

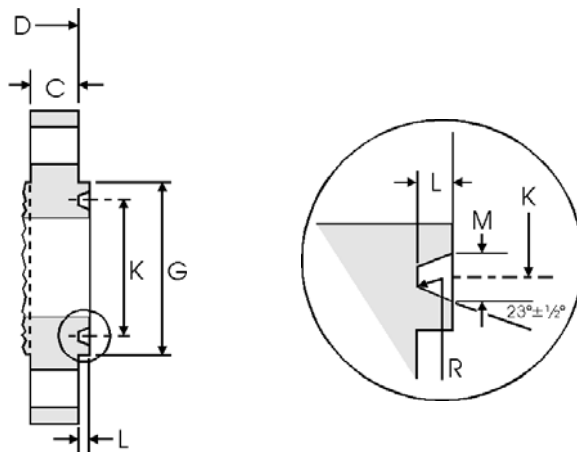
British Standard BS 3293 - Carbon Steel Pipe Flanges (over 24 inches nominal size) for the Petroleum Industry, covers Class 150 lb to 600 lb weld neck and slip on flanges.

Dimensions and Tolerances

Tolerances on flange dimensions (BS 3293)

Dimension		Tolerance	
		in	mm
Weld Neck and Slip On Flanges (pages 8-56 to 8-59)	G (raised face diameter)	$\pm 1/64$	± 0.40
	C (flange thickness)	$+3/16, -0$	$+4.76, -0$
	D (overall length)	$\pm 1/8$	± 3.18
	E (outside diameter at welding end of weld neck hub)	$+5/32, -1/32$	$+3.97, -0.79$
	B (inside diameter of weld neck flange)	$+1/8, -1/16$	$+3.18, -1.59$
	B (inside diameter of slip on flange)	$+1/16, -0$	$+1.59, -0$
Ring Joint Facing on Weld Neck and Slip On Flanges (see below)	L (depth of groove)	$+1/64, -0$	$+0.40, -0$
	M (width of groove)	± 0.008	± 0.20
	K (pitch diameter of groove)	± 0.005	± 0.13

Ring Joint Facings - BS 3293



Note

- Values for minimum flange thickness, C, and overall length, D, are detailed in the flange tables.
- For ring joint tolerances see above.
- $R = 1/16$ in (0.40 mm) max, corner radius at bottom of groove.

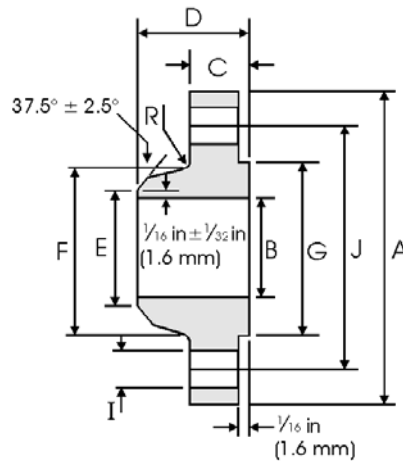
Ring joint facing dimensions - BS 3293

Class (lb)				Groove/Ring Number	Raised Face	Groove			Weight		
150	300	400	600		G	K	L	M	kg/piece		
Nominal Pipe Size (NPS)					Face Diameter min	Pitch Diameter	Depth	Width	Class 300 lb	Class 400 lb	Class 600 lb
				in mm	in mm	in mm	in mm	WNF Slip on	WNF Slip on	WNF Slip on	
	26	26	26	R93	$31\frac{7}{8}$ 809.6	$29\frac{1}{2}$ 749.3	$\frac{1}{2}$ 12.7	$\frac{25}{32}$ 19.8	298 270	349 304	446 417
	28	28	28	R94	$33\frac{7}{8}$ 860.4	$31\frac{1}{2}$ 800.1	$\frac{1}{2}$ 12.7	$\frac{25}{32}$ 19.8	360 333	409 364	518 482
	30	30	30	R95	$36\frac{1}{8}$ 917.6	$33\frac{3}{4}$ 857.2	$\frac{1}{2}$ 12.7	$\frac{25}{32}$ 19.8	412 376	465 419	570 537
	32	32	32	R96	$38\frac{3}{4}$ 984.2	36 914.4	$\frac{9}{16}$ 14.3	$\frac{29}{32}$ 23.0	465 425	539 482	697 622
	34	34	34	R97	$40\frac{3}{4}$ 1035.0	38 965.2	$\frac{9}{16}$ 14.3	$\frac{29}{32}$ 23.0	536 492	608 540	735 670
	36	36	36	R98	43 1092.2	$40\frac{1}{4}$ 1022.3	$\frac{9}{16}$ 14.3	$\frac{29}{32}$ 23.0	595 548	689 621	800 764

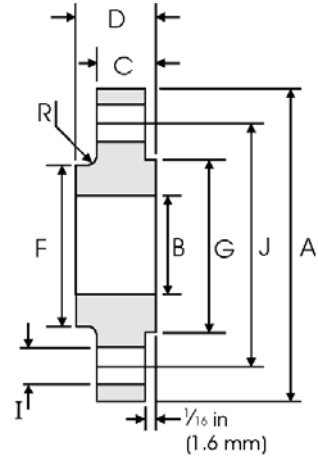
Note

- Weights are based on manufacturer's data and are approximate.

Weld Neck and Slip On Flanges - BS 3293



Weld Neck



Slip On

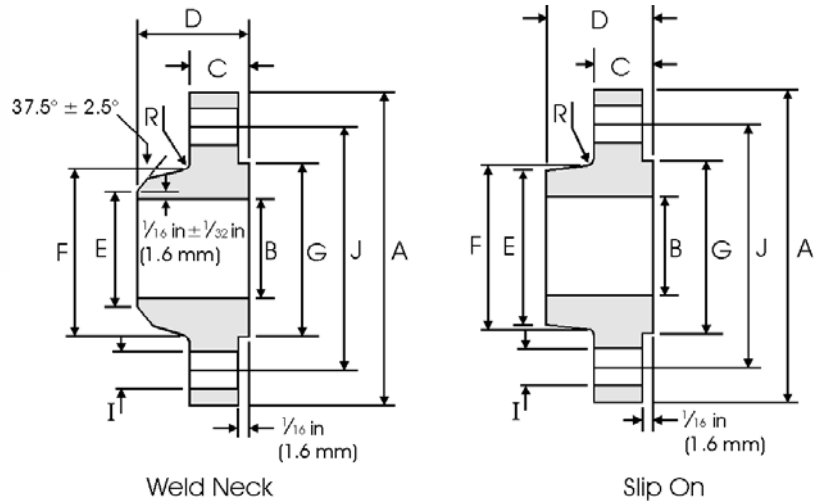
Class 150 lb

Pipe	Flange Data				Hub Data		Raised Face	Drilling Data			Radius	Weight	
Nominal Pipe Size	A	B	C	D		E	F	G	H	I	J	R	
	Overall Diameter	Slip on Inside Diameter	Flange Thickness	WNF Overall Length	Slip on Overall Length	WNF Diameter at Weld Bevel	WNF / Slip on Hub Diameter	Face Diameter	Number of Holes	Bolt Hole Diam.	Diameter of Circle of Holes	Fillet	kg/ piece
	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm		in mm	in mm	in mm	in mm
26	34 ¹ / ₄ 869.9	26 ¹ / ₄ 666.7	2 50.8	5 127.0	3 ³ / ₈ 85.7	26 660.4	28 ¹ / ₂ 723.9	29 ¹ / ₄ 742.9	24	1 ³ / ₈ 34.9	31 ³ / ₄ 806.4	1 ¹ / ₄ 6.35	118 107
28	36 ¹ / ₂ 927.1	28 ¹ / ₄ 717.6	2 ¹ / ₁₆ 52.4	5 ¹ / ₁₆ 128.6	3 ⁷ / ₁₆ 87.3	28 711.2	30 ³ / ₄ 781.0	31 ¹ / ₄ 793.7	28	1 ³ / ₈ 34.9	34 863.6	1 ¹ / ₄ 6.35	134 122
30	38 ³ / ₄ 984.2	30 ¹ / ₄ 768.3	2 ¹ / ₈ 54.0	5 ¹ / ₈ 130.2	3 ¹ / ₂ 88.9	30 762.0	32 ³ / ₄ 831.8	33 ³ / ₄ 857.2	28	1 ³ / ₈ 34.9	36 914.4	1 ¹ / ₄ 6.35	153 138
32	41 ³ / ₄ 1060.4	32 ¹ / ₄ 819.1	2 ¹ / ₄ 57.1	5 ¹ / ₄ 133.3	3 ⁵ / ₈ 92.1	32 812.8	35 889.0	35 ³ / ₄ 908.0	28	1 ⁵ / ₈ 41.3	38 ¹ / ₂ 977.9	5 ¹ / ₁₆ 7.94	190 170
34	43 ³ / ₄ 1111.2	34 ¹ / ₄ 869.9	2 ⁵ / ₁₆ 58.7	5 ⁵ / ₁₆ 134.9	3 ¹¹ / ₁₆ 93.7	34 863.6	37 939.8	37 ³ / ₄ 958.8	32	1 ⁵ / ₈ 41.3	40 ¹ / ₂ 1028.7	5 ¹ / ₁₆ 7.94	212 184
36	46 1168.4	36 ¹ / ₄ 920.7	2 ³ / ₈ 60.3	5 ³ / ₈ 136.5	3 ³ / ₄ 95.2	36 914.4	39 ¹ / ₄ 996.9	40 ¹ / ₄ 1022.3	32	1 ⁵ / ₈ 41.3	42 ³ / ₄ 1085.8	5 ¹ / ₁₆ 7.94	242 211
38	48 ³ / ₄ 1238.2	38 ¹ / ₄ 971.5	2 ³ / ₈ 60.3	5 ³ / ₈ 136.5	3 ³ / ₄ 95.2	38 965.2	41 ³ / ₄ 1060.4	42 ¹ / ₄ 1073.1	32	1 ⁵ / ₈ 41.3	45 ¹ / ₄ 1149.3	3 ⁸ / ₁₆ 9.53	284 249
40	50 ³ / ₄ 1289.0	40 ¹ / ₄ 1022.3	2 ¹ / ₂ 63.5	5 ¹ / ₂ 139.7	3 ⁷ / ₈ 98.4	40 1016.0	43 ³ / ₄ 1111.2	44 ¹ / ₄ 1123.9	36	1 ⁵ / ₈ 41.3	47 ¹ / ₄ 1200.1	3 ⁸ / ₁₆ 9.53	311 272
42	53 1346.2	42 ¹ / ₄ 1073.2	2 ⁵ / ₈ 66.7	5 ⁵ / ₈ 142.9	4 101.6	42 1066.8	46 1168.4	47 1193.8	36	1 ⁵ / ₈ 41.3	49 ¹ / ₂ 1257.3	3 ⁸ / ₁₆ 9.53	358 313
44	55 ¹ / ₄ 1403.3	44 ¹ / ₄ 1123.9	2 ⁵ / ₈ 66.7	5 ⁵ / ₈ 142.9	4 101.6	44 1117.6	48 1219.2	49 1244.6	40	1 ⁵ / ₈ 41.3	51 ³ / ₄ 1314.4	7 ¹ / ₁₆ 11.11	376 331
46	57 ¹ / ₄ 1454.2	46 ¹ / ₄ 1174.7	2 ¹¹ / ₁₆ 68.3	5 ¹¹ / ₁₆ 144.5	4 ¹ / ₁₆ 103.2	46 1168.4	50 1270.0	51 1295.4	40	1 ⁵ / ₈ 41.3	53 ³ / ₄ 1365.2	7 ¹ / ₁₆ 11.11	399 349
48	59 ¹ / ₂ 1511.1	48 ¹ / ₄ 1225.5	2 ³ / ₄ 69.9	5 ³ / ₄ 146.1	4 ¹ / ₈ 104.8	48 1219.2	52 ¹ / ₄ 1327.2	53 ¹ / ₂ 1358.9	44	1 ⁵ / ₈ 41.3	56 1422.4	7 ¹ / ₁₆ 11.11	440 381

