

WATER CHILLING UNIT Inverter Controlled Chiller

For cooling with water/ethylene glycol solution, Circulating type

R32 refrigerant used

*Refrigerant with a lower global
warming potential than conventional
R410A used to reduce
the environmental load*

I N D E X

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NEW

Inverter Controlled Chiller B series

From this series, the model name is changed: AKW → **AKL**

DAIKIN INDUSTRIES, LTD.
Oil Hydraulic Division
Oil Hydraulic Equipment

Inverter Controlled Chiller

For cooling with water/ethylene glycol solution | Circulating type |



R32 Refrigerant Used

- The low-GWP^{*1} refrigerant R32 (GWP675), which satisfies the regulations of the U.S. AIM Act (introduced in January 2026), is used.
- Greater energy efficiency than R410A, lowering the power consumption by approximately 10%.

High Level of Safety Assured^{*2}

- Japan: The unit must comply with Guidelines of the Japan Refrigeration and Air Conditioning Industry Association and safety must be secured even in a factory environment with many ignition sources.
- Europe: Must be certified under the Pressure Vessel Directive (PED, Category 2) as required for CE compliance.

^{*1}. GWP refers to the global warming potential, which is a numerical value that expresses the warming capability of each gas.

^{*2}. R32 is a mildly flammable refrigerant (A2L: ISO817). Since it is slightly flammable, it needs to be used in compliance with the regulations of the relevant country.

Features

Better cooling capacity (AKL69B to 126B only)

- The cooling capacity of the 2.0/3.0 horsepower (HP) models has been improved. (For details, see pages 5 and 6.)

5.6 kW → **6.9 kW** 5.8 kW → **7.1 kW**
9.0 kW → **12.4 kW** 9.2 kW → **12.6 kW**

Easier to use, with an expanded range of application

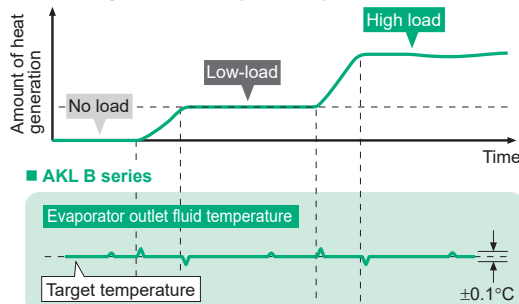
- Usable range expanded (For details, see page 4.)
Series 9/10: Fluid temperature -10°C to +10°C
B Series: Fluid temperature -10°C to +15°C

Lightweight, compact, transformerless 400 V specifications now available

- The dimensions are the same as standard models, so no design changes are needed for different voltages.

Acclaimed high-accuracy temperature control

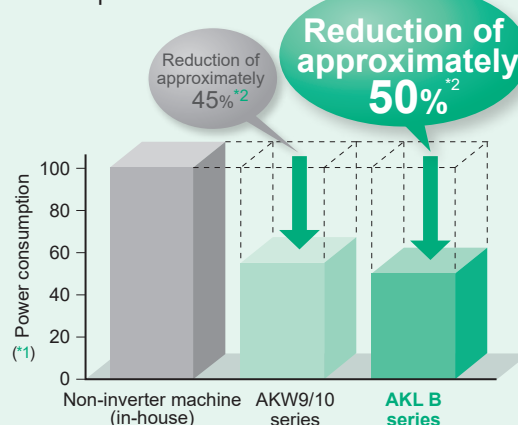
- Acclaimed high-accuracy $\pm 0.1^\circ\text{C}$ oil temperature control
- The cooling capacity resolution in the low-load range has been improved by optimal control of the compressor/inverter and electronic expansion valve.
- $\pm 0.1^\circ\text{C}$ oil temperature control realized over a load range from 0% (no load) to 100%.



Note: Pattern diagram with the heating load stabilized at 0 - 100%

Achieves high energy-saving performance

- Achieve high energy-saving performance with the adoption of a DAIKIN original IPM motor and inverter.
- The power consumption can be checked on the control panel.



^{*1}. The comparison reduction costs are based on a Daikin non-inverter system and are shown as 100% consumption.

^{*2}. Measured during the operation patterns for DAIKIN models

Reliable in challenging factory environments

- The control panel ingress protection is equivalent to an IP54 rating.
- Electronic components resistant to sulfidation have been incorporated.
- The specifications for withstanding vibration during transport are matched to actual situations.

Reduced environmental load

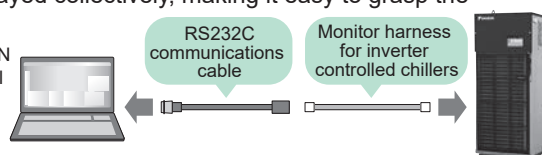
- Complies with environmental regulations, e.g. by adopting printed circuit boards with lead-free solder.

Simple monitoring of the operating status

- The room temperature, fluid temperature, and other internal data can be monitored at a personal computer using Hybrid-Win^{*}. This data can be displayed collectively, making it easy to grasp the operating status.

^{*} Hybrid-Win is utility software to monitor the internal status of DAIKIN hybrid systems using a PC. The software and its instruction manual can be downloaded from the website "https://www.hyd.daikin.com" free of charge by completing the user registration process.

^{*} The communications cable and the monitor harness must be purchased separately.



Superior functionality remains unchanged

- Refrigerant gas shortage detection function**
When the refrigerant gas leak status occurs (cooling disabled), alarm signals are output.
Prevents damage to the machine and machining defects.
- Temperature warning function**
A warning signal can be output when the targeted oil temperature or room temperature is out of the user-selected setting range.
- Autotuning function**
An autotuning function that automatically sets the control gain according to the system installed (tank oil volume, piping, etc.) greatly reduces adjustment time at the trial run.
- 999-hour timer function (ON timer)**
The operation start time can be set in a range between 0 and 999 hours (in hour units).
- Predictive maintenance function**
 - A warning signal is output to notify that maintenance is required when the air filter or condenser becomes clogged.
 - When a thermistor fault (control failure) occurs, emergency operation is possible using another operation mode. This minimizes effects due to line stoppages.

Easy to operate, and easy to maintain

- Easy-to-operate control panel that shows power consumption
- Plug-in terminal block makes tools unnecessary when connecting signals.
- Air filter structure that resists condenser clogging due to oil mist

A strong ally for troubled customers

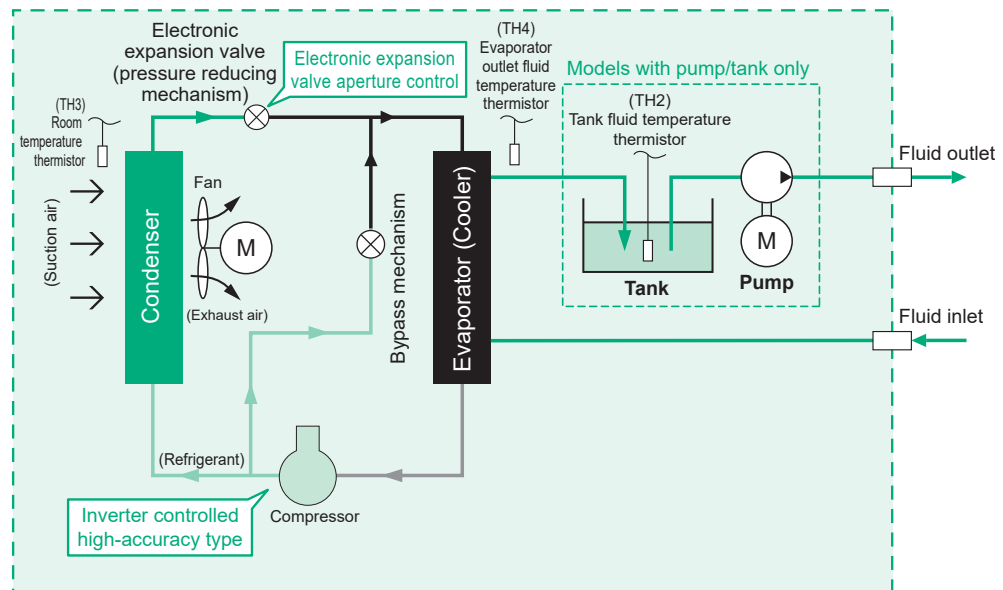
Installing Long Life Filters makes maintenance simple

When a Long Life Filter is installed, the cooling fins do not become clogged and no cleaning is required.
You are recommended to install a Long Life Filter when your unit is new.

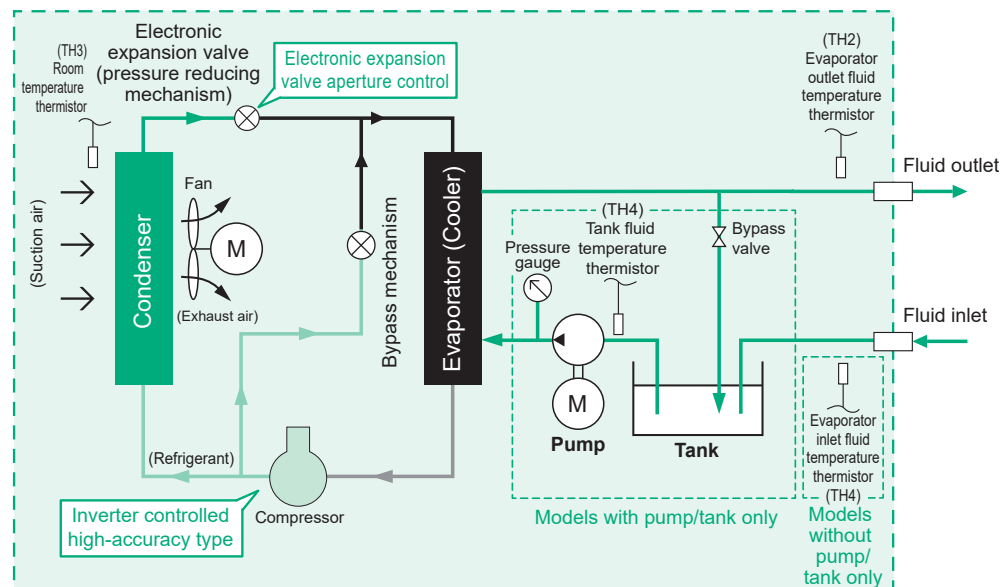
For details, refer to page 30.

System Diagram

• Principle and Overall System Diagram (AKL14B to 45B)



• Principle and Overall System Diagram (AKL69B to 126B)



Nomenclature

AKL

1

14

2

B

3

-

4

*** * ***

5

6

1 Standard type

AKL: High-accuracy inverter controlled chiller
[Circulation type for cooling with water/ethylene glycol solution]

2 Cooling capacity

14 : 1.4 kW	69 : 6.9 kW
18 : 1.8 kW	71 : 7.1 kW
32 : 3.2 kW	124 : 12.4 kW
35 : 3.5 kW	126 : 12.6 kW
43 : 4.3 kW	
45 : 4.5 kW	

3 Symbol of series

(Symbol to represent model change)

B: B series

4 Symbol of option type/Non-standard number

Options and their combinations
(Refer to the following table.)

5 Special specifications (high-flow-rate/high head pumps, specified paint colors, etc.)

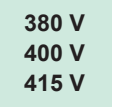
- * * * (3-digit number), C * * * (3-digit number), etc.
Please consult us separately.
-500: indicates standard specifications (380 V/400 V/415 V)
-171: with cover

6 Special specifications (specified packing specifications, communication options, etc.)

J: Communications option
RS485/Modbus protocol

Options and their combinations

AKL B (Circulation type for cooling with water/ethylene glycol solution)

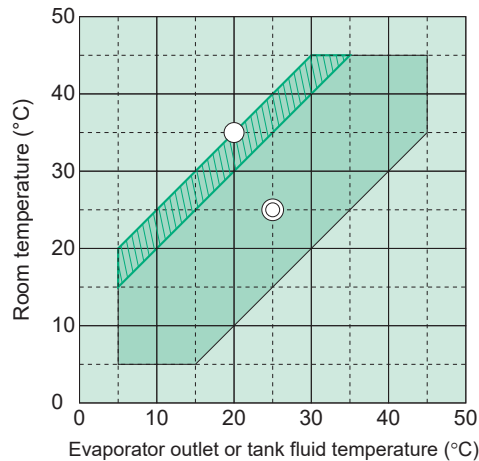
				
With breaker	CE compliant type	Different voltage	With cover	Modbus Communication
-B	-C	-500	-171	-J

Options can also be combined.
Please contact us for detailed information.

Applications

Machining centers, NC lathes, Semiconductor production equipment,
Laser cutting machines/Laser oscillators, Electrical discharge machines/Beam welding machines,
Various analyzing apparatus/Medical equipment, etc.

Operating Temperature Range



Note: 1. The "◎" symbol indicates the standard point, and the "○" symbol indicates the reference point.
2. Be sure to use the unit within the range of use specified in [].
(Use outside this range may cause unit failure.)

Usable range expanded beyond Series 9 and 10

Water Quality Standard

●For the cooling fluid, use clean fresh water that satisfies the water quality standards (including for that for dilution of ethylene glycol solution) as indicated in the table below.
(Taken from Guideline of Water Quality for Refrigeration and Air Conditioning Equipment (JRA-GL-02-1994).)

	Item	Unit	Standard Value	Tendency	
				Corrosion	Scale Generation
Standard items	pH (25°C)	—	6.0 to 8.0	✓	✓
	Electrical conductivity	mS/m (25°C)	30 maximum	✓	✓
	Chloride ion	mgCl ⁻ /L	50 maximum	✓	
	Sulfate ion	mgSO ₄ ²⁻ /L	50 maximum	✓	
	Acid consumption (pH4.8)	mgCaCO ₃ /L	50 maximum		✓
	Total hardness	mgCaCO ₃ /L	70 maximum		✓
	Calcium hardness	mgCaCO ₃ /L	50 maximum		✓
	Ionic silica	mgSiO ₂ /L	30 maximum		✓
Reference items	Iron	mgFe/L	0.3 maximum	✓	✓
	Copper	mgCu/L	0.1 maximum	✓	
	Sulfate ion	mgS ²⁻ /L	Not to be detected	✓	
	Ammonium ion	mgNH ₄ ⁺ /L	0.1 maximum	✓	
	Residual chlorine	mgCl/L	0.3 maximum	✓	
	Free carbon dioxide	mgCO ₂ /L	4.0 maximum	✓	

* A checkmark in a row indicates that the relevant factor is associated with the tendency for corrosion or scale formation.

* Even if the standards are satisfied, there is no guarantee that corrosion will be completely prevented.

