

OPTIONS:

Leaving water temperature stability (+/- 0,1 K) electronic hot gas by-pass valve	VBE [12]
Single P2/P3/P5 Pump	P2/P3/P5
Double P2/P3/P5 Pump	D2/D3/D5
Non ferrous water piping for single pump	WP [1]
Non ferrous water piping for double pumps	WD [2]
Pressurized water tank	TP [3]
Non ferrous pressurized water circuit (stainless steel water tank)	TPI [3]
Pressurized water tank with double pump housing	TP2 [4]
Non ferrous pressurized water circuit for double pump housing (stainless steel water tank)	TPI2 [4]
Additional atmospheric water tank kit (glycol charge)	TA [5]
Non ferrous atmospheric water circuit (plastic water tank)	TANF [6]
Disconnect tank with P2/ P3/ P5 Pump (pressurized carbon steel tank included)	X2/ X3/ X5
Water level switch	LSM [7]
Automatic water bypass valve	BA
Evaporator anti freeze heater	RA1
Evaporator and pump anti-freeze heaters	RA2
Evaporator, pump and tank anti-freeze heaters	RA3
Electrical switchboard anti-condensing heater	RS
Compressor(s) shut off valves	VSC [9]
Solenoid valve on liquid line	VL [13]
Electronic thermostatic valve	VE
Continuous fan(s) speed control - phase cut type (minimum ambient temperature -8.0°C)	CA
Continuous fan(s) speed control - electronic fan(s) (minimum ambient temperature -10.0°C)	CE
Low ambient temperature kit (minimum ambient temperature -20°C)	CL [8]
Ductable axial electronic fan(s)	ZAP
Copper tubes&fins condenser	OCC [9]
Condenser anticorrosion treatment	OCT [10]
Double setpoint (from MODBUS and/or keyboard)	WE
Double pump shut off valves	VSP [9]
Water heaters	RH [11]
Single compressor version	MC
Acoustic shield for compressors	AI1
Wind baffles kit	FWB
Threaded water connections (GAS)	WC2
Stainless steel threaded water connections (GAS)	WC2I
Automatic water filling kit	WF
Rubber anti-vibration mountings for no tank units	FA1
Automatic water filling kit for units with atmospheric water tank	WFA
Sequencer for modular units	EVG
Rubber anti-vibration mountings for units with tank	FA2
Wheels kit	FW
Remote Panel	ER
Wooden basement	PWB
Wooden crate	PWC

- [1] WP option provides EPDM piping and stainless steel water connections.
Combine WP with P2, P3, P5 only (not available with TP, TP2, TPI, TPI2, TA)
- [2] WP option provides EPDM piping and stainless steel water connections.
Combine WP with D2, D3, D5 only (not available with TP, TP2, TPI, TPI2, TA)
- [3] To be combined with P2, P3, P5 only.
- [4] To be combined with D2, D3, D5 only.
- [5] To be combined with TP, TPI, TP2, TPI2 only.
- [6] To be combined with P2, P3, P5 only.
- [7] Combine with TANF only.
- [8] Includes EC fans, electrical switchboard anti-condensing heater and liquid receiver.
- [9] Contact our company.
- [10] Cataphoresis (black) or pre-painted aluminium fins (blue) or hydrophilic fins (blue) or spray pre-painted fins (grey).
- [11] Combine with pressurized water tank (TP/TP2/TPI/TPI2) only. Contact our company.
- [12] Only for CWE, standard on HWE.

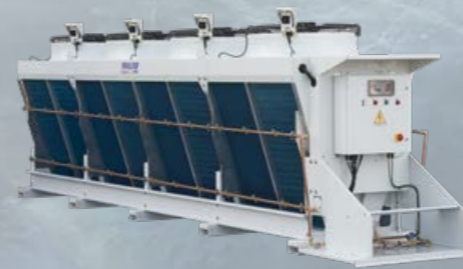
SOME OTHER UNITS AVAILABLE FROM OUR PREMIUM LINE

QBE



LIQUID CHILLERS
FROM 2 TO 25 KW

DRYCOOLERS



LIQUID COOLERS
FROM 300 TO 1200 KW

CFT



WATER CHILLER
FOR COMFORT COOLING
FROM 100 TO 300 KW

CWB/CWB FC



LIQUID CHILLERS
FROM 80 TO 570 KW



CWE/HWE

INDUSTRIAL LIQUID CHILLERS / HEAT PUMPS

FROM 13 TO 140 KW

CWE/HWE



DESCRIPTION

The CWE/ HWE water chillers and heat pumps are air-cooled with axial fans and consist of 14 basic models, with cooling capacities from 13 to 141 kW.

They are designed to specifically meet industry application requirements and provide accurate control of chilled and hot water temperatures with absolute reliability of continuous operation.

All units are equipped with:

- Hermetic scroll compressors
- Plate evaporator
- Finned tubes condensers
- Fans with step control
- Microprocessor controller
- Water inlet filter for the evaporator

STRUCTURE AND MAINTENANCE

The unit frame is made of galvanized steel with an additional polyester powder coat protection. This makes the range particularly weather resistant and suitable for outdoor installation. All fasteners are stainless steel or electro-galvanized. The particular architecture of aerulic section (the fans are confined in a protected volume) allows safely access to hydraulic section and to compressor's housing. Control and/or maintenance operations may be made when machine is operating and in total safety.



COOLING CIRCUIT AND EXPANSION VALVE

Manufactured of top quality materials by skilled personnel according to strict procedures of brazing, and conforms to Directive 2014/68/EU.

