

Installation Procedures

The simplicity of MakoFin is one of its many benefits. As with any system, if not properly installed, it may not function as intended. Therefore, it is important to review and follow these procedures and inspect the system to ensure a successful application.

Required Equipment:

- MakoFin Straight Lengths
- QMax Industries, Inc. approved installation hose clamps (normally supplied with system)
- QMax Industries, Inc. approved Heat Transfer Compound (normally supplied with system)
- QFin/MakoFin HTC applicator tool (always supplied with system)
- May require: Aluminum cutting tool (band saw is preferred)

Step 1: Preparation:

- 1) Verify the MakoFin matches the carrier pipe/tube (**Image A**). MakoFin should closely match the outside diameter.
- 2) Clean any debris from the outside of the pipe and inside of the MakoFin. Pipe surface must be clean to maximize thermal contact.

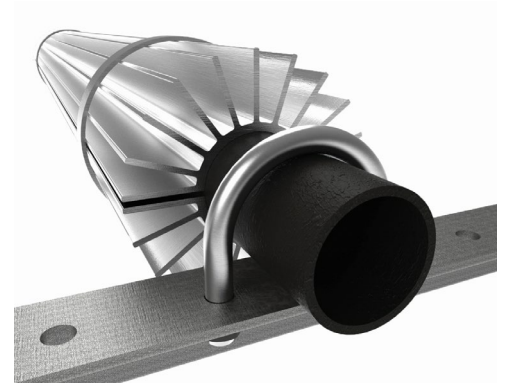


Image A

Step 2 - Installing D

- 1) Stage the MakoFin lengths before applying the Heat Transfer Compound to ensure an efficient installation. This means selecting and placing the proper QMax parts at the location of each pipe fitting and the proper length of MakoFin straight sections to match the length of piping.
- 2) Apply MakoFin using the following steps:
 - a. If applicable, measure and cut the MakoFin lengths using a suitable aluminum saw (portable band saw with aluminum cutting blade is preferred). Remove any sharp edges or burrs after cutting to ensure a safe working environment.
 - b. Apply Heat Transfer Compound to the inside surface of MakoFin using the supplied applicator tool (**Image B**). The QFin/MakoFin applicator will apply the proper amount of compound in all areas of the MakoFin. If the HTC does not apply well, score the inside of MakoFin with a wire brush or sandpaper and reapply.
 - c. Always apply HTC above 60° F ambient. If not practical, warm the HTC and MakoFin before applying.
 - d. Install MakoFin over the pipe/tube by hand. Any obstructions or debris that may prevent the QFin from fitting snugly against the pipe or tubing should be removed to ensure optimum thermal performance.

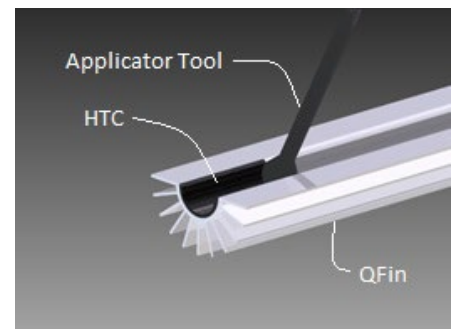


Image B

- e. Secure the MakoFin into place using QMax Industries, Inc. approved installation hardware (**Image C**):
 - 1. Stainless worm gear hose clamps
 - 2. Screwdriver

- f. Install clamps at increments shown below:
 - 1. Maximum 6" from each end of the MakoFin
 - 2. Maximum 36" between each individual clamp

- g. Tighten MakoFin until Heat Transfer Compound is squeezing out the ends and seam (**Image D**). The tighter the fit between MakoFin and the pipe/tube, the better the system will perform. Recapture and reuse the Heat Transfer Compound that is not directly under the MakoFin.



Image C

Step 3 - Inspection:

- 1) Inspect assembly for secure installation of the entire system. Installation guidelines may vary with each project. Allow ½ inch gap between each MakoFin piece for thermal expansion of the system.

- 2) If applicable, safely load MakoFin for shipping by supporting the pipe/tube with 4 x 4 sections of wood (**Image E**).

- 3) Consult your QMax representative if any section of pipe or equipment has more than a 2-inch gap between QMax components.



Image D

Detail Notes:

- 1) QMax installation instructions and detailed drawings should not replace local facility standards without their consent.

- 2) Details above are offered as general guidelines, please contact a QMax representative if further clarification or assistance is required.



Image E