Reach New Heights with

Variable Refrigerant Flow

Heat Recovery and Heat Pump Systems for Commercial Applications

Carrier®

United Technologies

Fall 2015 Edition

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Reach New Heights with Carrier® VRF

Whether it's for residential, light commercial or larger commercial buildings, Carrier offers a full line of Ductless & VRF comfort solutions for a host of applications, combining top performance, comfort and energy efficiency across the board. From chillers to rooftop systems, get the solutions you need from one convenient, trusted source: your Carrier distributor.

4-Way Cassette

Compact 4-Way Cassette

Underceiling

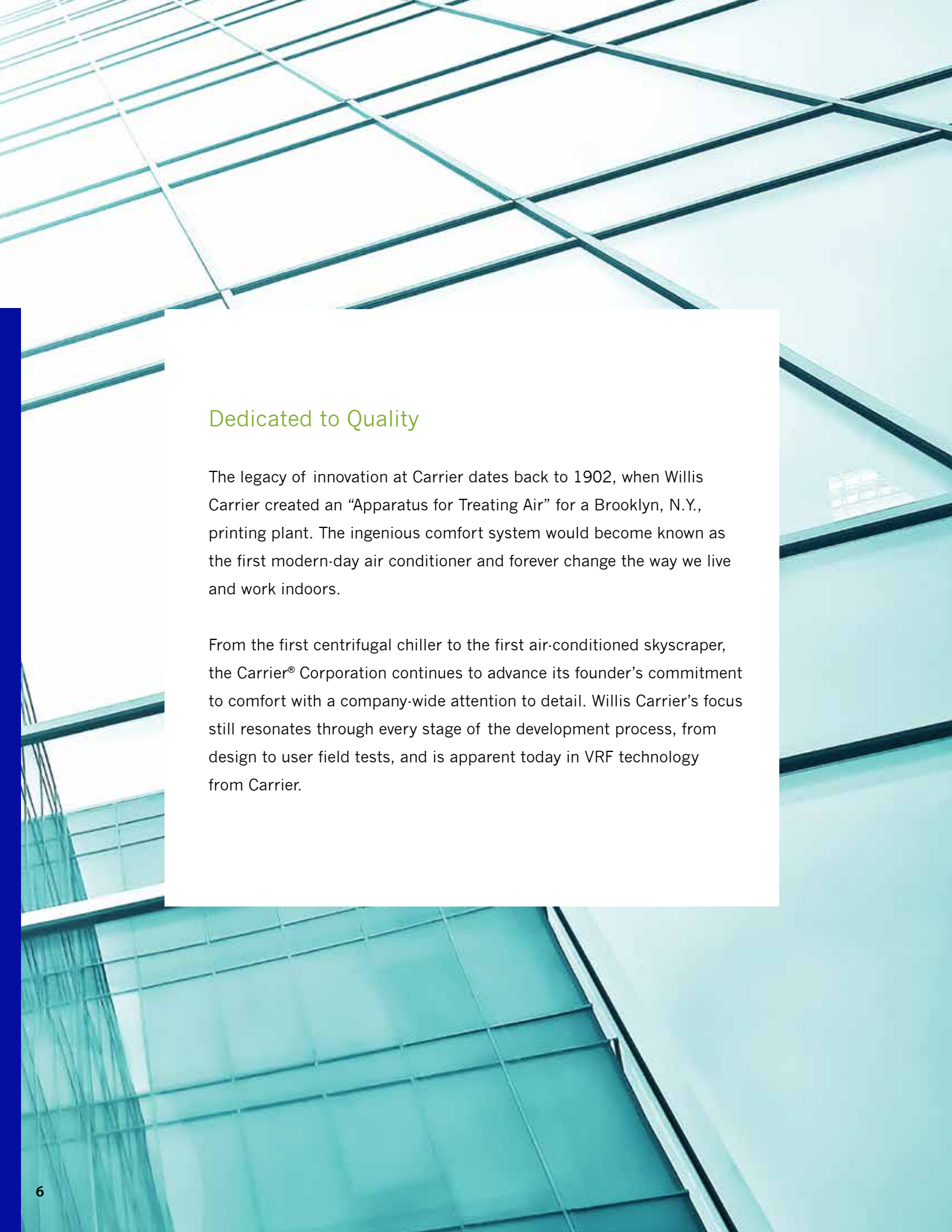
High Wall

Concealed Duct

High Static Duct

Slim Duct

Vertical AHU



Dedicated to Quality

The legacy of innovation at Carrier dates back to 1902, when Willis Carrier created an “Apparatus for Treating Air” for a Brooklyn, N.Y., printing plant. The ingenious comfort system would become known as the first modern-day air conditioner and forever change the way we live and work indoors.

From the first centrifugal chiller to the first air-conditioned skyscraper, the Carrier® Corporation continues to advance its founder’s commitment to comfort with a company-wide attention to detail. Willis Carrier’s focus still resonates through every stage of the development process, from design to user field tests, and is apparent today in VRF technology from Carrier.

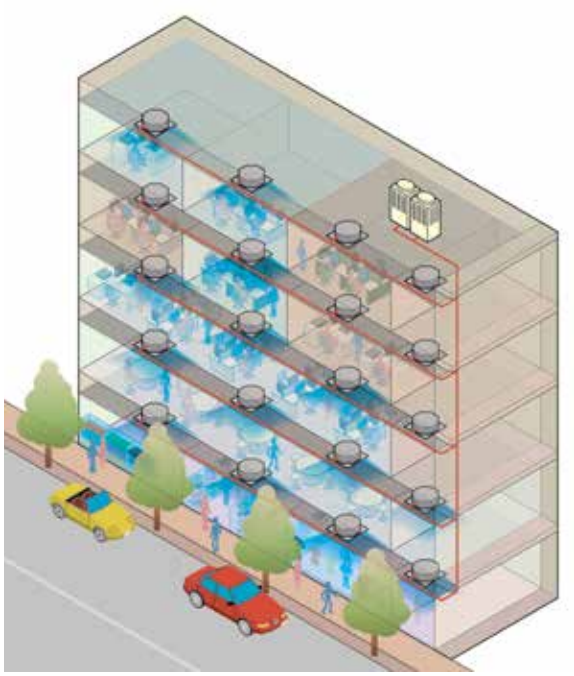
Comfort Where It's Needed

VRF (Variable Refrigerant Flow) technology is an innovative indoor comfort system designed to provide superior zoning flexibility. VRF systems can connect up to 48* indoor units to a single outdoor condensing unit. Each indoor unit can be independently controlled by varying the refrigerant flow and, in doing so, varying capacity delivered to each zone – making it one of the most effective and efficient systems available.

The system also allows indoor units connected to the same outdoor unit to independently cool and heat through the use of a heat recovery system. The result is remarkably efficient performance that minimizes energy loss and makes optimal use of zone-specific temperature control.

Save Space

VRF systems provide several installation advantages by eliminating the need to install large distribution fans, water pumps and large pipes. VRF systems do not require dedicated maintenance rooms or service shafts, freeing up valuable space in the buildings where they're installed.



Easier Installation

In addition to featuring a smaller footprint, Carrier® VRF systems are easy to install and operate, while fully leveraging all of the advantages of VRF – combining energy savings, application flexibility and long-term reliability – to deliver the indoor comfort solutions you need.

* Heat recovery.

Intelligent Comfort Solutions

SHRM-i and SMMS-i systems feature innovative technologies that allow Toshiba Carrier to deliver a superior combination of high-efficiency, flexibility and comfort.

SHRM i
SUPER HEAT RECOVERY MULTI

SMMS i
SUPER MODULAR MULTI SYSTEM

TOSHIBA
Carrier

Efficiency

The Toshiba Carrier VRF system offers innovations in energy efficiency in part by combining advanced, vector-controlled inverters with multiple high-efficiency rotary compressors.

Flexibility

Toshiba Carrier systems provide impressive installation flexibility with the ability to connect up to 48* indoor units to one outdoor unit. They also offer industry-leading flexibility in piping configuration – up to 720** feet long and up to 130*** feet high.

* Heat recovery.
** Outdoor unit to farthest indoor unit: heat pump.
*** Between the lowest and highest indoor unit: heat pump/heat recovery.

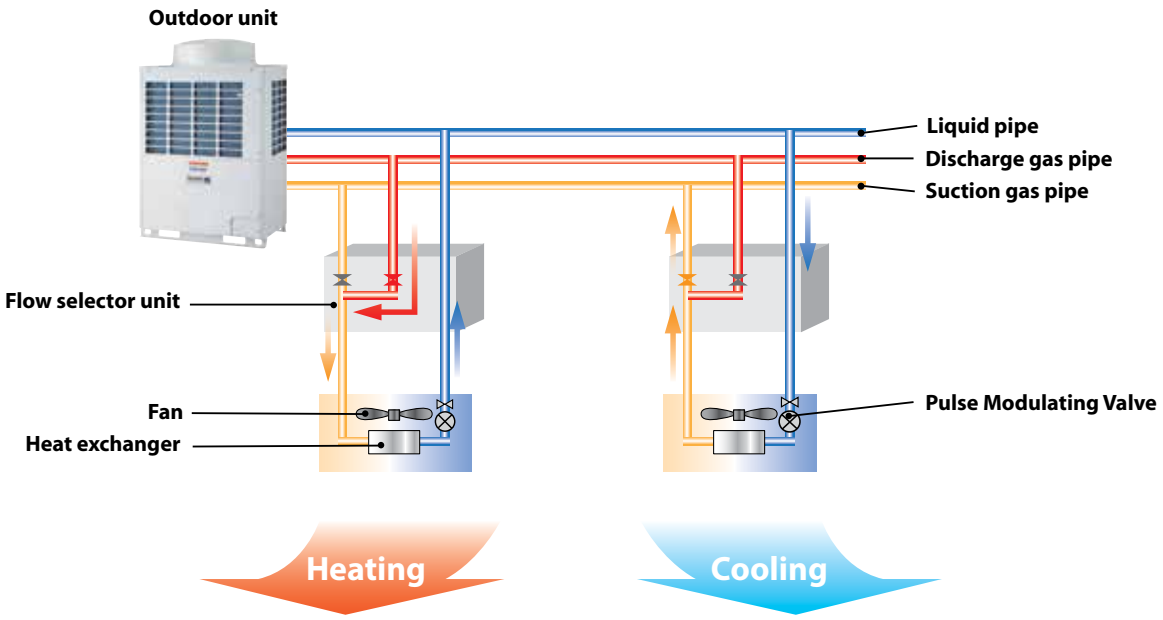
Comfort

Toshiba Carrier systems with intelligent VRF ensure precise control over temperature in every zone in the building, regardless of the distance between the fan coil and the outdoor unit.

Simultaneous Heating and Cooling

Flexible Refrigerant Flow

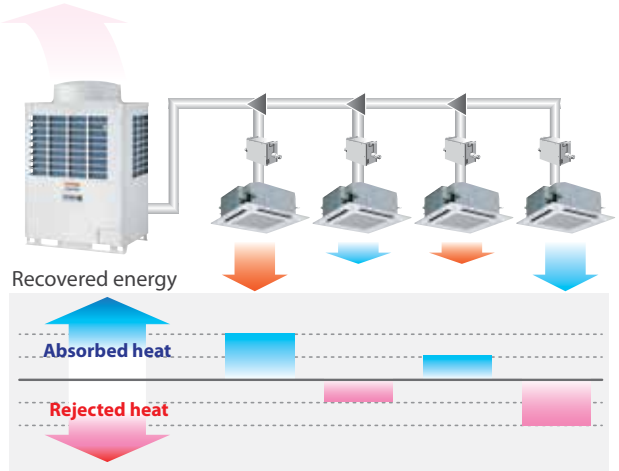
Heat recovery systems or SHRM-i allows heating and cooling from each indoor unit on a single refrigerant piping system, maximizing user comfort and system efficiency.



More Efficient Heat Recovery Operation Than Individual Heating and Cooling Only

SHRM-i achieves the highest energy efficiency when both heating and cooling are provided simultaneously, as recovered energy from one zone is reused in another. Highest efficiencies are achieved when heating and cooling capacities are near equal.

Connection cable kit (RBC-CBK15FUL) is required.



Long Piping From Flow Selector Unit

The flow selector can be easily installed in common areas such as hallways.

World-Leading Performance

Toshiba Carrier VRF combines multiple variable-speed compressors with vector-controlled inverters to achieve greater operating performance under partial loads. The 8- and 10-ton outdoor units incorporate three compressors per unit, while the 6-ton model uses two to achieve full performance. These compressors improve both energy efficiency and comfort when compared to standard, non-inverter systems.

High-performance outdoor units with three compressors and three inverters

Fast, Load-Matching Control

Each compressor is controlled with a dedicated inverter board that taps the compressor's full potential. This combination helps achieve precise control over the system for load matching and smoother compressor operation.

Variable-Speed Operation

Continuous, inverter-driven operation reduces energy consumption compared to standard systems. The system determines which heat exchanger can be used most efficiently while delivering the power required. Occupants enjoy a more comfortable indoor environment with balanced temperatures from room-to-room, because compressor speeds adjust in nearly seamless 0.1 Hz steps. Responding precisely to the capacity needs of the space, this responsive operation minimizes energy loss when changing frequencies.

Inverter-Driven Compressor

Toshiba Carrier compressors include optimized discharge port positioning and blade thickness to reduce compression loss and friction resistance. Rotor magnets with large surface areas and slit designs achieve greater efficiency and reduce noise.

