

## CLASS 150 FLANGES

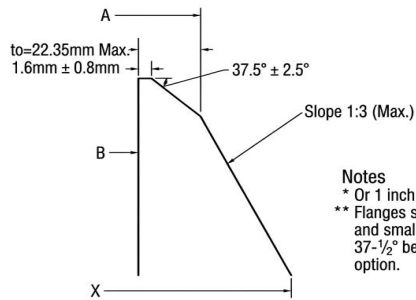
ANSI B16.47 SER.A (MSS SP 44) FORGED FLANGES

Unit: mm

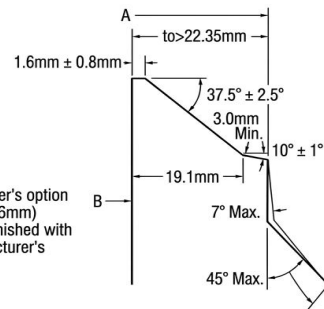
Nominal Pipe Size	Outside Diam. D	O.D of Raised Face G	Diam. at Base of Hub X	Thickness t	BORE		Length Thru Hub T1
					Wall Thickness		
					9.5mm	12.7mm	
					B1		
12	483.0	381.0	365.3	31.8	304.8	298.5	114.3
14	533.0	412.8	400.1	35.1	336.6	330.2	127.0
16	597.0	469.9	457.2	36.6	387.4	381.0	127.0
18	635.0	533.4	505.0	39.6	438.2	431.8	139.7
20	699.0	584.2	558.8	42.9	489.0	482.6	144.5
22	749.0	641.4	609.6	46.0	539.8	533.4	149.4
24	813.0	692.2	663.4	47.8	590.6	584.2	152.4
26	870.0	749.3	676.1	68.3	641.4	635.0	120.7
28	927.0	800.1	726.9	71.4	692.2	685.8	125.5
30	984.0	857.3	781.1	74.7	743.0	736.6	136.7
32	1060.0	914.4	831.9	80.8	793.8	787.4	144.5
34	1111.0	965.2	882.7	82.6	844.6	838.2	149.4
36	1168.0	1022.4	933.5	90.4	895.4	889.0	157.0
38	1238.0	1073.2	990.6	87.4	946.2	939.8	157.2
40	1289.0	1124.0	1041.4	90.4	997.0	990.6	163.6
42	1346.0	1193.8	1092.2	96.8	1047.8	1041.4	171.5
44	1403.0	1244.6	1143.0	101.6	1098.6	1092.2	177.8
46	1454.0	1295.4	1196.8	103.1	1149.4	1143.0	185.7
48	1511.0	1358.9	1247.6	108.0	1200.2	1193.8	192.0
50	1568.0	1409.7	1301.8	111.3	1251.0	1244.6	203.2
52	1626.0	1460.5	1352.6	115.8	1301.8	1295.4	209.6
54	1683.0	1511.3	1403.4	120.7	1352.6	1346.2	215.9
56	1746.0	1574.8	1457.5	124.0	1403.4	1397.0	228.6
58	1803.0	1625.6	1508.3	128.5	1454.2	1447.8	235.0
60	1854.0	1676.4	1559.1	131.8	1505.0	1498.6	239.8

Notes:

- (1) For the 'Bore'(B1) other than wall thickness 0.375"(9.5mm) and 0.500"(12.7mm), refer to [here](#).
- (2) Class 150 flanges will be furnished with 0.06"(1.6mm) raised face, which is included in 'Thickness'(t) and 'Length thru Hub'(T1)
- (3) Dimensional tolerance are in accordance with ANSI B16.5.



BEVEL FOR WALL THICKNESS( $T_0$ )  
0.88" IN.(22.35mm) OR LESS.



BEVEL FOR WALL THICKNESS( $T_0$ )  
GREATER THAN 0.88 IN.(22.35mm)

Notes  
\* Or 1 inch at manufacturer's option  
\*\* Flanges sizes 24" (609.6mm) and smaller may be furnished with 37-1/2° bevel at manufacturer's option.

