



# Air-cooled Chillers with High Speed Centrifugal Compressors

**SINTECIS™**  
**EXCELLENT**

Model GVAF-X 575 - 1600 kW  
Model GVAF-XP 720 - 1250 kW  
Model GVAF-XPG 450 - 1250 kW



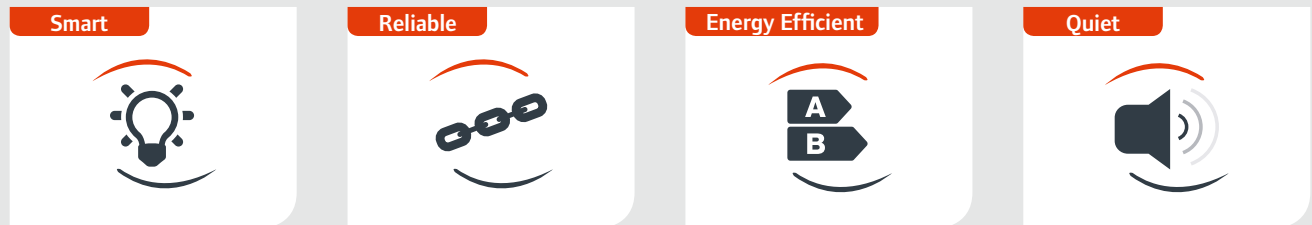
# Trane Sinesis™ eXcellent

## Air-cooled Chillers with High Speed Centrifugal Compressors

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

This model GVAF is available with a choice of refrigerants: R134a, R513A 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 (CO<sub>2</sub>) emissions and achieve extreme part load and full load efficiencies.

