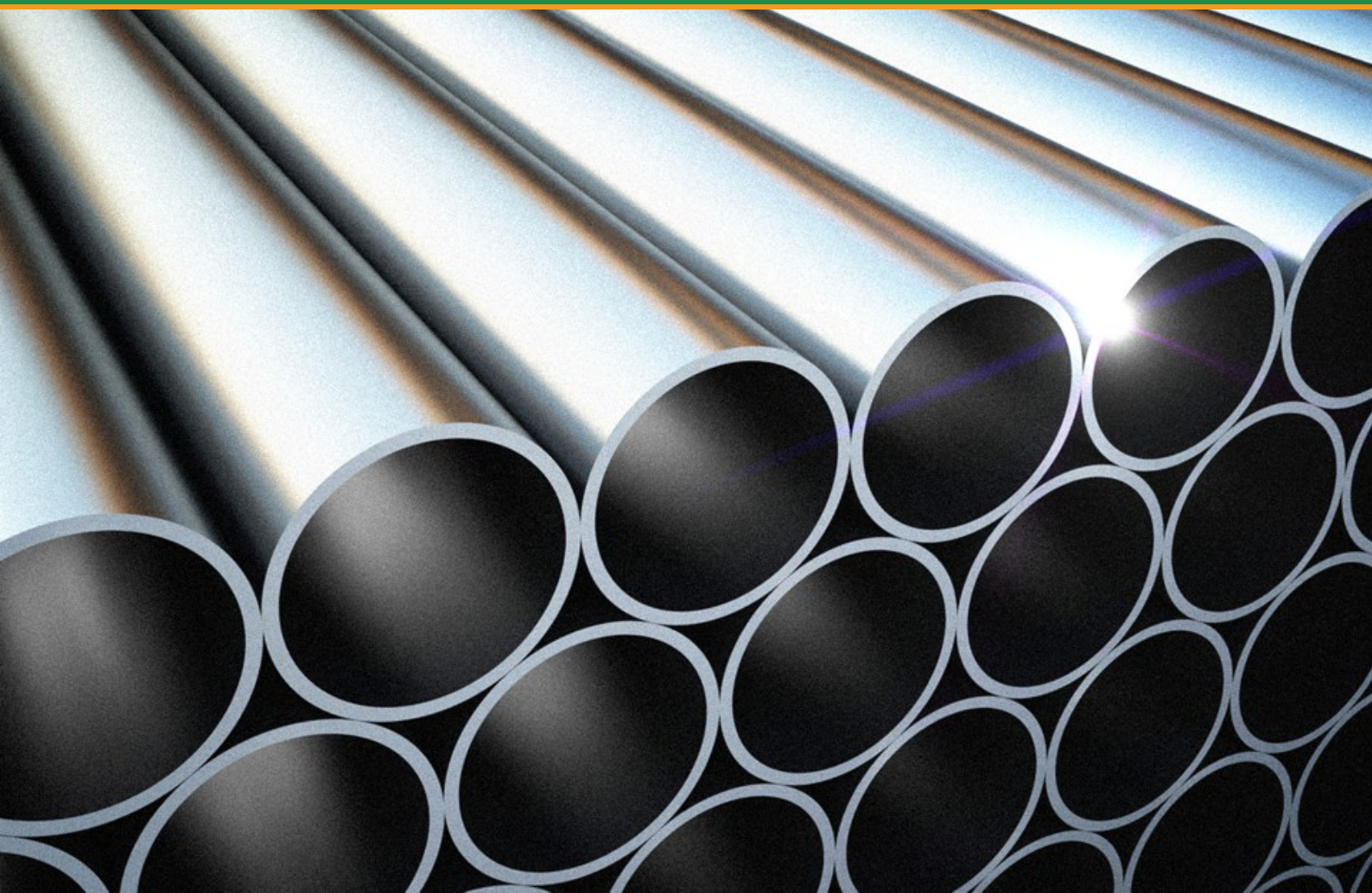




PROCESS PIPE

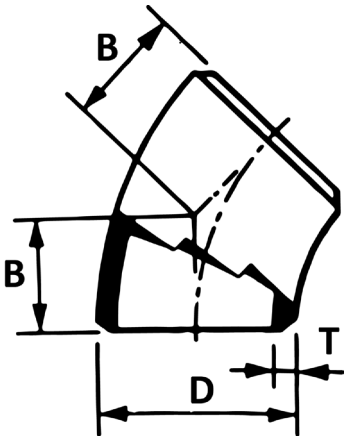
FITTINGS CATALOGUE



FITTINGS

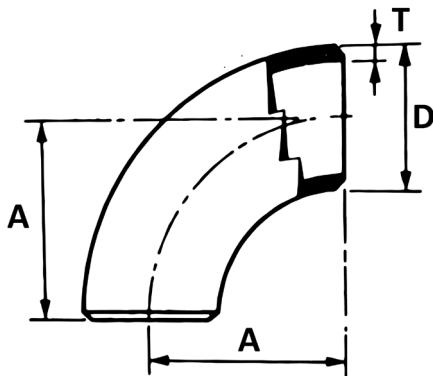
TYPES, DIMENSIONS AND WEIGHTS OF WELDING FITTINGS ANSI (ASA) B 16.9

45° ELBOWS



Inches Nominal Pipe Size	Outside Diameter D	Wall Thickness			Centre to End B	Weight kg.		
		Sch. 10s	Standard T	Extra Strong T		Sch. 10s	Standard	Extra Strong
1	33.40	2.77	3.38	4.55	22.22	0.08	0.08	0.10
1¼	42.16	2.77	3.56	4.85	25.40	0.11	0.13	0.18
1½	48.26	2.77	3.68	5.08	28.57	0.17	0.19	0.26
2	60.32	2.77	3.91	5.54	34.92	0.25	0.34	0.47
2½	73.02	3.05	5.16	7.01	44.45	0.48	0.67	0.89
3	88.90	3.05	5.49	7.62	50.80	0.63	1.08	1.44
3½	101.60	3.05	5.74	8.08	57.15	0.75	1.49	2.05
4	114.30	3.05	6.02	8.56	63.50	1.08	2.05	2.83
5	141.30	3.40	6.55	9.52	79.37	1.81	3.43	4.85
6	168.27	3.40	7.11	10.97	95.25	2.72	5.33	8.02
8	219.07	3.76	8.18	12.70	127.00	5.33	10.65	16.10
10	273.05	4.19	9.27	12.70	158.75	9.75	18.80	25.40
12	323.85	4.57	9.52	12.70	190.50	12.61	27.90	36.70
14	355.60	4.78	9.52	12.70	222.25	18.14	35.80	47.15
16	406.40	4.78	9.52	12.70	254.00	23.81	46.90	62.06
18	457.20	4.78	9.52	12.70	285.75	29.94	59.00	79.50
20	508.00	5.54	9.52	12.70	317.50	49.90	73.50	97.50
22	558.80	-	9.52	12.70	342.90	-	98.00	113.00
24	609.60	6.35	9.52	12.70	381.00	70.31	105.50	140.50

90° ELBOWS LONG RADIUS

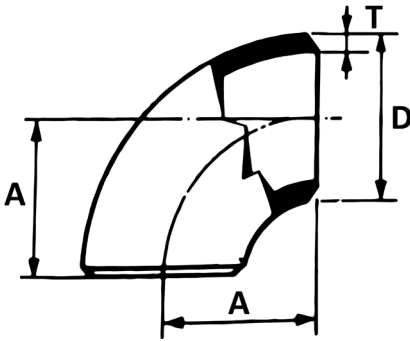


Nominal Pipe Size	Outside Diameter D	Wall Thickness			Centre to End B	Weight kg.		
		Sch. 10S	Standard T	Extra Strong T		Sch. 10s	Standard	Extra Strong
1	33.40	2.77	3.38	4.55	38.10	0.14	0.15	0.20
1¼	42.16	2.77	3.56	4.85	47.62	0.23	0.26	0.35
1½	48.26	2.77	3.68	5.08	57.15	0.30	0.38	0.51
2	60.32	2.77	3.91	5.54	76.20	0.50	0.68	0.94
2½	73.02	3.05	5.16	7.01	95.25	0.85	1.35	1.79
3	88.90	3.05	5.49	7.62	114.30	1.25	2.15	2.87
3½	101.60	3.05	5.74	8.08	113.35	1.70	2.88	4.10
4	114.30	3.05	6.02	8.56	152.40	2.10	4.10	5.65
5	141.30	3.40	6.55	9.52	190.50	3.65	6.85	9.70
6	168.27	3.40	7.11	10.97	228.60	5.45	10.65	16.00
8	219.07	3.76	8.18	12.70	304.80	10.20	21.30	32.20
10	273.05	4.19	9.27	12.70	381.00	18.15	37.60	50.80
12	323.85	4.57	9.52	12.70	457.20	27.25	55.80	73.40
14	355.60	4.78	9.52	12.70	533.40	39.95	71.60	94.30
16	406.40	4.78	9.52	12.70	609.60	51.60	93.80	123.70
18	457.20	4.78	9.52	12.70	685.80	65.40	118.00	159.00
20	508.00	8.54	9.52	12.70	762.00	84.90	147.00	195.00
22	558.80	-	9.52	12.70	838.20	-	196.00	226.00
24	609.60	6.55	9.52	12.70	914.40	146.08	211.00	281.00

FITTINGS

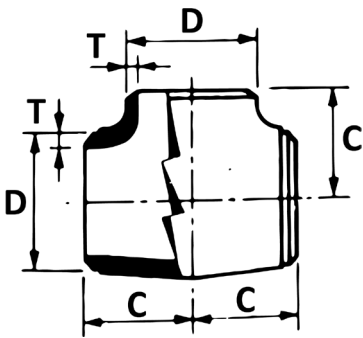
TYPES, DIMENSIONS AND WEIGHTS OF WELDING FITTINGS ANSI (ASA) B 16.9

