

TUNDRA Series

Industrial Water-Cooled Chillers

High Efficiency · Flexible Configuration · Reliable Process Cooling

TUNDRA – Water-Cooled Scroll & Screw Chillers for Industrial Process Cooling

Developed for industrial process cooling applications, the TUNDRA Series combines high energy efficiency with flexible configuration options and robust operating performance. With its wide capacity range and application-specific design, it delivers reliable water-cooled performance even under demanding process conditions.



High Energy Efficiency

Developed with high seasonal energy efficiency as a key design principle, the TUNDRA Series optimizes energy consumption under variable process loads while delivering stable and high cooling performance. Its efficient water-cooled design helps reduce operating costs while providing a reliable and sustainable cooling solution.

High-Efficiency Compressor Technology

The TUNDRA Series can be configured with scroll or screw compressors according to capacity and application requirements. Compressor technology is selected to ensure high efficiency, stable capacity control, and reliable operation. This flexible configuration adapts to varying load profiles while helping optimize energy consumption and extend overall system life.

Wide cooling capacity range

The TUNDRA Series is available in a wide cooling capacity range from 5 kW to 1800 kW, meeting the cooling requirements of diverse industrial processes. Its flexible and scalable design delivers high performance, stable operation, and reliable process cooling under varying thermal loads.

Green refrigerant option

The TUNDRA Series can be configured with low-GWP refrigerant options such as R454B, R1234ze, and R290, in line with current environmental requirements and sustainability goals. These alternatives help reduce environmental impact while supporting high energy efficiency and reliable water-cooled performance.

Flexible Configuration

The TUNDRA Series offers flexible configuration options to meet the specific cooling requirements of different industrial processes, ensuring efficient and reliable operation for every application.

Reliability

The TUNDRA Series delivers stable, reliable, and continuous cooling performance even under demanding industrial conditions, thanks to its robust design and durable construction.

TUNDRA Applications & Industries

The TUNDRA Series is a versatile water-cooled chiller solution developed to meet the varying cooling requirements of industrial processes. With its wide capacity range, flexible configuration options, and process-oriented design, it can be reliably applied across industries such as plastics, food and beverage, chemicals, automotive, metal processing, and many other industrial applications.

From high-capacity process cooling to applications requiring precise temperature control, the TUNDRA Series delivers stable operation, high energy efficiency, and reliable cooling performance. Its robust design supports effective temperature management in both continuous production lines and processes with variable load profiles.

THULE Application Examples



Metal or Plastic Processing

TUNDRA Series provides stable and precise temperature control for metal and plastic processing applications. Its high cooling performance helps maintain optimal mold and process temperatures, reduce cycle times, and support consistent production quality.



Food & Beverage

TUNDRA Series supports reliable process cooling across food and beverage production, helping maintain stable temperatures in processing, packaging, storage, and auxiliary cooling applications while supporting consistent product quality.



Automotive

TUNDRA Series provides efficient and stable cooling for automotive manufacturing processes, including molding, machining, testing, and production lines where precise temperature control is essential for process continuity and product quality.



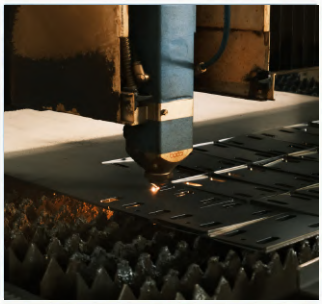
Data Centers

TUNDRA Series delivers dependable cooling performance for data center applications, supporting stable thermal management, continuous operation, and energy-efficient cooling under varying load conditions.



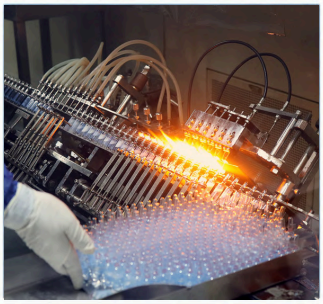
Textile

TUNDRA Series supports stable process cooling in textile production, helping maintain consistent temperatures across machinery, process water, and production lines for reliable and continuous operation.



Industrial Equipment

TUNDRA Series provides dependable cooling for industrial machinery and equipment, supporting process control in hydraulic systems, machine tools, production equipment, and auxiliary processes.



Chemical Processing

TUNDRA Series delivers precise and reliable cooling for chemical processes, helping control temperatures in reactors, production lines, and process equipment where thermal stability is critical.



