



# IZUMI DC INVERTER CHILLERS

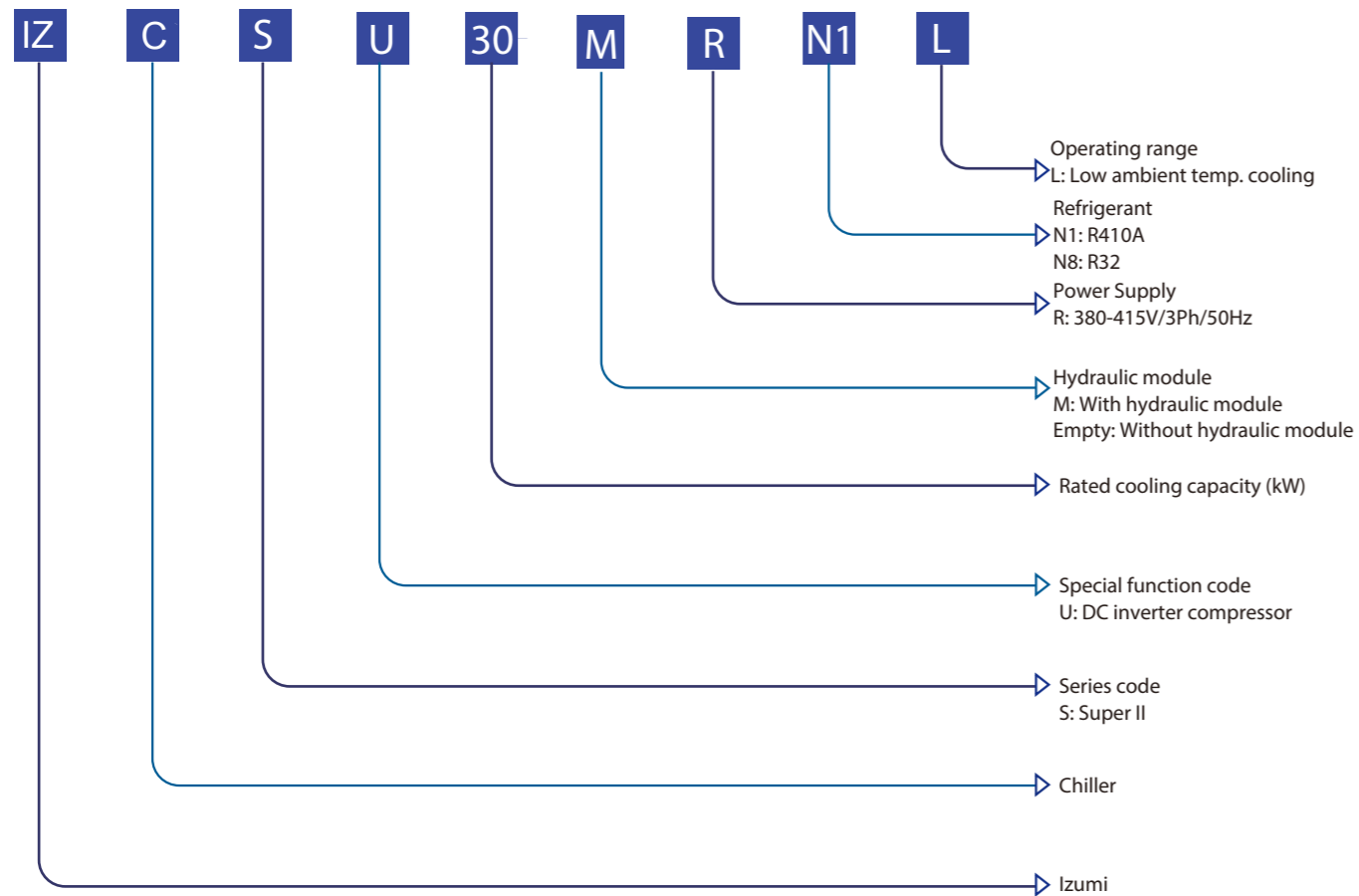
Advance Technology  
Wide Application  
High Efficiency

Easy Installation  
Enhanced Comfort  
Higher Reliability



**IZUMI CORPORATION, TOKYO, JAPAN**

## Nomenclature



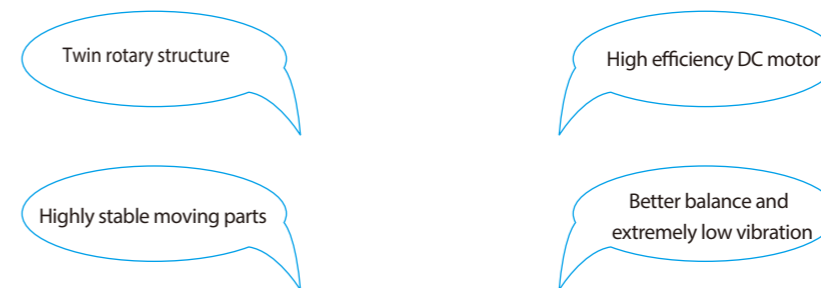
## High Efficiency

A++ rated energy efficiency >>

Izumi Super II Series DC inverter air-cooled chillers are compliant with the EU's Energy-Related Products Directive (2009/125/EC) and all have A++ or A+ seasonal space heating energy efficiency ratings.

## Compressor >>

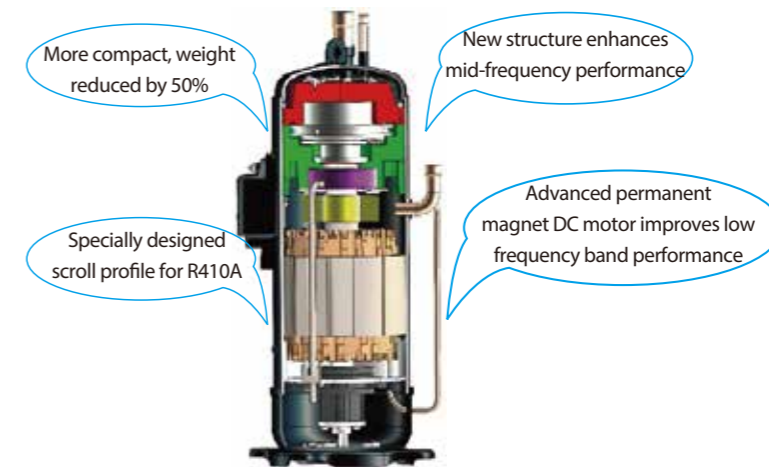
At the heart of the chiller lies a world-leading DC inverter compressor. The compressor's innovative design and numerous high performance features reduce power consumption by 25%.



## Product lineup

Model	IZ-SU30(M)-RN1L IZ-SU30(M)-RN8L	IZ-SU60(M)-RN1L IZ-SU60(M)-RN8L	IZ-SU90-RN1L
Appearance			
Power supply	380-415V/3Ph/50Hz		

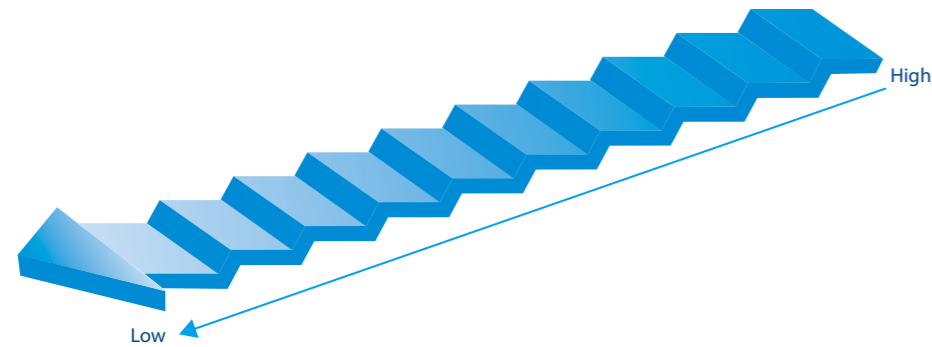
Compressor for IZ-SU30(M)-RN1L, MC-SU60(M)-RN1L, MC-SU30(M)-RN8L and MC-SU60(M)-RN8L



Compressor for IZ-SU-90RN1L

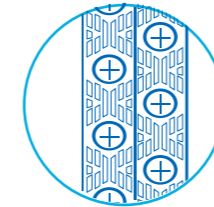
## DC fan motors

Fan speed is controlled according to the system pressure and system load, reducing power consumption by 30%. There are 12-step vector control for IZ-SU30-RN1L, IZ-SU60-RN1L, IZ-SU90-RN1L and 32-step vector control for IZ-SU30-RN8L, IZ-SU60-RN8L.



## High performance heat exchanger

Large inner grooved copper tube and hydrophilic aluminum fins greatly improve air side heat exchange efficiency.



New design, reduces air resistance



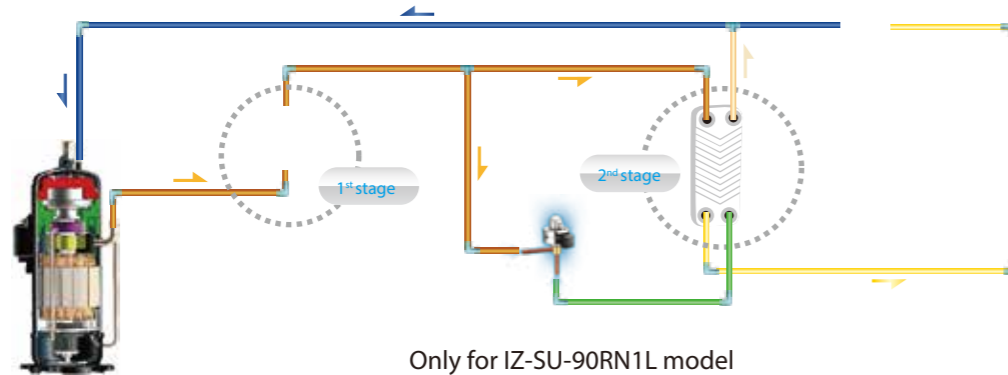
High efficiency inner grooved tube, enhances heat transfer.



Hydrophilic aluminum fins + inner grooved tubes

## Plate Heat Exchanger (PHE) Subcooling

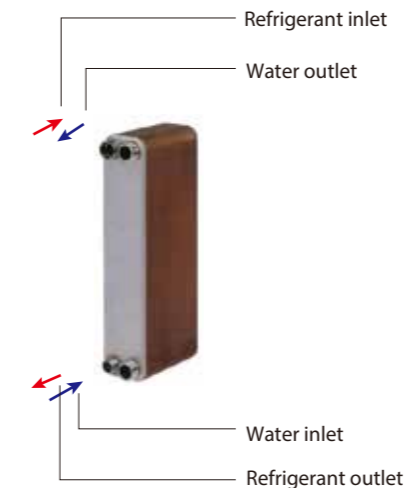
Plate Heat Exchanger as a secondary intercooler boosts up refrigerant subcooling and improves 10% energy efficiency.