90° ELBOWS SHORT RADIUS CONTINUED



Inches Nominal Pipe Size	Outside Diameter D	Wall Thickness			Centre to End B	Weight kg.		
		Sch. 10s	Standard T	Extra Strong T		Sch. 10s	Standard	Extra Strong
1	33.40	2.77	3.38	4.55	25.40	0.10	0.11	0.14
1¼	42.16	2.77	3.56	4.85	31.75	0.17	0.18	0.23
1½	48.26	2.77	3.68	5.08	38.10	0.22	0.25	0.34
2	60.32	2.77	3.91	5.54	50.80	0.37	0.45	0.62
2½	73.02	3.05	5.16	7.01	63.50	0.62	0.89	1.19
3	88.90	3.05	5.49	7.62	76.20	0.98	1.40	1.90
3½	101.60	3.05	5.74	8.08	88.90	1.38	1.97	2.72
4	114.30	3.05	6.02	8.56	101.60	1.72	2.66	3.71
5	141.30	3.40	6.55	9.52	127.00	2.78	4.55	6.44
6	168.27	3.40	7.11	10.97	152.40	4.15	7.02	10.58
8	219.07	3.76	8.18	12.70	203.20	8.00	14.22	21.61
10	273.05	4.19	9.27	12.70	254.00	15.88	25.23	34.06
12	323.85	4.57	9.52	12.70	304.80	18.14	36.86	48.60
14	355.60	4.78	9.52	12.70	355.80	23.59	47.56	62.97
16	406.40	4.78	9.52	12.70	406.40	30.84	62.50	82.45
18	457.20	4.78	9.52	12.70	457.20	39.00	74.90	97.60
20	508.00	5.54	9.52	12.70	508.00	64.86	93.00	125.00
24	609.60	6.35	9.52	12.70	609.60	91.63	134.00	177.00

EQUAL TEES



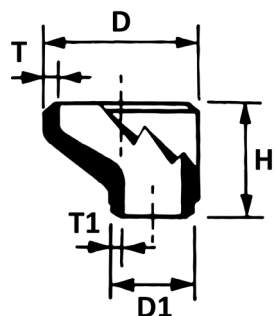
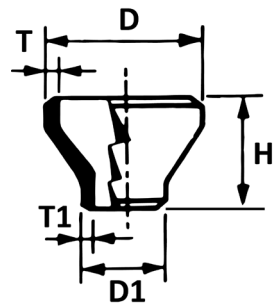
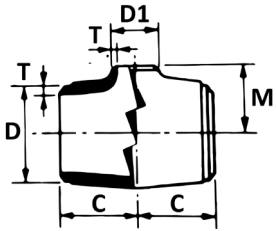
Nominal Pipe Size	Outside Diameter D	Wall Thickness			Centre to End B	Weight kg.		
		Sch. 10s	Standard T	Extra Strong T		Sch. 10s	Standard	Extra Strong
½	21.34	2.11	2.77	3.73	25.40	0.09	0.15	0.21
¾	26.67	2.11	2.87	3.91	28.57	0.11	0.20	0.27
1	33.40	2.77	3.38	4.55	38.10	0.27	0.40	0.82
1¼	42.16	2.77	3.56	4.85	47.62	0.45	0.77	0.86
1½	48.26	2.77	3.68	5.08	57.15	0.65	1.08	1.22
2	60.32	2.77	3.91	5.54	63.50	1.70	1.48	1.86
2½	73.02	3.05	5.16	7.01	76.20	2.18	2.45	3.07
3	88.90	3.05	5.49	7.62	85.72	3.30	3.80	4.29
3½	101.60	3.05	5.74	8.08	95.25	2.67	4.98	6.15
4	114.30	3.05	6.02	8.56	104.77	4.40	5.90	7.24
5	141.30	3.40	6.55	9.52	123.82	7.42	9.50	12.95
6	168.27	3.40	7.11	10.97	142.87	12.35	14.90	19.25
8	219.07	3.76	8.18	12.70	177.80	20.00	27.18	34.42
10	273.05	4.19	9.27	12.70	215.90	28.15	41.30	58.40
12	323.85	4.57	9.52	12.70	254.00	47.45	56.60	79.30
14	355.60	4.78	9.52	12.70	279.40	69.90	81.54	117.78
16	406.40	4.78	9.52	12.70	304.80	72.65	99.66	142.69
18	457.20	4.78	9.52	12.70	342.90	101.70	126.80	170.00
20	508.00	5.54	9.52	12.70	381.00	169.90	168.00	245.00
24	609.60	6.35	9.52	12.70	431.80	306.50	347.00	423.00

FITTINGS

TYPES, DIMENSIONS AND WEIGHTS OF WELDING FITTINGS ANSI (ASA) B 16.9

REDUCING TEES

CONCENTRIC AND ECCENTRIC REDUCERS



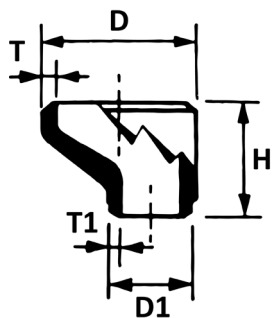
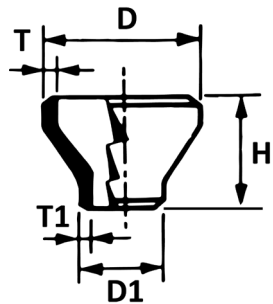
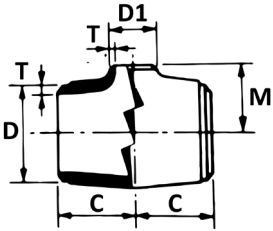
Inches Nominal Pipe Size	Outside Dia. D	Outside Dia. D1	Centre to End C	Centre to End M	Length H	Weight kg.					
						Sch. 10 S		Standard		Extra Strong	
						Tees	Red	Tees	Red	Tees	Red
½x¼	21.34	13.70	25.40	25.40	-	0.06	0.03	0.16	-	0.25	-
½x⅜	21.34	17.10	25.40	25.40	-	0.06	0.03	0.16	-	0.25	-
¾x¾	26.67	17.10	28.57	28.57	38.10	0.08	0.04	0.22	0.07	0.24	0.10
¾x½	26.67	21.34	28.57	28.57	38.10	0.08	0.04	0.23	0.07	0.38	0.10
1x½	33.40	21.34	38.10	38.10	50.80	0.19	0.09	0.45	0.10	0.68	0.15
1x⅜	33.40	26.67	38.10	38.10	50.80	0.19	0.10	0.45	0.10	0.68	0.15
1¼x½	42.16	21.34	47.62	47.62	50.80	0.27	0.10	0.68	0.15	0.81	0.20
1¼x¾	42.16	26.67	47.62	47.62	50.80	0.29	0.11	0.68	0.15	0.81	0.20
1¼x1	42.16	33.40	47.62	47.62	50.80	0.31	0.12	0.70	0.15	0.81	0.20
1½x½	48.26	21.34	57.15	57.15	63.50	0.36	0.14	0.86	0.25	1.13	0.32
1½x¾	48.26	26.67	57.15	57.15	63.50	0.39	0.15	0.91	0.27	1.13	0.33
1½x1	48.26	33.40	57.15	57.15	63.50	0.42	0.17	0.95	0.27	1.17	0.35
1½x1¼	48.26	42.16	57.15	57.15	63.50	0.44	0.18	0.99	0.29	1.22	0.35
2x¾	60.32	26.67	63.50	44.45	76.20	0.52	0.22	1.13	0.40	1.49	0.50
2x1	60.32	33.40	63.50	50.80	76.20	0.54	0.23	1.17	0.40	1.54	0.50
2x1¼	60.32	42.16	63.50	57.15	76.20	0.57	0.25	1.26	0.43	1.58	0.52
2x1½	60.32	48.26	63.50	60.32	76.20	0.59	0.27	1.35	0.45	1.63	0.54
2½x1	73.02	33.40	76.20	57.15	88.90	0.84	0.37	2.00	0.68	2.44	0.84
2½x1¼	73.02	42.16	76.20	63.50	88.90	0.87	0.37	2.12	0.68	2.49	0.84
2½x1½	73.02	48.26	76.20	66.67	88.90	0.90	0.39	2.25	0.72	2.55	0.91
2½x2	73.02	60.32	76.20	69.85	88.90	0.94	0.43	2.35	0.77	2.62	0.97
3x1¼	88.90	42.16	85.72	69.85	88.90	1.17	0.43	2.89	0.86	3.40	1.18
3x1½	88.90	48.26	85.72	73.02	88.90	1.19	0.45	2.98	0.90	3.48	1.23
3x2	88.90	60.32	85.72	76.20	88.90	1.23	0.48	3.01	0.96	3.62	1.28
3x2½	88.90	73.02	85.72	82.55	88.90	1.31	0.52	3.17	1.04	3.73	1.39
3½x1½	101.60	48.26	95.25	79.37	101.60	1.50	0.60	3.75	1.22	4.53	1.54
3½x²	101.60	60.32	95.25	82.55	101.60	1.54	0.61	3.85	1.34	4.62	1.63
3½x2½	101.60	73.02	95.25	88.90	101.60	1.61	0.65	3.94	1.34	4.79	1.63
3½x3	101.60	88.90	95.25	92.07	101.60	1.68	0.71	4.07	1.40	4.98	1.81
4x1½	114.30	48.26	104.77	85.72	101.60	1.81	0.63	4.30	1.54	5.88	2.04
4x2	114.30	60.32	104.77	88.90	101.60	1.88	0.67	4.57	1.63	6.11	2.13
4x2½	114.30	73.02	104.77	95.25	101.60	1.95	0.71	4.80	1.72	6.11	2.20
4x3	114.30	88.90	104.77	98.42	101.60	2.02	0.76	4.98	1.77	6.34	2.26
4x3½	114.30	101.60	104.77	101.60	101.60	2.08	0.81	5.11	1.81	6.40	2.38
5x2	141.30	60.32	123.82	104.77	127.00	3.00	1.00	6.83	2.62	9.96	3.17
5x2½	141.30	73.02	123.82	107.95	127.00	3.06	1.14	7.33	2.66	10.64	3.27
5x3	141.30	88.90	123.82	111.12	127.00	3.13	1.22	7.56	2.72	10.96	3.49
5x3½	141.30	101.60	123.82	114.30	127.00	3.19	1.27	7.79	2.75	11.32	3.92
5x4	141.30	114.30	123.82	117.47	127.00	3.26	1.33	8.15	2.81	11.77	3.71
6x2½	168.27	73.02	142.87	120.65	139.70	4.15	1.45	12.32	3.71	15.85	5.17
6x3	168.27	88.90	142.87	123.82	139.70	4.21	1.53	12.45	3.80	16.16	5.39
6x3½	168.27	101.60	142.87	127.00	139.70	4.27	1.58	12.68	3.95	16.49	5.94
6x4	168.27	114.30	142.87	130.17	139.70	4.34	1.65	12.91	3.94	16.70	5.62
6x5	168.27	141.30	142.87	136.52	139.70	4.56	1.78	13.13	4.03	17.20	5.84
8x6	219.07	168.27	177.80	168.27	152.40	7.91	2.72	23.80	6.34	31.71	9.78
10x4	273.05	114.30	215.90	184.15	177.80	12.40	3.82	33.34	9.98	44.39	13.14

