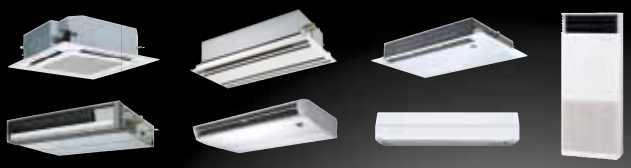
TOSHIBA

Leading Innovation

Air Conditioning For Large Buildings

TOSHIBA AIRCONDITIONING

Advancing the eco-evolution



SMMS

SUPER MODULAR MULTI SYSTEM

Index

Advancing the eco-evolution

As relative newcomers in the evolution of the Earth, it's undeniable that humankind has had a greater impact on our planet's eco-system than any other life form. All organisms to some extent affect change on our global environment, but none quite as quickly and drastically as humans. Many scientists agree that human activity has accelerated pollution and climatic changes beyond the natural evolutionary process.

Globally, levels of carbon dioxide and average regional temperatures rise at alarming rates, impacting nature and civilization. And the quality of air we breathe continues to deteriorate in the cities we live in.

Whatever the causes, the message is clear: the future is up to us all, and we can do more to make things better.

The core of Toshiba Air Conditioning's philosophy is a profound respect for our global environment and the passionate pursuit toward improving the quality of life for our customers worldwide.

As part of that global commitment, we develop cutting-edge technologies and advancements that serve the benefit of people everywhere, by offering an ideal balance of comfort and ecologically superior products.

We advance R&D in the field of super energy-efficient, cleaner technologies and innovative products that not only use significantly less energy but help maintain air quality through state-of-the-art air purification systems for the home and business.

We endeavour to lead by example by delivering the highest quality environmental systems that give added value, and contribute responsibly to the advancement of humankind.

We call this vision, "Advancing the eco-evolution".

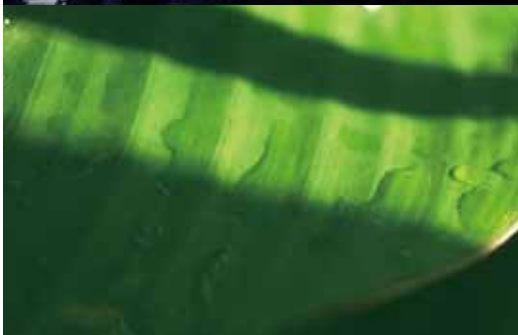
Toshiba solutions

Toshiba offers a solution for all applications: residential, light commercial and larger commercial buildings. Residential indoor units are designed to blend perfectly with all interiors and incorporate advanced filtration systems to deliver optimum indoor air quality. For small commercial premises, products are designed to deliver top performance combined with energy efficiency.

For larger applications, VRF systems combine flexibility, energy efficiency and respect for the environment, with a wide choice of stylish indoor units.

Absolute comfort

Toshiba's commitment to society drives a company-wide focus on attention to the details through every stage of the development process, from design to user field tests. Installations using our products and systems therefore feature a higher standard of indoor air quality, sound levels, energy savings, and environmental awareness.



The next-generation 'i-quality' trio

Dedication to innovation and advanced intelligence fosters the imaginative creativity with which we deliver total value in air conditioning systems.

SMMS i
SUPER MODULAR MULTI SYSTEM

innovation

The new SMMS-i offers innovations in every savings with highly efficient DC twin rotary compressors and advanced vector-controlled inverters boasting COP of 6.41* at 50% partial load.

*8HP outdoor unit. European model.
Calculated based on JRA4048:2006 specification.

intelligence

The intelligent VRF ensures precise control over cooling on a room by room basis, delivering consistent temperature to even the furthest room from the unit.

imagination

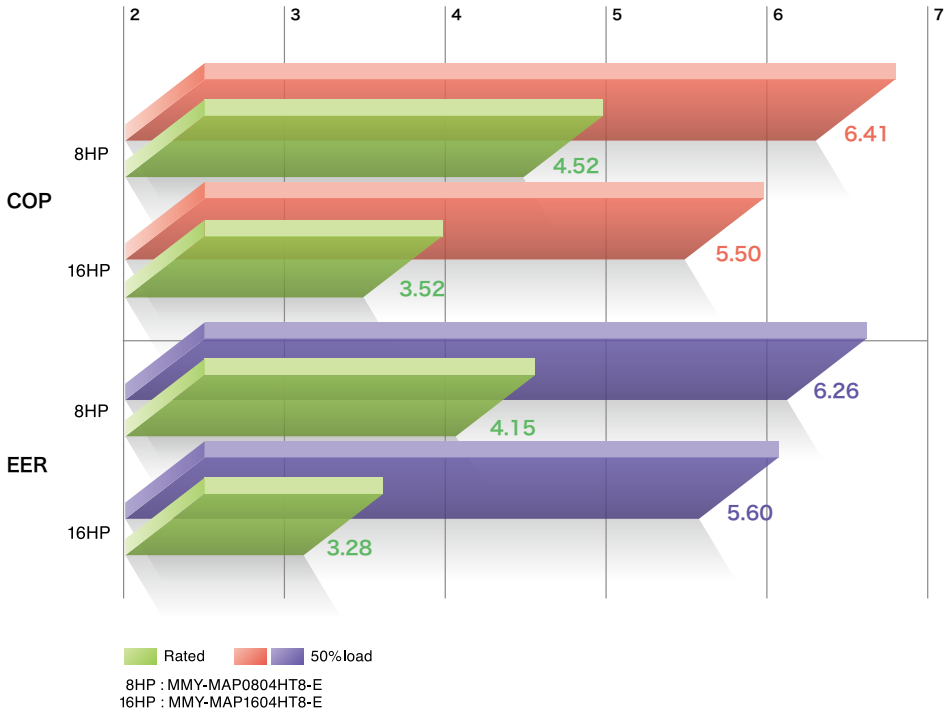
With flexible layout variations beyond imagination, this extremely versatile system can accommodate up to an impressive 235 metres in length and maximum height of 40 metres between indoor units.

Industry leading energy savings

Industry leading energy savings

Energy-efficient performance for greater eco-consciousness

Adopting the highly efficient new DC twin-rotary compressors and advanced vector-controlled inverters realizes a COP of 6.41 (under 50% partial load). Greater operating performance is now possible when operating under a constant load.



8HP : MMY-MAP0804HT8-E
16HP : MMY-MAP1604HT8-E

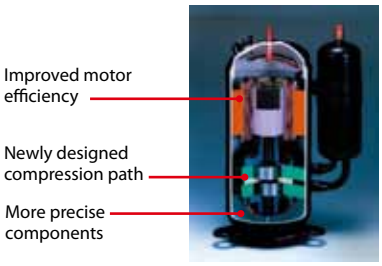
Introducing high-performance outdoor units with 3 compressors and 3 inverters*1

(14HP, 16HP)

① New DC twin-rotary compressor

Leading the world with Toshiba's own new DC twin-rotary compressor

Three new DC twin-rotary compressors that feature outstanding capacity under partial load drive the 14 and 16HP outdoor unit models, while two are used by the other outdoor unit models. These new compressors improve both energy efficiency and comfort levels.



New DC twin-rotary compressor

Optimization of discharge port positioning and blade thickness reduces compression loss and friction resistance. Increasing the surface area of the rotor magnets and the addition of slits realize greater efficiency and reduced noise.

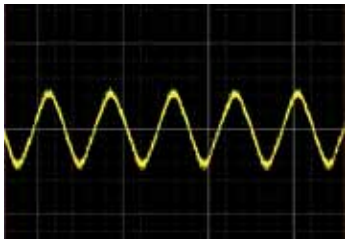
Twin-rotary

Each motor employs a compact and powerful magnetic rotor (rare earth magnet) and features reduced eddy-current loss.

② Fast-calculating vector-controlled inverter

All-inverter control realizes finer control over operation to match the load on the system

Toshiba SMMS-i leads the industry in controlling all 3 compressors with a dedicated inverter board that taps the compressor's full potential to provide smoother operation.



Smooth sine curve

The fast-calculating vector-controlled inverter produces a smooth sine curve that improves operating efficiency.

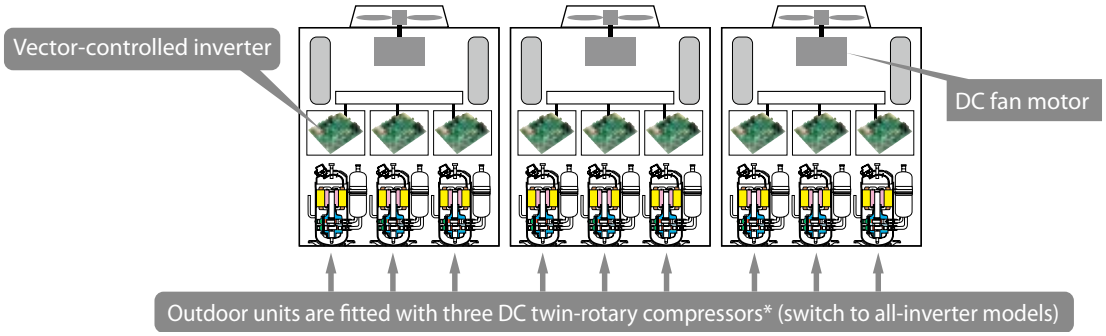
Circuit board

The vector-controlled inverter quickly converts current into a smooth sine curve to achieve smoother operation of the compressor's DC motor.

*1 14 and 16HP models

High-efficiency DC twin-rotary compressors

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

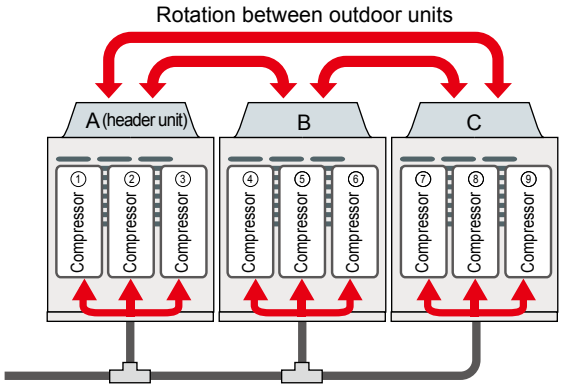


*14, 16HP Outdoor unit

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.

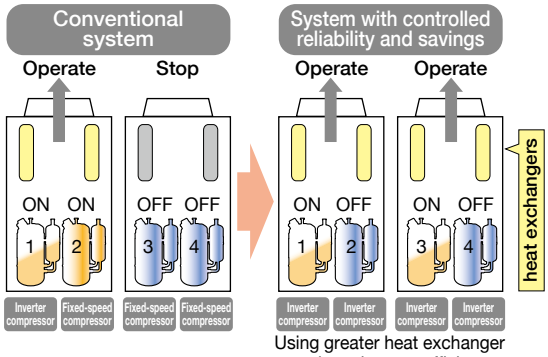
As the compressors are all inverter driven, power surges are eliminated. Over- or under-utilisation of power, typical for non-inverter compressors is eliminated, and there is no on/off power surge as the system adjusts to the demand required by the occupant or system. The use of inverter compressors reduces the risk of compressor failure, more common in standard non-inverter systems.



Sequencing of individual compressors

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.



Using greater heat exchanger volume is more efficient

DC twin-rotary compressor advantage

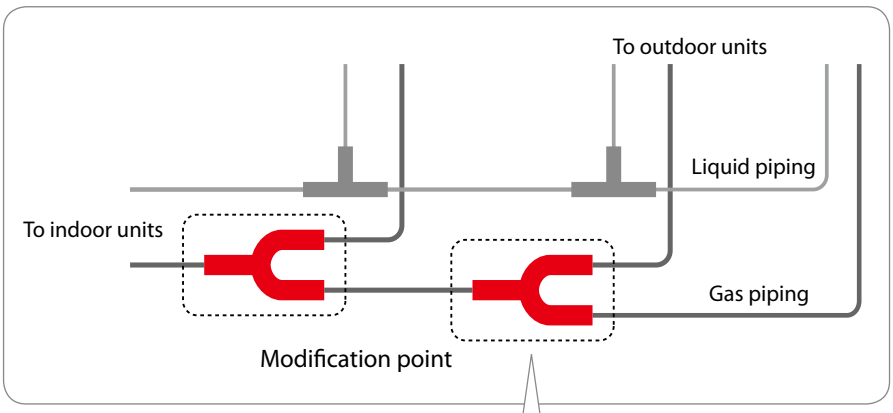
Each SMMS-i uses twin-rotary inverter compressors that feature more stable energy efficiency through their full range of compressor rotation than do scroll type compressors.

Scroll compressors can achieve high-efficiency operation, but only within in a narrow range.

As VRF systems require a wide range of capacity, the twin-rotary compressor is best suited for use.

Piping

A change from T-shape to Y-shape branching joints on the gas pipes between SMMS-i outdoor units results in equalized flow to each branch that enables more reliable operation.

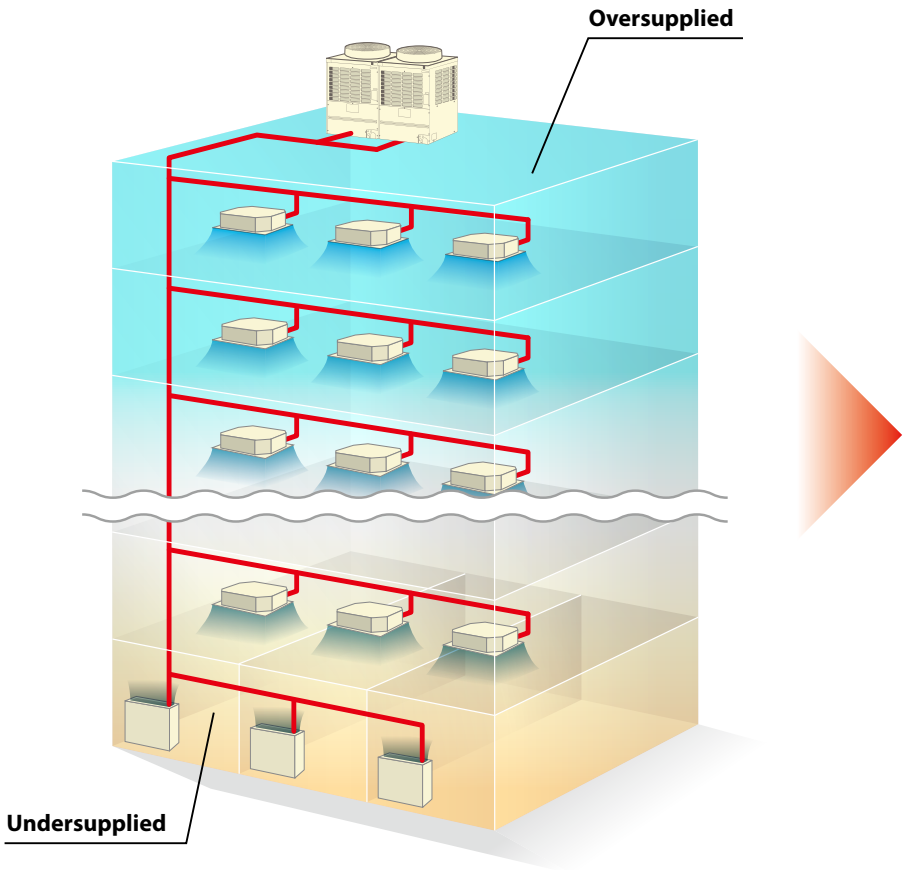


Outdoor unit connection piping kit
(RBM-BT14E, RBM-BT24E)

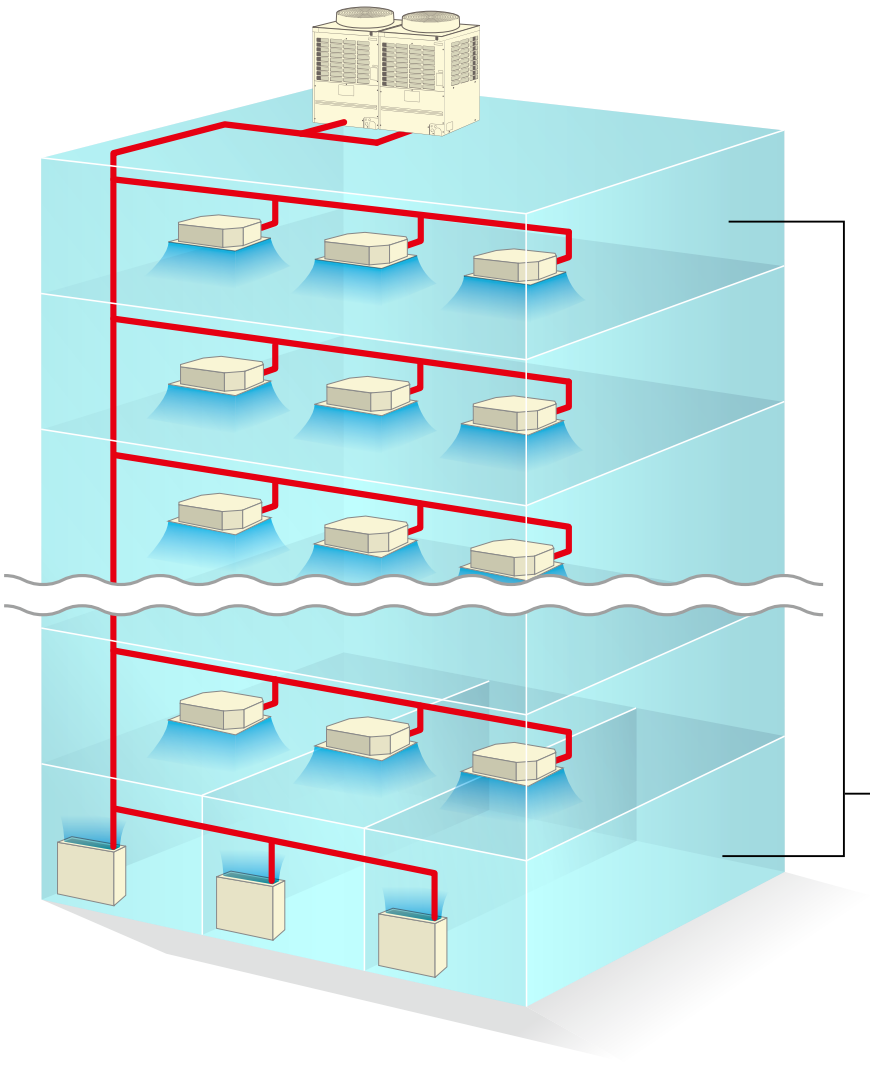
New smart & sensitive VRF control

New intelligent VRF control

Differing pipe lengths result in inconsistent performance levels when several indoor units are connected to a system. This imbalance is caused by pressure loss and thermal leaks that inhibit the supply of the right amount of refrigerant to each indoor unit.



Without intelligent VRF control



With intelligent VRF control

Total system control and consistent room-to-room temperature

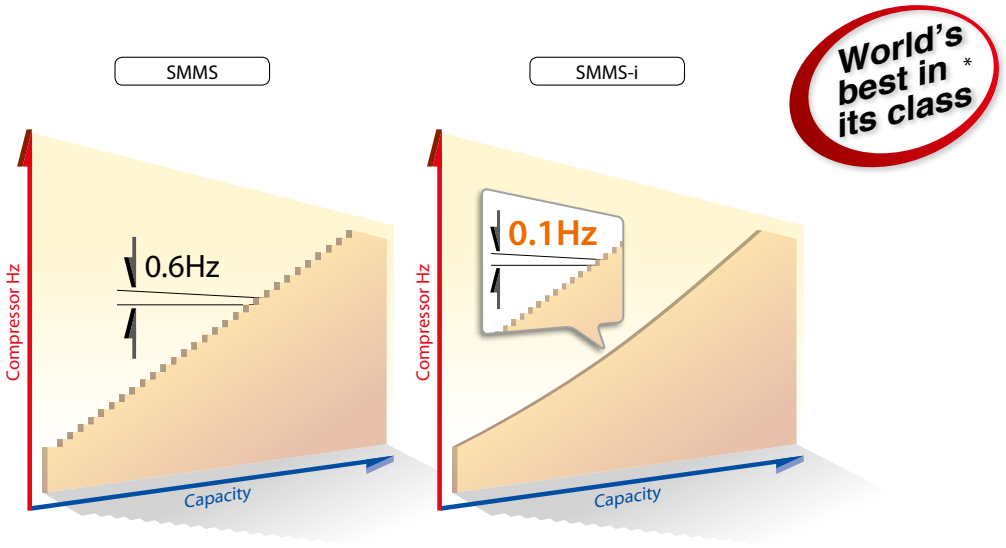
Intelligent VRF control provides precise control over each indoor unit. For example, the upper floor indoor units of VRF systems without intelligent VRF control placed load on the supply of refrigerant, causing a delay before indoor units on lower floors would reach efficient operating levels.

Toshiba's SMMS-i monitors the flow of refrigerant to each indoor unit, while also tracking the model of the indoor unit, the pipe length between it and the outdoor unit, as well as data on operating conditions. The system computes the amount of refrigerant required by each indoor unit and controls the unit's pulse motor valve to ensure optimal supply across the system.

Infinity variable control

Ultra-precise 0.1 Hz control over compressor rotation speed

Infinity variable control adjusts compressor rotation speed in near-seamless 0.1 Hz steps. Responding precisely to the capacity needs of the moment, this fine control minimizes energy loss when changing frequencies, and also creates a comfortable environment subject to minimal temperature variations.



*As of December 2009 (according to independent Toshiba testing)

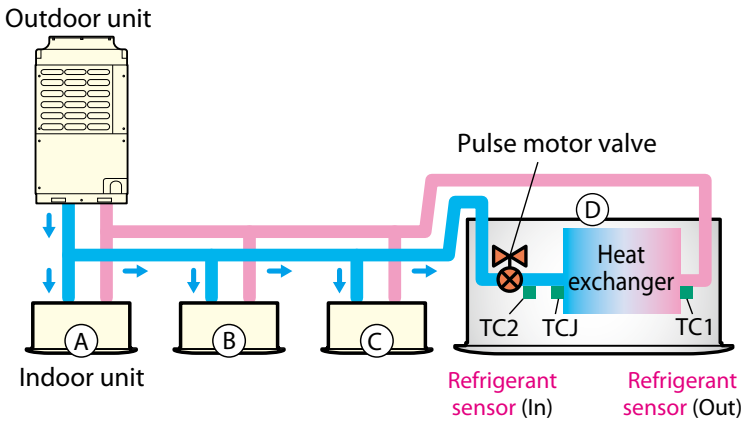


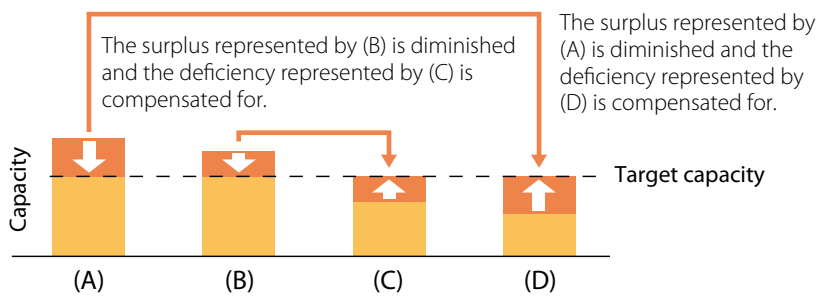
Optimal refrigerant control

– When a multiple number of indoor units are connected, an insufficient or excess amount of refrigerant may be supplied to indoor units depending on the difference in length of the connection pipe from the outdoor unit.

– This is caused by pressure loss and heat leaks as the refrigerant travels through the pipes, resulting in incorrect amounts of refrigerant being supplied to the indoor units.

– Optimal refrigerant flow control featuring intelligent control over the refrigerant sensors and opening rate of individual pulse motor valves realizes stable indoor temperatures throughout a building with height differences of up to 40m between indoor units.



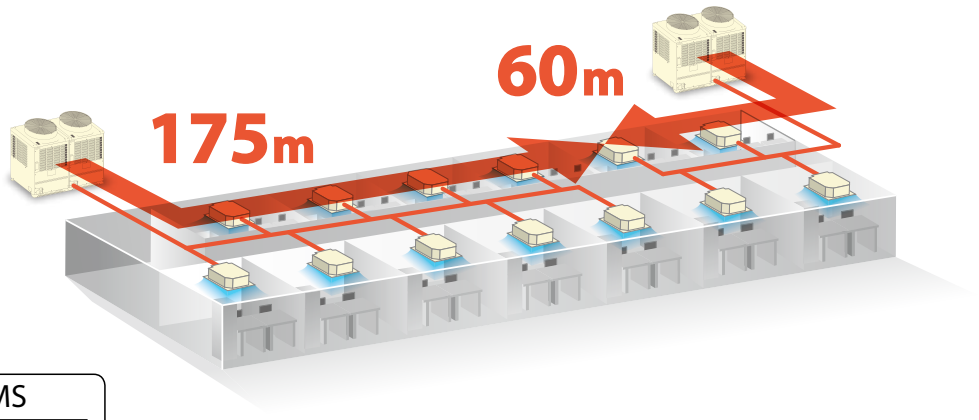


Industry leading layout flexibility

Industry leading pipe length for greater flexibility

Layout flexibility with few design limitations

System layouts can use a maximum equivalent distance of up to 235 metres. This makes it much easier to design for floors with many small rooms, or for tenants who often rearrange their floor layouts.

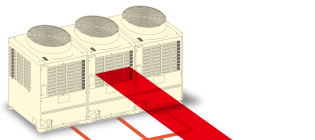


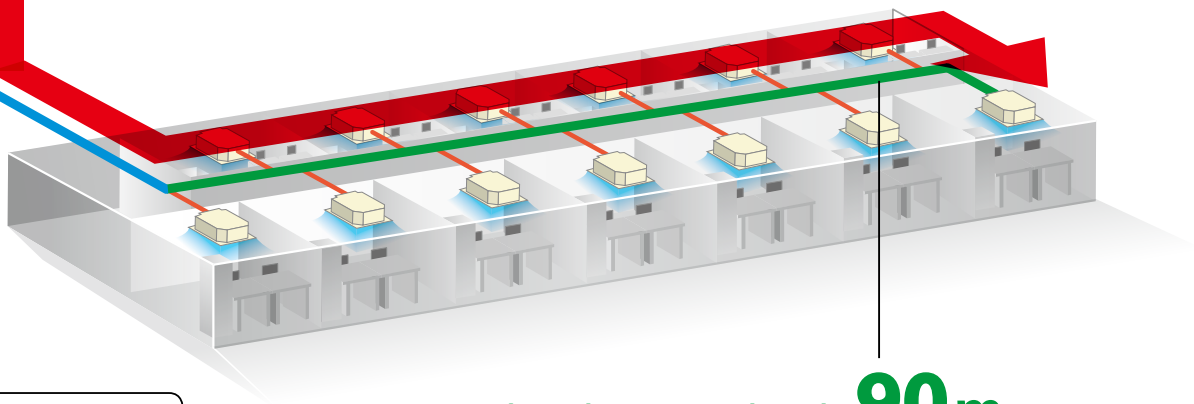
SMMS
coverage requires two systems

World's best in its class *

Farthest equivalent length **235m***

Main piping length
120m





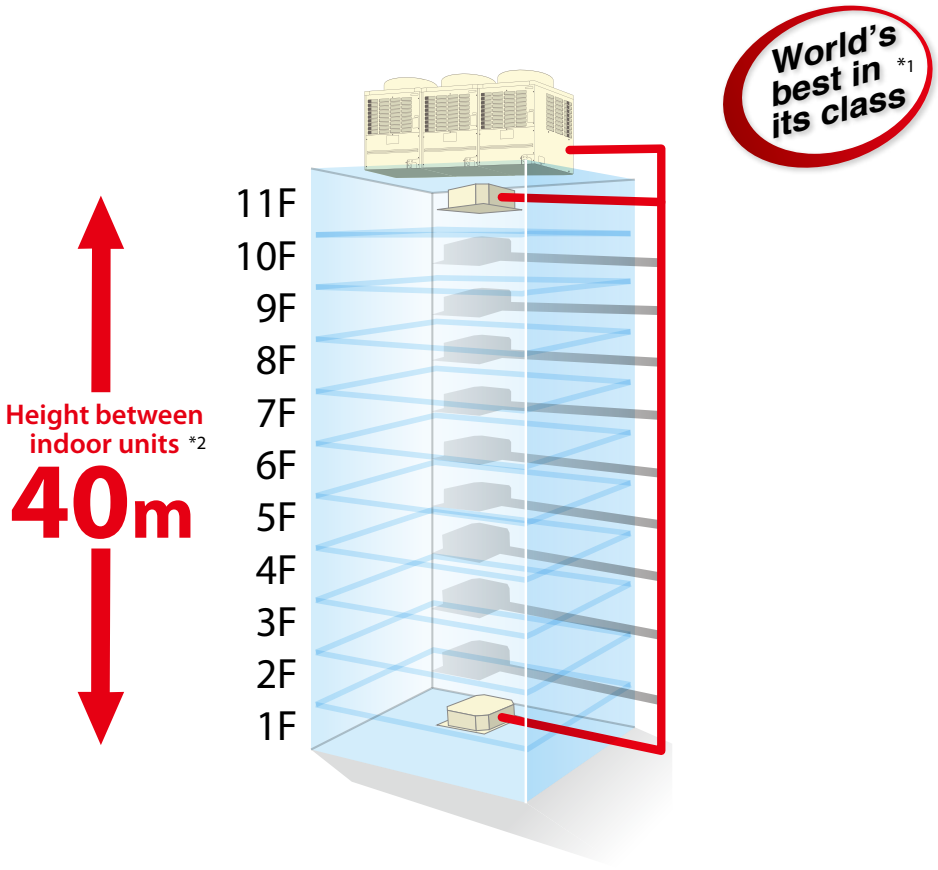
1st branching piping length **90m**

SMMS-i
coverage achieved by a single system

*As of December 2009 (according to independent Toshiba testing)

Greater support for height differences between indoor units

Toshiba SMMS-i leads the industry with support for height differences of up to 40 metres between indoor units on a single system. For instance, in an 11-story building, this is enough height to fully cover the entire floor as well as the elevator halls.

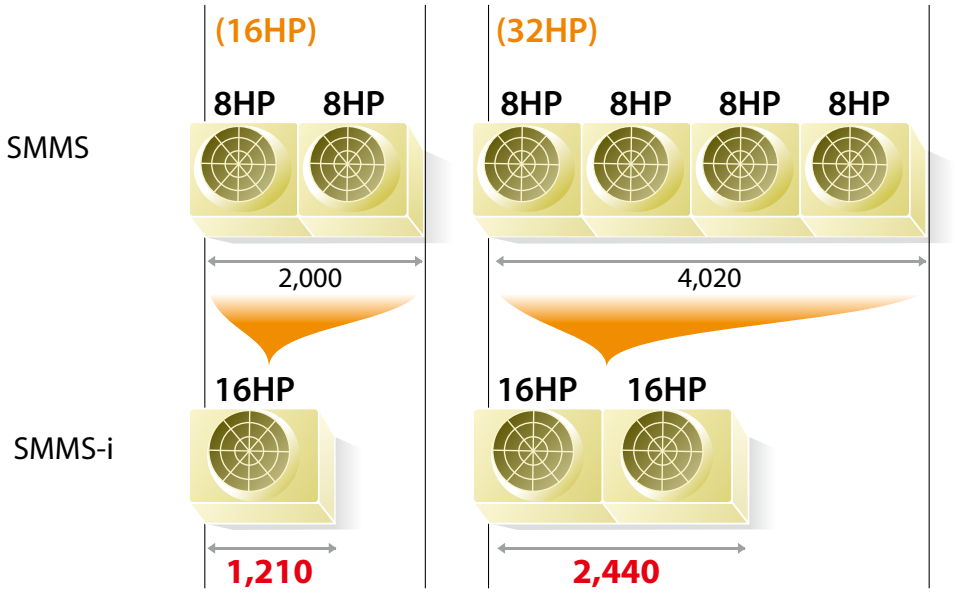


*1 As of December 2009 (according to independent Toshiba testing)

*2 Calculated at 3.5 metres per floor

Industry leading installation flexibility

At 1800mm (H) x 1210mm (W) x 780mm (D), the outdoor units improve performance to achieve greater space efficiency that defies their compact module size to deliver greater freedom in layout design. This minimizes weight-related restrictions and allows for quicker installation.



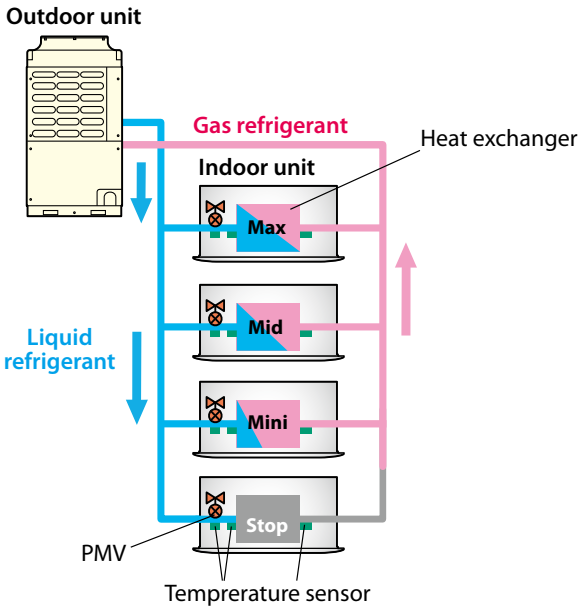
A 16HP system installation now occupies only 2/3 the footprint and weight of two units previously required.

