



Water-cooled Chillers with High Speed Centrifugal Compressors

XSTREAM
EXCELLENT

Model GVWF (R134a) 395 - 2660 kW
Model GVWF G (R1234ze) 310 - 1820 kW



Trane XStream™ eXcellent

Water-cooled Chillers with High Speed Centrifugal Compressors

XStream eXcellent is a new model within Trane's XStream range able to reach market-leading Energy Efficiency Ratio (EER) and European Seasonal Energy Efficiency Ratio (ESEER) with lower sound levels.

This model GVWF is available with a choice of refrigerants: R134a or R1234ze which has a GWP value of less than one to exceed current F-Gas legislation requirements and help customers reduce their carbon dioxide (CO₂) emissions and achieve extreme part load and full load efficiencies.

XStream eXcellent chillers are suited for critical environments like



Office buildings



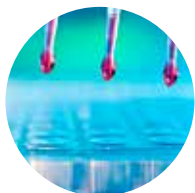
Healthcare



Data Centers



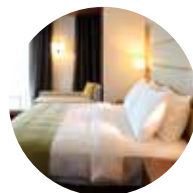
Automotive industry



Pharmaceutical industry



Plastic industry



Hospitality industry



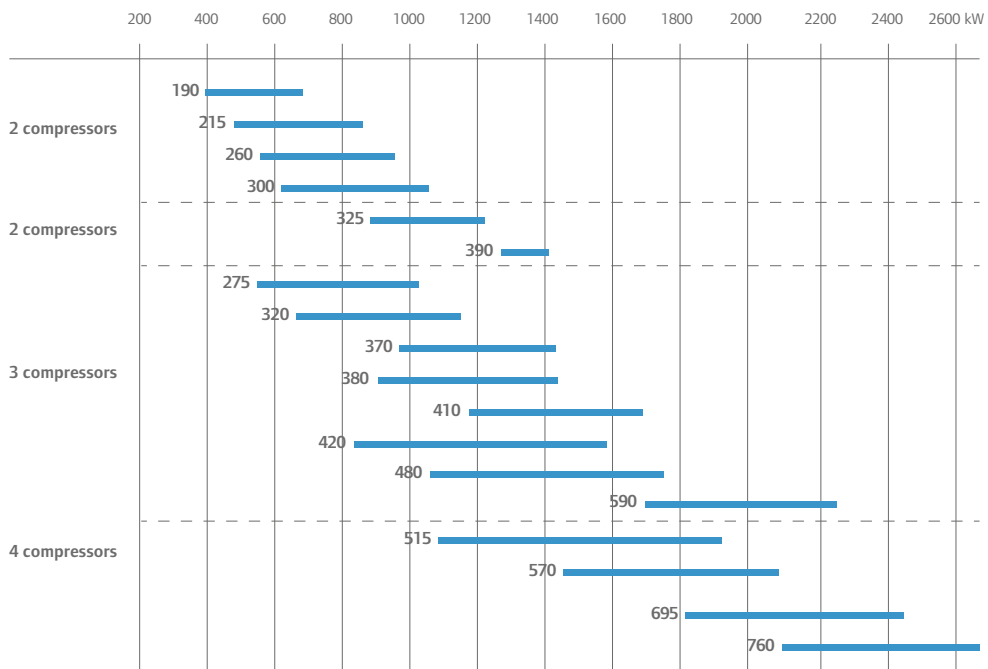