FITTINGS

TYPES, DIMENSIONS AND WEIGHTS OF WELDING FITTINGS ANSI (ASA) B 16.9

REDUCING TEES

CONCENTRIC AND ECCENTRIC REDUCERS

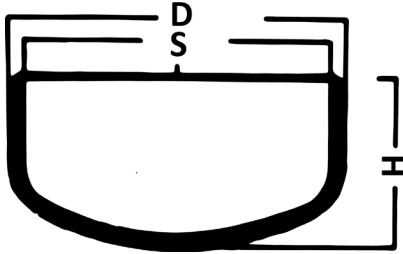


Inches Nominal Pipe Size	Outside Dia. D	Outside Dia. D1	Centre to End C	Centre to End M	Length H	Weight kg.					
						Sch. 10S		Standard		Extra Strong	
						Tees	Red	Tees	Red	Tees	Red
8x3½	219.07	101.60	177.80	152.40	152.40	7.38	2.36	21.74	6.50	29.45	9.86
8x4	219.07	114.30	177.80	155.57	152.40	7.48	2.43	22.42	5.62	30.12	9.00
8x5	219.07	141.30	177.80	161.92	152.40	7.70	2.57	23.10	5.84	30.80	9.38
8x6	219.07	168.27	177.80	168.27	152.40	7.91	2.72	23.80	6.34	31.71	9.78
10x4	273.05	114.30	215.90	184.15	177.80	12.40	3.82	33.34	9.98	44.39	13.14
10x5	273.05	141.30	215.90	190.50	177.80	12.60	3.98	33.79	10.19	46.20	13.50
10x6	273.05	168.27	215.90	193.67	177.80	12.80	4.14	34.65	10.42	47.56	14.04
10x8	273.05	219.07	215.90	203.20	177.80	13.30	4.49	35.33	10.69	48.92	14.45
12x5	323.85	141.30	254.00	215.90	203.20	18.85	5.72	45.75	14.50	63.40	18.91
12x6	323.85	168.27	254.00	219.70	203.20	19.10	5.92	47.11	14.72	66.59	19.39
12x8	323.85	219.07	254.00	228.60	203.20	19.60	6.31	48.92	14.95	69.76	19.80
12x10	323.85	273.05	254.00	241.30	203.20	20.50	6.78	50.14	15.40	72.45	20.38
14x6	355.60	168.27	279.40	238.12	330.20	23.70	10.30	72.93	26.05	101.02	34.89
14x8	355.60	219.07	279.40	249.65	330.20	24.50	11.20	74.75	26.27	104.19	35.10
14x10	355.60	273.05	279.40	257.17	330.20	25.60	12.10	75.88	26.59	107.81	35.56
14x12	355.60	323.85	279.40	269.87	330.20	26.40	13.00	77.01	26.82	112.79	35.83
16x6	406.40	168.27	304.80	263.52	355.60	29.00	13.00	82.90	33.15	124.12	44.00
16x8	406.40	219.07	304.80	273.05	355.60	30.00	13.70	87.88	32.39	126.84	42.67
16x10	406.40	273.05	304.80	282.57	355.60	31.00	14.40	90.60	32.84	130.00	43.26
16x12	406.40	323.85	304.80	295.27	355.60	32.10	15.20	92.86	33.43	132.73	43.49
16x14	406.40	355.60	304.80	304.80	355.60	33.00	15.80	95.13	33.98	137.26	44.62
18x8	457.20	219.07	342.90	298.45	381.00	39.30	16.00	110.98	40.00	144.96	53.12
18x10	457.20	273.05	342.90	307.97	381.00	39.95	16.80	115.50	38.50	149.49	51.64
18x12	457.20	323.85	342.90	320.67	381.00	40.60	17.60	120.95	38.96	154.00	52.10
18x14	457.20	355.60	342.90	330.20	381.00	41.20	18.20	124.12	39.41	161.82	52.55
18x16	457.20	406.40	342.90	330.20	381.00	41.90	19.20	126.84	39.86	167.61	53.00
20x8	508.00	219.07	381.00	323.85	-	55.25	25.10	163.50	-	214.00	-
20x10	508.00	273.05	381.00	333.37	-	56.00	26.70	163.50	-	214.00	-
20x12	508.00	323.85	381.00	346.07	508.00	56.75	28.30	163.50	57.08	214.00	76.19
20x14	508.00	355.60	381.00	355.60	508.00	57.50	29.90	163.50	57.98	214.00	77.19
20x16	508.00	406.40	381.00	355.60	508.00	58.30	31.70	168.00	58.44	218.00	77.73
20x18	508.00	457.20	381.00	368.30	508.00	59.00	33.10	168.00	58.89	218.00	78.37
22x10	558.80	273.05	419.10	358.78	-	65.40	28.60	172.50	-	245.00	-
22x12	558.80	323.85	419.10	371.48	-	66.90	30.20	172.50	-	245.00	-
22x14	558.80	355.60	419.10	381.00	508.00	68.40	31.80	172.50	57.99	245.00	76.10
22x16	558.80	406.40	419.10	381.00	508.00	69.90	33.40	209.00	61.15	260.00	80.18
22x18	558.80	457.20	419.10	393.70	508.00	70.70	35.10	209.00	62.97	260.00	82.45
22x20	558.80	508.00	419.10	406.40	508.00	72.90	36.60	220.00	64.33	280.00	84.26
24x10	608.60	273.05	431.80	384.20	-	82.70	35.20	204.00	-	300.00	-
24x12	609.60	323.85	431.80	396.90	-	84.10	37.00	218.00	-	300.00	-
24x14	609.60	355.60	431.80	406.40	-	85.50	38.80	222.00	-	300.00	-
24x16	609.60	406.40	431.80	406.40	508.00	86.90	40.60	222.00	72.00	320.00	95.40
24x18	609.60	457.20	431.80	419.10	508.00	88.30	42.40	227.00	72.00	320.00	95.40
24x20	609.60	508.00	431.80	431.80	508.00	90.30	44.10	227.00	72.00	350.00	95.40
24x22	609.60	558.80	431.80	431.80	508.00	91.10	46.00	237.00	72.00	350.00	95.40

FITTINGS

TYPES, DIMENSIONS AND WEIGHTS OF WELDING FITTINGS ANSI (ASA) B 16.9

CAPS



Inches Nominal Pipe Size	Outside Diameter D	Wall Thickness			Length H	Weight kg.		
		Sch. 10s	Standard	Extra Strong		Sch. 10s	Standard	Extra Strong
½	21.34	2.11	2.77	3.73	25.40	0.03	0.03	0.04
¾	26.67	2.11	2.87	3.91	25.40	0.04	0.04	0.06
1	33.40	2.77	3.38	4.55	38.10	0.09	0.10	0.13
1¼	42.16	2.77	3.56	4.85	38.10	0.11	0.14	0.18
1½	48.26	2.77	3.68	5.08	38.10	0.13	0.17	0.22
2	60.32	2.77	3.91	5.54	38.10	0.17	0.23	0.30
2½	73.02	3.05	5.16	7.01	38.10	0.23	0.37	0.46
3	88.90	3.05	5.49	7.62	50.80	0.37	0.64	0.84
3½	101.60	3.05	5.74	8.06	63.50	0.51	0.97	1.36
4	114.30	3.05	6.02	8.56	63.50	0.59	1.16	1.65
5	141.30	3.40	6.55	9.52	76.20	0.99	1.91	2.78
6	168.27	3.40	7.11	10.97	88.90	1.39	2.91	4.47
8	219.07	3.76	8.18	12.70	101.60	2.38	5.13	8.05
10	273.05	4.19	9.27	12.70	127.00	4.14	9.09	12.50
12	323.85	4.57	9.52	12.70	152.40	6.39	13.40	17.70
14	355.60	4.78	9.52	12.70	165.10	7.98	15.90	21.20
16	406.40	4.78	9.52	12.70	178.00	10.00	20.00	26.70
18	457.20	4.78	9.52	12.70	203.00	12.80	25.60	34.10
20	508.00	5.54	9.52	12.70	229.00	18.50	31.90	42.50
24	609.60	6.35	9.52	12.70	226.70	30.10	45.10	60.10

JIS BUTTWELD FITTINGS DIMENSIONS

Inches Nominal Pipe Size	Outside Diameter	Wall Thickness
1/2	21.70	2.80
3/4	27.20	2.80
1	34.00	3.20
1 1/4	42.70	3.50
1 1/2	48.60	3.50
2	60.50	3.80
2 1/2	76.30	4.20
3	89.10	4.20
4	114.30	4.50
5	139.80	4.50
6	165.20	5.00
8	216.30	5.80
10	267.40	6.60
12	323.00	6.90
14	355.60	7.90
16	406.40	7.90
18	457.20	7.90
20	508.00	7.90

NOTE: All other dimensions as per ANSI (ASA) B16.9 Welding Fittings.

FITTINGS

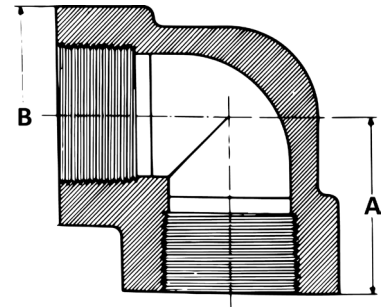
TYPES, DIMENSIONS AND WEIGHTS OF FORGED STEEL FITTINGS 3000LB SERIES

ANSI B16.11 - A 105

Inches Nominal Pipe Size	A		B		Appr. Weight	
	mm	inches	mm	inches	Kg.	Lbs
1/4	24,5	31/32	26,5	1	0,155	11/32
3/8	28,5	11/8	34,0	15/16	0,300	11/16
1/2	33,5	15/16	38,5	1 1/2	0,430	15/16
3/4	38,0	11/2	46,5	1 13/16	0,640	1 13/32
1	44,5	13/4	56,5	2 7/32	1 120	2 15/32
1 1/4	51,0	2	62,5	2 7/16	1 380	3
1 1/2	60,5	2 3/8	76,0	3	2 640	5 13/16
2	63,5	2 1/2	92,0	3 5/16	3 700	8
2 1/2	82,5	2 1/4	110,0	4 11/32	5 840	12 7/8
3	95,5	2 3/4	122,0	4 3/4	8 000	17 5/8
4	114,5	2 1/2	152,0	6	13 500	29 3/4

