

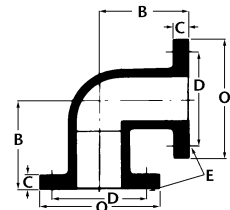
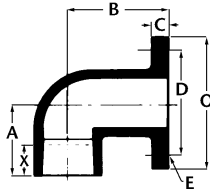
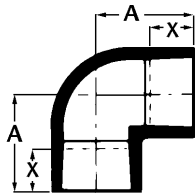
EPOXY FITTINGS NOMINAL DIMENSIONS

2"-16" Green Thread™ HP fittings are used with both Green Thread HP and Red Thread™ HP piping. Refer to "Chemical Resistance Guide", Bulletin No. ENG5615, for chemical recommendations.

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

1"-1½" fittings are available in Green Thread HP products only. All fitting ratings are for 200°F (93°C). Red Thread fittings are serviceable up to 210°F (98.9°C) by applying a 0.92 de-rating factor. Green Thread fittings are serviceable up to 230°F (110°C) by applying a 0.76 de-rating factor.

90° ELBOWS⁽¹⁾ 1"-16" parts are available in Green Thread HP only.



Pipe Size	A	B	C	D	E Bolt Hole Size	O ⁽³⁾	X ⁽²⁾ GT Pipe	X ⁽²⁾ RT Pipe	Wt. BxB	Wt. BxF	Wt. FxF	Steady Pressure
in	in	in	in	in	in	in	in	in	lbs	lbs	lbs	psig
1	2 ¾	3 ½	¾	3 ⅝	⅝ - 4 holes	4 ¼	1	-	0.4	1.0	1.7	435
1 ½	3 ⅝	4	¾	3 ⅝	⅝ - 4 holes	5	1 ⅛	-	0.6	1.5	2.4	435
2	3 ⅝	4 ½	¾	4 ¾	¾ - 4 holes	6	1 ⅝	1 ⅝	1.2	2.5	3.6	435
3	4 ⅝	5 ½	1 ⅜	6	¾ - 4 holes	7 ½	1 ⅞	1 ¾	2.3	4.6	10.0	435
4	5 ⅝	6 ½	1 ⅜	7 ½	¾ - 8 holes	9	2	1 ⅝	3.3	6.4	15.9	232
6	6 ⅝	8	1 ½	9 ½	⅞ - 8 holes	11	2 ¼	2 ¼	7.2	11.8	15.9	232
8	11 ⅝	9	1 ¾	11 ¾	⅞ - 8 holes	13 ½	3	3 ⅜	10.9	15.4	19.9	232
10	13	11	2	14 ¼	1 - 12 holes	16	3 ¼	3 ½	14.9	23.8	32.8	232
12	14	12	2 ¼	17	1 - 12 holes	19	3 ⅜	3 ⅞	22.6	38.3	54.0	232
14	19	14	2 ½	18 ¾	1 ⅞ - 12 holes	20 ¾	5 ⅜	5 ½	26.5	45.0	65.0	232
16	20 ¼	15	2 ½	21 ¼	1 ⅞ - 16 holes	23 ¼	5 ½	5 ½	45.0	65.0	108.0	232

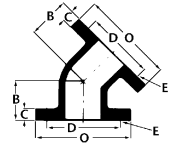
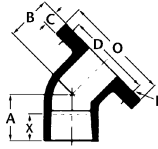
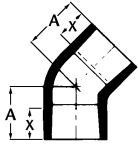
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	kg	kg	bar
25	70	89	19	79	16 - 4 holes	108	25	-	0.18	0.45	0.77	30	
40	86	102	19	98	16 - 4 holes	127	29	-	0.27	0.68	1.09	30	
50	86	114	19	121	19 - 4 holes	152	41	41	0.54	1.13	1.63	30	
80	117	140	35	152	19 - 4 holes	190	48	44	1.04	2.09	4.54	30	
100	130	165	35	190	19 - 8 holes	229	51	41	1.50	2.90	7.21	16	
150	156	203	38	241	22 - 8 holes	279	57	57	3.27	5.35	7.21	16	
200	295	229	44	298	22 - 8 holes	343	76	86	4.94	6.99	9.02	16	
250	330	279	51	362	25 - 12 holes	406	83	89	6.76	10.80	14.88	16	
300	356	305	57	432	25 - 12 holes	483	86	98	10.25	17.37	24.49	16	
350	483	356	64	476	29 - 12 holes	527	137	140	12.02	20.41	29.48	16	
400	514	381	64	540	29 - 16 holes	591	140	140	20.41	29.48	48.99	16	

⁽¹⁾ "A" dimensions shown are for GREEN THREAD HP fittings. 1"-6" fittings are compression molded; 8"-16" fittings are filament wound. 1"-6" filament wound fittings are in CI1370.

⁽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. Bolt torque, gasket thickness and hardness recommendations are in Manual INS6000.

45° ELBOWS⁽¹⁾ 1"-16" parts are available in Green Thread HP only.



Pipe Size	A	B	C	D	E Bolt Hole Size	O ⁽³⁾	X ⁽²⁾ GT Pipe	X ⁽²⁾ RT Pipe	Wt. BxB	Wt. BxF	Wt. FxF	Steady Pressure
in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs.	lbs.	psig
1	2 5/8	2	3/4	3 1/8	5/8 - 4 holes	4 1/4	1	-	0.3	0.8	1.4	435
1 1/2	2 7/8	2 1/4	3/4	3 7/8	5/8 - 4 holes	5	1 1/8	-	0.4	1.2	2.0	435
2	2 5/8	2 1/2	3/4	4 3/4	3/4 - 4 holes	6	1 5/8	1 5/8	0.9	1.9	2.8	435
3	3 3/4	3	1 1/8	6	3/4 - 4 holes	7 1/2	1 7/8	1 3/4	1.6	3.5	7.9	435
4	3 7/8	4	1 1/8	7 1/2	3/4 - 8 holes	9	2	1 5/8	2.4	5.1	13.1	232
6	4 3/8	5	1 1/2	9 1/2	7/8 - 8 holes	11	2 1/4	2 1/4	4.8	8.4	12.5	232
8	8 1/8	5 1/2	1 3/4	11 3/4	7/8 - 8 holes	13 1/2	3	3 3/8	6.9	11.9	16.8	232
10	8 5/8	6 1/2	2	14 1/4	1 - 12 holes	16	3 1/4	3 1/2	8.9	18.5	28.2	232
12	9 1/2	7 1/2	2 1/4	17	1 - 12 holes	19	3 3/8	3 3/8	14.0	32.6	47.2	232
14	12 1/2	7 1/2	2 1/2	18 3/4	1 1/8 - 12 holes	20 3/4	5 3/8	5 1/2	17.0	46.0	73.0	232
16	13 1/4	8	2 1/2	21 1/4	1 1/8 - 16 holes	23 1/4	5 1/2	5 1/2	25.0	56.0	84.0	232

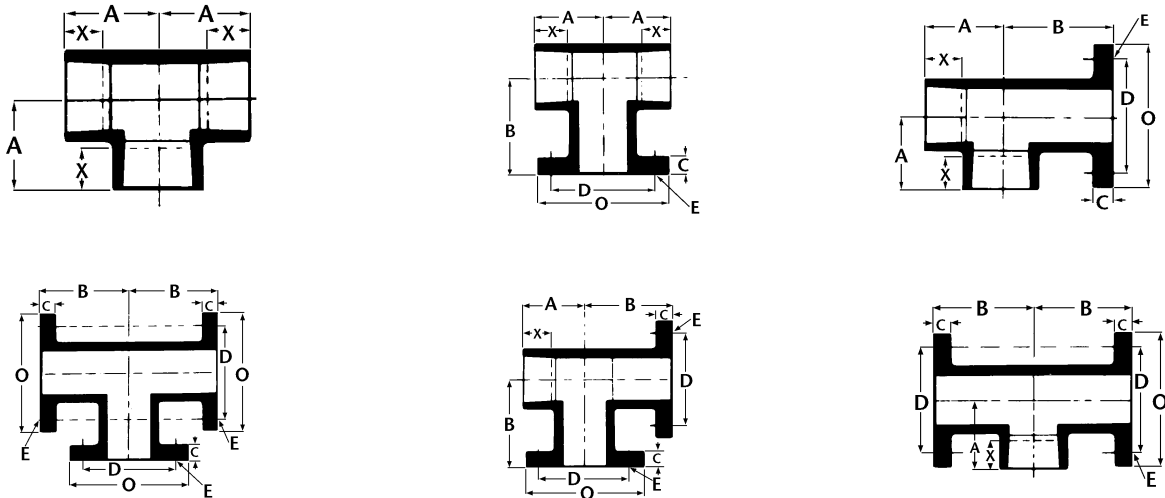
mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	kg	kg	bar
25	60	51	19	79	16 - 4 holes	108	25	-	0.14	0.36	0.64	30
40	73	57	19	98	16 - 4 holes	127	29	-	0.18	0.54	0.91	30
50	67	64	19	121	19 - 4 holes	152	41	41	0.41	0.86	1.27	30
80	95	76	35	152	19 - 4 holes	190	48	44	0.73	1.59	3.58	30
100	98	102	35	190	19 - 8 holes	229	51	41	1.09	2.31	5.94	16
150	111	127	38	241	22 - 8 holes	279	57	57	2.18	3.81	5.67	16
200	206	140	44	298	22 - 8 holes	343	76	86	3.11	5.40	7.62	16
250	219	165	51	362	25 - 12 holes	406	83	89	4.04	8.39	12.79	16
300	241	190	57	432	25 - 12 holes	483	86	98	6.35	14.78	21.41	16
350	318	191	64	476	29 - 12 holes	527	137	140	7.71	20.87	33.11	16
400	337	203	64	540	29 - 16 holes	591	140	140	11.3	25.40	38.10	16

(1) "A" dimensions shown are for GREEN THREAD HP fittings. 1"-6" fittings are compression molded; 8"-16" fittings are filament wound. 1"-6" filament wound fittings are in CI1370.

