



BLUE STAR

SUPERIOR COMFORT  
THROUGH ADVANCED  
RENEWABLE HEATING  
TECHNOLOGY.

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Air to Water Heat Pumps

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# BLUE STAR: Bringing 80 years of experience for a more sustainable future.

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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 internationally. Our R&D and manufacturing expertise specially focuses on Heat Pump Technologies to give you just the advantage you're looking for.

## Design. Develop. 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
- 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)
- Flexible solutions: Offer custom-designed and manufactured products
- Asset-light investment: Enabling customers to keep their investment low and limit risk



# Our Product Range

## Air to Water Monobloc

- Capacity: 4.5kW – 16kW

### Key Features

- ★ [A+++ energy labelling at 35°C flow temperature](#)
- ★ [Operation down to -30°C](#)
- ★ [Max flow temperature up to 75°C](#)
- ★ [100% heating capacity down to -10°C](#)
- ★ [Ultra low sound levels](#)



 R290



 R290

## Air to Water Hybrid Monobloc

- Capacity: 5kW – 7kW

### Key Features

- ★ [A+++ energy efficiency at 35°C flow temperature](#)
- ★ [Reliable heating at low ambient temperature](#)
- ★ [Maximum flow temperature up to 60–65°C](#)
- ★ [Easy system integration](#)
- ★ [Low sound level](#)

## Air To Water Indoor

- Capacity: 4kW

### Key Features

- ★ [A++ at low temperature \(Ambient 7°C/Water 35°C\)](#)
- ★ [R290 Natural Refrigerant](#)
- ★ [Futuristic Compact Design](#)
- ★ [No Outdoor Unit required](#)
- ★ [Plug & Play Installation](#)
- ★ [Low Noise Comfort](#)

### Applications

- ★ [Heritage Buildings](#)
- ★ [New Construction and Retrofits](#)
- ★ [Villas and Independent House](#)

**NEW PRODUCT**



**NEW PRODUCT**



**R454C**

## Air to Water Hybrid Split

- Capacity: 5kW

### Key Features

- ★ [A+++ energy efficiency at 35°C flow temperature](#)
- ★ [Operation down to -25°C](#)
- ★ [Max flow temperature up to 60–65°C](#)
- ★ [Easy system integration](#)
- ★ [Quiet operation](#)

# Features At A Glance

Specification	Monobloc		Hybrid Monobloc	Indoor Monobloc	Hybrid Split
Capacity	4 – 9kW	4.5 – 16kW	5 - 7kW	4kW	5kW
Max Flow Temperature	75°C		60–65°C	65°C	60–65°C
Operating Range: Heating	–30°C to +35°C		–15°C to +25°C	–15°C to +40°C	–25°C to +25°C
Refrigerant	R290		R290	R290	R454C
Compressor	Inverter Rotary		Inverter Rotary	Inverter Rotary	Inverter Rotary
Efficiency at 35°C / 55°C flow temperature	A+++ / A+++	A+++ / A++	A+++ / A++	A++ / A+	A+++ / A++
Primary Market	Residential		Residential Retrofit	Compact Residential	Residential

# Features At A Glance

Modes :	Monobloc	Hybrid Monobloc	Indoor Monobloc
Color capacitive touch panel, TFT 4.3"(Standard) & TFT 5"(Optional)	√	√	√
Heating, Cooling & DHW Mode	√	√	√
Auto mode	√	√	√
Combination mode (Cooling + Hot water, Heating + Hot water, Auto + Hot water)	√	√	√
Status : Unit, Pump, Fan, temperatures, set points etc	√	√	√
Error Alert / Status & Reset	√	√	√
Silent modes	√	√	√
Multi performance mode / Capacity test run	√	√	√
Climate curve/Eco mode / Weather compensation curve	√	√	√
Fast heating / Boost	√	√	√
Disinfection	√	√	√
Time Schedule - Daily / Weekly / Monthly / Yearly	√	√	√
Holiday / Vacation	√	√	√
Error logging (Minimum 100)	√	√	√
Communication port for production testing	√	√	√
Multi-language function	√	√	√
Wi-Fi reset, Emergency & Auto restart mode.	√	√	√
Pump configuration:			
a) Variable speed configuration	√	Optional	√
b) Fixed speed configuration			

