

Contact Details

Before using the product, please check the guide pages at the front of this catalog.

Internet

<http://www.daikinpmc.com/en/>

For latest information, PDF catalogs and operation manuals

Inverter Controlled Chiller AKW**9



Features

- **Enhancement of highly accurate temperature control**
 - The oil temperature is controlled within $\pm 0.1^{\circ}\text{C}$ under a wider operation range than the previous model as an optional function.
- **Extension of cooling capacity control range**
 - Control with loads from 0 % (no load) to 100 % achieved
- **Complies with RoHS Directives such as Lead-Free**
- **Environment friendly unit, countering global warming**
 - Adopts a Daikin original IPM motor which is a super-energy-efficient technology
- **Achieves 30% energy savings compared to the AKW 8 series (measured by Daikin)**
 - Adopts R410A refrigerant which does not contribute to ozone depletion
- **Low noise level for a better working environment**
 - Achieves a lower noise level than the AKW 8 series

AKW8	AKW9 Series
65 dB (A)	60 dB (A) AKW149/189
	61 dB (A) AKW329/359
	62 dB (A) AKW439/459

Nomenclature

AKW ** 9 - ***

1 2 3 4

1 Standard type

AKW: High-accuracy inverter controlled oil cooling unit
[Circulating type, for clean fresh water (tap water)]

2 Cooling capacity (kW)

14: 1.4 kW
18: 1.8 kW
32: 3.2 kW
35: 3.5 kW
43: 4.3 kW
45: 4.5 kW

3 Symbol of series

(Symbol to represent model change)
9: "9" series

4 Symbol of option type (C/H/171)/Non-standard number

Options and their combinations

Symbol of option type	With breaker	Compliance with CE	With cover
-B	✓	-	-
-C	-	✓	-
-171	-	-	✓
-BC	✓	✓	-
B171	✓	-	✓
C171	-	✓	✓
D171	✓	✓	✓

Special specifications (different voltages, with casters, etc.)
-*** (3-digit number), C*** (3-digit number), etc.
Please consult us about detailed information.

[-049: 400 VAC 50 Hz 3-phase power supply, CE compliant type]

Applications

- Semiconductor production equipment, Laser cutting machines/Laser oscillators, Electrical discharge machines/Beam welding machines, Various analyzing apparatus/ Medical equipment, etc.

Contact Details

Before using the product, please check the guide pages at the front of this catalog.

