MiNi

VRF

for residential applications
design flexibility meets superior efficiency

TOSHIBA
AIR CONDITIONING

7 YEAR WARRANTY

Toshiba solutions

As a leader in technology solutions, Toshiba Air Conditioning is committed to delivering the highest standards of quality and innovation in comfort, ease of use and energy efficiency.

These principles apply to air conditioning, which it continues to develop market leading products suitable for residential and commercial applications.

Toshiba history

Toshiba produced its first air conditioning units in the 1950's, and immediately worked on introducing improvements. Its role as an innovator continued with the introduction of the rotary compressor and electronic controls.

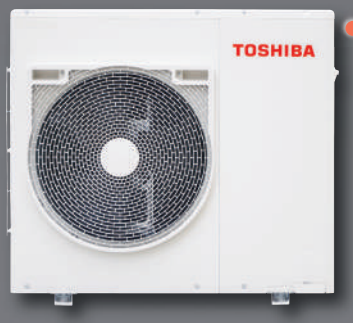
By the 1980's with a broad product offering, Toshiba was the first to introduce the inverter driven unit (1981) and the twin rotary compressor (in 1988).

In 1999, Toshiba again led the industry with the launch of its product range operating with non-ozone depleting refrigerants (R-410A).

Toshiba's spirit of innovation continues with its relentless drive for product and system improvements.

MiNi

VRF



Toshiba MiNi VRF systems

VRF systems are refrigerant based and use indoor fan coils units and outdoor condenser units for processing the air. This is where the similarities between the traditional air conditioning systems and MiNi VRF end.

MiNi VRF systems are highly energy efficient as the compressor runs according to the needs of current conditions, furthermore, it makes use of multiple indoor units for creating units that can be individually controlled.

MiNi VRF Systems are quite similar to traditional ducted air conditioning systems as they can be used for both light commercial and residential spaces.

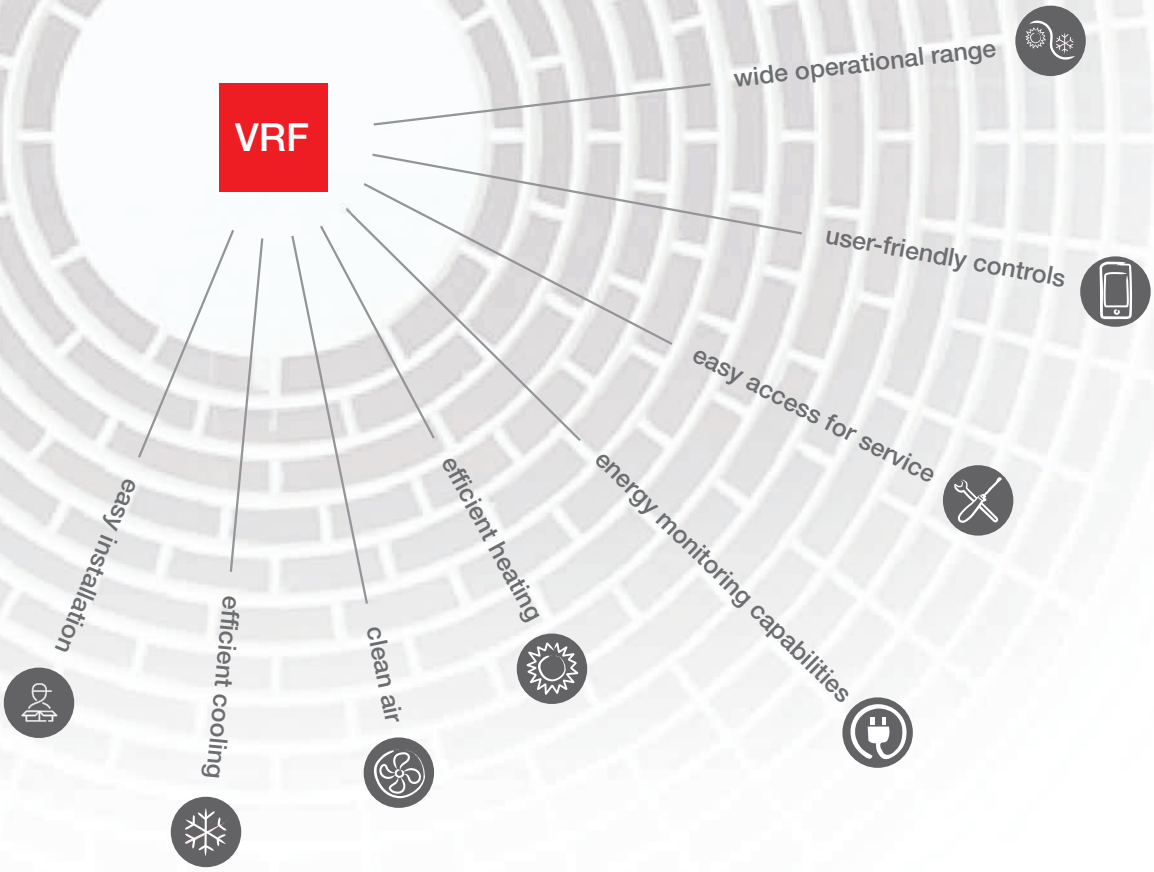
Difference between traditional ducted systems and the Toshiba MiNi VRF system

