Installation Procedures

The simplicity of QMax™ FTS Generation 2 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:

- Site-approved stainless steel (or copper) tubing and tubing unions
- Thin gauge wire for temporarily holding tubing and QMax FTS in place
- Stainless steel tube cutting tool
- Stainless steel tube bending tools (tight radius and wide radius required)
- QMax FTS materials (straight sections, fittings, custom parts if applicable)
- QMax Industries, Inc. approved installation banding, buckles and tool (normally supplied with system)
- QMax Industries, Inc. approved heat transfer compound (normally supplied with system)
- QMax FTS HTC applicator tool (normally supplied with HTC)
- Aluminum cutting tool (portable band saw is recommended)

Image A

Step 1 - Preparation:

1) Verify the heating medium tubing and process pipe fit well within the QMax FTS. QMax FTS should closely match both diameters (**Image A**).

2) Set the QMax FTS Materials and the heat transfer compound aside.

Step 2 - Tubing Installation:

3) Begin installation of tube tracing by bending the tubing using standard tubing benders ensuring:

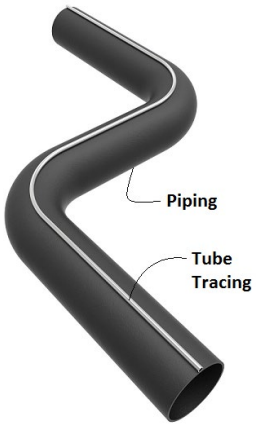


Image B

a. Tubing is installed at proper position(s) on the pipe (refer to installation drawings for tubing positions).

b. Elbows follow the same radius as the pipe elbows (refer to installation drawings for tubing positions) (**Image B**).

c. Expansion loops (**Image C**) are installed at every tube joint to allow for thermal expansion (see Supplemental 2).

d. All site-specific specifications are followed that do not conflict with these instructions.


Image C

4) (Optional) Using standard tubing wire, apply a wire at every fitting. Apply directly on the weld to loosely secure the tubing and QMax FTS to the pipe (wires will be removed after QMax-supplied banding is applied).

Step 3 - Installing QMax FTS:

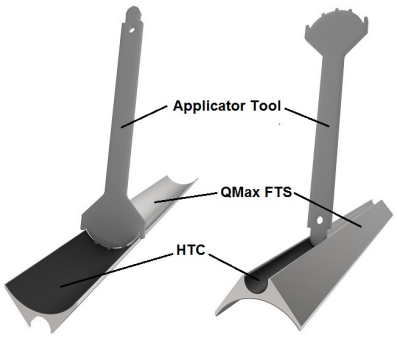


Image D

5) Stage the QMax FTS system before applying the heat transfer compound to ensure an efficient installation. This means placing the proper QMax fittings at the location of each pipe fitting and the proper length of QMax straights sections to match the length of piping.

6) Begin applying the QMax FTS in the following sequence:

   a. Install the first QMax FTS elbow in the system to begin each circuit.

   b. Measure and cut the adjacent QMax FTS straights to fit each straight section using a suitable aluminum saw (portable band saw with aluminum cutting blade works well). Remove any sharp edges after cutting to ensure a safe working environment.

   c. Apply heat transfer compound to QMax FTS using the applicator tool (**Image D**). The QMax applicator will apply the proper amount of compound in all areas of the QMax FTS.

   d. Install QMax FTS and tubing by hand, cutting any temporary wires that may lie under the QMax channel or tubing. Any obstructions which may prevent the QMax from properly mating with the pipe or tubing should be removed to ensure optimum performance.

   e. Secure the QMax FTS and tubing into place using QMax Industries, Inc. approved installation hardware (**Image E**):

      1. 1/2” (13 mm) SS Banding
      2. 1/2” (13 mm) SS Buckles
      3. Installation Tool (Helicopter and Pistol-Grip style tools are available)

   f. Tighten the banding until heat transfer compound is squeezing out the sides. The tighter the fit between QMax FTS and the piping, the better the system will perform. Recapture and reuse the heat transfer compound that is not directly under the QMax FTS.

Step 4 - Inspection:

7) Inspect for secure installation of the entire system. Installation guidelines will vary with each project because QMax FTS is designed for each application. If no spacing guidelines have been given, the following guidelines should be adhered to:

   a. Spacing between QMax FTS sections along straight runs and at fittings shall be no more than 2” (51 mm) unless otherwise specified. Leave ½” (13 mm) gap between all QMax pieces to allow for thermal expansion of the system.

   b. QMax FTS shall be secured within ½” (13 mm) from the back of each flange.

   c. Consult your QMax representative if any section of pipe or equipment has more than a 2” (51 mm) gap between QMax components.

