

## Installation and Removal of ControHeat<sup>®</sup> Thermal Jackets

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**Scope** - The following information covers the recommended installation and removal procedures for ControHeat Jackets designed for various process components such as pumps, valves, fittings, and piping. For instructions on connecting heating medium jumpover hoses see CSI Technical Bulletin I-11

### SECTION 1: Installation of ControHeat Jackets

#### Tools Required

As shown, the following tools are recommended:

- Wrenches needed, 2ea 7/16", 9/16", 3/4".
- CSI Grade 1 ControHeat<sup>®</sup> Heat transfer compound (HTC-1.)  
Reference CSI SDS-HTC-1
- Rubber gloves
- Putty knife to apply the HTC-1
- Damp paper towels or rags
- Dead blow hammer
- Minimum PPE: Gloves, Safety Glasses. Site PPE requirements will dictate entire PPE necessary



#### Installation Procedure

- 1. Check Component** - Ensure that component (pump, valve, fitting, etc.) to be jacketed is installed in the process line. Inspect the component to be jacketed. Remove or move any loose items on body (Packing lists, loose identification tags, wire, debris, etc.)
  - Be sure all site piping NDE is completed before ControHeat installation begins.
  - CSI ControHeats leave clearance behind the flanges for the industry standard heavy hex nut with 3 threads showing. If studs have excessive length make sure the excess length is used on the mating flange side.
- 2. Dry Fit** - Remove fasteners from ControHeat. Set fasteners in a safe area. Dry fit all jacket pieces on the component. Jacket pieces should have no interference and pieces should come completely together without use of bolting or force.
  - A good jacket fit will have some clearance around the component and slightly shake back and forth. The jacket is designed with minimal clearances to allow for slight component variances and allow the HTC-1 to fill voids and create the secure fit.
  - At this time gauge the clearances on the inside of the jacket. The HTC-1 in Step 3 will be used to make sure final installed jacket will fit secure and critical air voids will be eliminated.



3. **Apply HTC-1** - Remove dry fitted jacket pieces from the component and apply HTC-1 to interior of the ControHeat jacket pieces using gloves or trowel.

- HTC-1 compound is water based and will begin to set once removed from container. Set time depends on temperature and humidity conditions. Therefore, dry fitting and installing one jacket at a time is critical. General working time for HTC-1 (from HTC-1 bucket to installation) is approximately 20 minutes. Since it is a water based compound the lid must stay on the product container when not being used. Have all tools ready before continuing.
- Rubber gloves are preferred to a putty knife, but both will work. Gloves allow the installer to smear the compound onto the inner ControHeat surface so HTC-1 will stick and the installer can easily build a nice layer of compound in a short time. The putty knife will take a little more time and skill.
- With rubber gloves or putty knife, coat the inner surfaces of the jacket halves with minimum thickness of HTC-1 (1/4" thickness minimum to flange areas and 1/2" thick minimum to body area.) There may be areas that need additional compound based upon dry fit observations. Proper use of HTC-1 will result in excess compound squeezing out of the ControHeat jacket when the jacket is drawn to the component therefore a little extra compound is preferred.
- The main objective of the HTC-1 compound is to replace the air gap between the ControHeat jacket/Component with a thermal conductive material.
- HTC-1 of sufficient thickness will result in excess compound squeezing out of the ControHeat jacket when the jacket is drawn to the component therefore a little extra compound is preferred.



4. **Install ControHeat** – Place HTC-1 coated ControHeat jacket pieces back on the component and use the fasteners supplied to draw the pieces together. Extra torque may be required to get the HTC-1 to conform to the clearance between the ControHeat and component. HTC-1 should squeeze out of jacket, if no excess HTC-1 is present, not enough compound was applied during step 3.

- Fasteners may be hard to start at the beginning. You can push the halves closer together or tap with dead blow hammer to get the HTC-1 to begin moving to help with the bolting process.
- Use gloves, putty knife, and/or rag to remove the excess HTC-1 compound. Excess compound that has been used for installation cannot be used again. Collect for disposal. Use damp towels or rags to insure there is no compound on exposed jacket connections, flange threads, component valve stems, operators, etc. Smears of compound on the exterior of ControHeat jacket will not affect performance and is only cosmetic.
- Cover jacket with a rain resistant product if jacket will not immediately be introduced to heating media. Remember the HTC-1 is water soluble and has the possibility to be compromised before cured.



5. **Complete Circuit** - Finish installation by completing heating media circuit. If CSI supplied the heating media Jumpover Hoses, please see CSI TECHNICAL BULLETIN I-11 for installation instructions.
- After ControHeat and heating media circuits have been completely installed, heating media may be introduced to the system.
  - When ControHeat progresses towards operating temperature you may see steam coming off of jacket. This is generally the water moisture evaporating out of the water based HTC-1 compound. The steam will stop when moisture has been eliminated.

## SECTION 2: Removal of ControHeat Jackets

### Tools Required

Same tools required for Installation of ControHeat plus a chisel (Less HTC-1.) See page 1.

### Removal Procedure

1. **De-energize ControHeat** – Verify heating media source has been turned off to jacket connections.
2. **Disassemble Heating Connections** - Use applicable wrenches to remove heating media supply, returns, and jumpover hoses. A backing wrench should be used to prevent twisting of parts and hoses.
3. **Remove Jacket** - Unbolt fasteners from the ControHeat jacket and remove jacket pieces from component. If the jacket will not pull away from the component tap the jacket with dead blow hammer or use chisel between pieces to help dislodge the jacket from the component.
  - Be sure to put loose fasteners in a safe place
4. **Remove HTC-1 From Parts** - Cured HTC-1 needs to be removed from inner surface of the ControHeat and outer surface of component. Surfaces need to be smooth. A black film from the HTC-1 is acceptable.
  - Option 1 – Chisel and scrape away the dried HTC-1.
  - Option 2 - Soak the Parts in water over night. This will liquefy the compound and it can easily be wiped or scrapped off surfaces so jacket.
5. **Reinstall ControHeat Jacket** - Once the ControHeat is cleaned and ready to install on repaired or new component, follow the installation steps in **SECTION 1: Installation of ControHeat Jackets**.
  - Make sure you have enough HTC-1 heat transfer compound available for the installation.