### The Trane offering is...



### Sinesis eXcellent chillers are suited for critical environments like



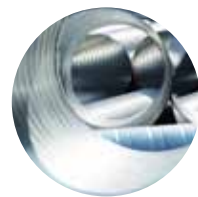
Data centers



Hospitals



Office buildings

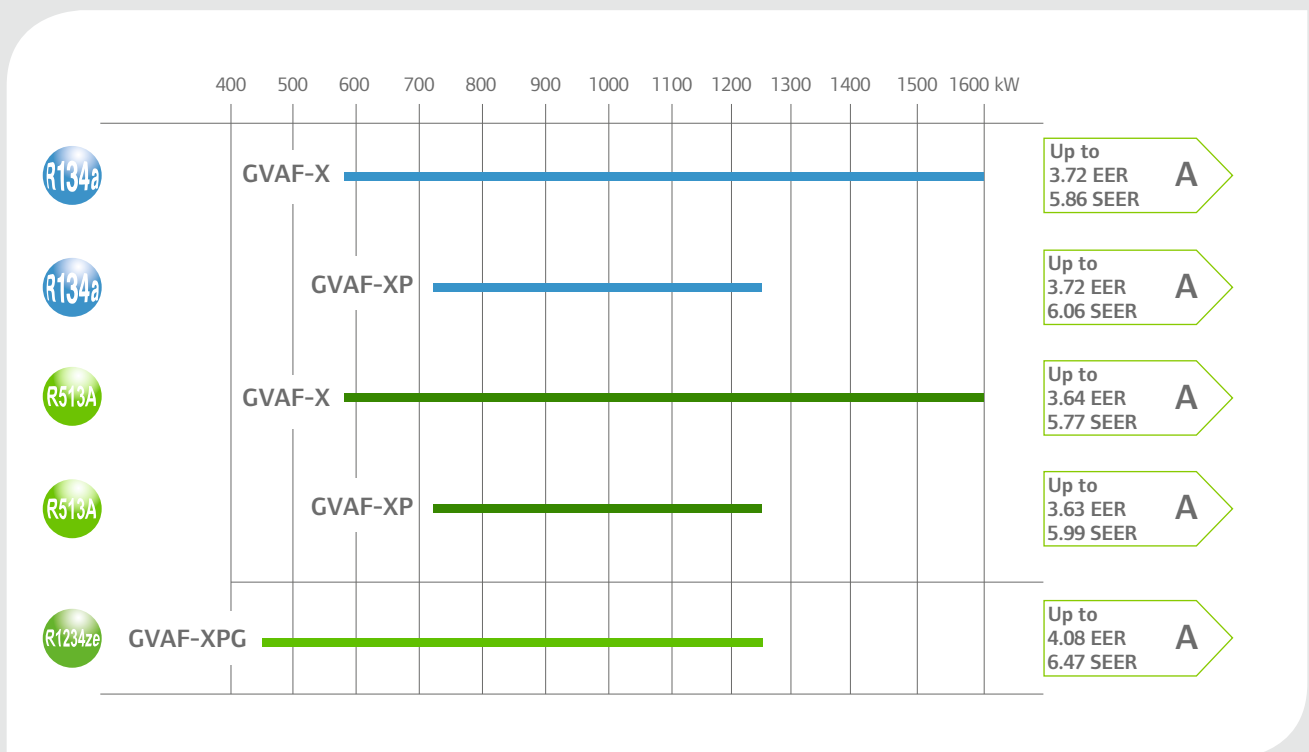


Industrial process applications

# Range description

A model for every need

Trane's Sintesis eXcellent provides a wide capacity range up to 1.6MW with industry-leading part load and full load efficiencies.



# Sintesis eXcellent chillers

Excellence is standard

## Standard on all models

- EC fan motors to reach higher part load efficiencies with lower sound levels
- Double refrigerant circuit
- Economizer circuit
- EMC filter to avoid harmonic transfer to compressor



### Smart

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



### Quiet

GVAF is offered with three different acoustic packages:

- Low noise
- Extra low noise
- Night noise set back



### Free Cooling

Take advantage of low ambient conditions to help cool water in your HVAC system.

Sintesis eXcellent is designed to enable significant savings from free-cooling.

Choose from four free-cooling alternatives.

- Total Direct Free-cooling
- Partial Direct Free-cooling
- Total Glycol-Free Free-cooling
- Partial Glycol-Free Free-cooling



# The Future of F-Gases

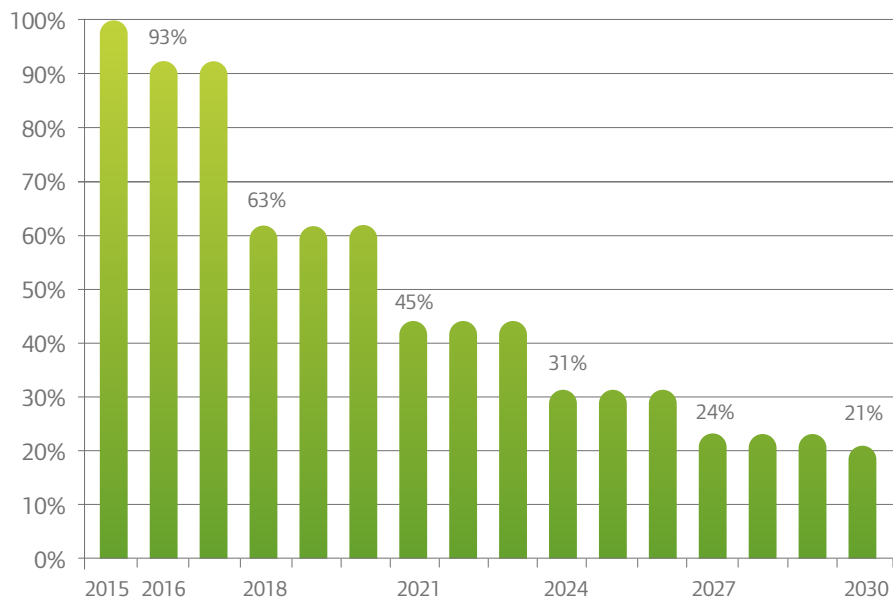
The fluorinated refrigerants phase-down, as defined in the new EU F-Gas Regulation, is a step-by-step approach where the quantities of HFCs expressed in CO<sub>2</sub> equivalent that are placed on the market are gradually reduced. As a result of the phase-down, HFC consumption will be reduced by 79%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

Sintesis™ chillers 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.