District Cooling

Range description

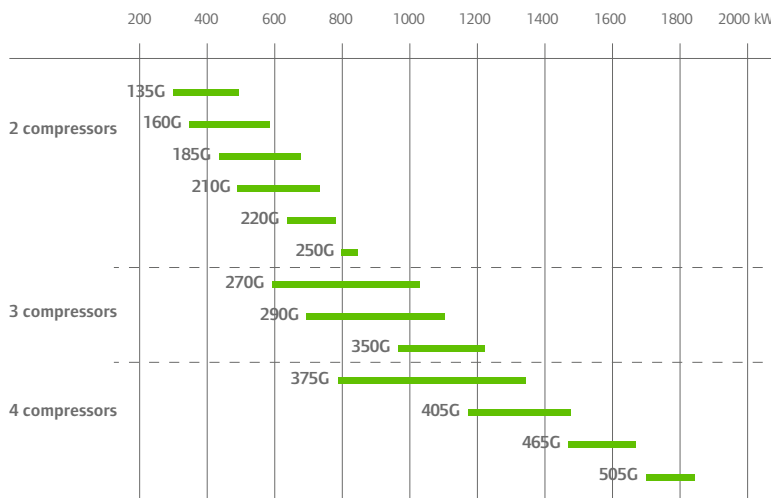
A model for every need

Trane's XStream eXcellent provides a wide capacity range up to 2.6 MW with industry-leading part load and full load efficiencies.

R134a



R1234ze



XStream eXcellent chillers

Excellence is standard

Standard on all models

- Multiple compressors (2, 3 or 4)
- Double refrigerant circuit
- Economizer circuit
- EMC filter to avoid harmonic transfer to compressor(s)



Smart

Easy operation thanks to smart controls and a user-friendly touchscreen interface.



Energy Efficient

Choose from three different efficiency tiers to respond to every building or process requirement.



Green

Two different refrigerant alternatives:
R134a and the new HFO R1234ze with GWP<1.



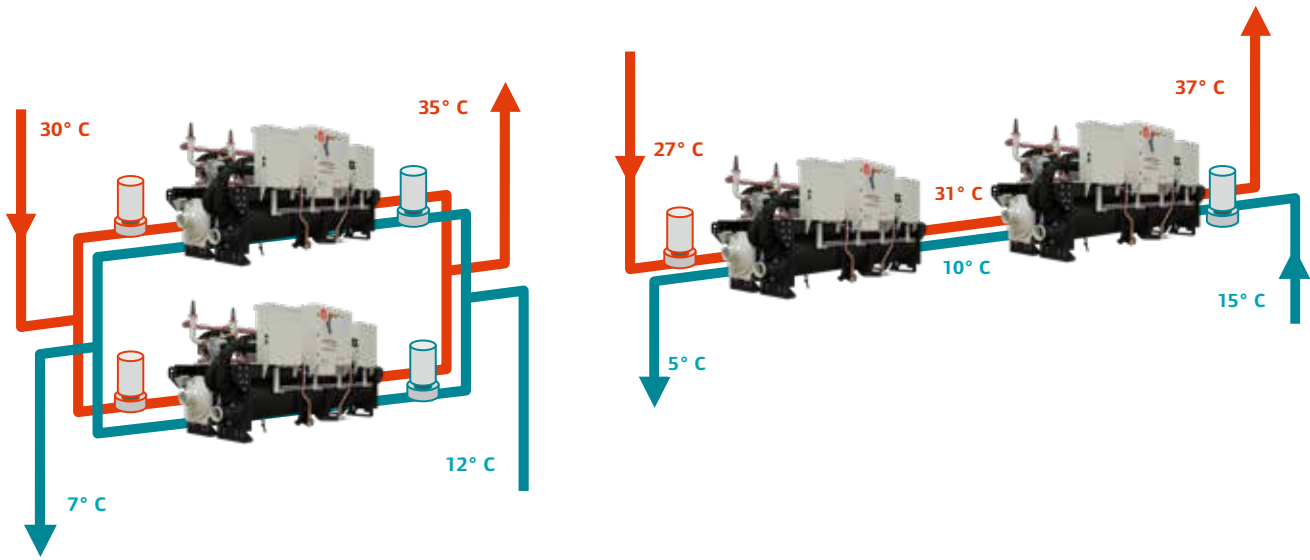
Reliable

No compromise: You can count on Trane's legendary reliability.



Multiple chiller plants

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 ΔT
- 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.

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.