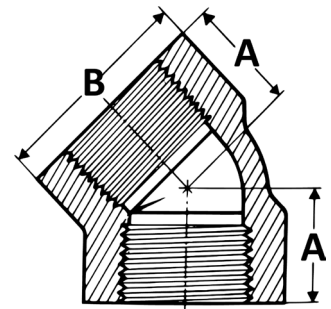
SCREWED

90° ELBOWS



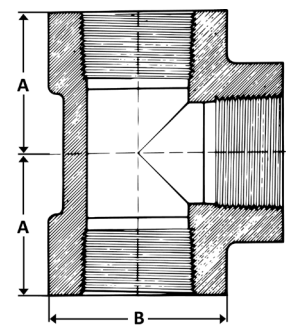
1/4	22,0	7/8	34,0	15/16	0,250	9/16
3/8	22,0	7/8	34,0	15/16	0,225	1/2
1/2	25,0	1	38,5	1 1/2	0,305	11/16
3/4	28,5	11/8	46,5	1 13/16	0,490	11/16
1	33,5	15/16	56,5	2 7/32	0,840	1 7/8
1 1/4	38,0	11/2	62,5	2 7/16	1 020	2 1/4
1 1/2	41,5	15/8	76,0	3	1 700	3 3/4
2	50,5	2	92,0	3 5/16	2 560	5 5/8
2 1/2	57,5	2 1/4	110,0	4 11/32	7 000	15 1/2
3	63,5	2 1/2	122,0	4 3/4	6 000	13 1/4
4	80,0	3 5/32	152,0	6	11 300	25

45° ELBOWS



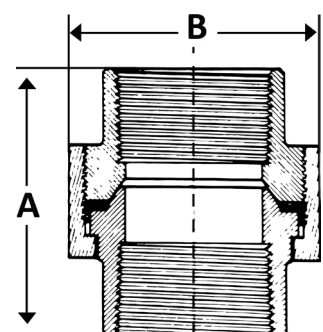
1/4	24,5	31/32	26,5	1	0,170	3/8
3/8	28,5	11/8	34,0	15/16	0,320	11/16
1/2	33,5	15/16	38,5	1 1/2	0,520	1 1/8
3/4	38,0	11/2	46,5	1 13/16	0,730	1 5/8
1	44,5	13/4	56,5	2 7/32	1 260	2 3/4
1 1/4	51,0	2	62,5	2 7/16	1 635	3 5/8
1 1/2	60,5	2 3/8	76,0	3	2 805	6 3/16
2	63,5	2 1/2	92,0	3 5/16	4 000	8 13/16
2 1/2	82,5	3 1/4	110,0	4 11/32	6 150	13 9/16
3	95,5	3 3/4	122,0	4 3/4	10 500	23 1/8
4	114,5	4 1/2	152,0	6	16 500	36 1/2

TEES



1/4	42,0	1 21/32	36,0	1 7/16	0,140	5/16
3/8	47,0	1 27/32	41,0	1 5/8	0,190	13/32
1/2	52,0	1 1/16	46,0	1 13/16	0,340	3/4
3/4	57,0	2 1/4	56,0	2 7/32	0,440	31/32
1	63,0	2 15/32	65,0	2 9/16	0,600	15/16
1 1/4	72,0	2 27/32	78,0	3 1/16	0,995	2 3/16
1 1/2	78,0	3 1/16	86,0	3 13/32	1 255	2 25/32
2	89,0	3 1/2	103,0	4 1/16	2 120	4 11/16
2 1/2	114,0	4 1/2	122,0	4 13/16	5 500	12 1/8
3	130,0	5 1/8	144,0	5 11/16	8 000	17 5/8
4	150,0	5 29/32	180,0	7 3/32	12 800	28 7/32

FEMALE - FEMALE UNIONS



Dimensions in accordance with specifications ANSI B 16.11 - 1973 and BS 3799 - 1974. Threads in accordance with specifications AP1.5B or ANSI B2.1

FITTINGS

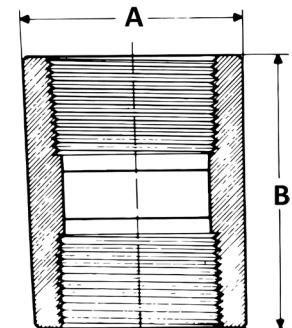
TYPES, DIMENSIONS AND WEIGHTS OF FORGED STEEL FITTINGS 3000LB SERIES

ANSI B16.11 - A 105

SCREWED

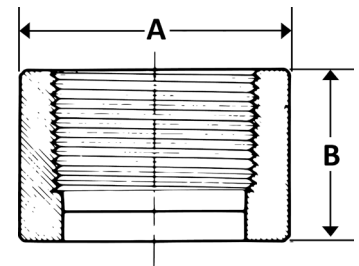
Inches Nominal Pipe Size	A		B		Appr. Weight	
	mm	inches	mm	inches	Kg.	Lbs
1/4	19,0	3/4	35,0	1 3/8	0,050	1/8
3/8	22,0	7/8	38,0	1 1/2	0,060	1/8
1/2	28,5	1 1/8	47,5	1 7/8	0,140	5/16
3/4	35,0	1 3/8	51,0	2	0,220	1/2
1	44,5	1 3/4	60,5	2 3/8	0,420	3/4
1 1/4	57,0	2 1/4	66,5	2 5/8	0,720	19/16
1 1/2	63,5	2 1/2	79,5	3 1/8	1,065	2 3/8
2	76,0	3	85,5	3 3/8	1,400	3 1/16
2 1/2	92,0	3 5/8	92,0	3 5/8	2,500	5 1/2
3	108,0	4 1/4	108,0	4 1/4	3,700	8 5/32
4	140,0	5 1/2	120,0	4 3/4	6,500	14 5/16

COUPLINGS



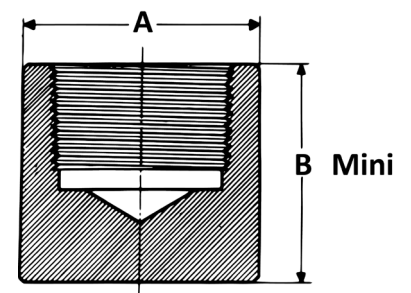
1/4	19,0	3/4	17,5	11/16	0,025	1/16
3/8	22,0	7/8	19,0	3/4	0,030	1/16
1/2	28,5	1 1/8	24,0	15/16	0,070	3/16
3/4	35,0	1 3/8	25,5	1	0,100	1/4
1	44,5	1 3/4	30,0	1 3/16	0,210	7/16
1 1/4	57,0	2 1/4	33,0	15/16	0,365	13/16
1 1/2	63,5	2 1/2	40,0	19/16	0,520	1 1/8
2	76,0	3	43,0	1 11/16	0,690	1 1/2
2 1/2	92,0	3 5/8	46,0	1 13/16	1,150	2 17/32
3	108,0	4 1/4	54,0	2 1/8	1,600	3 17/32
4	140,0	5 1/2	60,0	2 3/8	3,200	7

HALF COUPLINGS



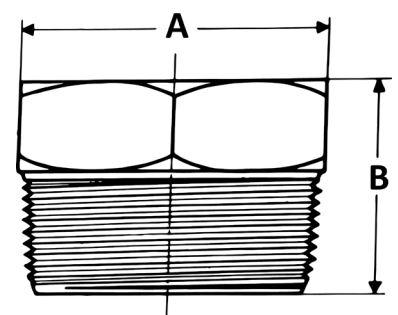
1/4	19,0	3/4	25,5	1	0,050	1/8
3/8	22,0	7/8	25,5	1	0,035	3/16
1/2	28,5	1 1/8	32,5	19/32	0,115	1/4
3/4	35,0	1 3/8	37,0	17/16	0,200	7/16
1	44,5	1 3/4	42,0	1 5/8	0,310	1 1/16
1 1/4	57,0	2 1/4	45,5	1 13/16	0,600	1 5/16
1 1/2	63,5	2 1/2	46,5	1 3/4	0,725	1 5/8
2	76,0	3	48,0	1 7/8	1,050	2 5/16
2 1/2	92,0	3 5/8	75,0	2 15/18	3,350	7 3/8
3	108,0	4 1/4	81,0	3 3/18	5,300	11 11/16
4	140,0	5 1/2	88,0	3 15/32	10,200	22 1/2

CAPS



1/4	16,0	5/8	23,0	29/32	0,025	1/16
3/8	19,0	1/4	25,5	1	0,035	3/32
1/2	22,0	7/8	29,0	15/32	0,070	3/16
3/4	27,0	1 1/16	31,5	1 1/4	0,140	5/16
1	35,0	1 3/8	35,5	1 13/32	0,210	7/16
1 1/4	46,0	1 13/16	41,5	1 5/8	0,415	1 5/16
1 1/2	50,0	2	43,0	1 11/16	0,575	1 1/4
2	63,0	2 1/2	46,0	1 13/16	1,000	2 3/16
2 1/2	77,0	3 1/32	59,0	2 5/16	1,850	4 1/16
3	94,0	3 11/16	62,5	2 15/32	3,000	6 5/8
4	116,0	4 9/16	77,0	3 1/32	6,000	13 1/4

HEXAGONAL HEAD PLUGS



Dimensions in accordance with specifications ANSI B 16.11 - 1973 and BS 3799 - 1974. Threads in accordance with specifications AP1.5B or ANSI B2.1

FITTINGS

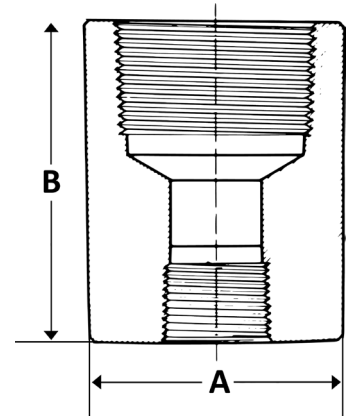
TYPES, DIMENSIONS AND WEIGHTS OF FORGED STEEL FITTINGS 3000LB SERIES

ANSI B16.11 - ASTM - A 105

Size	A		B		Appr. Weight	
	mm	inches	mm	inches	Kg.	Lbs
3/8 X 1/4	22,0	7/8	38,0	1 1/2	0,070	3/16
1/2 X 3/8	28,5	1 1/8	47,5	1 7/8	0,150	5/16
1/2 X 1/4	28,5	1 1/8	47,5	1 7/8	0,190	13/32
3/4 X 1/2	35,0	1 3/8	51,0	2	0,235	1/2
3/4 X 1/4	35,0	1 3/8	51,0	2	0,285	5/8
1 X 3/4	44,5	1 3/4	60,5	2 3/8	0,500	1 1/8
1 X 1/2	44,5	1 3/4	60,5	2 3/8	0,540	1 3/16
1 X 1/4	44,5	1 3/4	60,5	2 3/8	0,575	1 17/64
1 1/4 X 1	57,0	2 1/4	66,5	2 5/8	0,830	1 13/16
1 1/2 X 1	63,5	2 1/2	79,5	3 1/8	1 280	2 13/16
1 1/2 X 3/4	63,5	2 1/2	79,5	3 1/8	1 370	3
1 1/2 X 1/2	63,5	2 1/2	79,5	3 1/8	1 485	3 1/4
2 X 1 1/2	76,0	3	85,5	3 3/8	1 610	3 9/16
2 X 1	76,0	3	85,5	3 3/8	1 925	4 1/4
2 1/2 X 2	92,0	3 5/8	92,0	3 5/8	2 765	6 1/16
3 X 2	108,0	4 1/4	108,0	4 1/4	5 080	11 3/16
4 X 2	140,0	5 1/2	120,0	4 3/4	8 230	18 1/8
4 X 3	140,0	5 1/2	120,0	4 3/4	9 620	21 5/32

