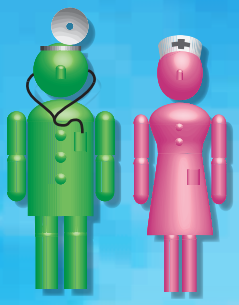
SINKO

AFTER CARE SERVICE of SINKO

For Customer

Solutions provided by
an air conditioning equipment manufacturer
Diagnostics and analysis of
air conditioning equipment and
maintenance plans



Passing the baton
to a more comfortable air conditioned environment
with energy savings

AROS-14-A

SINKO

Ensuring the Long-Term Use of Our Products with Peace of Mind

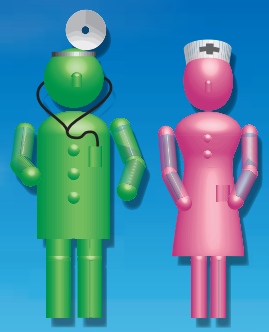
Full-Service Aftercare only a Specialized Manufacturer Can Provide

Air conditioning equipment can be used for an extended period of time if it is serviced and maintained regularly. In recent years, disaster preparedness efforts have encouraged upgrading to the latest equipment as well as measures to save energy and accommodate business continuity planning. SINKO provides an After Care Service of SINKO to ensure that our customers can use our products for longer, and with greater peace of mind. We apply the skill and expertise earned over many years to provide total support ranging from servicing and inspections to diagnostics and upgrades. By analyzing and maintaining air conditioning equipment, we help maintain the asset value of the building itself and contribute to corporate risk management.

AFTER CARE SERVICE of SINKO

Applying our specialized skills and experiences as an air conditioner manufacturer

- Energy-saving measures
- Upgrades
- Degradation analysis
- Maintenance
- Service contracts



Easy to miss warning signs of air conditioning equipment

We only use parts high-quality reliable parts in our air conditioning equipment, which is why there are almost no major failures in our equipment 1 to 2 years after installation.
Usually air conditioning equipment deteriorates very slowly and sudden failures, such as a "sudden stop" or "leakage," are extremely rare.
In order to continue to maintain a comfortable environment, you need to understand and be aware of the warning signs, such as an "unusual noise," an "unpleasant smell" or the "total power consumption for the building becomes higher." However, it is not unusual to overlook these signs because that deterioration takes time.

Preparing in advance to reduce your costs

Most of the time, a part or the entire air conditioning equipment needs to be replaced when it is clear that there is a decline in the performance or comfort, or when the failure can be visually confirmed.
In addition, if the user realizes that there is a failure or that something is wrong, the total power consumption may have already risen, money may have been wasted on unnecessary costs and the original failure may have even spread and damaged another area on the equipment.
Regular diagnostic checks coupled with scheduled parts replacement are essential when trying to avoid this type of waste.

3 measures for comprehensive maintenance

Our fundamental approach toward using air conditioning equipment to avoid wasting money on unnecessary costs is to "utilize the air conditioning equipment to its fullest to match the life of the building."
Therefore, at SINKO, we consider the life cycle of the product by providing:

1 Corrective maintenance

Parts replacement or upgrading the air conditioning equipment each time a failure occurs

2 Preventive maintenance

Regular inspections and cleaning as well as replacement of worn out parts to ensure continued performance

3 Energy savings measures

Replacement out of date parts with energy saving parts to reduce the running costs

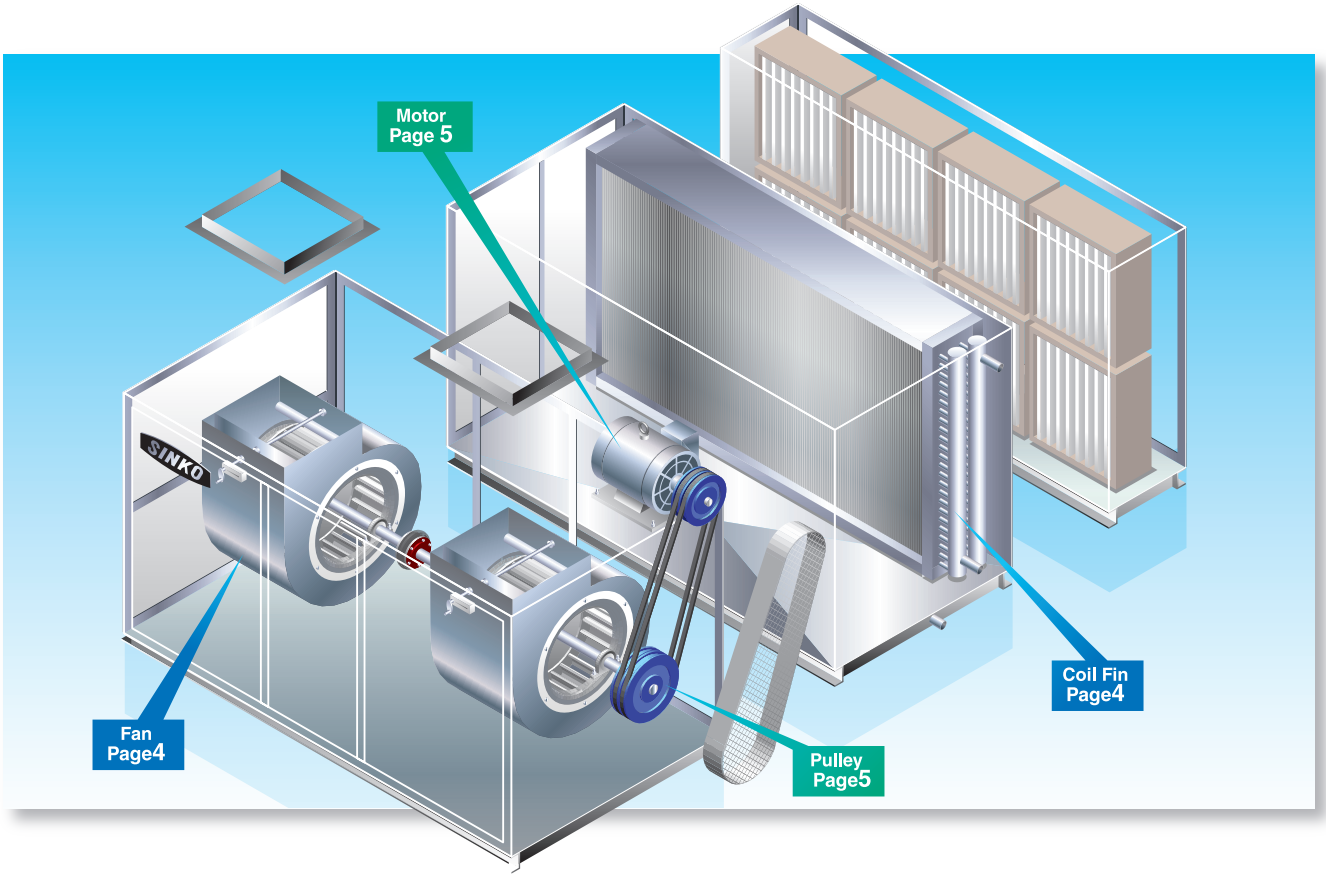
We use the 3 measures noted above to create a customized solution.

