	114.5	35.00	50.80	11.20	177.8		22.30	234.9	
6	6.625	12.50	6.750	1.440	2.060	0.500	8.120	12	0.880	10.62	15.5
	168.3	317.5	171.5	36.50	52.30	12.70	206.2		22.30	269.7	
8	8.625	15.00	8.750	1.620	2.440	0.500	10.25	12	1.000	13.00	24.1
	219.1	381.0	222.3	41.10	61.90	12.70	260.3		25.40	330.2	
10	10.75	17.50	10.92	1.880	3.750	0.500	12.62	16	1.120	15.25	34.4
	273.0	444.5	277.4	47.70	95.20	12.70	320.5		28.40	387.3	
12	12.75	20.50	12.92	2.000	4.000	0.500	14.75	16	1.250	17.75	50.4
	323.8	520.7	328.2	50.80	101.6	12.70	374.6		31.70	450.8	
14	14.00	23.00	14.18	2.120	4.380	0.500	16.75	20	1.250	20.25	70.9
	355.6	584.2	360.2	53.80	111.2	12.70	425.4		31.70	514.3	
16	16.00	25.50	16.19	2.250	4.750	0.500	19.00	20	1.380	22.50	89.5
	406.4	647.7	411.2	57.15	120.6	12.70	482.6		35.00	571.5	
18	18.00	28.00	18.20	2.380	5.120	0.500	21.00	24	1.380	24.75	111
	457.2	711.2	462.3	60.45	130.0	12.70	533.4		35.00	628.6	
20	20.00	30.50	20.25	2.500	5.500	0.500	23.12	24	1.380	27.00	137
	508.0	774.7	514.4	63.50	139.7	12.70	587.2		35.0	685.8	
24	24.00	36.00	24.25	2.750	6.000	0.500	27.62	24	1.620	32.00	204
	609.6	914.4	616.0	69.8	152.4	12.70	701.5		41.10	812.8	

Notes

- Weights are based on manufacturer's data and are approximate.
- For tolerances see page 8-4.

