

Table D - BS-10 Flange

Flange designation nominal bore of pipe	Approx. Outside diameter of Steel Pipe H	Diameter of Flange D	Pitch Circle diameter (PCD) P	No. of Bolts N	Diameter of bolts D	Thickness T
in	in	in	in	in	in	in
½	27/32	3 ¾	2 5/8	4	¾	5/16
¾	1 1/16	4	2 7/8	4	¾	3/16
1	1 11/32	4 ½	3 ¾	4	¾	3/16
1 ¼	1 11/16	4 ¾	3 7/16	4	¾	¼
1 ½	1 29/32	5 ¼	3 7/8	4	¾	¼
2	2 1/8	6	4 ½	4	5/8	5/16
2 ½	3	6 ¾	5	4	5/8	5/16
3	3 ½	7 ¾	5 ¾	4	5/8	3/8
4	4 ½	8 ¾	7	4	5/8	3/8
5	5 ½	10	8 ¾	8	5/8	½
6	6 5/8	11	9 ¾	8	5/8	½
8	8 5/8	13 ¾	11 ¾	8	5/8	½
10	10 ¾	16	14	8	¾	5/8
12	12 ¾	18	16	12	¾	¾
14	14	20 ¾	18 ¾	12	¾	7/8
16	16	22 ¾	20 ¾	12	7/8	7/8
18	18	25 ¾	23	12	7/8	1
20	20	27 ¾	25 ¾	16	7/8	1 1/8
22	22	30	27 ¾	16	1	1 1/8
24	24	32 ¾	29 ¾	16	1	1 ¼

Table E - BS-10 Flange

Flange designation nominal bore of pipe	Approx. Outside diameter of Steel Pipe H	Diameter of Flange D	Pitch Circle diameter (PCD) P	No. of Bolts N	Diameter of bolts D	Thickness T
in	in	in	in	in	in	in
½	27/32	3 ¾	2 5/8	4	¾	¼
¾	1 1/16	4	2 7/8	4	¾	¼
1	1 11/32	4 ½	3 ¾	4	¾	3/32
1 ¼	1 11/16	4 ¾	3 7/16	4	¾	5/16
1 ½	1 29/32	5 ¼	3 7/8	4	¾	11/32
2	2 1/8	6	4 ½	4	5/8	1/8
2 ½	3	6 ¾	5	4	5/8	13/32
3	3 ½	7 ¾	5 ¾	4	5/8	7/16
4	4 ½	8 ¾	7	4	5/8	½
5	5 ½	10	8 ¾	8	5/8	3/8
6	6 5/8	11	9 ¾	8	¾	11/16
8	8 5/8	13 ¾	11 ¾	8	¾	¾
10	10 ¾	16	14	12	7/8	7/8
12	12 ¾	18	16	12	7/8	1
14	14	20 ¾	18 ¾	12	7/8	1 1/8
16	16	22 ¾	20 ¾	12	7/8	1 ¼
18	18	25 ¾	23	16	7/8	1 3/8
20	20	27 ¾	25 ¾	16	7/8	1 ½
22	22	30	27 ¾	16	1	1 ¾
24	24	32 ¾	29 ¾	16	1 1/16	1 7/8

