



BLUE STAR



Water Cooled Brine Chiller  
**Reliability built on eight  
decades of experience.**

Blue Star, India's largest central air conditioning company, has been providing expert HVACR solutions for eight decades now. As a leader in the industry, the company has always been at the forefront of bringing new and innovative products into the market. Now they're proud to introduce another innovative product range to the Indian market; the Brine Chiller series. A first-of-its-kind in the country, this new series offers the highest reliability and operating efficiency in chillers of this class, thus ensuring excellent power savings and a high return on investment.

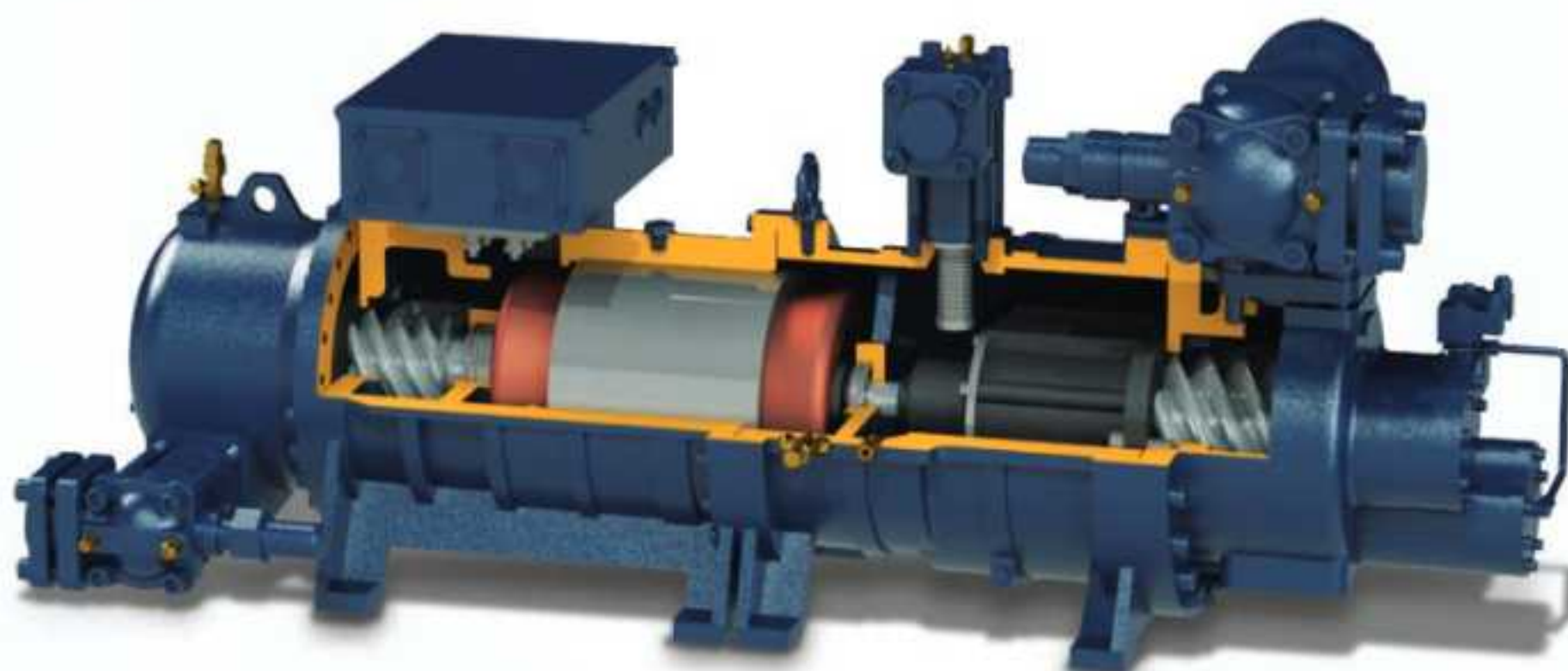


Manufactured at Blue Star's world-class ISO-9001 certified factory at Wada, Maharashtra, this new range of brine chillers has several features that have rarely been seen in this class of chillers: a high degree of reliability, application versatility, energy-efficiency, precision temperature control, ease of installation and operational cost effectiveness.

## Two-stage Four Rotor Semi-hermetic Compressors

Blue Star's new range of brine chillers is designed for use at extremely low temperatures and therefore needs to be very reliable. Since any loss in cooling will significantly impact the processes or the conditions, it is imperative that the chiller, especially the compressor, which is the heart, is robust and completely dependable.