## WELDING-ENDS FOR WELDING-NECK FLANGES

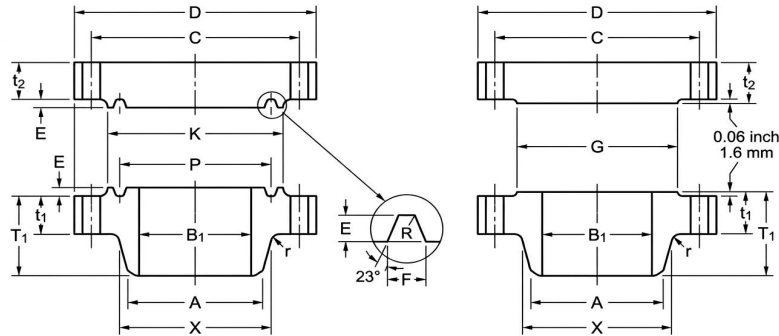
Unit: mm

Nominal Pipe Size	Diam. of Hub Bevel	Radius of Fillet	DRILLING			Approximate Weight(kg)	
			Bolt Circle Diam	Number of Holes	Diam of Holes	Weld-neck	Blind
			C				
12	304.8	9.7	431.8	12	25.4	38.98	43.70
14	355.6	9.7	476.3	12	28.4	51.71	59.42
16	406.4	9.7	539.8	16	28.4	64.41	77.11
18	457.2	9.7	577.9	16	31.8	74.84	94.80
20	508.0	9.7	635.0	20	31.8	89.36	123.38
22	558.8	9.7	692.2	20	35.1	112.00	-
24	609.6	9.7	749.3	20	35.1	119.66	188.24
26	660.4	9.7	806.5	24	35.1	136.10	318.40
28	711.2	11.2	863.6	28	35.1	156.50	377.80
30	762.0	11.2	914.4	28	35.1	181.40	445.40
32	812.8	11.2	977.9	28	41.1	229.10	561.10
34	863.6	12.7	1028.7	32	41.1	244.90	627.80
36	914.4	12.7	1085.9	32	41.1	290.30	760.20
38	965.2	12.7	1149.4	32	41.1	326.60	825.10
40	1016.0	12.7	1200.2	36	41.1	351.50	925.30
42	1066.8	12.7	1257.3	36	41.1	403.70	1080.00
44	1117.6	12.7	1314.5	40	41.1	449.10	1232.40
46	1168.4	12.7	1365.3	40	41.1	480.80	1343.10
48	1219.2	12.7	1422.4	44	41.1	537.50	1518.70
50	1270.0	12.7	1479.6	44	47.8	576.10	1685.60
52	1320.8	12.7	1536.7	44	47.8	639.60	1885.20
54	1371.6	12.7	1593.9	44	47.8	719.00	2104.30
56	1422.4	12.7	1651.0	48	47.8	798.30	2327.90
58	1473.2	12.7	1708.2	48	47.8	868.60	2574.20
60	1524.0	12.7	1759.0	52	47.8	927.60	2791.50

Notes:

(4) Maximum Pressure Rating for raised face flanges is 285 psi(19.5BARS)at atmospheric temperature.

(5) Flange dimendions of size 12"(304.8mm)through 24"(609.6nm)flanges except 22"(558.8mm) are in accordance with ANSI B 16.5.



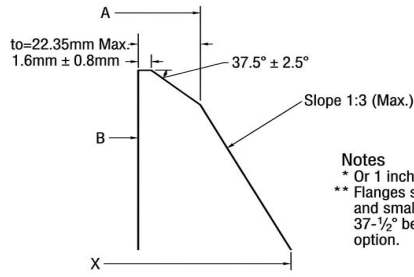
## CLASS 300 FLANGES

ANSI B16.47 SER.A (MSS SP 44) FORGED FLANGES

Nominal Pipe Size	Outside Diam.	O.D of Raised Face	Diam. at Base of Hub	Thickness		BORE		Length Thru Hub	Diam. of Hub at Bevel	Radius of Fillet
						Wall Thickness				
						9.5mm	12.7mm			
D	G	X	t1	t2	B1	T1	A	r		
12	521	381	374.7	50.8	50.8	304.8	298.5	130	304.8	9.7
14	584	412.8	425.5	53.8	53.8	336.6	330.2	142.7	355.6	9.7
16	648	469.9	482.6	57.2	57.2	387.4	381	146.1	406.4	9.7
18	711	533.4	533.4	60.5	60.5	468.2	431.8	158.8	457.2	9.7
20	775	584.2	587.2	63.5	63.5	489	482.6	162.1	508	9.7
22	838	641.4	641.4	66.5	66.5	539.8	533.4	165.1	558.8	9.7
24	914	692.2	701.5	69.9	69.9	590.6	584.2	168.1	609.6	9.7
26	972	749.3	720.9	79.2	84.1	641.4	635	184.2	660.4	9.7
28	1035	800.1	774.7	85.9	90.4	692.2	685.8	196.9	711.2	11.2
30	1092	857.3	827	91.9	95.3	743	736.6	209.6	762	11.2
32	1149	914.4	881.1	98.6	100.1	793.8	787.4	222.3	812.8	11.2
34	1207	965.2	936.8	101.6	104.6	844.6	838.2	231.6	863.6	12.7
36	1270	1022.4	990.6	104.6	111.3	895.4	889	241.3	914.4	12.7
38	1168	1028.7	993.6	108	108	946.2	939.8	180.8	965.2	12.7
40	1238	1085.9	1047.8	114.3	114.3	997	990.6	193.5	1016	12.7
42	1289	1136.7	1098.6	119.1	119.1	1047.8	1041.4	200.2	1066.8	12.7
44	1353	1193.8	1149.4	124	124	1098.6	1092.2	206.2	1117.6	12.7
46	1416	1244.6	1203.5	128.5	128.5	1149.4	1143	215.9	1168.4	12.7
48	1467	1301.8	1254.3	133.4	133.4	1200.2	1193.8	223.8	1219.2	12.7
50	1530	1358.9	1305.1	139.7	139.7	1251	1244.6	231.6	1270	12.7
52	1581	1409.7	1355.9	144.5	144.5	1301.8	1295.4	238.3	1320.8	12.7
54	1657	1466.9	1409.7	152.4	152.4	1352.6	1346.2	252.5	1371.6	12.7
56	1708	1517.7	1463.5	153.9	153.9	1403.4	1397	260.4	1422.4	12.7
58	1759	1574.8	1514.3	158.8	158.8	1454.2	1447.8	266.7	1473.2	12.7
60	1810	1625.6	1565.1	163.6	163.6	1505	1498.6	273.1	1524	12.7