Table F - BS-10 Flange

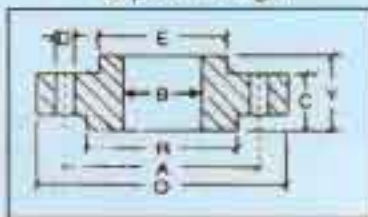
½	27/32	3 ¾	2 5/8	4	¾	3/8
¾	1 1/16	4	2 7/8	4	¾	3/8
1	1 11/32	4 ½	3 7/16	4	¾	3/8
1 ¼	1 11/16	5 ¼	3 7/8	4	5/8	¾
1 ½	1 29/32	5 ¾	4 1/8	4	5/8	¾
2	2 1/8	6 ¾	5	4	5/8	5/8
2 ½	3	7 ¾	5 ¾	8	5/8	5/8
3	3 ½	8	6 ½	8	5/8	5/8
4	4 ½	9	7 ½	8	3/8	¾
5	5 ½	11	9 ¾	8	¾	7/8
6	6 5/8	12	10 ¾	12	¾	7/8
8	8 5/8	14 ¾	12 ¾	12	¾	1
10	10 ¾	17	15	12	7/8	1 1/8
12	12 ¾	19 ¾	17 ¾	16	1	1 ¼
14	14	21 ¾	19 ¾	16	1	1 3/8
16	16	24	21 ¾	20	1	1 5/8
18	18	26 ¾	24	20	1 1/8	1 ¾
20	20	29	26 ¾	24	1 1/8	2
22	22	31	28 ¾	24	1 1/8	2 1/8
24	24	33 ¾	30 ¾	24	1 ¼	2 ¼

Table H - BS-10 Flange

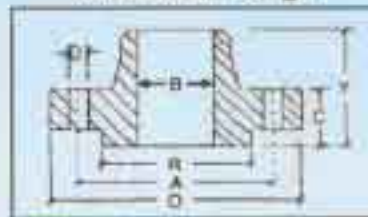
½	27/32	4 ¾	3 ¾	4	5/8	¾
¾	1 1/16	4 ½	3 ¾	4	5/8	¾
1	1 11/32	4 ¾	3 7/16	4	5/8	3/4
1 ¼	1 11/16	5 ¼	3 7/8	4	5/8	3/4
1 ½	1 29/32	5 ¾	4 1/8	4	5/8	¾
2	2 1/8	6 ¾	5	4	5/8	11/16
2 ½	3	7 ¾	5 ¾	8	5/8	¾
3	3 ½	8	6 ½	8	5/8	7/8
4	4 ½	9	7 ½	8	5/8	1
5	5 ½	11	9 ¾	8	¾	1 1/8
6	6 5/8	12	10 ¾	12	¾	1 1/8
8	8 5/8	14 ¾	12 ¾	12	¾	1 1/4
10	10 ¾	17	15	12	7/8	1 3/8
12	12 ¾	19 ¾	17 ¾	16	7/8	1 5/8
14	14	21 ¾	19 ¾	16	1	1 7/8
16	16	24	21 ¾	20	1	2 1/8
18	18	26 ¾	24	20	1 1/8	2 3/8
20	20	29	26 ¾	24	1 1/8	2 5/8
22	22	31	28 ¾	24	1 1/8	2 3/4
24	24	33 ¾	30 ¾	24	1 ¼	3

