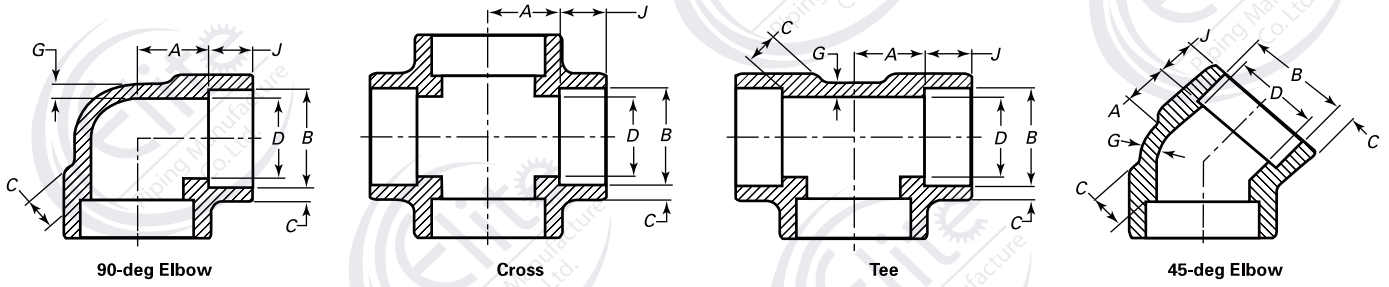
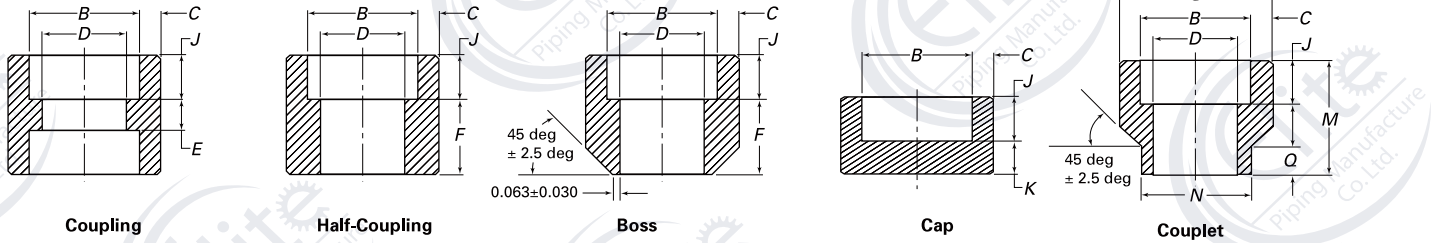