Energy & Power Generation

TUNDRA Series provides efficient cooling for power generation and energy applications, supporting stable operation of generators, inverters, electrical equipment, and auxiliary systems under varying load conditions.

Exceptional Efficiency: Designed for Lower Energy Consumption

The TUNDRA Series is developed with an engineering approach that places energy efficiency at the core of its design. Advanced control algorithms, high-efficiency components, and optimized water-cooled system design help reduce energy consumption under variable load conditions while delivering stable and high cooling performance.

High Seasonal Energy Performance Ratio (SEPR)

The TUNDRA Series prioritizes seasonal energy efficiency with high SEPR values. High-efficiency components, an optimized refrigeration cycle, and efficient water-side heat transfer help reduce energy consumption under variable load conditions while maintaining high cooling performance.



Optimized Water-Side Control for Higher Efficiency

The TUNDRA Series optimizes condenser-side operating conditions according to real-time cooling demand. By maintaining stable water flow and condensing parameters under varying loads, the system supports efficient heat transfer, reduced energy consumption, and reliable high-efficiency operation.



Sustainable Cooling

With its high SEPR, the TUNDRA Series helps reduce energy consumption and operating costs while supporting environmental sustainability. High energy efficiency combined with low-GWP refrigerant options, including R1234ze, delivers reliable cooling performance with a reduced environmental impact.

Engineered with Trusted Components

Carnot cooling systems are developed through an engineering-driven approach to component selection and system integration. Components are selected according to cooling capacity, operating temperatures, refrigerant type, pressure levels, hydraulic requirements, and process load profiles. Compressors, control equipment, refrigeration components, fans, sensors, heat exchangers, and hydraulic equipment are integrated based on criteria such as energy efficiency, stable capacity control, mechanical durability, serviceability, and long-term operational reliability.

Proven component technologies are combined with Carnot's thermodynamic system design, control strategies, and application-specific engineering approach. This enables each system configuration to be optimized for stable operation under varying load conditions, high heat transfer performance, optimized energy consumption, and extended equipment life.

Component brands and models may vary depending on unit capacity, refrigerant selection, operating conditions, project requirements, and technical configuration.

Benefits & features

Discover the key benefits and technical features that make the TUNDRA Series an efficient, reliable, and flexible solution for industrial process cooling applications.

1 Carnot C-Control

- Advanced control algorithms ensure coordinated operation of system components under varying load conditions, supporting efficient and stable performance.
- Custom operating scenarios can be configured for different industrial processes, including temperature, pump, compressor, and load control strategies.
- Integrated protection functions such as phase, pressure, and temperature safeguards help reduce operational risks and improve system reliability.
- The control panel and electrical components are designed with protective features suitable for demanding industrial operating conditions.

2 High-Performance Shell & Tube Condenser

- The TUNDRA Series features high-performance Shell & Tube water-cooled condensers engineered for efficient heat transfer and stable condensing performance. Their robust construction and optimized internal flow design help reduce pressure losses, improve system efficiency, and ensure reliable operation under continuous industrial duty.

3 Evaporator

- The TUNDRA Series uses stainless steel Shell & Tube evaporators designed for high mechanical strength and long service life. Special internal turbulators enhance heat transfer, allowing high cooling capacities to be achieved with a more compact heat exchanger design. Stainless steel construction also improves corrosion resistance and operating reliability under demanding industrial process conditions.

5 Circulation pumps

- The circulation pumps used in the TUNDRA Series are specially configured by Carnot according to the required flow rate and pressure. From standard process applications to heavy-duty operating conditions, each pump is selected and integrated to deliver high efficiency, reliable operation, and long service life.

