



CGAM air-cooled scroll chiller

Highly efficient, yet extremely quiet



Balancing energy efficiency and quiet operation

Energy efficiency, sound, reliability, controls and service are all vitally important to the effective operation of a building. Trane engineers know how important all these factors are to you—so we designed them all into our new 20-130 ton model CGAM chiller. Using the best elements of each design we created an extremely quiet and highly efficient chiller.

High efficiency and quiet operation

Most air-cooled chillers require you to choose between a highly-efficient unit or a low-noise unit. A quieter fan often produces less air flow, reducing efficiency. With the Trane CGAM chiller, we have designed these two very important benefits into one chiller.

Our design team compiled the best approaches from around the globe to optimize the CGAM chiller so that it meets global green initiatives and ASHRAE energy efficiency standards.

The Trane CGAM chiller is one of the most efficient air-cooled chillers, even among screw compressor equipment. Low sound levels are standard, with a 5–8db reduction compared to previous Trane air-cooled chiller models. And, with factory-installed attenuation, Trane further reduces sound levels—up to an additional 3db.

Reliability you can count on

Energy efficiency and quiet operation are increasingly critical. As a result, we perform extensive testing on the compressors and units, confirming their robust design and durability while ensuring our high standards for reliability.

Our testing includes:

- Extreme testing includes cold ambient starts, hot water starts and high ambient operation
- Compressor accelerated life cycle testing, including high pressure ratio, high load test, flooded starts/stops, start/stop testing and phase reversal



On-site test facility ensures reliability and performance verification



- Performance modeling and verification, both during design and for the life of the chiller
- FEA analysis confirms the unit structure can withstand shipping, rigging and operational activity
- Electrical testing with destructive testing for short circuit withstand rating

To minimize leaks, Trane improved the coil structure stability by strengthening the coil frame and changing the construction method. Now we use a single copper tube for two passes through the coil to reduce braze joints on one side of the coil, eliminating up to 60 joints. Furthermore, the new construction method ensures all coils are square, so the coil components are better aligned.

Factory installed reliability

We offer several factory-installed features that further reduce energy consumption, add redundancy for mission-critical operations and reduce jobsite installation time — when every day counts.

A factory-installed pump package, designed specifically for this unit, comes pre-wired and factory-tested. The dual pump setup provides built-in redundancy and the standard inverter delivers added pump energy savings.

With the factory-installed buffer tank, you can install the chiller in applications with less than a three minute water loop and still reliably maintain precise temperature control.

The flow switch and water strainer are also factory installed as standard, reducing jobsite installation requirements and ensuring reliable operation.



Trane reduces energy costs by incorporating an ice storage system design that uses ice made at night, when energy demand and cost are lowest, to cool the building during the day.

