Water Cooled Screw Chillers Configured Series.

The freedom to customise as per your need.
Blue Star, India’s largest central air conditioning company has been providing expert cooling solutions for over seven decades now. As a leader in the industry, it has been manufacturing a wide range of scroll, screw and centrifugal chillers that provide cool comfort in airports, green buildings, hotels, malls, offices, industries, etc.

Based on its continued thrust for research and product development, Blue Star has launched a new state-of-the-art configured series of AHRI-certified water cooled screw chillers. These chillers provide application versatility, energy efficiency, control precision, reliability, ease of installation and operational cost effectiveness. The chillers are designed to deliver proven performance plus a host of other benefits required for industrial and commercial applications.

**Water Cooled Screw Chillers**

The new Configured Screw Chiller series is manufactured at Blue Star’s ISO 9001 certified factory with the chiller test bench certified by the Air-Conditioning, Heating and Refrigeration Institute (AHRI). The chillers are designed to deliver better efficiencies even at high condenser water temperature and moderate water quality.

**Made in India. Made for India.**
Wide Capacity Range

The chillers are offered in a wide range of capacities from 80TR to 450TR with single/twin compressors. The performance is fully validated by AHRI for all the models. The number of passes across cooler and condenser can be modified to suit the capacity, pressure drop and efficiency. The chillers operate at 415V, 50Hz on a 3-phase power supply.

Single Compressor Range:
The Single Compressor range is available from 80TR to 235TR.

Range: 80 - 235TR

Double Compressor Range:
The double compressor range is available from 160TR to 450TR.

Range: 160 - 450TR
Project-Specific Chiller Design

The new Blue Star Configured Screw Chiller series can be selected based on Project specific requirement. Unlike the conventional chillers, Blue Star’s latest screw chillers are not limited to select capacity models. The configured chillers have an exhaustive range of coolers, condensers and compressors which offers flexibility to select chillers based on varied needs of customers like:

- Capacity
- Energy efficiency
- Pressure drops
- Flow rates
- Dimensions
High Energy Efficiency

The new Blue Star Configured Screw Chiller series is designed for high performance both at full load and part load. This series comes with:

- high efficiency semi-hermetic twin screw compressors.

- electronic expansion device to help in improved utilisation of the evaporator heat exchange surface and also to aid in lowering the condensing pressure for precise capacity control.

- the flooded evaporator and condenser design to reduce the temperature gradient between the refrigerant and water, and to improve the chiller efficiency.

- the exceptional COP and IPLV values exceed the national and international energy norms like ECBC and ASHRAE 90.1.

### ECBC VALUES

<table>
<thead>
<tr>
<th>Chiller type</th>
<th>Capacity</th>
<th>COP</th>
<th>IPLV</th>
</tr>
</thead>
<tbody>
<tr>
<td>WC Screw/Scroll</td>
<td>&lt;150TR</td>
<td>4.70</td>
<td>5.49</td>
</tr>
<tr>
<td>WC Screw/Scroll</td>
<td>150 to 300TR</td>
<td>5.40</td>
<td>6.17</td>
</tr>
<tr>
<td>WC Screw/Scroll</td>
<td>&gt;300TR</td>
<td>5.75</td>
<td>6.43</td>
</tr>
</tbody>
</table>

### ASHRAE 90.1.2015

<table>
<thead>
<tr>
<th>Capacity range</th>
<th>Path A (kw/tr)</th>
<th>Path B (kw/tr)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>COP</td>
<td>IPLV</td>
</tr>
<tr>
<td>&gt; 75TR</td>
<td>0.75</td>
<td>0.6</td>
</tr>
<tr>
<td>75-150TR</td>
<td>0.72</td>
<td>0.56</td>
</tr>
<tr>
<td>150-300TR</td>
<td>0.66</td>
<td>0.54</td>
</tr>
<tr>
<td>300-600TR</td>
<td>0.61</td>
<td>0.52</td>
</tr>
</tbody>
</table>

*Efficiency of the new series are better than the above values.
Chillers Designed for Green Building

Green buildings are environmentally sustainable and designed, constructed and operated to minimise any adverse impact to the environment.

An air conditioning system consumes about 40% of the annual building energy. Therefore selection of the right air conditioning system is one of the main aspects to consider while designing a green building.

The choice of Heating, Ventilation and Air Conditioning (HVAC) products can have a significant impact on LEED certification as it can influence 40% of the available points.

