

MINI EKAC Cat V2

## Air-cooled Mini Chiller Unit

**R410A Refrigerant**

**Model: Split Series**

**EKAC040AR1W/N~EKAC055AR1W/N**

**Integrated Series**

**EKAC060B(R)1~EKAC150B(R)1**

**Cooling capacity: 9.7~40.8kW**

**Heating capacity: 11~42.5kW**



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## *EUROKLIMAT Air Conditioner, Environmental & Energy-saving Technology from Europe.*



EK Italy Headquarters

EUROKLIMAT (EK) was established in 1963 in Italy. For the past half a century, it has become famous as an energy-saving air-conditioning manufacturer in Italy and globally. Continuous innovation, new product development and top manufacturing quality are the driving force behind this growth.

EUROKLIMAT (EK) pursues the ideals of protecting the environment, providing physical comfort and adopting energy-saving into the whole process of product R&D, manufacturing and service. Our products covering household, commercial and close control air-conditioner are manufactured according to the global generally accepted standards.



# Overview and Nomenclature

## Overview

EKAC small household air-cooled cold/hot water units are a new generation of household air conditioners manufactured for the Chinese market based on leading-edge European design concepts to fit well with various graceful upholsteries. Units of this series require no cooling tower or special equipment room. All accessories of the water system are self contained and can be connected to various indoor terminals through the master unit. Equipped with a smart controller, units of this series can bring you all the comfort that a household central air conditioner could possibly provide.

EKAC small household air-cooled cold/hot water units feature various merits such as smart control, high efficiency, low operation sound, flexible structure, convenient operation, safe running and easy installation and maintenance. Units of this series can be widely used in houses, villas, stores, top-grade apartments, office buildings and other commercial areas which require separate air conditioning.



## Nomenclature

### Split Series

**EKAC** **040** **A** **R** **W - A** **AA**

1 2 3 4 5 6 7

1. EKAC EK small air-cooled cold/hot water unit
2. 040 Cooling capacity code
3. A Design S/N
4. R Functional type: R: cooling & heating; omitted in cooling-only units
5. W Feature of master unit: W - outdoor unit; N - indoor unit
6. A Power supply features: A represents 220V~/50Hz
7. AA Detailed description on product specification

### Integrated Series

**EKAC** **080** **B** **R** **0 - F** **AA**

1 2 3 4 5 6 7

1. EKAC EK small air-cooled cold/hot water unit
2. 080 Cooling capacity code
3. B Design S/N
4. R Functional type: R: cooling & heating; omitted in cooling-only units
5. 0 Refrigerant code: 0: R407C; R22: omitted 1:R410A
6. F Power supply features: F represents 380V/3N~/50Hz
7. AA Detailed description on product specification

### Water System Accessory Kit

**EKAC - WS** **10** **A**

1 2 3 4

1. EKAC EK small air-cooled cold/hot water unit
2. WS Water system accessory kit
3. 10 Size of pipe connectors: 08: Rc1; 10: Rc1-1/4
4. A Design S/N

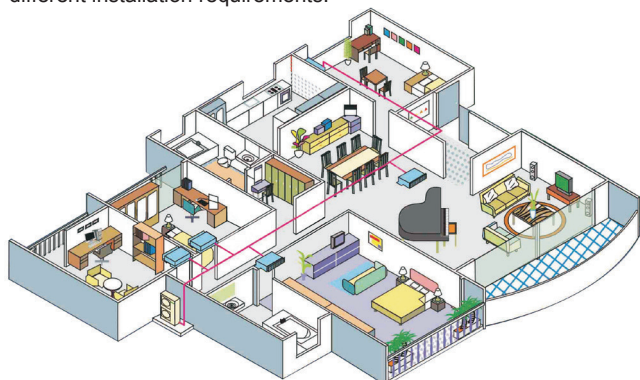
## Comfortable and Stable Water System

Units of this series feature a classic European air conditioner design (chilled water/heat pump + indoor terminals) for precise temperature control. The units can provide you with a comfortable, healthy and graceful working/living environment.



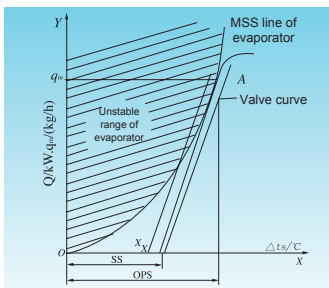
The units feature a heat sink mechanism using circulatory air and needs no cooling tower. This not only saves the cost of the cooling tower, but also saves precious building space.

Units of this series feature various models and dimensions to meet different installation requirements.



## Precise Electronic Throttle Technology for Accurate Control

The EKAC080 ~ EKAC150 series integrated units features a 500-step PMV electronic expansion valve for precise PID flow control, dynamic and real-time adjustment of the cooling capacity and accurate water temperature control. An electronic expansion valve with a large flow modulation range helps optimize the performance of various parts of the system, and makes the system work reliably under any workload. The units can automatically adapt to changing ambient temperatures, completely eliminating cooling system vibration during the capacity modulation process.