Internet

<http://www.daikinpmc.com/en/>

For latest information, PDF catalogs and operation manuals

Specifications

		With pump/tank			Without pump/tank			
Equivalent horsepower of chiller	HP	0.5	1.2	1.5	0.5	1.2	1.5	
Model name		AKW149 (-171)	AKW329 (-171)	AKW439 (-171)	AKW189	AKW359	AKW459	
Cooling capacity (50/60 Hz) *1	kW	1.4/1.4	3.2/3.2	4.3/4.3	1.8/1.8	3.5/3.5	4.5/4.5	
Power supply *2		Three-phase AC 200/200·220 V 50/60 Hz						
Power voltage	Main circuit	Three-phase AC 200/200·220 V 50/60 Hz						
	Operation circuit	DC 12/24 V						
Max. power consumption Max. current consumption	200 V 50 Hz	1.20 kW/4.5 A	1.71 kW/6.4 A	1.97 kW/7.4 A	0.79 kW/3.2 A	1.29 kW/5.2 A	1.59 kW/6.1 A	
	200 V 60 Hz	1.36 kW/4.8 A	1.87 kW/6.6 A	2.20 kW/8.7 A	0.79 kW/3.2 A	1.29 kW/5.0 A	1.61 kW/6.0 A	
	220 V 60 Hz	1.36 kW/4.8 A	1.87 kW/6.6 A	2.20 kW/8.7 A	0.79 kW/3.0 A	1.29 kW/4.7 A	1.61 kW/5.4 A	
External paint color		Ivory white						
External dimensions (H × W × D)	mm	690 × 360 × 700	815 × 360 × 700	915 × 360 × 700	650 × 360 × 440	775 × 360 × 440	875 × 360 × 440	
Compressor (Hermetic DC swing type)		Equivalent to 0.4 kW	Equivalent to 0.75 kW	Equivalent to 1.1 kW	Equivalent to 0.4 kW	Equivalent to 0.75 kW	Equivalent to 1.1 kW	
Evaporator		Braze plate type						
Condenser		Cross-fin-coil type						
Propeller fan	Motor capacity	W 54						
Water pump	Model	Immersion type multistage pump						
	Head (50/60 Hz) *3	25/37 m at 10 L/min	24/36 m at 15 L/min				-	
	Motor capacity (50/60 Hz)	kW 0.33/0.52						
Temperature control (Selectable)	Synchronization type	Standard	Room temperature or machine temperature *4 (Set to room temperature by default)					
		Controlled object	Water temperature in the tank			Outlet water temperature		
		Synchronization range	-9.9 to +9.9K					
	Fixed type	Controlled object	Water temperature in the tank			Outlet water temperature		
		Range °C	10 to 40					
Refrigerant control		Compressor rotational speed according to inverter + Opening of electric expansion valve						
Refrigerant (R410A) Changed volume	kg	0.49	0.72	0.98	0.49	0.72	0.98	
Protection devices		A set of overcurrent relay (for a pump motor, only for models with a pump), reverse-phase protection device, restart prevention timer, low room temperature protection thermistor, high fluid temperature protection thermistor, low fluid temperature protection thermistor, discharge pipe temperature thermistor, condenser temperature thermistor, refrigerant leakage detector, inverter protection device, high pressure switch (-C type only), compressor thermal protector (-C type only), and intake pipe temperature thermistor (antifreeze)						
Operation range	Room temperature °C	10 to 40 (5 to 40 *5)						
	Water temperature in the tank °C	10 to 40 (5 to 40 *5)			-			
	Outlet water temperature °C	-			10 to 40 (5 to 40 *5)			
	Permissible circulating water volume *6 L/min	6 to 15	10 to 20	10 to 30	6 to 15	10 to 20	10 to 30	
	Rated circulating water volume L/min	10	15		10	15		
	Acceptable fluid *7	Fresh water (tap water)						
	Max. pressure in a cooling water circuit MPa	-			0.5			
External pressure loss (50/60 Hz)	MPa	0.24/0.36	0.21/0.34		-			
Connecting pipe size		Refer to the outline drawing.						
Tank capacity	L	10			-			
Sound level (Value equivalent to measurement in an anechoic chamber) (Front 1 m, height 1 m)	dB (A)	60	61	62	60	61	62	
Permissible transport vibration		Up and down vibration 14.7 m/s ² (1.5G) × 2.5 hr (7.5 to 100 Hz sweep/5 min.)						
Mass	kg	61	65	68	36	40	43	
Items prepared by the customer	Molded-case circuit breaker (Rated current)	A 10						

L

OIL COOLING EQUIPMENT

Note: *1 The cooling capacity indicates the value at the standard point. This unit has about ±5% of product tolerance.

*2 Use a commercial power supply for the power source. The use of an inverter power supply may cause burn damage to the machine.

*3 This unit has about ±7% of product tolerance.

*4 The machine temperature synchronization thermistor available as an option is required for this function.

*5 A unit that can be used at a room temperature of 5 to 40°C or a tank outlet water temperature of 5 to 40°C is available as an option. Please consult us for details.

*6 Use the unit with a circulating water volume within the permissible range.

*7 Use fluid that satisfies the water quality standard for clean fresh water (tap water) level indicated on Page L-40. (Taken from Guideline of Water Quality for Refrigeration and Air Conditioning Equipment (JRA-GL-02-1994).)