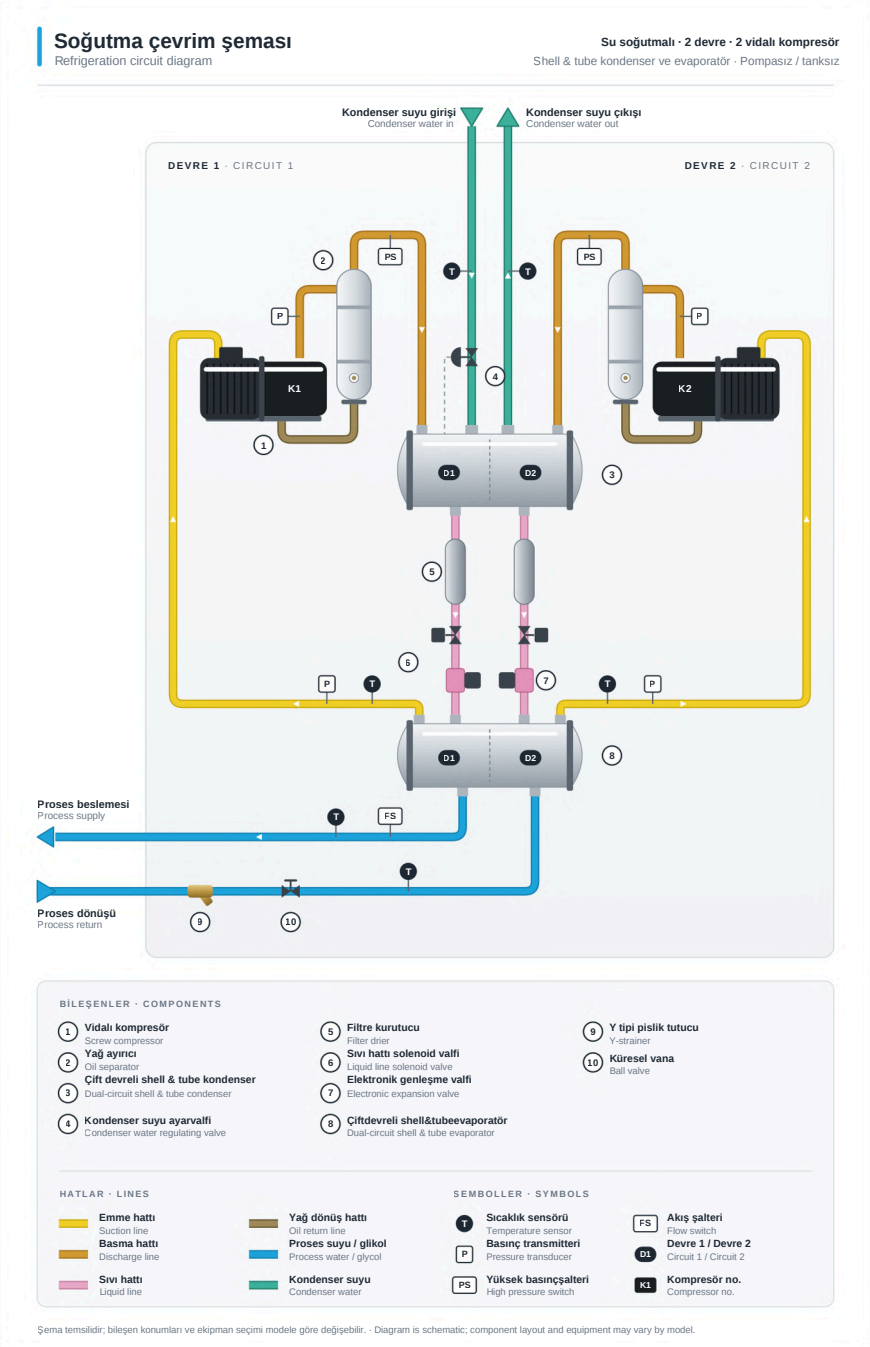
6 Integrated Water Tank

- The circulation pumps used in the TUNDRA Series are specially configured by Carnot according to the required flow rate and pressure. From standard process applications to heavy-duty operating conditions, each pump is selected and integrated to deliver high efficiency, reliable operation, and long service life.

7 Compressor Options

The TUNDRA Series can be configured with scroll or screw compressors according to capacity and application requirements. Danfoss and RefComp compressors are selected and integrated to provide high energy efficiency, stable capacity control, and reliable operation. This flexible configuration ensures optimal performance and long service life across varying process loads.

TUNDRA Flowchart



Condenser Water Flow

Condenser water absorbs the heat rejected by the refrigeration cycle through the Shell & Tube condenser. The heated water is then transferred to an external heat-rejection system, such as a cooling tower, before returning to the condenser. Stable water circulation supports efficient heat transfer and controlled condensing conditions.

Refrigerant flow

Low-pressure refrigerant absorbs heat from the process water in the evaporator and evaporates. The refrigerant vapor is compressed to a higher pressure and temperature, then releases its heat to the condenser water and condenses back into liquid form. After passing through the expansion device, its pressure is reduced and the cycle continuously repeats.