AKL14B
to 45B

			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			AKL14B				AKL32B				AKL43B				AKL18B				AKL35B				AKL45B									
			Standard	-B	-C	-J	-171	Different voltage	Standard	-B	-C	-J	-171	Different voltage	Standard	-B	-C	-J	-171	Different voltage	Standard	-B	-C	-J	-171	Different voltage						
Cooling capacity (50/60 Hz) *1	Standard point	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									
	Reference point	kW	1.2/1.2				2.6/2.6				3.8/3.8				1.6/1.6				2.9/2.9				4.0/4.0									
Supply power *2			3-phase AC 200/200 · 220 V 50/60 Hz				*3	3-phase AC 200/200 · 220 V 50/60 Hz				*3	3-phase AC 200/200 · 220 V 50/60 Hz				*3	3-phase AC 200/200 · 220 V 50/60 Hz				*3	3-phase AC 200/200 · 220 V 50/60 Hz				*3					
Circuit voltage	Main circuit	*3	3-phase AC 200/200 · 220 V 50/60 Hz																													
	Operating circuit		12/24 VDC																													
Max. power consumption Max. current consumption	200 V 50 Hz		1.14 kW/4.4 A					1.62 kW/5.9 A					1.77 kW/6.6 A					0.73 kW/3.1 A					1.20 kW/4.7 A					1.39 kW/5.3 A				
	200 V 60 Hz		1.30 kW/4.7 A				*11	1.79 kW/6.2 A				*11	1.98 kW/7.0 A				*11	0.73 kW/3.1 A				*11	1.21 kW/4.6 A				*11	1.39 kW/5.2 A				*11
	220 V 60 Hz		1.30 kW/4.7 A					1.79 kW/6.2 A					1.98 kW/7.2 A					0.73 kW/2.9 A					1.21 kW/4.3 A					1.39 kW/4.8 A				
Exterior 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			Brazen plate type																													
Condenser			Cross-fin coil type																													
Propeller fan	Motor (50/60 Hz)		φ240, 54 W				φ300, 54 W				φ240, 54 W				φ300, 54 W																	
Pump	Motor (50/60 Hz) *12		0.37/0.55 kW × 2 P																													
	Head m		26.5/38.5 ^{±7%} at 10 L/min, 25.5/37.5 ^{±7%} at 15 L/min																													
Temperature control (Selectable)	Synchronization type	Standard	Room temperature or machine temperature*4 (Set to "Room temperature: Mode 5" by default)												Room temperature or machine temperature*4 (Set to "Room temperature: Mode 3" by default)																	
		Object to be controlled	Evaporator outlet fluid temperature or tank fluid temperature (Set to tank fluid temperature by default)												Outlet fluid temperature																	
		Synchronization range	-9.9 to +9.9 against the reference temperature (Set at 0.0 by default)																													
	Fixed type	Object to be controlled	Evaporator outlet fluid temperature or tank fluid temperature												Outlet fluid temperature																	
		Range	5 to 45																													
Refrigerant control			Rotation speed control of compressor by inverter + Opening rate control of electric expansion valve																													
Refrigerant: R32 (GWP:675)*5	Filling amount kg		0.38				0.59				0.68				0.38				0.59				0.68									
	Carbon dioxide equivalent tCO ₂ eq		0.26				0.40				0.46				0.26				0.40				0.46									
Refrigerant pressure (high/low) MPa			4.1/0.7 (41/7 bar)																													
Protection equipment			Overcurrent relay (for a pump motor), reverse-phase protection device, restart prevention timer, low room temperature protection thermistor, high fluid temperature protection thermistor, low fluid temperature protection thermistor, discharge pipe thermistor, condenser thermistor, inlet pipe thermistor (freeze protection), refrigerant leakage detector, inverter protection device, high-pressure pressure switch (C type only), compressor protection thermostat and circuit breaker (B type only)																													
Operating range	Room temperature °C		5 to 45																													
	Evaporator outlet/tank fluid temperature °C		5 to 45																													
	External pressure loss		0.25/0.37 MPa max. (50/60 Hz) at 10 L/min				0.23/0.35 MPa maximum (50/60 Hz) at 15 L/min												—													
	Cooling fluid circuit withstand pressure MPa						—												0.5													
	Rated circulating volume L/min		10				15				15				10				15				15									
	Circulating volume range L/min		6 to 15				10 to 20				10 to 30				6 to 15				10 to 20				10 to 30									
Acceptable fluid			Industrial purified water, ethylene glycol solution (50 vol% or less)																													
Connecting tube	Fluid inlet		Rc1/2																													
	Fluid outlet		Rc1/2																													
	Evaporator drain		Rc1/2 (Plugged)																—													
	Tank drain		Rc3/8 (Plugged)																—													
Noise level (value equivalent to measurement in an anechoic chamber (Front 1 m, height 1.55 m)*7 dB(A)			60				61				62				60				61				62									
Permissible transport vibration*8			Up and down vibration 14.7 m/s ² × 2.5 hr (7.5 to 100 Hz sweep/five min.)																													
Protection grade			IP2X *6																													
Mass kg			63		67		63		68		72		68		69		73		69		38		43		44							
Internal molded-case circuit breaker (Rated current) A			— 10		—		— 10		—		— 10		—		— 10		—		— 10		—		— 10		—							
Tank capacity L			10 *10												—																	
Items prepared by the customer	Earth leakage breaker (Rated current)*9 A		10																													

Note: *1. Cooling capacity values are given for standard point (outlet fluid temperature: 25°C, room temperature: 25°C, fluid used: water, rated circulation rate, 1 atm) and reference point (outlet fluid temperature: 20°C, room temperature: 35°C, fluid used: water, rated circulation rate, 1 atm). The product tolerance is approx. +5%.

- *2. Use a commercial power supply for the power source. The use of an inverter power supply may cause burn damage to the machine. The voltage fluctuation range should be within $\pm 10\%$. If it is more than $\pm 10\%$, please consult us.
- *3. Different voltage specification (-500) units have no transformer and therefore have the same external dimensions and mass as standard units. The main circuit voltage is 380 · 400 · 415 VAC 50/60 Hz.
- *4. The machine synchronization thermistor optionally available is required for this function. (Refer to Page 19 for details.)
- *5. The refrigerant is enclosed in a sealed container. The SDS (Safety Data Sheet) for R32 refrigerant is provided with to -C type units.
- *6. Electric component section ingress protection: IP54 or equivalent (However, use piping conduits etc. rated at least IP54 at wiring ports.)
- *7. The rotational speed of the fan varies depending on the room temperature to conserve energy. Therefore, it is normal for the noise level to vary accordingly. Uncertainty: 0.4 dB (K=2)
- *8. The specifications for permissible transport vibration are those of a standard unit.
- *9. The earth leakage breaker is not supplied with this product. Please prepare it yourself.
- *10. The yellow line on the tank oil level gauge shows the highest oil level and the red line the lowest oil level.
- *11. The maximum power consumption/maximum current consumption of different voltage specifications are shown in the tables at the bottom of page 6.
- *12. The power consumption of the different-voltage model (-500) is 0.55 kW (50/60 Hz) × 2P.

Specifications

AKL69B
to 126B

			With pump/tank								Without pump/tank											
Equivalent horsepower of chiller (HP)			2.0				3.0				2.0				3.0							
Model name			AKL69B				AKL124B				AKL71B				AKL126B							
			Standard	-B	-C	-J	Different-voltage*3	Standard	-B	-C	-J	Different-voltage*3	Standard	-B	-C	-J	Different-voltage*3	Standard	-B	-C	-J	Different-voltage*3
Cooling capacity (50/60 Hz) *1	Standard point	kW	6.9/6.9				12.4/12.4				7.1/7.1				12.6/12.6							
	Reference point	kW	5.8/5.8				10.5/10.5				6.0/6.0				10.7/10.7							
Supply power *2			3-phase AC 200/200 · 220 V 50/60 Hz				*3	3-phase AC 200/200 · 220 V 50/60 Hz				*3	3-phase AC 200/200 · 220 V 50/60 Hz				*3	3-phase AC 200/200 · 220 V 50/60 Hz				*3
Circuit voltage	Main circuit *3		3-phase AC 200/200 · 220 V 50/60 Hz																			
	Operating circuit		12/24 VDC																			
Max. power consumption Max. current consumption	200 V 50 Hz		3.00 kW/11.0 A				*11	4.58 kW/15.1 A				*11	2.13 kW/7.4 A				*11	3.71 kW/11.5 A				*11
	200 V 60 Hz		3.28 kW/10.7 A					4.86 kW/14.9 A					2.14 kW/7.3 A					3.72 kW/11.5 A				
	220 V 60 Hz		3.28 kW/10.2 A					4.86 kW/14.0 A					2.14 kW/6.7 A					3.72 kW/10.5 A				
Exterior color			Ivory white																			
External dimensions (H × W × D) mm			1197 × 470 × 500				1307 × 560 × 620				1197 × 470 × 500				1307 × 560 × 620							
Compressor (Hermetic DC swing type)			Equivalent to 1.5 kW				Equivalent to 2.2 kW				Equivalent to 1.5 kW				Equivalent to 2.2 kW							
Evaporator			Brazed plate type																			
Condenser			Cross-fin coil type																			
Propeller fan			Motor (50/60 Hz)				φ400, 100 W				φ455, 100 W				φ400, 100 W				φ455, 100 W			
Pump	Motor (50/60 Hz)		0.43/0.74 kW × 2P																			
	Head m		34/49 ^{±7%} at 25 L/min				31/47 ^{±7%} at 40 L/min															
Temperature control (Selectable)	Synchronization type	Standard	Room temperature or machine temperature *4 (Set to "Room temperature: Mode 3" by default)																			
		Object to be controlled	Evaporator outlet fluid temperature or tank fluid temperature (Set to tank fluid temperature by default)								Evaporator outlet fluid temperature or evaporator inlet fluid temperature (Set to evaporator inlet fluid temperature by default)											
		Synchronization range	-9.9 to +9.9 against the reference temperature (Set at 0.0 by default)																			
		Object to be controlled	Evaporator outlet fluid temperature or tank fluid temperature								Evaporator outlet fluid temperature or evaporator inlet fluid temperature											
	Fixed type	Range	5 to 45																			
Refrigerant control			Rotation speed control of compressor by inverter + Opening rate control of electric expansion valve																			
Refrigerant: R32 (GWP:675)*5	Filling amount	kg	0.86				1.16				0.86				1.16							
	Carbon dioxide equivalent tCO ₂ eq		0.59				0.79				0.59				0.79							
Refrigerant pressure (high/low) MPa			4.17/0.7 (41.7/7 bar)																			
Protection equipment			Overcurrent relay (for a pump motor), reverse-phase protection device, restart prevention timer, low room temperature protection thermistor, high fluid temperature protection thermistor, low fluid temperature protection thermistor, discharge pipe thermistor, condenser thermistor, inlet pipe thermistor (freeze protection), refrigerant leakage detector, inverter protection device, high-pressure pressure switch (C type only), compressor protection thermostat and circuit breaker (B type only)																			
Operating range	Room temperature	°C	5 to 45																			
	Evaporator outlet/tank fluid temperature	°C	5 to 45																			
	External pressure loss		0.24/0.38 MPa maximum (50/60 Hz) at 25 L/min				0.14/0.28 MPa maximum (50/60 Hz) at 40 L/min								—							
	Cooling fluid circuit withstand pressure	MPa					—								1.0							
	Rated circulating volume	L/min	25				40				25				40							
	Circulating volume range	L/min	13 to 30				25 to 45				13 to 30				25 to 45							
Acceptable fluid			Industrial purified water, ethylene glycol solution (50 vol% or less)																			
Connecting tube	Fluid inlet		Rc3/4																			
	Fluid outlet		Rc3/4																			
	Evaporator drain		—																			
	Tank drain		Rc3/8 (Plugged)								—											
Noise level (value equivalent to measurement in an anechoic chamber) (Front 1 m, height 1.55 m)*7 dB(A)			65				67				65				67							
Permissible transport vibration*8			Up and down vibration 14.7 m/s ² × 2.5 hr (7.5 to 100 Hz sweep/five min.)																			
Protection grade			IP2X *6																			
Mass kg			95				116				71				88							
Internal molded-case circuit breaker (Rated current) A			—	15		—	—	20		—	—	15		—	—	20		—				
Tank capacity L			15 *10				20 *10								—							
Items prepared by the customer			Earth leakage breaker (Rated current)*9 A				15				20				15				20			

Refer to Page 5 for explanatory notes.

■AKL14B

Power supply	Power/Current
380 V	1.50 kW/3.0 A
400 V / 50/60 Hz	1.50 kW/2.9 A
415 V	1.51 kW/2.8 A

■AKL18B

Power supply	Power/Current
380 V	0.75 kW/1.6 A
400 V / 50/60 Hz	0.75 kW/1.5 A
415 V	0.75 kW/1.5 A

■AKL32B

Power supply	Power/Current
380 V	1.98 kW/3.9 A
400 V / 50/60 Hz	1.99 kW/3.8 A
415 V	2.00 kW/3.7 A

■AKL35B

Power supply	Power/Current
380 V	1.23 kW/2.6 A
400 V / 50/60 Hz	1.24 kW/2.5 A
415 V	1.24 kW/2.4 A

■AKL43B

Power supply	Power/Current
380 V	2.17 kW/4.2 A
400 V / 50/60 Hz	2.17 kW/4.1 A
415 V	2.17 kW/4.0 A

■AKL45B

Power supply	Power/Current
380 V	1.41 kW/2.9 A
400 V / 50/60 Hz	1.41 kW/2.8 A
415 V	1.41 kW/2.7 A

■AKL69B

Power supply	Power/Current
380 V	3.28 kW/6.2 A
400 V / 50/60 Hz	3.29 kW/6.1 A
415 V	3.29 kW/6.0 A

■AKL71B

Power supply	Power/Current
380 V	2.15 kW/4.2 A
400 V / 50/60 Hz	2.16 kW/4.1 A
415 V	2.16 kW/4.0 A

■AKL124B

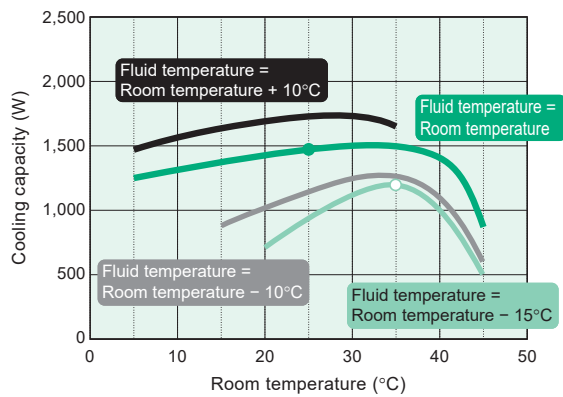
Power supply	Power/Current
380 V	4.92 kW/9.8 A
400 V / 50/60 Hz	4.93 kW/9.4 A
415 V	4.94 kW/9.2 A

■AKL126B

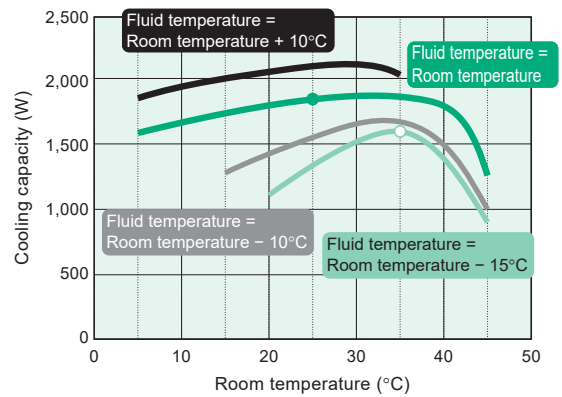
Power supply	Power/Current
380 V	3.79 kW/7.8 A
400 V / 50/60 Hz	3.80 kW/7.4 A
415 V	3.80 kW/7.3 A

Cooling Capacity Characteristic Chart

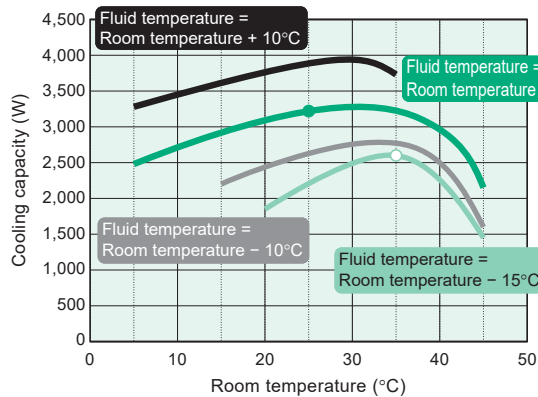
AKL14B



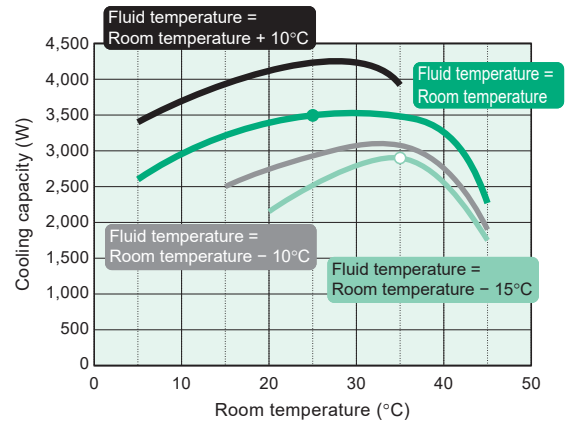
AKL18B



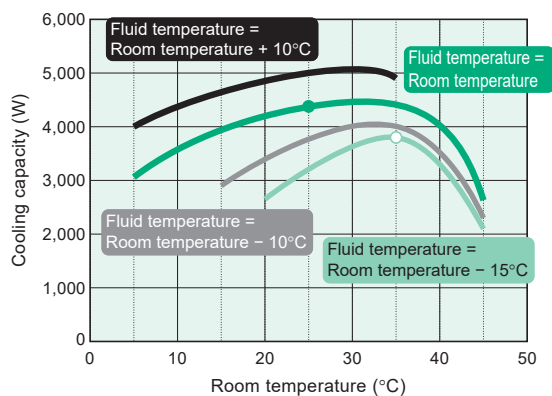
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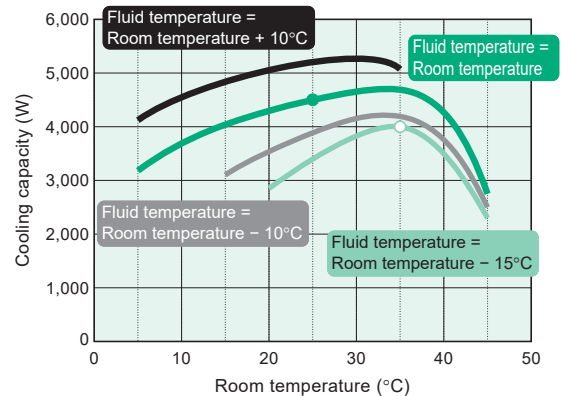
AKL35B



AKL43B

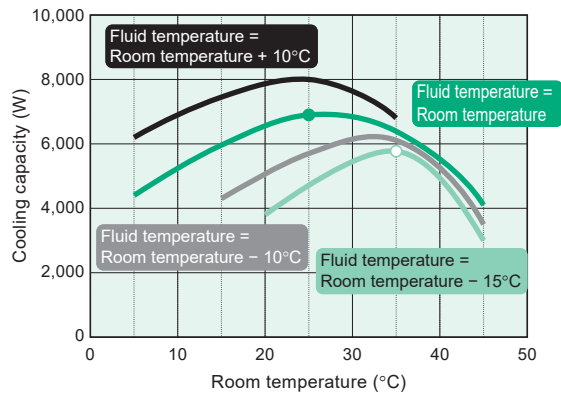


AKL45B

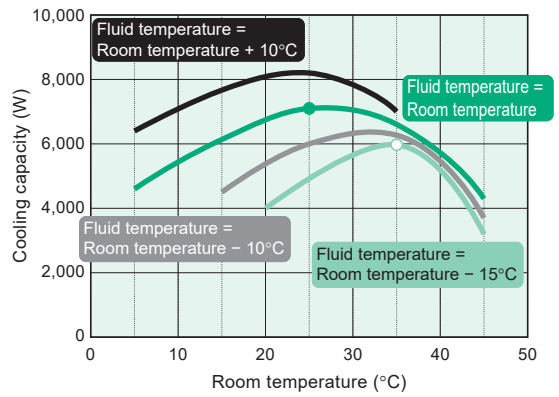


1. The "●" symbol indicates the standard point. (Room temperature: 25°C/Fluid temperature: 25°C, Fluid used: water, 1 atm)
The "○" symbol indicates the reference point. (Room temperature: 35°C/Fluid temperature: 20°C, Fluid used: water, 1 atm)
2. The cooling capacity indicates the value at the rated circulation.

