TOSHIBA

VRF R410A technologies

The most advanced commercial air conditioning system

TWIN-INVERTER DRIVE

MODULAR

HIGH EER

INNOVATIVE

NON-OZONE-DEPLETING

ENERGY-EFFICIENT

RELIABLE

Toshiba world-wide industry leaders

As a world-wide leader in electronics, Toshiba is committed to delivering the highest standards of quality and innovation in all of the industries in which the company is a major player.

These principles are clearly demonstrated in the air conditioning division, where Toshiba continues to develop market-leading products for both commercial and residential customers.

In 1981 Toshiba was the first manufacturer to launch air conditioners with inverter technology, and now Toshiba has a comprehensive range of split systems designed for use with non-ozone depleting refrigerants. In 2004 Toshiba launches the new Super MMS VRF system, optimised for use with energy-efficient, non-ozone-depleting R410A refrigerant.

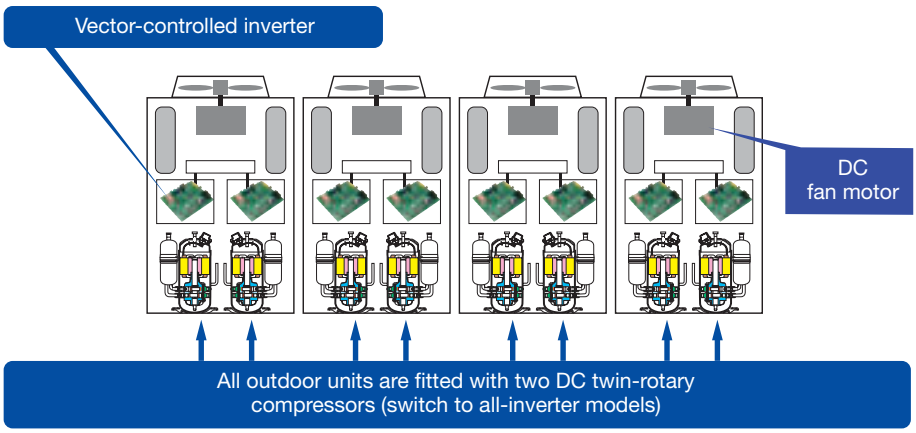
For the last 47 years Toshiba's ambitious main objective has been to design and manufacture state-of-the-art air conditioning, with innovative technologies in all areas - from superior performance to reduced power consumption, from air treatment to expert assistance.

The innovative Super MMS range - unequalled performance optimised for R410A refrigerant

With its sophisticated technology the new R410A Super MMS from Toshiba provides superior application flexibility and unrivalled capabilities that far outperform the existing industry standards.

The superior S-MMS heat pump system achieves an energy efficiency ratio (EER) of 4.1 for the 14.0 kW size, and reduces annual power consumption by over 50%. With cooling capacities from 14 to 135 kW and heating capacities from 16 to 150 kW.

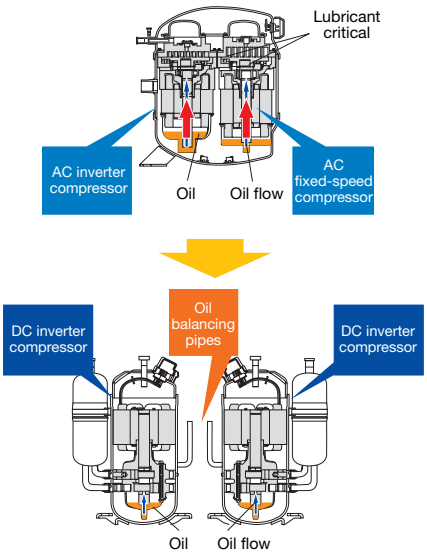
Every outdoor unit incorporates two new DC twin-rotary compressors and dual-inverter drives - this is unique to Toshiba and the air conditioning industry.



Innovative technologies

- New DC twin-rotary compressors
- Unique twin-inverter drive in every outdoor unit
- Superior EERs of up to 4.1
- New large-diameter fan design for improved air flow
- New heat transfer pipe design for greater energy efficiency
- Improved fan blade design for smoother air flow and less turbulence
- Optimised for energy efficient non-ozone-depleting R410A refrigerant
- Extended pipe runs for greater application flexibility

LEADING TECHNOLOGIES



Compressor development and ecology

Conventional 2-in-1 scroll (R407C)

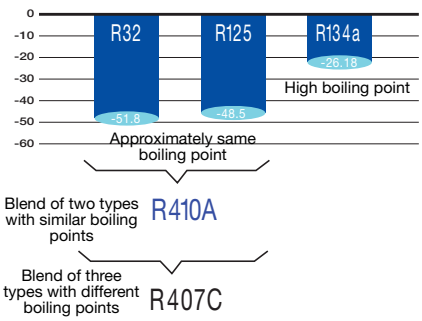
Consists of one inverter-driven compressor and one fixed-speed compressor.
Each scroll compressor comprises a fixed scroll (spiral) and an oscillating scroll. The oscillating scroll fits within the fixed scroll.
Refrigerant is drawn from the outside of the meshing spirals and squeezed towards the centre of the scrolls, thereby pressurising the refrigerant. To minimise leakage, the contact force required between the two scrolls is considerable and the scroll surfaces must be lubricated. At low compressor speeds lubrication efficiency is reduced, resulting in increased compressor wear.

Dual DC twin-rotary (R410A)

Consists of two inverter-driven twin-rotary compressors.
A twin-rotary compressor has two fixed compression chambers. An off-centre roller orbits each chamber to squeeze the refrigerant. The two rollers are both mounted on the same shaft, but are offset to provide counter balance to each other. The contact force required between the roller and chamber wall is lowered. This means that smaller bearings can be used and lubrication demand is reduced, saving weight and making this type of compressor more suited to low-speed operation.

Compressor	2-in-1 scroll	DC twin-rotary	Benefit
Efficiency	Standard	20% improved	Greater energy savings
Weight (comparative, %)	92 kg x 1 (100%)	25.2 kg x 2 (55%)	Lighter
Volume (comparative, %)	50 l (100%)	15 l (30%)	and more compact
Lubrication requirement	(100%)	(2.5%) = 1/40	Higher reliability

Comparison of refrigerant boiling points (liquid and gas)



Benefits of using **R410A** refrigerant

Incorporating the energy-efficient, non-ozone-depleting R410A refrigerant in air conditioning systems delivers multiple benefits:

- zero ozone-depleting potential
- significant increase in energy efficiency
- reduced pressure loss for improved performance

Compact and modular in design

The Super MMS outdoor units are modular in design; units of different capacities have the same dimensions. The outdoor units fit into a lift making installation much easier. The design of the outdoor units is the same as the MMS VRF system, resulting in a smart appearance on-site when a combination of MMS and S-MMS is installed.

Toshiba – focussed on energy conservation

Toshiba has made a significant investment into researching and developing technologies that focus on protecting the environment and saving energy.

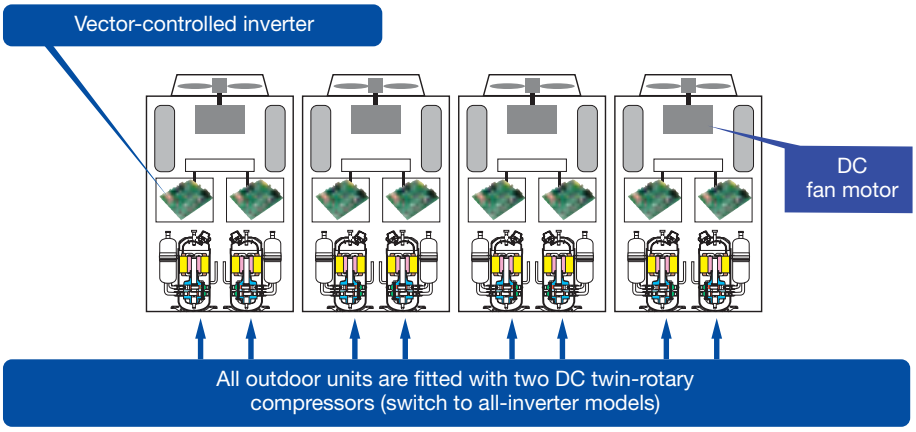
The inverter control used in the S-MMS incorporates more, smaller steps to deliver the required power and achieve the temperature desired by the occupant. The increase in control steps ensures a more precise and stable temperature and eliminates power surges common in standard, non-inverter systems.

