



Coolant inlet and outlet are marked with symbols: Inlet: \uparrow ; Outlet: \circ

CAUTION: READ MANUAL BEFORE OPERATING COOLING UNIT

- Input power must be rated 230 VAC at 50/60 Hz
- Use water or water/glycol as coolant
- Run cooling unit at the correct coolant level, otherwise cooling capacity will be reduced
- Clean the filter periodically, otherwise the pump may degrade over time
- Use cooling hoses that can handle max pressure of the liquid circuit and is resistant to corrosion from coolant
- Never operate the unit if it is damaged or leaking
- Before starting any service work on the cooling unit, please disconnect from the main power source.

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TABLE OF CONTENTS

| | Pg No. |
|-------------------------------------|---------------|
| 1 Description | 2 |
| 2 Technical Data | 3 |
| 2.1 Physical Dimensions | 3 |
| 2.2 Performance Data | 3 |
| 2.3 Environmental Specifications | 3 |
| 2.4 Settings | 3 |
| 3 Operational Settings | 4 |
| 4 Settings | 5 |
| 4.1 Flow Switch | 5 |
| 4.2 Thermal Switch | 5 |
| 4.3 System pressure | 5 |
| 5 Maintenance | 6 |
| 5.1 Heat Exchanger | 6 |
| 5.2 Pump | 6 |
| 6 Placing Out of Operation | 7 |
| 7 Spare Parts List and Illustration | 7 |
| 8 Liquid and Electronic Schematic | 8 |

1 DESCRIPTION

The WL 2000 cooling unit is intended to remove heat from a liquid circuit. The coolant can be either water or a mixture of water and water-glycol (antifreeze). Water circulates in a closed loop between the ambient cooling system and a cold plate at the heat source. Heat is removed from water by an air-cooled heat exchanger. The capacity of the cooling unit is dependent on the temperature differential, which is defined as the difference between the ambient temperature and the water outlet temperature. The cooling unit is designed to remove 2000 W of heat at a temperature differential of 11°C. The water inlet and water outlet are marked with the following symbols:

Inlet: $\overset{|}{\circ}$; Outlet: $\overset{|}{\circ}$

The maximum forward pressure is limited by a bypass valve, which has been integrated into the pump. The coolant flow is controlled by a flow switch that opens when flow falls below a set rate. Cooling hoses supplied by user are connected to threaded nozzle that can accommodate a 12mm hose ID.

2 TECHNICAL DATA

2.1 PHYSICAL DIMENSIONS

- Length: 300 mm
- Width: 305 mm
- Height: 505 mm
- Weight: 26.5 kg without water
- Coolant capacity: 2.5 L

2.2 PERFORMANCE DATA

- Cooling capacity: 2000 W
- Flow rate: > 4.4 l/min at 4 bar
- Supply voltage: 230 VAC at 50 Hz
- Current consumption: 2.1 A
- Noise level: ≤ 70 dB(A) distance 1 m in any direction

2.3 ENVIRONMENTAL SPECIFICATIONS

- Operating temperature: +10°C to +40°C
- Storage temperature: -25°C to +70°C (storage without water)
- Air humidity: 20% to 80%

2.4 SETTINGS

- Maximum system pressure: 6.7 bar
- Flow switch opens: $4,0 \pm 0,3$ lpm
- Temperature regulator: $45^{\circ}\text{C} \pm 3^{\circ}\text{C}$

3 OPERATIONAL SETTINGS

1. Position cooling unit horizontally and keep obstructions away from air inlet to allow for sufficient air circulation.
2. Remove the reservoir cap.
3. Connect the external hoses supplied by the user.
4. Insert the cable and connect it to the terminals according to the terminal diagram; use a 3 mm screwdriver to connect the wires to terminal block.
5. Fill the cooling unit with approximately 2.5 L of coolant.

Note: The coolant level must be approximately 3 cm above fins to maintain peak cooling performance, otherwise the cooling capacity will be reduced.

6. Allow the cooling unit to run for 10 minutes and deaerate the liquid circuit.
7. Check the coolant level. If necessary, refill the coolant.
8. Replace the reservoir cap.



4 SETTINGS**4.1 FLOW SWITCH**

The flow switch is set to open at 4 lpm. If it is necessary to adjust this setting then perform the following:

1. Disconnect the cooling unit from the main power source.
2. Remove the complete cover.
3. Open the setscrew.
4. Increase the flow rate set point by shifting the contactor in the direction of flow or decrease the flow rate set point by shifting the contactor opposite of the direction of flow.
5. Fix the setscrew.