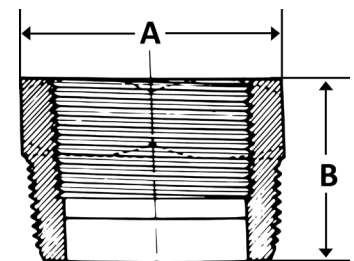
SCREWED

REDUCING COUPLINGS



3/8 X 1/4	19,0	3/4	25,5	1	0,030	1/16
1/2 X 3/8	22,0	7/8	29,0	1 5/32	0,040	1/8
1/2 X 1/4	22,0	7/8	29,0	1 5/32	0,055	1/8
3/4 X 1/2	27,0	1 1/16	31,5	1 1/4	0,085	3/16
3/4 X 1/4	27,0	1 1/16	31,5	1 1/4	0,120	9/32
1 X 3/4	35,0	13/8	35,5	1 13/32	0,105	1/4
1 X 1/2	35,0	1 3/8	35,5	1 13/32	0,150	11/32
1 X 1/4	35,0	1 3/8	35,5	1 13/32	0,190	7/16
1 1/4 X 1	46,0	1 13/16	41,5	1 5/8	0,215	1/2
1 1/2 X 1	50,0	1 31/32	43,0	1 11/16	0,380	7/8
1 1/2 X 3/4	50,0	1 31/32	43,0	1 11/16	0,465	1
1 1/2 X 1/2	50,0	1 31/32	43,0	1 11/16	0,505	1 1/8
2 X 1 1/2	63,0	2 1/2	46,0	1 13/16	0,470	1 1/16
2 X 1	63,0	2 1/2	46,0	1 13/16	0,815	1 13/16
2 1/2 X 2	77,0	3 1/32	59,0	2 5/16	0,975	2 1/8
3 X 2	94,0	3 11/16	62,5	2 15/32	1 445	3 3/16
4 X 2	116,0	4 9/16	77,0	3 1/32	3 000	4 5/8
4 X 3	116,0	4 9/16	77,0	3 1/32	4 700	10 9/32

HEXAGONAL HEAD BUSHINGS



Dimensions in accordance with specifications ANSI B 16.11 - 1973 and BS 3799 - 1974.

Threads in accordance with specifications AP1.5B or ANSI B2.1

FITTINGS

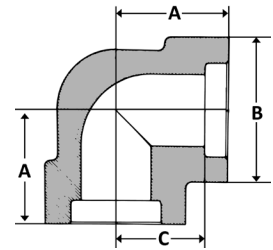
TYPES, DIMENSIONS AND WEIGHTS OF FORGED STEEL FITTINGS 3000LB SERIES

ANSI B16.11 - ASTM - A 105

Size	A		B		C		Appr. Weight	
	mm	inches	mm	inches	mm	inches	Kg.	Lbs
1/4	20,5	13/16	22,0	7/8	11,5	15/32	0,065	9/64
3/8	24,5	31/32	26,5	1 1/16	13,0	17/32	0,130	9/32
1/2	28,5	1 1/8	34,0	1 11/32	15,5	5/8	0,230	1/2
3/4	33,5	15/16	38,5	1 1/2	18,5	3/4	0,300	21/32
1	38,0	1 1/2	46,5	1 27/32	22,0	7/8	0,490	1 1/16
1 1/4	44,5	13/4	56,5	2 7/32	27,0	1 1/16	0,760	1 11/16
1 1/2	51,0	2	62,5	2 15/32	32,0	19/32	1 050	2 5/16
2	60,5	2 3/8	76,0	3	38,0	1 1/2	1 730	3 13/16
2 1/2	63,5	2 1/2	92,0	3 5/8	41,0	15/8	2 550	5 5/8
3	82,5	3 1/4	110,0	4 11/32	57,0	2 1/4	4 000	8 13/16
4	114,5	4 1/2	152,0	6	67,0	2 21/32	14 300	31 1/2

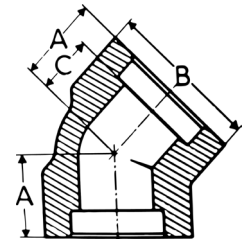
SOCKET WELD

90° ELBOWS



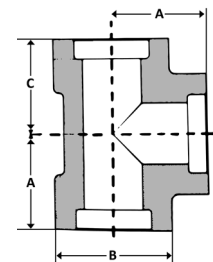
1/4	22,5	7/8	34,0	1 11/32	9,5	3/8	0,195	7/16
3/8	22,5	7/8	34,0	1 11/32	9,5	3/8	0,180	13/32
1/2	22,5	7/8	34,0	1 11/32	12,0	15/32	0,170	3/8
3/4	25,0	63/64	38,5	1 1/2	12,0	15/32	0,230	1/2
1	28,5	1 1/8	46,5	1 27/32	14,5	19/32	0,345	3/4
1 1/4	33,5	15/16	56,5	2 7/32	17,5	11/16	0,650	1 7/16
1 1/2	38,0	1 1/2	62,5	2 15/32	21,0	13/16	0,795	1 3/4
2	41,5	15/8	76,0	3	25,5	1	1 200	2 5/8
2 1/2	50,5	2	92,0	3 5/8	28,5	1 1/8	2 200	4 27/32
3	63,5	2 1/2	122,0	4 13/16	32,0	19/32	7 100	15 21/32
4	80,0	3 5/32	152,0	6	42,0	1 21/32	10 300	22 11/16

45° ELBOWS



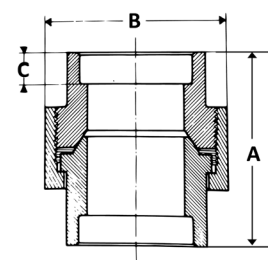
1/4	24,5	31/32	26,5	1 1/16	11,5	15/32	0,175	3/8
3/8	24,5	31/32	26,5	1 1/16	13,0	17/32	0,155	5/16
1/2	28,5	1 1/8	34,0	1 11/32	15,5	5/8	0,280	5/8
3/4	33,5	15/16	38,5	1 1/2	18,5	3/4	0,370	13/16
1	38,0	1 1/2	46,5	1 27/32	22,0	7/8	0,565	1 1/4
1 1/4	44,5	13/4	56,5	2 7/32	27,0	1 1/16	0,870	1 15/16
1 1/2	51,0	2	62,5	2 15/32	32,0	19/32	1 280	2 13/16
2	60,5	2 3/8	76,0	3	38,0	1 1/2	1 795	4
2 1/2	63,5	2 1/2	92,0	3 5/8	41,0	15/8	2 845	6 1/4
3	82,5	3 1/4	110,0	4 11/32	57,0	2 1/4	5 500	12 1/8
4	114,5	4 1/2	152,0	6	67,0	2 21/32	20 000	44

TEES



1/4	42,0	1 21/32	36,0	1 7/16	9,5	3/8	0,150	11/32
3/8	47,0	1 27/32	41,0	1 5/8	9,5	3/8	0,220	1/2
1/2	52,0	2 1/16	46,0	1 13/16	9,5	3/8	0,380	27/32
3/4	57,0	2 1/4	56,0	2 7/32	13,0	1/2	0,460	1
1	63,0	2 15/32	65,0	2 9/16	13,0	1/2	0,700	1 9/16
1 1/4	72,0	2 27/32	78,0	3 1/16	13,0	1/2	1 200	2 5/8
1 1/2	78,0	3 1/16	86,0	3 13/32	13,0	1/2	1 500	3 5/16
2	89,0	3 1/2	103,0	4 1/16	16,0	5/8	2 575	5 11/16
2 1/2	114,0	4 1/2	122,0	4 13/16	16,0	5/8	6 100	13 7/16
3	130,0	5 1/8	144,0	5 11/16	16,0	5/8	8 800	19 3/8
4	150,0	5 29/32	180,0	7 3/32	20,0	25/32	13 500	29 3/4

FEMALE-FEMALE UNIONS



FITTINGS

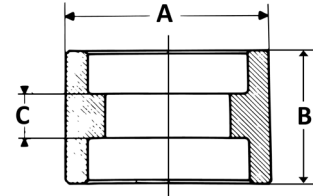
TYPES, DIMENSIONS AND WEIGHTS OF FORGED STEEL FITTINGS 3000LB SERIES

ANSI B16.11 - ASTM - A 105

Size	A		B		C		Appr. Weight	
	mm	inches	mm	inches	mm	inches	Kg.	Lbs
1/4	22,5	7/8	25,5	1	6,5	1/4	0,055	1/8
3/8	26,5	1 1/16	25,5	1	6,5	1/4	0,060	1/8
1/2	32,0	1 1/4	28,5	1 1/8	9,5	3/8	0,110	1/4
3/4	38,0	1 1/2	35,5	1 3/8	9,5	3/8	0,170	3/8
1	46,5	1 27/32	39,0	1 1/2	13,0	1/2	0,270	5/8
1 1/4	56,0	2 7/32	39,0	1 1/2	13,0	1/2	0,350	3/4
1 1/2	62,5	2 15/32	39,0	1 1/2	13,0	1/2	0,425	15/16
2	76,5	3	51,0	2	19,0	3/4	0,715	19/16
2 1/2	93,0	3 21/32	51,0	2	19,0	3/4	1 130	2 1/2
3	110,5	4 11/32	51,0	2	19,0	3/4	1 500	3 5/16
4	138,5	5 15/32	60,0	2 11/32	19,0	3/4	2 500	5 1/2

