

# HP 16 Epoxy Fittings

(Filament wound with reinforced epoxy inner liner - Compatible with Red Thread and Green Thread HP 16 piping systems)



Fiber Glass Systems provides a broad range of low pressure fiberglass fittings and accessories to accompany our low pressure line pipe. This allows for a complete corrosion free piping system. All of these fittings are manufactured using the filament winding or molded method of fabrication, using premium glass fibers, and quality epoxy resins. This ensures maximum pressure capabilities of these composite elements.

## General Notes:

1. 2"-16" Green Thread™ HP fittings are be used with both Green Thread HP and Red Thread™ HP piping. Refer to “Chemical Resistance Guide”, Bulletin No. ENG5615, for chemical recommendations.
2. 2"-16" Red Thread HP fittings may be used only on Red Thread HP piping.
3. 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° Elbow<sup>(1)</sup> - 1"-16" parts are available in Green Thread HP ONLY

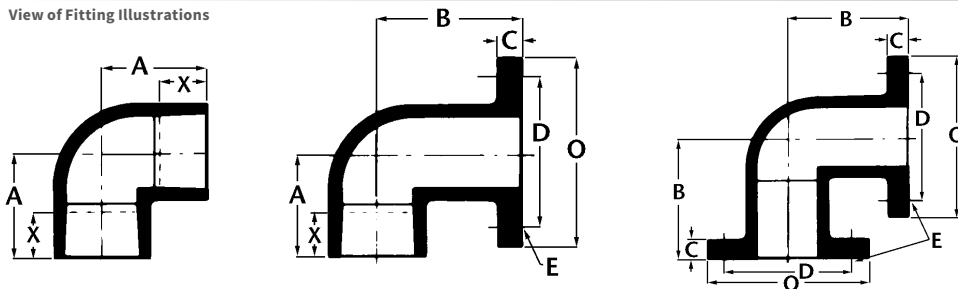
Pipe Size	A		B		C		D		Bolt Hole Size		# of Bolts	O <sup>(3)</sup>		X <sup>(2)</sup> GT Pipe		X <sup>(2)</sup> RT Pipe		Weight BxB		Weight BxF		Weight FxF		Steady Pressure		
	in	mm	in	mm	in	mm	in	mm	in	mm		in	mm	in	mm	in	mm	lb	kg	lb	kg	lb	kg	psig	bar	
1	25	2 3/4	70	3 1/2	89	3/4	19	3 1/8	79	5/8	16	4	4 1/4	108	1	25	-	-	0.4	0.2	1.0	0.5	1.7	0.8	435	30
1 1/2	40	3 3/8	86	4	102	3/4	19	3 3/8	98	5/8	16	4	5	127	1 1/8	29	-	-	0.6	0.3	1.5	0.7	2.4	1.1	435	30
2	50	3 3/8	86	4 1/2	114	3/4	19	4 3/4	121	3/4	19	4	6	152	1 5/8	41	1 5/8	41	1.2	0.5	2.5	1.1	3.6	1.6	435	30
3	80	4 5/8	117	5 1/2	140	1 3/8	35	6	152	3/4	19	4	7 1/2	190	1 7/8	48	1 3/4	44	2.3	1.0	4.6	2.1	10	4.5	435	30
4	100	5 1/8	130	6 1/2	165	1 3/8	35	7 1/2	190	3/4	19	8	9	229	2	51	1 5/8	41	3.3	1.5	6.4	2.9	15.9	7.2	232	16
6	150	6 1/8	156	8	203	1 1/2	38	9 1/2	241	7/8	22	8	11	279	2 1/4	57	2 1/4	57	7.2	3.3	11.8	5.4	15.9	7.2	232	16
8	200	11 5/8	295	9	229	1 3/4	44	11 3/4	298	7/8	22	8	13 1/2	343	3	76	3 3/8	86	10.9	4.9	15.4	7.0	19.9	9.0	232	16
10	250	13	330	11	279	2	51	14 1/4	362	1	25	12	16	406	3 1/4	83	3 1/2	89	14.9	6.8	23.8	10.8	32.8	14.9	232	16
12	300	14	356	12	305	2 1/4	57	17	432	1	25	12	19	483	3 3/8	86	3 7/8	98	22.6	10.3	38.3	17.4	54.0	24.5	232	16
14	350	19	483	14	356	2 1/2	64	18 3/4	476	1 1/8	29	12	20 3/4	527	5 3/8	137	5 1/2	140	26.5	12.0	45.0	20.4	65.0	29.5	232	16
16	400	20 3/4	514	15	381	2 1/2	64	21 1/4	540	1 1/8	29	16	23 1/4	591	5 1/2	140	5 1/2	140	45.0	20.4	65.0	29.5	108	49.0	232	16

<sup>(1)</sup> "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.

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

<sup>(3)</sup> 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.

## View of Fitting Illustrations



## 90° Elbow

**45° Elbow<sup>(1)</sup>** - 1"-16" parts are available in Green Thread HP ONLY

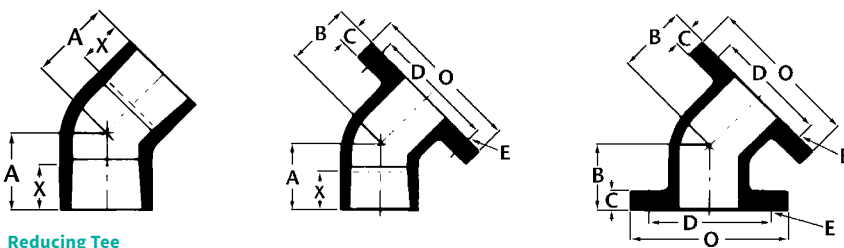
Pipe Size		A		B		C		D		Bolt Hole Size		# of Bolts	O <sup>(3)</sup>		X <sup>(2)</sup> GT Pipe		X <sup>(2)</sup> RT Pipe		Weight BxB		Weight BxF		Weight FxF		Steady Pressure	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm		in	mm	in	mm	in	mm	lb	kg	lb	kg	lb	kg	psig	bar
1	25	2 <sup>3</sup> / <sub>8</sub>	60	2	51	3/4	19	3 <sup>1</sup> / <sub>8</sub>	79	5/8	16	4	4 <sup>1</sup> / <sub>4</sub>	108	1	25	-	-	0.3	0.14	0.8	0.36	1.4	0.64	435	30
1 <sup>1</sup> / <sub>2</sub>	40	2 <sup>7</sup> / <sub>8</sub>	73	2 <sup>1</sup> / <sub>4</sub>	57	3/4	19	3 <sup>1</sup> / <sub>8</sub>	98	5/8	16	4	5	127	1 <sup>1</sup> / <sub>8</sub>	29	-	-	0.4	0.18	1.2	0.54	2.0	0.91	435	30
2	50	2 <sup>5</sup> / <sub>8</sub>	67	2 <sup>1</sup> / <sub>2</sub>	64	3/4	19	4 <sup>3</sup> / <sub>4</sub>	121	3/4	19	4	6	152	1 <sup>5</sup> / <sub>8</sub>	41	1 <sup>5</sup> / <sub>8</sub>	41	0.9	0.41	1.9	0.86	2.8	1.27	435	30
3	80	3 <sup>3</sup> / <sub>4</sub>	95	3	76	1 <sup>3</sup> / <sub>8</sub>	35	6	152	3/4	19	4	7 <sup>1</sup> / <sub>2</sub>	190	1 <sup>7</sup> / <sub>8</sub>	48	1 <sup>3</sup> / <sub>4</sub>	44	1.6	0.73	3.5	1.59	7.9	3.58	435	30
4	100	3 <sup>7</sup> / <sub>8</sub>	98	4	102	1 <sup>3</sup> / <sub>8</sub>	35	7 <sup>1</sup> / <sub>2</sub>	190	3/4	19	8	9	229	2	51	1 <sup>5</sup> / <sub>8</sub>	41	2.4	1.09	5.1	2.31	13.1	5.94	232	16
6	150	4 <sup>3</sup> / <sub>8</sub>	111	5	127	1 <sup>1</sup> / <sub>2</sub>	38	9 <sup>1</sup> / <sub>2</sub>	241	7/8	22	8	11	279	2 <sup>1</sup> / <sub>4</sub>	57	2 <sup>1</sup> / <sub>4</sub>	57	4.8	2.18	8.4	3.81	12.5	5.67	232	16
8	200	8 <sup>1</sup> / <sub>8</sub>	206	5 <sup>1</sup> / <sub>2</sub>	140	1 <sup>3</sup> / <sub>4</sub>	44	11 <sup>3</sup> / <sub>4</sub>	298	7/8	22	8	13 <sup>1</sup> / <sub>2</sub>	343	3	76	3 <sup>3</sup> / <sub>8</sub>	86	6.9	3.11	11.9	5.4	16.8	7.62	232	16
10	250	8 <sup>5</sup> / <sub>8</sub>	219	6 <sup>1</sup> / <sub>2</sub>	165	2	51	14 <sup>1</sup> / <sub>4</sub>	362	1	25	12	16	406	3 <sup>1</sup> / <sub>4</sub>	83	3 <sup>1</sup> / <sub>2</sub>	89	8.9	4.04	18.5	8.39	28.2	12.79	232	16
12	300	9 <sup>1</sup> / <sub>2</sub>	241	7 <sup>1</sup> / <sub>2</sub>	190	2 <sup>1</sup> / <sub>4</sub>	57	17	432	1	25	12	19	483	3 <sup>3</sup> / <sub>8</sub>	86	3 <sup>7</sup> / <sub>8</sub>	98	14.0	6.35	32.6	14.8	47.2	21.41	232	16
14	350	12 <sup>1</sup> / <sub>2</sub>	318	7 <sup>1</sup> / <sub>2</sub>	191	2 <sup>1</sup> / <sub>2</sub>	64	18 <sup>3</sup> / <sub>4</sub>	476	1 <sup>1</sup> / <sub>8</sub>	29	12	20 <sup>3</sup> / <sub>4</sub>	527	5 <sup>5</sup> / <sub>8</sub>	137	5 <sup>1</sup> / <sub>2</sub>	140	17.0	7.71	46.0	20.9	73.0	33.11	232	16
16	400	13 <sup>1</sup> / <sub>4</sub>	337	8	203	2 <sup>1</sup> / <sub>2</sub>	64	21 <sup>1</sup> / <sub>4</sub>	540	1 <sup>1</sup> / <sub>8</sub>	29	16	23 <sup>1</sup> / <sub>4</sub>	591	5 <sup>1</sup> / <sub>2</sub>	140	5 <sup>1</sup> / <sub>2</sub>	140	25.0	11.3	56.0	25.4	84.0	38.1	232	16