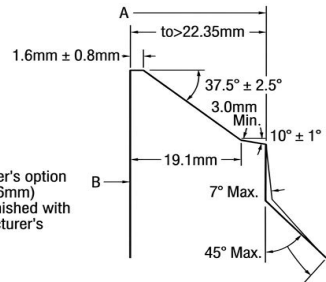
**Notes:**

- (1) For the 'Bore'(B1)other than wall thickness 0.375"(9.5mm) and 0.500"(12.7mm),refer to [here](#).
- (2) Class 300 flanges will be furnished with 0.06"(1.6mm)raised face, which is included in 'Thickness'(t) and 'Length thru Hub'(T1)
- (3) Dimensional tolerance are in accordance with ANSI B16.5.



BEVEL FOR WALL THICKNESS(T<sub>0</sub>)  
0.88" IN.(22.35mm) OR LESS.

Notes  
 \* Or 1 inch at manufacturer's option  
 \*\* Flanges sizes 24" (609.6mm) and smaller may be furnished with 37-1/2° bevel at manufacturer's option.



BEVEL FOR WALL THICKNESS(T<sub>0</sub>)  
GREATER THAN 0.88 IN.(22.35mm)

## WELDING-ENDS FOR WELDING-NECK FLANGES

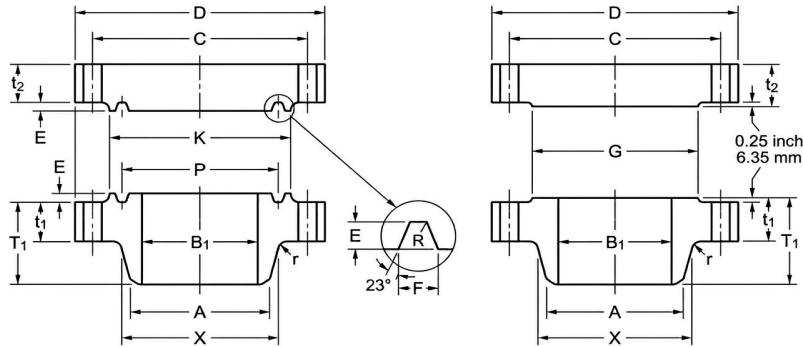
Unit: mm

Nominal Pipe Size	DRILLING			Pitch Dima	GROOVE DIMENSIONS			Diam. of Raised Face	Ring and Groove Number	Approximate Weight(kg)						
	Bolt Circle Diam	Number of Holes	Diam of Holes		Width	Depth	Radius			Weld-neck	Blind					
	C											P	F	E	R	K
12	450.9	16	31.8	381	11.9	7.9	0.8	412.8	R57	64.41	78.90					
14	514.4	20	31.8	419.1	11.9	7.9	0.8	457.2	R61	88.30	107.05					
16	571.5	20	35.1	469.9	11.9	7.9	0.8	508	R65	112.94	139.25					
18	628.7	24	35.1	533.4	11.9	7.9	0.8	574.5	R69	138.34	176.90					
20	685.8	24	35.1	584.2	13.5	9.5	1.5	635	R73	167.37	223.17					
22	743	24	41.1	635	15.1	11.1	1.5	685.8	R81	213.00	-					
24	812.8	24	41.1	692.2	16.7	11.1	1.5	749.3	R77	235.41	342.00					
26	876.3	28	44.5	749.3	19.8	12.7	1.5	809.8	R93	274.40	489.00					
28	939.8	28	44.5	800.1	19.8	12.7	1.5	860.6	R94	337.90	596.50					
30	997	28	47.8	857.3	19.8	12.7	1.5	917.4	R95	394.60	699.90					
32	1054.1	28	50.8	914.4	23	14.3	1.5	984.3	R96	455.90	814.20					
34	1104.9	28	50.8	965.2	23	14.3	1.5	1035.1	R97	519.40	938.00					
36	1168.4	32	53.8	1022.4	23	14.3	1.5	1092.2	R98	578.30	1105.00					
38	1092.2	32	41.1							315.30	907.70					
40	1155.7	32	44.5							381.00	1079.60					
42	1206.5	32	44.5							430.90	1219.30					
44	1263.7	32	47.8							478.50	1396.60					
46	1320.8	28	50.8							560.20	1587.10					
48	1371.6	32	50.8							626.00	1767.20					
50	1428.8	32	53.8							694.00	2014.90					
52	1479.6	32	53.8							753.00	2225.40					
54	1549.4	28	60.5							929.90	2578.30					
56	1600.2	28	60.5							977.50	2766.10					
58	1651	32	60.5							1029.70	3025.10					
60	1701.8	32	60.5							1120.40	3299.50					

(4) Maximum Pressure Rating for raised face flanges is 740 psi (51BARS) at atmospheric temperature.