# Socket-Welding Elbows, Tees, and Crosses



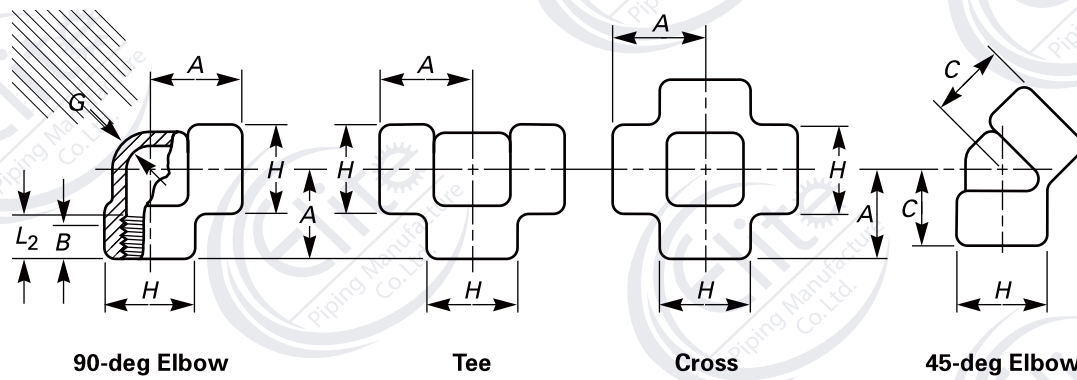
Nominal Pipe Size	Socket Bore Diam., B	Bore Diameter of Fittings, D									Socket Wall Thickness, C						Socket Depth, J	Center-to-Bottom of Socket, A							
		3000			6000			9000			3000		6000		9000			3000	6000	9000	3000	6000	9000	Tol	
		Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Min.	Max.	Min.	Avg.	Min.	Max.									Min.
1/8	11.2	10.8	7.6	6.1	4.8	3.2	...	...	3.18	3.18	3.96	3.43	...	...	2.41	3.15	...	9.5	11.0	11.0	...	8.0	8.0	...	1.0
1/4	14.6	14.2	10.0	8.5	7.1	5.6	...	...	3.78	3.30	4.60	4.01	...	...	3.02	3.68	...	9.5	11.0	13.5	...	8.0	8.0	...	1.0
3/8	18.0	17.6	13.3	11.8	9.9	8.4	...	...	4.01	3.50	5.03	4.37	...	...	3.20	4.01	...	9.5	13.5	15.5	...	8.0	11.0	...	1.5
1/2	22.2	21.8	16.6	15.0	12.5	11.0	7.2	5.6	4.67	4.09	5.97	5.18	9.35	8.18	3.73	4.78	7.47	9.5	15.5	19.0	25.5	11.0	12.5	15.5	1.5
3/4	27.6	27.2	21.7	20.2	16.3	14.8	11.8	10.3	4.90	4.27	6.96	6.04	9.78	8.56	3.91	5.56	7.82	12.5	19.0	22.5	28.5	13.0	14.0	19.0	1.5
1	34.3	33.9	27.4	25.9	21.5	19.9	16.0	14.4	5.69	4.98	7.92	6.93	11.38	9.96	4.55	6.35	9.09	12.5	22.5	27.0	32.0	14.0	17.5	20.5	2.0
1 1/4	43.1	42.7	35.8	34.3	30.2	28.7	23.5	22.0	6.07	5.28	7.92	6.93	12.14	10.62	4.85	6.35	9.70	12.5	27.0	32.0	35.0	17.5	20.5	22.5	2.0
1 1/2	49.2	48.8	41.6	40.1	34.7	33.2	28.7	27.2	6.35	5.54	8.92	7.80	12.70	11.12	5.08	7.14	10.15	12.5	32.0	38.0	38.0	20.5	25.5	25.5	2.0
2	61.7	61.2	53.3	51.7	43.6	42.1	38.9	37.4	6.93	6.04	10.92	9.50	13.84	12.12	5.54	8.74	11.07	16.0	38.0	41.0	54.0	25.5	28.5	28.5	2.0
2 1/2	74.4	73.9	64.2	61.2	...	...	...	...	8.76	7.67	...	...	...	...	7.01	...	...	16.0	41.0	...	...	28.5	...	...	2.5
3	90.3	89.8	79.4	76.4	...	...	...	...	9.52	8.30	...	...	...	...	7.62	...	...	16.0	57.0	...	...	32.0	...	...	2.5
4	115.7	115.2	103.8	100.7	...	...	...	...	10.69	9.35	...	...	...	...	8.56	...	...	19.0	66.5	...	...	41.0	...	...	2.5