Contents

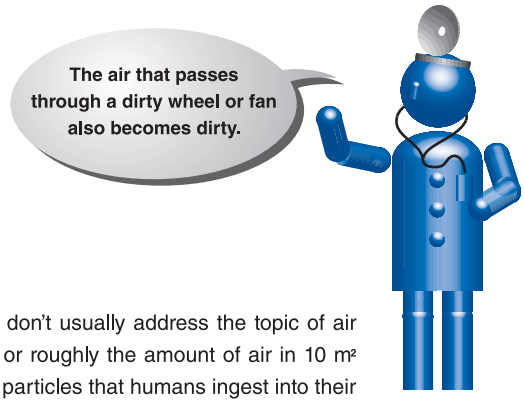
Solutions provided by an air conditioning equipment manufacturer with long experience and specific expertise in structures, systems and materials.

We provide solutions for mid- and long-term planning in order to achieve "low cost and high efficiency" by using a unique method of diagnostics and analysis of the air conditioning equipment.

Because we are an air conditioning equipment manufacturer, our "After Care Service of SINKO" can provide expert diagnostics, analysis and service solutions. We use a mid- and long-term approach and promise to provide specific know-how that guarantees to reduce your total costs.



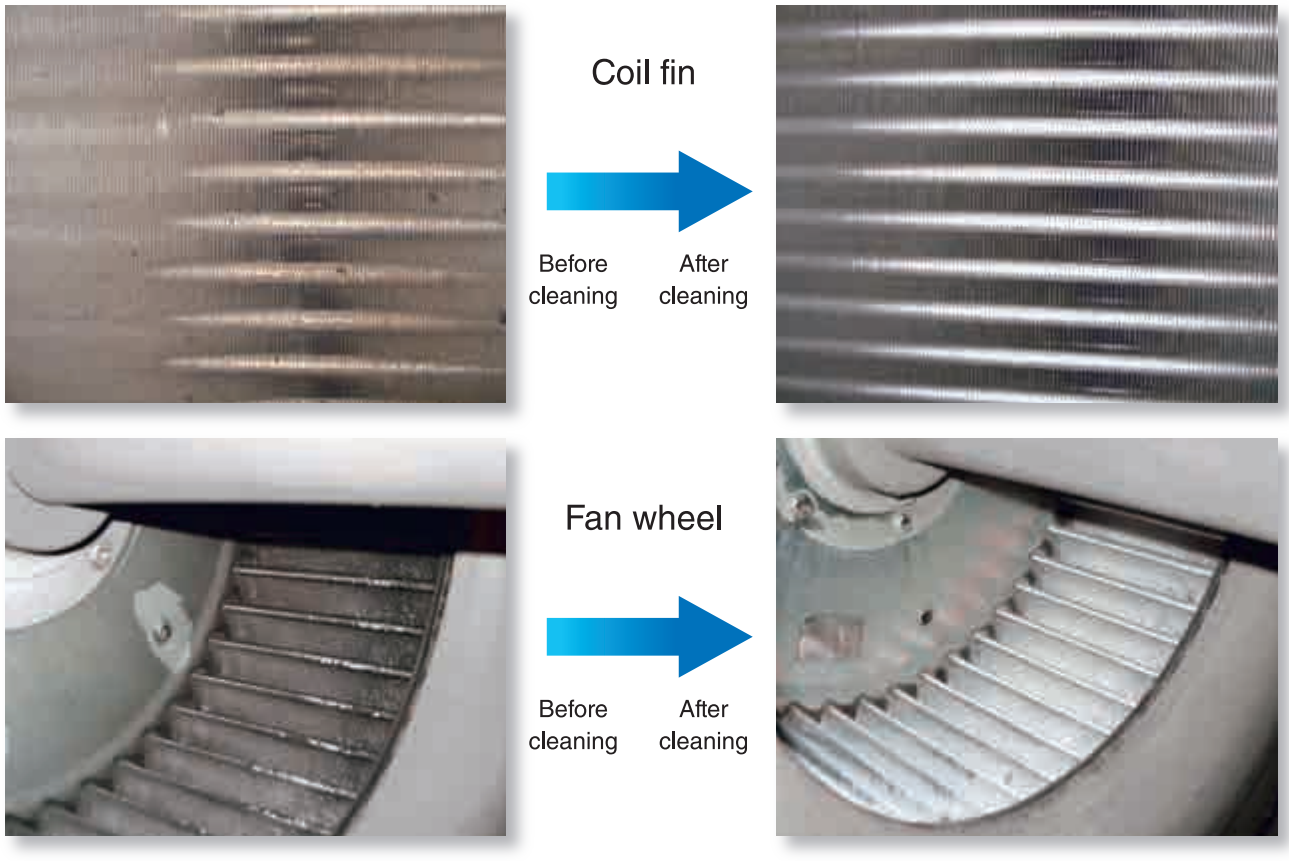
Regular cleaning helps restore the equipment's performance and contributes to a longer product life.