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

## Electronically Commutated (EC) fan motors

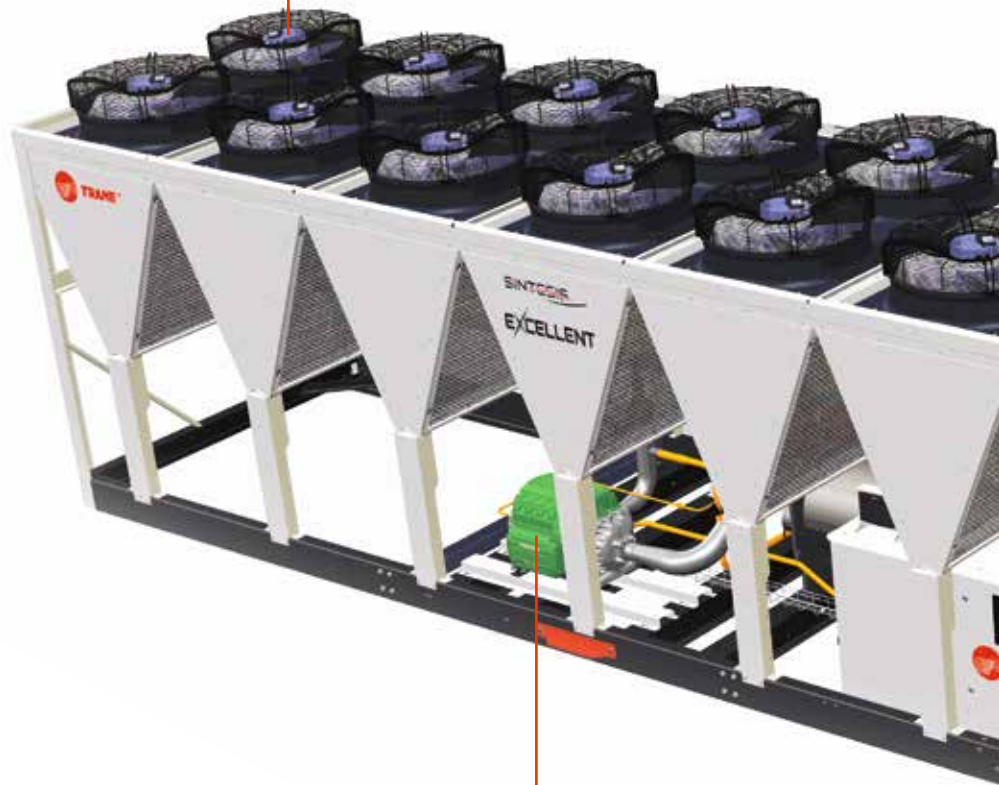
- Improved capacity modulation
- Reduced power consumption
- Reduced energy costs

## \* Micro-channel condenser coils

- Leading edge coil design for increased corrosion resistance
- Longer life expectancy
- Increased efficiency with less refrigerant
- Reduced carbon footprint
- 10% overall unit weight reduction

## High speed centrifugal compressors

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





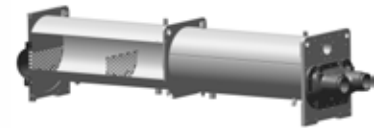
## \* Trane smart control and interface combined

- 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



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

- Reduced refrigerant volume
- Increased efficiency
- Reduced carbon footprint



## Three refrigerant options

- R134a
- R513A
- R1234ze

\* Trane Proprietary Technology

# General specifications

## X/XP/XPG



For performance data for units operating with R513A, please contact your local sales office.

