

# PRODUCT OVERVIEW



## T-CLASS WATER-COOLED CHILLERS



**SMARTD**  
GLOBAL #1 IN OIL-FREE CHILLERS

## T-Class Water-Cooled Chillers

Smardt's T-Class of chillers utilize Smardt's oil-free chiller technology with Turbocor's TTS compressors using R134a refrigerant. T-Class Water-Cooled Chillers are available from 45 to 1600 TR (160 to 5625 kW) and can be supplied in multiple configurations, which Smardt can customize per the requirements of your application.



**A Smardt T-Class water-cooled chiller equipped with two Turbocor TTS compressors**

### T-Class Chillers

Smardt has brought its extensive experience in oil-free chiller development, sales and service into designing the T-Class — a range of water-cooled chillers that deliver the highest level of reliability, outstanding efficiency and the lowest total cost of ownership.

T-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.

Your requirements for capacity, configuration, and turndown performance will help your Smardt representative assist with determining the best product fit for your project.

### 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

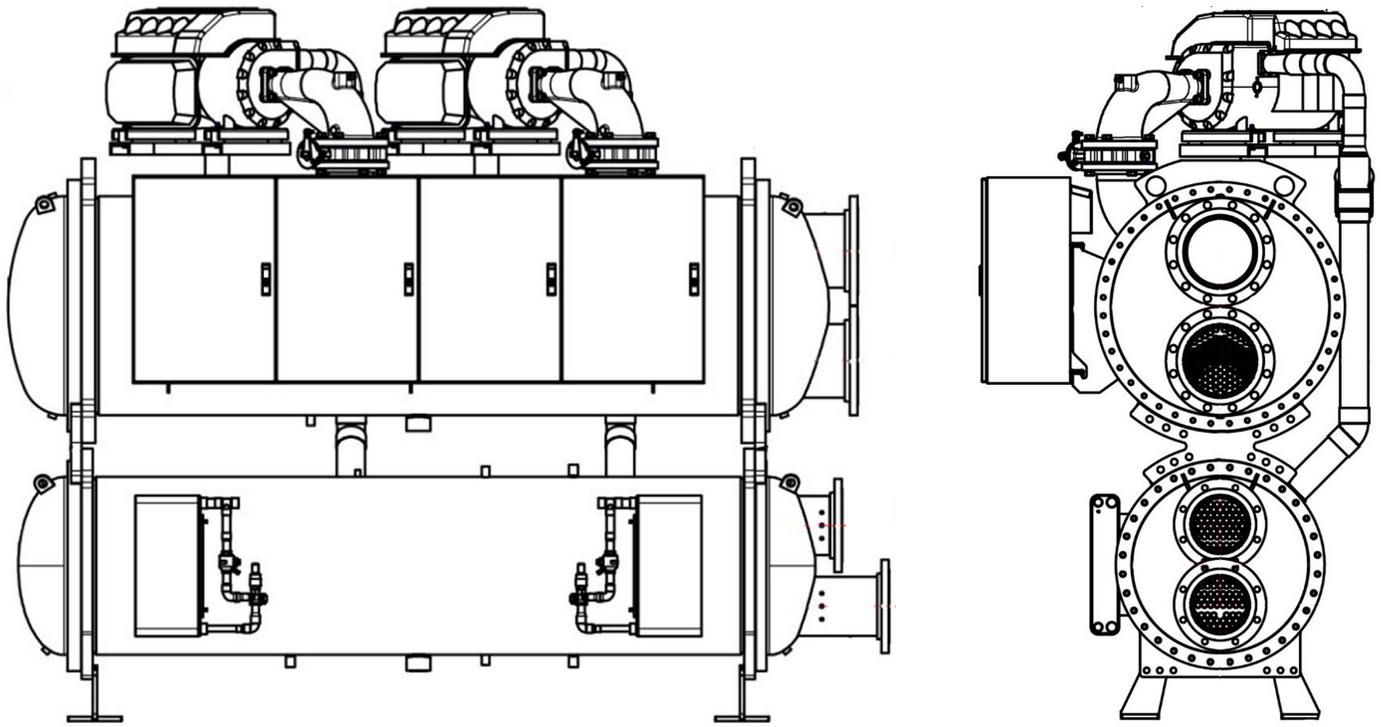
Smardt is the industry leader in oil-free centrifugal chillers. Smardt pioneered oil-free centrifugal compressor technology to provide plant owners and operators a line of chillers that broke through industry norms of lifetime performance, energy conservation (reducing operating expenses), streamlined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