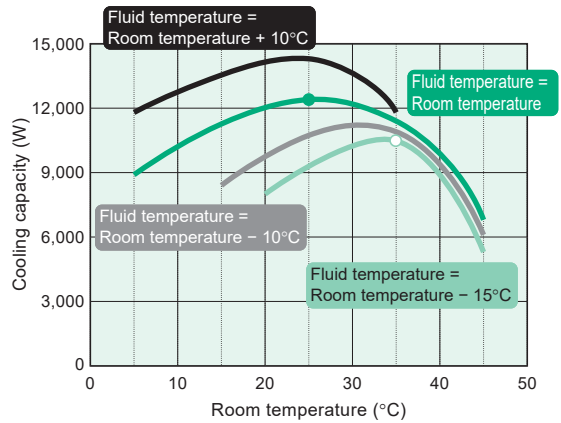
AKL69B



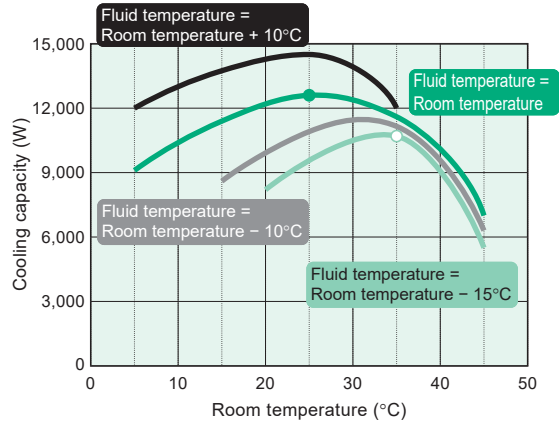
AKL71B



AKL124B



AKL126B



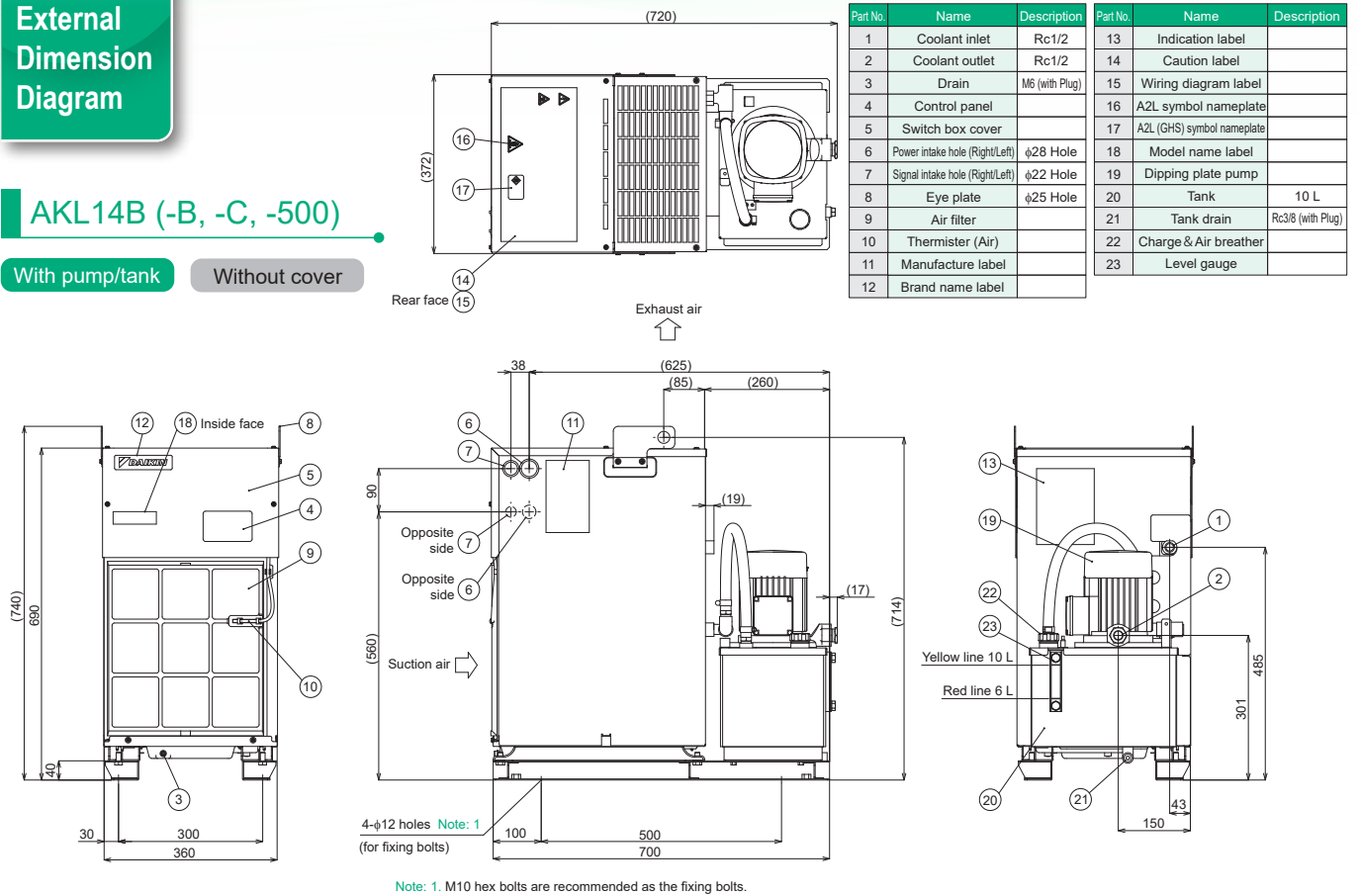
- The "●" symbol indicates the standard point. (Room temperature: 25°C/Fluid temperature: 25°C, Fluid used: water, 1 atm)
The "○" symbol indicates the reference point. (Room temperature: 35°C/Fluid temperature: 20°C, Fluid used: water, 1 atm)
- The cooling capacity indicates the value at the rated circulation.

External Dimension Diagram

AKL14B (-B, -C, -500)

With pump/tank

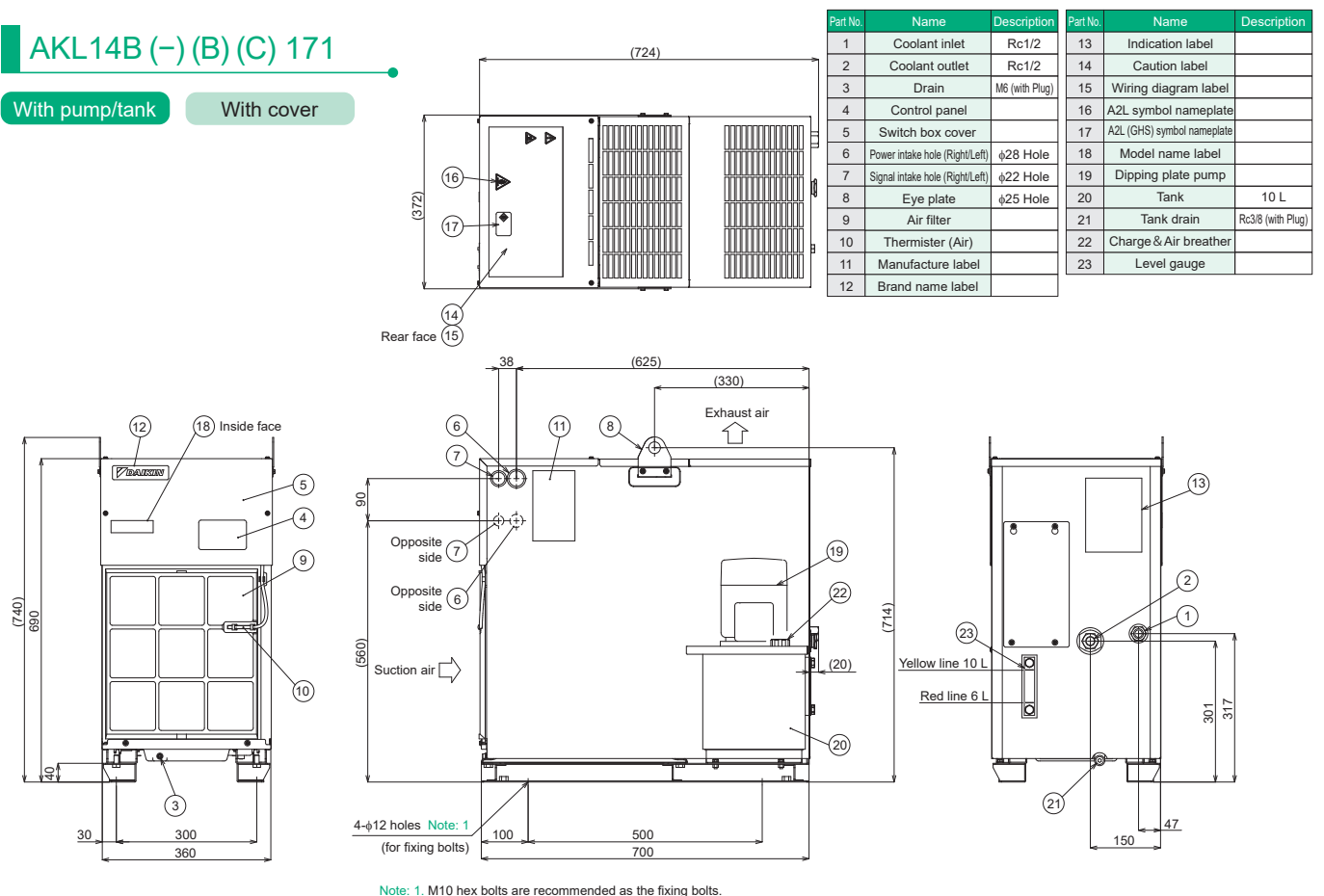
Without cover



AKL14B (-) (B) (C) 171

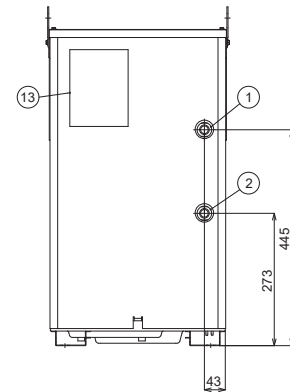
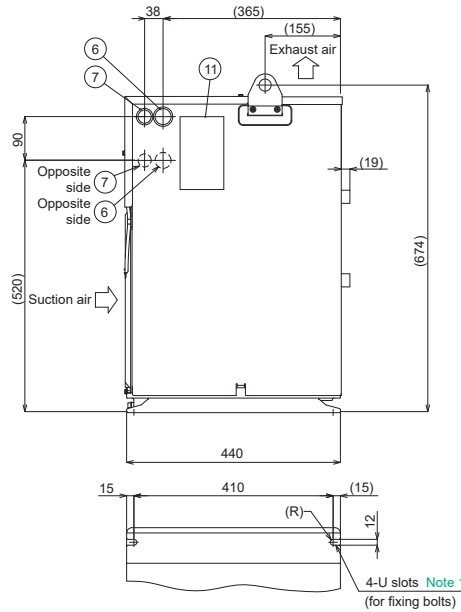
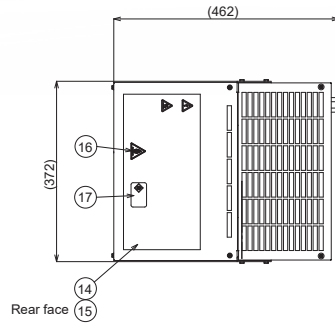
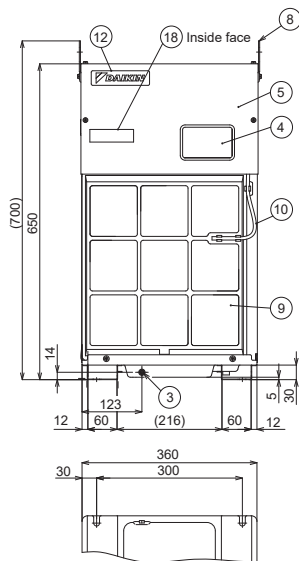
With pump/tank

With cover



AKL18B (-B, -C, -500)

Without pump/tank



Part No.	Name	Description
1	Coolant inlet	Rc1/2
2	Coolant outlet	Rc1/2
3	Drain	M6 (with Plug)
4	Control panel	
5	Switch box cover	
6	Power intake hole (Right/Left)	φ28 Hole
7	Signal intake hole (Right/Left)	φ22 Hole
8	Eye plate	φ25 Hole
9	Air filter	
10	Thermister (Air)	
11	Manufacture label	
12	Brand name label	

Part No.	Name	Description
13	Indication label	
14	Caution label	
15	Wiring diagram label	
16	A2L symbol nameplate	
17	A2L (GHS) symbol nameplate	
18	Model name label	

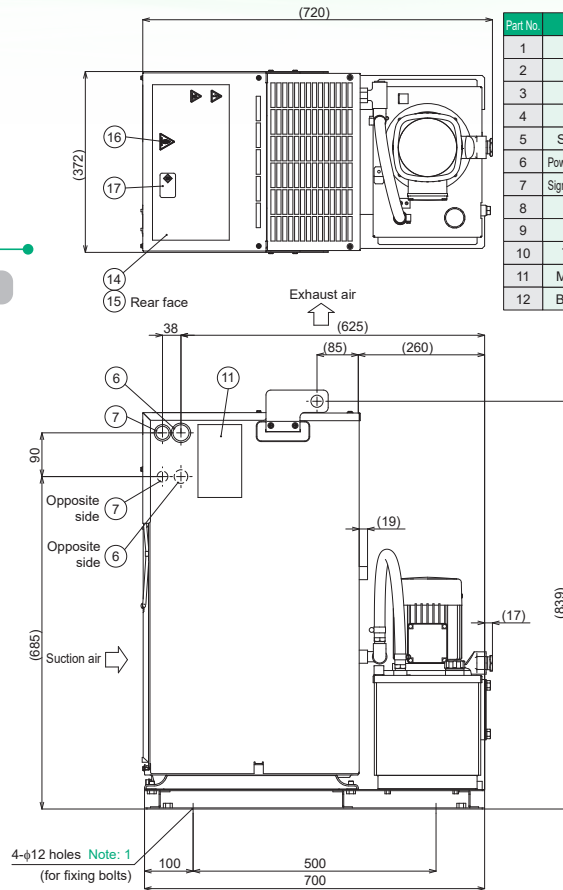
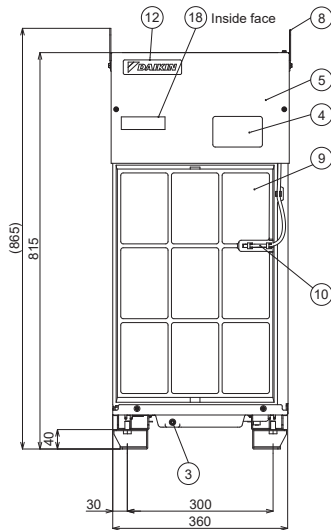
Note: 1. M10 hex bolts are recommended as the fixing bolts.