<sup>(1)</sup> "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.

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

<sup>(3)</sup> 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.

View of Fitting Illustrations



Reducing Tee

**Tee<sup>(1)</sup>** - 1"-16" parts are available in Green Thread HP ONLY

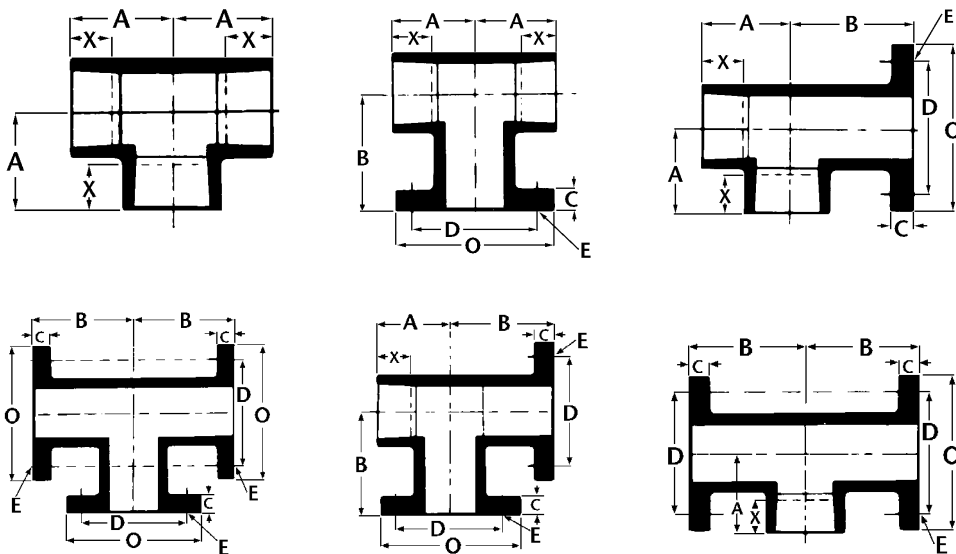
Pipe Size	A		B		C		D		Bolt Hole Size		# of Bolts	O <sup>(3)</sup>	X <sup>(2)</sup> GT Pipe		X <sup>(2)</sup> RT Pipe		Weight 3B		Weight 1F		Weight 2F		Weight 3F		Steady Pressure			
	in	mm	in	mm	in	mm	in	mm	in	mm			in	mm	in	mm	in	mm	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
1	25	2 3/8	70	3 1/2	89	3/4	19	3 1/8	79	5/8	16	4	4 1/4	108	1	25	-	-	0.5	0.2	1.1	0.5	1.8	0.8	2.5	1.1	435	30
1 1/2	40	3 3/8	86	4	102	3/4	19	3 7/8	98	5/8	16	4	5	127	1 1/8	29	-	-	0.9	0.4	1.9	0.9	2.8	1.3	3.6	1.6	435	30
2	50	3 3/8	86	4 1/2	114	3/4	19	4 3/4	121	3/4	19	4	6	152	1 3/8	41	1 5/8	41	1.9	0.9	3.1	1.4	4.8	2.2	5.5	2.5	435	30
3	80	4 5/8	117	5 1/2	127	1 3/8	35	6	152	3/4	19	4	7 1/2	190	1 7/8	48	1 3/4	44	3.6	1.6	5.8	2.6	8.0	3.6	14.5	6.6	435	30
4	100	5 5/8	130	6 1/2	165	1 3/8	35	7 1/2	190	3/4	19	8	9	229	2	51	1 5/8	41	4.9	2.2	8.0	3.6	11.3	5.1	22.7	10.3	232	16
6	150	6 5/8	156	8	203	1 1/2	38	9 1/2	241	7/8	22	8	11	279	2 1/4	57	2 1/4	57	10.1	4.6	14.3	6.5	19.0	8.6	22.3	10.1	232	16
8	200	11 5/8	295	9	229	1 3/4	44	11 3/4	298	7/8	22	8	13 1/2	343	3	76	3 3/8	86	16.1	7.3	20.4	9.3	24.6	11.2	28.9	13.1	232	16
10	250	13	330	11	279	2	51	14 1/4	362	1	25	12	16	406	3 1/4	83	3 1/2	89	26.2	11.9	34.1	15.5	42.0	19.1	49.8	22.6	232	16
12	300	14	356	12	305	2 1/4	57	17	432	1	25	12	19	483	3 3/8	86	3 7/8	98	31.8	14.4	47.1	21.4	62.5	28.3	77.8	35.3	232	16
14	350	19	483	14	356	2 1/2	64	18 3/4	476	1 1/8	29	12	20 3/4	527	5 3/8	137	5 1/2	140	52.0	23.6	75.5	34.2	99.5	45.1	127	57.6	232	16
16	400	20 1/4	514	15	381	2 1/2	64	21 1/4	540	1 1/8	29	16	23 1/4	591	5 1/2	140	5 1/2	140	68.0	30.8	107	48.5	135	61.2	170	77.1	232	16

<sup>(1)</sup> "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.

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

<sup>(3)</sup> 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 are in Manual INS6000.

View of Fitting Illustrations



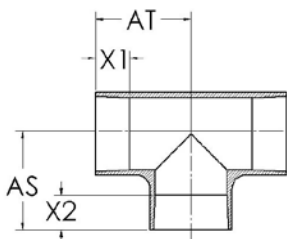
Tees

**Reducing Tee<sup>(1)</sup>** - 1"-16" parts are available in Green Thread HP ONLY

Pipe Size		AT		X <sub>1</sub> GT Pipe <sup>(1)</sup>		X <sub>1</sub> RT Pipe <sup>(1)</sup>		AS		X <sub>2</sub> GT Pipe <sup>(1)</sup>		X <sub>2</sub> RT Pipe <sup>(1)</sup>		Weight		Steady Pressure	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg	psig	bar
8 x 6	200 x 150	11 5/8	295	3	76	3 3/8	86	10 1/4	260	2 7/8	73	2 7/8	73	23	10.4	232	16
8 x 4	200 x 100	11 5/8	295	3	76	3 3/8	86	10 1/4	260	4 3/8	111	4	102	21	9.5	232	16
8 x 3	200 x 80	11 5/8	295	3	76	3 3/8	86	9 7/8	251	3	76	2 7/8	73	20	9.1	232	16
8 x 2	200 x 50	11 5/8	295	3	76	3 3/8	86	9 13/16	249	1 1/2	38	1 1/2	38	19	8.6	232	16
10 x 8	250 x 200	13 1/16	332	3 1/4	83	3 1/2	89	13 5/8	346	3	76	3 3/8	86	39	17.7	232	16
10 x 6	250 x 150	13 1/16	332	3 1/4	83	3 1/2	89	11 3/4	298	2 7/8	73	2 7/8	73	36	16.3	232	16
10 x 4	250 x 100	13 1/16	332	3 1/4	83	3 1/2	89	11 3/4	298	4 3/8	111	4	102	33	14.9	232	16
10 x 3	250 x 80	13 1/16	332	3 1/4	83	3 1/2	89	11 3/8	289	3	76	2 7/8	73	32	14.5	232	16
12 x 10	300 x 250	13 15/16	354	3 3/8	86	3 7/8	98	15 1/16	383	3 1/4	83	3 1/2	89	51	23.1	232	16
12 x 8	300 x 200	13 15/16	354	3 3/8	86	3 7/8	98	15 1/8	383	3	76	3 3/8	86	48	21.8	232	16
12 x 6	300 x 150	13 15/16	354	3 3/8	86	3 7/8	98	13 1/4	337	2 7/8	73	2 7/8	73	45	20.4	232	16
12 x 4	300 x 100	13 15/16	354	3 3/8	86	3 7/8	98	13 1/4	337	4 3/8	111	4	101	42	19.1	232	16
14 x 12	350 x 300	19 1/16	484	5 3/8	137	5 1/2	140	15 15/16	405	3 3/8	86	3 7/8	98	67	30.4	232	16
14 x 10	350 x 250	19 1/16	484	5 3/8	137	5 1/2	140	15 9/16	395	3 1/4	83	3 1/2	89	64	29.0	232	16
14 x 8	350 x 200	19 1/16	484	5 3/8	137	5 1/2	140	15 5/8	390	3	76	3 3/8	86	60	27.2	232	16
14 x 6	350 x 150	19 1/16	484	5 3/8	137	5 1/2	140	13 3/4	349	2 7/8	73	2 7/8	73	57	25.9	232	16
16 x 14	400 x 350	20 1/4	514	5 1/2	140	5 1/2	140	19 1/2	495	5 3/8	137	5 1/2	140	103	46.7	232	16
16 x 12	400 x 300	20 1/4	514	5 1/2	140	5 1/2	140	16 15/16	430	3 3/8	86	3 7/8	98	99	44.9	232	16
16 x 10	400 x 250	20 1/4	514	5 1/2	140	5 1/2	140	16 5/8	422	3 1/4	83	3 1/2	89	94	42.6	232	16
16 x 8	400 x 200	20 1/4	514	5 1/2	140	5 1/2	140	16 5/8	422	3	76	3 3/8	86	90	40.8	232	16