40% reduction

Other features

Refrigerant flow

Toshiba's own PMV (pulse motor valve) control prevents unneeded refrigerant from flowing to indoor units that are not operating at any given time. Benefits include the prevention of by-pass loss and finer control over the compressor capacity of the outdoor unit.



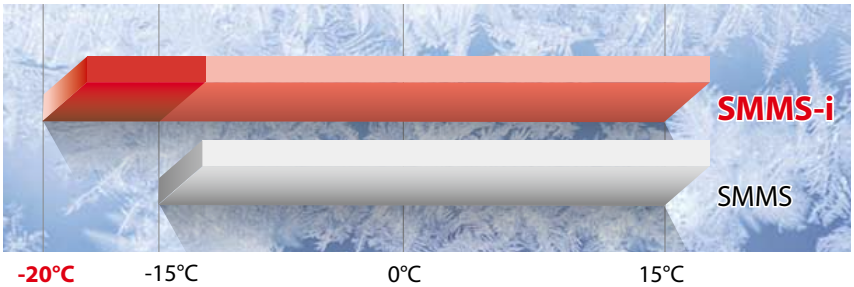
Operating temperature range

SMMS-i extends the low end of its heating function's outdoor temperature operating range to -20°C. This enables wider applications and use of the system in colder regions.

	SMMS-i	SMMS
Outdoor temp. range when **cooling***	-5°C to 43°C	
Outdoor temp. range when **heating***	-20°C to 15°C	-15°C to 15°C

*Cooling: °CDB, Heating: °CWB

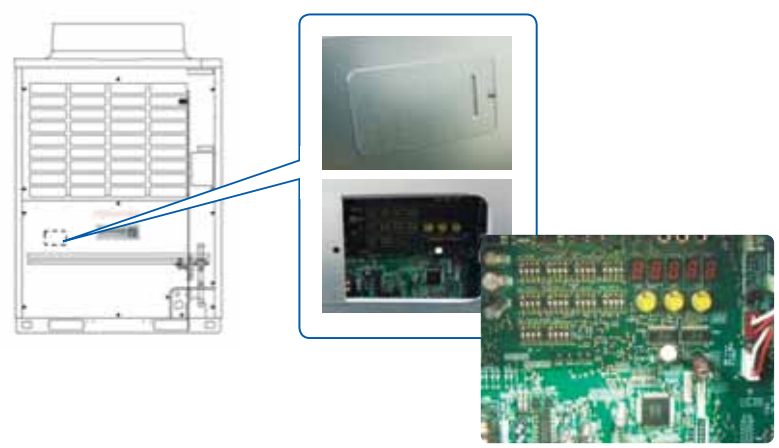
Heating operation range



Inverter box inspection window

The SMMS-i inverter box window enables easier maintenance. The window opens quickly to allow inspection of the PCB, test run operations, repairs, and control over address settings.

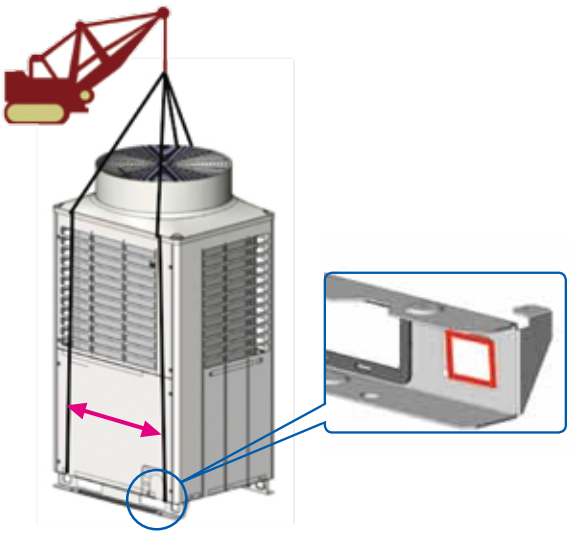
Note: 5 and 6HP units excepted



Square carrying holes

Square holes added to the lower corners of the SMMS-i outdoor units facilitate safer and surer lifting by a crane. Belts passed through the dedicated corner holes maintain their position and the balance of the load throughout the lifting operation.

Note: 5 and 6HP units excepted



Outdoor units

Standard model

							
Capacity	5HP	6HP	8HP	10HP	12HP	14HP	16HP
Model Name (MMY-)	MAP0501HT8-E	MAP0601HT8-E	MAP0804HT8-E	MAP1004HT8-E	MAP1204HT8-E	MAP1404HT8-E	MAP1604HT8-E
Cooling capacity (kW)	14.0	16.0	22.4	28.0	33.5	40.0	45.0
Heating capacity (kW)	16.0	18.0	25.0	31.5	37.5	45.0	50.0

								
Capacity	18HP	20HP	22HP	24HP	26HP	28HP	30HP	32HP
Model Name (MMY-)	AP1814HT8-E	AP2014HT8-E	AP2214HT8-E	AP2414HT8-E	AP2614HT8-E	AP2814HT8-E	AP3014HT8-E	AP3214HT8-E
Units in combination (MMY-)	MAP1004HT8-E MAP0804HT8-E	MAP1004HT8-E MAP1004HT8-E	MAP1204HT8-E MAP1004HT8-E	MAP1204HT8-E MAP1204HT8-E	MAP1604HT8-E MAP1004HT8-E	MAP1604HT8-E MAP1204HT8-E	MAP1604HT8-E MAP1404HT8-E	MAP1604HT8-E MAP1604HT8-E
Cooling capacity (kW)	50.4	56.0	61.5	68.0	73.0	78.5	85.0	90.0
Heating capacity (kW)	56.5	63.0	69.0	76.5	81.5	88.0	95.0	100.0

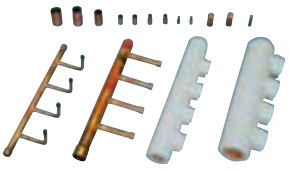
								
Capacity	34HP	36HP	38HP	40HP	42HP	44HP	46HP	48HP
Model Name (MMY-)	AP3414HT8-E	AP3614HT8-E	AP3814HT8-E	AP4014HT8-E	AP4214HT8-E	AP4414HT8-E	AP4614HT8-E	AP4814HT8-E
Units in combination (MMY-)	MAP1204HT8-E MAP1204HT8-E MAP1004HT8-E	MAP1204HT8-E MAP1204HT8-E MAP1204HT8-E	MAP1604HT8-E MAP1204HT8-E MAP1004HT8-E	MAP1604HT8-E MAP1204HT8-E MAP1204HT8-E	MAP1604HT8-E MAP1404HT8-E MAP1204HT8-E	MAP1604HT8-E MAP1604HT8-E MAP1204HT8-E	MAP1604HT8-E MAP1604HT8-E MAP1404HT8-E	MAP1604HT8-E MAP1604HT8-E MAP1604HT8-E
Cooling capacity (kW)	96.0	101.0	106.5	112.0	118.0	123.5	130.0	135.0
Heating capacity (kW)	108.0	113.0	119.5	127.0	132.0	138.0	145.0	150.0

* Power: 3-phase 50 Hz 400V (380 - 415V)
* The source voltage must not fluctuate more than ±10%.
* Rated conditions
  Cooling: Indoor air temperature 27°C DB/19°C WB, outdoor air temperature 35°C DB
  Heating: Indoor air temperature 20°C DB, outdoor air temperature 7°C DB/6°C WB

High efficiency model

					
Capacity	16HP	24HP	26HP	28HP	30HP
Model Name (MMY-)	AP1624HT8-E	AP2424HT8-E	AP2624HT8-E	AP2824HT8-E	AP3024HT8-E
Units in combination (MMY-)	MAP0804HT8-E MAP0804HT8-E	MAP0804HT8-E MAP0804HT8-E MAP0804HT8-E	MAP1004HT8-E MAP0804HT8-E MAP0804HT8-E	MAP1004HT8-E MAP1004HT8-E MAP0804HT8-E	MAP1004HT8-E MAP1004HT8-E MAP1004HT8-E
Cooling capacity (kW)	45.0	68.0	73.0	78.5	85.0
Heating capacity (kW)	50.0	76.5	81.5	88.0	95.0

									
Capacity	32HP	34HP	36HP	38HP	40HP	42HP	44HP	46HP	48HP
Model Name (MMY-)	AP3224HT8-E	AP3424HT8-E	AP3624HT8-E	AP3824HT8-E	AP4024HT8-E	AP4224HT8-E	AP4424HT8-E	AP4624HT8-E	AP4824HT8-E
Units in combination (MMY-)	MAP0804HT8-E MAP0804HT8-E MAP0804HT8-E MAP0804HT8-E	MAP1004HT8-E MAP0804HT8-E MAP0804HT8-E MAP0804HT8-E	MAP1004HT8-E MAP1004HT8-E MAP0804HT8-E MAP0804HT8-E	MAP1004HT8-E MAP1004HT8-E MAP1004HT8-E MAP0804HT8-E	MAP1004HT8-E MAP1004HT8-E MAP1004HT8-E MAP1004HT8-E	MAP1204HT8-E MAP1004HT8-E MAP1004HT8-E MAP1004HT8-E	MAP1204HT8-E MAP1204HT8-E MAP1004HT8-E MAP1004HT8-E	MAP1204HT8-E MAP1204HT8-E MAP1204HT8-E MAP1004HT8-E	MAP1204HT8-E MAP1204HT8-E MAP1204HT8-E MAP1204HT8-E
Cooling capacity (kW)	90.0	96.0	101.0	106.5	112.0	118.0	123.5	130.0	135.0
Heating capacity (kW)	100.0	108.0	113.0	119.5	127.0	132.0	138.0	145.0	150.0

	Y-shape branching joint				Branch headers				Outdoor unit connection piping kit	
Appearance					 (4-branch headers)					
Model name	RBM-BY55E	RBM-BY105E	RBM-BY205E	RBM-BY305E	RBM-HY1043E	RBM-HY2043E	RBM-HY1083E	RBM-HY2083E	RBM-BT14E	RBM-BT24E
Usage (Classification according to indoor unit capacity code)	Total below 6.4	Total 6.4 or more and below 14.2	Total 14.2 or more and below 25.2	Total 25.2 or more	Max.4 branches		Max.8 branches		Total below 26.0	Total 26.0 or more
					Total below 14.2	Total 14.2 or more and below 25.2	Total below 14.2	Total 14.2 or more and below 25.2		

Outdoor unit specifications

Standard model (Single unit)

Technical specifications

Equivalent HP				5HP	6HP	8HP	10HP	12HP	14HP	16HP
Model name	Heat Pump		(MMY-)	MAP0501HT8-E	MAP0601HT8-E	MAP0804HT8-E	MAP1004HT8-E	MAP1204HT8-E	MAP1404HT8-E	MAP1604HT8-E
	Cooling Only		(MMY-)	MAP0501T8-E	MAP0601T8-E	MAP0804T8-E	MAP1004T8-E	MAP1204T8-E	MAP1404T8-E	MAP1604T8-E
Outdoor unit type				Inverter						
Cooling capacity (*1)			(kW)	14.0	16.0	22.4	28.0	33.5	40.0	45.0
Heating capacity (*1)			(kW)	16.0	18.0	25.0	31.5	37.5	45.0	50.0
Power supply (*2)				3phase 4wires 50Hz 400V (380-415V)						
Electrical characteristics (*1)	Cooling	Power consumption	(kW)	3.65	4.64	5.40	7.41	9.55	11.50	13.70
		EER (Energy Efficiency Ratio)		3.84	3.45	4.15	3.78	3.51	3.48	3.28
	Heating	Power consumption	(kW)	3.84	4.56	5.53	7.50	10.20	11.20	14.20
		COP (Coefficient of Performance)		4.17	3.95	4.52	4.20	3.68	4.02	3.52
External dimensions (Height / Width / Depth)			(mm)	1,800 / 990 / 750	1,800 / 990 / 750	1,830 / 990 / 780	1,830 / 990 / 780	1,830 / 990 / 780	1,830 / 1,210 / 780	1,830 / 1,210 / 780
Total weight	Heat Pump		(kg)	228	228	242	242	242	330	330
	Cooling only		(kg)	227	227	241	241	241	329	329
Compressor	Motor output		(kW)	1.1 x 2	1.4 x 2	2.3 x 2	3.1 x 2	4.2 x 2	3.0 x 3	3.6 x 3
Fan unit	Motor output		(kW)	0.6	0.6	1.0	1.0	1.0	1.0	1.0
	Air volume		(m^3/h)	9,000	9,000	9,900	10,500	11,600	12,000	13,000
Refrigerant piping	Main pipe diameter	Gas side	(mm)	ø 15.9	ø 19.1	ø 22.2	ø 22.2	ø 28.6	ø 28.6	ø 28.6
		Liquid side	(mm)	ø 9.5	ø 9.5	ø 12.7	ø 12.7	ø 12.7	ø 15.9	ø 15.9
		Balance pipe	(mm)	ø 9.5	ø 9.5	ø 9.5	ø 9.5	ø 9.5	ø 9.5	ø 9.5
Sound pressure level (Cooling/Heating)			(dB(A))	55 / 55	56 / 56	55 / 56	57 / 58	59 / 62	60 / 62	62 / 64
Sound power level (Cooling/Heating)			(dB(A))	—	—	77 / 78	78 / 79	82 / 83	82 / 83	83 / 84

Standard model (Combination)

Technical specifications

Equivalent HP				18HP		20HP		22HP		24HP	
Model name	Heat Pump		MMY-	AP1814HT8-E		AP2014HT8-E		AP2214HT8-E		AP2414HT8-E	
	Cooling Only		MMY-	AP1814T8-E		AP2014T8-E		AP2214T8-E		AP2414T8-E	
Outdoor unit type				Inverter							
Outdoor unit model	Heat Pump		MMY-	MAP1004HT8-E	MAP0804HT8-E	MAP1004HT8-E	MAP1004HT8-E	MAP1204HT8-E	MAP1004HT8-E	MAP1204HT8-E	MAP1204HT8-E
	Cooling Only		MMY-	MAP1004T8-E	MAP0804T8-E	MAP1004T8-E	MAP1004T8-E	MAP1204T8-E	MAP1004T8-E	MAP1204T8-E	MAP1204T8-E
Cooling capacity (*1)			(kW)	50.4		56.0		61.5		68.0	
Heating capacity (*1)			(kW)	56.5		63.0		69.0		76.5	
Power supply (*2)				3phase 4wires 50Hz 400V (380-415V)							
Electrical characteristics (*1)	Cooling	Power consumption	(kW)	12.81		14.82		16.96		19.66	
		EER (Energy Efficiency Ratio)		3.93		3.78		3.63		3.46	
	Heating	Power consumption	(kW)	13.03		15.00		17.70		21.13	
		COP (Coefficient of Performance)		4.34		4.20		3.90		3.62	
Total weight	Heat Pump		(kg)	242	242	242	242	242	242	242	242
	Cooling only		(kg)	241	241	241	241	241	241	241	241
Compressor	Motor output		(kW)	3.1 x 2	2.3 x 2	3.1 x 2	3.1 x 2	4.2 x 2	3.1 x 2	4.2 x 2	4.2 x 2
Fan unit	Motor output		(kW)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Air volume		(m^3/h)	10,500	9,900	10,500	10,500	11,600	10,500	11,600	11,600
Refrigerant piping	Main pipe diameter	Gas side	(mm)	ø 28.6		ø 28.6		ø 34.9		ø 34.9	
		Liquid side	(mm)	ø 15.9		ø 15.9		ø 19.1		ø 19.1	
		Balance pipe	(mm)	ø 9.5		ø 9.5		ø 9.5		ø 9.5	
Sound pressure level (Cooling/Heating)			(dB(A))	59.5 / 60.5		60.0 / 61.0		61.5 / 63.5		62.0 / 65.0	

Standard model (Combination)

Technical specifications

Equivalent HP				26HP		28HP		30HP	
Model name	Heat Pump		MMY-	AP2614HT8-E		AP2814HT8-E		AP3014HT8-E	
	Cooling Only		MMY-	AP2614T8-E		AP2814T8-E		AP3014T8-E	
Outdoor unit type				Inverter					
Outdoor unit model	Heat Pump		MMY-	MAP1604HT8-E	MAP1004HT8-E	MAP1604HT8-E	MAP1204HT8-E	MAP1604HT8-E	MAP1404HT8-E
	Cooling Only		MMY-	MAP1604T8-E	MAP1004T8-E	MAP1604T8-E	MAP1204T8-E	MAP1604T8-E	MAP1404T8-E
Cooling capacity (*1)			(kW)	73.0		78.5		85.0	
Heating capacity (*1)			(kW)	81.5		88.0		95.0	
Power supply (*2)				3phase 4wires 50Hz 400V (380-415V)					
Electrical characteristics (*1)	Cooling	Power consumption	(kW)	21.11		23.25		25.20	
		EER (Energy Efficiency Ratio)		3.46		3.38		3.37	
	Heating	Power consumption	(kW)	21.70		24.65		25.40	
		COP (Coefficient of Performance)		3.76		3.57		3.74	
Total weight	Heat Pump		(kg)	330	242	330	242	330	330
	Cooling only		(kg)	329	241	329	241	329	329
Compressor	Motor output		(kW)	3.6 x 3	3.1 x 2	3.6 x 3	4.2 x 2	3.6 x 3	3.0 x 3
Fan unit	Motor output		(kW)	1.0	1.0	1.0	1.0	1.0	1.0
	Air volume		(m^3/h)	13,000	11,500	13,000	11,600	13,000	12,000
Refrigerant piping	Main pipe diameter	Gas side	(mm)	ø 34.9		ø 34.9		ø 34.9	
		Liquid side	(mm)	ø 19.1		ø 19.1		ø 19.1	
		Balance pipe	(mm)	ø 9.5		ø 9.5		ø 9.5	
Sound pressure level (Cooling/Heating)			(dB(A))	63.5 / 65.0		64 / 66.5		64.5 / 66.5	

Standard model (Combination)

Technical specifications

Equivalent HP				32HP		34HP			36HP		
Model name	Heat Pump		MMY-	AP3214HT8-E		AP3414HT8-E			AP3614HT8-E		
	Cooling Only		MMY-	AP3214T8-E		AP3414T8-E			AP3614T8-E		
Outdoor unit type				Inverter							
Outdoor unit model	Heat Pump		MMY-	MAP1604HT8-E	MAP1604HT8-E	MAP1204HT8-E	MAP1204HT8-E	MAP1004HT8-E	MAP1204HT8-E	MAP1204HT8-E	MAP1204HT8-E
	Cooling Only		MMY-	MAP1604T8-E	MAP1604T8-E	MAP1204T8-E	MAP1204T8-E	MAP1004T8-E	MAP1204T8-E	MAP1204T8-E	MAP1204T8-E
Cooling capacity (*1)			(kW)	90.0		96.0			101.0		
Heating capacity (*1)			(kW)	100.0		108.0			108.0		
Power supply (*2)				3phase 4wires 50Hz 400V (380-415V)							
Electrical characteristics (*1)	Cooling	Power consumption	(kW)	27.40		27.06			28.93		
		EER (Energy Efficiency Ratio)		3.28		3.55			3.49		
	Heating	Power consumption	(kW)	28.40		28.60			30.84		
		COP (Coefficient of Performance)		3.52		3.78			3.66		
Total weight	Heat Pump		(kg)	330	330	242	242	242	242	242	242
	Cooling only		(kg)	329	329	241	241	241	241	241	241
Compressor	Motor output		(kW)	3.6 x 3	3.6 x 3	4.2 x 2	4.2 x 2	3.1 x 2	4.2 x 2	4.2 x 2	4.2 x 2
Fan unit	Motor output		(kW)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Air volume		(m^3/h)	13,000	13,000	11,600	11,600	10,500	11,600	11,600	11,600
Refrigerant piping	Main pipe diameter	Gas side	(mm)	ø 34.9		ø 34.9			ø 41.3		
		Liquid side	(mm)	ø 19.1		ø 19.1			ø 22.2		
		Balance pipe	(mm)	ø 9.5		ø 9.5			ø 9.5		
Sound pressure level (Cooling/Heating)			(dB(A))	65.0 / 67.0		63.5 / 66.0			64.0 / 67.0		

Standard model (Combination)

Technical specifications

Equivalent HP				38HP			40HP			42HP		
Model name	Heat Pump		MMY-	AP3814HT8-E			AP4014HT8-E			AP4214HT8-E		
	Cooling Only		MMY-	AP3814T8-E			AP4014T8-E			AP4214T8-E		
Outdoor unit type				Inverter								
Outdoor unit model	Heat Pump		MMY-	MAP1604HT8-E	MAP1204HT8-E	MAP1004HT8-E	MAP1604HT8-E	MAP1204HT8-E	MAP1204HT8-E	MAP1604HT8-E	MAP1404HT8-E	MAP1204HT8-E
	Cooling Only		MMY-	MAP1604T8-E	MAP1204T8-E	MAP1004T8-E	MAP1604T8-E	MAP1204T8-E	MAP1204T8-E	MAP1604T8-E	MAP1404T8-E	MAP1204T8-E
Cooling capacity (*1)			(kW)	106.5			112.0			118.0		
Heating capacity (*1)			(kW)	119.5			127.0			132.0		
Power supply (*2)				3phase 4wires 50Hz 400V (380-415V)								
Electrical characteristics (*1)	Cooling	Power consumption	(kW)	30.66			32.80			34.47		
		EER (Energy Efficiency Ratio)		3.47			3.41			3.42		
	Heating	Power consumption	(kW)	32.14			35.29			35.46		
		COP (Coefficient of Performance)		3.72			3.60			3.72		
Total weight	Heat Pump		(kg)	330	242	242	330	242	242	330	330	242
	Cooling only		(kg)	329	241	241	329	241	241	329	329	241
Compressor	Motor output		(kW)	3.6 x 3	4.2 x 2	3.1 x 2	3.6 x 3	4.2 x 2	4.2 x 2	3.6 x 3	3.0 x 3	4.2 x 2
Fan unit	Motor output		(kW)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Air volume		(m^3/h)	13,000	11,600	10,500	13,000	11,600	11,600	13,000	12,000	11,600
Refrigerant piping	Main pipe diameter	Gas side	(mm)	ø 41.3			ø 41.3			ø 41.3		
		Liquid side	(mm)	ø 22.2			ø 22.2			ø 22.2		
		Balance pipe	(mm)	ø 9.5			ø 9.5			ø 9.5		
Sound pressure level (Cooling/Heating)			(dB(A))	65.0 / 67.0			65.0 / 67.5			65.0 / 67.0		

Standard model (Combination)

Technical specifications

Equivalent HP				44HP			46HP			48HP		
Model name	Heat Pump		MMY-	AP4414HT8-E			AP4614HT8-E			AP4814HT8-E		
	Cooling Only		MMY-	AP4414T8-E			AP4614T8-E			AP4814T8-E		
Outdoor unit type				Inverter								
Outdoor unit model	Heat Pump		MMY-	MAP1604HT8-E	MAP1604HT8-E	MAP1204HT8-E	MAP1604HT8-E	MAP1604HT8-E	MAP1404HT8-E	MAP1604HT8-E	MAP1604HT8-E	MAP1604HT8-E
	Cooling Only		MMY-	MAP1604T8-E	MAP1604T8-E	MAP1204T8-E	MAP1604T8-E	MAP1604T8-E	MAP1404T8-E	MAP1604T8-E	MAP1604T8-E	MAP1604T8-E
Cooling capacity (*1)			(kW)	123.5			130.0			135.0		
Heating capacity (*1)			(kW)	138.0			145.0			150.0		
Power supply (*2)				3phase 4wires 50Hz 400V (380-415V)								
Electrical characteristics (*1)	Cooling	Power consumption	(kW)	36.95			38.90			41.10		
		EER (Energy Efficiency Ratio)		3.34			3.34			3.28		
	Heating	Power consumption	(kW)	38.85			39.60			42.60		
		COP (Coefficient of Performance)		3.55			3.66			3.52		
Total weight	Heat Pump		(kg)	330	330	242	330	330	330	330	330	330
	Cooling only		(kg)	329	329	241	329	329	329	329	329	329
Compressor	Motor output		(kW)	3.6 x 3	3.6 x 3	3.1 x 2	3.6 x 3	3.6 x 3	3.0 x 3	3.6 x 3	3.6 x 3	3.6 x 3
Fan unit	Motor output		(kW)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Air volume		(m^3/h)	13,000	13,000	10,500	13,000	13,000	12,000	13,000	13,000	13,000
Refrigerant piping	Main pipe diameter	Gas side	(mm)	ø 41.3			ø 41.3			ø 41.3		
		Liquid side	(mm)	ø 22.2			ø 22.2			ø 22.2		
		Balance pipe	(mm)	ø 9.5			ø 9.5			ø 9.5		
Sound pressure level (Cooling/Heating)			(dB(A))	66.0 / 68.5			66.5 / 68.5			67.0 / 69.0		

*1 Rated conditions Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB
Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB
The standard piping means that main pipe length is 5m, branching pipe length is 2.5m of branch piping connected with a 0 meter height.
*2 The source voltage must not fluctuate more than ±10%.

High efficiency model (Combination) — Technical specifications

Equivalent HP				16HP	24HP				34HP		
Model name	Heat Pump		MMY-	AP1624HT8-E	AP2424HT8-E				AP3414HT8-E		
	Cooling Only		MMY-	AP1624T8-E	AP2424T8-E				AP3414T8-E		
Outdoor unit type				Inverter							
Outdoor unit model	Heat Pump		MMY-	MAP0804HT8-E	MAP0804HT8-E	MAP0804HT8-E	MAP0804HT8-E	MAP0804HT8-E	MAP1004HT8-E	MAP0804HT8-E	MAP0804HT8-E
	Cooling Only		MMY-	MAP0804T8-E	MAP0804T8-E	MAP0804T8-E	MAP0804T8-E	MAP0804T8-E	MAP1004T8-E	MAP0804T8-E	MAP0804T8-E
Cooling capacity (*1)			(kW)	45.0	68.0				73.0		
Heating capacity (*1)			(kW)	50.0	76.5				81.5		
Power supply (*2)				3phase 4wires 50Hz 400V (380-415V)							
Electrical characteristics (*1)	Cooling	Power consumption	(kW)	10.89	16.58				18.31		
		EER (Energy Efficiency Ratio)		4.13	4.10				3.99		
	Heating	Power consumption	(kW)	11.06	17.18				18.56		
		COP (Coefficient of Performance)		4.52	4.45				4.39		
Total weight	Heat Pump		(kg)	242	242	242	242	242	242	242	242
	Cooling only		(kg)	241	241	241	241	241	241	241	241
Compressor	Motor output		(kW)	2.3 x 2	2.3 x 2	2.3 x 2	2.3 x 2	2.3 x 2	3.1 x 2	3.1 x 2	3.1 x 2
Fan unit	Motor output		(kW)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Air volume		(m^3/h)	9,900	9,900	9,900	9,900	9,900	10,500	9,900	9,900
Refrigerant piping	Main pipe diameter	Gas side	(mm)	ø 28.6	ø 34.9				ø 34.9		
		Liquid side	(mm)	ø 15.9	ø 19.1				ø 19.1		
		Balance pipe	(mm)	ø 9.5	ø 9.5				ø 9.5		
Sound pressure level (Cooling/Heating)			(dB(A))	58.0 / 59.0	60.0 / 61.0				60.5 / 61.5		

High efficiency model (Combination) — Technical specifications

Equivalent HP				28HP			30HP			32HP			
Model name	Heat Pump		MMY-	AP2824HT8-E			AP3024HT8-E			AP3224HT8-E			
	Cooling Only		MMY-	AP2824T8-E			AP3024T8-E			AP3224T8-E			
Outdoor unit type							Inverter						
Outdoor unit model	Heat Pump		MMY-	MAP1004HT8-E	MAP1004HT8-E	MAP0804HT8-E	MAP1004HT8-E	MAP1004HT8-E	MAP1004HT8-E	MAP0804HT8-E	MAP0804HT8-E	MAP0804HT8-E	MAP0804HT8-E
	Cooling Only		MMY-	MAP1004T8-E	MAP1004T8-E	MAP0804T8-E	MAP1004T8-E	MAP1004T8-E	MAP1004T8-E	MAP0804T8-E	MAP0804T8-E	MAP0804T8-E	MAP0804T8-E
Cooling capacity (*1)			(kW)	78.5			85.0			90.0			
Heating capacity (*1)			(kW)	88.0			95.0			100.0			
Power supply (*2)				3phase 4wires 50Hz 400V (380-415V)									
Electrical characteristics (*1)	Cooling	Power consumption	(kW)	20.27			22.75			21.79			
		EER (Energy Efficiency Ratio)		3.87			3.74			4.13			
	Heating	Power consumption	(kW)	20.53			22.71			22.12			
		COP (Coefficient of Performance)		4.29			4.18			4.52			
Total weight	Heat Pump		(kg)	242	242	242	242	242	242	242	242	242	242
	Cooling only		(kg)	241	241	241	241	241	241	241	241	241	241
Compressor	Motor output		(kW)	3.1 x 2	3.1 x 2	2.3 x 2	3.1 x 2	3.1 x 2	3.1 x 2	2.3 x 2	2.3 x 2	2.3 x 2	2.3 x 2
Fan unit	Motor output		(kW)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Air volume		(m^3/h)	10,500	10,500	9,900	10,500	10,500	10,500	9,900	9,900	9,900	9,900
Refrigerant piping	Main pipe diameter	Gas side	(mm)	ø 34.9			ø 34.9			ø 34.9			
		Liquid side	(mm)	ø 19.1			ø 19.1			ø 19.1			
		Balance pipe	(mm)	ø 9.5			ø 9.5			ø 9.5			
Sound pressure level (Cooling/Heating)			(dB(A))	61.5 / 62.5			62.0 / 63.0			61.0 / 62.0			

High efficiency model (Combination) — Technical specifications

Equivalent HP				34HP				36HP			
Model name	Heat Pump		MMY-	AP3424HT8-E				AP3624HT8-E			
	Cooling Only		MMY-	AP3424T8-E				AP3624T8-E			
Outdoor unit type				Inverter							
Outdoor unit model	Heat Pump		MMY-	MAP1004HT8-E	MAP0804HT8-E	MAP0804HT8-E	MAP0804HT8-E	MAP1004HT8-E	MAP1004HT8-E	MAP0804HT8-E	MAP0804HT8-E
	Cooling Only		MMY-	MAP1004T8-E	MAP0804T8-E	MAP0804T8-E	MAP0804T8-E	MAP1004T8-E	MAP1004T8-E	MAP0804T8-E	MAP0804T8-E
Cooling capacity (*1)			(kW)	96.0				101.0			
Heating capacity (*1)			(kW)	108.0				113.0			
Power supply (*2)				3phase 4wires 50Hz 400V (380-415V)							
Electrical characteristics (*1)	Cooling	Power consumption	(kW)	24.00				25.72			
		EER (Energy Efficiency Ratio)		4.00				3.93			
	Heating	Power consumption	(kW)	24.70				26.06			
		COP (Coefficient of Performance)		4.37				4.34			
Total weight	Heat Pump		(kg)	242	242	242	242	242	242	242	242
	Cooling only		(kg)	241	241	241	241	241	241	241	241
Compressor	Motor output		(kW)	3.1 x 2	2.3 x 2	2.3 x 2	2.3 x 2	3.1 x 2	3.1 x 2	2.3 x 2	2.3 x 2
Fan unit	Motor output		(kW)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Air volume		(m^3/h)	10,500	9,900	9,900	9,900	10,500	10,500	9,900	9,900
Refrigerant piping	Main pipe diameter	Gas side	(mm)	ø 34.9				ø 41.3			
		Liquid side	(mm)	ø 19.1				ø 22.2			
		Balance pipe	(mm)	ø 9.5				ø 9.5			
Sound pressure level (Cooling/Heating)			(dB(A))	62.0 / 63.0				62.5 / 63.5			