Dimensions of class 150 Flanges as per ANSI B 16.5

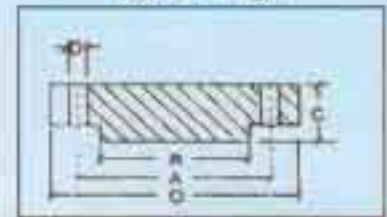
Slip-on Flange



Weld Neck Flange



Blind Flange



Nominal Pipe Size	Flange Dia O	Dia of Bolt Grade A	Dia of Bolt Holes D	No. of Holes	Thk of Flange C	Dia of Sub E	Length through Hub			Dia of bore		Dia of R/F R	Depth of Socket F
							S/D & S/W Y	W/N Y	L/J Y	S/O & S/W B	L/J B		
15	88.9	60.3	15.9	4	11.1	30.2	15.9	47.6	15.9	22.3	22.9	34.9	9.5
20	98.4	69.8	15.9	4	12.7	38.1	15.9	52.4	15.9	27.7	28.2	42.9	11.1
25	107.9	79.4	15.9	4	14.3	49.2	17.5	55.6	17.5	34.5	35.0	50.8	12.7
32	117.5	88.9	15.9	4	15.9	58.7	20.6	57.1	20.6	43.2	43.7	63.5	14.3
40	127.0	98.4	15.9	4	17.5	65.1	22.2	61.9	22.2	49.5	50.0	73.0	15.9
50	152.4	120.6	19.0	4	19.0	77.8	25.4	63.5	25.4	62.0	62.5	92.1	17.5
65	177.8	139.7	19.0	4	22.2	90.5	28.6	69.8	28.6	74.7	75.4	104.8	19.0
80	190.5	152.4	19.0	4	23.8	107.9	30.2	69.8	30.2	90.7	91.4	127.0	20.6
100	228.6	190.5	19.0	8	23.8	134.9	33.3	76.2	33.3	116.1	116.8	157.2	23.8
125	254.0	215.9	22.2	8	23.8	163.5	36.5	88.9	36.5	143.8	144.5	185.7	23.8
150	279.4	241.3	22.2	8	25.4	192.1	39.7	88.9	39.7	170.7	171.4	215.9	27.0
200	342.9	298.4	22.2	8	28.6	246.1	44.4	101.6	44.4	221.5	222.2	269.9	31.7
250	406.4	361.9	25.4	12	30.2	304.8	49.2	101.6	49.2	276.3	277.4	323.8	33.3
300	482.6	431.8	25.4	12	31.8	365.1	55.6	114.3	55.6	327.1	328.2	381.0	39.7
350	533.4	476.2	28.6	12	34.9	400.0	57.1	127.0	79.4	359.1	360.2	412.7	41.3
400	596.9	539.7	28.6	16	36.5	457.2	63.5	127.0	87.3	410.5	411.2	469.9	44.4
450	635.0	577.8	31.7	16	39.7	504.8	68.3	139.7	96.8	461.8	462.3	533.4	49.2
500	698.5	635.0	31.7	20	42.9	558.8	73.0	144.5	103.2	513.1	514.3	584.2	54.0
600	812.8	749.3	34.9	20	47.6	663.6	82.5	152.4	111.1	615.9	615.9	692.1	63.5

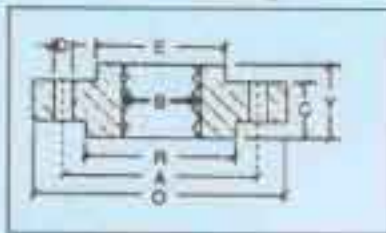
Dimensions of class 300 Flanges as per ANSI B 16.5

15	95.2	66.7	15.9	4	14.3	38.1	22.2	52.4	22.2	22.3	22.9	34.9	9.5
20	117.5	82.5	19.0	4	15.9	47.6	25.4	57.1	25.4	27.7	28.2	42.9	11.1
25	123.8	88.9	19.0	4	17.5	54.0	27.0	61.9	27.0	34.5	35.0	50.8	12.7
32	133.3	98.4	19.0	4	19.0	63.5	27.0	65.1	27.0	43.2	43.7	63.5	14.3
40	155.6	114.3	22.2	4	20.6	69.8	30.2	68.3	30.2	49.5	50.0	73.0	15.9
50	165.1	127.0	19.0	8	22.2	84.1	33.3	69.8	33.3	62.0	62.5	92.1	17.5
65	190.5	149.2	22.2	8	25.4	100.0	38.1	76.2	38.1	74.7	75.4	104.8	19.0
80	209.5	168.3	22.2	8	28.6	117.5	42.9	79.4	42.9	90.7	91.4	127.0	20.6
100	254.0	200.0	22.2	8	31.8	146.0	47.6	85.7	47.6	116.1	116.8	157.2	23.8
125	279.4	234.9	22.2	8	34.9	177.8	50.8	98.4	50.8	143.8	144.5	185.7	-
150	317.5	269.9	22.2	12	36.5	206.4	52.4	98.4	52.4	170.7	171.4	215.9	-
200	381.0	330.2	25.4	12	41.3	260.3	61.9	111.1	61.9	221.5	222.2	269.9	-
250	444.5	387.3	28.6	16	47.6	320.7	66.7	117.5	95.2	276.3	277.4	323.8	-
300	520.7	450.8	31.7	16	50.8	374.6	73.0	130.2	101.6	327.1	328.2	381.0	-
350	584.2	514.3	31.7	20	54.0	425.4	76.2	142.9	111.1	359.1	360.2	412.7	-
400	647.7	571.5	34.9	20	57.2	482.6	82.5	146.0	120.6	410.5	411.2	469.9	-
450	711.2	628.5	34.9	24	60.3	533.4	88.9	158.7	130.2	461.8	462.3	533.4	-
500	774.7	685.8	34.9	24	63.5	587.4	95.2	161.9	139.7	513.1	514.3	584.2	-
600	914.4	812.8	41.3	24	69.8	701.7	106.4	168.3	152.4	615.9	615.9	692.1	-

