



CITY



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



Model RTSF G (R1234ze) 180 -385 kW

# Trane City

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

### Sustainable and efficient

We know that what we do makes an impact on our world. This is why we designed City RTSF: The low global warming potential solution with industry leading efficiencies for capacities below 400 kW.

City RTSF features low GWP (<1) R1234ze and carries the EcoWise Endorsement.

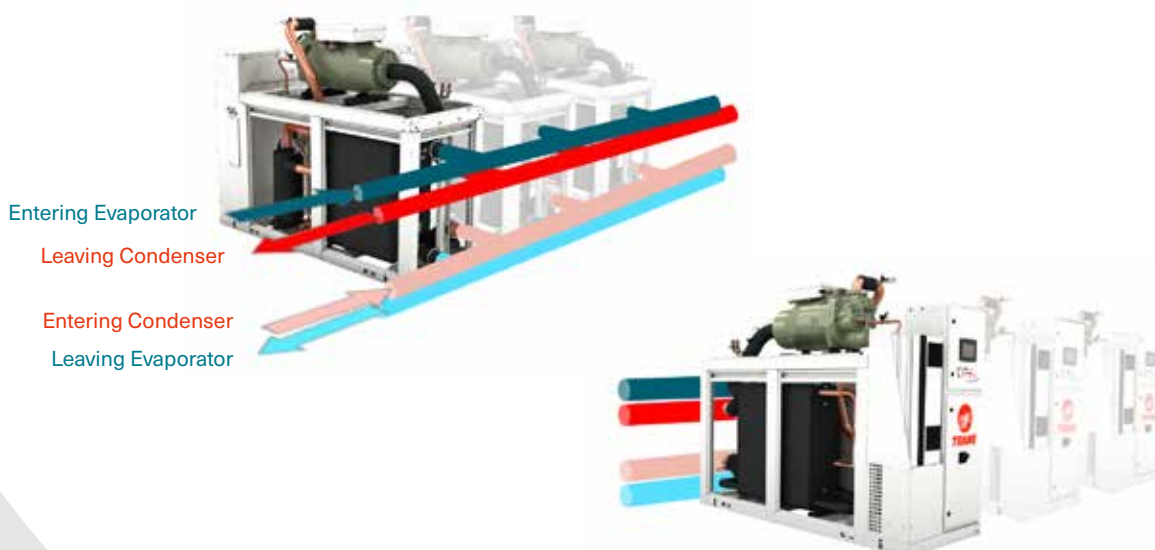
### Compact and modular



Modern cities do not always allow for easy transportation of large units into, onto or next to buildings. With this challenge in mind, City has been specially engineered for restricted spaces, facilitated moving and installation.



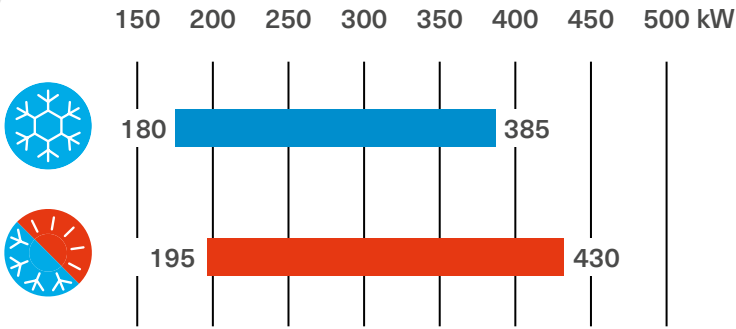
City's modularity makes it suitable when an extension of capacity becomes required as the building evolves or when the chiller plant is designed with multiple staggered chillers to further improve efficiency.



