

V6R HEAT RECOVERY VRF

Simultaneous Heating and Cooling from One System
Maximum Efficiency and Comfort



Commercial Air Conditioner Division
MDV part of the Midea Group of Companies

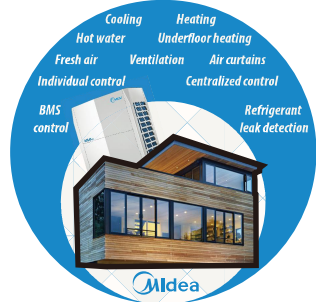
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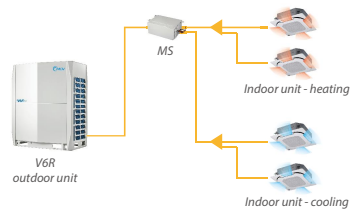


Note: Product specifications change from time to time as product improvements and developments are released and may vary from those in this document.



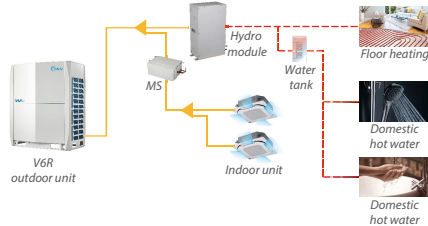
Simultaneous Heating and Cooling Solution

V6R Heat Recovery system can perform both cooling and heating operation simultaneously in one system. The energy efficiency can be maximum through divert exhaust heat from indoor units in cooling mode to areas requiring heating.



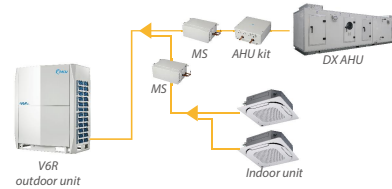
Hot Water Solution

The V6R outdoor unit can connect Midea high temperature hydro module to produce hot water from 25°C to 80°C to achieve space cooling/heating and hot water simultaneously.



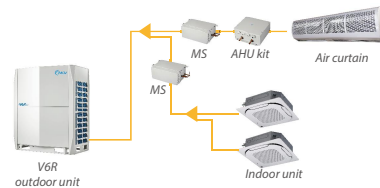
Air Handling Unit (AHU) Solution

The V6R outdoor unit can connect to the 3rd party DX AHU for large space cooling/heating air supply. The DX AHU can be used either independently or in conjunction with other types of indoor unit.



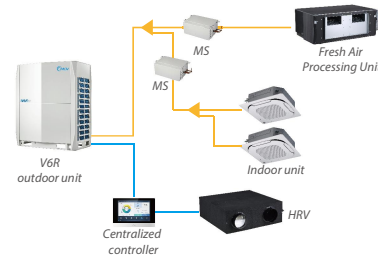
Air Curtain Solution

The V6R can connect to air curtains to achieve air separation which is the most efficiency open door solution.



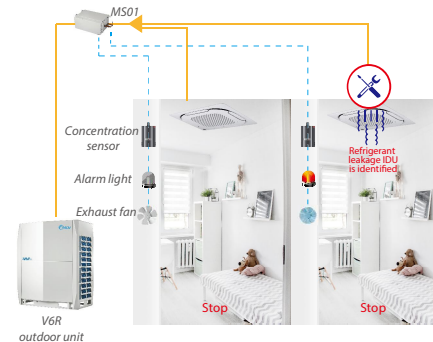
Fresh Air Solution

The Fresh Air Processing Unit can be connected to the V6R outdoor unit for both fresh air supply and cooling/heating air treatment. The Heat Recovery Ventilation (HRV) also can be in a same centralized control system with the V6R system to realize fresh air supply and heat recovery by HRV.



