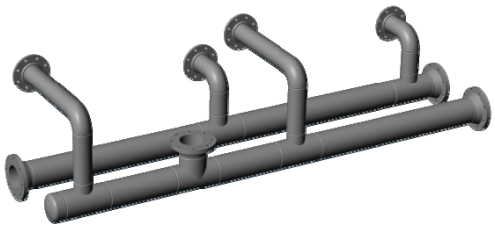
COLMAC COIL
Manufacturing Inc.

When you want Quality, specify COLMAC!

Installation, Operation, and Maintenance

ENG00005473 Rev A

Modulair Manifolds



Contents

1. SAFETY INSTRUCTIONS

To avoid serious personal injury, accidental death, or major property damage, read and follow all safety instructions in the manual and on the equipment. Maintain all safety labels in good condition. If necessary, replace labels using the provided part numbers.

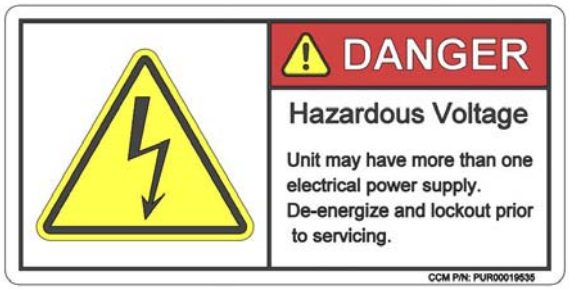
This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE NOTICE indicates instructions that pertain to safe equipment operation. Failure to follow these instructions could result in equipment damage.



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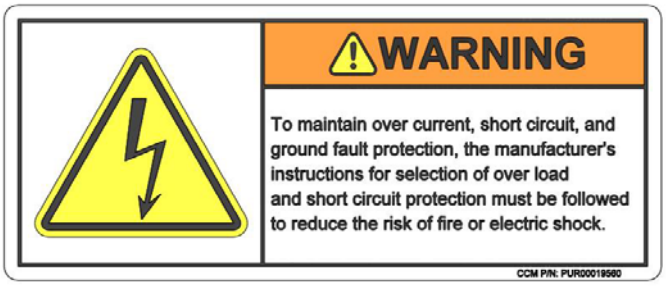

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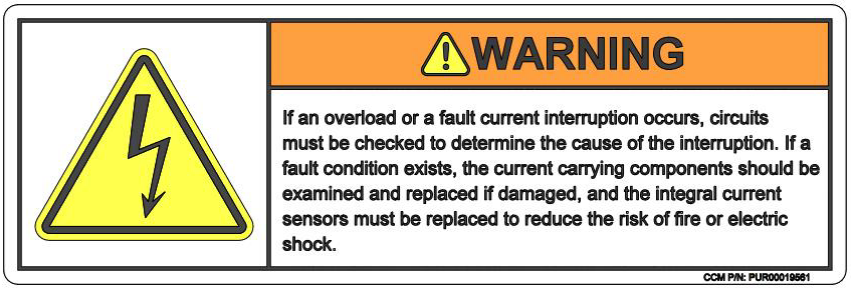

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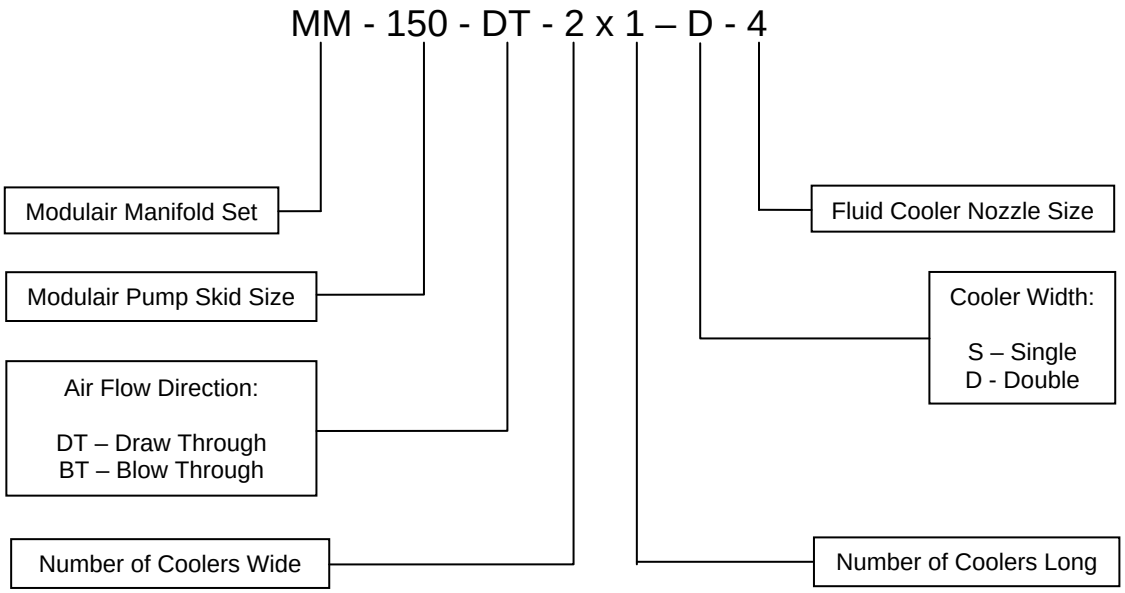
2. MODEL NOMECLATURE



3. GENERAL DESCRIPTION

3.1. Colmac Modulair Manifolds are the connecting link between Colmac Modulair Fluid Coolers and Colmac Modulair Pump Skids for cooling of Water, Ethylene Glycol/Water and Propylene Glycol/Water solutions in a variety of closed loop applications. The manifolds are designed to provide the pipe connection from the pump skid to the flanged inlet connections of the fluid cooler(s) and from the fluid cooler to the outlet connection(s). The manifolds are pre-engineered for the full Modulair flow range to connect from one to four fluid coolers.

