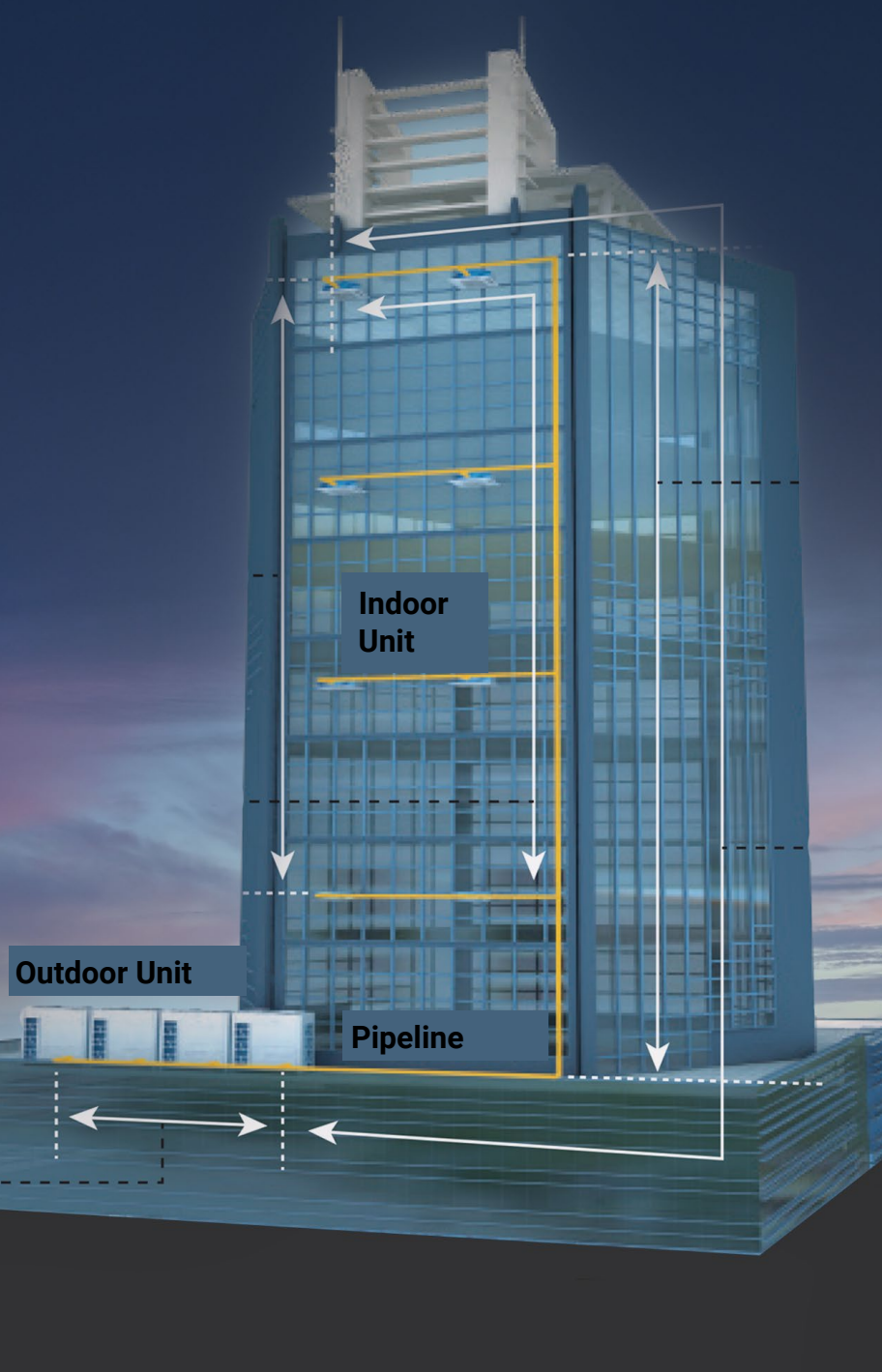
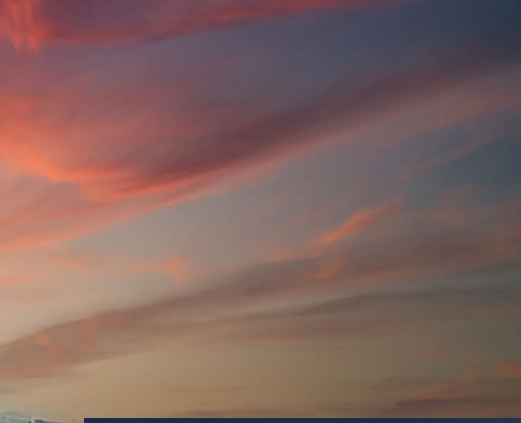


HAVA VRF

HHV Series





Projects with extended piping lengths

The elevation difference between the indoor and outdoor units can reach up to 90 metres*, providing greater installation flexibility.

*For additional details, please contact the MIT Clima technical team.





High-performance compressor

The HAVA VRF HHV series adopts a new generation of scroll compressors with an innovative mechanism called FCM (Frame Compliant Mechanism), which significantly improves the overall system efficiency, particularly during part-load operation.

Direct suction

Higher volumetric efficiency.

Asymmetric scroll

Reduces compressor stress and improves efficiency and reliability.

Heavy-duty bearing

High-reliability sliding bearing with high load capacity, reduced noise, and enhanced wear resistance.