External Dimension Diagram

AKL32B (-B, -C, -500)

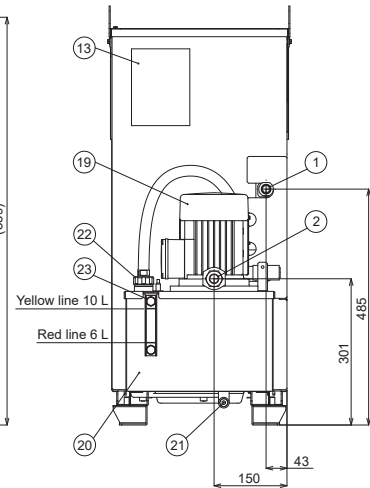
With pump/tank

Without cover



Part No.	Name	Description
1	Coolant inlet	Rc1/2
2	Coolant outlet	Rc1/2
3	Drain	M6 (with Plug)
4	Control panel	
5	Switch box cover	
6	Power intake hole (Right/Left)	φ28 Hole
7	Signal intake hole (Right/Left)	φ22 Hole
8	Eye plate	φ25 Hole
9	Air filter	
10	Thermister (Air)	
11	Manufacture label	
12	Brand name label	

Part No.	Name	Description
13	Indication label	
14	Caution label	
15	Wiring diagram label	
16	A2L symbol nameplate	
17	A2L (GHS) symbol nameplate	
18	Model name label	
19	Dipping plate pump	
20	Tank	10 L
21	Tank drain	Rc3/8 (with Plug)
22	Charge & Air breather	
23	Level gauge	

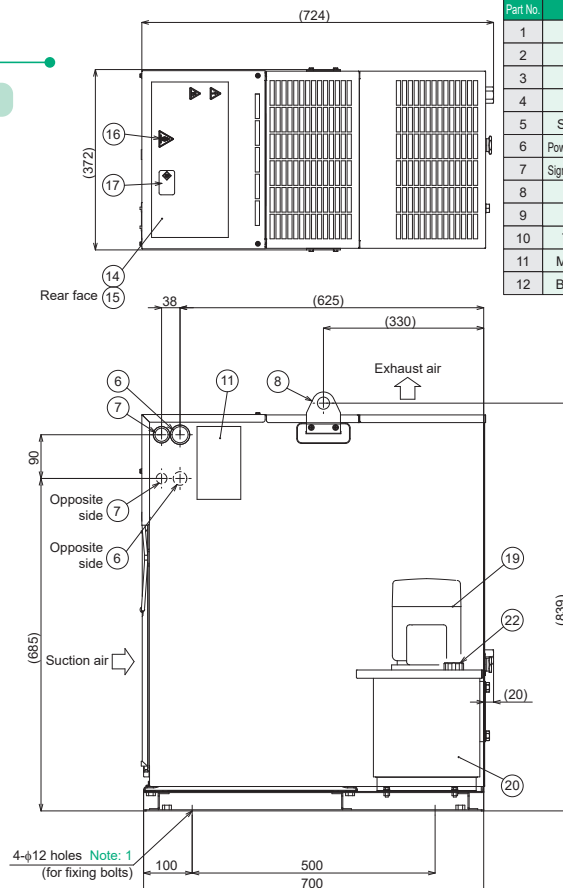
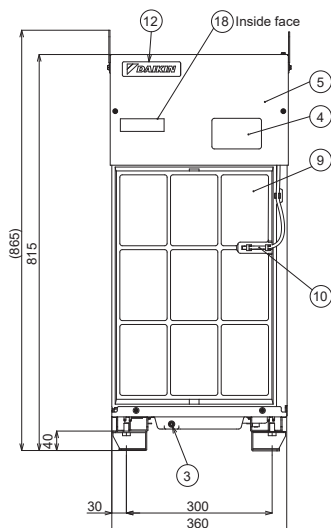


Note: 1. M10 hex bolts are recommended as the fixing bolts.

AKL32B (-) (B) (C) 171

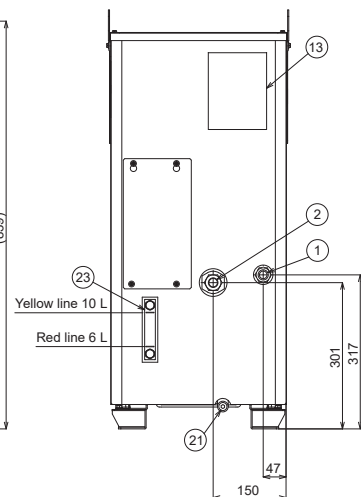
With pump/tank

With cover



Part No.	Name	Description
1	Coolant inlet	Rc1/2
2	Coolant outlet	Rc1/2
3	Drain	M6 (with Plug)
4	Control panel	
5	Switch box cover	
6	Power intake hole (Right/Left)	φ28 Hole
7	Signal intake hole (Right/Left)	φ22 Hole
8	Eye plate	φ25 Hole
9	Air filter	
10	Thermister (Air)	
11	Manufacture label	
12	Brand name label	

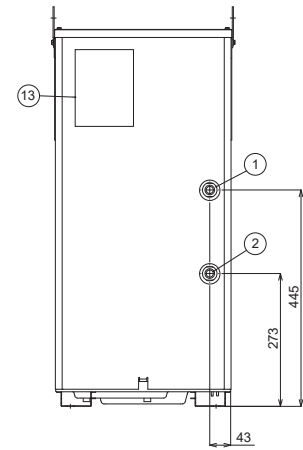
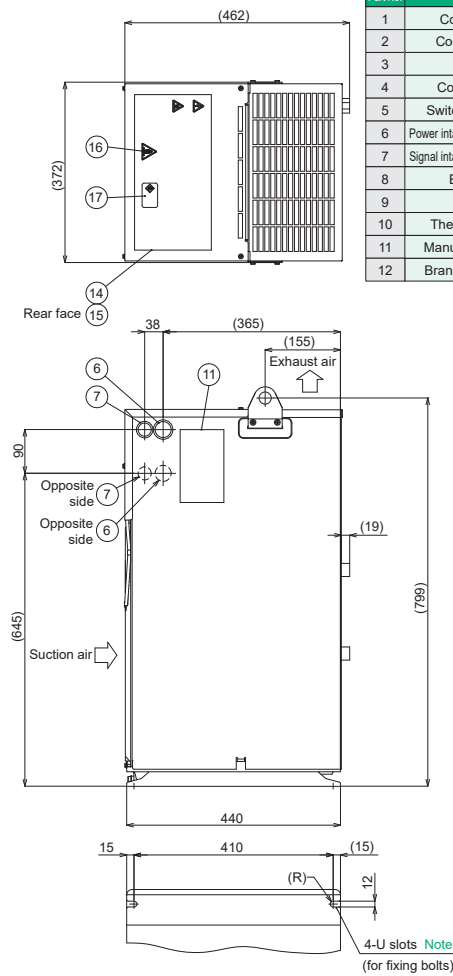
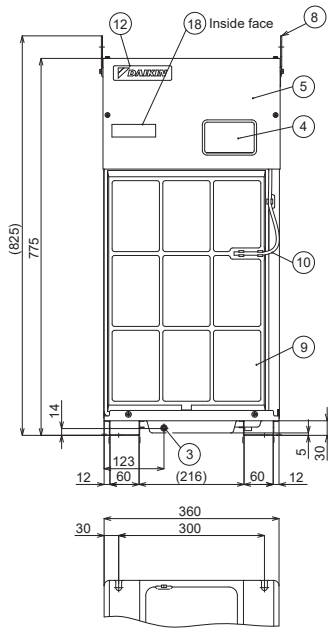
Part No.	Name	Description
13	Indication label	
14	Caution label	
15	Wiring diagram label	
16	A2L symbol nameplate	
17	A2L (GHS) symbol nameplate	
18	Model name label	
19	Dipping plate pump	
20	Tank	10 L
21	Tank drain	Rc3/8 (with Plug)
22	Charge & Air breather	
23	Level gauge	



Note: 1. M10 hex bolts are recommended as the fixing bolts.

AKL35B (-B, -C, -500)

Without pump/tank



Note: 1. M10 hex bolts are recommended as the fixing bolts.

Part No.	Name	Description
1	Coolant inlet	Rc1/2
2	Coolant outlet	Rc1/2
3	Drain	M6 (with Plug)
4	Control panel	
5	Switch box cover	
6	Power intake hole (Right/Left)	φ28 Hole
7	Signal intake hole (Right/Left)	φ22 Hole
8	Eye plate	φ25 Hole
9	Air filter	
10	Thermister (Air)	
11	Manufacture label	
12	Brand name label	

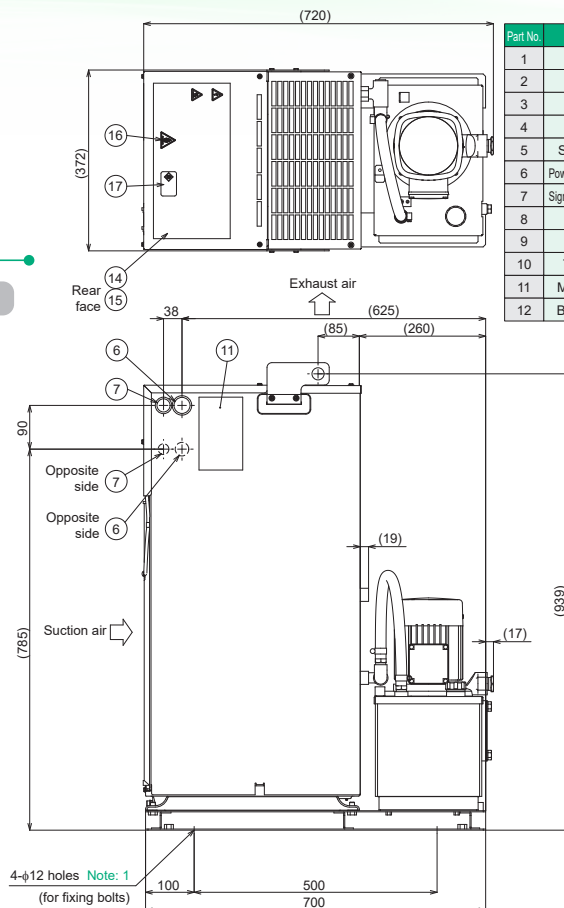
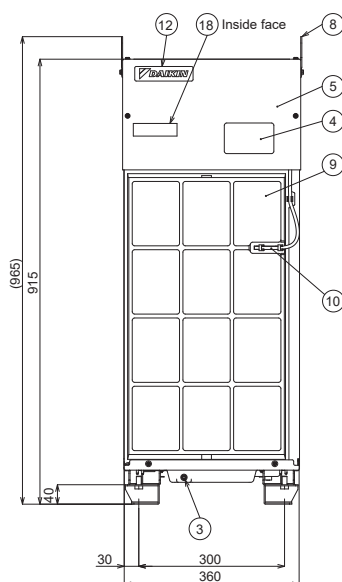
Part No.	Name	Description
13	Indication label	
14	Caution label	
15	Wiring diagram label	
16	A2L symbol nameplate	
17	A2L (GHS) symbol nameplate	
18	Model name label	

External Dimension Diagram

AKL43B (-B, -C, -500)

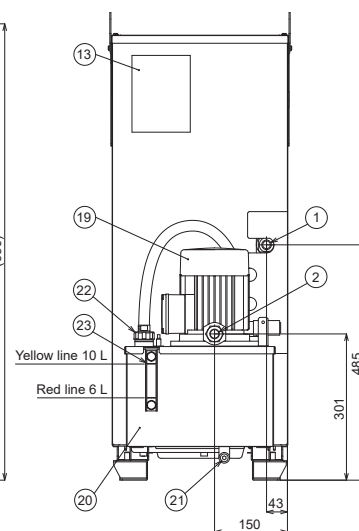
With pump/tank

Without cover



Part No.	Name	Description
1	Coolant inlet	Rc1/2
2	Coolant outlet	Rc1/2
3	Drain	M6 (with Plug)
4	Control panel	
5	Switch box cover	
6	Power intake hole (Right/Left)	φ28 Hole
7	Signal intake hole (Right/Left)	φ22 Hole
8	Eye plate	φ25 Hole
9	Air filter	
10	Thermister (Air)	
11	Manufacture label	
12	Brand name label	

Part No.	Name	Description
13	Indication label	
14	Caution label	
15	Wiring diagram label	
16	A2L symbol nameplate	
17	A2L (GHS) symbol nameplate	
18	Model name label	
19	Dipping plate pump	
20	Tank	10 L
21	Tank drain	Rc3/8 (with Plug)
22	Charge & Air breather	
23	Level gauge	

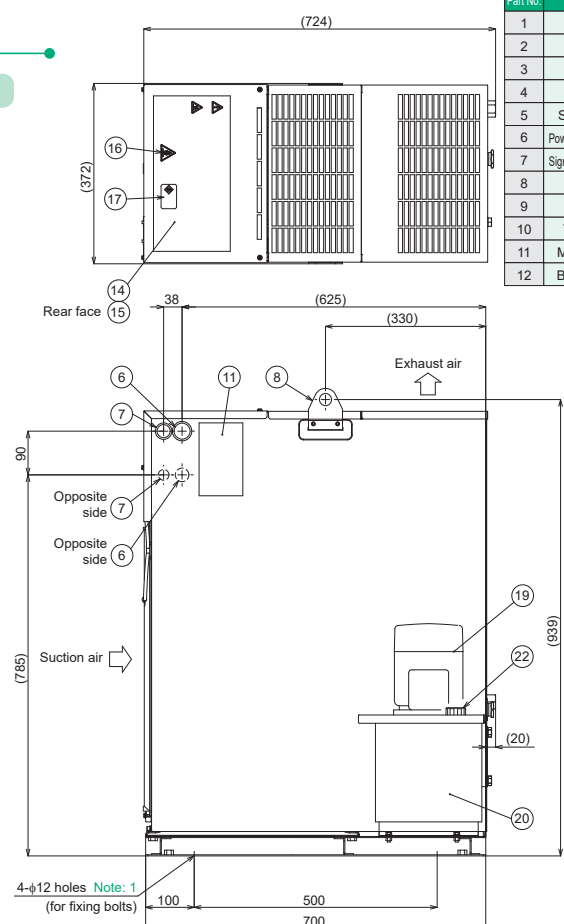
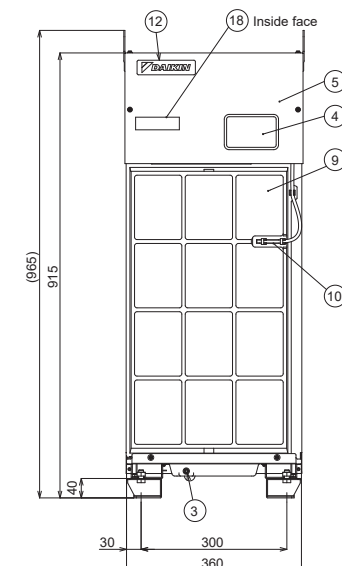


Note: 1. M10 hex bolts are recommended as the fixing bolts.