What is fan wheel / coil fin cleaning?

Air and water is essential for us to continue living. However, compared to water, we don't usually address the topic of air quality in our environment. We breathe 15,000 to 20,000 liters of air in a single day, or roughly the amount of air in 10 m² room. That mass is approximately 20 to 30 kg and represents the greatest quantity of particles that humans ingest into their bodies. The air conditioner used in a standard household as well as the fan wheel or coil fin in an air handling unit both become dirty as they are used. Regular cleaning helps maintain cleaner air, restore performance and extend the life of the equipment.

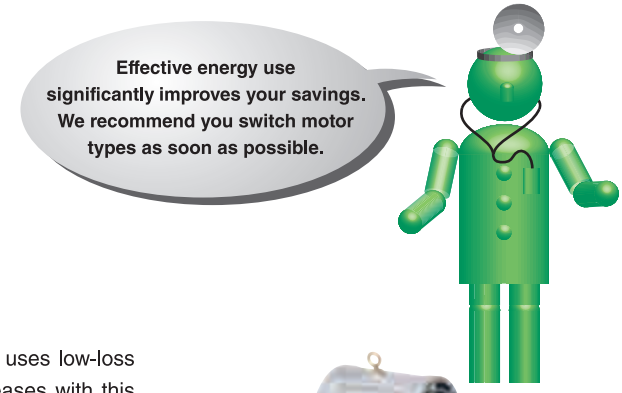
•Cleaning examples



•Other preventive maintenance

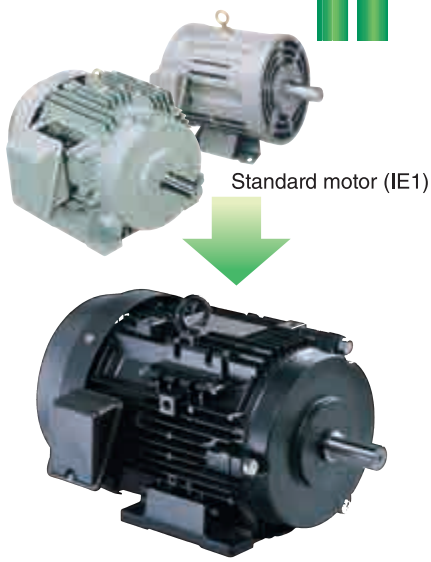
- Motor replacement
- Motor bearing replacement
- Fan bearing replacement
- Cleaning inside the equipment
- Painting inside the equipment
- Fan damper shaft replacement
- V-pulley replacement
- V-belt replacement
- Filter replacement

New standard energy savings support Our highly efficient premium motor (IE3) reduces power consumption compared to our standard motor (IE1) and the high efficiency motor (IE2).



What is a highly efficient premium motor?

A highly efficient premium motor is a motor with an intelligent design that uses low-loss materials, in order to further improve efficiency. While the initial cost increases with this efficient premium design, the running cost decreases due to a reduction in loss.



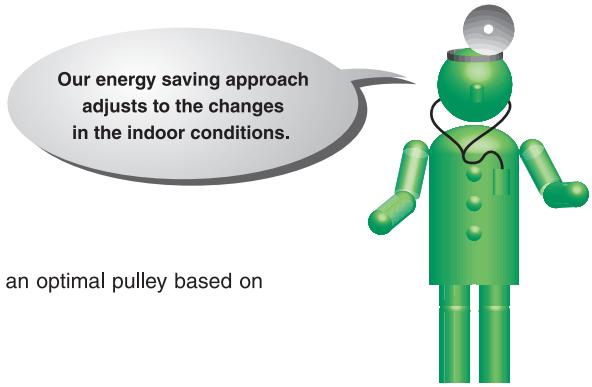
•Highly efficient premium motor (IE3) features

1. The longer the motor is used, the greater the energy savings, which improves its cost performance.
2. Energy consumption can be reduced, helping decrease the CO_2 emissions and protect the environment.

•Our recommendation

Depending on the diagnostics and analysis of deterioration, replacing the motor with a highly efficient premium motor can maximize its cost performance

Optimized pulley replacement, using our expertise as an air conditioning equipment manufacturer to promote energy savings.



What is an optimized pulley?

Using our expertise as an air conditioning equipment manufacturer, we select an optimal pulley based on the speed of revolutions.

•Advantages of optimized pulley replacement

When the airflow is constricted on the discharge damper or on the airflow regulating mechanism for the air handling unit, the pressure on the ventilator increases if there are changes in the indoor conditions, etc.
Replacing with an optimized pulley allows you to open the constricted damper or the airflow regulating mechanism while maintaining the current airflow. This lowers the pressure on the ventilator and decreases the number of revolutions to reduce power consumption on the motor without changing the indoor conditions.

•Our recommendation

Is the airflow constricted on the airflow regulating mechanism?

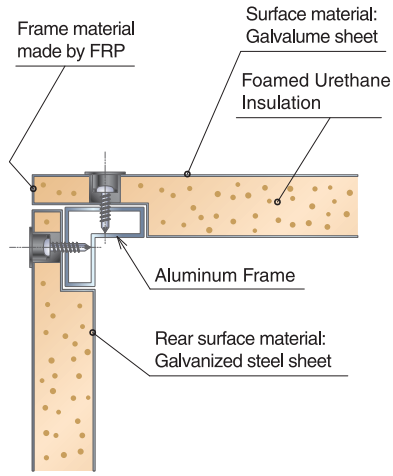
Is the airflow constricted on the discharge damper for the air duct (for supplying air)? → The power consumption can be reduced by replacing the pulley with an optimized one.