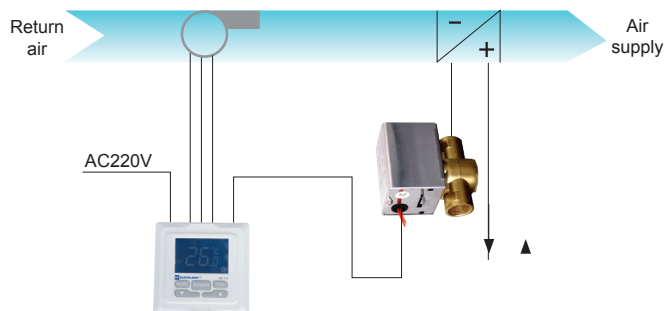
Throttle device of other brands	EK throttle (electronic expansion valve)
Heat balance flow control	Electronic servo flow control
Moderate modulation range	Large modulation range
Fixed superheat control	Dynamic superheat control
Weak adaptability	Strong adaptability
Unstable when water flow is low	Suitable for controlling any water flow

## Efficient and Energy Saving

Units of this series are equipped with fully hermetic compressors which are stable, advanced and reliable. All components have undergone strict integration and compatibility test to ensure optimized performance and efficient/energy-saving operation all year round.

The EKAC080 ~ EKAC150 series integrated units perfectly unify the parallel compressor technology and electronic throttle technology to quickly modulate the cooling capacity to the set value, thereby making sure that the units are most energy efficient. The EER is even higher with partial workload. For example, for EKAC150BR series units, the EER is 6% higher with 75% of workload, 11% higher with 50% of workload, and 16% higher with 25% of workload.

The solenoid interlock control function can shut down the master unit and water pump automatically when all fans have stopped working, making the unit more energy saving.



## Larger Operational Range, Safe and Reliable

Long and strict tests prove that units of this series can work reliably in an environment as hot as 48°C (cooling) or as cold as -10°C (heating). With a smart split design, all water pipes can be installed indoor to prevent freezing during cold winters. The units can work with boilers to meet heating requirements in areas which are extremely cold in winter.

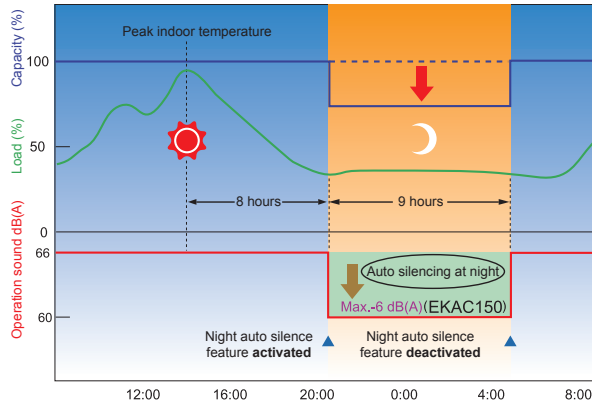
The units feature built-in high/low pressure protection, cooling freezing protection, winter freezing protection, compressor overload protection, water pressure-drop switch etc. to maximize reliability. In case of any failure, the micro-computer controller provides alarms using sound and indicators on a real-time basis. Besides unconditional manual defrosting, the controller also supports efficient auto defrosting based on multiple parameters during heating operations.



# Features

## Silent and Comfortable

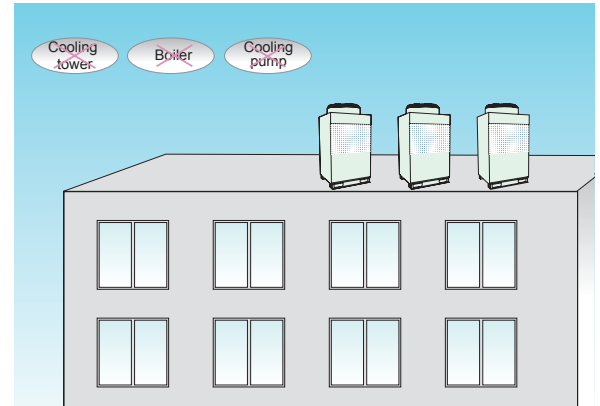
The units feature a strengthened vibration isolation case and multi-grade sound dampening. Thanks to a fully hermetic scroll compressor and a low-rev high-efficiency heat-sink fan, the operation sound and vibration of the units are brought down to an industry-leading level. With an innovative auto silence feature for night time, the EKAC080 ~ EKAC150 series units are more quiet at night.



## Mini Design, Fashionable and Graceful

The split series outdoor units feature a super-thin mini-design which occupies less area on the balcony and does not affect day lighting.

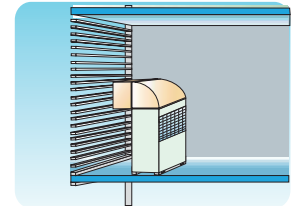
The integrated series units feature top air supply, compact design, low height, small footprint and a fashionable and elegant exterior.