Process Water flow

Process return water passes through the stainless-steel Shell & Tube evaporator, where its heat is transferred to the refrigerant. The chilled water is then circulated back to the process, ensuring stable temperature control and reliable cooling under varying load conditions.

Service Plans for Reliable Operation

Industrial cooling system continuity is critical to reliable production processes. Carnot after-sales services help maintain system performance and keep operating costs under control through proper maintenance planning, fast technical response, and effective spare parts management.

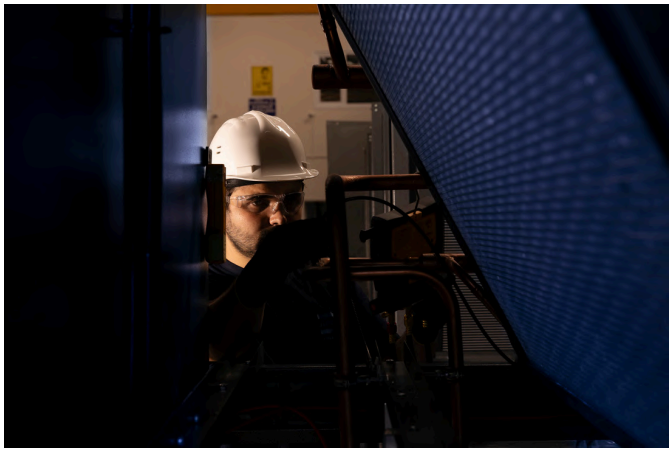


Customized Service & Spare Parts Support

Carnot service solutions are planned according to your facility's operating conditions and process priorities. Proper maintenance scheduling, fast technical coordination, and effective spare parts management help maintain equipment continuity and minimize service-related downtime.

Comprehensive Service Support

Carnot's technical service team supports reliable and efficient operation through preventive maintenance, breakdown response, commissioning, and technical inspections. Potential issues are identified at an early stage to help reduce unplanned downtime and maintain equipment availability.





Focus on Your Core Operations

Carnot after-sales services integrate preventive maintenance planning, breakdown response, technical inspections, spare parts management, and repair processes within a unified service structure. Regular monitoring of system operating conditions and planned service interventions help identify potential issues at an early stage, reduce unplanned downtime, and improve equipment availability. This approach supports operational continuity and energy performance while enabling more effective maintenance resource management, allowing businesses to focus on their core production activities.

Green refrigerant option.

LOW GWP REFRİGERANT R454B

TUNDRA green refrigerant option.

The TUNDRA Series is developed to combine high cooling performance with reduced environmental impact. R1234ze, R454B, and R290 refrigerant options support the transition toward more sustainable and environmentally responsible industrial cooling solutions through their low GWP values.
R1234ze, R454B & R290 – Low-GWP refrigerant options.

LOW GWP REFRİGERANT R1234ZE

ZERO $_{GWP}$ series

Low GWP & High Efficiency

R1234ze, R454B, and R290 low-GWP refrigerant options reduce environmental impact compared to traditional high-GWP refrigerants while delivering high energy efficiency and strong cooling performance.

LOW GWP REFRİGERANT R290

C_3H_8MICH series

Camot: Your Partner in Sustainable Cooling

Carnot supports customers throughout the transition to sustainable cooling solutions with engineering, commissioning, technical service, and application support. With low-GWP refrigerant options, energy-efficient system designs, and a strong after-sales service structure, Carnot helps ensure the safe and efficient implementation of next-generation cooling technologies. This enables businesses to reduce environmental impact while maintaining process reliability and energy performance.

Sustainable cooling for a better world.



Energy Efficiency

Bu cümle TUNDRA için de doğrudan kullanılabilir hacı:
Low-GWP refrigerant options such as R1234ze, R454B, and R290 deliver high energy efficiency with optimized system design, helping reduce energy consumption and operating costs.

Lower superheat

Hacı bu ifade de TUNDRA için doğrudan kullanılabilir:
R1234ze, R454B, and R290 refrigerant options deliver high efficiency and stable performance under partial load conditions, supporting reliable system operation.

Proven technological components

R1234ze, R454B, and R290 refrigerant options deliver high efficiency and stable performance under partial-load conditions, supporting reliable and energy-efficient system operation.

