



# Water-Cooled Screw Chillers and Water/Water Heat Pumps

## XSTREAM

Model RTWF 935 - 1860 kW  
Model RTHF 1155 - 2220 kW



# Trane XStream™

## Water-Cooled Chillers and Water/Water Heat Pumps

There is world-wide demand for increasingly efficient products to reduce energy and resource consumption. As part of our sustainable product policy, Trane has always been committed to respecting the environment by reducing energy consumption through the delivery of high performing and efficient products and systems.

Trane XStream™ series provides reliable temperature control in the most demanding applications. Exceptional efficiency keeps your operating costs and environmental impact low. Smart and easy to use controls ensure you get the best out of your system day after day, year after year.

### XStream chillers and heat pumps are ideal for

- Cooling and heating applications
- High and medium temperature industrial process applications



Office buildings



Healthcare



Data Centers



Automotive industry



Pharmaceutical industry



Plastic industry



Hospitality industry



District Cooling  
District Heating

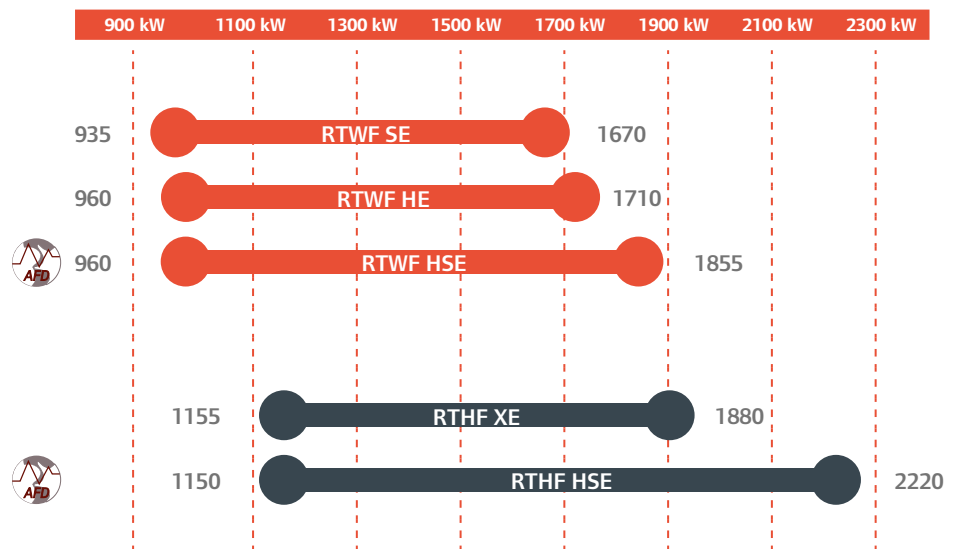
### Where you need

- An extremely **reliable** source of chilled and/or hot water
- An extremely **efficient** system which can minimize your operating costs
- An extremely **versatile** system which adapts to your real building or cooling/heating requirements
- **Simple and dynamic** control over your system for dependable performance - day in, day out.

# Range Description

A model for every need

Whether your priority is to reach ultra high efficiencies, benefit from low first costs, or have a quicker return on investment, there is a model in the Trane XStream range that will meet your needs.



## Outstanding energy efficiency



The design of our new XStream chillers and heat pumps has been guided by the need to achieve the lowest energy consumption. Units deliver market leading part load and full load efficiency performance.

You can choose from four efficiency levels:

- Standard Efficiency (SE)
- High Efficiency (HE)
- Extra High Efficiency (XE)
- High Seasonal Efficiency (HSE) with integrated variable speed: Trane Adaptive Frequency™ Drive.

## Trane exceptional reliability



With equipment as critical as an HVAC system or industrial process, quality is non-negotiable. At Trane we manufacture and design the core components and put our systems through extremely rigorous performance and reliability tests. All Trane units are given a complete test before leaving our factory. As a result, Trane customers benefit from proven, industry-leading reliability and durability.

## Extreme versatility



Whether you have seasonal comfort requirements or a sensitive industrial application there is a model from the XStream range that will satisfy your needs.

By selecting the appropriate efficiency version, you can minimize your Total Cost of Ownership.

For even greater system efficiency, Trane XStream units are fully compatible with *Variable Primary Flow (VPF) applications and Series chiller arrangements.*

# XStream chillers:

## the smart choice for cooling applications

Because chillers rarely operate at design conditions, Trane developed the XStream range to achieve industry-leading part load efficiencies without compromising the environment.

### Unique and innovative features



- Multiple compressor design allows outstanding part load efficiencies by switching compressors off while utilizing the entire heat exchanging surface for the remaining compressor(s)
- XStream chillers and heat pumps take advantage of crossflow serial heat exchanger design to reduce compressor workload under all operating conditions.