- Scroll compressors designed for R410A
- Evaporator made from stainless steel brazed plates
- Copper tubes and aluminium fins condensers
- Filter dryer
- Flow sight glass with moisture indicator
- High pressure switch with manual reset
- Low pressure transducer with semi-automatic reset of LP alarm
- Gauges for high and low pressure
- Pressure connections for checks and maintenance

TECHNICAL DETAILS

COMPRESSORS

Scroll compressors with hermetically sealed oil sight glass. They are equipped with a crankcase heater, and are protected by a relay phase sequence control (to avoid reverse rotation). They are mounted on rubber shock absorbers. The compressors are the most widely used in the air conditioning and refrigeration industry. They offer a high level of energy efficiency (EER), reliability, low noise and vibrations. They are internally equipped with non-return valves. There is also an internal thermal protector, which protects them from electrical over-current or excessive running temperatures and/ or from the flow of the hot gas.

FANS



Axial fans are directly coupled to three-phase motors and external rotor. A safety fan guard is fitted on the air outlet. All the fans are equipped with internal thermal protection with automatic reset and are insulation class F. The condensation control is in stages (standard) or with continuous speed adjustment (optional). This makes the machine even quieter when the outside temperature is low or when it operates at a reduced load. Optionally available are EC type fans with a controlled variable speed which use a 0-10 V signal sent from the electronic controller.

CONDENSER

Manufactured of plated copper tubes with aluminium fins. On whole range of condensers are available various anti corrosion treatments.

HYDRAULIC CIRCUIT



The hydraulic circuit consists of an internal evaporator and pipework. It features a differential pressure monostat that protects the evaporator in case of a no water flow. All units can be equipped with an optional multistage centrifugal pumps with steel impeller. All parts which are in contact with the fluid are AISI 304 stainless steel compatible with the use of water containing up to 30% ethylene glycol. The motor is asynchronous 2 poles ventilated with insulation class F, and IP55 protection. It is possible to select pumps with three different levels of pressure head (P2, P3 and P5). Double circulation pumps are also available. The water tank is available for all models in both atmospheric and pressurised versions and with the option of stainless steel.

EVAPORATOR

The evaporator is made of stainless steel brazed plates. It is compact and highly efficient. All installed exchangers ensure high efficiency of heat exchange between the refrigerant and the fluid to be cooled. This reduces pressure losses. It allows very low temperature approaches to optimise energy efficiency. The electronic controller antifreeze function monitors the water temperature from the evaporator outlet to prevent freezing. A differential pressure switch protects the heat exchanger from any lack of water flow, while a mechanical filter at the inlet protects the entire hydraulic circuit from dirt entering the machine.

ELECTRICAL PANEL

The panel is manufactured of galvanized steel with a polyester powder coated surface, compliant with EN 60204 EC. It includes a main switch with door-lock (which prevents access to the panel when it is under voltage) and watertight door to access the electronic controls. It includes: thermo-magnetic motor protectors for compressors, pumps, remote control switches, autotransformer and rotation control device. The cables inside the cabinet are numbered. For easy use, an ON / OFF switch on the electronic panel is provided. There is an optional 0-10V dimming signal for fan speed; panel heat resistance for harsh climates and ventilation of electrical board (natural or forced by internal fans) for summer/ tropical climates.



MICROPROCESSOR CONTROLLER

It allows to check at any time the operation parameters: condensing pressure, evaporating pressure, temperature of the inlet and outlet, and all digital inputs and outputs. In case of partial or total block of the unit, you can see the alarm history to know which security device had been intervened. The controller is standard equipped with RS485 port for modbus connections. As option it is possible to obtain the arrangement for LAN/ Ethernet connection and is possible to connect the unit to an internet gateway for remote supervision. The accessibility to the controller's setup is very easy, with the use of an usb cable connected to client's laptop. In that way it can be uploaded firmware revision and any new mapping to the controller. No any more converter is needed.



THE NEW SERIES OF UNITS HAS A HOT GAS BYPASS VALVE FOR "PRECISE" CONTROL OF WATER OUTLET TEMPERATURE

The CWE range could be equipped for optional with a precise adjustment system for the outlet water temperature using a hot gas bypass valve. This configuration provides a VERY precise control of thermal loads that are less than the minimum capacity of the compressor itself. They are set so as to minimize the fluctuations of the outlet water temperature, with very high degrees of precision, comprised between $\pm 0.1K$ comparing to set-point under nominal operating conditions.



MAIN FUNCTIONS

- Pump on and off (optional)
- Fans operation
- Control the on and off cycles of compressors according to the water temperature required
- Regulate pumps operating times (for models with optional double pump)
- Measure and display evaporator inlet and outlet water temperature
- Measure and display condensing and evaporating temperature and pressure* considering this source
- Antifreeze
- On-off remote control
- Make available alarm history

ALARMS CONTROL

- Low/high refrigerant pressure transducer
- Water differential pressure switch
- Incorrect phase sequence
- Compressors thermal protection
- Heat pump
- Temperature failure probe
- Pressure failure probe
- High water temperature
- Anti-freeze

CHECKS AND TESTING

Each CWE/HWE has undergone testing at full load; the following checks were also performed:

- Correct component assembly
- Pressurisation of the cooling circuit and leaks detection using a helium leak detector
- Pressurisation of the hydraulic circuit
- Electrical tests according to the EN60204 standard
- Check of correct protection and safety operation
- Check of correct electronic controller operation
- Performance and electrical data measurement

EASY MAINTENANCE

The CWE/HWE series has been designed and built to facilitate inspection and maintenance. The hoods are easily removable, offering immediate access to system components. The clear arrangement of the components, the simplicity of the refrigerant and hydraulic circuit plus the electrical system's cable numbering, assist the users normal operating schedule.

