

§ 57.06-2

46 CFR Ch. I (10-1-10 Edition)

§ 57.06-2 Production test plate interval of testing.

(a) At least one set of production test plates shall be welded for each Class I or Class I-L pressure vessel except as follows:

(1) When the extent of welding on a single vessel exceeds 50 lineal feet of either or both longitudinal and circumferential joints, at least one set of test plates shall be welded for each 50 feet of joint.

(2) When the extent of welding on vessels welded in succession exceeds 50 lineal feet of either or both longitudinal and circumferential joints, at least one set of test plates shall be welded for each 50 feet of aggregate joint of the same material where the plate thicknesses fall within a range of one-fourth inch. For each 50-foot increment of weld, test plates shall be prepared at the time of fabrication of the first vessel involving that increment.

(b) Production test plates for Class II-L pressure vessels shall be prepared as for Classes I and I-L vessels except that the provisions of paragraphs (a)(1) and (2) of this section are applicable to each 150 lineal feet of welded joint in lieu of each 50 lineal feet.

(c) In the case of Class II pressure vessels no more than one set of production test plates need be prepared for each 300 lineal feet of either or both longitudinal and circumferential joints. In the case of single vessel fabrication a set of test plates is required for each 300 lineal feet of weld or fraction thereof. In the case of multiple vessel fabrication where each increment of 300 lineal feet of weld involves more than one pressure vessel, the set of test plates shall be prepared at the time of fabrication of the first vessel involving that increment.

§ 57.06-3 Method of performing production testing.

(a) Except as otherwise specified in this section a test plate shall be attached to the shell plate on one end of the longitudinal joint of each vessel as shown in Figure 57.06-3, so that the edges of the test plate to be welded are a continuation of and duplication of the corresponding edges of the longitudinal joint. For attached test plates, the weld metal shall be deposited in the test plate welding groove continuously with the weld metal deposited in the groove of the longitudinal joint. As an alternate method, the marine inspector may permit the use of separate test plates, provided the same welding process, procedure, and technique employed in the fabrication of the longitudinal joint are used in welding the test plates.

(b) All test plates, whether attached to the shell or separate in accordance with paragraphs (a) and (d) of this section, shall be prepared from material of the same specification, thickness, and heat treatment and, for Class I-L and Class II-L vessels, the same heat as that of the vessel for which they are required. However, except when required to be from a specific heat, test plates may be prepared from material of a different product form, such as plate in lieu of a forging, provided the chemical composition is within the vessel material specification limits and the melting practice is the same.

(c) Test plates are not required for welded nozzle attachments.

(d) In the case of vessels having no longitudinal welded joints, at least one set of test plates shall be welded for each vessel, using the circumferential joint process, procedure and technique, except that the provisions of § 57.06-2(a) shall also apply for Classes I and I-L vessels, and that the provisions of § 57.06-2 (a) and (c) shall also apply for Classes II and II-L vessels.

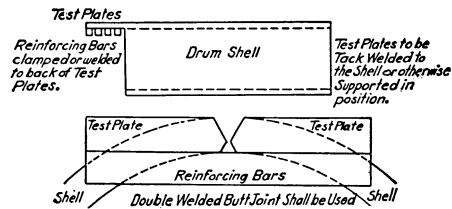


FIGURE 57.06-3—(PW-53.2) METHOD OF FORMING LONGITUDINAL TEST PLATES

(e) Test plates shall be made by the same welder producing the longitudinal and circumferential joints. If more than one welder is employed in the welding of the pressure vessel(s), the test plates shall be made by the welder designated by the marine inspector. The test plates shall be of the same thickness as the material being welded and shall be of sufficient size to provide two specimens of each type required, except that in the case of pressure vessels having no longitudinal seams, the test plate need be only of sufficient length to provide one set of test specimens, and if a retest is necessary, an additional set of test plates may be welded separately.

§ 57.06-4 Production testing specimen requirements.

(a) For test plates three-fourths inch or less in thickness one reduced section tensile specimen and two free-bend specimens shall be tested. For plates exceeding three-fourths inch in thickness one reduced section tensile specimen, one free-bend specimen and one

guided side bend specimen shall be tested. In addition boiler drums of thickness five-eighths inch or greater shall have a tension test specimen of the weld metal as required by paragraph (f)(2) of this section. Toughness tests are required for Classes I-L and II-L pressure vessels as specified in § 57.06-5.

(b) The test plates shall be so supported that the warping due to welding shall not throw the finished test plate out of line by an angle of over 5°.

(c) Where the welding has warped the test plates, the plates shall be straightened before being stress-relieved. The test plates shall be subjected to the same stress-relieving operation as required by this subchapter for the pressure vessel itself. At no time shall the test plates be heated to a temperature higher than that used for stress-relieving the vessel.

(d) The bend specimens shall be taken from opposite sides of the reduced-section tensile specimen in their respective test plates as shown in Figures 57.06-4(d)(1) and 57.06-4(d)(2).