



Standard Operating Procedure
Press Fitting Installation

SOP #: 5.058 Rev. 0
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Approval

Approving Authority	Name	Signature	Date
Quality Assurance Manager	Steve Washington		07 APR 2022
Process Systems & Controls Manager	Kerry Coltun		07 APR 2022
V.P. Engineering	Steve Rusconi		07 APR 2022
Exec. VP Operations	Scott Carstairs		08 APR 2022
President	Mike Fisher		08 APR 2022

Revision History

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- 1 Purpose
 - 1.1 To establish guidelines for the preparation and assembly of Press or similar fittings/joints for copper tube fluid systems.
- 2 Scope
 - 2.1 Installation of 'press' fittings for copper tube systems using electro-hydraulic press tools.
 - 2.2 For Copper Tube Sizes including: ½" – 4"
- 3 Safety
 - 3.1 Follow all press fitting and press tool manufacturer's instructions.
 - 3.2 Verify tube and fittings, press tool, jaws and collars are all appropriate for the application.
 - 3.3 Only use press tool, jaws, collars, etc. that are designed for use with the press fittings (brands, types, sizes, etc.) to be joined.
 - 3.4 Grip ring inside press fittings may be extremely sharp. Use PPE or extreme caution when reaching into the fitting.
 - 3.5 Failure to follow fitting & tool manufacturer's instructions may result in extensive property damage, serious injury or death.
 - 3.6 Keep extremities and foreign objects away from press tool during pressing operation to prevent injury or incomplete pressing.
- 4 Responsibilities
 - 4.1 The Quality Assurance Manager shall be responsible for:
 - 4.1.1 Establish training, qualification and renewal program for installers of press fittings.
 - 4.1.2 Perform semi-annual audit of qualification/renewal status for installers of press fittings.
 - 4.2 Project Manager (PM) shall be responsible for:



- 4.2.1 Providing project documentation and materials as required per project specifications.
- 4.2.2 Furnish tooling required for installation
- 4.3 Foreman/Foreperson shall be responsible for:
 - 4.3.1 Verifying current qualification status for all installers.
 - 4.3.2 Coordination of installer qualification training and testing.
 - 4.3.3 Implementation of this procedure for proper installation
 - 4.3.4 Monitoring the status of press tool kits for wear, damage, etc.
- 4.4 Installer shall be responsible for:
 - 4.4.1 Maintaining current training and qualifications
 - 4.4.2 Installing per this procedure.
- 5 Procedures
 - 5.1 Gather the materials for installation.
 - 5.1.1 If drinking water system, ensure all materials are lead free and EPDM seals.
 - 5.1.2 Ensure the copper tubing meets project specs and press fitting manufacturer's instructions
 - 5.1.3 Store materials in clean and dry place and keep tubing on proper racks to prevent damage and corrosion.
 - 5.1.4 Do not remove plastic caps or bags until immediately before installation.
 - 5.2 Gather tools for installation
 - 5.2.1 Tube cutter or saw and Deburring tool
 - 5.2.2 Cleaning abrasives, wire brush
 - 5.2.3 Marking pen, pipe vise & basic hand tools



- 5.2.4 Press machine with constant pressing force
- 5.2.5 Press jaw or ring with corresponding actuator suitable for the tube diameter and the proper profile.
- 5.3 Examine all materials and tooling for damage, excessive wear, etc.
- 5.4 Replace sealing element if damaged or alternate material specific to the application is required.
- 5.5 Clamp tube to secure, minimum 4" from end to prevent possible damage to the tube ends
- 5.6 Cut copper tubing to desired length at right angles to axis with a tubing cutter or fine-toothed saw.
- 5.7 Refer to manufacturer's instructions for insertion depth chart for each size of tube. Measure and mark proper insertion depth on tube from end as indicated by manufacturer's installation manual.
- 5.8 De-burr the interior and exterior edge of the cut tube end to the insertion depth. This helps to prevent damage or reduced service life of the sealing element system.
 - 5.8.1 Pay special attention to any axial scratches on the outer surface of the tubing, even if barely visible. Reject and replace tubing if scratches found.
- 5.9 Use wire brush, abrasive pad, sand cloth or paper to remove loose dirt and contamination from the pressing area.
- 5.10 Check sealing element and grip ring for correct fit. Ensure sealing element is free from cuts, debris or damage. Do not use oils and lubricants.
- 5.11 Prior to insertion of tube into fitting, verify the following:
 - 5.11.1 The tube end is not bent or damaged
 - 5.11.2 The tube end is deburred, clean and smooth
 - 5.11.3 The sealing element is undamaged
 - 5.11.4 The correct sealing element is properly installed/seated.



- 5.12 While turning slowly, insert tube end into press fitting until stop and reaches insertion mark. Mark 'insertion' line all around tube.
- 5.13 Assemble proper 'jaws, collars, rings, etc.'" per the pressing tool manufacturer's instructions according to size and materials.
- 5.14 Open the jaws and place at right angle to the tube/fitting axis
- 5.15 Perform final pre-press visual check to verify tube is properly inserted into fitting.
- 5.16 Initiate pressing operation by activating tool trigger. Continue pressing until jaws have fully engaged the fitting. The Jaws will automatically release upon completion of pressing operation.
- 5.17 Open the jaws, remove the tool from the joint.
- 5.18 Remove product instruction label from the fitting to indicate the press joint has been completed.
- 5.19 Mark joint using permanent marker with installers initials & date.
- 5.20 Perform leak testing to verify joint is leak-free per applicable procedure.
- 6 Training, Qualification and Renewal of Qualification
 - 6.1 Installers of press joint connections shall be qualified by Therma and renewed annually.
 - 6.2 Qualification shall include:
 - 6.2.1 Minimum 30 minutes of training
 - 6.2.2 Demonstration of proper press joint installation.
 - 6.3 Therma QC Manager shall create record of qualification and share with Therma Project Managers as required.
 - 6.4 Therma QC Examiner shall perform annual audit of press joint installer qualifications for shop and field crews and report findings to QCM.
 - 6.5 QC Manager shall advise superintendent of lapse of qualification or if renewal of qualifications required.



- 6.6 Therma QCM or QC Examiner may disqualify any installer any time judged to be incapable to make a sound press joint.