

REVERSIBLE WATER CHILLER



Experimental capabilities

- Identification of the components of a water chiller unit
- Commissioning and adjusting
- Verification of system operation
- Study of the thermodynamic cycle of the refrigerant
- Evaluation of coefficients of performance
- Energy balances to the exchangers.

Operating principle

The bench GEG 106 allows the study of a system of an industrial water chiller. It consists of a reversible water chiller DAIKIN, of a water tank and instrumentation required for the complete system study.

Students will identify the different components of system (refrigerant and water) and then do the commissioning of the system. They can then make measurement readings to verify its proper operation and calculate the powers

The robust design of this device makes it suitable for use in schools.

The equipment is set up on an anodized aluminium frame on castor wheels. This gives it great strength and a flexibility of integration into your premises. The manufacture of this equipment complies with the European standard for machinery manufacturing. This equipment can be used alone or with other compatible equipment from our range (see last section of this document).

Technical details

Reversible water chiller unit

- Cooling capacity: 9kw
- Heating capacity: 10.9kw
- Hermetic scroll compressor with inverter speed variation
- Condenser fan with variable speed
- Electronic expansion valve
- Cycle reversing valve
- Plate exchanger and water circulating pump
- Water filling valve with gauge
- Fluid R410a
- Transparent screens to view inside the system
- Fluorescent lamps for lighting inside
- Digital controller for the management of operation modes and of the setpoint temperature

Buffer tank

- Material: Steel
- Volume : 25L
- Automatic air vent at the highest point
- Blue protection jacket
- Drain valve at the lowest point

Instrumentation

- A water float flowmeter 160-1600 L/h
- A dial thermometer on the start 0-60°C
- A dial thermometer on the return 0-60°C
- A water pressure gauge 0-4 bars
- Low pressure gauge R410A with dual scale temperature / pressure -1/36 bars
- High pressure gauge R410A with double scale temperature / pressure -1/36 bars
- A portable thermometer with contact probe and room sensor

Water connection towards other units

- Two self-sealing quick connectors

Structure

- The water chiller is installed on an anodized aluminum profile frame with four swivel castors with brake

Services required

- Electrical supply : 400 Vac – 50 Hz – 20 A
- Electrical network: 3 phase(s) + Neutral + Earth.
- Water supply : filling – 2 bars
- Dimensions : (LxWxH mm): 2100 x 500 x 1700
- weight (Kg): 250

Note : if the equipment installation is operated by our staff, all supplies and exhaust connections required must stand at less than 2m from the machine

Documentation

- User's manual
- Pedagogical manual
- Technical documentation of the components
- Lab exercises
- Certificate of conformity CE

Recommended equipment

- Air conditioning unit with instrumentation
- Heater 33KW
- Fan convectors
- Ref : CRA546
- Ref : AER033
- Ref : TCF124