### GVAF X - LN Low Noise



Eurovent performances (1)	GVAF X - LN											
	155 LN	175 LN	205 LN	245 LN	250 LN	280 LN	310 LN	350 LN	380 LN	410 LN	450 LN	
Net cooling capacity (1) (2)	(kW)	580	642	758	846	885	1001	1119	1238	1376	1475	1580
Net EER (1) (2)		3.67	3.63	3.45	3.17	3.66	3.59	3.42	3.15	3.48	3.35	3.17
Eurovent Energy class - Cooling		A	A	A	A	A	A	A	A	A	A	A
SEER (3)		5.14	5.16	5.36	5.28	5.61	5.70	5.69	5.59	5.81	5.70	5.58
Space cooling efficiency $\eta_{s.c}$ (3)	(%)	202.8	203.3	211.5	208.1	221.5	224.9	224.8	220.4	229.2	225.2	220.1
Sound power level	(dB(A))	92	93	93	94	95	95	95	96	96	96	97
Circuit 1/2		1/1	1/1	1/1	1/1	2/1	2/1	2/1	2/1	2/2	2/2	2/2
Refrigerant charge per circuit	(kg)	75 / 70	75 / 70	75 / 70	75 / 70	140 / 75	140 / 75	140 / 75	140 / 75	140 / 140	140 / 140	140 / 140
<b>Dimensions &amp; Weight</b>												
Length	(mm)	7895	7895	7895	7895	11260	11260	11260	11260	13510	13510	13510
Width	(mm)	2220	2220	2220	2220	2220	2220	2220	2220	2220	2220	2220
Height	(mm)	2526	2526	2526	2526	2526	2526	2526	2526	2526	2526	2526
Operating weight	(kg)	4274	4274	4274	4274	5840	5840	5840	5840	7235	7235	7235

### GVAF XP - LN Low Noise



Eurovent performances (1)	GVAF XP - LN					
	190 LN	205 LN	245 LN	310 LN	350 LN	
Net cooling capacity (1) (2)	(kW)	728	768	883	1117	1243
Net EER (1) (2)		3.64	3.62	3.66	3.56	3.53
Eurovent Energy class - Cooling		A	A	A	A	A
SEER (3)		5.56	5.50	5.61	5.99	5.89
Space cooling efficiency $\eta_{s.c}$ (3)	(%)	219.5	217.2	221.3	236.5	232.6
Sound power level	(dB(A))	94	94	94	96	96
Circuit 1/2		2/1	2/1	2/1	2/2	2/2
Refrigerant charge per circuit	(kg)	140 / 75	141 / 75	140 / 75	140 / 140	140 / 140
<b>Dimensions &amp; Weight</b>						
Length	(mm)	11260	11260	11260	13510	13510
Width	(mm)	2220	2220	2220	2220	2220
Height	(mm)	2526	2526	2526	2526	2526
Operating weight	(kg)	5840	5840	5840	7235	7235

### GVAF XPG - LN Low Noise



Eurovent performances (1)	GVAF XPG - LN											
	125 LN	145 LN	155 LN	175 LN	190 LN	205 LN	245 LN	250 LN	280 LN	310 LN	350 LN	
Net cooling capacity (1) (2)	(kW)	457	541	583	646	698	760	881	961	1001	1121	1242
Net EER (1) (2)		4.03	3.91	3.79	3.50	4.01	3.94	3.69	3.41	3.90	3.75	3.44
Eurovent Energy class - Cooling		A	A	A	A	A	A	A	A	A	A	A
SEER (3)		5.62	5.59	5.79	5.76	6.18	6.17	6.09	5.98	6.40	6.23	6.08
Space cooling efficiency $\eta_{s.c}$ (3)	(%)	221.7	220.7	228.6	227.5	244.2	243.6	240.6	236.3	252.8	246.1	240.2
Sound power level	(dB(A))	90	90	92	93	92	93	94	95	94	95	96
Circuit 1/2		1/1	1/1	1/1	1/1	2/1	2/1	2/1	2/1	2/2	2/2	2/2
Refrigerant charge per circuit	(kg)	75 / 70	75 / 70	75 / 70	75 / 70	140 / 75	140 / 75	140 / 75	140 / 75	140 / 140	140 / 140	140 / 140
<b>Dimensions &amp; Weight</b>												
Length	(mm)	7895	7895	7895	7895	11260	11260	11260	11260	13510	13510	13510
Width	(mm)	2220	2220	2220	2220	2220	2220	2220	2220	2220	2220	2220
Height	(mm)	2526	2526	2526	2526	2526	2526	2526	2526	2526	2526	2526
Operating weight	(kg)	4274	4274	4274	4274	5840	5840	5840	5840	7235	7235	7235