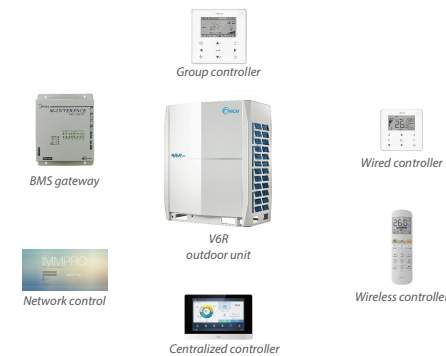
Refrigerant Leak Detection Solution

The V6R outdoor unit can real-time detects the refrigerant leakage to guarantee the system safe and reliable operation. When the refrigerant concentration exceeds 6,000ppm for 5 seconds the indoor unit will stop operation and can also give an alarm using a buzzer or a light with the dry contact and the exhaust fan will automatically run to timely reduce the concentration of refrigerant in the room. The wired and central controller can also display an error code "EF" to remind maintenance personnel to deal with it timely
*Refrigerant leak detection function is available for MS01.



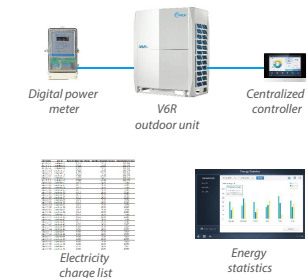
Total Controller Solution

The V6R system can be controlled through individual controller, group controller, centralized controller, PC/network and BMS.



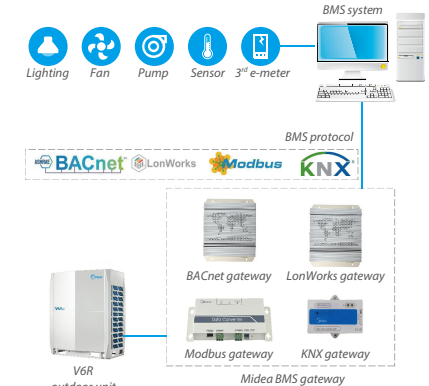
Electricity Charge Distribution Solution

The patented Midea Calculation Method can estimate the electricity consumption of the outdoor units and then divide it among the indoor units so that the electricity charges can be equitably divided among building occupants, the results can be exported to Excel.



Integration Solution with BMS

The V6R system can be integrated into building management systems, enabling air conditioning to be monitored alongside lighting, power, fire, access and security systems. Midea's gateway devices provide full compatibility with the leading BMS protocols: BACnet, LonWorks, Modbus and KNX.

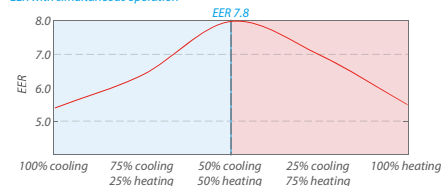


HIGH EFFICIENCY

Heat Recovery, Maximum Energy Saving

V6R Heat Recovery system can perform both cooling and heating operation simultaneously in one system. Heat recovery is achieved by diverting exhaust heat from indoor units in cooling mode to areas requiring heating. As a result of this, energy efficiency is maximized and electricity costs are reduced. The part load efficiencies are high as well (up to 7.8 in 8 HP category).

EER with simultaneous operation



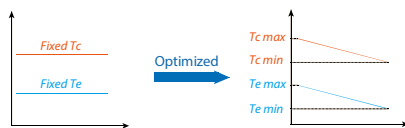
EER in simultaneous cooling and heating mode are based on the following condition:
Outdoor temperature 7°CDB/6°CWB, indoor temperature 27°CDB/19°CWB for cooling, indoor temperature 20°CDB for heating.

Energy Management System (EMS)

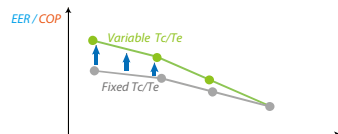
With the Smart Automatic Refrigerant Temperature Control and 7 Levels of Energy Management, the V6R can supply an advanced Energy Management System. The system can automatically maximize the comfort and energy efficiency and also supply 7 levels of capacity output to response to temporary electricity supply restrictions.

Smart Automatic Refrigerant Temperature Control

The evaporating temperature (in cooling) and condensing temperature (in heating) are automatically adjusted according to both indoor and outdoor temperature to maximize the comfort and energy efficiency. The capacity is controlled by the inverter compressor and variable refrigerant temperature in order to achieve the highest seasonal efficiency. The seasonal efficiency is increased by 30%.



