

VRF Airconditioning Systems **R410A**



So smart, it knows
where to cool and when.



Blue Star presents India's First Variable Refrigerant Flow System

Over the years, Variable Refrigerant Flow (VRF) systems have proved to be a preferred way of airconditioning premium installations around the world. Due to their multiple benefits, they have found increasing acceptance in evolved airconditioning markets like Japan and Europe.

Blue Star, which has always been at the forefront in offering the latest technology, now introduces the environment friendly refrigerant 'R-410A' for VRF systems. Since R-410A does not contain chlorine, it does not damage the ozone layer and is hence increasingly being used. In addition, R-410A increases the energy-efficiency of the system, thereby saving power, making this system ideal for Green Building applications.

As India's largest central airconditioning company, Blue Star is equipped with the manufacturing prowess, installation competence and after-sales service infrastructure to deliver superior airconditioning solutions for sophisticated projects which require high technology systems.



This gives the VRF system a rare versatility in the selection of indoor units - which means a lot to architects and interior designers.

What's more, VRF systems are easier to install, run and maintain as compared to conventional chilled water airconditioning plants.

VRF systems offer a wide range of indoor units - ductable units to cool large halls, wall mounted splits for cabins and bedrooms, and cassettes for open spaces.

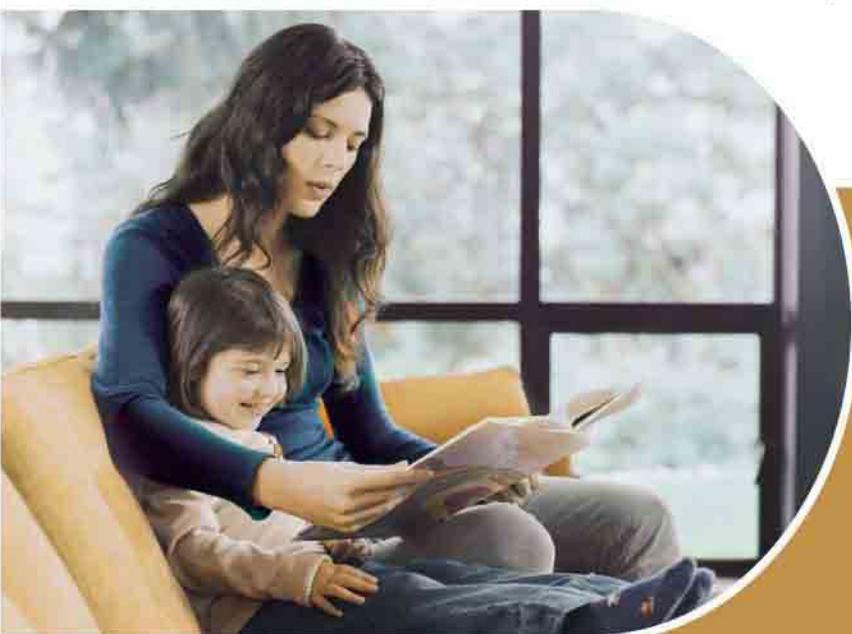
All this is a part of a single airconditioning system. Such benefits have made the VRF system the most popular airconditioning system across the world.

From corporate offices to condominiums, hotels to hospitals, shopping centres to sprawling villas, the Blue Star VRF system is just right for your needs.

Why Use VRF Systems?

VRF systems are the next generation in intelligent, energy-efficient airconditioning.

A VRF system typically consists of an outdoor unit with multiple compressors and different types of indoor units for different zones. It also comes with a highly sophisticated electronic control centre to enable zonewise climate control.





Advantage Blue Star VRF Systems



Tropicalised

Blue Star VRF systems come with tropicalised outdoor units, which can operate at ambient temperatures as high as 52°C. An unmatched advantage in a country like India.



Energy-efficient

Blue Star VRF systems are powered by the Copeland Digital Scroll compressor, which represents the next generation in modulation technology. These compressors can deliver any capacity between 10% and 100% to exactly match your varying cooling requirements. Thereby resulting in higher energy-efficiency and greater power savings.



Higher Air Flow

The wide range of indoor units that are offered with the Blue Star VRF are designed for higher air flow. This allows you to minimise the number of indoor units needed to cool any given space, thus optimising both indoor and outdoor unit selection.



Wide Voltage Range

Power supply in India tends to be erratic, affecting both reliability and cooling performance. The Blue Star VRF system is therefore designed to operate efficiently across a wide voltage range.



Speedy Project Completion

VRF systems are like pre-engineered and factory-assembled central plants. That means field work is minimal. All this translates into speedy project completion.



Space-saving Design

Blue Star VRF systems use compact outdoor units that can be placed in the balcony or on the terrace. This eliminates the need for a separate plant room and saves precious real-estate. Similarly, compact indoor units require minimal ceiling space within the cooled space, giving the architect or interior designer the luxury of greater ceiling height.



Zero Electromagnetic Interference

Unlike an inverter-driven system which generates high levels of EMI, Blue Star VRF systems with digital scroll do not generate any EMI and hence ensure trouble-free operation of your electronic appliances.

