Engineered Conversion™ Refrigerant Retrofit Services for Centrifugal Water Chillers

Engineered Conversion Refrigerant Retrofit

The phaseout of CFC refrigerants has prompted chiller owners to retrofit their CFC-11 and CFC-12 chillers to alternative refrigerants — HCFC-123 and HFC-134a. A refrigerant retrofit allows the future operation of a chiller with an alternative refrigerant.

A Trane Engineered Conversion retrofit is a comprehensive refrigerant compatibility service consisting of Trane materials, engineering analysis, and technical support for the retrofit of Trane chillers.

The Engineered Conversion process addresses refrigerant availability and allows the chiller to be optimized to meet the current needs of the building. This provides energy savings and extended life to the chiller without the additional costs associated with a full chiller replacement.

When a Trane CenTraVac® chiller receives a Trane Engineered Conversion retrofit, the total building HVAC system can be evaluated for current load demands, code compliance, and reduced energy consumption.

Performance

Trane CenTraVac centrifugal chillers are designed to provide optimized efficiency, full rated capacity and reliable operation. This is achieved by correct selection and design of the compressor and chiller components at the time of manufacture.

Trane uses its performance modeling and optimization capability to virtually redesign the chiller for its new operating conditions and refrigerant. This assures that the upgraded CenTraVac chiller will provide the best possible efficiency and capacity.

Because each performance related component of a CenTraVac chiller affects the performance of other components, a multi-dimensional mathematical model is used to select the components and optimize the chiller’s performance and space efficiency. As part of each
Engineered Conversion retrofit, Trane evaluates and optimizes the chiller’s motor, compressor and refrigerant metering devices to meet the owner’s specified operating requirements.

**Support**
Each retrofit of a Trane CenTraVac chiller is issued a new Trane nameplate that records the chiller’s new Trane serial number, order number, and model number. The nameplate provides documentation of the retrofit in Trane engineering records, allowing future support and troubleshooting.

This long term service includes parts identification, warranty administration, and retrieval of the engineering data specific to the retrofitted chiller.

Without this information, performance problems could be difficult to diagnose and may require expensive machine disassembly and/or instrumented field tests.

**Reliability**
To help ensure chiller reliability, Trane developed and rigorously tested new materials for compatibility with alternate refrigerants. These materials are used in components such as chiller gaskets and O-rings, hermetic motors, and vendor-provided components.

Extensive Trane laboratory testing of materials is done to confirm that Trane’s materials meet new chiller reliability standards. All upgraded components are inspected for 100 percent conformance to Trane specifications.

To provide product quality assurance, each Engineered Conversion® retrofit includes a one-year warranty on all chiller retrofitted components and a two-year motor warranty on the Trane-provided motor.
Example of the HCFC-123 Conversion Gaskets and Seals Provided for CVHE

With each Engineered Conversion retrofit package, Trane evaluates all affected components and provides the necessary material for operation using new refrigerants.

Numbered components are for reference only for Engineered Conversion™ parts that ship.
Since The Trane Company has a policy of continuous product and product data improvement, it reserves the right to change design and specifications without notice.