

Tetris W Rev LC LN 15.2



Configured unit accessories

LN - Low noise

MOIB - Basic hydraulic module

2PS - Two user-side pumps with tank

VSWU - User-side safety valves

DVS - Doppia valvola di sicurezza

RIC - Liquid receiver

CA - Advanced controller

FM2 - Multilogic function for Master unit to manage up to 2 Slaves

A43 - 400/3/50 power supply

AG - Rubber vibration dampers

The image does not refer to the configured unit

General description

High energy efficiency water/water unit with scroll compressors and plate heat exchangers, for indoor installation. 31 models and 6 versions guarantee maximum flexibility and give these units the ability to always best interpret the requirements of the system by integrating in it all the technologies necessary for pursuing the maximum efficiency of the system. The combination of multiscroll technology and plate heat exchangers with large heat exchange surface allows ESEER values higher than 6.2 to be achieved. It can be completed by one of the 170 combinations of modules on user, source and total recovery, of the integrated buffer tank and of the three types of pumps that can be selected. Refrigerant fluid: R410A.

Condenserless unit

Version to be combined with a remote source.

Specifications

Structure

The structure consists of a load-bearing frame made of epoxy polyester powder coated sheet metal.

RAL

7035

Compressor casing

The unit is fully enclosed with painted sheet metal panels lined with matting made of sound absorbing and soundproofing material.

Compressors

The compressors are hermetic orbiting spiral scroll compressors connected in tandem or trio, fitted with oil level sight glass, oil equalization line and electronic protection.

User-side heat exchanger

Braze-welded plate

made of stainless steel AISI 316 insulated with a shell of closed-cell foam material to reduce heat loss. The use of plate heat exchangers allows us to:

- Achieve higher COP/EER;
- Reduce the amount of refrigerant in the circuit;
- Decrease the size and weight of the unit;
- Facilitate maintenance work. Facilitate maintenance work.

Layout of heat exchangers

The models with 2 refrigerant circuits are fitted with dual circuit heat exchanger with a single hydraulic connection.

Heat exchanger probes

Each heat exchanger is provided with a temperature probe for freeze protection and a probe for measuring the incoming water.

Flow switch

Each unit is provided with user-side paddle flow switch supplied as standard with it.

Refrigerant circuit

The circuit includes:

5/16" charging valve

liquid sight glass

Replaceable solid cartridge dehydrator filter

electronic expansion valve. The solenoid valve function on the liquid line is performed by the electronic expansion valve, which shuts off the liquid by closing when the circuit stops. On request, the electronic valve can be fitted with a backup battery that will guarantee it closes even without mains power.

pressure transducer for models with 3 to 12 compressors for reading, by the control, of the high and low pressure values and relevant evaporation and condensation temperatures.

high and low pressure switches for models with only two compressors

safety valves

shut-off valve in the liquid line

Refrigerant circuit of the condenserless set-up

The unit is supplied without refrigerant charge and charged with nitrogen.

Electrical control panel

The circuit includes:

Main disconnect switch

Automatic circuit breakers for compressors with fixed calibration

Fuses to protect the auxiliary circuits

Thermal magnetic circuit breakers for pumps (if present)

Microprocessor

to control the following functions

- Water temperature control, with inlet control
- Freeze protection
- Compressor timings
- Automatic rotation of compressor starting sequence
- Alarm signalling
- Alarm reset
- Capacity reduction
- Cumulative alarm contact for remote signalling
- Forcing of capacity reduction due to pressure limit
- Alarm log recording with "black box" function
- Display of the following on the display:
 - > Outgoing water temperature
 - > Incoming water temperature
 - > Temperature and differential set points
 - > Description of alarms
 - > Compressor operation hour meter

Standard power supply [V/ph/Hz]

400/3~/50

Safety devices

High pressure switch with automatic reset and limited interventions managed by the control;

Low pressure switch with automatic reset and limited interventions managed by the control;

High pressure safety valve;

Protection against overtemperature for compressors;

Protection against overtemperature for fans;

/2PS

with two pumps, insulated storage tank.

