

Reference List

DATA CENTERS



IMPROVING EFFICIENCY IN DATA CENTERS



Data Centers consume significant amounts of energy to cool their servers and support equipment, and operators are constantly seeking ways to reduce power consumption while improving reliability.

Chillers are widely used in data centers, often with one or more backup units to minimize the risk of shutdowns caused by overheating.

Our chillers provide the ideal solution thanks to their exceptional **reliability**, **efficiency**, and **low maintenance** requirements.

Given the consistent heat load in data centers throughout the year, the energy and carbon savings achievable with our chillers are remarkable.

In many cases, **50% energy savings** can be easily achieved when Geoclima chillers are installed.

UNITS

Place	Model	kW - TR	Description	N.
Confidential	TFC – T 420/34/TP	720 kW 204.7 TR	Free cooling air-cooled chiller with oil-free centrifugal compressors	1
Confidential	TMA 550/34/FC/PU	1650 kW 469.2 TR	Free cooling air-cooled chiller with oil-free centrifugal compressors and pump	3
Confidential	TMA 2A600A AC PU/134	600 kW 170.6 TR	Air-cooled chiller with oil-free centrifugal compressors and pump	1
Confidential	TMA 340/34/FC	1020 kW 290 TR	Free cooling air-cooled chiller with oil-free centrifugal compressors	3
Colt Data Center, London	TMA 2A 600A EC	3300 kW 938.3 TR	Air-cooled chiller with oil-free centrifugal compressors	6
Data Center, London	TMA 850/34/LPA	1800 kW 511.8 TR	Air-cooled chiller with oil-free centrifugal compressors and LPA system	4
Data Center for Barkley, London	TMA 1400/34/LPA	16,800 kW 4777 TR	Air-cooled chiller with oil-free centrifugal compressors and LPA system	12
Confidential	TSA 1A275B EC	7425 kW 2111.3 TR	Condensing unit with air-cooled condenser and oil-free centrifugal compressors	27
	TSA 1B340B EC	9180 kW 2610.3 TR		27
Confidential	TSA 1B340B EC SP	680 kW 193.4 TR	Condensing unit with air-cooled condenser and oil-free centrifugal compressor	2
Lloyds of London Data Center, Sittinbourne	TMA 4A1000 EC 34	1000 kW 284.3 TR	Air-cooled chiller with oil-free centrifugal compressors	1
Vodafone Data Center	TMA 1B400B EC K	1275 kW 362.5 TR	Air-cooled chiller with oil-free centrifugal compressors	3
Commonwealth Bank of Australia, Melbourne	TMA 2A660A LLN ES EC FC-34	5026 kW 1429.1 TR	Free cooling adiabatic air-cooled chiller with oil-free centrifugal compressors	7

Place	Model	kW - TR	Description	N.
Norwest Data Center	TMA 2B850B ES EC FC-34 K TP	7560 kW 2149.6 TR	Free cooling adiabatic air-cooled chiller with oil-free centrifugal compressors	6
Great Sutton Street London	VHH C 138/01/SP	Cooling: 387 kW 110 TR Heating: 384 kW 109.2 TR	Water-cooled chiller with scroll compressors	3
Kings Cross Bldg E1	TMA 1A 320A EC-34LN-SP	320 kW 91 TR	Air-cooled chiller with oil-free centrifugal compressor	1
Nottingham University	VHR F 2V15ZE	60 kW 17.1 TR	Air-cooled chiller with reciprocating compressors and radial fans	1
St. James Market	TMA 2A550A EC	1150 kW 327 TR	Air-cooled chillers with oil-free centrifugal compressors	2
	TMA 2B700B EC	2100 kW 597.1 TR		3
Global Connect, Denmark	TMA 1W260A EC-ZE	1205 kW 342.6 TR	Air-cooled chillers with oil-free centrifugal compressors	5
	TMA 1W200A EC-ZE PU	400 kW 113.7 TR	Air-cooled chillers with oil-free centrifugal compressors	2
Australia	TMA 2B1000B ES EC-34 K	3600 kW 1023.6 TR	Adiabatic air-cooled chiller with oil-free centrifugal compressors	3
	TMA 3B1150A ES EC-34 K	14400 kW 2094.6 TR		12
	TMA 2B850B ES EC FC-34 K TP	3600 kW 1023.6 TR	Free cooling adiabatic air-cooled chiller with oil-free centrifugal compressors	3
	TMA 2B850B ES EC FC-34 K TP	3600 kW 1023.6 TR		3
Australia	TMA 3B1150A ES EC-34 K	3600 kW 1023.6 TR	Adiabatic air-cooled chiller with oil-free centrifugal compressors	3
Germany	TMH 2B800 DC-13	1200 kW 341.2 TR	Water-cooled chiller with oil-free centrifugal compressors	1