Note: Tc: condensing temperature; Te: evaporating temperature.



7 Levels of Energy Management

With the integration of EMS, for projects with temporary electricity supply restrictions, V6R supports 7 Levels of Energy Management which can be set to output 40-100% capacity.

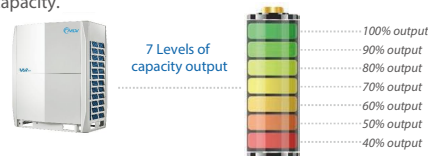
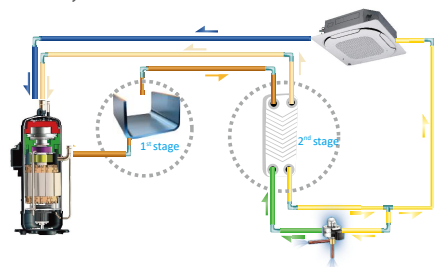


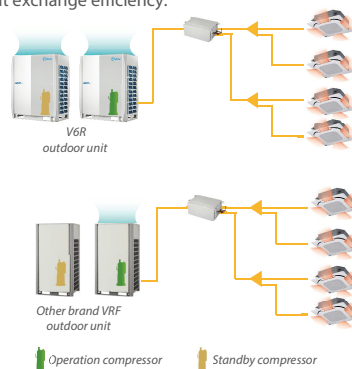
Plate Heat Exchanger (PHE) Subcooling

Plate Heat Exchanger as a secondary intercooler boosts up refrigerant subcooling and improves 10% energy efficiency.



Independent Control of Heat Exchanger and Compressor to Improve Energy Efficiency

In cooling or heating mode, for a multi-unit system, the outdoor heat exchanger and compressor are independently controlled to improve energy efficiency, which means even the compressor of the outdoor unit does not operate, the heat exchanger of this outdoor unit can be used for heat exchange. This function can maximum use the outdoor heat exchanger to improve heat exchange efficiency.



WIDE APPLICATION RANGE

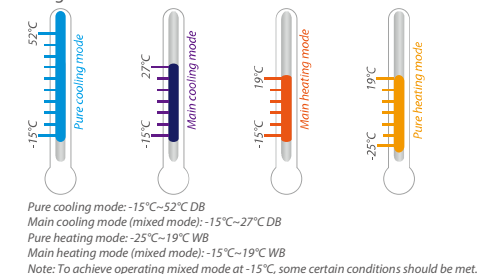
Wide Capacity Range

Starting at 8HP, capacity increases in 2HP increments up to 54HP, which is perfect for small to large buildings.



Wide Operation Range

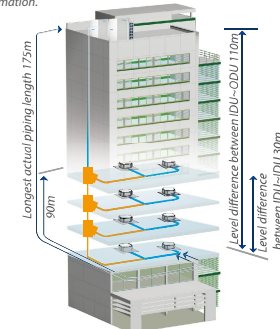
The V6R VRF system has a wide operation range in cooling mode, heating mode and simultaneous cooling and heating mode.



Long Piping Capability

Total piping length: 1000m
Longest piping length – actual (equivalent): 175m (200m)
Longest piping length after first branch: 40/90*
Longest piping between MS and IDU: 40m
Level difference between IDUs and ODU – ODU above (below): 110m (110m)
Level difference between IDUs: 30m

*The longest length after first branch is 40m as standard but can be extended to up to 90m under certain conditions. Please contact your local Midea dealer for further information.



HIGH RELIABILITY

Duty Cycling

Duty cycling equalizes the running time of the outdoor units in a multiple-unit system and of the compressors in each unit, significantly extending compressor lifespan.



Backup Operation

In a multi-unit system, if one module fails, the other modules can provide backup operation, allowing time for maintenance or repair whilst maintaining comfort.



