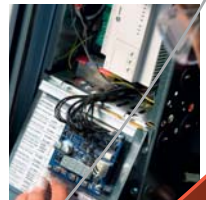
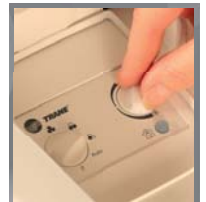
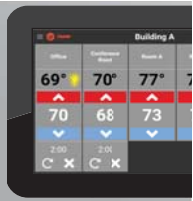
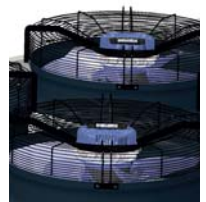


# Systems Guide

Equipment, controls and services for integrated HVAC-R solutions in commercial and industrial markets





## *Who we are*

Trane, a brand of Ingersoll Rand, designs, manufactures and services HVAC-R systems and controls to create and sustain safe, comfortable and efficient work environments for buildings and industrial processes.

We offer a collective knowledge-based system with the applications expertise to create truly comprehensive solutions. With our broad product and service offerings plus premium aftermarket and rental services, Trane can help customers achieve their business objectives. Our integrated solutions help reduce energy use and costs while meeting the high levels of comfort and performance critical to our customer's business operations.

## *Total life cycle management*

Our capabilities span every step in your HVAC systems' life cycle. As an industry leader, we deliver Performance, Innovation, Commitment and Knowledge at every turn. A long-term relationship with Trane ensures that your original investment delivers a solid return.

At the **concept and design** stages, collaboration between Trane and the design engineering team ensures that the HVAC system specified is ideally suited to deliver long-term cost and performance benefits, based on the purpose of the building and the mission of your organization. Our **wide-ranging equipment and controls selection** offers solutions to meet every need. The recent expansion of our line of multi-pipe units is one example of Trane commitment to provide sustainable solutions to applications looking to simultaneously deliver heating and cooling.

At the installation stage, our **commissioning offerings** ensure that the new equipment or system is properly started and operates at design parameters.

With a **full range of aftermarket capabilities** and an extended service network, Trane offers parts and services to suit very specific requirements. Trane engineers and technical specialists can provide the support you need to gain the most cost-effective and beneficial performance possible from your HVAC system—from its first days of operation until the day it needs replacement.




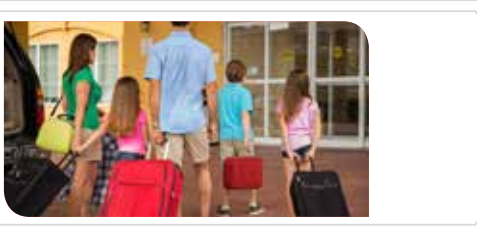




Finally, **Trane Rental Services** is also there to keep businesses operational with emergency or planned events. Whether for short-term or long-term cooling or heating, Trane Rental Services provide fast, safe and cost-effective solutions using modern and reliable equipment.

## *Working towards high performance buildings*

Energy efficiency, system reliability, occupant health and safety, processes for environmental compliance... everything in a high performance building works in a synchronized way to support the mission and values of the organization.

Trane offers a holistic, assessment-based approach to ensure HVAC systems constantly deliver as effectively as possible. **Trane Building Advantage** provides modernization solutions that can virtually improve any existing structure.

*Content*

<p><i>Trane HVAC Systems</i></p>		<p>HVAC Systems</p>
<p><i>Chillers</i> Air-cooled chillers, water-cooled chillers, heat rejection devices</p>		<p>Chillers</p>
<p><i>Heat Pumps</i> Air-to-water reversible heat pumps, water-to-water heat pumps</p>		<p>Heat Pumps</p>
<p><i>Multi-pipe Units</i></p>		<p>Multi-pipe Units</p>
<p><i>Airside Products</i> Air handling units, water terminals</p>		<p>Airside Products</p>
<p><i>DX Unitary Systems</i> Rooftops, condensing units, close control units</p>		<p>DX Unitary Systems</p>
<p><i>Controls</i></p>		<p>Controls</p>
<p><i>Building Services</i></p>		<p>Building Services</p>

# What's New from Trane



## UniTrane™ DFS/DFE and BFS ducted fan coils

### Ideal air-conditioning solutions for your building



Trane's new UniTrane™D-Line and B-line ranges meet today's requirements of performance, size, acoustics, **low energy, ease of installation and maintenance.**

- Suitable for horizontal and vertical installations
- Low energy consumption EC or standard AC fan motors
- 2-pipe and 4-pipe configurations
- Multiple row configurations
- Wide selection of factory-mounted options, site-mounted accessories and controls
- Ecodesign Compliant - ERP 2015 Regulation (EU) No. 327/2011

The UniTrane™ B-Line fan coils range has been developed to deliver a greater available static air pressure for concealed installation and connection to a duct system.

## RTWF and RTHF water-cooled screw chillers and heat pumps



### High efficiency chillers for high performance buildings

The new Trane Xstream™ models RTWF and RTHF provide reliable and dependable performance to ensure continuous **delivery of precise temperature control** across the full spectrum of demanding comfort and industrial applications.

Combined easy-to-use control interface and Tracer™ Adaptive Control™ intelligence drive system reliability and interoperability, reduced energy consumption and intuitive interaction with your chiller.

- Industry leading EER and ESEER
- Superior versatility – suits comfort cooling and precision process temperature control
- Minimized Total Cost of Ownership
- Legendary Trane reliability!

As RTWF is also a **water-to-water heat pump** able to produce water up to 68°C, it perfectly suits the market needs for high condensing water heating applications, including geothermal applications.





## Sintesis RTAF air-cooled screw chillers up to 1911 kW

**SINTESES**

*The best bundled in one. Our best.*



Trane has combined the best **efficiency and performance in one system**. Trane Sintesis provides leading temperature control in the most demanding applications.

**Trane Sintesis is simply the best synthesis of:**

- Energy Efficient - Four efficiency levels to meet the needs of your building, your climate and your budget.
- Quiet - Three levels of noise attenuation with no compromise in operational efficiency.
- Reliable - At Trane we manufacture and design the core components and put our systems through extremely demanding performance and reliability tests.
- Smart - It has the capability to provide all-year cooling in ambients from -18°C up to 55°C. It is ideally suited to industrial applications and is Ecodesign 2016 compliant. Operation could not be easier thanks to smart controls and a user-friendly touchscreen interface. Connectivity with Modbus, BACnet®, LonTalk® and Trane BMS is simple with the Smart Com interface.

## Multi-pipe units - CMAB air-cooled scroll units

**BALANCE™**

*Simultaneous heating and cooling with one product*

The continuous drive to **improve energy efficiency** of building systems requires an optimal balancing in the demand and supply of both heating and cooling. In many buildings, simultaneous heating in some spaces and cooling in other spaces is needed. Continuously changing heating/cooling demand over the day is due to internal heat loads from people and IT equipment, seasonal weather and changing sun exposure.

Trane's sustainable solution: An innovative concept called **multi-pipe units**, designed to **simultaneously deliver hot and chilled water**.

- Optimal use of renewable and recovered energy
- Full energy recovery for the best return on every kilowatt-hour of electricity
- Unique controller software autonomously balancing cooling and heating capacities
- Unlike traditional reversible heat pumps, multi-pipe units have two separate heat exchangers: one for chilled and one for hot water production

Multi-pipe units are suitable for many applications, particularly in countries with mild winters or in buildings where the heating system is designed for hot water inlet temperatures of 35-60°C.



## What's New from Trane (continued)

### Sintesis Excellent GVAF high speed centrifugal chillers

**EXCELLENT**

*Unique on the market, only by Trane*



Sintesis eXcellent is a new model within Trane's Sintesis range able to reach market-leading Energy Efficiency Ratio (EER) and European Seasonal Energy Efficiency Ratio (ESEER) with lower sound levels.

This model GVAF is available with a choice of refrigerants: R134a or R1234ze which has a GWP value of less than one to exceed current F-Gas legislation requirements and help customers reduce their carbon dioxide (CO<sub>2</sub>) emissions and achieve extreme part load and full load efficiencies.

- provides a wide capacity range up to 1.6MW
- EC fan motors to reach higher part load efficiencies with lower sound levels
- Double refrigerant circuit
- Economizer circuit
- EMC filter to avoid harmonic transfer to compressor
- Designed to enable significant savings from total or partial free-cooling.
- Leading control combination Trane Tracer UC800 and TD7 display.

### UniTrane™ WFS/WFE high wall fan coil units

*A smart choice for hotels, commercial and residential applications*

UniTrane™ W-Line is Trane's high wall fan coil unit designed for optimum comfort and high performance. Available in 4 sizes and many different configurations, W-Line is easy to install and use, just like a standard fan coil. The modular design allows for mounting 2-way or 3-way valves and condensate pump into the casing, without any impact on performance and footprint.

Thanks to its modern and appealing design, the W-Line can be used for a wide range of 2-pipe applications. All sizes can be provided with standard AC fan motors (WFS) or low energy consumption EC fan motors (WFE).

Trane offers a large selection of factory-mounted options, site-mounted accessories and controls.



## Rooftops



### *Ideal for retail applications*



With Trane Airfinity™ Rooftops, you can be sure we will deliver what you need: high performance, proven reliability and easy installation. In the end, Trane rooftops deliver real value for you – and real comfort for your customer.

- Ideal performance & lowest cost of ownership - Airfinity rooftops can deliver high seasonal efficiency standards capable of meeting future European regulations such as EcoDesign.
- Integrated plug & play solution - compact and modular design with fully integrated controls, installing and operating a rooftop has never been so easy. Even the heat recovery module has been designed so that you do not need an additional roofcurb.
- Immediate replacement - designed to be fully compatible with multiple roofcurbs, without expensive adapters or other modifications.

Real comfort & Indoor Air Quality - multiple filter solutions, up to 100% fresh air management

## Solar-ready Rooftops

### *Powering solar-ready rooftops with PV panels*

Air-conditioning and ventilation can represent up to 80% of your commercial building's energy consumption. Ironically, these systems consume valuable peak power at the same time that solar energy is most available. By installing solar panels to power your HVAC equipment, you can reduce your carbon emissions and peak time electricity consumption. At the same time you can put unexploited rooftop space to good use while protecting your operation from future electricity price fluctuations.

Trane has committed to developing a solution that can reduce your operating costs while using sustainable and clean energy. We call it Airfinity™ Solar.

Trane Airfinity™ Rooftops have been specially designed to be solar-ready. That means you can now use clean solar energy to partially or totally power your air-conditioning system while continuing to benefit from the quick and easy installation of a direct expansion system.



Innovative HVAC Solutions

# H IS FOR HEATING

The warm side of Trane





# Innovative HVAC Solutions

## Our portfolio



up to 55°C

**FLEX**

**Air-cooled  
Modular scroll heat pumps  
38-3000 kW**



up to 60°C

**CONQUEST**

**Air-cooled  
Scroll heat pumps  
CXA/CXAX/CXAM  
14-327 kW**



up to 55°C

**CXCM**

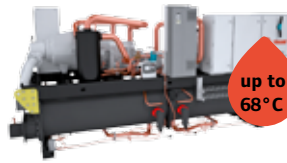
**Air-cooled  
Scroll indoor heat pumps  
62-327 kW**



up to 55°C

**CXAO/RTXB**

**Large air-cooled  
Scroll/screw heat pumps  
500-1265 kW**



up to 68°C

**XSTREAM™**

**Water-cooled  
Screw heat pumps  
RTWD/RTWF  
231-2037 kW**



up to 65°C

**BALANCE™**

**Multi-pipe units  
Scroll and screw  
CMAB/RTMA  
50-880 kW**



up to 60°C

**CGWH/CGWN**

**Water-cooled  
Scroll heat pumps  
50-375 kW**



**AIRFINITY™**

**Packaged rooftops  
Scroll  
Gas burner, heat pumps,  
dual fuel  
38-126 kW**

Learn more about Trane's heating portfolio. Contact Trane today on [www.trane.com](http://www.trane.com)



= Maximum leaving water temperature



There is world-wide demand for sustainable and more efficient products to reduce energy and resource consumption. Trane is committed to innovating and manufacturing products which are fully compliant to EU legislation on Ecodesign and energy labelling.



# Ingersoll Rand's Climate Commitment

Ingersoll Rand is helping to solve some of the world's most pressing challenges – including the unsustainable demand for energy resources and its impact on the environment.

To create a sustainable future, Ingersoll Rand announced a profound climate commitment in September 2014 – a roadmap to significantly increase energy efficiency and reduce our environmental impact from our operations and product portfolio by 2030 (with milestones at 2020). Our climate commitment has three prongs and includes:

- o 50 percent reduction in the direct GHG potential for our HVAC products by 2030
- o 35 percent reduction in GHG footprint of our own operations by 2020
- o \$500 million investment in product-related research and development over the next five years to fund the long-term reduction of GHG emissions

This commitment benefits customers and the climate by creating more sustainable product choices for customers, improving our operating footprint globally, and continuing to develop lower GHG emissions options in areas where none exist today. This commitment will result in the avoidance of approximately 20,850,000 metric tons of CO<sub>2</sub>e globally by 2020, which is equivalent to the energy used by nearly two million homes for one year.



# EcoWise™

Ingersoll Rand has created the EcoWise™ portfolio of products for its climate and industrial refrigerant-bearing products that are designed to lower environmental impact with next generation, low global warming potential (GWP) refrigerants and high efficiency operation. These products are compatible with and can use next generation low GWP refrigerants, reduce environmental impact by lowering greenhouse gas (GHG) emissions, and maintain or improve safety and energy efficiency through innovative design.

The first Trane branded products to earn the EcoWise endorsement are:

**Trane Sintesis™ air-cooled chiller** is energy efficient and quiet, and offers customers the choice of operating with a next generation, low GWP refrigerant -- DuPont™ Opteon® XP10 (R-513A) or with R-134a.

**Trane Series E™ CenTraVac** is a large-capacity chiller that uses the same low-pressure design on which current CenTraVac chillers were based, and uses a next generation, low GWP refrigerant, Honeywell Solstice™ zd (R-1233zd(E)). It is up to 10 percent more energy efficient than the next available centrifugal chiller available today.

# Trane, Providing Sustainable, Efficient Products

There is world-wide demand for increasingly efficient products to reduce energy and resource consumption. The EU legislation on Ecodesign and energy labelling is an effective tool for improving the energy efficiency of products. Ecodesign fosters innovation and eliminates the least performing products from the market, significantly contributing to the EU's 2020 energy efficiency objective. At the same time it supports industrial competitiveness by promoting the better environmental performance of products throughout the EU internal market.

**Trane policies support the objectives set by the European Union with respect to energy consumption reduction of 20% between 2008 and 2020.**

As part of Trane's sustainable product policy, Trane has always been committed to respecting the environment by reducing energy consumption through the delivery of high performing and efficient products and systems.

## What is Ecodesign?

The European Union Directive 2009/125/EC, also known as “**Ecodesign Directive**”, established a framework for the setting of Ecodesign requirements for energy-related products. The mandatory requirements are implemented through product-specific regulations and directly applicable in all EU countries.



One of the product-specific regulations in this journey impacts Trane's portfolio of reversible heat pumps and multi-pipe units, with a maximum rated heating capacity of up to 400 kW.

## New Metrics To Understand

**$\eta_s$  (ètás) = Seasonal Primary Energy Efficiency.**

To allow comparison with other heating products using gas or any fossil energy,  $\eta_s$  is going to be expressed in % of primary energy.

$\eta_s$  qualifies heat pump/multi-pipe unit efficiency in a *different way* than **COP** was doing, by taking into account:

- Full and part load operation of equipment, rating efficiency at several loads and temperatures, rather than one single point at full load
- Additional electricity consumption of auxiliary modes (Thermostat off, Standby, Off Mode, etc...)
- Operating time according to various temperatures

**SCOP, Seasonal Coefficient of Performance**, is a translation of  $\eta_s$  using the ratio to primary efficiency. In Europe, the primary efficiency ratio is 2.5, meaning that 2.5 kW of primary energy (fuel, gas etc...) is needed to produce 1kW of electricity.

Consequently: **SCOP =  $\eta_s$  x 2.5**

## Minimum Efficiency Thresholds for Heat Pumps and Multi-Pipe Units

### From September 2015:

Medium temperature, hot water at 47/55°C:  $\eta_s = 100\%$  (or SCOP = 2.5)

Low temperature, hot water at 30/35°C:  $\eta_s = 115\%$  (or SCOP = 2.875)

### From September 2017:

Medium temperature, hot water at 47/55°C:  $\eta_s = 110\%$  (or SCOP = 2.750)

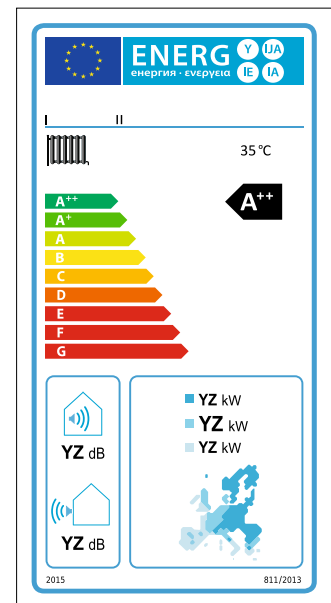
Low temperature, hot water at 30/35°C:  $\eta_s = 125\%$  (or SCOP = 3.125)

## Energy labelling

- Required on all products under 70 kW rated heating capacity
- Provides consumers with clear and easy to understand information
- Product energy efficiency classes range from G to A

### Energy efficiency classes

Class	Boilers and mid-temperature heat pumps (operation at 47/55°C)	Low temperature heat pumps (operation at 30/35°C)
<b>A*** (from Sept 2019)</b>	$\eta_s \geq 150$	$\eta_s \geq 175$
<b>A**</b>	$125 \leq \eta_s < 150$	$150 \leq \eta_s < 175$
<b>A*</b>	$98 \leq \eta_s < 125$	$123 \leq \eta_s < 150$
<b>A</b>	$90 \leq \eta_s < 98$	$115 \leq \eta_s < 123$
<b>B</b>	$82 \leq \eta_s < 90$	$107 \leq \eta_s < 115$
<b>C</b>	$75 \leq \eta_s < 82$	$100 \leq \eta_s < 107$
<b>D</b>	$36 \leq \eta_s < 75$	$61 \leq \eta_s < 100$
<b>E</b>	$34 \leq \eta_s < 36$	$59 \leq \eta_s < 61$
<b>F</b>	$30 \leq \eta_s < 34$	$55 \leq \eta_s < 59$
<b>G</b>	$\eta_s < 30$	$\eta_s < 55$



All Trane Heat Pumps and Multi-Pipe Units are fully compliant with the Ecodesign Directive, also being a pre-requisite to obtain CE compliance.

**By acquiring one of our products, you have the peace of mind that your HVAC system will be one of the most efficient systems available on the market today...while offering the lowest life cycle costs for years to come.**

# Proven performance to make buildings work better



Businesses around the world are being challenged to improve energy efficiency. According to the World Business Council for Sustainable Development, buildings worldwide account for 40% of global energy consumption. Of that amount, between 45% and 65% is used by HVAC systems that keep building environments comfortable and healthy. The slightest inefficiencies in cooling and heating equipment create a huge energy drain and the financial impact is significant. Trane captures emerging technologies when designing products, and develop with energy efficiency, and low operating costs in mind, to allow building owners to manage energy better. Whether it is a chiller rated Class A in the Eurovent\* certification program – or water terminals equipped with an EC fan motor - saving the customer energy costs is one of Trane's priorities.

## The proof is in the testing

The testing process starts in research and development. We look at environmental performance, acoustic characteristics, operating longevity, and overall operating efficiency.

At Trane, computer selection programs predict equipment performance based on laboratory testing.

Factory performance tests confirm that the actual Trane product performance matches the predicted performance and the results serve as a benchmark during the commissioning process.

We are committed to the highest level of design and manufacturing accuracy to make sure that your products performs as expected.

Trane European HVAC Research and Development Testing Facilities fully comply with European Standard EN 14511, meaning that procedures, measurements and conditions are respected to provide our customers with trustable and certified performances.

Eurovent certification of air-cooled chillers is on a voluntary basis above the cooling capacity of 600 kW. Trane's commitment to deliver guaranteed performance is demonstrated by Eurovent certification of all capacities across the range of Trane products.

After an extensive and rigorous inspection process conducted by Eurovent, Trane's test stands in Charmes, France are approved for conducting Eurovent certification tests for air-cooled chillers above 600 kW, recognizing the right to Trane to test chillers up to 1,500 kW in his own facilities as part of the certification program.

The Eurovent certification brings clarity and transparency. It also shows the Trane commitment to deliver systems with high levels of performance and reliability.



\*Eurovent, the European Association of Air Handling and Refrigerating Equipment Manufacturers, certifies the performance ratings of air conditioning and refrigeration products according to European and international standards. The objective is to build customer confidence by increasing the integrity and accuracy of industrial performance ratings.



# Trane HVAC Systems

*Every building has a purpose, whether it's to nurture inventions, house masterpieces, cultivate learning or even to host birthday parties. A true high performance Heating, Ventilating and Air Conditioning (HVAC) system is one that makes your building work better for life.*



# Trane solutions for the lodging industry

## Reaching for perfection

Maintaining a high and consistent level of comfort is critical in the lodging industry. Hotels succeed or fail based on their ability to achieve high occupancy levels at profitable rate levels. The prime influence on this occupancy rate is guest satisfaction. A room that is uncomfortable creates a powerful negative impression. Trane has both experience and a portfolio of products to help operators of hotels attract and retain guests.

Trane Balance™ high efficiency multipipe units provide simultaneous delivery of 0 - 100% heating and/or cooling all year round, increasing guest comfort in each hotel room, and significantly reducing energy costs.

Trane has decades of experience working with the lodging industry, from individual hotels to global chains. Energy is the second-highest operating cost component in the lodging industry. We know that from 50 to 80 percent of the energy costs in lodging are related to HVAC system operation and have the solutions to keep your energy costs to a minimum with efficient equipment and high performance building management systems.







- 1 = Chilled water plant: 2 Conquest CGAX scroll chillers with factory-mounted controller  
 2 = Fresh air control: AHU with Trane factory mounted-control (UC400/UC600)  
 3 = Room comfort: DFE with EC fan motor and Trane factory-mounted control (ZN525/UC400)  
 4 = Humidity air control for gym and swimming pool: AHU with UC600  
 5 = Building systems operations and management: Trane Tracer Ensemble™ and Tracer™ SC web-based solutions  
 6 = Access and room booking systems integration: through standard BACnet® protocol

### Control systems improve comfort, simplify maintenance and optimize operation

Within your lodging facility, there are areas with varying requirements. Guest rooms, lobby areas, dining areas and recreation zones all have different environmental requirements. Food preparation areas need extensive ventilation and to be kept separate from other areas. Pools and gymnasiums also have special temperature requirements and need effective dehumidification year round. Part of the solution is quality equipment, properly sized, and correctly installed. The other part is a control system that can keep all areas operating in harmony.

A control system also makes it possible to optimize equipment operation. For example, in a chilled beams system, the primary air conditions (temperature/humidity) can be reset according to the most demanding zone.

### Comfort systems and the bottom line

Trane's international organization appreciates that different regions have varying comfort needs, building codes, and engineering practices. Our vast local sales and service support teams, with their extensive local experience and customer relationships, add value to your plans. Regardless of the size or scale of your lodging business, we're ready to help.

### Building operation at your fingertips

With Trane web-based BMS solutions, the overall building operation can be monitored and managed from anywhere. Alarms and events are routed to operators' smartphones and computers, wherever they sit, no matter how many users there are.



## Trane solutions for retail businesses

### Creating the perfect atmosphere

From simple stores to modern shopping complexes, Trane has experience in the retail business. We know that the temperature, humidity and ventilation management needs of stores are different than for other buildings.

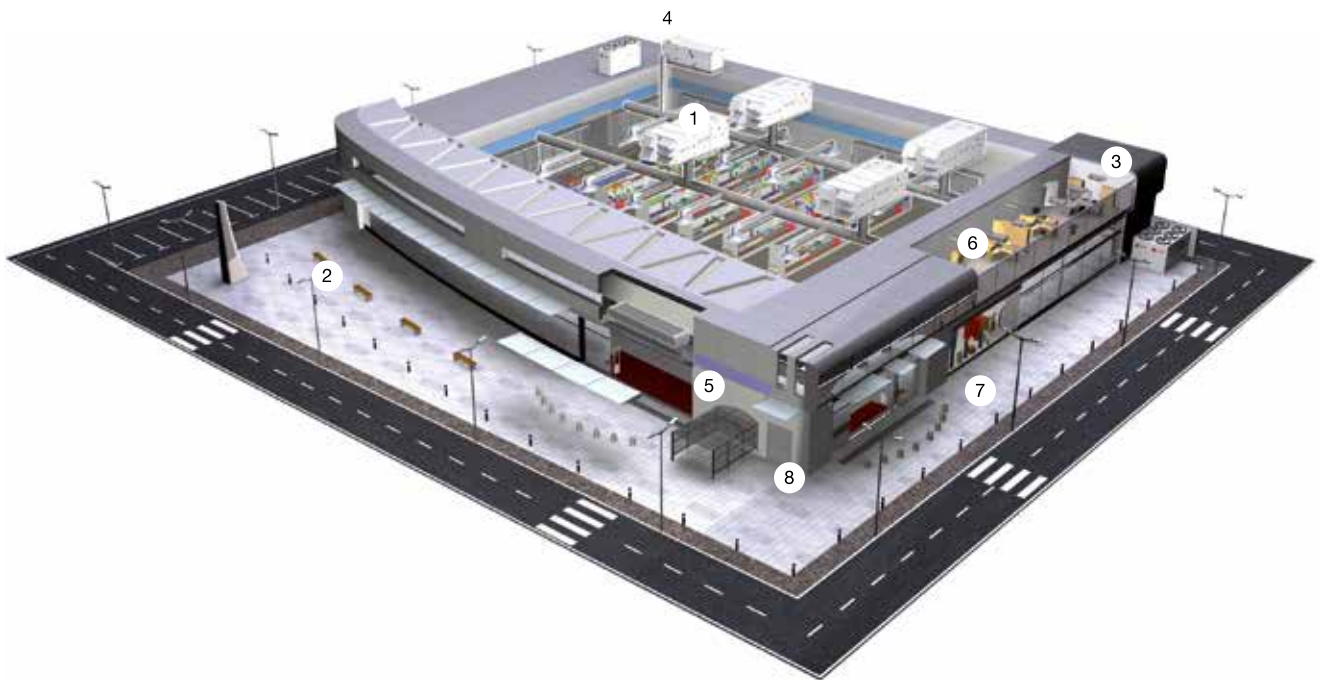
Leveraging our experience, we can help you identify specific areas for energy and comfort improvement and keep your buildings operating at their design levels. And with contingency planning and our thousands of equipment and controls technicians, we can help you reduce the risk of sales lost due to comfort system failure.

### Delivered system

Trane's light commercial BMS only requires a few settings to be implemented on an application. Thanks to the capability of any Trane HVAC equipment to communicate over a network, the BMS manages to identify these equipment linked together, builds the corresponding database and automatically offers to the end user predefined functions such as time-of-day schedule, automatic setpoint reset, zone management or alarming menu, with almost no labor required.

If you want to customize your interface, convenient software is available to do this. The system is compact and convenient to install and wire up. Trane's equipment uses open standard protocols, which are often present in retail buildings.





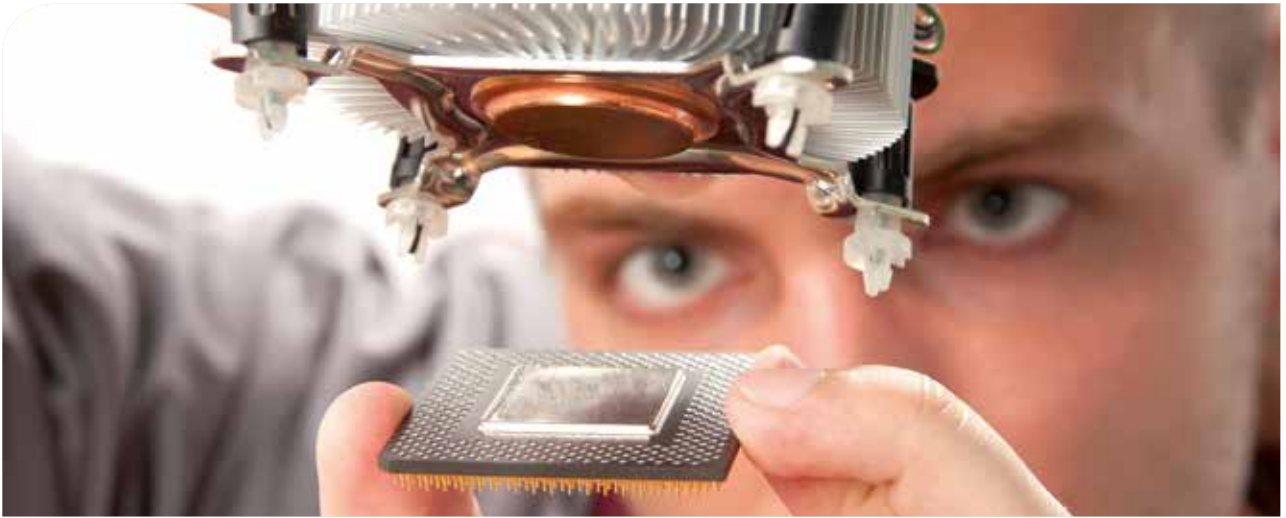
- 1 = Space temperature and humidity control: Voyager™ rooftop units with factory-mounted control: ReliaTel™
- 2 = Lighting control: either through Trane dedicated I/O controller (MP581, UC400, UC600) or by integrating a specific lighting control system through standard protocol (BACnet® to DALI as an example)
- 3 = Building systems operations and management: Trane Tracer Ensemble™ and Tracer™ SC web-based solutions
- 4 = Cold aisle retrieval: AHU with Trane factory-mounted controls (UC600)
- 5 = Air curtains: DFE with EC fan motor and Trane factory-mounted control (UC400)
- 6 = Office space comfort: DFE with EC fan motor and Trane factory-mounted control (UC400)
- 7 = Retail store comfort: VAV with Trane factory-mounted control (UC210/UC400)
- 8 = Energy metering and monitoring: meters integrated through communication protocol, and data presented as graphs on the Trane Tracer™ SC/Tracer Ensemble™ custom web pages

### The advantage of single sourcing

Trane's delivered system offers an additional perspective, since every piece of the puzzle comes from the same manufacturer. It is far easier to coordinate equipment delivery, commissioning and fine tuning, since only one contact is involved for this. On top of this, Trane personnel are well trained for the entire system components, ensuring efficiency in commissioning, and fast response.

### Energy savings

Various pre-engineered tactics, such as setpoint reset, time-of-day scheduling and duty cycle, have been implemented in the system to improve system energy efficiency, without altering system comfort management capability. Trane's system is easy to install, set up and use. This means that system updates, daily operations and maintenance can be done by operation personnel very easily, requiring very little training. Trane's system also has the capability to control ancillary equipment, such as lights, parking lots, energy meters, and any equipment controlled by to a time-of-day schedule. Trane's delivered BMS for commercial applications is a powerful answer to customers who want a very easy-to-use system, capable of simplifying their life all along the project life cycle.



## Trane solutions for industries

### Reliable Trane systems your industry can count on

Trane has a wide experience in industrial control applications, starting from simple chillers to complex systems that are optimized for improved efficiency. One of the highest priorities of Trane engineers when designing an industrial application is to ensure a system that is reliable. Trane proposes systems that can revert to a safe standalone running mode should any issue such as communication troubles arise, continuing to deliver cooling capacity until the issue has been analyzed and fixed. In addition, Trane always proposes simple-to-use user interfaces which offer just the right amount of information about system status and running conditions. Since every piece of equipment is hooked up to a network, the user can access system and units information at any time, allowing for easy diagnosis, and easy understanding of system reactions.



### Variable Primary Flow (VPF) capabilities

VPF systems provide building owners with multiple cost savings derived directly from pump operation. Trane chillers are designed to make VPF easy to use. With the help of a TRANE software analysis tool, you can determine whether the anticipated energy savings justify the use of VPF in a particular application.



- 1 = Critical systems monitoring - Electrical power, cooling loads  
 2 = System water flow control - Variable frequency pump control: VarioTrane TR200  
 3 = Chiller condenser operation - Cooling towers control: UC600  
 4 = Chiller plant control: 3 XStream™ helical-rotary chillers with factory-mounted UC800, Twin pump control for each chiller: Tracer™ SC  
 5 = System monitoring and control - Supervision: web-based Trane Tracer Ensemble™ and Tracer™ SC

### Chiller Plant Management

Application is a pre-engineered function within Trane controllers, as to deliver a consistent, reliable and repeatable performance from project to project, with a minimum commissioning time.

### Personalized optimization

Chiller technology and unit sizes arrangement are analyzed so you get the best result of their installation, according to their system load profile. Chiller Plant sequencing is a powerful pre-engineered function that only requires parameters to be able to drive the installation at its highest level of optimization.

### Technical services

Trane proposes its simulation and solution evaluation software. Using this tool, you can easily evaluate the best alternative for solving a problem, by viewing the solutions from different angles, such as economical aspects, technical aspects, safety and reliability.

### Trane Building Services

It is easy to get assistance from Trane in concluding a maintenance and service contract including HVAC and BMS equipment/software. This way, system fluctuations, fine tuning etc. can be done by people working in sync with those teams that have originally developed the application. This ensures service continuity as well as efficiency in answering any request of system improvement or adaptation.



## Trane solutions for office buildings

### Adapted to your evolving requirements

In addition to HVAC application solutions for large scale building projects, Trane has developed one of the most open Building Management System solutions available on the market. Trane's BMS caters to office building comfort applications with fully optimized functions.

These functions offer several unique advantages to you along the project cycle.

Trane's BMS is a highly flexible system that offers ease of (re)configuration. This allows the system to be adapted at every step of a project. Large buildings regularly require space rearrangements (open space) and Trane's system is fully capable of managing space reconfiguration, thanks to advanced master/slave capabilities of terminal unit's controller, perfectly fitted in the global BMS.

Trane's BMS is based on the latest web technologies, allowing for a high performance User Interface, as well as full flexibility with regards to accessing the system. Using a simple web browser software on any PC connected to the customer network, users can monitor and manage the assets, from wherever they are.

The system then allows multiple users to access the system simultaneously, improving the overall productivity in the asset management team.

Building its own electronic components was a choice that Trane made as to perfectly master the complete product life cycle, from development, engineering, manufacturing, up to maintenance, support and upgrade. This means that Trane's solution is reliable and offers full equipment integration and system interoperability.





- 1 = Weather information
- 2 = Chilled water plant: helical-rotary chillers with factory-mounted UC800: chiller plant control application
- 3 = Primary air control: AHU with factory-mounted UC600
- 4 = Open space comfort: Fan coil units with factory-mounted controller
- 5 = Environmental comfort: Lighting control, Sunblind control
- 6 = Tenant interface: setpoint and room conditions information: web server
- 7 = Web server application (Tracer™ SC/ Tracer Ensemble™) broadcasting web pages to any workstation in the building
- 8 = Variable air flow control AHU and VariTrane™ valves: UC600, UC400 and UC210
- 9 = Hot water plant: heat pump control application
- 10 = Electrical power monitoring
- 11 = Interoperability: access control system monitoring: BACnet®+ LonTalk®

### System efficiency

Trane has developed pre-engineered functions within Tracer controllers that allow a high level of system efficiency which can be seen from different angles:

*Efficient commissioning* - Minimum programming is required to set up these functions and the BMS project engineers can spend more time in fine-tuning the system rather than developing the applications from scratch.

*Perfect equipment coordination* - Each piece of Trane HVAC equipment comes with its own factory-mounted controller. All these controllers have been developed keeping in mind their possible association within a system and thus, their interaction is possible within Trane's BMS.

*Fine-tuning*- Trane's BMS allows operations managers to get a customized report of the current system status, by the simple click of a mouse.

### Total comfort

Trane's excels in developing HVAC equipment.

Trane's engineers go further to consider the equipment in their global environment. This means that on top of ensuring equipment safeties and running condition efficiency, care has been taken to ensure low sound levels, energy savings, etc. Through the use of Trane's BMS, these aspects of equipment running conditions are further improved. As an example, a VAV box can be driven according to pressures and running conditions of the AHU that is serving it. Or the AHU that delivers primary air to a chilled beam system would shift from air-economizer mode to mechanical dehumidification if the outside air becomes too humid. The equipment exchanges data in order to align the respective working conditions to deliver the optimum service to the end user.



## Chiller plant system applications

Trane's proven expertise in chillers has led to the development of advanced chiller plant control applications within its Building Management System. The system is also fully capable of handling boiler plants.

Trane is the expert in providing advanced HVAC applications knowledge. For example, our Variable Primary Flow system enables savings both on the equipment capital costs and operational costs. The use of other solutions, like ice storage, condensing pressure optimization, free cooling, heat recovery, water source heat pump systems, can bring your process up to 60% in energy savings. Trane will help you in selecting, designing and documenting the best systems for your building needs.

Most efficient results can be achieved with well-prepared piping arrangement. Trane specialists in hydraulics and chillers application always review the system drawings before any proposal is made. This helps Trane to clearly point out what the installation is really capable of delivering, and to position these capabilities regarding what is expected.

Once this is clear, Chilled Water System Management adds advanced capabilities to the customer's installation:

### Flexibility

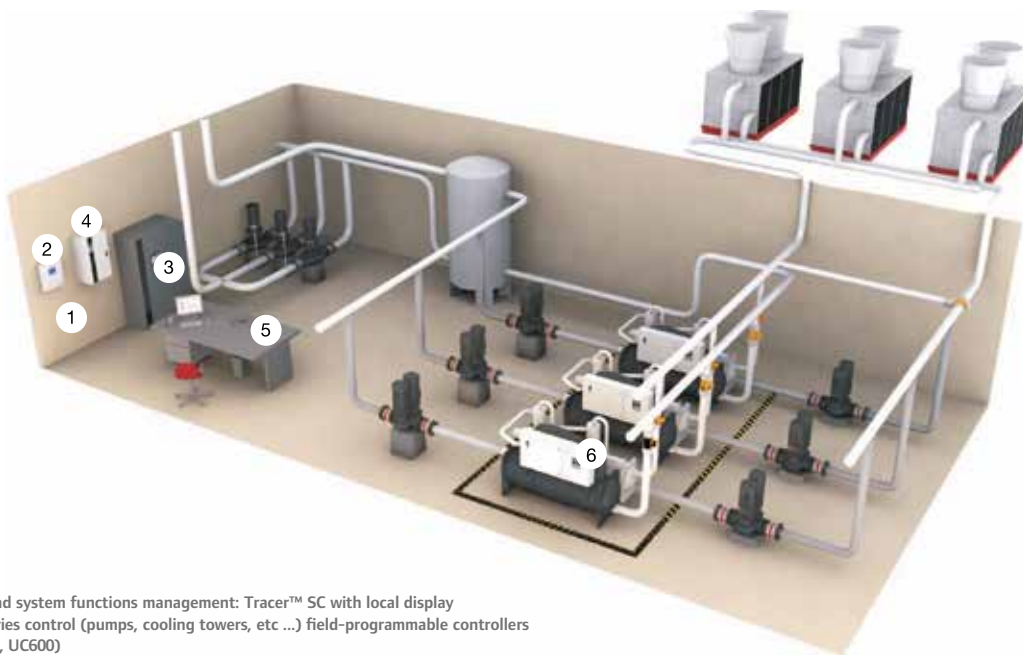
Chilled Water System Management offers flexible interfaces to operate a chiller plant. By a few mouse clicks, chillers can be turned into maintenance, sequence numbers can be adjusted and rotation can be initiated. The same interface also helps operation personnel exactly know what the installation has been doing, is currently doing and will be doing in the near future. At any time, the operator can anticipate system reactions. System graphics for plant operation can be monitored from an Intranet, using a web browser.

### Energy savings

Chilled Water System Management, including Variable Primary Flow, always ensures that chillers are used in their most efficient operation conditions. Unit technology and environment conditions are monitored by Chilled Water System Management, which adjusts parameters according to changes in the system running conditions.

Should there be a change, the system anticipates and adds/removes chillers accordingly. The system also controls all ancillaries such as pumps, cooling towers, and dry coolers.





- 1 = Data and system functions management: Tracer™ SC with local display  
 2 = Ancillaries control (pumps, cooling towers, etc ...) field-programmable controllers (UC400, UC600)  
 3 = Plant control panel monitoring: field-programmable controllers (UC400, UC600)  
 4 = Water flow control: VarioTrane VFD's (TR200 series)  
 5 = User interface: local touchscreen PC, or any PC connected through web browser, web pages served by Trane Tracer™ SC  
 6 = 3 RTHD helical-rotary chillers with Tracer UC800 Controller and TD7 Interface

## Reliability

Chilled water production is crucial for your process and Trane's system ensures continuous delivery of chilled water. Every chiller is equipped with its own electronic controller embedded with an adaptive control algorithm. Each controller is fully compatible with the Building Management System and communicates over a standard protocol, sharing all its running conditions. This allows the management system to not only turn on/off chillers according to temperatures or temperature differences, but also consider current running conditions of chillers, such as maximum capacity reached, limit conditions, and so on, in order to know system capacity at all times.

## Interoperability/integration

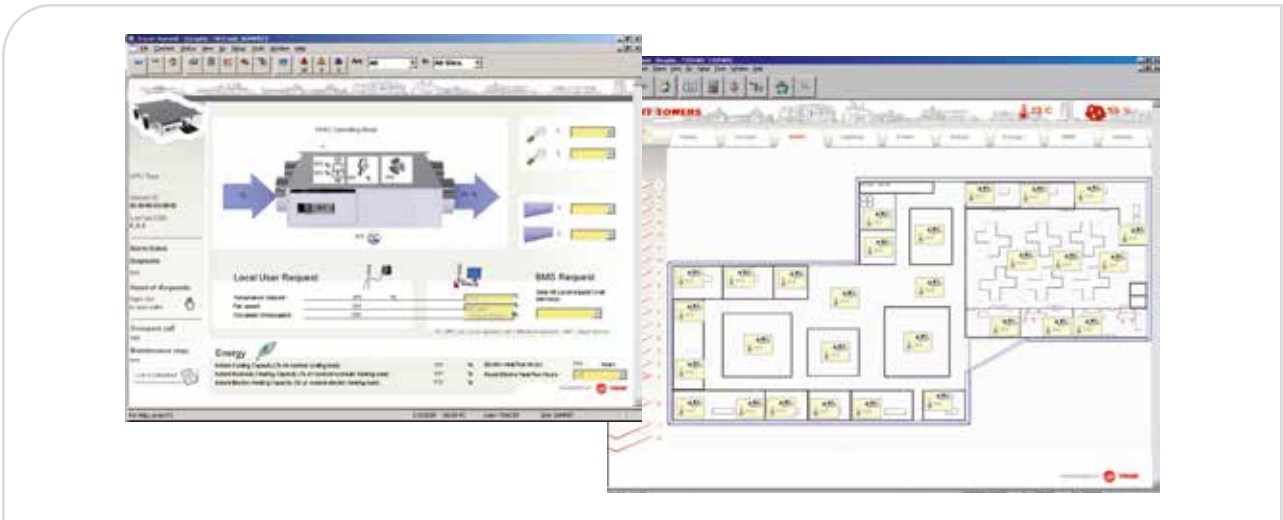
Trane systems are fully capable of communicating with any equipment and/or management system through the use of open standard protocols, such as BACnet®, or LonTalk®. Modbus is also supported allowing for a wide range of integration and data sharing with ancillaries, such as pumps, sensors or PLC's. Trane systems are capable of integrating either standard LonTalk® profiles as well as BACnet® MS/TP or IP-based devices.

## Protection

Trane systems offer a high level of protection against unexpected system operation. Operators can be authorized to monitor data only, write setpoint and other parameters, create graphics or just view them, modify system layout, and so on. Every action on the system is recorded in an event log. Events can then be monitored, filtered by date/operator/device, etc. Events can be seen either at the PC level, or from a local touchscreen available in the plant room.

## Assistance

Trane systems allow for system remote monitoring. Alarms can also be forwarded remotely. Trends, event log, system status can be accessed from any location where an access to the Internet/intranet is possible. After commissioning, Trane personnel can get connected to the system and monitor/fine tune parameters to adapt the overall system performance.



## Water system applications

Water terminal units and chillers are Trane core products. Understanding how this equipment is being used together is part of Trane know-how that has been converted into a Management System. Other equipment serving building comfort system is also under Trane system, control such as air handling units, exhaust fans, water treatment, but also ancillaries such as lights, power distribution panels, and so on. The system that Trane offers covers key points for a project to be successful.

### Comfort

Trane has developed advanced electronic controllers that offer individual comfort at each terminal unit level.

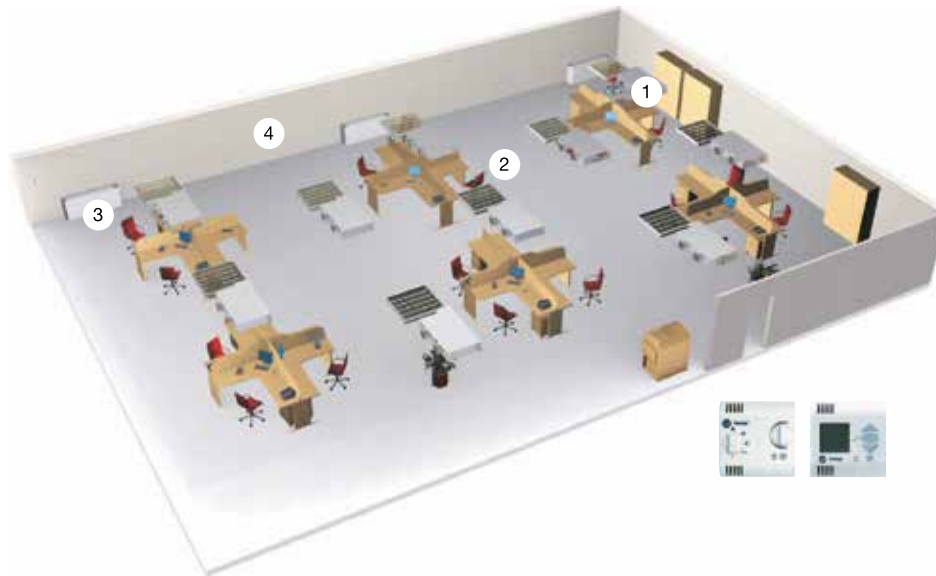
- Temperatures are monitored and controlled to stay within limits each user can adjust wall sensors or web pages.
- Sound level is maintained at its minimum value and air movement reduced as much as possible by the control of fan speed. Trane's offer also includes chilled beams which operate without a fan guaranteeing very low sound levels.

- Comfort is maintained year-round; cooling/heating modes are controlled automatically and intelligently, change over being totally transparent to the occupant.
- Comfort for the operation manager is also ensured. Master/slaving is now very easy to set up and reconfigure. Open space re-design can be done in very short period of time.
- Indoor Air Quality (IAQ) is also one of the advantages of a Trane system which is capable of monitoring and maintaining IAQ within optimum limits.

### Ease of use

Trane systems communicate through open protocols (LonTalk® BACnet®). The system handles several types of user interfaces, so that every user can have access to the information he needs.

- Terminal units can be equipped with wall sensors embedding indications such as setpoint, timed override, and temperature values. This information can be adjusted within pre-determined limits.



- 1 = Open space comfort: UniTrane™ fan coil with factory-mounted controller  
 2 = Ancillaries control: Lighting control: EXL, Sunblind control: EXB  
 3 = Open space comfort: UniTrane™ fan coils with factory-mounted controllers  
 4 = Tenant interface: Setpoint and room conditions information: Zone Sensor (ZSM 10.1, ZSM 10.2, ZSM 11)

- Operation managers can have access to system status by using an advanced graphical interface running on a PC. This status can be filtered and organized according to the use. Software interfaces integrate a user-friendly graphical interface allowing authorized users to change/create graphics to optimize them for their own use.
- Operation engineers can have access to system information in the different technical locations in the building by the use of VGA touchscreens, on which local data are presented.
- Time-of-day (TOD) scheduling offers a very convenient interface for TOD adjustment, group/zone creation or modifications.
- Every single piece of equipment in the system can be focused on. It can be overridden in any state as for maintenance or test purposes.
- Equipment or system alarms can be monitored and broadcasted on the system so that the best recipient can get a notice for this particular event and react in the most efficient manner.
- A web server allows for system performances monitoring from a PC equipped with a simple browser.

### Savings

Through the coordination of all equipment within the building, it is quite simple for the management system to optimize energy consumption. Savings also are available at system design and system commissioning phases.

- Water system management can be organized, so that either chilled water or hot water production is handled in the most efficient way.
- Equipment schedules integrate a function of optimization, which determines building inertia and adjusts start/stop time according to temperatures/relative humidity and building occupancy.
- Each Trane piece of equipment is delivered with factory-mounted controls which are ready to work when the equipment leaves the factory.

Coordination of production (cooling/heating) and use (fan coils, air handling units, chilled beams...) is one of the best approaches to optimize system operation.

Communication is the key factor for this to be efficient. Communication is also an essential factor for some HVAC systems, such as chilled beams in which indoor terminals rely on the primary air AHU for zone humidity control. All Trane equipment integrates a standard protocol interface.



# Notes

A series of horizontal dotted lines for taking notes.



**TRANE**<sup>®</sup>



# Chillers

*More than half of the large buildings in the world today have a Trane chiller at their core. Not only do our chillers help create comfort, they also help reduce your cost of operation, provide energy efficiency and minimize environmental impact.*



# CGA

## Air-cooled scroll chiller



### Customer benefits

- Digital Defrost is a self-adaptive defrosting system able to intervene only in case of a consistent thickness formation of ice on the coils' fins.
- Dynamic Logic Control manages the differential of the inlet water temperature on the basis of the speed of its variation. Thanks to the DLC the number of the compressor starts decreases ensuring economic and energy savings.
- Dynamic Set Point function allows changing the setpoint simultaneously to always achieve the conditions of best comfort and maximum energy savings.

### Main features

- Scroll compressor
- Axial fans propeller type
- Airside heat exchanger with seamless copper tubes and aluminium fins
- Waterside heat exchanger steel brazed plate fitted with differential pressure switch and antifreeze protection electric heater
- Low ambient condensing pressure control with variable fan speed modulation
- Electrical panel with main switch
- Casing and panels in galvanized and painted steel

### Options

- Low ambient temperature kit (down to  $-10^{\circ}\text{C}$ )
- Low water temperature kit (down to  $-6^{\circ}\text{C}$ )
- Hydraulic module with water pump
- Hydraulic module with water pump and water tank (delivered separately)
- Compressors sound jackets
- Soft - starter
- Control panel electric heater with thermostat
- Phase failure protection relay
- Epoxy coated condensing coils

### Accessories

- Remote control panel
- Communication card RS485
- Flow switch
- Automatic water filling
- Water strainer
- Water gauges
- Rubber anti-vibration mounts

### Controls

- Microprocessor-based controller to manage unit on/off mode, operating mode setting, parameters setting, and error code display

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.

Operating outdoor air temperature range (min./max.) (1)	(°C)	-5 (-10) / +43°C
Leaving water temperature range (min./max.) (1)	(°C)	-6 / 18°C
Power supply	(V/Ph/Hz)	400/3+n/50

CGA		040	060	070	080	105	115
Cooling capacity (2)	(kW)	14.6	20.9	23.7	29.0	36.6	40.4
Total power input (2)	(kW)	4.8	7.1	8.6	9.8	12.1	14.0
EER (2)		3.00	2.93	2.77	2.96	3.03	2.90
ESEER (2)		3.43	3.25	3.11	3.27	3.38	3.19
Sound power level (3)	(dBA)	76	72	73	74	75	81
Sound pressure level (4)	(dBA)	50	46	47	48	48	55
Number of circuit(s)		1	1	1	1	1	1
Number of compressors per circuit		1	1	1	1	1	1
<b>Dimensions and weights (operating)</b>							
Length	(mm)	1125	1465	1465	1671	1671	1671
Width	(mm)	440	560	560	560	560	560
Height	(mm)	1444	1448	1448	1687	1687	1687
Weight (5)	(kg)	168	246	255	288	291	301
Weight water tank	(kg)	70	96	96	135	135	135
<b>Electrical data</b>							
Maximum amps	(A)	10.8	26.3	29.3	35.9	41.9	42.9
Start-up amps	(A)	72.8	102.3	146.3	148.9	164.9	203.9

(1) In parentheses: With low ambient temperature option

(2) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.

(3) At Eurovent conditions, with 1pW reference sound power, according to ISO9614

(4) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ .

This is an averaged value considering the unit as a parallelepipedic box with five exposed face areas.

(5) Excluding water tank



# Flex

## Air-cooled modular scroll chiller



### Customer benefits

- Ultimate flexibility: up to 12 units can be combined into one system in order to reach the required capacity

### Main features

- Scroll compressors
- Axial fans statically and dynamically balanced
- Airside heat exchanger high efficiency finned coils with seamless copper tubes expanded into corrugated aluminum
- Waterside plate heat exchanger with differential pressure switch and antifreeze protection electric heater
- Condensing and evaporating pressure control with variable fans speed modulation
- Thermostatic expansion valve
- Casing and panels in painted galvanized steel

### Options

- Partial or total heat recovery
- Low noise or super low noise versions
- Hydraulic kits
- Electronic expansion valve
- Power factor correction
- Low ambient temperature kit
- High pressure 100 Pa fans

### Accessories

- Remote display
- Communication card RS485
- Signal amplification card
- Flow switch
- Automatic water filling
- Water strainer
- Water gauges
- Rubber or spring anti-vibration mounts

### Controls

- Microprocessor-based controller to manage unit on/off mode, operating mode setting, parameters setting, and error code display

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.



Operating outdoor air temperature range (min./max)	(°C)	-20 / +43°C
Leaving water temperature range (min./max)	(°C)	-6 / 15°C
Power supply	(V/Ph/Hz)	400/3/50

Flex		140Z	150Z	155Z	160Z	170Z	180Z	190Z	1110Z	1120Z
Cooling capacity (1)	(kW)	40.7	48.7	55.1	60.5	71.6	83.2	94.1	106	115
Total power input (1)	(kW)	16.4	18.9	21.3	24.9	28.3	31.3	37.1	41.9	42.9
EER (1)		2.48	2.57	2.58	2.43	2.53	2.66	2.54	2.53	2.67
ESEER (1)		3.55	3.75	3.83	3.87	3.56	3.72	3.87	3.99	4.14
Eurovent class		E	D	D	E	D	D	D	D	D
Sound power level (2)	(dBA)	78	79	79	80	82	85	86	86	86
Sound pressure level (3)	(dBA)	46	47	47	48	50	53	54	54	54
Number of circuit(s)		1	1	1	1	1	1	1	1	1
Number of compressors per circuit		2	2	2	2	2	2	2	2	2
<b>Dimensions and weights (operating) (4)</b>										
Length	(mm)	1460	1460	1460	1460	2558	2558	2558	2558	2558
Width	(mm)	1100	1100	1100	1100	1100	1100	1100	1100	1100
Height	(mm)	2025	2025	2025	2025	2090	2090	2090	2090	2090
Weight	(kg)	477	492	508	513	704	824	835	900	923
<b>Electrical data</b>										
Maximum amps	(A)	47	53	61	67	76	82	95	106	106
Start-up amps	(A)	123	170	174	190	199	214	259	304	304

Flex		1130Z	1140Z	1150Z	1160Z	1190Z	1200Z	1220Z	1250Z	1300Z
Cooling capacity (1)	(kW)	127	137	150	162	187	196	214	244	303
Total power input (1)	(kW)	48.9	52.9	60.1	62.7	71.6	81.8	80.8	95.3	123
EER (1)		2.60	2.59	2.50	2.59	2.61	2.40	2.65	2.56	2.46
ESEER (1)		4.11	3.88	3.71	3.78	3.97	3.45	3.91	3.63	3.41
Eurovent class		D	D	D	D	D	E	D	D	E
Sound power level (2)	(dBA)	86	87	87	87	89	88	91	89	92
Sound pressure level (3)	(dBA)	54	55	55	55	57	56	59	57	60
Number of circuit(s)		1	1	1	1	1	1	1	1	1
Number of compressors per circuit		2	2	2	2	2	3	2	3	3
<b>Dimensions and weights (operating) (4)</b>										
Length	(mm)	2558	3599	3599	3599	3599	3599	2558	2558	3530
Width	(mm)	1100	1100	1100	1100	1100	1100	2200	2200	2260
Height	(mm)	2090	2205	2205	2205	2205	2205	2205	2205	2400
Weight	(kg)	931	1208	1244	1308	1353	1463	1553	1766	2365
<b>Electrical data</b>										
Maximum amps	(A)	119	139	150	167	178	195	192	249	288
Start-up amps	(A)	317	380	391	408	501	393	515	490	611

(1) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.

(2) At Eurovent conditions, with 1pW reference sound power, according to ISO9614.

(3) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepiped box with five exposed face areas.

(4) Refer to product catalog for dimensions of units with hydraulic kits.



# CGAX

## Air-cooled scroll chiller



### Customer benefits

The best value chiller thanks to:

- Low energy consumption: superior part load efficiency (ESEER)
- Silent operation: discreet, even in the most sound sensitive applications
- Unique feature: efficiency maintained when sound decreases
- Compact design: easier jobsite integration
- Reliability: main components designed and manufactured by Trane
- User-friendly control interface and interoperability with building automation systems
- Reduced refrigerant charge

### Main features

- Compact design: reduced footprint and low profile design
- High quality finish
- One part load optimized efficiency level
- Two acoustic packages: SN, LN with no loss of efficiency
- Single and/or dual circuit offering
- Microchannel condenser coils
- Wide operating map: airside and waterside

### Options

- Various integrated hydraulic modules: single/dual pump, low/high head pressure
- Buffer tank for reliable and smooth operation
- Low temperature process cooling (<math><4^{\circ}\text{C}</math>)
- Low ambient operation (<math>-18^{\circ}\text{C}</math>)
- E-coated condenser coil
- Partial heat recovery (PHR)
- External protection grill
- High efficiency version (HE)
- Smart Flow Control (Variable-Primary Flow)
- High external static pressure (HESP)
- Smart Plant Control
- Supplemental heat
- New software minor release (R1.4004)

### Accessories

- Elastomeric isolators

### Controls

- New Trane light commercial controller
- Standard 6 navigation button LCD display
- Optional deluxe display
  - Easy to read 7-inch color touchscreen display
  - Industry leading algorithms
  - Open protocol design
  - Adaptive control
- SmartCom interface: LonTalk®, Modbus®, BACnet® communication capabilities

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.

Operating outdoor air temperature range (min./max.) (1)	(°C)	-18 / +46°C
Leaving water temperature range (min./max.) (2)	(°C)	-12 / 20°C
Power supply	(V/Ph/Hz)	400/3/50

<b>CGAX Standard and High Efficiency</b>		015	017	020	023	026	030	036	039	045	035	040	046	052	060
Cooling capacity (3)	(kW)	43	49	59	65	74	82	99	111	129	97	116	129	147	164
Total power input (3)	(kW)	15	17	19	22	26	29	33	38	41	35	39	47	51	58
EER - SE & HE versions		2.98	2.88	3.08	2.95	2.87	2.84	2.96	2.92	3.08	2.79	2.97	2.78	2.86	2.83
ESEER - SE version		3.89	3.93	3.81	3.82	3.84	3.80	3.93	4.13	3.98	3.83	3.64	3.59	3.75	3.81
ESEER - HE version		3.97	3.98	3.96	4.03	3.93	3.86	4.04	4.22	4.14	3.87	3.82	3.76	3.84	3.88
Eurovent Efficiency Class - cooling		B	C	B	B	C	C	B	B	C	C	B	B	C	C
Sound power level (standard noise)	(dBA)	83	83	85	85	85	86	84	85	87	86	88	88	88	89
Sound pressure level (standard noise)	(dBA)	53	53	55	55	55	55	54	54	56	55	57	57	57	58
Sound power level (low noise)	(dBA)	77	77	79	79	79	80	79	80	82	81	82	82	82	83
Sound pressure level (low noise)	(dBA)	47	47	49	49	49	50	48	49	51	50	51	51	51	52
Number of circuit(s)		1	1	1	1	1	1	1	1	1	2	2	2	2	2
Number of compressors per circuit		2	2	2	2	2	2	3	3	3	2	2	2	2	2
<b>Dimensions and weights (operating)</b>															
Length	(mm)	2346	2346	2346	2346	2346	2346	2327	2327	2327	2327	2327	2327	2327	2327
Width	(mm)	1285	1285	1285	1285	1285	1285	2250	2250	2250	2250	2250	2250	2250	2250
Height (standard noise)	(mm)	1524	1524	1524	1524	1524	1524	1524	1524	1524	1524	1524	1524	1524	1524
Height (low noise)	(mm)	1747	1747	1747	1747	1747	1747	1747	1747	1747	1747	1747	1747	1747	1747
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	497	509	552	557	587	599	819	824	879	887	973	983	1004	1029
<b>Electrical data</b>															
Maximum amps	(A)	35	39	47	52	57	66	75	83	98	78	93	104	114	131
Start-up amps	(A)	117	161	169	185	190	191	199	215	224	200	215	236	247	256

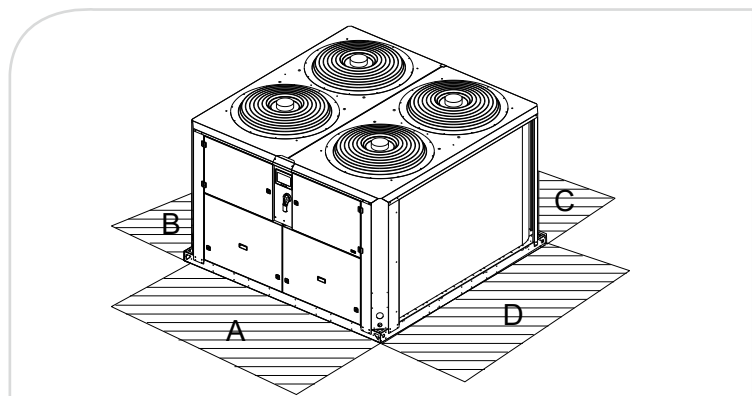
(1) With low ambient temperature option

(2) With process cooling option

(3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.

(4) At Eurovent conditions, with 1pW reference sound power, according to ISO9614

(5) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepiped box with five exposed face areas





# CGCL

## Indoor air-cooled scroll chiller



### Customer benefits

- Ideal for installation in existing buildings, with limited roof or external surface available
- No sound radiation outside of technical room
- Possibility of heat reclaim
- Minimum maintenance requirements

### Main features

- Scroll compressors
  - Hermetic, high efficiency, low vibration, low sound level
  - Full internal protections, internal temperature and bypass valve
- External sheet metal parts are galvanized and finished with powder paint RAL 9002
- Access panels are quickly removable using a square key
- Vertical or horizontal condenser fan discharge
- Compact - fits through standard 860 mm door width (except size 500 and 600)
- Up to 500 Pa total static pressure at the fan

### Options

- Phase and unbalance detection
- Control of the condenser leaving water temperature
- Evaporator water pump command - single or double
- External linear reset, auxiliary and external water setpoint
- Low ambient operation (-10°C)
- Ice making and compressor kW limiting
- Compressor sound attenuating jacket
- High and low pressure gauges
- Four programmable relays for remote unit status
- Water filter
- Filter box fitted with A150/AR300/M8 filters
- Hydraulic module - for information, contact your local sales office

### Tracer™ CH530 Control

Adaptive Control™ microprocessor featuring:

- Easy-to-use operator interface panel
- Ice-making card (optional)
- LonTalk® or Modbus® communication capabilities (optional)
- Alarm indicator programmable relays (optional)
- Leaving condenser water temperature control (optional)

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.

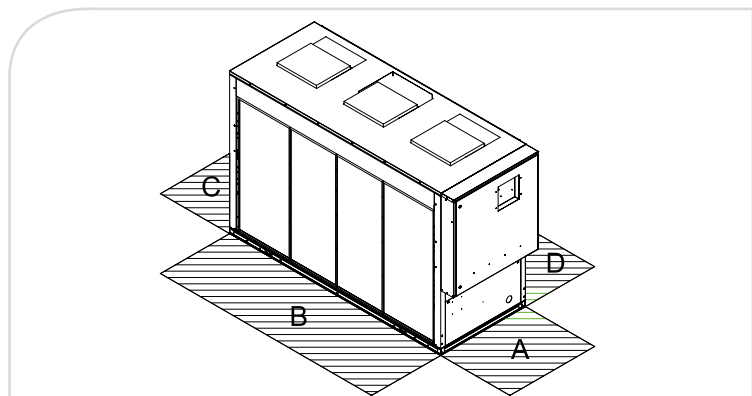
Operating outdoor air temperature range (min./max.)	(°C)	-5 / +40
Leaving water temperature range (min./max.)	(°C)	-12 / +12
Power supply	(V/Ph/Hz)	400/3/50

CGCL		200	250	300	350	400	450	500	600
Cooling capacity (2)	(kW)	50.7	64.6	74.9	89.1	101.3	112.6	128.6	154.5
Total power input	(kW)	21.8	23.7	33.6	36.5	46.3	53.9	53.4	69.9
EER		2.33	2.73	2.23	2.44	2.19	2.1	2.4	2.2
Eurovent class		E	C	F	E	F	G	E	F
ESEER		3.42	4.64	3.38	3.98	3.53	3.8	3.8	3.0
Number of refrigerant circuits		1	1	1	1	1	1	2	2
Number of compressors / capacity steps		2 / 2	2 / 2	2 / 2	3 / 2	3 / 2	3 / 2	4 / 4	4 / 4
Sound power level (3)	(dB(A))	91	82	88	91	94	97	93	97
<b>Weights and dimensions (operating)</b>									
Length	(mm)	2268	2268	2268	3230	3230	3230	3230	3230
Width	(mm)	866	866	866	866	866	866	1216	1216
Height	(mm)	1997	1997	1997	1997	1997	1997	1997	1997
Weight	(kg)	710	830	890	1080	1140	1200	1380	1500
Clearance A	(mm)					800			
Clearance B	(mm)	800	800	800	800	800	800	1200	1200
Clearance C	(mm)						800		
Clearance D	(mm)					800			
<b>Electrical data</b>									
Maximum amps	(A)	48.0	61.0	77.0	86.0	102.0	118.0	121.0	151.0
Start-up amps	(A)	148	205	219	232	243	260	265	295

(1) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient air temperature

(2) At Eurovent conditions: water 12/7°C; air 35°C - according to EN 14511-2013.

(3) At 300 Pa ESP





# CGCM

## Indoor air-cooled scroll chiller



### Customer benefits

- Compact dimensions allow for flexible installations in both new and existing buildings
- Maintenance operations are easy thanks to the location of the components
- Excellent acoustic comfort levels
- Digital Defrost is a self-adaptive defrosting system able to intervene only in case of a consistent thickness formation of ice on the coils' fins
- Dynamic Logic Control manages the differential of the inlet water temperature on the basis of the speed of its variation. Thanks to the DLC the number of the compressor starts decreases ensuring economic and energy savings.
- Dynamic Set Point function allows changing the setpoint simultaneously to always achieve the conditions of best comfort and maximum energy savings.

### Main features

- Hermetic scroll compressors, low vibration and low sound level
- High efficiency plug fan for indoor installation with ducted air intake and discharge. Optional EC plug fan for increased external static pressure up to 400 Pa.
- Waterside plate heat exchanger with differential pressure switch and antifreeze protection electric heater
- Airside heat exchanger high efficiency finned coils with seamless copper tubes expanded into corrugated aluminum
- Horizontal or vertical air flow
- Casing and panels in galvanized and painted steel

### Options

- Partial heat recovery/total heat recovery
- Compressors sound jackets
- Soft - starter
- Serial communication card RS 485
- Electronic expansion valve
- Power factor correction to  $\cos\phi = 0.91$
- Automatic circuit breakers
- Numbered wires
- Over/under voltage + phase failure protection relay
- Electronically Commutated (EC) fans for improved capacity modulation and energy savings
- Epoxy coated condensing coils
- Pre-painted condensing coils
- Copper/copper condensing coils
- Tinned copper condensing coils
- Condensing control with variable fan speed modulation with inverter for operation down to  $+10^{\circ}\text{C}$  outdoor air temperature

### Accessories

- Remote display
- Flow switch
- Automatic water filling
- Water strainer
- Water or gas gauges
- Rubber or spring anti-vibration mounts

### Controls

- Microprocessor-based controller to manage unit on/off mode, operating mode setting and parameters setting

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.

Operating outdoor air temperature range (min./max.) (1)	(°C)	22/45
Leaving water temperature range (min./max.) (2)	(°C)	-6/15
Power supply	(V/Ph/Hz)	400/3+n/50

CGCM		012	015	016	020	025	033	035	040	045	060	055	065	080	090
Cooling capacity (2)	(kW)	43.5	49.7	57.1	73.3	89.2	116.0	130.0	139.0	154.0	179.0	187.0	234.0	289.0	315.0
Total power input (2)	(kW)	17.6	20.4	21.7	27.6	36.2	44.5	50.0	56.1	62.3	68.5	75.7	95.4	111.0	117.0
EER (2)		2.47	2.44	2.63	2.65	2.46	2.61	2.59	2.49	2.46	2.61	2.48	2.46	2.60	2.70
ESEER (2)															
Sound power level (3)	(dBA)	90	90	90	90	91	92	92	93	93	93	94	94	94	94
Sound pressure level (4)	(dBA)	58	58	58	58	59	61	61	61	61	61	62	62	62	62
Number of circuit(s)		1	1	1	1	1	1	1	1	1	1	1	1	2	2
Number of compressors per circuit		2	2	2	2	2	2	2	2	2	2	3	3	4	4
<b>Dimensions and weights (operating)</b>															
Length	(mm)	1605	1605	1605	1605	2350	2350	2350	3350	3350	3350	4456	5456	5456	5456
Width	(mm)	926	926	926	926	1106	1106	1106	1306	1306	1306	1306	1306	1306	1306
Height	(mm)	1990	1990	1990	1990	2095	2095	2095	2095	2095	2145	2145	2145	2145	2145
Weight (shipping)	(kg)	656	666	727	729	1058	1145	1276	1636	1665	1802	2190	2543	2905	2952

(1) Operation down to +10°C possible, see options

(2) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.

(3) At Eurovent conditions, with 1pW reference sound power, according to ISO9614

(4) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepipedic box with five exposed face areas.



# CGAM

## Air-cooled scroll chiller



### Customer benefits

- Life cycle effectiveness
- Efficiency and sound level without compromise
- All year round operation
- Extreme reliability and durability
- Wide application flexibility for comfort and process applications to fit the exact requirements
- Ease of installation and serviceability

### Main features

- 2 efficiency levels: high or standard
- 3 acoustic versions: standard, low noise or comprehensive acoustic package treatment
- High efficiency scroll compressors
- Trane design low sound level fans mounted on hinges
- Electronic expansion valve
- Brazed plates heat exchangers
- Disconnect switch/transformer
- Water strainer and flow switch
- Powder coated components

### Options

- Integrated hydraulic module with or without buffer tank
- Single or double pump package
- Variable frequency drive for pump flow rate adjustment
- Freeze protection control
- Black epoxy condenser coil coating
- Architectural louvered panels

### Accessories

- Neoprene isolators
- Grooved pipe connection kit

### Tracer™ CH530 Control

Adaptive Control™ microprocessor featuring:

- Easy-to-use operator interface panel
- External auto/stop
- External interlock
- Chilled water pump control
- Ice-making card (optional)
- Chilled water and current-limit remote setpoint card (optional)
- LonTalk®, Modbus®, BACnet® communication capabilities

### Energy saving options

- Total heat recovery with up to 80% recovery
- Partial heat recovery (desuperheater)

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.