Notes

- For weld neck flanges, dimension B is to be specified by the purchaser. It corresponds to the pipe inside diameter.
- For slip on flanges, the hub may be cylindrical or have a draft of $\leq 7^\circ$ on the outside surface.
- WNF = Weld Neck Flange.
- Weights are based on manufacturer's data and are approximate.

Weld Neck and Slip On Flanges - BS 3293



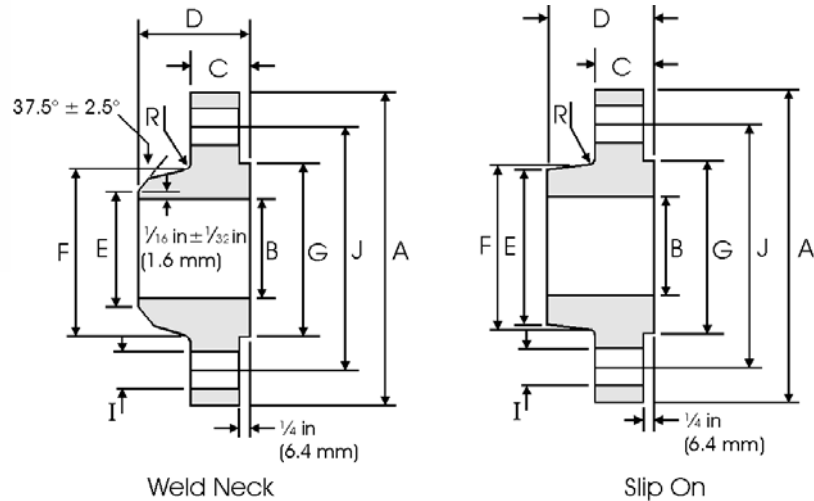
Class 300 lb

Pipe	Flange Data				Hub Data			Raised Face	Drilling Data			Radius	Weight
Nominal Pipe Size	A	B	C	D	E		F	G	H	I	J	R	
	Overall Diameter	Slip on Inside Diameter	Flange Thickness	WNF / Slip on Overall Length	WNF Diam. at Weld Bevel	Slip on Hub Diam. at Small End	Hub Diameter	Face Diameter	Number of Holes	Bolt Hole Diam.	Diameter of Circle of Holes	Fillet	kg/ piece
	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm		in mm	in mm	in mm	WNF Slip On
26	38 ¹ / ₄ 971.5	26 ¹ / ₄ 666.7	3 ¹ / ₈ 79.4	7 ¹ / ₄ 184.1	26 ¹ / ₄ 666.7	27 ¹ / ₁₆ 687.4	28 ³ / ₈ 720.7	29 ¹ / ₂ 749.3	28	1 ³ / ₄ 44.4	34 ¹ / ₂ 876.3	³ / ₈ 9.53	279 251
28	40 ³ / ₄ 1035.0	28 ¹ / ₄ 717.6	3 ³ / ₈ 85.7	7 ³ / ₄ 196.8	28 ¹ / ₄ 717.5	29 ¹ / ₈ 739.7	30 ¹ / ₂ 774.7	31 ¹ / ₂ 800.1	28	1 ³ / ₄ 44.4	37 939.8	⁷ / ₁₆ 11.11	340 313
30	43 1092.2	30 ¹ / ₄ 768.3	3 ⁵ / ₈ 92.1	8 ¹ / ₄ 209.5	30 ¹ / ₄ 768.3	31 ³ / ₁₆ 792.2	32 ⁹ / ₁₆ 827.2	33 ³ / ₄ 857.2	28	1 ⁷ / ₈ 47.6	39 ¹ / ₄ 996.9	⁷ / ₁₆ 11.11	390 354
32	45 ¹ / ₄ 1149.3	32 ¹ / ₄ 819.1	3 ⁷ / ₈ 98.4	8 ³ / ₄ 222.2	32 ¹ / ₄ 819.1	33 ¹ / ₄ 844.6	34 ¹¹ / ₁₆ 881.1	36 914.4	28	2 50.8	41 ¹ / ₂ 1054.1	⁷ / ₁₆ 11.11	435 395
34	47 ¹ / ₂ 1206.5	34 ¹ / ₄ 869.9	4 101.6	9 ¹ / ₈ 231.8	34 ⁵ / ₁₆ 871.5	35 ⁵ / ₁₆ 896.9	36 ⁷ / ₈ 936.6	38 965.2	28	2 50.8	43 ¹ / ₂ 1104.9	¹ / ₂ 12.7	504 460
36	50 1270.0	36 ¹ / ₄ 920.7	4 ¹ / ₈ 104.8	9 ¹ / ₂ 241.3	36 ⁵ / ₁₆ 922.3	37 ³ / ₈ 949.3	39 990.6	40 ¹ / ₄ 1022.3	32	2 ¹ / ₈ 54.0	46 1168.4	¹ / ₂ 12.7	560 513

Notes

- For weld neck flanges, dimension B is to be specified by the purchaser. It corresponds to the pipe inside diameter.
- For slip on flanges, the hub may be cylindrical or have a draft of $\leq 7^\circ$ on the outside surface.
- WNF = Weld Neck Flange.
- Weights are based on manufacturer's data and are approximate.

