



Trane Building Advantage

**Sustainability. Realized.**

TRANE  
TECHNOLOGIES

# The Trane Service Portfolio

Our mission: Making buildings better for life.



Start up

## HVAC system life cycle



System  
Renewal

Trane Elite Start™  
and Extended Start

Start-up

Genuine Parts  
and Repair Services

Operate & maintain

Trane Service and  
Select™ Agreements

Preventive & pro-active maintenance

Trane Rental Services

Contingency cooling / long-term rental

Building Advantage

Analyze / optimize / modernize

# Trane Building Advantage

Sustainability. Realized.

Your building and its HVAC system represent one of your organization's most significant capital investments. On the operating side, 40 to 60% of your total energy budget goes into running that chiller plant. Our mission with Trane Building Advantage is clear: to bring you the services, tools, equipment and expertise to transform your building in terms of cost, performance and positive environmental impact.

Our customers measure HVAC systems by their reliability, efficiency and environmental impact. The suite of enhancement solutions we call Trane Building Advantage has been developed to deliver results at two levels:

### Components

By targeting individual components of the system we can ensure they meet design requirements and so optimize life cycle costs.

### Plant

We leverage our expertise and use proprietary analysis software to produce a holistic system design to suit specific needs within clear cost parameters.

Trane Building Advantage will transform your HVAC system into strategic business advantages: reliability, efficiency and environment.

### Efficiency

- Identify and unlock energy savings within your system
- Upgrade equipment and meet ROI targets
- Enhance existing equipment through maintenance and retrofit

### Environment

- Manage the use of scarce energy resources
- Minimize carbon footprint
- Meet regulatory requirements
- Optimize the quality of the working environment

### Reliability

- Analyse your existing system and provide detailed diagnoses and recommendations
- Develop a proactive maintenance plan
- Reduce the risk of breakdowns
- Extend equipment life

## Trane Building Advantage – Reliability

Knowing you can depend on your system

Buildings and their equipment are valuable assets. Trane Building Advantage aims to ensure that property managers have peace of mind, knowing their asset can be depended upon to perform day in, day out, whatever the season. Trane's experts have the knowledge and tools to provide a rapid diagnostic picture of your system allowing risk factors to be identified and effective solutions proposed. A proactive maintenance plan will ensure that equipment life is extended and that the risk of unscheduled business interruptions caused by breakdowns is minimized.

## Trane Building Advantage - Efficiency

Unlocking your hidden cost savings

Even in the newest HVAC systems, cost savings can be identified. Given the importance of cost control in meeting business objectives, it makes sense to explore every opportunity to avoid waste. You cannot be sure you have truly optimized your chiller plant until Trane has conducted a detailed survey. Decisions concerning how your system is serviced and maintained are strategically important. You have to take into consideration factors such as total cost of ownership and the return on investment that can be realized over time.

Trane Building Advantage will unlock those hidden cost savings whether it means fine-tuning your existing system or managing a replacement program.

## Trane Building Advantage - Environment

Managing a plant that is good for your people, good for the earth

Our world demands that businesses minimize their environmental footprint. At the same time, increasingly stringent environmental regulations must be met. Most importantly, the health, comfort and safety of employees are to be assured at all times. Facility managers are rightly concerned that their buildings perform to the highest environmental standards.

Trane has drawn on over 100 years' experience to assemble a portfolio of solutions which addresses every one of these concerns. You can be fully confident that your enterprise is not only doing the best for its employees, but also for future generations.