Applications of VRF Systems

Whatever the application, this is how you can benefit from Blue Star VRF Systems:

Corporate Offices

- Various types of indoor units to suit the decor of each space
- Individual control for cabins
- Fresh air provision with ducted, ceiling concealed, floor mounted packaged and cassette type indoor units
- Compatibility with BMS systems
- Substantial savings on electricity bills
- Use of minimal outdoor units ensure that valuable space is saved

Luxury Condominiums and Villas

- Independent climate control of each room
- Compact design of outdoor units for mounting on balcony
- Use of a single outdoor unit for multiple indoor units ensures that the external elevation of the building is uncluttered
- High reliability
- User-friendly design
- Substantial savings on electricity bills
- Feature loaded indoor units (anti-virus deodorising filters provided with the wall mounted units)
- Compatibility with BMS systems

Hotels and Serviced Apartments

- Breathtaking range of contemporary indoor units to suit the decor of each space
- Fresh air provision with ducted, ceiling concealed, floor mounted packaged and cassette type indoor units
- Centralised control for easy operation and maintenance
- Minimal noise and vibration
- Substantial savings on electricity bills
- Compatibility with BMS systems

Commercial Complexes and Showrooms

- Compatibility with BMS systems
- Use of minimal outdoor units ensure that valuable space is saved
- Independent control for individual shops
- Substantial savings on electricity bills

Healthcare

- Individual control for consultation and patient rooms
- Substantial savings on electricity bills
- Zero electromagnetic interference which is vital for critical equipment
- HRV to maintain good IAQ in a cost-effective way
- Centralised control for easy operation and maintenance

Educational Institutions

- Individual control for classrooms, laboratories, libraries, staff rooms etc.
- Assures good indoor air quality
- Substantial savings on electricity bills
- Minimal noise and vibration
- Centralised control for easy operation and maintenance

Schematic of the Blue Star VRF System



Product Line-up Outdoor Units

Appearance	Models			
	HP	Cooling Only	Heat Pump (Cooling and Heating)	Maximum Nos. of Indoor Units
	6HP	BVRF 06FC E	BVRF 06FH E	5
	7.5HP	BVRF 075FC E	BVRF 075FH E	6
	12HP	BVRF12FCE	BVRF12FHE	10
	12HP	BVRF 12TC E	BVRF12TH E	10
	14HP	BVRF 14TC E	BVRF14TH E	11
	18HP	BVRF 18TC E	BVRF18TH E	15
	21HP	BVRF 21TC E	BVRF21TH E	17
	24HP	BVRF12TC E+BVRF 12TC E	BVRF12TH E+BVRF12TH E	20
	26HP	BVRF12TC E+BVRF14TC E	BVRF12TH E+BVRF14TH E	21
	28HP	BVRF14TC E+BVRF14TC E	BVRF14TH E+BVRF14TH E	22
	30HP	BVRF12TC E+BVRF18TC E	BVRF12TH E+BVRF18TH E	25
	32HP	BVRF14TC E+BVRF18TC E	BVRF14TH E+BVRF18TH E	26
	33HP	BVRF12TC E+BVRF21TC E	BVRF12TH E+BVRF21TH E	27
	35HP	BVRF14TC E+BVRF21TC E	BVRF14TH E+BVRF21TH E	28
	36HP	BVRF18TC E+BVRF18TC E	BVRF18TH E+BVRF18TH E	30
	39HP	BVRF18TC E+BVRF21TC E	BVRF18TH E+BVRF21TH E	32
	42HP	BVRF21TC E+BVRF21TC E	BVRF21TH E+BVRF21TH E	34

Indoor Units

Appearance	Type	Capacity									
		1 TR	1.5 TR	2 TR	2.5 TR	3 TR	4 TR	5 TR	6 TR	8 TR	10 TR
 <small>NEW</small>	Compact Cassette	VCCE 12M	VCCE 18M								
	Cassette		VCCE 18	VCCE 24		VCCE 36	VCCE 48				
	Concealed	VCSE 12	VCSE 18	VCSE 24							
	Ducted		VSDE 18	VSDE 24	VSDE 30	VSDE 36	VSDE 48	VSDE 60	VSDE 72	VSDE 96	
	Wall Mounted	VHWE 12	VHWE 18	VHWE 24	VHWE 30						
	Floor Mounted Packaged							VSPE 60		VSPE 96	VSPE120

Appearance	Type	AIR FLOW - CFM				
		170	300	500	800	1000
	Treated Fresh Air Unit			TFAE 500	TFAE 800	TFAE 1000
 <small>NEW</small>	Heat Recovery Ventilator with DX Coil	HRVE 170	HRVE 300	HRVE 500		



The Digital Scroll Difference

Blue Star VRF systems are powered by...

Copeland Digital Scroll™ Compressors.

Designed and manufactured by Copeland, the world renowned manufacturers of compressors, the Digital Scroll Compressor marks the difference between Blue Star VRF systems and other ordinary systems.

The Digital Scroll Compressor modulates the refrigerant flow to meet the varying cooling loads and delivers enormous savings on electricity bills. This high technology compressor, coupled with an advanced controller, makes the Blue Star VRF system the highly intelligent system that it is.

How does the Digital Compressor work?

The beauty of this technology is its inherent simplicity. Capacity modulation is achieved by the time-averaging of the loaded state and unloaded state.

The standard scroll compressor has a unique feature called 'axial compliance'. This allows the fixed scroll to move in the axial direction by very small amounts, to ensure that the fixed and orbiting scrolls are always loaded together with optimal force. This optimal force that holds the two scrolls together under all operating conditions ensure the high efficiency of Copeland scrolls.

