Airedale
APPLIED THERMAL INNOVATION

Chiller | Air cooled / Free-cooling

TurboChill™ & TurboChill™ FreeCool

200 – 1830kW

+ ESEER up to 6.23
+ Class A EER up to 4.35
+ 200 – 1775kW air cooled models
+ 200 – 1830kW FreeCool models

HFC R134a — HFC R134a
HFO R1234ze — HFO R1234ze
CENTRIFUGAL COMPRESSOR
MICRO — MICROCHANNEL COIL
FREE COOL — FREE-COOLING
EC — EC FAN

www.airedale.com

BRITISH MANUFACTURER | ENERGY EFFICIENCY | CONTROLS | 24/7 SERVICE | TRAINING

Unparalleled efficiency

Ultimate in advanced chiller technology

The TurboChill™ is a high-capacity, air-cooled, single/dual circuit chiller, which offers exceptional ESEER values of up to 6.23.

With an extensive cooling capacity of up to 1830kW, the TurboChill™ range has been engineered using the very best chiller technology and components to increase efficiency and deliver improved performance.

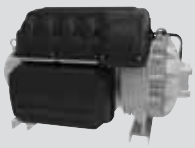
Increased flexibility and choice

The TurboChill™ offers increased flexibility and choice with more than 230 models available to choose from. 76 of these models have been specifically developed for use with the low Global Warming Potential (GWP) refrigerant R1234ze, whilst 110 TurboChill™ models from the range combine the latest compressor technology with the power-saving benefits of free-cooling.

Microchannel heat exchanger*

High surface area provides increased heat transfer and lower airside pressure drop giving lower fan powers; the slim, light profile reduces weight / space claim

* polymer-coated as standard for longevity



Centrifugal compressor

30 - 100% variable speed control for tighter setpoint management and substantial energy savings at part load

Flooded evaporator

Enhanced optimum heat exchange and system efficiency give 15% energy savings in compressor operation particularly at part load

EC fans

Electronically commutated axial fans give increased performance for reduced power input*

* than an AC fan at part load

Modular V-frame

Vastly improves heat exchange, resulting in better performance and control particularly at part load; also facilitates easier maintenance

Qualified for Energy Technology List
www.eca.gov.uk
Authorised User No. 00007

Carbon Trust Enhanced Capital Allowance Scheme

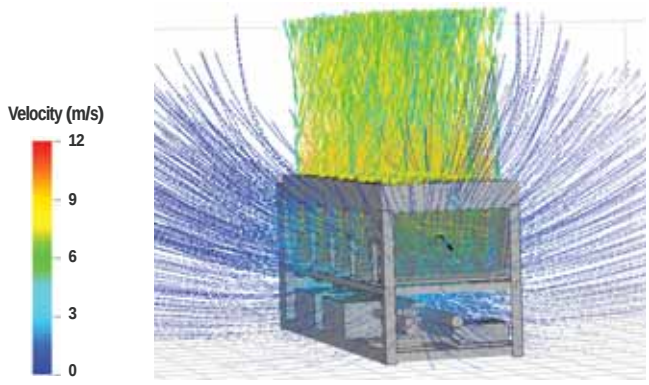
All models in the TurboChill™ range meet the criteria set out by the Energy Technology List and are currently pending accreditation. Inclusion on the ETL list offers the potential for investors to claim 100% first year capital allowance.

For details see www.eca.gov.uk

Class A EER up to 4.35

Energy Efficiency Ratio at 7/12°C water and 35°C ambient.

CFD analysis was used to determine the optimum fan and heat exchanger size and the best distribution and total air flow through the unit.



Modular V-frame coil design

The Turbochill™ range utilises an innovative V-frame coil configuration, which maximises the heat exchange area, therefore improving system performance and control. The unique coil arrangement offers high coil face area and enables best air flow distribution to minimise power consumption.

Microchannel heat exchangers

The large surface areas of the microchannel heat exchangers enable cooling capacities to be extended and lower condensing temperatures to be achieved within a smaller footprint.

The microchannel heat exchangers offer increased heat transfer and further improve efficiency by reducing air-side pressure drop, allowing increased air flow to pass through the coil. This increases the total heat rejection and fan efficiency at both full and part load.

Low GWP refrigerants

R1234ze significantly reduces environmental impact and has a low global warming potential (GWP) of under one*. This means that the time taken for the refrigerant to break down and for it to be absorbed into the atmosphere is minimised. Therefore, the lifespan of the refrigerant R1234ze is just 16 days.

*As rated by the International Panel for Climate Change (IPCC).

Up to 20% energy savings

The latest EC fan technology is used within the TurboChill™ range to provide even greater control, increase efficiency and minimise noise. EC fans offer a lightweight, rigid alternative to conventional fans. The fan housing is also up to 8kg lighter, helping to improve fan performance.

EC fans provide variable speed control which matches to load requirements and lowers air flow resistance, therefore reducing power input and energy consumption.

Next generation

Oil-free compressor technology

The TurboChill™ range utilises oil-free centrifugal compressors (TT300, TT350 / R134a) and the new TG310 compressors, which operate using the next generation low, global warming potential refrigerant R1234ze.

These intelligent, self-optimising compressors enable variable speed control and minimise input power with near silent operation. Magnetic bearings within the centrifugal compressor levitate the compressor shaft and with no mechanical contact or friction between mating surfaces, the need for lubrication is eliminated.

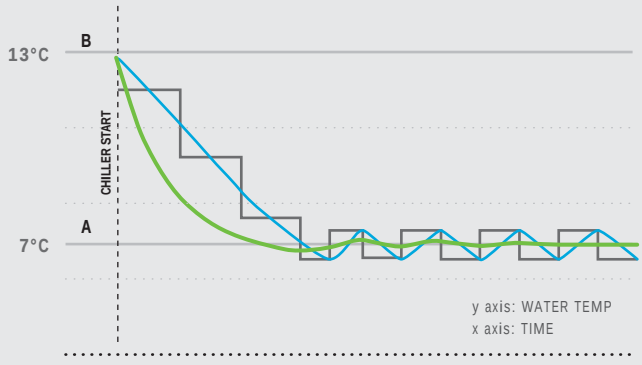
Efficient flooded evaporator

The flooded evaporator results in 15% energy savings in compressor operation particularly at part load. The compressor runs at 20°C condensing temperature when evaporating at 5°C, as opposed to around 35ºC condensing for a conventional screw compressor. The addition of an integral heat exchanger within the evaporator extends cooling capacity and increases the efficiency of the system whilst keeping the evaporator footprint to a minimum.