Since our first oil-free centrifugal chiller in 2002, more than 10,000 Smardt chillers, ranging from 60 TR up to 3200 TR, are now saving money, energy and CO<sub>2</sub> emissions across the globe.

# T-Class Water-Cooled Chillers



# T-Class Water-Cooled Chillers



Side and front views of a Smardt T-Class water-cooled chiller customized in a stacked (narrow) configuration to fit a smaller footprint within a plant room

## Turbocor TTS Compressor

T-Class chillers can be equipped with up to eight Turbocor TTS oil-free compressors. VFDs are built-in, and drives are internal to the machine. These oil-free compressors have low-sound output and use R134a or R513A refrigerants.\* For R513A chiller solutions, please see Smardt's G-Class chillers.

## Extended Service Life

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



TTS Compressor

## Multiple Configurations

Smardt can configure your T-Class chiller to fit any footprint or height restriction, with multiple barrel configurations available (see illustration on page 5).

## Chiller Options

Options for Smardt's T-Class chillers include our integrated pump packages, economizer, 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 intermittent power loss, eliminating the need for additional thermal storage. The start-up mode includes additional motor and surge protection.

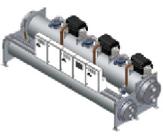
## Applications

Energy conscious plant owners and operators want optimized performance with savings over the life of the chiller. Smardt's T-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.

\*The Danfoss Turbocor TTS compressor can use R134a or R513A refrigerants. A Smardt T-Class chiller using R513A effectively becomes a G-class chiller.

# T-Class Water-Cooled Chillers

## Smardt Chiller Barrel Configuration Options

Standard Configuration	Configuration Options for Dimensional Considerations			Additional Options for Special Requirements
<b>Narrow</b>  1-8 compressors <ul style="list-style-type: none"> <li>Stacked orientation</li> <li>Slim design</li> </ul>	<b>Side-by-Side</b>  1-8 compressors <ul style="list-style-type: none"> <li>Barrels beside each other</li> <li>For short and wide layouts</li> <li>Panels mounted above condenser barrel</li> </ul>	<b>Low Profile</b>  1-8 compressors <ul style="list-style-type: none"> <li>Condenser on top</li> <li>For height-restrictive projects</li> </ul>	<b>Fat Max</b>  1-8 compressors <ul style="list-style-type: none"> <li>Larger-diameter barrels</li> <li>Staggered compressor orientation</li> <li>Shorter length</li> </ul>	<b>Compact - Modular</b>  1-8 compressor <ul style="list-style-type: none"> <li>For tight fits</li> <li>Can be modular</li> <li>Dimensioned to fit through elevators and doors</li> </ul>

## Plant Room Access Options

Configuration Options for Plant Room Access Considerations	
<b>Knocked-Down Kit</b>  1-8 compressors <ul style="list-style-type: none"> <li>Fully-built chiller tested at factory</li> <li>Disassembly of components: compressors, control panel, and even complete disassembly if needed</li> </ul>	<b>Split Barrel</b>  1-8 compressors <ul style="list-style-type: none"> <li>Ideal for applications with limited plant room area</li> </ul>

Smardt T-Class Water-Cooled Chillers offer barrel configuration flexibility for applications with restricted footprints or access challenges

