

## FLANGE TOLERANCES ANSI B16.5:1996 CENTER TO CONTACT SURFACES AND CENTER TO END ( LINE JOINT )

### American National Standard Steel Flanges and Flanged Fittings

Diagrams 1 + 2

			Sizes NPS 10 and	+0.03 in
			Sizes NPS 12 to 18 inclusive	+0.06 in
			Sizes NPS 20 and	+0.12 in
				-0.06 in
<b>Center-to-End (ring joint)</b>				
			Sizes NPS 10 and smaller	0.03 in
			Sizes NPS 12 and larger	0.06 in
<b>Contact Surface-to-Contact Surface (other than ring-joint)</b>				
			Sizes NPS 10 and smaller	0.06 in
			Sizes NPS 12 and larger	0.12 in
<b>End-to-End (ring-joint)</b>				
			Sizes NPS 10 and smaller	0.06 in
			Sizes NPS 12 and larger	0.12 in
<b>Facings</b>				
			Inside and Outside Diameter of Large and Small tongue and groove and female.	0.02 in
			Outside Diameter, 0.06 in raised face	0.03 in
			Outside Diameter, 0.25 in raised face	0.02 in
<b>Flange Thickness</b>				
			Sizes NPS 18 and smaller	+0.12 in
				-zero
			Sizes NPS 20 and larger	+0.19 in
				-zero
<b>Hub Dimensions (including welding ends)</b>				
			Nominal Outside Diameter of Welding End of welding Neck Flanges	
			Sizes NPS 5 and Smaller	+0.09 in
				-0.03 in
			Sizes NPS 6 and Larger	+0.16 in
				-0.03 in
			Nominal Inside Diameter Of Welding Ends of welding neck flanges and smaller bore of socket welding flanges (dimension B in the referenced figures)	
<b>Overall Length of Hub on Welding Neck Flanges</b>				
			Sizes NPS 4 and	+0.06 in
			Sizes NPS 5 to 10 inclusive	+0.06 in
				-0.12 in
			Sizes NPS 12 and	+0.12 in
				-0.18 in
<b>Bore of Flanges</b>				
			Lapped, Slip-On and socket-welding flanges	
			Sizes NPS 10 and	+0.06 in
				-zero
			Sizes NPS 12 and	+0.06 in
				-zero
<b>Counterbore, Screwed Flanges</b>				
			Sizes NPS 10 and	+0.03 in
				-zero
			Sizes NPS 12 and	+0.06 in
				-zero
<b>Drilling and Facing</b>				
			Bolt Circle Diameter	0.06 in
			Center-to-center of adjacent bolt holes	0.03 in
			Eccentricity between bolt circle diameter and machined facing diameters	
			Sizes NPS 2 1/2 and smaller	0.03 in
			Sizes NPS 3 and lar-	0.06 in

Thickness of hub. Regardless of tolerances specified for dimensions A and B, the thickness of hub at the welding end shall never be less than 87.5 per cent of the nominal thickness of the pipe to which the flange is to be attached.