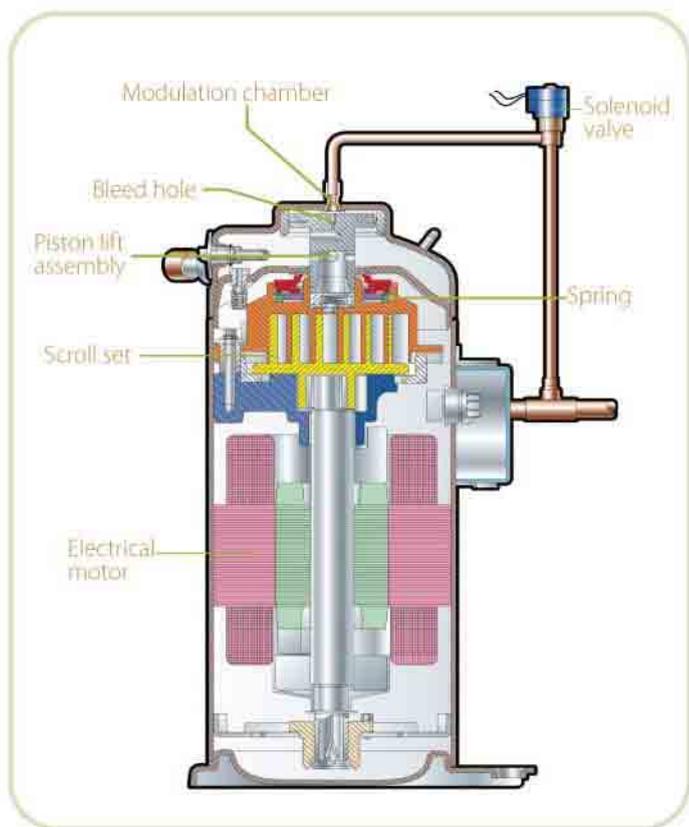
The Digital Scroll operation builds on this principle:

- A piston is fixed to the top scroll so that when the piston moves up, the top scroll also moves up by 1mm. A modulation chamber at the top of the piston is connected to the discharge pressure through a bleed hole of diameter 0.6mm. And an external solenoid valve connects the modulation chamber with the suction side pressure.
- When the solenoid valve is energised, the discharge gas in the modulation chamber is relieved due to the low pressure. This causes the piston to move up, causing the top scroll to move up too. This action separates the scrolls and results in no mass flow through the scrolls. This is known as the unloaded (0) state.
- The loaded (1) state occurs when the solenoid valve is in its usually closed position. There is discharge pressure on either side of the piston and a spring force ensures that the two scrolls are loaded together.
- The compressor operates in two states - full capacity (1) and no capacity (0). By averaging the two states of operation over time, modulation is achieved. Also, different combinations of 0 and 1 states can be used to obtain a wide range of capacities.
- A cycle time consists of a 'Loaded State' time and an 'Unloaded State' time. The durations of both these time segments determine the capacity modulation of the compressor. For example, in a 20 second cycle time, if the loaded state time is 10 seconds and the unloaded state time is also 10 seconds, the compressor modulation is:
$$(10 \text{ seconds} \times 100 \% + 10 \text{ seconds} \times 0 \%) / 20 = 50\%$$

If, for the same cycle time, the loaded state time is 15 seconds and the unloaded state time is 5 seconds, the compressor modulation is 75%. The capacity is a time-averaged summation of the loaded state and unloaded state. By varying the loaded state time and unloaded state time, any capacity from 10% to 100% can be delivered by the compressor.

What makes it different?

The Digital Scroll is the next generation of modulation technology. It allows an alert external control to switch the compressor rapidly between its loaded and unloaded states.



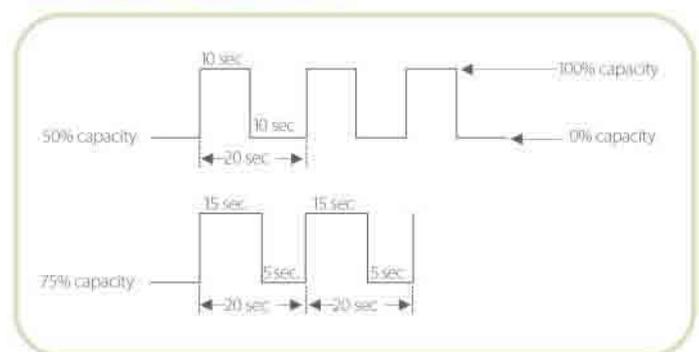
Digital Scroll Compressor

In the loaded state, the compressor is like a standard scroll, delivering full capacity, while in the unloaded state, there is no capacity. By varying the loaded state time and the unloaded state time, any capacity from 10% to 100% can be delivered by the compressor. This is a very smart way of ensuring greater efficiency, especially during partial load.

This real-time variation of the 'duty cycle' of the digital scroll compressor is what sets Blue Star VRF systems apart from ordinary systems. While in an ordinary system, the compressor always delivers its full capacity regardless of the cooling requirement, the intelligent control in the Blue Star VRF system ensures that only the required capacity is generated by the compressor, depending upon how many indoor units are operating at that point of time and at what load requirement.

This results in huge power savings, longer life and greater reliability. To top it all, there is no issue of electromagnetic interference.

