



TRANE®

Water-Cooled Chillers and Water-to-Water Heat Pumps With Screw Compressor

CITY





AN INNOVATIVE SOLUTION

- HFO for Capacities below 400 kW
- “Heavy duty” screw technology
- Designed to fit tight buildings and restricted spaces
- Continuous capacity control
- Versatility in application:
 - ➔ Comfort
 - ➔ Process Cooling
 - ➔ Heating





SUSTAINABLE



R1234ze

0 ODP
Near Zero GWP (<1)

EcoWise™

City chillers with near zero GWP refrigerants are part of the Ingersoll Rand EcoWise™ portfolio of products that are designed to lower their environmental impact with next-generation, low global warming potential (GWP) refrigerants and high-efficiency operation.

The only viable alternative to fast rising cost of HFC's



Adaptive Frequency™ Drive

- Industry leading Seasonal Efficiency
→ *Energy bill reduced*
- Eliminates inrush current
→ *No oversizing of electrical components*
- *Decrease cost of installation*

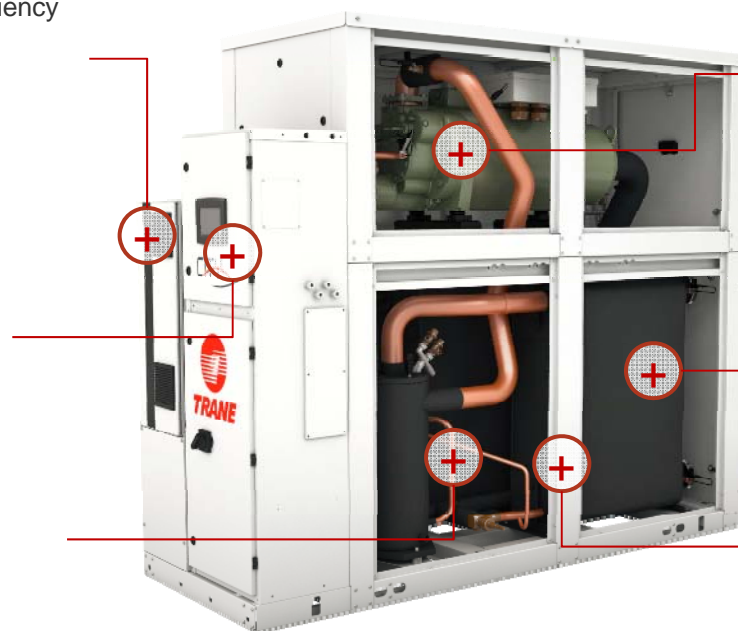
Controls

- Fastest controls of the industry
- Safe VPF
- No nuisance trips (Adaptive controls)
- Temperature control within 0.3°C
→ *Efficient, reliable and accurate operation*

Acoustically insulated panels (Optional)

- - 6 dB(A)
- *Low sound emissions*

DESIGN AT A GLANCE



Trane Compressor

- Direct drive, low speed
→ *Excellent Load matching*
- *Unequaled long lasting Reliability*

Heat Exchangers

- Single Circuit Brazed Plates Heat exchangers
→ *Maximum efficiency*

Compact design

- 920 mm Width only
→ *Fits standard doors and elevators*
- *Can be easily moved*

A concentrate of Trane “Expertise”



