

Lesson 3: Brazing on Mild Steel

Braze Welding an Outside Corner Joint in Mild Steel

Objective: Students will braze weld an outside corner joint using the oxyacetylene outfit.

Directions: Students will use an oxyacetylene outfit and brazing rod to make an outside corner joint in mild steel.

Materials and Equipment:

Oxyacetylene outfit and accessories

Welding goggles with appropriate shaded lens*

Safety glasses if needed to supplement goggles

Leather gloves and any other protective clothing recommended by instructor

Spark lighter

Wire brush, emery cloth, or other cleaners recommended by instructor

Pliers

Flux suitable for brazing mild steel

Firebrick or angle iron

Steel plates, selected by instructor

Uncoated brazing rods, selected by instructor. Use the pliers to bend the back end of the rod into a hook to distinguish it from the end that could be hot.

* Everyone participating in or observing the demonstration should wear appropriate protective eyewear.

Procedure:

1. Wear appropriate face and eye protection and protective clothing.
2. Inspect equipment, materials, and work area to ensure safe and correct operation.
3. Clean the metal for brazing.
4. Position the plates on the worktable using firebrick or angle iron as a jig to hold the work in place.
5. Set up the oxyacetylene outfit.
6. Light the torch using the spark lighter.
7. Adjust the torch to the correct flame.
8. Use the torch and brazing rod to tack the pieces together.
9. Position the pieces so that the outside corner is ready to be welded in the flat position. Use the pliers or tongs to move hot work.

10. Heat the end of the brazing rod and the edges of the plates where the bead is to begin.
 - a. Hold the torch at a 45-degree angle, with the inner flame cone approximately 1/8 in. from the work. Refer to Figures 1 and 2.
 - b. Hold the brazing rod at a 15- to 45-degree angle to the work.
 - c. Heat the rod until it is hot enough to melt the flux.
11. Dip the heated end of the brazing rod into the flux.
 - a. This will melt the flux and a small amount will stick to the brazing rod.
 - b. Repeat this step as often as necessary to keep the hot end of the rod coated with flux.
12. Touch the rod to the heated spot on the plates. The base metal is hot enough when the rod begins to melt.
13. Once the rod starts to melt, move it into and out of the flame as needed to form a bead. Refer to Figure 3.
 - a. When running a bead with brazing rod, the torch should be moved in a circular pattern, as it was in the oxyacetylene welding procedures.
 - b. The flux should flow ahead of the filler material being added.
14. Continue moving the torch in the circular pattern and move the torch and rod forward at a speed that will keep the braze pool a uniform size and shape. Refer to Figure 4.
15. Continue until the bead is complete.
16. Shut off the outfit if the torch must be set down.
17. Shut down the outfit following assigned procedure. Materials and equipment should be returned to their proper places.
18. Turn in work to be graded by the instructor.

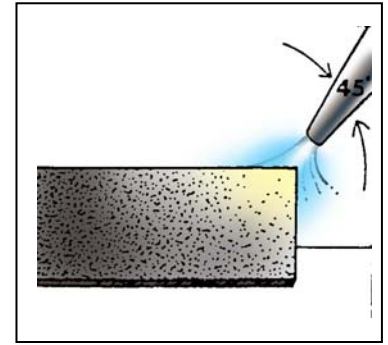


Figure 1

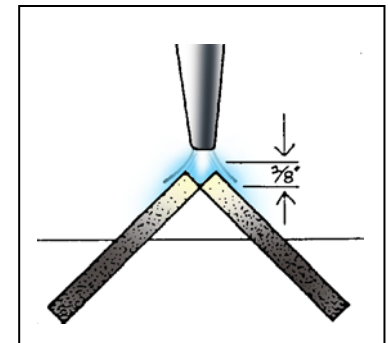


Figure 2

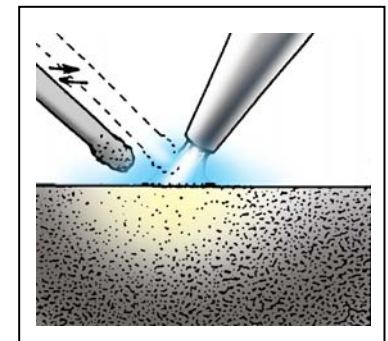


Figure 3

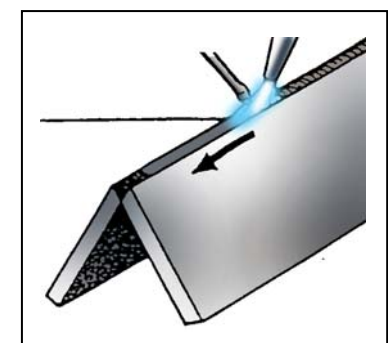


Figure 4