Toshiba aims to:

- Reduce CO_2 emissions and prevent global warming
- Recycle and reduce waste emissions
- Ensure 90% of the components used in the S-MMS are recyclable
- Design only products optimised for HFC refrigerants
- Reduce power consumption with each product feature
- Use lead-free solder

ISO 14001: environmental care from manufacturing

Area	Sites	Date certified	Certifying body
Japan	Toshiba Carrier Fuji site	Obtained April 1997 (ISO 14001)	JACO (Japan Audit and Certification Organization for Environment and Quality)
UK	Toshiba Carrier UK	Obtained May 1996 (ISO 14001)	SGS (Société Générale de Surveillance SA)
Thailand	Toshiba Carrier Thailand	Obtained May 1998 (ISO 14001)	AJA (Anglo Japanese American)

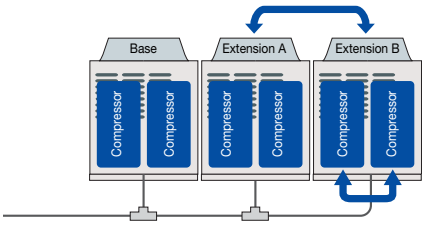


Number one in energy conservation

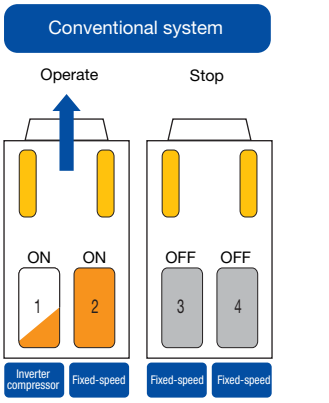
High-efficiency DC twin-rotary compressors

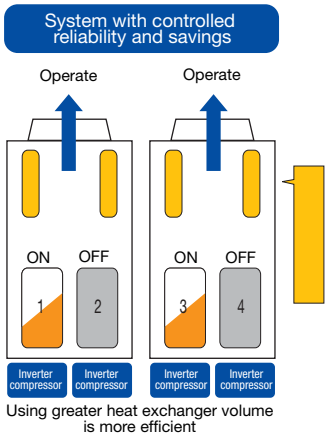
All outdoor units use DC twin-rotary compressors, offering optimum compatibility with high-density R410A refrigerant.

Reliability



Savings





Using greater heat exchanger volume is more efficient

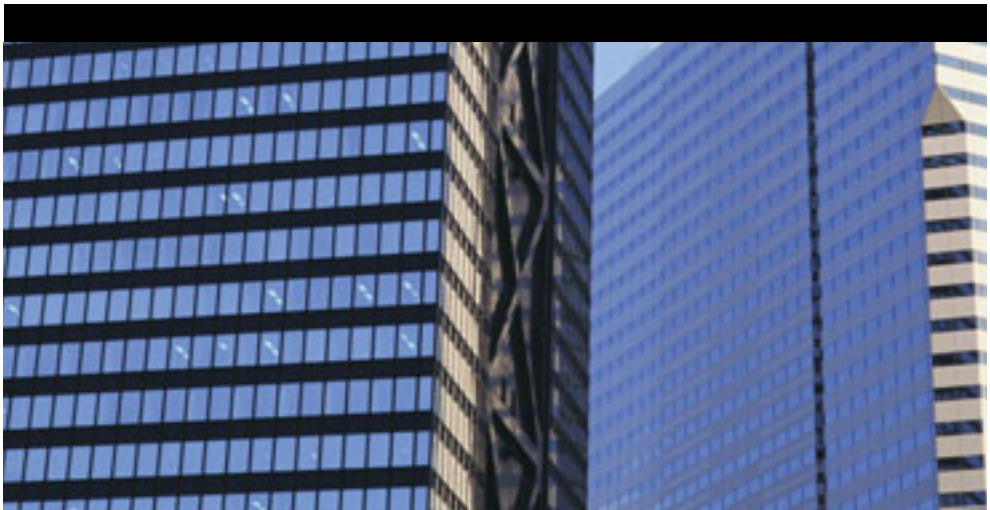
Controlling savings and reliability

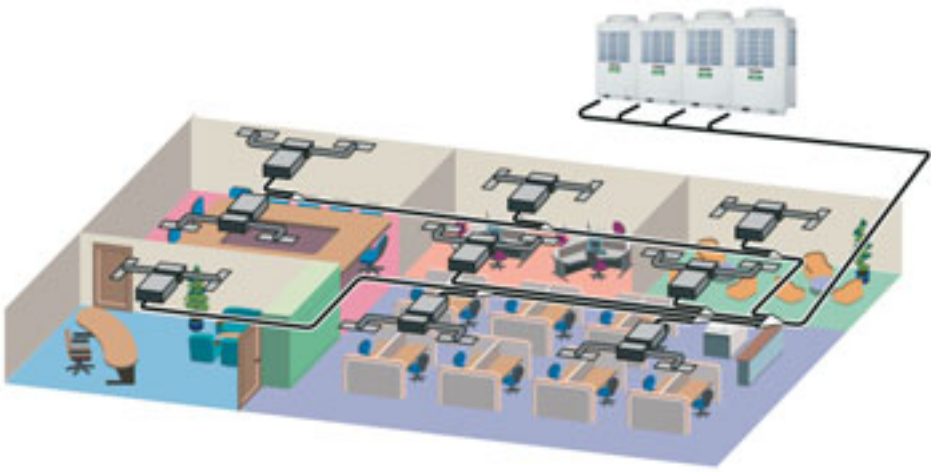
Reliability

With dual-rotation, the load is distributed more evenly – this means that the operating sequence of the outdoor units and the individual compressors is rotated to spread the operating hours more evenly. As the compressors are all inverter driven, power surges are eliminated. Over or under-utilisation of power, typical for non-inverter compressors is eliminated, and there is no on/off power surge as the system adjusts to the demand required by the occupant or system. The use of inverter compressors reduces the risk of compressor failure, more common in standard non-inverter systems.

Energy savings

During operation the system determines which heat exchanger can be used most efficiently and selects the compressor to deliver the power required. Inverter systems save energy as continuous operation offers the same capacity with lower power consumption. This benefits all occupants by maintaining even room temperatures, as well as the environment by reducing energy consumption.





Leading the way for energy efficiency

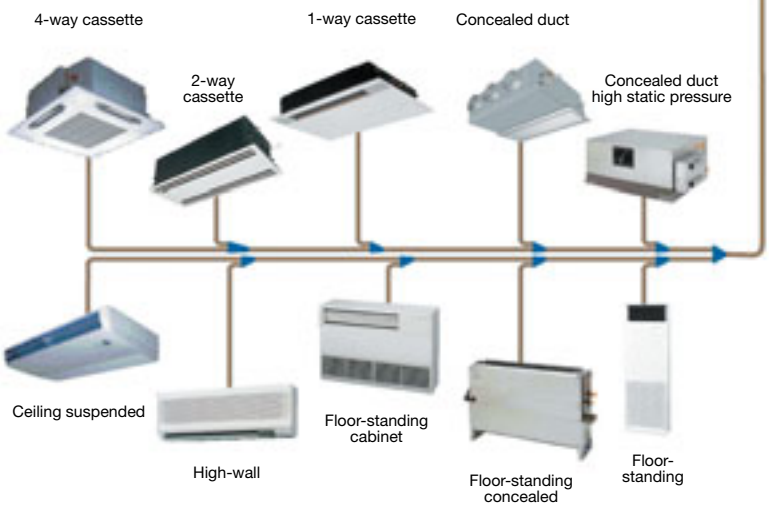
Use of the high-efficiency refrigerant R410A and the dual-inverter system enables the Toshiba S-MMS to deliver the highest EER of 4.1 (14.0 kW size), achieving energy, efficiency levels around 1.5 times those of previous models.

