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**TRANE**<sup>®</sup>

# *Systems and Services Overview*

*Integrated HVAC-R Solutions for  
Commercial and Industrial Markets*

# Who we are

Trane is a leading provider of cooling, heating, ventilating, air conditioning and refrigeration (HVAC-R) systems, controls and services for commercial and industrial applications. Founded in 1913 by James Trane and his son Reuben, Trane has a long history of industry-defining innovations in intelligent, energy efficient and sustainable solutions for diverse building comfort and process needs.

Trane's integrated HVAC-R systems and services enhance business performance, improve quality of life for building occupants and enable owners and operators to meet their business and operational objectives.

## Total lifecycle management

HVAC-R systems are at the core of your building infrastructure and have a lifespan of over 30 years. Backed by over 100 years of experience, Trane understands that the operating costs of your HVAC-R infrastructure alone can account for almost 4 times the cost of your capital investment.

The costs of energy, maintenance, repairs and associated labor can amount up to 80% of building lifecycle costs. Trane offers expertise that enables you to manage and optimize your HVAC-R system lifecycle and reduce your total cost of ownership.

- At the planning and concept stages, we bring you the technical expertise and applications' know-how for different building types and help ensure that initial specifications get off to the right start.
- At the design stage, Trane engineers work with you to define and select the best equipment and control solutions that meet your specific needs.
- Trane offers start-up, turnkey installation and commissioning for projects.
- To enable smooth operations, we offer a wide portfolio of services ranging from temporary cooling solutions to energy monitoring and retrofits that give you peace of mind and sustain your investment for life.

## Integrated HVAC-R systems

Trane manufactures, manages and services HVAC-R equipment, systems and controls for buildings and industrial processes all over the world. Through our global research and development facilities, we dedicate extensive resources in innovation for HVAC-R systems. Whether it concerns a system upgrade, renovation or new construction, our projects focus on:

- Reliability
- Energy efficiency
- Environmental responsibility
- Technological expertise
- State-of-the-art design
- Operational efficiency
- Fulfilling specific business needs, no matter how simple or complex



# Solutions to meet your business needs

Trane has over a century of global experience providing customized HVAC-R systems and service applications for diverse vertical markets. We partner with you to develop and deliver the best solutions that help meet your Key Performance Indicators (KPIs) and business goals.



**Commercial buildings:** For commercial real estate, offices or multi-purpose buildings, Trane customizes HVAC systems with integrated scalable controls to help you manage your assets for optimum energy efficiency, occupant comfort and staff productivity.



**Data centers:** A data center requires systems' know-how to ensure adequate, energy efficient on-demand cooling, increase reliability, control costs and maximize uptime. From high efficiency cooling equipment, use of solutions like ice storage and free cooling, to system controls and total HVAC infrastructure management, Trane delivers reliable systems expertise that helps you improve Power Usage Effectiveness (PUE) and generate up to 60% energy savings.



**Healthcare:** Trane addresses healthcare facility needs with the most advanced HVAC equipment and controls that meet the precise environmental requirements for individual spaces. We foster thermal comfort and high Indoor Air Quality (IAQ) to improve patient outcomes, maintain a hygienic healing environment and achieve operational efficiency 24/7/365.



**Hospitality:** From empowering guest room comfort, sustaining facilities with complete care to enabling energy management and temporary cooling for outdoor recreation or events, Trane helps you deliver seamless hospitality at your hotel, restaurant, conference center or entertainment facility. Our flexible HVAC solutions ensure optimum environmental comfort for your guest experience while minimizing operating costs.



**Pharmaceuticals:** Trane helps you comply with Good Manufacturing Practices (GMP) with HVAC systems that are designed to maintain temperature, pressures, humidity, filtration and airflow in manufacturing, storage areas and in clean rooms. Trane systems are proven to deliver energy savings and carbon footprint reduction for pharmaceutical manufacturers.



**Food and beverage:** Either for simple warehousing or complex food processing, Trane develops integrated low temperature systems that can meet air distribution, temperature, humidity and filtration requirements. We partner with you to build and sustain high quality, productive manufacturing, storage and processing environments that comply with food safety regulations.



**Other industries:** From chemicals and plastics manufacturing to electronics, energy rentals, utilities and district cooling, Trane has extensive expertise in delivering high efficiency HVAC equipment, controls and services. Trane solutions are customized for even the most demanding environments and provide reliable performance all year round.