# Features At A Glance

Integration Capability :	Hybrid Split	Hybrid Monobloc	Indoor Monobloc
Smart Grid Ready (SG ready)	✓	✓	✓
PV (Photovoltaic) Ready	✓	✓	✓
Energy monitoring / Power consumption check	✓	✓	✓
Wi-Fi control/ Mobile app	✓	✓	✓
In-built thermostat function	✓	✓	✓
Temperature and power consumption curve	✓	✓	✓
BMS compatibility	✓	✓	✓
Two zone control	✓	✓	✓
Auxiliary heater (Inline electrical heater)	✓	✓	✓
3 Way diverting valve	✓	✓	✓
DHW tank temperature sensor	✓	✓	✓
DHW Tank heater control	✓	✓	✓
Buffer tank temperature sensor	✓	✓	✓
Solar heater temperature sensor	Optional	Optional	Optional
Solar heater water pump control	Optional	Optional	Optional
Secondary pumps ( Max - 3 circuits)	✓	✓	✓
3 Way mixing valve	✓	✓	✓
Mixing temperature sensor for UFH	✓	✓	✓
Refrigerant leak detection	✓	✓	✓
Water flow sensor meter integration provision	✓	✓	✓
Crankcase heater, Base pan heater & condensation drain antifreeze heater integration	✓	✓	✓
Predictive maintenance algorithm	✓	✓	✓
Communication protocol (Modbus RS485)	✓	✓	✓
External wired room thermostat integration	✓	✓	✓
Cascade control	✓	✓	×
Unit conversion : Deg C to Deg F, PSI to Kpa	✓	✓	✓
Parameter adjustment with three level password authorization	✓	✓	✓
Hybrid(Boiler) Integration	✓	✓	✓

## Quality:

- Manufacturing standards adhere to EN 14511 and EN 14825 standards for rigorous performance evaluation
- Complies with EU 811/2013 for energy labelling, promoting sustainable practices
- EN 12102 for acoustic and sound testing, ensuring a quiet environment
- Compliance to EN 378 for safety and environmental standards
- EMI/EMC compliance ensures interference-free operation
- 100% factory-run testing for guaranteed functionality and durability

## Comfort:

- Aerofoil design maximises airflow for enhanced system efficiency
- DC fan motor for reduced energy consumption
- Intelligent smart controller ensures precise temperature management and adaptive operation
- Low-noise operation for ultimate user comfort
- Designed for quick installation and hassle-free maintenance

## Flexibility:

- Customisation at its best: Choose from elegant front fascia options to match your positioning
- Personalise with your unique branding

# Advanced Control Features:

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## Intelligent Eco Mode:

Eco Mode provides a variable flow temperature in heating mode to maximise overall system efficiency. The system adapts the flow temperature dynamically to suit the ambient temperature, following a predefined temperature curve in order for optimised energy efficiency.

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## Legionella Disinfection:

Our heat pumps' specialised disinfection mode allows for the hot water cylinder to reach up to 75°C. This mode not only ensures warmth but actively prevents any possibility of Legionella bacteria, providing clean, healthy hot water.

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## Advanced Connectivity with RS485:

Experience seamless data transfer, efficient troubleshooting, and instant notifications with our RS485 communication. This enhanced connectivity ensures robust system management, real-time monitoring, and simplified integration, providing a comprehensive solution for a smarter and more responsive experience.

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## Intelligent Defrost:

Our system's intelligent defrost prevents ice build-up through advanced algorithms, while the defrost logic ensures reliable heating in sub zero temperatures. Experience worry-free operation and optimal performance in diverse climates, enhancing efficiency and durability.