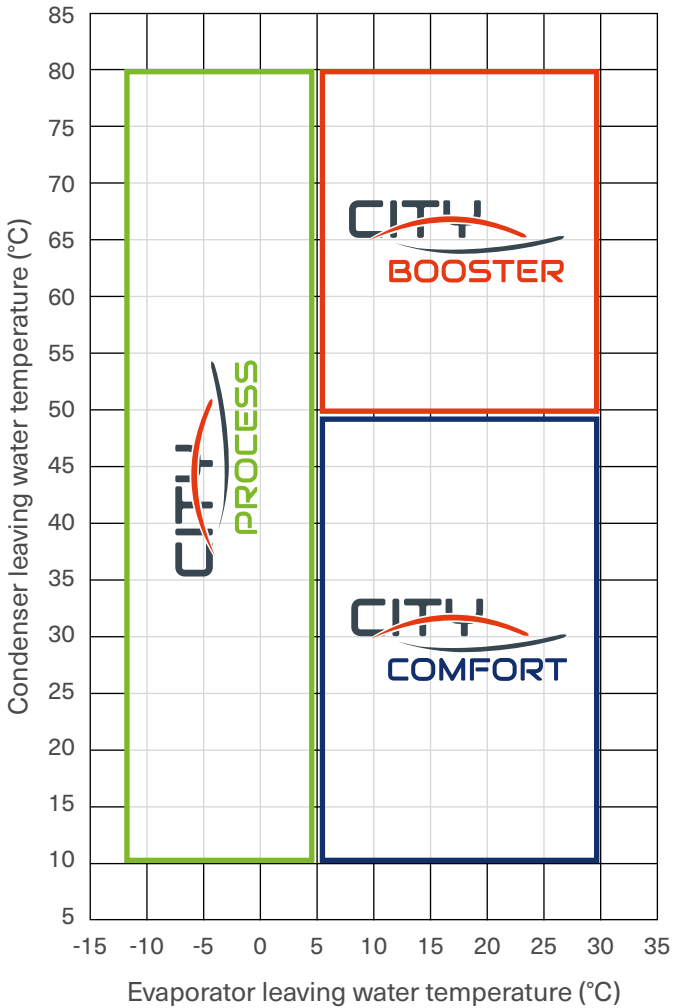


# Range Description

City satisfies any application and covers a wide spectrum of operating conditions in both cooling and heating.



Chillers and Water-to-Water Heat pump  
Application range



### Performance and Sustainability at hand for comfort

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



District Cooling  
District Heating



Office buildings



Hospitality industry

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

Efficiency optimized for freezing industrial brine process applications.



Pharmaceutical industry



Food and beverage industry



Automotive industry

# Range Description

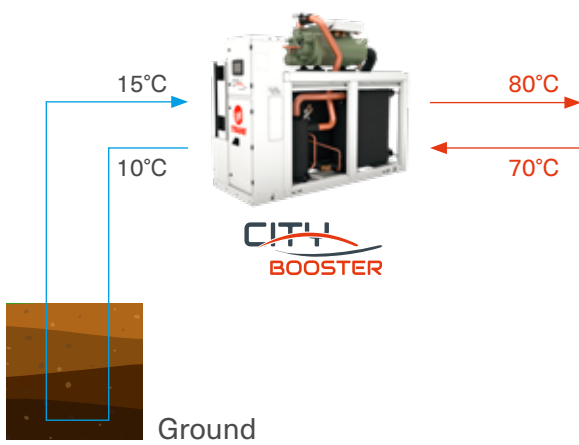
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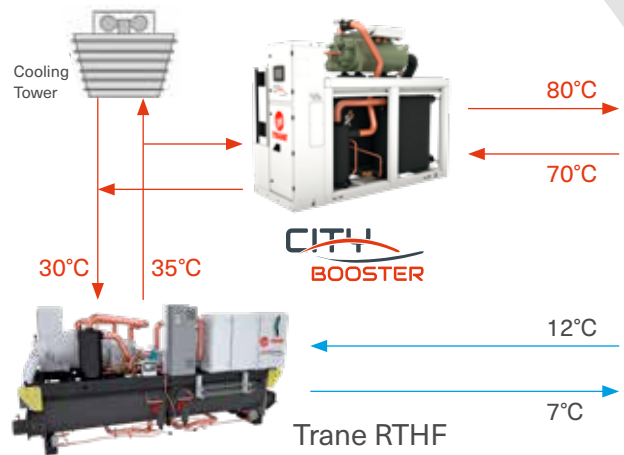
A unique opportunity to move to renewable energy heating

Operation and efficiency have been optimized to deliver high temperature hot water between 50 and 80°C.

