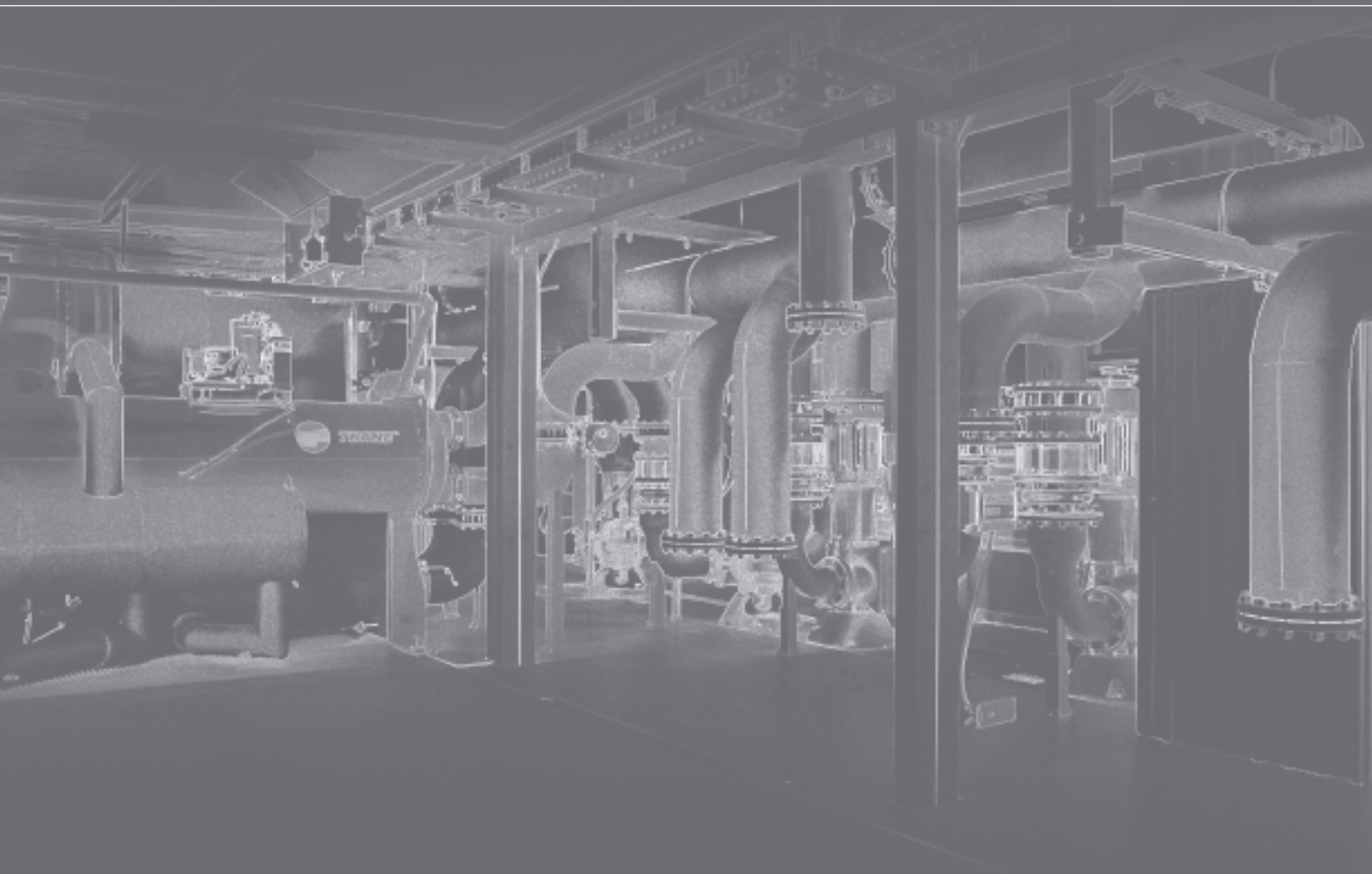
Central Plant Product Guide



CHILLERS | SERVICES | COOLING TOWERS | PACKAGED SOLUTIONS | TEMPORARY COOLING

The decision is yours...

Every day, around the world, hundreds of building owners and operators are making decisions regarding replacement, upgrade or expansion of chiller plant equipment in existing buildings.

The reasons for these changes are numerous. In some cases, chilled water requirements for buildings have changed. This causes the existing chiller plant to operate in an inefficient range, or be unable to meet building requirements.

In other cases, there may be changes required by declining reliability or efficiency due to equipment obsolescence. Sometimes the need for a chiller upgrade or perhaps replacement is influenced by a desire to improve acoustics. There may be requirements to increase chilled water production to meet indoor air quality concerns. In all of these cases, the building owner or engineer can consider the full range of chiller replacement and upgrade options from Trane.