Only for IZ-SU-90RN1L model

## High efficiency plate heat exchanger

Water side heat exchanger uses multiple metal plates to achieve efficient heat transfer between refrigerant and water.



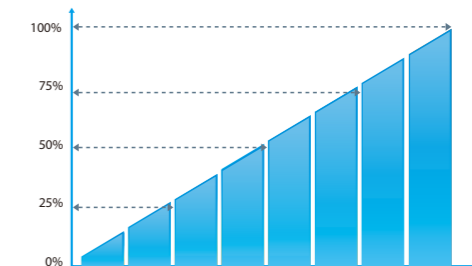
## High performance heat exchanger design >>

Efficient fan motor, well-designed air duct and uniform wind field make heat exchange of the whole system more thorough.



## Precisely flow control >>

Patented liquid distribution components maximize performance and minimize impact of defrosting operation. 480-step EXV with capillary tube allows stable and accurate gas flow control. Fast response results in higher efficiency and improved reliability.



# Air Cooled Chiller

## Refrigerant >>

IZ-SU30-RN8L and IZ-SU60-RN8L use R32 refrigerant, which is a kind of environmentally friendly refrigerant.



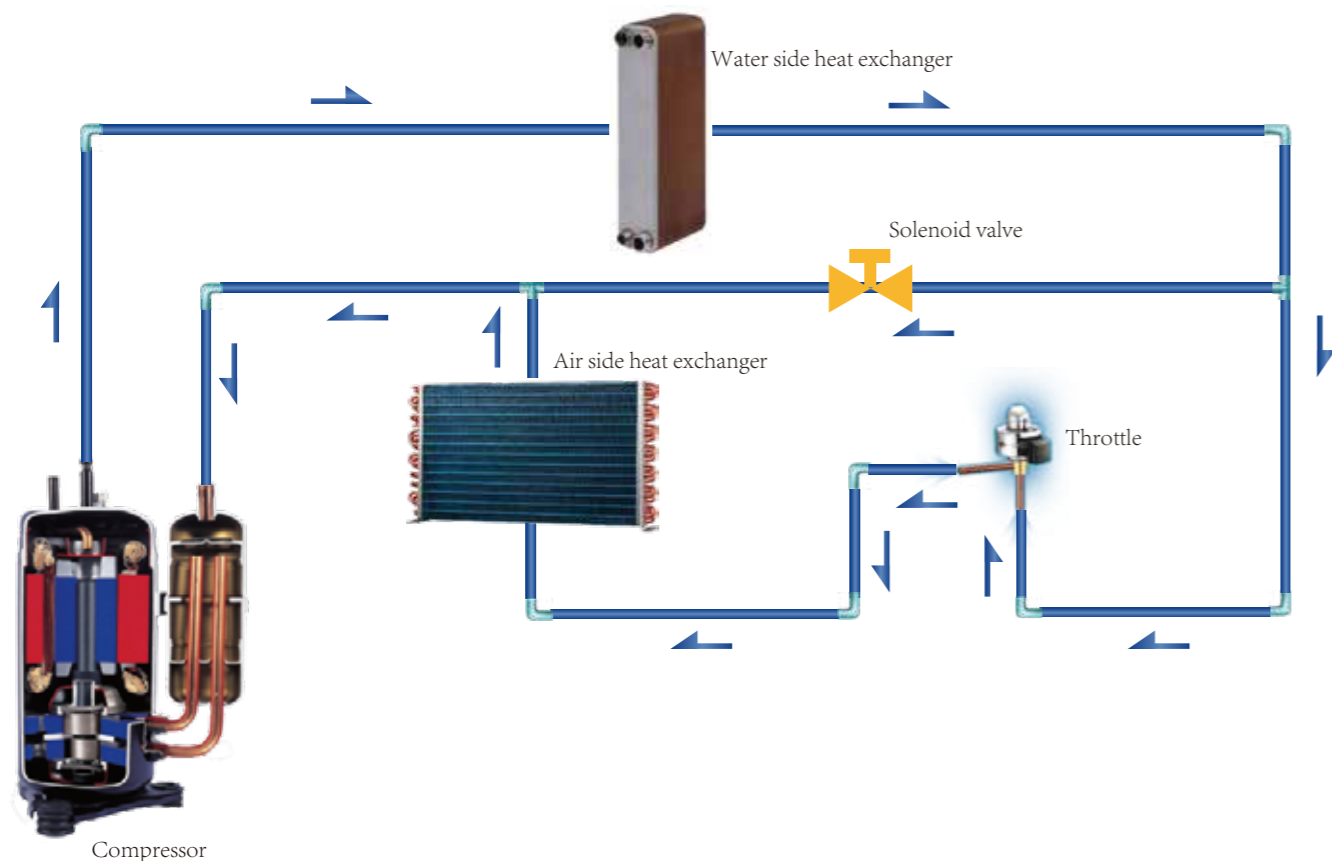
- ❖ Low GWP and carbon emission
- ❖ Better performance under severe conditions
- ❖ Less charged volume is needed in the system
- ❖ Lowcost and higher coefficient of heat transfer

Abbreviations

GWP: Global warming potential

## Spray liquid cooling control >>

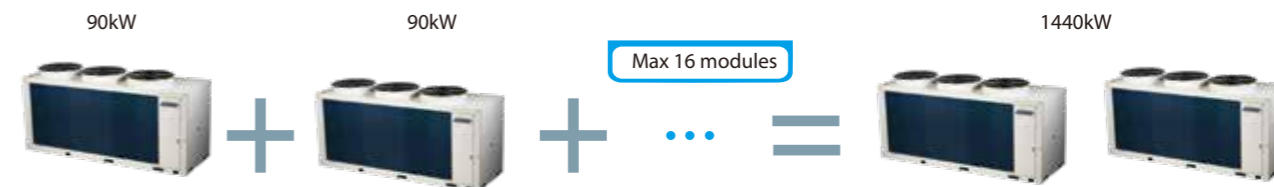
Spray liquid cooling control, which is used for enhancing heating capacity in low temperature condition, only applies to IZ-SU30-RN8L and IZ-SU60-RN8L.



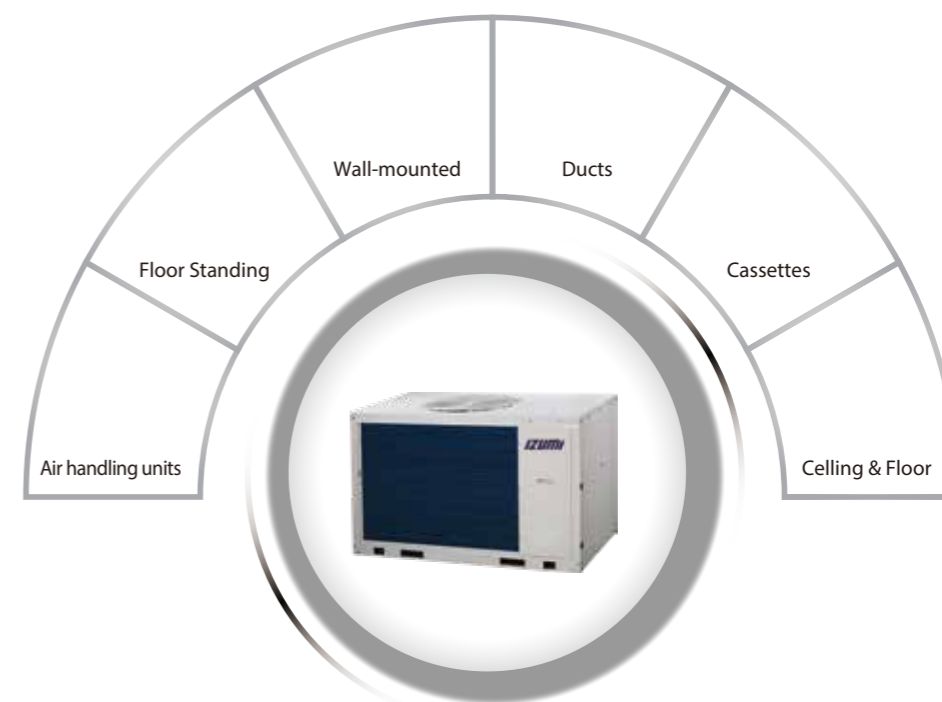
# Wide Application Range

## Flexibility

Modular design allows up to 16 units to be connected together, giving a system cooling/heating capacity range of 30kW to 1440kW.

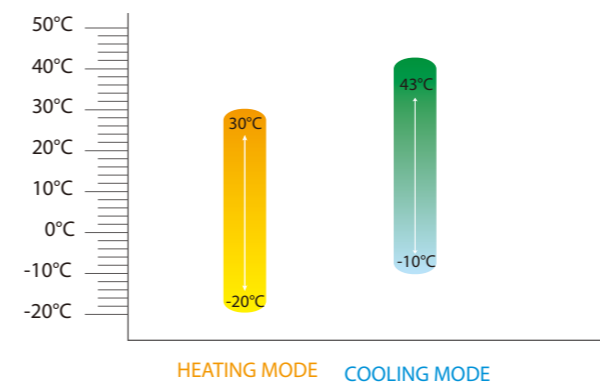


Compatible with fan coil units and air handling units.



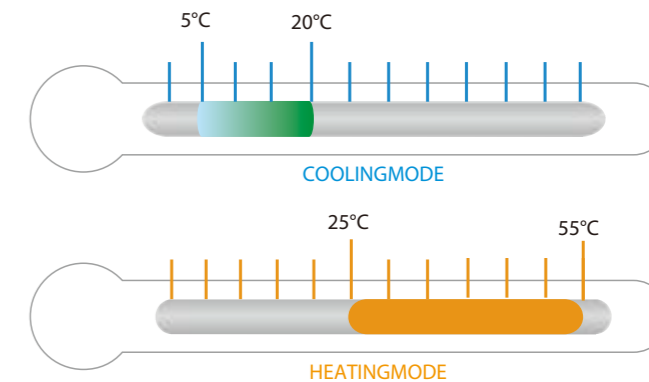
## Ambient temperature

Stable operation even under extreme conditions: -20°C to 43°C.



