



**CONDENSERLESS WATER CHILLER  
FOR INDOOR INSTALLATION WITH  
REMOTE CONDENSER**

**MDE-3**

**2.160-2.180-2.200-2.220-2.250-**

IT CAN BE COUPLED WITH REMOTE  
CONDENSER CLIVET SERIES CEM

**2.280-2.300-2.320-2.340-2.360-2.390-2.420-2.450-**

**2.480-3.480-3.500-3.520-3.540-3.570-3.600-3.630**

## ELECTRICAL CONNECTIONS

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#### IMPORTANT

- BEFORE PERFORMING ANY OPERATIONS ON THE ELECTRICAL SYSTEM, MAKE SURE THAT THE POWER SUPPLY TO THE UNIT IS ISOLATED AT THE SOURCE.
- FOR ALL OPERATIONS DESCRIBED IN THIS MANUAL, OR IN ANY CASE INVOLVING THE ELECTRICAL SYSTEM, REFER TO THE WIRING DIAGRAM ENCLOSED WITH THE UNIT; THE CODE OF THE WIRING DIAGRAM IS SHOWN ON THE RATING PLATE LOCATED IN OR NEXT TO THE ELECTRICAL PANEL.
- THE WIRING DIAGRAM, TOGETHER WITH THIS MANUAL, MUST BE KEPT WITH CARE AND MUST BE MADE AVAILABLE FOR FUTURE OPERATIONS ON THE UNIT.
- ALL ELECTRICAL CONNECTIONS MUST BE PERFORMED BY PERSONNEL WITH THE NECESSARY LEGAL REQUISITES.

#### PRELIMINARY OPERATIONS

- Open the main isolator switch.
- If no main isolator switch is present, check that the isolator device at the origin of the unit's power supply line is open, padlocked and fitted with a special sign.
- Check that the characteristics of the mains power conform to the data shown on the rating plate located inside the electrical panel.

#### CONNECTING THE MACHINE TO THE MAINS POWER SUPPLY

Identify, with the help of the machine's wiring diagram, the power cable connection terminals L1 - L2 - L3 (N, where present) and the earth cable connection terminal. (L-N in units with single-phase power supply).

Rate the electrical cut-out devices according to the rules of good practice prescriptions, based on the machine's electrical data contained in the technical bulletin, in this manual, and on the machine's rating plate\*.

Size the cross-section of the power cables and earth cable, according to the rules of good practice and the standards in force, based on the characteristics of the cut-out devices used.

#### CAUTION:

- The correct sequence of the phases L1, L2, L3 must be followed. Failure to follow the correct sequence may lead, when the machine is started, to serious malfunctions.
- Before powering the unit, check that all the cut-out devices removed during the electrical connection work have been replaced.

\* The presence of any accessories not envisaged on the standard units may change, even slightly, the machine's electrical data as shown in the technical bulletin (this in fact refers to the standard unit). For this reason, in the event of discrepancies between the data on the rating plate and the data provided in this manual or in the technical bulletin, the data on the rating plate must be considered.

The unit's supply line protection device must be able to cut-off power in the event of an assumed short-circuit, the value of which must be determined by personnel authorised for design of electrical systems, in accordance with the characteristics of the system.

## FUNCTIONAL CONNECTIONS

### IMPORTANT

Refer to the machine's wiring diagram to identify the terminals and the function of the various connections.

### REMOTE ON/OFF CONTROL

The unit is fitted for connection to a remote device for switching the machine on or off, such as a switch, timer or the contact of a device in a centralised supervisory system. The contact must be suitable for the switching of low power loads and voltage free (free contact).

### EVAPORATOR WATER FLOW SWITCHES

This is contact-closure safety input that is to be connected to the water flow control devices.

In addition, these devices should be connected in series to an NO contact of the remote control switch for the water circulation pump. The voltage free contacts of the various devices must be suitable for the switching of low power loads.

Note: the input is directly connected with the machine electronics. Such electronics applies a very low voltage to the contact and delivers a weak current, typical values from 12 to 24 V, about 10 mA. For this reason, the dead contacts of the various devices must be suitable for switching very low power loads.

**IMPORTANT:** The installation and correct connection of the water flow control devices is of fundamental importance for the safe operation of the machine. This is valid even if the unit is already internally fitted with a water differential pressure switch.

