PRODUCT OVERVIEW



E-CLASS EVAPORATIVELY-COOLED CHILLERS



SMARDT

GLOBAL #1 IN OIL-FREE CHILLERS

E-Class Evaporatively-Cooled Chillers

The E-Class of chillers is Smardt's evaporatively-cooled chiller that utilize Smardt's oil-free chiller technology with Turbocor's TTS compressors and R134a refrigerant. E-Class Chillers are available from 45 to 530 TR (160 to 1860 kW) and can be supplied in multiple configurations, which Smardt can customize per the requirements of your application.



A Smardt E-Class Chiller

E-Class

Smardt has brought its extensive experience in oil-free chiller development, sales and service into designing the E-Class — an adiabatic chiller that deliver the highest level of reliability, outstanding efficiency and the lowest total cost of ownership.

E-Class chillers offer valuable benefits to owners and operators, such as ease of installation, simple streamlined operation and maintenance, and lower lifetime operating and maintenance costs. These advantages are the hallmark of Smardt chillers.

Oil-Free Operation

Smardt oil-free centrifugal chillers use magnetic bearings and a variable-speed drive to deliver IPLV efficiencies that far surpass those of conventional oil-lubricated centrifugal, reciprocating, scroll and screw chillers.

Smardt utilizes totally oil-free Turbocor compressor technology, achieving the highest part-load efficiencies for our chillers and chilled water systems (including water-, air- and evaporatively-cooled applications).

Proprietary magnetic bearings replace conventional oil-lubricated bearings. This eliminates the high friction losses, mechanical wear, and the higher-maintenance oil management systems that are inherent with conventional compressor designs.

Turbocor's primary moving part (the rotor shaft and impellers) is levitated during rotation by a digitally controlled magnetic bearing system. Position sensors at each magnetic bearing provide real-time feedback to the bearing control system, 120 times each revolution, ensuring constantly centered rotation.

The result is oil-free operation that delivers significant chiller energy savings compared with standard chillers, and provides an extended service life without the efficiency decrease seen in oil-based systems.

Global Number One

Smardt is the industry leader in oil-free centrifugal chillers. Smardt pioneered oil-free centrifugal compressor technology to provide plant owners and operators a line of chillers that broke through industry norms of lifetime performance, energy conservation (reducing operating expenses), streamlined maintenace, and ease of operation.

From our first oil-free centrifugal chiller in 2002, almost 10,000 Smardt chillers, from 60 TR up to 3200 TR, are now saving money, energy and CO_2 emissions across the globe.

E-Class Evaporatively-Cooled Chillers

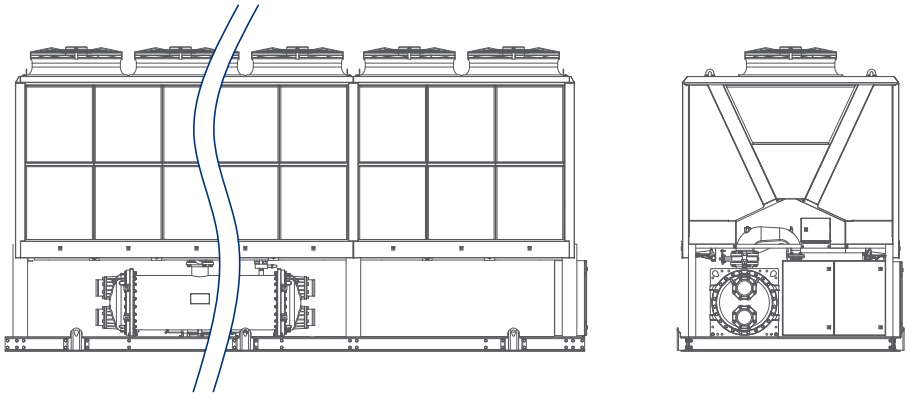








E-Class Evaporatively-Cooled Chillers



Front and side views of a Smardt E-Class EB Series chiller

Adiabatic Operation

The E-Class chiller is Smardt's adiabatic cooling system. Cross-fluted evaporative pads are situated on the outside of the coils. Separated from the coil surface, these pads are designed to be saturated with treated water, and the pads also provide protection for the coils. Air drawn through the wetted pads is precooled approximately 20-25 degrees before coming in contact with the coil surface, making the E-Class about 20% more efficient than an air-cooled chiller at full load.

Better or equal performance can be reached with lower energy consumption.

Low Water Consumption

While Smardt's E-Class chiller can precool the air before it contacts the coil, it also conserves water—especially when compared to a cooling tower's water consumption. The E-Class chiller will only activate its evaporative system when needed. During low ambient conditions, its condenser automatically switches off this evaporative system. When cooling towers support a water-cooled chiller, the cooling tower operates year-round shedding its entire heat load and consuming significantly more water.

But as with cooling towers, Smardt's E-Class chiller does require water treatment.

Turbocor TTS Compressor

E-Class chillers can be equipped with Turbocor TTS oil-free compressors. Turbocor TTS compressors boast outstanding full-load efficiencies. VFDs are built-in, and drives are external to the machine, cooled primarily by air. These oil-free compressors have low-sound output and use environmentally friendly R134a refrigerant.



TTS Compressor

Extended Service Life

The E-Class chiller is designed for a service life of 25 years.