# Socket-Welding Couplings, Bosses, Caps, and Couplets



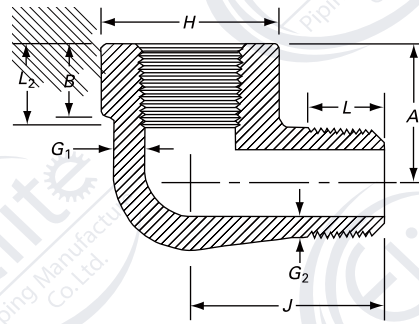
Nominal Pipe Size	Socket Bore Dia., B	Bore Diameter of Fittings, D									Socket Wall Thickness, C						Outside Dia. Couplet, G			Socket Depth, J	Laying Lgth., E Tol	Laying Lgth., F Tol	End Wall Thickness, K			End to End Couplet, M	Weld Ring Diameter, N	Weld Ring Length, Q					
		3000			6000			9000			3000		6000		9000		3000	6000	9000				Tol	Tol	Tol								
		Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Min.	Max.	Min.	Avg.	Min.	Max.													Min.	Max.	Min.		
1/8	11.2	10.8	7.6	6.1	4.8	3.2	...	...	3.18	3.18	3.96	3.43	...	...	±1.5/-0.0	9.5	6.5	1.5	16.0	1.5	4.8	6.4	...	...	...	...	...	...	...	...	...	...	
1/4	14.6	14.2	10.0	8.5	7.1	5.6	...	...	3.78	3.30	4.60	4.01	...	...	±1.5/-0.0	9.5	6.5	1.5	16.0	1.5	4.8	6.4	...	30.2 ±0.8/-0.0	17.5	±1.5/-0.0	9.5	0.8	...	...	...	...	
3/8	18.0	17.6	13.3	11.8	9.9	8.4	...	...	4.01	3.50	5.03	4.37	...	...	±1.5/-0.0	9.5	6.5	3.0	17.5	3.0	4.8	6.4	...	30.2 ±0.8/-0.0	20.7	±1.5/-0.0	9.5	0.8	...	...	...	...	
1/2	22.2	21.8	16.6	15.0	12.5	11.0	7.2	5.6	4.67	4.09	5.97	5.18	9.35	8.18	±1.5/-0.0	9.5	9.5	3.0	22.5	3.0	6.4	7.9	11.2	33.4	±0.8/-0.0	23.8	±1.5/-0.0	9.5	0.8	...	...	...	...
3/4	27.6	27.2	21.7	20.2	16.3	14.8	11.8	10.3	4.90	4.27	6.96	6.04	9.78	8.56	±1.5/-0.0	12.5	9.5	3.0	24.0	3.0	6.4	7.9	12.7	34.9	±0.8/-0.0	27.0	±1.5/-0.0	9.5	0.8	...	...	...	...
1	34.3	33.9	27.4	25.9	21.5	19.9	16.0	14.4	5.69	4.98	7.92	6.93	11.38	9.96	±1.5/-0.0	12.5	12.5	4.0	28.5	4.0	9.6	11.2	14.2	47.6	±0.8/-0.0	42.9	±1.5/-0.0	9.5	0.8	...	...	...	...
1 1/4	43.1	42.7	35.8	34.3	30.2	28.7	23.5	22.0	6.07	5.28	7.92	6.93	12.14	10.62	±1.5/-0.0	12.5	12.5	4.0	30.0	4.0	9.6	11.2	14.2	47.6	±0.8/-0.0	42.9	±1.5/-0.0	9.5	0.8	...	...	...	...
1 1/2	49.2	48.8	41.6	40.1	34.7	33.2	28.7	27.2	6.35	5.54	8.92	7.80	12.70	11.12	±1.5/-0.0	12.5	12.5	4.0	32.0	4.0	11.2	12.7	15.7	50.8	±0.8/-0.0	49.2	±1.5/-0.0	9.5	0.8	...	...	...	...
2	61.7	61.2	53.3	51.7	43.6	42.1	38.9	37.4	6.93	6.04	10.92	9.50	13.84	12.21	±1.5/-0.0	16.0	19.0	4.0	41.0	4.0	12.7	15.7	19.0	57.2	±1.5/-0.0	61.9	±1.5/-0.0	9.5	0.8	...	...	...	...
2 1/2	74.4	73.9	64.2	61.2	...	...	...	...	8.76	7.67	...	...	...	...	±1.5/-0.0	16.0	19.0	5.0	43.0	5.0	15.7	19.0	...	63.5	±1.5/-0.0	73.0	±1.5/-0.0	9.5	0.8	...	...	...	...
3	90.3	89.8	79.4	76.4	...	...	...	...	9.52	8.30	...	...	...	...	±1.5/-0.0	16.0	19.0	5.0	44.5	5.0	19.0	22.4	...	69.9	±1.5/-0.0	88.9	±1.5/-0.0	9.5	0.8	...	...	...	...
4	115.7	115.2	103.8	100.7	...	...	...	...	10.69	9.35	...	...	...	...	±1.5/-0.0	19.0	19.0	5.0	48.0	5.0	22.4	28.4	...	76.2	±1.5/-0.0	114.3	±1.5/-0.0	9.5	0.8	...	...	...	...