Trane can help

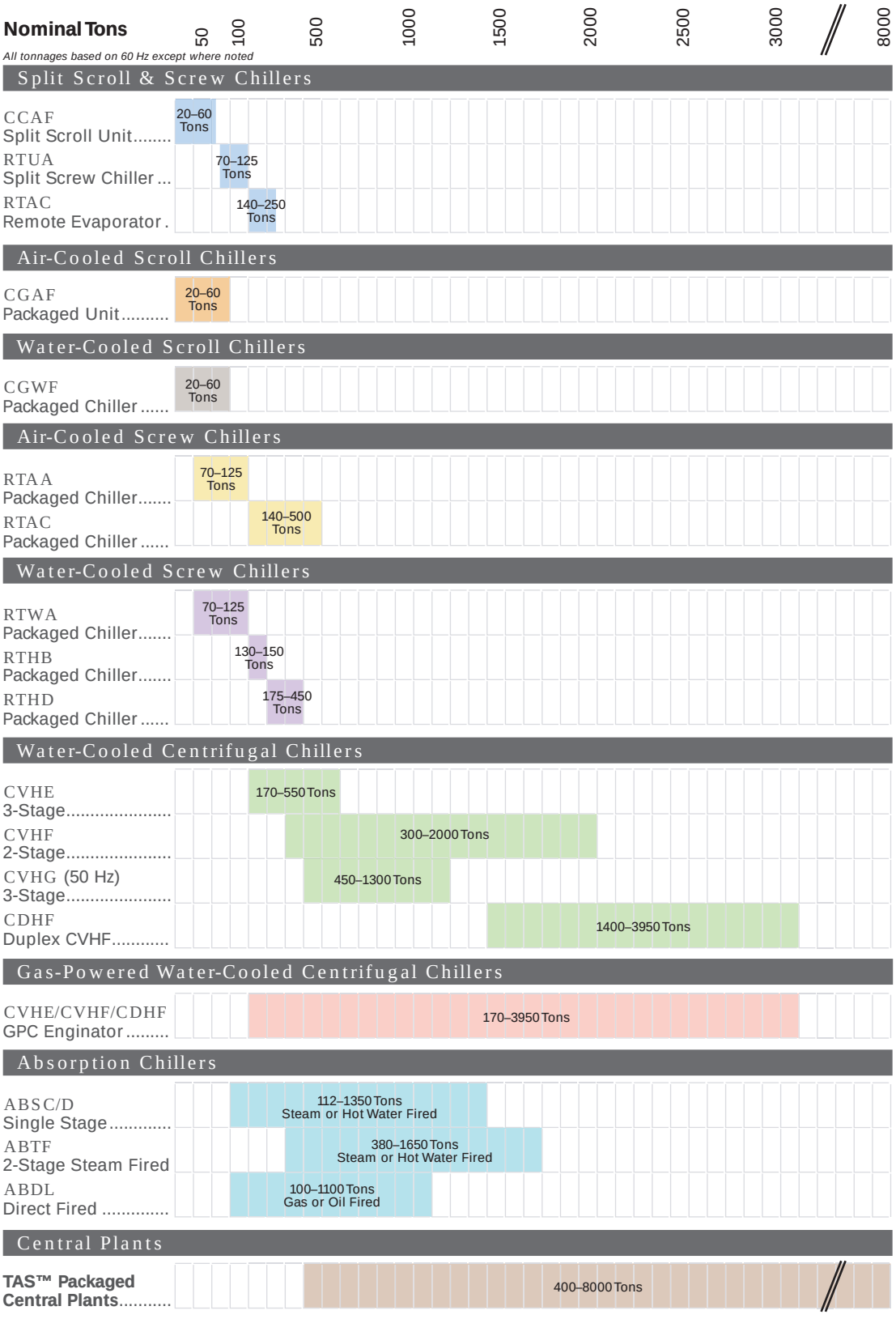
Trane has achieved a reputation for combining new technology and quality manufacturing techniques with unsurpassed reliability and field support. Trane has over 55 years of experience providing efficient, reliable chillers to the commercial market. Trane offers scroll, helical rotary, centrifugal and absorption chillers in capacities from 20 to 3950 tons, cooling towers and packaged combinations of all the above.

The selection of a particular chiller upgrade or package is dependent on the unique characteristics of each building, and the needs of the owner. Trane chiller plant products operate in a wide range of operating conditions, including those outside the actual design parameters of the system.

Trane chillers and controls are designed to keep chilled water flowing, even under the most adverse conditions. All of the chiller products feature the newest Adaptive Control™ technology, making programming simple and allowing easy access to diagnostics and reports. In addition, these controls make it possible for Trane chillers to interface with a wide variety of operating systems, including Trane's own family of Tracer™ building control systems.

