



# *Systems guide*

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





## *Who We Are*

Ingersoll Rand creates and sustains safe, comfortable and efficient environments. We are a \$14 billion company whose people, and market-leading brands work together to enhance the quality and comfort of air in homes and buildings, transport and protect food and perishables, secure homes and commercial properties, and increase industrial productivity and efficiency. We are committed to sustainable business practices within our company and for our customers, enabling them to create progress and a positive impact in their world.

## *Our Commitment*

We inspire progress by unleashing the potential of people and technologies. Our people, products, systems and services make everyday living healthier, safer, more energy efficient, productive and comfortable—enabling our customers to achieve real progress and create a positive impact in their world.

### *Creating a Better Environment Through Innovation*

From energy efficient compressed-air, air-conditioning and refrigeration systems to electric-powered golf cars with near-zero emissions, Ingersoll Rand offers products and services that enable businesses around the world to reduce energy consumption and costs and decrease harmful environmental emissions

## *Our Businesses*

Our strong foundation include businesses with powerful brands, solid reputation and market leading positions. Those business are aligned along four global operations: Climate Solutions, Industrial Technologies, Residential Solutions and Security Technologies. Each one of these is comprised of one or more of our leading brands. Our roster of brands includes well-known names, such as those listed here, and dozens of highly regarded regional brands serving a variety of market segments.

## *Creating The Perfect Climate For Your Business And Home*

A leader in sustainable HVAC and building system solutions, Trane offers a collective systems knowledge-base with the applications expertise to create truly comprehensive solutions. With our broad product and service offerings, we can help customers achieve their business objectives from start-up to system upgrades. 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.



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# New from Trane



**AquaStream 3G:** The quietest, high efficiency scroll chiller and heat pump ever. For the first time ever you can have the best of both worlds: high energy efficiency and low-sound levels. The new AquaStream 3G gives you Energy Efficiency Ratings higher than 3.1 in cooling operation (EER) and 3.2 in heating (COP) and an operating sound level of as low as 76 dB(A). The chiller (model CGAM) and heat pump (model CXAM) are certified Eurovent “Class A”. What’s more, they meet all global green initiatives and ASHRAE energy efficiency standards.

*Learn more at: [www.aquastream3g.com](http://www.aquastream3g.com)*

Trane’s model **RTWD water-cooled chiller** was designed with built-in reliability, including the proven reliability of the Trane helical-rotary compressor, so building users can benefit from the utmost of trouble-free operation throughout the entire life-cycle. It is equipped with a unique, patented evaporator design helps achieve high efficiencies of up to 5.6 EER (Energy Efficiency Ratio). It is certified Class A in the Eurovent LCP program.

What’s more, the chiller incorporates a double circuit – a valued back-up system to ensure you have a continuous supply of chilled water.

*Learn more at: [www.trane-rtwd.com](http://www.trane-rtwd.com)*



Trane now offers you a total of six different versions of its **model RTAC air-cooled chiller**: 3 efficiency versions and 2 sound level versions that will help ensure you get the exact answer to your cooling, floor space and sound requirements, whatever your specific application.

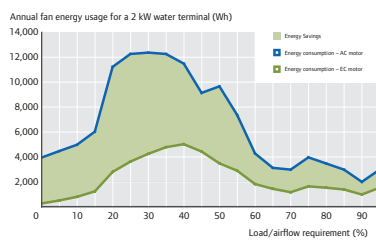
The 2 latest developments are the “extra high efficiency” and “extra high efficiency for sound sensitive applications” which achieve Class A performance according to Eurovent standards.



\*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 expands its terminal portfolio with **active chilled beams** with integrated Trane ZN controller, model BAC. Chilled beams remain an adaptable and cost-efficient way to provide effective cooling, or cooling and heating, in a variety of applications while achieving significant energy savings. Factory-installed controls allow you to benefit from a fast, trouble-free set-up and the peace of mind that comes from knowing your system will always operate at its best.



When you turn to Trane **high efficiency water terminals** as part of your total HVAC solution, you benefit from innovative EC (Electronically Commutated) fan motor technology, which, together with Trane's unique ZN controls, provides a unique combination of optimum low energy use and improved comfort.

Trane offers a chilled water cassette (model CWE) and 2 concealed ductable water terminals (model FED and model FEU) with EC fan motors.

At Trane, we recognize the importance of supplying our customers with Air Handling Systems that meet and exceed environmental standards while focusing on green-build initiatives that contribute to a more sustainable work environment.

The **model HRCU** is an extremely compact and energy efficient Trane air handling unit. Standard features include heat recovery and factory-mounted controls. A DX cooling module is also available as an option.

Specially designed for industry processes and healthcare applications, the fully customizable model CCEB is VDI 6022 design certified.



# New from Trane

Trane now offers an array of energy saving options on its range of **Voyager™ packaged rooftops**. Benefit from heat recovery modules, using either a plate heat exchanger or heat recovery wheel technologies, which boast 50-65% efficiency levels and allow the overall installation to be more efficient and cost-effective.

A modulating gas burner, where the gas heater condenses when at operation below 62% of load, is also available. Compared to a staged burner, the rooftop will run most of the time at part load with high efficiency, resulting in reduced gas consumption and better comfort.

Finally, Trane's new dual fuel rooftop: a reversible heat pump unit with a gas burner for auxiliary heat. When the heating requirement cannot be fully satisfied with mechanical heating, the unit automatically switches to gas heat, resulting in lower overall energy consumption, increased COP and reduced carbon emission.



**Trane Extended Start** is 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.

**Trane Intelligent Services** combine the power of our advanced remote monitoring facility with the knowledge of Trane Technical Specialists. It's an effective and affordable way to look after your HVAC and other critical systems connected to your Building Automation System 24 hours a day, 7 days a week.





Each pillar supporting the **Trane Care™ Services** has been reinforced and is even more complete with services such as Refrigerant management and Adiabatic cooling.

**Refrigerant management** is key in preventing refrigerants used in air conditioning or refrigeration equipment from leaking into the atmosphere. Trane can install an automatic refrigerant monitoring system and offer tailored leak testing procedures to ensure your system respects the environment and complies with local laws and regulations.

High ambient conditions are harsh on air-cooled equipment and can cause breakdowns and high energy bills. Trane solves this problem with **Adiabatic cooling** – a system composed of a water spray and a unique mesh to reduce the temperature of the air entering the coil. This improves the performance of air-cooled equipment while reducing energy consumption by up to 44%.

At Trane we believe in creating high performance buildings and make controls one of the keystones to making a building work better for life. Whether you manage one or multiple facilities, a Trane Building Automation System can be scaled to your needs.

- **Tracer™ SC controller** is a BAS with a web-based interface to streamline facility management including climate control, lighting, and energy consumption. It is flexible, can grow with your building and adapt to your changing needs, and is a cost-effective choice.
- **Tracer ES™ control software** is specially designed to manage multiple facilities as one. It gives you an online, enterprise-wide view and control over all of your buildings and systems.
- **Tracer ES™ express software** is perfectly suited to smaller scale installations needing cost-effective online accessibility.

Trane has also developed new Tracer™ equipment controllers: UC400 multi-purpose controllers for air side equipment and the model UC800 for centrifugal chillers. They come pre-loaded with standard software applications, support factory and field mount, graphical programming and BACnet® protocol.



# 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 environment 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 testing facilities and laboratories fully comply with European Standard EN 14511, meaning that procedures, measurements and conditions are respected to provide our customers with trustable and certified performances.

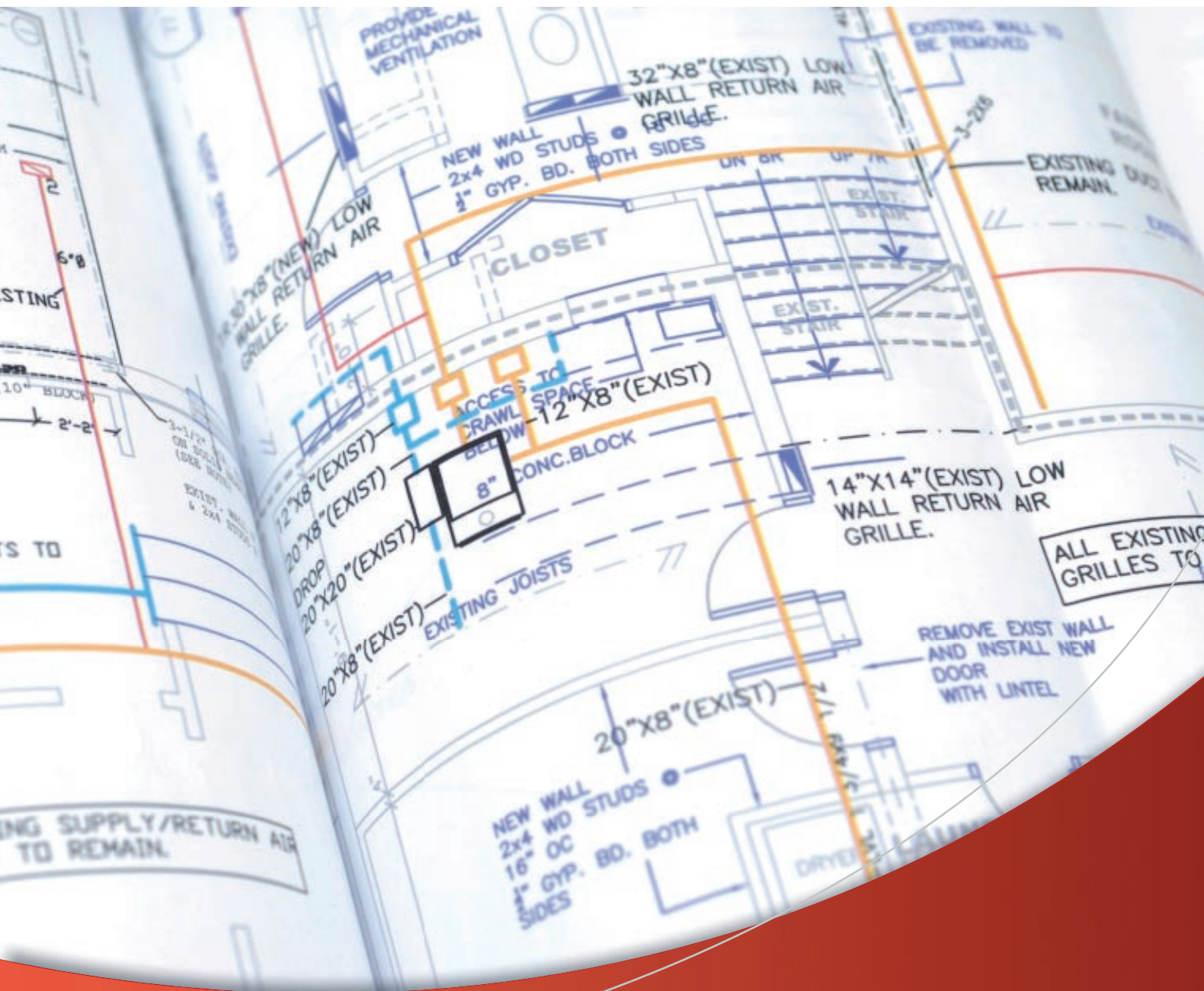
After an extensive and rigorous inspection process conducted by Eurovent, Trane's test stands in Charmes, France are approved for conducting Eurovent certification tests for air-cooled chillers above 600 kW, recognizing the right to Trane to test air-cooled chillers up to 1,500 kW in his own facilities 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 put “heads in beds” at profitable rate levels. The prime influence on this occupancy rate is guest satisfaction. A room that is noisy, stuffy, hot or clammy creates a powerful negative impression. Trane has both experience and a portfolio of products to help operators of hotels attract and retain guests.

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 AquaStream 3G scroll chillers with factory-mounted CH530  
2 = Fresh air control: AHU with Trane factory mounted-control (MP581/UC400/UC600)  
3 = Room comfort: FCU with EC fan motor and Trane factory-mounted control (ZN525/UC400)  
4 = Humidity air control for gym and swimming pool: AHU with MP581  
5 = Building systems operations and management: Trane Tracer ES™ 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.

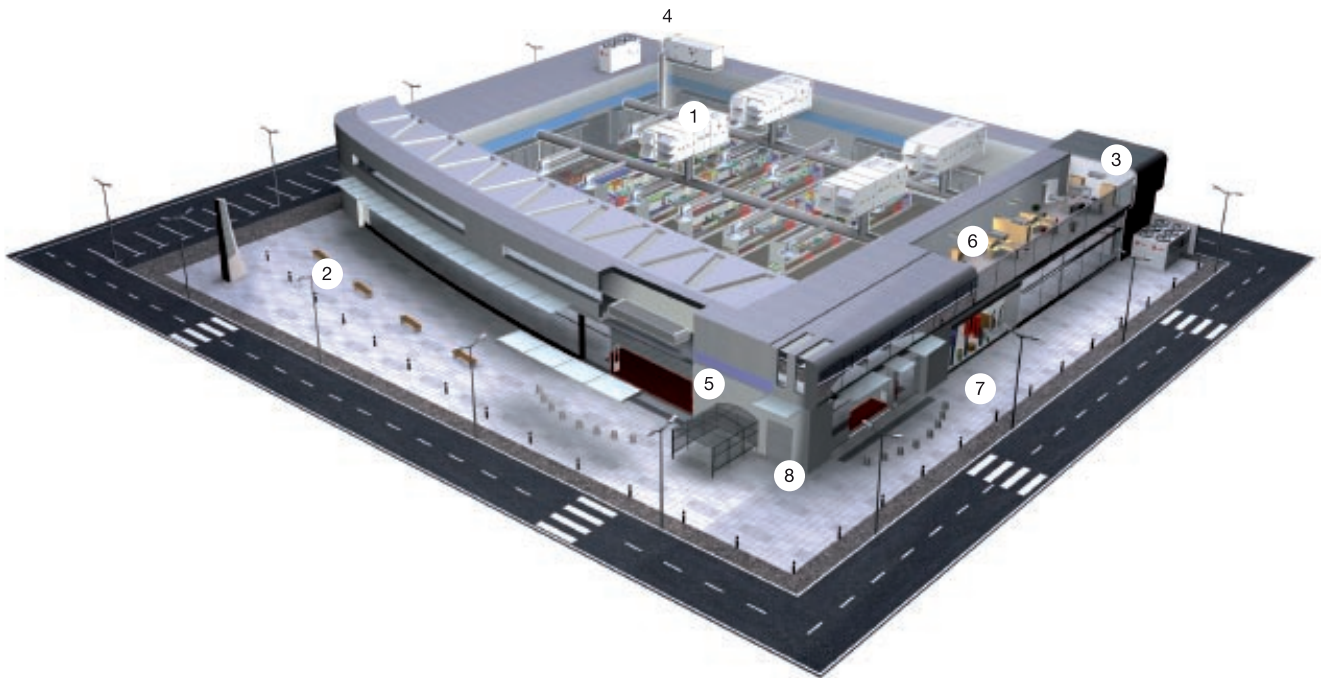
## Delivered system

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 an open standard protocol, called LonTalk®, which is often present retail buildings, and contractors perfectly master this kind of bus topology installation.







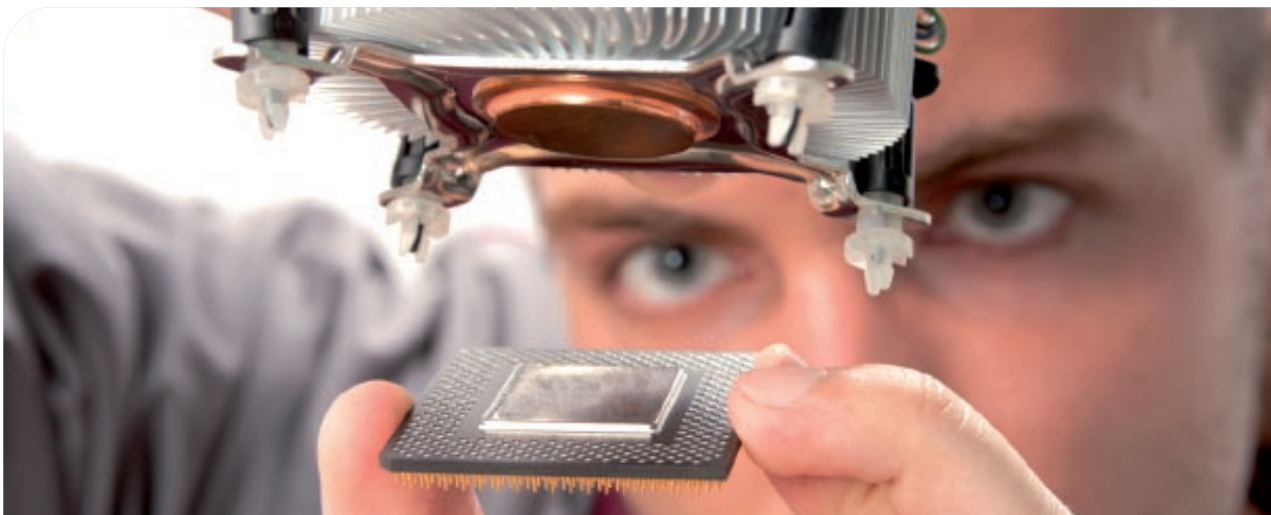
- 1 = Space temperature and humidity control: Voyager™ rooftop units with factory-mounted control: ReliaTel™
- 2 = Lighting control: either through Trane dedicated I/O controller (MP581, UC400, UC600) or by integrating a specific lighting control system through standard protocol (BACnet® to DALI as an example)
- 3 = Building systems operations and management: Trane Tracer ES™ and Tracer™ SC web-based solutions
- 4 = Cold aisle retrieval: AHU with Trane factory-mounted controls (MP581, UC400, UC600)
- 5 = Air curtains: FCU with EC fan motor and Trane factory-mounted control (ZN525/UC400)
- 6 = Office space comfort: FCU with EC fan motor and Trane factory-mounted control (ZN525/UC400)
- 7 = Retail store comfort: VAV with Trane factory-mounted control (VV550/UC400)
- 8 = Energy metering and monitoring: meters integrated through communication protocol, and data presented as graphs on the Trane Tracer™ SC/Tracer ES™ 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 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.

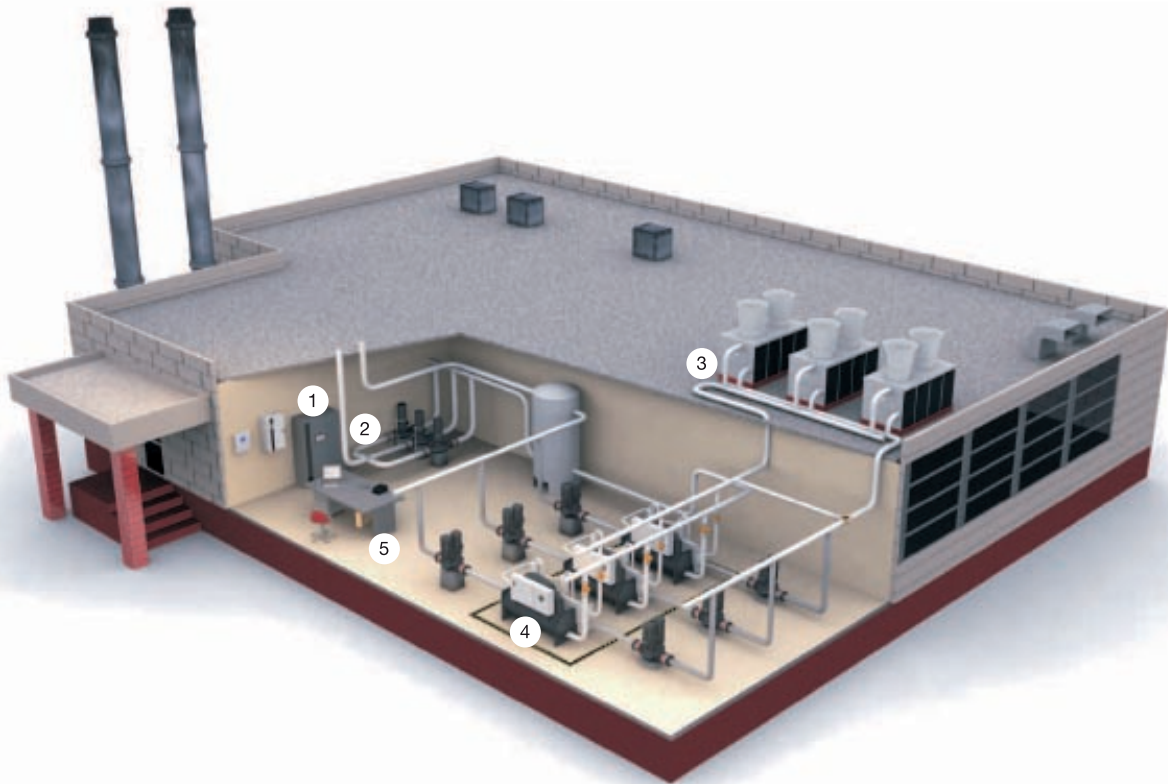
One of the highest priorities of Trane engineers when designing an industrial application is to ensure a system that is reliable. Trane proposes systems that can revert to a safe standalone running mode should any issue such as communication troubles arise, continuing to deliver cooling capacity until 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.



### **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.



1 = Critical systems monitoring - Electrical power: MP581

2 = System water flow control - Variable frequency pump control: VarioTrane TR200

3 = Chiller condenser operation - Cooling towers control: MP581

4 = Chiller Plant Control: 3 RTWD helical-rotary chillers with factory-mounted CH530, Twin pump control for each chiller: BCU

5 = System monitoring and control - Supervision: Tracer Summit™

## Personalized optimization

Piping arrangement, chiller technology, 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.

## Consulting services

Trane has developed the capacity of offering you full support, beginning with customer's technical service. 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.

## One point of contact

Once your project has been fulfilled, 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.

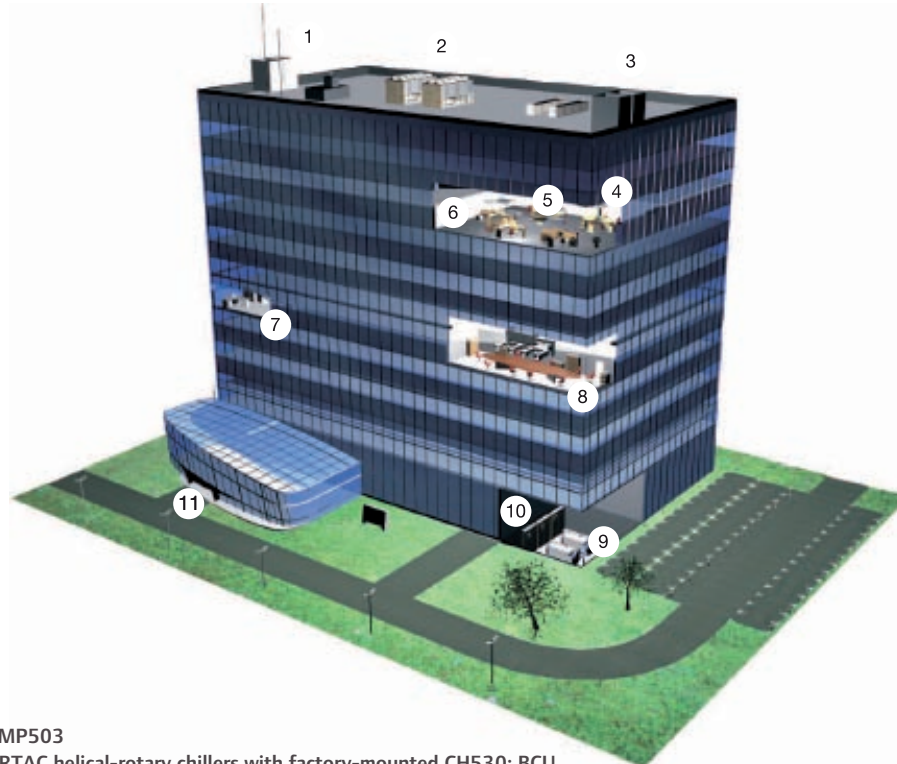
Trane's BMS is based on the latest web technologies, allowing for a high performance User Interface, as well as full flexibility with regards to accessing the system. Using a simple web browser software on any PC connected to the customer network, users can monitor and manage the assets, from wherever 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: MP503
- 2 = Chilled water plant: 2 RTAC helical-rotary chillers with factory-mounted CH530: BCU
- 3 = Primary air control: AHU with factory-mounted MP581
- 4 = Open space comfort: BAC chilled beams with factory-mounted ZN523 controller
- 5 = Environmental comfort: Lighting control: EXL, Sunblind control: EXB
- 6 = Tenant interface: Setpoint and room conditions information: Web Server
- 7 = Workstation: Building Systems Management, operation and diagnosis: Tracer Summit™
- 8 = Variable air flow control AHU and VariTrane™ valves: MP581+VV550
- 9 = Hot water plant: boiler plant control: BCU
- 10 = Electrical Power monitoring: MP581
- 11 = Interoperability: Access control system monitoring: BACnet®+ LonTalk®

## System efficiency

Trane has developed pre-engineered functions within Tracer Summit™ 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.

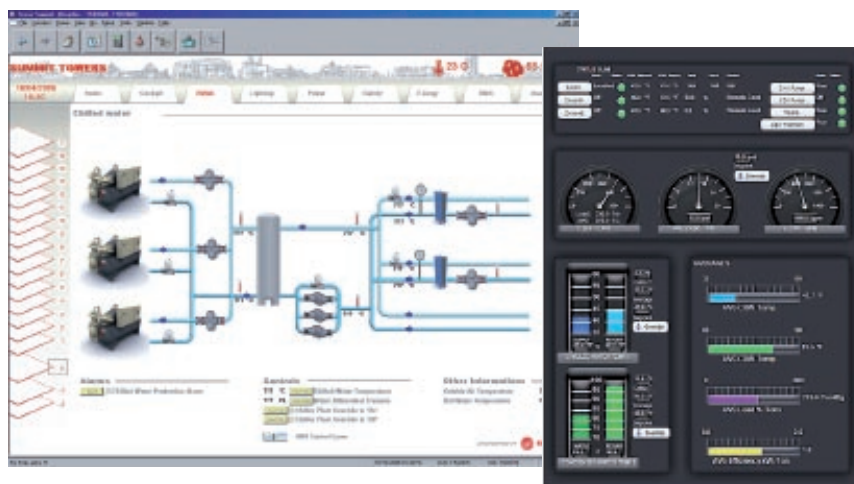
*Perfect equipment coordination* – Each piece of Trane HVAC equipment comes with its own factory-mounted controller. All these controllers have been developed keeping in mind their possible association within a system and thus, their interaction is possible within Trane's BMS.

*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, Water System Management adds advanced capabilities to the customer's installation:

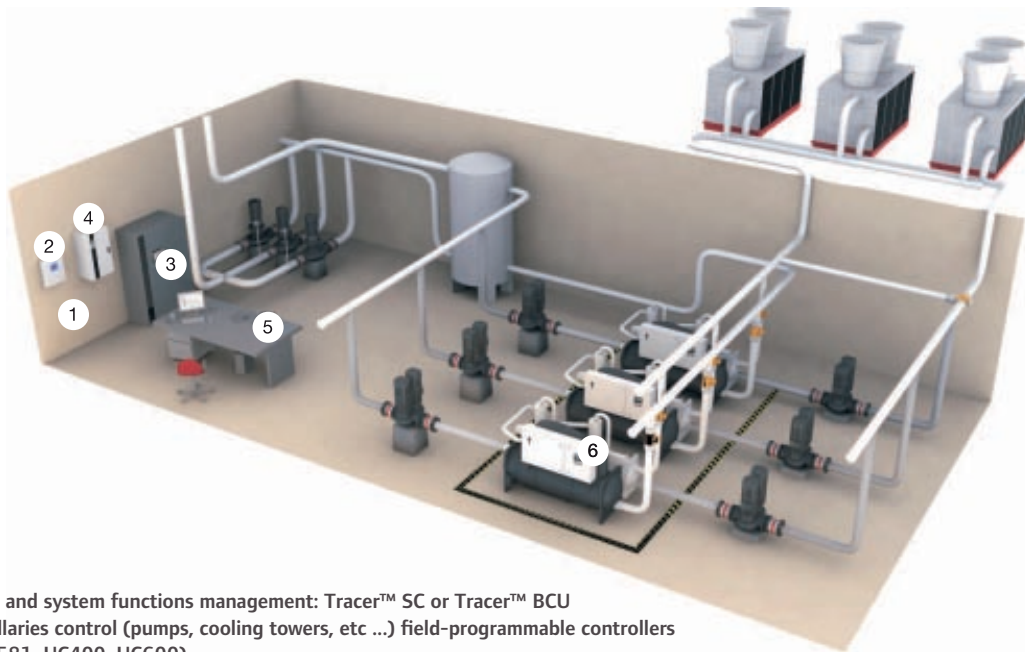
## Flexibility

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

Water System Management always ensures that chillers are used in their most efficient operation conditions. Unit technology and environment conditions are monitored by 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 or Tracer™ BCU  
 2 = Ancillaries control (pumps, cooling towers, etc ...) field-programmable controllers (MP581, UC400, UC600)  
 3 = Plant control panel monitoring: field-programmable controllers (MP581, 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 factory-mounted CH530

## 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 (SCC, DAC) or Generic Lon Devices (GLD), 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 touch screen available in the plant room.

## Assistance

Trane systems allow for system remote monitoring. After commissioning, Trane personnel can get connected to the system and monitor/fine tune parameters to adapt the overall system performance. Alarms can also be forwarded to that remote workstation. If an IP address is available, a web server can be installed and allow for remote access to the system through a simple web browser. Trends, event log, system status can be accessed this way from any location where an access to the Internet/intranet is possible.



## Variable Air Volume system applications

### The best alternative in buildings where environmental comfort is key

Trane BMS integrates the capability of driving such systems through a pre-engineered application called Variable Air Systems. With a Variable Air Volume System, building owners get a state-of-the-art system capable of offering many different advantages.

**System approach:** Every piece of equipment of a Trane air system is equipped with an optimized controller, which locally ensures that the equipment is used the best way. Trane air system management uses controller communication capability to handle all the equipment from a global standpoint. Every running condition has been modeled in a global function. Ancillaries, such as lights, power supply can be associated with the air system and all these components can be coordinated together.

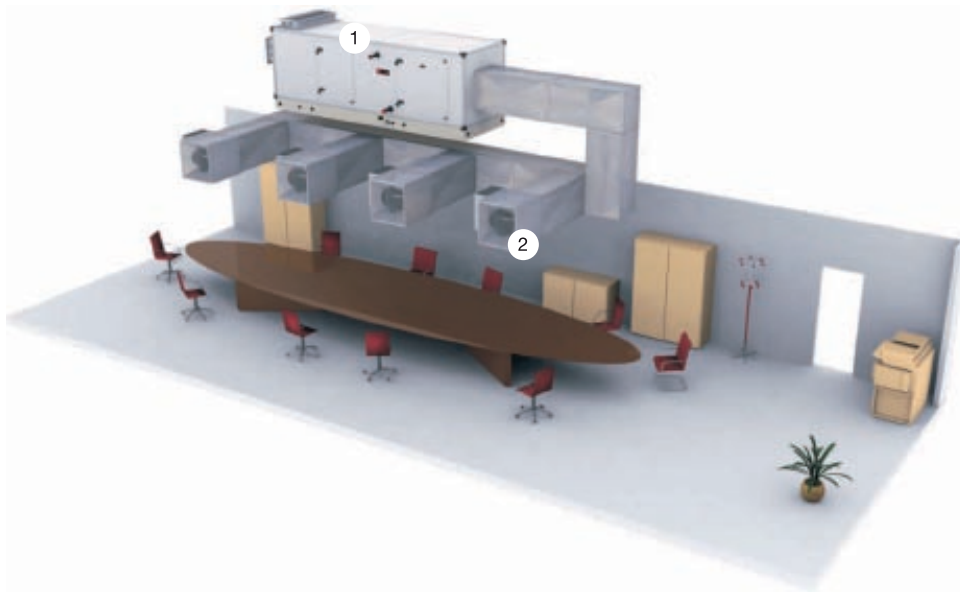
**Comfort:** Using a common communication standard protocol, all equipment serving the system exchanges data with an application server which takes decisions.

If most VAV boxes are fed with too much air, it will reset static pressure setpoint as to avoid unnecessary noise.

If boxes are fully opened and call for more air, the setpoint is adjusted upward. Since VAV boxes are equipped with communicating controllers, master/slaving can easily be used for handling large zones avoiding fights between cooling and heating areas, as well as allowing for optimum temperature control. Indoor Air Quality (IAQ) is also perfectly managed by such a system.

The system also provides solutions to satisfy the European Energy Performance of Buildings Directive (EPBD) for optimized energy consumption in buildings.





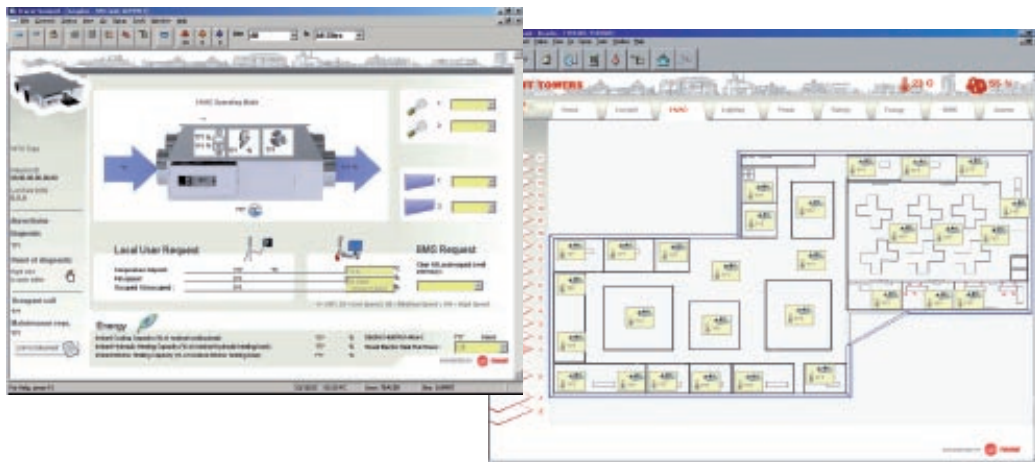
1 = Open space comfort: AHU with factory-mounted control MP581 or UC400 or UC600  
2 = Variable air volume valve: VariTrane™+ VV550 or UC400

## Savings

Dynamically adjusting airflow in the duct system leads to energy savings by reducing fan consumption. Occupancy schedules also participate in energy savings. Start/stop optimization, by monitoring of outdoor air conditions, building inertia and occupancy profiles are also a very powerful tool. Control of IAQ also is an important asset for energy savings. Only the right amount of fresh air is handled by the system reducing unnecessary ventilation.

## Ease of use

Trane systems can be run through an intuitive genuine web interface at every level of the system. The use of an advanced password system allows the use of filtering screens so that users only have access to what they really need. End users can also use their standard PC to operate the system, by surfing on their dedicated web pages for setpoint adjustment, for example. Alarms are also monitored by the system and can be forwarded to the appropriate recipient via e-mail. Reports are accessible through couple of mouse clicks, no engineering, no programming being required. Time of day schedules, setpoints and system statuses can be accessed, for reading and reading/writing, depending on the password given.



# 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.

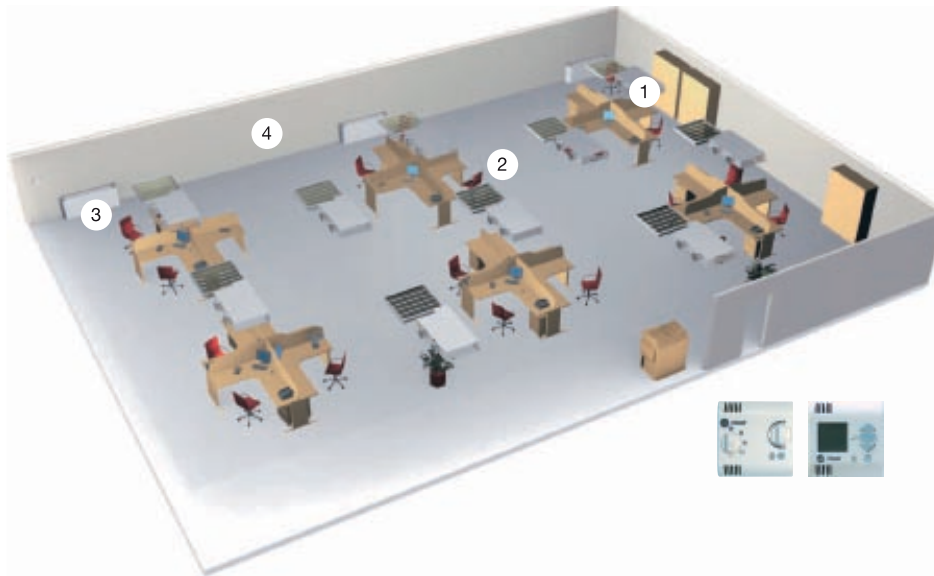
- Temperatures are monitored and controlled to stay within limits each user can adjust wall sensors or web pages.
- Sound level is maintained at its minimum value and air movement reduced as much as possible by the control of fan speed. Trane's offer also includes chilled beams which operate without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

2 = Ancillaries control: Lighting control: EXL, Sunblind control: EXB

3 = Open space comfort: UniTrane™ fan coil with factory-mounted ZN523, ZN525, or UC400 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 touch screens, 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.





# Chillers

*Trane sees buildings in terms of the critical comfort needs of the people and the things in the building. 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.*





# CGAK

## Air-cooled scroll chiller



### Customer benefits

- Space saving: particularly slim design. The unit can be installed directly on a balcony, rooftop or ground without the need to have a plant room
- Contemporary appearance: blends in with the surrounding environment
- Quiet operation: low sound fans and components to achieve its low sound level

### Main features

- Designed to couple with fan coil units and air handling units for residential or small commercial air conditioning applications
- Scroll compressor(s), plate type evaporator, finned-copper tube and aluminum condenser, axial fan assembly, expansion valve, indoor cold/warm control switch, water flow switch, filter dryer, sight-glass, integral water pump, galvanized sheet metal housing with powder paint, factory mounted control.

### Options

- Pressurized water tank system
- Condenser with blue fins corrosion protection

### Control

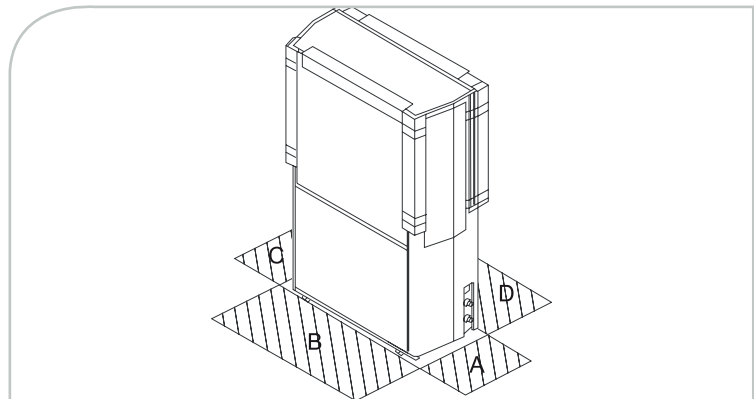
- LCD Microprocessor-based Adjustable Water Temperature Control: Precise temperature control of inlet chilled water, operation modes and system protection are provided by the long-range controller.
- Password can be set and any abnormal condition will be monitored and captured to facilitate quick repair and normal operation.
- Interlocking function of the two-way valve is available.

