U TUBE - ASME SA688 TOLERANCES

Asia Energy Engineering Co., Ltd.

Tube bending shall be carefully carried out and all bending tolerances shall be fully complied with ASME SA688 tolerances here-under summarized in conjunction with figure 1.

Article	Acceptable Description	Tolerances
A	Deviation from plane of bend	≤ 1.5 mm
B	Leg lengths different	≤ 3.2 mm
C	Leg lengths tolerance L	
	L ≤ 6 m	+3.2 mm - 0
	6 > L ≤ 9 m	+4 mm - 0
	L > 9 m	+4.8 mm - 0
D	Radius R	± 1.5 mm
E	Leg spacing (measured at tangency point)	± 1.5 mm
F	Ovality in the bent portion (also called flattening)	± 10 % This can be described as follow. (Dmax – D) / D < 10% (D – Dmin) / D < 10% “neither the major nor minor diameter of the tube shall deviate from the nominal diameter prior to bending by more than 10%”
G	Wall thickness in bent portion	shall not be less than the value determined by the below equation: tf = (4R x T) / (4R + D) where : tf = wall thickness after bending T = minimum wall thickness before bending R = centerline bend radius D = nominal outside tube diameter
H	Squareness of ends	
	D ≤ 15.9 mm	0.25 mm
	15.9 > D ≤ 25.4	0.4 mm
	D ≥ 25.4 ≤ 38.1	0.4 mm

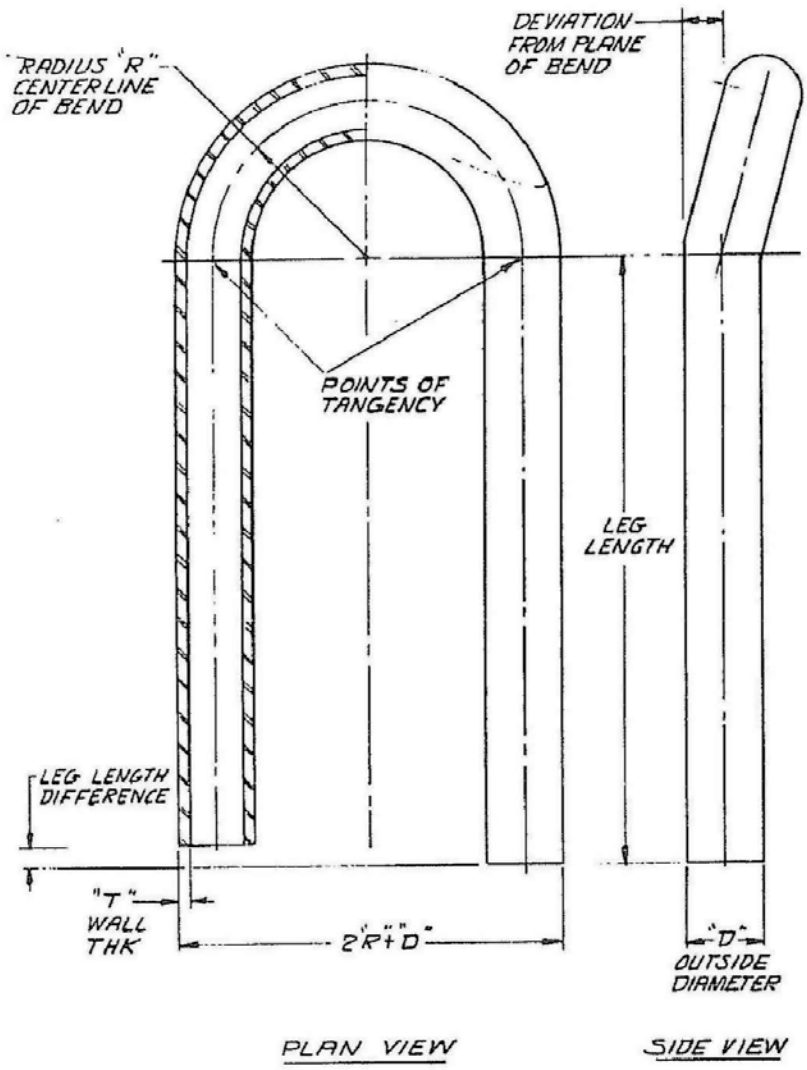

FIG. 1 PLANE BEND FOR U-TUBE