Air handling units customized for the specific environment of your region

We use an assembled frame structure that has an external panel that be removed freely for maintenance. We use a lot of foam and plastic which have excellent hermetic and insulating properties as part of our measures to prevent condensation. We can customize our air handling units with designs using smaller metric units and support the type of air and environment in your region.

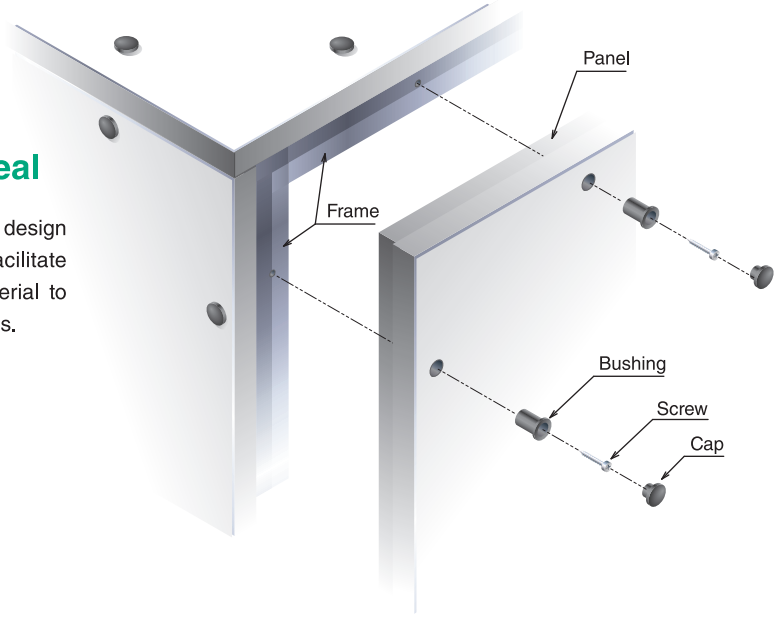
Aluminum frame that is lightweight and durable

We use aluminum in our assembled main frame that makes it lightweight and durable, in order to facilitate delivery and assembly.

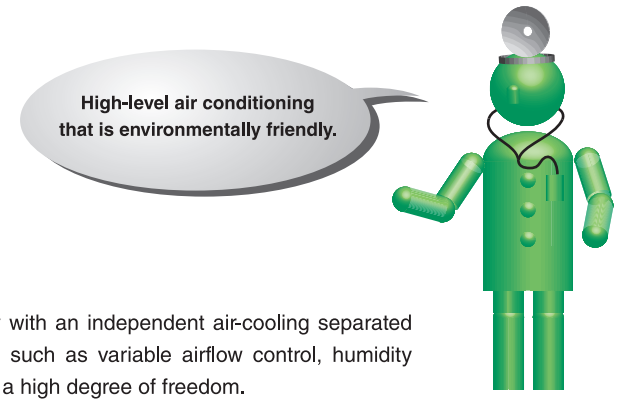


Insulated casing with hermitic seal

The casing is compliant UN standards and features a design so that the external panel can be removed to facilitate maintenance. We used a lot of foam and plastic material to prevent condensation even under the harshest conditions.
A stainless steel pan is used for the drain pan.



The air-cooling heat pump air conditioner features excellent functionality with minimal environmental impact, making it ideal for the environment and for people.



We combined an air handling unit that features original SINKO technology with an independent air-cooling separated heat pump, which equips this system with not just excellent functionality, such as variable airflow control, humidity control and highly effective filter, but it can be installed as a heat source with a high degree of freedom.

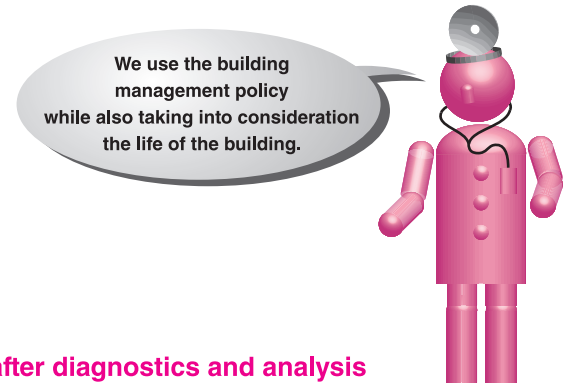
Air handling unit

Air-cooling separated heat pump

Features of air-cooling heat pump air conditioner

- **Double skin casing with strong insulation**
  The environmentally friendly, high function panel is not coated and is injected with rigid urethane that uses non-fluorocarbon foaming.
- **Expanded coil**
  Features high heat exchanging efficiency and contributes to major energy savings.
- **Filter**
  Featuring a variety of filters: medium / high performance filter, prefilter and high-efficiency particulate (HEPA) filter, etc.
- **Aluminum main frame**
  The frame is both lightweight and durable, and it was made with less paint.
- **DC fan motor**
  The DC motor improves fan efficiency.
- **4 sided heat exchanging structure**
  The heat exchanging surface area was increased, making it more efficient.
- **Highly efficient compressor (DC motor)**
  Uses the new coolant R410A and offers improved pressure loss. The DC motor for the inverter compressor provides higher efficiency and energy savings.
- **Coolant piping**
  We offer piping with a maximum length of 160 m and a maximum height difference of 50 m, providing installation with a higher degree of freedom.

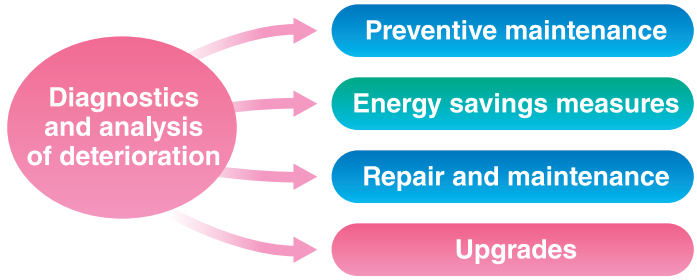
We use technology unique to our experience as an air conditioner manufacturer to provide solutions that fit the life cycle stage of the product.