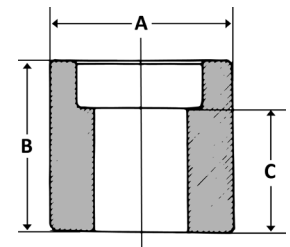
SOCKET WELD

COUPLINGS



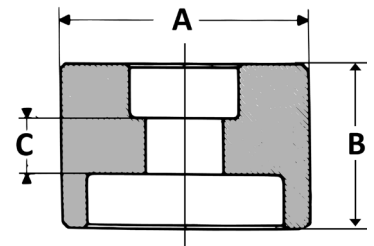
1/4	22,5	7/8	25,5	1	16,0	5/8	0,060	1/8
3/8	26,5	1 1/16	27,0	1 1/16	17,5	11/16	0,075	3/16
1/2	32,0	1 1/4	32,0	1 1/4	22,5	7/8	0,140	5/16
3/4	38,0	1 1/2	37,0	1 7/16	24,0	15/16	0,200	7/16
1	46,5	1 27/32	41,5	1 5/8	28,5	1 1/8	0,335	3/4
1 1/4	56,0	2 7/32	43,5	1 23/32	30,5	1 3/16	0,480	1 1/16
1 1/2	62,5	2 15/32	45,0	1 3/4	32,0	1 1/4	0,570	1 1/4
2	76,5	3	57,5	2 1/4	41,5	1 5/8	1 000	2 3/16
2 1/2	93,0	3 21/32	59,0	2 5/16	43,0	1 11/16	1 550	3 7/16
3	110,5	4 11/32	60,5	2 3/8	44,5	1 3/4	2 130	4 11/16
4	138,5	5 15/32	70,0	2 3/4	50,0	1 31/32	3 650	8 1/16

HALF COUPLINGS



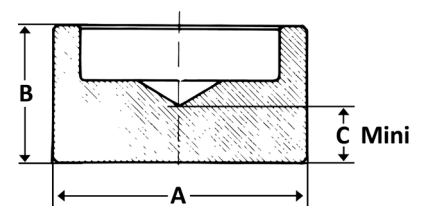
3/8x1/4	26,5	1 1/16	25,5	1	6,5	1/4	0,070	3/16
1/2x3/8	32,0	1 1/4	28,5	1 1/8	9,5	3/8	0,120	1/4
1/2x1/4	32,0	1 1/4	28,5	1 1/8	9,5	3/8	0,130	9/32
3/4x1/2	38,0	1 1/2	32,0	1 1/4	9,5	3/8	0,195	7/16
3/4x1/4	38,0	1 1/2	32,0	1 1/4	9,5	3/8	0,220	1/2
1x3/4	46,5	1 27/32	39,0	1 1/2	13,0	1/2	0,315	11/16
1x1/2	46,5	1 27/32	39,0	1 1/2	16,5	21/32	0,350	25/32
1x1/4	46,5	1 27/32	39,0	1 1/2	16,5	21/32	0,380	27/32
1 1/4x1	56,0	2 7/32	39,0	1 1/2	13,0	1/2	0,435	15/16
1 1/2x1	62,5	2 15/32	39,0	1 1/2	13,0	1/2	0,580	19/32
1 7/8x3/4	62,5	2 15/32	39,0	1 1/2	13,0	1/2	0,630	1 3/8
1 7/8x1/2	62,5	2 15/32	35,5	1 13/32	13,0	1/2	0,670	1 1/2
2x1 1/2	76,5	3	48,0	1 29/32	19,0	3/4	0,920	2 1/32
2x1	76,5	3	48,0	1 29/32	19,0	3/4	1 140	2 17/32

REDUCING COUPLINGS



1/4	22,5	7/8	16,0	5/8	6,5	1/4	0,035	3/32
3/8	26,5	1 1/16	16,0	5/8	5,5	1/4	0,045	1/8
1/2	32,0	1 1/4	17,5	11/16	8,0	5/16	0,065	5/32
3/4	38,0	1 1/2	22,5	7/8	9,5	3/8	0,125	1/4
1	46,5	1 27/32	25,0	1	12,0	15/32	0,210	15/32
1 1/4	56,0	2 7/32	26,0	1 1/32	13,0	1/2	0,370	13/16
1 1/2	62,5	2 15/32	28,0	1 1/8	15,0	19/32	0,600	15/16
2	76,5	3	34,0	1 11/32	19,0	3/4	1 030	25/16
2 1/2	93,0	3 21/32	37,0	1 15/32	21,0	27/32	1 500	3 5/16
3	110,5	4 11/32	40,0	1 19/32	24,0	15/16	2 300	5 3/32
4	138,5	5 15/32	45,0	1 25/32	25,0	1	4 000	8 3/16

CAPS



FITTINGS

FORGED STEEL PIPE FITTINGS SCREWED AND SOCKET WELD PRESSURE TEMPERATURE TABLES (IN PSI)

Pressure Class	2000 Lb				3000 Lb				4000 Lb				6000 Lb			
	Service Temperature Degree F.	Carbon Steel A-105 Gr.2	½ Cr. ½ Mo. A-182 Gr. F11	5 Cr. ½ Mo. A-182 Gr. F5	A-182 Grade F-316	Carbon Steel A-105 Gr.2	½ Cr. ½ Mo. A-182 Gr. F11	5 Cr. ½ Mo. A-182 Gr. F5	A-182 Grade F-316	Carbon Steel A-105 Gr.2	½ Cr. ½ Mo. A-182 Gr. F11	5 Cr. ½ Mo. A-182 Gr. F5	A-182 Grade F-316	Carbon Steel A-105 Gr.2	½ Cr. ½ Mo. A-182 Gr. F11	5 Cr. ½ Mo. A-182 Gr. F5
20 to 100	2000	2000	2000	2000	3000	3000	3000	3000	4000	4000	4000	4000	6000	6000	6000	6000
150	1970	1970	1970	1970	2955	2955	2955	2955	3940	3940	3940	3940	5915	5915	5915	5915
200	1940	1940	1949	1940	2915	2915	2915	2915	3885	3885	3885	3885	5830	5830	5830	5830
250	1915	1915	1915	1915	2875	2875	2875	2875	3830	3830	3830	3830	5750	5750	5750	5750
300	1895	1895	1895	1895	2845	2845	2845	2845	3790	3790	3790	3790	5690	5690	5690	5690
350	1875	1875	1875	1875	2810	2810	2810	2810	3750	3750	3750	3750	5625	5625	5625	5625
400	1850	1850	1850	1850	2775	2775	2775	2775	3700	3700	3700	3700	5550	5550	5550	5550
450	1810	1810	1810	1810	2715	2715	2715	2715	3620	3620	3620	3620	5430	5430	5430	5430
500	1735	1735	1735	1735	2605	2605	2605	2605	3470	3470	3470	3470	5210	5210	5210	5210
550	1640	1640	1640	1640	2460	2460	2460	2460	3280	3280	3280	3280	4925	4925	4925	4925
600	1540	1540	1540	1540	2310	2310	2310	2310	3080	3080	3080	3080	4620	4620	4620	4620
650	1430	1430	1430	1430	2150	2150	2150	2150	2865	2865	2865	2865	4300	4300	4300	4300
700	1305	1340	1340	1370	1960	2010	2010	2055	2610	2680	2680	2740	3920	4025	4025	4110
750	1180	1245	1245	1305	1775	1870	1870	1960	2365	2495	2495	2610	3550	3745	3745	3920
800	1015	1155	1155	1240	1525	1735	1735	1865	2030	2310	2310	2485	3050	3470	3470	3730
850	830(1)	1060	1060	1180	1250(1)	1595	1595	1770	1665(1)	2125	2125	2360	2500(1)	3190	3190	3540
875	725(1)	1015	1015	1145	1090(1)	1525	1525	1720	1450(1)	2035	2035	2295	2180(1)	3055	3055	3445
900	615(1)	970	970	1115	925(1)	1455	1455	1675	1235(1)	1940	1940	2230	1855(1)	2915	2915	3350
925	520(1)(2)	925	925	1085	785(1)(2)	1385	1385	1630	1045(1)(2)	1850	1850	2170	1570(1)(2)	2775	2775	3260
950	425(1)(2)	880	880	1055	640(1)(2)	1320	1320	1580	855(1)(2)	1760	1760	2110	1285(1)(2)	2640	2640	3165
975	330(1)(2)	830	830	1020	500(1)(2)	1250	1250	1535	655(1)(2)	1665	1665	2045	1000(1)(2)	2500	2500	3070
1000	235(1)(2)	740	695	990	355(1)(2)	1115	1040	1485	475(1)(2)	1485	1390	1980	715(1)(2)	2230	2085	2975
1025	-	630(1)	595	960	-	950(1)	890	1440	-	1265(1)	1190	1920	-	1900(1)	1785	2880
1050	-	520(1)	495	925	-	785(1)	740	1390	-	1045(1)	990	1855	-	1570(1)	1485	2785
1075	-	450(1)	405	895	-	675(1)	605	1345	-	900(1)	810	1790	-	1355(1)	1215	2690
1100	-	380(1)	315	865	-	570(1)	470	1295	-	760(1)	630	1730	-	1145(1)	945	2595
1125	-	310(1)(2)	260	830	-	465(1)(2)	390	1250	-	620(1)(2)	520	1665	-	930(1)(2)	:785	2500
1150	-	235(1)(2)	210	810	-	355(1)(2)	315	1215	-	475(1)(2)	420	1620	-	715(1)(2)	630	2430
1175	-	175(1)(2)	175	725	-	265(1)(2)	265	1090	-	350(1)(2)	350	1455	-	530(1)(2)	530	2185
1200	-	115(1)(2)	140	645	-	170(1)(2)	215	970	-	230(1)(2)	285	1295	-	345(1)(2)	430	1945

NOTES:

- (1) Product used within the jurisdiction of Section 1, Power Boilers, of the ASME Boiler and Pressure Vessel Code is subject to the same maximum temperature limitations placed upon the material in Table P7, 1956 edition thereof.
- (2) Product used within the jurisdiction of Section 1, Power Piping, of the ASA Code for Pressure Piping, B31.1, is subject to the same maximum temperature limitations upon piping of the same general composition in Table 2a of ASA B31.1 - 1955.

Steel valves, flanges, fittings, and unions are classified by either the Primary Rating or the Cold Working Pressure Rating depending on the type of product. The Primary Rating is a pressure rating established by standards and accepted practice at an elevated temperature. The Cold Working Pressure Rating is the rating at ambient temperature (minus 20°F. to 100°F.). This rating is frequently referred to as the CWP (Cold Working Pressure) or WOG (Water, Oil, and Gas) Rating.

FITTINGS

MALLEABLE CAST IRON PIPE FITTINGS TO SANS 509:1955 AND BS 143:1952 (BSEN 10241:2000)

WORKING PRESSURES AND TEMPERATURES

Malleable fittings may be used for water, gas, steam or air services for working pressures which do not exceed 14 bars for water and 10 bars in the case of steam, gas or oil. Working temperatures should not exceed 232°C (450°F).