(5) Flange dimensions of size 12"(304.8mm) through 24"(609.6mm) flanges except 22"(558.8mm) are in accordance with ASME B 16.5.

(6) For sizes 26"(660.4mm) and larger. Diameter of Hub at Bevel (A) are in accordance with ASME Boiler and pressure vessel code.



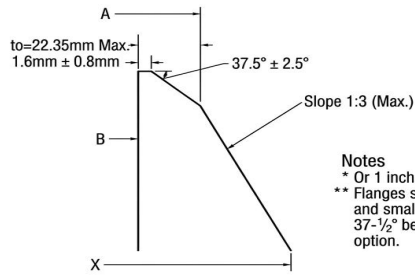
### CLASS 400 FLANGES

ANSI B16.47 SER.A (MSS SP 44) FORGED FLANGES

Nominal Pipe Size	Outside Diam.	O.D of Raised Face	Diam. at Base of Hub	Thickness		BORE		Length Thru Hub	Diam. of Hub at Bevel	Radius of Fillet
						Wall Thickness				
						9.5mm	12.7mm			
D	G	X	t1	t2	B1	T1	A	r		
12	521.0	381.0	374.7	57.2	57.2	304.8	298.5	136.7	323.9	11.2
14	584.0	412.8	425.5	60.5	60.5	336.6	330.2	149.4	355.6	11.2
16	648.0	469.9	482.6	63.5	63.5	387.4	381.0	152.4	406.4	11.2
18	711.0	533.4	533.4	66.5	66.5	438.2	431.8	165.1	457.2	11.2
20	775.0	584.2	587.2	69.9	69.9	489.0	482.6	168.1	508.0	11.2
22	838.0	641.4	641.4	73.2	73.2	539.8	533.4	171.5	558.8	11.2
24	914.0	692.2	701.5	76.2	76.2	590.6	584.2	174.8	609.6	11.2
26	972.0	749.3	726.9	88.9	98.6	641.4	635.0	193.5	660.4	11.2
28	1035.0	800.1	782.6	95.3	104.6	692.2	685.8	206.2	711.2	12.7
30	1092.0	857.3	836.7	101.6	111.3	743.0	736.6	218.9	762.0	12.7
32	1149.0	914.4	889.0	108.0	115.8	793.8	787.4	231.6	812.8	12.7
34	1207.0	965.2	944.6	111.3	122.2	844.6	838.2	241.3	863.6	14.2
36	1270.0	1022.4	1000.3	114.3	128.5	895.4	889.0	251.0	914.4	14.2
38	1207.0	1035.1	1003.3	124.0	124.0	946.2	939.8	206.2	965.2	14.2
40	1270.0	1092.2	1054.1	130.0	130.0	997.0	990.6	215.9	1016.0	14.2
42	1321.0	1143.0	1107.9	133.4	133.4	1047.8	1041.4	223.8	1066.8	14.2
44	1384.0	1200.2	1158.7	139.7	139.7	1098.6	1092.2	233.4	1117.6	14.2
46	1441.0	1257.3	1212.9	146.1	146.1	1149.4	1143.0	244.3	1168.4	14.2
48	1511.0	1308.1	1267.0	152.4	152.4	1200.2	1193.8	257.0	1219.2	14.2
50	1568.0	1361.9	1320.8	157.2	158.8	1251.0	1244.6	268.2	1270.0	14.2
52	1619.0	1412.7	1371.6	162.1	163.6	1301.8	1295.4	276.4	1320.8	14.2
54	1702.0	1470.2	1425.4	169.9	171.5	1352.6	1346.2	289.1	1371.6	14.2
56	1753.0	1527.0	1479.6	174.8	176.3	1403.4	1397.0	298.5	1422.4	14.2
58	1803.0	1577.8	1530.4	177.8	180.8	1454.2	1447.8	306.3	1473.2	14.2
60	1886.0	1635.3	1584.5	185.7	189.0	1505.0	1498.6	319.0	1524.0	14.2

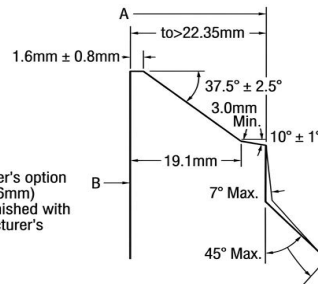
Notes:

- (1) For the 'Bore'(B1)other than wall thickness 0.375"(9.5mm) and 0.500"(12.7mm),refer to [here](#).
- (2) Class 400 flanges will be furnished with 0.25"(6.4mm)raised face, which is included in 'Thickness'(t) and 'Length thru Hub'(T1)
- (3) Dimensional tolerance are in accordance with ANSI B16.5.



