



**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

WATER CONNECTIONS

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GENERAL

- For correct design and subsequent installation, follow local regulations and the safety standards in force.
- Install shut-off valves near parts that require maintenance, so as to allow such parts to be replaced without having to empty the system.
- Temperature and pressure indicators should be installed at the inlet and outlet of the exchangers; these will help the routine checks and maintenance on the assembly.
- A mesh filter should be installed on the pump intake, to protect the pump and the exchangers against foreign material.
- Carefully check that there are no leaks in the pipes when filling the system.
- The flow switches, although not supplied with the unit, being components of the system, must be fitted. For correct operation they must be installed in a straight section of pipe whose length is at least 10 times the diameter of such pipe.

CHILLED WATER CIRCUIT (EVAPORATOR)

The pipework must be designed with the smallest possible number of variations in height. Fit automatic or manual vent valves at the highest points of the chilled water pipes, so as to allow any air to be released from the circuit. The system can be kept at the correct pressure using an expansion vessel or a combined pressure reduction-discharge valve. All the chilled water pipes must be insulated so as to prevent condensation along the pipes. Check that the insulation is a water vapour barrier. The insulation must be applied to the pipes after having checked for any leaks. The air relief and drain connections should protrude outside of the insulation for easier access.

IMPORTANT: IF THE UNIT IS INSTALLED IN A SITE WHERE THE ROOM TEMPERATURE MAY FALL BELOW ZERO, AN ANTIFREEZE HEATER OR GLYCOL SOLUTIONS SHOULD BE USED.

THE UNITS FEATURE VICTAULIC CONNECTIONS.

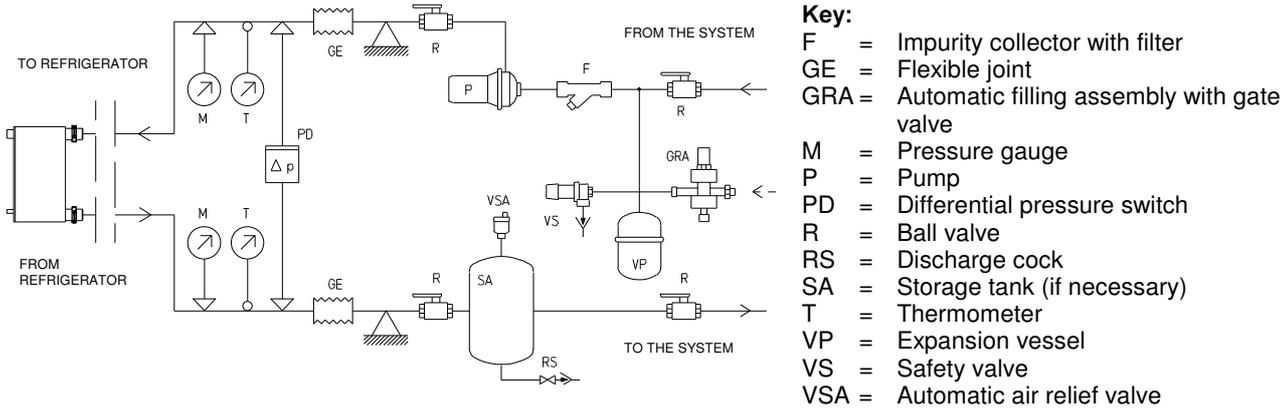
MODALITA' DI COLLEGAMENTO: (vedi dimensionale nella sezione generale)

- Remove the connection fitting supplied by acting on the Victaulic coupling.
- Connect the evaporator to the pipeline using the Victaulic coupling.

