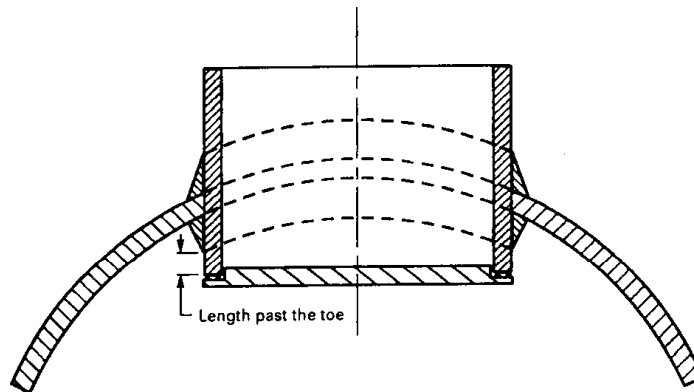


FIG. PG-28 MAXIMUM INTERNAL PROJECTION OF WELDED ACCESS OR INSPECTION OPENINGS



GENERAL NOTE: For other acceptable weld configurations, see Fig. PW-16.1.

Note 9:

Inside backing strips, when used at longitudinal welded joints, shall be removed and the weld surface prepared for radiographic examination as required. Inside backing rings may remain at circumferential welded seams of cylinders provided such construction complies with requirements of PW-41.

Note 10:

The maximum allowable working pressure P need not include the hydrostatic head loading, PG-22, when used in this equation.

PG-28 WELDED ACCESS OR INSPECTION OPENINGS UNDER EXTERNAL PRESSURE

The maximum allowable working pressure for welded access or inspection openings, with inward projections subjected to external pressure (such as manhole or handhole rings with internal covers), may be determined in accordance with the rules of PG-27 when the following requirements are met. The length of the internal projection of the ring extending past the toe of the attachment weld on the ring, shall not exceed the thickness of the ring. The length past the toe of the weld is measured at the location of the shortest ring projection into the vessel (see Fig. PG-28). For elliptical rings the value of D to be used in the procedures of PG-27 shall be determined in accordance with the following equation for elliptical rings:

$$D = a^2/b$$

where

- a = outside major axis of the ellipse
- b = outside minor axis of the ellipse

This provision does not apply to flanged in manholes covered by PG-29.3, PG-29.7, and PG-29.12.

PG-29 DISHED HEADS

PG-29.1 The thickness of a blank unstayed dished head with the pressure on the concave side, when it is a segment of a sphere, shall be calculated by the following equation:

$$t = 5PL/4.8S$$

where

- L = radius to which the head is dished, measured on the concave side of the head
- P = maximum allowable working pressure (hydrostatic head loading need not be included)
- S = maximum allowable working stress, using values given in Table 1A of Section II, Part D
- t = minimum thickness of head

PG-29.2 The radius to which a head is dished shall be not greater than the outside diameter of flanged portion of the head. Where two radii are used the longer shall be taken as the value of L in the equation.