

BENKAN BUTT-WELDING FITTINGS

BENKAN



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Wrought Steel Butt-Welding Fittings
(Carbon and Alloy Steel)



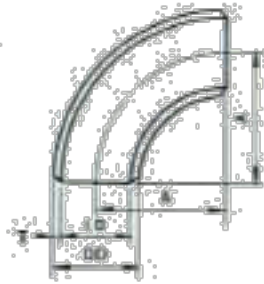
Large Diameter Wrought Steel Butt-Welding Fittings (Carbon, Alloy and Stainless Steel)



Wrought Steel Butt-Welding Fittings

STD (Sch 40)

90° Elbows (Long)



ANSI B16.9

(in inches)

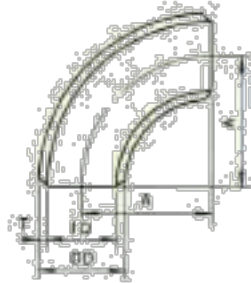
Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Center to End A	Approx. Weight (kg)
1/2	0.840	0.622	0.109	1 1/2	0.076
3/4	1.050	0.824	0.113	1 1/2	0.076
1	1.315	1.049	0.133	1 1/2	0.150
1 1/4	1.660	1.380	0.140	1 1/2	0.253
1 1/2	1.900	1.610	0.145	2 1/2	0.363
2	2.375	2.067	0.154	3	0.651
2 1/2	2.875	2.469	0.203	3 1/2	1.29
3	3.500	3.068	0.216	4 1/2	2.02
3 1/2	4.000	3.548	0.226	5 1/2	2.84
4	4.500	4.026	0.237	6	3.84
5	5.563	5.047	0.258	7 1/2	6.51
6	6.625	6.065	0.280	9	10.1
8	8.625	7.981	0.322	12	20.3
10	10.750	10.020	0.365	15	36.0
12	12.750	12.000	0.375	18	53.0
* 12	12.750	11.938	0.406	18	57.2
14	14.000	13.250	0.375	21	68.0
* 14	14.000	13.124	0.438	21	79.1
16	16.000	15.250	0.375	24	89.2
* 16	16.000	15.000	0.500	24	118
18	18.000	17.250	0.375	27	113
* 18	18.000	16.876	0.562	27	168
20	20.000	19.250	0.375	30	140
* 20	20.000	18.812	0.594	30	219
22	22.000	21.250	0.375	33	170
24	24.000	23.250	0.375	36	202
* 24	24.000	22.624	0.688	36	366

- For bevel details see pg. 123
- For dimensional tolerances see pg. 122
- ASTM A106 covers Sch 40
- Wall thicknesses conform to ANSI B36.10 Specifications for STD and Sch 40 wall pipe
- Pressure-Temperature Ratings are identical to those for seamless pipe of the same size, wall thickness or Schedule, and material grade
- 20" and smaller Nominal Pipe Size Butt-Welding Fittings are seamless
- 22" and 24" Nominal Pipe Size Butt-Welding Fittings meeting STD Specifications have one longitudinal seam and those meeting Sch 40 Specifications have two longitudinal seams

Wrought Steel Butt-Welding Fittings

XS (Sch 80)

90° Elbows (Long)



ANSI B16.9

(in inches)

Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Center to End A	Approx. Weight (kg)
½	0.840	0.546	0.147	1½	0.097
¾	1.050	0.742	0.154	1½	0.098
1	1.315	0.957	0.179	1½	0.193
1¼	1.660	1.278	0.191	1½	0.334
1½	1.900	1.500	0.200	2½	0.485
2	2.375	1.939	0.218	3	0.894
2½	2.875	2.323	0.276	3½	1.70
3	3.500	2.900	0.300	4½	2.74
3½	4.000	3.364	0.318	5½	3.90
4	4.500	3.826	0.337	6	5.34
5	5.563	4.813	0.375	7½	9.25
6	6.625	5.761	0.432	9	15.3
8	8.625	7.625	0.500	12	30.9
10	10.750	9.750	0.500	15	48.8
* 10	10.750	9.562	0.594	15	57.4
12	12.750	11.750	0.500	18	69.9
* 12	12.750	11.374	0.688	18	94.7
14	14.000	13.000	0.500	21	89.9
* 14	14.000	12.500	0.750	21	132
16	16.000	15.000	0.500	24	118
* 16	16.000	14.312	0.844	24	195
18	18.000	17.000	0.500	27	150
* 18	18.000	16.124	0.938	27	274
20	20.000	19.000	0.500	30	185
* 20	20.000	17.938	1.031	30	372
22	22.000	21.000	0.500	33	225
* 22	22.000	19.750	1.125	33	491
24	24.000	23.000	0.500	36	268
* 24	24.000	21.562	1.219	36	634

- For bevel details see pg. 123
- For dimensional tolerances see pg. 122
- Asterisks (*) denote Sch 80
- Wall thicknesses conform to ANSI B36.10 Specifications for XS and Sch 80 wall pipe
- Pressure-Temperature Ratings are identical to those for seamless pipe of the same size, wall thickness or Schedule, and material grade
- 20" and smaller Nominal Pipe Size Butt-Welding Fittings are seamless
- 22" and 24" Nominal Pipe Size Butt-Welding Fittings meeting XS Specifications have one longitudinal seam, and those meeting Sch 80 Specifications have two longitudinal seams

Wrought Steel Butt-Welding Fittings

STD (Sch 40)

90° Elbows (Short)



ANSI B16.28

(in inches)

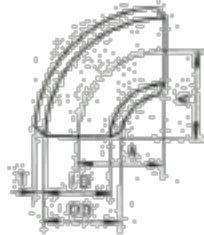
Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Center to End A	Approx. Weight (kg)
1	1.315	1.049	0.133	1	0.100
1½	1.660	1.380	0.140	1½	0.169
1½	1.900	1.610	0.145	1½	0.242
2	2.375	2.067	0.154	2	0.434
2½	2.875	2.469	0.203	2½	0.860
3	3.500	3.068	0.216	3	1.35
3½	4.000	3.548	0.226	3½	1.89
4	4.500	4.026	0.237	4	2.56
5	5.563	5.047	0.258	5	4.34
6	6.625	6.065	0.280	6	6.76
8	8.625	7.981	0.322	8	13.6
10	10.750	10.020	0.365	10	24.0
12	12.750	12.000	0.375	12	35.3
* 12	12.750	11.938	0.406	12	38.1
14	14.000	13.250	0.375	14	45.4
* 14	14.000	13.124	0.438	14	52.7
16	16.000	15.250	0.375	16	59.4
* 16	16.000	15.000	0.500	16	78.6
18	18.000	17.250	0.375	18	75.4
* 18	18.000	16.876	0.562	18	112
20	20.000	19.250	0.375	20	93.3
* 20	20.000	18.812	0.594	20	146

- For bore details see pg. 123
- For dimensional tolerances see pg. 122
- Asterisks (*) denote Sch 40
- Wall thicknesses conform to ANSI B36.10 Specifications for STD and Sch 40 wall pipe
- Pressure-Temperature Ratings are identical to those for seamless pipe of the same size, wall thickness or Schedule, and material grade
- All Nominal Pipe Size Butt-Welding Fittings are seamless

Wrought Steel Butt-Welding Fittings

SX (Sch 80)

90° Elbows (Short)



ANSI B16.28

(in inches)

Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Center to End A	Approx. Weight (kg)
1	1.315	0.957	0.179	1	0.129
1½	1.660	1.278	0.191	1½	0.222
1½	1.900	1.500	0.200	1½	0.323
2	2.375	1.939	0.218	2	0.596
2½	2.875	2.323	0.276	2½	1.14
3	3.500	2.900	0.300	3	1.83
3½	4.000	3.364	0.318	3½	2.60
4	4.500	3.826	0.337	4	3.56
5	5.563	4.813	0.375	5	6.17
6	6.625	5.781	0.432	6	10.2
8	8.625	7.625	0.500	8	20.9
10	10.750	9.750	0.500	10	32.5
* 10	10.750	9.582	0.594	10	38.2
12	12.750	11.750	0.500	12	46.8
* 12	12.750	11.374	0.688	12	63.2
14	14.000	13.000	0.500	14	59.9
* 14	14.000	12.500	0.750	14	88.2
16	16.000	15.000	0.500	16	78.6
* 16	16.000	14.312	0.844	16	130
18	18.000	17.000	0.500	18	99.9
* 18	18.000	16.124	0.938	18	183
20	20.000	19.000	0.500	20	124
* 20	20.000	17.938	1.031	20	248

● For bow details see pg. 123

● For dimensional tolerances see pg. 122

● Asterisks (*) denote Sch 80

● Wall thicknesses conform to ANSI B36.10 Specifications for XS and Sch 80 wall pipe

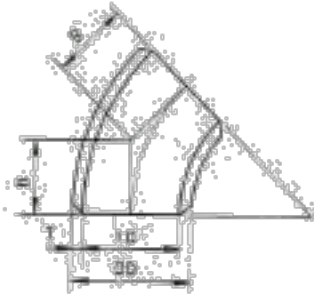
● Pressure-Temperature Ratings are identical to those for seamless pipe of the same size, wall thickness or Schedule, and material grade

● All Nominal Pipe Size Butt-Welding Fittings are seamless

Wrought Steel Butt-Welding Fittings

STD (Sch 40)

45° Elbows (Long)



ANSI B16.9

(in inches)

Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Center to End B	Approx. Weight (kg)
½	0.840	0.622	0.109	¾	0.038
¾	1.050	0.824	0.113	¾	0.038
1	1.315	1.049	0.133	¾	0.075
1½	1.660	1.380	0.140	1	0.126
1½	1.900	1.610	0.145	1½	0.182
2	2.375	2.067	0.154	1½	0.326
2½	2.875	2.469	0.203	1½	0.645
3	3.500	3.068	0.216	2	1.01
3½	4.000	3.548	0.226	2½	1.41
4	4.500	4.026	0.237	2½	1.92
5	5.563	5.047	0.258	3½	3.26
6	6.625	6.065	0.280	3½	5.06
8	8.625	7.981	0.322	5	10.2
10	10.750	10.020	0.365	6½	18.0
12	12.750	12.000	0.375	7½	26.5
* 12	12.750	11.938	0.406	7½	28.6
14	14.000	13.250	0.375	8½	34.0
* 14	14.000	13.124	0.438	8½	39.6
16	16.000	15.250	0.375	10	44.6
* 16	16.000	15.000	0.500	10	59.0
18	18.000	17.250	0.375	11½	56.5
* 18	18.000	16.876	0.562	11½	84.0
20	20.000	19.250	0.375	12½	70.0
* 20	20.000	18.812	0.594	12½	110
22	22.000	21.250	0.375	13½	85
24	24.000	23.250	0.375	15	101
* 24	24.000	22.624	0.688	15	183

- For bevel details see pg. 123
- For dimensional tolerances see pg. 122
- Asterisks (*) denote Sch 40
- Wall thicknesses conform to ANSI B30.10 Specifications for STD and Sch 40 wall pipe
- Pressure-Temperature Ratings are identical to those for seamless pipe of the same size, wall thickness or Schedule, and material grade
- 20" and smaller Nominal Pipe Size Butt-Welding Fittings are seamless
- 22" and 24" Nominal Pipe Size Butt-Welding Fittings meeting STD Specifications have one longitudinal seam, and those meeting Sch 40 Specifications have two longitudinal seams

Wrought Steel Butt-Welding Fittings

XS (Sch 80)

45° Elbows (Long)



ANSI B16.9

(in inches)

Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Center to End B	Approx. Weight (lb)
1/8	0.840	0.546	0.147	3/4	0.048
1/4	1.050	0.742	0.154	3/4	0.049
1/2	1.315	0.957	0.179	7/8	0.096
3/4	1.660	1.278	0.191	1	0.167
1	1.900	1.500	0.200	1 1/4	0.242
1 1/2	2.375	1.939	0.218	1 3/4	0.447
2	2.875	2.323	0.276	1 3/4	0.850
2 1/2	3.500	2.900	0.300	2	1.37
3	4.000	3.364	0.318	2 1/4	1.95
4	4.500	3.826	0.337	2 3/4	2.67
5	5.563	4.813	0.375	3 1/4	4.62
6	6.625	5.761	0.432	3 3/4	7.65
8	8.625	7.625	0.500	5	15.4
10	10.750	9.750	0.500	6 1/4	24.4
* 10	10.750	9.562	0.594	6 1/4	28.7
12	12.750	11.750	0.500	7 1/4	35.0
* 12	12.750	11.374	0.688	7 1/4	47.4
14	14.000	13.000	0.500	8 1/4	45.0
* 14	14.000	12.500	0.750	8 1/4	66.0
16	16.000	15.000	0.500	10	59.0
* 16	16.000	14.312	0.844	10	97.5
18	18.000	17.000	0.500	11 1/4	75.0
* 18	18.000	16.124	0.938	11 1/4	137
20	20.000	19.000	0.500	12 1/4	92.5
* 20	20.000	17.938	1.031	12 1/4	186
22	22.000	21.000	0.500	13 1/4	112
* 22	22.000	19.750	1.125	13 1/4	246
24	24.000	23.000	0.500	15	134
* 24	24.000	21.562	1.219	15	317

• For bevel details see pg. 123

• For dimensional tolerances see pg. 122

• Asterisks (*) denote Sch 80

• Wall thicknesses conform to ANSI B36.10 Specifications for XS and Sch 80 weld pipe

• Pressure/Temperature Ratings are identical to those for seamless pipe of the same size, wall thickness or schedule, and material grade

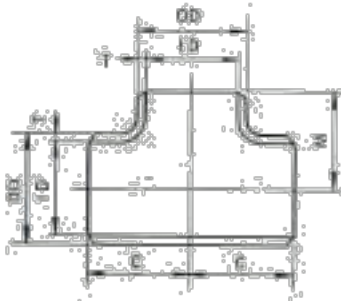
• 20" and smaller Nominal Pipe Size Butt-Welding Fittings are seamless