Contact Details

Before using the product, please check the guide pages at the front of this catalog.

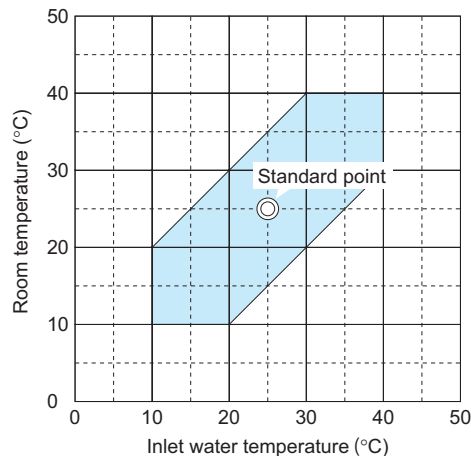
Internet

<http://www.daikinpmc.com/en/>

For latest information, PDF catalogs and operation manuals

Operation range

- Note: 1. The mark \odot shows the standard point.
 2. Be sure to use the unit within the range of use specified in .
 (Use outside this range may cause unit failure.)



Water quality standard * Use water that satisfies the following standard for tap water level.

Guideline of Water Quality for Refrigeration and Air Conditioning Equipment (JRA GL02E-1994)

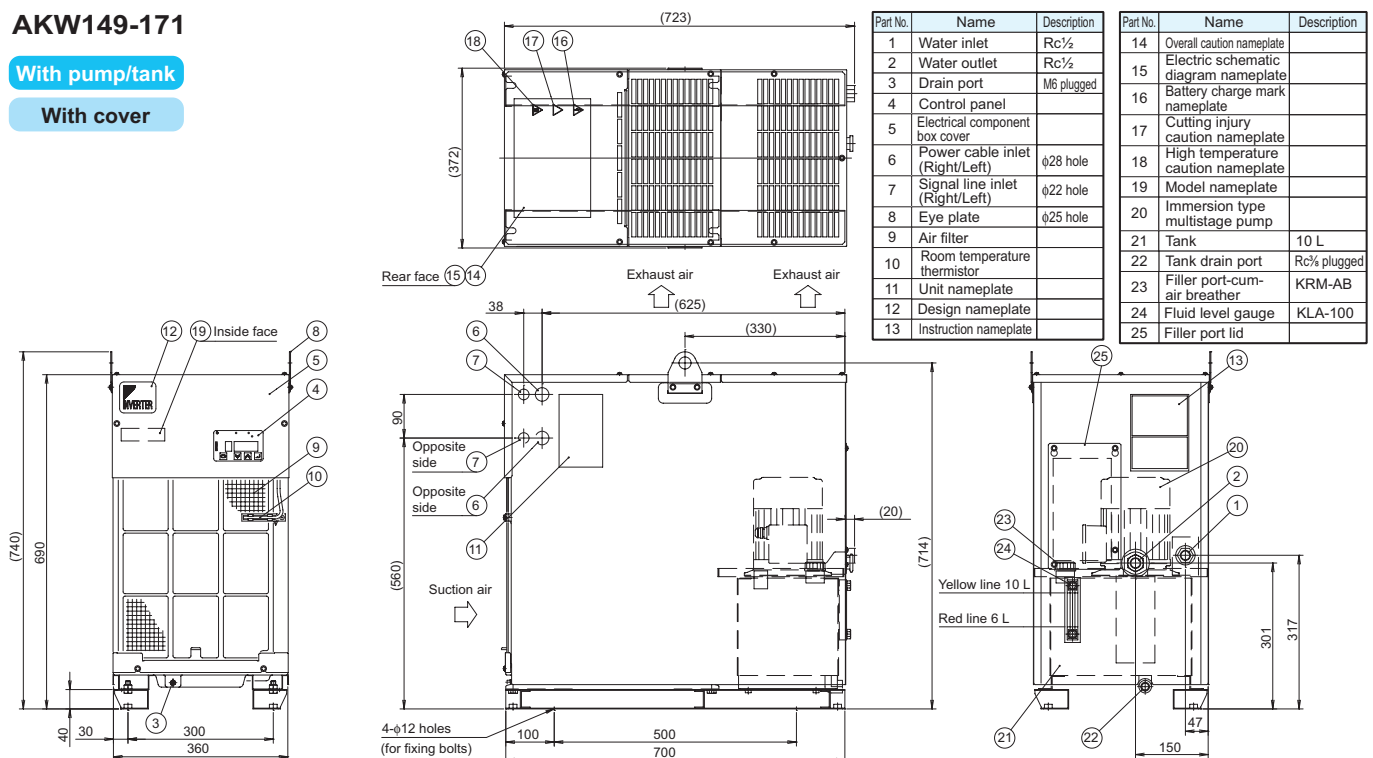
	Item	Chemical formula	Water quality standard	Unit
Standard items	pH	—	6.5 to 8.2	pH (25°C)
	Electrical conductivity	—	0.2 to 30	ms/m (25°C)
	Chloride ion	Cl ⁻	50 maximum	mg/L (ppm)
	Sulfate ion	SO ₄ ²⁻	50 maximum	mg/L (ppm)
	Acid consumption (pH4.8)	CaCO ₃	50 maximum	mg/L (ppm)
	Total hardness	—	70 maximum	mg/L (ppm)
	Calcium hardness	CaCO ₃	50 maximum	mg/L (ppm)
	Ionic silica	SiO ₂	30 maximum	mg/L (ppm)
Reference items	Iron	Fe	0.3 maximum	mg/L (ppm)
	Copper	Cu	0.1 maximum	mg/L (ppm)
	Sulfide ion	S ²⁻	Not to be detected	mg/L (ppm)
	Ammonium ion	NH ₄ ⁺	0.1 maximum	mg/L (ppm)
	Residual chlorine	Cl	0.3 maximum	mg/L (ppm)
	Free carbon dioxide	CO ₂	4.0 maximum	mg/L (ppm)
	Stability index	—	6.0 to 7.0	—