Concept of Cycle Time



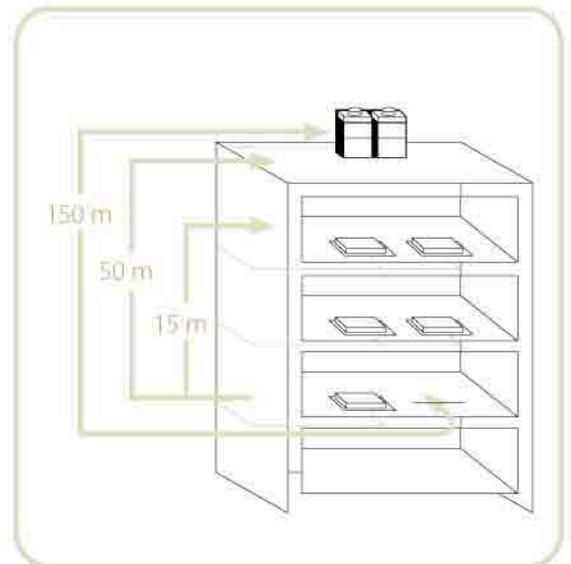
The Outdoor Unit



Long and Single Piping System

The system design allows for extra long piping lengths as given below:

- Maximum overall pipe length can be extended up to 250 metres, including the length of each branch pipe
- Maximum main pipe length between indoor unit and outdoor unit – 150 metres
- Maximum height difference between the indoor unit and outdoor unit – 50 metres
- Maximum height difference when the outdoor unit is lower than the indoor unit – 40 metres
- Maximum height difference between indoor units – 15 metres



Heat Pump Function for Winter Heating

(Heat Pump Models)

During winter, under low ambient conditions, the system can be switched over to the heating mode. Compared to conventional electrical heaters, this system consumes very little power to maintain the desired indoor condition. It thereby saves up to 40% on power bills. During winter, the flow of warm air can be modulated for your comfort by setting the fan to Low, High or Auto mode. It is designed to work at ambient temperatures as low as -7°C .

Indoor Units

Wall Mounted Type

The feature-loaded, elegant wall mounted unit gives your room a cool, refreshing and healthy atmosphere.

New Stylish Design

Ultra contemporary looks along with smart design spell class as never before. The front panel has fewer intake slits, making cleaning easier and the unit less obtrusive.

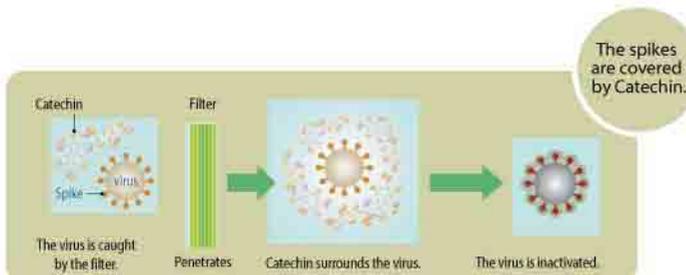
Refreshing Ions

Negative ions are ultra fine particles that have a rejuvenating effect. They are usually present in the air near waterfalls or forests. Blue Star's wall mounted units has a built-in super ioniser which generates refreshing ions, thereby filling the room with air that is as pure and fresh as in nature.



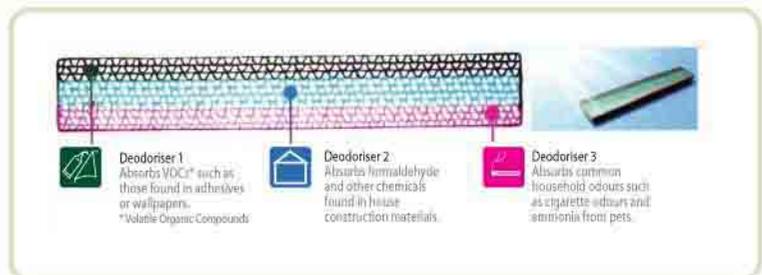
Catechin Air Purifying Filter

The Catechin Air Purifying Filter catches dust, mites, cigarette smoke and other pollutants. It also traps and inactivates microscopic virus and bacteria, rendering them harmless. Blue Star's wall mounted unit has this remarkable filter to help you stay healthy.



Triple Deodorising Filter

The triple action effect gets rid of a wide variety of odours, such as the smell of cigarettes and chemical vapours. This filter can be easily regenerated by merely exposing it to sunlight.



Double-Bend Heat Exchanger

The double-bend structure gives the heat exchanger a large surface area which makes it more efficient. By increasing the number of rows of copper piping, the heat exchange efficiency is further improved.



Cross-Flow Fan

By increasing the diameter of the cross-flow fan, the airflow path allows for quiet operation and delivers clean air to every corner of the room.

Personal Airflow Creation

Vertical and horizontal airflow patterns can be combined for maximum comfort.

Ducted Type

Low Height

Being low in height, these units occupy less space above the false ceiling, allowing for more headroom.

Low Noise Design

These units are designed with low-noise fans and are also acoustically lined to ensure low operating noise.

Fresh Air Intake

Provision is available to take in fresh air in order to maintain good indoor air quality.

3-speed Fan Option

Choose the right fan speed option to match the exact site requirement of static pressure.

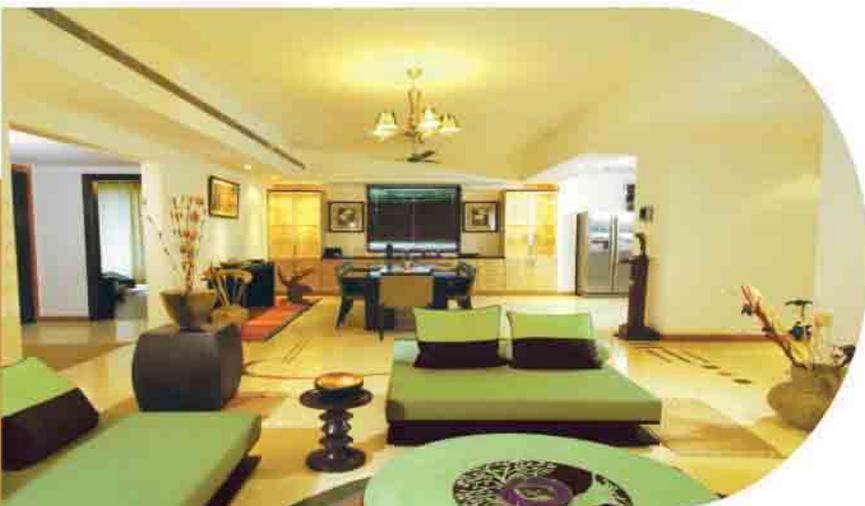


Service-friendly Design

The access panel can be detached by unscrewing the wing bolts for easy access to the fan motor assembly.