## Air-cooled chillers



Scroll compressor  
CGAK  
13 to 48 kW



Scroll compressor - Axial fans  
Odyssey™ CGA/VGA  
20 to 60 kW

CONQUEST

2014



Scroll compressor - Axial fans  
Conquest CGAX  
40 to 165 kW



Scroll compressor - Axial fans  
AquaStream™ 3G CGAM  
50 to 460 kW

## Water-cooled chillers and condenserless units



Scroll compressor  
Packaged and condenserless  
CGWH-CCUH  
50 to 150 kW



Scroll compressor  
Packaged and condenserless  
CGWN-CCUN  
180 to 500 kW



Scroll compressor, centrifugal  
fans  
Indoor installation  
CGCL  
50 to 150 kW



Helical rotary compressor  
Packaged and condenserless  
Series R™ RTWD-RTUD  
200 to 850 kW

## Heat pumps Air-to-water



Scroll compressor  
CGAR  
14 to 40 kW



Scroll compressor - Axial fans  
Odyssey™ CXA/VXA  
20 to 60 kW

CONQUEST

2014



Scroll compressor - Axial fans  
Conquest CXAX -  
Ecodesign 2015 compliant -  
40 to 165 kW



Scroll compressor - Axial fans  
AquaStream™ 3G CXAM  
60 to 440 kW

## Air handling units



CLCF Climate Changer™  
for comfort applications  
1000-45000 m<sup>3</sup>/h



CLCF Climate Changer™ for hospital,  
laboratory and pharmaceutical applications  
1000-45000 m<sup>3</sup>/h



CLCP for comfort applications  
For the Middle East only  
1000-97200 m<sup>3</sup>/h



CCTA-CCTB for customized applications  
1000-140000 m<sup>3</sup>/h

## Terminal units

2013

UniTrane™



Fan coil units  
Cabinet or concealed AC or EC  
fan motor - UniTrane™ Harmony  
FCAS/FCAE/FVAS/FVAE/FKAS/  
FKAE - 1 to 6.5 kW



Fan coil units  
Cabinet or concealed  
HFCE-HFXE/ VFCE-VFXE  
1 to 12 kW



Fan coil units  
Cabinet or concealed  
HFCE-HFXE/VFCE-VFXE  
2 to 13 kW



Ductable fan coil units,  
AC or EC fan motor  
UniTrane™ FCD/FED  
1 to 16 kW



Helical rotary compressor  
Axial fans - Series R™ RTAD  
270 to 650 kW

SINTECIS

2014



Helical rotary compressor  
Axial fans - Sintesis RTAF  
350 to 1500 kW



Helical rotary compressor - Axial fans  
Series R™ RTAC -  
400 to 1500 kW

2014



Helical rotary compressor  
Axial fans - Stealth™ RTAE  
500 to 1060 kW

## Close control units

RTHD<sup>eva</sup>

2014



Helical rotary compressor  
RTHD Evo with Adaptive  
Frequency Drive  
500 to 1500 kW



Centrifugal compressor  
CentTraVac™ CVGF  
1400 to 3800 kW

2014



Centrifugal compressor  
Series E™ CentTraVac™ CVHH/CDHH  
2600 to 14000 kW



Technology and comfort applications  
Chilled water, air-cooled and water-cooled  
direct expansion - Jupiter 6 to 22 kW

## Heat pumps Water-to-water



Scroll compressor - Packaged  
CGWH  
60 to 190 kW



Scroll compressor - Packaged  
CGWN  
210 to 600 kW



Helical rotary compressor  
Series R™ RTWD  
260 to 880 kW



High tech applications, Chilled water,  
air-cooled and water-cooled direct  
expansion - Mercury 21 to 164 kW

## Variable frequency drives



CCEB for customized applications  
requiring high air flow  
For Europe only  
1000-250000 m<sup>3</sup>/h



TR1 Operation on fans and pumps  
0.37 to 400 kW



Ductable fan coil units,  
horizontal FWD  
5 to 30 kW



4-way cassette units  
AC or EC fan motor  
CWS/CWE  
1 to 11 kW



1-way cassette units  
AC or EC fan motor  
CFAS/CFAE  
1 to 4 kW

## Rooftops



Cooling only/reversible/  
gas fired Voyager™ I  
17 to 32 kW



Cooling only/reversible/gas fired/  
dual fuel - Voyager™ II  
42 to 95 kW



Cooling only/reversible/gas fired/  
dual fuel - Voyager™ III  
81 to 165 kW



Cooling only/Electric heat/Reversible  
MTZ  
10.5 to 87.5 kW

## Split systems and condensing units



High wall  
MCW/MWW  
2.5 to 10.5 kW



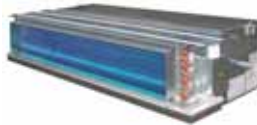
Cassette units  
MCC/MWC  
3.5 to 12 kW



Convertible type  
MCX/MWX  
3.5 to 17.5 kW



Tall floor  
MCV/MWV  
10.5 to 35 kW



Concealed ducted  
MCD  
3.5 to 17.5 kW



Convertible ducted unit  
GAF2/GAT2/GAM2  
5 to 17.5 kW



Vertical discharge condensing unit  
TTA/TTB-TWA/TWB  
3.5 to 17.5 kW



Horizontal discharge condensing unit  
TTK/TWK  
3 to 17.5 kW



Air handling unit  
TWE  
17.5 to 87.5 kW



Vertical discharge condensing unit  
Scroll compressor TTA/TWA  
21 to 70 kW



Condensing unit  
Scroll compressor R407C - RAUL  
50 to 220 kW



Condensing unit  
Scroll compressor R410A - RAUJ  
75 to 470 kW



Condensing unit  
Helical-rotary compressor - RTAC-S  
400 to 750 kW

## VRF (TVR) Trane Variable Refrigerants split systems



10.5 to 177 kW with multiple indoor unit types  
Available with inverter technology

