



Making Buildings Better

Commercial Comfort Solutions



The Trane Difference

Our People

The power of our people, products and experience fuels the growth of new technologies and services to create significant value for our customers. For more than 100 years, Trane has been utilizing innovative approaches to make buildings all over the world perform better.

Our Knowledge

Turning building systems into business advantages requires extensive knowledge of HVAC applications, system design and controls—Trane system and application knowledge is second to none. Trane is one of only a few in the industry that engineers nearly all HVAC system components—equipment, unit and system controls and applications—to sustain a high performing building for life. And our industry involvement allows us to extend that knowledge to advocate for improved sustainability practices and reduced energy use worldwide.

Our Systems

Trane has been helping customers design the most cost-effective, highest-performing systems for decades. Our system design approach leverages Trane equipment, controls and applications expertise to deliver superior building performance at a lower operating energy cost. Our customers demand open system solutions that are flexible to facilitate the integration of a variety of different building equipment and systems. The EarthWise™ system approach is just one example that delivers flexible, pre-packaged control strategies coupled with high-efficiency equipment to deliver high-performance buildings for life.



Making Buildings Better... for Life

From idea phase to recommissioning—and everywhere in between—Trane has the equipment, controls and expertise to create a solution that's right for your building.

Plan/Design



Every building has a purpose. Trane collaborates with design teams to ensure that the mechanical systems specified are ideally suited to deliver long-term cost and performance benefits, based on the purpose of the building and the mission of your organization.

Construct



Critical building systems must work together. Whether it's turnkey contracting or startup and commissioning, Trane can manage the design and integration of building systems to optimize energy efficiency and overall performance.

Operate/Maintain



Operating energy costs account for approximately 50 percent of a building's total life-cycle budget.* Trane can help turn your building into a strategic business advantage by helping you operate efficiently and manage maintenance costs. Trane Service and Performance Contracting are flexible to suit your needs and financial realities.

*ASHRAE (CABA Bright Green Buildings Report)

Retrofit



Sustainable efficiencies for the life of the building. Over the years, parts begin to wear down and technologies become outdated. Building usage patterns change and equipment and system performance can degrade. Trane has the expertise to renew and upgrade building mechanical systems in a timely, affordable manner that does not compromise your business mission.

EarthWise Systems

The EarthWise philosophy

EarthWise™ is a comprehensive approach to comfort system design that supports what's best for your building, right for the environment and good for your bottom line. EarthWise system designs share four principles: high efficiency, low emissions, sustainable building performance and documentation.

Trane® EarthWise systems leverage high-efficiency HVAC equipment and advanced building controls in a complete design concept that optimizes the system design and performance. These systems deliver documented operational efficiencies that are repeatable and sustainable.

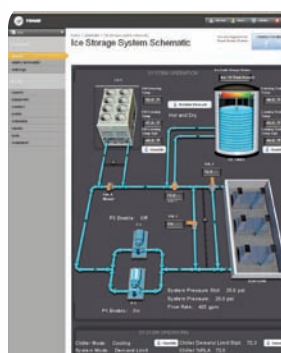
Why reinvent the wheel?

It's obvious that an applied system's design and operation should be driven by what we know works. Tapping into the collective knowledge and experience of pre-programmed controls and pre-engineered system packages reduces risk, complexity and engineering costs. The repeatability of each system minimizes custom programming, reduces installation and commissioning errors and simplifies maintenance across many installed systems. But the benefits don't stop there: the use of optimized components lead to the least expensive first cost systems.

As with every EarthWise system, Trane provides, supports and deploys energy modeling during the design phase to help guide design choices. Trane Air-Conditioning Economics (TRACE™) software can be used to determine whether these systems can be expected to earn high-performance designation.

Advanced Control

A variety of pre-configured design tools make EarthWise systems easy to design, commission and operate. Graphic interfaces include system operation overview, at-a-glance gauges and configuration screens. Design support documents include control drawings, I/O point summaries and sequences of operation.



Documented, sustained efficiency for the life of the system. Recognizing that the electrical meter is on the building, not individual equipment, Trane EarthWise systems combine high-efficiency HVAC equipment, enlightened system designs and advanced controls to optimize whole system design and operation. Complying with standards and documenting that compliance can be simply done with an engineered EarthWise system from Trane.

Intelligent Variable Air System

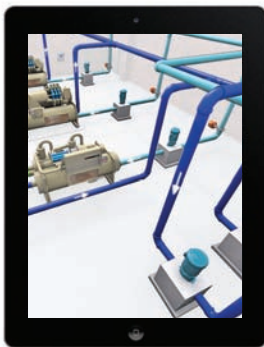


Proven performance, new technology. *Be flexible and comfortable without wasting energy.*

Available for either chilled water or packaged DX applications, a Trane Intelligent Variable Air System saves energy, while reducing installation cost and time. New technologies and optimized controls come together to make this system 20 to 30 percent more efficient than a traditional VAV system. Wireless technology, retrofit dampers, and pre-packaged controls allow you to quickly and easily upgrade an existing system, with minimal occupant disruption.