Operating outdoor air temperature range (min./max.) (1)	(°C)	-18/+46
Leaving water temperature range (min./max.) (2)	(°C)	-12/+18
Power supply	(V/Ph/Hz)	400/3/50

CGAM Standard Efficiency Compact		020	023	026	030	035	039	045	050	040	046	052	060
Net cooling capacity (4)	(kW)	55.2	62.5	69.0	79.4	90.8	109.5	121.3	132.9	109.8	126.6	142.8	158.9
Total power input net (4)	(kW)	21.2	23.1	25.6	30.5	34.9	40.5	44.9	51.1	40.7	45.2	51.0	58.9
EER net (4)		2.6	2.7	2.7	2.6	2.6	2.7	2.7	2.6	2.7	2.8	2.8	2.7
Eurovent class		D	C	C	D	D	C	C	D	C	C	C	C
ESEER net (4)		3.1	3.2	3.3	3.5	3.5	3.5	3.5	3.5	3.2	3.4	3.5	3.6
Number of refrigerant circuits		1	1	1	1	1	1	1	1	2	2	2	2
Number of compressors		2	2	2	2	2	2	2	2	4	4	4	4
Sound power level (5)	(dB(A))	89	89	88	89	89	91	91	92	92	92	92	92
Sound pressure level (6)	(dB(A))	57	57	56	57	57	59	59	60	60	59	59	60

**Dimensions and weight (operating)**

Length	(mm)	2908	2908	2908	2908	2908	3822	3822	3822	2905	2905	2905	2905
Width	(mm)	1301	1301	1301	1301	1301	1301	1301	1301	2266	2266	2266	2266
Height	(mm)	2153	2153	2153	2153	2153	2153	2153	2153	2150	2150	2150	2150
Weight	(kg)	837	854	858	960	973	1129	1189	1248	1485	1526	1552	1734
Clearance A	(mm)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Clearance B	(mm)	600	600	600	600	600	600	600	600	1000	1000	1000	1000
Clearance C	(mm)	800	800	800	800	800	800	800	800	800	800	800	800
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

**Electrical data**

Maximum amps	(A)	48.3	53.3	58.3	65.5	76.5	90.9	102.4	113.9	95.5	105.5	115.5	129.9
Start-up amps	(A)	170.2	186.2	191.2	206.8	251.8	266.2	311.2	322.7	217.4	238.4	248.4	271.2

CGAM Standard Efficiency Compact		070	080	090	100	110	120	140	150	160	170
Net cooling capacity (4)	(kW)	186.0	221.1	248.0	273.3	295.3	325.7	379.2	405.3	432.1	458.1
Total power input net (4)	(kW)	69.1	80.4	89.5	102.0	107.8	112.3	132.1	144.7	153.8	159.1
EER net (4)		2.7	2.8	2.8	2.7	2.7	2.9	2.9	2.8	2.8	2.9
Eurovent class		D	C	C	D	C	B	C	C	C	C
ESEER net (4)		3.8	3.7	3.8	3.7	3.9	4.0	4.0	4.3	4.0	4.1
Number of refrigerant circuits		2	2	2	2	2	2	2	2	2	2
Number of compressors		4	4	4	4	4	4	6	6	6	6
Sound power level (5)	(dB(A))	93	94	94	94	96	94	94	94	95	95
Sound pressure level (6)	(dB(A))	60	62	62	62	63	61	62	62	63	63

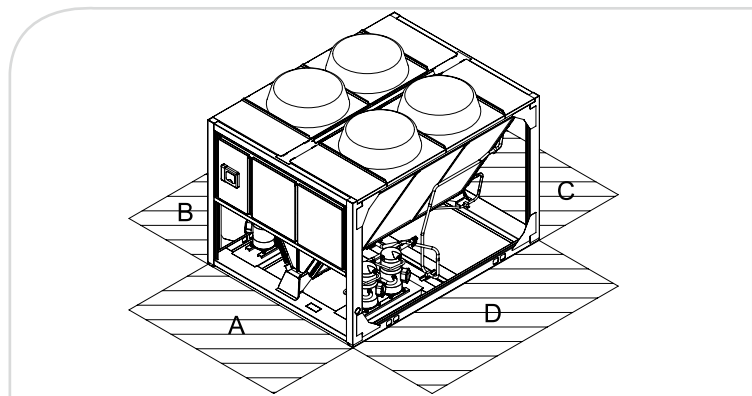
**Dimensions and weight (operating)**

Length	(mm)	2905	3819	3819	3819	3647	3647	4230	4230	4230	5145
Width	(mm)	2266	2266	2266	2266	2273	2273	2273	2273	2273	2273
Height	(mm)	2150	2150	2150	2150	2344	2344	2344	2344	2344	2344
Weight	(kg)	1775	2034	2165	2283	2475	2597	3035	3063	3153	3407
Clearance A	(mm)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	800	800	800	800	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

**Electrical data**

Maximum amps	(A)	152.0	181.4	204.3	227.2	240.6	254.0	313.5	329.6	349.8	363.2
Start-up amps	(A)	327.2	356.6	413.1	436.0	502.7	516.1	522.3	538.4	611.9	625.3

- (1) With low ambient option.
- (2) With process cooling options.
- (3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient air temperature.
- (4) At Eurovent conditions and according to EN 14511-2013.
- (5) At Eurovent conditions, with 1pW reference sound power, according to ISO9614.
- (6) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p = L_w - 10 \log S$ . This is an averaged value considering the unit as a parallelepiped box with five exposed face areas.



Operating outdoor air temperature range (min./max.) (1)	(°C)	-18/+46
Leaving water temperature range (min./max.) (2)	(°C)	-12/+18
Power supply	(V/Ph/Hz)	400/3/50

CGAM Standard Efficiency Super Quiet		020	023	026	030	035	039	045	050	040	046	052	060
Net cooling capacity (4)	(kW)	53.8	61.8	68.0	77.6	89.4	107.7	119.5	131.1	107.4	125.2	140.3	155.8
Total power input net (4)	(kW)	20.5	22.6	25.8	30.4	34.9	40.2	44.9	51.4	40.5	44.1	51.2	59.9
EER net (4)		2.6	2.7	2.6	2.6	2.6	2.7	2.7	2.6	2.7	2.8	2.7	2.6
Eurovent class		D	C	D	D	D	D	D	D	D	C	C	D
ESEER net (4)		3.4	3.4	3.5	3.6	3.6	3.6	3.7	3.5	3.5	3.5	3.7	2.6
Number of refrigerant circuits		1	1	1	1	1	1	1	1	2	2	2	2
Number of compressors		2	2	2	2	2	2	2	2	4	4	4	4
Sound power level (5)	(dB(A))	85	85	85	85	86	88	88	88	88	88	88	88
Sound pressure (6)	(dB(A))	53	53	53	53	54	56	56	56	56	56	56	56

**Dimensions and weight (operating)**

Length	(mm)	2908	2908	2908	2908	2908	3822	3822	3822	2905	2905	2905	2905
Width	(mm)	1301	1301	1301	1301	1301	1301	1301	1301	2266	2266	2266	2266
Height	(mm)	2153	2153	2153	2153	2153	2153	2153	2153	2150	2150	2150	2150
Weight	(kg)	837	854	858	960	973	1129	1189	1248	1485	1526	1552	1734
Clearance A	(mm)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Clearance B	(mm)	600	600	600	600	600	600	600	600	1000	1000	1000	1000
Clearance C	(mm)	800	800	800	800	800	800	800	800	800	800	800	800
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

**Electrical data**

Maximum amps	(A)	50.1	55.1	60.1	67.3	78.3	93.6	105.1	116.6	99.1	109.1	119.1	133.5
Start-up amps	(A)	172.0	188.0	193.0	208.6	253.6	268.9	313.9	325.4	221.0	242.0	252.0	274.8

CGAM Standard Efficiency Super Quiet		070	080	090	100	110	120	140	150	160	170
Net cooling capacity (4)	(kW)	183.2	217.2	244.5	268.8	290.4	320.1	372.6	398.0	422.7	451.5
Total power input net (4)	(kW)	69.1	79.9	88.9	101.8	108.8	113.5	134.0	147.4	156.5	160.1
EER net (4)		2.7	2.7	2.8	2.6	2.7	2.8	2.8	2.7	2.7	2.8
Eurovent class		D	C	C	D	D	C	C	C	C	C
ESEER net (4)		2.7	2.7	2.8	2.6	2.7	2.8	2.8	2.7	2.7	2.8
Number of refrigerant circuits		2	2	2	2	2	2	2	2	2	2
Number of compressors		4	4	4	4	4	4	6	6	6	6
Sound power level (5)	(dB(A))	89	91	91	90	92	91	91	90	92	92
Sound pressure level (6)	(dB(A))	57	59	59	58	60	59	59	58	59	60

**Dimensions and weight (operating)**

Length	(mm)	2905	3819	3819	3819	3647	3647	4230	4230	4230	5145
Width	(mm)	2266	2266	2266	2266	2273	2273	2273	2273	2273	2273
Height	(mm)	2150	2150	2150	2150	2344	2344	2344	2344	2344	2344
Weight	(kg)	1775	2034	2165	2283	2475	2597	3035	3063	3153	3407
Clearance A	(mm)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	800	800	800	800	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

**Electrical data**

Maximum amps	(A)	155.6	186.8	209.7	232.6	246.0	259.4	320.7	335.0	357.0	370.4
Start-up amps	(A)	330.8	362.0	418.5	441.4	508.1	521.5	529.5	543.8	619.1	632.5

(1) With low ambient option.

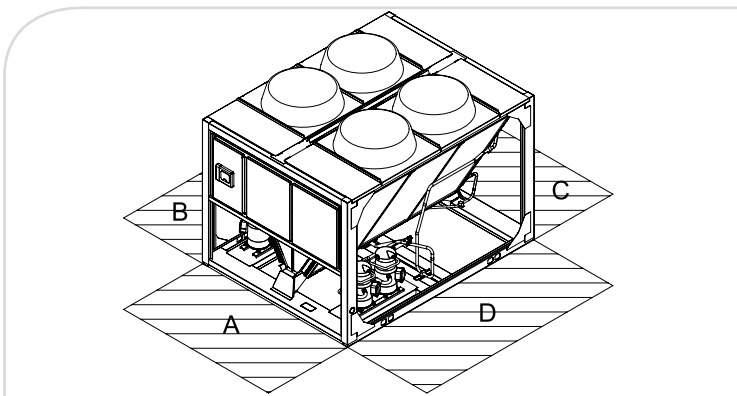
(2) With process cooling options.

(3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient air temperature.

(4) At Eurovent conditions and according to EN 14511-2013.

(5) At Eurovent conditions, with 1pW reference sound power, according to ISO9614.

(6) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p = L_w - 10 \log S$ . This is an averaged value considering the unit as a parallelepiped box with five exposed face areas.



Operating outdoor air temperature range (min./max.) (1)	(°C)	-18/+46
Leaving water temperature range (min./max.) (2)	(°C)	-12/+18
Power supply	(V/Ph/Hz)	400/3/50

CGAM Standard Efficiency Comprehensive Acoustic Package		020	023	026	030	035	039	045	050	040	046	052	060
Net cooling capacity (4)	(kW)	53.1	60.0	68.2	74.8	91.4	105.6	105.7	121.4	135.4	153.4	140.3	155.8
Total power input net (4)	(kW)	19.8	22.1	26.0	29.6	35.2	39.7	39.1	43.8	50.9	58.3	51.2	59.9
EER net (4)		2.7	2.7	2.6	2.5	2.6	2.7	2.7	2.8	2.7	2.6	2.7	2.6
Eurovent class		D	C	D	D	D	D	C	C	D	D	C	D
ESEER net (4)		3.8	3.9	3.9	3.9	4.0	4.0	3.9	4.0	4.0	4.1	3.7	2.6
Number of refrigerant circuits		1	1	1	1	1	1	2	2	2	2	2	2
Number of compressors		2	2	2	2	2	2	4	4	4	4	4	4
Sound power level (5)	(dB(A))	78	78	78	78	82	83	81	81	81	81	88	88
Sound pressure (6)	(dB(A))	46	46	46	47	49	51	49	49	49	49	56	56

**Dimensions and weight (operating)**

Length	(mm)	2908	2908	2908	2908	3822	3822	2905	2905	2905	2905	2905	2905
Width	(mm)	1301	1301	1301	1301	1301	1301	2266	2266	2266	2266	2266	2266
Height	(mm)	2153	2153	2153	2153	2153	2153	2150	2150	2150	2150	2150	2150
Weight	(kg)	871	888	898	1013	1160	1187	1553	1594	1620	1851	1552	1734
Clearance A	(mm)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Clearance B	(mm)	600	600	600	600	600	600	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	800	800	800	800	800	800	800	800	800	800	800	800
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

**Electrical data**

Maximum amps	(A)	44.2	49.2	54.2	61.4	73.7	84.8	87.3	97.3	107.3	121.7	119.1	133.5
Start-up amps	(A)	166.1	182.1	187.1	202.7	249.0	260.0	209.2	230.2	240.2	263.0	252.0	274.8

CGAM Standard Efficiency Comprehensive Acoustic Package		070	080	090	100	110	120	140	150	160
Net cooling capacity (4)	(kW)	180.4	213.0	236.5	262.5	288.3	318.0	369.7	393.1	420.6
Total power input net (4)	(kW)	68.8	78.0	88.9	100.2	106.8	111.6	133.9	147.2	152.4
EER net (4)		2.6	2.7	2.7	2.6	2.7	2.9	2.8	2.7	2.8
Eurovent class		D	C	D	D	C	C	C	D	C
ESEER net (4)		4.1	4.3	4.4	4.4	4.3	4.3	4.7	4.6	4.5
Number of refrigerant circuits		2	2	2	2	2	2	2	2	2
Number of compressors		4	4	4	4	4	4	6	6	6
Sound power level (5)	(dB(A))	84	85	85	85	87	86	85	85	86
Sound pressure level (6)	(dB(A))	52	53	53	53	54	53	52	52	54

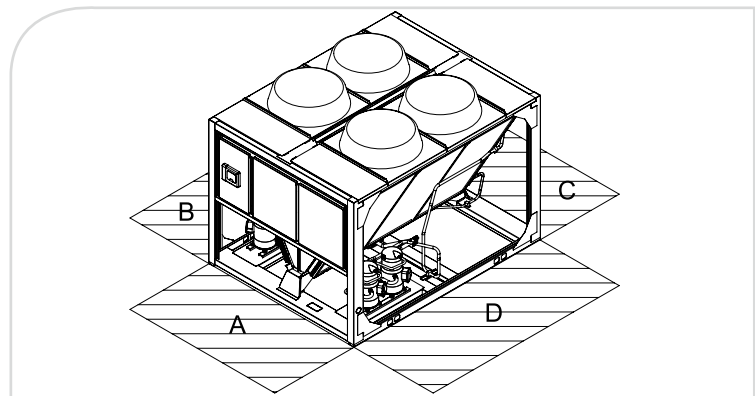
**Dimensions and weight (operating)**

Length	(mm)	3819	3819	3647	4230	4230	4230	5145	5145	5145
Width	(mm)	2266	2266	2273	2273	2273	2273	2273	2273	2273
Height	(mm)	2150	2150	2344	2344	2344	2344	2344	2344	2344
Weight	(kg)	2076	2151	2471	2664	2754	2898	3436	3561	3651
Clearance A	(mm)	1200	1200	1200	1200	1200	1200	1200	1200	1200
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	800	800	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000

**Electrical data**

Maximum amps	(A)	146.5	169.1	192.0	214.9	231.0	244.4	297.1	320.0	336.1
Start-up amps	(A)	321.7	344.3	400.8	423.7	493.1	506.5	505.9	528.8	598.2

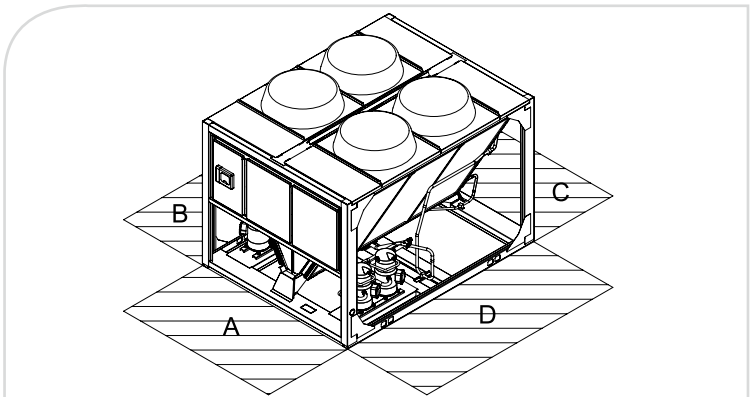
- (1) With low ambient option.
- (2) With process cooling options.
- (3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient air temperature.
- (4) At Eurovent conditions and according to EN 14511-2013.
- (5) At Eurovent conditions, with 1pW reference sound power, according to ISO9614.
- (6) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepiped box with five exposed face areas.



Operating outdoor air temperature range (min./max.) (1)	(°C)	-18/+46
Leaving water temperature range (min./max.) (2)	(°C)	-12/+18
Power supply	(V/Ph/Hz)	400/3/50

CGAM HE Compact		020	023	026	030	035	040	046	052	060
Net cooling capacity	(kW)	58.1	63.3	73.5	83.6	96.6	112.3	128.1	142.9	163.3
Total power input net	(kW)	18.6	20.8	24.2	27.5	32.3	36.6	41.7	47.5	53.0
EER net		3.1	3.0	3.0	3.0	3.0	3.1	3.1	3.0	3.1
Eurovent class		A	B	B	B	B	B	B	B	B
ESEER net		3.9	3.9	4.1	3.9	4.0	3.8	3.9	4.2	4.0
Number of refrigerant circuits		1	1	1	1	1	2	2	2	2
Number of compressors		2	2	2	2	2	4	4	4	4
Sound power level (5)	(dB(A))	86	86	86	88	88	89	89	89	91
Sound pressure (6)	(dB(A))	54	54	54	55	56	57	57	57	58
<b>Dimensions and weight (operating)</b>										
Length	(mm)	2908	2908	2908	3822	3822	2905	2905	2905	3819
Width	(mm)	1301	1301	1301	1301	1301	2266	2266	2266	2266
Height	(mm)	2153	2153	2153	2153	2153	2150	2150	2150	2150
Weight	(kg)	870	874	896	1131	1149	1540	1571	1582	2041
Clearance A	(mm)	1200	1200	1200	1200	1200	1200	1200	1200	1200
Clearance B	(mm)	600	600	600	600	600	1000	1000	1000	1000
Clearance C	(mm)	800	800	800	800	800	800	800	800	800
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000
<b>Electrical data</b>										
Maximum amps	(A)	167.6	183.6	188.6	204.2	251.3	212.2	233.2	243.2	266.0
Start-up amps	(A)	45.7	50.7	55.7	62.9	76.0	90.3	100.3	110.3	124.7
<b>CGAM HE Compact</b>										
		070	080	090	100	110	120	140	150	160
Net cooling capacity (4)	(kW)	193.2	223.2	253.8	282.2	310.6	331.2	390.3	417.4	441.4
Total power input net (4)	(kW)	63.3	72.9	80.8	90.7	98.6	108.2	126.3	134.7	144.3
EER net (4)		3.1	3.1	3.1	3.1	3.2	3.1	3.1	3.1	3.1
Eurovent class		B	B	A	A	A	B	B	A	B
ESEER net (4)		4.1	4.2	4.5	4.1	4.3	4.3	4.4	4.2	4.2
Number of refrigerant circuits		2	2	2	2	2	2	2	2	2
Number of compressors		4	4	4	4	4	4	6	6	6
Sound power level (5)	(dB(A))	91	91	91	92	92	93	93	94	94
Sound pressure level (6)	(dB(A))	59	59	59	60	60	61	61	61	62
<b>Dimensions and weight (operating)</b>										
Length	(mm)	3819	3647	3647	4230	4230	4230	5145	6060	6060
Width	(mm)	2266	2273	2273	2273	2273	2273	2273	2273	2273
Height	(mm)	2150	2344	2344	2344	2344	2344	2344	2344	2344
Weight	(kg)	2078	2378	2503	2804	2821	2821	3403	3881	3881
Clearance A	(mm)	1200	1200	1200	1200	1200	1200	1200	1200	1200
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	800	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000
<b>Electrical data</b>										
Maximum amps	(A)	326.2	348.8	405.3	432.4	499.1	512.5	516.1	539.0	609.9
Start-up amps	(A)	151.0	173.6	196.5	223.6	237.0	250.4	307.3	330.2	347.8

- (1) With low ambient option.  
(2) With process cooling options.  
(3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient air temperature.  
(4) At Eurovent conditions and according to EN 14511-2013.  
(5) At Eurovent conditions, with 1pW reference sound power, according to ISO9614.  
(6) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepiped box with five exposed face areas.



Operating outdoor air temperature range (min./max.) (1)	(°C)	-18/+52
Leaving water temperature range (min./max.) (2)	(°C)	-12/+18
Power supply	(V/Ph/Hz)	400/3/50

CGAM HE Super Quiet		020	023	026	030	035	040	046	052	060
Net cooling capacity (4)	(kW)	57.7	63.3	73.5	81.5	96.6	111.9	128.1	142.9	163.6
Total power input net (4)	(kW)	18.7	20.8	24.2	26.9	32.4	36.8	41.7	47.5	53.3
EER net (4)		3.1	3.1	3.0	3.0	3.0	3.0	3.1	3.0	3.1
Eurovent class		B	B	B	B	B	B	B	B	B
ESEER net (4)		3.9	4.0	4.2	4.0	4.0	3.8	4.0	4.2	4.1
Number of refrigerant circuits		1	1	1	1	1	2	2	2	2
Number of compressors		2	2	2	2	2	4	4	4	4
Sound power level (5)	(dB(A))	81	81	81	82	84	84	84	84	85
Sound pressure level (6)	(dB(A))	49	49	49	50	52	52	51	52	53

**Dimensions and weight (operating)**

Length	(mm)	2908	2908	2908	3822	3822	2905	2905	2905	3819
Width	(mm)	1301	1301	1301	1301	1301	2266	2266	2266	2266
Height	(mm)	2153	2153	2153	2153	2153	2150	2150	2150	2150
Weight	(kg)	870	874	896	1131	1149	1540	1571	1582	2041
Clearance A	(mm)	1200	1200	1200	1200	1200	1200	1200	1200	1200
Clearance B	(mm)	600	600	600	600	600	1000	1000	1000	1000
Clearance C	(mm)	800	800	800	800	800	800	800	800	800
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000

**Electrical data**

Maximum amps	(A)	183.6	167.6	188.6	204.2	251.3	212.2	233.2	243.2	263.9
Start-up amps	(A)	50.7	45.7	55.7	62.9	76.0	90.3	100.3	110.3	122.6

CGAM HE Super Quiet		070	080	090	100	110	120	140	150	160
Net cooling capacity (4)	(kW)	192.8	224.2	254.1	282.5	310.6	331.2	389.9	417.8	441.1
Total power input net (4)	(kW)	63.4	72.3	80.4	90.3	98.3	108.2	126.2	135.2	143.7
EER net (4)		3.0	3.1	3.2	3.1	3.2	3.1	3.1	3.1	3.1
Eurovent class		B	A	A	A	A	B	B	B	B
ESEER net (4)		4.2	4.3	4.6	4.3	4.4	4.4	4.5	4.5	4.3
Number of refrigerant circuits		2	2	2	2	2	2	2	2	2
Number of compressors		4	4	4	4	4	4	6	6	6
Sound power level (5)	(dB(A))	87	88	88	88	89	90	90	89	90
Sound pressure level (6)	(dB(A))	55	56	56	56	57	58	57	57	58

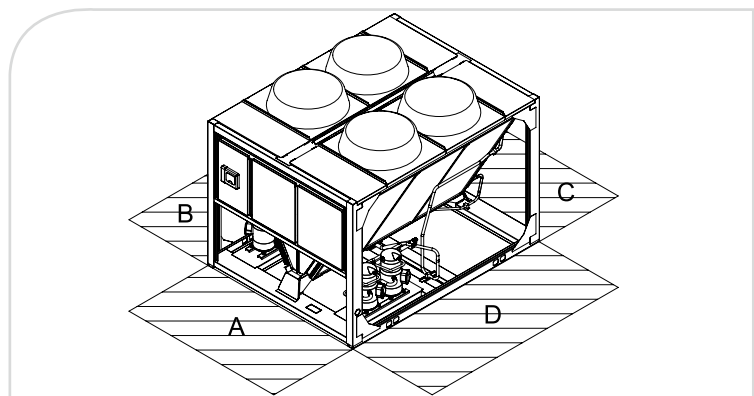
**Dimensions and weight (operating)**

Length	(mm)	3819	3647	3647	4230	4230	4230	5145	6060	6060
Width	(mm)	2266	2273	2273	2273	2273	2273	2273	2273	2273
Height	(mm)	2150	2344	2344	2344	2344	2344	2344	2344	2344
Weight	(kg)	2078	2378	2503	2804	2821	2821	3403	3791	3881
Clearance A	(mm)	1200	1200	1200	1200	1200	1200	1200	1200	1200
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	800	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000

**Electrical data**

Maximum amps	(A)	326.2	348.8	405.3	432.4	499.1	512.5	516.1	539.0	609.9
Start-up amps	(A)	151.0	173.6	196.5	223.6	237.0	250.4	307.3	330.2	347.8

- (1) With low ambient option
- (2) With process cooling options
- (3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient air temperature
- (4) At Eurovent conditions and according to EN 14511-2013.
- (5) At Eurovent conditions, with 1pW reference sound power, according to ISO9614
- (6) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepiped box with five exposed face areas.

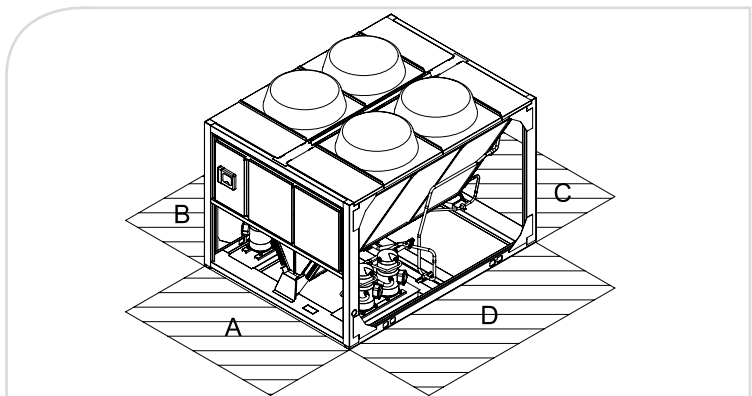


Operating outdoor air temperature range (min./max.) (1)	(°C)	-18/+52
Leaving water temperature range (min./max.) (2)	(°C)	-12/+18
Power supply	(V/Ph/Hz)	400/3/50

CGAM HE Comprehensive Acoustic Package		020	023	026	030	035	040	046	052	060
Net cooling capacity (4)	(kW)	56.7	65.1	73.0	79.6	94.1	111.4	126.0	147.1	163.6
Total power input net (4)	(kW)	18.6	21.3	23.9	27.3	32.8	36.6	42.4	47.3	54.0
EER net (4)		3.0	3.1	3.1	2.9	2.9	3.0	3.0	3.1	3.0
Eurovent class		B	B	B	B	C	B	B	A	B
ESEER net (4)		4.1	4.3	4.1	4.1	4.2	4.1	4.2	4.3	4.3
Number of refrigerant circuits		1	1	1	1	1	2	2	2	2
Number of compressors		2	2	2	2	2	4	4	4	4
Sound power level (5)	(dB(A))	78	78	79	80	81	81	81	82	83
Sound pressure level (6)	(dB(A))	46	46	47	48	49	49	49	50	50
<b>Dimensions and weight (operating)</b>										
Length	(mm)	2908	2908	3822	3822	3822	2905	2905	3819	3819
Width	(mm)	1301	1301	1301	1301	1301	2266	2266	2266	2266
Height	(mm)	2153	2153	2153	2153	2153	2150	2150	2150	2150
Weight	(kg)	904	926	1053	1168	1187	1631	1639	1888	2131
Clearance A	(mm)	1200	1200	1200	1200	1200	1200	1200	1200	1200
Clearance B	(mm)	600	600	600	600	600	1000	1000	1000	1000
Clearance C	(mm)	800	800	800	800	800	800	800	800	800
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000
<b>Electrical data</b>										
Maximum amps	(A)	166.1	182.1	188.4	204.0	249.0	209.2	230.2	242.9	265.7
Start-up amps	(A)	44.2	49.2	55.5	62.7	73.7	87.3	97.3	110.0	124.4

CGAM HE Comprehensive Acoustic Package		070	080	090	100	110	120	140	150	160
Net cooling capacity (4)	(kW)	190.0	225.0	254.8	280.4	301.4	330.9	389.6	412.6	431.4
Total power input net (4)	(kW)	64.6	70.1	78.9	90.8	98.2	105.7	124.5	136.2	146.7
EER net (4)		2.9	3.2	3.2	3.1	3.1	3.1	3.1	3.0	2.9
Eurovent class		B	A	A	B	B	A	A	B	B
ESEER net (4)		4.4	4.8	4.7	4.5	4.6	4.5	4.7	4.5	4.4
Number of refrigerant circuits		2	2	2	2	2	2	2	2	2
Number of compressors		4	4	4	4	4	4	6	6	6
Sound power level (5)	(dB(A))	84	83	83	84	85	86	85	85	86
Sound pressure level (6)	(dB(A))	52	50	51	51	52	54	53	53	54
<b>Dimensions and weight (operating)</b>										
Length	(mm)	3819	4230	4230	4230	5145	5145	6060	6060	6060
Width	(mm)	2266	2273	2273	2273	2273	2273	2273	2273	2273
Height	(mm)	2150	2344	2344	2344	2344	2344	2344	2344	2344
Weight	(kg)	2168	2596	2804	2918	3172	3279	3941	4035	4035
Clearance A	(mm)	1200	1200	1200	1200	1200	1200	1200	1200	1200
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	800	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000
<b>Electrical data</b>										
Maximum amps	(A)	321.7	344.3	403.5	426.4	493.1	509.2	511.3	534.2	600.9
Start-up amps	(A)	146.5	169.1	194.7	217.6	231.0	247.1	302.5	325.4	338.8

- (1) With low ambient option  
(2) With process cooling options  
(3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient air temperature  
(4) At Eurovent conditions and according to EN 14511-2013.  
(5) At Eurovent conditions, with 1pW reference sound power, according to ISO9614  
(6) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepiped box with five exposed face areas.



## Save energy with total or partial heat recovery factory-fitted options on CGAM

- Reduced operating cost
- Preheat sanitary water (for commercial buildings) or kitchen and laundries water (in hotels and resorts)
- Reduced carbon footprint

### Total heat recovery - model CGAM HE compact

Unit size	Unit power input (1) (kW)	Cooling capacity in cooling (1) (kW)	Heating capacity (2) (kW)	Heat recovered (2) (%)	Maximum hot water temperature (°C)
070	63.8	194.4	146.1	75	60
080	73.1	225.4	169.6	75	60
090	81	255.6	182.2	71	60
100	91	284.1	193.7	68	60
110	98.8	312.9	218.5	70	60
120	108.6	333.7	228.2	68	60
140	126.6	393.4	271.1	69	60
150	134.7	421.2	282.0	67	60
160	143.9	445.5	311.4	70	60

### Partial heat recovery - model CGAM HE compact

Unit size	Unit power input (1) (kW)	Cooling capacity in cooling (1) (kW)	Heating capacity (2) (kW)	Heat recovered (2) (%)	Maximum hot water temperature (°C)
070	64.0	194.1	59.3	31	60
080	74.3	224.7	60.6	27	60
090	82.3	254.9	75.4	30	60
100	92.4	283.4	77.4	27	60
110	100.3	312.2	89.2	29	60
120	110.2	332.6	101.5	31	60
140	128.6	392.4	115.1	29	60
150	136.8	420.5	116.2	28	60
160	146.2	444.4	127.4	29	60

(1) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient air temperature

(2) At 40/45°C entering/leaving water temperature



# CGWH - CCUH

Water-cooled packaged and condenserless scroll chillers



## Customer benefits

- High performance chiller
- Indoor installation: easy maintenance
- Minimum maintenance requirements

## Range description

CGWH: packaged chiller

CCUH: condenserless chiller

## Main features

- High efficiency hermetic scroll compressors with low vibration and sound levels and full internal overheating protection
- External sheet metal parts are galvanized and finished with powder paint RAL 9002
- Access panels are quickly removable using a square key
- Designed for indoor installation
- Maximum condenser leaving water temperature: 50°C
- 380, 400 and 415V power voltage
- Phase and unbalance detection
- 400/220V transformer for the control

## Options

- Compressor sound attenuating jackets
- High and low pressure gauges
- Evaporator water pump command - single or double
- Water filter
- Hydraulic module - for information, contact your local sales office

## Tracer™ CH530 Control

Adaptive Control™ microprocessor-based control featuring:

- Easy-to-use operator interface
- External linear reset, auxiliary and external water setpoint
- Compressor kW limiting (optional)
- Alarm indicator programmable relays (options)
- Ice making controls (optional)
- LonTalk® or Modbus® communication interface (optional)
- Leaving condenser water temperature control (optional)

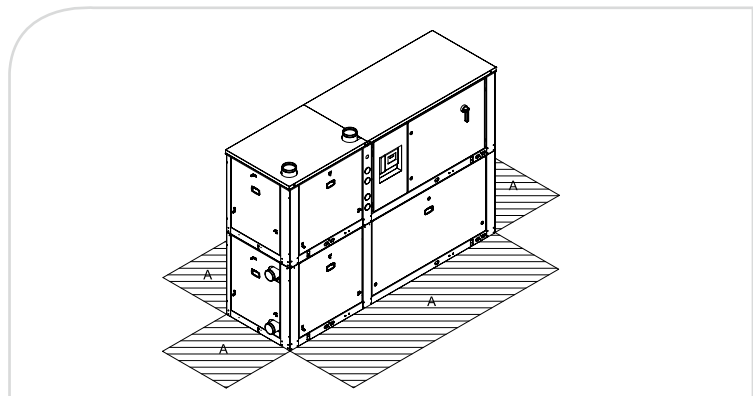
This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.



Condenser leaving water temperature (min./max.)	(°C)	20/50
Condenser saturated discharge temperature (min./max.)	(°C)	25/55
Evaporator leaving water temperature range (min./max.)	(°C)	-7 / +12
Power supply	(V/Ph/Hz)	400/3/50

CGWH		115	120	125	225	230	235	240	250
Net cooling capacity (1) (4)	(kW)	51.4	64.5	77.5	91.5	103.8	116.7	128.8	156.1
Net power input (1) (4)	(kW)	14.6	18.6	22.5	25.6	29.5	33	37.1	44.3
Net EER / Eurovent class (1) (4)		3.52/E	3.48/E	3.45/E	3.57/E	3.52/E	3.54/E	3.47/E	3.52/E
Net ESEER (5)		4.06	4.22	3.92	4.17	4.02	3.69	3.67	3.41
Number of refrigerant circuits		1	1	1	2	2	2	2	2
Number of compressors / capacity steps		2	2	2	3	3	3	4	4
Sound power level (3)	(dB(A))	75	79	81	81	82	83	82	84
<b>Weights and dimensions (operating)</b>									
Length	(mm)	1101	1101	1101	2072	2100	2135	2145	2082
Width	(mm)	800	800	800	866	866	866	866	866
Height	(mm)	1545	1545	1545	1545	1545	1545	1545	1545
Weight	(kg)	412	444	476	668	702	739	803	873
Clearance A	(mm)	800							
<b>Electrical data</b>									
Nominal amps	(A)	41	52	63	72	83	94	103	125
Start-up amps	(A)	140	194	204	212	222	232	241	261

- (1) Evaporator 12/7°C and 0.044m<sup>2</sup>K/kW, and condenser at 30/35°C and 0.044m<sup>2</sup>K/kW  
(2) Evaporator 12/7°C and 0.044m<sup>2</sup>K/kW, and condenser 45°C saturating subcooling 5K  
(3) At full load and in accordance with ISO9614  
(4) Net performances calculated as per EN 14511-2013.





# CGWN – CCUN

## Water-cooled packaged and condenserless scroll chillers



### Customer benefits

- Compact chiller with packaged hydraulic module (available as an option) for easier and faster installation
- Wide application flexibility for comfort and process applications: fits your exact requirements
- State of the art control to guarantee superior dependability: lower cost of ownership

### Range description

CGWN: packaged chiller

CCUN: condenserless chiller

### Main features

- High efficiency hermetic scroll compressors with low vibration and sound levels and full internal overheating protections
- External sheet metal parts are galvanized and finished with powder paint RAL 9002
- Access panels are quickly removable using a square key and mounted handles
- Designed for indoor and outdoor installation
- Maximum condenser leaving water temperature: 60°C (R410A)
- 380, 400 and 415V power voltage
- 400/110V transformer for the control
- Phase & unbalanced detection

### Options

- High efficiency version
- Soft starter
- Evaporator + water pump command - single or double
- Condenser + water pump command - single or double
- Compressor sound attenuating jackets
- High and low pressure gauges
- Hydraulic module including:
  - Single or dual evaporator pump including water filter and pressure tabs
  - Speed inverter condenser pumps including flow control, condenser return and leaving water temperature
  - Combinations of hydraulic modules available: evaporator only, condenser only or both

### Tracer™ CH530 Control

Adaptive Control™ microprocessor-based control featuring:

- Easy-to-use operator interface
- External linear reset, auxiliary and external water setpoint
- Compressor kW limiting (optional)
- Alarm indicator programmable relays (options)
- Ice making controls (optional)
- LonTalk®, Modbus®, BACnet® communication interface (optional)
- Leaving condenser water temperature control (optional)

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.

Condenser leaving water temperature (min./max.)	(°C)	25/60
Condenser saturated discharge temperature (min./max.)	(°C)	25/60
Evaporator leaving water temperature range (min./max.)	(°C)	-7 / +15
Power supply	(V/Ph/Hz)	400/3/50

CGWN		205	205HE	206	206HE	207	207HE	208	209	210	211
Net cooling capacity (1) (4)	(kW)	181.6	192.7	215.9	226.6	250.5	261.5	282	311	340.5	372.1
Net power input (1) (4)	(kW)	44.6	41.4	52.7	49.7	60.4	57.7	63.9	72.9	81.7	89.8
Net EER (1) (4)		4.07/C	4.65/C	4.09/C	4.56/C	4.15/C	4.53/C	4.41/C	4.27/C	4.17/C	4.14/C
Net ESEER (4)		5.12	5.78	5.13	5.63	5.24	5.71	5.53	5.17	5.05	5.14
Number of refrigerant circuits		2									
Number of compressors / capacity steps		4									
Sound power level (3)	(dB(A))	82	82	82	82	83	83	83	84	84	84
<b>Weights and dimensions (operating) (5)</b>											
Length	(mm)	2545	2545	2545	2545	2545	2545	2545	2545	2545	2545
Width	(mm)	880	880	880	880	880	880	880	880	880	880
Height	(mm)	1842	1842	1842	1842	1842	1842	1842	1842	1842	1842
Weight	(kg)	1360	1460	1300	1450	1420	1470	1500	1650	1710	1790
Clearance A	(mm)	1000									
Clearance B	(mm)	800									
<b>Electrical data</b>											
Nominal amps	(A)	137	137	159	159	187	187	210	233	250	263
Start-up amps	(A)	278	278	334	334	395	395	418	441	512	525

CGWN		212	213	214	215
Net cooling capacity (1) (4)	(kW)	411	444	477	506
Net power input (1) (4)	(kW)	93.9	102.8	110.9	117.9
Net EER (1) (4)		4.4	4.3	4.3	4.3
Net ESEER (4)		5.5	5.3	5.3	5.3
Number of refrigerant circuits		2			
Number of compressors / capacity steps		6	6	6	6
Sound power level (3)	(dB(A))	87	88	88	90
<b>Weights and dimensions (operating) (5)</b>					
Length	(mm)	2808	2808	2808	2808
Width	(mm)	878	878	878	878
Height	(mm)	1950	1950	1950	1950
Weight	(kg)	2232	2442	2525	2640
Clearance A	(mm)	1000			
Clearance B	(mm)	800			
<b>Electrical data</b>					
Nominal amps	(A)	311	337	370	400
Start-up amps	(A)	563	588	621	655

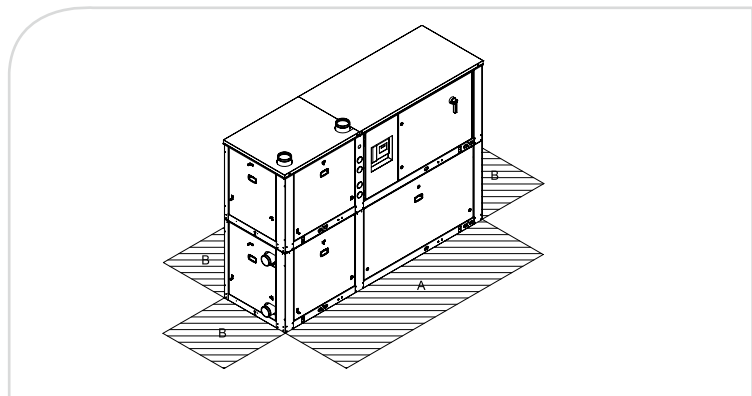
(1) Evaporator 12/7°C and 0.044m2K/kW, and condenser at 30/35°C and 0.044m2K/kW

(2) Evaporator 12/7°C and 0.044m2K/kW, and condenser 45°C saturating subcooling 5K

(3) At full load and in accordance with ISO9614 and without compressor enclosure

(4) Net performances calculated as per EN 14511-2013.

(5) Without hydraulic module or pumps





# CGAF

## Air-cooled scroll chiller Sintesys™ Advantage



### Customer benefits

- Low energy consumption
- Silent operation
- Wide application flexibility for comfort and process
- User-friendly control interface and interoperability with building automation systems
- Reduced refrigerant charge

### Main features

- Three efficiency levels: Standard efficiency (SE), High efficiency (HE), Extra high efficiency (XE)
- Three acoustic packages: Standard noise (SN), Low noise (LN), Extra low noise (XLN)
- Electronically commutated fans
- Variable speed drive
- Microchannel condenser coil
- Free cooling

### Options

- Pumps and water tanks fully integrated into design
- Total and partial heat recovery
- High ambient operation (up to 52°C)
- Low ambient operation (down to -20°C)

### Controls

- Ultimate control: Trane UC800
  - Easy to read 7-inch color touchscreen display
  - Industry leading algorithms
  - Open protocol design
  - Adaptive control
- Rapid restart
- SmartCom interface: LonTalk, Modbus, BACnet communication capabilities
- Energy metering

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.



# RTAD

## Air-cooled helical-rotary chiller Series R™



### Customer benefits

- Reliability: Trane helical-rotary compressor with only 3 moving parts
- Ease of installation: wide choice of hydraulic modules

### Main features

- Competitive physical footprint
- Single power connection
- Low sound levels
- Star-delta starter
- Exact load matching
- Application flexibility

### Options

- High ambient operation (up to 52°C)
- Low ambient operation (down to -18°C)
- Low noise version equipped with low-speed fans and compressor sound attenuating
- High efficiency version
- Power disconnect switch
- Condenser protection or complete unit protection
- Night noise setback to reduce sound levels at night
- High and low pressure gauges
- Hydraulic module - single or dual pump with water strainer
- 60 Hz unit

### Accessories

- Neoprene isolators
- Grooved pipe connection kit
- Flow switch

### UCM-CLD Control

Adaptive Control™ microprocessor featuring:

- Unit control module with clear language display
- External auto/stop
- External interlock
- Chilled water pump control
- Alarm indication contacts
- Ice-making card (optional)
- LonTalk® or Modbus® communication capabilities
- Chilled water and current limit remote setpoint card (optional)

### Energy saving options

- High efficiency version, heat recovery, free cooling

Operating outdoor air temperature range (min./max.) (1)	(°C)	-18 / +52
Leaving water temperature range (min./max.) (2)	(°C)	-12 / +18
Power supply	(V/Ph/Hz)	400/3/50

<b>RTAD Standard Efficiency</b>		<b>085</b>	<b>100</b>	<b>115</b>	<b>125</b>	<b>145</b>	<b>150</b>	<b>165</b>	<b>180</b>
Net cooling capacity (3)	(kW)	273	334	390	445	514	549	601	646
Total power input net (3)	(kW)	102	131	151	189	194	214	225	245
EER net		2.68	2.55	2.58	2.35	2.65	2.57	2.67	2.63
Eurovent class		D	D	D	E	D	D	D	D
ESEER net		3.23	3.13	3.22	3.07	3.31	3.13	3.30	3.16
Number of refrigerant circuits		2							
Number of compressors / minimum load		2 / 15%							
Sound power level (standard noise version) (4)	(dB(A))	97	98	97	97	98	101	102	103
Sound pressure level (standard noise version) (6)	(dB(A))	65	65	64	65	66	69	70	70
Sound power level (low noise version) (4)	(dB(A))	92	92	92	92	94	95	95	96
Sound pressure level (low noise version) (6)	(dB(A))	60	60	60	60	62	63	63	63

<b>RTAD High Efficiency</b>		<b>085</b>	<b>100</b>	<b>115</b>	<b>125</b>	<b>145</b>	<b>150</b>		
Net cooling capacity (3)	(kW)	296	359	416	487	523	561	-	-
Total power input net (3)	(kW)	97	124	146	178	184	203	-	-
EER net		3.04	2.89	2.85	2.73	2.84	2.77	-	-
Eurovent class		B	C	C	C	C	C	-	-
ESEER net		3.7	3.44	3.65	3.27	3.5	3.32	-	-
Number of refrigerant circuits		2							
Number of compressors / minimum load		2 / 15%							
Sound power level (standard noise version) (4)	(dB(A))	97	98	98	99	101	102	-	-
Sound pressure level (standard noise version) (6)	(dB(A))	65	66	65	66	69	69	-	-
Sound power level (low noise version) (4)	(dB(A))	92	93	93	94	95	95	-	-
Sound pressure level (low noise version) (6)	(dB(A))	61	62	61	62	63	63	-	-

**Weights and dimensions (5) (operating)**

Length	(mm)	3507	4426	4426	4426	5351	5351	6370	6370
Width	(mm)	2260	2260	2260	2260	2260	2260	2260	2260
Height	(mm)	2068	2068	2068	2068	2088	2088	2188	2188
Weight	(kg)	2810	3635	3635	3635	4605	4605	5430	5430
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1200	1200	1200	1200	1200	1200	1200	1200
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1200	1200	1200	1200	1200	1200	1200	1200

**Electrical data**

Maximum amps	(A)	242	282	323	387	437	477	527	576
Start-up amps	(A)	255	306	359	425	471	502	570	608

(1) With low and high ambient temperature option.

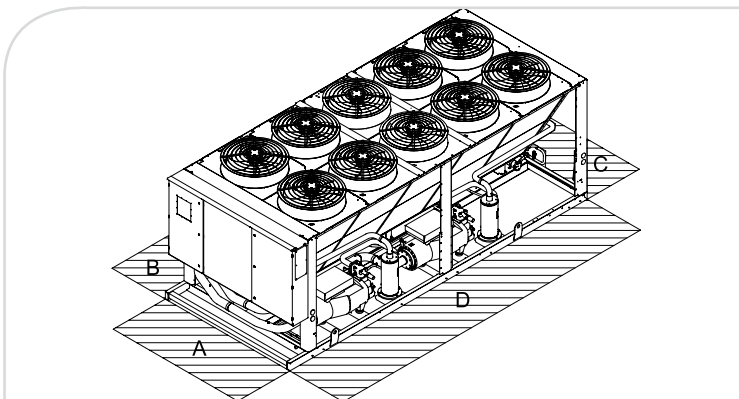
(2) With 3 pass evaporator.

(3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient air temperature.

(4) At Eurovent conditions, with 1pW reference sound power, according to ISO9614.

(5) Dimensions for standard efficiency model.

(6) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepiped box with five exposed face areas.





# RTAC

## Air-cooled helical-rotary chiller Series R™



### Customer benefits

- Reliability: Trane helical-rotary compressor with only 3 moving parts
- Efficiency: 3 efficiency levels, to fit your requirements
- Certified Eurovent class A

### Main features

- Competitive physical footprint
- Single power connection
- Exact load matching
- Low sound levels
- Falling film evaporator - high COP and reduced refrigerant charge
- Factory-mounted star-delta starter panel
- Close spacing installation - 1.2 m side clearances

### Options

- High ambient operation (up to 52°C)
- Low ambient operation (down to -18°C)
- Low noise version equipped with low-speed fans and compressor sound attenuating enclosure
- High efficiency version
- Power disconnect switch
- Night noise setback to reduce sound levels at night
- Unit edge grooved pipe connections
- Extra-pass and specific tubes for low water temperature applications (down to -12°C)
- Black epoxy-coated aluminium fins for corrosive environments

- Copper fins
- Condenser protection or complete unit protection
- High and low pressure gauges

### Accessories

- Neoprene isolators
- Grooved pipe connection kit
- Flow switch

### Tracer™ CH530 Control

Adaptive Control™ microprocessor featuring:

- Easy-to-use operator interface panel
- External auto/stop
- External interlock
- Chilled water pump control
- Ice-making card (optional)
- Chilled water and current-limit remote setpoint card (optional)

#### *Energy saving options*

- *High efficiency and extra high efficiency versions*

Operating outdoor air temperature range (min./max.) (1)	(°C)	-18 / +52
Leaving water temperature range (min./max.) (2)	(°C)	-12 / +18
Power supply	(V/Ph/Hz)	400/3/50

RTAC Standard Efficiency		140	155	170	185	200	230	240	250	275	300	350	375	400	
Net cooling capacity (3)	(kW)	491	536	583	646	713	768	851	848	944	1073	1186	1317	1445	
Total power input net (3)	(kW)	172	189	208	227	247	265	300	296	334	374	424	464	505	
EER net		2.86	2.83	2.81	2.85	2.89	2.90	2.84	2.86	2.83	2.87	2.80	2.84	2.86	
Eurovent class		C	C	C	C	C	B	C	C	C	C	C	C	C	
ESEER net		3.59	3.60	3.52	3.63	3.58	3.85	3.96	3.85	3.77	3.81	3.92	3.97	3.98	
Number of refrigerant circuits		2													
Number of compressors / minimum load		2 / 15%					3 / 10%					4 / 8%			
Sound power level (standard noise version) (4)	(dB(A))	97	98	99	100	100	99	99	99	101	102	101	102	103	
Sound pressure level (standard noise version) (5)	(dB(A))	65	66	66	67	68	67	67	67	68	69	68	69	70	
Sound power level (low noise version) (4)	(dB(A))	90	91	92	92	93	92	92	92	94	95	95	95	96	
Sound pressure level (low noise version) (5)	(dB(A))	58	59	59	60	60	59	59	59	61	62	62	62	63	
<b>Weights and dimensions (operating)</b>															
Length	(mm)	5041	5041	5041	5960	5960	7133	7133	9138	9138	10056	10406	11325	12244	
Width	(mm)	2240	2240	2240	2240	2240	2250	2250	2250	2250	2250	2250	2250	2250	
Height	(mm)	2411	2411	2411	2411	2411	2530	2530	2530	2530	2530	2530	2530	2530	
Weight	(kg)	4580	4760	4895	5470	5590	7875	8255	7890	8690	9380	10735	11355	11930	
Clearance A	(mm)	1000	1000	1000	1000	1000	1200	1200	1000	1000	1000	1200	1200	1200	
Clearance B	(mm)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	
Clearance C	(mm)	1000	1000	1000	1000	1000	1200	1200	1200	1200	1200	1200	1200	1200	
Clearance D	(mm)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	
<b>Electrical data</b>															
Maximum amps	(A)	386	426	465	514	562	606	668	668	747	844	930	1027	1124	
Start-up amps	(A)	424	460	490	557	594	629	677	677	738	813	851	955	1030	

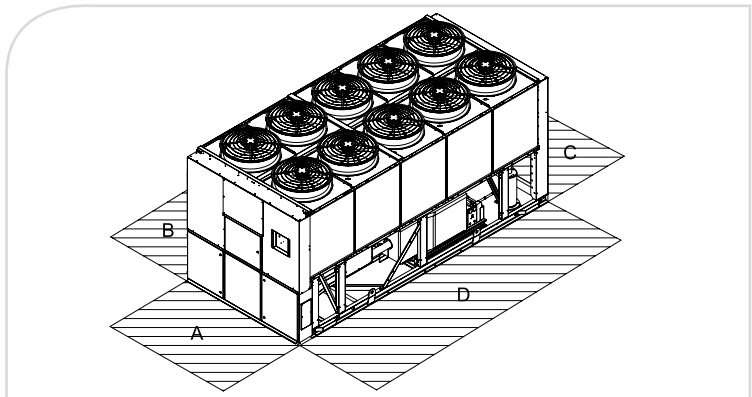
(1) With low and high ambient temperature option.

(2) With 3 pass evaporator.

(3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient air temperature.

(4) At Eurovent conditions, with 1pW reference sound power, according to ISO9614.

(5) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepiped box with five exposed face areas.



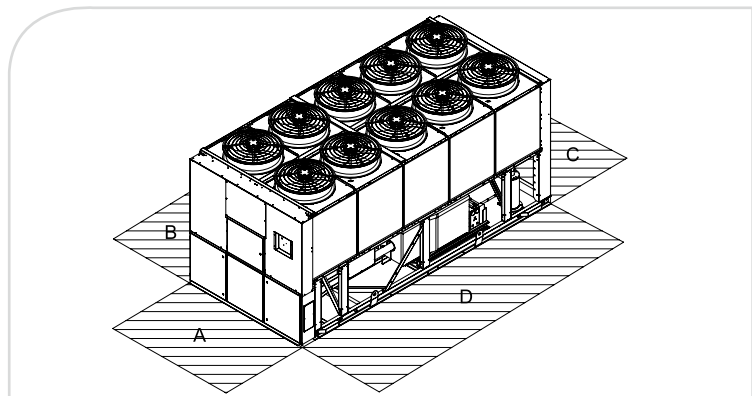


Operating outdoor air temperature range (min./max.) (1)	(°C)	-18 / +52
Leaving water temperature range (min./max.) (2)	(°C)	-12 / +18
Power supply	(V/Ph/Hz)	400/3/50

<b>RTAC High Efficiency</b>		<b>120</b>	<b>130</b>	<b>140</b>	<b>155</b>	<b>170</b>	<b>185</b>	<b>200</b>
Net cooling capacity (3)	(kW)	421	465	512	556	602	667	737
Total power input net (3)	(kW)	139	152	167	184	201	222	242
EER net		3.04	3.05	3.06	3.02	2.99	3.01	3.05
Eurovent class		B	B	B	B	B	B	B
ESEER net		3.73	3.79	3.75	3.75	3.67	3.74	3.69
Number of refrigerant circuits		2						
Number of compressors / minimum load		2 / 15%						
Sound power level (standard noise version) (4)	(dB(A))	97	98	98	99	99	100	100
Sound pressure level (standard noise version) (4) (5)	(dB(A))	65	66	66	67	67	68	68
Sound power level (low noise version) (4)	(dB(A))	90	91	91	92	92	93	93
Sound pressure level (low noise version) (4) (5)	(dB(A))	58	58	59	59	60	60	60
<b>Weights and dimensions (operating)</b>								
Length	(mm)	5041	5041	5041	5960	5960	6879	6879
Width	(mm)	2260	2260	2260	2260	2260	2260	2260
Height	(mm)	2411	2411	2411	2411	2411	2411	2411
Weight	(kg)	4461	4519	4529	5180	5431	6005	6117
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1200	1200	1200	1200	1200	1200	1200
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1200	1200	1200	1200	1200	1200	1200
<b>Electrical data</b>								
Maximum amps	(A)	324	359	393	433	472	521	569
Start-up amps	(A)	358	404	431	467	497	564	601

<b>RTAC High Efficiency</b>		<b>250</b>	<b>275</b>	<b>300</b>	<b>350</b>	<b>375</b>	<b>400</b>	
Net cooling capacity (3)	(kW)	875	976	1108	1223	1359	1496	
Total power input net (3)	(kW)	293	323	363	412	452	492	
EER net		2.99	3.02	3.05	2.97	3.01	3.04	
Eurovent class		B	B	B	B	B	B	
ESEER net		3.84	3.9	3.95	3.94	3.97	4.01	
Number of refrigerant circuits		2						
Number of compressors / minimum load		3 / 15%			4 / 8%			
Sound power level (standard noise version) (4)	(dB(A))	100	102	102	102	103	103	
Sound pressure level (standard noise version) (4) (5)	(dB(A))	67	69	69	69	70	70	
Sound power level (low noise version) (4)	(dB(A))	93	95	95	95	96	96	
Sound pressure level (low noise version) (4) (5)	(dB(A))	60	62	62	62	63	63	
<b>Weights and dimensions (operating)</b>								
Length	(mm)	9138	10975	11894	12244	13163	14082	
Width	(mm)	2250	2250	2250	2250	2250	2250	
Height	(mm)	2530	2530	2530	2530	2530	2530	
Weight	(kg)	8359	9718	10258	11973	12507	13185	
Clearance A	(mm)	1000	1000	1000	1200	1200	1200	
Clearance B	(mm)	1200	1200	1200	1200	1200	1200	
Clearance C	(mm)	1200	1200	1200	1200	1200	1200	
Clearance D	(mm)	1200	1200	1200	1200	1200	1200	
<b>Electrical data</b>								
Maximum amps	(A)	675	754	851	944	1041	1138	
Start-up amps	(A)	684	745	820	865	969	1044	

- (1) With low and high ambient temperature option.
- (2) With 3 pass evaporator.
- (3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient air temperature.
- (4) At Eurovent conditions, with 1pW reference sound power, according to ISO9614.
- (5) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepiped box with five exposed face areas.

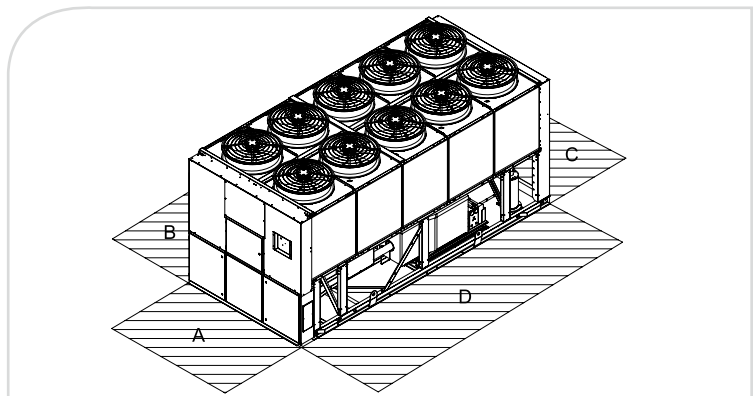


Operating outdoor air temperature range (min./max.) (1)	(°C)	-18 / +52
Leaving water temperature range (min./max.) (2)	(°C)	-12 / +18
Power supply	(V/Ph/Hz)	400/3/50

RTAC Extra Efficiency		120	130	140	155	175	185	200
Net cooling capacity (3)	(kW)	426	473	519	565	631	677	744
Total power input net (3)	(kW)	136	151	166	182	201	218	239
EER net		3.13	3.14	3.12	3.11	3.14	3.10	3.11
Eurovent class		A	A	A	A	A	A	A
ESEER net		3.81	3.76	3.8	3.79	3.9	3.79	3.74
Number of refrigerant circuits		2						
Number of compressors / minimum load		3 / 15%						
Sound power level (standard noise version) (4)	(dB(A))	98	98	98	99	99	100	100
Sound pressure level (standard noise version) (4) (5)	(dB(A))	66	66	66	67	67	68	68
Sound power level (low noise version) (4)	(dB(A))	91	91	91	92	92	93	93
Sound pressure level (low noise version) (4) (5)	(dB(A))	59	58	59	59	60	60	60
<b>Weights and dimensions (operating)</b>								
Length	(mm)	5041	5041	5041	5960	6879	6879	6879
Width	(mm)	2260	2260	2260	2260	2260	2260	2260
Height	(mm)	2411	2411	2411	2411	2411	2411	2411
Operating weight	(kg)	4775	4712	4613	5351	5842	6307	6497
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1200	1200	1200	1200	1200	1200	1200
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1200	1200	1200	1200	1200	1200	1200
<b>Electrical data</b>								
Maximum amps	(A)	324	362	393	436	485	524	569
Start-up amps	(A)	358	407	431	470	537	567	601

RTAC Extra Efficiency		255	275	300	355	375	400	
Net cooling capacity (3)	(kW)	896	996	1125	1286	1383	1511	
Total power input net (3)	(kW)	286	322	360	413	449	487	
EER net		3.13	3.09	3.12	3.11	3.08	3.10	
Eurovent class		A	B	A	A	B	A	
ESEER net		3.98	3.88	3.96	4.08	4.04	4.03	
Number of refrigerant circuits		2						
Number of compressors / minimum load		2 / 15%			4 / 8%			
Sound power level (standard noise version) (4)	(dB(A))	100	102	102	102	103	103	
Sound pressure level (standard noise version) (5)	(dB(A))	67	69	69	69	70	70	
Sound power level (low noise version) (4)	(dB(A))	93	95	95	95	96	96	
Sound pressure level (low noise version) (5)	(dB(A))	60	62	62	62	63	63	
<b>Weights and dimensions (operating)</b>								
Length	(mm)	10056	10975	11894	12244	13163	14082	
Width	(mm)	2250	2250	2250	2250	2250	2250	
Height	(mm)	2530	2530	2530	2530	2530	2530	
Weight	(kg)	9484	10180	10795	12217	13092	13784	
Clearance A	(mm)	1000	1000	1000	1200	1200	1200	
Clearance B	(mm)	1200	1200	1200	1200	1200	1200	
Clearance C	(mm)	1200	1200	1200	1200	1200	1200	
Clearance D	(mm)	1200	1200	1200	1200	1200	1200	
<b>Electrical data</b>								
Maximum amps	(A)	675	761	858	962	1041	1138	
Start-up amps	(A)	684	752	827	908	969	1044	

- (1) With low and high ambient temperature option.
- (2) With 3 pass evaporator.
- (3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient air temperature.
- (4) At Eurovent conditions, with 1pW reference sound power, according to ISO9614.
- (5) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepiped box with five exposed face areas.





# RTAF

## Air-cooled helical-rotary chiller



### Customer benefits

Probably the lowest Total Cost of Ownership thanks to:

- Low energy consumption: high full (EER) and part (ESEER) load efficiencies
- Silent operation: discreet, even in the most sound sensitive applications
- Unique feature: efficiency increases when sound decreases
- Reliability: main components designed and manufactured by Trane
- User-friendly control interface and interoperability with building automation systems
- Reduced refrigerant charge

### Main features

- 5 efficiency levels: SE, HE, XE, HSE and HSS with increasing part load (ESEER) efficiencies
- 3 acoustic packages: SN, LN with no loss of efficiency; XLN with improved efficiency
- Trane Adaptive Frequency™ Drive on compressors on HSE/HSS versions
- Electronically Commutated condenser fans on XE, HSE and HSS versions
- New Trane patented flooded evaporator CHIL (Compact - High performance - Integrated design - Low charge)
- Microchannel condenser coils
- Wide operating map: airside and waterside

### Options

- Integrated water pump: dual pump low or high head pressure
- Partial heat recovery
- Low temperature process cooling (<4°C)
- Ice storage
- High ambient operation (55°C)
- Low ambient operation (-18°C)
- E-coated condenser coil
- Optiplant: unit sequencer

### Accessories

- Flow-switch
- Elastomeric isolators

### Controls

- Ultimate control: Trane UC800
  - Easy to read 7-inch color touchscreen display
  - Industry leading algorithms
  - Open protocol design
  - Adaptive control
- Feedforward adaptive control
- Softloading (HSE/HSS)
- Rapid restart
- SmartCom interface: LonTalk®, Modbus®, BACnet® communication capabilities
- Energy metering

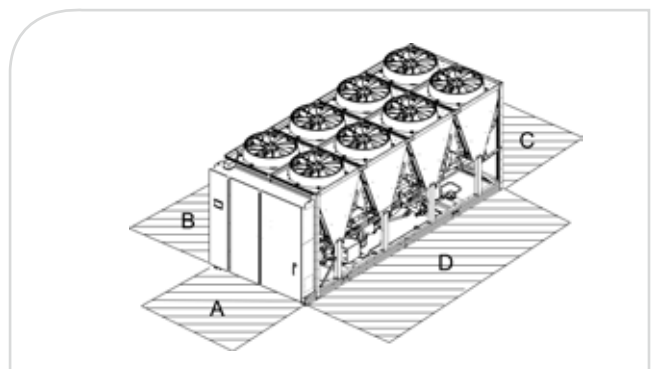
This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.

Operating outdoor air temperature range (min./max.) (1)	(°C)	-18 / +55°C
Leaving water temperature range (min./max.) (2)	(°C)	-12 / 20°C
Power supply	(V/Ph/Hz)	400/3/50

RTAF Standard Efficiency - Standard and Low Noise - R134a		090	105	125	140	145	150	155	170	175	185
Cooling capacity (3)	(kW)	326	375	440	505	522	542	563	581	615	655
Total power input (3)	(kW)	104	121	146	171	166	192	185	215	207	228
EER (3)		3.14	3.1	3.02	2.96	3.15	2.82	3.05	2.70	2.98	2.87
ESEER (3)		3.76	3.78	3.83	3.81	3.84	3.72	3.78	3.57	3.89	3.67
Eurovent class		A	A	B	B	A	C	B	D	B	C
Sound power level (4)	(dBA)	95	95	95	96	96	96	96	97	97	97
Sound pressure level (5)	(dBA)	63	63	63	64	64	64	64	65	65	64
Sound power level (low noise) (4)	(dBA)	92	92	92	93	93	93	93	94	94	94
Sound pressure level (low noise) (5)	(dBA)	60	60	60	61	61	61	61	62	62	61
Number of circuit(s)		2	2	2	2	2	2	2	2	2	2
Number of compressors		2	2	2	2	2	2	2	2	2	2
<b>Dimensions and weights (operating)</b>											
Length	(mm)	4520	4520	4520	4520	5645	4520	5645	4520	5645	5645
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200
Height	(mm)	2526	2526	2526	2526	2526	2526	2526	2526	2526	2526
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	3295	3330	3510	3680	3970	3945	4240	4270	4400	4580
<b>Electrical data</b>											
Maximum amps	(A)	229	267	309	367	358	402	397	437	434	484
Start-up amps	(A)	276	331	442	392	491	555	554	590	567	637

RTAF Standard Efficiency - Standard and Low Noise - R134a		190	200	205	250	280	310	350	355	380	410	450
Cooling capacity (3)	(kW)	674	707	731	857	971	1073	1192	1173	1321	1145	1588
Total power input (3)	(kW)	222	253	244	291	330	376	420	402	458	497	521
EER (3)		3.04	2.80	3	2.95	2.95	2.86	2.84	2.92	2.88	2.91	3.05
ESEER (3)		3.84	3.64	3.83	3.89	3.95	3.95	4.00	4.20	4.05	4.07	4.22
Eurovent class		B	C	B	B	B	C	C	B	C	C	B
Sound power level (4)	(dBA)	97	97	97	99	100	101	101	105	101	102	105
Sound pressure level (5)	(dBA)	64	64	64	66	67	68	68	72	68	69	72
Sound power level (low noise) (4)	(dBA)	94	94	94	96	97	98	98	104	98	99	104
Sound pressure level (low noise) (5)	(dBA)	61	61	61	63	64	65	65	71	65	66	71
Number of circuit(s)		2	2	2	2	2	2	2	2	2	2	2
Number of compressors		2	2	2	3	3	3	4	3	4	4	4
<b>Dimensions and weights (operating)</b>												
Length	(mm)	6770	5645	6770	8271	9396	9396	10143	9396	11268	12393	12393
Width	(mm)	2200	2200	2200	2220	2220	2220	2220	2200	2220	2220	2220
Height	(mm)	2526	2526	2526	2526	2526	2526	2526	2526	2526	2526	2526
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	4820	4610	4845	6485	7025	7070	8460	7008	8830	9185	9295
<b>Electrical data</b>												
Maximum amps	(A)	492	523	531	628	710	788	880	788	966	1052	1052
Start-up amps	(A)	645	637	645	721	824	902	970	902	1080	1166	1166

- (1) With low ambient temperature option
- (2) With process cooling option
- (3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.
- (4) At Eurovent conditions, with 1pW reference sound power, according to ISO9614
- (5) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p = L_w - 10 \log S$ . This is an averaged value considering the unit as a parallelepipedic box with five exposed face areas.



Operating outdoor air temperature range (min./max.) (1)	(°C)	-18 / +55°C
Leaving water temperature range (min./max.) (2)	(°C)	-12 / 20°C
Power supply	(V/Ph/Hz)	400/3/50

RTAF Standard Efficiency - Extra Low Noise - R134a		090	105	125	140	145	150	155	170	175	185
Cooling capacity (3)	(kW)	326	376	440	505	522	542	564	581	616	655
Total power input (3)	(kW)	101	119	143	168	162	189	182	212	203	225
EER (3)		3.22	3.17	3.08	3.01	3.22	2.86	3.10	2.74	3.03	2.91
ESEER (3)		4.10	4.02	4.04	3.91	4.06	3.82	3.98	3.65	4.02	3.77
Eurovent class		A	A	B	B	A	C	B	C	B	B
Sound power level (4)	(dBA)	88	89	89	89	89	90	90	90	90	91
Sound pressure level (5)	(dBA)	56	57	57	56	57	58	58	58	58	58
Number of circuit(s)	(dBA)	2	2	2	2	2	2	2	2	2	2
Number of compressors	(dBA)	2	2	2	2	2	2	2	2	2	2

**Dimensions and weights (operating)**

Length	(mm)	4520	4520	4520	4520	5645	4520	5645	4520	5645	5645
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200
Height	(mm)	2672	2672	2672	2672	2672	2672	2672	2672	2672	2672
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	3375	3410	3590	3780	4070	4045	4340	4370	4500	4700

**Electrical data**

Maximum amps	(A)	229	267	309	359	358	394	397	429	434	474
Start-up amps	(A)	276	331	442	484	491	547	554	582	567	627

RTAF Standard Efficiency - Extra Low Noise - R134a		190	200	205	250	280	310	350	355	380	410	450
Cooling capacity (3)	(kW)	675	708.3	732	858	972	1074	1074	1186	1322	1447	1589
Total power input (3)	(kW)	218	249	240	286	324	370	370	395	451	490	511
EER (3)		3.10	2.84	3.05	3.00	3.00	2.90	2.90	3.00	2.93	2.95	3.11
ESEER (3)		4.00	3.73	3.95	4.28	4.37	4.30	4.30	4.44	4.38	4.43	4.51
Eurovent class		A	C	B	B	B	C	C	B	B	B	A
Sound power level (4)	(dBA)	91	91	91	93	94	94	94	103	95	95	103
Sound pressure level (5)	(dBA)	58	58	58	60	61	61	61	70	62	62	70
Number of circuit(s)	(dBA)	2	2	2	2	2	2	2	2	2	2	2
Number of compressors	(dBA)	2	2	2	3	3	3	4	3	4	4	4

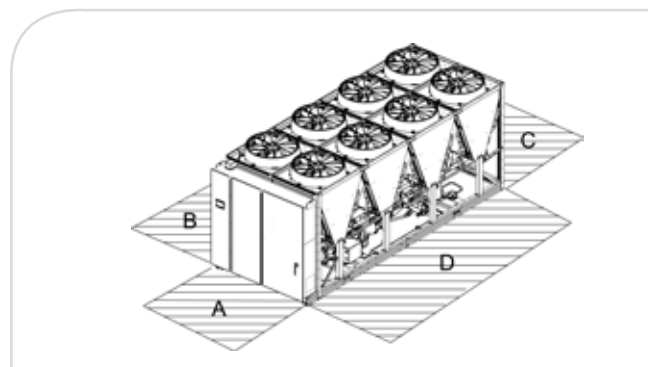
**Dimensions and weights (operating)**

Length	(mm)	6770	5645	6770	8271	9396	9396	10143	9396	11268	12393	12393
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200
Height	(mm)	2672	2672	2672	2672	2672	2672	2672	2672	2672	2672	2672
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	4940	4730	4965	6625	7185	7230	8640	7088	9030	9405	9405

**Electrical data**

Maximum amps	(A)	481	513	519	614	694	772	862	772	946	1030	1030
Start-up amps	(A)	638	627	633	707	808	886	952	886	1060	1144	1144

- (1) With low ambient temperature option
- (2) With process cooling option
- (3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.
- (4) At Eurovent conditions, with 1pW reference sound power, according to ISO9614
- (5) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepipedic box with five exposed face areas.

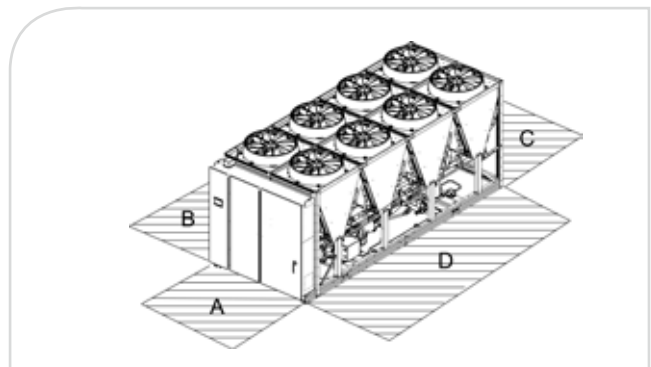


Operating outdoor air temperature range (min./max.) (1)	(°C)	-18 / +55°C
Leaving water temperature range (min./max.) (2)	(°C)	-12 / 20°C
Power supply	(V/Ph/Hz)	400/3/50

RTAF Standard Efficiency - Extra Low Noise AC - R134a		090	105	125	140	145	150	155	170	175	185	190
Cooling capacity	(kW)	324	373	436	499	518	535	558	572	608	647	668
Total power input	(kW)	102	120	144	170	164	192	183	215	205	228	220
EER		3.19	3.12	3.02	2.94	3.16	2.79	3.04	2.66	2.96	2.84	3.04
ESEER		3.88	3.87	3.90	3.85	3.94	3.75	3.86	3.57	3.94	3.70	3.89
Eurovent class		A	A	B	B	A	C	B	D	B	C	B
Sound power level	(dBA)	88	89	89	89	89	90	90	90	90	91	91
Sound pressure level	(dBA)	56	57	57	56	56	58	58	58	58	58	58
Number of circuit(s)		2	2	2	2	2	2	2	2	2	2	2
Number of compressors		2	2	2	2	2	2	2	2	2	2	2
<b>Dimensions and weights (operating)</b>												
Length	(mm)	4520	4520	4520	4520	5645	4520	5645	4520	5645	5645	6770
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200
Height	(mm)	2526	2526	2526	2526	2526	2526	2526	2526	2526	2526	2526
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	3410	3445	3620	3780	4100	4045	4365	4370	4525	4700	4970
<b>Electrical data</b>												
Maximum amps	(A)	221	259	309	359	364	394	399	429	438	473	479
Start-up amps	(A)	268	323	484	484	489	547	552	582	563	626	632

RTAF Standard Efficiency - Extra Low Noise AC - R134a		200	205	250	280	310	350	355	380	410	450
Cooling capacity	(kW)	698	724	848	960	1060	1177	1166	1305	1428	1582
Total power input	(kW)	253	242	289	328	375	419	404	457	496	521
EER		2.76	2.98	2.93	2.93	2.83	2.81	2.89	2.86	2.88	3.04
ESEER		3.66	3.87	3.96	4.07	4.02	4.11	4.24	4.16	4.19	4.23
Eurovent class		C	B	B	B	C	C	C	C	C	B
Sound power level	(dBA)	91	91	93	94	94	95	104	95	96	104
Sound pressure level	(dBA)	58	58	60	61	61	62	71	62	63	71
Number of circuit(s)		2	2	2	2	2	2	2	2	2	2
Number of compressors		2	2	3	3	3	3	3	4	4	4
<b>Dimensions and weights (operating)</b>											
Length	(mm)	5645	6770	8271	9396	9396	10143	9396	11268	12393	12393
Width	(mm)	2200	2200	2220	2220	2220	2220	2220	2220	2220	2220
Height	(mm)	2526	2526	2526	2526	2526	2526	2526	2526	2526	2526
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	4730	5000	6410	6870	6983	8318	7068	8575	8819	8939
<b>Electrical data</b>											
Maximum amps	(A)	512	518	612	692	770	860	770	944	1028	1028
Start-up amps	(A)	626	632	705	806	884	950	884	1058	1142	1142

- (1) With low ambient temperature option
- (2) With process cooling option
- (3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.
- (4) At Eurovent conditions, with 1pW reference sound power, according to ISO9614
- (5) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p = L_w - 10 \log S$ . This is an averaged value considering the unit as a parallelepiped box with five exposed face areas.