A traditional ducted air conditioning system operates using a single indoor unit, this is the coil which the condensed refrigerant flows through, thus, cooling down the air around it. A blower then distributes this cooled air through the duct system within the home. Unfortunately, this often leads to inefficiency issues such as rooms being cooled even when not in use or the air not being evenly distributed to all spaces.

Toshiba MiNi VRF system avoids these pitfalls. They do so by incorporating multiple indoor units. Generally, several indoor units are utilised throughout the home allowing for the homeowner to manually or automatically program the thermostat, altering the volume of refrigerant being sent to an indoor unit.

As a result, the homeowner can precisely tailor the amount of cooling / heating each zone of the house receives [not simultaneously], allowing maximisation of cooling / heating power whilst avoiding spending more to condition unused portions of the home.

Creating benefits around comfort



benefits for the user

COMFORT
Each indoor unit can be individually controlled, allowing you to condition only those rooms that need heating or cooling.

EFFICIENCY
Low operating costs thanks to high levels of efficiency via optimal load adjustments.

RELIABILITY
Hassle-free operation based upon decades of experience and intensive testing for all systems. Backed by a 7-year warranty for MiNi VRF systems for all residential applications.

benefits for the consultant

CUSTOMISATION
A wide range of products ensuring the client's requirements are fully addressed.

CONTROL
Fully integrated controls available, allowing unlimited access to the system and its operation.

FLEXIBILITY
A high degree of system flexibility, aided by a fully flexible piping specification and an extremely compact outdoor design.

DESIGN
TOSHIBA SELECTION TOOL software makes the selection of a system's components quick and simple.

benefits for the installer

SIMPLE
One supplier, one point of contact for a total solution.

VERSATILE
Maximised installation flexibility.

CONVENIENT
Easy access for all service and maintenance needs.

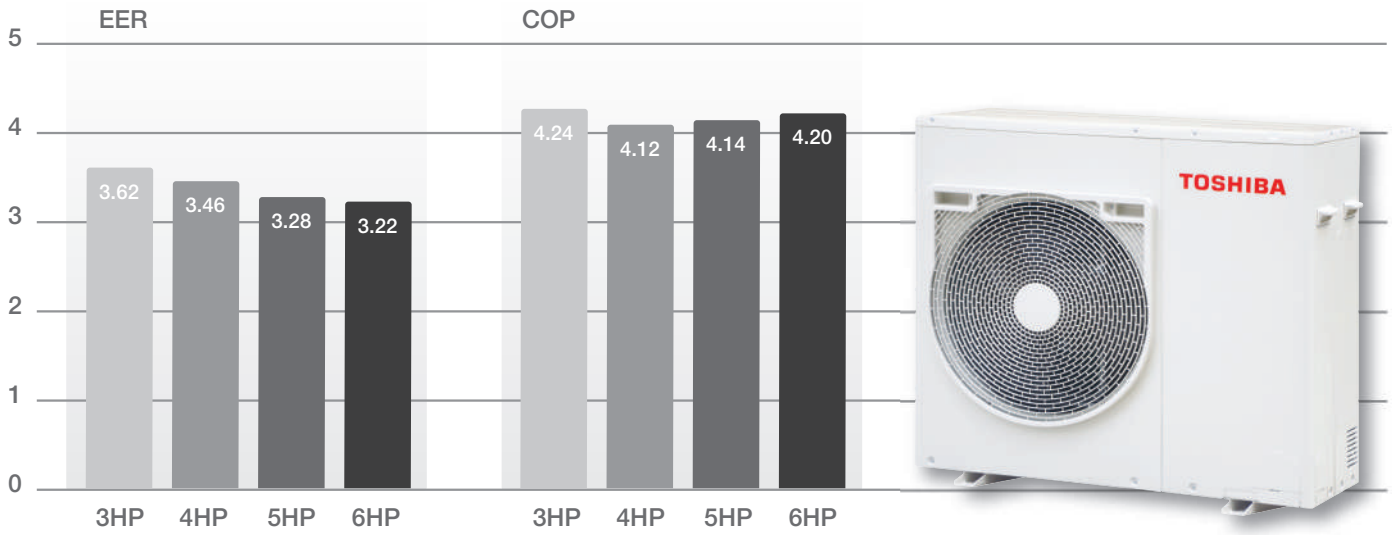
PROFESSIONAL
Intensive training and instructions offered by local TOSHIBA experts.