Image shown: TG310 Compressor

Excellent reliability: No operational wear and tear

With virtually no vibration and fewer moving parts within the compressor, there is no operational wear and tear. Costly bearing replacement is therefore avoided and equipment life extended. In the event of a power failure, the compressor acts as a generator and powers itself down in a controlled manner.



30-100% modulating TurboChill™ vs. staged screw chiller

- TurboChill modulating supply water temperature
- Conventional screw chiller water temperature
- Step control conventional screw chiller - 4 stages of cooling

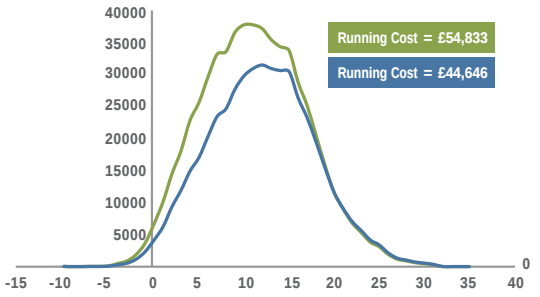
A = Supply temperature setpoint B = Actual water temperature

Exact capacity match

Variable speed compressor control ranging from 30 - 100%, allows the TurboChill™ to save substantial amounts of energy when operating at part load. Variable speed control facilitates accurate supply water set point control. It enables the TurboChill™ to react to system load fluctuations and exactly match cooling demand.

Brilliantly engineered

For enhanced performance and increased reliability



Leading competitor inverter screw chiller vs. TurboChill™ @ 50% load

Leading competitor
Airedale

x axis: Ambient Temperature ˚C
y axis: kWh

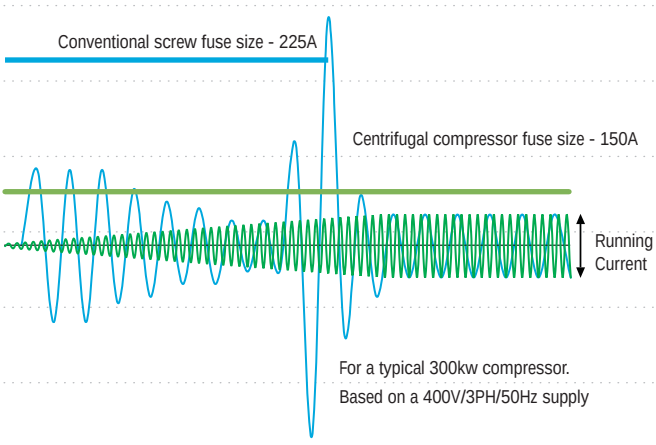
Save up to **23%** in operating costs p.a

Running costs significantly reduced by up to 23% p.a*, when operating at part load.

*compared with the leading competitor screw chiller over an annual cycle in Leeds, UK

Low current start

By removing the transient starting ‘spikes’ normally associated with screw chillers of this capacity, electrical supply components need not be oversized on site.

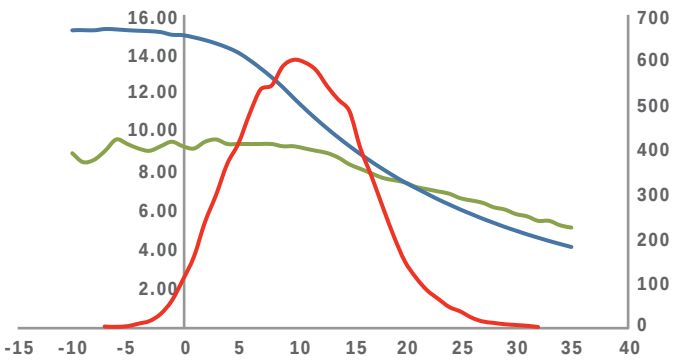


Integral low current start (2A)

Centrifugal compressor
Conventional screw

EER over 15.0 at part load

EER increase of over **22%**



Leading competitor screw chiller vs. TurboChill™ @ 50% load

Leading competitor
Airedale
Ambient Hours Leeds

x axis: Ambient Temperature ˚C
y axis 1: EER
y axis 2: Ambient Hours

Free-cooling

For over 95% of the year

Free-cooling saves vast amounts of energy, particularly when room temperatures are high. For free-cooling operation, the temperature difference between the ambient air and the return water can be as little as 1°C.

The TurboChill™ FreeCool range offers concurrent free-cooling for up to 95% of the year (cumulative hours, London, UK). For up to 30% of the year, the TurboChill™ FreeCool can operate in free-cooling mode only.

One kilowatt of power saved every hour 24/7, represents a saving of £876* a year, equivalent to over 4 tonnes of CO_2.

***£0.10kW/h**

BREEAM

BREEAM aims to reduce the life cycle impact of new buildings on the environment by awarding points for products used within the building's design which minimise the building's carbon footprint.

The TurboChill™ range contributes to a building potentially achieving an additional two BREEAM points. Points can be achieved in the following ways:

1. TurboChill™ models which use the new R1234ze refrigerant automatically receive two BREEAM points as the refrigerant has a global warming potential of less than one.
2. TurboChill™ models which feature the refrigerant R134a qualify for one BREEAM point automatically. They can also receive a further BREEAM point if the leak detection* and refrigerant pump down option is selected.

* Leak detection as standard for R1234ze models

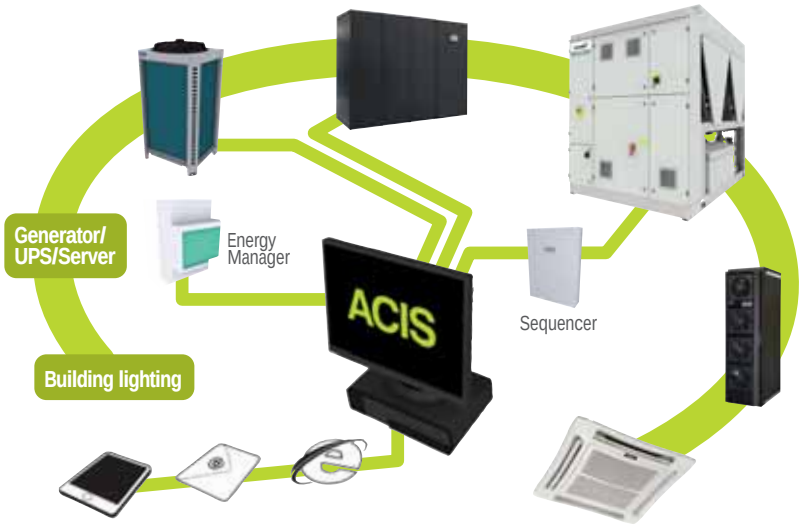
Intelligent controls

Seamlessly managing your system

The control centre of each of our cooling systems is a sophisticated electronic microprocessor specially developed by Airedale. The intelligent microprocessor uses sensors which allow active components to interact. By integrating and sequencing components, the controller manages and optimises the system's performance, availability and power draw, giving the operator complete system control.