The system includes pre-packaged, optimized controls to reliably deliver energy savings, with interactive operator dashboards to demonstrate real-time savings. Intelligent analytics are available to identify efficiency improvement opportunities, helping to sustain a high level of performance for life.

Low Temperature, Low Flow, Chilled Water System



More than the sum of its parts. *Look inside and outside the chiller flanges for world-class performance.*

It's easy to design a system that makes the chiller look good. But we know the meter is on the building, and thus all components in the system must be operated at their most efficient manner possible to minimize overall system energy use.

This system includes configurations, design strategies, advanced controls and dashboards to unlock the full benefits of a chilled-water system.

Ice-Enhanced Air-Cooled Chiller Plant



Buy low, sell high. *Generate cooling during lower-cost, off-peak hours for use later during peak periods.*

The concept of thermal energy storage is not new. The Trane EarthWise Ice-Enhanced Air-Cooled chiller plant only makes it simpler and more repeatable.

The system includes eight standard configurations for chillers, ice tanks, pumps, valves and hydronic specialties, with customized system controls and dashboards that show you how the system operates, and how much it saves.

Chillers

As a leader in vapor compression and heat transfer technology, Trane manufactures the industry's broadest range of centrifugal, rotary and scroll water chillers. Regardless of the style and model you choose, you'll experience the exceptional efficiency coupled with most reliable performance that made Trane® chillers the industry standard for decades.

Centrifugal Chillers



Three-Stage and Two-Stage
CentraVac Water-Cooled Chillers
Models: CVHE/F
120 to 2,000 tons, 60 Hz
Model: CVHG
450 to 1,300 tons, 50 Hz



Duplex™ CentraVac
Water-Cooled Chillers
Model: CDHF
1,500 to 3,950 tons, 60 Hz
Model: CDHG
1,200 to 2,500 tons, 50 Hz



EarthWise™ CenTraVac Chillers are a three time Climate Protection Award winner as the most energy-efficient, lowest-emission large chillers available and are the only chillers in the world to earn Environmental Product Declaration (EPD) registration following the requirements of ISO 14025.

Helical Rotary Chillers



Water-Cooled Series R Chillers™
Compressor Chillers
Model: RTWD
70 to 250 tons
Packaged Water Chiller
Model: RTUD
70 to 200 tons
Compressor Chiller



Air-Cooled Series R Chillers™
Model: RTAC
140 to 500 tons, 60 Hz
120 to 400 tons, 50 Hz



Water-Cooled Series R Chillers
Model: RTHD
175 to 450 tons, 60 Hz
125 to 450 tons, 50 Hz

Condensers



Air-Cooled Condenser
Model: CAUJ
20 to 120 tons
Model: CTA
3 to 15 tons
Model: CCRC
20 to 60 tons

Scroll Chillers



Water-Cooled Scroll Liquid Chillers
15 to 70 tons



Air-Cooled Scroll Chillers
Model: CGAM
20 to 130 tons, 50 to 60 Hz

Modular Chiller Plants



Integrated Heating/Cooling
Chiller Plants
200 to 6,400 tons

Absorption Chillers



Single and Two-Stage Absorption
Liquid Chillers
20 to 1,750 tons
Steam, hot-water and nat-gas fuel source

Find Product Literature

Product Model No.

Model No.

SEARCH

Advanced Search >

For more information go to trane.com/commercial and enter product model numbers.

Air Handling

Effectively conditioning and circulating air through a building is vital to the occupants' comfort and performance. Trane air handlers are designed to seamlessly integrate with our other system components to address critical indoor air quality issues of temperature, humidity, ventilation and air cleaning at low sound levels and minimal operating energy cost.

Air Handlers



Packaged Climate Changer™ Air Handlers
Model: LPCA
1,500 to 15,000 cfm



Performance Climate Changer Air Handlers
Model: CSAA
1,500 to 60,000 cfm



Custom Climate Changer Air Handlers
Models: TCCA, TCPA
1,500 to 200,000 cfm

Make-Up Air



Indirect Gas-Fired Indoor Make-Up Air Units
Model: GGAA



Direct Gas-Fired Indoor Make-Up Air Units
Model: DFIA



Packaged Air Handling
Model: AHOA



Outdoor Gas Heating and Duct Furnaces
Model: GRAA



Packaged DX Outdoor Air Unit
Model: OAU

Fans



Direct Drive Fan Arrays
Model: SDDP
10,000 cfm and up

Coils



Heating and Cooling

SUCCESS STORY

Cheatham County Schools

An elementary school in Cheatham County, Tenn., was devastated by more than 7 feet of floodwater. It took work crews 60 days to clean up the building. Afterward, and with school scheduled to begin in early August, the district called on Trane for a total replacement of their HVAC system. The project was completed by late July—and classes began on time.