## Highlights

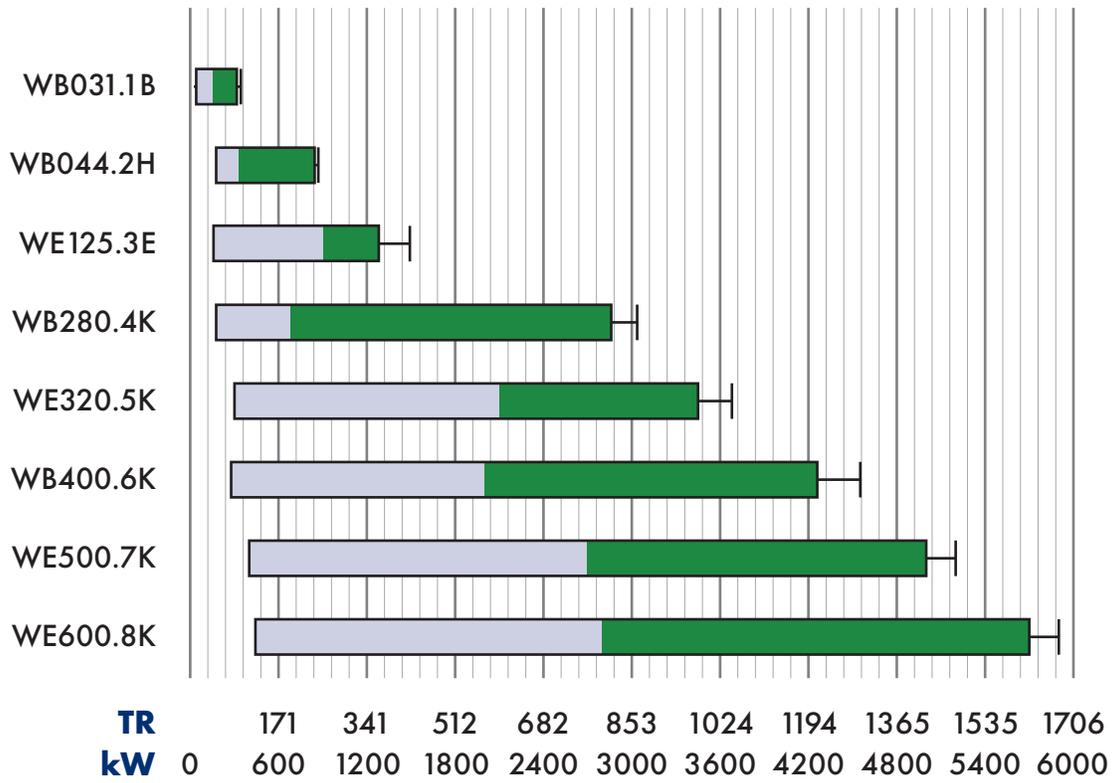
- Class leading part-load efficiencies, achieving optimum IPLV in total capacity range.
- Typically smaller footprint than chillers of comparable capacity.
- Responsive chilled water control under all conditions.
- Inbuilt redundancy with multiple compressors.
- Designed for ease of maintenance and serviceability, featuring field-serviceable compressors.
- Smardt quality, acceptance tested and pre-commissioned prior to delivery ensuring trouble-free commissioning and start-up on every project.

# T-Class Water-Cooled Chillers

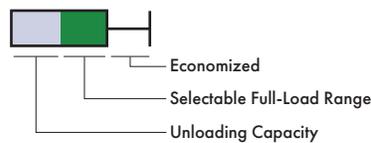
Smardt's T-Class Water-Cooled Chillers with full-load capacities of units with R134a refrigerant, range from 45 to 1600 TR (160 to 5625 kW)

