

Test Specimens

Two test plates, one for each heat input level, shall be used and five CVN test specimens shall be made per test plate. Each plate shall be steel, of any AISC-listed structural grade. The test plate shall be $\frac{3}{4}$ inch thick with a $\frac{1}{2}$ inch root opening and 45° included groove angle. The test plate and specimens shall be as shown in Figure 2A in AWS A5.20-95, or as in Figure 5 in AWS A5.29-98. A minimum of two passes per layer shall be used to fill the width.

All test specimens shall be taken from near the centerline of the weld at the mid-thickness location, in order to minimize dilution effects. CVN specimens shall be prepared in accordance with AWS B4.0-92, *Standard Methods for Mechanical Testing of Welds*, Section A3. The test assembly shall be welded in the flat position and shall be restrained during welding, or preset at approximately 5 degrees to prevent warpage in excess of 5 degrees. A welded test assembly that has warped more than 5 degrees shall be discarded. Welded test assemblies shall not be straightened.

The test assembly shall be tack welded and heated to the specified preheat temperature, measured by temperature indicating crayons or surface temperature thermometers one inch from the center of the groove at the location shown in the figures cited above. Welding shall continue until the assembly has reached the interpass temperature prescribed in Table A-1. The interpass temperature shall be maintained for the remainder of the weld. Should it be necessary to interrupt welding, the assembly shall be allowed to cool in air. The assembly shall then be heated to the prescribed interpass temperature before welding is resumed.

No thermal treatment of weldment or test specimens is permitted, except that machined tensile test specimens may be aged at 200°F to 220°F for up to 48 hours, then cooled to room temperature before testing.

Acceptance Criteria

All test samples shall meet the strength requirements for the electrodes as provided in Part I, Section 2.4.1.1. The lowest and highest values obtained from each of five specimens from a single test plate shall be disregarded. Two of the remaining three values shall equal, or exceed, the specified toughness of 40 ft-lbf energy level at the testing temperature. One of the three may be lower, but not lower than 30 ft-lbf, and the average of the three shall not be less than the required 40 ft-lbf energy level.