

**Always read before installation.**

# **AISIN *GHP*** Aisin INDOOR UNITS **INSTALLATION AND MAINTENANCE INSTRUCTIONS** **[ Model ] Standar duct Type**

## ■ Applicable models

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AXSP22P7D	AXSP71P7D
AXSP28P7D	AXSP90P7D
AXSP36P7D	AXSP112P7D
AXSP45P7D	AXSP140P7D
AXSP56P7D	

## ■ Important reminder


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- THOROUGHLY READ THESE INSTRUCTIONS BEFORE STARTING THE INSTALLATION AND FOLLOW ALL PROCEDURES DESCRIBED WITHIN.
- KEEP THIS MANUAL IN A HANDY PLACE FOR FUTURE REFERENCE.

**After installation, always use the checklist to perform a final inspection.**

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 **READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION. KEEP THIS MANUAL IN A HANDY PLACE FOR FUTURE REFERENCE.**






IMPROPER INSTALLATION OR ATTACHMENT OF EQUIPMENT OR ACCESSORIES COULD RESULT IN ELECTRIC SHOCK, SHORT-CIRCUIT, LEAKS, FIRE OR OTHER DAMAGE TO THE EQUIPMENT. BE SURE ONLY TO USE ACCESSORIES MADE BY AISIN WHICH ARE SPECIFICALLY DESIGNED FOR USE WITH THE EQUIPMENT AND HAVE THEM INSTALLED BY A PROFESSIONAL.

IF UNSURE OF INSTALLATION PROCEDURES OR USE, ALWAYS CONTACT YOUR AISIN DEALER FOR ADVICE AND INFORMATION.














**SAFETY PRECAUTION**

The types of injuries and damages that can occur if this units are improperly installed are divided into and covered under the “  Warning” and “  Caution” graphics and other symbols. Follow these instructions carefully.

Meaning of warning, caution and other symbols.

	<b>WARNING</b> Failure to observe a warning may result in death or serious injury.
	<b>CAUTION</b> Failure to observe a caution may result in injury or damage to the equipment.
	Indicates a prohibited action.
	Indicates a necessary action.
	Indicates a necessity to install a secure earth connection.

**–  WARNING**

<p><b>Ask your dealer or qualified personnel to carry out installation work. Do not try to install the machine yourself.</b></p> <p>Improper installation may result in water leakage, electric shocks or fire. All field piping must be provided by a licensed refrigeration technician and must comply with the relevant local and national codes.</p>	
<p><b>Install the indoor unit on a foundation strong enough to withstand the weight of the unit.</b></p> <p>A foundation of insufficient strength may result in the equipment falling and causing injuries.</p>	
<p><b>Carry out the specified installation work after taking into account strong winds, typhoons or earthquakes.</b></p> <p>Improper installation work may result in the equipment falling and causing accidents.</p>	
<p><b>When installing the unit in a small room, take measures against to keep refrigerant concentration from exceeding allowable safety limits in the event of refrigerant leakage.</b></p> <p>Excessive refrigerant in a closed ambient can lead to oxygen deficiency.</p>	
<p><b>Perform installation work in accordance with this installation manual.</b></p> <p>Improper installation may result in water leakage, electric shocks or fire.</p>	
<p><b>Be sure to use only the specified accessories and parts for installation work.</b></p> <p>Failure to use the specified parts may result in water leakage, electric shocks, fire or the unit falling.</p>	
<p><b>After completing the installation work, check that the refrigerant gas does not leak.</b></p> <p>Toxic gas may be produced if the refrigerant gas leaks into the room and comes into contact with a source of fire, such as a fan heater, stove or cooker.</p>	
<p><b>Do not allow anything other than the designated refrigerant to get mixed into the refrigerant circuit, such as air, etc.</b></p> <p>Doing so could cause an explosion or a fire.</p>	
<p><b>Never touch the refrigerant leaking from refrigerant piping connection.</b></p> <p>If the refrigerant is put on hands, it may cause a frost bite.</p>	
<p><b>If any refrigerant gas leaks while working on the unit, ventilate the area thoroughly right away.</b></p> <p>Toxic gas may be produced if the refrigerant gas comes into contact with fire.</p>	
<p><b>Tighten the flare with double wrenches and use a torque wrench to check that the tightening torque is proper.</b></p> <p>If the torque is not proper, a joint broken by over tightening or a joint loose by under tightening could allow refrigerant to leak and cause a shortage of oxygen.</p>	
<p><b>Do not route the drain piping directly into to a location where corrosive gas, such as sulfurous acid gas, could potentially be generated.</b></p> <p>Corrosive gas could enter the indoor and could cause a gas poisoning or a shortage of oxygen.</p>	
<p><b>Do not touch the drain pump during the drainage flow testing.</b></p> <p>Failure to do so may result in electric shocks.</p>	