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>

Operating outdoor air temperature range (Min/Max) (1)	(°C)	+18 / +43
Leaving water temperature range (Min/Max) (1)	(°C)	+5 / +15
Power supply	(V/Ph/Hz)	400/3/50

<b>CGAK</b>		<b>0505F</b>	<b>0605A</b>	<b>0755D</b>	<b>1005F</b>	<b>1505D</b>	<b>1505F</b>
Net cooling capacity (1)	(kW)	13.1	15.6	19.5	26.2	39.0	38.0
Total power input in cooling (1)	(kW)	4.4	5.6	6.8	8.6	13.7	13.4
EER		2.98	2.77	2.87	3.05	2.85	2.8
Number of refrigerant circuits		1	1	1	2	2	1
Number of compressors		1	1	1	2	2	1
Sound power level (2)	(dB(A))	62	61	63	64	66	70
<b>Weights and dimensions (operating)</b>							
Length	(mm)	950	950	1290	1290	1990	1290
Width	(mm)	393	393	500	500	500	500
Height	(mm)	1285	1285	1900	1900	1900	1900
Operating weight	(kg)	170	170	290	404	490	470
Clearance A	(mm)	300	300	300	300	300	300
Clearance B	(mm)	1500	1500	1500	1500	1500	1500
Clearance C	(mm)	300	300	300	300	300	300
Clearance D	(mm)	500	500	500	500	500	500
<b>Electrical data</b>							
Maximum amps - cooling	(A)	13.0	16.7	19.6	25.8	40.8	39.9
Start-up amps	(A)	65.5	101.0	95.0	65.5 x 2	95.0 x 2	198.0

(1) At 12/7°C entering/leaving water temperature and 35°C ambient air temperature  
(2) With 1pW Reference Sound Power, according to ISO9614





# CGA VGA

## Air-cooled scroll chiller



### Customer benefits

- Packaged hydraulic module (VGA) for easier and quicker installation
- Low sound version for sensitive environment: a high level of acoustic comfort
- Minimum maintenance requirements save time and money

### Range description

CGA: Without hydraulic module

VGA: With hydraulic module

### Main features

- Scroll compressor(s) featuring sound-proofing, protection of motor winding, crankcase heater, thermo-magnetic circuit breaker
- Axial fan(s) with completely integrated low noise level
- Stainless steel water heat exchangers equipped with heating resistors
- Black epoxy-coated aluminum fins with copper tubes
- Cooling circuit(s) with thermostatic expansion valve(s), liquid line filter drier(s), high and low pressure cut-outs, factory oil and refrigerant charges
- Disconnect switch
- Flow switch
- Low ambient speed controller

### Options

- Water outlet low temperature (-5°C to -10°C)

### Accessories

- Remote control module
- High and low pressure gauges

### Control

Microprocessor control module featuring:

- Control of return water temperature
- Liquid crystal display indicating return water temperature, codes of any faults
- Control of operating parameters
- Possibility of remote fault signaling on 24V indicator light
- Antifreeze protection of evaporators
- 24V dry contacts for remote signaling of on/off and general fault

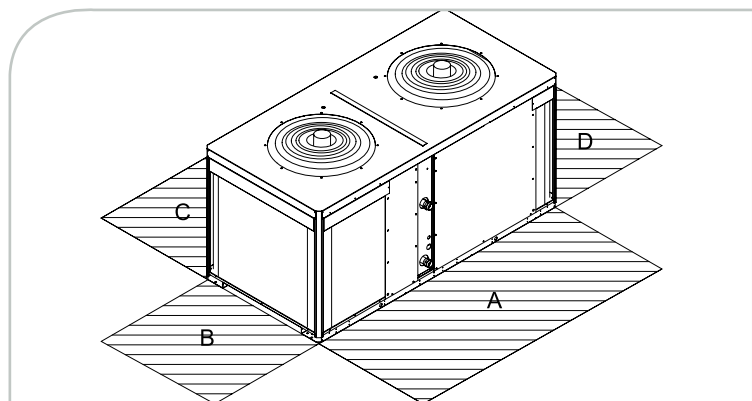
This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>

Operating outdoor air temperature range (Min/Max)	(°C)	+15 / +45 standard. -10 / +45 with low ambient option
Leaving water temperature range (Min/Max)	(°C)	-4 / +12 standard. -12 / +12 with low leaving water temperature option
Power supply	(V/Ph/Hz)	400/3/50

CGA/VGA		075	100	120	150	200	240
Net cooling capacity (1)	(kW)	19.2	25.2	31.7	38.6	51.0	64.0
Total power input in cooling (1)	(kW)	6.8	9.3	12.7	13.4	18.4	25.3
EER / Eurovent Energy class		2.82/C	2.71/C	2.50/D	2.88/C	2.77/C	2.5/D
ESEER		3.39	3.28	2.90	3.55	3.50	3.1
Number of refrigerant circuits		1	1	1	2	2	2
Number of compressors		1	1	1	2	2	2
Sound power level (2)	(dB(A))	76	78	82	78	80	85
<b>Weight and dimensions (operating)</b>							
Length	(mm)	1060	1060	1260	2200	2200	2200
Width	(mm)	950	950	1050	1050	1050	1050
Height (CGA/VGA)	(mm)	1230/1560	1231/1560	1232/1560	1230/1730	1231/1730	1232/1730
Weight (CGA/VGA)	(kg)	215/479	230/494	246/510	429/800	459/825	490/856
Clearance A	(mm)	1000					
Clearance B	(mm)	1000	1000	1000	300	300	300
Clearance C	(mm)	300	300	300	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	300	300	300
<b>Electrical data</b>							
Maximum amps	(A)	16.5	21.0	26.7	32.5	41.5	52.9
Start-up amps	(A)	101	133	142	117	153	167

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

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





# CGAM

## Air-cooled scroll chiller AquaStream 3G



### 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, download documentation at: <http://doc.trane-eur.com>



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
Net cooling capacity (3)	(kW)	55.9	63.6	70.7	80.2	92.1	110.8	123.1	134.7	111.5	128.7	144.5
Total power input (3)	(kW)	20.6	22.6	25.6	30.1	34.5	40.0	44.6	50.8	41.1	44.1	51.2
EER / Eurovent Energy class		2.7/C	2.8/C	2.8/C	2.7/C	2.7/C	2.8/C	2.8/C	2.7/C	2.7/C	2.9/C	2.8/C
ESEER		3.4	3.5	3.6	3.7	3.8	3.7	3.8	3.7	3.3	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 (4)	(dB(A))	89	89	88	89	89	91	91	92	92	92	92
Sound pressure level (5)	(dB(A))	57	57	56	57	57	59	59	60	60	59	59

#### Dimensions and weight (operating)

Length	(mm)	2908	2908	2908	2908	2908	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	(kg)	837	854	858	960	973	1129	1189	1248	1485	1526	1552
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)	48.3	53.3	58.3	65.5	76.5	90.9	102.4	113.9	95.5	105.5	115.5
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

CGAM Standard Efficiency Compact		060	070	080	090	100	110	120	140	150	160	170
Net cooling capacity (3)	(kW)	160.7	188.1	223.6	250.3	276.0	298.5	329.5	383.2	409.6	436.7	463.4
Total power input (3)	(kW)	59.3	68.4	79.8	88.8	101.1	107.1	111.1	131.0	143.8	152.1	157.1
EER / Eurovent Energy class		2.7/C	2.8/C	2.8/C	2.8/C	2.7/C	2.8/C	3.0/B	2.9/B	2.8/C	2.9/B	3.0/B
ESEER		3.8	3.9	3.8	3.9	3.8	3.9	4.3	4.1	4.2	4.1	4.2
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 (4)	(dB(A))	92	93	94	94	94	96	94	94	94	95	95
Sound pressure level (5)	(dB(A))	60	60	62	62	62	63	61	62	62	63	63

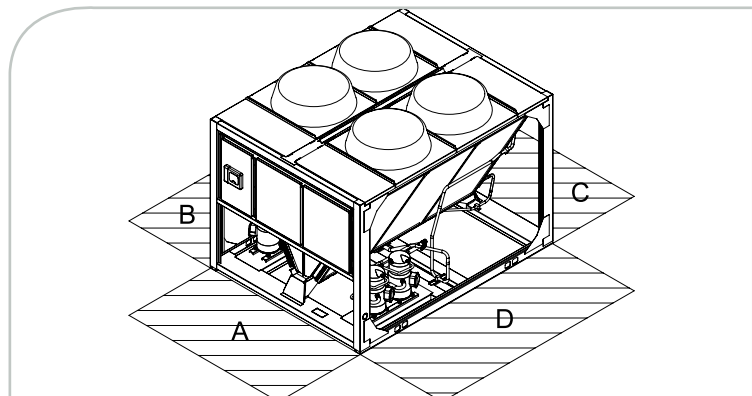
#### Dimensions and weight (operating)

Length	(mm)	2905	2905	3819	3819	3819	3647	3647	4230	4230	4230	5145
Width	(mm)	2266	2266	2266	2266	2266	2273	2273	2273	2273	2273	2273
Height	(mm)	2150	2150	2150	2150	2150	2344	2344	2344	2344	2344	2344
Weight	(kg)	1734	1775	2034	2165	2283	2475	2597	3035	3063	3153	3407
Clearance A	(mm)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	800	800	800	800	800	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

#### Electrical data

Maximum amps	(A)	129.9	152.0	181.4	204.3	227.2	240.6	254.0	313.5	329.6	349.8	363.2
Start-up amps	(A)	271.2	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, with 1pW Reference Sound Power, according to ISO9614  
(5) At 10m 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)	-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
Net cooling capacity (3)	(kW)	54.5	62.9	69.3	78.8	90.7	109.0	121.3	132.6	108.6	126.9	142.1
Total power input in cooling (3)	(kW)	20.1	22.1	25.3	30.0	34.4	39.7	44.4	50.9	40.1	43.5	50.6
EER / Eurovent Energy class		2.7/C	2.8/C	2.8/C	2.6/C	2.6/D	2.8/C	2.7/C	2.6/D	2.7/C	2.9/B	2.8/C
ESEER		3.8	3.8	3.9	3.9	4.0	4.0	4.0	3.9	3.8	3.8	3.9
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 (4)	(dB(A))	85	85	85	85	86	88	88	88	88	88	88
Sound pressure level (5)	(dB(A))	53	53	53	53	54	56	56	56	56	56	56
<b>Dimensions and weight (operating)</b>												
Length	(mm)	2908	2908	2908	2908	2908	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	(kg)	837	854	858	960	973	1129	1189	1248	1485	1526	1552
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 - cooling	(A)	50.1	55.1	60.1	67.3	78.3	93.6	105.1	116.6	99.1	109.1	119.1
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

CGAM Standard Efficiency Super Quiet		060	070	080	090	100	110	120	140	150	160	170
Net cooling capacity (3)	(kW)	157.5	185.3	219.4	246.8	271.4	293.2	323.5	376.6	401.9	426.8	456.7
Total power input in cooling (3)	(kW)	59.3	68.5	79.1	88.1	100.9	107.9	112.5	132.6	146.1	154.8	158.5
EER / Eurovent Energy class		2.7/C	2.7/C	2.8/C	2.8/C	2.7/C	2.7/C	2.9/B	2.8/C	2.8/C	2.8/C	2.9/C
ESEER		4.0	4.1	4.0	4.1	4.0	4.1	4.3	4.3	4.4	4.2	4.4
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 (4)	(dB(A))	88	89	91	91	90	92	91	91	90	92	92
Sound pressure level (5)	(dB(A))	56	57	59	59	58	60	59	59	58	59	60
<b>Dimensions and weight (operating)</b>												
Length	(mm)	2905	2905	3819	3819	3819	3647	3647	4230	4230	4230	5145
Width	(mm)	2266	2266	2266	2266	2266	2273	2273	2273	2273	2273	2273
Height	(mm)	2150	2150	2150	2150	2150	2344	2344	2344	2344	2344	2344
Weight	(kg)	1734	1775	2034	2165	2283	2475	2597	3035	3063	3153	3407
Clearance A	(mm)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	800	800	800	800	800	1000	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
<b>Electrical data</b>												
Maximum amps - cooling	(A)	133.5	155.6	186.8	209.7	232.6	246.0	259.4	320.7	335.0	357.0	370.4
Start-up amps	(A)	274.8	330.8	362.0	418.5	441.4	508.1	521.5	529.5	543.8	619.1	632.5

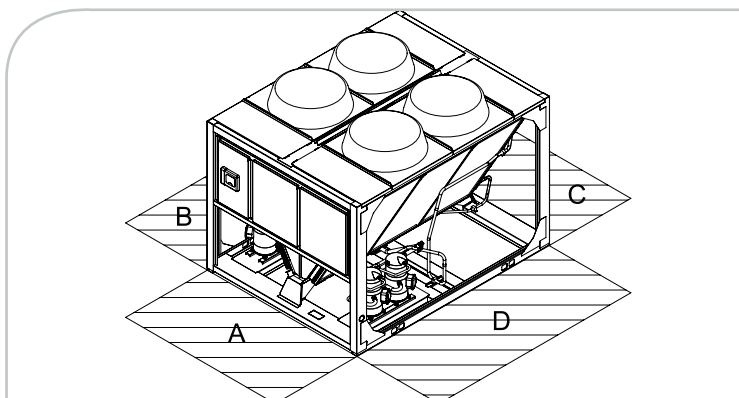
(1) With low ambient option

(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, with 1pW Reference Sound Power, according to ISO9614

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

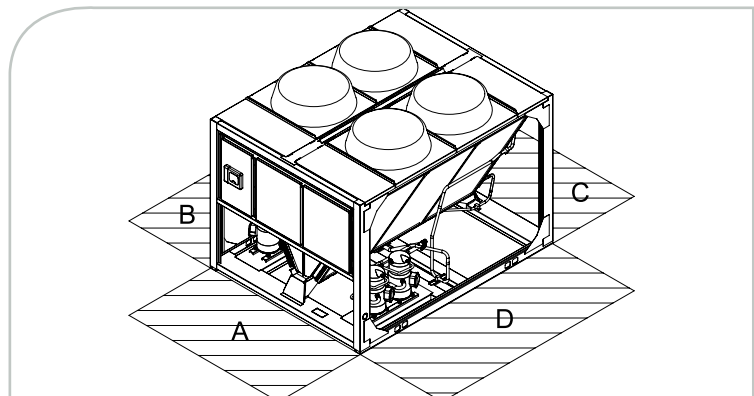


Operating outdoor air temperature range (Min/Max) (1)	(°C)	-18/+46
Leaving water temperature range (Min/Max) (2)	(°C)	-12/+18
Power supply	(V/Ph/Hz)	400/3/50

CGAM Standard Efficiency Comprehensive Acoustic Package		020	023	026	030	035	039	040	046	052	060
Net cooling capacity (3)	(kW)	53.8	61.2	68.9	76.0	92.1	106.9	107.2	123.1	136.8	155.1
Total Power Input in Cooling (3)	(kW)	19.5	21.7	25.7	29.2	34.8	39.3	38.7	43.2	50.5	57.9
EER / Eurovent Energy class		2.8/C	2.8/C	2.7/D	2.6/D	2.7/C	2.7/C	2.8/C	2.8/C	2.7/C	2.7/C
ESEER		4.2	4.4	4.3	4.3	4.3	4.4	4.2	4.4	4.3	4.4
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 (4)	(dB(A))	78	78	78	78	82	83	81	81	81	81
Sound Pressure level (5)	(dB(A))	46	46	46	47	49	51	49	49	49	49
<b>Dimensions and weight (operating)</b>											
Length	(mm)	2908	2908	2908	2908	3822	3822	2905	2905	2905	2905
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	(kg)	871	888	898	1013	1160	1187	1553	1594	1620	1851
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 - cooling	(A)	44.2	49.2	54.2	61.4	73.7	84.8	87.3	97.3	107.3	121.7
Start-up amps	(A)	166.1	182.1	187.1	202.7	249.0	260.0	209.2	230.2	240.2	263.0

CGAM Standard Efficiency Comprehensive Acoustic Package		070	080	090	100	110	120	140	150	160
Net cooling capacity (3)	(kW)	182.5	215.2	238.7	265.1	291.1	321.0	373.8	396.6	424.7
Total Power Input in Cooling (3)	(kW)	68.3	77.6	88.3	99.4	106.0	110.7	132.7	146.0	151.2
EER / Eurovent Energy class		2.7/C	2.8/C	2.7/C	2.7/C	2.8/C	2.9/B	2.8/C	2.7/C	2.8/C
ESEER		4.4	4.5	4.7	4.4	4.4	4.7	4.8	4.7	4.7
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 (4)	(dB(A))	84	85	85	85	87	86	85	85	86
Sound pressure level (5)	(dB(A))	52	53	53	53	54	53	52	52	54
<b>Dimensions and weight (operating)</b>										
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
<b>Electrical data</b>										
Maximum amps - cooling	(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, with 1pW Reference Sound Power, according to ISO9614  
 (5) At 10m 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	-18/+52
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 (3)	(kW)	58.7	64.3	74.2	84.7	97.7	113.9	129.4	144.5	164.9
Total power input in cooling (3)	(kW)	18.4	20.5	23.9	27.1	32.0	36.1	41.2	47.0	52.6
EER / Eurovent Energy class		3.2/A	3.1/A	3.1/A	3.1/A	3.1/A	3.1/A	3.1/A	3.1/A	3.1/A
ESEER		4.3	4.3	4.5	4.3	4.3	4.2	4.3	4.4	4.4
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 (4)	(dB(A))	86	86	86	88	88	89	89	89	91
Sound pressure level (5)	(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 - cooling	(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

CGAM HE Compact		070	080	090	100	110	120	140	150	160
Net cooling capacity (3)	(kW)	194.8	225.7	256.0	284.4	313.3	334.0	393.8	421.9	446.2
Total power input in cooling (3)	(kW)	62.9	72.3	80.2	90.1	97.8	107.5	125.3	133.4	142.5
EER / Eurovent Energy class		3.1/A	3.1/A	3.2/A	3.2/A	3.2/A	3.1/A	3.1/A	3.2/A	3.1/A
ESEER		4.3	4.4	4.6	4.3	4.4	4.5	4.5	4.5	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 (4)	(dB(A))	91	91	91	92	92	93	93	94	94
Sound pressure level (5)	(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 - cooling	(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

CGAM HE Super Quiet		020	023	026	030	035	040	046	052	060
Net cooling capacity (3)	(kW)	58.4	64.3	74.2	82.6	97.4	113.6	129.4	144.5	165.3
Total power input in cooling (3)	(kW)	18.5	20.5	23.8	26.5	32.1	36.3	41.2	47.0	52.8
EER / Eurovent Energy class		3.2/A	3.1/A	3.1/A	3.1/A	3.1/A	3.1/A	3.1/A	3.1/A	3.1/A
ESEER		4.3	4.3	4.5	4.3	4.3	4.2	4.2	4.4	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 (4)	(dB(A))	81	81	81	82	84	84	84	84	85
Sound pressure level (5)	(dB(A))	49	49	49	50	52	52	51	52	53
<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 - cooling	(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

(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, with 1pW Reference Sound Power, according to ISO9614

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



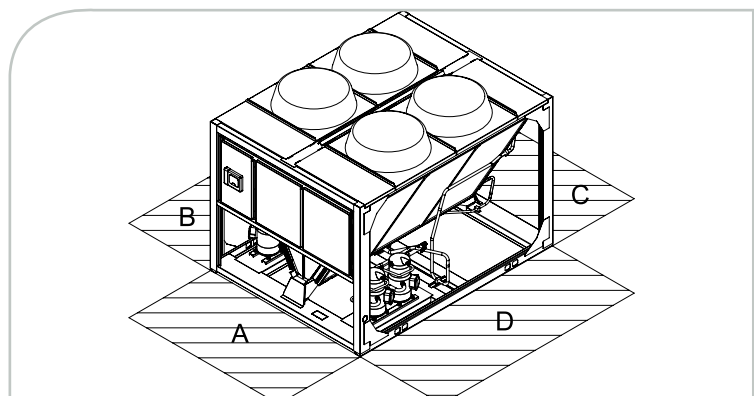
Operating outdoor air temperature range (Min/Max) (1)	°C	-18/+52
Leaving water temperature range (Min/Max) (2)	°C	-12/+18
Power supply	V/Ph/Hz	400/3/50

<b>CGAM HE Super Quiet</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>
Net cooling capacity (3)	(kW)	194.4	226.4	256.0	285.2	313.3	334.0	393.8	422.3	445.8
Total power input in cooling (3)	(kW)	63.0	71.6	79.9	89.6	97.7	107.4	125.1	133.9	142.3
EER / Eurovent Energy class		3.1/A	3.2/A	3.2/A	3.2/A	3.2/A	3.1/A	3.1/A	3.2/A	3.1/A
ESEER		4.4	4.5	4.7	4.4	4.5	4.5	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 (4)	(dB(A))	87	88	88	88	89	90	90	89	90
Sound pressure level (5)	(dB(A))	55	56	56	56	57	58	57	57	58
<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	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
<b>Electrical data</b>										
Maximum amps - cooling	(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

<b>CGAM HE Comprehensive Acoustic Package</b>		<b>020</b>	<b>023</b>	<b>026</b>	<b>030</b>	<b>035</b>	<b>040</b>	<b>046</b>	<b>052</b>	<b>060</b>
Net cooling capacity (3)	(kW)	57.3	65.8	74.2	81.2	95.3	112.5	127.6	148.7	165.3
Total power input in cooling (3)	(kW)	18.4	21.1	23.6	26.8	32.5	36.3	41.9	46.8	53.4
EER / Eurovent Energy class		3.1/A	3.1/A	3.1/A	3.0/B	2.9/B	3.1/A	3.1/A	3.2/A	3.1/A
ESEER		4.5	4.7	4.5	4.5	4.6	4.4	4.5	4.6	4.6
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 (4)	(dB(A))	78	78	79	80	81	81	81	82	83
Sound Pressure level (5)	(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 - cooling	(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

<b>CGAM HE Comprehensive Acoustic Package</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>
Net cooling capacity (3)	(kW)	191.3	227.1	257.0	282.7	304.1	333.7	393.4	416.7	436.0
Total power input in cooling (3)	(kW)	64.1	69.4	78.3	90.0	97.3	104.9	123.1	135.0	145.0
EER / Eurovent Energy class		3.0/B	3.3/A	3.3/A	3.1/A	3.1/A	3.2/A	3.2/A	3.1/A	3.0/B
ESEER		4.7	5.0	5.0	4.8	4.7	4.8	4.9	4.8	4.7
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 (4)	(dB(A))	84	83	83	84	85	86	85	85	86
Sound pressure level (5)	(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 - cooling	(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, with 1pW Reference Sound Power, according to ISO9614  
(5) At 10m in free field, calculated from the above sound power level according to the formula  $L_p = L_w - 10 \log S$





# 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

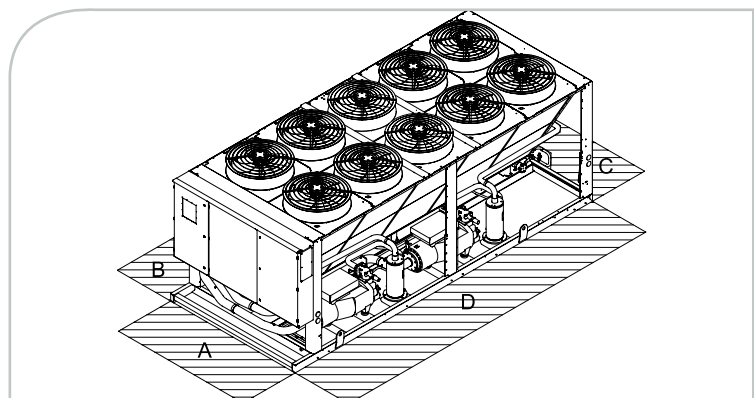
- High efficiency version, heat recovery, free-cooling

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>

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	513	549	598	643
Total power input (3)	(kW)	99	129	149	187	191	210	222	243
EER / Eurovent Energy class		2.75/C	2.59/D	2.63/D	2.38/D	2.7/C	2.62/D	2.69/D	2.65/D
ESEER		3.49	3.32	3.41	3.21	3.51	3.33	3.40	3.27
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>	<b>165</b>	<b>180</b>
Net cooling capacity (3)	(kW)	296	359	416	487	521	559	-	-
Total power input (3)	(kW)	96	122	144	176	182	201	-	-
EER / Eurovent Energy class		3.09/B	2.94/B	2.89/C	2.77/C	2.86/C	2.78/C	-	-
ESEER		3.92	3.63	3.59	3.45	3.59	3.41	-	-
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	-	-
<b>Weights and dimensions (5) (operating)</b>									
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
<b>Electrical data</b>									
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) At 10m in free field, calculated from the above sound power level according to the formula  $L_p = L_w - 10 \log S$





# 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)
- LonTalk®, Modbus®, BACnet® communication capabilities

### Energy saving options

- High efficiency and extra high efficiency versions

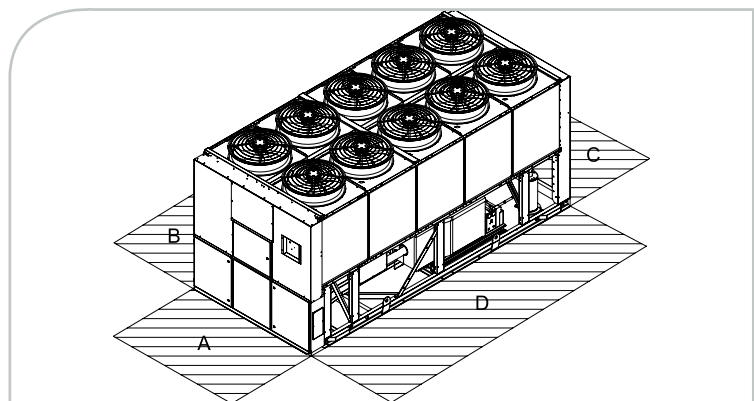
This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>



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)	492	537	585	648	714	770	858	851	947	1077	1192	1322	1451
Total power input (3)	(kW)	170	188	206	225	244	263	294	293	331	370	419	459	498
EER / Eurovent Energy class		2.9/B	2.86/C	2.84/C	2.89/C	2.93/B	2.93/B	2.93/B	2.9/B	2.87/C	2.91/B	2.85/C	2.88/C	2.91/B
ESEER		3.68	3.68	3.61	3.43	3.67	3.94	4.17	3.82	3.86	3.94	4.10	4.14	4.18
Number of refrigerant circuits														
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
Weights and dimensions (operating)														
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
Electrical data														
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) At 10m 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)	-18 / +52
Leaving water temperature range (Min/Max) (2)	(°C)	-12 / +18
Power supply	(V/Ph/Hz)	400/3/50

RTAC High Efficiency		120	130	140	155	170	185	200	250	275	300	350	375	400
Net cooling capacity (3)	(kW)	422	466	513	557	604	670	740	877	979	1112	1228	1364	1501
Total power input (3)	(kW)	138	151	166	183	200	219	239	290	321	360	407	447	487
EER / Eurovent Energy class		3.07/B	3.08/B	3.10/A	3.05/B	3.02/B	3.06/B	3.10/A	3.03/B	3.05/B	3.09/B	3.02/B	3.05/B	3.09/B
ESEER		3.8	3.82	3.83	3.84	3.74	3.53	3.8	3.84	4	4.08	4.09	4.13	4.18
Number of refrigerant circuits		2												
Number of compressors / minimum load		2 / 15%										4 / 8%		
Sound power level (standard noise version) (4)	(dB(A))	97	98	98	99	99	100	100	100	102	102	102	103	103
Sound pressure level (standard noise version) (4) (5)	(dB(A))	65	66	66	67	67	68	68	67	69	69	69	70	70
Sound power level (low noise version) (4)	(dB(A))	90	91	91	92	92	93	93	93	95	95	95	96	96
Sound pressure level (low noise version) (4) (5)	(dB(A))	58	58	59	59	60	60	60	60	62	62	62	63	63
<b>Weights and dimensions (operating)</b>														
Length	(mm)	5041	5041	5041	5960	5960	6879	6879	9138	10975	11894	12244	13163	14082
Width	(mm)	2240	2240	2240	2240	2240	2240	2240	2250	2250	2250	2250	2250	2250
Height	(mm)	2411	2411	2411	2411	2411	2411	2411	2530	2530	2530	2530	2530	2530
Weight	(kg)	4461	4519	4529	5180	5431	6005	6117	8359	9718	10258	11973	12507	13185
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	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	1000	1000	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)	324	359	393	433	472	521	569	675	754	851	944	1041	1138
Start-up amps	(A)	358	404	431	467	497	564	601	684	745	820	865	969	1044

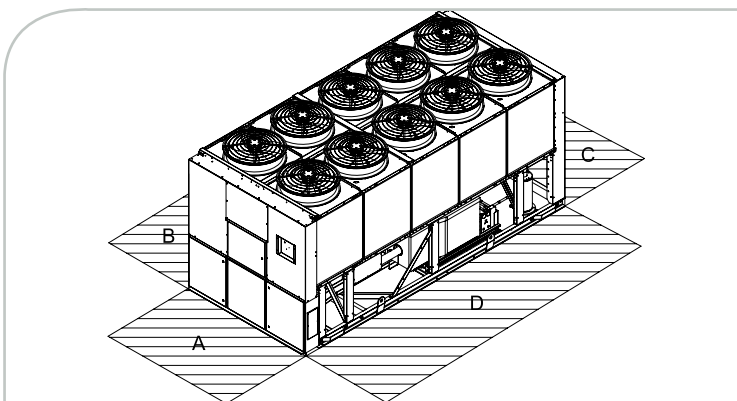
(1) With low and high ambient temperature option

(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

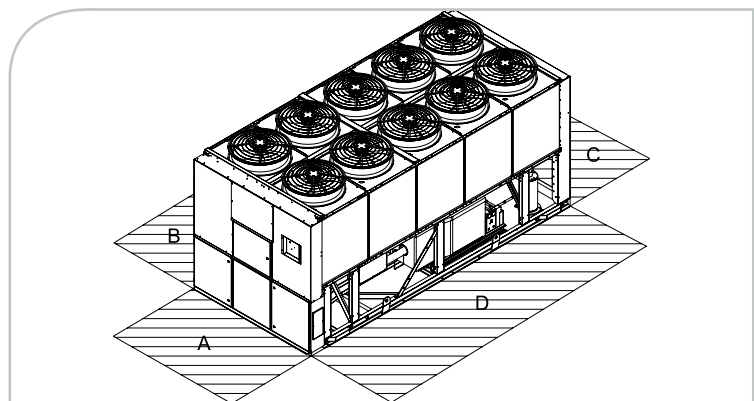
(5) At 10m in free field, calculated from the above sound power level according to the formula  $L_p = L_w - 10 \log 5$



Operating outdoor air temperature range (Min/Max) (1)	(°C)	-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	170	185	200	250	275	300	350	375	400
Net cooling capacity (3)	(kW)	427	475	521	566	633	680	747	899	998	1128	1290	1388	1517
Total power input (3)	(kW)	135	150	165	180	199	216	236	284	319	357	409	445	482
EER / Eurovent Energy class		3.16/A	3.17/A	3.16/A	3.15/A	3.19/A	3.15/A	3.16/A	3.17/A	3.13/A	3.17/A	3.16/A	3.12/A	3.15/A
ESEER		3.92	3.86	3.92	3.84	4.07	3.95	3.9	3.95	4.01	4.13	4.15	4.22	4.23
Number of refrigerant circuits		2												
Number of compressors / minimum load		2 / 15%										4 / 8%		
Sound power level (standard noise version) (4)	(dB(A))	98	98	98	99	99	100	100	100	102	102	102	103	103
Sound pressure level (standard noise version) (5)	(dB(A))	66	66	66	67	67	68	68	67	69	69	69	70	70
Sound power level (low noise version) (4)	(dB(A))	91	91	91	92	92	93	93	93	95	95	95	96	96
Sound pressure level (low noise version) (5)	(dB(A))	59	58	59	59	60	60	60	60	62	62	62	63	63
<b>Weights and dimensions (operating)</b>														
Length	(mm)	5041	5041	5041	5960	6879	6879	6879	10056	10975	11894	12244	13163	14082
Width	(mm)	2240	2240	2240	2240	2240	2240	2240	2250	2250	2250	2250	2250	2250
Height	(mm)	2411	2411	2411	2411	2411	2411	2411	2530	2530	2530	2530	2530	2530
Weight	(kg)	4775	4712	4613	5351	5842	6307	6497	9484	10180	10795	12217	13092	13784
Clearance A	(mm)	1000	1000	1000	1000	1000	1000	1000	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	1000	1000	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)	324	362	393	436	485	524	569	675	761	858	962	1041	1138
Start-up amps	(A)	358	407	431	470	537	567	601	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) At 10m in free field, calculated from the above sound power level according to the formula  $L_p = L_w - 10 \log S$





# CGCL

## Air-cooled scroll chiller



### Customer benefits

- Indoor installation:
  - allows installation in existing buildings, with limited roof or external surface available
  - easy maintenance,
  - 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)

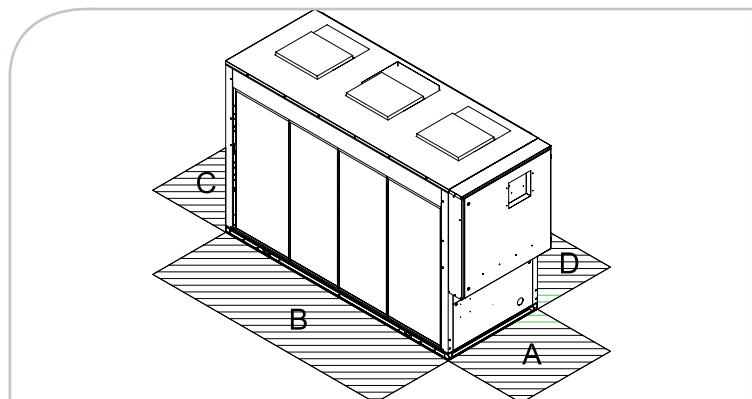
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Operating outdoor air temperature range (Min/Max)	(°C)	-5 / +40
Leaving water temperature range (Min/Max)	(°C)	-12 / +12
Power supply	(V/Ph/Hz)	400/3/50

CGCL		200	250	300	350	400	450	500	600
Net cooling capacity (1)	(kW)	51.0	62.0	75.0	88.0	102.0	112.0	128.0	153.0
Total power input (1)	(kW)	22.2	27.2	34.9	38.4	47.0	56.0	60.4	73.9
EER / Eurovent Energy class		2.30/C	2.28/D	2.15/D	2.29/D	2.17/D	2.0/E	2.1/D	2.1/D
ESEER		3.25	3.51	2.98	3.72	3.46	3.1	3.0	2.8
Number of refrigerant circuits		1	1	1	1	1	1	2	2
Number of compressors		2	2	2	3	3	3	4	4
Sound power level (2)	(dB(A))	88	84	87	89	91	95	90	94
Weights and dimensions (operating)									
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							
Electrical data									
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	265.0	295.0

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

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







# CGWH CCUH

## Water-cooled packaged and condenserless scroll chillers



### Customer benefits

- Very low sound level installation: superior acoustic comfort
- 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

### Options

- 380, 400 and 415V power voltage
- Phase and unbalance detection
- 400 / 220V transformer for the control
- 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, download documentation at: <http://doc.trane-eur.com>

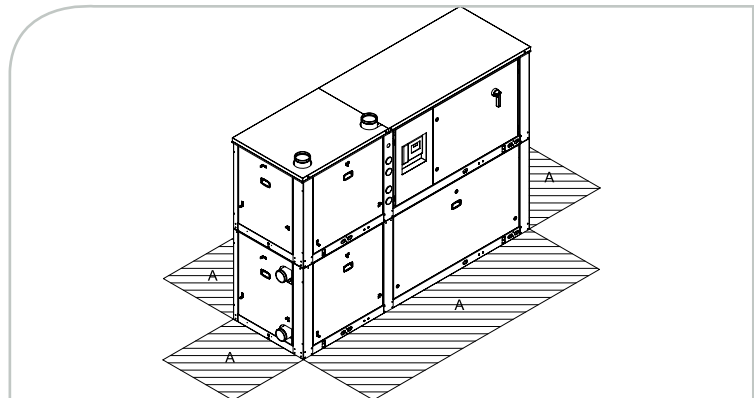
Condenser leaving water temperature (min/max)	(°C)	20/50
Condenser saturated discharge temperature (min/max)	(°C)	25/55
Evaporator leaving water temperature range (min/max)	(°C)	-12 / +12
Power supply	(V/Ph/Hz)	400/3/50

CGWH/CCUH		115	120	125	225	230	235	240	250
Net cooling capacity CGWH (1)	(kW)	51.8	64.9	78	92.1	104.5	117.4	129.7	157.1
Total power input CGWH (1)	(kW)	13.8	17.6	21.3	24.3	27.9	31.3	35	41.9
EER / Eurovent energy class CGWH		3.75/E	3.69/E	3.66/E	3.79/E	3.75/E	3.75/E	3.71/E	3.75/E
ESEER CGWH		4.57	4.85	4.56	4.77	4.44	4.28	4.06	3.86
Net cooling capacity CCUH	(kW)	51.3	64.3	77.3	91	103.2	115.4	128.4	154.7
Total power input CCUH	(kW)	14.2	17.9	21.7	25	28.8	32.6	35.9	43.5
EER CCUH		3.61	3.59	3.56	3.64	3.58	3.54	3.58	3.56
Refrigerant		R407C							
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 (3)	(dB(A))	75	79	81	81	82	83	82	84
Weights and dimensions CGWH (operating)									
Length	(mm)	1001	1001	1001	2002	2002	2002	2002	2002
Width	(mm)	800	800	800	800	800	800	800	800
Height	(mm)	1545	1545	1545	1545	1545	1545	1545	1545
Weight	(kg)	412	444	476	668	702	739	803	873
Clearance A	(mm)	800							
Electrical data CGWH									
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 Eurovent conditions: 12/7°C entering/leaving chilled water temperature and 30/35°C entering/leaving condenser temperature

(2) At 12/7°C entering/leaving chilled water temperature, 45°C condensing temperature and 5K saturated subcooling.