Cover art courtesy of TAS™ Packaged Central Plants

Chiller Product Offering



EarthWise™ CenTraVac™ centrifugal liquid chiller

Water-cooled from 170–2000 tons

Design feature	Customer benefit
Direct-drive compressor—fewer moving parts, no gears, coupling or extra bearing losses	Highest reliability and efficiency for lowest total life cycle cost and quiet operation
Multi-stage design	System flexibility and efficiency, highest stability at all load conditions to eliminate need for energy-wasting hot gas bypass
Lowest equipment sound levels	No additional sound attenuation required, saves first cost and no energy-wasting liquid refrigerant injection to reduce sound
Lowest on-peak kW demand	Saves energy cost, reduces size of electrical components
Low pressure for near-zero refrigerant loss	Ozone layer and climate protected by lowest refrigerant emissions and leak-tight warranty

0.448 kW/ton best efficiency

Applications

- High efficiency at full load and part load operation
- Ice storage
- Free cooling
- Low temperature
- Heat recovery

CVHE/F/G

Duplex™ centrifugal liquid chiller

Water-cooled from 1200–3950 tons

Design feature	Customer benefit
Factory built and tested	Reduces jobsite installation, start up and maintenance expense
Series-counterflow thermodynamic staging	Proven performance using ARI testing Highest efficiency Highest stability at high lift conditions
Direct-drive compressor—fewer moving parts, no gears, coupling or extra bearing losses	Highest reliability and efficiency for lowest total life cycle cost and quiet operation
Two independent refrigerant circuits	Standby capacity and redundancy
Evaporators and condensers in series without the extra piping and valves	Increases system efficiency—15% more efficient than parallel Reduces installation costs Reduces system complexity
Sustainable hermetic design	Near zero refrigerant emissions
Auto-regenerative purge chiller	Returns reclaimed refrigerant right back to the
Single-pass arrangement	Lower pumping costs than two separate chillers in series
Staging controls at the chiller	Maximum flexibility for operating strategies
Low pressure for near-zero refrigerant loss	Ozone layer and climate protected by lowest refrigerant emissions and leak-tight warranty

0.47 kW/ton best efficiency
UL listed, ISO 9001 certified
ASME compliant

Applications

- Low flow and high lift applications
- District cooling
- Colleges and universities
- Turbine inlet cooling
- Airports and any large capacity cooling plant

CDHF/G

Horizon™ absorption liquid chiller

Water-cooled from 100-1600 tons

Chiller uses water as the refrigerant and lithium bromide as the absorption solution in a unique process to produce chilled water.

0.66-1.2 COP
Single-Effect, Indirect-Fired, Steam and Hot-Water-Driven Chillers
Double-Effect, Indirect-Fired, Steam-Driven Chillers
Double-Effect, Direct-Fired Gas-Driven Chillers

Applications

- Facilities with higher electrical rates and comparatively low gas rates
- Electrical peak shaving where physical space for thermal storage is not available
- Waste heat applications
- Cogeneration, CHP
- Onsite laundry
- Overcoming CFC/refrigerant issues

Design feature	Customer benefit
Design life of 25+ years based on over 40 years of Trane absorption design experience	Machine lasts longer
Industrial grade materials	Better machine reliability
Standard low NO_X burner, hermetic design and automatic purge	Low emissions and leaks
Improved cycle and heat exchanger designs	Higher chiller efficiency
Low waterside pressure differentials and lower required cooling water flow-rates	Higher system efficiency
Modular design	Easier installation
Current technology manufactured to ISO 9001	Repeatable quality

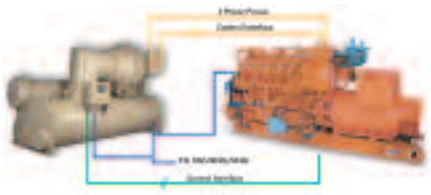
ABSD or ABTF

Gas-powered chiller package

Water-cooled from 170-3950 tons CenTraVac™ chiller + Waukesha Enginator®

Combines two industry leading products to create a chilling package with fuel and life-cycle flexibility.

Design feature	Customer benefit
Electric coupling rather than mechanical coupling between the chiller and the engine	• Allows remote installation of engine to create quiet chiller room and isolated sound attenuation for the engine. • Protects user from fuel price volatility by allowing engine-generator to be turned off and chiller to run on grid power. • Minimizes refrigerant leaks and maintenance by eliminating shaft seal. • Chiller can operate independently when engine-generator is unavailable. • Engine-generator can be used as a backup power source for the entire building. • Simplifies installation: no onsite piping connections between engine and chiller, and no industrial air compressor is required.
Factory engineered control interface	Protects chiller and engine from potentially damaging operating conditions.
Generator inverter for variable frequency	Industry-leading variable frequency chiller controls allow chiller to "drive" enginator invertor to reduced speeds. Most engine-generators do not have an invertor—the Enginator does.
Award-winning EarthWise™ CenTraVac™ chiller	• Direct-drive has no gears to maintain and semi-hermetic compressor motor has no shaft seal to maintain. Highest efficiency available in the industry. These options combine for the lowest total cost of ownership. • Low-pressure refrigerant with lowest documented refrigerant leak rate. • Quiet operation with maximum sound pressure levels guaranteed and tested in the factory.
Waukesha Enginator®	• Lean burn technology generates low emissions and fuel economy for low operating costs. • Optional catalytic converters further reduce emissions when required. • Multiple fuel options tailored to site needs and availability. Fuel systems can operate on low fuel supply pressures. • Jacket water and exhaust heat recovery. • Optional heat recovery offsets heating needs or drive absorption chillers.



