



TRANE®

Transform your HVAC performance

Good for your comfort, for the
environment and for your bottom line



IMPULS e

 Ingersoll Rand®

TRANSFORMING YOUR HVAC SYSTEM

IMPULS-e is a portfolio of solutions from Trane which uses advanced technology to transform your existing HVAC system.

You will benefit in 3 key ways:

1. Efficiency optimization – system capacity adjusts to meet building needs
2. Energy savings – a cost reduction of 15 to 35%
3. Performance enhancement – an ESEER improvement of 5 to 15%.

Efficiency optimization

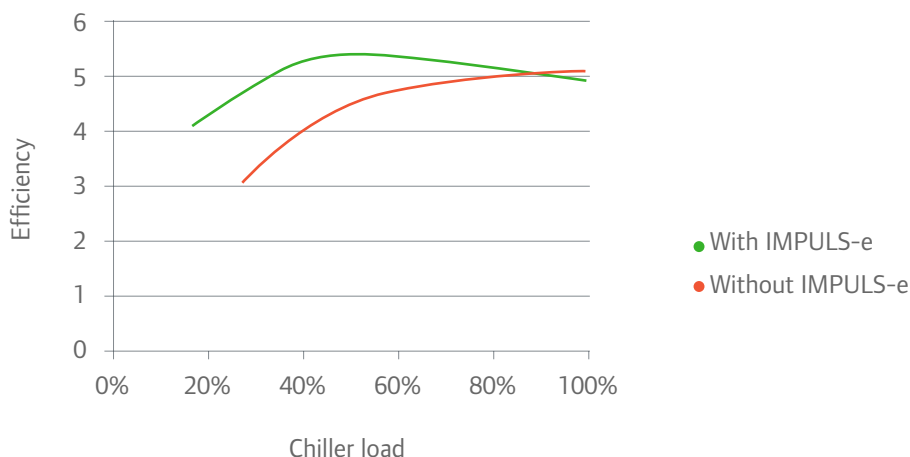
Because the demands placed on your HVAC system vary considerably, it is frequently operating below maximum efficiency. Trane upgrades your HVAC installation so the system can adjust its capacity according to the building needs. Overall efficiency is dramatically improved.

Energy savings

In most buildings, the chilled water system is the single largest energy user. By optimizing efficiency, Trane IMPULS-e will deliver a substantial reduction in energy consumption. Savings are typically in the range of 15 to 35%. These savings are achieved without compromising the comfort of the occupants.

Performance enhancement

When your system operation is optimized, its performance is measurably enhanced, regardless of the weather outside and gains of 5 to 15% in ESEER (European Seasonal Energy Efficiency Ratio) can be achieved.



WITH IMPULS-e YOU
TRANSFORM
YOUR HVAC SYSTEM





Innovation

Latest technology upgrades for your HVAC system

Modernize

Equipment operates at optimum efficiency

Performance

Upgrade and adapt equipment operation to building requirements

Umbrella

Multiple solutions to suit a wide range of equipment

Leverage

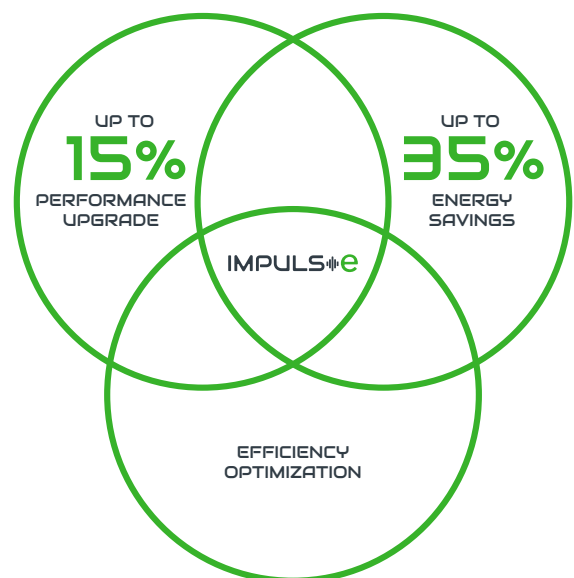
Expertise to upgrade and dedicated tools to assess your benefits