Magnetic Rotor

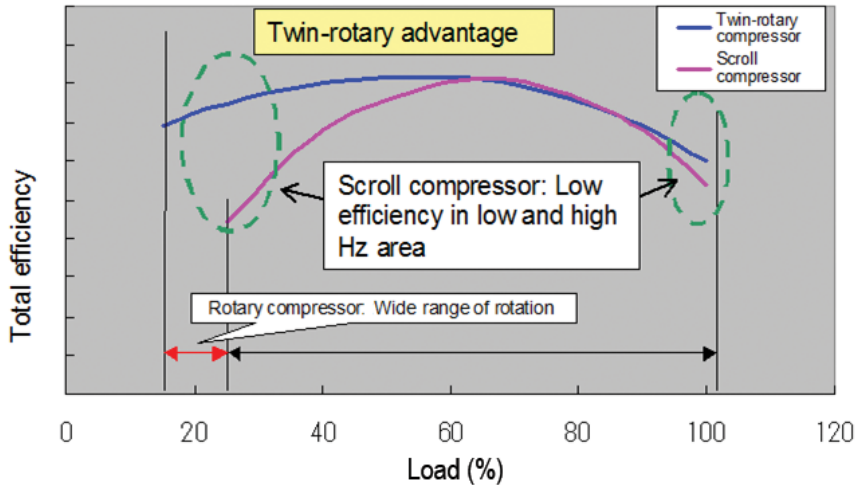
Each motor employs a compact and powerful rare earth magnetic rotor and features reduced eddy-current loss.

Smooth Sine Curve

The fast-calculating vector-controlled inverter quickly converts current into a smooth sine curve. This translates into smoother operation of the compressor's DC motor and improved operating efficiency.

High-Efficiency Inverter-Driven Compressors

Outdoor units can utilize up to three inverter-driven compressors, each of which has both a wider and flatter efficiency curve.



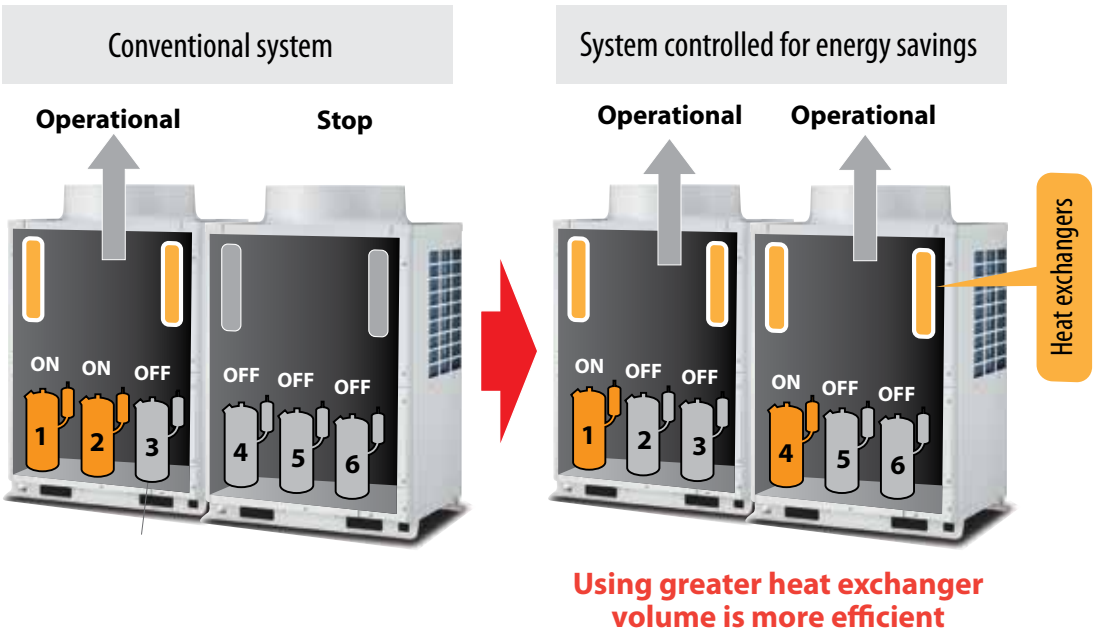
Reliability

With dual-rotation, the load is distributed more evenly – this means that the operating sequence of the individual compressors is rotated, balancing their operating hours.

The use of inverters reduces the risk of compressor failure, in part because power surges are eliminated. Over- or under-utilization of power, typical for non-inverter compressors, is also eliminated. And, there is no on/off power surge as the system adjusts to the demand required by the occupant or system.

Energy Savings

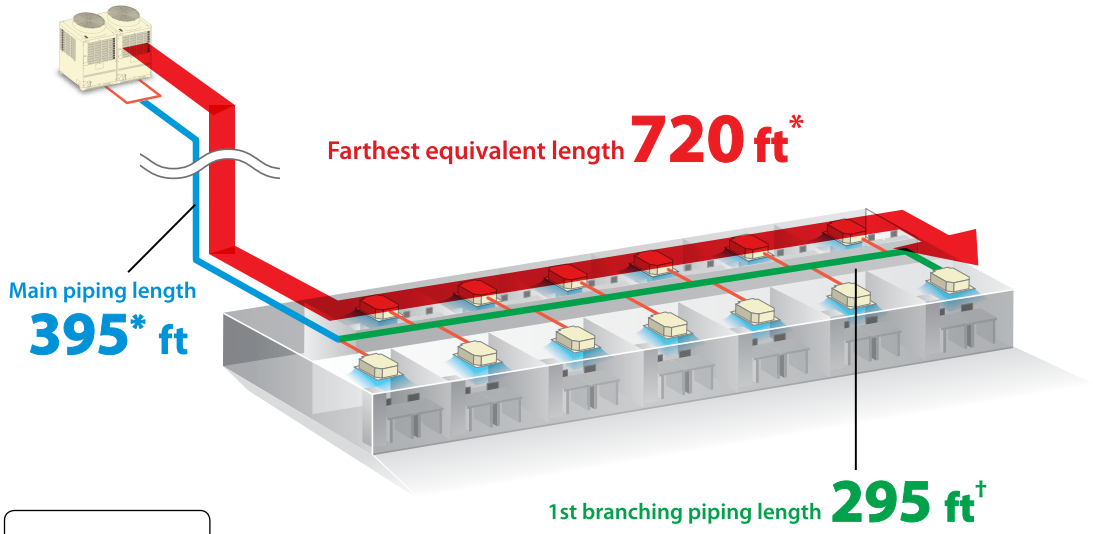
During operation, the system determines which heat exchanger can be used most efficiently and selects the compressor to deliver the power required. Inverter systems save energy as continuous operation offers the same capacity with lower power consumption. This benefits all occupants by maintaining more-even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



Using greater heat exchanger volume is more efficient

Long Pipe Length for Greater Flexibility

With Toshiba Carrier VRF systems, layouts can be designed with a maximum equivalent distance of up to 720 feet. This leads to fewer limitations, making it much easier to design for floors with many small rooms, or for tenants who often rearrange their floor layouts. Y-shaped branching joints on the gas pipes between outdoor units ensure that refrigerant flow is equalized to each branch for enhanced system reliability.

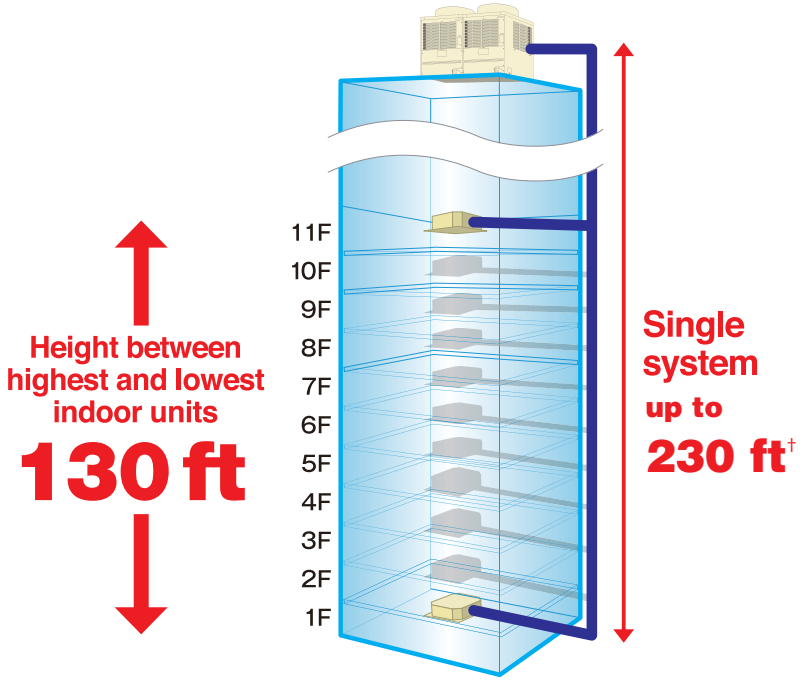


Coverage achieved by a single-system

* Heat pump model. Farthest equivalent length on heat recovery is 640 ft.
† First branch piping length on heat recovery is 215 ft.

Greater Support for Height Differences Between Indoor Units

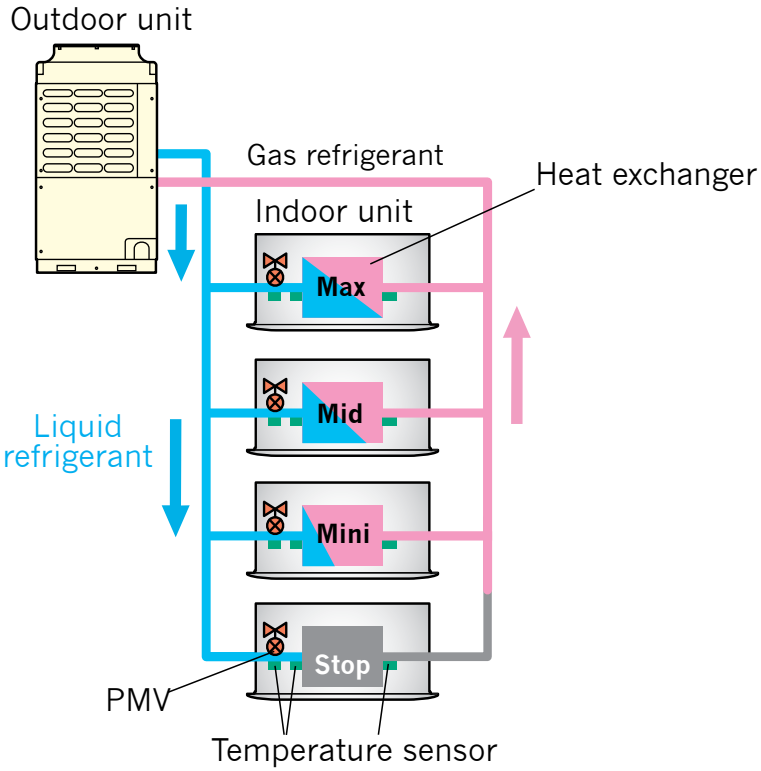
Toshiba Carrier VRF systems lead the industry with support for height differences of up to 130 feet between indoor units on a single-system. For instance, in an 11-story* building, this is enough height to fully cover the entire floor as well as corridors and common spaces.



* Calculated at 11.5 ft per floor.
† Heat pump model.
Heat recovery maximum is 165 ft.

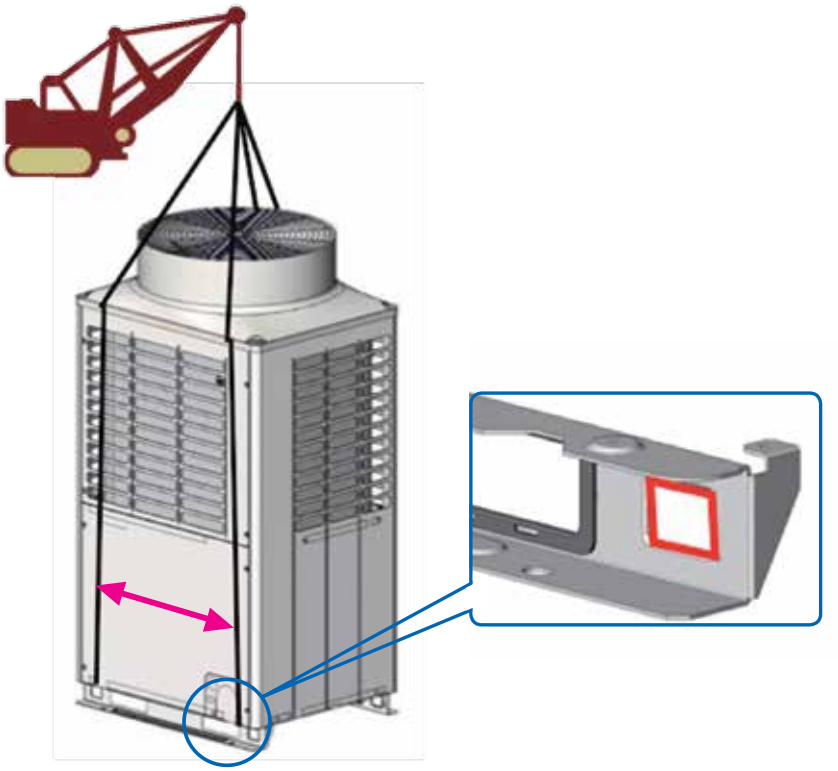
Smaller Footprint, Easier Handling and Installation

The compact outdoor units provide installation flexibility. Units can even be transported to a roof via elevator. Installations are quicker and easier and boast fewer weight-related restrictions. All of this convenience comes with no drop in quality. VRF delivers the performance you've come to expect from Carrier®.