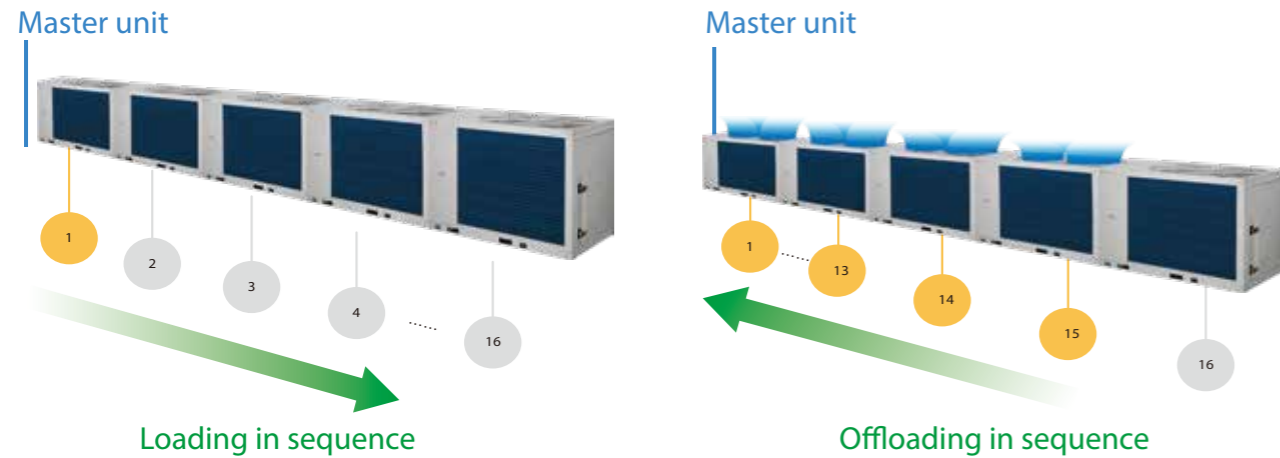
## Outlet water temperature

Wide outlet water temperature range with lowest outlet temperature in cooling mode of 5°C.



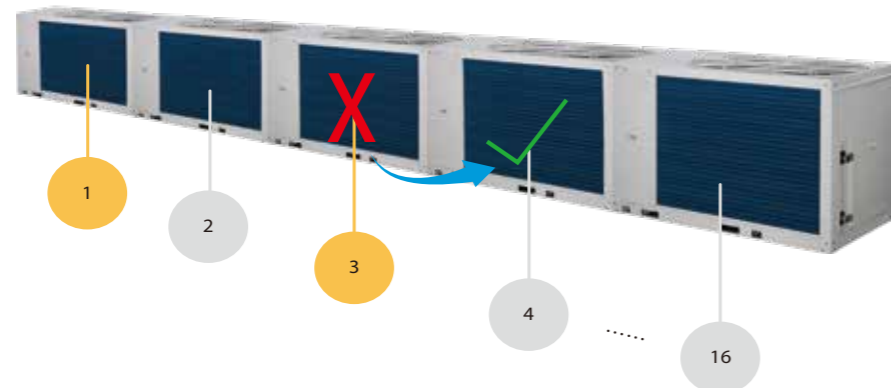
## Loading and offloading

Loading and offloading for multiple units system



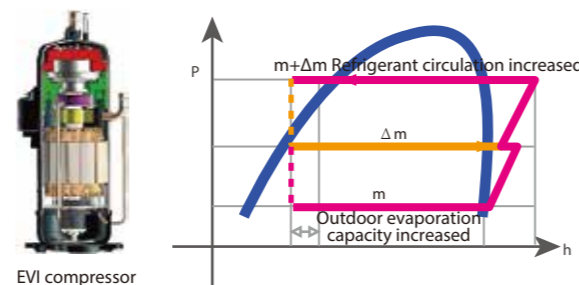
## Back up >>

In a multi-unit system, if one module fails, the other modules provide backup so that the system can continue operating.

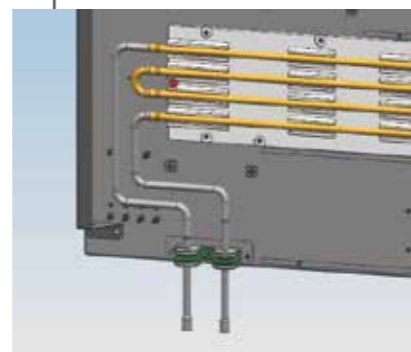


## Enhanced Vapor Injection (EVI) Compressor

Thanks to the vapor injection DC inverter compressor, the IZ-SU-90RN1L can run heating mode stably down to  $-20^{\circ}\text{C}$ , and the heating capacity can be improved greatly.



EVI compressor



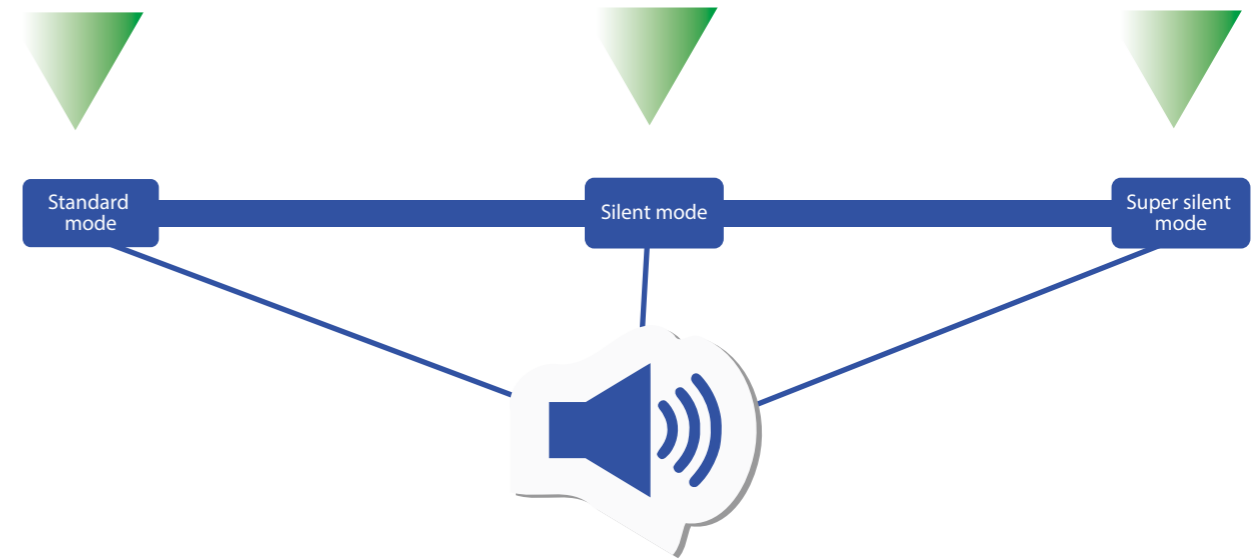
## Refrigerant Cooling PCB

The IZ-SU-90RN1L uses refrigerant cooling technology to cool the electric control box. It decreases the average temperature of electrical control components by about 8 degrees, guaranteeing the stable and safe running of the control system.

# Enhanced Comfort

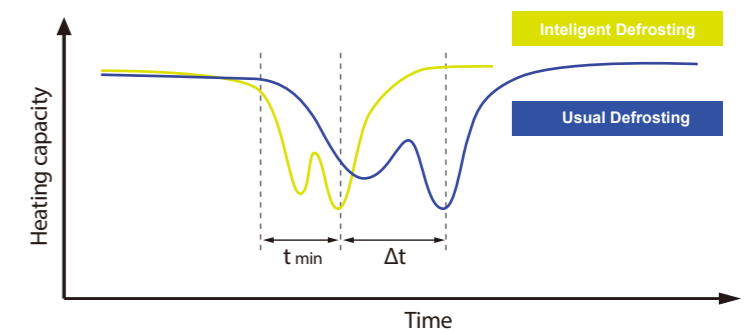
## Multiple silent modes

Three different silent modes enable noise reduction to suit time of day and ambient noise levels.



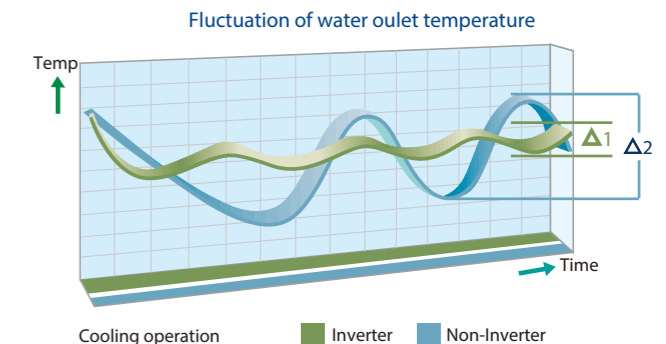
## Intelligent defrosting technology

The intelligent defrosting program calculates the time required for defrosting according to the actual system status, eliminating heat losses from unnecessary defrosting. A specialized defrosting valve reduces time required for defrosting to as little as four minutes.



## Rapid cooling or heating

The DC inverter compressor reaches full capacity rapidly, providing quicker cooling or heating with lower levels of temperature fluctuation during the cooling/heating operation.



## Easy Control

### Additional control

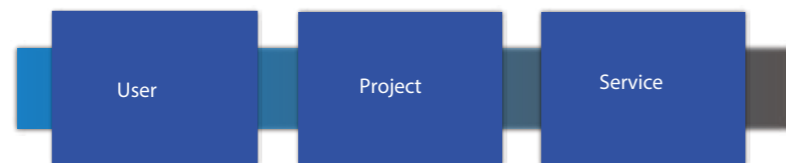
ON/OFF, Cool/Heat and Alarm ports on chiller PCBs allow switches to be connected to enable additional remote control functionality.



Note: When the additional control functionality is added, the ON/OFF control and mode selection functionality of the wired controller is disabled.

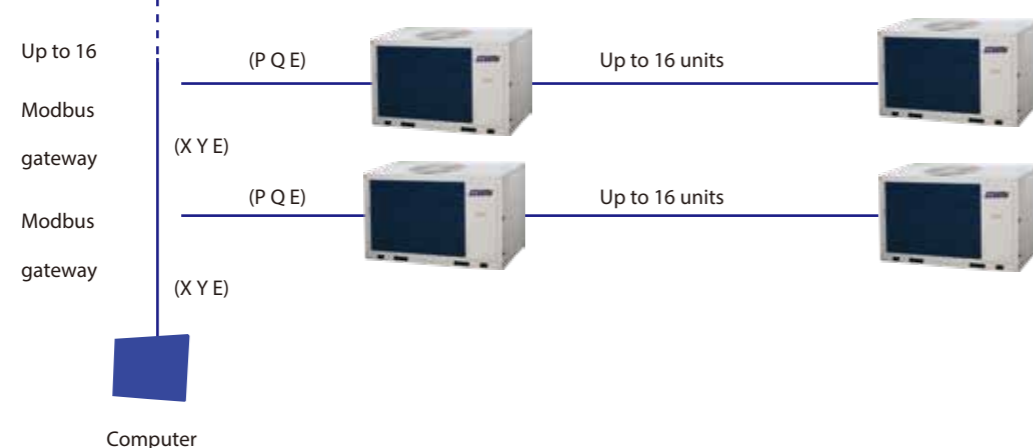
### Three user levels

Three different user levels ensure users can easily access control functions and allow engineers convenient access to operating parameters.