High-efficiency motor

High-performance permanent magnet motor with a specially engineered structure.

Oil equalization pipe

High reliability through oil level balancing between MULTIPLE compressors.

Check valve

Improves efficiency and ensures reliability during high-load operation.

Pressure-reducing valve design

Power terminal cover

Ensures a secure and protected electrical connection.

Internal oil separator tube

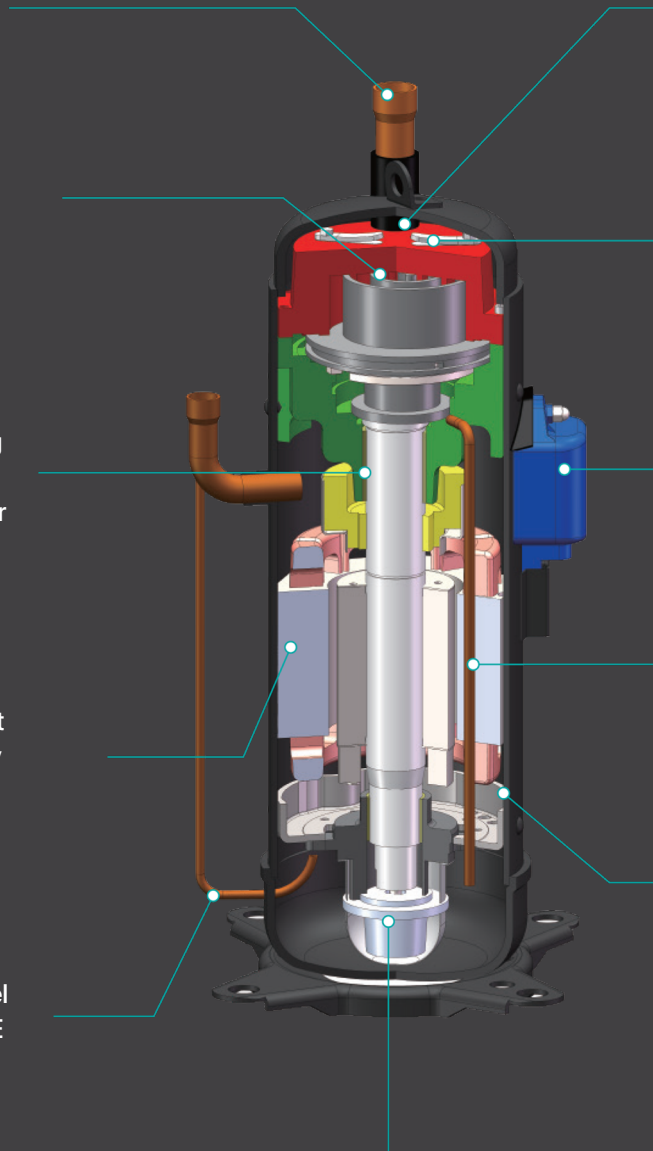
Ensures internal oil circulation, reducing component wear and preventing losses caused by overheating.

High-pressure chamber

Large gas discharge buffer chamber to reduce noise and vibrations generated by airflow during operation.

