

Engineering Specification PS-150

Silver Brazing of Copper Tube To Steel Sweat Fittings

Purpose:

Provide a specification that addresses requirements for brazing refrigeration and air conditioning equipment copper tube connections to steel shutoff valve sweat fittings.

Scope:

This specification extends to pre-cleaning, flux application, braze alloy, post-cleaning, final review and adjustment.

Braze/Connection Operation:

1. Check shutoff valve and make sure the sweat fitting has been thoroughly cleaned. Check copper tube to ensure it is properly cleaned.
2. Check the inside of valve and determine if there is any lubrication oil on the stem button. If no oil is present, then a light application of refrigeration oil is recommended to prevent galling of valve body and stem button sealing surfaces when valve is shut off.
3. Adjust the valve stem so stem button is in the neutral position between front and back sealing seats.
4. Using a good grade of compatible silver solder flux, applying it completely and evenly around copper tube diameter at the sweat fitting joint. Push the sweat fitting and copper tube together so that the copper tube is all the way to the bottom of the hole.
5. Use a heat sink on any brazed valve joints near the copper/steel union to keep the braze material in the valve joint from reflowing and creating a leak path.
6. Light torch and adjust to a reducing flame; apply heat on copper tube evenly. Heat tubing approximately 1/2 inch from the sweat fitting connection. When the flux becomes liquid, move the torch to the sweat connection. Keep flame moving slightly around fitting. Do not direct flame at valve body.
7. Apply braze/solder alloy once the flux becomes liquid on both sweat fitting and copper tube. Apply braze alloy to copper tube where it enters sweat fitting. Apply sufficient alloy until it flows completely around braze joint, then remove flame.
8. Clean to remove flux using warm water and a stiff brush.
9. Check for possible adjustment of gland nut once brazed joint has cooled down. If gland nut has backed off due to stem activation, torque it to its correct specification.

Specification Number:

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MACHINE PRODUCTS

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