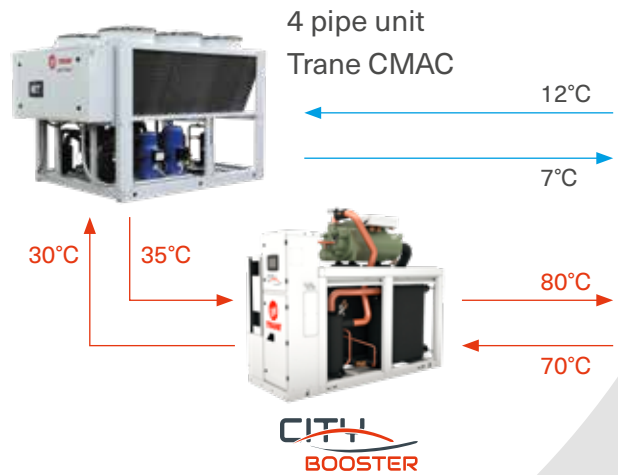
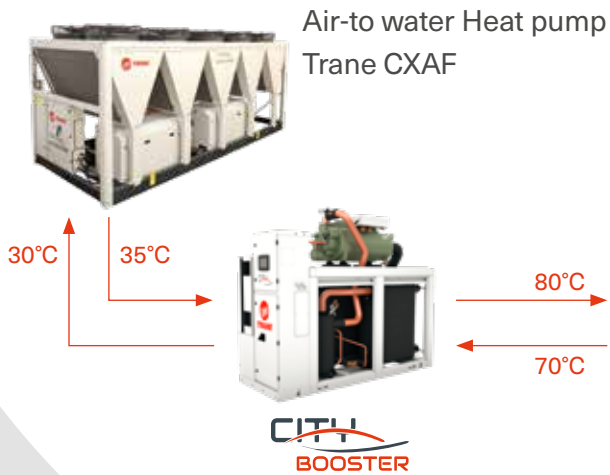
## Geothermal heating



## Heat recovery cascade



## Cascade with Heat pump or 4 Pipe



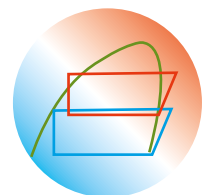
High temperature Heating



Sanitary Hot Water



District Heating



Heat recovery Cascade

# A concentrate of Trane “Expertise”

## ① Adaptive Frequency™ Drive

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

## ② Trane industry-leading compressor

- Direct drive, low speed screw design
  - Excellent load matching
  - Unequaled long lasting reliability



## ④ Controls

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

## ③ Heat exchangers

- Single circuit brazed plates Heat exchangers
  - Maximum efficiency

## ⑤ Compact design

- 920 mm width only
  - Fits standard doors and elevators
  - Can be easily moved

## ⑥ Acoustically insulated panels (optional)

- Reduce sound emissions by up to 9 dB(A)

# The Future of F-Gases

The fluorinated refrigerants phase-down, as defined in the new EU F-Gas Regulation, is a step-by-step approach where the quantities of HFCs expressed in CO<sub>2</sub> equivalent that are placed on the market are gradually reduced. As a result of the phase-down, HFC consumption will be reduced by 79% by 2030.

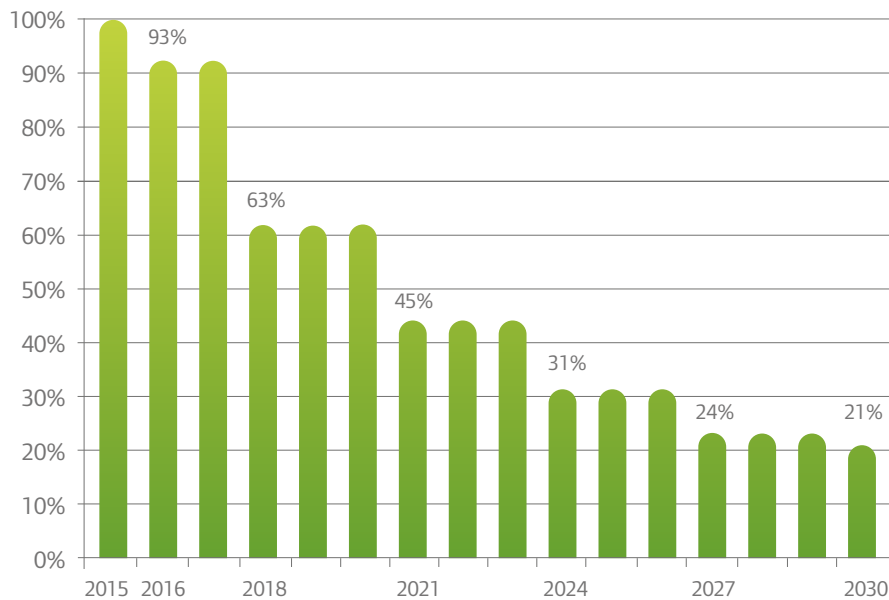
This is an unprecedented reduction and means that industry and users need to make, over time, the

transition to refrigerants with a lower global warming potential.

Trane, recognized as a leading innovator in the HVAC industry, introduces this new, next generation, lower GWP refrigerant in Sintesis and other products to be front running in the marketplace and to support your strong sustainability objectives.

Trane - provider of sustainable solutions.

## HFC consumption



Baseline value (100%) is the annual average of total quantity of CO<sub>2</sub> equivalents placed on the EU market from 2009 to 2012.