ACCESSIBLE
Simplified and swift commissioning assisted by local TOSHIBA experts.

reasons to invest in
Toshiba

MiNi

VRF



variable refrigerant flow (VRF) for residential applications

As the name suggests [Variable Refrigerant Flow or VRF], the equipment varies the amount of refrigerant to each system allowing for precise and individualised comfort control.

benefits of having VRF technology in residential applications:

- Energy Efficiency
- Precise Zoning
- Advanced Controls
- Design Flexibility
- Operational Efficiency
- Consistent Comfort
- Extremely Quiet Operation
- Space Saving
- Clean Air
- Less Downtime
- Ease of Installations

energy efficiency

Despite its compact size and low weight, Toshiba MiNi VRF offers greater energy efficiency by supplying only the precise amount of refrigerant needed to cool or heat a room under a room's current condition.

features contributing to energy efficiency

VRF varies refrigerant flow

Achieves even lower power usage by varying compressor speeds and refrigerant flow. This is accomplished by several mechanisms which regulate energy consumption.

A liquid expansion valve in the indoor unit limits the flow of refrigerant. A DC inverter regulates compressor speed.

The compressor pumps only the exact amount of refrigerant required to each indoor unit.

This design minimises power consumption using only a fraction of the system capacity according to demand.

ductless VRF

Ducted systems can lose up to 30-40% of energy through duct leaks as well as heat gain.

This is heat absorbed by the ducts which are typically located in unconditioned spaces like ceilings. Ductless systems eliminate this loss.

target zoning

This enables condition of only occupied spaces. Ducted Split systems condition the entire home even if half of the space is unoccupied. This amounts to using twice the amount of energy which is required.

meeting design and functionality needs

MiNi

VRF

design flexibility

Whether you like the exposed look of a wall-mounted indoor unit or prefer a system that is hidden above the ceiling, similar to a ducted split system, Toshiba MiNi VRF can accommodate all needs and provide a sleek look for any residential application.

To compliment the outdoor units, Toshiba offers a wide range of indoor unit types including the 450mm deep Super Slim Bulk Heads - making them ideal for homes and apartment applications.

super slim bulk heads [SSD]

Toshiba's Super Slim Bulk Heads [SSD] provides solutions to a variety of application challenges facing residential and apartment style living including commercial, hotel and aged care installations.

The SSD's built-in features and control logic is a perfect fit with building management systems and Toshiba's network of VRF & Light Commercial products boasting an impressive line-up of 12 capacities from 2.2kW up to 8.0kW.

The SSD's low profile of only 210mm makes bulkhead and installations above wardrobe voids a practical solution, along with being a prefect compliment to the single fan MiNi VRF outdoors.

With installation design ease and user comfort in mind, the SSD comes with its own built-in DC driven drain pump and optional left/right discharge ports.

The SSD's air intake and discharge are also interchangeable to either rear or bottom configuration, all combining to produce quieter operation for enhanced user comfort and installation simplicity.

Precise zoning

and operational efficiency

Achieve perfect climate in virtually any circumstances. Lounge rooms, bedrooms, entertainment areas - all need a different approach.

With ducted systems, opening and closing ducts in several rooms every day can be impractical. In some instances, it may not give precise temperature control depending on the set up.

Often you will come across one room that may be too hot while another room is too cold.

VRF solves the issue of hot & cold spots and creates a more comfortable environment. Each room can be set to the exact desired temperature.