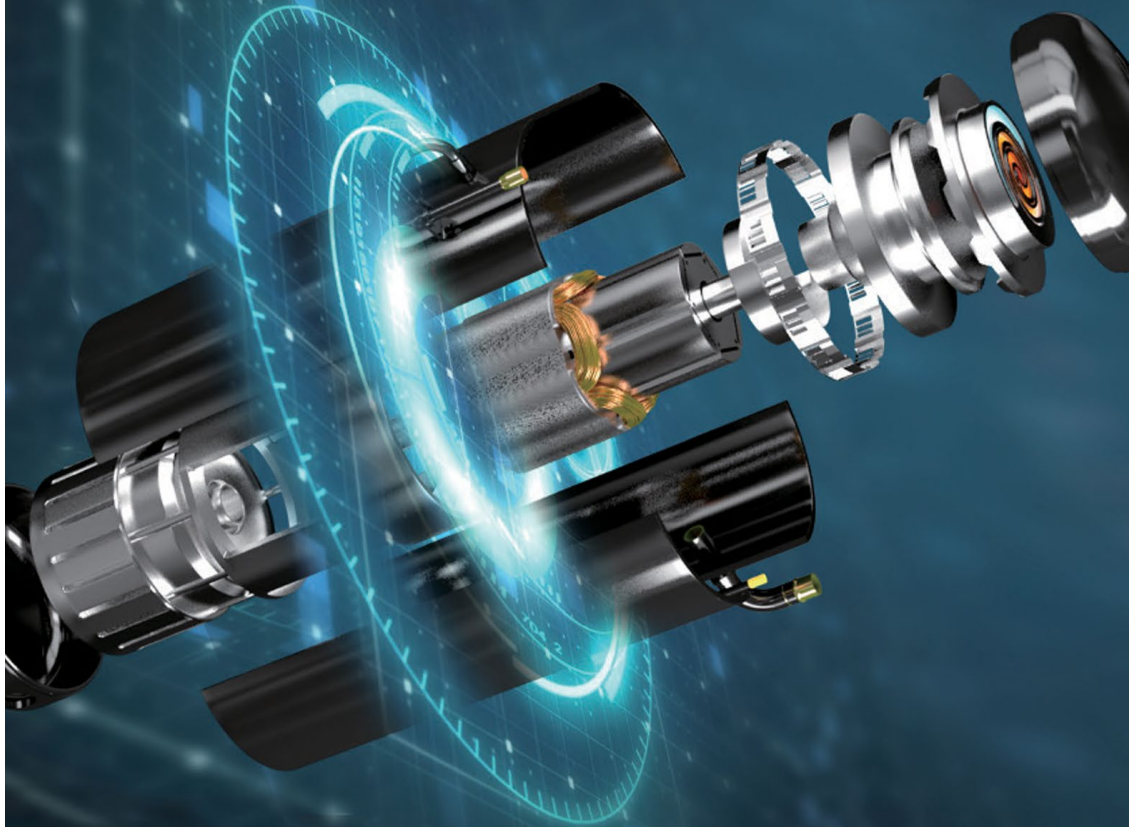
Reliable oil supply system

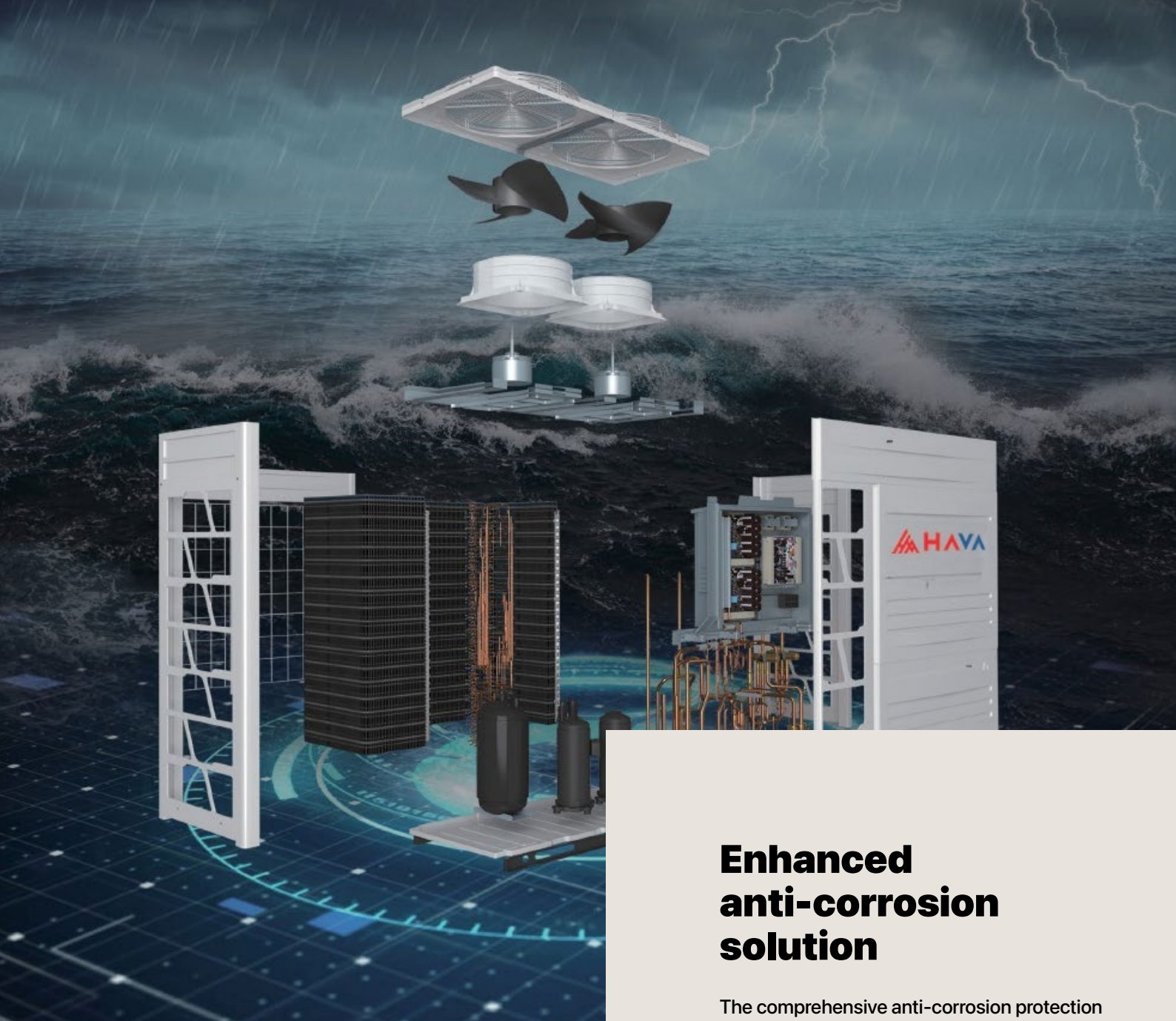
Adequate oil delivery is ensured based on oil pressure differential, even under low-speed and part-load operating conditions.



Revolutionary HVAC compressor

The new-generation scroll compressor is now patented and features high-performance vapor injection technology, increasing capacity by up to 25% compared to conventional scroll compressors.





01

Front panel

Galvanized steel treated with zirconium and a 100 μm coating, plus a 180 μm zinc-rich epoxy primer and a pure polyester topcoat.

02

Heat exchanger

Dark grey fins with epoxy resin and acrylic resin coatings, plus a hydrophilic film, and copper tubes.