Operating outdoor air temperature range (min./max.) (1)	(°C)	-18 / +55°C
Leaving water temperature range (min./max.) (2)	(°C)	-12 / 20°C
Power supply	(V/Ph/Hz)	400/3/50

RTAF High Efficiency - Standard and Low Noise - R134a		090	105	125	145	155	175	190	205
Cooling capacity (3)	(kW)	330	383	453	532	576	632	688	751
Total power input (3)	(kW)	105	121	143	164	182	202	218	239
EER (3)		3.15	3.17	3.17	3.24	3.16	3.14	3.15	3.14
ESEER (3)		3.73	3.67	3.81	3.93	3.89	3.90	3.84	3.88
Eurovent class		A	A	A	A	A	A	A	A
Sound power level (4)	(dBA)	95	95	96	96	97	97	98	98
Sound pressure level (5)	(dBA)	63	63	64	64	65	65	65	65
Sound power level (low noise) (4)	(dBA)	93	93	93	93	94	94	95	95
Sound pressure level (low noise) (5)	(dBA)	61	61	61	61	62	62	62	62
Number of circuit(s)		2	2	2	2	2	2	2	2
Number of compressors		2	2	2	2	2	2	2	2

**Dimensions and weights (operating)**

Length	(mm)	5645	5645	5645	6770	6770	6770	7895	7895
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2200
Height	(mm)	2526	2526	2526	2526	2526	2526	2526	2526
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	3595	3630	3810	4220	4485	4640	5075	5210

**Electrical data**

Maximum amps	(A)	236	274	316	366	405	442	489	526
Start-up amps	(A)	283	338	449	499	562	575	646	646

RTAF High Efficiency - Standard and Low Noise - R134a		250	280	310	350	355	380	410	450
Cooling capacity (3)	(kW)	872	986	1102	1233	1214	1352	1456	1605
Total power input (3)	(kW)	274	305	344	383	382	421	465	510
EER (3)		3.18	3.23	3.21	3.22	3.18	3.21	3.13	3.15
ESEER (3)		4.15	4.13	4.10	4.14	4.26	4.18	4.18	4.20
Eurovent class		A	A	A	A	A	A	A	A
Sound power level (4)	(dBA)	99	100	101	101	105	102	102	105
Sound pressure level (5)	(dBA)	66	67	68	68	72	69	69	72
Sound power level (low noise) (4)	(dBA)	96	97	98	98	104	98	99	104
Sound pressure level (low noise) (5)	(dBA)	64	65	65	65	71	65	66	71
Number of circuit(s)		2	2	2	2	2	2	2	2
Number of compressors		3	3	3	4	4	4	4	4

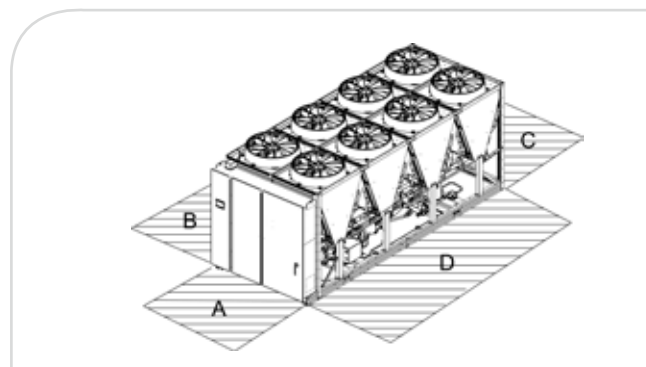
**Dimensions and weights (operating)**

Length	(mm)	9393	9393	11268	12393	11268	13518	13518	13518
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2220
Height	(mm)	2526	2526	2526	2526	2526	2526	2526	2526
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	6750	7190	7628	8983	7513	9175	8869	8989

**Electrical data**

Maximum amps	(A)	636	718	804	896	804	982	1060	1060
Start-up amps	(A)	729	832	918	986	918	1096	1174	1174

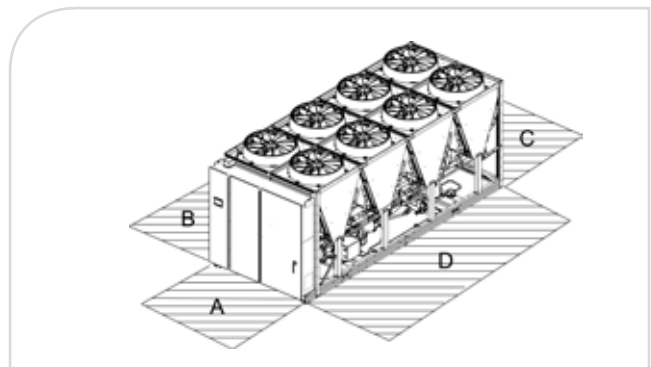
- (1) With low ambient temperature option
- (2) With process cooling option
- (3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.
- (4) At Eurovent conditions, with 1pW reference sound power, according to ISO9614
- (5) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepipedic box with five exposed face areas.



Operating outdoor air temperature range (min./max.) (1)	(°C)	-18 / +55°C
Leaving water temperature range (min./max.) (2)	(°C)	-12 / 20°C
Power supply	(V/Ph/Hz)	400/3/50

RTAF High Efficiency - Extra Low Noise AC - R134a		090	105	125	145	155	175	190	205
Cooling capacity	(kW)	330	381	450	529	572	627	683	744
Total power input	(kW)	102	118	141	161	180	199	215	236
EER		3.23	3.23	3.20	3.28	3.19	3.14	3.17	3.15
ESEER		3.95	3.82	3.93	4.05	3.99	3.99	3.94	3.96
Eurovent class		A	A	A	A	A	A	A	A
Sound power level	(dBA)	90	90	90	90	90	90	91	91
Sound pressure level	(dBA)	58	58	58	57	58	58	58	58
Number of circuit(s)		2	2	2	2	2	2	2	2
Number of compressors		2	2	2	2	2	2	2	2
<b>Dimensions and weights (operating)</b>									
Length	(mm)	5645	5645	5645	6770	6770	6770	7895	7895
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2200
Height	(mm)	2526	2526	2526	2526	2526	2526	2526	2526
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	3710	3740	3920	4350	4615	4775	5225	5365
<b>Electrical data</b>									
Maximum amps	(A)	226	264	314	370	405	444	485	524
Start-up amps	(A)	273	328	439	495	558	569	638	638
<b>RTAF High Efficiency - Extra Low Noise AC - R134a</b>									
		250	280	310	350	355	380	410	450
Cooling capacity	(kW)	864	978	1093	1222	1211	1341	1442	1600
Total power input	(kW)	271	302	340	380	381	418	462	509
EER		3.18	3.24	3.21	3.22	3.18	3.21	3.12	3.14
ESEER		4.41	4.42	4.19	4.30	4.32	4.33	4.32	4.24
Eurovent class		A	A	A	A	A	A	A	A
Sound power level	(dBA)	96	97	98	98	104	98	99	104
Sound pressure level	(dBA)	63	64	65	65	71	65	66	71
Number of circuit(s)		2	2	2	2	2	2	2	2
Number of compressors		3	3	3	3	3	4	4	4
<b>Dimensions and weights (operating)</b>									
Length	(mm)	9393	10143	11268	12393	11268	13518	13518	13518
Width	(mm)	2220	2220	2220	2220	2220	2220	2220	2220
Height	(mm)	2526	2526	2526	2526	2526	2526	2526	2526
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	6750	7190	7628	8983	7713	9175	9109	9229
<b>Electrical data</b>									
Maximum amps	(A)	618	698	782	872	782	955	1033	1033
Start-up amps	(A)	711	812	896	962	896	1069	1147	1147

- (1) With low ambient temperature option
- (2) With process cooling option
- (3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.
- (4) At Eurovent conditions, with 1pW reference sound power, according to ISO9614
- (5) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p = L_w - 10 \log S$ . This is an averaged value considering the unit as a parallelepipedic box with five exposed face areas.





Operating outdoor air temperature range (min./max.) (1)	(°C)	-18 / +55°C
Leaving water temperature range (min./max.) (2)	(°C)	-12 / 20°C
Power supply	(V/Ph/Hz)	400/3/50

RTAF Extra Efficiency - Standard and Low Noise - R134a		090	105	125	145	155	175	190	205	250
Cooling capacity (3)	(kW)	326	380	447	526	569	633	689	752	876
Total power input (3)	(kW)	98	116	138	158	177	199	215	236	273
EER (3)		3.34	3.28	3.23	3.32	3.21	3.18	3.20	3.19	3.21
ESEER (3)		4.17	4.10	4.15	4.21	4.13	4.10	4.06	4.04	4.52
Eurovent class		A	A	A	A	A	A	A	A	A
Sound power level (4)	(dBA)	94	94	95	96	97	97	98	98	99
Sound pressure level (5)	(dBA)	62	62	63	64	65	65	65	65	66
Sound power level (low noise) (4)	(dBA)	91	91	92	93	94	94	95	95	96
Sound pressure level (low noise) (5)	(dBA)	59	59	60	61	62	62	62	62	63
Number of circuit(s)		2	2	2	2	2	2	2	2	2
Number of compressors		2	2	2	2	2	2	2	2	3

**Dimensions and weights (operating)**

Length	(mm)	5645	5645	5645	6770	6770	6770	7895	7895	9393
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2200	2200
Height	(mm)	2526	2526	2526	2526	2526	2526	2526	2526	2526
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	3595	3630	3810	4220	4485	4640	5075	5210	6785

**Electrical data**

Maximum amps	(A)	236	274	316	366	405	442	489	526	620
Start-up amps	(A)	283	338	449	499	562	575	646	646	713

RTAF Extra Efficiency - Standard and Low Noise - R134a		280	310	350	355	380	410	415	450
Cooling capacity (3)	(kW)	990	1107	1237	1218	1359	1463	1479	1606
Total power input (3)	(kW)	304	343	382	376	420	463	470	503
EER (3)		3.26	3.23	3.24	3.24	3.24	3.16	3.15	3.19
ESEER (3)		4.62	4.57	4.58	4.54	4.58	4.52	4.50	4.51
Eurovent class		A	A	A	A	A	A	A	A
Sound power level (4)	(dBA)	100	101	101	105	102	102	103	105
Sound pressure level (5)	(dBA)	67	68	68	72	69	69	70	72
Sound power level (low noise) (4)	(dBA)	97	98	98	104	98	99	100	104
Sound pressure level (low noise) (5)	(dBA)	64	65	65	71	65	66	67	71
Number of circuit(s)		2	2	2	2	2	2	2	2
Number of compressors per circuit		3	3	4	3	4	4	4	4

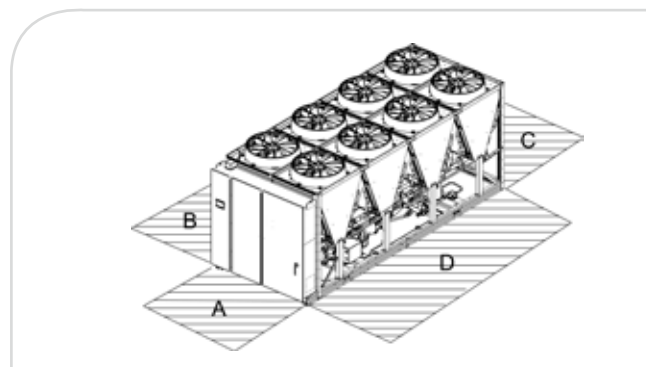
**Dimensions and weights (operating)**

Length	(mm)	10143	11268	12393	11268	13518	13518	13518	13518
Width	(mm)	2200	2200	2200	2220	2200	2200	2220	2220
Height	(mm)	2526	2526	2526	2526	2526	2526	2526	2526
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	7325	7695	9105	7513	9410	9475	8869	8989

**Electrical data**

Maximum amps	(A)	700	784	874	784	958	1036	1036	1036
Start-up amps	(A)	814	898	964	898	1072	1150	1150	1150

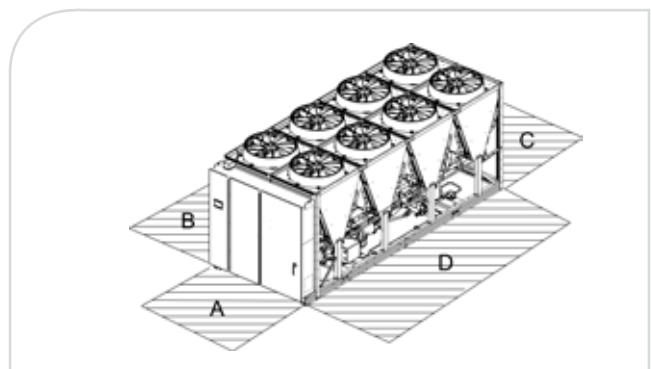
- (1) With low ambient temperature option
- (2) With process cooling option
- (3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.
- (4) At Eurovent conditions, with 1pW reference sound power, according to ISO9614
- (5) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepipedic box with five exposed face areas.



Operating outdoor air temperature range (min./max.) (1)	(°C)	-18 / +55°C
Leaving water temperature range (min./max.) (2)	(°C)	-12 / 20°C
Power supply	(V/Ph/Hz)	400/3/50

RTAF Extra Efficiency - Extra Low Noise - R134a		090	105	125	145	155	175	190	205
Cooling capacity (3)	(kW)	325	380	447	526	568	633	688	751
Total power input (3)	(kW)	97	115	138	158	177	198	214	234
EER (3)		3.36	3.3	3.24	3.33	3.21	3.20	3.22	3.21
ESEER (3)		4.20	4.14	4.18	4.24	4.15	4.13	4.09	4.07
Eurovent class		A	A	A	A	A	A	A	A
Sound power level (4)	(dB(A))	88	88	88	89	90	90	91	91
Sound pressure level (5)	(dB(A))	56	56	56	57	58	58	58	58
Number of circuit(s)	(dB(A))	2	2	2	2	2	2	2	2
Number of compressors	(dB(A))	2	2	2	2	2	2	2	2
<b>Dimensions and weights (operating)</b>									
Length	(mm)	5645	5645	5645	6770	6770	6770	7895	7895
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2200
Height	(mm)	2672	2672	2672	2672	2672	2672	2672	2672
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	3695	3730	3910	4340	4605	4760	5215	5350
<b>Electrical data</b>									
Maximum amps	(A)	236	274	316	366	405	442	489	526
Start-up amps	(A)	283	338	449	499	562	575	646	646
RTAF Extra Efficiency - Extra Low Noise - R134a		250	280	310	350	355	380	410	450
Cooling capacity (3)	(kW)	875	990	1107	1237	1217	1358	1463	1606
Total power input (3)	(kW)	269	300	338	376	373	414	458	499
EER (3)		3.25	3.30	3.28	3.29	3.27	3.28	3.20	3.22
ESEER (3)		4.59	4.69	4.64	4.64	4.60	4.65	4.58	4.57
Eurovent class		A	A	A	A	A	A	A	A
Sound power level (4)	(dB(A))	93	94	95	95	103	95	95	103
Sound pressure level (5)	(dB(A))	60	61	62	62	70	62	62	70
Number of circuit(s)	(dB(A))	2	2	2	2	2	2	2	2
Number of compressors	(dB(A))	3	3	3	4	3	4	4	4
<b>Dimensions and weights (operating)</b>									
Length	(mm)	9393	10143	11268	12393	11268	13518	13518	13518
Width	(mm)	2200	2200	2200	2200	2220	2200	2200	2220
Height	(mm)	2672	2672	2672	2672	2672	2672	2672	2672
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	6945	7505	7895	9325	7713	9650	9715	9229
<b>Electrical data</b>									
Maximum amps	(A)	618	702	776	877	784	959	1033	1036
Start-up amps	(A)	776	860	897	1035	898	1117	1154	1150

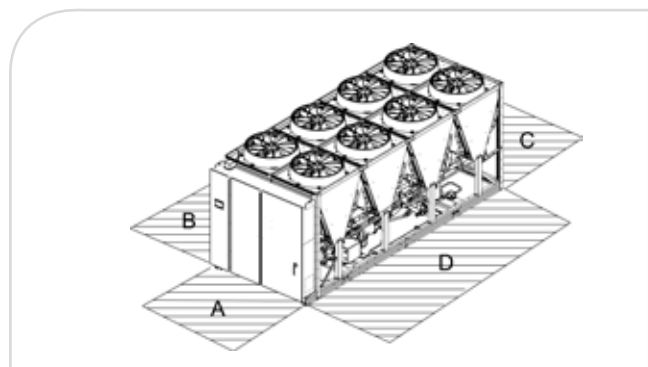
- (1) With low ambient temperature option
- (2) With process cooling option
- (3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.
- (4) At Eurovent conditions, with 1pW reference sound power, according to ISO9614
- (5) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p = L_w - 10 \log S$ . This is an averaged value considering the unit as a parallelepipedic box with five exposed face areas.



Operating outdoor air temperature range (min./max.) (1)	(°C)	-18 / +55°C
Leaving water temperature range (min./max.) (2)	(°C)	-12 / 20°C
Power supply	(V/Ph/Hz)	400/3/50

RTAF High Seasonal Efficiency - Standard and Low Noise - R134a		090	105	125	145	155	175	190	205	245	250
Cooling capacity (3)	(kW)	330	383	452	530	575	637	695	747	869	880
Total power input (3)	(kW)	101	121	145	166	182	204	218	238	306	282
EER (3)		3.26	3.18	3.11	3.19	3.15	3.12	3.20	3.15	2.84	3.12
ESEER (3)		4.48	4.38	4.40	4.43	4.49	4.52	4.55	4.53	4.30	4.57
Eurovent class		A	A	A	A	A	A	A	A	C	A
Sound power level (4)	(dBA)	94	94	95	96	98	98	99	99	104	99
Sound pressure level (5)	(dBA)	62	62	63	64	65	65	66	66	71	66
Sound power level (low noise) (4)	(dBA)	91	91	92	93	95	95	96	96	101	96
Sound pressure level (low noise) (5)	(dBA)	59	59	60	61	62	62	63	63	68	64
Number of circuit(s)		2	2	2	2	2	2	2	2	2	2
Number of compressors		2	2	2	2	2	2	2	2	2	3
<b>Dimensions and weights (operating)</b>											
Length	(mm)	5645	5645	5645	6770	6770	6770	7895	7895	7895	9396
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200
Height	(mm)	2526	2526	2526	2526	2526	2526	2526	2526	2526	2526
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	3700	3735	3915	4320	4585	4850	5325	5460	5460	7005
<b>Electrical data</b>											
Maximum amps	(A)	229	262	305	357	392	427	470	505	535	594
Start-up amps	(A)	229	262	305	357	392	427	470	505	535	684
<b>RTAF High Seasonal Efficiency - Standard and Low Noise - R134a</b>											
		<b>280</b>	<b>310</b>	<b>350</b>	<b>370</b>	<b>380</b>	<b>400</b>	<b>410</b>	<b>450</b>	<b>510</b>	<b>550</b>
Cooling capacity (3)	(kW)	997	1115	1243	1397	1354	1496	1473	1592	1801	1899
Total power input (3)	(kW)	316	355	394	442	427	512	475	558	581	653
EER (3)		3.16	3.14	3.16	3.16	3.17	2.92	3.10	2.86	3.10	2.91
ESEER (3)		4.64	4.68	4.68	4.56	4.69	4.43	4.69	4.46	4.56	4.48
Eurovent class		A	A	A	A	A	B	A	C	A	B
Sound power level (4)	(dBA)	100	101	101	106	102	107	102	107	106	107
Sound pressure level (5)	(dBA)	67	68	68	73	69	74	69	74	73	74
Sound power level (low noise) (4)	(dBA)	97	98	98	105	98	106	99	104	105	106
Sound pressure level (low noise) (5)	(dBA)	64	65	65	72	65	73	66	71	72	73
Number of circuit(s)		2	2	2	2	2	2	2	2	2	2
Number of compressors per circuit		3	3	4	3	4	4	4	4	4	4
<b>Dimensions and weights (operating)</b>											
Length	(mm)	10143	11268	12393	11268	13518	11268	13518	13518	13518	13518
Width	(mm)	2200	2200	2200	2220	2200	2220	2200	2200	2220	2220
Height	(mm)	2526	2526	2526	2526	2526	2526	2526	2526	2526	2526
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	7575	7945	9345	8158	9650	8158	9349	9785	9629	9629
<b>Electrical data</b>											
Maximum amps	(A)	674	751	848	967	932	967	1003	1033	1219	1219
Start-up amps	(A)	788	865	938	1081	1046	1081	1117	1147	1333	1333

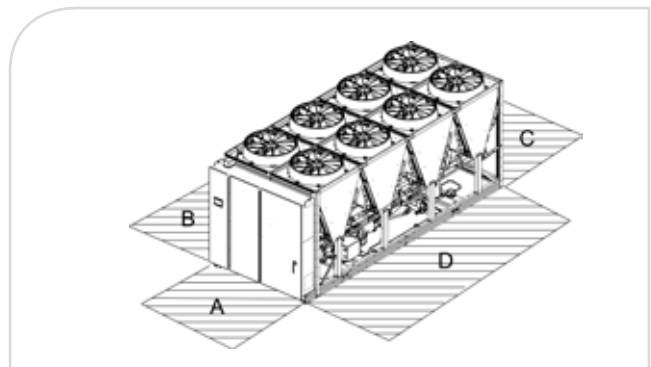
- (1) With low ambient temperature option
- (2) With process cooling option
- (3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.
- (4) At Eurovent conditions, with 1pW reference sound power, according to ISO9614
- (5) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepipedic box with five exposed face areas.



Operating outdoor air temperature range (min./max.) (1)	(°C)	-18 / +55°C
Leaving water temperature range (min./max.) (2)	(°C)	-12 / 20°C
Power supply	(V/Ph/Hz)	400/3/50

RTAF High Seasonal Efficiency - Extra Low Noise - R134a		090	105	125	145	155	175	190	205	245	250
Cooling capacity (3)	(kW)	330	383	450	530	574	637	695	753	868	879
Total power input (3)	(kW)	100	119	144	165	181	202	215	236	303	279
EER (3)		3.28	3.21	3.13	3.21	3.17	3.15	3.24	3.19	2.86	3.15
ESEER (3)		4.54	4.44	4.47	4.49	4.56	4.59	4.62	4.58	4.36	4.63
Eurovent class		A	A	A	A	A	A	A	A	C	A
Sound power level (4)	(dBA)	88	88	88	89	91	91	92	92	97	93
Sound pressure level (5)	(dBA)	56	56	56	57	58	58	60	60	65	60
Number of circuit(s)		2	2	2	2	2	2	2	2	2	2
Number of compressors		2	2	2	2	2	2	2	2	2	3
<b>Dimensions and weights (operating)</b>											
Length	(mm)	5645	5645	5645	6770	6770	6770	7895	7895	7895	9396
Width	(mm)	2200	2200	2200	2200	2200	2200	2400	2200	2200	2200
Height	(mm)	2672	2672	2672	2672	2672	2672	2672	2672	2672	2672
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	3800	3835	4015	4440	4705	4970	5465	5600	5600	7165
<b>Electrical data</b>											
Maximum amps	(A)	220	253	296	346	381	416	457	493	522	594
Start-up amps	(A)	220	253	296	346	381	416	457	493	522	684
<b>RTAF High Seasonal Efficiency - Extra Low Noise - R134a</b>											
Cooling capacity (3)	(kW)	997	1115	1243	1404	1354	1504	1463	1591	1810	1911
Total power input (3)	(kW)	312	351	389	437	423	507	466	548	575	646
EER (3)		3.19	3.18	3.19	3.21	3.20	2.97	3.14	2.90	3.15	2.96
ESEER (3)		4.69	4.74	4.74	4.60	4.74	4.48	4.75	4.52	4.61	4.53
Eurovent class		A	A	A	A	A	B	A	B	A	B
Sound power level (4)	(dBA)	94	95	95	104	95	105	95	101	104	105
Sound pressure level (5)	(dBA)	61	62	62	71	62	72	62	68	71	72
Number of circuit(s)		2	2	2	2	2	2	2	2	2	2
Number of compressors		3	3	4	3	4	4	4	4	4	4
<b>Dimensions and weights (operating)</b>											
Length	(mm)	10143	11268	12393	11268	13518	11268	13518	13518	13518	13518
Width	(mm)	2200	2200	2200	2220	2200	2200	2200	2200	2220	2220
Height	(mm)	2672	2672	2672	2672	2672	2672	2672	2672	2672	2672
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	7755	8145	9565	8158	9890	8158	9955	9955	9629	9629
<b>Electrical data</b>											
Maximum amps	(A)	674	751	848	967	932	1003	1003	1033	1219	1219
Start-up amps	(A)	788	865	938	1081	1046	1117	1117	1147	1333	1333

- (1) With low ambient temperature option
- (2) With process cooling option
- (3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.
- (4) At Eurovent conditions, with 1pW reference sound power, according to ISO9614
- (5) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p = L_w - 10 \log S$ . This is an averaged value considering the unit as a parallelepiped box with five exposed face areas.



Operating outdoor air temperature range (min./max.) (1)	(°C)	-18 / +55°C
Leaving water temperature range (min./max.) (2)	(°C)	-12 / 20°C
Power supply	(V/Ph/Hz)	400/3/50

RTAF High Seasonal Short - Standard and Low Noise - R134a		090	105	125	140	145	150	155	170	175	185
Cooling capacity (3)	(kW)	330	378	443	509	526	545	567	582	617	656
Total power input (3)	(kW)	106	125	150	177	171	199	191	224	213	236
EER (3)		3.11	3.04	2.95	2.88	3.07	2.74	2.97	2.60	2.89	2.78
ESEER (3)		4.36	4.26	4.26	4.15	4.29	4.20	4.37	4.17	4.39	4.29
Eurovent class		A	B	B	C	B	C	B	D	C	C
Sound power level (4)	(dBA)	95	95	95	96	96	96	96	97	97	97
Sound pressure level (5)	(dBA)	63	63	63	64	64	65	64	65	65	65
Sound power level (low noise) (4)	(dBA)	92	92	92	93	93	93	93	94	94	94
Sound pressure level (low noise) (5)	(dBA)	60	60	60	61	61	62	61	62	62	62
Number of circuit(s)		2	2	2	2	2	2	2	2	2	2
Number of compressors		2	2	2	2	2	2	2	2	2	2

**Dimensions and weights (operating)**

Length	(mm)	4520	4520	4520	4520	5645	4520	5645	4520	5645	5645
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200
Height	(mm)	2526	2526	2526	2526	2526	2526	2526	2526	2526	2526
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	3400	3435	3615	3785	4075	4055	4340	4490	4610	4840

**Electrical data**

Maximum amps	(A)	214	247	290	334	340	369	375	404	410	445
Start-up amps	(A)	214	247	290	334	340	369	375	404	410	445

RTAF High Seasonal Short - Standard and Low Noise - R134a		190	200	205	245	250	280	310	350	380	410
Cooling capacity (3)	(kW)	676	706	731	839	862	968	1066	1195	1312	1432
Total power input (3)	(kW)	228	261	251	316	296	333	380	426	458	498
EER (3)		2.96	2.71	2.91	2.66	2.91	2.91	2.81	2.81	2.86	2.88
ESEER (3)		4.45	4.25	4.41	4.21	4.36	4.44	4.22	4.50	4.54	4.56
Eurovent class		B	C	B	D	B	B	C	C	C	C
Sound power level (4)	(dBA)	97	97	97	104	99	100	101	101	101	102
Sound pressure level (5)	(dBA)	64	65	64	71	66	67	68	68	68	69
Sound power level (low noise) (4)	(dBA)	94	94	94	101	96	97	98	98	98	99
Sound pressure level (low noise) (5)	(dBA)	61	62	61	68	63	64	65	65	65	66
Number of circuit(s)		2	2	2	2	2	2	2	2	2	2
Number of compressors per circuit		2	2	2	2	3	3	3	4	4	4

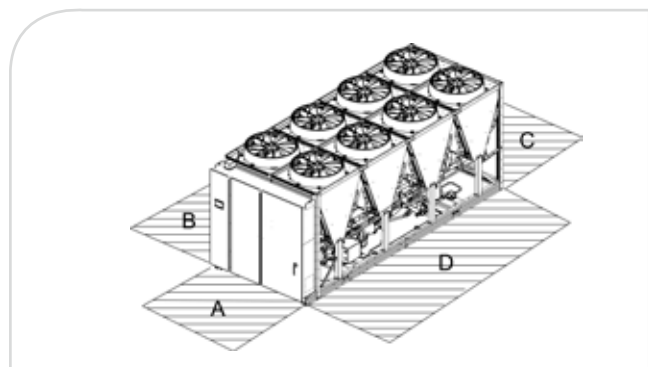
**Dimensions and weights (operating)**

Length	(mm)	6770	5645	6770	6770	8271	9396	9396	10143	11268	12393
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200
Height	(mm)	2526	2526	2526	2526	2526	2526	2526	2526	2526	2526
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	5070	4870	5100	5225	6685	7275	7325	8700	9070	9425

**Electrical data**

Maximum amps	(A)	451	481	487	516	588	668	739	836	920	997
Start-up amps	(A)	451	481	487	516	678	782	853	926	1034	1111

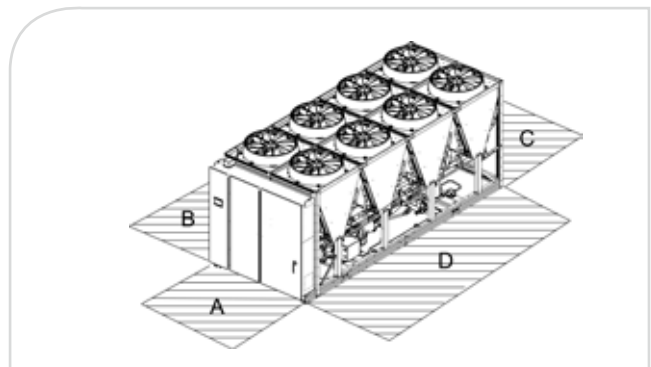
- (1) With low ambient temperature option
- (2) With process cooling option
- (3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.
- (4) At Eurovent conditions, with 1pW reference sound power, according to ISO9614
- (5) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepipedic box with five exposed face areas.



Operating outdoor air temperature range (min./max.) (1)	(°C)	-18 / +55°C
Leaving water temperature range (min./max.) (2)	(°C)	-12 / 20°C
Power supply	(V/Ph/Hz)	400/3/50

RTAF High Seasonal Short - Extra Low Noise - R134a		090	105	125	140	145	150	155	170	175	185
Cooling capacity (3)	(kW)	330	378	443	509	526	545	567	582	617	656
Total power input (3)	(kW)	105	123	149	175	169	198	189	223	211	234
EER (3)		3.16	3.08	2.98	2.90	3.11	2.76	3.00	2.61	2.92	2.81
ESEER (3)		4.42	4.32	4.32	4.22	4.35	4.27	4.43	4.25	4.45	4.36
Eurovent class		A	B	B	B	A	C	B	D	B	C
Sound power level (4)	(dB(A))	88	89	89	89	89	90	90	90	90	91
Sound pressure level (5)	(dB(A))	56	57	57	57	56	58	58	58	58	58
Number of circuit(s)	(dB(A))	2	2	2	2	2	2	2	2	2	2
Number of compressors	(dB(A))	2	2	2	2	2	2	2	2	2	2
<b>Dimensions and weights (operating)</b>											
Length	(mm)	4520	4520	4520	4520	5645	4520	5645	4520	5645	5645
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200
Height	(mm)	2672	2672	2672	2672	2672	2672	2672	2672	2672	2672
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	3480	3515	3695	3885	4175	4155	4240	4590	4710	4960
<b>Electrical data</b>											
Maximum amps	(A)	214	247	290	334	340	369	375	404	410	445
Start-up amps	(A)	214	247	290	334	340	369	375	404	410	445
<b>RTAF High Seasonal Short - Extra Low Noise - R134a</b>											
Cooling capacity (3)	(kW)	676	710	730	839	861	968	1065	1195	1311	1431
Total power input (3)	(kW)	226	258	249	314	294	329	376	423	454	494
EER (3)		2.99	2.75	2.94	2.67	2.93	2.94	2.83	2.83	2.89	2.90
ESEER (3)		4.51	4.31	4.47	4.27	4.42	4.49	4.27	4.55	4.59	4.62
Eurovent class		B	C	B	D	B	B	C	C	C	C
Sound power level (4)	(dB(A))	91	91	91	97	93	94	94	94	95	95
Sound pressure level (5)	(dB(A))	58	58	58	64	60	61	61	61	62	62
Number of circuit(s)	(dB(A))	2	2	2	2	2	2	2	2	2	2
Number of compressors	(dB(A))	2	2	2	2	3	3	3	4	4	4
<b>Dimensions and weights (operating)</b>											
Length	(mm)	6770	5645	6770	6770	8271	9396	9396	10143	11268	12393
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200
Height	(mm)	2672	2672	2672	2672	2672	2672	2672	2672	2672	2672
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	5190	4990	5220	5365	5325	7399	7599	8599	9099	9499
<b>Electrical data</b>											
Maximum amps	(A)	451	481	487	516	588	668	739	836	920	997
Start-up amps	(A)	451	481	487	516	678	782	853	926	1034	1111

- (1) With low ambient temperature option
- (2) With process cooling option
- (3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.
- (4) At Eurovent conditions, with 1pW reference sound power, according to ISO9614
- (5) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p = L_w - 10 \log S$ . This is an averaged value considering the unit as a parallelepipedic box with five exposed face areas.

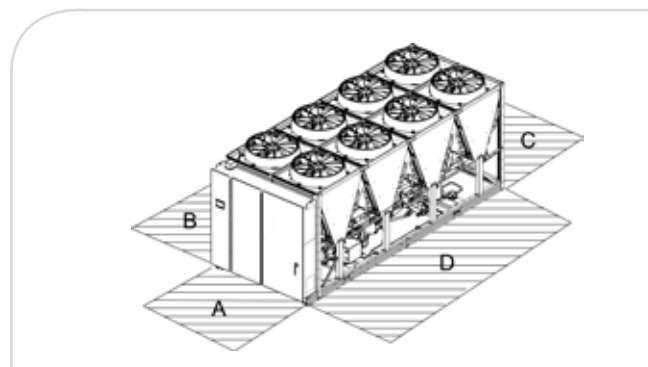


Operating outdoor air temperature range (min./max.) (1)	(°C)	-18 / +55°C
Leaving water temperature range (min./max.) (2)	(°C)	-12 / 20°C
Power supply	(V/Ph/Hz)	400/3/50

RTAF Standard Efficiency - Standard and Low Noise - R513A		090	105	125	145	155	175	190	205
Cooling capacity (3)	(kW)	318	372	435	517	558	609	668	724
Total power input (3)	(kW)	109	126	152	172	193	216	231	255
EER (3)		2.93	2.95	2.87	3.00	2.90	2.82	2.89	2.84
ESEER (3)		3.81	3.68	3.71	3.73	3.66	3.76	3.71	3.71
Eurovent class		B	B	C	B	C	C	C	C
Sound power level (4)	(dBA)	95	95	95	96	96	97	97	97
Sound pressure level (5)	(dBA)	63	63	63	64	64	65	64	64
Sound power level (low noise) (4)	(dBA)	92	92	92	93	93	94	94	94
Sound pressure level (low noise) (5)	(dBA)	60	60	60	61	61	62	61	61
Number of circuit(s)		2	2	2	2	2	2	2	2
Number of compressors		2	2	2	2	2	2	2	2
<b>Dimensions and weights (operating)</b>									
Length	(mm)	4520	4520	4520	5645	5645	5645	6770	6770
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2200
Height	(mm)	2526	2526	2526	2526	2526	2526	2526	2526
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	3295	3330	3510	3970	4240	4400	4820	4845
<b>Electrical data</b>									
Maximum amps	(A)	229	267	309	358	397	434	481	518
Start-up amps	(A)	276	331	442	491	554	567	638	638

RTAF Standard Efficiency - Standard and Low Noise - R513A		250	280	310	350	380	410
Cooling capacity (3)	(kW)	850	962	1061	1181	1308	1429
Total power input (3)	(kW)	303	344	395	439	480	522
EER (3)		2.81	2.79	2.69	2.69	2.73	2.74
ESEER (3)		3.75	3.83	3.81	3.91	3.94	3.96
Eurovent class		C	C	D	D	C	C
Sound power level (4)	(dBA)	99	100	101	101	101	102
Sound pressure level (5)	(dBA)	66	67	68	68	68	69
Sound power level (low noise) (4)	(dBA)	96	97	98	98	98	99
Sound pressure level (low noise) (5)	(dBA)	63	64	65	65	65	66
Number of circuit(s)		2	2	2	2	2	2
Number of compressors per circuit		3	3	3	4	4	4
<b>Dimensions and weights (operating)</b>							
Length	(mm)	8271	9396	9396	10143	11268	12393
Width	(mm)	2220	2220	2220	2220	2220	2220
Height	(mm)	2526	2526	2526	2526	2526	2526
Clearance A	(mm)	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000
Weight	(kg)	6485	7025	7070	8460	8830	9185
<b>Electrical data</b>							
Maximum amps	(A)	610	694	768	869	943	1025
Start-up amps	(A)	767	851	888	1026	1100	1145

- (1) With low ambient temperature option
- (2) With process cooling option
- (3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.
- (4) At Eurovent conditions, with 1pW reference sound power, according to ISO9614
- (5) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepipedic box with five exposed face areas.

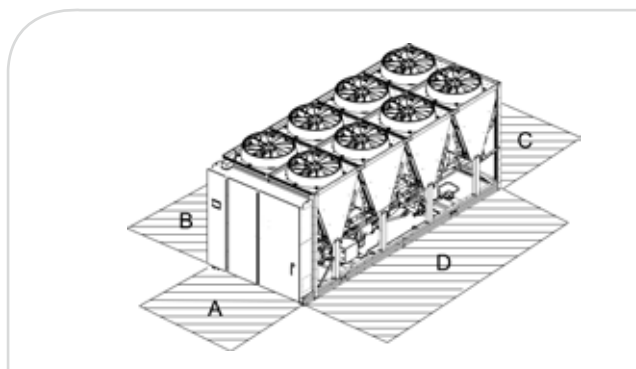


Operating outdoor air temperature range (min./max.) (1)	(°C)	-18 / +55°C
Leaving water temperature range (min./max.) (2)	(°C)	-12 / 20°C
Power supply	(V/Ph/Hz)	400/3/50

RTAF Standard Efficiency - Extra Low Noise - R513A		090	105	125	145	155	175	190	205
Cooling capacity (3)	(kW)	319	372	436	517	559	610	669	724
Total power input (3)	(kW)	108	125	151	171	191	215	230	254
EER (3)		2.95	2.97	2.89	3.02	2.92	2.84	2.92	2.86
ESEER (3)		4.13	3.86	3.85	3.89	3.80	3.83	3.82	3.77
Eurovent class		B	B	C	B	B	C	B	C
Sound power level (4)	(dBA)	88	89	89	89	90	90	91	91
Sound pressure level (5)	(dBA)	56	57	57	57	58	58	58	58
Number of circuit(s)		2	2	2	2	2	2	2	2
Number of compressors		2	2	2	2	2	2	2	2
<b>Dimensions and weights (operating)</b>									
Length	(mm)	4520	4520	4520	5645	5645	5645	6770	6770
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2200
Height	(mm)	2672	2672	2672	2672	2672	2672	2672	2672
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	3375	3410	3590	4070	4340	4500	4940	4965
<b>Electrical data</b>									
Maximum amps	(A)	229	267	309	358	397	434	481	518
Start-up amps	(A)	276	331	442	491	554	567	638	638

RTAF Standard Efficiency - Extra Low Noise - R513A		250	280	310	350	380	410
Cooling capacity (3)	(kW)	851	963	1063	1183	1309	1431
Total power input (3)	(kW)	298	339	389	433	473	515
EER (3)		2.85	2.84	2.73	2.73	2.77	2.78
ESEER (3)		3.98	4.24	4.17	4.24	4.26	4.31
Eurovent class		C	C	C	C	C	C
Sound power level (4)	(dBA)	93	94	94	94	95	95
Sound pressure level (5)	(dBA)	60	61	61	61	62	62
Number of circuit(s)		2	2	2	2	2	2
Number of compressors		3	3	3	4	4	4
<b>Dimensions and weights (operating)</b>							
Length	(mm)	8271	9396	9396	10143	11268	12393
Width	(mm)	2200	2200	2200	2200	2200	2200
Height	(mm)	2672	2672	2672	2672	2672	2672
Clearance A	(mm)	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000
Weight	(kg)	6625	7185	7230	8640	9030	9405
<b>Electrical data</b>							
Maximum amps	(A)	610	694	768	869	943	1025
Start-up amps	(A)	767	851	888	1026	1100	1145

- (1) With low ambient temperature option
- (2) With process cooling option
- (3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.
- (4) At Eurovent conditions, with 1pW reference sound power, according to ISO9614
- (5) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p = L_w - 10 \log S$ . This is an averaged value considering the unit as a parallelepipedic box with five exposed face areas.



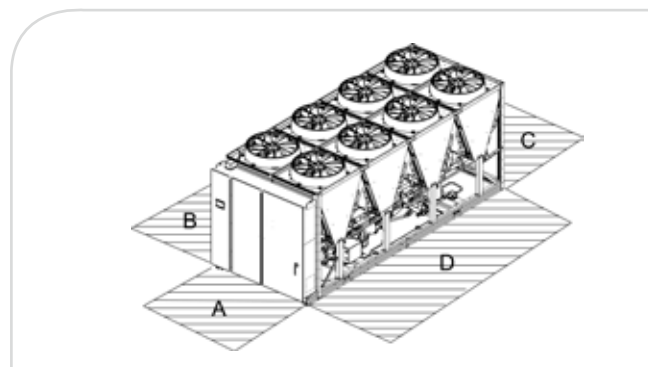


Operating outdoor air temperature range (min./max.) (1)	(°C)	-18 / +55°C
Leaving water temperature range (min./max.) (2)	(°C)	-12 / 20°C
Power supply	(V/Ph/Hz)	400/3/50

RTAF High Efficiency - Standard and Low Noise - R513A		090	105	125	145	155	175	190	205
Cooling capacity (3)	(kW)	323	379	448	527	571	626	682	743
Total power input (3)	(kW)	110	125	148	170	189	210	227	249
EER (3)		2.95	3.03	3.02	3.10	3.02	2.98	3.01	2.98
ESEER (3)		3.64	3.58	3.70	3.81	3.77	3.78	3.73	3.76
Eurovent class		B	B	B	A	B	B	B	B
Sound power level (4)	(dBA)	95	95	96	96	97	97	98	98
Sound pressure level (5)	(dBA)	63	63	64	64	65	65	65	65
Sound power level (low noise) (4)	(dBA)	93	93	93	93	94	94	95	95
Sound pressure level (low noise) (5)	(dBA)	61	61	61	61	62	62	62	62
Number of circuit(s)		2	2	2	2	2	2	2	2
Number of compressors		2	2	2	2	2	2	2	2
<b>Dimensions and weights (operating)</b>									
Length	(mm)	5645	5645	5645	6770	6770	6770	7895	7895
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2200
Height	(mm)	2526	2526	2526	2526	2526	2526	2526	2526
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	3595	3630	3810	4220	4485	4640	5075	5210
<b>Electrical data</b>									
Maximum amps	(A)	236	274	316	366	405	442	489	526
Start-up amps	(A)	283	338	449	499	562	575	646	646

RTAF High Efficiency - Standard and Low Noise - R513A		250	280	310	350	380	410
Cooling capacity (3)	(kW)	866	982	1101	1225	1348	1453
Total power input (3)	(kW)	297	336	377	422	464	512
EER (3)		2.92	2.92	2.92	2.90	2.91	2.84
ESEER (3)		3.75	3.81	3.81	3.88	3.94	3.96
Eurovent class		B	B	B	C	B	C
Sound power level (4)	(dBA)	99	100	101	101	102	102
Sound pressure level (5)	(dBA)	66	67	68	68	69	69
Sound power level (low noise) (4)	(dBA)	96	97	98	98	98	99
Sound pressure level (low noise) (5)	(dBA)	63	64	65	65	65	66
Number of circuit(s)		2	2	2	2	2	2
Number of compressors		3	3	3	4	4	4
<b>Dimensions and weights (operating)</b>							
Length	(mm)	9393	10143	11268	12393	13518	13518
Width	(mm)	2200	2200	2200	2200	2200	2200
Height	(mm)	2526	2526	2526	2526	2526	2526
Clearance A	(mm)	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000
Weight	(kg)	6785	7325	7695	9105	9410	9475
<b>Electrical data</b>							
Maximum amps	(A)	636	718	804	896	982	1060
Start-up amps	(A)	729	832	918	986	1096	1174

- (1) With low ambient temperature option
- (2) With process cooling option
- (3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.
- (4) At Eurovent conditions, with 1pW reference sound power, according to ISO9614
- (5) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepipedic box with five exposed face areas.

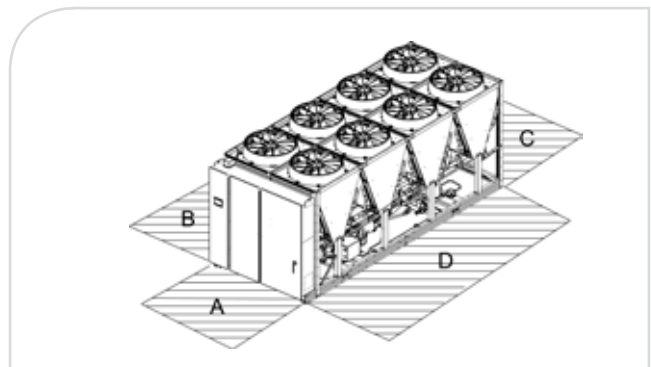


Operating outdoor air temperature range (min./max.) (1)	(°C)	-18 / +55°C
Leaving water temperature range (min./max.) (2)	(°C)	-12 / 20°C
Power supply	(V/Ph/Hz)	400/3/50

RTAF Extra Efficiency - Standard and Low Noise - R513A		090	105	125	145	155	175	190	205
Cooling capacity (3)	(kW)	319	376	443	521	563	626	683	744
Total power input (3)	(kW)	103	121	145	166	185	209	225	247
EER (3)		3.11	3.12	3.06	3.15	3.05	3.00	3.03	3.01
ESEER (3)		4.23	3.97	4.00	4.06	3.97	3.95	3.91	3.89
Eurovent class		A	A	B	A	B	B	B	B
Sound power level (4)	(dBA)	94	94	95	96	97	97	98	98
Sound pressure level (5)	(dBA)	62	62	63	64	65	65	65	65
Sound power level (low noise) (4)	(dBA)	91	91	92	93	94	94	95	95
Sound pressure level (low noise) (5)	(dBA)	59	59	60	61	62	62	62	62
Number of circuit(s)		2	2	2	2	2	2	2	2
Number of compressors		2	2	2	2	2	2	2	2
<b>Dimensions and weights (operating)</b>									
Length	(mm)	5645	5645	5645	6770	6770	6770	7895	7895
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2200
Height	(mm)	2526	2526	2526	2526	2526	2526	2526	2526
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	3595	3630	3810	4220	4485	4640	5075	5210
<b>Electrical data</b>									
Maximum amps	(A)	236	274	316	366	405	442	489	526
Start-up amps	(A)	283	338	449	499	562	575	646	646

RTAF Extra Efficiency - Standard and Low Noise - R513A		250	280	310	350	380	410	415
Cooling capacity (3)	(kW)	867	983	1103	1225	1349	1454	1476
Total power input (3)	(kW)	295	334	375	419	461	509	492
EER (3)		2.94	2.95	2.94	2.92	2.93	2.86	3.00
ESEER (3)		4.16	4.25	4.22	4.29	4.32	4.29	4.41
Eurovent class		B	B	B	B	B	C	B
Sound power level (4)	(dBA)	99	100	101	101	102	102	103
Sound pressure level (5)	(dBA)	66	67	68	68	69	69	70
Sound power level (low noise) (4)	(dBA)	96	97	98	98	98	99	100
Sound pressure level (low noise) (5)	(dBA)	63	64	65	65	65	66	67
Number of circuit(s)		2	2	2	2	2	2	2
Number of compressors		3	3	3	4	4	4	4
<b>Dimensions and weights (operating)</b>								
Length	(mm)	9393	10143	11268	12393	13518	13518	13518
Width	(mm)	2200	2200	2200	2200	2200	2200	2220
Height	(mm)	2526	2526	2526	2526	2526	2526	2526
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	6785	7325	7695	9105	9410	9475	8869
<b>Electrical data</b>								
Maximum amps	(A)	618	702	776	877	959	1033	1036
Start-up amps	(A)	776	860	897	1035	1117	1154	1150

- (1) With low ambient temperature option
- (2) With process cooling option
- (3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.
- (4) At Eurovent conditions, with 1pW reference sound power, according to ISO9614
- (5) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p = L_w - 10 \log S$ . This is an averaged value considering the unit as a parallelepipedic box with five exposed face areas.

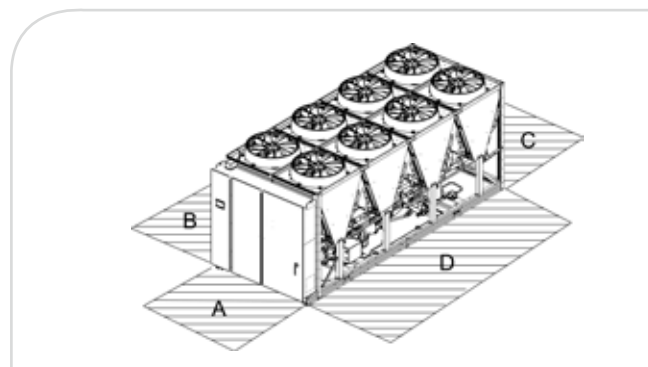


Operating outdoor air temperature range (min./max.) (1)	(°C)	-18 / +55°C
Leaving water temperature range (min./max.) (2)	(°C)	-12 / 20°C
Power supply	(V/Ph/Hz)	400/3/50

RTAF Extra Efficiency - Extra Low Noise - R513A		090	105	125	145	155	175	190	205
Cooling capacity (3)	(kW)	318	376	442	520	563	626	682	744
Total power input (3)	(kW)	101	119	143	164	183	206	222	245
EER (3)		3.14	3.15	3.08	3.17	3.07	3.04	3.07	3.04
ESEER (3)		4.29	4.02	4.05	4.11	4.02	4.00	3.96	3.94
Eurovent class		A	A	B	A	B	B	B	B
Sound power level (4)	(dBA)	88	88	88	89	90	90	91	91
Sound pressure level (5)	(dBA)	56	56	56	57	58	58	58	58
Number of circuit(s)		2	2	2	2	2	2	2	2
Number of compressors		2	2	2	2	2	2	2	2
<b>Dimensions and weights (operating)</b>									
Length	(mm)	5645	5645	5645	6770	6770	6770	7895	7895
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2200
Height	(mm)	2672	2672	2672	2672	2672	2672	2672	2672
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	3695	3730	3910	4340	4605	4760	5215	5350
<b>Electrical data</b>									
Maximum amps	(A)	236	274	316	366	405	442	489	526
Start-up amps	(A)	283	338	449	499	562	575	646	646

RTAF Extra Efficiency - Extra Low Noise - R513A		250	280	310	350	380	410
Cooling capacity (3)	(kW)	867	983	1102	1225	1349	1454
Total power input (3)	(kW)	292	330	371	415	456	504
EER (3)		2.97	2.98	2.97	2.95	2.96	2.88
ESEER (3)		4.22	4.30	4.28	4.35	4.38	4.34
Eurovent class		B	B	B	B	B	C
Sound power level (4)	(dBA)	93	94	95	95	95	95
Sound pressure level (5)	(dBA)	60	61	62	62	62	62
Number of circuit(s)		2	2	2	2	2	2
Number of compressors		3	3	3	4	4	4
<b>Dimensions and weights (operating)</b>							
Length	(mm)	9393	10143	11268	12393	13518	13518
Width	(mm)	2200	2200	2200	2200	2200	2200
Height	(mm)	2672	2672	2672	2672	2672	2672
Clearance A	(mm)	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000
Weight	(kg)	6945	7505	7895	9325	9650	9715
<b>Electrical data</b>							
Maximum amps	(A)	618	702	776	877	959	1033
Start-up amps	(A)	776	860	897	1035	1117	1154

- (1) With low ambient temperature option
- (2) With process cooling option
- (3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.
- (4) At Eurovent conditions, with 1pW reference sound power, according to ISO9614
- (5) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepipedic box with five exposed face areas.

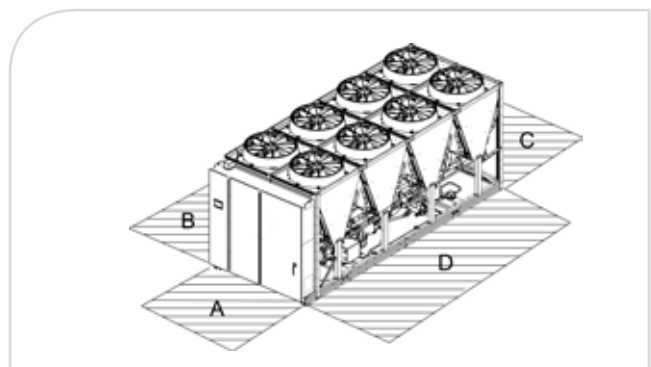


Operating outdoor air temperature range (min./max.) (1)	(°C)	-18 / +55°C
Leaving water temperature range (min./max.) (2)	(°C)	-12 / 20°C
Power supply	(V/Ph/Hz)	400/3/50

RTAF High Seasonal Efficiency - Standard and Low Noise - R513A		90	105	125	145	155	175	190	205
Cooling capacity (3)	(kW)	322	375	443	524	565	627	682	742
Total power input (3)	(kW)	103	124	151	174	194	218	234	257
EER (3)		3.13	3.02	2.94	3.01	2.91	2.88	2.91	2.88
ESEER (3)		4.37	4.27	4.32	4.37	4.31	4.32	4.31	4.31
Eurovent class		A	B	B	B	B	C	B	C
Sound power level (4)	(dBA)	94	94	95	96	97	97	98	98
Sound pressure level (5)	(dBA)	62	62	63	64	65	65	65	65
Sound power level (low noise) (4)	(dBA)	91	91	92	93	94	94	95	95
Sound pressure level (low noise) (5)	(dBA)	59	59	60	61	62	62	62	62
Number of circuit(s)		2	2	2	2	2	2	2	2
Number of compressors		2	2	2	2	2	2	2	2
<b>Dimensions and weights (operating)</b>									
Length	(mm)	5645	5645	5645	6770	6770	6770	7895	7895
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2200
Height	(mm)	2526	2526	2526	2526	2526	2526	2526	2526
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	3700	3735	3915	4320	4585	4850	5325	5460
<b>Electrical data</b>									
Maximum amps	(A)	229	262	305	357	392	427	470	505
Start-up amps	(A)	229	262	305	357	392	427	470	505

RTAF High Seasonal Efficiency - Standard and Low Noise - R134a		245	250	280	310	350	380	410	450
Cooling capacity (3)	(kW)	862	868	984	1100	1225	1349	1450	1586
Total power input (3)	(kW)	314	305	344	385	430	472	521	582
EER (3)		2.75	2.84	2.86	2.85	2.85	2.86	2.79	2.72
ESEER (3)		4.11	4.27	4.30	4.33	4.44	4.46	4.48	4.33
Eurovent class		C	C	C	C	C	C	C	C
Sound power level (4)	(dBA)	104	99	100	101	101	102	102	107
Sound pressure level (5)	(dBA)	71	66	67	68	68	69	69	74
Sound power level (low noise) (4)	(dBA)	101	96	97	98	98	98	99	104
Sound pressure level (low noise) (5)	(dBA)	68	63	64	65	65	65	66	71
Number of circuit(s)		2	2	2	2	2	2	2	2
Number of compressors per circuit		2	3	3	3	4	4	4	4
<b>Dimensions and weights (operating)</b>									
Length	(mm)	7895	9396	10143	11268	12393	13518	13518	13518
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2200
Height	(mm)	2526	2526	2526	2526	2526	2526	2526	2526
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	5460	7005	7575	7945	9345	9650	9715	9715
<b>Electrical data</b>									
Maximum amps	(A)	535	604	684	755	859	941	1012	1033
Start-up amps	(A)	535	762	805	876	1017	1062	1133	1147

- (1) With low ambient temperature option
- (2) With process cooling option
- (3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.
- (4) At Eurovent conditions, with 1pW reference sound power, according to ISO9614
- (5) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p = L_w - 10 \log S$ . This is an averaged value considering the unit as a parallelepipedic box with five exposed face areas.



Operating outdoor air temperature range (min./max.) (1)	(°C)	-18 / +55°C
Leaving water temperature range (min./max.) (2)	(°C)	-12 / 20°C
Power supply	(V/Ph/Hz)	400/3/50

RTAF High Seasonal Efficiency - Extra Low Noise - R513A		90	105	125	145	155	175	190	205
Cooling capacity (3)	(kW)	321	375	442	524	564	627	682	741
Total power input (3)	(kW)	102	123	150	173	192	215	232	254
EER (3)		3.16	3.05	2.96	3.03	2.93	2.91	2.95	2.91
ESEER (3)		4.43	4.34	4.38	4.43	4.37	4.38	4.37	4.37
Eurovent class		A	B	B	B	B	B	B	B
Sound power level (4)	(dBA)	88	88	88	89	90	90	91	91
Sound pressure level (5)	(dBA)	56	56	56	57	58	58	58	58
Number of circuit(s)		2	2	2	2	2	2	2	2
Number of compressors		2	2	2	2	2	2	2	2

**Dimensions and weights (operating)**

Length	(mm)	5645	5645	5645	6770	6770	6770	7895	7895
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2200
Height	(mm)	2672	2672	2672	2672	2672	2672	2672	2672
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	3800	3835	4015	4440	4705	4970	5465	5600

**Electrical data**

Maximum amps	(A)	229	262	305	357	392	427	470	505
Start-up amps	(A)	229	262	305	357	392	427	470	505

RTAF High Seasonal Efficiency - Extra Low Noise - R513A		245	250	280	310	350	380	410	450
Cooling capacity (3)	(kW)	862	868	983	1099	1224	1349	1449	1585
Total power input (3)	(kW)	311	302	340	381	426	467	516	572
EER (3)		2.77	2.87	2.89	2.88	2.87	2.89	2.81	2.77
ESEER (3)		4.17	4.32	4.35	4.39	4.49	4.51	4.53	4.39
Eurovent class		C	C	C	C	C	C	C	C
Sound power level (4)	(dBA)	97	93	94	95	95	95	95	103
Sound pressure level (5)	(dBA)	64	60	61	62	62	62	62	70
Number of circuit(s)		2	2	2	2	2	2	2	2
Number of compressors		2	3	3	3	4	4	4	4

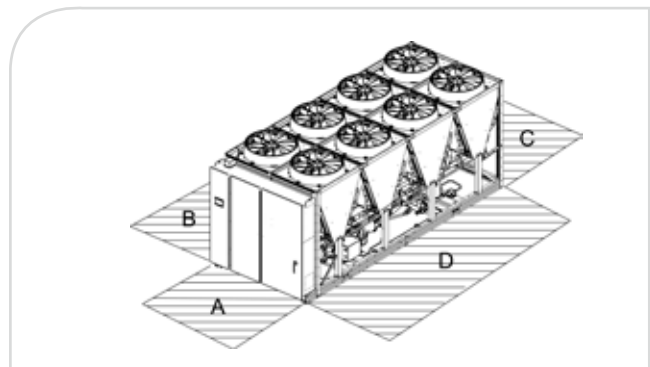
**Dimensions and weights (operating)**

Length	(mm)	7895	9396	10143	11268	12393	13518	13518	13518
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2200
Height	(mm)	2672	2672	2672	2672	2672	2672	2672	2526
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	5600	7165	7755	8145	9565	9890	9955	9955

**Electrical data**

Maximum amps	(A)	535	604	684	755	859	941	1012	1033
Start-up amps	(A)	535	762	805	876	1017	1062	1133	1147

- (1) With low ambient temperature option
- (2) With process cooling option
- (3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.
- (4) At Eurovent conditions, with 1pW reference sound power, according to ISO9614
- (5) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepipedic box with five exposed face areas.

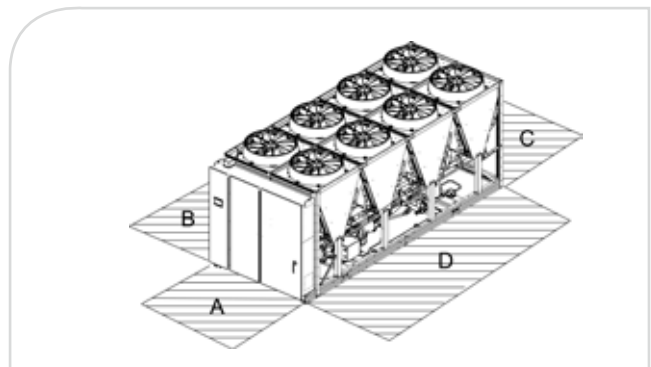


Operating outdoor air temperature range (min./max.) (1)	(°C)	-18 / +55°C
Leaving water temperature range (min./max.) (2)	(°C)	-12 / 20°C
Power supply	(V/Ph/Hz)	400/3/50

RTAF High Seasonal Short - Standard and Low Noise - R513A		090	105	125	145	155	175	190	205
Cooling capacity (3)	(kW)	322	371	435	520	560	608	667	720
Total power input (3)	(kW)	108	129	158	180	201	225	239	264
EER (3)		2.97	2.88	2.77	2.89	2.79	2.70	2.79	2.73
ESEER (3)		4.24	4.16	4.17	4.24	4.18	4.22	4.24	4.21
Eurovent class		B	C	C	C	C	D	C	C
Sound power level (4)	(dBA)	95	95	95	96	96	97	97	97
Sound pressure level (5)	(dBA)	63	63	63	64	64	65	64	64
Sound power level (low noise) (4)	(dBA)	92	92	92	93	93	94	94	94
Sound pressure level (low noise) (5)	(dBA)	60	60	60	61	61	62	61	61
Number of circuit(s)		2	2	2	2	2	2	2	2
Number of compressors		2	2	2	2	2	2	2	2
<b>Dimensions and weights (operating)</b>									
Length	(mm)	4520	4520	4520	5645	5645	5645	6770	6770
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2200
Height	(mm)	2526	2526	2526	2526	2526	2526	2526	2526
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	3400	3435	3615	4075	4340	4610	5070	5100
<b>Electrical data</b>									
Maximum amps	(A)	221	254	298	349	384	419	462	497
Start-up amps	(A)	221	254	298	349	384	419	462	497

RTAF High Seasonal Short - Standard and Low Noise - R513A		250	280	310	350	380	410
Cooling capacity (3)	(kW)	851	963	1057	1181	1308	1425
Total power input (3)	(kW)	312	353	404	449	489	531
EER (3)		2.73	2.73	2.62	2.63	2.67	2.69
ESEER (3)		4.19	4.21	4.18	4.33	4.36	4.42
Eurovent class		C	C	D	D	D	D
Sound power level (4)	(dBA)	99	100	101	101	101	102
Sound pressure level (5)	(dBA)	66	67	68	68	68	69
Sound power level (low noise) (4)	(dBA)	96	97	98	98	98	99
Sound pressure level (low noise) (5)	(dBA)	63	64	65	65	65	66
Number of circuit(s)		2	2	2	2	2	2
Number of compressors		3	3	3	4	4	4
<b>Dimensions and weights (operating)</b>							
Length	(mm)	8271	9396	9396	10143	11268	12393
Width	(mm)	2200	2200	2200	2200	2200	2200
Height	(mm)	2526	2526	2526	2526	2526	2526
Clearance A	(mm)	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000
Weight	(kg)	6685	7275	7325	8700	9070	9425
<b>Electrical data</b>							
Maximum amps	(A)	596	676	747	852	926	1004
Start-up amps	(A)	754	797	868	1010	1047	1125

- (1) With low ambient temperature option
- (2) With process cooling option
- (3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.
- (4) At Eurovent conditions, with 1pW reference sound power, according to ISO9614
- (5) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p = L_w - 10 \log S$ . This is an averaged value considering the unit as a parallelepipedic box with five exposed face areas.

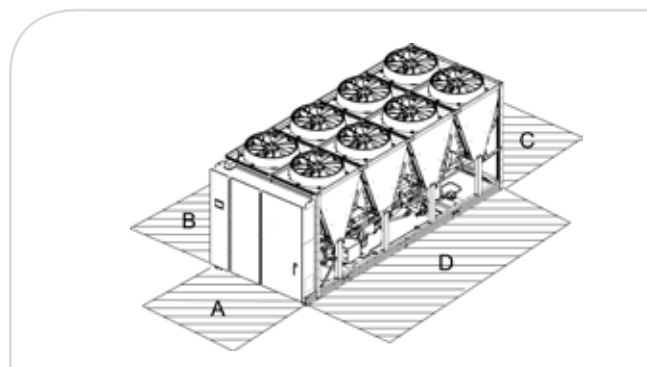


Operating outdoor air temperature range (min./max.) (1)	(°C)	-18 / +55°C
Leaving water temperature range (min./max.) (2)	(°C)	-12 / 20°C
Power supply	(V/Ph/Hz)	400/3/50

RTAF High Seasonal Short - Extra Low Noise - R513A		090	105	125	145	155	175	190	205
Cooling capacity (3)	(kW)	322	371	435	520	559	607	667	720
Total power input (3)	(kW)	107	127	156	178	199	223	237	261
EER (3)		3.02	2.92	2.79	2.92	2.82	2.73	2.82	2.75
ESEER (3)		4.30	4.21	4.23	4.31	4.24	4.28	4.29	4.27
Eurovent class		B	B	C	B	C	C	C	C
Sound power level (4)	(dBA)	88	89	89	89	90	90	91	91
Sound pressure level (5)	(dBA)	56	57	57	56	58	58	58	58
Number of circuit(s)		2	2	2	2	2	2	2	2
Number of compressors		2	2	2	2	2	2	2	2
<b>Dimensions and weights (operating)</b>									
Length	(mm)	4520	4520	4520	5645	5645	5645	6770	6770
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2200
Height	(mm)	2672	2672	2672	2672	2672	2672	2672	2672
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	3480	3515	3695	4175	4240	4710	5190	5220
<b>Electrical data</b>									
Maximum amps	(A)	221	254	298	349	384	419	462	497
Start-up amps	(A)	221	254	298	349	384	419	462	497

RTAF High Seasonal Short - Extra Low Noise - R513A		250	280	310	350	380	410
Cooling capacity (3)	(kW)	851	962	1057	1180	1307	1425
Total power input (3)	(kW)	309	350	401	445	485	526
EER (3)		2.75	2.75	2.64	2.65	2.69	2.71
ESEER (3)		4.24	4.26	4.23	4.38	4.42	4.48
Eurovent class		C	C	D	D	D	C
Sound power level (4)	(dBA)	93	94	94	94	95	95
Sound pressure level (5)	(dBA)	60	61	61	61	62	62
Number of circuit(s)		2	2	2	2	2	2
Number of compressors		3	3	3	4	4	4
<b>Dimensions and weights (operating)</b>							
Length	(mm)	8271	9396	9396	10143	11268	12393
Width	(mm)	2200	2200	2200	2200	2200	2200
Height	(mm)	2672	2672	2672	2672	2672	2672
Clearance A	(mm)	1000	1000	1000	1000	1000	1000
Clearance B	(mm)	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000
Weight	(kg)	6825	7435	7485	8880	9270	9645
<b>Electrical data</b>							
Maximum amps	(A)	596	676	747	852	926	1004
Start-up amps	(A)	754	797	868	1010	1047	1125

- (1) With low ambient temperature option
- (2) With process cooling option
- (3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.
- (4) At Eurovent conditions, with 1pW reference sound power, according to ISO9614
- (5) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepipedic box with five exposed face areas.



# Increased savings with RTAF HSE (High Seasonal Efficiency) and HSS (High Seasonal Efficiency Short) versions



- AFD (Adaptive Frequency™ Drive) as standard
- Fewer start-stop cycles
- Increased compressor life
- Reduced start-up current draw







# RTAE

## Air-cooled helical-rotary chiller Stealth™



### Customer benefits

- Low cost of ownership: High full (EER) and part load efficiencies (ESEER)
- Silent operation: high level of acoustic comfort.

### Main features

- AdaptiSpeed™ Technology: permanent magnet motors powering the compressor and fans
- AFD3 Adaptive Frequency™ Drive – 30% TDD harmonic filtration
- 3 InvisiSound™ acoustic versions: Standard, Superior Sound Package and Ultimate
- New generation efficient water exchanger
- All aluminum condenser coils (aluminum fins and tubes)

### Options

- Flow-switch
- Low temperature process cooling (<4°C)
- Ice storage
- High ambient operation (52°C)
- Low ambient operation (-18°C)
- Complete Coat™ epoxy coated condenser coil
- Architectural louvered panels

### Accessories

- Elastomeric isolators

### Controls

- Ultimate control: Trane UC800
  - Easy to read 7-inch color touchscreen display
  - Industry leading algorithms
  - Open protocol design
  - Adaptive control
- Feedforward adaptive control
- Softloading
- Rapid restart
- Adaptispeed Control
- Variable-Primary Flow (VPF) compatible

Operating outdoor air temperature range (min./max.) (1)	(°C)	-18 / +52°C
Leaving water temperature range (min./max.) (2)	(°C)	-7 / 20°C
Power supply	(V/Ph/Hz)	400/3/50

RTAE Standard Sound Package		150	165	180	200	225	250	275	300
Cooling capacity (3)	(kW)	514.4	579.4	623.6	695.8	784.2	879.0	961.2	1061.8
Total power input (3)	(kW)	154.9	171.9	187.8	207.7	224.7	262.4	281.9	314.2
EER		3.32	3.37	3.32	3.35	3.49	3.35	3.41	3.38
Eurovent class		A	A	A	A	A	A	A	A
ESEER		4.54	4.61	4.60	4.70	4.87	4.82	4.94	5.00
Sound power level (4)	dB(A)	100.0	100.0	100.0	100.0	100.0	102.0	101.0	102.0
Sound pressure level (5)	dB(A)	67.5	67.4	67.4	67.2	67.2	69.2	68.1	68.9

RTAE InvisiSound Superior Sound Package		150	165	180	200	225	250	275	300
Cooling capacity (3)	(kW)	508.8	574.9	617.7	692.3	775.8	867.5	950.1	1051.0
Total power input (3)	(kW)	154.7	170.6	187.2	206.7	224.2	263.7	281.9	312.8
EER		3.29	3.37	3.30	3.35	3.46	3.29	3.37	3.36
Eurovent class		A	A	A	A	A	A	A	A
ESEER		4.55	4.62	4.61	4.71	4.88	4.83	4.95	5.01
Sound power level (4)	dB(A)	96.0	97.0	97.0	97.0	97.0	98.0	98.0	98.0
Sound pressure level (5)	dB(A)	63.5	64.4	64.4	64.2	64.2	65.2	65.1	64.9

RTAE InvisiSound Ultimate Sound Package		150	165	180	200	225	250	275	300
<b>700 RPM</b>									
Cooling capacity (3)	(kW)	498.4	565.5	605.9	681.6	759.8	845.2	928.8	1030.1
Total power input (3)	(kW)	156.7	171.4	189.3	207.8	227.5	270.0	286.7	317.9
EER		3.18	3.30	3.20	3.28	3.34	3.13	3.24	3.24
Eurovent class		A	A	A	A	A	A	A	A
ESEER		4.56	4.63	4.62	4.72	4.89	4.84	4.96	5.03
Sound power level (4)	dB(A)	91.0	91.0	91.0	92.0	92.0	92.0	94.0	94.0
Sound pressure level (5)	dB(A)	58.5	58.4	58.4	59.2	59.2	59.2	61.1	60.9
<b>650 RPM</b>									
Cooling capacity (3)	(kW)	492.8	560.3	599.6	675.3	751.1	833.4	917.0	1018.3
Total power input (3)	(kW)	159.0	172.9	191.0	209.7	230.4	275.0	291.1	321.2
EER		3.10	3.24	3.14	3.22	3.26	3.03	3.15	3.17
Eurovent class		B	A	A	A	A	B	A	A
ESEER		4.55	4.63	4.62	4.72	4.89	4.83	4.96	5.03
Sound power level (4)	dB(A)	90.0	89.0	89.0	90.0	90.0	91.0	92.0	92.0
Sound pressure level (5)	dB(A)	57.5	56.4	56.4	57.2	57.2	58.2	59.1	58.9
<b>600 RPM</b>									
Cooling capacity (3)	(kW)	485.5	554.0	591.6	667.6	740.3	818.4	902.7	1003.6
Total power input (3)	(kW)	161.8	175.3	194.6	212.6	235.0	281.2	296.9	326.9
EER		3.00	3.16	3.04	3.14	3.15	2.91	3.04	3.07
Eurovent class		B	A	B	A	A	B	B	B
ESEER		4.54	4.63	4.62	4.72	4.88	4.82	4.95	5.02
Sound power level (4)	dB(A)	89.0	88.0	88.0	88.0	89.0	89.0	92.0	91.0
Sound pressure level (5)	dB(A)	56.5	55.4	55.4	55.2	56.2	56.2	59.1	57.9

(1) With low and high ambient temperature option

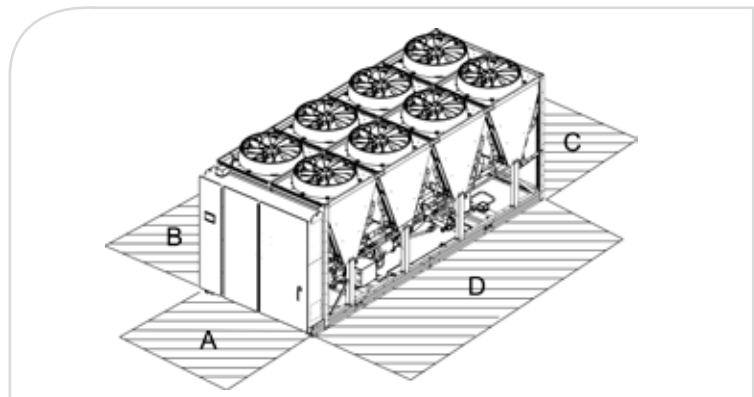
(2) With 2 pass evaporator

(3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.

(4) At Eurovent conditions, with 1pW reference sound power, according to ISO9614

(5) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepiped box with five exposed face areas.