Advantages from performing diagnostics and analysis of deterioration

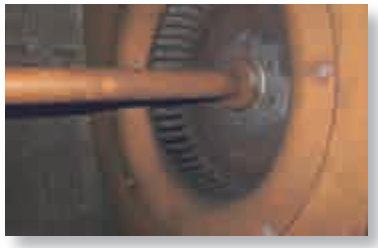
- Assessing or quantifying the longevity of the air conditioning equipment
- Using the management policy of the building's owner to suggest a solution that covers preventive maintenance, repair and maintenances, upgrades, etc.
- Suggesting effective energy saving products in sync with the timing of the the upgrades made on your air conditioning equipment

Flow after diagnostics and analysis



• Examples of diagnostics and analysis of deterioration (After 15 to 20 years)

Fan wheel

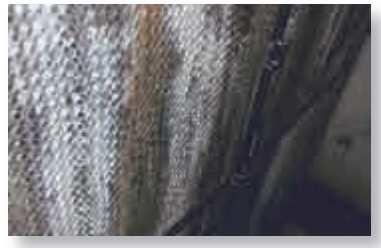


Dusty with rust on the fan housing. (Maintenance required)

Coil fin

The surface of the fin is dusty and the coil frame is rusted. (Maintenance required)

Humidifier



The humidifier element is dirty and is quite clogged.(Upgrade required)

Base plate in fan compartment

The inside of the fan compartment is dirty. (Maintenance required)

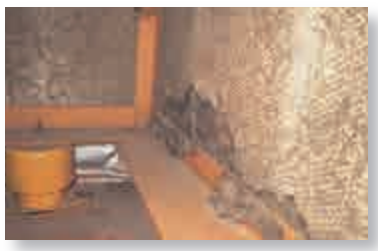
Coil header

The header section is quite rusted. (Upgrade required)

Outer plate

The bottom of the outer plate is rusted. (Maintenance required)

Insulation in fan compartment



The insulation in the fan compartment is coming off.(Maintenance required)

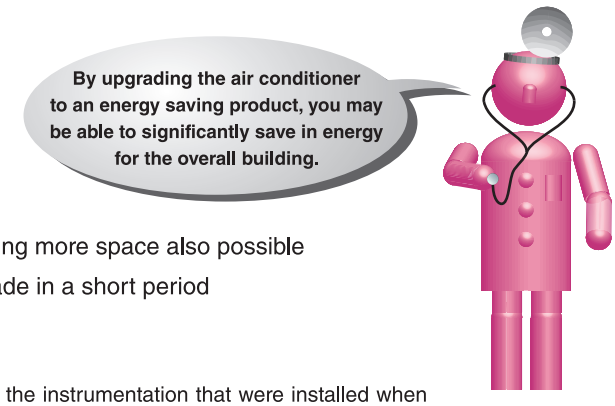
Drain pan

The drain pan is developing rust. (Maintenance required)

Pre-filter

The pre-filter has significantly deteriorated. (Upgrade required)

Upgrade the air conditioning equipment to increase savings and create new value.



Advantages of upgrades

- Solutions with energy saving products
- Increase in savings and improving the level of comfort
- Building use possible during upgrade
- Creating more space also possible
- Upgrade in a short period

All the utilities in the facility, such as the air conditioning, the electricity and the instrumentation that were installed when the building was completed, unavoidably deteriorate due to use and aging over the years. Even when these utilities are thoroughly maintained, the physical deterioration cannot be sidestepped and their performance gradually decreases. “Upgrade” refers to replacing these utilities. The upgrade does not just entail replacing the equipment, rather, it is a perfect opportunity to plan for the future and incorporate a system with advanced performance.

