



BLUE STAR

INVERTER DUCTED

**HOT & COLD**

**THEY COOL  
WHEN IT'S HOT. THEY WARM  
WHEN IT'S COLD.**



Blue Star, the market leader in ducted air conditioning systems, is also known for its innovative spirit and technological prowess. The Company's world-class R&D researches new processes and applies latest technologies from around the world to develop new products that address specific requirements to solve real world problems in different industries and applications.

Already leaders in inverter ducted systems that are more efficient than conventional units, Blue Star now brings you an even more efficient air conditioning solution for geographies that experience both hot summers and cold winters – the Inverter Ducted Hot & Cold Air Conditioners.

These air conditioners combine inverter compressor technology and the refrigeration cycle to achieve both cooling and heating while being phenomenally energy-efficient.

Since these systems offer both heating and cooling in a single air conditioning unit, they are ideal for air conditioning requirements in any application located in areas that have extreme climates.

Further, they are even more useful in those areas where cold conditions are experienced through the year thus requiring heating across seasons, since they deliver heating at far higher efficiencies than conventional electric heaters.

Many applications, such as retail showrooms, restaurants, hospitals, offices, banquet halls and theatres, especially in North India, will find Blue Star's Inverter Ducted Hot & Cold Air Conditioners ideal for their HVAC needs.





## DOUBLE THE TECHNOLOGY



### **Inverter compressor powered**

Blue Star's inverter ducted units are equipped with variable capacity compressors which improve the overall efficiency of the system in both cooling and heating modes. The system enhances efficiency levels further in part load conditions.



### **Efficient heating**

Blue Star's Inverter Ducted Hot & Cold Air Conditioners are not only inverter compressor driven but also work as a heat pump system to generate hot air for heating applications. Compared to a conventional electric resistive type heating system, the heat pump system uses far less power since it uses the vapour compression refrigeration cycle to create the heat. In fact, the heat pump system is as much as four times more efficient than a conventional heating system.



### **Lower carbon footprint**

Using the refrigeration cycle for heating also results in a low carbon footprint since much electricity is saved in larger commercial applications by avoiding the use of electric heaters.



## SPECIAL FEATURES

### Inverter compressor - Intelligent control

Blue Star's Inverter Ducted Hot & Cold Air Conditioners use efficient inverter compressors with intelligent control logic and specially designed expansion valves that deliver maximum performance in both cooling and heating applications.

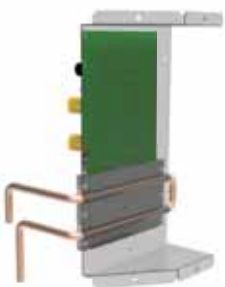
- Variable speed compressor takes care of variable refrigerant flow across the unit
- Optional stepless capacity control for ensuring uniform and precise cooling to suit load variations in the air conditioned space
- Higher efficiency 6-pole motor with permanent magnet
- Low starting current enables the use of a lower capacity generator and results in lowering capital cost



Inverter compressor

### Refrigerant-cooled inverter drive - Reliability ensured

- Refrigerant-cooled inverter drive PCB for faster cooling of electronic components in the drive board
- Enhanced reliability and performance at higher ambient temperature conditions
- Easier to service since the PCB can be easily removed
- No unloading of compressor up to 43°C and non-stop working even at 52°C



Refrigerant cooled PCB

## Special electronic expansion device - Precise control

The Blue Star Inverter Ducted Hot & Cold Air Conditioners range is fitted with a special electronic expansion valve that offers increased efficiency through greater accuracy and faster response to load variations.

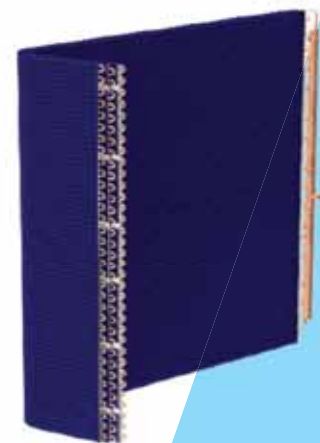
- Geared type special design electronic expansion valve with 3000 steps
- Precise, automated and optimised control of refrigerant flow to match cooling and heating requirements
- Permanent magnet stepper motor
- Improved comfort and power savings



## Uniquely designed heat exchangers - Performance guaranteed

The uniquely designed heat exchangers in these Inverter Ducted Hot & Cold Air Conditioners ensure efficient heat transfer and faster air conditioning.

