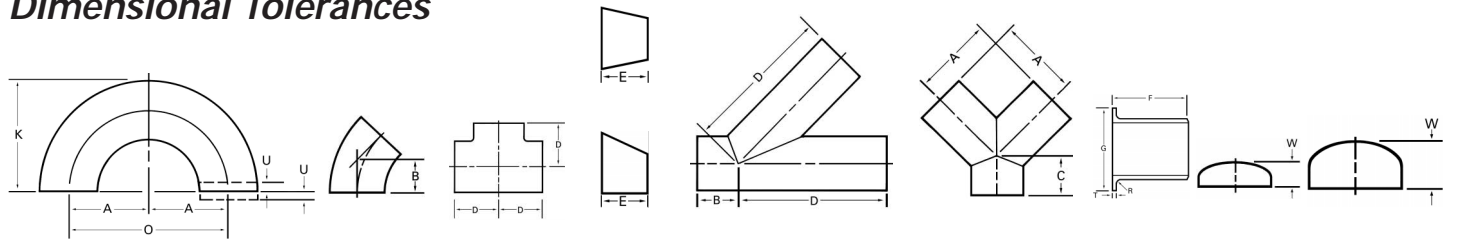


# Standard Tolerances

## Dimensional Tolerances



Nominal Pipe Size	Pipe, Tube and all Fittings			90° & 45° Ells, tees, Lats & Wyes	Reducing & Lap-Joint Stub Ends	180° Returns			Lap-Joint Stub Ends			
	Outside Diameter at Bevel <sup>(1)</sup>	Inside Diameter at End <sup>(2)</sup>	Wall Thickness <sup>(2)</sup>	Center-to-End A,B, C,D	Overall Length E,F	Overall Height W	Center-to-Center O	Back-to-Face K	Alignment of Ends U	Outside Diameter of Lap G	Lap Thickness T	Fillet Radius of Lap R
1/2 to 2 1/2	+0.06 -0.03	±0.03	*	±0.06	±0.06	±0.12	±0.25	±0.25	±0.03	+0 -0.03	+0.06 -0	+0 -0.03
3 to 3 1/2	±0.06	±0.06	*	±0.06	±0.06	±0.12	±0.25	±0.25	±0.03	+0 -0.03	+0.06 -0	+0 -0.03
4	±0.06	±0.06	*	±0.06	±0.06	±0.12	±0.25	±0.25	±0.03	+0 -0.03	+0.06 -0	+0 -0.06
5 to 8	+0.09 -0.06	±0.06	*	±0.06	±0.06	±0.25	±0.25	±0.25	±0.03	+0 -0.03	+0.06 -0	+0 -0.06
10 to 18	+0.16 -0.12	±0.12	*	±0.09	±0.09	±0.25	±0.38	±0.25	±0.06	+0 -0.06	+0.06 -0	+0 -0.06
20 to 24	+0.25 -0.19	±0.19	*	±0.09	±0.09	±0.25	±0.38	±0.25	±0.06	+0 -0.06	+0.06 -0	+0 -0.06
26 to 30	+0.25 -0.19	±0.19	*	±0.12	±0.19	±0.38						
32 to 48	+0.25 -0.19	±0.19	*	±0.19	±0.19	±0.38						

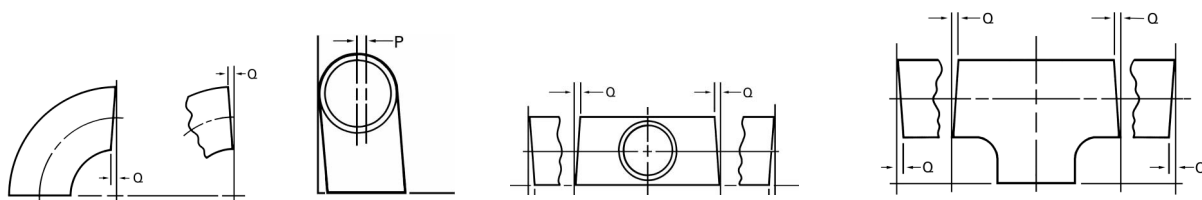
\*Not less than 87.5% of nominal thickness

<sup>(1)</sup>Out-of-round is the sum of absolute values of plus and minus tolerance.

<sup>(2)</sup>The inside diameter at ends and the nominal wall thicknesses are to be specified by the purchaser.

Note: For "as welded" pipe and fittings, outside diameter tolerances given are applicable to circumferential measure.

## Angularity Tolerances



Nominal Pipe Size	Off Angle (Q)	Off Plane (P)
1/2 to 4	± 0.03	± 0.06
5 to 8	± 0.06	± 0.12
10 to 12	± 0.09	± 0.19
14 to 16	± 0.09	± 0.25
18 to 24	± 0.12	± 0.38
26 to 30	± 0.19	± 0.38
32 to 42	± 0.19	± 0.50
44 to 48	± 0.19	± 0.75

Dimensions are in inches.