CenTraVac *Enginator*

Series R™ air-cooled liquid chiller

Helical-rotary compressor from 70–500 tons

Factory integrated and tested pumping package saves time on specification, installation, and commissioning.

9.6–10.5 EER

Series R design feature	Customer benefit
Adaptive Control™ technology	Chiller stays on line even in extreme or adverse conditions Less disruption in cooling when it's needed most
Helical-rotary compressor	Exact load matching, unlike typical reciprocating machines Trane—exclusive unloading slide valve for superior part-load efficiency
Direct drive compressor	Great reliability and efficiency due to few moving parts and no gear, coupling or extra bearing losses
Equalized compressor sequencing	Extended compressor life
Precise rotor tip clearances	Minimal leakage and optimum performance
Simple water and wiring connections	Simplified installation
Compact size unit	Maximizes useable space
Electronic expansion valve	Improved full and part load efficiencies Extended operating range
Integrated pumping package	Simplifies design and installation while allowing chiller better control in variable flow designs

Applications

- Limited equipment room space
- Project budget limitations favoring air-cooled over a water-cooled system
- Maintenance budget constraints, particularly in poor water quality areas
- Requirements for simplicity in system design
- Split system applications to save space in the equipment room while eliminating the need for piping protection.

RTAC

Series R™ water-cooled liquid chiller

Helical-rotary compressor from 70–450 tons

0.57–0.79 kW/ton

Series R design feature	Customer benefit
Adaptive Control™ technology	Chiller stays on line even in extreme or adverse conditions Less disruption in cooling when it's needed most
Helical-rotary compressor	Exact load matching, unlike typical reciprocating machines Trane—exclusive unloading slide valve for superior part-load efficiency
Direct drive compressor	Great reliability and efficiency due to few moving parts and no gear, coupling or extra bearing losses
Equalized compressor sequencing	Extended compressor life
Precise rotor tip clearances	Minimal leakage and optimum performance
Simple water and wiring connections	Simplified installation
Compact size unit	Maximizes useable space
Electronic expansion valve	Improved full and part load efficiencies Extended operating range
Integrated pumping package	Simplifies design and installation while allowing chiller better control in variable flow designs

Applications

- Medium-sized chiller plants
- Swing chiller in sequencing schemes
- Limited hours of cooling
- Supplemental cooling during off season and light load cooling applications
- Installations with access only through standard width doors
- Cost effective alternative to centrifugal chiller
- Low temperature applications such as thermal storage or industrial process

RTHD

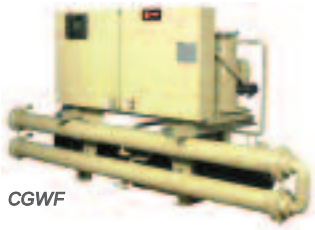
Chillers

Scroll liquid chiller

Scroll compressor technology from 20–60 tons

Air-cooled 15.2–15.5 EER
Water-cooled 9.7–9.8 EER

Design feature	Customer benefit
Undated unit control technology	Greater flexibility for machine operation Easy integration to a building control system
64 percent fewer parts than reciprocating compressor units	Less maintenance
Smoother compressor cycle with the ability to handle non-compressibles	Longer machine life



CGWF

Applications

- Small tonnage facilities or office buildings
- Supplemental or “pony” chiller application for chiller plant sequencing
- Split system applications to avoid condenser water treatment while eliminating freeze protection to the building load water supply
- Simple systems that are easy to install in tight spaces
- Clean room applications needing precise temperature and humidity control
- Low temperature applications such as thermal storage or industrial processes

Services

R’newal™ service program

Helical-rotary chillers

The R’newal program will refurbish an existing Series R chiller to like-new condition, with a warranty. The compressor and worn systems and materials are replaced—restoring the chiller to optimum performance with a lower risk of unscheduled outages.