- Two rotors on either side of the common compressor shaft ensure both radial and axial stability while running at high speeds
- Reduced and uniform loading on the compressor shafts is ensured by distribution of the cooling load across two stages, thus extending the compressor's life
- Economiser ensures intercooling between two stages and brings down the discharge temperature and overall load on the compressor
- Multi-stage oil separation with up to 99% efficiency ensures that the oil does not thicken at low brine temperatures, thus providing fool-proof lubrication
- Refrigerant-cooled oil cooler not only ensures effective oil cooling but also eliminates the problem of scaling of surfaces which is common in water cooled oil coolers

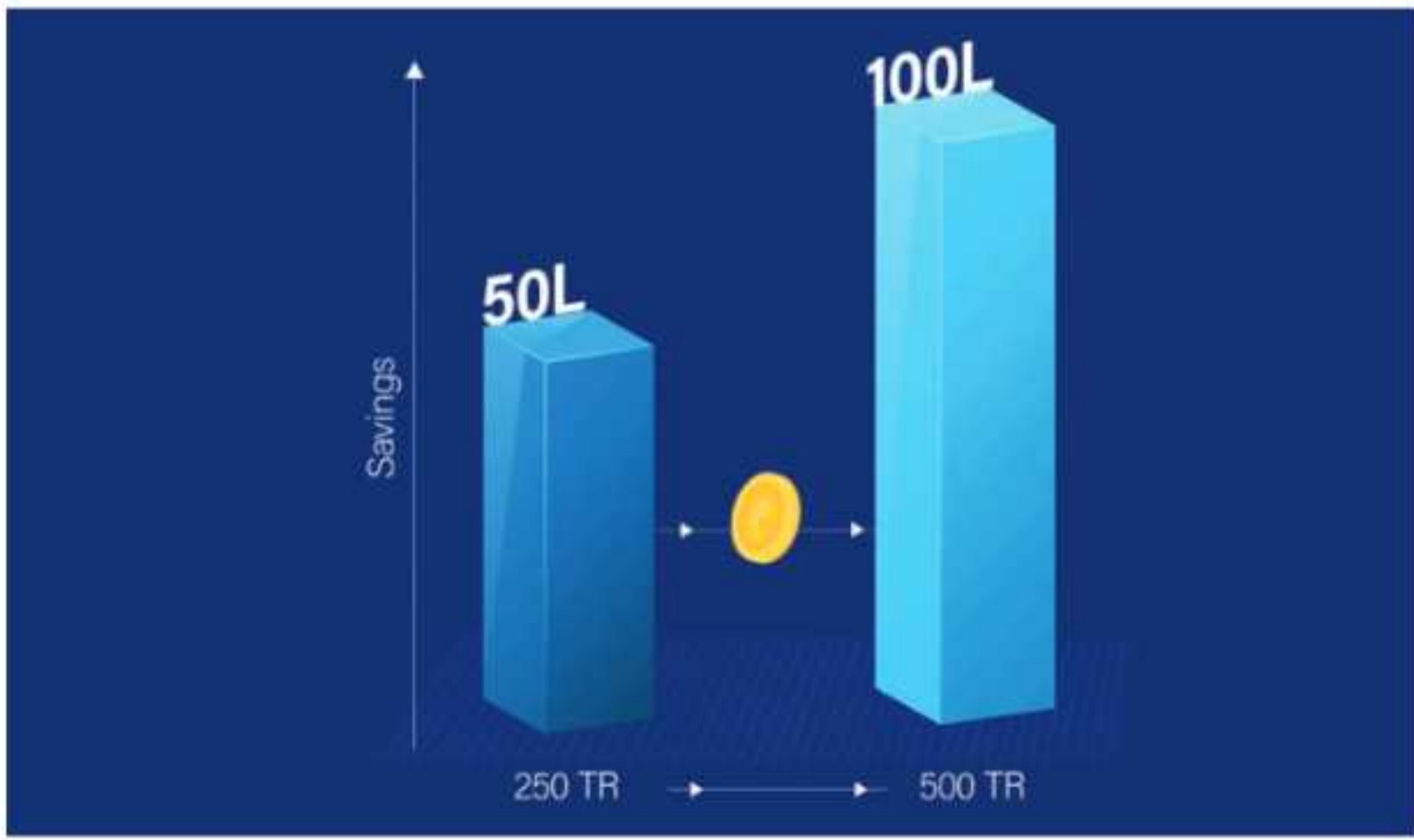


# Unique Benefits of the new Brine Chiller Series

## Return on Investment within one year

Blue Star's new brine chiller series is designed with highly efficient double-stage semi-hermetic screw compressors, inner grooved and externally finned coolers and condensers, along with advanced controllers, to provide excellent power savings compared to conventional brine chillers.