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





# CGWN CCUN

## Water-cooled packaged and condenserless scroll chillers



### Customer benefits

- Compact design and packaged hydraulic module (available as an option) for easier installation: saving of time
- Wide application flexibility for comfort and process applications: fits your exact requirements
- State of the art control to guarantee superior dependability: low cost for owners

### 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

### Options

- High Efficiency version
- Soft Starter
- Phase & unbalanced detection
- 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, download documentation at: <http://doc.trane-eur.com>

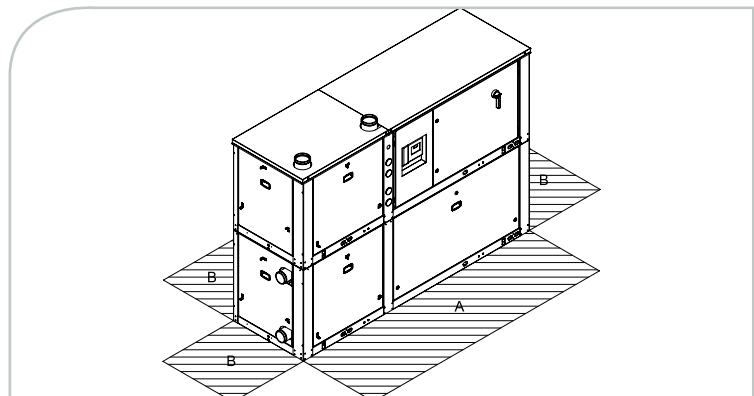
Condenser leaving water temperature (min/max)	(°C)	25/60
Condenser saturated discharge temperature (min/max)	(°C)	25/60
Evaporator leaving water temperature range (min/max)	(°C)	-12 / +15
Power supply	(V/Ph/Hz)	400/3/50

CGWN/CCUN		205	205HE	206	206HE	207	207HE	208	209	210	211
Net cooling capacity CGWN (1)	(kW)	182.5	193.3	217	227.4	251.7	262.4	283.1	312.1	341.9	373.7
Total power input CGWN (1)	(kW)	42.5	40.1	50.2	47.9	57.7	55.7	61.5	70.1	78.2	85.9
EER / Eurovent energy class CGWN		4.29/C	4.82/B	4.32/C	4.75/B	4.36/C	4.71/B	4.60/C	4.45/C	4.37/C	4.35/C
ESEER CGWN		5.96	6.39	6.04	6.36	6.06	6.39	6.28	5.81	5.79	5.9
Net cooling capacity CCUN	(kW)	166.3	175	198.1	206.7	230.4	239.1	257.7	281.9	311.4	343.8
Total power input CCUN	(kW)	45.6	45.6	53.8	53.8	62	62	69.8	77.7	86.4	95.1
EER CCUN		3.65	3.84	3.68	3.84	3.72	3.86	3.69	3.63	3.60	3.62
Refrigerant		R410A									
Number of refrigerant circuits		2									
Number of compressors		4									
Sound power level (3)	(dB(A))	82	82	82	82	83	83	83	84	84	84
Weights and dimensions CGWN (operating)											
Length	(mm)	2520	2520	2520	2520	2520	2520	2520	2520	2520	2520
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	1360	1300	1300	1420	1420	1500	1650	1710	1790
Clearance A	(mm)	1000									
Clearance B	(mm)	800									
Electrical data CGWN											
Maximum amps	(A)	144	144	163	163	187	187	210	233	250	263
Start-up amps	(A)	274	274	338	338	395	395	418	441	512	525

Condenser leaving water temperature (min/max)	(°C)	25/55
Condenser saturated discharge temperature (min/max)	(°C)	25/55
Evaporator leaving water temperature range (min/max)	(°C)	-12 / +15
Power supply	(V/Ph/Hz)	400/3/50

CGWN/CCUN		212	213	214	215
Net cooling capacity CGWN (1)	(kW)	398.5	431.3	465.9	506.4
Total power input CGWN (1)	(kW)	97	106.4	117.3	125.5
EER / Eurovent energy class CGWN		4.11 / D	4.05 / D	3.97 / D	4.04 / D
ESEER CGWN		5.46	5.53	5.32	5.41
Net cooling capacity CCUN	(kW)	385.6	417.3	450.4	486.9
Total power input CCUN	(kW)	99	108.5	120.5	131.1
EER CCUN		3.89	3.85	3.74	3.71
Refrigerant		R407C			
Number of refrigerant circuits		2			
Number of compressors		5	6	6	6
Sound power level (3)	(dB(A))	87	88	88	90
Weights and dimensions CGWN (operating)					
Length	(mm)	2810	2810	2810	2810
Width	(mm)	880	880	880	880
Height	(mm)	1950	1950	1950	1950
Weight	(kg)	2130	2340	2420	2500
Clearance A	(mm)	1000			
Clearance B	(mm)	800			
Electrical data CGWN					
Maximum amps	(A)	311	337	370	400
Start-up amps	(A)	563	588	621	655

(1) At Eurovent conditions: 12/7°C entering/leaving chilled water temperature and 30/35°C entering/leaving condenser temperature  
(2) At 12/7°C entering/leaving chilled water temperature, 45°C condensing temperature and 5K saturated subcooling.  
(3) At Eurovent conditions, with 1pW Reference Sound Power, according to ISO9614





# RTWD RTUD

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



## Customer benefits

- Falling film evaporator: higher performances with lower refrigerant charge
- State-of-the-art control to guarantee superior dependability and low cost of ownership

## 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 60°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

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>



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
Net cooling capacity RTWD	(kW)	236	278	319	366	392	419	455	491	534
Total power input RTWD	(kW)	45	53	62	70	74	79	86	93	101
EER / Eurovent energy class RTWD		5.24/A	5.23/A	5.17/A	5.22/A	5.27/A	5.33/A	5.30/A	5.26/A	5.30/A
ESEER RTWD		6.72	7.00	6.49	6.86	6.90	6.88	6.56	6.59	6.96
Cooling capacity RTUD	(kW)	209	250	284	323	346	372	401	430	474
Total power input RTUD	(kW)	55	66	75	85	91	96	104	110	120
EER RTUD		3.79	3.80	3.77	3.78	3.80	3.86	3.88	3.91	3.94
Refrigerant		R134a								
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
Weights and dimensions RTWD (operating)										
Length	(mm)	3320	3320	3320	3320	3320	3320	3320	3380	3380
Width	(mm)	890	890	890	890	890	890	890	1090	1090
Height	(mm)	1950	1950	1950	1960	1960	1960	1960	1950	1950
Weight	(kg)	2588	2596	2673	3835	2908	2946	3136	3709	3740
Clearance A	(mm)	914								
Clearance B	(mm)	914								
Electrical data										
Maximum amps	(A)	102	124	142	161	176	192	209	227	244
Start-up amps (4)	(A)	152	177	192	206	242	254	291	304	346

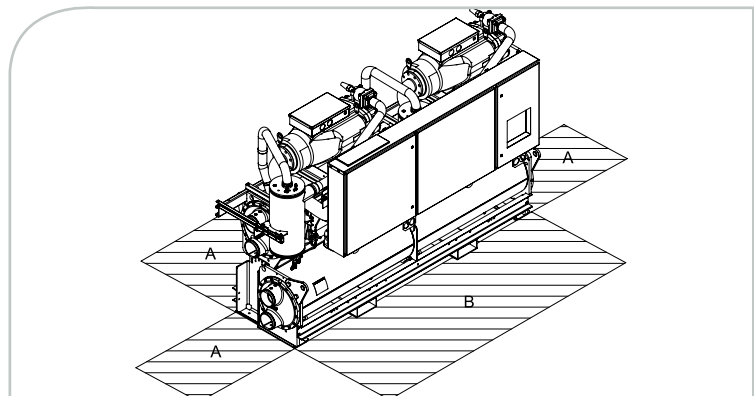
RTWD/RTUD		220HE	250HE	160PE	180PE	200PE	160SE	170SE	190SE	200SE
Net cooling capacity RTWD	(kW)	769	841	601	662	712	566	625	703	773
Total power input RTWD	(kW)	147	159	107	119	130	127	142	153	166
EER / Eurovent energy class RTWD		5.24/A	5.27/A	5.61/A	5.57/A	5.46/A	4.45/C	4.41/C	4.6/C	4.66/C
ESEER RTWD		6.82	6.87	7.24	7.25	7.05	5.39	5.63	5.83	6.06
Cooling capacity RTUD	(kW)	682	748	-	-	-	530	584	637	-
Cooling power input RTUD	(kW)	175	190	-	-	-	142	157	171	-
EER RTUD		3.90	3.94	-	-	-	3.73	3.71	3.72	-
Refrigerant		R134a								
Number of refrigerant circuits		2								
Number of compressors		2								
Sound power level RTWD (3)	(dB(A))	101	101	97	101	101	100	101	101	101
Weights and dimensions RTWD (operating)										
Length	(mm)	3470	3470	3830	3830	3470	3480	3480	3480	3480
Width	(mm)	1130	1130	1120	1120	1130	1120	1120	1120	1120
Height	(mm)	2010	2010	2010	2010	2010	1960	1960	1960	1960
Weight	(kg)	3835	3835	4330	4330	3835	3835	3835	3835	3835
Clearance A	(mm)	914								
Clearance B	(mm)	914								
Electrical data										
Maximum amps	(A)	343	374	261	286	311	286	311	343	374
Start-up amps (4)	(A)	473	497	349	391	410	391	410	473	497

(1) At Eurovent conditions: 12/7°C entering/leaving chilled water temperature and 30/35°C entering/leaving condenser temperature

(2) At 12/7°C entering/leaving chilled water temperature, 45°C condensing temperature and 5K saturated subcooling.

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

(4) Inrush current in star connection





# RTHD

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



### Customer benefits

- Falling film evaporator: higher performances with lower refrigerant charge
- State-of-the-art control to guarantee superior dependability and low cost of ownership
- Trane helical-rotary compressor – designed to perform, built to last: superior reliability and low cost of ownership

### Main features

- Low-speed, direct-drive semi-hermetic helical rotary compressor featuring only 3 moving parts, suction-gas-cooled motor
- Fully modulating load control (25-100%)
- 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

### Tracer™ CH530 Control

Adaptive Control™ microprocessor-based control featuring:

- Easy to use operator interface
- Chilled water pump control
- Alarm indicator programmable relays

Control options:

- Reset of setpoints by analog signal
- Ice making control
- Condenser refrigerant pressure output
- LonTalk®, BACnet®, Modbus® communication interfaces

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>

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

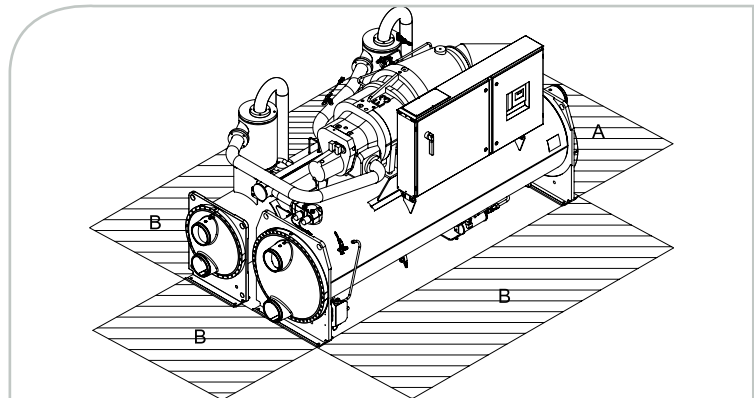
<b>RTHD</b>		<b>B1B1B1</b>	<b>B1C1D1</b>	<b>B2B1B1</b>	<b>B2C1D1</b>	<b>C1D6E5</b>	<b>C1D5E4</b>	<b>C1D3E3</b>	<b>C2D6E5</b>	<b>C2D5E4</b>	<b>C2E1F1</b>	<b>D1D4E4</b>
Net cooling capacity	(kW)	547	564	597	616	773	782	800	892	901	941	1055
Total power input	(kW)	96	95	105	103	142	139	137	166	162	154	196
EER / Eurovent energy class		5.72/A	5.97/A	5.69/A	5.97/A	5.46/A	5.61/A	5.85/A	5.38/A	5.56/A	6.11/A	5.37/A
ESEER		6.6	6.8	6.9	7.1	6.4	6.5	6.8	6.5	6.7	7.2	6.1
Number of refrigerant circuits		1										
Number of compressors		1										
Sound power level (2)	(dB(A))	98	99	98	99	99	99	99	99	99	99	97
<b>Weights and dimensions (operating)</b>												
Length	(mm)	3600	4050	3600	4050	3580	3580	3580	3580	3580	4050	3580
Width	(mm)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Height	(mm)	1850	1850	1850	1850	1940	1940	1940	1940	1940	1940	1940
Weight	(kg)	4190	4560	4190	4560	5650	5790	6100	5650	5790	6550	6080
Clearance A	(mm)	2530	2530	2990	2990	2510	2510	2510	2510	2510	2510	2510
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
<b>Electrical data</b>												
Maximum amps	(A)	233	233	233	233	349	349	349	349	349	349	455
Start-up amps (3)	(A)	412	412	412	412	480	480	480	480	480	480	748

<b>RTHD</b>		<b>D1D3E3</b>	<b>D1G1G1</b>	<b>D2D1E1</b>	<b>D2F1F2</b>	<b>D3D1E1</b>	<b>D2G2G1</b>	<b>D3F1F2</b>	<b>D3G2G2</b>	<b>E3D2E2</b>	<b>E3F2F3</b>	<b>E3G3G3</b>
Cooling capacity	(kW)	1077	1135	1160	1215	1237	1239	1300	1333	1349	1417	1457
Cooling power input	(kW)	191	183	210	202	227	198	217	211	264	253	246
EER / Eurovent energy class		5.65/A	6.22/A	5.53/A	6.02/A	5.46/A	6.25/A	5.99/A	6.31/A	5.11/A	5.61/A	5.93/A
ESEER		6.4	7.0	6.4	6.9	7.1	6.5	6.9	7.2	5.8	6.2	6.6
Number of refrigerant circuits		1										
Number of compressors		1										
Sound power level (2)	(dB(A))	97	97	97	97	97	97	97	97	101	101	101
<b>Weights and dimensions (operating)</b>												
Length	(mm)	3580	4150	3580	4130	3580	4150	4130	4130	3580	4130	4130
Width	(mm)	1600	1800	1600	1600	1600	1800	1600	1800	1600	1600	1800
Height	(mm)	1940	2040	1940	1940	1940	2040	1940	2040	1940	1940	2040
Weight	(kg)	6340	8600	6260	7260	6260	8830	7280	9020	6380	7450	9360
Clearance A	(mm)	2510	2510	2510	2980	2970	2970	3130	3130	3130	3130	3130
Clearance B	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
<b>Electrical data</b>												
Maximum amps	(A)	455	455	455	455	455	455	455	455	488	488	488
Start-up amps (3)	(A)	748	748	748	748	748	748	748	748	748	748	748

(1) At Eurovent conditions: 12/7°C entering/leaving chilled water temperature and 30/35°C entering/leaving condenser temperature

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

(3) Inrush current in star connection





# CVGF

## Water-cooled centrifugal packaged chiller CenTraVac™



### Customer benefits

- 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-staged 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

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

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>

Condenser leaving water temperature (min/max)	(°C)	15/50
Evaporator leaving water temperature range (min/max)	(°C)	-2 / +6
Power supply	(V/Ph/Hz)	400/3/50

<b>CVGF</b>		<b>400</b>	<b>500</b>	<b>650</b>	<b>800</b>	<b>1000</b>
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	6.10	6.21	6.23	6.48
Number of refrigerant circuits		1				
Number of compressors		1				
Sound pressure level at 1 m (2)	(dB(A))	82	82	83	81	81
<b>Dimensions</b>						
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) At 12/7°C entering/leaving chilled water temperature and 30/35°C entering/leaving condenser temperature

(2) With 1pW Reference Sound Power, according to ISO9614

(3) Inrush current in star connection





# CVHE CVHF CVHG CDHG CDHF

Water-cooled centrifugal  
packaged chillers

CenTraVac™



## Customer benefits

- Sustainable, reliable and efficient operation- only one moving part - a single rotating shaft supported by two aircraft-turbine-rated bearings- direct-drive concept minimizes the chance of failure by reducing the number of critical parts; no gear boxes, couplings, extra shafts, or shaft seals
- Economically and environmentally sound- proven track record as literally the world's most efficient, lowest emissions chiller. A portion of the product line is selectable at an unmatched efficiency level of 7.33 kW /kW (or 0.48 kW/Ton), at standard ARI rated conditions - the lowest total refrigerant emissions in the industry

## Range description

CVHE = Three-stage single compressor, 50-60 Hz

CVHF = Two-stage single compressor, 60 Hz

CVHG = Three-stage single compressor, 50 Hz

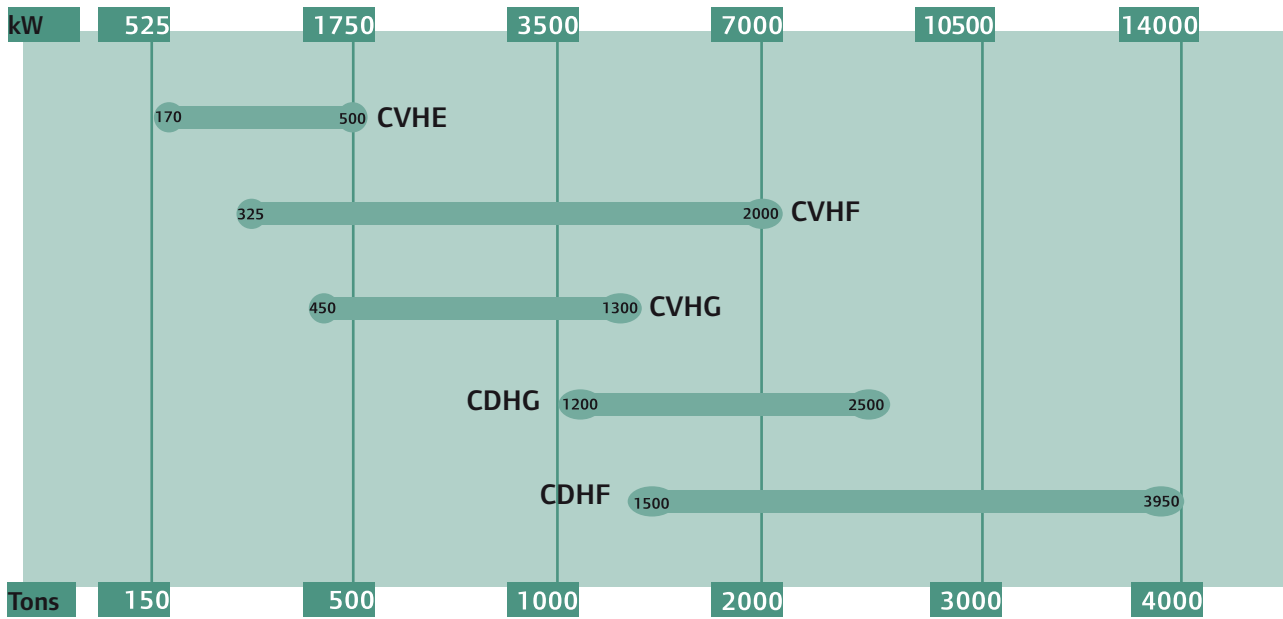
CDHG = Dual compressor, 50 Hz

CDHF = Dual compressor, 60 Hz

## Main features

- Tracer™ AdaptiView control strategies
- Low-pressure operation that minimizes the chance for outward refrigerant leaks
- Hermetically sealed and precision cooled by liquid refrigerant that keeps the motor, drive, and equipment room temperatures controlled, monitored and predictable by design. Protects against motor-destroying elements such as dust, grit, metal shavings, high humidity, high ambient operating temperatures, and process liquids or gases.
- On-line tolerance for quick changes in refrigerant loop conditions, variable pumping strategies, and other atypical operating requirements.
- Two-stage or single stage economizer
- High efficiency purge system with automatic regeneration capability
- Entering condenser water temperature down to 10°C maintaining 0.2 bars differential pressure
- Motor control and compressor protection
- Hot water control and ice-making control
- Not suitable for installation within the European Union

The CenTraVac™ centrifugal chiller product line provides more than 200,000 individual unit selections over a capacity range of 600-9800 kW. Chiller selections and performance data can be obtained through the use of the CenTraVac™ chiller selection program available from your local Trane sales office. This program can provide a list of chiller selections optimized to closely match specific project requirements.



CVHE = Three-stage single compressor, 50/60 Hz  
 CVHF = Two-stage single compressor, 60 Hz  
 CVHG = Three-stage single compressor, 50 Hz  
 CDHG = Dual compressor, 50 Hz  
 CDHF = Dual compressor, 60 Hz

## Options

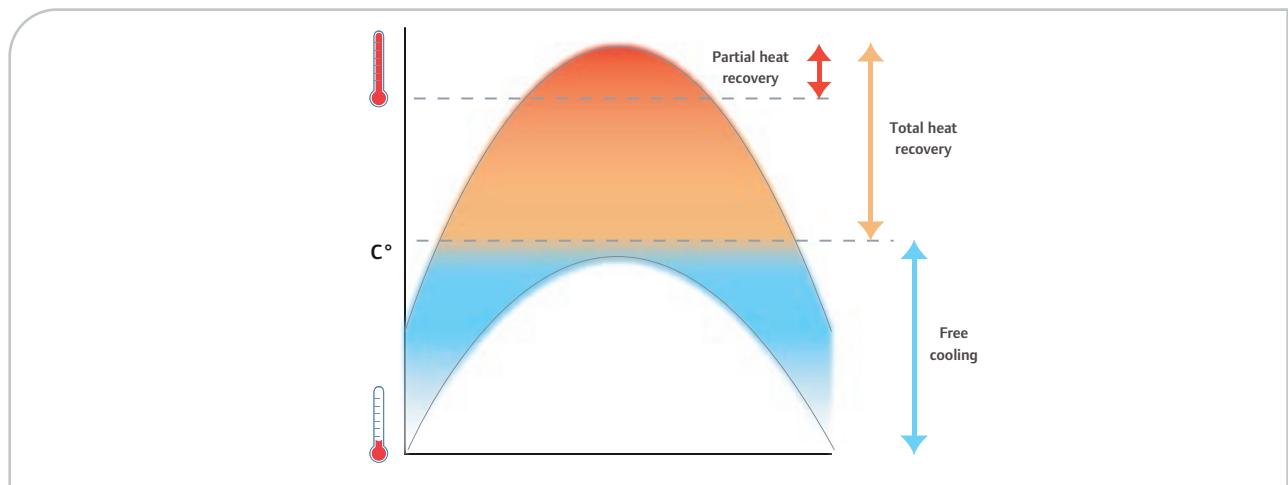
- Medium-voltage (up to 13.8 kV/60Hz or 11 kV/50Hz) compressor motor
- Variable speed drives to increase part load efficiency when condenser water temperature relief is possible
- Complete line of factory-installed compressor motor starters
- Marine water boxes for evaporators and condensers
- High-pressure (21 bars) water side construction
- Energy saving free-cooling, heat-recovery, or auxiliary condenser
- Special tubing: smooth bore; CuNi; various tube wall thickness; and internally enhanced
- Refrigerant monitor
- Leaving water temperature down to to 1.2°C without glycol
- Chiller break apart (disassembly)
- Special paint and controls for outdoor use or corrosive environments
- Industrial paint
- Industrial electrical packaging of controls and electrical wiring

## Tracer™ AdaptiView Control

- Touch screen color display, allowing intuitive navigation through reports and graphs
- Adaptive Control™ logic
- LonTalk®, Modbus®, BACnet communication interfaces available



# Energy Savings



## Reducing CO<sub>2</sub> footprint by taking advantage of unused wasted energy

Using efficient systems is a first step towards environmental protection, but benefitting from using free or wasted energy is a supplementary action to reduce your CO<sub>2</sub> footprint.

Instead of transferring condenser energy to the outside air, while cooling, this energy is transferred somewhere else in the system where it is needed. Heat Recovery, whether you choose Partial or Total Heat Recovery, is a smart way to make use of energy when there are simultaneous needs for cooling and heating to satisfy (i.e. heating sanitary hot water, dehumidifying coil, etc).

On the other hand, there are times of the year when a system can use advantageous outdoor conditions to cool the building or process using the standard cooling components to distribute its cooling effect. This is called free-cooling.

Trane air-cooled chillers models RTAD and CGAM offer this energy saving means as factory-fitted options.

Trane provides assistance in running extensive load simulations which will determine whether you can benefit from the savings generated from the installation of Trane equipment with the heat recovery or free-cooling option.

## Trane heat recovery solutions

### Customer benefits

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

### Availability

- CGAM air-cooled scroll chiller: all efficiencies and acoustical versions
- RTAD air-cooled helical-rotary chiller: all efficiencies and acoustical versions

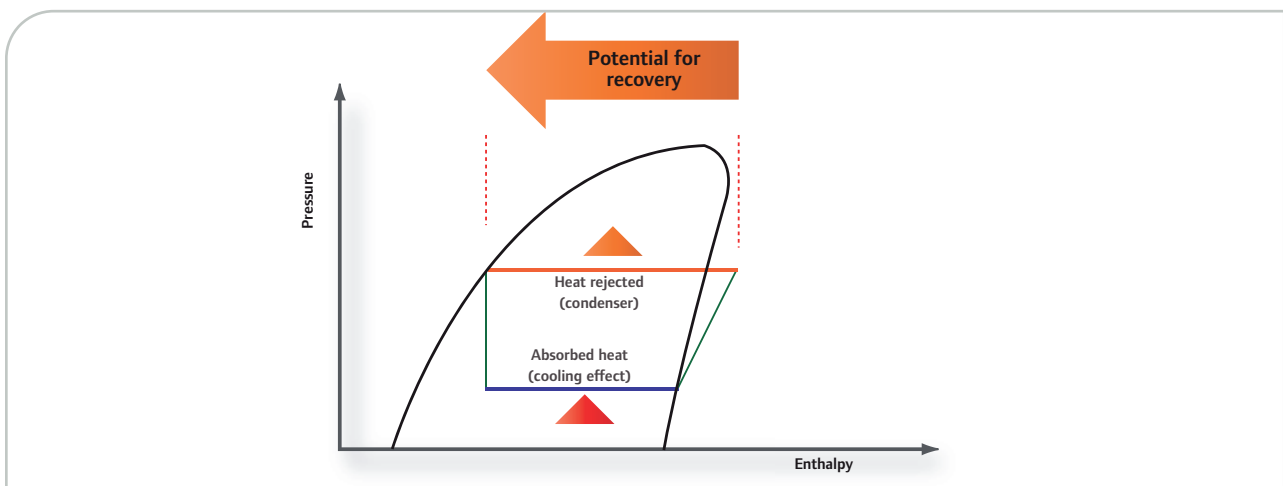
## Trane free-cooling solutions

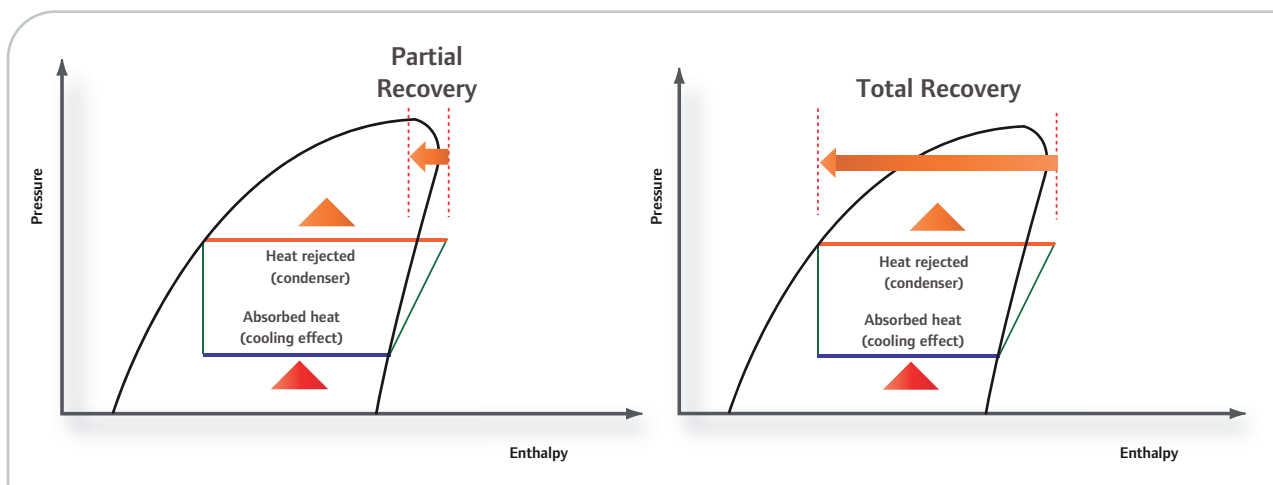
### Customer benefits

- Reduced operating cost
- Reduced carbon footprint
- Sustainability: less compressor work and wear

### Availability

- RTAD air-cooled helical-rotary chiller: all efficiencies and acoustical versions





Total heat recovery - model RTAD

	Unit power input (1)	Cooling capacity in cooling (1)	Heating capacity (2)	Heat recovered (2)	Maximum hot water temperature
Unit size	(kW)	(kW)	(kW)	(%)	(°C)
85	217.6	269.9	217.6	81	60
100	252.1	313.0	252.1	81	60
115	309.1	380.3	309.1	81	60
125	368.1	452.2	368.1	81	60
145	394.8	486.9	394.8	81	60
150	426.9	524.1	426.9	81	60

Total heat recovery - model CGAM HE compact

	Unit power input (1)	Cooling capacity in cooling (1)	Heating capacity (2)	Heat recovered (2)	Maximum hot water temperature
Unit size	(kW)	(kW)	(kW)	(%)	(°C)
40	36.6	113.6	81.5	72	60
46	41.8	129.4	88.8	69	60
52	47.6	144.2	106.8	74	60
60	53.3	164.6	115.7	70	60
70	63.8	194.4	146.1	75	60
80	73.1	225.4	169.6	75	60
90	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 RTAD

	Unit power input (1)	Cooling capacity in cooling (1)	Heating capacity (2)	Heat recovered (2)	Maximum hot water temperature
Unit size	(kW)	(kW)	(kW)	(%)	(°C)
85	95.9	297.45	47.4	16	60
100	122.2	360.39	57.6	16	60
115	144.2	418.05	89.4	21	60
125	176.1	489.78	112.4	23	60
145	182.9	524.59	115.4	22	60
150	201.6	562.91	129.2	23	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



**Partial heat recovery - model CGAM HE compact**

	Unit power input (1)	Cooling capacity in cooling (1)	Heating capacity (2)	Heat recovered (2)	Maximum hot water temperature
Unit size	(kW)	(kW)	(kW)	(%)	(°C)
60	53.5	164.6	48.8	30	60
70	64.0	194.1	59.3	31	60
80	74.3	224.7	60.6	27	60
90	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

**Partial heat recovery - model CXAM HE compact**

	Unit power input (1)	Cooling capacity in cooling (1)	Heating capacity (2)	Heat recovered (2)	Maximum hot water temperature
Unit size	(kW)	(kW)	(kW)	(%)	(°C)
20	18.6	58.0	15.8	27	60
23	21.3	64.3	18.8	29	60
26	24.1	75.6	19.5	26	60
30	27.2	80.9	23.2	29	60
35	32.4	94.6	28.5	30	60
40	36.8	112.9	31.3	28	60
46	42.3	126.2	37.1	29	60
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

**Free-cooling - model RTAD**

				Free-cooling mode		
	Cooling capacity (1)	Compressor mode power input (1)	Efficiency	Cooling capacity (2)	Compressor mode power input (2)	Efficiency
Unit size	(kW)	(kW)		(kW)	(kW)	
RTAD 85	284	101.5	2.80	220	14.6	15.1
RTAD 100	340	123.2	2.76	294	20.5	14.3
RTAD 115	397	156.6	2.54	315	19.3	16.3
RTAD 125	462	192.5	2.40	325	25.2	12.9
RTAD 145	502	197	2.55	399	26.7	14.9
RTAD 150	535	219	2.44	398	30	13.3

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

(2) At 11°C leaving water temperature and 0°C entering condenser air temperature

# 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 CVHF/G 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.





# Heat pumps

*In response to growing initiatives regarding heat pumps, reflecting our recognition of the technology as a key heat provider, through the use of renewable energy sources, and as a low carbon technology, Trane is proud to offer a full range of air-to-water and water-to-water heat pumps.*



# CGAR

## Reversible air-to-water heat pump



### Customer benefits

- Energy savings and environmental protection
- Space saving: particularly slim design. The unit can be installed directly on a balcony, rooftop or ground without the need to have a plant room
- Contemporary appearance: blends in with the surrounding environment
- Quiet operation: low sound fans and components to achieve its low sound level

### Main features

- High efficiency in both heating and cooling mode
- Designed to couple with fan coil units and air handling units for residential or small commercial air conditioning applications
- Hot water leaving temperature up to +50°C
- Scroll compressor(s), plate type evaporator, finned-copper tube and aluminum condenser, axial fan assembly, expansion valve, indoor cold/warm control switch, water flow switch, filter dryer, sight-glass, integral water pump, galvanized sheet metal housing with powder paint, factory mounted controls

### Options

- Pressurized water tank system
- Condenser with blue fins corrosion protection

### Control

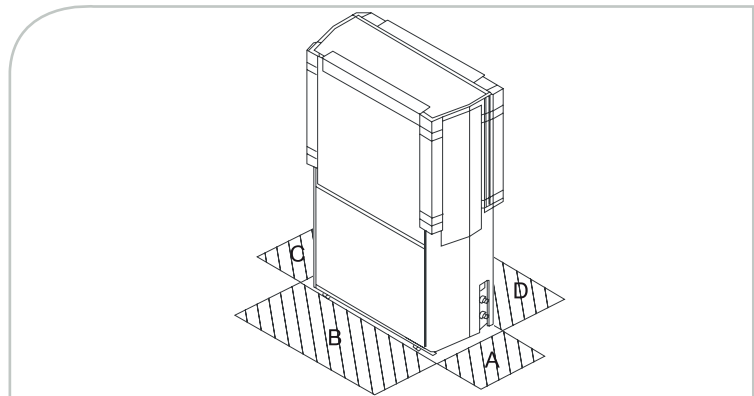
- LCD Microprocessor-based Adjustable Water Temperature Control: Precise temperature control of inlet chilled water, operation modes and system protection are provided by the long-range controller.
- Password can be set and any abnormal condition will be monitored and captured to facilitate quick repair and normal operation.
- Interlocking function of the two-way valve is available.

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>

Heating mode operating outdoor air temperature range (min/max)	(°C)	+5 / +15
Heating mode leaving water temperature range (min/max)	(°C)	+30 / +50
Cooling operating outdoor air temperature range (min/max) (1)	(°C)	+18 / 43
Cooling leaving water temperature range (min/max) (2)	(°C)	-10 / 24
Power supply	(V/Ph/Hz)	400/3/50

CGAR		0505F	0605A	0755D	1005F	1505D	1505F
Net heating capacity (1)	(kW)	14.5	17.7	22.2	30.0	42.4	40.0
Total power input in heating	(kW)	4.7	5.9	7.2	9.0	13.8	14.0
COP		3.09	3.00	3.08	3.33	3.07	2.86
Net cooling capacity (2)	(kW)	13.1	15.6	19.5	26.2	39.0	38.0
Total power input in cooling	(kW)	4.4	5.6	6.8	8.6	13.7	13.4
EER		2.98	2.77	2.87	3.05	2.85	2.8
Number of refrigerant circuits		1	1	1	2	2	1
Number of compressors		1	1	1	2	2	1
Sound power level (3)	(dB(A))	62	61	63	64	66	69.5
Weight and dimensions (operating)							
Length	(mm)	950	950	1290	1290	1990	1290
Width	(mm)	393	393	500	500	500	500
Height	(mm)	1285	1285	1900	1900	1900	1900
Weight	(kg)	170	170	290	404	490	470
Clearance A	(mm)	300					
Clearance B	(mm)	1500					
Clearance C	(mm)	300					
Clearance D	(mm)	500					
Electrical data							
Maximum amps	(A)	13.0	16.7	19.6	25.8	40.8	39.9
Start-up amps	(A)	65.5	101.0	95.0	65.5 x 2	95.0 x 2	198.0

- (1) At 40/45°C entering/leaving water temperature and 7°C/50% RH ambient air temperature  
(2) At 12/7°C entering/leaving water temperature and 35°C ambient air temperature  
(3) With 1pW Reference Sound Power, according to ISO9614







# CXA VXA

## Reversible air-to-water heat pump



### Customer benefits

- Packaged hydraulic module (VXA) for easier and quicker installation
- Low sound version for sensitive environment: a high level of acoustic comfort
- Minimum maintenance requirements save time and money

### Range description

CXA: Without hydraulic module

VXA: With hydraulic module

### Main features

- Scroll compressor(s) featuring sound-proofing, protection of motor winding, crankcase heater, thermo-magnetic circuit breaker
- Hot water leaving temperature up to +50°C
- Axial fan(s) with completely integrated low noise level
- Stainless steel water heat exchangers equipped with heating resistors
- Black epoxy-coated aluminum fins with copper tubes
- Cooling circuit(s) with thermostatic expansion valve(s), liquid line filter drier(s), high and low pressure cut-outs, factory oil and refrigerant charges
- Disconnect switch
- Flow switch

### Options

- Water outlet low temperature in cooling (-5°C to -10°C)

### Accessories

- Remote control module
- High and low pressure gauges

### Control

Microprocessor control module featuring:

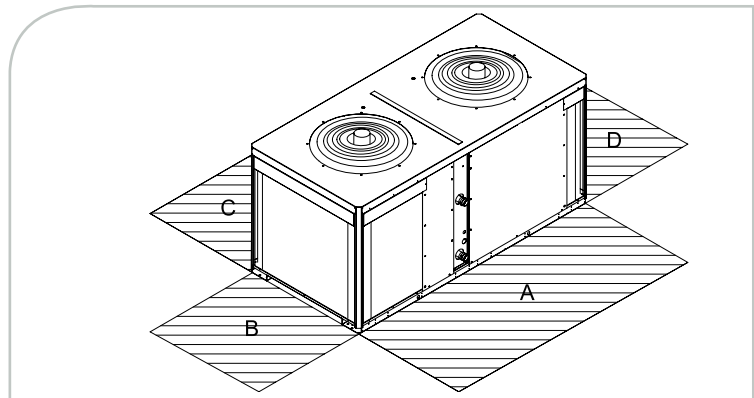
- Control of return water temperature
- Liquid crystal display indicating return water temperature, codes of any faults
- Control of operating parameters
- Possibility of remote fault signaling on 24V indicator light
- Antifreeze protection of evaporators
- 24V dry contacts for remote signaling of on/off and general fault

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>

Heating mode operating outdoor air temperature range (min/max)	(°C)	-15 / +20
Heating mode leaving water temperature range (min/max)	(°C)	+30 / +50
Cooling operating outdoor air temperature range (min/max)	(°C)	+15 / +45
Cooling leaving water temperature range (min/max)	(°C)	-4 / +12 standard. -12 / +12 with low leaving water temperature option
Power supply	(V/Ph/Hz)	400/3/50

CXA/VXA		075	100	120	150	200	240
Net heating capacity (1)	(kW)	19.0	26.0	32.0	39.0	52.0	64.0
Total power input in heating	(kW)	6.67	9.22	13.20	13.40	18.30	25.10
COP/Eurovent energy class		2.85/C	2.82/C	2.42/E	2.92/C	2.85/C	3/B
Net cooling capacity (2)	(kW)	19.4	25.5	31.3	39.1	51.4	64.8
Total power input in cooling	(kW)	7.1	9.6	13.8	13.9	19.7	26.1
EER/Eurovent energy class		2.72/C	2.65/D	2.27/F	2.81/C	2.61/D	2.5/E
ESEER		3.00	3.01	2.50	3.24	3.21	2.9
Number of refrigerant circuits		1	1	1	2	2	2
Number of compressors		1	1	1	2	2	2
Sound power level (3)	(dB(A))	76	78	82	78	80	85
<b>Weight and dimensions (operating)</b>							
Length	(mm)	1060	1060	1260	2200	2200	2200
Width	(mm)	950	950	1050	1050	1050	1050
Height (CXA/VXA)	(mm)	1230/1560	1231/1560	1232/1560	1230/1730	1231/1730	1232/1730
Operating weight (CXA/VXA)	(kg)	215/479	230/494	246/510	429/800	459/825	490/856
Clearance A	(mm)	1000					
Clearance B	(mm)	1000	1000	1000	300	300	300
Clearance C	(mm)	300	300	300	1000	1000	1000
Clearance D	(mm)	1000	1000	1000	300	300	300
<b>Electrical data</b>							
Maximum amps	(A)	16.7	21.2	26.9	32.6	41.6	53.0
Start-up amps	(A)	101	133	142	117	153	167