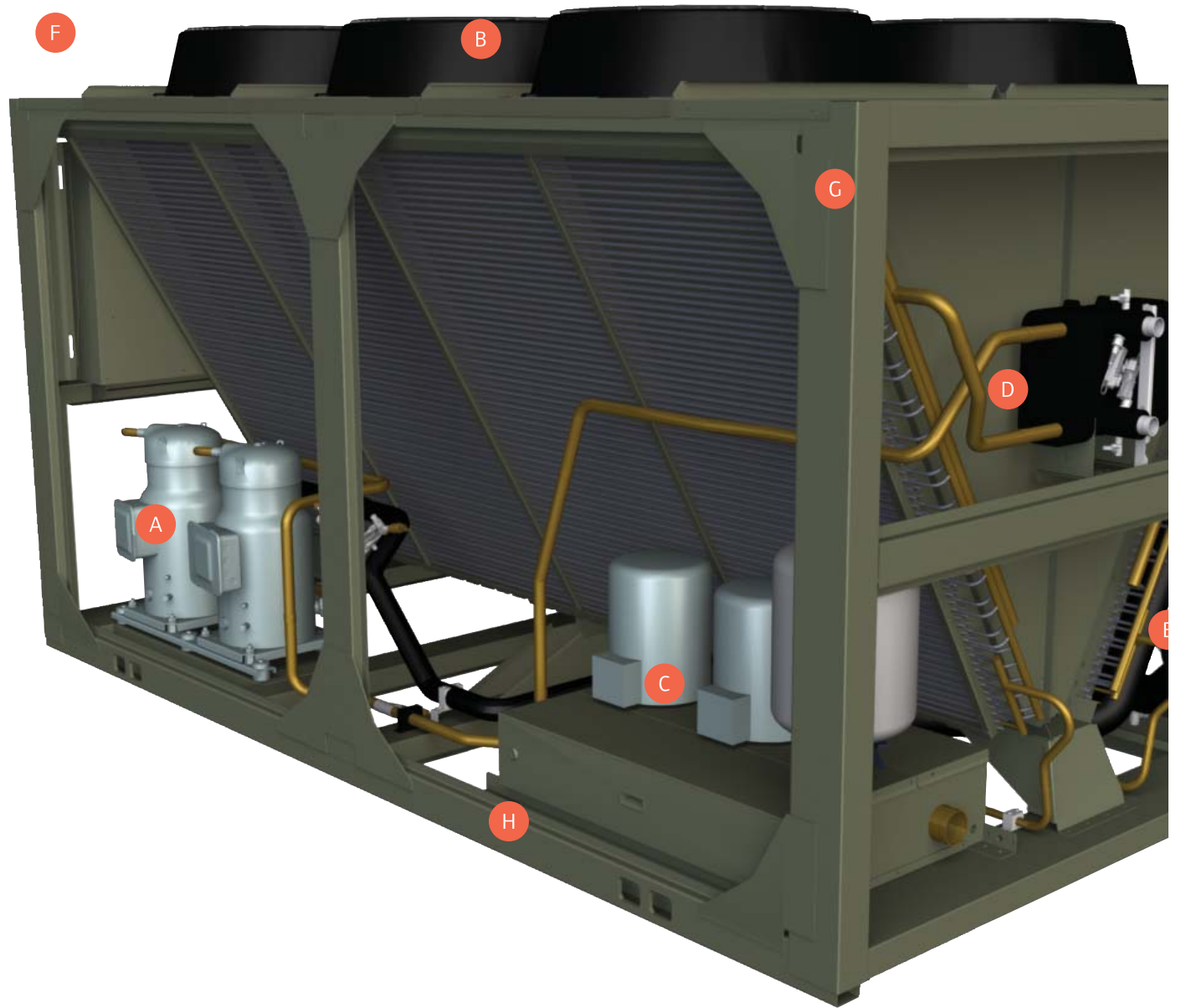
Low life cycle costs

Trane engineers, using some of the best analytic approaches and tools in the industry, can find ways to reduce your energy usage by optimizing energy efficiency and performance at every point within your system. We design systems tailored for your specific application. For example, using partial heat recovery, the heat rejected from the condenser while cooling the building can be redirected through a factory-installed heat exchanger on the chiller to provide heat for VAV reheat coils. This provides more efficient dehumidification in commercial buildings, or for pre-heating laundry or pool water in lodging applications.

Another energy saving strategy is making ice wherever energy costs are less expensive, and then using it for cooling during the day. Ice storage can be used in many applications including: K-12 schools, government jobs and industrial processes.

Air-cooled scroll chiller

Model CGAM (20-130 Ton)





- A Compressor**—facilitates full- and part-load efficiencies that exceed ASHRAE 90.1- 2004 by 6-8%
- B Fans**—quiet fan design is standard, 5–8 db lower than current models, with attenuation options for applications requiring ultra-quiet operation.
- C Integration**—pump package and buffer tank are pre-wired and tested in the factory.
- D Heat recovery**—can provide 140°F (60°C) water for use in dehumidification or other applications, such as pre-heating laundry or pool water.
- E Reliability**—water strainer and flow switch are factory installed in the most optimum location; increased coil structure strength and reduced brazed joints minimize leaks.
- F Controls**—CH530 improved fan staging logic for low ambient starting capability; Adaptive Controls™ are standard to maintain operation in adverse conditions.
- G Durability**—powder-coated components and optional coated coils minimize corrosion.
- H Serviceability**—major components are positioned for easy access. The unit structure is designed to rig pump up for easy seal changes.

Controls for reliability, efficiency and system monitoring

Trane unit controls and building automation solutions leverage our applications expertise to meet your critical requirements. Adaptive Control™ algorithms embedded in the factory-mounted CH530 controller on the CGAM chiller use Trane proprietary strategies to respond to normal, extreme or adverse conditions. The sophisticated algorithms intelligently maximize uptime while protecting equipment from damage.

The chiller manages time-of-day scheduling for small office buildings or schools without a building automation system. If an integrated pump package is included, the chiller even controls pumps as needed. For larger enterprise-wide projects, a Tracer ES™ building automation system monitors and manages all chillers within the enterprise.

Energy efficiency is more important than ever. A CH530 controller optimizes the CGAM chiller's energy consumption. New sensing technology improves control of the electronic expansion valve, further raising efficiency. Tracer Summit™ building automation provides system and building-wide energy optimization.

Building staff easily and quickly monitor operating conditions at the chiller, on site or remotely over the Web. Internet access solutions can be tailored to facility needs. The CH530 controller improves usability over the previous generation and the Tracer building automation human interface is grounded in user-centered design principles. It provides operators with consolidated reports of needed data to keep all systems running at maximum efficiency.

