



BLUE STAR

SUSTAINABLE SOLUTIONS FOR A CHANGING WORLD.



Blue Star Heat Pump Decarbonisation Technologies

BLUE STAR

BRINGING YOU 80 YEARS OF EXPERIENCE FOR A MORE SUSTAINABLE FUTURE

Blue Star brings a customer-centric approach to product development, offering flexibility to design a product for your specific market and customer. We have 80 years of expertise and experience in a wide range of heating and cooling solutions, including Mini-Splits, VRFs, Chillers, Air Handling Units, Packaged Air Conditioners, Air to Water Heat Pumps, and more. Our strong focus on R&D and superior manufacturing processes ensures energy-efficient and distinctive features in all our products.

We meet diverse customer needs across the globe with our comprehensive product line while ensuring energy-efficiency and innovation in every solution. Our keenness to deliver the utmost customer satisfaction pushes us to be ahead in the industry, providing reliable and cutting-edge cooling and heating solutions worldwide.

We have been offering sustainable solutions across product categories and business needs and this extends to heat pump decarbonisation technologies as well. In fact, we have an entire ecosystem, from R&D to final product manufacturing, which allows us to deliver exactly what you need.



YOUR TRUSTED R&D AND MANUFACTURING PARTNER IN HEAT PUMP DECARBONISATION TECHNOLOGIES

In keeping with the need for sustainability, Blue Star has built a solid foundation in conceptualising and creating eco-friendly technologies. To meet the urgent need for switching from fossil fuels to electric heat pumps with low GWP refrigerants, we offer inverter technology for HVACR solutions through Product Design & Manufacturing Partnerships across the international landscape. Our R&D and manufacturing expertise specially focuses on Heat Pump Technologies to give you just the advantage you're looking for.



OUR EXPERTISE: DESIGN, DEVELOP AND MANUFACTURE

- Complete range of Heating, Air Conditioning and Refrigeration products
- Market leadership in significant product categories
- Expertise in inverter technologies and low GWP refrigerants
- R&D with laboratories and complete testing capabilities
- Virtual simulation and analysis capabilities
- In-house electronics hardware and firmware development capabilities
- In-house procurement and manufacturing infrastructure in strategic locations near well-developed vendor ecosystems and ports
- Rigorous new product development process
- Cost leadership initiatives like DtV (Design to Value) and TCM (Total Cost Management)
- IoT & Industry 4.0: Integrates machine learning and AI to improve operational efficiency and energy consumption

THE ADVANTAGE OF PARTNERING WITH BLUE STAR

If you're a business seeking to collaborate with a company that has a solid reputation and also offers innovative solutions, Blue Star offers numerous advantages:

- End-to-end support for customers in critical areas, like providing new and differentiated products that fill product gaps
- Extending expertise in advanced heat pump technologies to bridge technology gaps
- Increased speed-to-market to capture trends
- Reduced cost of bringing a product to market
- Flexible solutions – Offer custom designed and manufactured products.
- Asset Light Investment approach so customers keep their investment low and limit risk
- Enhance manufacturing capacity and product range to increase profitability
- Better focus with dedicated and in-market business development and technical resources



SOLUTIONS FOR GLOBAL TRENDS


Decarbonisation is not only an urgent need for businesses across the globe but is also the path to an eco-friendly future. You'd be pleased to know that Blue Star is at the forefront of this green shift and can contribute immensely to your mission

for a more sustainable future with a range of energy-efficient solutions. Our most prominent solutions are our heat pumps, which take you towards electrification and away from fossil fuels. They help you improve air quality and contribute to reducing the negative impact on the world's health and they also help you achieve in significant energy savings.

Eco-friendliness and sustainability are at the heart of our HVACR practices. Greater access to renewable energy and sustainable technologies allows Blue Star to give consumers access to heating and cooling solutions that are green at heart.

Improved air quality, apart from comfort, is a significant benefit of our HVAC systems. These systems incorporate effective filtration, air purification, and humidity-control to maintain healthy indoor air, to name just a few features.





