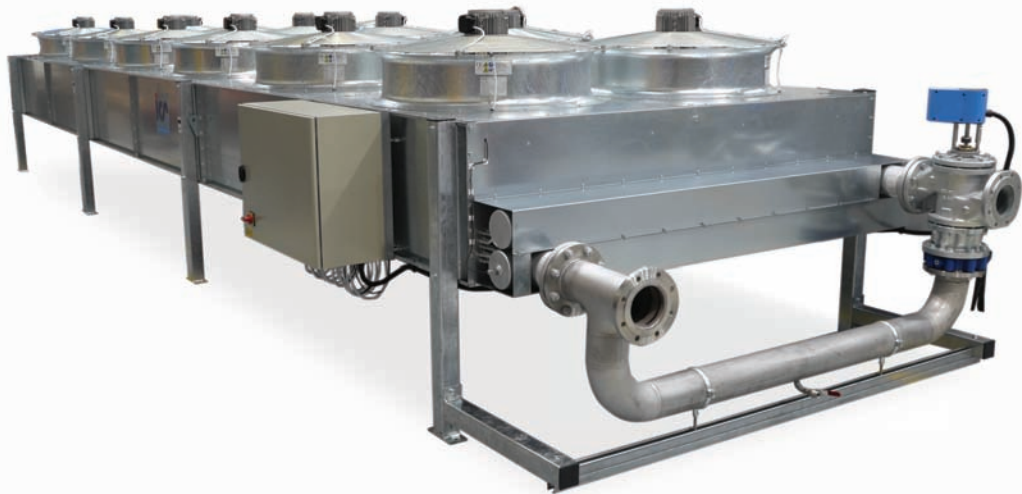


# PIOVAN

*Customers. The core of our innovation*



## Piovan Cool Energy FreeCooling™

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

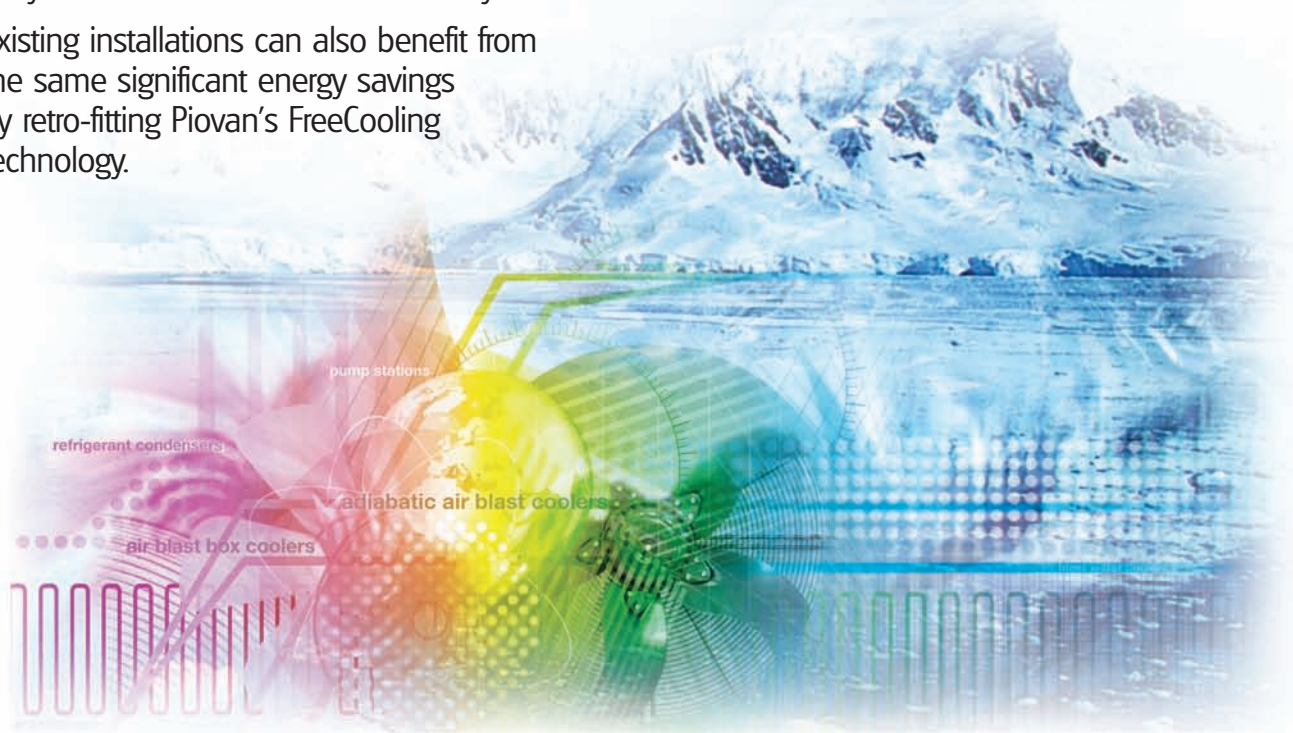
It's the smart choice for both the environment and your company's finances. Return on investment is outstanding, with payback in as little as six months. There are also interest free loans available from The Carbon Trust for qualifying companies, which allow payback at the same rate as the savings.

