

# PRODUCT OVERVIEW



## G-CLASS AIR-COOLED CHILLERS

AE Design Series



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

## G-Class Air-Cooled Chillers

Smardt's G-Class of chillers is distinguished by its use of environmentally-friendly refrigerants having ultra-low GWP ratings. Smardt's G-Class Air-Cooled AE Design Series Chillers are equipped with Turbocor's TGS oil-free magnetic bearing compressors. G-Class AE Design Series Chillers are available from 30 to 520 TR (105 to 1830 kW) and can be supplied in multiple configurations, which Smardt can customize per the requirements of your application.



A Smardt G-Class AE Design Series chiller

### G-Class AE Design Series

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

G-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

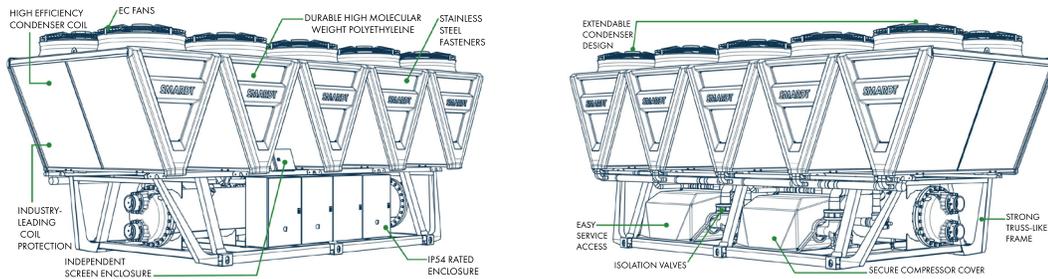
Smardt is the industry leader in oil-free centrifugal chillers. Smardt pioneered oil-free centrifugal compressor technology to provide plant owners and operators a line of chillers that broke through industry norms of lifetime performance, energy conservation (reducing operating expenses), streamlined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

# G-Class Air-Cooled Chillers, AE Design Series



# G-Class Air-Cooled Chillers, AE Design Series



Side and front views of a Smardt G-Class AE Design Series chiller

## Commitment to Environment

Smardt's commitment to the environment is fundamental to our chiller engineering and design, and is manifest in our company and in our products. Smardt played a vital role in the innovation and development of oil-free compressor technology, and we engineered chillers that leveraged that oil-free technology. We develop true optimization systems that enable plants to operate in the most energy-efficient and effective manner possible. And Smardt's environmental commitment extends to supporting evolving refrigerant policies across the globe.

## Turbocor TGS Compressor

The TGS is from Turbocor's "green" range of compressors, so-named because they use next-generation refrigerants. The TGS can operate with R1234ze (GWP <1), and R515B (GWP is 299).\*

Smardt's G-Class chillers can be equipped with up to four Turbocor TGS oil-free compressors. VFDs are built-in, and drives are internal to the machine. As with all oil-free compressors, the TGS

features reduced vibration and quiet operation (up to 8dBA lower than screw compressors) — ideal for noise-sensitive applications.

## Innovative Base Frame

Smardt's G-Class AE series chillers sit atop a newly design base frame that provides the G-Class chiller with the industry's smallest footprint for air-cooled chillers. This stainless steel space-frame type design is specially engineered and designed to be a rigid, lightweight platform for the G-Class chiller.

## Extended Service Life

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

## Applications

Energy conscious plant owners and operators want optimized performance with savings over the life of the chiller. Smardt's G-Class AE series 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

- Uses environmentally-friendly refrigerants having low-GWP ratings.
- Class leading part-load efficiencies, achieving optimum IPLV in total capacity range.
- Typically smaller footprint than chillers of comparable capacity.
- Advanced corrosion protection on critical operating surface areas for base frame and coils.
- Quiet ECM fans on all units.
- Adaptable by design - a base range with options to suit any air-cooled application.
- Smardt's robust casing protects the condenser coils from the elements.
- 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 startup ensuring trouble-free commissioning and start-up on every project.



