Trane® Free Cooling Air-Cooled Chillers

Sensible sustainability.

Models TACA, ACR, RTAF – 80-550 tons

When an air-cooled chiller with integrated free cooling is the ideal answer, Trane has the solution. We've been making them for years. It only makes sense to use colder outdoor air to cool the environment inside your building and run the compressor less. It's a practical and affordable way to make your buildings more sustainable.

Energy- and Water-Efficient by Design

Nearly 30 percent of energy in buildings is used inefficiently or unnecessarily.[1] That leaves a lot of room for improvement. Trane air-cooled chillers are inherently efficient, and integrated free cooling takes it up a notch. In areas where water conservation is critical, using an air-cooled chiller with a closed-loop waterside economizer is a responsible choice.

Advanced system strategies enabled by the unit and system controllers go even further with efficiency. All Trane chiller controls have open standard protocols to integrate fully and easily with any building automation system.

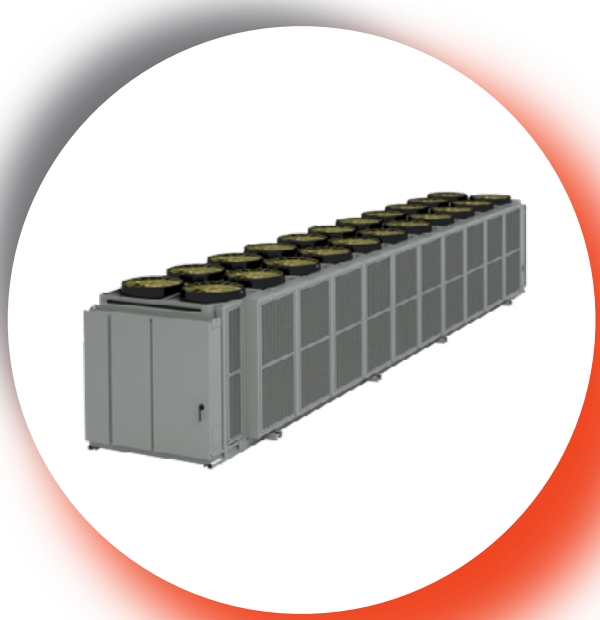
Free Cooling Basics

Free cooling delivers optimal performance by minimizing compressor operation when outdoor air temperatures are low enough to assist in cooling the chilled fluid loop. Power is only used to run the pumps and fans that keep the water moving, which reduces facility's electrical expenses and carbon footprint.

In some chilled water systems, it is not feasible to use a traditional air-side economizer. Now users such as data centers can benefit from free cooling. Trane's air-cooled chiller free cooling option can deliver up to 100 percent of the nominal chiller capacity without running the compressor. It provides additional cooling redundancy, too, which maximizes critical uptime.

An Environmentally Sustainable Solution

Chiller models RTAF and TACA are designed to minimize environmental impact with next-generation, low global warming potential (GWP) refrigerant and energy-efficient operation.



Lower operating costs. Incorporating free cooling may deliver chiller part-load efficiency improvements ranging from up to 17 to 77 percent depending on the climate zone and building cooling load profile.

Choose the Best for your Building

Trane's integrated free cooling is engineered by the industry experts. We offer more air-cooled chiller models with integrated free cooling than anyone else, and the broadest tonnage range on the market.

- **Sintesis® Model RTAF** – (115 – 500 nominal tons) Variable speed screw compressor and variable speed condenser fan. Available with R-134a or R-513A refrigerant.
- **Ascend® Model ACR** – (150 – 550 nominal tons) Variable speed and variable volume ratio screw compressors and variable speed condenser fan. High part-load efficiency and low sound.
- **Model TACA** – (80 – 440 nominal tons) Oil-free, centrifugal magnetic bearing compressor and variable speed condenser fans. Lower maintenance and high efficiency. Available with R-134a or R-513A refrigerant.

1. U.S. Environmental Protection Agency, Energy Star for Commercial Buildings. https://www.energystar.gov/buildings/about-us

Trane® Air-cooled Chiller Applications

See if it's right for you.

Optimal conditions include:

- Cooling load that exists even with lower outdoor temperatures
- Relatively warm chilled fluid
- Separate sensible and latent loads, often in conjunction with the use of a dedicated outdoor air system
- Requirement to use a water-side economizer rather than an air-side economizer

In some regions, the local climate makes it impossible to use free cooling year-round. However, using it during a few cooler months can significantly reduce the building's energy consumption and operating costs.

Meet New Energy Codes and Requirements

The use of economizer free cooling plays into many of today's enhanced energy codes. However, ASHRAE® Standard 90.1 requirements for waterside economizing provides an exception for applications that use chillers with superior part load efficiency. In many places, HVAC systems using Trane air-cooled chillers qualify for one or more exceptions.

Implement Energy Storage

For more savings, and even greater sustainability, Trane air-cooled chillers support HVAC systems with energy storage. Capturing energy can save money by allowing you to shift or modulate energy use to times when utility rates are most favorable. It also makes using renewable energy more practical by storing intermittent supply to meet demand.

Be Fiscally and Environmentally Responsible

Adding the free cooling option to Trane air-cooled chillers, even where it is not required by code, helps to improve buildings' energy efficiency, lower operating costs and reduce the environmental impact.

To learn more about Trane air-cooled chillers with free cooling contact your Trane account manager or visit Air Cooled Chillers (trane.com).

Built-in Benefits

- Adding free cooling later isn't ideal. Integrating the air-cooled chiller economizer as part of the regular manufacturing process offers important advantages:
- Increased reliability and better controls integration.
- Smaller footprint—no need for a separate dry cooler configuration.
- Lower first cost than field-installed free cooling or modified chillers. No extraneous plate heat exchangers, pumps and piping, fittings or controls to purchase.

A Simplified Solution

Featuring...

- Fluid-based free cooling circuit
- Fluid cooler heat exchanger in parallel with either a microchannel condenser coil or round tube plate fin coil
- Valve-controlled free cooling capacity

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.com* or *tranetechnologies.com*.

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