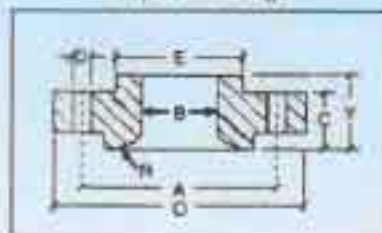
Dimensions of class 600 Flanges as per ANSI B 16.5

All dimensions are in millimeters

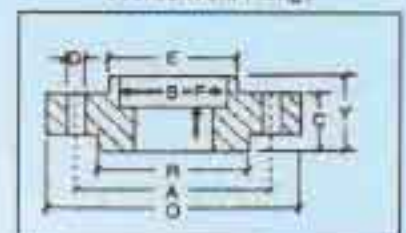
Threaded Flange



Lap Joint Flange



Socket-weld Flange



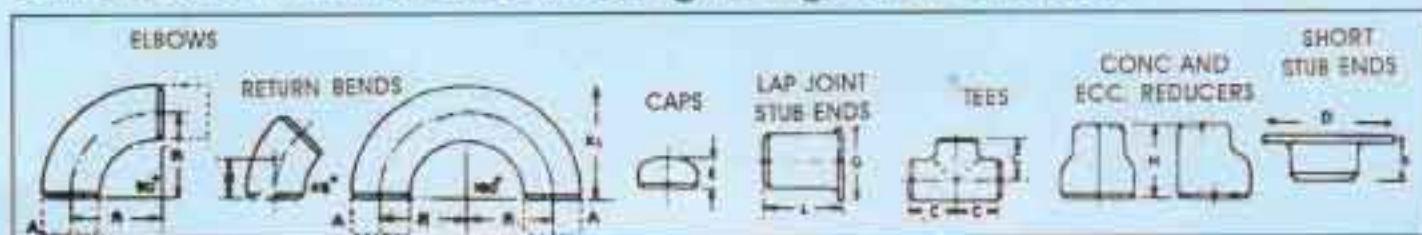
Nominal Pipe Size	Flange Dia O	Dia of Bolt Grade A	Dia of Bolt Holes D	No. of Holes	Thk of Flange C	Dia of Sub E	Length through Hub			Dia of bore		Dia of R/F R	Depth of Socket F
							S/O & S/W Y	W/N Y	L/J Y	S/O & S/W B	L/J B		
15	95.2	66.7	15.9	4	14.3	38.1	22.2	52.4	22.3	22.3	22.8	34.9	9.5
20	117.5	82.5	19.0	4	15.9	47.6	25.4	57.1	25.4	27.7	28.1	42.9	11.1
25	123.8	88.9	19.0	4	17.5	54.0	27.0	61.9	26.9	34.5	35.0	50.8	12.7
32	133.3	98.4	19.0	4	20.6	63.5	28.6	66.7	28.4	43.2	43.6	63.5	14.2
40	155.6	114.3	22.2	4	22.2	69.8	31.7	69.8	31.7	49.5	50.0	73.0	15.8
50	165.1	127.0	19.0	8	25.4	84.1	36.5	73.0	36.5	62.0	62.4	92.1	17.4
65	190.5	149.2	22.2	8	28.6	100.0	41.3	79.4	41.1	74.7	75.4	104.8	19.0
80	209.5	168.3	22.2	8	31.8	117.5	46.0	82.5	45.9	90.7	91.4	127.0	-
100	273.0	215.9	25.4	8	38.1	152.4	54.0	101.6	53.8	116.1	116.8	157.2	-
125	330.2	266.7	28.6	8	44.4	188.9	60.3	114.3	60.4	143.8	141.5	185.7	-
150	355.6	292.1	28.6	12	47.6	222.2	66.7	117.5	66.5	170.7	171.4	215.9	-
200	419.1	349.2	31.7	12	55.6	273.0	76.2	133.3	76.2	221.5	222.2	269.9	-
250	508.0	431.8	34.9	16	63.5	342.9	85.7	152.4	111.2	276.3	277.3	323.8	-
300	558.8	488.9	34.9	20	66.7	400.0	92.1	155.6	117.3	327.1	328.1	381.0	-
350	603.2	527.0	38.1	20	69.9	431.8	93.7	165.1	127.0	359.1	360.1	412.7	-
400	685.8	603.2	41.3	20	76.2	495.3	106.4	174.8	139.7	410.5	411.2	469.9	-
450	742.9	654.0	44.4	20	82.6	546.1	117.5	184.1	152.4	461.8	462.2	533.4	-
500	812.8	723.9	44.4	24	88.9	609.6	127.0	190.5	165.1	513.1	514.3	584.2	-
600	939.8	838.2	50.8	24	101.6	717.5	139.7	203.2	184.1	615.9	615.9	692.1	-