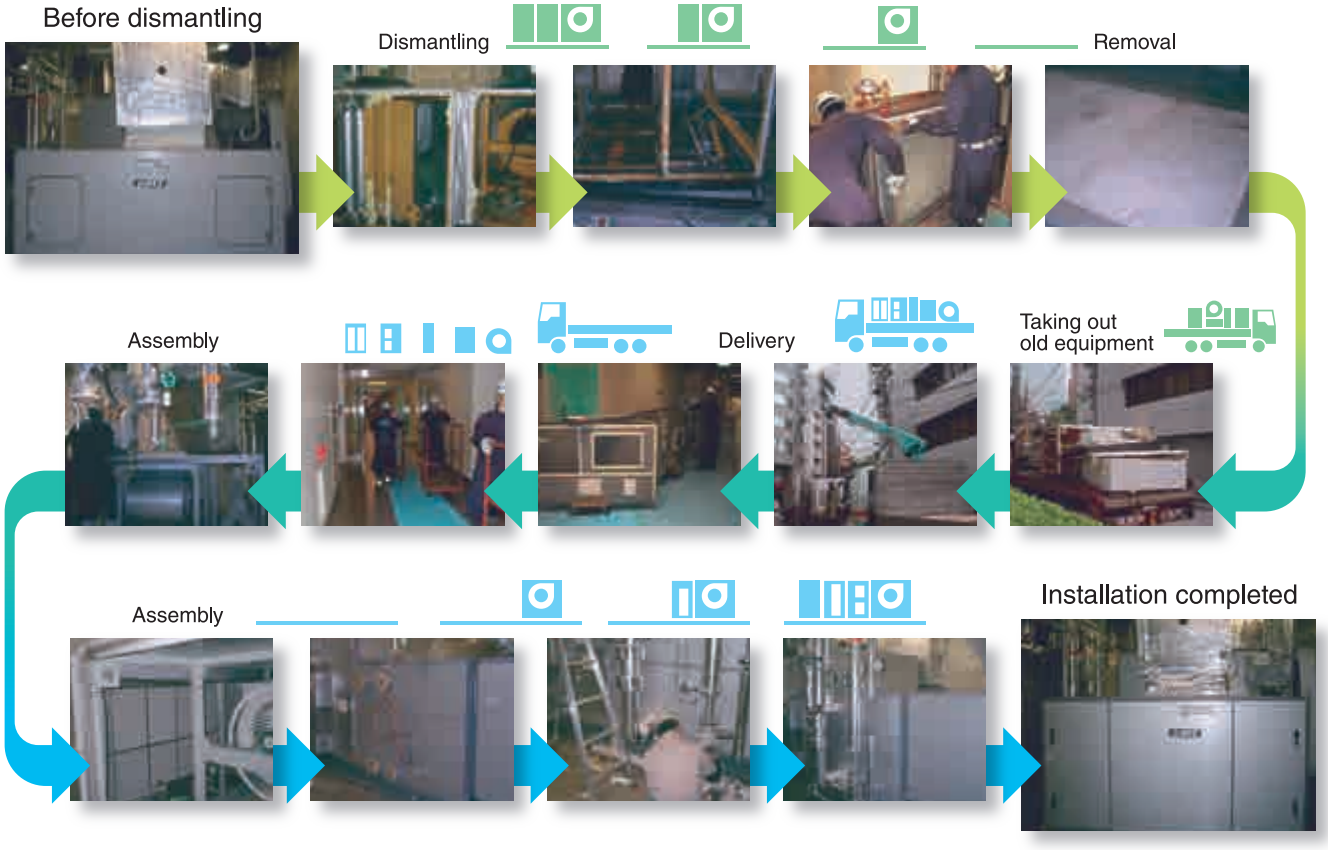
Upgrading the entire air handling unit

We have a variety of air handling units available to fit your delivery space, such as an air conditioner that can be assembled onsite, compact types or ceiling types.
Please feel free to consult with us about your situation, whether it be the indoor conditions from office automation, or modifying the design, such as changing the equipment airflow, static pressure or performance due to changes in the use of space.

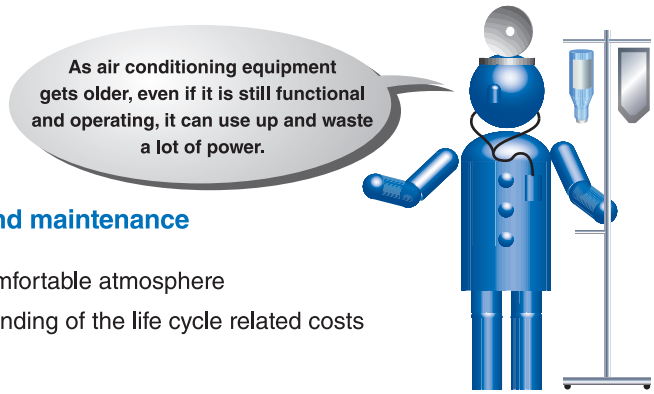
Significant reduction in power consumption

The power used by the air conditioning equipment, which is essential in maintaining a comfortable atmosphere inside the building, represents 40 to 50% of the building’s total power consumption. Power consumption tends to rise more and more due to the sudden increase in office automation. Upgrading to an energy saving model can be also a definitive step in reducing power consumption for the entire building.

• Example of air handling unit upgrade



Air conditioning equipment maintenance that surpasses your expectations.



Advantages of air conditioning equipment service contracts / repair and maintenance

- Reducing your running cost
- Failure prevention
- Extending the life of the equipment
- Maintaining a comfortable atmosphere
- A better understanding of the life cycle related costs

Air conditioning equipment is a utility that has very few failures or breakdowns. It is not unusual to use the equipment for 15 to 20 years or even longer. However, when the equipment is used for a long time, the performance definitely declines due to parts wearing and deteriorating. This is where maintenance can help out, by maintaining the equipment's efficiency. To provide proper maintenance, one must not only have thorough knowledge about the air conditioning equipment, but understand the longevity of each part and usage conditions as well as adjust, repair and replace parts properly.

Annual service contracts

Performing the right maintenance regularly can help extend the life of the equipment unit and maintain the value of the building and property. In addition, the property can be managed over a long period by drafting or proposing mid- and long-term repair projects. This is why we recommend using our annual service contracts.

Pre-filter cleaning

Main filter replacement

Bearing vibration measurement

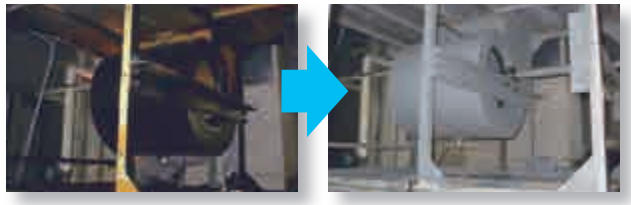
Bearing sound diagnostics check

Pulley centering adjustment

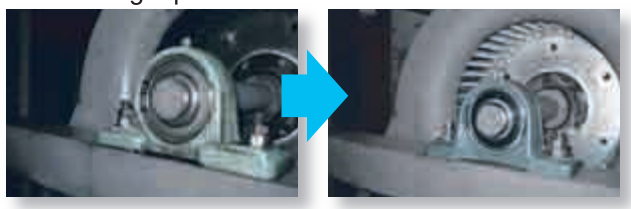
Regular repair and maintenance

Regular repair and maintenance of the parts and materials help restore performance and extend the life of the equipment. By assessing the equipment and using energy saving products based on careful analysis where needed, we may be able to drastically increase your savings. Please feel free to consult with us.

Cleaning inside the equipment, scraping and painting



Fan bearing replacement



Humidifier filter material replacement

Main maintenance for air handling unit

Annual service contract	Regular repair and maintenance
Pre-filter washing and cleaning Regular equipment inspection Main filter replacement Drain pan cleaning	Cleaning and painting inside the equipment Fan runner cleaning Coil fin cleaning Bearing replacement Humidifier replacement Motor replacement

*This maintenance schedule is a maintenance inspection guide for the air handling unit.