Weld Neck and Slip On Flanges - BS 3293



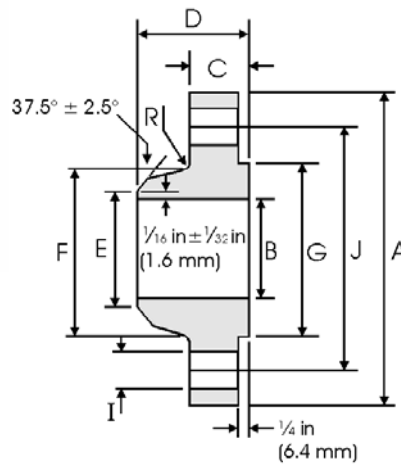
Class 400 lb

Pipe	Flange Data				Hub Data			Raised Face	Drilling Data			Radius	Weight
Nominal Pipe Size	A	B	C	D	E		F	G	H	I	J	R	
	Overall Diameter	Slip on Inside Diameter	Flange Thickness	WNF / Slip on Overall Length	WNF Diam. at Weld Bevel	Slip on Hub Diam. at Small End	Hub Diameter	Face Diameter	Number of Holes	Bolt Hole Diam.	Diameter of Circle of Holes	Fillet	kg/ piece
	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm		in mm	in mm	in mm	WNF Slip On
26	38 ¹ / ₄ 971.5	26 ¹ / ₄ 666.7	3 ¹ / ₂ 88.9	7 ⁵ / ₈ 193.7	26 ⁵ / ₁₆ 668.3	27 ⁵ / ₁₆ 693.7	28 ⁵ / ₈ 727.1	29 ¹ / ₂ 749.3	28	1 ⁷ / ₈ 47.6	34 ¹ / ₂ 876.3	7 ⁷ / ₁₆ 11.11	340 295
28	40 ³ / ₄ 1035.0	28 ¹ / ₄ 717.6	3 ³ / ₄ 95.2	8 ¹ / ₈ 206.4	28 ⁵ / ₁₆ 719.1	29 ³ / ₈ 746.1	30 ¹³ / ₁₆ 782.6	31 ¹ / ₂ 800.1	28	2 50.8	37 939.8	1 ¹ / ₂ 12.7	399 354
30	43 1092.2	30 ¹ / ₄ 768.3	4 101.6	8 ⁵ / ₈ 219.1	30 ⁵ / ₁₆ 769.6	31 ¹ / ₂ 800.1	32 ¹⁵ / ₁₆ 836.6	33 ³ / ₄ 857.2	28	2 ¹ / ₈ 54.0	39 ¹ / ₄ 996.9	1 ¹ / ₂ 12.7	454 408
32	45 ¹ / ₄ 1149.3	32 ¹ / ₄ 819.1	4 ¹ / ₄ 107.9	9 ¹ / ₈ 231.8	32 ³ / ₈ 822.3	33 ⁹ / ₁₆ 852.5	35 889.0	36 914.4	28	2 ¹ / ₈ 54.0	41 ¹ / ₂ 1054.1	1 ¹ / ₂ 12.7	522 465
34	47 ¹ / ₂ 1206.5	34 ¹ / ₄ 869.9	4 ³ / ₈ 111.1	9 ¹ / ₂ 241.3	34 ³ / ₈ 873.1	35 ⁵ / ₈ 904.9	37 ³ / ₁₆ 944.6	38 965.2	28	2 ¹ / ₈ 54.0	43 ¹ / ₂ 1104.9	9 ⁹ / ₁₆ 14.29	590 522
36	50 1270.0	36 ¹ / ₄ 920.8	4 ¹ / ₂ 114.3	9 ⁷ / ₈ 250.8	36 ⁷ / ₁₆ 925.5	37 ³ / ₄ 958.8	39 ⁷ / ₈ 1012.9	40 ¹ / ₄ 1022.3	32	2 ¹ / ₈ 54.0	46 1168.4	9 ⁹ / ₁₆ 14.29	669 601

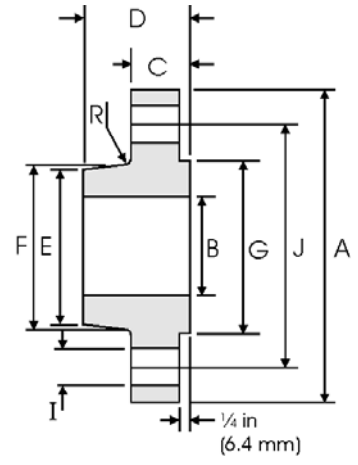
Notes

- For weld neck flanges, dimension B is to be specified by the purchaser. It corresponds to the pipe inside diameter.
- For slip on flanges, the hub may be cylindrical or have a draft of $\leq 7^\circ$ on the outside surface.
- WNF = Weld Neck Flange.
- Weights are based on manufacturer's data and are approximate.

Weld Neck and Slip On Flanges - BS 3293



Weld Neck



Slip On

Class 600 lb

Pipe	Flange Data				Hub Data			Raised Face	Drilling Data			Radius	Weight
Nominal Pipe Size	A	B	C	D	E	F	G	H	I	J	R		
	Overall Diameter	Slip on Inside Diameter	Flange Thickness	WNF / Slip on Overall Length	WNF Diam. at Weld Bevel	Slip on Hub Diam. at Small Lend	Hub Diameter	Face Diameter	Number of Holes	Bolt Hole Diam.	Diameter of Circle of Holes	Fillet	kg/ piece
	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm		in mm	in mm	in mm	WNF Slip On
26	40 1016.0	26 ¹ / ₄ 666.7	4 ¹ / ₄ 107.9	8 ³ / ₄ 222.2	26 ⁷ / ₁₆ 671.52	27 ¹³ / ₁₆ 706.4	29 ⁷ / ₁₆ 747.7	29 ¹ / ₂ 749.3	28	2 50.8	36 914.4	⁹ / ₁₆ 14.29	437 408
28	42 ¹ / ₄ 1073.1	28 ¹ / ₄ 717.6	4 ³ / ₈ 111.1	9 ¹ / ₄ 234.9	28 ¹ / ₂ 723.9	29 ¹⁵ / ₁₆ 760.4	31 ⁵ / ₈ 803.3	31 ¹ / ₂ 800.1	28	2 ¹ / ₈ 54.0	38 965.2	⁵ / ₈ 15.88	508 472
30	44 ¹ / ₂ 1130.3	30 ¹ / ₄ 768.3	4 ¹ / ₂ 114.3	9 ³ / ₄ 247.6	30 ¹ / ₂ 774.7	32 ¹ / ₁₆ 814.4	33 ¹⁵ / ₁₆ 862.0	33 ³ / ₄ 857.2	28	2 ¹ / ₈ 54.0	40 ¹ / ₄ 1022.3	¹¹ / ₁₆ 17.46	559 526
32	47 1193.8	32 ¹ / ₄ 819.1	4 ⁵ / ₈ 117.5	10 ¹ / ₄ 260.3	32 ¹ / ₂ 825.5	34 ³ / ₁₆ 868.4	36 ¹ / ₈ 917.6	36 914.4	28	2 ³ / ₈ 60.3	42 ¹ / ₂ 1079.5	¹¹ / ₁₆ 17.46	680 605
34	49 1244.6	34 ¹ / ₄ 869.9	4 ³ / ₄ 120.6	10 ⁵ / ₈ 269.9	34 ⁹ / ₁₆ 877.9	36 ⁵ / ₁₆ 922.3	38 ⁵ / ₁₆ 973.1	38 965.2	28	2 ³ / ₈ 60.3	44 ¹ / ₂ 1130.3	³ / ₄ 19.05	717 652
36	51 ³ / ₄ 1314.4	36 ¹ / ₄ 920.7	4 ⁷ / ₈ 123.8	11 ¹ / ₈ 282.6	36 ⁹ / ₁₆ 928.7	38 ⁷ / ₁₆ 976.3	40 ⁵ / ₈ 1031.9	40 ¹ / ₄ 1022.3	28	2 ⁵ / ₈ 66.7	47 1193.8	³ / ₄ 19.05	780 744

Notes

- For weld neck flanges, dimension B is to be specified by the purchaser. It corresponds to the pipe inside diameter.
- For slip on flanges, the hub may be cylindrical or have a draft of $\leq 7^\circ$ on the outside surface.
- WNF = Weld Neck Flange.
- Weights are based on manufacturer's data and are approximate.

BS 4504 Circular Flanges - General

British Standard BS 4504 : Section 3.1 : 1989 - Circular Flanges for Pipes, Valves and Fittings (PN Designated), Specification for Steel Flanges. This covers flanges in nominal pressure ranges PN 2.5 to PN 40 and nominal sizes up to DN 4000 (see table below).

BS 4504 substantially agrees with ISO 7005-1 : 1992 (E) Part 1 : Steel Flanges.

BS 4504 : 1969 is still commonly used. This older standard allows for manufacture from bar, whereas the latest standard specifies that forging or plate are to be used, which can be significantly more expensive. There are minor differences in dimensions between the two versions. The following tables are based on the later version.

Summary of flanges covered by BS 4504 : Section 3.1

Code No.	Description	PN Range	DN Range
101	Plate flange for welding (see page 8-65)	PN 2.5	DN 10 to DN 2000
		PN 6, 10, 16, 25, 40	DN 10 to DN 600
102 ¹	Loose plate flange with weld-on plate collar or for lapped pipe end (Weld-on plate collar = Code 132 ¹ Lapped pipe end = Code 133 ¹)	PN 6, 10, 16, 25, 40	DN 10 to DN 600
104 ¹	Loose plate flange with weld-neck collar (Weld-neck collar = Code 134 ¹)	PN 6, 10, 16, 25, 40	DN 10 to DN 600
105	Blank flange (see page 8-70)	PN 2.5, 6	DN 10 to DN 2000
		PN 10, 16	DN 10 to DN 1200
		PN 25, 40	DN 10 to DN 600
111	Weld-neck flange (see page 8-66)	PN 2.5, 6, 10, 16	DN 10 to DN 2000 ²
		PN 25	DN 10 to DN 1000
		PN 40	DN 10 to DN 600
112	Hubbed slip-on flange for welding (see page 8-68)	PN 6	DN 10 to DN 300
		PN 10, 16, 25, 40	DN 10 to DN 600
113	Hubbed threaded flange (see page 8-69)	PN 6, 10, 16, 25, 40	DN 10 to DN 150
121 ¹	Integral flange	PN 6, 10, 16, 25	DN 10 to DN 2000
		PN 40	DN 10 to DN 600

Notes

- Flanges > DN 2000, are not covered in this summary.
- Dimensions: Nominal sizes, DN followed by a numerical designation of size (a convenient round number for reference purposes), are used as defined in ISO 6708.
- Pressure Ratings: Nominal pressures, i.e. PN followed by a numerical designation of size (a convenient round number for reference purposes), are used as defined in ISO 7268.