Option of Corded or Cordless Remote Controllers

Choose between a corded or cordless remote controller to suit your convenience.



Cassette Type

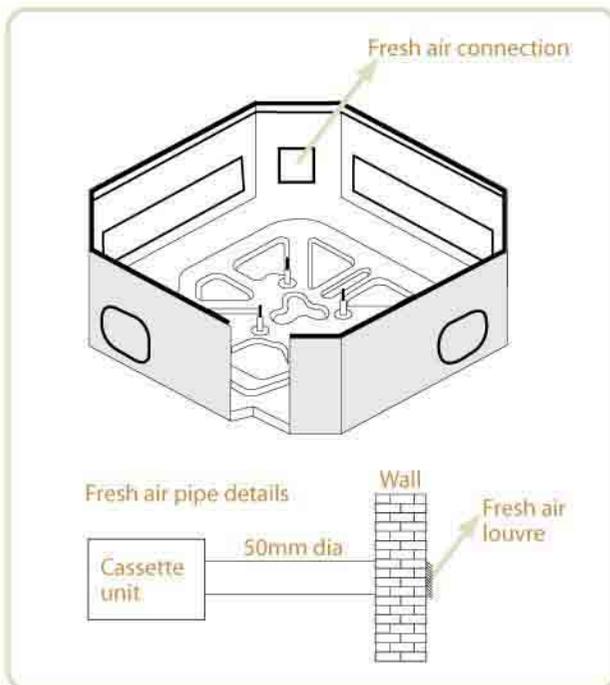
Blue Star's elegant and super quiet Cassette Airconditioners have the following features:

Sleek and Low Height

These slim profile models fit easily into ceiling spaces and other tight spots.

Fresh Air Intake Provision

Provision is available to take in fresh air in order to maintain good indoor air quality.



Fail-proof Drain Pump with Special Drain Up Mechanism

The drain hose can be elevated 750mm from the base of the unit by simply connecting an elbow. This makes drain piping easy and also gives you flexibility in locating the indoor unit. The fail-proof drain pump ensures complete reliability.

Easy Maintenance and Cleaning

The slit-in louvre and curved outlet helps prevent dew formation. The absence of fibrous materials on both the panel and the louvre renders the unit easy to clean.

Comfortable, Uniform Airflow

The auto-swing louvre ensures comfortable and uniform airflow pattern throughout the room.

Flexible Piping Layout

The drain and refrigerant pipes are located in different corners for greater working space.

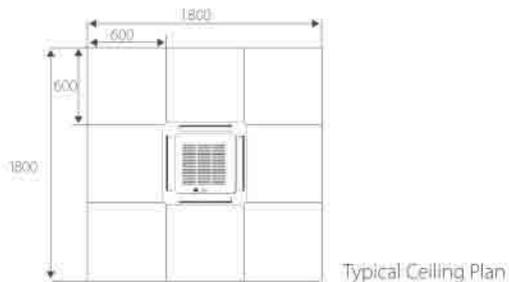
Option of Corded or Cordless Remote Controllers

Choose between a corded or cordless remote controller to suit your convenience.



Compact Cassette

The Compact Cassette Airconditioner can be installed in the area of just one standard ceiling tile (600mm X 600mm), thus blending aesthetically into the ambience of the interiors while also saving on installation time.



Concealed Split Type

Low Height

This unit too is low in height. It therefore occupies less space above the false ceiling, allowing for more headroom.

Low Noise Design

Concealed split units are designed with low noise fans and are also acoustically lined to ensure low operating noise.

Fresh Air Intake

These units have a provision to take in fresh air, so as to maintain good indoor air quality.



Detachable Fan Panel

The fan panel can be detached by loosening the wing nuts, thereby ensuring that the fan motor and coil can be easily serviced.

Salt Spray Tested GI Panels

The powder coated GI panels, rigorously tested for over 1000 hours, ensure that the units are rust-proof and maintenance-free.



Floor Mounted Packaged Type

Higher Airflow

Higher airflow of 475 CFM/TR

Higher Static Pressure

Designed for higher static pressure to handle longer lengths of ducting, very frequently required in the Indian context of larger floor plate areas.

Fresh Air Intake Provision

Fresh Air Intake possible in order to maintain refreshing indoor air quality.



Treated Fresh Air Units

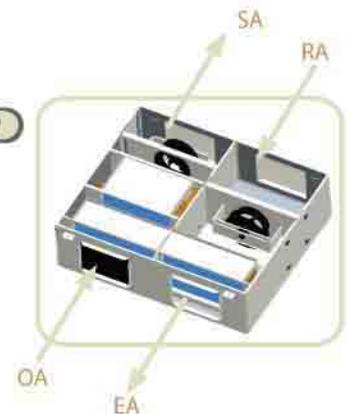
Ideally suited for catering to fresh air requirements of various areas to maintain high indoor air quality within the conditioned space. Available in 3 capacities of 500 CFM, 800 CFM and 1000 CFM.