Fully-programmable via the control panel's user-friendly display, the microprocessor can be linked with all standard BMS protocols to:

- **Trigger alarm messages**
- **Send alarm/service messages via email or SMS using an interface**
- **Operate time scheduling**
- **Allow adjustment of temperature setpoints**



ACIS™

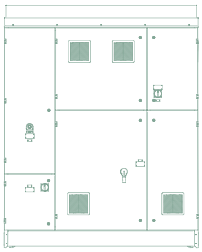
ACIS™ is a building management system developed by Airedale, which enables smart cooling and other building services, from any manufacturer, to be managed through a single, integrated solution across multiple sites and communication protocols.

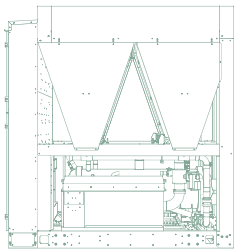
ACIS™ sits at the front end of a building management system and puts the operator in full control of reducing building operating costs.

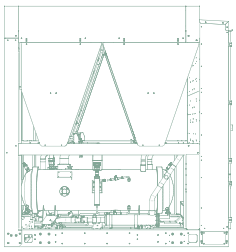
Through the click of a button on a PC, tablet or phone, intelligent information can be retrieved automatically allowing informed, data driven decisions to be made. With 24/7 access, ACIS™ provides an ideal solution for remote monitoring and maintenance, including live PUE, EER and COP calculations and power distribution monitoring.

Specifications at a glance

The ultra-efficient, variable speed control of the TurboChill™ allows it to match load requirements exactly and enables selection of the optimum model, in terms of efficiency, sound level, footprint and price, for each individual application.







Environment

- TurboChill™ range available with R134a refrigerant and the new low GWP refrigerant R1234ze
- Refrigerant isolation actuators as standard to contain refrigerant in the event of a leak (R1234ze models only / optional for R134a models)
- Free-cooling at up to 116% of nominal capacity for reduced operating costs and carbon footprint (TCF)
- High supply water temperature capability; up to 18°C
- Centrifugal compressor technology offers near silent compressor operation
- Low sound ranges: Regular Quiet (R) and Extra Quiet (X)
- Latest axial fan technology for reduced sound and power input
- Polymer-coated microchannel coils for reduced life cycle costs and reduced footprint
- Compressor acoustic enclosures minimising sound emission

Optional

- Leak detection system for F Gas compliance (standard for R1234ze models)
- Automatic refrigerant pump down in the event of a refrigerant leak, which together with leak detection, qualifies the TurboChill™ for one additional BREEAM point (standard for R1234ze models)
- Extended plenum to minimise sound
- Anti-vibration mounts reduce sound levels transmitted to building

Mechanical

- R134a Single circuit 200 - 945kW (TCC), 200 – 1000kW (TCF) / Dual circuit 200 - 1775kW (TCC), 200 – 1830kW (TCF)
- R1234ze Single circuit 200 – 640kW (TCC), 200 – 735kW (TCF) / Dual circuit 200 – 1260kW (TCC), 200 – 1430kW (TCF)
- 236 models, 150 of which are dual circuit models
- Turbochill™ range offers 110 free-cooling variants
- Operation up to 35ºC ambient at full load, 40ºC at reduced load
- TT300, TT350 and TG310 fully modulating compressors
- Flooded evaporator improves part load efficiencies
- Liquid level sensor to control liquid within the evaporator
- Modular ‘V’ frame coil arrangement offers increased heat exchange area and improved air flow for increased efficiency
- Additional redundancy back-up and quicker compressor start up to full load capacity on dual circuit models
- Filter drier, sight glass and liquid, discharge and suction ball valves allowing each compressor to be individually isolated
- Easy access to components for maintenance
- Condensers can be isolated, facilitating maintenance

Optional

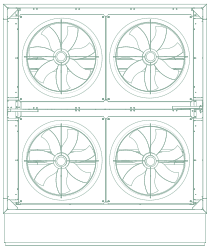
- Rain hood available
- Choice of refrigerant R134a or R1234ze (model dependent)
- Corrosion-resistant condenser coils for corrosive atmospheres (option for FC models, standard otherwise)
- Actuated suction ball valves (R134a models only)

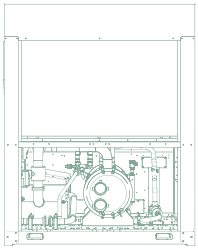
Energy-saving

- EC fans provide increased airflow, reduced noise and greater efficiencies
- Variable speed for super efficiency, tighter set point control and exact capacity match
- In-built low current start (2A)
- Oil-free operation enhances heat exchanger efficiency
- Up to two compressors across a single circuit for reduced energy consumption at part load
- Automatic rescheduling of chilled water setpoint
- Head pressure set point management achieving optimum EER

Optional

- High airflow EC fan available
- Variable supply water temperature control to save power and raise the free-cooling threshold
- Chiller Sequence Manager integrates 2 to 6 chillers into a single, efficient operating system
- Energy Manager is a compact, space-saving analyser which enables monitoring of the TurboChill’s energy consumption locally and remotely via BMS connections
- Economiser circuit for increased capacity and efficiency (R134a models only)





Hydronics

- Differential pressure transducer to indicate water flow
- Grooved water connections for simple installation