- (1) At Eurovent conditions: 40/45°C entering/leaving water temperature and 7°C/50% RH ambient air temperature  
(2) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient air temperature  
(3) At Eurovent conditions, with 1pW Reference Sound Power, according to ISO9614





# CXAM

## Reversible air-to-water 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, download documentation at: <http://doc.trane-eur.com>

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 (3)	(kW)	61.9	69.3	78.1	87.6	100.9	112.5	124.5	133.6	125.9	141.3	160.0
Total power input in heating	(kW)	21.1	23.6	26.1	29.4	35.4	39.2	43.5	48.0	42.5	46.5	51.4
COP/Eurovent energy class		2.9/C	2.9/C	3.0/B	3.0/B	2.9/C	2.9/C	2.9/C	2.8/C	3.0/B	3.0/B	3.1/B
Net cooling capacity (4)	(kW)	55.9	61.9	70.0	78.1	95.3	110.4	121.7	131.5	112.9	126.9	144.5
Total power input in cooling	(kW)	19.5	22.2	24.2	28.3	32.9	38.3	44.0	49.9	39.1	44.7	48.9
EER		2.9	2.8	2.9	2.8	2.9	2.9	2.8	2.6	2.9	2.8	3.0
ESEER		3.5	3.6	3.8	3.8	3.8	3.9	3.8	3.7	3.4	3.4	3.8
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 (5)	(dBA)	89	88	88	89	91	91	91	91	92	92	92
Sound pressure level (6)	(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	(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 (3)	(kW)	177.2	203.2	227.5	251.4	271.1	286.9	301.7	360.7	374.8	427.9	442.7
Total power input in heating	(kW)	58.5	70.8	78.9	87.5	95.3	102.6	109.2	136.4	144.5	157.1	164.7
COP/Eurovent energy class		3.0/B	2.9/C	2.9/C	2.9/C	2.9/C	2.8/C	2.8/C	2.7/D	2.6/D	2.7/D	2.7/D
Net cooling capacity (4)	(kW)	162.1	192.3	224.7	248.9	277.4	296.4	318.6	378.7	401.5	434.9	453.2
Total power input in cooling	(kW)	56.9	67.8	76.9	88.2	95.4	104.4	114.8	138.4	150.4	156.1	165.6
EER		2.8	2.8	2.9	2.8	2.9	2.8	2.8	2.7	2.7	2.8	2.7
ESEER		3.9	3.6	3.9	3.9	4.0	4.0	4.2	3.9	3.8	3.8	3.7
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 (5)	(dBA)	92	94	94	94	93	93	94	95	95	96	96
Sound pressure level (6)	(dBA)	60	62	62	62	61	61	61	63	63	63	63

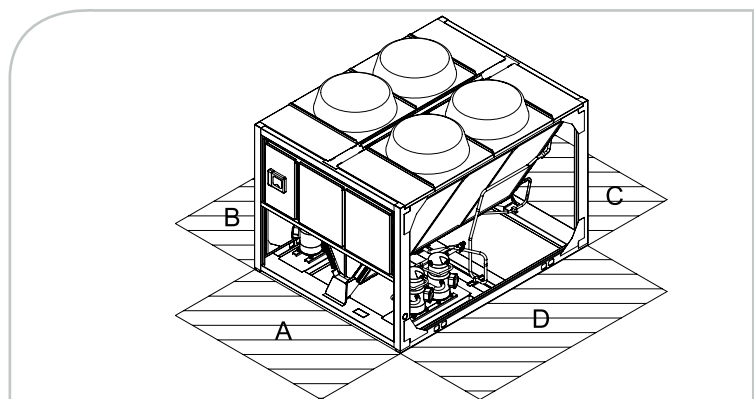
#### Dimensions and weight (operating)

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	(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
Clearance D	(mm)	1000	1000	1000	1000	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: 40/45°C entering/leaving water temperature and 7°C/50% RH ambient air temperature  
(4) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient air temperature  
(5) At Eurovent conditions, with 1pW Reference Sound Power, according to ISO9614  
(6) At 10m 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

<b>CXAM SE Super quiet</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 (3)	(kW)	60.8	67.9	77.0	86.1	99.5	110.8	122.4	131.2	123.4	138.5	157.5
Total power input in heating	(kW)	19.5	22.1	24.8	28.1	33.4	37.2	41.4	46.0	39.4	43.5	48.9
COP/Eurovent energy class		3.1/B	3.1/B	3.1/B	3.1/B	3.0/B	3.0/B	3.0/B	2.9/C	3.1/B	3.2/A	3.2/A
Net cooling capacity (4)	(kW)	54.9	60.5	68.9	76.7	93.9	108.3	119.2	128.0	110.4	124.1	142.4
Total power input in cooling	(kW)	19.0	22.0	24.0	28.2	32.2	38.1	44.2	50.5	38.0	44.1	48.4
EER		2.9	2.8	2.9	2.7	2.9	2.8	2.7	2.6	2.9	2.8	2.9
ESEER		3.8	3.8	4.0	4.0	4.1	4.1	4.1	3.9	3.9	3.8	4.0
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 (5)	(dBA)	85	85	85	85	87	88	88	88	88	88	88
Sound pressure level (6)	(dBA)	53	53	53	53	55	56	56	56	56	56	56

**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	(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)	172.0	188.0	193.0	208.6	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>		<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 (3)	(kW)	174.8	199.0	224.0	246.8	267.9	283.0	300.6	351.3	366.0	415.9	431.1
Total power input in heating	(kW)	56.1	66.3	74.7	83.4	92.1	99.6	108.9	130.3	138.5	149.7	157.3
COP/Eurovent energy class		3.1/B	3.0/B	3.0/B	3.0/B	2.9/C	2.8/C	2.8/C	2.7/D	2.6/D	2.8/C	2.7/D
Net cooling capacity (4)	(kW)	159.3	188.1	220.8	243.3	273.5	290.8	318.2	372.7	393.4	428.3	445.5
Total power input in cooling	(kW)	56.9	67.2	76.7	88.7	95.5	105.5	114.8	139.8	152.8	156.8	167.1
EER		2.8	2.8	2.9	2.8	2.9	2.8	2.8	2.7	2.6	2.7	2.7
ESEER		4.1	3.9	4.2	4.2	4.2	4.2	4.1	4.1	4.0	4.0	4.0
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 (5)	(dBA)	88	90	91	91	89	90	91	91	92	93	93
Sound pressure level (6)	(dBA)	56	58	59	59	57	58	59	59	59	60	60

**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	2925	3500	3618	4005	4005
Clearance A	(mm)	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200	1200
Clearance B	(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
Clearance D	(mm)	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

**Electrical data**

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: 40/45°C entering/leaving water temperature and 7°C/50% RH ambient air temperature

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

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

(6) At 10m 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 (3)	(kW)	60.1	67.9	75.2	85.1	97.4	107.9	121.7	136.4	153.3	171.6
Total power input in heating	(kW)	17.9	20.4	22.4	26.9	30.8	34.6	36.3	40.3	45.3	54.0
COP/Eurovent energy class		3.4/A	3.3/A	3.4/A	3.2/A	3.2/A	3.1/B	3.4/A	3.4/A	3.4/A	3.2/A
Net cooling capacity (4)	(kW)	53.4	59.8	68.9	76.7	90.4	103.0	107.2	119.5	135.0	155.4
Total power input in cooling	(kW)	18.6	21.1	25.1	28.2	32.6	39.6	37.1	44.1	49.9	56.4
EER		2.9	2.8	2.8	2.7	2.8	2.6	2.9	2.7	2.7	2.8
ESEER		4.4	4.5	4.5	4.4	4.5	4.5	4.4	4.3	4.4	4.4
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	(dBA)	78	78	78	80	82	83	81	81	81	83
Sound pressure level (6)	(dBA)	46	46	46	48	49	51	49	49	49	51

#### Dimensions and weight (operating)

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	(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

#### Electrical data

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 (3)	(kW)	195.8	218.3	244.0	262.7	278.8	296.4	352.3	387.8	402.2
Total power input in heating	(kW)	61.6	69.6	79.6	87.7	94.9	103.7	122.7	131.4	139.1
COP/Eurovent energy class		3.2/A	3.1/B	3.1/B	3.0/B	2.9/C	2.9/C	2.9/C	3.0/B	2.9/C
Net cooling capacity (4)	(kW)	181.1	208.9	240.5	264.8	285.2	310.1	365.0	394.1	408.9
Total power input in cooling	(kW)	67.3	79.5	83.5	96.7	105.7	112.3	137.1	151.3	163.3
EER		2.7	2.6	2.9	2.7	2.7	2.8	2.7	2.6	2.5
ESEER		4.5	4.5	4.8	4.5	4.5	4.6	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	(dBA)	84	86	83	84	85	86	85	85	86
Sound pressure level (6)	(dBA)	52	53	51	51	52	54	53	53	54

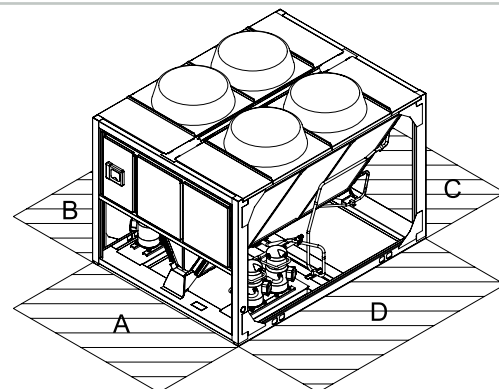
#### Dimensions and weight (operating)

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	(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)	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: 40/45°C entering/leaving water temperature and 7°C/50% RH ambient air temperature  
(4) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient air temperature  
(5) At Eurovent conditions, with 1pW Reference Sound Power, according to ISO9614  
(6) At 10m 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

<b>CXAM HE Compact</b>		<b>020</b>	<b>023</b>	<b>026</b>	<b>030</b>	<b>035</b>	<b>040</b>	<b>046</b>	<b>052</b>
Net Heating Capacity (3)	(kW)	62.6	69.6	77.7	87.9	99.5	126.9	141.7	157.5
Total Power Input in Heating	(kW)	18.5	21.0	24.5	28.2	32.0	37.4	42.3	49.8
COP/Eurovent Energy Class		3.4/A	3.3/A	3.2/A	3.1/B	3.1/A	3.4/A	3.4/A	3.2/A
Net Cooling Capacity (4)	(kW)	58.4	64.7	75.6	81.2	94.6	112.9	126.6	150.1
Total Power Input in Cooling	(kW)	18.2	20.9	23.7	26.7	31.8	36.2	41.5	47.4
EER		3.2	3.1	3.2	3.1	3.0	3.1	3.1	3.2
ESEER		4.3	4.3	4.3	4.2	4.3	4.2	4.3	4.2
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 (5)	(dBA)	86	86	87	87	88	89	89	90
Sound Pressure level (6)	(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	(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

<b>CXAM HE 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>
Net Heating Capacity (3)	(kW)	177.6	192.7	229.6	250.3	283.7	300.6	316.8	362.2	399.1
Total Power Input in Heating	(kW)	56.7	61.3	73.3	81.8	92.7	100.5	107.7	127.7	138.0
COP/Eurovent Energy Class		3.1/B	3.1/B	3.1/B	3.1/B	3.1/B	3.0/B	2.9/C	2.8/C	2.9/C
Net Cooling Capacity (4)	(kW)	164.6	194.1	231.7	257.7	294.6	312.6	334.0	380.8	404.3
Total Power Input in Cooling	(kW)	53.5	63.9	70.8	82.2	93.8	103.2	113.5	133.0	144.8
EER		3.1/B	3.1/B	3.3/B	3.1/B	3.1/B	3.0/B	2.9/C	2.9/C	2.8/C
ESEER		4.3	4.3	4.5	4.5	4.3	4.2	4.3	4.3	4.3
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 (5)	(dBA)	91	91	92	92	92	93	93	94	94
Sound Pressure level (6)	(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	(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
<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: 40/45°C entering/leaving water temperature and 7°C/50% RH ambient air temperature

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

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

(6) At 10m 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

<b>CXAM HE Super Quiet</b>		<b>020</b>	<b>023</b>	<b>026</b>	<b>030</b>	<b>035</b>	<b>040</b>	<b>046</b>	<b>052</b>
Net Heating Capacity (3)	(kW)	62.2	69.3	77.4	87.6	99.2	126.6	141.3	156.1
Total Power Input in Heating	(kW)	18.5	20.9	24.2	28.2	31.8	37.2	42.2	49.3
COP/Eurovent Energy Class		3.4/A	3.3/A	3.2/A	3.1/B	3.1/B	3.4/A	3.4/A	3.2/A
Net Cooling Capacity (4)	(kW)	58.0	64.3	75.2	80.9	94.2	112.9	126.2	149.1
Total Power Input in Cooling	(kW)	18.3	21.0	23.9	26.8	32.0	36.3	41.7	47.7
EER		3.2	3.1	3.2	3.0	3.0	3.1	3.0	3.1
ESEER		4.3	4.3	4.3	4.3	4.4	4.2	4.2	4.2
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 (5)	(dBA)	81	81	82	82	84	84	84	85
Sound Pressure level (6)	(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	(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

<b>CXAM HE Super Quiet</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>
Net Heating Capacity (3)	(kW)	176.9	200.4	229.6	250.3	282.7	300.3	317.1	362.2	397.3
Total Power Input in Heating	(kW)	56.4	63.5	73.0	81.4	92.2	100.1	107.2	127.5	137.0
COP/Eurovent Energy Class		3.1/B	3.2/A	3.2/A	3.1/B	3.1/B	3.0/B	3.0/B	2.8/C	2.9/C
Net Cooling Capacity (4)	(kW)	163.9	193.0	232.1	258.1	295.0	312.6	334.4	381.1	405.0
Total Power Input in Cooling	(kW)	53.7	64.3	70.4	81.8	93.3	102.8	113.0	132.4	144.2
EER		3.1	3.0	3.3	3.2	3.2	3.1	3.0	2.9	2.8
ESEER		4.3	4.4	4.6	4.5	4.4	4.3	4.4	4.4	4.3
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 (5)	(dBA)	85	88	89	88	88	89	90	90	89
Sound Pressure level (6)	(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	(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)	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: 40/45°C entering/leaving water temperature and 7°C/50% RH ambient air temperature

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

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

(6) At 10m 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 Comprehensive Acoustic Package		020	023	026	030	040	046	052
Net Heating Capacity (3)	(kW)	61.2	68.9	76.7	86.5	124.5	139.6	155.4
Total Power Input in Heating	(kW)	17.5	20.6	23.0	26.4	35.3	41.4	46.4
COP/Eurovent Energy Class		3.5/A	3.3/A	3.3/A	3.3/A	3.5/A	3.4/A	3.4/A
Net Cooling Capacity (4)	(kW)	56.6	65.1	73.1	80.9	110.4	130.4	148.0
Total Power Input in Cooling	(kW)	18.2	20.4	23.0	26.8	36.1	40.8	46.2
EER		3.1	3.2	3.2	3.0	3.1	3.2	3.2
ESEER		4.6	4.6	4.7	4.6	4.5	4.5	4.7
Number of refrigerant circuits		1	1	1	1	2	2	2
Number of compressors		2	2	2	2	4	4	4
Sound Power Level (5)	(dBA)	78	79	79	80	81	82	82
Sound Pressure level (6)	(dBA)	46	47	47	48	49	50	50

#### Dimensions and weight (operating)

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	(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

#### Electrical data

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

(1) With low ambient option

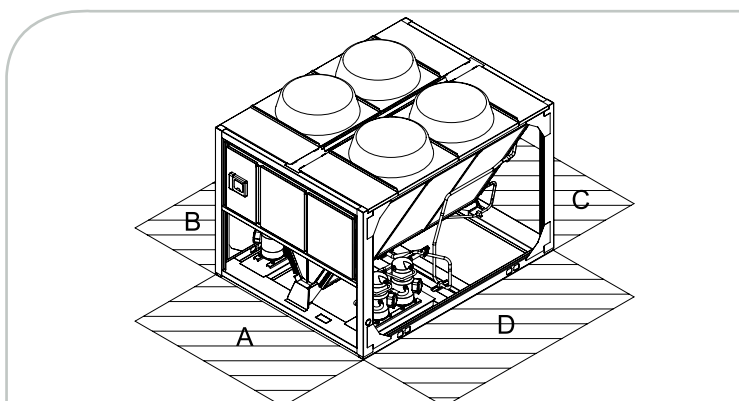
(2) With process cooling options

(3) At Eurovent conditions: 40/45°C entering/leaving water temperature and 7°C/50% RH ambient air temperature

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

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

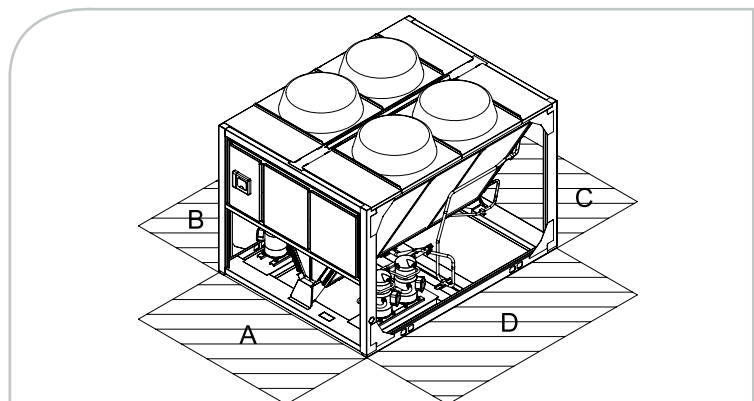
(6) At 10m in free field, calculated from the above sound power level according to the formula  $L_p = L_w - 10 \log 5$



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

<b>CXAM HE Comprehensive Acoustic Package</b>		<b>060</b>	<b>070</b>	<b>080</b>	<b>090</b>	<b>100</b>	<b>110</b>	<b>120</b>
Net Heating Capacity (3)	(kW)	174.4	196.9	224.3	245.8	276.4	301.3	320.0
Total Power Input in Heating	(kW)	53.7	60.6	68.8	77.7	87.7	96.4	103.6
COP/Eurovent Energy Class		3.3/A	3.3/A	3.3/A	3.2/A	3.2/B	3.1/B	3.1/B
Net Cooling Capacity (4)	(kW)	160.7	186.7	227.5	251.8	287.6	312.2	334.0
Total Power Input in Cooling	(kW)	53.4	65.9	72.0	82.7	95.5	100.9	111.5
EER		3.0	2.8	3.2	3.1	3.0	3.1	3.0
ESEER		4.6	4.6	4.9	5.0	4.7	4.6	4.6
Number of refrigerant circuits		2	2	2	2	2	2	2
Number of compressors		4	4	4	4	4	4	4
Sound Power Level (5)	(dBA)	83	85	83	83	84	85	86
Sound Pressure level (6)	(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	(mm)	1000	1000	1000	1000	1000	1000	1000
Clearance C	(mm)	800	800	1000	1000	1000	1000	1000
Clearance D	(mm)	1000	1000	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: 40/45°C entering/leaving water temperature and 7°C/50% RH ambient air temperature  
(4) At Eurovent conditions: 12/7°C entering/leaving water temperature and 35°C ambient air temperature  
(5) At Eurovent conditions, with 1pW Reference Sound Power, according to ISO9614  
(6) At 10m in free field, calculated from the above sound power level according to the formula  $L_p = L_w - 10 \log S$





# CGWH

## Water-to-water heat pump



### Customer benefits

- Very low sound level installation: superior acoustic comfort
- 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

### Options

- 380, 400 and 415V power voltage
- Phase and unbalance detection
- 400 / 220V transformer for the control
- 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:

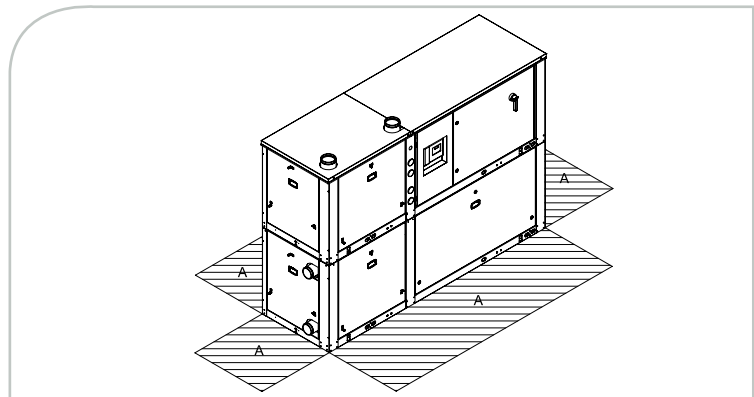
- Easy to use operator interface
- Leaving hot water temperature control
- External linear reset, auxiliary and external water setpoint
- Compressor kW limiting (optional)
- Alarm indicator programmable relays (options)
- LonTalk® or Modbus® communication interface (optional)

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>

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

CGWH		115	120	125	225	230	235	240	250
Net heating capacity (1)	(kW)	63	79.2	95.4	111.6	127	142.7	158.1	190.7
Total heating power input (1)	(kW)	17.5	22.1	26.7	30.6	35	39.2	44	52.3
COP		3.60	3.58	3.57	3.65	3.63	3.64	3.59	3.65
Refrigerant		R407C							
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
Weight and dimensions (operating)									
Length	(mm)	1001	1001	1001	2002	2002	2002	2002	2002
Width	(mm)	800	800	800	800	800	800	800	800
Height	(mm)	1545	1545	1545	1545	1545	1545	1545	1545
Weight	(kg)	412	444	476	668	702	739	803	873
Clearance A	(mm)	800							
Electrical data									
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







# CGWN

## Water-to-water heat pump



### Customer benefits

- Compact design and packaged hydraulic module (available as an option) for easier installation: saving of time
- Wide application flexibility for comfort and process applications: fits your exact requirements
- State of the art control to guarantee superior dependability: low cost for owners

### 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 415V power voltage
- 400 / 110V transformer for the control

### Options

- High Efficiency version
- Soft Starter
- Phase & unbalanced detection
- 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, download documentation at: <http://doc.trane-eur.com>

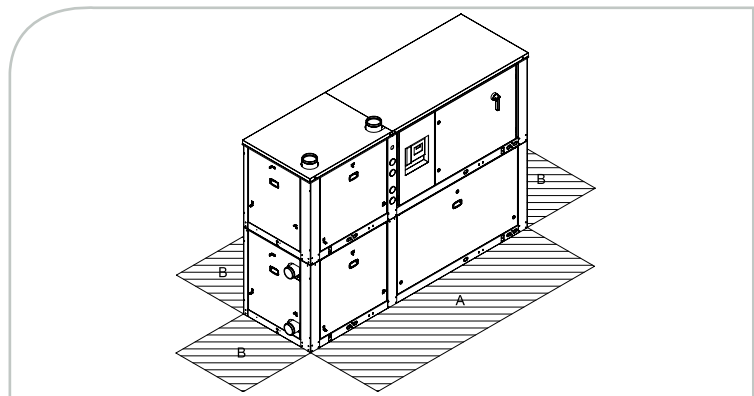
Hot water water temperature (min/max)	(°C)	25/60
Evaporator water temperature range (min/max)	(°C)	-12/15
Power supply	(V/Ph/Hz)	400/3/50

CGWN		205	205HE	206	206HE	207	207HE	208	209	210	211
Net heating capacity (1)	(kW)	210.7	217.9	251.0	258.1	292.0	298.9	324.2	356.7	395.0	434.9
Total heating power input (1)	(kW)	51.1	49	60.9	59.1	71.4	68.9	75.2	85.4	95.4	103.4
COP		4.12	4.45	4.12	4.37	4.09	4.34	4.31	4.18	4.14	4.21
Refrigerant		R410A									
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)</b>											
Length	(mm)	2520	2520	2520	2520	2520	2520	2520	2520	2520	2520
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	1360	1300	1300	1420	1420	1500	1650	1710	1790
Clearance A	(mm)	1000									
Clearance B	(mm)	800									
<b>Electrical data</b>	(V/Ph/Hz)	400/3/50									
Maximum amps	(A)	144	144	163	163	187	187	210	233	250	263
Start-up amps	(A)	274	274	338	338	395	395	418	441	512	525

Hot water leaving water temperature (min/max)	(°C)	25/55
Evaporator Leaving water temperature range (min/max)	(°C)	-12/15
Power supply	(V/Ph/Hz)	400/3/50

CGWN		212	213	214	215
Net heating capacity (1)	(kW)	472.3	516.0	557.0	598.6
Total heating power input (1)	(kW)	123.5	135.9	147.8	155.4
COP		3.82	3.80	3.77	3.85
Refrigerant		R407C			
Number of refrigerant circuits		2			
Number of compressors		5	6	6	6
Sound power level (2)	(dB(A))	87	88	88	90
Weight and dimensions (operating)					
Length	(mm)	2808	2808	2808	2808
Width	(mm)	878	878	878	878
Height	(mm)	1950	1950	1950	1950
Weight	(kg)	2128	2337	2420	2500
Clearance A	(mm)	1000			
Clearance B	(mm)	800			
Electrical data					
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





# RTWD

## Water-to-water heat pump



### Customer benefits

- Falling film evaporator: higher performances with lower refrigerant charge
- State-of-the-art control to guarantee superior dependability and low cost of ownership

### 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 60°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

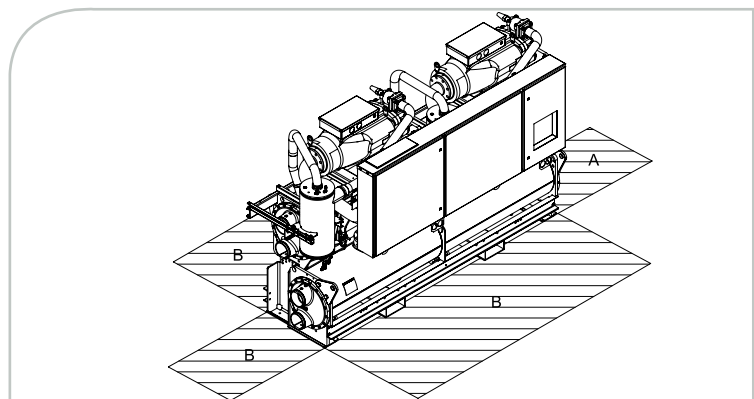
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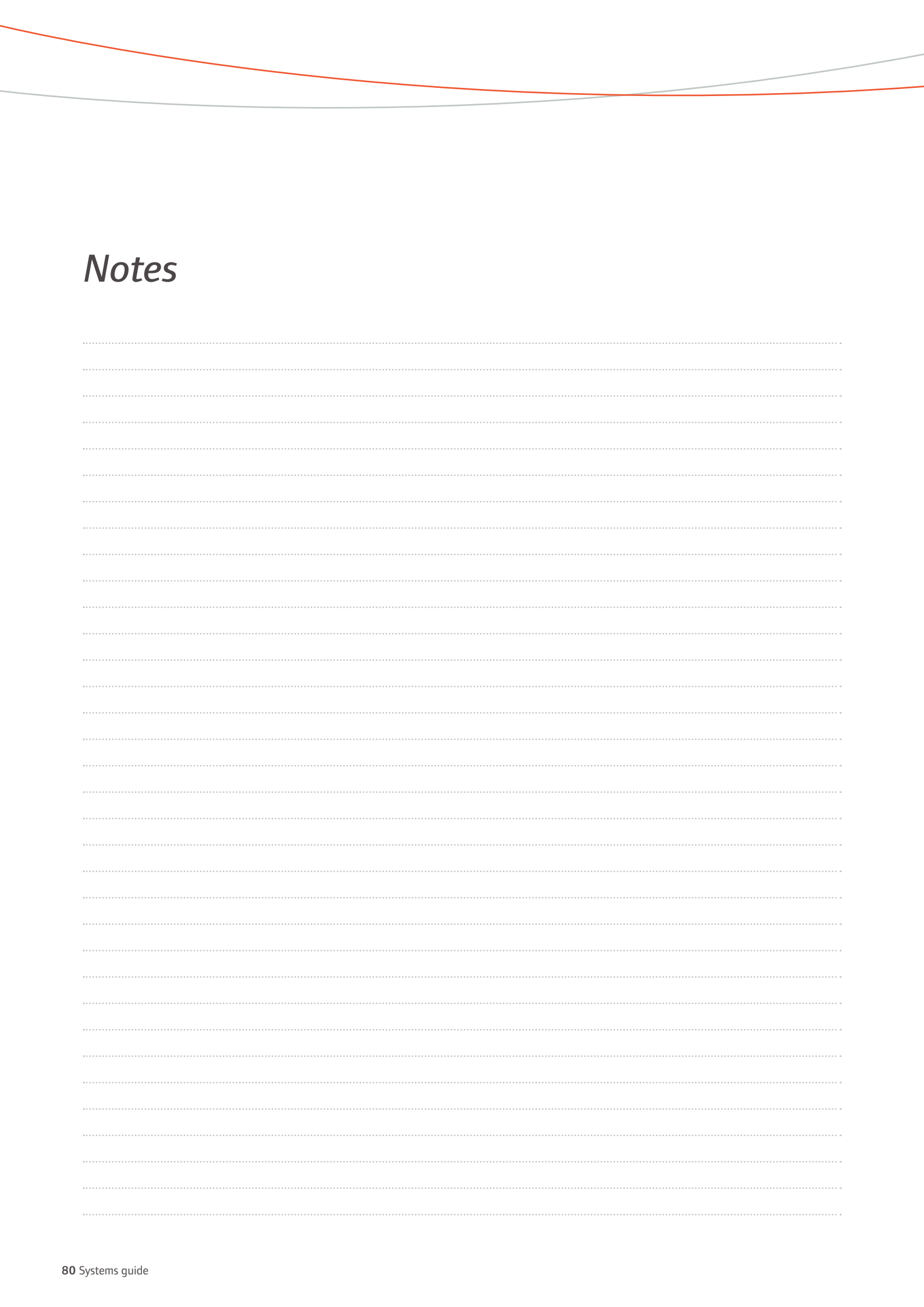
Hot water leaving water temperature (min/max)	(°C)	20/60
Evaporator leaving water temperature range (min/max)	(°C)	-8/18
Power supply	(V/Ph/Hz)	400/3/50

RTWD		60HE	70HE	80HE	90HE	100HE	110HE	120HE	130HE	140HE
Net heating capacity (1)	(kW)	260	311	354	402	431	462	497	533	585
Total heating power input	(kw)	57	68	78	89	94	100	107	114	125
COP		4.59	4.55	4.52	4.53	4.57	4.62	4.65	4.68	4.68
Refrigerant		R134a								
Number of refrigerant circuits		2								
Number of compressors		2								
Sound power level (2)	(dB(A))	90	90	97	99	99	99	98	96	96
Weight and dimensions (operating)										
Length	(mm)	3320	3320	3320	3320	3320	3320	3320	3380	3380
Width	(mm)	890	890	890	890	890	890	890	1090	1090
Height	(mm)	1950	1950	1950	1960	1960	1960	1960	1950	1950
Operating weight	(kg)	2588	2596	2673	2866	2908	2946	3136	3709	3740
Clearance A	(mm)	914								
Clearance B	(mm)	1067								
Electrical data										
Maximum amps - cooling	(A)	102	124	142	161	176	192	209	227	244
Start-up amps (3)	(A)	152	177	192	206	242	254	291	304	346
Power supply	(V/Ph/Hz)	400/3/50								

Unit size		220HE	250HE	160PE	180PE	200PE	160SE	170SE	190SE	200SE
Net heating capacity (1)	(kW)	846	925	655	719	775	644	709	794	871
Heating power input	(kw)	182	197	135	150	164	154	170	184	199
COP		4.66	4.71	4.85	4.79	4.73	4.18	4.17	4.32	4.38
Refrigerant		R134a								
Number of refrigerant circuits		2								
Number of compressors		2								
Sound Power level (2)		101	101	97	101	101	100	101	101	101
Weight and dimensions (operating)										
Length	(mm)	3470	3470	3830	3830	3470	3480	3480	3480	3480
Width	(mm)	1130	1130	1120	1120	1130	1120	1120	1120	1120
Height	(mm)	2010	2010	2010	2010	2010	1960	1960	1960	1960
Weight	(kg)	4442	4517	4110	4346	4563	3812	3987	4024	4063
Clearance A	(mm)	914								
Clearance B	(mm)	1067								
Electrical data										
Maximum amps - cooling	(A)	343	374	261	286	311	286	311	343	374
Start-up amps (3)	(A)	473	497	349	391	410	391	410	473	497

- (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) Inrush current in star connection





# Notes

A series of horizontal dotted lines spanning the width of the page, intended for taking notes.



# *Air side 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.*





# CLCE

## Air handling unit



### Customer benefits

- Designed to meet quality and flexibility needs for commercial and hospital applications
- Unit construction available with Air Leakage Class A or B (as per DW 144) to meet your Indoor Air Quality requirements
- Easy on-site installation and assembly of the units via semi-modular construction
- Easily removable components for simplified maintenance

### Main features

- Units manufactured from totally enclosed extruded aluminium profile with reinforced nylon corner pieces
- 25 mm or 50 mm thick CFC-free foam injected double skin panels
- Galvanized steel coated with ivory coloured paint
- 160 mm high unit base frame
- Inclined drain trays on all cooling coil and humidifier sections
- Access doors fitted with 3-way adjustable hinges
- Available sections: mixing box, panel filters, bag filters, carbon filters, absolute filters (HEPA), cooling and heating coils, electric heaters, silencers, forward and backward curved fans, plug fans, run around coils, plate heat exchangers, rotary heat wheels, indirect gas fired heat modules, steam humidifiers

### Options

- CO4/HTM 03-01 compliant construction including motor out of air stream, washed-down section with either dagger plates or isolating dampers, low leak dampers, Melinex lined silencers, removable stainless steel drain pans
- Factory witness tests
- Outdoor units complete with either flat or inclined weatherproof roof, louver or hood

### Accessories

- Manometers, differential pressure switches, differential pressure dial
- Double glazed inspection windows
- Fully wired bulkhead light and switch, motors isolators
- Flange or flexible connections

### Controls (available in certain countries only)

- Factory-engineered controls featuring designing, selecting, mounting, wiring and testing of all control devices such as damper actuators, control valves, pressure sensors, temperature sensors, relays and controllers
- Power wiring to all devices such as fan motors, frequency inverters, electric heaters and humidifiers
- Factory pre-commissioning

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>

### Energy saving options

- High efficiency heat recovery devices
- Variable speed thermal wheel, sensible or hygroscopic
- Plate heat exchanger with fresh air bypass damper
- Run around coils
- High efficiency direct driven plug fans
- Eff1 AC motors
- Advanced controls strategies
- Variable frequency drives

CLCE	Airflow (m³/s) at coil face velocity (m/s)			Airflow (m³/h) at coil face velocity (m/s)			Dimensions (mm) (3)	
	2.5	3.0	3.5	2.5	3.0	3.5	Width	Height
03 02 (2)	0.20	0.24	0.29	720	864	1044	603	588 (1)
03 03	0.35	0.42	0.49	1260	1512	1764	603	763 (1)
04 02 (2)	0.31	0.37	0.43	1116	1332	1548	778	588 (1)
04 03	0.53	0.64	0.74	1908	2304	2664	778	763 (1)
04 04	0.80	0.95	1.11	2880	3420	3996	778	938 (1)
05 02 (2)	0.41	0.49	0.57	1476	1764	2052	953	588 (1)
05 03	0.70	0.84	0.98	2520	3024	3528	953	763 (1)
05 04	1.05	1.26	1.47	3780	4536	5292	953	938 (1)
05 05	1.34	1.61	1.88	4824	5796	6768	953	1113 (1)
06 03	0.88	1.06	1.23	3168	3816	4428	1128	763 (1)
06 04	1.32	1.58	1.85	4752	5688	6660	1128	938 (1)
06 05	1.69	2.02	2.36	6084	7272	8496	1128	1113 (1)
06 06	2.05	2.46	2.87	7380	8856	10332	1128	1288 (1)
07 05	2.01	2.42	2.82	7236	8712	10152	1303	1113
07 06	2.45	2.94	3.43	8820	10584	12348	1303	1288
07 07	2.89	3.47	4.04	10404	12492	14544	1303	1463
08 04	1.80	2.16	2.52	6480	7776	9072	1478	938
08 05	2.30	2.76	3.22	8280	9936	11592	1478	1113
08 06	2.80	3.36	3.92	10080	12096	14112	1478	1288
08 07	3.30	3.96	4.62	11880	14256	16632	1478	1463
08 08	3.90	4.68	5.46	14040	16848	19656	1478	1638
09 04	2.06	2.47	2.88	7416	8892	10368	1653	938
09 05	2.63	3.15	3.68	9468	11340	13248	1653	1113
09 06	3.20	3.83	4.47	11520	13788	16092	1653	1288
09 07	3.77	4.52	5.27	13572	16272	18972	1653	1463
09 08	4.45	5.34	6.23	16020	19224	22428	1653	1638
09 09	5.02	6.03	7.03	18072	21708	25308	1653	1813
10 05	2.97	3.57	4.16	10692	12852	14976	1828	1113
10 06	3.62	4.34	5.06	13032	15624	18216	1828	1288
10 07	4.26	5.12	5.97	15336	18432	21492	1828	1463
10 08	5.04	6.05	7.05	18144	21780	25380	1828	1638
10 09	5.68	6.82	7.96	20448	24552	28656	1828	1813
10 10	6.33	7.59	8.86	22788	27324	31896	1828	1988
11 05	3.30	3.96	4.62	11880	14256	16632	2003	1113
11 06	4.01	4.81	5.62	14436	17316	20232	2003	1288
11 07	4.73	5.68	6.62	17028	20448	23832	2003	1463
11 08	5.59	6.71	7.83	20124	24156	28188	2003	1638
11 09	6.31	7.57	8.83	22716	27252	31788	2003	1813
11 10	7.02	8.43	9.83	25272	30348	35388	2003	1988
11 11	7.74	9.29	10.84	27864	33444	39024	2003	2163
12 06	4.43	5.32	6.20	15948	19152	22320	2178	1288
12 07	5.23	6.27	7.32	18828	22572	26352	2178	1463
12 08	6.18	7.41	8.65	22248	26676	31140	2178	1638
12 09	6.97	8.36	9.76	25092	30096	35136	2178	1813
12 10	7.76	9.31	10.86	27936	33516	39096	2178	1988
12 11	8.55	10.26	11.97	30780	36936	43092	2178	2163
12 12	9.50	11.40	13.30	34200	41040	47880	2178	2338
14 07	6.11	7.33	8.55	21996	26388	30780	2528	1463
14 08	7.22	8.66	10.10	25992	31176	36360	2528	1638
14 09	8.14	9.77	11.40	29304	35172	41040	2528	1813
14 10	9.06	10.88	12.69	32616	39168	45684	2528	1988
14 11	9.99	11.99	13.99	35964	43164	50364	2528	2163
14 12	11.10	13.32	15.54	39960	47952	55944	2528	2338
14 14	12.95	15.54	18.13	46620	55944	65268	2528	2688
16 08	8.35	10.02	11.69	30060	36072	42084	2878	1638
16 09	9.43	11.31	13.20	33948	40716	47520	2878	1813
16 10	10.49	12.59	14.69	37764	45324	52884	2878	1988
16 11	11.57	13.88	16.19	41652	49968	58284	2878	2163
16 12	12.85	15.42	17.99	46260	55512	64764	2878	2338
16 14	14.99	17.99	20.99	53964	64764	75564	2878	2688
18 10	11.92	14.31	16.69	42912	51516	60084	3228	1988
18 11	13.28	15.93	18.59	47808	57348	66924	3228	2163
18 12	14.60	17.52	20.44	52560	63072	73584	3228	2338
18 14	17.21	20.65	24.09	61956	74340	86724	3228	2688
20 14	19.25	23.10	26.95	69300	83160	97020	3578	2688
22 14	21.29	25.55	29.80	76644	91980	107280	3928	2688

(1) Assumes drain pans, if no drain pans are present then base can be removed and overall height reduced.