The Future of F-Gases

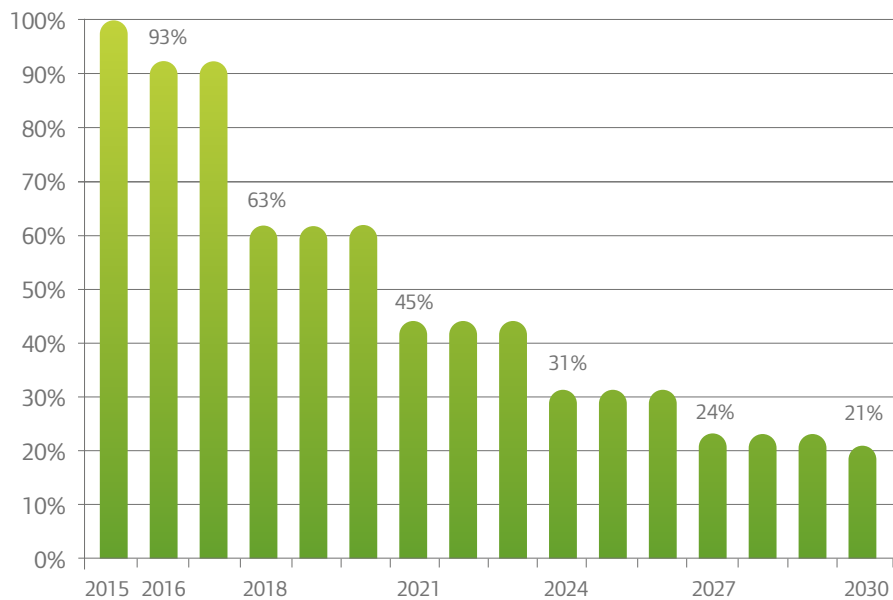
The fluorinated refrigerants phase-down, as defined in the new EU F-Gas Regulation, is a step-by-step approach where the quantities of HFCs expressed in CO₂ equivalent that are placed on the market are gradually reduced. As a result of the phase-down, HFC consumption will be reduced by 79% by 2030.

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.

Ingersoll Rand and Trane - providers of sustainable solutions.

HFC consumption



Baseline value (100%) is the annual average of total quantity of CO₂ equivalents placed on the EU market from 2009 to 2012.

An environmentally sustainable solution

EcoWise™

XStream Excellent chillers with low 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.



New R1234ze

Ozone depletion potential = 0

Low global warming potential (GWP<1)

Refrigerant	Global Warming Potential (GWP)
R410A	1924
R407C	1774
R134a	1300
R513A	572
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.

Features

Innovative solutions to your needs

Two different refrigerant alternatives

- R134a
- R1234ze with GWP<1

1 High speed centrifugal compressor

- Oil free and silent operation thanks to magnetic bearings
- Integrated Variable Frequency Drive
- Soft starter module
- Only one moving part



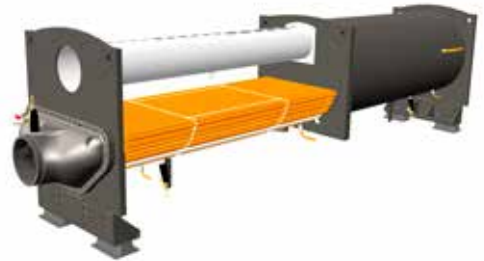
2 Trane combined smart control and interface*

- Leading TD7 touch screen with 7" color display
- Clear display 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



③ Trane patented Compact - High performance - Integrated design - Low charge (CHIL) flooded evaporator*

- Double pass or counter flow single pass, depending on unit size
- Reduced refrigerant volume
- Increased efficiency
- Reduced carbon footprint



④ Dual refrigerant circuit Multi Compressor

- Provide redundancy
- Reduce the impact of any failure

* Trane Proprietary Technology

General specifications

General Data for cooling performances

		GVWF	GVWF G
Condenser leaving water temperature (min/max)	(°C) Low Lift units	+20 / +55	
	High Lift units	+20 / +42	
Evaporator leaving water temperature (min/max)	(°C)	+5 / +20	
Power supply	(V/Ph/Hz)	400/3/50	
Refrigerant		R134a	R1234ze

