

Retrofit and Upgrade Centrifugal Chiller Starters



Prolonging the Life of the Motor

What a starter does

A starter regulates a chiller motor's electrical power when starting and running. By regulating the amount of power to the motor, the motor receives less stress; therefore, the life of the motor is prolonged.

Why replace or upgrade your existing starter

Like other mechanical devices, most existing starters can be repaired or rebuilt indefinitely. For this reason, the option of replacing a chiller starter may not be the most apparent choice. There are three main reasons why an existing starter should be replaced:

- It may be less expensive to replace than repair
- Availability of non-Trane starter service parts.
- New and improved technology.

A chiller starter is a complex device with many components that are affected by age or usage. These components include the disconnect switch, contactors, overloads, and timers. All of these components can wear out over time. In many instances, it may be less

expensive and faster to replace your existing starter than to continue to maintain and repair it. For starters that have electromechanical controls and are more than 20 years old, this is especially true.

In addition, prior to 1985, most Trane chillers had starters that were not provided by Trane. They were instead obtained through the installing electrical contractor. With such a variety of starters, finding service parts may be a challenge. They may be difficult to find, expensive due to their rarity, or may no longer be available. Then, if you do find them, there may be little in the way of knowledge to get it repaired correctly. By replacing the starter with a new Trane unit, you get a starter whose parts will be available for a long, long time! Finally, several advances in chiller motor protection technology have improved starters in the last few years. Improvements have been made to motor protection phase loss/phase reversal, power interruption, and over/under voltage. These improvements ensure that you are receiving the quality and reliability you expect from Trane.

What Trane offers

Trane offers a variety of starters to fit the requirements of each job. Each starter has unique features that can help you achieve the most from your chiller.

Starter Types

- **Wye-Delta:** This starter is most commonly used for applications under 600 volts. Wye-delta starters are electromechanical starters that automatically transition the motor from start to run configuration.
- **Across-the-Line:** Across-the-line starters are only used for applications from 600 to 6000 volts. Because of their higher voltage, across-the-line starters are able to start the chiller in the run configuration.
- **Solid State:** Solid state starters are for low voltage applications under 600 volts. These use electronic components to slowly increase the voltage to the motor at start-up. They provide a smoother acceleration than other electromechanical starters, reducing noise and stress on the motor and compressor.
- **Adaptive Frequency™ Drive:** An Adaptive Frequency drive continually adjusts chiller power frequency to meet the chiller's needs. It provides the least amount of stress on chiller components. In addition, it requires the least inrush amps at start-up, which can be an advantage on applications where emergency generators are used to power the chiller.
- **Specialty Starters:** Trane can provide specialty primary reactor and auto-transformer starters.

Options

In addition to the multiple types of starters available from Trane, we offer a wide range of options.

- **Remote-Mounted:** Many older starters were mounted remotely. Your replacement starter can be mounted in the same remote-mount configuration.



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.

All trademarks referenced in this document are the trademarks of their respective owners.

- **Unit-Mounted:** Several styles chillers, such as the CVHE and CVHF have unit-mounted starters. This frees up valuable equipment room space. One consideration to make when choosing the unit-mounted configuration is equipment room space. Careful measurements will need to be taken to make sure there is adequate access to the starter.
- **Factory Installed Power Factor Correction Capacitors**
- **Analog Ammeters/Voltmeters**
- **Digital Ammeters/Voltmeters**
- **California Code Compliance**
- **UL and CSA Listing**
- **Digital Meter and Protection Package**
- **Phase Voltage Sensors**
- **Over/Under Voltage Protection with Reset**
- **Ground Fault Protection**
- **Surge Capacitors and Lightning Arrestors**

Controls

When considering replacing or upgrading your starter, you need to also think about the controls in your equipment room. All Trane starters must be used with CH530 or AdaptiView control panels. You might want to consider upgrading your existing controls using a AdaptiView control panel retrofit. The AdaptiView retrofit is not only designed to make the control of your starter easier, but it will also provide additional benefit like extensive motor protection and Adaptive Control™ capability, eliminating the need for additional meters.

Conclusion

Retrofitting or upgrading your existing starter can be a difficult decision. With the expertise and variety of equipment available from Trane, you can rest assured that you will make the right decision for your equipment room and your building.

© 2020 Trane. All Rights Reserved.

ECTV-SLB013-EN
07/14/2020