Dimensions of class 900 Flanges as per ANSI B 16.5

All dimensions are in millimeters

15	120.6	82.5	22.2	4	22.2	38.1	31.7	60.3	31.7	22.2	22.8	34.9	9.5
20	130.2	88.9	22.2	4	25.4	44.4	34.9	69.8	35.0	27.7	28.1	42.9	11.1
25	149.2	101.6	25.4	4	28.6	52.4	41.3	73.0	41.1	34.5	35.0	50.8	12.7
32	158.7	111.1	25.4	4	28.6	63.5	41.3	73.0	41.1	43.2	43.6	63.5	14.2
40	177.8	123.8	28.6	4	31.8	69.8	44.4	82.5	44.4	49.5	50.0	73.0	15.8
50	215.9	165.1	25.4	8	38.1	104.8	57.1	101.6	57.1	62.0	62.4	92.1	17.4
65	244.5	190.5	28.6	8	41.3	123.8	63.5	104.8	63.5	74.7	75.4	104.8	19.0
80	241.3	190.5	25.4	8	38.1	127.0	53.9	101.6	53.8	90.7	91.4	127.0	-
100	292.1	234.9	31.7	8	44.4	158.7	69.8	114.3	69.8	116.0	116.8	157.1	-
125	349.2	279.4	35.0	8	50.8	190.5	79.3	127.0	79.2	143.7	114.5	185.7	-
150	381.0	317.5	31.7	12	55.6	234.9	85.8	139.7	85.8	170.6	171.4	215.9	-
200	469.9	393.7	38.1	17	63.5	298.4	101.6	162.0	114.3	221.4	222.2	269.8	-
250	546.1	469.9	38.1	16	69.8	368.3	107.9	184.1	127.0	276.3	277.3	323.8	-
300	609.6	533.4	38.1	20	79.3	419.1	117.4	200.0	142.7	327.1	328.1	381.0	-

