

Sanitary Tank Spud Weld Guidelines

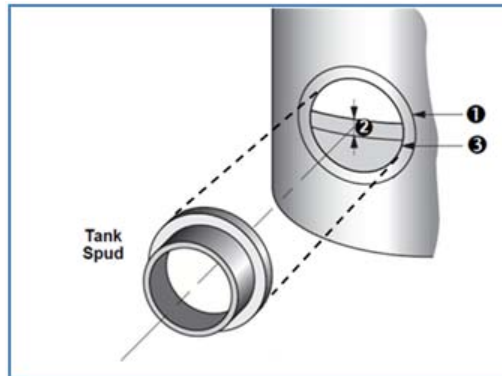
This document is a welding guideline. Actual procedures and specifications vary based upon equipment and application.

This guideline is intended to provide general guidance only to achieve an acceptable installation of a Rosemount sanitary tank spud in order to mitigate potential costly rework. It will discuss ways to minimize potential distortion of the tank spud via tank preparation and welding practices. Employ a skilled, experienced welder to achieve best results.

TANK PREPARATION

When preparing the tank, ensure an area with a minimum diameter of 9 ¼-in. is available to properly weld the tank spud, Figure 1-1 bullet 1. The center of the tank spud should be at least 1 ½-in. below the minimum measurement level, as shown in bullet 2 of Figure 1-1. In order to get a proper process fluid measurement, half of the remote seal diaphragm must be covered.

Figure 1-1. Tank Preparation

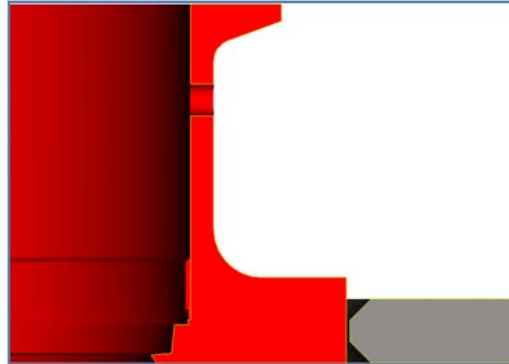


Bullet 3 shows the actual hole cut in the tank. Attempt to cut the hole as smoothly and as circular as possible. A torch cut is not recommended. The tank spud OD is 5.98-in. \pm .010-in. When cutting the hole for the tank spud, the gap between the hole diameter and spud OD should be held to a minimum. It is recommended that the hole be no larger than 6.020-in. Anything larger than 6.020-in. could increase the amount of tank spud distortion.

If a bevel(s) is required, an angle no larger than 37.5° is recommended; see ASME B16.25 for more details. Bevels can be made on one or both sides of the tank. Do not grind or cut the bevel to a sharp point. Attempt to leave a flat area, as shown in Figure 1-2 below.

Sanitary Tank Spud

Figure 1-2. Bevel Example



The flat area should be large enough to minimize spud distortion but small enough so that tank weld requirements can be met. Minimizing the bevel angle will decrease the amount of fill required during weld and minimize the number of weld passes. These best practices will decrease heat input and help mitigate distortion.

WELDING

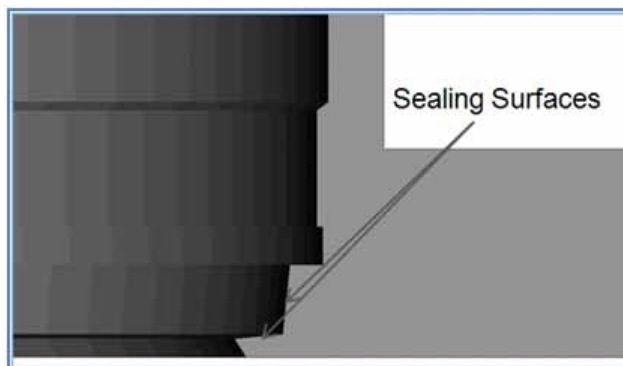
⚠ CAUTION

Excessive heat will distort the tank spud. Allow adequate cooling time between passes.

Ensure spud is not assembled to transmitter and/or remote seal prior to welding.

Do not nick the sealing surfaces of the tank spud, the inner angled surfaces where the o-ring sits shown in Figure 1-3, as any irregularities may cause leaks.

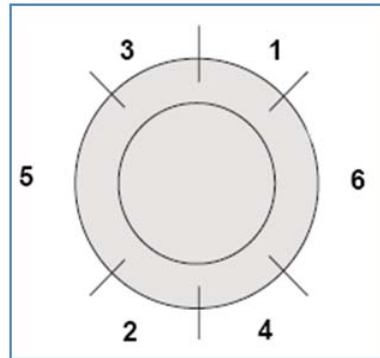
Figure 1-3. O-ring Sealing Surfaces



With the spud centered in the tank hole, make sure the inner surface of the spud is flush with the inner surface of the tank. The leak detection hole in the spud should be at the bottom of the spud. With the spud properly located, tack weld it into place using 4 tack welds, 90° from each other.

Begin welding on the inside of vessel. Weld in sections similar to the sequence in Figure 1-4.

Figure 1-4. Welding Sections Diagram



Allow time to cool between weld sections. Weld should be cooled to 350° F or less after each pass while being cool to the touch is preferred. Use of a damp cloth or compressed air is allowed if rapid cooling is desired.

Repeat procedure on the outside of the tank.

NOTE:

The number of weld passes should be kept to a minimum while maintaining tank weld standards and sanitary requirements. Additional weld passes are a significant contributor to spud distortion due to additional heat input and added filler material in beveled area of hole. When fill passes are required, a 1/16-in. diameter weld rod is recommended.

Reference Manual

00809-0100-4016, Rev DA
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Sanitary Tank Spud

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