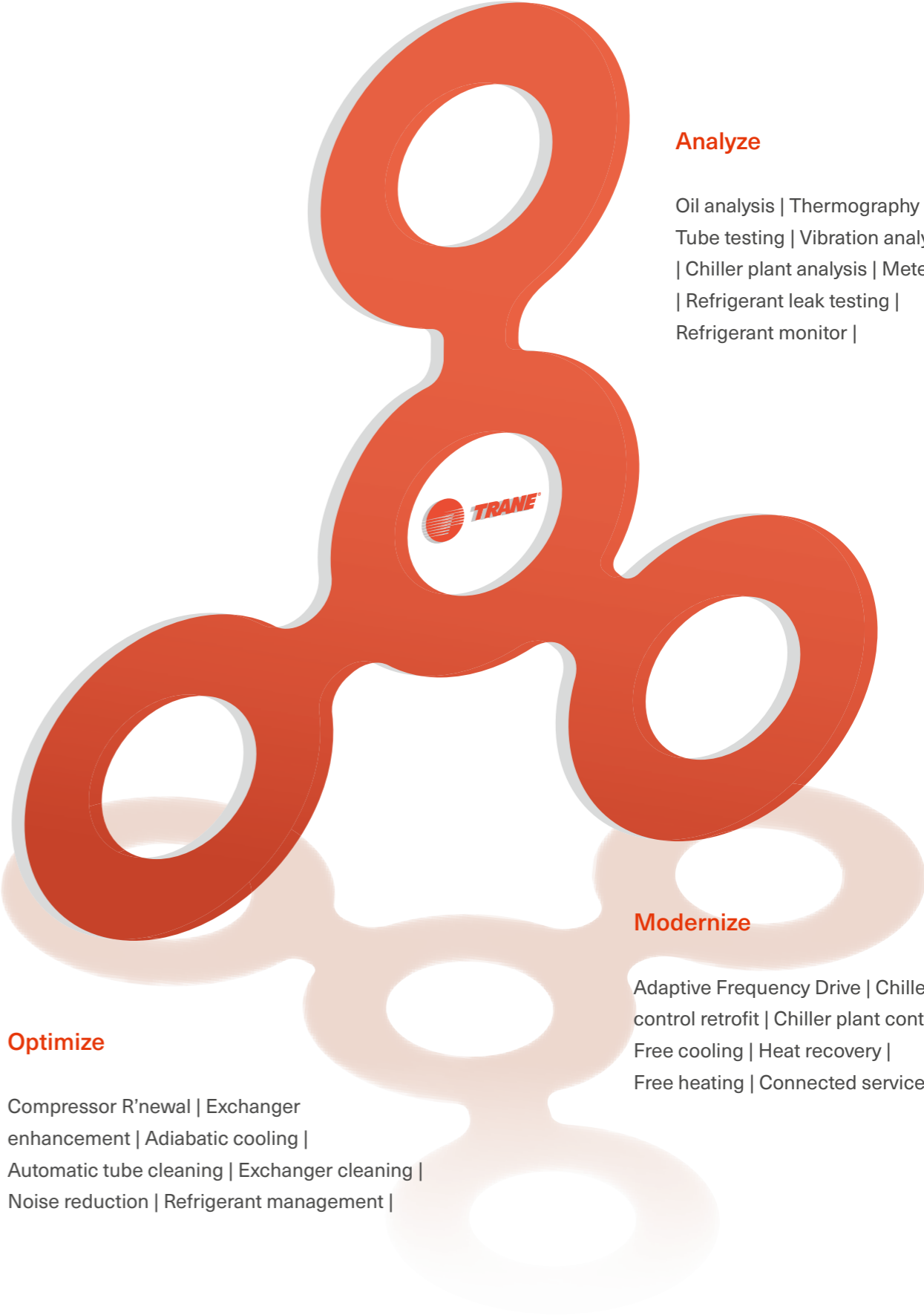
# Trane Building Advantage - Strategies and Solutions

Each of our three strategies - **Analyze - Optimize - Modernize** - is supported by a range of solutions. These have been designed to deliver outstanding performance when measured against the key indicators of environment, energy and reliability.