Lap Joint Flanges - ANSI B16.5



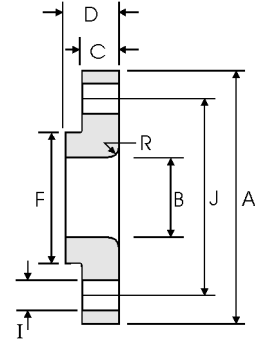
Class 400 lb

Nominal Pipe Size	Pipe	Flange Data				Lap	Hub	Drilling Data			Weight
		A	B	C	D	R	F	H	I	J	
	Outside Diameter	Overall Diameter	Inside Diameter	Flange Thickness min	Overall Length	Lap Radius	Hub Diameter	Number of Holes	Bolt Hole Diameter	Diameter of Circle of Holes	kg/ piece
	in mm	in mm	in mm	in mm	in mm	in mm	in mm		in mm	in mm	
1/2	0.840	3.750	0.900	0.560	0.880	0.120	1.500	4	0.620	2.620	0.72
	21.30	95.30	22.90	14.20	22.40	3.000	38.10		15.70	66.55	
3/4	1.050	4.620	1.110	0.620	1.000	0.120	1.880	4	0.750	3.250	1.25
	26.70	117.3	28.20	15.70	25.40	3.000	47.80		19.10	82.60	
1	1.315	4.880	1.380	0.690	1.060	0.120	2.120	4	0.750	3.500	1.50
	33.40	124.0	35.10	17.50	26.90	3.000	53.80		19.10	88.90	
1 1/4	1.660	5.250	1.720	0.810	1.120	0.190	2.500	4	0.750	3.880	2.00
	42.20	133.4	43.70	20.60	28.40	4.800	63.50		19.10	98.60	
1 1/2	1.900	6.120	1.970	0.880	1.250	0.250	2.750	4	0.880	4.500	2.92
	48.30	155.4	50.00	22.40	31.75	6.400	69.85		22.40	114.3	
2	2.375	6.500	2.460	1.000	1.440	0.310	3.310	8	0.750	5.000	3.55
	60.30	165.1	62.50	25.40	36.60	7.900	84.10		19.10	127.0	
2 1/2	2.875	7.500	2.970	1.120	1.620	0.310	3.940	8	0.880	5.880	5.23
	73.00	190.5	75.40	28.40	41.10	7.900	100.1		22.40	149.4	
3	3.500	8.250	3.600	1.125	1.810	0.380	4.620	8	0.880	6.620	6.95
	88.90	209.6	91.40	31.75	46.00	9.700	117.3		22.40	168.1	
3 1/2	4.000	9.000	4.100	1.380	1.940	0.380	5.250	8	1.000	7.250	8.78
	101.6	228.6	104.1	35.10	49.30	9.700	133.4		25.40	184.2	
4	4.500	10.00	4.600	1.380	2.000	0.440	5.750	8	1.000	7.880	10.9
	114.3	254.0	116.8	35.10	50.80	11.20	146.1		25.40	200.2	
5	5.563	11.00	5.690	1.500	2.120	0.440	7.000	8	1.000	9.250	13.7
	141.3	279.4	114.5	38.10	53.80	11.20	177.8		25.40	235.0	
6	6.625	12.50	6.750	1.620	2.250	0.500	8.120	12	1.000	10.62	18.0
	168.3	317.5	171.5	41.10	57.15	12.70	206.2		25.40	269.7	
8	8.625	15.00	8.750	1.880	2.690	0.500	10.25	12	1.120	13.00	28.3
	219.1	381.0	222.3	47.80	68.30	12.70	260.4		28.40	330.2	
10	10.75	17.50	10.92	2.120	4.000	0.500	12.62	16	1.250	15.25	38.8
	273.0	444.5	277.4	53.80	101.6	12.70	320.5		31.75	387.4	
12	12.75	20.50	12.92	2.250	4.250	0.500	14.75	16	1.380	17.75	56.6
	323.8	520.7	328.2	57.15	108.0	12.70	374.7		35.10	450.9	
14	14.00	23.00	14.18	2.380	4.620	0.500	16.75	20	1.380	20.25	78.6
	355.6	584.2	360.2	60.45	117.3	12.70	425.5		35.10	514.4	
16	16.00	25.50	16.19	2.500	5.000	0.500	19.00	20	1.500	22.50	100
	406.4	647.7	411.2	63.50	127.0	12.70	482.6		38.10	571.5	
18	18.00	28.00	18.20	2.620	5.380	0.500	21.00	24	1.500	24.75	122
	457.2	711.2	462.3	66.55	136.7	12.70	533.4		38.10	628.7	
20	20.00	30.50	20.25	2.750	5.750	0.500	23.12	24	1.620	27.00	145
	508.0	774.7	514.4	69.85	146.1	12.70	587.2		41.10	685.8	
24	24.00	36.00	24.25	3.000	6.250	0.500	27.62	24	1.880	32.00	217
	609.6	914.4	616.0	76.20	158.8	12.70	701.5		47.80	812.8	

Notes

- Weights are based on manufacturer's data and are approximate.
- For tolerances see page 8-4.

Lap Joint Flanges - ANSI B16.5



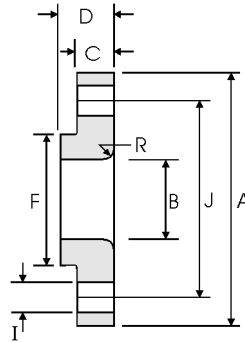
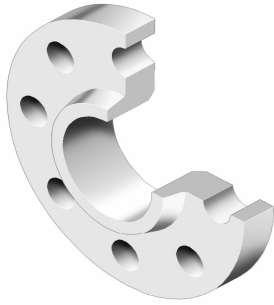
Class 600 lb