## Flexible to Install and Space Saving

The units are small and easy to move, and can be flexibly installed on rooftops, balconies and other suitable outdoor places to save precious building space. There is no need to design or installed a cooling tower, boiler, cooling pump or relevant pipes. All ten major accessories of the water system are optional, including horizontal multi-grade pump, plate heat exchanger, water tank, hermetic expansion water tank, differential water pressure switch, pumpwater

filter, relief valve, auto air discharge valve and sewage discharge valve. The whole central air conditioner is very easy to install as you just need to connect some water pipes. In addition, an optional 30Pa static pressure air discharge through air ducts makes the EKAC080 ~ EKAC150 series integrated units more flexible to install.



### Water System Accessories (a Complete Kit Containing 10 Accessories)

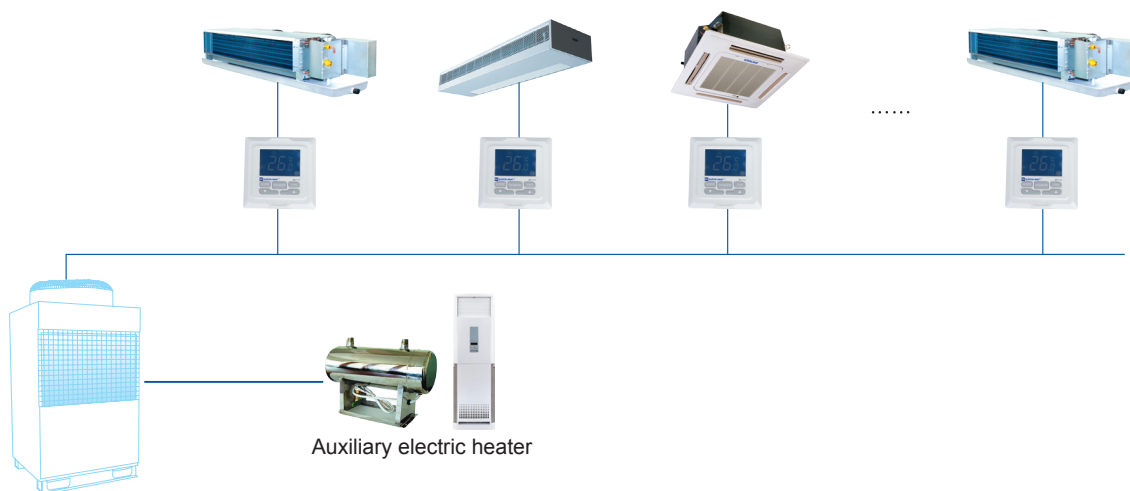


Part name	Function description
Hermetic expansion water tank	<ol style="list-style-type: none"> <li>1. Ensure a constant system pressure.</li> <li>2. Prevent impurities and large amount of air from entering the water system and subdue the growth of bacteria and accumulation of scale.</li> </ol>
Water tank	<ol style="list-style-type: none"> <li>1. Automatically store the hot (chilled) water generated by the unit to save energy;</li> <li>2. Avoid frequent startup of compressors to effectively improve the durability of the unit.</li> <li>3. Ensure a minimum operation time of compressors to avoid alarms triggered due to low outlet water temperature.</li> </ol>
Differential water pressure switch	Precisely control and monitor water flow according to the pressure drop between inlet water and outlet water to protect the unit.
Relief valve	Keep the pressure of the water system under the safety threshold to ensure the safety and reliability of the unit.
Auto air discharge valve	Automatically discharge air in the water system to ensure the operation stability of the unit.
Auto water refill valve	<ol style="list-style-type: none"> <li>1. A self-contained pressure stabilizer automatically reduces and stabilizes pressure in the system to prevent the unit from being damaged by high water pressure.</li> <li>2. The filter inside the valve can prevent impurities from entering the unit. A non-return valve helps stabilize the water pressure during water refill and prevent water from flowing back after refill.</li> <li>3. With a manual stop valve, the water supply can be easily cut off, facilitating the discharge and maintenance of the unit.</li> </ol>

## Smart Auto Control

The units are equipped with a smart micro-computer control system to provide various control functions, such as function settings, parameter viewing, group control, etc. The controller has three levels of password protection to provide convenient and reliable operation management. Workload is automatically averaged among compressors to improve the durability of the entire system. Auto startup/shutdown can be configured for

the central air conditioner on a weekly basis. All-round safety features make sure that the units are safe and reliable. With a terminal (indoor unit) interlock control function, the master unit can start up automatically as long as one terminal (indoor unit) is running. An auxiliary heating function facilitates system expansion, as shown in the following figure:



# Specifications

## Specifications of Split Series Units

Model			EKAC040ARW/N	EKAC050ARW/N	EKAC055ARW/N
Nominal cooling capacity	kW		9.7	11.5	12.6
	$\times 10^3$ kcal/h		8.34	9.89	10.83
Nominal heating capacity	kW		11	13	14.5
	$\times 10^3$ kcal/h		9.46	11.18	12.47
Total power of nominal cooling capacity	kW		3.8	4.6	5.1
Total power of nominal heating capacity	kW		4.1	4.8	5.7
Power supply			220V~/50Hz		
Refrigerant	Type		R410A		
	Flow control		Capillary		
Water side heat exchanger	Evaporator type		Vacuum braze-welded stainless steel plate heat exchanger		
	Water flow for cooling	m <sup>3</sup> /h	1.7	2.0	2.2
	Water flow for heating	m <sup>3</sup> /h	1.9	2.2	2.5
Compressor	Type		Fully hermetic rotary compressor		
Fan	Type		High-efficiency axial fan		
	Qty.	Set	2		
Water pump	Type		Horizontal centrifugal water pump		
	External lift	m	12	16	12
Volume of water tank		L	22		
Volume of expansion water tank		L	2		
Size of inlet/outlet water pipe connector			Rc1		
Dimensions (L/W/H)	Outdoor unit	mm	1005x430x1285	1005x430x1285	1105x430x1385
	Indoor unit	mm	835x810x350	835x810x350	835x860x350
Sound	Outdoor unit	dB(A)	56	57	60
	Indoor unit	dB(A)	42		
Refrigerant Size of pipe connectors	Liquid pipe	mm	Φ 9.52		
	Gas pipe	mm	Φ 15.88		
Power cable specification	Section area of live line	mm <sup>2</sup>	4	6	6
	Qty. of live lines	PCS	1		
	Section area of null line	mm <sup>2</sup>	4	6	6
	Qty. of null lines	PCS	1		
	Section area of grounding line	mm <sup>2</sup>	1		
	Qty. of grounding lines	PCS	1		
Net weight	Outdoor unit	kg	142	151	178
	Indoor unit	kg	56	61	65

### Note:

- Working conditions for nominal cooling capacity test: water flow rate 0.172m<sup>3</sup>/(h.kw); temperature of outlet water 7°C; outdoor ambient temperature 35°C.
- Working conditions for nominal heating capacity test: water flow rate 0.172m<sup>3</sup>/(h.kw); temperature of outlet water 45°C; temperature of outdoor dry/wet bulb 7°C/6°C.
- The sound level is tested before the unit leaves factory. Practically, due to environment noise and other factors, the sound level tested might be different from those listed in the above table.
- Please refer to the User Manual for specific operation ranges.



## Specifications of Integrated Series Units

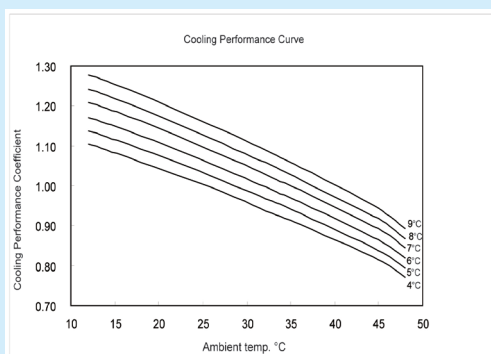
Model		EKAC 060B1	EKAC 060BR1	EKAC 070B1	EKAC 070BR1	EKAC 080B1	EKAC 080BR1	EKAC 100B1	EKAC 100BR1	EKAC 120B1	EKAC 120BR1	EKAC 150B1	EKAC 150BR1		
Nominal cooling capacity	kW	15.5		18		25.5		30.0		36.5		40.8			
	×10 <sup>3</sup> kcal/h	13.33		15.48		21.93		25.80		31.39		35.08			
Nominal heating capacity	kW	--	17.0	--	19.8	--	26.5	--	32	--	42	--	42.5		
	×10 <sup>3</sup> kcal/h	--	14.62	--	17.02	--	22.79	--	27.52	--	36.12	--	36.54		
Total power of nominal cooling capacity	kW	5.2		6.1		8.6		9.9		13		14.1			
Total power of nominal heating capacity	kW	--	5.3	--	6.3	--	8.7	--	10.5	--	13.5	--	13.9		
Power supply		380V/3N~/50Hz													
Refrigerant	Type	R410A													
	Flow control	Capillary					Electronic expansion valve								
Water side heat exchanger	Evaporator type	Vacuum braze-welded stainless steel plate heat exchanger													
	Water flow for cooling	m <sup>3</sup> /h	2.7		3.1		4.4		5.1		6.3		7.0		
	Water flow for heating	m <sup>3</sup> /h	--	2.9	--	3.4	--	4.6	--	5.2	--	6.4	--	7.3	
Compressor	Type	Scroll compressor													
	Lubricant	POE													
Fan	Type	Horizontal centrifugal water pump													
	Qty.	2					1								
Water pump	Type	Horizontal centrifugal water pump													
	External lift	m	12		11		15		16		14		11		
Size of inlet/outlet water pipe connector		Rc1				Rc1-1/4				Rc1-1/4					
Dimensions (L/W/H)		1010x490x1245				992x845x1840				1292x845x1840					
Sound		64				62		64		66		67			
Power cable specification	Section area of live line	4				6									
	Qty. of live lines	3													
	Section area of null line	4													
	Qty. of null lines	1													
	Section area of grounding line	4				6									
	Qty. of grounding lines	1													
Unit weight	Net weight	kg	210	220	225	235	280	290	290	305	330	345	340	355	
	Operating weight	kg	229	239	246	256	310	320	325	340	373	388	388	403	
Water system Accessory kit	Model	EKAC-WS08A					EKAC-WS10A								
	Water tank	L	38					38							
	Expansion water tank	L	8					8							
	Size of pipe connectors	Rc1					Rc1-1/4								