Compact Design

Slim design occupying less space.

Heat Recovery Ventilator with DX Coil

This system merges both functions of fresh air treatment and airconditioning into a single unit. HRVs also offer the advantage of significant energy savings through heat recovery by the state-of-the-art heat pipe technology.



Centralised Control System

Intelligent Manager Software

- PC Access
- Centralised 'Intelligent Manager'
- Control and monitor up to 510 individual indoor units
 - Start / Stop
 - Temperature Settings
 - Fan Speed Control
 - Mode Control
 - Group Formation
 - View Alarms
 - Logging of 28 Alarms
 - Timer

Controllers



Model: RCE

Cordless Remote Controller

Features

- On/Off control of individual unit
- Air flow direction – auto swing or fixed angle mode for louvres
- Temperature setting
- Mode settings – Fan/Cool/Heat/Dry
- On/Off timer
- Fan Speed Setting – Auto/High/Medium/Low



Model: WRCE

Wired Remote Controller

Features

- On/Off control of individual unit
- Self-diagnostic function
- Temperature setting
- 3-step fan speed control
- Mode settings – Fan/Cool/Heat/Dry
- Fan speed setting – Auto/High/Medium/Low
- Air flow direction – auto swing or fixed angle mode for louvres
- On/Off timer



Model: SC256E

System Controller (Optional for Group Operations)

Features

The system controller can be located in a centralised area and has the following features:

- Can control up to 140 Indoor units
- Individual settings for operation
- Group Stop/Start function
- Switch On/Off of individual unit
- Fan speed settings – Auto/High/Medium/Low
- Display set temperature
- Display room temperature

- Self-diagnostic function for all indoor and outdoor units
- Long cable connection up to 1km between outdoor and indoor units
- Programmable for whole week
- Units can be set to OFF mode during holidays



Model: APC-BM-200

BMS Converter (Modbus open to BACNET)

- BMS converter from Blue Star RS 485 Modbus open protocol to BACNET protocol



Model: APC

BMS Converter (Modbus open to Modbus BMS)

- BMS converter from Blue Star RS 485 Modbus open protocol to Modbus BMS protocol

Outdoor Range

Technical Specifications of Side Discharge Models

		Single Outdoor Units		
Description	Units	6 HP	7.5 HP	12 HP
	Models	BVRF 06FCE	BVRF 075FCE	BVRF 12TCE
Cooling Capacity	TR	5	6	10
	Btu/hr	60000	72000	120000
		BVRF 06FHE	BVRF 075FHE	BVRF 12THE
Heating Capacity	TR	6	7	11
	Btu/hr	72000	84000	132000
Dimensions (WxDxH)	mm	1020x416x1270	1020x416x1270	1350x650x1500
Compressor				
Type		Digital Scroll		Digital Scroll + Fixed Scroll
Make		Copeland		
No. of Compressors		1	1	1+1
Individual Unit Connections				
Liquid	mm	9.52	12.7	15.87
Suction	mm	19.05	19.05	28.58
Weight	kg	120	120	170
Safety Devices		High Pressure Switch, Low Pressure Switch, Comp Overload Protector		
Capacity Control	%	10-100		
Refrigerant				
Refrigerant Type		R410A		
Charged Weight	kg	5	6	10
Control		Electronic Expansion Valve		
Refrigerant Oil		POE		
Recommended Power Supply		415 V - 3 Ph - 50 Hz		
Noise Level	dB(A)	55	55	58

Technical Specifications of Top Discharge Models

Models		Single Outdoor Units						
Description	Units	12HP	14HP	18HP	21HP	24HP	26HP	28HP
	Models	BVRF 12TCE	BVRF 14TCE	BVRF 18TCE	BVRF 21TCE	BVRF 12TCE+BVRF 12TCE	BVRF 12TCE+BVRF 14TCE	BVRF 14TCE+BVRF 14TCE
Cooling Capacity	TR	10	11.6	15	17.4	20	21.6	23.2
	Btu/hr	120000	139200	180000	208800	240000	259200	278400
		BVRF 12THE	BVRF 14THE	BVRF 18THE	BVRF 21THE	BVRF 12THE+BVRF 12THE	BVRF 12THE+BVRF 14THE	BVRF 14THE+BVRF 14THE
Heating Capacity	TR	11	12	16.5	19	22	23	25.5
	Btu/hr	132000	144000	198000	231000	264000	276000	306000
Dimensions (WxDxH)	mm	1090x1090x1650	1090x1090x1650	1090x1090x1650	1090x1090x1650			
Compressor								
Type		Digital Scroll + Fixed Scroll						
Make		Copeland						
No. of Compressors		1+1	1+1	1+2	1+2	2+2	2+2	2+2
Individual Unit Connections								
Liquid	mm	15.87	15.87	19.05	19.05	15.87 + 15.87	15.87 + 15.87	15.87 + 15.87
Suction	mm	28.58	28.58	34.92	34.92	28.58 + 28.58	28.58 + 28.58	28.58 + 28.58
Weight	kg	170	170	250	250	170 x 2		
Safety Devices		High Pressure Switch, Low Pressure Switch, Comp Overload Protector						
Capacity Control	%	10-100						
Refrigerant								
Refrigerant Type		R410A						
Charged Weight	kg	10	12	14	16	20	22	24
Control		Electronic Expansion Valve						
Refrigerant Oil		POE						
Recommended Power Supply	V	415V - 3 PH - 50HZ						
Noise Level	dB	58	58	62	62			

The values for performance and electric characteristics apply under the following performance test conditions:

At the time of cooling, indoor air temperature 27°C DB, 19°C WB, outdoor temperature 35°C DB.