AKL43B (-) (B) (C) 171

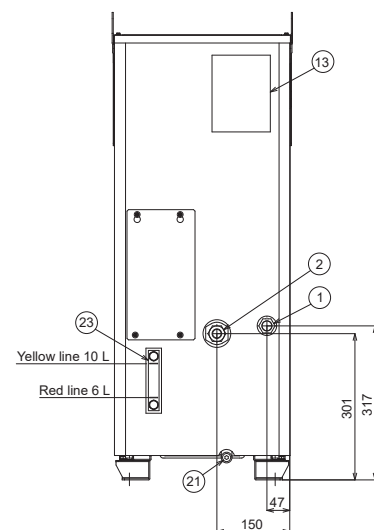
With pump/tank

With cover



Part No.	Name	Description
1	Coolant inlet	Rc1/2
2	Coolant outlet	Rc1/2
3	Drain	M6 (with Plug)
4	Control panel	
5	Switch box cover	
6	Power intake hole (Right/Left)	φ28 Hole
7	Signal intake hole (Right/Left)	φ22 Hole
8	Eye plate	φ25 Hole
9	Air filter	
10	Thermister (Air)	
11	Manufacture label	
12	Brand name label	

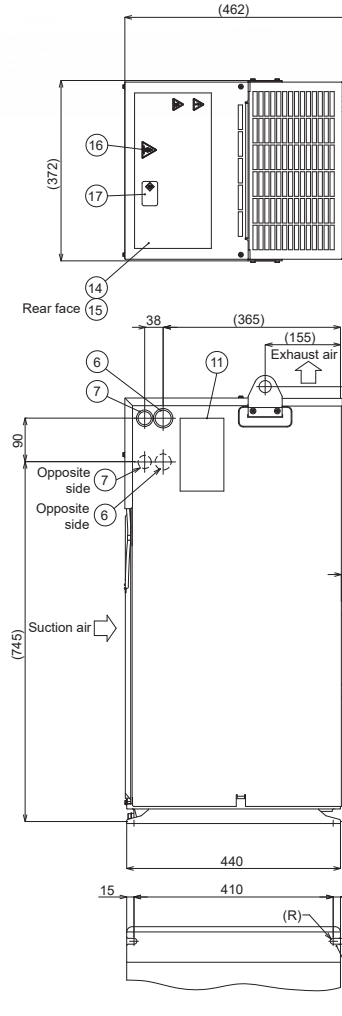
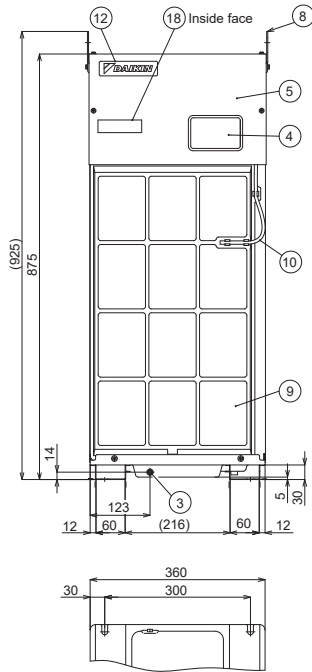
Part No.	Name	Description
13	Indication label	
14	Caution label	
15	Wiring diagram label	
16	A2L symbol nameplate	
17	A2L (GHS) symbol nameplate	
18	Model name label	
19	Dipping plate pump	
20	Tank	10 L
21	Tank drain	Rc3/8 (with Plug)
22	Charge & Air breather	
23	Level gauge	



Note: 1. M10 hex bolts are recommended as the fixing bolts.

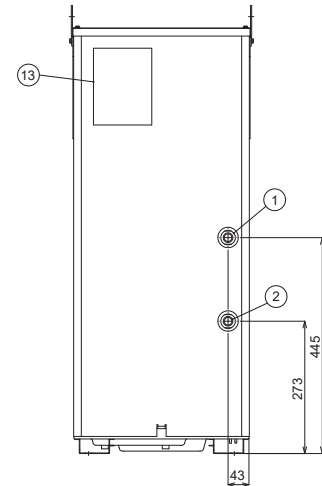
AKL45B (-B, -C, -500)

Without pump/tank



Part No.	Name	Description
1	Coolant inlet	Rc1/2
2	Coolant outlet	Rc1/2
3	Drain	M6 (with Plug)
4	Control panel	
5	Switch box cover	
6	Power intake hole (Right/Left)	φ28 Hole
7	Signal intake hole (Right/Left)	φ22 Hole
8	Eye plate	φ25 Hole
9	Air filter	
10	Thermister (Air)	
11	Manufacture label	
12	Brand name label	

Part No.	Name	Description
13	Indication label	
14	Caution label	
15	Wiring diagram label	
16	A2L symbol nameplate	
17	A2L (GHS) symbol nameplate	
18	Model name label	



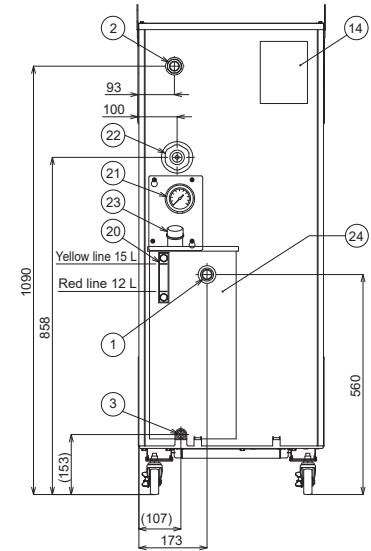
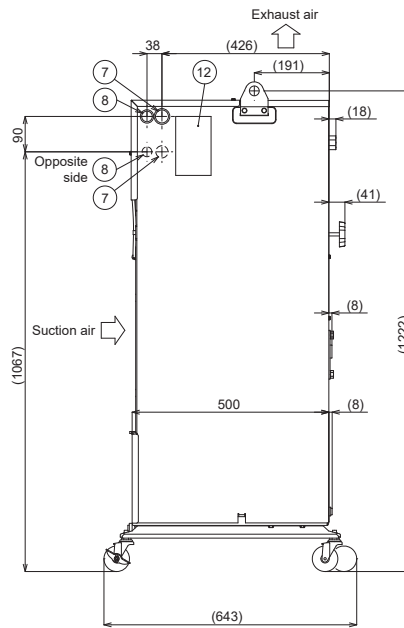
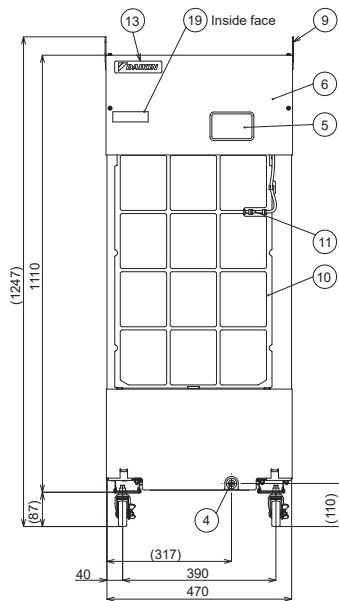
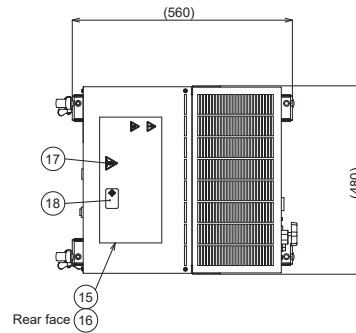
Note: 1. M10 hex bolts are recommended as the fixing bolts.

External Dimension Diagram

AKL69B (-B, -C, -500)

With pump/tank

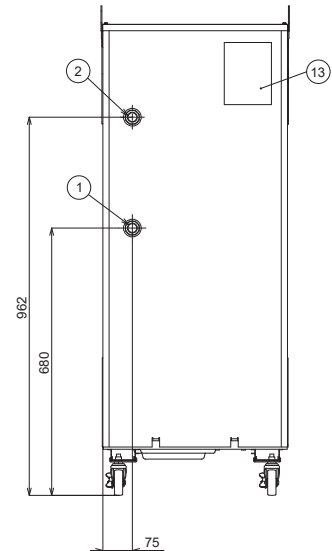
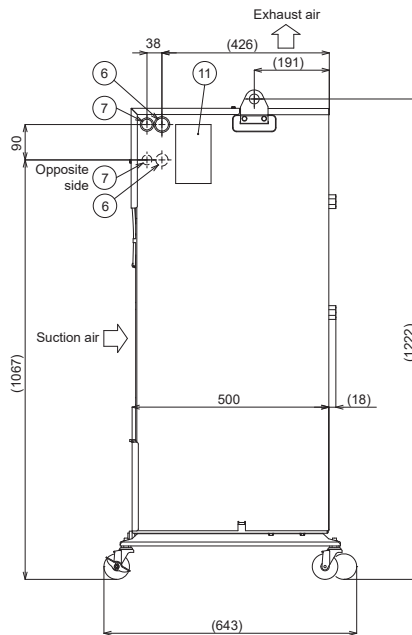
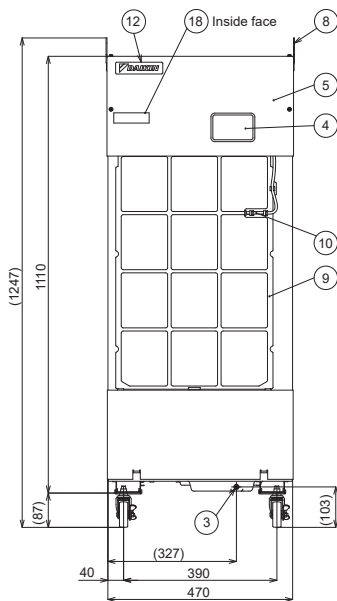
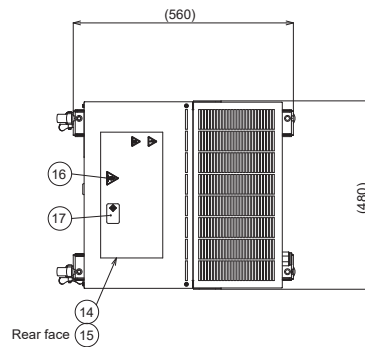
Part No.	Name	Description	Part No.	Name	Description
1	Coolant inlet	Rc3/4	13	Brand name label	
2	Coolant outlet	Rc3/4	14	Indication label	
3	Tank drain	Rc3/8 (with Plug)	15	Caution label	
4	Pump drain	Rc3/8 (with Plug)	16	Wiring diagram label	
5	Control panel		17	A2L symbol nameplate	
6	Switch box cover		18	A2L (GHS) symbol nameplate	
7	Power intake hole (Right/Left)	φ28 hole	19	Model name label	
8	Signal intake hole (Right/Left)	φ22 hole	20	Level gauge	
9	Eye plate	φ25 hole	21	Pressure gauge	
10	Air filter		22	Glove valve	
11	Thermister (Air)		23	Charge & Air breather	
12	Manufacture label		24	Tank	15 L



AKL71B (-B, -C, -500)

Without pump/tank

Part No.	Name	Description	Part No.	Name	Description
1	Coolant inlet	Rc3/4	13	Indication label	
2	Coolant outlet	Rc3/4	14	Caution label	
3	Drain	M6 (with Plug)	15	Wiring diagram label	
4	Control panel		16	A2L symbol nameplate	
5	Switch box cover		17	A2L (GHS) symbol nameplate	
6	Power intake hole (Right/Left)	φ28 Hole	18	Model name label	
7	Signal intake hole (Right/Left)	φ22 Hole			
8	Eye plate	φ25 Hole			
9	Air filter				
10	Thermister (Air)				
11	Manufacture label				
12	Brand name label				

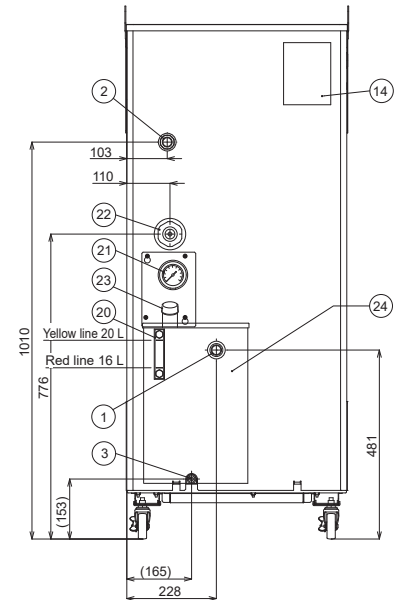
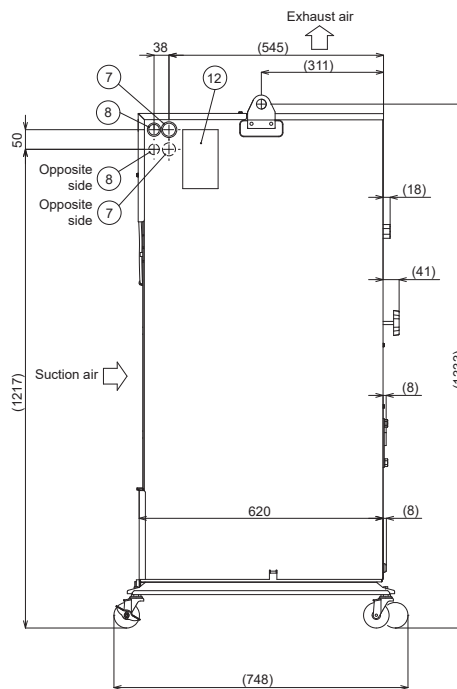
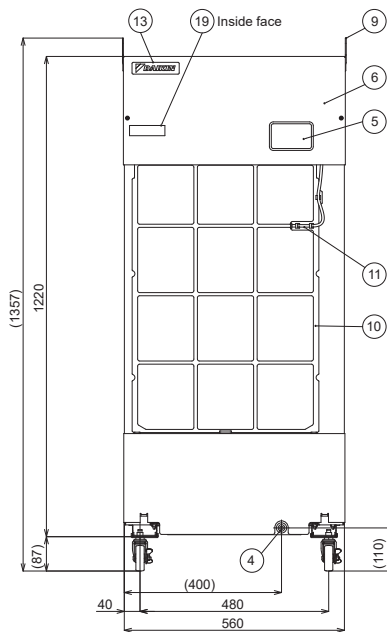
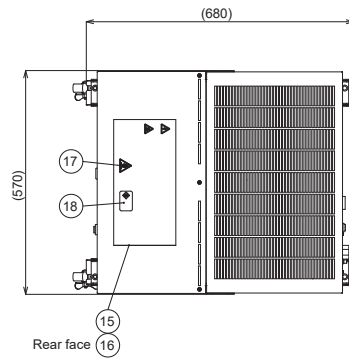


External Dimension Diagram

AKL124B (-B, -C, -500)

With pump/tank

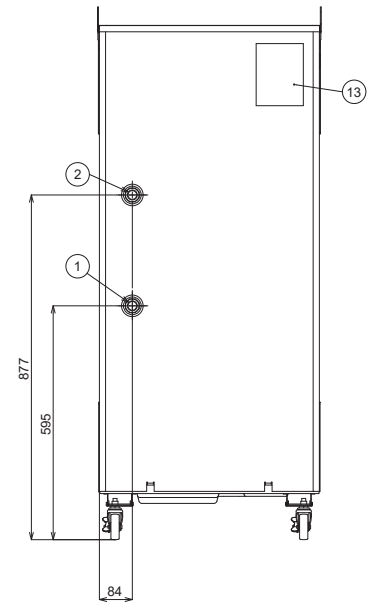
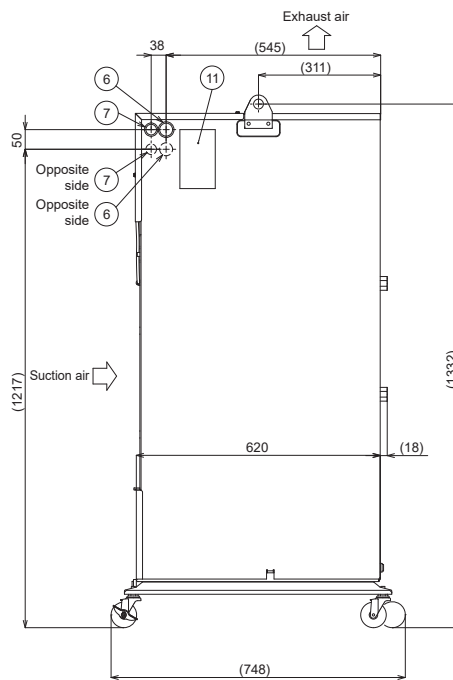
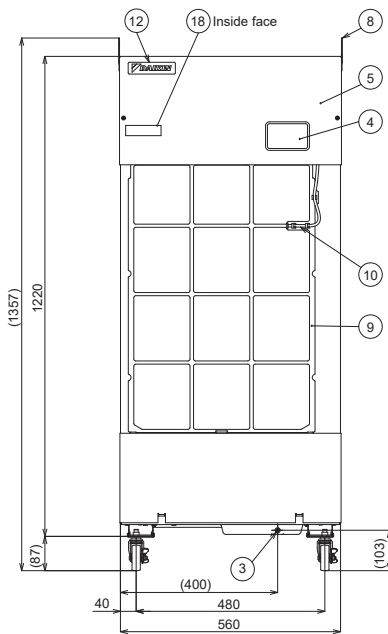
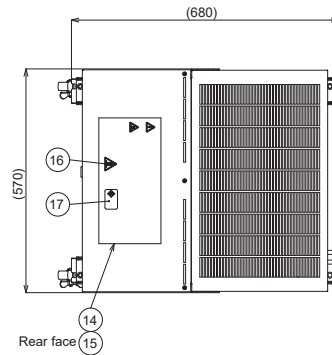
Part No.	Name	Description	Part No.	Name	Description
1	Coolant inlet	Rc3/4	13	Brand name label	
2	Coolant outlet	Rc3/4	14	Indication label	
3	Tank drain	Rc3/8 (with Plug)	15	Caution label	
4	Pump drain	Rc3/8 (with Plug)	16	Wiring diagram label	
5	Control panel		17	A2L symbol nameplate	
6	Switch box cover		18	A2L (GHS) symbol nameplate	
7	Power intake hole (Right/Left)	φ28 hole	19	Model name label	
8	Signal intake hole (Right/Left)	φ22 hole	20	Level gauge	
9	Eye plate	φ25 hole	21	Pressure gauge	
10	Air filter		22	Glove valve	
11	Thermister (Air)		23	Charge & Air breather	
12	Manufacture label		24	Tank	20 L



AKL126B (-B, -C, -500)

Without pump/tank

Part No.	Name	Description	Part No.	Name	Description
1	Coolant inlet	Rc3/4	13	Indication label	
2	Coolant outlet	Rc3/4	14	Caution label	
3	Drain	M6 (with Plug)	15	Wiring diagram label	
4	Control panel		16	A2L symbol nameplate	
5	Switch box cover		17	A2L (GHS) symbol nameplate	
6	Power intake hole (Right/Left)	φ28 Hole	18	Model name label	
7	Signal intake hole (Right/Left)	φ22 Hole			
8	Eye plate	φ25 Hole			
9	Air filter				
10	Thermister (Air)				
11	Manufacture label				
12	Brand name label				



Optional Parts

● Thermistor models and applications

When this optional part is installed in the oil piping of the machine, the thermistor detects the oil or water temperature for the unit's operation.