CAPABILITIES TO ACHIEVE
ANY REQUIREMENT ANYWHERE
IN THE WORLD

CONDITIONING THE WORLD'S MOST
CHALLENGING CLIMATES

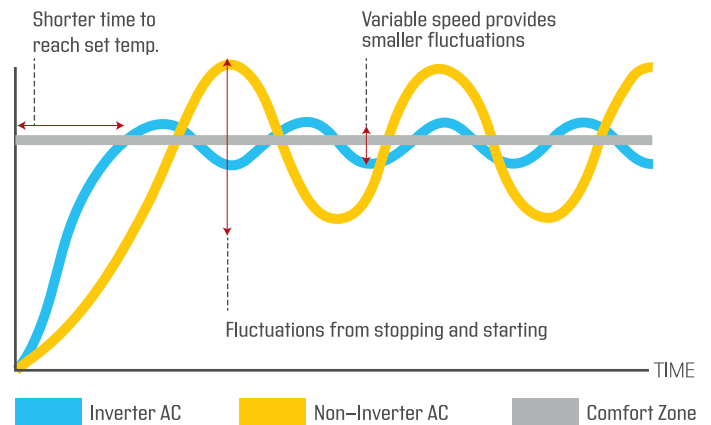
While every Blue Star product meets our strict testing requirements, each product has also been tried and tested in equally challenging places, at customer locations, across the world, in wildly varying climates, and even in the most demanding power and usage conditions.

Blue Star also uses IoT and advanced control technologies integrated within the product to help improve efficiency and meet your need to reduce your carbon footprint. These solutions will help your customers contribute immensely to improved air quality and also help them achieve their critical business need for sustainability.



INVERTER TECHNOLOGY

Inverter technology in heat pumps allows for variable speed operation, leading to higher energy-efficiency, better temperature control, and quieter operation, allowing the user to stay comfortable without incurring high expenses. In essence, your end customer will enjoy utmost comfort.



VIRTUAL SIMULATION & ANALYSIS

Blue Star creates real-world scenarios in a virtual environment to perform structural analysis and validate mechanical design. These simulations allow us to simulate multiple product parameters during the pre-development stage, which helps reduce the cost and time to manufacture and launch in markets.

LOW GWP & NATURAL REFRIGERANTS

Such refrigerants emit fewer greenhouse gases and are much more eco-friendly than traditional refrigerants. Our expertise in consistently delivering low GWP products, with R32, R290, and R454B, perfectly aligns with the market requirements, which help our customers take a significant step towards a more sustainable future.

EXPERTISE IN CONTROLS FOR SPECIFIC PROCESS ALGORITHMS

Our electronics hardware and firmware capabilities pave the way for developing hardware controls and drivers for compressors using sophisticated tools and technology for Schematic Design, PCB Layout, Circuit Simulation, and 3D Simulation.

This allows Blue Star to provide customised solutions, improve energy-efficiency, and reduce product development cycles. Our approach also helps in introducing the latest technologies in the fields of Variable Speed Control, IoT, and customer-centric smart features.

OUR APPROACH

We approach every customer relationship to understand the product gaps and provide a customised solution. We achieve this by following a robust New Product Development process which results in a differentiated product with unique features. So our customers have a clear and distinct differentiation that gives them an edge in the market.