(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 INS1000 & ENG1000. Bolt torque, gasket thickness and hardness recommendations are in Manual INS1000.

TEES⁽¹⁾ 1"-16" parts are available in Green Thread HP only.

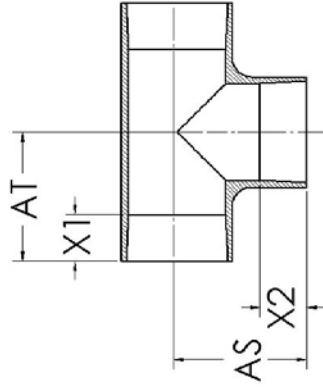


Pipe Size	A	B	C	D	E Bolt Hole Size	O ⁽³⁾	X ⁽²⁾ GT Pipe	X ⁽²⁾ RT Pipe	Wt. 3B	Wt. 1F	Wt. 2F	Wt. 3F	Steady Pressure
in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.	lbs.	lbs.	lbs.	psig
1	2 3/4	3 1/2	3/4	3 1/8	5/8 - 4 holes	4 1/4	1	-	0.5	1.1	1.8	2.5	435
1 1/2	3 3/8	4	3/4	3 3/8	5/8 - 4 holes	5	1 1/8	-	0.9	1.9	2.8	3.6	435
2	3 3/8	4 1/2	3/4	4 3/4	3/4 - 4 holes	6	1 5/8	1 5/8	1.9	3.1	4.8	5.5	435
3	4 5/8	5 1/2	1 3/8	6	3/4 - 4 holes	7 1/2	1 7/8	1 3/4	3.6	5.8	8.0	14.5	435
4	5 1/8	6 1/2	1 3/8	7 1/2	3/4 - 8 holes	9	2	1 5/8	4.9	8.0	11.3	22.7	232
6	6 1/8	8	1 1/2	9 1/2	7/8 - 8 holes	11	2 1/4	2 1/4	10.1	14.3	19.0	22.3	232
8	11 5/8	9	1 3/4	11 3/4	7/8 - 8 holes	13 1/2	3	3 3/8	16.1	20.4	24.6	28.9	232
10	13	11	2	14 1/4	1 - 12 holes	16	3 1/4	3 1/2	26.2	34.1	42.0	49.8	232
12	14	12	2 1/4	17	1 - 12 holes	19	3 3/8	3 7/8	31.8	47.1	62.5	77.8	232
14	19	14	2 1/2	18 3/4	1 1/8 - 12 holes	20 3/4	5 3/8	5 1/2	52.0	75.5	99.5	127.0	232
16	20 1/4	15	2 1/2	21 1/4	1 1/8 - 16 holes	23 1/4	5 1/2	5 1/2	68.0	107.0	135.0	170.0	232

mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	kg	kg	kg	bar
25	70	89	19	79	16 - 4 holes	108	25	-	0.2	0.5	0.8	1.1	30
40	86	102	19	98	16 - 4 holes	127	29	-	0.4	0.9	1.3	1.6	30
50	86	114	19	121	19 - 4 holes	152	41	41	0.9	1.4	2.2	2.5	30
80	117	127	35	152	19 - 4 holes	190	48	44	1.6	2.6	3.6	6.6	30
100	130	165	35	190	19 - 8 holes	229	51	41	2.2	3.6	5.1	10.3	16
150	156	203	38	241	22 - 8 holes	279	57	57	4.6	6.5	8.6	10.1	16
200	295	229	44	298	22 - 8 holes	343	76	86	7.3	9.3	11.2	13.1	16
250	330	279	51	362	25 - 12 holes	406	83	89	11.9	15.5	19.1	22.6	16
300	356	305	57	432	25 - 12 holes	483	86	98	14.4	21.4	28.3	35.3	16
350	483	356	64	476	29 - 12 holes	527	137	140	23.6	34.2	45.1	57.6	16
400	514	381	64	540	29 - 16 holes	591	140	140	30.8	48.5	61.2	77.1	16

- (1) "A" dimensions shown are for Green Thread HP fittings. 1"-6" fittings are compression molded; 8"-16" fittings are filament wound. 1"-6" filament wound fittings are in CI1370.
- (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 INS1000 & ENG1000. Bolt torque, gasket thickness and hardness recommendations are in Manual INS1000.

REDUCING TEES

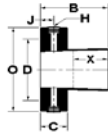


(1) Nominal make-up dimension for drawing layout work only using non-threaded spigots. Do not use for assembly dimensions.

Size	AT	X ₁ GT Pipe ⁽¹⁾	X ₁ RT Pipe ⁽¹⁾	AS	X ₂ GT Pipe ⁽¹⁾	X ₂ RT Pipe ⁽¹⁾	Wgt.	Steady Pressure	Size	AT	X ₁ GT Pipe ⁽¹⁾	X ₁ RT Pipe ⁽¹⁾	AS	X ₂ GT Pipe ⁽¹⁾	X ₂ RT Pipe ⁽¹⁾	Wt.	Steady Pressure
in.	in.	in.	in.	in.	in.	in.	lbs.	psig	mm	mm	mm	mm	mm	mm	mm	kg	bar
8x6	11 5/8	3	3 3/8	10 1/4	2 7/8	2 7/8	23	232	200x150	295	76	86	260	73	73	10.4	16
8x4	11 5/8	3	3 3/8	10 1/4	4 3/8	4	21	232	200x100	295	76	86	260	111	102	9.5	16
8x3	11 5/8	3	3 3/8	9 7/8	3	2 7/8	20	232	200x80	295	76	86	251	76	73	9.1	16
8x2	11 5/8	3	3 3/8	9 13/16	1 1/2	1 1/2	19	232	200x50	295	76	86	249	38	38	8.6	16
10x8	13 1/16	3 1/4	3 1/2	13 5/8	3	3 3/8	39	232	250x200	332	83	89	346	76	86	17.7	16
10x6	13 1/16	3 1/4	3 1/2	11 3/4	2 7/8	2 7/8	36	232	250x150	332	83	89	298	73	73	16.3	16
10x4	13 1/16	3 1/4	3 1/2	11 3/4	4 3/8	4	33	232	250x100	332	83	89	298	111	102	14.9	16
10x3	13 1/16	3 1/4	3 1/2	11 3/8	3	2 7/8	32	232	250x80	332	83	89	289	76	73	14.5	16
12x10	13 15/16	3 3/8	3 7/8	15 1/16	3 1/4	3 1/2	51	232	300x250	354	86	98	383	83	89	23.1	16
12x8	13 15/16	3 3/8	3 7/8	15 1/8	3	3 3/8	48	232	300x200	354	86	98	383	76	86	21.8	16
12x6	13 15/16	3 3/8	3 7/8	13 1/4	2 7/8	2 7/8	45	232	300x150	354	86	98	337	73	73	20.4	16
12x4	13 15/16	3 3/8	3 7/8	13 1/4	4 3/8	4	42	232	300x100	354	86	98	337	111	101	19.1	16
14x12	19 1/16	5 3/8	5 1/2	15 15/16	3 3/8	3 7/8	67	232	350x300	484	137	140	405	86	98	30.4	16
14x10	19 1/16	5 3/8	5 1/2	15 9/16	3 1/4	3 1/2	64	232	350x250	484	137	140	395	83	89	29.0	16
14x8	19 1/16	5 3/8	5 1/2	15 5/8	3	3 3/8	60	232	350x200	484	137	140	390	76	86	27.2	16
14x6	19 1/16	5 3/8	5 1/2	13 3/4	2 7/8	2 7/8	57	232	350x150	484	137	140	349	73	73	25.9	16
16x14	20 1/4	5 1/2	5 1/2	19 1/2	5 3/8	5 1/2	103	232	400x350	514	140	140	495	137	140	46.7	16
16x12	20 1/4	5 1/2	5 1/2	16 15/16	3 3/8	3 7/8	99	232	400x300	514	140	140	430	86	98	44.9	16
16x10	20 1/4	5 1/2	5 1/2	16 5/8	3 1/4	3 1/2	94	232	400x250	514	140	140	422	83	89	42.6	16
16x8	20 1/4	5 1/2	5 1/2	16 5/8	3	3 3/8	90	232	400x200	514	140	140	422	76	86	40.8	16