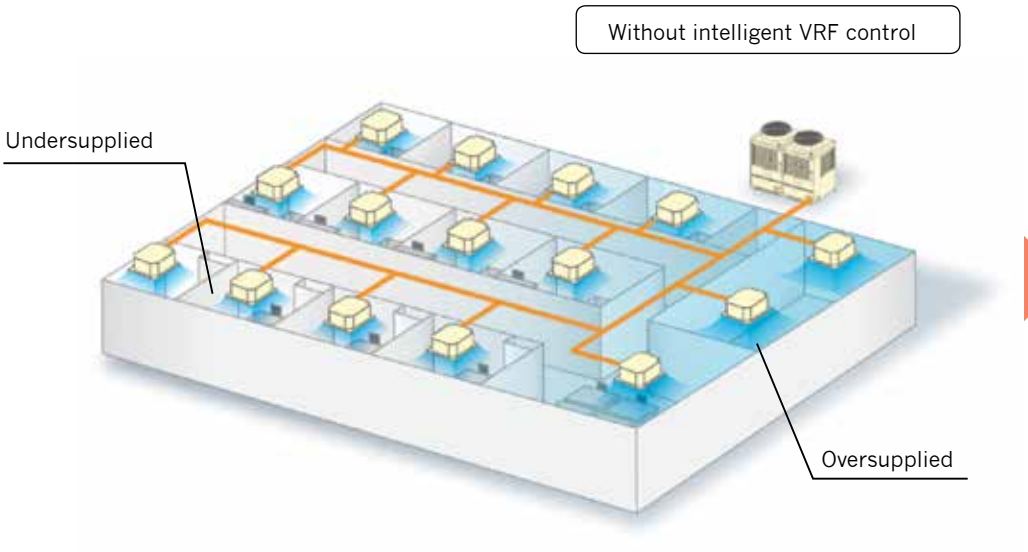
Square Carrying Holes

When a crane is needed to transport the unit, square carrying holes in the lower corners of the outdoor unit ensure safer, surer lifting. Belts passing through the holes maintain positioning and load balance throughout the lifting operation.



Intelligent VRF Control

Toshiba Carrier systems with intelligent VRF control provide levels of comfort other systems simply cannot match. That's because differing pipe lengths in commercial buildings result in inconsistent levels of performance, especially when several indoor units are connected to a system. This imbalance is caused by pressure loss and thermal leaks that inhibit the optimum refrigerant flow to each indoor unit.



Without intelligent VRF control, refrigerant flows unevenly, typically oversupplying areas closer to the outdoor unit while undersupplying those that are farther away.

Total System Control

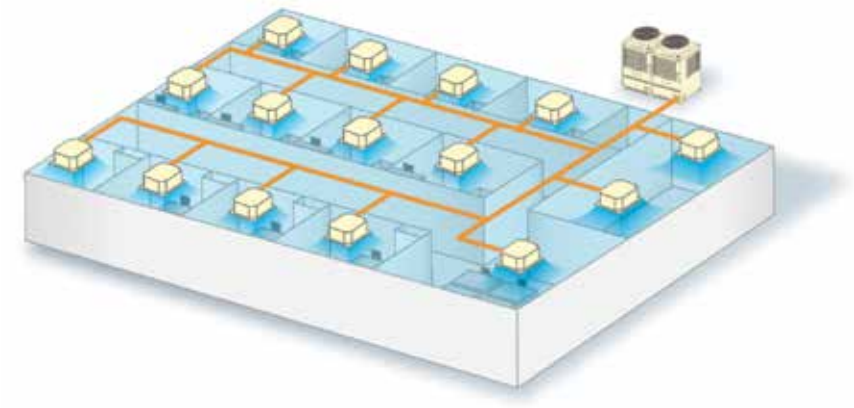
Toshiba Carrier intelligent VRF control overcomes many typical performance issues by providing precise control of up to 40* indoor units with just electrical wiring and copper refrigerant tubing. It's a smarter system, sending refrigerant to the areas that need it, while supplying less refrigerant to areas that don't.

Consistent Room-to-Room Temperature

Balanced comfort is achieved regardless of line length, allowing occupants to enjoy consistent performance in spite of how close they are to the outdoor unit. Toshiba Carrier VRF systems monitor the flow of refrigerant to each indoor unit while tracking each model. The system adjusts for pressure losses by pipe length between the outdoor unit and each indoor component, as well as operating conditions. It 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.

*Heat recovery models.

With intelligent VRF control



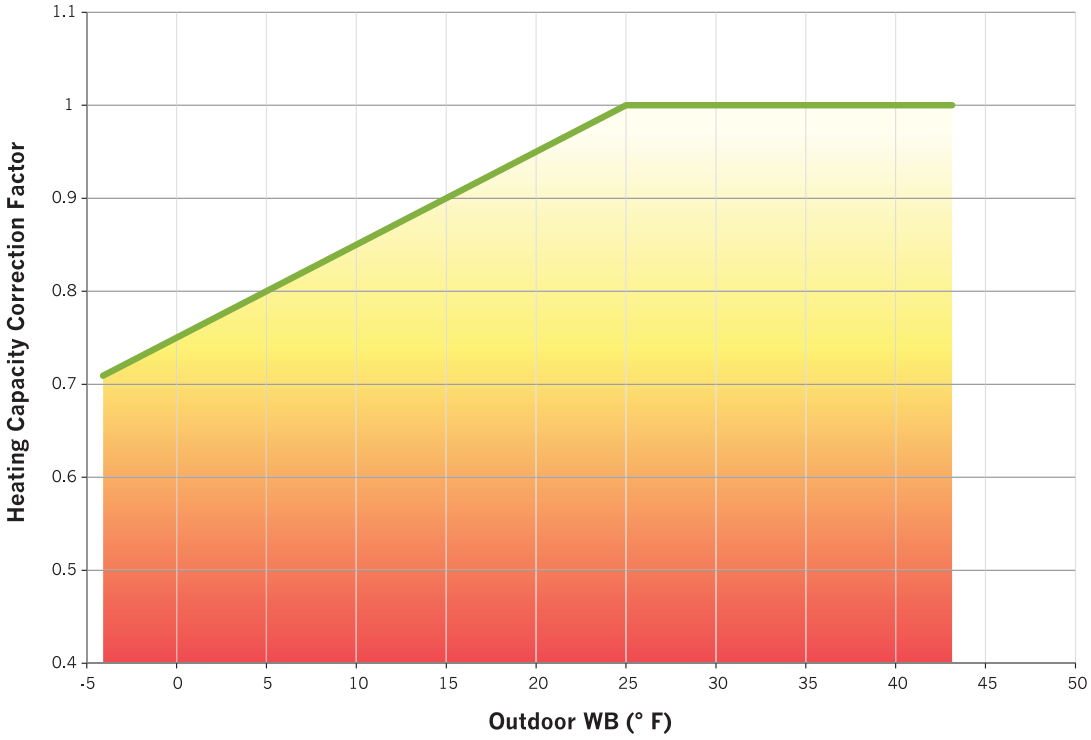
With intelligent VRF control, Toshiba Carrier delivers consistent, room-to-room comfort across several floors of a commercial structure.

High Heat Setting

The Toshiba Carrier VRF system can handle heating down to -4° F with 70% capacity. An extended operation range of the compressor was achieved by upgrading the software which gives better heating capacities at lower ambient conditions. This was accomplished with no additional modifications to the current product line. The high heating mode is available by setting the dip switch on the interface PCB of the outdoor unit:

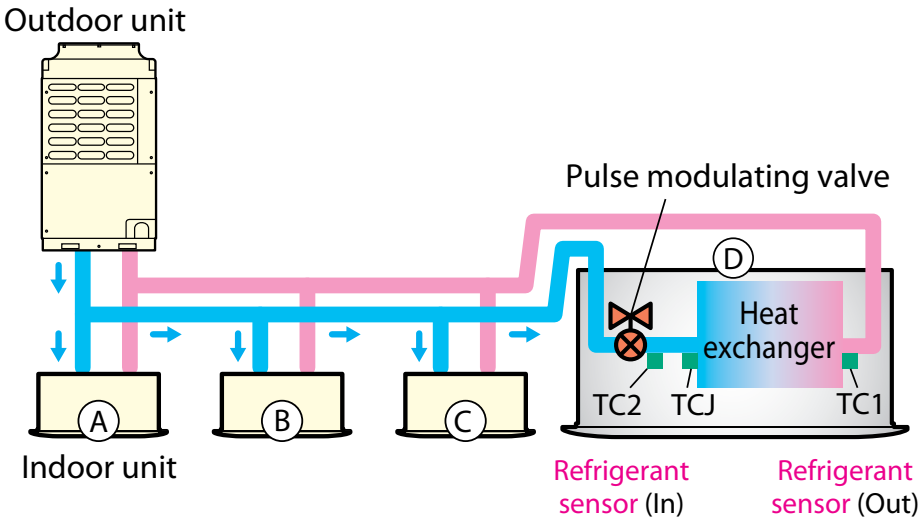
- Dip switch "SW10-1" must be set to ON
- Placement of the dip switch "SW10" of the interface PCB

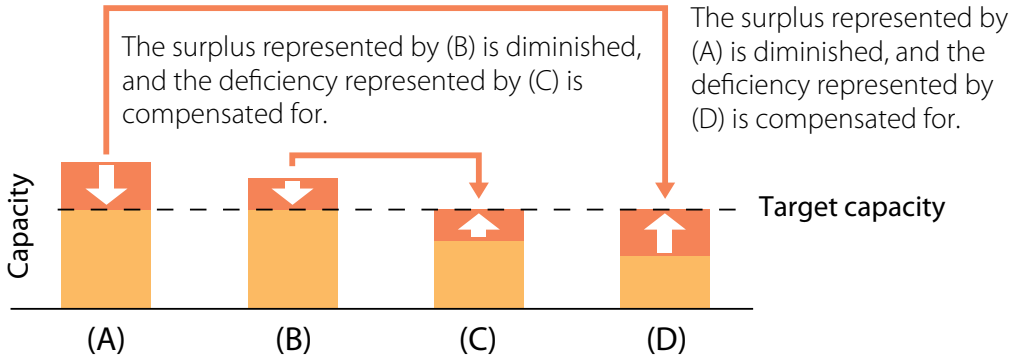
Outdoor Ambient Heating Capacity Correction *(High Heat Setting)*



Precise Refrigerant Flow

One of the keys to delivering precision refrigerant flow and enhanced comfort is the Toshiba Carrier pulse modulating valve (PMV) control. The PMV control prevents refrigerant from flowing to indoor units that are not operating. The system reduces bypass loss and achieves tighter control over the compressor capacity of the outdoor unit.





Heat Recovery Outdoor Units – 208/230V

Appearance			
Nominal Tons	6	8	10
Model name (MMY-)	MAP0724FT9UL	MAP0964FT9UL	MAP1204FT9UL

SHRM i
SUPER HEAT RECOVERY MULTI

HEAT RECOVERY TECHNICAL SPECS

Standard model (Single unit)

Technical Specifications

Outdoor unit model name		MMY-		MAP0724FT9UL	MAP0964FT9UL	MAP1204FT9UL
Nominal tons			Ton	6	8	10
Cooling capacity (*1) (with non-ducted indoor units / ducted)		Nominal	kBtu/h	72/72	96/96	120/120
		Rated	kBtu/h	69/70	92/92	114/118
Heating capacity (*1) (with non-ducted indoor units / ducted)		Nominal	kBtu/h	81/81	108/108	135/135
		Rated	kBtu/h	77/77	103/103	120/113
With Non-Ducted Indoor Units	Power supply (*2)				230 V (208/230V) 3-phase 60Hz	
Electrical characteristics (Nominal) (*1)	Cooling	Power consumption	kW	5.89	7.88	10.36
		IEER (Integrated Energy Efficiency Ratio)	Btu/W	21.5	20	23.3
	Heating	Power consumption	kW	6.52	8.88	10.49
		SCHE (Simultaneous Cooling & Heating Efficiency)	Btu/W	22.6	23.9	30.2
With Ducted Indoor Units	Power supply (*2)				230 V (208/230V) 3-phase 60Hz	
Electrical characteristics (Nominal) (*1)	Cooling	Power consumption	kW	6.01	8.33	10.77
		IEER (Integrated Energy Efficiency Ratio)	Btu/W	16.6	15.7	16.0
	Heating	Power consumption	kW	6.72	9.07	9.83
		SCHE (Simultaneous Cooling & Heating Efficiency)	Btu/W	24.22	27.12	28.72
External dimensions		Height	in	72.9	72.9	72.9
		Width	in	39.0	47.6	47.6
		Depth	in	30.7	30.7	30.7
Total weight	Unit		lb	583	751	751
Compressor	Type				Hermetic twin rotary compressor	
	Motor output		kW	2.3 x 2	2.1 x 3	2.7 x 3
Fan unit	Motor output		W	1,000	1,000	1,000
	Air volume		cfm	5,120	7,060	7,620
Refrigerant (*3) (Charged refrigerant amount)			lb	25.4	25.4	25.4
Electrical specifications	Unit	MCA (*4)	A	34	50	52
		MOCP (*5)	A	40	60	60
Refrigerant piping	Connecting port diameter	Gas side (main pipe)	in	7/8"	7/8"	1-1/8"
		Liquid side (main pipe)	in	1/2"	1/2"	1/2"
		Discharge	in	3/4"	3/4"	3/4"
		Balance pipe	in	3/8"	3/8"	3/8"
Operation temperature range		Cooling	° F DB		14 to 109	
		Heating	° F WB		– 4 to 60	
Maximum external static pressure			in WG	0.20	0.16	0.16
Maximum number of connected indoor units				12	16	20
Sound pressure level Cooling/Heating			dB(A)	56/58	62/63	63.5/65.5

(*1) Rated conditions — Cooling: Indoor 80° F Dry Bulb/67° F Wet Bulb, Outdoor 95° F Dry Bulb.
Heating: Indoor 70° F Dry Bulb, Outdoor 47° F Dry Bulb/43° F Wet Bulb.