The Trane CDQ™ (Cool, Dry, Quiet) desiccant dehumidification system was selected as one of R&D Magazine's 44th Annual R&D 100 Award winners.

Air Terminal Devices

Variable-Air-Volume Units

Trane® variable-air-volume (VAV) units are among the industry leaders in quality and reliability and are designed to meet the unique needs of your building. All units feature direct digital controls to ensure they seamlessly interface with other system components through the building management systems.



VariTrane™ Single/Dual Duct
Models: VCCF, VCWF, VCEF, VDDF



VariTrane™ Parallel Fan-Powered
Models: VPCF, VPWF, VPEF, LPCF, LPEF
Series Fan-Powered
Models: VSCF, VSWF, VSEF, LSCF, LSWF, LSEF



VariTrane™ Slot Diffusers
Model: VLSD



VariTrac™ ChangeOver Bypass VAV
Models: VADA, VARA



Retrofit Round Out/Round In
Model: VRRF
225 to 4,000 cfm



Air Terminal Devices

Terminal Devices and Heating Products

Designed to operate efficiently and be easy to install, Trane air terminal devices and heating products offer high-quality controls, flexible construction and lasting service with minimal upkeep.

Fan-Coil Air Conditioners



UniTrane™ Fan Coil
Horizontal, Vertical and Low Vertical
Model: FCBB
200 to 1,200 cfm

Unit Ventilators



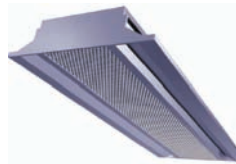
Classroom Unit Ventilator
Horizontal, Vertical and Energy Recovery
Models: HUV, VUV, ERSA

Blower Coil



Blower Coil Air Handler
Models: BCHC, BCVC
400 to 3,000 cfm

Active Chilled Beams



Two- and Four-Pipe Models
Three Ceiling Configurations
Models: CBCA, CBWA

Cabinet Heaters



Force-Flo™
Model: FFBB
200 to 1,200 cfm

Unit Heaters, Wall-Fin and Convectors



Steam and Hot Water Unit Heaters
Models: UHS, UHP



Electric Unit Heaters
Model: UHEC
1.5 kW to 50 kW



Indoor Gas Heating Products
30 MBh to 400 MBh

Unit Heaters, Wall-Fin and Convectors



Electric Forced-Air Wall and Ceiling Heaters
Models: UHCA, UHAA, UHWA



Electric Wall-Fin (4-inch height)
Model: EWFB

Find Product Literature

Product Model No.

Model No.

Advanced Search >

For more information go to trane.com/commercial and enter product model numbers.

Water-Source Heat Pumps

Trane® Axiom™ water-source heat pumps (WSHP) deliver high-performance heating and cooling with exceptional efficiency; up to 40 EER on select systems. And with all this performance and efficiency, advanced technology makes Trane Axiom water-source heat pumps easy to operate and maintain, resulting in optimal comfort and long-lasting durability.



Console
Model: GEC
1/2 to 1-1/2 tons



Water-to-Water
Model: EXW
5 to 20 tons



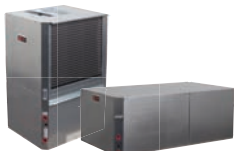
Vertical Stack
Model: GET
3/4 to 3 tons



Variable-Speed
Model: VSHV
2 to 5 tons



High Efficiency
Model: EXHV
1-1/2 to 6 tons



Model: GEHV
1/2 to 5 tons



Rooftop
Model: GER
3 to 25 tons



Midrange and Large
Model: GEHV
6 to 25 tons

SUCCESS STORY

University of Central Missouri — Water-Source Heat Pump

In the spring of 2009, the University of Central Missouri (UCM) embarked on a \$36.1 million energy savings contract with Trane. The project included:

- ▶ Installation of 150 geothermal wells
- ▶ Replacement of the outdated, unsightly power plant and boiler system with a green, sustainable geothermal heat pump system
- ▶ Improvement of air handling systems and acoustical qualities
- ▶ Laboratory air systems and controls
- ▶ Life safety measures
- ▶ A campuswide building automation system to effectively manage energy use

An innovative feature of the Trane package includes “green screens” throughout the campus. These are used to educate the faculty, students and the community on the University’s

sustainability initiatives—and learn what they can do to make a difference and get involved in efforts toward becoming a carbon-neutral campus.

Construction was scheduled to last through the spring of 2011, but the project was completed six months ahead of schedule. UCM now has a sustainable, high-performance campus and estimates it will see \$735,000 in annualized consumption savings, \$848,000 in operating and maintenance savings, and \$1.5 million in avoided annual capital improvements.