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

Orifice Flange



Note: the 2" orifice flange has only one orifice

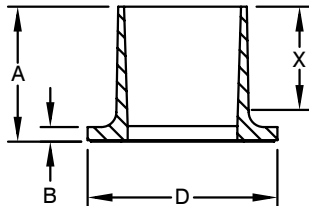
Pipe Size	B	C	D	E Bolt Hole Size	H	J	O	X ⁽¹⁾ GT Pipe	X ⁽¹⁾ RT Pipe	Flange Bolt-Torque ⁽²⁾ ft-lbs		Wt. lbs	Steady Pressure psig
										To Seal	Max.		
2	4 ¼	2	4 ¾	¾ - 4 holes	½ NPT	1	6	1 ⅝	1 ⅝	25	30	3.6	435
3	5	2	6	¾ - 4 holes	½ NPT	1	7 ½	1 ⅞	1 ⅞	25	30	5.3	435
4	5	2	7 ½	¾ - 8 holes	½ NPT	1	9	1 ⅝	2	25	30	6.6	232
6	6	2	9 ½	⅞ - 8 holes	½ NPT	1	11	2 ¼	2 ¼	25	30	8.8	232
8	8 ¾	2	11 ¾	⅞ - 8 holes	½ NPT	1	13 ½	3 ⅝	3 ½	30	100	14.5	232

mm	mm	mm	mm	mm	mm	mm	mm	mm ⁽¹⁾	mm ⁽¹⁾	N-m ⁽²⁾	N-m ⁽²⁾	kg	bar
50	108	51	121	19 - 4 holes	12.7 NPT	25	152	41	41	34	41	1.6	30
80	127	51	152	19 - 4 holes	12.7 NPT	25	191	48	35	34	41	2.4	30
100	127	51	191	19 - 8 holes	12.7 NPT	25	229	41	51	34	41	3.0	16
150	152	51	241	22 - 8 holes	12.7 NPT	25	279	57	57	34	41	4.0	16
200	222	51	298	22 - 8 holes	12.7 NPT	25	343	79	89	41	135	6.6	16

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

⁽²⁾ Flanges should be joined to flat-faced flanges. When joining to raised-faced flange connections, consult installation or engineering Manuals INS1000 & ENG1000. Gasket thickness and hardness recommendations are in Manual INS1000.

STUB ENDS

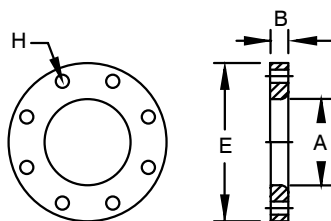


Nominal Pipe Size	Pressure Rating	Bolt Torque	A	B	D	X	Wgt.
in	psi	ft-lb	in	in	in	in	lbs.
2	250	66	2.75	0.27	3.91	2.13	0.5
3	200	66	2.88	0.28	5.16	2.26	0.7
4	150	66	2.88	0.28	6.66	2.10	1.0
6	150	111	3.88	0.39	8.53	3.69	2.4

mm	bar	kg-mm	mm	mm	mm	mm	kg
50	17	98	70	7	99	54	0.22
80	14	98	73	7	131	57	0.31
100	10	98	73	7	169	53	0.45
150	10	165	99	10	217	94	1.08

FLANGE RINGS

ANSI B16.5 Class 150

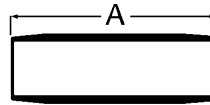


Nominal Pipe Size	A	B	E	Bolt Hole Size	No. of Holes	Wgt.
in	in	in	in	in	#	lbs.
2	2.78	0.82	6.00	¾	4	1.10
3	3.90	1.10	7.50	¾	4	2.10
4	4.90	1.10	9.00	¾	8	2.90
6	7.26	1.25	11.00	⅞	8	3.80

mm	mm	mm	mm	mm	#	kg
50	71	21	152	19	4	0.50
70	99	28	191	19	4	0.95
100	124	28	229	19	8	1.32
150	184	32	279	22	8	1.73

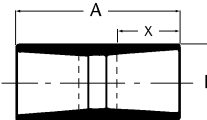
NIPPLES

GT - Green Thread HP
 RT - Red Thread HP
 - 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	2 1/2	-	-	-	X	-	X	-	-	-	-	-	-	-	-	-	-	-
1 1/2	3 1/8	-	-	-	X	-	X	-	-	-	-	-	-	-	-	-	-	-
2	4 1/2	X	-	X ⁽³⁾	X	X	X	X	-	X	-	X	-	-	-	-	-	-
3	5 1/8	5 1/8	-	-	X	X ⁽⁴⁾	X	X	-	X	-	X	-	-	-	-	-	-
4	5 3/8	5 3/8	-	-	X	X	X	X	-	X	-	X	-	-	-	-	-	-
6	6 1/8	6 1/8	-	-	X ⁽⁴⁾	X ⁽⁵⁾	X	X	-	X	X	X	-	-	-	-	-	-
8	8 5/8	9 3/8	-	-	-	-	-	-	-	-	X	X	X	X	-	X	-	-
10	9 3/8	9 3/8	-	-	-	-	-	-	-	-	X	X	X	X	-	X	-	X
12	9 3/8	10 1/4	-	-	-	-	-	-	-	-	X	X	X	X	-	X	-	X
14	-	X	-	-	-	-	-	-	-	-	-	-	X	X	-	X	-	X
16	-	-	-	-	-	-	-	-	-	-	-	-	X	X	-	X	-	□

SLEEVE COUPLINGS



⁽³⁾Actual length 4 1/4"
⁽⁴⁾Actual length 6 1/4"
⁽⁵⁾Actual length 6 1/8"

Green Thread HP Couplings

Pipe Size	A	B	X ⁽¹⁾	Wt.	Steady Pressure
in.	in.	in.	in.	lbs.	psig
1	2 3/4	1 1/2	1	0.1	435
1 1/2	3 1/4	2	1 1/8	0.1	435
2	4 7/8	2 5/8	1 5/8	0.4	435
3	5	3 3/4	2	0.8	435
4	5	4 3/4	2	0.9	232
6	7	6 1/8	2 1/4	1.9	232
8	10	9	3 1/8	3.4	232
10	10 1/2	11	3 1/8	5.2	232
12	11	13 1/8	3 1/4	7.5	232
14	12 1/2	15	3 3/8	11.2	232
16	13	17 1/8	4 1/8	16.0	232

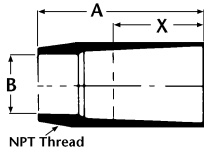
mm	mm	mm	mm ⁽¹⁾	kg	bar
25	70	38	25	0.05	30
40	83	52	29	0.05	30
50	124	67	41	0.18	30
80	127	95	51	0.36	30
100	127	121	51	0.41	16
150	178	175	57	0.86	16
200	254	229	79	1.54	16
250	268	279	79	2.36	16
300	279	333	83	3.40	16
350	318	381	98	5.08	16
400	330	435	105	7.26	16

Red Thread HP Couplings

Pipe Size	A	B	X ⁽¹⁾	Wt.	Steady Pressure
in.	in.	in.	in.	lbs.	psig
1	-	-	-	-	-
1 1/2	-	-	-	-	-
2	6	2 5/8	1 5/8	0.4	435
3	6	3 3/4	1 7/8	0.8	435
4	7	4 7/8	2	1.4	435
6	8 3/8	7 1/8	2 3/4	2.8	435
8	10	9	2 7/8	3.3	232
10	10 1/2	11 1/8	3 3/8	4.7	232
12	11	13 1/8	3 1/2	6.8	232
14	12 1/2	15	4	11.2	232
16	13	17 1/8	4 1/8	16.0	232

mm	mm	mm	mm ⁽¹⁾	kg	bar
25	-	-	-	-	-
40	-	-	-	-	-
50	152	67	41	0.18	30
80	152	95	48	0.36	30
100	178	124	51	0.64	30
150	213	181	70	1.27	30
200	254	229	73	1.50	16
250	268	283	86	2.13	16
300	279	333	89	3.08	16
350	318	381	102	5.08	16
400	330	435	105	7.26	16

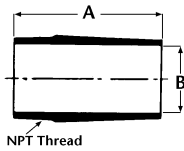
ADAPTERS - 1" and 1 1/2" parts are available in Green Thread only; 2"-8" parts are available in Green Thread or Red Thread HP



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

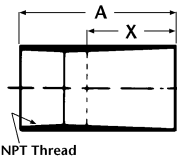
Bell X Male

Pipe Size	A	B	X ⁽¹⁾ GT Pipe	X ⁽¹⁾ RT Pipe	Wt. GT	Wg. RT	Steady Pressure	Pipe Size	A	B	X ⁽¹⁾ GT Pipe	X ⁽¹⁾ RT Pipe	Wt. GT	Wt. RT	Steady Pressure
in.	in.	in.	in.	in.	lbs.	lbs.	psig	mm	mm	mm	mm	mm	kg	kg	bar
1	3 1/2	1	1	-	0.1	-	435	25	89	25	25	-	0.05	-	30
1 1/2	3 3/4	1 1/2	1 1/8	-	0.3	-	435	40	99	38	29	-	0.14	-	30
2	4 1/4	2	1 5/8	1 3/8	0.4	0.3	435	50	108	51	41	35	0.18	0.14	30
3	5 1/2	3	1 7/8	1 3/8	0.9	0.6	300	80	140	76	48	35	0.41	0.27	20.7
4	5 1/2	4	2	1 5/8	1.6	1.0	232	100	140	102	51	41	0.73	0.45	16
6	6	6	2 1/4	2 1/4	2.6	1.8	232	150	152	152	57	57	1.18	0.82	16
8	9 1/4	8	3 1/8	3 1/2	7.2	6.6	232	200	235	203	79	89	3.27	2.99	16