3.2. Modulair manifolds are fabricated of carbon steel pipe to ASME B31.1 or ASME VIII and designed for 150 psig operating pressure. They are factory pre-fabricated and shipped in one piece except for the final connections to the pump skid which are designated as field welds for alignment. The manifolds are cleaned and painted on the outside with primer and one coat of enamel and shipped with ends covered.

4. INSTALLATION

4.1. Inspection

4.1.1. Damage or Shortage – Upon receipt of equipment, inspect for shortages and damage. Any shortage or damage found during initial inspection should be noted on delivery receipt. This action notifies the carrier that you intend to file a claim. Any damaged equipment is the responsibility of the carrier, and should not be returned to Colmac Coil without prior notification. If any shortage or damage is discovered after unpacking the unit, call the deliverer for a concealed damage or shortage inspection. The inspector will need related paperwork, delivery receipt, and any information indicating his liability for the damage.

4.1.2. Although the inlet and outlet manifolds are shipped in one piece, several small pieces will accompany the shipment such as the connecting flange, flange bolts and gaskets, inlet manifold support legs, outlet manifold support brackets, U bolts and butterfly valves (optional).

4.2. Mechanical

4.2.1. The fluid air cooler, pump skid and interconnecting manifold must all be leveled and aligned. Install steel shims to adjust the height of the pump skid or fluid cooler as required and add shims to fill any gaps under the support feet to avoid distorting the steel base.

4.2.2. Using temporary supports, fit the outlet manifold first using the support brackets that bolt to the fluid cooler legs.

4.2.3. Install the gaskets and bolts and tighten the bolts snug but do not torque tight. If butterfly valves are supplied a gasket is not required as the flange seals on the rubber facings of the valve. Bolt the outlet manifolds support brackets to the fluid cooler legs and adjust the height to support the manifold. Fasten the pipe U clamp to the bracket, torque the flange bolts and remove the temporary support.

4.2.4. Next install the inlet manifold to the fluid cooler inlet flanges with gaskets (or butterfly valves if supplied) and bolts using temporary supports for the manifold. Tighten the bolts snug but do not torque tight. Install the manifold support legs by

securing the top section to the pipe with the U clamps and secure the bottom section to the foundation with mechanical anchors.

4.2.5. Adjust the pump skid position to line up with the manifold inlet flange. Install the connecting flange gasket and bolts and tighten.

4.2.6. To fix the manifold support legs drill ½ inch holes in the mating section at the pilot holes and fit ½ inch bolts.

4.2.7. Remove the temporary supports and torque all the flange bolts.

4.2.8. The manifold connection flange and adjoining pipes are shipped loose.

4.2.9. The final connections are to be field welded. First install the inlet manifold to the fluid cooler inlet flanges with gaskets (or butterfly valves if supplied) and bolts using temporary supports for the manifold. Tighten the bolts snug but do not torque tight.

4.2.10. Adjust the pump skid position to line up with the manifold inlet flange. Using the connecting flange with a 1/8 inch steel spacer to allow for gasket thickness check the required length of the connecting pipe. If it requires trimming either move the pump skid or cut off a section of the connecting pipe.

4.2.11. Install the connecting flange with the steel spacer and tack weld to the pipe. Remove the manifold and weld with a qualified welding operator and then clean the inside and outside of the pipe.

4.2.12. Reinstall the manifold, gaskets and bolts, tighten snug but do not torque.

4.2.13. Install the manifold support legs by securing the top section to the pipe with the U clamps and secure the bottom section to the foundation with mechanical anchors.

4.2.14. To fix the manifold support legs drill ½ inch holes in the mating section at the pilot holes and fit ½ inch bolts

4.2.15. Remove the temporary supports and torque all the flange bolts.

4.2.16. Clean and paint the welded area with a primer and enamel.

4.3. **Filling**

4.3.1. The manifold, pump skid and fluid cooler are filled at the same time.

4.3.2. Open the vents during filling located on the pump outlet elbows, the outlet header and at the top of the bladder tank piping (for bladder tanks with a top connection).

4.3.3. Clean water is suitable for flushing and testing in warm weather but when the temperature is below freezing a glycol /water solution is required.

4.3.4. The external piping must be flushed first.

4.3.5. When all the air is vented, shut off the valve to the expansion tank, pressurize the system and check all the flange joints for leaks.

4.3.6. Retighten flange bolts where necessary.

4.3.7. Drain the flushing fluid and replace with clean demineralized water and glycol solution of the specified ratio repeating the filling and venting procedure.

4.4. **Storage**

4.4.1. The manifolds may be left outdoors for short-term storage if they are adequately protected from rain to avoid rusting the unpainted inside of the pipe.

4.4.2. For long term storage the manifolds should be stored indoors or fitted with blind flanges and gaskets and pressurized with dry nitrogen.

5. **OPERATION**

5.1. There are no specific operating instructions pertaining to the manifolds.

6. **MAINTENANCE**

6.1. Inspect annually for external rusting of the manifold. Any rust spots should be cleaned to bare metal and repainted with primer and enamel.

6.2. If a flanged joint develops a leak first re-tighten the bolts. If it continues to leak the gasket should be replaced.

These instructions are intended for general use. If any difficulties are encountered please contact Colmac Coil Manufacturing Inc. for specific instructions. Always provide the serial number or drawing when requesting information or parts.

COLMAC COIL
Manufacturing Inc.

Colmac reserves the right to change product design and specifications without notice.

For more information on Colmac products call us at 1-800-845-6779 or visit us online at:

WWW.COLMACCOIL.COM