

Winner of:

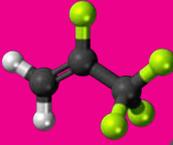


THE CIBSE LOW CARBON PERFORMANCE AWARDS | 2010



Now available with HFO - the leading green refrigerant

**HFO**  
EFFICIENT, SAFE, CLEAN



 **Turbomiser**<sup>TM</sup>

# Cut your cooling energy costs

Cut running costs | reduce emissions | increase profits

Ultra-efficient chiller technology  
...now with super green HFO refrigerants



**THE MULTI AWARD-WINNING CHILLER**



## Introducing...

The Turbomiser chiller is a new type of high efficiency chiller that can cut your cooling energy bill in half.

On project after project, it delivers consistent and documented savings. The savings start on day one, and keep going, year after year, throughout the life of the plant.

The technology is proven in hundreds of applications across the country.

## What Turbomiser gives you

- Lower running costs – up to 55per cent less
- Reduced carbon emissions
- Lower servicing costs
- Reduced noise
- Improved reliability and comfort

## Award-winning technology

Turbomiser is based on award-winning technology that uses virtually frictionless magnetic bearings, to dramatically cut energy use. It is the winner of CIBSE's most prestigious technology award, for Low Carbon Innovation 2010.

It is based on the ground-breaking Danfoss Turbocor compressor, a compact centrifugal compressor that is changing the face of compressor design.

As well as its ultra efficient performance, due to its advanced design and stepless control the Turbomiser improves comfort levels and productivity in buildings.

And, with its oil-less magnetic bearings, service and maintenance costs are dramatically reduced.

## Leading companies use Turbomiser

Major companies use Turbomiser to cut their building running costs and improve comfort conditions.

These include Hilton Hotels, Royal Mail, Oxford University, the MoD, Skandia, Photonics and Colt, to name a few.

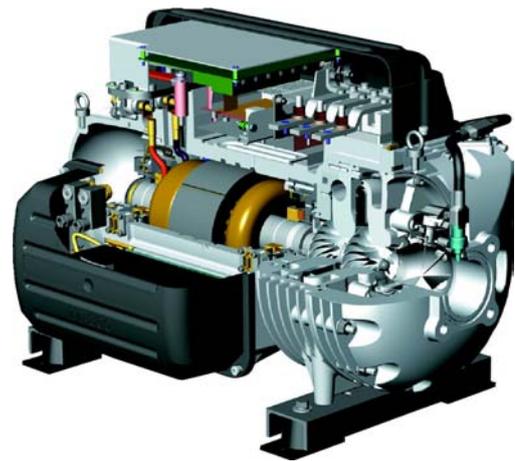
Their experience has proven that Turbomiser delivers serious and sustained savings in running costs, and provides a high quality environment for customers and staff.

## Turbomiser options

The chiller is available in a number of formats to suit all kinds of applications. These include:

- Air-cooled
- Water-cooled
- Split, with high efficiency remote air-cooled condensers
- Condensing units
- Turbomiser "Breeze" packaged air handling unit

## The advanced technology at the heart of the Turbomiser



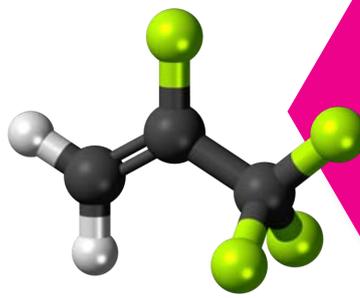
The Turbomiser chiller uses a combination of high efficiency technologies, harnessed together with a sophisticated adaptive control system that integrates and optimises performance.

The cutting edge technology includes:

- 1. The Turbocor compact compressor:** running on virtually frictionless magnetic bearings, this oil-less compressor delivers dramatic energy savings and reduced service and maintenance costs.
- 2. Micro-channel aluminium condenser:** reduces refrigerant charge while increasing the effectiveness of heat exchange.
- 3. Total immersion evaporator:** ensures optimum energy transfer between the refrigerant and water.
- 4. Integral inverter-control:** precisely matches output to cooling load, to deliver excellent comfort conditions, operational stability and reduced energy consumption.
- 5. EC fans:** Ultra high efficiency fans for variable speed duties.
- 6. Digital evaporator liquid level control:** Both the electronic expansion valves and refrigerant level sensors work simultaneously to control refrigerant volumes to within 0.1% accuracy.