03

Electrical box

Galvanized steel treated with zirconium and a pure polyester coating of 50 μm to 120 μm .

04

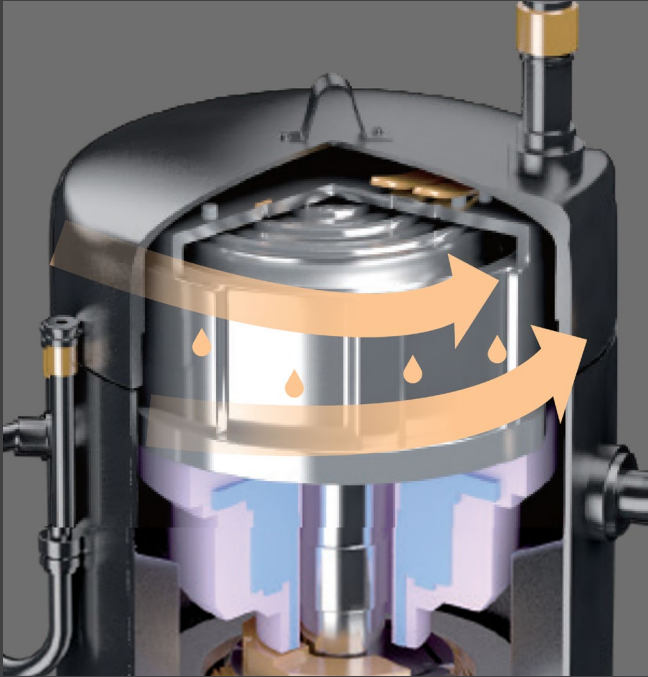
Fan motor

Coated with a 10 μm to 30 μm acrylic resin layer.

Enhanced anti-corrosion solution

The comprehensive anti-corrosion protection provided by HAVA VRF systems is ideal for coastal areas and industrial environments exposed to chemical compounds such as sulfur. It ensures a high level of resistance, extends equipment service life, and reduces maintenance costs.

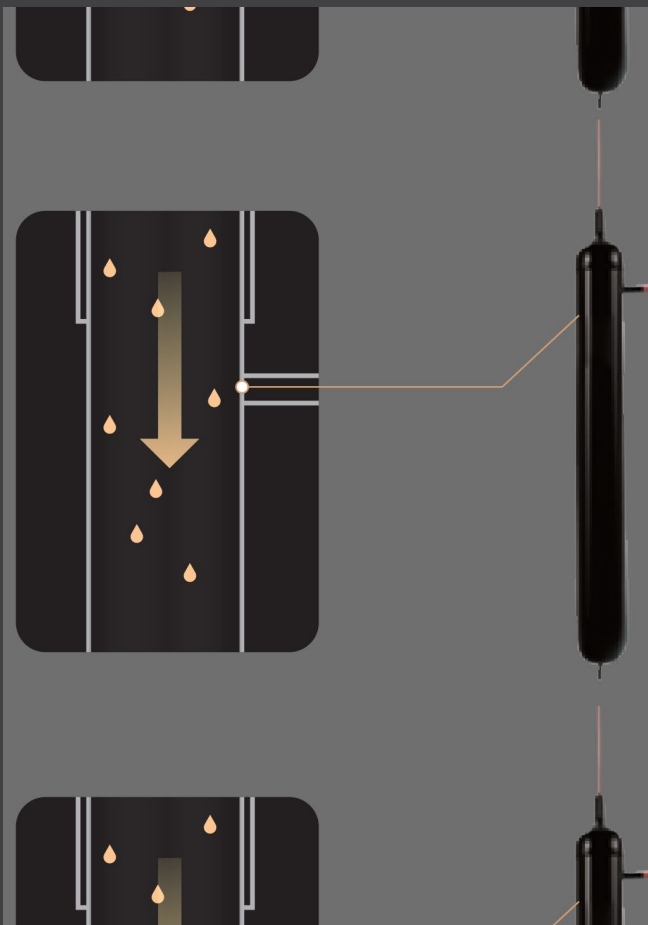
All components benefit from special protective treatments, and the systems are UL certified, confirming high standards of safety and quality.



#firststage

Oil separation and recirculation

In the first separation stage, oil is extracted through an efficient internal structure within the compressor and the high-pressure chamber. Only a small amount of oil is discharged from the compressor.



#secondstage

Oil separation and recirculation

In the second separation stage, residual oil from the compressor is efficiently removed by a high-capacity centrifugal separator, ensuring an efficiency of over 99%.

Self-diagnostics

The VRF unit is designed to simplify monitoring and maintenance, providing clear indications in the event of errors. Alarm codes are automatically displayed, allowing technicians to quickly identify problems during testing and enabling end users to easily understand the nature of faults. In addition, operating status information such as temperature, pressure, compressor frequency, and other parameters can be accessed directly from the controller or from the outdoor unit, contributing to efficient maintenance and rapid troubleshooting.

HAVA VRF systems can protect themselves through built-in algorithms that determine the necessary protective actions based on sensor readings and operating parameters, including safety protections.