Outdoor units

.... and energy consumption

Using two compressors and heat exchangers contributes to further energy savings. The amount of energy consumed over a specific period is approximately half that of earlier models (28 kW size). This greatly enhances the benefits for the end user.

Indoor units



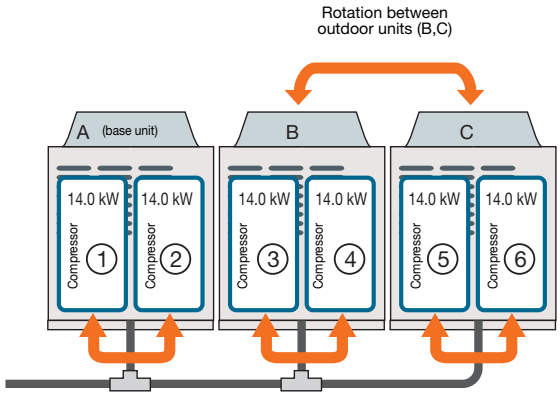
Power input reduced by up to 30%

The new design, with its major power-saving features and increase in capacity can reduce power consumption by around 30% compared with previous models (28 kW size).

Reliability as standard

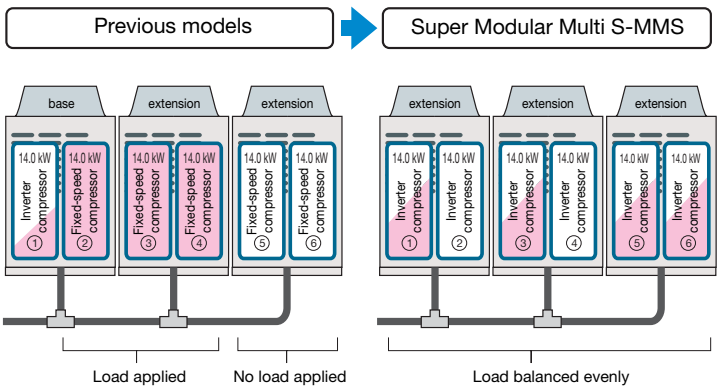
Rotation control ensures the operating hours are balanced between all compressors. This increases reliability as starting and operating loads are evenly distributed, and compressor ON/OFF cycles are reduced.

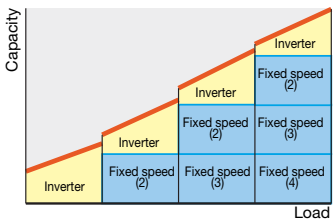
Distributing the initial load by means of two rotation options



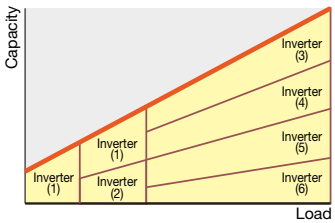
Sequencing of individual compressors (compressors (1) and (2), compressors (3) and (4), compressors (5) and (6)

Equalisation of compressor operating hours through load distribution

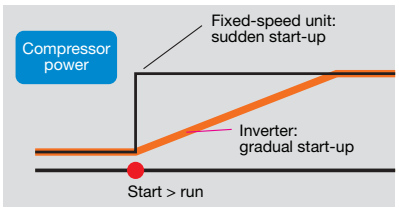


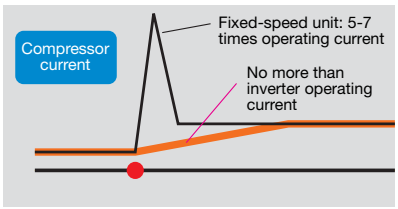


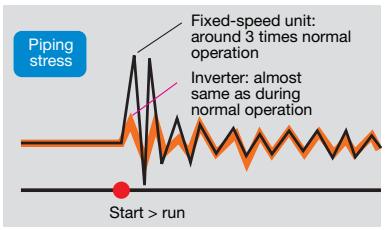
The final control of system capacity on previous models was achieved by controlling the speed of the only inverter-driven compressor within the system. All fixed-speed compressors can only operate at maximum capacity.

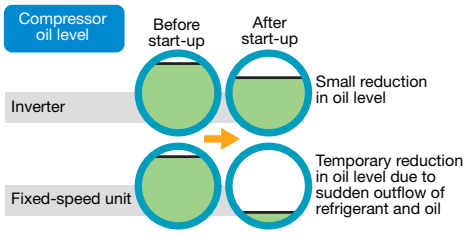


Variation in load is spread evenly across the optimum number of inverter-driven compressors thus reducing the load on individual compressors.









Smooth control

By using all inverter-driven compressors, Toshiba is able to significantly reduce the electrical and mechanical stresses that are placed on fixed-speed compressors during start-up. Current absorption on an inverter-driven compressor is smoothed out at start-up thus reducing the wear on the electrical and mechanical components and increasing reliability.

Stable operation

The active oil management system continually monitors the level of oil in all compressors and if an oil shortage is detected in any compressor, oil can be transferred automatically from a compressor in another outdoor unit. The two compressors in an individual outdoor unit are connected by way of a balancing pipe to ensure a uniform oil level within both compressors.

Back-up function

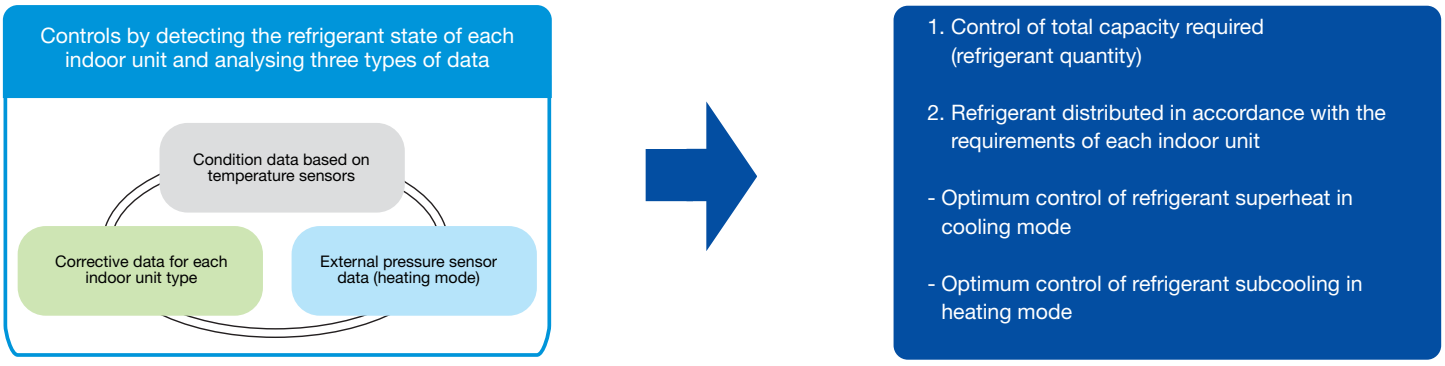
In the unlikely event of one compressor within an outdoor unit failing, it is possible in most circumstances to operate the second compressor on its own simply by setting a switch on the interface PCB. In the case of a complete outdoor unit failure, operation of the system may continue by selecting another outdoor unit to be the header unit. In multiple outdoor unit systems any unit can be selected to be the header unit.