Design feature	Customer benefit
Replace all gaskets and seals	Ensures leak integrity and prevents refrigerant loss
Replace compressor rotating bearings and worn components	Restores reliability and prevents expensive compressor failures caused by worn bearings
Inspect compressor motor in detail and repair if needed	Improves reliability and prevents expensive motor failure caused by worn motor
Upgrade to newest design components	Provides latest design and quality
Standard two-year parts and labor warranty (additional three years available as an option)	Compressor warranty coverage direct from the original equipment manufacturer

Applications

- Limited access to the mechanical room, making chiller replacement difficult or impossible
- Limited capital budget, prohibiting a complete chiller replacement
- R’newal can be considered service or maintenance of the existing equipment instead of capital investment
- Chiller critical failure that requires immediate unit replacement—R’newal can offer short lead-times allowing for quick chiller repair

Series R

TriStar Conversion™ retrofits

A TriStar Conversion retrofit is a new motor/compressor kit designed to replace the existing Trane or competitive chiller motor/compressor assembly. During the conversion process, the existing heat exchangers are reused and all of the controls are updated with the new generation controls. This type of conversion is available only for low-pressure chillers that previously operated on R-11 or R-123 refrigerants. A typical TriStar compressor is available for applications ranging from 300 to 1300 tons as standard and beyond this range as a design special.

Design feature	Customer benefit
Multiple-stage compressor	Better efficiency and unloading compared to a single-stage compressor
Direct-drive compressor	Fewer moving parts than a gear driven compressor for increased reliability and quieter operation
Flash economizer—preflashed refrigerant gas leaving condenser is directed to the compressor bypassing the evaporator	5–7% efficiency improvement
Patented orifice design	Maintains proper refrigerant flow under any operating conditions
Trane reengineering of the entire chiller system	Optimizes performance for HCFC-123 to better suit current operating conditions and chilled water needs

Applications

- Limited access to the mechanical room, making chiller replacement difficult or impossible
- Limited capital budget, prohibiting a complete chiller replacement
- TriStar conversion can be considered service or maintenance of the existing equipment instead of capital investment
- Chiller critical failure that requires immediate unit replacement—TriStar can offer short lead-times allowing for quick chiller repair

Engineered Conversion™ retrofits

An Engineered Conversion kit is designed to retrofit existing Trane water-cooled chillers operating on R-11 to R-123 and air-cooled chillers operating on R-12 to R-134a. During the conversion process, the CenTraVac™ motor is remanufactured, impellers and orifices are optimized for performance, and all of the gaskets and o-rings are replaced with R-123 or R-134a compatible materials.

Design feature	Customer benefit
Chiller optimization	Guarantees performance with new refrigerant at original designed or new operating conditions
All materials fully compatible with R-123 refrigerant	Lab-tested for refrigerant compatibility All parts meet or exceed current OEM specifications
Standard two-year motor parts warranty	Quality assurance backed by additional parts warranty
OEM nameplate	New serial number for future quick parts identification and replacement

Applications

- Immediate removal of CFCs from operating equipment
- Alternative to a 10-year chiller overhaul, as most labor and parts are identical
- Oversized chillers requiring less cooling capacity and/or new operating conditions
- Alternative to a chiller replacement for mechanical rooms with limited access
- Application changes to accommodate or remove ice making or heat recovery capability
- Any change that takes chiller operation away from original design conditions

Adaptive Frequency™ drive retrofits

Trane's retrofit Adaptive Frequency drive (AFD) maximizes chiller efficiency and reduces power consumption by adapting the motor speed to the chiller's operating load. Retrofit AFDs are available for 460- and 480- Volt CVHE and CVHF model chillers with maximum 1200 running load amps.

Design feature	Customer benefit
Water-cooled drive	Smallest square foot per horsepower ratio in the industry
Standard unit- and remote-mounted package	Simplifies installation
Trane-patented AFD control logic	Integrates with CenTraVac chiller controls to optimize chiller efficiency, performance, and reliability

Applications

- Chillers with a high number of hours operating at low load
- Chillers with a high number of hours operating at lower-than-design condenser water temperatures
- Chillers that are frequently starting and stopping
- Areas with high utility rates or utility rebate programs
- Oversized chillers where functions like heat recovery or ice-making are no longer used

Remanufactured CenTraVac™ motors

A Trane CenTraVac remanufactured motor is an existing chiller motor remanufactured to meet or exceed Trane's current OEM specifications for HCFC-123 compatibility. All motor components are disassembled, cleaned, inspected, and tested to determine needed repairs or replacements. The wear-sensitive elements such as bearings, slingers, caps, terminal board, gaskets, and o-rings are replaced with new parts. Damaged components such as housing, rotor, and/or stator will be fixed at additional cost. All fully assembled motors are run-tested and the balance, noise levels, lubrication systems operation, and electrical connections are checked.