RTAE		150	165	180	200	225	250	275	300
Number of refrigerant circuits						2			
Number of compressors						2			
<b>Dimensions and weights (operating)</b>									
Length	(mm)	5853	7204	7204	8555	8555	8555	9906	11258
Width	(mm)	2230	2230	2230	2230	2230	2230	2230	2230
Height	(mm)	2432	2432	2432	2432	2432	2432	2432	2432
Weight standard and superior	(kg)	5207	5685	5842	6353	7015	7194	7754	8285
Weight ultimate	(kg)	5570	6048	6205	6716	7378	7557	8117	8648
Clearance A	(mm)					1016			
Clearance B	(mm)					914			
Clearance C	(mm)					600			
Clearance D	(mm)					2160			
<b>Electrical data</b>									
Maximum amps	(A)	350	372	405	440	455	523	563	610



## The key to every Stealth chiller's low sound levels



Variable-speed condenser coil fans help reduce sound output.

## InvisiSound Ultimate Sound Package



Patented compressor enclosure and metallic bellows absorb vibrations from normal compressor operation.





## RTWD – RTUD

Water-cooled packaged and condenserless helical-rotary chiller Series R™



### Customer benefits

High performance chiller based on:

- Falling film evaporator: higher performances with lower refrigerant charge
- State-of-the-art control to guarantee superior dependability and low cost of ownership
- Optional Trane Adaptive Frequency™ Drive (AFD) for part load efficiency enhancement

### Range description

RTWD: packaged chiller

RTUD: condenserless chiller

### Main features

- Low-speed, direct-drive semi-hermetic helical rotary compressor featuring only 3 moving parts, suction-gas-cooled motor
- Fully modulating load control (15-100%)
- 3 different levels of efficiency
- Control of the leaving condenser water temperature from CH530
- Maximum condenser temperature 63°C
- Compact physical footprint - fits through standard single-width door
- Bolt-together construction for easy unit disassembly
- Simplified piping - the only piping required is for the evaporator and condenser connections
- Single power connection - reduced wiring costs
- Factory-mounted star-delta starter panel

### Tracer™ CH530 Control

Adaptive Control™ microprocessor-based control featuring:

- Easy-to-use operator interface
- Chilled water pump control

Control options:

- Control of the leaving condenser water temperature
- Programmable relays
- Reset of setpoints by analog signal
- Condenser refrigerant pressure output
- LonTalk®, BACnet®, Modbus® communication interfaces

Condenser leaving water temperature (min./max.) RTWD	(°C)	20/60
Condenser saturated discharge temperature (min./max.) RTUD	(°C)	20/67
Evaporator leaving water temperature range (min./max.)	(°C)	-8 / +18
Power supply	(V/Ph/Hz)	400/3/50

RTWD/RTUD		60HE	70HE	80HE	90HE	100HE	110HE	120HE	130HE	140HE	160HE
Net cooling capacity RTWD (1) (5)	(kW)	235	276	317	365	390	417	452	488	531	579
Net power input RTWD (1) (5)	(kW)	48	57	65	74	79	84	91	99	107	114
Net EER / Eurovent class RTWD (1) (5)		4.93/B	4.88/B	4.85/B	4.90/B	4.95/B	4.99/B	4.97/B	4.95/B	4.98/B	5.05/A
Net ESEER RTWD (5)		5.73	5.61	5.76	5.67	5.75	5.67	5.75	5.63	5.73	5.74
Number of refrigerant circuits		2									
Number of compressors		2									
Sound power level RTWD (3)	dB(A)	90	90	97	99	99	99	98	96	96	96
<b>Weights and dimensions (operating) (6)</b>											
Length	(mm)	3210	3210	3210	3230	3320	3230	3240	3400	3400	3400
Width	(mm)	1070	1070	1070	1060	1060	1060	1060	1280	1280	1280
Height	(mm)	1940	1940	1940	1960	1960	1960	1960	1950	1950	1950
Weight	(kg)	2650	2658	2673	2928	2970	3008	3198	3771	3802	3874
Clearance A	(mm)	920									
Clearance B	(mm)	920	920	920	920	920	920	920	920	920	1020
<b>Electrical data</b>											
Maximum amps	(A)	102	124	142	161	176	192	209	227	244	261
Start-up amps (4)	(A)	164	192	207	225	261	277	314	331	373	423

RTWD/RTUD		180HE	200HE	220HE	250HE	160PE	180PE	200PE	160SE	170SE	190SE	200SE
Net cooling capacity RTWD (1) (5)	(kW)	637.9	700.1	765	836	598	659	709	582	642	700	769
Net power input RTWD (1) (5)	(kW)	127.1	138.7	155	168	114	126	136	133	149	161	174
Net EER / Eurovent class RTWD (1) (5)		4.99/B	5.03/B	4.94/B	4.97/B	5.26/A	5.24/A	5.22/A	4.37/C	4.31/C	4.35/C	4.41/C
Net ESEER RTWD (5)		5.79	5.77	5.69	5.69	5.95	6.09	6.11	5.09	4.96	5.04	5.08
Number of refrigerant circuits		2										
Number of compressors		2										
Sound power level RTWD (3)	dB(A)	101	101	101	101	96	101	101	101	101	101	101
<b>Weights and dimensions (operating) (6)</b>												
Length	(mm)	3490	3490	3490	3490	3760	3810	3490	3490	3490	3490	3490
Width	(mm)	1310	1310	1310	1310	1280	1310	1310	1310	1310	1310	1310
Height	(mm)	1970	2010	2010	2010	2010	2010	2010	1970	1970	1970	1970
Weight	(kg)	4042	4488	4504	4579	4172	4408	4625	3874	4049	4086	4125
Clearance A	(mm)	920										
Clearance B	(mm)	1020	1020	1020	1020	1020	1020	1020	1020	1020	1020	1020
<b>Electrical data</b>												
Maximum amps	(A)	286	311	343	374	261	286	311	286	311	343	374
Start-up amps (4)	(A)	423	447	510	542	391	423	447	423	447	510	542

(1) Evaporator 12/7°C and 0.0176 m2K/kW, and condenser at 30/35°C and 0.044m2K/kW

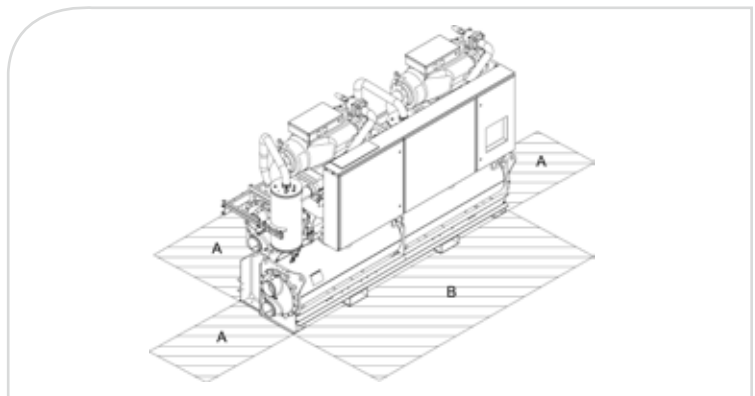
(2) Evaporator 12/7°C and 0.0176m2K/kW, and condenser 45°C saturating subcooling 5K

(3) At full load and in accordance with ISO9614 without sound attenuating enclosure

(4) Inrush current in star connection

(5) Net performances calculated as per EN 14511-2013.

(6) Maximum dimensions and weight for this size

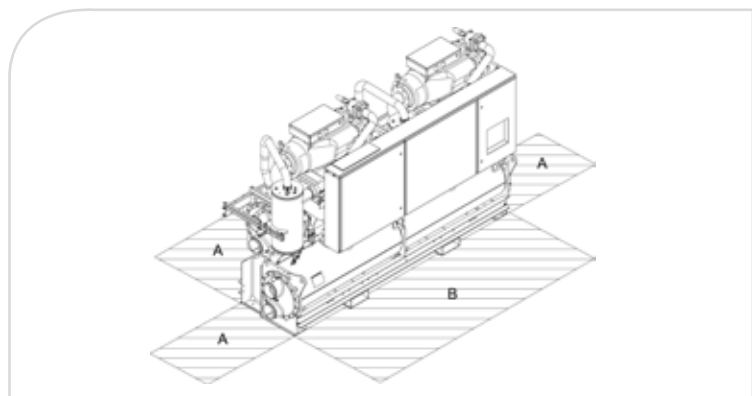


Condenser leaving water temperature (min./max.) RTWD	(°C)	20/60
Condenser saturated discharge temperature (min./max.) RTUD	(°C)	20/67
Evaporator leaving water temperature range (min./max.)	(°C)	-8 / +18
Power supply	(V/Ph/Hz)	400/3/50

RTWD/RTUD		060 HSE	070 HSE	080 HSE	090 HSE	100 HSE	110 HSE	120 HSE	130 HSE	140 HSE
Net cooling capacity RTWD (1) (5)	(kW)	235	276	317	365	390	417	452	488	531
Net power input RTWD (1) (5)	(kW)	49	59	68	77	81	87	93	101	109
Net EER / Eurovent class RTWD (1) (5)		4.75 / B	4.7 / B	4.68 / B	4.74 / B	4.79 / B	4.82 / B	4.84 / B	4.84 / B	4.88 / B
Net ESEER RTWD (5)		6,08	5,90	5,99	6,08	5,91	5,79	6,16	6,47	6,43
Number of refrigerant circuits		2								
Number of compressors		2								
Sound power level RTWD (3)	(dBA)	90	90	97	99	99	99	98	96	96
<b>Weights and dimensions (operating) (6)</b>										
Length	(mm)	3210	3210	3210	3223	3318	3223	3235	3395	3395
Width	(mm)	1131	1131	1131	1118	1118	1118	1118	1302	1302
Height	(mm)	1938	1938	1938	1955	1955	1955	1955	1943	1943
Weight	(kg)	2788	2796	2829	3102	3144	3182	3372	3945	3996
Clearance A	(mm)	920								
Clearance B	(mm)	920								
<b>Electrical data</b>										
Maximum amps	(A)	89	105	121	138	145	153	167	182	201
Start-up amps (4)	(A)	3	3	4	4	5	5	6	6	7

RTWD/RTUD		160 HSE	180 HSE	200 HSE	220 HSE	250 HSE	260 HSE	270 HSE
Net cooling capacity RTWD (1) (5)	(kW)	598	659	709	765	836	901	979
Net power input RTWD (1) (5)	(kW)	115	129	140	159	172	203	218
Net EER / Eurovent class RTWD (1) (5)		5.18 / A	5.11 / A	5.05 / A	4.8 / B	4.85 / B	4.44 / C	4.49 / C
Net ESEER RTWD (5)		6.58	6.51	6.77	6.39	6.48	5.92	5.95
Number of refrigerant circuits		2						
Number of compressors		2						
Sound power level RTWD (3)	dB(A)	96	101	101	101	101	101	101
<b>Weights and dimensions (operating) (6)</b>								
Length	(mm)	3752	3811	3489	3489	3489	3489	3489
Width	(mm)	1302	1332	1341	1341	1341	1341	1341
Height	(mm)	2004	2004	2004	2004	2004	2004	2004
Weight	(kg)	4386	4622	4839	4718	4793	4718	4793
Clearance A	(mm)	920						
Clearance B	(mm)	1020						
<b>Electrical data</b>								
Maximum amps	(A)	325	363	402	438	473	523	568
Start-up amps (4)	(A)	7	8	8	9	9	14	14

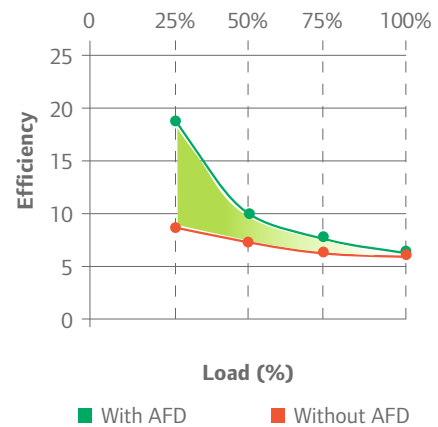
- (1) Evaporator 12/7°C and 0.0176 m<sup>2</sup>K/kW, and condenser at 30/35°C and 0.044m<sup>2</sup>K/kW  
 (2) Evaporator 12/7°C and 0.0176m<sup>2</sup>K/kW, and condenser 45°C saturating subcooling 5K  
 (3) At full load and in accordance with ISO9614 without sound attenuating enclosure  
 (4) Inrush current in star connection  
 (5) Net performances calculated as per EN 14511-2013.  
 (6) Maximum dimensions and weight for this size



# Increased savings with RTWD HSE (High Seasonal Efficiency) version



- AFD (Adaptive Frequency™ Drive) as standard
- Fewer start-stop cycles
- Increased compressor life
- Reduced start-up current draw
- Turning your current RTWD into a top performing chiller is possible thanks to Trane Field Retrofit solution







# RTHD<sup>evo</sup>

## Water-cooled packaged helical-rotary chiller Series R™



### Customer benefits

Industry leading efficiencies thanks to:

- Falling film evaporator: superior performances with low refrigerant charge
- New Trane control for optimal system reliability and human interface
- Trane helical-rotary compressor - designed to perform, built to last
- Optional Trane Adaptive Frequency™ Drive (AFD) for part load efficiency enhancement

### Main features

- 4 efficiency levels: SE, HE, XE and new HSE fitted with Trane AFD with enhanced part load (ESEER) efficiencies
- Low-speed, direct-drive semi-hermetic helical rotary compressor featuring only 3 moving parts, suction-gas-cooled motor
- Fully modulating load control (15-100%)
- Compact physical footprint - fits through standard double-width doors
- Bolt-together construction for easy unit disassembly
- Factory-mounted star-delta starter panel
- Simplified piping - the only piping required is for the evaporator and condenser grooved pipe connections
- Single power connection - reduced wiring costs

### Options

- Insulation on evaporator, water boxes, suction line, motor housing
- Fused or non-fused power disconnect switch
- Under/over voltage protection

### Accessories

- Outside air temperature sensor
- Condenser valves

### Control

- Ultimate control: UC800
  - Easy to read 7-inch color touchscreen display
  - Industry leading algorithms
  - Open protocol design
  - Adaptive control
- Feedforward adaptive control
- Softloading (HSE)
- Rapid Restart
- SmartCom interface: LonTalk®, BACnet®, Modbus® communication interfaces
- Energy metering

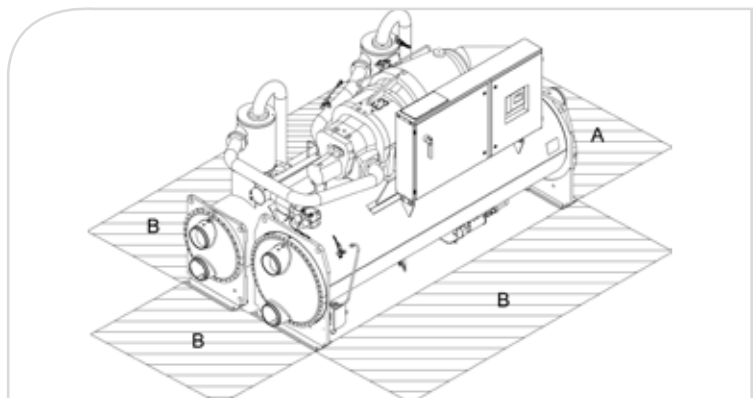
Condenser leaving water temperature (min./max.)	(°C)	20 / +50
Evaporator leaving water temperature range (min./max.)	(°C)	-12 / +18
Power supply	(V/Ph/Hz)	400/3/50

<b>RTHD Standard Efficiency</b>		225	250	300	325	350	375
Cooling capacity (1)	(kW)	769	886	1050	1145	1216	1342
Total power input (1)	(kW)	149	176	209	221	240	279
EER (1)		5.16	5.03	5.03	5.18	5.06	4.81
ESEER (1)		5.41	5.36	5.09	5.41	5.31	4.93
Eurovent class		A	B	B	A	A	B
Sound power level (2)	(dBA)	98	98	97	97	97	101
Number of circuit(s)		1	1	1	1	1	1
Number of compressors per circuit		1	1	1	1	1	1
<b>Dimensions and weights (operating)</b>							
Length	(mm)	3290	3290	3290	3290	3290	3290
Width	(mm)	1600	1600	1600	1600	1600	1600
Height	(mm)	1940	1940	1940	1940	1940	1940
Clearance A	(mm)	2510	2510	2510	2510	2510	2510
Clearance B	(mm)	1000	1000	1000	1000	1000	1000
Weight	(kg)	5891	6833	6335	6522	6553	6655
<b>Electrical data</b>							
Maximum amps	(A)	349	349	455	455	455	488
Start-up amps	(A)	480	480	748	748	748	748

<b>RTHD High Efficiency</b>		150	175	225	250	300	350	375	400
Cooling capacity (1)	(kW)	545	595	778	896	1074	1195	1278	1411
Total power input (1)	(kW)	99	109	145	170	198	212	228	266
EER (1)		5.49	5.44	5.37	5.26	5.42	5.65	5.60	5.31
ESEER (1)		5.79	5.88	5.68	5.66	5.63	5.88	5.78	5.38
Eurovent class		A	A	A	A	A	A	A	A
Sound power level (2)	(dBA)	98	98	98	98	97	97	97	101
Number of circuit(s)		1	1	1	1	1	1	1	1
Number of compressors per circuit		1	1	1	1	1	1	1	1
<b>Dimensions and weights (operating)</b>									
Length	(mm)	3170	3170	3290	3290	3290	3690	3690	3690
Width	(mm)	1600	1600	1600	1600	1600	1600	1600	1600
Height	(mm)	1850	1850	1940	1940	1940	1940	1940	1940
Clearance A	(mm)	2530	2530	2510	2510	2510	2970	2970	2970
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	4361	4361	6030	6030	6612	7558	7589	7767
<b>Electrical data</b>									
Maximum amps	(A)	233	233	349	349	455	455	455	488
Start-up amps	(A)	412	412	480	480	748	748	748	748

(1) At Eurovent conditions: evaporator 12/7°C and 0,0176m2K/kW, condenser 30/35°C and 0,44m2K/kW according to EN 14511-2013.

(2) At full load according to ISO9614



Condenser leaving water temperature (min./max.)	(°C)	20 / +50
Evaporator leaving water temperature range (min./max.)	(°C)	-12 / +18
Power supply	(V/Ph/Hz)	400/3/50

<b>RTHD eXtra High Efficiency</b>		150	175	225	275	325	350	375	425
Cooling capacity (1)	(kW)	559	614	797	937	1119	1203	1294	1453
Total power input (1)	(kW)	98	108	140	160	188	205	218	253
EER (1)		5.69	5.69	5.68	5.86	5.94	5.88	5.94	5.74
ESEER (1)		5.95	6.09	6.09	6.27	6.16	6.21	6.21	5.91
Eurovent class		A	A	A	A	A	A	A	A
Sound power level (2)	(dBA)	98	98	98	98	97	97	97	101
Number of circuit(s)		1	1	1	1	1	1	1	1
Number of compressors per circuit		1	1	1	1	1	1	1	1

<b>Dimensions and weights (operating)</b>									
Length	(mm)	3640	3640	3290	3670	3850	3850	3850	3850
Width	(mm)	1600	1600	1600	1600	1800	1800	1800	1800
Height	(mm)	1850	1850	1940	1940	2035	2040	2040	2040
Clearance A	(mm)	2990	2990	2510	2980	3130	3130	3130	3130
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	4756	4756	6355	6833	8951	9196	9384	9741

<b>Electrical data</b>									
Maximum amps	(A)	233	233	349	349	455	455	455	488
Start-up amps	(A)	412	412	480	480	748	748	748	748

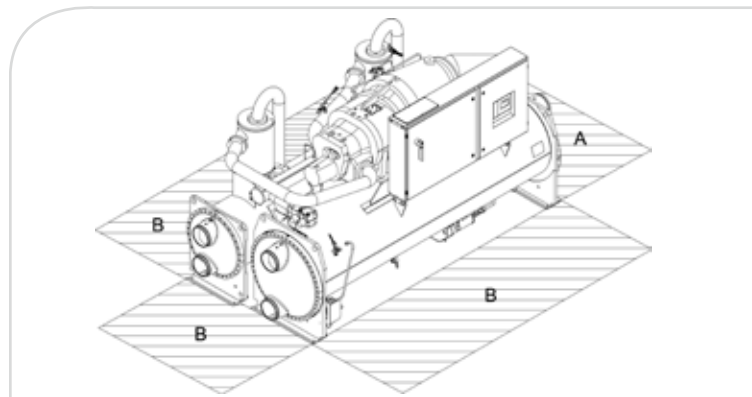
<b>RTHD High Seasonal Efficiency</b>		150	175	225	275	325	350	375	425
Cooling capacity (1)	(kW)	559	614	797	937	1119	1203	1294	1453
Total power input (1)	(kW)	102	111	145	165	195	211	225	261
EER (1)		5.51	5.51	5.50	5.68	5.75	5.69	5.75	5.56
ESEER (1)		7.14	7.20	7.32	7.61	7.71	7.52	7.94	7.83
Eurovent class		A	A	A	A	A	A	A	A
Sound power level (2)	(dBA)	98	98	98	98	97	97	97	101
Number of circuit(s)		1	1	1	1	1	1	1	1
Number of compressors per circuit		1	1	1	1	1	1	1	1

<b>Dimensions and weights (operating)</b>									
Length	(mm)	3640	3640	3290	3670	3850	3850	3850	3850
Width	(mm)	1850	1850	1970	1970	2040	2040	2040	2040
Height	(mm)	1690	1690	1810	1810	2000	2000	2000	2000
Clearance A	(mm)	2990	2990	2510	2980	3130	3130	3130	3130
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
Weight	(kg)	4860	4860	6534	7012	9139	9384	9572	9929

<b>Electrical data</b>									
Maximum amps	(A)	218	218	314	314	421	421	421	452
Start-up amps	(A)	11	11	16	16	21	21	21	23

(1) At Eurovent conditions: evaporator 12/7°C and 0,0176m2K/kW, condenser 30/35°C and 0,44m2K/kW according to EN 14511-2013.

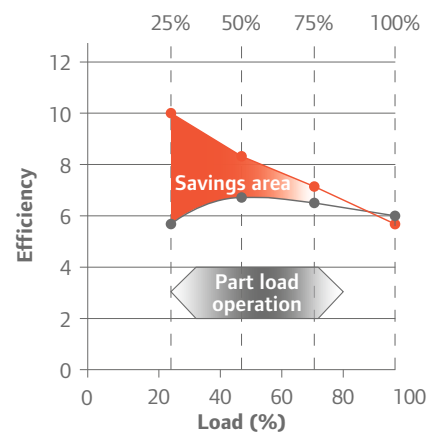
(2) At full load according to ISO9614



# Increased savings with RTHD HSE (High Seasonal Efficiency) version



- AFD (Adaptive Frequency™ Drive) as standard
- Fewer start-stop cycles
- Increased compressor life
- Reduced start-up current draw
- Turning your current RTHD into a top performing chiller is possible thanks to Trane Field Retrofit solution





# RTWF

## Water-cooled packaged helical-rotary chiller XStream™



### Customer benefits

- Extended and unmatched capacities
- High efficiencies
- Reliability : Trane helical-rotary compressor and double refrigerant circuit
- State-of-the-art control to guarantee superior dependability and low cost of ownership
- Optional Trane Adaptive Frequency™ Drive (AFD) for part load efficiency enhancement.

### Main features

- 3 different levels of efficiency (SE – HE – HSE)
- Dual circuit and multiple compressors
- Low-speed, direct-drive semi-hermetic helical rotary compressor, suction-gas-cooled motor
- Trane patented CHIL Evaporator
- Fully modulating load control (15 – 100%)
- Adaptive Control™ microprocessor system enhances chiller by providing the latest chiller control technology
- Variable Primary Flow full compatibility

### Options

- High temperature Condenser leaving water temperature up to 68°C
- Brine applications down to -12°C leaving water
- Ice Making
- Right hand or Left hand connections

### Accessories

- Flow Switch
- Anti-vibration accessories : neoprene isolators

### Controls

- Ultimate control: UC800
  - Easy to read 7-inch color touchscreen display
  - Industry leading algorithms
  - Open protocol design
  - Adaptive control
- Variable Primary Flow control at evaporator and/or condenser
- Feedforward Adaptive control
- Softloading (HSE)
- Rapid Restart
- SmartCom interface: BACnet® MSTP, BACnet® IP, BACnet® RTU, Modbus® RTU and LonTalk® communication interfaces
- Master/Slave operation
- Energy metering

Condenser leaving water temperature (min/max)	(°C)	16 / 68
Evaporator leaving water temperature (min/max)	(°C)	-12 / 20
Power supply	(V/Ph/Hz)	400/3/50

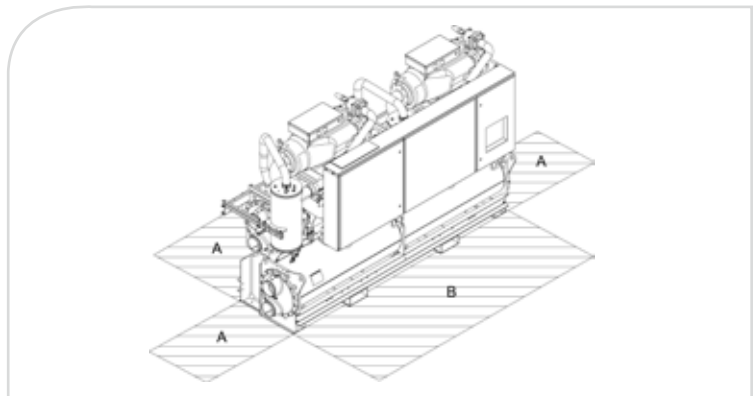
<b>RTWF Standard Efficiency - R134a</b>		<b>275 SE</b>	<b>290 SE</b>	<b>310 SE</b>	<b>330 SE</b>	<b>370 SE</b>	<b>410 SE</b>	<b>450 SE</b>	<b>490 SE</b>
Net cooling capacity (1)	(kW)	935	977	1036	1106	1242	1388	1528	1667
Net power input (1)	(kW)	201	212	224	238	270	299	329	357
Net EER / Eurovent energy class (1)		4.74/B	4.71/B	4.72/B	4.74/B	4.70/B	4.74/B	4.74/B	4.77/B
Net ESEER		6.00	5.89	5.86	6.04	5.92	6.38	6.31	6.20
IPLV RTWF SE		7.269	7.246	7.148	7.314	7.246	7.821	7.705	7.529
Number of refrigerant circuits		2							
Number of compressors		3	3	3	3	3	4	4	4
Sound power level (3)	(dB(A))	100	100	101	101	101	102	102	102
<b>Weights and dimensions (operating)</b>									
Length	(mm)	4754	4754	4784	4784	4784	4784	4784	4784
Width	(mm)	1727	1727	1727	1727	1727	1823	1823	1823
Height	(mm)	2032	2032	2032	2032	2032	2135	2135	2135
Weight	(kg)	5276	5273	5456	5511	5574	6945	7025	7019
Clearance A	(mm)	4000							
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
<b>Electrical data</b>									
Maximum amps	(A)	402	416	442	469	532	586	646	706
Start-up amps	(A)	547	561	587	647	710	731	824	884

<b>RTWF High Efficiency - R134a</b>		<b>275 HE</b>	<b>290 HE</b>	<b>310 HE</b>	<b>330 HE</b>	<b>370 HE</b>	<b>410 HE</b>	<b>450 HE</b>	<b>490 HE</b>
Net cooling capacity (1)	(kW)	959	1004	1068	1136	1267	1424	1563	1708
Net power input (1)	(kW)	189	197	211	224	249	279	309	336
Net EER / Eurovent energy class (1)		5.19/A	5.19/A	5.17/A	5.18/A	5.18/A	5.20/A	5.16/A	5.18/A
Net ESEER		6.61	6.52	6.47	6.65	6.54	6.99	6.82	6.71
IPLV RTWF SE		7.669	7.669	7.553	7.722	7.680	8.155	7.957	7.753
Number of refrigerant circuits		2							
Number of compressors		3	3	3	3	3	4	4	4
Sound power level (3)	(dB(A))	100	100	101	101	101	102	102	102
<b>Weights and dimensions (operating)</b>									
Length	(mm)	4754	4754	4784	4784	4784	4784	4784	4784
Width	(mm)	1727	1727	1727	1727	1727	1823	1823	1823
Height	(mm)	2032	2032	2032	2032	2032	2135	2135	2135
Weight	(kg)	5687	5683	5886	5950	6123	7446	7571	7694
Clearance A	(mm)	4000							
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
<b>Electrical data</b>									
Maximum amps	(A)	402	416	442	469	532	586	646	706
Start-up amps	(A)	547	561	587	547	710	731	824	884

(1) Evaporator 12/7°C, condenser water temperature 30/35°C according to EN14511:2013. Rated in accordance with AHRI Standard 550/590, based on TOPSS version 192

(2) At full load and in accordance with ISO9614

(3) Global Sound Pressure level at 10m

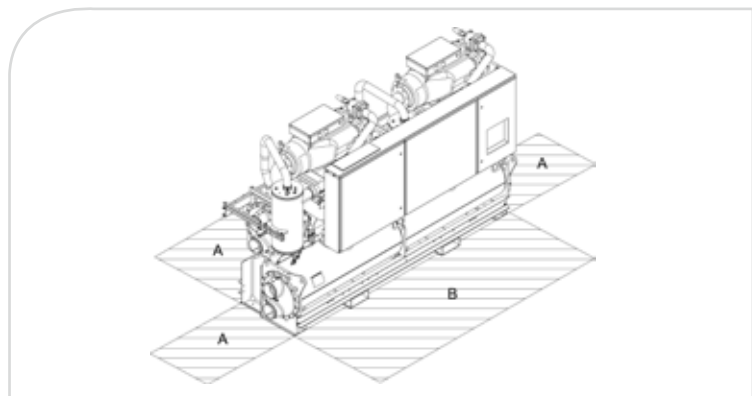


RTWF High Seasonal Efficiency - R134a		275 HSE	290 HSE	310 HSE	330 HSE	370 HSE	410 HSE	450 HSE	490 HSE	515 HSE
Net cooling capacity (1)	(kW)	961	1007	1068	1136	1258	1424	1563	1699	1857
Net power input (1)	(kW)	192	201	216	229	254	284	314	341	387
Net EER / Eurovent energy class (1)		5.10/A	5.10/A	5.04/A	5.06/A	5.06/A	5.11/A	5.08/A	5.09/A	4.90/A
Net ESEER		6.81	6.74	6.76	6.69	6.81	7.01	6.85	6.7	6.78
IPLV RTWF HSE		7.832	7.831	7.898	7.834	8.058	8.292	7.990	8.033	8.002
Number of refrigerant circuits						2				
Number of compressors		3	3	3	3	3	4	4	4	4
Sound power level (3)	(dB(A))	100	100	101	101	101	102	102	102	107
<b>Weights and dimensions (operating)</b>										
Length	(mm)	4754	4754	4784	4784	4784	4784	4784	4784	4784
Width	(mm)	1727	1727	1727	1727	1727	1823	1823	1823	1823
Height	(mm)	2032	2032	2032	2032	2032	2135	2135	2135	2135
Weight	(kg)	5862	2525	6100	6164	6337	7660	7785	7908	7907
Clearance A	(mm)					4000				
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000
<b>Electrical data</b>										
Maximum amps	(A)	381	398	420	450	509	566	626	685	750
Start-up amps	(A)	526	543	565	628	687	711	804	863	928

(1) Evaporator 12/7°C, condenser water temperature 30/35°C according to EN14511:2013. Rated in accordance with AHRI Standard 550/590, based on TOPSS version 192

(2) At full load and in accordance with ISO9614

(3) Global Sound Pressure level at 10m





# RTHF

## Water-cooled packaged helical-rotary chiller XStream™



### Customer benefits

- Extended and unmatched capacities
- High efficiencies
- Reliability : Trane helical-rotary compressor and double refrigerant circuit
- State-of-the-art control to guarantee superior dependability and low cost of ownership
- Optional Trane Adaptive Frequency™ Drive (AFD) for part load efficiency enhancement.

### Main features

- 2 different levels of efficiency (XE – HSE)
- Dual circuit and Dual compressor
- Low-speed, direct-drive semi-hermetic helical rotary compressor, suction-gas-cooled motor
- Trane patented CHIL Evaporator
- Fully modulating load control (15 – 100%)
- Adaptive Control™ microprocessor system enhances chiller by providing the latest chiller control technology
- Variable Primary Flow full compatibility

### Options

- Brine applications down to -12°C leaving water
- Ice Making
- Right hand or Left hand connections
- Dual Power Connection

### Accessories

- Flow Switch
- Anti-vibration accessories : neoprene isolators

### Controls

- Ultimate control: UC800
  - Easy to read 7-inch color touchscreen display
  - Industry leading algorithms
  - Open protocol design
  - Adaptive control
- **Variable Primary Flow control at evaporator and/or condenser**
- Feedforward Adaptive control
- Softloading (HSE)
- Rapid Restart
- SmartCom interface: BACnet® MSTP, BACnet® IP, BACnet® RTU, Modbus® RTU and LonTalk® communication interfaces
- Master/Slave operation
- Energy metering

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.



Condenser leaving water temperature (min/max)	(°C)	10 / 46*
Evaporator leaving water temperature (min/max)	(°C)	-12 / 20
Power supply	(V/Ph/Hz)	400 / 3 / 50

\* up to 50°C with capacity limitation depending on model and size

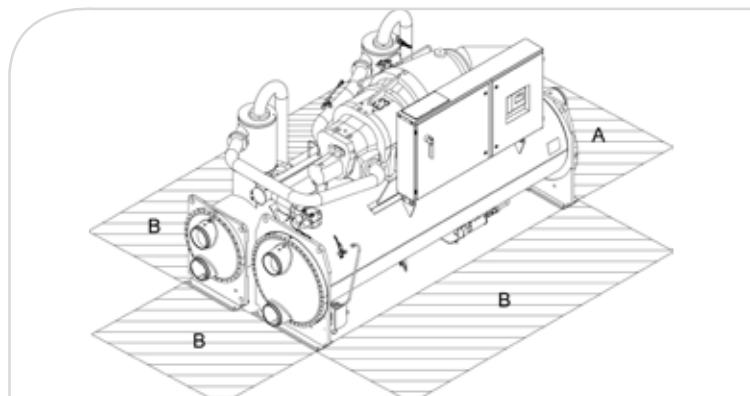
<b>RTHF Extra Efficiency - R134a</b>		<b>330 XE</b>	<b>360 XE</b>	<b>410 XE</b>	<b>460 XE</b>	<b>500 XE</b>	<b>540 XE</b>
Net cooling capacity (1)	(kW)	1155.76	1262.7	1438.73	1566.58	1745.01	1880.19
Net power input (1)	(kW)	207.1	228.8	2620.2	287.4	319	343.1
Net EER / Eurovent energy class (1)		5.69/A	5.63/A	5.64/A	5.56/A	5.58/A	5.59/A
Net ESEER		6.77	6.72	6.59	6.63	6.64	6.65
IPLV RTHF XE		7.772	7.738	7.485	7.594	7.622	7.739
Number of refrigerant circuits		2					
Number of compressors		2	2	2	2	2	2
Sound power level (3)	(dB(A))	97	97	98	98	99	99
<b>Weights and dimensions (operating)</b>							
Length	(mm)	4586	4586	4586	4586	4586	4586
Width	(mm)	1840	1840	1840	1840	1840	1840
Height	(mm)	2395	2395	2395	2395	2395	2395
Weight	(kg)	7350	7450	8590	8590	9630	9680
Clearance A	(mm)	4000					
Clearance B	(mm)	1000	1000	1000	1000	1000	1000
<b>Electrical data</b>							
Maximum amps	(A)	466	466	582	582	698	698
Start-up amps	(A)	645	645	761	761	829	829

<b>RTHF High Seasonal Efficiency - R134a</b>		<b>330 HSE</b>	<b>360 HSE</b>	<b>410 HSE</b>	<b>460 HSE</b>	<b>500 HSE</b>	<b>540 HSE</b>	<b>590 HSE</b>	<b>640 HSE</b>
Net cooling capacity (1)	(kW)	1149.93	1256.41	1431.53	1559.67	1735.69	1870.7	2050.44	2222.8
Net power input (1)	(kW)	212.6	234.8	267.6	294.8	327.5	352.3	402	452.7
Net EER / Eurovent energy class (1)		5.52/A	5.46/A	5.46/A	5.40/A	5.41/A	5.42/A	5.20/A	5.01/B
Net ESEER		7.36	7.60	7.82	7.43	7.81	7.73	7.07	6.87
IPLV RTHF HSE		8.395	8.753	8.949	8.746	8.660	8.752	8.638	8.499
Number of refrigerant circuits		2							
Number of compressors		2	2	2	2	2	2	2	2
Sound power level (3)	(dB(A))	97	97	98	98	99	99	102	104
<b>Weights and dimensions (operating)</b>									
Length	(mm)	4586	4586	4586	4586	4586	4586	4586	4586
Width	(mm)	1940	1940	1940	1940	1940	1940	1940	1940
Height	(mm)	2395	2395	2395	2395	2395	2395	2395	2395
Weight	(kg)	7520	7620	8820	8820	9920	9970	9960	9960
Clearance A	(mm)	4000							
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
<b>Electrical data</b>									
Maximum amps	(A)	450	450	549	549	649	649	702	773
Start-up amps	(A)	450	450	549	549	649	649	702	773

(1) Evaporator 12/7°C, condenser water temperature 30/35°C according to EN14511:2013. Rated in accordance with AHRI Standard 550/590, based on TOPSS version 192

(2) At full load and in accordance with ISO9614

(3) Global Sound Pressure level at 10m





# GVAF

## Air-cooled chiller with high speed centrifugal compressor Sintesis™ Excellent



### Customer benefits

- Market-leading Energy Efficiency Ratio (EER) and European Seasonal Energy Efficiency Ratio (ESEER) with lower sound levels.
- R1234ze which has a GWP value of less than one to exceed current F-Gas legislation requirements and help customers reduce their carbon dioxide (CO<sub>2</sub>) emissions
- Silent operation : discreet, even in the most sound sensitive applications without any drop on capacity or efficiency
- Significant reduced high in-rush current at start up
- Smart controls and user-friendly touchscreen interface
- No compromise: You can count on Trane's legendary reliability.
- Take the advantage of low ambient conditions
- Reduced refrigerant charge
- Easy operation thanks to smart controls and a user-friendly touchscreen interface

### Main features

- 3 efficiency levels: X, XP, XPG
- Two refrigerant alternatives R134a and R1234ze with GWP<1
- Two acoustic packages: Low noise, extra low noise and night noise set back
- High speed oil-free centrifugal compressor using Magnetic bearings with integrated variable frequency drive and soft starter module
- Electronically commutated fan motors to reach higher part load efficiencies with lower sound levels

- Trane patented flooded evaporator
- Micro-channel condenser coils
- Double refrigerant circuit
- Economizer circuit EMC filter to avoid harmonic transfer to compressor

### Options

- E-coated condenser coil
- Partial and total free-cooling
- Hydraulic module
- Constant speed pump – Variable frequency drive adjustment
- Variable speed pump – Constant differential pressure (DP)
- Integrated evaporator turbulators
- High performance insulated evaporator

### Accessories

- Elastomeric isolators

### Controls

- Ultimate control: Trane UC800
  - Easy to read 7-inch color touchscreen display
  - Industry leading algorithms
  - Open protocol design
  - Adaptive control
- Rapid restart
- SmartCom interface: LonTalk, Modbus, BACnet communication capabilities
- Energy metering

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.

GVAF X - LN Low Noise R134a refrigerant		155 LN	175 LN	205 LN	245 LN	250 LN	280 LN	310 LN	350 LN	380 LN	410 LN	450 LN	
Net cooling capacity (1)	(kW)	577	640	758	849	883	1002	1121	1238	1375	1473	1580	
EER (1)		3.63	3.60	3.40	3.04	3.58	3.53	3.36	3.10	3.39	3.29	3.12	
ESEER (1)		4.92	4.89	4.97	4.88	5.30	5.22	5.11	4.88	5.35	5.27	5.16	
Eurovent class		A	A	A	B	A	A	A	B	A	A	A	
Sound power level (2)	(dBA)	92	93	93	94	95	95	95	96	96	96	97	
Number of circuit(s)								2					
Number of compressors per circuit		2	2	2	2	3	3	3	3	4	4	4	
<b>Dimensions and weights (operating)</b>													
Length	(mm)	7895	7895	7895	11260	11260	11260	11260	13510	13510	13510	13510	
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	
Height	(mm)	2526	2526	2526	2526	2526	2526	2526	2526	2526	2526	2526	
Weight (3)	(kg)	4274	4274	4274	4274	5840	5840	5840	5840	7235	7235	7235	
Clearance A	(mm)							1000					
Clearance B	(mm)							1000					
Clearance C	(mm)							1000					
Clearance D	(mm)							1000					
<b>Electrical data</b>													
Maximum amps	(A)	514	514	514	514	764	764	764	764	1008	1008	1008	
Start-up amps	(A)	514	514	514	514	764	764	764	764	1008	1008	1008	

GVAF XP - LN Low Noise R134a refrigerant		190 LN	205 LN	245 LN	310 LN	350 LN
Net cooling capacity (1)	(kW)	719	759	878	1117	1245
EER (1)		3.55	3.54	3.48	3.47	3.49
ESEER (1)		5.53	5.37	5.29	5.50	5.43
Eurovent class		A	A	A	A	A
Sound power level (2)	(dBA)	94	94	94	96	96
Number of circuit(s)		2				
Number of compressors per circuit		3	3	3	4	4
<b>Dimensions and weights (operating)</b>						
Length	(mm)	11260	11260	11260	13510	13510
Width	(mm)	2200	2200	2200	2200	2200
Height	(mm)	2526	2526	2526	2526	2526
Weight (3)	(kg)	5840	5840	5840	7235	7235
Clearance A	(mm)	1000				
Clearance B	(mm)	1000				
Clearance C	(mm)	1000				
Clearance D	(mm)	1000				
<b>Electrical data</b>						
Maximum amps	(A)	764	764	764	1008	1008
Start-up amps	(A)	764	764	764	1008	1008

(1) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.

(2) At Eurovent conditions, with 1pW Reference Sound Power, according to ISO9614.

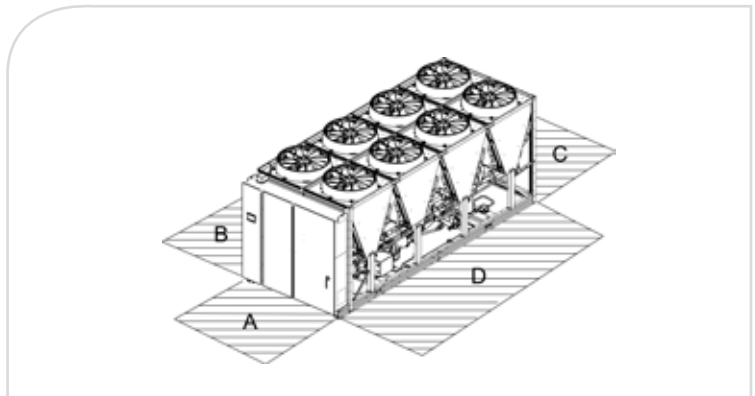
(3) Without options.

GVAF XPG - LN Low Noise R1234ze refrigerant		125 LN	145 LN	155 LN	175 LN	190 LN	205 LN	245 LN	250 LN	280 LN	310 LN	350 LN
Net cooling capacity (1)	(kW)	453	536	578	642	693	756	878	961	999	1121	1243
EER (1)		4.03	3.92	3.76	3.45	4.02	3.98	3.72	3.41	3.92	3.73	3.47
ESEER (1)		5.34	5.28	5.46	5.42	5.81	5.79	5.65	5.43	5.80	5.59	5.33
Eurovent class		A	A	A	A	A	A	A	A	A	A	A
Sound power level (2)	(dBA)	90	90	92	93	92	93	94	95	94	95	96
Number of circuit(s)							2					
Number of compressors per circuit		2	2	2	2	3	3	3	3	4	4	4
<b>Dimensions and weights (operating)</b>												
Length	(mm)	7895	7895	7895	7895	11260	11260	11260	11260	13510	13510	13510
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200
Height	(mm)	2526	2526	2526	2526	2526	2526	2526	2526	2526	2526	2526
Weight (3)	(kg)	4274	4274	4274	4274	5840	5840	5840	5840	7235	7235	7235
Clearance A	(mm)							1000				
Clearance B	(mm)							1000				
Clearance C	(mm)							1000				
Clearance D	(mm)							1000				
<b>Electrical data</b>												
Maximum amps	(A)	382	382	382	382	566	566	566	566	744	744	744
Start-up amps	(A)	382	382	382	382	566	566	566	566	744	744	744

(1) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.

(2) At Eurovent conditions, with 1pW Reference Sound Power, according to ISO9614.

(3) Without options.



GVAF X - XLN Extra Low Noise R134a refrigerant		155 XLN	175 XLN	205 XLN	245 XLN	250 XLN	280 XLN	310 XLN	350 XLN	380 XLN	410 XLN	450 XLN
Net cooling capacity (1)	(kW)	577	640	758	849	883	1002	1121	1238	1375	1473	1580
EER (1)		3.68	3.66	3.44	3.07	3.64	3.58	3.40	3.13	3.43	3.32	3.15
ESEER (1)		5.00	4.97	5.06	4.96	5.39	5.31	5.18	4.96	5.44	5.35	5.24
Eurovent class		A	A	A	B	A	A	A	A	A	A	A
Sound power level (2)	(dBA)	92	93	93	94	95	95	95	96	96	96	97
Number of circuit(s)								2				
Number of compressors per circuit		2	2	2	2	3	3	3	3	4	4	4
<b>Dimensions and weights (operating)</b>												
Length	(mm)	7895	7895	7895	7895	11260	11260	11260	11260	13510	13510	13510
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200
Height	(mm)	2672	2672	2672	2672	2672	2672	2672	2672	2672	2672	2672
Weight (3)	(kg)	4274	4274	4274	4274	5840	5840	5840	5840	7235	7235	7235
Clearance A	(mm)							1000				
Clearance B	(mm)							1000				
Clearance C	(mm)							1000				
Clearance D	(mm)							1000				
<b>Electrical data</b>												
Maximum amps	(A)	514	514	514	514	764	764	764	764	1008	1008	1008
Start-up amps	(A)	514	514	514	514	764	764	764	764	1008	1008	1008

GVAF XP - XLN Extra Low Noise R134a refrigerant		190 XLN	205 XLN	245 XLN	310 XLN	350 XLN
Net cooling capacity (1)	(kW)	719	759	878	1117	1245
EER (1)		3.61	3.60	3.53	3.52	3.54
ESEER (1)		5.62	5.46	5.38	5.59	5.51
Eurovent class		A	A	A	A	A
Sound power level (2)	(dBA)	92	92	92	94	94
Number of circuit(s)		2				
Number of compressors per circuit		3	3	3	4	4
<b>Dimensions and weights (operating)</b>						
Length	(mm)	11260	11260	11260	13510	13510
Width	(mm)	2200	2200	2200	2200	2200
Height	(mm)	2672	2672	2672	2672	2672
Weight (3)	(kg)	5840	5840	5840	7235	7235
Clearance A	(mm)	1000				
Clearance B	(mm)	1000				
Clearance C	(mm)	1000				
Clearance D	(mm)	1000				
<b>Electrical data</b>						
Maximum amps	(A)	764	764	764	1008	1008
Start-up amps	(A)	764	764	764	1008	1008

(1) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.

(2) At Eurovent conditions, with 1pW Reference Sound Power, according to ISO9614.

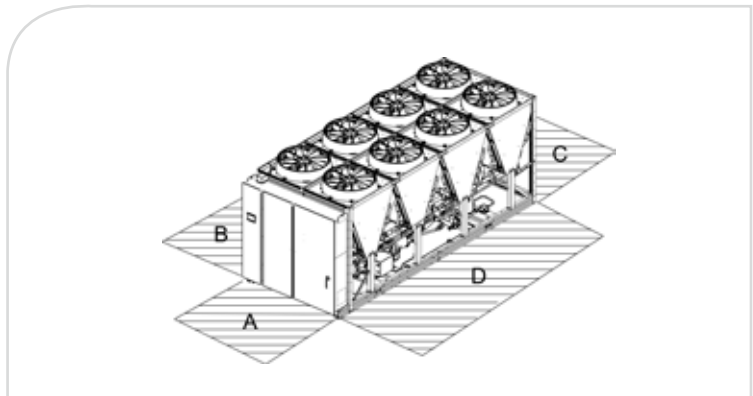
(3) Without options.

GVAF XPG - XLN Extra Low Noise R1234ze refrigerant		155 XLN	175 XLN	205 XLN	245 XLN	250 XLN	280 XLN	310 XLN	350 XLN	380 XLN	410 XLN	450 XLN
Net cooling capacity (1)	(kW)	453	536	578	642	693	756	878	961	999	1121	1243
EER (1)		4.08	3.97	3.81	3.50	4.08	4.04	3.77	3.46	3.97	3.78	3.52
ESEER (1)		5.41	5.36	5.54	5.50	5.90	5.88	5.74	5.51	5.88	5.66	5.39
Eurovent class		A	A	A	A	A	A	A	A	A	A	A
Sound power level (2)	(dBA)	88	89	90	91	90	91	92	93	92	93	94
Number of circuit(s)							2					
Number of compressors per circuit		2	2	2	2	3	3	3	3	4	4	4
<b>Dimensions and weights (operating)</b>												
Length	(mm)	7895	7895	7895	7895	11260	11260	11260	11260	13510	13510	13510
Width	(mm)	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200
Height	(mm)	2672	2672	2672	2672	2672	2672	2672	2672	2672	2672	2672
Weight (3)	(kg)	4274	4274	4274	4274	5840	5840	5840	5840	7235	7235	7235
Clearance A	(mm)							1000				
Clearance B	(mm)							1000				
Clearance C	(mm)							1000				
Clearance D	(mm)							1000				
<b>Electrical data</b>												
Maximum amps	(A)	382	382	382	382	566	566	566	566	744	744	744
Start-up amps	(A)	382	382	382	382	566	566	566	566	744	744	744

(1) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.

(2) At Eurovent conditions, with 1pW Reference Sound Power, according to ISO9614.

(3) Without options.





## CVGF

### Water-cooled centrifugal packaged chiller CenTraVac™



#### Customer benefits

Chiller providing excellent performance thanks to:

- Hermetic, multistage Trane centrifugal compressor offering both wide operating range and extended part load capability- minimum maintenance requirements- no extra ventilation required to cool compressor motor
- State of the art control to guarantee superior dependability: low cost of ownership

#### Main features

- Hermetic two-stage centrifugal compressor-motor assembly with integral lubrication system and economizer cycle
- Liquid cooled hermetic induction motor
- Advanced motor protection
- Hundreds of evaporator-condenser-compressor combinations available, permitting precise tailoring to system requirements
- Single power connection - reduce wiring costs
- Factory-mounted star-delta starter panel
- Prewired instrument and control panel

#### Options

- Solid-state starters
- Marine waterboxes (10.5 or 21 bar) evaporator and condenser
- Cold parts thermal insulation

#### Accessories

- Flanged adaptors
- Flow switch(es)

#### Tracer™ AdaptiView Control

- Touchscreen color display, allowing intuitive navigation through reports and graphs
- Adaptive Control™ logic
- LonTalk®, BACnet®, Modbus® communication interfaces (optional)

Condenser leaving water temperature (min./max.)	(°C)	15/50
Evaporator leaving water temperature range (min./max.)	(°C)	-2 / +16
Power supply	(V/Ph/Hz)	400/3/50

CVGF		400	500	650	800	1000
Minimum cooling capacity (1)	(kW)	1250	1300	2000	2000	2300
Maximum cooling capacity (1)	(kW)	2000	2000	2800	3450	3750
Minimum power input (1)	(kW)	219	239	351	346	392
Maximum power input (1)	(kW)	355	333	479	558	584
Minimum EER		5.71	5.44	5.62	5.78	5.87
Maximum EER		6.15	6.1	6.21	6.23	6.48
Number of refrigerant circuits		1				
Number of compressors / capacity steps		1				
Sound pressure level at 1 m (2)	(dB(A))	82	82	83	81	81
Length	(mm)	4720	4720	4810	4950	4950
Width	(mm)	1990	1990	2090	2310	2310
Height	(mm)	2100	2100	2270	2520	2520
<b>Electrical data</b>						
Maximum amps	(A)	604	604	855	964	1100
Start-up amps (3)	(A)	975	975	1343	1878	1878

(1) Evaporator 12/7°C and 0.0176m2K/kW, and condenser at 30/35°C and 0.044m2K/kW

(2) At full load and in accordance with ISO9614

(3) Inrush current in star connection





# CVHH – CDHH

## Water-cooled centrifugal packaged chillers Series E™ CenTraVac™ chiller



R1233zd(E) refrigerant

### Customer benefits

- Reliability
- Efficiency
- Low emissions

### Range description

- CVHH = three-stage (50 Hz) or two-stage (60 Hz) single compressor
  - 4500 to 7000 kW – 50 Hz
  - 3000 to 7000 kW – 60 Hz
- CDHH = three-stage (50 Hz) or two-stage (60 Hz) dual compressor
  - 9500 to 14000 kW – 50 Hz
  - 6300 to 14000 kW – 60 Hz

### Main features

- Next generation, low GWP refrigerant R1233zd(E)
- Direct drive multistage compressors
- Semi-hermetic compressor design
- Economizer
- Rapid restart after power failure

### Options

As with all CenTraVac™ chillers, selection options result in a unit built to your specifications. From energy saving options to the enhanced electrical package to a variety of low and medium voltage options, your Trane chiller is customized for you.

- Low voltage (<600V) options include unit and remote-mounted wye delta or solid state starters, or a unit-mounted Adaptive Frequency™ drive.
- Medium voltage (3.3-6.6kV or 10-11kV) options include unit and remote-mounted across-the-line, primary reactor or auto transformer starters, or a remote-mounted Adaptive Frequency™ Drive.

Energy-saving options include:

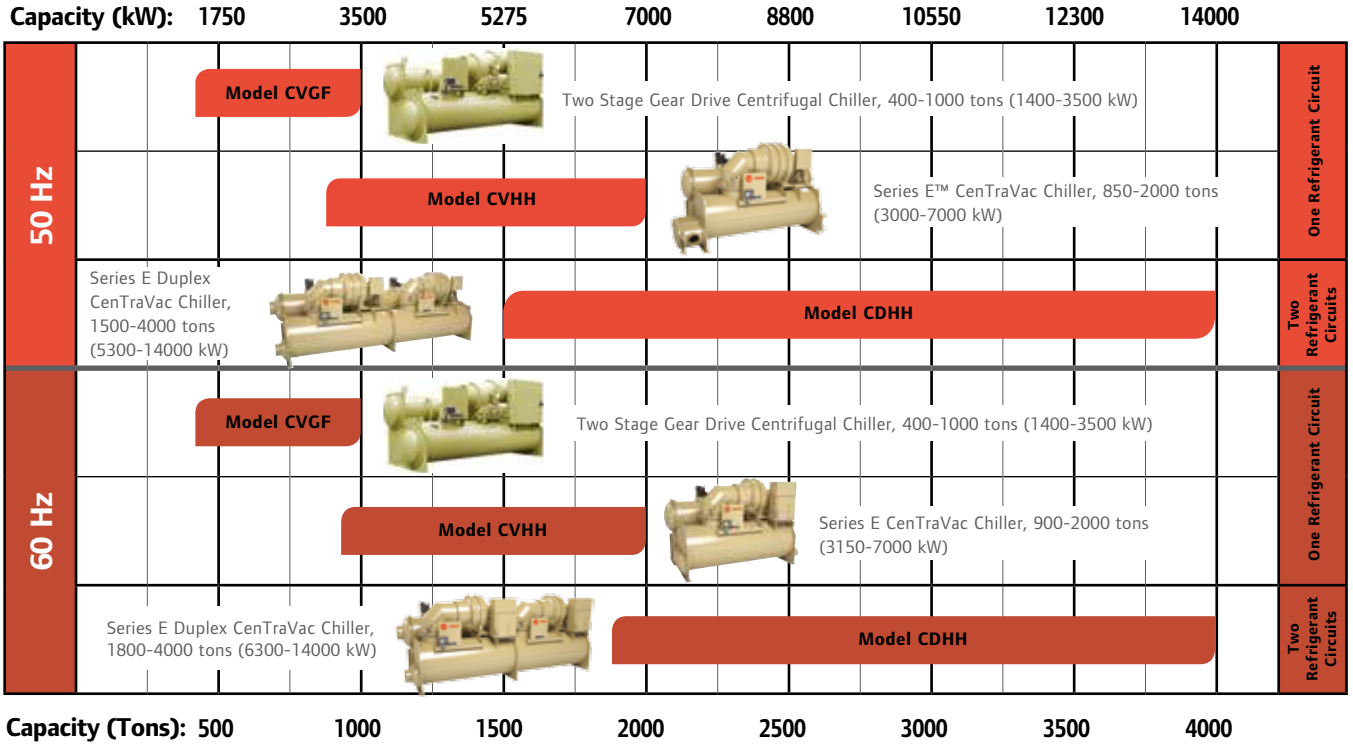
- Heat pump capabilities up to 60°C leaving condenser water
- Full heat recovery (full heat recovery double bundle heat exchanger)
- Auxiliary condenser (partial heat recovery)
- Thermal storage (down to -7.8°C)
- Free cooling

### Controls

- Tracer AdaptiView™ Controls
  - Providing the intelligence behind CenTraVac Chillers, Trane Adaptive Control™ strategies respond to a variety of conditions to maintain efficient chiller plant operation for all applications, with patented control algorithms that maximize performance in variable primary flow systems.
  - The open protocol design works with any building automation system without the need for gateways (BACnet®, Modbus RTU and LonTalk®)

# Trane Centrifugal Chiller Product Portfolio

Chillers



# Heat Rejection Systems



## Trane customized solutions

*To complete your chiller system, Trane proposes different types of heat rejection solutions. You clearly benefit – from the design phase to installation of your system – when you partner with a single-source supplier.*

### Air-cooled condensers

- Horizontal or V-type design
- To operate with Trane model CCUH, CCUN or RTUD condenserless chillers, either with R407C, R410A or R134a depending on the type
- Available with various fan-speed combinations to meet the most severe acoustical requirements
- Including different levels of unit mounted control options to optimize the performances of the entire system

### Dry coolers

- Horizontal or V-type design
- To operate with Trane model CGWH, CGWN, RTWD or RTHD chillers
- Available with various fan-speed combinations to meet the most severe acoustical requirements
- Including different levels of unit mounted control options to optimize the performances of the entire system

### Cooling towers

- Open or closed type
- With axial or centrifugal fans
- To operate with Trane model CGWH, CGWN, RTWD, RTHD, CVGF or CVHH/CDHH chillers
- Available with different levels of acoustic packages to meet the most severe acoustical environments

Contact your local Trane Sales Office to support you in the selection of the most appropriate solution for your application.



# Notes

A series of horizontal dotted lines for taking notes.



**TRANE®**



# Heat Pumps

*In response to the growing demand for energy saving systems, and to reassert our position as a key heating systems provider through the use of the most energy efficient technology available and the continuous design of sustainable solutions, Trane is proud to offer a full range of air-to-water and water-to-water heat pumps.*



# CXA

## Reversible air-to-water scroll heat pump



### Customer benefits

- Digital Defrost is a self-adaptive defrosting system able to intervene only in case of a consistent thickness formation of ice on the coils' fins
- Dynamic Logic Control manages the differential of the inlet water temperature on the basis of the speed of its variation. Thanks to the DLC the number of the compressor starts decreases ensuring economic and energy savings.
- Dynamic Set Point function allows changing the setpoint simultaneously to always achieve the best comfort conditions and maximum energy savings.

### Main features

- Scroll compressor
- Axial fans propeller type
- Airside heat exchanger with seamless copper tubes and aluminium fins
- Waterside heat exchanger steel brazed plate fitted with differential pressure switch and antifreeze protection electric heater
- Low ambient condensing pressure control with variable fan speed modulation
- Electrical panel with main switch
- Casing and panels in galvanized and painted steel

### Options

- Low ambient temperature kit (down to  $-10^{\circ}\text{C}$ ) in heating mode
- Low water temperature kit (down to  $-6^{\circ}\text{C}$ )
- Hydraulic module with water pump
- Hydraulic module with water pump and water tank (delivered separately)
- Compressors sound jackets
- Soft - starter
- Control panel electric heater with thermostat
- Phase failure protection relay
- Epoxy coated condensing coils

### Accessories

- Remote control panel
- Communication card RS485
- Flow switch
- Automatic water filling
- Water strainer
- Water gauges
- Rubber anti-vibration mounts

### Control

- Microprocessor-based controller to manage unit on/off mode, operating mode setting, parameters setting, and error code display

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.

		Cooling	Heating
Operating outdoor air temperature range (min./max.) (1)	(°C)	5 / +43	-5 (-10) / 20
Leaving water temperature range (min./max.)	(°C)	-6 (12) / 16	26 / 55
Power supply	(V/Ph/Hz)	400/3+n/50	

CXA		040	060	070	080	105	115
Cooling capacity (2)	(kW)	13.8	19.8	22.5	27.5	34.8	38.4
Total power input (2)	(kW)	4.9	7.1	8.6	9.8	12.1	14.0
EER (2)		2.85	2.78	2.63	2.81	2.88	2.75
ESEER (2)		3.26	3.09	2.95	3.11	3.22	3.03
Heating capacity (3)	(kW)	15.8	22.1	25.5	29.8	38.2	43.1
Total power input (3)	(kW)	5.2	7.3	8.4	9.9	12.6	14.1
COP		3.05	3.03	3.04	3.01	3.03	3.05
Sound power level (4)	(dB(A))	76	72	73	74	75	81
Sound pressure level (5)	(dB(A))	50	46	47	48	48	55
Number of circuit(s)		1	1	1	1	1	1
Number of compressors per circuit		1	1	1	1	1	1
<b>Weight and dimensions (operating)</b>							
Length	(mm)	1125	1465	1465	1671	1671	1671
Width	(mm)	440	560	560	560	560	560
Height	(mm)	1444	1448	1448	1687	1687	1687
Weight (6)	(kg)	179	257	266	310	313	323
<b>Electrical data</b>							
Maximum amps	(A)	10.2	24.6	27.6	34.2	40.2	41.2
Start-up amps	(A)	72.2	100.6	144.6	147.2	163.2	202.2

(1) In parentheses: With low ambient temperature option

(2) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.

(3) Outdoor temperature 7°C 90% R.H. - hot water temperature in/out 40/45°C

(4) At Eurovent conditions, with 1pW reference sound power, according to ISO9614

(5) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ .

This is an averaged value considering the unit as a paralelepipedic box with five exposed face areas.

(6) Excluding water tank



# Flex

## Reversible air-to-water modular scroll heat pump



### Customer benefits

- Ultimate flexibility: up to 12 units can be combined into one system in order to reach the required capacity

### Main features

- Scroll compressors
- Axial fans statically and dynamically balanced
- Airside heat exchanger high efficiency finned coils with seamless copper tubes expanded into corrugated aluminum
- Waterside plate heat exchanger with differential pressure switch and antifreeze protection electric heater
- Condensing and evaporating pressure control with variable fans speed modulation.
- Thermostatic expansion valve.
- Casing and panels in painted galvanized steel

### Options

- Partial or total heat recovery
- Low noise or super low noise versions
- Hydraulic kits
- Electronic expansion valve
- Power factor correction
- Low ambient temperature kit
- High pressure 100 Pa fans

### Accessories

- Remote display
- Communication card RS485
- Signal amplification card
- Flow switch
- Automatic water filling
- Water strainer
- Water gauges
- Rubber or spring anti-vibration mounts

### Controls

- Microprocessor-based controller to manage unit on/off mode, operating mode setting, parameters setting, and error code display

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.



		Cooling	Heating
Operating outdoor air temperature range (min./max)	(°C)	-20 / +43°C	-5 / 35°C
Leaving water temperature range (min./max)	(°C)	-6 / 15°C	26 / 55°C
Power supply	(V/Ph/Hz)	400/3/50	

Flex		140 Z	145 Z	150 Z	165 Z	170 Z	180 Z	190 Z	1105 Z	1120 Z
Heating capacity (1)		47.2	52.0	59.4	73.8	87.7	96.9	109	128	142
Total power input (1)		14.6	15.6	18.1	20.9	29.1	28.5	33.3	38.2	43.0
COP (1)		3.23	3.33	3.29	3.53	3.01	3.40	3.27	3.35	3.31
P <sub>rated</sub>	(kW)	38.7	42.5	48.5	60.1	72.3	79.7	89.4	105	117
SCOP	(kW/kW)	3.43	3.54	3.51	3.87	3.19	3.57	3.47	3.56	3.56
η <sub>s</sub>	(%)	134	139	137	152	125	140	136	140	139
Energy efficiency class		A++	A++	A++	A++	A++	A++	A++	A++	A++
Cooling capacity (2)	(kW)	38.4	43.8	47.5	65.0	72.6	82.9	89.4	105	117
Total power input (2)	(kW)	16.5	17.7	20.6	25.0	26.9	30.8	38.4	43.5	49.1
EER (2)		2.33	2.48	2.31	2.60	2.70	2.69	2.33	2.41	2.39
ESEER (2)		3.33	3.58	3.59	3.86	3.70	3.72	3.61	3.81	3.82
Eurovent class		E	E	E	D	C	D	E	E	E
Sound power level (3)	(dBA)	78	79	79	79	83	85	86	86	86
Sound pressure level (4)	(dBA)	46	47	48	47	51	53	54	54	54
Number of circuit(s)		1	1	1	1	1	1	1	1	1
Number of compressors per circuit		2	2	2	2	2	2	2	2	2
<b>Dimensions and weights (operating)</b>										
Length	(mm)	1460	1460	1460	1460	2558	2558	2558	2558	2558
Width	(mm)	1100	1100	1100	1100	1100	1100	1100	1100	1100
Height	(mm)	2025	2025	2025	2025	2090	2090	2090	2090	2090
Weight	(kg)	511	526	539	587	863	910	893	967	973
<b>Electrical data</b>										
Maximum amps	(A)	47	50	55	63	77	82	95	106	119
Start-up amps	(A)	123	167	172	180	238	214	259	304	317

Flex		1130 Z	1150 Z	1160 Z	1180 Z	1190 Z	1200 Z	1230 Z	1280 Z
Heating capacity (1)		158	176	189	215	234	244	280	354
Total power input (1)		46.3	54.2	57.9	65.0	71.7	73.4	86.4	109
COP (1)		3.40	3.25	3.27	3.30	3.27	3.32	3.24	3.24
P <sub>rated</sub>	(kW)	130	146	158	178	194	202	233	294
SCOP	(kW/kW)	3.65	3.47	3.48	3.51	3.55	3.51	3.50	3.48
η <sub>s</sub>	(%)	143	136	136	138	139	138	137	136
Energy efficiency class		A++	A++	A++	A++	A++	A++	A++	A++
Cooling capacity (2)	(kW)	132	150	160	176	189	202	230	286
Total power input (2)	(kW)	53.2	59.2	63.0	71.8	82.4	81.3	95.8	123
EER (2)		2.49	2.53	2.54	2.45	2.29	2.48	2.40	2.32
ESEER (2)		4.01	3.65	3.65	3.72	3.28	3.68	3.42	3.22
Eurovent class		E	D	D	E	E	E	E	E
Sound power level (3)	(dBA)	87	87	87	89	88	91	89	92
Sound pressure level (4)	(dBA)	55	55	55	57	56	59	57	60
Number of circuit(s)		1	1	1	1	1	1	1	1
Number of compressors per circuit		2	2	2	2	3	2	3	3
<b>Dimensions and weights (operating)</b>									
Length	(mm)	2558	3599	3599	3599	3599	2558	2558	3530
Width	(mm)	1100	1100	1100	1100	1100	2200	2200	2260
Height	(mm)	2090	2205	2205	2205	2205	2205	2205	2400
Weight	(kg)	1047	1341	1396	1416	1524	1632	1844	2454
<b>Electrical data</b>									
Maximum amps	(A)	136	150	167	178	195	192	249	288
Start-up amps	(A)	377	391	408	501	393	515	490	611

(1) Outdoor temperature 7°C 90% R.H. - hot water temperature in/out 40/45°C.

(2) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.

(3) At Eurovent conditions, with 1pW reference sound power, according to ISO9614.

(4) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ .

(5) Refer to product catalog for dimensions of units with hydraulic kits.



# CXAX

## Reversible air-to-water scroll heat pump



### Customer benefits

The best value chiller thanks to:

- Reversible operation: cooling or heating
- Low energy consumption: superior part load efficiency ESEER and SCOP
- Silent operation: discreet, even in the most sound sensitive applications
- Unique!: efficiency maintained when sound decreases
- Compact design: easier jobsite integration
- Reliability: main components designed and manufactured by Trane
- User friendly control interface and interoperability with building automation systems

### Main features

- Compact design: reduced footprint and low profile design
- High quality finish
- Heating all year round: down to  $-15^{\circ}\text{C}$  ambient and up to  $60^{\circ}\text{C}$  leaving water temperature
- One part load optimized efficiency level
- Two acoustic packages: SN, LN with no loss of efficiency
- Single and/or dual circuit offering

### Options

- Various integrated hydraulic modules: single/dual pump, low/high head pressure
- Buffer tank for reliable and smooth operation
- Low temperature process cooling ( $<4^{\circ}\text{C}$ )
- Low ambient operation ( $-10^{\circ}\text{C}$ )
- Epoxy condenser coating

### Accessories

- Elastomeric isolators

### Control

- Trane light commercial controller
- Standard 6 navigation button LCD display
- Optional deluxe display
  - Easy to read 7-inch color touchscreen display
  - Industry leading algorithms
  - Open protocol design
  - Adaptive control
- SmartCom interface: LonTalk®, Modbus®, BACnet® communication capabilities

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.

Heating operating outdoor air temperature range (min./max.)	(°C)	-15 / +20
Heating leaving water temperature range (min./max.)	(°C)	+20 / +60
Cooling operating outdoor air temperature range (min./max.) (1)	(°C)	-10 / +46
Cooling leaving water temperature range (min./max.) (2)	(°C)	-10 / 20
Power supply	(V/Ph/Hz)	400/3/50

<b>CXAX Standard and High Efficiency</b>		015	017	020	023	026	030	036	039	045	035	040	046	052	060
Net heating capacity (3)	(kW)	43	51	57	63	69	78	96	110	120	101	114	127	139	162
Total power input (3)	(kW)	14	16	19	21	23	25	30	35	39	32	37	42	46	52
COP SE & HE versions (3)		3.09	3.15	2.98	3.08	3.01	3.09	3.19	3.14	3.12	3.16	3.08	3.02	3.00	3.11
<b>Eurovent efficiency class - heating</b>		<b>B</b>	<b>B</b>	<b>C</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>
SCOP SE version		3.21	3.21	2.95	3.17	3.19	3.18	3.29	3.20	3.21	3.23	3.06	3.08	3.22	3.26
SCOP HE version		3.26	3.29	3.03	3.25	3.27	3.28	3.42	3.39	3.37	3.35	3.16	3.16	3.28	3.30
Net cooling capacity (4)	(kW)	42	48	56	65	72	79	94	108	118	97	114	127	146	162
Total power input (4)	(kW)	14	17	19	22	25	28	32	36	41	34	37	43	49	55
EER		2.90	2.83	2.91	2.97	2.84	2.84	2.90	3.00	2.88	2.81	3.06	2.96	2.95	2.93
<b>Eurovent Efficiency Class - cooling</b>		<b>B</b>	<b>C</b>	<b>B</b>	<b>B</b>	<b>C</b>	<b>C</b>	<b>B</b>	<b>B</b>	<b>C</b>	<b>C</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>
ESEER SE version		3.71	3.75	3.63	3.80	3.84	3.82	3.96	3.95	3.84	3.91	3.88	3.81	3.91	3.88
ESEER HE version		3.77	3.80	3.84	4.03	3.96	3.98	4.09	4.20	4.02	3.98	4.10	4.00	4.03	3.95
Sound power level (standard noise)	(dBA)	84	84	85	85	85	86	86	87	88	87	89	88	88	89
Sound pressure level (standard noise)	(dBA)	54	54	54	55	55	56	55	56	57	56	56	58	57	58
Sound power level (low noise)	(dBA)	78	78	78	80	81	80	81	81	82	81	81	83	83	84
Sound pressure level (low noise)	(dBA)	47	47	47	50	50	50	49	50	51	50	50	52	52	53
Number of circuit(s)		1	1	1	1	1	1	1	1	1	2	2	2	2	2
Number of compressors per circuit		2	2	2	2	2	2	3	3	3	2	2	2	2	2
<b>Dimensions and weights (operating)</b>															
Length	(mm)	2346	2346	2346	2346	2346	2346	2327	2327	2327	2327	2327	2327	2327	2327
Width	(mm)	1285	1285	1285	1285	1285	1285	2250	2250	2250	2250	2250	2250	2250	2250
Height (standard noise)	(mm)	1524	1524	1524	1524	1524	1724	1524	1524	1524	1524	1524	1524	1524	1724
Height (low noise)	(mm)	1747	1747	1747	1747	1747	1947	1747	1747	1747	1747	1747	1747	1747	1947
Weight	(kg)	539	545	582	624	630	665	881	925	942	974	998	1072	1093	1163
<b>Electrical data</b>															
Maximum amps	(A)	34	38	45	50	56	64	74	83	96	77	90	101	111	128
Start-up amps	(A)	116	160	167	183	188	189	198	216	221	198	212	233	243	253

(1) With low ambient temperature option

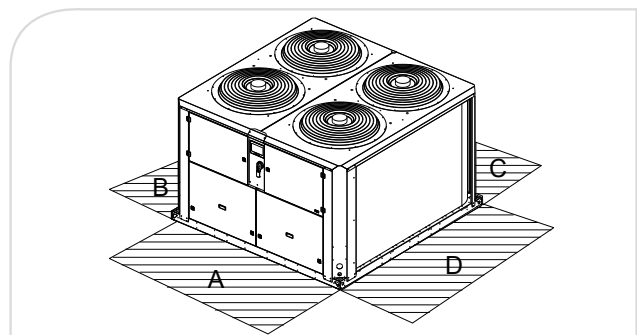
(2) With process cooling option

(3) At Eurovent conditions: 40/45°C entering/leaving water temperature and DB/WB 7°C/6°C ambient temperature according to EN 14511-2013.

(4) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.

(5) At Eurovent conditions, with 1pW reference sound power, according to ISO9614

(6) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepiped box with five exposed face areas.