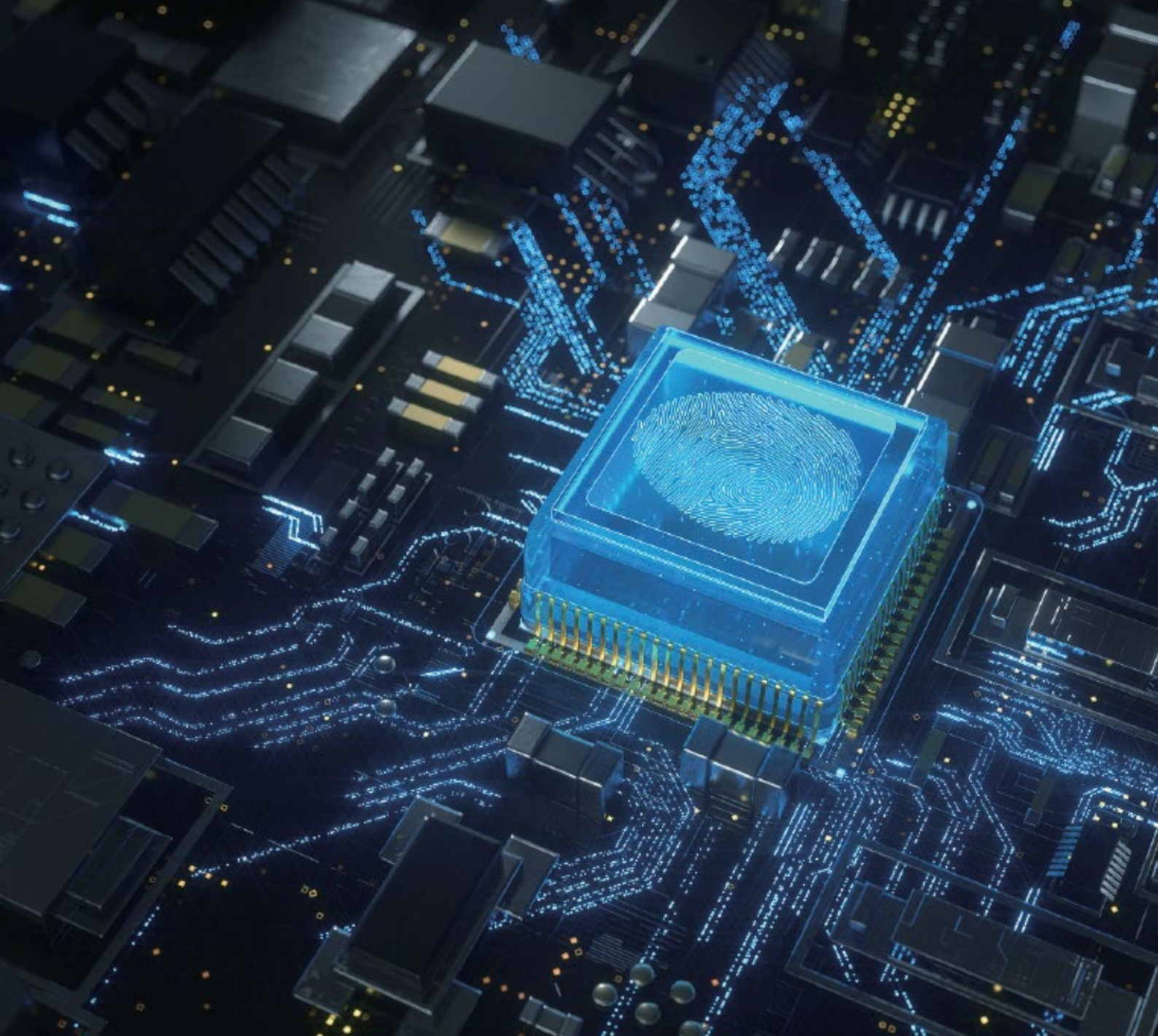


Intelligent backup operation

Operating loads are intelligently distributed among higher-capacity modules, ensuring optimal balancing and preventing overload of individual components. This strategy extends system service life and guarantees reliable long-term performance.

If one module in a combined system develops a fault, the remaining modules can take over the load and continue operating, ensuring uninterrupted equipment operation until service personnel intervene.