### REMOTE MACHINE ALARM SIGNAL

The unit is fitted with a relay that is activated whenever a machine alarm condition arises. The contact of this relay, which is normally open when no alarm is present, is connected to the two terminals for the remote signal. Refer to the machine wiring diagram. The value of the voltage that can be applied to these terminals must not be over 24 V. Such voltage must be taken from a transformer with separate primary and secondary windings, in compliance with the norm requirements in force. The max. value of current to be taken is 1.1 A in Ac11.

### SECOND SET POINT ENABLING DEVICE

The unit is fitted for connection to a remote device enabling a Second Set Point, such as a switch, timer or the contact of a device in a centralised supervisory system.

Note: the input is directly connected with the machine electronics. Such electronics applies a very low voltage to the contact and delivers a weak current, typical values from 12 to 24 V, about 10 mA. For this reason, the dead contacts of the various devices must be suitable for switching very low power loads.

### CONDENSER PUMP

The unit is equipped with a relay for the control of a contactor for circulating pump of condenser water circuit. Moreover it is available a signal 0.....10V that enables the regulation of condensation according to pressure. The signal can be used for example for 3-way valve control or to manage an inverter in order to modulate the condenser flow-rate. Modulation value must be properly gauge by a Clivet service center, setting the proper parameters avoiding the intervention of flow protections.

The value of the voltage that can be applied to these terminals must not be over 24 V. Such voltage must be taken from a transformer with separate primary and secondary windings, in compliance with the norm requirements in force. The max. value of current to be taken is 1.1 A in Ac11.

### EVAPORATOR PUMP

The unit is equipped with a relay that control a contactor for the circulating pump of the evaporator hydraulic circuit. The value of the voltage that can be applied to these terminals must not be over 24 V. Such voltage must be taken from a transformer with separate primary and secondary windings, in compliance with the norm requirements in force. The max. value of current to be taken is 1.1 A in Ac11.

Moreover it is available a digital input to which the customer must connect a free contact for the evaporator pump protections.

Note: the input is directly connected with the machine electronics. Such electronics applies a very low voltage to the contact and delivers a weak current, typical values from 12 to 24 V, about 10 mA. For this reason, the dead contacts of the various devices must be suitable for switching very low power loads.

### ELECTRICAL DATA

Sizes		2.160	2.180	2.200	2.220	2.250	2.280	2.300	2.320	2.340	2.360	2.390
<b>F.L.A. FULL LOAD CURRENT (AT MAX ADMISSIBLE CONDITIONS)</b>												
F.L.A. - Total	A	230,1	263,7	296,6	329,5	367,3	416,3	443,3	470,3	507,3	544,3	598,3
<b>F.L.I. FULL LOAD POWER INPUT (AT MAX ADMISSIBLE CONDITIONS)</b>												
F.L.I. - Total	kW	140,6	164,4	183	201,6	223,4	254,8	272,8	290,8	316,2	341,6	372,5
<b>M.I.C. MAX STARTING CURRENT</b>												
M.I.C. - Value	A	465	555	652	685	796	873	644	671	700	737	858
Sizes		2.420	2.450	2.480	3.480	3.500	3.520	3.540	3.570	3.600	3.630	
<b>F.L.A. FULL LOAD CURRENT (AT MAX ADMISSIBLE CONDITIONS)</b>												
F.L.A. - Total	A	652,3	682,3	712,3	705,5	742,5	779,5	816,5	870,5	924,5	978,5	
<b>F.L.I. FULL LOAD POWER INPUT (AT MAX ADMISSIBLE CONDITIONS)</b>												
F.L.I. - Total	kW	403,4	422,3	441,2	436,1	461,5	486,9	512,3	543,2	574,1	605	
<b>M.I.C. MAX STARTING CURRENT</b>												
M.I.C. - Value	A	912	976	1006	906	935	972	1009	1130	1184	1238	

Maximum Phase Unbalance 2 %

Voltage: 400/3/50 Hz +/-6%

CLIVET S.p.A. - Z. I. 32030 VILLAPAIERA - FELTRE (BL) Italy - Tel (0439) 3131 - Fax (0439) 313300 - sito web <http://www.clivet.com>

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