

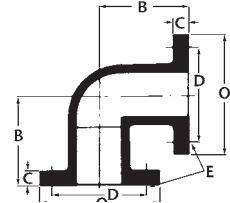
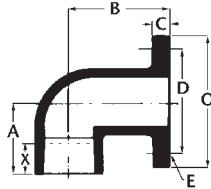
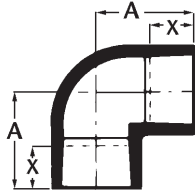
# EPOXY FITTINGS DIMENSIONS

2"-16" Green Thread® (GT) fittings may be used with Green Thread and Red Thread® II (RT II) piping. Refer to "Chemical Resistance Guide," Bulletin No. E5615, for chemical recommendations.

2"-16" Red Thread II fittings may be used on Red Thread II piping.

1"-1½" fittings are available in Green Thread products only.

## 90° ELBOWS<sup>(1)</sup> 1" and 16" parts are available in Green Thread only.



Nom. Pipe Size	A	B	C	D	E Bolt Hole Size	O	X <sup>(2)</sup> W/GT Pipe	X <sup>(2)</sup> W/RT II Pipe	Nominal Wgt BxB	Nominal Wgt BxF	Nominal Wgt FxF	Steady Pressure
In.	In.	In.	In.	In.	In.	In.	In.	In.	Lbs	Lbs	Lbs	psig
1	2¾	3½	¾	3⅝	⅝D - 4 holes	4 ¼	1	-	0.4	1.0	1.7	450
1 ½	3⅝	4	¾	3⅝	⅝D - 4 holes	5	1⅝	-	0.6	1.5	2.4	450
2	3⅝	4½	¾	4¾	¾D - 4 holes	6	1⅝	1⅝	1.2	2.5	3.6	450
3	4⅝	5½	1⅝	6	¾D - 4 holes	7 ½	1⅝	1¾	2.3	4.6	10.0	450
4	5⅝	6 ½	1⅝	7½	¾D - 8 holes	9	2	1⅝	3.3	6.4	15.9	225
6	6⅝	8	1½	9½	⅞D - 8 holes	11	2¼	2¼	7.2	11.8	15.9	225
8	11⅝	9	1¾	11¾	⅞D - 8 holes	13 ½	3	3⅝	10.9	15.4	19.9	225
10	13	11	2	14¼	1D - 12 holes	16	3¼	3½	14.9	23.8	32.8	225
12	14	12	2¼	17	1D - 12 holes	19	3⅝	3⅝	22.6	38.3	54.0	225
14	19	14	2½	18¾	1⅝D - 12 holes	20 ¾	5⅝	5½	26.5	45.0	65.0	225
16	20 ¼	15	2½	21¼	1⅝D - 16 holes	23 ¼	5½	5½	45.0	65.0	108.0	225

mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	kg	kg	MPa
25	70	89	19	79	16D - 4 holes	108	25	-	0.18	0.45	0.77	3.10
38	86	102	19	98	16D - 4 holes	127	29	-	0.27	0.68	1.09	3.10
51	86	114	19	121	19D - 4 holes	152	41	41	0.54	1.13	1.63	3.10
76	117	140	35	152	19D - 4 holes	190	48	44	1.04	2.09	4.54	3.10
102	130	165	35	190	19D - 8 holes	229	51	41	1.50	2.90	7.21	1.55
152	156	203	38	241	22D - 8 holes	279	57	57	3.27	5.35	7.21	1.55
203	295	229	44	298	22D - 8 holes	343	76	86	4.94	6.99	9.02	1.55
254	330	279	51	362	25D - 12 holes	406	83	89	6.76	10.80	14.88	1.55
305	356	305	57	432	25D - 12 holes	483	86	98	10.25	17.37	24.49	1.55
356	483	356	64	476	29D - 12 holes	527	137	140	12.02	20.41	29.48	1.55
406	514	381	64	540	29D - 16 holes	591	140	140	20.41	29.48	48.99	1.55

- (1) "A" dimensions shown are for GREEN THREAD fittings. 1"-6" fittings are compression molded; 8"-16" fittings are filament wound.  
 (2) Nominal make-up dimension for drawing layout work only using non-threaded spigots. Do not use for assembly dimensions.  
 (3) Flanges should be joined to flat-faced flanges. When joining to raised-faced flange connections, consult installation or engineering manuals F6000 & E5000. Bolt torque, gasket thickness and hardness recommendations are in manual F6000.

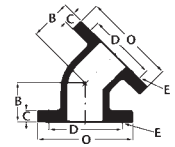
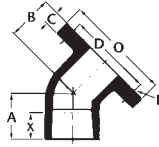
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**NOV** Fiber Glass Systems

**45° ELBOWS<sup>(1)</sup> 1"-16"** parts are available in Green Thread only.



Nom. Pipe Size	A	B	C	D	E Bolt Hole Size	O	X <sup>(2)</sup> W/GT Pipe	X <sup>(2)</sup> W/RT II Pipe	Nom. Weight BxB	Nom. Weight BxF	Nom. Weight FxF	Steady Pressure
In.	In.	In.	In.	In.	In.	In.	In.	In.	Lbs.	Lbs.	Lbs.	psig
1	2 <sup>3</sup> / <sub>8</sub>	2	3/4	3 <sup>1</sup> / <sub>8</sub>	5/8D-4 holes	4 <sup>1</sup> / <sub>4</sub>	1	-	.3	.8	1.4	450
1 <sup>1</sup> / <sub>2</sub>	2 <sup>7</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>4</sub>	3/4	3 <sup>7</sup> / <sub>8</sub>	5/8D-4 holes	5	1 <sup>1</sup> / <sub>8</sub>	-	.4	1.2	2.0	450
2	2 <sup>5</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>	3/4	4 <sup>3</sup> / <sub>4</sub>	3/4D-4 holes	6	1 <sup>5</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>8</sub>	.9	1.9	2.8	450
3	3 <sup>3</sup> / <sub>4</sub>	3	1 <sup>1</sup> / <sub>8</sub>	6	3/4D-4 holes	7 <sup>1</sup> / <sub>2</sub>	1 <sup>7</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>4</sub>	1.6	3.5	7.9	450
4	3 <sup>7</sup> / <sub>8</sub>	4	1 <sup>1</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	3/4D-8 holes	9	2	1 <sup>5</sup> / <sub>8</sub>	2.4	5.1	13.1	225
6	4 <sup>3</sup> / <sub>8</sub>	5	1 <sup>1</sup> / <sub>2</sub>	9 <sup>1</sup> / <sub>2</sub>	7/8D-8 holes	11	2 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>4</sub>	4.8	8.4	12.5	225
8	8 <sup>1</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>	1 <sup>3</sup> / <sub>4</sub>	11 <sup>3</sup> / <sub>4</sub>	7/8D-8 holes	13 <sup>1</sup> / <sub>2</sub>	3	3 <sup>3</sup> / <sub>8</sub>	6.9	11.9	16.8	225
10	8 <sup>5</sup> / <sub>8</sub>	6 <sup>1</sup> / <sub>2</sub>	2	14 <sup>1</sup> / <sub>4</sub>	1D-12 holes	16	3 <sup>3</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>2</sub>	8.9	18.5	28.2	225
12	9 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>4</sub>	17	1D-12 holes	19	3 <sup>5</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>8</sub>	14.0	32.6	47.2	225
14	12 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>2</sub>	18 <sup>3</sup> / <sub>4</sub>	1 1/8D-12 holes	20 <sup>3</sup> / <sub>4</sub>	5 <sup>3</sup> / <sub>8</sub>	5 <sup>1</sup> / <sub>2</sub>	17.0	46.0	73.0	225
16	13 <sup>1</sup> / <sub>4</sub>	8	2 <sup>1</sup> / <sub>2</sub>	21 <sup>1</sup> / <sub>4</sub>	1 1/8D-16 holes	23 <sup>1</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>2</sub>	25.0	56.0	84.0	225

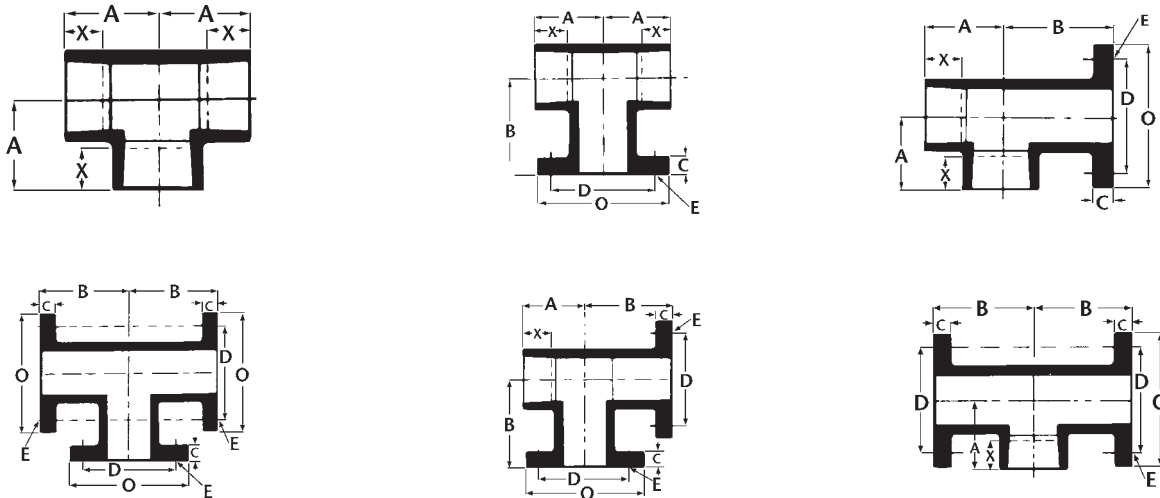
mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	kg	kg	MPa
25	60	51	19	79	16D-4 holes	108	25	-	.14	0.36	0.64	3.10
38	73	57	19	98	16D-4 holes	127	29	-	.18	0.54	0.91	3.10
51	67	64	19	121	19D-4 holes	152	41	41	.41	0.86	1.27	3.10
76	95	76	35	152	19D-4 holes	190	48	44	.73	1.59	3.58	3.10
102	98	102	35	190	19D-8 holes	229	51	41	1.09	2.31	5.94	1.55
152	111	127	38	241	22D-8 holes	279	57	57	2.18	3.81	5.67	1.55
203	206	140	44	298	22D-8 holes	343	76	86	3.11	5.40	7.62	1.55
254	219	165	51	362	25D-12 holes	406	83	89	4.04	8.39	12.79	1.55
305	241	190	57	432	25D- 12 holes	483	86	98	6.35	14.78	21.41	1.55
356	318	191	64	476	29D-12 holes	527	137	140	7.71	20.87	33.11	1.55
406	337	203	64	540	29D-16 holes	591	140	140	11.3	25.40	38.10	1.55

(1) "A" dimensions shown are for GREEN THREAD fittings. 1"-6" fittings are compression molded; 8"-16" fittings are filament wound.