Standard maintenance schedule

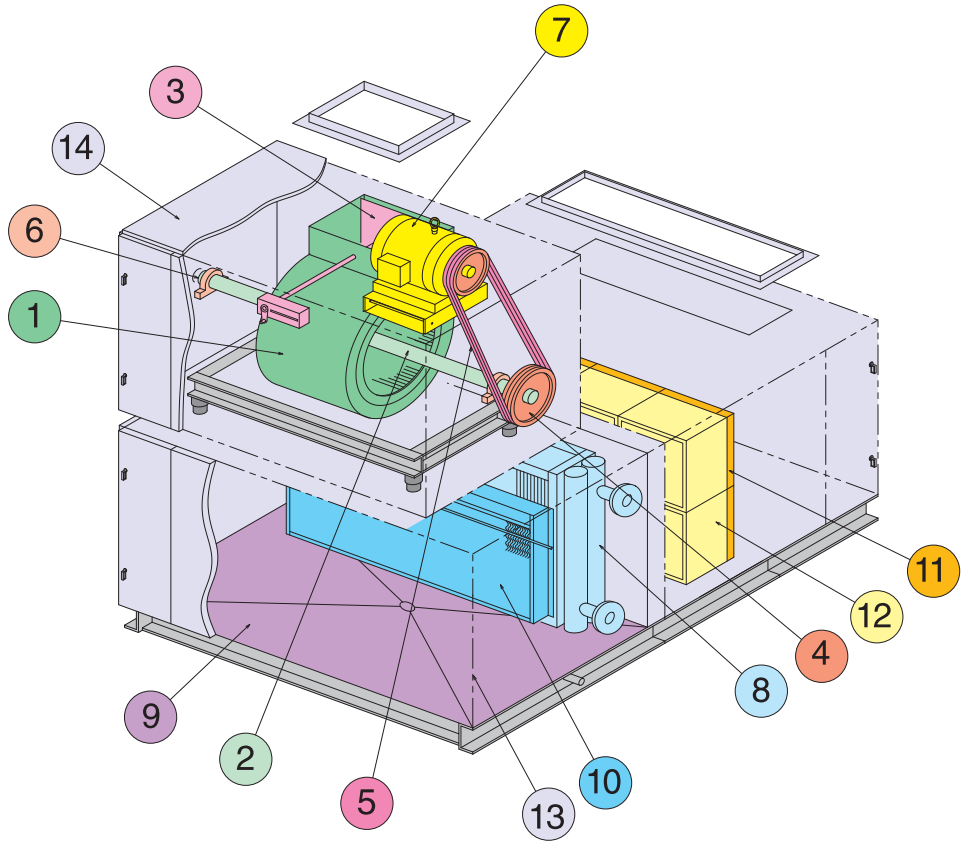
10 hours of operation/day, 3000 hours of operation/year

▲ Inspection and adjustment △ Cleaning ▽ Oiling ◆ Disassembly and inspection
☆ Painting ◇ Parts replacement ◎ Replacement
"Inspection and adjustment" includes cleaning and paint refinishing, etc.

Part name \ Years	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
(1) Fan	▲	▲	▲	▲	△	▲	▲	▲	▲	△	▲	▲	▲	▲	◎
(2) Fan shaft	▲	▲	▲	▲	☆	▲	▲	▲	▲	☆	▲	▲	▲	▲	◎
(3) Damper (Optional)	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	◎
(4) V-pulley	▲	▲	▲	▲	◎	▲	▲	▲	▲	◎	▲	▲	▲	▲	◎
(5) V-belt	▲▲▲▲▲▲ Inspection and adjustment every 2 months; ▲ Adjustment after 100 hrs for new installation; ◎ Adjustment after 100 hrs for replacement														
(6) Fan bearing	▲▲▲▲▲▲ Inspection every 2 months; ▽									◎ ▲▲▲▲▲▲ ▽					
(7) Motor	▲▲▲▲▲▲ Inspection every 2 months; ▽ Oiling type every 6 months		◆			◆ Bearing			◆			◆ Bearing			
(8) Coil	▲	☆ Painted part △ Fin	▲	☆	▲	☆	☆	☆	☆	☆	☆	☆	☆	☆	◎
(9) Drain pan	▲▲▲▲▲▲ Inspection every 1 month														
(10) Vaporization type humidifier	▲▲▲▲▲▲ Inspection every 1 month; ◇ Humidification module replacement														
(11) Large dust filter (Prefilter)	△△△△△△ Cleaning every 1 month; ◇ Frequency for filter material replacement varies depending on the usage conditions.														
(12) Medium/High performance filter (Main filter)	◎ Frequency for replacement varies depending on the usage conditions.														
(13) Casing	☆ Refinishing every year				☆ All painted parts					☆					
(14) External panel	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	◎

Notes

*The maintenance schedule is a general guide and changes according to the usage and installation conditions, etc. Special consideration may be necessary.
*Operation time: 10 hours/day, 300 days/year and 3000 hours/year
The details for products with special specifications vary slightly, and the content and cycle are different. Therefore, contact us separately if this applies.
In particular, the maintenance cycle for the air filter varies depending on the usage conditions of the equipment.
*We recommend that you check the operating current value, and for abnormal noises and vibrations even during normal inspections.



Standard maintenance schedule

*The maintenance schedule for the fan coil unit below is a general guide and changes according to the usage and installation conditions, etc. Special consideration may be necessary.