By using Piován'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 Piován's low energy, dry air cooler and FreeCooling technology which can partially or fully reduce the chiller depending on ambient air temperature (see graph A, overleaf).

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 Piován's FreeCooling technology.

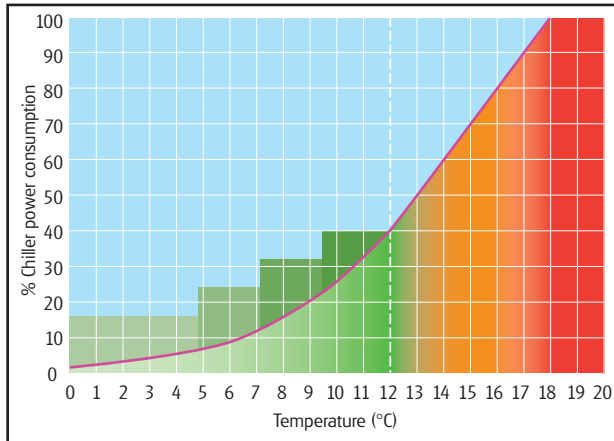
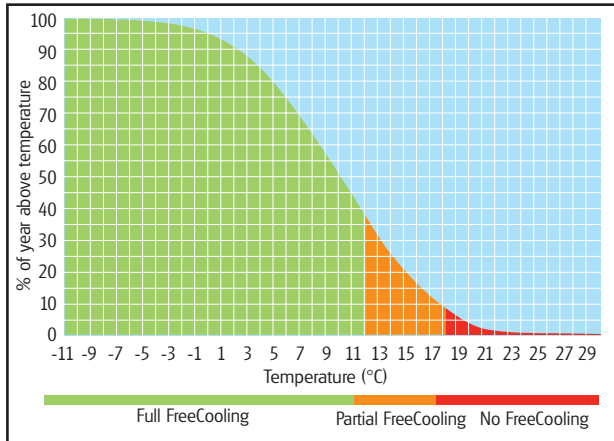
Energy Savings



# 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
- No cost - interest free loans from The Carbon Trust\*
- Improved profit margins

\*Subject to qualification



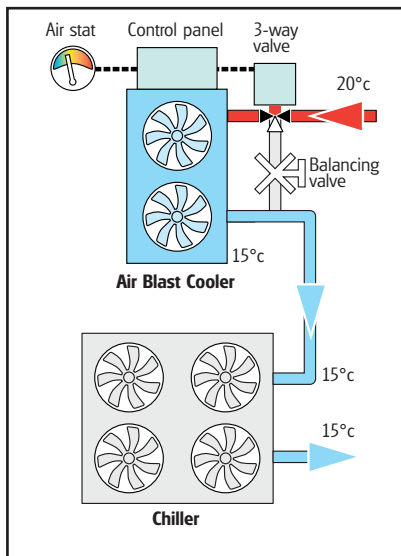
## Average annual temperature distribution to demonstrate FreeCooling technology

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

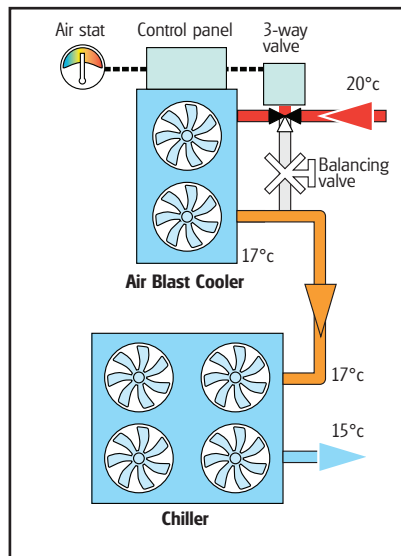
This clearly shows the relative power consumption of Piovan's FreeCooling technology and air blast cooler, operating from 0°C to 20°C ambient air temperature, compared to that of a chiller. Please note that both stage control and inverter control are shown, (inverter represented by the curved line).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

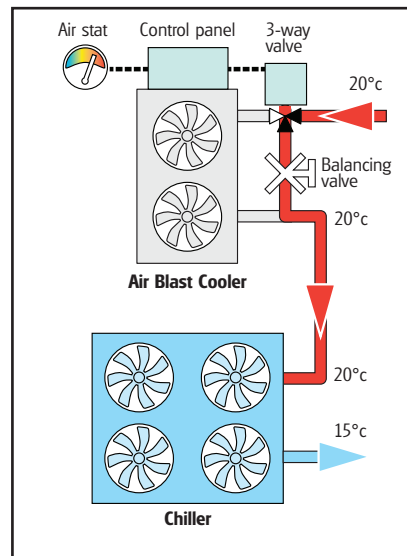
**150kW Chiller**  
Cooling load 0kW  
Power consumption 0kW  
12°C ambient air temperature



**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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