TGS Compressor

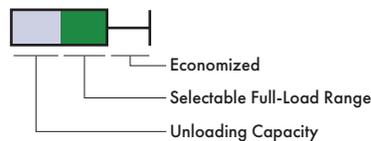
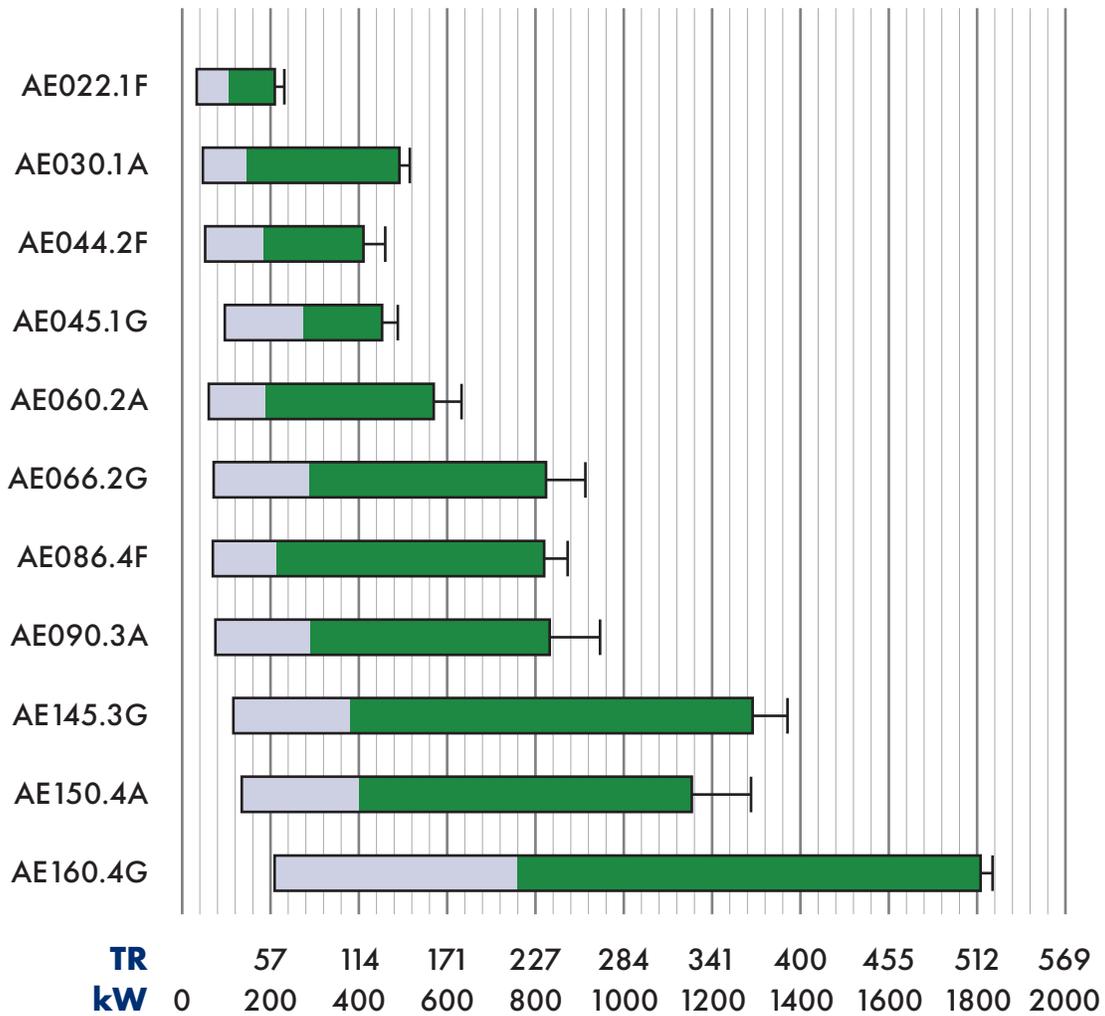
\*Smardt G-Class air-cooled chillers can use R1234ze, R515B, or R513A refrigerants. R513A requires the Danfoss Turbocor TTS compressor.