DX Packaged Units

Self-Contained Units

Regardless of whether you're building a new building or renovating an existing structure, Trane offers vertical self-contained systems to meet your specific needs. Each system is engineered to provide years of reliable, efficient and quiet operation.



Commercial Self-Contained Signature Series
Models: SCWF, SIWF, SCRF, SIRF
20 to 110 tons



Commercial Self-Contained Modular Series
Models: SCWG, SIWG, SCRG, SIRG
20 to 35 tons



Vertical Self-Contained
Models: SCWH, SCRJ
3 to 15 tons

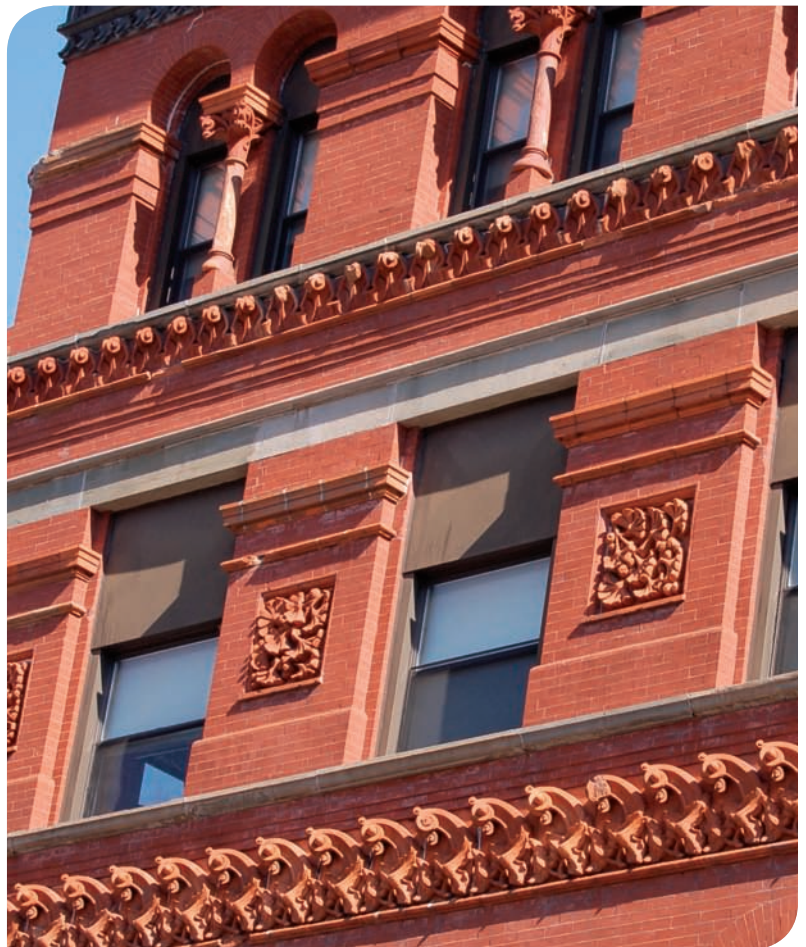


Integral Self-Contained
Model: SCIJ
5 to 15 tons

SUCCESS STORY

ARRIS Group

ARRIS Group—a global communications technology company specializing in the design and engineering of broadband networks—requires 99 percent or better uptime for their global data center. Trane provided a total system-integrated service solution that includes central monitoring of 69 alarm and event points that are mission-critical to delivering uptime. Trane field service technicians deliver a Performance Based Service Agreement with custom defined performance metrics tailored to meet the specific needs of ARRIS. The HVAC system equipment includes 54 rooftop units, one air-cooled 225-ton chiller and Trane Tracer™ controls.



Find Product Literature
Product Model No. SEARCH
Model No. SEARCH
Advanced Search >

For more information go to trane.com/commercial and enter product model numbers.

Packaged Rooftop Units

Packaged units provide a combination of premium components specifically designed to be easy to install and meet your building's specific needs. These unitary systems provide single or multi-zone heating, cooling, and ventilation. Each system is designed to address today's comfort demands—superior indoor air quality, straightforward installation and minimized energy consumption.

