



**WATER-COOLED
WATER CHILLERS
WITH SCREW
COMPRESSORS**

WSH-2

2.200-2.230-2.260-2.280-

2.300-2.360-2.400-2.440-

**WATER-WATER
HEAT PUMPS
WITH SCREW
COMPRESSORS**

WSHH-2

3.450-3.540-3.580-3.620-3.660

ELECTRICAL CONNECTIONS

CONTENTS:

**PRELIMINARY OPERATIONS
CONNECTING THE MACHINE TO THE MAINS POWER
SUPPLY
FUNCTIONAL CONNECTIONS
REMOTE ON/OFF CONTROL**

SOURCE AND USE SIDE WATER FLOW SWITCH
REMOTE MACHINE ALARM SIGNAL
SECOND SET POINT ENABLING DEVICE
SOURCE SIDE PUMP
USE SIDE PUMP

GENERAL

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.



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).

SOURCE AND USE SIDE WATER FLOWSWITCH

Two safety digital inputs to be connected with the water flow control devices. It is recommended to connect a NO contact of the remote control switch of the water circulation pump in series with these devices. 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 fundamental for the operating safety of the machine. These devices are necessary even if the unit is already fitted with an internal 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.

SECOND SET POINT ENABLING DEVICE

The unit is arranged for the connection of a remote enabling device for a possible double set point such as a switch, the contact of a timer or the contact of a centralized supervision device. The contact must be suitable for switching very low power loads and dead (clean contact).

SOURCE SIDE PUMP

The unit is equipped with a control relay for the contactor of the circulation pump for the condenser water circuit.

A signal type 0...10 V is also available and makes it possible to adjust the condensation according to the pressure. The signal can be used for controlling a 3-way valve, for example, or for controlling an inverter to change the flow rate to the condenser. The modulation extent shall be suitably calibrated by a Clivet Service Center setting the suitable parameters without causing the intervention of the flow protections.

USE SIDE PUMP

The unit is equipped with a control relay for a contactor of the circulation pump for the evaporator water circuit. A digital input is also available, to which the customer shall connect a clean contact for the protections of the re. pump.

Acoustic configuration: Standard (ST) / Extremely low noise (EN) / Voltage: 400/3/50

Sizes		2.200	2.230	2.260	2.280	2.300	2.360	2.400	2.440	3.450	3.540	3.580	3.620	3.660
F.L.A. FULL LOAD CURRENT AT MAX ADMISSIBLE CONDITIONS														
F.L.A. - Compressor 1	A	139.8	139.8	186.4	186.4	236.7	269.1	269.1	342.2	236.7	269.1	269.1	269.1	342.2
F.L.A. - Compressor 2	A	139.8	186.4	186.4	236.7	236.7	269.1	342.2	342.2	236.7	269.1	269.1	342.2	342.2
F.L.A. - Compressor 3	A	0	0	0	0	0	0	0	0	236.7	269.1	342.2	342.2	342.2
F.L.A. - Total	A	281.4	327.9	374.5	424.9	475.2	539.9	613	686.1	712.2	809.2	882.3	955.4	1028.5
L.R.A. LOCKED ROTOR AMPERES														
L.R.A. - Compressor 1	A	325	325	394	394	469	538	538	641	469	538	538	538	641
L.R.A. - Compressor 2	A	325	394	394	469	469	538	641	641	469	538	538	641	641
L.R.A. - Compressor 3	A	0	0	0	0	0	0	0	0	469	538	641	641	641
F.L.I. FULL LOAD POWER INPUT AT MAX ADMISSIBLE CONDITIONS														
F.L.I. - Compressor 1	kW	86.2	86.2	112.8	112.8	145.5	166	166	210	145.5	166	166	166	210
F.L.I. - Compressor 2	kW	86.2	112.8	112.8	145.5	145.5	166	210	210	145.5	166	166	210	210
F.L.I. - Compressor 3	kW	0	0	0	0	0	0	0	0	145.5	166	210	210	210
F.L.I. - Total	kW	173.1	199.7	226.3	259	291.8	332.6	376.7	420.8	437.6	498.9	543	587.1	631.1
M.I.C. MAXIMUM INRUSH CURRENT														
M.I.C. - Value	A	467	536	582	657	707	809	912	985	944	1078	1181	1254	1327

Voltage unbalance: max 2 %

Power supply: 400/3/50 Hz +/-6%