• 22" and 24" Nominal Pipe Size Butt-Welding Fittings meeting XS Specifications have one longitudinal seam, and those meeting Sch 80 Specifications have two longitudinal seams

Wrought Steel Butt-Welding Fittings

STD (Sch 40)

Tees (Straight)



ANSI B16.9

(in inches)

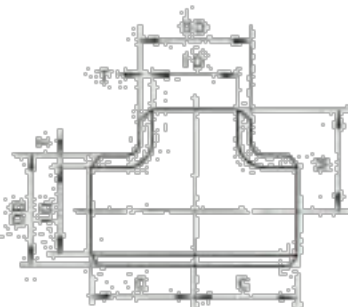
Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Center to End		Approx. Weight (kg)
				Run C	Outlet M	
½	0.840	0.622	0.109	1	1	0.083
¾	1.050	0.824	0.113	1½	1½	0.111
1	1.315	1.049	0.133	1½	1½	0.244
1¼	1.660	1.380	0.140	1½	1½	0.457
1½	1.900	1.610	0.145	2¼	2¼	0.714
2	2.375	2.067	0.154	2¼	2¼	0.992
2½	2.875	2.489	0.203	3	3	1.90
3	3.500	3.068	0.216	3¾	3¾	2.85
3½	4.000	3.548	0.226	3¾	3¾	3.63
4	4.500	4.026	0.237	4¾	4¾	4.83
5	5.563	5.047	0.258	4¾	4¾	8.00
6	6.625	6.065	0.280	5¾	5¾	10.2
8	8.625	7.981	0.322	7	7	22.9
10	10.750	10.020	0.365	8¾	8¾	36.6
12	12.750	12.000	0.375	10	10	58.4
* 12	12.750	11.938	0.406	10	10	58.4
14	14.000	13.250	0.375	11	11	83.2
* 14	14.000	13.124	0.438	11	11	83.2
16	16.000	15.250	0.375	12	12	96.3
* 16	16.000	15.000	0.500	12	12	110
18	18.000	17.250	0.375	13¾	13¾	131
* 18	18.000	16.876	0.562	13¾	13¾	156
20	20.000	19.250	0.375	15	15	173
* 20	20.000	18.812	0.594	15	15	204
22	22.000	21.250	0.375	16¾	16¾	235
24	24.000	23.250	0.375	17	17	274
* 24	24.000	22.624	0.688	17	17	299

- For bevel details see pg. 123
- For dimensional tolerances see pg. 123
- Asterisks (*) denote Sch 40
- Wall thicknesses conform to ANSI B36.10 Specifications for STD and Sch 40 wall pipe
- Pressure-Temperature Ratings are identical to those for seamless pipe of the same size, wall thickness or Schedule, and material grade
- 14" and smaller Nominal Pipe Size Butt-Welding Fittings are seamless
- 16" and larger Nominal Pipe Size Butt-Welding Fittings have one seamless branch extruded from one longitudinal seam

Wrought Steel Butt-Welding Fittings

XS (Sch 80)

Tees (Straight)



ANSI B16.9

(in inches)

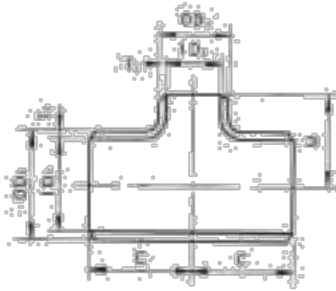
Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Center to End		Approx. Weight (kg)
				Run C	Outlet M	
3/8	0.840	0.546	0.147	1	1	0.106
1/2	1.050	0.742	0.154	1 1/2	1 1/2	0.159
1	1.315	0.957	0.179	1 1/2	1 1/2	0.316
1 1/4	1.660	1.278	0.191	1 1/2	1 1/2	0.548
1 1/2	1.900	1.500	0.200	2 1/4	2 1/4	0.800
2	2.375	1.939	0.218	2 1/2	2 1/2	1.19
2 1/2	2.875	2.323	0.276	3	3	2.19
3	3.500	2.900	0.300	3 1/2	3 1/2	3.24
3 1/2	4.000	3.364	0.318	3 1/2	3 1/2	5.07
4	4.500	3.826	0.337	4 1/2	4 1/2	5.77
5	5.563	4.813	0.375	4 1/2	4 1/2	9.28
6	6.625	5.781	0.432	5 1/2	5 1/2	15.9
8	8.625	7.625	0.500	7	7	29.0
10	10.750	9.750	0.500	8 1/2	8 1/2	49.0
* 10	10.750	9.562	0.594	8 1/2	8 1/2	60.8
12	12.750	11.750	0.500	10	10	75.8
* 12	12.750	11.374	0.688	10	10	95.8
14	14.000	13.000	0.500	11	11	92.1
* 14	14.000	12.500	0.750	11	11	129
16	16.000	15.000	0.500	12	12	110
* 16	16.000	14.312	0.844	12	12	173
18	18.000	17.000	0.500	13 1/2	13 1/2	139
* 18	18.000	16.124	0.938	13 1/2	13 1/2	253
20	20.000	19.000	0.500	15	15	173
* 20	20.000	17.938	1.031	15	15	353
22	22.000	21.000	0.500	16 1/2	16 1/2	235
* 22	22.000	19.750	1.125	16 1/2	16 1/2	453
24	24.000	23.000	0.500	17	17	274
* 24	24.000	21.562	1.219	17	17	548

- For bevel details see pg. 123
- For dimensional tolerances see pg. 122
- Asterisks (*) denote Sch 80
- Wall thicknesses conform to ANSI B36.10 Specifications for XS and Sch 80 wall pipe
- Pressure/Temperature Ratings are identical to those for seamless pipe of the same size, wall thickness or Schedule, and material grade
- 14" and smaller Nominal Pipe Size Butt-Welding Fittings are seamless
- 16" and larger Nominal Pipe Size Butt-Welding Fittings have one seamless branch extended from one longitudinal seam

Wrought Steel Butt-Welding Fittings

STD (Sch 40)

Tees (Reducing)



ANSI B16.9

(in inches)

Nominal Pipe Size	Run			Outlet			Center to End		Approx. Weight (kg)
	Outside Diameter OD ₁	Inside Diameter ID ₁	Wall Thickness T ₁	Outside Diameter OD ₂	Inside Diameter ID ₂	Wall Thickness T ₂	Run C	Outlet M	
1/2 x 1/2 x 1/2	1.050	0.824	0.113	0.840	0.622	0.109	1 1/4	1 1/4	0.115
1 x 1 x 1/2	1.315	1.049	0.133	1.050	0.824	0.113	1 1/2	1 1/2	0.227
1 x 1 x 1/2	1.315	1.049	0.133	0.840	0.622	0.109	1 1/2	1 1/2	0.218
1 1/2 x 1 1/2 x 1	1.660	1.380	0.140	1.315	1.049	0.133	1 1/2	1 1/2	0.389
1 1/2 x 1 1/2 x 3/4	1.660	1.380	0.140	1.050	0.824	0.113	1 1/2	1 1/2	0.367
1 1/2 x 1 1/2 x 1/2	1.900	1.610	0.145	1.660	1.380	0.140	2 1/2	2 1/2	0.678
1 1/2 x 1 1/2 x 1	1.900	1.610	0.145	1.315	1.049	0.133	2 1/2	2 1/2	0.545
1 1/2 x 1 1/2 x 3/4	1.900	1.610	0.145	1.050	0.824	0.113	2 1/2	2 1/2	0.518
2 x 2 x 1 1/2	2.375	2.067	0.154	1.900	1.610	0.145	2 1/2	2 1/2	0.931
2 x 2 x 1 1/2	2.375	2.067	0.154	1.660	1.380	0.140	2 1/2	2 1/2	0.887
2 x 2 x 1	2.375	2.067	0.154	1.315	1.049	0.133	2 1/2	2	0.742
2 1/2 x 2 1/2 x 2	2.875	2.469	0.203	2.375	2.067	0.154	3	2 1/2	1.53
2 1/2 x 2 1/2 x 1 1/2	2.875	2.469	0.203	1.900	1.610	0.145	3	2 1/2	1.47
2 1/2 x 2 1/2 x 1 1/2	2.875	2.469	0.203	1.660	1.380	0.140	3	2 1/2	1.56
3 x 3 x 2 1/2	3.500	3.068	0.216	2.875	2.469	0.203	3 1/2	3 1/2	2.27
3 x 3 x 2	3.500	3.068	0.216	2.375	2.067	0.154	3 1/2	3	2.14
3 x 3 x 1 1/2	3.500	3.068	0.216	1.900	1.610	0.145	3 1/2	2 1/2	2.08
3 1/2 x 3 1/2 x 3	4.000	3.548	0.226	3.500	3.068	0.216	3 1/2	3 1/2	4.88
3 1/2 x 3 1/2 x 2 1/2	4.000	3.548	0.226	2.875	2.469	0.203	3 1/2	3 1/2	4.53
3 1/2 x 3 1/2 x 2	4.000	3.548	0.226	2.375	2.067	0.154	3 1/2	3 1/2	4.36
3 1/2 x 3 1/2 x 1 1/2	4.000	3.548	0.226	1.900	1.610	0.145	3 1/2	3 1/2	4.26
4 x 4 x 3 1/2	4.500	4.026	0.237	4.000	3.548	0.226	4 1/2	4	4.62
4 x 4 x 3	4.500	4.026	0.237	3.500	3.068	0.216	4 1/2	3 1/2	3.82
4 x 4 x 2 1/2	4.500	4.026	0.237	2.875	2.469	0.203	4 1/2	3 1/2	3.69
4 x 4 x 2	4.500	4.026	0.237	2.375	2.067	0.154	4 1/2	3 1/2	3.56
5 x 5 x 4	5.563	5.047	0.258	4.500	4.026	0.237	4 1/2	4 1/2	6.18
5 x 5 x 3 1/2	5.563	5.047	0.258	4.000	3.548	0.226	4 1/2	4 1/2	6.34
5 x 5 x 3	5.563	5.047	0.258	3.500	3.068	0.216	4 1/2	4 1/2	8.10
5 x 5 x 2 1/2	5.563	5.047	0.258	2.875	2.469	0.203	4 1/2	4 1/2	6.06
6 x 6 x 5	6.625	6.065	0.280	5.563	5.047	0.258	5 1/2	5 1/2	9.22
6 x 6 x 4	6.625	6.065	0.280	4.500	4.026	0.237	5 1/2	5 1/2	8.81
6 x 6 x 3 1/2	6.625	6.065	0.280	4.000	3.548	0.226	5 1/2	5	8.93
6 x 6 x 3	6.625	6.065	0.280	3.500	3.068	0.216	5 1/2	4 1/2	8.52

- For bevel details see pg. 123
- For dimensional tolerances see pg. 122
- Wall thicknesses conform to ANSI B36.10 Specifications for STD and Sch 40 wall pipe
- Pressure-Temperature Ratings are identical to those for seamless pipe of the same size, wall thickness or Schedule, and material grade.
- 14" and smaller Nominal Pipe Size Butt-Welding Fittings are seamless.
- 16" and larger Nominal Pipe Size Butt-Welding Fittings have one seamless branch extruded from one longitudinal seam.

Wrought Steel Butt-Welding Fittings

STD (Sch 40) Tees (Reducing)

ANSI B16.9

(Cont.)

(in inches)