[Diagram showing LEED points distribution]

80-100 points
Platinum

60-79 points
Gold

50-59 points
Silver

40-49 points
Certified

100 possible LEED points

Overview of LEED for new construction and major renovations

- **Regional priority (4 points)**
- **Energy & Atmosphere (35 points)**
  - HVAC contribution 26 of 35 points
- **Sustainable site (25 points)**
- **Innovation & Design process (6 points)**
- **Material & Resources (14 points)**
- **Water efficiency (10 points)**
- **Indoor environmental quality (15 points)**

[Diagram showing LEED certification levels and points distribution]
EA prerequisite 2: Minimum Energy Performance

The chillers shall meet the energy efficiency requirements of ASHRAE 90.1.

EA prerequisite 3: Fundamental Refrigerant Management

The chillers shall not use Chlorofluorocarbon (CFC) refrigerants.

EA credit 4: Enhanced Refrigerant Management

LEED awards the systems that minimise the Ozone Depletion Potential (ODP) and Global Warming Potential (GWP).

EA credit 1: Optimised Energy Performance

One section for this credit requires the energy cost reduction exceeding the ASHRAE 90.1 minimum table beyond EA prerequisite 2.

* The new series of chillers shall meet all the above criteria.
High Reliability

The chillers are equipped with twin rotor screw compressors with advanced 5-6 patented profiles for optimum modulation of volumetric ratios at all operating conditions of the chiller and have several other advantages.

- Separate radial and axial force bearings enhance the chiller’s life.

- **Unlike a mono screw, there is no direct contact between the gate rotor and main rotor, which eliminates wearing out of rotors.**

- Advanced control algorithm prevents excessive compressor cycling.

- Automatic compressor unloading in case of abnormally high condensing pressure or discharge temperature and abnormally low suction pressure.

- Simulation tools are employed for the design of critical components including mounting joints, lifting lugs etc.
Simple and Fast Installation

The new Blue Star Configured Screw Chiller series is compact and suited for easy and quick installation. The innovative construction design has the following advantages:

- Chiller with 1.2m width can pass through standard door opening and requires minimum floor space in plant room.

- Simple electrical connections including easily accessible main disconnect switch.

- Victaulic connections on the evaporator and condenser.

- Practical reference marks for entering and leaving water connections.

- Possibility to reverse the heat exchanger water inlet and outlet at the factory.

- Systematic factory operation test before shipment.

- All compressor components are easily accessible on-site, minimising down-time.

- Discharge line shut-off valve and liquid line service valve for easy maintenance.
AHRI Certification for Chillers

The new Blue Star Configured Screw Chiller series is manufactured at the company’s own state-of-the-art ISO 9001 factory. The chiller range is certified by the international rating body – the Air-Conditioning, Heating and Refrigeration Institute (AHRI). Blue Star has India’s only precision testing facility certified by AHRI to test and rate all the chillers manufactured by it.

Internationally, AHRI-certified test facilities for water cooled screw chillers are in the range above 200TR. However, AHRI has recently announced a voluntary certification program for the sub 200TR range.

Blue Star has volunteered to get the entire screw chiller range tested and certified by AHRI for both full and part load operations. The new Blue Star Configured Screw Chiller series, from 80TR to 450TR, are fully certified by AHRI for the performance of chillers.
Environment-friendly

R-134A is recognised as the most environment-friendly refrigerant, which causes no damage to the atmospheric ozone layer. The new chillers series with R-134A refrigerant are designed with a leak light refrigerant circuit completely avoiding the capilary tubes and flare connections with R134 refrigerant.

Compact and Light-weight

Critical parts like compressors, coolers, condensers etc., of these new generation configured screw chillers, are not only efficient but also compact. This makes the chiller compact. These chillers are as much as 30-50% lesser in size and weight compared to a conventional chiller. Their compact design helps to free up valuable floor space as well.

Lower Noise and Vibration

The chillers are with the advanced design semi-hermetic compressor that has a lower noise level and better vibration efficiencies as per ASHRAE.

Economiser

The Configured Screw Chiller series is equipped with economisers. These plate-type heat exchangers help in further sub-cooling the liquid refrigerant. The economiser system enhances the unit’s refrigeration effect by providing more circulated refrigerant. This yields 5% higher cooling capacity and higher COP as compared to conventional chillers.
ASME Stamping

The new Blue Star Configured Screw Chiller series is available with U Stamp for the pressure vessels in compliance with ASME (American Society of Mechanical Engineers), a renowned third party certifying organisation for safety of pressure vessels.
Remote Monitoring System

The chillers can operate through an advanced GPRS-based Remote Monitoring System which is available as an option to all users.