# An environmentally sustainable solution

# EcoWise™

City chillers and heat pumps with low GWP refrigerants are part of the 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.



## New R1234ze

Ozone depletion potential = 0

Low global warming potential (GWP<1)

Refrigerant	Global Warming Potential (GWP)
R410A	1924
R407C	1624
R134a	1300
R513A	572
R454B	467
R515B	299
R1233zd	1
R1234ze	<1

### What is GWP?

GWP is the global warming impact relative to the impact of the same quantity of carbon dioxide over a 100 year period.

### What is ODP?

Ozone depletion potential of a chemical is the amount of degradation to the ozone layer it can cause.

# General specifications



## RTSF G \*



CITY COMFORT		RTSF 050 G	RTSF 060 G	RTSF 070 G	RTSF 090 G	RTSF 100 G	RTSF 110 G
<b>Cooling Performances</b>							
Net cooling capacity (1) (2)	(kW)	182	218	262	313	360	385
Net EER (1) (2)		5.01	5.08	5.00	4.93	4.55	4.34
SEER (3)		6.83	7.00	6.70	7.25	6.93	6.43
Space cooling efficiency $\eta_{s,c}$ (3)	(%)	270	277	265	287	274	254
<b>Heating performances</b>							
<b>Air conditioning heating</b>							
Net Heating capacity (4)	(kW)	194	230	282	336	397	428
Net COP (4)		4.33	4.39	4.44	4.41	4.25	4.25
<b>High temperature heating</b>							
Net Heating capacity (5)	(kW)	174	209	244	294	351	406
Net COP (5)		3.60	3.64	3.80	3.77	3.71	3.6
SCOP (6)		4.63	4.70	4.88	4.93	4.99	5.08
Space heating efficiency $\eta_{s,h}$ (6)	%	177	180	187	189	192	195
CITY PROCESS		RTSF 050 G	RTSF 060 G	RTSF 070 G	RTSF 090 G	RTSF 100 G	RTSF 110 G
Net Cooling capacity (7)	(kW)	95	114	133	160	185	208
SEPR (8)		4.61	4.67	4.75	4.57	4.42	4.26
CITY BOOSTER		RTSF 050 G	RTSF 060 G	RTSF 070 G	RTSF 090 G	RTSF 100 G	RTSF 110 G
<b>Very High temperature application</b>							
Net Heating capacity (9)	(kW)	158	190	226	272	327	379
Net COP (9)		2.85	2.87	3.01	2.99	2.98	2.91
		RTSF 050 G	RTSF 060 G	RTSF 070 G	RTSF 090 G	RTSF 100 G	RTSF 110 G
<b>Acoustics</b>							
Sound	dB(A)	93	93	98	98	98	94
<b>Dimensions &amp; Weights</b>							
Length (10)	(mm)	2240	2240	2240	2240	2240	2240
Width (10)	(mm)	900	900	900	900	900	900
Height (10)	(mm)	1940	1940	1960	1960	1960	1960
Shipping Weight (10)	(kg)	1610	1675	1900	1985	1985	1985

(1) Evaporator 12/7°C and 0.0 m<sup>2</sup>K/kW, and condenser at 30/35°C and 0.0 m<sup>2</sup>K/kW

(2) Net performances calculated as per EN 14511-2013.

(3)  $\eta_{s,c}$  / SEER as defined in Directive 2009/125/EC of the European Parliament and of the Council with regard to Ecodesign requirements for Comfort Chillers with 2000 kW maximum capacity - COMMISSION REGULATION (EU) N° 2016/2281 of 20 December 2016

(4) at 10/7°C Entering/Leaving evaporator and 40/45°C Entering/Leaving condenser

(5) at 10/7°C Entering/Leaving evaporator and 47/55°C Entering/Leaving condenser

(6)  $\eta_{s,h}$  / SCOP as defined in Directive 2009/125/EC of the European Parliament and of the Council with regard to Ecodesign requirements for space heaters with 400 kW maximum rated capacity - COMMISSION REGULATION (EU) N° 813/2013/EU of 2 August 2013

(7) at -3/-8°C Entering/Leaving evaporator and 30/35°C Entering/Leaving condenser

(8) SEPR as defined in Directive 2009/125/EC of the European Parliament and of the Council with regard to Ecodesign requirements for Industrial Process Chillers - COMMISSION REGULATION (EU) N° 2015/1095/EU of 5 May 2015

(9) at 10/7°C Entering/Leaving evaporator and 55/65°C Entering/Leaving condenser

(10) For Base version without panels

\*units are available with R515B as an alternate refrigerant - Please contact your Trane representative



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).