(2) Unit sizes only available as selections from the factory.

(3) With 25 mm panels - to obtain dimensions with 50 mm panels, add 50 mm.



## HRCU

## Air handling unit

## Heat recovery compact units



## Customer benefits

- Environmentally friendly, adapted for green buildings with low energy consumptions (Very low Specific Fan Power)
- Compliant to the latest energy regulations
- Compact design and optimized footprint
- Optional high efficiency integrated DX cooler
- Quick and easy installation and commissioning
- Plug and play with advanced controls strategies
- Available with Eurovent Class A energy class

## Main features

- Indoor and outdoor versions, vertically stacked units
- 8 unit sizes. Airflow from 1800 to 34200 m<sup>3</sup>/h (0.5 to 9.5 m<sup>3</sup>/s)
- 50 mm double skin panels with mineral wool insulation
- Mechanical classes (EN1886): D1/L1/F9/T3/TB3, Eurovent certified
- Exhaust and fresh air dampers
- High efficiency heat recovery device :
  - Variable speed thermal wheel, sensible or hygroscopic (HRCU TW)
  - Plate heat exchanger with bypass damper (HRCU PHE)
- High efficiency return and supply plug fans
- Eff1 AC motor, driven with variable frequency drives
- Panel filter G4 and/or bag filters F5 or F7
- Factory-mounted controls as standard

## Options

- Enhanced casing thermal performances: T2/TB2 Eurovent certified (HRCU-T2)
- EC motor
- Recirculation/mixing damper
- Frost hot water coil, re-heat hot water coil with 3-way valve and frost stat
- Electric heater
- Chilled water coil with 3-way valve or DX coil

- Sound attenuators
- DX cooler module R407C, 3 capacity stages, from 17 to 195 kW
- Airflow meter and digital airflow display
- Smoke detector

## Accessories

- LCD controller display
- CO<sub>2</sub> sensor, dew point sensor
- Spare filters
- Supply air damper
- Square to circular duct adaptor and flexible connection

### Controls (standard feature)

- Factory-mounted controls including complete control panel
- Functionally tested prior to shipment
- MP581 programmable air handling unit controller
- Starters, variable frequency drives
- Sensors and actuators
- On site commissioning

### Energy saving options

- Variable speed thermal wheel, sensible or hygroscopic
- Plate heat exchanger with fresh air bypass damper
- High efficiency direct driven plug fans and variable frequency drives
- EC motors
- Advanced and customized controls strategies

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>

HRCU with plate heat exchanger		085 PHE	165 PHE	260 PHE	380 PHE	440 PHE	530 PHE	740 PHE	875 PHE
Nominal air volume	(m³/s)	0.85	1.65	2.60	3.80	4.40	5.30	7.40	8.75
Nominal air volume	(m³/h)	3060	5940	9360	13680	15840	19080	26640	31500
External static pressure return/supply	(Pa)	200							
Length	(mm)	2265	2875	3028	3485	3485	3943	4248	4248
Width	(mm)	1015	1320	1625	1930	2235	2235	2540	2998
Height	(mm)	1115	1420	1725	2080	2080	2385	2690	2690
Weight	(kg)	409	609	931	1329	1598	1961	2901	3397
Return air winter	(°C/%RH)	20°C/50%							
Fresh air winter	(°C/%RH)	-5°C/90%							
Sensible efficiency winter	(%)	53.2	51.6	50.8	52.0	52.0	50.4	54.0	54.0
Supply air temperature winter	(°C)	8.3	7.9	7.7	8.0	8.0	7.6	8.5	8.5
Capacity recovery winter	(kW)	13.7	25.6	39.7	59.5	69	80.6	120.5	142.7
Return air summer	(°C/%RH)	24°C/50%							
Fresh air summer	(°C/%RH)	32°C/40%							
Sensible efficiency summer	(%)	48.7	46.2	46.2	47.5	47.5	46.2	48.7	48.7
Supply air temperature summer	(°C)	28.1	28.3	28.3	28.2	28.2	28.3	28.1	28.1
Capacity recovery summer	(kW)	4.0	7.5	11.6	17.4	20.2	25.5	35.2	41.7
Power input return air fan	(kW)	0.77	1.81	2.75	4.41	4.84	5.13	7.25	9.53
Power input supply air fan	(kW)	0.81	1.87	2.86	4.54	5.01	5.27	7.53	9.89
Total specific fan power	(w/m³/s)	1859	2230	2158	2355	2239	1962	1997	2219
Airborn sound pressure level @ 1m	dB(A)	43	48	48	50	49	48	46	49
Sound pressure level @ 1m inlet	dB(A)	70	75	76	79	78	78	76	80
Sound pressure level @ 1m outlet	dB(A)	80	86	86	89	88	87	86	89
Max airflow for SFP=1800 w/m³/s with 250 Pa ESP. including F5 & F7 filters frost coil. re-heat coil and 4 rows wet cooling coil (clean filters)	(m³/s)	0.75	1.35	2.10	3.00	3.60	4.80	6.60	7.10

Return air stream: F5 bag filter/plate heat exchanger/return plug fan with Eff1 motor/exhaust air damper

Supply air stream: Fresh air damper/F7 bag filter/hygroscopic thermal wheel/supply plug fan with Eff1 motor

HRCU with thermal wheel		085 TW	165 TW	260 TW	380 TW	440 TW	530 TW	740 TW	875 TW
Nominal air volume	(m³/s)	0.85	1.65	2.60	3.80	4.40	5.30	7.40	8.75
Nominal air volume	(m³/h)	3060	5940	9360	13680	15840	19080	26640	31500
External static pressure return/supply	(Pa)	200							
Length	(mm)	2113	2570	2570	3028	3028	3333	3638	3638
Width	(mm)	1015	1320	1625	1930	2235	2235	2540	2998
Height	(mm)	1115	1420	1725	2080	2080	2385	2690	2690
Weight	(kg)	431	624	873	1246	1437	1699	2500	2756
Return air winter	(°C/%RH)	20°C/50%							
Fresh air winter	(°C/%RH)	-5°C/90%							
Sensible efficiency winter	(%)	72.8	72.4	71.6	73.2	70.4	71.2	69.6	70.8
Latent efficiency winter	(%)	49.7	49	47.9	49.9	46.1	47.1	44.8	46.2
Supply air temperature winter	(°C)	13.2	13.1	12.9	13.3	12.6	12.8	12.4	12.7
Total capacity recovery winter	(kW)	26.7	51.5	80.0	119.7	132.8	161.7	219.7	264.2
Return air summer	(°C/%RH)	24°C/50%							
Fresh air summer	(°C/%RH)	32°C/40%							
Sensible efficiency summer	(%)	72.5	72.5	71.2	72.5	70.0	71.2	70.0	70.0
Supply air summer	(°C/%RH)	26.2/56	26.2/56	26.3/56	26.2/56	26.4/55	26.3/56	26.4/55	26.4/55
Capacity recovery summer	(kW)	6.2	11.89	18.55	27.6	30.91	37.56	51.34	61.5
Power input return air fan	(kW)	0.83	1.73	2.66	4.2	4.77	5.47	7.12	9.29
Power input supply air fan	(kW)	0.84	1.77	2.75	4.31	4.92	5.65	7.35	9.60
Total specific fan power	(w/m³/s)	1965	2121	2081	2239	2202	2098	1955	2159
Airborn sound pressure level @ 1m	dB(A)	44	48	48	51	50	49	46	49
Sound pressure level @ 1m inlet	dB(A)	71	76	77	80	79	79	77	80
Sound pressure level @ 1m outlet	dB(A)	81	85	86	89	88	88	86	89
Max airflow for SFP=1800 w/m³/s with 250 Pa ESP. including F5 & F7 filters frost coil. re-heat coil and 4 rows wet cooling coil (clean filters)	(m³/s)	0.68	1.36	2.10	3.00	3.55	4.40	6.20	7.00

Return air stream: F5 bag filter/hygroscopic thermal wheel/return plug fan with Eff1 motor/exhaust air damper

Supply air stream: Fresh air damper/F7 bag filter/hygroscopic thermal wheel/supply plug fan with Eff1 motor

DX cooler module size		085	165	260	380	440	530	740	875
Nominal cooling capacity	(kW)	17.80	34.00	53.60	79.10	94.20	117.30	150.80	183.50
Nominal air volume	(m³/s)	0.85	1.65	2.60	3.80	4.40	5.50	7.40	8.75
Nominal air volume	(m³/h)	3060	5940	9360	13680	15840	19800	26640	31500
Fresh air	(°C/%)	28°C/50%							
Return air	(°C/%)	24°C/50%							
Suction temperature	(°C)	7°C							
Condensation temperature	(°C)	52°C							
EER		3.08	3.14	3.28	3.44	3.51	3.31	3.28	3.30
Number of circuit		1	1	1	1	1	1	1	1
Number of cooling steps		3	3	3	3	3	3	3	3
Cooling capacity step 1 (33%)	(kW)	5.9	11.3	17.9	26.4	31.4	39.1	50.3	61.2
Cooling capacity step 2 (66%)	(kW)	11.9	22.7	35.7	52.7	62.8	78.2	100.5	122.3
Cooling capacity step (100%)	(kW)	17.80	34.00	53.60	79.10	94.20	117.30	150.80	183.50
Power input	(kW)	6.15	10.77	14.64	21.54	28.71	38.70	51.30	63.60
Sound power level (compressors)	dB(A)	70.70	74.70	77.70	78.70	79.70	84.70	87.70	89.70
Module length	(mm)	1220	1220	1220	1373	1373	1525	1525	1525
Module width	(mm)	1015	1320	1625	1930	2235	2235	2540	2998
Module height	(mm)	1095	1400	1705	2010	2010	2315	2640	2740
Module weight	(kg)	389	480	600	853	978	1149	1634	1842

The DX cooler is available with the evaporator on the lower part only. Not available with HRCU-PHE.



# CCTA CCTB

## Air handling units



### 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 with high efficiency components
- Cleanable and enhanced casing design for higher indoor air quality (CCTB)
- Available with Eurovent Class A energy class

### Main features CCTA

- 30 standard unit sizes for airflow from 1000 to 140000 m<sup>3</sup>/h. Indoor and outdoor versions
- Casing thermal performances: D1/L1/F9/T3/TB3 (Casing CCTA 50 mm PU) 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 galvanised 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, 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 mm thick panels with integrated thermal break, Polyurethane foam insulation
- Enhanced casing thermal performances: D1/L1/F9/T2/TB2 Eurovent certified
- Smooth internal walls

### Options

- High density Rockwool insulation (80 kg/m<sup>3</sup>)
- 60 mm thick panels (CCTB)
- Inner / outer skins made of peraluman, stainless steel 304 or 316 metal sheet

### Accessories

- Inspection windows and wired lights
- Manometers and pressure switches
- Flexible connections, weather louvers, intake hoods, sand trap louvers

### Controls (available in certain countries only)

- Factory-mounted controls including complete control panel
- Functionally tested prior to shipment
- MP581 programmable air handling unit controller
- Advanced and customized controls strategies
- Starters, variable frequency drives
- Sensors and actuators
- On site commissioning

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>

### Energy saving options

- High efficiency heat recovery devices
- Variable speed thermal wheel, sensible or hygroscopic
- Plate heat exchanger with fresh air bypass damper
- Run around coils
- High efficiency direct driven plug fans
- Eff1 AC motors
- Advanced controls strategies
- Variable frequency drives

CCTA/CCTB	Airflow (m <sup>3</sup> /s) at coil face velocity (m/s)			Airflow (m <sup>3</sup> /h) at coil face velocity (m/s)			Dimensions (mm) (1)	
	2.5	3.0	3.5	2.5	3.0	3.5	Width (2)	Height
<b>Single fan air handling units</b>								
4	0.30	0.36	0.42	1080	1296	1512	690	590
5	0.45	0.54	0.63	1620	1944	2268	790	640
7	0.63	0.76	0.88	2268	2722	3175	890	690
9	0.79	0.95	1.10	2835	3402	3969	1040	790
12	1.08	1.30	1.51	3888	4666	5443	1090	890
15	1.28	1.54	1.80	4617	5540	6464	1240	990
18	1.55	1.86	2.17	5589	6707	7825	1440	990
23	1.90	2.28	2.66	6831	8197	9563	1440	1040
25	2.15	2.57	3.00	7722	9266	10811	1590	1140
30	2.54	3.04	3.55	9126	10951	12776	1590	1140
35	3.04	3.65	4.25	10935	13122	15309	1640	1340
40	3.38	4.05	4.73	12150	14580	17010	1790	1340
44	3.71	4.46	5.20	13365	16038	18711	1990	1340
50	4.21	5.05	5.89	15147	18176	21206	1990	1440
55	4.59	5.51	6.43	16524	19829	23134	2140	1440
62	5.13	6.16	7.18	18468	22162	25855	2140	1590
74	6.27	7.52	8.78	22572	27086	31601	2580	1630
83	6.93	8.32	9.70	24948	29938	34927	2580	1630
90	7.56	9.07	10.58	27216	32659	38102	2780	1630
105	8.80	10.56	12.32	31671	38005	44339	2930	1780
115	9.72	11.66	13.61	34992	41990	48989	3080	1780
121	10.50	12.60	14.70	37800	45360	52920	3080	1780
135	11.34	13.61	15.88	40824	48989	57154	3530	1780
146	12.35	14.82	17.29	44469	53363	62257	3430	1940
173	14.40	17.28	20.16	51840	62208	72576	3580	2130
187	15.75	18.90	22.05	56700	68040	79380	3880	2130
211	17.76	21.31	24.86	63936	76723	89510	4080	2280
243	20.40	24.48	28.56	73440	88128	102816	4630	2280
280	23.51	28.22	32.92	84645	101574	118503	5130	2300
333	27.80	33.35	38.91	100062	120074	140087	5830	2360
<b>Double fan air handling units</b>								
4	0.30	0.36	0.42	1080	1296	1512	790	540
5	0.45	0.54	0.63	1620	1944	2268	890	540
7	0.60	0.72	0.84	2160	2592	3024	1090	590
9	0.77	0.92	1.07	2754	3305	3856	1140	640
12	1.04	1.24	1.45	3726	4471	5216	1440	640
15	1.26	1.51	1.76	4536	5443	6350	1490	690
18	1.50	1.80	2.10	5400	6480	7560	1540	790
23	1.89	2.27	2.65	6804	8165	9526	1690	840
25	2.16	2.59	3.02	7776	9331	10886	1890	840
30	2.55	3.06	3.57	9180	11016	12852	1990	890
35	2.97	3.56	4.16	10692	12830	14969	2090	940
40	3.42	4.10	4.79	12312	14774	17237	2190	990
44	3.69	4.43	5.17	13284	15941	18598	2390	990
50	4.29	5.15	6.01	15444	18533	21622	2540	1040
55	4.62	5.54	6.47	16632	19958	23285	2540	1140
62	5.18	6.21	7.25	18630	22356	26082	2640	1190
74	6.24	7.49	8.74	22464	26957	31450	2980	1280
83	6.96	8.35	9.74	25056	30067	35078	3280	1280
90	7.52	9.03	10.53	27081	32497	37913	3330	1380
105	8.80	10.56	12.32	31671	38005	44339	3830	1380
115	9.60	11.52	13.44	34560	41472	48384	3580	1530
121	10.20	12.24	14.28	36720	44064	51408	3680	1530
135	11.25	13.50	15.75	40500	48600	56700	4130	1530
146	12.29	14.74	17.20	44226	53071	61916	4280	1580
173	14.49	17.39	20.29	52164	62597	73030	4580	1730
187	15.70	18.84	21.98	56511	67813	79115	4930	1730
211	17.63	21.15	24.68	63450	76140	88830	5080	1830
243	20.28	24.34	28.39	73008	87610	102211	5580	1880
280	23.52	28.22	32.93	84672	101606	118541	5980	2030
333	27.97	33.56	39.15	100683	120820	140956	6030	2330

(1) With 25 mm panels units until 062 size and 50 mm panels units for bigger units. Unit height does not include feet or continuous base frame. Height of feet or base frame is 150 mm.

Overall cross dimensions can vary according to casing option and components.

(2) The width of the units can be adjusted in steps of 50 mm to suit project specifications.





# CLCP

## Air handling unit



### Customer benefits

- Easy on-site installation and assembly via modular construction
- High casing thermal performances (50 mm panels with thermal break): T2/TB2 according to EN 1886

### Main features

- Innovative closed box extruded aluminium section framework, with reinforced nylon corners
- Eurovent-certified units in accordance with EN 1886- 25 mm panels: 2/A/F9/T3/TB3(F9: with back loading filter frame)- 50 mm TB panels: 2A/B/F9/T2/TB2(F9: with back loading filter frame)
- Modular 25 or 50 mm double skin panels insulated with CFC-free polyurethane foam
- Casing panels are held firmly in place onto the framework by the means of a self-locking wedge mechanism
- Outer skin with oven baked polyester powder painting
- Non-hydroscopic gasket compressed between the panels and the framework
- 120 mm-high unit base frame
- Access panels are easily and quickly removed for maintenance and cleaning
- 2-way sloping drain trays on all cooling coils and humidifier sections
- Available sections: panel filters, bag filters, rigid bag filters, activated carbon filters, absolute (HEPA) filters, cooling and heating coils, electric heaters, silencers, forward-

curved fans, backward curved fans, run around coil loops, plate heat exchangers, thermal wheels, steam humidifiers

### Options

- Unique integral thermal breaks, providing a cold bridge free construction (available on 50 mm panel unit only)
- Hinged access doors mounted into a specially designed double skinned insulated door frame
- Panel skin material: 0.4 mm standard with optional 0.89 mm-thick skins
- Delivery in sections using break points

### Accessories

- Manometers/magnehelic gauges
- Inspection windows
- Service light and switch
- Motors isolators
- Inverters
- Stainless steel drain pans

### Controls (available in certain countries only)

- Factory-mounted controls including complete control panel
- Functionally tested prior to shipment
- MP581 programmable air handling unit controller
- Advanced and customized controls strategies
- Starters, variable frequency drives
- Sensors and actuators
- On site commissioning

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>



CLCP	Airflow (m <sup>3</sup> /s) at coil face velocity (m/s)			Airflow (m <sup>3</sup> /h) at coil face velocity (m/s)			Dimensions (mm) (1)	
	2.0	2.55	3.0	2.0	2.55	3.0	Width	Height (2)
003	0.48	0.61	0.72	1722	2196	2584	748	868
004	0.80	1.02	1.20	2880	3672	4320	1058	868
006	1.14	1.45	1.71	4094	5220	6141	1368	868
008	1.46	1.86	2.19	5252	6696	7878	1678	868
010	1.80	2.30	2.71	6494	8280	9741	1368	1178
012	2.32	2.96	3.48	8358	10656	12536	1678	1178
014	2.84	3.62	4.26	10221	13032	15332	1988	1178
016	3.18	4.05	4.76	11435	14580	17153	1678	1488
020	3.90	4.97	5.85	14033	17892	21049	1988	1488
025	4.84	6.17	7.26	17421	22212	26132	1988	1798
030	5.80	7.40	8.71	20894	26640	31341	1988	2108
035	6.86	8.75	10.29	24706	31500	37059	2298	2108
040	7.94	10.12	11.91	28574	36432	42861	2608	2108
045	9.00	11.48	13.51	32414	41328	48621	2918	2108
050	10.08	12.85	15.12	36282	46260	54424	3228	2108
060	11.90	15.17	17.85	42833	54612	64249	3228	2418
065	13.16	16.78	19.74	47379	60408	71068	3538	2418
070	14.42	18.39	21.64	51925	66204	77887	3848	2418
080	15.70	20.02	23.55	56527	72072	84791	4158	2418
085	16.96	21.62	25.44	61045	77832	91567	4468	2418
090	18.22	23.23	27.33	65591	83628	98386	4778	2418
095	19.56	24.94	29.34	70419	89784	105628	5088	2418

(1) With 50 mm panels. Unit sizes 003 up to and including size 050 also available with 25 mm panels. For 25 mm panels, remove 50 mm in the width and in the height.  
(2) Overall height includes 120 mm continuous base frame.



# CCEB

## Custom air handling unit



### 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 EN 15 053 and VDI 6022 certified (hygienic requirements for hospitals)

### 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 140 000 m³/h (0.3 to 38 m³/s)
- Bigger unit sizes to cover airflows up to 200 000 m³/h upon request
- 50 mm double skin panels with mineral wool insulation
- Inner skin: galvanised steel, outer skin: PVC coated, white color
- High casing air leakage: Class C according to BS/DW144 & Eurovent 2/2 (0.42l/s/m² @ 2000 Pa)
- Mechanical classes (EN1886): D1/L1/F9/T3/TB3, 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, plate heat exchangers, thermal wheels, run around coils, silencers, mixing chambers, multi-zone sections

### Options

- Enhanced casing thermal performances: T2/TB2 Eurovent certified (CCEB-T2)
- EC motor
- ATEX certified construction; group II, category 2 and 3
- Panel material: galvanized steel, PVC coating, Peraluman, stainless steel
- 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
- Vertical units

### Accessories

- Inspection windows and wired lights
- Manometers and pressure switches
- Flexible connections, weather louvers, intake hoods, sand trap louvers
- Motor lifting beam, adjustable legs

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>

### Controls (available in certain countries only)

- Factory-mounted controls including complete control panel
- Functionally tested prior shipment
- MP581 programmable air handling unit controller
- Advanced and customized controls strategies
- Starters, variable frequency drives
- Sensors and actuators
- On site commissioning

### Energy saving options

- High efficiency heat recovery devices:
  - Variable speed thermal wheel, sensible or hygroscopic
  - Plate heat exchanger with fresh air bypass damper
  - Run around coils
- High efficiency direct driven plug fans
- Eff1 AC motors, EC motors
- Advanced controls strategies
- Variable frequency drives

CCEB	Air volume (m³/s) at coil face velocity (m/s)			Air volume (m³/h) at coil face velocity (m/s)			Overall width	Overall height
	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



# FCC-FCK-FVC

## UniTrane™ fan coil water terminals



### Customer benefits

- Silent operation: high level of acoustic comfort
- Low cost of ownership: low energy consumption
- Nice integration: easy to install and excellent appearance

### Range description

FCC: Horizontal cabinet fan coil

FCK: Vertical concealed fan coil

FVC: Vertical cabinet fan coil

### Main features

- Efficient water exchanger
- Multi-speed efficient fan motor factory set from customer request
- Shielded bar heater inserted into coil fin stack for efficient airflow heat balance
- Cleanable EU3 filter

### Options

- Large choice of electric heater capacities per unit size
- Factory-mounted 2 and 3-way water valves with thermal or modulating actuators
- High external static pressure available
- Right/left end water and control access sides
- Factory-mounted feet
- Epoxy coated aluminum fins
- Fresh air intake connection

### Accessories

- Auxiliary drain pan
- Condensate pump for vertical fan coils
- Flexible hose
- Wall-mounted thermostats delivered with each individual unit
- 0-33% manual fresh air damper

### Controls

- Large choice of wall thermostats to cover all standalone unit applications
- Factory-mounted LonMark™ Trane ZN523 controller providing enhanced acoustical and thermal comfort lowering the energy consumption for great efficiency operation
- Integration to the Trane Building Management System via ZN523
- Full range of user interfaces for ZN controller to fit all customer needs for utilization of their installations and equipments with ZSM-10 and ZSM-11
- Fuse protection with external access from the control box

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>

FCK		01	02	03	04	06	08	11	12	15	20
Airflow (at 0 Pa)	(m³/h)	193	284	370	565	677	920	1573	1816	2572	3119
Total/sensible cooling capacity (at 0 Pa) (1)	(kW)	0.99/0.77	1.5/1.2	2.1/1.6	3.5/2.7	4/3.1	4.9/3.7	7.9/6.5	11/8.6	12.9/10.3	15.9/12.8
EER/Eurovent Energy class (at 0 Pa)		36/G	38/G	54/E	65/E	63/E	52/E	34/G	48/F	40/G	33/G
Heating capacity 2 Pipe (at 0 Pa) (2)	(kW)	1.3	2.1	2.7	4.1	4.8	6.5	11.2	14.6	17.5	20.4
COP/Eurovent Energy class (at 0 Pa)		45/F	50/F	68/E	73/D	71/D	66/E	45/F	60/E	50/F	39/G
Heating capacity 4 Pipe (at 0 Pa) (2)	(kW)	1	1.3	1.8	2.9	3.4	3.9	5.8	7.2	9.3	11.2
COP/Eurovent Energy class (at 0 Pa)		47/F	41/F	33/G	39/G	45/F	54/E	53/E	61/E	55/E	43/F
Supply sound power level (at 0 Pa)Low/medium/High	(dB(A))	27/31/40	31/39/44	29/37/45	38/43/53	34/41/49	41/47/53	40/51/62	45/56/63	49/58/66	51/54/68
Return + radiated sound power level (Low/medium/high)	(dB(A))	26/30/40	31/37/43	31/36/43	39/44/53	34/41/49	42/47/53	41/51/62	44/56/62	50/58/66	53/55/68
Sound pressure level (at 0 Pa)Low/Medium/High (3)	(dB(A))	20/25/34	25/32/38	24/30/38	32/37/47	28/35/43	35/41/47	35/45/56	38/50/57	44/52/60	46/49/62
NR Level (at 0 Pa) Low/Medium/High		15/20/29	20/27/33	19/25/33	27/32/42	23/30/38	30/36/42	30/40/51	33/45/52	39/47/55	41/44/57
NC Level (at 0 Pa) Low/Medium/High		10/15/24	15/24/15	24/15/22	15/22/28	22/28/14	28/14/20	14/20/28	20/28/22	28/22/27	22/27/37
<b>Weights and dimensions</b>											
Width	(mm)	658	658	858/	1058	1258	1458	1349	1549	1749	1949
Depth	(mm)	430	430	30/	430	430	430	678	678	678	678
Height	(mm)	217	217	217	217	217	217	291	291	291	291
Operating weight	(kg)	17	17	20	23	30	38	55	63	71	80
<b>Electrical data</b>											
Fan motor absorbed power (at 0 Pa)	(A)	15/21/31	20/30/41	23/30/47	30/45/74	31/50/79	54/88/117	107/185/251	112/204/305	212/272/394	289/322/553
Electric heater capacity range	(W)	-	500/1000	500/2000	1500/4001	1500/4002	1500/4003	1500/4004	1500/4005	1500/4006	1500/4007
Electric heater current	(A)	-	2.2 /4.3	2.2 /8.7	6.5 /17.4	6.5 /17.4	6.5 /17.4	6.5 /17.4	6.5 /17.4	6.5 /17.4	6.5 /17.4
Power supply	(V/Ph/Hz)	230-1-50	230-1-53	230-1-56	230-1-59	230-1-62	230-1-65	230-1-68	230-1-71	230-1-74	230-1-77

Speed 1/3/5 for size 1 to 8: speed low/medium/high

Speed 1/2/4 for size 11; 12; 20: speed low/medium/high

Speed 1/2/3 for size 15: speed low/medium/high

(1) At Eurovent conditions (air: 27°C/47% humidity, Water inlet/outlet: 7/12°C) high speed

(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.

FVC/FCC		01	02	03	04	06	08
Airflow (at 0 Pa)	(m³/h)	193	284	370	565	677	920
Total/sensible cooling capacity (at 0 Pa) (1)	(kW)	0.99/0.77	1.5/1.2	2.1/1.6	3.5/2.7	4/3.1	4.9/3.7
EER/Eurovent Energy class (at 0 Pa)		36/G	38/G	54/E	65/E	63/E	52/E
Heating capacity 2 Pipe (at 0 Pa) (2)	(kW)	1.3	2.1	2.7	4.1	4.8	6.5
COP/Eurovent Energy class (at 0 Pa)		45/F	50/F	68/E	73/D	71/D	66/E
Heating capacity 4 Pipe (at 0 Pa) (2)	(kW)	1	1.3	1.8	2.9	3.4	3.9
COP/Eurovent Energy class (at 0 Pa)		47/F	35/G	42/F	32/G	60/E	43/F
Sound power level (at 0 Pa)	(dB(A))	27/35/43	35/42/48	34/42/50	37/43/54	33/43/54	42/51/59
Sound pressure level (at 0 Pa) (3)	(dB(A))	18/26/34	26/33/39	25/33/41	28/34/45	24/34/45	33/42/50
NR Level (at 0 Pa)		13/21/29	21/28/34	20/28/36	23/29/40	19/29/40	28/37/45
NC Level (at 0 Pa)		8/16/24	16/24/16	24/16/23	16/23/29	23/29/15	29/15/23
<b>Weights and dimensions</b>							
Width	(mm)	790	790	990/	1190	1390	1590
Depth	(mm)	450	450	50/	450	450	450
Height	(mm)	238	238	238	238	238	238
Operating weight	(kg)	18	18	22	25	32	40
<b>Electrical data</b>							
Fan motor absorbed power (at 0 Pa)	(A)	15/21/31	20/30/41	23/30/47	30/45/74	31/50/79	54/88/117
Electric heater capacity range	(W)	-	500/1000	500/2000	1500/4001	1500/4002	1500/4003
Electric heater current	(A)	-	2.2 /4.3	2.2 /8.7	6.5 /17.4	6.5 /17.4	6.5 /17.4
Power supply	(V/Ph/Hz)	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50

Speed 1/3/5: speed low/medium/high

(1) At Eurovent conditions (air: 27°C/47% humidity, Water inlet/outlet: 7/12°C) high speed

(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.



# FCD FED

## UniTrane™ ductable fan coil water terminals



### Customer benefits

- Silent operation: High level of acoustic comfort
- Factory-configured unit for ease of installation and immediate start-up
- Best of control technology to deliver a remarkable level of comfort

### Range description

FCD: Concealed horizontal fan coil with AC fan motor

FED: Concealed horizontal fan coil with EC fan motor

### Main features

- Low profile with 225 mm unit height fits in all narrow false ceiling voids
- Return and discharge air plenums to fit all types of duct requirements
- Up to 90 Pa external static pressure fit all ducting requirements
- Factory-configured fan speed setting according to customer requirements
- EU3 filter as standard

### Options

- Large choice of electric heater capacity per unit size
- Factory-mounted 2 and 3-way water valves with thermal or modulating actuators
- Several models of discharge and return air plenums factory-mounted
- High external static pressure available
- Right/left end water and control access sides
- Epoxy-coated aluminum fins
- Fresh air intake connection on return or discharge air side
- All types of applications available associated with large choice of efficient exchangers

### Accessories

- Constant volume dampers from 30 to 180 m<sup>3</sup>/h for fresh air intake
- Rubber shear isolator for silent operation
- Flexible hose pipe
- Discharge air grille with straight duct connection for lodging applications
- Conical water connection adapter

### Controls

- Large choice of wall thermostats to cover all standalone unit applications
- Factory-mounted LonMark® Trane ZN525 controller for advanced energy saving with EC fan motor technology providing enhanced acoustical and thermal comfort performances providing great energy consumption reduction
- Factory-mounted LonMark® Trane ZN523 controller for AC fan motor providing enhanced acoustical and thermal comfort performances still with care for the best energy utilization
- Integration to the Trane Building Management System via ZN523
- Full range of user interfaces for ZN523/ZN525 controller to fit all customer needs for utilization of installations and equipment with ZSM-10 and ZSM-11
- Fuse protection with external access from the control box

### Energy saving options

- EC fan motor allows for 65% annual energy savings

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>



FCD		101	103	203	204	304	306	406	508	512	408	612	716	616	724
Airflow (at 0 Pa)	(m³/h)	188	271	321	415	438	642	642	1110	1329	1004	1411	1880	1890	2491
Airflow (at 50 Pa)	(m³/h)				145	152	425	419	565	614	902	912	1233	1281	1973
Total/sensible cooling capacity (at 0 Pa) (1)	(kW)	1.3/0.97	1.7/1.3	1.6/1.3	1.9/1.6	2.8/2.1	3.7/2.8	4.1/3.1	4.9/3.8	5.5/4.4	5.5/4.3	8.8/6.6	10.5/7.9	10.6/8.2	12.9/10
EER/Eurovent Energy class (at 0 Pa)		50/F	53/E	45/F	45/F	53/E	58/E	65/E	50/F	33/G	58/E	49/F	49/F	51/E	39/G
Heating capacity 2 Pipe (at 0 Pa) (1)	(kW)	1.5	1.9	2.3	2.8	3.5	4.8	5.2	6.8	7.8	7.3	10.2	13.3	12.7	16.5
COP/Eurovent Energy class (at 0 Pa)		55/E	59/E	66/E	63/E	67/E	75/D	78/D	64/E	45/F	72/D	54/E	61/E	58/E	49/F
Heating capacity 4 Pipe (at 0 Pa) (1)	(kW)	1.1	1.3	1.7	1.9	2.4	2.9	3.1	6	6.5	3.7	7.9	9.1	8.6	10
COP/Eurovent Energy class (at 0 Pa)		57/E	48/F	60/E	59/E	70/E	52/E	55/E	66/E	42/F	43/F	50/F	47/F	45/F	33/G
Sound power level (at 0 Pa)	(dB(A))	28/32/42	40/47/54	41/47/54	39/49/56	38/47/53	43/53/59	46/55/61	45/56/61	52/59/64	45/54/60	50/58/63	53/59/64	60/63/65	60/65/69
Sound pressure level (at 0 Pa) (3)	(dB(A))	19/23/33	31/38/45	32/38/45	30/40/47	29/38/44	34/44/50	37/46/52	36/47/52	43/50/55	36/45/51	41/49/46	44/50/55	51/54/51	51/56/60
NR Level (at 0 Pa)		17/17/25	28/34/40	29/34/40	27/37/43	25/34/40	30/41/47	34/43/48	32/43/48	36/45/51	31/40/46	35/43/49	38/45/50	46/49/51	46/51/55
NC Level (at 0 Pa)		16/15/23	26/33/39	27/33/39	26/35/41	23/32/39	29/39/45	32/41/46	30/41/46	35/44/49	29/38/44	34/41/47	37/44/47	45/47/50	44/49/54
Total/sensible cooling capacity (at 50 Pa) (1)	(kW)				0.81/0.64	1.1/0.81	2.6/2	2.9/2.1	3.7/2.7	3.3/2.4	4.3/3.3	6.3/4.5	7.8/5.8	7.7/5.6	10.7/8.1
EER/Eurovent Energy class (at 50 Pa)					24/E	31/D	29/D	28/D	47/C	45/C	42/C	53/C	51/C	47/C	45/C
Heating capacity 2 Pipe (at 50 Pa) (1)	(kW)				1.2	1.3	3.3	3.5	4.5	4.2	5.7	6.9	8.9	9.5	13.5
COP/Eurovent Energy class (at 50 Pa)					32/D	34/D	33/D	32/D	58/C	56/C	53/C	61/B	59/C	56/C	54/C
Heating capacity 4 Pipe (at 50 Pa) (1)	(kW)				1.2	1.5	1.7	2.3	1.8	2.5	2	2.9	4.4	4.3	5.3
COP/Eurovent Energy class (at 50 Pa)					41/C	49/C	42/C	45/C	37/D	54/C	42/C	49/C	52/C	49/C	35/D
Supply sound power level (dB(A)) (speed 2/3/5)	(dB(A))				39/45/47	38/46/47	45/50/54	42/48/51	42/49/52	46/53/57	50/54/58	47/50/54	54/55/56	52/54/56	55/57/58
Return sound power level (dB(A)) (speed 2/3/5)	(dB(A))				42/48/50	43/49/51	47/52/55	45/50/53	40/47/51	51/56/59	53/56/59	50/53/56	56/57/59	59/61/63	57/58/61
Radiated sound power level (dB(A)) (speed 2/3/5)	(dB(A))				31/40/44	31/40/43	33/42/47	33/41/47	42/48/53	42/48/53	44/48/53	44/49/53	52/52/54	51/52/54	52/53/54
NR Level (at 50 Pa., high speed)					31/40/44	31/40/43	33/42/47	33/41/47	42/48/53	42/48/53	44/48/53	44/49/53	52/52/54	51/52/54	52/53/54
NC Level (at 50 Pa., high speed)					20/25/27	18/25/27	24/31/34	24/31/34	22/30/34	27/33/36	31/34/37	27/30/33	34/35/36	37/39/40	35/37/39
<b>Weights and dimensions</b>															
Width	(mm)	704	704	854	854	1084	1084	1234	1334	1334	1234	1634	1634	1634	1634
Depth	(mm)	558	558	558	558	558	558	558	704	704	558	704	796	704	796
Height	(mm)	225	225	225	225	225	225	225	225	225	225	225	225	225	277
Operating weight	(kg)	13	13	16	15	20	21	24	30	32	25	41	47	42	47
<b>Electrical data</b>															
Fan motor absorbed power (at 0 Pa)	(A)	11/16/27	18/25/40	19/26/41	23/37/54	26/42/61	36/58/82	36/59/82	53/87/124	118/139/164	53/87/118	119/145/171	154/187/221	157/189/222	252/294/346
Fan motor absorbed power (at 50 Pa)	(A)				21/42/50	24/47/56	36/73/90	36/73/90	52/100/120	52/101/122	105/131/143	105/132/143	128/147/171	130/151/175	224/272/299
Electric heater capacity range	(W)	-	500	500/750	500/1000	500/1500	500/2000	500/2000	1500/3000	1500/4000	1500/4001	1500/4002	1500/4003	1500/4004	1500/4005
Electric heater current	(A)	-	2.2	2.2/3.3	2.2/4.3	2.2/6.5	2.2/8.7	2.2/8.7	6.5/13	6.5/17.4	6.5/17.4	6.5/17.4	6.5/17.4	6.5/17.4	6.5/17.4
Power supply	(V/Ph/Hz)	230-1-50													

Speed 1/3/5: speed low/medium/high (1) At Eurovent conditions (air: 27°C/47% humidity, Water inlet/outlet: 7/12°C) high speed  
(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.