Note:

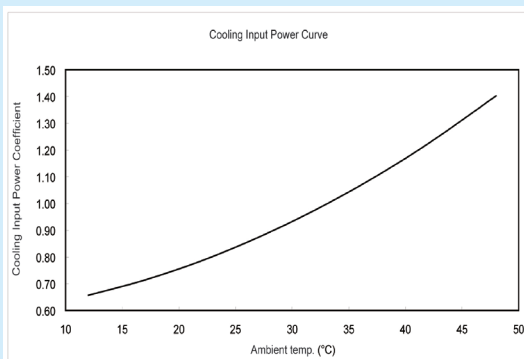
- Working conditions for nominal cooling capacity test: water flow rate 0.172m<sup>3</sup>/(h.kw); temperature of outlet water 7°C; outdoor ambient temperature 35°C.
- Working conditions for nominal heating capacity test: water flow rate 0.172m<sup>3</sup>/(h.kw); temperature of outlet water 45°C; temperature of outdoor dry/wet bulb 7°C/6°C.
- The sound level is tested before the unit leaves factory. Practically, due to environment noise and other factors, the sound level tested might be different from those listed in the above table.
- Please refer to the User Manual for specific operation ranges.

# Specifications

## Cooling Performance Curve



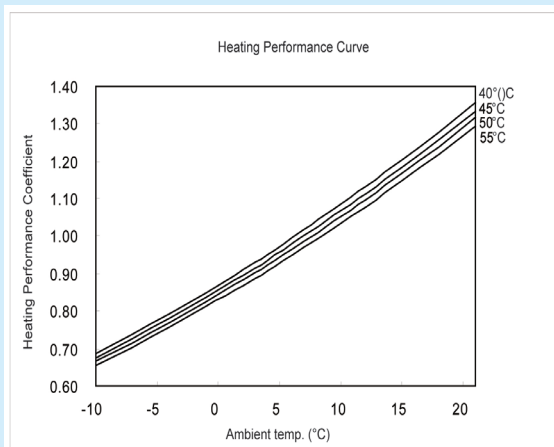
## Cooling Input Power Curve



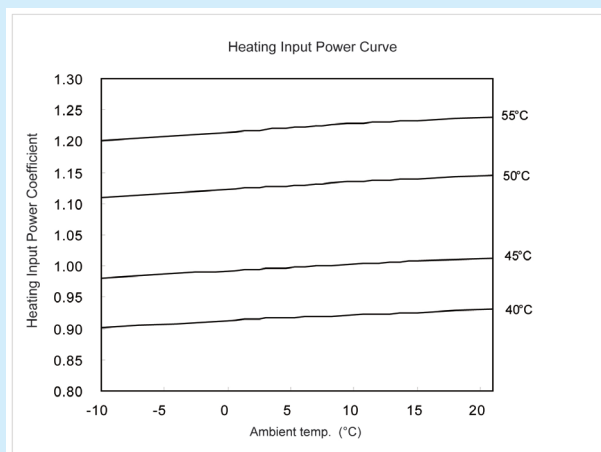
Note:

- 1. The above curve indicates how cooling capacity coefficient and cooling power coefficient change as environment temperature changes with temperature of outlet water ranging from 4°C ~ 9°C.
- 2. The above curve indicates how the unit's performance changes as environment temperature and outlet water temperature change. There might be a little deviation between the performance of products and what the above curve indicates.
- 3. Outlet water temperature has very little influence over cooling input power. When outlet water temperature varies by 4 ~ 9°C, the input power variation is below 3%.

## Heating Performance Curve



## Heating Input Power Curve

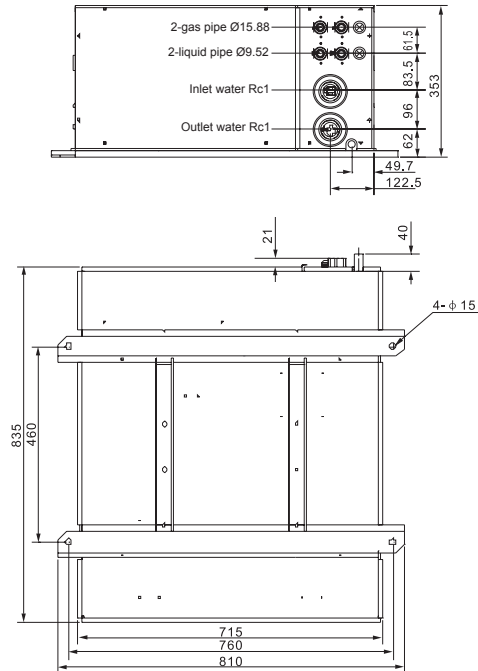


Note:

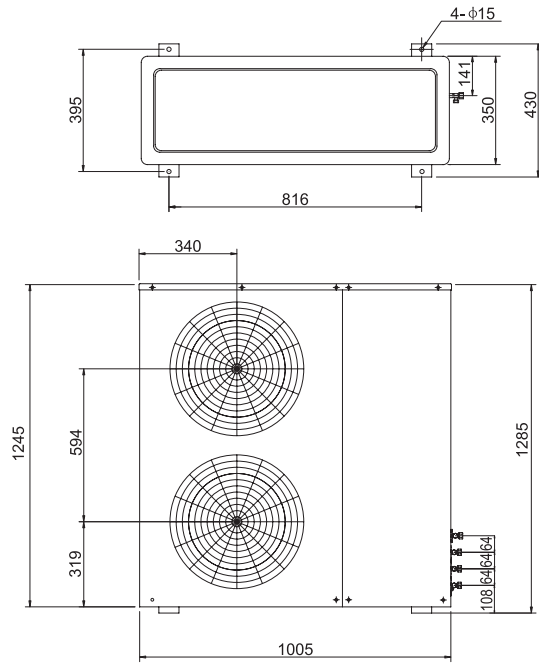
- 1. The above curve indicates how heating capacity coefficient and heating power coefficient change as environment temperature changes with temperature of outlet water ranging from 35°C ~ 50°C.
- 2. The above curve indicates how the unit's performance changes as environment temperature and outlet water temperature change. There might be a little deviation between the performance of products and what the above curve indicates.
- 3. The above parameters change a lot as the relative humidity of the environment changes. In the graphs, the relative humidity of the environment is rated according to the national standard.

# Illustration for Unit Dimensions

## Split series indoor units: EKAC040ARN/EKAC050ARN

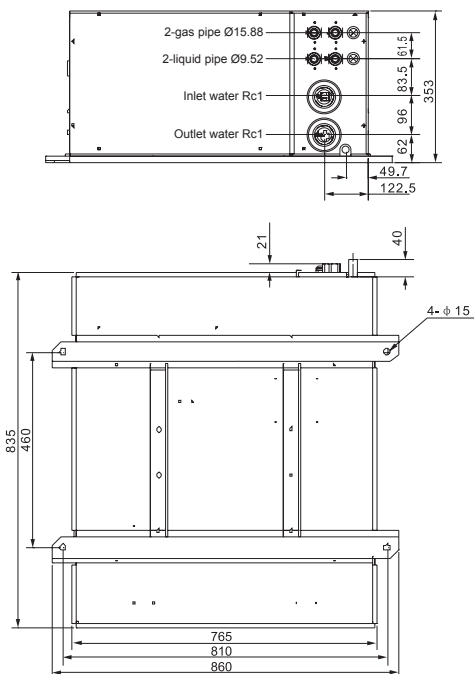


## Split series outdoor units: EKAC040ARW/EKAC050ARW

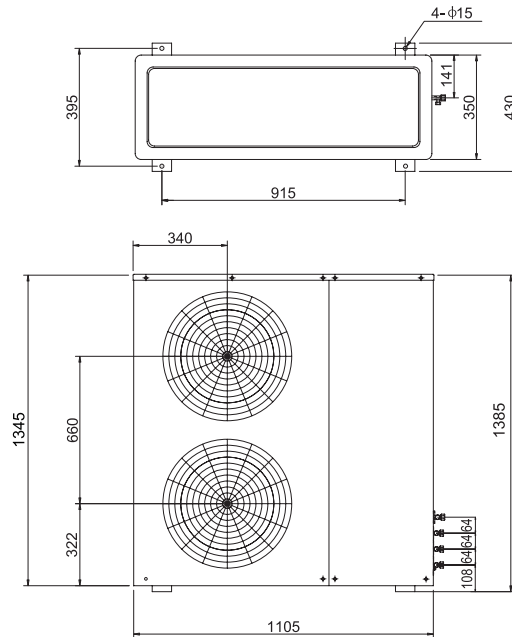


Measurement: mm

## Split series indoor units: EKAC055ARN



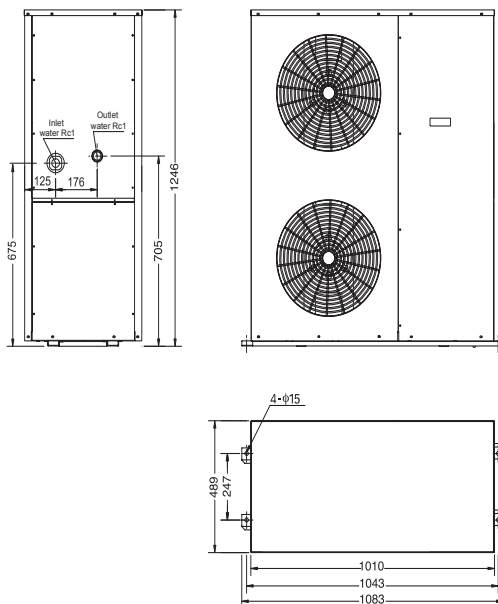
## Split series outdoor units: EKAC055ARW