The standard pipe

072 type – 120 type	Equivalent piping length: 25 ft, Height difference: 0 ft

(*2) The source voltage must not fluctuate more than ±10%
(*3) The amount does not consider extra piping length. Refrigerant must be added on site in accordance with the actual piping length.
(*4) Select wire size based on the larger value of MCA
MCA: Minimum Circuit Amps (Minimum Circuit Amps required for power supply design)
(*5) MOCP: Maximum Overcurrent Protection (Amps)

Appearance								
Nominal Tons	12	14	16	18	20	24	26	28
Model name (MMY-)	AP1444FT9UL	AP1684FT9UL	AP1924FT9UL	AP2164FT9UL	AP2404FT9UL	AP2884FT9UL	AP2403124FT9UL	AP3364FT9UL

Standard model (Combination)

Technical Specifications

	AP1444FT9UL		AP1684FT9UL		AP1924FT9UL		AP2164FT9UL		AP2404FT9UL		AP2884FT9UL			AP2403124FT9UL			AP3364FT9UL		
MMY-MAP	0724FT9UL	0724FT9UL	0964FT9UL	0724FT9UL	0964FT9UL	0964FT9UL	1204FT9UL	0964FT9UL	1204FT9UL	1204FT9UL	0964FT9UL	0964FT9UL	0964FT9UL	1204FT9UL	0964FT9UL	0964FT9UL	1204FT9UL	1204FT9UL	0964FT9UL
	12		14		16		18		20		24			26			28		
	144/144		168/168		192/192		216/216		240/240		288/288			312/312			336/336		
	138/138		160/160		184/184		206/206		240/240		276/276			302/302			328/328		
	162/162		189/189		216/216		243/243		270/270		324/324			350/350			378/378		
	154/154		180/180		206/206		224/224		226/226		288/272			302/278			316/278		
	230 V (208/230V) 3-phase 60Hz																		
	12.19		13.66		16.13		18.61		24.97		25.79			30.2			33.81		
	20.4		19.4		18.9		18.4		17.9		16.8			16.5			16.7		
	13.12		16.13		18.58		20.45		19.95		26.38			27.66			28.94		
	26.2		25.9		29.7		26.1		24.4		22.8			21.1			19.5		
	230 V (208/230V) 3-phase 60Hz																		
	12.68		14.38		16.56		19.88		22.43		24.86			28.76			33.13		
	16.3		15.7		16.4		15.6		17.3		15.6			15			14.2		
	14.01		16.38		18.15		18.87		20.7		24.91			25.46			25.46		
	24.78		27.09		26.68		26.9		26.91		21.1			19			17		
	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9
	39	39	47.6	39	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6
	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7
	583	583	751	583	751	751	751	751	751	751	751	751	751	751	751	751	751	751	751
	Hermetic twin rotary compressor																		
	2.3 x 2	2.3 x 2	2.1 x 3	2.3 x 2	2.1 x 3	2.1 x 3	2.7 x 3	2.1 x 3	2.7 x 3	2.7 x 3	2.1 x 3	2.1 x 3	2.1 x 3	2.7 x 3	2.1 x 3	2.1 x 3	2.7 x 3	2.7 x 3	2.1 x 3
	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
	5,120	5,120	7,060	5,120	7,060	7,060	7,620	7,060	7,620	7,620	7,060	7,060	7,060	7,620	7,060	7,060	7,620	7,620	7,060
	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4
	34	34	50	34	50	50	52	50	52	52	50	50	50	52	50	50	52	52	50
	40	40	60	40	60	60	60	60	60	60	60	60	60	60	50	60	60	60	60
	1-1/8"		1-1/8"		1-1/8"		1-3/8"		1-3/8"		1-3/8"			1-3/8"			1-3/8"		
	5/8"		3/4"		3/4"		3/4"		3/4"		7/8"			7/8"			7/8"		
	7/8"		7/8"		7/8"		1-1/8"		1-1/8"		1-1/8"			1-1/8"			1-1/8"		
	3/8"		3/8"		3/8"		3/8"		3/8"		3/8"			3/8"			3/8"		
	14 to 109																		
	-4 to 60																		
	0.2	0.2	0.16	0.2	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
	24		28		32		36		40		48			48			48		
	59/61		63/64.5		65.5/66		66/67.5		66.5/68.5		67/68			67.5/69			68/70		

(*1) Rated conditions
Cooling: Indoor 80° F Dry Bulb/67° F Wet Bulb, Outdoor 95° F Dry Bulb.
Heating: Indoor 70° F Dry Bulb, Outdoor 47° F Dry Bulb/43° F Wet Bulb.

The standard pipe

144 type – 240 type	Equivalent piping length: 50 ft, Height difference: 0 ft

(*2) The source voltage must not fluctuate more than ±10%
(*3) The amount does not consider extra piping length. Refrigerant must be added on site in accordance with the actual piping length.
(*4) Select wire size based on the larger value of MCA
MCA: Minimum Circuit Amps (Minimum Circuit Amps required for power supply design)
(*5) MOCP: Maximum Overcurrent Protection (Amps)

Heat Recovery Outdoor Units – 460V

Appearance			
Nominal Tons	6	8	10
Model name (MMY-)	MAP0724FT6UL	MAP0964FT6UL	MAP1204FT6UL

SHRM i
SUPER HEAT RECOVERY MULTI

Standard model (Single unit)

Technical Specifications

Outdoor unit model name				MMY-		MAP0724FT6UL	MAP0964FT6UL	MAP1204FT6UL
Nominal tons					Ton	6	8	10
Cooling capacity (*1) (with non-ducted indoor units/ducted)			Nominal		kBtu/h	72/72	96/96	120/120
				Rated	kBtu/h	69/70	92/92	114/118
Heating capacity (*1) (with non-ducted indoor units/ducted)			Nominal		kBtu/h	81/81	108/108	135/135
				Rated	kBtu/h	77/77	103/103	120/113
With Non-Ducted Indoor Units	Power supply (*2)						460 V 3-phase 60Hz	
Electrical characteristics (Nominal) (*1)	Cooling	Power consumption			kW	5.89	7.88	10.36
		IEER (Integrated Energy Efficiency Ratio)			Btu/W	21.5	20	22.3
	Heating	Power consumption			kW	6.52	8.88	10.49
		SCHE (Simultaneous Cooling & Heating Efficiency)			Btu/W	22.6	23.9	30.2
With Ducted Indoor Units	Power supply (*2)						460 V 3-phase 60Hz	
Electrical characteristics (Nominal) (*1)	Cooling	Power consumption			kW	6.01	8.33	10.77
		IEER (Integrated Energy Efficiency Ratio)			Btu/W	16.6	15.7	16.0
	Heating	Power consumption			kW	6.72	9.07	9.83
		SCHE (Simultaneous Cooling & Heating Efficiency)			Btu/W	24.22	27.12	28.72
External dimensions		Height			in	72.9	72.9	72.9
		Width			in	39	47.6	47.6
		Depth			in	30.7	30.7	30.7
Total weight	Unit				lb	658	826	826
Compressor	Type						Hermetic twin rotary compressor	
	Motor output				kW	2.3 x 2	2.1 x 3	2.7 x 3
Fan unit	Motor output				W	1,000	1,000	1,000
	Air volume				cfm	5,120	7,060	7,620
Refrigerant (*3) (Charged refrigerant amount)					lb	25.4	25.4	25.4
Electrical specifications	Unit	MCA (*4)			A	19	28	30
		MOCP (*5)			A	25	35	35
Refrigerant piping	Connecting port diameter	Gas side (main pipe)			in	7/8"	7/8"	1-1/8"
		Liquid side (main pipe)			in	1/2"	1/2"	1/2"
		Discharge			in	3/4"	3/4"	3/4"
		Balance pipe			in	3/8"	3/8"	3/8"
Operation temperature range		Cooling			° F DB		14 to 109	
		Heating			° F WB		-4 to 60	
Maximum external static pressure					in WG	0.2	0.16	0.16
Maximum number of connected indoor units						12	16	20
Sound pressure level Cooling/Heating					dB(A)	56/58	62/63	63.5/65.5

(*1) Rated conditions
Cooling: Indoor 80° F Dry Bulb/67° F Wet Bulb, Outdoor 95° F Dry Bulb.
Heating: Indoor 70° F Dry Bulb, Outdoor 47° F Dry Bulb/43° F Wet Bulb.

The standard pipe

072 type – 114 type	Equivalent piping length: 25 ft, Height difference: 0 ft

(*2) The source voltage must not fluctuate more than ±10%
(*3) The amount does not consider extra piping length. Refrigerant must be added on site in accordance with the actual piping length.
(*4) Select wire size based on the larger value of MCA
MCA: Minimum Circuit Amps (Minimum Circuit Amps required for power supply design)
(*5) MOCP: Maximum Overcurrent Protection (Amps)

Appearance								
Nominal Tons	12	14	16	18	20	24	26	28
Model name (MMY-)	AP1444FT6UL	AP1684FT6UL	AP1924FT6UL	AP2164FT6UL	AP2404FT6UL	AP2884FT6UL	AP2403124FT6UL	AP3364FT6UL

Standard model (Combination)

Technical Specifications

	AP1444FT6UL		AP1684FT6UL		AP1924FT6UL		AP2164FT6UL		AP2404FT6UL		AP2884FT6UL			AP2403124FT6UL			AP3364FT6UL		
MMY-MAP	0724FT6UL	0724FT6UL	0964FT6UL	0724FT6UL	0964FT6UL	0964FT6UL	1204FT6UL	0964FT6UL	1204FT6UL	1204FT6UL	0964FT6UL	0964FT6UL	0964FT6UL	1204FT6UL	0964FT6UL	0964FT6UL	1204FT6UL	1204FT6UL	0964FT6UL
	12		14		16		18		20		24			26			28		
	144/144		168/168		192/192		216/216		240/240		288/288			312/312			336/336		
	138/138		160/160		184/184		206/206		240/240		276/276			302/302			328/328		
	162/162		189/189		216/216		243/243		270/270		324/324			350/350			378/378		
	154/154		180/180		206/206		224/224		226/226		288/272			302/278			316/278		
	460 V 3-phase 60Hz																		
	12.19		13.66		16.13		18.61		24.97		25.79			30.2			33.81		
	20.4		19.4		18.9		18.4		17.9		16.6			16.3			16.5		
	13.12		16.13		18.58		20.45		19.95		26.38			27.66			28.94		
	26.2		25.9		29.7		26.1		24.4		22.8			21.1			19.5		
	460 V 3-phase 60Hz																		
	12.68		14.38		16.56		19.88		22.43		24.86			28.76			33.13		
	16.3		15.7		16.4		15.6		17.3		15.4			14.8			14.1		
	14.01		16.38		18.15		18.87		20.7		24.91			25.46			25.46		
	24.78		27.09		26.68		26.9		26.91		21.1			19			17		
	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9	72.9
	39	39	47.6	39	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6	47.6
	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7
	658	658	826	658	826	826	826	826	826	826	751	751	751	751	751	751	751	751	751
	Hermetic twin rotary compressor																		
	2.3 x 2	2.3 x 2	2.1 x 3	2.3 x 2	2.1 x 3	2.1 x 3	2.7 x 3	2.1 x 3	2.7 x 3	2.7 x 3	2.1 x 3	2.1 x 3	2.1 x 3	2.7 x 3	2.1 x 3	2.1 x 3	2.7 x 3	2.7 x 3	2.1 x 3
	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
	5,120	5,120	7,060	5,120	7,060	7,060	7,620	7,060	7,620	7,620	7,060	7,060	7,060	7,620	7,060	7,060	7,620	7,620	7,060
	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4
	19	19	28	19	28	28	30	28	30	30	28	28	28	30	28	28	30	30	28
	25	25	35	25	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
	1-1/8"		1-1/8"		1-1/8"		1-3/8"		1-3/8"		1-3/8"			1-3/8"			1-3/8"		
	5/8"		3/4"		3/4"		3/4"		3/4"		7/8"			7/8"			7/8"		
	7/8"		7/8"		7/8"		1-1/8"		1-1/8"		1-1/8"			1-1/8"			1-1/8"		
	3/8"		3/8"		3/8"		3/8"		3/8"		3/8"			3/8"			3/8"		
	14 to 109																		
	-4 to 60																		
	0.2	0.2	0.16	0.2	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
	24		28		32		36		40		48			48			48		
	59/61		63/64.5		65.5/66		66/67.5		66.5/68.5		67/68			67.5/69			68/70		

(*1) Rated conditions — Cooling: Indoor 80° F Dry Bulb/67° F Wet Bulb, Outdoor 95° F Dry Bulb.
Heating: Indoor 70° F Dry Bulb, Outdoor 47° F Dry Bulb/43° F Wet Bulb.