Applications

- Trane Engineered Conversions
- Trane CenTraVac equipment overhauls
- Critical motor failure
- Power changes (i.e. 460 Volt changed to 24 Volt and vice versa)

Design feature	Customer benefit
Factory quality assurance	Enhances reliability by subjecting all motor components to rigorous tests: high temperature, surge, high potential, and resistance
OEM replacement materials	All new materials or remanufactured parts, which meet or exceed current Trane OEM specifications
Glass served wire—triple-coat film wire insulation	Improves reliability through superior resistance to abrasion and damage during winding, assembly, installation and operation
Trane technical support and factory warranty	Long-term technical support backed by one-year motor parts warranty on Trane remanufactured motors
HCFC-123 compatibility	Fully compatible with the environmentally preferred HCFC-123 refrigerant

Tracer™ CH531 chiller controller upgrade

A Tracer CH531 retrofit replaces a chiller's temperature and safety controls with the same controls used on a new Trane CenTraVac™ chiller.
It is an excellent solution for fixing obsolete, troublesome, or inefficient chiller controls.

Design feature	Customer benefit
Factory pre-assembled enclosure with pre-assembled, pre-wired and pre-installed components	Reduced installation time
Digital control	Typically reduces the energy costs of pneumatic-controlled chillers by 8%
Feedforward adaptive control	Adapts to abnormal conditions, protecting the chiller and keeping it on-line to prevent costly interruptions
Advanced starter/motor protection	Features like under/over voltage, phase loss/reversal reduce motor damage, and repair costs
Advanced diagnostics	Allow for faster, more precise trouble-shooting resulting in less down time and improved chiller operation

Applications

- Chillers with inefficient pneumatic controls
- Chillers where key replacement components are no longer available
- Sufficient personnel are not available to log chiller
- Chiller needs to communicate with a building automation system
- Consistency in chiller control display and function
- Condenser variable flow option

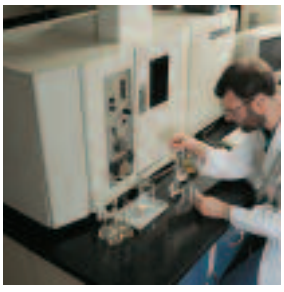
Chemical laboratory analysis

A routine chemical analysis helps detect HVAC equipment premature and/or excessive wear and tear before they become serious problems by analyzing the fluids inside the HVAC equipment.

Analysis type	Customer benefit
Oil	• A change in the characteristics of the oil will determine if unacceptable wear conditions have developed inside a compressor • Detects minor problems early on • Provides comments on potential problems, sampling intervals, and oil changes
Absorption solution	• Calculates the amount of each chemical needed to balance the solution • Alerts potential problems such as air leaking into the machine or excessive corrosion • Provides comments on potential problems, sampling intervals
Refrigerant analysis	• Complete ARI Standard 700-93 test • Refrigerant suitability test • Evaluates and accepts/rejects refrigerants, regardless of source for use in new and existing machines • Evaluates the refrigerant's contamination levels • Suggests corrective actions when contaminant levels fall outside acceptable ranges

Applications

- System trending
- Diagnosing problems to decrease maintenance costs, schedule repairs or system downtime
- Eliminating premature oil and refrigerant changes and reducing the problems associated with disposal
- View/download analysis reports from the web instantly



Self-contained breathing apparatus

A Self-Contained Breathing Apparatus (SCBA) is a respiratory protective device. All Trane SCBAs are designed to meet ASHRAE Standard 15 - 2004 requirements for safe mechanical rooms.

According to this standard, any person required to enter a chiller room with a refrigerant leak must be provided with appropriate respiratory protective equipment.

Applications

- Emergency situations due to a refrigerant leak in the mechanical room
- ASHRAE Standard 15 applications
- Any mechanical room where refrigerants are present

Design feature	Customer benefit
Agency approvals • National Institute for Occupational Safety and Health (NIOSH), • American National Standards Institute (ANSI) • Mine Safety Health Administration (MSHA)	Operator safety Compliance with codes and local requirements
Ultravue facepiece—close-fitting wraparound design	Improved comfort and vision
Mechanical diaphragm	Increased range for communication Improved speech clarity
Two-stage regulator reduces air pressure to slightly above atmospheric pressure	Uniform air supply
Audible alarm signals the user when the remaining amount of air in the cylinder falls below the 20 to 25 percent of the original capacity	Operator safety

Refrigerant monitor

A refrigerant monitor is a leak-sensing device that constantly measures the amount of specific refrigerants in the surrounding air. This device is also capable of initiating alarms, activating building ventilating systems, and interfacing with Building Automation Systems. Typical accessories include remote mounted lights, buzzers, remote mounted relays, and auxiliary sensors.