TUNDRA SERIES

Technical Features & Options

EQUIPMENT / OPTION	TUNDRA 5–120 (Scroll / 1 Circuit)	TUNDRA 140–280 (Scroll / 2 Circuits)	TUNDRA 335–800 (Screw / 2 Circuits)	TUNDRA 1000–1800 (Screw / 2 Circuits)
STANDARD EQUIPMENT				
Dixell PLC controller	•	•	•	•
Phase protection relay	•	•	•	•
High-pressure safety (switch + transmitter)	•	•	•	•
Low-pressure transmitter	•	•	•	•
Flow switch	•	•	•	•
Filter drier	•	•	•	•
Software freeze protection	•	•	•	•
Stainless-steel Shell & Tube evaporator	•	•	•	•
Shell & Tube water-cooled condenser	•	•	•	•
EEV – electronic expansion valve	•	•	•	•
Flanged connections / counter-flanges	•	•	•	•
OPTIONS				
Sight glass	OPT	OPT	OPT	OPT
Crankcase heater	OPT	OPT	OPT	OPT
Modbus RTU (RS485)	OPT	OPT	OPT	OPT
Modbus TCP / Ethernet	OPT	OPT	OPT	OPT
Remote monitoring (cloud / GSM)	OPT	OPT	OPT	OPT
Standby pump package	OPT	OPT	OPT	OPT
High-pressure pump options	OPT	OPT	OPT	OPT
Noise reduction package	OPT	OPT	OPT	OPT
Heat recovery	OPT	OPT	OPT	OPT
Low-temperature / glycol (brine)	OPT	OPT	OPT	OPT
60 Hz / different voltage	OPT	OPT	OPT	OPT
Seaworthy packaging	OPT	OPT	OPT	OPT

Legend: • = standard | OPT = option | — = not available.

REFRİGERANT OPTİONS

R410A	R1234ze	R290	R454B
GWP: 2088	ZERO $_{GWP}$ series GWP: 7	C_3H_8MICH series GWP: 3	GWP: 467

Technical specifications TUNDRA

	TUNDRA 5	TUNDRA 8	TUNDRA 12	TUNDRA 20	TUNDRA 25
Refrigerant type / GWP	R410A / 2088	R410A / 2088	R410A / 2088	R410A / 2088	R410A / 2088
Cooling capacity (kW/RT)	7.4 / 2.1	10.6 / 3.0	12.0 / 3.4	19.8 / 5.6	25.8 / 7.3
Power consumption (kW)	2.3	3.2	2.8	4.6	5.9
COP	3.2	3.32	4.29	4.3	4.37
Compressor type	Hermetic Scroll	Hermetic Scroll	Hermetic Scroll	Hermetic Scroll	Hermetic Scroll
Compressor for each circuit	1	1	1	1	1
Expansion valve type	Electronic (EEV)	Electronic (EEV)	Electronic (EEV)	Electronic (EEV)	Electronic (EEV)
Condenser type	Shell & Tube	Shell & Tube	Shell & Tube	Shell & Tube	Shell & Tube
Evaporator type	Stainless steel Shell & Tube	Stainless steel Shell & Tube	Stainless steel Shell & Tube	Stainless steel Shell & Tube	Stainless steel Shell & Tube
Power supply	380–415 V / 3~ / 50 Hz	380–415 V / 3~ / 50 Hz	380–415 V / 3~ / 50 Hz	380–415 V / 3~ / 50 Hz	380–415 V / 3~ / 50 Hz
IP rating	IP54	IP54	IP54	IP54	IP54
Length (mm/in)	750 / 29.5	750 / 29.5	750 / 29.5	750 / 29.5	750 / 29.5
Width (mm/in)	1250 / 49.2	1250 / 49.2	1250 / 49.2	1250 / 49.2	1250 / 49.2
Height (mm/in)	870 / 34.3	870 / 34.3	870 / 34.3	870 / 34.3	870 / 34.3
Net weight (kg/lbs)	210 / 463	218 / 481	225 / 496	250 / 551	280 / 617

Performance ratings are based on 12→7 °C evaporator water and 30→35 °C condenser water temperatures at 50 Hz.