Name	Model	Length of lead wire L (m)	Figure	Application (To be installed by you)
Thermistor for machine body synchronization	AKZ-OP-K5	5 m		For machine temperature synchronization control (implanted in the machine body)
	AKZ-OP-K10	10 m		
	AKZ-OP-K15	15 m		
Thermistor for machine body synchronization	AKZ-OP-A5	5 m		For machine temperature synchronization control (attached to the surface of the machine body)
	AKZ-OP-A10	10 m		
Thermistor for oil temperature control	AKZ-OP-Y5	5 m		For return fluid temperature control (Installed in the fluid pipe of the machine)
	AKZ-OP-Y10	10 m		

Thermistor characteristics: Resistance value ... R25 (Resistance value at 25°C) = 20 kΩ, Tolerance: ±3%

* The material in contact with the fluid is brass.

■ Instruction for installation and connection

For AKZ-OP-K	
For AKZ-OP-A	
For AKZ-OP-Y	

■ Installation positions of the thermistor for machine synchronization and thermistor for fluid temperature control

	Thermistor for machine synchronization Installation position (No. 30/31 pin)
	Installation position of the thermistor for fluid temperature control (CN11)

●Option board for communication (serial communication/parallel communication) compatible with B series inverter controlled chillers

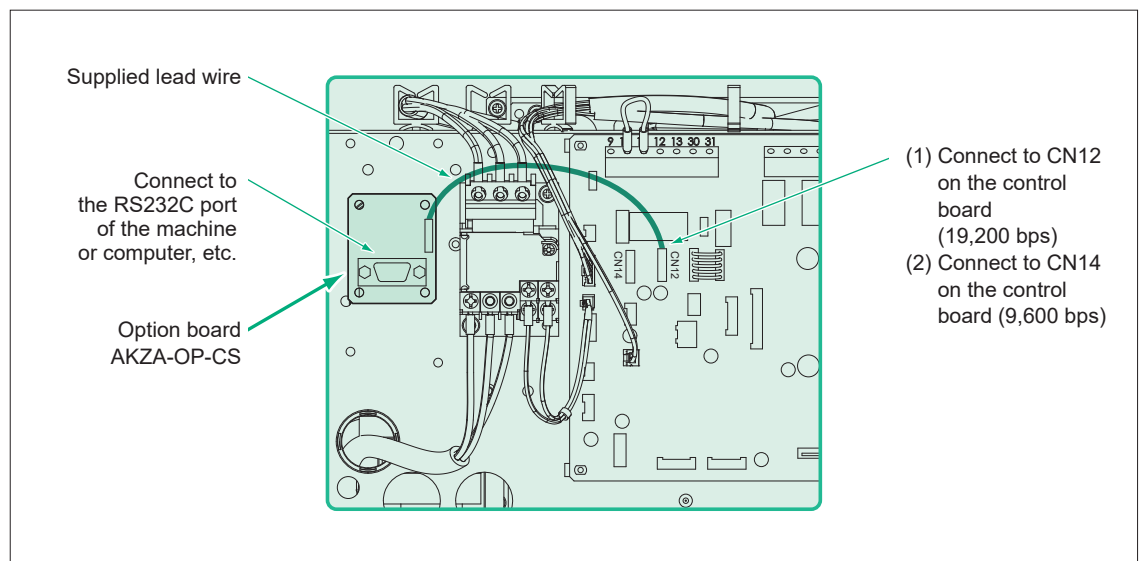
The following functions are enabled by mounting this option board on the control board of chiller and communicating with the machine side:

1. Changing the operation mode and the operation setting from the machine
2. The alarm code and various data, such as the evaporator outlet fluid temperature, tank fluid temperature, inverter frequency, of the chiller can be read from the machine side.

Communication method	Model	Installation position	Applicable model
Serial communication RS232C	AKZA-OP-CS	DAIKIN proprietary protocol	PIM00603
Serial communication RS232C	AKZA-OP-CSP		PIM00614
Parallel communication			

Note: For details on the communication procedure and specifications, refer to the dedicated instruction manual

■Mounting the AKZA-OP-CS serial communication option board



- Dimensions of communication board (W × H): 40 × 50
- The communication board is secured at four positions by locking support.

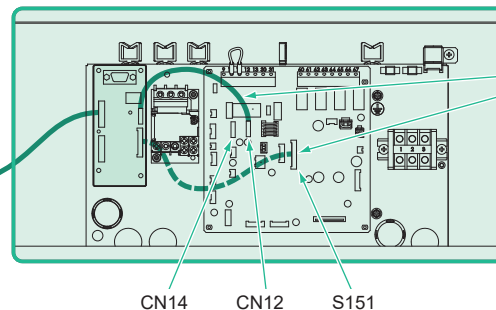
■Mounting the AKZA-OP-CSP serial communication/parallel communication option board

The possible installation positions differ depending on the model.

Applicable model

AKL14B to 126B

To the machine or computer

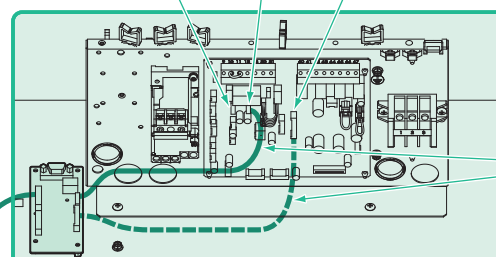


Baud rate
CN12: 19,200 bps
CN14: 9,600 bps

Applicable model

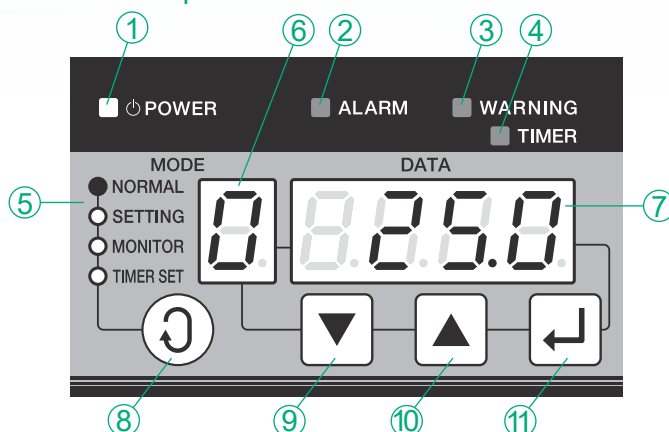
AKL69B to 126B

To the machine or computer



Control Panel

●Part Names, Functions and Operation of Control Panel



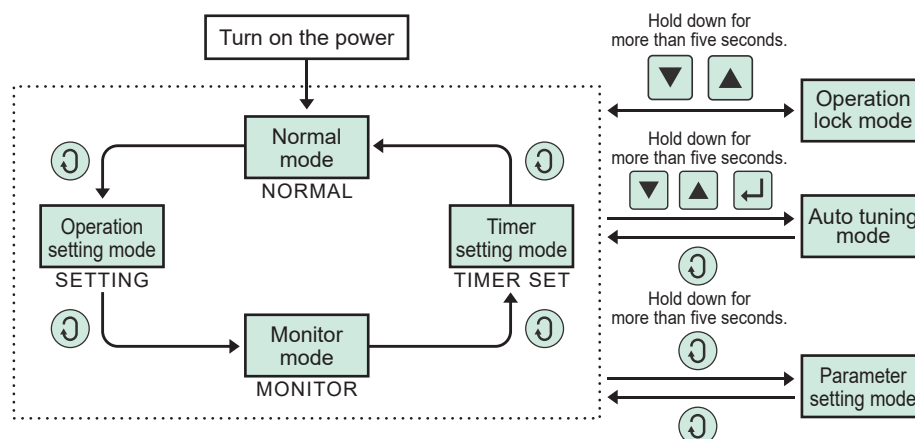
No.	Item	Description
①	Power lamp (Green)	The lamp is turned on while power is supplied.
②	Error warning lamp (Red)	When an error occurs Level 1 alarm: The lamp keeps blinking. Level 2 alarm: The lamp is continuously on.
③	Warning lamp (Green)	When a warning occurs Level 1 warning: The lamp keeps blinking. Level 2 warning: The lamp is turned on.
④	Timer mode lamp (Green)	The lamp keeps blinking while the machine is at a stop in the timer mode.
⑤	Operation mode display	Displays the mode of the control panel. NORMAL: Normal mode SETTING: Operation setting mode MONITOR: Monitor mode TIMER SET: Timer setting mode
⑥	Operation mode/Data No. display	Displays the current operation mode (Normal mode/Operation setting mode) or data number of the data currently displayed on the data display.
⑦	Data display	Displays various data. The data displayed differs depending on the operation mode and data number.
⑧	[SELECT] (Select) key	Selects the operation mode.
⑨	[DOWN] key	Decrements the value of the operation mode, data number or data by 1 (0.1). When held for two seconds or longer, decrements the values by 10 (1).
⑩	[UP] key	Increments the value of the operation mode, data number or data by 1 (0.1). When held for two seconds or longer, increments the values by 10 (1).
⑪	[ENTER] (Determine) key	Determines the operation mode, data number, and data to be changed.

For details on alarms and warnings, refer to the instruction manual.

■Operation for changing to each mode

The mode can be changed by operating the ⑧ key in general.

To enter a special mode, hold down a number of keys in combination for more than five seconds.



⚠ CAUTION

■The default setting is "Operation lock mode".

To start operation, perform the unlocking operation as shown above.

■The default setting for operation on the standard machine is:

Operation mode: AKL14B/32B/43B: 5 (tank fluid temperature, room temperature synchronization control)
 AKL18B/35B/45B: 3 (evaporator outlet fluid temperature, room temperature synchronization control)
 AKL69B/124B: 3 (tank fluid temperature, room temperature synchronization control)
 AKL71B/126B: 3 (evaporator inlet fluid temperature, room temperature synchronization control)
 Differential temperature: 0.0 (°C)

● Operation Mode and Setting Method

Operation mode No.	Mode name	Description	Setting temperature range	Necessary optional part
Operation mode 0	AKL14B to 45B: Evaporator outlet fluid temperature, fixed temperature control AKL69B, 124B: Tank fluid temperature, fixed temperature control AKL71B, 126B: Evaporator inlet fluid temperature, fixed temperature control	Keep the set fluid temperature within the range indicated to the right.	5 to 45°C	
Operation mode 1	AKL14B to 45B: Tank fluid temperature or return fluid temperature, fixed temperature control AKL69B to 126B: Evaporator outlet fluid temperature or return fluid temperature, fixed temperature control		5 to 45°C	Fluid temperature control thermistor (When return fluid temperature is controlled)
Operation mode 3	AKL14B to 45B: Evaporator outlet fluid temperature, room temperature synchronization control AKL69B, 124B: Tank fluid temperature, room temperature synchronization control AKL71B, 126B: Evaporator inlet fluid temperature, room temperature synchronization control		Between Room temperature -9.9°C and Room temperature +9.9°C	
Operation mode 4	AKL14B to 45B: Evaporator outlet fluid temperature, machine temperature synchronization control AKL69B, 124B: Tank fluid temperature, machine temperature synchronization control AKL71B, 126B: Evaporator inlet fluid temperature, machine temperature synchronization control		Between Machine temperature -9.9°C and Machine temperature +9.9°C	Machine synchronization thermistor
Operation mode 5	AKL14B to 45B: Tank fluid temperature or return fluid temperature, room temperature synchronization control AKL69B to 126B: Evaporator outlet fluid temperature or return fluid temperature, room temperature synchronization control		Between Room temperature -9.9°C and Room temperature +9.9°C	Fluid temperature control thermistor (When return fluid temperature is controlled)
Operation mode 6	AKL14B to 45B: Tank fluid temperature or return fluid temperature, machine temperature synchronization control AKL69B to 126B: Evaporator outlet fluid temperature or return fluid temperature, machine temperature synchronization control		Between Machine temperature -9.9°C and Machine temperature +9.9°C	Fluid temperature control thermistor (When return fluid temperature is controlled) Machine synchronization thermistor

Note 1: Operation modes 2, 7, and 8 cannot be used. Note 2: Refer to Page 19 for details of required optional parts.

■ Setting procedure

Default setting: Set to operation mode 3 or 5, and a temperature of 0.0 °C
To use the equipment other than at the default setting, change the setting by following the procedure below.

- 1 Power ON..... Release the operation lock mode before starting operation for the first time.
(Hold down the and keys simultaneously for more than 5 seconds.)
- 2 Select the "SETTING" operation setting mode (press the key once).

Changing the operation mode

Decreases the "MODE" number by 1

Increases the "MODE" number by 1

3 Set the operation mode by pressing the or key.

4 → Confirm by pressing the key.

Change the setting temperature

The "Setting temperature" is reduced by 0.1

The "Setting temperature" is increased by 0.1.

5 Set the temperature by pressing the or key.

6 → Confirm by pressing the key.

Press the [ENTER] key to switch between "MODE" and "DATA".

- 7 To return to the "NORMAL" mode, press the key three times.

● Points Checked in the Monitor Mode

The following points can be checked in the monitor mode.

Monitor No.	Description			Note
	AKL14B to 45B	AKL69B, 124B	AKL71B, 126B	
0	Machine body temperature [Th1]			*1
1	Tank fluid temperature or return fluid temperature [Th2]	Evaporator outlet fluid temperature or return fluid temperature [Th2]		*1
2	Room temperature [Th3]			*1
3	Evaporator outlet fluid temperature [Th4]	Tank fluid temperature [Th4]	Evaporator inlet fluid temperature [Th4]	*1
4	Intake pipe temperature [Th5]			*1

*1. If the thermistor is not connected or has a broken wire, -99.9 is displayed.

*2. This is the value obtained by rough calculation under the following conditions (the error is around 20%): power supply voltage of 400 V, rated circulation).

*3. With the default setting, 0 is displayed. Note that display is enabled when parameter n020 is "1" or the optional communication extension board is installed.

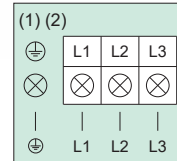
Monitor No.	Description			Note
	AKL14B to 45B	AKL69B, 124B	AKL71B, 126B	
5	ΔT (Th4-Th2)			*1
6	Cooling capacity direct control command value (%)			-
7	Inverter compressor rotational speed (rps)			-
8	Power consumption (kW)			*2
9	Extended DIN (hundreds digit), DOUT (tens digit) status			*3

Electric Wiring Connection Instruction

1 Power supply capacity···· Refer to the maximum power consumption/maximum current consumption panel of the specifications table (Pages 5 and 6).

2 Connection to power supply terminal block (X1M)

- (1) With standard specifications and CE specifications (C type), connect to X1M.
- (2) In the case of "with breaker" (B) specifications, connect to the circuit breaker.