(2) Nominal make-up dimension for drawing layout work only using non-threaded spigots. Do not use for assembly dimensions.

(3) Flanges should be joined to flat-faced flanges. When joining to raised-faced flange connections, consult installation or engineering manuals F6000 & E5000. Bolt torque, gasket thickness and hardness recommendations are in manual F6000.

**TEES<sup>(1)</sup> 1"-16" parts are available in Green Thread only.**



Nom. Pipe Size	A	B	C	D	E Bolt Hole Size	O	X <sup>(2)</sup> W/GT Pipe	X <sup>(2)</sup> W/RT II Pipe	Nom. Wgt 3B	Nom. Wgt 1F	Nom. Wgt 2F	Nom. Wgt 3F	Steady Pressure
In.	In.	In.	In.	In.	In.	In.	In.	In.	Lbs.	Lbs.	Lbs.	Lbs.	psig
1	2 $\frac{3}{4}$	3 $\frac{1}{2}$	$\frac{3}{4}$	3 $\frac{3}{8}$	$\frac{5}{8}$ D - 4 holes	4 $\frac{1}{4}$	1	-	.5	1.1	1.8	2.5	450
1 1/2	3 $\frac{3}{8}$	4	$\frac{3}{4}$	3 $\frac{3}{8}$	$\frac{5}{8}$ D - 4 holes	5	1 $\frac{1}{8}$	-	.9	1.9	2.8	3.6	450
2	3 $\frac{3}{8}$	4 $\frac{1}{2}$	$\frac{3}{4}$	4 $\frac{3}{4}$	$\frac{3}{4}$ D - 4 holes	6	1 $\frac{5}{8}$	1 $\frac{5}{8}$	1.9	3.1	4.8	5.5	450
3	4 $\frac{5}{8}$	5	1 $\frac{3}{8}$	6	$\frac{3}{4}$ D - 4 holes	7 $\frac{1}{2}$	1 $\frac{7}{8}$	1 $\frac{3}{4}$	3.6	5.8	8.0	14.5	450
4	5 $\frac{1}{8}$	6 $\frac{1}{2}$	1 $\frac{3}{8}$	7 $\frac{1}{2}$	$\frac{3}{4}$ D - 8 holes	9	2	1 $\frac{5}{8}$	4.9	8.0	11.3	22.7	225
6	6 $\frac{1}{8}$	8	1 $\frac{1}{2}$	9 $\frac{1}{2}$	$\frac{7}{8}$ D - 8 holes	11	2 $\frac{1}{4}$	2 $\frac{1}{4}$	10.1	14.3	19.0	22.3	225
8	11 $\frac{5}{8}$	9	1 $\frac{3}{4}$	11 $\frac{3}{4}$	$\frac{7}{8}$ D - 8 holes	13 $\frac{1}{2}$	3	3 $\frac{3}{8}$	16.1	20.4	24.6	28.9	225
10	13	11	2	14 $\frac{1}{4}$	1D - 12 holes	16	3 $\frac{1}{4}$	3 $\frac{1}{2}$	26.2	34.1	42.0	49.8	225
12	14	12	2 $\frac{1}{4}$	17	1D - 12 holes	19	3 $\frac{3}{8}$	3 $\frac{7}{8}$	31.8	47.1	62.5	77.8	225
14	19	14	2 $\frac{1}{2}$	18 $\frac{3}{4}$	1 $\frac{1}{8}$ D - 12 holes	20 $\frac{3}{4}$	5 $\frac{3}{8}$	5 $\frac{1}{2}$	52.0	75.5	99.5	127.0	225
16	20 $\frac{1}{4}$	15	2 $\frac{1}{2}$	21 $\frac{1}{4}$	1 $\frac{1}{8}$ D - 16 holes	23 $\frac{1}{4}$	5 $\frac{1}{2}$	5 $\frac{1}{2}$	68.0	107.0	135.0	170.0	225

mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	kg	kg	kg	MPa
25	70	89	19	79	16D-4 holes	108	25	-	0.2	0.5	0.8	1.1	3.10
38	86	102	19	98	16D-4 holes	127	29	-	0.4	0.9	1.3	1.6	3.10
51	86	114	19	121	19D-4 holes	152	41	41	0.9	1.4	2.2	2.5	3.10
76	102	127	35	152	19D-4 holes	190	48	44	1.6	2.6	3.6	6.6	3.10
102	130	165	35	190	19D-8 holes	229	51	41	2.2	3.6	5.1	10.3	1.55
152	156	203	38	241	22D-8 holes	279	57	57	4.6	6.5	8.6	10.1	1.55
203	295	229	44	298	22D-8 holes	343	76	86	7.3	9.3	11.2	13.1	1.55
254	330	279	51	362	25D-12 holes	406	83	89	11.9	15.5	19.1	22.6	1.55
305	356	305	57	432	25D-12 holes	483	86	98	14.4	21.4	28.3	35.3	1.55
356	483	356	64	476	29D-12 holes	527	137	140	23.6	34.2	45.1	57.6	1.55
406	514	381	64	540	29D-16 holes	591	140	140	30.8	48.5	61.2	77.1	1.55

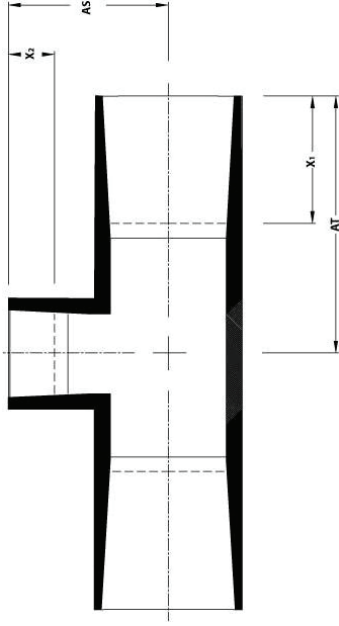
(1) "A" dimensions shown are for Green Thread fittings. 1"-6" fittings are compression molded; 8"-16" fittings are filament wound.

(2) Nominal make-up dimension for drawing layout work only using non-threaded spigots. Do not use for assembly dimensions.

(3) Flanges should be joined to flat-faced flanges. When joining to raised-faced flange connections, consult installation or engineering manuals F6000 & E5000. Bolt torque, gasket thickness and hardness recommendations are in manual F6000.

# REDUCING TEES

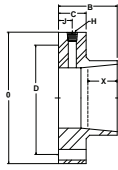
(1) Nominal make-up dimension for drawing layout work only using non-threaded spigots. Do not use for assembly dimensions.