Nominal Pipe Size	Pipe	Flange Data				Lap	Hub	Drilling Data			Weight
		A	B	C	D	R	F	H	I	J	
	Outside Diameter	Overall Diameter	Inside Diameter	Flange Thickness min	Overall Length	Lap Radius	Hub Diameter	Number of Holes	Bolt Hole Diameter	Diameter of Circle of Holes	kg/ piece
	in mm	in mm	in mm	in mm	in mm	in mm	in mm		in mm	in mm	
1/2	0.840	3.750	0.900	0.560	0.880	0.120	1.500	4	0.620	2.620	0.72
	21.30	95.30	22.90	14.20	22.40	3.000	38.10		15.70	66.55	
3/4	1.050	4.620	1.110	0.620	1.000	0.120	1.880	4	0.750	3.250	1.25
	26.70	117.3	28.20	15.70	25.40	3.000	47.80		19.10	82.60	
1	1.315	4.880	1.380	0.690	1.060	0.120	2.120	4	0.750	3.500	1.50
	33.40	124.0	35.10	17.50	26.90	3.000	53.80		19.10	88.90	
1 1/4	1.660	5.250	1.720	0.810	1.120	0.190	2.500	4	0.750	3.880	2.00
	42.20	133.4	43.70	20.60	28.40	4.800	63.50		19.10	98.60	
1 1/2	1.900	6.120	1.970	0.880	1.250	0.250	2.750	4	0.880	4.500	2.92
	48.30	155.4	50.00	22.40	31.75	6.400	69.85		22.40	114.3	
2	2.375	6.500	2.460	1.000	1.440	0.310	3.310	8	0.750	5.000	3.55
	60.30	165.1	62.50	25.40	36.60	7.900	84.10		19.10	127.0	
2 1/2	2.875	7.500	2.970	1.120	1.620	0.310	3.940	8	0.880	5.880	5.23
	73.00	190.5	75.40	28.40	41.10	7.900	100.1		22.40	149.4	
3	3.500	8.250	3.600	1.125	1.810	0.380	4.620	8	0.880	6.620	6.95
	88.90	209.6	91.40	31.75	46.00	9.700	117.3		22.40	168.1	
3 1/2	4.000	9.000	4.100	1.380	1.940	0.380	5.250	8	1.000	7.250	8.78
	101.6	228.6	104.1	35.10	49.30	9.700	133.4		25.40	184.2	
4	4.500	10.75	4.600	1.500	2.120	0.440	6.000	8	1.000	8.500	14.4
	114.3	273.1	116.8	38.10	53.80	11.20	152.4		25.40	215.9	
5	5.563	13.00	5.690	1.750	2.380	0.440	7.440	8	1.120	10.50	24.3
	141.3	330.2	114.5	44.50	60.45	11.20	189.0		28.40	266.7	
6	6.625	14.00	6.750	1.880	2.620	0.500	8.750	12	1.120	11.50	28.5
	168.3	355.6	171.5	47.80	66.55	12.70	222.3		28.40	292.1	
8	8.625	16.50	8.750	2.190	3.000	0.500	10.75	12	1.250	13.75	43.1
	219.1	419.1	222.3	55.60	76.20	12.70	273.1		31.75	349.3	
10	10.75	20.00	10.92	2.500	4.380	0.500	13.50	16	1.380	17.00	70.5
	273.0	508.0	277.4	63.50	111.3	12.70	342.9		35.10	431.8	
12	12.75	22.00	12.92	2.620	4.620	0.500	15.75	20	1.380	19.25	86.1
	323.8	558.8	328.2	66.55	117.3	12.70	400.1		35.10	489.0	
14	14.00	23.75	14.18	2.750	5.000	0.500	17.00	20	1.500	20.75	100
	355.6	603.3	360.2	69.85	127.0	12.70	431.8		38.10	527.1	
16	16.00	27.00	16.19	3.000	5.500	0.500	19.50	20	1.620	23.75	145
	406.4	685.8	411.2	76.20	139.7	12.70	495.3		41.10	603.3	
18	18.00	29.25	18.20	3.250	6.000	0.500	21.50	20	1.750	25.75	177
	457.2	743.0	462.3	82.60	152.4	12.70	546.1		44.50	654.1	
20	20.00	32.00	20.25	3.500	6.500	0.500	24.00	24	1.750	28.50	225
	508.0	812.8	514.4	88.90	165.1	12.70	609.6		44.50	723.9	
24	24.00	37.00	24.25	4.000	7.250	0.500	28.25	24	2.000	33.00	318
	609.6	939.8	616.0	101.6	184.2	12.70	717.6		50.80	838.2	

Notes

- Weights are based on manufacturer's data and are approximate.
- For tolerances see page 8-4.

Lap Joint Flanges - ANSI B16.5



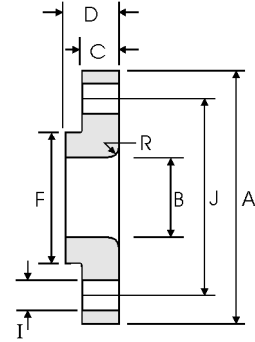
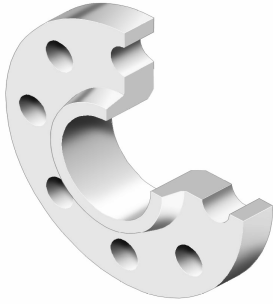
Class 900 lb