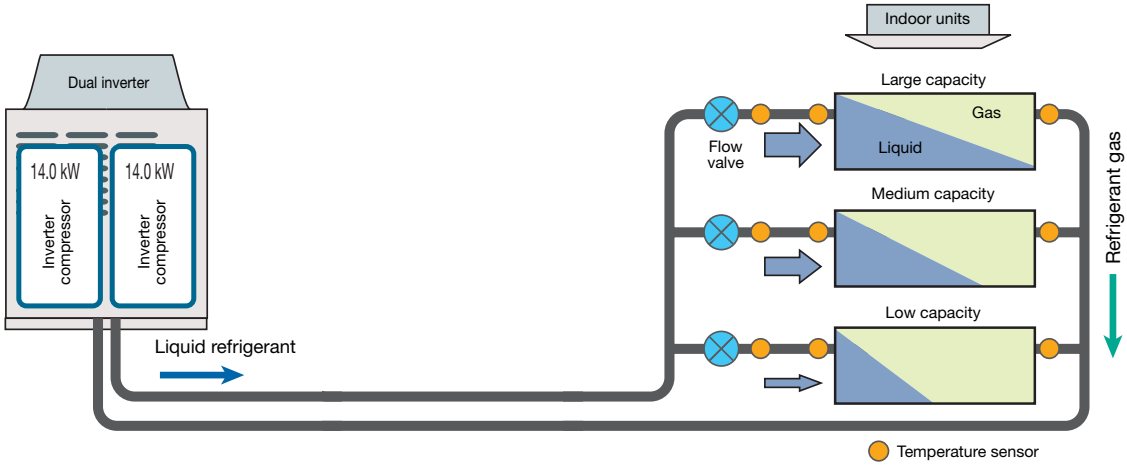
Accurate refrigerant flow

Refrigerant flow is adapted rapidly to match the capacity required, irrespective of each indoor unit type, position or length of piping. This results in optimum efficiency in the refrigerant cycle and precise temperature control creating improved comfort for the occupant.

The characteristic values of each indoor unit are input into the outdoor unit, and optimum refrigerant control is achieved through continual monitoring and adjustment.

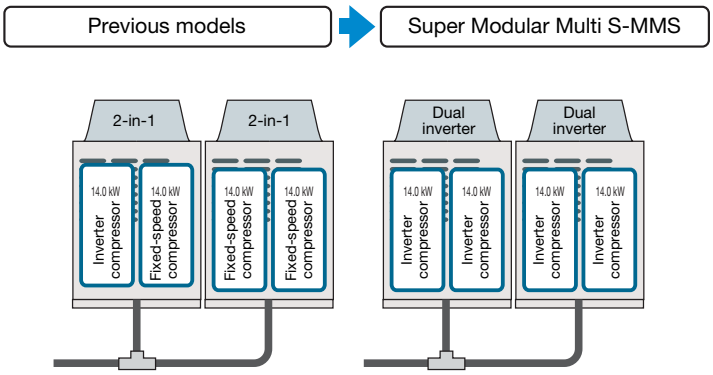
By measurement of refrigerant conditions within each indoor unit, the load requirement is calculated and the flow of refrigerant to each indoor unit is regulated. The operating capacity of the outdoor units is matched to meet the overall system requirement.

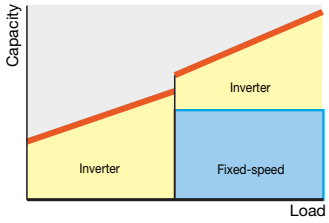




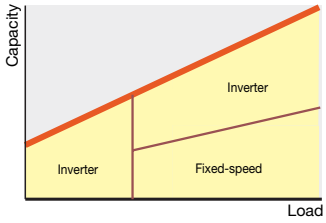
Full linear capacity control

The Super MMS system incorporates all inverter compressors, this ensures smooth linear performance compared with systems that incorporate fixed speed compressors.





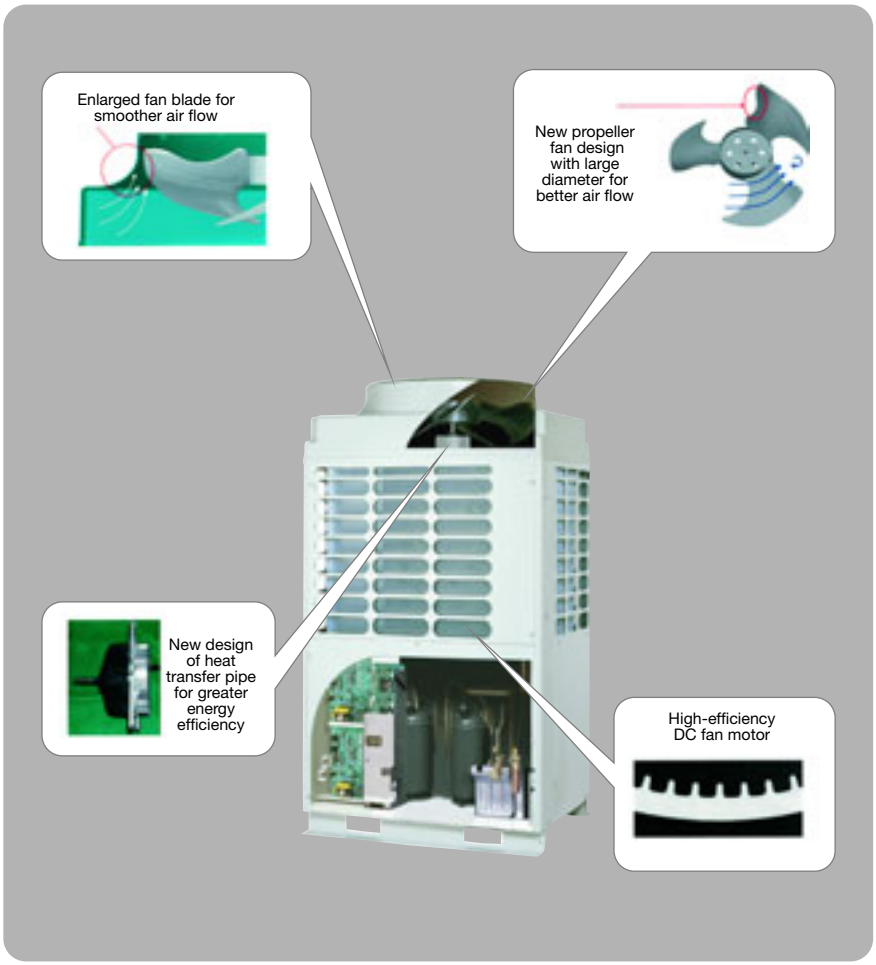
Inverters/compressors under normal operating conditions When a fixed-speed compressor starts up, the capacity change is not smooth



With all inverters, the capacity change is smooth and linear

Major reduction in noise level for outdoor units

The amount of noise emitted by the outdoor units has been drastically reduced. No intrusive noise during start-up thanks to the automatic sound dampening mode, the night-time low-noise mode and the use of inverters in all units. Moreover, the automatic dampening mode means that the system automatically switches to this mode whenever the outdoor temperature falls and the air conditioning load decreases. The night-time low-noise mode also allows operation at a low noise level of under 50 dB(A).



UNIQUE DESIGN FEATURE

Improved application flexibility

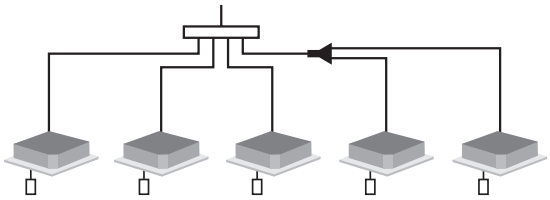
There is a full range of 28 outdoor models and 22 capacities from 14 kW to 135 kW cooling and 16 kW to 150 kW heating enhancing application flexibility.

The Super MMS is capable of serving up to 48 indoor units. There are 10 different indoor unit types, available in 13 sizes - offering a total choice of 75 indoor units models for greater application flexibility.