(1) Evaporator 12/7°C and 0.0 m³K/kW, and Condenser air temperature 35°C

(2) Net performances calculated as per EN 14511-2018 & 14825:2018

(3)  $\eta_{s.c}$  / SEER as defined in Directive 2009/125/CE 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 30 November 2016

(4) Rated condition without pump package



### GVAF X - XLN Extra Low Noise

Eurovent performances (1)	GVAF X - XLN											
	155 XLN	175 XLN	205 XLN	245 XLN	250 XLN	280 XLN	310 XLN	350 XLN	380 XLN	410 XLN	450 XLN	
Net cooling capacity (1) (2)	(kW)	581	642	759	849	885	1001	1117	1235	1376	1475	1580
Net EER (1) (2)		3.73	3.68	3.49	3.19	3.72	3.64	3.46	3.18	3.50	3.36	3.17
Eurovent Energy class - Cooling		A	A	A	A	A	A	A	A	A	A	A
SEER (3)		5.23	5.24	5.45	5.36	5.70	5.75	5.77	5.65	5.86	5.76	5.63
Space cooling efficiency $\eta_{s.c}$ (3)	(%)	206.3	206.7	214.9	211.6	224.8	227.2	227.9	223.0	231.6	227.4	222.2
Sound power level	(dB(A))	90	91	91	92	93	93	93	94	94	94	95
Circuit 1/2		1/1	1/1	1/1	1/1	2/1	2/1	2/1	2/1	2/2	2/2	2/2
Refrigerant charge per circuit	(kg)	75 / 70	75 / 70	75 / 70	75 / 70	140 / 75	140 / 75	140 / 75	140 / 75	140 / 140	140 / 140	140 / 140
<b>Dimensions &amp; Weight</b>												
Length	(mm)	7895	7895	7895	7895	11260	11260	11260	11260	13510	13510	13510
Width	(mm)	2220	2220	2220	2220	2220	2220	2220	2220	2220	2220	2220
Height	(mm)	2672	2672	2672	2672	2672	2672	2672	2672	2672	2672	2672
Operating weight	(kg)	4274	4274	4274	4274	5840	5840	5840	5840	7235	7235	7235



### GVAF XP - XLN Extra Low Noise

Eurovent performances (1)	GVAF XP - XLN					
	190 XLN	205 XLN	245 XLN	310 XLN	350 XLN	
Net cooling capacity (1) (2)	(kW)	727	767	883	1117	1241
Net EER (1) (2)		3.69	3.67	3.72	3.62	3.58
Eurovent Energy class - Cooling		A	A	A	A	A
SEER (3)		5.61	5.60	5.69	6.06	5.96
Space cooling efficiency $\eta_{s.c}$ (3)	(%)	221.4	220.9	224.8	239.5	235.6
Sound power level	(dB(A))	92	92	92	94	94
Circuit 1/2		2/1	2/1	2/1	2/2	2/2
Refrigerant charge per circuit	(kg)	140 / 75	140 / 75	140 / 75	140 / 140	140 / 140
<b>Dimensions &amp; Weight</b>						
Length	(mm)	11260	11260	11260	13510	13510
Width	(mm)	2220	2220	2220	2220	2220
Height	(mm)	2672	2672	2672	2672	2672
Operating weight	(kg)	5840	5840	5840	7235	7235