# Threaded Elbows, Tees, and Crosses



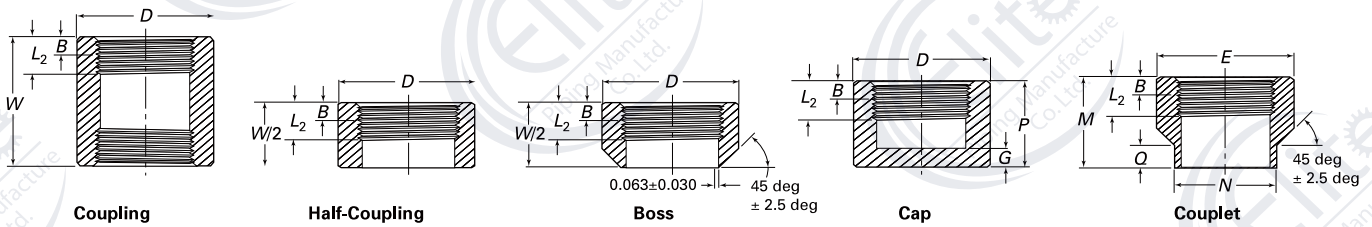
Nominal Pipe Size	Center-to-End Elbows, Tees, and Crosses, A			Center-to-End 45-deg Elbow, C			Outside Diameter of Band, H			Minimum Wall Thickness, G			Minimum Length of Thread [Note (1)]	
	2000	3000	6000	2000	3000	6000	2000	3000	6000	2000	3000	6000	B	L <sub>2</sub>
1/8	21	21	25	17	17	19	22	22	25	3.18	3.18	6.35	6.4	6.7
1/4	21	25	28	17	19	22	22	25	33	3.18	3.30	6.60	8.1	10.2
3/8	25	28	33	19	22	25	25	33	38	3.18	3.51	6.98	9.1	10.4
1/2	28	33	38	22	25	28	33	38	46	3.18	4.09	8.15	10.9	13.6
3/4	33	38	44	25	28	33	38	46	56	3.18	4.32	8.53	12.7	13.9
1	38	44	51	28	33	35	46	56	62	3.68	4.98	9.93	14.7	17.3
1 1/4	44	51	60	33	35	43	56	62	75	3.89	5.28	10.59	17.0	18.0
1 1/2	51	60	64	35	43	44	62	75	84	4.01	5.56	11.07	17.8	18.4
2	60	64	83	43	44	52	75	84	102	4.27	7.14	12.09	19.0	19.2
2 1/2	76	83	95	52	52	64	92	102	121	5.61	7.65	15.29	23.6	28.9
3	86	95	106	64	64	79	109	121	146	5.99	8.84	16.64	25.9	30.5
4	106	114	114	79	79	79	146	152	152	6.55	11.18	18.67	27.7	33.0

