

# drilling for series 240 and series 242 expansion joints

**Table 7: Flange Drilling**

NOMINAL PIPE SIZE	American 128/150# Conforms to ANSI B16.4 and B16.5				American 250/300# Conforms to ANSI B16.4 and B16.5				British Standard 10:1962 Conforms to BS 10 Table E				Metric Series Conforms to I.S.O. 2084-1974 Table NP10 Holes to I.S.O. /R-273				Metric Series Conforms to I.S.O. 2004-1974 Table NP16 Holes to I.S.O. /R-273					
	Flange Thickness	Flange O.D.	Bolet Circle	No. of Holes	Drilled Hole Size	Threaded Hole Size	Flange Thickness	Flange O.D.	Bolet Circle	No. of Holes	Hole Size	Flange Thickness	Flange O.D.	Bolet Circle	No. of Holes	Hole Size	Flange Thickness	Flange O.D.	Bolet Circle	No. of Holes	Hole Size	
1	0.55	4.25	3.13	4	0.62	1/2-13 UNC	0.63	4.88	3.5	4	0.75	0.59	4.5	3.25	4	0.62	4.53	3.35	4	0.55	3.35	
25	14.0	108.0	79.4	4	15.9		16.0	124.0	88.9	4	19.1	15.0	114.0	82.6	4	15.9	115.0	85.0	4	14.0	85.0	
1.25	0.55	4.63	3.5	4	0.62	1/2-13 UNC	0.63	5.25	3.88	4	0.75	0.59	4.75	3.44	4	0.62	5.51	3.94	4	0.71	3.94	
32	14.0	118.0	88.9	4	15.9		16.0	133.0	98.4	4	19.1	15.0	121.0	87.3	4	15.9	140.0	85.0	4	18.0	100.0	
1.5	0.55	5.0	3.88	4	0.62	1/2-13 UNC	0.63	6.12	4.50	4	0.88	0.59	5.25	3.88	4	0.62	5.91	4.33	4	0.71	4.33	
40	14.0	127.0	98.4	4	15.9		16.0	156.0	114.3	4	22.2	15.0	133.0	98.4	4	15.9	160.0	110.0	4	18.0	110.0	
2	0.63	6.0	4.75	4	0.75	5/8-11 UNC	0.71	6.50	5.00	8	0.75	0.63	6.0	4.5	4	0.75	6.50	4.92	4	0.71	4.92	
50	16.0	152.0	120.7	4	19.1		18.0	165.0	127.0	8	19.1	16.0	152.0	114.3	4	19.1	165.0	125.0	4	18.0	165.0	
2.5	0.71	7.0	5.5	4	0.75	5/8-11 UNC	0.71	7.5	5.88	8	0.88	0.71	6.5	5.0	4	0.75	7.25	5.71	4	0.71	5.71	
65	18.0	178.0	139.7	4	19.1		18.0	191.0	149.2	8	22.2	18.0	165.0	127.0	4	19.1	180.0	145.0	4	18.0	180.0	
3	0.71	7.5	6.0	4	0.75	5/8-11 UNC	0.79	8.25	6.62	8	0.88	0.71	7.25	5.75	4	0.75	7.87	6.3	8	0.71	6.30	
80	18.0	191.0	152.4	4	19.1		20.0	210.0	168.2	8	22.2	18.0	184.0	146.1	4	19.1	200.0	160.0	8	18.0	200.0	
3.5	0.71	8.5	7.0	8	0.75	5/8-11 UNC	0.79	9.0	7.25	8	0.88	0.71	8.0	6.5	8	0.75	—	—	—	—	—	
90	18.0	216.0	177.8	8	19.1		20.0	229.0	184.2	8	22.2	18.0	203.0	165.1	8	19.1	—	—	—	—	—	
4	0.71	9.0	7.5	8	0.75	5/8-11 UNC	0.79	10.0	7.88	8	0.88	0.71	8.5	7.0	8	0.75	8.66	7.09	8	0.71	7.09	
100	18.0	229.0	190.5	8	19.1		20.0	254.0	200.0	8	22.2	18.0	216.0	177.8	8	19.1	200.0	180.0	8	18.0	200.0	
5	0.79	10.0	8.5	8	0.88	3/4-10 UNC	0.87	11.0	9.25	8	0.88	0.79	10.0	8.25	8	0.75	0.87	9.84	8.27	8	0.71	9.84
125	20.0	254.0	215.9	8	22.2		22.0	279.0	235.0	8	22.2	20.0	254.0	209.6	8	19.1	22.0	250.0	210.0	8	18.0	250.0
6	0.87	11.0	9.5	8	0.88	3/4-10 UNC	0.87	12.5	10.62	12	0.88	0.87	11.0	9.25	8	0.88	0.87	11.22	9.45	8	0.87	9.45