Spigot X Male

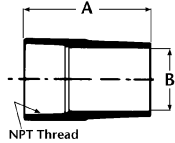
Pipe Size	A	B	X ⁽¹⁾ GT Pipe	X ⁽¹⁾ RT Pipe	Wt. GT	Wt. RT	Steady Pressure	Pipe Size	A	B	X ⁽¹⁾ GT Pipe	X ⁽¹⁾ RT Pipe	Wt. GT	Wt. RT	Steady Pressure
in.	in.	in.	in.	in.	lbs.	lbs.	psig	mm	mm	mm	mm	mm	kg	kg	bar
1	2 5/8	1	-	-	0.1	-	435	25	67	25	-	-	0.05	-	30
1 1/2	2 3/4	1 1/4	-	-	0.3	-	435	40	70	38	-	-	0.14	-	30
2	3 5/8	2	-	-	0.4	0.3	435	50	92	51	-	-	0.18	0.1	30
3	4 5/8	3	-	-	0.9	0.6	300	80	117	76	-	-	0.41	0.2	20.7
4	4 7/8	4	-	-	1.1	1.0	232	100	124	102	-	-	0.50	0.4	16
6	6 7/8	6	-	-	2.6	2.0	232	150	175	152	-	-	1.18	0.9	16
8	8	8	-	-	5.6	4.9	232	200	203	203	-	-	2.54	2.2	16



Bell X Female

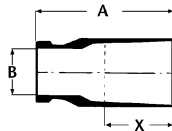
Pipe Size	A	B	X ⁽¹⁾ GT Pipe	X ⁽¹⁾ RT Pipe	Wt. GT	Wgt. RT	Steady Pressure	Pipe Size	A	B	X ⁽¹⁾ GT Pipe	X ⁽¹⁾ RT Pipe	Wt. GT	Wt. RT	Steady Pressure
in.	in.	in.	in.	in.	lbs.	lbs.	psig	mm	mm	mm	mm	mm	kg	kg	bar
1	2 5/8	-	1	-	0.1	-	435	25	67	-	25	-	0.05	-	30
1 1/2	2 3/4	-	1 1/8	-	0.3	-	435	40	70	-	29	-	0.14	-	30
2	3 1/2	-	1 5/8	1 3/8	0.6	0.3	435	50	89	-	41	35	0.27	0.1	30
3	4 1/2	-	1 7/8	1 3/8	0.6	0.5	300	80	114	-	48	35	0.27	0.2	20.7
4	4 1/2	-	2	1 5/8	0.6	0.5	232	100	114	-	51	41	0.27	0.2	16
6	5 1/2	-	2 1/4	2 1/4	1.9	1.3	232	150	140	-	57	57	0.86	0.6	16
8	7	-	3 1/8	3 1/2	5.1	3.5	150	200	178	-	79	89	2.31	1.6	10.3

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



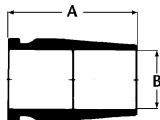
Spigot X Female

Pipe Size	A	B	X ⁽¹⁾ GT Pipe	X ⁽¹⁾ RT Pipe	Wt. GT	Wt. RT	Steady Pressure	Pipe Size	A	B	X ⁽¹⁾ GT Pipe	X ⁽¹⁾ RT Pipe	Wt. GT	Wt. RT	Steady Pressure
in.	in.	in.	in.	in.	lbs.	lbs.	psig	mm	mm	mm	mm	mm	kg	kg	bar
1	3 5/8	1	-	-	0.2	-	435	25	92	25	-	-	0.09	-	30
1 ½	4	1 ½	-	-	0.3	-	435	40	102	38	-	-	0.14	-	30
2	3 7/8	2	-	-	0.4	0.3	435	50	98	51	-	-	0.18	0.14	30
3	4 ¾	3 5/8	-	-	0.8	0.5	290	80	121	76	-	-	0.36	0.23	20.7
4	4 7/8	4 1/8	-	-	1.0	.6	232	100	124	102	-	-	0.45	0.27	16
6	6 ¾	6	-	-	3.4	2.6	232	150	171	152	-	-	1.54	1.18	16
8	10	8	-	-	8.0	7.1	150	200	254	203	-	-	3.63	3.22	10



Bell X Grooved⁽²⁾

Pipe Size	A	B	X ⁽¹⁾ GT Pipe	X ⁽¹⁾ RT Pipe	Wt. GT	Wt. RT	Steady Pressure	Pipe Size	A	B	X ⁽¹⁾ GT Pipe	X ⁽¹⁾ RT Pipe	Wt. GT	Wt. RT	Steady Pressure
in.	in.	in.	in.	in.	lbs.	lbs.	psig	mm	mm	mm	mm	mm	kg	kg	bar
1	3 ½	7/8	1	-	0.3	-	435	25	89	22	25	-	0.14	-	30
1 ½	3 7/8	1 ½	1 1/8	-	0.5	-	435	40	98	38	29	-	0.23	-	30
2	4 ¼	2	1 5/8	1 3/8	0.5	0.3	435	50	108	51	41	35	0.23	0.14	30
3	5	3	1 7/8	1 3/8	0.9	0.6	290	80	127	76	48	35	0.41	0.27	20.7
4	5	4	2	1 5/8	1.0	0.8	232	100	127	102	51	41	0.45	0.63	16
6	5 5/8	6	2 ¼	2 ¼	2.3	1.8	232	150	143	152	57	57	1.04	0.84	16
8	8 ¼	8	3 1/8	3 ½	5.8	4.9	232	200	210	203	79	89	2.63	2.22	16
10	8 ¼	10 1/8	-	3 ¾	-	6.3	190	250	210	257	-	95	-	2.86	13.1



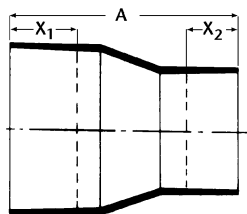
Spigot X Grooved⁽²⁾

Pipe Size	A	B	X ⁽¹⁾ GT Pipe	X ⁽¹⁾ RT Pipe	Wt. GT	Wt. RT	Steady Pressure	Pipe Size	A	B	X ⁽¹⁾ GT Pipe	X ⁽¹⁾ RT Pipe	Wt. GT	Wg. RT	Steady Pressure
in.	in.	in.	in.	in.	lbs.	lbs.	psig	mm	mm	mm	mm	mm	kg	kg	bar
1	2 ¾	7/8	-	-	0.1	-	435	25	70	22	-	-	0.05	-	30
1 ½	3 1/8	1 ½	-	-	0.2	-	435	40	79	38	-	-	0.09	-	30
2	3 5/8	2	-	-	0.3	0.3	435	50	92	51	-	-	0.14	0.14	30
3	4 ¼	3	-	-	0.9	0.6	290	80	127	76	-	-	0.41	0.27	20
4	4 ½	4	-	-	1.0	0.9	232	100	114	102	-	-	0.45	0.41	16
6	5	6	-	-	2.6	2.0	232	150	127	152	-	-	1.18	0.91	16
8	7	8	-	-	4.4	4.1	232	200	178	203	-	-	2.00	1.86	16
10	7	10 1/8	-	-	-	5.6	190	250	178	257	-	-	-	2.54	13.1
12	7	12	-	-	-	6.8	150	300	178	305	-	-	-	3.08	10.3

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

⁽²⁾ Compatible with Victaulic® HP70ES couplings.

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



Bell x Bell

Pipe Size	A	X ₁ ⁽¹⁾ GT Pipe	X ₂ ⁽¹⁾ GT Pipe	X ₁ ⁽¹⁾ RT Pipe	X ₂ ⁽¹⁾ RT Pipe	Wt.	Steady Pressure	Pipe Size	A	X ₁ ⁽¹⁾ GT Pipe	X ₂ ⁽¹⁾ GT Pipe	X ₁ ⁽¹⁾ RT Pipe	X ₂ ⁽¹⁾ RT Pipe	Wt.	Steady Pressure
in.	in.	in.	in.	in.	in.	lbs.	psig	mm	mm	mm	mm	mm	mm	kg	bar
2x1	5 1/2	1 5/8	1	1 5/8	NA	0.6	435	50x25	140	41	25	41	NA	0.27	30
2x1 1/2	5	1 5/8	1 1/8	1 5/8	NA	0.6	435	50x40	127	41	29	41	NA	0.27	30
3x1	6 1/4	1 7/8	1	1 7/8	NA	1.0	435	80X25	159	48	25	48	NA	0.45	30
3x1 1/2	6 1/4	1 7/8	1 1/8	1 3/4	NA	1.1	435	80x40	159	48	29	44	NA	0.50	30
3x2	6	1 7/8	1 1/8	1 7/8	1 5/8	1.1	435	80x50	152	48	29	48	41	0.50	30
4X1 1/2	7 3/8	2	1 1/8	1 5/8	NA	1.8	232	100X40	187	51	29	41	NA	0.82	16
4x2	8 1/4	2	1 5/8	1 5/8	1 5/8	2.0	232	100x50	210	51	41	41	41	0.91	16
4x3	7	2	1 7/8	1 5/8	1 7/8	1.7	232	100x80	178	51	48	41	48	0.77	16
6x3	10 7/8	2 7/8	1 7/8	2 7/8	1 7/8	4.3	232	150x80	276	73	48	73	48	1.95	16
6x4	9	2 1/4	2	2 1/4	1 5/8	3.4	232	150x100	229	57	51	57	41	1.54	16
8x4	14	3	2	3 3/8	1 5/8	6.7	232	200x100	356	76	51	86	41	3.04	16
8x6	15 1/4	3	2 7/8	3 3/8	2 7/8	7.3	232	200x150	387	76	73	86	73	3.31	16
10x6	15 1/4	3 1/4	2 7/8	3 1/2	2 5/8	10.5	232	250x150	387	83	73	89	67	4.76	16
10x8	16 1/2	3 1/4	3	3 1/2	3 3/8	11.1	232	250x200	419	83	76	89	86	5.03	16
12x8	18 3/8	3 3/8	3	3 3/8	3 3/8	17.0	232	300x200	467	86	76	98	86	7.71	16
12x10	17 3/4	3 3/8	3 1/4	3 3/8	3 1/2	16.4	232	300x250	451	86	83	98	89	7.44	16
14x10	22 7/8	5 3/8	3 1/4	5 1/2	3 1/2	21.9	232	350x250	581	137	83	140	89	9.93	16
14x12	22 3/4	5 3/8	3 3/8	5 1/2	3 7/8	21.8	232	350x300	578	137	86	140	98	9.89	16
16x12	25	5 1/2	3 3/8	5 1/2	3 7/8	27.7	232	400x300	635	140	86	140	98	12.56	16
16x14	28	7 1/4	7	7 1/4	7	31.1	232	400x350	711	184	178	184	178	14.11	16

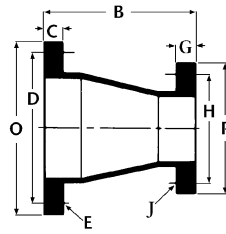
NOTE: MULTI-STEP reducers are available through 16" sizes. Information is available on request.