Packaged Gas/Electric Heating/Cooling



Convertible High Efficiency
Model: 4TCC3, 13 SEER
Model: 4TCY4, 14 SEER
1-1/2 to 5 tons



Precedent™
Models: TXC, THC
3 to 10 tons
Available on 6 to 10 tons only
Models: TSC (13 SEER R-410A)
THC (13 SEER R-22)
3 to 5 tons



Voyager™
Models: TCD, TED, YCD,
YSH, YHH, YSD, YHD
12-1/2 to 50 tons



2/4 YCC3 Convertible
13 SEER
Model: 4YCZ6, 16 SEER
Model: 4YCY, 14 SEER also available
for G/E
1-1/2 to 5 tons



Precedent
Models: YSC/YHC
3 to 10 tons
Models: YHC 17 Plus
3 to 5 tons



Voyager
Models: YSH/YHH Horizontal
12-1/2 to 25 tons



Voyager 3
Model: YCD
Downflow, Horizontal or
Mixed Airflow
27 to 50 tons



IntelliPak™ I
Models: SFHL, SXHK
20 to 130 tons



IntelliPak II
Models: SAHL, SEHL, SFHL,
SLHL, SSSL, SXHL, SXHK, SEHK,
SFHK, SLHK, SSHK
90 to 162 tons

Packaged Heat Pumps



Voyager
Models: WSD Downflow
WSH Horizontal
12-1/2 to 20 tons



2/4 WCC 3 Convertible
13 SEER
Model: 4WCY4 14 SEER
Model: 4WCZ6 16 SEER
1-1/2 to 5 tons



Precedent
Model: WSC
3 to 10 tons

Split Systems

When reliable operation, easy service and installation flexibility are important, consider a Trane® split system. By accurately matching capacity to your specific performance needs, we can help you realize lower installed costs and energy savings throughout the life of your building.

1.5–5 tons	2.5–5 tons	6–25 tons	10–120 tons
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Light Unitary

Large Unitary

Cooling



Single Phase
Models: 2TTM3, 4TTM3, 2TTB3, 4TTB3, 4TTR3, 4TTB4, 4TTR5



Three Phase
Models: 4TTA3, 2TTA3



Odyssey™
Three Phase
Model: TTA



Model: RAUJ

Heat Pumps



Single Phase
Models: 2TWB3, 4WR3, 4TWR5, 4TWB3, 4TWB4



Three Phase
Models: 4TWA3, 2TWB3, 4TWR3, 4TWR5, 4TWB3, 4TWB4



Odyssey™
Three Phase
Model: TWA

Air Handlers



Models: GAM5, TAM7, GAF2, GAT2, TAM4



Model: TWE



Models: TTD1, TUD1, TDD1-H, TUD1-H, TDD2, TDH1, TDH2



Models: 4CXC, 4TXA, 4TXC, 4TXF



Find Product Literature
Product Model No.
Model No.
Advanced Search >

For more information go to trane.com/commercial and enter product model numbers.

Controls

Trane® Tracer™ controls technological advancements enable high performance buildings, EarthWise™ systems and Trane Intelligent Services. They are key to making a building work better for life.

Tracer controls are Web-enabled, flexible and scalable and support open standard protocols such as BACnet®. This ensures that our complete portfolio of controls solutions provide trouble-free integration with not only Trane legacy systems but components from a variety of equipment manufacturers. They provide easy access from any PC on the Web or mobile device, such as smartphones or tablets. Modular and scalable platform expands to your needs. Easy-to-use, intuitive user interface with high quality 3D graphics helps improve your productivity and that of your employees.



Building Automation Systems Controllers and Workstations

Compatible with a variety of building types and used for new construction or renovation/retrofit, our field controllers are designed to suit virtually any application.

- Tracer™ SC System Controller
- Tracer ES™ Building Management Workstation Software
- Tracer ES™ Express Building Management Workstation Software
- Tracer Summit™ Building Automation System
- Tracker™ Light Commercial Systems Controller



Field Controllers

Compatible with a variety of building types and used for new construction or renovation/retrofit, our field controllers suit virtually any applications.

- Tracer™ UC400 Programmable Unit Controller
- Tracer™ UC600 Programmable Terminal Unit Controller
- Tracer™ TD7 Color Touch Screen Display
- Expansion Modules (for Tracer UC400 and UC600 Controllers)



SUCCESS STORY

Cajon Valley Union School District

Located in California, the Cajon Valley Union School District needed to upgrade its outdated, inefficient and unreliable HVAC systems at five schools—and do so within a tight time frame and limited budget.

Trane recommended packaged rooftop HVAC units that were simple to install, reducing initial costs and ensuring that deadlines were met. The Trane Tracer SC building automation

system (BAS) with Web-based interface and programmable unit controllers was also installed, as was Trane Tracer ES software, which allows the district to manage multiple locations from any PC on the network.

As a result, the school district is benefitting from a healthier, more comfortable learning environment, as well as lower energy and operational costs.

Equipment Controllers

Our unit mounted controllers are wired, commissioned and tested in the factory to provide easier installation and startup of equipment on-site.

Chiller Controllers

- Tracer™ UC800 Controller
- Tracer AdaptiView™ Color Touch Screen Display

General Purpose Equipment Unit Controllers

- Tracer™ Air Handler Controllers AH540 and AH541
- Tracer™ Variable Air Volume Controllers VV550 and VV551
- Tracer™ Zone Controllers ZN511 and ZN521
- Tracer™ Unitary Controllers ZN517
- Tracer™ Programmable Controllers MP580 and MP581
- Tracer™ Controllers MP501 and MP503



Zone Sensors

Trane offers a complete family of sensors and thermostats featuring wired and wireless models.