FED		100	200	300	400
Airflow (at 0 Pa)	(m³/h)	310	441	609	924
Airflow (at 50 Pa)	(m³/h)	145	152	425	419
Total/sensible cooling capacity (at 0 Pa)	(kW)	1.4/1.1	1.9/1.6	3.3/2.5	4.9/3.8
EER/Eurovent Energy class (at 0 Pa)		186/B	185/B	174/B	191/B
Heating capacity 2 Pipe (at 0 Pa)	(kW)	3.2	4.5	7.3	10.7
COP/Eurovent Energy class (at 0 Pa)		393/A	189/B	301/A	436/A
Heating capacity 4 Pipe (at 0 Pa)	(kW)	1.2	1.8	2.3	3.4
COP/Eurovent Energy class (at 0 Pa)		195/B	221/B	164/B	164/B
Sound Power Level (at 0 Pa)	(dB(A))	32/41/49	35/45/53	37/52/61	43/53/60
Sound Pressure Level (at 0 Pa)	(dB(A))	23/32/40	26/36/44	28/43/52	34/44/51
NR Level (at 0 Pa)		21/28/36	22/31/40	24/38/49	33/40/47
NC Level (at 0 Pa)		19/27/34	20/30/38	22/37/47	32/39/46
Total/sensible cooling capacity (at 50 Pa)	(kW)	0.81/0.64	1.1/0.81	2.6/2	2.9/2.1
EER/Eurovent Energy class (at 50 Pa)		24/E	31/D	29/D	28/D
Heating capacity 2 Pipe (at 50 Pa)	(kW)	1.2	1.3	3.3	3.5
COP/Eurovent Energy class (at 50 Pa)		32/D	34/D	33/D	32/D
Heating capacity 4 Pipe (at 50 Pa)	(kW)	1.2	1.5	1.7	2.3
COP/Eurovent Energy class (at 50 Pa)		41/C	49/C	42/C	45/C
Supply Sound Power Level (dB(A)) (speed 2/3/5)	(dB(A))	39/45/47	38/46/47	45/50/54	42/48/51
Return Sound Power Level (dB(A)) (speed 2/3/5)	(dB(A))	42/48/50	43/49/51	47/52/55	45/50/53
Radiated Sound Power Level (dB(A)) (speed 2/3/5)	(dB(A))	31/40/44	31/40/43	33/42/47	33/41/47
NR Level (at 50 Pa, speed 3)		31/40/44	31/40/43	33/42/47	33/41/47
NC Level (at 50 Pa, speed 3)		20/25/27	18/25/27	24/31/34	24/31/34
<b>Weights and dimensions</b>					
Width	(mm)	704	854	108	123
Depth	(mm)	558	558	/55	/55
Height	(mm)	225	225	225	225
Operating weight	(kg)	14	16	21	25
<b>Electrical data</b>					
Fan motor absorbed power (at 0 Pa)	(A)	3.3/5.8/12	3.7/8.7/19	4.8/18/43	8.9/23/54
Fan motor absorbed power (at 50 Pa)	(A)	21/42/50	24/47/56	36/73/90	36/73/90
Electric heater capacity range	(W)	-	500	500/750	500/1000
Electric heater current	(A)	-	2.2	2.2/3.3	2.2/4.3
Power supply	(V/Ph/Hz)	230-1-50	230-1-50	230-1-50	230-1-50

Speed 1/3/5: speed low/medium/high (1) At Eurovent conditions (air: 27°C/47% humidity, Water inlet/outlet: 7/12°C) high speed  
(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.



# FCU FEU

## UniTrane™ ductable fan coil water terminals



### Customer benefits

- Silent operation: maximum acoustic comfort
- Flexibility: customized system to fit your exact requirements
- Easy commissioning: saving of time and money
- Easy maintenance due to side access to motors and coils and maintenance done outside the occupied space
- Low energy consumption

### Range description

FCU: U-line fan coil unit with AC fan motor

FEU: U-line fan coil unit with EC fan motor

### Main features

- Unit specially designed for office applications with corridor installation
- Use of 1 mm thick galvanized steel
- High performance water coil (aluminium fins/copper tubes)
- Hot and/or chilled water coil
- ½" water connections ISO R7 gas (screw connections)
- Multi-speed motor with internal thermal protection
- Use of plastic fan housings and large diameter wheels for low sound levels
- Air inlet and outlet connections diameter 200 mm or 250 mm
- 50 Pa to 200 Pa static pressure available for ducts and diffusers
- Electric and hydraulic connections accessible on the same side to save space

### Options

- Several electric heater capacities per unit size
- Modulating and on/off 3-way/4-port or 2-way/2-port valve for cooling and/or heating coils for better control
- Fresh air intake with fixed or adjustable controller
- Condensate pump
- Easily accessible and cleanable EU3 filter
- Right- or left-hand connections
- Fuse protection
- Spigot arrangement
- Factory-wired fan speeds combination according to customer requirements

### Accessories

- Flexible hose connections

### Controls

- Large choice of wall thermostats to cover all standalone unit applications
- Remote on/off controls on fan, valve and/or electric heater
- Factory-mounted LonMark™ Trane ZN523 control, providing enhanced acoustical and thermal comfort, and energy saving solutions
- Full range of user interfaces (ZSM-10, ZSM-11) and wireless remote control (IRC)

### Energy saving options

- EC fan motor allows for 80% annual energy savings

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>

		<b>FCU 100</b>	<b>FEU 100</b>
Airflow (at 50 Pa)	(m³/h)	378	335
Total/sensible cooling capacity (at 50 Pa) (1)	(kW)	2.9/2.1	2.4/1.7
EER/Eurovent Energy class (at 50 Pa)		17/E	88/A
Heating capacity 2 Pipe (at 50 Pa) (2)	(kW)	3.6	3.1
COP/Eurovent Energy class (at 50 Pa)		20/E	112/A
Heating capacity 4 Pipe (at 50 Pa) (2)	(kW)	2	2.5
COP/Eurovent Energy class (at 50 Pa)		0.045/5.8	0.058/8.7
Supply sound power level (speed 2/3/5)	(dB(A))	42/47/53	36/42/51
Return sound power level (speed 2/3/5)	(dB(A))	39/45/51	34/40/48
Radiated sound power level (speed 2/3/5)		42/48/53	36/42/51
NR Level (at 50 Pa, high speed)		28	41.2
NC Level (at 50 Pa, high speed)		26	20
<b>Weights and dimensions (operating)</b>			
Width	(mm)	1055	1055
Depth	(mm)	797	797
Height	(mm)	225	225
Weight	(kg)	31	31
<b>Electrical data</b>			
Fan motor absorbed power (at 50 Pa)	(A)	106/146/211	7.7/27/156
Electric heater capacity range	(W)	500/1500	500/1500
Electric heater current	(A)	2.2 /6.5	2.2 /6.5
Power supply	(V/Ph/Hz)	230-1-50	230-1-50

Speed 1/3/5: speed low/medium/high

(1) At Eurovent conditions (air: 27°C/47% humidity, Water inlet/outlet: 7/12°C) high speed

(2) At Eurovent conditions: 2-pipe air 20°C, water +50°C inlet; 4-pipe air 20°C, water +70/60°C inlet/outlet



# FWD

## Ductable water terminal



### Customer benefits

- Wide capacity range with large static pressure capabilities
- Very easy installation of accessories on site

### Main features

- 3-speed direct drive centrifugal fan motor
- Reinforced aluminum foiled insulation
- Supporting brackets
- Access from the bottom to fan motor and filter
- Return air filter assembly on back or to the bottom side of the unit
- Self-contained condensate tray include location for centrifugal drain pump accessory

### Options

- Duct connections
- Additional heat processes

### Accessories

- Return and supply duct plenum with round spigots
- EU2 and EU4 return air filter box
- Electric heater box
- Hot water coil box
- 3-way motorized water valve for main coil and hot water coil
- Centrifugal condensate pump
- Changeover thermostat for 2-pipe application

### Controls

Suitable connection to all kinds of controls for standalone applications with a large choice of wall thermostats, or to all Building Management System controls including the Trane Tracer™ LonTalk® ZN523 with ZSM-10 and ZSM-11 user interfaces

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>

<b>FWD</b>		<b>8</b>	<b>12</b>	<b>20</b>	<b>30</b>	<b>45</b>
Airflow (at 50 Pa)	(m <sup>3</sup> /h)	694	1467	2149	3025	5474
Total/sensible cooling capacity (at 50 Pa) (1)	(kW)	4.6/3.5	7.6/6.2	14.4/11	18.9/14.7	34.2/26.7
EER		33	24	26	21	32
Heating capacity (at 50 Pa) (2)	(kW)	5.5	10.6	17.9	21.3	44.2
COP		40	33	32	24	41
Global sound power level (speed 1/2/3)	(dB(A))	57/63/65	58/65/72	64/72/76	66/72/78	73/76/79
<b>Weights and dimensions</b>						
Width	(mm)	890	109	129	129	129
Depth	(mm)	600	710	820	970	109
Height	(mm)	250	300	350	450	650
Operating weight	(kg)	32	46	61	76	118
<b>Electrical data</b>						
Fan motor absorbed power (at 50 Pa)	(A)	115/136/213	250/328/447	415/569/713	720/928/1196	902/1202/1570
Electric heater capacity	(W)	2/4	8	10	12	12
Electric heater current	(A)	2.9/5.8	11.5	14.4	17.3	17.3
Power supply	(V/Ph/Hz)	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50

(1) At conditions (Air: 27°C/47% humidity, Water inlet/outlet: 7/12°C) medium speed (speed 2)

(2) At conditions: 2-pipe air 20°C, water +50°C inlet



# 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
- Tracer LonTalk® controls with water valves and thermal or modulating water valves
- 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
- Factory-mounted LonMark® Trane ZN525 controller for advanced energy saving with EC fan motor technology providing enhanced acoustical and thermal comfort performances providing great energy consumption reduction
- Factory-mounted LonMark® Trane ZN523 controller for AC fan motor providing enhanced acoustical and thermal comfort performances still with care for the best energy utilization
- Integration to the Trane Building Management System via ZN523
- Full range of user interfaces for ZN523/ZN525 controller to fit all customer needs for utilization of installations and equipment with ZSM-10/ZSM-11
- Fuse protection with external access from the control box with Trane Tracer Lontalk® ZN controllers
- 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, download documentation at: <http://doc.trane-eur.com>



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
EER/Eurovent Energy class		49/E	72/D	82/C	78/D	114/C	114/C	102/C
Heating capacity (2)	(kW)	2.6	3.4	5.2	6.2	7.8	11.7	8.3
COP/Eurovent Energy class		63/E	88/D	95/D	93/D	139/C	134/C	121/C
Sound power level	(dB(A))	49	45	53	59	48	53	58
Sound pressure level	(dB(A))	40	36	44	50	39	44	49
NR Level		24	24	30	34	27	26	34
NC Level		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	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	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
EER/Eurovent Energy class		308/A	319/A	221/A	347/A	293/A
Heating capacity (2)	(kW)	3.4	5.2	6.2	8.0	12.7
COP/Eurovent Energy class		375/A	370/A	260/B	425/A	331/A
Sound power level	(dB(A))	47	54	60	48	57
Sound pressure level	(dB(A))	38	38	38	38	38
NR Level		22	27	34	22	30
NC Level		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	230-1-50	230-1-50	230-1-50	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
EER/Eurovent Energy class		59/D	73/D	66/D	62/D	114/C	96/C	85/C
Heating capacity (2)	(kW)	401.0	464.0	574.0	655.0	1090.0	1326.0	6.8
COP/Eurovent Energy class		76/D	95/D	86/D	81/D	163/B	137/C	122/C
Sound power level	(dB(A))	14.5	10.8	16.6	20.5	21.4	29.9	38.8
Sound pressure level	(dB(A))	50	45	53	59	48	53	58
NR Level		24	24	30	34	27	26	34
NC Level		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	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	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
EER/Eurovent Energy class		226/A	213/A	148/B	256/A	196/A
Heating capacity (2)	(kW)	311.0	288.0	326.0	805.0	818.0
COP/Eurovent Energy class		406/A	273/A	182/A	507/A	280/A
Sound power level	(dB(A))	47	54	60	48	57
Sound pressure level	(dB(A))	38	38	38	38	38
NR Level		22	27	34	22	30
NC Level		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	230-1-50	230-1-50	230-1-50	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



# CFAS

## 1-way cassette water terminal



### 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

### 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 with perfect Coanda effect at all fan speed
- 3 fan speeds factory set, adjustable on site
- Fresh intake connections on two return air sides

### 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 Ø124 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
- Factory-mounted LonMark™ Trane ZN523 controller for enhanced ambient temperature and sound comfort minimizing energy consumption to be connected to the Trane Building Management System
- Full range of user interfaces for ZN523 controller with ZSM-10 and ZSM-11
- Fuse protection with external access from the control box with Trane Tracer Lontalk® ZN523 controller

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>

CFAS High Efficiency 2 Pipe		16			26			36		
		Low	Medium	High	Low	Medium	High	Low	Medium	High
Airflow	(m³/h)	180	245	280	230	360	445	335	505	600
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
EER/Eurovent Energy class		55/D			61/D			53/E		
Heating capacity (2)	(kW)	1.4	1.9	2.1	2.0	3.1	3.8	2.9	4.2	4.8
COP/Eurovent Energy class		65/E			72/D			62/E		
Sound power level	(dB(A))	41	49	52	36	48	48	41	52	55
Sound pressure level	(dB(A))	32	40	43	27	39	39	32	43	46
NR Level (medium speed)		34			33			37		
NC Level (medium speed)		33			31			35		
Weights and dimensions										
Length	(mm)	592			970			1192		
Width	(mm)	309			309			309		
Height	(mm)	592			592			592		
Operating weight	(kg)	18			35			45		
Electrical data										
Fan motor absorbed power	(A)	49			57			78		
Electric heater capacity	(W)	0.55			0.9			1.4		
Electric heater current	(A)	2.4			3.9			6.1		
Power supply	(V/Ph/Hz)	230-1-50			230-1-50			230-1-50		

CFAS Standard Efficiency 4 Pipe		16			26			36		
		Low	Medium	High	Low	Medium	High	Low	Medium	High
Airflow	(m³/h)	180	245	280	230	360	445	335	505	600
Total/sensible cooling capacity (1)	(kW)	1.0/0.8	1.3/1.0	1.5/1.18	1.6/1.1	2.4/1.7	2.81/2.13	2.4/1.7	3.4/2.5	3.7/2.8
EER/Eurovent Energy class		55/D			61/D			53/E		
Heating capacity (2)	(kW)	1.1	1.3	1.5	1.7	2.3	2.7	2.5	3.3	3.6
COP/Eurovent Energy class		65/E			72/D			62/E		
Sound power level	(dB(A))	41	49	52	36	48	57	41	52	52
Sound pressure level	(dB(A))	32	40	43	27	39	54	32	43	43
NR Level		40			39			43		
NC Level		34			33			37		
Weights and dimensions										
Length	(mm)	593			971			1193		
Width	(mm)	366			366			366		
Height	(mm)	592			592			592		
Operating weight	(kg)	3.6			2.6			5.1		
Electrical data										
Fan motor absorbed power	(A)	49			57			78		
Electric heater capacity	(W)	0.55			0.9			1.4		
Electric heater current	(A)	2.4			3.9			6.1		
Power supply	(V/Ph/Hz)	230-1-50			230-1-50			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



# HFCE/HFXE VFCE/VFXE

## Fan coil water terminals



### Customer benefits

- Attractive cabinet models or concealed types for wall, ceiling and floor installations
- Silent operation: good acoustic comfort
- Flexibility: customized system to fit your exact requirements
- Easy commissioning: saving of time and money
- Low height, which means no difficulty in fitting tight ceiling applications

### Range description

HFCE: Horizontal concealed fan coil

HFXE: Horizontal exposed fan coil

VFCE: Vertical concealed fan coil

VFXE: Vertical exposed fan coil

### Main features

- Low noise permanent split capacitor motor with permanently lubricated sealed sleeve bearings
- Metal fan wheel both statically and dynamically balanced
- Threaded connection, match up duct collars and keyholes for hangers shorten installation time
- One unit provides total comfort requirements: both cooling and heating

### Options

- Left-hand or right-hand connections
- Heating by hot water coil or electric sheathed element
- Back or bottom return air plenum- adapts to a variety of return air direction
- Nylon or aluminum filters
- Stainless steel drain pan - no seams or joints for maximum security from leaks

### Controls

- Control valve package- valve, controller, thermostat and zone sensor to meet individual site requirements

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>

HFCE/HFXE/VFCE/VFXE		03			04			06			08		
		Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High
Airflow (at 0 Pa)	(m³/h)	300	350	400	443	530	640	620	765	870	810	970	1080
Total/sensible cooling capacity (at 0 Pa) (1)	(kW)	1.9/1.4	2.2/1.6	2.4/1.8	2.9/1.2	3.3/2.5	3.8/2.9	4.1/3.0	4.8/3.5	5.2/3.9	4.6/3.6	5.3/4.2	5.8/4.6
Heating capacity (at 0Pa) (2)	(kW)	4.7	5.4	6.0	7.1	8.1	9.5	9.7	11.4	12.7	12.4	14.3	15.5
Sound power level	(dB(A))	45	42	50	44	47	50	47	51	52	51	54	57
Sound pressure level	(dB(A))	36	39	41	35	38	41	38	42	43	42	45	48
NR Level (medium speed)			33			32			36			39	
NC Level (medium speed)			31			30			34			37	
<b>Weights and dimensions</b>													
Length	(mm)		680			930			1065			1350	
Width	(mm)		595			595			595			595	
Height	(mm)		265			265			265			265	
Operating weight	(kg)		23			30			33			41	
<b>Electrical data</b>													
Fan motor absorbed power (medium speed)	(A)		30			36			59			72	
Electric heater capacity	(W)		1000			1400			1800			2800	
Electric heater current	(A)		4.3			6.1			7.8			12.2	
Power supply	(V/Ph/Hz)		230-1-50/230-1-60			230-1-50/230-1-60			230-1-50/230-1-60			230-1-50/230-1-60	

HFCE/HFXE/VFCE/VFXE		10			12			16			20		
		Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High
Airflow (at 0 Pa)	(m³/h)	950	1120	1260	1150	1380	1560	2770	2960	3100	3100	3300	3480
Total/sensible cooling capacity (at 0 Pa) (1)	(kW)	5.7/4.4	6.5/5.0	7.2/5.5	7.4/5.5	8.5/6.4	9.2/7.0	13.5/10.7	14.0/11.2	14.4/11.6	15.7/12.3	16.3/12.9	16.8/13.3
Heating capacity (at 0Pa) (2)	(kW)	14.6	16.6	18.3	17.8	20.7	22.7	34.7	36.3	37.4	39.7	41.4	43.0
Sound power level	(dB(A))	49	52	56	52	54	58	74	76	77	76	78	79
Sound pressure level	(dB(A))	40	43	47	43	45	49	65	67	68	67	69	70
NR Level (medium speed)			37			39			61			63	
NC Level (medium speed)			35			37			59			61	
<b>Weights and dimensions</b>													
Length	(mm)		1520			1770			1090			1245	
Width	(mm)		595			595			595			595	
Height	(mm)		265			265			395			395	
Operating weight	(kg)												
<b>Electrical data</b>													
Fan motor absorbed power (medium speed)	(A)		85			104			560			655	
Electric heater capacity	(W)		3200			4000			6000/2000			6000/2000	
Electric heater current	(A)		13.9			17.4			26.1/8.7			26.1/8.7	
Power supply	(V/Ph/Hz)		230-1-50/230-1-60			230-1-50/230-1-60			230-1-50/230-1-60			230-1-50/230-1-60	

(1) At 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



# HFCF

## Fan coil water terminal



### Customer benefits

- Flexibility: customized system to fit the application's exact requirements
- Slim line design, overall thickness 230 mm, more space saved

### Main features

- Seamless female thread copper tube and wave hydrophilic aluminum fins W3B to enhance anti-water splash and improve fin's resistance to corrosion
- Well-insulated one-piece molded drain pan
- Drain valve avoids coil freezing in winter
- 3-speed motor, NSK bearings, low-noise high efficient centrifugal fan
- Easy field fan maintenance and replacement
- Coil tested at pressure 2.5 MPa
- Traditional and Earthwise application

### Options

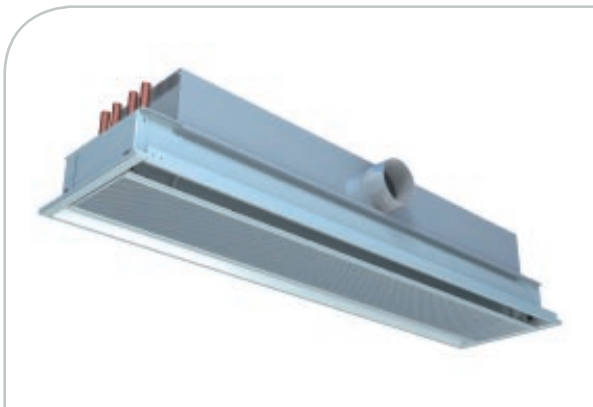
- Variable Airflow and Accurate Control
- 2-row, 3-row or 4-row units
- Low and medium static pressure
- RS485 interface and built-in networking control board for communication with ICS
- Bottom or rear plenum/filter option

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>



<b>Medium speed - 4 row coil</b>		<b>02</b>	<b>03</b>	<b>04</b>	<b>05</b>	<b>06</b>	<b>08</b>	<b>10</b>	<b>12</b>	<b>14</b>
Airflow	(m³/h)	240	340	451	610	649	920	1141	1510	1620
Total/sensible cooling capacity (1)	(kW)	1.84	2.91	3.52	4.64	5.23	6.64	8.4	10.39	11.88
Sound power level at 0 Pa	(dB(A))	25	21	27	34	31	36	35	41	43
Sound power level at 60 Pa	(dB(A))	35	33	35	37	38	41	41	46	46
<b>Weights and dimensions (standard unit)</b>										
Length	(mm)	648	883	983	1103	1153	1433	1683	1853	1983
Width	(mm)	487	487	487	487	487	487	487	487	487
Height	(mm)	230	230	230	230	230	230	230	230	230
Operating weight	(kg)	15	21	22	24	25	33	38	42	44
<b>Electrical data</b>										
Fan motor absorbed power (at 0 Pa)	(A)	9	10	19	25	27	49	54	85	97
Fan motor absorbed power (at 50 Pa)	(A)	26	30	29	38	47	72	86	120	132
Electric heater capacity	(W)	0.5	1	1.4	1.6	1.8	2.8	3.2	3.6	4.6
Electric heater current	(A)	2.3	4.5	6.4	7.3	8.2	12.7	14.5	16.4	20.9
Power supply	(V/Ph/Hz)	220V-240V/1/60								

(1) At cooling condition: Entering flow dry bulb/wet bulb temperature DB/WB 27/19.5 °C;  
Entering/leaving chilled water temperature 7/12 °C



# BAC

## Active chilled beams



### Customer benefits

- Air distribution through perfect Coanda effect for a high level of comfort
- High level of Indoor Air Quality with a large amount of fresh brought by the primary air
- Silent operation without fan noise emissions
- Long maintenance intervals without filter to clean and moving parts

### Main features

- Low profile integrate easily in narrowed ceiling voids
- Perfect fit to all ceiling tile structures
- Primary air connections on both unit sides
- Plugged unused primary air connections from factory, adjustable on site

### Options

- Shielded factory-mounted electric heater with double safety devices
- 2 and 3-way water valves factory-mounted
- Primary air connection available on end side
- Suitable for T bar and fine line ceiling tiles
- Left or right-hand configurations

### Controls

- Factory-mounted and configured control with Tracer LonTalk® ZN523
- Condensation free control module
- Master/slave beam control offering for price efficiency

### Energy savings

- *Efficient operation without electrical power consumption*

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>

<b>BAC</b>		<b>980</b>	<b>1270</b>	<b>1570</b>	<b>2170</b>	<b>2770</b>
Minimum primary airflow	(m <sup>3</sup> /h)	20	25	30	50	60
Primary air pressure loss*	(Pa)	64/36	61/34	53/29	75/46	73/43
Maximum primary airflow	(m <sup>3</sup> /h)	80	100	130	180	210
Primary air pressure loss*	(Pa)	204/111	162/90	184/101	187/103	146/80
Minimum capacity (1)	(W)	220	245	242	514	619
Water flow/pressure loss	(l/h / kPa)	90/0.9	80/0.8	70/0.6	200/6.7	180/6.8
Maximum capacity (2)	(W)	978	1084	1246	1833	1958
Water flow/pressure loss	(l/h / kPa)	150/2.1	140/1.9	130/2.1	300/13.4	320/17.7
Minimum heating capacity (3)	(W)	517	537	563	967	1020
Maximum heating capacity (3)	(W)	1531	1689	1875	2870	3209
Electric heater capacity	(W)	750	980	1200	1500	1960
<b>Weights and dimensions</b>						
Width T bar	(mm)			300/600		
Width fine line	(mm)			625/675		
Casing length T Bar	(mm)	1200	1500	1800/2100	2400/2700	3000/3300/3600
Casing length fine line	(mm)	1250/1350		1875/2025	2500/2700	3125/3375
Coil active length	(mm)	980	1270	1570	2170	2770
Weight	(kg)	20	27	37	46	56
Sound power level mini	(LwA)	29	26	26	27	29
Sound power level max	(LwA)	44	44	51	49	49
NR level mini (4)	(dB(A))	16	16	16	17	16
NR level max (5)	(dB(A))	26	26	32	29	32
NC level mini (4)	(dB(A))	14	14	14	15	14
NC level max (5)	(dB(A))	24	24	30	27	30

\* Pitch 20 mm / pitch 15 mm

(1) Primary air versus return air temperature delta T 8°C and Return air versus mean water temperature delta T of 8.5°C

(2) Primary air versus return air temperature delta T 10°C and Return air versus mean water temperature delta T of 11°C

(3) Water heating capacity only, positive or negative impact of primary air not added

(4) Given for minimum primary airflow and maximum pressure drop

(5) Given for Maximum primary airflow and minimum pressure drop



# VariTrane™

## Variable air volume systems



### Customer benefits

- Optimal building occupant comfort
- Highly flexible range for easy adaptation to building evolutions
- High performance
- Low energy consumption

### Range description

VCCF: Single duct cooling-only

VCWF: Single duct with hot water coil

VCEF: Single duct with electric heater

VCDF: Dual duct

VPCF: Parallel fan powered cooling-only

VPWF: Parallel fan powered with hot water coil

VPEF: Parallel fan powered with electric heater

VSCF: Series fan powered cooling-only

VSWF: Series fan powered with hot water coil

VSEF: Series fan powered with electric heater

LPCF: Low height parallel fan powered cooling-only

LPWF: Low height parallel fan powered with hot water coil

LPEF: Low height parallel fan powered with electric heater

LSCF: Low height series fan powered cooling-only

LSWF: Low height series fan powered with hot water coil

LSEF: Low height series fan powered with electric heater

### Main features

- Capable of varying the amount of air in an unlimited number of zones
- 0 to 3.8 m<sup>3</sup>/s
- Simple and rugged design
- Interlocking panel design
- Metal encapsulated edges
- Low height units
- Proven flow ring
- Linear flow response in controller logic

### Options

- Series or parallel terminal fan
- Hot water coil
- Electric terminal reheat
- Foil face insulation
- Double-wall insulation
- Choice of factory-mounted controls
- Outlet plenum

### Controls

- UCM-DDC controller, pressure independent
- VV550-Lonmark® DDC controller, pressure independent

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>

#### Single and Dual Duct Units VCCF, VCWF, VCEF, VDDF

Air valve size	4	5	6	8	10	12	14	16	24x16
Inlet Diameter (mm)	105	127	152	203	254	305	356	406	610x406
Primary Airflow (m³/s)	0.106	0.165	0.236	0.425	0.661	0.944	1.416	1.888	3.776

#### Parallel Fan Powered Units VPCF, VPWF, VPEF

Fan size / Valve Size	05	06	08	10	12	14	16
02SQ	0.236/0.165	0.236/0.236	0.236/0.425	0.236/0.661			
03SQ		0.519/0.236	0.519/0.425	0.519/0.661	0.519/0.944		
04SQ			0.637/0.425	0.637/0.661	0.637/0.944	0.637/1.426	
05SQ				0.732/0.661	0.732/0.944	0.732/1.426	
06SQ				0.873/0.661	0.873/0.944	0.873/1.426	0.873/1.888
07SQ				0.944/0.661	0.944/0.944	0.944/1.426	0.944/1.888

#### Series Fan Powered Units VSCF, VSWF, VSEF

Fan size / valve size	04	05	06	08	10	12	14	16
02SQ	0.330/0.106	0.330/0.165	0.330/0.236	0.330/0.425	0.330/0.661			
03SQ			0.566/0.236	0.566/0.425	0.566/0.661	0.566/0.944		
04SQ			0.732/0.236	0.732/0.425	0.732/0.661	0.732/0.944	0.732/1.416	
05SQ					0.897/0.661	0.897/0.944	0.897/1.416	
06SQ					1.227/0.661	1.227/0.944	1.227/1.416	1.227/1.888
07SQ					1.416/0.661	1.416/0.944	1.416/1.416	1.416/1.888

#### Low Height Parallel Fan Powered Units: LPCF, LPWF, LPEF and Low Height Series Fan Powered Units: LSCF, LSWF, LSEF

Fan size / valve size	05	06	08	14RT
08SQ	0.236/0.165	0.236/0.236	0.236/0.425	
09SQ		0.425/0.236	0.425/0.425	0.425/0.850
10SQ			0.661/0.425	0.661/0.850



# DLEA

## Linear slot diffusers



### Customer benefits

- Deliver conditioned air using the Coanda effect: no drafts, no cold spots and no discomfort
- Blend into room's décor
- Flexible range: for supply and exhaust applications, heating and cooling modes, constant or variable air volume
- Easy installation: saving of time
- Low sound levels: unmatched in the market place
- Easy integration: saving of space

### Main features

- Adjustable vane slots on supply diffusers
- Compatible with most ceiling styles including T-bar, plasterboard and fine line
- Available in sizes ranging from 600 to 1800 mm

- Can be linked end-to-end to make a single diffusion line
- Hanging brackets
- Extruded aluminum profiles with an epoxy paint finish RAL 9010 (50% brilliance)
- Available with one to four slots to ensure a perfect match with occupancy and room design
- ø160, 200 or 250 mm air inlet connections

### Options

- Optional patented airflow adjustment system: an easily adjustable damper and integrated airflow measurement system
- Optional push-pull opening system
- Integrated G2, G3 or G4 filters on return diffusers
- Acoustic insulation, balancing damper, flow meter,

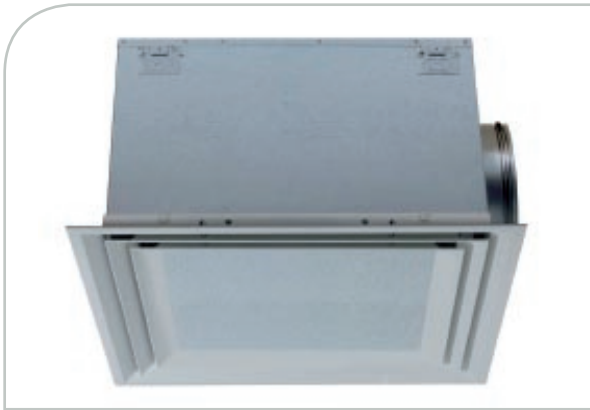
Unit model and type	Number of slots	Length (1)	Airflow	Minimum throw	Maximum throw	Pressure drop (2)
		(mm)	(m <sup>3</sup> /h)	(m)	(m)	(Pa)
DLEA Supply	2	900	306	1.4	4.6	21
DLEA Supply	3	900	408	1.6	5.3	17
DLEA Supply	4	900	560	2.2	6.1	18
DLEA Return	1	900	200			25
DLEA Return	2	900	300			17
DLEA Return	3	900	400			20
DLEA Return	4	900	600			21
DLEA Supply	2	1200	408	1.8	5.8	21
DLEA Supply	3	1200	544	2.0	6.7	17
DLEA Supply	4	1200	748	2.8	7.7	18
DLEA Return	1	1200	200			19
DLEA Return	2	1200	400			18
DLEA Return	3	1200	400			17
DLEA Return	4	1200	600			15
DLEA Supply	2	1800	612	2.3	7.3	21
DLEA Supply	3	1800	815	2.6	8.6	17
DLEA Supply	4	1800	1121	3.5	9.8	18
DLEA Return	1	1800	400			18
DLEA Return	2	1800	600			14
DLEA Return	3	1800	700			17
DLEA Return	4	1800	1000			15

(1) Other lengths available

(2) Pressure drop of diffuser and plenum without filter

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>





# DSEA

## Multidirectional diffusers



### Customer benefits

- Deliver conditioned air using the Coanda effect: no drafts, no cold spots and no discomfort
- Blend into room's décor – model DSEA uses existing false ceiling panels, allowing for homogenous ceiling color and design.
- Flexible range: for supply and exhaust applications, heating and cooling modes, constant or variable air volume
- Easy installation: saving of time
- Low sound levels: unmatched in the market place
- Easy integration: saving of space

### Main features

- Manually adjustable airflow direction, from horizontal to vertical
- Internal thermal and acoustic insulation- Made of melamine- Does not create dust particles
- Unpainted galvanized steel casing/painted aluminium frame
- Available with one to four slots

- Hanging brackets
- Compatible with most ceiling styles including T-bar, plasterboard and fine line
- Extruded aluminum profiles with an epoxy paint finish RAL 9010 (50% brilliance)

### Options

- Steel central plate (RAL 9010) or you can fit the standard ceiling plate
- Push-pull opening system
- Top or side air inlets: ø250 or 315 mm
- Integrated G2, G3 or G4 filters on return diffusers
- Acoustic insulation, balancing damper, flow meter

Unit model and type	Number of slots	Length (1)	Airflow	Minimum throw	Maximum throw	Pressure drop (2)
		(mm)	(m <sup>3</sup> /h)	(m)	(m)	(Pa)
DSEA Supply	1	600	410	1.7	5.1	16
DSEA Supply	2	600	615	2.0	5.9	18
DSEA Supply	3	600	820	2.5	7.8	14
DSEA Supply	4	600	930	2.6	8.0	15
DSEA Return	1	600	400			17
DSEA Return	2	600	510			25
DSEA Return	3	600	660			22
DSEA Return	4	600	910			32

(1) Other lengths available

(2) Pressure drop of diffuser and plenum without filter

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>





# *DX unitary systems*

*Unitary systems combine heating, cooling, and fan sections all in one or a few assemblies 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.*



# 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

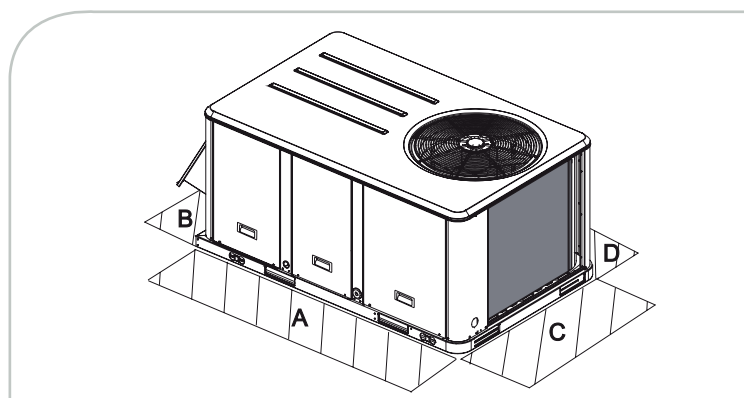
### ReliaTel™ Controls

- 24 V easy-to-start and service microprocessor controls
- Built-in conventional thermostat interface
- Remote on/off input
- LonTalk®, Modbus®, BACnet® communication capabilities

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>

TSD/TSH YSD/YSH		060	072	090	102	120
Net cooling capacity (1)	(kW)	17.2	21.8	24.9	28.7	31.7
Total power input (1)	(kW)	5.6	7.18	8.64	9.99	11.84
EER / Eurovent Energy class (1)		3.07 / A	3.04 / A	2.88 / B	2.87 / B	2.68 / C
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	(m³/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</b>						
Power supply	(V/Ph/Hz)			400/3/50		
Nominal amps	(A)	18	23	26	28	30
Start-up amps	(A)	76	103	120	88	93
<b>WSD/WSH</b>						
Net cooling capacity (1)	(kW)	17.2	21.8	24.9		
Total power input (1)	(kW)	5.6	7.18	8.64		
EER / Eurovent Energy class (1)		3.07 / A	3.04 / A	2.88 / B		
Net heating capacity (1)	(kW)	15.3	20.6	25.7		
COP / Eurovent Energy class (1)		3.50 / A	3.56 / A	3.83 / A		
Outdoor sound power level (3)	(dB(A))	79	81	81		
Indoor sound power level (2)	(dB(A))	71	68	70		
Nominal airflow	(m³/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)	18	23	26		
Start-up amps	(A)	76	103	120		

- (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

### 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, download documentation at: <http://doc.trane-eur.com>



TKD / TKH	YKD / YKH	155	175	200	250	265*	290*	340*
Net cooling capacity (1)	(kW)	43.5	50.6	55.2	66.4	73.8	85.7	95.2
Total power input (1)	(kW)	14.8	17.3	18.1	22.1	25	28.8	34
EER / Eurovent Energy class (1)		2.93 / B	2.93 / B	3.05 / A	3.01 / A	2.95 / B	2.98 / B	2.8 / B
Outdoor sound power level (3)	(dB(A))	85	86	86	89	87	89	90
Indoor sound power level (2)	(dB(A))	74	77	77	82	83	83	85
Nominal airflow	(m³/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
Weights and dimensions (Operating)								
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						
Electrical data								
Power supply	(V/Ph/Hz)	400/3/50						
Nominal amps	(A)	33	41	44	47	51	59	66
Start-up amps	(A)	107	117	171	172	179	198	241

WKD / WKH DKD / DKH		125	155	200	265	290	340
Net cooling capacity (1)	(kW)	36.9	44.8	62.4	71.6	78.7	88.4
Total power input (1)	(kW)	11.6	15.4	21.8	25.5	28.6	34
EER / Eurovent Energy class (1)		3.17 / A	2.9 / B	2.86 / B	2.81 / B	2.75 / C	2.6 / C
Net heating capacity (1)	(kW)	34.7	45.3	55.9	65.8	75.4	84.2
COP / Eurovent Energy class (1)		3.54 / A	3.47 / A	3.26 / B	3.26 / B	3.35 / B	3.2 / B
Outdoor sound power level (3)	(dB(A))	85	85	89	87	89	90
Indoor sound power level (2)	(dB(A))	79	74	81	83	83	85
Nominal airflow	(m³/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)	30	36	47	52	63	70
Start-up amps	(A)	107	121	172	181	202	244

(1) At Eurovent conditions EN-14511:

indoor: 27°C/19°C, outdoor: 35°C (cooling)

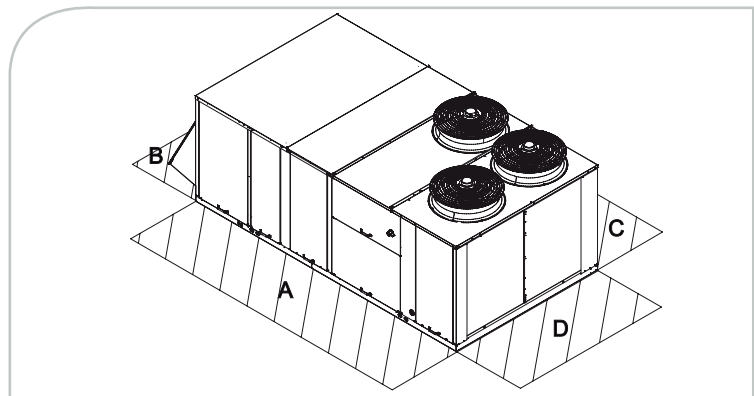
Indoor: 20°C, outdoor 7°C/6°C DB/WB (heating)

(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

### ReliaTel™ Control

- 24 V easy-to-start and service microprocessor controls
- LonTalk®, Modbus®, BACnet® communication capabilities

### Energy saving options

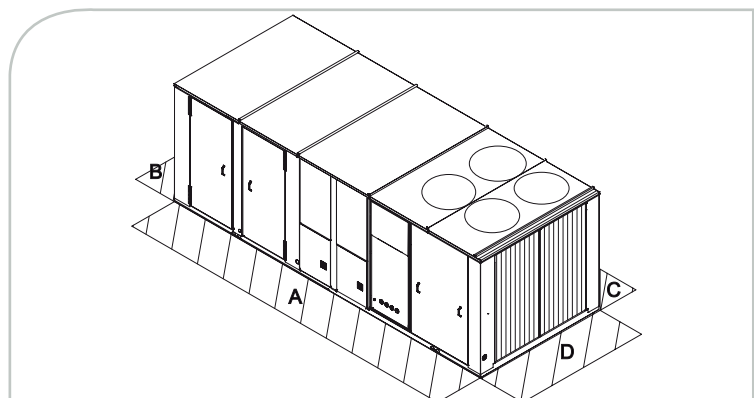
- *Dedicated downflow/horizontal flow Energy Recovery Module*
  - *Plate heat exchanger version (efficiency from 40 to 60%)*
  - *Heat recovery wheel version (efficiency from 65 to 85%)*
- *Dual fuel unit (DKD/DKH)*
  - *Switch automatically from mechanical heating to gas heat when efficiency of the heat pump is decreasing in cold ambient temperatures*
- *Modulating /condensing gas burner (YKD/YKH)*
  - *High efficiency gas burner (up to 105% efficiency) fully modulating from 30 to 100% heat output*

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>

TKD / TKH	YKD / YKH	275	300	350	400	500	600
Net cooling capacity (1)	(kW)	80.3	85.3	91.9	119.7	131.0	155.9
Total power input (1)	(kW)	25.1	27.9	30.2	39.9	46.8	58.2
EER / Eurovent Energy class (1)		3.20 / A	3.06 / A	3.04 / A	3.00 / A	2.80 / B	2.68 / C
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	(m³/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	81	95	115	130	152
Start-up amps	(A)	209	248	261	324	392	414

WKD / WKH DKD / DKH		400	500	600
Net cooling capacity (1)	(kW)	112.3	134.6	154.7
Total power input (1)	(kW)	39.3	50.8	63.1
EER / Eurovent Energy class (1)		2.86 / B	2.65 / C	2.45 / D
Net heating capacity (1)	(kW)	103.4	145.6	172.1
COP / Eurovent Energy class (1)		3.30 / B	3.27 / B	3.28 / B
Outdoor sound power level (3)	(dB(A))	87	89	90
Indoor sound power level (2)	(dB(A))	83	83	85
Nominal airflow	(m³/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)	113	145	159
Start-up amps	(A)	288	354	421

- (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

- 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)

### Options

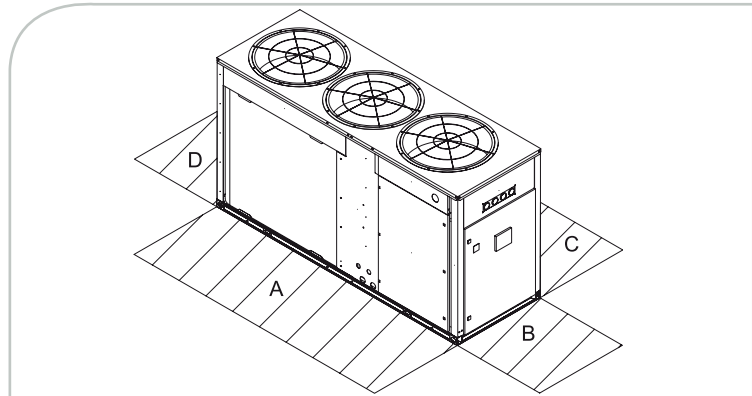
- Low ambient operation (down to -18°C)
- 380, 400 and 415V power voltage
- Black epoxy-coated aluminium fins
- Copper fins
- Compressor sound attenuating jackets
- High and low pressure gauges
- Auxiliary card to validate auxiliary temperature setpoint with a remote contact
- Phase reversal protection
- Factory-mounted LonTalk® serial link allowing you to:

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>

<b>RAUL</b>		<b>190</b>	<b>260</b>	<b>300</b>	<b>350</b>	<b>400</b>	<b>450</b>	<b>500</b>	<b>600</b>	<b>700</b>	<b>800</b>
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





# RAUJ

## Condensing unit



### Customer benefits

- Flexibility: customized system to fit the application exact requirements

### Main features

- Phase loss/reversal/low voltage monitor
- Factory-installed discharge and liquid line service valves
- Passive manifolding for 3-D Scroll compressors
- Standard ambient operating range 4°C to 52°C (46°C max ambient for evaporator)
- Heavy gauge galvanized steel frame
- Louvered panels for coil protection
- Slate gray air-dry paint finish (exceeds 672 hour salt spray test in accordance with ASTM B117)

### Options

- Remote chiller evaporator with field installation kit
- Non-fused disconnect (C20 to C60 models)
- Low ambient option
- Hot gas bypass to the evaporator inlet
- Suction service valve
- Pressure gauges
- Return air sensor
- Copper finned condenser coil
- Unit spring isolators
- Neoprene-in-shear isolators

- Not CE compliant
- UL approval on 60 Hz version
- Extended Compressor Warranty
- Special coil coating for corrosion resistance
- Constant volume, VAV, and no controls options on C20 to C60 models, VAV and no controls options on C80 to D12 models

### Control

In addition to the “no system control” option, Trane offers three system control options on C20 to C60 units and two system control options on the C80 to D12 units, each using solid-state electronics.