Nominal Pipe Size	Run			Outlet			Center to End		Approx. Weight (kg)
	Outside Diameter OD ₁	Inside Diameter ID ₁	Wall Thickness T ₁	Outside Diameter OD ₂	Inside Diameter ID ₂	Wall Thickness T ₂	Run C	Outlet M	
8 x 8 x 6	8.625	7.981	0.322	6.625	6.065	0.280	7	6%	18.8
8 x 8 x 5	8.625	7.981	0.322	5.563	5.047	0.258	7	6%	18.4
8 x 8 x 4	8.625	7.981	0.322	4.500	4.026	0.237	7	6%	18.0
10 x 10 x 8	10.750	10.020	0.365	8.625	7.981	0.322	8%	8	32.4
10 x 10 x 6	10.750	10.020	0.365	6.625	6.065	0.280	8%	7%	30.5
10 x 10 x 5	10.750	10.020	0.365	5.563	5.047	0.258	8%	7%	30.1
12 x 12 x 10	12.750	12.000	0.375	10.750	10.020	0.365	10	9%	55.2
12 x 12 x 8	12.750	12.000	0.375	8.625	7.981	0.322	10	9	53.1
12 x 12 x 6	12.750	12.000	0.375	6.625	6.065	0.280	10	8%	51.2
* 12 x 12 x 10	12.750	11.938	0.406	10.750	10.020	0.365	10	9%	55.2
* 12 x 12 x 8	12.750	11.938	0.406	8.625	7.981	0.322	10	9	53.1
* 12 x 12 x 6	12.750	11.938	0.406	6.625	6.065	0.280	10	8%	51.2
14 x 14 x 12	14.000	13.250	0.375	12.750	12.000	0.375	11	10%	79.4
14 x 14 x 10	14.000	13.250	0.375	10.750	10.020	0.365	11	10%	76.1
14 x 14 x 8	14.000	13.250	0.375	8.625	7.981	0.322	11	9%	63.7
* 14 x 14 x 12	14.000	13.124	0.438	12.750	11.938	0.406	11	10%	79.4
* 14 x 14 x 10	14.000	13.124	0.438	10.750	10.020	0.365	11	10%	76.1
* 14 x 14 x 8	14.000	13.124	0.438	8.625	7.981	0.322	11	9%	63.7
16 x 16 x 14	16.000	15.250	0.375	14.000	13.250	0.375	12	12	89.5
16 x 16 x 12	16.000	15.250	0.375	12.750	12.000	0.375	12	11%	85.7
16 x 16 x 10	16.000	15.250	0.375	10.750	10.020	0.365	12	11%	82.4
* 16 x 16 x 14	16.000	15.000	0.500	14.000	13.124	0.438	12	12	95.2
* 16 x 16 x 12	16.000	15.000	0.500	12.750	11.938	0.406	12	11%	91.4
* 16 x 16 x 10	16.000	15.000	0.500	10.750	10.020	0.365	12	11%	88.1
18 x 18 x 16	18.000	17.250	0.375	16.000	15.250	0.375	13%	13	121
18 x 18 x 14	18.000	17.250	0.375	14.000	13.250	0.375	13%	13	118
18 x 18 x 12	18.000	17.250	0.375	12.750	12.000	0.375	13%	12%	114
* 18 x 18 x 16	18.000	16.876	0.562	16.000	15.000	0.500	13%	13	135
* 18 x 18 x 14	18.000	16.876	0.562	14.000	13.124	0.438	13%	13	132
* 18 x 18 x 12	18.000	16.876	0.562	12.750	11.938	0.406	13%	12%	128
20 x 20 x 18	20.000	19.250	0.375	18.000	17.250	0.375	15	14%	167
20 x 20 x 16	20.000	19.250	0.375	16.000	15.250	0.375	15	14	162
20 x 20 x 14	20.000	19.250	0.375	14.000	13.250	0.375	15	14	161
* 20 x 20 x 18	20.000	18.812	0.594	18.000	16.876	0.562	15	14%	188
* 20 x 20 x 16	20.000	18.812	0.594	16.000	15.000	0.500	15	14	181
* 20 x 20 x 14	20.000	18.812	0.594	14.000	13.124	0.438	15	14	178
22 x 22 x 20	22.000	21.250	0.375	20.000	19.250	0.375	16%	16	223
22 x 22 x 18	22.000	21.250	0.375	18.000	17.250	0.375	16%	15%	219
22 x 22 x 16	22.000	21.250	0.375	16.000	15.250	0.375	16%	15	209
24 x 24 x 22	24.000	23.250	0.375	22.000	21.250	0.375	17	17	271
24 x 24 x 20	24.000	23.250	0.375	20.000	19.250	0.375	17	17	263
24 x 24 x 18	24.000	23.250	0.375	18.000	17.250	0.375	17	16%	246
* 24 x 24 x 20	24.000	22.624	0.688	20.000	18.812	0.594	17	17	268
* 24 x 24 x 18	24.000	22.624	0.688	18.000	16.876	0.562	17	16%	249

• For flange details see pg. 123

• For dimensional tolerances see pg. 122

• Asterisks (*) denote Sch 40

• Wall thicknesses conform to ANSI B36.10 Specifications for STD and Sch 40 wall pipe

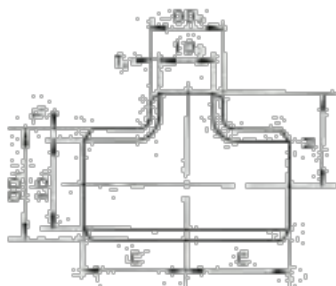
• Pressure-Temperature Ratings are identical to those for seamless pipe of the same size, wall thickness or Schedule, and material grade.

• 14" and smaller Nominal Pipe Size Butt-Welding Fittings are seamless.

• 16" and larger Nominal Pipe Size Butt-Welding Fittings have one seamless branch extruded from one longitudinal seam.

Wrought Steel Butt-Welding Fittings

XS (Sch 80) Tees (Reducing)



ANSI B16.9

(in inches)

Nominal Pipe Size	Run			Outlet			Center to End		Approx. Weight (kg)
	Outside Diameter OD ₁	Inside Diameter ID ₁	Wall Thickness T ₁	Outside Diameter OD ₂	Inside Diameter ID ₂	Wall Thickness T ₂	Run C	Outlet M	
¾ x ¾ x ¾	1.050	0.742	0.154	0.840	0.546	0.147	1½	1½	0.150
1 x 1 x ¾	1.315	0.957	0.179	1.050	0.742	0.154	1½	1½	0.293
1 x 1 x ¾	1.315	0.957	0.179	0.840	0.546	0.147	1½	1½	0.281
1½ x 1½ x 1	1.660	1.278	0.191	1.315	0.957	0.179	1½	1½	0.511
1½ x 1½ x ¾	1.660	1.278	0.191	1.050	0.742	0.154	1½	1½	0.483
1½ x 1½ x 1	1.900	1.500	0.200	1.660	1.278	0.191	2½	2½	0.775
1½ x 1½ x 1	1.900	1.500	0.200	1.315	0.957	0.179	2½	2½	0.725
1½ x 1½ x ¾	1.900	1.500	0.200	1.050	0.742	0.154	2½	2½	0.690
2 x 2 x 1½	2.375	1.939	0.218	1.900	1.500	0.200	2½	2½	1.11
2 x 2 x 1½	2.375	1.939	0.218	1.660	1.278	0.191	2½	2½	1.07
2 x 2 x 1	2.375	1.939	0.218	1.315	0.957	0.179	2½	2	1.02
2½ x 2½ x 2	2.875	2.323	0.276	2.375	1.939	0.218	3	2½	1.99
2½ x 2½ x 1½	2.875	2.323	0.276	1.900	1.500	0.200	3	2½	1.90
2½ x 2½ x 1½	2.875	2.323	0.276	1.660	1.278	0.191	3	2½	1.86
3 x 3 x 2½	3.500	2.900	0.300	2.875	2.323	0.276	3½	3½	3.04
3 x 3 x 2	3.500	2.900	0.300	2.375	1.939	0.218	3½	3	2.85
3 x 3 x 1½	3.500	2.900	0.300	1.900	1.500	0.200	3½	2½	2.76
3½ x 3½ x 3	4.000	3.364	0.318	3.500	2.900	0.300	3½	3½	4.88
3½ x 3½ x 2½	4.000	3.364	0.318	2.875	2.323	0.276	3½	3½	4.63
3½ x 3½ x 2	4.000	3.364	0.318	2.375	1.939	0.218	3½	3½	4.35
3½ x 3½ x 1½	4.000	3.364	0.318	1.900	1.500	0.200	3½	3½	4.27
4 x 4 x 3½	4.500	3.826	0.337	4.000	3.364	0.318	4½	4	6.25
4 x 4 x 3	4.500	3.826	0.337	3.500	2.900	0.300	4½	3½	5.33
4 x 4 x 2½	4.500	3.826	0.337	2.875	2.323	0.276	4½	3½	5.14
4 x 4 x 2	4.500	3.826	0.337	2.375	1.939	0.218	4½	3½	4.94
5 x 5 x 4	5.563	4.813	0.375	4.500	3.826	0.337	4½	4½	8.69
5 x 5 x 3½	5.563	4.813	0.375	4.000	3.364	0.318	4½	4½	8.81
5 x 5 x 3	5.563	4.813	0.375	3.500	2.900	0.300	4½	4½	8.59
5 x 5 x 2½	5.563	4.813	0.375	2.875	2.323	0.276	4½	4½	8.38
6 x 6 x 5	6.625	5.761	0.432	5.563	4.813	0.375	5½	5½	14.0
6 x 6 x 4	6.625	5.761	0.432	4.500	3.826	0.337	5½	5½	13.5
6 x 6 x 3½	6.625	5.761	0.432	4.000	3.364	0.318	5½	5	13.1
6 x 6 x 3	6.625	5.761	0.432	3.500	2.900	0.300	5½	4½	12.9
8 x 8 x 6	8.625	7.625	0.500	6.625	5.761	0.432	7	6½	27.0
8 x 8 x 5	8.625	7.625	0.500	5.563	4.813	0.375	7	6½	26.2
8 x 8 x 4	8.625	7.625	0.500	4.500	3.826	0.337	7	6½	25.6
10 x 10 x 8	10.750	9.750	0.500	8.625	7.625	0.500	8½	8	43.9
10 x 10 x 6	10.750	9.750	0.500	6.625	5.761	0.432	8½	7½	42.0
10 x 10 x 5	10.750	9.750	0.500	5.563	4.813	0.375	8½	7½	41.3
10 x 10 x 8	10.750	9.562	0.594	8.625	7.625	0.500	8½	8	51.9
10 x 10 x 6	10.750	9.562	0.594	6.625	5.761	0.432	8½	7½	50.0
10 x 10 x 5	10.750	9.562	0.594	5.563	4.813	0.375	8½	7½	49.2

• For level details see pg. 123

• For dimensional tolerances see pg. 122

• Asterisks (*) denote Sch 80

• Wall thicknesses conform to ANSI B36.10 Specifications for XS and Sch 80 wall pipe

• 14" and smaller Nominal Pipe Size Butt-Welding Fittings are seamless

• 16" and larger Nominal Pipe Size Butt-Welding Fittings have one seamless branch extended from one longitudinal seam

Wrought Steel Butt-Welding Fittings

XS (Sch 80) Tees (Reducing)

ANSI B31.9

(Cont.)

(in inches)

Nominal Pipe Size	Run			Outlet			Center to End		Approx. Weight (kg)
	Outside Diameter OD ₁	Inside Diameter ID ₁	Wall Thickness T ₁	Outside Diameter OD ₂	Inside Diameter ID ₂	Wall Thickness T ₂	Run C	Outlet M	
12 x12 x10	12.750	11.750	0.500	10.750	9.750	0.500	10	9%	71.8
12 x12 x 8	12.750	11.750	0.500	8.625	7.625	0.500	10	9	62.9
12 x12 x 6	12.750	11.750	0.500	6.625	5.761	0.432	10	8%	61.0
* 12 x12 x10	12.750	11.374	0.688	10.750	9.562	0.594	10	9%	90.5
* 12 x12 x 8	12.750	11.374	0.688	8.625	7.625	0.500	10	9	77.1
* 12 x12 x 6	12.750	11.374	0.688	6.625	5.761	0.432	10	8%	75.2
14 x14 x12	14.000	13.000	0.500	12.750	11.750	0.500	11	10%	89.5
14 x14 x10	14.000	13.000	0.500	10.750	9.750	0.500	11	10%	85.5
14 x14 x 8	14.000	13.000	0.500	8.625	7.625	0.500	11	9%	78.3
* 14 x14 x12	14.000	12.500	0.750	12.750	11.374	0.888	11	10%	123
* 14 x14 x10	14.000	12.500	0.750	10.750	9.562	0.594	11	10%	108
* 14 x14 x 8	14.000	12.500	0.750	8.625	7.625	0.500	11	9%	103
16 x16 x14	16.000	15.000	0.500	14.000	13.000	0.500	12	12	108
16 x16 x12	16.000	15.000	0.500	12.750	11.750	0.500	12	11%	105
16 x16 x10	16.000	15.000	0.500	10.750	9.750	0.500	12	11%	101
* 16 x16 x14	16.000	14.312	0.844	14.000	12.500	0.750	12	12	158
* 16 x16 x12	16.000	14.312	0.844	12.750	11.374	0.888	12	11%	152
* 16 x16 x10	16.000	14.312	0.844	10.750	9.562	0.594	12	11%	147
18 x18 x16	18.000	17.000	0.500	16.000	15.000	0.500	13%	13	135
18 x18 x14	18.000	17.000	0.500	14.000	13.000	0.500	13%	13	133
18 x18 x12	18.000	17.000	0.500	12.750	11.750	0.500	13%	12%	131
* 18 x18 x16	18.000	16.124	0.938	16.000	14.312	0.844	13%	13	228
* 18 x18 x14	18.000	16.124	0.938	14.000	12.500	0.750	13%	13	223
* 18 x18 x12	18.000	16.124	0.938	12.750	11.374	0.888	13%	12%	217
20 x20 x18	20.000	19.000	0.500	18.000	17.000	0.500	15	14%	168
20 x20 x16	20.000	19.000	0.500	16.000	15.000	0.500	15	14	163
20 x20 x14	20.000	19.000	0.500	14.000	13.000	0.500	15	14	162
* 20 x20 x18	20.000	17.938	1.031	18.000	16.124	0.938	15	14%	306
* 20 x20 x16	20.000	17.938	1.031	16.000	14.312	0.844	15	14	294
* 20 x20 x14	20.000	17.938	1.031	14.000	12.500	0.750	15	14	289
22 x22 x20	22.000	21.000	0.500	20.000	19.000	0.500	16%	16	223
22 x22 x18	22.000	21.000	0.500	18.000	17.000	0.500	16%	15%	220
22 x22 x16	22.000	21.000	0.500	16.000	15.000	0.500	16%	15	212
* 22 x22 x20	22.000	19.750	1.125	20.000	17.938	1.031	16%	16	386
* 22 x22 x18	22.000	19.750	1.125	18.000	16.124	0.938	16%	15%	373
* 22 x22 x16	22.000	19.750	1.125	16.000	14.312	0.844	16%	15	354
24 x24 x22	24.000	23.000	0.500	22.000	21.000	0.500	17	17	269
24 x24 x20	24.000	23.000	0.500	20.000	19.000	0.500	17	17	263
24 x24 x18	24.000	23.000	0.500	18.000	17.000	0.500	17	16%	246
* 24 x24 x22	24.000	21.562	1.219	22.000	19.750	1.125	17	17	503
* 24 x24 x20	24.000	21.562	1.219	20.000	17.938	1.031	17	17	467
* 24 x24 x18	24.000	21.562	1.219	18.000	16.124	0.938	17	16%	418

- For bevel details see pg. 123
- For dimensions to inches see pg. 122
- Asterisks (*) denote Sch 80
- Wall thicknesses conform to ANSI B31.9 Specifications for XS and Sch 80 wall pipe
- 14" and smaller Nominal Pipe Size Butt-Welding Fittings are seamless
- 16" and larger Nominal Pipe Size Butt-Welding Fittings have one seamless branch extruded from one longitudinal seam

