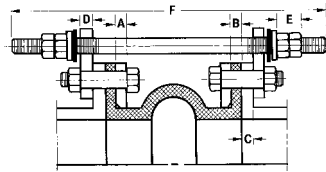
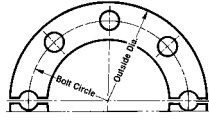


Series 230 Drilling Chart

Split Retaining Ring



- A - Retaining Ring Thickness
- B - Rubber Flange Thickness
- C - Adjacent Mating Flange Thickness
- D - Control Unit Plate Thickness
- E - Double Nut Thickness is determined by Control Rod Diameter
- F - Control Rod Bolt Length is determined by A through E + OAL¹

Table 6: Standard Drilling for PROCO Series 230/220 Rubber Expansion Joints **Thickness of Materials for PROCO Series 230/220 Rubber Expansion Joints**

NOMINAL PIPE SIZE EXPANSION JOINT I.D. Inch / (mm)	125/150# Flange Dimensions ²				Material Thickness ³ for Bolt Length Requirements			
	FLANGE O.D. Inch / (mm)	BOLT CIRCLE Inch / (mm)	NO. OF HOLES	SIZE OF HOLES	RETAINING RING THICKNESS Inch / (mm)	RUBBER FLANGE THICKNESS Inch / (mm)	ADJACENT MATING FLANGE THICKNESS	MAX. CONTROL ³ ROD PLATE THICKNESS Inch / (mm)
1 (25)	4.25 (107.95)	3.13 (79.50)	4	0.625 (15.9)	0.375 (9.53)	0.472 (11.99)		0.625 (15.9)
1.25 (32)	4.63 (117.60)	3.50 (88.90)	4	0.625 (15.9)	0.375 (9.53)	0.472 (11.99)		0.625 (15.9)
1.5 (40)	5.00 (127.00)	3.88 (98.55)	4	0.625 (15.9)	0.375 (9.53)	0.472 (11.99)	C	0.375 (9.5)
2 (50)	6.00 (152.40)	4.75 (120.65)	4	0.750 (19.1)	0.375 (9.53)	0.472 (11.99)	U	0.500 (12.7)
2.5 (65)	7.00 (177.80)	5.50 (139.70)	4	0.750 (19.1)	0.375 (9.53)	0.472 (11.99)	S	0.500 (12.7)
3 (80)	7.50 (190.50)	6.00 (152.40)	4	0.750 (19.1)	0.375 (9.53)	0.472 (11.99)	T	0.500 (12.7)
3.5 (90)	8.50 (215.90)	7.00 (177.80)	8	0.750 (19.1)	0.375 (9.53)	0.472 (11.99)	O	0.625 (15.9)
4 (100)	9.00 (228.60)	7.50 (190.50)	8	0.750 (19.1)	0.375 (9.53)	0.472 (11.99)	M	0.625 (15.9)
5 (125)	10.00 (254.00)	8.50 (215.90)	8	0.875 (22.2)	0.375 (9.53)	0.551 (14.00)	E	0.500 (12.7)
6 (150)	11.00 (279.40)	9.50 (241.30)	8	0.875 (22.2)	0.375 (9.53)	0.551 (14.00)	R	0.500 (12.7)
8 (200)	13.50 (342.90)	11.75 (298.45)	8	0.875 (22.2)	0.375 (9.53)	0.630 (16.00)		0.625 (15.9)
10 (250)	16.00 (406.40)	14.25 (361.95)	12	1.000 (25.4)	0.375 (9.53)	0.630 (16.00)	T	0.750 (19.1)
12 (300)	19.00 (482.60)	17.00 (431.80)	12	1.000 (25.4)	0.375 (9.53)	0.748 (19.00)	O	0.750 (19.1)
14 (350)	21.00 (533.40)	18.75 (476.25)	12	1.125 (28.6)	0.375 (9.53)	0.866 (22.00)		0.750 (19.1)
16 (400)	23.50 (596.90)	21.25 (539.75)	16	1.125 (28.6)	0.375 (9.53)	0.866 (22.00)	D	1.000 (25.4)
18 (450)	25.00 (635.00)	22.75 (577.85)	16	1.250 (31.8)	0.375 (9.53)	0.866 (22.00)	E	1.000 (25.4)
20 (500)	27.50 (698.50)	25.00 (635.00)	20	1.250 (31.8)	0.375 (9.53)	0.984 (25.00)	T	1.000 (25.4)
22 (550)	29.50 (749.30)	27.25 (692.15)	20	1.375 (34.9)	0.375 (9.53)	0.984 (25.00)	E	1.000 (25.4)
24 (600)	32.00 (812.80)	29.50 (749.30)	20	1.375 (34.9)	0.375 (9.53)	0.984 (25.00)	R	1.000 (25.4)
26 (650)	34.25 (869.95)	31.75 (806.45)	24	1.375 (34.9)	0.375 (9.53)	0.984 (25.00)	M	1.000 (25.4)
28 (700)	36.50 (927.10)	34.00 (863.60)	28	1.375 (34.9)	0.375 (9.53)	0.984 (25.00)	I	1.250 (31.8)
30 (750)	38.75 (984.25)	36.00 (914.40)	28	1.375 (34.9)	0.375 (9.53)	0.984 (25.00)	N	1.500 (38.1)
32 (800)	41.75 (1060.45)	38.50 (977.90)	28	1.625 (41.3)	0.375 (9.53)	0.984 (25.00)	E	1.250 (31.8)