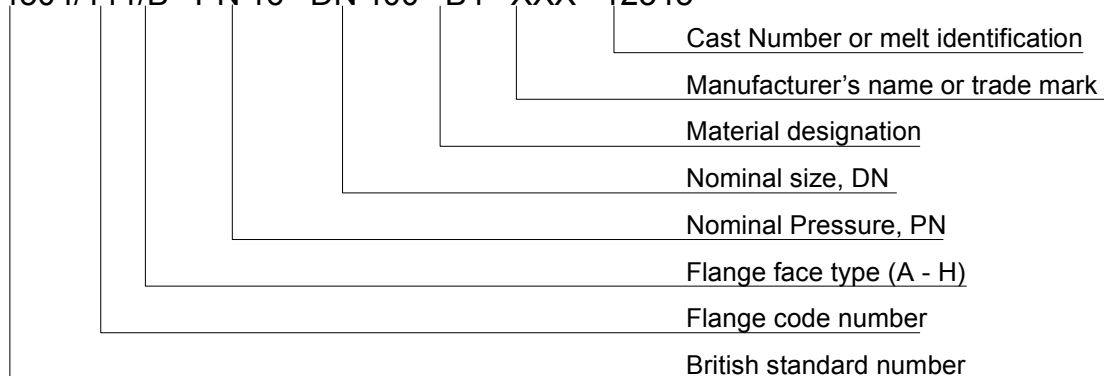
¹ Dimensions for these flanges are not covered in this summary.

² The DN range for weld neck flanges extends to DN 4000 for PN 2.5, to DN 3600 for PN 6, and to DN 3000 for PN 10.

Designations/Marking

Marking. All flanges are marked with BS number, code number, PN, DN, material designation, manufacturers name or trade mark, cast number or melt identification, thread identification, An example follows:

BS 4504/111/B - PN 16 - DN 400 - B4 - XXX - 12345



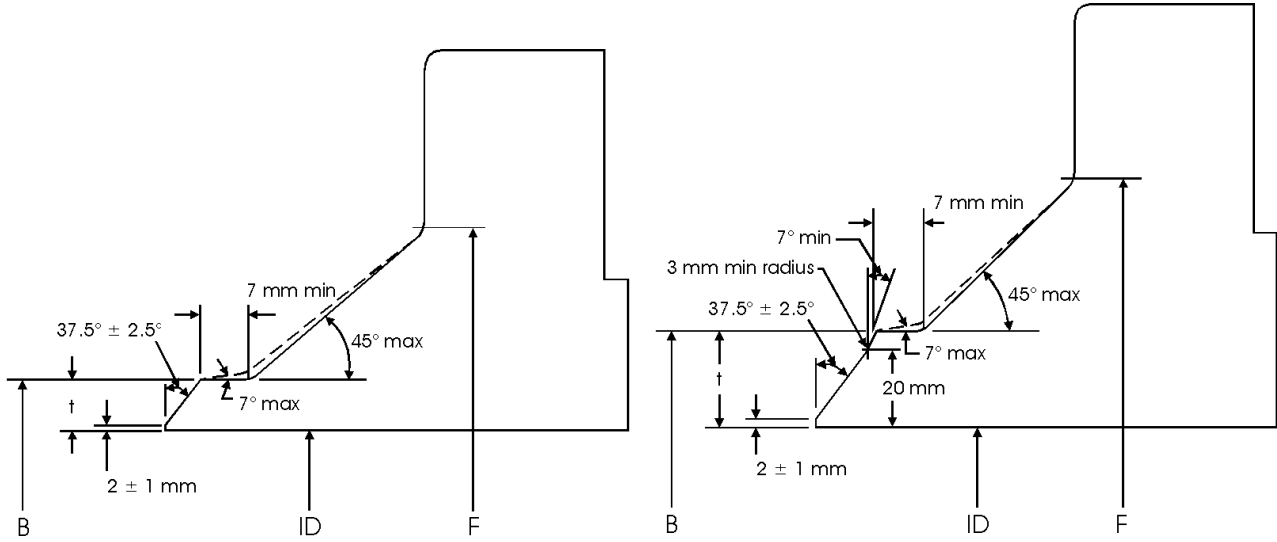
BS 4504 Circular Flanges - General

Dimensions and Tolerances

Dimension		Range	Tolerance	
			mm	
Flange Facings (see page 8-63)	Eccentricity of machined facing diameters	≤ DN 100	1.0	
		> DN 100	2.0	
	a (type B facing height)	2 mm	+0, -1.0	
		3 mm	+0, -2.0	
		4 mm	+0, -3.0	
		5 mm	+0, -4.0	
		6 mm	+0, -5.0	
	b (type C and E facing height)	All	+0.5, -0	
	b (type G facing height)	All	+0, -0.5	
	b (type H facing height, outer)	All	+0.2, -0	
c (type D and F facing height)	All	+0, -0.5		
d (type H facing height, inner)	All	+0.5, -0		
B and E (facing diameters)	All	+0, -0.5		
C and D (facing diameters)	All	+0.5, -0		
Surface Finish	Facing types A, B, E and F	All, turning	Ra = 3.2 µm min 12.5 µm max	
		All, other than turning	Ra = 3.2 µm min 6.3 µm max	
	Facing types C, D, G and H	All	Ra = 0.8 µm min 3.2 µm max	
Flange Drilling Details (see page 8-64)	B (diameter of bolt circle)	Bolt sizes M10 to M24	±0.9	
		Bolt sizes M27 to M45	±1.4	
	Centre to centre of adjacent bolt holes	Bolt sizes M10 to M24	±0.45	
		Bolt sizes M27 to M45	±0.7	
All	A (outside diameter)	≤ DN 150	±2.0	
		> DN 150 ≤ DN 500	±3.0	
		> DN 500 ≤ DN 1200	±5.0	
		> DN 1200 ≤ DN 1800	±7.0	
		> DN 1800	±10.0	
	C (flange thickness, machined on both faces)	≤ 18 mm thickness	±1.0	
		> 18 mm < 50 mm thickness	±1.0	
		> 50 mm thickness	±1.0	
	C (flange thickness, machined on front face)	≤ 18 mm thickness	+2.0, -1.0	
		> 18 mm < 50 mm thickness	+4.0, -1.5	
> 50 mm thickness		+7.0, -2.0		
Weld Neck Flanges, Code 111 (see page 8-66)	B (outside diameter of hub at welding end)	≤ DN 125	+3.0, -0	
		> DN 125 ≤ DN 1200	+4.5, -0	
		> DN 1200	+6.0, -0	
	F (hub diameter)	≤ DN 50	+0, -2.0	
		> DN 50 ≤ DN 150	+0, -4.0	
		> DN 150 ≤ DN 300	+0, -6.0	
		> DN 300 ≤ DN 600	+0, -8.0	
		> DN 600 ≤ DN 1200	+0, -10.0	
	D (length through hub)	≤ DN 80	±1.5	
		> DN 80 ≤ DN 250	±2.0	
> DN 250		±3.0		
Slip on, Code 112 (see page 8-68) and Threaded, Code 113 (see page 8-69) Flanges	E (slip on flange hub diameter) B (threaded flange hub diameter)	≤ DN 50	+1.0, -0	
		> DN 50 ≤ DN 150	+2.0, -0	
		> DN 150 ≤ DN 300	+4.0, -0	
		> DN 300 ≤ DN 600	+8.0, -0	
		> DN 600 ≤ DN 1200	+12.0, -0	
		> DN 1200 ≤ DN 1800	+16.0, -0	
		> DN 1800	+20.0, -0	
	B (slip on bore diameter)	≤ DN 100	+0.5, -0	
		> DN 100 ≤ DN 400	+1.0, -0	
		> DN 400 ≤ DN 600	+1.5, -0	
		> DN 600	+3.0, -0	
		D (length through hub)		Same as Weld Neck D
		B (flange thickness)		Same as C for all other flanges
Blank Flanges, Code 105 (see page 8-70)	C (unmachined centre portion)	Maximum specified		

BS 4504 Circular Flanges - General

Weld Neck Flange - Welding Ends

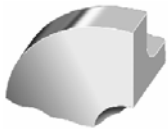


Welding end for Wall Thickness (t) from 5 mm to 22.2 mm

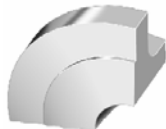
Welding end for Wall Thickness (t) > 22.2 mm

Flange Facings - BS 4504

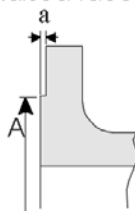
BS 4504 flange facing types A to H are defined below. The dimensions vary with pipe size (DN) and pressure rating (PN) as detailed in the following table.



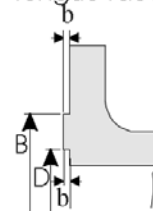
Type A
Flat face



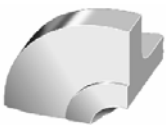
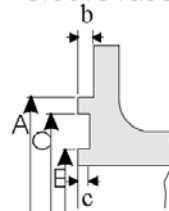
Type B
Raised face



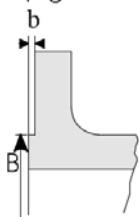
Type C
Tongue face



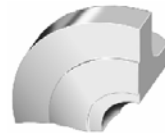
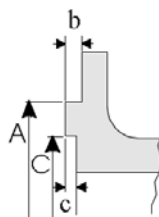
Type D
Groove face



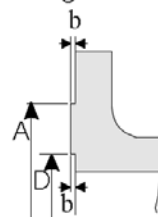
Type E
Spigot



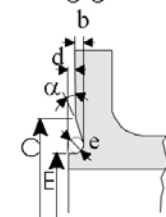
Type F
Recess



Type G
'O' Ring recess



Type H
'O' Ring groove



BS 4504 Circular Flanges - General

Flange facing dimensions (BS 4504)