This system has the following advantages:

- Close monitoring of the site irrespective of location
- 24x7 automatic monitoring
- Automatic notification in the form of SMS or email in case of any error
- Automatic call login for service

The data captured and sent by RMS to the Central Service Team enables analysis by the local service team so as to be equipped with the necessary solutions to resolve any issues speedily. This ensures:

- Very quick response time
- Faster turn around time
- Higher uptime of the system
Advanced Features of Controllers:

- Precise temperature control of +/- 0.5°C
- Anti-freeze and no flow protection
- Compressor run time balancing
- Automatic backup mode
- Single phasing/phase loss protection
- Overload protection
- Over-current protection
- HP/LP protection
- Compressor run hours
- Password protection
- BMS compatibility
- User-friendly machine interface
- Alarm output
- Efficient operating zone algorithm
- Efficient oil separator
- Self-diagnosis control system
- Stored past history and alarm
- Display unit flexibility
- Demand restriction
- DLT protection
- Oil level protection
- BMS compatibility
Widest Range Of Products

- VRF IV Plus - 100% VRF System
- VRF IV S - Side Discharge VRF System
- VRF Sprint - Pre-piped VRF System
- Inverter Ducted Splrats & Packaged ACs
- Packaged ACs & Ducted Splits
- Water Cooled Centrifugal Chillers
- Turbocor Chillers
- Water Cooled Screw Chillers with VFD
- Air Cooled Screw Chillers
- Air Cooled and Water Cooled Scroll Chillers
- Air Cooled & Water Cooled Condensing Units
- Process Chillers

For more information, please contact BLUE STAR LIMITED - Ahmedabad: 2nd Floor, Shivalik-II, Near Shivanjani Cross Road, 132 Feet, Ring Road, Satellite, Ahmedabad - 380 015. Tel: (079) 40224000 • Bangalore: Ozone Manay Technology Park, SY No 56/18 & 55/9, Hangasandra Village, Begur - Hobli, Garvebhvanigalaya, Bangalore - 560068. Tel: (080) 41584000 • Bhopal: Star Arcade, 2nd Floor, Plot No.165A & 166, Zone-I, Maharana Pratap Nagar, Bhopal - 462 011. Tel: (0755) 4273178 • Bhubaneswar: 5A, Satya Nagar, 2nd Floor, Bhubaneswar - 751 007. Tel: (0674) 2532403 / 2573670 • Chandigarh: Adarsh Mal, 4th Floor, Plot No. 50, Industrial & Business Park, Phase II, Chandigarh 160 022. Tel: (0172) 5024000 • Chennai: No.104, Old No. 46, ‘Garuda buildings’, Cathedral Road, Chennai 600 086. Tel: (044) 42444000 • Goa: 1st Floor, Budhakshet Thap, Tansa, Caranzalem, Goa - 403 002. Tel: (0832) 2481671 • Gurgaon: Block A-1, DLF Corporate Park, DLF Quiet Enclave, Phase III, Mehrauli-Gurgaon Road, Gurgaon - 122 002. Tel: (0124) 4094100 • Guwahati: 13, C.C. Patowari Road, Udaihar, Guwahati - 781 007. Tel: (0361) 2488496 • Jaipur: A-19, 1st Floor, Mansar over Path, Near Saksha Thana, Jaipur - 302 001. Tel: (0141) 24643315 • Kochi: 2nd Floor, Millennium Plaza, M.K. Nair Road, Alphonsose Janson, Kochi - 682 024. Tel: (0484) 4499000 • Kolkata: 7, Har Street, Kolkata - 700 001. Tel: (033) 22134100 • Lucknow: 177/4, Faltabad Road, Lucknow 226 007. Tel: (0522) 4034000 • Mumbai: Bandbox House, 4th Flr, 254 D, Dr Annie Besant Road, Worli, Mumbai - 400 030. Tel: (022) 66544000 • Nagpur: 219, Bajaj, Nagpur, 1st Floor, South Ambazari Road, Nagpur - 440 010. Tel: (0712) 2249000 / 6624000 • Pune: 201/A, Nityanand Complex, 1st Floor, 247/A, Bund Garden Road, Pune - 411 001. Tel: (020) 41044000 / 26169332 • Secunderabad: 207, Sakh Road, Bantia Estate, Secunderabad - 500 003. Tel: (040) 44004100 • Thiruvanantapuram: T. C. IX-1490, Chandrika, Sarthamangalam, Thiruvanantapuram - 695 010. Tel: (0471) 2720225 / 65 • Vadodara: Ramakrishna Chambers, 7th Floor, Productivity Road, Alkapuri, Vadodara - 390 007. Tel: (0265) 230334/4614100 • Visakhapatnam: D. No. 49-24-65/1, Near Sankarmattang Road, Madhura Nagar, Visakhapatnam 530 016. Tel: (0891) 2748405 / 2748403 • email: coolingsolutions@bluestarindia.com • Visit us at: www.bluestarindia.com