

2. **Cleaning the tube end:** All oil and oxide build-up must be removed from the tube end for at least the length of the braze joint. Oil may be removed by using an oil-free solvent. Oxide build-up may be removed by pickling or by lightly sanding with an aluminum-free emery paper.
3. **Fixturing the parts for brazing:** Care should be taken so the braze fixture allows the sleeve to settle and bottom on the tube completely during heating. Since the Seal-Lok fitting sleeve is designed for a slip fit, this should happen easily. Short tubes can be brazed in the vertical position. On longer tubes, the joint may need to be in the horizontal position, requiring a slight nudge to seat the sleeve on the tube.
4. **Applying flux:** Apply proper flux to tube end (about 1½ sleeve lengths) and sleeve's face and outside surface. Insert appropriate braze ring in the sleeve and place the sleeve on end of the tube. The flux helps protect the parts from oxidizing and promotes braze flow.
5. **Heating the part:** Apply heat uniformly to the joint by using a multi-flame torch as shown in Fig. T21 or with an induction braze unit. Proper brazing involves heating the assembly to brazing temperature and flowing the filler metal through the joint. Heat should be applied broadly and uniformly to the tube as well as the Seal-Lok sleeve. Keep in mind that thicker fitting and tubing sections take longer to heat. The entire assembly should heat to brazing temperature at about the same time. The braze alloy will always flow towards the area of higher temperature. The pre-formed braze ring has been placed inside the joint area—the last area to reach melting temperature. Therefore, when you see the braze material flow to the outside of the joint, you know the joint is complete. If the sleeve does not settle, a slight pressure will cause the sleeve to settle, completing the braze joint.
6. **Cleaning the brazed joint:** After stopping heat application, allow about 10 seconds for the braze alloy to solidify. Then, immerse the joint in hot water (approx. 140°F). To make cleaning easier, add Parker Braze Cleaner to the hot water. This sudden cooling cracks the braze flux residue, making it easier to remove. Any remaining residue can be removed by careful wire brushing, making sure not to scratch the sealing surface of the sleeve.
7. **Corrosion protection after brazing:** This is an extremely important step following brazing and even more so following the use of a braze cleaner. Braze cleaners such as Handy and Harman Post Braze Cleaner available from Parker and Bernite 45¹ which are used to facilitate the removal of residual flux after brazing, are generally corrosive. The residue left on the surface by the cleaner, especially on the I.D. of the tube, can cause rusting in carbon steel tubes rather quickly, if it is not neutralized. Therefore, it is important to neutralize the cleaner residue after cleaning with a solution such as Bernite 136² (mix 4 ounces of Bernite 136 with one gallon of water). If the brazed parts are not to be used soon after brazing, a coating of rust inhibitors such as WD-40³ or SP-350⁴ is recommended for the braze and heat affected area.

1 & 2) Products of Bernite Products, Inc. 84 New York, Westbury, NY 11500 (516) 338-4646.

3) A product of WD-40 Company, San Diego, CA 92220.

4) A product of CRC Chemicals, USA, Warminster, PA 18974 (215) 674-4300

Inspection of Brazing

Inspect the braze for a fillet all the way around the tube at the far end (small diameter) of the sleeve.

Caution: If there are gaps in the fillet, the joint may not be sound. In this case, rebrazing is recommended. Remove the sleeve and rebraze a new one in its place.

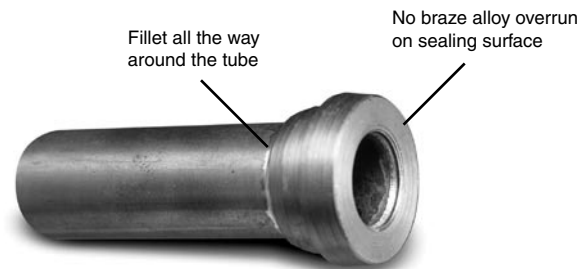


Fig. T23 – Brazed fitting

Inspect the sealing surface. There should be no braze alloy overrun or build-up on this surface. If there is build-up, remove it with emery paper, being careful not to scratch the seal surface. If this is not possible, remove the old sleeve and rebraze a new one in its place.

Final Installation

The following steps are required for final installation of the Seal-Lok fitting:

1. Ensure that the correct O-ring is properly installed in the groove of the fitting, if not already pre-installed by the fitting manufacturer (Parker provides Seal-Lok fittings with pre-installed O-rings). Since Seal-Lok is machined with the captive O-ring groove (CORG), it is recommended that a CORG assembly tool be utilized, as shown in Fig. T24. To properly use the assembly tool, follow these steps
 - Position the O-ring inside the CORG assembly tool against the pusher.
 - Position the tool over the Seal-Lok tube end until the end is bottomed in the tool.
 - Push the plunger of the tool until the O-ring is inserted and seated into the groove.



Fig. T24 – O-Ring installation using the CORG assembly tool