4.2 THERMAL SWITCH

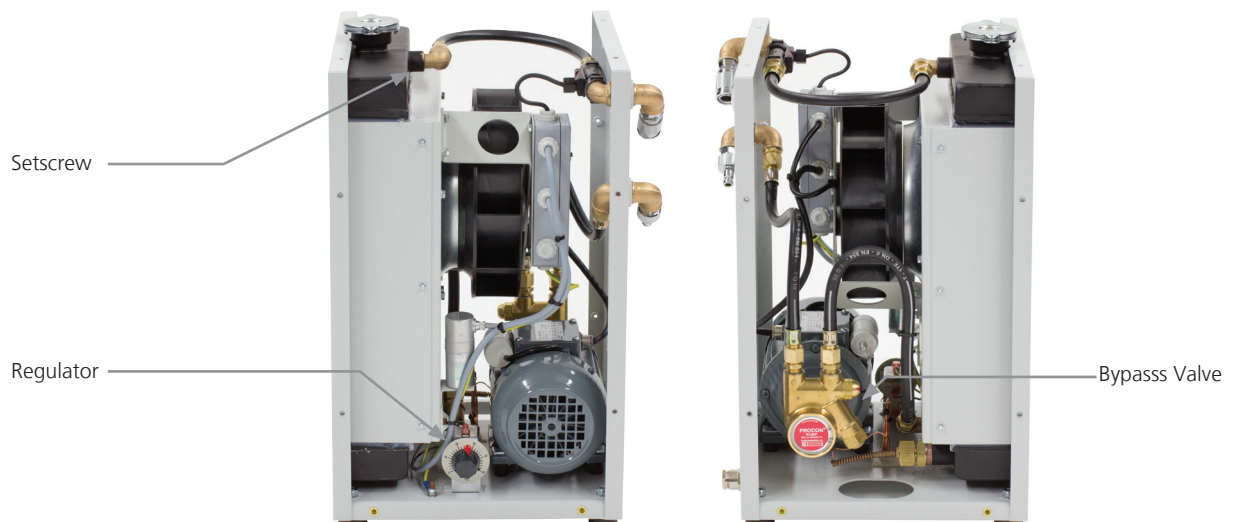
The thermal switch has been adjusted at factory to specification (at 50 Hz). If it is necessary to adjust this setting then perform the following:

1. Disconnect the cooling unit from the main power source
2. Remove the complete cover
3. Increase the temperature set point by turning the regulator clockwise or lower the temperature set point by turning the regulator counter clockwise.

4.3 SYSTEM PRESSURE

The maximum system pressure has been adjusted at factory to specification (at 50 Hz). If it is necessary to adjust this setting then perform the following:

1. Disconnect the cooling unit from the main power source
2. Remove the complete cover
3. Increase the maximum pressure by turning the setscrew clockwise or reduce the maximum pressure by turning the setscrew counter clockwise.



5 MAINTENANCE

Check the coolant level regularly and refill if necessary.

5.1 HEAT EXCHANGER

In order to achieve maximum cooling capacity the heat exchanger of the cooling unit must be kept clean. Check heat exchanger every 3 months for cleanliness. If cleaning is required perform the following:

1. Disconnect the cooling unit from the the main power source.
2. Remove the side cover.
3. Clean the heat exchanger with compressed air, a damp cloth or a shop vacuum.
4. Mount the side cover.

5.2 PUMP

The pump has incorporated a coolant filtering mechanism to keep debris out of the pump. It is recommended to check the filter every three months to make sure it is clean. If cleaning is required, then perform the following:

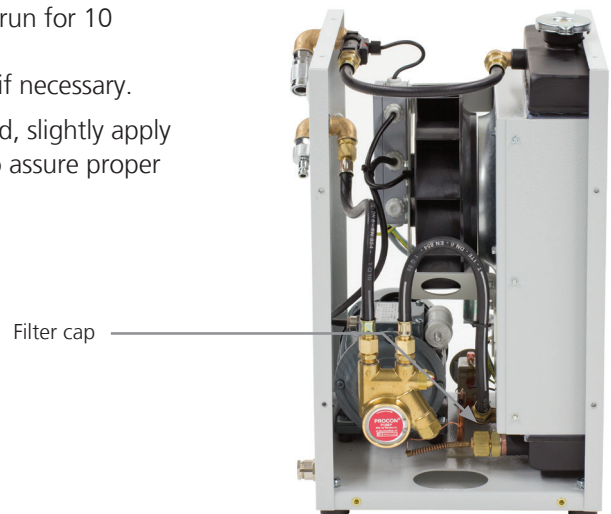
Note: If the filter is not cleaned, then degradation to the pump may occur.