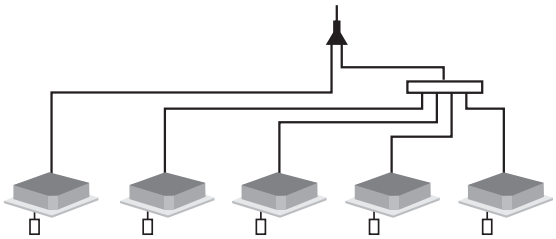
Flexible branching

The versatility of the Super MMS means that virtually any imaginable configuration of the refrigerant y-type branches and/or header piping can be used in an application to give the shortest, most cost-effective piping installation. The piping can be run in any direction to facilitate refurbishment work.

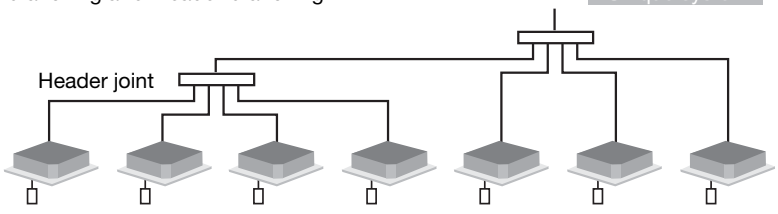
Line branching after header branching — Unique system



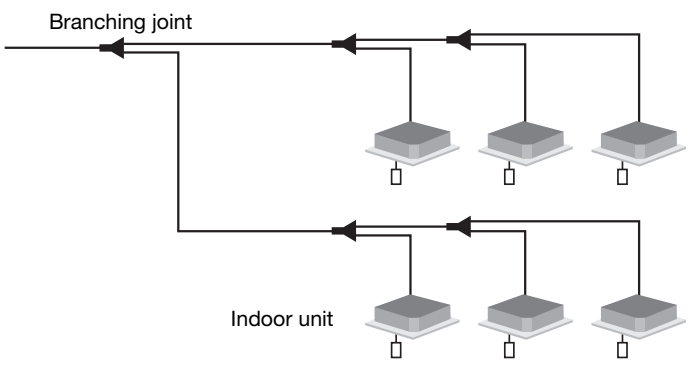
Header branching after line branching

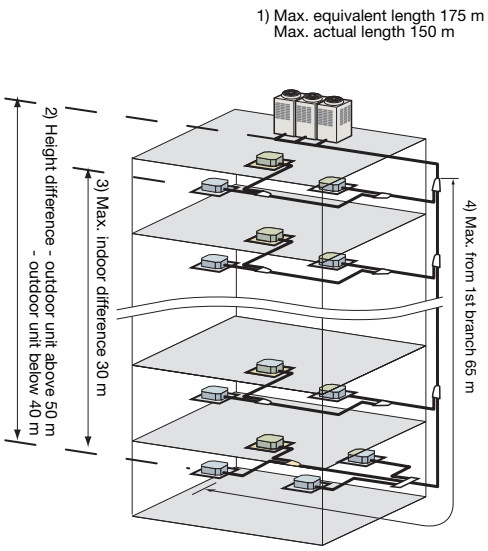


Header branching after header branching — Unique system



Line branching





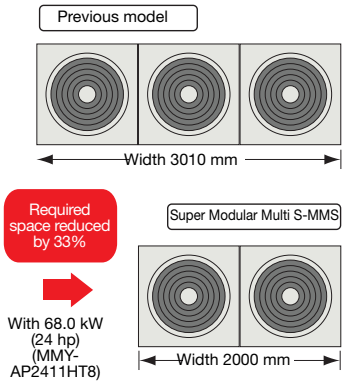
Super MMS - leading the industry

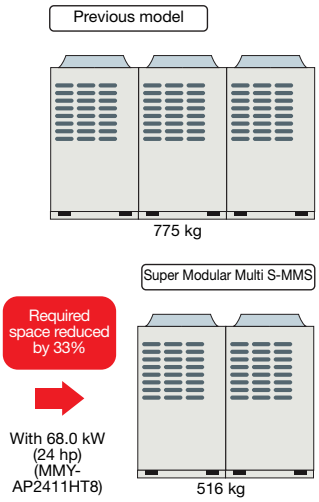
The pipe runs for the Super MMS have been extended to offer greater application flexibility.

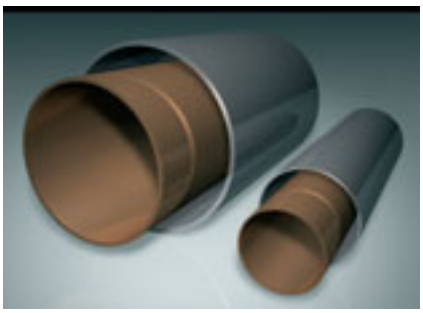
Extended piping capabilities

Maximum separation	150 m
Maximum equivalent separation	175 m
Total length	300 m
Height difference, outdoor unit above	50 m
Height difference, outdoor unit below	40 m
Height difference between indoor units	30 m
Maximum distance from first branch	65 m

The appearance of each outdoor unit is the same as the Toshiba MMS, but the S-MMS has the capability of offering greater capacities with fewer outdoor units. Therefore the installation space and the weight required can be reduced by as much as 33% (for 68 kW cooling). An S-MMS outdoor unit is easy to install and due to its compact size and the reduced weight it can be transport-ed in a standard lift.

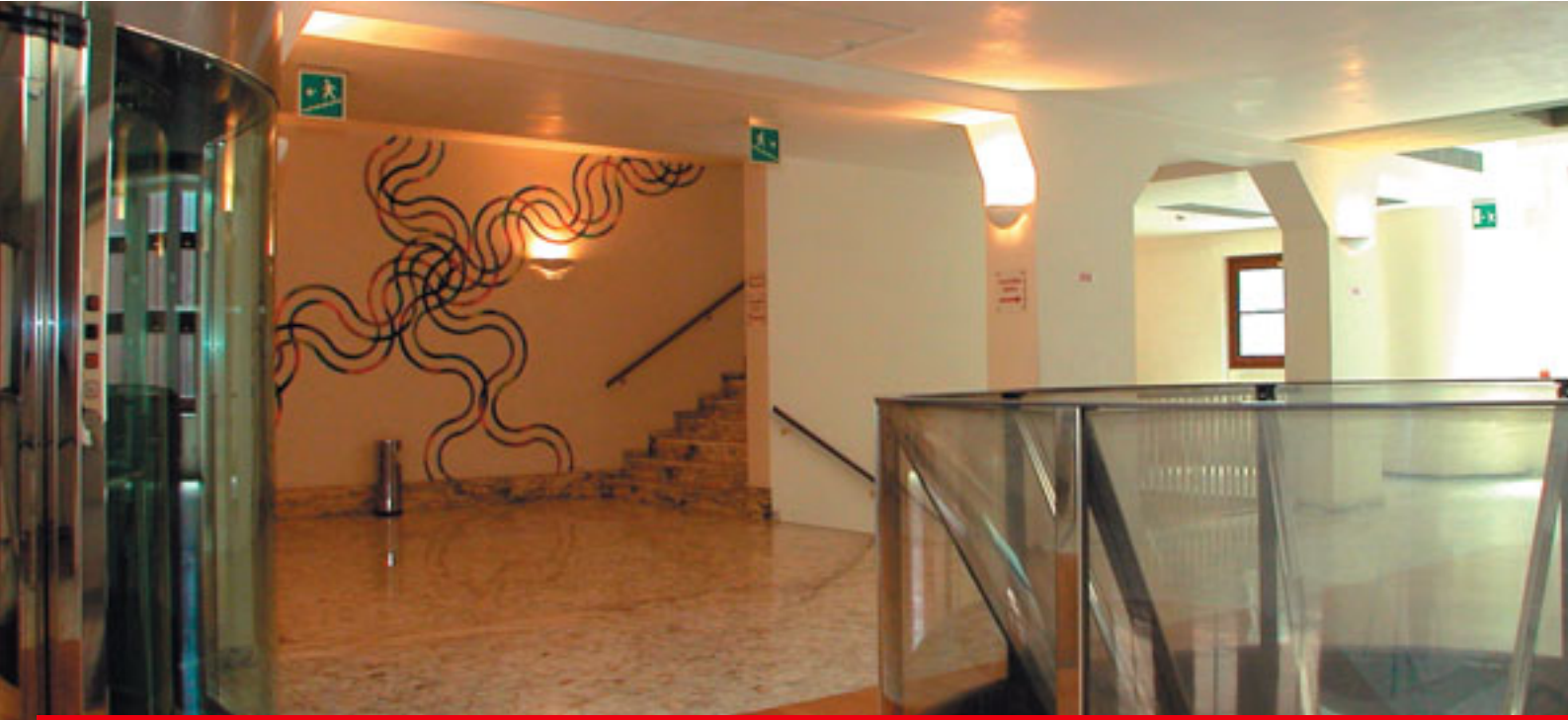






Previous MMS - ø gas 38.1 mm - liquid 19.1 mm
Super MMS - ø gas 28.6 mm - liquid 15.91 mm