These options allow the unit to be ordered with the controls needed, saving field installation costs.

Coil Frost Protection: Trane offers Froststat™ with the VAV system control option Froststat™ is the industry’s most reliable method of coil frost protection and assures that your system will provide energy efficient comfort at part load conditions.

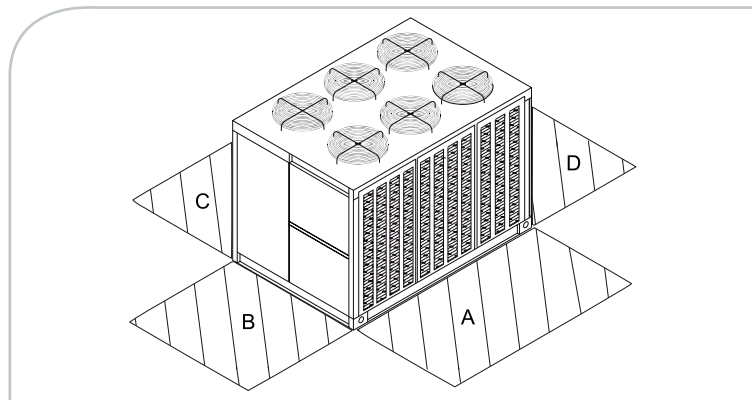
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RAUJ		C20	C25	C30	C40	C50	C60	C80	D10	D12
Net cooling capacity R410A (1)	(kW)	77.5	94.2	115.3	156.4	194.3	222.9	316.1	385.8	466.9
Total power input R410A (1)	(kW)	22.6	26.9	35.0	46.1	59.5	67.3	103.6	119.6	142.0
Number of refrigerant circuits	(kW)	1	1	1	2	2	2	2	2	2
Number of compressors / capacity steps	(kW)	2	2	2	4	4	4	6	6	6
Suction line diameter	(inches)	1"5/8	1"5/8	1"5/8	1"5/8	1"5/8	1"5/8	2"5/8	2"5/8	2"5/8
Liquid line diameter	(inches)	7/8"	7/8"	7/8"	7/8"	7/8"	7/8"	1"1/8	1"1/8	1"1/8
<b>Weights and dimensions (Operating)</b>										
Length	(mm)	2242	2242	2242	2242	2891	2891	4477	5772	5772
Width	(mm)	1527	1527	1527	2242	2242	2242	2242	2242	2242
Height	(mm)	1886	1886	1886	2013	2013	2013	2013	2013	2013
Weight	(kg)	732	754	761	1194	1316	1345	2291	2622	2798
Clearance A	(mm)	1829	1829	1829	1829	1829	1829	2438	2438	2438
Clearance B	(mm)	1067	1067	1067	1067	1067	1067	1219	1219	1219
Clearance C	(mm)	1829	1829	1829	1829	1829	1829	2438	2438	2438
Clearance D	(mm)	1067	1067	1067	1067	1067	1067	1219	1219	1219
<b>Electrical data (2)</b>										
Minimum circuit ampacity at 200/3/60	(A)	102	119	141	193	236	267	411	480	574
Minimum circuit ampacity at 230/3/60	(A)	89	107	123	168	215	232	358	425	515
Minimum circuit ampacity at 460/3/60	(A)	46	52	63	87	102	120	174	207	255
Minimum circuit ampacity at 575/3/60	(A)	39	44	57	73	86	107	139	166	204
Minimum circuit ampacity at 400/3/50	(A)	46	52	63	86	101	119	173	206	253

(1) Performances given at 35°C outdoor ambient and 7°C saturated suction temperature

(2) Minimum circuit ampacity (MCA) is 125 percent of the RLA (Rated Load Amp) of one compressor motor plus the total RLA of the remaining motors.





# 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, download documentation at: <http://doc.trane-eur.com>

### 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	(m³/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	(m³/h)	1645	1731	3205	3440	4500	5202
Maximum external static pressure	(Pa)	193	155	178	123	153	40

#### Weights and dimensions - Direct expansion units

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

#### Electrical data - Direct expansion units

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

EDWV: Water-cooled direct expansion downflow

EUWV: 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

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, download documentation at: <http://doc.trane-eur.com>

### Chilled water units

EDCB / EDCV / EUCB / EUCV		0070	0100	0120	0170	0200	0250	0270	0340	0400	0430
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	164 / 137
Supply airflow	(m³/h)	6060	10200	10420	14920	18680	18680	18725	24777	25193	28444
<b>Weights and dimensions (Operating)</b>											
Length	(mm)	1010	1010	1310	1721	2172	2172	2170	2580	2580	2580
Width	(mm)	750	865	865	865	865	865	865	865	865	865
Height	(mm)	1960	1960	1960	1960	1960	1960	1960	1960	1960	1960
Operating weight	(kg)	220	306	314	395	443	458	502	702	740	820
<b>Electrical data</b>											
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%

### 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	4233
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 / 81.7	92.6 / 87.6	91.2 / 87.6	95.9 / 91	105 / 94	105 / 94

### Direct expansion water-cooled units

EDWB / EDWV / EUWB / EUWV		1106	2109	2113	2216	2218	4222	4225	4228	4233
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	110 / 94.6

### General data - Direct expansion air-cooled and water-cooled units

Unit size		1105*	1106	2107*	2207*	2109	2209*	2111*	2211*	2113	2213*	2216	2218	2222*	4222	2225*	4225	4228	4233
Number of refrigerant circuits		1	1	1	2	1	2	1	2	1	2	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	4
Supply airflow	(m³/h)	5750	5750	8530	8530	8530	8530	12895	12895	12895	12895	16590	16590	21635	21635	22835	22835	23210	23210
<b>Weights and dimensions (Operating)</b>																			
Length	(mm)	1010	1010	1310	1310	1310	1310	1721	1721	1721	1721	2172	2172	2582	2582	2582	2582	2582	2582
Width	(mm)	750	750	865	865	865	865	865	865	865	865	865	865	865	865	865	865	865	865
Height	(mm)	1960	1960	1960	1960	1960	1960	1960	1960	1960	1960	1960	1960	2175	2175	2175	2175	2175	2175
Operating weight	(kg)	280	310	430	447	430	447	548	559	575	585	714	714	910	910	918	930	1040	1098
<b>Electrical data</b>																			
Power supply	(V/Ph/Hz)	400/3/50																	

(1) Based on 24°C/50% relative humidity (return air), saturated condensing temperature: 45°C

(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 0430 only available in downflow version: EDCB/EDCV

\* Size available in direct expansion air-cooled units only. Water-cooled version not available.





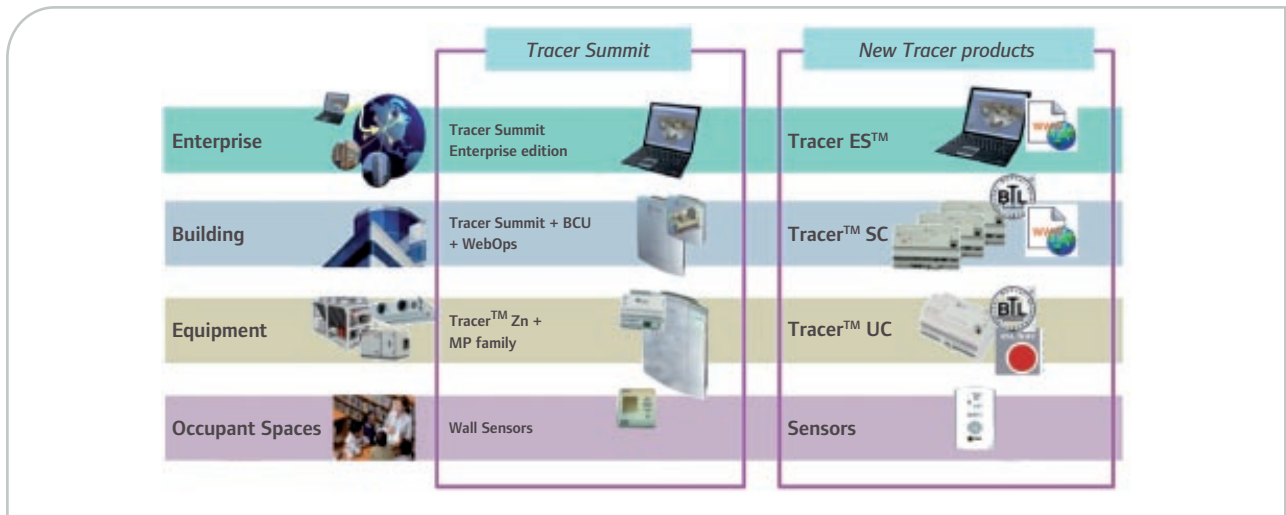


# *HVAC and building controls*

*Trane controls are the keystone to making a building work better for life. They are engineered to be user-friendly and help building owners efficiently achieve their desired temperature, humidity and ventilation whatever the building's purpose.*



# Trane controls offer



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.

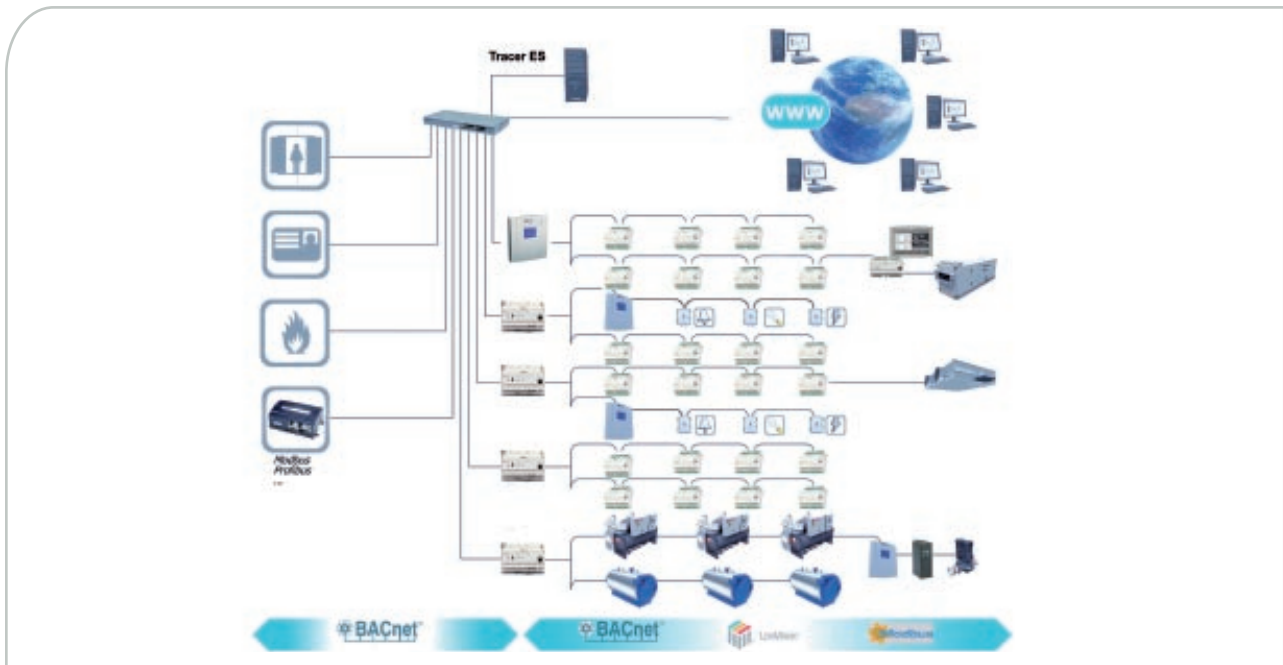
Trane field controllers have advanced equipment HVAC embedded application libraries which have been developed over 100 years of experience. This provides our equipment with the best life cycle and the best efficiencies. All Trane HVAC applications are designed to improve the commissioning and maintenance 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, 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.

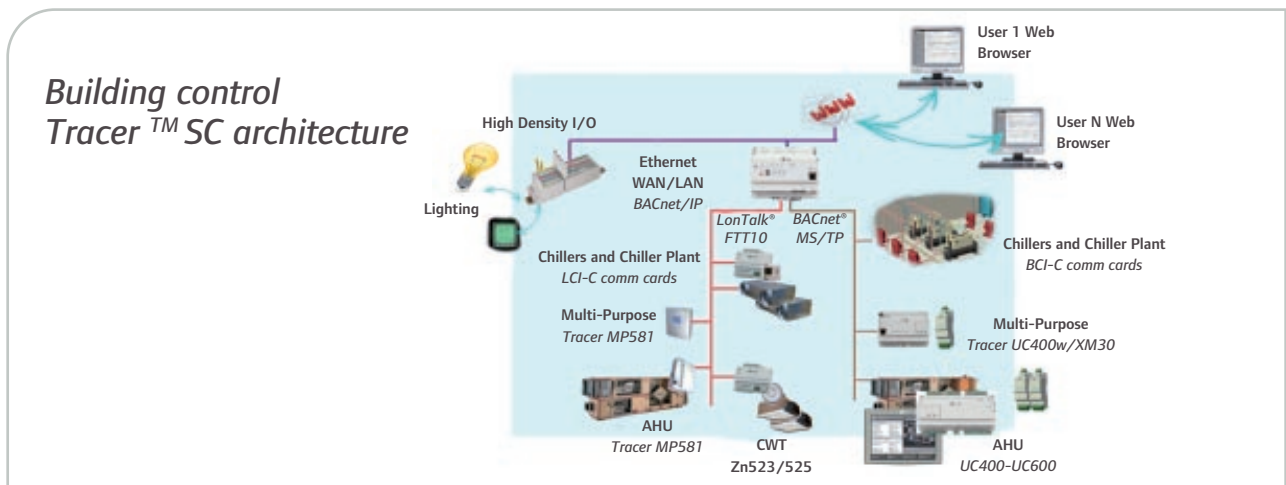
For system level communications, which imply large quantities of data management, BACnet®/IP is used for its high speed and bandwidth communication capacity and ease of implementation – almost EVERY building has Ethernet TCP/IP network architecture.

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 or Tracer BCU's 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 and text messages services.

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 ES™, 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.

# The solution for small and medium buildings: Tracer™ SC



Tracer™ SC architecture perfectly fits today's requirements of Building Management systems for small and medium sized buildings:

It embeds latest Web technologies which allow the users to navigate throughout the system features, from wherever they are. Tracer™ SC licensing being based on the number of devices in the system, there are virtually no limits in terms of number of users that can access web pages at a given time. This provides full flexibility to the asset managers in defining the various team members access profiles, no matter how many people have to interact with the system.

Tracer SC architecture uses natively embedded open standard protocols like BACnet®/IP, BACnet® MS/TP and LonTalk® so that the integration of equipment and systems from other manufacturers is simple and seamless. This approach allows the system to expand as the needs for the building grow, supporting future modifications and upgrades and therefore ensures a reliable and sustainable long-term investment.

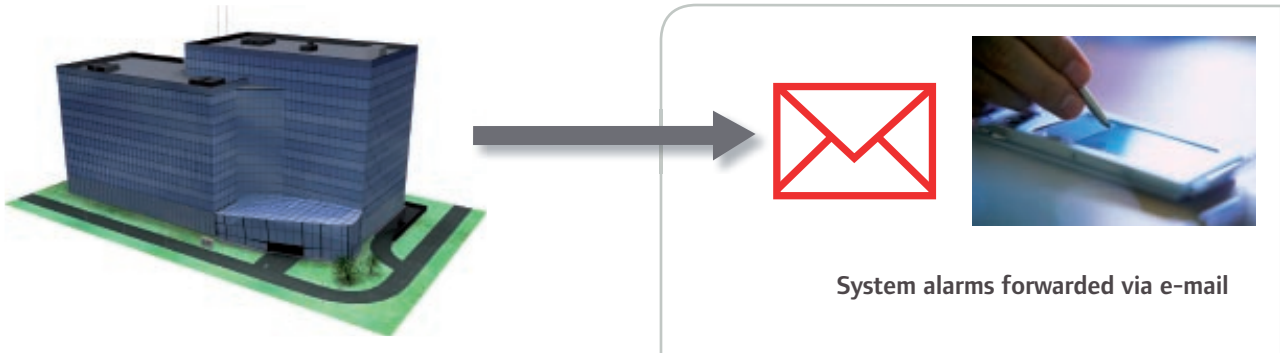
The technology trends shows that BACnet® protocol is taking a larger market share in today's projects. Trane system perfectly supports this approach by proposing an architecture that supports this protocol at field and system

level, allowing the integration of controllers through either IP or MS/TP, with the exact same set of features and functionalities.

Trane has always proposed pre-engineered applications within its BMS solutions, so that customers get reliable, sustainable and repeatable solutions. With this approach, there is no compromise on development time of these applications: they are already there!

Pre-engineered applications also enable the use of advanced energy conservation functions like:

- Chiller Plant Control, including pre-programmed Variable Primary Flow, or series chillers
- Demand limiting: power consumption setpoint management for all Trane chillers.
- Random start: on fan coils to limit consumption peaks.
- Optimizer: Maintenance can implement standard functions to optimize the start and/or stop times and to minimize the run time of HVAC Units.
- Custom Duty cycling: A strategy can be implemented based on consumption limitation.
- Variable Air Systems: capable of handling the totality of a Variable Air Installation, including ventilation optimization, flow control and Indoor Air Quality Management.



## Main features

**Full web capable system:** HTML web pages for system information, custom graphics, dashboards and project related information.

**Wizard technology:** guides the user throughout the various steps required to achieve a task

**Customizable navigation tree:** full flexibility to navigate throughout the system

**User's profiles:** allows for segregation of the areas of the system which users have access to, based on their profile

**Flexibility:** System licensing is based on the number of field devices, and does not restrict the number of users

**Alarm and event log:** Email notification of system failures across multiple systems

**Reports:** Standard way of presenting system live data

**Trend Viewer:** Easily create and archive trended data. Trend logs are automatically create at system setup, with most common data

**Intuitive manual overrides:** Simple, easy to understand manual auto control functions

**Standard and custom graphics:** 3D equipment graphics are included. Customized graphics for each site can be easily created.

**Graphic library:** Standard 3D graphic elements are available for customized use

**Time-of-day schedule:** Save energy by running equipment only when needed and easily modify schedules for exceptions and holidays

**Area control:** Logical organization and control of equipment to building layout

**Timed override:** Ability to override equipment schedule

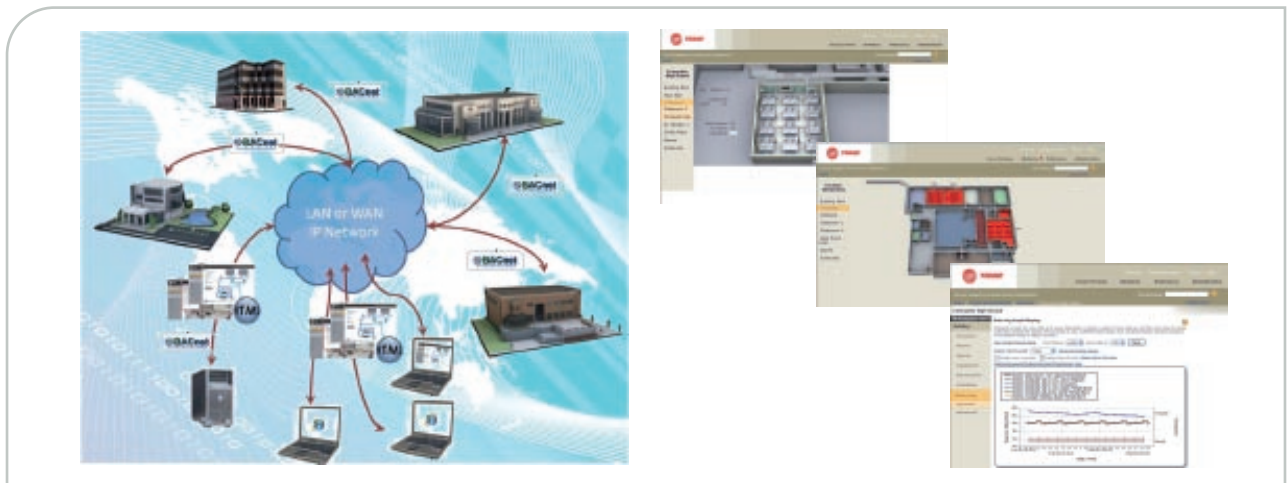
**Variable-air-volume air system (VAS) control:** Control the AHU and VAV boxes as one system

**Static pressure and ventilation:** dedicated to comfort level management while ensuring maximum energy savings

**Chiller Plant Control:** Advanced chiller plant automation for system safety and energy performance

**Graphical programming:** Flexible site-specific programming capabilities

# The solution for large systems: Tracer ES™



With Tracer ES™, you have direct computer access to every BACnet® system in every building you manage. You have complete control at your fingertips to make global schedule changes, answer alarms and diagnose problems instantly, from anywhere.

That's the power of Tracer ES™...a front-end system that lets operators of multiple facilities manage all their buildings as a single enterprise. No more running from building to building, or campus to campus. Tracer ES™ brings it all to you. Just log on. And manage your buildings – and your business – better!

Trane delivers a complete, single-source approach to all your building automation, equipment, service, parts and environmental needs. No more settling for half the answer. No more proprietary systems that don't play well with others, or lock you into their technology with expensive upgrades.

Tracer ES™ gives you complete freedom. The freedom of a system that's easy to integrate, operate and maintain – and makes it easy to better manage and reduce your operating costs.

Tracer ES™ takes you far beyond turning lights off and on and setting temperatures. With Tracer ES™, you get total control of all your buildings taking energy savings, diagnostics and scheduling efficiencies to a whole new level.

You'll save time, money and headaches by being able to immediately respond to alarms and send the right service people with the right equipment to make the repair...or in many cases you can solve the problem yourself, right from your computer.

In addition, Tracer ES™ gives you the ability to collect and analyze energy and operating data from multiple sources. So you can compare and contrast your "best of class" buildings with those that are not top performers to help raise them to a higher level – and wring out extra savings.

With Tracer ES™, you get a system that not only allows you to work more efficiently; it allows you to buy more efficiently. Tracer ES™ features a unique modular and scalable design that lets you purchase only the components you need, and gives you the freedom to add other value-added modules as you need them – plus, it easily connects with your Trane or non-Trane systems.



## Main features

- Online facility management
- Daily operator functionality
- Central, server-based software
- Remote access from any secure PC on the network
- Front-end system that works with both Trane and qualified non-Trane BACnet® systems
- Data collection and analysis tool

Tracer ES™ helps customer's make better decisions:

- Views and analyzes information about all their facilities as one enterprise
- Supports a proactive approach: makes users more efficient and better at what they already do
- Provides historical energy usage data for multiple facilities and systems
- Provides historical operational information for multiple systems and equipment

## Energy cost savings

Building owners and managers want to better understand how they use energy, and how to make smart decisions about their energy usage and resources. Tracer ES™ gives the ability to collect and analyze energy and operational data from multiple sources. Data can be compared and contrast the “best of class” buildings with those that are not top performers to help raise them to a higher level—and wring out extra savings.

## Easy integration and compatibility

Tracer ES™ integrates with existing IT infrastructure and other qualified non-Trane BACnet® building systems. Its standard technologies makes it the ideal IT citizen—peacefully residing on IT network while going about its business.

## Superior performance

- Dramatically streamlines daily facility management activities
- Instantly pinpoints alarms at their source and diagnoses problems from any computer
- Bundles repetitive tasks to reduce time spent making changes across many buildings
- Reduces training needs by providing a highly intuitive user experience





# Building Management Systems

Building efficiency at your fingertips

## Customer benefits

- Full control of building components
- Full access to historical data and energy savings strategies
- Building asset management from any place
- Easy daily operation through fully customized graphical interface

## Description

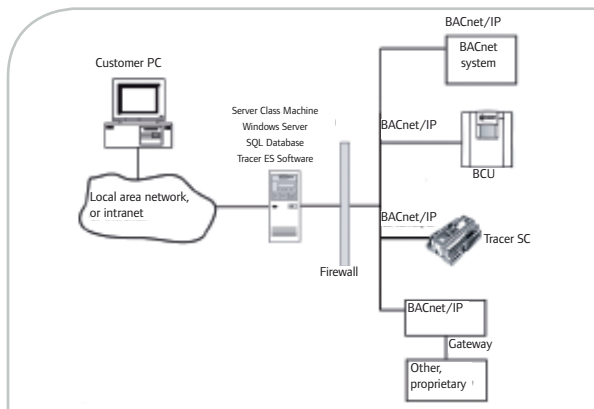
- Embedded standard communication capability
- User access security
- Embedded energy savings pre-engineered applications (Chiller Plant Control)
- Full BMS basic features (Scheduling – Trending – Archiving – Reporting)
- Full Web capability
- IT-friendly components

	Tracer EST <sup>TM</sup>	Tracer <sup>TM</sup> SC	Tracer <sup>TM</sup> BCU	Tracer Summit <sup>TM</sup>
Multibuilding capability	X	-	-	X
Embedded web services	X	X	-	-
STAR functionality (**)	X	X	X	X
Energy savings embedded strategies	X	X	X	X
LonTalk <sup>®</sup> protocol support	-	X	X	-
BACnet <sup>®</sup> - IP protocol	X	X	X	X
BACnet <sup>®</sup> - MS/TP protocol	-	X	X	-
Server-based operations	X	-	-	-
High speed remote connectivity	X	X	x	X
Archiving capacity	Large - unlimited	6 months(*)	1 month(*)	Large

(\*) Average. Heavily depends on number of logs and sampling time.

(\*\*) STAR = Scheduling, Trending, Archiving, Reporting





# Tracer ES™

## Enterprise level management Building management solution

### Customer benefits

- Integration platform for heterogeneous BACnet® –IP based Building Management Systems
- Global access and commands to scattered buildings and systems
- Easy view and analysis of remote buildings performances from one single seat
- Historical data management
- System access from anywhere through web infrastructure

### Description

- Embedded standard communication capability
- User access security
- Embedded energy savings pre-engineered applications (Chiller Plant Control)
- Full BMS basic features (Scheduling – Trending – Archiving – Reporting)
- Full Web capability
- IT-friendly components

Category	Requirement when using SQL Express	Requirement when using Full SQL Server
Licensing	By Connected System BACnet® Panel	By Connected System BACnet® Panel
Maximum of Connected BACnet® Panels	5	10
Client Browsers Supported	Microsoft Internet Explorer 6, SP1 (or higher); Mozilla Firefox 3.0 (or higher); Apple Safari 1.2 (or higher)	Microsoft Internet Explorer 6, SP1 (or higher); Mozilla Firefox 3.0 (or higher); Apple Safari 1.2 (or higher)
Server Type	Tower	Tower or rack-mount
Processor	Dual Core Processor	Quad Core Processor
Memory	4 GB Memory	4 GB Memory
Hard Drive	Minimum 25 GB	Minimum 73 GB
RAID	No RAID minimum	RAID 5 minimum
Configuration	Combined	Multiple Options
Operating System	Microsoft Server 2003/2008	Microsoft Server 2003/2008
Internet Information Services (IIS)	IIS 6.0 (or higher)	IIS 6.0 (or higher)
Software Requirements	Microsoft SQL Express 2005	Microsoft SQL Database 2005/2008
<b>Remote Access</b>		
Web UI	Via IP Connection	Via IP Connection
Server	Via IP Connection (VPN Recommended)	Via IP Connection (VPN Recommended)
Network Topology	Ethernet/IP	Ethernet/IP
Network Utilization	Low	Low
Protocols Supported	BACnet® (ASHRAE Std 135-2004)	BACnet® (ASHRAE Std 135-2004)
Database Supported	Microsoft SQL Express 2005 (4 GB maximum database size allowed)	Microsoft SQL Database 2005/2008 (unlimited database size allowed)
Security	SSL and Tracer ES™ controlled security with encrypted passwords	SSL and Tracer ES™ controlled security with encrypted passwords
Number of Users	30 concurrent users	100 concurrent users
Technology Platform	.NET Framework 3.5	.NET Framework 3.5
Languages Supported	English – French – Spanish – German	English – French – Spanish – German

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>



# Tracer™ SC

## Web-based all-in-one BMS solution

### Customer benefits

- Acts as the central communication and application coordinator for all individual equipment devices in a Tracer BMS.
- Web-based interface provides an easy and convenient way for building operators to access their BMS.

### Description

- Access available from any PC that meets system requirements, even from remote locations.
- Network security by managing 2 separate network access ports
- Embeds all Trane pre-engineered applications (CPC, VAS, Schedules,...)

Application / features		
Number of communicating field devices	30, 60 or 120	Based on licenced type
Communications	BACnet® IP	10BASE-T/100BASE-TX dedicated Ethernet (ISO/IEC 8802-3) or Transmission Control Protocol/Internet Protocol (TCP/IP) compatible network
	BACnet® MS/TP	ENV-1805-1/ENV-13321-1
	LonTalk®	Communications based on the EIA-709.1 (LonTalk) standard
Interface	HTML pages	Standard pages and customizable pages
Variable Air Systems	Ventilation reset optimization - Area management - Timed override	
Chiller Plant Control	Variable Primary Flow control - series chillers - cooling tower optimization	25 chillers max per CPC, 4 CPC per Tracer SC
Supported browser	Internet Explorer	7.0 and higher
	Mozilla Firefox	3.0 and higher
Time of Day scheduling	Standard agenda - Exception schedule	
Certification	BACnet®	BTL Listed product (BOWS)
	LEED	Achieve points toward Leadership in Energy and Environmental Design (LEED) certification (Site commissioning report - Energy data collection - IAQ management and Energy performance optimization)
Computer	Browser requirements	Internet Explorer™ Version 7.0 or higher, or Mozilla Firefox™ Version 3.0 or higher
	Software requirements	<ul style="list-style-type: none"> <li>• Java™ SE Runtime Environment (JRE) Version 5.0 (preferred: Version 6 Update 10 or higher)</li> <li>• Adobe Flash™ player</li> <li>• Internet Explorer™ Version 7.0 or higher or Mozilla Firefox Version 3.0 or higher</li> <li>• USB driver—For service tool connection and for direct access to Tracer SC Web pages</li> </ul>
Tracer SC system controller	Power requirements	<ul style="list-style-type: none"> <li>• Nominal rating: 120/230 Vac; 50 or 60 Hz; 1 pH</li> <li>• Maximum current: 6.0 A at 120 Vac dedicated circuit breaker</li> </ul>
	Operating environment	<ul style="list-style-type: none"> <li>• Temperature: From -40°F to 122°F (-40°C to 50°C)</li> <li>• Relative humidity: From 10% to 90%, non-condensing</li> </ul>
	Storage environment	<ul style="list-style-type: none"> <li>• Temperature: From -40°F to 158°F (-40°C to 70°C)</li> <li>• Relative humidity: From 5% to 95%, non-condensing</li> </ul>
	Enclosure (optional)	NEMA-1 - Weight = 14 lb (6.5 kg)
	UL listing	<ul style="list-style-type: none"> <li>• UL -916-PAZX—energy management</li> <li>• CUL -C22.2—signal devices—Canada</li> </ul>
	FCC	FCC part 15, Class A
	CE	<ul style="list-style-type: none"> <li>• Emissions EN61326:1998 Class B</li> <li>• Immunity EN61326:1998 Commercial</li> <li>• Safety EN61010-1:2001</li> </ul>
	Processor	PowerPC405 Core
	Memory	FLASH 500 MB / SDRAM 256 MB
	Battery	No battery required. The clock is maintained for a minimum of three days by the super capacitor. All other programs are backed up by nonvolatile memory.
System Communication	BACnet®	Tracer building automation systems communicates with BACnet® devices that support: <ul style="list-style-type: none"> <li>• Communications based on the BACnet® ASHRAE/ANSI 135 standard</li> <li>• ENV-1805-1/ENV-13321-1</li> <li>• 10BASE-T/100BASE-TX dedicated Ethernet (ISO/IEC 8802-3) or Transmission Control Protocol/Internet Protocol (TCP/IP) compatible network</li> </ul>
	LonTalk®	Tracer building automation systems communicates with LonTalk devices that support: <ul style="list-style-type: none"> <li>• Communications based on the EIA-709.1 (LonTalk) standard</li> <li>• LonTalk standard network variable types (SNVTs)</li> <li>• FTT-10A or FT-X1 transceivers</li> <li>• Twisted-pair physical media (Level 4 wiring)</li> </ul>

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>



# Tracer Summit™

## BMS workstation software solution

### Customer benefits

- Reducing commissioning time: advanced LonTalk® capability allowing easy integration of non-Trane devices
- Efficient building operation: auto reporting

### Description

- Human interface between building manager and control system
- Integrates graphical browsing of the application
- User-friendly interface for scheduling, reporting, alarm tracking and forwarding

Features	Number	Type
Hardware requirement	Windows XP, SP1 or higher	Processor 233 MHz 64 MB RAM
	Windows 2000, SP4	300 MB hard drive free space 32x CDROM 15" SVGA display, 1280x1024 resolution minimum
Communication	BACnet®	BACnet® ASHRAE/ANSI 135 standard 10BASE-T/ 100BASE-TX dedicated Ethernet or TCP/IP compatible network
	LonTalk®	Based on EIA-709.1 LonTalk® standard LonTalk® Standard Network Variable Types FTT-10A transceivers Twisted-pair physical media
Communication	Modbus®	Tracer Summit communicates with devices that support the MODBUS Remote Terminal Unit (RTU) protocol using TSCB
Interface	Graphical HTML pages (PC)	Resolution: default 1280x1024
Interface	VGA monochrome display (BCU)	Resolution: default 320x240
Interface	Languages: German - Polish - French - Spanish - Portuguese - Hungarian - Greek - English	Supported operating systems languages: all



# BCU

## Building systems controller

### Customer benefits

- Continuous comfort control: high reliability
- Low risk in database management: peer-to-peer shared database
- Open protocols, BACnet®/LonTalk®

### Description

- An intelligent panel that controls integration and networking capabilities of the Tracer Summit™ product suite
- Handles peer-to-peer database management with pre-engineered functions such as Chiller Plant Control or data logging

I/O Features	Number	Supported signal type
Binary inputs	2	Pulse meter or standard status inputs
<b>Main Features</b>		
Power		Nominal rating: 230 Vac; 50 or 60 Hz; 1 phase
Operating environment		0 to +50°C 10 - 90% humidity non-condensing
Storage environment		-46 to +66°C 10 - 90% humidity non-condensing
Enclosure		IP30
Dimensions (mm)		418 x 373 x 140
Weight (kg)		7
Agency listing / compliance		EN 61326: 1998 Class B - EN 61326: 1998 Commercial - EN 61010-1: 2001
Memory		FLASH 16 MB - EEPROM 512 KB - SRAM 1 MB - SDRAM 8 MB
Battery		Programs backed up by non-volatile memory
Communication		Ethernet port EIA-232 BACnet® port Comm3, Comm4: 2 links, and LonTalk®
Operator display (option)		Monochrome VGA touch screen - 320 x 240 pixels
Modem (option)		Internal 56 kbps

# HVAC equipment controllers

High performance equipment

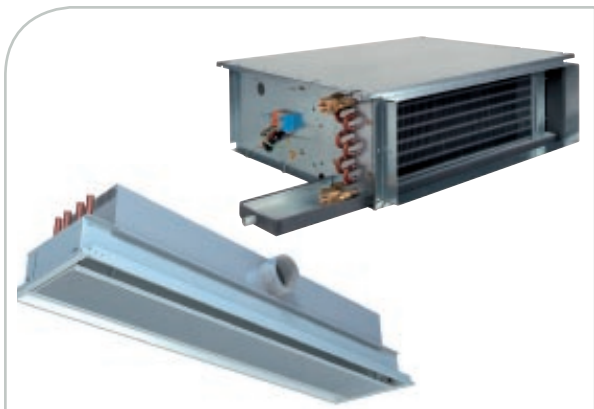
## Customer benefits

- Dedicated high performance control algorithm
- Embedded energy savings functions
- In factory pre-installed controllers
- Standard communication protocol support: LonTalk® – BACnet®- MS/TP

## Description

- Application specific controllers designed for dedicated applications such as fan coil unit, chilled beams, variable air volume, user interface, air handling units.