High efficiency model (Combination) — Technical specifications

Equivalent HP				38HP				40HP			
Model name	Heat Pump		MMY-	AP3824HT8-E				AP4024HT8-E			
	Cooling Only		MMY-	AP3824T8-E				AP4024T8-E			
Outdoor unit type				Inverter							
Outdoor unit model	Heat Pump		MMY-	MAP1004HT8-E	MAP1004HT8-E	MAP1004HT8-E	MAP0804HT8-E	MAP1004HT8-E	MAP1004HT8-E	MAP1004HT8-E	MAP1004HT8-E
	Cooling Only		MMY-	MAP1004T8-E	MAP1004T8-E	MAP1004T8-E	MAP0804T8-E	MAP1004T8-E	MAP1004T8-E	MAP1004T8-E	MAP1004T8-E
Cooling capacity (*1)			(kW)	106.5				112.0			
Heating capacity (*1)			(kW)	119.5				127.0			
Power supply (*2)				3phase 4wires 50Hz 400V (380-415V)							
Electrical characteristics (*1)	Cooling	Power consumption	(kW)	27.68				29.64			
		EER (Energy Efficiency Ratio)		3.85				3.78			
	Heating	Power consumption	(kW)	28.03				30.42			
		COP (Coefficient of Performance)		4.26				4.17			
Total weight	Heat Pump		(kg)	242	242	242	242	242	242	242	242
	Cooling only		(kg)	241	241	241	241	241	241	241	241
Compressor	Motor output		(kW)	3.1 x 2	3.1 x 2	3.1 x 2	2.3 x 2	3.1 x 2	3.1 x 2	3.1 x 2	3.1 x 2
Fan unit	Motor output		(kW)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Air volume		(m^3/h)	10,500	10,500	10,500	9,900	10,500	10,500	10,500	10,500
Refrigerant piping	Main pipe diameter	Gas side	(mm)	ø 41.3				ø 41.3			
		Liquid side	(mm)	ø 22.2				ø 22.2			
		Balance pipe	(mm)	ø 9.5				ø 9.5			
Sound pressure level (Cooling/Heating)			(dB(A))	63.0 / 64.0				63.0 / 64.0			

High efficiency model (Combination) — Technical specifications

Equivalent HP				42HP				44HP			
Model name	Heat Pump		MMY-	AP4224HT8-E				AP4424HT8-E			
	Cooling Only		MMY-	AP4224T8-E				AP4424T8-E			
Outdoor unit type				Inverter							
Outdoor unit model	Heat Pump		MMY-	MAP1204HT8-E	MAP1004HT8-E	MAP1004HT8-E	MAP1004HT8-E	MAP1204HT8-E	MAP1204HT8-E	MAP1004HT8-E	MAP1004HT8-E
	Cooling Only		MMY-	MAP1204T8-E	MAP1004T8-E	MAP1004T8-E	MAP1004T8-E	MAP1204T8-E	MAP1204T8-E	MAP1004T8-E	MAP1004T8-E
Cooling capacity (*1)			(kW)	118.0				123.5			
Heating capacity (*1)			(kW)	132.0				138.0			
Power supply (*2)				3phase 4wires 50Hz 400V (380-415V)							
Electrical characteristics (*1)	Cooling	Power consumption	(kW)	32.04				34.19			
		EER (Energy Efficiency Ratio)		3.68				3.61			
	Heating	Power consumption	(kW)	32.70				35.40			
		COP (Coefficient of Performance)		4.04				3.90			
Total weight	Heat Pump		(kg)	242	242	242	242	242	242	242	242
	Cooling only		(kg)	241	241	241	241	241	241	241	241
Compressor	Motor output		(kW)	4.2 x 2	3.1 x 2	3.1 x 2	3.1 x 2	4.2 x 2	4.2 x 2	3.1 x 2	3.1 x 2
Fan unit	Motor output		(kW)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Air volume		(m^3/h)	11,600	10,500	10,500	10,500	11,600	11,600	10,500	10,500
Refrigerant piping	Main pipe diameter	Gas side	(mm)	ø 41.3				ø 41.3			
		Liquid side	(mm)	ø 22.2				ø 22.2			
		Balance pipe	(mm)	ø 9.5				ø 9.5			
Sound pressure level (Cooling/Heating)			(dB(A))	64.0 / 65.5				64.5 / 66.5			

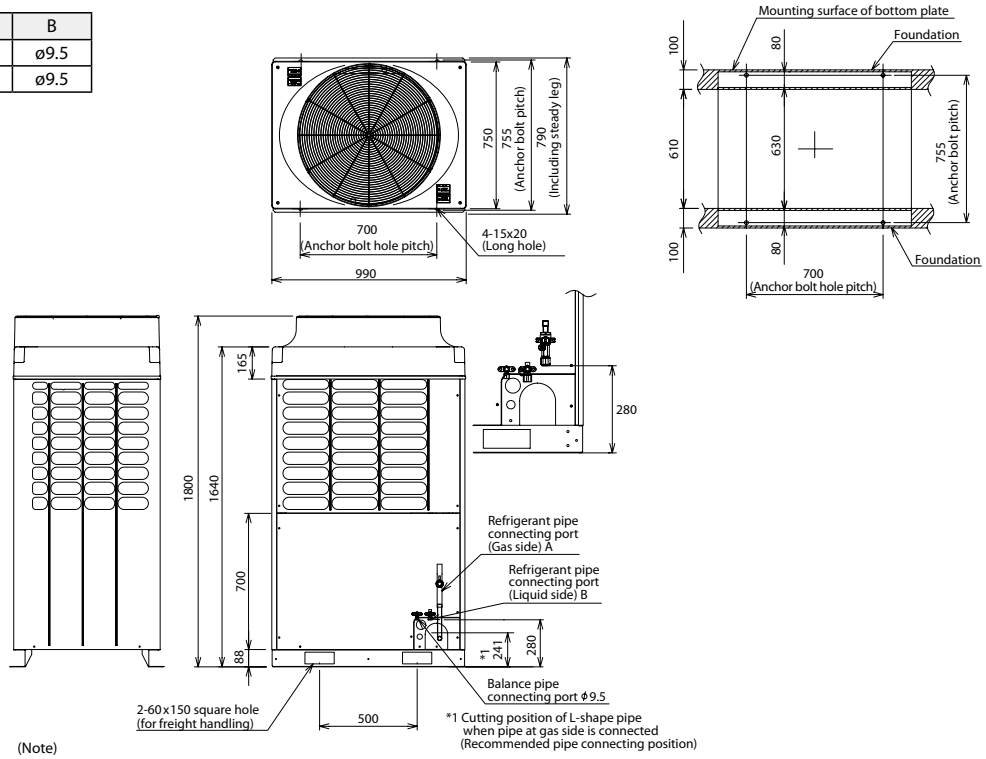
High efficiency model (Combination) — Technical specifications

Equivalent HP				46HP				48HP			
Model name	Heat Pump		MMY-	AP4624HT8-E				AP4824HT8-E			
	Cooling Only		MMY-	AP4624T8-E				AP4824T8-E			
Outdoor unit type				Inverter							
Outdoor unit model	Heat Pump		MMY-	MAP1204HT8-E	MAP1204HT8-E	MAP1204HT8-E	MAP1004HT8-E	MAP1204HT8-E	MAP1204HT8-E	MAP1204HT8-E	MAP1204HT8-E
	Cooling Only		MMY-	MAP1204T8-E	MAP1204T8-E	MAP1204T8-E	MAP1004T8-E	MAP1204T8-E	MAP1204T8-E	MAP1204T8-E	MAP1204T8-E
Cooling capacity (*1)			(kW)	130.0				135.0			
Heating capacity (*1)			(kW)	145.0				150.0			
Power supply (*2)				3phase 4wires 50Hz 400V (380-415V)							
Electrical characteristics (*1)	Cooling	Power consumption	(kW)	36.88				38.76			
		EER (Energy Efficiency Ratio)		3.52				3.48			
	Heating	Power consumption	(kW)	38.57				40.80			
		COP (Coefficient of Performance)		3.76				3.68			
Total weight	Heat Pump		(kg)	242	242	242	242	242	242	242	242
	Cooling only		(kg)	241	241	241	241	241	241	241	241
Compressor	Motor output		(kW)	4.2 x 2	4.2 x 2	4.2 x 2	3.1 x 2	4.2 x 2	4.2 x 2	4.2 x 2	4.2 x 2
Fan unit	Motor output		(kW)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Air volume		(m^3/h)	11,600	11,600	11,600	10,500	11,600	11,600	11,600	11,600
Refrigerant piping	Main pipe diameter	Gas side	(mm)	ø 41.3				ø 41.3			
		Liquid side	(mm)	ø 22.2				ø 22.2			
		Balance pipe	(mm)	ø 9.5				ø 9.5			
Sound pressure level (Cooling/Heating)			(dB(A))	65.0 / 67.5				65.0 / 68.0			

*1 Rated conditions Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB
Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB
The standard piping means that main pipe length is 5m, branching pipe length is 2.5m of branch piping connected with a 0 meter height.
*2 The source voltage must not fluctuate more than ±10%.

Model : MMY-MAP0501, MAP0601 (SMMS)

Applied model	A	B
MMY-MAP0501	ø15.9	ø9.5
MMY-MAP0601	ø15.9	ø9.5



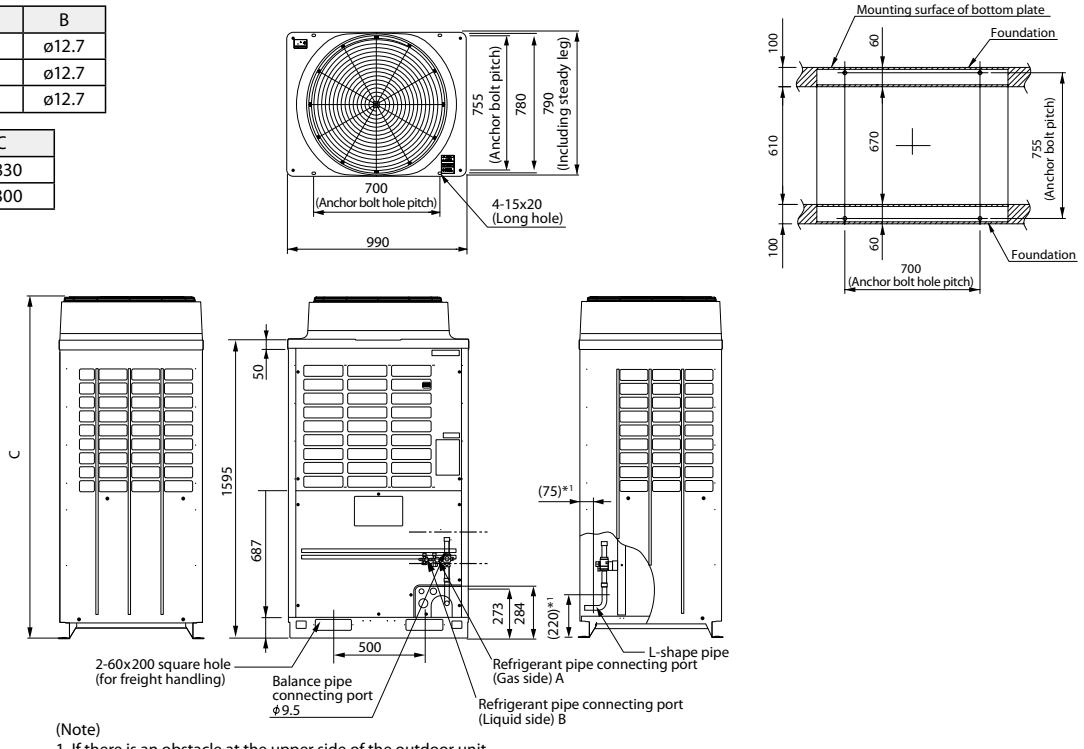
(Note)
1. If there is an obstacle at the upper side of the outdoor unit, set the top end of the outdoor unit 2000mm apart from the obstacle.
2. Limit the height of the obstacle surrounding the outdoor unit to 800mm or less from the bottom end of the outdoor unit.
3. Draw out the pipe procured locally to the front of the outdoor unit horizontally and keep 500mm or more between the outdoor unit and traversing pipe if placing pipe transversely.

(Unit: mm)

Model: MMY-MAP0804, MAP1004, MAP1204

Applied model	A	B
MMY-MAP0804	ø22.2	ø12.7
MMY-MAP1004	ø22.2	ø12.7
MMY-MAP1204	ø28.6	ø12.7

Applied model	C
MMY-MAP***-E, TR	1,830
Other models	1,800



(Note)
1. If there is an obstacle at the upper side of the outdoor unit, set the top end of the outdoor unit 2000mm apart from the obstacle.
2. Limit the height of the obstacle surrounding the outdoor unit to 800mm or less from the bottom end of the outdoor unit.
3. Draw out the pipe procured locally to the front of the outdoor unit horizontally and keep 500mm or more between the outdoor unit and traversing pipe if placing pipe transversely.

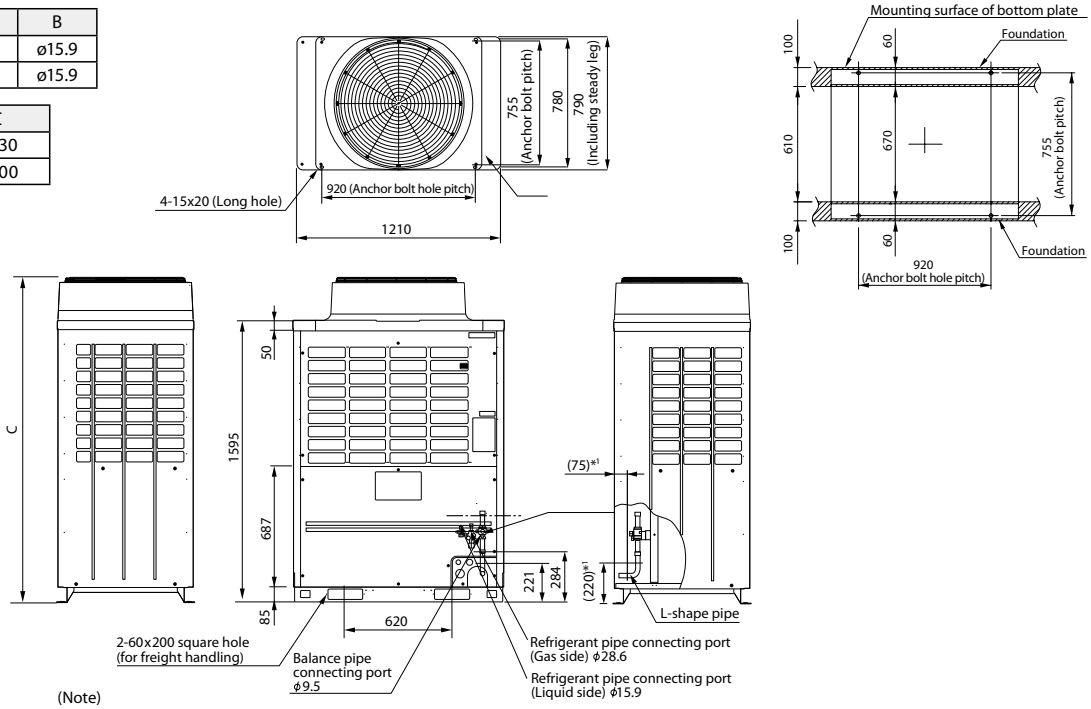
*1 Recommended cutting position of L-shape pipe

(Unit: mm)

Model: MMY-MAP1404, MAP1604

Applied model	A	B
MMY-MAP1404	ø28.6	ø15.9
MMY-MAP1604	ø28.6	ø15.9

Applied model	C
MMY-MAP***-E, TR	1,830
Other models	1,800

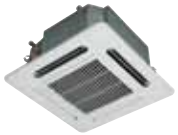


(Note)
1. If there is an obstacle at the upper side of the outdoor unit, set the top end of the outdoor unit 2000mm apart from the obstacle.
2. Limit the height of the obstacle surrounding the outdoor unit to 800mm or less from the bottom end of the outdoor unit.
3. Draw out the pipe procured locally to the front of the outdoor unit horizontally and keep 500mm or more between the outdoor unit and traversing pipe if placing pipe transversely.

*1 Recommended cutting position of L-shape pipe

(Unit: mm)

Indoor units

Cooling capacity (HP equivalent)	4-way air discharge cassette type	Compact 4-way cassette (600 × 600) type	2-way air discharge cassette type	1-way air discharge cassette type
007 type 2.2 kW (0.8HP)		MMU-AP0074MH-E	MMU-AP0072WH	MMU-AP0074YH-E
009 type 2.8 kW (1HP)	MMU-AP0092H	MMU-AP0094MH-E	MMU-AP0092WH	MMU-AP0094YH-E
012 type 3.6 kW (1.25HP)	MMU-AP0122H	MMU-AP0124MH-E	MMU-AP0122WH	MMU-AP0124YH-E
015 type 4.5 kW (1.7HP)	MMU-AP0152H	MMU-AP0154MH-E	MMU-AP0152WH	MMU-AP0154SH-E
018 type 5.6 kW (2HP)	MMU-AP0182H	MMU-AP0184MH-E	MMU-AP0182WH	MMU-AP0184SH-E
024 type 7.1 kW (2.5HP)	MMU-AP0242H		MMU-AP0242WH	MMU-AP0244SH-E
027 type 8.0 kW (3HP)	MMU-AP0272H		MMU-AP0272WH	
030 type 9.0 kW (4HP)	MMU-AP0302H		MMU-AP0302WH	
036 type 11.2 kW (4HP)	MMU-AP0362H		MMU-AP0362WH	
048 type 14.0 kW (5HP)	MMU-AP0482H		MMU-AP0482WH	
056 type 16.0 kW (6HP)	MMU-AP0562H		MMU-AP0562WH	
072 type 22.4 kW (8HP)				
096 type 28.0 kW (10HP)				



Cooling capacity (HP equivalent)	Concealed duct type	Concealed duct high static pressure type	Slim duct type
007 type 2.2 kW (0.8HP)	MMD-AP0074BH-E		MMD-AP0074SPH-E
009 type 2.8 kW (1HP)	MMD-AP0094BH-E		MMD-AP0094SPH-E
012 type 3.6 kW (1.25HP)	MMD-AP0124BH-E		MMD-AP0124SPH-E
015 type 4.5 kW (1.7HP)	MMD-AP0154BH-E		MMD-AP0154SPH-E
018 type 5.6 kW (2HP)	MMD-AP0184BH-E	MMD-AP0184H-E	MMD-AP0184SPH-E
024 type 7.1 kW (2.5HP)	MMD-AP0244BH-E	MMD-AP0244H-E	
027 type 8.0 kW (3HP)	MMD-AP0274BH-E	MMD-AP0274H-E	
030 type 9.0 kW (3.2HP)	MMD-AP0304BH-E		
036 type 11.2 kW (4HP)	MMD-AP0364BH-E	MMD-AP0364H-E	
048 type 14.0 kW (5HP)	MMD-AP0484BH-E	MMD-AP0484H-E	
056 type 16.0 kW (6HP)	MMD-AP0564BH-E		
072 type 22.4 kW (8HP)		MMD-AP0724H-E	
096 type 28.0 kW (10HP)		MMD-AP0964H-E	



Cooling capacity (HP equivalent)	Ceiling type	High wall type 2 series*	High wall type 3 series
007 type 2.2 kW (0.8HP)		MMK-AP0074MH-E	MMK-AP0073H
009 type 2.8 kW (1HP)		MMK-AP0094MH-E	MMK-AP0093H
012 type 3.6 kW (1.25HP)		MMK-AP0124MH-E	MMK-AP0123H
015 type 4.5 kW (1.7HP)	MMC-AP0154H-E		MMK-AP0153H
018 type 5.6 kW (2HP)	MMC-AP0184H-E		MMK-AP0183H
024 type 7.1 kW (2.5HP)	MMC-AP0244H-E		MMK-AP0243H
027 type 8.0 kW (3HP)	MMC-AP0274H-E		
030 type 9.0 kW (3.2HP)			
036 type 11.2 kW (4HP)	MMC-AP0364H-E		
048 type 14.0 kW (5HP)	MMC-AP0484H-E		
056 type 16.0 kW (6HP)			
072 type 22.4 kW (8HP)			
096 type 28.0 kW (10HP)			





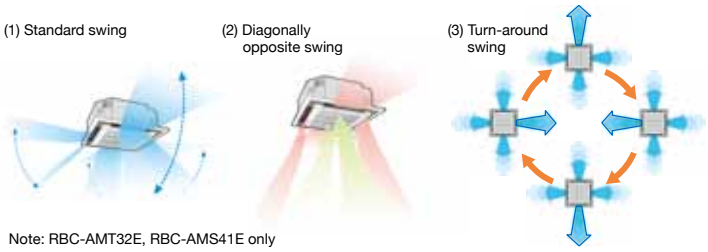
Cooling capacity (HP equivalent)	Floor standing concealed type	Floor standing cabinet type	Bi - Flow console	Floor standing type	Fresh air intake indoor unit type
007 type 2.2 kW (0.8HP)	MML-AP0074BH-E	MML-AP0074H-E	MML-AP0074NH-E		
009 type 2.8 kW (1HP)	MML-AP0094BH-E	MML-AP0094H-E	MML-AP0094NH-E		
012 type 3.6 kW (1.25HP)	MML-AP0124BH-E	MML-AP0124H-E	MML-AP0124NH-E		
015 type 4.5 kW (1.7HP)	MML-AP0154BH-E	MML-AP0154H-E	MML-AP0154NH-E	MMF-AP0154H-E	
018 type 5.6 kW (2HP)	MML-AP0184BH-E	MML-AP0184H-E	MML-AP0184NH-E	MMF-AP0184H-E	
024 type 7.1 kW (2.5HP)	MML-AP0244BH-E	MML-AP0244H-E		MMF-AP0244H-E	
027 type 8.0 kW (3HP)				MMF-AP0274H-E	
030 type 9.0 kW (3.2HP)					
036 type 11.2 kW (4HP)				MMF-AP0364H-E	
048 type 14.0 kW (5HP)				MMF-AP0484H-E	MMD-AP0481HFE
056 type 16.0 kW (6HP)				MMF-AP0564H-E	
072 type 22.4 kW (8HP)					MMD-AP0721HFE
096 type 28.0 kW (10HP)					MMD-AP0961HFE

*European market only

4-way Air Discharge Cassette Type

Individual louver control

The angles of each of the four louver can be set individually
⇒ Enables airflow to be adapted to user preferences.



Note: RBC-AMT32E, RBC-AMS41E only

MMU-AP*2H**


RBC-U31PG(W)-E


RBC-U31PGS(W)-E*


RBC-U31PGS(WS)-E*

* European market only

Easy installation

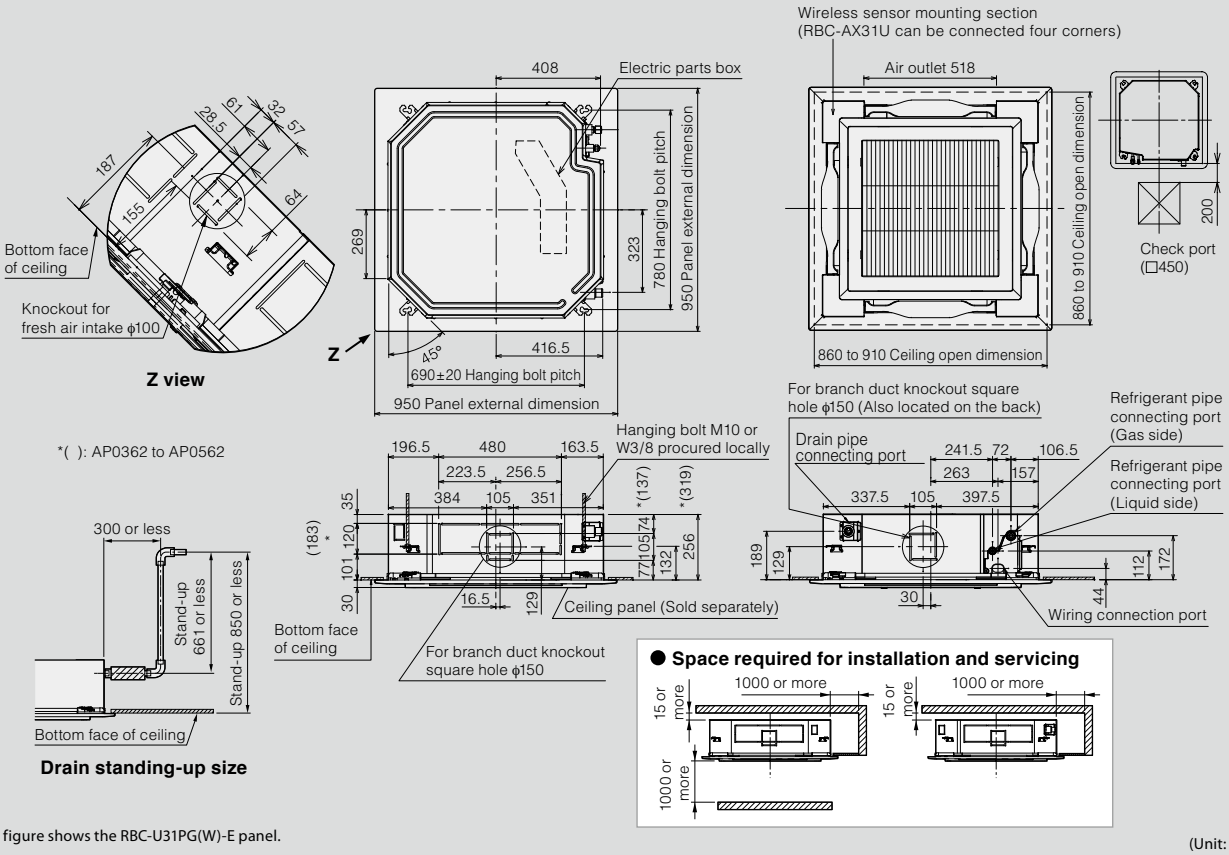
The panel is attached using the bolt already installed on the indoor unit.

Technical specifications

Model name		MMU-	AP0092H	AP0122H	AP0152H	AP0182H	AP0242H	AP0272H	AP0302H	AP0362H	AP0482H	AP0562H
Cooling/Heating capacity*1		(kW)	2.8/3.2	3.6/4.0	4.5/5.0	5.6/6.3	7.1/8.0	8.0/9.0	9.0/10.0	11.2/12.5	14.0/16.0	16.0/18.0
Electrical characteristics	Power requirements		1-phase 50 Hz 230 V (220–240 V)/1-phase 60 Hz 220 V (Separate power supply for indoor units required.)									
	Power consumption 50 Hz/60 Hz(kW)		0.021/0.021		0.023/ 0.023	0.026/ 0.026	0.036/0.036		0.043/ 0.043	0.088/ 0.088	0.112/ 0.112	0.112/ 0.112
Appearance (Ceiling panel)		Model	RBC-U31PG(W)-E/RBC-U31PGS(W)-E*/RBC-U31PGS(WS)-E									
External dimensions: Main unit (Ceiling panel)	Height	(mm)	256 (30)							319 (30)		
	Width	(mm)	840 (950)									
	Depth	(mm)	840 (950)									
Total weight: Main unit (Ceiling panel)		(kg)	18 (4)		20 (4)					25 (4)		
Fan unit	Standard air flow (High/Mid/Low)	(m^3/h)	800/730/680		930/ 830/790	1050/ 920/800	1290/920/800		1320/ 1110/850	1970/ 1430/1070	2130/ 1430/1130	2130/ 1520/1230
	Motor output	(W)	14				20			68	72	
Connecting pipe	Gas side	(mm)	ø9.5		ø12.7		ø15.9					
	Liquid side	(mm)	ø6.4				ø9.5					
	Drain port	(nominal dia.)	25 (Polyvinyl chloride tube)									
Sound pressure level*2 (High/Mid/Low)		(dB(A))	30/29/27		31/29/27	32/29/27	35/31/28		38/33/30	43/38/32	46/38/33	46/40/33

*Figures in parentheses are for ceiling panels.
*1 This reference piping consists of 5 m of main piping and 2.5 m of branch piping connected at the same height level.
*2 The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

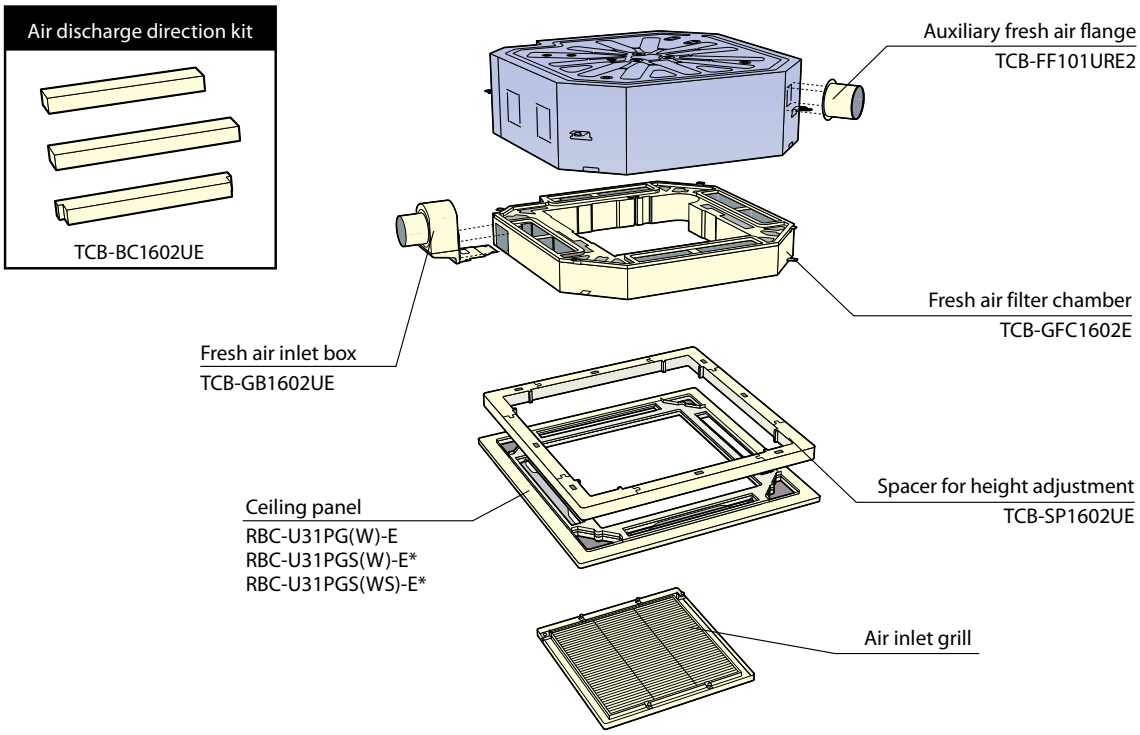
MMU-AP0092H to MMU-AP0562H



* The figure shows the RBC-U31PG(W)-E panel.

(Unit: mm)

Options



MMU-AP***4MH-E

Compact 4-way Cassette (600 × 600) Type

Perfect for grid system ceiling

This compact unit (575 × 575 mm) fits perfectly into ceilings and matches standard architectural modules, without the need to cut ceiling tiles.

The flaps fold tightly against the ceiling when operation stops so that the ceiling is affected only slightly even if air conditioning is installed.

Designed for simple & easy installation and maintenance

The slim design is only 268 mm in height even when an electrical box is located inside the unit.

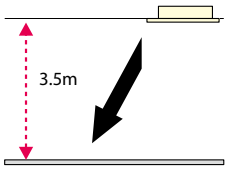
Easy installation is also possible using the panel adjust pocket. Use the "adjust pocket" function for fine adjustments after installation.

Available for ceilings up to 3.5 m in height.

The drain-checking hole makes it possible to check the drain pan through the side case.