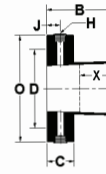
Nom. Size	AT		X <sub>1</sub> W/GT Pipe <sup>(1)</sup>		X <sub>1</sub> W/RTII Pipe <sup>(1)</sup>		Nom. Size	Steady Pressure		Nom. Wgt.	Steady Pressure	Nom. Wgt.	X <sub>2</sub> W/GT Pipe <sup>(1)</sup>		X <sub>2</sub> W/RTII Pipe <sup>(1)</sup>	
	In.	mm	In.	mm	In.	mm		mm	psig				MPa	kg	MPa	mm
8x6	11 <sup>5</sup> / <sub>8</sub>	295	3	76	86	260	203x152	225	1.55	23	225	10.4	73	73	73	10.4
8x4	11 <sup>5</sup> / <sub>8</sub>	295	3	76	86	260	203x102	225	1.55	21	225	9.5	111	102	102	9.5
8x3	11 <sup>5</sup> / <sub>8</sub>	295	3	76	86	251	203x76	225	1.55	20	225	9.1	76	73	73	9.1
8x2	11 <sup>5</sup> / <sub>8</sub>	295	3	76	86	249	203x51	225	1.55	19	225	8.6	38	38	38	8.6
10x8	13 <sup>1</sup> / <sub>16</sub>	332	3 <sup>1</sup> / <sub>4</sub>	83	89	346	254x203	225	1.55	39	225	17.7	76	86	86	17.7
10x6	13 <sup>1</sup> / <sub>16</sub>	332	3 <sup>1</sup> / <sub>4</sub>	83	89	298	254x152	225	1.55	36	225	16.3	73	73	73	16.3
10x4	13 <sup>1</sup> / <sub>16</sub>	332	3 <sup>1</sup> / <sub>4</sub>	83	89	298	254x102	225	1.55	33	225	14.9	111	102	102	14.9
10x3	13 <sup>1</sup> / <sub>16</sub>	332	3 <sup>1</sup> / <sub>4</sub>	83	89	289	254x76	225	1.55	32	225	14.5	76	73	73	14.5
12x10	13 <sup>15</sup> / <sub>16</sub>	354	3 <sup>3</sup> / <sub>8</sub>	86	98	383	305x254	225	1.55	51	225	23.1	83	89	89	23.1
12x8	13 <sup>15</sup> / <sub>16</sub>	354	3 <sup>3</sup> / <sub>8</sub>	86	98	383	305x203	225	1.55	48	225	21.8	76	86	86	21.8
12x6	13 <sup>15</sup> / <sub>16</sub>	354	3 <sup>3</sup> / <sub>8</sub>	86	98	337	305x152	225	1.55	45	225	20.4	73	73	73	20.4
12x4	13 <sup>15</sup> / <sub>16</sub>	354	3 <sup>3</sup> / <sub>8</sub>	86	98	337	305x102	225	1.55	42	225	19.1	111	101	101	19.1
14x12	19 <sup>1</sup> / <sub>16</sub>	484	5 <sup>1</sup> / <sub>2</sub>	137	140	405	356x305	225	1.55	67	225	30.4	86	98	98	30.4
14x10	19 <sup>1</sup> / <sub>16</sub>	484	5 <sup>1</sup> / <sub>2</sub>	137	140	395	356x254	225	1.55	64	225	29.0	83	89	89	29.0
14x8	19 <sup>1</sup> / <sub>16</sub>	484	5 <sup>1</sup> / <sub>2</sub>	137	140	390	356x203	225	1.55	60	225	27.2	76	86	86	27.2
14x6	19 <sup>1</sup> / <sub>16</sub>	484	5 <sup>1</sup> / <sub>2</sub>	137	140	349	356x152	225	1.55	57	225	25.9	73	73	73	25.9
16x14	20 <sup>1</sup> / <sub>4</sub>	514	5 <sup>1</sup> / <sub>2</sub>	140	140	495	406x356	225	1.55	103	225	46.7	137	140	140	46.7
16x12	20 <sup>1</sup> / <sub>4</sub>	514	5 <sup>1</sup> / <sub>2</sub>	140	140	430	406x305	225	1.55	99	225	44.9	86	98	98	44.9
16x10	20 <sup>1</sup> / <sub>4</sub>	514	5 <sup>1</sup> / <sub>2</sub>	140	140	422	406x254	225	1.55	94	225	42.6	83	89	89	42.6
16x8	20 <sup>1</sup> / <sub>4</sub>	514	5 <sup>1</sup> / <sub>2</sub>	140	140	422	406x203	225	1.55	90	225	40.8	76	86	86	40.8



# ORIFICE FLANGES (2"-8" parts are available in Green Thread only)



3"-8" Orifice Flange

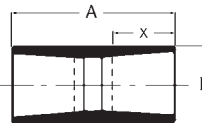


Nom. Pipe Size	B	C	D	E Bolt Hole-Size	H	J	O	X <sup>(1)</sup> W/ GT Pipe	X <sup>(1)</sup> W/RTII Pipe	Recom.Torquing of Flanges <sup>(2)</sup>		Nom. Wt.	Steady Pressure
										To Seal	Max.		
2	4¼	2	4¾	¾D - 4 holes	½ NPT	1	6	1⅝	1⅝	25	30	3.6	450
3	5	2	6	¾D - 4 holes	½ NPT	1	7½	1⅞	1⅞	25	30	5.3	450
4	5	2	7½	¾D - 8 holes	½ NPT	1	9	1⅞	2	25	30	6.6	225
6	6	2	9½	⅞D - 8 holes	½ NPT	1	11	2¼	2¼	25	30	8.8	225
8	8¾	2	11¾	⅞D - 8 holes	½ NPT	1	13½	3⅝	3½	30	100	14.5	225

mm	mm	mm	mm	mm	mm	mm	mm	mm <sup>(1)</sup>	mm <sup>(1)</sup>	N-m <sup>(2)</sup>	N-m <sup>(2)</sup>	kg	MPa
51	108	51	121	19D - 4 holes	12.7 NPT	25	152	41	41	34	41	1.6	3.10
76	127	51	152	19D - 4 holes	12.7 NPT	25	191	48	35	34	41	2.4	3.10
102	127	51	191	19D - 8 holes	12.7 NPT	25	229	41	51	34	41	3.0	1.55
152	152	51	241	22D - 8 holes	12.7 NPT	25	279	57	57	34	41	4.0	1.55
203	222	51	298	22D - 8 holes	12.7 NPT	25	343	79	89	41	135	6.6	1.55

## SLEEVE COUPLINGS



<sup>(1)</sup>Nominal make-up dimension for drawing layout work only using non-threaded spigots. Do not use for assembly dimensions.  
<sup>(2)</sup> Flanges should be joined to flat-faced flanges. When joining to raised-faced flange connections, consult installation or engineering manuals F6000 & E5000. Gasket thickness and hardness recommendations are in manual F6000.

### Green Thread Couplings

Nom. Pipe Size	A	B	X <sup>(1)</sup>	Nominal Weight	Steady Pressure
In.	In.	In.	In.	Lbs.	psig
1	2¾	1½	1	0.1	450
1½	3¼	2	1⅞	0.1	450
2	4⅞	2⅝	1⅝	0.4	450
3	5	3¾	2	0.8	450
4	5	4¾	2	0.9	225
6	7	6⅞	2¼	1.9	225
8	10	9	3⅝	3.4	225
10	10½	11	3⅝	5.2	225
12	11	13⅞	3¼	7.5	225
14	12½	15	3⅞	11.2	225
16	13	17⅞	4⅞	16.0	225

mm	mm	mm	mm <sup>(1)</sup>	kg	MPa
25	70	38	25	0.05	3.10
38	83	52	29	0.05	3.10
51	124	67	41	0.18	3.10
76	127	95	51	0.36	3.10
102	127	121	51	0.41	1.55
152	178	175	57	0.86	1.55
203	254	229	79	1.54	1.55
254	268	279	79	2.36	1.55
305	279	333	83	3.40	1.55
356	318	381	98	5.08	1.55
406	330	435	105	7.26	1.55

### Red Thread II Couplings

Nom. Pipe Size	A	B	X <sup>(1)</sup>	Nominal Weight	Steady Pressure
In.	In.	In.	In.	Lbs.	psig
1	-	-	-	-	-
1½	-	-	-	-	-
2	6	2⅝	1⅝	0.4	450
3	6	3¾	1⅞	0.8	450
4	7	4⅞	2	1.4	450
6	8⅞	7⅞	2¾	2.8	450
8	10	9	2⅞	3.3	225
10	10½	11⅞	3⅞	4.7	225
12	11	13⅞	3½	6.8	225
14	12½	15	4	11.2	225
16	13	17⅞	4⅞	16.0	225

In.	mm	mm	mm <sup>(1)</sup>	kg	MPa
1	-	-	-	-	-
1½	-	-	-	-	-
2	152	67	41	0.18	3.10
3	152	95	48	0.36	3.10
4	178	124	51	0.64	3.10
6	213	181	70	1.27	3.10
8	254	229	73	1.50	1.55
10	268	283	86	2.13	1.55
12	279	333	89	3.08	1.55
14	318	381	102	5.08	1.55
16	330	435	105	7.26	1.55

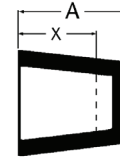
# NIPPLES

GT - Green Thread  
 RT - Red Thread II  
 □ - Standard Available Size



Size	Close		4"		6"		8"		10"		12"		16"		24"		36"	
	GT	RT	GT	RT	GT	RT	GT	RT	GT	RT	GT	RT	GT	RT	GT	RT	GT	RT
1	2½	-	-	-	□	-	□	-	-	-	-	-	-	-	-	-	-	-
1½	3⅝	-	-	-	□	-	□	-	-	-	-	-	-	-	-	-	-	-
2	4½	□	-	□ <sup>(3)</sup>	□	□	□	□	-	□	-	□	-	-	-	-	-	-
3	5⅝	5⅝	-	-	□	□ <sup>(4)</sup>	□	□	-	□	-	□	-	-	-	-	-	-
4	5¾	5¾	-	-	□	□	□	□	-	□	-	□	-	-	-	-	-	-
6	6⅝	6⅝	-	-	□ <sup>(4)</sup>	□ <sup>(5)</sup>	□	□	-	□	□	□	-	-	-	-	-	-
8	8⅝	9⅝	-	-	-	-	-	-	-	-	□	□	□	□	-	□	-	-
10	9¾	9¾	-	-	-	-	-	-	-	-	□	□	□	□	-	□	-	□
12	9¾	10¼	-	-	-	-	-	-	-	-	□	□	□	□	-	□	-	□
14	-	□	-	-	-	-	-	-	-	-	-	-	□	□	-	□	-	□
16	-	-	-	-	-	-	-	-	-	-	-	-	□	□	-	□	-	□

<sup>(3)</sup>Actual length 4¼  
<sup>(4)</sup>Actual length 6¼"  
<sup>(5)</sup>Actual length 6½"

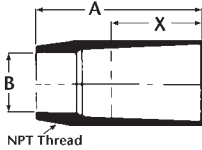


## END CAPS (Parts are available in GREEN THREAD only.)

Nom. Pipe Size	A	X <sup>(1)</sup> With GT Pipe	X <sup>(1)</sup> With RTII Pipe	Nominal Wgt.	Steady Pressure					
						A	X <sup>(1)</sup> With GT Pipe	X <sup>(1)</sup> With RTII Pipe	Nominal Wgt.	Steady Pressure
In.	In.	In.	In.	Lbs.	psig	mm	mm	mm	kg	MPA
1	2¾	1	-	0.3	450	70	25	-	0.14	3.10
1½	2⅝	1⅝	-	0.6	450	67	29	-	0.27	3.10
2	2¾	1⅝	1⅝	1.4	450	70	41	41	0.64	3.10
3	3¼	1⅝	1¾	1.9	450	83	48	44	0.86	3.10
4	3¾	2	1⅝	3.0	225	95	51	41	1.36	1.55
6	7	2⅝	2½	4.2	225	178	67	64	1.91	1.55
8	8¾	2⅝	3⅝	5.6	225	222	60	86	2.54	1.55
10	9¾	4⅝	5⅝	8.4	225	251	111	143	3.81	1.55
12	11	3¾	4⅞	12.5	225	279	95	124	5.67	1.55
14	12	5⅝	5½	15.6	225	305	137	140	7.08	1.55
16	13	5½	5½	19.5	225	330	140	140	8.85	1.55

<sup>(1)</sup> Nominal make-up dimension for drawing layout work only using non-threaded spigots. Do not use for assembly dimensions.