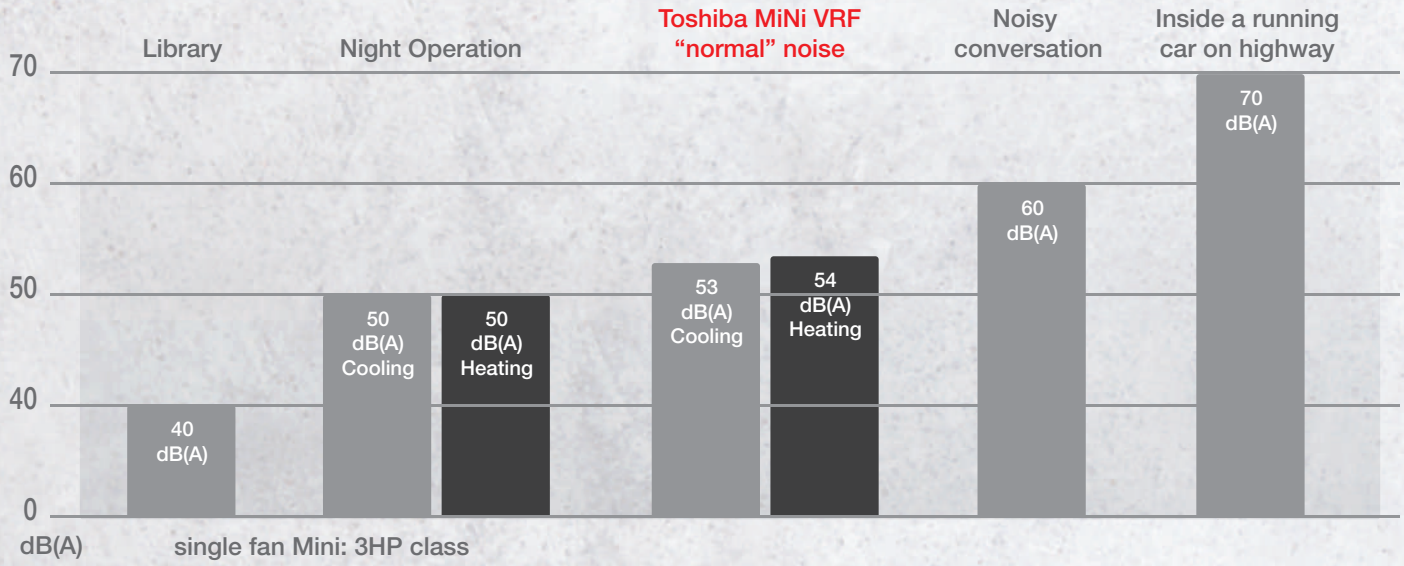
Schedules can also be set to raise or reduce temperatures automatically.

Energy saving levels can also be set for times when rooms / spaces aren't being occupied.

Independent zone control provides greater flexibility of controlled temperature and humidity along with energy savings.

Taking control

of your environment



extremely quite operation

Typically, the louder the outdoor unit, the more "unhappy" neighbours there will be.

Toshiba MiNi VRF condensers are extremely quiet, delivering the same powerful effects whilst ensuring a more peaceful environment with less disturbance.

clean air

With traditional HVAC systems, air ducts must be professionally cleaned on a regular basis, even after cleaning, dust and allergens are still left behind. MiNi VRF systems on the other hand, offer multi-stage filtration that can drastically reduce dust, bacteria, pollen, allergens and other particles in the air.

Air is filtered separately in each zone by each indoor unit rather than at one central location.

consistent comfort

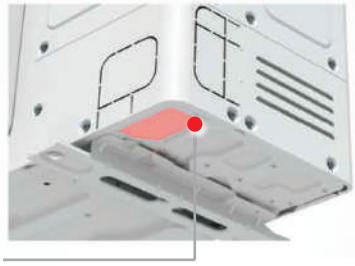
The condensing unit of the MiNi VRF, which encompasses a DC TWIN ROTARY COMPRESSOR, accurately identifies the heating and cooling demand of each comfort zone and pumps the precise amount of refrigerant needed to each indoor unit.

The precise flow reduces cold and hot spots and humidity problems, and provides the consistent comfort.

Design for tomorrow

FRONT & RIGHT INSTALLATION

REAR INSTALLATION



BOTTOM INSTALLATION

Ease of installation

Toshiba MiNi VRF outdoor units allow for piping from any four directions; front, back, bottom and or right. This enables easier horizontal connection for collective layout.

The outdoor unit with an expanded piping layout improves piping workability.

Reduced downtime

One key benefit of using Toshiba MiNi VRF system is, there will be less down time.