RBC-UM11PG(W)E

Drain-checking hole



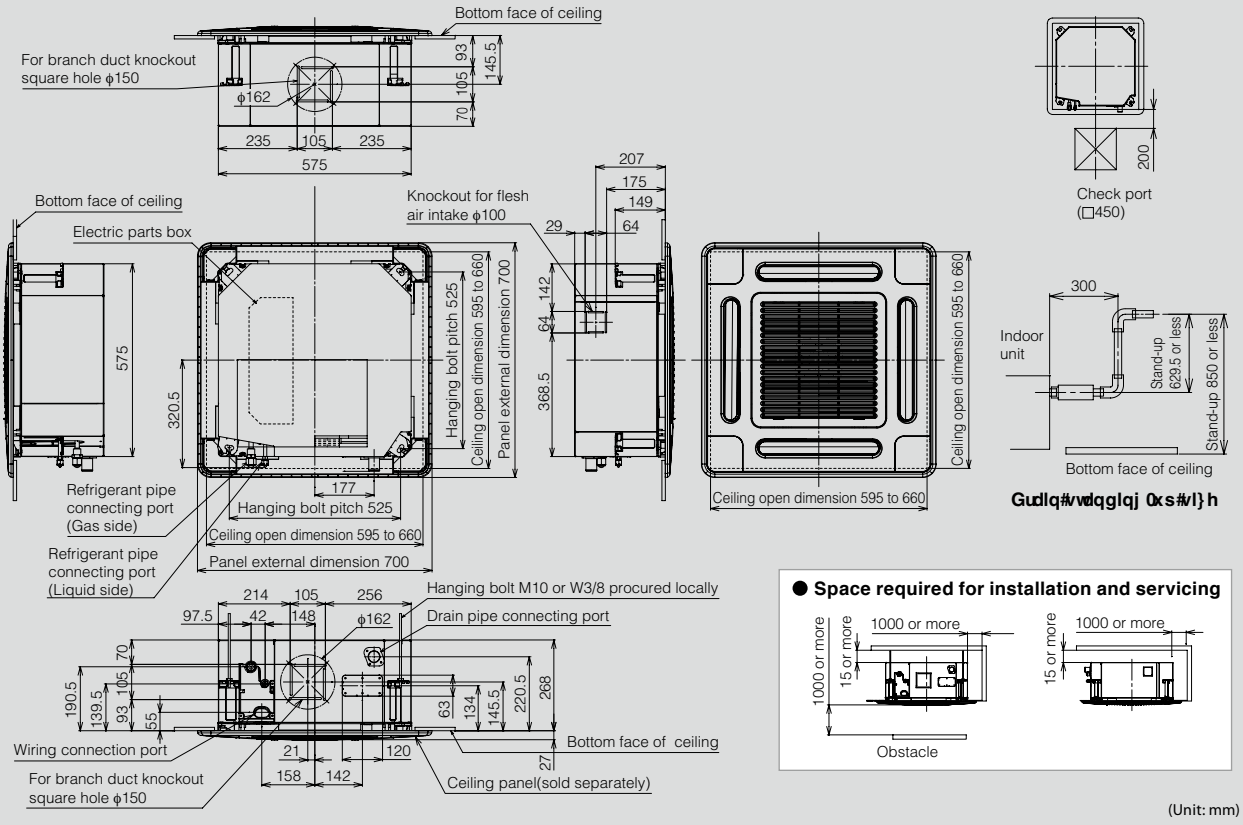
Maximum height

Technical specifications

Model name		MMU-	AP0074MH-E	AP0094MH-E	AP0124MH-E	AP0154MH-E	AP0184MH-E
Cooling/Heating capacity*1		(kW)	2.2/2.5	2.8/3.2	3.6/4.0	4.5/5.0	5.6/6.3
Electrical characteristics	Power requirements		1-phase 50 Hz 230 V (220–240 V)/1-phase 60 Hz 220 V (Separate power supply for indoor units required.)				
	Power consumption 50 Hz/60 Hz	(kW)	0.034/0.034	0.036/0.036	0.038/0.038	0.041/0.041	0.052/0.052
Appearance (Ceiling panel)		Model	RBC-UM11PG(W)-E				
External dimensions: Main unit (Ceiling panel)*	Height	(mm)	268 (27)*				
	Width	(mm)	575 (700)*				
	Depth	(mm)	575(700)*				
Total weight: Main unit (Ceiling panel)*		(kg)	17 (3)*				
Fan unit	Standard air flow (High/Mid/Low)	(m^3/h)	552/462/378	570/468/378	594/504/402	660/552/468	762/642/522
	Motor output	(W)	60				
Connecting pipe	Gas side	(mm)	ø9.5			ø12.7	
	Liquid side	(mm)	ø6.4				
	Drain port	(nominal dia.)	25 (Polyvinyl chloride tube)				
Sound pressure level*2 (High/Mid/Low)		(dB(A))	36/32/28	37/33/28	37/33/29	40/35/30	44/39/34

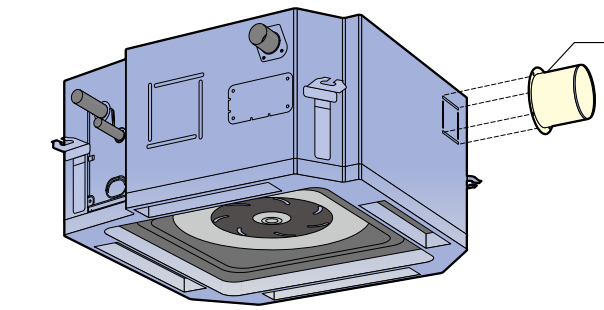
* Figures in parentheses are for ceiling panels.
*1 This reference piping consists of 5 m of main piping and 2.5 m of branch piping connected at the same height level.
*2 The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

MMU-AP0074MH-E to MMU-AP0184MH-E

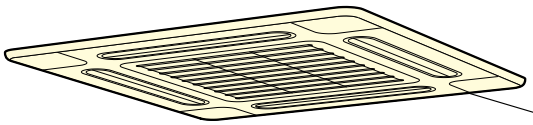


(Unit: mm)

Options



Auxiliary fresh air flange
TCB-FF101URE2



Ceiling panel
RBC-UM11PG(W)E

MMU-AP***2WH

2-way Air Discharge Cassette Type

Slim and compact unit

Unified the width of ceiling panels, 680mm.

Condensate drain pump included.

Available for ceilings up to 3.8m in height. (in case of 0.8HP to 3.2HP)

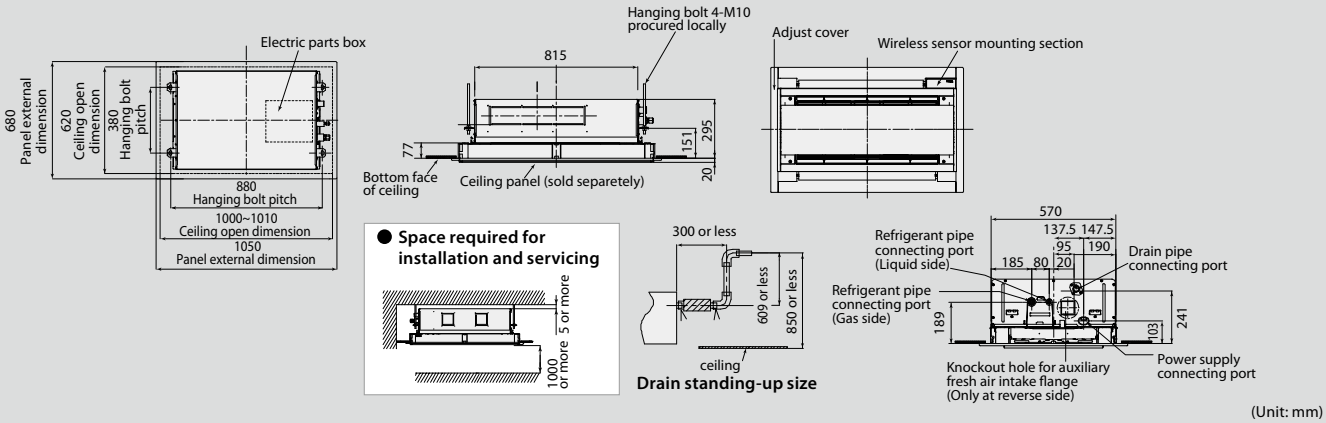
Easy installation and fine adjustment using the "Adjust-Cover" function.

Technical specifications

Model name		MMU-	AP0072WH	AP0092WH	AP0122WH	AP0152WH	AP0182WH	AP0242WH	AP0272WH	AP0302WH	AP0362WH	AP0482WH	AP0562WH
Cooling/Heating capacity*1		(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	8.0/9.0	9.0/10.0	11.2/12.5	14.0/16.0	16.0/18.0
Electrical characteristics	Power requirements		1-phase 50Hz 230V (220-240V)/1-phase 60Hz 220V (Separate power supply for indoor units required)										
	Power consumption 50 Hz/60 Hz	(kW)	0.029/0.029			0.030/0.030	0.044/0.044	0.054/0.054		0.064/0.064	0.076/0.076	0.088/0.088	0.117/0.117
Appearance (Ceiling panel)		Model	RBC-UW283PG(W)-E				RBC-UW803PG(W)-E				RBC-UW1403(W)PG-E		
External dimensions: Main unit (Ceiling panel)*	Height	(mm)	295 (20)				345 (20)						
	Width	(mm)	815 (1050)				1180 (1415)				1600 (1835)		
	Depth	(mm)	570 (680)										
Total weight: Main unit (Ceiling panel)*		(kg)	19 (10)				26 (14)				36 (14)		
Fan unit	Standard air flow (High/Mid/Low)	(m^3/h)	558/498/450			600/534/450	900/750/618	1050/840/738		1260/900/780	1740/1434/1182	1800/1482/1230	2040/1578/1320
	Motor output	(W)	20				30	40		50	70		
Connecting pipe	Gas side	(mm)	ø9.5			ø12.7		ø15.9					
	Liquid side	(mm)	ø6.4					ø9.5					
	Drain port	(nominal dia.)	25 (Polyvinyl chloride tube)										
Sound pressure level*2 (High/Mid/Low)		(dB(A))	34/32/30			35/33/30		38/35/33		40/37/34	42/39/36	43/40/37	46/42/39

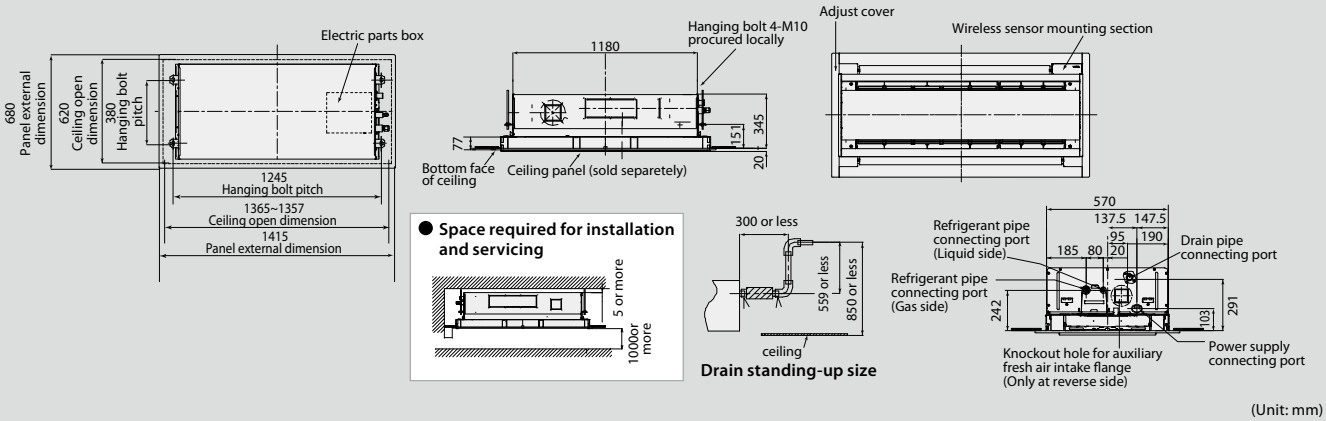
* Figures in parentheses are for ceiling panels.
*1 This reference piping consists of 5 m of main piping and 2.5 m of branch piping connected at the same height level.
*2 The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

MMU-AP0072WH to AP0152WH



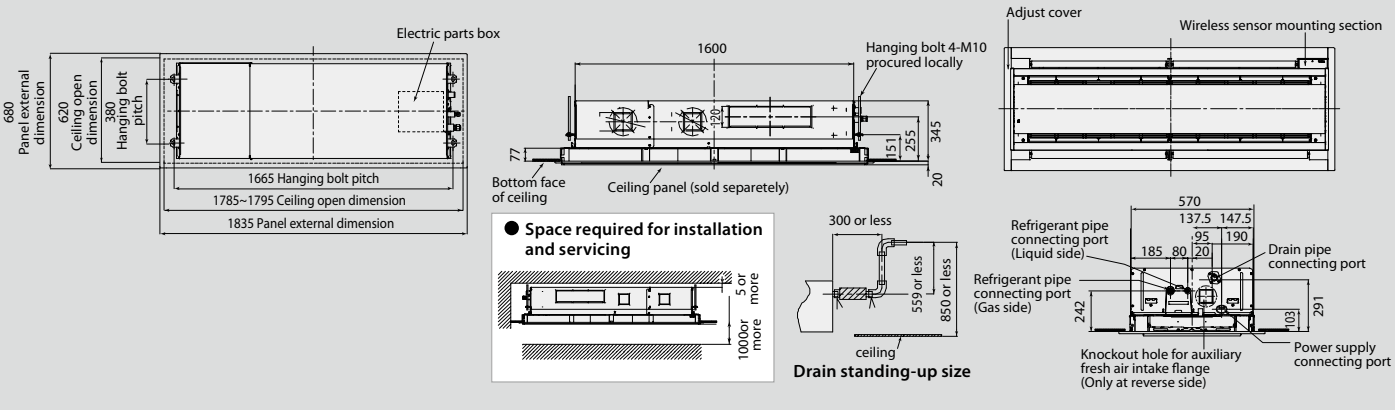
(Unit: mm)

MMU-AP0182WH to AP0302WH



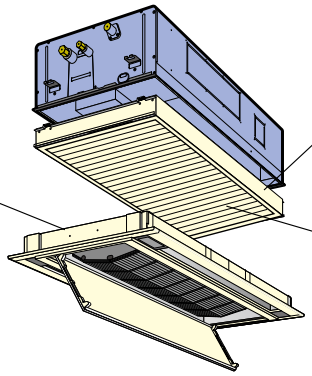
(Unit: mm)

MMU-AP0362WH to AP0562WH



(Unit: mm)

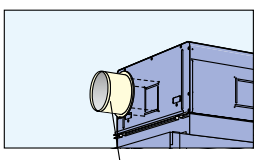
Options



Ceiling panel
RBC-UW283PG(W)-E
RBC-UW803PG(W)-E
RBC-UW1403PG(W)-E

Filter chamber
TCB-FC283UW-E
TCB-FC803UW-E
TCB-FC1403UW-E

Super long life filter
TCB-LF283UW-E
TCB-LF803UW-E
TCB-LF1403UW-E



Auxiliary fresh air flange
TCB-FF151US-E

MMU-AP*4YH**

MMU-AP*4SH**

* The photo shows the MMU-AP***2SH Series.

1-way Air Discharge Cassette Type

The perfect choice for hotels and reception areas

Silent sound design ensures the quiet required for the office.

Ideal for smaller rooms where one-way air distribution is required.

Able to blow air straight out.

Condensate drain pump included.

Long-life filters fitted as standard.

Fresh air intake is possible

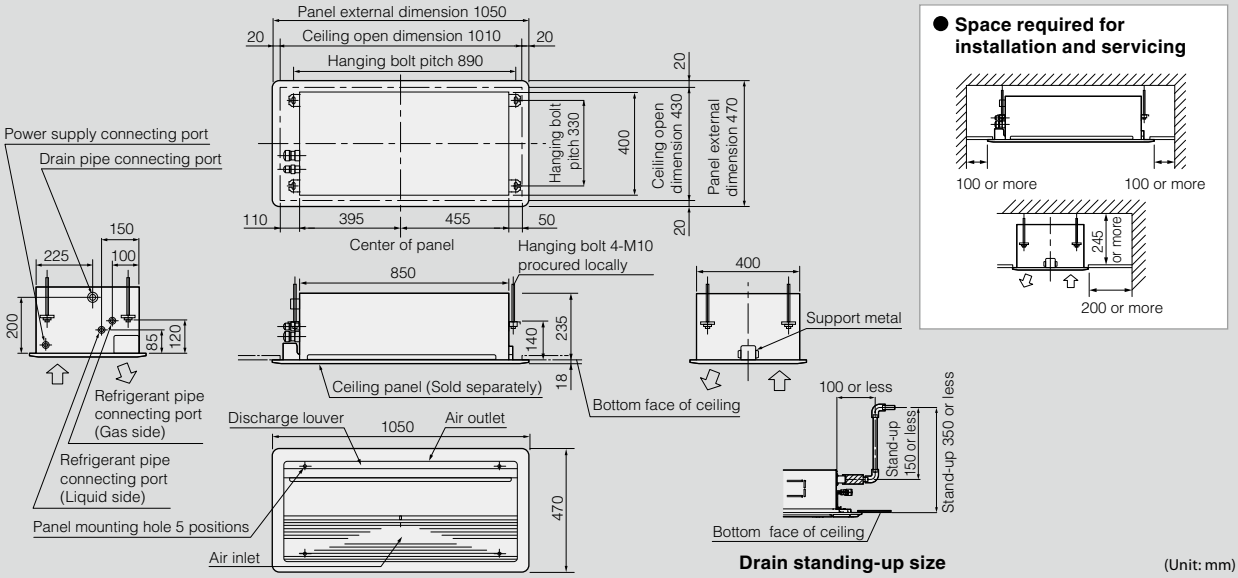
Preparations/connection possible with a circle duct flange.

Technical specifications

Model name		MMU-	AP0074YH-E	AP0094YH-E	AP0124YH-E	AP0154SH-E	AP0184SH-E	AP0244SH-E
Cooling/Heating capacity*1		(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
Electrical characteristics	Power requirements		1-phase 50 Hz 230 V (220–240 V)/1-phase 60 Hz 220 V (Separate power supply for indoor units required.)					
	Power consumption 50 Hz/60 Hz	(kW)	0.053/0.056			0.042/0.041	0.046/0.045	0.075/0.073
Appearance (Ceiling panel)		Model	RBC-UY136PG			RBC-US21PGE		
External dimensions: Main unit (Ceiling panel)*	Height	(mm)	235 (18)*			200 (20)*		
	Width	(mm)	850 (1050)*			1000 (1230)*		
	Depth	(mm)	400 (470)*			710 (800)*		
Total weight: Main unit (Ceiling panel)*		(kg)	22 (3.5)*			21 (5.5)*		22 (5.5)*
Fan unit	Standard air flow (High/Mid/Low)	(m^3/h)	540/480/420			750/690/630	780/720/660	1140/960/810
	Motor output	(W)	22			30		
Connecting pipe	Gas side	(mm)	ø9.5			ø12.7		ø15.9
	Liquid side	(mm)	ø6.4					ø9.5
	Drain port	(nominal dia.)	25 (Polyvinyl chloride tube)					
Sound pressure level*2 (High/Mid/Low)		(dB(A))	42/39/34			37/35/32	38/36/34	45/41/37

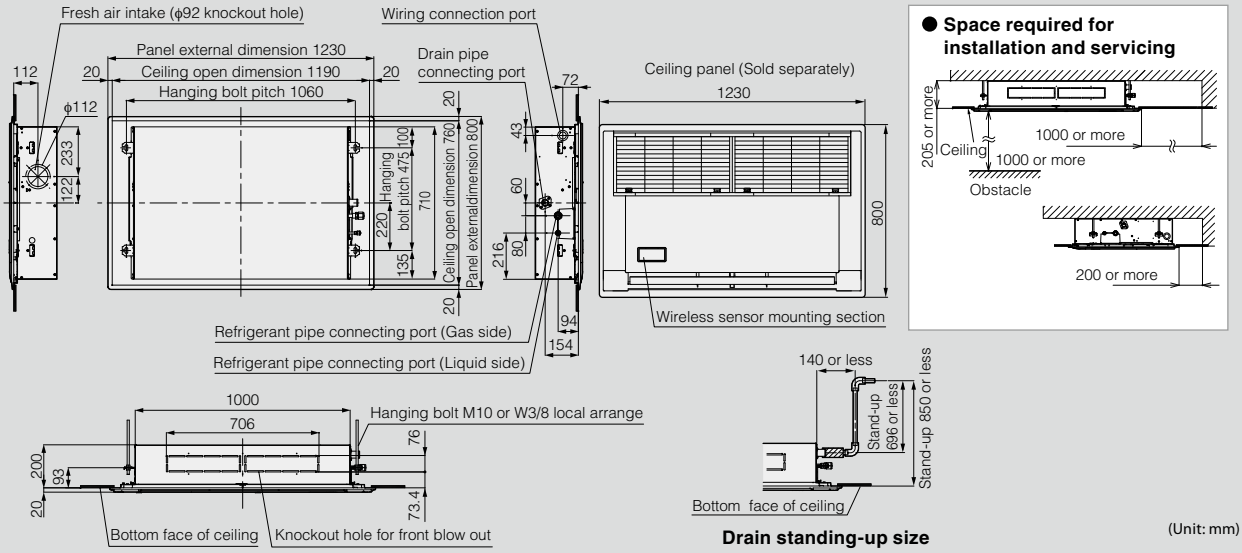
* Figures in parentheses are for ceiling panels.
*1 This reference piping consists of 5 m of main piping and 2.5 m of branch piping connected at the same height level.
*2 The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

MMU-AP0074YH to AP0124YH



(Unit: mm)

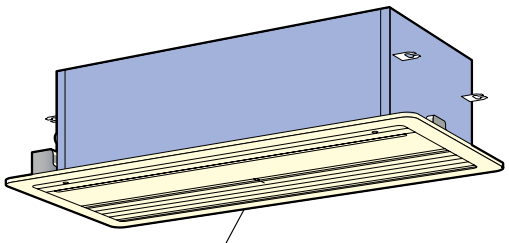
MMU-AP0154SH to AP0244SH



(Unit: mm)

Options

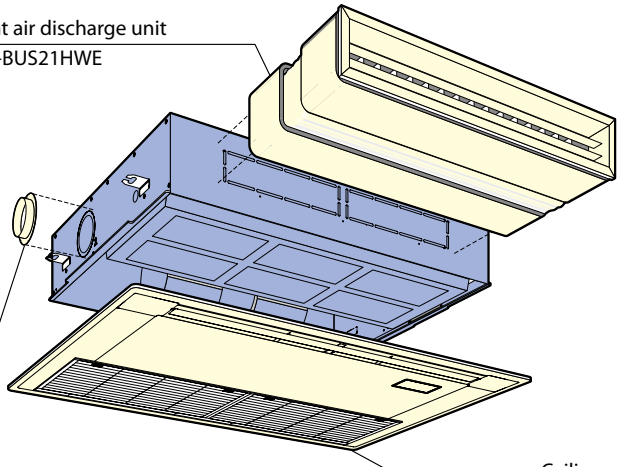
AP0074YH/AP0094YH/AP0124YH



Ceiling panel
RBC-UY136PG

Front air discharge unit
TCB-BUS21HWE

Auxiliary fresh air flange
TCB-FF101URE2



Ceiling panel
RBC-US21PGE

AP0154SH/AP0184SH/AP0244SH

MMD-AP***4BH

Concealed Duct Type

High static pressure

External static pressure can be raised as high as 110 Pa, so that all areas of the room can be reached for even temperature distribution, no matter how complex the layout.

High-lift drain pump

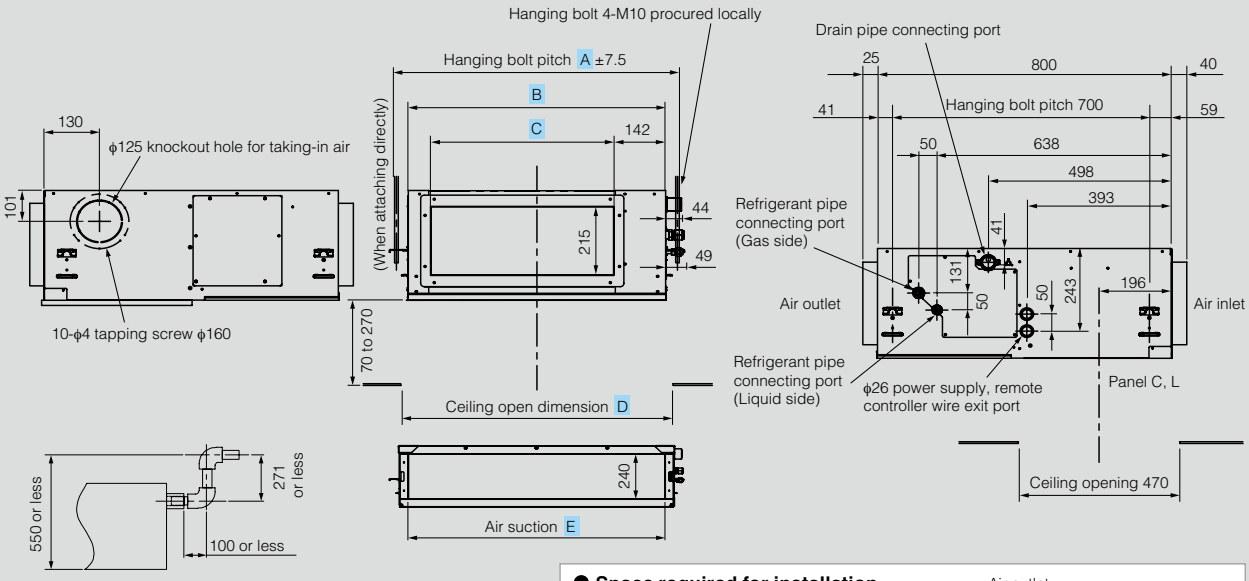
Kit that raises the drain piping up to 27 cm from the drain port.

Technical specifications

Model name		MMD-	AP0074BH	AP0094BH	AP0124BH	AP0154BH	AP0184BH	AP0244BH	AP0274BH	AP0304BH	AP0364BH	AP0484BH	AP0564BH
Cooling/Heating capacity*1		(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	8.0/9.0	9.0/10.0	11.2/12.5	14.0/16.0	16.0/18.0
Electrical characteristics	Power requirements		1-phase 50 Hz 230 V (220–240 V)/1-phase 60 Hz 220 V (Separate power supply for indoor units required.)										
	Power consumption 50 Hz/60 Hz	(kW)	0.033/0.033		0.039/0.039		0.050/ 0.050	0.060/0.060		0.071/ 0.071	0.107/ 0.107	0.128/0.128	
External dimension	Height	(mm)	320										
	Width	(mm)	550			700		1000			1350		
	Depth	(mm)	800										
Total weight		(kg)	28			32		43			55		
Fan unit	Standard air flow (High/Mid/Low)	(m^3/h)	480/420/340		570/ 490/400	650/ 540/480	780/ 660/540	1140/990/870		1260/ 1080/870	1620/ 1410/1200	1980/ 1710/1490	
	Motor output	(W)	120										
	External static pressure (factory setting)	(Pa)	50 (4 mmAq)										
	External static pressure	(Pa)	110 (10 mmAq)										
Connecting pipe	Gas side	(mm)	ø9.5			ø12.7		ø15.9					
	Liquid side	(mm)	ø6.4					ø9.5					
	Drain port	(nominal dia.)	25 (Polyvinyl chloride tube)										
Sound pressure level*2 (High/Mid/Low)		(dB(A))	30/28/26		31/29/27		32/30/28	33/31/29		34/32/29	36/34/32	36/34/32 (50Hz) 38/36/32 (60Hz)	

*1 This reference piping consists of 5 m of main piping and 2.5 m of branch piping connected at the same height level.
*2 The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

MMD-AP0074BH to AP0564BH

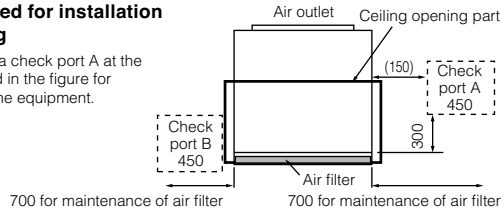


Drain standing-up size

Model MMD-	A	B	C	D	E
AP0074BH, AP0094BH, AP0124BH	616	550	350	600	470
AP0154BH, AP0184BH	766	700	500	750	620
AP0244BH, AP0274BH, AP0304BH	1066	1000	800	1050	920
AP0364BH, AP0484BH, AP0561BH	1416	1350	1150	1400	1270

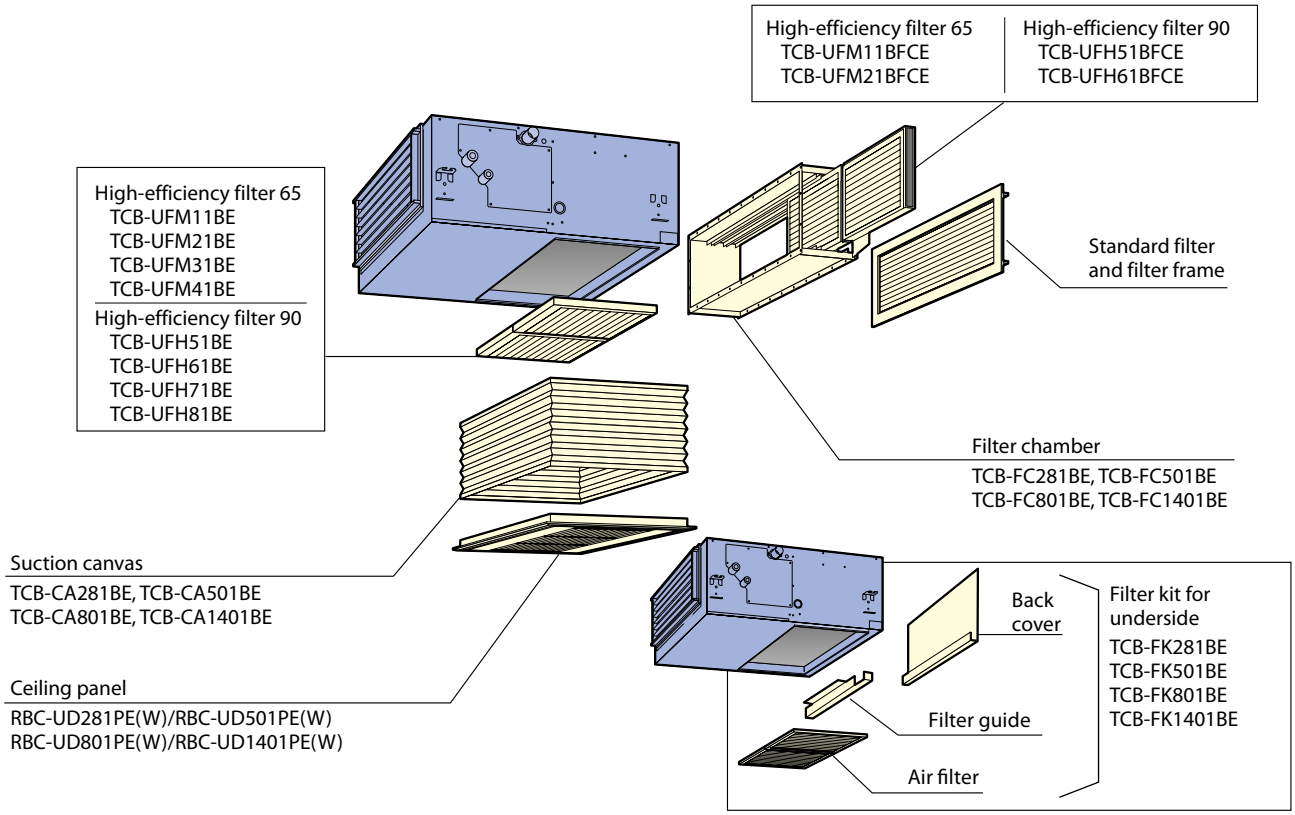
● **Space required for installation and servicing**

Be sure to place a check port A at the position indicated in the figure for maintenance of the equipment.



(Unit: mm)

Options



MMD-AP***4H

Concealed Duct High Static Pressure Type

Design flexibility

Satisfies all your design needs.

Compatible with external static pressures up to 196 Pa.

Inspection inlet enables easy access and maintenance.
- high-efficiency filter (65, 90)
- drain pump kit

Construction characteristics

Three-phase-switchable static pressure.

The flexible duct is accessible.

Easy service and installation.

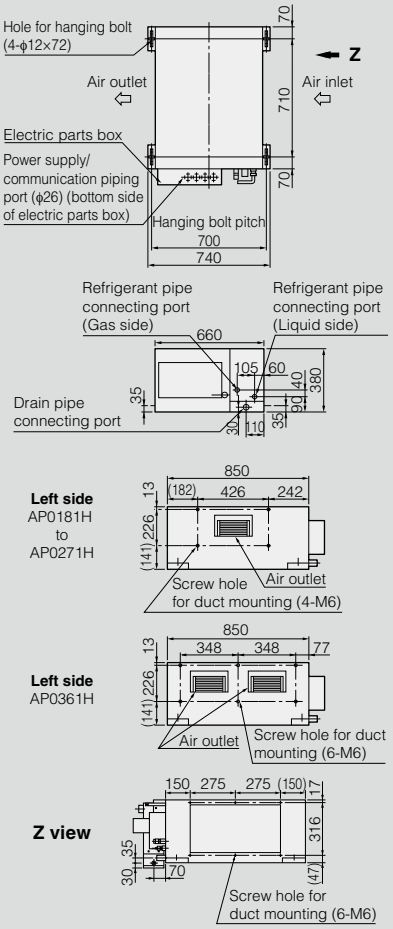
Inspection hole enables easy access and maintenance.