Recognizing integration to legacy BAS is sometimes a requirement, Trane actively supports open standard protocols. The CGAM controller integrates easily via LonTalk® or BACnet®.

Expert services for the life of the building

Trane Building Services helps you improve energy efficiency, reduce operating costs and enhance the performance of your equipment—making your building work better for life.

The CGAM chiller is available with the Trane Elite Start™ suite of services to make sure your system operates as designed from day one. Factory start-up services will help your system perform to specifications upon installation.



Not only do Trane CGAM air-cooled chillers deliver the lowest noise levels and highest efficiencies in their class, but they can be applied with Trane fan coil units or air-handlers to improve indoor air quality—helping achieve LEED performance.



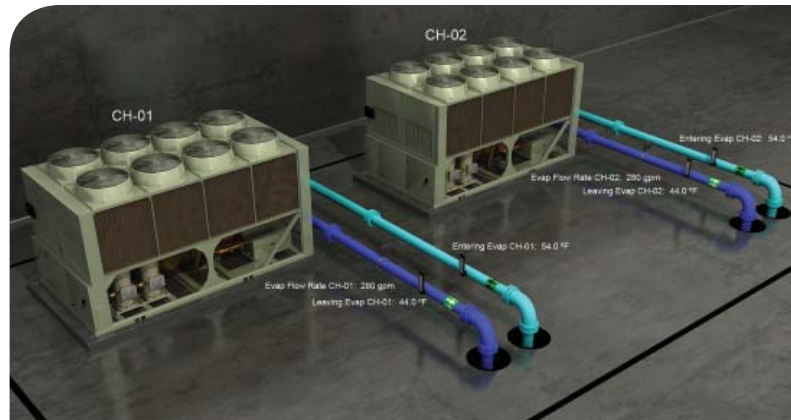
Trane recommends the following Elite Start services:

- In-Warranty Support—oil analysis, diagnostic reporting and monitoring keep equipment operation at peak performance during the first year of operation.
- Extended Warranty—covers parts and labor associated with any equipment failure.
- Service Agreements—scheduled inspections for preventive and proactive maintenance ensure long-term reliability, efficiency and performance.

Making service better

We take full advantage of the vast wealth of knowledge available to us through our service professionals by including them in our early design efforts. As a result the Trane CGAM chiller has many valuable service improvements:

- All major serviceable components are very close to the edge of the unit, making it safer and easier to service. The unit has quick and easy-to-reach service valves, water strainer and water piping connections.
- The factory-installed pump package is designed to be serviced in place, including pump seal changes. Simply lift the pump within the chiller structure to replace the seal.
- The high pressure transducer and temperature sensor mountings enable troubleshooting and replacement without refrigerant handling.
- Separate access to the low voltage control panel makes the chiller easier to service.



Tracer Summit can manage chiller sequencing and load sensing for optimum control on site or over the Web.

To help ensure that the building performance is meeting your business needs, our service professionals tap into a global network of proven best practices, Trane proprietary technology and industry-leading expertise.

We continually train our technicians and provide on-demand access to all the latest resources to make maintenance decisions that will fine-tune your entire system, in order to achieve the highest level of performance.

No service provider is more qualified to deliver the cost savings and performance assurance you demand from your Trane equipment. Trane sales and service professionals are better able to customize creative solutions that will better meet your specific maintenance, budget and operational requirements. To minimize any downtime, the Trane nationwide network of HVAC Parts and Supply stores—with access to over 300,000 items—ensures you can get the part you need when you need it.

The results you've come to expect

Take advantage of all the benefits of the Trane CGAM air-cooled chiller. Contact your local Trane account manager to learn more about how you can increase your efficiency without sacrificing quiet operation, enjoy low life cycle costs and gain the peace of mind a Trane chiller provides.

How do you know?

There are hundreds of possible system designs and chiller configurations, and thousands of possible chiller system efficiency levels. How do you narrow the choices and determine the right HVAC system design choice for your building investment?

Whether you are calculating energy efficiency to determine eligibility for LEED credits, earn tax deductions, or select the HVAC system with the lowest operating costs, Trane can help.

The System Analyzer™ helps estimate building loads and performs preliminary energy and economic analyses of virtually any building, system and equipment combination.

For LEED certification, TRACE™ 700 (Trane Air Conditioning Economics) software helps analyze the energy and economic effects of virtually any system configuration by allowing users to manipulate a wide range of variables to create a detailed energy usage profile for the specific building. Unlike overly simplified spreadsheet-based energy analysis, TRACE 700 software accurately compares the impact of building alternatives, such as architectural features, HVAC systems and other economic options, to provide true lifecycle, cost-based decisions.



Your local Trane account manager can help you find the CGAM chiller to meet your needs.



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