

# Adaptive Frequency™ Drive Remote-Mounted Drive



CenTraVac™ chiller models CVHE/CVHF  
460/480V and 575/600V 60 Hz applications

## Adaptive Frequency™ Drives

While chiller efficiencies have improved dramatically over the past twenty years, for most commercial buildings the single largest energy user is still the chilled water system. A Trane® Adaptive Frequency Drive (AFD) can improve chilled water system efficiency without sacrificing comfort. Adaptive Frequency is a trademarked term for a Trane variable speed drive which is made to Trane specifications and uses proprietary control logic.

A variable speed drive maximizes chiller efficiency and reduces power consumption by adapting the compressor motor speed and inlet guide vanes to the chiller operating temperatures.

## Features and benefits

### Energy reduction

Conventional chillers use inlet guide vanes to provide stable operation at part load conditions. Capacity is reduced by closing the vanes while maintaining a constant motor speed.

While AFDs can increase the off-design efficiency of chillers, adding them for every application may not be appropriate. Intelligent control of the condenser and chilled water temperatures is crucial for AFD savings in chiller system applications.

As with any chiller plant design strategy, it's important to look at various alternatives and use tools such as Trane System Analyzer™ or TRACE™ 700 HVAC system analysis software programs to determine the best overall design strategy.

The myPLV™ Chiller Performance Evaluation Tool provides a simple tool for quick and reliable chiller economic comparisons considering both full and part load ratings. To learn more or to download a free copy of the myPLV tool, please visit [www.trane.com/myPLV](http://www.trane.com/myPLV).



### Patented Adaptive Control™ chiller controller

The combination of speed control and inlet guide vane position is optimized mathematically and controlled simultaneously to meet the dual requirements of water temperature control and efficiency.

Tracer AdaptiView™ AFD control reaches the optimum speed faster, responds to changes more quickly, and provides improved water temperature stability. The chiller controller reduces speed to the surge boundary based on the current differential operating pressure, making instantaneous corrections to speed and guide vane settings as conditions change, to optimize chiller efficiency.

## Remote (free-standing) AFD

The compact design of this AFD offers a flexible option for installation in mechanical rooms in which space is limited and a unit-mounted drive may not fit. The AFD is designed for front access only and ships completely factory-tested and wired.

The drive has a DC link choke that minimizes harmonic distortion and results in a Total Demand Distortion (TDD) of approximately 30%.

## Design information

**Tonnage range:** CenTraVac chillers, 120-1600 tons.

**Voltage:** 460/480V and 575/600V 60 Hz input power, ±10%.

**Efficiency:** Minimum efficiency of 97% at rated load.

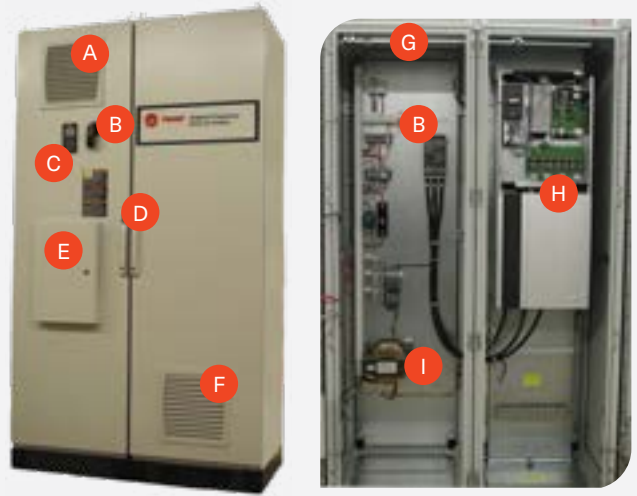
**Power factor:** Displacement power factor of 0.96 at all loads.

**Enclosure:** NEMA 1 ventilated enclosure<sup>1</sup> with tested short circuit current rating (SCCR) of 65,000 amps. Includes padlockable door-mounted circuit breaker/shunt trip with ampere interrupting capacity (AIC) rating of 65,000 amps.<sup>2</sup> The entire package is UL/CUL listed.

<sup>1</sup> option for NEMA 12 enclosure

<sup>2</sup> SCCR/AIC of 65,000 amps standard for 460/480V with option for 100,000 amps.

- A** Air Exhaust
- B** Circuit Breaker
- C** AFD Display Interface
- D** Lockable Enclosure
- E** Low Voltage Access Door
- F** Air Intake (filter on inside)
- G** Top Line Power Entry
- H** AFD Rectifier and Inverter (with top cover removed)
- I** Control Power Transformer



## Data Table

Frame	460/480V		575/600V		Dimensions (inches)			Estimated Weight (lbs.)
	Power (hp)	Max. Amps	Power (hp)	Max. Amps	Width	Depth	Height	
D3h	150-200	213	150-200	171	48	24	86	953
D4h	250-350	394	250-400	356	48	24	86	1158
	450	476			56	24	90	1292
E2	500-600	649	450	400	56	24	90	1634
			500-650	560	64	24	90	1681
F3	650-750	791	750-1050	840	127	24	90	2885
	900-1100	1031			127	24	90	2885
F4	1200-1350	1360	1150-1350	1120	150	24	90	3419

Weights and dimensions are provided for general information only. Always refer to the Trane submittal package for information specific to your chiller.



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](http://trane.com) or [tranetechnologies.com](http://tranetechnologies.com).