Dimensions in mm of Butt Welding fittings to ANSI B16.9



Nom Bore	Pipe O.D	Wall Thickness				Radius R				A	B	C	E	G	L		H	D	H
		5S	10S	40S	80S	1D	1.5D	2D	3D						Short	Long			
1/2	21.34	1.65	2.11	2.77	3.73	12.7	19.05	25.4	38.1	12.7	15.9	25.4	25.4	34.9	50.8	76.2	50.8	45	8
3/4	26.67	1.65	2.11	2.87	3.91	19.05	28.57	38.10	57.15	19.05	11.1	28.6	25.4	42.8	50.8	76.2	50.8	50	8
1	33.40	1.65	2.77	3.38	4.55	25.4	38.1	50.8	76.2	25.4	22.2	38.1	38.1	50.8	50.8	101.6	50.8	60	10
1 1/4	42.16	1.65	2.77	3.56	4.85	31.75	47.6	63.5	95.25	31.75	25.0	47.6	38.1	63.5	50.8	101.6	50.8	70	12
1 1/2	48.26	1.65	2.77	3.68	5.08	38.1	57.15	76.2	114.3	38.10	28.6	57.2	38.1	73.0	50.8	101.6	63.5	80	12
2	60.32	1.65	2.77	3.91	5.54	50.8	76.2	101.6	152.4	50.8	34.0	63.5	38.1	92.0	63.5	152.4	76.2	94	16
2 1/2	73.02	2.11	3.05	5.16	7.01	63.5	95.25	127.0	190.5	63.5	44.0	76.2	38.1	104.8	63.5	152.4	88.9	110	16
3	88.90	2.11	3.05	5.49	7.62	76.2	114.30	152.4	228.6	76.2	50.8	85.7	50.8	127.0	63.5	152.4	88.9	130	18
3 1/2	101.60	2.11	3.05	5.74	8.08	88.9	133.35	177.8	266.7	88.9	57.2	95.3	63.5	139.7	76.2	152.4	101.6	140	18
4	114.30	2.11	3.05	6.02	8.56	101.6	152.4	203.2	304.8	101.6	63.5	104.8	63.5	157.2	76.2	152.4	101.6	158	20
5	141.30	2.77	3.40	6.55	9.52	127.0	190.5	254.0	381.0	127.0	82.6	123.8	76.2	185.7	76.2	203.2	127.0	188	25
6	168.27	2.77	3.40	7.11	10.97	152.4	228.6	304.8	457.2	152.4	95.3	158.7	88.9	215.9	88.9	203.2	139.7	212	25
8	219.07	2.77	3.76	8.18	12.7	203.2	304.8	406.4	609.6	203.2	127.0	190.5	101.6	270.0	101.6	203.2	152.4	268	30
10	273.05	3.40	4.19	9.27	12.7	254.0	381.0	508.0	762.0	254.0	158.7	215.9	127.0	324.0	127.0	254.0	177.8	330	35
12	323.85	3.96	4.57	9.52	12.7	304.8	457.2	609.6	914.4	304.8	190.5	254.0	152.4	381.0	152.4	254.0	203.2	400	40
14	355.60	3.96	4.76	9.52	12.7	355.6	533.4	711.12	1066.8	355.6	222.2	280.0	165.1	412.8	152.4	305.0	330.2	-	-
16	406.40	4.19	4.76	9.52	12.7	406.4	609.6	812.8	1219.2	406.4	254.0	304.8	177.8	470.0	152.4	305.0	355.6	-	-
18	457.20	4.19	4.76	9.52	12.7	457.2	685.8	914.4	1371.6	457.2	285.7	343.0	203.2	533.4	152.4	305.0	381.0	-	-
20	508.00	4.76	5.54	9.52	12.7	508.0	762.0	101.6	1524.0	508.0	317.6	381.0	228.6	584.2	152.4	305.0	508.0	-	-

- Standards** : All dimensions are in mm and conform to ANSI B 16.9 and MSSP sp 43 where applicable - Dimensional tolerances are in accordance with ANSI B 16.9 dh M.S.S. SP-43 where applicable.
- Radius** : Radius of short radius elbows is 1 times nominal pipe diameter; Radius of Long radius elbows is 1.5 times nominal pipe diameter.
- Material of Construction** : S.S. 304/304L/316L/321 Nickel 200 & Nickel Alloys. MS Carbon Steel and Alloy Steel also.