The standard pipe

144 type – 240 type	Equivalent piping length: 50 ft, Height difference: 0 ft

(*2) The source voltage must not fluctuate more than ±10%
(*3) The amount does not consider extra piping length. Refrigerant must be added on site in accordance with the actual piping length.
(*4) Select wire size based on the larger value of MCA
MCA: Minimum Circuit Amps (Minimum Circuit Amps required for power supply design)
(*5) MOCP: Maximum Overcurrent Protection (Amps)

Heat Pump Outdoor Units – 208/230V

Appearance			
Nominal Tons	6	8	9.5
Model name (MMY-)	MAP0724HT9UL	MAP0964HT9UL	MAP1144HT9UL

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Standard model (Single unit)

Technical Specifications

Outdoor unit model name			MMY-		MAP0724HT9UL	MAP0964HT9UL	MAP1144HT9UL
Nominal tons				Ton	6	8	9.5
Cooling capacity (*1) (with non-ducted indoor units/ducted) Nominal				kBtu/h	72/72	96/96	114/114
			Rated	kBtu/h	69/72	92/96	114/114
Heating capacity (*1) (with non-ducted indoor units/ducted) Nominal				kBtu/h	81/81	108/108	128/128
			Rated	kBtu/h	81/81	108/104	128/126
With Non-Ducted Indoor Units	Power supply (*2)				230 V (208/230V) 3-phase 60Hz		
Electrical characteristics (Nominal) (*1)	Cooling	Power consumption		kW	6.27	8.36	10.34
		EER (Energy Efficiency Ratio)		Btu/W	11	11	11
	Heating	Power consumption		kW	6.78	9.58	11.19
		COP (Coefficient of Performance)		W/W	3.5	3.3	3.35
With Ducted Indoor Units	Power supply (*2)				230 V (208/230V) 3-phase 60Hz		
Electrical characteristics (Nominal) (*1)	Cooling	Power consumption		kW	6.26	8.65	10.36
		EER (Energy Efficiency Ratio)		Btu/W	11.5	11.1	11
	Heating	Power consumption		kW	6.86	9.24	11.01
		COP (Coefficient of Performance)		W/W	3.46	3.3	3.35
External dimensions		Height		in	72.8	72.8	72.8
		Width		in	39	47.6	47.6
		Depth		in	30.7	30.7	30.7
Total weight	Unit			lb	546	742	742
Compressor	Type				Hermetic twin rotary compressor		
	Motor output			kW	2.3 x 2	2.1 x 3	2.5 x 3
Fan unit	Motor output			W	1,000	1,000	1,000
	Air volume			cfm	5,800	6,600	7,060
Refrigerant (*3) (Charged refrigerant amount)				lb	25.4	25.4	25.4
Electrical specifications	Unit	MCA (*4)		A	36	50	52
		MOCP (*5)		A	40	60	60
Refrigerant piping	Connecting port diameter	Gas side (main pipe)		in	7/8"	7/8"	1-1/8"
		Liquid side (main pipe)		in	1/2"	1/2"	1/2"
		Balance pipe		in	3/8"	3/8"	3/8"
Operation temperature range		Cooling		° F DB	23 to 115		
		Heating		° F WB	-4 to 60		
Maximum external static pressure				in WG	0.2	0.2	0.2
Maximum number of connected indoor units					12	16	19
Sound pressure level Cooling/Heating				dB(A)	56/57	60/62	62/63

(*1) Rated conditions
Cooling: Indoor 80° F Dry Bulb/67° F Wet Bulb, Outdoor 95° F Dry Bulb.
Heating: Indoor 70° F Dry Bulb, Outdoor 47° F Dry Bulb/43° F Wet Bulb.

The standard pipe

072 type – 114 type	Equivalent piping length: 25 ft, Height difference: 0 ft

(*2) The source voltage must not fluctuate more than ±10%
(*3) The amount does not consider extra piping length. Refrigerant must be added on site in accordance with the actual piping length.
(*4) Select wire size based on the larger value of MCA
MCA: Minimum Circuit Amps (Minimum Circuit Amps required for power supply design)
(*5) MOCP: Maximum Overcurrent Protection (Amps)

Appearance				
Nominal Tons	12	14	16	19
Model name (MMY-)	AP1444HT9UL	AP1684HT9UL	AP1924HT9UL	AP2284HT9UL

Standard model (Combination)

Technical Specifications

Outdoor unit set model name				MMY-	AP1444HT9UL		AP1684HT9UL		AP1924HT9UL		AP2284HT9UL	
Outdoor unit model name				MMY-MAP	0724HT9UL	0724HT9UL	0964HT9UL	0724HT9UL	0964HT9UL	0964HT9UL	1144HT9UL	1144HT9UL
Nominal tons				Ton	12		14		16		19	
Cooling capacity (*1) (with non-ducted indoor units/ducted)			Nominal	kBtu/h	144/144		168/168		192/192		228/228	
			Rated	kBtu/h	138/144		160/168		184/192		228/198	
Heating capacity (*1) (with non-ducted indoor units/ducted)			Nominal	kBtu/h	162/162		189/189		216/216		256/256	
			Rated	kBtu/h	162/162		188/184		212/200		248/214	
With Non-Ducted Indoor Units	Power supply (*2)				230 V (208/230V) 3-phase 60Hz							
Electrical characteristics (Nominal) (*1)	Cooling	Power consumption		kW	12.66		14.95		17.35		21.5	
		EER (Energy Efficiency Ratio)		Btu/W	10.9		10.7		10.6		10.6	
	Heating	Power consumption		kW	13.96		17.2		19.41		21.71	
		COP (Coefficient of Performance)		W/W	3.4		3.2		3.2		3.35	
With Ducted Indoor Units	Power supply (*2)				230 V (208/230V) 3-phase 60Hz							
Electrical characteristics (Nominal) (*1)	Cooling	Power consumption		kW	13.46		15.7		18.13		18.68	
		EER (Energy Efficiency Ratio)		Btu/W	10.7		10.7		10.6		10.6	
	Heating	Power consumption		kW	14.65		16.85		18.32		19.6	
		COP (Coefficient of Performance)		W/W	3.24		3.2		3.2		3.2	
External Dimensions		Height		in	72.8	72.8	72.8	72.8	72.8	72.8	72.8	72.8
		Width		in	39	39	47.6	39	47.6	47.6	47.6	47.6
		Depth		in	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7
Total weight	Unit			lb	546	546	742	546	742	742	742	742
Compressor	Type				Hermetic twin rotary compressor							
	Motor output			kW	2.3 x 2	2.3 x 2	2.1 x 3	2.3 x 2	2.1 x 3	2.1 x 3	2.5 x 3	2.5 x 3
Fan unit	Motor output			W	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
	Air volume			cfm	5,800	5,800	6,600	5,800	6,600	6,600	7,060	7,060
Refrigerant (*3) (Charged refrigerant amount)				lb	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4
Electrical specifications	Unit	MCA (*4)		A	36	36	50	36	50	50	52	52
		MOCP (*5)		A	40	40	60	40	60	60	60	60
Refrigerant piping	Connecting port diameter	Gas side (main pipe)		in	1-1/8"		1-1/8"		1-1/8"		1-3/8"	
		Liquid side (main pipe)		in	5/8"		5/8"		5/8"		3/4"	
		Balance pipe		in	3/8"		3/8"		3/8"		3/8"	
Operation temperature range		Cooling		° F DB	23 to 115							
		Heating		° F WB	-4 to 60							
Maximum external static pressure				in WG	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Maximum number of connected indoor units					24		28		32		38	
Sound pressure level Cooling/Heating				dB(A)	59/60		61.5/63.5		63/65		65/66	

(*1) Rated conditions
Cooling: Indoor 80° F Dry Bulb/67° F Wet Bulb, Outdoor 95° F Dry Bulb.
Heating: Indoor 70° F Dry Bulb, Outdoor 47° F Dry Bulb/43° F Wet Bulb.

The standard pipe

144 type – 228 type	Equivalent piping length: 25 ft, Height difference: 0 ft

(*2) The source voltage must not fluctuate more than ±10%
(*3) The amount does not consider extra piping length. Refrigerant must be added on site in accordance with the actual piping length.
(*4) Select wire size based on the larger value of MCA
MCA: Minimum Circuit Amps (Minimum Circuit Amps required for power supply design)
(*5) MOCP: Maximum Overcurrent Protection (Amps)

Heat Pump Outdoor Units – 460V

Appearance			
Nominal Tons	6	8	9.5
Model name (MMY-)	MAP0724HT6UL	MAP0964HT6UL	MAP1144HT6UL

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Standard model (Single unit)

Technical Specifications

Outdoor unit model name		MMY-		MAP0724HT6UL	MAP0964HT6UL	MAP1144HT6UL
Nominal tons			Ton	6	8	9.5
Cooling capacity (*1) (with non-ducted indoor units/ducted)		Nominal	kBtu/h	72/72	96/96	114/114
		Rated	kBtu/h	69/72	92/96	114/114
Heating capacity (*1) (with non-ducted indoor units/ducted)		Nominal	kBtu/h	81/81	108/108	128/128
		Rated	kBtu/h	81/81	108/104	128/126
With Non-Ducted Indoor Units	Power supply (*2)				460 V 3-phase 60Hz	
Electrical characteristics (Nominal) (*1)	Cooling	Power consumption	kW	6.27	8.36	10.34
		EER (Energy Efficiency Ratio)	Btu/W	11	11	11
	Heating	Power consumption	kW	6.78	9.58	11.19
		COP (Coefficient of Performance)	W/W	3.5	3.3	3.35
With Ducted Indoor Units	Power supply (*2)				460 V 3-phase 60Hz	
Electrical characteristics (Nominal) (*1)	Cooling	Power consumption	kW	6.26	8.65	10.36
		EER (Energy Efficiency Ratio)	Btu/W	11.5	11.1	11
	Heating	Power consumption	kW	6.86	9.24	11.01
		COP (Coefficient of Performance)	W/W	3.46	3.3	3.35
External dimensions		Height	in	72.8	72.8	72.8
		Width	in	39	47.6	47.6
		Depth	in	30.7	30.7	30.7
Total weight	Unit		lb	621	817	817
Compressor	Type				Hermetic twin rotary compressor	
	Motor output		kW	2.3 x 2	2.1 x 3	2.5 x 3
Fan unit	Motor output		W	1,000	1,000	1,000
	Air volume		cfm	5,800	6,600	7,060
Refrigerant (*3) (Charged refrigerant amount)			lb	25.4	25.4	25.4
Electrical specifications	Unit	MCA (*4)	A	18	23	24
		MOCP (*5)	A	20	25	25
Refrigerant piping	Connecting port diameter	Gas side (main pipe)	in	7/8"	7/8"	1-1/8"
		Liquid side (main pipe)	in	1/2"	1/2"	1/2"
		Balance pipe	in	3/8"	3/8"	3/8"
Operation temperature range		Cooling	° F DB		23 to 115	
		Heating	° F WB		-4 to 60	
Maximum external static pressure			in WG	0.2	0.2	0.2
Maximum number of connected indoor units				12	16	19
Sound pressure level Cooling/Heating			dB(A)	56/57	60/62	62/63

(*1) Rated conditions
Cooling: Indoor 80° F Dry Bulb/67° F Wet Bulb, Outdoor 95° F Dry Bulb.
Heating: Indoor 70° F Dry Bulb, Outdoor 47° F Dry Bulb/43° F Wet Bulb.