Wrought Steel Butt-Welding Fittings

STD (Sch 40)

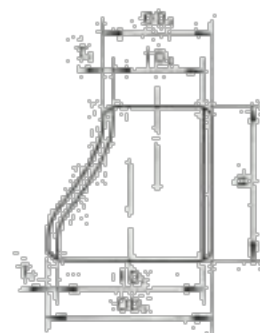
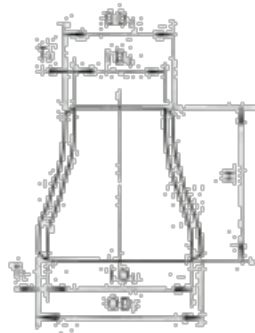
Reducers (Concentric and Eccentric)

ANSI B16.9

(in inches)

Nominal Pipe Size	Large End			Small End			End to End H	Approx. Weight (kg)
	Outside Diameter OD ₁	Inside Diameter ID ₁	Wall Thickness T ₁	Outside Diameter OD ₂	Inside Diameter ID ₂	Wall Thickness T ₂		
¾ x ½	1.050	0.824	0.113	0.840	0.622	0.109	1½	0.059
1 x ¾	1.315	1.049	0.133	1.050	0.824	0.113	2	0.116
1 x ½	1.315	1.049	0.133	0.840	0.622	0.109	2	0.105
1½ x 1	1.660	1.380	0.140	1.315	1.049	0.133	2	0.157
1½ x ¾	1.660	1.380	0.140	1.050	0.824	0.113	2	0.143
1½ x ½	1.660	1.380	0.140	0.840	0.622	0.109	2	0.132
1¾ x 1½	1.900	1.610	0.145	1.660	1.380	0.140	2½	0.243
1¾ x 1	1.900	1.610	0.145	1.315	1.049	0.133	2½	0.219
1¾ x ¾	1.900	1.610	0.145	1.050	0.824	0.113	2½	0.201
2 x 1½	2.375	2.067	0.154	1.900	1.610	0.145	3	0.372
2 x 1¼	2.375	2.067	0.154	1.660	1.380	0.140	3	0.352
2 x 1	2.375	2.067	0.154	1.315	1.049	0.133	3	0.322
† 2 x ¾	2.375	2.067	0.154	1.050	0.824	0.113	3	0.300
2½ x 2	2.875	2.469	0.203	2.375	2.067	0.154	3½	0.724
2½ x 1½	2.875	2.469	0.203	1.900	1.610	0.145	3½	0.661
2½ x 1¼	2.875	2.469	0.203	1.660	1.380	0.140	3½	0.630
† 2½ x 1	2.875	2.469	0.203	1.315	1.049	0.133	3½	0.585
3 x 2½	3.500	3.068	0.216	2.875	2.469	0.203	3½	0.933
3 x 2	3.500	3.068	0.216	2.375	2.067	0.154	3½	0.846
3 x 1½	3.500	3.068	0.216	1.900	1.610	0.145	3½	0.783
3 x 1¼	3.500	3.068	0.216	1.660	1.380	0.140	3½	0.753
3½ x 3	4.000	3.548	0.226	3.500	3.068	0.216	4	1.28
3½ x 2½	4.000	3.548	0.226	2.875	2.469	0.203	4	1.23
3½ x 2	4.000	3.548	0.226	2.375	2.067	0.154	4	1.10
3½ x 1½	4.000	3.548	0.226	1.900	1.610	0.145	4	1.02
4 x 3½	4.500	4.026	0.237	4.000	3.548	0.226	4	1.54
4 x 3	4.500	4.026	0.237	3.500	3.068	0.216	4	1.45
4 x 2½	4.500	4.026	0.237	2.875	2.469	0.203	4	1.37
4 x 2	4.500	4.026	0.237	2.375	2.067	0.154	4	1.27

- For flange details see pg. 123
- For dimensional tolerances see pg. 122
- Asterisks (*) denote Sch 40
- Dagger (†) denotes concentric only
- Wall thicknesses conform to ANSI B36.10 Specifications for STD and Sch 40 wall pipe
- Pressure-Temperature Ratings are identical to those for seamless pipe of the same size, wall thickness or Schedule, and material grade.
- All Nominal Pipe Size Butt-Welding Fittings are seamless.



ANSI B16.9

(in inches)

Nominal Pipe Size	Large End			Small End			End to End H	Approx. Weight (kg)
	Outside Diameter OD ₁	Inside Diameter ID ₁	Wall Thickness T ₁	Outside Diameter OD ₂	Inside Diameter ID ₂	Wall Thickness T ₂		
5x 4	5.563	5.047	0.258	4.500	4.026	0.237	5	2.50
5x 3½	5.563	5.047	0.258	4.000	3.548	0.226	5	2.38
5x 3	5.563	5.047	0.258	3.500	3.068	0.216	5	2.27
5x 2½	5.563	5.047	0.258	2.875	2.469	0.203	5	2.16
6x 5	6.625	6.065	0.280	5.563	5.047	0.258	5½	3.57
6x 4	6.625	6.065	0.280	4.500	4.026	0.237	5½	3.30
6x 3½	6.625	6.065	0.280	4.000	3.548	0.226	5½	3.17
6x 3	6.625	6.065	0.280	3.500	3.068	0.216	5½	3.04
† 6x 2½	6.625	6.065	0.280	2.875	2.469	0.203	5½	2.92
8x 6	8.625	7.981	0.322	6.625	6.065	0.280	6	5.71
8x 5	8.625	7.981	0.322	5.563	5.047	0.258	6	5.40
8x 4	8.625	7.981	0.322	4.500	4.026	0.237	6	5.10
† 8x 3½	8.625	7.981	0.322	4.000	3.548	0.226	6	4.97
10x 8	10.750	10.020	0.365	8.625	7.981	0.322	7	9.58
10x 6	10.750	10.020	0.365	6.625	6.065	0.280	7	8.78
10x 5	10.750	10.020	0.365	5.563	5.047	0.258	7	8.42
† 10x 4	10.750	10.020	0.365	4.500	4.026	0.237	7	8.06
12x 10	12.750	12.000	0.375	10.750	10.020	0.365	8	13.6
12x 8	12.750	12.000	0.375	8.625	7.981	0.322	8	12.7
12x 6	12.750	12.000	0.375	6.625	6.065	0.280	8	11.8
12x 5	12.750	12.000	0.375	5.563	5.047	0.258	8	11.4
* 12x 10	12.750	11.938	0.406	10.750	10.020	0.365	8	14.7
* 12x 8	12.750	11.938	0.406	8.625	7.981	0.322	8	13.7
* 12x 6	12.750	11.938	0.406	6.625	6.065	0.280	8	12.8
* † 12x 5	12.750	11.938	0.406	5.563	5.047	0.258	8	12.3
14x 12	14.000	13.250	0.375	12.750	12.000	0.375	13	25.4
14x 10	14.000	13.250	0.375	10.750	10.020	0.365	13	23.6
14x 8	14.000	13.250	0.375	8.625	7.981	0.322	13	21.8
* 14x 12	14.000	13.124	0.438	12.750	11.938	0.406	13	29.5
* 14x 10	14.000	13.124	0.438	10.750	10.020	0.365	13	27.4
* 14x 8	14.000	13.124	0.438	8.625	7.981	0.322	13	25.4
16x 14	16.000	15.250	0.375	14.000	13.250	0.375	14	31.0
16x 12	16.000	15.250	0.375	12.750	12.000	0.375	14	29.6
16x 10	16.000	15.250	0.375	10.750	10.020	0.365	14	27.8
* 16x 14	16.000	15.000	0.500	14.000	13.124	0.438	14	41.1
* 16x 12	16.000	15.000	0.500	12.750	11.938	0.406	14	39.2
* 16x 10	16.000	15.000	0.500	10.750	10.020	0.365	14	36.8
18x 16	18.000	17.250	0.375	16.000	15.250	0.375	15	37.8
18x 14	18.000	17.250	0.375	14.000	13.250	0.375	15	35.7
18x 12	18.000	17.250	0.375	12.750	12.000	0.375	15	34.3
* 18x 16	18.000	16.876	0.562	16.000	15.000	0.500	15	56.2
* 18x 14	18.000	16.876	0.562	14.000	13.124	0.438	15	53.0
* 18x 12	18.000	16.876	0.562	12.750	11.938	0.406	15	51.0

Wrought Steel Butt-Welding Fittings

XS (Sch 80)

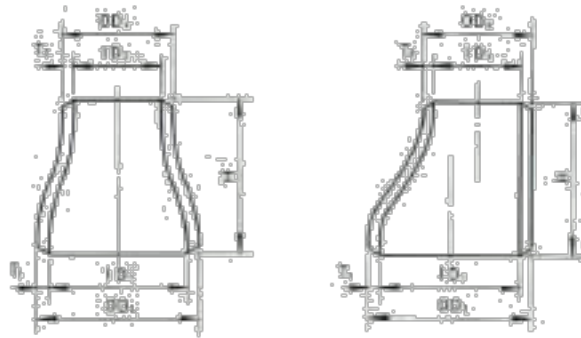
Reducers (Concentric and Eccentric)

ANSI B16.9

(in inches)

Nominal Pipe Size	Large End			Small End			End to End H	Approx. Weight (kg)
	Outside Diameter OD ₁	Inside Diameter ID ₁	Wall Thickness T ₁	Outside Diameter OD ₂	Inside Diameter ID ₂	Wall Thickness T ₂		
¾ x ½	1.050	0.742	0.154	0.840	0.546	0.147	1½	0.075
1 x ¾	1.315	0.957	0.179	1.050	0.742	0.154	2	0.147
1 x ½	1.315	0.957	0.179	0.840	0.546	0.147	2	0.133
1½ x 1	1.660	1.278	0.191	1.315	0.957	0.179	2	0.206
1½ x ¾	1.660	1.278	0.191	1.050	0.742	0.154	2	0.187
1½ x ½	1.660	1.278	0.191	0.840	0.546	0.147	2	0.171
1¾ x 1½	1.900	1.500	0.200	1.660	1.278	0.191	2½	0.324
1¾ x 1	1.900	1.500	0.200	1.315	0.957	0.179	2½	0.291
1¾ x ¾	1.900	1.500	0.200	1.050	0.742	0.154	2½	0.266
2 x 1½	2.375	1.939	0.218	1.900	1.500	0.200	3	0.508
2 x 1¼	2.375	1.939	0.218	1.660	1.278	0.191	3	0.478
2 x 1	2.375	1.939	0.218	1.315	0.957	0.179	3	0.438
1 2 x ¾	2.375	1.939	0.218	1.050	0.742	0.154	3	0.406
2½ x 2	2.875	2.323	0.276	2.375	1.939	0.218	3½	0.919
2½ x 1½	2.875	2.323	0.276	1.900	1.500	0.200	3½	0.831
2½ x 1¼	2.875	2.323	0.276	1.660	1.278	0.191	3½	0.789
1 2½ x 1	2.875	2.323	0.276	1.315	0.957	0.179	3½	0.727
3 x 2½	3.500	2.900	0.300	2.875	2.323	0.276	3½	1.23
3 x 2	3.500	2.900	0.300	2.375	1.939	0.218	3½	1.13
3 x 1½	3.500	2.900	0.300	1.900	1.500	0.200	3½	1.04
3 x 1¼	3.500	2.900	0.300	1.660	1.278	0.191	3½	0.956
3½ x 3	4.000	3.364	0.318	3.500	2.900	0.300	4	1.77
3½ x 2½	4.000	3.364	0.318	2.875	2.323	0.276	4	1.62
3½ x 2	4.000	3.364	0.318	2.375	1.939	0.218	4	1.51
3½ x 1½	4.000	3.364	0.318	1.900	1.500	0.200	4	1.41
4 x 3½	4.500	3.826	0.337	4.000	3.364	0.318	4	2.14
4 x 3	4.500	3.826	0.337	3.500	2.900	0.300	4	2.02
4 x 2½	4.500	3.826	0.337	2.875	2.323	0.276	4	1.86
4 x 2	4.500	3.826	0.337	2.375	1.939	0.218	4	1.76
5 x 4	5.563	4.813	0.375	4.500	3.826	0.337	5	3.52
5 x 3½	5.563	4.813	0.375	4.000	3.364	0.318	5	3.34
5 x 3	5.563	4.813	0.375	3.500	2.900	0.300	5	3.18
5 x 2½	5.563	4.813	0.375	2.875	2.323	0.276	5	3.01

- For bevel details see pg. 123.
- For dimensional tolerances see pg. 122.
- Asterisks (*) denote Sch 80.
- Dagger (†) denotes concentric only.
- Wall thicknesses conform to ANSI B36.10 Specifications for XS and Sch 80 wall pipe.
- Pressure-Temperature Ratings are identical to those for seamless pipe of the same size, wall thickness or Schedule, and material grade.
- All Nominal Pipe Size Butt-Welding Fittings are seamless.