The diameter of the liquid and gas pipes is reduced due to the utilisation of R410A refrigerant (in some units). More effective use of pipe shafts can also be made. This results in further savings in installation costs.



THE POWER OF CONTROL

TCC-Link controls

The Super Modular Multi air conditioning control offers innovative new features.

Super MMS has its own extensive range of controls. These controls - known as TCC-Link - provide an effective response to the user's demands.

TCC-Link incorporates a two-wire, non-polarity system with automatic addressing of the indoor units and provides the communication link between the indoor and outdoor units.

Temperature sensor

Improved operation features

- Automatic addressing of indoor units overcomes the need for manually setting each indoor unit individually
- The remote controller enables the user to change parameters, such as air flow adjustment for high ceilings, from the remote controller, and to check operating data
- The actual room temperature can be displayed at the remote controller

Adaptive controls

Providing a range of controls to meet various system needs

The larger the building the more air conditioning units are required to satisfy the load. Toshiba's flexible modular Super MMS air conditioning system meets all requirements with guaranteed energy savings and individually controlled occupant comfort, as it allows control of multiple units with different loads. The Super MMS provides a range of functions for integrated, centralised control of multiple units.

Provides for the design of a control system that suits the application of the building and the needs of the occupants with three main options:
1. Individual remote control
2. Central control
3. Network control

Control via indoor remote controller

RBC-AMT21E

RBC-AS21E

Remote controller
Remote controller type RBC-AMT21E is designed to control single or multiple (maximum 8) indoor units - up to 500 m away if required.

Group control
A maximum of eight indoor units can be controlled within the same parameters by a single remote controller.

Two controlling positions
One indoor unit can be controller from two locations using a standard remote controller and a sub-controller type RBC-AS21E.

Weekly timer
A weekly timer type RBC-EXW21E can be used in conjunction with a single remote controller or a central remote controller. The timer contains 7-day scheduling and day copy functions and a clock.

RBC-AMT21E
The standard remote controller contains these functions:
– Start/stop
– Mode change
– Temperature adjustment
– Air flow adjustment
– Timer
– Filter maintenance time
– Diagnostics and fault code display

RBC-AS21E
This simplified controller contains these functions:
– Start/stop
– Temperature adjustment
– Air flow adjustment
– Filter maintenance time
– Fault code display

TCB-AX21

RBC-EXW21E

Control via indoor remote controller

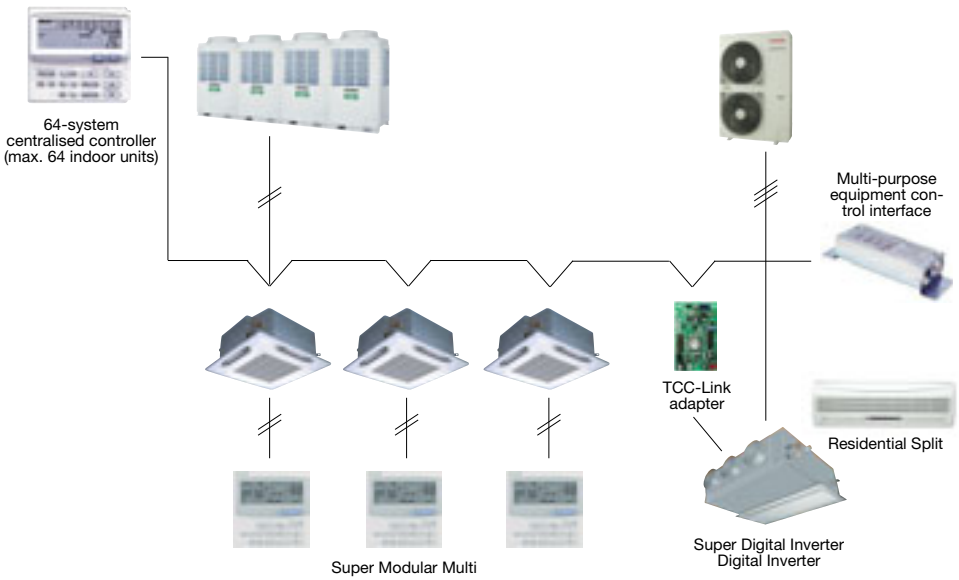
TCB-AX21
RBC-AX22C
RBC-AX22U

Functions of the remote controller
– Start/stop
– Mode adjustment
– Temperature adjustment
– Fan speed adjustment
– Timer function
– Filter maintenance time
– Fault code display
– Connection to a second (sub) controller

RBC-EXW21E

Functions of the weekly timer
– Weekly scheduling
– Different cycle times each day
– ON/OFF two times each day
– Repeat function
– Clear function
– Summer/winter scheduling
– Day omit function
– Memory retention for 72 hours after power failure

TCC-Link



Control via central remote controller

The use of a centralised controller enables the individual control of up to 64 indoor units or the control of up to 64 groups of eight indoor units per group.

Central control and individual control
The units can be controlled using the central remote controller and/or indoor remote controllers.

Centralised control of 64 groups
A maximum of 512 indoor units in 64 different groups can be controlled from a central location.

Weekly timer controller
The central remote controller can be connected to a weekly timer to set a weekly running schedule.

Control without indoor remote controller
The units can be operated from the central remote controller only, without using indoor remote controllers.

TCB-SC642TLE
Enables the individual control of up to 64 indoor units. This controller contains the same functions as the main remote controller and can display the operating parameters of unit or groups of units such as:

- Integrated set-up function
- Zone control
- Last-touch priority function
- Providing full, restricted or no control to the remote controller

Network Control

The Super MMS control system can achieve flexible centralised network control according to the various customer requirements, for both open-network building control in combination with other building apparatus like elevators, fire alarms, lighting, etc., and also for stand-alone air conditioning central control.
Additionally, a 1-to-1 single split-system such as the Digital Inverter or Super Digital Inverter can be integrated into the Super MMS central control scheme.

LonGateway®

Server

Touch Screen

Network Control

Open network control
Super MMS 'Open Network' controls are designed specifically for integration into Building Management Systems.

LonWorks®
The LonWorks® interface manages the Super MMS air conditioning system as a Lon device to communicate with the customer's Building Management System and to monitor operational status.