External dimension diagram

AKW149-171

With pump/tank

With cover



Contact Details

Before using the product, please check the guide pages at the front of this catalog.

Internet

<http://www.daikinpmc.com/en/>

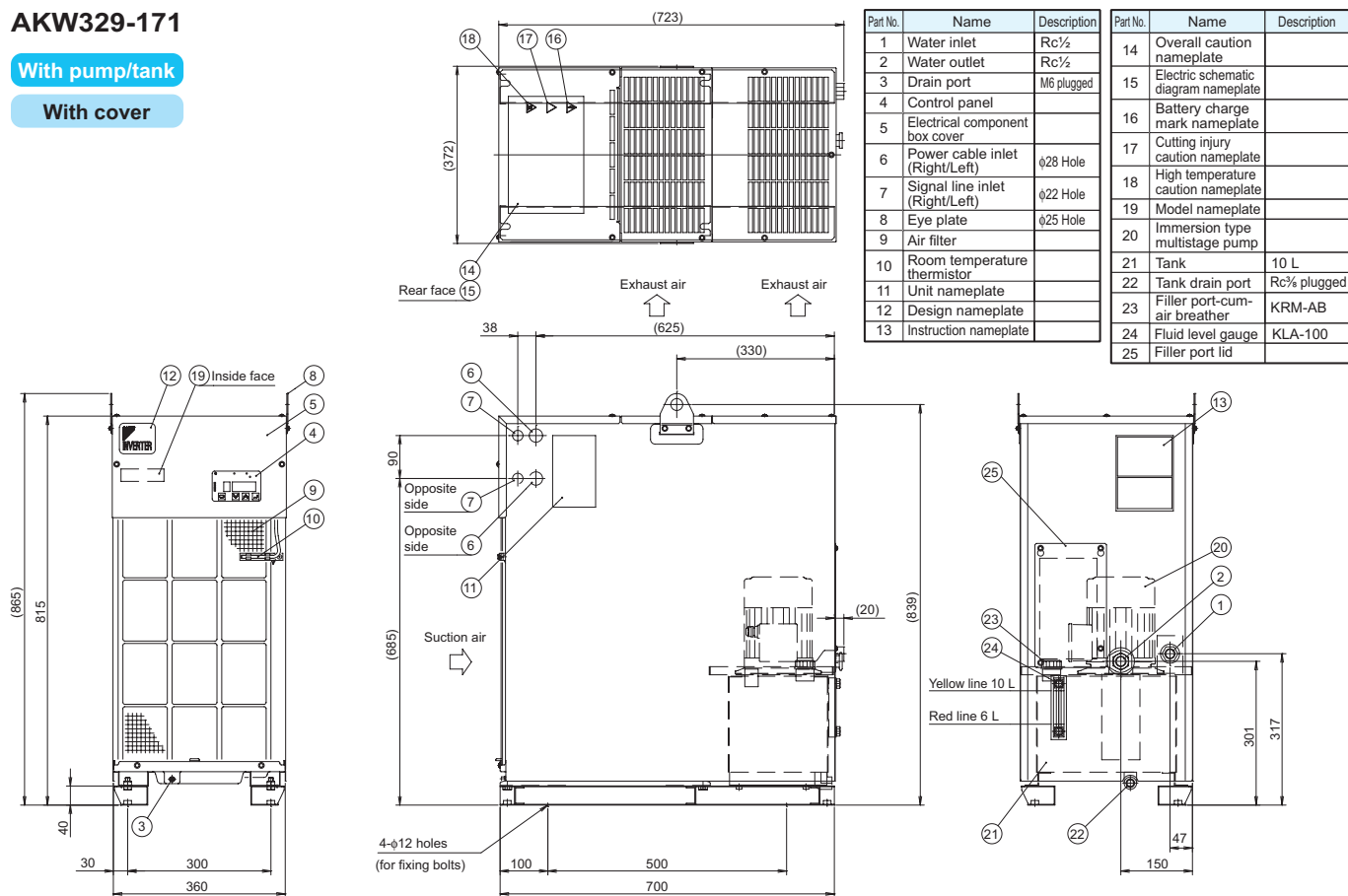
For latest information, PDF catalogs and operation manuals