Flexible and tailored



New Product Development process



Product portfolio roadmap

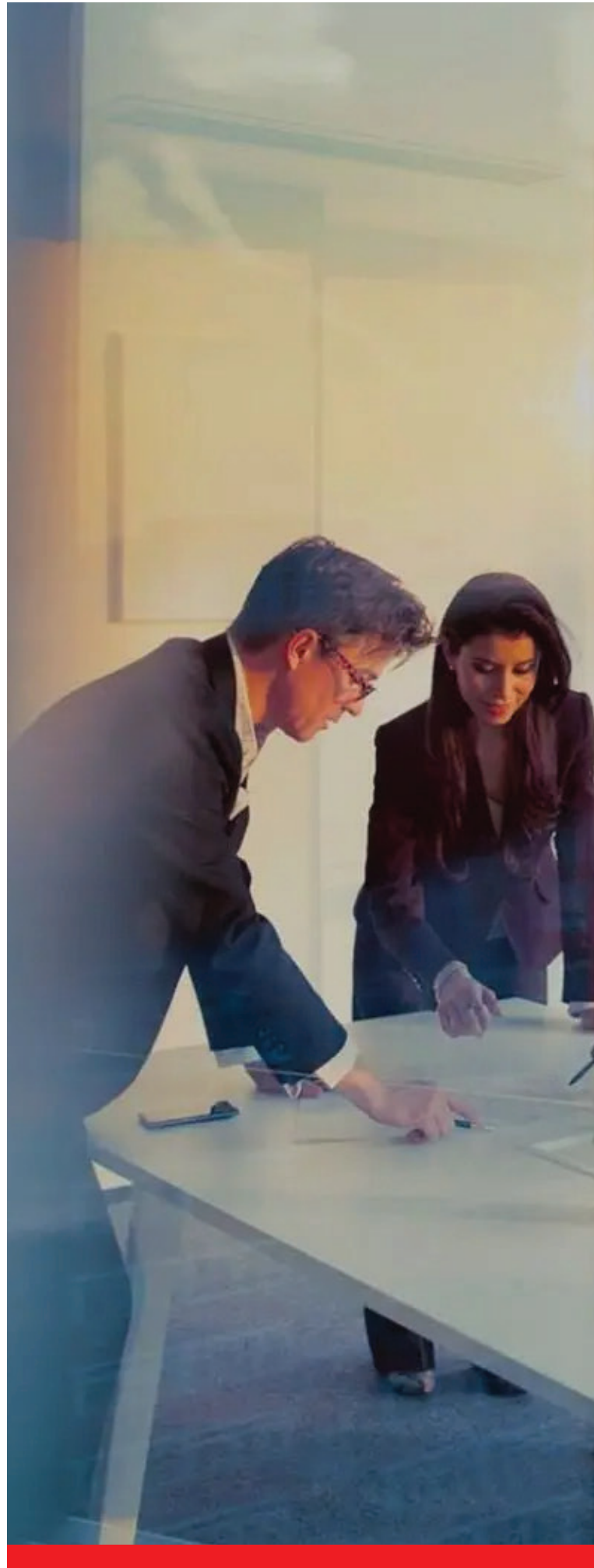


Unique product features

ENGINEERING DESIGN AND DEVELOPMENT FROM THE EXPERTS

With our in-house capacity for testing and certification, the company's R&D is equipped and prepared to deliver innovative solutions built to meet specific business requirements. The 15 design registrations for room air conditioners and 26 patents for various types of chillers and ducted systems received thus far, with many more patent applications pending approval, stand testimony to the high-quality of R&D at Blue Star.

- Two innovation centres for advanced technology research and innovation
- Focus on energy-efficiency and sustainability
- In-house labs with capacity for testing and certification
- Virtual simulation and analysis tools for 3D modelling
- Enhanced capability in electronics for digital and innovative products (hardware and software)
- Expertise in controls with proprietary protocols and algorithms for superior product performance





R&D BENEFITS

Our R&D team has the flexibility and capability to meet your requirements with solutions like:

- Precision temperature control
- Air to water solutions
- Reduced noise
- Higher efficiency
- Sophisticated controllers to maximise performance, including hardware and firmware