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

⁽²⁾ Flanges should be joined to flat-faced flanges. When joining to raised-faced flange connections, consult installation or engineering manuals. Bolt torque, gasket thickness and hardness recommendations are in manual INS1000.

These comments also apply to the flanged concentric reducers on the following page.

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

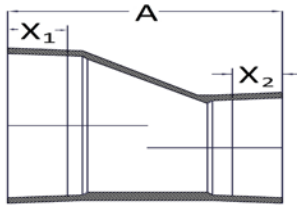


Flanged⁽²⁾

Pipe Size	B	C	D	E Bolt Hole Size	O	G	H	J Bolt Hole Size	P	Wt.	Steady Pressure
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.	psig
2x1	5	3/4	4 3/4	3/4 - 4 holes	6	3/4	3 7/8	5/8 - 4 holes	4 1/4	2.6	300
2x1 1/2	5	3/4	4 3/4	3/4 - 4 holes	6	3/4	3 7/8	5/8 - 4 holes	5	2.6	300
3x1 1/2	6	1 3/8	6	3/4 - 4 holes	7 1/2	3/4	4 3/4	3/4 - 4 holes	5	4.4	190
3x2	6	1 3/8	6	3/4 - 4 holes	7 1/2	3/4	4 3/4	3/4 - 4 holes	6	4.4	190
4x2	7	1 3/8	7 1/2	3/4 - 8 holes	9	1 3/8	6	3/4 - 4 holes	6	7.1	150
4x3	7	1 3/8	7 1/2	3/4 - 8 holes	9	1 3/8	6	3/4 - 4 holes	7 1/2	7.1	150
6x3	9	1 1/2	9 1/2	7/8 - 8 holes	11	1 3/8	7 1/2	3/4 - 8 holes	7 1/2	11.0	150
6x4	9	1 1/2	9 1/2	7/8 - 8 holes	11	1 3/8	7 1/2	3/4 - 8 holes	9	11.0	150
8x4	11	1 3/4	11 3/4	7/8 - 8 holes	13 1/2	1 1/2	9 1/2	7/8 - 8 holes	9	17.6	232
8x6	11	1 3/4	11 3/4	7/8 - 8 holes	13 1/2	1 1/2	9 1/2	7/8 - 8 holes	11	17.6	232
10x6	12	2	14 1/4	1 - 12 holes	16	1 3/4	11 3/4	7/8 - 8 holes	11	28.2	232
10x8	12	2	14 1/4	1 - 12 holes	16	1 3/4	11 3/4	7/8 - 8 holes	13 1/2	28.2	232
12x8	14	2 1/4	17	1 - 12 holes	19	2	14 1/4	1 - 12 holes	13 1/2	43.0	232
12x10	14	2 1/4	17	1 - 12 holes	19	2	14 1/4	1 - 12 holes	16	43.0	232
14x10	16	2 1/2	18 3/4	1 1/8 - 12 holes	20 3/4	2 1/4	17	1 - 12 holes	16	55.0	232
14x12	16	2 1/2	18 3/4	1 1/8 - 12 holes	20 3/4	2 1/4	17	1 - 12 holes	19	55.0	232
16x12	18	2 1/2	21 1/4	1 1/8 - 16 holes	23 1/4	2 1/2	18 3/4	1 1/8 - 12 holes	19	89.5	232
16x14	18	2 1/2	21 1/4	1 1/8 - 16 holes	23 1/4	2 1/2	18 3/4	1 1/8 - 12 holes	20 3/4	89.5	232

mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	bar
50x25	127	19	121	19 - 4 holes	152	19	98	16 - 4 holes	108	1.18	20.7
50x40	127	19	121	19 - 4 holes	152	19	98	16 - 4 holes	127	1.18	20.7
80x40	152	35	152	19 - 4 holes	191	19	121	19 - 4 holes	127	2.00	13.1
80x50	152	35	152	19 - 4 holes	191	19	121	19 - 4 holes	152	2.00	13.1
100x50	178	35	191	19 - 8 holes	229	35	152	19 - 4 holes	152	3.22	10.3
100x80	178	35	191	19 - 8 holes	229	35	152	19 - 4 holes	191	3.22	10.3
150x80	229	38	241	22 - 8 holes	279	35	191	19 - 8 holes	191	4.99	10.3
150x100	229	38	241	22 - 8 holes	279	35	191	19 - 8 holes	229	4.99	10.3
200x100	279	44	298	22 - 8 holes	343	38	241	22 - 8 holes	229	7.98	16
200x150	279	44	298	22 - 8 holes	343	38	241	22 - 8 holes	279	7.98	16
250x150	305	51	362	25 - 12 holes	406	44	298	22 - 8 holes	279	12.79	16
250x200	305	51	362	25 - 12 holes	406	44	298	22 - 8 holes	343	12.79	16
300x200	356	57	432	25 - 12 holes	483	51	362	25 - 12 holes	343	19.50	16
300x250	356	57	432	25 - 12 holes	483	51	362	25 - 12 holes	406	19.50	16
350x250	406	64	476	29 - 12 holes	527	57	432	25 - 12 holes	406	24.95	16
350x300	406	64	476	29 - 12 holes	527	57	432	25 - 12 holes	483	24.95	16
400x305	457	64	540	29 - 16 holes	591	64	476	29 - 12 holes	483	40.60	16
406x350	457	64	540	29 - 16 holes	591	64	476	29 - 12 holes	527	40.60	16

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



Bell x Bell

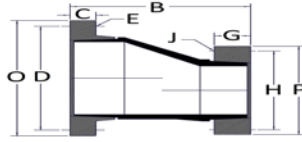
Pipe Size	A	X ₁ ⁽¹⁾ GT Pipe	X ₂ ⁽¹⁾ GT Pipe	X ₁ ⁽¹⁾ RT Pipe	X ₂ ⁽¹⁾ RT Pipe	Wt.	Steady Pressure	Pipe Size	A	X ₁ ⁽¹⁾ GT Pipe	X ₂ ⁽¹⁾ GT Pipe	X ₁ ⁽¹⁾ RT Pipe	X ₂ ⁽¹⁾ RT Pipe	Wt.	Steady Pressure
in.	in.	in.	in.	in.	in.	lbs.	psig	mm	mm	mm	mm	mm	mm	kg	bar
2x1	5 1/2	1 5/8	1	1 5/8	NA	0.6	435	50x25	140	41	25	41	NA	0.27	30
2x1 1/2	5 1/2	1 5/8	1 1/8	1 5/8	NA	0.6	435	50x40	140	41	29	41	NA	0.27	30
3x1	6 1/4	1 7/8	1	1 7/8	NA	1.0	435	80x25	159	48	25	48	NA	0.45	30
3x1 1/2	6 1/4	1 7/8	1 1/8	1 3/4	NA	1.1	435	80x40	159	48	29	44	NA	0.50	30
3x2	7 1/8	1 7/8	1 1/8	1 7/8	1 5/8	1.1	435	80x50	181	48	29	48	41	0.50	30
4x1 1/2	7 3/8	2	1 1/8	1 5/8	NA	1.8	232	100x40	187	51	29	41	NA	0.82	16
4x2	8 1/4	2	1 5/8	1 5/8	1 5/8	2.0	232	100x50	210	51	41	41	41	0.91	16
4x3	8	2	1 7/8	1 5/8	1 7/8	1.7	232	100x80	203	51	48	41	48	0.77	16
6x3	10 7/8	2 7/8	1 7/8	2 7/8	1 7/8	4.3	232	150x80	276	73	48	73	48	1.95	16
6x4	10 3/4	2 1/4	2	2 1/4	1 5/8	3.4	232	150x100	273	57	51	57	41	1.54	16
8x4	14	3	2	3 3/8	1 5/8	6.7	232	200x100	356	76	51	86	41	3.04	16
8x6	15 1/4	3	2 7/8	3 3/8	2 7/8	7.3	232	200x150	387	76	73	86	73	3.31	16
10x6	15 1/4	3 1/4	2 7/8	3 1/2	2 5/8	10.5	232	250x150	387	83	73	89	67	4.76	16
10x8	16 1/2	3 1/4	3	3 1/2	3 3/8	11.1	232	250x200	419	83	76	89	86	5.03	16
12x8	18 3/8	3 3/8	3	3 7/8	3 3/8	17.0	232	300x200	467	86	76	98	86	7.71	16
12x10	17 3/4	3 3/8	3 1/4	3 7/8	3 1/2	16.4	232	300x250	451	86	83	98	89	7.44	16
14x10	22 7/8	5 3/8	3 1/4	5 1/2	3 1/2	21.9	232	350x250	581	137	83	140	89	9.93	16
14x12	22 3/4	5 3/8	3 3/8	5 1/2	3 7/8	21.8	232	350x300	578	137	86	140	98	9.89	16
16x12	25	5 1/2	3 3/8	5 1/2	3 7/8	27.7	232	400x300	635	140	86	140	98	12.56	16
16x14	28	7 1/4	7	7 1/4	7	31.1	232	400x350	711	184	178	184	178	14.11	16

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

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

⁽²⁾ Flanges should be joined to flat-faced flanges. When joining to raised-faced flange connections, consult installation or engineering manuals. Bolt torque, gasket thickness and hardness recommendations are in manual INS1000. These comments also apply to the flanged concentric reducers on the following page.