Technical specifications

Model name		MMD-	AP0184H	AP0244H	AP0274H	AP0364H	AP0484H	AP0724H	AP0964H
Cooling/Heating capacity*1		(kW)	5.6/6.3	7.1/8.0	8.0/9.0	11.2/12.5	14.0/16.0	22.4/25.0	28.0/31.5
Electrical characteristics	Power requirements		1-phase 50 Hz 230 V (220–240 V)/1-phase 60 Hz 220 V (Separate power supply for indoor units required.)						
	Power consumption 50 Hz/60 Hz	(kW)	0.184/0.198	0.299/0.385		0.368/0.450	0.414/0.490	1.200/1.540	1.260/1.610
External dimensions	Height	(mm)	380					470	
	Width	(mm)	850				1200	1380	
	Depth	(mm)	660					1250	
Total weight		(kg)	50	52		56	67	150	
Fan unit	Standard air flow	(m^3/h)	900	1320		1600	2100	3600	4200
	Motor output	(W)	160			260		370×3	
	External static pressure (factory setting)	(Pa)	137						
	External static pressure	(Pa)	68.6 – 137 – 196						
Connecting pipe	Gas side	(mm)	ø12.7	ø15.9				ø22.2	
	Liquid side	(mm)	ø6.4	ø9.5				ø12.7	
	Drain port	(nominal dia.)	25 (male screw)						
Sound pressure level*2 (High/Mid/Low)		(dB(A))	37	40				49	50

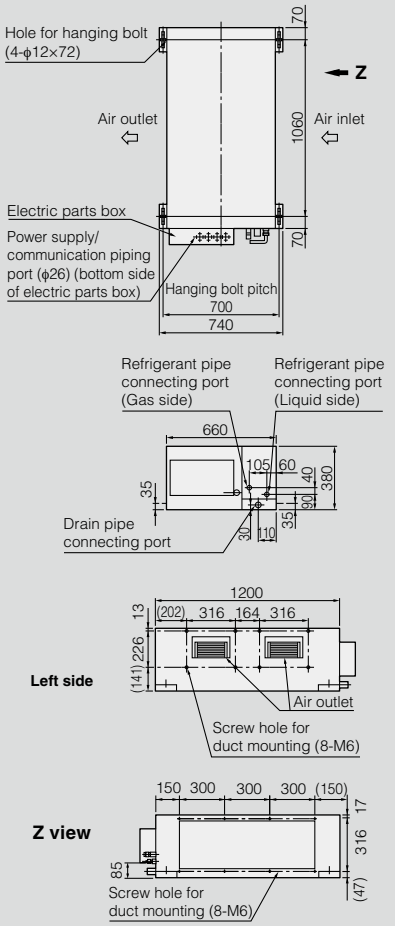
*1 This reference piping consists of 5 m of main piping and 2.5 m of branch piping connected at the same height level.
*2 The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

MMD-AP0184H to AP0364H



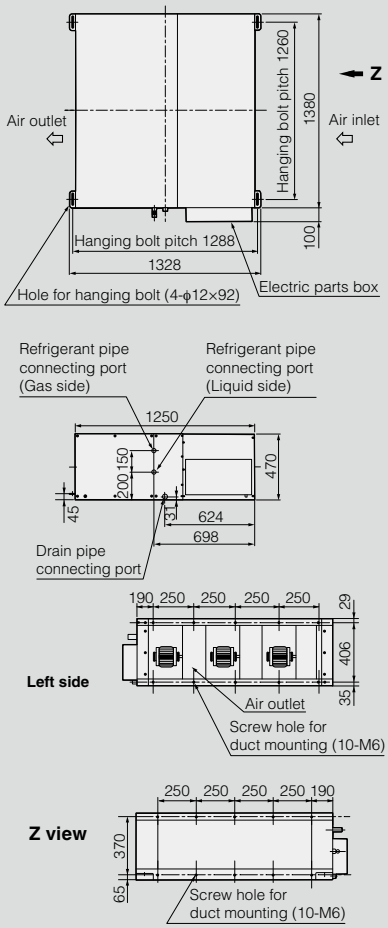
(Unit: mm)

MMD-AP0484H



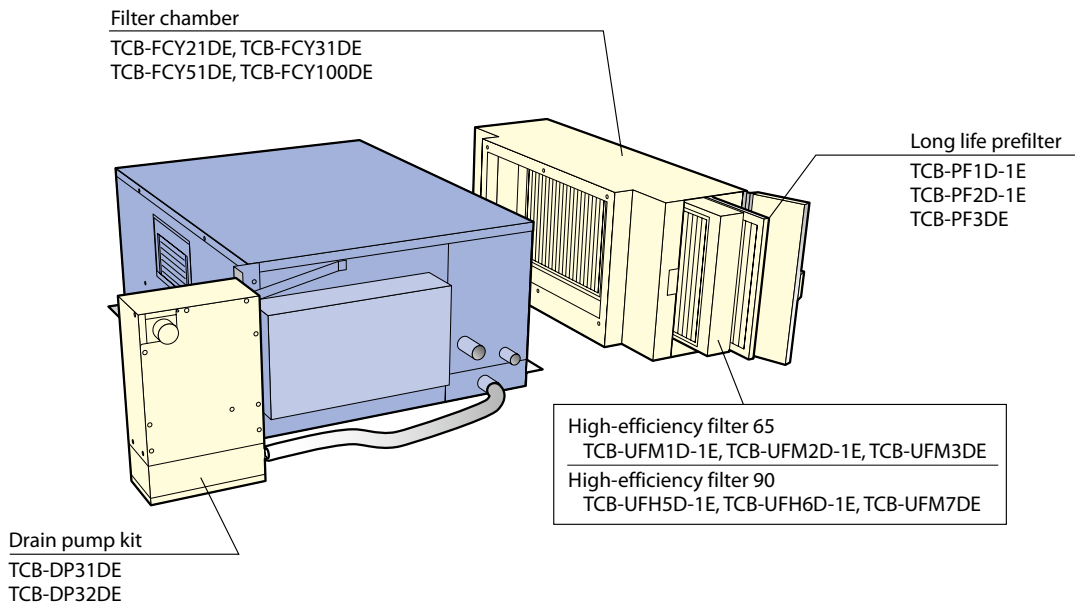
(Unit: mm)

MMD-AP0724H, AP0964H



(Unit: mm)

Options



DX coil interface

Features

Fresh air intake is now widely recommended to improve working environments, and avoid "Sick Building Syndrome". Trends in European and local legislations are moving towards recommending a minimum limits on fresh air intake per person per hour.

Currently, fresh air intake is normally achieved using be-spoked stand-alone air handling units. These third party AHU's pre-condition the ambient fresh air to roughly match that of the conditioned space.

The Direct Expansion Coil Interface (DX) enables the connection of a TOSHIBA VRF Outdoor unit to a third party Air Handling Unit (AHU) for fresh air intake.

It is composed of two parts:

- Controller
- Valve Kit (Three sizes)

Key features

Allows connection of a 3rd party AHU unit to be connected to all Toshiba VRF products (Mini-SMMS, SMMS, SMMSi and SHRM) using a locally supplied DX coil.

Control achieved using a standard Toshiba remote controller (RBC-AMT32E).

Compatible with Toshiba control accessories.

External ON/OFF input.

Safety cut out input to detect fan failure.

Air temperature control achieved using TA sensor positioned in return air stream (set with remote controller).

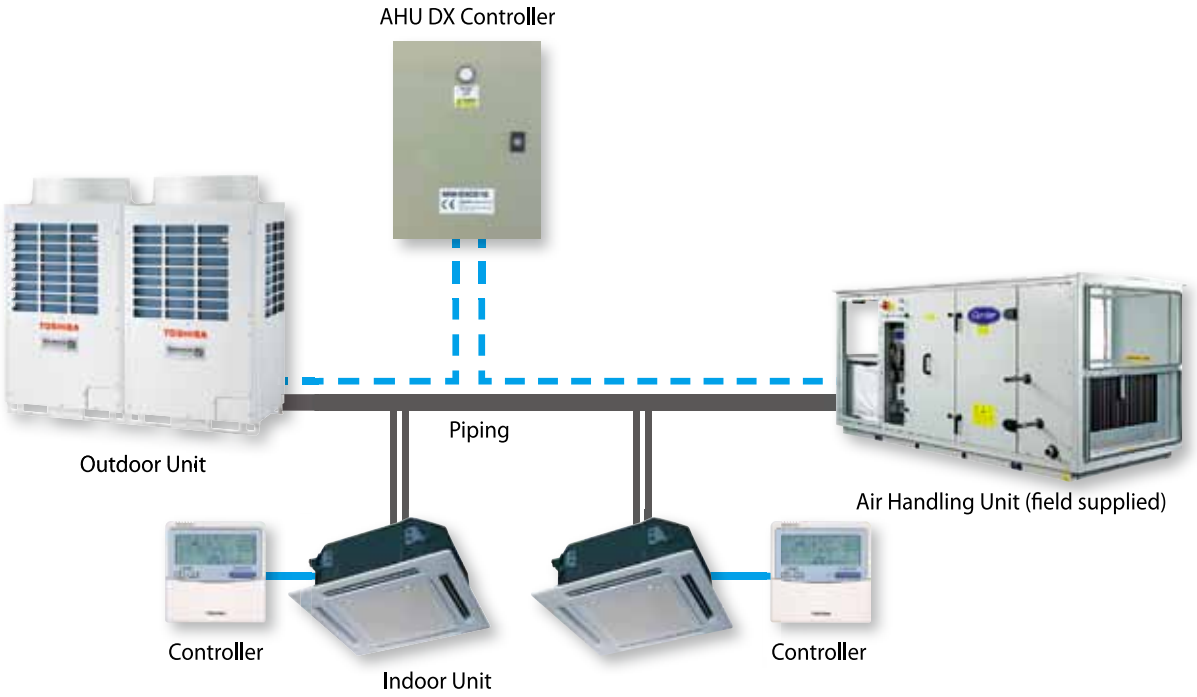
Technical specifications **Performances**

DX Controller unit	MMD	DXC010	DXC010	DXC010	DXC010	DXC010	DXC010	DXC010
DX valve unit	MMD	DXV080	DXV080	DXV080	DXV140	DXV140	DXV280	DXV280
Cooling capacity	kW	5,6	7,1	8,0	11,2	14,0	22,4	28,0
Heating capacity	kW	6,3	8,0	9,0	12,5	16,0	25,0	31,5
Power code	HP	2	2,5	3,0	4,0	5,0	8,0	10,0

Technical specifications **Physical Data**

DX Controller unit	MMD	DXC010	DXC010	DXC010	DXC010	DXC010	DXC010	DXC010
Minimum Air Flow rate	m3/h	720	1060	1060	1280	1680	2880	3360
Maximum Air Flow rate	m3/h	1080	1580	1580	1920	2520	4320	5040
Dimensions (HxWxD)	mm	400 x 300 x 150	400 x 300 x 150	400 x 300 x 150	400 x 300 x 150	400 x 300 x 150	400 x 300 x 150	400 x 300 x 150
Weight	kg	12	12	12	12	12	12	12
Operating range - Cooling coil "Air on" temp	°C	15°CWB÷24°CWB	15°CWB÷24°CWB	15°CWB÷24°CWB	15°CWB÷24°CWB	15°CWB÷24°CWB	15°CWB÷24°CWB	15°CWB÷24°CWB
Operating range - Heating coil "Air on" temp	°C	15°CDB÷28°CDB	15°CDB÷28°CDB	15°CDB÷28°CDB	15°CDB÷28°CDB	15°CDB÷28°CDB	15°CDB÷28°CDB	15°CDB÷28°CDB
Power supply	V-ph-Hz	220/240-1-50						

Note:
Heating & Cooling Capacity are guide-line figures, the design of each customer's AHU and DX Coil will have an impact on the actual system performance.
Heating Capacity Conditions (Indoor 20°C DB & Outdoor 7°C DB / 6°C WB) at Standard Air Flow rate.
Cooling Capacity Conditions (Indoor 27°C DB / 19°C WB & Outdoor 35°C DB) at Standard Air Flow rate.



MMD-AP***4SPH

Slim Duct Type

Functional design

Only 210 mm in height for greater application flexibility.

4-step static pressure setup.

Concealed installation within a ceiling void.

Fresh air intake available.

Slim & quiet

Perfect comfort throughout the room.

Can be used with any style of air diffuser.

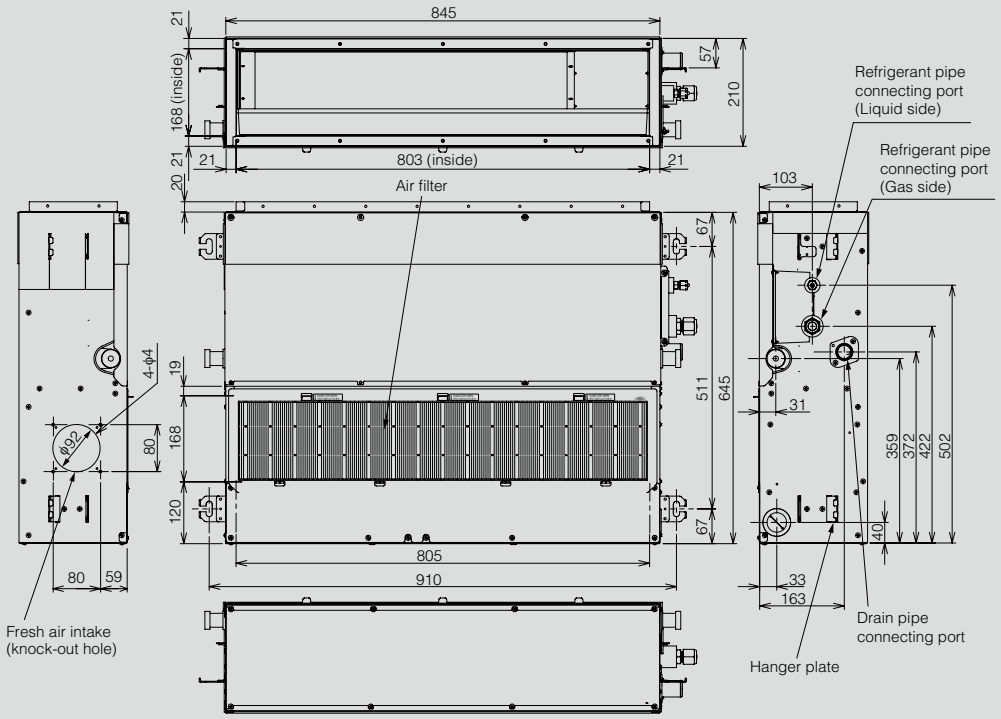
Quiet, powerful operation.

Technical specifications

Model name		MMU-	AP0074SPH	AP0094SPH	AP0124SPH	AP0154SPH	AP0184SPH
Cooling/Heating capacity*1		(kW)	2.2/2.5	2.8/3.2	3.6/4.0	4.5/5.0	5.6/6.3
Electrical characteristics	Power supply		1 phase 50Hz 230V (220-240V) (Separate power supply for indoor units is required.)				
	Power consumption 50 Hz/60 Hz	(kW)	0.039		0.043	0.045	0.054
External dimensions	Height	(mm)	210				
	Width	(mm)	845				
	Depth	(mm)	645				
Total weight		(kg)	22			23	
Fan unit	Standard air flow (High/Mid/Low)	(m^3/h)	540/470/400		600/520/450	690/600/520	780/680/580
	Motor output	(W)	60				
	External static pressure (factory setting)	(Pa)	6 (Factory setting)-16-31-46, 4steps		5 (Factory setting)-15-30-45, 4steps		4 (Factory setting) -14-29-44, 4steps
Connecting pipe	Gas side	(mm)	ø9.5			ø12.7	
	Liquid side	(mm)	ø6.4				
	Drain port	(nominal dia.)	25 (Polyvinyl chloride tube)				
Sound pressure level*2 (High/Med./Low)	Under air inlet	(dB(A))	36/33/30		38/35/32	39/36/33	40/38/36
	Back air inlet	(dB(A))	28/26/24		29/27/25	32/30/28	33/31/29

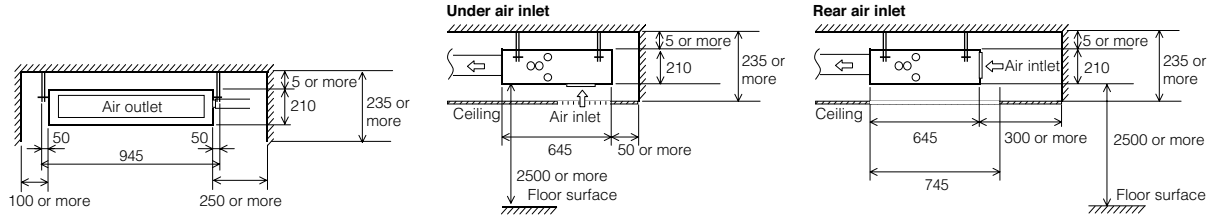
*1 The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping.
The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.
*2 The sound level are measured in an anechoic chamber in accordance with JIS B 8616.
Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.
Note : Rated conditions Cooling : Indoor air temperature 27°C DB/19°C WB, Outdoor air temperature 35°C DB
Heating : Indoor air temperature 20°C DB, Outdoor air temperature 7°C DB/6°C WB

MMD-AP0074SPH to AP0184SPH*



Model MMD-
AP0074SPH
AP0094SPH
AP0124SPH
AP0154SPH
AP0184SPH
AP0074SH-C
AP0094SH-C
AP0124SH-C
AP0154SH-C
AP0184SH-C
AP0074SPH-C
AP0094SPH-C
AP0124SPH-C
AP0154SPH-C
AP0184SPH-C
AP0074SPH-K
AP0094SPH-K
AP0124SPH-K
AP0154SPH-K
AP0184SPH-K

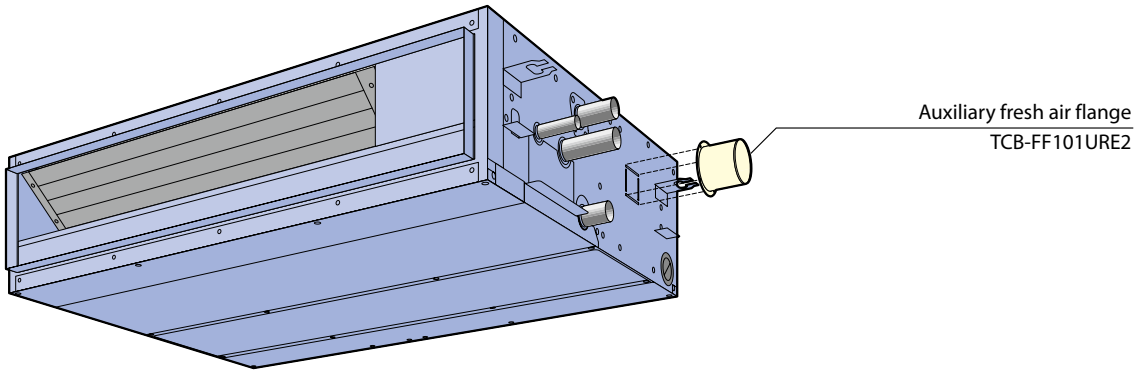
● **Space required for installation and servicing**



(Unit: mm)

* (SPH-C) China market only, (SH-C) Drain pump connection not possible/China market only

Options



MMD-AP*HFE**

Connectable outdoor unit
MMY-MAPXXXXT8
MMY-MAPXXXXHT8
MMY-MAPXXXXHT7

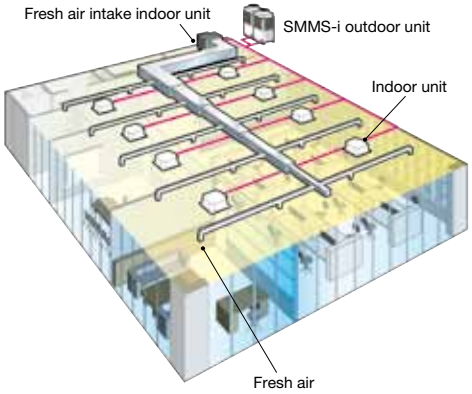
Fresh Air Intake Indoor Unit Type

Air controller for fresh-air intake

Outside static pressure maximum 230 Pa (in case of 50 Hz of 5HP).
Use of high-performance filter provides more comfortable room environment.
Introduces outdoor air at a temperature close to that of the indoor air.
Primary processing of fresh outdoor air.

Fresh-air intake often influences the system, rendering normal control of the air conditioner difficult, or placing large loads on the system and its cooling performance. Therefore it is frequently adopted to handle the fresh air to a certain condition before the fresh air will enter in the main air conditioner.
This device is known as a fresh air intake indoor unit.

NOTE: The fresh air intake indoor unit is an air conditioner provided to handle the fresh air load and is not to control the room temperature. For correspondence to the load of the indoor air controller, set an air conditioner separately.



Technical specifications

Model name			MMD-	AP0481HFE	AP0721HFE	AP0961HFE
Cooling/Heating capacity (Note 1)			(kW)	14.0/8.9	22.4/13.9	28.0/17.4
Electrical characteristics	Power supply		(kW)	1-phase 50 Hz 230 V (220–240 V)/60 Hz 220 V		
	Power consumption		(kW)	0.28/0.34	0.45/0.55	0.52/0.65
External dimensions	Main unit	Height	(mm)	492		
		Width	(mm)	892	1392	
		Depth	(mm)	1262		
Total weight			(kg)	93	144	
Fan unit	Standard air flow		(m^3/h)	1080	1680	2100
	Motor output		(kW)	0.160	0.160×2	
	External static pressure 50 Hz/60 Hz			170-210-230 / 115-215-260	140-165-180 / 150-210-235	160-190-205 / 80-180-220
	Air flow limit Lower limit/Upper limit		(m^3/h)	756/1188	1176/1848	1470/2310
Connecting pipe	Gas side		(mm)	ø15.9	ø22.2	
	Liquid side		(mm)	ø9.5	ø12.7	
	Drain port		(nominal dia.)	R1		
Sound pressure level (Note 2) (High/Med./Low)			(dB(A))	45/43/41	46/45/44	
Operation range	Cooling (Note 3)		(°C)	5 – 43		
	Heating (Note 4)		(°C)	–5 – 43		

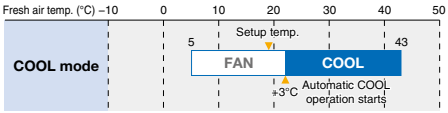
* The setting temperature is 16 – 27°C (standard FCU…18 – 29°C).
* An optional humidifier is not available with fresh air intake indoor unit.
* Height difference between fresh air intake indoor units must be within 0.5 m. Height difference between fresh air intake indoor unit and standard FCU must be within 30 m.

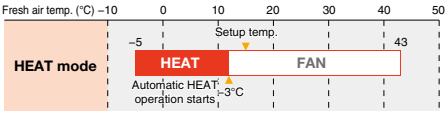
NOTE 1 Rated conditions Cooling: Outdoor air temperature 33°C DB/28°C WB setting temperature 18°C
Heating: Outdoor air temperature 0°C DB/–2.9°C WB setting temperature 25°C
Piping: Length 7.5 m / Height 0 m
NOTE 2 Normally, the values measured in the actual operating environment become large than the indicated values due to the effects of external sound.
NOTE 3 * When supply air temperature is "setting temperature + 3°C" or less, fresh air intake indoor unit operates as FAN mode.
* When supply air temperature is 19°C or less, Fresh Air Intake Indoor unit operates as FAN mode.
NOTE 4 * When supply air temperature is "setting temperature –3°C" or over, fresh air intake indoor unit operates as FAN mode.

Use Conditions

• In COOL mode, if temperature of the fresh air is below the setup temp. of +3°C, FAN status is automatically made. When temperature of the fresh air is below 19°C, FAN status is also made regardless of the setup temperature.

• In HEAT mode, if temperature of the fresh air is above the setup temp. –3°C, FAN status is automatically made. When temperature of the fresh air is above 15°C, FAN status is also made regardless of the setup temperature.

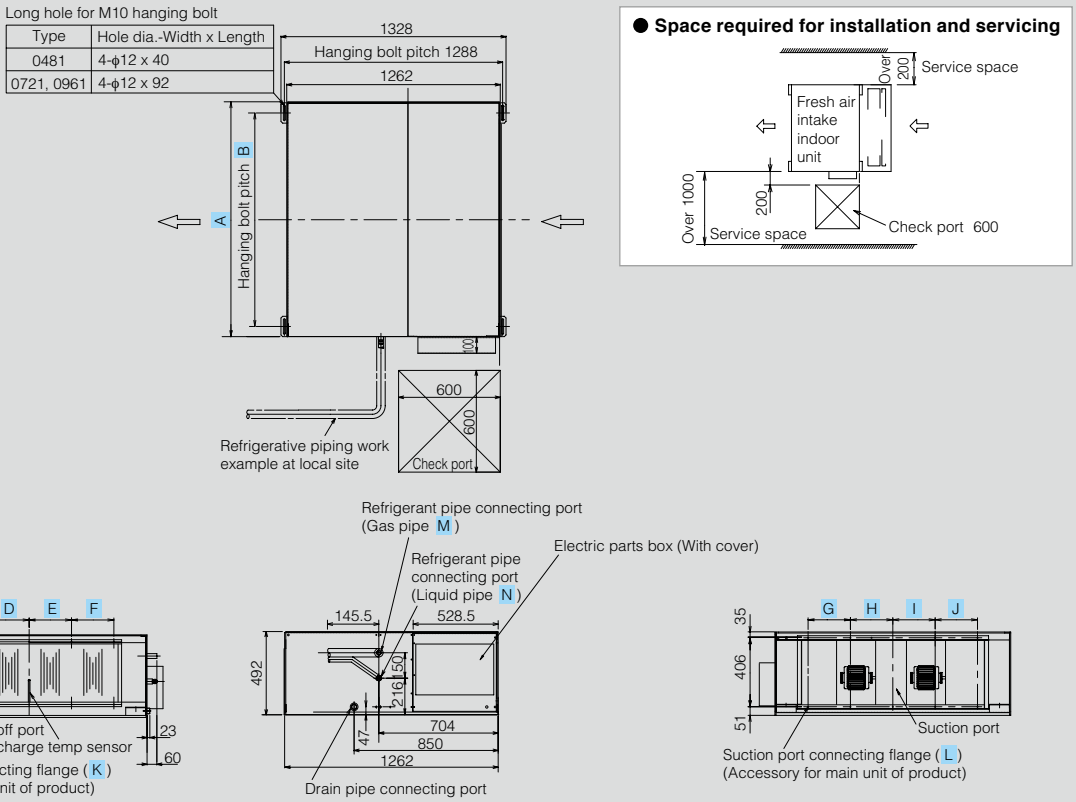




Operable mode and discharge temperature setup range

Operation mode	At shipment from factory	Setup range
COOL	18°C	16 to 27°C
HEAT	25°C	16 to 27°C

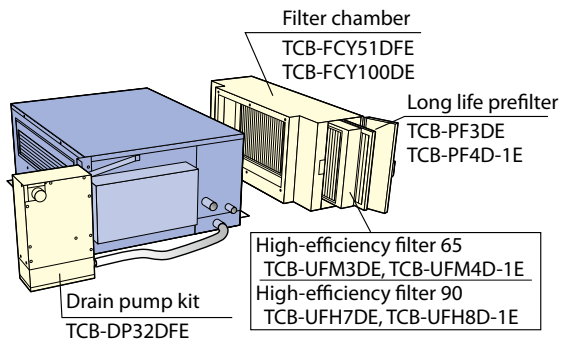
MMD-AP0481HFE to AP0961HFE



Model MMD-	A	B	C	D	E	F	G	H	I	J	K	L	M	N
AP0961HFE	1392	1260	250	250	250	250	250	250	250	250	10-M6	10-M6	φ22.2 brazing	φ12.7 flare
AP0721HFE	1392	1260	250	250	250	250	250	250	250	250	10-M6	10-M6	φ22.2 brazing	φ12.7 flare
AP0481HFE	892	810	215	107.5	107.5	215	—	250	250	—	8-M6	6-M6	φ15.9 flare	φ9.5 flare

(Unit: mm)

Options



MMC-AP***4H

Ceiling Type

Comfortable ambience

Quietest in industry
• New design reduces noise level to half that of conventional units.

Flap control
• The airflow angle is automatically set to the most suitable setting according to your cooling or heating needs, and an automatic swing mode enables airflow to reach all areas of the room to create a comfortable ambience.

Installation efficiency

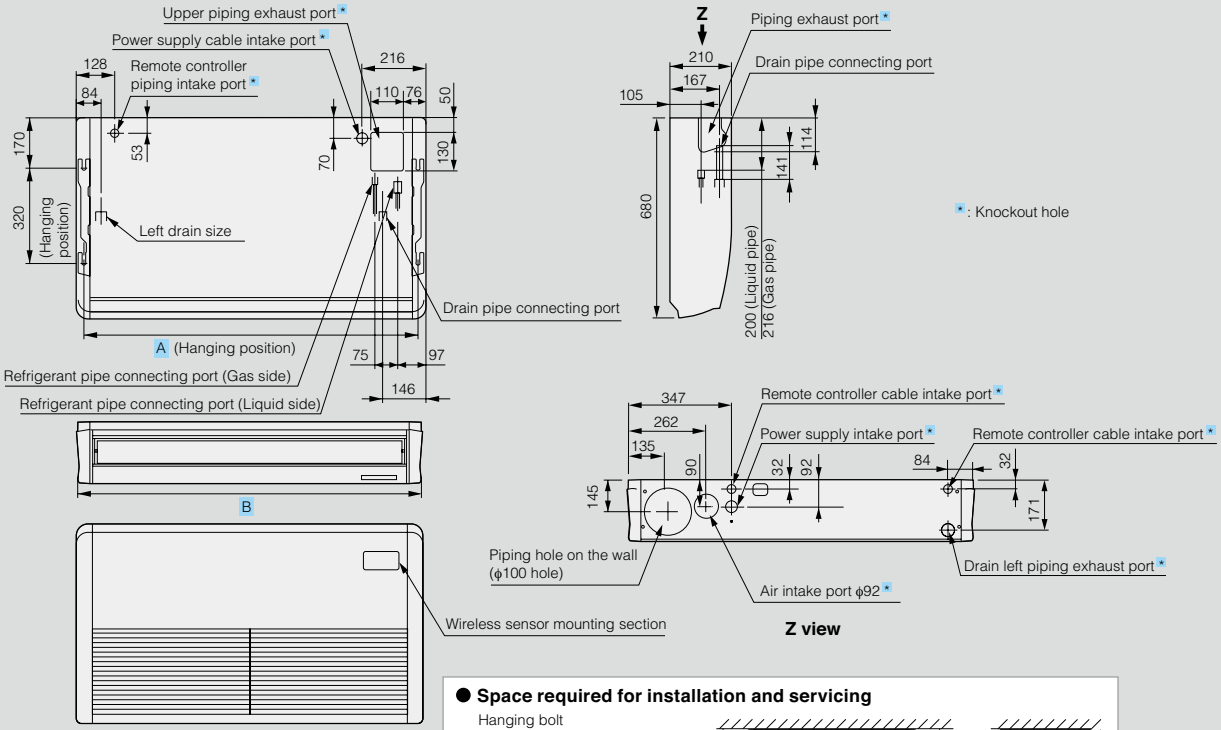
The unit can be suspended from the ceiling simply by adjusting two screws on the intake grill, avoiding complex procedures which can involve up to a dozen installation screws.

Technical specifications

Model name		MMC-	AP0154H	AP0184H	AP0244H	AP0274H	AP0364H	AP0484H
Cooling/Heating capacity*1		(kW)	4.5/5.0	5.6/6.3	7.1/8.0	8.0/9.0	11.2/12.5	14.0/16.0
Electrical characteristics	Power requirements		1-phase 50 Hz 230 V (220–240 V)/1-phase 60 Hz 220 V (Separate power supply for indoor units required.)					
	Power consumption 50 Hz/60 Hz	(kW)	0.033/0.033	0.038/0.038	0.050/0.050		0.091/0.091	0.110/0.110
External dimensions	Height	(mm)	210					
	Width	(mm)	910		1,180		1,595	
	Depth	(mm)	680					
Total weight		(kg)	22		26		34	
Fan unit	Standard air flow (High/Mid/Low)	(m^3/h)	720/600/540	780/660/540	1110/900/840		1650/1380/1200	1800/1560/1320
	Motor output	(W)	30		40		80	
Connecting pipe	Gas side	(mm)	ø12.7		ø15.9			
	Liquid side	(mm)	ø6.4		ø9.5			
	Drain port	(nominal dia.)	20 (Polyvinyl chloride tube)					
Sound pressure level*2 (High/Mid/Low)		(dB(A))	35/32/30	36/33/30	38/36/33		41/38/35	43/40/37

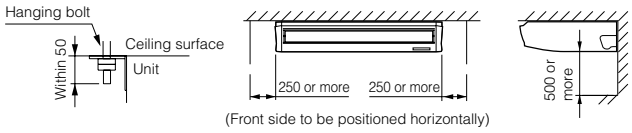
*1 This reference piping consists of 5 m of main piping and 2.5 m of branch piping connected at the same height level.
*2 The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

MMC-AP0154H to AP0484H



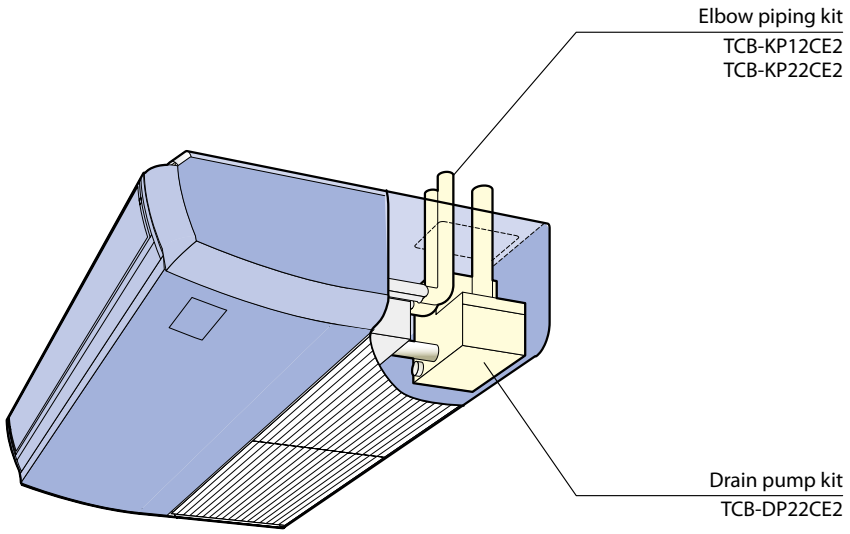
Model MMC-	A	B
AP0154H, AP0184H	855	910
AP0244H, AP0274H	1125	1180
AP0364H, AP0484H	1540	1595

● Space required for installation and servicing



(Unit: mm)

Options



Compact High-wall Type

Slim-line design

This compact high-wall is perfect for limited spaces, suchas offices, small shops or hotel rooms.