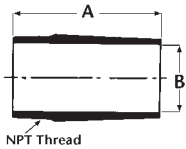
**ADAPTERS** (1" and 1½" parts are available in Green Thread only; 2"-8" parts are available in Green Thread or Red Thread II; 10" and 12" parts are available in Red Thread II only.)



(1) Nominal make-up dimension for drawing layout work only using non-threaded spigots. Do not use for assembly dimensions.

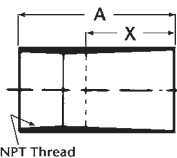
**Bell X Male**

Nom. Pipe Size	A	B	X <sup>(1)</sup> With GT Pipe	X <sup>(1)</sup> With RTII Pipe	Nom. Wgt. GT	Nom. Wgt. RT II	Steady Pressure	Nom. Pipe Size	A	B	X <sup>(1)</sup> With GT Pipe	X <sup>(1)</sup> With RT II Pipe	Nom. Wgt. GT	Nom. Wt. RTII	Steady Pressure
In.	In.	In.	In.	In.	Lbs.	Lbs.	psig	mm	mm	mm	mm	mm	kg	kg	MPa
1	3½	1	1	-	0.1	-	450	25	89	25	25	-	0.05	-	3.10
1½	3¾	1½	1⅛	-	0.3	-	450	38	99	38	29	-	0.14	-	3.10
2	4¼	2	1⅝	1⅝	0.4	0.3	450	51	108	51	41	35	0.18	0.14	3.10
3	5½	3	1⅞	1⅞	0.9	0.6	300	76	140	76	48	35	0.41	0.27	2.07
4	5½	4	2	1⅝	1.6	1.0	225	102	140	102	51	41	0.73	0.45	1.55
6	6	6	2¼	2¼	2.6	1.8	225	152	152	152	57	57	1.18	0.82	1.55
8	9¼	8	3⅞	3½	7.2	6.6	225	203	235	203	79	89	3.27	2.99	1.55



**Spigot X Male**

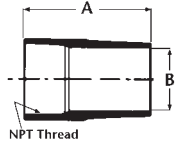
Nom. Pipe Size	A	B	X <sup>(1)</sup> With GT Pipe	X <sup>(1)</sup> With RTII Pipe	Nom. Wgt. GT	Nom. Wgt. RT II	Steady Pressure	Nom. Pipe Size	A	B	X <sup>(1)</sup> With GT Pipe	X <sup>(1)</sup> With RT II Pipe	Nom. Wgt. GT	Nom. Wt. RTII	Steady Pressure
In.	In.	In.	In.	In.	Lbs.	Lbs.	psig	mm	mm	mm	mm	mm	kg	kg	MPa
1	2⅝	1	-	-	0.1	-	450	25	67	25	-	-	0.05	-	3.10
1½	2¾	1¼	-	-	0.3	-	450	38	70	38	-	-	0.14	-	3.10
2	3⅝	2	-	-	0.4	0.3	450	51	92	51	-	-	0.18	0.1	3.10
3	4⅝	3	-	-	0.9	0.6	300	76	117	76	-	-	0.41	0.2	2.07
4	4⅞	4	-	-	1.1	1.0	225	102	124	102	-	-	0.50	0.4	1.55
6	6⅞	6	-	-	2.6	2.0	225	152	175	152	-	-	1.18	0.9	1.55
8	8	8	-	-	5.6	4.9	225	203	203	203	-	-	2.54	2.2	1.55



**Bell X Female**

Nom. Pipe Size	A	B	X <sup>(1)</sup> With GT Pipe	X <sup>(1)</sup> With RTII Pipe	Nom. Wgt. GT	Nom. Wgt. RT II	Steady Pressure	Nom. Pipe Size	A	B	X <sup>(1)</sup> With GT Pipe	X <sup>(1)</sup> With RT II Pipe	Nom. Wgt. GT	Nom. Wt. RTII	Steady Pressure
In.	In.	In.	In.	In.	Lbs.	Lbs.	psig	mm	mm	mm	mm	mm	kg	kg	MPa
1	2⅝	-	1	-	0.1	-	450	25	67	-	25	-	0.05	-	3.10
1½	2¾	-	1⅛	-	0.3	-	450	38	70	-	29	-	0.14	-	3.10
2	3½	-	1⅝	1⅝	0.6	0.3	450	51	89	-	41	35	0.27	0.1	3.10
3	4½	-	1⅞	1⅞	0.6	0.5	300	76	114	-	48	35	0.27	0.2	2.07
4	4½	-	2	1⅝	0.6	0.5	225	102	114	-	51	41	0.27	0.2	1.55
6	5½	-	2¼	2¼	1.9	1.3	225	152	140	-	57	57	0.86	0.6	1.55
8	7	-	3⅞	3½	5.1	3.5	150	203	178	-	79	89	2.31	1.6	1.03

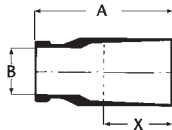
**ADAPTERS** (1" and 1½" parts are available in Green Thread only; 2"-8" parts are available in Green Thread or Red Thread II; 10" and 12" parts are available in Red Thread II only.)



(1) Nominal make-up dimension for drawing layout work only using non-threaded spigots. Do not use for assembly dimensions.

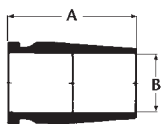
**Spigot X Female**

Nom. Pipe Size	A	B	X <sup>(1)</sup> With GT Pipe	X <sup>(1)</sup> With RTII Pipe	Nom. Wgt. GT	Nom. Wgt. RT II	Steady Pressure	Nom. Pipe Size	A	B	X <sup>(1)</sup> With GT Pipe	X <sup>(1)</sup> With RT II Pipe	Nom. Wgt. GT	Nom. Wt. RTII	Steady Pressure
In.	In.	In.	In.	In.	Lbs.	Lbs.	psig	mm	mm	mm	mm	mm	kg	kg	MPa
1	3 <sup>5</sup> / <sub>8</sub>	1	-	-	0.2	-	450	25	92	25	-	-	0.09	-	3.10
1½	4	1½	-	-	0.3	-	450	38	102	38	-	-	0.14	-	3.10
2	3 <sup>7</sup> / <sub>8</sub>	2	-	-	0.4	0.3	450	51	98	51	-	-	0.18	0.14	3.10
3	4 <sup>3</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>8</sub>	-	-	0.8	0.5	300	76	121	76	-	-	0.36	0.23	2.07
4	4 <sup>7</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>8</sub>	-	-	1.0	.6	225	102	124	102	-	-	0.45	0.27	1.55
6	6 <sup>3</sup> / <sub>4</sub>	6	-	-	3.4	2.6	225	152	171	152	-	-	1.54	1.18	1.55
8	10	8	-	-	8.0	7.1	150	203	254	203	-	-	3.63	3.22	1.03



**Bell X Grooved<sup>(2)</sup>**

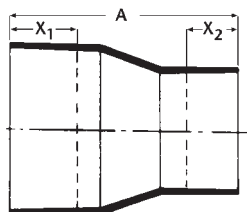
Nom. Pipe Size	A	B	X <sup>(1)</sup> With GT Pipe	X <sup>(1)</sup> With RTII Pipe	Nom. Wgt. GT	Nom. Wgt. RT II	Steady Pressure	Nom. Pipe Size	A	B	X <sup>(1)</sup> With GT Pipe	X <sup>(1)</sup> With RT II Pipe	Nom. Wgt. GT	Nom. Wt. RTII	Steady Pressure
In.	In.	In.	In.	In.	Lbs.	Lbs.	psig	mm	mm	mm	mm	mm	kg	kg	MPa
1	3½	7/8	1	-	0.3	-	450	25	89	22	25	-	0.14	-	3.10
1½	3 <sup>7</sup> / <sub>8</sub>	1½	1 <sup>1</sup> / <sub>8</sub>	-	0.5	-	450	38	98	38	29	-	0.23	-	3.10
2	4¼	2	1 <sup>5</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>8</sub>	0.5	0.3	450	51	108	51	41	35	0.23	0.14	3.10
3	5	3	1 <sup>7</sup> / <sub>8</sub>	1 <sup>5</sup> / <sub>8</sub>	0.9	0.6	300	76	127	76	48	35	0.41	0.27	2.07
4	5	4	2	1 <sup>7</sup> / <sub>8</sub>	1.0	.8	225	102	127	102	51	41	0.45	0.63	1.55
6	5 <sup>5</sup> / <sub>8</sub>	6	2¼	2¼	2.3	1.8	225	152	143	152	57	57	1.04	0.84	1.55
8	8¼	8	3 <sup>3</sup> / <sub>8</sub>	3½	5.8	4.9	225	203	210	203	79	89	2.63	2.22	1.55
10	8¼	10 <sup>1</sup> / <sub>8</sub>	-	3¾	-	6.3	190	254	210	257	-	95	-	2.86	1.31