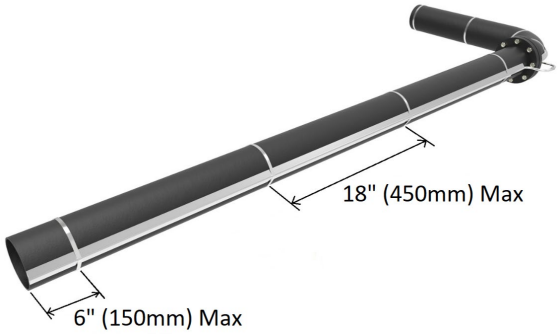
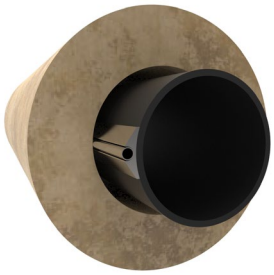


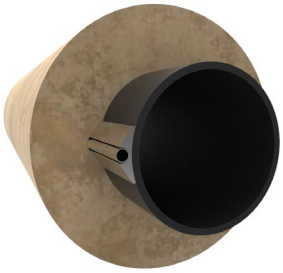
Image E

Supplemental 1 - Insulation:

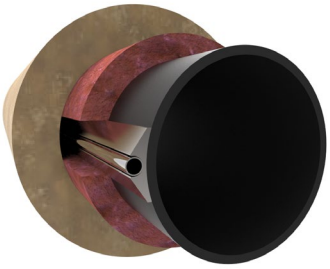
Insulation is installed over the tubing and QMax FTS in accordance with plant standards. It is necessary to accommodate the system using one of the following methods:



Oversized Insulation



Coping Standard-Size Insulation



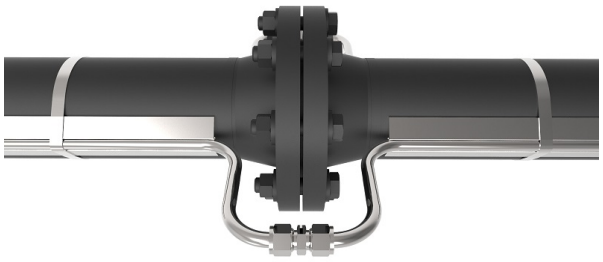
Coping 1st Inch, then apply Standard Insulation

Insulation Notes:

1) QMax FTS adds 0.125 inch (3 mm) to the tubing size. Insulation should be oversized accordingly. Insulation over (1) QMax FTS with 1/2-inch (13 mm) tracer should be oversized 5/8 inch (16 mm). Insulation over (2) or more QMax FTS with 1/2-inch (13 mm) tracers should be oversized 1 to 1-1/2 inch (25 – 38 mm).
2) Tubing connections should always extend outside the insulation.

Supplemental 2 - Expansion Loop Options:

Offset Loop

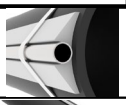
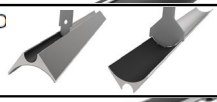
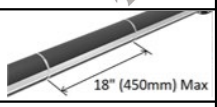


Standard Loop at Flanges

Detail Notes:

1) QMax installation instructions and detailed drawings should not replace plant standards without plant consent.
2) Details above are offered as general guidelines and should not be used to defy logic.

QMax FTS Installation Checklist

		SIGN OFF			REMARKS
		CONSTR.	CONSTR. QA/QC	END USER QA/QC	
1	DOES THE QMAX FTS FIT THE CONTOUR OF THE PROCESS PIPE? (BOTH DIAMETERS SHOULD MATCH) 				
2	DO ALL OF THE TUBING BENDS FOLLOW THE SAME RADIUS AS THE PIPE ELBOWS? 				
3	IS HEAT TRANSFER COMPOUND PROPERLY APPLIED? (MAX OF 1/8" THICK) 				
4	IS BANDING OR STRAPPING INSTALLED PROPERLY? (MAX 18" APART) 				
5	ARE EXPANSION LOOPS INSTALLED AT EVERY TUBE JOINT AND PINCH POINT FOR THERMAL EXPANSION? 				
6	ARE EXPANSION LOOPS INSTALLED AT LEAST EVERY 50 FEET FOR THERMAL EXPANSION? 				
7	ARE THERE ANY GAPS OVER 2 INCHES? IF SO, HAS QMAX APPROVED?				
8	ARE ALL TUBING CONNECTIONS OUTSIDE OF THE INSULATION? 				
9	ARE CIRCUITS LENGTHS CORRECT FROM SUPPLY TO RETURN? (TYPICALLY MAX OF 150 FEET)				
10	ARE ALL FLANGES, VALVES, SUPPORTS, AND PROCESS INSTRUMENTATION COMPLETELY INSULATED?				