# CXCM

## Indoor air-cooled scroll heat pump



### Customer benefits

- Compact dimensions allow for flexible installations in both new and existing buildings
- Maintenance operations are easy thanks to the location of the components
- Excellent acoustic comfort levels
- Digital Defrost is a self-adaptive defrosting system able to intervene only in case of a consistent thickness formation of ice on the coils' fins
- Dynamic Logic Control manages the differential of the inlet water temperature on the basis of the speed of its variation. Thanks to the DLC the number of the compressor starts decreases ensuring economic and energy savings.
- Dynamic Set Point function allows changing the setpoint simultaneously to always achieve the conditions of best comfort and maximum energy savings.

### Main features

- Hermetic scroll compressors, low vibration and low sound level
- High efficiency plug fan for indoor installation with ducted air intake and discharge. Optional EC plug fan for increased external static pressure up to 400 Pa.
- Water side plate heat exchanger with differential pressure switch and antifreeze protection electric heater
- Air side heat exchanger high efficiency finned coils with seamless copper tubes expanded into corrugated aluminum
- Thermostatic expansion valve
- Casing and panels in galvanized and painted steel
- Horizontal or vertical air flow

### Options

- Compressors sound jackets
- Soft - starter
- Serial communication card RS 485
- Electronic expansion valve
- Power factor correction to  $\cos\phi = 0.91$
- Automatic circuit breakers
- Numbered wires
- Over/under voltage + phase failure protection relay
- Electronically Commutated (EC) fans for improved capacity modulation and energy savings
- Epoxy coated condensing coils
- Pre-painted condensing coils
- Copper/copper condensing coils
- Tinned copper condensing coils
- Condensing control with variable fan speed modulation with inverter for operation down to  $+10^{\circ}\text{C}$  outdoor air temperature

### Accessories

- Remote display
- Flow switch
- Automatic water filling
- Water strainer
- Water or gas gauges
- Rubber or spring anti-vibration mounts

### Control

- Microprocessor-based controller to manage unit on/off mode, operating mode setting and parameters setting

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.

		Cooling	Heating
Operating outdoor air temperature range (min./max.) (1)	(°C)	22 / 45	-5 / 20
Leaving water temperature range (min./max.)	(°C)	-6 / 15	26 / 55
Power supply	(V/Ph/Hz)	400/3+n/50	

CXCM		015	020	025	030	035	037	048	050	060	075	080
Cooling capacity (2)	(kW)	53.8	67.1	84.5	97.4	123.0	132.0	172.0	177.0	215.0	270.0	291.0
Total power input (2)	(kW)	21.8	27.2	36.1	39.7	49.9	56.5	67.1	75.8	94.9	110.0	116.0
EER (2)		2.47	2.46	2.34	2.45	2.46	2.34	2.56	2.33	2.26	2.44	2.52
ESEER (2)		3.42	3.85	3.13	3.37	3.66	3.12	3.58	3.01	2.87	3.21	3.42
Heating capacity	(kW)	62.0	79.1	99.6	112.0	143.0	155.0	198.0	204.0	252.0	308.0	327.0
Total power input (2)	(kW)	21.60	27.40	35.60	38.50	48.20	54.6	68.00	73.9	93.3	107.0	114.0
COP		2.87	2.89	2.79	2.90	2.96	2.84	2.91	2.8	2.7	2.9	2.9
Prated, heating	(kW)	59	75	94.6	106.5	135.9	148.3	189.6	194.9	242.7	294.9	313.9
$\eta_s$	(%)	115	117	115	117	119	115	117	121	117	121	121
SCOP	(kW/kW)	2.95	2.99	2.95	3.00	3.05	2.95	3.00	3.09	3.01	3.11	3.09
Sound power level (3)	(dB(A))	88	88	91	92	92	93	93	94	94	94	94
Sound pressure level (4)	(dB(A))	56	56	59	61	61	61	61	62	62	62	62
Number of circuit(s)		1	1	1	1	1	1	1	1	1	2	2
Number of compressors per circuit		2	2	2	2	2	2	2	3	3	4	4
<b>Dimensions and weights (operating)</b>												
Length	(mm)	1605	1605	2350	2350	2350	3346	3346	4456	5456	5456	5456
Width	(mm)	926	926	1106	1106	1106	1303	1306	1306	1306	1306	1306
Height	(mm)	1990	1990	2095	2095	2095	2095	2095	2145	2145	2145	2145
Weight	(kg)	877	879	1081	1183	1408	1665	1922	2214	2596	2934	2980

(1) Operation down to +10°C possible, see options

(2) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.

(3) At Eurovent conditions, with 1pW reference sound power, according to ISO9614

(4) Average at 10 meters in a free field. This is a non-contractual data, calculated from the above certified sound power level according to the formula  $L_p = L_w - 10 \log S$ . This is an averaged value considering the unit as a parallelepiped box with five exposed face areas.



# CXAM

## Reversible air-to-water scroll heat pump



### Customer benefits

- Life cycle effectiveness
- Efficiency and sound level without compromise
- All year round operation
- Extreme reliability and durability
- Wide application flexibility for comfort and process applications to fit the exact requirements
- Ease of installation and serviceability

### Main features

- 2 efficiency levels: high or standard
- 3 acoustic versions: standard, low noise or comprehensive acoustic package treatment
- High efficiency scroll compressors
- Hot water leaving temperature up to +55°C
- Patented refrigerant circuit
- Trane design low sound level fans mounted on hinges
- Electronic expansion valve
- Brazed plates heat exchangers
- Powder coated components
- Disconnect switch/transformer
- Water strainer and flow switch

### Options

- Integrated hydraulic module with or without buffer tank
- Single or double pump package
- Variable frequency drive for pump flow rate adjustment
- Freeze protection control
- Black epoxy condenser coil coating
- Architectural louvered panels, access guards

### Accessories

- Neoprene isolators
- Grooved pipe connection kit

### Tracer™ CH530 Control

Adaptive Control™ microprocessor featuring:

- Easy-to-use operator interface panel
- Smart defrost management
- External auto/stop
- External interlock
- Chilled water pump control
- Ice-making card (optional)
- Chilled water and current-limit remote setpoint card (optional)
- LonTalk®, Modbus®, BACnet® communication capabilities

### Energy saving options

- Partial heat recovery (desuperheater)

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.

Heating mode operating outdoor air temperature range (min./max.)	(°C)	-10/+20
Heating mode leaving water temperature range (min./max.)	(°C)	+20/+55
Cooling operating outdoor air temperature range (min./max.) (1)	(°C)	-10/+46
Cooling leaving water temperature range (min./max.) (2)	(°C)	-10/+20
Power supply	(V/Ph/Hz)	400/3/50

<b>CXAM SE Compact</b>		<b>020</b>	<b>023</b>	<b>026</b>	<b>030</b>	<b>035</b>	<b>039</b>	<b>045</b>	<b>050</b>	<b>040</b>	<b>046</b>	<b>052</b>
Net heating capacity (4)	(kW)	3.3	3.2	3.4	3.6	3.5	3.6	3.6	3.5	3.3	3.4	3.6
Total power input in heating net (4)	(kW)	1.2	1.2	1.2	1.3	1.2	1.3	1.3	1.3	1.2	1.2	1.2
COP net (4)		2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.7	2.8	2.9	2.9
Eurovent class		<b>D</b>	<b>D</b>	<b>C</b>	<b>D</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>D</b>	<b>C</b>	<b>C</b>	<b>C</b>
Net cooling capacity (4)	(kW)	55.2	60.7	68.7	76.9	94.0	109.1	120.3	129.7	111.2	125.3	142.8
Total power input net (4)	(kW)	19.8	22.6	24.7	28.7	33.5	38.8	44.4	50.5	39.6	45.1	49.6
EER net (4)		2.8	2.7	2.8	2.7	2.8	2.8	2.7	2.6	2.8	2.8	2.9
Eurovent class		<b>C</b>	<b>D</b>	<b>C</b>	<b>D</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>D</b>	<b>C</b>	<b>C</b>	<b>C</b>
ESEER net (4)		3.3	3.2	3.4	3.6	3.5	3.6	3.6	3.5	3.3	3.4	3.6
Number of refrigerant circuits		1	1	1	1	1	1	1	1	2	2	2
Number of compressors		2	2	2	2	2	2	2	2	4	4	4
Sound power level (6)	(dBA)	89	88	88	89	91	91	91	91	92	92	92
Sound pressure level (7)	(dBA)	57	57	57	57	59	59	59	59	60	59	59

#### Dimensions and weight (operating)

Length	(mm)	2908	2908	2908	2908	3822	3822	3822	3822	2905	2905	2905
Width	(mm)	1301	1301	1301	1301	1301	1301	1301	1301	2266	2266	2266
Height	(mm)	2153	2153	2153	2153	2153	2153	2153	2153	2150	2150	2150
Weight (5)	(kg)	917	921	946	1042	1272	1283	1342	1389	1665	1697	1746
Clearance A	(mm)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Clearance B	(mm)	600	600	600	600	600	600	600	600	1000	1000	1000
Clearance C	(mm)	800	800	800	800	800	800	800	800	800	800	800
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

#### Electrical data

Maximum amps	(A)	170.2	186.2	191.2	206.8	255.2	266.2	311.2	322.7	217.7	238.7	248.7
Start-up amps	(A)	48.3	53.3	58.3	65.5	79.9	90.9	102.4	113.9	95.8	105.8	115.8

<b>CXAM SE Compact</b>		<b>060</b>	<b>070</b>	<b>080</b>	<b>090</b>	<b>100</b>	<b>110</b>	<b>120</b>	<b>140</b>	<b>150</b>	<b>160</b>	<b>170</b>
Net heating capacity (4)	(kW)	165.0	193.0	219.6	241.6	279.6	297.0	313.5	359.4	374.8	422.6	438.5
Total power input in heating net (4)	(kW)	58.1	69.4	78.4	86.6	99.9	106.4	112.4	136.1	144.2	157.1	164.8
COP net (4)		2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.6	2.6	2.7	2.7
Eurovent class		<b>C</b>	<b>D</b>	<b>C</b>	<b>D</b>	<b>C</b>	<b>D</b>	<b>D</b>	<b>D</b>	<b>D</b>	<b>D</b>	<b>D</b>
Net cooling capacity (4)	(kW)	160.3	190.5	222.5	246.3	280.3	299.1	323.1	379.9	404.2	442.1	460.9
Total power input net (4)	(kW)	57.5	68.5	77.5	88.9	100.8	110.8	121.4	147.8	160.4	166.2	176.6
EER net (4)		2.8	2.8	2.9	2.8	2.8	2.7	2.7	2.6	2.5	2.7	2.6
Eurovent class		<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>D</b>	<b>D</b>	<b>D</b>	<b>D</b>	<b>D</b>
ESEER net (4)		3.8	3.5	3.8	3.8	3.6	3.6	3.7	3.6	3.6	3.6	3.6
Number of refrigerant circuits		2	2	2	2	2	2	2	2	2	2	2
Number of compressors		4	4	4	4	4	4	4	6	6	6	6
Sound power level (6)	(dBA)	92	94	94	94	93	93	94	95	95	96	96
Sound pressure level (7)	(dBA)	60	62	62	62	61	61	61	63	63	63	63

#### Dimensions and weight (operating)

Length	(mm)	2905	3819	3819	3819	4230	4230	4230	5145	5145	6062	6062
Width	(mm)	2266	2266	2266	2266	2273	2273	2273	2273	2273	2273	2273
Height	(mm)	2150	2150	2150	2150	2344	2344	2344	2344	2344	2344	2344
Weight	(kg)	1928	2196	2247	2358	2808	2808	2835	3500	3618	4005	4005
Clearance A	(mm)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Clearance B/D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	800	800	800	800	1000	1000	1000	1000	1000	1000	1000

#### Electrical data

Maximum amps	(A)	271.5	334.3	356.9	413.4	443.1	509.8	523.2	529.4	552.3	625.8	639.2
Start-up amps	(A)	130.2	159.1	181.7	204.6	234.3	247.7	261.1	320.6	343.5	363.7	377.1

(1) With low ambient option

(2) With process cooling options

(3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient air temperature

(4) At Eurovent conditions: 40/45°C entering/leaving water temperature and DB/WB 7°C/6°C ambient temperature according to EN 14511-2013.

(5) At Eurovent conditions: 40/45°C entering/leaving water temperature and 35°C ambient air temperature

(6) At Eurovent conditions, with 1pW reference sound power, according to ISO9614

(7) At 10 m in free field, calculated from the above sound power level according to the formula  $L_p = L_w - 10 \log S$

Heating mode operating outdoor air temperature range (min./max.)	(°C)	-10/+20
Heating mode leaving water temperature range (min./max.)	(°C)	+20/+55
Cooling operating outdoor air temperature range (min./max.) (1)	(°C)	-10/+46
Cooling leaving water temperature range (min./max.) (2)	(°C)	-10/+20
Power supply	(V/Ph/Hz)	400/3/50

CXAM SE Super quiet		020	023	026	030	035	039	045	050	040	046	052
Net heating capacity (4)	(kW)	57.7	64.0	72.5	80.5	96.7	107.2	117.1	125.7	112.9	129.6	147.0
Total power input in heating net (4)	(kW)	19.4	21.9	24.8	28.1	33.4	37.2	41.5	45.1	40.3	43.2	48.5
COP net (4)		3.0	2.9	2.9	2.9	2.9	2.9	2.8	2.8	2.8	3.0	3.0
Eurovent class		C	C	C	C	C	C	C	D	C	B	B
Net cooling capacity (4)	(kW)	54.1	59.7	67.6	75.5	92.6	107.0	117.8	126.5	109.1	122.4	140.5
Total power input net (4)	(kW)	19.3	22.4	24.4	28.7	32.7	38.6	44.8	51.2	38.5	44.7	49.1
EER net (4)		2.8	2.7	2.8	2.6	2.8	2.8	2.6	2.5	2.8	2.7	2.9
Eurovent class		C	D	C	D	C	C	D	E	C	C	C
ESEER net (4)		3.5	3.4	3.6	3.6	3.7	3.7	3.7	3.6	3.5	3.5	3.7
Number of refrigerant circuits		1	1	1	1	1	1	1	1	2	2	2
Number of compressors		2	2	2	2	2	2	2	2	4	4	4
Sound power level (6)	(dBA)	85	85	85	85	87	88	88	88	88	88	88
Sound pressure level (7)	(dBA)	53	53	53	53	55	56	56	56	56	56	56
<b>Dimensions and weight (operating)</b>												
Length	(mm)	2908	2908	2908	2908	3822	3822	3822	3822	2905	2905	2905
Width	(mm)	1301	1301	1301	1301	1301	1301	1301	1301	2266	2266	2266
Height	(mm)	2153	2153	2153	2153	2153	2153	2153	2153	2150	2150	2150
Weight (5)	(kg)	917	921	946	1042	1272	1283	1342	1389	1665	1697	1746
Clearance A	(mm)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Clearance B	(mm)	600	600	600	600	600	600	600	600	1000	1000	1000
Clearance C	(mm)	800	800	800	800	800	800	800	800	800	800	800
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
<b>Electrical data</b>												
Maximum amps	(A)	172.0	188.0	193.0	08.6	257.9	268.9	313.9	325.4	221.3	242.3	252.3
Start-up amps	(A)	48.3	53.3	58.3	65.5	79.9	90.9	102.4	113.9	95.8	105.8	115.8
<b>CXAM SE Super quiet</b>												
		060	070	080	090	100	110	120	140	150	160	170
Net heating capacity (4)	(kW)	162.6	188.8	216.0	236.9	274.4	291.3	308.0	350.1	366.4	411.6	428.0
Total power input in heating net (4)	(kW)	55.5	65.6	74.0	83.1	94.9	102.2	108.8	130.1	138.3	149.7	157.9
COP net (4)		2.9	2.9	2.9	2.9	2.9	2.9	2.8	2.7	2.7	2.8	2.7
Eurovent class		C	C	C	C	C	C	C	D	D	D	D
Net cooling capacity (4)	(kW)	157.2	186.0	218.6	240.6	274.3	292.1	313.2	372.4	394.0	433.3	450.6
Total power input net (4)	(kW)	57.6	67.9	77.2	89.5	101.2	111.5	123.3	150.2	164.2	167.9	179.5
EER net (4)		2.7	2.7	2.8	2.7	2.7	2.6	2.5	2.5	2.4	2.6	2.5
Eurovent class		C	C	C	D	C	D	D	E	E	D	D
ESEER net (4)		3.8	3.7	3.9	3.9	3.7	3.6	3.7	3.7	3.6	3.6	3.5
Number of refrigerant circuits		2	2	2	2	2	2	2	2	2	2	2
Number of compressors		4	4	4	4	4	4	4	6	6	6	6
Sound power level (6)	(dBA)	88	90	91	91	89	90	91	91	92	93	93
Sound pressure level (7)	(dBA)	56	58	59	59	57	58	59	59	59	60	60
<b>Dimensions and weight (operating)</b>												
Length	(mm)	2905	3819	3819	3819	4230	4230	4230	5145	5145	6062	6062
Width	(mm)	2266	2266	2266	2266	2273	2273	2273	2273	2273	2273	2273
Height	(mm)	2150	2150	2150	2150	2344	2344	2344	2344	2344	2344	2344
Weight	(kg)	1928	2196	2247	2358	2808	2808	2925	3500	3618	4005	4005
Clearance A	(mm)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Clearance B/D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	800	800	800	800	1000	1000	1000	1000	1000	1000	1000
<b>Electrical data</b>												
Maximum amps	(A)	275.1	339.7	362.3	418.8	450.3	517.0	530.4	538.4	561.3	636.6	650.0
Start-up amps	(A)	130.2	159.1	181.7	204.6	217.6	231.0	247.1	302.5	325.4	338.8	-

(1) With low ambient option

(2) With process cooling options

(3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient air temperature

(4) At Eurovent conditions: 40/45°C entering/leaving water temperature and DB/WB 7°C/6°C ambient temperature according to EN 14511-2013.

(5) At Eurovent conditions: 40/45°C entering/leaving water temperature and 35°C ambient air temperature

(6) At Eurovent conditions, with 1pW reference sound power, according to ISO9614

(7) At 10 m in free field, calculated from the above sound power level according to the formula  $L_p = L_w - 10 \log S$



Heating mode operating outdoor air temperature range (min./max.)	(°C)	-10/+20
Heating mode leaving water temperature range (min./max.)	(°C)	+20/+55
Cooling operating outdoor air temperature range (min./max.) (1)	(°C)	-10/+46
Cooling leaving water temperature range (min./max.) (2)	(°C)	-10/+20
Power supply	(V/Ph/Hz)	400/3/50

CXAM SE Comprehensive Acoustic Package		020	023	026	030	035	039	040	046	052	060
Net heating capacity (4)	(kW)	56.9	64.5	70.8	80.2	94.6	104.7	111.4	127.5	142.9	161.8
Total power input in heating net (4)	(kW)	17.9	20.3	22.4	26.9	30.9	34.8	35.3	40.0	44.8	53.6
COP net (4)		3.2	3.2	3.2	3.0	3.1	3.0	3.2	3.2	3.2	3.0
Eurovent class		<b>B</b>	<b>B</b>	<b>B</b>	<b>C</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>
Net cooling capacity (4)	(kW)	52.7	58.6	68.2	75.4	89.1	101.7	105.9	118.3	133.6	153.7
Total power input net (4)	(kW)	18.8	21.5	25.4	28.6	33.1	40.1	37.6	44.5	50.6	56.9
EER net (4)		2.8	2.7	2.7	2.6	2.7	2.5	2.8	2.7	2.6	2.7
Eurovent class		<b>C</b>	<b>C</b>	<b>D</b>	<b>D</b>	<b>D</b>	<b>D</b>	<b>C</b>	<b>D</b>	<b>D</b>	<b>C</b>
ESEER net (4)		3.9	3.9	4.1	3.9	4.1	4.0	4.0	4.0	4.1	4.1
Number of refrigerant circuits		1	1	1	1	1	1	2	2	2	2
Number of compressors		2	2	2	2	2	2	4	4	4	4
Sound power level (6)	(dBA)	78	78	78	80	82	83	81	81	81	83
Sound pressure level (7)	(dBA)	46	46	46	48	49	51	49	49	49	51
<b>Dimensions and weight (operating)</b>											
Length	(mm)	2908	2908	3822	3822	3822	3822	2905	2905	2905	3819
Width	(mm)	1301	1301	1301	1301	1301	1301	2266	2266	2266	2266
Height	(mm)	2153	2153	2153	2153	2153	2153	2150	2150	2150	2150
Weight (5)	(kg)	951	976	992	1267	1317	1328	1733	1765	1814	2221
Clearance A	(mm)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Clearance B	(mm)	600	600	600	600	600	600	1000	1000	1000	1000
Clearance C	(mm)	800	800	800	800	800	800	800	800	800	800
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
<b>Electrical data</b>											
Maximum amps	(A)	166.1	182.1	187.1	204.0	249.0	260.0	209.5	230.5	240.5	266.0
Start-up amps	(A)	44.2	49.2	54.2	62.7	73.7	84.8	87.6	97.6	107.6	124.7

CXAM SE Comprehensive Acoustic Package		070	080	090	100	110	120	140	150	160
Net heating capacity (4)	(kW)	186.0	210.7	247.6	297.3	267.3	319.4	354.1	384.2	400.1
Total power input in heating net (4)	(kW)	61.2	69.1	79.3	97.5	87.6	104.4	122.9	131.6	139.4
COP net (4)		3.0	3.1	3.1	3.1	3.1	3.1	2.9	2.9	2.9
Eurovent class		<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>C</b>	<b>C</b>	<b>C</b>
Net cooling capacity (4)	(kW)	179.3	206.7	235.4	290.7	259.3	307.1	366.1	395.4	410.0
Total power input net (4)	(kW)	67.9	80.1	88.5	107.7	102.9	119.0	147.6	162.0	176.7
EER net (4)		2.6	2.6	2.7	2.7	2.5	2.6	2.5	2.4	2.3
Eurovent class		<b>D</b>	<b>D</b>	<b>D</b>	<b>C</b>	<b>D</b>	<b>D</b>	<b>E</b>	<b>E</b>	<b>E</b>
ESEER net (4)		4.2	4.2	4.2	4.1	4.0	4.0	4.1	4.1	4.0
Number of refrigerant circuits		2	2	2	2	2	2	2	2	2
Number of compressors		4	4	4	4	4	4	6	6	6
Sound power level (6)	(dBA)	84	86	83	84	85	86	85	85	86
Sound pressure level (7)	(dBA)	52	53	51	51	52	54	53	53	54
<b>Dimensions and weight (operating)</b>										
Length	(mm)	3819	3819	4230	4230	5145	5145	6062	6062	6062
Width	(mm)	2266	2266	2273	2273	2273	2273	2273	2273	2273
Height	(mm)	2150	2150	2344	2344	2344	2344	2344	2344	2344
Weight	(kg)	2286	2337	2884	3012	3266	3356	4034	4159	4159
Clearance A	(mm)	1200	1200	1200	1200	1200	1200	1200	1200	1200
Clearance B/D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	800	800	1000	1000	1000	1000	1000	1000	1000
<b>Electrical data</b>										
Maximum amps	(A)	322.0	344.6	403.8	426.7	496.1	509.5	511.6	534.5	601.2
Start-up amps	(A)	146.8	169.4	195.0	217.9	234.0	247.4	325.7	339.1	-

(1) With low ambient option

(2) With process cooling options

(3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient air temperature

(4) At Eurovent conditions: 40/45°C entering/leaving water temperature and DB/WB 7°C/6°C ambient temperature according to EN 14511-2013.

(5) At Eurovent conditions: 40/45°C entering/leaving water temperature and 35°C ambient air temperature

(6) At Eurovent conditions, with 1pW reference sound power, according to ISO9614

(7) At 10 m in free field, calculated from the above sound power level according to the formula  $L_p = L_w - 10 \log S$

Operating outdoor air temperature range (min./max.) (1)	(°C)	-10/+46
Leaving water temperature range (min./max.) (2)	(°C)	-10/+20
Heating mode operating outdoor air temperature range (min./max.)	(°C)	-10/+20
Heating mode leaving water temperature range (min./max.)	(°C)	+20/+55
Power supply	(V/Ph/Hz)	400/3/50

CXAM HE Compact		020	023	026	030	035	040	046	052
Net heating capacity (4)	(kW)	59.5	66.1	75.7	85.7	96.9	120.3	134.1	152.3
Total power input in heating net (4)	(kW)	18.6	20.9	24.6	28.5	32.2	37.3	42.2	49.6
COP net (4)		3.2	3.2	3.1	3.0	3.0	3.2	3.2	3.1
Eurovent class		<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>A</b>	<b>B</b>	<b>B</b>
Net cooling capacity (4)	(kW)	57.8	64.0	74.9	80.0	93.7	112.0	125.2	148.5
Total power input net (4)	(kW)	18.5	21.1	24.0	27.2	32.2	36.6	42.0	47.9
EER net (4)		3.1	3.0	3.1	2.9	2.9	3.1	3.0	3.1
Eurovent class		<b>A</b>	<b>B</b>	<b>A</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>A</b>
ESEER net (4)		3.9	3.9	3.9	3.8	4.0	3.9	3.9	3.8
Number of refrigerant circuits		1	1	1	1	1	2	2	2
Number of compressors		2	2	2	2	2	4	4	4
Sound power level (6)	(dBA)	86	86	87	87	88	89	89	90
Sound pressure level (7)	(dBA)	54	54	55	55	56	57	57	58
<b>Dimensions and weight (operating)</b>									
Length	(mm)	2908	2908	3822	3822	3822	2905	2905	3819
Width	(mm)	1301	1301	1301	1301	1301	2266	2266	2266
Height	(mm)	2153	2153	2153	2153	2153	2150	2150	2150
Weight (5)	(kg)	950	954	1161	1263	1283	1730	1738	1992
Clearance A	(mm)	1200	1200	1200	1200	1200	1200	1200	1200
Clearance B	(mm)	600	600	600	600	600	1000	1000	1000
Clearance C	(mm)	800	800	800	800	800	800	800	800
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
<b>Electrical data</b>									
Maximum amps	(A)	45.7	50.7	57.8	65.0	76.0	90.6	100.6	114.8
Start-up amps	(A)	167.6	183.6	190.7	206.3	251.3	212.5	233.5	247.7

CXAM HE Compact		060	070	080	090	100	110	120	140	150
Net heating capacity (4)	(kW)	172.6	180.0	230.3	251.2	284.5	297.2	318.0	363.5	400.5
Total power input in heating net (4)	(kW)	56.6	59.4	74.1	82.6	93.6	99.7	109.3	129.4	140.0
COP net (4)		3.1	3.0	3.1	3.0	3.0	3.0	2.9	2.8	2.9
Eurovent class		<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>
Net cooling capacity (4)	(kW)	162.8	192.4	230.0	256.0	292.8	309.8	331.1	377.6	400.6
Total power input net (4)	(kW)	54.1	64.4	71.4	82.8	94.4	103.9	114.6	134.4	146.2
EER net (4)		3.0	3.0	3.2	3.1	3.1	3.0	2.9	2.8	2.7
Eurovent class		<b>B</b>	<b>B</b>	<b>A</b>	<b>B</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>C</b>	<b>C</b>
ESEER net (4)		3.9	4.1	4.3	4.3	4.1	4.0	4.1	4.1	4.0
Number of refrigerant circuits		2	2	2	2	2	2	2	2	2
Number of compressors		4	4	4	4	4	4	4	6	6
Sound power level (6)	(dBA)	91	91	92	92	92	93	93	94	94
Sound pressure level (7)	(dBA)	58	59	59	60	60	60	61	61	61
<b>Dimensions and weight (operating)</b>										
Length	(mm)	3819	3819	4230	4230	5145	5145	5145	6062	6062
Width	(mm)	2266	2266	2273	2273	2273	2273	2273	2273	2273
Height	(mm)	2150	2150	2344	2344	2344	2344	2344	2344	2344
Weight	(kg)	2213	2264	2710	2838	3300	3276	3286	3911	4005
Clearance A	(mm)	1200	1200	1200	1200	1200	1200	1200	1200	1200
Clearance B/D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	800	800	1000	1000	1000	1000	1000	1000	1000
<b>Electrical data</b>										
Maximum amps	(A)	129.2	151.3	178.1	201.0	228.1	241.5	254.9	311.8	334.7
Start-up amps	(A)	270.5	326.5	353.3	409.8	436.9	503.6	517.0	520.6	543.5

(1) With low ambient option

(2) With process cooling options

(3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient air temperature

(4) At Eurovent conditions: 40/45°C entering/leaving water temperature and DB/WB 7°C/6°C ambient temperature according to EN 14511-2013.

(5) At Eurovent conditions: 40/45°C entering/leaving water temperature and 35°C ambient air temperature

(6) At Eurovent conditions, with 1pW reference sound power, according to ISO9614

(7) At 10 m in free field, calculated from the above sound power level according to the formula  $L_p = L_w - 10 \log_5$

Operating outdoor air temperature range (min./max.) (1)	(°C)	-10/+46
Leaving water temperature range (min./max.) (2)	(°C)	-10/+20
Heating mode operating outdoor air temperature range (min./max.)	(°C)	-10/+20
Heating mode leaving water temperature range (min./max.)	(°C)	+20/+55
Power supply	(V/Ph/Hz)	400/3/50

CXAM HE Super Quiet		020	023	026	030	035	040	046	052
Net heating capacity (4)	(kW)	57.4	63.7	74.5	79.6	93.4	111.6	124.9	147.4
Total power input in heating net (4)	(kW)	18.5	21.2	24.2	27.4	32.4	36.7	42.3	48.2
COP net (4)		3.1	3.0	3.1	2.9	2.9	3.0	3.0	3.1
Eurovent class		<b>A</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>C</b>	<b>B</b>	<b>B</b>	<b>B</b>
Net cooling capacity (4)		4.0	4.0	3.9	3.9	4.0	3.9	3.9	4.0
Total power input net (4)	(kW)	59.2	65.8	74.9	85.2	96.2	119.9	133.3	151.0
EER net (4)	(kW)	18.4	20.8	24.2	28.3	31.9	37.0	41.8	48.9
Eurovent class		<b>3.2</b>	<b>3.2</b>	<b>3.1</b>	<b>3.0</b>	<b>3.0</b>	<b>3.2</b>	<b>3.2</b>	<b>3.1</b>
ESEER net (4)		A	B	B	B	B	A	B	B
Number of refrigerant circuits		1	1	1	1	1	2	2	2
Number of compressors		2	2	2	2	2	4	4	4
Sound power level (6)	(dBA)	81	81	82	82	84	84	84	85
Sound pressure level (7)	(dBA)	49	49	50	50	52	52	52	53

#### Dimensions and weight (operating)

Length	(mm)	2908	2908	3822	3822	3822	2905	2905	3819
Width	(mm)	1301	1301	1301	1301	1301	2266	2266	2266
Height	(mm)	2153	2153	2153	2153	2153	2150	2150	2150
Weight (5)	(kg)	950	954	1161	1263	1283	1730	1738	1992
Clearance A	(mm)	1200	1200	1200	1200	1200	1200	1200	1200
Clearance B	(mm)	600	600	600	600	600	1000	1000	1000
Clearance C	(mm)	800	800	800	800	800	800	800	800
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000

#### Electrical data

Maximum amps	(A)	45.7	50.7	57.8	65.0	76.0	90.6	100.6	114.8
Start-up amps	(A)	167.6	183.6	190.7	206.3	251.3	212.5	233.5	247.7

CXAM HE Super Quiet		060	070	080	090	100	110	120	140	150
Net heating capacity (4)	(kW)	171.8	193.7	230.2	251.1	283.6	301.1	318.2	363.5	398.7
Total power input in heating net (4)	(kW)	56.1	62.9	73.8	82.3	93.3	101.4	108.6	129.3	138.9
COP net (4)		3.1	3.1	3.1	3.1	3.0	3.0	2.9	2.8	2.9
Eurovent class		<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>
Net cooling capacity (4)	(kW)	162.1	191.7	230.0	256.3	292.8	310.1	331.5	377.6	401.3
Total power input net (4)	(kW)	54.4	64.8	71.0	82.4	93.8	103.7	113.9	133.4	145.4
EER net (4)		3.0	3.0	3.2	3.1	3.1	3.0	2.9	2.8	2.8
Eurovent class		<b>B</b>	<b>B</b>	<b>A</b>	<b>A</b>	<b>A</b>	<b>B</b>	<b>B</b>	<b>C</b>	<b>C</b>
ESEER net (4)		4.0	4.2	4.4	4.5	4.2	4.2	4.2	4.2	4.1
Number of refrigerant circuits		2	2	2	2	2	2	2	2	2
Number of compressors		4	4	4	4	4	4	4	6	6
Sound power level (6)	(dBA)	85	88	89	88	88	89	90	90	89
Sound pressure level (7)	(dBA)	53	55	56	56	56	57	58	57	57

#### Dimensions and weight (operating)

Length	(mm)	3819	3819	4230	4230	5145	5145	5145	6062	6062
Width	(mm)	2266	2266	2273	2273	2273	2273	2273	2273	2273
Height	(mm)	2150	2150	2344	2344	2344	2344	2344	2344	2344
Weight	(kg)	2213	2264	2710	2838	3300	3276	3286	3911	4005
Clearance A	(mm)	1200	1200	1200	1200	1200	1200	1200	1200	1200
Clearance B/D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	800	800	1000	1000	1000	1000	1000	1000	1000

#### Electrical data

Maximum amps	(A)	129.2	151.3	178.1	201.0	228.1	241.5	254.9	311.8	334.7
Start-up amps	(A)	270.5	326.5	353.3	409.8	436.9	503.6	517.0	520.6	543.5

(1) With low ambient option

(2) With process cooling options

(3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient air temperature

(4) At Eurovent conditions: 40/45°C entering/leaving water temperature and DB/WB 7°C/6°C ambient temperature according to EN 14511-2013.

(5) At Eurovent conditions: 40/45°C entering/leaving water temperature and 35°C ambient air temperature

(6) At Eurovent conditions, with 1pW reference sound power, according to ISO9614

(7) At 10 m in free field, calculated from the above sound power level according to the formula  $L_p = L_w - 10 \log S$

Operating outdoor air temperature range (min./max.) (1)	(°C)	-10/+46
Leaving water temperature range (min./max.) (2)	(°C)	-10/+20
Heating mode operating outdoor air temperature range (min./max.)	(°C)	-10/+20
Heating mode leaving water temperature range (min./max.)	(°C)	+20/+55
Power supply	(V/Ph/Hz)	400/3/50

CXAM HE Comprehensive Acoustic Package		020	023	026	030	040	046	052
Net heating capacity (4)	(kW)	56.0	64.0	72.3	79.7	109.2	129.3	146.4
Total power input in heating net (4)	(kW)	18.4	20.7	23.4	27.1	36.5	41.2	46.6
COP net (4)		3.0	3.1	3.1	2.9	3.0	3.1	3.1
Eurovent class		<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>A</b>	<b>A</b>
Net cooling capacity (4)		4.2	4.1	4.1	4.2	4.2	4.2	4.3
Total power input net (4)	(kW)	58.2	67.5	75.4	84.1	118.0	136.1	151.9
EER net (4)	(kW)	18.3	20.7	23.1	26.4	35.0	41.1	46.0
Eurovent class		<b>3.2</b>	<b>3.3</b>	<b>3.3</b>	<b>3.2</b>	<b>3.4</b>	<b>3.3</b>	<b>3.3</b>
ESEER net (4)		B	A	A	B	A	A	A
Number of refrigerant circuits		1	1	1	1	2	2	2
Number of compressors		2	2	2	2	4	4	4
Sound power level (6)	(dBA)	78	79	79	80	81	82	82
Sound pressure level (7)	(dBA)	46	47	47	48	49	50	50
<b>Dimensions and weight (operating)</b>								
Length	(mm)	2908	3822	3822	3822	2905	3819	3819
Width	(mm)	1301	1301	1301	1301	2266	2266	2266
Height	(mm)	2153	2153	2153	2153	2150	2150	2150
Weight (5)	(kg)	984	1183	1207	1317	1798	2052	2102
Clearance A	(mm)	1200	1200	1200	1200	1200	1200	1200
Clearance B	(mm)	600	600	600	600	1000	1000	1000
Clearance C	(mm)	800	800	800	800	800	800	800
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000
<b>Electrical data</b>								
Maximum amps	(A)	44.2	50.5	55.5	62.7	87.6	100.3	110.3
Start-up amps	(A)	166.1	183.4	188.4	204.0	209.5	233.2	243.2

CXAM HE Comprehensive Acoustic Package		060	070	080	090	100	110	120
Net heating capacity (4)	(kW)	169.3	190.4	224.9	257.4	276.9	302.4	321.0
Total power input in heating net (4)	(kW)	53.2	59.9	69.4	80.4	88.8	97.5	104.9
COP net (4)		3.2	3.2	3.2	3.2	3.1	3.1	3.1
Eurovent class		<b>B</b>	<b>B</b>	<b>A</b>	<b>A</b>	<b>B</b>	<b>B</b>	<b>B</b>
Net cooling capacity (4)	(kW)	158.6	185.5	226.2	255.9	285.8	309.8	331.6
Total power input net (4)	(kW)	53.9	66.2	72.5	84.2	96.2	101.9	112.4
EER net (4)		2.9	2.8	3.1	3.0	3.0	3.0	3.0
Eurovent class		<b>B</b>	<b>C</b>	<b>A</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>
ESEER net (4)		4.2	4.3	4.7	4.5	4.4	4.4	4.4
Number of refrigerant circuits		2	2	2	2	2	2	2
Number of compressors		4	4	4	4	4	4	4
Sound power level (6)	(dBA)	83	85	83	83	84	85	86
Sound pressure level (7)	(dBA)	50	52	51	51	52	53	54
<b>Dimensions and weight (operating)</b>								
Length	(mm)	3819	3819	4230	5145	5145	6062	6062
Width	(mm)	2266	2266	2273	2273	2273	2273	2273
Height	(mm)	2150	2150	2344	2344	2344	2344	2344
Weight	(kg)	2303	2354	2851	3199	3414	3787	3800
Clearance A	(mm)	1200	1200	1200	1200	1200	1200	1200
Clearance B/D	(mm)	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	800	800	1000	1000	1000	1000	1000
<b>Electrical data</b>								
Maximum amps	(A)	124.7	146.8	172.1	195.0	220.6	236.7	250.1
Start-up amps	(A)	266.0	322.0	347.3	403.8	429.4	498.8	512.2

(1) With low ambient option

(2) With process cooling options

(3) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient air temperature

(4) At Eurovent conditions: 40/45°C entering/leaving water temperature and DB/WB 7°C/6°C ambient temperature according to EN 14511-2013.

(5) At Eurovent conditions: 40/45°C entering/leaving water temperature and 35°C ambient air temperature

(6) At Eurovent conditions, with 1pW reference sound power, according to ISO9614

(7) At 10 m in free field, calculated from the above sound power level according to the formula  $L_p = L_w - 10 \log 5$

## Save energy with total or partial heat recovery factory-fitted options on CXAM

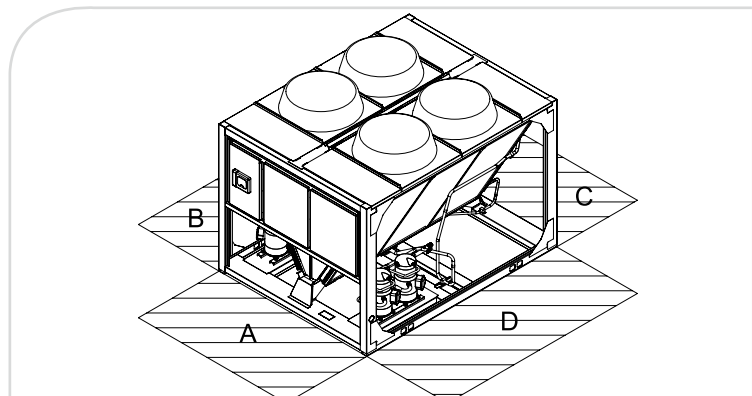
- Reduced operating cost
- Preheat sanitary water (for commercial buildings) or kitchen and laundries water (in hotels and resorts)
- Reduced carbon footprint

### Partial heat recovery - model CXAM HE compact

Unit size	Unit power input (1) (kW)	Cooling capacity in cooling (1) (kW)	Heating capacity (2) (kW)	Heat recovered (2) (%)	Maximum hot water temperature (°C)
52	48.3	149.8	39.1	26	60
60	54.5	164.2	46.7	28	60
70	65.2	193.4	57.6	30	60
80	72.9	231.0	56.3	24	60
90	84.5	256.7	70.4	27	60
100	96.3	293.6	81.1	28	60
110	105.9	311.2	93.6	30	60
120	116.5	332.3	104.4	31	60
140	136.6	379.0	120.8	32	60
150	148.6	402.6	132.9	33	60
160	159.4	423.3	143.9	34	60

(1) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient air temperature

(2) At 40/45°C entering/leaving water temperature





# CXAO

## Reversible air-to-water scroll heat pump



### Customer benefits

- Eco-friendly and efficient refrigerant R410A refrigerant and heat exchangers with increased surface area
- Compact overall dimensions allow extremely flexible installations
- Simplified maintenance operations thanks to easy access to components

### Main features

- Scroll compressors
- Electronic expansion valves
- Statically and dynamically balanced axial fans
- Shell and tube or plate heat exchanger with differential pressure switch and antifreeze protection (electric heater) on waterside
- High efficiency finned coils (with seamless copper tubes expanded into corrugated aluminium) heat exchangers on airside
- Casing and panels in galvanized and painted steel

### Options

- Low ambient temperature kit for operation down to  $-10^{\circ}\text{C}$  in heat pump mode
- Condensing control with variable fan speed modulation for operation down to  $+10^{\circ}\text{C}$  in cooling mode
- Control panel electric heater with thermostat
- Phase failure protection relay
- Water pumps automatic changeover
- Condensing coil protection grilles

- Gas gauges
- Soft starter
- Pre-painted condensing coils
- Epoxy coated condensing coil fins
- Copper/copper or tinned copper/copper condensing coils

### Accessories

- Flow switch
- Automatic water filling
- Water strainer
- Kit flanges
- Victaulic adapter
- Water gauges
- Rubber and/or spring anti-vibration mounts

### Controls

- Standard 8 button LCD display
- 32 bit microprocessor with a 4 MB storage memory, real time clock for alarms storage, multi-language control software
- Communication card RS485
- Optional
  - Remote control display
  - LonTalk®, BACnet® communication capabilities

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.

Heating operating outdoor air temperature range (min./max.)	(°C)	-5 / 20
Heating leaving water temperature range (min./max.)	(°C)	26 / 55
Cooling operating outdoor air temperature range (min./max.) (1)	(°C)	22 / 45
Cooling leaving water temperature range (min./max.) (2)	(°C)	-6 / 15
Power supply	(V/Ph/Hz)	400/3+n/50

CXAO Standard Noise		120	130	140	150	165	175	180	190
Net heating capacity (3)	(kW)	499	528	586	622	694	698	728	758
Total power input (3)	(kW)	166	182	191	204	226	227	234	242
COP (3)		3.00	2.91	3.07	3.05	3.07	3.08	3.11	3.13
Cooling capacity (4)	(kW)	403	437	475	474	552	604	638	659
Total power input (4)	(kW)	174	190	202	215	242	223	241	246
EER (4)		2.31	2.3	2.35	2.35	2.28	2.72	2.65	2.68
ESEER (4)		3.69	3.69	3.54	3.54	3.76	3.85	3.22	3.94
Sound power level (5)	(dBA)	96	95	95	97	98	94	96	96
Sound pressure level (6)	(dBA)	64	63	62	65	66	62	63	63
Number of circuit(s)		2	2	2	2	2	3	3	3
Number of compressors per circuit		5	6	5	6	6	8	7	7
<b>Dimensions and weight (operating)</b>									
Length	(mm)	4535	4535	5505	5505	5505	8005	8005	8005
Width	(mm)	2260	2260	2260	2260	2260	2260	2260	2260
Height	(mm)	2400	2400	2400	2400	2400	2400	2400	2400
Clearance A	(mm)	1500	1500	1500	1500	1500	1500	1500	1500
Clearance B	(mm)	1500	1500	1500	1500	1500	1500	1500	1500
Clearance C	(mm)	500	500	500	500	500	500	500	500
Clearance D	(mm)	1500	1500	1500	1500	1500	1500	1500	1500
Weight	(kg)	3732	3932	4112	4180	4564	6327	6624	6733
<b>Electrical data</b>									
Maximum amps	(A)	441	498	480	537	570	645	549	661
Start-up amps	(A)	764	739	803	860	893	968	872	984

CXAO Standard Noise		195	205	215	220	225	250	270	290
Net heating capacity (3)	(kW)	777	812	851	880	924	986	1051	1175
Total power input (3)	(kW)	251	264	276	284	296	315	337	367
COP (3)		3.10	3.07	3.08	3.10	3.12	3.13	3.12	3.20
Cooling capacity (4)	(kW)	684	718	758	779	795	873	945	1027
Total power input (4)	(kW)	256	272	287	293	301	331	348	372
EER (4)		2.67	2.64	2.64	2.66	2.64	2.63	2.71	2.76
ESEER (4)		4.04	4.00	4.10	4.08	3.68	4.25	4.2	4.24
Sound power level (5)	(dBA)	96	96	96	97	96	97	97	97
Sound pressure level (6)	(dBA)	64	63	64	64	64	64	64	65
Number of circuit(s)		3	3	3	3	3	3	4	4
Number of compressors per circuit		7	8	8	8	9	9	10	11
<b>Dimensions and weight (operating)</b>									
Length	(mm)	8005	8005	8005	8005	8005	8005	8610	9580
Width	(mm)	2260	2260	2260	2260	2260	2260	2260	2260
Height	(mm)	2400	2400	2400	2400	2400	2400	2400	2400
Clearance A	(mm)	1500	1500	1500	1500	1500	1500	1500	1500
Clearance B	(mm)	1500	1500	1500	1500	1500	1500	1500	1500
Clearance C	(mm)	500	500	500	500	500	500	500	500
Clearance D	(mm)	1500	1500	1500	1500	1500	1500	1500	1500
Weight	(kg)	6856	7118	7204	7310	7494	7760	7348	7645
<b>Electrical data</b>									
Maximum amps	(A)	672	740	751	762	819	852	926	1011
Start-up amps	(A)	995	1063	1074	1085	1142	1175	1249	1334

(1) With optional variable fan speed modulation, unit can operate down to +10°C

(2) With process cooling options

(3) At Eurovent conditions: 40/45°C entering/leaving water temperature and DB/WB 7°C/6°C ambient temperature according to EN 14511-2013.

(4) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.

(5) At Eurovent conditions, with 1pW reference sound power, according to ISO9614

(6) Average at 10 meters in a free field. This is non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepipedic box with five exposed face areas.

Heating operating outdoor air temperature range (min./max.)	(°C)	-5 / 20
Heating leaving water temperature range (min./max.)	(°C)	26 / 55
Cooling operating outdoor air temperature range (min./max.) (1)	(°C)	22 / 45
Cooling leaving water temperature range (min./max.) (2)	(°C)	-6 / 15
Power supply	(V/Ph/Hz)	400/3+n/50

CXAO Low noise		120	130	140	150	165	175	180	190
Net heating capacity (3)	(kW)	479	510	564	598	668	679.9	703.6	730.3
Total power input (3)	(kW)	163	178	186	199	221	221	229	236
COP (3)		2.94	2.86	3.03	3.01	3.02	3.07	3.08	3.09
Cooling capacity (4)	(kW)	386	417	455	482	532	600.2	615.3	635.6
Total power input (4)	(kW)	178	193	203	220	246	226	242	247
EER (4)		2.17	2.16	2.24	2.19	2.16	2.66	2.54	2.57
ESEER (4)		3.8	3.76	3.73	3.68	3.83	3.83	3.15	3.84
Sound power level (5)	(dBA)	93	92	92	94	95	92	94	94
Sound pressure level (6)	(dBA)	61	60	59	62	63	60	61	61
Number of circuit(s)		2	2	2	2	2	3	3	3
Number of compressors per circuit		5	6	5	6	6	8	7	7
<b>Dimensions and weight (operating)</b>									
Length	(mm)	4535	4535	5505	5505	5505	8005	8005	8005
Width	(mm)	2260	2260	2260	2260	2260	2260	2260	2260
Height	(mm)	2400	2400	2400	2400	2400	2400	2400	2400
Clearance A	(mm)	1500	1500	1500	1500	1500	1500	1500	1500
Clearance B	(mm)	1500	1500	1500	1500	1500	1500	1500	1500
Clearance C	(mm)	500	500	500	500	500	500	500	500
Clearance D	(mm)	1500	1500	1500	1500	1500	1500	1500	1500
Weight	(kg)	3792	4004	4172	4252	4636	6411	6708	6817
<b>Electrical data</b>									
Maximum amps	(A)	441	498	480	537	570	645	549	661
Start-up amps	(A)	764	739	803	860	893	968	872	984

CXAO Low Noise		195	205	215	220	225	250	270	290
Net heating capacity (3)	(kW)	750.3	796.7	822.1	847.3	889.7	947.5	1022.7	1112.6
Total power input (3)	(kW)	245	264	270	278	290	309	330	360
COP (3)		3.06	3.02	3.04	3.05	3.07	3.07	3.10	3.09
Cooling capacity (4)	(kW)	658.8	700.0	732.3	748.5	764.0	824.9	900.9	961.1
Total power input (4)	(kW)	257	282	290	301	306	335	359	378
EER (4)		2.56	2.48	2.52	2.48	2.50	2.46	2.51	2.54
ESEER (4)		3.93	3.82	3.98	3.91	3.50	4.06	4.0	3.98
Sound power level (5)	(dBA)	94	94	94	95	94	95	95	95
Sound pressure level (6)	(dBA)	62	61	62	62	62	62	62	63
Number of circuit(s)		3	3	3	3	3	3	4	4
Number of compressors per circuit		7	8	8	8	9	9	10	11
<b>Dimensions and weight (operating)</b>									
Length	(mm)	8005	8005	8005	8005	8005	8005	8610	9580
Width	(mm)	2260	2260	2260	2260	2260	2260	2260	2260
Height	(mm)	2400	2400	2400	2400	2400	2400	2400	2400
Clearance A	(mm)	1500	1500	1500	1500	1500	1500	1500	1500
Clearance B	(mm)	1500	1500	1500	1500	1500	1500	1500	1500
Clearance C	(mm)	500	500	500	500	500	500	500	500
Clearance D	(mm)	1500	1500	1500	1500	1500	1500	1500	1500
Weight	(kg)	6940	7214	7300	7406	7602	7868	7469	7777
<b>Electrical data</b>									
Maximum amps	(A)	672	740	751	762	819	852	926	1011
Start-up amps	(A)	995	1063	1074	1085	1142	1175	1249	1334

(1) With optional variable fan speed modulation, unit can operate down to +10°C

(2) With process cooling options

(3) At Eurovent conditions: 40/45°C entering/leaving water temperature and DB/WB 7°C/6°C ambient temperature according to EN 14511-2013.

(4) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.

(5) At Eurovent conditions, with 1pW reference sound power, according to ISO9614

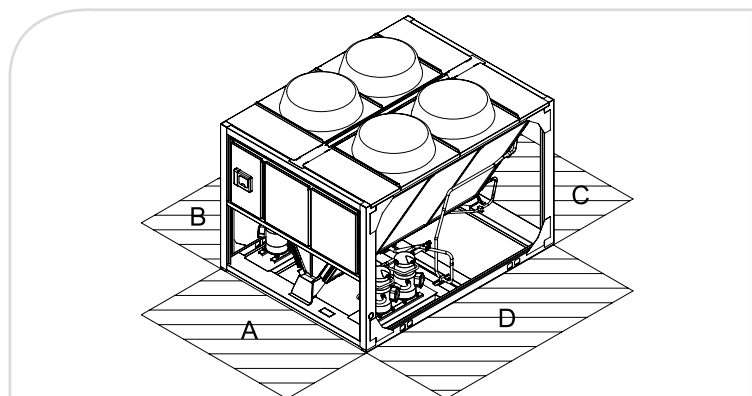
(6) Average at 10 meters in a free field. This is non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepipedic box with five exposed face areas.



CXAO Super Low noise		120	130	140	150	165	175	180	190
Net heating capacity (3)	(kW)	478	506	555	584	662	674	702.7	744.5
Total power input (3)	(kW)	162	180	184	199	222	233	227.5	235.7
COP (3)		2.95	2.81	3.01	2.93	2.98	2.89	3.09	3.16
Cooling capacity (4)	(kW)	382	408	448	475	532	542	611.6	630.1
Total power input (4)	(kW)	181	203	209	226	249	274	243	249.7
EER (4)		2.11	2.01	2.14	2.10	2.14	1.98	2.52	2.52
ESEER (4)		3.62	3.52	3.74	3.64	3.75	3.56	3.04	3.67
Sound power level (5)	(dBA)	91	90	90	92	94	92	91	91
Sound pressure level (6)	(dBA)	59	58	57	60	61	60	58	58
Number of circuit(s)		2	2	2	2	2	3	3	3
Number of compressors per circuit		5	6	5	6	6	8	7	7
<b>Dimensions and weight (operating)</b>									
Length	(mm)	4535	5505	5505	6475	6475	8005	8005	8005
Width	(mm)	2260	2260	2260	2260	2260	2260	2260	2260
Height	(mm)	2400	2400	2400	2400	2400	2400	2400	2400
Clearance A	(mm)	1500	1500	1500	1500	1500	1500	1500	1500
Clearance B	(mm)	1500	1500	1500	1500	1500	1500	1500	1500
Clearance C	(mm)	500	500	500	500	500	500	500	500
Clearance D	(mm)	1500	1500	1500	1500	1500	1500	1500	1500
Weight	(kg)	3948	4356	4328	4695	5079	6567	6924	7033
<b>Electrical data</b>									
Maximum amps	(A)	441	504	480	543	576	645	549	661
Start-up amps	(A)	764	745	803	866	899	968	872	984

CXAO Super Low Noise		195	205	215	220	225	250	270	290
Net heating capacity (3)	(kW)	738.5	786.6	810.4	830.2	893.6	954.9	995.0	1130.7
Total power input (3)	(kW)	243	264	271	278	295	312	334	361
COP (3)		3.04	2.98	2.99	2.99	3.03	3.06	2.98	3.13
Cooling capacity (4)	(kW)	649.2	691.9	723.9	738.2	780.9	846.6	873.0	975.2
Total power input (4)	(kW)	263	289	297	306	306	337	352	370
EER (4)		2.47	2.40	2.44	2.41	2.55	2.52	2.48	2.63
ESEER (4)		3.81	3.62	3.74	3.73	3.47	3.94	4.1	3.83
Sound power level (5)	(dBA)	91	91	91	92	91	92	92	92
Sound pressure level (6)	(dBA)	59	58	59	59	58	59	59	59
Number of circuit(s)		3	3	3	3	3	3	4	4
Number of compressors per circuit		7	8	8	8	9	9	10	11
<b>Dimensions and weight (operating)</b>									
Length	(mm)	8005	8975	8975	8975	9580	9580	10550	10550
Width	(mm)	2260	2260	2260	2260	2260	2260	2260	2260
Height	(mm)	2400	2400	2400	2400	2400	2400	2400	2400
Clearance A	(mm)	1500	1500	1500	1500	1500	1500	1500	1500
Clearance B	(mm)	1500	1500	1500	1500	1500	1500	1500	1500
Clearance C	(mm)	500	500	500	500	500	500	500	500
Clearance D	(mm)	1500	1500	1500	1500	1500	1500	1500	1500
Weight	(kg)	7156	7567	7663	7965	8247	9778	8246	8258
<b>Electrical data</b>									
Maximum amps	(A)	672	746	757	768	831	864	938	1017
Start-up amps	(A)	995	1069	1080	1091	1154	1187	1261	1340

- (1) With optional variable fan speed modulation, unit can operate down to +10°C
- (2) With process cooling options
- (3) At Eurovent conditions: 40/45°C entering/leaving water temperature and DB/WB 7°C/6°C ambient temperature according to EN 14511-2013.
- (4) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.
- (5) At Eurovent conditions, with 1pW reference sound power, according to ISO9614
- (6) Average at 10 meters in a free field. This is non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepiped box with five exposed face areas.





# CGWH

## Water-to-water scroll heat pump



### Customer benefits

- High performance heat pump
- Compact design
- Indoor installation: easy maintenance
- Minimum maintenance requirements

### Main features

- High efficiency hermetic scroll compressors with low vibration and sound levels and full internal overheating protection
- Hot water leaving water temperature up to +50°C
- External sheet metal parts are galvanized and finished with powder paint RAL 9002
- Access panels are quickly removable using a square key
- Designed for indoor installation
- 380, 400 and 415 V power voltage
- Phase and unbalance detection
- 400/220 V transformer for the control

### Options

- Compressor sound attenuating jackets
- High and low pressure gauges
- Evaporator water pump command - single or double
- Water filter
- Hydraulic module - for information, contact your local sales office

### Tracer™ CH530 Control

Adaptive Control™ microprocessor-based control featuring:

- Easy to use operator interface
- Leaving hot water temperature control
- External linear reset, auxiliary and external water setpoint
- Compressor kW limiting (optional)
- Alarm indicator programmable relays (optional)
- LonTalk® or Modbus® communication interface (optional)

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.

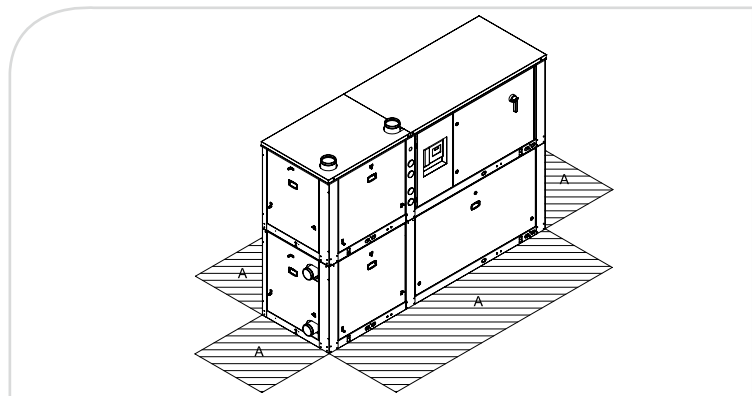
Hot water leaving water temperature (min./max.)	(°C)	20/50
Evaporator leaving water temperature range (min./max.)	(°C)	-7/12
Power supply	(V/Ph/Hz)	400/3/50

CGWH		115	120	125	225	230	235	240	250
Net heating capacity (1)	(kW)	64.5	81	97.6	114.2	129.9	145.9	161.8	195.2
Net power input (1)	(kW)	18.4	23.2	28	32.1	36.7	41.0	46.2	55.0
Net COP (1)		3.50	3.50	3.49	3.56	3.54	3.56	3.50	3.55
P Rated (Heating) (3)	(kW)	51.5	64.5	77.1	91.8	104.5	117.7	129.3	156.0
$\eta_s$ / SCOP (3)	(%)	133.6	132.2	133.1	127.5	125.8	131.5	134.2	130.6
Number of refrigerant circuits		1	1	1	2	2	2	2	2
Number of compressors		2	2	2	3	3	3	4	4
Sound power level (2)	(dB(A))	75	79	81	81	82	83	82	84
<b>Weight and dimensions (operating)</b>									
Length	(mm)	1101	1101	1101	2072	2100	2135	2145	2082
Width	(mm)	800	800	800	866	866	866	866	866
Height	(mm)	1545	1545	1545	1545	1545	1545	1545	1545
Weight	(kg)	412	444	476	668	702	739	803	873
Clearance A	(mm)	800							
<b>Electrical data</b>									
Maximum amps	(A)	41	52	63	72	83	94	103	125
Start-up amps	(A)	140	194	204	212	222	232	241	261

(1) At 40/45°C entering/leaving hot water temperature and 12/7°C entering/leaving evaporator water temperature

(2) With 1pW reference sound power, according to ISO9614

(3)  $\eta_s$ /SCOP as defined in Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for space heaters and combination heaters with P rated <400 kW - COMMISSION REGULATION (EU) No 813/2013 of 2 August 2013: Med. temp. application 10/7°C





# CGWN

## Water-to-water scroll heat pump



### Customer benefits

#### High performance heat pump based on:

- Compact design and packaged hydraulic module (available as an option) for easier and faster installation
- Wide application flexibility for comfort and process applications
- State of the art control to guarantee superior dependability: low cost of ownership

### Main features

- High efficiency hermetic scroll compressors with low vibration and sound levels and full internal overheating protections
- Hot water leaving water temperature up to +60°C
- Control of the condenser leaving water temperature
- External sheet metal parts are galvanized and finished with powder paint RAL 9002
- Access panels are quickly removable using a square key and mounted handles
- Designed for indoor and outdoor installation
- Full factory refrigerant and oil charge
- 380, 400 and 415 V power voltage
- 400/110 V transformer for the control
- Phase & unbalanced detection

### Options

- High efficiency version
- Soft starter
- Water pumps command - single or double
- Compressor kW limiting
- Compressor sound attenuating jackets
- High and low pressure gauges
- Hydraulic module including:
  - single or dual evaporator pump including water filter and pressure tabs
  - speed inverter condenser pumps including flow control, water filter and pressure tabs for winter freeze protection
  - combinations of hydraulic modules available: evaporator only, condenser only or both

### Tracer™ CH530 Control

#### Adaptive Control™ microprocessor-based control featuring:

- Easy to use operator interface
- External linear reset, auxiliary and external water setpoint
- Compressor kW limiting (optional)
- Alarm indicator programmable relays (options)
- LonTalk®, BACnet®, or Modbus® communication interface (optional)

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.

Hot water leaving temperature (min./max.)	(°C)	25/60
Evaporator water temperature range (min./max.)	(°C)	-7/15
Power supply	(V/Ph/Hz)	400/3/50

CGWN		205	205HE	206	206HE	207	207HE	208	209	210	211
Net heating capacity (1)	(kW)	214	221	255	262	296	303	329	362	401	442
Net power input (1)	(kW)	52.2	49.8	62.1	60.1	72.3	69.7	76.9	86.7	97.2	106.0
Net COP (1)		4.10	4.44	4.10	4.36	4.10	4.35	4.28	4.17	4.12	4.17
P Rated (Heating) (4)	(kW)	204	210	264	273	307	315	348	379	381	342
$\eta_s$ / SCOP (4)	(%)	164	183	189	197	188	211	211	196	120	160
Number of refrigerant circuits							2				
Number of compressors							4				
Sound power level (2)	(dB(A))	82	82	82	82	83	83	83	84	84	84
<b>Weight and dimensions (operating) (3)</b>											
Length	(mm)	2545	2545	2545	2545	2545	2545	2545	2545	2545	2545
Width	(mm)	880	880	880	880	880	880	880	880	880	880
Height	(mm)	1842	1842	1842	1842	1842	1842	1842	1842	1842	1842
Weight	(kg)	1360	1460	1300	1450	1420	1470	1500	1650	1710	1790
Clearance A	(mm)						1000				
Clearance B	(mm)						800				
<b>Electrical data</b>											
Nominal amps	(A)	137	137	159	159	187	187	210	233	250	263
Start-up amps	(A)	278	278	334	334	395	395	418	441	512	525

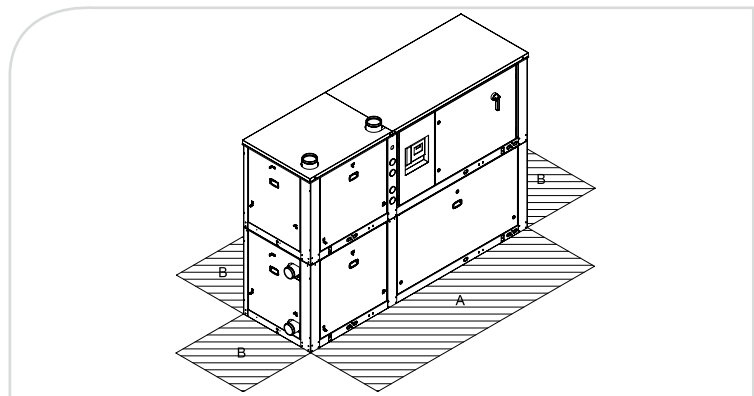
CGWN		212	213	214	215
Net heating capacity (1)	(kW)	479	518	557	591
Net power input (1)	(kW)	113	122	132	140
Net COP (1)		4.2	4.2	4.2	4.2
P Rated (Heating) (4)	(kW)	340	370	401	-
$\eta_s$ / SCOP (4)	(%)	146	149	142	-
Number of refrigerant circuits				2	
Number of compressors		5		6	6
Sound power level (2)	(dB(A))	87	88	88	90
<b>Weight and dimensions (operating) (3)</b>					
Length	(mm)	2866	2866	2866	2866
Width	(mm)	878	878	878	878
Height	(mm)	2025	2025	2025	2025
Weight	(kg)	2233	2443	2524	2639
Clearance A	(mm)			1000	
Clearance B	(mm)			800	
<b>Electrical data</b>					
Maximum amps	(A)	311	337	370	400
Start-up amps	(A)	563	588	621	655

(1) At 40/45°C entering/leaving hot water temperature and 12/7°C entering/leaving evaporator water temperature

(2) With 1pW reference sound power, according to ISO9614 and without compressor enclosure

(3) Without hydraulic module

(4)  $\eta_s$ /SCOP as defined in Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for space heaters and combination heaters with P rated <400 kW - COMMISSION REGULATION (EU) No 813/2013 of 2 August 2013: Med. temp. application 10/7°C





# RTWD

## Water-to-water helical-rotary heat pump



### Customer benefits

#### High performance heat pump based on:

- Falling film evaporator: higher performances with lower refrigerant charge
- State-of-the-art control to guarantee superior dependability and low cost of ownership
- Optional Trane Adaptive Frequency™ Drive (AFD) for part load efficiency enhancement

#### Main features

- Low-speed, direct-drive semi-hermetic helical rotary compressor featuring only 3 moving parts, suction-gas-cooled motor
- Fully modulating load control (15-100%)
- 3 different levels of efficiency
- Control of the hot water leaving water temperature from CH530
- Maximum condenser temperature 63°C
- Compact physical footprint - fits through standard single-width door
- Bolt-together construction for easy unit disassembly
- Single power connection-reduced wiring costs
- Factory-mounted star-delta starter panel

### Tracer™ CH530 Control

#### Adaptive Control™ microprocessor-based control featuring:

- Easy to use operator interface
- Water pump control

#### Control options:

- Programmable relays
- Reset of setpoints by analog signal
- Condenser refrigerant pressure output
- LonTalk®, BACnet®, Modbus® communication interfaces

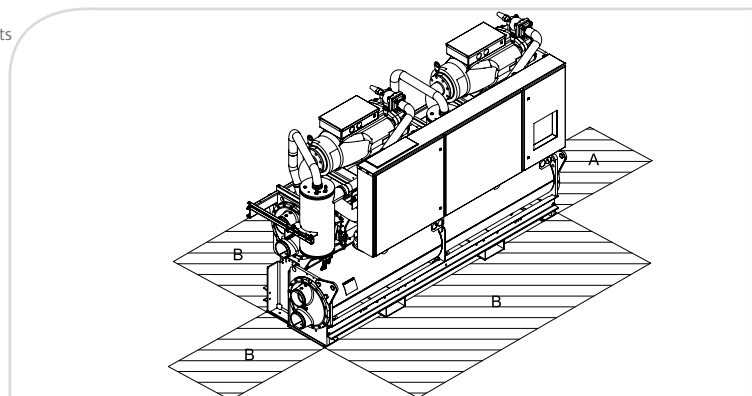
This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.

Hot water leaving water temperature (min./max.)	(°C)	20/63 (HE, XE and HSE)/ 20/62 (SE)
Evaporator leaving water temperature range (min./max.)	(°C)	-8/18
Power supply	(V/Ph/Hz)	400/3/50

RTWD		60HE	70HE	80HE	90HE	100HE	110HE	120HE	130HE	140HE	160HE	180HE
Gross heating capacity (1)	(kW)	260	311	354	402	431	462	497	533	585	641	704
Gross power input (1)	(kW)	57	68	78	89	94	100	107	114	125	136	151
Gross COP (1)		4.59	4.55	4.52	4.53	4.57	4.61	4.65	4.68	4.68	4.72	4.67
P Rated (Heating) (7)		245	293	332	376	-	-	-	-	-	-	-
ηs/SCOP		167%/4.18	159%/3.98	156%/3.90	163%/4.08	-	-	-	-	-	-	-
Number of refrigerant circuits								2				
Number of compressors								2				
Sound power level (3)	(dB(A))	90	90	97	99	99	99	98	96	96	96	101
<b>Weights and dimensions (operating) (6)</b>												
Length	(mm)	3210	3210	3210	3230	3320	3230	3240	3400	3400	3400	3490
Width	(mm)	1070	1070	1070	1060	1060	1060	1060	1280	1280	1280	1310
Height	(mm)	1940	1940	1940	1960	1960	1960	1960	1950	1950	1950	1970
Weight	(kg)	2650	2658	2673	2928	2970	3008	3198	3771	3802	3874	4042
Clearance A	(mm)							920				
Clearance B	(mm)	920	920	920	920	920	920	920	920	920	1020	1020
<b>Electrical data</b>												
Maximum amps	(A)	102	124	142	161	176	192	209	227	244	261	286
Start-up amps (4)	(A)	152	177	192	206	242	254	291	304	346	359	391

RTWD		200HE	220HE	250HE	160PE	180PE	200PE	160SE	170SE	190SE	200SE
Gross heating capacity (1)	(kW)	770	846	925	655	719	775	662	727	794	871
Gross power input (1)	(kW)	166	181	196	135	150	165	153	170	184	199
Gross COP (1)		4.65	4.66	4.71	4.84	4.80	4.71	4.31	4.28	4.32	4.38
Number of refrigerant circuits							2				
Number of compressors							2				
Sound power level (3)	(dB(A))	101	101	101	96	101	101	101	101	101	101
<b>Weights and dimensions (operating) (6)</b>											
Length	(mm)	3490	3490	3490	3760	3810	3490	3490	3490	3490	3490
Width	(mm)	1310	1310	1310	1280	1310	1310	1310	1310	1310	1310
Height	(mm)	2010	2010	2010	2010	2010	2010	1970	1970	1970	1970
Weight	(kg)	4488	4504	4579	4172	4408	4625	3874	4049	4086	4125
Clearance A	(mm)						920				
Clearance B	(mm)	1020	1020	1020	1020	1020	1020	1020	1020	1020	1020
<b>Electrical data</b>											
Maximum amps	(A)	311	343	374	261	286	311	286	311	343	374
Start-up amps (4)	(A)	410	473	497	359	391	410	391	410	473	497

- (1) Evaporator 12/7°C and 0.0176 m<sup>2</sup>K/kW, and condenser at 30/35°C and 0.044m<sup>2</sup>K/kW
- (2) Evaporator 10/7°C and 0.0176m<sup>2</sup>K/kW, and condenser 40/45°C and 0.044m<sup>2</sup>K/kW
- (3) At full load and in accordance with ISO9614 without sound attenuating enclosure
- (4) Inrush current in star connection
- (5) Net performances calculated as per EN 14511-2013.
- (6) Maximum dimensions and weight for this size
- (7) ηs/SCOP as defined in Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for space heaters and combination heaters with P rated <400 kW - COMMISSION REGULATION (EU) No 813/2013 of 2 August 2013: Med. temp. application 10/7°C



Hot water leaving temperature (min./max)	(°C)	20/63 (HE, XE and HSE)/20/62 (SE)
Evaporator leaving water temperature range (min./max)	(°C)	-8/18
Power supply	(V/Ph/Hz)	400/3/50

RTWD		060 HSE	070 HSE	080 HSE	090 HSE	100 HSE	110 HSE	120 HSE	130 HSE
Net heating capacity (2)(5)	(kW)	259.6	310.5	353.0	401.5	429.9	460.8	496.1	531.8
Total power input in heating net (2)(5)	(kW)	64.3	78.0	89.0	100.4	106.4	112.7	120.1	127.2
COP net (2)(5)		4.04	3.98	3.97	4.00	4.04	4.09	4.13	4.18
Eurovent class		C	C	C	C	C	C	C	B
P Rated (Heating) (7)	(kW)	246	291	324	361	389	-	-	-
ηs / SCOP (7)		170% / 4.25 162% / 4.05 172% / 4.30 163% / 4.08			168% / 4.20		-	-	-
Net cooling capacity (1)(5)	(kW)	230.6	273.5	310.6	354.6	379.3	407.0	437.1	467.6
Total power input net (1)(5)	(kW)	55.3	67.2	76.9	87.6	92.1	97.6	103.6	109.2
EER net (5)		4.17	4.07	4.0	4.1	4.12	4.17	4.22	4.28
Eurovent class		D	D	D	D	D	D	D	C
ESEER net (5)		5.30	5.1	5.1	5.1	5.05	5.18	5.33	5.54
Number of refrigerant circuits		2	2	2	2	2	2	2	2
Number of compressors		2	2	2	2	2	2	2	2
Sound power level (3)	(dBA)	90	90	97	99	99	99	98	96
<b>Weights and dimensions (operating) (6)</b>									
Length	(mm)	3210	3210	3210	3223	3318	3223	3235	3395
Width	(mm)	1131	1131	1131	1118	1118	1118	1118	1302
Height	(mm)	1938	1938	1938	1955	1955	1955	1955	1943
Weight	(kg)	2788	2796	2829	3102	3144	3182	3372	3945
Clearance A	(mm)	920	920	920	920	920	920	920	920
Clearance B	(mm)	920	920	920	920	920	920	920	920

RTWD		140 HSE	160 HSE	180 HSE	200 HSE	220 HSE	250 HSE	260 HSE	270 HSE
Net heating capacity (2)(5)	(kW)	583.9	654.3	718.8	771.7	843.7	921.9	995.0	1071.2
Total power input in heating net (2)(5)	(kW)	137.6	147.3	162.2	173.6	195.1	211.4	241.1	260.8
COP net (2)(5)		4.24	4.44	4.43	4.44	4.32	4.36	4.13	4.11
Eurovent class		B	B	B	B	B	B	C	C
Net cooling capacity (1)(5)	(kW)	514.0	582.7	638.4	684.2	740.0	808.9	865.2	933.0
Total power input net (1)(5)	(kW)	117.6	126.4	140.0	151.4	170.1	184.3	208.5	225.4
EER net (5)		4.37	4.61	4.56	4.52	4.35	4.39	4.15	4.14
Eurovent class		C	C	C	C	C	C	D	D
ESEER net (5)		5.66	5.95	5.78	6.14	5.58	5.71	5.1	5.18
Number of refrigerant circuits		2	2	2	2	2	2	2	2
Number of compressors		2	2	2	2	2	2	2	2
Sound power level (3)	(dBA)	96	96	101	101	101	101	101	101
<b>Weights and dimensions (operating) (6)</b>									
Length	(mm)	3395	3752	3811	3489	3489	3489	3489	3489
Width	(mm)	1302	1302	1332	1341	1341	1341	1341	1341
Height	(mm)	1943	2004	2004	2004	2004	2004	2004	2004
Weight	(kg)	3996	4386	4622	4839	4718	4793	4718	4793
Clearance A	(mm)	920	920	920	920	920	920	920	920
Clearance B	(mm)	920	1020	1020	1020	1020	1020	1020	1020

(1) Evaporator 12/7°C and 0.0176 m2K/kW, and condenser at 30/35°C and 0.044m2K/kW

(2) Evaporator 10/7°C and 0.0176m2K/kW, and condenser 40/45°C and 0.044m2K/kW

(3) At full load and in accordance with ISO9614 without sound attenuating enclosure

(4) Inrush current in star connection

(5) Net performances calculated as per EN 14511-2013.