DN	A mm						Face Dimensions									
	PN 2.5	PN 6	PN 10	PN 16	PN 25	PN 40	B mm	C mm	D mm	E mm	a mm	b mm	c mm	d mm	α mm	e mm
10	35	35	40	40	40	40	34	35	24	23	2	4	3	2	-	5
15	40	40	45	45	45	45	39	40	29	28	2	4	3	2	-	5
20	50	50	58	58	58	58	50	51	36	35	2	4	3	2	41°16'	5
25	60	60	68	68	68	68	57	58	43	42	2	4	3	2	41°16'	5
32	70	70	78	78	78	78	65	66	51	50	2	4	3	2	41°16'	5
40	80	80	88	88	88	88	75	76	61	60	3	4	3	2	41°16'	5
50	90	90	102	102	102	102	87	88	73	72	3	4	3	2	41°16'	5
65	110	110	122	122	122	122	109	110	95	94	3	4	3	2	41°16'	5
80	128	128	138	138	138	138	120	121	106	105	3	4	3	2	41°16'	5
100	148	148	158	158	162	162	149	150	129	128	3	4.5	3.5	2.5	32°15'	6
125	178	178	188	188	188	188	175	176	155	154	3	4.5	3.5	2.5	32°15'	6
150	202	202	212	212	218	218	203	204	183	182	3	4.5	3.5	2.5	32°15'	6
200	258	258	268	268	278	285	259	260	239	238	3	4.5	3.5	2.5	32°15'	6
250	312	312	320	320	335	345	312	313	292	291	3	4.5	3.5	2.5	32°15'	6
300	365	365	370	378	395	410	363	364	343	342	4	4.5	3.5	2.5	32°15'	6
350	415	415	430	438	450	465	421	422	395	394	4	5	4	3	27°24'	7
400	465	465	482	490	505	535	473	474	447	446	4	5	4	3	27°24'	7
450	520	520	532	550	555	560	523	524	497	496	4	5	4	3	27°24'	7
500	570	570	585	610	615	615	575	576	549	548	4	5	4	3	27°24'	7
600	670	670	685	725	720	735	675	676	649	648	5	5	4	3	27°24'	7
700	775	775	800	795	820	-	777	778	751	750	5	5	4	3	27°24'	7
800	880	880	905	900	930	-	882	883	856	855	5	5	4	3	27°24'	7
900	980	980	1005	1000	1030	-	987	988	961	960	5	5	4	3	27°24'	7
1000	1080	1080	1110	1115	1140	-	1092	1094	1062	1060	5	6	5	4	28°39'	8
1200	1280	1295	1330	1330	1350	-	1292	1294	1262	1260	5	6	5	4	28°39'	8
1400	1480	1510	1535	1530	1560	-	1492	1494	1462	1460	5	6	5	4	28°39'	8
1600	1690	1710	1760	1750	1780	-	1692	1694	1662	1660	5	6	5	4	28°39'	8
1800	1890	1920	1960	1950	1985	-	1982	1894	1862	1860	5	6	5	4	28°39'	8
2000	2090	2125	2170	2150	2210	-	2092	2094	2062	2060	5	6	5	4	28°39'	8

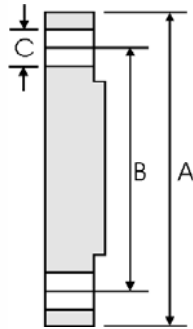
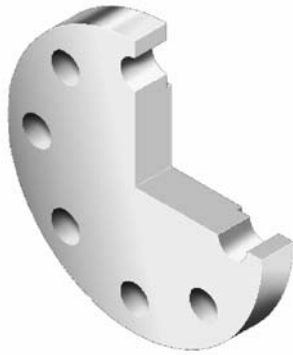
Manufacture

- **Materials.** Flange codes 111 112 and 113 are manufactured from a forging or steel casting. Stainless steel forgings conforming to ASTM A 182, have an additional requirement for grade F304L and F316L that carbon content (by ladle analysis) shall be 0.030% max. Forgings to BS 1503 and comparable ASTM standard grades specified in BS 4504 are as listed in the following table.

BS and ASTM forging grades in BS 4504

BS 1503 Grade	ASTM A 182 Grade
304S11	F304L
304S31	F304
304S51	F304H
347S31	F347
347S51	F347H
321S31	F321
321S51	F321H
316S11	F316L
316S31	F316
316S51	F316H
310S31	F310

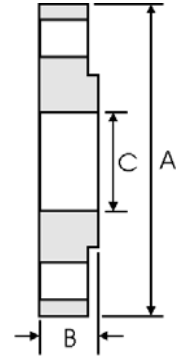
Flange Drilling Details - BS 4504



DN	PN	A	B	C	Bolt Holes	
		mm	mm	mm	No.	Bolt size
10	2.5 & 6	75	50	11	4	M10
	10.16	90	60	14	4	M12
15	2.5 & 6	80	55	11	4	M10
	10 & 16	95	65	14	4	M12
20	2.5 & 6	90	65	11	4	M10
	10 & 16	105	75	14	4	M12
25	2.5 & 6	100	75	11	4	M10
	10 & 16	115	85	14	4	M12
32	2.5 & 6	120	90	14	4	M12
	10 & 16	140	100	18	4	M16
40	2.5 & 6	130	100	14	4	M12
	10 & 16	150	110	18	4	M16
50	2.5 & 6	140	110	14	4	M12
	10 & 16	165	125	18	4	M16
65	2.5 & 6	160	130	14	4	M12
	10 & 16	185	145	18	4/8	M16
80	2.5 & 6	190	150	18	4	M16
	10 & 16	200	160	18	8	M16
100	2.5 & 6	210	170	18	4	M16
	10 & 16	220	180	18	8	M16
125	2.5 & 6	240	200	18	8	M16
	10 & 16	250	210	18	8	M16
150	2.5 & 6	265	225	18	8	M16
	10 & 16	285	240	22	8	M20
200	2.5 & 6	320	280	18	8	M16
	10 & 16	340	295	22	8/12	M20
250	2.5 & 6	375	335	18	12	M16
	10	395	350	22	12	M20
300	2.5 & 6	440	395	22	12	M20
	10	445	400	22	12	M20

DN	PN	A	B	C	Bolt Holes	
		mm	mm	mm	No.	Bolt size
350	2.5 & 6	490	445	22	12	M20
	10	505	460	22	16	M20
	16	520	470	26	16	M24
	25	555	490	33	16	M30
400	2.5 & 6	540	495	22	16	M20
	10	565	515	26	16	M24
	16	580	525	30	16	M27
	25	620	550	36	16	M33
450	2.5 & 6	595	550	22	16	M20
	10	615	565	26	20	M24
	16	640	585	30	20	M27
	25	670	600	36	20	M33
500	2.5 & 6	645	610	22	20	M20
	10	670	620	26	20	M24
	16	715	650	33	20	M30
	25	730	660	36	20	M33
600	2.5 & 6	755	705	26	20	M24
	10	780	725	30	20	M27
	16	840	770	36	20	M33
	25	845	770	39	20	M36
700	2.5 & 6	860	810	26	24	M24
	10	895	840	30	24	M27
	16	910	840	36	24	M33
	25	960	875	42	24	M39
800	2.5 & 6	975	920	30	24	M27
	10	1015	950	33	24	M30
	16	1025	950	39	24	M36
	25	1085	990	48	24	M45
900	2.5 & 6	1075	1020	30	24	M27
	10	1115	1050	33	28	M30
	16	1125	1050	39	28	M36
	25	1185	1090	48	28	M45
1000	2.5 & 6	1175	1120	30	28	M27
	10	1230	1160	36	28	M33
	16	1255	1170	42	28	M39
	25	1320	1210	56	28	M52
1200	2.5	1375	1320	30	32	M27
	6	1405	1340	33	32	M30
	10	1455	1380	39	32	M36
	16	1485	1390	48	32	M45
1400	2.5	1530	1420	56	32	M52
	6	1575	1520	30	36	M27
	10	1630	1560	36	36	M33
	16	1685	1590	48	36	M45
1600	2.5	1755	1640	62	36	M56
	6	1830	1760	36	40	M33
	10	1915	1820	48	40	M45
	16	1930	1820	56	40	M52
1800	2.5	1975	1860	62	40	M56
	6	1990	1930	30	44	M27
	10	2045	1970	39	44	M36
	16	2115	2020	48	44	M45
2000	2.5	2130	2020	56	44	M52
	6	2185	2070	70	44	M64
	10	2190	2130	30	48	M27
	16	2265	2180	42	48	M39

Plate Flanges (Code 101) - BS 4504



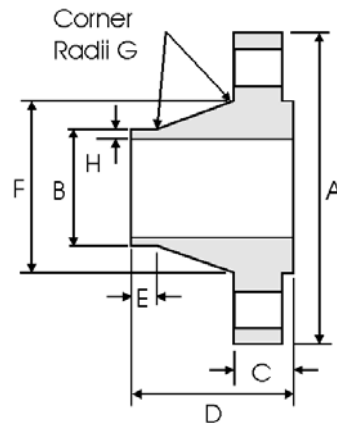
DN	PN	A mm	B mm	C mm
10	2.5, 6	75	12	18.0
	10 & 16	90	14	
	25 & 40	90	14	
15	2.5 & 6	80	12	22
	10 & 16	95	14	
	25 & 40	95	14	
20	2.5 & 6	90	14	27.5
	10 & 16	105	16	
	25 & 40	105	16	
25	2.5 & 6	100	14	34.5
	10 & 16	115	16	
	25 & 40	115	16	
32	2.5 & 6	120	16	43.5
	10 & 16	140	18	
	25 & 40	140	18	
40	2.5 & 6	130	16	49.5
	10 & 16	150	18	
	25 & 40	150	18	
50	2.5 & 6	140	16	61.5
	10 & 16	165	20	
	25 & 40	165	20	
65	2.5 & 6	160	16	77.5
	10 & 16	185	20	
	25 & 40	185	22	
80	2.5 & 6	190	18	90.5
	10 & 16	200	20	
	25 & 40	200	24	
100	2.5 & 6	210	18	116.0
	10 & 16	220	22	
	25 & 40	235	26	
125	2.5 & 6	240	20	141.5
	10 & 16	250	22	
	25 & 40	270	28	
150	2.5 & 6	265	20	170.5
	10 & 16	285	24	
	25 & 40	300	30	
200	2.5 & 6	320	22	221.5
	10 & 16	340	24	
	25	360	32	
250	40	375	36	276.5
	2.5 & 6	375	24	
	10	395	26	
	16	405	29	
	25	425	35	
	40	450	42	