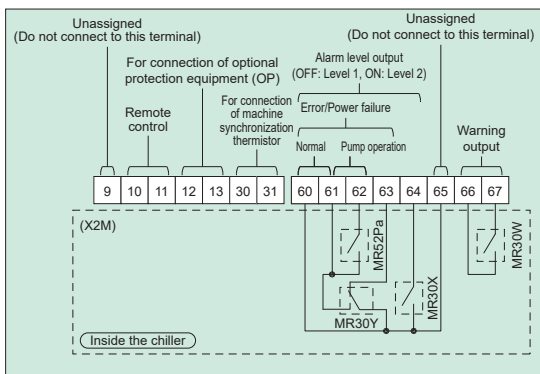
1. Screw terminal and wiring diameter

Series	Terminal block	Screw terminal	Wiring diameter	
			IEC cable	UL cable
AKL 14B, 18B, 32B, 35B, 43B, 45B, 69B, 71B	X1M	M4, M5	2.5 mm ² or greater	AWG [#] 14 or greater
	Breaker	M5		
AKL 124B, 126B	X1M	M5	4.0 mm ² or greater	AWG [#] 12 or greater
	Breaker	M5		

2. Use a round crimp-style terminal for connection.

3. The terminal block is for three poles and the earth wire is to be secured on the enclosure with a screw.

3 Connection to signal terminal block (X2M)



1. Straight crimp terminal and wiring diameter

Straight pin terminals	Wiring diameter	
	IEC cable	UL cable
*1	0.3 mm ² to 1.5 mm ²	AWG [#] 22 to #16

2. Use a straight crimp-style terminal for connection.

3. Use stranded wires for electric connection.

4. The wiring size is 0.5 mm² to 1.5 mm² in the case of duplex cable according to IEC.

If using stripped wires, make the stripped length 9 to 10 mm.

*1. Recommended models and manufacturers:

TGN TC-1.25-9T (NICHIFU Co., Ltd.)

! DANGER

1. Always install an all-pole (3-pole) earth leakage breaker^{*2} (to be prepared by you) of the specified capacity on the main power supply.
- *2. All contact distances must be at least 3 mm.
2. Always ground the machine. Since a noise filter is installed, there is a risk of electrical shock without proper grounding.
3. Before opening the electric component box, always turn off the power, and wait for 5 minutes until internal high voltage has been discharged.
4. Do not energize the equipment with the electric component box kept open.

! CAUTION

1. To avoid the effects of noise, connect the power wire by cutting it to the proper length so that no excess wire comes into contact with the control board or elsewhere.
2. To perform remote control, remove the short-circuit wire between [10] and [11] and install an operation switch (to be prepared by you).
3. The mode is set to "Lock mode (Stop mode)" by default. Before starting operation, follow the procedure to release the Lock mode from the control panel. Refer to page 21 for the unlocking procedure.
4. The unit is provided with a misoperation prevention switch (PROTECT) to reject setting from the control panel. If you want to use this function, make the necessary setting referring to the instruction manual.

4 Signal output time chart

(1) Alarm/operation status output chart

Operation status		Remote operation (between [10] and [11])							
		ON				OFF			
		Normal	Level 1 Error or LOCK	Level 2 Error	Power failure (Power OFF)	Normal	Level 1 Error or LOCK	Level 2 Error	Power failure (Power OFF)
Normal ("a" contact)	60 – 61	ON				OFF			
Error/Stop (Power OFF) ("b" contact)	60 – 63	ON				OFF			
Error level ("a" contact)	60 – 64	ON				OFF			
Pump operation ("a" contact)	61 – 62	ON				OFF			

(2) Warning output chart

Operation status		Non-warning status				Warning status			
		Normal	Level 1 Error or LOCK	Level 2 Error	Power failure (Power OFF)	Normal	Level 1 Error or LOCK	Level 2 Error	Power failure (Power OFF)
Warning output ("a" contact)	66 – 67	ON				OFF			

! CAUTION

1. The following electric wires can be used on the terminal block for straight crimp-style terminals.

Single wire: ϕ 0.57 to ϕ 1.44 (AWG#22 to #16)

Stranded wire: 0.25 mm² to 1.25 mm² (AWG#22 to 16)

2. Load applicable to [60 - 64] and [66 - 67] is as follows:

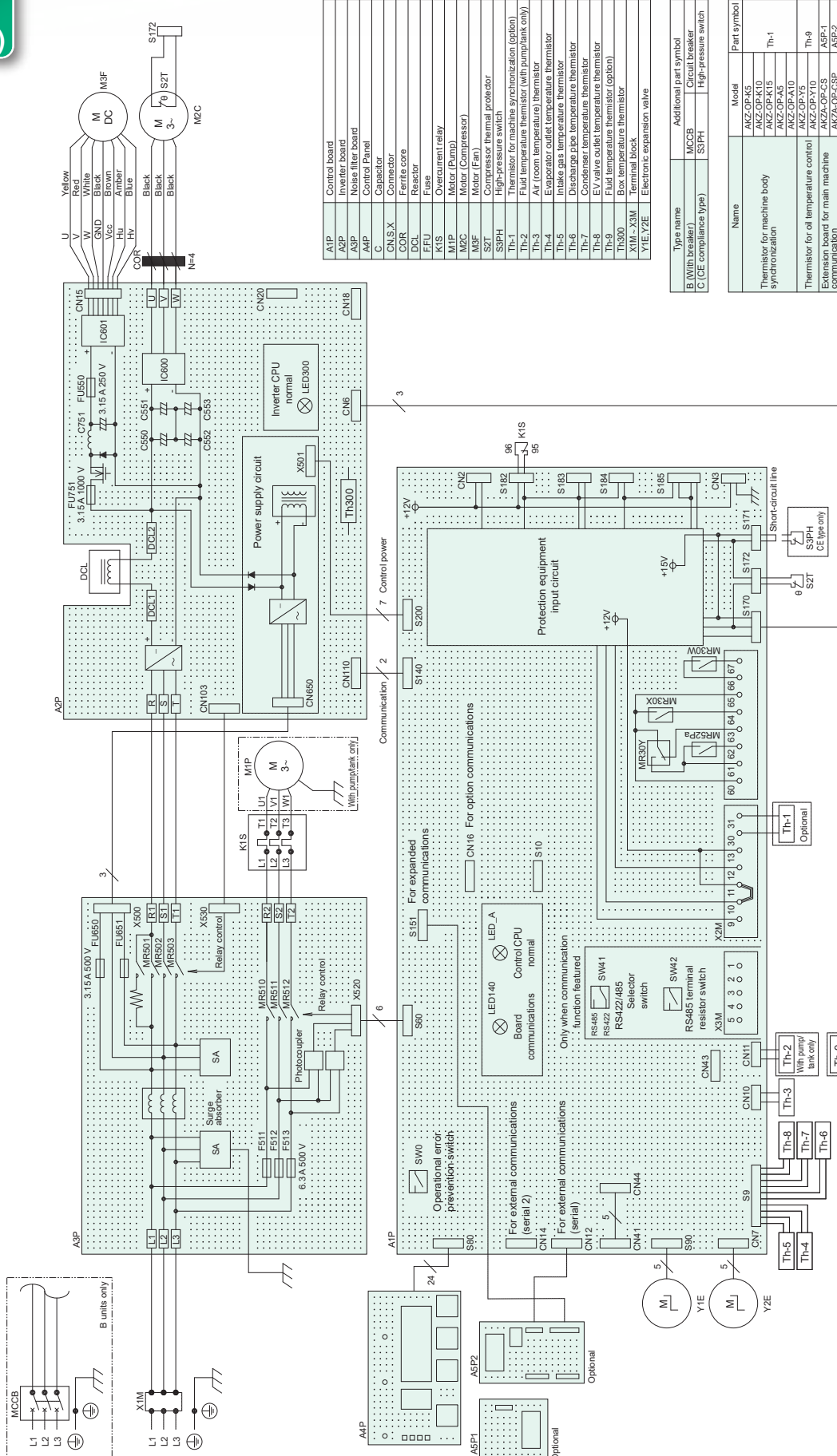
Min. applicable load: 5 VDC, 1 mA or greater

Max. applicable load: 24 VDC, 1 A (Resistance load)

3. For [10] to [13], please prepare contacts to meet the condition of minimum applicable load 12 VDC and 5 mA.

4. When the length of the thermistor to be connected to [30] - [31] is longer than 10 m, or the wiring is routed in a poor noise environment, use shielded wire.

Electric Wiring Diagram (Typical diagram)



1. When a thermistor for fluid temperature control (Th-9) is used, replace the existing Th-2 at CN11 with Th-9.

2. Refer to the electric wiring diagram of each type for details.

9	10	11	12	13	30	31	60	61	62	63	64	65	66	67
Remote control		Optional equipment		For connection to synchronization thermostat		Normal Pump operation		Error/Power failure		Warning output				
Alarm, level output OFF : Level 1 ON : Level 2														

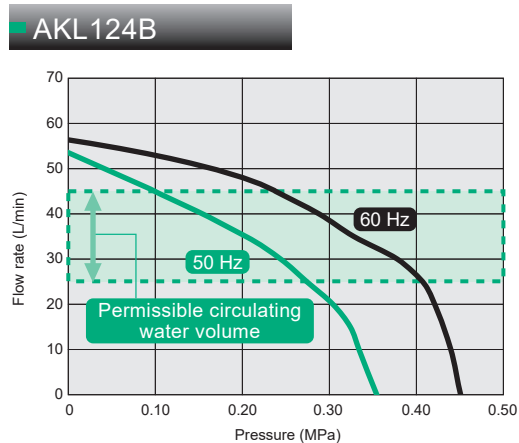
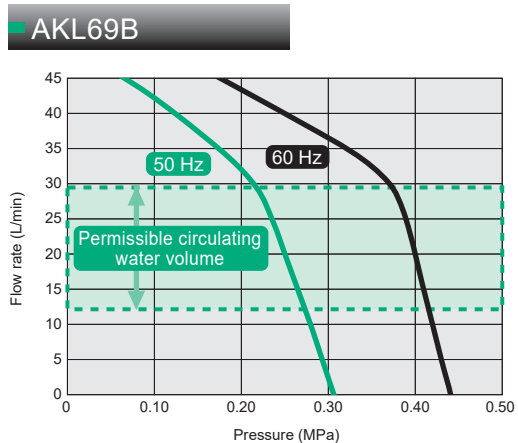
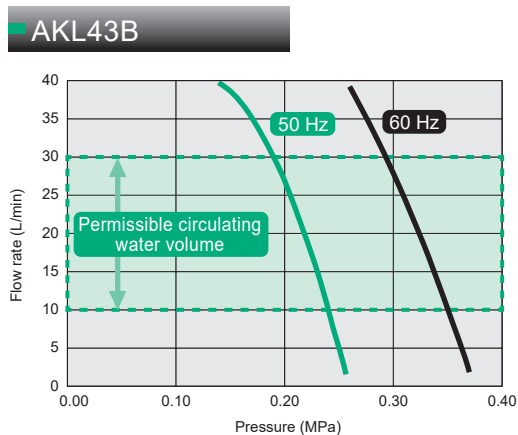
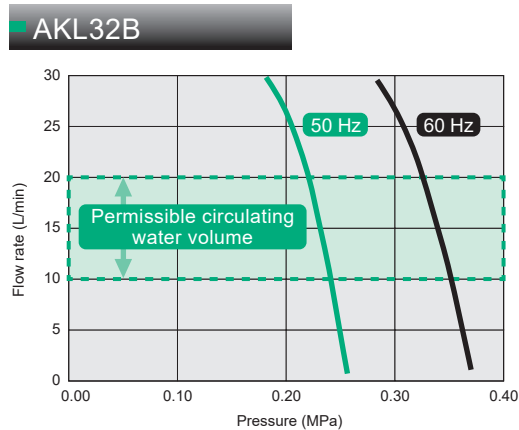
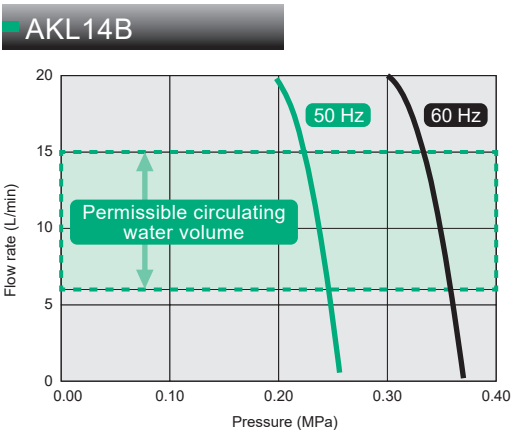
Pump Flow Rate Characteristics

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

Note that the flow rate characteristics are those for water. The flow rate characteristics are lower when cooling with ethylene glycol solution.

Select the diameters and lengths of pipe so as to keep the circulating volume within the permissible range.

Pump flow characteristics outside the standard specifications can also be supported.



Selection Method for Chillers

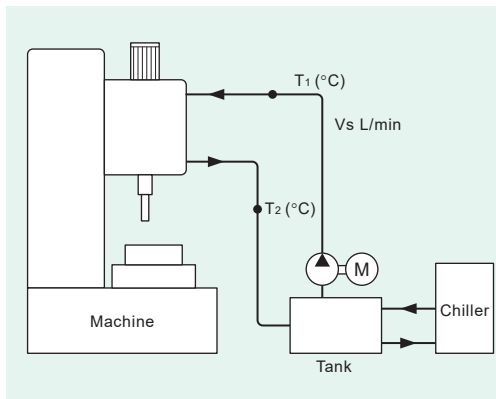
1. Select a chiller with a cooling capacity **20 to 30% larger** than the amount of heat generated by the machine tool.
2. Since the cooling capacity of chillers varies with changes in the fluid temperature and room temperature, the fluid temperature and room temperature conditions have to be clarified to select the appropriate chiller.
3. Three methods are shown below as a guide to estimating the amount of heat generated from the machine tool. Ultimately, tests have to be conducted to determine the exact amount of heat generation in order to select the appropriate chiller.

Unit conversion formula • 1 kW = 860 kcal/h

Example calculation

1

Estimating the amount of heat generation from the temperature difference between the inlet and outlet for fluid going to the machine



$$Q = \frac{V \times \rho \times Cp \times \Delta T}{1000 \times 60}$$

Q : Heat release value (kW) Cp : Specific heat (kJ/kg·°C)
Vs : Flow rate (L/min) ΔT : Temperature difference (°C)
ρ : Density (kg/m³)

Example calculation

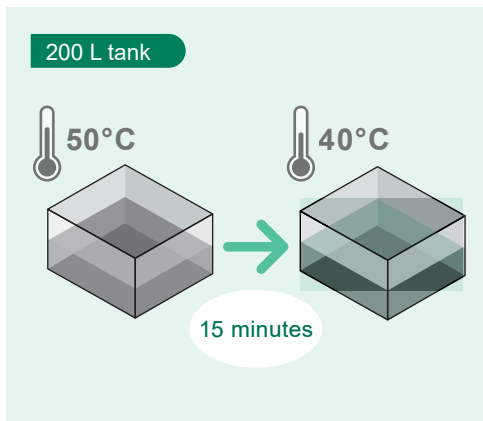
When "Vs" is 30 L/min and "ΔT" is 5°C

$$Q = \frac{30 \text{ L/min} \times 998 \text{ kg/m}^3 \times 4.18 \text{ kJ/kg}^\circ\text{C} \times 5^\circ\text{C}}{1000 \times 60} \approx 10.43 \text{ kW}$$

Example calculation

2

When it is desired to cool 200 L of fluid from 50°C to 40°C within 15 minutes



$$Q = \frac{V \times \rho \times Cp \times \Delta T}{1000 \times 60 \times t}$$

Q : Heat release value (kW) Cp : Specific heat (kJ/kg·°C)
V : Tank fluid capacity (L) ΔT : Temperature difference (°C)
ρ : Density (kg/m³) t : Time (min)

Example calculation

When it is desired to cool 200 L of fluid from 50°C to 40°C within 15 minutes

$$Q = \frac{200 \text{ L} \times 998 \text{ kg/m}^3 \times 4.18 \text{ kJ/kg}^\circ\text{C} \times (50-40)^\circ\text{C}}{1000 \times 60 \times 15 \text{ min}}$$

≈ A cooling capacity of **approx. 9.27 kW** or greater is required.

Example calculation

3

When the motor output loss is considered to be the amount of heat generation

$$Q = H \cdot \frac{\eta}{100}$$

Q : Heat release value (kW)
H : Motor output (kW)... For driving the spindle
η : Motor output loss (%)

Example calculation

When the output loss is 30% with a motor output of 7.5 kW
→ The output loss is 30% or so in general (Cooling of main shaft head)

$$Q = 7.5 \times 0.3 = 2.3 \text{ (kW)}$$

Note: Effect of heat absorption and dissipation from the surface of the tank and piping

Depending on the tank and piping surface area and ambient temperature, heat absorption and heat dissipation may increase. If the effect of heat absorption and heat dissipation is large, select a model with this effect taken into account.

Physical property values

Name of substance	Specific heat kJ/(kg·°C)	Density (kg/m³)
Water	4.18	998
Aluminum	0.900	2710
Iron	0.460	7870
Copper	0.385	8960

* The numbers in the table are reference values, so please use them as a guide.

* All property values (some being calculated values) are at 20°C.