GVWF



Unit size		GVWF 190	GVWF 215	GVWF 260	GVWF 300	GVWF 325	GVWF 390	GVWF 275	GVWF 320	GVWF 370
Compressor Lift		High	High	High	Low	Low	Low	High	High	Low
Maximum Gross Capacity (1)	(kW)	684	828	972	1056	1230	1425	1031	1167	1424
Performances at Optimum SEER (1)										
Gross Cooling Capacity	(kW)	546	661	776	859	1089	1425	721	871	1280
Gross EER (1)		5.49	5.47	5.59	5.71	5.80	5.84	5.89	5.73	5.76
Gross ESEER (Not certified) (1)		8.60	8.48	8.49	8.70	9.11	9.16	9.24	9.10	9.27
Net Cooling Capacity (1)(2)	(kW)	545.5	660.5	775.4	858.4	1088.3	1424.3	720.6	870.4	1279.4
Net EER (1)(3)		5.25	5.27	5.38	5.45	5.64	5.70	5.77	5.58	5.64
Eurovent Energy class - Cooling		A	A	A	A	A	A	A	A	A
Net ESEER (Not certified) (1)(2)		7.21	7.31	7.29	7.29	8.10	8.26	8.46	8.17	8.48
SEER (4)		8.20	8.03	7.93	8.25	8.58	8.83	8.78	8.70	8.78
Space Cooling Efficiency $\eta_{s,c}$ (3)	(%)	320	313	309	322	335	345	343	340	343
Number of refrigerant circuits		2	2	2	2	2	2	2	2	2
Number of compressors		2	2	2	2	2	2	3	3	3
Sound power level (4)	(dB(A))	87	88	89	92	96	99	88	90	95
Weights and dimensions										
Length	(mm)	2976	2976	2976	3476	4730	4804	4730	4730	4804
Width	(mm)	1125	1125	1125	1125	1700	1800	1700	1700	1800
Height	(mm)	1920	1920	1920	1920	2032	2135	2032	2032	2135
Operating Weight	(kg)	2310	2810	3020	3370	4094	4954	4110	4102	5177

Unit size		GVWF 380	GVWF 410	GVWF 420	GVWF 480	GVWF 590	GVWF 515	GVWF 570	GVWF 695	GVWF 760
Compressor Lift		High	Low	Low	Low	Low	High	Low	Low	Low
Maximum Gross Capacity (1)	(kW)	1439	1697	1582	1776	2069	1924	2123	2430	2662
Performances at Optimum SEER (1)										
Gross Cooling Capacity	(kW)	1115	1271	1106	1347	1861	1538	1909	1943	1863
Gross EER (1)		5.81	6.03	5.82	5.76	5.95	5.79	5.59	5.96	5.71
Gross ESEER (Not certified) (1)		9.08	9.20	9.14	9.20	9.46	9.26	9.17	9.35	9.45
Net Cooling Capacity (1)(2)	(kW)	1114.3	1270.4	1105.3	1346.3	1860.4	1537.2	1908.1	1942.4	1862.4
Net EER (1)(3)		5.64	5.90	5.65	5.63	5.85	5.64	5.42	5.86	5.63
Eurovent Energy class - Cooling		A	A	A	A	A	A	A	A	A
Net ESEER (Not certified) (1)(2)		8.06	8.44	8.11	8.36	8.83	8.23	7.99	8.70	8.81
SEER (4)		8.78	8.88	8.68	8.83	9.08	8.93	8.98	9.00	9.00
Space Cooling Efficiency $\eta_{s,c}$ (3)	(%)	343	347	339	345	355	349	351	352	352
Number of refrigerant circuits		2	2	2	2	2	2	2	2	2
Number of compressors		3	3	3	3	3	4	4	4	4
Sound power level (4)	(dB(A))	91	96	93	96	100	92	96	99	101
Weights and dimensions										
Length	(mm)	4730	4804	4730	4804	5245	4804	4804	5444	5444
Width	(mm)	1700	1800	1700	1800	2141	1800	1800	2141	2141
Height	(mm)	2032	2135	2032	2135	2315	2135	2135	2315	2315
Operating Weight	(kg)	4317	5177	4317	5177	8076	5401	5574	8263	8323