Measurement: mm

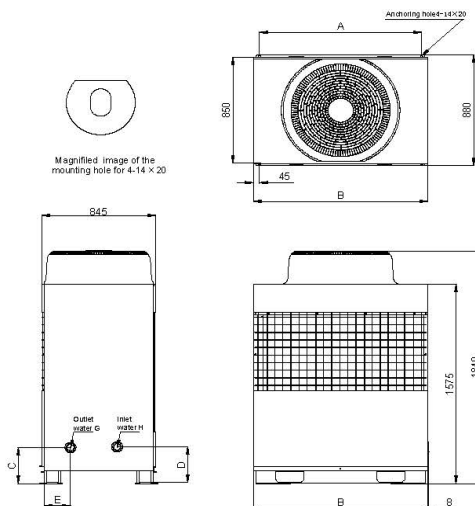
# Illustration for Unit Dimensions

## Integrated Series: EKAC060 and EKAC070



Measurement: mm

## Model: EKAC080~150

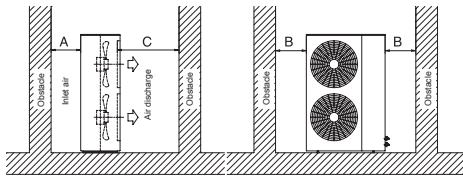


Model	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (in)	H (in)
EKAC080	900	992	165	206	290	250	Rc1-1/4	Rc1-1/4
EKAC100	900	992	165	206	270	270	Rc1-1/4	Rc1-1/4
EKAC120/150	1200	1292	179	215	286	261	Rc1-1/4	Rc1-1/4

### Note:

- 1.The groundwork is made of concrete.
- 2.Each unit must be fixed by 4 M12 bolts;
- 3.A 20mm-thick rubber cushion should be added to the base as a bumper.

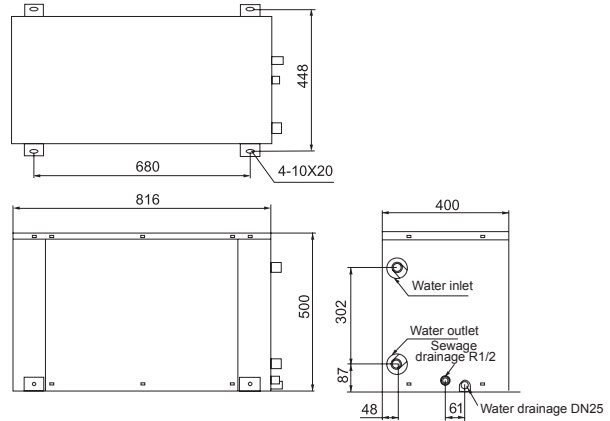
## Space Requirement for Installation and Maintenance (Split Series: EKAC040ARW~EKAC055ARW)



Measurement: mm

Model	EKAC040ARW ~ EKAC050ARW	EKAC055ARW	
Recommended distance (mm)	A	300	300
	B	500	500
	C	1500	2000

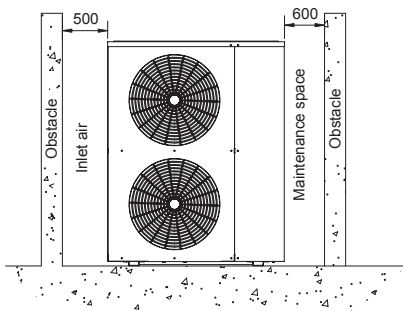
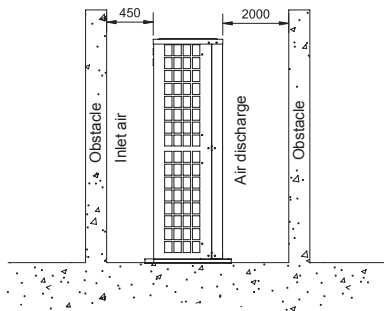
## Illustration for Dimensions of Water System Accessories



Measurement: mm

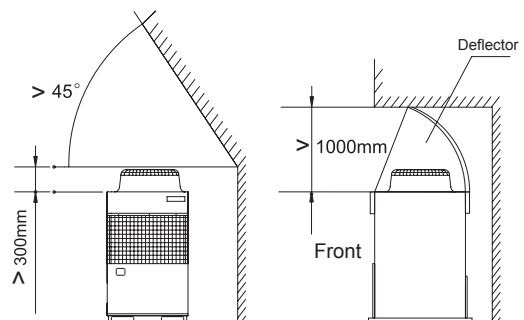
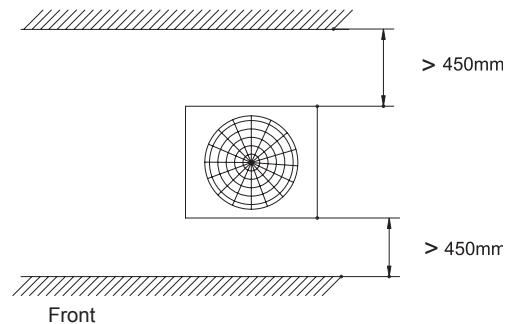
Model	Size of inlet/outlet water pipe connector
EKAC-WS08A	Rc1
EKAC-WS10A	Rc1-1/4