**Spigot X Grooved<sup>(2)</sup>**

Nom. Pipe Size	A	B	X <sup>(1)</sup> With GT Pipe	X <sup>(1)</sup> With RTII Pipe	Nom. Wgt. GT	Nom. Wgt. RT II	Steady Pressure	Nom. Pipe Size	A	B	X <sup>(1)</sup> With GT Pipe	X <sup>(1)</sup> With RT II Pipe	Nom. Wgt. GT	Nom. Wt. RTII	Steady Pressure
In.	In.	In.	In.	In.	Lbs.	Lbs.	psig	mm	mm	mm	mm	mm	kg	kg	MPa
1	2¾	7/8	-	-	0.1	-	450	25	70	22	-	-	0.05	-	3.10
1½	3 <sup>1</sup> / <sub>8</sub>	1½	-	-	0.2	-	450	38	79	38	-	-	0.09	-	3.10
2	3 <sup>5</sup> / <sub>8</sub>	2	-	-	0.3	0.3	450	51	92	51	-	-	0.14	0.14	3.10
3	4¼	3	-	-	0.9	0.6	300	76	127	76	-	-	0.41	0.27	2.07
4	4½	4	-	-	1.0	0.9	225	102	114	102	-	-	0.45	0.41	1.55
6	5	6	-	-	2.6	2.0	225	152	127	152	-	-	1.18	0.91	1.55
8	7	8	-	-	4.4	4.1	225	203	178	203	-	-	2.00	1.86	1.55
10	7	10 <sup>1</sup> / <sub>8</sub>	-	-	-	5.6	190	254	178	257	-	-	-	2.54	1.31
12	7	12	-	-	-	6.8	150	305	178	305	-	-	-	3.08	1.03

# REDUCERS (1"-16 parts are available in Green Thread only.)



Concentric Reducer Belled

Nom. Pipe Size	A	X <sub>1</sub> <sup>(1)</sup> With GT Pipe	X <sub>2</sub> <sup>(1)</sup> With Gt Pipe	X <sub>1</sub> <sup>(1)</sup> With RT II Pipe	X <sub>2</sub> <sup>(1)</sup> With RT II Pipe	Nom. Wgt.	Steady Pressure	Nom. Pipe Size	A	X <sub>1</sub> <sup>(1)</sup> With GT Pipe	X <sub>2</sub> <sup>(1)</sup> With GT Pipe	X <sub>1</sub> <sup>(1)</sup> With RT II Pipe	X <sub>2</sub> <sup>(1)</sup> With RT II Pipe	Nom. Wgt.	Steady Pressure
In.	In.	In.	In.	In.	In.	Lbs.	psig	mm	mm	mm	mm	mm	mm	kg	MPa
2x1	5½	1⅝	1	1⅝	NA	0.6	450	51x25	140	41	25	41	NA	0.27	3.10
2x1½	5	1⅝	1⅛	1⅝	NA	0.6	450	51x38	127	41	29	41	NA	0.27	3.10
3x1	6¼	1⅞	1	1⅞	NA	1.0	450	76x25	159	48	25	48	NA	0.45	3.10
3x1½	6¼	1⅞	1⅛	1¾	NA	1.1	450	76x38	159	48	29	44	NA	0.50	3.10
3x2	6	1⅞	1⅛	1⅞	1⅝	1.1	450	76x51	152	48	29	48	41	0.50	3.10
4x1½	7⅞	2	1⅛	1⅝	NA	1.8	225 <sup>(2)</sup>	102x38	187	51	29	41	NA	0.82	1.55 <sup>(2)</sup>
4x2	8¼	2	1⅝	1⅝	1⅝	2	225 <sup>(2)</sup>	102x51	210	51	41	41	41	0.91	1.55 <sup>(2)</sup>
4x3	7	2	1⅞	1⅝	1⅞	1.7	225 <sup>(2)</sup>	102x76	178	51	48	41	48	0.77	1.55 <sup>(2)</sup>
6x3	10⅞	2⅞	1⅞	2⅞	1⅞	4.3	225 <sup>(2)</sup>	152x76	276	73	48	73	48	1.95	1.55 <sup>(2)</sup>
6x4	9	2¼	2	2¼	1⅝	3.4	225 <sup>(2)</sup>	152x102	229	57	51	57	41	1.54	1.55 <sup>(2)</sup>
8x4	14	3	2	3⅞	1⅝	6.7	225	203x102	356	76	51	86	41	3.04	1.55
8x6	15¼	3	2⅞	3⅞	2⅞	7.3	225	203x152	387	76	73	114	73	3.31	1.55
10x6	15¼	3¼	2⅞	3½	2⅝	10.5	225	254x152	387	83	73	89	67	4.76	1.55
10x8	16½	3¼	3	3½	3⅞	11.1	225	254x203	419	83	76	89	86	5.03	1.55
12x8	18⅞	3⅞	3	3⅞	3⅞	17.0	225	305x203	467	86	76	98	86	7.71	1.55
12x10	17¾	3⅞	3¼	3⅞	3½	16.4	225	305x254	451	86	83	98	89	7.44	1.55
14x10	22⅞	5⅞	3¼	5½	3½	21.9	225	356x254	581	137	83	140	89	9.93	1.55
14x12	22¾	5⅞	3⅞	5½	3⅞	21.8	225	356x305	578	137	86	140	98	9.89	1.55
16x12	25	5½	3⅞	5½	3⅞	27.7	225	406x305	635	140	86	140	98	12.56	1.55
16x14	28	7¼	7	7¼	7	31.1	225	406x356	711	184	178	184	178	14.11	1.55

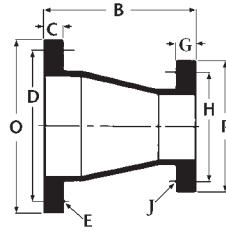
NOTE: MULTI-STEP and ECCENTRIC reducers are available through 16" sizes. Information is available on request.

<sup>(1)</sup> Nominal make-up dimension for drawing layout work only using non-threaded spigots. Do not use for assembly dimensions.

<sup>(2)</sup> Also available on special order for 300 psig steady pressure service with belled ends.

<sup>(3)</sup> Flanges should be joined to flat-faced flanges. When joining to raised-faced flange connections, consult installation or engineering manuals F6000 & E5000. Bolt torque, gasket thickness and hardness recommendations are in manual F6000. These comments also apply to the flanged concentric reducers on the following page.

# REDUCERS (1"-16 parts are available in Green Thread only.)

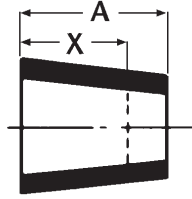


**Concentric Reducer Flanged<sup>(3)</sup>**

Nom. Pipe Size	B	C	D	E	O	G	H	J	P	Nom. Wgt.	Steady Pressure
In.	In.	In.	In.	Bolt Hole Size	In.	In.	In.	In.	In.	Lbs.	psig
2x1	5	3/4	4 3/4	3/4D - 4 holes	6	3/4	3 7/8	5/8D - 4 holes	4 1/4	2.6	300
2x1 1/2	5	3/4	4 3/4	3/4D - 4 holes	6	3/4	3 7/8	5/8D - 4 holes	5	2.6	300
3x1 1/2	6	1 1/8	6	3/4D - 4 holes	7 1/2	3/4	4 3/4	3/4D - 4 holes	5	4.4	190
3x2	6	1 3/8	6	3/4D - 4 holes	7 1/2	3/4	4 3/4	3/4D - 4 holes	6	4.4	190
4x2	7	1 3/8	7 1/2	3/4D - 8 holes	9	1 3/8	6	3/4D - 4 holes	6	7.1	150
4x3	7	1 3/8	7 1/2	3/4D - 8 holes	9	1 3/8	6	3/4D - 4 holes	7 1/2	7.1	150
6x3	9	1 1/2	9 1/2	7/8D - 8 holes	11	1 3/8	7 1/2	3/4D - 8 holes	7 1/2	11.0	150
6x4	9	1 1/2	9 1/2	7/8D - 8 holes	11	1 3/8	7 1/2	3/4D - 8 holes	9	11.0	150
8x4	11	1 3/4	11 3/4	7/8D - 8 holes	13 1/2	1 1/2	9 1/2	7/8D - 8 holes	9	17.6	225
8x6	11	1 3/4	11 3/4	7/8D - 8 holes	13 1/2	1 1/2	9 1/2	7/8D - 8 holes	11	17.6	225
10x6	12	2	14 1/4	1D - 12 holes	16	1 3/4	11 3/4	7/8D - 8 holes	11	28.2	225
10x8	12	2	14 1/4	1D - 12 holes	16	1 3/4	11 3/4	7/8D - 8 holes	13 1/2	28.2	225
12x8	14	2 1/4	17	1D - 12 holes	19	2	14 1/4	1D - 12 holes	13 1/2	43.0	225
12x10	14	2 1/4	17	1D - 12 holes	19	2	14 1/4	1D - 12 holes	16	43.0	225
14x10	16	2 1/2	18 3/4	1 1/8D - 12 holes	20 3/4	2 1/4	17	1D - 12 holes	16	55.0	225
14x12	16	2 1/2	18 3/4	1 1/8D - 12 holes	20 3/4	2 1/4	17	1D - 12 holes	19	55.0	225
16x12	18	2 1/2	21 1/4	1 1/8D - 16 holes	23 1/4	2 1/2	18 3/4	1 1/8D - 12 holes	19	89.5	225
16x14	18	2 1/2	21 1/4	1 1/8D - 16 holes	23 1/4	2 1/2	18 3/4	1 1/8D - 12 holes	20 3/4	89.5	225

mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	MPa
51x25	127	19	121	19D - 4 holes	152	19	98	16D - 4 holes	108	1.18	2.07
51x38	127	19	121	19D - 4 holes	152	19	98	16D - 4 holes	127	1.18	2.07
76x38	152	35	152	19D - 4 holes	191	19	121	19D - 4 holes	127	2.00	1.31
76x51	152	35	152	19D - 4 holes	191	19	121	19D - 4 holes	152	2.00	1.31
102x51	178	35	191	19D - 8 holes	229	35	152	19D - 4 holes	152	3.22	1.03
102x76	178	35	191	19D - 8 holes	229	35	152	19D - 4 holes	191	3.22	1.03
152x76	229	38	241	22D - 8 holes	279	35	191	19D - 8 holes	191	4.99	1.03
152x102	229	38	241	22D - 8 holes	279	35	191	19D - 8 holes	229	4.99	1.03
203x102	279	44	298	22D - 8 holes	343	38	241	22D - 8 holes	229	7.98	1.55
203x152	279	44	298	22D - 8 holes	343	38	241	22D - 8 holes	279	7.98	1.55
254x152	305	51	362	25D - 12 holes	406	44	298	22D - 8 holes	279	12.79	1.55
254x203	305	51	362	25D - 12 holes	406	44	298	22D - 8 holes	343	12.79	1.55
305x203	356	57	432	25D - 12 holes	483	51	362	25D - 12 holes	343	19.50	1.55
305x254	356	57	432	25D - 12 holes	483	51	362	25D - 12 holes	406	19.50	1.55
356x254	406	64	476	29D - 12 holes	527	57	432	25D - 12 holes	406	24.95	1.55
356x305	406	64	476	29D - 12 holes	527	57	432	25D - 12 holes	483	24.95	1.55
406x305	457	64	540	29D - 16 holes	591	64	476	29D - 12 holes	483	40.60	1.55
406x356	457	64	540	29D - 16 holes	591	64	476	29D - 12 holes	527	40.60	1.55

# REDUCER BUSHING



## Reducer Bushing

Nom. Pipe Size	A	X <sup>(1)</sup> With GT Pipe	X <sup>(1)</sup> With RTII Pipe	Nom. Wgt.	Steady Pressure	Nom. Pipe Size	A	X <sup>(1)</sup> With GT Pipe	X <sup>(1)</sup> With RTII Pipe	Nom. Wgt.	Steady Pressure
In.	In.	In.	In.	Lbs	psig	mm	mm	mm	mm	kg	MPa
*	1 $\frac{1}{8}$	-	-	0.1	450	*	29	-	-	0.05	3.10
**	1 $\frac{3}{8}$	1	-	0.1	450	*	35	25	-	0.05	3.10
2x1	2 $\frac{1}{4}$	1	-	0.4	450	51x25	57	25	-	0.18	3.10
2x1 NPT	1 $\frac{3}{4}$	-	-	0.4	450	51x25	44	-	-	0.18	3.10
2x1 $\frac{1}{4}$ NPT	1 $\frac{3}{4}$	-	-	0.4	450	51x32	44	-	-	0.18	3.10
2x1 $\frac{1}{2}$	2	1 $\frac{1}{8}$	-	0.1	450	51x38	51	29	-	0.05	3.10
2x1 $\frac{1}{2}$ NPT	1 $\frac{3}{4}$	-	-	0.1	450	51x38	44	-	-	0.05	3.10
3x2	2 $\frac{1}{4}$	1 $\frac{5}{8}$	1 $\frac{5}{8}$	0.8	450	76x51	57	41	41	0.36	3.10
4x3	2 $\frac{5}{8}$	1 $\frac{7}{8}$	1 $\frac{7}{8}$	1.0	450	102x76	67	48	35	0.45	3.10
6x4	3 $\frac{3}{8}$	2	1 $\frac{1}{2}$	3.9	450	152x102	79	51	38	1.77	3.10
8x6	3 $\frac{1}{4}$	3	2 $\frac{3}{8}$	6.8	225	203x152	83	76	60	3.08	1.55
10x8	4	2 $\frac{5}{8}$	3	9.9	225	254x203	102	67	76	4.49	1.55
12x10	4 $\frac{1}{2}$	3	3 $\frac{1}{4}$	11.8	225	305x254	114	76	83	5.35	1.55
14x12	5 $\frac{1}{2}$	3 $\frac{7}{8}$	4 $\frac{1}{8}$	20.2	225	356x305	140	98	105	9.16	1.55
16x14	6	4 $\frac{1}{2}$	4 $\frac{1}{2}$	28.9	225	406x356	152	114	114	13.11	1.55

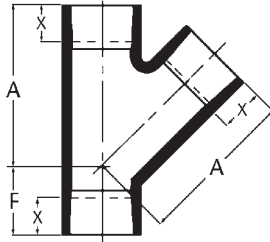
\* 1x $\frac{1}{4}$  NPT, 1x $\frac{1}{2}$  NPT, 1x $\frac{3}{4}$  NPT, 1 $\frac{1}{2}$ x $\frac{1}{2}$  NPT, 1 $\frac{1}{2}$ x $\frac{3}{4}$  NPT

\*\* 1 $\frac{1}{2}$ x1NPT, 1 $\frac{1}{2}$ x1(X-GT), 1 $\frac{1}{2}$ x1 $\frac{1}{4}$  NPT

NOTE: MULTI-STEP and ECCENTRIC reducers are available through 16" sizes. Information available on request.

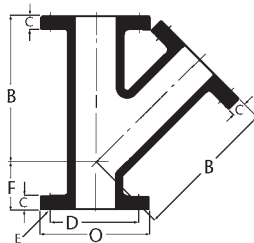
<sup>(1)</sup> Nominal make-up dimension for drawing layout work only using non-threaded spigots. Do not use for assembly dimensions.

**LATERALS** (1"-2" belled laterals are available in Green Thread only; 3"-16" belled laterals are available in Green Thread and Red Thread II; 1"-6" flanged laterals are available in Green Thread only; 8"-16" flanged laterals are available in Green Thread and Red Thread II)



**45° Lateral Belled**

Nom. Pipe Size	A	F	X <sup>(1)</sup> With GT Pipe	X <sup>(1)</sup> W/RTII Pipe	Nom. Wgt.	Steady Pressure	Nom. Pipe Size	A	F	X <sup>(1)</sup> With GT Pipe	X <sup>(1)</sup> W/RTII Pipe	Nom. Wgt.	Steady Pressure
In.	In.	In.	In.	In.	Lbs.	psig	mm	mm	mm	mm	mm	kg	MPa
1	3 <sup>7</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>	1	-	0.6	150	25	98	64	25	-	0.27	1.03
1 <sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>4</sub>	1	-	1.3	150	38	133	83	25	-	0.59	1.03
2	6 <sup>5</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>	4.1	150	51	168	70	38	38	1.86	1.03
3	7 <sup>3</sup> / <sub>4</sub>	4 <sup>1</sup> / <sub>4</sub>	1 <sup>7</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>4</sub>	4.4	150	76	197	108	48	44	2.00	1.03
4	9	4 <sup>3</sup> / <sub>8</sub>	2	1 <sup>5</sup> / <sub>8</sub>	7.8	150	102	229	111	51	41	3.54	1.03
6	12 <sup>1</sup> / <sub>2</sub>	5 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>4</sub>	13.7	135	152	318	146	57	57	6.21	0.93
8	16 <sup>1</sup> / <sub>4</sub>	7 <sup>5</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>8</sub>	3 <sup>1</sup> / <sub>2</sub>	33.7	135	203	413	187	79	89	15.29	0.93
10	19 <sup>5</sup> / <sub>8</sub>	8 <sup>3</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>8</sub>	53.3	120	254	498	222	79	86	24.17	0.83
12	24 <sup>3</sup> / <sub>4</sub>	11 <sup>3</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>2</sub>	96.0	90	305	629	298	83	89	43.54	0.62
14	32 <sup>1</sup> / <sub>2</sub>	15 <sup>3</sup> / <sub>4</sub>	3 <sup>7</sup> / <sub>8</sub>	4	154.2	75	356	826	400	98	102	69.94	0.52
16	35 <sup>3</sup> / <sub>4</sub>	17 <sup>3</sup> / <sub>4</sub>	4 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>8</sub>	222.6	75	406	908	451	105	105	101	0.52