ANSI B16.9

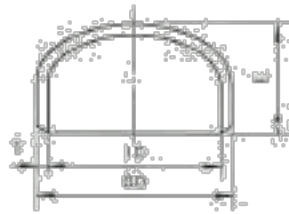
(in inches)

Nominal Pipe Size	Large End			Small End			End to End H	Approx. Weight (kg)
	Outside Diameter OD ₁	Inside Diameter ID ₁	Wall Thickness T ₁	Outside Diameter OD ₂	Inside Diameter ID ₂	Wall Thickness T ₂		
6x 5	6.625	5.761	0.432	5.563	4.813	0.375	5½	5.38
6x 4	6.625	5.761	0.432	4.500	3.826	0.337	5½	4.96
6x 3½	6.625	5.761	0.432	4.000	3.364	0.318	5½	4.76
6x 3	6.625	5.761	0.432	3.500	2.900	0.300	5½	4.56
† 6x 2½	6.625	5.761	0.432	2.875	2.323	0.276	5½	4.38
8x 6	8.625	7.625	0.500	6.625	5.761	0.432	6	8.63
8x 5	8.625	7.625	0.500	5.563	4.813	0.375	6	8.14
8x 4	8.625	7.625	0.500	4.500	3.826	0.337	6	7.68
† 8x 3½	8.625	7.625	0.500	4.000	3.364	0.318	6	7.46
10x 8	10.750	9.750	0.500	8.625	7.625	0.500	7	12.9
10x 6	10.750	9.750	0.500	6.625	5.761	0.432	7	11.8
10x 5	10.750	9.750	0.500	5.563	4.813	0.375	7	11.3
† 10x 4	10.750	9.750	0.500	4.500	3.826	0.337	7	10.8
* 10x 8	10.750	9.562	0.594	8.625	7.625	0.500	7	15.4
* 10x 6	10.750	9.562	0.594	6.625	5.761	0.432	7	14.2
* 10x 5	10.750	9.562	0.594	5.563	4.813	0.375	7	13.5
*† 10x 4	10.750	9.562	0.594	4.500	3.826	0.337	7	12.9
12x 10	12.750	11.750	0.500	10.750	9.750	0.500	8	18.0
12x 8	12.750	11.750	0.500	8.625	7.625	0.500	8	16.7
12x 6	12.750	11.750	0.500	6.625	5.761	0.432	8	15.6
† 12x 5	12.750	11.750	0.500	5.563	4.813	0.375	8	15.0
* 12x 10	12.750	11.374	0.688	10.750	9.562	0.594	8	24.8
* 12x 8	12.750	11.374	0.688	8.625	7.625	0.500	8	22.7
* 12x 6	12.750	11.374	0.688	6.625	5.761	0.432	8	21.4
*† 12x 5	12.750	11.374	0.688	5.563	4.813	0.375	8	20.6
14x 12	14.000	13.000	0.500	12.750	11.750	0.500	13	33.6
14x 10	14.000	13.000	0.500	10.750	9.750	0.500	13	31.2
14x 8	14.000	13.000	0.500	8.625	7.625	0.500	13	28.9
* 14x 12	14.000	12.500	0.750	12.750	11.374	0.688	13	49.8
* 14x 10	14.000	12.500	0.750	10.750	9.562	0.594	13	46.1
* 14x 8	14.000	12.500	0.750	8.625	7.625	0.500	13	42.2
16x 14	16.000	15.000	0.500	14.000	13.000	0.500	14	41.1
16x 12	16.000	15.000	0.500	12.750	11.750	0.500	14	39.2
16x 10	16.000	15.000	0.500	10.750	9.750	0.500	14	36.8
* 16x 14	16.000	14.312	0.844	14.000	12.500	0.750	14	67.7
* 16x 12	16.000	14.312	0.844	12.750	11.374	0.688	14	65.0
* 16x 10	16.000	14.312	0.844	10.750	9.562	0.594	14	60.8
18x 16	18.000	17.000	0.500	16.000	15.000	0.500	15	50.1
18x 14	18.000	17.000	0.500	14.000	13.000	0.500	15	47.4
18x 12	18.000	17.000	0.500	12.750	11.750	0.500	15	45.5
* 18x 16	18.000	16.124	0.938	16.000	14.312	0.844	15	91.4
* 18x 14	18.000	16.124	0.938	14.000	12.500	0.750	15	86.4
* 18x 12	18.000	16.124	0.938	12.750	11.374	0.688	15	83.3

Wrought Steel Butt-Welding Fittings

STD (Sch 40)

Caps



ANSI B16.9

(in inches)

Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Length E	Approx. Weight (kg)
½	0.840	0.622	0.109	1	0.037
¾	1.050	0.824	0.113	1	0.048
1	1.315	1.049	0.133	1½	0.106
1½	1.660	1.380	0.140	1½	0.141
1½	1.900	1.610	0.145	1½	0.169
2	2.375	2.067	0.154	1½	0.234
2½	2.875	2.469	0.203	1½	0.393
3	3.500	3.068	0.216	2	0.660
3½	4.000	3.548	0.226	2½	0.965
4	4.500	4.026	0.237	2½	1.17
5	5.563	5.047	0.258	3	1.91
6	6.625	6.065	0.280	3½	2.90
8	8.625	7.981	0.322	4	5.19
10	10.750	10.020	0.365	5	9.15
12	12.750	12.000	0.375	6	13.3
* 12	12.750	11.938	0.406	6	14.4
14	14.000	13.250	0.375	6½	15.9
* 14	14.000	13.124	0.438	6½	18.8
16	16.000	15.250	0.375	7	20.0
* 16	16.000	15.000	0.500	7	26.7
18	18.000	17.250	0.375	8	25.6
* 18	18.000	16.876	0.562	9	41.4
20	20.000	19.250	0.375	9	31.9
* 20	20.000	18.812	0.594	10	54.0
22	22.000	21.250	0.375	10	38.8
24	24.000	23.250	0.375	10½	45.1
* 24	24.000	22.624	0.688	12	90.1
26	26.000	25.250	0.375	10½	50.5
28	28.000	27.250	0.375	10½	56.2
30	30.000	29.250	0.375	10½	62.1
32	32.000	31.250	0.375	10½	68.4
* 32	32.000	30.624	0.688	10½	126
34	34.000	33.250	0.375	10½	75.0
* 34	34.000	32.624	0.688	10½	138
36	36.000	35.250	0.375	10½	81.9
* 36	36.000	34.500	0.750	10½	164
38	38.000	37.250	0.375	12	94.7
40	40.000	39.250	0.375	12	102
42	42.000	41.250	0.375	12	110
44	44.000	43.250	0.375	13½	126
46	46.000	45.250	0.375	13½	134
48	48.000	47.250	0.375	13½	143

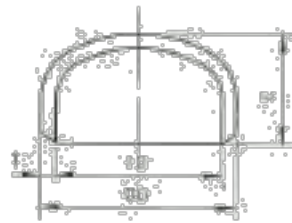
- For bore details see pg. 123
- For dimensional tolerances see pg. 122
- Asterisks (*) denote Sch 40

- Wall thicknesses for Caps up to and including 36" conform to ANSI B16.10 Specifications. Caps 36" and larger conform to SIFU Specifications for wall thicknesses of 36". There is a British Standard as an International Standard. Standards have been set for such large size wall thicknesses.

Wrought Steel Butt-Welding Fittings

XS (Sch 80)

Caps



ANSI B16.9

In inches

Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Length E	Approx. Weight (kg)
3/8	0.840	0.546	0.147	1	0.050
1/2	1.050	0.742	0.154	1	0.065
1	1.315	0.957	0.179	1 1/2	0.143
1 1/2	1.660	1.278	0.191	1 1/2	0.193
1 1/2	1.900	1.500	0.200	1 1/2	0.234
2	2.375	1.939	0.218	1 1/2	0.331
2 1/2	2.875	2.323	0.276	1 1/2	0.534
3	3.500	2.900	0.300	2	0.917
3 1/2	4.000	3.364	0.318	2 1/2	1.36
4	4.500	3.826	0.337	2 1/2	1.67
5	5.563	4.813	0.375	3	2.78
6	6.625	5.761	0.432	3 1/2	4.47
8	8.625	7.625	0.500	4	8.05
10	10.750	9.750	0.500	5	12.5
* 10	10.750	9.562	0.594	6	16.8
12	12.750	11.750	0.500	6	17.7
* 12	12.750	11.374	0.688	7	27.1
14	14.000	13.000	0.500	6 1/2	21.2
* 14	14.000	12.500	0.750	7 1/2	35.0
16	16.000	15.000	0.500	7	40.1
* 16	16.000	14.312	0.844	8	49.1
18	18.000	17.000	0.500	8	34.1
* 18	18.000	16.124	0.938	9	89.1
20	20.000	19.000	0.500	9	42.5
* 20	20.000	17.938	1.031	10	93.7
22	22.000	21.000	0.500	10	51.7
* 22	22.000	19.750	1.125	10	116
24	24.000	23.000	0.500	10 1/2	60.1
* 24	24.000	21.562	1.219	12	160
26	26.000	25.000	0.500	10 1/2	67.3
28	28.000	27.000	0.500	10 1/2	74.9
30	30.000	29.000	0.500	10 1/2	82.8
32	32.000	31.000	0.500	10 1/2	91.2
34	34.000	33.000	0.500	10 1/2	100
36	36.000	35.000	0.500	10 1/2	109
38	38.000	37.000	0.500	12	126
40	40.000	39.000	0.500	12	137
42	42.000	41.000	0.500	12	147
44	44.000	43.000	0.500	13 1/2	167
46	46.000	45.000	0.500	13 1/2	179
48	48.000	47.000	0.500	13 1/2	191

• For bevel details see pg. 123

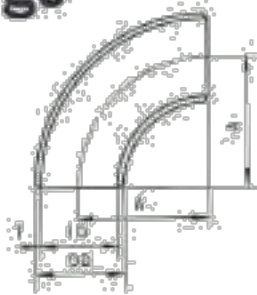
• For dimensional tolerances see pg. 123

• Material is Wrought Steel Sch 80

• Wall thicknesses for Caps are to and include the 36" conform to ANSI B36.10 Specifications. Caps 36" and larger contain 10 36" Specifications for wall thicknesses of 36". These are British Standards as no Internationally Recognized Standards have been set for such large size wall thicknesses.

Large Diameter Wrought Steel Butt-Welding Fittings

STD (Sch 40) 90° Elbows (Long)



ANSI B16.9

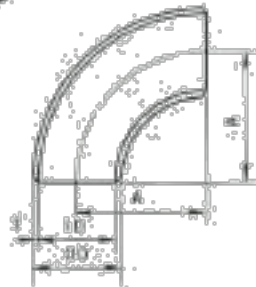
(in. inches)

Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Center to End A	Approx. Weight (kg)
26	28.000	25.250	0.375	39	237
28	28.000	27.250	0.375	42	275
30	30.000	29.250	0.375	45	316
32	32.000	31.250	0.375	48	360
* 32	32.000	30.624	0.688	48	656
34	34.000	33.250	0.375	51	407
* 34	34.000	32.624	0.688	51	741
36	36.000	35.250	0.375	54	457
* 36	36.000	34.500	0.750	54	905
38	38.000	37.250	0.375	57	509
40	40.000	39.250	0.375	60	564
42	42.000	41.250	0.375	63	622
44	44.000	43.250	0.375	66	683
46	46.000	45.250	0.375	69	748
48	48.000	47.250	0.375	72	814
52	52.000	51.250	0.375	78	957
54	54.000	53.250	0.375	81	1,033
56	56.000	55.250	0.375	84	1,111
60	60.000	59.250	0.375	90	1,276
64	64.000	63.250	0.375	96	1,452
68	68.000	67.250	0.375	102	1,642
72	72.000	71.250	0.375	108	1,840
76	76.000	75.250	0.375	114	2,050
80	80.000	79.250	0.375	120	2,272

- For level details see pg. 123
- For dimensional tolerances see pg. 122
- Asterisks (*) denote Sch 40
- Wall thicknesses 36" and smaller conform to ANSI B36.10 Specifications; wall thicknesses 38" and larger are indicated by STD and Sch 40 Specifications for wall thicknesses of 36"
- All fittings have two longitudinal seams
- The OD of Nominal Pipe Size Butt-Welding Fittings 50" and larger equal the respective Nominal Pipe Size
- Dimensional tolerances for Nominal Pipe Sizes 50" and larger conform to Deutscher Standards as no Internationally Recognized Standards have been set for such large size wall thicknesses and dimensions

Large Diameter Wrought Steel Butt-Welding Fittings

XS 90° Elbows (Long)



ANSI B16.9

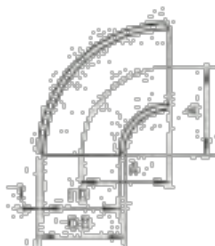
(in Inches)

Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Center to End A	Approx. Weight (kg)
26	26.000	25.000	0.500	39	315
28	28.000	27.000	0.500	42	366
30	30.000	29.000	0.500	45	421
32	32.000	31.000	0.500	48	480
34	34.000	33.000	0.500	51	542
36	36.000	35.000	0.500	54	608
38	38.000	37.000	0.500	57	678
40	40.000	39.000	0.500	60	752
42	42.000	41.000	0.500	63	828
44	44.000	43.000	0.500	66	911
46	46.000	45.000	0.500	69	996
48	48.000	47.000	0.500	72	1,085
52	52.000	51.000	0.500	78	1,274
54	54.000	53.000	0.500	81	1,374
56	56.000	55.000	0.500	84	1,478
60	60.000	59.000	0.500	90	1,698
64	64.000	63.000	0.500	96	1,933
68	68.000	67.000	0.500	102	2,183
72	72.000	71.000	0.500	108	2,449
76	76.000	75.000	0.500	114	2,729
80	80.000	79.000	0.500	120	3,025

- For bevel details see pg. 123
- For dimensional tolerances see pg. 123
- Wall thicknesses 36" and smaller conform to ANSI B36.10 Specifications; wall thicknesses 38" and larger are indicated by XS Specifications for wall thicknesses of 36"
- All fittings have two longitudinal seams
- The OD of Nominal Pipe Size Butt-Welding Fittings 60" and larger equal the respective Nominal Pipe Size
- Dimensional tolerances for Nominal Pipe Sizes 50" and larger conform to British Standards as no Internationally Recognized Standards have been set for such large size wall thicknesses and dimensions

Large Diameter Wrought Steel Butt-Welding Fittings

STD (Sch 40)
90° Elbows (Short)



ANSI B16.9

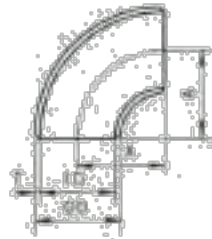
(in inches)

Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Center to End A	Approx. Weight (kg)
22	22.000	21.250	0.375	22	113
24	24.000	23.250	0.375	24	135
* 24	24.000	22.624	0.688	24	244
26	26.000	25.250	0.375	26	158
28	28.000	27.250	0.375	28	184
30	30.000	29.250	0.375	30	211
32	32.000	31.250	0.375	32	240
* 32	32.000	30.624	0.688	32	437
34	34.000	33.250	0.375	34	271
* 34	34.000	32.624	0.688	34	494
36	36.000	35.250	0.375	36	304
* 36	36.000	34.250	0.750	36	603
38	38.000	37.250	0.375	38	340
40	40.000	39.250	0.375	40	376
42	42.000	41.250	0.375	42	416
44	44.000	43.250	0.375	44	456
46	46.000	45.250	0.375	46	499
48	48.000	47.250	0.375	48	543

- For level details see pg. 123
- For dimensional tolerances see pg. 122
- Asterisks (*) denote Sch 40
- Wall thicknesses 36" and smaller conform to ANSI B36.10 Specifications; wall thicknesses 38" and larger are indicated by STD and Sch 40 Specifications for wall thicknesses of 38"
- All fittings have two longitudinal seams
- Dimensional tolerances for Nominal Pipe Sizes 26" and larger conform to Banker Standards

Large Diameter Wrought Steel Butt-Welding Fittings

XS (Sch 80)
90° Elbows (Short)



ANSI B16.9

(in. inches)

Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Center to End A	Approx. Weight (kg)
22	22.000	21.000	0.500	22	150
* 22	22.000	19.750	1.125	22	328
24	24.000	23.000	0.500	24	179
* 24	24.000	21.562	1.219	24	422
26	26.000	25.000	0.500	26	210
28	28.000	27.000	0.500	28	244
30	30.000	29.000	0.500	30	281
32	32.000	31.000	0.500	32	320
34	34.000	33.000	0.500	34	361
36	36.000	35.000	0.500	36	405
38	38.000	37.000	0.500	38	452
40	40.000	39.000	0.500	40	501
42	42.000	41.000	0.500	42	553
44	44.000	43.000	0.500	44	607
46	46.000	45.000	0.500	46	664
48	48.000	47.000	0.500	48	723

- For bevel details see pg. 122
- For dimensional tolerances see pg. 122
- Asterisks (*) denote Sch 80
- Wall thicknesses 30" and smaller conform to ANSI B36.10 Specifications; wall thicknesses 36" and larger are indicated by XS Specifications for wall thicknesses of 36"
- All fittings have two longitudinal seams
- Dimensional tolerances for Nominal Pipe Sizes 26" and larger conform to Bechtel Standards

Large Diameter Wrought Steel Butt-Welding Fittings

STD (Sch 40) 45° Elbows (Long)



ANSI B16.9

(in inches)

Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Center to End B	Approx Weight (kg)
26	26.000	25.250	0.375	16	119
28	28.000	27.250	0.375	17½	138
30	30.000	29.250	0.375	18½	158
32	32.000	31.250	0.375	19½	180
* 32	32.000	30.624	0.688	19½	328
34	34.000	33.250	0.375	21	204
* 34	34.000	32.624	0.688	21	371
36	36.000	35.250	0.375	22½	229
* 36	36.000	34.500	0.750	22½	453
38	38.000	37.250	0.375	23½	255
40	40.000	39.250	0.375	24½	282
42	42.000	41.250	0.375	26	311
44	44.000	43.250	0.375	27½	342
46	46.000	45.250	0.375	28½	374
48	48.000	47.250	0.375	29½	407
52	52.000	51.250	0.375	32½	479
54	54.000	53.250	0.375	33½	517
56	56.000	55.250	0.375	34½	556
60	60.000	59.250	0.375	37½	638
64	64.000	63.250	0.375	39½	727
68	68.000	67.250	0.375	42½	820
72	72.000	71.250	0.375	44½	920
76	76.000	75.250	0.375	47½	1,025
80	80.000	79.250	0.375	49½	1,136

- For bevel details see pg. 122
- For dimensional tolerances see pg. 122
- Asterisks (*) denote Sch 40
- Wall thicknesses 26" and smaller conform to ANSI B36.10 Specifications; wall thicknesses 38" and larger are indicated by STD and Sch 40 Specifications for wall thicknesses of 36"
- All fittings have two longitudinal seams
- The OD of Nominal Pipe Size Butt-Welding Fittings 60" and larger equal the respective Nominal Pipe Size
- Dimensional tolerances for Nominal Pipe Sizes 60" and larger conform to British Standards as no internationally recognized standards have been set for such large size wall thicknesses and dimensions

Large Diameter Wrought Steel Butt-Welding Fittings

XS 45° Elbows (Long)



ANSI B 16.9

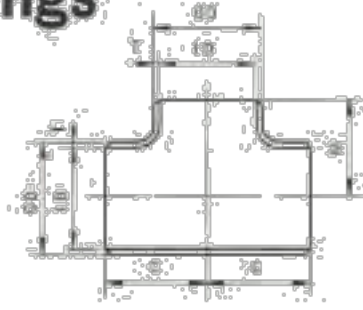
(in inches)

Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Center to End B	Approx. Weight (kg)
26	26.000	25.000	0.500	16	158
28	28.000	27.000	0.500	17 $\frac{1}{4}$	183
30	30.000	29.000	0.500	18 $\frac{1}{2}$	211
32	32.000	31.000	0.500	19 $\frac{1}{2}$	240
34	34.000	33.000	0.500	21	271
36	36.000	35.000	0.500	22 $\frac{1}{2}$	304
38	38.000	37.000	0.500	23 $\frac{1}{2}$	339
40	40.000	39.000	0.500	24 $\frac{1}{2}$	376
42	42.000	41.000	0.500	26	414
44	44.000	43.000	0.500	27 $\frac{1}{2}$	456
46	46.000	45.000	0.500	28 $\frac{1}{2}$	498
48	48.000	47.000	0.500	29 $\frac{1}{2}$	543
52	52.000	51.000	0.500	32 $\frac{1}{2}$	637
54	54.000	53.000	0.500	33 $\frac{1}{2}$	687
56	56.000	55.000	0.500	34 $\frac{1}{2}$	739
60	60.000	59.000	0.500	37 $\frac{1}{2}$	849
64	64.000	63.000	0.500	39 $\frac{1}{2}$	967
68	68.000	67.000	0.500	42 $\frac{1}{2}$	1,092
72	72.000	71.000	0.500	44 $\frac{1}{2}$	1,225
76	76.000	75.000	0.500	47 $\frac{1}{2}$	1,365
80	80.000	79.000	0.500	49 $\frac{1}{2}$	1,513

- For best details see pg. 123
- For dimensional tolerances see pg. 122
- Wall thicknesses 36" and smaller conform to ANSI B36.10 Specifications; wall thicknesses 38" and larger are indicated by XS Specifications for wall thicknesses of 36"
- All fittings have two longitudinal seams
- The OD of Nominal Pipe Size Butt-Welding Fittings 50" and larger equal the respective Nominal Pipe Size
- Dimensional tolerances for Nominal Pipe Sizes 50" and larger conform to British Standards as no Internationally Recognized Standards have been set for such large size wall thicknesses and dimensions

Large Diameter Wrought Steel Butt-Welding Fittings

STD (Sch 40) Tees (Straight)



ANSI B16.9

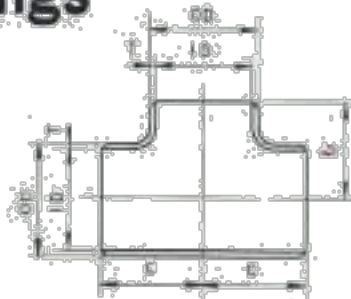
(in inches)

Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Center to End		Approx. Weight (kg)
				Run C	Outlet M	
26	26.000	25.250	0.375	19%	19%	348
28	28.000	27.250	0.375	20%	20%	392
30	30.000	29.250	0.375	22	22	451
32	32.000	31.250	0.375	23%	23%	516
* 32	32.000	30.624	0.688	23%	23%	928
34	34.000	33.250	0.375	25	25	584
* 34	34.000	32.624	0.688	25	25	1,052
36	36.000	35.250	0.375	26%	26%	657
* 36	36.000	34.500	0.750	26%	26%	1,286
38	38.000	37.250	0.375	28	28	734
40	40.000	39.250	0.375	29%	29%	814
42	42.000	41.250	0.375	30	28	837
44	44.000	43.250	0.375	32	30	943
46	46.000	45.250	0.375	33%	31%	1,035
48	48.000	47.250	0.375	35	33	1,131
52	52.000	51.250	0.375	38	36	1,335
56	56.000	55.250	0.375	41	38	1,540
60	60.000	59.250	0.375	44	40	1,759

- For bevel details see pg. 123
- For dimensional tolerances see pg. 122
- Actual sizes of 1 denote Sch 40
- Wall thicknesses 36" and smaller conform to ANSI B36.10 Specifications; wall thicknesses 38" and larger are indicated by STD and Sch 40 Specifications for wall thicknesses of 38"
- All fittings have two long radial seams and an extruded seamless branch
- The OD of Nominal Pipe Size Butt-Welding Fittings 50" and larger equal the respective Nominal Pipe Size
- Dimensional tolerances for Nominal Pipe Sizes 50" and larger conform to Barkan Standards as no Internationally Recognized Standards have been set for such large size wall thicknesses and dimensions

Large Diameter Wrought Steel Butt-Welding Fittings

XS Tees (Straight)



ANSI B16.9

(In Inches)

Nominal Pipe Size	Outside Diameter OD	Inside Diameter ID	Wall Thickness T	Center to End		Approx. Weight (kg)
				Run C	Outlet M	
26	26.000	25.000	0.500	19%	19%	460
28	28.000	27.000	0.500	20%	20%	518
30	30.000	29.000	0.500	22	22	597
32	32.000	31.000	0.500	23%	23%	662
34	34.000	33.000	0.500	25	25	773
36	36.000	35.000	0.500	26%	26%	869
38	38.000	37.000	0.500	28	28	971
40	40.000	39.000	0.500	29%	29%	1,079
42	42.000	41.000	0.500	30	28	1,110
44	44.000	43.000	0.500	32	30	1,250
46	46.000	45.000	0.500	33%	31%	1,372
48	48.000	47.000	0.500	35	33	1,500
52	52.000	51.000	0.500	38	36	1,772
56	56.000	55.000	0.500	41	38	2,044
60	60.000	59.000	0.500	44	40	2,335

- For bend details see pg. 123
- For dimensional tolerances see pg. 122
- Wall thicknesses 36" and smaller conform to ANSI B36.10 Specifications; wall thicknesses 38" and larger are indicated by XS Specifications for wall thicknesses of 36"
- All fittings have two longitudinal seams and an extruded seamless branch
- The OD of Nominal Pipe Size Butt-Welding Fittings 50" and larger equal the respective Nominal Pipe Size
- Dimensional tolerances for Nominal Pipe Sizes 50" and larger conform to Berman Standards as no Internationally Recognized Standards have been set for such large size wall thicknesses and dimensions

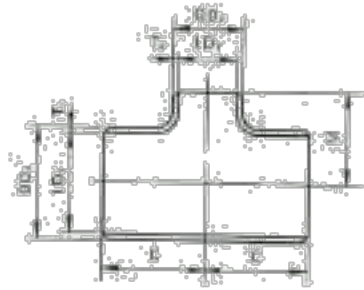
Large Diameter Wrought Steel Butt-Welding Fittings STD (Sch 40) Tees (Reducing)

ANSI B16.9

(inches)

Nominal Pipe Size	Run			Outlet			Center to End		Approx. Weight (kg)
	Outside Diameter OD ₁	Inside Diameter ID ₁	Wall Thickness T ₁	Outside Diameter OD ₂	Inside Diameter ID ₂	Wall Thickness T ₂	Run C	Outlet M	
26x26x22	26.000	25.250	0.375	22.000	21.250	0.375	19%	18%	318
26x26x18	26.000	25.250	0.375	18.000	17.250	0.375	19%	17%	311
26x26x16	26.000	25.250	0.375	16.000	15.250	0.375	19%	17	308
28x28x24	28.000	27.250	0.375	24.000	23.250	0.375	20%	20	361
28x28x20	28.000	27.250	0.375	20.000	19.250	0.375	20%	19	354
28x28x18	28.000	27.250	0.375	18.000	17.250	0.375	20%	18%	351
30x30x26	30.000	29.250	0.375	26.000	25.250	0.375	22	21%	417
30x30x22	30.000	29.250	0.375	22.000	21.250	0.375	22	20%	409
30x30x20	30.000	29.250	0.375	20.000	19.250	0.375	22	20	406
32x32x28	32.000	31.250	0.375	28.000	27.250	0.375	23%	22%	474
32x32x24	32.000	31.250	0.375	24.000	23.250	0.375	23%	22	468
32x32x22	32.000	31.250	0.375	22.000	21.250	0.375	23%	21%	464
* 32x32x24	32.000	30.624	0.688	24.000	22.624	0.688	23%	22	840
34x34x30	34.000	33.250	0.375	30.000	29.250	0.375	25	24	537
34x34x26	34.000	33.250	0.375	26.000	25.250	0.375	25	23%	531
34x34x22	34.000	33.250	0.375	22.000	21.250	0.375	25	22%	523
36x36x32	36.000	35.250	0.375	32.000	31.250	0.375	26%	25%	604
36x36x28	36.000	35.250	0.375	28.000	27.250	0.375	26%	24%	595
36x36x24	36.000	35.250	0.375	24.000	23.250	0.375	26%	24	589
* 36x36x32	36.000	34.500	0.750	32.000	30.624	0.688	26%	25%	1,086
* 36x36x24	36.000	34.500	0.750	24.000	22.624	0.688	26%	24	1,059
38x38x34	38.000	37.250	0.375	34.000	33.250	0.375	28	27%	676
38x38x30	38.000	37.250	0.375	30.000	29.250	0.375	28	26%	668
38x38x26	38.000	37.250	0.375	26.000	25.250	0.375	28	25%	659

- For bevel details see pg. 123.
- For dimensional tolerances see pg. 122.
- Asterisks (*) denote Sch 40.
- Wall thicknesses 36" and smaller conform to ANSI B36.10 Specifications; wall thicknesses 38" and larger are indicated by STD and Sch 40 Specifications for wall thicknesses of 36".
- All fittings have two longitudinal seams and an extruded seamless branch.
- The OD of Nominal Pipe Size Butt-Welding Fittings 50" and larger equal the respective Nominal Pipe Size.
- Dimensional tolerances for Nominal Pipe Sizes 50" and larger conform to Berman Standards as no Internationally Recognized Standards have been set for such large size wall thicknesses and dimensions.