### Variable Primary Flow (VPF) capabilities

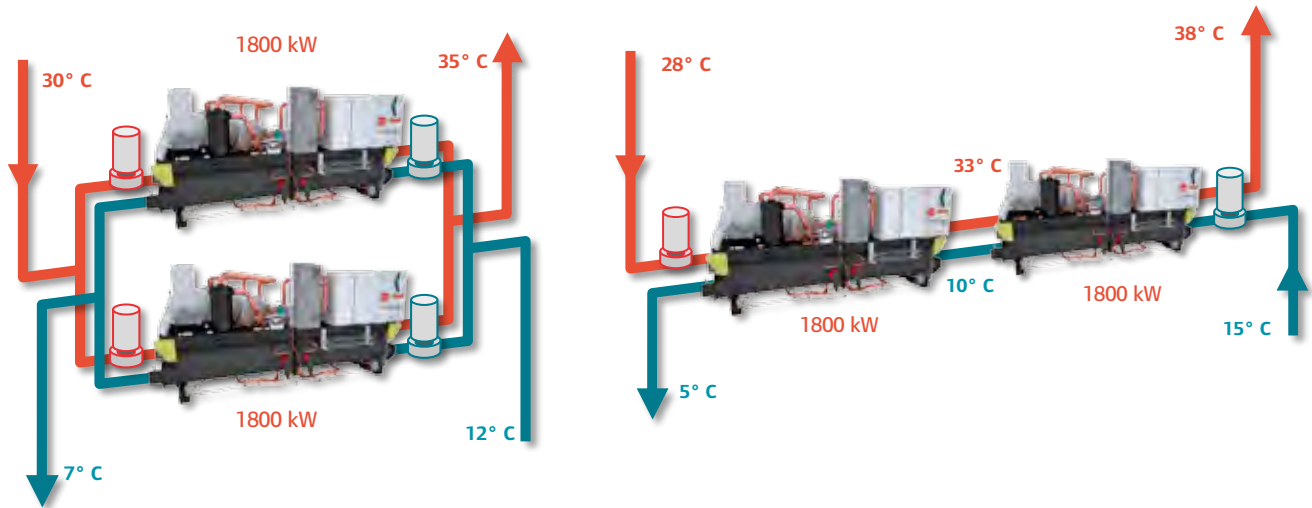


VPF systems provide building owners with multiple cost savings derived directly from pump operation. The XStream series is designed to make VPF easy to use.

- The evaporator on the XStream series can run safely with up to 50% water flow reduction
- The microprocessor and capacity control algorithms are designed to handle a maximum of 10% change in water flow rate per minute in order to maintain  $\pm 0.3^{\circ}\text{C}$  temperature control leaving the evaporator.
- For applications in which system energy savings are the priority and tight temperature control is classified as  $\pm 1.1^{\circ}\text{C}$ , up to 30% change in flow per minute is possible.
- With the help of a TRANE software analysis tool, you can determine whether the anticipated energy savings justify the use of VPF in a particular application.

## Multiple chiller plants III

Overall efficiency can be further improved by using an alternative chiller lay-out to the conventional parallel-piped configuration. For example, chillers can be piped in series, on the evaporator side, on the condenser side or both.



### This layout provides the opportunity for

- Lower chilled water design temperature with larger  $\Delta T$
- Reduced design flow
- Installation and operational cost savings by fewer installed pumps and valves, reduced pipe diameters and chiller downsizing
- Maximized system efficiency
- Continuous temperatures allow better stability of controls

By combining series configuration with Variable Primary Flow (VPF) it is possible to further increase system efficiency.