**Analyze:** extract key data from your system and use it to make informed decisions.

**Optimize:** achieve optimum operation of your existing equipment.

**Modernize:** use targeted interventions with the latest technology to update part or all of your system.



## Analyze

- Oil analysis | Thermography |
- Tube testing | Vibration analysis
- | Chiller plant analysis | Metering
- | Refrigerant leak testing |
- Refrigerant monitor |

## Modernize

- Adaptive Frequency Drive | Chiller
- control retrofit | Chiller plant control |
- Free cooling | Heat recovery |
- Free heating | Connected services |

## Optimize

- Compressor R'newal | Exchanger
- enhancement | Adiabatic cooling |
- Automatic tube cleaning | Exchanger cleaning |
- Noise reduction | Refrigerant management |

# Analyze

The starting point is always a discussion with you, because of your intimate knowledge of the system. Using our expertise and proprietary diagnostic tools, Trane ensures that a detailed, accurate and objective analysis is produced.

Our analysis can look at the condition of your system's oil for signs of wear, check heat exchanger tubing for damage or rigorously search for the smallest refrigerant leaks.

When data collection and diagnosis are completed, we compare your cooling system against a solution tailored to meet your needs and requirements. We do not just analyze your system; we also discuss your business objectives so that we can create a recommendation that will fully meet your needs. Budget and payback estimations will help you to make the right choice.

## Oil analysis

Measures the oil's moisture, acidity, and metal concentration levels. If unacceptable wear conditions develop, a change in the characteristics of the oil will be evident. Minor problems can be detected and repaired before they cause major damage. This analysis is recommended for all compressor types, on all types of chiller technology.

## Thermography

Trane Thermography is a predictive tool to identify potential problems before they happen. It is a proven method to detect and diagnose hidden faults in a completely non-invasive manner while your plant is in operation. Early detection prevents unscheduled downtime and lowers repair costs.

## Tube testing

A heat exchanger contains many hundreds of tubes, all undergoing mechanical stress and chemical corrosion. The tubes are therefore critical to chiller performance and reliability and yet they are not checked during standard maintenance. 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.

## Vibration analysis

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 imbalance, and degrading screw compressor rotor tolerance.

## Chiller plant analysis

Trane collects data on current systems operation and provides a clear view of chiller plant performance. The gathered results are then compared to an upgraded system. Chiller plant analysis includes water flow and temperature monitoring to assess system operation and an optional power metering to assess performances.

## Metering

Energy metering is a feature of the OptiPlant solution. It allows close monitoring of energy use via a colour touch-screen display. Daily, monthly and year-to-date energy consumption can be viewed for each individual chiller or the overall plant. Energy management has never been easier.

## Refrigerant leak testing

Refrigerant leaks into the atmosphere may contribute not only to ozone depletion but to global warming effects. Trane's leak testing procedures can ensure that your system's refrigerant stays where it belongs, in the system. With Trane leak testing you are not only protecting the environment but also the effectiveness of your system; in addition, it will help you to remain in compliance with relevant laws and regulations.

## Refrigerant monitor

Trane refrigerant monitors provide reliable leak detection for equipment in mechanical plant rooms and give early warning of refrigerant leaks. Trane refrigerant monitors are designed to operate in conjunction with Trane equipment controls and send remote alarms or even activate building ventilation systems.



# Optimize

Once we have an agreed solution, Trane project fulfilment teams take responsibility for the design, management and execution of the enhancement strategy. Proprietary data logging, trending and analysis tools are employed to evaluate and sustain the new cooling system performance.

Your HVAC system is probably not operating to its highest potential. We have a suite of tools available to help you reach new levels of operating efficiency. We can renew or enhance key components including the compressor or heat exchangers. Or, we can reduce energy consumption and lower operating noise levels. Following your priorities, we will take the best approach to raise the performance of your equipment to the highest possible level.



## Compressor R'newal™

To begin again - this is what Trane can do for the most expensive component of your chiller. Compressor R'newal™ is an investment that will deliver Trane's original commitment of reliability and performance. It is backed by a long term warranty on the compressor. Also, any chiller that undergoes a compressor R'newal™ will automatically qualify for coverage on a Trane Select™ agreement, which further enhances your level of assurance.