Place	Model	kW - TR	Description	N.
USA	TMA 2A450A EC FC-34 K	450 kW 128 TR	Free cooling air-cooled chiller with oil-free centrifugal compressors	1
Spain	TMA 2Z500B EC FC-ZE	1000 kW 284.3 TR	Free cooling air-cooled chiller with oil-free centrifugal compressors	2
Italy	VHR-2084-FC-EC-BP-10-SP	440 kW 125.1 TR	Air-cooled chiller with scroll compressors and radial fans	2
<i>Confidential</i>	TMA 2B700A LLN EC-34 CM PU	4175 kW 1187.1 TR	Air-cooled Circlemiser chiller with oil-free centrifugal compressors	5
Hong Kong	VHA 2117A EC-01 CM	216 kW 61.4 TR	Air-cooled Circlemod chiller with scroll compressors	2
TRF - UK	TMA 3B1080A LN EC-34	3150 kW 895.7 TR	Air-cooled chillers with oil-free centrifugal compressors	3
Australia	TMA 3B1200B ES EC FC-34 K FL	9000 kW 2559.1 TR	Free cooling adiabatic air-cooled chiller with oil-free centrifugal compressors	6
Australia	TMA 2B850B ES EC FC-34 K FL	7200 kW 2047.3 TR	Free cooling adiabatic air-cooled chiller with oil-free centrifugal compressors	6
Australia	TMA 3B1290B ES EC-34 K	1200 kW 341.2 TR	Adiabatic air-cooled chiller with oil-free centrifugal compressors	1
Germany	TMH 3B1180 DC-13 SB	13,300 kW 3781.8 TR	Water-cooled chiller with oil-free centrifugal compressors	8
Hong Kong	TMA 4B1250B EC-34 CM LL SPEC	13,200 kW 3753.4 TR	Air cooled Circlemiser chiller with oil-free centrifugal compressors	6
Sydney, Australia	TMA 3B1200B ES EC FC-34 K FL	9840 kW 2798 TR	Free cooling adiabatic air-cooled chiller with oil-free centrifugal compressors	6
Western Australia	TMA 2A600A EC-34 CM	1200 kW 341.2 TR	Air-cooled Circlemiser chiller with oil-free centrifugal compressors	2
Germany	TMA 1A320A EC FC-13 PU	3840 kW 1091.9 TR	Free cooling air-cooled chiller with oil-free centrifugal compressors	12
<i>Confidential</i>	TMA 2W500A EC-ZE CM PU	1692 kW 481.1 TR	Air-cooled Circlemiser chiller with oil-free centrifugal compressors	3