Operation compressor Standby compressor Failed compressor

Precise Oil Control Technology

Three stages of oil control technology ensure all outdoor compressor oil is always kept at a safe level, eliminating any compressor oil shortage problems.

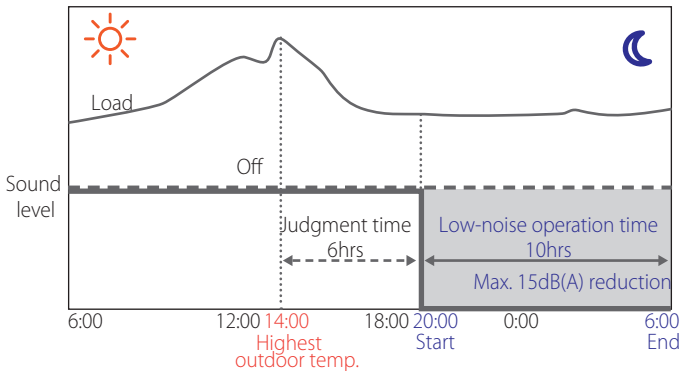
1. Compressor internal oil separation.
2. High-efficiency centrifugal oil separator (with separation efficiency of up to 99%) ensures that oil is separated from the discharge gas and returned to the compressors in a timely fashion.
3. Auto oil return program monitors the running time and system status to ensure reliable oil return.



ENHANCED COMFORT

Night Silent Mode

The night silent mode feature, which is easily configured on the outdoor unit's PCB, includes various scheduling options that can be used to reduce noise levels at times when low noise operation is required.



Continuous Heating During Defrost Mode

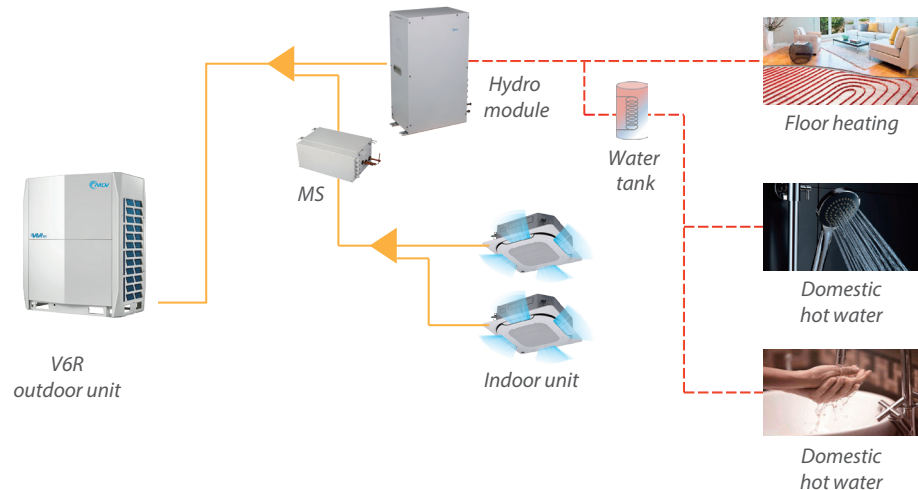
Normally, it is necessary to stop the heating operation during defrosting. However, the continuous heating operation method makes it possible to perform defrosting while the heating operation continues. With the combination model, units perform defrosting alternately. While one unit is performing defrosting, the other continues heating.



Note: This function is only available when the indoor units connected in V6R system are 2nd generation AC VRF indoor units (which will be released soon) or 2nd generation DC VRF indoor units produced after May 31st, 2020 only.

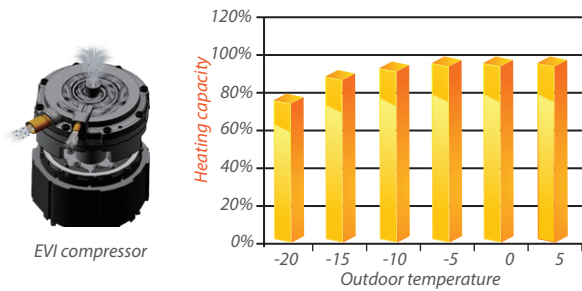
Hot Water Supply

The V6R system can also produce domestic hot water (25°C to 80°C) when providing room air conditioning. The domestic hot water can be used for underfloor heating and domestic hot water, improving room comfort.