The return on investment occurs in less than one year in applications where the chiller operates at least 10 hours a day, for 350 days a year. The savings increase further as operational hours increase, like in the case of industries, hotels, hospitals where work typically happens for longer hours every day.



## Designed for stringent Indian conditions

Blue Star's new range of brine chillers is designed specifically for the tough ambient conditions that are typical to India. Blue Star chillers excel in high temperatures and rise inlet water temperatures, ensuring high efficiency and sustainable cooling solutions.

## 100% capacity - no deration

All the components used in the new brine chiller range, including compressors, coolers and condensers, have been optimised for the 32°C condensor water temperature that prevails in India. This means that the cooling capacity delivered by the chillers will be 100% without any deration when installed at the site.



## Highest efficiency in Indian conditions

Critical components like compressors, motors and heat exchangers have been rated and sized to perform in tough Indian ambient conditions thereby ensuring that the new chiller range consumes the lowest power and delivers the highest efficiency in the industry.



# Other exclusive features of the new Blue Star Brine Chiller Range

## Live display option of power consumption and capacity

Unlike chillers with positive chilled water temperatures, which can be performance-tested as per AHRI guidelines, low temperature brine chillers, which are not under the scope of the AHRI, cannot be performance-validated using test benches.



In order to ensure that the user can validate the committed performance and efficiency of these chillers, the new Blue Star brine chiller series is provided with advanced controllers that can display the capacity (TR) and chiller power consumption (kW) in real time. This unique feature not only enables users to validate the capacity and efficiency of each chiller but also helps optimise performance based on past data available in the controller.

## Live display option of brine concentration

Brine concentration plays a significant role in achieving the designed capacity and efficiency of a brine chiller. Any change in the concentration, which can occur over a few months, can impact chiller performance adversely.

The new Blue Star range of brine chillers is provided with sophisticated controllers which display the live brine concentration data with the help of accurate sensors mounted on the chilled brine pipeline. Users can therefore easily detect any change in the concentration and take corrective action to maintain intended chiller performance.



### Precise chilled brine temperature

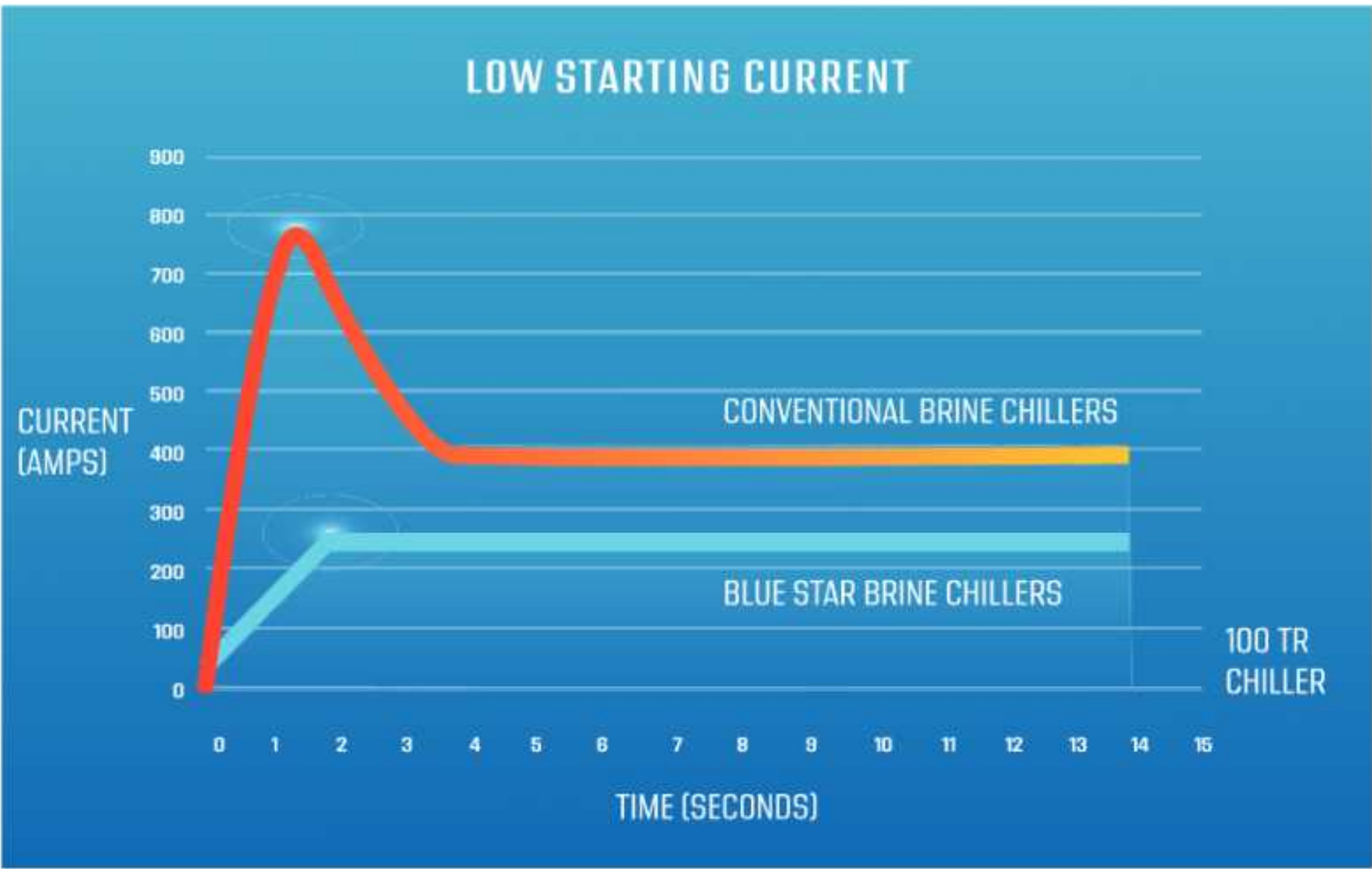
Brine chillers are widely used in critical applications like process cooling where design conditions must be maintained precisely to achieve the desired output. Conventional chillers can maintain temperature within a  $\pm 0.5^{\circ}\text{C}$  range. However, even that is too large a tolerance band for many sensitive applications.