IMPORTANT

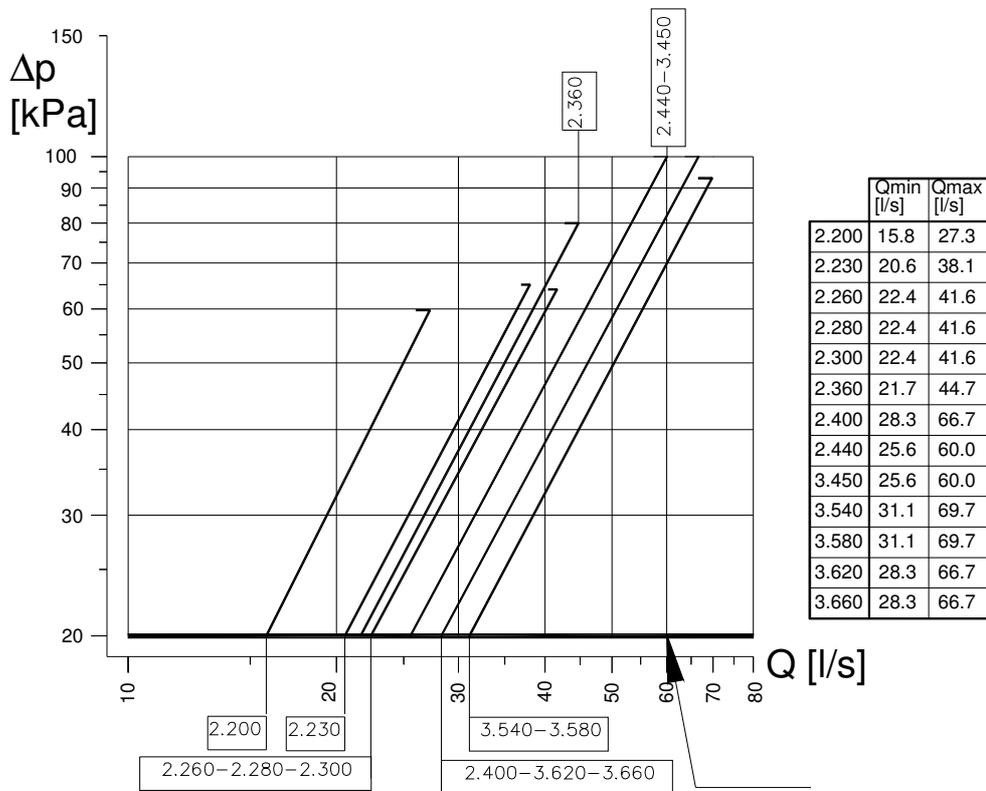
DO NOT WELD THE PIPEWORK AND THE EVAPORATOR CONNECTION PIPE IF THE VICTAULIC COUPLING IS STILL CONNECTED. ITS RUBBER GASKET COULD BE IRREPARABLY DAMAGED

EVAPORATOR CIRCUIT WATER CONNECTION DIAGRAM



NB: The diagram shown is purely indicative and not binding

EVAPORATOR PRESSURE DROPS



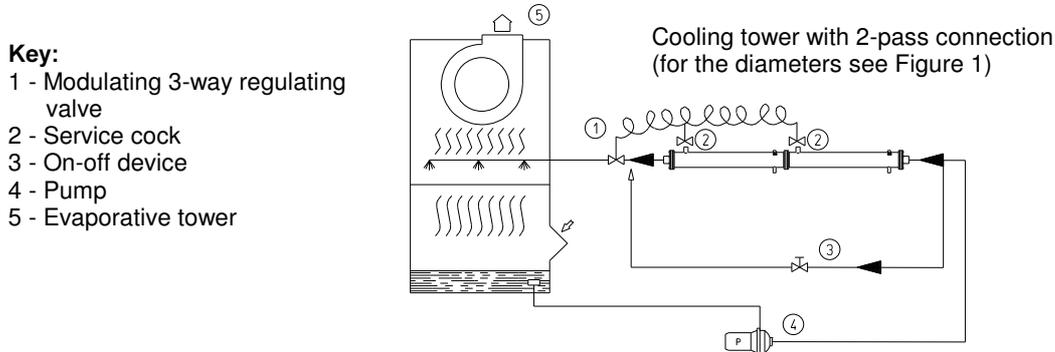
COOLING CIRCUIT (CONDENSER)

The heat absorbed by the water in the condenser can be disposed of in a number of ways. The most common systems are:

- evaporative towers
- well water

USE WITH EVAPORATIVE TOWERS

The most commonly-used system is the cooling tower. These ensure limited consumption of mains water, which is used only to make up for the amount of water that is evaporated.