150	22.0	279.0	241.3	8	22.2		22.2	318.0	269.9	12	22.2	22.2	279.0	235.0	8	22.2	22.0	285.0	240.0	8	22.0	240.0
8	0.87	13.5	11.75	8	0.88	3/4-10 UNC	0.95	15.0	13.0	12	1.00	0.87	13.25	11.5	8	0.88	0.87	13.39	11.61	12	1.02	11.61
200	22.0	343.0	295.5	8	22.2		24.0	381.0	330.2	12	25.4	22.2	337.0	292.1	8	22.2	22.0	340.0	295.0	12	22.0	295.0
10	0.95	16.0	14.25	12	1.00	7/8-9 UNC	1.02	17.5	15.25	16	1.13	0.95	11.60	14.0	12	0.88	1.02	15.95	13.78	12	0.87	13.78
250	24.0	406.0	362.0	12	25.4		26.0	445.0	387.4	16	28.6	24.0	406.0	355.6	12	22.2	26.0	405.0	350.0	12	22.0	350.0
12	0.95	19.0	17.0	12	1.00	7/8-9 UNC	1.02	20.5	17.75	16	1.25	0.95	18.0	16.0	12	1.00	1.02	17.52	15.75	12	0.87	15.75
300	24.0	483.0	431.8	12	25.4		26.0	521.0	450.9	16	31.8	24.0	497.0	406.4	12	25.4	26.0	460.0	410.0	12	22.0	410.0
14	1.02	21.0	18.75	12	1.13	1-8 UNC	1.10	23.0	20.25	20	1.25	1.02	20.75	18.5	12	1.00	1.10	19.88	18.11	16	0.87	18.11
350	26.0	533.0	476.3	12	28.6		28.0	584.0	514.4	20	31.8	26.0	527.0	469.9	12	25.4	28.0	505.0	460.0	16	22.0	460.0
16	1.10	23.5	21.25	16	1.13	1-8 UNC	1.18	25.5	22.5	20	1.38	1.10	22.75	20.5	12	1.00	1.18	22.24	20.28	16	1.02	20.28
400	28.0	597.0	538.8	16	28.6		30.0	646.0	571.5	20	34.9	28.0	578.0	520.7	12	25.4	30.0	565.0	515.0	16	26.0	515.0
18	1.18	25.0	22.75	16	1.25	1-8 UNC	1.18	28.0	24.75	24	1.38	1.18	25.25	23.0	16	1.00	1.18	24.21	22.24	20	1.02	22.24
450	30.0	635.0	577.9	16	31.8		30.0	711.0	628.7	24	34.9	30.0	641.0	564.2	16	25.4	30.0	615.0	565.0	20	26.0	565.0
20	1.18	27.5	25.0	20	1.25	1-8 UNC	1.18	30.5	27.0	24	1.38	1.18	27.75	25.25	16	1.00	1.18	26.38	24.41	20	1.02	24.41
500	30.0	699.0	635.0	20	31.8		30.0	775.0	686.8	24	34.9	30.0	705.0	641.4	16	25.4	30.0	670.0	620.0	20	26.0	620.0
22	1.18	29.5	27.25	20	1.38	1-1/4-7 UNC	1.18	33.0	29.5	24	1.38	1.18	30.0	27.5	16	1.13	1.18	28.74	26.57	20	1.18	26.57
550	30.0	749.0	692.2	20	34.9		30.0	838.0	743.0	24	34.9	30.0	762.0	698.5	16	28.6	30.0	730.0	675.0	20	30.0	675.0
24	1.18	32.06	29.5	20	1.38	1-1/4-7 UNC	1.18	36.0	32.0	24	1.62	1.18	32.5	29.75	16	1.25	1.18	30.71	28.54	20	1.18	28.54
600	30.0	813.0	749.3	20	34.9		30.0	914.0	812.8	24	41.3	30.0	826.0	755.7	16	31.8	30.0	780.0	725.0	20	30.0	725.0
26	1.26	34.25	31.75	24	1.38	1-1/4-7 UNC	1.26	38.25	34.5	28	1.75	—	—	—	—	—	1.26	32.87	30.71	24	1.18	30.71
650	32.0	870.0	805.5	24	34.9		32.0	972.0	876.0	28	44.5	—	—	—	—	—	32.0	835.0	780.0	24	30.0	780.0
30	1.26	38.75	36.0	28	1.38	1-1/4-7 UNC	1.26	43.0	39.25	28	2.00	1.26	39.25	36.5	20	1.38	1.26	37.99	35.43	24	1.30	35.43
750	32.0	984.0	914.4	28	34.9		32.0	1092.0	997.0	28	50.8	32.0	997.0	927.1	20	34.9	32.0	965.0	900.0	24	33.0	900.0