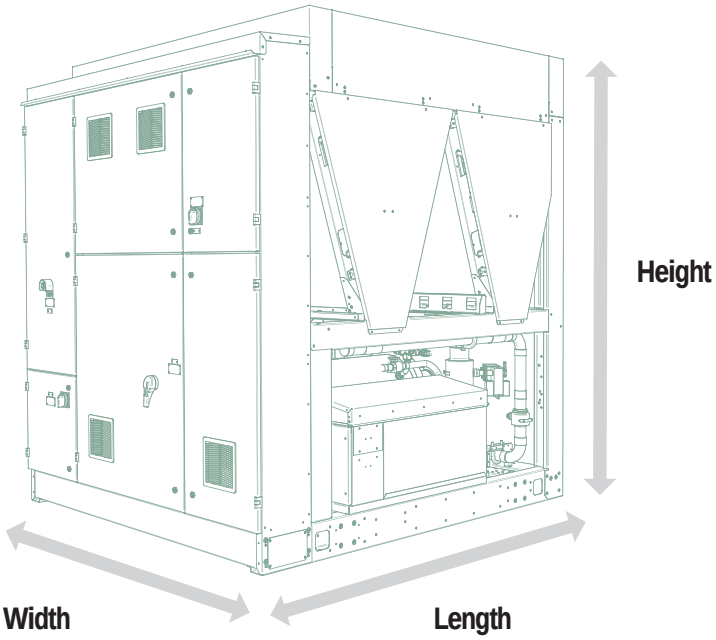
Optional

- Latest technology end suction pumps offer excellent flow rate control whilst having low vibrational characteristics
- Selection of hydronic options available include extended pipework; bypass or no bypass; single pump and run and standby (selected models only)
- Inverter-driven pumps enabling exact water flow control for the application
- Regulating or flushing bypass for enhanced resilience and maintenance
- Flow switch for flow rate detection
- Water filter safeguarding performance (standard on TCF)

Electronics & controls

- Advanced controls technology to manage and optimise performance
- Electrical supply phase loss and rotation protection
- Accessible control panel, even when unit is operational
- Single point of isolation for ease of maintenance
- Control panel mounted isolator for single phase permanent power supply
- Control panel lighting for maintenance in low light conditions
- Panel thermostatically controlled ventilation and heating
- Individual mains isolators for fans and optional pump(s)
- Ultracap power backup for the controllers and valve drivers

No. of fans	Height (mm)	Width (mm)	Length (mm)
4	2800	2200	2626
6	2800	2200	3758
8	2800	2200	4890
10	2800	2200	6022
12	2800	2200	7154
14	2800	2200	8286
16	2800	2200	9418
18	2800	2200	10550
20	2800	2200	11682
22	2800	2200	12814
24	2800	2200	13946



TurboChill™ technical specifications (R134a)

Model no.	Nominal cooling (kW)	EER	ESEER	Free-Cooling (kW)	Free-Cooling EER	Sound pressure @ 10m (dBA)	Dimensions (H x W x L)(mm)
Regular Quiet - Single Circuit - Air Cooled							
TCC11R04S-01	252	3.67	5.17	-	-	54.8	2800 x 2200 x 2626
TCC11R06S-01	278	3.96	5.88	-	-	53.1	2800 x 2200 x 3758
TCC11R08S-01	289	4.17	6.23	-	-	52.3	2800 x 2200 x 4890
TCC11R06L-02	410	3.38	5.09	-	-	56.7	2800 x 2200 x 3758
TCC11R08L-03	446	3.53	5.56	-	-	56.1	2800 x 2200 x 4890
TCC11R10L-03	473	3.64	5.74	-	-	54.9	2800 x 2200 x 6022
TCC12R08S-04	494	3.69	5.68	-	-	57.2	2800 x 2200 x 4890
TCC12R10S-04	525	3.87	5.90	-	-	56.1	2800 x 2200 x 6022
TCC12R12S-04	557	3.96	6.02	-	-	55.4	2800 x 2200 x 7154
TCC12R14S-04	588	4.01	6.12	-	-	54.9	2800 x 2200 x 8286
TCC12R10L-05	630	3.49	5.50	-	-	58.8	2800 x 2200 x 6022
TCC12R12L-06	704	3.64	5.62	-	-	58.1	2800 x 2200 x 7154
TCC12R14L-06	788	3.68	5.76	-	-	57.9	2800 x 2200 x 8286
TCC12R16L-06	840	3.72	5.84	-	-	57.4	2800 x 2200 x 9418
TCC12R18L-06	893	3.66	5.90	-	-	57.3	2800 x 2200 x 10550
TCC12R20L-06	945	3.65	5.92	-	-	56.9	2800 x 2200 x 11682
Regular Quiet - Dual Circuit - Air Cooled							
TCC22R08S-14	494	3.69	5.14	-	-	57.2	2800 x 2200 x 4890
TCC22R10S-14	525	3.87	5.42	-	-	56.1	2800 x 2200 x 6022
TCC22R12S-14	557	3.96	5.71	-	-	55.4	2800 x 2200 x 7154
TCC22R14S-14	588	4.01	5.86	-	-	54.9	2800 x 2200 x 8286
TCC22R10L-15	630	3.50	4.74	-	-	58.8	2800 x 2200 x 6022
TCC22R12L-15	704	3.64	5.03	-	-	58.2	2800 x 2200 x 7154
TCC22R14L-15	788	3.67	5.23	-	-	57.9	2800 x 2200 x 8286
TCC22R16L-16	840	3.72	5.41	-	-	57.4	2800 x 2200 x 9418
TCC22R18L-16	893	3.67	5.56	-	-	57.3	2800 x 2200 x 10550
TCC22R20L-16	945	3.65	5.66	-	-	56.9	2800 x 2200 x 11682
TCC23R12S-17	662	3.76	5.59	-	-	57.8	2800 x 2200 x 7154
TCC23R14S-17	714	3.87	5.75	-	-	57.3	2800 x 2200 x 8286
TCC23R16S-17	767	3.96	5.84	-	-	56.8	2800 x 2200 x 9418
TCC23R18S-17	819	3.99	5.94	-	-	56.5	2800 x 2200 x 10550
TCC23R16L-19	882	3.56	5.42	-	-	58.9	2800 x 2200 x 9418
TCC23R18L-19	945	3.69	5.57	-	-	58.6	2800 x 2200 x 10550
TCC23R20L-20	1008	3.77	5.65	-	-	58.2	2800 x 2200 x 11682
TCC23R22L-20	1071	3.82	5.72	-	-	57.9	2800 x 2200 x 12814
TCC23R24L-20	1134	3.85	5.78	-	-	57.7	2800 x 2200 x 13946
TCC24R16S-18	861	3.76	5.82	-	-	58.5	2800 x 2200 x 9418
TCC24R18S-18	903	3.86	5.92	-	-	58.0	2800 x 2200 x 10550
TCC24R20S-18	945	3.94	6.02	-	-	57.6	2800 x 2200 x 11682
TCC24R22S-18	998	3.99	6.07	-	-	57.3	2800 x 2200 x 12814
TCC24R24S-18	1050	4.03	6.11	-	-	57.0	2800 x 2200 x 13946
TCC24R20L-21	1092	3.49	5.62	-	-	59.7	2800 x 2200 x 11682
TCC24R22L-21	1155	3.59	5.69	-	-	59.4	2800 x 2200 x 12814
TCC24R24L-21	1218	3.68	5.76	-	-	59.1	2800 x 2200 x 13946
Extra Quiet - Single Circuit - Air Cooled							
TCC11X04S-01	210	3.65	5.37	-	-	52.4	2800 x 2200 x 2626
TCC11X06S-01	236	4.12	5.87	-	-	52.5	2800 x 2200 x 3758
TCC11X08S-01	247	4.35	6.23	-	-	51.8	2800 x 2200 x 4890
TCC11X06L-02	368	3.32	5.04	-	-	53.4	2800 x 2200 x 3758
TCC11X08L-03	404	3.67	5.54	-	-	53.4	2800 x 2200 x 4890
TCC11X10L-03	431	3.83	5.82	-	-	53.4	2800 x 2200 x 6022
TCC12X08S-04	452	3.61	5.75	-	-	54.9	2800 x 2200 x 4890
TCC12X10S-04	483	3.88	5.96	-	-	54.9	2800 x 2200 x 6022
TCC12X12S-04	515	4.05	6.13	-	-	54.8	2800 x 2200 x 7154
TCC12X14S-04	546	4.13	6.21	-	-	54.8	2800 x 2200 x 8286
TCC12X10L-05	588	3.30	5.55	-	-	55.8	2800 x 2200 x 6022
TCC12X12L-06	662	3.54	5.65	-	-	55.7	2800 x 2200 x 7154
TCC12X14L-06	746	3.63	5.79	-	-	55.6	2800 x 2200 x 8286
TCC12X16L-06	798	3.71	5.91	-	-	55.5	2800 x 2200 x 9418
TCC12X18L-06	851	3.74	5.97	-	-	55.5	2800 x 2200 x 10550
TCC12X20L-06	903	3.69	6.00	-	-	55.4	2800 x 2200 x 11682
Extra Quiet - Dual Circuit - Air Cooled							
TCC22X08S-14	452	3.61	5.09	-	-	54.9	2800 x 2200 x 4890
TCC22X10S-14	483	3.89	5.53	-	-	54.9	2800 x 2200 x 6022
TCC22X12S-14	515	4.05	5.72	-	-	54.8	2800 x 2200 x 7154
TCC22X14S-14	546	4.13	5.90	-	-	54.8	2800 x 2200 x 8286
TCC22X10L-15	588	3.31	4.67	-	-	55.8	2800 x 2200 x 6022
TCC22X12L-15	662	3.53	5.03	-	-	55.7	2800 x 2200 x 7154
TCC22X14L-15	746	3.62	5.22	-	-	55.6	2800 x 2200 x 8286
TCC22X16L-16	798	3.71	5.41	-	-	55.5	2800 x 2200 x 9418
TCC22X18L-16	851	3.75	5.56	-	-	55.5	2800 x 2200 x 10550
TCC22X20L-16	903	3.70	5.69	-	-	55.4	2800 x 2200 x 11682