COMPACT DESIGN

Passes through
standard doors



Fits in elevators and Lifts

Optimized for restricted spaces



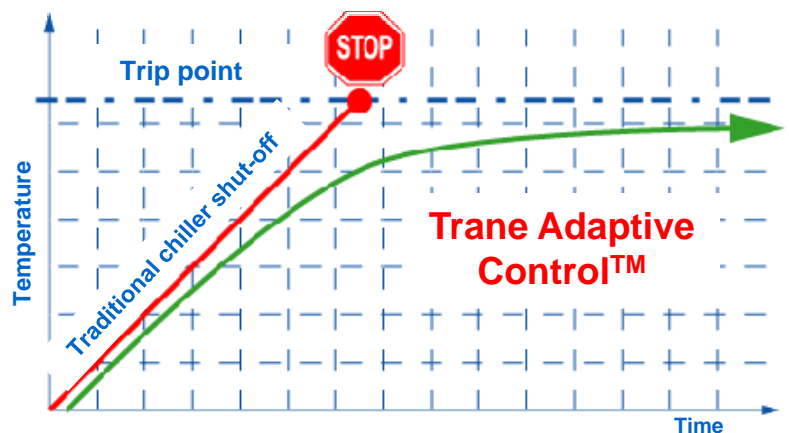
CONTROLS

Operational effectiveness

- Industry-leading control algorithms for maximizing both performance and reliability
- Adaptive Control™ to avoid nuisance trips
- Rapid Restart capabilities for maximum uptime
- Data trending
- Active and historic alarm logs
- Standard and custom reports

Intuitive & user friendly interface

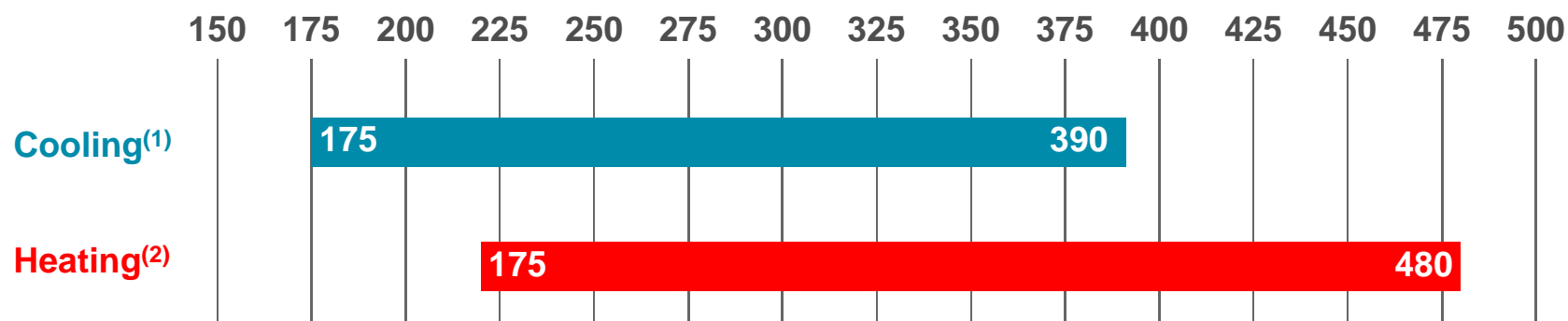
- Tracer™ UC800 with TD7 AdaptiView™
- Easy-to-read 7-inch color touch-screen display
- Open-protocol - BACnet®, Modbus or LonTalk
- Trane Intelligent Services (TIS) capable for 24/7 online performance management of your system



Performance, Efficiency and reliability are not options



CAPACITY COVERAGE



Comfort Air Conditioning and Heating

(1) 12/7°C Entering/Leaving Evaporator – 30/35°C Entering/Leaving Condenser

(2) 12/7°C Entering/Leaving Evaporator – 40/45°C Entering/Leaving Condenser

Up to 5.1 EER / 6.3 ESEER in Cooling and 6.1 COP in Heating



100% SUITABLE FOR EVOLVING NEEDS



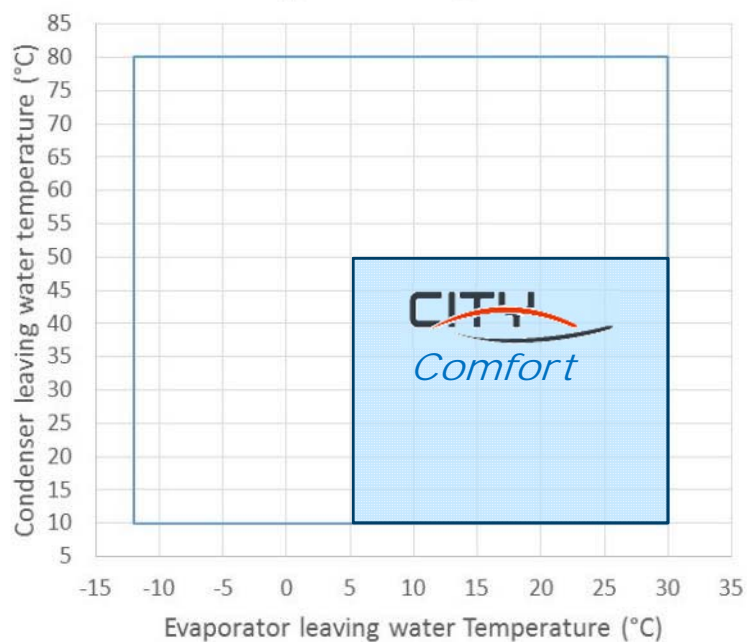
Modular and scalable for:

- Easy Capacity addition according to evolution of capacity needs
- Optimized efficiency plant design through partialization of capacity with multiple units

Plan for the future...



Chillers and Water-to-Water Heat pump
Application range



VERSATILITY IN APPLICATION

CITH *Comfort*

Efficiency optimized for moderate comfort applications in cooling or heating up to 50°C, or industrial process applications at positive temperatures



Office
Buildings



Hospitality
industry



District
Cooling/
Heating



Data
Centers

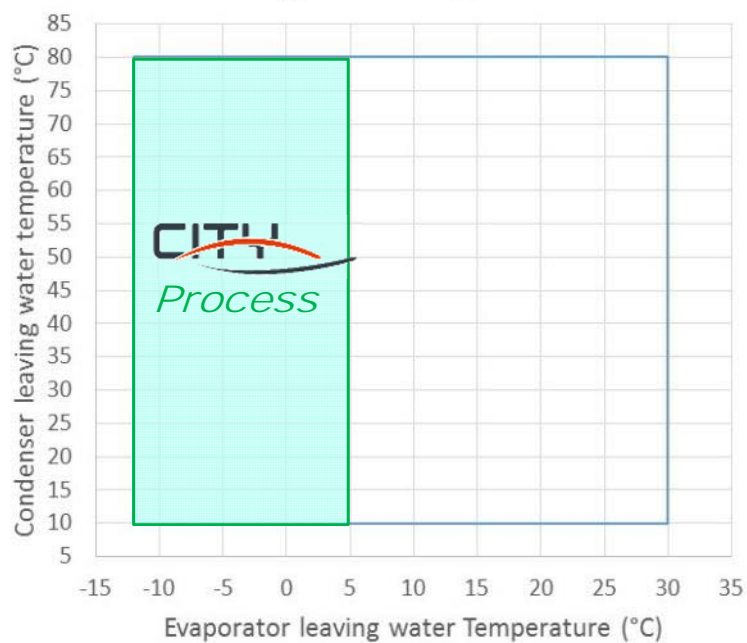


Industry

Performance and sustainability at hand for Comfort



Chillers and Water-to-Water Heat pump
Application range



VERSATILITY IN APPLICATION

CITH Process

Efficiency optimized for freezing industrial process applications



Food & Beverage



Warehouses
Cold Storage

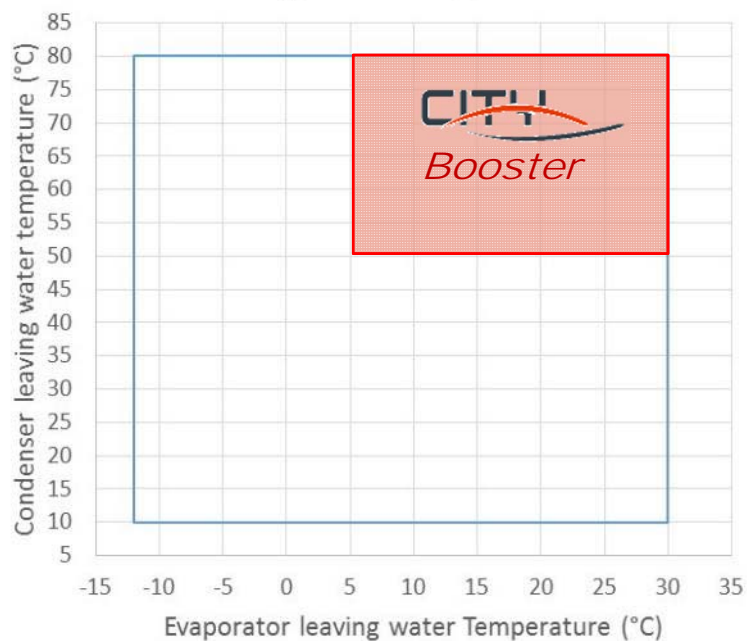


Ice
Rink

Sustainable solution ($GWP < 1$) with safe operation



Chillers and Water-to-Water Heat pump
Application range



VERSATILITY IN APPLICATION

CITH *Booster*

Operation and Efficiency optimized to deliver High temperature hot water between 50°C and 80°C



