# Refrigeration

IWC is an expert thermal solutions provider with an extensive range of chillers for all processes and industries.

As a niche cooling solution specialist, we provide solutions for data centres and HVAC applications, requiring a minimum cooling capacity of 750kW.

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# Refrigeration

As the sole distributor for ENGIE Refrigeration systems in South Africa, we are thrilled to provide a range of chiller systems for every process.

The QUANTUM series of high capacity chillers offer impressive solutions for each refrigeration application and can be individually tailored to ensure that every customer gets exactly the refrigeration they require. Liquid-cooled oil-free turbo chillers for inside installation. Delivered fully pre-assembled and filled with refrigerant. Manufactured as a compact modular unit in line with the following standards: 2014/68/EU, 2006/42/EC, EN ISO 12100, EN 378-2.

## Components

### Frame
The heat exchanger supporting frame consists of two side parts with integrated lifting eyes for transport by crane. The two side parts are screwed together using hollow sections in line with the DIN 10210. To prevent thermal stress, the apparatus is integrated into the frame using a fixed bearing and a floating bearing with expansion spring. Designed with thermal decoupling between the evaporator and the frame in order to prevent condensation build-up.

### Turbo Compressor
Two-stage, low vibration radial turbo compressor with semi-hermetic design, equipped with a contact-free magnetic bearing for the shaft, with emergency system, vertically separated gas-tight housing and aluminium impellers. The connections on the coolant side must contain shut-off fittings. This allows each compressor to be shut off from the coolant side and be maintained independently while the chiller is operating. Each compressor is decoupled with four vibration elements.

- Magnetic Bearing
- Electric Motor
- Capacity Control
- Automatic Start-up
- Protection

### Evaporator
Features of construction are a horizontal shell and tube heat exchanger with internal gravitational separator. The tube bundle is protected from sagging and vibration by protective baffle plates in the tube bundle. The shell design includes water boxes (head) with front facing water connections that are removable for mechanical cleaning the bundles and water box. The evaporator is equipped with a sight glass and additional nozzles ports with shut-off valves for pressure sensors, filing and draining the heat exchanger.

### Condenser
Features of construction are a horizontal shell and tube heat exchanger with internal gravitational separator. The tube bundle is protected from sagging and vibration by protective baffle plates in the tube bundle. The shell design includes water boxes (head).

With front facing water connections that are removable for manually cleaning the bundles and water box. The condenser is equipped with additional nozzles ports with shut-off valves for pressure sensors, filling and draining the heat exchanger.

### Expansion valve
High quality, motorised expansion valve for infinite adjustment to the refrigeration capacity requirement. The valve has a visual position display to enable monitoring of the control function. To ensure fast restoration of the refrigeration system, the electricity drive can be removed from the valve body without opening the refrigeration circuit. When the chiller is at a standstill, the valve is closed.

### Piping and valves
The refrigeration circuit is made of brazed copper and steel piping comprising suction-side and discharge-side shut-off valves for each compressor. The cooling line of each compressor contains a filter drier and a ball valve.

### Insulation
All low temperature vessels and pipework receive thermal insulation. The suction line(s), evaporator and injection line receive 10-mm-thick insulation of highly flexible closed-cell foam with synthetic rubber base. This insulation is ideal for high water-vapour diffusion resistance and has a low thermal conductivity condensation. Max. ambient temperature: +40°C, relative humidity (max.) 60%.

### Switch Cabinet
Switch cabinet with 1.5mm thick steel designed in protection class IP54. Sheets are electrophoretically primed and powder coated with textured polyester powder 7035. The switch cabinet is equipped with shockproof socket for connecting a programming device. Proof of a switch cabinet climate calculation designed for an ambient temperature of 40°C must be provided.

## Advantages

Cost effective and low operation costs

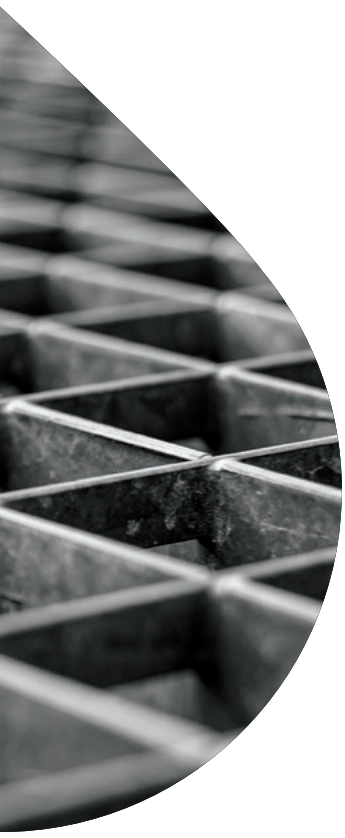
Steady cooling medium temperature with high control accuracy

Flexible usage, suitable for numerous areas, e.g. data centres, hospitals or office buildings

Energy efficient and environmentally friendly due to reduced CO2 emissions.

Soft start up and minimal noise and vibration

Oil free, compact with low space requirement



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