The advanced controller of Blue Star's new brine chiller series enables precise chilled brine Temperature control within  $\pm 0.1^{\circ}\text{C}$ . This helps maintain required chilled water temperature within the tolerances of even the most sensitive applications.



### Lowest starting current

Blue Star's new brine chiller series comes with the option of using VFD starters. The use of VFD starters can reduce the starting current to equal or less than the full load current, as the compressor will start in unloaded condition. This significantly helps in downsizing electrical switchgear and DG sets used for power backup.



### Wide range

The Blue Star brine chiller series is available in a wide range of models with tonnage from 50 to 150TR.

### Rapid cooling

Brine chillers are widely used in industrial, pharmaceutical and process cooling applications which require cooling conditions to be achieved quickly once the chillers are started.

Conventional chillers take approximately 15 minutes to reach their full capacity. This can significantly impact process cooling requirements. Our new brine range of screw chillers is equipped with a sophisticated controller that has a unique rapid cool mode which enables it to reach full capacity within 5 minutes. This helps bring down the chilled water temperature to required levels within a short span of time.



### Quick restart

Brine chillers are required to resume running quickly when power fails and resumes. This is required to ensure minimum break in maintenance of cooling conditions of any process. Conventional chillers take approximately 15 to 20 minutes to restart after power resumption, which can significantly impact process cooling conditions.

Blue Star's new brine chiller series is equipped with a controller that offers a quick restart option. This feature enables the chiller to restart within 2 minutes of power resumption, thereby bringing down the brine temperature to desired levels as soon as possible.



### Wide operating range

Our new brine chiller series can be operated across a wide range of chilled brine outlet temperatures from -20°C to 10°C. This unique feature offers the flexibility to operate these chillers in a wide spectrum of applications that need different cooling requirements.



### Energy optimisation option

Our new brine chiller range is equipped with advanced controllers that dynamically modulate the chiller based on the trends indicated by historic data stored in the controller. This unique feature enables the chiller to deliver optimum capacity and performance at all times and deliver the following benefits:

- Optimises the chiller operation to run at high efficiency at all times
- Helps in projects where there is restriction on the maximum power drawn by the chillers



### BMS compatibility

Blue Star's new range of brine chillers is equipped with BMS compatible microprocessor control that allows the chiller to be operated through a central Building Management System.



### Touch screen option

The controller of this new brine chiller range has an elegant touch screen with a back lit display, that helps in easy operation of the unit and also provides a user-friendly graphical interface to access various parameters.



### Quick and easy installation

These new brine chillers are fully charged, pre-wired and run-tested comprehensively at Blue Star's factory prior to dispatch. The chillers are also provided with Victaulic coupling as a standard feature. This enables users to install the chillers without delay, thus reducing installation time. This also avoids the impact on performance that happens when refrigerant is charged manually at site, as is the case in most conventional chillers.

### ASME stamp option



This new range of brine chillers is available with the option for ASME stamping of the evaporator for additional mechanical safety.

## Notes

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