# XStream heat pumps:

ideal for heating applications

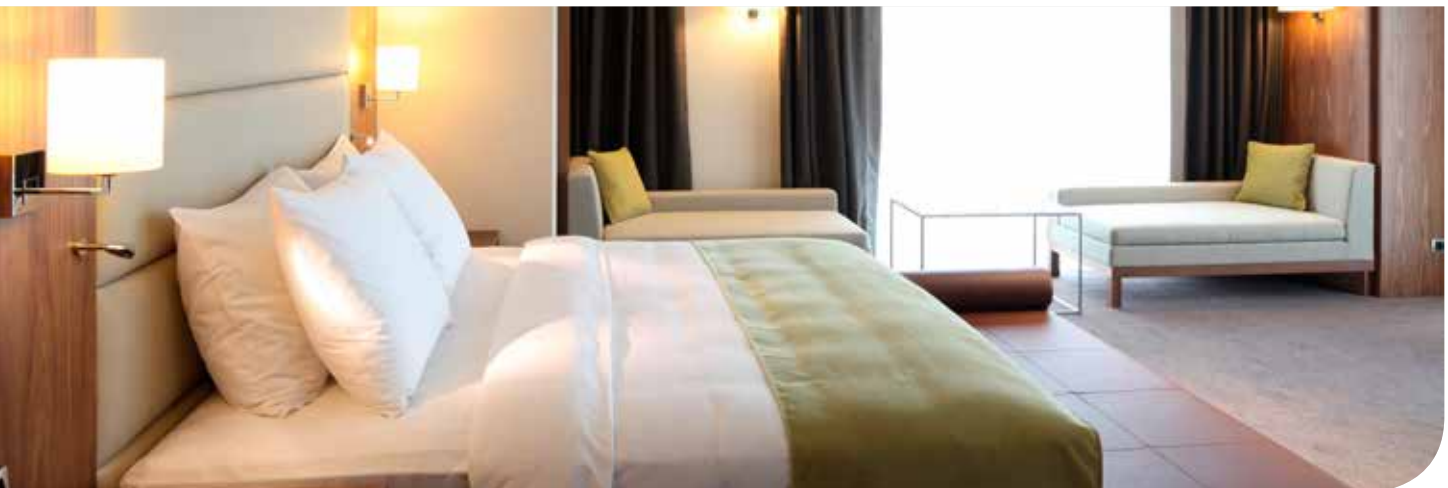
The market for heat pumps in Europe has grown substantially year over year as the advantages of heat pumps are proven. Trane introduces new technologies creating sustainable solutions using renewable energy.

## Unique and innovative features



Trane XStream heat pumps are a smart alternative to traditional boilers with features which effectively address the needs of geothermal and district heating applications:

- Compressors specially designed for high temperature applications
- Large capacities up to 2035 kW (at Eurovent Air Conditioning heating conditions)
- High condensing water temperatures of up to 68°C (RTWF) allowing operation as a high temperature heat pump or a high condensing temperature cooling system.
- High performance up to 4.59 COP (at Eurovent Air Conditioning heating conditions)
- Operates down to 10% part load requirements.





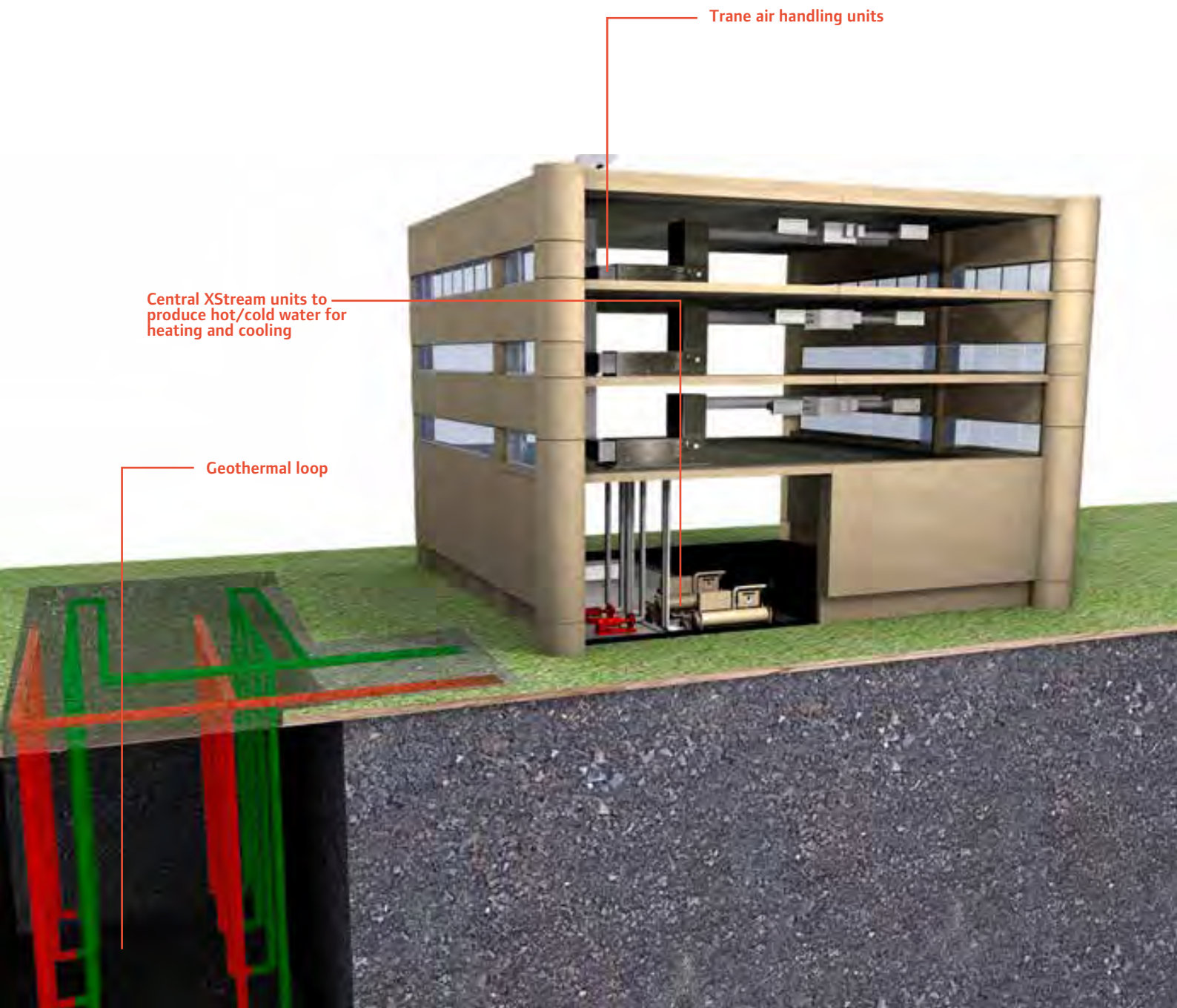
## Peace of mind while saving energy costs