TurboChill™ technical specifications (R134a) Continued

Model no.	Nominal cooling (kW)	EER	ESEER	Free-Cooling (kW)	Free-Cooling EER	Sound pressure @ 10m (dBA)	Dimensions (H x W x L)(mm)
Extra Quiet - Dual Circuit - Air Cooled (continued)							
TCC23X12S-17	620	3.68	5.63	-	-	56.2	2800 x 2200 x 7154
TCC23X14S-17	672	3.85	5.78	-	-	56.1	2800 x 2200 x 8286
TCC23X16S-17	725	3.97	5.87	-	-	56.1	2800 x 2200 x 9418
TCC23X18S-17	777	4.05	5.98	-	-	56.0	2800 x 2200 x 10550
TCC23X16L-19	819	3.44	5.46	-	-	57.0	2800 x 2200 x 9418
TCC23X18L-19	882	3.60	5.57	-	-	56.9	2800 x 2200 x 10550
TCC23X20L-20	945	3.72	5.67	-	-	56.8	2800 x 2200 x 11682
TCC23X22L-20	1008	3.82	5.73	-	-	56.7	2800 x 2200 x 12814
TCC23X24L-20	1071	3.88	5.82	-	-	56.6	2800 x 2200 x 13946
TCC24X16S-18	830	3.67	5.71	-	-	57.1	2800 x 2200 x 9418
TCC24X18S-18	861	3.83	5.94	-	-	57.0	2800 x 2200 x 10550
TCC24X20S-18	903	3.93	6.04	-	-	56.9	2800 x 2200 x 11682
TCC24X22S-18	956	4.01	6.11	-	-	56.8	2800 x 2200 x 12814
TCC24X24S-18	1008	4.06	6.16	-	-	56.7	2800 x 2200 x 13946
TCC24X20L-21	1050	3.32	5.65	-	-	57.8	2800 x 2200 x 11682
TCC24X22L-21	1092	3.49	5.73	-	-	57.7	2800 x 2200 x 12814
TCC24X24L-21	1134	3.61	5.81	-	-	57.6	2800 x 2200 x 13946
Regular Quiet - Single Circuit - FreeCool							
TCF11R06S-07	305	3.83	5.67	294	21.01	53.9	2800 x 2200 x 3758
TCF11R08S-07	315	4.05	6.03	353	18.91	52.5	2800 x 2200 x 4890
TCF11R06L-11	410	3.43	5.01	324	23.19	56.7	2800 x 2200 x 3758
TCF11R08L-08	446	3.54	5.33	405	21.75	56.2	2800 x 2200 x 4890
TCF11R10L-10	473	3.80	5.63	476	20.43	54.8	2800 x 2200 x 6022
TCF12R08S-09	494	3.53	5.43	419	22.50	57.5	2800 x 2200 x 4890
TCF12R10S-05	525	3.84	5.75	496	21.28	56.3	2800 x 2200 x 6022
TCF12R12S-05	557	3.96	5.88	567	20.28	55.6	2800 x 2200 x 7154
TCF12R14S-05	588	4.05	5.98	635	19.45	55.0	2800 x 2200 x 8286
TCF12R12L-12	704	3.61	5.46	619	22.13	58.3	2800 x 2200 x 7154
TCF12R14L-12	788	3.70	5.60	712	21.82	58.0	2800 x 2200 x 8286
TCF12R16L-12	840	3.76	5.69	793	21.28	57.5	2800 x 2200 x 9418
TCF12R18L-13	893	3.74	5.73	873	20.82	57.3	2800 x 2200 x 10550
TCF12R20L-13	945	3.73	5.74	952	20.43	56.9	2800 x 2200 x 11682
Regular Quiet - Dual Circuit - FreeCool							
TCF22R10S-22	525	3.83	5.20	496	21.28	56.3	2800 x 2200 x 6022
TCF22R12S-22	557	3.96	5.55	567	20.28	55.6	2800 x 2200 x 7154
TCF22R14S-22	588	4.04	5.70	635	19.45	55.0	2800 x 2200 x 8286
TCF22R12L-23	704	3.65	4.87	619	22.13	58.3	2800 x 2200 x 7154
TCF22R14L-23	788	3.71	5.06	712	21.82	58.0	2800 x 2200 x 8286
TCF22R16L-23	840	3.77	5.24	793	21.28	57.5	2800 x 2200 x 9418
TCF22R18L-23	893	3.80	5.39	873	20.82	57.2	2800 x 2200 x 10550
TCF22R20L-23	945	3.81	5.50	952	20.43	56.8	2800 x 2200 x 11682
TCF23R12S-24	662	3.69	5.42	606	21.66	58.0	2800 x 2200 x 7154
TCF23R14S-24	714	3.82	5.58	687	21.05	57.5	2800 x 2200 x 8286
TCF23R16S-25	767	3.92	5.69	766	20.54	57.0	2800 x 2200 x 9418
TCF23R18S-25	819	3.98	5.69	844	20.12	56.7	2800 x 2200 x 10550
TCF23R18L-28	945	3.64	5.39	893	21.28	58.8	2800 x 2200 x 10550
TCF23R20L-28	1008	3.74	5.51	977	20.96	58.4	2800 x 2200 x 11682
TCF23R22L-28	1071	3.82	5.57	1060	20.68	58.1	2800 x 2200 x 12814