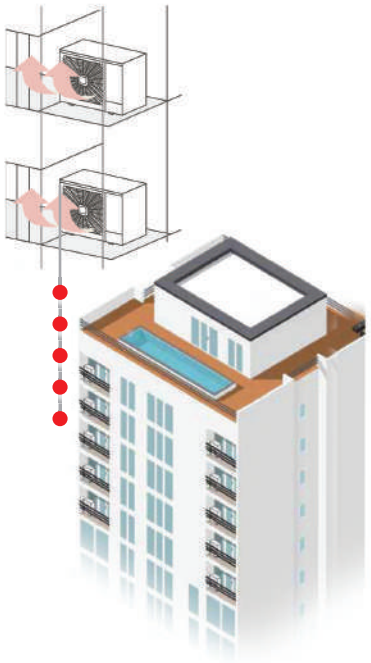
It is clear that no one wants to be without cooling during summer or heating in winter.

Toshiba MiNi VRF systems are designed to run only when needed and under partial load conditions. Consequently, less repairs are needed, which saves money and downtime.

In addition, keep your mind at ease with Toshiba's 7-year warranty on MiNi VRF systems when installed for residential use.

Space saving

Toshiba MiNi VRF outdoor units are slim and compact with a physical footprint of 0.34m3 [3 & 4HP single fan outdoors], resulting in significant savings in installation space along with offering an increased degree of freedom of installation - ideal for apartment type applications where balcony space is limited.



MiNi

VRF

DLC Coated Vane

Toshiba's Diamond Like Carbon Coating technology is unique to Toshiba VRF compressors.

It covers the wear surfaces on compression vanes for outstanding hardness and wear resistance, enhancing both the compressor's performance and durability.

2-STAGE VANE

The dual vane technology reduces any variances in the contact area between the vane and roller, even when the compressor is operating at very high speeds. This results in minimal compression losses inside the compressor, further optimising its performance and efficiency.

DC Twin Rotary Compressor

The advanced technology used within Toshiba MiNi VRF results in a robust and durable system. The innovations made with Toshiba twin rotary compressor delivers an even stronger and more reliable system.