The standard pipe

072 type – 114 type	Equivalent piping length: 25 ft, Height difference: 0 ft

(*2) The source voltage must not fluctuate more than ±10%
(*3) The amount does not consider extra piping length. Refrigerant must be added on site in accordance with the actual piping length.
(*4) Select wire size based on the larger value of MCA
MCA: Minimum Circuit Amps (Minimum Circuit Amps required for power supply design)
(*5) MOCP: Maximum Overcurrent Protection (Amps)

Appearance				
Nominal Tons	12	14	16	19
Model name (MMY-)	AP1444HT6UL	AP1684HT6UL	AP1924HT6UL	AP2284HT6UL

Standard model (Combination)

Technical Specifications

Outdoor unit set model name			MMY-		AP1444HT6UL		AP1684HT6UL		AP1924HT6UL		AP2284HT6UL	
Outdoor unit model name			MMY-MAP		0724HT6UL	0724HT6UL	0964HT6UL	0724HT6UL	0964HT6UL	0964HT6UL	1144HT6UL	1144HT6UL
Nominal tons				Ton	12		14		16		19	
Cooling capacity (*1) (with non-ducted indoor units/ducted)			Nominal	kBtu/h	144/144		168/168		192/192		228/228	
			Rated	kBtu/h	138/144		160/168		184/192		228/198	
Heating capacity (*1) (with non-ducted indoor units/ducted)			Nominal	kBtu/h	162/162		189/189		216/216		256/256	
			Rated	kBtu/h	162/162		188/184		212/200		248/214	
With Non-Ducted Indoor Units	Power supply (*2)				460 V 3-phase 60Hz							
Electrical characteristics (Nominal) (*1)	Cooling	Power consumption		kW	12.66		14.95		17.35		21.5	
		EER (Energy Efficiency Ratio)		Btu/W	10.9		10.7		10.6		10.6	
	Heating	Power consumption		kW	13.96		17.2		19.41		21.71	
		COP (Coefficient of Performance)		W/W	3.4		3.2		3.2		3.35	
With Ducted Indoor Units	Power supply (*2)				460 V 3-phase 60Hz							
Electrical characteristics (Nominal) (*1)	Cooling	Power consumption		kW	13.46		15.7		18.13		18.68	
		EER (Energy Efficiency Ratio)		Btu/W	10.7		10.7		10.6		10.6	
	Heating	Power consumption		kW	14.65		16.85		18.32		19.6	
		COP (Coefficient of Performance)		W/W	3.24		3.2		3.2		3.2	
External Dimensions		Height		in	72.8	72.8	72.8	72.8	72.8	72.8	72.8	72.8
		Width		in	39	39	47.6	39	47.6	47.6	47.6	47.6
		Depth		in	30.7	30.7	30.7	30.7	30.7	30.7	30.7	30.7
Total weight	Unit			lb	621	621	817	621	817	817	817	817
Compressor	Type				Hermetic twin rotary compressor							
	Motor output			kW	2.3 x 2	2.3 x 2	2.1 x 3	2.3 x 2	2.1 x 3	2.1 x 3	2.5 x 3	2.5 x 3
Fan unit	Motor output			W	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
	Air volume			cfm	5,800	5,800	6,600	5,800	6,600	6,600	7,060	7,060
Refrigerant (*3) (Charged refrigerant amount)				lb	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4
Electrical specifications	Unit	MCA (*4)		A	18	18	23	18	23	23	24	24
		MOCP (*5)		A	20	20	25	20	25	25	25	25
Refrigerant piping	Connecting port diameter	Gas side (main pipe)		in	1-1/8"		1-1/8"		1-1/8"		1-3/8"	
		Liquid side (main pipe)		in	5/8"		5/8"		5/8"		3/4"	
		Balance pipe		in	3/8"		3/8"		3/8"		3/8"	
Operation temperature range		Cooling		° F DB	23 to 115							
		Heating		° F WB	-4 to 60							
Maximum external static pressure				in WG	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Maximum number of connected indoor units					24		28		32		38	
Sound pressure level Cooling/Heating				dB(A)	59/60		61.5/63.5		63/65		65/66	

(*1) Rated conditions
Cooling: Indoor 80° F Dry Bulb/67° F Wet Bulb, Outdoor 95° F Dry Bulb.
Heating: Indoor 70° F Dry Bulb, Outdoor 47° F Dry Bulb/43° F Wet Bulb.

The standard pipe

144 type – 228 type	Equivalent piping length: 25 ft, Height difference: 0 ft

(*2) The source voltage must not fluctuate more than ±10%
(*3) The amount does not consider extra piping length. Refrigerant must be added on site in accordance with the actual piping length.
(*4) Select wire size based on the larger value of MCA
MCA: Minimum Circuit Amps (Minimum Circuit Amps required for power supply design)
(*5) MOCP: Maximum Overcurrent Protection (Amps)

Indoor Units




	Cooling capacity kBtu/h (Ton)	4-Way Cassette	Compact 4-Way Cassette	Underceiling	High Wall
Non-Ducted Models	7,500 (0.6)	MMU-AP0072H2UL	MMU-AP0071MH2UL		MMK-AP0073H2UL
	9,500 (0.8)	MMU-AP0092H2UL	MMU-AP0091MH2UL		MMK-AP0093H2UL
	12,000 (1)	MMU-AP0122H2UL	MMU-AP0121MH2UL		MMK-AP0123H2UL
	15,000 (1.25)	MMU-AP0152H2UL	MMU-AP0151MH2UL		MMK-AP0153H2UL
	18,000 (1.5)	MMU-AP0182H2UL	MMU-AP0181MH2UL	MMC-AP0181H2UL	MMK-AP0183H2UL
	21,000 (1.75)	MMU-AP0212H2UL			
	24,000 (2)	MMU-AP0242H2UL		MMC-AP0241H2UL	MMK-AP0243H2UL
	30,000 (2.5)	MMU-AP0302H2UL			
	36,000 (3)	MMU-AP0362H2UL		MMC-AP0361H2UL	
	42,000 (3.5)	MMU-AP0422H2UL		MMC-AP0421H2UL	




	Cooling capacity kBtu/h (Ton)	Concealed Duct	High Static Duct	Slim Duct	Vertical AHU
Ducted Models	7,500 (0.6)	MMD-AP0074BH2UL		MMD-AP0074SPH2UL	
	9,500 (0.8)	MMD-AP0094BH2UL		MMD-AP0094SPH2UL	
	12,000 (1)	MMD-AP0124BH2UL		MMD-AP0124SPH2UL	
	15,400 (1.25)	MMD-AP0154BH2UL		MMD-AP0154SPH2UL	
	18,000 (1.5)	MMD-AP0184BH2UL		MMD-AP0184SPH2UL	
	21,000 (1.75)	MMD-AP0214BH2UL			
	24,000 (2)	MMD-AP0244BH2UL			40TCQ024···3
	30,000 (2.5)	MMD-AP0304BH2UL	MMD-AP0304H2UL		40TCQ030···3
	36,000 (3)	MMD-AP0364BH2UL	MMD-AP0364H2UL		40TCQ036···3
	42,000 (3.5)	MMD-AP0424BH2UL			40TCQ042···3
	48,000 (4)	MMD-AP0484BH2UL	MMD-AP0484H2UL		40TCQ048···3
	72,000 (6)		MMD-AP0724H2UL		
	96,000 (8)		MMD-AP0964H2UL		

MMU-AP*2H2UL**

4-Way Cassette

Individual Louver Control

Each of the four louvers can be positioned at different angles. This allows customized airflow control based on user comfort preferences.

⇒ Enables airflow to be adapted to user preferences.

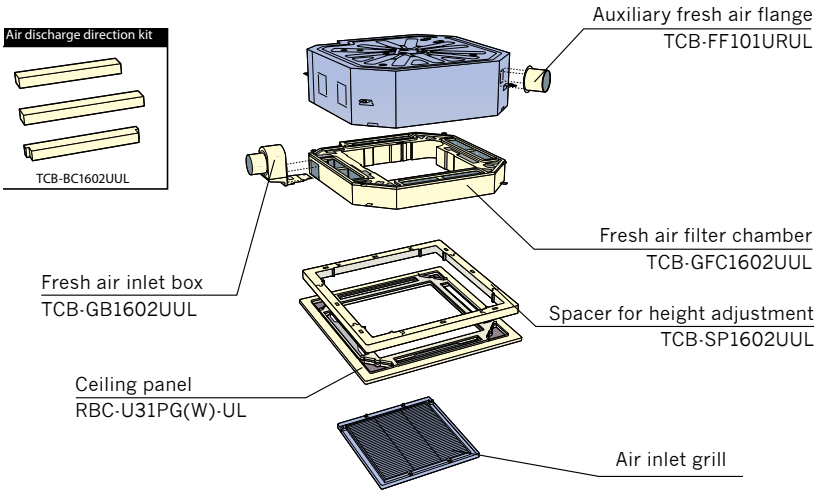
RBC-U31PG(W)-UL

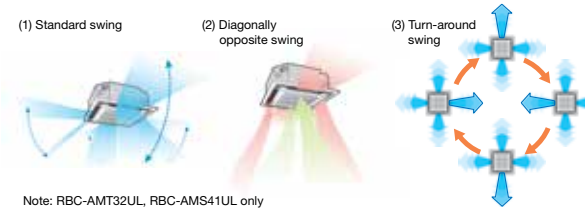
Technical Specifications

Model name		MMU-	AP0072H2UL	AP0092H2UL	AP0122H2UL	AP0152H2UL	AP0182H2UL	AP0212H2UL	AP0242H2UL	AP0302H2UL	AP0362H2UL	AP0422H2UL
Cooling capacity		kBtu/h	7.5	9.5	12	15.4	18	21	24	30	36	42
Heating capacity		kBtu/h	8.5	10.5	13.5	17	20	24	27	34	40	47.5
Electrical characteristics	Power supply		230V (208/230V) 1-phase 60Hz									
	Power consumption	kW	0.021	0.021	0.023	0.026	0.026	0.036	0.036	0.043	0.088	0.112
Appearance (Ceiling panel)*		Model	RBC-U31PG(W)-UL*									
External dimensions Main unit (Ceiling panel)*	Height	in	10.1 (1.2)*								12.6 (1.2)*	
	Width	in	33.1 (37.4)*									
	Depth	in	33.1 (37.4)*									
Total weight Main Unit (Ceiling panel)*		lb	42 (10)*		46 (10)*			48 (10)*			59 (10)*	
Fan unit	Standard airflow (High/Mid/Low)	cfm	470/430/400	470/430/400	550/490/460	550/480/440	550/480/440	670/540/490	670/540/490	730/630/510	1160/840/630	1250/840/670
	Motor output	W	60	60	60	60	60	60	60	60	150	150
Connecting pipe	Gas side	in	3/8"	3/8"	3/8"	1/2"	1/2"	5/8"	5/8"	5/8"	5/8"	5/8"
	Liquid side	in	1/4"	1/4"	1/4"	1/4"	1/4"	3/8"	3/8"	3/8"	3/8"	3/8"
	Drain port (nominal dia.)	in	VP25 (Polyvinyl chloride tube: External Dia.1-1/4 Internal Dia.1)									
Sound pressure level (High/Mid/Low) (*1)		dB(A)	33/32/31	33/32/31	34/33/31	35/33/31	35/33/31	38/33/31	38/33/31	41/36.5/34	46/40.5/36.5	48.5/40.5/37.5

*Figures in parentheses are for ceiling panels.
(*1) The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

Options





Note: RBC-AMT32UL, RBC-AMS41UL only

MMU-AP*1MH2UL

Compact 4-Way Cassette

Perfect for Grid System Ceiling

This compact unit fits perfectly into ceilings and matches standard architectural modules to virtually eliminate the need to cut ceiling tiles.

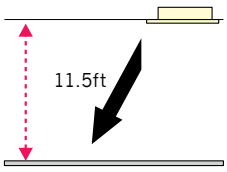
Designed for Simple Installation and Easy Maintenance

- Slim design is only 10.6 inches in height even when an electrical box is located inside the unit
- Installation is easy using the panel adjust pocket; use the “adjust pocket” function for fine adjustments after installation
- Available for ceilings up to 11.5 feet in height†
- Drain-checking hole makes it possible to check the drain pan through the side case

†8.1 ft on AP007 and AP009

RBC-UM11PG(W)UL

Drain-checking hole



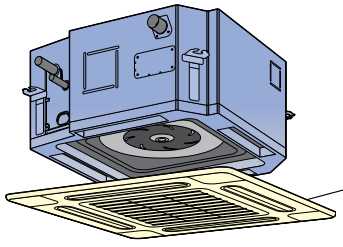
Maximum height

Technical Specifications

Model name			MMU-	AP0071MH2UL	AP0091MH2UL	AP0121MH2UL	AP0151MH2UL	AP0181MH2UL
Cooling capacity			kBtu/h	7.5	9.5	12	15.4	18
Heating capacity			kBtu/h	8.5	10.5	13.5	17	20
Electrical characteristics	Power supply			230V (208/230V) 1-phase 60Hz				
	Power consumption		kW	0.034	0.036	0.038	0.041	0.052
Appearance (Ceiling panel)*			Model	RBC-UM11PG(W)-UL				
External dimensions Main unit (Ceiling panel)*		Height	in	10.6 (1.1)*				
		Width	in	22.6 (27.6)*				
		Depth	in	22.6 (27.6)*				
Total weight Main unit (Ceiling panel)*			lb	35 (7)*				
Fan unit	Standard airflow (High/Mid/Low)		cfm	320/270/220	330/280/220	330/300/240	390/330/280	450/380/310
	Motor output		W	60	60	60	60	60
Connecting pipe	Gas side		in	3/8"	3/8"	3/8"	1/2"	1/2"
	Liquid side		in	1/4"	1/4"	1/4"	1/4"	1/4"
	Drain port (nominal dia.)		in	VP25 (Polyvinyl chloride tube: External Dia.1-1/4 Internal Dia.1)				
Sound pressure level (High/Mid/Low) (*1)			dB(A)	38.5/35/31	40/35.5/31	40/36/32	42.5/37.5/33	46.5/41.5/36

*Figures in parentheses are for ceiling panels.
(*1) The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

Options



Ceiling panel
RBC-UM11PG(W)-UL

MMC-AP*1H2UL**

Underceiling

Comfortable Ambience

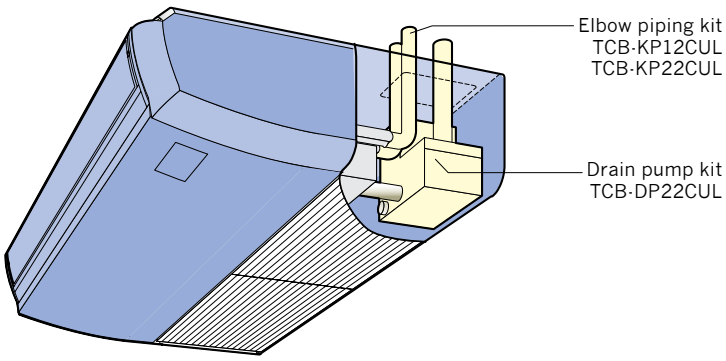
- Quiet: New design reduces noise level to half that of conventional units
- Louver control: Airflow angle is automatically set to the most suitable setting according to cooling or heating needs; an automatic swing mode enables airflow to reach all areas of the room to create a comfortable ambience