TCF23R24L-28	1134	3.88	5.64	1143	20.43	57.8	2800 x 2200 x 13946
TCF24R16S-26	861	3.70	5.65	801	21.47	58.7	2800 x 2200 x 9418
TCF24R18S-26	903	3.81	5.76	877	20.92	58.2	2800 x 2200 x 10550
TCF24R20S-26	945	3.90	5.85	952	20.43	57.8	2800 x 2200 x 11682
TCF24R22S-27	998	3.97	5.91	1030	20.09	57.5	2800 x 2200 x 12814
TCF24R24S-27	1050	4.03	5.96	1107	19.80	57.2	2800 x 2200 x 13946
TCF24R22L-21	1155	3.51	5.53	1091	21.28	59.7	2800 x 2200 x 12814
TCF24R24L-21	1218	3.61	5.59	1175	21.01	59.3	2800 x 2200 x 13946
Extra Quiet - Single Circuit - FreeCool							
TCF11X06S-07	263	3.98	5.64	235	47.91	52.4	2800 x 2200 x 3758
TCF11X08S-07	273	4.26	6.08	289	44.17	52.3	2800 x 2200 x 4890
TCF11X06L-11	368	3.25	4.87	257	52.55	53.3	2800 x 2200 x 3758
TCF11X08L-08	404	3.58	5.32	327	50.00	53.2	2800 x 2200 x 4890
TCF11X10L-10	431	3.92	5.65	389	47.67	53.2	2800 x 2200 x 6022
TCF12X08S-09	452	3.39	5.45	340	52.09	54.8	2800 x 2200 x 4890
TCF12X10S-05	483	3.80	5.78	408	49.96	54.7	2800 x 2200 x 6022
TCF12X12S-05	515	4.01	5.92	472	48.20	54.7	2800 x 2200 x 7154
TCF12X14S-05	546	4.13	6.03	534	46.75	54.6	2800 x 2200 x 8286
TCF12X12L-12	662	3.42	5.49	502	51.20	55.6	2800 x 2200 x 7154
TCF12X14L-12	746	3.56	5.62	580	50.73	55.5	2800 x 2200 x 8286
TCF12X16L-12	798	3.70	5.75	651	49.82	55.4	2800 x 2200 x 9418
TCF12X18L-13	851	3.73	5.80	721	49.04	55.3	2800 x 2200 x 10550
TCF12X20L-13	903	3.75	5.82	790	48.38	55.2	2800 x 2200 x 11682

TurboChill™ technical specifications (R134a) Continued

Model no.	Nominal cooling (kW)	EER	ESEER	Free-Cooling (kW)	Free-Cooling EER	Sound pressure @ 10m (dBA)	Dimensions (H x W x L)(mm)
Extra Quiet - Dual Circuit - FreeCool (continued)							
TCF22X10S-22	483	3.79	5.17	403	49.36	54.7	2800 x 2200 x 6022
TCF22X12S-22	515	4.00	5.54	466	47.61	54.7	2800 x 2200 x 7154
TCF22X14S-22	546	4.12	5.75	528	46.19	54.6	2800 x 2200 x 8286
TCF22X12L-23	662	3.45	4.85	502	51.20	55.6	2800 x 2200 x 7154
TCF22X14L-23	746	3.55	5.05	580	50.73	55.5	2800 x 2200 x 8286
TCF22X16L-23	798	3.72	5.24	651	49.82	55.4	2800 x 2200 x 9418
TCF22X18L-23	851	3.77	5.40	721	49.04	55.3	2800 x 2200 x 10550
TCF22X20L-23	903	3.71	5.52	790	48.38	55.2	2800 x 2200 x 11682
TCF23X12S-24	620	3.55	5.44	493	50.30	56.1	2800 x 2200 x 7154
TCF23X14S-24	672	3.75	5.60	563	49.27	56.0	2800 x 2200 x 8286
TCF23X16S-25	725	3.89	5.71	633	48.42	55.9	2800 x 2200 x 9418
TCF23X18S-25	777	4.00	5.82	701	47.71	55.8	2800 x 2200 x 10550
TCF23X18L-28	882	3.48	5.37	728	49.56	56.7	2800 x 2200 x 10550
TCF23X20L-28	945	3.64	5.52	801	49.04	56.6	2800 x 2200 x 11682
TCF23X22L-28	1008	3.76	5.58	873	48.59	56.5	2800 x 2200 x 12814
TCF23X24L-28	1071	3.85	5.67	945	48.20	56.4	2800 x 2200 x 13946
TCF24X16S-26	830	3.55	5.55	658	50.36	57.0	2800 x 2200 x 9418
TCF24X18S-26	861	3.73	5.78	723	49.22	56.9	2800 x 2200 x 10550
TCF24X20S-26	903	3.86	5.87	790	48.38	56.7	2800 x 2200 x 11682
TCF24X22S-27	956	3.95	5.95	859	47.80	56.6	2800 x 2200 x 12814
TCF24X24S-27	1008	4.03	6.00	927	47.30	56.5	2800 x 2200 x 13946
TCF24X22L-21	1092	3.35	5.56	894	49.75	57.6	2800 x 2200 x 12814
TCF24X24L-21	1134	3.47	5.64	961	49.04	57.5	2800 x 2200 x 13946