### Modbus gateway

For IZ-SU90-RN1L, IZ-SU30-RN8L and IZ-SU60(M)-RN8L, the Modbus gateway is standard function. For IZ-SU30(M)-RN1L and IZ-SU60-RN1L, the Modbus gateway is customization function. Modbus gateway functionality can be added by adding X, Y, E ports to the wired controller. Up to 16 wired controllers can be connected together, with each controller controlling up to 16 units.

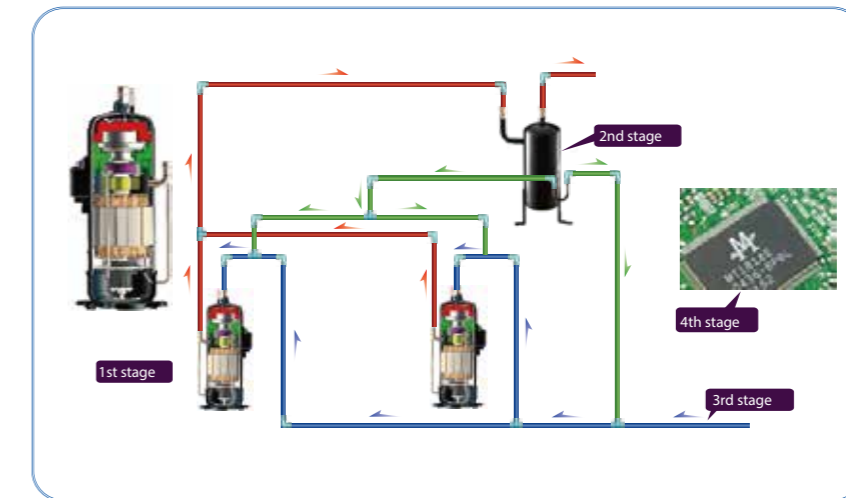


## High Reliability

### Precise Oil Control Technology

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

- Compressor internal oil separation.
- 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.
- Oil balance pipe of compressor ensures oil distribution to keep compressor running normally.
- Auto oil return program monitors the running time and system status to ensure reliable oil return.



### Anti-corrosion Protection

Outdoor units are given anti-corrosion treatment for non-extreme conditions as standard and can also be customized with heavy anti-corrosion treatment on main components for surface protection against corrosive air, acid rain and saline air (for installations in coastal regions) to extend overall useful life. The integrity of the anti-corrosion treatment is ensured by subjecting major components and parts to salt mist testing, moisture and heating testing and light aging testing.

#### Fan motor

Standard products:  
72h of neutral salt mist

Heavy anti-corrosion products:  
240h of neutral salt mist

#### Painted sheet metal

Standard products:  
500h of neutral salt mist  
1000h of moisture and heating test  
500h of light aging test

Heavy anti-corrosion products:  
1000h of neutral salt mist  
2000h of moisture and heating test  
720h of light aging test

**Screws / bolts / gaskets**  
Standard products:  
300h of neutral salt mist  
Heavy anti-corrosion products:  
720h of neutral salt mist



**Heat exchanger aluminum foil**  
Standard products:  
72h of neutral salt mist

Heavy anti-corrosion products:  
1000h of neutral salt mist  
140h of acid salt mist

**Heat exchanger copper pipe**  
Standard products:  
24h of neutral salt mist

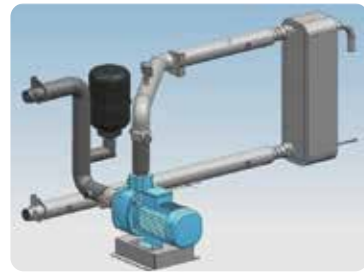
Heavy anti-corrosion products:  
120h of neutral salt mist

**Electric control box case**  
Standard products:  
96h of neutral salt mist

Heavy anti-corrosion products:  
240h of neutral salt mist

## Easy Installation & Maintenance

### Built-in components



hydraulic module  
(customization option)



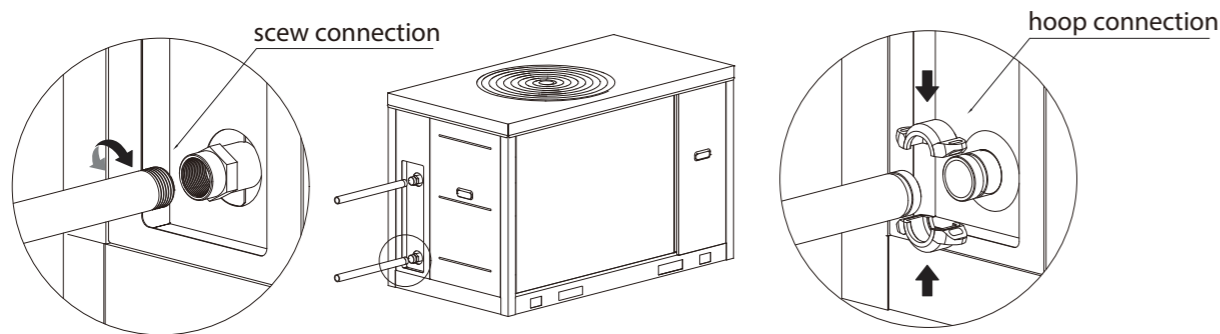
water flow switch



wired controller

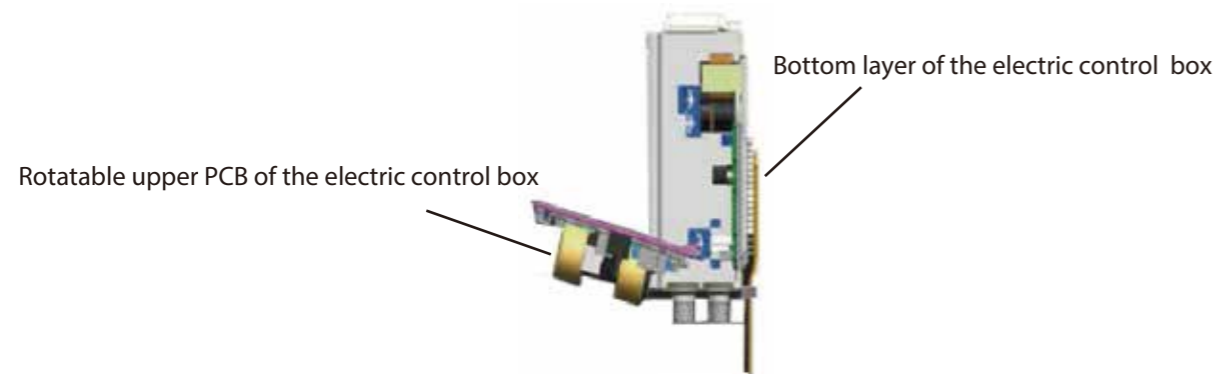
### Water pipe connection

Only water piping installation is needed, no need to install refrigerant piping. IZ-SU30-RN1L and IZ-SU30-RN8L use screwed connection, while IZ-SU60-RN1L, IZ-SU90-RN1L and IZ-SU60-RN8L use hoop connection.



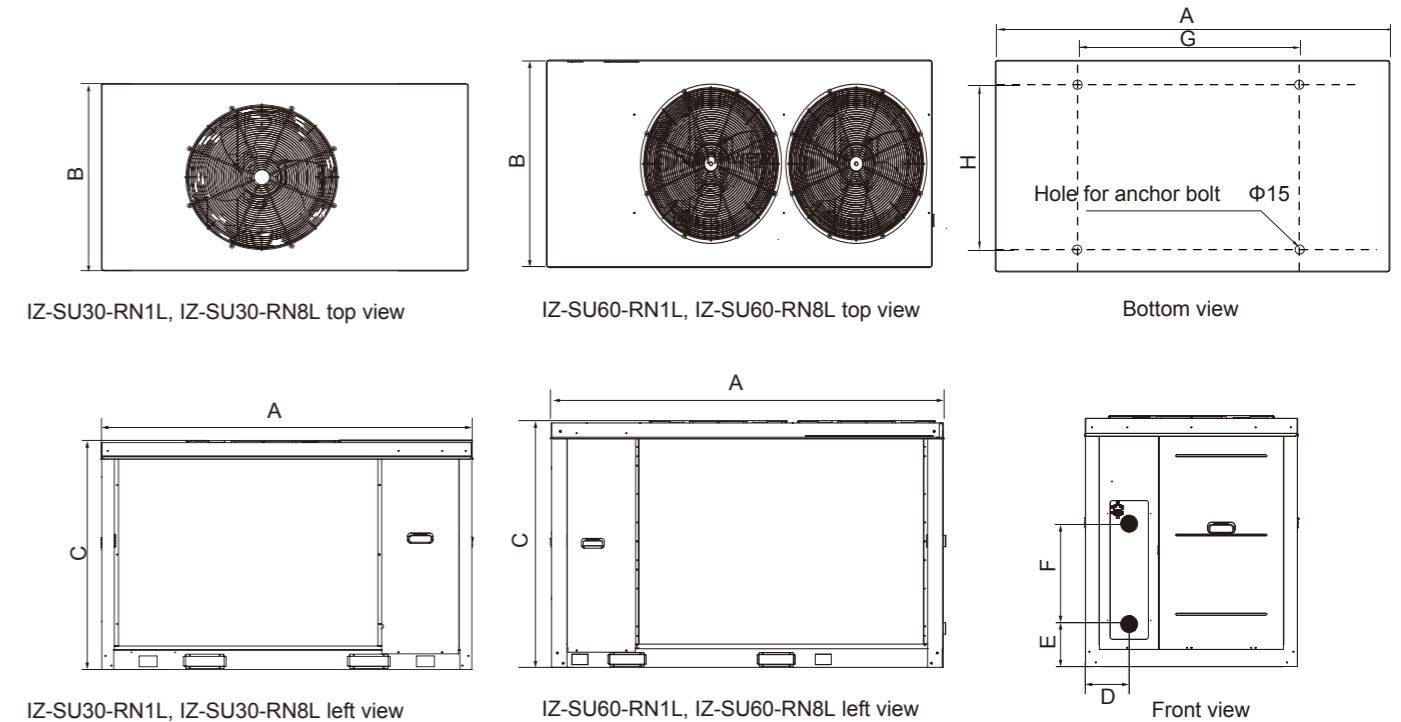
### Rotatable PCB

The bottom layer can be easily achieved through the rotatable upper PCB, making the maintenance easier.