Technical Specifications

Model name			MMC-	AP0181H2UL	AP0241H2UL	AP0361H2UL	AP0421H2UL
Cooling capacity			kBtu/h	18	24	36	42
Heating capacity			kBtu/h	20	27	40	47.5
Electrical characteristics	Power supply			230V (208/230V) 1-phase 60Hz			
	Power consumption		kW	0.038	0.05	0.091	0.11
External dimensions		Height	in	8.3			
		Width	in	35.8	46.5	62.8	
		Depth	in	26.8			
Total weight			lb	46	57	75	
Fan unit	Standard airflow (High/Mid/Low)		cfm	410/360/320	590/530/470	880/770/680	950/820/730
	Motor output		W	60	60	120	120
Connecting pipe	Gas side		in	1/2"	5/8"	5/8"	5/8"
	Liquid side		in	1/4"	3/8"	3/8"	3/8"
	Drain port (nominal dia.)		in	VP20 (Polyvinyl chloride tube: External Dia.1 Internal Dia. 0.79)			
Sound pressure level (High/Mid/Low) (*1)			dB(A)	38.5/35/32.5	40.5/38/35	44/41/37	46/42.5/39.5

(*1) The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

Options



MMK-AP*3H2UL**

High Wall

Elegant and Slim

- Easily blends with any room interior
- 70° directional auto-swing louver provides uniform air distribution and enhanced comfort control
- Optional Condensate Drain Kit available

Technical Specifications

Model name			MMK-	AP0073H2UL	AP0093H2UL	AP0123H2UL	AP0153H2UL	AP0183H2UL	AP0243H2UL
Cooling capacity			kBtu/h	7.5	9.5	12	15.4	18	24
Heating capacity			kBtu/h	8.5	10.5	13.5	17	20	27
Electrical characteristics	Power supply			230V (208/230V) 1-phase 60Hz					
	Power consumption		kW	0.018	0.021	0.021	0.043	0.043	0.05
External dimensions		Height	in	12.6					
		Width	in	41.3					
		Depth	in	9					
Total weight			lb	33					
Fan unit	Standard airflow (High/Mid/Low)		cfm	340/270/230	350/280/230	350/280/230	490/390/320	490/390/320	600/440/340
	Motor output		W	30	30	30	30	30	30
Connecting pipe	Gas side		in	3/8"	3/8"	3/8"	1/2"	1/2"	5/8"
	Liquid side		in	1/4"	1/4"	1/4"	1/4"	1/4"	3/8"
	Drain port (nominal dia.)		in	VP16 (Polyvinyl chloride tube: External Dia. 0.87 Internal Dia. 0.63)					
Sound pressure level (High/Mid/Low) (*1)			dB(A)	36/32.5/30	39/34/30	39/34/30	43/38/34.5	43/38/34.5	47.5/40.5/35

(*1) The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

MMD-AP*4BH2UL**

Concealed Duct

Medium Static Pressure

External static pressure can be raised as high as .48 in. WG, 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 10.6 inches from the drain port.

Technical Specifications

Model name		MMD-	AP0074BH2UL	AP0094BH2UL	AP0124BH2UL	AP0154BH2UL	AP0184BH2UL	AP0214BH2UL	AP0244BH2UL	AP0304BH2UL	AP0364BH2UL	AP0424BH2UL	AP0484BH2UL
Cooling capacity/Heating capacity		kBTU/h	7.5/8.5	9.5/10.5	12/13.5	15.4/17	18/20	21/24	24/27	30/34	36/40	42/47.5	48/54
Electrical characteristics	Power supply		230 V (208/230V) 1 Phase 60Hz										
	Power consumption	kW	0.041	0.041	0.049	0.091	0.091	0.091	0.091	0.091	0.106	0.142	0.142
External dimensions	Height	in	12.6										
	Width	in	21.7			39.4		53.2					
	Depth	in	31.5										
Total weight		lbs	64			93		119					
Fan unit	Standard airflow (High/Mid/Low)	cfm	312/282/165		371/335/ 224	635/556/382		788/694/424			1088/953/ 706	1324/1165/871	
	Motor output	W	150										
	External static pressure (factory setting)	in WG	0.26		0.24	0.25		0.21			0.25		
	External static pressure	in WG	0.48									0.44	
Connecting pipe	Gas side	in	3/8"			1/2"		5/8"					
	Liquid side	in	1/4"					3/8"					
	Drain port	in	VP25 (Polyvinyl chloride tube: External Dia. 1-1/4 Internal Dia. 1)										
Sound pressure level (*1) (High/ Mid/ Low)		dB(A)	34/30.5/27.5	34/30.5/27.5	34.5/32/31	37.5/35.5/ 29	37.5/35.5/ 29	35/33/31	35/33/31	35/33/31	38/35.5/34.5	41/38.5/36	41/38.5/36

(*1) The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

Options

Fan guard for bottom inlet: TCB-IG071BUL
TCB-IG151BUL
TCB-IG211BUL

MMD-AP*4H2UL**

High Static Duct

Design Flexibility

- Satisfies all your design needs
- Compatible with external static pressures up to 1.175 in. WG
- Inspection inlet enables easy access and maintenance

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-	AP0304H2UL	AP0364H2UL	AP0484H2UL	AP0724H2UL	AP0964H2UL
Cooling capacity/Heating capacity			kBtu/h	30/34	36/40	48/54	72/81	96/108
Electrical characteristics	Power supply			230V (208/230V) 1 Phase 60Hz				
	Power consumption 208V/230V		KW	0.38/0.41	0.38/0.41	0.35/0.41	1.37/1.44	1.20/1.63
External dimensions		Height	in	15			18.5	
		Width	in	33.5		47.2	54.3	
		Depth	in	26			49.2	
Total weight			lbs	128		154	353	
Fan unit	Standard airflow		cfm	926		1235	2120	2473
	Motor output		W	260			370 x 3	
	External static pressure (*1) Factory setting (208V/230V)		in WG	0.641/0.814		0.296/0.519	0.580/0.929	0.317/0.734
	External static pressure 208V (*2) (High tap/Mid tap/Low tap)		in WG	1.075/0.641/0.287		0.606/0.296/Non	0.896/0.580/0.346	0.739/0.317/0.062
	External static pressure 230V (*2) (High tap/Mid tap/Low tap)		in WG	1.175/0.814/0.506		0.801/0.519/0.114	1.212/0.929/0.629	1.099/0.734/0.459
Connecting pipe	Gas side		in	5/8"			7/8"	
	Liquid side		in	3/8"			1/2"	
	Drain port		in	VP25 (Polyvinyl chloride tube: Dia. 1-1/4 Internal Dia. 1)				
Sound pressure level (*3) 208V (*2) (High/Mid/Low)			dB(A)	49.5/45/41		47/44/ -	51/49/47	
230V (*2) (High/Mid/Low)			dB(A)	51/47/43		49/46/43	53/51/50	

(*1) Non-attached filter.
(*2) The tap is set by wire connection change of fan motor.
(*3) The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

MMD-AP*4SPH2UL**

Slim Duct

Functional Design

- Only 8.3 inches in height for greater application flexibilty
- Three-step static pressure setup
- Concealed installation within a ceiling void
- Fresh-air intake available
- Includes drain pump

Slim and Quiet

- Perfect comfort throughout the room
- Can be used with any style of air diffuser
- Quiet, powerful operation

Technical Specifications

Model name			MMD-	AP0074SPH2UL	AP0094SPH2UL	AP0124SPH2UL	AP0154SPH2UL	AP0181BH2UL
Cooling capacity/Heating capacity			kBtu/h	7.5/8.5	9.5/10.5	12/13.5	15.4/17	18/20
Electrical characteristics	Power supply			230 V (208/230V) 1 Phase 60Hz				
	Power consumption		KW	0.043	0.043	0.048	0.061	0.071
External dimensions		Height	in	8.3				
		Width	in	33.3				
		Depth	in	25.4				
Total weight			lbs	49			51	
Fan unit	Standard airflow (High/Mid/Low)		cfm	318/276/235		353/306/265	406/353/306	459/400/341
	Motor output		W	60				
	External static pressure Factory setting (*1)		in WG	0.08				
	External static pressure		in WG	-0.14 - 0.2				
Connecting pipe	Gas side		in	3/8"			1/2"	
	Liquid side		in	1/4"				
	Drain port		in	VP25 (Polyvinyl chloride tube: External Dia. 1-1/4 Internal Dia. 1)				
Sound pressure level (*2) (High/Mid/Low)		Under air inlet	dB(A)	39/36/33		41/38/35	41/38.5/35	44.5/41/37.5
		Back air inlet	dB(A)	31/30/28		32.5/31.5/28.5	34.5/33.5/28.5	37/34/32

(*1) Non-attached filter.
(*2) The actual values in an external operating environment are generally higher than the indicated values due to the contribution from ambient noise.

Options

Auxiliary Fresh Air Flange: TCB-FF101URUL

40TCQ***

Vertical AHU

- Multi-position Installation Option
- Energy-efficient ECM operation ensures proper performance across a wide range of duct static pressure maximizing cooling and heating capacities
- All sizes of the units are multi-position ready for upflow or horizontal applications. Units can also be suspended from roof or ceiling joints
- Precise airflow delivery across a wide range of duct static pressure
- 1” filter rack

Technical Specifications

Model name		40TCQ	024	030	036	042	048
Cooling capacity		kBtu/h	24	30	36	42	48
Heating capacity		kBtu/h	27	34	40	47.5	54
Electrical characteristics	Power supply		230 V (208/230V) 1 Phase 60Hz				
	Power consumption	W	989				
External dimensions Main unit	Height	in	42.7		53.4		
	Width	in	17.6		21.1		
	Depth	in	22.06				
Total weight		lbs	135		150		
Fan unit	Standard air flow (High/Mid/Low)	cfm	630/505/350	785/630/390	945/755/470	1100/880/550	
	Motor output	W	373				
	External static pressure	in WG	0.5		0.8		
Connecting pipe	Gas side	in	3/4				
	Liquid side	in	3/8				
	Drain port (nominal dia.)	in	3/4				
Sound power level at 63 Octave band, 400 cfm		dB(A)	63				

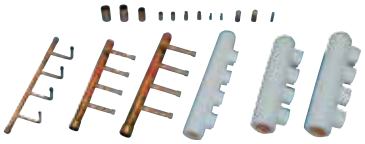
Flow Selectors

	RBM-Y0383FUL	RBM-Y0613FUL	RBM-Y0963FUL
Appearance			
Connectable indoor unit capacity (kBTU/h)	Below 38	38 to below 61	61 to 96 or less
Connectable indoor units*	5	8	8

*Only group operation is possible with 1 (or 2) remote controller(s)

Connection cable kit: RBC-CBK15FE

Heat Recovery Branching Joints

	Y-shape Branching Joint				Branch Headers				Outdoor Unit Connection Piping Kit	
Appearance					 (4-Branch Headers)					
Model name	RBM-BY55FUL	RBM-BY105FUL	RBM-BY205FUL	RBM-BY305FUL	RBM-HY1043FUL	RBM-HY2043FUL	RBM-HY1083FUL	RBM-HY2083FUL	RBM-BT14FUL	RBM-BT24FUL
Usage branches					Max. 4 branches		Max. 8 branches			
Usage (kBTU/h) *Classification according to indoor unit capacity code	Total below 61	Total 61 or more and below 134.5	Total 134.5 or more and below 239	Total 239 or more	Total below 134.5	Total 134.5 or more	Total below 134.5	Total 134.5 or more	Total below 247	Total 247 or more

Heat Pump Branching Joints

	Y-shape Branching Joint for Using 2 Pipes				Branch Headers				Outdoor Unit Connection Piping Kit
Appearance					 (4-Branch Headers)				
Model name	RBM-BY55UL	RBM-BY105UL	RBM-BY205UL	RBM-BY305UL	RBM-HY1043UL	RBM-HY2043UL	RBM-HY1083UL	RBM-HY2083UL	RBM-BT14UL
Usage (kBTU/h) *Classification according to indoor unit capacity code	Total below 61	Total 61 or more and below 134.5	Total 134.5 or more and below 239	Total 239 or more	Max. 4 branches		Max. 8 branches		All
					Below 136	136 or more	Below 136	136 or more	

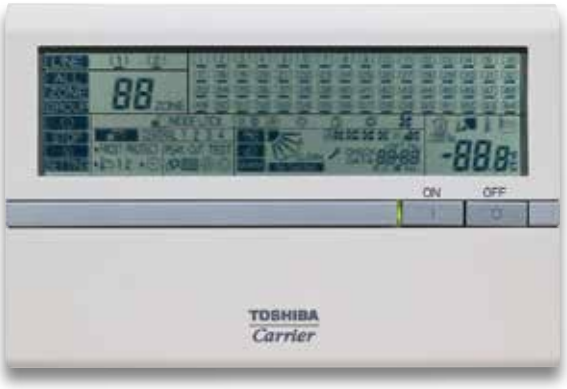
Touch Screen Controller
BMS-CT5120UL

- Grouping based on floor, unit, area, tenant and level
- Operating Mode, Turning ON/OFF
- Enable or Disable local Remote Control
- Master Scheduler – Weekly, Five Special Days, Monthly
- Display alarm + provide history for alarms
- Web Browser Monitoring and Control (for Intranet PC)
- Up to two concurrent users can be connected
- Additional digital I/O device available
- Maximum of 512 indoor unit per Touch Screen Controller
- Selectable display language – English / French / Spanish