BEVEL FOR WALL THICKNESS(T<sub>0</sub>)  
0.88" IN.(22.35mm) OR LESS.

Notes  
\* Or 1 inch at manufacturer's option  
\*\* Flanges sizes 24" (609.6mm) and smaller may be furnished with 37-1/2° bevel at manufacturer's option.



BEVEL FOR WALL THICKNESS(T<sub>0</sub>)  
GREATER THAN 0.88 IN.(22.35mm)

## WELDING-ENDS FOR WELDING-NECK FLANGES

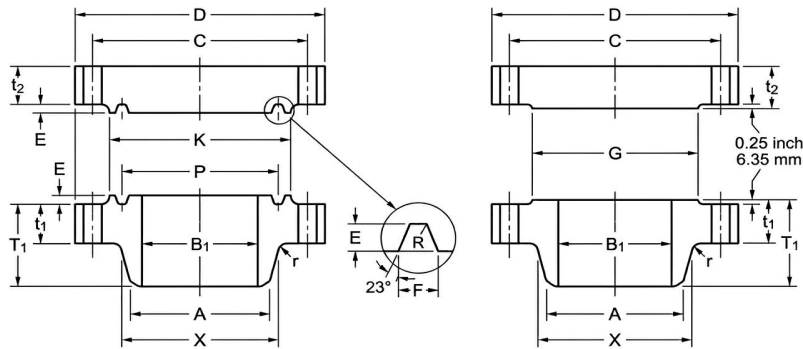
Unit: mm

Nominal Pipe Size	DRILLING			Pitch Dima	GROOVE DIMENSIONS			Diam. of Raised Face	Ring and Groove Number	Approximate Weight(kg)						
	Bolt Circle Diam	Number of Holes	Diam of Holes		Width	Depth	Radius			Weld-neck	Blind					
	C											P	F	E	R	K
12	450.9	16	35.1	381.0	11.9	7.9	0.8	412.8	R57	72.6	98.0					
14	514.4	20	35.1	419.1	11.9	7.9	0.8	457.2	R61	105.7	131.7					
16	571.5	20	38.1	469.9	11.9	7.9	0.8	508.0	R65	133.3	167.0					
18	628.7	24	38.1	533.4	11.9	7.9	0.8	574.5	R69	158.9	206.6					
20	685.8	24	41.1	584.2	13.5	9.5	1.5	635.0	R73	193.0	261.0					
22	743.0	24	44.5	635.0	15.1	11.1	1.5	685.8	R81	235.0	-					
24	812.8	24	47.8	692.2	16.7	11.1	1.5	749.3	R77	281.5	395.0					
26	876.3	28	47.8	749.3	19.8	12.7	1.5	809.8	R93	294.8	572.9					
28	939.8	28	50.8	800.1	19.8	12.7	1.5	860.6	R94	356.1	690.4					
30	997.0	28	53.8	857.3	19.8	12.7	1.5	917.4	R95	410.5	817.4					
32	1054.1	28	53.8	914.4	23.0	14.3	1.5	984.3	R96	483.1	942.1					
34	1104.9	28	53.8	965.2	23.0	14.3	1.5	1035.1	R97	544.3	1095.4					
36	1168.4	32	53.8	1022.4	23.0	14.3	1.5	1092.2	R98	607.8	1276.9					
38	1117.6	32	47.8							424.1	1111.3					
40	1174.8	32	50.8							494.4	1291.9					
42	1225.6	32	50.8							539.8	1432.9					
44	1282.7	32	53.8							623.7	1648.8					
46	1339.9	36	53.8							691.7	1868.8					
48	1403.4	28	60.5							811.9	2143.7					
50	1460.5	32	60.5							884.5	2405.4					
52	1511.3	32	60.5							963.9	2641.3					
54	1581.2	28	66.5							1163.5	3058.2					
56	1632.0	32	66.5							1229.3	3334.9					
58	1682.8	32	66.5							1465.1	3622.4					
60	1752.6	32	73.2							1732.8	4139.6					

(4) Maximum Pressure Rating for raised face flanges is 985 psi (68BARS) at atmospheric temperature.

(5) Flange dimensions of size 12"(304.8mm) through 24"(609.6mm) flanges except 22"(558.8mm) are in accordance with ASME B 16.5.

(6) For sizes 26"(660.4mm) and larger. Diameter of Hub at Bevel (A) are in accordance with ASME Boiler and pressure vessel code.