Technical specifications TUNDRA

	TUNDRA 35	TUNDRA 42	TUNDRA 60	TUNDRA 70	TUNDRA 90
Refrigerant type / GWP	R410A / 2088	R410A / 2088	R410A / 2088	R410A / 2088	R410A / 2088
Cooling capacity (kW/RT)	33.2 / 9.4	42.9 / 12.2	57.8 / 16.4	70.7 / 20.1	88.5 / 25.2
Power consumption (kW)	7.5	9.6	13.1	15.6	19.9
COP	4.43	4.47	4.41	4.53	4.45
Compressor type	Hermetic Scroll	Hermetic Scroll	Hermetic Scroll	Hermetic Scroll	Hermetic Scroll
Compressor for each circuit	1	1	1	1	1
Expansion valve type	Electronic (EEV)	Electronic (EEV)	Electronic (EEV)	Electronic (EEV)	Electronic (EEV)
Condenser type	Shell & Tube	Shell & Tube	Shell & Tube	Shell & Tube	Shell & Tube
Evaporator type	Stainless steel Shell & Tube	Stainless steel Shell & Tube	Stainless steel Shell & Tube	Stainless steel Shell & Tube	Stainless steel Shell & Tube
Power supply	380–415 V / 3~ / 50 Hz	380–415 V / 3~ / 50 Hz	380–415 V / 3~ / 50 Hz	380–415 V / 3~ / 50 Hz	380–415 V / 3~ / 50 Hz
IP rating	IP54	IP54	IP54	IP54	IP54
Length (mm/in)	750 / 29.5	800 / 31.5	800 / 31.5	800 / 31.5	800 / 31.5
Width (mm/in)	1250 / 49.2	1800 / 70.9	1800 / 70.9	1800 / 70.9	1800 / 70.9
Height (mm/in)	870 / 34.3	1500 / 59.1	1500 / 59.1	1500 / 59.1	1500 / 59.1
Net weight (kg/lbs)	450 / 992	650 / 1433	790 / 1742	860 / 1896	1140 / 2513

Performance ratings are based on 12→7 °C evaporator water and 30→35 °C condenser water temperatures at 50 Hz.

Technical specifications TUNDRA

	TUNDRA 120	TUNDRA 140	TUNDRA 180	TUNDRA 230	TUNDRA 280
Refrigerant type / GWP	R410A / 2088	R410A / 2088	R410A / 2088	R410A / 2088	R410A / 2088
Cooling capacity (kW/RT)	114.2 / 32.5	141.4 / 40.2	177.0 / 50.3	228.4 / 64.9	280.8 / 79.8
Power consumption (kW)	25.1	31.2	39.8	50.1	62.4
COP	4.55	4.53	4.45	4.56	4.5
Compressor type	Hermetic Scroll	Hermetic Scroll	Hermetic Scroll	Hermetic Scroll	Hermetic Scroll
Compressor for each circuit	1	1/1	1/1	1/1	1/1
Expansion valve type	Electronic (EEV)	Electronic (EEV)	Electronic (EEV)	Electronic (EEV)	Electronic (EEV)
Condenser type	Shell & Tube	Shell & Tube	Shell & Tube	Shell & Tube	Shell & Tube
Evaporator type	Stainless steel Shell & Tube	Stainless steel Shell & Tube	Stainless steel Shell & Tube	Stainless steel Shell & Tube	Stainless steel Shell & Tube
Power supply	380–415 V / 3~ / 50 Hz	380–415 V / 3~ / 50 Hz	380–415 V / 3~ / 50 Hz	380–415 V / 3~ / 50 Hz	380–415 V / 3~ / 50 Hz
IP rating	IP54	IP54	IP54	IP54	IP54
Length (mm/in)	800 / 31.5	1500 / 59.1	1500 / 59.1	750 / 29.5	1000 / 39.4
Width (mm/in)	2000 / 78.7	2100 / 82.7	2100 / 82.7	1250 / 49.2	2200 / 86.6
Height (mm/in)	1600 / 63.0	1800 / 70.9	1800 / 70.9	870 / 34.3	1800 / 70.9
Net weight (kg/lbs)	1200 / 2646	1400 / 3086	1600 / 3527	1850 / 4079	1800 / 3968

Performance ratings are based on 12→7 °C evaporator water and 30→35 °C condenser water temperatures at 50 Hz.