External dimension diagram

AKW329-171

With pump/tank

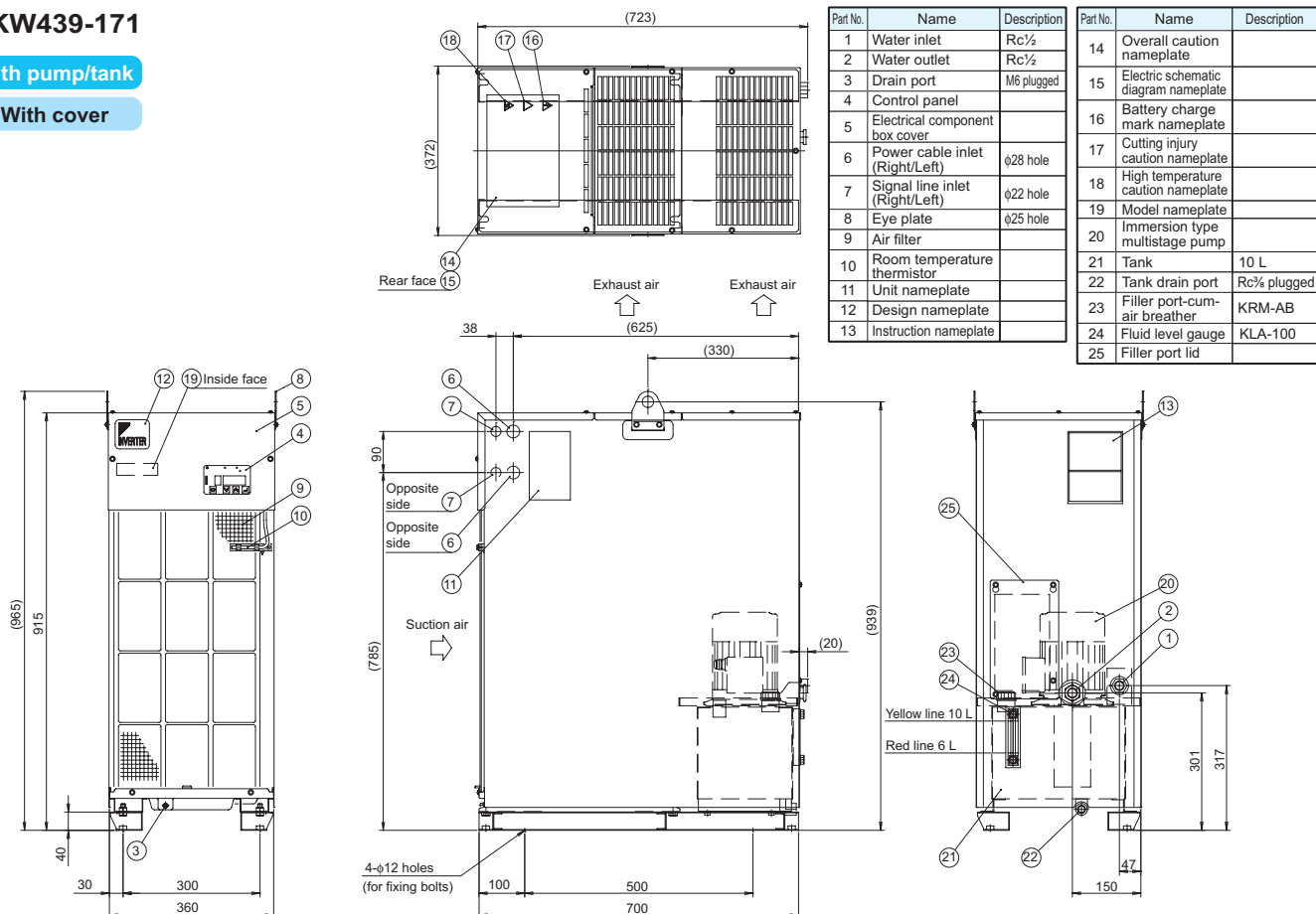
With cover



AKW439-171

With pump/tank

With cover



Refer to the individual product catalog for the external dimensions of the models without covers or a pump/tank.

Contact Details

Before using the product, please check the guide pages at the front of this catalog.