The unit is compact (only 275x790x208mm) and light - weight (11kgr).

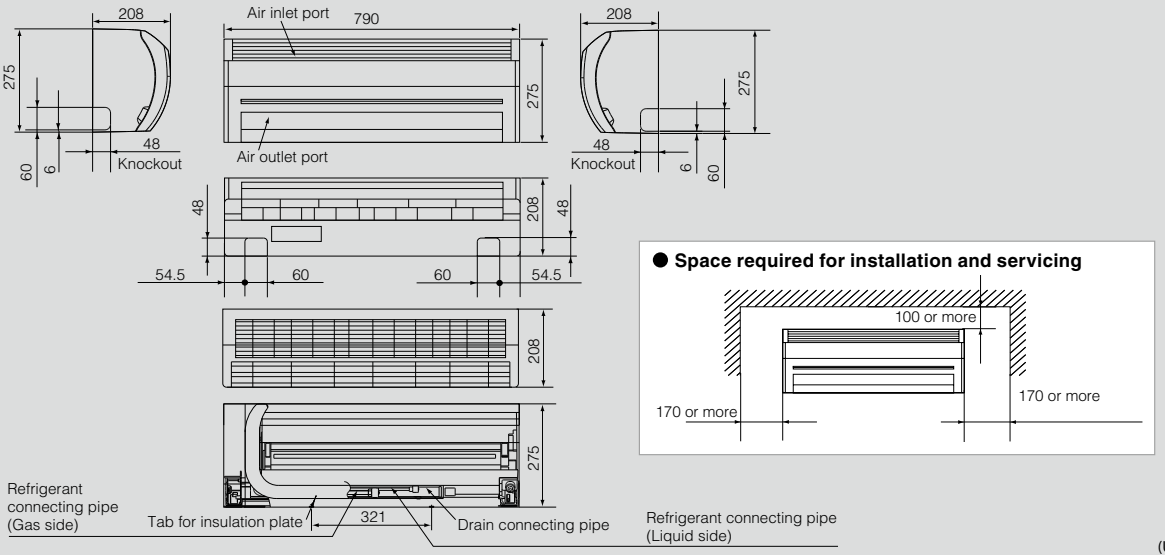
Clean unit: the panel is easily detachable for fast grille and filters cleaning.

Auto - swing mechanism.

Remote controller

MMK-AP*4H**

MMK-AP0074H to AP0124H



(Unit: mm)

Technical specifications

Model name		MMK-	AP0074MH-E	AP0094MH-E	AP0124MH-E
Cooling/Heating capacity*1		(kW)	2.2/2.5	2.8/3.2	3.6/4.0
Electrical characteristics	Power requirements		1-phase 50 Hz 230 V (220–240 V) (Power exclusive for indoor is required.)		
	Power consumption 50 Hz	(kW)	0.017	0.018	0.019
External dimensions	Height	(mm)	275		
	Width	(mm)	790		
	Depth	(mm)	208		
Total weight		(kg)	11		
Fan unit	Standard air flow (High/Mid/Low)	(m^3/h)	480/420/360	510/450/360	540/450/360
	Motor output	(W)	30		
Connecting pipe	Gas side	(mm)	ø9.5		
	Liquid side	(mm)	ø6.4		
	Drain port	(nominal dia.)	16 (polyvinyl chloride tube)		
Sound pressure level*2 (High/Mid/Low)		(dB(A))	35/32/29	36/33/29	37/33/29

*1 This reference piping consists of 5 m of main piping and 2.5 m of branch piping connected at the same height level.
*2 The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

MMK-AP***3H

High-wall Type (3 series)

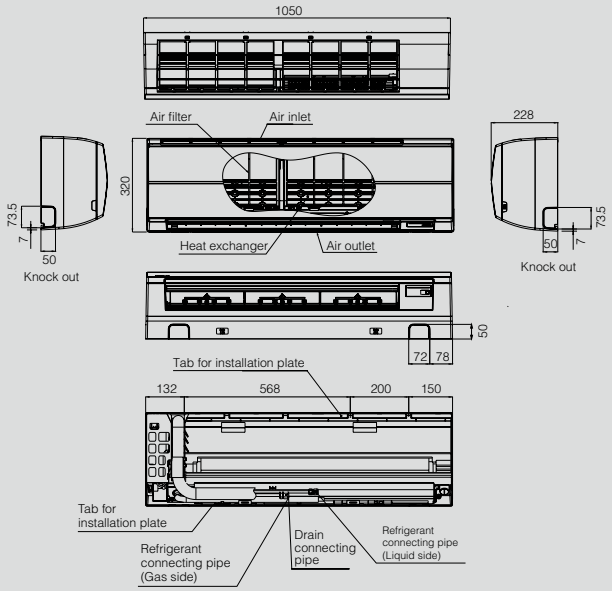
Elegant and slim

This classic high-wall is elegant and slim; it can easily blend in with any room interior.

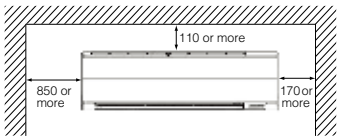
Total comfort is granted, thanks also to the 70° directional auto-swing louver that provide uniform air distribution.

Remote controller

MMK-AP0073H to AP0243H



● **Space required for installation and servicing**



(Unit: mm)

Technical specifications

Model name		MMK-	AP0073H	AP0093H	AP0123H	AP0153H	AP0183H	AP0243H
Cooling/Heating capacity*1		(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
Electrical characteristics	Power requirements		1 phase 50Hz 230V (220-240V) (Separate power supply for indoor units is required.)					
	Power consumption	(kW)	0.018	0.021		0.043		0.050
External dimensions	Height	(mm)	320					
	Width	(mm)	1050					
	Depth	(mm)	228					
Total weight		(kg)	15					
Fan unit	Standard air flow (High/Mid/Low)	(m^3/h)	570/450/390	600/480/390		840/660/540		1020/750/570
	Motor output	(W)	30					
Connecting pipe	Gas side	(mm)	ø9.5			ø12.7		ø15.9
	Liquid side	(mm)	ø6.4					ø9.5
	Drain port	(nominal dia.)	16 (polyvinyl chloride tube)					
Sound pressure level*2 (High/Mid/Low)		(dB(A))	35/31/28	37/32/28		41/36/33		46/39/34

*1 The cooling capacities and electrical characteristics are measured under the conditions specified by JIS B 8615 based on the reference piping.
The reference piping consists of 5 m of main piping and 2.5 m of branch piping connected with 0 meter height.
*2 The sound level are measured in an anechoic chamber in accordance with JIS B 8616.
Normally, the values measured in the actual operating environment become larger than the indicated values due to the effects of external sound.

MML-AP***4BH

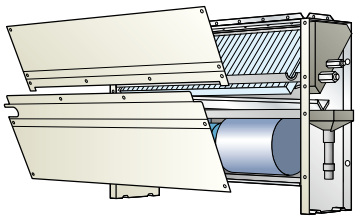
Floor Standing Concealed Type

Cool air makes for a pleasant indoor environment

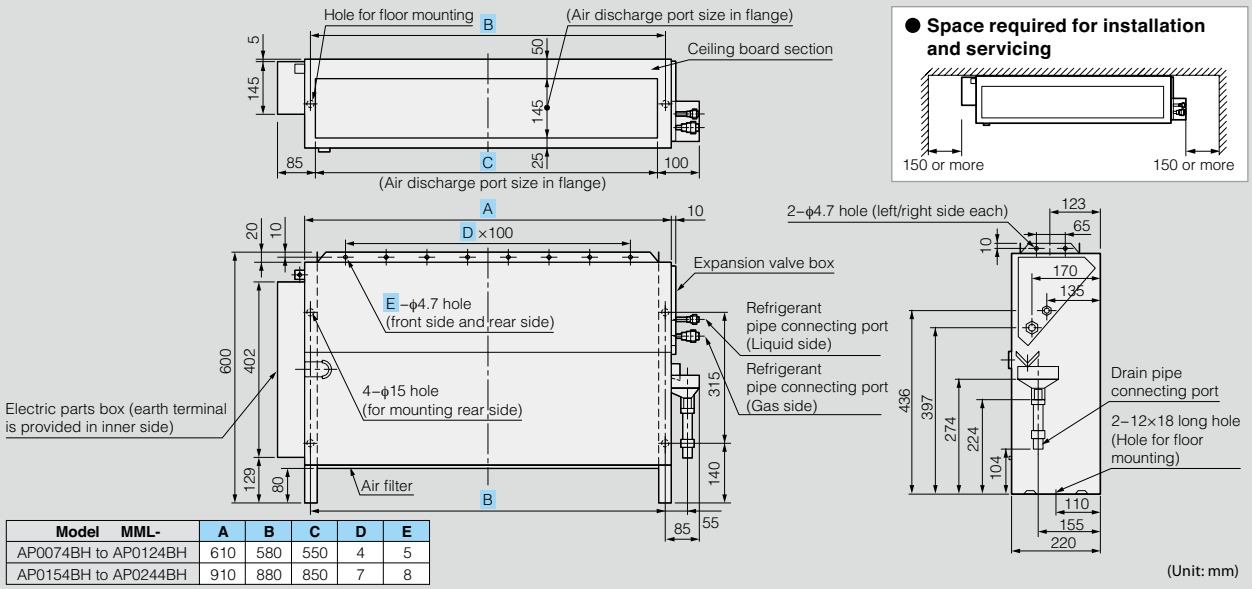
Install it under a window and air-condition any room effectively.

Easy maintenance

Simplified design of fan and drainage pipe eases maintenance.



MML-AP0074BH to AP0244BH



● **Space required for installation and servicing**

Model MML-	A	B	C	D	E
AP0074BH to AP0124BH	610	580	550	4	5
AP0154BH to AP0244BH	910	880	850	7	8

(Unit: mm)

Technical specifications

Model name		MML-	AP0074BH	AP0094BH	AP0124BH	AP0154BH	AP0184BH	AP0244BH
Cooling/Heating capacity*1		(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
Electrical characteristics	Power requirements		1-phase 50 Hz 230 V (220–240 V)/1-phase 60 Hz 220 V (Separate power supply for indoor units required.)					
	Power consumption 50 Hz/60 Hz	(kW)	0.056/0.058			0.090/0.096		0.095/0.110
External dimensions	Height	(mm)	600					
	Width	(mm)	745			1045		
	Depth	(mm)	220					
Total weight		(kg)	21			29		
Fan unit	Standard air flow (High/Mid/Low)	(m^3/h)	460/400/300			740/600/490		950/790/640
	Motor output	(W)	19			70		
Connecting pipe	Gas side	(mm)	ø9.5			ø12.7		ø15.9
	Liquid side	(mm)	ø6.4					ø9.5
	Drain port	(nominal dia.)	20 (Polyvinyl chloride tube)					
Sound pressure level*2 (High/Mid/Low)		(dB(A))	36/34/32					42/37/33

*1 This reference piping consists of 5 m of main piping and 2.5 m of branch piping connected at the same height level.
*2 The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

MML-AP***4H

Floor Standing Cabinet Type

Slim & compact design

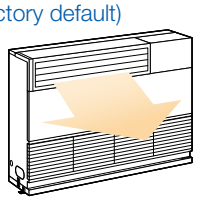
Under-window mounting does not block lighting.

Indoor unit size of 2.2 kW to 7.1 kW is the same.

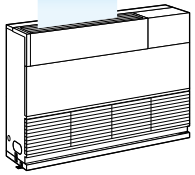
Air exits from front or top

Distribution can be reversed to suit occupant preference.

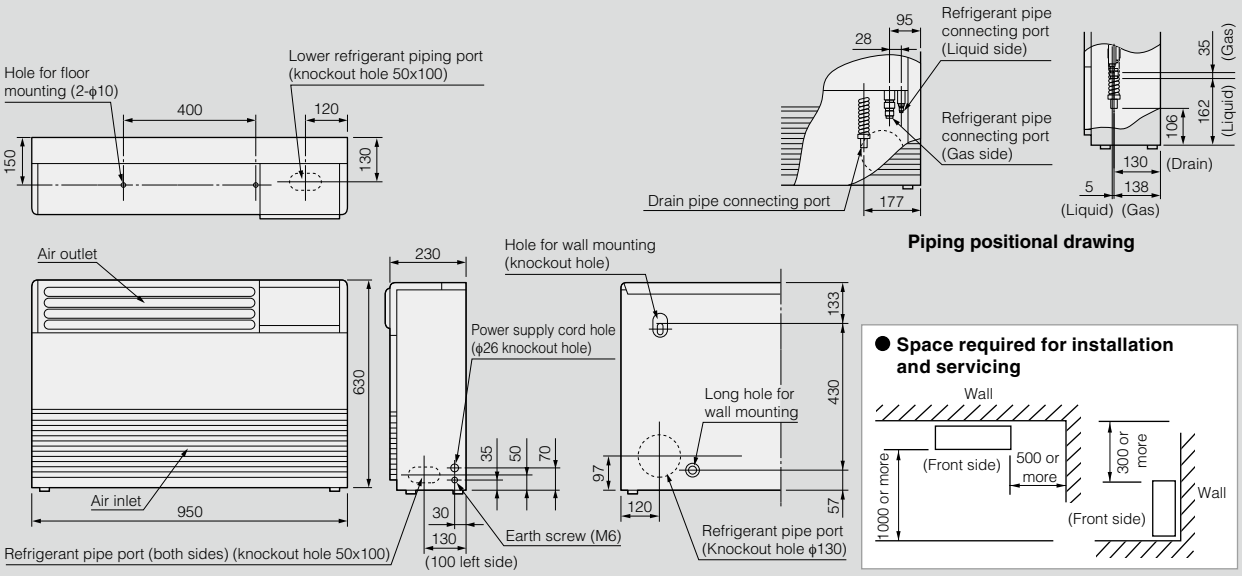
Air blown from front panel (factory default)



Air blown from top



MML-AP0074H to AP0244H



Piping positional drawing

● Space required for installation and servicing

(Unit: mm)

Technical specifications

Model name		MML-	AP0074H	AP0094H	AP0124H	AP0154H	AP0184H	AP0244H
Cooling/Heating capacity*1		(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
Electrical characteristics	Power requirements		1-phase 50 Hz 230 V (220–240 V) (Power exclusively for indoor is required.)/1-phase 60 Hz 220 V					
	Power consumption 50 Hz/60 Hz	(kW)	0.056/0.053		0.092/0.092		0.102/0.113	
External dimensions	Height	(mm)	630					
	Width	(mm)	950					
	Depth	(mm)	230					
Total weight		(kg)	37				40	
Fan unit	Standard air flow (High/Mid/Low)	(m³/h)	480/420/360		900/780/650		1080/930/780	
	Motor output	(W)	45				70	
Connecting pipe	Gas side	(mm)	ø9.5			ø12.7		ø15.9
	Liquid side	(mm)	ø6.4					ø9.5
	Drain port	(nominal dia.)	20 (Polyvinyl chloride tube)					
Sound pressure level*2 (High/Mid/Low)		(dB(A))	39/37/35		45/41/38		49/44/39	

*1 This reference piping consists of 5 m of main piping and 2.5 m of branch piping connected at the same height level.
*2 The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

MML-AP***4NH-E

Bi-flow console

Features

Innovative and compact unit to be installed on the floor and in low wall applications, fit perfectly under the window sills.

Unique floor heating function, to deliver a powerful flow at floor level for a uniform and comfortable room heating.

Key features

Bi-flow. Two outlets for complete personalized flow: flow intensity and air direction control.

Toshiba new IAQ filter filtration system, includes extremely powerful anti virus, anti bacteria and the deodorizing effects.

Brightness level control of the display unit to reduce the led light glow.

Automatic restart function in case of unexpected electricity supply line power cuts.

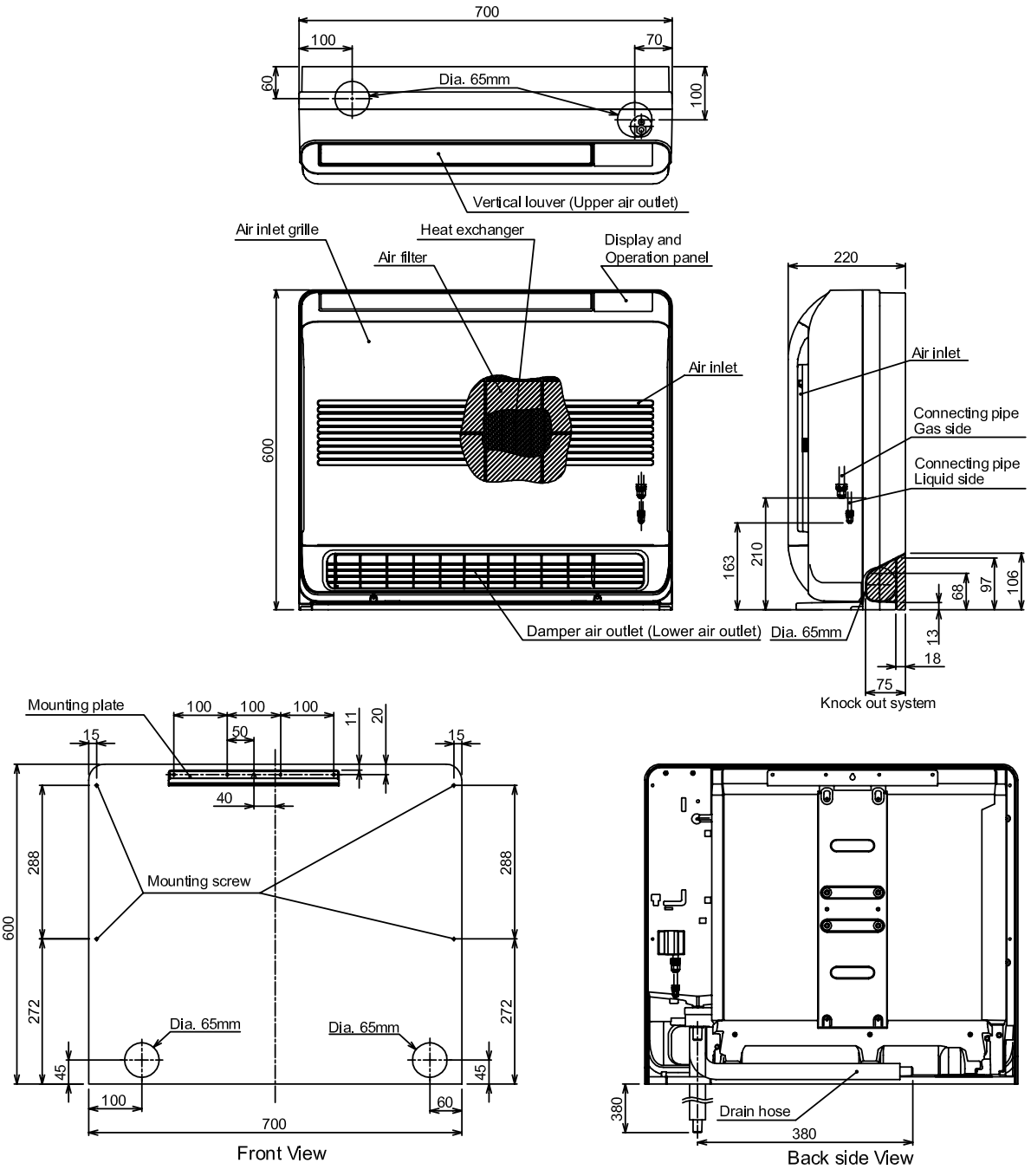
Performance data

Indoor unit	MML-	AP0074NH-E	AP0094NH-E	AP0124NH-E	AP0154NH-E	AP0184NH-E
Cooling capacity	kW	2,2	2,8	3,6	4,5	5,6
Heating capacity	kW	2,5	3,2	4,0	5,0	6,3
Power consumption	kW	0.021	0.021	0.025	0.034	0.052
Running current	A	0.20	0.20	0.23	0.29	0.42
Starting current	A	0.26	0.26	0.30	0.38	0.55

Physical data **Indoor unit**

Indoor unit	MML-	AP0074NH-E	AP0094NH-E	AP0124NH-E	AP0154NH-E	AP0184NH-E
Air Flow (H/L)	m^3/h	510/282	510/282	552/324	624/384	726/426
Air Flow (H/L)	l/s	142/78.3	142/78.3	153/90	173/106.7	202/56.1
Sound pressure level (H/M/L)	dB(A)	38/32/26	38/32/26	40/34/29	43/37/31	47/40/34
Sound power level (H/M/L)	dB(A)	53/47/41	53/47/41	55/49/44	58/52/46	62/55/49
Dimensions (HxWxD)	mm	600x700x220	600x700x220	600x700x220	600x700x220	600x700x220
Weight	kg	17	17	17	17	17
Connecting pipe, gas		3/8"	3/8"	3/8"	1/2"	1/2"
Connecting pipe, liquid		1/4"	1/4"	1/4"	1/4"	1/4"
Drain port diameter	mm	16	16	16	16	16
Power supply	V-ph-Hz	220/240-1-50	220/240-1-50	220/240-1-50	220/240-1-50	220/240-1-50

MML-AP***74NH-E to AP***184NH-E



MMF-AP***4H

Floor Standing Concealed Type

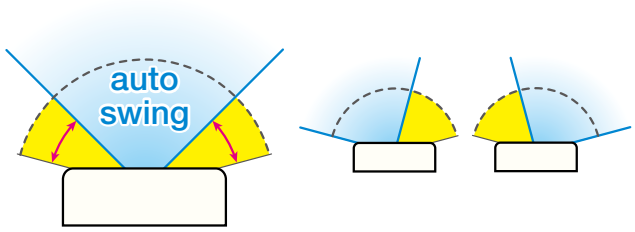
Thin profile suits interior design

Slender, space-saving type (1.7–8.0HP)

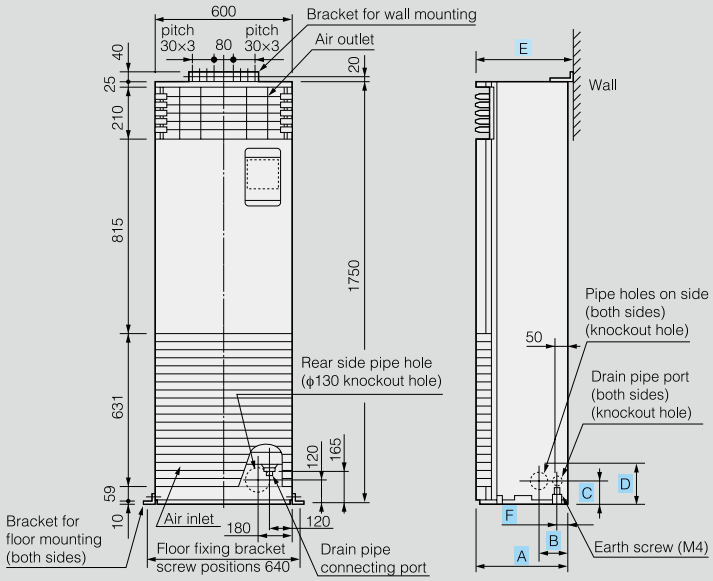
Wide outlet

Corner location is also possible, with right and left auto swing.

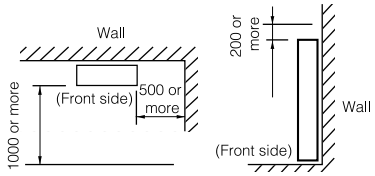
Set the vertical angle manually.



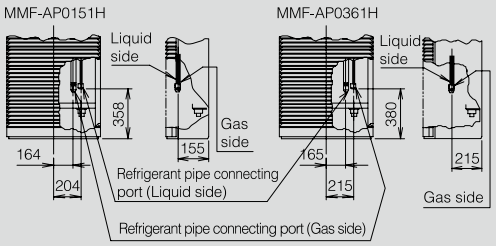
MMF-AP0154H to AP0564H



● **Space required for installation and servicing**



Model MMD-	A	B	C	D	E	F
AP0154H to AP0274H	200	107	132	157	210	50
AP0364H to AP0564H	380	125	120	160	390	40



Refrigerant piping position

(Unit: mm)

Technical specifications

Model name		MMF-	AP0154H	AP0184H	AP0244H	AP0274H	AP0364H	AP0484H	AP0564H
Cooling/Heating capacity*1		(kW)	4.5/5.0	5.6/6.3	7.1/8.0	8.0/9.0	11.2/12.5	14.0/16.0	16.0/18.0
Electrical characteristics	Power requirements		1-phase 50 Hz 230 V (220–240 V) (Power exclusive for indoor is required.)/1-phase 60 Hz 220 V						
	Power consumption 50 Hz/60 Hz	(kW)	0.150/0.146		0.190/0.195		0.280/0.295	0.350/0.380	
External dimensions	Height	(mm)	1750						
	Width	(mm)	600						
	Depth	(mm)	210				390		
Total weight		(kg)	48		49		65		
Fan unit	Standard air flow (High/Mid/Low)	(m³/h)	900/780/660		1200/1020/840		1920/1680/1380	2160/1860/1560	
	Motor output	(W)	37		63		110	160	
Connecting pipe	Gas side	(mm)	ø12.7		ø15.9				
	Liquid side	(mm)	ø6.4		ø9.5				
	Drain port	(nominal dia.)	20 (polyvinyl chloride tube)						
Sound pressure level*2 (High/Mid/Low)		(dB(A))	46/43/38		49/45/40		51/48/44	54/50/46	

*1 This reference piping consists of 5 m of main piping and 2.5 m of branch piping connected at the same height level.
*2 The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

FRESH AIR VENTILATION AND HEAT RECOVERY UNIT

COMPATIBLE WITH LIGHT COMMERCIAL AND VRF SYSTEMS

High efficiency

Wide range

TCC-LINK

Air-to-Air Heat Exchangers

Features

The air-to-air heat exchangers can be integrated with the air conditioning system.

They use exhaust air to pre-condition the incoming air, thus reducing the cooling or heating load and the overall size of the required air conditioning system.

Key features

Air conditioners and heat exchangers are controlled with same main bus system(TCC-LINK).

Automatic changeover to efficient operation mode: Units automatically switches to the heat exchange mode and normal ventilation based on operating conditions.

Free cooling - Provides fresh outdoor cool air to reduce the indoor air temperature, when the outdoor temperature is lower than the indoor air conditioned temperature.

Air balance volume rate can be varied to suit the usage environment and location

Easy to install and service. Unit is designed for either horizontal or upside down installations.

Heat Exchangers

at heat exchange mode and bypass mode

Model			VN-M150HE	VN-M250HE	VN-M350HE	VN-M500HE	VN-M650HE	VN-M800HE	VN-M1000HE
Air volume	(EH/H/L)	m^3/h	150/150/110	250/250/155	350/350/210	500/500/390	650/650/520	800/800/700	1000/1000/755
Temp. exchange efficiency	(EH/H/L)	%	81,5/81,5/83	78/78/81,5	74,5/74,5/79,5	76,5/76,5/78	75/75/76,5	76,5/76,5/77,5	73,5/73,5/77
Enthalpy exchange efficiency (Heating)	(EH/H/L)	%	74,5/74,5/76	70/70/74	65/65/71,5	72/72/73,5	69,5/69,5/71,5	71/71/71,5	68,5/68,5/71,5
Enthalpy exchange efficiency (Cooling)	(EH/H/L)	%	69,5/69,5/71	65/65/69	60,5/60,5/67	64,5/64,5/66,5	61,5/61,5/64	64/64/65,5	60,5/60,5/64,5
Sound pressure level* **	EH	dB(A)	26-28	29,5-30	34-35	32,5-34	34-36	37-38,5	39,5-40,5
Sound pressure level* **	H	dB(A)	24-25,5	25-27	30-32	29,5-31	33-34	35,5-37	38,5-40
Sound pressure level* **	L	dB(A)	20-22	21-22	27-29	26-29	31-32,5	33,5-35	34-35,5
Power consumption**	EH	dB(A)	68-78	123-138	165-182	214-238	262-290	360-383	532-569
Power consumption**	H	dB(A)	59-67	99-111	135-145	176-192	240-258	339-353	494-538
Power consumption**	L	dB(A)	42-47	52-59	82-88	128-142	178-191	286-300	353-370
External static pressure**	EH	dB(A)	82-102	80-98	114-125	134-150	91-107	142-158	130-150
External static pressure**	H	dB(A)	52-78	34-65	56-83	69-99	58-82	102-132	97-122
External static pressure**	L	dB(A)	47-64	28-40	65-94	62-92	61-96	76-112	84-127
Dimensions (HxWxD)		mm	290x900x900	290x900x900	290x900x900	350x1140x1140	350x1140x1140	400x1189x1189	400x1189x1189
Weight		kg	36	36	38	53	53	70	70
Duct diameter		mm	100	150	150	200	200	250	250
Power supply		V-ph-Hz	220-240 - 1 - 50						
Operating range - around unit			-10°C ÷ +40°C, 80% RH or less						
Operating range - outdoor air			-15°C ÷ +43°C						
Room temperature			+5°C ÷ +40°C, 80% RH or less						

* Sound pressure level is measured 1.5m below the center of the unit.

** Sound power level, power consumption and external static pressure values at 220 - 240 V

EH/H/L = extra-high/high/low

Heat Exchangers + DX coil

Model			Without humidifier			With humidifier		
			MMD-VN502HEXE	MMD-VN802HEXE	MMD-VN1002HEXE	MMD-VNK502HEXE	MMD-VNK802HEXE	MMD-VNK1002HEXE
Fresh air conditioning capacity (1*)	CO	kW	4,10 (1,30)	6,56 (2,06)	8,25 (2,32)	4,10 (1,30)	6,56 (2,06)	8,25 (2,32)
Fresh air conditioning capacity (1*)	HP	kW	5,53 (2,33)	8,61 (3,61)	10,92 (4,32)	5,53 (2,33)	8,61 (3,61)	10,92 (4,32)
Air volume	(EH/H/L)	m^3/h	500/500/440	800/800/640	950/950/820	500/500/440	800/800/640	950/950/820
Temperature exchange efficiency	(EH/H/L)	%	70,5/70,5/71,5	70/70/72,5	65,5/65,5/67,5	70,5/70,5/71,5	70/70/72,5	65,5/65,5/67,5
Enthalpy exchange efficiency (Heating)	(EH/H/L)	%	68,5/68,5/69	70/70/73	66/66/68,5	68,5/68,5/69	70/70/73	66/66/68,5
Enthalpy exchange efficiency (Cooling)	(EH/H/L)	%	56,5/56,5/57,5	56/56/59	52/52/54,5	56,5/56,5/57,5	56/56/59	52/52/54,5
Sound pressure level***	(EH/H/L)	dB(A)	37,5/36,5/34,5	41/40/38	43/42/40	36,5/35,5/33,5	40/39/38	42/41/39
Power consumption***	(EH/H/L)	W	300/280/235	505/465/335	550/545/485	305/285/240	530/485/350	575/565/520
External static pressure***	(EH/H/L)	Pa	120/105/115	120/100/105	135/120/105	95/85/95	105/85/90	110/90/115
Heat exchanger			Finned tube - R410A					
Suction line diameter			3/8"	1/2"	1/2"	3/8"	1/2"	1/2"
Liquid line diameter			1/4"	1/4"	1/4"	1/4"	1/4"	1/4"
Drain port diameter		mm	25	25	25	25	25	25
Humidifier** technology			-	-	-	Permeable film humidifier		
Water pressure		Mpa	-	-	-	0,02 to 0,49		
Water flow		kg/h	-	-	-	3,0	5,0	6,0
Water supply			-	-	-	1/2"	1/2"	1/2"
Dimensions (HxWxD)		mm	430x1140x1690	430x1189x1739	430x1189x1739	430x1140x1690	430x1189x1739	430x1189x1739
Weight		kg	84	100	101	91	111	112
Duct diameter		mm	200	250	250	200	250	250
Power supply		V-ph-Hz	220-240 - 1 - 50					
Operating range - outdoor air	HP/CO		-15°C ÷ +21°C / -5°C ÷ +43°C					
Room temperature	HP/CO		+28°C or less / +21°C ÷ 32°C, 80% RH or less					

* Sound pressure level is measured 1.5m below the center of the unit.

**Humidification available during heating operation

**The water quality of the humidifiers supply water should meet public waterworks standards, and have a hardness less than 100mg/ℓ. If the supply water does not meet these standards, use a deionizer.