Equipment / Functionality	ZN523	ZN525	ZSMxx	VV550 UCM III/IV	UC400	AH541 MP581	UC400 UC600
FCU	X	X					
Chilled beams	X	X					
AHU						X	X
VAV single duct				X	X		
VAV dual duct					X		
Wall interface			X				
Communication	LonTalk®	LonTalk®		LonTalk® Proprietary	BACnet® MSTP	LonTalk®	BACnet® MSTP
Factory-fitted	X	X	option	X	X	X	X



# Water terminal unit controllers

## Chilled beam controllers

### ZN523/ZN525

#### Customer benefits

Reduced commissioning time

- Compact, quick connection, embedded power supply
- Master / slave direct binding
- Advanced comfort: Cascade zone / supply air temperature algorithm for precise temperature control

#### Description

- Can drive 3 wires or hot wax valves actuators
- Supports most common unit configurations
- Can drive a solid state relay for electric heat for sound level comfort
- EUBAC certified

#### Water terminal unit controllers



Application	ZN523	ZN525
Factory-mounted	Yes	Yes
Communication	LonTalk®-SCC	LonTalk®-SCC
2-pipe cooling-only	X	X
2-pipe cooling-only + electric heater	X	X
2-pipe heating only	X	X
2-pipe changeover	X	X
2-pipe changeover + electric heater	X	X
4-pipe	X	X
<b>Function</b>		
Fan speed control	Auto (3 speeds)	Auto (continuous fan speed)
Thermal valve actuator control	Yes	Yes
3 wires valve actuator control	Yes	Yes
Automatic changeover	Yes	Yes
Occupied/unoccupied mode	Yes	Yes
Wall sensor (fan speed: low/medium/high/auto/off, setpoint knob, override/cancel)	Yes	Yes
Automatic fan speed optimization	Auto	Auto
Supply air measure and control	Yes	Yes
Entering water temperature measure	Yes	Yes
Auto changeover (2-pipe mode)	Yes	Yes
Auto changeover (4-pipe mode)	Yes	Yes
Dirty filter timer	Yes	Yes
Master/Slave	Yes	Yes
Occupied stand-by	Yes	Yes
Timed override	Yes	Yes
Duty cycling	Yes	Yes
Frost protection	Yes	Yes
Power up function	Yes	Yes
Diagnosis	Yes	Yes

#### Chilled beam controllers

Application	ZN523	ZN525
Factory-mounted	Yes	Yes
Communication	LonTalk®	LonTalk®
2-pipe cooling-only	Yes	Yes
2-pipe cooling-only + electric heater	Yes	Yes
<b>Function</b>		
Thermal valve actuator	Yes	Yes
3 wires valve actuator control	Yes	Yes
Occupied/unoccupied mode	Yes	Yes
Wall sensor (setpoint knob, override/cancel)	Yes	Yes
Supply air measure	Yes	Yes
Entering water temperature measure	Yes	Yes
Master/Slave	Yes	Yes
Occupied stand-by	Yes	Yes

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>



# VAV terminal unit controllers

UCM VAV III/IV

VV550

UC400

## Customer benefits

- Application flexibility: same controller whatever the application is
- Reduced communication time: multiple diagnosis at controller level
- Freedom of choice: can be tied into Trane BMS or any LonTalk-compatible BMS

## Description

- Dedicated to variable air volume valve control
- Can handle multiple application types
- Can integrate several diagnostic features for easy commissioning and facility management

### VAV Terminal units controllers



	UCM VAV III/IV	VV550	UC400
<b>Application</b>			
Factory-mounted	Yes	Yes	Yes
Communication	Proprietary	LonTalk®-SCC 8500	BACnet® MS/TP
1 duct	Yes	Yes	Yes
1 duct + heating water coil	Yes	Yes	Yes
1 duct + heating electric coil	Yes	Yes	Yes
1 duct with parallel fan	Yes	Yes	Yes
1 duct with series fan	Yes	Yes	Yes
1 duct with parallel fan and water coil	Yes	Yes	Yes
1 duct with parallel fan and electric coil	Yes	Yes	Yes
1 duct with series fan and water coil	Yes	Yes	Yes
1 duct with series fan and electric coil	Yes	Yes	Yes
<b>Function</b>			
Integrated airflow control	Yes	Yes	Yes
Integrated supply/extract flow differential control	No	Yes	Yes
Generic output	No	Yes	Yes
Generic binary input or occupancy sensor input	Yes	Yes	Yes
CO <sub>2</sub> sensor input or auxiliary temperature sensor	Yes	Yes	Yes
Remote communication pins on wall sensor	Yes	Yes	Yes
Automatic calibration	Yes	Yes	Yes
Air/water balancing application	No	Yes	Yes
Manual test function	Yes	Yes	Yes
Damper position for pressure optimization	Yes	Yes	Yes
CO <sub>2</sub> base demand control ventilation	No	Yes	Yes
Ventilation ratio to control outdoor air damper	Yes	Yes	Yes

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>





# Air handling unit controllers





AH541 MP581  
UC400 UC600

## Customer benefits

- Reduced commissioning by the use of application libraries for AH541
- Reduced programming time by use of Trane Graphical Programming and re-use of existing application libraries for AH541

## Description

- Pre-engineered or fully programmable controller for AHU applications.
- Support LonMark® Space
- Comfort Controller (SCC 8500) or Discharge Air Controller (DAC 8610) profiles.

				
<b>Air Handling Units - AHU controller</b>	<b>AH541</b>	<b>MP581</b>	<b>UC400</b>	<b>UC600</b>
Factory-mounted	Yes	Yes	Yes	Yes
Communication	LonTalk®	LonTalk®	BACnet® MS/TP	BACnet® MS/TP
<b>Analog inputs</b>				
Return / supply / outdoor air temperature sensor	X / X / X	X / X / X	X / X / X	X / X / X
Ambient / mixed air temperature sensor	X / X	X / X	X / X	X / X
Temperature setpoint adjustment	X	X	X	X
Duct static pressure	X	X	X	X
Differential pressure	X	X	X	X
Return / supply / outdoor air humidity sensor	X / - / -	X / X / X	X / X / X	X / X / X
Ambient air humidity sensor	-	X	X	X
Humidity setpoint adjustment	-	X	X	X
CO <sub>2</sub> sensor / CO <sub>2</sub> setpoint	- / X	X / X	X / X	X / X
Air quality / IAQ setpoint	- / X	X / X	X / X	X / X
<b>Binary inputs</b>				
Frost thermostat	X	X	X	X
Differential filter pressure switch	X	X	X	X
Low air pressure switch	X	X	X	X
Motor(s) default(s)	X	X	X	X
Electrical heater default	X	X	X	X
Damper end switch	X	X	X	X
On/off contact	X	X	X	X
Occupancy mode	X	X	X	X
Timed override	X	X	X	X
<b>Communication bus terminals</b>	2	2	2	2
<b>Analog Output</b>				
Pre-heating / cooling / heating valves	X / 0-10 V/3 wires	X / 0-10 V/3 wires	X / 0-10 V/3 wires	X / 0-10 V/3 wires
Signal damper	X	X	X	X
Electrical heater	X	X	X	X
Variable speed supply air / return air motor	X	X	X	X
Signal humidifier	X	X	X	X
Temperature	*	*	X	X
Humidity	*	*	X	X
Pressure	*	*	X	X
Position damper	*	*	X	X
<b>Binary output</b>				
Supply air motor command	X	X	X	X
Extract air motor command	X	X	X	X
Damper command	X	X	X	X
Humidifier command	X	X	X	X
Default Signal	X	X	X	X

- Not Available \* Screen Display point X Hardware point No display capability for UC400

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>

# Protocol gateway

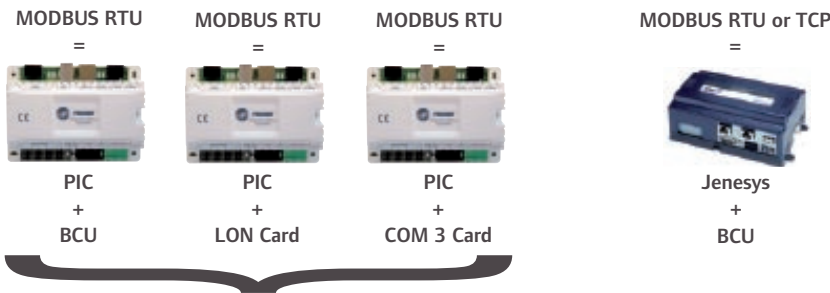
Interface between Trane  
equipment and third-party BMS

### Customer benefits

- Open systems: supports reliable and highly supported Modbus® RTU / TCP protocol
- Straight commissioning: auto binding with LonTalk-compatible units
- Highly reliable solution
- Factory-mounted option

### Description

- Dedicated to Modbus® interfacing between Trane and non-Trane systems
- Compact interface



Modbus type	RTU	RTU or TCP
Modbus function codes	02; 04; 05; 06; 15;16	01; 02; 04; 05; 06; 15;16
Baud rate	Up to 57600	Up to 115200



# Jenesys

## Tracer Summit communication bridge

### Customer benefits

- Easy commissioning: easy to set up Modbus® data table
- Easy operation and diagnosis: compact device with diagnosis indicator (Leds)

### Description

- BACnet® to Modbus® gateway
- Dedicated to Tracer Summit applications

I/O Features	Supported signal type
Connection	1 RJ 45 IEA-232; 1 screw terminal EIA-485; 1 10 BaseT RJ 45 Ethernet
<b>Main features</b>	
Power	24 Vac 50/60 Hz 1phase, 1A; 9-30 V DC, 1A
Operating environment	0 to +60°C 10 - 90% humidity non-condensing
Storage environment	-46 to +66°C 10 - 90% humidity non-condensing
Protection class	IP 30
Dimensions (mm)	110 x 90 x 45
Agency listing / compliance	CE EN 55022 Class B
LED	9 active LED for: Transmit, receive, Ethernet link, power OK, bridge running, configuration error, node offline, comm error, system error
Software	Software and driver compatibility: BACnet® (Ethernet or IP) Modbus® RTU



# PIC

## Tracer Summit communication bridge

### Customer benefits

- Easy commissioning: auto-commissioning/auto binding supported
- Compatible with all Trane equipment
- Easy operation and diagnosis: terminal port and status light indicators

### Description

- Trane proprietary or LonTalk® protocols to Modbus®/RTU gateway

I/O Features	Supported signal type
Connection	1 IEA-232 1 EIA-485
<b>Main features</b>	
Power	12 - 30 VDC/VAC, 50/60 Hz, 1phase
Operating environment	0 to +60°C 10 - 90% humidity non condensing
Storage environment	-46 to +66°C 10 - 90% humidity non condensing
Protection class	IP 30
Agency listing / compliance	CE 89/336/EEC
LED	Active LED for: Transmit , receive, power OK.
Software	Modbus® RTU, slave mode 1200 to 57600 bps

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>

# Input/output controllers






## Technical lots

### Customer benefits

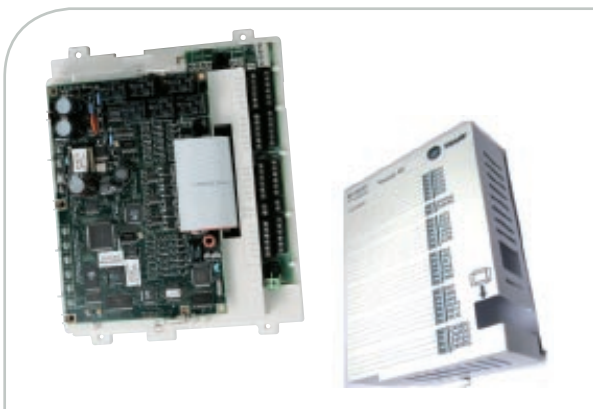
- Open systems: LonTalk®-compatible
- Adapted to real use: small, medium or large point count
- Flexibility to programming panels

### Description

- Field-installed controllers
- Dedicated to monitoring and control of any technical lots (boiler plant, point monitoring, specific algorithm control)

					
	<b>MP501</b>	<b>MP503</b>	<b>MP581</b>	<b>UC400</b>	<b>UC600</b>
Factory-mounted	NO	NO	NO	NO	NO
Communication	LonTalk®	LonTalk®	LonTalk®	BACnet® MS/TP	BACnet® MS/TP
I/O capacity	4	8	20	23	18
<b>Application</b>					
Single loop controller	X	-	X	X	X
Monitoring temperature	-	X	X	X	X
Monitoring humidity	-	X	X	X	X
Monitoring pressure	-	X	X	X	X
Control mechanical equipment	-	X	X	X	X
Control water pumps	-	-	X	X	X
Control boilers	-	-	X	X	X
Control cooling towers	-	-	X	X	X
Control heat exchangers	-	-	X	X	X
Display screen option	-	-	X	X	X
Freely programmable	-	-	X	X	X
Local overrides (software)	-	-	X	X	X
Local overrides (LCD)	-	-	X		X
Local language	-	-	X	X	X
Mounting	Cabinet	Cabinet	Wall	Din rail	Din rail

- Not Available  
X Hardware point



# Input/output controllers

## MP581 for Air handling units

### Customer benefits

- Easy operation user-friendly LCD touch screen, driven by icons
- Expandable with EX2 panels
- Easy and efficient programming with graphical interface TGP (Tracer Graphical Programming)
- Open system: LonTalk-compatible (DAC, SCC or NODE profile)

### Description

- Freely programmable
- Can be applied on an HVAC and BMS application
- Graphical programming language

I/O Features	Number	Supported signal type
Universal input	12	Dry contact (included pulses) 0-10 Vdc - 0-20 mA Linear variable resistor Thermistor
Specific Pressure Input	1	Specific Input for Trane pressure sensor
Binary outputs	6	24 Vac powered contact (12 Vac 0,5A)
Analog Outputs	6	0-10 Vdc - 0-20 mA
<b>Main Features</b>		
Power Supply		24 Vac 50/60 Hz 1 phase - 10 VA under 24 Vac
Operating environment		- 40 to +70°C (0 to +50°C operator display) 10 to 90% humidity non-condensing
Storage environment		- 50 to +95°C (-25 to +75°C operator display) 10 to 90% humidity non-condensing
Protection Class		IP 20
Dimensions (mm)		215x385x127
Weight (kg)		1
Memory		RAM 512 K ROM 2 MB flash EEPROM 256 K
Operator display (option)		Touch screen resolution 320x240 pixels - Local language
Timer		Included in the operator display
Battery		Dynamic data/time: high capacity backup (7 days)
Agency listing / compliance		Immunity (directive 89/336/EEC) EN 50090-2-2/96: 1996
		Emission (directive 89/336/EEC) EN 50090-2-2: 1996 - EN 61000-3-2: 1996 - EN 61000-3-3: 1995
Communication		LonTalk® Protocol SCC or DAC or NODE profile Network type: FTT10-A
Extension Capability		4 EX2 modules maximum
Diagnosis Assistance		9 LED - 1 "service pin"

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>



## EX2

### MP581 I/O expansion module

#### Customer benefits

- Low cost expansion panels
- Easy installation
- Compact enclosure
- Flexible installation: EX2 is linked to the master panel over a communication bus for remote installation

#### Description

- Field-installed expansion module for MP581 freely-programmable controller
- Allows MP581 to monitor and control I/O points at remote locations, by driving these expansion panels over a simple RS485 communication bus

I/O Features	Number	Supported signal type
Universal input	6	Dry contact binary - 0-20 mA - 0-10 Vdc - RTD - Thermistor
Binary outputs	4	24 Vac powered contact (12 Vac 0,5A)
Analog Outputs	4	0-10 Vdc - 0-20 mA
<b>Main Features</b>		
Power Supply		24 Vac 50/60 Hz - 60 VA maximum
Operating environment		- 40 to +70°C 5 to 90% humidity non-condensing
Storage environment		- 40 to +85°C 5 to 95% humidity non-condensing
Dimensions (mm)		175 x 137 x 51
Weight (kg)		1
Agency listing / compliance		Emission (directive 89/336/EEC) EN 50081-1: 1992 - EN 50090-2-2: 1996 - EN 61326-1: 1997 Immunity (directive 89/336/EEC) EN 50082-1: 1997 - EN 50082-2: 1995 - EN 50090-2-2: 1996- EN 61326-1: 1997
Communication		Communicates with MP 581 on an IEEE-485 link



## MP581 Operator display

#### Customer benefits

- Can be conveniently installed directly in building tenant spaces
- Supports local languages
- Easy diagnosis: shows point overrides, alarms, etc..

#### Description

- Intuitive LCD interface with high resolution graphical touch screen
- Attractive casing
- Allows for easy point monitoring, overriding, scheduling and troubleshooting

I/O Features	Supported signal type
Power Supply	No power supply: gets its power from the panel it is connected to
Operating environment	0 to +50°C 10 to 90% humidity non-condensing
Dimensions (mm)	260 x 222 x 58
Touch screen	VGA backlit crystal display with touch-screen Viewable area: 115 mm x 86 mm Resolution of 320 x 240 pixels

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>



# Input/output controllers

UC400 /UC600 freely programmable controllers

## Customer benefits

- Reduced commissioning by the use of application libraries for UC400
- Reduced control cabinet cost

## Description

- Multi-purpose, programmable device.
- Field- or factory-installed

## • Designed to control :

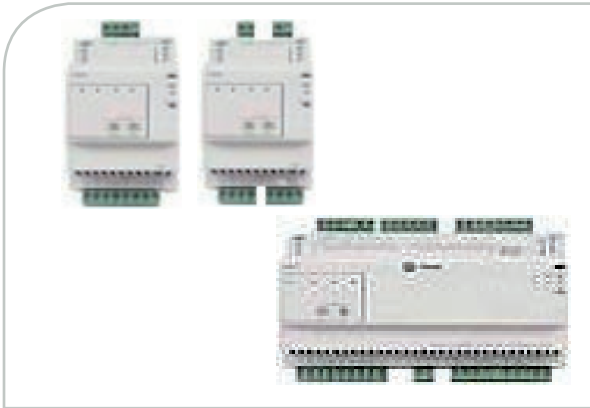
- single- and dual-duct variable-air-volume (VAV) units
- fan coils
- unit ventilators
- multi-pump systems
- cooling towers and dry coolers
- small air handlers



Connection	UC400 Number	UC600 Number	Type
Analog input	5		Temperature 10 kΩ thermistor Setpoint 0 Ω to 1,000 Ω Resistive 200 Ω to 20 KΩ Linear 0–20 mA
Universal input	2	8	Linear 0–10 Vdc Resistive * Refer to analog input connection for ranges and types above Binary Solid state open collector
Binary input	3		24 Vac detect
Binary output	3	2	Relay 2.88 A @24 Vac pilot duty
Binary output(a)	6		TRIAC 0.5 A max @24–277 Vac, resistive and pilot duty
Analog output/binary	2	6	Linear output 0–20 mA Linear output 0–10 Vdc Binary input Dry contact
Pressure inputs	2		3-wire 0–5 in H <sub>2</sub> O
<b>Storage</b>			
Temperature			–48°F to 203°F (–55°C to 95°C)
Relative humidity			Between 5% to 95% (noncondensing)
<b>Operating</b>			
Temperature			–40°F to 158°F (–40°C to 70°C)
Humidity			Between 5% to 95% (noncondensing)
Power			20.4–27.6 Vac (24 Vac, ±15% nominal) 50–60 Hz 24 VA
Mounting weight of controller			Mounting surface must support .80 lb. (.364 kg)
Environmental rating (enclosure)			NEMA 1 (IP20–IP30)
Altitude			6,500 ft maximum (1,981 m)
Installation			UL 840: Category 3
Pollution			UL 840: Degree 2
<b>Wiring/Transformer</b>			
			16 AWG (recommended) copper wire
			• UL Listed, Class 2 power transformer 20.4–27.6 Vac (24 Vac, ±15% nominal)
			• The transformer must be sized to provide adequate power to the UC400 controller (12 VA) and outputs (maximum 12 VA per binary output)
			• UL916 PAZX- Open Energy Management Equipment
			• UL94–5V Flammability
			• CE Marked
<b>Agency Compliance</b>			
			• FCC Part 15, Subpart B, Class B Limit
			• AS/NZS CISPR 22:2006
			• VCCI V-3/2008.04
			• ICES-003, Issue 4:2004
			• Communications BACnet® MS/TP, supports BACnet® protocol ASHRAE 135-2004 and meets BACnet® Testing Laboratory (BTL) as an Application Specific Controller (ASC) profile device

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>





# XM

## UC400 /UC600 I/O expansion module

### Customer benefits

- Provides additional points when needed

### Description

- Each expansion module has number of points that can be configured using any combination of inputs/outputs (refer to the tables below).
- A maximum of eight (8) expansion modules can be added to a Tracer UC.
- Use of a PM014 DC power supply is required for applications requiring more than two XM modules.

	Number	Type
<b>Tracer™ XM30 Expansion Module</b>		
Universal Inputs	Can be configured using any combination of analog or binary inputs/analog outputs	Thermistor 2252 Ω, 10k, 20k, 100kΩ
		Resistive (Setpoint) 100 Ω to 1 MΩ
		RTD 1 kΩ; platinum, Balco™ or nickel
		Current 0–20 mA (linear)
		Voltage 0–20 Vdc (linear)
		Binary Dry Contact
Analog Outputs		Pulse Accumulator Minimum 20 milliseconds open or closed
		Current 0–20 mA @ 16V
Overall Point Total	4	Voltage 0–16 Vdc @ 20mA
<b>Tracer™ XM32 Expansion Module</b>		
Binary outputs	4	Relay 250VAC, .5A
<b>Tracer™ XM700 Expansion Module</b>		
Universal inputs	8	+1 static pressure
	6	Thermistor 2252 Ω, 10k, 20k, 100kΩ
		Resistive (Setpoint) 100 Ω to 1 MΩ
		RTD 1 kΩ; platinum, Balco™ or nickel
		Current 0–20 mA (linear)
		Voltage 0–20 Vdc (linear)
Universal Inputs	Can be configured using any combination of analog or binary inputs/analog outputs	Binary Dry Contact
		Pulse Accumulator Minimum 20 milliseconds open or closed
		Current 0–20 mA @ 16V
		Voltage 0–16 Vdc @ 20mA
Binary output	4	Relay 250VAC, .5A
Overall Point Total	18	

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>



# ZN523/ZN525

## Terminal unit controller

### Customer benefits

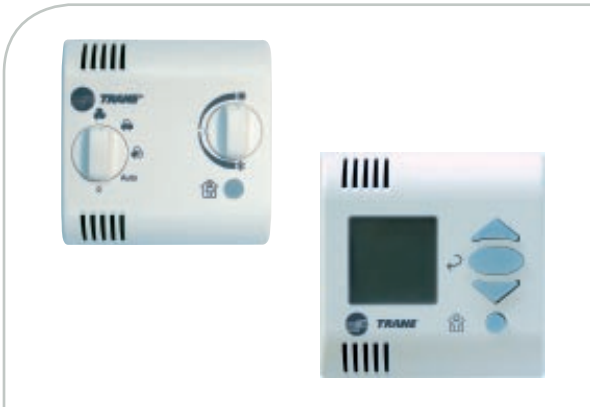
- Optimized commissioning: compact, factory-mounting available, pre-commissioned
- Flexibility: same controller for several application types (hot wax / 3 wires / ...)
- Error-less interface wiring: RJ9 connector for quick and reliable communication with wall interface

### Description

- Compact configurable controller
- Flexible and optimized for comfort and energy saving control
- One controller for 20+ application variations

I/O Type	Index	Signal Type	I/O use
Binary inputs	BI1	Dry contact	Occupancy
	BI2	Dry contact	Window contact
Analog inputs	AI1	thermistor	Return air temperature
	AI2	thermistor	Entering water temperature
	AI3	thermistor	Discharge air temperature
Analog outputs	AO1	0-10Vdc	Motor speed control (ZN523: NA)
	BO1	relay 230 Vac / 3A NO	High fan speed (ZN525: Fan motor power supply)
	BO2	relay 230 Vac / 3A NO	Medium fan speed (ZN525: NA)
	BO3	relay 230 Vac / 3A NO	Low fan speed (ZN525: NA)
Binary outputs	BO4	triac 230 Vac, 5 A	Heat valve open, electric heat (solid state relay)
	BO5	triac 230 Vac, 5 A	Heat valve close
	BO6	triac 230 Vac, 5 A	Cool valve open
	BO7	triac 230 Vac, 5 A	Cool valve close
	BO8	relay 230 Vac / 10A NO	Electric heat (relay)
<b>Main features</b>			
Power			230 Vac 50/60 Hz 1phase
Operating environment			0 to +60°C
Storage environment			5 - 95% humidity non-condensing
Protection class			- 40 to +85°C
Dimensions (mm)			5 - 95% humidity non-condensing
Agency listing / compliance			IP 20
Communication			132 x 120 x 44
Diagnosis interface			Immunity (directive 89/336/EEC) EN 50082-1: 1997 - EN 50082-2: 1995 Emissions EN 50081-1: 1992
			LonTalk® protocol SCC 8501 profile Network type: FTT10-A
			3 LED / "Service pin" 1 push button

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>



# ZSM-10

# ZSM-11



Zone sensors for  
water terminal units

## Customer benefits

- Optimized commissioning: compact, factory-mounting available, pre-commissioned
- Flexibility: same controller for several application types (hot wax / 3 wires / ...)
- Error-less interface wiring: RJ9 connector for quick and reliable communication with wall interface

## Description

- Compact controller
- Flexible and optimized for comfort and energy saving control

		
	<b>ZSM-10</b>	<b>ZSM-11</b>
<b>Ambient limits</b>		
Operating temperature	Temperature: 5°C to 35°C Relative humidity: 5% to 95% NC	Temperature: from 5°C to 35°C Relative Humidity: from 5% to 95% NC
Storage temperature	Temperature: -40°C to 70°C Relative humidity: 5% to 95% NC	Temperature: -40° to 70°C Relative Humidity: 5% to 95% NC
<b>Setpoint offset range</b>	Setpoint offset is adjustable from -1°K/+1°K to -5°K/+5°K	Setpoint offset is adjustable from -1°K/+1°K and -5°K/+5°K
<b>Enclosure</b>	Material ABS UL94V0 Color: White (RAL 9010) Dimensions: 80 mm x 80 mm x 32 mm	Material ABS UL94V0 Color: White (RAL 9010) Dimensions: 80 mm x 80 mm x 32 mm
<b>Interface</b>	1 knob for fan speed 1 knob for setpoint 1 push button for timed override 1 Led for mode indication	1 Push button increase value 1 Push button decrease value 1 Push button Enter/validate 1 Push button Occupancy mode 1 Liquid Crystal Display
<b>Display indications</b>	-	Unit alarm indication, relative setpoint position, occupancy status, current temperature (option), setpoint adjustment mode, fan speed adjustment mode
<b>Compatibility</b>	-	Compatible with Trane wall sensor synchronization feature.
<b>Standards</b>		
Product security	EN 60730-2-9: Temperature sensing controls	
Electromagnetic Compatibility	EN 50081-1: Emission, EN 50082-2: Immunity	
Power supply	Powered by the ZN523/ZN525 controller	
Degree of protection	IP 30	

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>



# IRC IRR

## Infrared remote controller and receiver

### Customer benefits

- Easy integration
- Small size and discreet aspect

### Description

- For interfacing with ZN523 and ZN525 terminal unit controllers
- Can be installed in a receptacle on a wall

Infrared remote controller (IRC)	
Functions	Control of 2 independent lighting device groups Control of 2 independent sunblind groups Shift of the temperature setpoint by +/- 3 programmable steps Control of the fan speed: on/off, speed 1, 2 or 3, auto mode
Range	6m when direct aiming
Infrared protocol	Rc5 with error check for safety
Overall dimensions	148 mm x 58 mm x 25 mm
Operating environment	Temperature: from 0° to 50°C Relative Humidity: from 20% to 90% non-condensing
Storage environment	Temperature: from 0° to 50°C Relative Humidity: from 20% to 90% non-condensing
Mechanical protection	IP 40
Enclosure	White plastic box
Keypad	Elastomer keypad, 9 keys: - 4 function keys: lighting, sunblind, temperature, fan speed - 3 operation keys: up arrow, down arrow, rotation arrow - 2 global keys: occupancy, unoccupancy
Display	LCD screen with backlight, view area 30 x 30mm, function icons
Power supply	3 x 1.5V batteries, LR6 type
Battery life	2 years minimum, for normal use
Infrared receiver (IRR)	
Dimensions	63 mm height x 22 mm width x 22 mm depth
Operating environment	Temperature: 0° to 50°C
Mechanical protection	IP 65 (front face), IP20 (on RJ9 connector)
Connector	RJ9
Cable length	6 m, 12 m
Recommended cable	FCC-68: flat cable, 4 white conductors, 26 AWG (Suitable for FCC-68 connectors and Western digital)
Power supply	Powered by the Tracer™ EXB or Tracer™ EXL to which it is attached.

This description may not include all options and accessories available. For full technical information, download documentation at: <http://doc.trane-eur.com>



# *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.*





# 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.

For full technical information, download documentation at: <http://doc.trane-eur.com>



# 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.





# 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.

- Main Parts Center in Genk, Belgium with 5,000 references and a total of 250,000 parts.
- Three additional major Parts Distribution Centers in Turkey, the United Arab Emirates and India.
- 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, Middle East, India and Africa.
- A single-source supplier for Trane original and generic parts, simplifying purchasing processes and invoicing.

## *Expertise*

- With over 90 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 real-time visibility of inventory levels to all Trane sales offices.
- Strategically located near international carrier hubs, Genk Parts Center enables late order processing with guaranteed next day delivery.
- On-line 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, Middle East, India 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.



# Trane Select™ contracts

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.



# 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	- Intelligent Room Control - Chiller Plant Control - Boiler Plant Control - Free Cooling and Heat Recovery - Variable Air Volume Systems	- BMS Workstation - Web Server - Touch screen Display - Wall Sensor

For full technical information, download documentation at: <http://doc.trane-eur.com>





# Trane Care™ services

## Comprehensive HVAC service solutions for high-performance buildings

### Customer benefits

- Optimize your system performance
- Protect your investment

### Main features

Building owners and companies in all markets face new challenges and embrace a world full of change:

- Innovation
- Reorganization
- Compliance
- Reprioritization

*We're ready to help restore and modernize your HVAC installation to meet your building's current needs.*

No matter where your equipment is in its life cycle, Trane Care™ can restore and modernize your installation to help your building perform at its best and sustain it day in and day out:

- Renewal services
- Technology upgrades
- Replace/repair decision consultations
- Reprioritization

*Trane will turn your building systems into business advantages in terms of reliability, energy and environment.*

### Reliability Solutions

Our service experts will identify where your HVAC installation is not performing to its full potential and offer the solutions that will restore like-new reliability

### Energy Solutions

Trane Care™ offers cost-effective solutions to optimize the energy efficiency of your existing system and generate immediate savings


### Environment Solutions

Trane Care™ third focus can provide solutions that reduce building and system impacts on the environment and human health

A Trane Care™ upgrade of your HVAC installation will provide peak performance:

- Right level of indoor air quality
- Reduced operating costs
- Extended equipment life
- Compliance with governmental and environmental regulations

*We have the same goal: your business success.*

 <b>RELIABILITY</b>	Vibration Analysis	Tube Testing	Oil Analysis	Exchanger Enhancement	Compressor R'newal™
	Exchanger Cleaning	Variable Frequency Drives	Heat Recovery	Control Retrofit	Adiabatic cooling
	Leak Testing	Refrigerant Monitor	Noise Reduction	Indoor Air Quality	Refrigerant Retrofit



# Vibration analysis

## A Trane Care™ predictive maintenance service

### 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.



# Eddy current tube analysis

A Trane Care™ predictive maintenance service

## 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.





# Chemical analysis

## A Trane Care™ predictive maintenance service

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

For full technical information, download documentation at: <http://doc.trane-eur.com>





# Compressor R'Newal™

A Trane Care™ service

## 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.



# Automatic tube cleaning

A Trane Care™ predictive maintenance service

## 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.

The Trane automatic tube cleaning system features specially developed sponge balls, which are injected into the chiller condensing water flow to provide continuous tube cleaning while the chiller is in operation.

It is delivered fully pre-programmed, with settings that can, where necessary, be simply and quickly changed to cater for varying water qualities.



# AdaptiView™ upgrade

A Trane Care™ service for centrifugal chillers

## 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 touch screen 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



# Adiabatic cooling

A Trane Care™ service  
for air-cooled coils

## 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.



# Refrigerant management

## A Trane Care™ service Automatic refrigerant monitoring system

### 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 Care™ customized service solutions offer 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.



# Refrigerant retrofit

## A Trane Care™ service HCFC 22 equipment upgrade

### 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

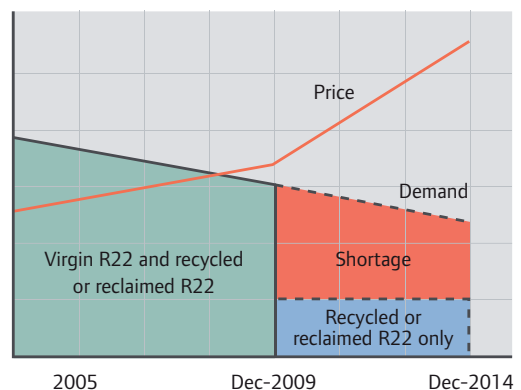
A Trane engineered retrofit, factory tested and qualified, optimizes your chiller to meet your current operation needs. Performed on site it will restore your chiller to its original state, allowing your system to run at peak performance with ozone friendly refrigerants (R134a, R404A, R407C).

### 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 offer "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.

HCFC 22 Availability versus Price (EU only)



For full technical information, download documentation at: <http://doc.trane-eur.com>



# Trane intelligent services

## Advanced capabilities in remote building system monitoring

### Customer benefits

Trane Intelligent Services helps minimize the occurrence and severity of system failures through early detection of alarms and performance issues. With automated monitoring that's always on, and Technical Specialists watching non-stop, nothing slips by unnoticed.

If you need to consolidate or centralize your Operations, Trane Intelligent Services can deliver the standardized procedures and consistent outcomes you want, at a fraction of the costs you would incur to set up the capabilities in-house. Trane invests in leading technologies and top-notch personnel, so you don't have to.

### Main features

Trane Intelligent Services is available in three options that provide increasing levels of functionality.

#### *Level 1: Alarm notification*

A custom notification procedure assures rapid response to system faults.

#### *Level 2: Active monitoring*

The benefits of level 1, plus alarm management, timely diagnosis and intelligent mobilization of local resources.

#### *Level 3: Building performance*

Provides the benefits of levels 1 and 2, plus open gateway to Trane expertise and recommendation to keep your building operating at peak efficiency. Close monitoring and analysis of the system trends by Trane analytical programs and technical specialists elevates decisions regarding HVAC system performance to a strategic business level.





# High Performance Building

## **Realistic means to reach your specific building goals: energy, financials, sustainability or occupant satisfaction**

Over the lifecycle of your building, you could substantially strengthen your bottom line through reduced energy bills and improved operational efficiencies. High Performance Buildings will help you, the building owner:

- Maximize the value and ROI of your property,
- Take advantage of Trane knowledge and expertise to achieve operational advances,
- Utilize smart and sustainable energy resources to lower variable costs
- Reduce your building's carbon footprint
- Increase the productivity and satisfaction of the lives in your building

Trane will work with you through every step of the process, reaching your goals, helping to eliminate inefficiency and increasing your ROI for the life of your building. High Performance Building assessments offer diverse benefits to building owners, depending on whether you are restoring and modernizing an older building or taking a proactive approach to operating and maintaining a newer structure.

The best performing buildings are designed for efficiency from the ground up. The processes and systems that keep a building functioning are interrelated, and one process affects others. That's why it's critical to have a higher level of knowledge, training and experience on every system – not just one or two – when designing a sustainable building environment.

We base our recommendations on a deep understanding of your priorities and other big-picture factors – your strategic objectives, maintenance philosophy, environmental consciousness and the level of control you want over your building's systems.

Our services professionals and engineers use an assessment-based approach resulting in customized and outcome-based solutions in designing and delivering these services.

We share information, knowledge and industry leading practices to help businesses achieve high performance, sustainable building systems and practices that generate energy, financial and operational efficiencies and reduce the impact to the environment.

## Energy Retrofit Services

If you own or operate a small to mid-sized commercial building built or upgraded more than 10 years ago, we can show you what can be done to increase your energy efficiency, how much it will cost and how much you will save over time.

## Turnkey Contracting Services

From replacing a chiller to customized system and infrastructure solutions, our Turnkey Contracting Services are based on a thorough understanding of your business goals as well as your infrastructure needs. With our full knowledge of the interrelated workings of your building or buildings, we can recommend adjustments in equipment and services for maximum efficiency and cost-savings. Leverage these efficiencies to finance your capital investment with future savings, backed by the added confidence of a performance contract from Trane.

## Comprehensive Solutions

Certain organizations and industries, such as datacenters and hospitals require a customized approach to their indoor environment, energy use and operational efficiencies. Based on a detailed understanding of your organization's strategy and goals – and how your facility contributes to reaching these objectives – Trane provides specialized services to maximize the unique needs of your operation.

## Mission-critical HVAC systems

### *Datacenter*



### *Food and Beverage*



### *Healthcare*



### *Industrial*



### *Lodging*



### *Life Sciences and Biotechnologies*





# Notes

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	<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>R134a refrigerant</i>
	<i>R407C refrigerant</i>
	<i>R410A refrigerant</i>
	<i>Performance certified by Eurovent</i>
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	<i>Conforms to the applicable LonMark® profiles</i>
	<i>Conforms to the BACnet® standard</i>
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	<i>Factory-mounted controller</i>



Ingersoll Rand (NYSE:IR) is a world leader in creating and sustaining safe, comfortable and efficient environments in commercial, residential and industrial markets. Our people and our family of brands—including Club Car®, Hussmann®, Ingersoll Rand®, Schlage®, Thermo King® and Trane®—work together to enhance the quality and comfort of air in homes and buildings, transport and protect food and perishables, secure homes and commercial properties, and increase industrial productivity and efficiency. We are a \$14 billion global business committed to sustainable business practices within our company and for our customers.

Trane has a policy of continuous product and product data improvement and reserves the right to change design and specifications without notice.  
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