



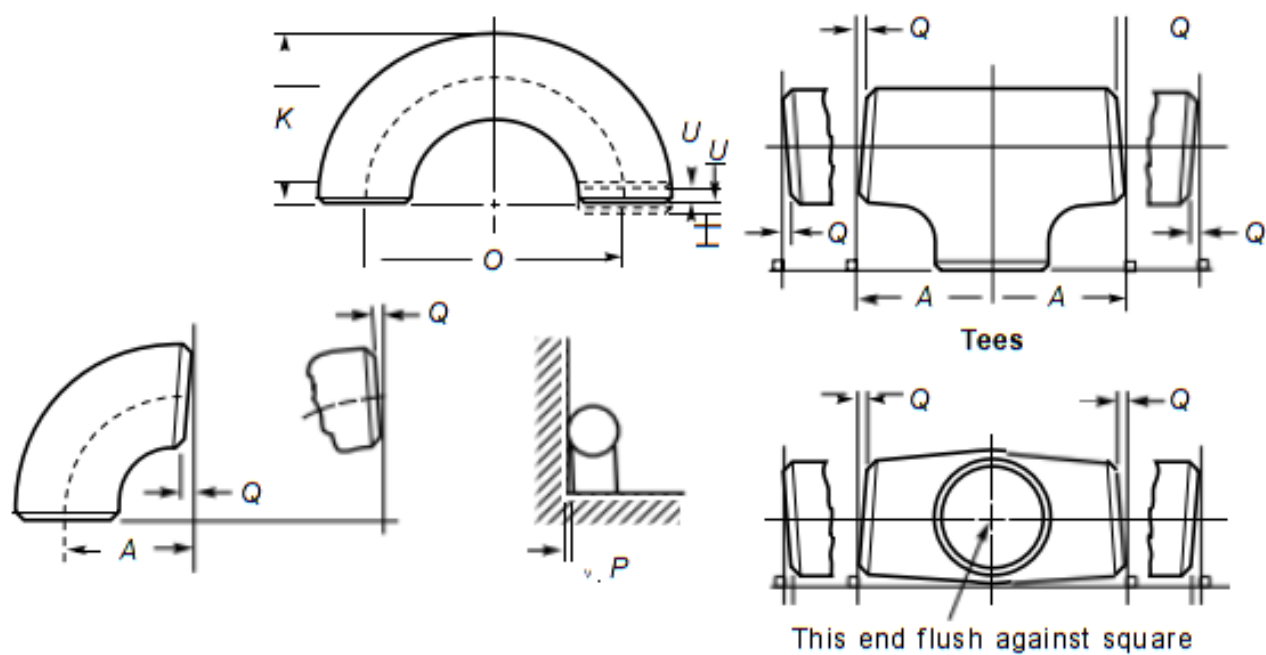
ASME B16.9

FACTORY-MADE WROUGHT BUTTWELDING FITTINGS

Tolerances

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ILLUSTRATION

TOLERANCES

All Fittings					Center-to-End Dimensions of 90 Deg and 45 Deg Elbows and Tees, A, B, C, M	Overall Length of Reducers and Lap Joint Stub Ends, F, H	Overall Length of Caps, E	180 Deg Returns		
Nominal Pipe Size (NPS)	(DN)	Outside Diameter at Bevel, D [Notes (1), and (2)]	Inside Diameter at End [Notes (1),(3), and (4)]	Wall Thickness, t [Note (3)]				Center-to-Center Dimension, O	Back-to-Face Dimension, K	Alignment of Ends, U
1/2 to2 1/2	15-65	+1.6-0.8	0.8	Not Less Than 87.50% of Nominal Thickness	2	2	3	6	6	1
3 to 3 1/2										
4	80-90	1.6	1.6		2	2	3	6	6	1
5 to 8										
10 to 18	100	1.6	1.6		2	2	3	6	6	1
20 to 24	125-200	+2.4-1.6	1.6		2	2	6	6	6	1
26 to 30	250-450	+4.0-3.2	3.2		2	2	6	10	6	2
37 to 48	500-600	+6.4-4.8	4.8		2	2	6	10	6	2
	650-750	+6.4-4.8	4.8		3	5	10	...	...	...
	800-1200	+6.4-4.8	4.8		5	5	10	...	...	...

Nominal Pipe Size (NPS)	(DN)	Lap Joint Stub Ends			Lap Thickness	Nominal Pipe Size (NPS)	(DN)	Angularity Tolerances	
		Outside Diameter of Lap, <i>G</i>	Fillet Radius of Lap, <i>R</i>	Outside Diameter of Barrel				Off Angle, <i>Q</i>	Off Plane, <i>P</i>
1/2 to 2 1/2	15–65	+0–1	+0–1	Limiting Dimensions	+1.6–0	1/2 to 4	15–100	1	2
3 to 3 1/2	80–900	+0–1	+0–1		+1.6–0	5 to 8	125–200	2	4
4	100	+0–1	+0–2		+1.6–0	10 to 12	250–300	2	5
5 to 8	125–200	+0–1	+0–2		+1.6–0	14 to 16	350–400	3	6
10 to 18	250–450	+0–2	+0–2		+3.2–0	18 to 24	450–600	4	10
20 to 24	500–600	+0–2	+0–2		+3.2–0	26 to 30	650–750	5	10
26 to 30	650–750					32 to 42	800–1050	5	13
37 to 48	800–1200	. . .	. . .			. . .	44–48	1100–1200	5

GENERAL NOTES:

- (a) All dimensions are in millimeters.
- (b) Tolerances are equal plus and minus except as noted.

NOTES:

- (1) Out-of-round is the sum of absolute values of plus and minus tolerances.
- (2) This tolerance may not apply in localized areas of formed fittings where increased wall thickness is required to meet design requirements of para. 2.2.
- (3) The inside diameter and the nominal wall thicknesses at ends are to be specified by the purchaser.
- (4) Unless otherwise specified by the purchaser, these tolerances apply to the nominal inside diameter, which equals the difference between the nominal outside diameter and twice the nominal wall thickness.