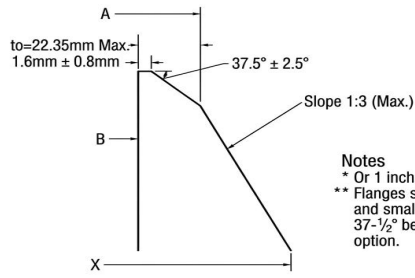
## CLASS 400 FLANGES

ANSI B16.47 SER.A (MSS SP 44) FORGED FLANGES

Nominal Pipe Size	Outside Diam.	O.D of Raised Face	Diam. at Base of Hub	Thickness		BORE		Length Thru Hub	Diam. of Hub at Bevel	Radius of Fillet
						Wall Thickness				
						9.5mm	12.7mm			
D	G	X	t1	t2	B1	T1	A	r		
12	559	381.0	400.1	66.5	66.5	304.8	298.5	155.4	323.9	11.2
14	603	412.8	431.8	69.9	69.9	336.6	330.2	165.1	355.6	11.2
16	686	469.9	495.3	76.2	76.2	387.4	381.0	177.8	406.4	11.2
18	743	533.4	546.1	82.6	82.6	438.2	431.8	184.2	457.2	11.2
20	813	584.2	609.6	88.9	88.9	489.0	482.6	190.5	508.0	11.2
22	870	641.2	666.8	95.3	95.3	539.8	533.4	196.9	558.8	11.2
24	940	692.2	717.6	101.6	101.6	590.6	584.2	203.2	609.6	11.2
26	1016	749.3	747.8	108.0	125.5	641.4	635.0	222.3	660.4	12.7
28	1073	800.1	803.1	111.3	131.8	692.2	685.8	235.0	711.2	12.7
30	1130	857.3	862.1	114.3	139.7	743.0	736.6	247.7	762.0	12.7
32	1194	914.4	917.4	117.3	147.6	793.8	787.4	260.4	812.8	12.7
34	1245	965.2	973.1	120.7	153.9	844.6	838.2	269.7	863.6	14.2
36	1314	1022.4	1031.7	124.0	162.1	895.4	889.0	282.4	914.4	14.2
38	1270	1054.1	1022.4	152.4	155.4	946.2	939.8	254.0	965.2	14.2
40	1321	1111.3	1073.2	158.8	162.1	997.0	990.6	263.7	1016.0	14.2
42	1403	1168.4	1127.3	168.1	171.5	1047.8	1041.4	279.4	1066.8	14.2
44	1454	1225.6	1181.1	173.0	177.8	1098.6	1092.2	289.1	1117.6	14.2
46	1511	1276.4	1234.9	179.3	185.7	1149.4	1143.0	300.0	1168.4	14.2
48	1594	1333.5	1289.1	189.0	195.3	1200.2	1193.8	316.0	1219.2	14.2
50	1670	1384.3	1343.2	196.9	203.2	1251.0	1244.6	328.7	1270.0	14.2
52	1721	1435.1	1394.0	203.2	209.6	1301.8	1295.4	336.6	1320.8	14.2
54	1778	1492.3	1447.8	209.6	217.4	1352.6	1346.2	349.3	1371.6	14.2
56	1854	1543.1	1501.6	217.4	225.6	1403.4	1397.0	362.0	1422.4	15.7
58	1905	1600.2	1552.4	222.3	231.6	1454.2	1447.8	369.8	1473.2	15.7
60	1994	1657.4	1609.9	233.4	242.8	1505.0	1498.6	388.9	1524.0	17.5

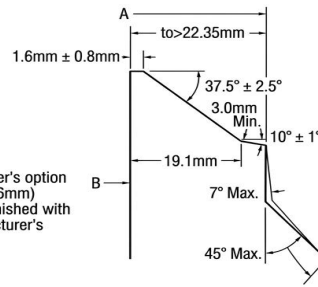
**Notes:**

- (1) For the 'Bore'(B1)other than wall thickness 0.375"(9.5mm) and 0.500"(12.7mm),refer to [here](#).
- (2) Class 400 flanges will be furnished with 0.25"(6.4mm)raised face, which is included in 'Thickness'(t) and 'Length thru Hub'(T1)
- (3) Dimensional tolerance are in accordance with ANSI B16.5.



BEVEL FOR WALL THICKNESS(T<sub>0</sub>)  
0.88" IN.(22.35mm) OR LESS.

Notes  
\* Or 1 inch at manufacturer's option  
\*\* Flanges sizes 24" (609.6mm) and smaller may be furnished with 37-1/2° bevel at manufacturer's option.