Notes for Handling

● Important notes to be observed regarding the machine side (machine tools and industrial machinery)

1. When rough transport conditions are expected while transporting the machine overseas or elsewhere, special precautions should be taken in the packaging and transportation method so as to avoid the application of excessive force on the chiller (this unit).
2. The chiller (this unit) does not incorporate a flow switch for checking the fluid supply or a temperature switch for abnormal temperature (high temperature or low temperature) of the fluid supplied. So, please provide protection devices such as a flow switch and temperature switch at the machine side.

Notes for operation and cooling capacity

1. Do not use the chiller to cool a fluid from 45°C or higher. Start running the chiller at the same time as the machine or before the fluid temperature rises to 40°C.
2. Do not place an object that hinders ventilation within 500 mm of the air-intake or exhaust.
3. If the air filter is clogged, the cooling capacity will be reduced. Clean the air filter (wash with warm water or clean with air) periodically once every two weeks to prevent clogging.

*Before operating this unit, be sure to read the operation manual and properly understand it.

● Instructions for safe operation

Signs and Instructions

- ⚠ DANGER.....Failure to observe the instruction may cause an imminent hazardous situation that may result in personal death or serious injury.
- ⚠ WARNING...Failure to observe the instruction may result in personal death or serious injury.
- ⚠ CAUTION....Failure to observe the instruction may result in personal injury or damage to the property.

① General instructions

- [⚠ DANGER] (1) Use the equipment only in accordance with the intended specifications (specified in brochure, specification sheet, operation manual, and caution plates).
- [⚠ DANGER] (2) Never operate the equipment in an explosive atmosphere.
- [⚠ DANGER] (3) Do not disassemble, repair or modify the equipment by yourself.
- [⚠ DANGER] (4) Always comply with the laws and regulations for safety (Industrial Safety and Health Law and Fire Defense Law).
- [⚠ WARNING] (5) Caution in the event of refrigerant leak
 - Ventilate the room adequately (to avoid the risk of suffocation).
 - Avoid direct contact of the refrigerant with skin (to avoid the risk of cryogenic burns).
 - In the event of inhalation of a great deal of refrigerant, contact with skin, or refrigerant in the eye, seek medical attention immediately.
- [⚠ WARNING] (6) In the event of an abnormal condition, stop operation promptly, investigate the cause of the problem and take appropriate remedial measures.
- [⚠ CAUTION] (7) Do not use the unit in atypical environments (locations subject to high temperatures, high humidity, or a lot of dust, contamination, steam, oil mist or corrosive gases: H₂S, SO₂, NO₂ or C₂H₂).
- [⚠ CAUTION] (8) Install a flow switch and temperature switch on the machine to protect the spindle and other components.
- [⚠ CAUTION] (9) Do not get on the equipment or place an object on the equipment.
- [⚠ CAUTION] (10) Use the unit at an altitude of up to 2,000 m. At altitudes in excess of 1,000 m the cooling capacity decreases by around 20 to 30%, so please select a model with adequate leeway in terms of cooling capacity.

② Instructions for transportation

- [⚠ DANGER] (1) When hoisting the equipment, check its weight and use the eye plates and hangers on it properly.
- [⚠ DANGER] (2) When hoisting the equipment, do not do so while it is fitted with a tank or anything else that you have provided.
- [⚠ WARNING] (3) Do not approach the equipment while it is being hoisted and moved.
- [⚠ CAUTION] (4) When moving the equipment, take appropriate measures for fall prevention.
- [⚠ CAUTION] (5) Do not tilt the equipment 30 degrees or more while transporting it (including during storage).

③ Instructions for installation

- [⚠ WARNING] (1) Install the equipment on a rigid, level foundation and secure it appropriately.
- [⚠ CAUTION] (2) Do not place an object near the suction port or discharge port of the equipment.

④ Instructions for wiring and piping installation

- [⚠ DANGER] (1) Wiring and piping installation should be performed by a person with specialized knowledge and skills.
- [⚠ DANGER] (2) Always use a commercial power supply for the power source. (The use of an inverter power supply may cause burn damage).
- [⚠ DANGER] (3) Connect the wiring for power supply in accordance with the electric wiring instruction diagram of the specification sheet and operation manual.
- [⚠ DANGER] (4) Ground the equipment properly.
- [⚠ WARNING] (5) Install the wiring in accordance with the standard by checking the electric wiring diagram.
- [⚠ CAUTION] (6) Always install a dedicated all-pole (3-pole) earth leakage breaker appropriate for the capacity of the chiller on the main power supply on site.
- [⚠ CAUTION] (7) Check to see that the fluid piping has a pressure resistance of 1 MPa or more and install the piping appropriately.

⑤ Instructions for trial run

- [⚠ CAUTION] (1) Check to see that the machine is in a safe status (not activated) before starting the trial run.
- [⚠ CAUTION] (2) Check to see that the oil piping and electric wiring are correctly connected to the machine and that there is no looseness in connections and joints.
- [⚠ CAUTION] (3) Disable the operation lock of the equipment (Oil Cooling Unit) before starting the machine.
- [⚠ CAUTION] (4) Check that the fluid piping system contains the required amount of fluid, and that the piping is not blocked part way through.

⑥ Instructions during operation

- [⚠ DANGER] (1) Do not splash water or liquid on the equipment.
- [⚠ WARNING] (2) Do not push your finger or an object into gaps of the equipment.
- [⚠ CAUTION] (3) Do not touch the heated exhaust port of the equipment.

⑦ Instructions for maintenance and inspection

- [⚠ DANGER] (1) Perform maintenance and inspection with the equipment kept open. Working in a closed status may result in suffocation due to the leak of refrigerant.
- [⚠ DANGER] (2) Always turn off the main power supply before starting maintenance and inspection.
- [⚠ DANGER] (3) Wait for five minutes after turning off the main power supply before starting maintenance and inspection operation.
- [⚠ DANGER] (4) Do not operate the equipment with its cover opened.
- [⚠ CAUTION] (5) Wear protective gear such as gloves and an eye protector when performing maintenance, inspection and cleaning.
- [⚠ CAUTION] (6) Clean the air filter periodically (once every two weeks in general).
- [⚠ CAUTION] (7) Ensure that the water quality and concentration of the fluid meet the standards at all times.
- [⚠ CAUTION] (8) Check the fluid level in the tank and ensure that it is between the yellow line and the red line.
- [⚠ CAUTION] (9) Inspect the underneath (drain pan) of the chiller once every six months, and if fluid has accumulated, discharge it through the drainage port.

⑧ Notes on R32 refrigerant (mildly flammable refrigerant (An A2L refrigerant defined by ISO 817 used))

- [⚠ WARNING] (1) Transportation by air is prohibited.
- [⚠ DANGER] (2) Do not install the unit at locations such as the following. Installing the unit in any of these environment poses a risk of fire, generation of toxic gas, or suffocation, in the event of refrigerant leakage.
- In the vicinity of a source of fire (electrical equipment with a contact of 5 kVA or more, smoking equipment, combustion equipment, welding machines, grinders, and other work tools)
 - Spaces where the refrigerant might linger if it were to leak (enclosed space, semi-underground, etc.)
- [⚠ DANGER] (4) Do not attempt to detect refrigerant leakage by a means that uses a source of fire.
- [⚠ DANGER] (5) Do not make holes in, or burn, refrigerant system parts.
- [⚠ DANGER] (6) Keep the unit in a well-ventilated place away from sources of ignition (open flame, gas apparatus, electric heaters, etc.).
- [⚠ DANGER] (7) When using a source of fire, be sure to maintain adequate ventilation.
- [⚠ DANGER] (8) In the event of a fire, use a fire extinguisher as specified in the SDS (Safety Data Sheet).
(If you require the SDS, please notify us separately.)

About the Instruction Manual

Please download the instruction manual from the website.

By reading the QR code on the product nameplate, customers can check the product model, serial number (MFG. No.), and access web pages containing various information about the product.

Product nameplate (example)

 CHILLING UNIT DAIKIN INDUSTRIES, LTD. 1-1 NISHI-HITOTSUYA, SETTSU, OSAKA 565-0885, JAPAN 大阪府茨木市西一ツ屋1番1号		
MODEL	AKL14B	
電源(最大) POWER SOURCE (max.)	3~200V 50Hz	1.14kW/4.4A
	3~200V 60Hz	1.30kW/4.7A
	3~220V 60Hz	1.30kW/4.7A
出力 OUTPUT	圧縮機 COMP.	0.4kW
	ポンプ PUMP	0.37/0.55kW
	ファン FAN	54W
	ヒータ HEATER	---
冷媒 REFRIGERANT (GWP/100eqs)	R32	: 0.38kg (675/0.26)
冷媒圧力(高/低) REF. PRESSURE(LOW)	4.1/0.7MPa (41/7bar)	
冷凍機油 REF. OIL	FHW600A: 0.375L	
製品質量 WEIGHT	63kg	
製造年 PRODUCT YEAR	2025	
製造番号 MFG. No.	*****-***-*****	
The fluorinated greenhouse gases are contained in hermetically sealed.		
The followings are required to indicate by Japanese law.		
フロン排出抑制法 第一種特定製品		
この製品は冷媒として、HFCが使用されています。		
1. フロン類がガスに大気中に放出することはありません。		
2. この製品を使用する場合には、フロン類の回収が必要です。		
3. 廃棄時のフロン回収率(回収率)は90%以上です。		
4. フロン類の回収率・回収量・GWPの算出方法は別紙に、上記に記載されています。		
		
22402564-04	MADE IN JAPAN	

QR code

Destinations accessible after reading the QR code (Website)

DAIKIN Oil Hydraulics Information Site Thank you for using our hydraulics equipment. Model Name: AKL14B MFG No : ****-***-***** Please access below links for product information. Web site, Catalog DAIKIN Oil Hydraulics Homepage Manual, Software, CAD data Customer Page

◆ Website of DAIKIN INDUSTRIES, LTD. Oil Hydraulics Div.

Browse and download our product information and catalogs.

◆ Daikin Hydraulics Customer Support Service (registration required)

View and download instruction manuals, software, and external drawing CAD data.

DAIKIN Oil Cooling Unit/Chiller Overseas Service Network

Something DAIKIN can offer as a global manufacturer of air conditioning equipment



Overseas Service Network

Please contact the DAIKIN Sales Counter for servicing of Oil Cooling Units/Chillers in countries outside Japan.

DAIKIN is ready to offer you service in conjunction with the sales agents of our Air-conditioning and Hydraulic Divisions located in worldwide countries and regions.

Country/Region	State/City	Company name
East Asia	Shanghai	◎ 凯灵液压科技（上海）有限公司 KAILING HYDRAULICS TECHNOLOGY (Shanghai) CO.,LTD.
		大金空調技術（上海）有限公司 DAIKIN AIR CONDITIONING TECHNOLOGY (Shanghai) CO.,LTD.
	Beijing	大金空調技術（北京）有限公司 DAIKIN AIR CONDITIONING TECHNOLOGY (Beijing) CO.,LTD.
	Guangzhou	大金空調技術（広州）有限公司 DAIKIN AIR CONDITIONING TECHNOLOGY (Guangzhou) CO.,LTD.
	Seoul	◎KD HYDRAULICS,LTD.
	Taipei	HO TAI SERVICE & MARKETING CO.,LTD.
Singapore	Singapore	◎ZICOM PRIVATE LTD.
Thailand	Bangkok	◎Nandee Inter-Trade Co., Ltd.
Indonesia	Djakarta	◎PT. ETERNA KARYA SEJAHTERA
Vietnam	Hanoi	◎AN PHAT EQUIPMENT & ACCESSORIES CO., LTD.
Italy	Milano/Padova	◎DIPLOMATIC MS S.P.A.
Germany	Neu-Ulm	◎Sauer Bibus GmbH
U.S.	Illinois	◎ALL WORLD MACHINERY SUPPLY INC.
Mexico	Querétaro	◎ALL WORLD MACHINERY SUPPLY INC. Mexico Branch

◎ : Sales desks for hydraulic equipment. The others are companies related to air conditioning.

(As of June, 2025.)

To prevent clogging of cooling fins!

NEWNow available for
Series BIndustry
First

Unique Offer from DAIKIN!!

Long Life Filter

for oil chillers

No need to clean cooling fins^{*2}

The microfibers in the filter efficiently collect oil mist and dust, which means the condenser cooling fins remain unclogged and maintenance-free.

Once-a-year filter changes^{*2}

The Long Life Filter collects more mist, thereby increasing its lifespan. Easily swap out the filter, with no tools required.

Reduced power consumption

High heat exchange efficiency can be maintained, reducing power consumption by 25 to 30%, compared to oil chillers with clogged condensers.^{*3}

Installing Long Life Filters makes the cooling fins maintenance-free!

See how easy it is to use the Long Life Filter in this video.

URL <https://www.hyd.daikin.com/special/oilcon/longlifefilter/lp>



(The photo shows an example of installation with AKZ.)

Comments from active users of the Long Life Filter

We have been using the Long Life Filter for a year, and the cooling fins haven't become dirty.

We no longer experience alarms due to clogging, ensuring our equipment operates smoothly.

Company A, with 370 units



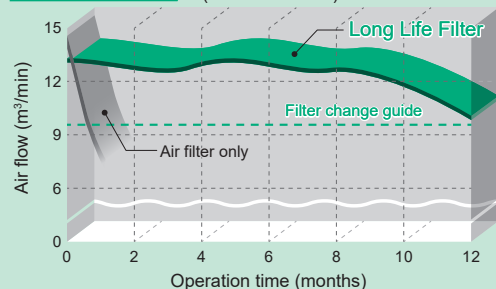
The time spent on oil chiller maintenance has been reduced, resulting in a decrease in overall maintenance hours.

From now on, we will equip new units with the Long Life Filters.

Company B, with 100 units

**Clogging comparison**

Measurement at factory site with high oil mist concentration (model: AKZ439)

**Specifications** Both a filter and frame are required when placing the first order.

Frame model	Filter model	Model representative of targeted oil chillers			Frame outer dimensions
		For Series 9	For Series 10	For Series B	
AKZ9-OP-FR05	AKZ9-OP-LF05A	AKW149/189	—	—	W365 × H410 × D165
AKZ9-OP-FR12	AKZ9-OP-LF12A	AKW329/359	—	—	W365 × H535 × D165
AKZ9-OP-FR15	AKZ9-OP-LF15A	AKW439/459	—	—	W365 × H635 × D165
AKZA-OP-FR05	AKZA-OP-LF05A	—	AKW14A/18A	AKL14B/18B	W365 × H395 × D165
AKZA-OP-FR12	AKZA-OP-LF12A	—	AKW32A/35A	AKL32B/35B	W365 × H520 × D165
AKZA-OP-FR15	AKZA-OP-LF15A	—	AKW43A/45A	AKL43B/45B	W365 × H620 × D165
AKZA-OP-FR20	AKZA-OP-LF20A	AKW569/589	AKW56A/58A	AKL69B/71B	W470 × H620 × D165
AKZA-OP-FR30	AKZA-OP-LF30A ^{*4}	AKW909/929	AKW90A/92A	AKL124B/126B	W540 × H710 × D165

^{*1}. Note on models with a tank: The tank oil filler port cannot be opened or closed with the frame in place. Remove the frame before opening/closing the tank oil filler port. ^{*2}. This is based on a mist concentration of 0.5 mg/m³. In environments with excessive oil mist/dust, etc., it may be necessary to clean the cooling fins or change the filter more frequently than once a year. ^{*3}. This is an estimate based on our operation model. ^{*4}. 1 set comprising 2 filters (Two filters are used per frame.)

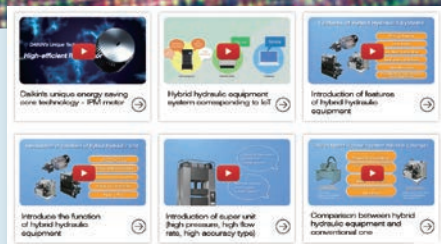
Inverter Controlled Chiller B series



Daikin is the only manufacturer in the world that develops and produces both air conditioning/refrigeration equipment and refrigerant.

We will continue to provide safe and energy-saving products in addition to shifting to low-GWP refrigerant.

[Official] Introducing a Video Site



We have opened a site where you can watch videos on the latest models of the DAIKIN Oil Hydraulics Division, including Super Unit, EcoRich, and oil cooling units, all in one place.

Everything from the energy-saving technology supporting hybrid products to the features and functions of each model is explained in an easy-to-understand manner.

By registering the page in the favorites on your computer or cell phone, you can find the latest information at your fingertips any time.

URL <https://www.hyd.daikin.com/mv>



The site is also ready
for smartphones and
tablets!

Daikin Hydraulic

Search

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