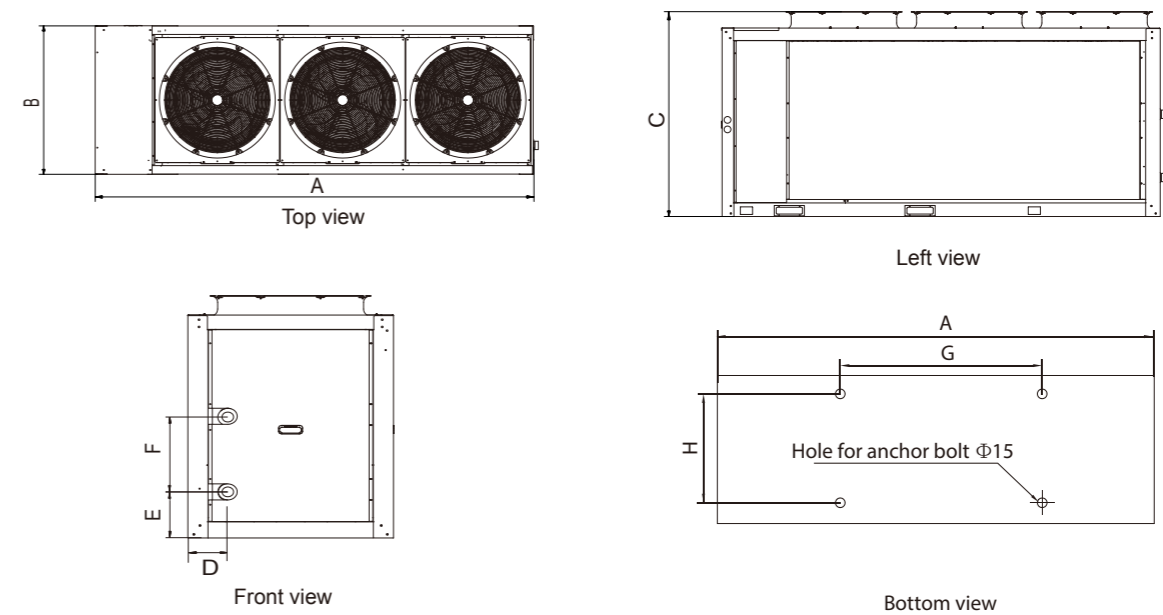


## Unit Dimensions (Unit: mm)

IZ-SU30-RN1L/IZ-SU60(M)-RN1L  
IZ-SU30-RN8L/IZ-SU60(M)-RN8L



### IZ-SU90-RN1L



Model	A	B	C	D	E	F	G	H
IZ-SU30-RN1L	1870	1000	1175	204	200	470	800	926
IZ-SU60-RN1L	2220	1055	1325	234	210	470	1105	958
IZ-SU90RN1L	3220	1095	1513	286	210	470	2116	1008

## Specifications

Model			IZ-SU30-RN1L	IZ-SU30M-RN1L	IZ-SU60-RN1L	IZ-SU60M-RN1L	IZ-SU90-RN1L
Power supply		V/Ph/Hz	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50
Cooling <sup>1</sup>	Capacity	kW	27	28.2	55	55	82
	Rated input	kW	10.8	10.9	22	22.5	36.8
	EER		2.5	2.58	2.5	2.44	2.23
	SEER		4.08	3.93	3.93	4.25	4.08
Heating <sup>2</sup>	Capacity	kW	31	30.8	61	60	90
	Rated input	kW	10.5	10.62	20.3	21.2	32.8
	COP		2.95	2.9	3.00	2.83	2.74
	SCOP		4.01	3.27	3.85	3.45	3.99
Seasonal space heating energy efficiency class			A++	A+	A++	A+	A++
Max. running current		A	18.0	19.7	36.8	36.9	60
Compressor	Type		Rotary	Rotary	Rotary	Rotary	Scroll
	Quantity		1	1	2	2	2
Air side heat exchanger		Type	Finned tube	Finned tube	Finned tube	Finned tube	Finned tube
Fan motor	Type		DC motor	DC motor	DC motor	DC motor	DC motor
	Quantity		1	1	2	2	3
	Air flow rate	m <sup>3</sup> /h	12,500	12,500	24,000	24,000	38000
Water side heat exchanger	Type		Plate	Plate	Plate	Plate	Plate
	Volume	L	2.44	2.44	5.17	5.17	7.05
	Water flow	m <sup>3</sup> /h	5	5	9.8	9.8	15
	Water pressure drop	kPa	55	55	61	61	75
Pump head		m	/	15	/	15	/
Refrigerant system	Type		R410A	R410A	R410A	R410A	R410A
	Charged volume	kg	10.5	10.5	17.0	17.0	27.0
Throttle		Type	EXV	EXV	EXV + Capillary	EXV + Capillary	EXV
Sound power level		dB(A)	74	78	82	87	89
Sound pressure level <sup>3</sup>		dB(A)	65.8	68	72.1	73	80.1
Net dimensions (WxHxD)		mm	1870x1175x1000	1870x1175x1000	2220x1325x1055	2220x1325x1055	3220x1513x1095
Packed dimensions (WxHxD)		mm	1910x1225x1035	1910x1225x1035	2250x1370x1090	2250x1370x1090	3275x1540x1130
Net/Gross weight		kg	300/310	335/345	480/490	515/525	710/739
Water pipe connections		mm	DN40	DN40	DN50	DN50	DN50
Wired Controller			KJRM-120H/BMWKO-E	KJRM-120H/BMWKO-E	KJRM-120H/BMWKO-E	KJRM-120H/BMWKO-E	KJRM-120H/BMWKO3-E
Operating temperature range	Cooling	°C	-10 to 43	-10 to 43	-10 to 43	-10 to 43	-10 to 43
	Heating	°C	-15 to 30	-15 to 30	-15 to 30	-15 to 30	-20 to 30
Water outlet temperature range	Cooling <sup>4</sup>	°C	5 to 20	5 to 20	5 to 20	5 to 20	5 to 20
	Heating	°C	25 to 55	25 to 55	25 to 55	25 to 55	25 to 55

**Note:**

1. Cooling: Chilled water inlet/outlet temp.12/7°C; outdoor ambient temp. 35°C DB.
2. Heating: Warm water inlet/outlet temp. 40/45°C; outdoor ambient temp. 7°C DB/6°C WB.
3. Sound pressure level is measured at a position 1m in front of the unit and 1.1m above the floor in a semi-anechoic chamber.
4. Capacity and efficiency data calculated in accordance with EN14511; EN14825

Model			IZ-SU30-RN8L	IZ-SU30M-RN8L	IZ-SU60-RN8L	IZ-SU60M-RN8L
Power supply		V/Ph/Hz	380-415/3/50	380-415/3/50	380-415/3/50	380-415/3/50
Cooling <sup>1</sup>	Capacity	kW	27.5	27.5	55	55
	Rated input	kW	10.3	11	21.5	23
	EER		2.67	2.5	2.55	2.39
	SEER		4.62	4.25	4	4.03
Heating <sup>2</sup>	Capacity	kW	32	32	62	62
	Rated input	kW	10	10.7	20	21.5
	COP		3.2	2.99	3.1	2.88
	SCOP		4.24	3.99	3.86	3.72
Seasonal space heating energy efficiency class			A++	A++	A++	A+
Max. running current		A	20	21.5	40.5	43.5
Compressor	Type		Rotary	Rotary	Rotary	Rotary
	Quantity		1	1	2	2
Air side heat exchanger		Type	Finned tube	Finned tube	Finned tube	Finned tube
Fan motor	Type		DC motor	DC motor	DC motor	DC motor
	Quantity		1	1	2	2
	Air flow rate	m <sup>3</sup> /h	12,500	12,500	24,000	24,000
Water side heat exchanger	Type		Plate	Plate	Plate	Plate
	Volume	L	2.44	2.44	5.17	5.17
	Water flow	m <sup>3</sup> /h	5	5	9.8	9.8
	Water pressure drop	kPa	55	130	61	200
Pump head		m	/	15	/	15
Refrigerant system	Type		R32	R32	R32	R32
	Charged volume	kg	7.9	7.9	14	14
Throttle		Type	EXV	EXV	EXV + Capillary	EXV + Capillary
Sound power level		dB(A)	78	78	86	86
Sound pressure level <sup>3</sup>		dB(A)	64.8	65.1	71.3	71.4
Net dimensions (WxHxD)		mm	1870x1175x1000	1870x1175x1000	2220x1325x1055	2220x1325x1055
Packed dimensions (WxHxD)		mm	1910x1225x1035	1910x1225x1035	2250x1370x1090	2250x1370x1090
Net/Gross weight		kg	300/310	315/325	480/490	515/525
Water pipe connections		mm	DN40	DN40	DN50	DN50
Wired Controller			KJRM-120H/BMWKO3-E	KJRM-120H/BMWKO3-E	KJRM-120H/BMWKO3-E	KJRM-120H/BMWKO3-E
Operating temperature range	Cooling	°C	-10 to 43	-10 to 43	-10 to 43	-10 to 43
	Heating	°C	-14 to 30	-14 to 30	-14 to 30	-14 to 30
Water outlet temperature range	Cooling <sup>4</sup>	°C	5 to 20	5 to 20	5 to 20	5 to 20
	Heating	°C	25 to 54	25 to 54	25 to 54	25 to 54