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

View of Fitting Illustrations



Reducing Tee

## Flanges

Pipe Size in	B in	C in	CC in	D in	E Bolt Hole Size - # in-no.	O in	X <sup>(1)</sup> GT Pipe		X <sup>(1)</sup> RT Pipe		Bolt Torque <sup>(2)</sup> ft-lbs		Weight Flange		Wt. Blind Flange lbs	Steady Pressure Rating (psi)		
							M	FW	M	FW	min	max	M	FW		M	FW	Blind <sup>(3)</sup>
1	1 3/4	3/4	3/4	3 1/8	5/8 - 4	4 1/4	1	1	-	-	20	25	0.6	0.6	0.8	435	435	300
1 1/2	1 3/4	3/4	3/4	3 7/8	5/8 - 4	5	1	1 1/8	-	-	20	25	0.9	0.9	0.9	435	435	300
2	2 1/4	3/4	3/4	4 3/4	3/4 - 4	6	1 5/8	1 5/8	1 5/8	1 5/8	25	30	1.3	1.3	1.3	435	435 <sup>(4)</sup>	300
3	2 5/8	1 3/8	1	6	3/4 - 4	7 1/2	1 7/8	1 7/8	1 3/4	1 3/4	25	30	2.6	3.4	3	435	300 <sup>(4)</sup>	300
4	2 5/8	1 3/8	1	7 1/2	3/4 - 8	9	2	2 3/8	1 5/8	1 5/8	25	30	3.6	4.9	4	232	232 <sup>(4)</sup>	150
6	3	1 1/2	1 1/8	9 1/2	7/8 - 8	11	2 1/2	2 1/4	2 1/4	2 1/4	25	30	4.4	6.5	6.6	232	232 <sup>(4)</sup>	150
8	4	1 3/4	1 1/8	11 3/4	7/8 - 8	13 1/2	2 3/8	2 1/8	2 7/8	2 5/8	80	100	9.3	11	10.6	232	232	135
10	4 3/4	2	1 1/4	14 1/4	1 - 12	16	3 7/8	3 1/8	4 1/8	3 3/8	80	100	16	15.8	16.3	232	232	95
12	5	2 1/4	1 1/4	17	1 - 12	19	3 7/8	2 7/8	4	3 1/8	80	100	24	25.8	24	232	232	65
14	3 1/8	2 1/2	1 7/8	18 3/4	1 1/8 - 12	20 3/4	-	3	-	3	80	100	-	30.7	44.8	-	232	150
16	3 1/8	2 1/2	2 1/4	21 1/4	1 1/8 - 16	23 1/4	-	3	-	3	80	100	-	37	67.3	-	232	150

Pipe Size mm	B mm	C mm	CC mm	D mm	E Bolt Hole Size - # mm	O mm	X <sup>(1)</sup> GT Pipe		X <sup>(1)</sup> RT Pipe		Bolt Torque <sup>(2)</sup> N-m		Weight Flange		Wt. Blind Flange kg	Steady Pressure Rating (psi)		
							M	FW	M	FW	min	max	M	FW		M	FW	Blind <sup>(3)</sup>
25	44	19	19	79	16 D - 4	108	25	25	-	-	27	34	0.27	0.27	0.36	30	30	20.7
40	44	19	19	98	16 D - 4	127	25	29	-	-	27	34	0.41	0.41	0.41	30	30	20.7
50	57	19	19	121	19 D - 4	152	41	41	41	41	34	41	0.59	0.59	0.59	30	30 <sup>(4)</sup>	20.7
80	67	35	25	152	19 D - 4	191	48	48	44	44	34	41	1.18	1.54	1.36	30	21 <sup>(4)</sup>	20.7
100	67	35	25	191	19 D - 8	229	51	60	41	41	34	41	1.63	2.22	1.81	16	16 <sup>(4)</sup>	10.3
150	76	38	29	241	22 D - 8	279	64	57	57	57	34	41	2.00	2.95	2.99	16	16 <sup>(4)</sup>	10.3
200	102	44	29	298	22 D - 8	343	60	54	73	67	41	135	4.22	4.99	4.81	16	16	9.3
250	121	51	32	362	25 D - 12	406	98	79	105	86	108	135	7.26	7.17	7.39	16	16	6.5
300	127	57	32	432	25 D - 12	483	98	73	102	79	108	135	10.89	11.7	10.89	16	16	4.5
350	79	64	48	476	28 D - 12	527	-	76	-	76	108	135	-	13.93	20.32	-	16	10.3
400	79	64	57	540	28 D - 16	594	-	76	-	76	108	135	-	16.78	30.53	-	16	10.3

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

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

<sup>(3)</sup> Steel back-up plates must be used to achieve pressure ratings equivalent to the pipe.

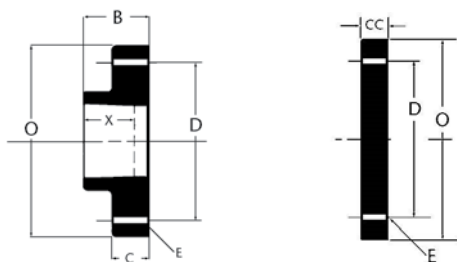
<sup>(4)</sup> Heavy duty ANSI 16.5 Class 150 and 300 flanges rated to 450 psig (3.10 MPa) are available. Dimensions are shown in the "Heavy Duty Flange Dimensions" table. The maximum bolt torque for 2"-6" is 100 ft. lbs.

Heavy Duty Flange Dimensions		
Sizes	B	C
in	in	in
2	3	2 3/4
3	3 1/4	3
4	4 3/4	3 1/2
6	4 1/4	4

All flanges meet ANSI B16.5 Class 150 Bolt Hole Standards. The following flanges are available as standard parts:

Flanges:	1"-12" Green Thread HP 2"-6" Red Thread HP 14"-16" Red Thread or Green Thread HP	Compression Molded (M) or Filament Wound (FW) Filament Wound (FW) Filament Wound (FW)
Blind Flanges:	1"-12" Green Thread HP 14"-16" Red Thread or Green Thread HP	Compression Molded (M) Contact Molded (M)

### View of Fitting Illustrations



Flange

**Orifice Flanges** - 2"-8" parts are available in Green Thread HP ONLY (Note: the 2" orifice flange has only one orifice)

Pipe Size	B		C		D		E Bolt Hole Size - # of Holes		H (NPT)		J		O		X <sup>(2)</sup> GT Pipe		X <sup>(2)</sup> RT Pipe		Flange Bolt Torque <sup>(2)</sup> ft-lbs (N-M <sup>(2)</sup> )				Weight		Steady Pressure Rating (psi)		
	in	mm	in	mm	in	mm	in	mm	in-no.	mm-no.	in	mm	in	mm	in	mm	in	mm	to seal	max	to seal	max	lbs	kg	M	FW	
2	50	4 1/4	108	2	51	4 3/4	121	3/4 - 4	19 - 4	1/2	12.7	1	25	6	152	1 1/8	41	1 1/8	41	25	34	30	41	3.6	1.6	435	30
3	80	5	127	2	51	6	152	3/4 - 4	19 - 4	1/2	12.7	1	25	7 1/2	191	1 1/8	48	1 1/8	35	25	34	30	41	5.3	2.4	435	30
4	100	5	127	2	51	7 1/2	191	3/4 - 8	19 - 8	1/2	12.7	1	25	9	229	1 1/8	41	2	51	25	34	30	41	6.6	3.0	232	16
6	150	6	152	2	51	9 1/2	241	7/8 - 8	22 - 8	1/2	12.7	1	25	11	279	2 1/4	57	2 1/4	57	25	34	30	41	8.8	4.0	232	16
8	200	8 3/4	222	2	51	11 3/4	298	7/8 - 8	22 - 8	1/2	12.7	1	25	13 1/2	343	3 1/8	79	3 1/2	89	30	41	100	135	14.5	6.6	232	16

<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 INS1000 & ENG1000. Gasket thickness and hardness recommendations are in Manual INS1000.