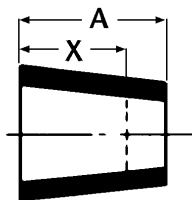
ECCENTRIC REDUCERS (1"-16" parts are available in Green Thread HP only.)



Flanged⁽²⁾

Pipe Size	B	C	D	E Bolt Hole Size	O	G	H	J Bolt Hole Size	P	Wt.	Steady Pressure
in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.	psig
2x1	5	3/4	4 3/4	3/4 - 4 holes	6	3/4	3 7/8	5/8 - 4 holes	4 1/4	2.6	300
2x1 1/2	5	3/4	4 3/4	3/4 - 4 holes	6	3/4	3 7/8	5/8 - 4 holes	5	2.6	300
3x1	6	1 3/8	6	3/4 - 4 holes	7 1/2	3/4	4 3/4	3/4 - 4 holes	5	4.4	190
3x1 1/2	6	1 3/8	6	3/4 - 4 holes	7 1/2	3/4	4 3/4	3/4 - 4 holes	5	4.4	190
3x2	6	1 3/8	6	3/4 - 4 holes	7 1/2	3/4	4 3/4	3/4 - 4 holes	6	4.4	190
4x1 1/2	7	1 3/8	7 1/2	3/4 - 8 holes	9	1 3/8	6	3/4 - 4 holes	6	7.1	150
4x2	7	1 3/8	7 1/2	3/4 - 8 holes	9	1 3/8	6	3/4 - 4 holes	6	7.1	150
4x3	7	1 3/8	7 1/2	3/4 - 8 holes	9	1 3/8	6	3/4 - 4 holes	7 1/2	7.1	150
6x3	9	1 1/2	9 1/2	7/8 - 8 holes	11	1 3/8	7 1/2	3/4 - 8 holes	7 1/2	11.0	150
6x4	9	1 1/2	9 1/2	7/8 - 8 holes	11	1 3/8	7 1/2	3/4 - 8 holes	9	11.0	150
8x4	11	1 3/4	11 3/4	7/8 - 8 holes	13 1/2	1 1/2	9 1/2	7/8 - 8 holes	9	17.6	232
8x6	11	1 3/4	11 3/4	7/8 - 8 holes	13 1/2	1 1/2	9 1/2	7/8 - 8 holes	11	17.6	232
10x6	12	2	14 1/4	1 - 12 holes	16	1 3/4	11 3/4	7/8 - 8 holes	11	28.2	232
10x8	12	2	14 1/4	1 - 12 holes	16	1 3/4	11 3/4	7/8 - 8 holes	13 1/2	28.2	232
12x8	14	2 1/4	17	1 - 12 holes	19	2	14 1/4	1 - 12 holes	13 1/2	43.0	232
12x10	14	2 1/4	17	1 - 12 holes	19	2	14 1/4	1 - 12 holes	16	43.0	232
14x10	16	2 1/2	18 3/4	1 1/8 - 12 holes	20 3/4	2 1/4	17	1 - 12 holes	16	55.0	232
14x12	16	2 1/2	18 3/4	1 1/8 - 12 holes	20 3/4	2 1/4	17	1 - 12 holes	19	55.0	232
16x12	18	2 1/2	21 1/4	1 1/8 - 16 holes	23 1/4	2 1/2	18 3/4	1 1/8 - 12 holes	19	89.5	232
16x14	18	2 1/2	21 1/4	1 1/8 - 16 holes	23 1/4	2 1/2	18 3/4	1 1/8 - 12 holes	20 3/4	89.5	232
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg	bar
50x25	127	19	121	19 - 4 holes	152	19	98	16 - 4 holes	108	1.18	20.7
50x40	127	19	121	19 - 4 holes	152	19	98	16 - 4 holes	127	1.18	20.7
80x25	375	35	152	19 - 4 holes	191	19	121	19 - 4 holes	127	2.00	13
80x40	152	35	152	19 - 4 holes	191	19	121	19 - 4 holes	127	2.00	13.1
80x50	152	35	152	19 - 4 holes	191	19	121	19 - 4 holes	152	2.00	13.1
100x40	391	35	191	19 - 8 holes	229	35	152	19 - 4 holes	152	3.20	10.0
100x50	178	35	191	19 - 8 holes	229	35	152	19 - 4 holes	152	3.22	10.3
100x80	178	35	191	19 - 8 holes	229	35	152	19 - 4 holes	191	3.22	10.3
150x80	229	38	241	22 - 8 holes	279	35	191	19 - 8 holes	191	4.99	10.3
150x100	229	38	241	22 - 8 holes	279	35	191	19 - 8 holes	229	4.99	10.3
200x100	279	44	298	22 - 8 holes	343	38	241	22 - 8 holes	229	7.98	16
200x150	279	44	298	22 - 8 holes	343	38	241	22 - 8 holes	279	7.98	16
250x150	305	51	362	25 - 12 holes	406	44	298	22 - 8 holes	279	12.79	16
250x200	305	51	362	25 - 12 holes	406	44	298	22 - 8 holes	343	12.79	16
300x200	356	57	432	25 - 12 holes	483	51	362	25 - 12 holes	343	19.50	16
300x250	356	57	432	25 - 12 holes	483	51	362	25 - 12 holes	406	19.50	16
350x250	406	64	476	29 - 12 holes	527	57	432	25 - 12 holes	406	24.95	16
350x300	406	64	476	29 - 12 holes	527	57	432	25 - 12 holes	483	24.95	16
400x305	457	64	540	29 - 16 holes	591	64	476	29 - 12 holes	483	40.60	16
406x350	457	64	540	29 - 16 holes	591	64	476	29 - 12 holes	527	40.60	16

REDUCER BUSHING



Reducer Bushing

Pipe Size	A	X ⁽¹⁾ GT Pipe	X ⁽¹⁾ RT Pipe	Wt.	Steady Pressure	Pipe Size	A	X ⁽¹⁾ GT Pipe	X ⁽¹⁾ RT Pipe	Wt.	Steady Pressure
in.	in.	in.	in.	lbs	psig	mm	mm	mm	mm	kg	bar
*	1 1/8	-	-	0.1	435	*	29	-	-	0.05	30
**	1 3/8	1	-	0.1	435	**	35	25	-	0.05	30
2x1	2 1/4	1	-	0.4	435	50x25	57	25	-	0.18	30
2x1 NPT	1 3/4	-	-	0.4	435	50x25	44	-	-	0.18	30
2x1 1/4 NPT	1 3/4	-	-	0.4	435	50x30	44	-	-	0.18	30
2x1 1/2	2	1 1/8	-	0.1	435	50x40	51	29	-	0.05	30
2x1 1/2 NPT	1 3/4	-	-	0.1	435	50x40	44	-	-	0.05	30
3x2	2 1/4	1 5/8	1 5/8	0.8	435	80x50	57	41	41	0.36	30
4x3	2 5/8	1 7/8	1 3/8	1.0	232	100x80	67	48	35	0.45	16
6x4	3 1/8	2	1 1/2	3.9	232	150x100	79	51	38	1.77	16
8x6	3 1/4	3	2 3/8	6.8	232	200x150	83	76	60	3.08	16
10x8	4	2 5/8	3	9.9	232	250x200	102	67	76	4.49	16
12x10	4 1/2	3	3 1/4	11.8	232	300x250	114	76	83	5.35	16
14x12	5 1/2	3 7/8	4 1/8	20.2	232	350x300	140	98	105	9.16	16
16x14	6	4 1/2	4 1/2	28.9	232	400x350	152	114	114	13.11	16

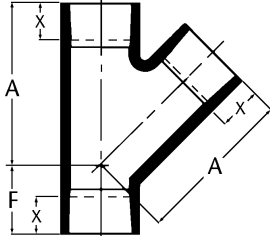
* 1x 1/4 NPT, 1x 1/2 NPT, 1x 3/4 NPT, 1 1/2x 1/2 NPT, 1 1/2x 3/4 NPT

** 1 1/2x1NPT, 1 1/2x1(X-GT), 1 1/2x1 1/4 NPT

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

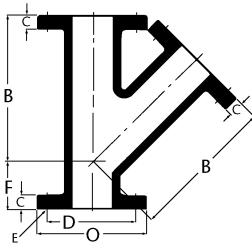
⁽¹⁾ Nominal make-up dimension for drawing layout work only using non-threaded spigots. Do not use for assembly dimensions.