With water reaching 68°C leaving the condensers on model RTWF, costly auxiliary heating sources to treat Legionella bacteria can now be scaled back or totally eliminated.

## Geothermal applications

The technologies built into Trane's XStream series heat pumps make them ideally suited to geothermal applications.



Trane air handling units

Central XStream units to produce hot/cold water for heating and cooling

Geothermal loop

# Mechanical features

Innovative solutions to your needs

## Trane industry-leading compressor \*

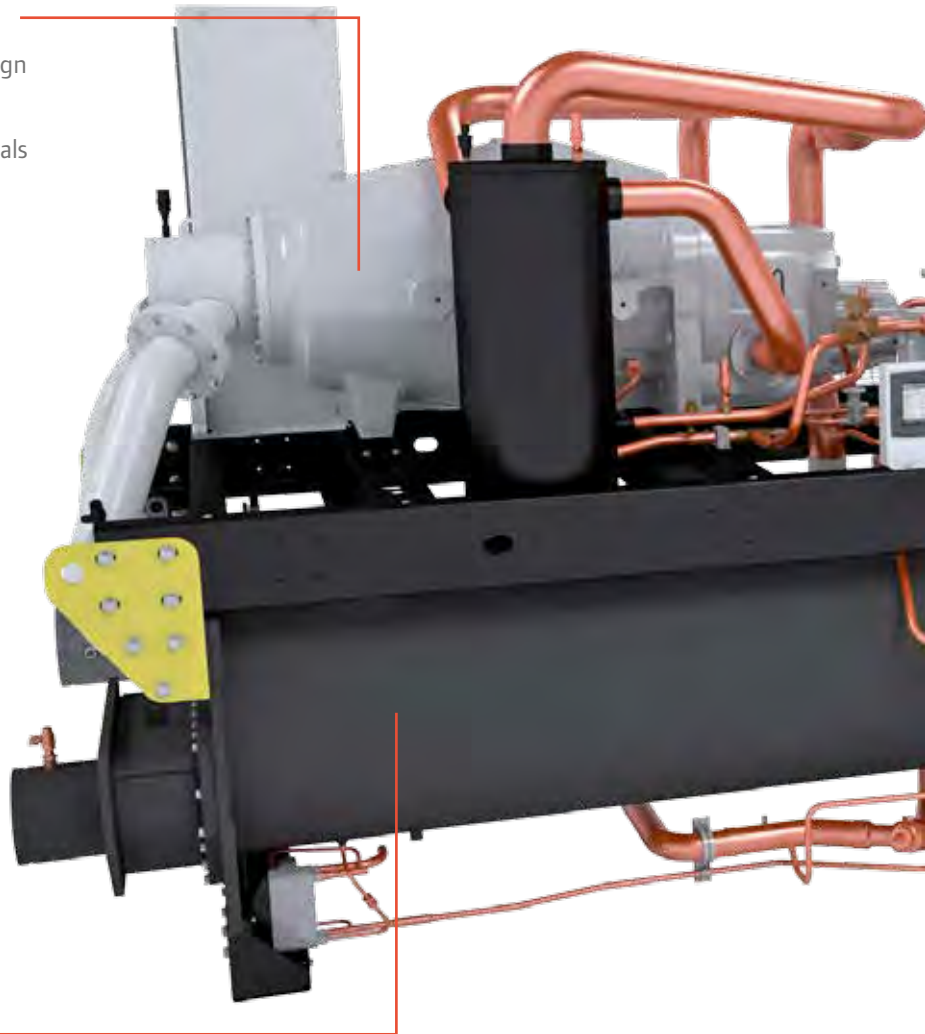
- Direct drive, twin screw helical rotary design
- Infinite capacity modulation
- Semi hermetic design eliminating shaft seals
- Trane unequaled reliability