Applications

- New chiller installations—ASHRAE Standard 15 requires refrigerant monitors to be installed in all new chiller rooms
- Existing chiller rooms—ASHARE Standard 15 recommends refrigerant monitors to be installed in all existing chiller rooms and/or refrigerant storage facilities

Design feature	Customer benefit
Photo-acoustic infrared sensing technology	Most sensitive (down to 1 ppm) and accurate (+/- 1 ppm) measuring of refrigerants in the air sample
Clear Language Display	Permits quick and easy operation
Multiple Refrigerant Sensors RMWE detects up to six refrigerants at the same time; RMWG detects up to five	One monitor can be used in equipment rooms with more than one refrigerant present
Three concentration alarms	Standard on all monitors and can be programmed to a specific refrigerant concentration level
Standard analog output	Interfaces with any BAS system
UL 2075 listing (RMWE) 0–10 vdc UL listing (RMWG)	Provides third party certification for performance, fire, and shock

RuptureGuard™ pressure relief system

A RuptureGuard pressure relief system combines a non-fragmenting rupture disk and a self-receding pressure relief valve into a single assembly. This device is used to protect a low-pressure chiller from internal over-pressurization.

When installed, the RuptureGuard system can prevent the loss of a complete refrigerant charge and prevent air from getting inside the machine—a security feature not possible with a rupture disk alone.

Design feature	Customer benefit
Reseatable valve	After pressure has been released, the valve reseats to minimize refrigerant loss
Superior flow capacity	Has the industry's highest rated flow capacity: 60% higher that than competitive valves, allowing a smaller valve to be used
Field serviceable design	Can be disassembled, repaired, and calibrate in the field
Optional alarm switch SPDT contact for interface with Tracer Summit, PRELERT, and other monitoring systems	Notifies BAS via chiller controls that the disk has ruptured

Applications

- Refrigerant containment is critical
- Two pipe systems where chilled water and hot water flow through the same pipe

Extended warranties

Trane offers a wide variety of extended warranties on everything from a rebuilt compressor to a new centrifugal chiller. These extended warranties are offered for varying lengths of time following the Standard Warranty. When an unexpected malfunction occurs in your equipment, be assured that Trane warranties will minimize the financial impact involved and provide you with the assurance of resolution.

Warranty type	Customer benefit
Delayed start-up	When equipment start-up is delayed beyond normal circumstances, this delays the manufacturer warranties
Whole unit parts	Replacement of parts found to be defective in material or manufacture for an extended period of time beyond the standard warranty
Labor	Covers labor expenses to replace a part found to be defective in material or manufacture
Motor/compressor parts	Covers replacement parts for the motor/compressor assembly found to be defective for an extended period of time beyond the standard warranty
Motor/compressor labor	Covers labor expenses to replace a motor/compressor part found to be defective in material or manufacture
Refrigerant	Provides replacement refrigerant to restore a unit to the proper charge if the reason for refrigerant loss is found to be a defect in material or manufacture

Applications

- New equipment sales
- Engineered Conversion™
- Replacement compressor and CTV motors

May be purchased

- At the time of the equipment order
- At a premium after the equipment has shipped but before the equipment is started

Series Quiet™ cooling tower

CTI certified, 94–1300 tons

Design feature	Customer benefit
Factory assembled	**Minimal field installation** saves time and ensures highest quality
Air movement mechanical package	Gear drive **98% efficient** with 5 year oil change interval Optional Belt Drive with bearing housing 40,000 bearing life High efficiency fans with Totally Enclosed Fan Cooled (TEFC) motor **5-year warranty** on drive train including geareducer, coupling, fan assembly and mechanical support **Quiet operation** designed into the mechanical components Special super low noise models available
Water distribution system	**Easy access** to the distribution basins for maintenance and tower inspection **Safe access** to both hot and cold water basin Multiple inlet and outlet options, **water connections of your choice** Hot water basin covers eliminate sun and trash exposure
Crossflow tower configuration	Free and open plenum area for **ease of inspection and maintenance** Easy access to all mechanical equipment Easy access to both basins Nozzles for maintenance and cleaning Fill inspection easy/quick from louver face
Heavy duty construction series 304 stainless or G-235 galvanized steel	G-235 galvanized material for structure—**industrial grade** 304 SS materials available for structure and basins which provides extended tower life
Towers access	Large endwall access doors for easy access to plenum area Access ladder with safety cage and handrail around tower perimeter available Plenum area walkway extending from each endwall door available Endwall access door platform external to tower available Internal mechanical equipment access platform available
Industry-standard compliant tower	**CTI-Certified** to ensure design requirements FM approved tower available for fire rating certification ASHRAE 90.1-2004 Efficiency Standard-compliant towers available

Summary

- Lower operating and maintenance costs
- Long-term reliability and durability
- Excellent lifetime value
- Minimal, easy maintenance and inspection
- Heavy-duty construction built to last

Additional features

- Industrial grade gear drive mechanical equipment or belt drive available
- Induced draft with vertical discharge air movement
- Standard low noise models with high efficiency fans
- Ultra low noise options available
- High performance PVC fill with integral louvers and drift eliminators
- Variable flow capacity option available with crossflow tower
- Multiple inlet and outlet piping options available
- ASHRAE 90.1 2004 compliant towers available (listed on model data sheet)
- FM approved towers available

TAS™ Packaged Central Plants

400–8000 tons

TAS Packaged Central Plants is the global leader and an innovator in pre-engineered, factory-manufactured packaged central plants. Noted for high operating efficiency and exceptional construction quality, TAS packaged plants are manufactured and shipped as fully enclosed systems, thereby minimizing field construction risk and expense.