- Wireless Zone Sensors
- Wired Zone Sensors
- Thermostats



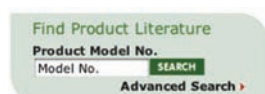
Trane TR200 Variable Frequency Drives

These drives help reduce energy usage, extend motor life, maximize occupant comfort and reduce costs.



Trane eView™ Energy Monitoring Software

This software tracks energy use and costs to provide you the information needed to identify energy conservation opportunities.



For more information go to trane.com/commercial and enter product model numbers.

Trane Rental Services

A special event, natural disaster, planned outage ... there are a number of reasons that you might need temporary cooling, heating or power. With more than 140 sales and service outlets across North America and 24-hour availability, Trane can deliver and install temporary equipment to get your business back "on-line" fast.

Rental Services Equipment Fleet

Rental Water Chillers



Air-Cooled Chillers (460 volt)
10 to 500 tons



Water-Cooled Chillers (460 volt)
250 to 1,000 tons

Packaged Air Conditioning Units



Voyager™ Units (460 volt)
with Electric Heat
25, 35 and 50 ton DX
35 and 50 ton High Static

Vertical Tent Units with Heat
10, 20 and 30 tons

Air Handling Units



Air Handling Units (460 volt)
Cold and Hot Water Coils
5,000 to 25,000 cfm

Cooling Towers



Cooling Towers
Induced Open
250 to 750 tons

Diesel Generators



Electrical Generators
36 to 1,500 kW

Heaters



Electric Heaters
20 to 150 kW
Indirect-Fired
500,000 Btu

Miscellaneous Components



Electrical Cable
Transformers
Trailers
Pumps and Hose
Air Compressors

SUCCESS STORY

Saks Fifth Avenue

Offering the finest fashion designer collections, each year Saks Fifth Avenue takes part in New York City's Fashion Week. When one of the retailer's chillers went down less than a month before Fashion Week, Saks knew that their two remaining chillers wouldn't be able to handle the load with the August heat and humidity. It was critical to get the failed chiller back up and running as efficiently and as quickly as possible.

Trane proposed installing a rental chiller to keep the store's indoor climate comfortable, while servicing the failed chiller motor, which could take several months.

The Trane Rental Services team overcame the challenges of weather, timing, a historical building and tight city quarters to provide a turnkey chiller solution for Saks Fifth Avenue. Their quick action and ingenious rigging design allowed a temporary rental chiller to be installed on the ledge of the 8th floor, saving upcoming high-end fashion events at the retailer's first and most prestigious location. Trane also coordinated the motor change-out in the failed chiller, allowing Saks to return to normal operations without having to replace the entire chiller. "Trane was very responsive and professional," said Curt Walton, Saks Fifth Avenue director of facilities. "Maneuvering an 800 horsepower motor through the store and installing a temporary chiller without disruption to sales or efficiency ... logistically, it wasn't an easy job. Working together, we completed the project on time and on budget."

Visit trane.com/rentalservices for additional information or call 800-755-5115 for Customer Service 24 hours a day, 7 days a week.

Upgrade Products and Parts

Keeping your equipment running at peak performance levels ensures you get the most from your investment. With that in mind, Trane offers a variety of upgrade products designed to sustain and even increase the efficiency of your system. With Trane® parts and upgrade products, you get the confidence of a nationwide parts organization and the peace of mind only a local support team can bring.

Service Products



EarthWise™ Purge
for R-11, R-123, and R-113
Chillers



Tracer AdaptiView™
Retrofit Controls for
Centrifugal Chillers



R'newal™ Service Program
Centrifugal Chillers
Series R Chillers
Adaptive Frequency Drives



Engineered Conversion
for Refrigerant Retrofit



Adaptive Frequency™ Drive
Model AFDC, compatible with
UCP2 Panels
Model AFD, compatible with
CH530/1 and AdaptiView



Replacement/Upgrade Starters
for Centrifugal Chillers



Remanufactured Motors
for Centrifugal Chillers

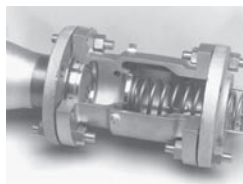


R'newal Service Program,
Tracer Summit

Parts and Supplies



ReSpecT™
Remanufactured Compressor



RuptureGuard™
Pressure Relief Valve



Refrigerant Monitor
Model RMWE



Refrigerant Monitor
Model RMWG



Self-Contained
Breathing Apparatus

Laboratory Services



Trane Chemical
Laboratory Services
for Refrigerant, Absorption Solution, Compressor Oil,
Gearbox Oil and Glycol Analysis

Routine analysis of the fluids in your HVAC equipment is essential to the proper maintenance and operation of the entire system. The Trane lab has experience analyzing results from virtually every industry brand and model. And, it offers analysis services on compressor oils, absorption solutions and refrigerants.