ANSI B16.9

(in inches)

Nominal Pipe Size	Run			Outlet			Center to End		Approx. Weight (kg)
	Outside Diameter OD ₁	Inside Diameter ID ₁	Wall Thickness T ₁	Outside Diameter OD ₂	Inside Diameter ID ₂	Wall Thickness T ₂	Run C	Outlet M	
40x40x36	40.000	39.000	0.500	36.000	35.000	0.500	29½	29	1,000
40x40x32	40.000	39.000	0.500	32.000	31.000	0.500	29½	28	985
40x40x28	40.000	39.000	0.500	28.000	27.000	0.500	29½	26½	969
42x42x38	42.000	41.000	0.500	38.000	37.000	0.500	30	28	1,052
42x42x34	42.000	41.000	0.500	34.000	33.000	0.500	30	28	1,046
42x42x30	42.000	41.000	0.500	30.000	29.000	0.500	30	28	1,039
44x44x40	44.000	43.000	0.500	40.000	39.000	0.500	32	29½	1,177
44x44x36	44.000	43.000	0.500	36.000	35.000	0.500	32	28½	1,163
44x44x32	44.000	43.000	0.500	32.000	31.000	0.500	32	28	1,154
46x46x42	46.000	45.000	0.500	42.000	41.000	0.500	33½	31	1,292
46x46x38	46.000	45.000	0.500	38.000	37.000	0.500	33½	30	1,276
46x46x34	46.000	45.000	0.500	34.000	33.000	0.500	33½	29½	1,266
48x48x44	48.000	47.000	0.500	44.000	43.000	0.500	35	33	1,416
48x48x40	48.000	47.000	0.500	40.000	39.000	0.500	35	32	1,399
48x48x36	48.000	47.000	0.500	36.000	35.000	0.500	35	31	1,384
52x52x48	52.000	51.000	0.500	48.000	47.000	0.500	38	34	1,650
52x52x44	52.000	51.000	0.500	44.000	43.000	0.500	38	32	1,626
52x52x40	52.000	51.000	0.500	40.000	39.000	0.500	38	30	1,601
56x56x52	56.000	55.000	0.500	52.000	51.000	0.500	41	36	1,913
56x56x48	56.000	55.000	0.500	48.000	47.000	0.500	41	34	1,885
56x56x44	56.000	55.000	0.500	44.000	43.000	0.500	41	32	1,860
60x60x56	60.000	59.000	0.500	56.000	55.000	0.500	44	38	2,196
60x60x52	60.000	59.000	0.500	52.000	51.000	0.500	44	36	2,166
60x60x48	60.000	59.000	0.500	48.000	47.000	0.500	44	34	2,139

Large Diameter Wrought Steel Butt-Welding Fittings

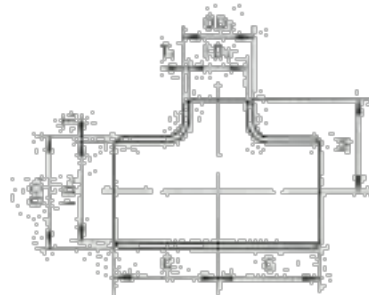
XS Tees (Reducing)

ANSI B16.9

(in inches)

Nominal Pipe Size	Run			Outlet			Center to End		Approx. Weight (kg)
	Outside Diameter OD ₁	Inside Diameter ID ₁	Wall Thickness T ₁	Outside Diameter OD ₂	Inside Diameter ID ₂	Wall Thickness T ₂	Run C	Outlet M	
26x26x22	26.000	25.000	0.500	22.000	21.000	0.500	19%	18%	420
26x26x18	26.000	25.000	0.500	18.000	17.000	0.500	19%	17%	411
26x26x16	26.000	25.000	0.500	16.000	15.000	0.500	19%	17	408
28x28x24	28.000	27.000	0.500	24.000	23.000	0.500	20%	20	478
28x28x20	28.000	27.000	0.500	20.000	19.000	0.500	20%	19	469
28x28x18	28.000	27.000	0.500	18.000	17.000	0.500	20%	18%	465
30x30x26	30.000	29.000	0.500	26.000	25.000	0.500	22	21%	552
30x30x22	30.000	29.000	0.500	22.000	21.000	0.500	22	20%	542
30x30x20	30.000	29.000	0.500	20.000	19.000	0.500	22	20	537
32x32x28	32.000	31.000	0.500	28.000	27.000	0.500	23%	22%	628
32x32x24	32.000	31.000	0.500	24.000	23.000	0.500	23%	22	620
32x32x22	32.000	31.000	0.500	22.000	21.000	0.500	23%	21%	615
34x34x30	34.000	33.000	0.500	30.000	29.000	0.500	26	24	712
34x34x26	34.000	33.000	0.500	26.000	25.000	0.500	25	23%	703
34x34x22	34.000	33.000	0.500	22.000	21.000	0.500	25	22%	693
36x36x32	36.000	35.000	0.500	32.000	31.000	0.500	26%	25%	802
36x36x28	36.000	35.000	0.500	28.000	27.000	0.500	26%	24%	789
36x36x24	36.000	35.000	0.500	24.000	23.000	0.500	26%	24	781
38x38x34	38.000	37.000	0.500	34.000	33.000	0.500	28	27%	900
38x38x30	38.000	37.000	0.500	30.000	29.000	0.500	28	26%	886
38x38x26	38.000	37.000	0.500	26.000	25.000	0.500	28	25%	874

- For heat data, see pg. 123.
- For dimensional tolerances, see pg. 122.
- Wall thicknesses 36" and smaller conform to ANSI B36.10. Specifications, wall thicknesses 38" and larger are indicated by XS Specifications for wall thicknesses of 38".
- All fittings have two longitudinal seams.
- The OD of Nominal Pipe Size Butt-Welding Fittings 50" and larger equal the respective Nominal Pipe Size.
- Dimensional tolerances for Nominal Pipe Sizes 50" and larger conform to Bureau Standards when dimensionally Recognized Standards have been set for such large size wall thicknesses and dimensions.



ANSI B16.9

(in inches)

Nominal Pipe Size	Run			Outlet			Center to End		Approx. Weight (kg)
	Outside Diameter OD ₁	Inside Diameter ID ₁	Wall Thickness T ₁	Outside Diameter OD ₂	Inside Diameter ID ₂	Wall Thickness T ₂	Run C	Outlet M	
40x40x36	40.000	39.250	0.375	36.000	35.250	0.375	29½	29	753
40x40x32	40.000	39.250	0.375	32.000	31.250	0.375	29½	28	742
40x40x28	40.000	39.250	0.375	28.000	27.250	0.375	29½	26½	731
42x42x38	42.000	41.250	0.375	38.000	37.250	0.375	30	28	792
42x42x34	42.000	41.250	0.375	34.000	33.250	0.375	30	28	789
42x42x30	42.000	41.250	0.375	30.000	29.250	0.375	30	28	783
44x44x40	44.000	43.250	0.375	40.000	39.250	0.375	32	29½	867
44x44x36	44.000	43.250	0.375	36.000	35.250	0.375	32	28½	876
44x44x32	44.000	43.250	0.375	32.000	31.250	0.375	32	28	869
46x46x42	46.000	45.250	0.375	42.000	41.250	0.375	33½	31	972
46x46x38	46.000	45.250	0.375	38.000	37.250	0.375	33½	30	961
46x46x34	46.000	45.250	0.375	34.000	33.250	0.375	33½	29½	954
48x48x44	48.000	47.250	0.375	44.000	43.250	0.375	35	33	1,066
48x48x40	48.000	47.250	0.375	40.000	39.250	0.375	35	32	1,053
48x48x36	48.000	47.250	0.375	36.000	35.250	0.375	35	31	1,042
52x52x48	52.000	51.250	0.375	48.000	47.250	0.375	38	34	1,241
52x52x44	52.000	51.250	0.375	44.000	43.250	0.375	38	32	1,222
52x52x40	52.000	51.250	0.375	40.000	39.250	0.375	38	30	1,206
56x56x52	56.000	55.250	0.375	52.000	51.250	0.375	41	36	1,439
56x56x48	56.000	55.250	0.375	48.000	47.250	0.375	41	34	1,419
56x56x44	56.000	55.250	0.375	44.000	43.250	0.375	41	32	1,401
60x60x56	60.000	59.250	0.375	56.000	55.250	0.375	44	38	1,651
60x60x52	60.000	59.250	0.375	52.000	51.250	0.375	44	36	1,630
60x60x48	60.000	59.250	0.375	48.000	47.250	0.375	44	34	1,610

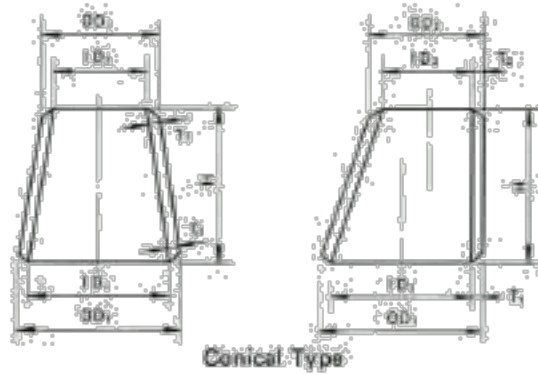
Large Diameter Wrought Steel Butt-Welding Fittings STD (Sch 40) Reducers (Concentric and Eccentric)

ANSI B16.9

(inches)

Nominal Pipe Size	Large End			Small End			End to End H	Approx. Weight (kg)
	Outside Diameter OD ₁	Inside Diameter ID ₁	Wall Thickness T ₁	Outside Diameter OD ₂	Inside Diameter ID ₂	Wall Thickness T ₂		
20x18	20.000	19.250	0.375	18.000	17.250	0.375	20	56.4
20x16	20.000	19.250	0.375	16.000	15.250	0.375	20	53.5
20x14	20.000	19.250	0.375	14.000	13.250	0.375	20	50.8
* 20x18	20.000	18.812	0.594	18.000	16.876	0.562	20	88.4
* 20x16	20.000	18.812	0.594	16.000	15.000	0.500	20	83.0
* 20x14	20.000	18.812	0.594	14.000	13.124	0.438	20	79.6
22x20	22.000	21.250	0.375	20.000	19.250	0.375	20	62.6
22x18	22.000	21.250	0.375	18.000	17.250	0.375	20	59.7
22x16	22.000	21.250	0.375	16.000	15.250	0.375	20	57.1
24x22	24.000	23.250	0.375	22.000	21.250	0.375	20	68.6
24x20	24.000	23.250	0.375	20.000	19.250	0.375	20	66.7
24x18	24.000	23.250	0.375	18.000	17.250	0.375	20	63.0
* 24x20	24.000	22.624	0.688	20.000	18.812	0.594	20	119
* 24x18	24.000	22.624	0.688	18.000	16.876	0.562	20	114
26x22	26.000	25.250	0.375	22.000	21.250	0.375	24	88.2
26x18	26.000	25.250	0.375	18.000	17.250	0.375	24	79.7
26x16	26.000	25.250	0.375	16.000	15.250	0.375	24	76.6
28x24	28.000	27.250	0.375	24.000	23.250	0.375	24	93.5
28x20	28.000	27.250	0.375	20.000	19.250	0.375	24	87.1
28x18	28.000	27.250	0.375	18.000	17.250	0.375	24	84.0
30x26	30.000	29.250	0.375	26.000	25.250	0.375	24	101
30x22	30.000	29.250	0.375	22.000	21.250	0.375	24	94.4
30x20	30.000	29.250	0.375	20.000	19.250	0.375	24	91.4
32x28	32.000	31.250	0.375	28.000	27.250	0.375	24	108
32x24	32.000	31.250	0.375	24.000	23.250	0.375	24	102
32x22	32.000	31.250	0.375	22.000	21.250	0.375	24	98.9
* 32x24	32.000	30.624	0.688	24.000	22.624	0.688	24	185
34x30	34.000	33.250	0.375	30.000	29.250	0.375	24	115
34x26	34.000	33.250	0.375	26.000	25.250	0.375	24	109
34x22	34.000	33.250	0.375	22.000	21.250	0.375	24	103

- For bevel details see pg. 123
- For dimensional tolerances see pg. 122
- Asterisks (*) denote Sch 40
- Wall thicknesses 36" and smaller conform to ANSI B36.10 Specifications; wall thicknesses 36" and larger are indicated by STD and Sch 40 Specifications for wall thicknesses of 36"
- All fittings have one longitudinal seam and are of the convex type
- The OD of Nominal Pipe Size Butt-Welding Fittings 50" and larger equal the respective Nominal Pipe Size
- Dimensional tolerances for Nominal Pipe Sizes 50" and larger conform to German Standards as no Internationally Recognized Standards have been set for such large size wall thicknesses and dimensions



ANSI B16.9

(in inches)