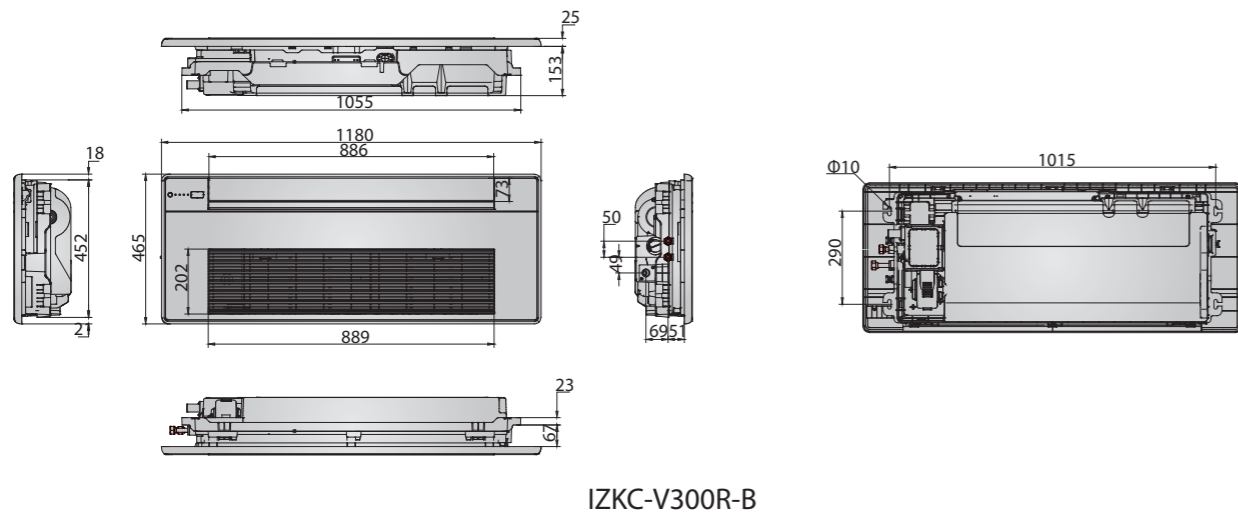
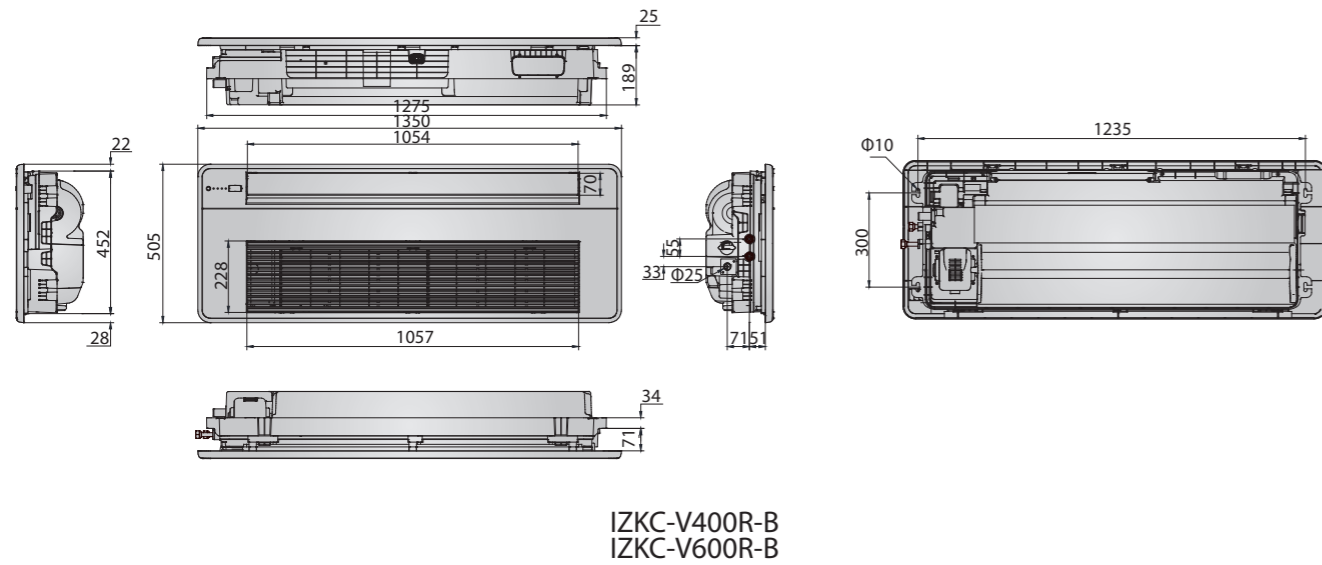
**Note:**

1. Cooling: Chilled water inlet/outlet Temp.12/7°C, outdoor ambient Temp. 35°C DB.
2. Heating: Warm water inlet/outlet Temp. 40/45°C, outdoor ambient Temp. 7°C DB/6°C WB.
3. Sound pressure level is measured at a position 1m in front of the unit and 1.1m above the floor in a semi-anechoic chamber.
4. Capacity and efficiency data in accordance with EN14511, EN14825.



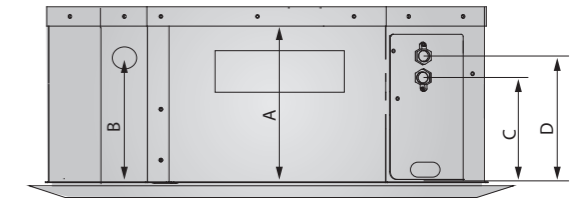
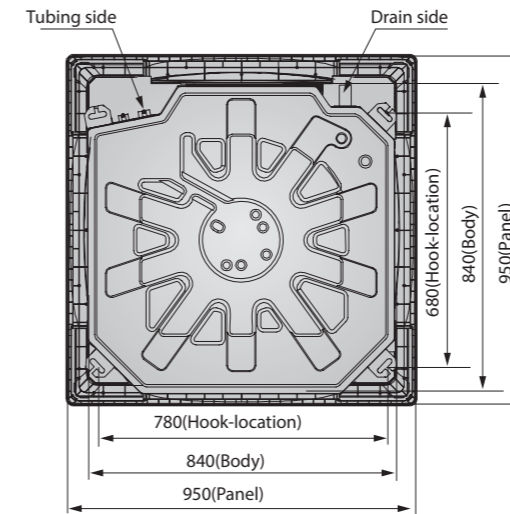
## Dimensions

### 1-way cassette



### 4-way cassette

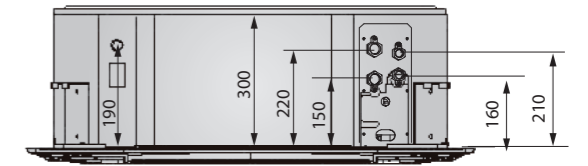
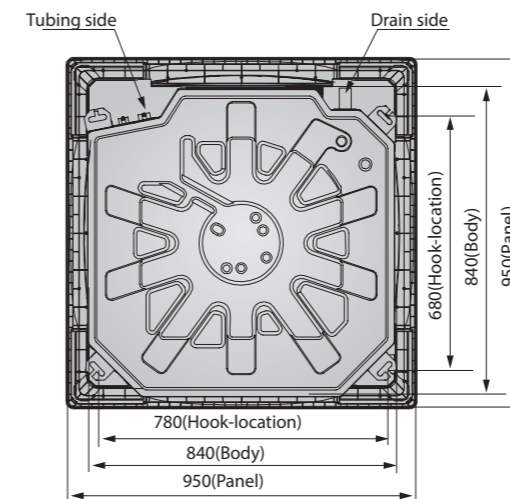
2-pipe 4-way cassette  
Dimensions (unit:mm)



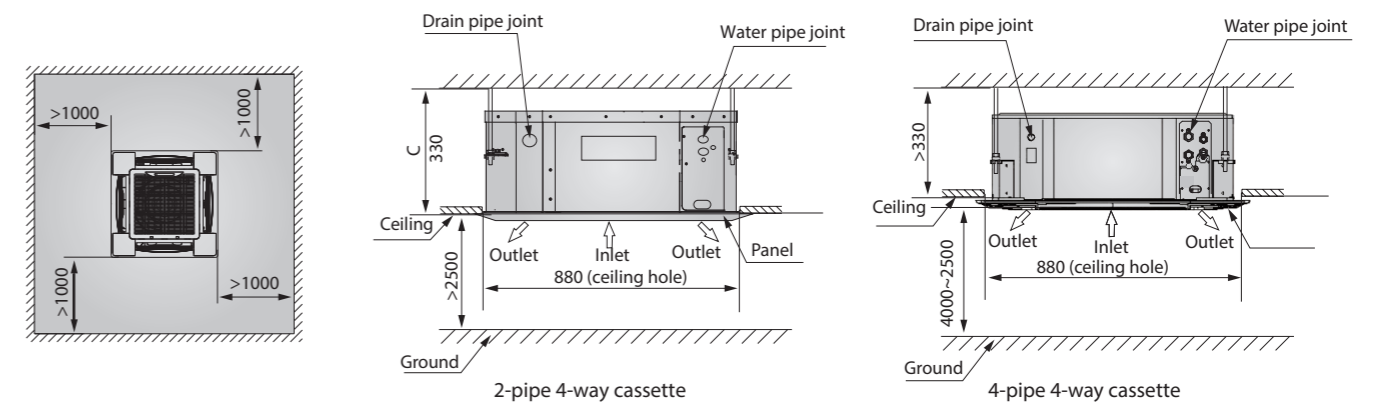
Model	Size	A	B	C	D
IZKA-V600R		230	170	135	185
IZKA-V750R					
IZKA-V950R					
IZKA-V1200R		300	190	145	195
IZAK-V1500R					

### 4-Pipe 4-way cassette

Dimensions (unit:mm)



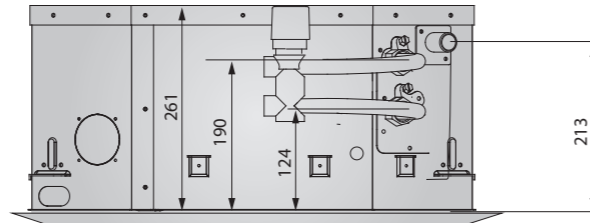
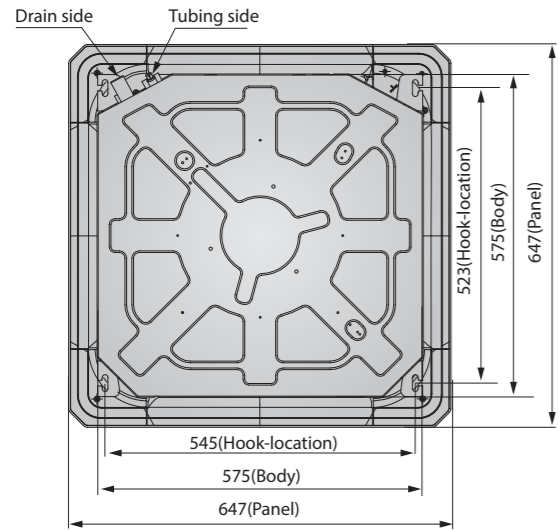
### Service Spaces (unit:mm)



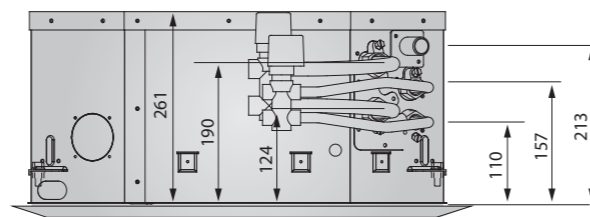
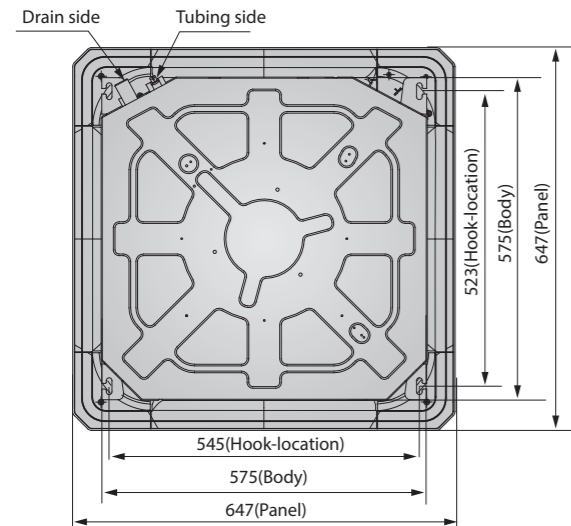
# Fan Coil Units