(6) Maximum dimensions and weight for this size

(7) ηs/SCOP as defined in Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for space heaters and combination heaters with P rated <400 kW - COMMISSION REGULATION (EU) No 813/2013 of 2 August 2013: Med. temp. application 10/7°C





# RTWF

## Water-to-water helical-rotary heat pump XStream™



### Customer benefits

- Extended and unmatched capacities
- High efficiencies
- Reliability: Trane helical-rotary compressor and double refrigerant circuit
- State-of-the-art control to guarantee superior dependability and low cost of ownership
- Optional Trane Adaptive Frequency™ Drive (AFD) for part load efficiency enhancement.

### Main features

- High leaving water temperature up to 68°C
- 3 different levels of efficiency (SE–HE–HSE)
- Dual circuit and multiple compressors
- Low-speed, direct-drive semi-hermetic helical rotary compressor, suction-gas-cooled motor
- Trane patented CHIL evaporator
- Fully modulating load control (15–100%)
- Adaptive Control™ microprocessor system enhances chiller by providing the latest chiller control technology
- Variable Primary Flow full compatibility

### Options

- Right hand or left hand connections

### Accessories

- Flow switch
- Anti-vibration accessories: neoprene isolators

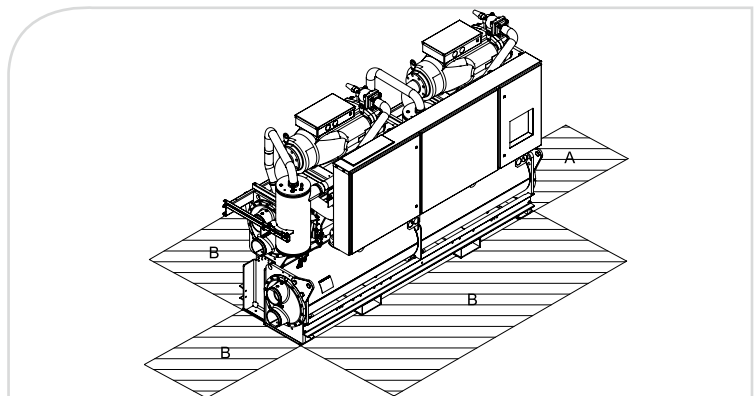
### Controls

- Ultimate control: UC800
  - Easy to read 7-inch color touchscreen display
  - Industry leading algorithms
  - Open protocol design
  - Adaptive control
- Variable Primary Flow control at evaporator and/or condenser
- Feedforward Adaptive control
- Softloading (HSE)
- Rapid Restart
- SmartCom interface: BACnet® MSTP, BACnet® IP, BACnet® RTU, Modbus® RTU and LonTalk® communication interfaces
- Master/Slave operation
- Energy metering

		RTWF
Condenser leaving water temperature (min/max)	(°C)	10 / 68
Evaporator leaving water temperature (min/max)	(°C)	-12/20
Power supply	(V/Ph/Hz)	400/3/50
Refrigerant		R134a

\* up to 50°C with capacity limitation depending on model and size

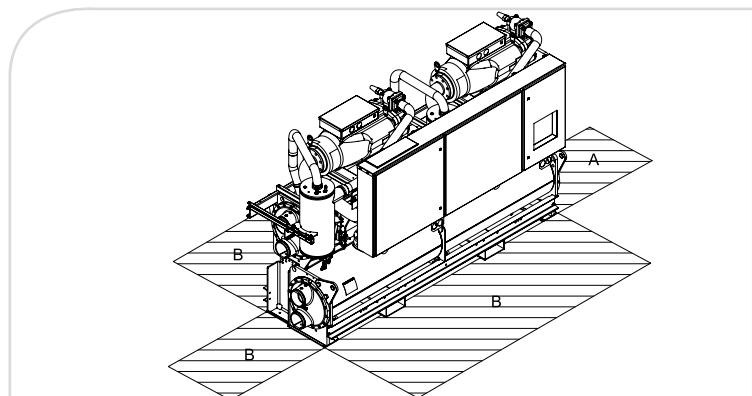
<b>RTWF SE (with heating option)</b>		<b>275 SE</b>	<b>290 SE</b>	<b>310 SE</b>	<b>330 SE</b>	<b>370 SE</b>	<b>410 SE</b>	<b>450 SE</b>	<b>490 SE</b>
Gross heating capacity (1)	(kW)	1038	1088	1151	1217	1349	1540	1673	1804
Gross COP (1)		4.59	4.57	4.58	4.54	4.62	4.59	4.62	4.65
Net heating capacity (1)	(kW)	1041	1091	1155	1222	1354	1546	1679	1811
COP (1)		4.37	4.34	4.35	4.38	4.39	4.39	4.39	4.43
<b>High temperature application (2)</b>									
Net heating capacity (2)	(kW)	975	1023	1083	1146	1272	1448	1575	1700
COP (2)		3.61	3.60	3.61	3.64	3.65	3.62	3.65	3.68
Number of refrigerant circuits		2							
Number of compressors		3	3	3	3	3	4	4	4
Sound power level (3)	(dB(A))	100	100	101	101	101	102	102	102
<b>Weights and dimensions (operating)</b>									
Length	(mm)	4758	4784	4784	4784	4774	4774	4774	4774
Width	(mm)	1668	1668	1668	1668	1668	1766	1766	1766
Height	(mm)	2034	2034	2034	2034	2034	2137	2137	2137
Weight	(mm)	5278	5186	5373	5427	5486	6938	7016	7099
Clearance A	(mm)	4000							
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
<b>Electrical Data</b>									
Maximum amps	(A)	543	568	603	642	720	806	882	960
Start-up amps	(A)	633	661	693	756	834	896	996	1074



<b>RTWF HE (with heating option)</b>		275 HE	290 HE	310 HE	330 HE	370 HE	410 HE	450 HE	490 HE
Gross heating capacity (1)	(kW)	1052	1104	1171	1235	1359	1560	1692	1828
Gross COP (1)		4.81	4.80	4.79	4.89	4.88	4.81	4.83	4.87
Net heating capacity (1)	(kW)	1054	1106	1174	1237	1361	1562	1695	1831
COP (1)		4.62	4.59	4.60	4.62	4.65	4.60	4.72	4.68
<b>High temperature application (2)</b>									
Net heating capacity (2)	(kW)	-	1041	1105	1166	-	1470	1597	1725
COP (2)		-	3.81	3.81	3.83	-	3.83	3.84	3.88
Number of refrigerant circuits		2							
Number of compressors		3	3	3	3	3	4	4	4
Sound power level (3)	(dB(A))	100	100	101	101	101	102	102	102
<b>Weights and dimensions (operating)</b>									
Length	(mm)	4758	4758	4784	4784	4784	4774	4774	4774
Width	(mm)	1668	1668	1668	1668	1668	1766	1766	1766
Height	(mm)	2036	2036	2036	2036	2036	2137	2137	2137
Weight	(mm)	5619	5511	5716	5766	5904	7344	7464	7565
Clearance A	(mm)	4000							
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000
<b>Electrical Data</b>									
Maximum amps	(A)	543	568	603	642	720	806	882	960
Start-up amps	(A)	633	661	693	756	834	896	996	1074

<b>RTWF HSE (with heating option)</b>		275 HSE	290 HSE	310 HSE	330 HSE	370 HSE	410 HSE	450 HSE	490 HSE	515 HSE
Gross Heating capacity (1)		1058	1111	1180	1244	1387	1568	1701	1855	2033
Gross COP (1)		4.76	4.74	4.71	4.76	4.78	4.76	4.78	4.79	4.70
Net heating capacity (1)	(kW)	1060	1113	1183	1246	1389	1571	1704	1858	2037
COP (1)		4.57	4.54	4.53	4.56	4.55	4.55	4.68	4.60	4.50
<b>High temperature application (2)</b>										
Net heating capacity (2)	(kW)	-	1050.3	1115.2	1176.3	-	1480.6	1607.5	1753.8	1925.2
COP (2)		-	3.86	3.83	3.87	-	3.87	3.89	3.90	3.86
Number of refrigerant circuits		2								
Number of compressors		3	3	3	3	3	4	4	4	4
Sound power level (3)	(dB(A))	100	100	101	101	101	102	102	102	107
<b>Weights and dimensions (operating)</b>										
Length	(mm)	4758	4758	4784	4784	4784	4774	4774	4774	4774
Width	(mm)	1668	1668	1668	1668	1668	1766	1766	1766	1766
Height	(mm)	2034	2034	2034	2034	2034	2137	2137	2137	2137
Weight	(mm)	5794	5686	5930	5980	6118	7558	7678	7779	7737
Clearance A	(mm)	4000								
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000
<b>Electrical Data</b>										
Maximum amps	(A)	519	543	578	617	688	779	857	928	957
Start-up amps	(A)	609	633	668	731	802	869	971	1042	1071

- (1) Condenser water temperature 40 / 45°C, according to EN 14511-2013.  
(2) Condenser water temperature 47 / 55°C, according to EN 14511-2013.  
(3) At full load and in accordance with ISO9614





# RTXB

## Reversible air-to-water helical-rotary heat pump



### Customer benefits

- Eco-friendly, safe and efficient refrigerant R134a
- Compact dimensions allow for flexible installations in both new and existing buildings
- Simplified maintenance operations thanks to easy access to components

### Main features

- Helical-rotary compressors
- High efficiency axial fans
- Shell and tube type heat exchangers on water side
- High efficiency finned coils with seamless copper tubes expanded into corrugated aluminium
- Electronic expansion valves
- Galvanized and painted steel casing and panels
- Numbered wires

### Options

- Screw compressors with stepless capacity control
- Low Noise version with insulated compressors housing and two speed fan motors. Super Low Noise version with insulated compressors housing, oversized coils and variable fan speed regulation
- Soft starter
- Low ambient temperature kit for operation down to  $-10^{\circ}\text{C}$  in heat pump mode
- Condensing control with variable fan speed modulation for operation down to  $+10^{\circ}\text{C}$  in cooling mode
- Power factor correction to  $\cos \phi$  0.91
- Automatic circuit breakers for compressors and/or fans
- Star-Delta starter
- Control panel electric heater with thermostat

- Phase failure protection relay
- Anti-intrusion and/or condensing coil protection grilles
- Gas gauges
- Pre-painted, epoxy coated, copper/copper or tinned copper/copper condensing coils

### Accessories

- Flow switch
- Automatic water filling
- Water Victaulic™ kit
- Water strainer
- Water gauges
- Rubber and/or spring anti-vibration mounts

### Controls

- Standard 8 button LCD display
- 32 bit microprocessor with a 4MB storage memory, real time clock for alarms storage, multi-language control software
- Communication card RS485
- Optional
  - Remote control display
  - LonTalk®, BACnet® communication capabilities

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.

Heating operating outdoor air temperature range (min./max.)	(°C)	-7 / 20
Heating leaving water temperature range (min./max.)	(°C)	26 / 54
Cooling operating outdoor air temperature range (min./max.) (1)	(°C)	20 / 45
Cooling leaving water temperature range (min./max.) (2)	(°C)	-6 / 15
Power supply	(V/Ph/Hz)	400/3+n/50

RTXB Standard Noise		140	150	160	180	190	220	250	300
Net heating capacity (3)	(kW)	545	568	614	664	703	806	948	1094
Total power input (3)	(kW)	155	162	173	202.5	213.8	247.3	287.5	344.2
COP (3)		3.52	3.51	3.54	3.28	3.29	3.26	3.30	3.18
Cooling capacity (4)	(kW)	476	515	555	634	649	767	909	1052
Total power input (4)	(kW)	182	198	209	217.3	223.1	263.7	312.6	378.7
EER (4)		2.62	2.6	2.66	2.92	2.91	2.91	2.91	2.78
ESEER (4)		2.78	2.79	2.88	3.50	3.55	3.61	3.74	3.59
Sound power level (5)	(dBA)	93	94	94	95	95	95	95	96
Sound pressure level (6)	(dBA)	60	61	61	62	62	62	62	63
Number of circuit(s)		2	2	2	2	2	2	2	2
Number of compressors per circuit		2	2	2	2	2	2	2	2
<b>Dimensions and weight (operating)</b>									
Length	(mm)	6475	6475	7645	8610	8610	9580	10550	11520
Width	(mm)	2260	2260	2260	2260	2260	2260	2260	2260
Height	(mm)	2400	2400	2400	2400	2400	2400	2400	2400
Clearance A	(mm)	1500	1500	1500	1500	1500	1500	1500	1500
Clearance B	(mm)	1500	1500	1500	1500	1500	1500	1500	1500
Clearance C	(mm)	500	500	500	500	500	500	500	500
Clearance D	(mm)	1500	1500	1500	1500	1500	1500	1500	1500
Weight	(kg)	5604	6034	7161	8126	8228	9647	11543	11677
<b>Electrical data</b>									
Maximum amps	(A)	361	414	420	444	491	582	658	778
Start-up amps	(A)	669	746	752	776	833	886	808	1008

(1) With low ambient temperature option

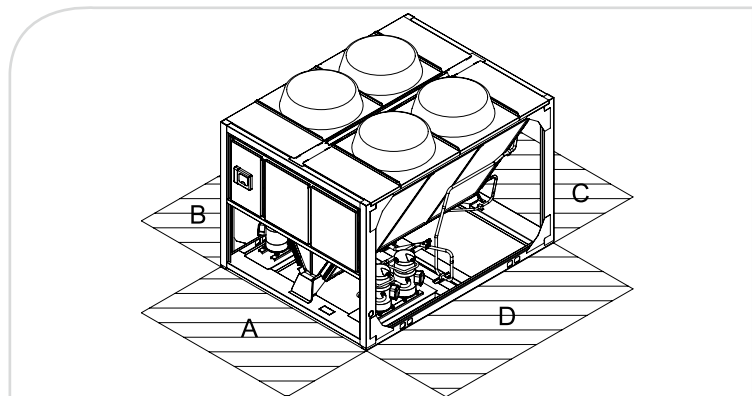
(2) With process cooling option

(3) At Eurovent conditions: 40/45°C entering/leaving water temperature and DB/WB 7°C/6°C ambient temperature according to EN 14511-2013.

(4) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.

(5) At Eurovent conditions, with 1pW reference sound power, according to ISO9614

(6) Average at 10 meters in a free field. This is non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepiped box with five exposed face areas.



Heating operating outdoor air temperature range (min./max.)	(°C)	-7 / 20
Heating leaving water temperature range (min./max.)	(°C)	26 / 54
Cooling operating outdoor air temperature range (min./max.) (1)	(°C)	20 / 45
Cooling leaving water temperature range (min./max.) (2)	(°C)	-6 / 15
Power supply	(V/Ph/Hz)	400/3+n/50

RTXB Low Noise		140	150	160	180	190	220	250	300
Net heating capacity (3)	(kW)	537	559	614	660.5	694.1	803.1	845	1082.6
Total power input (3)	(kW)	150	157	169	198	209	242	268	336
COP (3)		3.57	3.56	3.64	3.34	3.32	3.32	3.30	3.23
Cooling capacity (4)	(kW)	469	506	548	627.2	639.9	757.4	888.1	1034.5
Total power input (4)	(kW)	184.82	200.87	211.59	219.2	228.0	269.0	312.4	385.0
EER (4)		2.54	2.52	2.59	2.86	2.81	2.82	2.84	2.69
ESEER (4)		2.80	2.82	2.93	3.46	3.46	3.54	3.69	3.51
Sound power level (5)	(dBA)	90	91	91	93	93	93	93	94
Sound pressure level (6)	(dBA)	57	58	58	60	60	60	60	61
Number of circuit(s)		2	2	2	2	2	2	2	2
Number of compressors per circuit		2	2	2	2	2	2	2	2
<b>Dimensions and weight (operating)</b>									
Length	(mm)	6475	6475	7645	8610	8610	9580	10550	11520
Width	(mm)	2260	2260	2260	2260	2260	2260	2260	2260
Height	(mm)	2400	2400	2400	2400	2400	2400	2400	2400
Clearance A	(mm)	1500	1500	1500	1500	1500	1500	1500	1500
Clearance B	(mm)	1500	1500	1500	1500	1500	1500	1500	1500
Clearance C	(mm)	500	500	500	500	500	500	500	500
Clearance D	(mm)	1500	1500	1500	1500	1500	1500	1500	1500
Weight	(kg)	5954	6384	7511	8526	8628	10047	11943	12077
<b>Electrical data</b>									
Maximum amps	(A)	361	414	420	444	491	582	658	778
Start-up amps	(A)	669	746	752	776	833	886	808	1008

(1) With low ambient temperature option

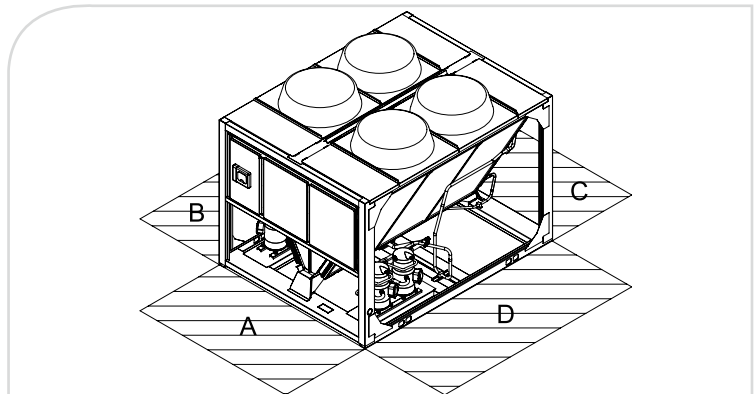
(2) With process cooling option

(3) At Eurovent conditions: 40/45°C entering/leaving water temperature and DB/WB 7°C/6°C ambient temperature according to EN 14511-2013.

(4) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.

(5) At Eurovent conditions, with 1pW reference sound power, according to ISO9614

(6) Average at 10 meters in a free field. This is non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepipedic box with five exposed face areas.



Heating operating outdoor air temperature range (min./max.)	(°C)	-7 / 20
Heating leaving water temperature range (min./max.)	(°C)	26 / 54
Cooling operating outdoor air temperature range (min./max.) (1)	(°C)	20 / 45
Cooling leaving water temperature range (min./max.) (2)	(°C)	-6 / 15
Power supply	(V/Ph/Hz)	400/3+n/50

RTXB Super Low Noise		140	150	160	180	190	220	250	300
Net heating capacity (3)	(kW)	487.19	503.67	558.39	638.4	687.2	798.2	895.5	1087.6
Total power input (3)	(kW)	147.63	153.09	165.2	194.5	206.8	240.0	281.2	340.8
COP (3)		3.30	3.29	3.38	3.28	3.32	3.33	3.18	3.19
Cooling capacity (4)	(kW)	468.19	506.72	546.14	595.7	634.0	744.9	870.1	1009.6
Total power input (4)	(kW)	185.79	198.71	211.68	211.5	225.9	265.7	301.0	373.3
EER (4)		2.52	2.55	2.58	2.82	2.81	2.80	2.89	2.70
ESEER (4)		2.82	2.85	2.95	3.30	3.33	3.43	3.67	3.42
Sound power level (5)	(dBA)	88	89	89	90	90	90	90	91
Sound pressure level (6)	(dBA)	55	56	56	57	57	57	57	58
Number of circuit(s)		2	2	2	2	2	2	2	2
Number of compressors per circuit		2	2	2	2	2	2	2	2
<b>Dimensions and weight (operating)</b>									
Length	(mm)	6475	6475	7645	8610	8610	9580	10550	11520
Width	(mm)	2260	2260	2260	2260	2260	2260	2260	2260
Height	(mm)	2400	2400	2400	2400	2400	2400	2400	2400
Clearance A	(mm)	1500	1500	1500	1500	1500	1500	1500	1500
Clearance B	(mm)	1500	1500	1500	1500	1500	1500	1500	1500
Clearance C	(mm)	500	500	500	500	500	500	500	500
Clearance D	(mm)	1500	1500	1500	1500	1500	1500	1500	1500
Weight	(kg)	6590	7019	7523	8534	8646	10067	12283	13215
<b>Electrical data</b>									
Maximum amps	(A)	361	414	420	444	491	582	658	784
Start-up amps	(A)	669	746	752	776	833	886	808	1014

(1) With low ambient temperature option

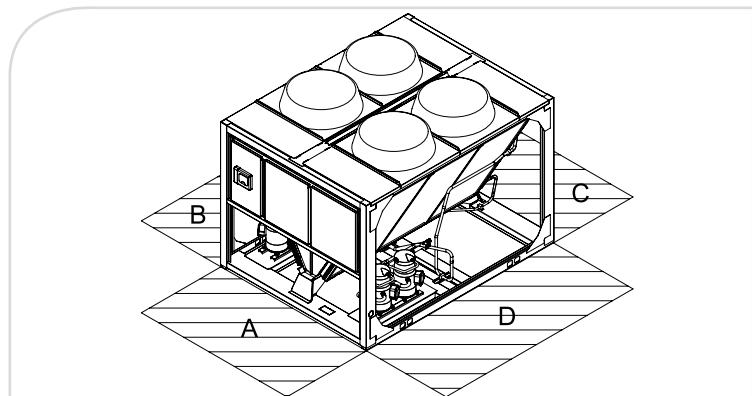
(2) With process cooling option

(3) At Eurovent conditions: 40/45°C entering/leaving water temperature and DB/WB 7°C/6°C ambient temperature according to EN 14511-2013.

(4) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient temperature according to EN 14511-2013.

(5) At Eurovent conditions, with 1pW reference sound power, according to ISO9614

(6) Average at 10 meters in a free field. This is non-contractual data, calculated from the above certified sound power level according to the formula  $L_p=L_w-10\log S$ . This is an averaged value considering the unit as a parallelepiped box with five exposed face areas.





# Notes

A series of horizontal dotted lines for taking notes.





**TRANE**



# *Multi-pipe Units*

*The continuous drive to improve energy efficiency of building systems requires an optimal balancing in the demand and supply of both heating and cooling. Trane's multi-pipe units prove to be a sustainable solution for many applications.*



# CMAB/RTMA

## Multi-pipe units

## Scroll or screw compressors



### Customer benefits

- Simplicity: one unit provides both heating and cooling
- High diversity in air conditioning applications with a **simultaneous** heating and cooling demand
- Optimal use of renewable energy for heating
- Full energy recovery to strongly reduce annual operating costs and carbon emissions
- Autonomously handle all thermal loads while adjusting itself in order to optimize energy efficiency
- Simultaneous heating and cooling capacity control
- Different from a traditional reversible heat pump there are two separate heat exchangers for chilled and hot water production

### Range description

**CMAB SE/HE:** fixed speed scroll compressors

**CMAB HSE:** variable speed scroll compressors

**RTMA:** fixed speed screw compressors

### Main features

- “Best-in-class” energy efficiency – high efficiency heat exchangers and compressors
- Industry leading acoustic comfort levels
- Variable speed driven scroll compressors (CMAB HSE only)
- Stainless steel, AISI 316, brazed plate evaporator and recovery heat exchangers (all CMAB)
- W or V shaped coils for improved air flow and easy maintenance access
- Cross Exchange HX technology – avoids shutdowns caused by anti-freeze alarms
- High precision electronic expansion valves
- Large operating map
- Dynamic Logic Control – an electronic controller managing the differential of the inlet water temperature on the basis of speed of its variation
- Innovative electronic controller significantly decreases the number of defrosting cycles (up to 50 % less)
- Serial card RS485 for Modbus

### Options

- Acoustic packages: low noise or super low noise
- Different built-in hydraulic kits available with chilled water and hot water pumps of 150/250/450 kPa and with or without stand-by pumps
- Electronically Commutated (EC) fans with innovative fan profile to reduce power input and noise emissions
- Module for high temperature hot water up to 65°C (RTMA only)
- Compressor sound attenuating jackets
- Condensing coil protection grilles
- Epoxy coated condensing coils
- Power factor correction to cos phi 0.91
- High static pressure EC fans up to 100 Pa
- Control panel electric heater with thermostat
- Soft starter
- Automatic circuit breakers

### Accessories

- Serial card with BACnet™ protocol TCP/IP or MS/TP
- LonTalk™ gateway
- Remote control display
- Automatic water filling
- Water gauges /gas gauges
- Rubber or spring anti-vibration mounts

### Controls

- For units with 2/3/4 independent refrigerant circuits the precise control is by 2 separate controllers ensuring maximum reliability and redundancy. The 2 controllers are interconnected and communicate via the ModBus™ protocol
- Ability to interface with main BMS systems via ModBus™, BACnet™ or LonTalk™
- Condenser/evaporator pressure control with variable fan speed modulation to allow low ambient operation, in heating mode, down to -18°C (scroll) and -15°C (screw)
- Phase failure protection on compressors and fans
- Compressor rotation with FIFO logic

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.

**CMAB SE/HE with fixed speed scroll compressors, R410A refrigerant**

Cooling mode operating outdoor air temperature range (min./max.)	(°C)	22/45 for Standard & SL 22/43 for LN
Cooling mode leaving water temperature range (min./max.)	(°C)	-6 / 18
Heating mode operating outdoor air temperature range (min./max.)	(°C)	-18 / 19
Heating mode leaving water temperature range (min./max.)	(°C)	22 / 60
Power supply	(V/Ph/Hz)	400 / 3+n / 50

CMAB SE Standard Noise*		50	55	65	85	110	140	155	175
<b>Cooling (1)</b>									
Cooling capacity	(kW)	45.2	51.2	59.9	77.7	103	126	139	159
Power input	(kW)	17.1	19.3	23.3	29.8	41.0	49.7	56.9	62.6
EER	(kW/kW)	2.64	2.65	2.57	2.60	2.51	2.55	2.44	2.53
ESEER	(kW/kW)	3.16	3.30	3.42	3.15	3.22	3.27	2.89	3.04
<b>Heating (2)</b>									
Heating capacity	(kW)	49.1	55.8	65.7	86.2	110	138	152	174
Power input	(kW)	17.1	19.2	22.5	30.0	38.3	47.9	53.0	61.9
Total COP	(kW/kW)	2.88	2.91	2.92	2.87	2.86	2.89	2.86	2.82
<b>Seasonal efficiency (4)</b>									
P rated	(kW)	41.8	46.9	54.8	75.4	94.6	118.9	139.9	155.8
η <sub>s</sub>	(%)	115	115	115	115	115	115	115	115
SCOP	(kW/kW)	2.95	2.95	2.96	2.95	2.95	2.96	2.95	2.95
Energy efficiency class		A	A	A	A	A	A	A	A
<b>Heating + Cooling (3)</b>									
Total cooling capacity	(kW)	43.8	50.2	59.9	75.0	106	127	143	157
Total heating capacity	(kW)	58.5	67.0	80.0	102	141	170	191	211
Total power input	(kW)	14.7	16.8	20.2	26.5	35.1	43.2	48.7	54.2
Total Efficiency Ratio	(kW/kW)	6.95	6.99	6.94	6.66	7.02	6.89	6.85	6.78
<b>Compressors</b>									
Number of scroll compressors		2	2	2	2	2	2	2	2
Number of refrigerant circuits		1	1	1	1	1	1	1	1
Number of part load steps		3	3	2	2	2	2	3	2
Minimum capacity step	(%)	45	39	50	50	50	50	45	50
<b>Fans</b>									
Number of fans		2	2	2	3	3	4	4	6
Air flow	(m³/h)	39388	39388	39388	58988	58988	79031	79031	118168
<b>Sound level</b>									
Sound power level (ISO 3744)	(db(A))	81	81	81	83	87	87	87	88
Sound pressure level at 10 m (ISO 3744)	(db(A))	50	50	51	53	56	56	57	58
<b>Dimensions and weight (operating)</b>									
Length	(mm)	2560	2560	2560	3559	3559	2617	2617	3565
Width	(mm)	1100	1100	1100	1100	1100	2200	2200	2260
Height	(mm)	2131	2131	2131	2179	2179	2175	2175	2400
Weight	(kg)	909	913	922	1117	1199	1470	1563	2038

(1) According EN 14511-2013. Outdoor air temperature 35°C – Chilled water temperature 12/7°C

(2) According EN 14511-2013. Outdoor air temperature 7°C with 90% RH – Hot water temperature 40/45 °C

(3) Heat recovery mode: Hot water temperature 40/45 °C – Chilled water temperature 12/7 °C

(4) According EN14825. Ecodesign rating at low temperature conditions. Outdoor air temperature 7°C dry bulb/6°C wet bulb - Hot water temperature 30°C/35°C

\* CMAB SE units are also available in Low Noise and Super Low Noise. For a detailed selection please contact your Trane sales office.

CMAB SE Standard Noise*	210	260	305	350	370	435	495	525	
<b>Cooling (1)</b>									
Cooling capacity	(kW)	187	227	268	313	331	382	431	454
Power input	(kW)	78.1	91.4	114.7	120.9	130.3	159.7	167.7	180.6
EER	(kW/kW)	2.39	2.48	2.34	2.59	2.54	2.39	2.57	2.52
ESEER	(kW/kW)	3.17	3.40	3.46	3.47	3.48	3.58	3.34	3.31
<b>Heating (2)</b>									
Heating capacity	(kW)	212	259	306	351	371	434	493	524
Power input	(kW)	71.3	84.3	99.2	112	119	140	168	179
Total COP	(kW/kW)	2.97	3.07	3.08	3.12	3.11	3.09	2.94	2.92
<b>Seasonal efficiency (4)</b>									
P rated	(kW)	177.4	213.8	254.3	292.8	309.0	360.0	-	-
ηs	(%)	116	118	119	120	120	119	-	-
SCOP	(kW/kW)	2.97	3.04	3.06	3.08	3.07	3.06	-	-
Energy efficiency class		A	A	A	A	A	A	-	-
<b>Heating + Cooling (3)</b>									
Total cooling capacity	(kW)	195	234	290	319	341	403	428	453
Total heating capacity	(kW)	259	313	384	424	453	537	579	615
Total power input	(kW)	64.8	78.3	94.0	104.7	112	134	150	162
Total Efficiency Ratio	(kW/kW)	7.01	6.99	7.16	7.10	7.09	7.03	6.70	6.57
<b>Compressors</b>									
Number of scroll compressors		4	4	4	4	4	4	6	6
Number of refrigerant circuits		2	2	2	2	2	2	3	3
Number of part load steps		7	7	8	4	7	4	14	6
Minimum capacity step	(%)	14	14	23	25	13	25	21	17
<b>Fans</b>									
Number of fans		6	6	6	8	8	8	12	12
Air flow	(m <sup>3</sup> /h)	118168	113416	113416	152488	152488	152488	229108	229108
<b>Sound level</b>									
Sound power level (ISO 3744)	(db(A))	89	90	90	91	93	96	92	93
Sound pressure level at 10 m (ISO 3744)	(db(A))	59	59	59	60	62	65	62	62
<b>Dimensions and weight (operating)</b>									
Length	(mm)	3565	3565	3565	4535	4535	4535	7038	7038
Width	(mm)	2260	2260	2260	2260	2260	2260	2170	2170
Height	(mm)	2400	2400	2400	2400	2400	2400	2400	2400
Weight	(kg)	2241	2415	2556	3136	3153	3227	4357	4379

(1) According EN 14511-2013. Outdoor air temperature 35°C – Chilled water temperature 12/7 °C

(2) According EN 14511-2013. Outdoor air temperature 7°C with 90% RH - Hot water temperature 40/45 °C

(3) Heat recovery mode: Hot water temperature 40/45 °C – Chilled water temperature 12/7 °C

(4) According EN14825. Ecodesign rating at low temperature conditions. Outdoor air temperature 7 °C dry bulb/6 °C wet bulb - Hot water temperature 30°C/35 °C

\* CMAB SE units are also available in Low Noise and Super Low Noise. For a detailed selection please contact your Trane sales office.

CMAB HE Standard Noise*		50	60	70	90	120	130	145	165	180	220	260	320	355
<b>Cooling (1)</b>														
Cooling capacity	(kW)	48.2	55.1	65.2	84.9	111	122	131	151	165	200	239	291	321
Power input	(kW)	16.3	18.3	21.7	28.2	37.7	43.0	47.6	54.3	60.2	74.3	89.2	108	118
EER	(kW/kW)	2.95	3.01	3.00	3.01	2.93	2.84	2.76	2.78	2.74	2.69	2.68	2.70	2.73
ESEER	(kW/kW)	3.39	3.58	3.71	3.49	3.56	3.41	3.41	3.35	3.40	3.45	3.57	3.82	3.56
<b>Heating (2)</b>														
Heating capacity	(kW)	50.6	57.9	69.2	90.6	119	132	144	162	178	217	260	320	355
Power input	(kW)	16.7	18.7	21.9	29.4	38.1	43.4	46.0	53.5	58.8	70.8	83.5	102	112
Total COP	(kW/kW)	3.03	3.10	3.16	3.08	3.11	3.03	3.14	3.03	3.04	3.07	3.12	3.15	3.16
<b>Seasonal efficiency in heating mode (4)</b>														
P rated	(kW)	41.0	46.8	55.8	75.3	98	111	122	133	147	179	215	258	298
$\eta_s$	(%)	125	127	130	125	129	125	130	125	125	127	129	130	130
SCOP	(kW/kW)	3.19	3.24	3.32	3.20	3.29	3.20	3.32	3.19	3.19	3.24	3.31	3.33	3.33
Energy efficiency class		A+	A+	A+	A+	A+	A+	A+	A+	A+	A+	A+	A+	A+
<b>Cooling + Heating (3)</b>														
Total cooling capacity	(kW)	46.0	52.8	62.9	79.9	108	118	131	150	165	200	242	298	322
Total heating capacity	(kW)	60.3	69.1	82.6	106	142	157	172	196	216	264	319	345	426
Total power input	(kW)	14.3	16.3	19.7	25.8	34.6	38.8	41.1	46.0	51.4	63.4	76.7	46.4	104
Total Efficiency Ratio	(kW/kW)	7.45	7.48	7.38	7.19	7.21	7.09	7.37	7.54	7.42	7.32	7.32	13.85	7.19
<b>Compressors</b>														
Number of scroll compressors		2	2	2	2	2	2	2	2	4	4	4	4	4
Number of refrigerant circuits		1	1	1	1	1	1	1	2	2	2	2	2	2
Number of part load steps		3	3	2	2	2	3	2	3	2	7	7	8	4
Minimum capacity step	(%)	45	39	50	50	50	45	50	45	50	8	14	23	25
<b>Fans</b>														
Number of fans		2	2	2	3	3	4	4	6	6	6	6	8	8
Air flow	(m <sup>3</sup> /h)	35588	35588	35588	53380	53380	71808	71808	118168	118168	113416	107712	144628	144628
<b>Sound level</b>														
Sound power level (ISO 3744)	(dB(A))	82	82	82	84	88	88	88	89	89	90	91	91	92
Sound pressure level at 10 m (ISO 3744)	(dB(A))	50	50	50	52	56	56	56	57	57	58	59	59	59
<b>Dimensions and weight (operating)</b>														
Length	(mm)	2560	2560	2560	3559	3559	2617	2617	3565	3565	3565	3565	4535	4535
Width	(mm)	1100	1100	1100	1100	1100	2201	2201	2260	2260	2260	2260	2260	2260
Height	(mm)	2131	2131	2131	2179	2179	2175	2175	2400	2400	2400	2400	2400	2400
Weight	(kg)	1030	1034	1043	1289	1381	1466	1608	2202	2255	2401	2709	3144	3382

(1) According EN 14511-2013. Outdoor air temperature 35°C – Chilled water temperature 12/7 °C

(2) According EN 14511-2013. Outdoor air temperature 7°C with 90% RH - Hot water temperature 40/45 °C

(3) Heat recovery mode: Hot water temperature 40/45 °C – Chilled water temperature 12/7 °C

(4) According EN14825. Ecodesign rating at low temperature conditions. Outdoor air temperature 7 °C dry bulb/6 °C wet bulb - Hot water temperature 30/35 °C

\* CMAB HE units are also available in Super Low Noise. For a detailed selection please contact your Trane sales office.

CMAB HE Standard Noise*		375	455	500	535	575	600	660	710	755	800	840	880
<b>Cooling (1)</b>													
Cooling capacity	(kW)	341	406	451	474	513	533	582	643	678	713	746	779
Power input	(kW)	126	148	165	177	194	203	231	235	253	271	289	308
EER	(kW/kW)	2.70	2.74	2.74	2.67	2.64	2.63	2.52	2.73	2.68	2.63	2.58	2.53
ESEER	(kW/kW)	3.58	3.98	3.47	3.42	3.51	3.48	3.67	3.56	3.54	3.48	3.40	3.66
<b>Heating (2)</b>													
Heating capacity	(kW)	377	455	501	534	576	598	662	710	754	797	839	881
Power input	(kW)	120	145	161	173	187	193	215	224	239	253	268	282
Total COP	(kW/kW)	3.15	3.14	3.10	3.09	3.08	3.09	3.07	3.17	3.16	3.15	3.14	3.13
<b>Seasonal efficiency in heating mode (4)</b>													
P rated	(kW)	316	371	-	-	-	-	-	-	-	-	-	-
ηs	(%)	130	130	-	-	-	-	-	-	-	-	-	-
SCOP	(kW/kW)	3.33	3.32	-	-	-	-	-	-	-	-	-	-
Energy efficiency class		A+	A+	-	-	-	-	-	-	-	-	-	-
<b>Cooling + Heating (3)</b>													
Total cooling capacity	(kW)	342	406	449	473	521	543	600	652	692	733	772	812
Total heating capacity	(kW)	454	540	596	631	694	723	804	860	916	971	1026	1080
Total power input	(kW)	112	134	146	158	173	181	204	208	223	238	253	268
Total Efficiency Ratio	(kW/kW)	7.14	7.05	7.13	6.97	7.02	7.01	6.89	7.26	7.21	7.16	7.10	7.05
<b>Compressors</b>													
Number of scroll compressors		4	4	6	6	6	6	6	8	8	8	8	8
Number of refrigerant circuits		2	2	3	3	3	3	3	4	4	4	4	4
Number of part load steps		7	4	14	6	14	15	6	8	20	30	20	8
Minimum capacity step	(%)	13	25	21	17	19	19	17	13	15	14	15	13
<b>Fans</b>													
Number of fans		8	10	12	12	12	12	12	16	16	16	16	16
Air flow	(m <sup>3</sup> /h)	144628	181104	219608	219608	219608	219608	219608	289256	289256	289256	289256	289256
<b>Sound level</b>													
Sound power level (ISO 3744)	(db(A))	94	97	93	94	96	97	98	95	97	98	99	100
Sound pressure level at 10 m (ISO 3744)	(db(A))	61	64	61	61	63	64	66	62	64	65	66	67
<b>Dimensions and weight (operating)</b>													
Length	(mm)	4535	5505	7038	7038	7038	7038	7038	8155	8155	8155	8155	8155
Width	(mm)	2260	2260	2170	2170	2170	2170	2170	2170	2170	2170	2170	2170
Height	(mm)	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400	2400
Weight	(kg)	3401	3836	4572	4678	4845	4882	4935	6157	6193	6228	6263	6298

(1) According EN 14511-2013. Outdoor air temperature 35°C – Chilled water temperature 12/7 °C

(2) According EN 14511-2013. Outdoor air temperature 7°C with 90% RH - Hot water temperature 40/45 °C

(3) Heat recovery mode: Hot water temperature 40/45 °C – Chilled water temperature 12/7 °C

(4) According EN14825. Ecodesign rating at low temperature conditions. Outdoor air temperature 7 °C dry bulb/6 °C wet bulb - Hot water temperature 30/35 °C

\* CMAB HE units are also available in Super Low Noise. For a detailed selection please contact your Trane sales office.

**CMAB HSE with variable speed scroll compressors, R410A refrigerant**

CMAB HSE Standard Noise*	75	100	120	135	150	165	185	225	255	
<b>Cooling (1)</b>										
Cooling capacity	(kW)	66.8	93.0	108	126	136	152	167	199	232
Power input	(kW)	25.1	33.1	40.2	44.2	47.0	58.2	65.3	76.4	86.8
EER	(kW/kW)	2.66	2.81	2.69	2.85	2.89	2.60	2.55	2.60	2.67
ESEER	(kW/kW)	3.71	3.74	3.84	3.95	4.09	3.60	3.64	3.91	4.06
<b>Heating (2)</b>										
Heating capacity	(kW)	74.2	101	119	137	148	166	184	221	256
Power input	(kW)	24.1	32.3	38.4	43.2	45.6	54.9	60.6	71.6	81.5
Total COP	(kW/kW)	3.08	3.13	3.10	3.16	3.24	3.02	3.03	3.08	3.14
<b>Seasonal efficiency in heating mode (4)</b>										
P rated	(kW)	61.6	84.1	98.5	113.3	122.3	136.7	152.2	182.8	211.8
$\eta_s$	(%)	131	130	131	135	133	126	129	133	137
SCOP	(kW/kW)	3.34	3.32	3.36	3.44	3.4	3.23	3.29	3.41	3.49
Energy efficiency class		A++	A++	A++	A++	A++	A++	A++	A++	A++
<b>Cooling + Heating (3)</b>										
Total cooling capacity	kW	66.9	91.8	108.1	123.7	135	154	170	203	236
Total heating capacity	kW	88.8	120.3	143.0	162	176	202	224	264	306
Total power input	kW	21.9	28.4	34.8	38.7	41.1	47.8	53.9	64.8	74.8
Total Efficiency Ratio	kW/kW	7.09	7.46	7.21	7.39	7.57	7.43	7.33	7.21	7.25
<b>Compressors</b>										
Number of scroll compressors		2	2	4	4	2	4	4	4	4
Number of refrigerant circuits		2	2	2	2	2	2	2	2	2
Stepless control (minimum capacity)	(%)	20	20	13	11	20	12	11	10	11
<b>Fans</b>										
Number of fans		6	10	10	4	4	6	6	6	6
Air flow	(m <sup>3</sup> /h)	29784	48422	48422	71808	71808	118168	118168	113416	107712
<b>Sound level</b>										
Sound power level (ISO 3744)	(dB(A))	86	88	86	87	94	90	90	93	95
Sound pressure level at 10 m (ISO 3744)	(dB(A))	54	56	54	55	62	58	58	61	63
<b>Dimensions and weight (operating)</b>										
Length	(mm)	2560	3559	3559	2617	2617	3565	3565	3565	3565
Width	(mm)	1100	1100	1100	2201	2201	2260	2260	2260	2260
Height	(mm)	2111	2159	2159	2175	2175	2400	2400	2400	2400
Weight	(kg)	1126	1357	1471	1653	1680	2128	2149	2402	2766

(1) According EN 14511-2013. Outdoor air temperature 35 °C – Chilled water temperature 12/7 °C

(2) According EN 14511-2013. Outdoor air temperature 7 °C with 90% RH - Hot water temperature 40/45 °C

(3) Heat recovery mode: Hot water temperature 40/45 °C – Chilled water temperature 12/7 °C

(4) Ecodesign rating at low temperature conditions. Outdoor temperature: 7 °C dry bulb/6 °C wet bulb and hot water temperature in/out: 30 °C/35 °C.

\* CMAB HSE units are also available in Super Low Noise. For a detailed selection please contact your Trane sales office.

## Trane: designed to be the best - tested to prove it

### Proof of performance

This symbol means that Trane Multi-pipe Units have undergone extensive testing in Trane's state-of-the-art HVAC test facility in France to guarantee that testing of your Multi-pipe unit conforms to European Standards EN 14511-2013 and EN 14825-2016.



### RTMA with screw compressors

Refrigerant: R134a

Cooling mode operating outdoor air temperature range (min./max.)	(°C)	18 / 43
Cooling mode leaving water temperature range (min./max.)	(°C)	-6 / 18
Heating mode operating outdoor air temperature range (min./max.)	(°C)	-15 / 30
Heating mode leaving water temperature range (min./max.)	(°C)	25 / 60 or 30 / 65 with high temperature hot water module (= option)
Power supply	(V/Ph/Hz)	400 / 3+n / 50

RTMA		105	115	120	130	150	170	180	190	210
<b>Cooling</b>										
Cooling capacity (1)	(kW)	344.3	380.7	397.7	431.4	491.1	558.3	598.5	621.6	661.2
Compressors power input	(kW)	126.6	142.8	135.0	148.5	165.8	199.5	218.0	208.0	227.2
Total EER (incl. fans)		2.48	2.46	2.65	2.64	2.67	2.57	2.54	2.71	2.66
<b>Heating</b>										
Heating capacity (2)	(kW)	361.2	381.0	435.9	470.5	513.8	562.4	582.4	659.6	713.9
Compressors power input	(kW)	116.8	119.4	128.0	138.5	154.3	178.8	189.4	193.0	205.3
Total COP (incl. fans)		2.80	2.90	3.05	3.06	2.98	2.86	2.81	3.08	3.16
<b>Simultaneous heating + cooling</b>										
Cooling capacity (3)	(kW)	344.1	388.3	388.3	435.3	490.4	565.9	596.0	599.2	684.6
Heating capacity (4)	(kW)	470.6	523.9	523.9	582.6	657.6	759.8	801.6	805.0	905.6
Compressors power input	(kW)	126.5	135.6	135.6	147.2	167.2	193.9	205.7	205.7	221.0
Dual mode efficiency coefficient (DMEC)		6.44	6.73	6.73	6.91	6.87	6.84	6.80	6.82	7.20
Total energy coefficient (TEC)		4.56	4.73	4.81	4.90	4.86	4.79	4.75	4.88	5.08
Number of refrigerant circuits		2	2	2	2	2	2	2	2	2
Number of screw compressors		2	2	2	2	2	2	2	2	2
Sound pressure level (calculated according to ISO)	(dB(A))	60	60	60	60	62	62	62	63	63
Sound pressure level	(dB(A))	92	92	93	93	95	95	95	96	96
Sound pressure level (calculated according to ISO) SL	(dB(A))	55	55	55	55	57	57	57	58	58
Sound pressure level SL	(dB(A))	87	87	88	88	90	90	90	91	91
Maximum power input	(kW)	202.35	214.2	217.65	229.41	254.12	281.18	317.65	321.18	357.65
Maximum full load current	(A)	344	364	370	390	432	478	540	546	608
Full load starting current	(A)	589	618	624	644	764	844	906	912	761
<b>Weights and dimensions (operating)</b>										
Length	(mm)	5431	5431	6601	6601	7561	7561	7561	8892	8892
Width	(mm)	2250	2250	2250	2250	2250	2250	2250	2250	2250
Height	(mm)	2400	2400	2400	2400	2400	2400	2400	2400	2400
Weight (standard unit)	(kg)	5592	5799	6057	6121	6578	6925	6946	7199	7794

(1) Outdoor air temperature 35 °C – Chilled water temperature 12/7 °C

(2) Outdoor air temperature 7 °C – 90% UR – Leaving hot water temperature 45 °C

(3) Recovery water temperature 40/45 °C – Chilled water temperature 12/7 °C

(4) According to ISO 3744. The sound pressure levels are average values calculated in free field with a reflective surface at 10 m distance.

## Trane: designed to be the best - tested to prove it

### Proof of performance

This symbol means that Trane Multi-pipe Units have undergone extensive testing in Trane's state-of-the-art HVAC test facility in France to guarantee that testing of your Multi-pipe unit conforms to European Standards EN 14511-2013 and EN 14825-2016.







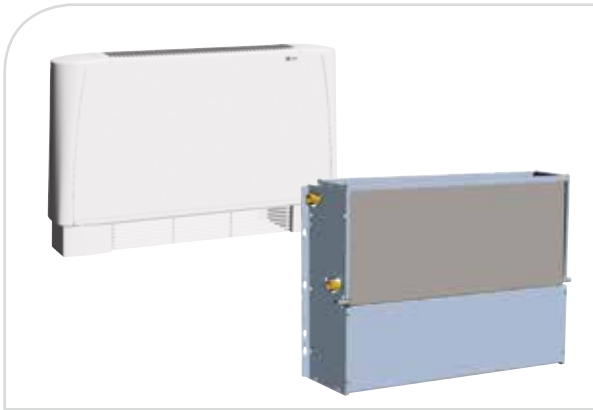
**TRANE**<sup>®</sup>



# *Airside Products*

*Incorporating the right airside products into your HVAC system is a critical part of creating world-class performance and reducing overall energy consumption.*

*By helping you select the right airside components, Trane can help address indoor air quality issues such as temperature and humidity, ventilation, mold, bacteria, other particulate matter, and noise.*



# UniTrane™ Harmony

## Fan coil water terminals



### Customer benefits

- Silent operation: high level of acoustic comfort
- Low cost of ownership: low energy consumption
- Easy to install and graceful cabinet design
- Ultimate filtration, high efficiency, and reduced pressure drop: CleanEffects™ electrostatic filters capture even the finest micrometric particles without compromising unit performance
- The integrated Trane Tracer™ control system combines with the entire range to deliver efficient performance, optimal comfort and cost-effective building management

### Range description

FCAS: Cabinet model, vertical installation, with front return air grille with AC fan motor

FCAE: Cabinet model, vertical installation, with front return air grille with EC fan motor

FKAS: Concealed model, horizontal or vertical installation with AC fan motor

FKAE: Concealed model, horizontal or vertical installation with EC fan motor

FVAS: Cabinet model, vertical installation with AC fan motor

FVAE: Cabinet model, vertical installation with EC fan motor

### Main features

- Efficient water exchanger
- Robust resilient air grille diffuser

- Multi-speed AC or speed modulating EC fan motor factory set to fit customer requirements
- Very quiet, aesthetic, robust and efficient units
- Cleanable EU3 filter

### Options

- Factory-mounted unit support feet for FVAS/FVAE models
- Factory-mounted return air grille for FVAS/FVAE models
- Factory-mounted 2 and 3-way water valves with thermal or modulating actuators
- Wall or unit fitted thermostat interface
- Large choice of electric heater capacities per unit size
- High external static pressure available
- Right/left end water and control access sides
- Epoxy coated aluminum fins
- Fresh air intake connection

### Accessories

- Adjustment valves
- Unit support feet
- Rear panel for installations against glass
- Electric heater
- Auxiliary condensate pump
- Fresh air intake louvers grille
- Inlet/outlet grilles for concealed installations

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office

## Controls

- Large choice of wall thermostats to cover all standalone unit applications
- Wireless remote control
- Connection of individual units or groups of units via serial link
- Versatile group control, compatible with Modbus communication protocol

AC fan motor unit: FVAS / FCAS / FKAS										
		11	12	21	22	31	32	33	34	41
Total cooling capacity L/M/H (1)	(kW)	0.59/0.86/1.03	0.67/1.02/1.23	0.91/1.25/1.56	1.01/1.43/1.81	1.57/1.78/2.39	1.65/1.89/2.57	1.73/2.14/2.87	1.83/2.28/3.12	2.03/2.94/3.18
Sensible cooling capacity L/M/H (1)	(kW)	0.47/0.71/0.86	0.51/0.79/0.97	0.69/0.97/1.24	0.74/1.07/1.38	1.15/1.32/1.8	1.2/1.38/1.9	1.28/1.6/2.19	1.34/1.68/2.34	1.51/2.23/2.43
Water flow (cooling) L/M/H (1)	(l/h)	102/148/177	115/176/212	157/215/269	174/246/312	270/307/412	284/326/443	298/369/494	315/393/537	350/506/548
Water pressure drop (cooling) L/M/H (1)	(kPa)	2.5/4.7/6.3	1.9/4/5.6	2.5/4.4/6.5	4.9/9.2/13.9	9.4/11.8/19.7	5.3/6.7/11.5	11.2/16.2/27.2	6.1/9/15.5	5.8/11.1/12.7
Heating capacity L/M/H (2)	(kW)	0.76/1.15/1.39	0.82/1.27/1.55	1.12/1.59/2.02	1.18/1.72/2.2	1.87/2.15/2.92	1.94/2.23/3.07	2.09/2.61/3.56	2.16/2.72/3.76	2.42/3.59/3.89
Electric heater capacity	(W)	650	650	400-600-1000	400-600-1000	600-900-1500	600-900-1500	600-900-1500	600-900-1500	750-1250-2000
Airflow at 0Pa (1)	(m <sup>3</sup> /h)	175	175	220	220	270	270	335	335	495
Fan power input (1)	(W)	25	25	22	22	25	25	28	28	39
Maximum fan motor input	(W)/(A)	33/0.16	33/0.16	40/0.18	40/0.18	49/0.23	49/0.23	57/0.26	57/0.26	61/0.27
Sound power level L/M/H (3)	(dB(A))	32/39/45	32/39/45	30/40/47	30/40/47	36/40/49	36/40/49	33/39/47	33/39/47	31/41/43
Cabinet unit dimensions (LxWxH) (4)	(mm)	694x225x530	694x225x530	794x225x530	794x225x530	1009x225x530	1009x225x530	1009x225x530	1009x225x530	1224x225x530
Weight (5)	(kg)	13	13	14	16	18	21	19	22	21
Concealed units dimensions (LxWxH) (6)	(mm)	415x218x511	415x218x511	515x218x511	515x218x511	730x218x511	730x218x511	730x218x511	730x218x511	945x218x511
Weight (5)	(kg)	9	10	13	15	18	20	19	21	21

AC fan motor unit: FVAS / FCAS / FKAS (continued)										
		42	43	44	51	52	61	62	63	64
Total cooling capacity L/M/H (1)	(kW)	2.19/3.25/3.54	2.54/3.37/4.09	2.83/3.86/4.79	3.34/4.29/5.11	2.83/3.86/4.79	3.74/5.19/5.82	4.03/5.73/6.47	4.47/5.87/6.74	4.88/6.54/7.6
Sensible cooling capacity L/M/H (1)	(kW)	1.6/2.4/2.63	1.91/2.59/3.2	2.07/2.86/3.6	2.5/3.27/3.95	2.07/2.86/3.6	2.88/4.12/4.68	3.04/4.43/5.06	3.49/4.73/5.55	3.72/5.11/6.05
Water flow (cooling) L/M/H (1)	(l/h)	377/560/610	438/580/704	487/665/825	575/739/880	487/665/825	644/894/1002	694/987/1114	770/1011/1161	841/1127/1309
Water pressure drop (cooling) L/M/H (1)	(kPa)	10.4/20.8/24.2	8.6/14.1/19.8	14.4/24.8/36.2	16.2/25.1/34.2	14.4/24.8/36.2	10.3/18.4/22.5	7.6/14.1/17.5	13.8/22.4/28.6	10.6/17.8/23.2
Heating capacity L/M/H (2)	(kW)	2.53/3.81/4.17	3.07/4.13/5.09	3.39/4.69/5.88	4.01/5.19/6.27	3.39/4.69/5.88	4.8/6.74/7.66	5.06/7.36/8.43	5.71/7.72/9.06	6.22/8.53/10.1
Electric heater capacity	(W)	750-1250-2000	750-1250-2000	750-1250-2000	1000-1500-2500	1000-1500-2500	1000-1500-2500	1000-1500-2500	1000-1500-2500	1000-1500-2500
Airflow at 0Pa (1)	(m <sup>3</sup> /h)	495	590	590	735	735	1020	1020	1210	1210
Fan power input (1)	(W)	39	55	55	79	79	105	105	134	134
Maximum fan motor input	(W)/(A)	61/0.27	88/0.39	88/0.39	103/0.47	103/0.47	130/0.58	130/0.58	176/0.78	176/0.78
Sound power level L/M/H (3)	(dB(A))	31/41/43	37/46/52	37/46/52	42/51/56	42/51/56	45/56/60	45/56/60	50/58/64	50/58/64
Cabinet unit dimensions (LxWxH) (4)	(mm)	1224x225x530	1224x225x530	1224x225x530	1439x225x530	1439x225x530	1439x255x530	1439x255x530	1439x255x530	1439x255x530
Weight (5)	(kg)	24	22	25	26	30	35	41	36	42
Concealed units dimensions (LxWxH) (6)	(mm)	945x218x511	945x218x511	945x218x511	1160x218x511	1160x218x511	1160x248x511	1160x248x511	1160x248x511	1160x248x511
Weight (5)	(kg)	23	22	24	25	28	33	38	33	39

Power supply: 230V/50Hz/1Ph

(1) Eurovent certified data for 2-pipe, air: 27°C/19°C, water: 7/12°C

(2) Eurovent certified data for 2-pipe, air: 20°C, water inlet: 50°C, cooling water flow

(3) Eurovent certified data according to Eurovent specification 8/2 (ISO 3741/88), standard motor

(4) For front return (FCA) and vertical return (FVA) model without feet. Add 100 mm to height for the version with feet

(5) Without water content, options, or accessories

(6) For unit without auxiliary drain pan or water valves kit

**EC fan motor unit: FVAE / FCAE / FKAE**

		21	22	33	34	43	44	51	52	63	64
Total cooling capacity L/M/H (1)	(kW)	0.74/1.19/ 1.61	0.78/1.33/ 1.88	1.42/2.19/ 2.97	1.44/2.28/ 3.19	1.97/2.94/ 3.99	2.06/3.2/ 4.54	2.61/3.7/ 4.98	2.62/3.84/ 5.34	3.47/4.86/ 6.36	3.61/5.25/ 7.14
Sensible cooling capacity L/M/H (1)	(kW)	0.56/0.93/ 1.3	0.57/0.99/ 1.44	1.04/1.65/ 2.28	1.04/1.68/ 2.41	1.47/2.23/ 3.11	1.49/2.35/ 3.41	1.93/2.79/ 3.84	1.91/2.84/ 4.03	2.65/3.83/ 5.2	2.71/4.03/ 5.63
Water flow (cooling) L/M/H (1)	(l/h)	127/205/ 277	134/229/ 324	245/377/ 512	248/393/ 549	339/506/ 687	355/551/ 782	450/637/ 858	451/661/ 920	598/837/ 1096	622/904/ 1230
Water pressure drop (cooling) L/M/H (1)	(kPa)	1.8/4/6.9	3.2/8/14.8	7.9/17/28.9	4/8.9/16.1	5.5/11.1/19	8.2/17.8/33	10.5/19.4/ 32.6	7.3/14.3/25.6	8.9/16.1/25.9	6.3/12.1/20.8
Heating capacity L/M/H (2)	(kW)	0.92/1.53/ 2.13	0.94/1.63/ 2.37	1.7/2.7/ 3.74	1.7/2.75/ 3.91	2.35/3.59/ 4.95	2.43/3.87/ 5.6	3.08/4.47/ 6.09	3.09/4.61/ 6.51	4.45/6.41/ 8.69	4.5/6.7/ 9.39
Electric heater capacity	(W)	400-600-1000	400-600-1000	600-900-1500	600-900-1500	750-1250- 2000	750-1250- 2000	1000-1500- 2500	1000-1500- 2500	1000-1500- 2500	1000-1500- 2500
Airflow	(m <sup>3</sup> /h)	220	210	350	340	495	475	610	585	945	910
Fan power input (1)	(W)	11	11	12	12	15	15	19	19	41	41
Maximum fan motor input	(A)	21	21	25	25	32	32	41	41	99	99
Sound power level (3)	(dB(A))	30/41/51	30/41/51	30/42/51	30/42/51	33/44/54	33/44/54	37/48/57	37/48/57	44/55/64	44/55/64
Cabinet unit dimensions (lxwxh) (4)	(mm)	794x225x530	794x225x530	1009x225x530	1009x225x530	1224x225x530	1224x225x530	1439x225x530	1439x225x530	1439x255x530	1439x255x530
Weight (5)	(kg)	14	16	19	22	22	25	26	30	36	42
Concealed units dimensions (lxwxh) (6)	(mm)	515x218x511	515x218x511	730x218x511	730x218x511	945x218x511	945x218x511	1160x218x511	1160x218x511	1160x248x511	1160x248x511
Weight (5)	(kg)	13	15	19	21	22	24	25	28	33	39

Power supply: 230V/50Hz/1Ph

(1) Eurovent certified data for 2-pipe, air: 27°C/19°C, water: 7/12°C

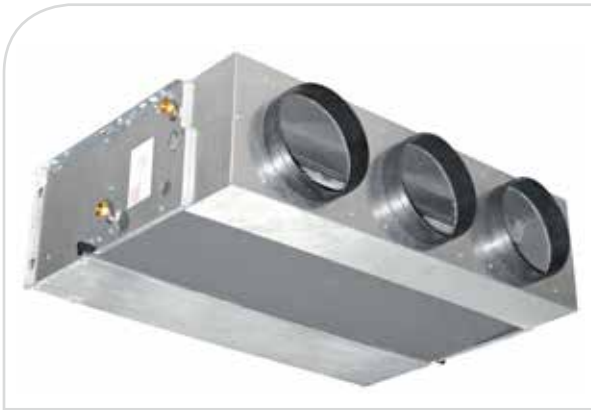
(2) Eurovent certified data for 2-pipe, air: 20°C, water inlet: 50°C, cooling water flow

(3) Eurovent certified data according to Eurovent specification 8/2 (ISO 3741/88), standard motor

(4) For front return (FCA) and vertical return (FVA) model without feet. Add 100 mm to height for the version with feet

(5) Without water content, options, or accessories

(6) For unit without auxiliary drain pan or water valves kit



# UniTrane™ D-Line

## Ductable fan coil water terminals



### Customer benefits

- Compact 2-pipe or 4-pipe design
- Suitable for horizontal and vertical installation
- Silent operation: high level of acoustic comfort
- Low cost of ownership: low energy consumption
- Easy installation

### Range description

**DFS:** concealed horizontal fan coil with AC fan motor

**DFE:** concealed horizontal fan coil with EC fan motor

### Main features

- Multi-speed AC or speed modulating EC fan motor factory set to fit customer requirements
- Efficient water exchanger
- Heat exchanger: drawn copper tube with aluminum fins
- Centrifugal fans and electric 5-speed motors for reduced electrical consumption (DFS)
- Three phase permanent magnet brushless electronic motor (DFE)
- Polypropylene cellular fabric regenerating filter
- High quality robust casing

### Accessories

- 3-way valve for main or additional coil
- 2-way valve for main or additional coil
- Oventrop valve kit
- G3 or G0 filters
- Right/left end water and control access sides
- Fresh air intake connection
- Frontal air intake
- Inlet and outlet grids
- Inlet and diffuser plenum
- Auxiliary condensate tray
- Drain pump for horizontal installation
- Condensate pump for vertical installations
- Electric heater

### Controls

- Large choice of wall thermostats to cover all standalone unit applications
- Versatile group control, compatible with Modbus communication protocol
- Connection of individual units or groups of units via serial link
- Wireless remote control
- Speed switch (slave) to control up to 8 units

### Energy saving options

- EC fan motor allows for 67% annual energy savings

2 pipe units with AC fan motor*									
Unit size		DFS-2P-13	DFS-2P-23	DFS-2P-33	DFS-2P-43	DFS-2P-14	DFS-2P-24	DFS-2P-34	DFS-2P-44
Airflow	(m <sup>3</sup> /h)	310	580	960	1285	310	580	960	1285
Total cooling capacity	(kW)	1.93	3.42	5.20	7.40	2.15	3.85	5.68	8.22
Heating capacity	(kW)	2.93	4.25	6.79	9.41	2.40	4.69	7.31	10.30
Available pressure	(Pa)	60	60	60	60	60	60	60	60
Sound power outlet	(dB(A))	50	51	57	58	50	51	57	58
Sound power inlet + radiated	(dB(A))	57	57	63	64	57	57	63	64
Sound pressure level outlet	(dB(A))	41	42	48	49	41	42	48	49
Sound pressure level inlet + radiated	(dB(A))	48	48	54	55	48	48	54	55
<b>Weight and dimensions</b>									
Width	(mm)	689	904	1119	1570	689	904	1119	1570
Depth	(mm)	511	511	511	511	511	511	511	511
Height	(mm)	218	248	248	248	218	248	248	248
Weight	(kg)	17.3	23.5	27.3	43.3	18.3	24.8	28.8	45.1
<b>Electrical data</b>									
Fan power input	(A)	55	97	134	158	55	97	134	158

At Eurovent conditions (Air : 27°C, Water inlet/outlet : 7/12°C) - Cooling

At conditions: 2-pipe air 20°C, water +50°C inlet - Heating

\*at high speed

4 pipe units with AC fan motor*					
Unit size		DFS-4P-131	DFS-4P-231	DFS-4P-331	DFS-4P-431
Airflow	(m <sup>3</sup> /h)	310	580	960	1285
Total cooling capacity	(kW)	1.93	3.42	5.20	7.40
Heating capacity	(kW)	1.98	3.28	4.82	6.79
Available pressure	(Pa)	60	60	60	60
Sound power outlet	(dB(A))	50	51	57	58
Sound power inlet + radiated	(dB(A))	57	57	63	64
Sound pressure level outlet	(dB(A))	41	42	48	49
Sound pressure level inlet + radiated	(dB(A))	48	48	54	55
<b>Weights and dimensions</b>					
Width	(mm)	689	904	1119	1570
Depth	(mm)	511	511	511	511
Height	(mm)	218	248	248	248
Weight	(kg)	18.5	25.0	29.1	45.1
<b>Electrical data</b>					
Fan power input	(A)	55	97	134	158

At Eurovent conditions Air : 27°C, Water inlet/outlet : 7/12°C - Cooling

At conditions: air 20°C, water +70°C inlet, +60°C outlet - Heating

\*at high speed

2 pipe units with EC fan motor*							
Unit size		DFE-2P-13	DFE-2P-23	DFE-2P-33	DFE-2P-14	DFE-2P-24	DFE-2P-34
Airflow (1)	(m <sup>3</sup> /h)	325	560	950	325	560	950
Total cooling capacity (1)	(kW)	1.98	3.33	5.16	2.19	3.70	5.58
Heating capacity (2)	(kW)	2.48	4.10	6.68	2.69	4.53	7.21
Available pressure	(Pa)	65	65	65	65	65	65
Sound power outlet	(dB(A))	52	52	56	52	52	56
Sound power inlet + radiated	(dB(A))	58	58	63	58	58	63
Sound pressure level outlet	(dB(A))	43	43	47	43	43	47
Sound pressure level inlet + radiated	(dB(A))	49	49	54	49	49	54
<b>Weight and dimensions</b>							
Width	(mm)	689	904	1119	689	904	1119
Depth	(mm)	511	511	511	511	511	511
Height	(mm)	218	248	248	218	248	248
Weight	(kg)	17.3	23.5	27.3	18.3	24.8	28.8
<b>Electrical data</b>							
Fan power input	(A)	43	64	102	43	64	102

At Eurovent conditions (Air : 27°C, Water inlet/outlet : 7/12°C) - Cooling

At conditions: 2-pipe air 20°C, water +50°C inlet - Heating

\*at high speed

4 pipe units with EC fan motor*				
Unit size		DFE-4P-131	DFE-4P-231	DFE-4P-331
Airflow (1)	(m <sup>3</sup> /h)	325	560	950
Total cooling capacity (1)	(kW)	1.98	3.33	5.16
Heating capacity (2)	(kW)	2.02	3.19	4.79
Available pressure	(Pa)	65	65	65
Sound power outlet	(dB(A))	52	52	56
Sound power inlet + radiated	(dB(A))	58	58	63
Sound pressure level outlet	(dB(A))	43	43	47
Sound pressure level inlet + radiated	(dB(A))	49	49	54
<b>Weight and dimensions</b>				
Width	(mm)	689	904	1119
Depth	(mm)	511	511	511
Height	(mm)	218	248	248
Weight	(kg)	18.5	25.0	29.1
<b>Electrical data</b>				
Fan power input	(A)	43	64	102

At Eurovent conditions, Air : 27°C, Water inlet/outlet : 7/12°C - Cooling

At conditions: air 20°C, water +70°C inlet, +60°C outlet - Heating

\*at high speed



# UniTrane™ B-Line

## Ductable water terminals



### Customer benefits

- Compact 2-pipe or 4-pipe design: designed for concealed installations
- Silent operation: high level of acoustic comfort
- Low cost of ownership: low energy consumption
- Easy installation

### Main features

- Multi-speed AC fan motor
- Static pressure up to 160 Pa (sizes 1-5) and up to 425 Pa (sizes 6-7)
- Heat exchanger: drawn copper tube with aluminum fins
- Quiet centrifugal fans
- Polypropylene cellular fabric regenerating filter
- High quality robust casing

### Accessories

- Main or auxiliary coil kit valve, 230V ON-OFF
- Main or auxiliary coil kit valve, 24V
- Right/left end water connections
- Electric heater
- Intake/supply spigot plenum
- Wall or unit fitted thermostat interface.
- G3 synthetic cleanable filter, Eurovent EU3
- GAV anti-vibration connection

### Controls

- Large choice of wall thermostats to cover all standalone unit applications
- Versatile group control, compatible with Modbus communication protocol
- Connection of individual units or groups of units via serial link
- Wireless remote control
- Speed switch (slave) to control up to 8 units

**Sizes 1-5, 2 pipe units\***

Unit size		BFS-2P-14	BFS-2P-24	BFS-2P-34	BFS-2P-44	BFS-2P-54
Airflow	(m <sup>3</sup> /h)	1410	1825	2440	3020	3850
Total cooling capacity	(kW)	6.11	8.44	11.18	14.23	18.52
Heating capacity	(kW)	8.86	11.78	15.54	19.64	24.79
Available pressure	(Pa)	75	80	70	67	70
Sound power outlet	(dB(A))	64	67	69	70	73
Sound power inlet + radiated	(dB(A))	65	68	70	71	74
Sound pressure level outlet	(dB(A))	55	58	60	61	64
Sound pressure level inlet + radiated	(dB(A))	56	59	61	62	65
<b>Weights and dimensions</b>						
Width	(mm)	1133	1133	1133	1445	1445
Depth	(mm)	698	698	698	853	853
Height	(mm)	310	310	360	360	435
Weight	(kg)	47	48	56	78	98
<b>Electrical data</b>						
Fan power input	(A)	191	285	470	630	760

At Eurovent conditions (Air : 27°C, Water inlet/outlet : 7/12°C) - Cooling

At conditions: 2-pipe air 20°C, water +50°C inlet - Heating

\*at high speed

**Sizes 1-5, 4 pipe units\***

Unit size		BFS-4P-141	BFS-4P-241	BFS-4P-341	BFS-4P-441	BFS-4P-541
Airflow	(m <sup>3</sup> /h)	1350	1775	2390	2960	3800
Total cooling capacity	(kW)	5.97	8.30	11.04	14.08	17.48
Heating capacity	(kW)	5.47	7.16	9.20	12.00	15.28
Available pressure	(Pa)	75	80	70	67	70
Sound power outlet	(dB(A))	64	67	69	70	73
Sound power inlet + radiated	(dB(A))	65	68	70	71	74
Sound pressure level outlet	(dB(A))	55	58	60	61	64
Sound pressure level inlet + radiated	(dB(A))	56	59	61	62	65
<b>Weights and dimensions</b>						
Width	(mm)	1133	1133	1133	1445	1445
Depth	(mm)	698	698	698	853	853
Height	(mm)	310	310	360	360	435
Weight	(kg)	50	51	60	83	94
<b>Electrical data</b>						
Fan power input	(A)	185	275	460	615	750

At Eurovent conditions, Air : 27°C, Water inlet/outlet : 7/12°C - Cooling

At conditions: air 20°C, water +70°C inlet, +60°C outlet - Heating

\*at high speed

**Sizes 6-7, 2-pipe units with 4 and 6 row coil\***

Unit size		BFS-2P-64	BFS-2P-66	BFS-2P-74	BFS-2P-76
Airflow	(m <sup>3</sup> /h)	4800	4740	7100	7030
Total cooling capacity	(kW)	24.19	29.59	33.09	40.83
Heating capacity	(kW)	43.6	49.77	61.14	70.64
Available pressure	(Pa)	150	150	150	150
Sound power Lw	(dB(A))	77	77	81	81
Sound pressure Lp	(dB(A))	68	68	72	72
<b>Weights and dimensions</b>					
Width	(mm)	1535	1535	1535	1535
Depth	(mm)	1100	1100	1100	1100
Height	(mm)	488	488	588	588
Weight	(kg)	124	130	140	148
<b>Electrical data</b>					
Fan power input	(A)	1304	1314	2460	2410

At Eurovent conditions, Air : 27°C, Water inlet/outlet : 7/12°C - Cooling

At conditions: air 20°C, water +70°C inlet, +60°C outlet - Heating

\*at high speed

**Sizes 6-7, 4-pipe units with 4+2 and 6+2 row coil\***

Unit size		BFS-2P-642	BFS-2P-662	BFS-2P-742	BFS-2P-762
Airflow	(m <sup>3</sup> /h)	4680	4600	6980	6900
Total cooling capacity	(kW)	23.85	28.98	32.74	40.36
Heating capacity	(kW)	37.13	36.76	51.31	50.95
Available pressure	(Pa)	150	150	150	150
Sound power Lw	(dB(A))	77	77	81	81
Sound pressure Lp	(dB(A))	68	68	72	72
<b>Weights and dimensions</b>					
Width	(mm)	1535	1535	1535	1535
Depth	(mm)	1100	1100	1100	1100
Height	(mm)	488	488	588	588
Weight	(kg)	134	140	152	160
<b>Electrical data</b>					
Fan power input	(A)	1327	1455	2376	2325

Air : 27°C, Water inlet/outlet : 7/12°C - Cooling

At conditions: air 20°C, water +70°C inlet, +60°C outlet - Heating

\*at high speed



**Sizes 1-5, 2-pipe units with 3 row coil\***

Unit size		BFS-2P-13	BFS-2P-23	BFS-2P-33	BFS-2P-43	BFS-2P-53
Airflow	(m <sup>3</sup> /h)	1925	2510	2790	3400	4400
Total cooling capacity	(kW)	6.02	8.31	9.89	12.62	16.67
Heating capacity	(kW)	12.33	16.44	19.10	23.85	31.42
Sound power Lw	(dB(A))	63	68	68	72	75
Sound pressure Lp	(dB(A))	54	59	59	63	66
<b>Weights and dimensions</b>						
Width	(mm)	1133	1133	1133	1445	1445
Depth	(mm)	698	698	698	853	853
Height	(mm)	310	310	360	360	435
Weight	(kg)	45	46	54	75	85
<b>Electrical data</b>						
Fan power input	(A)	240	412	523	703	885

Available pressure: 0 Pa

Air : 27°C, Water inlet/outlet : 7/12°C - Cooling

At conditions: air 20°C, water +60°C inlet, +50°C outlet - Heating

\*at high speed

**Sizes 1-5, 4-pipe units with 3+1 row coil\***

Unit size		BFS-4P-131	BFS-4P-231	BFS-4P-331	BFS-4P-431	BFS-4P-531
Airflow	(m <sup>3</sup> /h)	1835	2360	2745	3340	4330
Total cooling capacity	(kW)	5.88	8.04	9.82	12.49	16.50
Heating capacity	(kW)	6.58	8.44	10.08	13.04	16.73
Sound power Lw	(dB(A))	63	68	68	72	75
Sound pressure Lp	(dB(A))	54	59	59	63	66
<b>Weights and dimensions</b>						
Width	(mm)	1133	1133	1133	1445	1445
Depth	(mm)	698	698	698	853	853
Height	(mm)	310	310	360	360	435
Weight	(kg)	48	50	58	80	90
<b>Electrical data</b>						
Fan power input	(A)	232	380	520	684	868

Available pressure: 0Pa

Air : 27°C, Water inlet/outlet : 7/12°C - Cooling

At conditions: air 20°C, water +70°C inlet, +60°C outlet - Heating

\*at high speed

**Sizes 1-5, 4-pipe units with 4+1 row coil\***

Unit size		BFS-4P-141	BFS-4P-241	BFS-4P-341	BFS-4P-441	BFS-4P-541
Airflow	(m <sup>3</sup> /h)	1775	2285	2700	3295	4265
Total cooling capacity	(kW)	6.98	9.59	11.84	14.96	19.65
Heating capacity	(kW)	6.47	8.30	9.99	12.95	16.58
Sound power Lw	(dB(A))	63	68	68	72	75
Sound pressure Lp	(dB(A))	54	59	59	63	66
<b>Weights and dimensions</b>						
Width	(mm)	1133	1133	1133	1445	1445
Depth	(mm)	698	698	698	853	853
Height	(mm)	310	310	360	360	435
Weight	(kg)	50	51	60	83	94
<b>Electrical data</b>						
Fan power input	(A)	226	365	515	670	851

Available pressure: 0Pa

Air : 27°C, Water inlet/outlet : 7/12°C - Cooling

At conditions: air 20°C, water +70°C inlet, +60°C outlet - Heating

\*at high speed

**Sizes 1-5, 4-pipe units with 4+2 row coil\***

Unit size		BFS-4P-142	BFS-4P-242	BFS-4P-342	BFS-4P-442	BFS-4P-542
Airflow	(m <sup>3</sup> /h)	1695	2190	2645	3230	4170
Total cooling capacity	(kW)	6.82	9.37	11.71	14.79	19.38
Heating capacity	(kW)	13.17	17.37	20.98	26.87	33.94
Sound power Lw	(dB(A))	63	68	68	72	75
Sound pressure Lp	(dB(A))	54	59	59	63	66
<b>Weights and dimensions</b>						
Width	(mm)	1133	1133	1133	1445	1445
Depth	(mm)	698	698	698	853	853
Height	(mm)	310	310	360	360	435
Weight	(kg)	51	53	62	86	98
<b>Electrical data</b>						
Fan power input	(A)	218	347	507	650	828

Available pressure: 0Pa

Air : 27°C, Water inlet/outlet : 7/12°C - Cooling

At conditions: air 20°C, water +70°C inlet, +60°C outlet - Heating

\*at high speed



# UniTrane™ W-Line

## High wall fan coil units



### Customer benefits

- Optimum comfort and high performance
- Minimized sound emissions
- Modern and appealing design
- Low cost of ownership: low energy consumption
- Modular 2-pipe design, easy to install

### Range description

**WFS:** concealed horizontal fan coil with AC fan motor

**WFE:** concealed horizontal fan coil with EC fan motor

**WFS/E:** Wired wall control

**WFS/E-IR:** Infra-red remote control (single unit control)

**WFS/E-MB:** MB electronic board for Modbus management (multiple unit control)

**WFS/E-EH:** Electric heater

### Main features

- Casing made of auto-extinguishing ABS UL94 HB plastic
- Washable synthetic filter, readily accessible.
- Single phase 3-speeds electric motor (WFS)
- Electronically commutated (WFE) fan motor
- Heat exchanger: Drawn copper tube with aluminum fins

### Accessories

- 2-way valve including control kit: ON-OFF, with electric motor and mounting kit
- 3-way valve including control kit: 230V ON-OFF, with electric motor and mounting kit with micrometric lock shield valve
- Condensate drain pan

### Controls

- Large choice of wall-mounted thermostats to cover all standalone unit applications
- Versatile group control, compatible with Modbus communication protocol
- Wireless remote control

### Energy saving options

- Low consumption EC fan motor on WFE version allows for 67% annual energy savings.