Nominal Pipe Size	Large End			Small End			End to End H	Approx. Weight (kg)
	Outside Diameter OD ₁	Inside Diameter ID ₁	Wall Thickness T ₁	Outside Diameter OD ₂	Inside Diameter ID ₂	Wall Thickness T ₂		
36x32	36.000	35.250	0.375	32.000	31.250	0.375	24	123
36x28	36.000	35.250	0.375	28.000	27.250	0.375	24	116
36x24	36.000	35.250	0.375	24.000	23.250	0.375	24	111
* 36x32	36.000	34.500	0.750	32.000	30.624	0.688	24	243
* 36x24	36.000	34.500	0.750	24.000	22.624	0.688	24	219
38x34	38.000	37.250	0.375	34.000	33.250	0.375	24	130
38x30	38.000	37.250	0.375	30.000	29.250	0.375	24	124
38x26	38.000	37.250	0.375	26.000	25.250	0.375	24	118
40x36	40.000	39.250	0.375	36.000	35.250	0.375	24	137
40x32	40.000	39.250	0.375	32.000	31.250	0.375	24	131
40x28	40.000	39.250	0.375	28.000	27.250	0.375	24	126
42x38	42.000	41.250	0.375	38.000	37.250	0.375	24	144
42x34	42.000	41.250	0.375	34.000	33.250	0.375	24	139
42x30	42.000	41.250	0.375	30.000	29.250	0.375	24	134
44x40	44.000	43.250	0.375	40.000	39.250	0.375	24	152
44x36	44.000	43.250	0.375	36.000	35.250	0.375	24	146
44x32	44.000	43.250	0.375	32.000	31.250	0.375	24	141
46x42	46.000	45.250	0.375	42.000	41.250	0.375	28	185
46x38	46.000	45.250	0.375	38.000	37.250	0.375	28	178
46x34	46.000	45.250	0.375	34.000	33.250	0.375	28	172
48x44	48.000	47.250	0.375	44.000	43.250	0.375	28	194
48x40	48.000	47.250	0.375	40.000	39.250	0.375	28	187
48x36	48.000	47.250	0.375	36.000	35.250	0.375	28	180
52x48	52.000	51.250	0.375	48.000	47.250	0.375	28	211
52x44	52.000	51.250	0.375	44.000	43.250	0.375	28	204
52x40	52.000	51.250	0.375	40.000	39.250	0.375	28	198
56x52	56.000	55.250	0.375	52.000	51.250	0.375	28	228
56x48	56.000	55.250	0.375	48.000	47.250	0.375	28	221
56x44	56.000	55.250	0.375	44.000	43.250	0.375	28	215
60x56	60.000	59.250	0.375	56.000	55.250	0.375	28	245
60x52	60.000	59.250	0.375	52.000	51.250	0.375	28	238
60x48	60.000	59.250	0.375	48.000	47.250	0.375	28	232

Large Diameter Wrought Steel Butt-Welding Fittings XS (Sch 80) Reducers (Concentric and Eccentric)

ANSI B16.9

(in Inches)

Nominal Pipe Size	Large End			Small End			End to End H	Approx. Weight (kg)
	Outside Diameter OD ₁	Inside Diameter ID ₁	Wall Thickness T ₁	Outside Diameter OD ₂	Inside Diameter ID ₂	Wall Thickness T ₂		
20x18	20.000	19.000	0.500	18.000	17.000	0.500	20	74.9
20x16	20.000	19.000	0.500	16.000	15.000	0.500	20	71.1
20x14	20.000	19.000	0.500	14.000	13.000	0.500	20	67.4
* 20x18	20.000	17.938	1.031	18.000	16.124	0.938	20	150
* 20x16	20.000	17.938	1.031	16.000	14.312	0.844	20	142
* 20x14	20.000	17.938	1.031	14.000	12.500	0.750	20	145
22x20	22.000	21.000	0.500	20.000	19.000	0.500	20	82.9
22x18	22.000	21.000	0.500	18.000	17.000	0.500	20	79.2
22x16	22.000	21.000	0.500	16.000	15.000	0.500	20	75.6
* 22x20	22.000	19.750	1.125	20.000	17.938	1.031	20	181
* 22x18	22.000	19.750	1.125	18.000	16.124	0.938	20	172
* 22x16	22.000	19.750	1.125	16.000	14.312	0.844	20	164
24x22	24.000	23.000	0.500	22.000	21.000	0.500	20	91.0
24x20	24.000	23.000	0.500	20.000	19.000	0.500	20	87.3
24x18	24.000	23.000	0.500	18.000	17.000	0.500	20	83.7
* 24x22	24.000	21.562	1.219	22.000	19.750	1.125	20	215
* 24x20	24.000	21.562	1.219	20.000	17.938	1.031	20	206
* 24x18	24.000	21.562	1.219	18.000	16.124	0.938	20	197
26x22	26.000	25.000	0.500	22.000	21.000	0.500	24	114
26x18	26.000	25.000	0.500	18.000	17.000	0.500	24	106
26x16	26.000	25.000	0.500	16.000	15.000	0.500	24	101
28x24	28.000	27.000	0.500	24.000	23.000	0.500	24	124
28x20	28.000	27.000	0.500	20.000	19.000	0.500	24	115
28x18	28.000	27.000	0.500	18.000	17.000	0.500	24	111
30x26	30.000	29.000	0.500	26.000	25.000	0.500	24	134
30x22	30.000	29.000	0.500	22.000	21.000	0.500	24	125
30x20	30.000	29.000	0.500	20.000	19.000	0.500	24	121
32x28	32.000	31.000	0.500	28.000	27.000	0.500	24	143
32x24	32.000	31.000	0.500	24.000	23.000	0.500	24	135
32x22	32.000	31.000	0.500	22.000	21.000	0.500	24	131

● For bevel details see pg. 123

● For dimensional tolerances see pg. 122

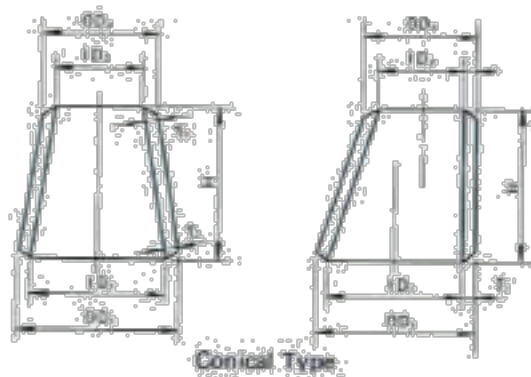
● Asterisks (*) denote Sch 80

● Wall thicknesses 26" and smaller conform to ANSI B36.10 Specifications; wall thicknesses 36" and larger are indicated by XS Specifications for wall thicknesses of 26"

● All fittings have one longitudinal seam and are of the conical type

● The OD of Nominal Pipe Size Butt-Welding Fittings 50" and larger equal the respective Nominal Pipe Size

● Dimensional tolerances to Nominal Pipe Sizes 60" and larger conform to Berman Standards as an Internationally Recognized Standard have been set for such large size wall thicknesses and dimensions



ANSI B16.9

(in inches)

Nominal Pipe Size	Large End			Small End			End to End H	Approx. Weight (kg)
	Outside Diameter OD ₁	Inside Diameter ID ₁	Wall Thickness T ₁	Outside Diameter OD ₂	Inside Diameter ID ₂	Wall Thickness T ₂		
34x30	34.000	33.000	0.500	30.000	29.000	0.500	24	153
34x26	34.000	33.000	0.500	26.000	25.000	0.500	24	145
34x22	34.000	33.000	0.500	22.000	21.000	0.500	24	137
36x32	36.000	35.000	0.500	32.000	31.000	0.500	24	163
36x28	36.000	35.000	0.500	28.000	27.000	0.500	24	155
36x24	36.000	35.000	0.500	24.000	23.000	0.500	24	147
38x34	38.000	37.000	0.500	34.000	33.000	0.500	24	173
38x30	38.000	37.000	0.500	30.000	29.000	0.500	24	165
38x26	38.000	37.000	0.500	26.000	25.000	0.500	24	157
40x36	40.000	39.000	0.500	36.000	35.000	0.500	24	182
40x32	40.000	39.000	0.500	32.000	31.000	0.500	24	174
40x28	40.000	39.000	0.500	28.000	27.000	0.500	24	167
42x38	42.000	41.000	0.500	38.000	37.000	0.500	24	192
42x34	42.000	41.000	0.500	34.000	33.000	0.500	24	184
42x30	42.000	41.000	0.500	30.000	29.000	0.500	24	177
44x40	44.000	43.000	0.500	40.000	39.000	0.500	24	202
44x36	44.000	43.000	0.500	36.000	35.000	0.500	24	197
44x32	44.000	43.000	0.500	32.000	31.000	0.500	24	187
46x42	46.000	45.000	0.500	42.000	41.000	0.500	28	247
46x38	46.000	45.000	0.500	38.000	37.000	0.500	28	237
46x34	46.000	45.000	0.500	34.000	33.000	0.500	28	228
48x44	48.000	47.000	0.500	44.000	43.000	0.500	28	258
48x40	48.000	47.000	0.500	40.000	39.000	0.500	28	243
48x36	48.000	47.000	0.500	36.000	37.000	0.500	28	240
52x48	52.000	51.000	0.500	48.000	47.000	0.500	28	281
52x44	52.000	51.000	0.500	44.000	43.000	0.500	28	271
52x40	52.000	51.000	0.500	40.000	39.000	0.500	28	263
56x52	56.000	55.000	0.500	52.000	51.000	0.500	28	303
56x48	56.000	55.000	0.500	48.000	47.000	0.500	28	294
56x44	56.000	55.000	0.500	44.000	43.000	0.500	28	286
60x56	60.000	59.000	0.500	56.000	55.000	0.500	28	326
60x52	60.000	59.000	0.500	52.000	51.000	0.500	28	317
60x48	60.000	59.000	0.500	48.000	47.000	0.500	28	309

TEST CERTIFICATE

File Stack

INVOICE NO: JC/100635A
 MATERIAL SPEC.: ASTM A334 WPB

DATE: JUN. 20, 2010
 SPEC.: ANSI B16.9

ART NO.	SIZE	PCS	HEAT NO.	PHYSICAL TEST			CHEMICAL COMPOSITION %					VISUAL EXAM.	DIMENSION INSPECTION
				YIELD POINT (Mpa)	TENSILE STRENGTH (Mpa)	EL. (%)	C	Mn	P	S	Si		
BLACK STEEL WELDED FITTINGS													
ELBOW 90D L/R SCH40	1"	500	356	265	440	25	0.18	0.35	0.027	0.030	0.24	OK	OK
	1-1/4"	3000	425	285	440	26	0.18	0.42	0.021	0.032	0.12	OK	OK
	1-1/2"	500	451	255	420	26	0.16	0.32	0.017	0.012	0.30	OK	OK
	2"	500	817	255	450	26	0.15	0.56	0.029	0.008	0.32	OK	OK
	4"	200	931	265	450	26	0.17	0.45	0.021	0.029	0.26	OK	OK
	5"	150	873	280	465	23	0.21	0.45	0.017	0.014	0.25	OK	OK
	6"	150	123	285	480	26	0.18	0.58	0.020	0.027	0.32	OK	OK
	10"	40	313	260	460	25	0.17	0.45	0.017	0.027	0.24	OK	OK
	12"	40	283	285	495	23	0.22	0.68	0.021	0.025	0.21	OK	OK
ELBOW 90D L/R STD	14"	10	785	280	475	25	0.19	0.45	0.017	0.026	0.19	OK	OK
	16"	10	657	265	445	26	0.16	0.48	0.018	0.021	0.20	OK	OK
	18"	10	369	265	455	25	0.17	0.45	0.024	0.012	0.21	OK	OK
	20"	5	666	300	500	23	0.22	0.68	0.032	0.018	0.32	OK	OK
	24"	5	631	285	490	23	0.22	0.56	0.032	0.012	0.28	OK	OK
ELBOW 45D L/R SCH40	2-1/2"	100	814	295	495	24	0.20	0.64	0.014	0.030	0.25	OK	OK
	3"	100	711	295	495	24	0.20	0.56	0.014	0.027	0.24	OK	OK
	4"	100	831	265	450	26	0.17	0.45	0.021	0.029	0.26	OK	OK
	5"	25	873	280	465	23	0.21	0.45	0.017	0.014	0.25	OK	OK
	6"	20	123	285	480	26	0.18	0.58	0.020	0.027	0.32	OK	OK
	8"	20	352	285	480	24	0.20	0.65	0.025	0.032	0.12	OK	OK
	10"	40	313	260	460	25	0.17	0.45	0.017	0.027	0.24	OK	OK
	12"	10	283	285	495	23	0.22	0.68	0.021	0.025	0.21	OK	OK
ELBOW 45D L/R STD	14"	5	785	280	475	25	0.19	0.45	0.017	0.026	0.19	OK	OK
	16"	10	657	265	445	26	0.16	0.48	0.018	0.021	0.20	OK	OK
	18"	5	369	265	455	25	0.17	0.45	0.024	0.012	0.21	OK	OK
TEE STD	14"	4	412	265	455	23	0.22	0.42	0.012	0.032	0.28	OK	OK
	16"	6	461	255	445	25	0.18	0.45	0.023	0.032	0.19	OK	OK
	18"	2	462	270	465	24	0.20	0.49	0.029	0.029	0.32	OK	OK
REDUCING TEE STD	14X4	4	412	265	455	23	0.22	0.42	0.012	0.032	0.28	OK	OK
	14X5	3	412	265	455	23	0.22	0.42	0.012	0.032	0.28	OK	OK
	14X6	5	412	265	455	23	0.22	0.42	0.012	0.032	0.28	OK	OK
	14X8	5	412	265	455	23	0.22	0.42	0.012	0.032	0.28	OK	OK
	14X10	4	412	265	455	23	0.22	0.42	0.012	0.032	0.28	OK	OK

ALL PRODUCTS COME UP TO STANDARD