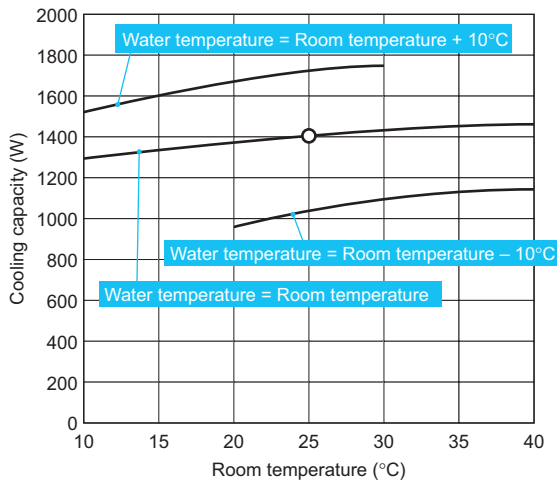
Internet

<http://www.daikinpmc.com/en/>

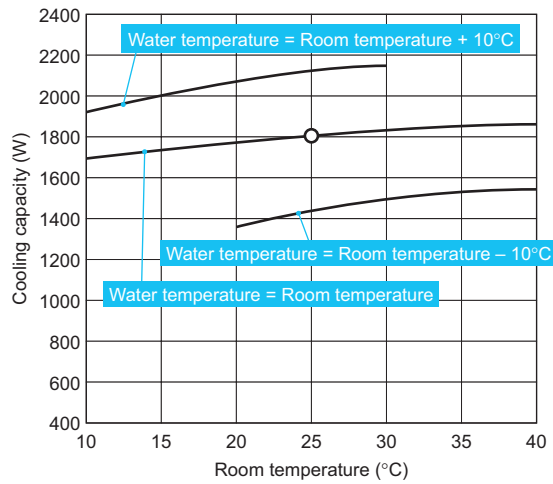
For latest information, PDF catalogs and operation manuals