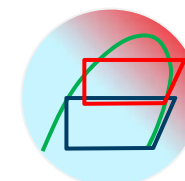
High temperature Heating



Sanitary Hot Water



District Heating



Heat recovery Cascade

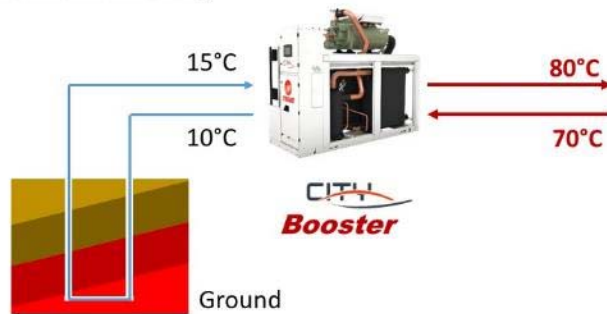
A unique opportunity to move to renewable energy



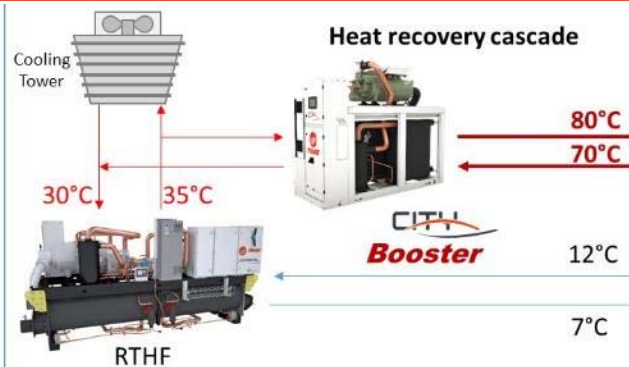
CITY *Booster*

VERSATILITY IN APPLICATION

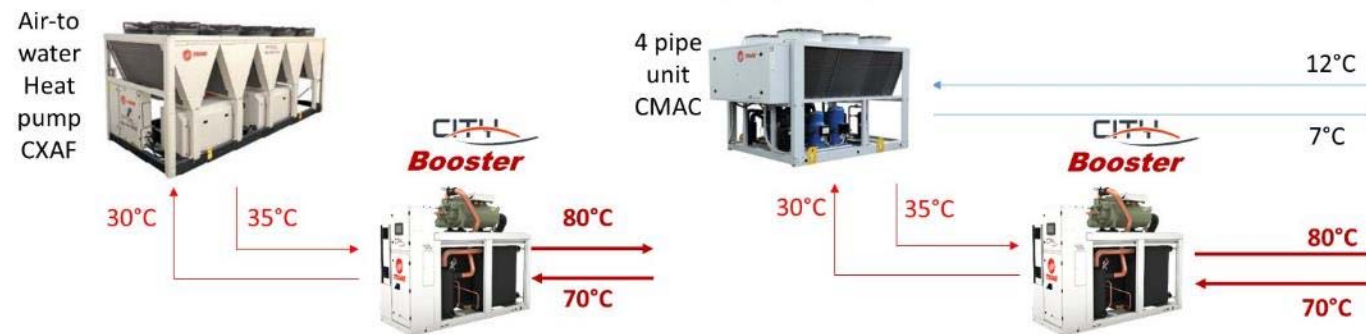
Geothermal heating



Heat recovery cascade



Cascade with Heat pump or 4 Pipe

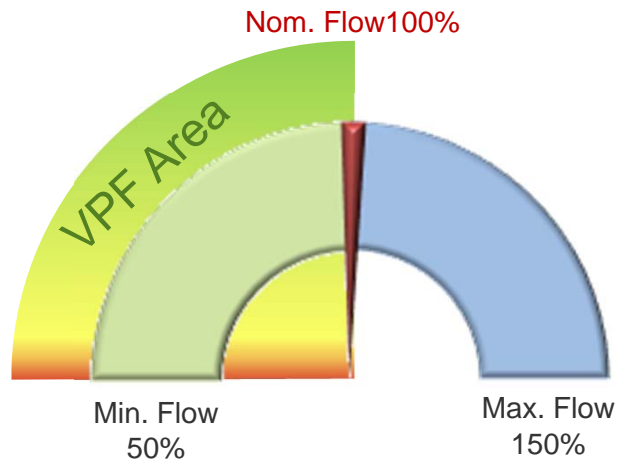




VARIABLE FLOW COMPATIBILITY

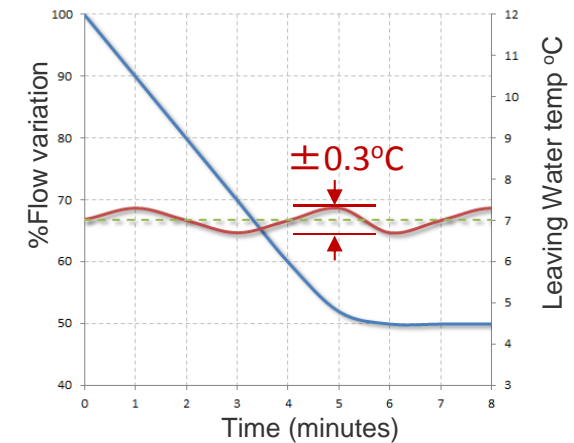
Evaporator

- Designed for Variable Primary Flow (VPF)



SmartFlow Control

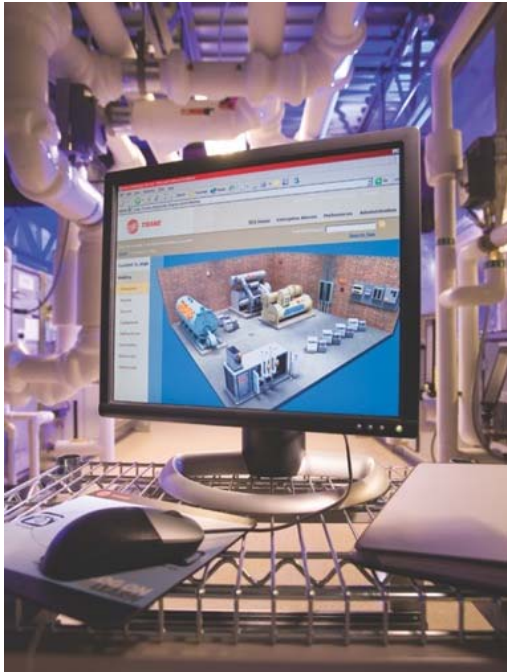
- Algorithm designed to handle variations of 10% per minute
- Maintains water temperature within $\pm 0.3^{\circ}\text{C}$
- Ability to deliver a signal to control variable speed pump



20% Flow reduction = 50% energy savings on pumps



COMMUNICATION



- Compatible with all Trane Building Management Systems and chiller plant controls
- Communication interfaces
 - BACnet™ IP
 - BACnet™ MSTP
 - ModBus™ RTU
 - LonTalk™ (LCI-C)



System optimization through communication



TESTING

Extended testing

- Operation in extreme operating conditions leading to World Class reliability
- Pressure vessels resistance
- Electro-Magnetic compatibility (CE compliance)
- Finite element analysis for structure and components design resistance and robustness
- Acoustics and vibrations testing



Performance and reliability is no coincidence



QUALITY STANDARDS



CE compliance

- Pressure Equipment Directive (PED) 97/23/CE
- Machinery Directive (MD) 2006/42/CE
- Low Voltage Directive (LV) 2006/95/CE
- Electromagnetic Compatibility Directive (EMC) 2004/108/CE
- Electrical Machinery Safety Standard EN 60204-1
- Electromagnetic Emission and Immunity Standard EN 61800-3 category C3
- Ecodesign Directive 2009/125/EC

Quality Insurance processes

- ISO9001
- ISO14001

Guaranteed performance of the investment



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