# Threaded Street Elbows



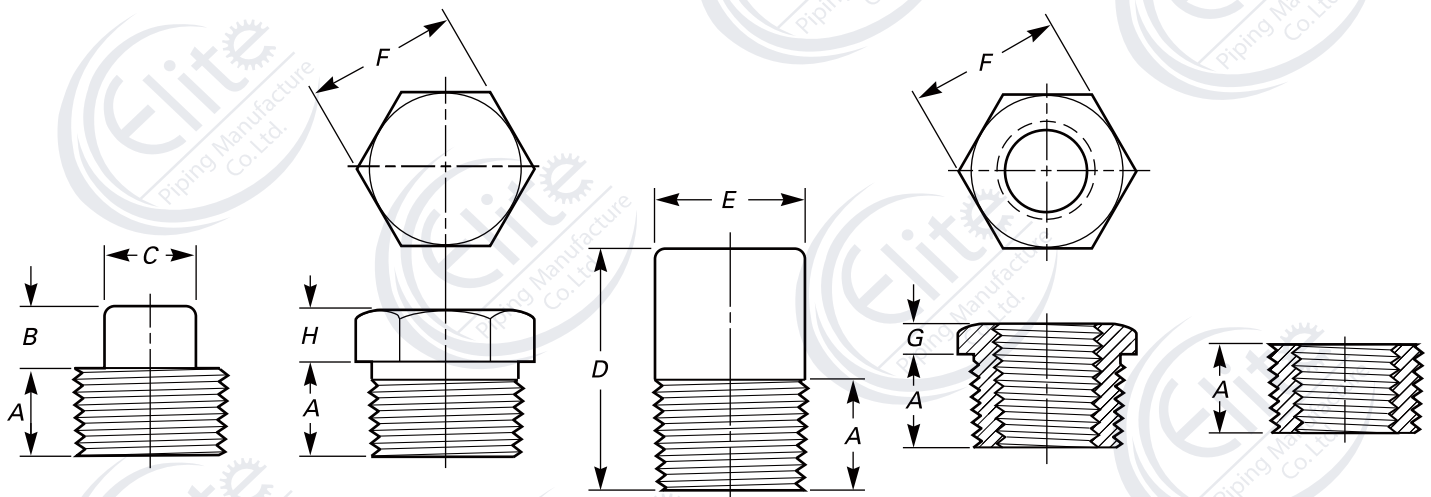
Nominal Pipe Size, NPS	Center-to-Female End Street Ells, A		Center-to-Male End Street Ells, J		Outside Diameter of Band, H		Minimum Wall Thickness, G <sub>1</sub>		Minimum Wall Thickness, G <sub>2</sub>		Minimum Length Internal Thread		Minimum Length Male Thread, L
	Class Designation		Class Designation		Class Designation		Class Designation		Class Designation		B	L <sub>2</sub>	
	3000	6000	3000	6000	3000	6000	3000	6000	3000	6000			
1/8	19	22	25	32	19	25	3.18	5.08	2.74	4.22	6.4	6.7	10
1/4	22	25	32	38	25	32	3.30	5.66	3.22	5.28	8.1	10.2	11
3/8	25	28	38	41	32	38	3.51	6.98	3.50	5.59	9.1	10.4	13
1/2	28	35	41	48	38	44	4.09	8.15	4.16	6.53	10.9	13.6	14
3/4	35	44	48	57	44	51	4.32	8.53	4.88	6.86	12.7	13.9	16
1	44	51	57	66	51	62	4.98	9.93	5.56	7.95	14.7	17.3	19
1 1/4	51	54	66	71	62	70	5.28	10.59	5.56	8.48	17.0	18.0	21
1 1/2	54	64	71	84	70	84	5.56	11.07	6.25	8.89	17.8	18.4	21
2	64	83	84	105	84	102	7.14	12.09	7.64	9.70	19.0	19.2	22