## Exchanger enhancement

Atmospheric pollution can cause corrosion on fin and tube heat exchangers, which will result in reduced equipment life. Trane can enhance your coil to provide protection against corrosion whilst maintaining their original performance. In addition, on shell and tube coil, Trane can provide ceramic coating to water boxes to reduce the formation of dangerous scales and corrosion.

## Adiabatic cooling

Cooling systems operating outside design parameters typically run an increased risk of breakdowns, higher energy costs and lower

operational efficiency. Trane Adiabatic Cooling decreases the temperature of the air entering the coil. A mere 10°C temperature drop generates an average of 13% reduction in power consumption, delivering immediate cost savings and environmental benefits.

## Automatic tube cleaning

Fouled heat exchangers can decrease system effectiveness dramatically, for instance just 1 mm of scale can result in a 45% reduction in efficiency. For this reason, all properly maintained heat exchangers are cleaned regularly. Imagine a system that never stops cleaning your heat exchanger, Trane can provide you with such a system, this ensures that your system always operates at peak efficiency and will save on maintenance costs and downtime.

## Exchanger cleaning

Over time, deposits can accumulate inside your chiller heat exchanger stopping free circulation of water and causing efficiency losses. The Trane solution is for expert technicians to carry out a thorough cleaning using mechanical techniques rather than environmentally hazardous chemicals. In addition to tube cleaning, end plates and water

boxes will also be restored to pristine condition. The end result will be a "good as new" critical component, increased system efficiency and reduced operating costs.

## Noise reduction

Where noise reduction is required, Trane can provide noise retrofit kits for most Trane chillers. By reducing noise levels, the surrounding acoustics are improved without the need for equipment replacement.

## Refrigerant management

We recognize that the choice of management is not always easy as several factors have to be considered and balanced in order to make the right decision. Trane is committed to providing

our customers with equipment and systems that are environmentally responsible and good for business. Trane service representatives are experts in offering the right refrigerant for the right application at the right time, while complying with all legislations.

# Modernize

Running inefficient equipment can be a costly mistake. Energy consumption is high, reliability and performance are low. If modernization is identified by our analysis as the right strategy for your operation, then we will help you evaluate the advantages of chiller upgrade and plant control retrofit.

To ensure continuous improvement, we use proprietary data logging, trending and analysis tools to measure performance of the new cooling system versus objectives. Where deviation is detected, we will recommend countermeasures to ensure you never fall short of targets.

## **Adaptive Frequency Drive (AFD)**

AFD maximizes chiller efficiency and reduces power consumption by adapting the motor speed to the chiller's operating load. Energy savings can reach 35%.

## **Chiller control retrofit**

Trane's Tracer AdaptiView™ chiller controller allows chillers to operate at optimum performance and efficiency. Why not let your chillers benefit from advances in technology? We can retrofit old chiller controllers with Tracer AdaptiView™ so you can start saving.

## **Chiller Plant Control**

By operating system components at their most efficient point, run-time is minimized. This way, energy consumption is reduced by up to 20% and component lifetime is increased. The system also notifies users when scheduled maintenance is due.

## **Free cooling**

All the benefits of free cooling with minimal plant disruption. This factory built and tested solution comes with all necessary installation equipment and intuitive, pre-configured controls.

## **Heat recovery**

Letting waste heat from air cooled chillers escape into the atmosphere is akin to throwing money away. Trane can retrofit your existing air cooled

chiller so that the waste heat is recovered and reused to heat or preheat water used for either domestic hot water or process applications.

## **Free Heating**

Repurpose the heat rejected by your cooling process will improve your system efficiency and reduce your energy consumption. Benefit from hot water at zero cost and zero emissions.

## **Connected Services**

Step up remotely to your equipment health. Trane connected services offer web access, remote maintenance and optimization solutions to ensure your system operation can be continuously monitored and optimized.