Enhanced Heating Capacity

Thanks to the vapor injection DC inverter compressor, the V6R VRF can run heating mode stably down to -25°C and the heating capacity can be improved greatly. The heating capacity is 100% of rated capacity at ambient temperatures as low as -5°C and 90% of rated capacity at -15°C.



EASY INSTALLATION AND SERVICE

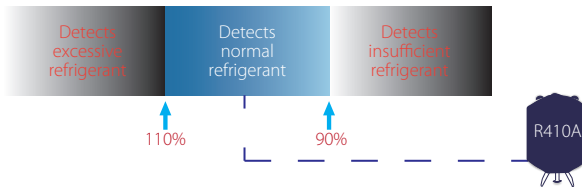
Auto Addressing

Outdoor units can distribute addresses to indoor units automatically. Remote and wired controllers can be used to query or modify each indoor unit's address.



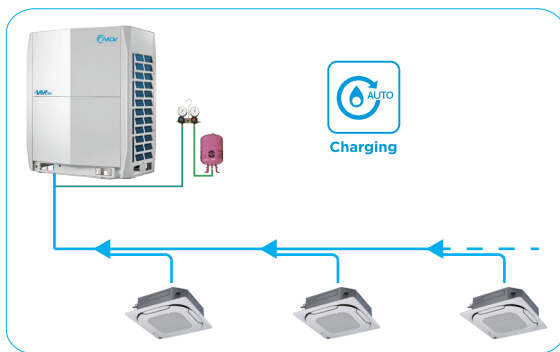
Real-time Refrigerant Amount Monitoring

The temperature and pressure of refrigerant can be real-time monitored by the outdoor unit. When the level of refrigerant is too low or too high, this can cause damage to the unit and poor performance. V6R outdoor unit can detect excessive or insufficient amounts of refrigerant, to ensure consistent performance.



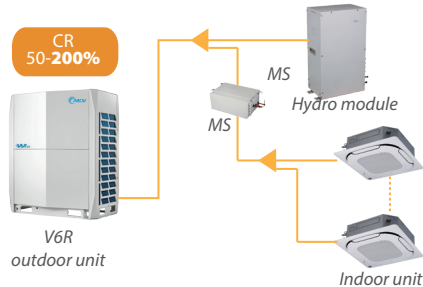
Automatic Refrigerant Charging

Automatic refrigerant charging makes installation and service easier and more efficient.



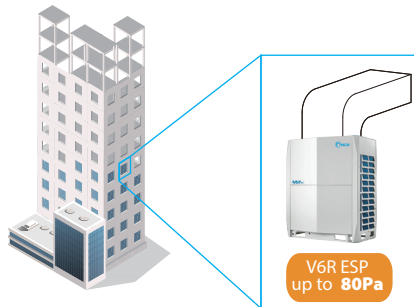
Connection Ratio Extended to 200%

Under certain installation conditions, the V6R system permits the connection of units with a total capacity index equal to 200% that of the outdoor unit.



External Static Pressure (ESP) up to 80Pa

The static pressure of the outdoor unit can be increased up to 80Pa which facilitates installation of the unit on each floor of high-rise building or on balconies.



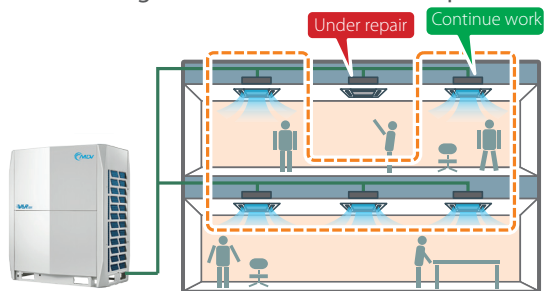
External Multifunctional PCB

An external multifunctional small PCB can be installed on the unit's side columns, enabling installation and service engineers to activate Auto-commissioning or check the operating status without removing the front panel. It can also perform automatic data backup of the last 30 minutes' operating record.