<p><b>Make sure that a separate power supply circuit is provided for this unit and that all electrical work is carried out by qualified personnel according to local laws and regulations and this installation manual.</b></p> <p>An insufficient power supply capacity or improper electrical construction may lead to electric shocks or fire.</p>	⚠
<p><b>Be sure to install a secure earth connection. Do not earth the unit to the followings:</b></p> <p>(a) <b>gas pipes:</b> might cause explosions or fire if gas leaks.</p> <p>(b) <b>telephone ground wires or lightning rods:</b> might cause abnormally high electric potential in the ground during lightning storms.</p> <p>(c) <b>plumbing pipes:</b> no grounding effect if hard vinyl piping is used.</p>	⚠
<p><b>Be sure to install an earth leakage breaker.</b></p> <p>Failure to do so may result in electric shocks, or fire.</p>	⚠
<p><b>Never turn on the unit before finishing the installation work.</b></p> <p>Failure to do so could cause electrical shock or damage to the indoor unit.</p>	⊘
<p><b>When clamping the wirings, be sure to clamp wires appropriately not to apply any excessive power to the wire connections.</b></p> <p>Improper clamping could damage the wires and may result in electric shocks, fire or the terminals overheating.</p>	⚠
<p><b>Make sure that the remote controller wiring, and the transmission wiring between the units, and other electrical wiring do not pass through the same locations outside the unit separating as followings:</b></p> <p>- Outside the unit; at least 50 mm</p> <p>- Inside the unit; at least 25 mm</p> <p>Failure to do so could cause an electrical noise (external static) and result in mistaken operation or breakage.</p>	⚠
<p><b>When wiring the power supply and connecting the remote controller wiring and transmission wiring, position the wires so that the switch box lid can be securely fastened. When attaching the service lid, make sure no wirings get caught in the edges.</b></p> <p>Improper positioning of the switch box lid may result in electric shocks, fire or the terminals overheating.</p>	⚠
<p><b>Never connect the power supply wiring to the terminal board for transmission wiring.</b></p> <p>This mistake could damage the entire system.</p>	⚠
<p><b>When performing field settings or test operation without attaching the decoration panel, do not touch the drain pump.</b></p> <p>This may cause electric shock.</p>	⊘
<p><b>Be sure to stop operation and turn the power switch off before touching the electrical parts.</b></p> <p>Failure to do so could result in an electrical shock or unit malfunction.</p>	⚠
<p><b>Do not touch the switch with wet hands.</b></p> <p>This may cause electric shock.</p>	⊘

**⚠ CAUTION**

<p><b>Be sure to handle with care for transporting the unit.</b></p> <p>Some of the units are covered with the PP band for strapping. Be sure not to grab straps when handling.</p>	⚠
<p><b>Be sure to dispose all of the packing materials after taking out the unit.</b></p> <p>Nails and wooden crates may cause a serious injury from sticking. Plastic sheet covering the unit may result in an asphyxia if a child play with it. Tear the plastic sheet before disposing.</p>	⚠

