

PIOVAN

Customers. The core of our innovation

FreeCooling™





FreeCooling™

Piovan FreeCooling is the fast and effective way to reduce your energy costs and your carbon footprint on refrigerated, process water cooling applications.

It's the smart choice for both the environment and your company's finances. Return on investment is outstanding, with payback in as little as six months.

There are also interest free loans available from The Carbon Trust for qualifying companies, which allow payback at the same rate as the savings.

By using Piovan's FreeCooling technology, you can save massive amounts of energy compared to the traditional use of refrigerated equipment, especially during autumn, winter and spring. This is achieved by utilising Piovan's low energy, dry air cooler and FreeCooling technology which can partially or fully offload the chiller depending on ambient air temperature (see graph).

Piovan have developed this comprehensive and fully automated FreeCooling package for easy installation on all chilled water systems.

Existing installations can also benefit from the same significant energy savings by retro-fitting Piovan's FreeCooling technology.

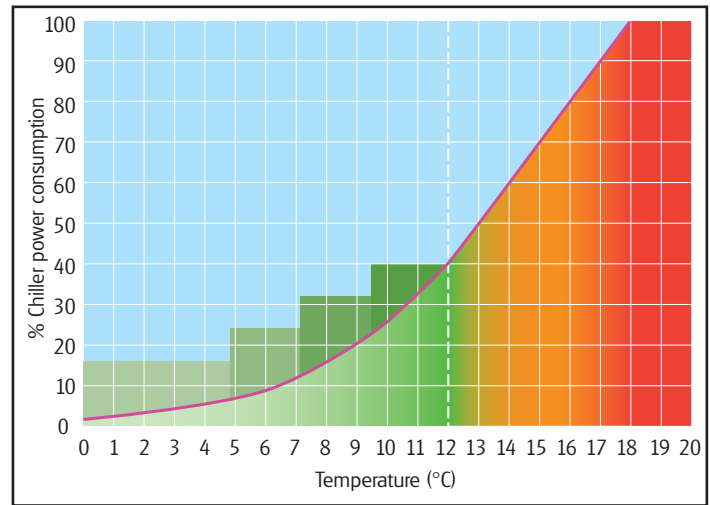
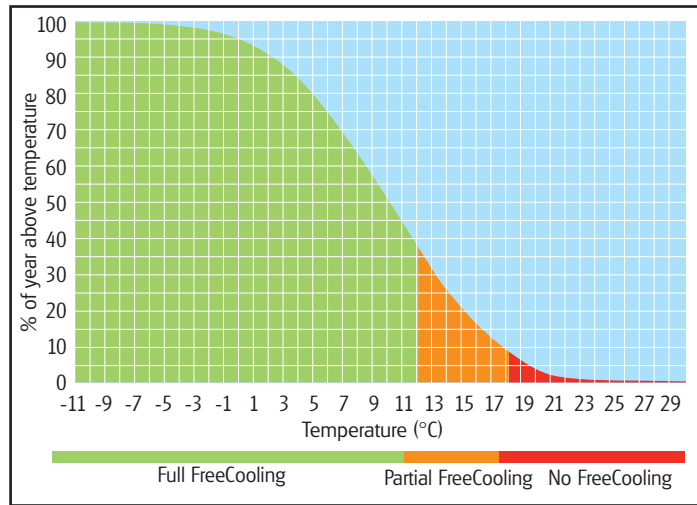


Piovan FreeCooling - short payback and continual energy saving

- Reduced energy consumption
- Lower carbon footprint and improved 'green profile'
- Coefficient of performance equivalent to between 18 and 40
- Payback from as little as 6 months

- Substantial year on year savings
- Extended chiller lifespan and potential reduced servicing costs
- Possibility of no initial cap-ex with Carbon Trust Loan*
- Improved profit margins