Cooling capacity characteristic chart

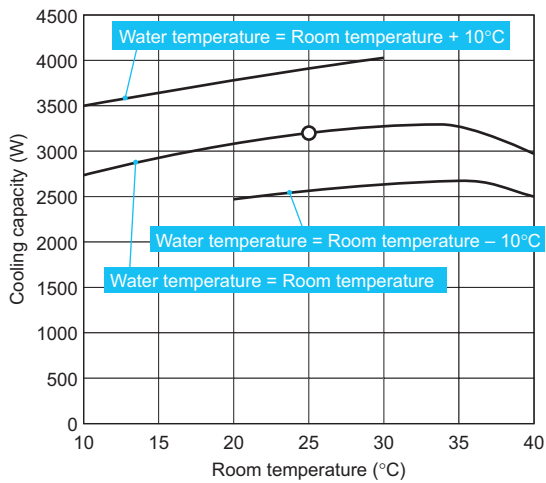
AKW149



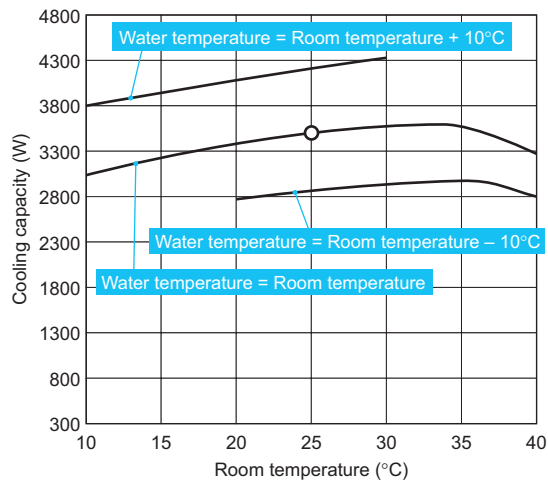
AKW189



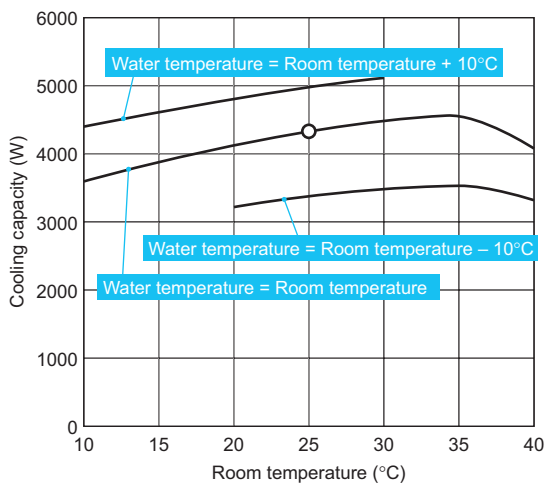
AKW329



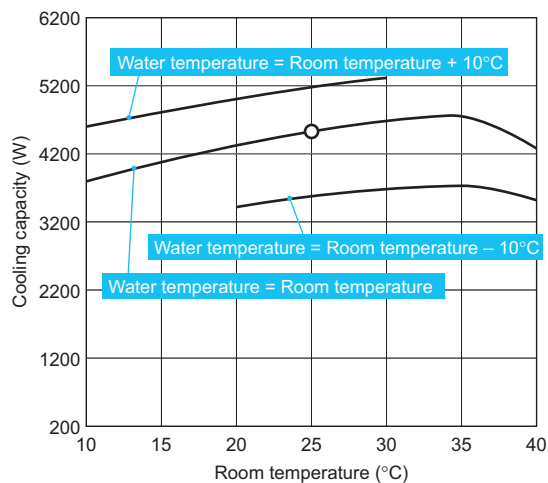
AKW359



AKW439



AKW459



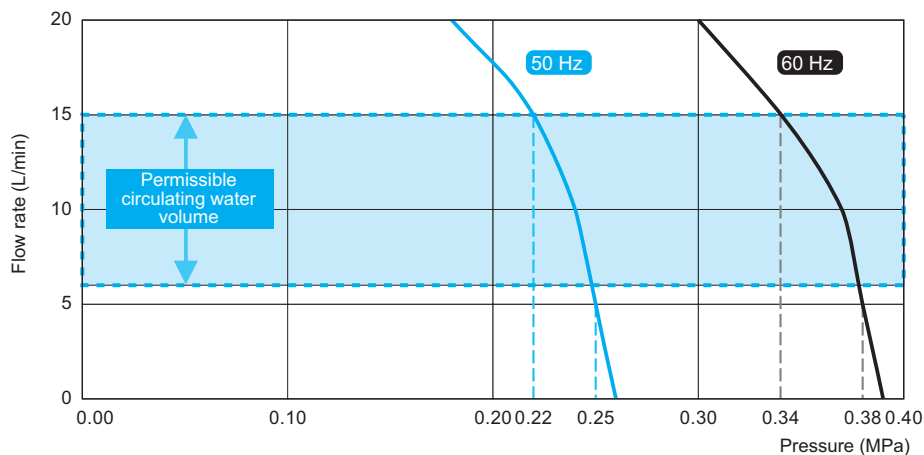
The mark "○" shows the standard point. (Room temperature: 25°C, water temperature: 25°C)