TurboChill™ technical specifications (R1234ze)

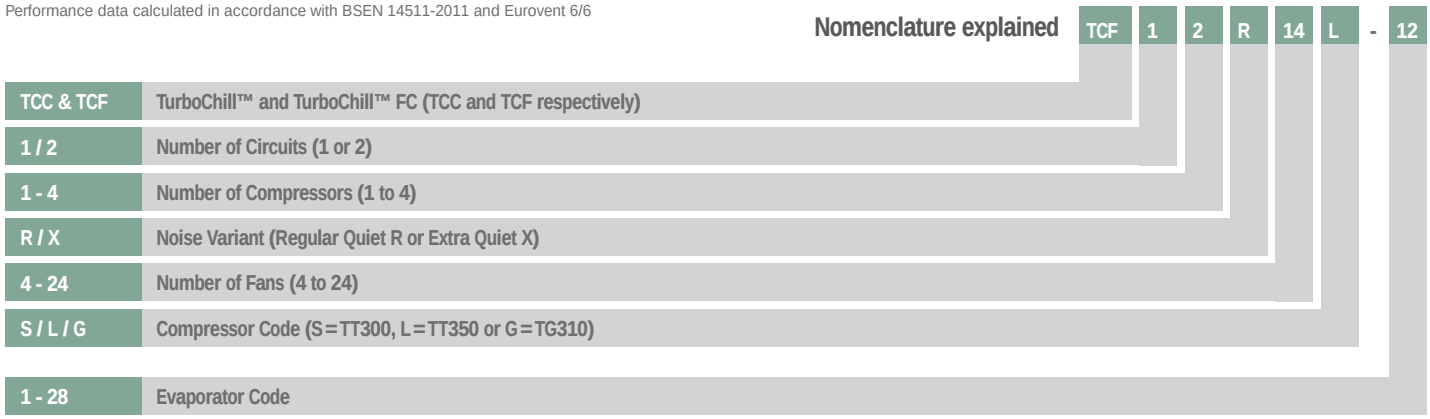
Model no.	Nominal cooling (kW)	EER	ESEER	Free-Cooling (kW)	Free-Cooling EER	Sound pressure @ 10m (dBA)	Dimensions (H x W x L)(mm)
Regular Quiet - Single Circuit - Air Cooled							
TCC11R04G-01	252	3.49	5.43	-	-	55.7	2800 x 2200 x 2626
TCC11R06G-01	278	3.78	5.62	-	-	54.2	2800 x 2200 x 3758
TCC11R08G-01	289	4.01	5.96	-	-	53.4	2800 x 2200 x 4890
TCC12R08G-04	494	3.51	5.39	-	-	58.0	2800 x 2200 x 4890
TCC12R10G-04	525	3.67	5.62	-	-	57.2	2800 x 2200 x 6022
TCC12R12G-04	557	3.77	5.79	-	-	56.5	2800 x 2200 x 7154
TCC12R14G-04	588	3.84	5.91	-	-	56.0	2800 x 2200 x 8286
Regular Quiet - Dual Circuit - Air Cooled							
TCC22R08G-14	494	3.51	4.57	-	-	58.0	2800 x 2200 x 4890
TCC22R10G-14	525	3.67	5.07	-	-	57.2	2800 x 2200 x 6022
TCC22R12G-14	557	3.78	5.31	-	-	56.5	2800 x 2200 x 7154
TCC22R14G-14	588	3.84	5.49	-	-	56.0	2800 x 2200 x 8286
TCC23R12G-17	662	3.58	5.29	-	-	58.5	2800 x 2200 x 7154
TCC23R14G-17	714	3.70	5.48	-	-	58.1	2800 x 2200 x 8286
TCC23R16G-17	767	3.77	5.58	-	-	57.8	2800 x 2200 x 9418
TCC23R18G-17	819	3.80	5.69	-	-	57.6	2800 x 2200 x 10550
TCC24R16G-18	861	3.59	5.52	-	-	59.1	2800 x 2200 x 9418
TCC24R18G-18	903	3.67	5.62	-	-	58.8	2800 x 2200 x 10550
TCC24R20G-18	945	3.74	5.72	-	-	58.6	2800 x 2200 x 11682
TCC24R22G-18	998	3.81	5.80	-	-	58.3	2800 x 2200 x 12814
TCC24R24G-18	1050	3.84	5.86	-	-	58.1	2800 x 2200 x 13946
Extra Quiet - Single Circuit - Air Cooled							
TCC11X04G-01	210	3.43	5.38	-	-	53.4	2800 x 2200 x 2626
TCC11X06G-01	236	3.92	5.99	-	-	53.4	2800 x 2200 x 3758
TCC11X08G-01	263	4.12	5.92	-	-	53.1	2800 x 2200 x 4890
TCC12X08G-04	452	3.44	5.47	-	-	55.9	2800 x 2200 x 4890
TCC12X10G-04	483	3.70	5.65	-	-	55.8	2800 x 2200 x 6022
TCC12X12G-04	515	3.85	5.84	-	-	55.7	2800 x 2200 x 7154
TCC12X14G-04	546	3.94	5.98	-	-	55.6	2800 x 2200 x 8286