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office

<b>Unit with AC fan motor: WFS</b>					
<b>Unit size</b>		<b>WFS 1</b>	<b>WFS 2</b>	<b>WFS 3</b>	<b>WFS 4</b>
Airflow (1)	(m <sup>3</sup> /h)	500	545	780	790
Total cooling capacity (1)	(kW)	2.23	2.35	3.78	3.81
Heating capacity (2)	(kW)	3.17	3.46	5.15	5.2
Sound power Lw	(dB(A))	53	55	57	57
Sound pressure Lp	(dB(A))	44	46	48	48
<b>Dimensions</b>					
Width	(mm)	880	880	1185	1185
Depth	(mm)	322	322	322	322
Height	(mm)	212	212	212	212
<b>Electrical data</b>					
Fan power input	(A)	30	32	46	48

<b>Unit with EC fan motor: WFE</b>					
<b>Unit size</b>		<b>WFE 1</b>	<b>WFE 2</b>	<b>WFE 3</b>	<b>WFE 4</b>
Airflow (1)	(m <sup>3</sup> /h)	415	510	620	770
Total cooling capacity (1)	(kW)	2.00	2.26	3.29	3.75
Heating capacity (2)	(kW)	2.78	3.23	4.25	4.99
Sound power Lw	(dB(A))	52	55	53	57
Sound pressure Lp	(dB(A))	43	46	44	48
<b>Dimensions</b>					
Width	(mm)	880	880	1185	1185
Depth	(mm)	322	322	322	322
Height	(mm)	212	212	212	212
<b>Electrical data</b>					
Fan power input	(A)	15	21	20	30

Available pressure: 0 Pa

(1) At Eurovent conditions (Air : 27°C/ 47% humidity, Water inlet/outlet : 7/12°C) - Cooling

(2) At conditions: air 20°C, water +50°C inlet - Heating



# CWS CWE

## 4-way cassette water terminals



### Customer benefits

- Silent operation: high level of acoustic comfort
- 4-way air diffusion with excellent Coanda effect
- Factory-configured unit for ease of installation for immediate start-up
- Best of control technology to deliver a remarkable level of comfort

### Range description

CWS: Cassette with AC fan motor

CWE: Cassette with EC fan motor

### Main features

- Low profile with 296 or 329 mm unit height fits in all narrow false ceiling voids
- Standard AC or advanced EC fan motor technology
- 3 factory-set fan speeds
- Factory-mounted centrifugal drain pump
- Adjustable discharge louvers
- Fresh intake connections on three sides
- Discharge air connections on two sides
- Return air sensor with infrared remote or electronic user interface controls

### Options

- Factory-mounted electric heater
- All type of applications available associated with large choice of efficient exchangers
- Infrared remote control to be mounted on-site

### Accessories

- On/off 2 and 3-way water valve with thermal actuators
- Fresh air spigots

### Controls

- Large choice of wall thermostats to cover all standalone unit applications
- Group control up to 20 units using infrared remote control or the wall-mounted user interface ETN/ECM with ambient sensor

### *Energy saving options*

- *EC fan motor allows for 60% annual energy savings*

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office

CWS 2 pipe		00-2P	01-2P	02-2P	03-2P	04-2P	05-2P	06-2P
Airflow	(m <sup>3</sup> /h)	610	520	710	880	1140	1500	1820
Total/sensible cooling capacity (1)	(kW)	1.98/1.64	2.68/2.04	4.33/3.18	5.02/3.74	6.16/4.59	9.51/6.94	11.1/8.25
FCEER (1)		49	72	82	78	114	114	102
Heating capacity (2)	(kW)	2.6	3.4	5.2	6.2	7.8	11.7	8.3
FCCOP (2)		63	88	95	93	139	134	121
Sound power level	(dB(A))	49	45	53	59	48	53	58
Sound pressure level (3)	(dB(A))	40	36	44	50	39	44	49
NR level	(dB(A))	24	24	30	34	27	26	34
NC level	(dB(A))	22	22	28	33	26	25	32
<b>Weight and dimensions</b>								
Length	(mm)	575	575	575	575	820	820	820
Width	(mm)	575	575	575	575	820	820	820
Height	(mm)	275	275	275	275	303	303	303
Operating weight	(kg)	25	27	27	27	42	45	45
<b>Electrical data</b>								
Fan motor absorbed power	(W)	57	44	68	90	77	120	170
Electric heater capacity	(W)	0.75	1.5	2.5	2.5	3.0	3.0	3.0
Electric heater current	(A)	3.3	6.5	10.9	10.9	13.0	13.0	13.0
Power supply	(V/Ph/Hz)	230-1-50						

CWE 2 pipe		01-2P	02-2P	03-2P	04-2P	05-2P
Airflow	(m <sup>3</sup> /h)	535	710	880	1165	1770
Total/sensible cooling capacity (1)	(kW)	2.75/2.09	4.33/3.18	5.02/3.74	6.33/4.72	10.75/7.94
FCEER (1)		308	319	221	347	293
Heating capacity (2)	(kW)	3.4	5.2	6.2	8.0	12.7
FCCOP (2)		375	370	260	425	331
Sound power level	(dB(A))	47	54	60	48	57
Sound pressure level (3)	(dB(A))	38	38	38	38	38
NR level	(dB(A))	22	27	34	22	30
NC level	(dB(A))	21	25	32	21	28
<b>Weight and dimensions</b>						
Length	(mm)	575	575	575	820	820
Width	(mm)	575	575	575	820	820
Height	(mm)	275	275	275	303	303
Operating weight	(kg)	25	27	27	27	42
<b>Electrical data</b>						
Fan motor absorbed power	(W)	16	31	62	33	108
Electric heater capacity	(W)	1.5	2.5	2.5	3	3
Electric heater current	(A)	6.5	10.9	10.9	13	13
Power supply	(V/Ph/Hz)	230-1-50				

CWS 4 pipe		00-4P	01-4P	02-4P	03-4P	04-4P	05-4P	06-4P
Airflow	(m <sup>3</sup> /h)	610	520	710	880	1140	1500	1820
Total/sensible cooling capacity (1)	(kW)	2.33/1.9	2.7/1.98	3.34/2.56	3.81/2.97	6.34/4.69	7.71/5.83	8.89/6.84
FCEER (1)		59	73	66	62	114	96	85
Heating capacity (2)	(kW)	401.0	464.0	574.0	655.0	1090.0	1326.0	6.8
FCCOP (2)		76	95	86	81	163	137	122
Sound power level	(dB(A))	14.5	10.8	16.6	20.5	21.4	29.9	38.8
Sound pressure level (3)	(dB(A))	50	45	53	59	48	53	58
NR Level	(dB(A))	24	24	30	34	27	26	34
NC Level	(dB(A))	22	22	28	33	26	25	32
<b>Weight and dimensions</b>								
Length	(mm)	575	575	575	575	820	820	820
Width	(mm)	575	575	575	575	820	820	820
Height	(mm)	275	275	275	275	303	303	303
Operating weight	(kg)	25	27	27	27	42	45	45
<b>Electrical data</b>								
Fan motor absorbed power	(W)	41	36	44	50	39	44	49
Electric heater capacity	(W)	0.75	1.5	2.5	2.5	3.0	3.0	3.0
Electric heater current	(A)	3.3	6.5	10.9	10.9	13.0	13.0	13.0
Power supply	(V/Ph/Hz)	230-1-50						

CWE 4 pipe		01-4P	02-4P	03-4P	04-4P	05-4P
Airflow	(m <sup>3</sup> /h)	476	676	779	1120	1697
Total/sensible cooling capacity (1)	(kW)	2.08/2.77	2.95/3.93	3.46/4.53	4.83/6.54	7.4/9.87
FCEER (1)		226	213	148	256	196
Heating capacity (2)	(kW)	311.0	288.0	326.0	805.0	818.0
FCCOP (2)		406	273	182	507	280
Sound power level	(dB(A))	47	54	60	48	57
Sound pressure level (3)	(dB(A))	38	38	38	38	38
NR level	(dB(A))	22	27	34	22	30
NC level	(dB(A))	21	25	32	21	28
<b>Weight and dimensions</b>						
Length	(mm)	575	575	575	820	820
Width	(mm)	575	575	575	820	820
Height	(mm)	275	275	275	303	303
Operating weight	(kg)	25	27	27	27	42
<b>Electrical data</b>						
Fan motor absorbed power	(W)	16	31	62	33	108
Electric heater capacity	(W)	1.5	2.5	2.5	3	3
Electric heater current	(A)	6.5	10.9	10.9	13	13
Power supply	(V/Ph/Hz)	230-1-50				

- (1) At Eurovent conditions: 27/19°C return air temperatures and 7/12°C inlet and outlet water temperatures  
(2) At Eurovent conditions: 2-pipe air 20°C, water +50°C inlet; 4-pipe air 20°C, water +70/60°C inlet/outlet  
(3) Values calculated from sound power levels with a hypothetical acoustic attenuation of 9 dB



# CFAS CFAE

## 1-way cassette water terminals



### Customer benefits

- Air distribution through perfect Coanda effect for a high level of comfort
- Silent operation: high level of acoustic comfort
- Factory-configured unit controls for ease of installation and immediate start up
- Best of control technology to deliver a remarkable level of comfort
- Excellent air filtering with the louvered return air grill design which frees up 100% of opening space to the filter

### Range description

CFAS: cassette with AC fan motor

CFAE: cassette with EC fan motor

### Main features

- Low profile with 306 mm unit height fits in all narrowed false ceiling voids
- Louvered linear return air grill with 45° pitch angle avoid mix of supply and return air
- Supply air round dampers with 4 jaws sized to optimize the air throw at all fan speeds
- 3 fan speeds factory set, adjustable on-site
- Fresh intake connections on two return airsides

### Options

- Raised plenum version increases the condensate gravity drainage capability up to 160 mm
- G0 or EU3 filter factory-mounted

- 2 fan speeds factory set for perfect capacity and sound fit to air-conditioning load
- Factory-mounted electric heater, drain pump, 2 and 3-way water valves
- Factory-mounted controls for standalone, master/slave and Building Management System applications

### Accessories

- Constant volume dampers from 30 to 180 m<sup>3</sup>/h associated with Ø 99 or Ø 124 mm spigot
- Auxiliary drain pan for left or right hand
- On/off 2 and 3-way water valve with thermal actuators
- Large selection of thermostats

### Controls

- Large choice of wall thermostats to cover all standalone unit applications
- Up to 20 units group control with infrared or wall-mounted thermostat interface

### Energy saving options

- EC fan motor allows for 60% annual energy

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office

CFAS High Efficiency		16			26			36		
		Low	Medium	High	Low	Medium	High	Low	Medium	High
Airflow (at 0 Pa)	(m <sup>3</sup> /h)	140	180	280	200	240	380	360	540	620
Total/sensible cooling capacity (1)	(kW)	1.2/0.9	1.5/1.2	1.7/1.3	1.7/1.2	2.6/1.9	3.1/2.3	2.5 /1.8	3.5/2.6	4.0/3.0
FCEER (1)			55			61			53	
Heating capacity 2 pipe (2)	(kW)	1.4	1.9	2.1	2.0	3.1	3.8	2.9	4.2	4.8
FCCOP 2 pipe (2)			65			72			62	
Heating capacity 4 pipe (2)	(kW)	1.1	1.3	1.5	1.7	2.3	2.7	2.5	3.3	3.6
FCEER 2 pipe (1)			55			61			53	
FCCOP 4 pipe (2)			65			72			62	
Sound power level	(dB(A))	41	49	52	36	48	48	41	52	55
Sound pressure level (3)	(dB(A))	32	40	43	27	39	39	32	43	46
NR level (medium speed)	(dB(A))		34			33			37	
NC level (medium speed)	(dB(A))		33			31			35	
<b>Weights and dimensions</b>										
Length	(mm)		592			592			592	
Width	(mm)		592			592			592	
Height (standard/raised)	(mm)		309/369			309/369			309/369	
Operating weight	(kg)		18			35			45	
<b>Electrical data</b>										
Fan motor absorbed power	(W)	16	22	49	27	44	57	46	52	57
Electric heater capacity	(W)		350/550			700/1150			900/1400	
Electric heater current	(A)		1.5/2.4			3/5			3.9/6.1	
Power supply	(V/Ph/Hz)					230-1-50				

(1) At Eurovent conditions: 7/12°C water 27°/19°C air (50% RH)

(2) At Eurovent conditions: 2-pipe air 20°C, water +50°C inlet; 4-pipe air 20°C, water +70/60°C inlet/outlet

(3) Values calculated from sound power levels with a hypothetical acoustic attenuation of 9 dB

CFAE High Efficiency		16			26			36		
		Low	Medium	High	Low	Medium	High	Low	Medium	High
Airflow	(m <sup>3</sup> /h)	130	205	295	215	370	540	275	430	620
Total/sensible cooling capacity (1)	(kW)	0.8 / 0.6	1.2 / 0.9	1.6 / 1.2	1.5 / 1.1	2.3 / 1.7	3.2 / 2.4	1.9 / 1.4	2.8 / 2.1	3.8 / 2.8
FCEER (1)			89			152			156	
Heating capacity 2 pipe (2)	(kW)	1	1.5	2	1.7	2.8	3.9	2.2	3.3	4.5
FCCOP 2 pipe (2)			514			536			394	
Heating capacity 4 pipe (2)	(kW)	0.9	1.2	1.5	1.6	2.3	3	2	2.8	3.6
FCCOP 4 pipe (2)			538			1331			975	
Sound power level	(dB(A))	35	46	55	34	46	56	36	48	58
Sound pressure level (3)	(dB(A))	26	37	46	23	36	47	26	39	49
NR Level (medium speed)	(dB(A))	22	32	41	18	30	42	18	33	44
NC Level (medium speed)	(dB(A))	21	30	39	17	28	40	16	31	42
<b>Weights and dimensions</b>										
Length	(mm)		592			970			1192	
Width	(mm)		592			592			592	
Height (standard/raised)	(mm)		309 / 369			309 / 369			309 / 369	
Operating weight	(kg)		18			35			45	
<b>Electrical data</b>										
Fan motor absorbed power	(W)	8	14	29	8	16	37	10	19	42
Electric heater capacity	(W)		350 / 550			700 / 1150			900 / 1400	
Electric heater current	(A)		1.5 / 2.4			3 / 5			3.9 / 6.1	
Power supply	(V/Ph/Hz)					230/1/50				

(1) At Eurovent conditions: 7/12°C water 27°/19°C air (50% RH)

(2) At Eurovent conditions: 2-pipe air 20°C, water +50°C inlet; 4-pipe air 20°C, water +70/60°C inlet/outlet

(3) Values calculated from sound power levels with a hypothetical acoustic attenuation of 9 dB



# CLCF Climate Changer™

## Air handling units for comfort applications



### Customer benefits

#### Superior performance

- Airflow from 1000 m<sup>3</sup>/h to 60000 m<sup>3</sup>/h - 31 sizes
- Special low height sizes for false ceiling applications
- Wide array of fan technologies (forward, backward, plug fan) and coil options for greater unit flexibility

#### High energy efficiency

- Broad selection of energy recovery options (heat wheel, plate heat exchanger, coil loop)
- Increased energy efficiency performance - up to 90%
- Eurovent Energy class A and low specific fan power and energy consumption
- EC plug fans

#### Reliable indoor air quality

- 4-point inclined floor serves as integrated drain pan
- Vertical natural drainage inhibits bacterial growth
- Compliant to VDI 6022 and DIN 1946

#### Lower installed costs

- Integrated lifting lugs for easier handling
- Quick, unique and reliable tool-less connection system

#### Main features

- Frameless casing for reduced pressure drops
- 50 mm polyurethane foam-injected panels; homogenous inert/non-fibered insulation
- Internal thermal breaks and thermal break access doors
- 4-point single piece inclined floor under sections creating condensate, promotes liquid run-off
- Centralized vertical drain

- Full perimeter integrated unit base frame
- Unitized structured panel design, minimizing seams that introduce air leak paths
- EPDM seamless gasket seals integrated into the door panels
- All types of components available
- Eurovent Certified: casing air leakage: L1; casing strength: D1; filter bypass leakage: F9; thermal transmittance: T2; thermal bridging factor: TB2

### Options

- Panel material: galvanized steel, painted galvanized steel, aluminum, stainless steel 304, 316, or 316L
- High density Rockwool insulation (80 kg/m<sup>3</sup>)
- Roof (standard or pitched), bird screens
- Sound attenuators
- All internal parts painted or made of stainless steel

### Controls

- Factory-engineered, mounted, tested and pre-commissioned controls
- Quick connect wiring and cabling done in-factory
- Single power source for all machine power components (fan motors, electric heaters, etc.)
- Segregated cable change for easy service access and a protected, clean, and reliable cabling system
- Open protocol platform
- Possibility for connectivity to Building Management System
- Full commissioning provided by Trane experts

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office





# CLCF Climate Changer™

Air handling units for hospital, laboratory and pharmaceutical applications



## Customer benefits

### Reliable Indoor Air Quality

- 4-point single piece inclined floor under sections creating condensate, promotes liquid run-off
- Centralized vertical drain
- Watertight casing for disinfection using liquid products
- Clean concept construction for highest hygienic requirements
- Completely smooth interior panels and rounded corners
- Compliant to VDI 6022 and DIN 1946

### Superior Performance

- Airflow from 1000 m<sup>3</sup>/h to 60000 m<sup>3</sup>/h - 31 sizes, tested and pre-commissioned controls
- Special low height sizes for false ceiling applications
- Wide array of fan technologies (forward, backward, plug fan) and coil options for greater unit flexibility

### Lower Installed Costs

- Integrated lifting lugs for easier handling
- Quick, unique and reliable tool-less connection system

### High Energy Efficiency

- Energy recovery options (plate heat exchangers, coil loops)
  - up to 90% improved energy efficiency performance
- EC plug fans
- Eurovent Energy class A and low specific fan power and energy consumption

### Main features

- Frameless casing for reduced pressure drops
- 50 mm polyurethane foam-injected panels; homogenous inert/non-fibered insulation
- Internal thermal breaks and thermal break access doors
- Full perimeter integrated unit base frame

- Unitized structured panel design, minimizing seams that introduce air leak paths
- EPDM seamless gasket seals integrated into the door panels
- All types of components available
- Eurovent Certified: Casing air leakage: L1; casing strength: D1; filter bypass leakage: F9; thermal transmittance: T2; thermal bridging factor: TB2

### Options

- 4-point inclined floor available for all unit sections in stainless steel 304, 316, or 316L (or other materials)
- Eurovent Class 3 or 4 dampers EN 1751
- Antimicrobial copper coil fins
- Panel material: galvanized steel, painted galvanized steel, aluminum, stainless steel 304, 316, or 316L
- High density Rockwool insulation (80 kg/m<sup>3</sup>)
- Roof (standard or pitched), bird screens
- All internal parts coated or made in stainless steel
- Sound attenuators

### Controls

- Factory-engineered, mounted, tested and pre-commissioned controls
- Quick connect wiring and cabling done in-factory
- Single power source for all machine power components (fan motors, electric heaters, etc.)
- Segregated cable change for easy service access and a protected, clean, and reliable cabling system
- Open protocol platform
- Possibility for connectivity to Building Management System
- Full commissioning provided by Trane experts



# CCTA – CCTB

## Air handling units for custom applications



### Customer benefits

- Extreme flexibility in construction and dimensions to fit your exact requirements
- Easy installation via modular construction and easy module connection system
- Low energy consumptions and specific fan power with high efficiency recovery and components
- Cleanable and enhanced casing design for higher indoor air quality
- Compliant to VDI 6022 and DIN 1946 available with Eurovent Class A energy class
- All panels removable for fully accessibility

### Main features CCTA

- 180 standard units sizes unit sizes for airflow from 1000 to 140000 m<sup>3</sup>/h: indoor and outdoor versions
- Special design on request up to 200000 m<sup>3</sup>/h
- Casing thermal performances: D1/L1/F9/T2/TB3 (Casing CCTA 50 mm MW) Eurovent certified
- Strong casing framework manufactured with extruded anti-corrosion aluminium profiles, fitted with nylon fibre glass stiffened angles
- Double sealing system to provide optimal casing air leakage
- Exclusive panel fixing system, with screwless panel-lock system, providing a neat external finishing
- 25 or 50 mm thick sandwich-type panels made of galvanized steel inside and white pre-painted steel outside
- Panel insulation made of CFC-free injected polyurethane foam
- Filters fitted on self compressive rail system
- Coil mounted on rails for easy removal
- Available components: panel and bag filters, HEPA filters, activated carbon filters, auto-roll filter, FC/BI/Aerofoil centrifugal fans EC motors, plug fans, water coils, DX coil, electric, heaters, steam coils, condensing coils, air washers,

steam humidifiers, evaporative humidifiers, atomizing humidifiers, plate heat exchangers, thermal wheels, run around coils, silencers, mixing chambers, multi-zone sections

### Main features CCTB

- Same flexibility as CCTA range, with:
  - Aluminium frame work with integrated plastic thermal break
  - 40 or 60 mm thick panels thick panels with integrated thermal break, polyurethane foam insulation
  - Enhanced casing thermal performances: D1/L1/F9/T2/TB2 Eurovent certified
  - Smooth internal walls with 4 points inclined drain pan

### Options

- High density Rockwool insulation (80 kg/m<sup>3</sup>)
- Inner / outer skins made of peraluman, stainless steel 304 or 316 metal sheet
- Flat packed/kit form delivery
- All internal parts coated or made in stainless steel

### Accessories

- Inspection windows and wired lights
- Manometers and pressure switches
- Flexible connections, weather louvers, intake hoods, sand trap louvers

### Controls

- Factory-engineered, mounted, tested and pre-commissioned controls
- Quick connect wiring and cabling done in-factory
- Single power source for all machine power components (fan motors, electric heaters, etc.)
- Segregated cable change for easy service access and a protected, clean, and reliable cabling system
- Open protocol platform
- Possibility for connectivity to Building Management System
- Full commissioning provided by Trane experts

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office



# CCEB

## Customized air handling units for healthcare and industrial applications



### Customer benefits

- High build quality and reliability, designed for the most demanding applications
- High flexibility to provide customized solutions
- Clean concept construction, designed to meet highest hygienic requirements
- Use the finest technologies available to provide the lowest specific fan power and energy consumptions
- Quick and easy installation and maintenance
- Available with Eurovent Class A energy class
- Compliant to EN13 053, VDI 6022 and DIN 1946

### Main features

- Modular casing construction, Indoor and outdoor versions
- Vertically stacked, in line, side by side, L-shaped configuration
- 54 standard unit sizes. Airflows from 1000 to 140000 m<sup>3</sup>/h (0.3 to 38 m<sup>3</sup>/s)
- Bigger and special unit sizes to cover airflows up to 200000 m<sup>3</sup>/h upon request
- 50 mm double skin panels with mineral wool insulation
- Inner skin: galvanized steel, outer skin: PVC coated, white color
- High casing air tightness: Class C according to BS/DW144 & Eurovent 2/2 (0.42l/s/m<sup>2</sup> @ 2000 Pa)
- Mechanical classes (EN1886): D1/L1/F9/T3/TB3 or T2/TB2, Eurovent certified
- Smooth internal walls, minimized dust traps, easy to clean

- Available components: panel and bag filters, HEPA filters, activated carbon filters, auto-roll filter, FC/BI/aerofoil centrifugal fans, plug fans, water coils, DX coil, electric heaters, steam coils, condensing coils, air washers, steam humidifiers, evaporative humidifiers, cross & counter flow plate heat exchangers, thermal wheels, run around coils, silencers, mixing chambers, multi-zone sections

### Options

- Plug fans with EC motors and fan walls (Class IE4)
- ATEX certified construction; group II, category 2 and 3
- Panel material: galvanized steel, PVC coating, Peraluman, stainless steel 304 and 316L
- All internal parts coated or made in stainless steel
- Flat packed/kit form delivery
- Inclined floor and anti-bacteriologic seals
- All components fitted on rails for easy removal
- Factory-installed controls
- Outdoor version with inclined roof

### Accessories

- Inspection windows and wired lights
- Manometers and pressure switches
- Flexible connections, weather louvers, intake hoods, sand trap louvers
- Motor lifting beam, adjustable legs

## Controls

- Factory-installed controls including complete controls panels, sensors & actuators.
- Adjustable/variable speed fans with variable frequency drives or EC motors.
- Siemens controller, factory programmed.
- Tested and pre-commissioned prior shipment.
- Standalone or communicating system with BACnet® MS/TP, BACnet® IP, ModUS RTU, LON, or Webserver.

## Energy saving options

- Class A energy classes as per Eurovent
- High efficiency heat recovery devices:
  - Sensible, enthalpy or sorption wheels
  - Plate heat exchangers up to 92% efficiency
  - Run around coils
- High efficiency plug fans
- IE3 class fan motors, EC motors Class IE4
- Adiabatic cooling systems
- Optimized controls strategies

	Air volume (m <sup>3</sup> /s) at coil face velocity (m/s)			Air volume (m <sup>3</sup> /h) at coil face velocity (m/s)			Overall width (mm)	Overall height (mm)
	2.0	2.5	3.0	2.0	2.5	3.0		
CCEB	2.0	2.5	3.0	2.0	2.5	3.0	(mm)	(mm)
0.5	0.3	0.3	0.4	950	1188	1426	710	435
0.75	0.4	0.5	0.6	1331	1663	1996	710	587.5
0.75F	0.4	0.5	0.7	1577	1971	2365	1015	435
1	0.5	0.6	0.7	1711	2138	2566	710	740
1F	0.6	0.8	0.9	2203	2754	3305	1320	435
1.125	0.6	0.8	0.9	2208	2759	3311	1015	587.5
1.5	0.8	1.0	1.2	2838	3548	4257	1015	740
1.5F	0.9	1.1	1.3	3084	3856	4627	1320	587.5
2	1.1	1.4	1.7	3966	4957	5949	1320	740
2.25	1.2	1.5	1.8	4324	5405	6486	1015	1045
2.5	1.4	1.8	2.1	5093	6367	7640	1625	740
3	1.7	2.1	2.6	6169	7711	9253	1320	1045
3.75	2.2	2.8	3.3	7923	9904	11884	1625	1045
4	2.3	2.9	3.4	8249	10311	12374	1320	1350
4.5	2.6	3.3	4.0	9495	11869	14243	1930	1045
5	3.0	3.7	4.5	10752	13441	16129	1625	1350
6	3.6	4.5	5.4	12887	16108	19330	1930	1350
6.25	3.7	4.6	5.6	13375	16718	20062	1625	1655
7	4.3	5.3	6.4	15390	19238	23085	2235	1350
7.5	4.6	5.7	6.9	16537	20671	24805	1930	1655
8	5.0	6.2	7.5	17893	22367	26840	2540	1370
8.75	5.4	6.8	8.1	19440	24300	29160	2235	1655
9	5.5	6.8	8.2	19669	24586	29503	1930	1960
10	6.3	7.8	9.4	22602	28253	33903	2540	1675
10.5	6.5	8.2	9.8	23490	29363	35235	2235	1960
11.25	7.2	8.9	10.7	25764	32206	38647	2845	1675
12	7.6	9.5	11.4	27311	34139	40967	2540	1980
12.25	7.7	9.6	11.5	27540	34425	41310	2235	2265
12.5	8.0	10.0	12.1	28927	36158	43390	3150	1775
13.5	8.6	10.8	13.0	31132	38915	46698	2845	1980
14	8.9	11.1	13.3	32020	40025	48030	2540	2285
15	9.7	12.1	14.6	34953	43691	52430	3150	2080
15.75	10.1	12.7	15.2	36500	45625	54750	2845	2285
16	10.1	12.6	15.1	36197	45247	54296	2540	2590
16.5	10.8	13.4	16.1	38712	48389	58067	3455	2080
17.5	11.4	14.2	17.1	40980	51224	61469	3150	2385
18	11.3	14.2	17.0	40794	50992	61191	2845	2590
18F	11.8	14.8	17.7	42595	53244	63893	3760	2080
19.25	12.6	15.8	18.9	45386	56732	68079	3455	2385
19.5	12.9	16.1	19.3	46354	57942	69530	4065	2080
20	12.7	15.9	19.1	45801	57251	68701	3150	2690
21	13.9	17.3	20.8	49939	62424	74909	3760	2385
22	14.1	17.6	21.1	50725	63407	76088	3455	2690
22.75	15.1	18.9	22.6	54346	67932	81518	4065	2385
24	15.5	19.4	23.3	55814	69768	83722	3760	2690
24.5	15.4	19.2	23.0	55296	69120	82944	4370	2385
26	16.9	21.1	25.3	60739	75924	91109	4065	2690
26.25	16.5	20.6	24.8	59443	74304	89165	4675	2385
28	18.2	22.8	27.4	65664	82080	98496	4370	2690
30	19.6	24.5	29.4	70589	88236	105883	4675	2690
31.5	20.2	25.2	30.2	72576	90720	108864	4370	2995
32	21.0	26.2	31.5	75514	94392	113270	4980	2690
33.75	21.7	27.1	32.5	78019	97524	117029	4675	2995
36	23.2	29.0	34.8	83462	104328	125194	4980	2995



**TRANE®**



# *DX Unitary Systems*

*Unitary systems combine heating, cooling, and fan sections all in one and are used in most classes of buildings, from schools to offices to retail, particularly where low initial cost and simplified installation are important. Our commercial unitary systems feature integrated controls engineered to create the best possible comfort environment for your investment.*



# Airfinity™

## Packaged rooftops



### Customer benefits

- Easy installation, operation and maintenance
- Energy savings and heat recovery solutions
- Optimum comfort and high Indoor Air Quality
- Ideal for retail applications

### Range description

**IC:** Cooling-only unit

**IH:** Reversible unit

### Main features

- Solid construction: Weather and age resistant casing made of zinc-coated, heavy-gauge, galvanized steel pre-painted with RAL 9002 powder paint
- High performance: High efficiency hermetic scroll type compressors in tandem for high seasonal efficiency. High full load efficiency with Eurovent Class A or B
- Energy savings: Free cooling and heat recovery solutions for maximum energy savings
- Proven reliability: Dual refrigeration circuit, high quality components and improved control algorithms for market-leading reliability
- Ideal comfort: Electronically commutated (EC) supply plug fan with variable flow control for optimum comfort and higher energy savings
- High indoor air quality: Double filtration with minimum G4 filters (up to F9 provided as option). Fully insulated indoor air section with double wall panel and self-maintained glass wool insulation with specifications according to DIN EN 1602

- Easy communication: Easy to integrate with Building Automation System thanks to compatibility with Modbus, Bacnet, and LonTalk protocols
- Flexible: Wide selection of options and accessories available

### Options and accessories

- Auxiliary heat options (electric heater, hot water coil, integrated gas burner)
- Heat recovery solutions
- Building pressurization control
- Low ambient operation
- Electronic wall thermostats and user interfaces
- Service terminal
- Multi-rooftop control and management
- Adjustable roofcurbs

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.

Models IH		039	049	059	064	074	084	040	050
Number of circuits / compressors		2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2	2 / 4	2 / 4
Nominal airflow	(m <sup>3</sup> /h)	8200	10000	11100	12400	15500	16700	8700	10600
Available static pressure at nominal flow rate	(Pa)	250	250	250	250	250	250	250	250
Available static pressure at nominal flow rate (oversized drive)	(Pa)	500	500	500	500	500	500	500	500
<b>Performance data (cooling mode) (1)</b>									
Net cooling capacity (1)	(kW)	43	52	58	65	80	87	45	56
Total power input	(kW)	13	17	20	25	27	31	13	17
Net EER	(kW / kW)	3.4	3.1	2.8	2.6	3.0	2.8	3.5	3.4
Eurovent Energy class		A	A	B	C	A	B	A	A
Seasonal space efficiency	%	166	152	138	128	145	135	176	172
Operating outdoor air temperature range (min./max.)	(°C)	10 / 46	10 / 46	10 / 46	10 / 46	10 / 46	10 / 46	10 / 46	10 / 46
Operating outdoor air temperature range (min./max.) - Low ambient	(°C)	-15 / 46	-15 / 46	-15 / 46	-15 / 46	-15 / 46	-15 / 46	-15 / 46	-15 / 46
<b>Performance data (heating mode)</b>									
Net heating capacity	(kW)	38	47	54	63	71	78	39	49
Total power input	(kW)	11	14	17	20	21	24	11	15
Net COP	(kW / kW)	3.4	3.3	3.1	3.1	3.4	3.3	3.4	3.4
Eurovent Energy class		A	B	C	C	A	B	A	B
Seasonal space efficiency	(%)	111	109	104	106	103	102	113	119
Operating outdoor air temperature range (min./max.)	(°C)	-15 / 20	-15 / 20	-15 / 20	-15 / 20	-15 / 20	-15 / 20	-15 / 20	-15 / 20
<b>General data</b>									
A-weighted Outdoor sound power level (1)	(dB(A))	85	85	85	85	86	86	84	84
A-weighted sound power level in duct (1)	(dB(A))	83	88	93	97	84	87	75	78
Auxiliary electric heating capacity - Stage 1 / 2	(kW)	12.5 / 12.5	12.5 / 12.5	12.5 / 25	12.5 / 25	12.5 / 25	12.5 / 25	12.5 / 12.5	12.5 / 12.5
Auxiliary gas burner heating capacity	(kW)	Consult product literature							
<b>Weights and dimensions (Operating)</b>									
Length	(mm)	3010	3010	3010	3010	3890	3890	3010	3010
Width	(mm)	2250	2250	2250	2250	2250	2250	2250	2250
Height	(mm)	1565	1565	1565	1565	1585	1585	1565	1565
Weight (without options)	(kg)	988	1005	1016	1016	1333	1347	1100	1112
<b>Electrical Data (2)</b>									
Power supply	(V/Ph/Hz)	400/3/50							
Maximum running amps	(A)	41	46	56	65	68	84	44	50
Start-up amps	(A)	127	157	175	186	201	209	80	93
Start-up amps (with soft starter)	(A)	92	113	126	135	145	155	65	75

Models IH		060	065	075	085	100	110	130
Number of circuits / compressors		2 / 4	2 / 4	2 / 4	2 / 4	2 / 4	2 / 4	2 / 4
Nominal airflow	(m <sup>3</sup> /h)	12100	13700	15700	16700	19800	21600	25500
Available static pressure at nominal flow rate	(Pa)	250	250	250	250	250	250	250
Available static pressure at nominal flow rate (oversized drive)	(Pa)	500	500	500	500	500	500	500
<b>Performance data (cooling mode) (1)</b>								
Net cooling capacity (1)	(kW)	64	72	82	88	104	113	133
Total power input	(kW)	19	24	27	30	34	40	51
Net EER	(kW / kW)	3.3	3.0	3.0	2.9	3.0	2.8	2.6
Eurovent Energy class		A	A	A	B	A	B	C
Seasonal space efficiency	%	146	151	144	143	146	137	125
Operating outdoor air temperature range (min./max.)	(°C)	10 / 46	10 / 46	10 / 46	10 / 46	10 / 46	10 / 46	10 / 46
Operating outdoor air temperature range (min./max.) - Low ambient	(°C)	-15 / 46	-15 / 46	-15 / 46	-15 / 46	-15 / 46	-15 / 46	-15 / 46
<b>Performance data (heating mode)</b>								
Net heating capacity	(kW)	55	64	72	77	92	104	125
Total power input	(kW)	17	19	21	23	27	31	39
Net COP	(kW / kW)	3.2	3.3	3.4	3.3	3.4	3.3	3.2
Eurovent Energy class		B	B	A	B	A	B	B
Seasonal space efficiency	(%)	114	118	126	123	128	128	118
Operating outdoor air temperature range (min./max.)	(°C)	-15 / 20	-15 / 20	-15 / 20	-15 / 20	-15 / 20	-15 / 20	-15 / 20
<b>General data</b>								
A-weighted Outdoor sound power level (1)	(dB(A))	85	85	85	85	85	85	91
A-weighted sound power level in duct (1)	(dB(A))	82	80	84	87	92	96	99
Auxiliary electric heating capacity - Stage 1 / 2	(kW)	12.5 / 25	12.5 / 25	12.5 / 25	12.5 / 25	25 / 37.5	25 / 37.5	25 / 37.5
Auxiliary gas burner heating capacity	(kW)	Consult product literature						
<b>Weights and dimensions (Operating)</b>								
Length	(mm)	3010	3010	3890	3890	3890	3890	3890
Width	(mm)	2250	2250	2250	2250	2250	2250	2250
Height	(mm)	1565	1565	1585	1585	1890	1890	1890
Weight (without options)	(kg)	1116	1153	1342	1348	1566	1570	1570
<b>Electrical Data (2)</b>								
Power supply	(V/Ph/Hz)	400/3/50						
Maximum running amps	(A)	55	66	75	80	93	114	132
Start-up amps	(A)	113	129	161	168	204	233	253
Start-up amps (with soft starter)	(A)	89	102	126	132	159	184	202

(1) At Eurovent conditions EN-14511: indoor: 27°C/19°C, outdoor: 35°C (cooling), Indoor: 20°C, outdoor 7°C/6°C DB/WB (heating)

(2) Electrical data given without electric heater and exhaust fan option



# Airfinity™ Solar

Solar-ready rooftops powered by PV panels

## Customer benefits

- Complete package: You no longer need to think about your PV installation and HVAC equipment separately. Trane can provide you with the complete package, ensuring you have the optimum design for your installation and simplifying logistics.
- Plug & Play: All components have been carefully selected to be easily connectable on-site, without any hassle.
- Independent and reliable: The system is designed to be entirely based on self-consumption, which means you can eliminate the heavy bureaucratic load traditionally associated with on-grid type systems.
- Ideal for BREAAAM / LEED building certification: Increase the value of your property by using completely renewable and sustainable technologies.

## Range description

PV-S: Solar PV kits with south mounting configuration

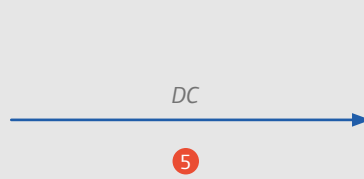
PV-EW: Solar PV kits with east-west mounting configuration

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.

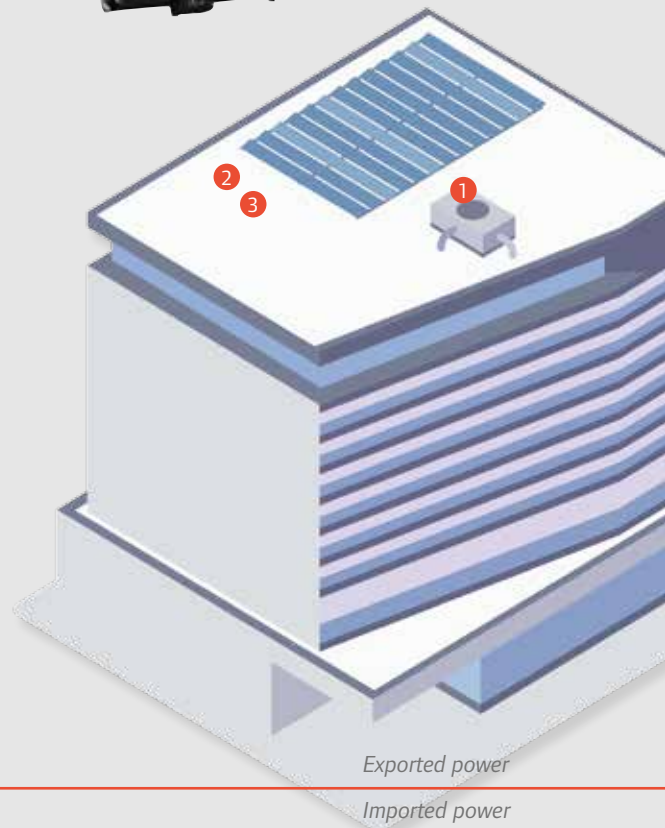


Airfinity Solar PV-S kits		PV05S	PV08S	PV12S	PV15S	PV20S	PV25S	PV35S	PV40S	PV50S
Nominal PV power	(kWp)	6	9	13	16	21	26	37	42	52
Number of panels		22	34	50	62	82	100	144	160	200
Power DC output per panel	(Wc)	260	260	260	260	260	260	260	260	260
Roof space required (without shadows and obstructions)	(m <sup>2</sup> )	58	90	132	164	216	264	380	422	528
Inverter model (DC/AC)		STP 5 kVA	STP 8 kVA	STP 12 kVA	STP 15 kVA	STP 20 kVA	STP 25 kVA	STP 15 + STP 20 kVA	2 x STP 20 kVA	2 x STP 25 kVA
<b>Expected yearly production based on local irradiance factor</b>										
900 kWh/m <sup>2</sup> (Benelux)	(kWh)	4800	7400	10900	13500	17850	21750	31350	34800	43500
1400 kWh/m <sup>2</sup> (Lyon)	(kWh)	7450	11500	16950	21000	27750	33850	48750	54150	67700
1600 kWh/m <sup>2</sup> (Rome)	(kWh)	8500	13150	19350	24000	31700	38700	55700	61900	77400
1750 kWh/m <sup>2</sup> (Madrid)	(kWh)	9300	14400	21150	26250	34700	42300	60950	67700	84650

Airfinity Solar PV-EW kits		PV05EW	PV08EW	PV12EW	PV16EW	PV20EW	PV24EW	PV30EW	PV40EW	PV50EW
Nominal PV power	(kWp)	6	9	13	17	21	26	31	42	52
Number of panels		22	34	50	64	82	100	120	160	200
Power DC output per panel	(Wc)	260	260	260	260	260	260	260	260	260
Roof space required (without shadows and obstructions)	(m <sup>2</sup> )	44	67	99	127	162	198	238	317	396
Inverter model (DC/AC)		STP 5 kVA	STP 8 kVA	2 x STP 6 kVA	2 x STP 8 kVA	2 x STP 10 kVA	2 x STP 12 kVA	2 x STP 15 kVA	2 x STP 20 kVA	2 x STP 25 kVA
<b>Expected yearly production based on local irradiance factor</b>										
900 kWh/m <sup>2</sup> (Benelux)	(kWh)	4650	7150	10550	13500	17250	21050	25250	33700	42100
1400 kWh/m <sup>2</sup> (Lyon)	(kWh)	7200	11150	16400	20950	26850	32750	39300	52400	65500
1600 kWh/m <sup>2</sup> (Rome)	(kWh)	8250	12750	18700	23950	30700	37450	44950	59900	74900
1750 kWh/m <sup>2</sup> (Madrid)	(kWh)	9000	13900	20500	26200	33600	40950	49150	65500	81900



## Production

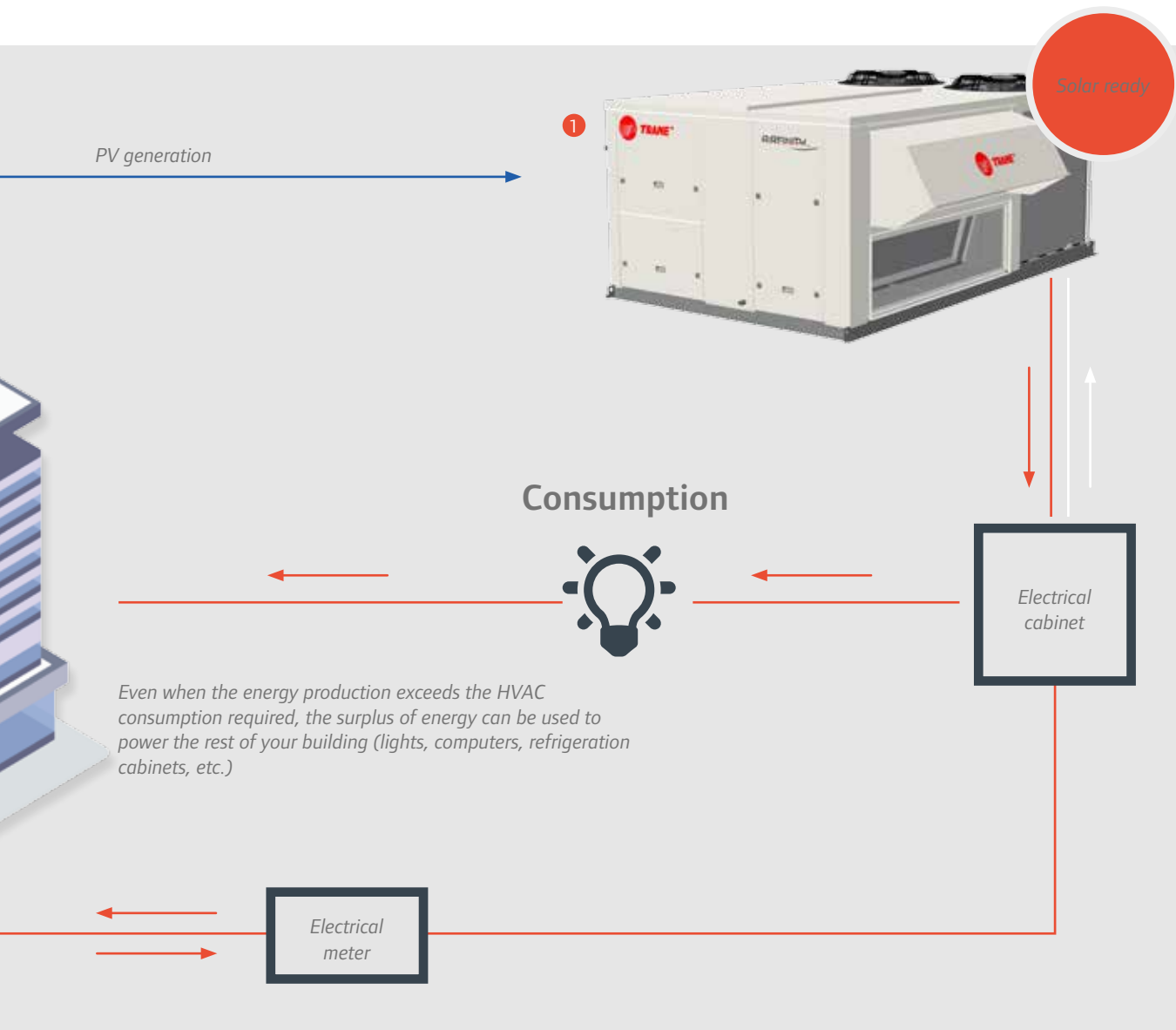


Airfinity™ Solar combines the best of both worlds: market-leading rooftop air-conditioning units together with proven silicon PV technology and best-in-class inverters.

As soon as the sun is shining, the PV panels contribute to the electricity needs of the rooftop unit. The total savings of the system depend on the local irradiance (sunlight per sqm and per year) and on the electricity purchase price.

### The system comprises:

- 1 Airfinity™ rooftop units: High-efficiency direct-expansion air-conditioning units designed to provide air-conditioning and ventilation to an indoor space.
- 2 Silicon photovoltaic panels: The most widely-used technology to convert solar energy into DC electrical power.



3 Mounting structure: Used to support the PV panels without puncturing the building's roof. The membranes are durable but lightweight and serve as a wind deflector.

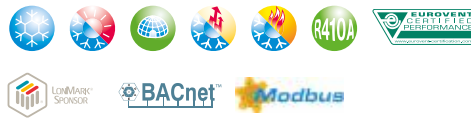
4 High efficiency inverter: Converts DC power supply provided by the PV panels into AC power needed to operate the rooftop HVAC unit and to feed into the utility grid.

5 Cables and connectors: Double-insulated and UV resistant cables suitable for rooftop applications with water resistant IP65 crimped connectors.



# Voyager™ I

## Packaged rooftop



### Customer benefits

- Single packaged air/air unit: simple installation
- High performance: lowest energy consumption
- High reliability: low maintenance costs

### Range description

- TSD/YSD/WSD: Downflow air discharge and intake
- TSH/YSH/WSH: Horizontal flow air discharge and intake
- TSD/TSH: Cooling-only unit
- YSD/YSH: Cooling-only unit with gas heat
- WSD/WSH: Reversible heat pump unit

### Main features

- Eurovent certified performances
- High efficiency in cooling and heating
- Single-side access for easy service
- Pitched/removable drain pan
- Corrosion-resistant cabinet with epoxy-coated condenser coil and hail guard as standard

### Options

- Electric heater (TSD/TSH/WSD/WSH)
- Hot water coil with 3-way-valve (TSD/TSH/WSD/WSH)
- Gas burners, compatible with G20, G25 and G31 gas (YSD/YSH)
- Fresh air intake for air quality and/or energy savings (free cooling) through advanced comparative enthalpy economizer
- Fresh air volume controlled by remote potentiometer, CO<sub>2</sub> sensor or communication interface
- Fire thermostat/smoke detector
- Clogged filter sensor/fan failure switch

### Accessories

- Adjustable or non-adjustable roofcurbs
- Electronic (THS03) and programmable (THP03) zone sensor modules
- Quick adaptation curb (replacement market)
- TD5 Service and Diagnostic full color touchscreen display

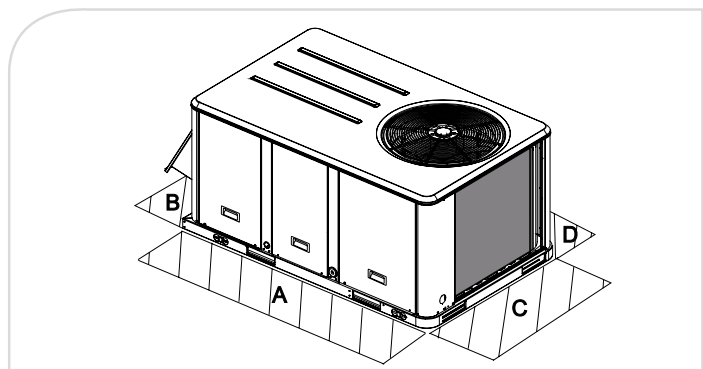
### ReliaTel™ Controls

- 24 V easy-to-start and service microprocessor controls
- Built-in conventional thermostat interface
- Remote on/off input
- LonTalk®, Modbus®, BACnet® communication capabilities

TSD/TSH YSD/YSH		060	072	090	102	120
Net cooling capacity (1)	(kW)	17	21.6	24.6	28.3	31.3
Total power input (1)	(kW)	5.78	7.48	8.97	10.3	12.3
EER / Eurovent Energy class (1)		2.95/B	2.89/B	2.74/C	2.74/C	2.54/D
Outdoor sound power level (3)	(dB(A))	79	81	81	83	79
Indoor sound power level (2)	(dB(A))	71	68	70	78	80
Nominal airflow	(m <sup>3</sup> /h)	3400	4080	5100	5780	6800
Operating outdoor air temperature range - cooling (min./max.)	(°C)			-18 / 50		
Indoor temperature range - cooling (min./max.)	(°C)			18 / 33		
Indoor temperature range-heating - (min./max.)	(°C)			+5 / +25		
Auxiliary gas heating capacity for gas fired units / Efficiency		24.6kW / 93%	41.3kW / 93%	41.3kW / 93%	51.9kW / 93%	51.9kW / 93%
Auxiliary electric heating capacity	(kW)	12	18	18	25	25
<b>Weights and dimensions (Operating)</b>						
Length	(mm)	1775	2251	2251	2251	2251
Width	(mm)	1124	1353	1353	1353	1353
Height	(mm)	921	1038	1038	1190	1190
Weight (without/with gas burner)	(kg)	240/264	355/383	374/401	415/447	426/459
Clearance A	(mm)			1219		
Clearance B	(mm)			914		
Clearance C	(mm)			914		
Clearance D	(mm)			914		
<b>Electrical data (4)</b>						
Power supply	(V/Ph/Hz)			400/3/50		
Nominal amps	(A)	16	22	25	27	30
Start-up amps	(A)	76	102	119	87	93

WSD/WSH		060	072	090
Net cooling capacity (1)	(kW)	15.1	21.6	25.6
Total power input (1)	(kW)	5.5	2.75	2.86
EER / Eurovent Energy class (1)		2.75/C	3.15/A	2.86/B
Net heating capacity (1)	(kW)	15.1	20.4	25.5
COP / Eurovent Energy class (1)		3.27/B	3.35/B	3.59/A
Outdoor sound power level (3)	(dB(A))	79	81	81
Indoor sound power level (2)	(dB(A))	71	68	70
Nominal airflow	(m <sup>3</sup> /h)	3400	4080	5100
Operating outdoor air temperature range - cooling (min./max.)	(°C)		-18 / 50	
Indoor temperature range - cooling (min./max.)	(°C)		18 / 33	
Operating outdoor air temperature range - heating (min./max.)	(°C)		-15 / +20	
Indoor temperature range - heating - (min./max.)	(°C)		+10 / +25	
Auxiliary electric heating capacity	(kW)	12	18	18
<b>Weights and dimensions (Operating)</b>				
Length	(mm)	1775	2251	2251
Width	(mm)	1124	1353	1353
Height	(mm)	921	1038	1038
Weight	(kg)	256	337	379
Clearance A	(mm)		1219	
Clearance B	(mm)		914	
Clearance C	(mm)		914	
Clearance D	(mm)		914	
<b>Electrical data (4)</b>				
Power supply	(V/Ph/Hz)		400/3/50	
Nominal amps	(A)	16	21	25
Start-up amps	(A)	76	82	119

- (1) At Eurovent conditions EN-14511:  
indoor: 27°C/19°C, outdoor: 35°C (cooling)  
Indoor: 20°C, outdoor 7°C/6°C DB/WB (heating)
- (2) Supply + return level  
(3) Level in free field  
(4) Electrical data given without electric heater and exhaust fan option





# Voyager™ II

## Packaged rooftop



### Customer benefits

- Single packaged air/air unit: simple installation
- High performance: lowest energy consumption
- High reliability: low maintenance costs
- Eurovent certified performances

### Range description

- TKD/YKD/WKD/DKD: Downflow air discharge and intake
- TKH/YKH/WKH/DKH: Horizontal flow air discharge and intake
- TKD/TKH: Cooling-only unit
- YKD/YKH: Cooling-only unit with gas heat
- WKD/WKH: Reversible heat pump unit
- DKD/DKH: Reversible heat pump unit with gas heat

### Main features

- High efficiency in cooling and heating
- Single-side access for easy service
- Pitched drain pan

### Options

- Electric heater (TKD/TKH/WKD/WKH)
- Hot water coil with 3-way-valve (TKD/TKH/WKD/WKH)
- Gas burners, compatible with G20, G25 and G31 gas (YKD/YKH/DKD/DKH)
- Advanced comparative enthalpy economizer
- Fresh air volume controlled by remote potentiometer, CO<sub>2</sub> sensor or communication interface
- Fire thermostat/smoke detector
- Clogged filter/fan failure switch

### Accessories

- Adjustable or non-adjustable roofcurbs
- Electronic (THS03) and programmable (THP03) zone sensor modules
- Quick adaptation curb (replacement market)
- TD5 Service and Diagnostic full color touchscreen display

### ReliaTel™ Control

- 24 V easy-to-start and service microprocessor controls
- LonTalk®, Modbus®, BACnet® communication capabilities

#### Energy saving options

- Dedicated downflow/horizontal flow Energy Recovery Module
  - Plate heat exchanger version (efficiency from 40 to 60%)
  - Heat recovery wheel version (efficiency from 65 to 85%)

- Dual fuel (DKD/DKH) unit
  - Switch automatically from mechanical heating to gas heat when efficiency of the heat pump is decreasing in cold ambient temperatures

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.

TKD / TKH YKD / YKH	155	175	200	250	265*	290*	340*	
Net cooling capacity (1)	(kW)	43.7	49.8	55.5	66.7	72.5	83.8	93.2
Total power input (1)	(kW)	17	19.8	21.3	25.6	29.6	34.3	40.5
EER / Eurovent Energy class (1)		2.57/D	2.51/D	2.61/C	2.61/C	2.45/D	2.44/D	2.3/E
Outdoor sound power level (3)	(dB(A))	88	89	89	92	90	92	93
Indoor sound power level (2)	(dB(A))	74	77	77	82	83	83	85
Nominal airflow	(m <sup>3</sup> /h)	8500	9850	11210	14100	14400	16200	18000
Operating outdoor air temperature range - cooling (min./max.)	(°C)				-18 / +50			
Indoor temperature range - cooling (min./max.)	(°C)				18 / 33			
Indoor temperature range - heating (min./max.)	(°C)				+5 / +25			
Auxiliary gas heating capacity for gas fired units / Efficiency		69kW / 90%	69kW / 90%	69kW / 90%	69kW / 90%	-	-	-
Auxiliary electric heating capacity	(kW)	25	25	38	38	38	38	38
<b>Weights and dimensions (Operating)</b>								
Length	(mm)	2726	2726	3107	3107	3107	3987	3987
Width	(mm)	1811	1811	2167	2167	2154	2154	2154
Height	(mm)	1273	1273	1372	1372	1704	1704	1704
Weight (without/with gas burner)	(kg)	590 / 665	623 / 698	747 / 826	772 / 852	869 / -	1140 / -	1148 / -
Clearance A	(mm)				1800			
Clearance B	(mm)				1220			
Clearance C	(mm)				1000			
Clearance D	(mm)				1300			
<b>Electrical data (4)</b>								
Power supply	(V/Ph/Hz)				400/3/50			
Nominal amps	(A)	39	46	52	55	62	77	84
Start-up amps	(A)	163	168	176	177	186	210	252

WKD / WKH DKD / DKH	125	155	200	265	290	340		
Net cooling capacity (1)	(kW)	37.3	45.3	63.6	70.3	81.8	91.8	
Total power input (1)	(kW)	14.1	17.6	24.3	30.2	33.3	39.6	
EER / Eurovent Energy class (1)		2.64/C	2.58/D	2.62/C	2.61/E	2.33/D	2.46/E	
Net heating capacity (1)	(kW)	30.8	42	52.2	59.9	70.8	78.8	
COP / Eurovent Energy class (1)		2.83/D	2.94/D	2.80/D	2.70/D	2.85/D	2.71/D	
Outdoor sound power level (3)	(dB(A))	88	88	92	90	92	94	
Indoor sound power level (2)	(dB(A))	79	74	81	83	83	85	
Nominal airflow	(m <sup>3</sup> /h)	8500	9850	11210	14100	14400	16200	
Operating outdoor air temperature range - cooling (min./max.)	(°C)				-18 / +50			
Indoor temperature range - cooling (min./max.)	(°C)				18 / 33			
Operating outdoor air temperature range - heating (min./max.)	(°C)				-15 / +20			
Indoor temperature range heating - (min./max.)	(°C)				10 / 25			
Auxiliary gas heating capacity for gas fired units / Efficiency		48.2kW/91%	69.3kW/90%	69.3kW/90%	69.3kW/90%	77.4kW/91%	77.4kW/91%	
Auxiliary electric heating capacity	(kW)	25	25	38	38	38	38	
<b>Weights and dimensions (Operating)</b>								
Length	(mm)	2726	2726	3107	3107	3987	3987	
Width	(mm)	1811	1811	2167	2154	2154	2154	
Height	(mm)	1273	1273	1372	1704	1400	1400	
Weight (Without / With gas burner)	(kg)	629 / 699	646 / 721	802 / 881	889 / 968	1175 / 1260	1183 / 1268	
Clearance A	(mm)				1800			
Clearance B	(mm)				1220			
Clearance C	(mm)				1000			
Clearance D	(mm)				1300			
<b>Electrical data (4)</b>								
Power supply	(V/Ph/Hz)				400/3/50			
Nominal amps	(A)	37	40	55	62	74	82	
Start-up amps	(A)	110	123	177	186	207	250	

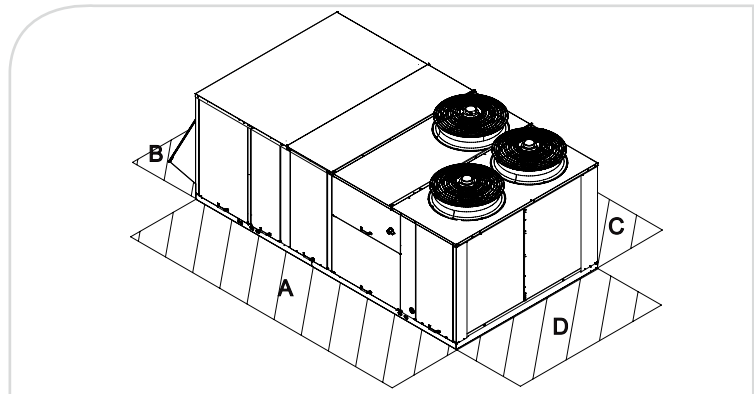
(1) At Eurovent conditions EN-14511: indoor: 27°C/19°C, outdoor: 35°C (cooling), Indoor: 20°C, outdoor 7°C/6°C DB/WB (heating)

(2) Supply + return level

(3) Level in free field

(4) Electrical data given without electric heater and exhaust fan option

\* for TKD/H only





# Voyager™ III

## Packaged rooftop



### Customer benefits

- Single packaged air/air unit: simple installation
- High performance: lowest energy consumption
- High reliability: low maintenance costs
- Eurovent certified performances

### Range description

- TKD/YKD/WKD/DKD: Downflow air discharge and intake
- TKH/YKH/WKH/DKH: Horizontal flow air discharge and intake
- TKD/TKH: Cooling-only unit
- YKD/YKH: Cooling-only unit with gas heat
- WKD/WKH: Reversible heat pump unit
- DKD/DKH: Reversible heat pump unit with gas heat

### Main features

- High efficiency in cooling and heating
- Adjustable pulley and drive kit
- Single-side access for easy service
- Pitched drain pan

### Options

- Electric heater (TK\*/WK\*)
- Hot water coil with 3-way-valve (TK\*/WK\*)
- Gas burners: Staged Low/High capacity (YK\*/DK\*) or modulating (YK\*)
- Advanced comparative enthalpy economizer
- Fresh air volume controlled by remote potentiometer, CO<sub>2</sub> sensor or communication interface
- Fire thermostat/smoke detector
- Clogged filter sensor/fan failure switch

### Accessories

- Adjustable or non-adjustable roofcurbs
- Electronic (THS03) and programmable (THP03) zone sensor modules
- Quick adaptation curb (replacement market)
- TD5 Service and Diagnostic full color touchscreen display

### ReliaTel™ Control

- 24 V easy-to-start and service microprocessor controls
- LonTalk®, Modbus®, BACnet® communication capabilities

#### Energy saving options

- Dedicated downflow/horizontal flow Energy Recovery Module
- Plate heat exchanger version (efficiency from 40 to 60%)
- Heat recovery wheel version (efficiency from 65 to 85%)
- Dual fuel unit (DKD/DKH)
- Switch automatically from mechanical heating to gas heat when efficiency of the heat pump is decreasing in cold ambient temperatures

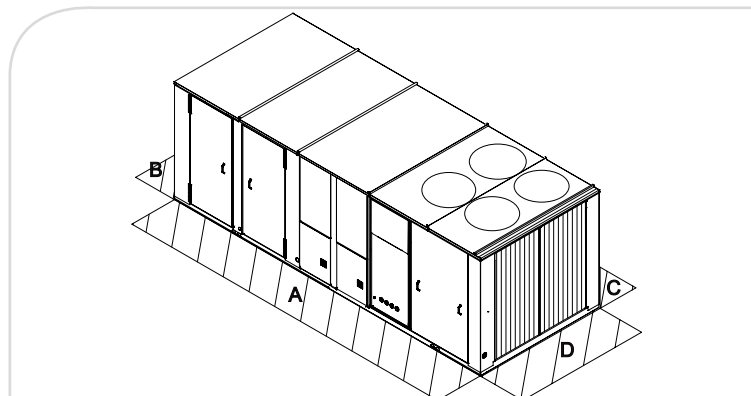
This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.



TKD / TKH YKD / YKH		275	300	350	400	500	600
Net cooling capacity (1)	(kW)	81.7	86.7	91.5	120	132	153
Total power input (1)	(kW)	26.1	28.9	31.4	42.7	49.9	62.9
EER / Eurovent Energy class (1)		3.13/A	3.00/B	2.91/B	2.82/B	2.64/C	2.43/D
Outdoor sound power level (3)	(dB(A))	91	93	92	93	93	91
Indoor sound power level (2)	(dB(A))	84	84	85	87	87	88
Nominal airflow	(m <sup>3</sup> /h)	13600	15300	17000	20400	24600	29500
Operating outdoor air temperature range - cooling (min./max.)	(°C)	-18 / +52	-18 / +52	-18 / +52	-18 / +49	-18 / +49	-18 / +52
Indoor temperature range - cooling (min./max.)	(°C)	16 / 33					
Indoor temperature range - heating - (min./max.)	(°C)	18/25					
Auxiliary gas heating capacity/Efficiency - low heat		69.3kW/93%			77.4kW/93%		
Auxiliary gas heating capacity/Efficiency - high heat		117.5kW/93%			154.8kW/93%		
Auxiliary gas heating capacity/Efficiency - mod. heat		46.3kW/105% - 145kW/93.5%					
Auxiliary electric heating capacity	(kW)	25	25	38	38	38	38
<b>Weights and dimensions (Operating)</b>							
Length TK*/YK* low heat/YK* high heat	(mm)	4580 / 4580 / 5285			5200 / 5900 / 5900		
Width	(mm)	2302					
Height	(mm)	1821	1821	1821	1996	1996	2268
Weight (no heat/with gas burner low heat / high heat)	(kg)	1599 / 1642 / 1835	1603 / 1658 / 1845	1650 / 1709 / 1895	2021 / 2135 / 2191	2080 / 2193 / 2250	2241 / 2494 / 2551
Clearance A	(mm)	2440					
Clearance B	(mm)	1220					
Clearance C	(mm)	1220					
Clearance D	(mm)	1830					
<b>Electrical data (4)</b>							
Power supply	(V/Ph/Hz)	400/3/50					
Nominal amps	(A)	76	82	93	116	130	151
Start-up amps	(A)	209	248	261	325	393	413

WKD / WKH DKD / DKH		400	500	600
Net cooling capacity (1)	(kW)	114	133	152
Total power input (1)	(kW)	41.9	544	67.7
EER / Eurovent Energy class (1)		2.71/C	2.44/D	2.24/E
Net heating capacity (1)	(kW)	109	151	179
COP / Eurovent Energy class (1)		3.81/C	3.11/C	3.11/C
Outdoor sound power level (3)	(dB(A))	93	90	91
Indoor sound power level (2)	(dB(A))	87	87	88
Nominal airflow	(m <sup>3</sup> /h)	20400	24600	29500
Operating outdoor air temperature range - cooling (min./max.)	(°C)	-18 / +52		
Indoor temperature range - cooling (min./max.)	(°C)	18 / 33		
Operating outdoor air temperature range - heating (min./max.)	(°C)	-15 / +20		
Indoor temperature range heating - (min./max.)	(°C)	10 / 25		
Auxiliary gas heating capacity / efficiency - low heat		77.4kW / 93%		
Auxiliary gas heating capacity / efficiency - high heat		154.8kW / 93%		
Auxiliary electric heating capacity	(kW)	63	75	75
<b>Weights and dimensions (Operating)</b>				
Length WK* / DK*	(mm)	5200 / 5900		
Width	(mm)	2302		
Height	(mm)	1996	2268	2268
Weight (no heat/with gas burner low heat / high heat)	(kg)	2047 / 2161 / 2217	2282 / 2395 / 2452	2297 / 2550 / 2607
Clearance A	(mm)	2440		
Clearance B	(mm)	1220		
Clearance C	(mm)	1220		
Clearance D	(mm)	1830		
<b>Electrical data (4)</b>				
Power supply	(V/Ph/Hz)	400/3/50		
Nominal amps	(A)	114	145	158
Start-up amps	(A)	290	353	420

- (1) At Eurovent conditions EN-14511:  
indoor: 27°C/19°C, outdoor: 35°C (cooling)  
Indoor: 20°C, outdoor 7°C/6°C DB/WB (heating)
- (2) Supply + return level  
(3) Level in free field  
(4) Electrical data given without electric heater and exhaust fan option





# RAUL

## Condensing unit



### Customer benefits

- Flexibility: customized system to fit the application's exact requirements

### Main features

- Scroll compressors –hermetic, high efficiency, low vibration, low sound
- Full internal overheating protections
- Access panels are quickly removable using a square key
- Disconnect switch and transformer
- Discharge and liquid line service valves
- Evaporator temperature sensor
- External sheet metal parts are galvanized and finished with powder paint RAL 9002

### Options

- Low ambient operation
- 380, 400 and 415V power voltage
- Epoxy-coated aluminium fins
- Copper fins
- Compressor sound attenuating jackets
- High and low pressure gauges
- Auxiliary card to validate auxiliary temperature setpoint with a remote contact
- Phase reversal protection

- Factory-mounted LonTalk® serial link allowing you to:
  - Modify temperature setpoint
  - Start or stop the unit
  - Monitor air temperature setpoint, ambient air temperature, condensing unit operation, fans, compressors alarms

### Trane Tracer™ CH530 Control

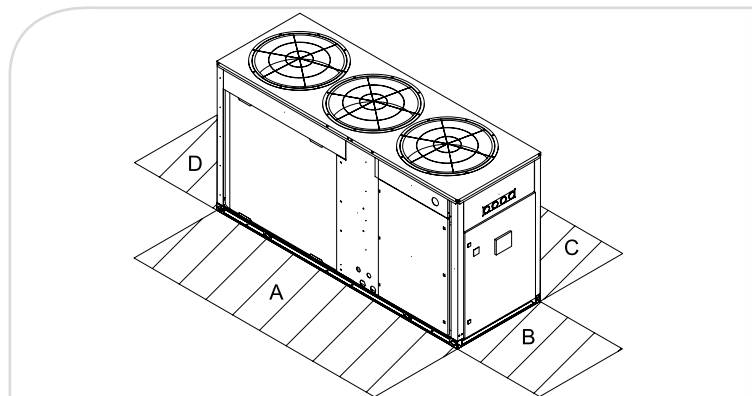
Adaptive Control™ microprocessor featuring:

- Easy-to-use operator interface panel
- External Auto/Stop
- Remote contact to start and stop each compressor
- Cooling and current-limit remote setpoint card (optional)
- LonTalk® communication card (optional)
- Programmable fault card 4 relays (optional)

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.