Ease of Maintenance

It has maintenance feature which allows the shutdown of indoor unit without shutting down the whole VRF system. This feature comes in handy during maintenance period as the remaining indoor units continue to operate.

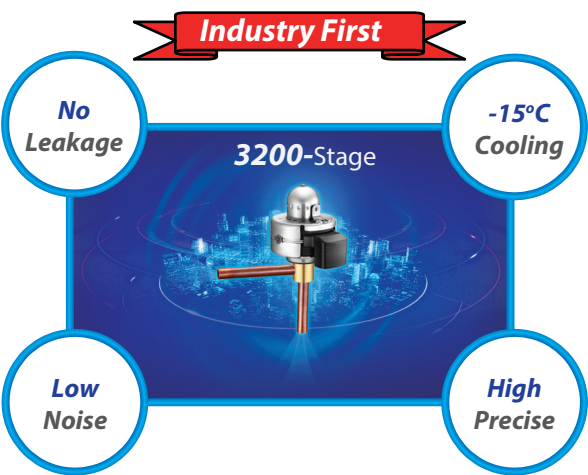


INTELLIGENT MS-BOX

The V6R Heat Recovery system can perform simultaneous heating and cooling operation through the intelligent MS-box. It switches operation mode according to user requirement while it increases efficiency with simultaneous operation.

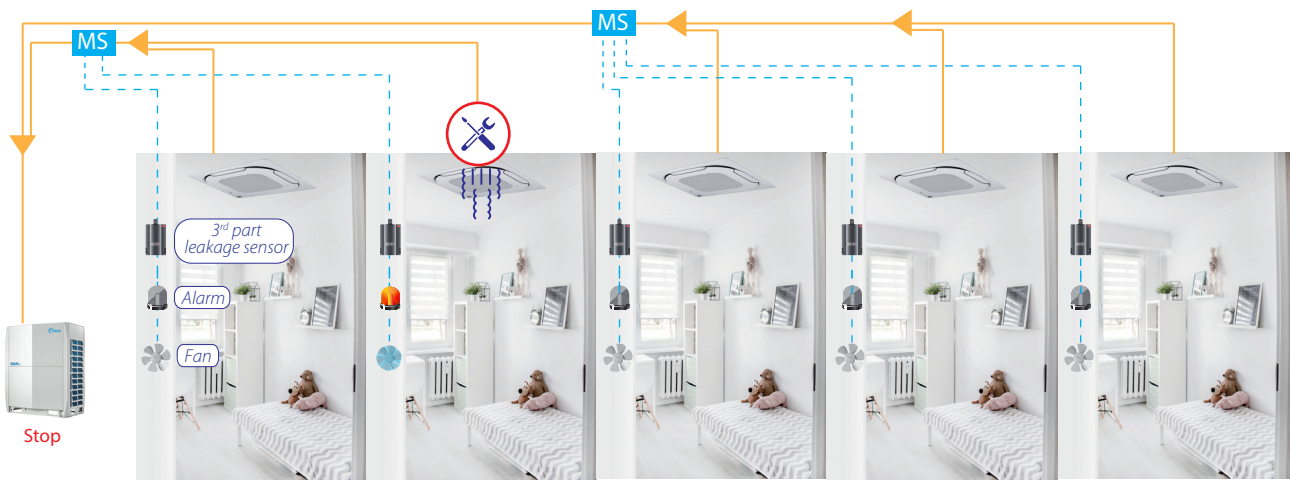
● Single Port

- ❖ Compact and light to install
- ❖ No drain piping needed
- ❖ Connect up to 8 indoor units, capacity up to 32kW
- ❖ Double direction connection for refrigerant pipe to improve installation flexibility
- ❖ Electric ball valve control precision is up to 3200-stage
 - Completely close the valve with almost no leakage
 - Can be opened and closed in stages with very low noise
 - Can achieve cooling at ambient temperatures as low as -15°C
 - High precision refrigerant flow control



