

RECOMMENDED PRACTICE FOR LOCAL POST-WELD HEAT TREATMENT

Prepared by
Pipe Fabrication Institute Engineering Committee



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1. Scope

- 1.1 This standard describes recommendations regarding procedures for local post weld heat treatment of welds on pipe fabrication.
- 1.2 The project contract and specification shall dictate when post weld heat treatment is required.
- 1.3 It is the intent of this standard to provide guidance in establishing the minimum requirements when performing local post weld heat treatment.

2. Methods

- 2.1 Local heat treatment shall be performed by electric resistance or induction method controlled with proper equipment and recording instruments. For more information regarding methods of heat treatment, consult AWS D10.10 *“Recommended Practices for Local Heating of Pipe and Tubes”*.

3. Personnel and Equipment

- 3.1 Personnel shall be trained in the operation of equipment, insulation materials, proper application of thermocouples and have knowledge of heat treatment cycle for the particular codes and materials involved.
- 3.2 Measuring and recording equipment shall be in good working order and shall be calibrated in accordance with the applicable QA manual at a minimum of 1-year intervals.
- 3.3 Proper safeguards and redundancies shall be in place to ensure a proper heat cycle is monitored. Special attention shall be given to protect against accelerated heating or cooling rates and exceeding maximum temperature limits. It is strongly recommended that spare thermocouples be placed at locations where the highest temperature will be anticipated as a precaution to thermocouple failure during the heating cycle. Thermocouples should use the capacitive discharge method of attachment. This method of attachment provides a more accurate measure of work piece temperature.

4. Fabricator Responsibilities

- 4.1 Fabricator/erector shall be responsible for providing the following instructions in accordance with the applicable code and client specifications.
 - 4.1.1 Job reference
 - 4.1.2 Fabrication Code Paragraph
 - 4.1.3 Material specification
 - 4.1.4 Thickness upon which heat treatment will be based
 - 4.1.5 Quantity & Unit of Measure
 - 4.1.6 Tag number(s) if applicable
 - 4.1.7 Hardness test requirements
- 4.2 It is recommended that the fabricator performing heat treatment services provide the following documentation at the completion of work.
 1. PWHT procedure with all the required information completed
 2. Drawing / Sketches of heater, thermocouple, and insulation layout
 3. Thermocouple and extension wire certificates of compliance
 4. Temperature recorder calibration records
 5. Hardness testing results, (if applicable)
 6. Chart record of the entire heat treatment cycle, with the following information:
 - Date, time period, and location of work performed
 - Identification of contractor/personnel performing the work
 - Identification number of weldment or spool
 - Temperature and time scales
 - Cross reference between thermocouple numbers on charts and drawings/sketches
 - Heating rate above specified temperature
 - Hold period time and temperature
 - Cooling rate above specified temperature