Visit trane.com/commercial/parts for additional parts and supplies.

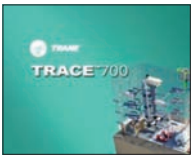
Design and Analysis Software

For nearly 40 years, Trane has been providing analysis software to promote energy-efficient, environmentally responsible practices to sustain high performance buildings for life. This philosophy has never changed; rather, it has only strengthened with today's focus on the environment.

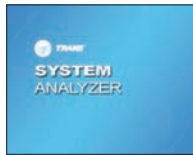
Trane® HVAC system analysis software tools are among the most powerful in the business. So, whether you are conducting a comprehensive load analysis, profiling system performance or determining the optimal HVAC components or configurations for a given project, we have a software package that will provide you with a solution for today's performance and design demands.

Analysis Tools

If you're designing for energy optimization, LEED® certification or ASHRAE compliance, our software is one of the first to deliver the latest methodologies ensuring that you are using the most comprehensive software available.



TRACE™ 700 is a complete load, system, energy and economic analysis program that compares building alternatives and optimization strategies.



System Analyzer™ is a preliminary analysis tool to help you compare energy and economic performance of prospective system designs.



Trane Acoustics Program (TAP™) makes it easy to accurately predict HVAC system sound levels or quickly compare sound characteristics of alternatives.



TRACE™ 700 Chiller Plant Analyzer software allows easy energy and economic comparisons of virtually any chiller plant configuration.



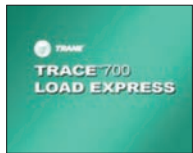
Trane Product Selection Software (TOPSS™) makes it easy for you to select the right product for your project. CAD and BIM objects are available to help you seamlessly incorporate into your everyday workflow.

Design Tools

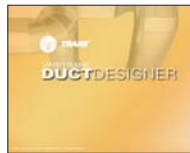
Trane design software packages offer all of the options and modeling capabilities you expect in comprehensive design tools.



TRACE™ 700 Load Design is a comprehensive load analysis tool that uses TRACE calculation engines, options and modeling capabilities combined with a whole new level of usability to make load design easy.



TRACE™ 700 Load Express is a limited version of Load Design that lets new designers and experienced users alike perform accurate heating and cooling load calculations and airflow capacities in minutes.



VariTrane™ Duct Designer consists of three applications to streamline duct design and improve calculation precision.



Pipe Designer streamlines the pipe design process. The program generates a complete bill of materials and provide detailed reports for analysis.



Engineering Toolbox provides nine desktop calculation tools to simplify HVAC design and service tasks.

Support and Training

Trane understands that keeping up with the latest technologies is challenging work. That's why a software license gives you unlimited access to our Customer Direct Service (C.D.S.™) support team. Whether you need information or training on software, methodologies, application education or information on the latest industry trends and compliance requirements, our unrivaled, dedicated C.D.S. support team is here to answer your questions. Our training sessions are designed for engineers, architects and HVAC design professionals to help you get the most out of your Trane software application.



Trane Building Services

Our engineers and technical specialists can provide the support to help you achieve the most cost-effective performance from your system—from its first day of operation through the day it needs replacement.

As a global company and industry leader for almost 100 years, Trane brings an abundance of collective knowledge to your building. More than 750 Trane employees are LEED®-certified professionals and 145 are AEE-certified energy managers. Top industry engineers, technicians, and support staff help you optimize the operation of your indoor climate control systems for as long as you own your building—that's the real advantage to working with Trane.

Even the best designed and operated systems require ongoing professional monitoring and maintenance to sustain performance. A long-term relationship with Trane ensures your original investment continually delivers a solid return.



High Performance Buildings

Trane creates High Performance Buildings by combining financial, operating and energy analysis with specialized service offerings and project financing. With the right methodology, High Performance Buildings can contribute measurable, year-over-year benefits by focusing on:

- Purpose of the building
- Business metrics (set by the owner)
- Responsible use of resources, including energy, water, air and human capital

Our approach to High Performance Buildings addresses many integrated factors that contribute to an organization's success. Our collective mission is to increase productivity gains, improve customer satisfaction, and reduce operating costs.

SUCCESS STORY

Carilion Roanoke Memorial Hospital **700-bed teaching hospital and Level 1 trauma center**

Carilion Roanoke Memorial Hospital could not control utility rates, but it realized it could control its energy use. Trane identified and implemented over 25 energy conservation measures (ECMs) to reduce energy use and carbon footprint, lower costs for patients and provide a positive ROI. The ECMs delivered \$275,000 in energy cost savings during the first year, and continue to deliver savings today. What's more, CO₂ has been reduced by more than 2,200 tons and carbon emissions have declined by nearly 550,000 kg CO₂ / kWh.