LonWorks® gateway using SNVT signals and providing the following functions:
Command:
– ON/OFF
– Mode: cool/heat/fan
– Temperature setting
– Central/local
Monitoring:
– ON/OFF
– Mode: cool/heat/fan/failure
– Temperature setting
– Room temperature
– Central/local

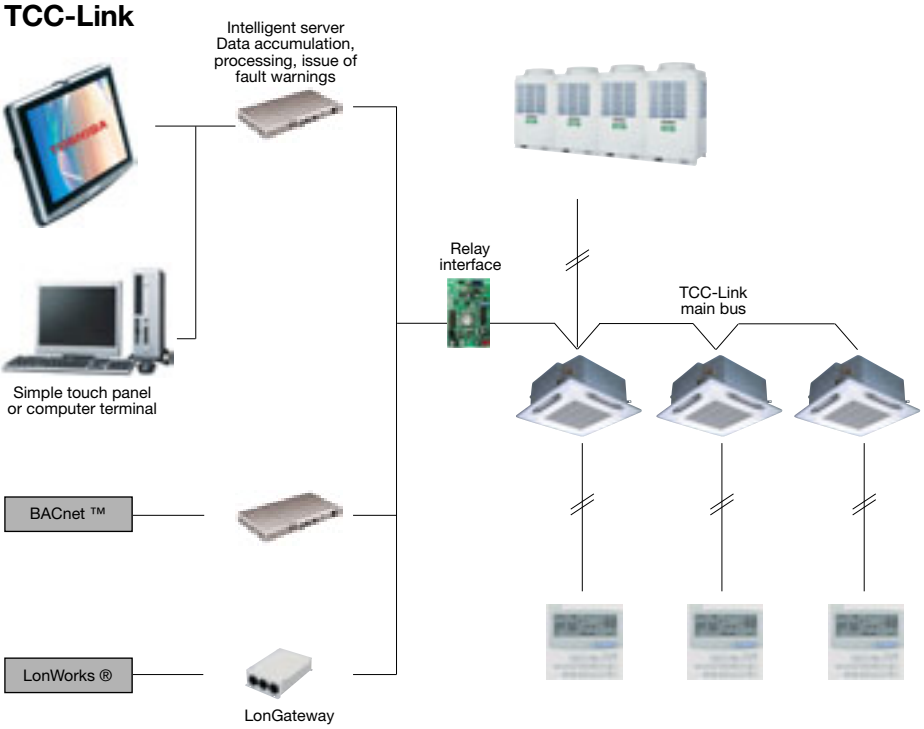
BACnet
The BACnet system operates in conjunction with the Intelligent Server and uses object signals providing the following functions:
– Object signals
Command:
– ON/OFF
– Mode: cool/heat/fan
– Temperature setting
– Central/local
– Fan speed
Monitoring:
– ON/OFF
– Mode: cool/heat/fan/failure
– Temperature setting
– Room temperature
– Central/local
– Energy monitoring

Touch screen controller
Using the touch screen controller with the intelligent server provides a clear display and enables easy operation.
Command:
– ON/OFF
Network control
– Cool/heat
– Temperature setting
– Central/local
Monitoring:
– ON/OFF
– Cool/heat
– Room temperature
– Central/local
– Failure
– Scheduler
Energy monitoring using the power meter interface and a locally-supplied power meter.
– Fault code display
– Operational data logging/recording

Network Control Intelligent Server
Connects directly to the customer's PC without the need to install additional software and provides the following functions:
Command:
– ON/OFF
– Cool/heat
– Temperature setting
– Central/local
Monitoring:
– ON/OFF
– Cool/heat
– Room temperature
– Central/local
– Failure
– Scheduler
Energy monitoring using the power meter interface and a locally-supplied power meter.
– Fault code display
– Operational data logging/recording

Energy monitoring application
– Power meter interface, power meter locally supplied (specification 1 pulse/kWh -200/400 ms pulse width)

TCC-Link



TCB-PCNT30LE
TCC-Link adapter for integrating Digital and Super Digital Inverter units into a Super MMS control network.

TCB-IF21CGTLE
TCC-Link adapter for RAS HA control interface.

TCB-IFCB3E
An external switching device for remote on/off system operation.

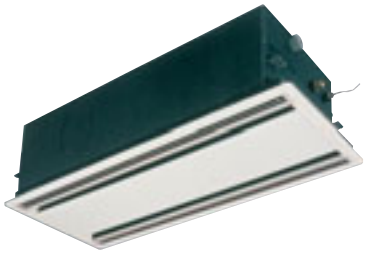
MMU-AP xxxx H

Four-way ceiling cassette

The classic choice

– new panel design improves air distribution, control and prevents the ceiling from staining
– corner pockets facilitate installation and height adjustment
– easy access to control components via corner pockets
– high lift drain (850 mm)
– simplified wiring connections

MMU-AP xxxx WH



Two-way ceiling cassette

Ideal for smaller rooms

– slim and flat ceiling panel, just 8 mm high
– long-life filters fitted as standard
– fresh air intake is possible
– condensate drain pump included (510 mm)
– low noise design and balanced air flow

MMU-AP xxxx YH

One-way ceiling cassette

The perfect choice for hotels and reception areas

– ideal for smaller rooms where one-way air distribution is required
– compact hi-tech design
– condensate drain pump included (350 mm)

MMD-AP xxxx BH

Standard ducted unit

The versatile choice

– allows complete design flexibility
– full range of filters to enhance indoor air quality
– fresh air intake is possible
– condensate drain pump included (27 mm)

MMD-AP xxxx H

High-pressure ducted unit

Meeting all your design criteria

– compatible with external static pressures up to 196 Pa
– inspection hole enables easy access and maintenance
– full range of options available

MMC-AP xxxx H

Ceiling-suspended unit

Ideal for refurbishment projects or fixed ceilings

– air distribution is set automatically for cooling or heating mode
– refrigerant piping can be installed from the rear, right or top of the unit
– drain piping can be installed in a choice of two directions
– unit suspension is simplified minimising installation time
– a high-lift drain kit is available as an option (600 mm)

MMK-AP xxxx H

New high-wall unit

Compact and stylish

– refrigerant piping can be from three directions
– 70° directional auto-swing louvre ensures even air distribution
– auxiliary piping makes installation easy
– new elegant aesthetics to compliment any room interior

MML-AP xxxx H

Floor-mounted console

Suitable for refurbishment projects

– refrigerant and drain piping can be from four directions
– air distribution can be reversed to meet the occupant's preference
– wide choice of installation settings

MML-AP xxxx BH

Concealed-chassis unit

Perfect for perimeter walls

– ideal for office and other commercial buildings with large fluctuation in load
– very quiet ideal for specialist applications such as libraries
– split front panel for easy access
– the unit can be hidden behind a decorative panel to blend with the room interior

Coming soon

Slim-duct unit
Only 230 mm in height for greater application flexibility
Quiet powerful operation
Perfect comfort throughout the room
Can be used with any style of air diffuser
Concealed installation within a ceiling void makes the unit unobtrusive
Easy installation and maintenance

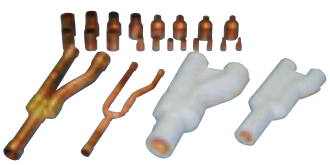
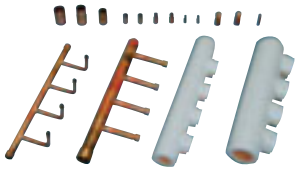
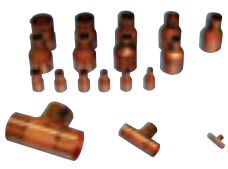
Compact high-wall unit
Compact and attractive design, only 790 mm wide
Weight reduced by 45% compared to the previous model
Only 45 litres volume, the best in its class
Precise capacity control at all conditions
Auto-swing mechanism
Panel is easily removed for cleaning and filter removal

Model line-up

Choose from a line-up of 28 outdoor units and 75 indoor units. Design with greater freedom than ever before, by linking up to 48 indoor units together in one system.