CONTROL OF CONDENSING PRESSURE WHEN USING AN EVAPORATIVE TOWER

These systems are designed to maximise their cooling capacity. In certain atmospheric conditions the condensing temperature may fall to values that would compromise the correct operation of the thermostatic expansion valve (the condensing temperature must not be lower than 27/28 °C). In these cases, it is very important to create a bypass system for the exchanger using a pressure equalizing valve as shown in the figure. Another method involves modulating the capacity of the tower by adjusting the fan speed.

IMPORTANT: THE MODULATION OF THE WATER IS A VERY DELICATE OPERATION. IT IS RECOMMENDED TO CONTACT THE MANUFACTURER OF THE TOWER TO PREVENT THE TOWER FROM FREEZING.

USE WITH WELL WATER

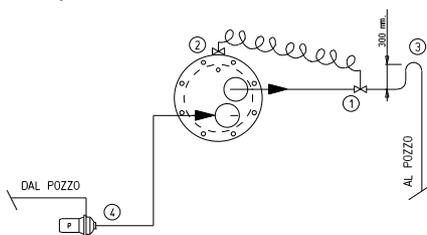
When water is available in sufficient quantities the heat absorbed by the condenser can be disposed of using well water.

CONTROL OF CONDENSING PRESSURE WHEN USING WELL WATER

As in the previous case, it is very important to maintain the condensing temperature as constant as possible, preventing it from falling below the set values. Fit, as shown in the figure below, a pressure-type valve that can modulate the flow of water according to the actual needs of the condenser. When the system is off, the valve must be closed. If such a valve is not fitted, to prevent the condenser from emptying, when the system is off, install a drain trap as shown in the figure.

This also prevents dirt from entering the exchanger when the water is filled and discharged.

On units with 2 condensers in line and 2 refrigerant circuits, the flow of water is in common and thus the pressure switches are installed in parallel.



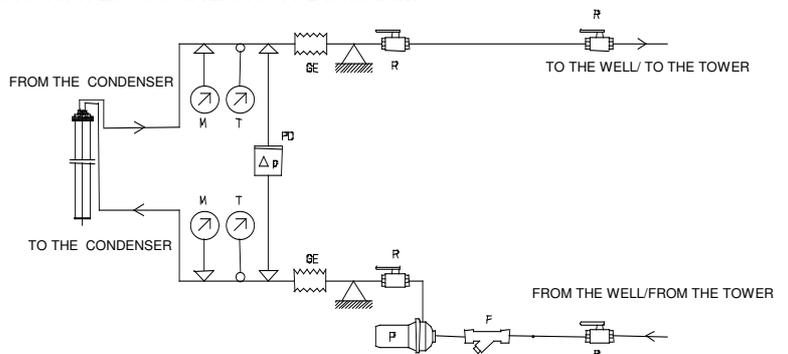
Use with well water, with 4-pass connection
(for the diameters see dimensional drawings in the general section)

- Key:**
- 1 - Pressure switch
 - 2 - Service cock
 - 3 - Drain trap
 - 4 - Pump

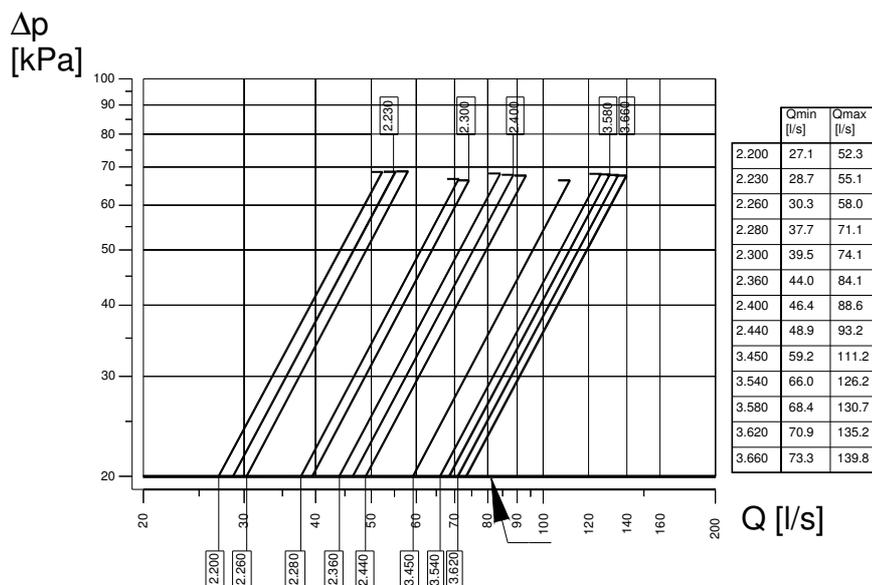
CONDENSER CIRCUIT WATER CONNECTION DIAGRAM