# G-Class Air-Cooled Chillers, AE Design Series

Smardt's G-Class Air-Cooled Chillers, AE Design Series with full-load capacities of units with R1234ze refrigerant, range from 30 to 520 TR (105 to 1830 kW)

## Representative Models

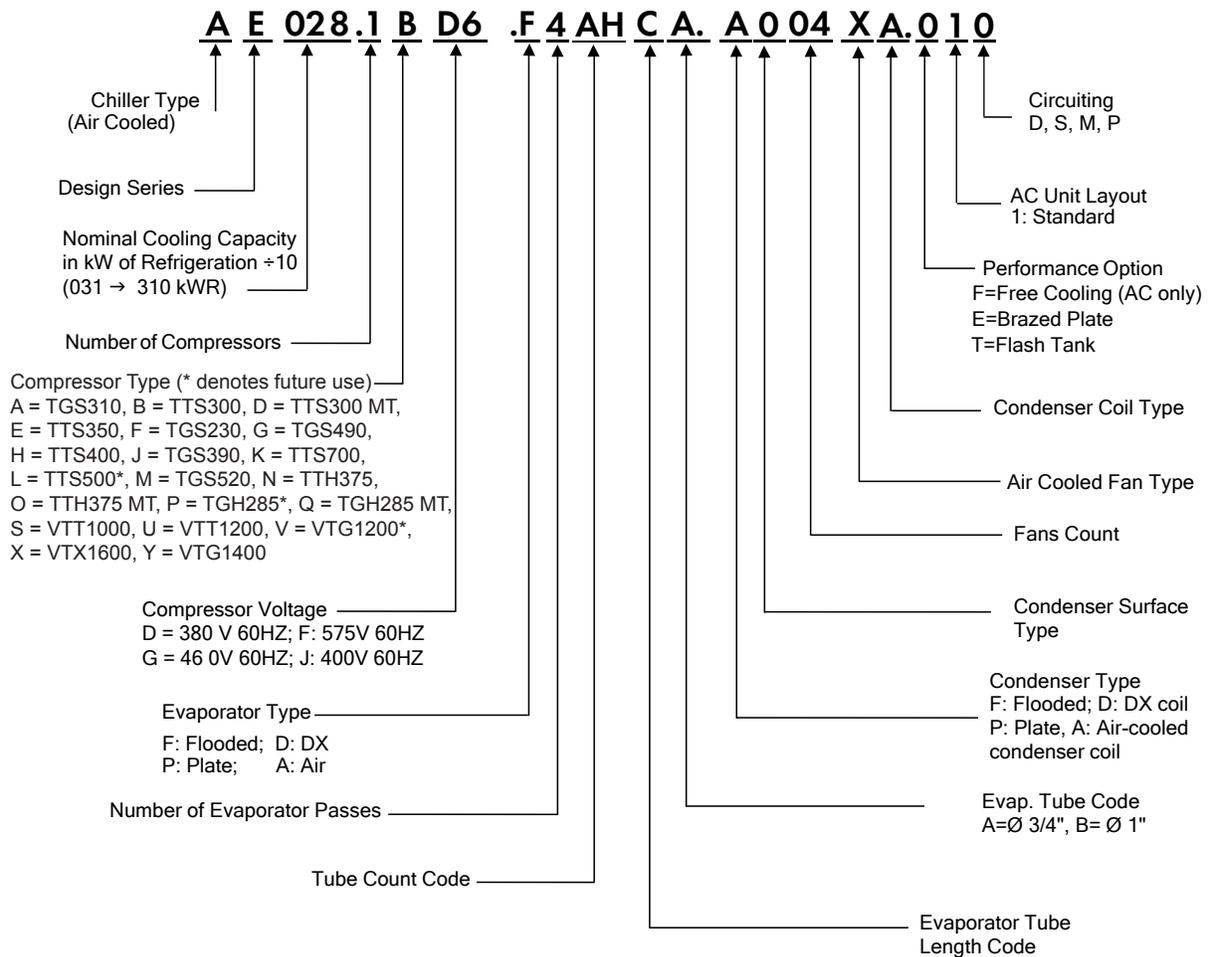
Smardt can customize your G-Class AE Design Series chiller to meet your project's needs and specifications. The models included in this capacity chart are considered representative of the G-Class AE Design Series, but selection is not limited to these specific models or refrigerants. Your Smardt representative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



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

# G-Class Air-Cooled Chillers, AE Design Series

## 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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