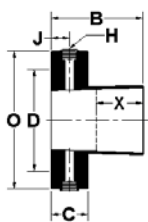
**Stub Ends**

Nominal Pipe Size		Pressure Rating		Bolt Torque		A		B		D		X		Weight	
in	mm	psi	bar	ft-lb	kg-mm	in	mm	in	mm	in	mm	in	mm	lbs	kg
2	50	250	17	66	98	2.75	70	0.27	7	3.91	99	2.13	54	0.5	0.22
3	80	200	14	66	98	2.88	73	0.28	7	5.16	131	2.26	57	0.7	0.31
4	100	150	10	66	98	2.88	73	0.28	7	6.66	169	2.1	53	1.0	0.45
6	150	150	10	111	165	3.88	99	0.39	10	8.53	217	3.69	94	2.4	1.08

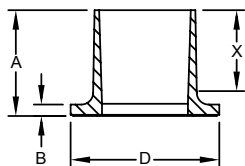
**Flange Rings** - ANSI B16.5 Class 150

Nominal Pipe Size		A		B		E		Bolt Hole Size		# of Holes	Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	#	lbs	kg
2	50	2.78	71	0.82	21	6.0	152	3/4	19	4	1.1	0.50
3	70	3.90	99	1.10	28	7.5	191	3/4	19	4	2.1	0.95
4	100	4.90	124	1.10	28	9.0	229	3/4	19	8	2.9	1.32
6	150	7.26	184	1.25	32	11.0	279	7/8	22	8	3.8	1.73

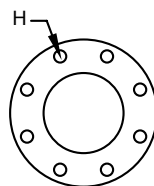
View of Fitting Illustrations



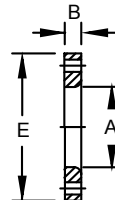
Orifice Flange



Stub End



Flange Rings



### Nipples - ANSI B16.5 Class 150

Size		Close		4"		6"		8"		10"		12"		16"		24"		36"	
in	mm	GT	RT	GT	RT	GT	RT	GT	RT	GT	RT	GT	RT	GT	RT	GT	RT	GT	RT
1	25	2 1/2	-	-	-	X	-	X	-	-	-	-	-	-	-	-	-	-	-
1 1/2	40	3 3/8	-	-	-	X	-	X	-	-	-	-	-	-	-	-	-	-	-
2	50	4 1/2	X	-	X <sup>(3)</sup>	X	X	X	X	-	X	-	X	-	-	-	-	-	-
3	80	5 1/8	5 1/8	-	-	X	X <sup>(4)</sup>	X	X	-	X	-	X	-	-	-	-	-	-
4	100	5 3/8	5 3/8	-	-	X	X	X	X	-	X	-	X	-	-	-	-	-	-
6	150	6 1/8	6 1/8	-	-	X <sup>(4)</sup>	X <sup>(5)</sup>	X	X	-	X	X	X	-	-	-	-	-	-
8	200	8 5/8	9 3/8	-	-	-	-	-	-	-	-	X	X	X	X	-	X	-	-
10	250	9 3/8	9 3/8	-	-	-	-	-	-	-	-	X	X	X	X	-	X	-	X
12	300	9 3/8	10 1/4	-	-	-	-	-	-	-	-	X	X	X	X	-	X	-	X
14	350	-	X	-	-	-	-	-	-	-	-	-	-	X	X	-	X	-	X
16	400	-	-	-	-	-	-	-	-	-	-	-	-	X	X	-	X	-	X

GT - Green Thread, RT - Red Thread, X - Standard available size  
<sup>(3)</sup> Actual length 4 1/4"  
<sup>(4)</sup> Actual length 6 1/4"  
<sup>(5)</sup> Actual length 6 1/8"

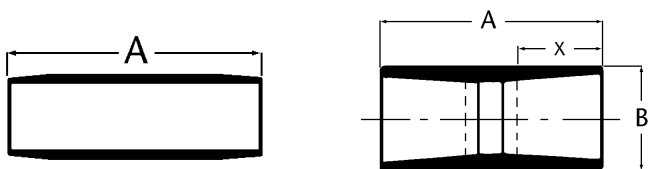
### Sleeve Couplings - Green Thread HP

Pipe Size		A		B		X <sup>(1)</sup>		Weight		Steady Pressure	
in	mm	in	mm	in	mm	in	mm	lbs	kg	psig	bar
1	25	2 3/4	70	1 1/2	38	1	25	0.1	0.05	435	30
1 1/2	40	3 1/4	83	2	52	1 1/8	29	0.1	0.05	435	30
2	50	4 7/8	124	2 5/8	67	1 5/8	41	0.4	0.18	435	30
3	80	5	127	3 3/4	95	2	51	0.8	0.36	435	30
4	100	5	127	4 3/4	121	2	51	0.9	0.41	232	16
6	150	7	178	6 7/8	175	2 1/4	57	1.9	0.86	232	16
8	200	10	254	9	229	3 1/8	79	3.4	1.54	232	16
10	250	10 1/2	268	11	279	3 1/8	79	5.2	2.36	232	16
12	300	11	279	13 1/8	333	3 1/4	83	7.5	3.40	232	16
14	350	12 1/2	318	15	381	3 7/8	98	11.2	5.08	232	16
16	400	13	330	17 1/8	435	4 1/8	105	16.0	7.26	232	16

### Sleeve Couplings - Red Thread HP

Pipe Size		A		B		X <sup>(1)</sup>		Weight		Steady Pressure	
in	mm	in	mm	in	mm	in	mm	lbs	kg	psig	bar
1	25	-	-	-	-	-	-	-	-	-	-
1 1/2	40	-	-	-	-	-	-	-	-	-	-
2	50	6	152	2 5/8	67	1 5/8	41	0.40	0.18	435	30
3	80	6	152	3 3/4	95	1 7/8	48	0.80	0.36	435	30
4	100	7	178	4 7/8	124	2	51	1.40	0.64	435	30
6	150	8 3/8	213	7 1/8	181	2 3/4	70	2.80	1.27	435	30
8	200	10	254	9	229	2 7/8	73	3.30	1.50	232	16
10	250	10 1/2	268	11 1/8	283	3 3/8	86	4.70	2.13	232	16
12	300	11	279	13 1/8	333	3 1/2	89	6.80	3.08	232	16
14	350	12 1/2	318	15	381	4	102	11.2	5.08	232	16
16	400	13	330	17 1/8	435	4 1/8	105	16.0	7.26	232	16

View of Fitting Illustrations



Nipple

Sleeve Coupling

**Adapter (Bell x Male)** - 1" and 1 1/2" parts are available in Green Thread ONLY; 2"-8" parts are available in Green Thread or Red Thread HP

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

**Adapter (Spigot x Male)** - 1" and 1 1/2" parts are available in Green Thread ONLY; 2"-8" parts are available in Green Thread or Red Thread HP

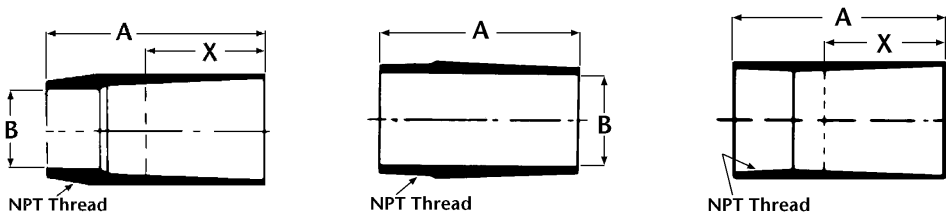
Pipe Size		A		B		X <sup>(1)</sup> GT Pipe		X <sup>(1)</sup> RT Pipe		Weight GT		Weight RT		Steady Pressure Rating	
in	mm	in	mm	in	mm	in	mm	in	mm	lbs	kg	lbs	kg	psig	bar
1	25	2 5/8	67	1	25	-	-	-	-	0.1	0.05	-	-	435	30
1 1/2	40	2 3/4	70	1 1/4	38	-	-	-	-	0.3	0.14	-	-	435	30
2	50	3 5/8	92	2	51	-	-	-	-	0.4	0.18	0.3	0.1	435	30
3	80	4 5/8	117	3	76	-	-	-	-	0.9	0.41	0.6	0.2	300	20.7
4	100	4 7/8	124	4	102	-	-	-	-	1.1	0.5	1	0.4	232	16
6	150	6 7/8	175	6	152	-	-	-	-	2.6	1.18	2	0.9	232	16
8	200	8	203	8	203	-	-	-	-	5.6	2.54	4.9	2.2	232	16

**Adapter (Bell x Female)** - 1" and 1 1/2" parts are available in Green Thread ONLY; 2"-8" parts are available in Green Thread or Red Thread HP