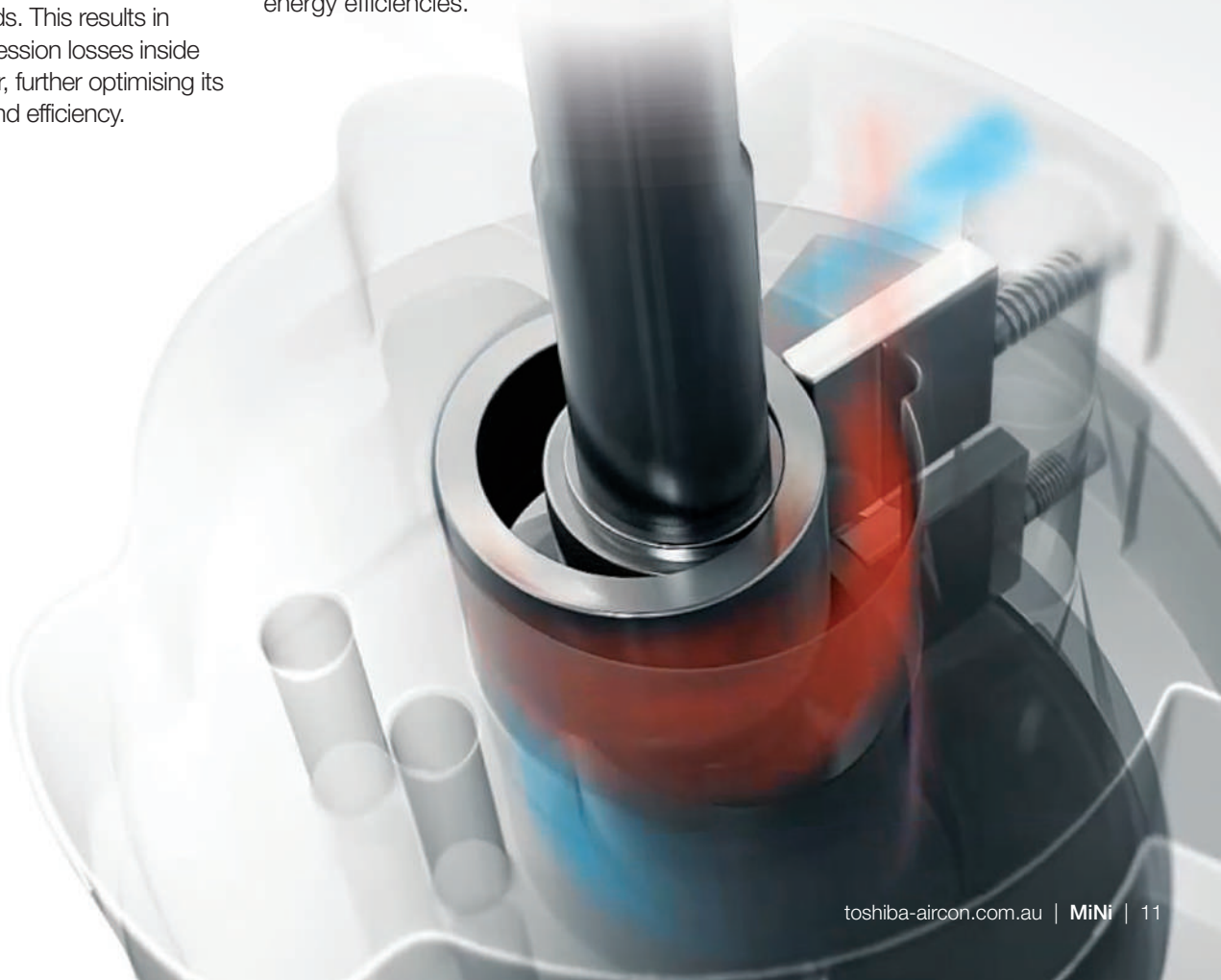
WIDE RANGE COMPRESSOR

Toshiba's twin rotary DC driven compressor can operate in a much wider range of rotational speed, giving increase performance, whilst maximising energy efficiencies.

Wide ambient operating range

Wider applications in hotter and colder regions are now possible with Toshiba MiNi VRF systems.

The operating temperature range for heating goes all the way down to -20ºC, while cooling can be performed with outdoor temperatures as high as 46ºC.



Advanced controls at your fingertips

Set for anything

Each indoor unit can be independently controlled, additional control is also available via central controls.

Schedules can be set for each individual zone to automatically raise and lower temperatures. MiNi VRF systems being used for apartments & penthouses also allow for individual metering of each residence.

Operation & maintenance alerts are also possible.

Local Controllers

An innovative range of integrated controls are available for Toshiba Air Conditioners that can control a single indoor unit or up to 8 indoor units. These local remote controllers ensure maximum comfort and excellent performance.

FEATURING:

- Easy to use controller
- Start/stop
- Operational mode change
- Temperature setting
- Air flow changing
- Timer function Either “ON” time or “OFF” time
- Connect up to 2 controllers
- 2 wireless controllers can operate one indoor unit
- Check code display

Central Controllers

Central control options allow control of several indoor units from a central location for example a reception area of an apartment building, a plant room or even an office.

FEATURING:

- Full control of up to 512 indoor units
- Advanced scheduling of indoor and outdoor units
- Simple and intuitive interface with user friendly menus
- Energy Monitoring capabilities
- Web browser capabilities

WIRELESS REMOTE CONTROLLER KIT

TCB-AX32E2

Wireless remote controller with a standalone discreet receiver, making it easily accessible with added flexibility of placement.

FUNCTIONS:

- Easy to use controller
- Start/stop
- Operational mode change
- Temperature setting
- Air flow changing
- Timer function either “ON” or “OFF” time
- Control by 2 remote controllers is available
- 2 controllers can operate one indoor unit
- Check code display

COMPACT WIRED CONTROLLER

RBC-ASC11E

Back to basics with this remote controller offering all the standard functionalities with compact dimensions and large screen.

FUNCTIONS:

- On/Off
- Operation mode
- Temperature setting
- Fan speed
- Louvres
- Fault codes
- Unit setup

STANDARD WIRED CONTROLLER

RBC-AMT32E

The standard remote controller to control an individual indoor unit or a group of 8 indoor units.

FUNCTIONS:

- On/Off
- Operation mode
- Temperature setting
- Fan speed
- Louvres
- Fault codes
- Unit setup
- Button restrictions.

STANDARD WIRED CONTROLLER

RBC-AMS41E

Based on the standard wired remote controller, this remote includes a 7-day timer function.

FUNCTIONS:

- On/Off
- Operation mode
- Temperature setting
- Fan speed
- Louvres
- Night set back
- Energy saving*
- Frost protection*
- Fault codes
- Unit setup
- Button restrictions.

BACKLIT WIRED CONTROLLER

RBC-AMS55E-ES

The ultimate in local controller with built-in 7-day timer, large screen and menu.