TurboChill™ technical specifications (R1234ze) Continued

Model no.	Nominal cooling (kW)	EER	ESEER	Free-Cooling (kW)	Free-Cooling EER	Sound pressure @ 10m (dBA)	Dimensions (H x W x L)(mm)
Extra Quiet - Dual Circuit - Air Cooled							
TCC22X08G-14	452	3.44	4.95	-	-	55.9	2800 x 2200 x 4890
TCC22X10G-14	483	3.70	4.98	-	-	55.8	2800 x 2200 x 6022
TCC22X12G-14	515	3.85	5.22	-	-	55.7	2800 x 2200 x 7154
TCC22X14G-14	546	3.94	5.48	-	-	55.6	2800 x 2200 x 8286
TCC23X12G-17	620	3.46	5.29	-	-	57.2	2800 x 2200 x 7154
TCC23X14G-17	672	3.66	5.49	-	-	57.1	2800 x 2200 x 8286
TCC23X16G-17	725	3.78	5.59	-	-	57.0	2800 x 2200 x 9418
TCC23X18G-17	777	3.85	5.72	-	-	56.9	2800 x 2200 x 10550
TCC24X16G-18	830	3.45	5.53	-	-	58.0	2800 x 2200 x 9418
TCC24X18G-18	861	3.66	5.66	-	-	57.9	2800 x 2200 x 10550
TCC24X20G-18	903	3.74	5.73	-	-	57.8	2800 x 2200 x 11682
TCC24X22G-18	956	3.82	5.82	-	-	57.7	2800 x 2200 x 12814
TCC24X24G-18	1008	3.86	5.89	-	-	57.6	2800 x 2200 x 13946
Regular Quiet - Single Circuit - FreeCool							
TCF11R06G-07	305	3.97	5.47	293.8	21.01	54.6	2800 x 2200 x 3758
TCF11R08G-07	315	4.24	5.83	352.6	18.91	53.4	2800 x 2200 x 4890
TCF12R08G-09	494	3.63	5.15	419.4	22.50	57.9	2800 x 2200 x 4890
TCF12R10G-05	525	3.96	5.48	495.9	21.28	57.0	2800 x 2200 x 6022
TCF12R12G-05	557	4.11	5.65	567.1	20.28	56.4	2800 x 2200 x 7154
TCF12R14G-05	588	4.21	5.78	634.7	19.45	55.8	2800 x 2200 x 8286
Regular Quiet - Dual Circuit - FreeCool							
TCF22R10G-22	525	3.95	4.92	495.9	21.28	57.0	2800 x 2200 x 6022
TCF22R12G-22	557	4.10	5.16	567.1	20.28	56.4	2800 x 2200 x 7154
TCF22R14G-22	588	4.21	5.34	634.7	19.45	55.9	2800 x 2200 x 8286
TCF23R12G-24	662	3.78	5.13	605.7	21.66	58.5	2800 x 2200 x 7154
TCF23R14G-24	714	3.93	5.32	686.7	21.05	58.1	2800 x 2200 x 8286
TCF23R16G-25	767	4.05	5.45	766.0	20.54	57.7	2800 x 2200 x 9418
TCF23R18G-25	819	4.13	5.45	844.0	20.12	57.4	2800 x 2200 x 10550
TCF24R16G-26	861	3.79	5.38	800.7	21.47	59.2	2800 x 2200 x 9418
TCF24R18G-26	903	3.90	5.46	877.4	20.92	58.8	2800 x 2200 x 10550
TCF24R20G-26	945	4.01	5.57	952.2	20.43	58.5	2800 x 2200 x 11682
TCF24R22G-27	998	4.10	5.65	1030.1	20.09	58.2	2800 x 2200 x 12814
TCF24R24G-27	1050	4.17	5.72	1107.1	19.80	58.0	2800 x 2200 x 13946
Extra Quiet - Single Circuit - FreeCool							
TCF11X06G-07	263	4.12	5.43	234.7	47.91	53.3	2800 x 2200 x 3758
TCF11X08G-07	273	4.44	5.80	288.5	44.17	53.1	2800 x 2200 x 4890
TCF12X08G-09	452	3.50	5.18	336.4	51.51	55.8	2800 x 2200 x 4890
TCF12X10G-05	483	3.92	5.51	403.0	49.36	55.7	2800 x 2200 x 6022
TCF12X12G-05	515	4.15	5.70	466.5	47.61	55.6	2800 x 2200 x 7154
TCF12X14G-05	546	4.30	5.85	527.9	46.19	55.5	2800 x 2200 x 8286
Extra Quiet - Dual Circuit - FreeCool							
TCF22X10G-22	483	3.92	4.93	403.0	49.36	55.7	2800 x 2200 x 6022
TCF22X12G-22	515	4.14	5.04	466.5	47.61	55.6	2800 x 2200 x 7154
TCF22X14G-22	546	4.29	5.34	527.9	46.19	55.5	2800 x 2200 x 8286
TCF23X12G-24	546	3.76	5.25	209.4	21.38	56.6	2800 x 2200 x 7154
TCF23X14G-24	672	3.85	5.31	563.2	49.27	57.0	2800 x 2200 x 8286
TCF23X16G-25	725	4.01	5.43	632.5	48.42	56.9	2800 x 2200 x 9418
TCF23X18G-25	777	4.14	5.55	701.2	47.71	56.7	2800 x 2200 x 10550
TCF24X16G-26	819	3.65	5.36	655.6	50.18	57.9	2800 x 2200 x 9418
TCF24X18G-26	861	3.84	5.51	723.3	49.22	57.8	2800 x 2200 x 10550
TCF24X20G-26	903	3.96	5.58	790.0	48.38	57.7	2800 x 2200 x 11682
TCF24X22G-27	956	4.08	5.66	858.6	47.80	57.6	2800 x 2200 x 12814
TCF24X24G-27	1008	4.16	5.74	926.9	47.30	57.5	2800 x 2200 x 13946

1) Nominal cooling capacity and EER for air cooled units is at 7/13°C water and 35°C ambient temperature*
2) Nominal cooling capacity and EER for Free Cooling units is at 10/16°C water and 35°C ambient temperature*
3) ESEER based on Eurovent standard calculation method
4) Nominal free-cooling capacity at 16°C Return, 20% ethylene glycol, flow rate based on the nominal duty and a 2°C ambient temperature
5) Free-cooling EER at 16°C return water; 20% ethylene glycol; 2°C ambient temperature and based on TOTAL input power of fans
* Based on TOTAL input power of compressors and fans
For application specific data please contact Airedale
Performance data calculated in accordance with BSEN 14511-2011 and Eurovent 6/6

Nomenclature explained



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TurboChill™ FreeCool with low GWP refrigerant R1234ze is currently cooling shoppers visiting the new £15 million John Lewis store in York.

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National Gallery, London

"Airedale ticked all the boxes in terms of footprint, build quality, new technology such as the centrifugal compressor, and high efficiency. The National Gallery is a high user of energy because of its large areas of air conditioned space. The Gallery's goal is to reduce energy consumption and the TurboChill™ assists that."

Martin Goswell
Project Engineer, Troupe, Bywaters and Anders

IBM data centre, London

"I believe we are the first company in the world to install a TurboChill™ FreeCool chiller. When the data centre is operating in free cooling mode, the PUE has been measured at 1.36 and we expect that to reduce further as we install more equipment."

Bob Finn
Programme Manager, EDF Energy

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