# Threaded Couplings, Bosses, Caps, Couplets



Nominal Pipe Size	Outside Diameter, D		Outside Diameter Couplet, E		End-to-End Coupling, W	End-to-End Caps, P		End-to-End Coupling		Minimum End Wall Thickness, G		Weld Ring Length, Q		Weld Ring Diameter, N		Minimum Length of Thread		
	3000	6000	3000	6000		3000/6000	3000	6000	3000/6000	±	3000	6000	3000/6000	±	3000/6000	±	3000/6000	
					±												B	L <sub>2</sub>
1/8	16	22	...	...	...	32	19	22	...	4.8	6.4	...	...	...	...	6.4	6.7	
1/4	19	25	23.8	25.4	±1.5/-0.0	35	25	27	30.2	±0.8/-0.0	4.8	6.4	9.5	0.8	17.5	±1.5/-0.0	8.1	10.2
3/8	22	32	27.0	31.8	±1.5/-0.0	48	32	27	30.2	±0.8/-0.0	4.8	6.4	9.5	0.8	20.7	±1.5/-0.0	9.1	10.4
1/2	28	38	33.4	38.1	±1.5/-0.0	48	32	33	33.4	±0.8/-0.0	6.4	7.9	9.5	0.8	23.8	±1.5/-0.0	10.9	13.6
3/4	35	44	38.1	44.5	±1.5/-0.0	51	37	38	34.9	±0.8/-0.0	6.4	7.9	9.5	0.8	27.0	±1.5/-0.0	12.7	13.9
1	44	57	46.1	57.2	±1.5/-0.0	60	41	43	42.9	±0.8/-0.0	9.7	11.2	9.5	0.8	33.4	±1.5/-0.0	14.7	17.3
1 1/4	57	64	55.6	63.5	±1.5/-0.0	67	44	46	47.6	±0.8/-0.0	9.7	11.2	9.5	0.8	42.9	±1.5/-0.0	17.0	18.4
1 1/2	64	76	63.5	76.2	±1.5/-0.0	79	44	48	50.8	±0.8/-0.0	11.2	12.7	9.5	0.8	49.2	±1.5/-0.0	17.8	18.4
2	76	92	79.4	79.4	±1.5/-0.0	86	48	51	57.2	±1.5/-0.0	12.7	15.7	9.5	0.8	61.9	±1.5/-0.0	19.0	19.2
2 1/2	92	108	92.1	92.1	±1.5/-0.0	92	60	64	63.5	±1.5/-0.0	15.7	19.0	9.5	0.8	73.0	±1.5/-0.0	23.6	28.9
3	108	127	111.1	111.1	±1.5/-0.0	108	65	68	69.9	±1.5/-0.0	19.0	22.4	9.5	0.8	114.3	±1.5/-0.0	25.9	30.5
4	140	159	141.3	141.3	±1.5/-0.0	121	68	75	76.2	±1.5/-0.0	22.4	28.4	9.5	0.8	114.3	±1.5/-0.0	27.7	33.0

# Plugs and Bushings



**Square Head Plug**

**Hex Head Plug**

**Round Head Plug**

**Hex Head Bushing [Note (1)]**

**Flush Bushing**

Nominal Pipe Size	Minimum Length, A	Square Head Plugs		Round Head Plugs		Hex Plugs and Bushings		
		Minimum Square Height, B	Minimum Width Flats, C [Note (2)]	Nominal Head Diameter, E	Minimum Length, D	Nominal Width Flats, F [Note (2)]	Minimum Hex Height	
							Bushing, G	Plug, H
1/8	10	6	7.15	10	35	11.11	...	6
1/4	11	6	9.55	14	41	15.88	3	6
3/8	13	8	11.11	18	41	17.46	4	8
1/2	14	10	14.29	21	44	22.23	5	8
3/4	16	11	15.88	27	44	26.99	6	10
1	19	13	20.64	33	51	34.93	6	10
1 1/4	21	14	23.81	43	51	44.45	7	14
1 1/2	21	16	28.58	48	51	50.80	8	16
2	22	18	33.27	60	64	63.50	9	18
2 1/2	27	19	38.10	73	70	76.20	10	19
3	28	21	42.86	89	70	88.90	10	21
4	32	25	63.50	114	76	117.48	13	25