

# Prep and Fit-up (Pipe Joints)

Girth welds are circumferential welds made around pipes, typically used in the construction and repair of pipelines. Proper preparation (prep) and fit-up are crucial for ensuring strong, leak-free joints. Here are the key requirements for girth weld pipe joints:

## 1. Surface Preparation

- **Cleaning:** Remove all contaminants (oil, grease, dirt, and rust) from the surfaces to be welded. Use methods such as wire brushing, grinding, or solvent cleaning. Weld zone must be clean 1" back from the weld zone on the inside, outside and face of the bevel.
- **Joint Design:** Choose a joint configuration suited to the pipe material and thickness. Common designs include beveled edge joints, or V-grooved joints.
- **Edge Preparation:** Bevel the edges of the pipe if required, according to specifications. The bevel angle typically ranges from 30 to 37.5 degrees. Grind the bevel edge to a sharp knife edge for TIG root pass.

## 2. Fit-Up Requirements

- **Alignment:** Ensure that pipes are aligned correctly before welding. Misalignment can lead to stress concentration and potential failure. Poor alignment will also lead to poor root pass quality.
- **Gap:** Maintain the specified root gap (usually between 1/8" to 3/16") to allow for proper penetration and fusion during welding.
- **Tack Welding:** Use tack welds to hold pipes together in the correct position. This helps prevent motion during the welding process. Typically, tack welds should be placed at the 12 o'clock, 6 o'clock, 3 o'clock and 9 o'clock position around the weld joint.

Take your time on prep and fit-up. 90% of a good root pass comes from doing a really good job on prep and fit. On the contrary, a bad prep or fit up makes a root pass significantly more difficult.

