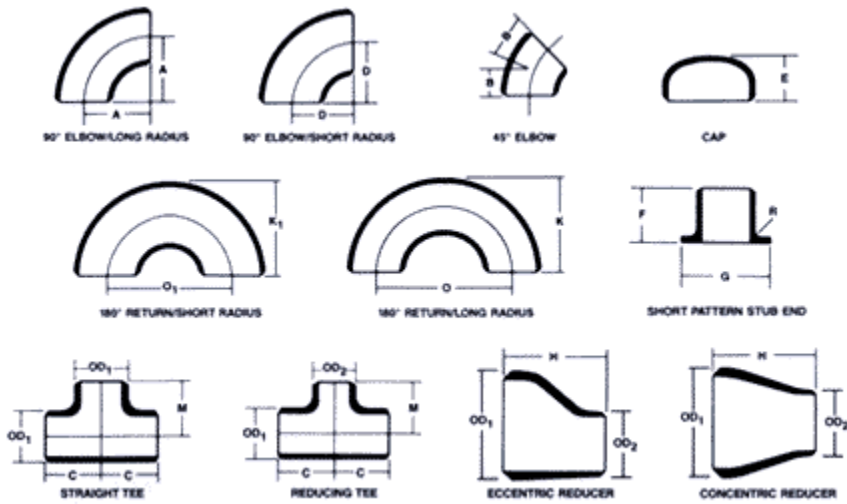


BUTT WELD FITTINGS: DIMENSIONAL TOLERANCES FOR FITTINGS¹



All Fittings				Elbows and Tees	180° Returns			Elbows and Tees		Reducers and Stub Ends	Stub Ends		Caps
Nominal Pipe Size	Outside Diameter at Bevel	Inside Diameter at Ends	Wall Thickness	Center-to-End Length A, B, C, D, M	Center-to-Center Length O, O ₁	Back-to-Face Length K, K ₁	Alignment of Ends	Off Angle	Off Plane	Overall Length F, H	Outside Diameter of Lap G	Radius R	Overall Length E
1/2 - 2 1/2	+0.06 / - 0.03	±0.03	Not Less Than 87½% of the Nominal Thickness Specified	±0.06	±0.25	±0.25	±0.03	0.03	0.06	±0.06	+0 / - 0.03	+0 / - 0.03	±0.12
3 - 3 1/2	±0.06	±0.06		±0.06	±0.25	±0.25	±0.03	0.03	0.06	±0.06	+0 / - 0.03	+0 / - 0.03	±0.12
4	±0.06	±0.06		±0.06	±0.25	±0.25	±0.03	0.03	0.06	±0.06	+0 / - 0.03	+0 / - 0.06	±0.12
5 - 8	+0.09 / - 0.06	±0.06		±0.06	±0.25	±0.25	±0.03	0.06	0.12	±0.06	+0 / - 0.03	+0 / - 0.06	±0.25
10 - 12	+0.16 / - 0/12	±0.12		±0.09	±0.38	±0.25	±0.06	0.09	0.19	±0.09	+0 / - 0.06	+0 / - 0.06	±0.25
14 - 16	+0.16 / - 0/12	±0.12		±0.09	±0.38	±0.25	±0.06	0.09	0.25	±0.09	+0 / - 0.06	+0 / - 0.06	±0.25
18	+0.16 / - 0/12	±0.12		±0.09	±0.38	±0.25	±0.06	0.12	0.38	±0.09	+0 / - 0.06	+0 / - 0.06	±0.25
20 - 24	+0.25 / - 0.19	±0.19		±0.09	±0.38	±0.25	±0.06	0.12	0.38	±0.09	+0 / - 0.06	+0 / - 0.06	±0.25

ALL DIMENSIONS ARE IN INCHES
IN ACCORDANCE WITH ASME/ANSI B16.9

BUTT WELD FITTINGS: CHEMICAL | MECHANICAL REQUIREMENTS

GRADE ¹	CHEMICAL REQUIREMENTS (COMPOSITION,%) ^{2,3}										MECHANICAL REQUIREMENTS ^{2,4}		
	C	Mn	P	S	Si	Ni	Cr	Mo	N	Cu	YIELD STRENGTH PSI	MECHANICAL STRENGTH PSI	ELONGATION %
304L	.030	2.00	.045	.030	1.00	8.0 - 13.0	18.0 - 20.0	-	-	-	25,000	70,000	28
304	.08	2.00	.045	.030	1.00	8.0 - 11.0	18.0 - 20.0	-	-	-	30,000	75,000	28
304H	.04- .10	2.00	.045	.030	1.00	8.0 - 11.0	18.0 - 20.0	-	-	-	30,000	75,000	28
316L	.030	2.00	.045	.030	1.00	10.0 - 15.0	16.0 - 18.0	2.00 - 3.00	-	-	25,000	70,000	28
316	.08	2.00	.045	.030	1.00	10.0 - 14.0	16.0 - 18.0	2.00 - 3.00	-	-	30,000	75,000	28
316H	.04-	2.00	.045	.030	1.00	10.0 -	16.0 -	2.00 -	-	-	30,000	75,000	28

	.10					14.0	18.0	3.00											
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¹ OTHER GRADES/ALLOYS ARE AVAILABLE ON APPLICATION

² IN ACCORDANCE WITH ASTM A403 AND ASME SA-403, APPLICABLE TO CLASSES WP AND CR

³ MAXIMUM UNLESS A RANGE IS SPECIFIED

⁴ MINIMUM