Dimensions in mm of Socket Weld fittings to ANSI B16.11

Nom Bore	Pipe O.D.	2000 LBS / 3000 LBS															
		A	B	C	D	E	F	G	K	L	M	N	O	P	Q		
1/8	13.7	20.6	22.2	14.1	9.5	11.1	19.0	8.0	25.4	36.5	22.2	31.7	6.4	17.5	9.5		
3/8	17.2	24.6	25.4	17.5	11.1	13.5	19.0	8.0	28.6	36.5	25.4	36.5	6.4	19.0	9.5		
1/2	21.3	28.6	33.3	21.7	12.7	15.8	22.2	11.1	35.0	38.1	31.7	43.0	9.5	22.2	9.5		
3/4	26.7	33.4	38.1	27.0	14.3	19.0	25.4	12.7	38.1	46.0	38.1	51.0	9.5	25.4	12.7		
1	33.4	38.1	46.0	33.8	15.8	22.2	28.6	14.3	44.4	52.3	44.5	60.3	12.7	27.0	12.7		
1 1/4	42.2	44.4	55.5	42.5	17.4	27.0	33.3	17.4	47.8	54.0	57.2	70.0	12.7	30.2	12.7		
1 1/2	48.3	50.8	62.0	48.6	19.0	31.7	35.0	20.6	50.8	55.5	63.5	82.5	12.7	31.8	12.7		
2	60.3	60.3	75.4	61.1	22.2	38.1	42.8	25.4	63.5	68.2	76.2	95.2	19.0	38.1	15.9		

Standard: Pipe Fittings & Flanges • ANSI B 16.9 (VS) 1640 • ANSI B-16.11 (BS) 3799 • ANSI B-16.5 (BS) 1560

• Compression (Tube type Fitting) • Dairy (I.D.F. SM) | Breweries & Distilleries

Dimensions in mm of screwed fittings to ANSI B16.11 thread to ASA B2.1



Nom Bore	Pipe O.D.	3000 LBS									6000 LBS							
		A	B	C	F	G	H	J	K	A	B	C	F	G	H	I	K	
1/8	10.3	20.6	22.2	19.0	40.0	31.7	19.0	15.9	19.0	24.6	25.4	19.0	40.0	31.7	22.2	15.9	25.4	
1/4	13.7	24.6	25.4	19.0	43.0	35.0	19.0	17.5	25.4	28.6	33.3	22.2	43.0	34.9	25.4	17.5	33.3	
3/8	17.2	28.6	33.3	22.2	47.6	38.1	22.2	19.0	25.4	33.3	38.1	25.4	47.6	38.1	31.7	19.0	38.1	
1/2	21.3	33.3	38.1	25.4	51.0	47.6	28.6	23.8	31.7	38.1	46.0	28.6	51.0	47.6	38.1	23.8	46.0	
3/4	26.7	38.1	46.0	28.6	57.1	50.8	35.0	25.4	36.5	44.4	55.5	33.3	57.1	50.8	44.5	25.4	55.6	
1	33.4	44.4	55.5	33.3	63.5	60.3	44.5	30.2	41.3	50.8	62.0	35.0	63.5	60.3	57.2	30.2	61.9	
1 1/4	42.2	50.8	62.0	35.0	73.0	66.7	57.2	33.3	44.5	60.3	75.4	42.8	73.0	66.7	63.5	33.3	75.4	
1 1/2	48.3	60.3	75.4	42.8	80.0	79.4	63.5	39.7	44.5	63.5	84.1	43.6	80.0	79.4	76.2	39.7	84.1	
2	60.3	63.5	84.1	43.6	89.0	85.7	76.2	42.9	47.6	82.5	101.6	52.4	89.0	85.7	92.2	42.9	101.6	