# Success Stories

The true potential of Trane Building Advantage to optimize building performance is shown in these real applications:

## Enhanced chiller performance

Adiabatic Cooling - France

Adiabatic cooling decreases the temperature of air entering the coil which enhances chiller performance. The installation of Trane Adiabatic Cooling on seven air cooled chillers at a multinational pharmaceutical plant in France provided reliable and energy efficient process cooling for the facility.



## Efficiency gains and cost savings

Automatic Tube Cleaning - Italy

A world leader in electronics needed a cost effective way to manage energy efficiency across their facilities in Italy. Automatic Tube Cleaning system installed on their 20 centrifugal chillers delivered the expected gains in operating efficiency and energy savings with an estimated return on investment of just 16 months.



## Reduced downtime and improved performance

Compressor R'newal - UK

A leading financial firm in the UK chose Trane to upgrade and retrofit their four ageing centrifugal chillers. Based on the results from oil and vibration analyses, Compressor R'newal was carried out to regain the original compressor reliability and performance. AdaptiView™ retrofit and Tube Testing analysis were also performed to optimize chiller performance. Building occupants now work in ideal conditions.



## Regulatory compliance and cost avoidance

Refrigerant Retrofit - Germany

A leading energy generation company in Germany performed Trane refrigerant retrofit on their existing chillers to keep in compliance with environmental regulations and avoid the cost of capital investment on new equipment.



## Reduced operating hours and energy costs

Free Cooling Retrofit - Germany

A leading water bottle production company in Germany was using 1500 MWh of electricity for its production process. Trane brought a comprehensive retrofit solution by installing a complete free cooling system. Chiller operating hours were reduced by 20% and the utility bill by 10%.



## Optimized plant operation

OptiPlant - Spain

An international company with offices and integrated server rooms in Spain was seeking to reduce operating costs while retaining sufficient year-round cooling capacity. Trane OptiPlant provided the solution by reducing pump consumption and increasing chiller efficiency at low cooling demand. The customer reported annual operating cost savings of 15%.



# Trane Building Advantage

The right choice, right now.

Whether your building is new, midlife or older, chances are it is not operating to its full potential. You may well have unsatisfactory performance that can be made world class or hidden savings that can be unlocked.

The smart decision right now is to talk to your local Trane representative about Trane Building Advantage - and let us transform your asset.







# Trane Services

The real expertise of a manufacturer



- Systems approach
- Dependable installations
- Energy saving solutions
- Operating cost optimization
- Chiller plant management solutions
- Chilled water production solutions.

At Trane, we are committed to providing a comprehensive portfolio of HVAC solutions throughout your system lifecycle.



## Breakdown resolution

No one plans for breakdowns, but when they happen you need the right partner. Our expert Service Engineers use the latest diagnostic tools to guide you through your options to Repair, Renew, Replace or ReThink.



## Secure operations

At every point during the lifetime of your equipment - installation, commissioning, maintenance or breakdown - Trane can offer an effective solution with commissioning, first-aid kits and service agreements.



## System upgrade

Trane Building Advantage

Trane is committed to bringing the latest technological advantages to our customers through a wide portfolio of solutions which increase the Efficiency, Reliability and Sustainability of their HVAC plants. Our Service Engineers use their expertise together with the latest diagnostic tools to future-proof your system and make it “better than before”.



## Equipment rental

For special events, exceptional needs or when you want to ReThink HVAC management, Trane Rental Services have the right solution. With our extensive fleet of equipment, we can perfectly match your temporary heating and cooling requirements.



## Contact us

With over 1000 of the best trained sales engineers and service technicians in the industry, Trane is in the best position to serve your needs. Just call us and we will help you configure the right solution for your HVAC system.



Trane – by Trane Technologies (NYSE: TT), a global climate innovator – creates comfortable, energy efficient indoor environments through a broad portfolio of heating, ventilating and air conditioning systems and controls, services, parts and supply. For more information, please visit [trane.eu](http://trane.eu) or [tranetechnologies.com](http://tranetechnologies.com).