## Compact 4-way cassette

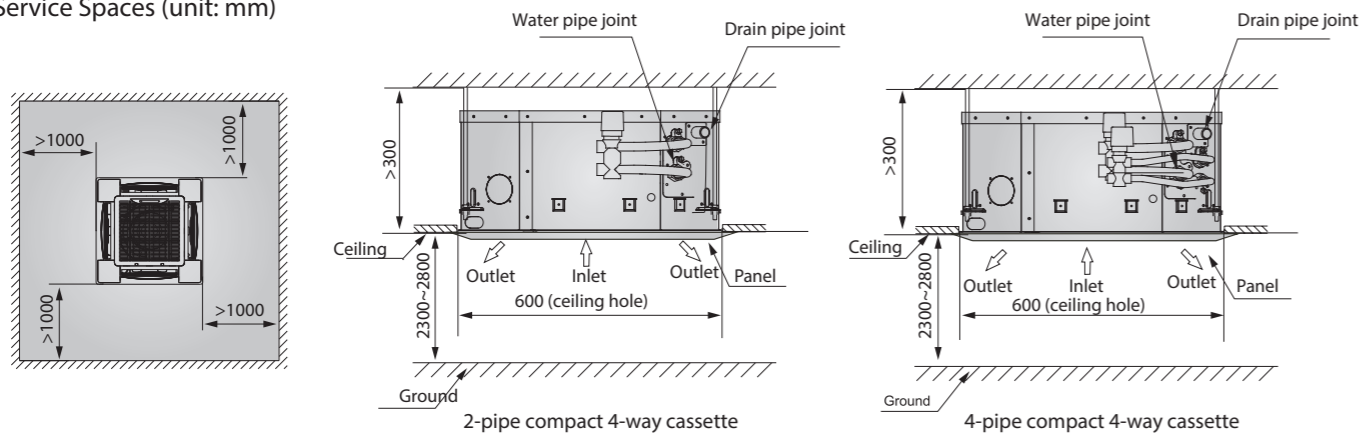
2-pipe compact 4-way cassette  
Dimensions (unit: mm)



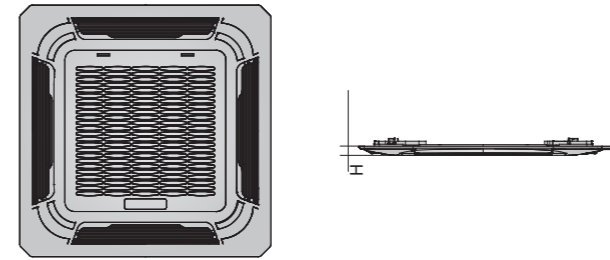
4-pipe compact 4-way cassette  
Dimensions (unit: mm)



Service Spaces (unit: mm)



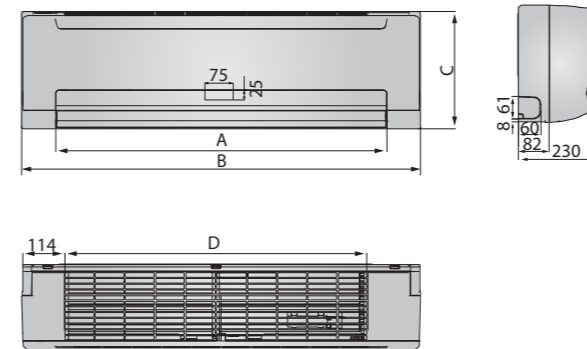
Height of the front panel



Type	H (mm)
4-way cassette	45
Compact 4-way cassette	50

## Wall mounted - S type

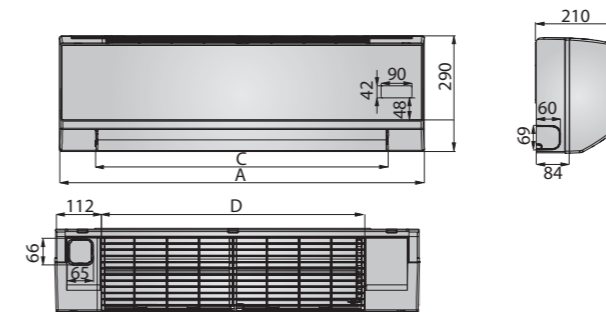
Dimensions (unit: mm)



Model	IZKG-V250-B IZKG-V300-B IZKG-V400-B	IZKG-V500-B IZKG-V600-B
A	732	892
B	915	1072
C	290	315
D	663	813

## Wall mounted - C type

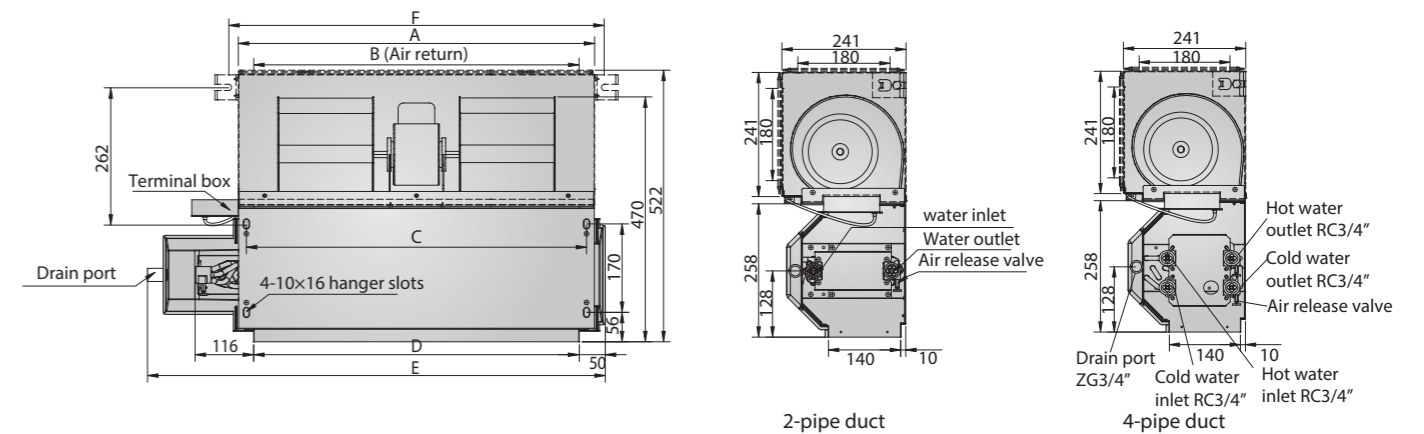
Dimensions (unit: mm)



Model	IZKG-V250 IZKG-V300 IZKG-V400	IZKG-V500 IZKG-V600
A	915	1070
B	290	315
C	725	885
D	670	815

## Duct

Dimensions (unit: mm)



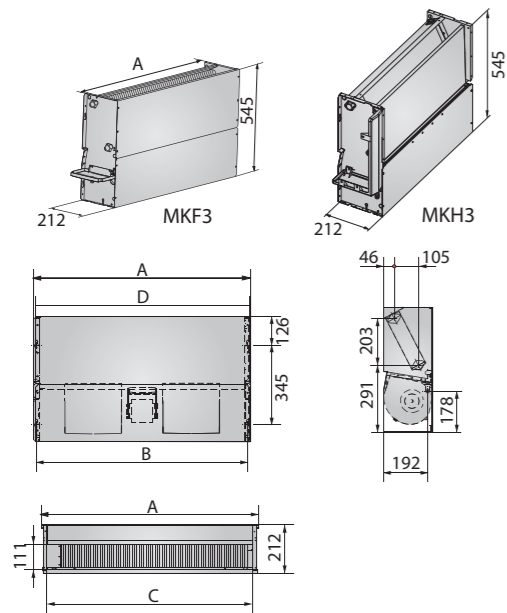
(continued: duct units dimensions)

Size	A	B	C	D	E	F
200CFM	545	485	513	485	741	583
300CFM	645	585	613	585	841	683
400CFM	745	685	713	685	941	783
500CFM	745	685	713	685	941	783
600CFM	965	905	933	905	1161	1003
800CFM	1265	1205	1233	1205	1461	1303
1000CFM	1370	1310	1338	1310	1566	1408
1200CFM	1660	1600	1628	1600	1856	1698

## Ceiling & Floor

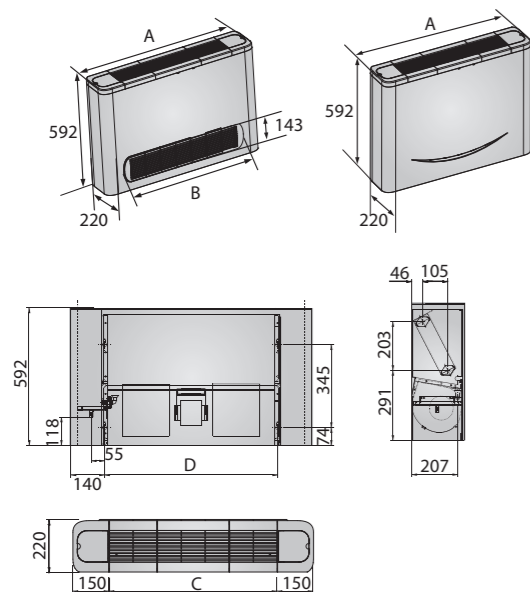
Dimensions (unit: mm)

Concealed type



Model	IZKH3-V150/250	IZKH3-V300/400	IZKH3-V450/500	IZKH3-V600~900
A(mm)	550	750	950	1250
B(mm)	526	726	926	1226
C(mm)	500	700	900	1200
D(mm)	532	732	932	1232