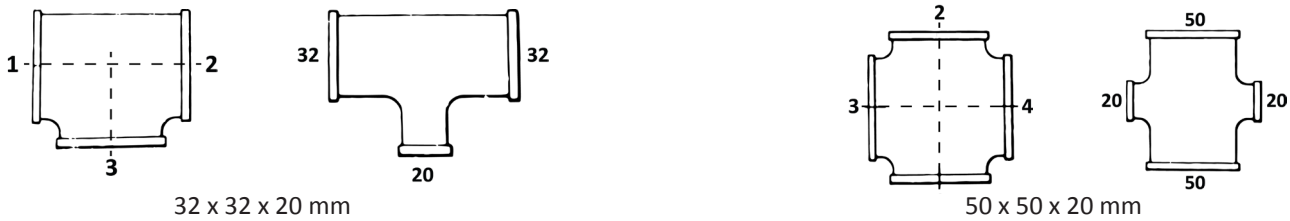
TOLERANCES

The plus or minus tolerances allowed on the length of sockets and nipples and centre to face dimensions of elbows, tees, crosses and bends shall be as follows:

Lengths up to	in	1 1/4"	2"	3"	4"	6"	8"	12"
	mm	32	51	76	102	152	203	305
Tolerances	in	1.5	2.0	2.5	3.0	3.5	4.0	5.1
	mm	0.06	0.08	0.10	0.12	0.14	0.16	0.20

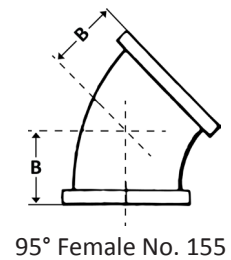
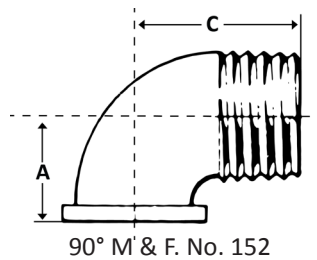
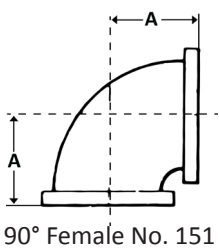
METHOD OF SPECIFYING OUTLETS

Reducing fittings should be ordered by specifying sizes in the order shown by the numbered diagrams.



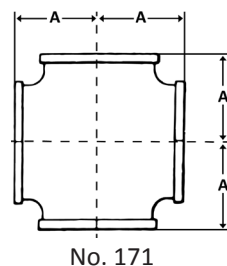
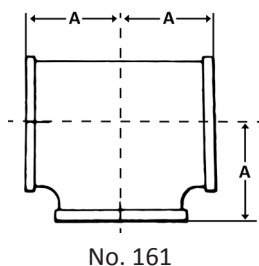
ELBOWS

Size in	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6
Size mm	6	8	10	15	20	25	32	40	50	65	80	100	125	150
A mm	18	21	24	28	33	38	44	49	57	69	78	96	114	130
B mm	18	19	21	22	25	28	33	36	43	50	55	66	78	88
C mm	25	30	37	41	48	54	62	68	83	98	115	144	-	-



TEES AND CROSSES

Size in	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6
Size mm	6	8	10	15	20	25	32	40	50	65	80	100	125	150
A mm	18	21	24	28	33	40	44	49	57	69	78	96	114	130

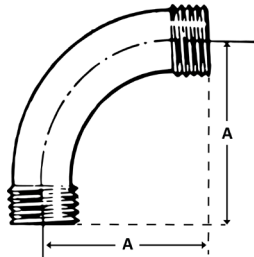


FITTINGS

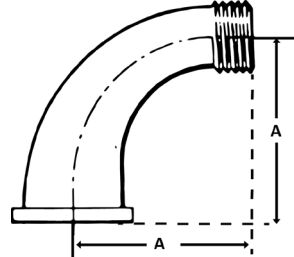
MALLEABLE CAST IRON PIPE FITTINGS TO SANS 509:1955 AND BS 143:1952
(BSEN 10241:2000)

BENDS

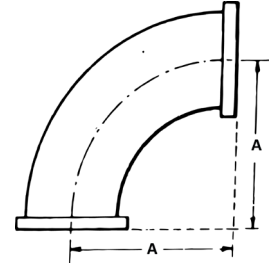
Size in	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6
Size mm	6	8	10	15	20	25	32	40	50	65	80	100	125	150
A mm	25	30	37	45	51	65	80	90	102	114	127	165	190	230



Male No. 191



M & F. No. 203

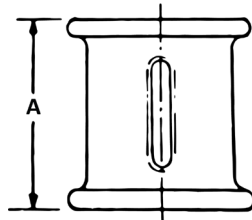


Female No. 193

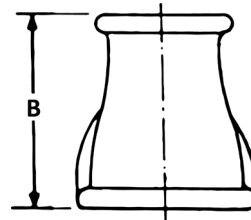
SOCKETS

Size in	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6
Size mm	6	8	10	15	20	25	32	40	50	65	80	100	125	150
A mm	24	27	30	33	40	43	49	54	65	73	81	94	108	121
B mm	-	25	29	32	37	43	52	59	71	83	94	111	130	149

The size of the reducing sockets in the above table is that of the larger end. When ordering, the required size at the smaller end should also be given.



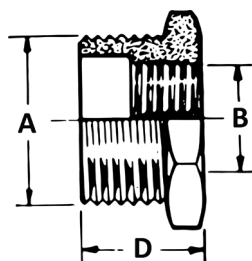
Parallel Thread No. 176



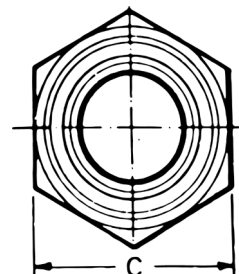
Taper Thread No. 179

BUSHES

Nom. Size A x B	A in	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6
	A mm	8	10	15	20	25	32	40	50	65	80	100	125	150
B mm	6	6 8	6 8 10	8 10 15	8	10	8	10	15	20	25	32	40	50
					10	15	20	25	32	40	50	65	80	100
C mm	27	30	33	40	43	49	54	65	73	81	94	108	121	
D mm	25	29	32	37	43	52	59	71	83	94	111	130	149	



Taper thread



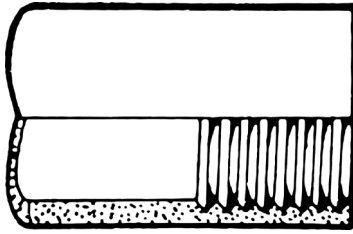
FITTINGS

WROUGHT STEEL FITTINGS BS 21 AND BS 1740 - 1965 (BSEN 10241:2000)

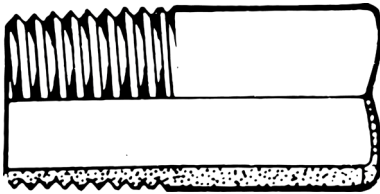
WORKING PRESSURES and TEMPERATURES

Wrought steel fittings to BS 1740 may be used for water, gas, steam or air services and are screwed for use with medium and heavy quality pipe to SANS 62. Maximum temperatures shall not exceed 232°C (450°F). Test pressure 48.5 bar.

DETAILS OF DIMENSIONS AND THREADS



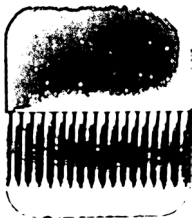
Female thread (parallel)



Male thread (taper)

Size		Min. o.d. X	Minimum o.d. of body behind male thread Y		Maximum i.d. of body behind female thread D		Number of Threads per inch
mm	in	mm	mm	in	mm	in	
6	1/8	15	9.5	0.386	8.5	0.337	28
8	1/4	18.5	13.2	0.522	11.5	0.451	19
10	3/8	22	16.8	0.660	15.0	0.589	19
15	1/2	27	21.1	0.831	18.6	0.734	14
20	3/4	32.5	26.6	1.047	24.1	0.950	14
25	1	39.5	33.4	1.316	30.3	1.193	11
32	1 1/4	49	42.1	1.657	39.0	1.534	11
40	1 1/2	56	48.0	1.889	44.9	1.766	11
50	2	68	59.8	2.354	56.6	2.231	11
65	2 1/2	84	75.4	2.969	72.3	2.844	11
80	3	98	88.1	3.469	85.0	3.344	11
100	4	124	113.2	4.459	110.0	4.334	11
125	5	151	138.7	5.459	135.4	5.334	11
150	6	178	164.0	6.459	161.0	6.334	11

SOCKETS



Parallel socket



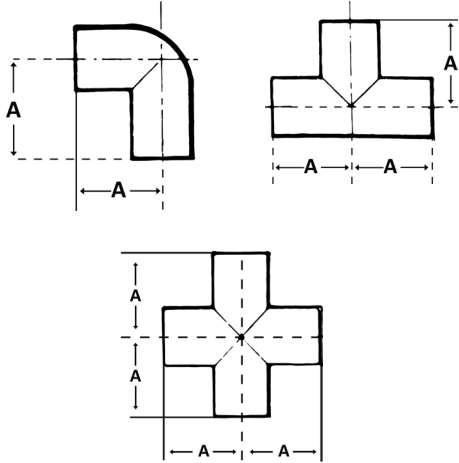
Reducing socket

Size		Min. outside diameter		Min. length (Parallel sockets)	
mm	in	mm	in	mm	in
6	1/8	15	19/32	19	3/4
8	1/4	18.5	23/32	27	1 1/16
10	3/8	22	7/8	28	1 1/8
15	1/2	27	1 1/16	37	1 7/16
20	3/4	32.5	1 9/32	39	1 9/16
25	1	39.5	1 9/16	46	1 13/16
32	1 1/4	49	1 15/16	51	2
40	1 1/2	56	2 3/16	51	2
50	2	68	2 11/16	60	2 3/8
65	2 1/2	84	3 5/16	69	2 11/16
80	3	98	3 7/8	75	2 15/16
100	4	124	4 7/8	87	3 7/16
125	5	151	5 15/16	96	3 3/4
150	6	178	7	96	3 3/4

FITTINGS

WROUGHT STEEL FITTINGS BS 21 AND BS 1740 - 1965 (BSEN 10241:2000)

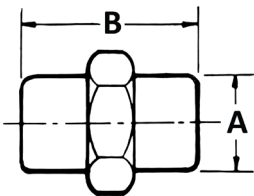
ELBOWS, TEES AND CROSSES



Size		Min. outside diameter		Min. length centre to face A	
mm	inches	mm	mm	mm	mm
6	1/8	15		16	
8	1/4	18.5		22	
10	3/8	22		24	
15	1/2	27		32	
20	3/4	32.5		35	
25	1	39.5		43	
32	1 1/4	49		50	
40	1 1/2	56		52	
50	2	68		65	
65	2 1/2	84		80	
80	3	98		102	
100	4	124		114	
125	5	151		140	
150	6	178		160	

Details of Reducing elbows, tees and crosses are available on application.