LATERALS



45° Lateral Belled

Pipe Size	A	F	X ⁽¹⁾ GT Pipe	X ⁽¹⁾ RT Pipe	Wt.	Steady Pressure	Pipe Size	A	F	X ⁽¹⁾ GT Pipe	X ⁽¹⁾ RT Pipe	Wt.	Steady Pressure
in.	in.	in.	in.	in.	lbs.	psig	mm	mm	mm	mm	mm	kg	bar
1	3 7/8	2 1/2	1	-	0.6	150	25	98	64	25	-	0.27	10.3
1 1/2	5 1/4	3 1/4	1	-	1.3	150	40	133	83	25	-	0.59	10.3
2	6 5/8	2 3/4	1 1/2	1 1/2	4.1	150	50	168	70	38	38	1.86	10.3
3	7 3/4	4 1/4	1 7/8	1 3/4	4.4	150	80	197	108	48	44	2.00	10.3
4	9	4 3/8	2	1 5/8	7.8	150	100	229	111	51	41	3.54	10.3
6	12 1/2	5 3/4	2 1/4	2 1/4	13.7	135	150	318	146	57	57	6.21	9.3
8	16 1/4	7 3/8	3 1/8	3 1/2	33.7	135	200	413	187	79	89	15.29	9.3
10	19 5/8	8 3/4	3 1/8	3 3/8	53.3	120	250	498	222	79	86	24.17	8.3
12	24 3/4	11 3/4	3 1/4	3 1/2	96.0	90	300	629	298	83	89	43.54	6.2
14	32 1/2	15 3/4	3 7/8	4	154.2	75	350	826	400	98	102	69.94	5.2
16	35 3/4	17 3/4	4 1/8	4 1/8	222.6	75	400	908	451	105	105	101	5.2



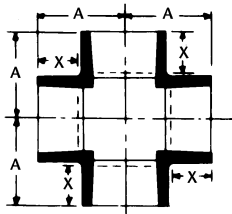
45° Lateral Flanged⁽²⁾

Pipe Size	B	C	D	E Bolt Hole Size	F	O	Wt.	Steady Press.	Pipe Size	B	C	D	E Bolt Hole Size	F	O	Wt.	Steady Press.
in.	in.	in.	in.	in.	in.	in.	lbs.	psig	mm	mm	mm	mm	mm	mm	mm	kg	bar
1	6	3/4	3 1/4	5/8-4 holes	4 1/2	4 1/4	2.8	150	25	152	19	83	16-4 holes	114	108	1.27	10.3
1 1/2	8 1/2	3/4	3 7/8	5/8-4 holes	5 1/2	5	4.4	150	40	216	19	98	16-4 holes	140	127	2.00	10.3
2	8 7/8	3/4	4 3/4	3/4-4 holes	6 3/8	6	7.8	150	50	225	19	121	19-4 holes	162	152	3.54	10.3
3	11 3/4	1 3/8	6	3/4-4 holes	8	7 1/2	13.4	150	80	298	35	152	19-4 holes	203	191	6.08	10.3
4	12 7/8	1 3/8	7 1/2	3/4-8 holes	8 1/2	9	19.2	150	100	327	35	191	19-8 holes	216	229	8.71	10.3
6	18	1 1/2	9 1/2	7/8-8 holes	11	11	35	135	150	457	38	241	22-8 holes	279	279	15.9	9.3
8	21 3/4	1 3/4	11 3/4	7/8-8 holes	13 3/4	13 1/2	65.3	135	200	552	44	298	22-8 holes	349	343	29.6	9.3
10	26 5/8	2	14 1/4	1-12 holes	16 5/8	16	112	120	250	676	51	362	25-12 holes	422	406	50.8	8.3
12	32	2 1/4	17	1-12 holes	20	19	172	90	300	813	57	432	25-12 holes	508	483	78	6.2
14	36	2 1/2	18 3/4	1 1/8-12 holes	22	20 3/4	209	75	350	914	64	476	29-12 holes	559	527	94.6	5.2
16	40	2 1/2	21 1/4	1 1/8-16 holes	24	23 1/4	267	75	400	1,016	64	540	29-16 holes	610	594	121	5.2

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

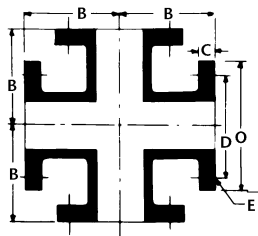
⁽²⁾ Flanges should be joined to flat-faced flanges. When joining to raised-faced flange connections, consult installation or engineering Manuals INS1000 & ENG1000. Bolt torque, gasket thickness and hardness recommendations are in Manual INS1000.

CROSSES



Cross - Belled

Pipe Size	A	X ⁽¹⁾ GT Pipe	X ⁽¹⁾ RT Pipe	Wt.	Steady Pressure	Pipe Size	A	X ⁽¹⁾ GT Pipe	X ⁽¹⁾ RT Pipe	Wt.	Steady Pressure
in.	in.	in.	in.	lbs.	psig	mm	mm	mm	mm	kg	bar
1	2 3/4	1	-	1.4	300	25	70	25	-	0.64	20.7
1 1/2	3 3/8	1 1/8	-	2.0	300	40	86	29	-	0.91	20.7
2	3 3/8	1 5/8	1 1/2	3.4	300	50	86	41	38	1.54	20.7
3	4 5/8	1 7/8	1 3/4	8.5	190	80	117	48	44	3.86	13.1
4	5 1/8	2	1 5/8	10.7	150	100	130	51	41	4.85	10.3
6	6 1/8	2 1/4	2 1/4	17.3	150	150	156	57	57	7.85	10.3
8	11 5/8	3 1/8	3 1/2	30.8	150	200	295	79	89	13.97	10.3
10	13 1/8	3 1/4	3 1/2	42.7	150	250	333	83	89	19.37	10.3
12	14	3 3/8	3 7/8	73.2	150	300	356	86	98	33.20	10.3
14	16	3 7/8	4	104	150	350	406	98	102	47.27	10.3
16	17 1/4	4 1/8	4 1/8	143	150	400	438	105	105	64.86	10.3



Cross - Flanged⁽²⁾

Pipe Size	B	C	D	E Bolt Hole Size	O	Wt.	Steady Pressure	Pipe Size	B	C	D	E Bolt Hole Size	O	Wt.	Steady Pressure
in.	in.	in.	in.	in.	in.	lbs.	psig	mm	mm	mm	mm	mm	mm	kg	bar
1	3 1/2	3/4	3 1/8	5/8 - 4 holes	4 1/4	3.8	300	25	89	19	79	16 - 4 holes	108	1.7	20.7
1 1/2	4	3/4	3 1/8	5/8 - 4 holes	5	5.4	300	40	102	19	79	16 - 4 holes	127	2.5	20.7
2	4 1/2	3/4	4 3/4	3/4 - 4 holes	6	8.6	300	50	114	19	121	19 - 4 holes	152	3.9	20.7
3	5 1/2	1 3/8	6	3/4 - 4 holes	7 1/2	15.1	190	80	140	35	152	19 - 4 holes	191	6.8	13.1
4	6 1/2	1 3/8	7 1/2	3/4 - 8 holes	9	22.8	150	100	165	35	191	19 - 8 holes	229	10.3	10.3
6	8	1 1/2	9 1/2	7/8 - 8 holes	11	34.9	150	150	203	38	241	22 - 8 holes	279	15.8	10.3
8	9	1 3/4	11 3/4	7/8 - 8 holes	13 1/2	61.2	150	200	229	44	298	22 - 8 holes	343	27.8	10.3
10	11	2	14 1/4	1 - 12 holes	16	83.5	150	250	279	51	362	25 - 12 holes	406	37.9	10.3
12	12	2 1/4	17	1 - 12 holes	19	145	150	300	305	57	432	25 - 12 holes	483	65.8	10.3
14	14	2 1/2	18 3/4	1 1/8 - 12 holes	20 3/4	224	150	350	356	64	476	29 - 12 holes	527	102	10.3
16	15	2 1/2	21 1/4	1 1/8 - 16 holes	23 1/4	303	150	400	381	64	540	29 - 16 holes	594	137	10.3

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

⁽²⁾Flanges should be joined only to flat-faced flanges. When joining to raised-faced flange connections, consult installation or engineering Manuals INS1000 & ENG1000. Bolt torque, gasket thickness and hardness recommendations are in Manual INS1000.