## Dual independent refrigerant circuits

- Provide redundancy
- Reduce the impact of any failure

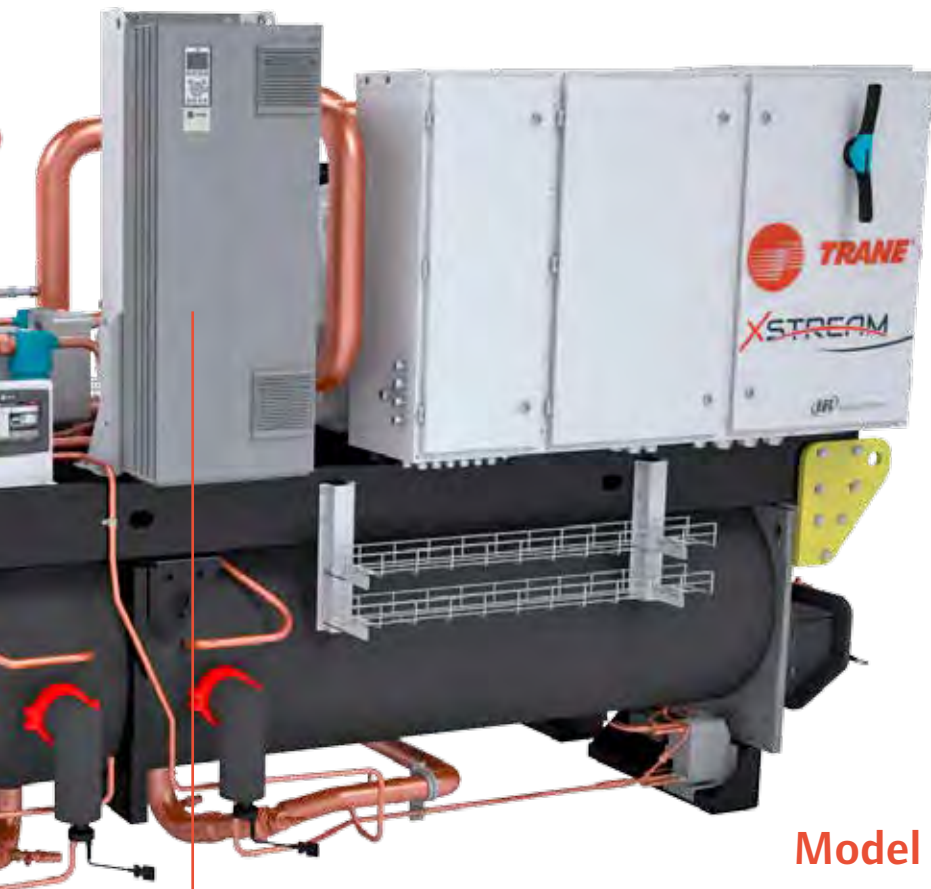
## Heat exchangers \*

- Single pass
- Counter flow configuration



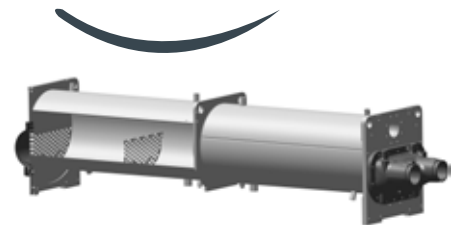
\* Trane Proprietary Technology





**Compact - High performance -  
Integrated design - Low charge  
(CHIL) flooded evaporator \***

- Reduced refrigerant volume
- Increased efficiency
- Reduced carbon footprint



**Model RTHF**

**Adaptive Frequency™ Drive on HSE version \***

- Improved efficiency under part load conditions
- Improved capacity modulation



# Control features

Innovative solutions to your needs

## Trane combined smart control and interface \*

- Leading TD7 touch screen with 7" color display
- Clear presentation of critical information
- Monitor settings, data trending, reports and alarms
- Simple, intuitive navigation
- Effective operation, monitoring and management
- Durable construction for both indoor and outdoor use



## Tracer™ UC800 controller \*

- New generation Trane control platform for chillers
- Advanced algorithms for the most challenging conditions
- Maintains efficient and reliable operation

