

Fluid Cooler Installation and Operating Instructions

CFC/DFC/VFC Fluid Coolers

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For information pertaining to product dimensions and electrical and capacity data, please visit our website at www.can-coil.com or contact our offices at the locations below.

Canadian Customers:

Cancoil Thermal Corporation
991 John F. Scott Rd.
Kingston, Ontario
K7L 4V3

Tel: (613) 541-1235
Fax: (613) 541-1239
Email: sales@can-coil.com

U.S. Customers:

Cancoil U.S.A. Inc.
P.O. Box 210
Danville, Illinois
61832-0210

Tel: (217) 431-8559
Fax: (217) 431-8696
Email: sales@cancoilusa.com

Section 1. Catalog Products Limited Warranty & General Information

For warranty information, please contact your Cancoil sales representative.

Cancoil fluid coolers have been carefully engineered to provide full performance at the design conditions. If properly installed and maintained they will provide years of trouble free performance.

Receiving Inspection - At delivery, inspect the equipment to make sure that the shipment is complete and there is no shipping damage. In the event of shipping damage or loss, note this on the delivery receipt and file a claim with the shipping company.

If concealed damage is found after delivery, immediately place a claim with the shipping company. Make arrangements for an inspector from the freight carrier to view the damage and make a determination as soon as possible.

Handling - Use proper equipment and technique when unloading and handling the fluid cooler. Lift with a forklift or with a spreader bar and hooks placed in the lifting holes provided in the unit. **DO NOT PUT FORKS OR HOOKS UNDER THE COIL SECTION OF THE UNIT.** Do not use the headers or piping as a lift point.

Unit Placement and Mounting – The unit(s) must be positioned to assure proper airflow to the cooling coil and to prevent recirculation of the discharge air from the fans. Allow a minimum of 3 feet of clearance on all sides of the fluid cooler(s) and at least 20 feet of clearance above the fluid cooler(s) for vertical airflow. For horizontal airflow units allow a minimum of 20 ft clearance on the fan discharge side. Position multiple horizontal airflow units to prevent recirculation of discharge air from one unit into an adjacent unit.

Model CFC and DFC fluid Coolers are supplied with legs that provide proper clearance beneath the units. Please contact the factory if alternate mounting means are required.

Mechanical ventilation must be used if air-cooled equipment is located indoors. Contact the factory for ventilation requirements if the unit is mounted indoors.

Mount the unit in a level position to assure proper functioning. The unit should be securely anchored to a structural base to prevent movement. Avoid locations that may allow recirculation of the discharge airstream. Allow sufficient clearance around the unit for proper servicing and preventative maintenance. Follow all building codes and requirements regarding roof loading and safe access to the equipment.

Catalog Products Limited Warranty

This product may be covered by Cancoil's catalog products limited warranty. For future reference, please record the following information in the space provided. Please retain this document.

Please record the following information in the space provided. Please keep this document.

Installation Date _____

Equipment Model No. _____ Equipment Serial No. _____

Section 2. Piping

All fluid hookups and piping should be done by a licensed mechanical contractor in accordance with applicable codes and standards. Copper tubing must be refrigeration grade only. Piping must be kept clean and dry and free of all debris and chips. Use high temperature silver solder or equivalent alloy for brazing. **DO NOT USE SOFT SOLDER.** To avoid oxidation inside the piping, purge the system with dry nitrogen during the brazing process. Remove all flux from the joints after brazing.

Cancoil recommends no more than 8 ft/sec. fluid velocity inside copper tubing to minimize the possibility of erosion. The following table may be used for line sizing.

Table 1. – Maximum flowrates to minimize tube erosion based on 8 ft/ sec.

Copper Line Size	Maximum GPM
3/4"	8.5
7/8"	12
1 1/8"	20
1 3/8"	32
1 5/8"	42
2 1/8"	75
2 5/8"	120
3 1/8"	170

Section 3. Electrical Wiring and Sequence of Operations

Cancoil fluid cooler are available with a variety of fan cycling options, however many units are shipped without fan controls.

Check the unit wiring diagram for specific information regarding the model in question. Please have the wiring diagram number available whenever contacting the factory for assistance

Section 4. Leak Testing

All piping and leak testing work must be done by a licensed mechanical contractor.

Leak Testing – The unit has been leak-tested at the factory before shipping. After piping, the system should be leak tested after all pipe connections have been made. Leak test at 75 - 85 PSIG with all flow control valves in the system open. Leaks should be marked, isolated and repaired.

Freeze Protection – **Verify that the correct type and concentration of glycol solution or brine is used to prevent freeze up in cold ambient conditions.**

Table 2. – Freezing points of glycol/ water solutions

Brine	% Mass	Freezing Point
E. Glycol	0	32
E. Glycol	10	26
E. Glycol	20	18
E. Glycol	30	7
E. Glycol	40	-8
E. Glycol	50	-29

Brine	% Mass	Freezing Point
P. Glycol	0	32
P. Glycol	10	26
P. Glycol	20	19
P. Glycol	30	9
P. Glycol	40	-6
P. Glycol	50	-28

Please contact Factory for freezing points of other conditions or brine solutions.

Section 5. Start-up and Check Out Procedures

1. Check the supply voltage when the fluid cooler is operating. It must be within 10% of the unit nameplate voltage.
2. Check the leg to leg voltage available to the motor terminals (3 phase units). The leg to leg voltage must not vary by more than 1%
3. Check the total amperage for the fan motors. It must be less than the value listed on the unit nameplate. The amperage on each leg must agree within 2%.
4. Check the operating control settings. See Section 6.
5. Check that the Thermal Contacts from the Motor (if supplied) are incorporated into Control System for the Cancoil Unit.
6. Check that the VFD (if part of Control System) is wired to Fan Motor(s) through a 'Sine Wave' Filter.
7. Check the VFD (if part of the Control System) Minimum Speed Setting is 20% of the Nominal Nameplate Rating.
8. Check the freeze point of the glycol/ brine solution.

Section 6. Controls and Adjustment

The following table summarizes the controls and options typically found on Cancoil Fluid Coolers. Even though many units are ordered equipped with the standard features, some units are specially configured for a particular application or specific location. It is important to inspect each unit at start-up and before service or maintenance to determine which components have been installed.

Table 3. – Fluid Cooler Unit Low Ambient Features & Control Options

Fluid Cooler Feature	CFC & DFC
No Fan Controls	std
Single Fan Contactor with Thermostat	opt
Multiple Fan Contactor with Thermostats	opt

Fluid Cooler Fan Cycling Control – The fan cycling controls will stop the fans when the fluid temperature leaving the fluid cooler falls below the set point and will start the fans when the fluid temperature rises above the set point. Units with multiple thermostats may have the fans staged for better incremental control.

Please note that when all the fans have been turned off by the thermostats it is no longer possible to modulate the fluid temperature leaving the fluid cooler. In this situation an external bypass/ mixing valve arrangement (by others) will be required for accurate fluid temperature control.