## Cutting edge components for energy efficiency

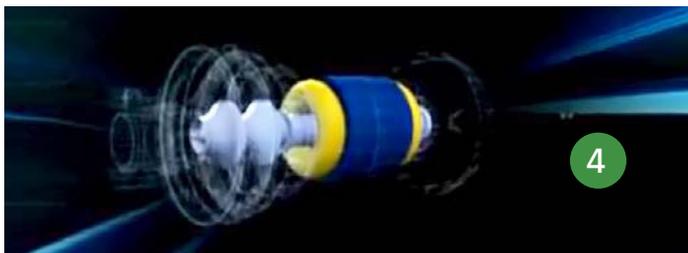
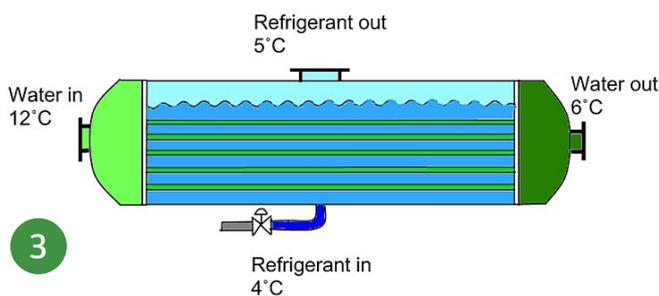
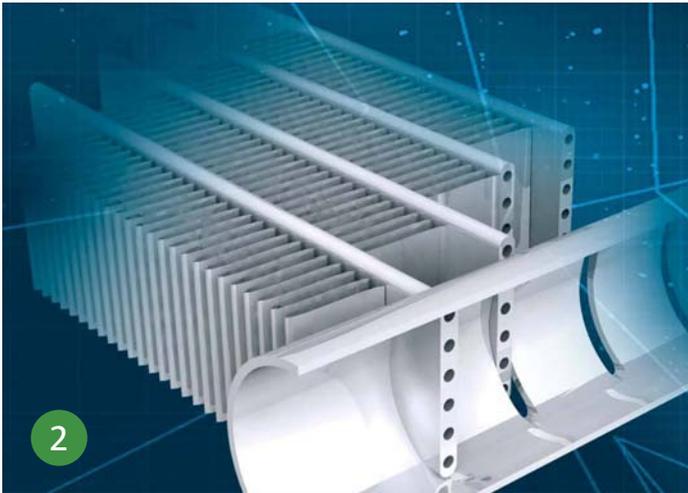




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## The heart of Turbomiser



## High efficiency and long life



High efficiency EC fans (left), Electronic Expansion Valves (EEVs) and digital evaporator liquid level controls from leading manufacturers are used on the Turbomiser chiller from Cool-Therm

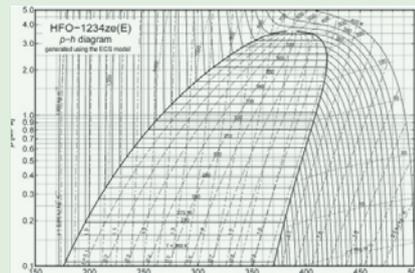
## New HFO refrigerant offers best all-round solution

Cool-Therm's new generation of ultra green Turbomiser chillers is based on the latest HFO refrigerants.

We believe the chillers, which run on a refrigerant known as HFO1234ze, offer the best solution to the twin requirement for improved energy efficiency and reduced environmental impact.

HFO1234ze has a Global Warming Potential of just 6 compared with 1300 for the common HFC refrigerant R134a. It is effectively 217 times less damaging than today's mainstream refrigerant, making it much more environmentally responsible.

When coupled with the inherent energy efficiency of Turbomiser, it offers end users a proven solution, delivering reduced carbon emissions, lower running costs and safeguarding the environment.



Now that the cost of HFO refrigerant has fallen in line with other gases, we believe the new refrigerants will begin to displace sales of equipment based on more harmful gases.

The launch of the HFO Turbomiser coincides with the introduction by the European Union of new proposals to control and phase down usage of high global warming refrigerants, such as HFCs.

This latest development with HFO refrigerants offers "a dream ticket", with a combination of proven energy savings, reduced service and maintenance costs and ultra-low Global Warming Potential.

**OUR VERDICT:** With continuing rises in energy prices, pressure to reduce carbon emissions and the legislative threat hanging over HFCs, we believe the HFO-based Turbomiser offers an excellent long term solution for industry and end users.



## Achieving 50 per cent energy savings for Photonics

Two Turbomiser chillers are cooling high power lasers and clean rooms at Photonics' high-tech production facility in South Wales.

The recent installation, carried out by Cool-Therm at Photronic's Bridgend facility, involves two model TMA300 Turbomiser chillers, rated at 300kW each, which replaced aging Trane and Climate units running on R22 and the interim refrigerant R79.

Since the Turbomisers were installed, energy consumption for cooling at the plant has been halved.

With a constant process load throughout the year, this is anticipated to give a pay-back on the project in less than two years.

Patrick Silman, who heads up the process facilities at Photonics, said: "The project has been handled superbly by the Cool-Therm team from start to finish. The installation has delivered everything promised – and more. In terms of both energy efficiency and noise, the Turbomisers are absolutely excellent.

"We are monitoring energy use carefully and are on schedule to save some £170,000 within two years on power costs alone."



## Cool-Therm Turbomiser chiller delivers high efficiency cooling

In a recent project, Cool-Therm worked closely with staff at flexible packaging manufacturer, Amcor Flexibles Winterbourne, to replace one of the existing chillers at the site, after it had reached the end of its operational life.

Cool-Therm has worked with Amcor Flexibles Winterbourne for more than 20 years, installing and servicing three large chillers at the company's manufacturing facility on the outskirts of Bristol. During this time, Cool-Therm has ensured the chillers remain in tip-top condition and perform reliably to deliver the continuous chilled water required by the plant's plastics extrusion machines.

Andreij Duma, Operations Director at Amcor Flexibles Winterbourne, said: "Cool-Therm anticipated a 20 to 25 per cent energy saving with the introduction of Turbomiser. However, the performance over the first six months looks even better than this, and the latest figures show a saving of just under 50 per cent."

"This is an impressive result and we appreciate Cool-Therm's expert assistance and support in this project and over many years at the facility," added Andreij Duma.



### We hold the following accreditations:

- All engineers qualified under F-Gas and Safe Refrigerant Handling requirements
- Chas Contractors H&S scheme
- Full REFCOM registration
- safecontractor
- BS-EN-ISO 9001 : 2008 Quality Management System
- ISO 14001 : 2004 Environmental Management System
- Waste Carrier Certification
- B&S Member
- Carbon Trust Accredited Supplier



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