<p><b>Locate the indoor and outdoor units, power supply wiring and connecting wires at least 1 meter away from televisions or radios in order to prevent image interference or noise.</b></p> <p>Depending on the radio waves, a distance of 1 meter may not be sufficient enough to eliminate the noise.</p>	⚠
<p><b>Do not install the indoor unit in the following locations:</b></p> <p>(a) <b>where a mineral oil mist or an oil spray or vapor is produced, for example in a kitchen</b></p> <p>Plastic parts may deteriorate and fall off or result in water leakage.</p> <p>(b) <b>where corrosive gas, such as sulfurous acid gas, is produced</b></p> <p>Corroding copper pipes or soldered parts may result in refrigerant leakage.</p> <p>(c) <b>where flammable gases may leak, where there are carbon fiber or ignitable dust suspensions in the air, or where volatile flammables such as thinner or gasoline are handled.</b></p> <p>Operating the unit in such conditions may result in fire.</p>	⊘
<p><b>Do not install the unit tilted. The indoor unit is equipped with a built-in drain pump and float switch.</b></p> <p>If the unit is tilted against condensate flow, the float switch may malfunction and cause water to drip.</p>	⚠
<p><b>Be sure to insulate any field piping all the way to the piping connection inside the unit.</b></p> <p>Any exposed piping may cause condensation or burns if touched.</p>	⚠
<p><b>While following the instructions in this installation manual, install drain piping in order to ensure proper drainage and insulate piping in order to prevent condensation.</b></p> <p>Improper drain piping may result in water leakage and property damage to furniture and belongings.</p>	⚠
<p><b>Be sure not to touch the heat exchanger fin.</b></p> <p>Failure to do so may result in serious injury.</p>	⚠
<p><b>Be sure to wait for at least five minutes before turning off the power switch after stopping the operation.</b></p> <p>Failure to do so may cause water leakage or other problem.</p>	⚠

**— 📖 IMPORTANT REMINDER —**

- Remote controller (wireless kit) transmitting distance can result shorter than expected in rooms with electronic fluorescent lamps. (inverter or rapid start types)  
Install the indoor unit as far away from fluorescent lamps as possible.
- Electromagnetic waves may disturb the operation of the control system and result in a malfunction of the unit. Do not install the unit near machinery emitting electromagnetic waves.
- Do not place objects that are susceptible to moisture directly beneath the indoor or outdoor units. Under certain conditions, condensation on the main unit or refrigerant pipes, air filter dirt or drain blockage may cause dripping, resulting in fouling or failure of the object concerned.
- Be sure not to install the indoor unit into locations where the air contains high levels of salt such as that near the ocean, where the voltage fluctuates greatly such as that in a factories. Also in vehicles and vessels.
- All field piping must be provided by a licensed refrigeration technician and must comply with the relevant local and national codes.

- Do not use flux when brazing refrigerant piping. Therefore, use the phosphor copper brazing filter metal (BCup-2: JIS Z 3264/B-Cu93P-710/795/: ISO 3677) which does not require flux. Flux has extremely harmful influence on refrigerant piping systems. For instance, if the chlorine based flux is used, it will cause pipe corrosion or, in particular, if the flux contains fluorine, it will damage the refrigerant oil.
- Do not use any antioxidant sold on the market. It may have an adverse effect on the refrigerant and compressor oil, resulting in equipment breakdown.
- Be sure to prevent spatter generated by welding process from coming in contact with the unit or entering into the unit. It may damage the drain pan and result in equipment breakdown.

Do not connect the drain piping directly to sewage pipes that smell of ammonia. The ammonia in the sewage might enter the indoor unit through the drain pipes and corrode the heat exchanger. Keep in mind that it will become the cause of getting drain pipe blocked if water collects on drain pipe.





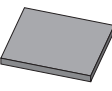




Do not remove the air filter except when cleaning. Unnecessary handling may damage the filter.

