



Trane Building Advantage

Adaptive Frequency Drive

Transform your HVAC performance
Good for your comfort, for the
environment and for your bottom line

TRANE
TECHNOLOGIES

Transforming your HVAC system

Adaptive Frequency Drive (AFD) 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.

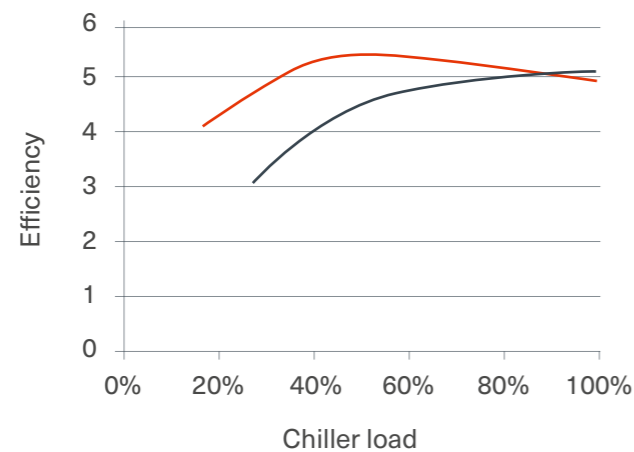
Energy savings

In most buildings, the chilled water system is the single largest energy user. By optimizing efficiency, Trane AFD 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 AFD YOU **TRANSFORM** YOUR HVAC SYSTEM



- With AFD
- Without AFD

Adaptive Frequency Drive

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

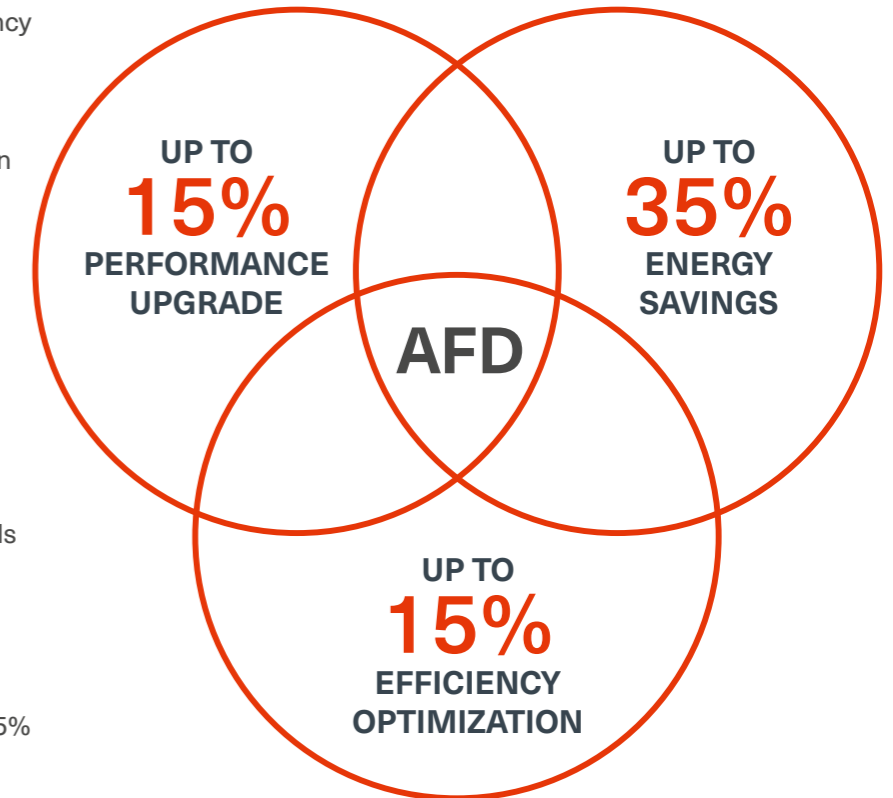
Expertise to upgrade and dedicated tools to assess your benefits

Save

Reduce energy consumption by up to 35%

Environment

Reduce facility carbon footprint



Trane Technologies climate commitment

Global challenges inspire bold thinking. Trane Technologies is uniquely positioned to tackle our planet's biggest environmental challenges. Our 2030 Commitment is changing every major facet of our business — from operations, to supply chains, to employee and community development, to governance:

- Gigaton challenge: Reduce customer carbon footprint by 1 billion metric tons of CO₂e
- Design system for circularity
- Achieve carbon neutral operations
- Achieve 10% absolute reduction in energy consumption of our facilities
- Become net positive in water use.

We have no doubt we will be able to achieve our new goals as we have demonstrated our ability to meet our 2020 climate commitment:

- Over the past five years, we've reduced greenhouse gas emissions by 31 % while total energy efficiency has increased 23 %
- As a company at the forefront of sustainability, approximately 25 % of our current revenue is from products and services that contribute to the clean energy transition.

The AFD range represents another milestone towards these objectives.

Up to
50%
cost
savings

Motor power
up to
15%
greater

Carbon footprint
-35%

Adaptive Frequency Drive

How AFD 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 AFD will support your decision

Trane expertise can quickly establish if your building will benefit from new 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 it?

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.



System efficiency
improvement

Latest technical solutions for your HVAC system

Trane can transform the performance of a wide range of products:

Screw chillers RTHD, RTAC, RTAD, RTWD, RTWB, RTAF, RTWF

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.

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.



Your HVAC system

Screw chillers



Rooftop units



Ancillary equipment



Centrifugal chillers



SPEED
CONTROL

PERFORMANCE
UPGRADE

AFD – 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 AFD solutions best suited to your specific needs.



Adaptive Frequency Drive



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 Trane Free Cooling 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 or tranetechnologies.com.