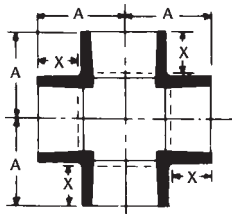
**45° Lateral Flanged<sup>(2)</sup>**

Nom Pipe Size	B	C	D	E Bolt Hole Size	F	O	Nom. Wgt.	Steady Press.	Nom. Pipe Size	B	C	D	E	F	O	Nom Wgt.	Steady Press.
In.	In.	In.	In.	In.	In.	In.	Lbs.	psig	mm	mm	mm	mm	mm	mm	mm	kg	MPa
1	6	3/4	3 <sup>1</sup> / <sub>4</sub>	5/8D-4 holes	4 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>4</sub>	2.8	150	25	152	19	83	16D-4 holes	114	108	1.27	1.03
1 <sup>1</sup> / <sub>2</sub>	8 <sup>1</sup> / <sub>2</sub>	3/4	3 <sup>3</sup> / <sub>8</sub>	5/8D-4 holes	5 <sup>1</sup> / <sub>2</sub>	5	4.4	150	38	216	19	98	16D-4 holes	140	127	2.00	1.03
2	8 <sup>7</sup> / <sub>8</sub>	3/4	4 <sup>3</sup> / <sub>4</sub>	3/4D-4 holes	6 <sup>3</sup> / <sub>8</sub>	6	7.8	150	51	225	19	121	19D-4 holes	162	152	3.54	1.03
3	11 <sup>3</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>8</sub>	6	3/4D-4 holes	8	7 <sup>1</sup> / <sub>2</sub>	13.4	150	76	298	35	152	19D-4 holes	203	191	6.08	1.03
4	12 <sup>7</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	3/4D-8 holes	8 <sup>1</sup> / <sub>2</sub>	9	19.2	150	102	327	35	191	19D-8 holes	216	229	8.71	1.03
6	18	1 <sup>1</sup> / <sub>2</sub>	9 <sup>1</sup> / <sub>2</sub>	7/8D-8 holes	11	11	35	135	152	457	38	241	22D-8 holes	279	279	15.9	0.93
8	21 <sup>3</sup> / <sub>4</sub>	1 <sup>3</sup> / <sub>4</sub>	11 <sup>3</sup> / <sub>4</sub>	7/8D-8 holes	13 <sup>3</sup> / <sub>4</sub>	13 <sup>1</sup> / <sub>2</sub>	65.3	135	203	552	44	298	22D-8 holes	349	343	29.6	0.93
10	26 <sup>5</sup> / <sub>8</sub>	2	14 <sup>1</sup> / <sub>4</sub>	1D-12 holes	16 <sup>5</sup> / <sub>8</sub>	16	112	120	254	676	51	362	25D-12 holes	422	406	50.8	0.83
12	32	2 <sup>1</sup> / <sub>4</sub>	17	1D-12 holes	20	19	172	90	305	813	57	432	25D-12 holes	508	483	78	0.62
14	36	2 <sup>1</sup> / <sub>2</sub>	18 <sup>3</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>8</sub> D-12 holes	22	20 <sup>3</sup> / <sub>4</sub>	209	75	356	914	64	476	29D-12 holes	559	527	94.6	0.52
16	40	2 <sup>1</sup> / <sub>2</sub>	21 <sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>8</sub> D-16 holes	24	23 <sup>1</sup> / <sub>4</sub>	267	75	406	1016	64	540	29D-16 holes	610	594	121	0.52

<sup>(1)</sup> Nominal make-up dimension for drawing layout work only using non-threaded spigots. Do not use for assembly dimensions.

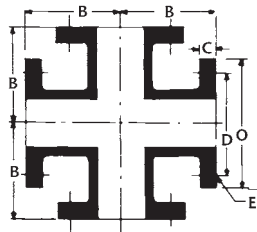
<sup>(2)</sup> Flanges should be joined to flat-faced flanges. When joining to raised-faced flange connections, consult installation or engineering manuals F6000 & E5000. Bolt torque, gasket thickness and hardness recommendations are in manual F6000.

**CROSSES** (1"-6" parts are available in Green Thread only; 8"-16" parts are available in Green Thread and Red Thread II)



**Cross - Belled**

Nom. Pipe Size	A	X <sup>(1)</sup> With GT Pipe	X <sup>(1)</sup> W/RTII Pipe	Nom. Wgt.	Steady Pressure	Nom. Pipe Size	A	X <sup>(1)</sup> With GT Pipe	X <sup>(1)</sup> W/RTII Pipe	Nom. Wgt.	Steady Pressure
In.	In.	In.	In.	Lbs.	psig	mm	mm	mm	mm	kg	MPa
1	2¾	1	-	1.4	300	25	70	25	-	0.64	2.07
1½	3⅝	1⅝	-	2.0	300	38	86	29	-	0.91	2.07
2	3⅝	1⅝	1½	3.4	300	51	86	41	38	1.54	2.07
3	4⅝	1⅝	1¾	8.5	190	76	117	48	44	3.86	1.31
4	5⅝	2	1⅝	10.7	150	102	130	51	41	4.85	1.03
6	6⅝	2¼	2¼	17.3	150	152	156	57	57	7.85	1.03
8	11⅝	3⅝	3½	30.8	150	203	295	79	89	13.97	1.03
10	13⅝	3¼	3½	42.7	150	254	333	83	89	19.37	1.03
12	14	3⅝	3⅝	73.2	150	305	356	86	98	33.20	1.03
14	16	3⅝	4	104	150	356	406	98	102	47.27	1.03
16	17¼	4⅝	4⅝	143	150	406	438	105	105	64.86	1.03



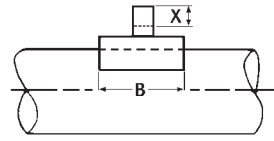
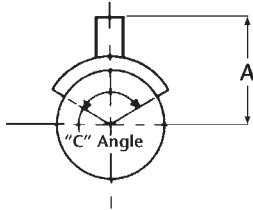
**Cross - Flanged<sup>(2)</sup>**

Nom Pipe Size	B	C	D	E Bolt Hole Size	O	Nom Wgt.	Steady Pressure	Nom Pipe Size	B	C	D	E	O	Nom Wgt.	Steady Pressure
In.	In.	In.	In.	In.	In.	Lbs.	psig	mm	mm	mm	mm	mm	mm	kg	MPa
1	3½	¾	3⅝	⅝D-4 holes	4¼	3.8	300	25	89	19	79	16D-4holes	108	1.7	2.07
1½	4	¾	3⅝	⅝D-4 holes	5	5.4	300	38	102	19	79	16D-4holes	127	2.5	2.07
2	4½	¾	4¾	¾D-4 holes	6	8.6	300	51	114	19	121	19D-4holes	152	3.9	2.07
3	5½	1⅝	6	¾D-4 holes	7½	15.1	190	76	140	35	152	19D-4holes	191	6.8	1.31
4	6½	1⅝	7½	¾D-8 holes	9	22.8	150	102	165	35	191	19D-8holes	229	10.3	1.03
6	8	1½	9½	⅞D-8 holes	11	34.9	150	152	203	38	241	22D-8holes	279	15.8	1.03
8	9	1¾	11¾	⅞D-8 holes	13½	61.2	150	203	229	44	298	22D-8holes	343	27.8	1.03
10	11	2	14¼	1D-12 holes	16	83.5	150	254	279	51	362	25D-12 holes	406	37.9	1.03
12	12	2¼	17	1D-12 holes	19	145	150	305	305	57	432	25D-12holes	483	65.8	1.03
14	14	2½	18¾	1⅞D-12 holes	20¾	224	150	356	356	64	476	29D-12holes	527	102	1.03
16	15	2½	21¼	1⅞D-16 holes	23¼	303	150	406	381	64	540	29D-16holes	594	137	1.03

<sup>(1)</sup>Nominal make-up dimension for drawing layout work only using non-threaded spigots. Do not use for assembly dimensions.

<sup>(2)</sup>Flanges should be joined only to flat-faced flanges. When joining to raised-faced flange connections, consult installation or engineering manuals F6000 & E5000. Bolt torque, gasket thickness and hardness recommendations are in manual F6000.