Place	Model	kW - TR	Description	N.
Europe	TMA 4J1500B EC FC-ZE FL MGF PU	11,900 kW 3383.7 TR	Free cooling air-cooled chiller with oil-free centrifugal compressors	7
Europe	TMA 4J1500B EC FC-ZE FL MGF PU	20,400 kW 5800.6 TR	Free cooling air-cooled chiller with oil-free centrifugal compressors	12
Europe	TMA 2A610A EC FC-13 SP PU	1800 kW 511.8 TR	Free cooling air-cooled chiller with oil-free centrifugal compressors	3
Melbourne, Australia	TMA 3B1280B ES EC-34 K PU	7450 kW 2118.4 TR	Adiabatic air-cooled chiller with oil-free centrifugal compressors	5
Sydney, Australia	TMA 3B1200B ES EC FC-34 K FL	11,130 kW 3164.8 TR	Free cooling adiabatic air-cooled chiller with oil-free centrifugal compressors	7
Sydney, Australia	TMA 3B1280B ES EC-34 K PU	6200 kW 1762.9 TR	Adiabatic air-cooled chiller with oil-free centrifugal compressors	4
Europe	TMA 4J1500B EC FC-ZE FL MGF PU	11,900 kW 3383.7 TR	Free cooling air-cooled chiller with oil-free centrifugal compressors	7
Kuching, Malesia	TMA 1B450A EC-34 K SP PU	1100 kW 312.8 TR	Air-cooled Circlemiser chiller with oil-free centrifugal compressors	2
Italy	TMA 4J1500B EC FC-ZE FL MGF PU	8975 kW 2552 TR	Free cooling air-cooled chiller with oil-free centrifugal compressors	5
USA	TMA 3B1500B EC-13 CM LL SP	18,557 kW 5276.6 TR	Air-cooled Circlemiser chiller with oil-free centrifugal compressors	11
	TMA 3B1500B EC-13 CM LL SP	20,137 kW 5725.9 TR	Air-cooled Circlemiser chiller with oil-free centrifugal compressors	13
Germany	TMA 4J1500B EC FC-ZE FL MGF PU	12,575 kW 3575.6 TR	Free cooling air-cooled chiller with oil-free centrifugal compressors	7
Atlas Edge - Denmark	TMA 1W250A EC-ZE	596 kW 169.5 TR	Air-cooled chiller with oil-free centrifugal compressors	2
Sidney, Australia	TMA 3B1200B ES EC FC-34 K FL PU	19,080 kW 5425.3 TR	Free cooling adiabatic air-cooled chiller with oil-free centrifugal compressors	12
Germany	TMA 4J1500B EC FC-ZE FL MGF PU	8975 kW 2552 TR	Free cooling air-cooled chiller with oil-free centrifugal compressors	5

Place	Model	kW - TR	Description	N.
Australia	TMA 2Z700A LN EC-ZE CM PU	673 kW 191.4 TR	Air-cooled Circlemiser chiller with oil-free centrifugal compressors	1
	TMA 2Z600A LN EC-ZE CM	651 kW 185.1 TR		1
Germany	TMA 2J800A LN EC-ZE CM PU	2000 kW 568.7 TR	Air-cooled Circlemiser chiller with oil-free centrifugal compressors	2
Australia	TMA 2B900B ES EC-34 K PU	1710 kW 486.2 TR	Adiabatic air-cooled chiller with oil-free centrifugal compressors	2
Germany	TMA 4J1500B EC FC-ZE FL MGF PU	8975 kW 2552 TR	Free cooling air-cooled chiller with oil-free centrifugal compressors	5
Belgium	TMA 2B700B EC FC-13 FL PU	5100 kW 1450.2 TR	Free cooling air-cooled chiller with oil-free centrifugal compressors	6
USA	TMA 4D2100B EC-13 CM SP	14,980 kW 4259.5 TR	Air-cooled Circlemiser with oil-free centrifugal compressors	7
USA	TMA 3B1500B EC-13 CM LL SP	1687 kW 479.7 TR	Air-cooled Circlemiser with oil-free centrifugal compressors	1
Spain	TMA 3J1200B EC-ZE CM	26,944 kW 7661.4 TR	Air-cooled Circlemiser with oil-free centrifugal compressors	16
	DGVE0210B6LE	24,000 kW 6824.3 TR	Great V-Shape dry cooler	16
Canada	TMA 3A1100A V10 13 1E FC	6066 kW 1724.8 TR	Free Cooling air-cooled chiller with oil-free centrifugal compressors	5
USA	TMA 3B1500B EC-13 CM LL SP	21177 kW 6021.6 TR	Air-cooled Circlemiser with oil-free centrifugal compressors	12
USA	TMA 4D2100B C22 13 2W	14264 kW 4056 TR	Air-cooled chiller with oil-free centrifugal compressors	6
	TMA 4D2100B C22 14 2W	3154 kW 897 TR	Air-cooled chiller with oil-free centrifugal compressors	3

CASE STUDIES



DART MEGA DATA CENTER

Background

In 2010 Geoclima developed and produced chillers on behalf of Barclays for its cutting-edge Dart mega data center.