## BEFORE INSTALLATION

- Be sure to check the type of R410A refrigerant to be used before installing the unit. Using an incorrect refrigerant will prevent normal operation of the unit.
- This units, both indoor and outdoor, are suitable for installation in a commercial and light industrial environment. If installed as a house hold appliance, it could cause electromagnetic interference.
- This unit is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.
- Refer to the installation manual attached to the outdoor unit for the details about GHP outdoor unit installation.
- Do not place objects in direct proximity of the outdoor unit and do not let leaves and other debris accumulate around the unit.
- Leaves are a hotbed for small animals which can enter the unit. Once in the unit, such animals can cause malfunctions, smoke or fire when making contact with electrical parts.

## Accessories

Check if the following accessories are included with your unit.

①  Metal clamp 1 piece	②  Drain hose 1 piece	③  Washer for hanging bracket 8 pieces
④  Medium sealing pad 2 pieces		⑥  Large sealing pad
⑤  Insulation for fitting 1 each		⑨  Screws for duct flanges 1 set
⑦ for gas pipe 	⑧ for liquid pipe 	

Screws for fixing panels are attached to the air inlet panel.

## Optional accessories

Following optional accessories and remote controller are required to operate this indoor unit. For the installation, refer to the installation manual attached to each accessory.

- Decoration panel: Prepare an appropriate panel according following chart. Refer to Fig. 6a-c of "Preparations before installation" on page 5.

Model	Decoration panel code	
AXSP22 - 36P	BYBS32DJW1	Standard type panel
AXSP45, 56P	BYBS45DJW1	
AXSP71, 90P	BYBS71DJW1	
AXSP112, 140P	BYBS125DJW1	

- When installing bottom suction: air inlet panel and canvas connection for the air inlet panel Refer to Fig. 7a-c of "Preparations before installation" on page 5.

Model	Required ceiling space (mm)	Air inlet panel code	Canvas connection code
AXSP22 - 36P	≤ 465	KTBJ25K36W	KSA-25K36
	≤ 350		not installable
AXSP45, 56P	≤ 465	KTBJ25K56W	KSA-25K56
	≤ 350		not installable
AXSP71, 90P	≤ 465	KTBJ25K80W	KSA-25K80
	≤ 350		not installable
AXSP112, 140P	≤ 465	KTBJ25K160W	KSA-25K160
	≤ 350		not installable

- When installing the air inlet panel together with the canvas connection, 465 mm or more height of ceiling space is required.

- Wired remote controller: There are two types of remote controllers. Select a remote controller according to customer request and install in an appropriate place.


Model	Cord No.
Wired type	ABRC1P528
Wireless type	BRC7E618

## For the following items, take special care during construction and check after installation is finished


### 1 Items to be checked after completion of installation work

\*Also review the "SAFETY PRECAUTION" on this manual

Tick when checked	
<input type="checkbox"/>	Is the indoor unit fixed firmly? The unit may drop, vibrate or make noise.
<input type="checkbox"/>	Is the outdoor unit installed properly? The unit may malfunction or components may burn out.
<input type="checkbox"/>	Is the gas leak test finished? It may result in insufficient cooling.
<input type="checkbox"/>	Is the unit fully insulated and checked for air leaks? Condensate water may drip.
<input type="checkbox"/>	Does drainage flow smoothly? Condensate water may drip.
<input type="checkbox"/>	Does the power supply voltage correspond to that shown on the name plate? The unit may malfunction or components may burn out.
<input type="checkbox"/>	Are wiring and piping correct? The unit may malfunction or components may burn out.
<input type="checkbox"/>	Is the unit safely grounded? Dangerous at electric leakage.
<input type="checkbox"/>	Is the wiring size according to specifications? The unit may malfunction or components may burn out.



Tick  when checked	
<input type="checkbox"/>	Is nothing blocking the air outlet or inlet of either the indoor or outdoor units? It may result in insufficient cooling.
<input type="checkbox"/>	Are refrigerant piping length and additional refrigerant charge noted down? The refrigerant charge in the system might not be clear.
<input type="checkbox"/>	Are the air filters fixed properly (when installing with rear duct)? Maintenance of the air filters can be impossible.
<input type="checkbox"/>	Is the external static pressure set? It may result in insufficient cooling or heating.