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

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

View of Fitting Illustrations



Adapter (Bell x Male)

Adapter (Spigot x Male)

Adapter (Male x Female)



**Adapter (Spigot x Female)** - 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

Pipe Size		A		B		X <sup>(1)</sup> GT Pipe		X <sup>(1)</sup> RT Pipe		Weight GT		Weight RT		Steady Pressure Rating	
in	mm	in	mm	in	mm	in	mm	in	mm	lbs	kg	lbs	kg	psig	bar
1	25	3 5/8	92	1	25	-	-	-	-	0.2	0.09	-	-	435	30
1 ½	40	4	102	1 ½	38	-	-	-	-	0.3	0.14	-	-	435	30
2	50	3 7/8	98	2	51	-	-	-	-	0.4	0.18	0.3	0.14	435	30
3	80	4 3/4	121	3 1/8	76	-	-	-	-	0.8	0.36	0.5	0.23	290	20.7
4	100	4 7/8	124	4 1/8	102	-	-	-	-	1.0	0.45	0.6	0.27	232	16
6	150	6 3/4	171	6	152	-	-	-	-	3.4	1.54	2.6	1.18	232	16
8	200	10	254	8	203	-	-	-	-	8.0	3.63	7.1	3.22	150	10

**Adapter (Bell x Grooved<sup>(2)</sup>)** - 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

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

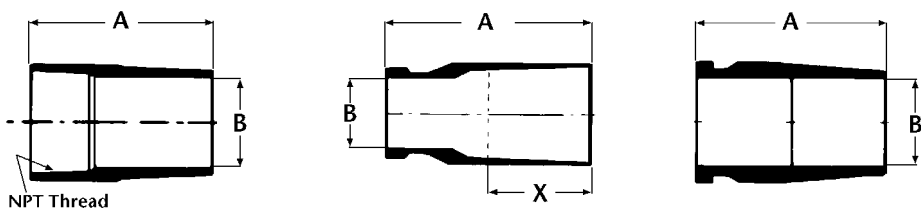
**Adapter (Spigot x Grooved<sup>(2)</sup>)** - 1" and 1½" parts are available in Green Thread ONLY; 2"-8" parts are available in Green Thread or Red Thread HP; 10" and 12" are available in Red Thread HP

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

<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> Compatible with Victaulic® HP70ES couplings.

View of Fitting Illustrations



Adapter - Spigot x Female

Adapter - Bell x Grooved

Adapter - Spigot x Grooved

## Concentric Reducer (Bell x Bell) - 1"-16 parts are available in Green Thread ONLY

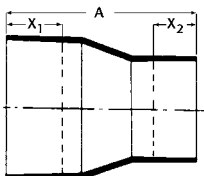
Pipe Size		A		X <sup>(1)</sup> GT Pipe		X <sup>(1)</sup> GT Pipe		X <sup>(1)</sup> RT Pipe		X <sup>(1)</sup> RT Pipe		Weight		Steady Pressure Rating	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lbs	kg	psig	bar
2 x 1	50 x 25	5 ½	140	1 ⅝	41	1	25	1 ⅝	41	NA	NA	0.6	0.27	435	30
2 x 1 ½	50 x 40	5	127	1 ⅝	41	1 ⅛	29	1 ⅝	41	NA	NA	0.6	0.27	435	30
3 x 1	80 x 25	6 ¼	159	1 ⅞	48	1	25	1 ⅞	48	NA	NA	1.0	0.45	435	30
3 x 1 ½	80 x 40	6 ¼	159	1 ⅞	48	1 ⅛	29	1 ¾	44	NA	NA	1.1	0.5	435	30
3 x 2	80 x 50	6	152	1 ⅞	48	1 ⅛	29	1 ⅞	48	1 ⅝	41	1.1	0.5	435	30
4 x 1 ½	100 x 40	7 ¾	187	2	51	1 ⅛	29	1 ⅝	41	NA	NA	1.8	0.82	232	16
4 x 2	100 x 50	8 ¼	210	2	51	1 ⅝	41	1 ⅝	41	1 ⅝	41	2.0	0.91	232	16
4 x 3	100 x 80	7	178	2	51	1 ⅞	48	1 ⅝	41	1 ⅞	48	1.7	0.77	232	16
6 x 3	150 x 80	10 ⅞	276	2 ⅞	73	1 ⅞	48	2 ⅞	73	1 ⅞	48	4.3	1.95	232	16
6 x 4	150 x 100	9	229	2 ¼	57	2	51	2 ¼	57	1 ⅝	41	3.4	1.54	232	16
8 x 4	200 x 100	14	356	3	76	2	51	3 ⅜	86	1 ⅝	41	6.7	3.04	232	16
8 x 6	200 x 150	15 ¼	387	3	76	2 ⅞	73	3 ⅜	86	2 ⅞	73	7.3	3.31	232	16
10 x 6	250 x 150	15 ¼	387	3 ¼	83	2 ⅞	73	3 ½	89	2 ⅝	67	10.5	4.76	232	16
10 x 8	250 x 200	16 ½	419	3 ¼	83	3	76	3 ½	89	3 ⅜	86	11.1	5.03	232	16
12 x 6	300 x 150	17 ⅞	435	3 ⅜	86	2 ⅞	73	3 ⅞	98	2 ⅞	73	18.0	8.16	232	16
12 x 8	300 x 200	18 ⅜	467	3 ⅜	86	3	76	3 ⅞	98	3 ⅜	86	17.0	7.71	232	16
12 x 10	300 x 250	17 ¾	451	3 ⅜	86	3 ¼	83	3 ⅞	98	3 ½	89	16.4	7.44	232	16
14 x 8	350 x 200	23 ½	597	5 ⅝	137	3	76	5 ½	140	3 ⅜	86	23.0	10.43	232	16
14 x 10	350 x 250	22 ⅞	581	5 ⅝	137	3 ¼	83	5 ½	140	3 ½	89	21.9	9.93	232	16
14 x 12	350 x 300	22 ¾	578	5 ⅝	137	3 ⅜	86	5 ½	140	3 ⅞	98	21.8	9.89	232	16
16 x 10	400 x 250	25 ⅝	638	5 ½	140	3 ¼	83	5 ½	140	3 ½	89	28.0	12.7	232	16
16 x 12	400 x 300	25	635	5 ½	140	3 ⅜	86	5 ½	140	3 ⅞	98	27.7	12.56	232	16
16 x 14	400 x 350	28	711	5 ½	140	5 ⅜	137	5 ½	140	5 ⅜	137	31.1	14.11	232	16

**NOTE:** MULTI-STEP 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> 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.