Lite-Vision Plus Remote Controller
RBC-AMS51E-ES

- Clock display and schedule timer
- Backlit local control of individual fan coil
- 1°F temperature indication
- Set temperature range limiting

Smart Manager



Smart Manager
BMS-SM1280HTLUL

- 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 four concurrent users can be connected
- Up to 32 user accounts can be programmed with different levels of access (at least one must be administrator level)
- Energy monitoring and report creation functions available
- Advanced operation and 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

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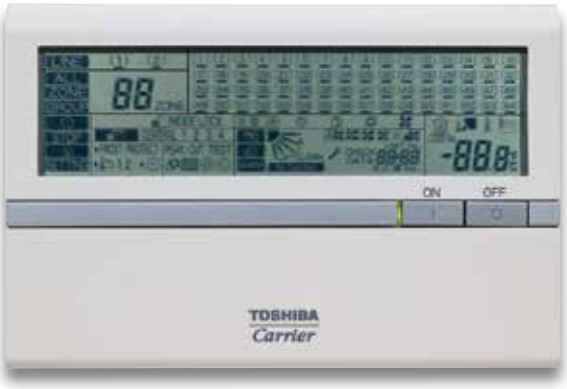
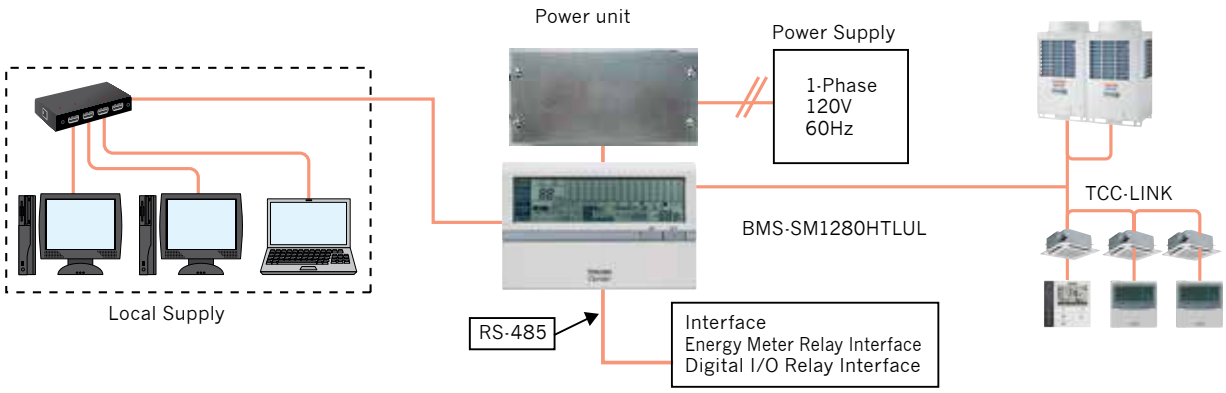


Central Remote Control
BMS-CM1281TLUL

- Individual control (ON/OFF, Operating mode, etc.)
- Manages up to 128 units (Max: 2 x 64 indoor units)
- Flexible grouping in zones
- External input/output control (Input: ON/OFF signal, Output: Error signal)



BACnet® System

Intelligent Server
BMS-LSV6UL

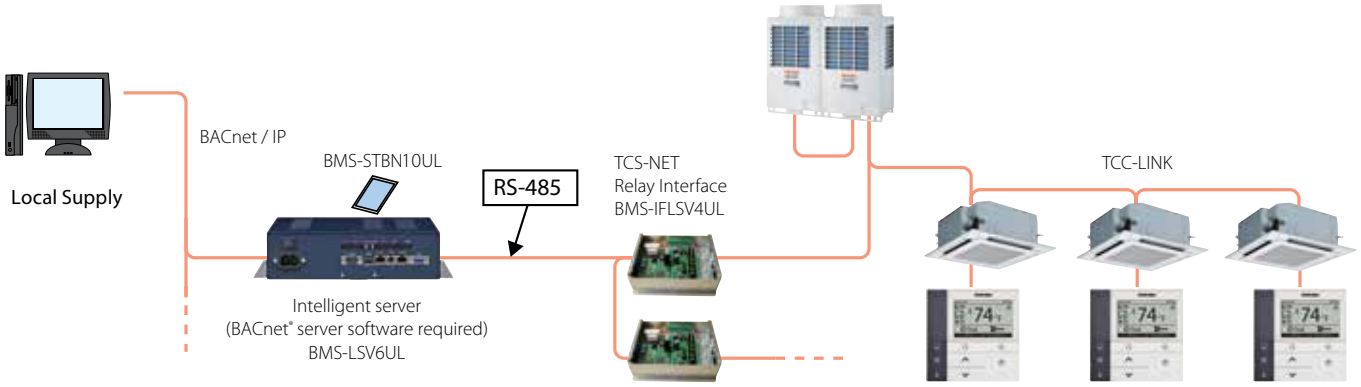
BACnet® Server Software
BMS-STBN10UL

TCS-NET Relay Interface
BMS-IFLSV4UL

BACnet®
The BACnet® system operates in conjunction with the BACnet server. Server uses object signals to provide the following functions:

Controller
- ON/OFF
- Operation mode
- Temperature setting
- Fan speed
- Louver
- Permit/prohibit local remote controller

Monitoring
- ON/OFF
- Operation mode
- Temperature setting
- Fan speed
- Louver
- Room temperature
- Permit/prohibit local remote controller
- Error code
- Error status



BACnet®: Trademark registration of American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc.

Integration done in field by customer.

Network Control

LonWorks®

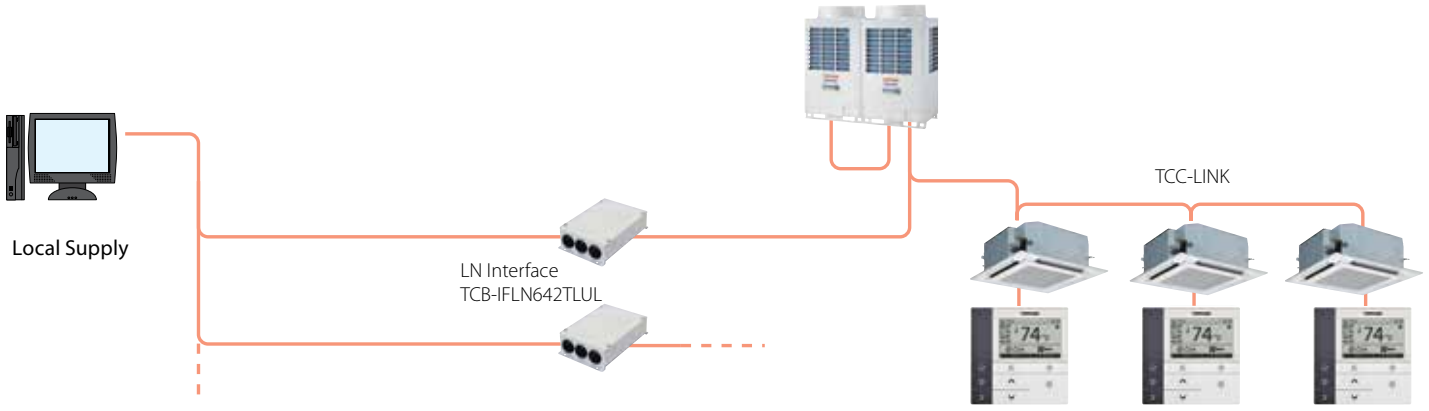
LN Interface
TCB-IFLN642TLUL

LonWorks® LN Interface
The LonWorks® interface manages the SMMS-i/SDI air conditioning system as a Lon device to communicate with the custormer's Building Management System and to monitor operational status. A maximum of 64 units are controllable per interface.

SNVT Signal
Signals and provides the following functions:

Controller
- ON/OFF
- Operation mode
- Temperature setting
- Fan speed
- Louver
- Permit/prohibit local remote controller

Monitoring
- ON/OFF
- Operation mode
- Temperature setting
- Fan speed
- Louver
- Room temperature
- Permit/prohibit local remote controller
- Error code
- Error status



LonWorks®: Registered trademark of Echelon corporation.

Integration done in field by customer.

Additional Remote Controls

Simple Wired Remote Control
RBC-AS41UL
- Start/Stop
- Temperature setting
- Airflow changing
- Check code display

Remote Sensor
TCB-TC41LUL
Install this sensor when outside air has been introduced or when overcooling and overheating are to be minimized.

Wired Remote Controller
RBC-AMT32UL and RBC-AMS41UL
- **Local control of individual fan coil**
- **Clock display and schedule timer**

(RBC-AMS41UL only):
- – Possible to program schedule timer (seven-day timer) function
- – Possible to program eight functions for each day of the week

The following items can be set in program: operation time, operation start/stop, operation mode, temperature setting, restriction on button operation

Additional Remote Controls

Stand-Alone Receiver
TCB-AX32UL

- (For 4-Way Cassette, Compact 4-Way Cassette, Underceiling, Concealed Duct, Slim Duct, Vertical AHU)
- Includes Wireless Remote Control Kit

Integral Receiver
RBC-AX33C-UL
(For Underceiling)

- Includes Wireless Remote Control Kit

Additional Remote Controls

Wireless Remote Control Kit

- Start/Stop
- Changing mode
- Temperature setting
- Airflow changing
- Timer function
- Control by two remote controllers is available
  - Two wireless remote controllers can operate one indoor unit
  - The indoor unit can then be operated separately from the two different locations
- Check code display

Integral Receiver
RBC-AX32U(W)-UL
(For 4-Way Cassette)

- Includes Wireless Remote Control Kit

Application Control

TCB-PCDM4UL

Size: 2.8 × 3.3 (in.)

Install the optional P.C. board in the inverter assembly of the outdoor header unit.

Power Peak-Cut Control

- Feature
  The upper limit capacity of the outdoor unit is restricted based on the outdoor power peak selected setting.
- Function
  Two control settings are selectable by setting SW07 on the interface P.C. board on the header outdoor unit.

TCB-PCMO4UL

Size: 2.2 × 2.4 (in.)

Install the optional P.C. board in the inverter assembly of the outdoor header unit.

External Master ON/OFF Control

- Feature
  The outdoor unit can control start or stop to receive the external signal.

Night Operation Control

(Sound reduction)

- Feature
  Sound level can be reduced by restricting the compressor and fan speeds.

Operation Mode Selection Control

- Feature
  This control can restrict the selectable operation mode.

Snowfall Fan Control

- Feature
  The outdoor fan will operate to prevent snow buildup.

TCB-PCIN4UL

Size: 2.9 × 3.1 (in.)

Install the optional P.C. board in the inverter assembly of the outdoor header unit.

Error/Operation Output Control

- Feature
  Enables external output of error and operation signals.

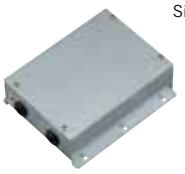
Compressor Operation Output

- Feature
  Enables external signal output for each compressor that is in operation within any given outdoor unit. This feature provides a practical method for calculating total operating times for each compressor.

Operating Rate Output

- Feature
  External output of system operating rates enables remote monitoring of operating conditions.

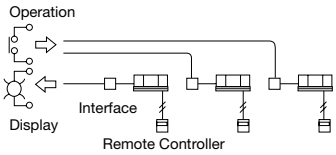
TCB-IFCB-4UL



Size: 7.9 × 6.7 × 2.6 (in.)

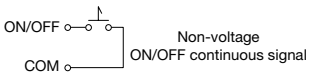
Remote Location ON/OFF Control Box

- Feature
  Start and stop of the air conditioner is possible by an external signal and indication of operation/alarm externally.



Monitoring

ON/OFF status (for indoor unit).
Alarm status (system and indoor unit stop).
ON/OFF command.
Air conditioner can be turned ON/OFF by the external signals.
The external ON/OFF signals will initiate the signals shown below.

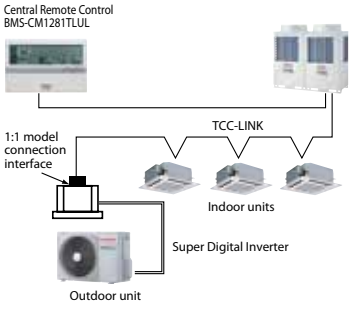


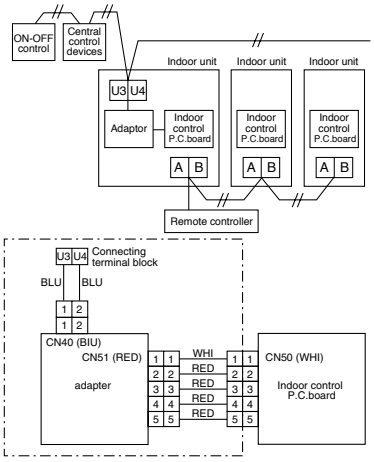
TCB-PCNT31TLUL

Size: 3.3 × 2.0 (in.)
Install optional P.C. board in E-parts of the indoor unit.

Network Adapter

- Feature
  Link adapter for “1:1 model” to enable connection to VRF system network.
  1:1 model:
  – Super digital inverter
  – Used only for light commercial products





Carrier

United Technologies

Notice: Toshiba Carrier 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.

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