Key:

- F = Impurity collector with filter
- GE = Flexible joint
- M = Pressure gauge
- P = Pump
- PD = Differential pressure switch
- R = Ball valve
- T = Thermometer

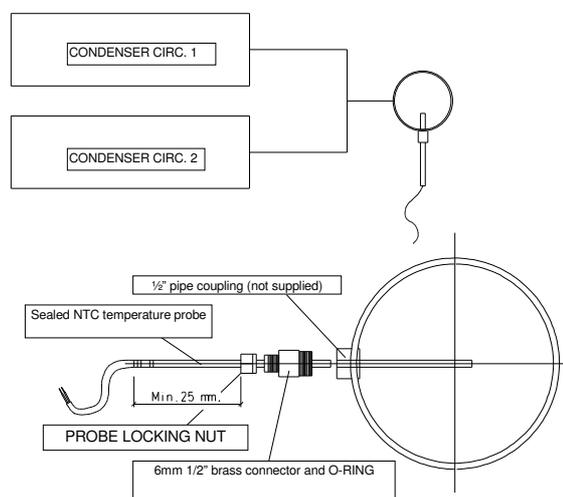


CONDENSER PRESSURE DROPS



TEMPERATURE PROBES BT3-BT4 UNIT WSHH

These probes, and the corresponding connectors, are supplied with the unit and must be fitted as specified in the drawing shown to the side.

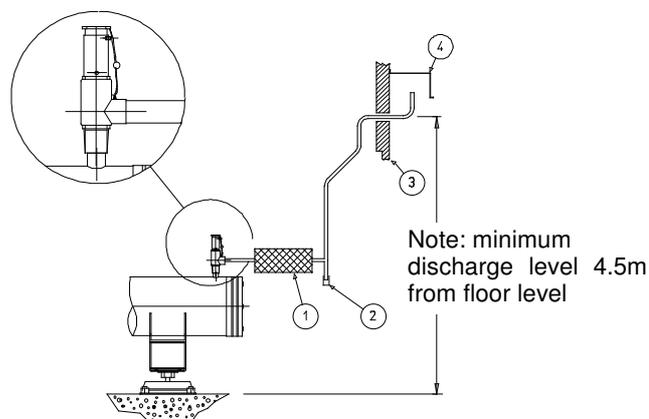


SAFETY VALVE TUBING

The safety valves must be installed on the recipients or on the tubing connected to the recipients in the areas occupied by the gas, either under high or low pressure.

It is good practice, where no specific standards apply, to size discharge pipes so that pressure drop along the pipes does not exceed 10% of the calibration value of the safety valve at full flow. To avoid danger to persons, the connection pipes must not be less than 4.5 metres from floor level, and not less than 6 metres from any window, ventilation openings or other outlets in the building.

- Fit a rain cover on the outlet of the pipe and a condensate drain in the lowest point.
- Use flexible pipes to eliminate stress on the valves.
- When two or more appliances are connected together, a connection manifold can be used. The minimum dimension of the connection manifold and the discharge pipe must not be lower than the sum of the surface area of the outlet connection of the valve for inspection and replacement.



Key:

- 1 - Flexible pipe
- 2 - Condensate discharge
- 3 - Outlet
- 4 - Rain cover