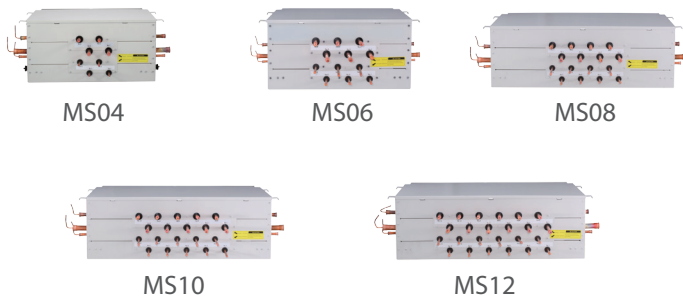
❖ Real-time refrigerant leakage detection, safe and reliable operation.

- Real-time refrigerant leakage detection
- Provide dry contact to 3rd party for alarm and exhaust fan. When refrigerant leakage occurs, the alarm light will be on and the exhaust fan will automatically run to timely reduce the concentration of refrigerant in the room



● Multiple Ports: 4-6-8-10-12

- ❖ Compact and light to install
- ❖ Low noise operation
- ❖ Up to 5 indoor units can be connected to one port
- ❖ Up to 47 indoor units can be connected to one MS12 box
- ❖ Up to 16 kW capacity available per port
- ❖ Connect up to 280 index unit (28kW) by combining 2 ports



LINEUP

● Outdoor Units Lineup

HP	Appearance	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54
Single module																									
Two module combined																									
Three module combined																									

● Indoor Units Lineup

Cassette Type

One-way Cassette

Capacity range:
1.8/2.2/2.8/3.6/4.5/5.6/7.1kW (7 models)



Two-way Cassette

Capacity range:
2.2/2.8/3.6/4.5/5.6/7.1kW (6 models)



Compact Four-way Cassette

Capacity range:
1.7/2.2/2.8/3.6/4.5/5.2kW (6 models)



Four-way Cassette

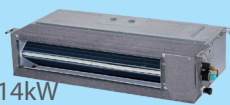
Capacity range:
2.8/3.6/4.5/5.6/7.1/8/9/10/11.2/14 kW (10 models)



Duct Type

Medium Static Pressure Duct

Capacity range:
1.7/2.2/2.8/3.6/4.5/5.6/7.1/8/9/11.2/14kW (11 models)



High Static Pressure Duct

Capacity range:
7.1/8/9/11.2/14/16/20/25/28/40/45/56kW (12 models)



Ceiling & Floor Type

Ceiling / Floor Units

Capacity range:
3.6/4.5/5.6/7.1/8/9/11.2/14kW (8 models)

Floor Standing Units

Capacity range:
2.2/2.8/3.6/4.5/5.6/7.1/8kW (7 models)

Wall-mounted

Capacity range:
1.7/2.2/2.8/3.6/4.5/5.6/7.1/8/9kW (9 models)

Console

Capacity range:
2.2/2.8/3.6/4.5kW (4 models)

Fresh Air Type

Fresh Air Processing Unit

Capacity range:
12.5/14/20/25/28kW (5 models)

Hear Recovery Ventilation

Capacity range:
200/300/400/500/800/1000/1500/
2000m³/h (8 models)

Note: V6R series outdoor units are compatible with the 2nd Generation DC IDUs only.