Nominal Pipe Size	Pipe	Flange Data				Lap	Hub	Drilling Data			Weight
		A	B	C	D	R	F	H	I	J	
	Outside Diameter	Overall Diameter	Inside Diameter	Flange Thickness min	Overall Length	Lap Radius	Hub Diameter	Number of Holes	Bolt Hole Diameter	Diameter of Circle of Holes	kg/ piece
	in mm	in mm	in mm	in mm	in mm	in mm	in mm		in mm	in mm	
1/2	0.840	4.750	0.900	0.880	1.250	0.120	1.500	4	0.880	3.250	1.71
	21.30	120.6	22.90	22.30	31.70	3.000	38.10		22.30	82.50	
3/4	1.050	5.120	1.110	1.000	1.380	0.120	1.750	4	0.880	3.500	2.30
	26.70	130.0	28.20	25.40	35.00	3.000	44.40		22.30	88.90	
1	1.315	5.880	1.380	1.120	1.620	0.120	2.060	4	1.000	4.000	3.40
	33.40	149.3	35.10	28.40	41.10	3.000	52.30		25.40	101.6	
1 1/4	1.660	6.250	1.720	1.120	1.620	0.190	2.500	4	1.000	4.380	3.85
	42.20	158.7	43.70	28.40	41.10	4.800	63.50		25.40	111.2	
1 1/2	1.900	7.000	1.970	1.250	1.750	0.250	2.750	4	1.120	4.880	5.28
	48.30	177.8	50.00	31.70	44.40	6.400	69.85		28.40	123.9	
2	2.375	8.500	2.460	1.500	2.250	0.310	4.120	8	1.000	6.500	9.78
	60.30	215.9	62.50	38.10	57.15	7.900	104.6		25.40	165.1	
2 1/2	2.875	9.620	2.970	1.620	2.500	0.310	4.880	8	1.120	7.500	13.6
	73.00	244.3	75.40	41.10	63.50	7.900	123.9		28.40	190.5	
3	3.500	9.500	3.600	1.500	2.120	0.380	5.000	8	1.000	7.500	11.3
	88.90	241.3	91.40	38.10	53.80	9.700	127.0		25.40	190.5	
4	4.500	11.50	4.600	1.750	2.750	0.440	6.250	8	1.250	9.250	19.2
	114.3	292.1	116.8	44.40	69.85	11.20	158.7		31.70	234.9	
5	5.563	13.75	5.690	2.000	3.120	0.440	7.500	8	1.380	11.00	31.20
	141.3	349.2	114.5	50.80	79.25	11.20	190.5		35.00	279.4	
6	6.625	15.00	6.750	2.190	3.380	0.500	9.250	12	1.250	12.50	40.50
	168.3	381.0	171.5	55.60	85.80	12.70	234.9		31.70	317.5	
8	8.625	18.50	8.750	2.500	4.500	0.500	11.75	12	1.500	15.50	71.5
	219.1	469.9	222.3	63.50	114.3	12.70	298.4		38.10	393.7	
10	10.75	21.50	10.92	2.750	5.000	0.500	14.50	16	1.500	18.50	104
	273.0	546.1	277.4	69.85	127.0	12.70	368.3		38.10	469.9	
12	12.75	24.00	12.92	3.120	5.620	0.500	16.50	20	1.500	21.00	139
	323.8	609.6	328.2	79.25	142.7	12.70	419.1		38.10	533.4	
14	14.00	25.25	14.18	3.380	6.120	0.500	17.75	20	1.620	22.00	161
	355.6	641.3	360.2	85.80	155.4	12.70	450.8		41.10	558.8	
16	16.00	27.75	16.19	3.500	6.500	0.500	20.00	20	1.750	24.25	194
	406.4	704.8	411.2	88.90	165.1	12.70	508.0		44.40	615.9	
18	18.00	31.00	18.20	4.000	7.500	0.500	22.25	20	2.000	27.00	267
	457.2	787.4	462.3	101.6	190.5	12.70	565.1		50.80	685.8	
20	20.00	33.75	20.25	4.250	8.250	0.500	24.50	20	2.120	29.50	334
	508.0	857.2	514.4	107.9	209.5	12.70	622.3		53.80	749.3	
24	24.00	41.00	24.25	50.50	10.50	0.500	29.50	20	2.620	35.50	618
	609.6	1041.4	616.0	139.7	266.7	12.70	749.3		66.55	901.7	

Notes

- Weights are based on manufacturer's data and are approximate.
- For tolerances see page 8-4.