\* Trane Proprietary Technology



## Model RTWF

### Connectivity

- Full interoperability via SmartCom interface Lontalk®, BACnet® and Modbus
- Full remote control capability via Trane BMS or Chiller Plant Controls



LONMARK  
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# General specifications

## SE/HE/XE/HSE

### General Data for cooling performances

		RTWF	RTHF
Condenser leaving water temperature (min/max)	(°C)	10 / 68	10 / 46*
Evaporator leaving water temperature (min/max)	(°C)		-12 / 20
Power supply	(V/Ph/Hz)		400/3/50
Refrigerant			R134a

\* up to 50°C with capacity limitation depending on model and size

### RTWF Standard Efficiency - RTWF SE

Unit size		RTWF 275 SE	RTWF 290 SE	RTWF 310 SE	RTWF 330 SE	RTWF 370 SE	RTWF 410 SE	RTWF 450 SE	RTWF 490 SE
Net cooling capacity (1)	(kW)	934.5	977.2	1036	1105.7	1242.22	1388.2	1527.7	1666.7
EER (1)		4.65	4.62	4.63	4.65	4.61	4.65	4.65	4.67
Eurovent efficiency class - cooling		B	B	B	B	B	B	B	B
ESEER (1)		5.88	5.77	5.74	5.92	5.8	6.25	6.18	6.08
IPLV (1)		7.124	7.101	7.005	7.168	7.101	7.665	7.551	7.378
Number of refrigerant circuits					2				
Number of compressors		3	3	3	3	3	4	4	4
Sound power level (2)	(dB(A))	100	100	101	101	101	102	102	102
<b>Weights and dimensions</b>									
Length	(mm)	4758	4758	4784	4784	4784	4774	4774	4774
Width	(mm)	1668	1668	1668	1668	1668	1766	1766	1766
Height	(mm)	2034	2034	2034	2034	2034	2137	2137	2137
Operating weight	(kg)	5278	5186	5373	5427	5486	6938	7016	7099

### RTWF High Efficiency - RTWF HE

Unit size		RTWF 275 HE	RTWF 290 HE	RTWF 310 HE	RTWF 330 HE	RTWF 370 HE	RTWF 410 HE	RTWF 450 HE	RTWF 490 HE
Net cooling capacity (1)	(kW)	959.4	1004.3	1068.3	1135.64	1266.93	1423.6	1563.45	1708.4
EER (1)		5.09	5.09	5.07	5.08	5.08	5.10	5.06	5.08
Eurovent efficiency class - cooling		A	A	A	A	A	A	A	A
ESEER (1)		6.48	6.39	6.34	6.52	6.41	6.85	6.68	6.58
IPLV (1)		7.516	7.516	7.402	7.568	7.526	7.992	7.798	7.598
Number of refrigerant circuits					2				
Number of compressors		3	3	3	3	3	4	4	4
Sound power level (2)	(dB(A))	100	100	101	101	101	102	102	102
<b>Weights and dimensions</b>									
Length	(mm)	4758	4758	4784	4784	4784	4774	4774	4774
Width	(mm)	1668	1668	1668	1668	1668	1766	1766	1766
Height	(mm)	2034	2034	2034	2034	2034	2137	2137	2137
Operating weight	(kg)	5619	5511	5716	5766	5904	7344	7464	7565

(1) Evaporator 12/7°C, condenser water temperature 30/35°C according to EN14511:2013. Rated in accordance with AHRI Standard 550/590, based on TOPSS version 192

(2) At full load and in accordance with ISO9614

## RTWF High Seasonal Efficiency - RTWF HSE

Unit size		RTWF 275 HSE	RTWF 290 HSE	RTWF 310 HSE	RTWF 330 HSE	RTWF 370 HSE	RTWF 410 HSE	RTWF 450 HSE	RTWF 490 HSE	RTWF 515 HSE
Net cooling capacity (1)	(kW)	960.98	1006.5	1068.1	1135.64	1257.88	1423.5	1563.4	1699.07	1856.8
EER (1)		5.00	5.00	4.94	4.96	4.96	5.01	4.98	4.99	4.80
Eurovent efficiency class - cooling		B	B	B	B	B	B	B	B	B
ESEER (1)		6.67	6.61	6.62	6.56	6.67	6.87	6.71	6.64	6.64
IPLV (1)		7.675	7.674	7.74	7.677	7.897	7.842	8.126	7.83	7.872
Number of refrigerant circuits		2								
Number of compressors		3	3	3	3	3	4	4	4	4
Sound power level (2)	(dB(A))	100	100	101	101	101	102	102	102	107
<b>Weights and dimensions</b>										
Length	(mm)	4758	4758	4784	4784	4784	4774	4774	4774	4774
Width	(mm)	1668	1668	1668	1668	1668	1766	1766	1766	1766
Height	(mm)	2034	2034	2034	2034	2034	2137	2137	2137	2137
Operating weight	(kg)	5794	5686	5930	5980	6118	7558	7678	7779	7737