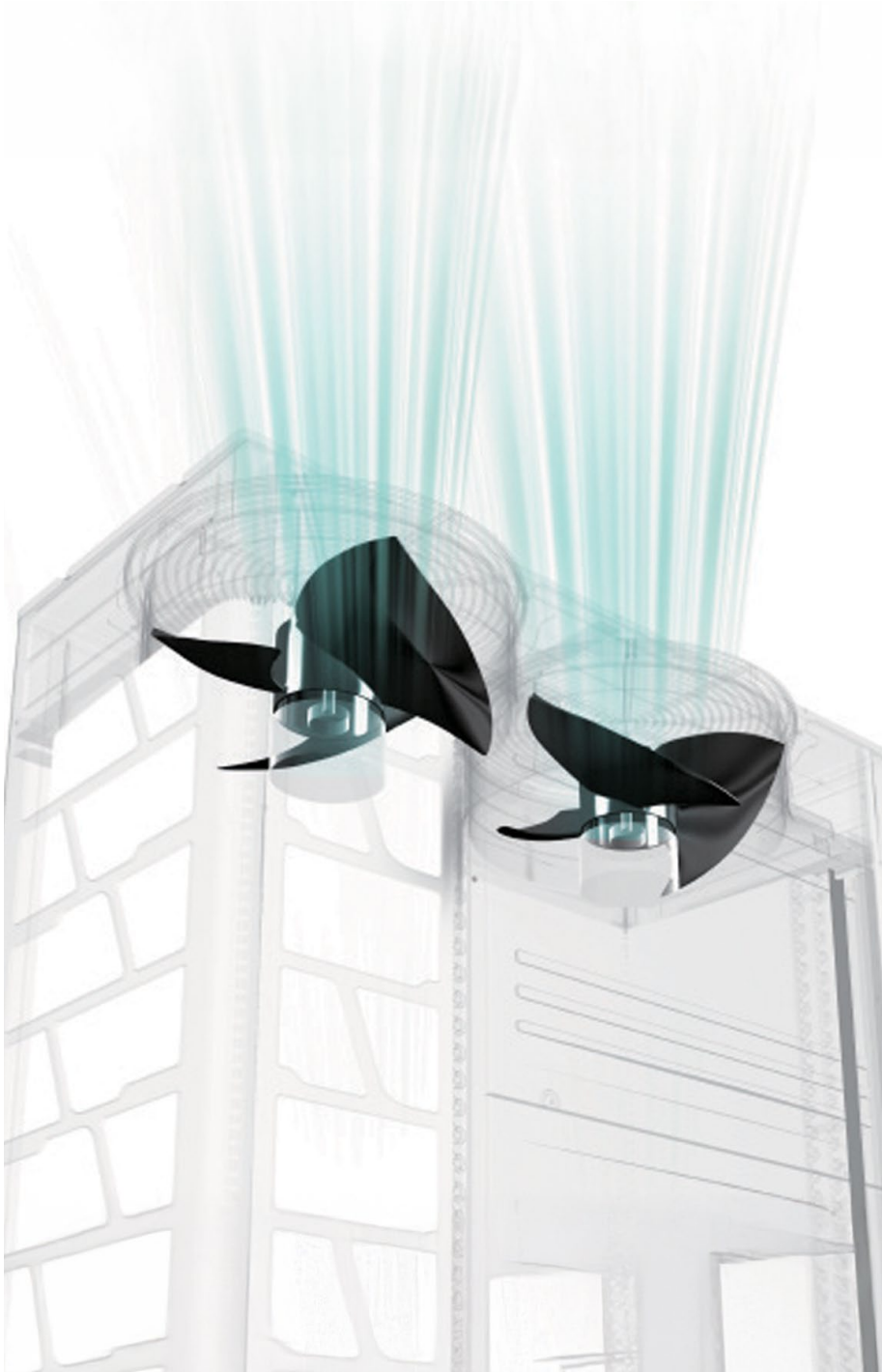




Effective protection against overvoltage and electromagnetic interference

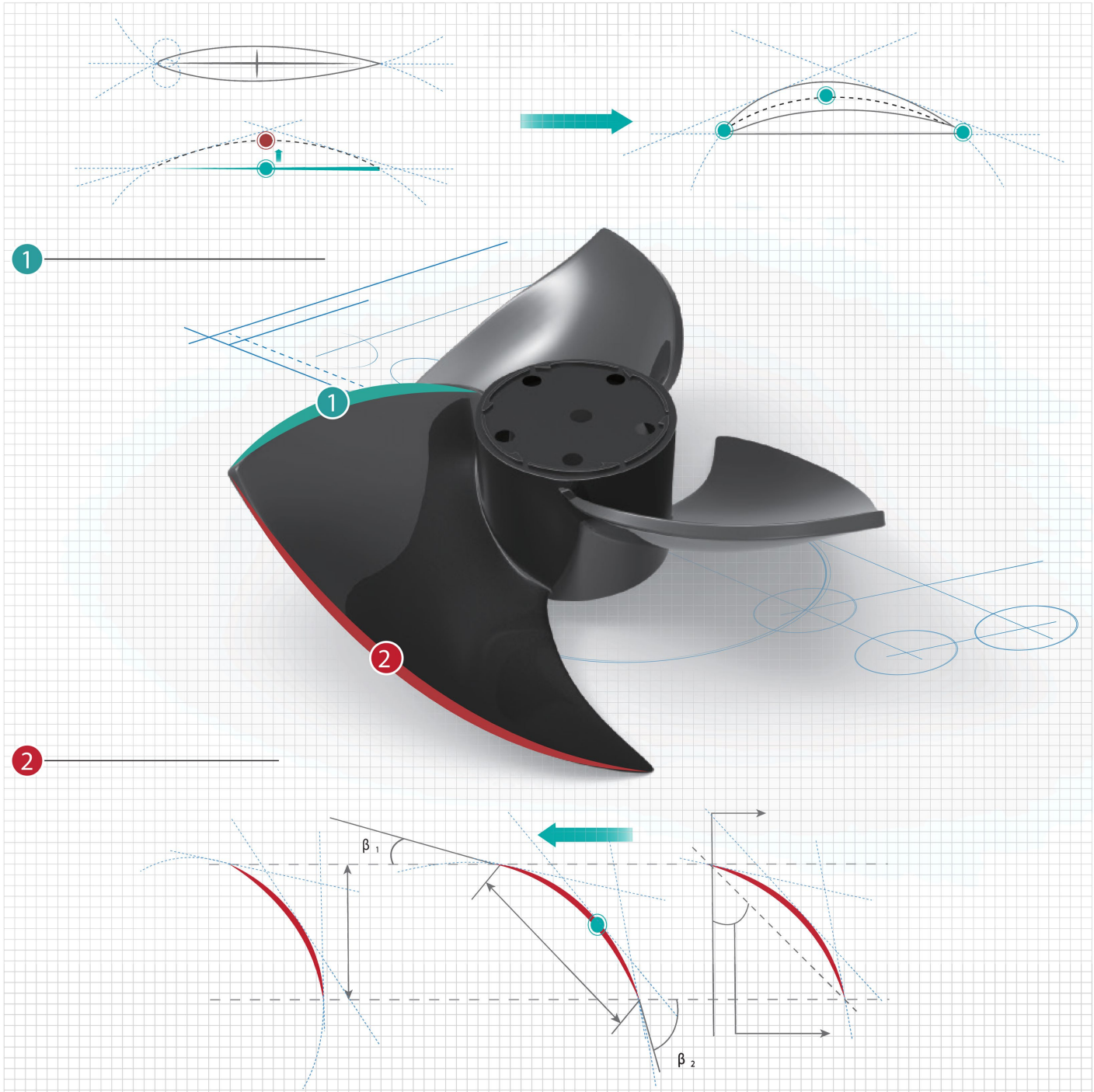
HAVA VRF commercial units comply with strict electromagnetic protection and quality control requirements, preventing interference caused by electromagnetic fields and avoiding the generation of disturbances to nearby equipment.