Other standard features

Electronic thermostatic valve

The use of this component is particularly advisable on units operating in very variable heat load or operating mode conditions, as in the case of joint management of air conditioning and high temperature water production. The use of an electronic thermostatic valve allows you to:

- maximize heat exchange at the evaporator
- minimize response times to changes in load and operating conditions
- optimize control of overheating
- ensure maximum energy efficiency

Double set point

It is possible to set two set point temperatures by microprocessor for the production of cold water and for hot water. Unless otherwise indicated when ordering, the default values for the production of chilled water are 12/7 °C and 15/10 °C, and for the production of hot water are 40/45 °C and 35/40 °C. The set point temperatures must in any case be within the operating limits of the unit. The change between the first and second set point can be done by keyboard or digital input.

Configured unit accessories description

User-side water safety valve

Safety valves are typically used for pressure control in heating systems. When the calibration pressure is reached, the valve opens and, by discharging to atmosphere, prevents the system pressure from reaching limits that are dangerous for the components present in the system. The valves have positive action, that is, performance is guaranteed even if the diaphragm deteriorates or breaks.

Double safety valve

With this accessory, instead of each individual safety valve per circuit, there is a "candelabrum" with two safety valves and a diverter valve for choosing the valve in operation. This allows the safety valves to be replaced without having to drain the machine

and without having to stop it.

Liquid receivers.

The adoption of this accessory always guarantees correct feeding of the expansion valve even when the unit is subjected to wide external air temperature ranges. This accessory is standard on DC and HP units.

Multilogic function for Master unit for managing up to 2 Slaves

With this accessory, the unit is programmed as master of a system of machines in Multilogic network (for further details, refer to the control manual). Also, a network gateway with 4 ports is installed in the electrical control panel of the unit to allow the unit to be connected to an external LAN network and up to 2 slave units to be managed.

Rubber anti-vibration mounts

These are supplied as a separate package from the unit and must be installed on site following the assembly diagram supplied. They allow you to reduce the vibrations transmitted from the unit to the surface it is standing on.

ACCORDING TO EN14511

Unit		Tetris W Rev LC LN
Model		15.2
Refrigerant fluid		R410A
Minimum partialization of the unit	%	50
Compressors		
Type		
Number		2
Refrigerant circuits		1
Total oil charge		11.5
Total refrigerant charge (estimated)		0.0
Heat exchanger - User side		
Type		PL
Number		1
Water content	l	0.0
Dimensions		
Length	mm	2917
Width	mm	792
Height	mm	1879
Weight		
Net weight	kg	1104
Hydraulic module - User side		
Number of pumps		2
Rated absorbed power	kW	2.20
Rated absorbed current	A	4.6
Maximum pressure hydraulic circuit	kPa	600
Storage tank	l	200.0

Cooling conditions

Fluid - User side		Water
Fouling factor - User side	m ² °C/W	0.0000176
Inlet water temperature - User side	°C	12.0
Outlet water temperature - User side	°C	6.0
Condensing temperature	°C	47.0

Cooling performances

Cooling capacity	kW	129.6
Compressors absorbed power	kW	33.7
Total absorbed power (R1)	kW	34.0
Flow rate - User side	l/s	5.08
Pressure drops - User side	kPa	28
EER		3.81

Sound levels

Sound power (S1)	dB(A)	78
Sound pressure (S2)	dB(A)	62

Hydraulic module - User side: Cooling mode

Available pressure	kPa	196.62
Hydraulic circuit pressure drops	kPa	27.65
Pumps absorbed power	kW	2.0
Pumps absorbed current	A	4.6

(R1) Compressor and pumps power

(S1) Sound power values calculate in compliance with ISO 3744

(S2) Sound pressure values measured at meters from the unit in free field conditions and directional factor Q=2

ELECTRICAL DATA (Theoretical calculations)

ELECTRICAL DATA (Theoretical calculations)

Power supply	V/ph/Hz	400/3~/50 ±5%
Control power supply	V/ph/Hz	230/1~/50 ±5%
Electrical performances		
Maximum absorbed power (E1)	kW	52.40
Maximum starting current - LRA	A	313.1
Full load current - FLA	A	85.7

(E1) Mains power supply to allow unit operation

Technical calculations may change according to calculation methods. Technical data may be revised.

SOUND LEVEL

Sound Level	63 [Hz]	125 [Hz]	250 [Hz]	500 [Hz]	1000 [Hz]	2000 [Hz]	4000 [Hz]	8000 [Hz]	Tot [dB(A)]
Lw [(dB)]	34	32	56	64	65	76	67	51	78
Lp [(dB)]	18	16	40	48	49	60	50	34	62