## Representative Models

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



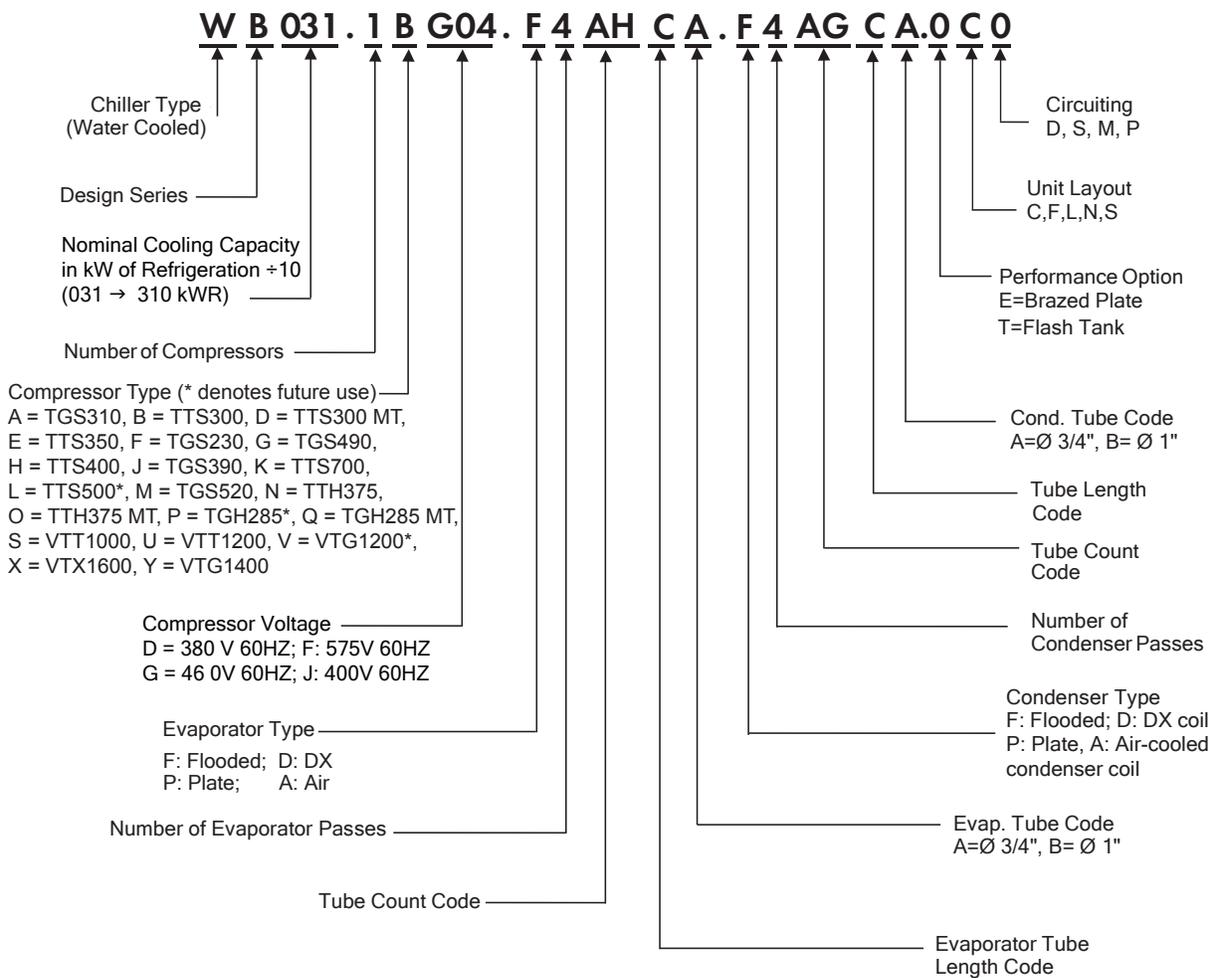
### Cooling Capacity TR (kW)



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

# T-Class Water-Cooled Chillers

## Model Number Nomenclature



## Global reach, single focus

Smardt is both the pioneer and world-leader in oil-free centrifugal chillers, with production facilities in Canada (Montreal area), Australia (Melbourne area), United States (Plattsburgh, New York), Germany (Stuttgart area), and China (Guangzhou and Nanjing).

Smardt service networks extend across the globe to monitor and support the world's largest installed base of oil-free high-efficiency chillers, with more than 10000 chillers installed globally.



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