### GVAF XPG - XLN Extra Low Noise

Eurovent performances (1)	GVAF XPG - XLN											
	125 XLN	145 XLN	155 XLN	175 XLN	190 XLN	205 XLN	245 XLN	250 XLN	280 XLN	310 XLN	350 XLN	
Net cooling capacity (1) (2)	(kW)	457	541	583	646	698	760	881	961	1001	1121	1242
Net EER (1) (2)		4.09	3.96	3.85	3.55	4.06	4.00	3.75	3.46	3.95	3.80	3.49
Eurovent Energy class - Cooling		A	A	A	A	A	A	A	A	A	A	A
SEER (3)		5.70	5.67	5.88	5.87	6.24	6.23	6.15	6.05	6.48	6.32	6.19
Space cooling efficiency $\eta_{s.c}$ (3)	(%)	225.01	223.88	232.34	231.70	246.71	246.29	242.97	238.95	256.18	249.64	244.40
Sound power level	(dB(A))	88	89	90	91	90	91	92	93	92	93	94
Circuit 1/2		1/1	1/1	1/1	1/1	2/1	2/1	2/1	2/1	2/2	2/2	2/2
Refrigerant charge per circuit	(kg)	75 / 70	75 / 70	75 / 70	75 / 70	140 / 75	140 / 75	140 / 75	140 / 75	140 / 140	140 / 140	140 / 140
<b>Dimensions &amp; Weight</b>												
Length	(mm)	7895	7895	7895	7895	11260	11260	11260	11260	13510	13510	13510
Width	(mm)	2220	2220	2220	2220	2220	2220	2220	2220	2220	2220	2220
Height	(mm)	2672	2672	2672	2672	2672	2672	2672	2672	2672	2672	2672
Operating weight (4)	(kg)	4274	4274	4274	4274	5840	5840	5840	5840	7235	7235	7235

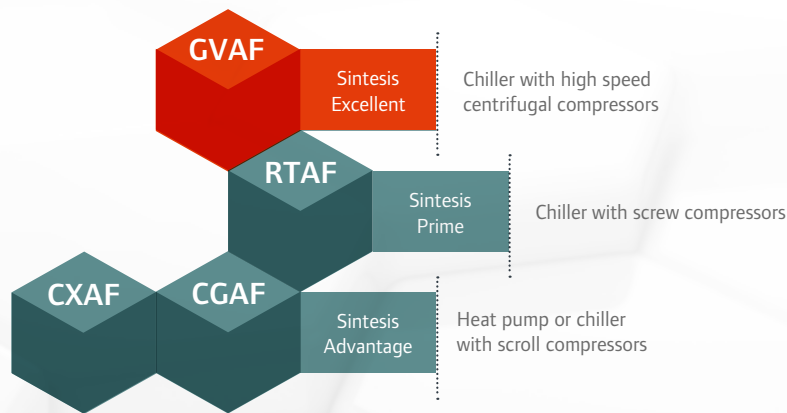
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(4) Rated condition without pump package

## Family of air-cooled chillers and heat pumps



The Sintesis™ Advantage model CGAF belongs to the Trane Sintesis™ air-cooled chiller portfolio representing industry leading performance and flexibility — for a perfect fit not only to your building and application requirements, but also to your sustainability and budget targets.

### The Trane Sintesis Excellent range:

- Unit sizes providing cooling capacities from 450 - 1600 kW
- Three efficiency versions
- Three levels of sound attenuation
- Three refrigerant alternatives
- Standard leaving water temperature range from +5°C up to +20°C
- Low leaving water temperature range from +5°C down to -12°C with Glycol
- Standard ambient option: from -10°C to 46°C
- High ambient option: right up to 55°C
- Low ambient option: right down to -18°C.

### 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 solutions optimize indoor environments with a broad portfolio of energy efficient heating, ventilating and air conditioning systems, building services, parts support and advanced controls.

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 an extensive support network.