At the time of heating, indoor air temperature 20°C DB, outdoor temperature -7°C DB.

Technical data and specifications are subject to change without notice.

These units are tropicalised and can operate at ambient temperatures as high as 52°C.



Twin Outdoor Units

30HP	32HP	33HP	35HP	36HP	39HP	42HP
BVRF 12TCE+BVRF 18TCE	BVRF 14TCE+BVRF 18TCE	BVRF 12TCE+BVRF 21TCE	BVRF 14TCE+BVRF 21TCE	BVRF 18TCE+BVRF 18TCE	BVRF 18TCE+BVRF 21TCE	BVRF 21TCE+BVRF 21TCE
25	26.6	27.4	29	30	32.4	34.8
300000	319200	328800	348000	360000	388800	417600
BVRF 12THE+BVRF 18THE	BVRF 14THE+BVRF 18THE	BVRF 12THE+BVRF 21THE	BVRF 14THE+BVRF 21THE	BVRF 18THE+BVRF 18THE	BVRF 18THE+BVRF 21THE	BVRF 21THE+BVRF 21THE
26.5	28	29	31	32	35	38
316800	336000	348000	372000	384000	420000	456000
1090x1090x1650 + 1090x1090x1650						
Digital Scroll + Fixed Scroll						
Copeland						
2+3	2+3	2+3	2+3	2+4	2+4	2+4
15.87 + 19.04	15.87 + 19.04	15.87 + 19.04	15.87 + 19.04	19.05 + 19.05	19.05 + 19.05	19.05 + 19.05
28.58 + 34.92	28.58 + 34.92	28.58 + 34.92	28.58 + 34.92	34.92 + 34.92	34.92 + 34.92	34.92 + 34.92
170 + 250				250 x 2		
Pressure Switch, Comp. Overload Protector, Fan Overload Protector						
10 - 100						
R410A						
24	26	26	28	28	30	32
Electronic Expansion Valve						
POE						
415V - 3 PH - 50HZ						
60 - 62						

Indoor Units

Wall Mounted Type

Technical Specifications



Cordless Remote Controller



Description	Units	Models				
		VHWE12	VHWE18	VHWE24	VHWE30	
Capacity	Btu/hr	12000	18000	24000	30000	
	TR	1	1.5	2	2.5	
Air Flow	CMH	610	890	1020	1230	
Power Supply	V/Ph/Hz	230/1/50				
Unit Dimensions	W x D x H-mm	998 x 210 x 275	998 x 210 x 275	998 x 210 x 275	998 x 210 x 275	
Unit Net Weight	kg	11	11	12	12	
Special Filtration		Catechin Air Purifying Filter				
		Triple Deodorising Filter				
		Super Ioniser				
Flow Control		Electronic Expansion Valve				
Pipe Connections						
	Suction	mm	12.7	12.7	15.87	15.87
	Liquid	mm	6.35	6.35	6.35	6.35
Controller Operation		Cordless				
Mode Selection		Cool/Dry/Heat/Fan/Auto				

Specifications are subject to change without prior notice.

Indoor Units

Cassette Type

Technical Specifications



Cordless Remote Controller Wired Remote Controller



Description	Units	Models Compact Type		Models				
		VCCE12M	VCCE18M	VCCE18	VCCE24	VCCE36	VCCE 48	
Capacity	Btu/hr	12000	18000	18000	24000	36000	48000	
	TR	1	1.5	1.5	2	3	4	
Air Flow	CMH	760	860	860	1100	1700	1900	
Power Supply	V/Ph/Hz	230/1/50						
Unit Dimensions	W x D x H-mm	580x580x254	580x580x254	840 x 840 x 246	840 x 840 x 246	840 x 840 x 288	840 x 840 x 288	
Panel Dimensions	W x D x H-mm	650x650x30	650x650x30	950 x 950 x 43				
Noise Level	dB(a)	37/34	37/34	37/34	41/36	45/41	45/41	
Unit Net Weight	kg	21	21	24	24	24	30	
Panel Net Weight	kg	3	3	4.5	4.5	4.5	4.5	
Flow Control		Electronic Expansion Valve						
Pipe Connections								
	Suction	mm	12.7	12.7	12.7	15.87	19.05	19.05
	Liquid	mm	6.35	6.35	6.35	9.52	9.52	9.52
Mode Selection		Cool/Dry/Heat/Fan						
Controller Operation		Cordless or Coded						
Types of Filters		Synthetic Media						

Specifications are subject to change without prior notice.



Indoor Units Ceiling Concealed Type Technical Specifications



Cordless Remote Controller Wired Remote Controller



Description	Units	Models			
		VCSE12	VCSE18	VCSE24	
Capacity	Btu/hr	12000	18000	24000	
	TR	1	1.5	2	
Air Flow	CMH	678	1020	1356	
Power Supply	V/Ph/Hz	230/1/50			
Unit Dimensions	W x D x H-mm	1110 x 513 x 266	1110 x 513 x 266	1110 x 513 x 266	
Noise Level	dB(a)	45	45	46	
Unit Net Weight	kg	33	35	35	
Power Consumption	W	130	130	130	
Fan Speed		3	3	3	
Flow Control		Electronic Expansion Valve			
Pipe Connections					
	Suction	mm	12.7	12.7	15.87
	Liquid	mm	6.35	6.35	9.52
Mode Selection		Cool/Dry/Heat/Fan			
Controller Operation		Cordless or Corded			
Type of Filters		Synthetic Media			

Specifications are subject to change without prior notice.