● Outdoor unit

HP	8	10	12	14	16	18
Model Name	MV6-R252WV2GN1	MV6-R280WV2GN1	MV6-R335WV2GN1	MV6-R400WV2GN1	MV6-R450WV2GN1	MV6-R500WV2GN1
Cooling capacity (kW)	22.4	28	33.5	40	45	50
Heating capacity (kW)	22.4	28	33.5	40	45	50
Compressor type	DC inverter	DC inverter	DC inverter	DC inverter	DC inverter	DC inverter
Compressor quantity	1	1	1	1	1	1
Fan motor type	DC motor	DC motor	DC motor	DC motor	DC motor	DC motor
Fan motor quantity	1	1	1	2	2	2
Air flow rate (m³/h)	9000	9500	10000	14000	14900	15800
ESP (Pa)	0,10,20,40,60,80(Selectable)					
Refrigerant type	R410A	R410A	R410A	R410A	R410A	R410A
Refrigerant factory charged (kg)	8	8	8	10	10	10
Dimensions (WxHxD) (mm)	990x1635x790	990x1635x790	990x1635x790	1340x1635x825	1340x1635x825	1340x1635x825
Net weight (kg)	232	232	232	300	300	300
Sound pressure level dB(A)	58	58	60	61	64	65
Connectable indoor units (total capacity)	50%-200%	50%-200%	50%-200%	50%-200%	50%-200%	50%-200%
Liquid pipe (mm)	Φ12.7	Φ12.7	Φ12.7	Φ15.9	Φ15.9	Φ15.9
Low pressure gas pipe (mm)	Φ25.4	Φ25.4	Φ25.4	Φ28.6	Φ28.6	Φ28.6
High pressure gas pipe (mm)	Φ19.1	Φ19.1	Φ19.1	Φ22.2	Φ22.2	Φ22.2

1. Nominal cooling capacities are based on the following conditions: return air temperature: 27°CDB, 19°CWB,outdoor temperature: 35°CDB, equivalent ref. piping: 7.5m(horizontal).
2. Nominal heating capacities are based on the following conditions: return air temperature: 20°CDB, outdoor temperature: 7°CDB, 6°CWB, equivalent ref. piping: 7.5m(horizontal).

● MS box

Model	MS01	MS04	MS06	MS08	MS10	MS12
Max. indoor unit groups	1	4	6	8	10	12
Max. number of each group of indoor units	8	5	5	5	5	5
Max. number of downstream indoor units	8	20	30	40	47	47
Max. capacity of each group of indoor units (kW)	32	16	16	16	16	16
Max. total capacity of all downstream indoor units (kW)	32	49	63	85	85	85
Max. piping length between MS and indoor unit (m)	40	40	40	40	40	40
Net dimension (WxHxD) (mm)	440x195x296	668x250x574	668x250x574	974x250x574	974x250x574	974x250x574

● Hydro module

Model			SMK-D140HN1-3
Power supply			220-240V~50Hz
Heating Capacity			14
Operating ambient temperature range	Heating	°C	-20~30
	Domestic hot water	°C	-20~43
Water temperature			25~80
Water flow rate	Nominal (Min.-Max.)	m³/h	2.4 (1.2-2.9)
Allowable water pressure			1-10
Unit dimensions (WxHxD)			450x795x300
Weight			58
Refrigerant pipe	Connection type		Brazing
	Liquid pipe diameter	mm	Φ9.53
	Gas pipe diameter	mm	Φ12.7
Water pipe	Connection type		External thread
	Inlet pipe diameter	mm	Φ25.4
	Outlet pipe diameter	mm	Φ25.4

Note:
Nominal heating capacities are based on the following conditions: ambient temperature 7°C DB/6°C WB;Water inlet/outlet temperature 40°C DB/45°C;

● AHU kit

Model name	AHUKZ-00D	AHUKZ-01D	AHUKZ-02D	AHUKZ-03D
Capacity A (kW)	2.2≤A<9	9≤A≤20	20<A≤36	36<A≤56
Power supply	220-240V~50Hz	220-240V~50Hz	220-240V~50Hz	220-240V~50Hz
liquid pipe (in/out) (mm)	Φ9.53/Φ9.53	Φ9.53/Φ9.53	Φ12.7/Φ12.7	Φ15.9/Φ15.9
Dimension (WxHxD) (mm)	341x395x133	341x395x133	341x395x133	341x395x133
Weight (kg)	5.7	5.7	5.8	6.0
Operation range (cooling on coil) (°C)	17-43	17-43	17-43	17-43
Operation range (heating on coil) (°C)	10-30	10-30	10-30	10-30