One of the main risk factors for electronic component reliability is external overvoltage, such as lightning-induced surges during storms. To ensure system resistance to such events, the units are subjected to 4000 V surge tests as part of extensive electromagnetic testing programs conducted in specialized laboratories and certified to international standards.



Continuous and smooth fan speed control

Inverter fan motors are widely used due to their increased efficiency of up to 40%. In HAVA VRF systems, brushless DC (BLDC) fan motors are implemented, delivering a higher level of energy efficiency while significantly reducing energy consumption and noise levels compared to conventional inverter motors.



Efficient air discharge

The bearings connecting the motor and the fan are treated with a special anti-corrosion coating to protect against rain, and the fan blades, made of glass-fiber composite, provide superior corrosion resistance.

The fan blades are aerodynamically designed to minimize energy losses caused by unnecessary power conversion into noise, directing available energy toward improving airflow rate and static pressure. Integration with the brushless DC fan motor further optimizes system efficiency and significantly reduces the overall noise level of the fan assembly.

Technical specifications

HAVA VRF

HHV-76/96/114/136/164/170/190YSM+

Capacity (HP)			8 HP	10 HP	12 HP	14 HP	16 HP	18 HP
Model			HHV-76YSM+	HHV-96YSM+	HHV-114YSM+	HHV-136YSM+	HHV-154YSM+	HHV-170YSM+
Power Supply			AC 3Φ, 380-415V/50/60Hz					
Cooling	Capacity	kW	22,4	28,0	33,5	40,0	45,0	50,0
		kBtu/h	76,4	95,5	114,3	136,5	153,5	170,6
	Power Input	kW	4,79	6,60	7,96	10,34	12,26	14,04
		EER	kW/kW	4,68	4,24	4,21	3,87	3,67
Heating	Capacity	kW	25,0	31,5	37,5	45,0	50,0	56,0
		kBtu/h	85,3	107,5	128,0	153,5	170,6	191,1
	Power Input	kW	5,13	6,79	8,50	10,84	12,20	14,81
		COP	kW/kW	4,87	4,64	4,41	4,15	4,10
Airflow	Airflow Rate	m ³ /min	183	183	183	200	200	200
	Number of fans		1	1	1	2	2	2
	External static pressure	Pa	110	110	110	110	110	110
	Sound pressure level	Normal mode	dB(A)	56	57	59	59	60
Night Shift mode		dB(A)	41	42	44	44	45	46
Compressor	Type	-	Scroll Compressor					
	Number of compressors	pcs	1	1	1	1	1	1
Refrigerant	Type	-	R410A					
	Factory pre-charged quantity	kg	5,3	5,3	6,2	8,0	8,0	9,6
Weight	Net weight	kg	217	219	223	272	273	296
	Gross weight	kg	246	248	252	306	307	330
Dimensions	Outdoor unit (H×W×D)	mm	1730x950x750	1730x950x750	1730x950x750	1730x1210x750	1730x1210x750	1730x1210x750
	Packaging (H×W×D)	mm	1950x1015x790	1950x1015x790	1950x1015x790	1950x1275x790	1950x1275x790	1950x1275x790
Cabinet color			Grayish white	Grayish white	Grayish white	Grayish white	Grayish white	Grayish white
Refrigerant piping	Gas pipe	mm	Φ19,05	Φ22,20	Φ25,40	Φ25,40	Φ28,60	Φ28,60
		inch	3/4	7/8	1	1	1-1/8	1-1/8
	Liquid pipe	mm	Φ9.53	Φ9,53	Φ12,70	Φ12,70	Φ12,70	Φ15,88
		inch	3/8	3/8	1/2	1/2	1/2	5/8
Connectable indoor units	Quantity	pcs	13	16	19	23	26	29
	Total capacity ratio	-	50%-150%	50%-150%	50%-150%	50%-150%	50%-150%	50%-150%
Piping configuration	Height difference between outdoor and indoor units	m (above)	50(90 ^{*1})	50(90 ^{*1})	50(90 ^{*1})	50(90 ^{*1})	50(90 ^{*1})	50(90 ^{*1})
		m (below)	40(90 ^{*1})	40(90 ^{*1})	40(90 ^{*1})	40(90 ^{*1})	40(90 ^{*1})	40(90 ^{*1})
	Height difference between indoor units	m	30	30	30	30	30	30
	Maximum piping length	m	1000	1000	1000	1000	1000	1000
Operating range ²	Cooling	°C	-5 ~ 52	-5~52	-5 ~ 52	-5 ~ 52	-5 ~ 52	-5 ~ 52
	Heating	°C	-25~16,5	-25~16,5	-25~16,5	-25~16,5	-25~16,5	-25~16,5