# SADDLES (Parts are available in Green Thread only.)



## Belled Side Outlet

Nom Size	A	B	C Angle	X <sup>(1)</sup> W/GT Pipe	X <sup>(1)</sup> W/RTII Pipe	Nom Wgt.	Steady Pressure	Nom. Size	A	B	X <sup>(1)</sup> W/GT Pipe	X <sup>(1)</sup> W/RTII Pipe	Nom Wgt.	Steady Pressure
In.	In.	In.	Degree	In.	In.	Lbs.	psig	mm	mm	mm	mm	mm	kg	MPa
2x1	2 <sup>5</sup> / <sub>8</sub>	4	180	1	-	.6	450	51x25	73	102	25	-	0.27	3.10
2x1½	2 <sup>7</sup> / <sub>8</sub>	4	180	1 <sup>1</sup> / <sub>8</sub>	-	.5	450	51x38	73	102	29	-	0.23	3.10
3x1	3 <sup>1</sup> / <sub>2</sub>	6	180	1	-	1.5	300	76x25	89	152	25	-	0.68	2.07
3x1½	3 <sup>1</sup> / <sub>2</sub>	6	180	1 <sup>1</sup> / <sub>8</sub>	-	.9	300	76x38	89	152	29	-	0.41	2.07
3x2	4	6	180	1 <sup>5</sup> / <sub>8</sub>	1 <sup>5</sup> / <sub>8</sub>	1.4	300	76x51	102	152	41	41	0.64	2.07
4x1	4	6	180	1	-	1.4	225	102x25	102	152	25	-	0.64	1.55
4x1½	4	6	180	1 <sup>1</sup> / <sub>8</sub>	-	1.5	225	102x38	102	152	29	-	0.68	1.55
4x2	4 <sup>1</sup> / <sub>2</sub>	6	180	1 <sup>5</sup> / <sub>8</sub>	1 <sup>5</sup> / <sub>8</sub>	1.5	225	102x51	114	152	41	41	0.68	1.55
4x3	5 <sup>1</sup> / <sub>4</sub>	6	180	1 <sup>7</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>4</sub>	1.6	225	102x76	133	152	48	44	0.73	1.55
6x1	5	6	120	1	-	1.4	225	152x25	127	152	25	-	0.64	1.55
6x1½	5	6	120	1 <sup>1</sup> / <sub>8</sub>	-	1.3	225	152x38	127	152	29	-	0.59	1.55
6x2	5 <sup>1</sup> / <sub>2</sub>	6	120	1 <sup>5</sup> / <sub>8</sub>	1 <sup>5</sup> / <sub>8</sub>	1.5	225	152x51	140	152	41	41	0.68	1.55
6x3	6 <sup>1</sup> / <sub>4</sub>	6	120	1 <sup>7</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>4</sub>	1.6	225	152x76	159	152	48	44	0.73	1.55
6x4	6 <sup>3</sup> / <sub>8</sub>	8	140	2	1 <sup>5</sup> / <sub>8</sub>	2.4	225	152x102	162	203	51	41	1.09	1.55
8x1 <sup>(2)</sup>	7 <sup>1</sup> / <sub>8</sub>	9	120	1	-	3.1	225	203x25	181	229	25	-	1.41	1.55
8x1½ <sup>(2)</sup>	7 <sup>1</sup> / <sub>8</sub>	9	120	1 <sup>1</sup> / <sub>8</sub>	-	2.8	225	203x38	181	229	29	-	1.27	1.55
8x2	7 <sup>1</sup> / <sub>8</sub>	9	120	1 <sup>5</sup> / <sub>8</sub>	1 <sup>5</sup> / <sub>8</sub>	2.7	225	203x51	181	229	41	41	1.22	1.55
8x3	8	14	180	1 <sup>7</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>4</sub>	6	225	203x76	203	356	48	44	2.72	1.55
8x4	7 <sup>3</sup> / <sub>8</sub>	14	180	2	1 <sup>5</sup> / <sub>8</sub>	6.1	225	203x102	187	356	51	41	2.77	1.55
8x6	9 <sup>1</sup> / <sub>4</sub>	14	180	2 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>4</sub>	7.7	190	203x152	235	356	57	57	3.49	1.31
10x1 <sup>(2)</sup>	8 <sup>1</sup> / <sub>8</sub>	9	95	1	-	3.1	225	254x25	206	229	25	-	1.41	1.55
10x1½ <sup>(2)</sup>	8 <sup>1</sup> / <sub>8</sub>	9	95	1 <sup>1</sup> / <sub>8</sub>	-	2.8	225	254x38	206	229	29	-	1.27	1.55
10x2	8 <sup>1</sup> / <sub>8</sub>	9	95	1 <sup>5</sup> / <sub>8</sub>	1 <sup>5</sup> / <sub>8</sub>	2.7	225	254x51	206	229	41	41	1.22	1.55
10x3	9	14	150	1 <sup>7</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>4</sub>	6.1	225	254x76	229	356	48	44	2.77	1.55
10x4	8 <sup>3</sup> / <sub>8</sub>	16 <sup>3</sup> / <sub>4</sub>	180	2	1 <sup>5</sup> / <sub>8</sub>	8.4	225	254x102	213	425	51	41	3.81	1.55
10x6	10 <sup>1</sup> / <sub>4</sub>	16 <sup>3</sup> / <sub>4</sub>	180	2 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>4</sub>	10	190	254x152	318	425	57	57	4.54	1.31
10x8	12 <sup>1</sup> / <sub>8</sub>	16 <sup>3</sup> / <sub>4</sub>	180	3	3 <sup>3</sup> / <sub>8</sub>	11.9	150	254x203	308	425	76	86	5.40	1.03
12x1 <sup>(2)</sup>	9 <sup>1</sup> / <sub>8</sub>	10	90	1	-	3.6	225	305x25	232	254	25	-	1.63	1.55
12x1½ <sup>(2)</sup>	9 <sup>1</sup> / <sub>8</sub>	10	90	1 <sup>1</sup> / <sub>8</sub>	-	3.3	225	305x38	232	254	29	-	1.50	1.55
12x2	9 <sup>1</sup> / <sub>8</sub>	10	90	1 <sup>5</sup> / <sub>8</sub>	1 <sup>5</sup> / <sub>8</sub>	3.2	225	305x51	232	254	41	41	1.45	1.55
12x3	10	14	125	1 <sup>7</sup> / <sub>8</sub>	1 <sup>3</sup> / <sub>4</sub>	6.1	225	305x76	254	356	48	44	2.77	1.55
12x4	9 <sup>3</sup> / <sub>8</sub>	17	155	2	1 <sup>5</sup> / <sub>8</sub>	8.6	225	305x102	238	432	51	41	3.90	1.55
12x6	11 <sup>1</sup> / <sub>4</sub>	21	180	2 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>4</sub>	13.5	225	305x152	286	533	57	57	6.12	1.55
12x8	13 <sup>1</sup> / <sub>8</sub>	21	180	3	3 <sup>3</sup> / <sub>8</sub>	15.3	190	305x203	333	533	76	86	6.94	1.31
12x10	13	21	180	3 <sup>1</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>2</sub>	22	150	305x254	330	533	83	89	9.98	1.03

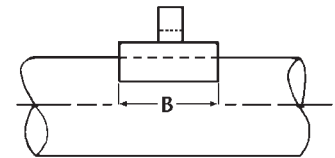
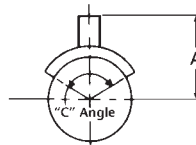
<sup>(1)</sup> Nominal make-up dimension for drawing layout work only using non-threaded spigots. Do not use for assembly dimensions.

<sup>(2)</sup> Saddle is manufactured by bonding a reducer bushing into a saddle with a 2" outlet.

## SADDLES, Continued (Parts are available in Green Thread only.)

Nom Size	A	B	C Angle	X <sup>(1)</sup> W/GT Pipe	X <sup>(1)</sup> W/RTII Pipe	Nom Wgt.	Steady Pressure	Nom Size	A	B	X <sup>(1)</sup> W/GT Pipe	X <sup>(1)</sup> W/RTII Pipe	Nom Wgt.	Steady Pressure
In.	In.	In.	Degree	In.	In.	Lbs.	psig	mm	mm	mm	mm	mm	kg	MPa
14x1 <sup>(2)</sup>	10	12	95	1	-	4.7	225	356x25	254	305	25	-	2.13	1.55
14x1½ <sup>(2)</sup>	10	12	95	1½	-	4.4	225	356x38	254	305	29	-	2.00	1.55
14x2	10	12	95	1½	1½	4.3	225	356x51	254	305	41	35	1.95	1.55
14x3	10¾	15	120	1¾	1¾	6.9	225	356x76	276	381	48	44	3.13	1.55
14x4	10¼	17	135	2	1½	8.4	225	356x102	260	432	51	41	3.81	1.55
14x6	12¼	21	165	2¼	2¼	12.2	225	356x152	311	533	57	57	5.53	1.55
14x8	14	21	165	3	3¾	15.9	225	356x203	356	533	76	86	7.21	1.55
14x10	14	26	180	3¼	3½	28.4	150	356x254	356	660	83	89	12.88	1.03
14x12	14¾	26	180	3¾	4¾	30.1	150	356x305	365	660	86	111	13.65	1.03
16x1 <sup>(2)</sup>	11	13	90	1	-	5.4	225	406x25	279	330	25	-	2.45	1.55
16x1½ <sup>(2)</sup>	11	13	90	1½	-	5.1	225	406x38	279	330	29	-	2.31	1.55
16x2	11	13	90	1½	1¾	5	225	406x51	279	330	41	35	2.27	1.55
16x3	11¾	15	105	1¾	1¾	6.9	225	406x76	302	381	48	44	3.13	1.55
16x4	11¼	17	120	2	1½	8.6	225	406x102	286	432	51	41	3.90	1.55
16x6	16¼	21	145	2¼	2¼	14.2	225	406x152	413	533	57	57	6.44	1.55
16x8	15	26	180	3	3¾	21.9	225	406x203	381	660	76	86	9.93	1.55
16x10	15	26	180	3¼	3½	31	225	406x254	381	660	83	89	14.06	1.55
16x12	15¾	26	180	3¾	4¾	32.6	150	406x305	391	660	86	111	14.77	1.03
16x14	14¾	26	180	3¾	3¾	30.6	150	406x356	359	660	92	92	13.88	1.03

### Threaded Side Outlet NPT Internal Threads



Nom. Size	A	B	C Angle	Nom. Wgt.	Steady Pressure	Nom. Size	A	B	Nom. Wgt.	Steady Pressure
In.	In.	In.	Degree	Lbs.	psig	mm	mm	mm	kg	MPa
2x1	2¾	4	180	.6	450	51x25	73	102	0.27	3.10
2x1¼	2¾	4	180	.6	450	51x32	73	102	0.27	3.10
2x1½	2¾	4	180	.5	450	51x38	73	102	0.23	3.10
3x1	3½	6	180	1.1	300	76x25	89	152	0.50	2.07
3x1¼	3½	6	180	1.0	300	76x32	89	152	0.45	2.07
3x1½	3½	6	180	1.0	300	76x38	89	152	0.45	2.07
4x1	4	6	180	1.6	225	102x25	102	152	0.73	1.55
4x1¼	4	6	180	1.5	225	102x32	102	152	0.68	1.55
4x1½	4	6	180	1.4	225	102x38	102	152	0.64	1.55
6x1	5	6	120	1.5	225	152x25	127	152	0.68	1.55
6x1¼	5	6	120	1.4	225	152x32	127	152	0.64	1.55
6x1½	5	6	120	1.5	225	152x38	127	152	0.68	1.55
8x1	7¾	9	120	3.1	225	203x25	181	229	1.41	1.55
10x1	8¾	9	95	3.1	225	254x25	206	229	1.41	1.55
12x1	9¾	10	90	3.6	225	305x25	232	254	1.63	1.55
14x1	10	12	95	4.7	225	356x25	254	305	2.13	1.55
16x1	11	13	90	5.4	225	406x25	279	330	2.45	1.55

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