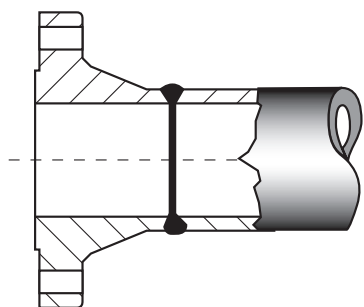




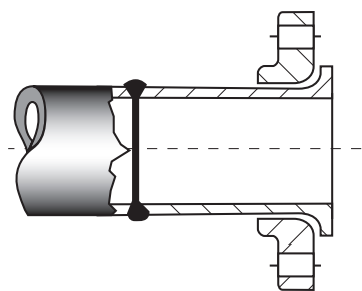
# METHODS OF WELDING FLANGES TO PIPE



The methods used in welding flanges to pipe will vary according to the type of flange and are basically the same as those used in standard welding practices. For welding Neck and Lap Joint Stub and Flange applications an initial root gap spacing between pipe and flange should be  $1/16''$  to  $1/8''$ . The first bead must penetrate uniformly to the inside wall of the assembly thus assuring a strong joint. The final bead should be built up above the pipe O.D. approximately  $1/16''$  as shown.

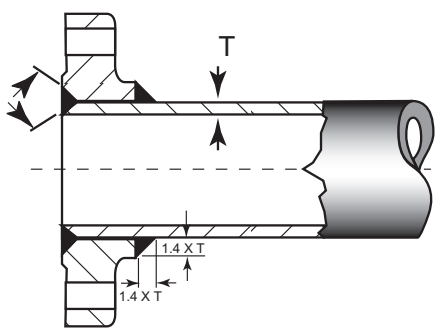


**WELDING NECK  
FLANGES**

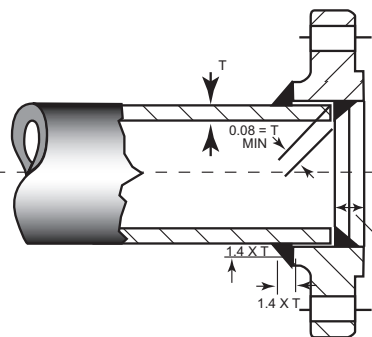


**LAP JOINT STUB  
FLANGES**

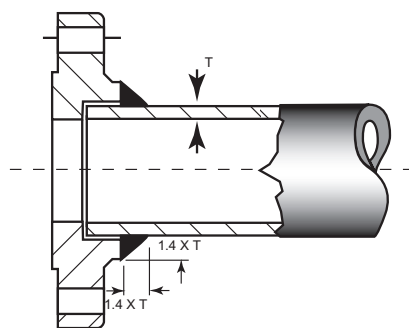
This type preferred for severe services because it provides the greatest factor of safety and fatigue strength. These features make this type of flange suitable for all pressures and temperatures for which flanges are rated. Welding cannot cause distortion of the flange face. This type assembly has a lower factor of safety in resisting pressure and fatigue than welding neck flanges. It is available for all pressures and temperatures for which flanges are rated and because the flange swivels freely on the stub, the alignment of both holes is independent from the welding operation. Welding cannot cause distortion of the gasket face.



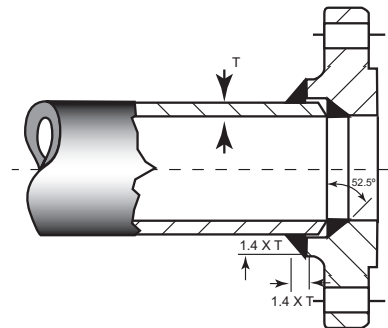
**SLIP-ON  
FLANGES**



This Slip-On Flange construction necessitates refacing after welding thus reducing the economic advantage this type flange has over the welding neck type. It is used where smooth bores free from pockets are desired. Slip-On Flanges are standard in the 150 lb. and 300 lb. classes only and because of their lower factor of safety in resisting pressure and fatigue, they are not recommended for service above  $750^{\circ}\text{F}$ . This Slip-On Flange is often chosen over Welding Neck Flanges because of its lower initial cost and is widely used because it requires less accuracy in cutting pipe to length and permits alignment of bolt holes and squaring of flange faces with less difficulty. Refacing to repair warpage or weld spatter damage can be eliminated by the construction shown here if care is used when welding. Slip-On Flanges are standard in 150 lb. and 300 lb. classes only and are not recommended for service above  $750^{\circ}\text{F}$ .



**SOCKET WELD  
FLANGES**



For those applications in which the running of an internal weld is particularly difficult, this Socket Weld construction is recommended. In sizes 4" and smaller this construction has approximately the same resistance to internal pressure and fatigue as the Slip-On Flanges pictured above. This sock weld construction eliminates internal pockets while avoiding warpage from welding heat and weld spatter damage to the flange face. It has the same resistance to internal pressure as that of Slip-On Flanges and better fatigue life. This construction is recommended for all sizes in 50 lb. and 300 lb. pressure classes.