*** Sound power level, power consumption and external static pressure values at 230 V

(*1) Cooling and heating capacities are based on the following conditions:
Cooling capacities are based on : indoor temperature :27 °CDB/19°CWB, Outdoor temperature : 35°CDB
Heating capacities are based on : indoor temperature :20 °CDB, Outdoor temperature : 7 °CDB/6°CWB
Fan is based on High and Middle

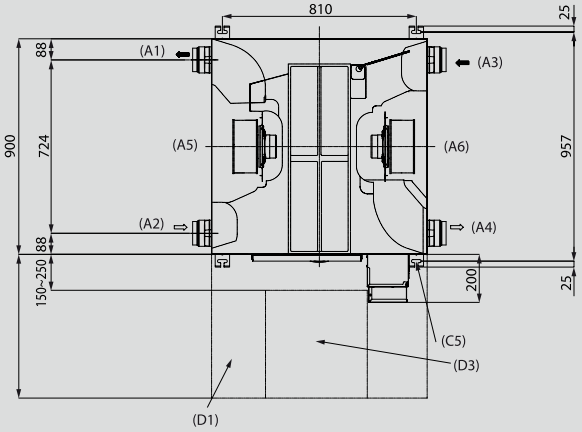
EH/H/L = extra-high/high/low
CO = cooling mode
HP = heating mode

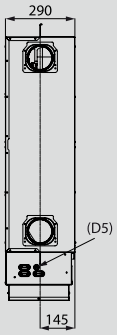
Model			VN-M1500HE	VN-M2000HE
Air volume	(EH/H/L)	m3/h	1500/1500/1200	2000/2000/1400
Temperature exchange efficiency	(EH/H/L)	%	76,5/76,5/79	73,5/73,5/77,5
Enthalpy exchange efficiency (Heating)	(EH/H/L)	%	71/71/73,5	68,5/68,5/72
Enthalpy exchange efficiency (Cooling)	(EH/H/L)	%	64/64/67	60,5/60,5/65,5
Sound pressure level (*1~3)	EH	dB(A)	38-39	41-42,5
Sound pressure level (*1~3)	H	dB(A)	36,5-37,5	39,5-41
Sound pressure level (*1~3)	L	dB(A)	36-37,5	37-38
Power consumption	EH	W	751-786	1084-1154
Power consumption	H	W	708-784	1032-1080
Power consumption	L	W	570-607	702-742
External static pressure	EH	Pa	135-159	124-143
External static pressure	H	Pa	103-129	92-116
External static pressure	L	Pa	112-142	110-143
Dimensions (HxWxD)		mm	810 x 1189 x 1189	
Weight		kg	143	143
Duct diameter		mm	indoor side: Φ250, outdoor side: 283 x 730	
Power supply		V-ph-Hz	220-240 / 1 / 50	
Operating range - around unit			-10 ^{O}C ~ +40 ^{O}C 80%RH or less	
Operating range - outdoor air	OA		-15 ^{O}C (*4) ~ +43 ^{O}C 80%RH or less	
Operating range - return air	RA		+5 ^{O}C ~ +40 ^{O}C 80%RH or less	

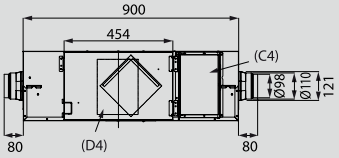
(*1) Sound pressure level is measured 1.5m below the center of the unit.
(*2) Sound pressure level is the value which was measured at the acoustic room.
(*3) Actually, sound pressure levels become higher than this value depending on the oeprating conditions, re□ected sound and peripheral noise.
(*4) When the temperature of the outdoor air is below-100C, the unit runs in the cold mode (the ventilatorfor air supply runs intermittently).
The unit cannot run when the temperature of the outdoor air is below-150C.
The ventilator for air supply stops running and ventilator for air exhaust also stops depending on the settings.

Air-to-Air Heat Exchangers

VN-M150HE to M350HE

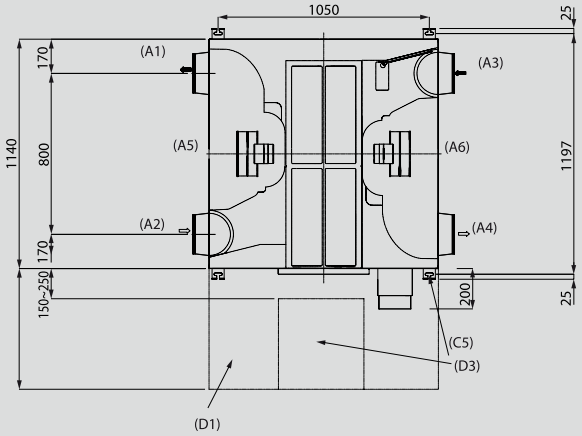


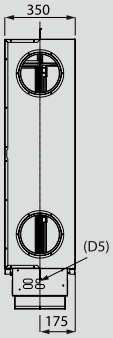




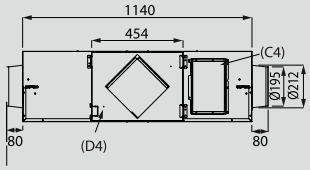
Duct size (Nominal Diameter): Ø100 (M150HE)
Duct size (Nominal Diameter): Ø150 (M250HE, M350HE)

VN-M500HE, M650HE





Duct size (Nominal Diameter): Ø200

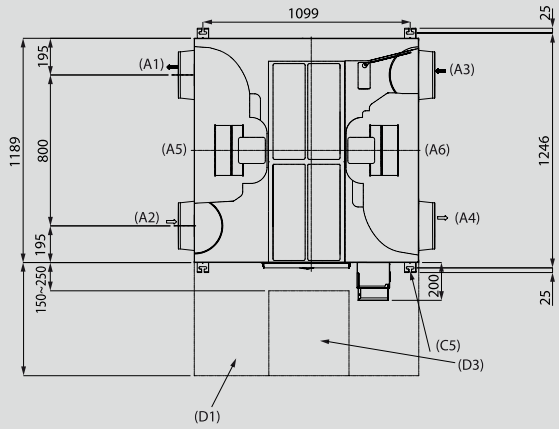


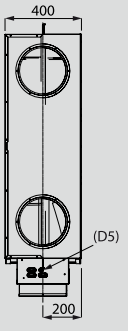
(A1) EA (Exhaust Air)
(A2) OA (Outdoor Air)
(A3) RA (Return Air)
(A4) SA (Supply Air)
(A5) Outdoor side
(A6) Indoor Side

(C4) Earth Terminal
(C5) 4-13 × 30 Oval hole(Hanging Bracket)

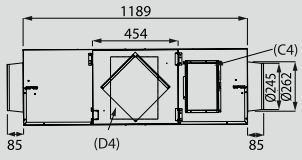
(D1) Heat exchange element Filter Motoers, Fans, Maintenance space
(D3) Inspection Opening 450 × 450 or more
(D4) Connecting Diagram
(D5) Power supply wire intake

VN-M800HE, M1000HE





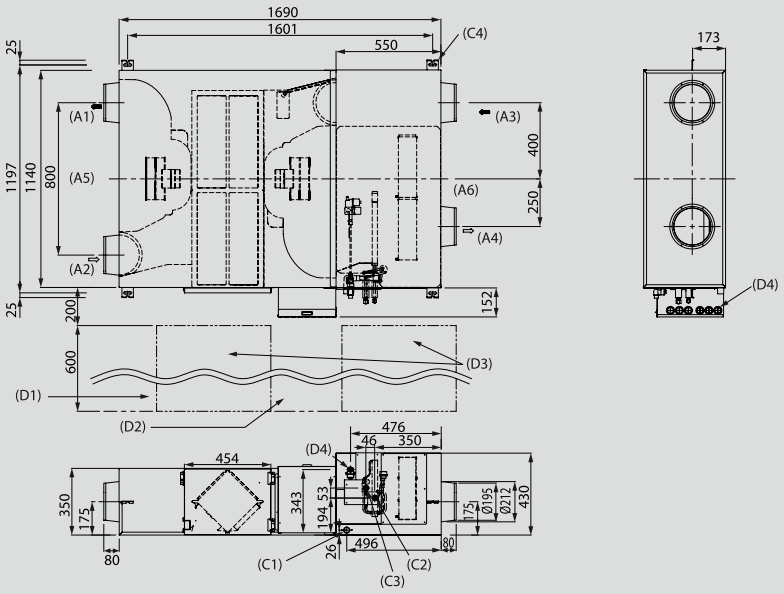
Duct size (Nominal Diameter): Ø250



(Unit: mm)

Air-to-Air Heat Exchangers with DX Coil (and humidifier)

MMD-VN(K)502HEXE



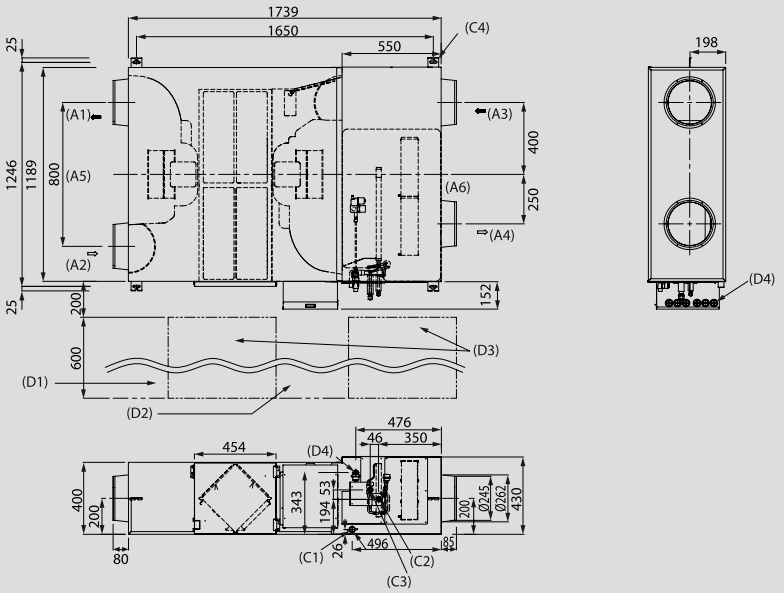
(A1) EA (Exhaust Air)
(A2) OA (Outdoor Air)
(A3) RA (Return Air)
(A4) SA (Supply Air)
(A5) Outdoor side
(A6) Indoor Side

(C1) Drain pipe connecting port (VP25)
(C2) Refrigerant pipe connecting port (Liquid) Ø6.4
(C3) Refrigerant pipe connecting port (Gas) Ø9.5
(C4) 4-13 x 30 oval hole (Hangling bracket)

(D1) Heat exchange element Filter Motoers, Fans, Maintenance space
(D2) Magnetic valve Decompression magnetic valve. Humidification element Maintenance space
(D3) Inspection opening 600 x 600
(D4) Water inlet connecting port (R1/2)
(D5) Power supply wire intake

Duct size (Nominal Diameter): Ø200

MMD-VN(K)802HEXE and MMD-VN(K)1002HEXE



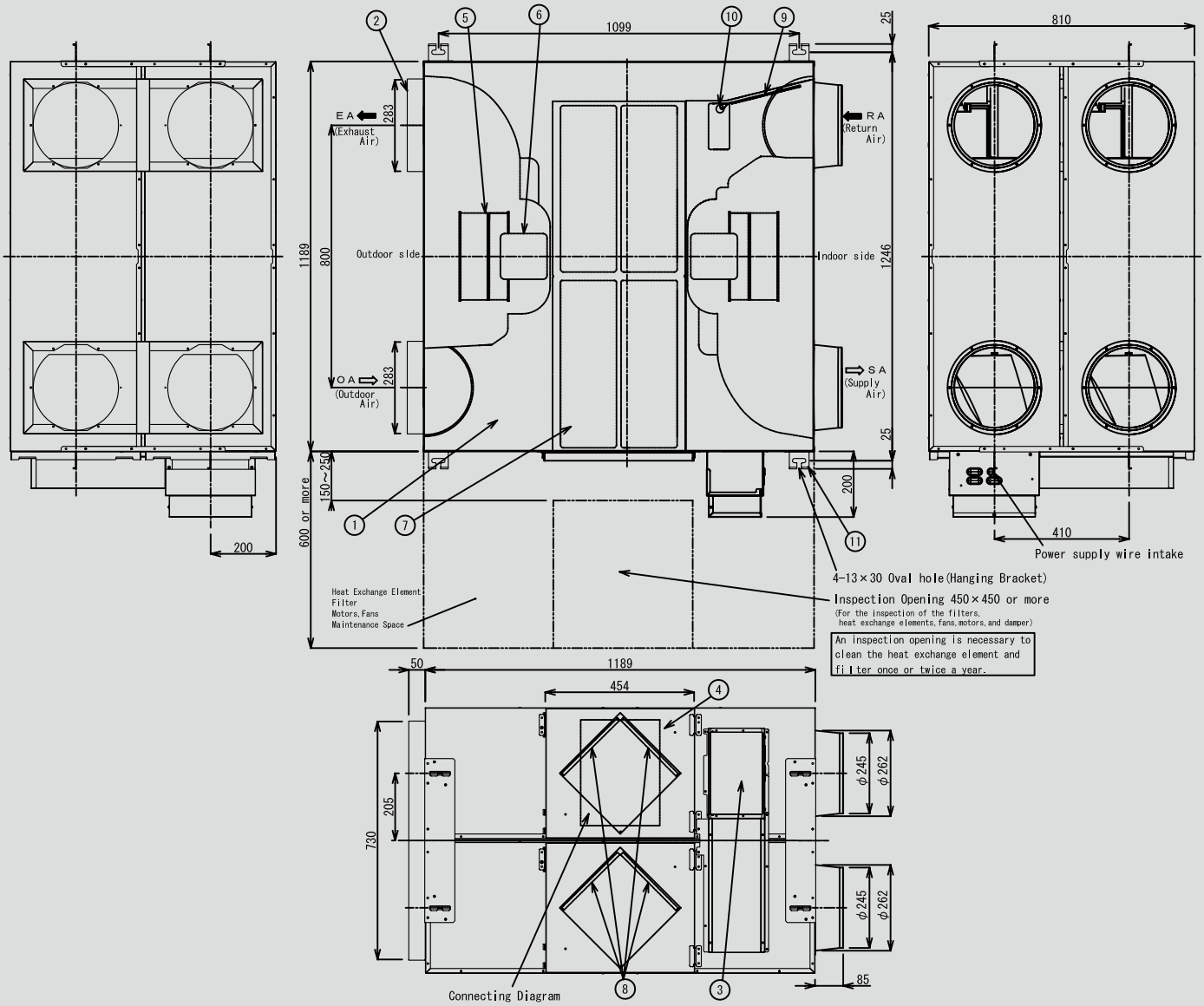
Attention
1. Duct size (Nominal diameter Ø250
2. The above dimensions do not include the thickness of the insulation material on the unit body

Duct size (Nominal Diameter): Ø250

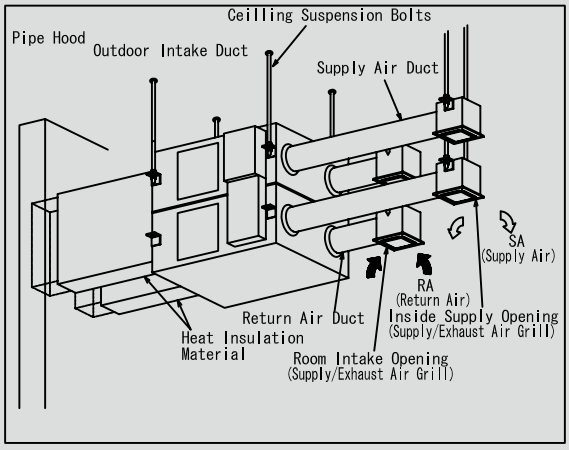
(Unit: mm)

Air-to-Air Heat Exchanger

VN-M1500HE, VN-M2000HE



Reference Diagram



Indoor unit accessories

Indoor unit	Parts Name	Model Name	Applied Model	Notes	Remarks
4-way air discharge cassette type	Ceiling panel	RBC-U31PG(W)-E RBC-U31PGS(W)-E* RBC-U31PGS(WS)-E*	MMU-AP***2H	Required accessory	
	Fresh air inlet box	TCB-GB1602UE		For fresh air intake by using the knockout hole of fresh air filter chamber. (dia.=100 mm)	Use with TCB-GFC1602UE
	Fresh air filter chamber	TCB-GFC1602UE		For fresh air inlet box	
	Auxiliary fresh air flange	TCB-FF101URE2		For easy fresh air intake by using the knockout hole of indoor unit. (dia.=100 mm)	
	Spacer for height adjustment	TCB-SP1602UE		Height=50 mm	
	Air discharge direction kit	TCB-BC1602UE		Air direction charge by cutting off air discharge port (3 pcs.)	
Compact 4-way cassette (600 × 600) type	Ceiling panel	RBC-UM11PG(W)E	MMU-AP***1MH	Required accessory	
	Auxiliary fresh air flange	TCB-FF101URE2		For easy fresh air intake by using the knockout hole of indoor unit. (dia.=100 mm)	
2-way air discharge cassette type	Ceiling panel	RBC-UW283PG(W)-E	MMU-AP0072 to 0152WH	Required accessory	
		RBC-UW803PG(W)-E	MMU-AP0182 to 0302WH		
		RBC-UW1403PG(W)-E	MMU-AP0362/0482/0562WH		
	Super long life filter	TCB-LF283UW-E	MMU-AP0072 to 0152WH	Dust collecting effect: 50% (Weight method)	Use with TCB-FC283UW-E
		TCB-LF803UW-E	MMU-AP0182 to 0302WH		Use with TCB-FC803UW-E
		TCB-LF1403UW-E	MMU-AP0362/0482/0562WH		Use with TCB-FC1403UW-E
	Filter chamber	TCB-FC283UW-E	MMU-AP0072 to 0152WH	For super long life filter	
		TCB-FC803UW-E	MMU-AP0182 to 0302WH		
		TCB-FC1403UW-E	MMU-AP0362/0482/0562WH		
	Auxiliary fresh air flange	TCB-FF151US-E	MMU-AP***2WH	For fresh air intake by using the knockout hole of indoor unit. (dia.=150mm)	
1-way air discharge cassette type	Ceiling panel	RBC-UY136PG	MMU-AP***1YH	Required accessory	
		RBC-US21PGE	MMU-AP***2SH	Required accessory	
	Front air discharge unit	TCB-BUS21HWE			
	Auxiliary fresh air flange	TCB-FF101URE2		For easy fresh air intake by using the knockout hole of indoor unit. (dia.=100 mm)	
Concealed duct type	High-efficiency filter 65 (for rear suction)	TCB-UFM11BFCE	MMD-AP0071/0091/0121BH	Dust collecting effect: 65% (NBS Colorimentric method)	Use with TCB-FC281BE
		TCB-UFM21BFCE	MMD-AP0151/0181BH		Use with TCB-FC501BE
		TCB-UFM11BFCE (2 pcs.)	MMD-AP0241/0271/0301BH		Use with TCB-FC801BE
		TCB-UFM21BFCE (2 pcs.)	MMD-AP0361/0481/0561BH		Use with TCB-FC1401BE
	High-efficiency filter 90 (for rear suction)	TCB-UFH51BFCE	MMD-AP0071/0091/0121BH	Dust collecting effect: 90% (NBS Colorimentric method)	Use with TCB-FC281BE
		TCB-UFH61BFCE	MMD-AP0151/0181BH		Use with TCB-FC501BE
		TCB-UFH51BFCE (2 pcs.)	MMD-AP0241/0271/0301BH		Use with TCB-FC801BE
		TCB-UFH61BFCE (2 pcs.)	MMD-AP0361/0481/0561BH		Use with TCB-FC1401BE
	Filter chamber (for rear suction)	TCB-FC281BE	MMD-AP0071/0091/0121BH	For high-efficiency filter	
		TCB-FC501BE	MMD-AP0151/0181BH		
		TCB-FC801BE	MMD-AP0241/0271/0301BH		
		TCB-FC1401BE	MMD-AP0361/0481/0561BH		
	High-efficiency filter 65 (for underside suction)	TCB-UFM11BE	MMD-AP0071/0091/0121BH	Dust collecting effect: 65% (NBS Colorimentric method)	
		TCB-UFM21BE	MMD-AP0151/0181BH		
		TCB-UFM31BE	MMD-AP0241/0271/0301BH		
		TCB-UFM41BE	MMD-AP0361/0481/0561BH		
	High-efficiency filter 90 (for underside suction)	TCB-UFH51BE	MMD-AP0071/0091/0121BH	Dust collecting effect: 90% (NBS Colorimentric method)	
		TCB-UFH61BE	MMD-AP0151/0181BH		
		TCB-UFH71BE	MMD-AP0241/0271/0301BH		
		TCB-UFH81BE	MMD-AP0361/0481/0561BH		
	Ceiling panel (half panel for underside suction)	RBC-UD281PE(W)	MMD-AP0071/0091/0121BH		
		RBC-UD501PE(W)	MMD-AP0151/0181BH		
		RBC-UD801PE(W)	MMD-AP0241/0271/0301BH		
		RBC-UD1401PE(W)	MMD-AP0361/0481/0561BH		
	Suction canvas (for underside suction)	TCB-CA281BE	MMD-AP0071/0091/0121BH	Adjustment height of the suction canvas is between 40 mm and 100 mm	
		TCB-CA501BE	MMD-AP0151/0181BH		
		TCB-CA801BE	MMD-AP0241/0271/0301BH		
		TCB-CA1401BE	MMD-AP0361/0481/0561BH		
	Filter kit for underside	TCB-FK281BE	MMD-AP0071/0091/0121BH	Kit of underside prefilter & shielding plate of rear suction	
		TCB-FK501BE	MMD-AP0151/0181BH		
		TCB-FK801BE	MMD-AP0241/0271/0301BH		
		TCB-FK1401BE	MMD-AP0361/0481/0561BH		
Concealed duct high static pressure type	High-efficiency filter 65	TCB-UFM1D-1E	MMD-AP0181H	Dust collecting effect: 65% (NBS Colorimentric method)	Use with TCB-FCY21DE
		TCB-UFM2D-1E (2 pcs.)	MMD-AP0241/0271/0361H		Use with TCB-FCY31DE
		TCB-UFM1D-1E (2 pcs.)	MMD-AP0481H		Use with TCB-FCY51DE
		TCB-UFM3DE	MMD-AP0721/0961H		Use with TCB-FCY100DE
	High-efficiency filter 90	TCB-UFH5D-1E	MMD-AP0181H	Dust collecting effect: 90% (NBS Colorimentric method)	Use with TCB-FCY21DE
		TCB-UFH6D-1E (2 pcs.)	MMD-AP0241/0271/0361H		Use with TCB-FCY31DE
		TCB-UFH5D-1E (2 pcs.)	MMD-AP0481H		Use with TCB-FCY51DE
		TCB-UFH7DE	MMD-AP0721/0961H		Use with TCB-FCY100DE
	Long life prefilter	TCB-PF1D-1E	MMD-AP0181H	Dust collecting effect: 50% (Weight method)	Use with TCB-FCY21DE
		TCB-PF2D-1E (2 pcs.)	MMD-AP0241/0271/0361H		Use with TCB-FCY31DE
		TCB-PF1D-1E (2 pcs.)	MMD-AP0481H		Use with TCB-FCY51DE
		TCB-PF3DE	MMD-AP0721/0961H		Use with TCB-FCY100DE
	Filter chamber	TCB-FCY21DE	MMD-AP0181H	For high-efficiency filter or long life prefilter	
		TCB-FCY31DE	MMD-AP0241/0271/0361H		
		TCB-FCY51DE	MMD-AP0481H		
		TCB-FCY100DE	MMD-AP0721/0961H		
	Drain pump kit	TCB-DP31DE	MMD-AP0181H to 0481H	Stand-up 330 or less (from bottom face of ceiling)	
		TCB-DP32DE	MMD-AP0721/0961H		
Slim duct type	Auxiliary fresh air flange	TCB-FF101URE2	MMD-AP***1SPH	For fresh air intake by using the knockout hole of indoor unit. (dia.=100 mm)	
Ceiling type	Drain pump kit	TCB-DP22CE2	MMC-AP0151/0181H	Stand-up 600 or less (from bottom face of ceiling)	Use with TCB-KP12CE2
			MMC-AP0241 to 0481H		Use with TCB-KP22CE2
	Elbow piping kit	TCB-KP12CE2	MMC-AP0151/0181H	Needed when drain pump kit is used	
		TCB-KP22CE2	MMC-AP0241 to 0481H		

*European market only

Indoor unit accessories

Indoor unit	Parts Name	Model Name	Applied Model	Notes	Remarks
Fresh air intake indoor unit type	High-efficiency filter 65	TCB-UFM3DE	MMD-AP0721/0961HFE	Dust collecting effect: 65% (NBS Colorimentric method)	Use with TCB-PF3DE
		TCB-UFM4D-1E	MMD-AP0481HFE		Use with TCB-PF4D-1E
	High-efficiency filter 90	TCB-UFH7DE	MMD-AP0721/0961HFE	Dust collecting effect: 90% (NBS Colorimentric method)	Use with TCB-PF3DE
		TCB-UFH8D-1E	MMD-AP0481HFE		Use with TCB-PF4D-1E
	Long life prefilter	TCB-PF3DE	MMD-AP0721/0961HFE	Dust collecting effect: 50% (Weight method)	Use with TCB-FCY100DE
		TCB-PF4D-1E	MMD-AP0481HFE		Use with TCB-FCY51DFE
	Filter chamber	TCB-FCY51DFE	MMD-AP0481HFE	For high-efficiency filter or long life prefilter	
		TCB-FCY100DE	MMD-AP0721/0961HFE		
	Drain pump kit	TCB-DP32DFE	MMD-AP0481/0721/0961HFE	Stand-up 330 or less (from bottom face of ceiling)	

Combination Pattern

1) Accessory for 4-way air discharge cassette type: combination pattern

		1	2	3	4	5	6
		Ceiling panel	Fresh air inlet box + Fresh air filter chamber	Fresh air filter chamber	Auxiliary fresh air flange	Spacer for height adjustment	Air discharge direction kit
1	Ceiling panel		OK	OK	OK	OK	OK
2	Fresh air inlet box + Fresh air filter chamber	OK			OK	—	OK
3	Fresh air filter chamber	OK			OK	OK	OK
4	Auxiliary fresh air flange	OK	OK	OK		OK	OK
5	Spacer for height adjustment	OK	—	OK	OK		OK
6	Air discharge direction kit	OK	OK	OK	OK	OK	

2) Accessory for concealed duct type: combination pattern

		1	2	3	4	5	6	7	9
		For rear suction			For underside suction				
		High-efficiency filter 65 (For rear suction)	High-efficiency filter 90 (For rear suction)	Filter chamber (for rear suction)	High-efficiency filter 65 (for underside suction)	High-efficiency filter 90 (for underside suction)	Ceiling panel (half panel for underside suction)	Suction canvas (for underside suction)	Filter kit for underside*
1	High-efficiency filter 65 (for rear suction)		—	OK	—	—	—	—	—
2	High-efficiency filter 90 (for rear suction)	—		OK	—	—	—	—	—
3	Filter chamber (for rear suction)	OK	OK		—	—	—	—	—
4	High-efficiency filter 65 (for underside suction)	—	—	—		—	OK	OK	OK
6	High-efficiency filter 90 (for underside suction)	—	—	—	—		OK	OK	OK
7	Ceiling panel (half panel for underside suction)	—	—	—	OK	OK		OK	OK
8	Suction canvas (for underside suction)	—	—	—	OK	OK	OK		OK
9	Filter kit for underside*	—	—	—	OK	OK	OK	OK	

* In case of underside,Filter kit is required accessory

3) Accessory for concealed duct high static pressure type/fresh air intake indoor unit type: combination pattern

		1	2	3	4	5
		High-efficiency filter 65	High-efficiency filter 90	Long life prefilter	Filter chamber	Drain pump kit
1	High-efficiency filter 65		—	OK	OK	OK
2	High-efficiency filter 90	—		OK	OK	OK
7	Long life prefilter	OK	OK		OK	OK
8	Filter chamber	OK	OK	OK		OK
9	Drain pump kit	OK	OK	OK	OK	

Individual Remote Controllers

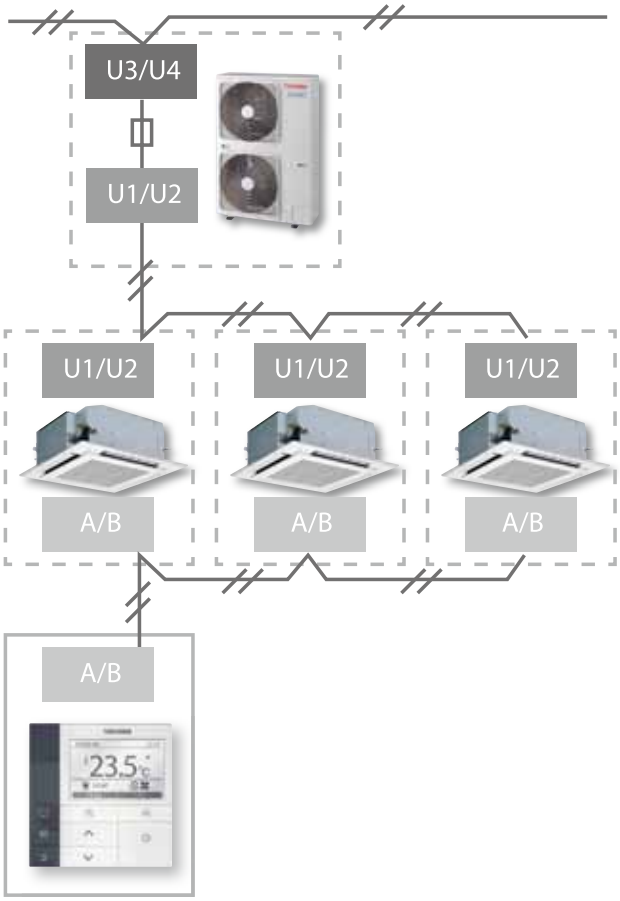
RBC-AMS51E

Lite-Vision plus Remote Controller

The RBC-AMS51E is the new local remote controller with a built in 7-Day Timer-featuring a new multi-language LCD display with backlight, Energy Saving Options and a Return back function.

Key Features

- Possibility to set and display the room name to easily set-up and monitor the working parameters.
- New Modern and desirable controller design with menu driven display.
- Save mode by schedule timer to optimize energy consumption.
- Room temperature display always available.
- Two "Hot Keys" (F1, F2) for easy operation of air conditioner functions.
- Easy to read layout including display of Indoor Unit Model Name and serial number.
- New temperature display that can show the Indoor Unit settings in increments of 0.5°C.
- Built-in backup power. Settings are kept in memories up to 48 hours in case of power failure.
- Remote TA sensor available in controller.
- Can be connected to a single Indoor Unit or a group of up to 8 Indoor Units.



Wirless control

TCB-AX21E2

IR Remote Control
The wireless controller is available with a series of receiver unit designs. These receivers are specially designed to fit into different Indoor Unit models to provide a high standard of finish.
The wireless controller features an easy to use and compact button layout, standard control buttons that are always available with increased functions hidden under a sliding screen, and a temperature sensor which can be used in place of the Indoor Unit Return Air (TA) Sensor.

Receiver Models:

RBC-AX31U(W)-
RBC-AX31U(WS)-E

Mountable on the corner pocket of the cassette unit
To be used with: new 4-Way cassette units.
W model is for white cassette panels
WS model is for white/grey cassette panels

RBC-AX22CE2

Receiver mountable in the frame of the front panel.
To be used with: Ceiling units, 1-way cassette units.

RBC-AX23UW(W)-E

Receiver mountable in the frame of the front panel.
To be used with: new 2-way cassette units.

TCB-AX21E2

Wall or ceiling mountable receiver.
To be used with: all the indoor units, more specifically targeted to ducted units.

Wired control

Wired Control

RBC-AMT32E

The standard remote controller can control an individual indoor unit or a group of 8 indoor units. The remote control allows the operating parameters to be set for the indoor unit. It also allows faults to be displayed and unit configurations to be set up. The weekly timer can be fitted to this remote control.

Simplified Control

RBC-AS21E2

This is a simplified version of the standard wired remote controller and can be connected to a single Indoor Unit, or group of up to 8 Indoor Units.
The reduced function display and simplified button layout make this controller the ideal solution for hotel and office applications.

Remote controller with weekly timer (7-day timer function)

RBC-AMS41E

This controller is based on the standard wired controller but has the additional control provided by a built-in 7-day timer function making it an ideal solution for any light commercial or VRF application that requires schedule timer operations or Night set-back control.
The 7-Day timer function can set multiple Indoor Unit parameters and can control: Operation ON/OFF, Operation Mode, Set Temperature, Energy Saving Function*, Frost Protection Function*, button restrictions. Restriction on button operation.

** Specific Unit Combinations only.*

Schedule timer

TCB-EXS21TLE

The Schedule Timer is an advanced control device that can be used to control Indoor Unit parameters based on a timed schedule, and has two possible modes of operation to choose from, these are:
Weekly Timer Mode
The timer is connected to an Indoor Unit via a local or central remote controller.
Schedule Timer Mode
The timer is connected directly to the TCC Link Central Control network and can set timer functions for up to 64 Indoor Units in up to 8 programmable control groups.