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



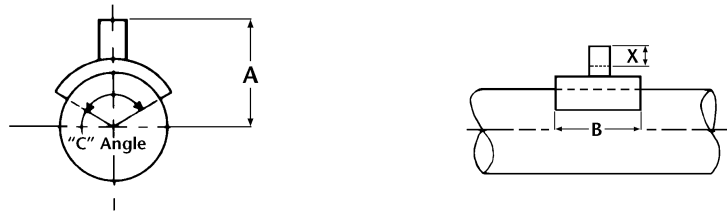
Belled Side Outlet

Size	A	B	C Angle	X ⁽¹⁾ GT Pipe	X ⁽¹⁾ RT Pipe	Wt.	Steady Pressure	Size	A	B	X ⁽¹⁾ GT Pipe	X ⁽¹⁾ RT Pipe	Wt.	Steady Pressure
in.	in.	in.	Degree	in.	in.	lbs.	psig	mm	mm	mm	mm	mm	kg	bar
2x1	2 7/8	4	180	1	-	0.6	435	50x25	73	102	25	-	0.27	30
2x1 1/2	2 7/8	4	180	1 1/8	-	0.5	232	50x40	73	102	29	-	0.23	16
3x1	3 1/2	6	180	1	-	1.5	300	80x25	89	152	25	-	0.68	20.7
3x1 1/2	3 1/2	6	180	1 1/8	-	0.9	232	80x40	89	152	29	-	0.41	16
3x2	4	6	180	1 5/8	1 5/8	1.4	232	80x50	102	152	41	41	0.64	16
4x1	4	6	180	1	-	1.4	232	100x25	102	152	25	-	0.64	16
4x1 1/2	4	6	180	1 1/8	-	1.5	232	100x40	102	152	29	-	0.68	16
4x2	4 1/2	6	180	1 5/8	1 5/8	1.5	232	100x50	114	152	41	41	0.68	16
4x3	5 1/4	6	180	1 7/8	1 3/4	1.6	200	100x80	133	152	48	44	0.73	13.8
6x1	5	6	120	1	-	1.4	232	150x25	127	152	25	-	0.64	16
6x1 1/2	5	6	120	1 1/8	-	1.3	232	150x40	127	152	29	-	0.59	16
6x2	5 1/2	6	120	1 5/8	1 5/8	1.5	232	150x50	140	152	41	41	0.68	16
6x3	6 1/4	6	120	1 7/8	1 3/4	1.6	150	150x80	159	152	48	44	0.73	10.3
6x4	6 3/8	8	140	2	1 5/8	2.4	125	150x100	162	203	51	41	1.09	8.6
8x1 ⁽²⁾	7 7/8	9	120	1	-	3.1	232	200x25	181	229	25	-	1.41	16
8x1 1/2 ⁽²⁾	7 7/8	9	120	1 1/8	-	2.8	232	200x40	181	229	29	-	1.27	16
8x2	7	9	180	1 5/8	1 5/8	2.7	232	200x50	178	229	41	41	1.22	16
10x1 ⁽²⁾	8 7/8	9	95	1	-	3.1	232	250x25	206	229	25	-	1.41	16
10x1 1/2 ⁽²⁾	8 7/8	9	95	1 1/8	-	2.8	232	250x40	206	229	29	-	1.27	16
10x2	8	9	180	1 5/8	1 5/8	2.7	232	250x50	203	229	41	41	1.22	16
10x3	9	14	150	1 7/8	1 3/4	6.1	232	250x80	229	356	48	44	2.77	16
12x1 ⁽²⁾	9 7/8	10	90	1	-	3.6	232	300x25	232	254	25	-	1.63	16
12x1 1/2 ⁽²⁾	9 7/8	10	90	1 1/8	-	3.3	232	300x40	232	254	29	-	1.50	16
12x2	9	10	180	1 5/8	1 5/8	3.2	232	300x50	229	254	41	41	1.45	16
12x3	10	14	125	1 7/8	1 3/4	6.1	232	300x80	254	356	48	44	2.77	16
12x4	9 3/8	17	155	2	1 5/8	8.6	232	300x100	238	432	51	41	3.90	16
14x1 ⁽²⁾	10	12	95	1	-	4.7	232	350x25	254	305	25	-	2.13	16
14x1 1/2 ⁽²⁾	10	12	95	1 1/8	-	4.4	232	350x40	254	305	29	-	2.00	16
14x2	10	12	95	1 5/8	1 3/8	4.3	232	350x50	254	305	41	35	1.95	16
14x3	10 7/8	15	120	1 7/8	1 3/4	6.9	232	350x80	276	381	48	44	3.13	16
14x4	10 1/4	17	135	2	1 5/8	8.4	232	350x100	260	432	51	41	3.81	16
16x1 ⁽²⁾	11	13	90	1	-	5.4	232	400x25	279	330	25	-	2.45	16
16x1 1/2 ⁽²⁾	11	13	90	1 1/8	-	5.1	232	400x40	279	330	29	-	2.31	16
16x2	11	13	90	1 5/8	1 3/8	5	232	400x50	279	330	41	35	2.27	16

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

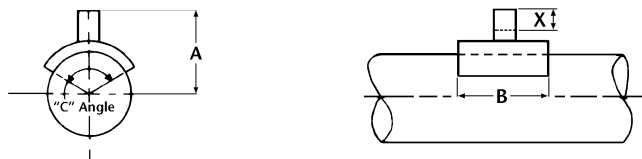
⁽²⁾ Saddle is manufactured by bonding a reducer bushing into a saddle with a 2" outlet.

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



Size	A	B	C Angle	X ⁽¹⁾ GT Pipe	X ⁽¹⁾ RT Pipe	Wt.	Steady Pressure	Size	A	B	X ⁽¹⁾ GT Pipe	X ⁽¹⁾ RT Pipe	Wt.	Steady Pressure
in.	in.	in.	Degree	in.	in.	lbs.	psig	mm	mm	mm	mm	mm	kg	bar
16x3	11 7/8	15	105	1 7/8	1 3/4	6.9	232	400x80	302	381	48	44	3.13	16
16x4	11 1/4	17	120	2	1 5/8	8.6	232	400x100	286	432	51	41	3.90	16

THREADED SIDE OUTLET NPT INTERNAL THREADS



Size	A	B	C Angle	Wt.	Steady Pressure	Size	A	B	Wt.	Steady Pressure
in.	in.	in.	Degree	lbs.	psig	mm	mm	mm	kg	bar
2x1	2 7/8	4	180	0.6	435	50x25	73	102	0.27	30
2x1 1/4	2 7/8	4	180	0.6	232	50x30	73	102	0.27	16
2x1 1/2	2 7/8	4	180	0.5	232	50x40	73	102	0.23	16
3x1	3 1/2	6	180	1.1	300	80x25	89	152	0.50	20.7
3x1 1/4	3 1/2	6	180	1.0	232	80x30	89	152	0.45	16
3x1 1/2	3 1/2	6	180	1.0	232	80x40	89	152	0.45	16
4x1	4	6	180	1.6	232	100x25	102	152	0.73	16
4x1 1/4	4	6	180	1.5	232	100x30	102	152	0.68	16
4x1 1/2	4	6	180	1.4	232	100x40	102	152	0.64	16
6x1	5	6	120	1.5	232	150x25	127	152	0.68	16
6x1 1/4	5	6	120	1.4	232	150x30	127	152	0.64	16
6x1 1/2	5	6	120	1.5	232	150x40	127	152	0.68	16
8x1	7 1/8	9	120	3.1	232	200x25	181	229	1.41	16
10x1	8 1/8	9	95	3.1	232	250x25	206	229	1.41	16
12x1	9 1/8	10	90	3.6	232	300x25	232	254	1.63	16
14x1	10	12	95	4.7	232	350x25	254	305	2.13	16
16x1	11	13	90	5.4	232	400x25	279	330	2.45	16

Green Thread HP16 Branch Table

		Branch Diameter (inch)										
		1	1.5	2	3	4	6	8	10	12	14	16
Header Diameter (inch)	1	T	-	-	-	-	-	-	-	-	-	-
	1.5	RBT	T	-	-	-	-	-	-	-	-	-
	2	S	S/RBT	T	-	-	-	-	-	-	-	-
	3	S	S/RBT	S/RBT	T	-	-	-	-	-	-	-
	4	S	S	S/RBT	S*/RBT	T	-	-	-	-	-	-
	6	S	S	S	S*/RBT	S*/RBT	T	-	-	-	-	-
	8	S	S	S/T	T	T	T	T	-	-	-	-
	10	S	S	S/T	S/T	T	T	T	T	-	-	-
	12	S	S	S/T	S/T	S/T	T	T	T	T	-	-
	14	S	S	S	S/T	S/T	T	T	T	T	T	-
16	S	S	S	S/T	S/T	T	T	T	T	T	T	

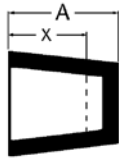
S - Saddle, T - Tee, S/T - Tee or Saddle, S/RBT - Saddle or compression molded Tee with Reducer Bushing.

Notes:

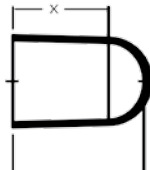
1. In general, saddles are limited to branch sizes that are 1/3 of the header size or smaller.
2. Saddles are limited to outlet size of 6 inch or less.
3. Saddles are rated the same as Tees unless otherwise noted by *.

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

1"-4" End Cap



6"-16" End Cap



Pipe Size	A	X ⁽¹⁾ GT Pipe	X ⁽¹⁾ RT Pipe	Wt.	Steady Pressure	Pipe Size	A	X ⁽¹⁾ GT Pipe	X ⁽¹⁾ RT Pipe	Wt.	Steady Pressure
in.	in.	in.	in.	lbs.	psig	mm	mm	mm	mm	kg	bar
1	2 3/4	1	-	0.3	435	25	70	25	-	0.14	30
1 1/2	2 5/8	1 1/8	-	0.6	435	40	67	29	-	0.27	30
2	2 3/4	1 5/8	1 5/8	1.4	435	50	70	41	41	0.64	30
3	3 1/4	1 7/8	1 3/4	1.9	435	80	83	48	44	0.86	30
4	3 3/4	2	1 5/8	3.0	232	100	95	51	41	1.36	16
6	7	2 5/8	2 1/2	4.2	232	150	178	67	64	1.91	16
8	8 3/4	2 7/8	3 1/2	5.6	232	200	222	60	86	2.54	16
10	9 7/8	5 3/8	5 5/8	8.4	232	250	251	111	143	3.81	16
12	11	4 5/8	4 7/8	12.5	232	300	279	95	124	5.67	16
14	12	5 7/8	5 7/8	15.6	232	350	305	137	140	7.08	16
16	13	5 1/2	5 1/2	19.5	232	400	330	140	140	8.85	16

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

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