## 2 Items to be checked at time of delivery

Tick  when checked	
<input type="checkbox"/>	Are switch box lid, air filter and suction/discharge grille fixed firmly?
<input type="checkbox"/>	Did you explain about operations while showing the operation manual to your customer?
<input type="checkbox"/>	Did you hand the operation manual over to your customer?
<input type="checkbox"/>	Did you explain how to handle and clean the air filter and suction/discharge grille?
<input type="checkbox"/>	Dis you hand the manual of locally provided parts (if attached) over to your customer?

### NOTE



The items with “ Warning” and “ Caution” marks in the manual are the items regarding possibilities for bodily injury and material damage in addition to the general usage of the product. Accordingly, it is necessary that you make a full explanation about the described contents and also ask your customers to read the manual.

## Notes to the installer

- After the installation work, explain to the customer what system is installed on the site, and be sure to instruct the customer how to properly operate the system especially cleaning filters, operating different functions, and adjusting the temperature by having them carry out operations while looking at the manual.

## IMPORTANT INFORMATION REGARDING THE REFRIGERANT USED

This product contains fluorinated greenhouse gases covered by the Kyoto Protocol.

Refrigerant type: R410A

GWP<sup>(1)</sup> value: 1975

<sup>(1)</sup> GWP = global warming potential

Periodical inspections for refrigerant leaks may be required depending on European or local legislation. Please contact your local dealer for more information.

## TRANSPORTING THE INDOOR UNIT



### CAUTION

**Be sure to handle with care for transporting the unit.**  
Some of the units are covered with the PP band for strapping. Be sure not to grab straps when handling.



### Be sure to dispose all of the packing materials after taking out the unit.

Nails and wooden crates may cause a serious injury from sticking. Plastic sheet covering the unit may result in an asphyxia if a child play with it. Tear the plastic sheet before disposing.



- Make sure that the route to the installation site and any passageways are large enough for the indoor unit to be transported through.
- Leave the unit inside its packaging until you reach the installation site. Where unpacking is unavoidable, use a sling of soft material or protective plates together with a rope when lifting, this to avoid damage or scratches to the unit.

### NOTE



Do not dispose of any parts necessary for installation until the installation is complete.

## SELECTING INSTALLATION SITE

### WARNING

**Ask your dealer or qualified personnel to carry out installation work. Do not try to install the machine yourself.** Improper installation may result in water leakage, electric shocks or fire. All field piping must be provided by a licensed refrigeration technician and must comply with the relevant local and national codes.



**Install the indoor unit on a foundation strong enough to withstand the weight of the unit.**

A foundation of insufficient strength may result in the equipment falling and causing injuries.



**Carry out the specified installation work after taking into account strong winds, typhoons or earthquakes.**

Improper installation work may result in the equipment falling and causing accidents.



**When installing the unit in a small room, take measures against to keep refrigerant concentration from exceeding allowable safety limits in the event of refrigerant leakage.**

Excessive refrigerant in a closed ambient can lead to oxygen deficiency.



### CAUTION

**Do not install the indoor unit in the following locations:**

**(a) where a mineral oil mist or an oil spray or vapor is produced, for example in a kitchen**

Plastic parts may deteriorate and fall off or result in water leakage.

**(b) where corrosive gas, such as sulfurous acid gas, is produced**

Corroding copper pipes or soldered parts may result in refrigerant leakage.

**(c) where flammable gases may leak, where there are carbon fiber or ignitable dust suspensions in the air, or where volatile flammables such as thinner or gasoline are handled.**

Operating the unit in such conditions may result in fire.



**Locate the indoor and outdoor units, power supply wiring and connecting wires at least 1 meter away from televisions or radios in order to prevent image interference or noise.**

Depending on the radio waves, a distance of 1 meter may not be sufficient enough to eliminate the noise.