Central controls

Smart Manager

BMS-SM1280HTLE

The Smart Manager has the same hardware Control Function as the BMS-CM1280TLE Controller, but also has the ability of control from a Local Area Network and , with the use of an additional Interface, is capable of Energy Monitoring and Report Creation Functions.

This controller is ideal where advanced control, Energy Monitoring, advanced scheduling or access to individual Air Conditioners is required from networked computer systems.

Features

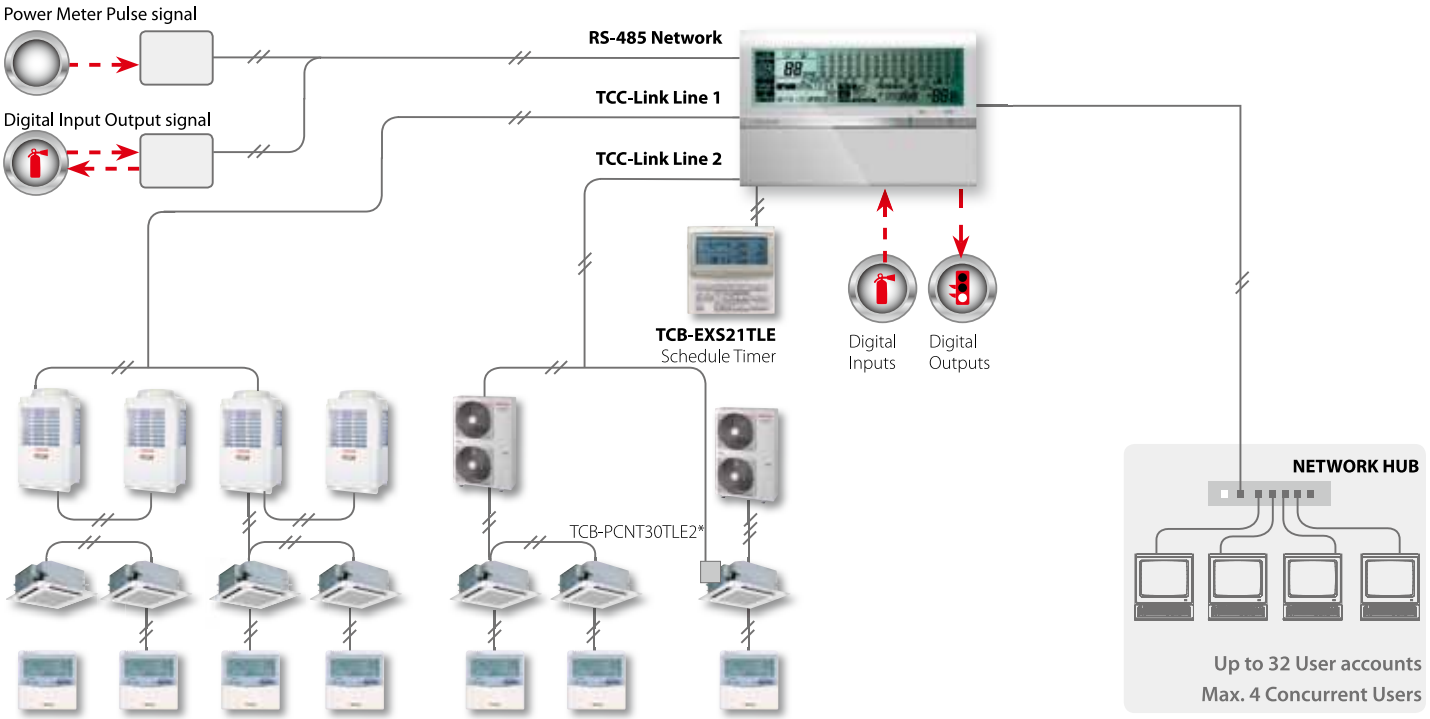
- Same Hardware control features as the BMS-CM1280TLE Controller
- Can be connected to a single PC or LAN to allow advanced control functions from a Multi-Language Web Browser Display Screen*
- Energy Monitoring and report creation functions available
- Advanced operation & master schedules can be set on a calendar
- Additional Digital I/O Device Available
- Thin profile controller and separate power supply unit enables easy installation.

Web Browser Control Software

Layout can be selected in terms of Area Name, Floor Name or Tenant Name.

Features

- List View available - Displays all Indoor Units in one screen
- Set View available - Shows Basic Indoor Unit settings on main screen
- Advanced Operation and Master schedule functions available
- Up to 4 Concurrent users can be connected
- Up to 32 User accounts can be programmed with different levels of access (at least 1 must be administrator level)



** TCC-Link Adaptor for Digital/Super Digital Indoor Units.*

Central Controller

TCB-SC642TLE2

The TCB-SC642TLE2 64-Way central controller is TOSHIBA's standard central control solution and can be connected to up to 64 Indoor Units via the TCC-Link Central Control network.
Indoor Units can be controlled in terms of: Individual Indoor Unit/Group, all Units in a Zone, and all Units connected.
Additional features include 4-levels of remote controller permit/prohibit functions and the option of connecting an additional Schedule Timer.

On-Off controller

TCB-CC163TLE2

The TCB-CC163TLE2 is a 16-Way ON/OFF controller for use with VRF, DI and SDI equipment (excludes DI Flexi Type). It is a simplified Central Control device that can be connected to up to 16 Indoor Units via the TCC-Link network to provide simple "1 touch" ON/OFF control and for all connected Indoor Units.

Compliant Manager

BMS-CM1280TLE
BMS-CM1280FTLE*

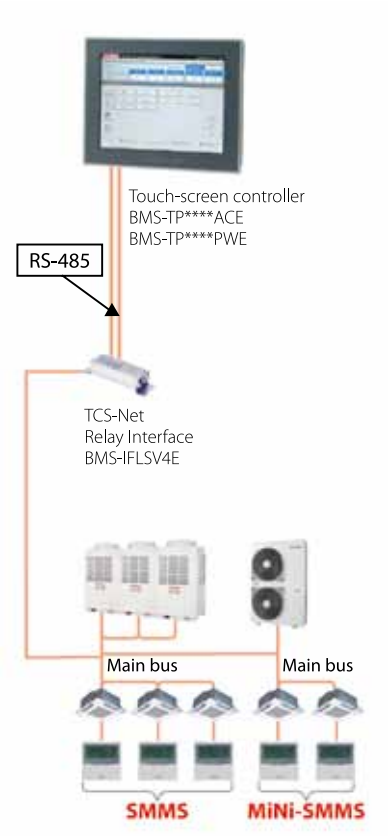
This Controller is an advanced Central Control device that can be connected to up to 128 Indoor Units (2 x 64 IDU TCC-Link Connections).
The High-Spec model has the same hardware control function as the standard version, but also has the ability of control from a Local Area Network and , with the addition of an additional Interface, is capable of Energy Monitoring and report creation functions.
This controller is ideal where advanced control, Energy Monitoring, advanced scheduling or access to individual air Conditioners is required from networked computer systems.

Touch Screen

BMS-TP0641ACE
BMS-TP05121ACE
BMS-TP0641PWE
BMS-TP5121PWE

The Touch Screen Controller can be connected to 64 or 512 Indoor Units depending on model and offers Energy Monitoring* and schedule program functions. This controller is ideally suited to any small or large installation where Energy monitoring functions are required, or where a professional and highly presentable finish is required.
It can control each of the individual indoor units and is capable of providing information from the indoor unit settings and malfunction check codes.
The Touch Screen is connected to the air conditioner control network directly by relay interfaces.

** Available with BMSTP***PWE Models only and requires an additional relay Interface.*



Web based controls

BMS-WB2561PWE
(Gateway Server)

This is an advanced Central Control device designed for use with large installations or where high-level control and/or energy monitoring functions are required.
One major benefit of the Web Based Controller over other Central Control systems is the ability to automatically retransmit system alarms to up to 8 programmed email addresses.
It is also possible to specify which units will send alarms to each of the different email addresses.

BMS-WE01GTE
(WEB Server)

The BMS-WB01GTE is a Master device that can be used to enable the connection of up to 2,048 Indoor Units to the web based controller system.
This is carried out using the Master device as a hub for up to 8 Web Based Controllers.

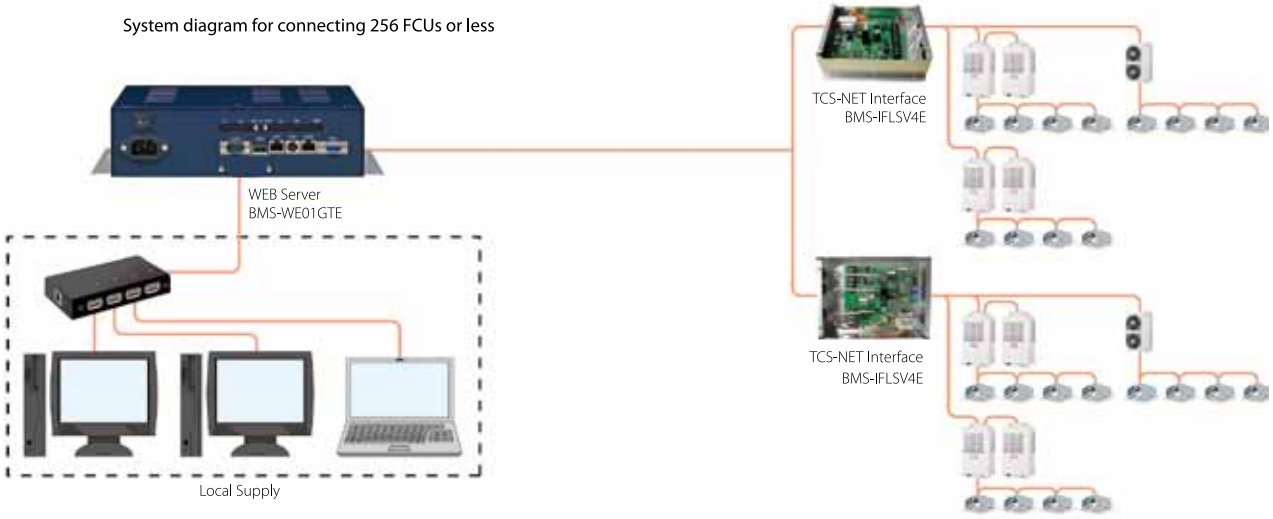
Relay Interfaces

BMS-IFLV4E
For TCS-NET

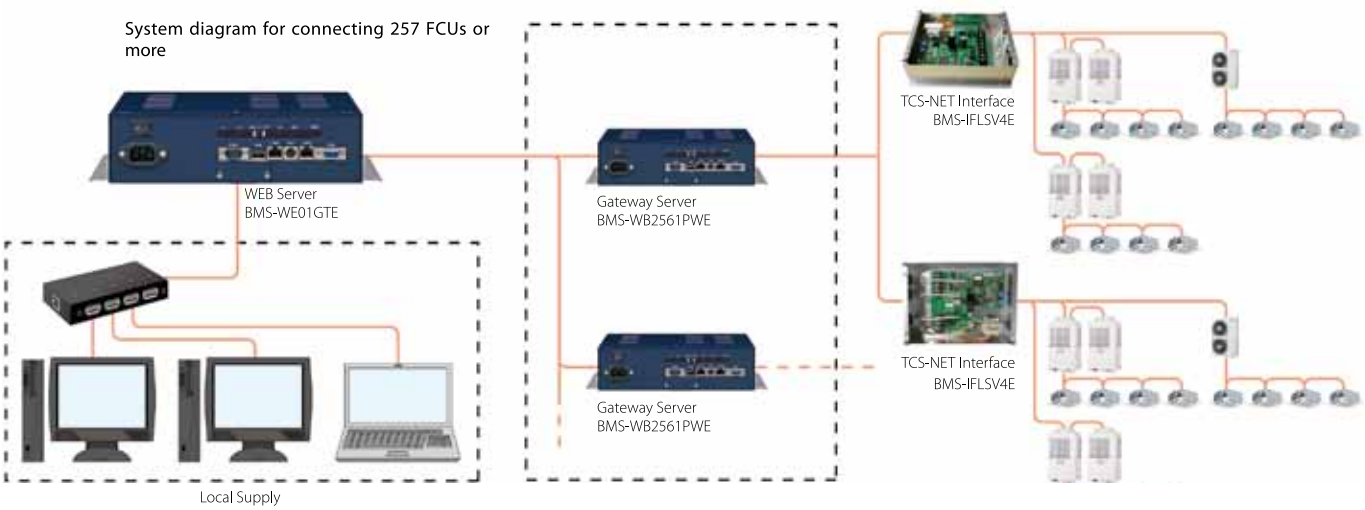
BMS-IFWH5E
For Energy Monitoring

BMS-IFDD03E
For Digital I/O

BMS-WB2561PWE (Web Server/Gateway)



BMS-WB01GTE (Master Server)



Building Management systems

A Building Management System (BMS) is a computer based control system that is installed in buildings to control and monitor mechanical and electrical equipment, such as Ventilation, lighting, power systems, fire systems and security for that building.

The core function of most BMS systems is to manage the environment within the building and can be used to control heating and cooling equipment and manage the systems that distribute the treated air throughout the building.

BACnet® gateway

BACnet®

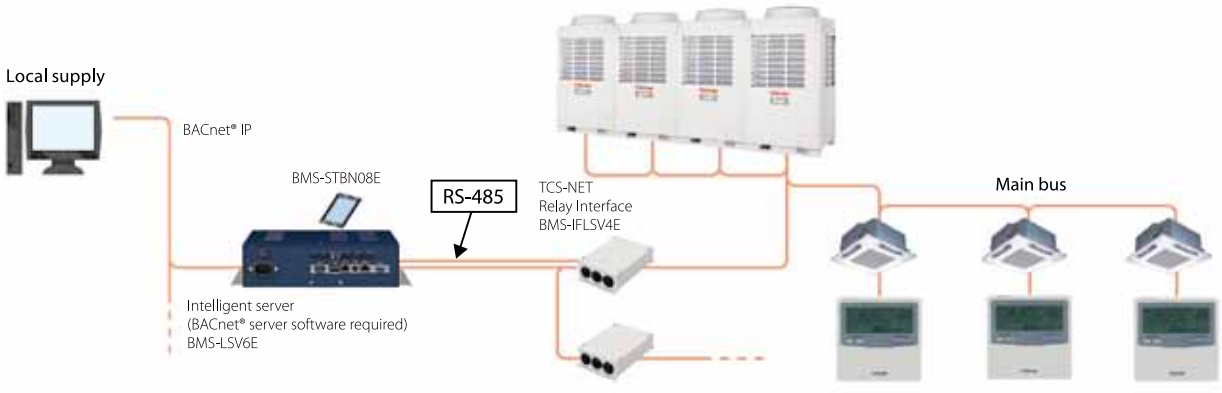
BMS-LSV6E

The Toshiba BACnet® control system consists the BMS-LSV6E Intelligent server and the BMS-STBN08E BACnet server software, and can be connected to the TCC-Link Central Control Network via a TCS-Net Relay Interface to enable control of up to 128 Indoor Units from a BACnet® building management system.

Analogue Interface

TCB-IFCB640TLE

That Analogue Relay Interface is a device that can be connected directly to the TCC-Link Central Control network to provide Analogue & Digital Inputs & Outputs for control over Toshiba Air Conditioner products from non-Toshiba Control systems. This Interface is ideal for Integrating the Toshiba Air Conditioner product into basic or PLC BMS control systems, such as may be found in older controls systems.



LonWorks® LN Interface

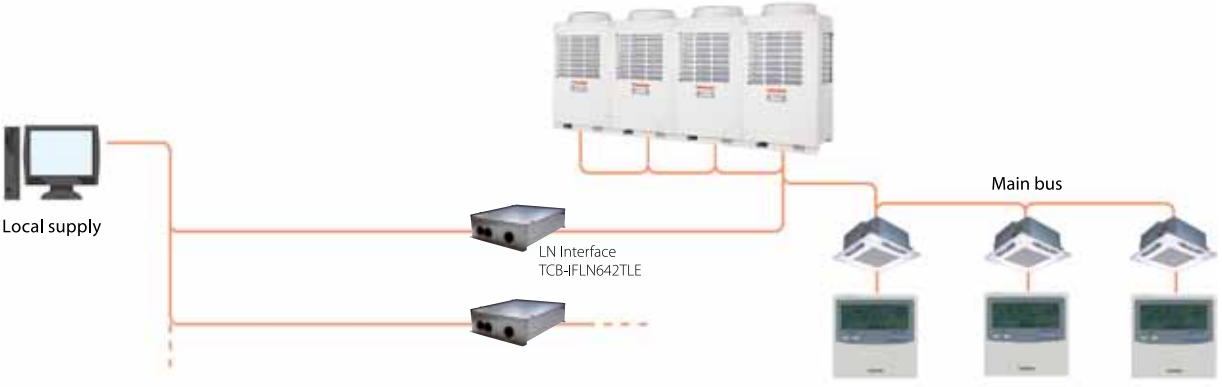
TCB-IFLN642TLE

The Toshiba Lonworks interface 100% LonMark Compliant and is designed to connect the Toshiba Air Conditioning system to a Lonworks Building Management Control System.

This Interface connects directly to the Toshiba TCC-Link Central Control Network on the Air Conditioner side and can be wired on the Indoor or outdoor side depending on preference.

The Interface is then connected to the Lonworks Building Management Control system where it provides 28 Network variables for the sending of Control Commands and receiving unit information.

Multiple Toshiba Lonworks Interfaces can be connected to a single TCC-Link Network and addressed using simple switches provided on the device. This is to enable ease of installation, especially in buildings with separate areas where 1 Interface may be used for each area/floor.



Building Management Systems

Modbus® Interface

TCB-IFMB640TLE

The Toshiba Modbus® interface is designed to connect the Toshiba Air Conditioning system to a Modbus Building Management System.

The Toshiba Interface connects directly to the Toshiba TCC-Link Central Control Network on the Air Conditioner and can be wired on the Indoor or outdoor side depending on preference.

The Interface then uses the Modbus RTU protocol based on the RS-485 type serial communications protocol to connect to a suitable Modbus Master device.

Finally, this Modbus Master device is connected to the BMS control system and allows control of all connected Toshiba Air Conditioner equipment from that BMS control system.

Multiple Toshiba Modbus Interfaces can be connected to a single TCC-Link Network and addressed using simple switches provided on the device.

This is to enable ease of installation, especially in buildings with separate areas where 1 Interface may be used for each area/floor.

Control PC Boards

For the SMMSi are available also a number of Control accessory PC Boards for use with Indoor and Outdoor units

Model number	Reference	Description	Used with
TCB-PCMO4E	External Master On/Off control	External Master On/Off control board	VRF outdoor units
TCB-PCIN4E	Error Output Control Board	Error output control board	VRF outdoor units
TCB-PCDM4E	Power Peak Cut Control Board	Power Peak Cut Control Board	VRF outdoor units
TCB-IFCG1TLE	General purpose interface	enables control of A/C by the DI/DO and AI/AO	Daisekai, DI, SDI, VRF. Combination with TCB-IFCB640TLE
TCB-IFCB640TLE	Analog interface	Control & monitoring up to 64 IU on TCC-link	Combination with TCB-IFCG1TLE
TCB-IFGSM1E	GSM control interface	Allows ON/OFF control, operation status monitoring & alarm monitoring of A/C	VRF, DI, SDI (CN61) & Daisekai (CN08 or 09)
TCB-PCOS1E2	Application control kit	Enables night operation control, demand control, operation monitoring	All DI units
TCB-IFCB-4E2	Remote location On/Off Control Box	Enables remote location On/Off control	All indoor units

Interactive Intelligence

RBC-WP1-PE

The Interactive Intelligence software tool is a Building Management control software designed for use on the Lonworks Network protocol and can not only be used to control Toshiba Air Conditioner systems, but also any building systems (i.e. Lighting, security, etc…)

Features

- Can connect up to 1024 Indoor Units
- 3 levels of control schematic automatically created during commissioning
- Advanced scheduling and alarm retransmission via Email
- Remote access available with RBC-IK1-PE Add-On
- Schematics can be fully customised to suit the site (building schematics from AutoCAD can be used)
- Energy Monitoring and report creation functions available
- Can also be used to integrate other site equipment using RBC-DI1-PE Digital I/O Device

Relay Interfaces

TCB-IFGSM1E

The TCB-IFGSM1E Interface is a device that allows control of the Toshiba Air Conditioner Equipment from a remote location using standard GSM (Global system for Mobile communications) Mobile phone SMS text messages.

Features

- Device connects to CN61 on DI/SDI & VRF Indoor Units (excludes DI Flexi Type)
- Daiseikai Residential & DI Flexi units can be connected via HA connector on Indoor Unit
- Control Functions vary depending on HA/CN61 Connection used

TCB-IFCG1TLE

General Purpose Relay I/F

The General Purpose Relay Interface is a device that can be connected directly to the TCC-Link Central Control Network and addressed on the TCC-Link Network in order to provide control of non-Toshiba equipment from a Toshiba control system, and control of the Toshiba Air Conditioner from digital & Analogue Inputs.

Features

- TCB-IFCG1TLE is given a Central Control address (similar to an Indoor Unit) and can then be controlled from a central control device.
- Only On/Off Input/Output available from Central Controllers.
- Full Control Available From Modbus Interface Only
- Can be used to allow On/Off control and monitoring of Residential Indoor Units from TCC-Link Central Control devices (selected models only).

Model number	Reference	Description	Used with
RBC-AMT32E	Wired Remote Controller	Main wired remote controller	VRF, SDI, DI (except DI flexi and VRF Air-to-air heat exchagers with DX coil) indoor units
RBC-AS21E2	SimplifiedWired Remote Controller	As above but designed for hotel and domestic applications	VRF, SDI, DI (except DI flexi and VRF Air-to-air heat exchagers with DX coil) indoor units
NRC-01HE	Wired Remote Controller	Wired remote controller for Air-to-air heat exchanger, including with DX coil and humidifiers models	New Air-to-air heat exchangers and Air-to-air heat exchangers with DX coil
HWS-AMS11E	Room temperature remote controller	Wired Estia Room temperature remote controller including schedule timer	Estia
TCB-EXS21TLE	Schedule timer	Operating in weekly timer mode or schedule timer mode	VRF, SDI, DI (except DI flexi and VRF Air-to-air heat exchagers with DX coil) indoor units
RBC-AMS41E	Remote controller with schedule timer	Enables to control indoor unit operation with schedule timer (7-days) allowing to program 8 functions/day + clock display	VRF, SDI, DI (except DI flexi and VRF Air-to-air heat exchagers with DX coil) indoor units
RBC-AMS51E-EN RBC-AMS51E-ES	Lite-Vision plus Remote Controller	Local Controller with Multi-Language LCD display, a built-in 7-Day timer, Energy Saving options and return back function. EN = English, Italian, Polish, Greek, Russian, Turkish. ES = English, Spanish, Portuguese, French, Dutch, German	VRF, SDI, DI (except DI flexi and VRF Air-to-air heat exchagers with DX coil) indoor units
RBC-AX22CE2	Infra-red Remote Kit	Wireless remote controller	All ceiling units and one-way cassettes (SH series)
TCB-AX21E2	Infra-red Remote Kit	Wireless remote controller	All other units (including compact 4-way cassette, except for DI Flexi type)
RBC-AX23UW(W)-E	Wireless remote unit kit	Wireless remote unit kit for 2-way cassette	2-way-cassette MMU-AP***2WH
RBC-AX31U(W)-E	Wireless remote unit kit	Wireless remote unit kit for 4-way cassette	RAV-SM***4UT-E with RBC-U31PG(W)-E & RBC-U31PGS(W)-E panels
RBC-AX31U(WS)-E	Wireless remote unit kit	Wireless remote unit kit for 4-way cassette	RAV-SM***4UT-E with RBC-U31PGS(WS)-E panels
WH-H2UE	Infra-red Remote Controller	Wireless remote unit kit for Flexi units	DI Flexi
TCB-TC21LE2	Remote temperature sensor	Remote temperature sensor for cassette & duct	DI, SDI, VRF
TCB-SC642TLE2	Central Remote Controller	Enables the control of up to 64 individual units	VRF, 1:1 model connection interface required for DI/SDI (Excluding high-wall type)
TCB-CC163TLE2	On / Off Controller	Enables On/Off control (Max. 16 units)	VRF, 1:1 model connection interface required for DI/SDI (Excluding high-wall type)
TCB-IFCB-4E2	Remote location On/Off Control Box	Enables remote location On/Off control	All indoor units (Excluding DI Flexi type)
BMS-WB2561PWE	Web Based Controller	Gateway server. Network Intranet connection, yearly schedule, error message history, up to 256 IDUs	
BMS-WB01GTE	Wired Remote Controller	Web server. Network Intranet connection, yearly schedule, error message history, up to 512 IDUs	Web control operates with BMS-WB2561PWE (up to 2) & BMS-IFLSV3E
BMS-CM1280TLE	Compliant Manager	Enables full control of up to 128 indoor units	network 1:1 model connection interface required for DI/SDI (Excluding high-wall type) DI Flexi type cannot be connected.
BMS-SM1281HTLE	Smart Manager	Enables full control of up to 128 indoor units with Energy Monitoring and Advanced Control Options.	network 1:1 model connection interface required for DI/SDI (Excluding high-wall type) DI Flexi type cannot be connected.
BMS-TP0641ACE	Touch Screen Controller	Enables full control of up to 64 indoor units, ML	network 1:1 model connection interface required for DI/SDI (Excluding high-wall type) DI Flexi type cannot be connected.
BMS-TP5121ACE	Touch Screen Controller	Enables full control of up to 512 indoor units, ML	network 1:1 model connection interface required for DI/SDI (Excluding high-wall type) DI Flexi type cannot be connected.
BMS-TP0641PWE	Touch Screen Controller	Enables full control of up to 64 indoor units with electric billing, ML	network 1:1 model connection interface required for DI/SDI (Excluding high-wall type) DI Flexi type cannot be connected.
BMS-TP5121PWE	Touch Screen Controller	Enables full control of up to 512 indoor units with electric billing, ML	network 1:1 model connection interface required for DI/SDI (Excluding high-wall type) DI Flexi type cannot be connected.
BMS-IFLSV4E	TCS-Net Relay Interface	Relay for integration to TCS-Net	Bacnet gateway, Touch-screens & Web based controller
BMS-IFWH5E	Energy monitoring relay interface	Energy monitoring relay interface	Touch screen controller, Compliant manager, Web based controller, Smart Manager
BMS-IFDD03E	Digital I/O relay interface	Digital I/O relay interface	Touch screen controller, Compliant manager, Web based controller, Smart Manager
BMS-LSV6E	Intelligent Server	Bacnet Gateway	Requires software BMS-STBN08E & Interface BMS-IFLSV3E
BMS-STBN08E	BACnet	Server Software	Enables integration with BACnet
BMS-STCC06E	Intelligent Server Software	Software package for the intelligent server	
TCB-IFLN642TLE	Lonworks® Gateway	Allows control of 64 indoor units from a Lonworks based BMS	network 1:1 model connection interface required for DI/SDI (Excluding high-wall type) DI Flexi type cannot be connected.
TCB-IFCG1TLE	General purpose interface	enables control of A/C by the DI/DO and AI/AO	DI, SDI. Combination with TCB-IFCB640TLE
TCB-IFCB640TLE	Analog interface	Control & monitoring up to 64 IU on TCC-link	Combination with TCB-IFCG1TLE
TCB-IFGSM1E	GSM control interface	Allows ON/OFF control, operation status monitoring & alarm monitoring of A/C	DI, SDI (using CN61)
TCB-PCNT30TLE2	1:1 model connection interface	Integration with DI, SDI	Allows DI/SDI indoor units to be connected toTCC link network (except for DI Flexi type)
TCB-PX30MUE	Terminal box	Terminal box to connect to	TCB-PCNT30TLE2
TCB-PCOS1E2	Application control kit	Enables night operation control, demand control, operation monitoring	DI / SDI Compact 4way cassette with All DI 3 outdoor unit, SDI(RAV-SP404/454/564AT-E)
TCB-KBOS1E	Optional connector kit	Connector kit	SDI 4 outdoor units (Except for SDI (RAV-SP404/454/564AT-E))
TCB-PCMO3E	Output Signal PC Board	Boiler operation, alarm, defrost and compressor operation output signal	Estia
TCB-PCIN3E	Input Signal PC Board	Room thermostat, Emergency stop input signal	Estia
TCB-PCDM4E	Application Control PC Board	Power Peak Cut Control	SMMS, SMMS-i, SHRM and Mini-SMMS Outdoor Units
TCB-PCMO4E	Application Control PC Board	External Master ON/OFF Control Board	SMMS, SMMS-i, SHRM and Mini-SMMS Outdoor Units
TCB-PCIN4E	Connectors	Error/Individual compressor Operation Output Control Board	SMMS, SMMS-i, SHRM and Mini-SMMS Outdoor Units
TCB-KBCN32VEE	Application Control PC Board	For CN32	VRF,DI, SDI, except Flexi DI
TCB-KBCN60OPE		For CN60	VRF,DI, SDI, except Flexi DI
TCB-KBCN61HAE		For CN61	VRF,DI, SDI, except Flexi DI
TCB-KBCN70OAE		For CN70	VRF,DI, SDI, except Flexi DI
TCB-KBCN73DEE		For CN73	VRF,DI, SDI, except Flexi DI
TCB-KBCN80EXE		For CN80	VRF,DI, SDI, except Flexi DI

SAFETY PRECAUTIONS

For operation:

• Before use, read through the operating instructions to ensure proper use.

Concerning the purpose for which the air conditioners are to be used

• The air conditioners presented in this catalog are air conditioning/heating units to be used solely by general consumers.
  – Do not use these air conditioners for special applications such as for the storage of food items, animals, plants, precision machines or works of art. Doing so may degrade the quality of the items.
  – Do not use these air conditioners for air-conditioning applications in vehicles or ships. Doing so may cause water and/or power leakages.

Precautions for using air conditioners

Concerning the automatic defrosting unit

When the outdoor air temperature drops, frost may form on the heat exchanger of the outdoor unit. In such cases, the automatic defrosting unit will be activated, and it will take 5 to 8 minutes for the heating operation to be restored.

Concerning the air conditioner's operating conditions and their selection

(1) Avoid using the air conditioner in the following locations.
  • Locations with acidic or alkaline atmospheres (locations at which highly acidic or alkaline air is directly drawn in, such as in hot springs areas from which sulfur gases are given off, or where chemicals, vinegar, exhaust air from burners, etc., are given off) The heat exchangers and other parts may become corroded.
  • Locations with atmospheres filled with coolant or other machine oil or steam exhaust (such as at food preparation factories or machine plants). The heat exchangers may corrode; frost may form as a result of heat exchanger malfunction; air conditioner operating performance may be compromised or condensation may form as a result of clogged filters; plastic parts may incur damage; heat-insulation materials may become separated, etc.

(2) Before using an air conditioner in any of the following locations, consult with your dealer or a qualified contractor.
  • Locations where vapors from edible oils are given off (such as in bakeries or kitchens and restaurants that use edible oils) ...The air conditioner's operating performance may be compromised or condensation may form as a result of clogged filters, and the plastic parts may incur damage. In line with the prevailing conditions, take countermeasures such as tailoring the installation conditions in accordance with the conditions, using air conditioners designed for kitchens or oil guard filters, etc.
  • Locations with disinfectant-induced chlorine atmospheres (water tanks, etc.) The metal parts in the heat exchangers, motors, etc., may become corroded.
  • Locations with high salinity (coastal areas, etc.) Corrosion may occur so use outdoor units specifically designed to withstand exposure to salt.
  • Locations where power is supplied from independent power generators The power line frequency and/or voltage may fluctuate, possibly causing the air conditioner to malfunction.
  • Locations where high frequencies or electrical noise is generated (from high-frequency welders used for vinyl welding and processing, high-frequency therapeutic devices used for thermotherapy, etc.) The electronic components may be adversely affected, possibly causing the air conditioner to malfunction.
  • Locations where electronic equipment is installed Electrical noise may adversely affect the operation of the electronic equipment.

(3) Concerning use in locations with high ceilings
  • In locations with high ceilings, use of circulators for improving the temperature distribution during heating is recommended.

(4) Concerning use in high-humidity environments
  • When the ceiling-recessed type of indoor unit is installed in a location, such as those described below, and it is very hot and humid inside the ceiling, condensation may form on the external surfaces of the indoor unit and drip down. In such cases, add external heat-insulating materials.
    – Locations such as food preparation sites in which the areas above the ceilings are hot and humid
    – Locations in which outside air is drawn in and routed above the ceiling
    – Above ceilings with a slate roof or tiled roof overhead

(5) Even when an air conditioner is shut down, it will still consume a small amount of power to protect the unit. If the air conditioner will not be used for a prolonged period, turn OFF the main switch (ground fault circuit breaker). However, before the unit is to be used again, turn ON the main switch (ground fault circuit breaker) for at least 12 hours in order to prevent trouble.

Notice: Toshiba is committed to continuously improving its products to ensure the highest quality and reliability standards, and to meet local regulations and market requirements. All features and specifications are subject to change without prior notice.

TOSHIBA

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