Purposes

The project had to meet specific requirements: compact size, low noise levels, reliability and maximum customization, including glycol production at low temperatures during the night for an ice accumulation system.

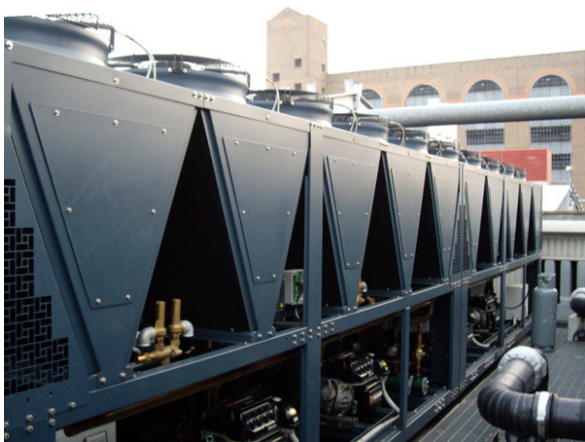
Project

The solution involved 12 air-cooled TMA chillers, each with a capacity of 1.4 MW (398.1 TR), equipped with Turbocor compressors, LPA system and hybrid control system.

Results

It is estimated that Turbomiser chillers will save over 554 tons of CO₂ compared to a standard free cooling solution. This resulted in a truly unique project, developed from specific requirements - a highly customized, cutting-edge solution that meets Dart's strictest standards.





COLT DATA CENTRE

Background

Colt is the leading information delivery platform in Europe for sharing and storing essential company information.

Purposes

The purpose of the project was to replace three existing 1200 kW (341.2 TR) chillers with screw compressors. Although the system comprised three chillers, only two of them were running, with significant disadvantages in terms of management costs. Additionally, the entire system was considered inefficient and very expensive.

The new system was required to provide low-maintenance, resulting in reduced costs, lower energy consumption, high efficiency, and great reliability. Moreover, it was necessary to ensure uninterrupted cooling in the data center during the replacement process.

Project

The existing chillers were replaced with six 550 kW (156.4 TR) air-cooled Turbomiser units equipped with Turbocor compressors. The new units considerably improved the plant's robustness and flexibility. All chillers now operate together and have inverter-integrated compressors to maximize efficiency and optimize heat exchanger performance. Thanks to the oil-free design and a limited number of moving parts, the system requires no oil changes and ensures reduced servicing, resulting in a substantial reduction in maintenance costs.

Results

Thanks to the new Turbomiser units, it was possible to achieve 54% energy saving and a reduction of £ 230,000 in annual costs. In December 2012, during the "Data Center Dynamics Award", this project won the "Innovation in the Medium Data Center" award.



GLOBALCONNECT DATA CENTER

Background

GlobalConnect is the leading provider of fiber-based data communications and data centers in Northern Europe, with a 58,000 km (36039 mi) fiber network, 27,000 m² (6.67 acres) of data center space, and employees across Denmark, Sweden, Norway, and Germany.

Purposes

UniCool A/S, our exclusive distributor in Denmark, was tasked with replacing the existing ammonia refrigeration systems with modern, energy-efficient chillers at one of GlobalConnect's sites – a big and important data center near Copenhagen.

Project

In collaboration with UniCool, we designed and produced 5 air-cooled Turbomiser chillers, equipped with oil-free centrifugal compressors, integrated pumps and a power control panel placed on the front board, along plumbing work for quick and easy installation. Each unit delivers a cooling capacity of 241 kW (68.5 RT) and uses the environmentally friendly refrigerant HFO-R1234ze (GWP < 1).



The biggest challenge was ensuring that the installation work carried out by UniCool did not disrupt the data center's operations. To tackle this problem, a temporary cooling solution was established, as a shutdown would have caused major disruptions to the fiber internet connection for over 20,000 customers on the network. Thanks to this solution, the replacement was achieved seamlessly, without any impact on the functioning of the data center.

Results

The installation of Turbomiser chillers has delivered significant benefits in terms of efficiency and energy savings. This outstanding result was achieved through the perfect teamwork between Geoclima and UniCool, who brought their expertise and dedication to every stage of the project.