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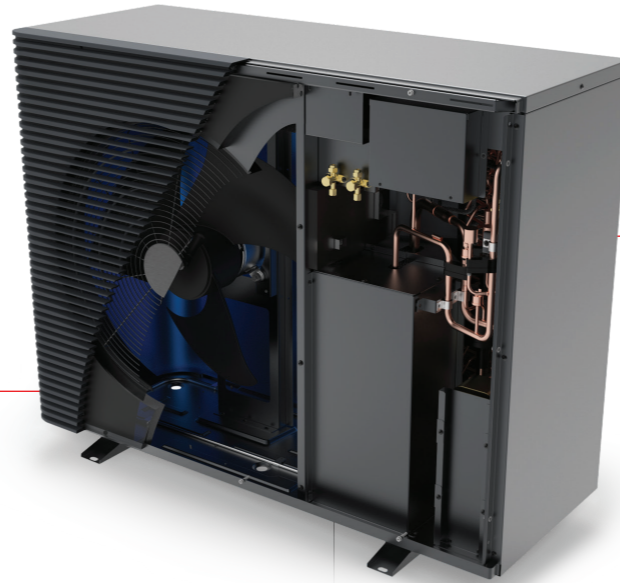
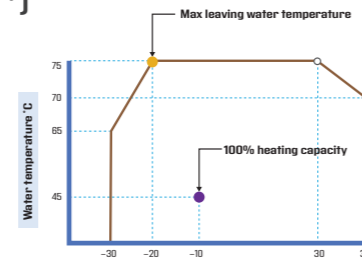
## Smart Grid Integration:

Effortlessly connects to smart grids for optimised energy usage, leading to cost savings for the customer. Experience efficient power management, ensuring a seamless and user-friendly approach to a smarter energy landscape.

# Product Highlights (Monobloc – AE/Hybrid)

## Operating Envelope: Monobloc Heat Pump (\*\*)

Unrivalled Performance: Our air to water monobloc heat pump achieves an exceptional feat, delivering 75°C water even in challenging conditions as low as -20°C, setting the benchmark for the industry, it stands as the best-in-market solution for unparalleled heating capability.



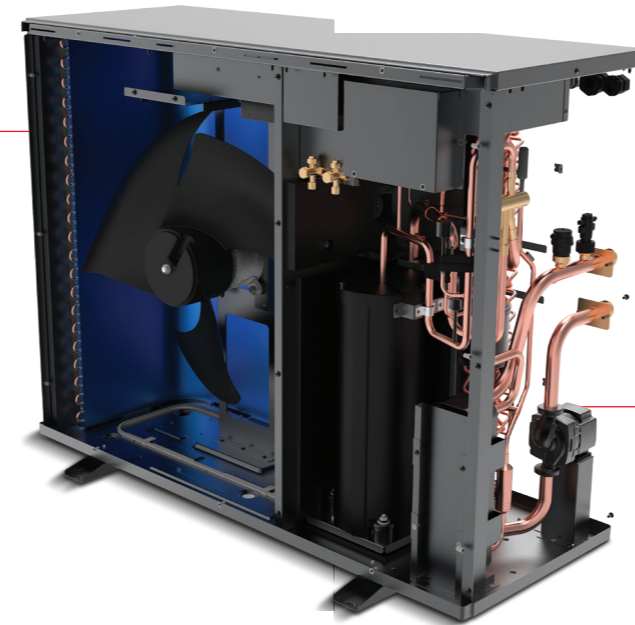
## Refrigerant: R290

R290 emerges as the top choice for heating, with lower Global Warming Potential (GWP), natural composition, enhanced energy efficiency, and long-term future-proofing of refrigeration and heating systems. Additionally, it outperforms R32, providing a superior performance advantage in heating applications, all while adhering to F-gas regulations for environmental responsibility and regulatory compliance.