## RTHF Extra Efficiency - RTHF XE

Unit size		RTHF 330 XE	RTHF 360 XE	RTHF 410 XE	RTHF 460 XE	RTHF 500 XE	RTHF 540 XE
Net cooling capacity (1)	(kW)	1155.76	1262.7	1438.73	1566.58	1745.01	1880.19
EER (1)		5.58	5.52	5.53	5.45	5.47	5.48
Eurovent efficiency class - cooling		A	A	A	A	A	A
ESEER (1)		6.63	6.59	6.46	6.5	6.51	6.52
IPLV (1)		7.617	7.583	7.335	7.442	7.47	7.584
Number of refrigerant circuits		2					
Number of compressors		2	2	2	2	2	2
Sound power level (2)	(dB(A))	97	97	98	98	99	99
<b>Weights and dimensions</b>							
Length	(mm)	4586	4586	4586	4586	4586	4586
Width	(mm)	1784	1784	1784	1784	1784	1784
Height	(mm)	2100	2100	2100	2100	2100	2100
Operating weight	(kg)	7350	7450	8590	8590	9630	9680

## RTHF High Seasonal Efficiency - RTHF HSE

Unit size		RTHF 330 HSE	RTHF 360 HSE	RTHF 410 HSE	RTHF 460 HSE	RTHF 500 HSE	RTHF 540 HSE	RTHF 590 HSE	RTHF 640 HSE	
Net cooling capacity (1)	(kW)	1149.93	1256.41	1431.53	1559.67	1735.69	1870.7	2050.44	2222.8	
EER (1)		5.41	5.35	5.35	5.29	5.30	5.31	5.10	4.91	
Eurovent efficiency class - cooling		A	A	A	A	A	A	A	B	
ESEER (1)		7.21	7.45	7.66	7.28	7.65	7.58	6.93	6.73	
IPLV (1)		8.227	8.578	8.77	8.571	8.487	8.577	8.465	8.329	
Number of refrigerant circuits		2								
Number of compressors		2	2	2	2	2	2	2	2	
Sound power level (2)	(dB(A))	97	97	98	98	99	99	102	104	
<b>Weights and dimensions</b>										
Length	(mm)	4586	4586	4586	4586	4586	4586	4586	4586	
Width	(mm)	1884	1884	1884	1884	1884	1884	1884	1884	
Height	(mm)	2100	2100	2230	2230	2230	2230	2230	2230	
Operating weight	(kg)	7520	7620	8820	8820	9920	9970	9960	9960	

(1) Evaporator 12/7°C, condenser water temperature 30/35°C according to EN14511:2013. Rated in accordance with AHRI Standard 550/590, based on TOPSS version 192

(2) At full load and in accordance with ISO9614

# General specifications

## SE/HE/HSE

### General Data for heating performances

		RTWF	RTHF
Condenser leaving water temperature (min/max)	(°C)	10 / 68	10 / 46*
Evaporator leaving water temperature (min/max)	(°C)		-12 / 20
Power supply	(V/Ph/Hz)		400/3/50
Refrigerant			R134a

\* up to 50°C with capacity limitation depending on model and size

### RTWF Standard Efficiency (with heating option) - RTWF SE

Unit size		RTWF 275 SE	RTWF 290 SE	RTWF 310 SE	RTWF 330 SE	RTWF 370 SE	RTWF 410 SE	RTWF 450 SE	RTWF 490 SE
Air Conditioning application (1)									
Net heating capacity (1)	(kW)	1041.4	1091.8	1155.2	1221.7	1353.8	1545.7	1678.8	1810.6
COP (1)		4.28	4.25	4.26	4.29	4.30	4.27	4.30	4.34
High temperature application (2)									
Net heating capacity (2)	(kW)	974.8	1022.6	1082.7	1146.1	1271.2	1448.3	1574.8	1700.3
COP (2)		3.54	3.53	3.54	3.57	3.58	3.55	3.58	3.61
Number of refrigerant circuits		2							
Number of compressors		3	3	3	3	3	4	4	4
Sound power level (3)	(dB(A))	100	100	101	101	101	102	102	102
<b>Weights and dimensions</b>									
Length	(mm)	4758	4758	4784	4784	4784	4774	4774	4774
Width	(mm)	1668	1668	1668	1668	1668	1766	1766	1766
Height	(mm)	2034	2034	2034	2034	2034	2137	2137	2137
Operating weight	(kg)	5278	5186	5373	5427	5486	6938	7016	7099

(1) Condenser water temperature 40/45°C - Evaporator 10/7°C, according to EN14511:2013.