34 (850)	43.75 (1111.25)	40.50 (1028.70)	32	1.625 (41.3)	0.375 (9.53)	0.984 (25.00)		1.500 (38.1)
36 (900)	46.00 (1168.40)	42.75 (1085.85)	32	1.625 (41.3)	0.375 (9.53)	0.984 (25.00)	M	1.750 (44.5)
38 (950)	48.75 (1238.25)	45.25 (1149.35)	32	1.625 (41.3)	0.375 (9.53)	0.984 (25.00)	A	1.500 (38.1)
40 (1000)	50.75 (1289.05)	47.25 (1200.15)	36	1.625 (41.3)	0.375 (9.53)	0.984 (25.00)	T	1.500 (38.1)
42 (1050)	53.00 (1346.20)	49.50 (1257.30)	36	1.625 (41.3)	0.375 (9.53)	1.181 (29.99)	I	1.500 (38.1)
44 (1100)	55.25 (1403.35)	51.75 (1314.45)	40	1.625 (41.3)	0.375 (9.53)	1.181 (29.99)	N	1.500 (38.1)
46 (1150)	57.25 (1454.15)	53.75 (1365.25)	40	1.625 (41.3)	0.375 (9.53)	1.181 (29.99)	G	1.500 (38.1)
48 (1200)	59.50 (1511.30)	56.00 (1422.40)	44	1.625 (41.3)	0.375 (9.53)	1.181 (29.99)		1.750 (44.5)
50 (1250)	61.75 (1568.45)	58.25 (1479.55)	44	1.875 (47.6)	0.375 (9.53)	1.181 (29.99)	F	1.500 (38.1)
52 (1300)	64.00 (1625.60)	60.50 (1536.70)	44	1.875 (47.6)	0.375 (9.53)	1.181 (29.99)	L	1.750 (44.5)
54 (1350)	66.25 (1682.75)	62.75 (1593.85)	44	2.000 (50.8)	0.375 (9.53)	1.181 (29.99)	A	2.000 (50.8)
56 (1400)	68.75 (1746.25)	65.00 (1651.00)	48	1.875 (47.6)	0.375 (9.53)	1.181 (29.99)	N	2.000 (50.8)
58 (1450)	71.00 (1803.40)	67.25 (1708.15)	48	1.875 (47.6)	0.375 (9.53)	1.181 (29.99)	G	2.000 (50.8)
60 (1500)	73.00 (1854.20)	69.25 (1758.95)	52	2.000 (50.8)	0.375 (9.53)	1.181 (29.99)	E	2.000 (50.8)
66 (1650)	80.00 (2032.00)	76.00 (1930.40)	52	2.000 (50.8)	0.375 (9.53)	1.181 (29.99)		2.000 (50.8)
68 (1700)	82.25 (2089.15)	78.25 (1987.55)	56	2.000 (50.8)	0.375 (9.53)	1.181 (29.99)	T	2.000 (50.8)
72 (1800)	86.50 (2197.10)	82.50 (2095.50)	60	2.000 (50.8)	0.375 (9.53)	1.181 (29.99)	H	2.000 (50.8)
78 (1950)	93.00 (2362.20)	89.00 (2260.60)	64	2.125 (53.0)	0.375 (9.53)	1.188 (30.18)	I	2.000 (50.8)
84 (2100)	99.75 (2533.65)	95.50 (2425.70)	64	2.250 (57.2)	0.375 (9.53)	1.188 (30.18)	C	2.250 (57.2)
90 (2250)	106.50 (2705.10)	102.00 (2590.80)	68	2.375 (60.3)	0.375 (9.53)	1.188 (30.18)	K	2.500 (63.5)
96 (2400)	113.25 (2876.55)	108.50 (2755.90)	68	2.500 (63.5)	0.375 (9.53)	1.188 (30.18)	N	2.750 (69.9)
102 (2550)	120.00 (3048.00)	114.50 (2908.30)	72	2.625 (66.7)	0.375 (9.53)	1.188 (30.18)	E	2.500 (63.5)
108 (2700)	126.75 (3219.45)	120.75 (3067.05)	72	2.625 (66.7)	0.375 (9.53)	1.188 (30.18)	S	2.500 (63.5)
120 (3000)	140.25 (3562.35)	132.75 (3371.85)	76	2.875 (73.0)	0.375 (9.53)	1.188 (30.18)	S	2.500 (63.5)
132 (3300)	153.75 (3905.25)	145.75 (3705.05)	80	3.125 (79.4)	0.375 (9.53)	1.188 (30.18)		2.500 (63.5)
144 (3600)	167.25 (4248.15)	158.25 (4019.55)	84	3.375 (85.7)	0.375 (9.53)	1.188 (30.18)		2.500 (63.5)

Metric Conversion Formula: Nominal I.D.: in. x 25 = mm; Dimensions: in. x 25.4 = mm; Pressure: PSIG x .069 = Bar

Notes: 1. Control rod length is determined by OAL of rubber expansion joint, rated extension, retaining ring thickness, mating flange thickness and number of nuts. Consult PROCO for rod lengths.
2. Flange dimensions shown are in accordance with 125/150 pound standards: ANSI B16.1 AWWA C-207 Table 1 and 2 Class D; AWWA C-207 Table 3 see Class E. Hole size shown is .08" larger than AWWA standard.