1. Disconnect cooling unit from main power source and external hoses
2. Drain coolant from reservoir
3. Remove side cover
4. Position cooling unit on side opposite to pump. This will limit coolant leaking from system.
5. Unscrew filter cap with wrench that can accommodate 24 mm nut.

Note: Some coolant may run out from pump. Collect in suitable container.

6. Remove filter and clean with mild soap and water or replace
7. Insert filter into housing and tighten nut
8. Mount side cover and reposition cooling unit on legs
9. Refill coolant in reservoir and run for 10 minutes to deaerate.
Check coolant level and refill if necessary.

Note: If pump needs to be replaced, slightly apply grease to the pinion of the shaft to assure proper lubrication.



WL 2000

Liquid Cooling System

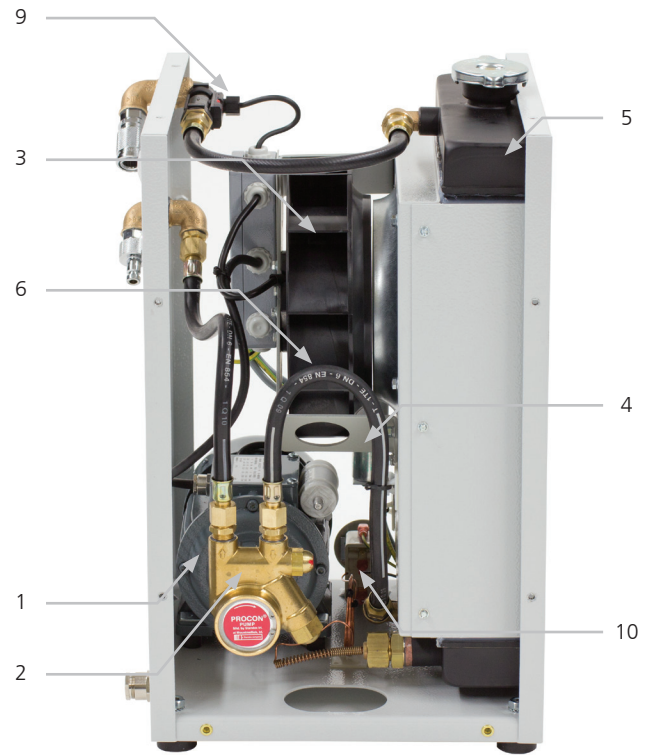
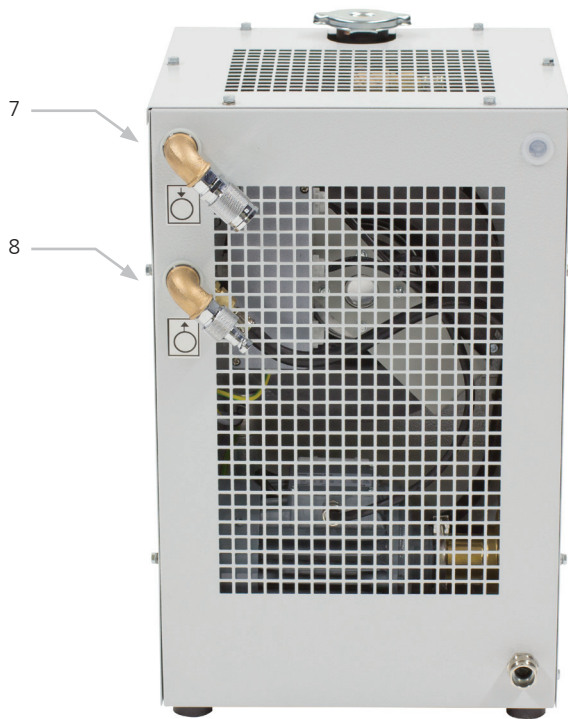
USER MANUAL

6 PLACING OUT OF OPERATION

1. Disconnect the cooling unit from the main power source.
2. Remove the electrical connections.
3. Remove the hoses from the cooling unit.
4. Remove the cap and drain the coolant in a suitable container.
5. Mount the cap on the drain.

7 SPARE PARTS LIST AND ILLUSTRATIONS

| NO. | DESCRIPTION |
|-----|--------------------------------|
| 1 | Motor, 0,2 kW, 230 V, 50/60 Hz |
| 2 | Pump, CO 1304 XHF |
| 3 | Fan, R2E220-AA40-05 |
| 4 | Capacitor, MFB-MP 3/400/2 |
| 5 | Heat exchanger |
| 6 | Hose, 1 TE |
| 7 | Female connector |
| 8 | Male connector |
| 9 | Flow switch |
| 10 | Temperature controller EMF-1 |



8 LIQUID AND ELECTRONIC SCHEMATIC

LIQUID CIRCUIT DIAGRAM