Pump flow rate characteristics

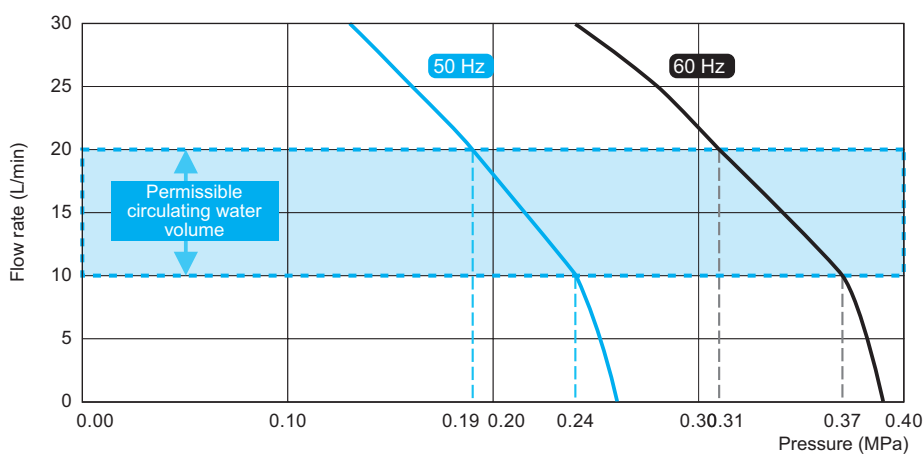
The following diagrams show the flow characteristics of the pumps with the internal pressure loss taken into account.

Select the diameters and lengths of pipe by referring to the following diagrams to keep the circulating water volume maintained within the permissible range.

AKW149



AKW329



AKW439