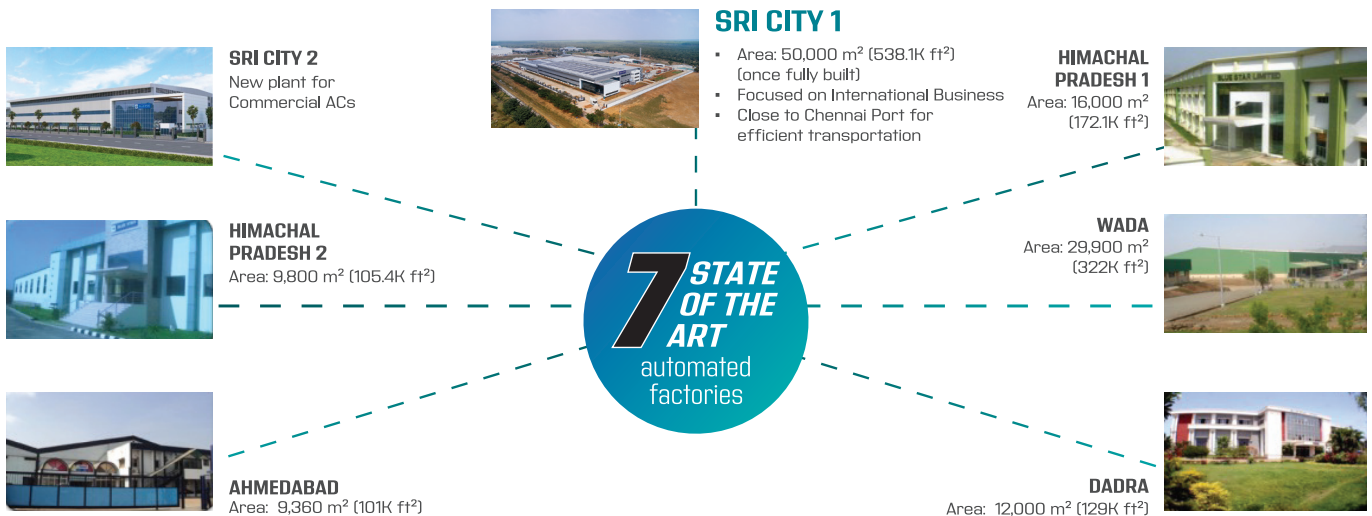
WORLD-CLASS MANUFACTURING BUILT FOR PERFORMANCE AND LONG LIFE

Blue Star is a manufacturing powerhouse. Now, with seven state-of-the-art automated factories in various locations across India, the Company's manufacturing footprint is spread across more than 127,000 m² (1.36M ft²). The Company is further investing in manufacturing capacity to meet global demand.

Blue Star manufacturing follows sustainability practices such as a green-rated manufacturing designation, renewable energy sources, and net zero goals.

We build over 300 models of HVACR products across 25 product lines in our ISO-certified plants. These facilities are all equipped with state-of-the-art production machinery for all aspects of HVACR production, such as sheet metal and powder coating, and the manufacture of heat exchangers, fin & tube, shell & tube, DX, flooded & falling film, to name a few.

- Strong backward integration includes coil shops, fabrication establishments, paint shops, and foaming set-ups
- Asian supplier component ecosystem offers the advantage of readily available components and raw material
- Supplier development programme ensures quality compliance and improved capabilities
- Custom-made products with superior aesthetics



THE BLUE STAR INLINE QUALITY PROCESS ADVANTAGE



Fully automated assembly line for 100% testing of all products before dispatch



Process performance tracking



Incoming component inspection



A stringent 24-hour refrigerant hold, delivering leak-proof performance

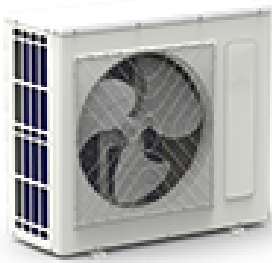


Daily verification of process parameters



Barcode traceability

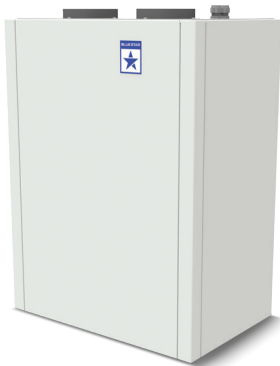
OUR PRODUCT RANGE



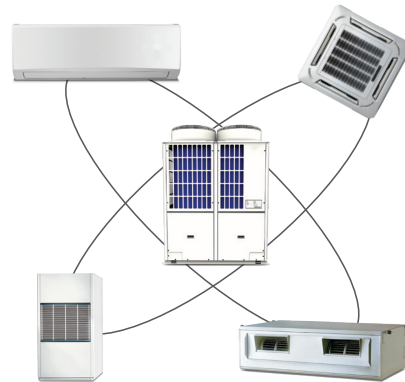
Side Discharge Inverter Heat Pumps
(2T/3T/4T/5T)



Air to Water Heat Pumps
(4.5kW–16kW)



Air to Water Indoor Monobloc Heat Pump
(4kW model, no outdoor unit required)



Commercial VRFs (8TR–20TR)



Commercial Heat Pump
(25kW and 50kW)



Mini VRFs (3TR–RTR standard & cold climate options,
compatible with multiple indoor unit options)

BLUE STAR: A CLEAR CHOICE FOR SUSTAINABILITY

Blue Star envisions a world with healthier indoor air with a reduction in the impact on the environment. Driven by a dedication to achieving net zero carbon emissions by 2050, we provide clean, healthy, and comfortable living spaces throughout the building life cycle using world-leading technology.

- Reliable and proven technology
- Custom design and development to agreed specifications
- World-class manufacturing quality
- Delivery to committed timelines
- Rigorous R&D process
- Advanced engineering that develops products to meet market and regulation requirements



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