(2) Condenser water temperature 47/55°C - Evaporator 10/7°C, according to EN14511:2013.

(3) At full load and in accordance with ISO9614.

## RTWF High Efficiency (with heating option) - RTWF HE

Unit size		RTWF 275 HE	RTWF 290 HE	RTWF 310 HE	RTWF 330 HE	RTWF 370 HE	RTWF 410 HE	RTWF 450 HE	RTWF 490 HE
Air Conditioning application (1)									
Net heating capacity (1)	(kW)	1053.8	1105.5	1173.6	1237.3	1361.3	1562.2	1695.1	1830.5
COP (1)		4.52	4.50	4.51	4.53	4.56	4.51	4.53	4.59
High temperature application (2)									
Net heating capacity (2)	(kW)		1040.9	1104.7	1165.6	-	1470.0	1596.9	1725.0
COP (2)			3.73	3.73	3.75	-	3.74	3.76	3.80
Number of refrigerant circuits		2							
Number of compressors		3	3	3	3	3	4	4	4
Sound power level (3)	(dB(A))	100	100	101	101	101	102	102	102
<b>Weights and dimensions</b>									
Length	(mm)	4758	4758	4784	4784	4784	4774	4774	4774
Width	(mm)	1668	1668	1668	1668	1668	1766	1766	1766
Height	(mm)	2034	2034	2034	2034	2034	2137	2137	2137
Operating weight	(kg)	5619	5511	5716	5766	5904	7344	7464	7565

## RTWF High Seasonal Efficiency (with heating option) - RTWF HSE

Unit size		RTWF 275 HSE	RTWF 290 HSE	RTWF 310 HSE	RTWF 330 HSE	RTWF 370 HSE	RTWF 410 HSE	RTWF 450 HSE	RTWF 490 HSE	RTWF 515 HSE
Air Conditioning application (1)										
Net heating capacity (1)	(kW)	1059.6	1113.2	1182.6	1245.9	1388.8	1570.8	1704.1	1858.4	2036.5
COP (1)		4.48	4.45	4.44	4.47	4.46	4.46	4.49	4.51	4.41
High temperature application (2)										
Net heating capacity (2)	(kW)	-	1050.3	1115.2	1176.3	-	1480.6	1607.5	1753.8	1925.2
COP (2)		-	3.69	3.67	3.70	-	3.69	3.72	3.73	3.68
Number of refrigerant circuits		2								
Number of compressors		3	3	3	3	3	4	4	4	4
Sound power level (3)	(dB(A))	100	100	101	101	101	102	102	102	107
<b>Weights and dimensions</b>										
Length	(mm)	4758	4758	4784	4784	4784	4774	4774	4774	4774
Width	(mm)	1668	1668	1668	1668	1668	1766	1766	1766	1766
Height	(mm)	2034	2034	2034	2034	2034	2137	2137	2137	2137
Operating weight	(kg)	5794	5686	5930	5980	6118	7558	7678	7779	7737

(1) Condenser water temperature 40/45°C - Evaporator 10/7°C, according to EN14511:2013.

(2) Condenser water temperature 47/55°C - Evaporator 10/7°C, according to EN14511:2013.

(3) At full load and in accordance with ISO9614.

## The Trane advantage



Trane is recognized as a world leader with over **100 years of experience** in creating and sustaining safe, comfortable and energy efficient environments while improving the performance of buildings and processes around the world.

Trane innovative solutions optimize indoor environments with the **broadest portfolio** of energy efficient heating, ventilating and air conditioning systems, building services, parts support and advanced controls in the industry.

To ensure your equipment continues to work at its optimum, throughout the life of the building, Trane provides a full range of service solutions, combined with in-house expertise and the **most extensive service and support network** in the industry.

And with Trane's **extensive rental fleet** all your temporary cooling and heating needs are served: we provide continuous cooling or heating during equipment changeouts or supplemental supply for those times when your cooling loads exceed your current system's capacity. For more information: [www.trane-chiller-rental.eu](http://www.trane-chiller-rental.eu)

## Ingersoll Rand recognition



Ingersoll Rand is ranked as 4th in the 2016 edition of FORTUNE'S World's Most Admired Companies list (Industrial Machinery category), based on criteria ranging from investment value to social responsibility.



Ingersoll Rand was recognized at the 2016 Climate Leadership Conference for its refrigerant phase-out efforts by the US EPA, its greenhouse gas emissions reduction goal of 35% by 2020 and its commitment to reduce the climate impact of the refrigerants used in its products by 50% by 2020.



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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We are committed to using environmentally conscious print practices that reduce waste.

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