*Subject to qualification



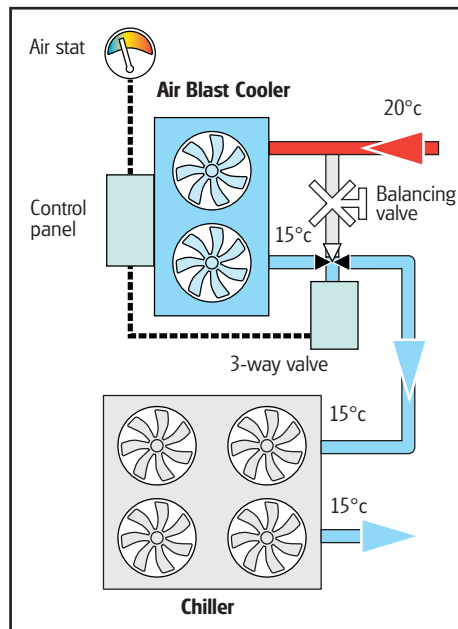
Average annual temperature distribution to demonstrate FreeCooling technology

Research* clearly shows that the larger part of the year benefits from FreeCooling, (green is where the chiller is inactive and orange is where there are still significant savings with partial FreeCooling). There is only a very small part of the year where no FreeCooling can be offered and the chiller operates without help from the air blast cooler.

*Temperature records taken from Coleshill, West Midlands, United Kingdom

Relative power consumption when using FreeCooling technology

This clearly shows the relative power consumption of Piovan's FreeCooling technology and air blast cooler, operating from 0°C to 20°C ambient air temperature, compared to that of a chiller. Please note that both stage control and inverter control are shown, (inverter represented by the curved line). Piovan's FreeCooling technology can also be fitted retrospectively to existing air blast coolers.



Full FreeCooling

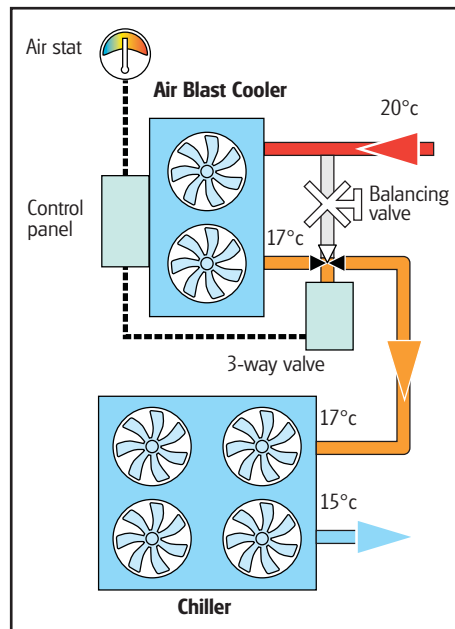
Total power consumption 10.4kW
Power saving 83%

150kW Air Blast Cooler

Cooling load 150kW
Power consumption 10.4kW
12°C ambient air temperature

150kW Chiller

Cooling load 0kW
Power consumption 0kW
12°C ambient air temperature



Partial FreeCooling

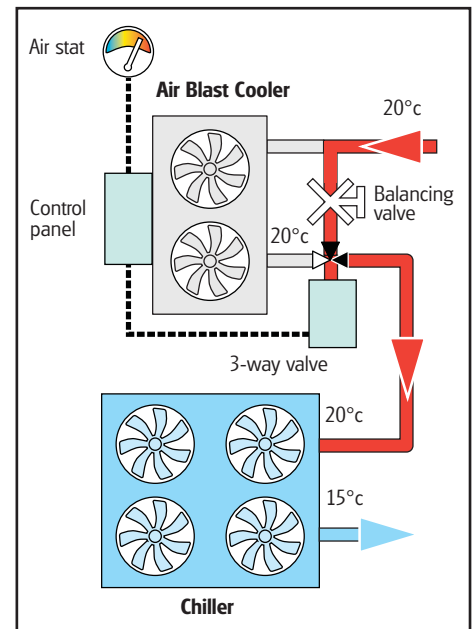
Total power consumption 34.4kW
Power saving 43%

150kW Air Blast Cooler

Cooling load 91kW
Power consumption 10.4kW
15°C ambient air temperature

150kW Chiller

Cooling load 59kW
Power consumption 24kW
15°C ambient air temperature



No FreeCooling

Total power consumption 60kW
Power saving 0%

150kW Air Blast Cooler

Cooling load 0kW
Power consumption 0kW
18°C ambient air temperature

150kW Chiller

Cooling load 150kW
Power consumption 60kW
18°C ambient air temperature

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