(1) Evaporator 12/7°C and 0.0 m²K/kW, and condenser at 30/35°C and 0.0 m²K/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 full load and in accordance with ISO9614

GVWF G



Unit size		GVWF 135 G	GVWF 160 G	GVWF 185 G	GVWF 210 G	GVWF 220 G	GVWF 250 G	GVWF 270 G
Compressor Lift		High	High	High	Low	Low	Low	High
Maximum Gross Capacity (1)	(kW)	422	530	613	659	787	850	764
Performances at Optimum SEER (1)								
Gross Cooling Capacity	(kW)	422	530	613	659	787	850	764
Gross EER (1)		5.45	5.28	5.44	5.44	5.32	5.50	5.99
Gross ESEER (Not certified) (1)		8.39	8.35	8.39	8.17	8.46	8.19	9.24
Net Cooling Capacity (1)(2)	(kW)	421.6	529.5	612.4	658.5	786.0	849.4	763.5
Net EER (1)(3)		5.25	5.05	5.17	5.22	5.09	5.27	5.85
Eurovent Energy class - Cooling		A	A	A	A	A	A	A
Net ESEER (Not certified) (1)(2)		7.24	7.00	6.93	6.97	7.10	6.94	8.39
SEER (4)		7.88	7.88	7.90	7.73	7.63	7.53	8.78
Space Cooling Efficiency $\eta_{s,c}$ (3)	(%)	307	307	308	301	297	293	343
Number of refrigerant circuits		2	2	2	2	2	2	2
Number of compressors		2	2	2	2	2	2	3
Sound power level (4)	(dB(A))	86	88	89	92	96	98	90
Weights and dimensions								
Length	(mm)	2976	2976	2976	2976	2976	3476	4730
Width	(mm)	1125	1125	1125	1125	1125	1125	1700
Height	(mm)	1920	1920	1920	1920	1920	1920	2032
Operating Weight	(kg)	2130	2280	2420	2740	3000	3380	4025

Unit size		GVWF 290 G	GVWF 350 G	GVWF 375 G	GVWF 405 G	GVWF 465 G	GVWF 505 G
Compressor Lift		Low	Low	High	Low	Low	Low
Maximum Gross Capacity (1)	(kW)	942	1120	1018	1356	1352	1672
Performances at Optimum SEER (1)							
Gross Cooling Capacity	(kW)	942	1120	1018	1356	1352	1672
Gross EER (1)		5.73	5.48	6.12	5.65	5.53	5.98
Gross ESEER (Not certified) (1)		8.92	8.95	9.48	9.17	9.23	9.16
Net Cooling Capacity (1)(2)	(kW)	941.4	1119.3	1017.5	1355.3	1351.4	1669.0
Net EER (1)(3)		5.59	5.33	5.99	5.50	5.43	5.90
Eurovent Energy class - Cooling		A	A	A	A	A	A
Net ESEER (Not certified) (1)(2)		8.03	7.90	8.68	8.14	8.49	8.65
SEER (4)		8.58	8.50	9.00	8.85	8.75	8.83
Space Cooling Efficiency $\eta_{s,c}$ (3)	(%)	335	332	352	346	342	345
Number of refrigerant circuits		2	2	2	2	2	2
Number of compressors		3	3	4	4	4	4
Sound power level (4)	(dB(A))	93	99	91	95	100	101
Weights and dimensions							
Length	(mm)	4730	4730	4804	4804	4804	5444
Width	(mm)	1700	1700	1800	1800	1800	2141
Height	(mm)	2032	2032	2135	2135	2135	2315
Operating Weight	(kg)	4085	4304	5002	5128	5556	8239

(1) Evaporator 12/7°C and 0.0 m²K/kW, and condenser at 30/35°C and 0.0 m²K/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 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

Ingersoll Rand recognition



For the sixth consecutive year, Ingersoll Rand has been recognized as one of the World's Most Admired Companies according to FORTUNE Magazine.



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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