Lap Joint Flanges - ANSI B16.5



Class 1500 lb

Nominal Pipe Size	Pipe	Flange Data				Lap	Hub	Drilling Data			Weight
		A	B	C	D	R	F	H	I	J	
	Outside Diameter	Overall Diameter	Inside Diameter	Flange Thickness min	Overall Length	Lap Radius	Hub Diameter	Number of Holes	Bolt Hole Diameter	Diameter of Circle of Holes	kg/ piece
	in mm	in mm	in mm	in mm	in mm	in mm	in mm		in mm	in mm	
1/2	0.840	4.750	0.900	0.880	1.250	0.120	1.500	4	0.880	3.250	1.71
	21.30	120.6	22.90	22.30	31.70	3.000	38.10		22.30	82.50	
3/4	1.050	5.120	1.110	1.000	1.380	0.120	1.750	4	0.880	3.500	2.30
	26.70	130.0	28.20	25.40	35.00	3.000	44.40		22.30	88.90	
1	1.315	5.880	1.380	1.120	1.620	0.120	2.060	4	1.000	4.000	3.40
	33.40	149.3	35.10	28.40	41.10	3.000	52.30		25.40	101.6	
1 1/4	1.660	6.250	1.720	1.120	1.620	0.190	2.500	4	1.000	4.380	3.85
	42.20	158.7	43.70	28.40	41.10	4.800	63.50		25.40	111.2	
1 1/2	1.900	7.000	1.970	1.250	1.750	0.250	2.750	4	1.120	4.880	5.28
	48.30	177.8	50.00	31.70	44.40	6.400	69.85		28.40	123.9	
2	2.375	8.500	2.460	1.500	2.250	0.310	4.120	8	1.000	6.500	9.78
	60.30	215.9	62.50	38.10	57.15	7.900	104.6		25.40	165.1	
2 1/2	2.875	9.620	2.970	1.620	2.500	0.310	4.880	8	1.120	7.500	13.6
	73.00	244.3	75.40	41.10	63.50	7.900	123.9		28.40	190.5	
3	3.500	10.50	3.600	1.880	2.880	0.380	5.250	8	1.250	8.000	17.8
	88.90	266.7	91.40	47.70	73.15	9.700	133.3		31.70	203.2	
4	4.500	12.25	4.600	2.120	3.560	0.440	6.380	8	1.380	9.500	27.5
	114.3	311.1	116.8	53.80	90.40	11.20	162.0		35.00	241.3	
5	5.563	14.75	5.690	2.880	4.120	0.440	7.750	8	1.620	11.50	51.5
	141.3	374.6	114.5	73.15	104.6	11.20	196.8		41.10	292.1	
6	6.625	15.50	6.750	3.250	4.690	0.500	9.000	12	1.500	12.50	62.0
	168.3	399.7	171.5	82.50	119.1	12.70	228.6		38.10	317.5	
8	8.625	19.00	8.750	3.620	5.620	0.500	11.50	12	1.750	15.50	105
	219.1	482.6	222.3	91.90	142.7	12.70	292.1		44.40	393.7	
10	10.75	23.00	10.92	4.250	7.000	0.500	14.50	12	2.000	19.00	179
	273.0	584.2	277.4	107.9	177.8	12.70	368.3		50.80	482.6	
12	12.75	26.50	12.92	4.880	8.620	0.500	17.75	16	2.120	22.50	269
	323.8	673.1	328.2	123.9	218.9	12.70	450.8		53.80	571.5	
14	14.00	29.50	14.18	5.250	9.500	0.500	19.50	16	2.380	25.00	365
	355.6	749.3	360.2	133.3	241.3	12.70	495.3		60.45	635.0	
16	16.00	32.50	16.19	5.750	10.25	0.500	21.75	16	2.620	27.75	459
	406.4	825.5	411.2	146.0	260.3	12.70	552.4		66.55	704.8	
18	18.00	36.00	18.20	6.380	10.88	0.500	23.50	16	2.880	30.50	598
	457.2	914.4	462.3	162.0	276.3	12.70	596.9		73.15	774.7	
20	20.00	38.75	20.25	7.000	11.50	0.500	25.25	16	3.120	32.75	712
	508.0	984.2	514.4	177.8	292.1	12.70	641.3		79.25	831.8	
24	24.00	46.00	24.25	8.000	13.00	0.500	30.00	16	3.620	39.00	1090
	609.6	1168.4	616.0	203.2	330.2	12.70	762.0		91.90	990.6	

Notes

- Weights are based on manufacturer's data and are approximate.
- For tolerances see page 8-4.