Trane Building Services

Trane Intelligent Services

Trane® Intelligent Services (TIS) combines technology, analytics, and expertise to continuously collect and interpret data from building equipment and controls.

Alarm Notification

Included with all Trane Service Agreements, Alarm Notification provides constant monitoring of HVAC and critical building system performance. If a system should fail, you are alerted in real time and provided information you can use to make decisions about getting your system back up and operating faster.

Active Monitoring

Active Monitoring has all the advantages of Alarm Notification, plus immediate diagnostic and responsive action capabilities. Trane Technical Specialists use proprietary software programs for diagnostics and alarm analysis.

Building Performance

Building Performance features the benefits of Alarm Notification and Active Monitoring, along with analyzed data and performance-driven recommendations and actions. This comprehensive monitoring and results-oriented offering raises the performance of your building's HVAC and other critical systems. Building Performance allows you to create optimum operating environments that increase productivity and profitability to meet your business's mission.



Visit trane.com/highperformancebuildings for additional information.

Trane Building Services

Elite Start Services

The Trane Elite Start™ suite of services ensures that your new equipment is properly installed while setting the foundation for efficiency and performance far into its life cycle. These services include:

New Product Start-Up Services

After your new equipment is installed, but before it is commissioned or becomes operational, a factory authorized Trane HVAC professional will work on-site to optimize the setup of your equipment.

Extended Factory Warranties

Trane provides a variety of extended warranties to allow you another opportunity to manage the ongoing costs of your operation.

Operate and Maintain Services

Your building should work as hard at your business as you do. We provide comprehensive services for maintaining and operating facilities, improving reliability, and monitoring critical building functions such as temperature, air quality, electricity, lighting and plumbing. These services include:

National Multi-Site Services

Facility management service plans to cover the entire life cycle of your facility.

Service Agreements

Reduce operating costs and extend the life of your equipment with planned maintenance from Trane.

Upgrade and Improve Services

Trane Building Services provides a range of offerings that will upgrade and improve your infrastructure. We can help you replace or upgrade equipment, or keep your systems running at maximum efficiency to minimize service calls, eliminate surprises and control your total cost of operation. Trane can even show you how to finance today's improvements with the funds you'll save on energy costs in the future. These services include:

Turnkey Contracting Services

To get the most out of your physical operations, you need a building systems expert who can provide a start-to-finish, all-encompassing approach to service. From replacing a chiller to complex long-term partnership solutions. Trane Turnkey Contracting provides start-to-finish solutions that add value to your building through energy management, reduced environmental impact and more.

Performance Contracting

Package all Trane services together to reduce costs and streamline your operation.

Comprehensive Solutions

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



Buildings are more than structures of wood, glass, steel and concrete.

They are meticulously designed environments where children first learn to read, surgeons perform life-saving procedures and world-changing business innovations occur. They are the places we gather to live our lives, run our businesses and better our world.

Buildings are where life happens.

Trane is dedicated to ensuring it happens comfortably, safely and efficiently. By improving the life of the building, we improve the lives within.



Our Brand Family

Ingersoll Rand is a diversified industrial manufacturer with market-leading brands serving customers in global commercial, industrial and residential markets. Our family of brands includes well-known names, such as those listed here, and dozens of highly regarded regional brands serving a variety of market segments.



- Industry-leading golf cars and utility, transportation and rough-terrain vehicles



- Air compressors, air treatment equipment and compressed air systems
- Tools, ARO pumps, material-handling equipment and air motors
- Parts, accessories and comprehensive services



- Residential and commercial mechanical locks and dead bolts
- Patented key systems, online, offline and wireless electronic locking systems, and remote home management
- Security management systems, including digital video surveillance, integrated photo ID badging, guest-pass systems and alarm monitoring



- Transport temperature-control units for trucks, trailers, railcars and seagoing containers
- Heating, ventilation and air-conditioning systems for buses and passenger railcars
- Electric and engine-based auxiliary idle reduction and temperature-management systems for sleeper compartments in tractor cabs



- The most extensive line of heating, ventilation and air conditioning (HVAC) systems in the industry, from large chillers to packaged rooftop units, supported by a comprehensive portfolio of service agreement solutions—with a chain of Trane HVAC parts and supplies centers
 - User-tested and proven building automation controls for better HVAC system regulation and better building performance
 - Leading provider of advanced heating, cooling and indoor comfort systems for residential environments with national distribution through an expert network of about 10,000 independent dealers
 - Accredited Energy Services Company (ESCO)
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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®, 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 a world of sustainable progress and enduring results.



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