FUNCTIONS:

- On/Off
- Operation mode
- Dual set point
- Fan speed
- Louvres
- Return back
- Energy savings
- Frost protection
- Soft cooling
- Leak detection
- Fault codes
- Unit setup
- Button restrictions

64 CENTRAL CONTROLLER

TCB-SC643TLE

This standard central controller allows easy control and simple monitoring for up to 64 indoor units through its easy touch panel operation.

FUNCTIONS:

- Full control of maximum of 64 units
- Individual indoor unit, group [up to 10 groups]
- Simple and intuitive interface with user friendly menus
- On/Off, operation mode, temperature, fan speed
- large backlit display
- Touch-sensitive keys
- Embedded digital outputs

128 SMART MANAGER

BMS-SM1281ETLE

This Smart Manager has the ability of control from a local area network with dedicated interface accessible from every web browser. Energy monitoring and Data analyser functions are included and brings to the user a strong tool to analyse power consumption day by day and hour by hour.
This controller is ideal where advanced control, Energy monitoring, advanced scheduling or access to individual air conditioners is required from a networked pc.

128 TOUCH SCREEN CONTROLLER

BMS-CT1280E

FUNCTIONS:

- Full control of maximum 128 units
- 7’ Colour touch screen
- Intuitive navigation
- Advanced scheduling of indoor and outdoor units
- Energy monitoring with or without power meter
- Embedded input and output
- Dedicated fault code menu with email transfer capability

512 TOUCH SCREEN CONTROLLER

BMS-CT5121E

FUNCTIONS:

- Full control of max 512 indoor units
- 12.1’ Large coloured touch screen
- Quick and accurate view of indoor unit’s status
- Floor, building, tenant and system overview
- Built-in web browser
- Weekly timer [up to 20 steps per day]
- Energy Monitoring with graph - view operating hours, set point, inside/outside temperature and power consumption
- Email alert

Indoor line up

overview

IDU CATEGORY	COOLING (KW)	2.2	2.5	2.8	3.2	3.6	4.0	4.5	5.0	5.6	6.3	7.1	8.0	9.0	11.2	14.0	16.0
4-Way Cassette				●		●		●		●		●	●	●	●	●	●
4-Way Compact Cassette		●		●		●		●		●							
2-Way Cassette		●		●		●		●		●		●	●	●	●	●	●
1-Way Cassette		●		●		●		●		●		●					
Concealed Duct		●		●		●		●		●		●	●	●	●	●	●
High Static Duct										●		●	●	●	●	●	●
Slim Duct		●		●		●		●		●		●	●				
Super Slim Duct		●	●	●	●	●	●	●	●	●	●	●	●				
Ceiling								●		●		●	●		●	●	●
High Wall		●		●		●		●		●		●					
Floor Standing				●		●		●		●		●					
Floor Standing Cabinet		●		●		●		●		●		●					
Floor Standing								●		●		●	●		●	●	●
Console		●		●		●		●		●							

For combination and connection ratio details, please refer to the Engineering Data Book

