

STAR'S FREECHILLER PROVIDES FREE COOLING SOLUTION

Freechiller from Star Refrigeration provides unrivalled efficiency for medium to large scale elevated water chilling applications (e.g. data centres). As ambient temperatures fall below the return water temperature 'free cooling' is available by 'thermosyphon' circulation of refrigerant around the chiller without running compressors.

Freechiller annualised Coefficient of Performance (COSP's) ranges between 10 to 15, depending on design temperature, chiller configuration and method of heat rejection. Generously sized heat exchangers coupled to high efficiency compressors and motors all contribute to reduce power consumption.



Freechiller plantroom packaged unit

Freechillers have a robust industrial construction using high integrity components that ensure a plant life in excess of 20 years. Studies of **Freechiller** installations have shown Life Cycle Costs typically 55% of standard chilled water systems using packaged air cooled HFC chillers. Additionally, use of ammonia allows the installation to be 'future-proofed' and avoids the risk of uncertainty about future use of HFC synthetic (global warming) refrigerants.



Freechiller remote air cooled condenser

Major financial and government institutions have deployed **Freechiller** systems for over 20 years to provide efficient, reliable cooling in their data centres. These sites have a high continuous base heat load 24/7, which benefit from low energy consumption and unrivalled resilience Star's **Freechiller** delivers. Over 3,000,000 operation hours have been attained without loss of cooling.



Freechiller three- way valve

The chillers are typically connected in series in the water circuit to allow them to change operating mode and run independently for optimum system efficiency. The switch to thermosyphon operation is made by simply rotating a 3-way ball valve on the refrigerant side to bypass the compressor. Telstar control system manages this transition automatically and maximises the system run hours in 'free-cooling' mode. There is no need for large water diverting valves and additional heat exchangers that are incorporated into other 'free-cooling' chillers. Offsite monitoring of the system can also be provided.

The water circuit has the chillers connected in series to allow each unit to change operating mode when ambient temperatures allow. Standby chillers are normally installed which act as back up mechanical capacity when required and also enhance the annual 'free-cooling' run hours.

Individual **Freechiller** capacities start from 300kW, with large multiple chiller systems up to 5MW installed. Air cooled and evaporative condensers are available. The wet cooling systems are best suited to larger chillers with space constraints and offer the largest energy savings. Freechiller has low maintenance requirement since they have less compressor run hours than standard chillers.

Star Refrigeration is the UK's largest independent industrial refrigeration engineering company. Star focuses on the design, manufacture, installation, commissioning and maintenance of industrial refrigeration systems.

Star offers a turnkey package to all users of refrigeration plant. Established in Glasgow in 1970, the company provides fast response 24-hour technical support from a network of nine branches to customers throughout the UK.

Star's technical advisory arm, Star Technical Solutions (STS), operates as an independent consultancy providing advice on refrigeration engineering issues. Star also owns food freezing and chilling equipment specialist Starfrost, as well as mechanical and electrical contractors Penec.

				
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