the vessel wall. The minimum weld dimensions shall be as shown in Figure UW-16.1, sketches (p), (x), (y), (z), and (aa).

(2) Bolting pads as shown in Figure UW-16.3, sketches (a) and (b) may be attached to vessels by a fillet weld deposited from the outside only with the following limitations:

(-a) The maximum vessel wall thickness is \( \frac{3}{8} \) in. (10 mm), and the bolting pad outside the diameter is not greater than \( 4\frac{7}{8} \) in. (120 mm).

(-b) The maximum size of the opening in the vessel is limited to the following:

(-1) \( 4\frac{7}{8} \) in. (120 mm) for bolting pads that are installed through wall; see Figure UW-16.3, sketch (a)

(-2) \( \frac{7}{4} \) in. (6 mm) less than the bolting pad diameter for those that are attached to the outside of the vessel; see Figure UW-16.3, sketch (b)

(-c) The attachment weld throat shall be the greatest of the following:

(-1) the minimum nozzle neck thickness required by UG-45 for the same nominal size connection

(-2) \( 1.0t_{\text{min}} \)

(-3) that necessary to satisfy the requirements of UW-18 for the applicable loadings of UG-22

(-d) The typical bolting pad dimension, \( t_f \), as shown in Figure UW-16.3, sketch (a), shall be sufficient to accommodate a weld leg that will provide a weld throat dimension.

(-e) In satisfying the rules for reinforcement of openings, no material in the bolting pad shall be counted as reinforcement.

(3) If the opening exceeds the requirements of (2)(-b) above, or is greater than one-half the vessel inside diameter, the part of the vessel affected shall be subjected to a proof test as required in UG-36(a)(2), or the opening shall be reinforced in accordance with UG-37 and the nozzle or other connection attached, using a suitable detail in Figure UW-16.1, if welded.

(h) The minimum throat dimensions of fillet welds defined in UW-16.1 shall be maintained around the circumference of the attachment, except as provided below.

(1) For a radial nozzle attachment on a cylindrical shell as shown in Figure UW-16.1, sketches (a) through (e), the fillet weld leg dimensions that meet the minimum throat dimensions shall be determined at the plane through the longitudinal axis of the cylindrical shell (other planes need not be considered), and these fillet weld leg dimensions shall be used around the circumference of the attachment.

(2) For a radial nozzle attachment on a cylindrical shell as shown in Figure UW-16.1, sketches (a) through (e), where the outside diameter of the nozzle is the same as the outside diameter of the cylindrical shell or when the outside diameter of the nozzle is too large to make a fillet weld, the fillet weld leg dimensions that meet the minimum throat dimensions shall be determined at the plane through the longitudinal axis of the cylindrical shell (other planes need not be considered), and these fillet weld leg dimensions shall be used around the circumference of the attachment to the maximum extent possible, and from that point, the fillet weld may be transitioned into the full-penetration weld.

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