## IMPORTANT REMINDER

- Remote controller (wireless kit) transmitting distance can result shorter than expected in rooms with electronic fluorescent lamps. (inverter or rapid start types)  
Install the indoor unit as far away from fluorescent lamps as possible.
- Electromagnetic waves may disturb the operation of the control system and result in a malfunction of the unit. Do not install the unit near machinery emitting electromagnetic waves.
- Do not place objects that are susceptible to moisture directly beneath the indoor or outdoor units. Under certain conditions, condensation on the main unit or refrigerant pipes, air filter dirt or drain blockage may cause dripping, resulting in fouling or failure of the object concerned.
- Be sure not to install the indoor unit into locations where the air contains high levels of salt such as that near the ocean, where the voltage fluctuates greatly such as that in a factories. Also in vehicles and vessels.

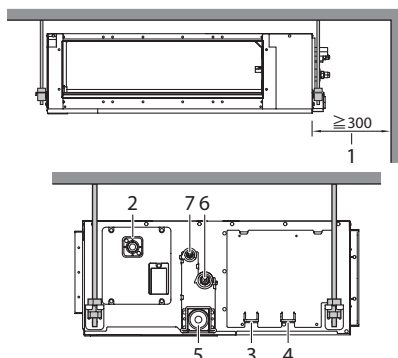
- Do not install accessories on the casing directly. Drilling holes in the casing may damage electrical wires and consequently cause fire.

### NOTE



- When taking the unit out of the packing or moving the unit afterwards, hold the rigged 4 slings not to apply unnecessary force to the unit, especially to the pipings (refrigerant, drain).
- In case of that the temperature and humidity of above ceiling space exceed 30 deg C and RH 80 %, reinforce the insulation (polyethylene form / grass wool etc.) of 10 mm or more in thickness by applying to the unit separately.

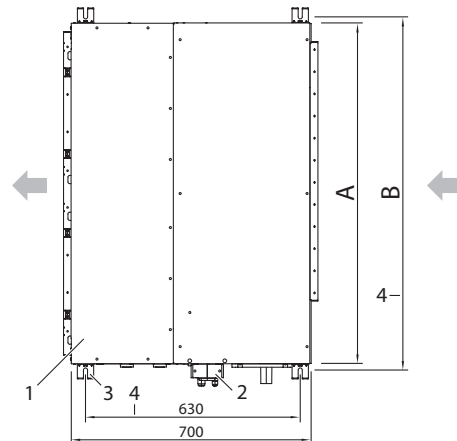
- 1 Select an installation site where the following conditions are fulfilled and that meets your customer's approval.
  - Where optimum air distribution can be ensured.
  - Where nothing blocks air passage.
  - Where condensate water can be properly drained.
  - Where the foundation is strong enough to bear the indoor unit weight.
  - Where the false ceiling is not noticeably on an incline.
  - Where there is no risk of flammable gases leaking.
  - Where sufficient clearance for maintenance and service can be ensured.
  - Where piping between indoor and outdoor units is possible within the allowable limit. Refer to the installation manual of the outdoor unit.
- 2 Ensure that a protective guard is installed on air suction and air outlet side to prevent that the fan blades or heat exchanger be touched.  
The protection must comply with relevant European and national regulations.
- 3 Use suspension bolts for installation. Check whether the ceiling is strong enough to support the weight of the indoor unit. If there is a risk, reinforce the ceiling before installing the unit.



- 1 Service space  $\geq 300$
- 2 Drain pipe
- 3 Power supply wiring port
- 4 Transmission wiring port
- 5 Maintenance drain outlet
- 6 Gas pipe
- 7 Liquid pipe

## PREPARATIONS BEFORE INSTALLATION

- 1 Make sure the relation of ceiling opening to unit and suspension bolt position.