### View of Fitting Illustrations

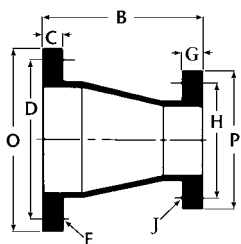


### Concentric Reducer - Bell x Bell

**Concentric Reducer (Flanged<sup>(2)</sup>)** - 1"-16 parts are available in Green Thread ONLY

Pipe Size		B		C		D		E Bolt Hole Size - # of Holes		O		G		H		J Bolt Hole Size - # of Holes		P		Weight		Steady Pressure Rating	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lbs	kg	psig	bar
2x1	50x25	5	127	3/4	19	4 3/4	121	3/4 - 4	19 - 4	6	152	3/4	19	3 7/8	98	5/8 - 4	16 - 4	4 1/4	108	2.6	1.18	300	20.7
2x1 1/2	50x40	5	127	3/4	19	4 3/4	121	3/4 - 4	19 - 4	6	152	3/4	19	3 7/8	98	5/8 - 4	16 - 4	5	127	2.6	1.18	300	20.7
3x1 1/2	80x40	6	152	1 3/8	35	6	152	3/4 - 4	19 - 4	7 1/2	191	3/4	19	4 3/4	121	3/4 - 4	19 - 4	5	127	4.4	2.00	190	13.1
3x2	80x50	6	152	1 3/8	35	6	152	3/4 - 4	19 - 4	7 1/2	191	3/4	19	4 3/4	121	3/4 - 4	19 - 4	6	152	4.4	2.00	190	13.1
4x2	100x50	7	178	1 3/8	35	7 1/2	191	3/4 - 8	19 - 8	9	229	1 3/8	35	6	152	3/4 - 4	19 - 4	6	152	7.1	3.22	150	10.3
4x3	100x80	7	178	1 3/8	35	7 1/2	191	3/4 - 8	19 - 8	9	229	1 3/8	35	6	152	3/4 - 4	19 - 4	7 1/2	191	7.1	3.22	150	10.3
6x3	150x80	9	229	1 1/2	38	9 1/2	241	7/8 - 8	22 - 8	11	279	1 3/8	35	7 1/2	191	3/4 - 8	19 - 8	7 1/2	191	11.0	4.99	150	10.3
6x4	150x100	9	229	1 1/2	38	9 1/2	241	7/8 - 8	22 - 8	11	279	1 3/8	35	7 1/2	191	3/4 - 8	19 - 8	9	229	11.0	4.99	150	10.3
8x4	200x100	11	279	1 3/4	44	11 3/4	298	7/8 - 8	22 - 8	13 1/2	343	1 1/2	38	9 1/2	241	7/8 - 8	22 - 8	9	229	17.6	7.98	232	16.0
8x6	200x150	11	279	1 3/4	44	11 3/4	298	7/8 - 8	22 - 8	13 1/2	343	1 1/2	38	9 1/2	241	7/8 - 8	22 - 8	11	279	17.6	7.98	232	16.0
10x6	250x150	12	305	2	51	14 1/4	362	1 - 12	25 - 12	16	406	1 3/4	44	11 3/4	298	7/8 - 8	22 - 8	11	279	28.2	12.79	232	16.0
10x8	250x200	12	305	2	51	14 1/4	362	1 - 12	25 - 12	16	406	1 3/4	44	11 3/4	298	7/8 - 8	22 - 8	13 1/2	343	28.2	12.79	232	16.0
12x8	300x200	14	356	2 1/4	57	17	432	1 - 12	25 - 12	19	483	2	51	14 1/4	362	1 - 12	25 - 12	13 1/2	343	43.0	19.50	232	16.0
12x10	300x250	14	356	2 1/4	57	17	432	1 - 12	25 - 12	19	483	2	51	14 1/4	362	1 - 12	25 - 12	16	406	43.0	19.50	232	16.0
14x10	350x250	16	406	2 1/2	64	18 3/4	476	1 1/8 - 12	29 - 12	20 3/4	527	2 1/4	57	17	432	1 - 12	25 - 12	16	406	55.0	24.95	232	16.0
14x12	350x300	16	406	2 1/2	64	18 3/4	476	1 1/8 - 12	29 - 12	20 3/4	527	2 1/4	57	17	432	1 - 12	25 - 12	19	483	55.0	24.95	232	16.0
16x12	400x305	18	457	2 1/2	64	21 1/4	540	1 1/8 - 16	29 - 16	23 1/4	591	2 1/2	64	18 3/4	476	1 1/8 - 12	29 - 12	19	483	89.5	40.60	232	16.0
16x14	400x350	18	457	2 1/2	64	21 1/4	540	1 1/8 - 16	29 - 16	23 1/4	591	2 1/2	64	18 3/4	476	1 1/8 - 12	29 - 12	20 3/4	527	89.5	40.60	232	16.0

View of Fitting Illustrations



Concentric Reducer - Flanged

**Eccentric Reducer (Bell x Bell)** - 1"-16 parts are available in Green Thread ONLY

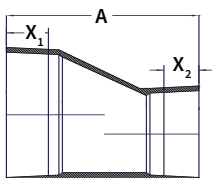
Pipe Size		A		X <sup>(1)</sup> GT Pipe		X <sup>(1)</sup> GT Pipe		X <sup>(1)</sup> RT Pipe		X <sup>(1)</sup> RT Pipe		Weight		Steady Pressure Rating	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lbs	kg	psig	bar
2 x 1	50 x 25	5 1/2	140	1 3/8	41	1	25	1 3/8	41	NA	NA	0.6	0.27	435	30
2 x 1 1/2	50 x 40	5	127	1 3/8	41	1 1/8	29	1 3/8	41	NA	NA	0.6	0.27	435	30
3 x 1	80 x 25	6 1/4	159	1 7/8	48	1	25	1 7/8	48	NA	NA	1.0	0.45	435	30
3 x 1 1/2	80 x 40	6 1/4	159	1 7/8	48	1 1/8	29	1 3/4	44	NA	NA	1.1	0.5	435	30
3 x 2	80 x 50	6	152	1 7/8	48	1 1/8	29	1 7/8	48	1 5/8	41	1.1	0.5	435	30
4 x 1 1/2	100 x 40	7 3/8	187	2	51	1 1/8	29	1 5/8	41	NA	NA	1.8	0.82	232	16
4 x 2	100 x 50	8 1/4	210	2	51	1 5/8	41	1 5/8	41	1 5/8	41	2.0	0.91	232	16
4 x 3	100 x 80	7	178	2	51	1 7/8	48	1 5/8	41	1 7/8	48	1.7	0.77	232	16
6 x 3	150 x 80	10 7/8	276	2 7/8	73	1 7/8	48	2 7/8	73	1 7/8	48	4.3	1.95	232	16
6 x 4	150 x 100	9	229	2 1/4	57	2	51	2 1/4	57	1 5/8	41	3.4	1.54	232	16
8 x 4	200 x 100	14	356	3	76	2	51	3 3/8	86	1 5/8	41	6.7	3.04	232	16
8 x 6	200 x 150	15 1/4	387	3	76	2 7/8	73	3 3/8	86	2 7/8	73	7.3	3.31	232	16
10 x 6	250 x 150	15 1/4	387	3 1/4	83	2 7/8	73	3 1/2	89	2 5/8	67	10.5	4.76	232	16
10 x 8	250 x 200	16 1/2	419	3 1/4	83	3	76	3 1/2	89	3 3/8	86	11.1	5.03	232	16
12 x 6	300 x 150	17 7/8	435	3 3/8	86	2 7/8	73	3 7/8	98	2 7/8	73	18.0	8.16	232	16
12 x 8	300 x 200	18 3/8	467	3 3/8	86	3	76	3 7/8	98	3 3/8	86	17.0	7.71	232	16
12 x 10	300 x 250	17 3/4	451	3 3/8	86	3 1/4	83	3 7/8	98	3 1/2	89	16.4	7.44	232	16
14 x 8	350 x 200	23 1/2	597	5 3/8	137	3	76	5 1/2	140	3 3/8	86	23.0	10.43	232	16
14 x 10	350 x 250	22 7/8	581	5 3/8	137	3 1/4	83	5 1/2	140	3 1/2	89	21.9	9.93	232	16
14 x 12	350 x 300	22 3/4	578	5 3/8	137	3 3/8	86	5 1/2	140	3 7/8	98	21.8	9.89	232	16
16 x 10	400 x 250	25 1/8	638	5 1/2	140	3 1/4	83	5 1/2	140	3 1/2	89	28.0	12.7	232	16
16 x 12	400 x 300	25	635	5 1/2	140	3 3/8	86	5 1/2	140	3 7/8	98	27.7	12.56	232	16
16 x 14	400 x 350	28	711	5 1/2	140	5 3/8	137	5 1/2	140	5 3/8	137	31.1	14.11	232	16

**NOTE:** MULTI-STEP 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> 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.

View of Fitting Illustrations

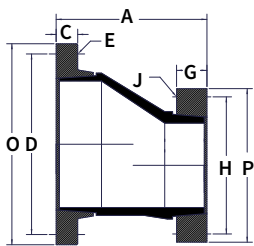


Concentric Reducer - Bell x Bell

**Eccentric Reducer (Flanged<sup>(2)</sup>)** - 1"-16 parts are available in Green Thread ONLY

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

View of Fitting Illustrations



Eccentric Reducer - Flanged

## Reducer Bushing

Pipe Size		A		X <sup>(1)</sup> GT Pipe		X <sup>(1)</sup> RT Pipe		Weight		Steady Pressure Rating	
in	mm	in	mm	in	mm	in	mm	lbs	kg	psig	bar
*	*	1 1/8	29	-	-	-	-	0.1	0.05	435	30
**	**	1 3/8	35	1	25	-	-	0.1	0.05	435	30
2 x 1	50 x 25	2 1/4	57	1	25	-	-	0.4	0.18	435	30
2 x 1 NPT	50 x 25	1 3/4	44	-	-	-	-	0.4	0.18	435	30
2 x 1 1/4 NPT	50 x 30	1 3/4	44	-	-	-	-	0.4	0.18	435	30
2 x 1 1/2	50 x 40	2	51	1 1/8	29	-	-	0.1	0.05	435	30
2 x 1 1/2 NPT	50 x 40	1 3/4	44	-	-	-	-	0.1	0.05	435	30
3 x 2	80 x 50	2 1/4	57	1 5/8	41	1 5/8	41	0.8	0.36	435	30
4 x 3	100 x 80	2 5/8	67	1 7/8	48	1 3/8	35	1.0	0.45	232	16
6 x 4	150 x 100	3 1/8	79	2	51	1 1/2	38	3.9	1.77	232	16
8 x 6	200 x 150	3 1/4	83	3	76	2 3/8	60	6.8	3.08	232	16
10 x 8	250 x 200	4	102	2 5/8	67	3	76	9.9	4.49	232	16
12 x 10	300 x 250	4 1/2	114	3	76	3 1/4	83	11.8	5.35	232	16
14 x 12	350 x 300	5 1/2	140	3 7/8	98	4 1/8	105	20.2	9.16	232	16
16 x 14	400 x 350	6	152	4 1/2	114	4 1/2	114	28.9	13.11	232	16

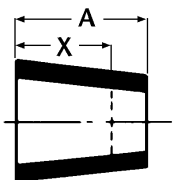
\* 1x 1/4 NPT, 1x 1/2 NPT, 1x 3/4 NPT, 1 1/2x 1/2 NPT, 1 1/2x 3/4 NPT

\*\*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.