Save

Reduce energy consumption by up to 35%

Environment

Reduce facility carbon footprint



INGERSOLL RAND CLIMATE COMMITMENT

Our climate commitment increases energy efficiency and reduces the greenhouse gas emissions (GHG) related to our operations and products, including:

- 50% reduction in direct greenhouse gas potential of our products by 2020, and incorporating alternatives with lower global warming potential across the company's product portfolio by 2030
- \$500M investment in product-related research and development over the next five years to fund the long-term reduction of GHG emissions
- 35% reduction in greenhouse gas footprint of our own operations by 2020.

This commitment will result in the avoidance of approximately 20,850,000 metric tons of CO₂e globally by 2020, which is equivalent to the energy used by nearly two million homes for one year.

The IMPULS-e range represents another milestone towards these objectives.



UP TO
50%
COST
SAVINGS

MOTOR POWER
UP TO
15%
GREATER

CARBON FOOTPRINT
-35%



IMPULS 

HOW IMPULS-e WILL SUPPORT YOUR BUSINESS

- Cost savings: Annual operating costs will be cut by up to 50%
- Environmental gains: By reducing your energy consumption, you reduce your carbon footprint
- Adapt to power grid: Improve motor power factor by 5% to 15%
- Component protection: Reduce start-up current by up to 85%, lowering operational stress and heating in the motor
- Fewer starts and stops mean less wear and tear
- Lower operating noise levels: Chiller operation will be quieter, extending the usability of nearby spaces.

HOW IMPULS-e WILL SUPPORT YOUR DECISION

Trane expertise can quickly establish if your building will benefit from IMPULS-e technology:

- A before-and-after performance calculation to quantify the positive impact
- Laboratory proven performance to ensure we deliver on our commitment
- A hassle-free solution thanks to a turnkey installation.



Trane expertise



Performance improvement

CAN YOUR OPERATION BENEFIT FROM IMPULS-e?

Our solutions will be especially effective in buildings where:

- A significant proportion of HVAC run hours are at part load
- Chillers experience frequent start and stop routines
- Chillers are noisy when running at part load
- The area has particularly high utility rates
- Local utility rebates are on offer.

UP TO
35%
ENERGY
SAVINGS

System efficiency improvement



IMPULS-e SOLUTIONS FOR YOUR HVAC SYSTEM

IMPULS-e can transform the performance of a wide range of products:

Screw chillers

RTHD, RTAC, RTAD, RTWD, RTWB

System benefits:

- Easier and faster diagnostics
- Clear visibility of critical parameters
- Temperature tracking over 7 days
- Reduced start-stop cycles by enabling the chiller to operate at lower capacities
- Increased compressor reliability by reducing wear and tear on the motor
- Reduced start-up current draw by up to 85%, lowering operational stress and reducing heat build-up in the motor
- 5% improved power factor correction.

Rooftop units

System benefits:

- No need to change mechanical parts
- Increased lifetime of bearings, belts and air filters due to soft start
- 5 dB(A) reduction in noise level when the rooftop unit is unloaded or in ventilation-only mode
- Over 50% reduction in energy consumption on account of 20% fan speed reduction
- Energy saved during the intermediate season.

Your HVAC system



Screw chillers



Rooftop units

Ancillary equipment

Pump, cooling tower, air handling unit

System benefits:

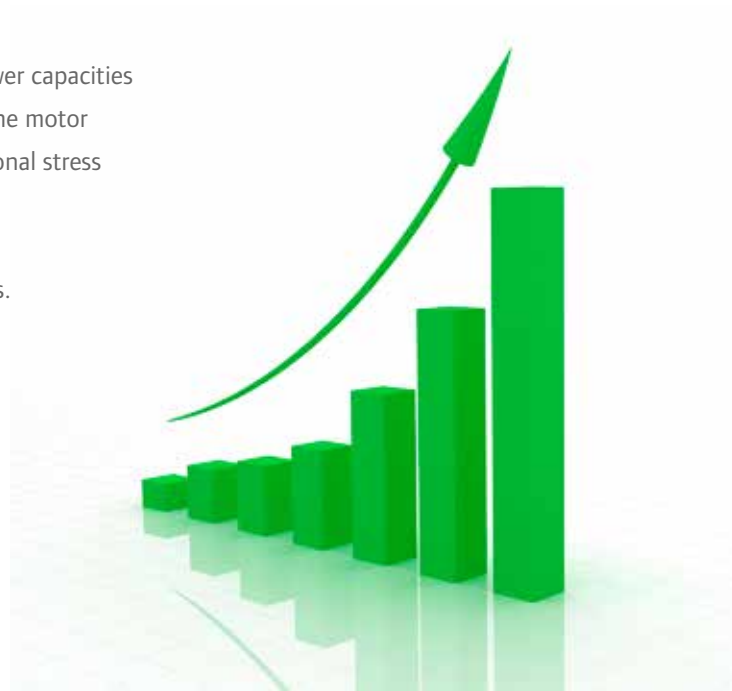
- Adapt equipment operation to building requirements for energy savings
- Lower inrush current
- Improved power factor
- Increased system Delta T (pumps).

Centrifugal chillers

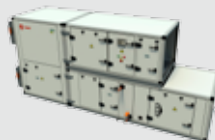
CVHG, CDHG

System benefits:

- Fewer start-stop cycles by enabling the chiller to operate at lower capacities
- Increased compressor reliability by reducing wear and tear on the motor
- Reduced start-up current draw by up to 85%, lowering operational stress and reducing heat build-up in the motor
- 5% improved power factor correction
- Quieter chiller operation to improve utilization of nearby spaces.



Ancillary equipment



Centrifugal chillers

PERFORMANCE
UPGRADE

SPEED
CONTROL

IMPULS-e - NEXT STEPS



We would need to know:

- When is the unit operational?
- What is connected to it (number of AHUS, fan coils, hydraulic circuits, VAV boxes)?
- Does the operating profile vary throughout the seasons?



Proprietary tool

We will work with you using an advanced Trane tool to provide a potential savings analysis of your existing Trane chiller. Our analysis will be customized to your location, building type, equipment and utility rates.

Efficiency optimization

The results will allow you to quantify the benefits of an AFD upgrade and we will ensure that you select the IMPULS-e solutions best suited to your specific needs.



IMPULS  e

High Performance Buildings

Your Mission. Realized.

Efficient systems

Controls

Services

Services portfolio

Trane Elite Start™



- Validate installation
- Engineering checklist for optimal start-up
- Verify and record design operational parameters

Trane Select™ Agreements



- Comprehensive service contracts for HVAC systems
- Improve reliability and efficiency
- Improve cost of ownership

Trane Extended Start



- Foundation for high performance buildings
- Benchmarking baseline parameters
- Monitor and adjust system critical parameters

Trane Controls Services



- Solutions for sustainable high performance buildings
- Maintain system fitness
- Optimize system performance

Genuine Parts and Repair Services



- Comprehensive OEM parts
- State-of-the-art logistics
- Factory authorized technicians

Trane Building Advantage



- Extract key data from your system to make informed decisions
- Achieve optimum operation of your existing equipment
- Use targeted interventions with the latest technology to update your system

Trane Chiller Health Check Program



- Inspect chiller operating conditions
- Evaluate basic and critical parameters
- Recommend upgrade and improvement solutions

Trane Intelligent Services



- Remote monitoring with professional advantage
- Address key operational challenges
- Critical alarm management and event log

Trane Service Agreements



- Planned maintenance
- Minimize downtime and extend equipment life
- Reduce operating costs

Trane Rental Services



- Temporary cooling solutions
- Reliable equipment and fast service
- All building purposes



Trane® is a brand of Ingersoll Rand®. Ingersoll Rand (NYSE:IR) advances the quality of life by creating comfortable, sustainable and efficient environments. Our people and our family of brands—including Ingersoll Rand®, Trane®, Thermo King® and Club Car® — work together to enhance the quality and comfort of air in homes and buildings; transport and protect food and perishables; and increase industrial productivity and efficiency. We are a global business committed to a world of sustainable progress and enduring results.



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