Indoor Units

Ducted Type

Technical Specifications



Cordless Remote Controller · Wired Remote Controller



Description	Units	Models								
		VSDE18	VSDE24	VSDE30	VSDE36	VSDE48	VSDE60	VSDE72	VSDE96	
Capacity	Btu/Hr	18000	24000	30000	36000	48000	60000	72000	96000	
	TR	1.5	2	2.5	3	4	5	6	8	
Air Flow - High	CMH	1020	1360	1700	2040	2720	3618	4104	5602	
Power Supply	V/PH/Hz	230/1/50								
Noise Level - High/Medium/Low	dB(a)	38/36/35	39/37/36	41/39/37	41/39/37	48/47/45	52/50/48	53/51/49	55/53/51	
Drainage Connection		3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	
Fan Speed		3 Speed Option								
Unit Dimensions	WxDxH-mm	1000x600x265	1000x600x265	1000x700x290	1000x700x290	1000x310	1325x900x385	1325x900x420	1475x650x535	
Static Pressure - External	Pa	50	50	60	70	80	100	120	120	
Unit Net Weight	kg	32	33	43	43	60	86	92	120	
Flow Control		Electronic Expansion Valve								
Input Power	W	130	160	260	300	450	680	825	1228	
No. of Motors		1	1	1	1	1	2	2	2	
Pipe Connections										
	Suction	mm	15.87	15.87	15.87	19.05	19.05	22.20	22.20	22.22
	Liquid	mm	9.52	9.52	9.52	9.52	9.52	12.70	12.70	12.70
Mode Selection		Cool/Dry/Heat/Fan/Auto								
Controller Operation		Cordless or Coded								
Type of Filters		Synthetic Media								

Specifications are subject to change without prior notice.

Indoor Units

Floor Mounted Packaged Type

Technical Specifications



Wired Remote Controller



Description	Units	Models			
		VSPE 60	VSPE 96	VSPE 120	
Capacity	Btu/hr	60000	96000	120000	
	TR	5	8	10	
Air Flow	CMH	4025	6440	8050	
Static Pressure External	Pa	40	60	80	
Power Supply	V/Ph/Hz	415/3/50			
Unit Dimensions	WxDxH-mm	900x660x1700	1160x660x1700	1160x660x1700	
Unit Net Weight	kg	136	205	210	
Drainage Connection	Inch	1-1/4"			
Fan Speed		Single Speed			
Flow Control		Electronic Expansion Valve			
Input Power	W	562	1500	2000	
No. of Motors		1			
Pipe Connections					
	Suction	mm	22.2	22.2	28.2
	Liquid	mm	12.70		
Mode Selection		Cool/Heat/Fan			
Controller Operation		Panel Mounted Controller			
Type of Filters		Synthetic Media			

Specifications are subject to change without prior notice.

Indoor Units

Treated Fresh Air Units

Technical Specifications



Description	Units	Models		
		TFAE500	TFAE800	TFAE1000
Cooling	TR	3.5	5.5	6.8
Unit Dimensions - Height	mm	390	390	390
Width	mm	760	900	1100
Depth	mm	950	950	1100
Casing		Powder Coated Galvanised Steel		
Fan	Type	Centrifugal Fan		
Air Flow Rate - High	CMH	848	1358	1697
External Static Pressure - High	Pa	80	80	80
Piping Connection				
Suction	mm	15.87	15.87	22.2
Liquid	mm	9.52	9.52	9.52
Drain		3/4" External Thread		
Insulation Material		Fire Retardant Polyurethane		
Air Filter		EU2		
Power Supply		230/1/50		
Current	Amps	4.8	6	6.6
Capacity Control		Suction Pressure Regulating Device		
Expansion Device		Electronic Expansion Valve		

Specifications are subject to change without prior notice.

Rated Conditions - Limits:

Total 'TR' of TFA + Indoor should not exceed 100% of outdoor 'TR'.

Total 'TR' of TFA in a system should not exceed 30% of total 'TR' of the outdoor unit.

Indoor Units

Heat Recovery Ventilator with DX Coil

Technical Specifications



Description		Models		
		HRVE 170	HRVE 300	HRVE 500
Cooling Capacity	TR	0.8	1.3	2.2
Unit Dimensions				
Height	MM	335	335	386
Width	MM	965	1110	1360
Depth	MM	1030	1030	1145
Fan Type		Centrifugal Plug Fan		
Air Flow	CMH	288	510	848
External Static Pressure	Pa	80	80	80
Operation Range		-7 °C to 45°C 80 % RH or less		
Piping Connection				
Liquid (Flare Connection)	mm	6.4	6.4	9.52
Gas (Flare Connection)	mm	12.7	12.7	15.87
Dehumidification Mode		Direct Expansion		
Heat Exchange Element		Heat Pipe		
Outdoor Air Filter		EU3		
Power Supply V/PH/HZ		230V/1/50		
Current	Amps	0.8	1.0	1.7

Limits:

1. Total 'TR' of HRVE + indoor should not exceed 100% of outdoor capacity (when connected to HRVS)

2. Total 'TR' of HRVE should not exceed 30% of total 'TR' of outdoor unit.



BLUE STAR

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