Note:

1. The nominal capacity is tested under the following conditions:

Piping length: 7.5 m, piping height difference: 0 m;

Cooling mode: indoor air inlet temperature 27°C DB / 19°C WB, outdoor ambient temperature 35°C DB;

Heating mode: indoor air inlet temperature 20°C DB, outdoor ambient temperature 7°C DB / 6°C WB.

2. The above noise values are measured in an anechoic chamber with no sound reflections.

Measurement point: 1 m from the service panel surface and 1.5 m above floor level.

*1. For a height difference between the outdoor unit and indoor unit greater than 50 m (40 m), please contact our professional engineer.

*2. When the operating temperature is below 48°C DB to 52°C DB or -25°C WB to -20°C WB, the system may operate intermittently. Please contact our professional engineer.

Technical specifications

HAVA VRF

HHV-212/232/250/272YSM+

Capacity (HP)			20 HP	22 HP	24 HP	26 HP	28 HP
Model			HHV-190YSM+	HHV-212YSM+	HHV-232YSM+	HHV-250YSM+	HHV-272YSM+
Power Supply			AC 3Φ, 380-415/50/60Hz				
Cooling	Capacity	kW	56,0	61,5	68,0	72,5	80,0
		kBtu/h	191,1	209,8	232,0	247,4	273,0
	Power Input	kW	15,38	17,83	19,88	20,83	24,10
	EER	kW/kW	3,64	3,45	3,42	3,48	3,32
Heating	Capacity	kW	63,0	69,0	75,0	80,0	90,0
		kBtu/h	215,0	235,4	255,9	273,0	307,1
	Power Input	kW	16,36	18,70	20,72	21,98	25,57
	COP	kW/kW	3,85	3,69	3,62	3,64	3,52
Airflow	Airflow Rate	m ³ /min	267	296	296	350	350
	Number of fans		2	2	2	2	2
	External static pressure	Pa	110	110	110	110	110
Sound pressure level	Normal mode	dB(A)	62	63	63	64	64
	Night Shift mode	dB(A)	47	48	48	49	49
Compressor	Type	-	Scroll Compressor				
	Number of compressors	pcs	1	2	2	2	2
Refrigerant	Type	-	R410A				
	Factory pre-charged quantity	kg	10,3	12,2	12,2	12,0	12,0
Weight	Net weight	kg	316	363	365	391	392
	Gross weight	kg	347	400	402	433	434
Dimensions	Outdoor unit (H×W×D)	mm	1730x1350x750	1730x1350x750	1730x1350x750	1730x1600x750	1730x1600x750
	Packaging (H×W×D)	mm	1950x1420x790	1950x1420x790	1950x1420x790	1950x1665x790	1950x1665x790
Cabinet color			Grayish white	Grayish white	Grayish white	Grayish white	Grayish white
Refrigerant piping	Gas pipe	mm	Φ28,60	Φ28,60	Φ28,60	Φ31,75	Φ31,75
		inch	1-1/8	1-1/8	1-1/8	1-1/4	1-1/4
	Liquid pipe	mm	Φ15,88	Φ15,88	Φ15,88	Φ19,05	Φ19,05
		inch	5/8	5/8	5/8	3/4	3/4
Connectable indoor units	Quantity	pcs	33	36	40	43	47
	Total capacity ratio	-	50%-150%	50%-150%	50%-150%	50%-150%	50%-150%
Piping configuration	Height difference between outdoor and indoor units	m (above)	50(90 ^{*1})	50(90 ^{*1})	50(90 ^{*1})	50(90 ^{*1})	50(90 ^{*1})
		m (below)	40(90 ^{*1})	40(90 ^{*1})	40(90 ^{*1})	40(90 ^{*1})	40(90 ^{*1})
	Height difference between indoor units	m	30	30	30	30	30
	Maximum piping length	m	1000	1000	1000	1000	1000
Operating range ²	Cooling	°C	-5 ~ 52	-5 ~ 52	-5 ~ 52	-5 ~ 52	-5 ~ 52
	Heating	°C	-25~16,5	-25~16,5	-25~16,5	-25~16,5	-25~16,5

Note:

1. The nominal capacity is tested under the following conditions:

Piping length: 7.5 m, piping height difference: 0 m;

Cooling mode: indoor air inlet temperature 27°C DB / 19°C WB, outdoor ambient temperature 35°C DB;

Heating mode: indoor air inlet temperature 20°C DB, outdoor ambient temperature 7°C DB / 6°C WB.

2. The above noise values are measured in an anechoic chamber with no sound reflections.

Measurement point: 1 m from the service panel surface and 1.5 m above floor level.

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*2. When the operating temperature is below 48°C DB to 52°C DB or -25°C WB to -20°C WB, the system may operate intermittently. Please contact our professional engineer.