DN	PN	A mm	B mm	C mm
300	2.5 & 6	440	24	327.5
	10	445	26	
	16	460	32	
	25	485	38	
350	40	515	48	359.5
	2.5 & 6	490	26	
	10	505	28	
	16	520	35	
400	25	555	42	359.5
	40	580	54	
	2.5 & 6	540	28	
	10	565	32	
450	16	580	38	411.0
	25	620	46	
	40	660	60	
	2.5 & 6	595	30	
500	10	615	36	462.0
	16	640	42	
	25	670	50	
	40	685	66	
550	2.5 & 6	645	30	513.5
	10	670	38	
	16	715	46	
	25	730	56	
600	40	755	72	616.5
	2.5 & 6	755	32	
	10	780	42	
	16	840	52	
700	25	845	68	To be specified by purchaser
	40	890	84	
800	2.5	860	36	To be specified by purchaser
900	2.5	975	38	
1000	2.5	1075	40	
1200	2.5	1175	42	
1400	2.5	1375	44	
1600	2.5	1575	48	
1800	2.5	1790	51	
2000	2.5	1990	54	
		2190	58	

Notes

- Dimension B is the flange thickness with or without a raised face.

Weld Neck Flanges (Code 111) - BS 4504



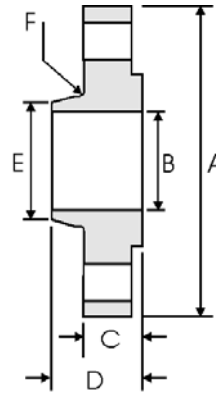
DN	PN	A	B	C	D	E	F	G	H
		mm	mm	mm	mm	mm	mm	mm	mm
10	2.5.6	75	17.2	12	28	6	26	3	1.8
	10	90		14	35		28		1.8
	16	90		14	35		28		1.8
	25	90		16	35		28		1.8
	40	90		16	35		28		1.8
15	2.5.6	80	21.3	12	30	6	30	3	2
	10	95		14	35		32		2
	16	95		14	35		32		2
	25	95		16	38		32		2
	40	95		16	38		32		2
20	2.5.6	90	26.9	14	32	6	38	4	2.3
	10	105		16	38		39		2.3
	16	105		16	38		39		2.3
	25	105		18	40		40		2.3
	40	105		18	40		40		2.3
25	2.5.6	100	33.7	14	35	6	42	4	2.6
	10	115		16	38		46		2.6
	16	115		16	38		46		2.6
	25	115		18	40		46		2.6
	40	115		18	40		46		2.6
32	2.5.6	120	42.4	14	35	6	55	5	2.6
	10	140		16	40		56		2.6
	16	140		16	40		56		2.6
	25	140		18	42		56		2.6
	40	140		18	42		56		2.6
40	2.5.6	130	48.3	14	38	7	62	5	2.6
	10	150		16	42		64		2.6
	16	150		16	42		64		2.6
	25	150		18	45		64		2.6
	40	150		18	45		64		2.6
50	2.5.6	140	60.3	14	38	8	74	5	2.9
	10	165		18	45		74		2.9
	16	165		18	45		74		2.9
	25	165		20	48		74		2.9
	40	165		20	48		74		2.9
65	2.5.6	160	76.1	14	38	9	88	6	2.9
	10	185		18	45	10	92		2.9
	16	185		18	45	10	92		2.9
	25	185		22	52	10	92		2.9
	40	185		22	52	10	92		2.9
80	2.5.6	190	88.9	16	42	10	102	6	3.2
	10	200		20	50		110		3.2
	16	200		20	50		110		3.2
	25	200		24	58		110		3.2
	40	200		24	58		110		3.2

DN	PN	A	B	C	D	E	F	G	H
		mm	mm	mm	mm	mm	mm	mm	mm
100	2.5.6	210	114.3	16	45	12	130	6	3.6
	10	220		20	52		130		3.6
	16	220		20	52		130		3.6
	25	235		24	65		134		3.6
	40	235		24	65		134		3.6
125	2.5.6	240	139.7	18	48	12	155	6	4
	10	250		22	55		158		4
	16	250		22	55		158		4
	25	270		26	68		162		4
	40	270		26	68		162		4
150	2.5.6	265	168.3	18	48	12	184	8	4.5
	10	285		22	55		184		4.5
	16	285		22	55		184		4.5
	25	300		28	75		190		4.5
	40	300		28	75		190		4.5
200	2.5.6	320	219.1	20	55	16	236	8	5.6
	10	340		24	62		234		5.6
	16	340		24	62		234		5.6
	25	360		30	80		244		6.3
	40	375		34	88		244		6.3
250	2.5.6	375	273	22	60	18	290	10	6.3
	10	395		26	68		288		6.3
	16	405		26	70		288		6.3
	25	425		32	88		296		7.1
	40	450		38	105		306		7.1
300	2.5.6	440	323.9	22	62	18	342	10	7.1
	10	445		26	68		342		7.1
	16	460		28	78		342		7.1
	25	485		34	92		350		8
	40	515		42	115		362		8
350	2.5.6	490	355.6	22	62	20	385	10	7.1
	10	505		26	68		390		7.1
	16	520		30	82		390		8
	25	555		38	100		398		8
	40	580		46	125		408		8.8
400	2.5.6	540	406.4	22	65	20	438	10	7.1
	10	565		26	72		440		7.1
	16	580		32	85		444		8
	25	620		40	110		452		8.8
	40	660		50	135		462		11
450	2.5.6	595	457	24	65	20	492	12	7.1
	10	615		28	72		488		7.1
	16	640		34	87		490		8
	25	670		42	110		500		8.8
	40	685		50	135		500		12.5

Weld Neck Flanges (Code 111) - BS 4504

DN	PN	A	B	C	D	E	F	G	H
		mm	mm	mm	mm	mm	mm	mm	mm
500	2.5,6	645	508	24	68	15	538	12	7.1
	10	670		28	75	16	540		7.1
	16	715		34	90	20	546		8
	25	730		44	125	20	558		10
	40	755		52	140	20	562		14.2
600	2.5,6	755	610	24	70	16	640	12	7.1
	10	780		28	80	18	640		7.1
	16	840		36	95	18	650		8.8
	25	845		46	125	20	660		11
	40	890		60	150	20	666		16
700	2.5	860	711	24	70	16	740	12	7.1
	6	860		24	70	16	740		7.1
	10	895		30	80	18	746		8
	16	910		36	100	18	750		8.8
	25	960		46	125	20	760		12.5
800	2.5	975	813	26	70	16	842	12	7.1
	6	975		24	70	16	842		7.1
	10	1015		32	90	18	848		8
	16	1025		38	105	20	848		10
	25	1085		50	135	22	864		14.2
900	2.5	1075	914	26	70	16	942	12	7.1
	6	1075		26	70	16	942		7.1
	10	1115		34	95	20	948		10
	16	1125		40	110	20	948		10
	25	1185		54	145	24	968		16
1000	2.5	1175	1016	26	70	16	1045	12	7.1
	6	1175		26	70	16	1045		7.1
	10	1230		34	95	20	1050		10
	16	1255		42	120	22	1056		10
	25	1320		58	155	24	1070		17.5
1200	2.5	1375	1220	26	70	16	1245	16	7.1
	6	1405		28	90	20	1248		8
	10	1455		38	115	25	1256		11
	16	1485		48	130	30	1260		12.5
1400	2.5	1575	1420	26	70	16	1445	16	7.1
	6	1630		32	90	20	1452		8
	10	1675		42	120	25	1460		12
	16	1685		52	145	30	1465		14.2
1600	2.5	1790	1620	26	80	20	1645	16	7.1
	6	1830		34	90	20	1655		9
	10	1915		46	130	25	1666		14
	16	1930		58	160	35	1668		16
1800	2.5	1990	1820	26	80	20	1845	16	7.1
	6	2045		36	100	20	1855		10
	10	2115		50	140	30	1866		15
	16	2130		62	170	35	1870		17.5
2000	2.5	2190	2020	26	80	22	2045	16	7.1
	6	2265		38	110	25	2058		11
	10	2325		54	150	30	2070		16
	16	2345		66	190	40	2072		20

