

General Maintenance Welding



Description

This program is structured to teach skills that upgrade the competency and/or cross train individuals in welding techniques. The content of each segment can be customized according to the specific needs of each group. The length of each segment (shop practice time) will need to be extended in proportion to the proficiency desired of the individuals within each group. The length will also be affected by the type (sheet metals, plate, pipe) metals, the kind of metal (carbon steel, stainless steel, aluminum) and the welding positions to be learned.

Outline

- Safety Hazards and Precautions
 - Combustibles
 - Transporting and Handling Welding Cylinders
 - Operating Regulators and Regulator Flowmeters
 - Oxy-Fuel Heating, Soldering and Brazing
 - Cutting - Oxy-Fuel and Plasma
 - Electric Welding - Arc, MIG, and TIG
 - Arc Gouging
- Welding Repair and Fabrication Procedures
 - Weld Nomenclature and Basic Weld Symbols
 - Basic Metallurgy and Metal Identification Procedures
 - Metal Preparation, weld sizing, and Bead Placement
 - Weld Quality - Inspecting Welds, Testing and Certifying Welders
- Oxy-Fuel and Plasma Cutting
 - Equipment Set-Up, Operation, and Shut Down
 - Torch Positioning and Manipulation
 - Procedures for Piercing Holes, Beveling, and Cutting Shapes
 - Inspecting Cuts and Troubleshooting Bad Cuts
- SMAW (Arc) Welding
 - Equipment Set-Up, Operation and Shut Down
 - Filler Metal Selection
- SMAW (Arc) Welding (cont'd)
 - Welding Technique - Hand Positioning and Electrode Manipulation
 - Procedures for Making Groove and Fillet Welds in all Positions
 - Inspecting Welds and Troubleshooting Weld Defects
- GMAW (MIG) Welding
 - Equipment Set-Up, Operation and Shut Down
 - Filler Metal and Shielding Gas Selection
 - Welding Technique - Torch Positioning and Manipulation
 - Procedures for Making Groove and Fillet Welds in all Positions
 - Inspecting Welds and Troubleshooting Weld Defects
- GTAW (TIG) Welding
 - Equipment Set-Up, Operation and Shut Down
 - Filler Metal, Shielding gas and Tungsten Electrode Selection
 - Welding Technique - Torch Positioning and Manipulation
 - Procedures for Making Groove and Fillet Welds in all Positions
 - Inspecting Welds and Troubleshooting Weld Defects

Prerequisites

Participants should possess at least an entry level knowledge of welding.

Course Length

32 hours.

Performance Objectives

At the completion of this course the participant will be able to:

- Understand welding and cutting equipment safety.
- Perform welding repair and fabrication procedures related to plant maintenance.
- Understand the proper procedures for using cutting and gouging equipment to prepare weld joints.
- Properly use Arc, MIG, and TIG equipment to make welds in all positions on carbon steel, stainless steel, and aluminum which meet company quality standards.