SOCKET UNIONS



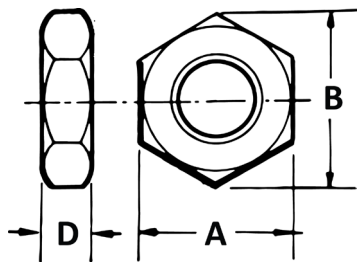
Size		Min. outside diameter		Min. length centre to face A	
mm	inches	mm	mm	mm	mm
6	1/8	15		40	
8	1/4	18.5		45	
10	3/8	22		50	
15	1/2	27		57	
20	3/4	32.5		67	
25	1	39.5		80	
32	1 1/4	49		86	
40	1 1/2	56		98	
50	2	68		111	
65	2 1/2	84		121	
80	3	98		133	
100	4	124		160	
125	5	151		184	
150	6	178		210	

NOTE: Unions are normally supplied with flat seats and fitted with a washer. Other types of seats are obtainable if required.

FITTINGS

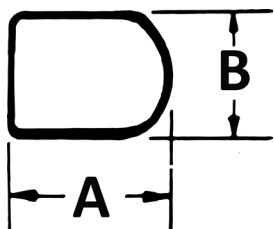
WROUGHT STEEL FITTINGS BS 21 AND BS 1740 - 1965 (BSEN 10241:2000)

BACKNUTS



Size		Width across flats A	Thickness D	Width across corners B
mm	in	mm	mm	mm
6	1/8	19	8	22
8	1/4	22	8	25
10	3/8	27	7	32
15	1/2	32	8	36.5
20	3/4	36.5	9	43
25	1	46	10	54
32	1 1/4	60	11	70
40	1 1/2	65	12	73
50	2	78	14	90.5
65	2 1/2	97	18	111
80	3	114	21	132
100	4	140	22	162
125	5	172	24	198
150	6	197	25	227

CAPS

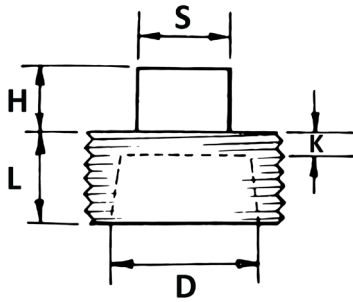


Size		Outside diameter B	Minimum overall length A
mm	in	mm	mm
6	1/8	15	19
8	1/4	18.5	24
10	3/8	22	27
15	1/2	27	37
20	3/4	32.5	40
25	1	39.5	45
32	1 1/4	49	51
40	1 1/2	56	54
50	2	68	60
65	2 1/2	84	67
80	3	98	73
100	4	124	86
125	5	151	98
150	6	178	98

FITTINGS

WROUGHT STEEL FITTINGS BS 21 AND BS 1740 - 1965 (BSEN 10241:2000)

PLUGS



Size		Min. Length of thread for basic gauge length L	Approx. size of square S	Approx height of square H	Maximum internal diameter D	Minimum thickness of metal K
mm	in	mm	mm	mm	mm	mm
6	1/8	7	8	8	-	-
8	1/4	10	9	8	-	-
10	3/8	10	11	10	-	-
15	1/2	13	13	10	-	-
20	3/4	15	14	13	-	-
25	1	17	18	13	22	4
32	1 1/4	19	22	16	31	5
40	1 1/2	19	27	16	33	5
50	2	23	32	19	48	5
65	2 1/2	27	37	19	62	7
80	3	30	37	22	73	8
100	4	36	46	25	97	10
125	5	40	51	28	121	12
150	6	40	60	32	144	13

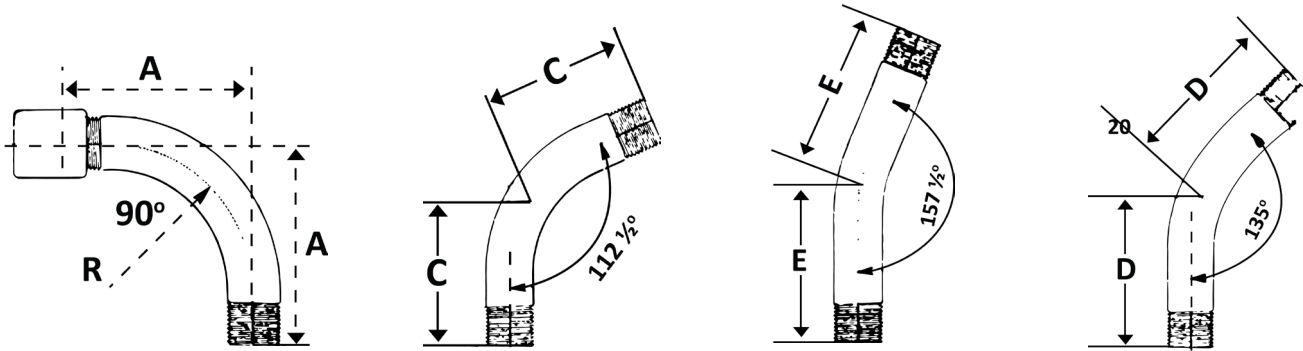
NOTE: Plugs may be either solid or hollow, and the attention of the purchaser is drawn to the necessity of stating in his enquiry and order which pattern is required.

FITTINGS

STEEL PIPE FITTINGS TO BS 1387 : 1967 (BSEN 10241:2000)

BENDS AND SPRINGS

Taper threads



Type 1

MANUFACTURED FROM MEDIUM OR HEAVY TUBE

Size		Bends Type 1				Springs					
		90°		Approximate radius		112½°		135°		157½°	
		Approximate centre to face				Approximate centre to face					
		A		R		C		D		E	
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
6	1/8	51	2	32	1 1/4	48	1 7/8	44	1 3/4	44	1 3/4
8	1/4	64	2 1/2	41	1 5/8	60	2 3/8	57	2 1/4	54	2 1/8
10	3/8	73	2 7/8	48	1 7/8	67	2 5/8	64	2 1/2	60	2 3/8
15	1/2	86	3 3/8	57	2 1/4	79	3 1/8	76	3	73	2 7/8
20	3/4	102	4	73	2 7/8	92	3 5/8	89	3 1/2	86	3 3/8
25	1	121	4 3/4	89	3 1/2	108	4 1/4	105	4 1/8	102	4
32	1 1/4	146	5 3/4	108	4 1/4	133	5 1/4	127	5	124	4 7/8
40	1 1/2	165	6 1/2	127	5	149	5 7/8	143	5 5/8	140	5 1/2
50	2	203	8	159	6 1/4	181	7 1/8	175	6 7/8	168	6 5/8
65	2 1/2	248	9 3/4	197	7 3/4	222	8 3/4	213	8 3/8	206	8 1/8
80	3	292	11 1/2	232	9 1/8	260	10 1/4	248	9 3/4	241	9 1/2
100	4	381	15	308	12 1/8	340	13 3/8	324	12 3/4	318	12 1/2
125	5	540	21 1/4	457	18	476	18 3/4	457	18	444	17 1/2
150	6	622	24 1/2	534	21	572	22 1/2	540	21 1/4	527	20 3/4

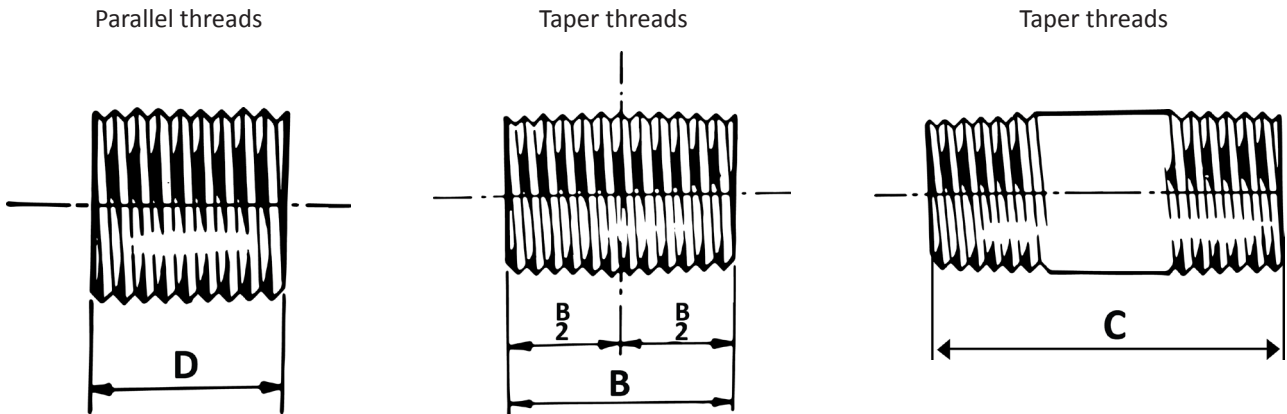
BENDS - Type 1. These are socketed as illustrated.

SPRINGS - These are supplied without sockets unless otherwise ordered. The angle should be stated in enquiries and orders. Springs can be made to any angle required.

FITTINGS

STEEL PIPE FITTINGS TO BS 1387 : 1967 (BSEN 10241:2000)

RUNNING NIPPLES, CLOSE TAPER NIPPLES, BARREL NIPPLES



MANUFACTURED FROM MEDIUM OR HEAVY TUBE

Size		Standard lengths								
		Running nipples				Close taper nipples		Barrel nipples		
		minimum A		tol	minimum B		tol	minimum C		tol
mm	in	mm	in		mm	in		mm	in	
6	1/8	13	1/2	+1.5 mm (+1/16 in)	19	3/4	+1.5 mm (+1/16 in)	32	1 1/4	+3 mm (+1/8 in)
8	1/4	19	3/4		27	1 1/16		38	1 1/2	
10	3/8	21	13/16		28	1 1/8		38	1 1/2	
15	1/2	27	1 1/16		37	1 7/16		51	2	+4.5 mm (+3/16 in)
20	3/4	30	1 3/16		39	1 9/16		54	2 1/8	
25	1	33	1 5/16		46	1 13/16		60	2 3/8	
32	1 1/4	38	1 1/2		51	2		70	2 3/4	+6 mm (+1/4 in)
40	1 1/2	38	1 1/2		51	2		70	2 3/4	
50	2	48	1 7/8	+3 mm (+1/8 in)	60	2 3/8	+3 mm (+1/8 in)	79	3 1/8	+8 mm (+5/16 in)
65	2 1/2	51	2		69	2 11/16		89	3 1/2	
80	3	57	2 1/4		75	2 15/16		102	4	
100	4	70	2 3/4		87	3 7/16		114	4 1/2	
125	5	78	3 1/16		96	3 3/4		124	4 7/8	
150	6	78	3 1/16		96	3 3/4		127	5	