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

### View of Fitting Illustrations



### Reducer Bushing

### Lateral (45° Lateral Belled)

Pipe Size		A		F		X <sup>(1)</sup> GT Pipe		X <sup>(1)</sup> RT Pipe		Weight		Steady Pressure Rating	
in	mm	in	mm	in	mm	in	mm	in	mm	lbs	kg	psig	bar
1	25	3 7/8	98	2 1/2	64	1	25	-	-	0.6	0.27	150	10.3
1 1/2	40	5 1/4	133	3 1/4	83	1	25	-	-	1.3	0.59	150	10.3
2	50	7 3/4	197	4 1/4	108	2 1/2	62	2 5/8	67	5.3	2.42	150	10.3
3	80	7 3/4	197	4 1/4	108	2 1/2	62	2 5/8	67	6.2	2.82	150	10.3
4	100	9	229	4 3/8	111	3	76	3 1/4	81	8.5	3.86	150	10.3
6	150	12 1/2	318	5 3/4	146	2 3/4	69	3	74	12.5	5.68	135	9.3
8	200	16 1/4	413	7 3/8	187	3	76	3 3/8	86	36.0	16.36	135	9.3
10	250	19 5/8	498	8 3/4	222	3 1/4	83	3 1/2	89	57.0	25.91	120	8.3
12	300	24 3/4	629	11 3/4	298	3 3/8	86	3 7/8	98	85.0	38.64	90	6.2
14	350	32 1/2	826	15 3/4	400	3 7/8	98	4	102	154.2	69.94	75	5.2
16	400	35 3/4	908	17 3/4	451	4 1/8	105	4 1/8	105	222.6	101.00	75	5.2

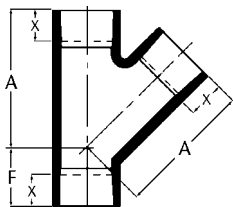
### Lateral (45° Lateral Flanged)<sup>(2)</sup>

Pipe Size		B		C		D		E Bolt Hole Size		# of Holes	F		O		Weight		Steady Pressure Rating	
in	mm	in	mm	in	mm	in	mm	in	mm		in	mm	in	mm	lbs	kg	psig	bar
1	25	6	152	3/4	19	3 1/4	83	5/8	16	4	4 1/2	114	4 1/4	108	2.8	1.27	150	10.3
1 1/2	40	8 1/2	216	3/4	19	3 7/8	98	5/8	16	4	5 1/2	140	5	127	4.4	2.00	150	10.3
2	50	8 7/8	225	3/4	19	4 3/4	121	3/4	19	4	6 3/8	162	6	152	7.8	3.54	150	10.3
3	80	11 3/4	298	1 3/8	35	6	152	3/4	19	4	8	203	7 1/2	191	13.4	6.08	150	10.3
4	100	12 7/8	327	1 3/8	35	7 1/2	191	3/4	19	8	8 1/2	216	9	229	19.2	8.71	150	10.3
6	150	18	457	1 1/2	38	9 1/2	241	7/8	22	8	11	279	11	279	35.0	15.90	135	9.3
8	200	21 3/4	552	1 3/4	44	11 3/4	298	7/8	22	8	13 3/4	349	13 1/2	343	65.3	29.60	135	9.3
10	250	26 5/8	676	2	51	14 1/4	362	1	25	12	16 5/8	422	16	406	112.0	50.80	120	8.3
12	300	32	813	2 1/4	57	17	432	1	25	12	20	508	19	483	172.0	78.00	90	6.2
14	350	36	914	2 1/2	64	18 3/4	476	1 1/8	29	12	22	559	20 3/4	527	209.0	94.60	75	5.2
16	400	40	1,016	2 1/2	64	21 1/4	540	1 1/8	29	16	24	610	23 1/4	594	267.0	121.0	75	5.2

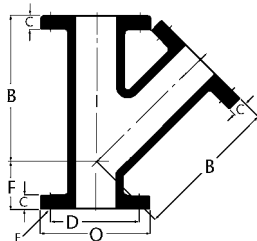
<sup>(1)</sup> Nominal make-up dimension for drawing layout work only using non-threaded spigots. Do not use for assembly dimensions.

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

View of Fitting Illustrations



45° Lateral Belled



45° Lateral Flanged

### Cross (Belled)

Pipe Size		A		X <sup>(1)</sup> GT Pipe		X <sup>(1)</sup> RT Pipe		Weight		Steady Pressure Rating	
in	mm	in	mm	in	mm	in	mm	lbs	kg	psig	bar
1	25	2 3/4	70	1	25	-	-	1.4	0.64	300	20.7
1 1/2	40	3 3/8	86	1 1/8	29	-	-	2.0	0.91	300	20.7
2	50	3 3/8	86	1 5/8	41	1 1/2	38	3.4	1.54	300	20.7
3	80	4 5/8	117	1 7/8	48	1 3/4	44	8.5	3.86	190	13.1
4	100	5 1/8	130	2	51	1 5/8	41	10.7	4.85	150	10.3
6	150	6 1/8	156	2 1/4	57	2 1/4	57	17.3	7.85	150	10.3
8	200	11 5/8	295	3 1/8	79	3 1/2	89	30.8	13.97	150	10.3
10	250	13 1/8	333	3 1/4	83	3 1/2	89	42.7	19.37	150	10.3
12	300	14	356	3 3/8	86	3 7/8	98	73.2	33.2	150	10.3
14	350	16	406	3 7/8	98	4	102	104.0	47.27	150	10.3
16	400	17 1/4	438	4 1/8	105	4 1/8	105	143.0	64.86	150	10.3

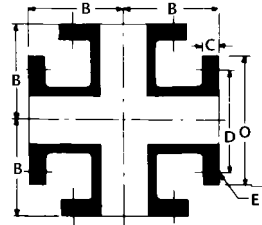
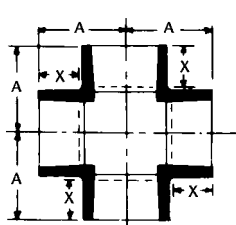
### Cross (Flanged)<sup>(2)</sup>

Pipe Size		B		C		D		E Bolt Hole Size		# of Holes	O		Weight		Steady Pressure Rating	
in	mm	in	mm	in	mm	in	mm	in	mm		in	mm	lbs	kg	psig	bar
1	25	3 1/2	89	3/4	19	3 1/8	79	5/8	16	4	4 1/4	108	3.8	1.7	300	20.7
1 1/2	40	4	102	3/4	19	3 1/8	79	5/8	16	4	5	127	5.4	2.5	300	20.7
2	50	4 1/2	114	3/4	19	4 3/4	121	3/4	19	4	6	152	8.6	3.9	300	20.7
3	80	5 1/2	140	1 3/8	35	6	152	3/4	19	4	7 1/2	191	15.1	6.8	190	13.1
4	100	6 1/2	165	1 3/8	35	7 1/2	191	3/4	19	8	9	229	22.8	10.3	150	10.3
6	150	8	203	1 1/2	38	9 1/2	241	7/8	22	8	11	279	34.9	15.8	150	10.3
8	200	9	229	1 3/4	44	11 3/4	298	7/8	22	8	13 1/2	343	61.2	27.8	150	10.3
10	250	11	279	2	51	14 1/4	362	1	25	12	16	406	83.5	37.9	150	10.3
12	300	12	305	2 1/4	57	17	432	1	25	12	19	483	145.0	65.8	150	10.3
14	350	14	356	2 1/2	64	18 3/4	476	1 1/8	29	12	20 3/4	527	224.0	102.0	150	10.3
16	400	15	381	2 1/2	64	21 1/4	540	1 1/8	29	16	23 1/4	594	303.0	137.0	150	10.3

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

View of Fitting Illustrations



Cross - Belled

Cross - Flanged



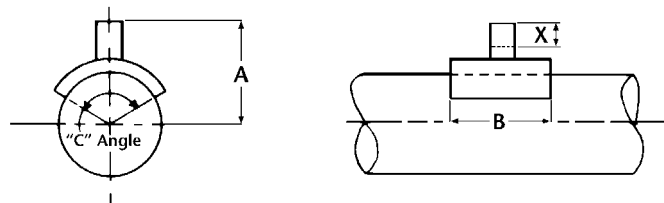
**Saddle (Belled Side Outlet)** - Parts are available in Green Thread HP ONLY