Chiller Options

Options for Smardt's E-Class chillers include our integrated pump packages, economizer, thermosyphon free cooling, Smardt Lift, and Smardt Restart.

Smardt Lift enables chiller operation at full load with enhanced efficiencies when supplying chilled water at temperatures that are close to the ambient temperature. This is extremely beneficial in both high temperature chilled water applications or in seasonal operation when the ambient temperature is similar to the design chilled water conditions.

Smardt Restart ensures that in the event of a power failure, your Smardt chiller is back on line as quickly as 20 seconds. Chilled water supply for critical applications is not impacted by intermettent power loss, eliminating the need for additional thermal storage. The start-up mode includes additional motor and surge protection.

Applications

Energy conscious plant owners and operators want optimized performance with savings over the life of the chiller. Smardt's E-Class chillers support critical-load applications in a variety of markets, including commercial, data center, pharmaceutical, hospital, higher education, district cooling, hotels, malls, and manufacturing.

Highlights

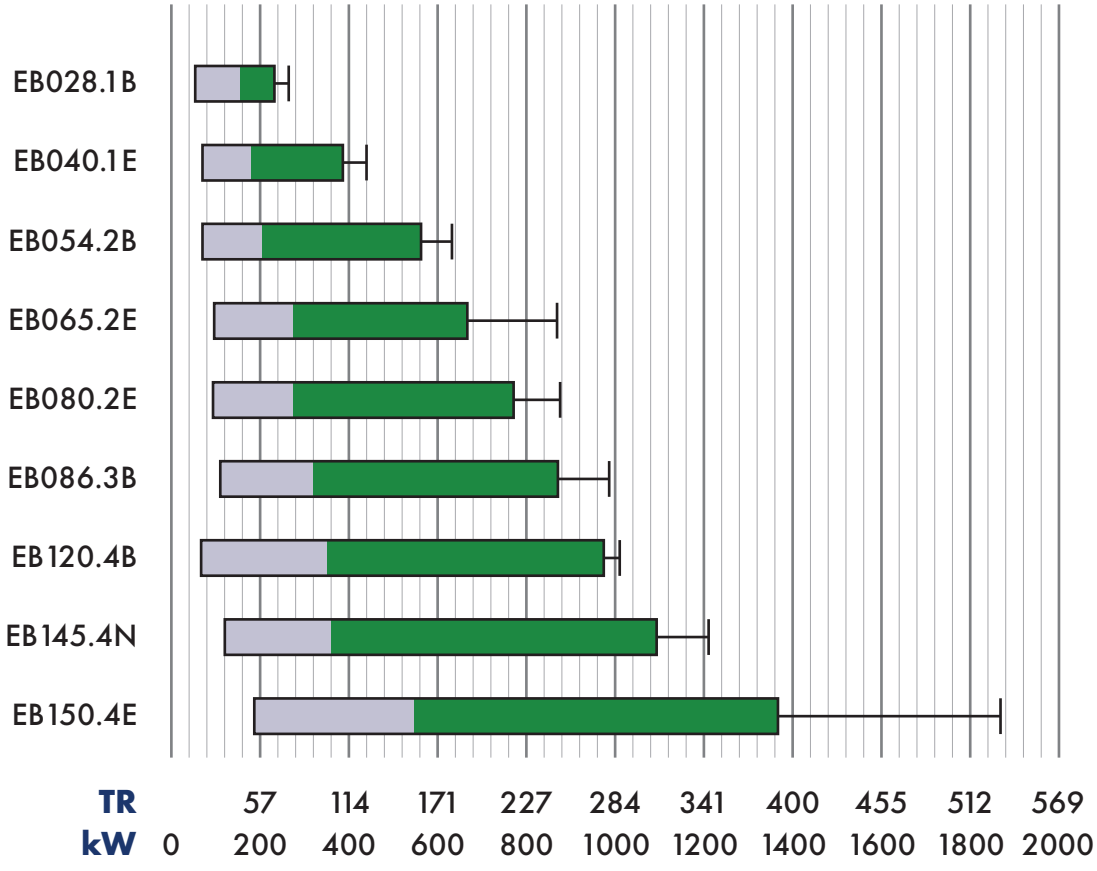
- Water-cooled adiabatic efficiency when needed.
- Low water consumption.
- Ideal for dry climates.
- Typically smaller footprint than chillers of comparable capacity.
- Electronically commutated (EC) condenser fans standard.
- Designed for ease of maintenance and serviceability, featuring field-serviceable compressors.
- Responsive chilled water control under all conditions.
- Smardt quality, acceptance tested and pre-commissioned prior to delivery ensuring trouble-free commissioning and start-up on every project.

E-Class Evaporatively-Cooled Chillers

Smardt's E-Class Evaporatively-Cooled Chillers with full-load capacities of units with R134a refrigerant, range from 45 to 530 TR (160 to 1860 kW)

Representative Models

Smardt can customize your E-Class chiller to meet your project's needs and specifications. The models included in this capacity chart are considered representative of the E-Class, but selection is not limited to to these specific models. Your Smardt representative can provide capacity data for your project.



Cooling Capacity TR (kW)



Note: Available cooling capacity will vary with operating conditions and chiller configuration. Capacities shown are based on standard AHRI conditions.

Model Number Nomenclature