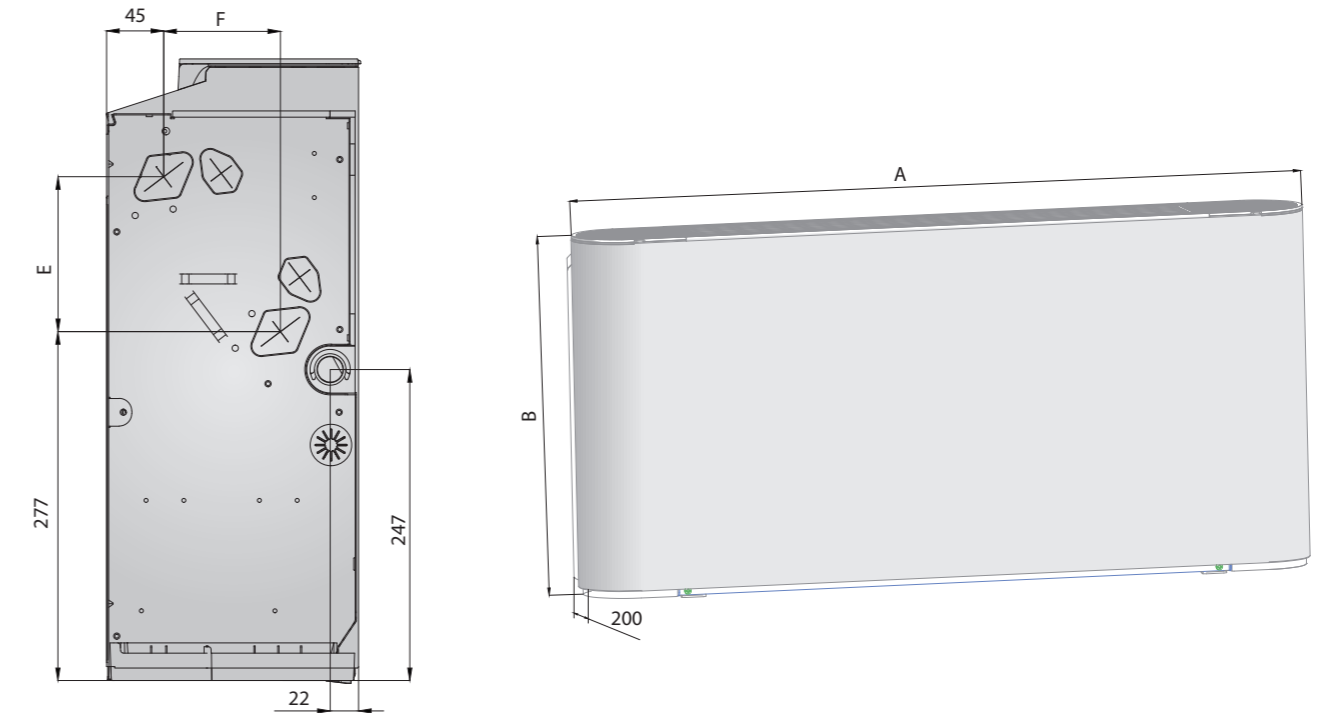
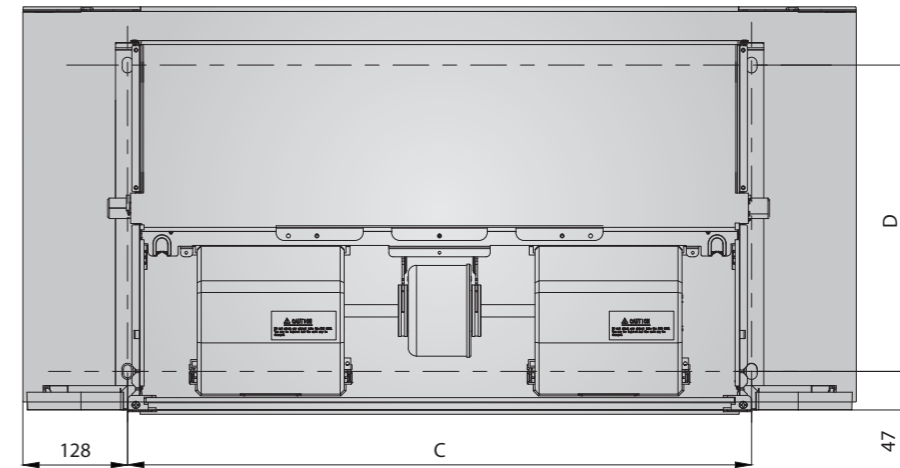
Exposed type



Model	IZKH4-V150/250 IZKH5-V150/250	IZKH4-V300/400 IZKH5-V300/400	IZKH4-V450/500 IZKH5-V450/500	IZKH4-V600~900 IZKH5-V600~900
A(mm)	800	1000	1200	1500
B(mm)	584	784	984	1284
C(mm)	500	700	900	1200
D(mm)	526	726	926	1226

## 2nd generation Ceiling&Floor

Dimensions (unit: mm)



Model	IZKH2-V150	IZKH2-V250	IZKH2-V300	IZKH2-V500	IZKH2-V700	IZKH2-V800
A(mm)	790	1020	1240	1240	1360	1360
B(mm)	495	495	495	495	495	591
C(mm)	523	793	973	973	1093	1093
D(mm)	123	123	123	123	123	219
E(mm)	93	93	93	93	93	102

## Control Devices

### Wireless remote controllers

Model	Appearance	Function Descriptions	Applicable FCUs
R05/BGE		<ul style="list-style-type: none"> <li>❖ LCD display screen</li> <li>❖ Mode control</li> <li>❖ Fan speeds control</li> <li>❖ Time setting / Temp. setting / Swing setting</li> </ul>	4-way Cassette (standard) Compact 4-way cassette (standard) Wall mounted (standard) one-way cassette (standard)

### Wired controllers

Model	Appearance	Function Descriptions	Applicable FCUs
KJRP-86A1-E		<ul style="list-style-type: none"> <li>❖ LCD display screen</li> <li>❖ Mode control</li> <li>❖ Fan speeds control</li> <li>❖ Timer setting / Temp. setting</li> </ul>	Duct without electric heater (optional)
KJR-18B/E		<ul style="list-style-type: none"> <li>❖ Mechanical thermostat</li> <li>❖ Mode control</li> <li>❖ Fan speeds control</li> <li>❖ Temp. setting</li> </ul>	Duct without electric heater (optional)
KJR-21B/D		<ul style="list-style-type: none"> <li>❖ LCD display screen</li> <li>❖ Mode control / Fan speeds control</li> <li>❖ Electric heater control</li> <li>❖ Temp. setting</li> </ul>	Duct with electric heater (optional)
KJR-15B/E		<ul style="list-style-type: none"> <li>❖ LCD display screen</li> <li>❖ Mode control</li> <li>❖ Fan speeds control</li> <li>❖ Temperature display in °F or °C</li> </ul>	Floor standing / Ceiling & floor (optional)
KJR-29B/E		<ul style="list-style-type: none"> <li>❖ LCD display screen</li> <li>❖ Mode control</li> <li>❖ Fan speeds control</li> <li>❖ Temp. setting</li> </ul>	Cassette / Wall-mounted (optional)
KJR-12B/E		<ul style="list-style-type: none"> <li>❖ Swing function</li> <li>❖ Mode control</li> <li>❖ Fan speeds control</li> <li>❖ Temp. setting</li> </ul>	Cassette / Wall-mounted (optional)
KJR-75A/BK-E		<ul style="list-style-type: none"> <li>❖ LED display screen</li> <li>❖ Mode control</li> <li>❖ Seven speed fan control</li> <li>❖ Temp. setting</li> </ul>	2nd generation Ceiling&Floor(optional) one-way cassette (optional)

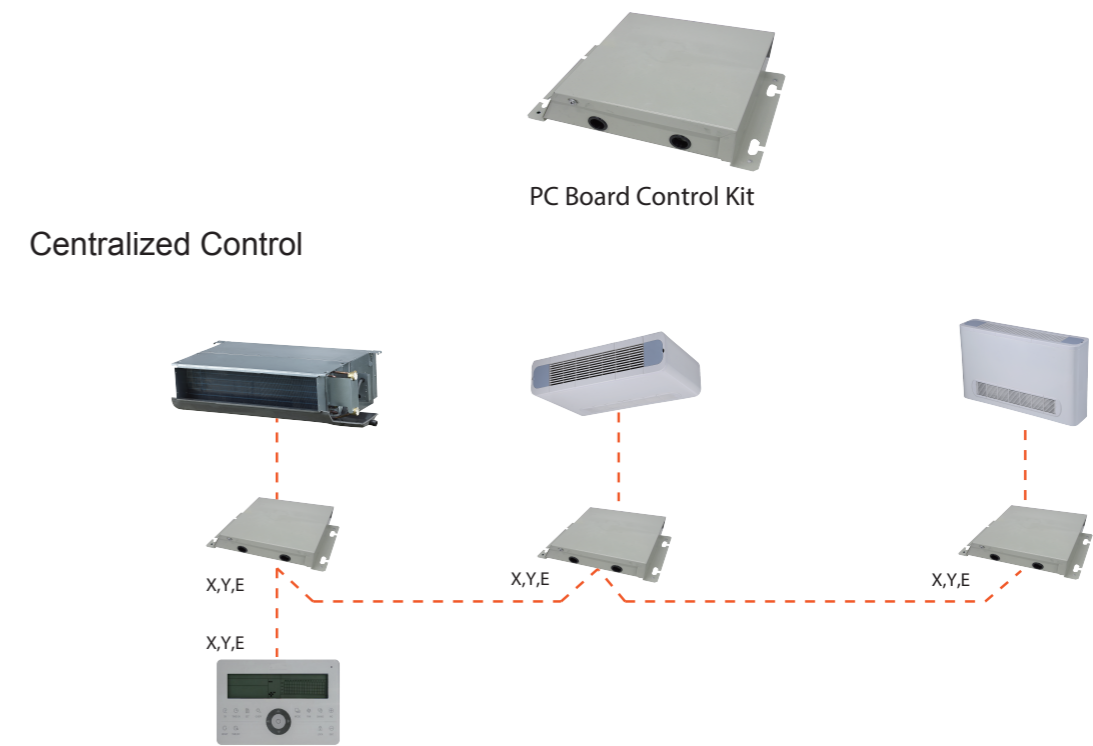
### Centralized controllers

Model	Appearance	Function Descriptions	Applicable FCUs
CCM09		<ul style="list-style-type: none"> <li>❖ Weekly schedule function</li> <li>❖ Large LCD display screen</li> <li>❖ Max. of 64 FCUs can be controlled by a CCM03</li> <li>❖ Mode control / fan speed control</li> <li>❖ Time setting / temp. setting / swing setting</li> </ul>	All FCUs 4-way cassette and compact 4-way cassette FCUs need customize PCB, none-PCB FCUs need adding PC board control kit)
CCM30		<ul style="list-style-type: none"> <li>❖ Touch-style keys</li> <li>❖ Large LCD display screen</li> <li>❖ Max. of 64 FCUs can be controlled by a CCM03</li> <li>❖ Mode control / fan speed control</li> <li>❖ Time setting / temp. setting / swing setting</li> </ul>	

## Accessories

### PC Board Control Kit for FCU

- ❖ Available for all non-PCB FCUs.
- ❖ Flexible installation, it can be attached to the unit, mounted on a wall or hung under a ceiling.
- ❖ External installation making maintenance more convenient.
- ❖ Functions: Three fan speeds control, Water pump control, Long-distance ON/OFF control, ALARM function, Electric heater control.
- ❖ Operating status can be displayed by wired controller lamp indicator.
- ❖ Centralized control function.
- ❖ BMS control function through Modbus protocol.



### BMS control system through Modbus protocol