Pipe Size		A		B		C	X <sup>(1)</sup> GT Pipe		X <sup>(1)</sup> RT Pipe		Weight		Steady Pressure Rating	
in	mm	in	mm	in	mm	Angle	in	mm	in	mm	lbs	kg	psig	bar
2 x 1	50 x 25	2 7/8	73	4	102	180	1	25	-	-	0.6	0.27	435	30
2 x 1 1/2	50 x 40	2 7/8	73	4	102	180	1 1/8	29	-	-	0.5	0.23	232	16
3 x 1	80 x 25	3 1/2	89	6	152	180	1	25	-	-	1.5	0.68	300	20.7
3 x 1 1/2	80 x 40	3 1/2	89	6	152	180	1 1/8	29	-	-	0.9	0.41	232	16
3 x 2	80 x 50	4	102	6	152	180	1 5/8	41	1 5/8	41	1.4	0.64	232	16
4 x 1	100 x 25	4	102	6	152	180	1	25	-	-	1.4	0.64	232	16
4 x 1 1/2	100 x 40	4	102	6	152	180	1 1/8	29	-	-	1.5	0.68	232	16
4 x 2	100 x 50	4 1/2	114	6	152	180	1 5/8	41	1 5/8	41	1.5	0.68	232	16
4 x 3	100 x 80	5 1/4	133	6	152	180	1 7/8	48	1 3/4	44	1.6	0.73	200	13.8
6 x 1	150 x 25	5	127	6	152	120	1	25	-	-	1.4	0.64	232	16
6 x 1 1/2	150 x 40	5	127	6	152	120	1 1/8	29	-	-	1.3	0.59	232	16
6 x 2	150 x 50	5 1/2	140	6	152	120	1 5/8	41	1 5/8	41	1.5	0.68	232	16
6 x 3	150 x 80	6 1/4	159	6	152	120	1 7/8	48	1 3/4	44	1.6	0.73	150	10.3
6 x 4	150 x 100	6 3/8	162	8	203	140	2	51	1 5/8	41	2.4	1.09	125	8.6
8 x 1 <sup>(2)</sup>	200 x 25	7 1/8	181	9	229	120	1	25	-	-	3.1	1.41	232	16
8 x 1 1/2 <sup>(2)</sup>	200 x 40	7 1/8	181	9	229	120	1 1/8	29	-	-	2.8	1.27	232	16
8 x 2	200 x 50	7	178	9	229	180	1 5/8	41	1 5/8	41	2.7	1.22	232	16
10 x 1 <sup>(2)</sup>	250 x 25	8 1/8	206	9	229	95	1	25	-	-	3.1	1.41	232	16
10 x 1 1/2 <sup>(2)</sup>	250 x 40	8 1/8	206	9	229	95	1 1/8	29	-	-	2.8	1.27	232	16
10 x 2	250 x 50	8	203	9	229	180	1 5/8	41	1 5/8	41	2.7	1.22	232	16
10 x 3	250 x 80	9	229	14	356	150	1 7/8	48	1 3/4	44	6.1	2.77	232	16
12 x 1 <sup>(2)</sup>	300 x 25	9 1/8	232	10	254	90	1	25	-	-	3.6	1.63	232	16
12 x 1 1/2 <sup>(2)</sup>	300 x 40	9 1/8	232	10	254	90	1 1/8	29	-	-	3.3	1.50	232	16
12 x 2	300 x 50	9	229	10	254	180	1 5/8	41	1 5/8	41	3.2	1.45	232	16
12 x 3	300 x 80	10	254	14	356	125	1 7/8	48	1 3/4	44	6.1	2.77	232	16
12 x 4	300 x 100	9 3/8	238	17	432	155	2	51	1 5/8	41	8.6	3.90	232	16
14 x 1 <sup>(2)</sup>	350 x 25	10	254	12	305	95	1	25	-	-	4.7	2.13	232	16
14 x 1 1/2 <sup>(2)</sup>	350 x 40	10	254	12	305	95	1 1/8	29	-	-	4.4	2.00	232	16
14 x 2	350 x 50	10	254	12	305	95	1 5/8	41	1 3/8	35	4.3	1.95	232	16
14 x 3	350 x 80	10 7/8	276	15	381	120	1 7/8	48	1 3/4	44	6.9	3.13	232	16
14 x 4	350 x 100	10 1/4	260	17	432	135	2	51	1 5/8	41	8.4	3.81	232	16
16 x 1 <sup>(2)</sup>	400 x 25	11	279	13	330	90	1	25	-	-	5.4	2.45	232	16
16 x 1 1/2 <sup>(2)</sup>	400 x 40	11	279	13	330	90	1 1/8	29	-	-	5.1	2.31	232	16
16 x 2	400 x 50	11	279	13	330	90	1 5/8	41	1 3/8	35	5.0	2.27	232	16
16 x 3	400 x 80	11 7/8	302	15	381	105	1 7/8	48	1 3/4	44	6.9	3.13	232	16
16 x 4	400 x 100	11 1/4	286	17	432	120	2	51	1 5/8	41	8.6	3.90	232	16

<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.

View of Fitting Illustrations



Saddle - Belled Side Outlet

### Threaded Side Outlet NPT Internal Threads

Pipe Size		A		B		C	Weight		Steady Pressure Rating	
in	mm	in	mm	in	mm	Angle	lbs	kg	psig	bar
2 x 1	50 x 25	2 7/8	73	4	180	102	0.6	0.27	435	30
2 x 1 1/4	50 x 30	2 7/8	73	4	180	102	0.6	0.27	232	16
2 x 1 1/2	50 x 40	2 7/8	73	4	180	102	0.5	0.23	232	16
3 x 1	80 x 25	3 1/2	89	6	180	152	1.1	0.50	300	20.7
3 x 1 1/4	80 x 30	3 1/2	89	6	180	152	1.0	0.45	232	16
3 x 1 1/2	80 x 40	3 1/2	89	6	180	152	1.0	0.45	232	16
4 x 1	100 x 25	4	102	6	180	152	1.6	0.73	232	16
4 x 1 1/4	100 x 30	4	102	6	180	152	1.5	0.68	232	16
4 x 1 1/2	100 x 40	4	102	6	180	152	1.4	0.64	232	16
6 x 1	150 x 25	5	127	6	120	152	1.5	0.68	232	16
6 x 1 1/4	150 x 30	5	127	6	120	152	1.4	0.64	232	16
6 x 1 1/2	150 x 40	5	127	6	120	152	1.5	0.68	232	16
8 x 1	200 x 25	7 1/8	181	9	120	229	3.1	1.41	232	16
10 x 1	250 x 25	8 1/8	206	9	95	229	3.1	1.41	232	16
12 x 1	300 x 25	9 1/8	232	10	90	254	3.6	1.63	232	16
14 x 1	350 x 25	10	254	12	95	305	4.7	2.13	232	16
16 x 1	400 x 25	11	279	13	90	330	5.4	2.45	232	16

### Green Thread HP 16 Branch Table

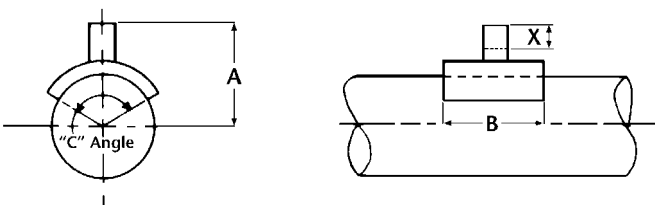
Header Diameter		Branch Diameter																						
in	mm	1	25	1.5	40	2	50	3	80	4	100	6	150	8	200	10	250	12	300	14	250	16	400	
1	25	T	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.5	40	RBT	T	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	50	S	S/RBT	T	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	80	S	S/RBT	S/RBT	T	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	100	S	S	S/RBT	S*/RBT	T	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	150	S	S	S	S*/RBT	S*/RBT	T	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	200	S	S	S/T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
10	250	S	S	S/T	S/T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
12	300	S	S	S/T	S/T	S/T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
14	250	S	S	S	S/T	S/T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
16	400	S	S	S	S/T	S/T	T	T	T	T	T	T	T	T	T	T	T	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:

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

#### View of Fitting Illustrations



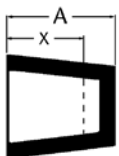
#### Threaded Side Outlet NPT Internal Threads

**End Caps** - Parts are available in Green Thread HP ONLY

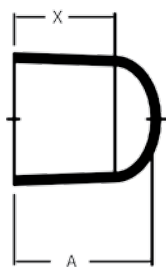
Pipe Size		A		X <sup>(1)</sup> GT Pipe		X <sup>(1)</sup> RT Pipe		Weight		Steady Pressure Rating	
in	mm	in	mm	in	mm	in	mm	lbs	kg	psig	bar
1	25	2 ¾	70	1	25	-	-	0.3	0.14	435	30
1 ½	40	2 ⅝	67	1 ⅛	29	-	-	0.6	0.27	435	30
2	50	2 ¾	70	1 ⅝	41	1 ⅝	41	1.4	0.64	435	30
3	80	3 ¼	83	1 ⅞	48	1 ¾	44	1.9	0.86	435	30
4	100	3 ¾	95	2	51	1 ⅝	41	3.0	1.36	232	16
6	150	7 ¼	184	2 ¾	69	2 ⅞	74	4.4	2.00	232	16
8	200	9 ⅝	245	3	76	3 ⅜	86	6.2	2.82	232	16
10	250	10 ⅛	257	3 ¼	83	3 ½	89	8.6	3.91	232	16
12	300	11 ⅛	282	3 ⅜	86	3 ⅞	98	12.6	5.73	232	16
14	350	15	381	5 ⅜	137	5 ½	140	19.5	8.86	232	16
16	400	16	406	5 ½	140	5 ½	140	24.0	10.91	232	16

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

View of Fitting Illustrations



End Cap - 1"-4"



End Cap - 6"-16

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