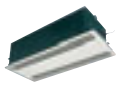
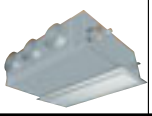
Outdoor unit line-up

Capacity (hp equivalent)	Heating capacity	Model name	No. of units in combination	Max. No. of indoor units	Appearance
14.0 kW (5 hp)	16.0 kW	MMY-MAP0151HT8	1	8	 14.0 kW-33.5 kW (5-12 hp)
16.0 kW (6 hp)	18.0 kW	MMY-MAP0601HT8	1	10	
22.4 kW (8 hp)	25.0 kW	MMY-MAP0801HT8	1	13	
28.0 kW (10 hp)	31.5 kW	MMY-MAP1001HT8	1	16	
33.5 kW (12 hp)	37.5 kW	MMY-MAP1201HT8	1	20	
38.4 kW (14 hp)	43.0 kW	MMY-MAP1401HT8	2 (22.4 kW+16.0 kW)	23	 38.4 kW-68.0 kW (14-24 hp)
45.0 kW (16 hp)	50.0 kW	MMY-MAP1601HT8	2 (22.4 kW+22.4 kW)	27	
50.4 kW (18 hp)	56.5 kW	MMY-MAP1801HT8	2 (28.0 kW+22.4 kW)	30	
56.0 kW (20 hp)	63.0 kW	MMY-MAP2001HT8	2 (28.0 kW+28.0 kW)	33	
61.5 kW (22 hp)	69.0 kW	MMY-MAP2201HT8	3 (22.4 kW+22.4kW+16.0 kW)	37	
61.5 kW (22 hp)	69.0 kW	MMY-MAP2211HT8	2 (33.5 kW+28.0 kW)	37	
68.0 kW (24 hp)	76.5 kW	MMY-MAP2401HT8	3 (22.4 kW+22.4 kW+22.4 kW)	40	
68.0 kW (24 hp)	76.5 kW	MMY-MAP2411HT8	2 (33.5 kW+33.5 kW)	40	
73.0 kW (26 hp)	81.5 kW	MMY-MAP2601HT8	3 (28.0 kW+22.4 kW+22.4 kW)	43	
78.5 kW (28 hp)	88.0 kW	MMY-MAP2801HT8	3 (28.0 kW+28.0 kW+22.4 kW)	47	 61.5 kW-101.0 kW (22-36 hp)
84.0 kW (30 hp)	95.0 kW	MMY-MAP3001HT8	3 (28.0 kW+28.0 kW+28.0 kW)	48	
90.0 kW (32 hp)	100.0 kW	MMY-MAP3201HT8	4 (22.4 kW+22.4 kW+22.4 kW+22.4 kW)	48	
90.0 kW (32 hp)	100.0 kW	MMY-MAP3211HT8	3 (33.5 kW+28.0 kW+28.0 kW)	48	
96.0 kW (34 hp)	108.0 kW	MMY-MAP3401HT8	4 (28.0 kW+22.4 kW+22.4 kW+22.4 kW)	48	
96.0 kW (34 hp)	108.0 kW	MMY-MAP3411HT8	3 (33.5 kW+33.5 kW+28.0 kW)	48	
101.0 kW (36 hp)	113.0 kW	MMY-MAP3601HT8	4 (28.0 kW+28.0 kW+22.4 kW+22.4 kW)	48	 90.0 kW-135.0 kW (32-48 hp)
101.0 kW (36 hp)	113.0 kW	MMY-MAP3611HT8	3 (33.5 kW+33.5 kW+33.5 kW)	48	
106.5 kW (38hp)	119.5 kW	MMY-MAP3801HT8	4 (28.0 kW+28.0 kW+28.0 kW+22.4 kW)	48	
112,0 kW (40 hp)	126.5 kW	MMY-MAP4001HT8	4 (28.0 kW+28.0 kW+28.0 kW+28.0 kW)	48	
118.0 kW (42 hp)	132.0 kW	MMY-MAP4201HT8	4 (33.5 kW+28.0 kW+28.0 kW+28.0 kW)	48	
123.5 kW (44 hp)	138.0 kW	MMY-MAP4401HT8	4 (33.5 kW+33.5 kW+28.0 kW+28.0 kW)	48	
130.0 kW (46 hp)	145.0 kW	MMY-MAP4601HT8	4 (33.5 kW+33.5 kW+33.5 kW+28.0 kW)	48	
135.0 kW (48 hp)	150.0 kW	MMY-MAP4801HT8	4 (33.5 kW+33.5 kW+33.5 kW+33.5 kW)	48	

	Y-shape branching joints				4-branch headers				8-branch headers
Application									
Model	**BY53**	**BY103**	**BY203**	**BY303**	**HY1043**	**HY2043**	**HY1083**	**HY2083**	**BT13**
Application	Indoor unit, capacity code total <6.4	Indoor unit, capacity code total ≥6.4 <14.2	Indoor unit, capacity code total ≥14.2 <25.2	Indoor unit, capacity code total ≥25.2	Max. 4 branches: Indoor unit, capacity code total <14.2	Max. 4 branches: Indoor unit, capacity code total ≥14.2 <25.2	Max. 8 branches: Indoor unit, capacity code total <14.2	Max. 8 branches: Indoor unit, capacity code total ≥14.2 <25.2	The 3 T-joints/pipes below form one set. - Balancing pipe (ø 9.5) x 1 - Liquid piping (corresponds to diameters ø 9.5-ø 22.2) x 1 - Gas piping (corresponds to diameters ø 15.9-ø 38.1) x 1

1. After header branching, one system can be connected to up to a maximum capacity code total of 6.0
2. Capacity codes are shown as hp equivalents.

Indoor unit line-up

Type	Ceiling cassette			Ceiling-embedded		Ceiling-suspended	Wall-mounted	Floor-mounted		Floor-standing
Cooling capacity (hp equivalent)	4-way cassette 	2-way cassette 	1-way cassette 	Concealed duct 	Concealed duct high static static pressure 			Floor-standing concealed 	Floor-standing cabinet 	
	MMU	MMU	MMU	MMD	MMD	MMC	MMK	MML	MML	MMF
2.2 kW (0,8 hp)		AP0071WH	AP0071SH	AP0071BH			AP0071H	AP0071BH	AP0071H	
2.8 kW (1 hp)	AP0091H	AP0091WH	AP0091SH	AP0091BH			AP0091H	AP0091BH	AP0091H	
3.6 kW (1.25 hp)	AP0121H	AP0121WH	AP0121SH	AP0121BH			AP0121H	AP0121BH	AP0121H	
4.5 kW (1.7 hp)	AP0151H	AP0151WH	AP0151SH	AP0151BH		AP0151H	AP0151H	AP0151BH	AP0151H	AP0151PH
5.6 kW (2 hp)	AP0181H	AP0181WH	AP0181SH	AP0181BH	AP0181H	AP0181H	AP0181H	AP0181BH	AP0181H	AP0181PH
7.1 kW (2.5 hp)	AP0241H	AP0241WH	AP0241SH	AP0241BH	AP0241H	AP0241H	AP0241H		AP0241H	AP0241PH
8.0 W (3 hp)	AP0271H	AP0271WH		AP0271BH	AP0271H	AP0271H				AP0271PH
9.0 kW (3.2 hp)	AP0301H	AP0301WH		AP0301BH						
11.2 kW (4 hp)	AP0361H	AP0361WH		AP0361BH	AP0361H	AP0361H				AP0361PH
14.0 kW (5 hp)	AP0481H	AP0481WH		AP0481BH	AP0481H	AP0481H				AP0481PH
16.0 kW (6 hp)	AP0561H	AP0561WH		AP0561BH						AP0561PH
22.4 kW (8 hp)					AP0721H					
28.0 kW (10 hp)					AP0961H					

Remote controls

	Wired remote control	Sub-remote control	Weekly timer
Appearance			
Model number	**RBC-AMT21**	**RBC-AS21**	**RBC-EXW21**

	Wireless remote control kits		
Appearance	 Receiver	 Control box Receiver	 Standalone receiver
Model number	**RBC-AX22U**	**RBC-AX22C**	**TCB-AX21**
	For ceiling cassette with four-way outlet	For ceiling suspended units	Stand-alone receiver

Coming soon

	Slim duct	Compact high-wall
Appearance		
Model number	**To be supplied**	**To be supplied**

TOSHIBA

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