## DC Inverter Twin Rotary Compressor:



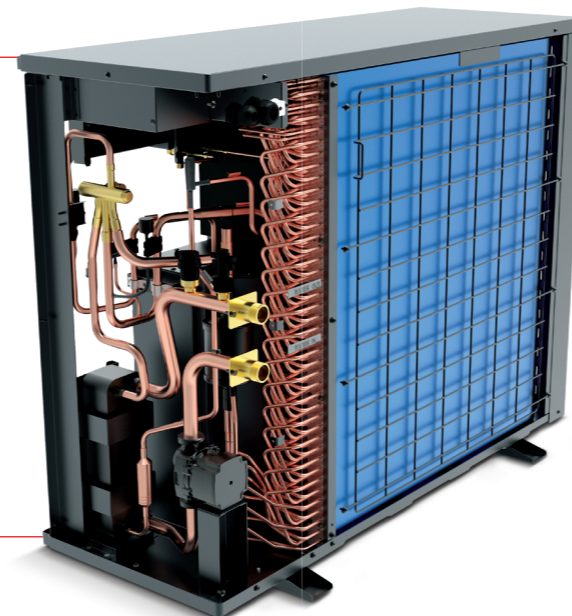
- Precise temperature control, ensuring rapid adjustments for accelerated heating or cooling, promptly achieving the desired indoor conditions
- Sustainable and cost-effective solution
- Ensuring efficient operation across different conditions and enhancing overall system flexibility
- Stable performance even under suboptimal electrical conditions
- The sophisticated control mechanisms of DC inverter rotary compressors contribute to reduced wear and tear, promoting an extended lifespan compared to traditional compressors. This longevity enhances the overall durability of the system



## Interlaced Coil For Enhanced Distribution\*\*:



- Enhanced heat transfer results in efficiency through CFD analysis
- Lower pressure drop
- Compact and efficient coil layout
- Efficient Defrost: When low temperatures risk ice formation, the system dynamically initiates a brief defrosting process. This ensures peak performance by preventing ice build-up on the outdoor unit's heat exchanger.



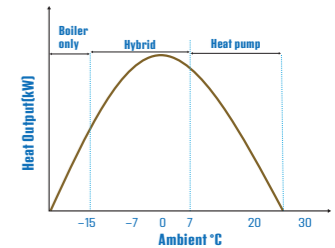
## MPHE: Microplate Heat Exchanger

- Enhanced surface area for efficient heat transfer
- Minimal pressure drop
- Compact in size



## Operating Envelope: Hybrid Heat Pump\*

For peak efficiency and high heat loads, system intelligently integrates both the gas boiler and heat pump. The system seamlessly switches between heat pump and hybrid modes based on your home's characteristics.



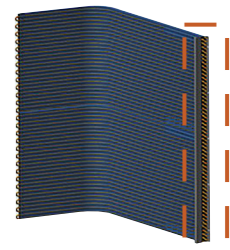
## Ultra Quiet Technology\*\*:

- Outdoor unit is integrated with three layers of acoustic insulation, minimising noise levels for a quieter compressor operation
- Enhanced Stability: The floating compressor base effectively reduces vibrations, ensuring optimal equipment stability and resulting in low noise levels



## NanoBlu Protect Coating:

- Enhanced protection for both aluminium fins and copper bends
- Increased performance from corrosion-resistant treatment
- Prolongs lifespan span and provides better efficiency



## DC Inverter Water Circulator\*\*:

- Promotes efficient movement of water throughout the system for optimal heating or cooling performance
- Ensures even distribution of water, maintaining consistent comfort levels in every part of the house
- Improves energy efficiency by changing the pump speed when required
- Providing installers with easy installation and commissioning



\* Only applicable for Hybrid Heat Pumps.  
\*\* Only applicable for Monobloc Heat Pump.

## Air to Water Monobloc System



## Indoor Monobloc Heat Pump



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