BEVEL FOR WALL THICKNESS(T<sub>0</sub>)  
GREATER THAN 0.88 IN.(22.35mm)

## WELDING-ENDS FOR WELDING-NECK FLANGES

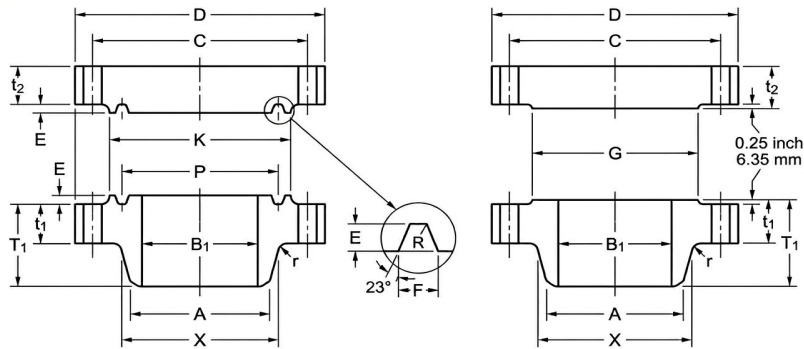
Unit: mm

Nominal Pipe Size	DRILLING			Pitch Dima	GROOVE DIMENSIONS			Diam. of Raised Face	Ring and Groove Number	Approximate Weight(kg)						
	Bolt Circle Diam	Number of Holes	Diam of Holes		Width	Depth	Radius			Weld-neck	Blind					
	C											P	F	E	R	K
12	489.0	20	35.1	381.0	11.9	7.9	0.8	412.8	R57	102.51	132.00					
14	527.1	20	38.1	419.1	11.9	7.9	0.8	457.2	R61	121.56	158.00					
16	603.3	20	41.1	469.9	11.9	7.9	0.8	508.0	R65	177.06	224.73					
18	654.1	20	44.5	533.4	11.9	7.9	0.8	574.5	R69	215.65	285.00					
20	723.9	24	44.5	584.2	13.5	9.5	1.5	635.0	R73	267.86	365.00					
22	777.7	24	47.8	635.0	15.1	11.1	1.5	685.8	R81	330.00	-					
24	838.2	24	50.8	692.2	16.7	11.1	1.5	749.3	R77	372.00	533.45					
26	914.4	28	50.8	749.3	19.8	12.7	1.5	809.8	R93	426.40	797.90					
28	965.2	28	53.8	800.1	19.8	12.7	1.5	860.6	R94	480.80	934.90					
30	1022.4	28	53.8	857.3	19.8	12.7	1.5	917.4	R95	548.90	1099.10					
32	1079.5	28	60.5	914.4	23.0	14.3	1.5	984.3	R96	623.70	1295.50					
34	1130.3	28	60.5	965.2	23.0	14.3	1.5	1035.1	R97	698.50	1468.30					
36	1193.8	28	66.5	1022.4	23.0	14.3	1.5	1092.2	R98	773.40	1724.60					
38	1162.1	28	60.5							666.80	1544.10					
40	1212.9	32	60.5							739.40	1740.90					
42	1282.7	28	66.5							920.80	2079.80					
44	1333.5	32	66.5							979.80	2315.60					
46	1390.7	32	66.5							1093.20	2611.80					
48	1460.5	32	73.2							1295.00	3055.90					
50	1524.0	28	79.2							1510.50	3490.50					
52	1574.8	32	79.2							1614.80	3822.00					
54	1632.0	32	79.2							1778.10	4233.40					
56	1695.5	32	85.9							1941.40	4776.00					
58	1746.3	32	85.9							2104.70	5177.40					
60	1822.5	28	91.9							2268.00	5945.80					

(4) Maximum Pressure Rating for raised face flanges is 985 psi (68BARS) at atmospheric temperature.

(5) Flange dimensions of size 12"(304.8mm) through 24"(609.6mm) flanges except 22"(558.8mm) are in accordance with ASME B 16.5.

(6) For sizes 26"(660.4mm) and larger. Diameter of Hub at Bevel (A) are in accordance with ASME Boiler and pressure vessel code.