Slip On Flanges (Code 112) - BS 4504



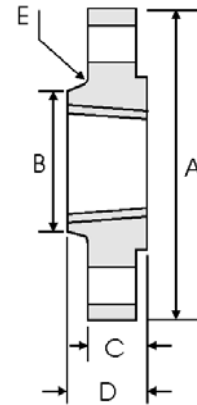
DN	PN	A mm	B mm	C mm	D mm	E mm	F mm
10	6	75	18.0	12	20	25	3
	10 & 16	90		14	20	30	
	25 & 40	90		16	22	30	
15	6	80	22	12	20	30	3
	10 & 16	95		14	20	35	
	25 & 40	95		16	22	35	
20	6	90	27.5	14	24	40	4
	10 & 16	105		16	24	45	
	25 & 40	105		18	26	45	
25	6	100	34.5	14	24	50	4
	10 & 16	115		16	24	52	
	25 & 40	115		18	28	52	
32	6	120	43.5	14	26	60	5
	10 & 16	140		16	26	60	
	25 & 40	140		18	30	60	
40	6	130	49.5	14	26	70	5
	10 & 16	150		16	26	70	
	25 & 40	150		18	32	70	
50	6	140	61.5	14	28	80	5
	10 & 16	165		18	28	84	
	25 & 40	165		20	34	84	
65	6	160	77.5	14	32	100	6
	10 & 16	185		18	32	104	
	25 & 40	185		22	38	104	
80	6	190	90.5	16	34	110	6
	10 & 16	200		20	34	118	
	25 & 40	200		24	40	118	
100	6	210	116.0	16	40	130	6
	10 & 16	220		20	40	140	
	25 & 40	235		24	44	145	
125	6	240	141.5	18	44	160	6
	10 & 16	250		22	44	168	
	25 & 40	270		26	48	170	
150	6	265	170.5	18	44	185	8
	10 & 16	285		22	44	195	
	25 & 40	300		28	75	190	

DN	PN	A mm	B mm	C mm	D mm	E mm	F mm
200	6	320	221.5	20	44	240	8
	10 & 16	340		24	44	246	
	25	360		30	52	256	
	40	375		34	52	260	
250	6	375	276.5	22	44	295	10
	10	395		26	46	298	
	16	405		26	46	298	
	25	425		32	60	310	
300	6	440	327.5	22	44	355	10
	10	445		26	46	350	
	16	460		28	46	350	
	25	485		34	67	364	
350	10	505	359.5	26	53	400	10
	16	520	359.0	30	57	400	
	25	555	359.5	38	72	418	
	40	580	359.5	46	72	424	
400	10	565	411.0	26	57	456	10
	16	580		32	63	456	
	25	620		40	78	472	
	40	660		50	78	478	
450	10	615	462.0	28	63	502	12
	16	640		34	68	502	
	25	670		42	84	520	
	40	685		50	84	522	
500	10	670	513.5	28	67	559	12
	16	715		34	73	559	
	25	730		44	90	580	
	40	755		52	90	576	
600	10	780	616.5	28	75	658	12
	16	840		36	83	658	
	25	845		46	100	684	
	40	890		60	100	686	
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Notes

- The hubs of slip on (code 112) flanges are parallel or have a draft <7 degrees.

Threaded Flanges (Code 113) - BS 4504



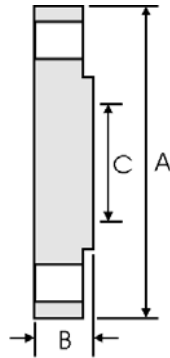
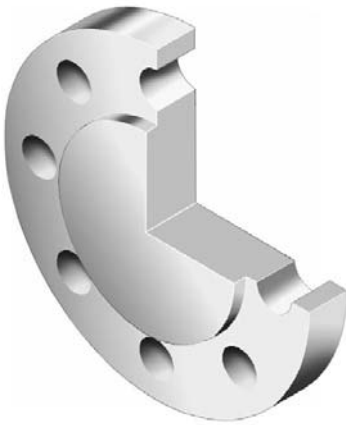
DN	PN	A mm	B mm	C mm	D mm	E mm
10	6	75	25	12	20	3
	16	90	30	14	20	
	40	90	30	16	22	
15	6	80	30	12	20	3
	16	95	35	14	20	
	40	95	35	16	22	
20	6	90	40	14	24	4
	16	105	45	16	24	
	40	105	45	18	26	
25	6	100	50	14	24	4
	16	115	52	16	24	
	40	115	52	18	28	
32	6	120	60	14	26	5
	16	140	60	16	26	
	40	140	60	18	30	
40	6	130	70	14	26	5
	16	150	70	16	26	
	40	150	70	18	32	
50	6	140	80	14	28	5
	16	165	84	18	28	
	40	165	84	20	34	
65	6	160	100	14	32	6
	16	185	104	18	32	
	40	185	104	22	38	
80	6	190	110	16	34	6
	16	200	118	20	34	
	40	200	118	24	40	
100	6	210	130	16	40	6
	16	220	140	20	40	
	40	235	145	24	44	

DN	PN	A mm	B mm	C mm	D mm	E mm
125	6	240	160	18	44	6
	16	250	168	22	44	
	40	270	170	26	48	
150	6	265	185	18	44	8
	16	285	195	22	44	
	40	300	200	28	52	
200	6	320	240	20	44	8
	16	340	246	24	44	
	40	375	260	34	52	
250	6	375	295	22	44	10
	16	405	298	26	46	
	40	450	312	38	60	
300	6	440	355	22	44	10
	16	460	350	28	46	
	40	515	380	42	67	
350	16	520	400	30	57	10
	40	580	424	46	72	
	16	580	456	32	63	
400	16	660	478	50	78	10
	40	685	522	50	84	
	16	640	502	34	68	
450	16	640	502	34	68	12
	40	685	522	50	84	
	16	715	559	34	73	
500	16	715	559	34	73	12
	40	755	576	52	90	
	16	840	658	36	83	
600	16	840	658	36	83	12
	40	890	686	60	100	
	16	910	760	36	83	
700	16	910	760	36	83	12
800	16	1025	864	38	90	12
900	16	1125	968	40	94	12
1000	16	1255	1072	42	100	12
-	-	-	-	-	-	-

Notes

- Threaded flange (code 113) threads are tapered or parallel.
BS 21 or ANSI/ASME B1.20.1 threads may be specified.
- The hubs of threaded (code 113) flanges are parallel or have a draft <7 degrees.

Blank Flanges (Code 105) - BS 4504



DN	PN	A mm	B mm	C mm
10	2.5 & 6	75	12	-
	10 & 16	90	14	-
	25 & 40	90	16	-
15	2.5 & 6	80	12	-
	10 & 16	95	14	-
	25 & 40	95	16	-
20	2.5 & 6	90	14	-
	10 & 16	105	16	-
	25 & 40	105	18	-
25	2.5 & 6	100	14	-
	10 & 16	115	16	-
	25 & 40	115	18	-
32	2.5 & 6	120	14	-
	10 & 16	140	16	-
	25 & 40	140	18	-
40	2.5 & 6	130	14	-
	10 & 16	150	16	-
	25 & 40	150	18	-
50	2.5 & 6	140	14	-
	10 & 16	165	18	-
	25 & 40	165	20	-
65	2.5 & 6	160	14	55
	10 & 16	185	18	55
	25 & 40	185	22	55
80	2.5 & 6	190	16	70
	10 & 16	200	20	70
	25 & 40	200	24	70
100	2.5 & 6	210	16	90
	10 & 16	220	20	90
	25 & 40	235	24	90
125	2.5 & 6	240	18	115
	10 & 16	250	22	115
	25 & 40	270	26	115
150	2.5 & 6	265	18	140
	10 & 16	285	22	140
	25 & 40	300	28	140
200	2.5 & 6	320	20	190
	10 & 16	340	24	190
	25	360	30	190
	40	375	34	190
250	2.5 & 6	375	22	235
	10	395	26	235
	16	405	26	235
	25	425	32	235
40	450	38	235	

DN	PN	A mm	B mm	C mm
300	2.5 & 6	440	22	285
	10	445	26	285
	16	460	28	285
	25	485	34	285
	40	515	42	285
350	2.5 & 6	490	22	325
	10	505	26	325
	16	520	30	325
	25	555	38	325
	40	580	46	325
400	2.5 & 6	540	22	375
	10	565	26	375
	16	580	32	375
	25	620	40	375
	40	660	50	375
450	2.5 & 6	595	24	425
	10	615	28	425
	16	640	34	425
	25	670	42	425
	40	685	54	425
500	2.5 & 6	645	24	475
	10	670	28	475
	16	715	36	475
	25	730	45	475
	40	755	56	475
600	2.5 & 6	755	34	575
	10	780	34	575
	16	840	44	575
	25	845	54	575
	40	890	70	575
700	2.5	860	36	-
	6	860	38	-
	10	895	38	670
	16	910	48	670
800	2.5	975	38	-
	6	975	42	-
	10	1015	42	770
	16	1025	52	770
900	2.5	1075	40	-
	6	1075	46	-
	10	1115	46	860
	16	1125	58	860
1000	2.5	1175	42	-
	6	1175	52	-
	10	1230	52	960
	16	1255	64	960
1200	2.5	1375	44	-
	6	1405	60	-
	10	1455	60	1160
1400	16	1485	76	1160
	2.5	1575	48	-
	6	1630	68	-
1600	2.5	1790	51	-
	6	1830	76	-
1800	2.5	1990	54	-
	6	2045	84	-
2000	2.5	2190	58	-
	6	2265	92	-

Notes

- Dimension B is the range thickness with or without a raised face.
- Dimension C is the maximum diameter of the centre portion of a blank flange face which need not be machined.

BS 10

British Standard BS 10 : 1962 - Specification for Flanges and Bolting for Pipes, Valves, and Fittings. This covers plain, boss, integrally cast or forged, and welding neck type flanges, in ten tables. Although BS 10 is obsolescent, it remains in use for the dimensions of light duty, economy stainless steel flanges in applications where corrosion resistance and/or hygiene, rather than high pressures and temperatures, are the primary considerations. The following tables detail the applicable standard dimensions from Tables D, E, F and H of BS 10.