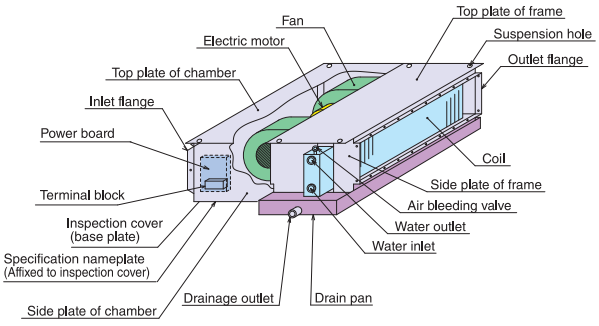
Inspection code	▲ Inspection and adjustment	○ Parts replacement	■ Cleaning	● Replacement

Part name \ Time	5000h	10000h	15000h	20000h	25000h	30000h	35000h	40000h	45000h
Fan	▲	■	▲	■	▲	■	▲	■	▲
Electric motor	▲	▲	▲	▲	▲	▲	▲	▲	●
Capacitor	▲	▲	▲	▲	●	▲	▲	▲	▲
Operation switch	▲	▲	▲	▲	▲	▲	▲	▲	▲
Coil	▲	■	▲	■	▲	■	▲	■	■
Drain pan	▲	■	■	■	■	■	■	■	■
Air filter	■	■	■	○	■	■	○	■	■
	Clean every 250 hours (Once a month)								
Lining material, etc.	▲	▲	▲	▲	▲	▲	▲	▲	▲
Casing			▲			▲			▲
Electronic parts	▲	▲	▲	▲	▲	▲	▲	▲	▲
Power board	■	■	■	■	■	●	■	■	■

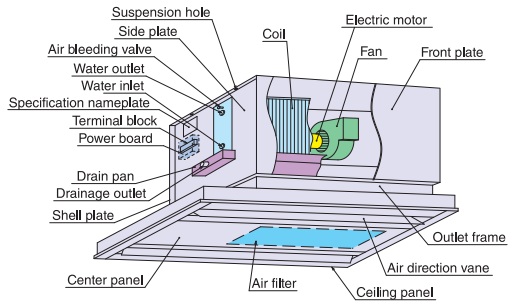
Notes

*Operation time: 10 hours/day, 300 days/year and 3000 hours/year
*The details for products with special specifications vary slightly, and the content and cycle are different. Therefore, contact us separately if this applies.
*In particular, the maintenance cycle for the air filter varies depending on the usage conditions of the equipment.
*The maintenance for the electric motor should be performed by a specialist.

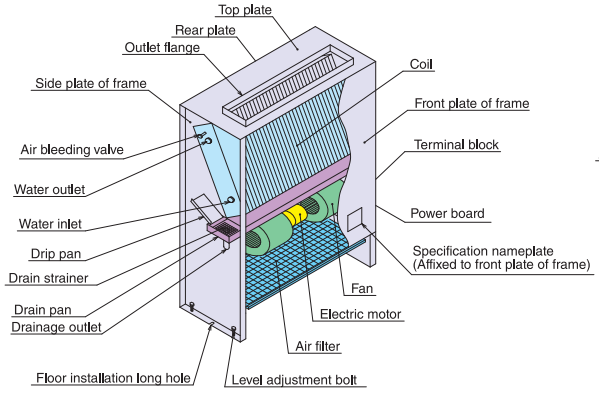
Concealed ceiling type



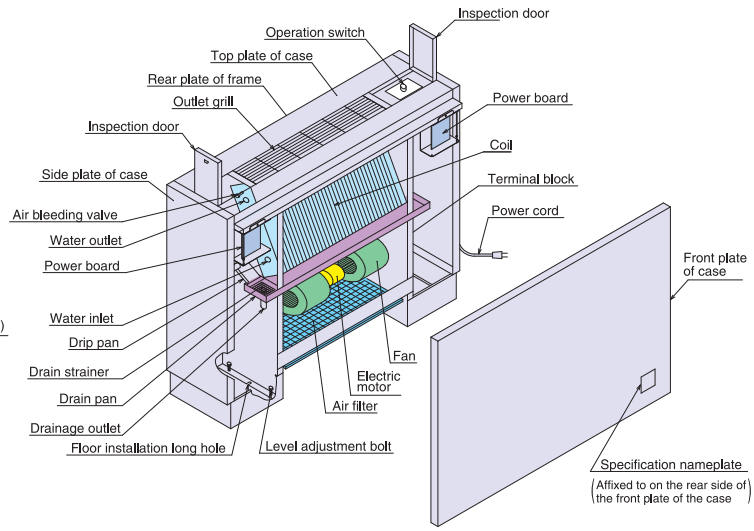
Cassette type



Concealed floor type



Exposed floor type

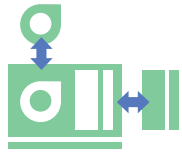


Maintenance company that shares latest technology and experience of SINKO

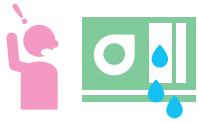
The SINKO Group has a section that specializes in maintenance and is devoted to technology. Being so close to the customer, we interact with the customer directly to field a variety of requests, and we provide maintenance, repair and upgrades to the latest models for all air conditioning equipment sold by SINKO. We exchange information and share the latest technology and product knowledge between all sections in the Sinko Group: Engineering Division, Production Division, Sales Division and Planning Division. We devote ourselves to provide quality customer service and the best solutions.

Please feel free to consult with us today.

My air conditioner doesn't work.

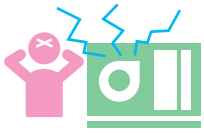


Thinking about overhauling my air conditioner soon…



The water from the air conditioner is leaking.

I want to upgrade my old air conditioner.



A strange noise is coming from the bearing… is this normal?

I want to get my unit inspected regularly.

AFTER CARE SERVICE of SINKO
customer center

SINKO INDUSTRIES LTD.

2-57-7,NIHONBASHI HAMACHO
CHUO-KU,TOKYO 103-0007 JAPAN

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The company is always improving and developing its products,
therefore the company reserves the right to make changes to the illustrated products.

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