- Both evaporator and condenser coils made with helical inner grooved copper tubes
- Fins with louvred design to further enhance performance
- Coated blue fins for improved reliability even in corrosive atmosphere along coastlines
- CFD-aided heat exchanger design to ensure uniform air distribution and improved thermal performance
- Vibration-free and noise-free operation



### Intelligent defrosting logic - Minimal defrost time

Another innovative feature in this series of air conditioning units is that they begin auto-defrosting even before the coil temperature touches zero, thus reducing the defrosting cycle time and increasing efficiency.

- In-built intelligent logic ensures auto-defrosting begins even before temperature reaches 0°C, for maximum benefit during heating cycle
- Defrost cycle time is kept to the minimum to maximise efficiency and to avoid cold air blast inside the air conditioned space

### Specially designed condensing unit grille - Aerodynamic efficiency

This new range of Blue Star Inverter Ducted Hot & Cold Air Conditioners features a specially designed grille for the condensing unit, to ensure least resistance and smooth aerodynamic air flow.

- Straight air flow, no recycling of air
- Enhanced and attenuated condenser air flow
- Suitable for stacking with multiple outdoor units





### **Longer piping design - Uncluttered exteriors**

This new range of Blue Star Inverter Ducted Hot & Cold Air Conditioners features a specially designed grille for the condensing unit to minimise resistance and ensure smooth aerodynamic air flow. When piping lengths are limited, outdoor units need to be installed at the closest possible point to the air conditioned space. This could result in cluttering the building facades or using up valuable balcony space. To avoid this problem, these units are designed for longer piping lengths which means that the outdoor units can be placed well away from the visible exteriors.

- Outdoor units can be installed as long as 60m away from the indoor units including a 20m vertical height
- Long refrigerant piping made possible using a suitably designed accumulator and other special design considerations
- Provides flexibility in installation with improved exterior aesthetics

### **AHU integration - Suits special applications**

Special air conditioning requirements like in operation theatres in hospitals, banquet halls and industrial applications, need tailor-made, non-standard, air-handling type of indoor units. Blue Star therefore offers an 'AHU kit' which is an electronic control interface device between the outdoor unit and such AHUs.

- Helps the Inverter Ducted Hot & Cold Air Conditioner's condensing unit to be easily integrated with a specially designed AHU



## Other Important Features

- Wide operating voltage range: 340V to 460V
- Wide operating temperature range:  $-10^{\circ}\text{C}$  to  $52^{\circ}\text{C}$
- Easily serviceable indoor and outdoor units





## Modern Touch-Screen Controller

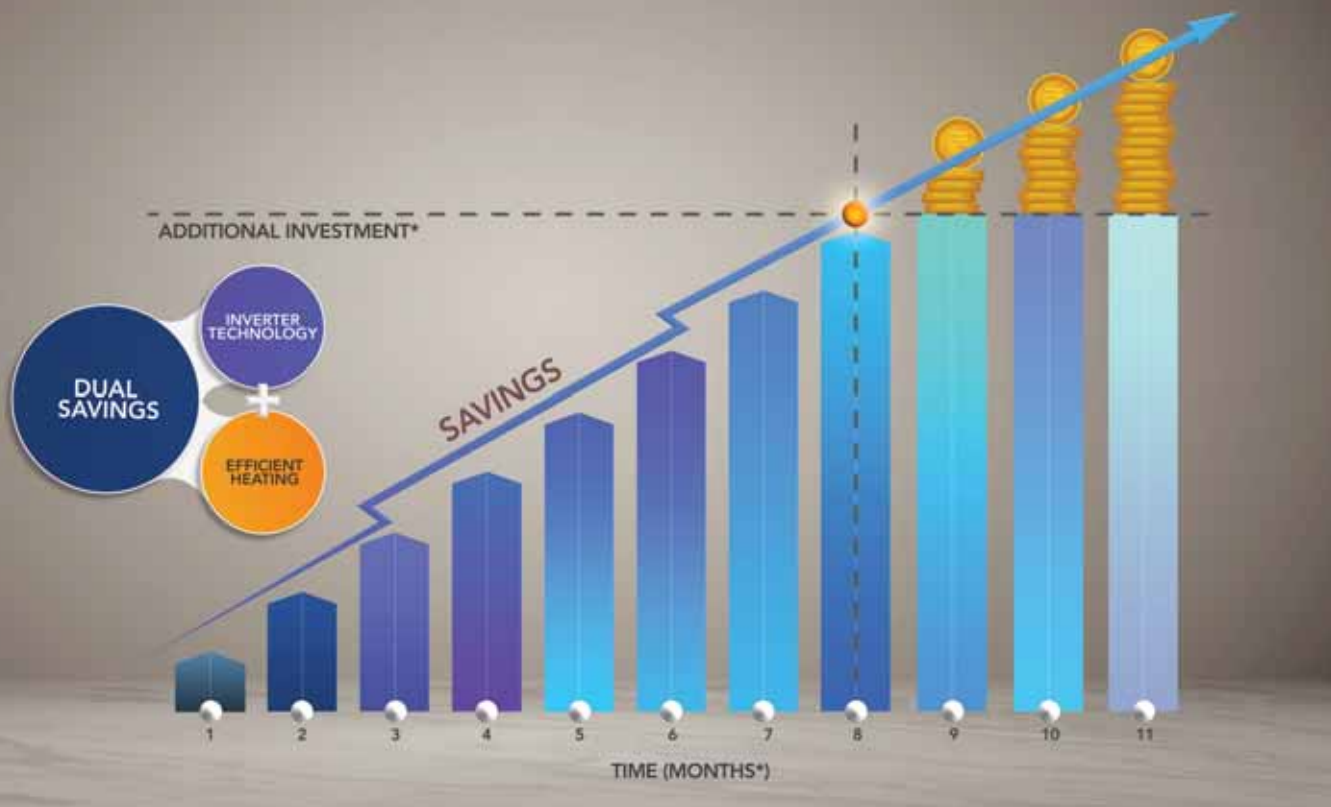
Blue Star's Inverter Ducted Hot & Cold Air Conditioners come with a special touch-screen controller that offers many modern and useful features:

- Sleek design with touch-screen handset
- Temperature setting with 0.5°C accuracy
- Mode selection
- Multi-speed fan selection
- Error display with 45 codes
- Back lighting



Apart from the above, many optional features are also offered:





## High Energy Savings Resulting In Quick Payback Of Investment

Since Blue Star's Inverter Ducted Hot & Cold Air Conditioners require only a marginally higher initial investment as compared to conventional units, the payback period is as low as one year or less!

Blue Star's Inverter Ducted Hot & Cold Air Conditioners pay back very quickly the extra investment they require, as compared to conventional units, due to the following two reasons:

- Variable speed inverter compressor which can operate under part-load conditions very efficiently as compared to regular fixed speed compressor units
- Heating using the refrigeration cycle which is four times more efficient as compared to an electric heating system

## Technical Data – Inverter Ducted Hot & Cold Air Conditioners

DESCRIPTION	UNITS	DSAI-661R3H	DSAI-1021R3H	DSAI-1321R3H
Capacity *	HP	7	11	14
	TR	5.5	8.5	11
	Btu/Hr	66000	102000	132000
Nominal Evaporator Air Quantity	CMH	3740	5780	7480
	CFM	2200	3400	4400
Refrigerant	R410A			
Operating Temperature Range	Cooling Mode	10°C – 52°C		
	Heating Mode	-10°C – 24°C		
Electrical Power Supply	V/Ph/Hz	415 V, 3 ph, 50Hz, AC Supply		
External Finish	Pure Polyester Powder Coated GI Steel			
Capacity Control	Stepless			
<b>INDOOR UNIT</b>				
Dimensions– W X H X D	mm	1140 X 485 X 630	1485 X 485 X 630	1840 X 485 X 630
Net Weight	kg	55	75	90
Electrical Power Supply	V/Ph/Hz	220V , 1 phase , 50 Hz AC Supply		
Type of Blower	Centrifugal Forward Curved Double Inlet Double Width			
Air Filter	Non Woven Polyester Media enclosed by HDPE Mesh			
Controller	Microprocessor based with touch screen handset			
<b>OUTDOOR UNIT</b>				
Quantity	No	1	1	1
Dimensions – W X D X H	mm	1320 X 420 X 925	1320 X 420 X 1495	1320 X 420 X 1495
Net Weight	kg	125	155	165
Compressor Type	Hermetically sealed DC Inverter			
Electrical Power Supply	V/Ph/Hz	415 V, 3 ph, 50Hz, AC Supply		
Condenser Fan Type	Propeller			

Specifications are subject to change without any prior notification

\* Cooling capacity at 35°C outdoor DBT and indoor temperatures of 27°C DBT/19°C WBT

\* Heating capacity at outdoor conditions of 7°C DBT / 6°C WBT and Indoor temperature of 20°C DBT



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