TAS packaged products are designed for the lowest life-cycle cost and the highest net present value to the owner. They are recognized for achieving efficiencies of 0.79 kW/ton or better for the entire system, across a wide range of product options. TAS Package Central Plants is committed to delivering total system performance. Guaranteed!

Design feature	Customer benefit
Pre-engineered, factory manufactured modular central plants	**Lower first cost:** typically a 15–20% savings can be achieved through the use of pre-engineered, factory-manufactured modular designs vs. field-erected projects **Shortened installation:** packaged central plants can be producing chilled water in as little as five months
Efficiencies of 0.79 kW/ton or better	**Lower life cycle costs:** greater efficiency means lower operating costs
ISO 9001:2000 quality plant construction	**Industrial quality:** standardized, pre-designed and factory-tested systems offer greater reliability than non-standard, field-erected projects
Redundant component design	**Greater reliability:** maximum plant redundancy optimizes your infrastructure investment, ensures reliability, and avoids costly facility downtime
Modular, compact, and portable design	**Installation flexibility:** the compact size, and the ability to easily relocate a packaged central plant, help companies protect their chilled-water investments over the plant's estimated 25-year useful life
Full-service access capability	**Maximum serviceability:** packages are designed to maximize serviceability access and ease of maintenance for minimal interference with day-to-day site activities
Integrated cooling towers	**Lower operating costs:** condenser-water performance optimization significantly contributes to overall utility savings

Additional features

- Controls compatible with all standard building-control manufacturers
- Meets all ASHRAE, NEC, BOCA, and UBC construction and safety codes
- Screening options make plants architecturally flexible and the compact design reduces screening requirements
- Performance monitoring to measure real-time system efficiency (kW/ton)
- TAS also offers power distribution centers and thermal energy storage options

Applications

- Lodging and gaming
- District cooling
- Electronics and semiconductors
- Mission critical facilities
- Life sciences
- Education
- Hospitals and healthcare
- Process and petrochemical
- Government
- Automotive
- Food and beverage
- Combined heating and power (CHP)
- Power generation

For more information about how TAS can lower your chilled-water costs, visit www.tas.com .

TAS PACKAGED CENTRAL PLANTS

ChillerSource™ temporary cooling

Trane ChillerSource provides long- and short-term temporary solutions for a variety of industrial and commercial applications. Because Trane is a leader in the HVAC industry, customers have access to unmatched design and application knowledge throughout North America. ChillerSource uses only modern, reliable equipment to ensure that your temporary system will operate smoothly. Our equipment is located throughout North America enabling you to get reliable temporary solutions when and where you need them.

Applications

- Retrofits or replacements
- Emergencies
- Planned maintenance
- Standby cooling/heating
- Supplemental cooling/heating
- Cooling system testing and proving
- Alternative financial solutions
- Natural disasters
- Process cooling
- Ice rinks

Available equipment

- 10–500 ton air-cooled chillers
- 300–1200 ton water-cooled chillers
- Chiller/pump packages
- Packaged DX units
- Cooling Towers
- Generators
- Flex duct
- Transformers
- Hoses
- Pump skids
- Electrical wire

For any temporary cooling needs, contact your local Trane sales office or ChillerSource at 1-800-755-5115 (24/7).

Trane Central Plants

The choices facing building owners are complex and far-reaching. Trane suggests the decision on the specifics of the chiller plant be made only after a complete engineering review of the facility. The evaluation should include an assessment of existing equipment and its suitability and remaining chiller life. Include a rigorous review of the building's chilled water requirements now and in the future. Of course, you will consider not only the first cost of any new equipment and operating costs, but also the long-term benefits of building comfort, system reliability and employee or tenant satisfaction. Trane can guide you through this process.

For some building owners, improvements or additions to the chiller plant are difficult to accomplish because of limited capital. Trane offers a variety of financing and leasing options to help you overcome this obstacle. At your request, Trane will also develop a comprehensive facility solution tailored specifically to your financial needs through our PACT℠ (Performance Agreement for Comfort from Trane) or BOOM (Build Own Operate Maintain) programs. With PACT, building improvements can be financed with the associated energy and operating savings, requiring little or no capital outlay.

Trane offers a library of information on chiller options and selection procedures, and on practical ways of making improvements that will reduce operating costs and increase building occupant comfort. For more information on the family of Trane products and services, contact your local Trane office.

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