Flange Dimensions Based on Tables D and E of BS 10 : 1962

Common Flange Size Designation (Nominal Bore of Pipe)	BS 10 Table D Dimensions					BS 10 Table E Dimensions				
	Overall Diameter of Flange	Flange Thickness	Bolt Circle Diameter	Number of Bolts	Diameter of Bolts	Overall Diameter of Flange	Flange Thickness	Bolt Circle Diameter	Number of Bolts	Diameter of Bolts
	in	in	in		in	in	in	in		in
1/2	3 3/4	3/16	2 5/8	4	1/2	3 3/4	1/4	2 5/8	4	1/2
3/4	4	3/16	2 7/8	4	1/2	4	1/4	2 7/8	4	1/2
1	4 1/2	3/16	3 1/4	4	1/2	4 1/2	9/32	3 1/4	4	1/2
1 1/4	4 3/4	1/4	3 7/16	4	1/2	4 3/4	5/16	3 7/16	4	1/2
1 1/2	5 1/4	1/4	3 7/8	4	1/2	5 1/4	11/32	3 7/8	4	1/2
2	6	5/16	4 1/2	4	5/8	6	3/8	4 1/2	4	5/8
2 1/2	6 1/2	5/16	5	4	5/8	6 1/2	13/32	5	4	5/8
3	7 1/4	3/8	5 3/4	4	5/8	7 1/4	7/16	5 3/4	4	5/8
3 1/2	8	3/8	6 1/2	4	5/8	8	15/32	6 1/2	8	5/8
4	8 1/2	3/8	7	4	5/8	8 1/2	1/2	7	8	5/8
5	10	1/2	8 1/4	8	5/8	10	9/16	8 1/4	8	5/8
6	11	1/2	9 1/4	8	5/8	11	11/16	9 1/4	8	3/4
7	12	1/2	10 1/4	8	5/8	12	3/4	10 1/4	8	3/4
8	13 1/4	1/2	11 1/2	8	5/8	13 1/4	3/4	11 1/2	8	3/4
9	14 1/2	5/8	12 3/4	8	5/8	14 1/2	13/16	12 3/4	12	3/4
10	16	5/8	14	8	3/4	16	7/8	14	12	3/4
12	18	3/4	16	12	3/4	18	1	16	12	7/8
13	19 1/4	3/4	17 1/4	12	3/4	19 1/4	1	17 1/4	12	7/8
14	20 3/4	7/8	18 1/2	12	7/8	20 3/4	1 1/8	18 1/2	12	7/8
15	21 3/4	7/8	19 1/2	12	7/8	21 3/4	1 1/4	19 1/2	12	7/8
16	22 3/4	7/8	20 1/2	12	7/8	22 3/4	1 1/4	20 1/2	12	7/8
17	24	1	21 3/4	12	7/8	24	1 3/8	21 3/4	12	7/8
18	25 1/4	1	23	12	7/8	25 1/4	1 3/8	23	16	7/8
19	26 1/2	1	24	12	7/8	26 1/2	1 1/2	24	16	7/8
20	27 3/4	1 1/8	25 1/4	16	7/8	27 3/4	1 1/2	25 1/4	16	7/8
21	29	1 1/8	26 1/2	16	7/8	29	1 5/8	26 1/2	16	1
22	30	1 1/8	27 1/2	16	1	30	1 3/4	27 1/2	16	1
23	31	1 1/8	28 1/2	16	1	31	1 3/4	28 1/2	16	1
24	32 1/2	1 1/4	29 3/4	16	1	32 1/2	1 7/8	29 3/4	16	1 1/8

Note

- Bolt hole diameters are as follows:

For 1/2 in and 5/8 in bolts, the bolt hole shall be 1/16 in larger than the bolt diameter.

For 3/4 in bolts and larger, the bolt hole shall be not more than 1/8 in larger than the bolt diameter.

BS 10 : 1962

Flange Dimensions Based on Tables F and H of BS 10 : 1962

Common Flange Size Designation (Nominal Bore of Pipe)	BS 10 Table F Dimensions					BS 10 Table H Dimensions				
	Overall Diameter of Flange	Flange Thickness	Bolt Circle Diameter	Number of Bolts	Diameter of Bolts	Overall Diameter of Flange	Flange Thickness	Bolt Circle Diameter	Number of Bolts	Diameter of Bolts
1/2	3 ³ / ₄	³ / ₈	2 ⁵ / ₈	4	¹ / ₂	4 ¹ / ₂	¹ / ₂	3 ¹ / ₄	4	⁵ / ₈
3/4	4	³ / ₈	2 ⁷ / ₈	4	¹ / ₂	4 ¹ / ₂	¹ / ₂	3 ¹ / ₄	4	⁵ / ₈
1	4 ³ / ₄	³ / ₈	3 ⁷ / ₁₆	4	⁵ / ₈	4 ³ / ₄	⁹ / ₁₆	3 ⁷ / ₁₆	4	⁵ / ₈
1 ¹ / ₄	5 ¹ / ₄	¹ / ₂	3 ⁷ / ₈	4	⁵ / ₈	5 ¹ / ₄	¹¹ / ₁₆	3 ⁷ / ₈	4	⁵ / ₈
1 ¹ / ₂	5 ¹ / ₂	¹ / ₂	4 ¹ / ₈	4	⁵ / ₈	5 ¹ / ₂	¹¹ / ₁₆	4 ¹ / ₈	4	⁵ / ₈
2	6 ¹ / ₂	⁵ / ₈	5	4	⁵ / ₈	6 ¹ / ₂	³ / ₄	5	4	⁵ / ₈
2 ¹ / ₂	7 ¹ / ₄	⁵ / ₈	5 ³ / ₄	8	⁵ / ₈	7 ¹ / ₄	³ / ₄	5 ³ / ₄	8	⁵ / ₈
3	8	⁵ / ₈	6 ¹ / ₂	8	⁵ / ₈	8	⁷ / ₈	6 ¹ / ₂	8	⁵ / ₈
3 ¹ / ₂	8 ¹ / ₂	³ / ₄	7	8	⁵ / ₈	8 ¹ / ₂	⁷ / ₈	7	8	⁵ / ₈
4	9	³ / ₄	7 ¹ / ₂	8	⁵ / ₈	9	1	7 ¹ / ₂	8	⁵ / ₈
5	11	⁷ / ₈	9 ¹ / ₄	8	³ / ₄	11	¹ / ₈	9 ¹ / ₄	8	³ / ₄
6	12	⁷ / ₈	10 ¹ / ₄	12	³ / ₄	12	¹ / ₈	10 ¹ / ₄	12	³ / ₄
7	13 ¹ / ₄	⁷ / ₈	11 ¹ / ₂	12	³ / ₄	13 ¹ / ₄	¹ / ₄	11 ¹ / ₂	12	³ / ₄
8	14 ¹ / ₂	1	12 ³ / ₄	12	³ / ₄	14 ¹ / ₂	¹ / ₄	12 ³ / ₄	12	³ / ₄
9	16	¹ / ₈	14	12	⁷ / ₈	16	¹ / ₈	14	12	⁷ / ₈
10	17	¹ / ₈	15	12	⁷ / ₈	17	¹ / ₈	15	12	⁷ / ₈
12	19 ¹ / ₄	¹ / ₄	17 ¹ / ₄	16	⁷ / ₈	19 ¹ / ₄	¹ / ₈	17 ¹ / ₄	16	⁷ / ₈
13	20 ³ / ₄	¹ / ₈	18 ¹ / ₂	16	1	20 ³ / ₄	¹ / ₈	18 ¹ / ₂	16	1
14	21 ³ / ₄	¹ / ₈	19 ¹ / ₂	16	1	21 ³ / ₄	¹ / ₈	19 ¹ / ₂	16	1
15	22 ³ / ₄	¹ / ₂	20 ¹ / ₂	16	1	22 ³ / ₄	2	20 ¹ / ₂	16	1
16	24	¹ / ₈	21 ³ / ₄	20	1	24	¹ / ₈	21 ³ / ₄	20	1
17	25 ¹ / ₄	¹ / ₈	23	20	1	25 ¹ / ₄	¹ / ₈	23	20	1
18	26 ¹ / ₂	¹ / ₈	24	20	¹ / ₈	26 ¹ / ₂	¹ / ₈	24	20	¹ / ₈
19	27 ³ / ₄	¹ / ₈	25 ¹ / ₄	20	¹ / ₈	27 ³ / ₄	¹ / ₈	25 ¹ / ₄	20	¹ / ₈
20	29	2	26 ¹ / ₂	24	¹ / ₈	29	¹ / ₈	26 ¹ / ₂	24	¹ / ₈
21	30	2	27 ¹ / ₂	24	¹ / ₈	30	¹ / ₈	27 ¹ / ₂	24	¹ / ₈
22	31	¹ / ₈	28 ¹ / ₂	24	¹ / ₈	31	¹ / ₈	28 ¹ / ₂	24	¹ / ₈
23	32 ¹ / ₂	¹ / ₄	29 ³ / ₄	24	¹ / ₄	32 ¹ / ₂	3	29 ³ / ₄	24	¹ / ₄
24	33 ¹ / ₂	¹ / ₄	30 ³ / ₄	24	¹ / ₄	33 ¹ / ₂	3	30 ³ / ₄	24	¹ / ₄

Note

- Bolt hole diameters are as follows:

For ¹/₂ in and ⁵/₈ in bolts, the bolt hole shall be ¹/₁₆ in larger than the bolt diameter.

For ³/₄ in bolts and larger, the bolt hole shall be not more than ¹/₈ in larger than the bolt diameter.