RAUL		190	260	300	350	400	450	500	600	700	800
Net cooling capacity R407C (1)	(kW)	54.8	66.6	81.1	95.3	108.3	118.8	133.0	162.0	194.7	218.8
Total power input R407C (1)	(kW)	18.2	25.1	29.8	33.4	38.4	45.6	51.7	61.0	71.3	83.9
Net cooling capacity R134a (1)	(kW)	43.8	53.2	63.9	75.4	85.1	93.6	106.3	127.9	153.8	172.7
Total power input R134a (1)	(kW)	12.1	15.8	18.5	21.3	24.3	27.7	31.5	37.0	47.1	53.9
Number of refrigerant circuits		1	1	1	2	2	2	2	2	2	2
Number of compressors/capacity steps		2	2	2	3	3	3	4	4	6	6
Sound power level	(dB(A))	86	87	89	89	90	90	90	92	98	98
Sound pressure level at 10m	(dB(A))	54	55	57	57	58	58	58	60	66	66
Suction line diameter	(inches)	1"5/8	1"5/8	1"5/8	1"5/8	1"5/8	1"5/8	1"5/8	1"5/8	2"1/8	2"1/8
Liquid line diameter	(inches)	7/8"	7/8"	7/8"	7/8"	7/8"	7/8"	7/8"	7/8"	1"1/8	1"1/8
<b>Weights and dimensions (Operating)</b>											
Length	(mm)	2061	2061	2061	2921	2921	2921	2225	2225	3090	3090
Width	(mm)	995	995	995	995	995	995	1865	1865	1948	1948
Height	(mm)	1582	1582	1582	1582	1582	1582	1584	1584	1598	1598
Weight	(kg)	514	584	650	810	900	926	1040	1168	1575	1634
Clearance A	(mm)	800	800	800	800	800	800	800	800	1000	1000
Clearance B	(mm)	800	800	800	800	800	800	900	900	1000	1000
Clearance C	(mm)	800	800	800	800	800	800	800	800	1000	1000
Clearance D	(mm)	900	900	900	900	900	900	800	800	1300	1300
<b>Electrical data</b>											
Power supply	(V/Ph/Hz)	400/3/50									
Nominal amps R407C (2)	(A)	41	50	59	70	79	88	99	117	150	168
Start-up amps R407C	(A)	144	199	207	219	228	236	248	265	299	316
Nominal amps R134a (2)	(A)	31	38	45	53	60	67	75	89	116	130
Start-up amps R134a	(A)	139	194	201	209	216	223	231	245	272	286

(1) At 7°C saturated suction temperature and 35°C ambient temperature  
(2) At 5°C saturated suction temperature and 60°C saturated discharge temperature





# RAUS/RAUX

## Condensing unit



### Customer benefits

- Low power consumption thanks to high efficiency condenser coils with integrated sub cooling circuit enhancing both capacity and efficiency
- Small footprint and horizontal airflow

### Range description

- RAUS cooling-only
- RAUX heat pump

### Main features

- Scroll compressor
- High efficiency condenser coil with seamless copper tubes and aluminum fins
- Low ambient condensing pressure control with variable fan speed modulation
- Plastic condensing coil protection grille
- Electrical panel
- Casing and panels in galvanized and powder painted steel

### Options

- Compressors sound jackets
- Soft - starter
- Control panel electric heater with thermostat
- Phase failure protection relay
- Epoxy coated condensing coils

### Accessories

- Remote control panel
- Communication card RS485
- Connection kit including:
  - thermostatic expansion valve
  - filter dryer with sight glass
  - liquid line solenoid valve
- Liquid receiver
- Service valves on the suction, liquid and equalization lines
- Rubber anti vibration mounts

### Controls

- Microprocessor-based controller to manage unit on/off mode, operating mode setting, parameters setting, and error code display

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.

<b>RAUS</b>		<b>040</b>	<b>060</b>	<b>070</b>	<b>080</b>	<b>100</b>	<b>110</b>
Net cooling capacity (1)	(kW)	15.4	21.0	24.5	28.6	37.2	41.7
Total power input (1)	(kW)	4.8	7.2	8.7	9.8	12.1	14.1
EER (including fans)		3.17	2.96	2.83	2.93	3.07	2.95
Number of refrigerant circuits		1	1	1	1	1	1
Number of compressors / capacity steps		1	1	1	1	1	1
Sound power level (2)	(dB(A))	76	72	73	74	75	81
Sound pressure level (3)	(dB(A))	50	46	47	48	48	55
Suction line diameter	(mm)	18	22	22	28	28	28
Liquid line diameter	(mm)	12	12	12	16	16	16
<b>Electrical data</b>							
Power supply	(V/Ph/Hz)	400/3+n/50					
Nominal amps	(A)	10.2	24.6	27.6	34.2	40.2	41.2
Start-up amps	(A)	72.2	100.6	144.6	147.2	163.2	202.2

- (1) Outdoor temperature 35°C - evaporating temperature 5°C  
(2) According to ISO 9614 for Eurovent certified units, or ISO 3744 for non-certified units  
(3) According to ISO 3744 at 5 m distance from the unit

<b>RAUX</b>		<b>040</b>	<b>060</b>	<b>070</b>	<b>080</b>	<b>100</b>	<b>110</b>
Net cooling capacity (1)	(kW)	14.6	20.1	23.3	27.2	35.4	39.6
Total power input (1)	(kW)	4.9	7.2	8.7	9.8	12.1	14.1
EER (including fans)		3.01	2.81	2.69	2.79	2.92	2.81
Net heating capacity (2)	(kW)	15.8	21.5	25.1	29.2	37.9	42.8
Total power input (2)	(kW)	5.3	7.4	8.6	10.0	12.8	14.1
COP		2.95	2.91	2.92	2.92	2.97	3.04
Number of refrigerant circuits		1	1	1	1	1	1
Number of compressors / capacity steps		1	1	1	1	1	1
Sound power level (3)	(dB(A))	76	72	73	74	75	81
Sound pressure level (4)	(dB(A))	50	46	47	48	48	55
Suction line diameter	(mm)	18	22	22	28	28	28
Liquid line diameter - cooling mode	(mm)	12	12	12	16	16	16
Liquid line diameter - heating mode	(mm)	12	12	12	16	16	16
<b>Electrical data</b>							
Power supply	(V/Ph/Hz)	400/3+n/50					
Nominal amps	(A)	10.2	24.6	27.6	34.2	40.2	41.2
Start-up amps	(A)	72.2	100.6	144.6	147.2	163.2	202.2

- (1) Outdoor temperature 35°C - evaporating temperature 5°C  
(2) Outdoor temperature 7°C 90% R.H. - condensing temperature 50°C  
(3) According to ISO 9614 for Eurovent certified units, or ISO 3744 for non-certified units  
(4) According to ISO 3744 at 5 m distance from the unit

<b>Weights and dimensions (Operating)</b>		<b>040</b>	<b>060</b>	<b>070</b>	<b>080</b>	<b>100</b>	<b>110</b>
Length	(mm)	1125	1465	1465	1671	1671	1671
Width	(mm)	440	560	560	560	560	560
Height	(mm)	1444	1448	1448	1687	1687	1687
Weight RAUS	(kg)	168	246	255	288	291	301
Weight RAUX	(kg)	169	243	252	293	296	306



# Jupiter

## Close control unit



### Customer benefits

- Compact design: space savings in plant rooms
- Accuracy: accurate temperature and humidity control for any size of application
- High performance: lowest energy consumption. EC fan motor (option)

### Range description

Unit with AC motor and forward curved fan

JDCC: Chilled water downflow

JUCC: Chilled water upflow

JDAC: Air-cooled direct expansion downflow

JUAC: Air-cooled direct expansion upflow

JDWC: Water-cooled direct expansion downflow

JUWC: Water-cooled direct expansion upflow

Unit with EC motor and backward curved fan

JDCV: Chilled water downflow

JUCV: Chilled water upflow

JDAV: Air-cooled direct expansion downflow

JUAV: Air-cooled direct expansion upflow

JDWV: Water-cooled direct expansion downflow

JUWV: Water-cooled direct expansion upflow

### Main features

- Designed for environments in which high-tech equipment is the predominant heat source and comfort applications (offices...)
- Front access for total unit maintenance
- Double inlet galvanized steel centrifugal fans with forward curved blades

### Options

- Electric reheat/hot water reheat
- High pressure centrifugal fans
- Electrode boiler humidifier
- High efficiency filters
- Fresh air module with filter
- Air suction from the front, rear or base (upflow configuration only)

### Accessories

- Dirty filter alarm (differential pressure switch)
- Temperature and humidity sensor
- Base frames and plenums (intake or discharge) for easier integration
- External sensors for high ambient temperature and humidity alarm signals
- Fire and/or smoke detector
- Water leak detector with one sensor
- Excess pressure damper

### Control

mP40 microprocessor control module with easy-to-use LCD graphic display

- Temperature and humidity control and recording system
- Complete alarm signaling and recording system
- Automatic restart
- Remote auto off function
- On-site language selection
- Connectivity with the most common communication protocols (BACnet®/LonTalk®/Modbus®/...) or local RS485 network

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.

**Chilled water units**

JDCC / JDCV / JUCC / JUCV		0020	0025	0030	0040	0060
Net cooling capacity (total/sensible) (1)	(kW)	7.2 / 6.6	9.9 / 8.9	10.9 / 10.0	13.7 / 13.0	22.3 / 20.5
Supply airflow	(m <sup>3</sup> /h)	1610	2280	2305	3265	5035
Maximum external static pressure	(Pa)	191	59	37	144	82
Sound pressure level at 2m (downflow version)	(dB(A))	49	50	50		
<b>Weights and dimensions (Operating)</b>						
Length	(mm)	550	850	850	850	1200
Width	(mm)	450	450	450	450	450
Height	(mm)	1740	1740	1740	1740	1740
Weight	(kg)	105	135	135	145	220
<b>Electrical data</b>						
Power supply	(V/Ph/Hz)	200/1/50 - 400/3/50				

**Direct expansion air-cooled units**

JDAC / JDAV / JUAC / JUAV		0115	0125	0133	0135	0150	0160
Net cooling capacity (total/sensible) (2)	(kW)	6.2 / 5.8	7.6 / 6.3	10.1 / 10.1	12.7 / 11.4	16.8 / 15.5	18.1 / 16.1
Total power input (indoor+outdoor unit)	(kW)	2.4	3.0	3.7	4.7	5.7	6.3

**Direct expansion water-cooled units**

JDWC / JDWV / JUWC / JUWV		0115	0125	0133	0135	0150	0160
Net cooling capacity (total/sensible) (3)	(kW)	6.4 / 5.8	8.2 / 6.5	10.4 / 10.4	13 / 11.5	17.4 / 15.6	18.4 / 16.1
Total power input	(kW)	2.4	3.0	3.7	4.7	5.7	6.3

**General data - Direct expansion units**

Number of refrigerant circuits		1	1	1	1	1	1
Number of compressors / capacity steps		1	1	1	1	1	1
Supply airflow	(m <sup>3</sup> /h)	1645	1731	3205	3440	4500	5202
Maximum external static pressure	(Pa)	193	155	178	123	153	40
<b>Weights and dimensions - Direct expansion units</b>							
Length	(mm)	550	850	850	850	1200	1200
Width	(mm)	450	450	450	450	450	450
Height	(mm)	1740	1740	1740	1740	1740	1740
Weight	(kg)	105	135	135	145	220	220
<b>Electrical data - Direct expansion units</b>							
Power supply	(V/Ph/Hz)	200/1/50		-	-	-	-
Power supply	(V/Ph/Hz)			400/3/50			

(1) Based on 24°C/50% relative humidity (return air), intake water temperature: 7°C, outlet water temperature: 12°C, glycol: 0%

(2) Based on 24°C/50% relative humidity (return air), outdoor air temperature: 35°C

(3) Based on 24°C/50% relative humidity (return air), intake water temperature: 30°C, leaving water temperature 35°C, glycol: 30%



# Mercury

## Close control unit



### Customer benefits

- Flexibility: customized system to fit the application's exact requirements
- Accuracy: accurate temperature and humidity control for demanding applications
- Sound level: one of the best acoustic comfort levels available in the market place

### Range description

Unit with AC motor and backward curved fan

EDCB: Chilled water downflow

EUCB: Chilled water upflow

EDAB: Air-cooled direct expansion downflow

EUAB: Air-cooled direct expansion upflow

EDWB: Water-cooled direct expansion downflow

EUWB: Water-cooled direct expansion upflow

Unit with EC motor and backward curved fan

EDCV: Chilled water downflow

EUCV: Chilled water upflow

EDAV: Air-cooled direct expansion downflow

EUAV: Air-cooled direct expansion upflow

EDWW: Water-cooled direct expansion downflow

EUWW: Water-cooled direct expansion upflow

### Main features

- Designed for environments in which high-tech equipment is the predominant heat source
- Front access for total unit maintenance
- High pressure centrifugal plenum fans with backward curved blades

### Options

- Electric reheat/enhanced electric reheat

- Hot water/hot gas reheat
- Variable speed EC fans motor
- Electrode boiler humidifier
- Air filters
- Fresh air module
- Air suction from the front, rear or base (upflow configuration only)
- Front discharge floor stand
- Different acoustic linings for the panels of the unit casing
- Electronic expansion valve

### Accessories

- Condensate drain pump
- Humidifier condensate drain pump
- External sensors for high ambient temperature and humidity alarm signals
- Fire and/or smoke detector
- Water leak detector
- Base frames and plenums (intake or discharge) for easier integration

### Control

A mP40 microprocessor control module with easy-to-use LCD graphic display

- Temperature and humidity control
- Complete alarm signaling and recording system
- Automatic restart
- Remote auto off function
- On-site language selection
- Connectivity with the most common communication protocols (BACnet®/LonTalk®/Modbus®/...) or local RS485 network

This description may not include all options and accessories available. For full technical information, visit [www.trane.com/litweb](http://www.trane.com/litweb) or contact your local sales office.



**Chilled water units**

EDCB / EDCV / EUCB / EUCV		0070	0100	0120	0170	0200	0250	0270 (4)	0340 (4)	0400 (4)	
Cooling capacity (Total / Sensible) (1)	(kW)	27 / 25.4	33.9 / 33.2	43.6 / 41.4	57.2 / 55.1	69.3 / 67	87.6 / 81.5	97.9 / 88.7	111 / 103	126 / 114	
Supply airflow (m <sup>3</sup> /h)	(m <sup>3</sup> /h)	6060	10200	10420	14920	18680	18680	18725	24777	25193	
<b>Weights &amp; Dimensions (Operating)</b>											
Length	(mm)	1010	1010	1310	1721	2172	2172	2172	2582	2582	
Width	(mm)	750	866	866	866	866	866	866	866	866	
Height	(mm)	1960	1960	1960	1960	1960	1960	1960	1960	1960	
Weight	(kg)	220	306	314	395	443	458	502	702	740	
<b>Electrical Data</b>											
Power supply	(V/Hz/Ph)					400/3/50					

(1) Based on 24°C/50% relative humidity (return air), intake water temperature: 7°C, outlet water temperature: 12°C, glycol: 0%

**Direct expansion air-cooled units**

EDAB / EDAV / EUAB / EUAV		1105	1106	2107	2207	2109	2209	2111	2211	2113	2213	2216	2218	2222	4222	2225	4225	4228
Cooling capacity (total/sensible) (2)	(kW)	20.9 / 19.8	23.3 / 21	25.8 / 25.8	25.8 / 25.8	34.6 / 30.3	34.6 / 30.3	40.6 / 39	40.6 / 39	45.9 / 42.8	45.9 / 42.8	62.3 / 55.2	66.9 / 57	80.7 / 80.7	81.7 / 81.7	92.6 / 87.6	91.2 / 87.6	95.9 / 91

**Direct expansion water-cooled units**

EDWB / EDWW / EUWB / EUWW		1106		2109			2113			2216	2218	4222		4225	4228		
Cooling capacity (total/sensible) (3)	(kW)	-	23.2 / 19.2	-	-	34.1 / 30	-	-	-	46 / 43.3	60 / 53	66.1 / 54.5	-	90 / 89.2	-	99.3 / 88.8	102.6 / 93.9

**General data - Direct expansion air-cooled and water-cooled units**

Number of refrigerant circuits		1	1	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	
Number of compressors / capacity steps		1	1	2	2	2	2	2	2	2	2	2	2	2	4	2	4	4	
Supply airflow	(m <sup>3</sup> /h)	5750	5750	8530	8530	8530	8530	12895	12895	12895	12895	16590	16590	21635	21635	22835	22835	23210	
<b>Weights &amp; Dimensions (Operating)</b>																			
Length	(mm)	1010	1010	1310	1310	1310	1310	1721	1721	1721	1721	2172	2172	2582	2582	2582	2582	2582	
Width	(mm)	750	750	866	866	866	866	866	866	866	866	866	866	866	866	866	866	866	
Height	(mm)	1960	1960	1960	1960	1960	1960	1960	1960	1960	1960	1960	1960	2175	2175	2175	2175	2175	
Weight	(kg)	280	310	430	447	430	447	548	559	575	585	714	714	910	910	918	930	1040	
<b>Electrical Data - Direct expansion units</b>																			
Power supply	(V/Hz/Ph)					400/3/50													

(1) Based on 24°C/50% relative humidity (return air), intake water temperature: 7°C, outlet water temperature: 12°C, glycol: 0%

(2) Based on 24°C/50% relative humidity (return air), outdoor air temperature: 35°C

(3) Based on 24°C/50% relative humidity (return air), intake water temperature: 30°C, Leaving water temperature 35°C, glycol: 30%

(4) Size 0270-0340-0400-0430 only available in Downflow version: EDCB/EDCV

(5) Size 2222, 4222, 2225, 4225 and 4228 only available in Downflow version: EDAB/EDAV/EDWB/EDWW



# Notes

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**TRANE**<sup>®</sup>



# Controls

*With a comprehensive understanding of your strategy and requirements, we can recommend and implement solutions to achieve your goals and reduce your HVAC system lifecycle costs.*

# Trane controls



Trane’s controls product portfolio offers a full range of devices that have been developed within Trane and Ingersoll Rand engineering and Centers of Excellence around the world.

Trane HVAC controls products were developed by (and for) HVAC systems specialists. This unique approach takes into account the system design requirements for both the HVAC application and the HVAC equipment. In this way, consideration is given both to the individual controlled equipment AND also to the functionality of the Building Management System (BMS), as well as to the SYSTEM overall performance. The field controllers are pre-programmed, pre-tested and factory-mounted on our HVAC equipment. This ensures a highly reliable and efficient equipment, while the commissioning process is reduced to its simplest tasks, thus saving valuable time and resources on site, while ensuring high performance and reliability of the controls.

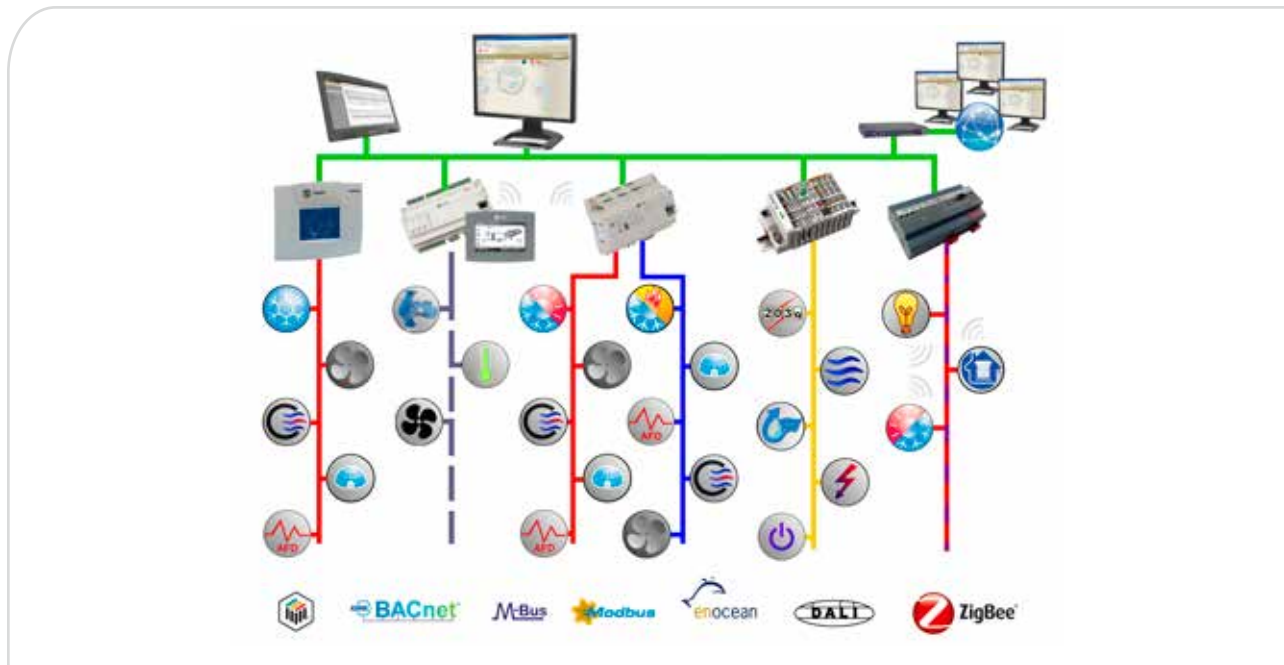
Trane field controllers have advanced equipment HVAC embedded application libraries which have been developed over 100 years of experience. This provides our equipment with the best life cycle and the best efficiencies. All Trane HVAC applications are designed to improve the commissioning and maintenance processes and also to reduce overall operating cost.

Having the best performing HVAC equipment controls is not enough to make sure the system delivers the best efficiency.

At the process level, Trane has in depth technical knowledge on complex HVAC system applications such as chilled water variable primary flow, ice storage, free cooling, heat recovery, variable air systems, etc. Each process focuses on different customer requirements such as space comfort, chilled water supply temperature/flow accuracy, indoor air quality, energy efficiency.

Trane supports you by selecting, designing and processing the best solutions for your HVAC system. Our building and HVAC controls solutions include pre-engineered applications, such as chiller plant control, variable air system control, automatic ventilation and IAQ control. On top of their total focus on HVAC expertise, Trane BMS solutions, offer full flexibility by natively supporting the latest IT technologies, such as IP networking, as well as web services support.

# Open and secure architecture



Trane offers an open and secure controls Building Management architecture. The use of native open protocols allows for easy commissioning and facilitates maintenance as well as ensures a scalable and flexible system that can evolve to various controls products. It also allows the integration of third party equipment and BMS systems to the network.

For system level communications, which imply large quantities of data management, BACnet®/IP is used for its high speed and bandwidth communication capacity and ease of implementation – almost EVERY building has Ethernet TCP/IP network architecture.

For field-level communications, Trane solutions supports standard protocols such as LonWorks™, Modbus® and BACnet® MS/TP, offering a wide range integration solutions of Trane and other 3rd party equipment and devices controls.

All system level controllers, such as Tracer™ SC optimize the overall performance of the entire system they are in charge of. They store and execute system wide sequences of operations, coordinate all the system level functions across the entire project, and allow for remote communication through either Web services, or mail.

This system level is also in charge of backup and restore functionalities, as well as data collection for data logging. For large systems presenting several system-level controllers, Tracer Ensemble™, an enterprise-wide management server can be applied as to standardize the overall system look and feel, even with non-Trane BACnet® system controllers, as well as extend the overall system archiving capability, by using server-based technologies.



# Smart Solutions for Smart Buildings

## Building Controls

*Building automation systems do not have to be complex to be effective. Typically a building automation system that is complex to use seldom achieves the energy and operational efficiencies as the capabilities of the systems are not fully utilized.*

Trane's Building Management System (BMS) only requires limited settings with predefined functions such as time-of-day schedule, automatic setpoint reset, zone management or alarms menu.

Buildings often require rearrangement of their internal space. Trane's highly flexible system is simple to reconfigure and customize in order to match the evolving needs of the occupants.

### **Control at your fingertips**

Trane's BMS uses the latest web technologies to enable access via a web browser on any device connected to the customer network or smart devices using the Trane app.

### **Energy savings**

Energy efficiency is maximized without compromising system performance by employing pre-engineered HVAC strategies such as occupancy, ambient, indoor air quality, heat recovery and free cooling.

Trane's BMS can optimize and control ancillary equipment and systems such as lighting, energy metering and sunlight shading.

### **Project management**

Trane can take responsibility for the delivery of the complete BMS to meet the project requirements. Trane personnel are experts in the efficient design, installation and commissioning of the entire HVAC system and can also provide ongoing maintenance services.



# Smart Solutions for Smart Buildings

## Equipment Controls

### Chiller controllers

#### Tracer™ UC800 Controller

The latest generation of Trane centrifugal and screw chillers use advanced algorithms to keep them running under the most challenging conditions, when other chillers would simply shut down.

#### Tracer™ Color Touchscreen Display

The Tracer UC800 features a large (7" or 12") touchscreen full-color interface for simple, intuitive operation.

### General purpose equipment unit controllers

- Tracer™ variable-air-volume controllers
- Tracer™ terminal unit controllers
- Tracer™ programmable controllers
- Tracer™ interfaces for chillers and rooftops

### Field-installed controllers

#### Tracer™ UC400 / UC600 Programmable Unit Controllers

Programmable BACnet unit controllers with high I/O capabilities are designed to work with the Tracer™ SC and third-party BACnet systems. A standard library of applications is available to ensure trouble-free operation, whatever the requirements are.

#### Tracer™ SC

#### System Controller

Seamless facility management is a reality with this flexible, cost-effective solution. Any PC, tablet or connected device can provide access for programming.

Tracer SC eliminates the need for a dedicated computer and monitor. System performance can be managed whenever and wherever it is convenient. "Point-and-click" technology provides simple scheduling, data logging, graphical trending, reporting and applications programming. The intuitive online tools increase occupant comfort, increase efficiency and reduce energy costs, adding up to happier personnel and a better bottom line.

### Tracer Ensemble™

#### Building Management Software

Tracer provides a web-based solution for managing single or multiple buildings from one interface.

- System visibility from any location allows total management of system status, alarms and schedules
- Reports enable enterprise-wide decision making for optimized performance
- BACnet® IP permits easy integration with other systems
- Tenant service and audit trail for critical controls available in option

### Mobile App

Gain new freedom while maintaining a higher level of control. The Tracer™ BAS Operator Suite enables the operation of building control systems using a tablet or smart phone to:

- Monitor equipment
- Control spaces
- Make setpoint changes
- Manage alarms

The Tracer BAS Operator Suite works with iOS™ and Android™ devices.

# Chiller Plant Controls

Take control of your chiller plant



*Rising energy costs and operational conditions drive companies to seek greater returns from investments, in other words, get more with less. Additional pressures such as environmental and safety regulations force companies to remain vigilant in managing capital, human resources and infrastructure.*

## Performance Targets

Ever-increasing targets demand that facilities operate more efficiently, more effectively and for longer hours. The resultant pressure on the chiller plant may lead to increased operating costs or reduced performance.

## Budget Allocations

Companies working with reduced budgets find it increasingly difficult to approve funding for capital investment projects. In the drive to reduce costs, system maintenance may be cut.

## Regulations

Environmental initiatives demand sustainable operation. In many sectors such as food or pharmaceuticals, further traceability is a regulatory requirement.

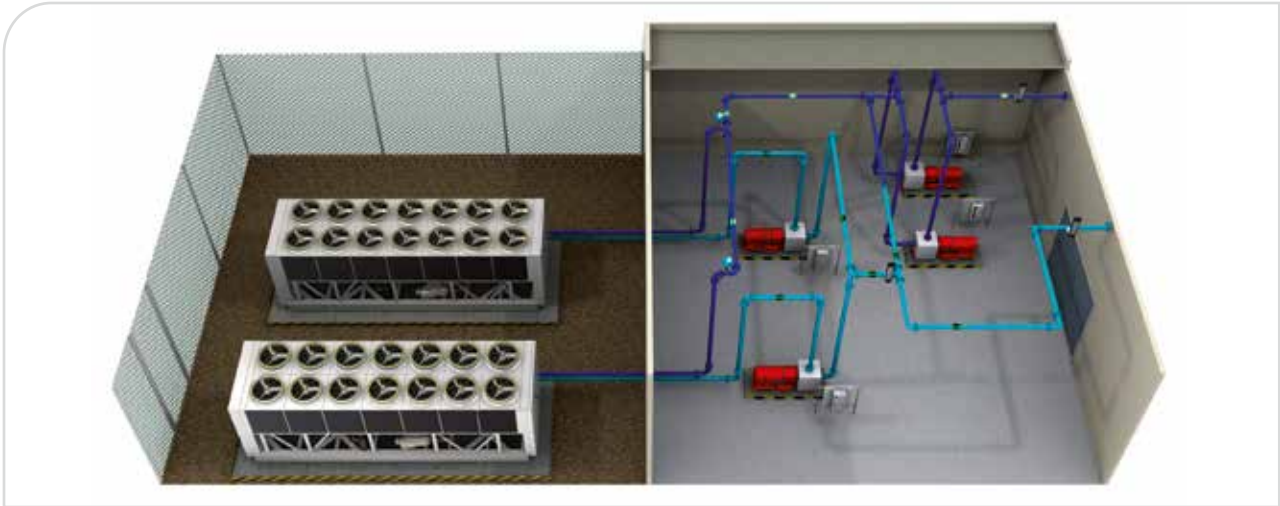
## Operating Costs

Running a cooling system is one of the most significant costs on any operating budget. It is extremely challenging to keep this expenditure flat, year on year, when the cost of energy is rising relentlessly.

According to the European Commission's Joint Research Centre (EC JRC), heating, ventilation and air-conditioning systems constitute 11% of electrical energy consumption in the EU member states. Chiller plants can consume over 7% of typical building energy consumption.



# Advancing from control to optimization



*With appropriate controls, optimal performance of the chiller plant can be achieved, resulting in increased system efficiency and reduced lifecycle costs. Trane's unparalleled knowledge of commercial cooling systems has produced the following range of advanced control solutions:*

## **EcoSet**

Most chillers produce the same water temperature throughout the year regardless of seasonal changes in cooling load. Trane's solution optimizes chiller performance by tracking these changes and adjusting the chilled water setpoint to improve chiller efficiency.

## **OptiPlant**

Where installations use two air-cooled chillers, they often operate at much less than full load, and in some cases at only 50%. Trane OptiPlant will match the number of chillers in operation to the cooling requirements at any given time to substantially reduce run times.

## **Chiller Plant Manager**

Trane Chiller Plant Manager ensures that only the required plant components operate at their most efficient point to minimize run times. Trane's advanced supervisory system will reduce operating costs by balancing component run times and will notify users when scheduled maintenance is required.

## **Chiller Plant Optimizer**

Trane's most advanced controls solution takes a holistic view of the plant, optimizing operation of the complete system. The Chiller Plant Optimizer provides a comprehensive dashboard view enabling control at your fingertips and prompt action to address operational deviations.



# Chiller Plant Controls

## EcoSet

This control solution consists in raising the setpoint temperature when the building operates at less than design load conditions. Producing chilled water at a higher temperature lowers the burden on the compressor, which

reduces the energy consumption. Up to four chillers can be controlled with this solution. It is ideally suited to deliver comfort in office buildings where dehumidification is not a requirement.

Features	Function
Chilled Water Reset	Matches plant operation with prevailing conditions, reducing annual energy consumption by 3 to 10%.
Chiller Scheduling (optional)	Initiates chiller operation at a specific time of day to amplify energy savings and reduce compressor wear.

## OptiPlant

Trane OptiPlant is the customized control solution for comfort cooling installations with two air-cooled chillers in small buildings and commercial spaces. Based on the chilled water demand, it will limit chiller operation and its

associated auxiliary equipment thus reducing operating costs. A touchscreen display allows you to monitor and control key operating parameters. Energy monitoring version available.

Features	Function
Chiller Scheduling	Initiates chiller operation at a specific time of the day to amplify energy savings and reduce compressor wear.
Demand Limiting	Allows user to run no more than one chiller, independent of the load, when current draw needs to be limited.
Soft Start	Prevents excess capacity from being brought online at start up.
Chiller Rotation	Equalizes chiller operating time.



# Chiller Plant Controls

## Chiller Plant Manager

Trane Chiller Plant Manager is an advanced control solution recommended for chiller plant applications with multiple chillers. System components must work in harmony to

maximize comfort, compliance and performance. In addition to controlling the chillers, the Chiller Plant Manager also controls and sequences all components of the chiller plant.

Features	Function
Low Ambient Lock-out	Prevents the plant from operating below a preset external ambient temperature.
Failure Recovery Management	Automatically starts the next chiller in the sequence if one in operation fails.
Advanced System Control	Ensures only the required components are operating to meet a system load.
Programmed Maintenance	Advises when maintenance is due, based on elapsed time or run time.
Remote Operation	Provides browser and application support for both tablets and mobile phones.
Remote Alarming	Generates customizable alarms and delivers notification via email.
Data Trending	Displays key trends graphically for rapid interpretation and generates trend logs.

## Chiller Plant Optimizer

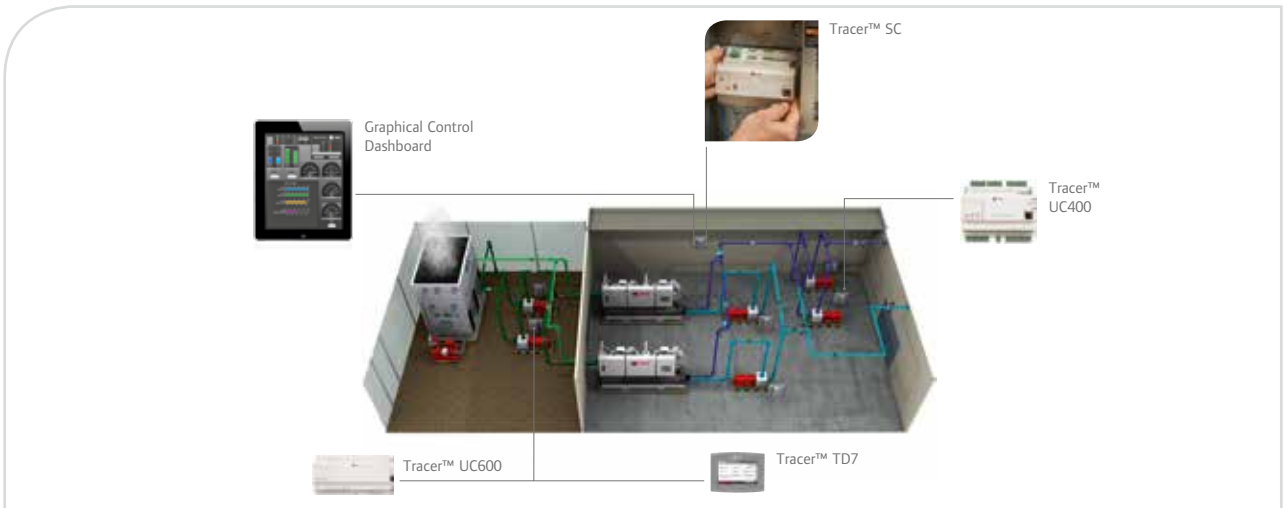
Trane Chiller Plant Optimizer is a fully scalable and adaptable control solution that can optimize the performance of the chiller plant. This control solution

provides additional management data with customizable management dashboards.

Features	Function
Chiller/Cooling Tower Optimization	Calculates the optimal condenser water temperature to minimize energy usage.
Pump Pressure Optimization	Calculates the minimum pressure the pumps must deliver to satisfy the most demanding load.
Special Applications	Capable of controlling advanced functions including free cooling, heat recovery or thermal storage.
Scalability	The optimizer is fully scalable to meet the demands of the most complex installation.
Dashboard	Monitors system performance.

# Chiller Plant Controls

## Architecture



*Trane chiller plant controls architecture is built around core high technology components. Our control technologies are scalable for water-cooled or air-cooled chiller plant infrastructures.*

programming and managing chiller plants that can extend to any HVAC equipment. Accessible from any PC, tablet or connected device, Tracer SC eliminates the need for a dedicated computer and monitor, so you can manage system performance whenever, wherever it is convenient.

### Tracer™ UC600 Programmable Controller

A programmable BACnet unit controller designed to work with the Tracer SC and third-party BACnet MS/TP or BACnet IP systems. The UC600 has the I/O and size to meet the controls needs for multiple pump arrangements, cooling towers, dry coolers and central plants.

### Tracer™ UC400 Programmable Controller

Tracer UC400 is an ideal solution when special sequences are required. Standard software applications come preloaded at the factory, simplifying field installation.

### Tracer™ SC System Controller

Allows you to streamline facility management without reinventing the entire system. Adding Tracer SC to your system provides a flexible, cost effective solution for

### Tracer™ TD7 Color Touchscreen Display

A 7 inch diagonal color touchscreen designed for both indoor and outdoor use. This visually intuitive solution makes it quicker and easier than ever to access the reliable control offered by the Tracer UC600.

Built on BACnet®

Tracer controls are built on the open BACnet® data communication protocol. Install Trane Tracer controls today, and you're ready for the future integration of additional building automation devices, from both Trane and other suppliers.



# Chiller Plant Controls

## Capability overview

		EcoSet	OptiPlant (*)	Manager	Optimizer
<b>FEATURES</b>					
Interface	Local operator display	X	X	O	O
	Graphical operator interface			X	X
	Chiller plant dashboard			O	X
	Energy dashboard		O	O	O
Data	System temperatures	X	X	X	X
	System data			X	X
	Plant performance data				X
Location	Local panel	X	X	O	O
	Facility			X	X
	Remote access			O	X
<b>BENEFITS</b>					
Component	Chiller run time reduction	O	X	X	X
	Chiller efficiency increase	X	X	X	X
	Ancillary run time reduction	O		X	X
System	System efficiency increase		O	X	X
	Failure management		X	X	X
	Real-time management			X	X

X = Two air cooled chillers  
O = Option



# Notes

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**TRANE®**



# Building Services

*Trane building services provide a wide range of offerings that enable you to benefit from the highest levels of performance from the systems in your facility. Whether you're installing new equipment, maintaining an existing system or completely upgrading your infrastructure, Trane building services provide exactly the expertise you need.*



# Trane Rental Services

## Temporary cooling solutions

### Customer benefits

#### Fast

Because speed of unit installation can be extremely important to your business, all Trane rental equipment has been fitted with enhancements that save installation time.

#### Safe and reliable

Whilst getting your system up and running is of utmost importance to your operation, safety and reliability of the equipment provided are equally important. You can depend on Trane modern equipment.

### Cost-effective

Whatever the application, Trane can provide a cost-effective temporary cooling solution for your organization until you are able to repair or replace your existing equipment.

### Main features

A temporary cooling system will keep your business operational whilst you repair, replace or upgrade your existing system.

Our team of account managers, engineers, service technicians and logistics professionals can rapidly transform the equipment you need into a smoothly functioning system that will exceed your expectations.

*For more information, visit [www.trane-chiller-rental.eu](http://www.trane-chiller-rental.eu)*

### Solutions tailored to any application



Healthcare



Data Centers



Warehouses



Automotive industry



Tyre industry



Pharmaceutical industry



Plastics industry



Hospitality



Ice rinks



Wineries



Heating



Food and Beverage



Events





## Elite Start™ services

Solutions for proper and optimized operation

### Customer benefits

Trane's startup services are key to ensuring your new product purchases are installed correctly and operating at maximum performance during the first year. Trane's factory authorized technicians have access to the latest training and service tools to optimize ensure HVAC design performance and optimal operation.

### Main features

- Startup - following prescribed engineering checklists to ensure all equipment functions meet operational parameters in a reliable and efficient manner.
- Operation - from startup, ensures new Trane products will operate within designed parameters.
- Performance - assures customers that new Trane products will operate at peak reliability and efficiency during first year of service. These services are available for all Trane products.



# Trane Extended Start

Foundation for high performance buildings

## Customer benefits

Assure first-year system performance

Make sure your HVAC system gets off to the right start with Trane Extended Start. It's the best way to validate proper installation and assure the highest level of performance during that all-important first year of operation.

Trane Extended Start goes above and beyond the warranty and includes five essential services and three optional services which will create a system baseline to build a strong high performance building foundation.

### 1. Validate Installation and Startup

Most HVAC failures that occur early in the system's life are during the first year of operation.

### 2. Monitor Critical Parameters and Adjust System Settings

Monitoring first-year operation and critical parameters is crucial during the initial break-in months. This assures your investment is properly integrated into your environment, and is providing peak performance and efficient energy use.

## Main features

The baseline for high performance buildings: twelve months of value-added services

Trane Extended Start - 5 plus 3

## 5 Essential Services

- Post-installation inspection  
to validate that installation and start-up were done to factory specifications.

- Benchmark report

an analysis of the current operating characteristics of your equipment. It will be an "as-installed" benchmark to track changes in performance in later years.

- Health check inspection

to measure critical parameters, adjust unit control settings and correct any operational deviations.

- Chiller oil analysis

to analyze samples, indicate any deviation and recommend corrective actions.

- Filter changes

as per Trane recommendations to maximize flow and system efficiency.

## 3 Optional Services

- Vibration analysis

to establish a benchmark reference to later identify a range of future faults such as shaft misalignment, bearing defects, or motor electrical problems.

- Get connected

to remotely monitor critical alarms, provide periodic communications link verification and produce automatic critical alarm activity reports.

- Operator training

your operators receive on-site training on best operation and maintenance procedures to ensure safe, reliable and efficient operation of your system.



# Trane Select™ Agreements

Comprehensive service contracts  
for HVAC systems



24hrs/day, 7 days/week



Maintenance



Parts coverage



Lifecycle management

## Customer benefits

### Best cost of ownership

- Planned maintenance ensures your HVAC system runs at top efficiency, providing up to 12% energy savings.
- Your equipment will receive regular inspection, preventive maintenance and proper calibration. Any potential problem will be corrected before anyone in your building becomes aware of it.
- In choosing your level of coverage, you know exactly what services and parts are covered.
- There are no surprises when it comes to expenses.

### Total peace of mind

- Trane looks out for your needs.

## Main features

With our extended service plans, Trane is your ideal service solutions provider to protect your HVAC installation investment. Trane Select Contracts are tailored to fit your HVAC system needs and business requirements. They offer four different levels of coverage - from preventive maintenance plans to comprehensive maintenance.



# Chiller Health Check Program

## Customer benefits

Reliable, efficient performance and lower operational costs are directly linked to how your Trane chiller is maintained. The Trane Chiller Health Check Program is a step-by-step evaluation of the current performance status of your equipment. With the right information in hand, your Trane service expert will analyze the current status and provide you with a detailed report and suggestions for chiller performance enhancement.

## Main features

Trane offers either a basic or comprehensive program. Both programs include an oil sample analysis in a laboratory to evaluate the presence of wear on the components and compare the current oil parameters to original specifications

The comprehensive program includes the eddy current and vibration analyses to verify the internal condition of the heat exchanger tube and the compressor respectively. The additional thermographic inspection provides immediate status of the electrical panel.

Any signs of deterioration will be noted during the different inspections. Your Trane expert will be able to suggest the best solution to fix any issues and quickly restore your Trane chiller to optimal operating conditions.



# Trane Building Advantage

## Customer benefits

Your building and its HVAC system represent one of your organization's most significant capital investments. On the operating side, 40 to 60% of your total energy budget goes into running that chiller plant. Our mission with Trane Building Advantage is clear: to bring you the services, tools, equipment and expertise to transform your building in terms of cost, performance and positive environmental impact.

Our customers measure HVAC systems by their reliability, efficiency and environmental impact. The suite of enhancement solutions we call Trane Building Advantage has been developed to deliver results at both the individual component level and the plant level.

## Main features

Trane Building Advantage will transform your HVAC system into strategic business advantages:

### Reliability

- Analyse your existing system and provide detailed diagnoses and recommendations
- Develop a proactive maintenance plan
- Reduce the risk of breakdowns
- Extend equipment life

### Efficiency

- Identify and unlock energy savings within your system
- Upgrade equipment and meet ROI targets
- Enhance existing equipment through maintenance and retrofit

### Environment

- Manage the use of scarce energy resources
- Minimize carbon footprint
- Meet regulatory requirements
- Optimize the quality of the working environment



Each of our three strategies - Analyze - Optimize - Modernize - is supported by a range of solutions.

**Analyze:**

extract key data from your system and use it to make informed decisions.  
*Oil analysis, Thermography, Tube testing, Vibration analysis, Chiller plant analysis, Metering, Refrigerant leak testing, Refrigerant monitor*

**Optimize:**

achieve optimum operation of your existing equipment.  
*Compressor R'newal, Exchanger enhancement, Adiabatic cooling, Automatic tube cleaning, Exchanger cleaning, Power factor correction, Noise reduction, Refrigerant management*

**Modernize:**

use targeted interventions with the latest technology to update part or all of your system.  
*Adaptive Frequency Drive, Chiller control retrofit, Chiller plant manager, Chiller upgrade, FreeCool, OptiPlant, Partial heat recovery, Refrigerant retrofit*



# Adiabatic cooling

## Customer benefits

Adiabatic cooling reduces the temperature of the air entering the coil, facilitating improvement of equipment reliability and efficiency.

- Reduction of system power input
- Delivery of design capacity without interruptions
- Extension of equipment operating range beyond its original specifications.
- Permits R404 refrigerant retrofit
- Increase in reliability thanks to reduction in compressor discharge temperature, so compressor components are less stressed and operate in better conditions.
- Coil stays cleaner longer because the mesh placed in front of it acts as a self-cleaning filter.

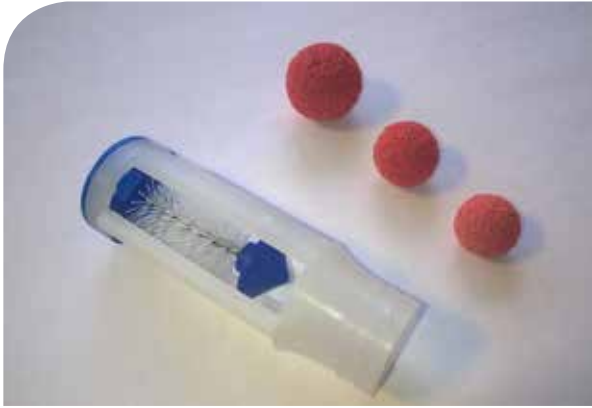
## Main features

The Trane Adiabatic Cooling concept is based on the natural thermodynamic properties of water.

Water is sprayed intermittently onto large non-metallic mesh panels installed in front of the heat reduction coils of chillers, remote condensers, rooftops, etc.

The evaporating water creates the cooling effect, lowering the air temperature before it reaches the condenser coil.

The system is designed for versatility, simple installation and economical operation.



# Automatic tube cleaning

## Customer benefits

Automatic tube cleaning is the key to keeping heat exchangers operating at peak efficiency.

- Improved operating efficiency: the chiller continuously operates at optimum efficiency, leading to lower energy use and consequent cost reduction.
- Extended chiller life cycle: increasing return on investment, because the compressor never operates beyond its design limits and because condenser tube corrosion is eliminated.
- No chiller downtime: the automatic tube cleaning system keeps the condenser tubes permanently clean while the chiller is operating.
- Low cleaning system operating costs: the sponge balls used in the automatic tube cleaning system are the only consumables needing to be replaced.
- Lower water treatment costs: water treatment is only required to prevent scaling of ancillary equipment, leading to cost savings of as much as 50% of the cost of chemicals used for water treatment.
- Environment friendly: the automatic tube cleaning system uses no chemicals.

## Main features

The Trane automatic tube cleaning system is a unique hydro-mechanical cleaning system that operates continuously to keep heat exchanger surfaces completely free from fouling.

This system can be adapted to all tube in shell exchanger types.

The Trane automatic tube cleaning can be achieved using one of two methods:

- Sponge balls, which are injected into the chiller condensing water flow to provide continuous tube cleaning while the chiller is in operation.
- Brushes that move alternatively in the tubes by reversing the water flow. The tubes are maintained perfectly clean to ensure the highest heat transfer and guarantee peak performances.

It is delivered fully pre-programmed, with settings that can, where necessary, be changed to cater for varying water qualities.





# Adaptive Frequency Drive

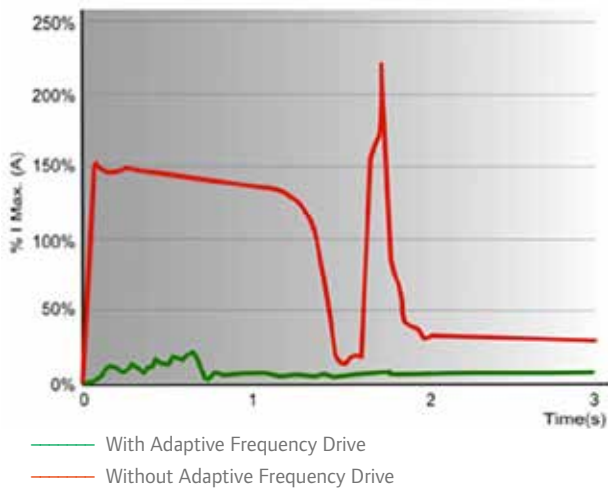
For models RTHD / RTWD / RTWB / RTAC / RTAD chillers

**IMPULSE** 

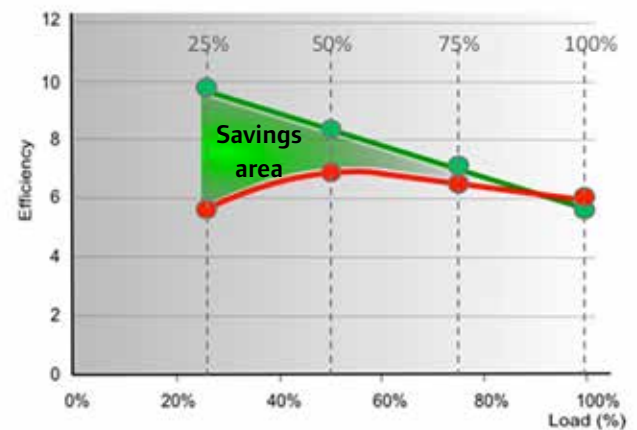
## Customer benefits

- Reduce utility costs: up to 35% energy savings
- Trust electrical devices: low inrush current
- 10% power factor correction
- Low harmonic distortion
- Advanced control: touchscreen color display and data trending

## Reduced inrush current



## Higher efficiency





# Heat recovery

## Customer benefits

- Recover up to 70% of the compressor electricity input
- Reduced use of gas to heat water
- Easy to implement with guidelines and Trane support

## Main features

Improve your HVAC system efficiency by implementing heat recovery to your existing chiller. Trane heat recovery has no impact on chiller performances and will help reduce energy consumption to generate heat.

Trane heat recovery solution is available for Trane Air

Cooled chiller:

- RTAC
- RTAD
- RTAA
- CGAM

Trane heat recovery solutions apply perfectly to

- Industrial application where cooling is required for your process and heating is required for warehouse.
- Hotel: producing sanitary water and cooling building at the same time.



# Refrigerant retrofit

## Customer benefits

Trane refrigerant retrofit is the key to upgrading HCFC 22 equipment and maintaining optimum performance and efficiency.

A retrofit ensures that your system complies with international ozone regulations.

Trane can advise on the best way to maintain optimum performance and efficiency.

## Main features

Options for HCFC 22 replacement include:

- Retrofit to an HFC refrigerant. This can be an attractive option, depending on equipment type, age and working conditions. Only Trane has the necessary computer based selection tools to do the retrofit properly and ensure the results.
- Keep operating your HCFC equipment after 2015. Trane can advise you on refrigerant containment strategies.
- Replace your HCFC equipment before 2015 with equipment using non ozone-depleting HFCs.

## Trane Engineered Retrofit

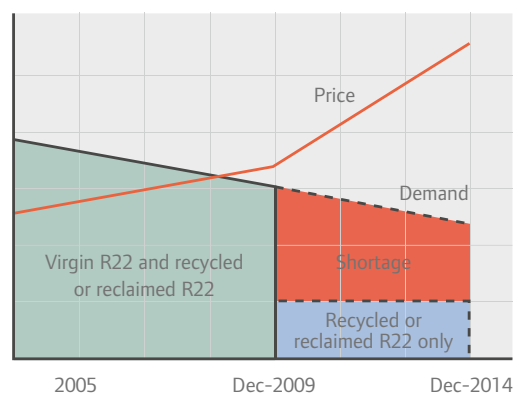
A Trane engineered retrofit, factory tested and qualified, optimizes your chiller to meet your current operation needs. Performed on site it will restore your chiller to its original state, allowing your system to run at peak performance with ozone friendly refrigerants (R134a, R404A, R407C).

## Trane Soft Retrofit

A soft retrofit can act as a bridge to either an engineered retrofit or equipment replacement if fast action is needed due to breakdown or refrigerant loss. In such cases, Trane can provide an economical solution using an alternative refrigerant. The soft retrofit depends greatly on the type of chiller and heat exchangers, running conditions, levels of expected performance and climatic conditions.

*HCFC 22 production stopped at the end of 2009. Recycled or reclaimed refrigerant is available but not sufficient, consequently a shortage of HCFC 22 is inevitable and can lead to both unplanned downtime and aggressive price rises. The limited availability will also increase the risk that certain companies might be "polluted" or illegally imported virgin HCFC 22. It is, of course, illegal to use such refrigerants and doing so can put your business at risk.*

HCF 22 Availability versus Price (EU only)





# Refrigerant management

## Customer benefits

- Early awareness ensures earlier corrective actions
- Proactive measurement 24 hours a day, 365 days a year
- Reduction of your building and system impact on the environment and human health
- Improvement of your equipment operation.

Leakages impact reliability and energy efficiency

- Risk reduction of costly breakdowns
- Extension of your equipment lifetime.

Optimal refrigerant charge reduces component stress

- Compliance with (EU) F-Gas regulation and/ or ozone regulation workplace codes (health and safety), and other national regulations.

## Main features

### Standard monitor

- Technology: Semi-conductor
- Integrated visible and sound alarm
- Multi-refrigerant control
- Sensitivity: 10ppm
- Analog connectivity: Free relays
- Can be connected to a Trane Building Management System

### Premium monitor

- Technology: Photo-acoustic Infrared
- LCD display
- Multi-refrigerant control
- Sensitivity: 1ppm
- Digital connectivity: Free relays, 4-20 mA analog output or serial communication (RS 232)
- Can be connected to a Trane Building Management System

## Leak testing

Trane offers a tailored leak testing procedure to identify where a refrigerant leak occurs. This procedure is an integral part of any Trane maintenance contract but can also be ordered as a separate service solution.



# Trane Acoustic solutions

## Customer benefits

Noise disturbance can be source of conflict. Make sure the facility occupants and neighborhood are evolving in a high quality environment.

Trane solutions can reduce sound level of up to 6 dB(A) corresponding to noise emission reduced by 75%.

## Main features

Trane offers a wide array of sound level reduction solutions:

- **Compressor sound enclosure:** Trane designed and manufacture compressor enclosure specific to its compressor. So you can make sure noise are contained within the enclosure.
- **Fan speed reduction:** Sound level can be reduced by 4 dB(A).
- **Night time settings:** Adapt your fan speed to your actual building needs.
- **Compressor discharge muffler:** Purpose designed silencers can be fitted at the compressor discharge.





# Chemical analysis

The Trane Chemical Laboratory has developed the specialized expertise to analyze various types of fluids found in your HVAC installation.

Having regular analyses done by experienced service engineers helps reduce maintenance costs and guarantee equipment efficiency and reliability. Problems can be found and fixed before they become major.

- Fast delivery of results
- Graphs of the current test data with past test data for easy comparison
- Past and present interpretations and service recommendations

## Compressor oil analysis

- All compressor makes and types (scroll, reciprocating, helical-rotary and centrifugal)
- Helps extend the life of the existing charge and maintain compressor efficiency
- Allows compressor repairs to be scheduled to reduce downtime
- Identify problems without tearing down the compressor
- Reduce problems of used oil disposal
- Lower refrigerant emissions
- Standard testing includes: ferrous index, non-ferrous index, particle count, spectrometry, wear level evolution chart, contamination index, total presence of moisture, contamination level evolution chart, chemical index, dielectric test, viscosity at 40°C, viscosity index, chemistry level evolution chart, TAN (total acid number) test.

## Refrigerant analysis

- Detects contamination levels. When contaminant levels fall outside acceptable ranges, corrective actions are recommended.
- All types of refrigerants
- Helps extend the life of the existing charge

## Lithium bromide analysis

- Detects substance imbalance
- Corrective actions are recommended if necessary
- Helps extend the life of the existing charge



# Vibration analysis

## Customer benefits

Every piece of HVAC equipment with rotating components has its own vibration signature.

Any change in this signature can be used as an accurate means of identifying developing problems such as bearing wear, shaft imbalancing, and degrading helical-rotary compressor rotor tolerance.

The monitoring and diagnostics system will reliably detect not only potential defects at the initial stage of their development but also identify the exact defect type and its severity. Vibration analysis can identify problems long before they become noticeable.

## Main features

The vibration measurement and analysis techniques used by Trane can identify a wide range of developing faults such as shaft misalignment, bearing defects, imbalance, or motor electrical problems.

Sensitive sensors are installed in carefully selected places. The smallest deviation or any abnormal behavior is detected and recorded. The vibration spectrum of your equipment illustrates its internal condition. These graphs are simply and clearly explained to you. To help you further, we will provide you recommendations in terms of maintenance scheduling.

If the vibration analysis report indicates, for instance, an imminent compressor fault, then we will advise you how to plan for a scheduled compressor renewal.



# Compressor R'Newal™

## Customer benefits

Equipment breakdown can have disastrous consequences.

In human terms, it can mean discomfort to building tenants, leading to dissatisfaction and complaints.

In financial terms, it can mean extensive repair or replacement costs. But with Trane R'newal™, all this can be avoided.

The Trane R'newal™ program is a comprehensive service solution designed to restore your chiller's compressor performance and reliability to like-new levels.

## Main features

The R'newal™ service restores your compressor to like-new specifications and operating condition:

- Thorough cleansing
- Clearance measurements
- Mechanical parts are ground and polished where necessary to restore optimal operation.
- Motor: thorough electrical tests, revarnishing or new replacement motor fitted.
- Original quality parts replacement: bearings, gaskets, non-return valve, capacity control valve, lip seal, motor terminals, impellers.
- Remounting
- Packing: compressor is painted and packed for shipping to your site.





# Eddy current tube analysis

## Customer benefits

- Improved equipment operation and reliability
- Extended equipment life
- Reduced operating costs
- Reduced risk of costly breakdowns
- Reduced downtime.

## Main features

The condition of the tubes in a shell and tubes heat exchanger has a direct impact on the efficiency of your chiller. Depending on its size, a heat exchanger contains hundreds or thousands tubes, all undergoing mechanical stress and chemical corrosion. Tubes are therefore critical to chiller performance, and yet standard maintenance techniques can check most everything except these tubes.

Equipped with the latest technological tools, Trane can detect, locate and record internal and external corrosion, deposits, wear or cracking before their consequences start to damage your installation.

This analysis results in a detailed report containing all the recordings, photographs of defective zones, and most importantly, recommendations as to the technical and practical actions required to resolve the situation.



# Thermography

Trane Thermography is a non-invasive, safe and proven predictive service that detects potential risks in electrical and mechanical equipment. Plus, because your plant can remain up and running, you'll have a clearer picture of where potential breakdowns are hiding, before it's too late.

## Customer benefits

### Prevent unscheduled downtime

Trane Thermography is perfect for electrical inspections – as well as mechanical inspections. For example, as electrical connections become loose, there is resistance to current that can cause an increase in temperature, which means energy is wasted generating heat. As a result, components can fail, causing unplanned outages and even injuries. Through Trane Thermography, however, potential hazards the human eye can't see become crystal clear.

## Main features

### A snapshot of equipment components

Differences in temperature are key elements in monitoring equipment. As thermography captures an object's heat signature, it creates a two-dimensional color image of the equipment components. That image will then be used to compare a good component to a problematic one and detect any potential risks. Thermal imagers can also store heat signatures for comparison and upload images to a database.

### Picture perfect analysis

When it comes to predictive maintenance, thermography has become a preferred choice among building owners, managers and operating engineers. It's easy to understand why. With no downtime or interruptions required, instant imaging and picture perfect analysis, Trane Thermography is the ideal way to help keep your plant running safely and reliably.



# Trane controls services

## Comprehensive service contracts for building controls systems

### Customer benefits

Regular controls servicing results in continuous comfort for the occupants, and the lowest possible operating and maintenance costs. By regularly monitoring and adjusting your existing controls system Trane will also enable you to operate without emergency failures.

Trane has the expertise to optimize the safety, comfort, and efficiency of all the mechanical and electronic components of your HVAC system.

We can help you manage your building systems to ensure their optimum operation. With a Trane Controls Service plan, each passing minute generates energy savings and improves your cost of ownership.

### Main features

Your building is a complex, inter-related set of systems. Over time lots of small changes can cause major shifts in comfort, efficiency and safety levels. Trane maintenance for building controls systems is your strategy to keep everything optimized.

Our trained specialists can advise you on what impact any change may have. They can also monitor your system and identify clues, such as a 1°C deviation as being caused by a 10% leakage elsewhere in the system. Most importantly, our engineers will treat your building controls system as an integrated whole and when changes are necessary they will take appropriate programming actions to ensure there are no negative effects elsewhere in the system.

Customer's needs	Services	Equipment	Controllers	Applications	User Interfaces
Optimized systems giving safety, comfort and efficiency:  - Commercial offices - District cooling - Education - Health care - Life sciences - Lodging - Industry - Institutional - Retail	- Cost of ownership - Maintenance - Upgrade - Replacement - Parts - Audit - Training	- Chilled water terminals - Variable air volume - Air handling units - Rooftops - Water chillers - Cooling towers - Dry coolers - Variable frequency drives	- ZN 523/ZN 525 - CH 530 - EX2 - MP 501/503 - PIC - MP 581 - BMTX - UC800 - Tracer UC - Tracer SC	- Intelligent room control - Chiller plant control - Boiler plant control - Free cooling and heat recovery - Variable air volume systems	- BMS workstation - Web server - Touchscreen display - Wall sensor



# Chiller plant audit

Identifying strategies to reduce your operating costs

## Customer benefits

- Measure actual chiller plant operation and performance
- Provide system improvement recommendations
- Support decision for change

## Main features

- Measure chiller and chiller plant operation (temperature, water flow, power consumption)
- Define building load profile
- Complete report including status of existing plant, improvement opportunities, financial benefits (payback time).





# Metering

Measure, calibrate and upgrade

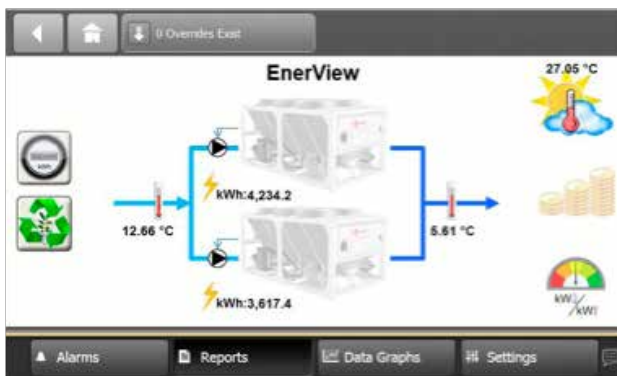
## Customer benefits

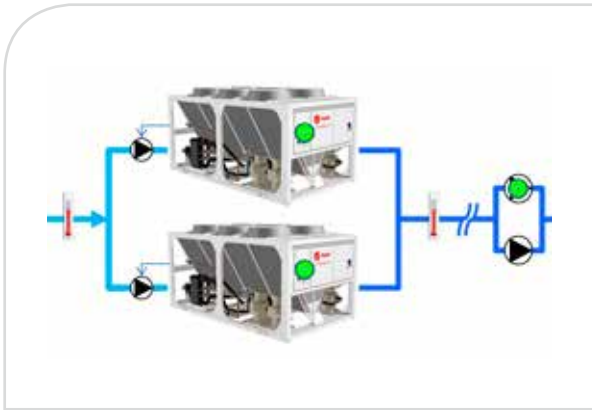
- Constant monitoring of energy consumption including the impact of any energy conservation measures
- Benchmark energy usage
- Traceability of plant operation (temperature trends, cooling production, energy usage, plant efficiency)
- 1 year history

## Main features

- Plug and play system. Can be installed on any installation
- Measure electrical consumption of 2 electrical devices
- Measure system efficiency

## EnerViewScreen





# OptiPlant

## Customer benefits

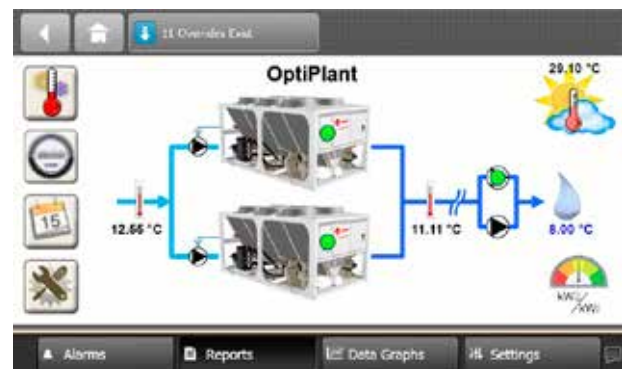
- Lower operating and maintenance costs:
  - Reduced operating hours delivers 15% or more reduction in energy consumption and correspondingly reduced operating costs.
  - Fewer run hours means longer component lifetime and lower maintenance costs.
- Easy chiller control: intuitive screens allow easy monitoring and control of the plant.
- Traceability of plant operation: displays event log and system temperature trends over the seven previous days.
- Rapid return on investment: payback achievable in less than two years in an average size office building.

## Main features

Trane's unparalleled knowledge of commercial cooling systems combined with control expertise has produced OptiPlant, a prepackaged control solution. OptiPlant can be installed, commissioned and operated by a non-control technician. A visually intuitive display makes it quicker and easier to commission the solution and to access its control capabilities.

## Optional metering

- Measure energy consumption of each chiller
- Display shows daily, weekly and yearly power consumption
- Measure efficiency level





# AdaptiView™ upgrade

For centrifugal chillers  
and models RTHA / RTHD

## Customer benefits

If you are a building owner who has an older Trane CenTraVac™ chiller, this is the right solution for you. The Trane Tracer AdaptiView™ control panel upgrade allows you to update your chillers to the same controls offered on new Trane CenTraVac™ chillers.

Tracer AdaptiView™ helps operators keep the chiller plant running at its most efficient level. All this is made possible by a graphical user interface that provides deeper understanding, along with quicker response times.

- Improves operator productivity
- Guarantees continuous operation utilizing industry best adaptive control algorithms
- Optimizes chiller operation
- Offers easier integration in Building Automation Systems thanks to open protocol flexibility

## Main features



- 1 Large, full-color touchscreen for fingertip control of chiller subsystems
- 2 Instant access to operational data for faster issue analysis and resolution
- 3 At-a-glance status updates readily display key operating parameters
- 4 Easy-to-read trending charts and diagnostic reports help fine tune chiller control
- 5 Industry-leading algorithms optimize control during rapidly changing conditions

## Specifications

- Adjustable arm and tilt screen for better viewing
- Opened protocols: BACnet, MSTP Lontalk, Comm4, Modbus Slave
- Optional cover UV IP56 available for outdoor usage



# FreeCool

## Customer benefits

Implementing energy efficient solutions such as free cooling requires design expertise and significant investments in time and money. Prepackaged solutions address these challenges while optimizing cost and payback.

- Reduce electricity peak demand in winter
- Save up to 25% of chiller plant energy consumption
- Design and built in-house
- Plug and Play installation
- Limited hydraulic modifications to minimize chiller plant disruption
- Preprogrammed control reduce commissioning time

## Main features

Trane FreeCool comprises all the components required to operate a free cooling system. It is a factory built, configured and tested package.

- Advanced control logic to maximize energy savings
- Preprogrammed controls with configurable parameters
- Trane TD7 available in multiple languages
- System scheduling
- System alarm notification
- Energy metering and performance trending
- Electrical protection devices
- IP55 and freeze protection for outside installation







# HVAC parts and supplies

## Having the right part for your needs is only part of the story

From precision Trane original to generic parts, Trane offers a comprehensive parts inventory to answer customers' needs. This means finding the right part for you, regardless of who makes it. Whether you are looking for compressors, controls, electrical supplies, HVAC accessories, chemicals, or tools and tests equipment, we can give you a competitive edge.

## State-of-the-art logistics

We have the infrastructure to find, deliver and even install the required part anywhere in the world with a minimum of downtime. Trane is committed to giving you the best value backed with the most advanced logistics infrastructure and a highly efficient distribution network.

- Central warehouse in Genk, Belgium with 5 000 references.
- Logistic platforms in Trane factories.
- Local parts centers to ensure all your parts needs are fulfilled.

## Easy to do business with

- Simple to contact a Trane service expert.
- A reliable and loyal partner.
- Consistent level of service throughout Europe, the Middle East and Africa.
- A single-source supplier for Trane original and generic parts, simplifying purchasing processes and invoicing.

## Expertise

- With over 100 years of experience, Trane stands out in the industry as a reference in terms of innovation, high quality and efficient service.
- Highly qualified Trane professionals provide the right solution for your specific needs, no matter what your system, budget, or brand requirements might be.

## Fast and efficient

- Easy access to parts information and quick quotations.
- On-line inventory management system offers realtime visibility of inventory levels to all Trane sales offices.
- Strategically located near international carrier hubs, Genk central warehouse enables late order processing with guaranteed next day delivery.
- Online tracking system provides reliable shipment status.

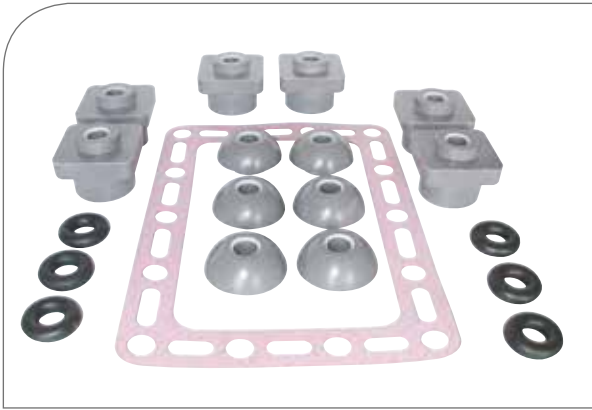
## Competitive pricing

- On Trane and generic parts.
- On shipping costs thanks to strategically located parts centers and our extended distribution network.

## Customer proximity

With 130 locations in Europe, the Middle East and Africa, Trane has one the most extended service networks always offering expert advice on the right parts, at the right place and at the right time.

For more information, visit [www.traneparts-emeia.com](http://www.traneparts-emeia.com)



# Trane HVAC Kit Solutions

To better answer your needs, we have developed a greater range of professional kits for common maintenance and repairs. These kits will offer you greater peace of mind with the guarantee that you have all the parts required for a specific service intervention.

## Trane HVAC kits offering

- Compressors
  - Mounting isolator kit
  - Gasket and 'o'ring kit
  - Revision kits
  - Repair kit
  - Oil line kit
  - Terminal board retrofit kit
  - Gasket kit for GP2 compressor motor change
- Trane controls
  - Wire harness adapter female kit
- Oil and refrigerant filters
  - RTAC Refrigerant filters kit
- Consumables
  - Acidity kit
  - Oil analysis kit
- CCU unit
  - Humidifier drip tray kit
  - Cylinder filter kit
- Fan coil unit
  - Electrical heater kits
  - Condensate pump kit
  - Lift pump kit
  - Housing and fan kit
- HVAC accessories
  - Ignitor burner gas kit
  - Burner fan kit
  - Retrofit centrifugal pump kit
  - Connector female kit
  - Fan motor kit
  - Motor, fan, guard kit
  - Plenum and grid kit
  - Motor assembly, grid, capacitor kit
- Rooftop unit
  - Fire thermostat kit
  - Siphon kit
  - Clogged filter detector kit
  - Electrical coil V1 kit
  - Speed variator kit
  - Fault relay kit



## SureFit™ coils

### A Trane Parts Solution

#### Customer benefits

Trane is committed to being your single-source solution for replacement coils-for any HVAC equipment, from any manufacturer. Our system offers rapid quotes.

With a wide service network and over 1,000 of the best trained engineers and service technicians in the industry, Trane is always prepared to rush the delivery of your Trane SureFit™ coils.

#### Coils for any type of application or brand

Trane SureFit™ coils are available for the majority of applications and designs:

- Refrigerant, water, steam
- Material types: aluminium, copper, stainless steel, epoxy coated
- Chillers, air handling units, dry cooler, ...
- Numbers of circuits

Even if the original coil is not a Trane design we can provide any type of coil regardless of the brand.

Trane SureFit™ replacement coils will restore reliability and efficiency to original specifications as well as reducing operating cost.

In certain cases, it is possible to exceed original specifications.



# Notes

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GVAF Sintesis™ Excellent	6, 98		Packaged rooftop

# Pictogram Key



	<i>Cooling-only</i>
	<i>Heat pump (or reversible cooling/heating)</i>
	<i>Heat recovery</i>
	<i>Free cooling</i>
	<i>Cooling-only and electric heater</i>
	<i>Cooling-only and gas burner</i>
	<i>Reversible heat pump with gas burner for auxiliary heat</i>
	<i>Multi-pipe unit</i>
	<i>Trane Adaptive Frequency™ Drive</i>
	<i>R134a refrigerant</i>
	<i>R407C refrigerant</i>
	<i>R410A refrigerant</i>
	<i>R513A refrigerant</i>
	<i>R1234ze refrigerant</i>
	<i>Performance certified by Eurovent</i>
	<i>Designed in compliance with the ErP directive 2009/125/EC</i>
	<i>Conforms to the applicable LonMark® profiles</i>
	<i>Conforms to the BACnet® standard</i>
	<i>Conforms to the Modbus® profiles</i>



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[trane.com](http://trane.com)

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