Technical specifications TUNDRA

	TUNDRA 335	TUNDRA 440	TUNDRA 510	TUNDRA 630	TUNDRA 800
Refrigerant type / GWP	R407C / 1774	R407C / 1774	R407C / 1774	R407C / 1774	R407C / 1774
Cooling capacity (kW/RT)	338.2 / 96.2	444.0 / 126.2	514.0 / 146.1	628.0 / 178.6	798.0 / 226.9
Power consumption (kW)	82	96.6	123.6	149	191.2
COP	4.12	4.6	4.16	4.21	4.17
Compressor type	Screw	Screw	Screw	Screw	Screw
Compressor for each circuit	1/1	1/1	1/1	1/1	1/1
Expansion valve type	Electronic (EEV)	Electronic (EEV)	Electronic (EEV)	Electronic (EEV)	Electronic (EEV)
Condenser type	Shell & Tube	Shell & Tube	Shell & Tube	Shell & Tube	Shell & Tube
Evaporator type	Stainless steel Shell & Tube	Stainless steel Shell & Tube	Stainless steel Shell & Tube	Stainless steel Shell & Tube	Stainless steel Shell & Tube
Power supply	380–415 V / 3~ / 50 Hz	380–415 V / 3~ / 50 Hz	380–415 V / 3~ / 50 Hz	380–415 V / 3~ / 50 Hz	380–415 V / 3~ / 50 Hz
IP rating	IP54	IP54	IP54	IP54	IP54
Length (mm/in)	1000 / 39.4	750 / 29.5	1200 / 47.2	1200 / 47.2	1200 / 47.2
Width (mm/in)	2200 / 86.6	1250 / 49.2	2300 / 90.6	2300 / 90.6	2300 / 90.6
Height (mm/in)	1800 / 70.9	870 / 34.3	1800 / 70.9	1800 / 70.9	1800 / 70.9
Net weight (kg/lbs)	2000 / 4409	2000 / 4409	2200 / 4850	2400 / 5291	2600 / 5732

Performance ratings are based on 12→7 °C evaporator water and 30→35 °C condenser water temperatures at 50 Hz.

Technical specifications TUNDRA

	TUNDRA 1000	TUNDRA 1100	TUNDRA 1250	TUNDRA 1450	TUNDRA 1650	TUNDRA 1800
Refrigerant type / GWP	R407C / 1774	R407C / 1774	R407C / 1774	R407C / 1774	R407C / 1774	R407C / 1774
Cooling capacity (kW/RT)	950.0 / 270.1	1080.0 / 307.1	1268.0 / 360.5	1438.0 / 408.9	1634.0 / 464.6	1808.0 / 514.1
Power consumption (kW)	212.2	243	284.4	320.8	353.6	424
COP	4.48	4.44	4.46	4.48	4.62	4.26
Compressor type	Screw	Screw	Screw	Screw	Screw	Screw
Compressor for each circuit	1/1	1/1	1/1	1/1	1/1	1/1
Expansion valve type	Electronic (EEV)	Electronic (EEV)	Electronic (EEV)	Electronic (EEV)	Electronic (EEV)	Electronic (EEV)
Condenser type	Shell & Tube	Shell & Tube	Shell & Tube	Shell & Tube	Shell & Tube	Shell & Tube
Evaporator type	Stainless steel Shell & Tube	Stainless steel Shell & Tube	Stainless steel Shell & Tube	Stainless steel Shell & Tube	Stainless steel Shell & Tube	Stainless steel Shell & Tube
Power supply	380–415 V / 3~ / 50 Hz	380–415 V / 3~ / 50 Hz	380–415 V / 3~ / 50 Hz	380–415 V / 3~ / 50 Hz	380–415 V / 3~ / 50 Hz	380–415 V / 3~ / 50 Hz
IP rating	IP54	IP54	IP54	IP54	IP54	IP54
Length (mm/in)	1200 / 47.2	1200 / 47.2	1200 / 47.2	1200 / 47.2	2000 / 78.7	2000 / 78.7
Width (mm/in)	2300 / 90.6	2300 / 90.6	2300 / 90.6	2300 / 90.6	2400 / 94.5	2400 / 94.5
Height (mm/in)	1800 / 70.9	1800 / 70.9	1800 / 70.9	1800 / 70.9	2000 / 78.7	2000 / 78.7
Net weight (kg/lbs)	2500 / 5512	2800 / 6173	2950 / 6504	3100 / 6834	2700 / 5952	2900 / 6393

Performance ratings are based on 12→7 °C evaporator water and 30→35 °C condenser water temperatures at 50 Hz.

performance
engineering
precision
quality
trust at every degree°
reliability
efficiency
excellence
technology

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