## Trane Rental Services

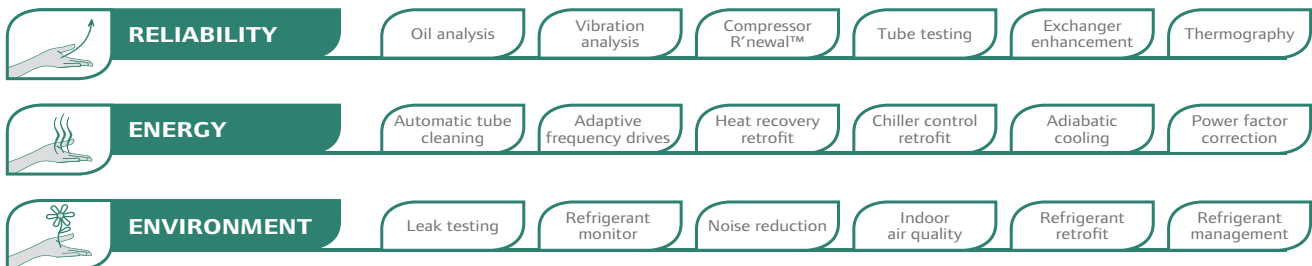
Whether it's extra cooling needed during extreme weather conditions or a short-term replacement following an emergency, businesses sometimes require equipment to cool an indoor environment on a temporary basis. Trane Rental Services can provide fast, safe and cost-effective solutions using modern and reliable equipment.

For more information on Trane Rental Services, visit: [www.trane-chiller-rental.eu](http://www.trane-chiller-rental.eu)



## Trane Care™ services

Trane Care™ services offer predictive and preventive maintenance, management, monitoring, repair, retrofit, optimization, renewal and enhancement services for HVAC-R products and systems.



## Trane Select™ Agreements

Trane Select™ Agreements provide predictive and preventive service and management contracts for HVAC-R products and systems. They offer four different levels of coverage to best suit your requirements.

## Elite Start™

All Trane engineers and technicians are experts in refrigeration, air conditioning and controls. Trane will take the extra step beyond installation to perfectly adapt the system to its environment, by taking control of and seeing to an efficient and high-performance start-up.

## Maintenance and repairs

**Maintenance:** Each agreement is tailored to meet the budget and operating needs of your facility and can include both preventive maintenance to keep your equipment running in peak condition and predictive maintenance services (such as oil analysis) to identify potential problems before costly breakdowns occur.

**Repairs:** Our fast response factory-trained service technicians and diagnostic tools enable us to perform adjustments or repairs when you need them.

## Parts

Full range of HVAC parts and supplies:

- Meeting the specifications of the original components
- Available in real time
- Quick and efficient ordering and delivery service
- Reduced equipment downtime

# Building Management Systems and Chiller Plant Controls

Whether managing one or multiple facilities, Trane will support by selecting, designing and implementing the best controls for the building's requirements. Trane BMS controls have full flexibility integrating the latest IT technologies, such as IP networking and web services support.

## Trane Tracer™ architecture



## A complete range of smart solutions

The Trane Tracer™ range of controls solution extends from sensors, unit controllers, system controllers and enterprise control solutions. They contain pre-engineered applications and graphics to optimize control, saving energy. Tracer™ system controller can be accessed from any PC, tablet or connected devices and eliminates the need for a dedicated computer and monitor. Tracer ES is a web based solution for managing single or multiple buildings from one interface. Tracer ES™, Tracer™ SC and Tracer™ UC controllers support open and standard protocols as well as working with non-Trane BACnet system controllers.



## Chiller Plant Controls

Trane has leveraged its 35 years of experience in controls to develop a suite of advanced Chiller Plant Controls. These include pre-packaged factory built control solutions and advanced control solutions for multiple chiller applications. Running multiple energy strategies for optimization by operating the components of a chilled water system at their most efficient point can realize savings of 25%.

## Mobile App

The Tracer™ BAS Operator Suite provides mobile apps that enable the monitoring and management of building and chilled water control systems. The apps can be used on a tablet or smart phone operating iOS™ and Android™ devices.

## Trane Boost

Trane Boost is a unique cooling system optimization program developed to assess the performance of the chilled water plant, propose and implement solutions to improve energy efficiency.



Ingersoll Rand (NYSE:IR) advances the quality of life by creating and sustaining safe, comfortable and efficient environments. Our people and our family of brands—including Club Car®, Ingersoll Rand®, 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 a world of sustainable progress and enduring results.



[engineer.trane.com](http://engineer.trane.com)

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We are committed to using environmentally conscious print practices that reduce waste.

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