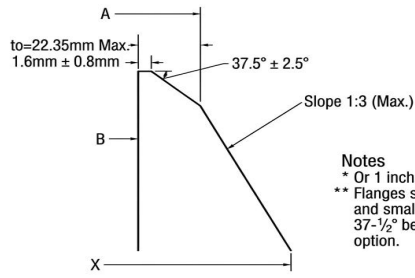
## CLASS 400 FLANGES

ANSI B16.47 SER.A (MSS SP 44) FORGED FLANGES

Nominal Pipe Size	Outside Diam.	O.D of Raised Face	Diam. at Base of Hub	Thickness		BORE		Length Thru Hub	Diam. of Hub at Bevel	Radius of Fillet
						Wall Thickness				
						9.5mm	12.7mm			
D	G	X	t1	t2	B1	T1	A	r		
12	610	381	419.1	79.2	79.2	304.8	298.5	200.2	323.9	11.2
14	641	412.8	450.9	85.9	85.9	336.6	330.2	212.9	355.6	11.2
16	705	469.9	508	88.9	88.9	387.4	381	215.9	406.4	11.2
18	787	533.4	565.2	101.6	101.6	438.2	431.8	228.6	457.2	11.2
20	857	584.2	622.3	108	108	489	482.6	247.7	508	11.2
24	1041	692.2	749.3	139.7	139.7	590.6	584.2	292.1	609.6	11.2
26	1086	749.3	774.7	139.7	160.3	641.4	635	285.8	660.4	11.2
28	1168	800.1	831.9	142.7	171.5	692.2	685.8	298.5	711.2	12.7
30	1232	857.3	889	149.4	182.4	743	736.6	311.2	762	12.7
32	1314	914.4	946.2	158.8	193.5	793.8	787.4	330.2	812.8	12.7
34	1397	965.2	1006.3	165.1	204.7	844.6	838.2	349.3	863.6	14.2
36	1461	1022.4	1063.8	171.5	214.4	895.4	889	362	914.4	14.2
38	1461	1098.6	1073.2	190.5	215.9	946.2	939.8	352.6	965.2	19.1
40	1511	1162.1	1127.3	196.9	223.8	997	990.6	363.5	1016	20.6
42	1562	1212.9	1176.3	206.2	231.6	1047.8	1041.4	371.3	1066.8	20.6
44	1648	1270	1234.9	214.4	242.8	1098.6	1092.2	390.7	1117.6	22.4
46	1734	1333.5	1292.4	225.6	255.5	1149.4	1143	411	1168.4	22.4
48	1784	1384.3	1343.2	233.4	263.7	1200.2	1193.8	419.1	1219.2	23.9

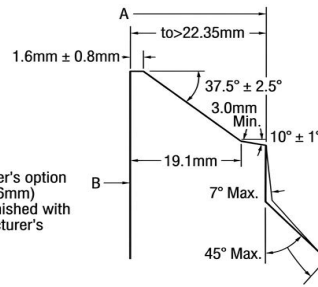
**Notes:**

- (1) For the 'Bore'(B1)other than wall thickness 0.375"(9.5mm) and 0.500"(12.7mm),refer to [here](#).
- (2) Class 400 flanges will be furnished with 0.25"(6.4mm)raised face, which is included in 'Thickness'(t) and'Length thru Hub'(T1)
- (3) Dimensional tolerance are in accordance with ANSI B16.5.



BEVEL FOR WALL THICKNESS(T<sub>0</sub>)  
0.88" IN.(22.35mm) OR LESS.

Notes  
\* Or 1 inch at manufacturer's option  
\*\* Flanges sizes 24" (609.6mm) and smaller may be furnished with 37-1/2° bevel at manufacturer's option.



BEVEL FOR WALL THICKNESS(T<sub>0</sub>)  
GREATER THAN 0.88 IN.(22.35mm)

## WELDING-ENDS FOR WELDING-NECK FLANGES

Unit: mm

Nominal Pipe Size	DRILLING			Pitch Dima	GROOVE DIMENSIONS			Diam. of Raised Face	Ring and Groove Number	Approximate Weight(kg)	
	Bolt Circle Diam	Number of Holes	Diam of Holes		Width	Depth	Radius			Weld-neck	Blind
	C				F	E	R				
12	533.4	20	38.1	381.0	11.9	7.9	0.8	419.1	R57	157.0	187.0
14	558.8	20	41.1	419.1	16.7	11.1	1.5	466.9	R62	181.0	224.1
16	616	20	44.5	469.9	16.7	11.1	1.5	523.7	R66	224.7	272.4
18	685.8	20	50.8	533.4	19.8	12.7	1.5	593.9	R70	308.7	385.9
20	749.3	20	53.8	584.2	19.8	12.7	1.5	647.7	R74	376.8	488.0
24	901.7	20	66.5	692.2	27.0	15.9	2.3	771.7	R78	685.0	905.0
26	952.5	20	73.2	749.3	30.2	17.5	2.3	831.9	R100	691.7	1163.9
28	1022.4	20	79.2	800.1	33.3	17.5	2.3	889.0	R101	821.0	1441.5
30	1085.9	20	79.2	857.3	33.3	17.5	2.3	946.2	R102	961.6	1704.6
32	1155.7	20	85.9	914.4	33.3	17.5	2.3	1003.3	R103	1154.4	2059.8
34	1225.6	20	91.9	965.2	36.5	20.6	2.3	1066.8	R104	1347.2	2460.8
36	1289.1	20	91.9	1022.4	36.5	20.6	2.3	1124.0	R105	1540.0	2816.4
38	1289.1	20	91.9							1535.4	2836.4
40	1339.9	24	91.9							1642.0	3148.0
42	1390.7	24	91.9							1796.3	3481.4
44	1463.5	24	98.6							1950.5	4061.5
46	1536.7	24	104.6							2104.7	4729.2
48	1587.5	24	104.6							2258.9	5170.1

(4) Maximum Pressure Rating for raised face flanges is 2220 psi (153.1BARS) at atmospheric temperature.

(5) Flange dimensions of size 12"(304.8mm)through 24"(609.6mm) flanges except 22"(558.8mm) are in accordance with ASME B 16.5.

(6) For sizes 26"(660.4mm) and larger. Diameter of Hub at Bevel (A) are in accordance with ASME Boiler and pressure vessel code.