Outdoor Specifications

Single Fan MiNi VRF

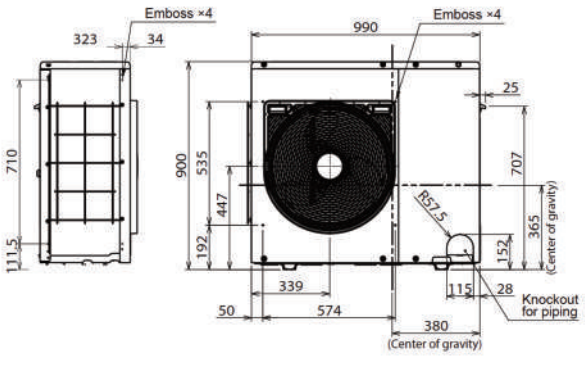
	EQUIVALENT (HP)		3HP	4HP	5HP	6HP
Model Name			MCY-MHP0305HT	MCY-MHP0405HT	MCY-MHP0505HT	MCY-MHP0605HT
Outdoor unit type			Inverter			
Cooling Capacity	[*1]	kW	8.0	11.2	14.0	15.5
Heating Capacity	[*1]	kW	9.0	12.5	16.0	17.0
Power supply	[*2]	A	1phase 50Hz 220 / 230 / 240V			
Cooling	Running Current	A	10.7 / 10.2 / 9.8	16.1 / 15.4 / 14.7	18.7 / 17.9 / 17.1	21.3 / 20.4 / 19.5
	Power Consumption	kW	2.05	3.39	3.94	4.49
	Power Factor	%	87	96	96	96
	EER		3.62	3.46	3.28	3.22
Heating	Running Current	A	10.8 / 10.4 / 9.9	14.8 / 14.1 / 13.6	18.3 / 17.5 / 16.8	19.6 / 18.7 / 18.0
	Power Consumption	kW	2.1	3.09	3.86	4.15
	Power Factor	%	88	95	96	96
	COP		4.24	4.12	4.14	4.20
External Dimensions	H x W x D	(mm)	900 x 990 x 390	900 x 990 x 390	910 x 990 x 390	910 x 990 x 390
Total Weight	Unit	Kg	80	80	99	99
Compressor	Type		Hermetic twin rotary compressor			
	Motor Output	kW	2.72	2.72	3.75	3.75
Fan Unit	Motor Output	W	100	100	100	100
	Air Volume	l/s	1,022	1,111	1,216	1,250
Refriderant R410A	Charged amount [*3]	kg	2.3	2.3	3.3	3.3
High Pressure Switch		MPa	ON:3.73 OFF:2.90	ON:3.73 OFF:2.90	ON:4.15 OFF:3.20	ON:4.15 OFF:3.20
Protective Devices			[*4]			
Refrigerant Piping	Gas Side	(mm)	Ø15.9	Ø15.9	Ø15.9	Ø19.1
Refrigerant Piping	Liquid Side	(mm)	Ø9.5	Ø9.5	Ø9.5	Ø9.5
Max. No. of Connections	Indoor Units		5	5	6	6
Sound Pressure Level	Cooling	dB(A)	53	54	54	55
	Heating	dB(A)	54	55	56	57
Operation Temp Range	Cooling	CDB	-5 to 46	-5 to 46	-5 to 46	-5 to 46
	Heating	CWB	-20 to 15	-20 to 15	-20 to 15	-20 to 15

[*1] Related conditions
Cooling: Indoor 27 degC Dry Bulb / 19 degC Wet Bulb, Outdoor 35 degC Dry Bulb.
Heating: Indoor 20 degC Dry Bulb, Outdoor 7 degC Dry Bulb / 6 degC Wet Bulb.
Based on equivalent piping length of 7.5m and piping height difference of 0m.

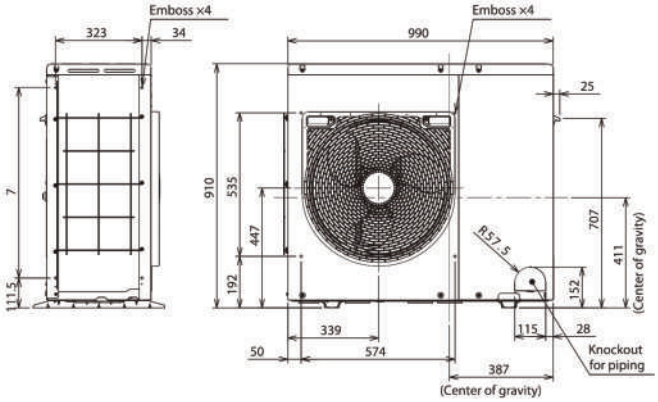
[*2] The source voltage must not fluctuate more than ±10%

[*3] The ammount dose not consider extra piping length and indoor unit type.
Refrigerant must be added on site in accordance with the actual piping length and indoor type.

[*4] Discharge temp. sensor / Suction temp. sensor / High-pressure sensor / Compressor case thermostat / PC board fuse.



3 / 4 HP



5 / 6 HP

MiNi

VRF

7 Year Warranty

As a leading innovator in air conditioning, Toshiba has enjoyed many firsts in its long history: world's first split air conditioner (1961), world's first inverter-based residential air conditioner (1980), world's first light commercial AC, using DC Inverter Rotary Compressors with R410a refrigerant (2001), world's first variable-cylinder dual-rotary compressor (2004), world's first voice controlled air conditioner in the Japanese market (2011), to name a few and now a 7-year warranty.

We at Toshiba are so confident in our air conditioners, we believe it will withstand the harsh conditions of the Australian climate therefore back its reliability and quality with a 7-year warranty.

The landmark 7-Year warranty applies to all residential applications across the entire Toshiba line-up of Hi-Walls, Multi Split and Light Commercial equipment including the coveted SMMS VRF suite of products.

Toshiba continues to deliver air conditioning solutions now and into the future with world-class quality, reliability and comfort.

TOSHIBA

AIR CONDITIONING

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