## Space Requirement for Installation and Maintenance (Integrated Series: EKAC060~EKAC070)



Measurement: mm

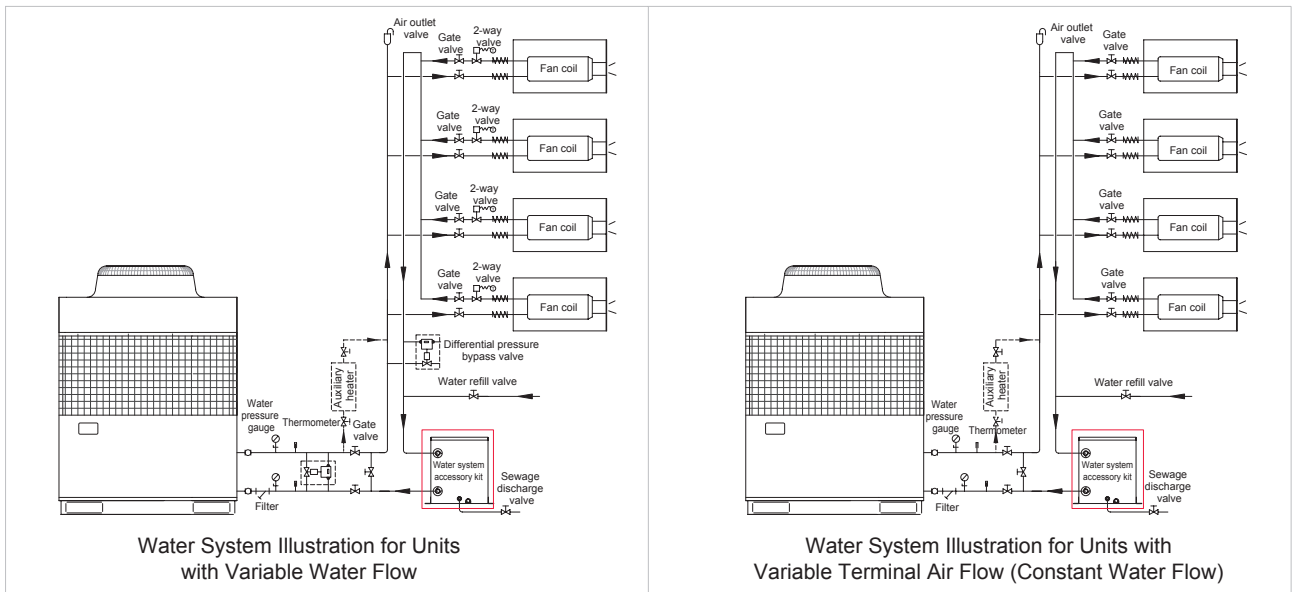
## Space Requirement for Installation and Maintenance (Integrated Series: EKAC080~EKAC150)



Measurement: mm

# Water System of the Unit

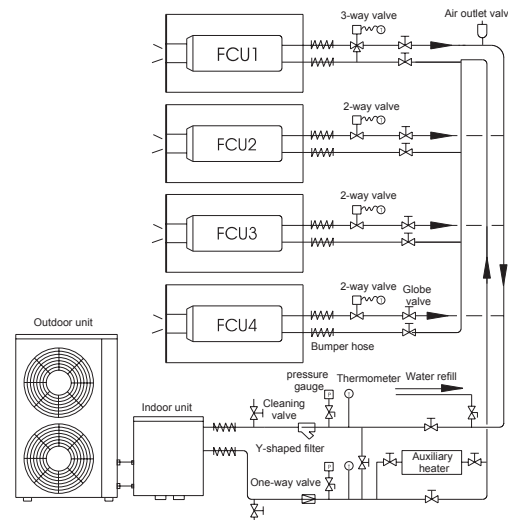
## Illustration of Water System



This illustration is for reference only. Please refer to relevant guides while installing the unit.

## Instructions for Pipelining

- A hermetic water system is recommended.
- Parallel pipes are recommended for indoor fan coils to achieve balanced water flow.
- An air discharge valve must be installed at the highest point in the water system.
- To facilitate maintenance, a thermometer and pressure gauge should be installed at the water inlet/outlet pipes.
- New types of plastic water pipes such as PP-R and PVC pipes are recommended to ensure the durability of the water system.
- If the unit is not used in winter, water in the water system must be fully discharged to avoid damage to water pipes and other parts as a result of freezing up.
- The heater is an optional device which can be an electric heater or gas boiler.
- A standard accessory kit of the right model should be selected for the water system of EK EKAC060-EKAC150 series units.
- EK provides a most complete line of water system accessories for customers, as described in the following table.



## Table of Water System Accessories (Optional)

Part name	EKAC040~EKAC055
Horizontal multi-grade pump	√
Horizontal multi-grade pump	√
Plate heat exchanger	√
Water tank	√
Hermetic expansion water tank	√
Water flow switch	√
Water filter	√
Relief valve	√
Auto air discharge valve	√
Auto water refill valve	√
Sewage discharge valve	√





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#### EKAC0909-Catalog-CA

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