ABOUT US

We design and produce special units for applications in air conditioning, heating and refrigeration, with low environmental impact and tailored to meet all clients' specific requirements in terms of size, capacity, performance, temperature, and much more. **Where the others stop, we go on.**

Our identity is founded on:



INNOVATION

We keep exploring new opportunities to maximize efficiency, reduce start-up costs and guarantee a satisfactory return on investment.



CUSTOMIZATION

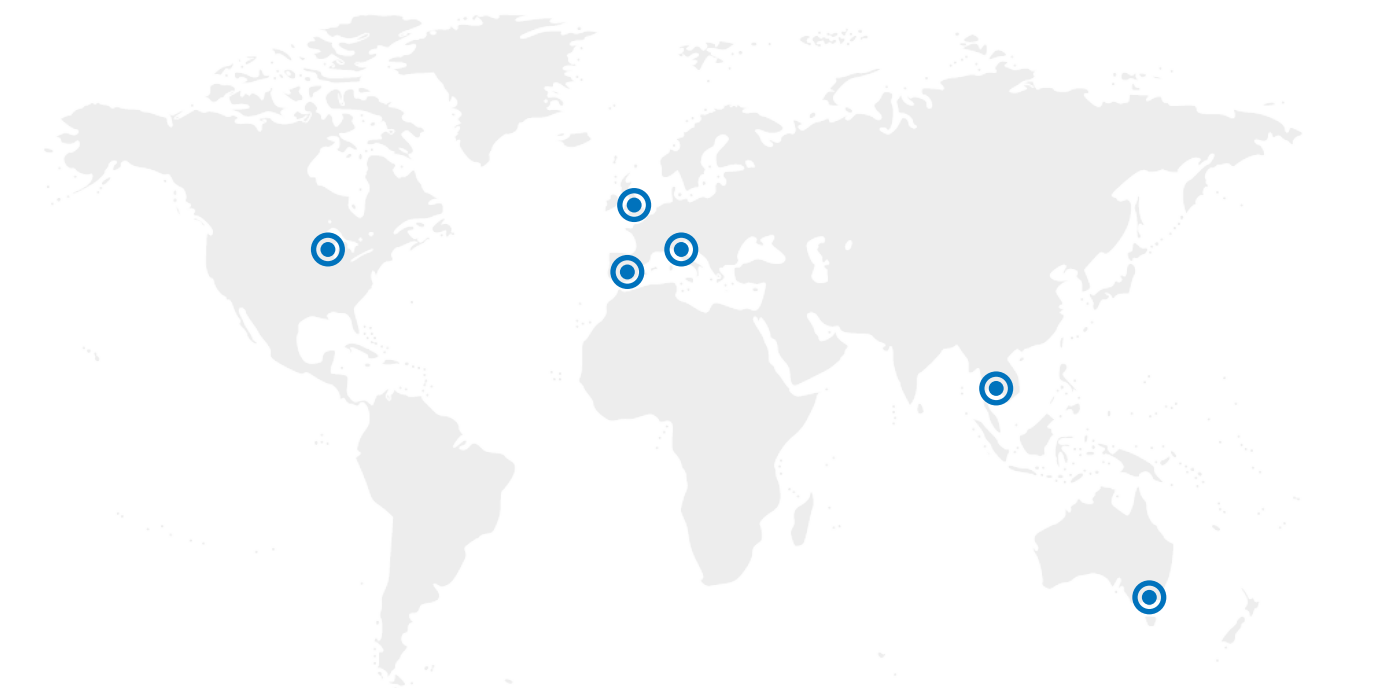
All our units can be highly customized based on each plant's specific needs, while complying with the strictest quality standards.



ECO-SUSTAINABILITY

We aim to develop technologies with the lowest environmental impact, using refrigerants with a very low GWP, such as HFO-R1234ze and R290.

Our facilities and sales offices around the world.



Geoclima International Srl Unipersonale

Via dell'Industria, 12
34077 Ronchi dei Legionari (GO)
ITALY

T: +39 0481 774411

F: +39 0481 774455

E: info@geoclima.com

www.geoclima.com