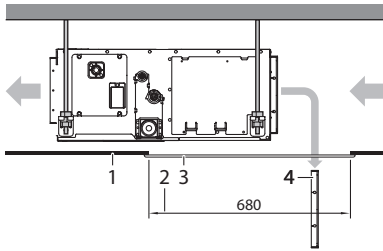
Model	A (mm)	B (mm)
AXSP22 - 36P	550	586
AXSP45, 56P	700	738
AXSP71, 90P	1000	1038
AXSP112, 140P	1400	1438

- 1 Indoor unit
- 2 Pipe
- 3 Suspension bolt pitch (x 4 pcs)
- 4 Suspension bolt pitch distance

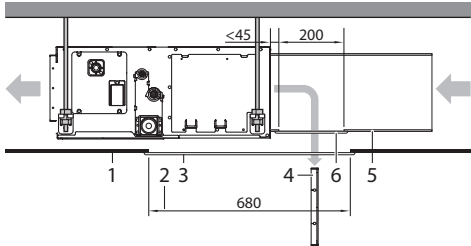
- For installation, following 6 patterns can be selected as a standard. Choose one of the possibilities as listed further. For other installation than standard installation, contact your AISIN dealer for details.

- 1 Ceiling surface
- 2 Ceiling opening
- 3 Service access panel (optional accessory)
- 4 Air filter
- 5 Air inlet duct (field supply)
- 6 Duct service opening
- 7 Interchangeable plate
- 8 Air inlet panel (optional accessory)
- 9 Indoor unit (back side)
- 10 Canvas Connection for air inlet panel (optional accessory)
- 11 Air filter holding plate with air filter(s)

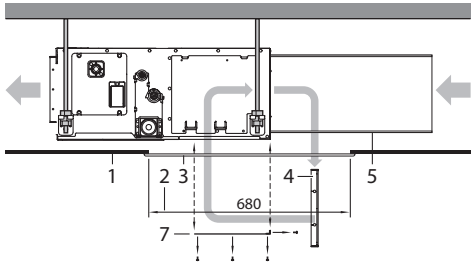
### Standard rear suction



### Installation with rear duct and duct service opening



### Installation with rear duct, no duct service opening

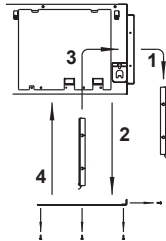


**NOTE**



In case of installation with duct, but no duct service opening, modify the position of the air filters before installation of the unit.

- 1 Remove the air filter(s) at the outside of the unit
- 2 Remove the interchangeable plate
- 3 Install the air filter(s) from the inside of the unit
- 4 Reinstall the interchangeable plate

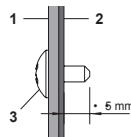


**NOTE**

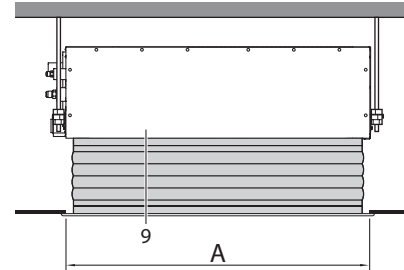
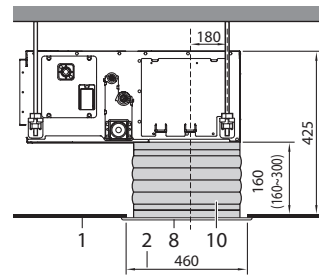


When installing an air inlet duct, select fixing screws that shall stick out maximum 5 mm at the inside of the flange. This is to protect the air filter from damage during maintenance of the filter.

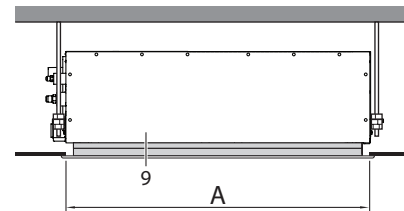
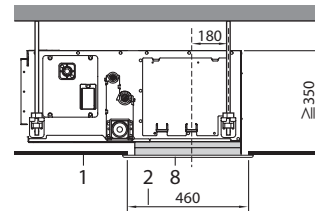
- 1 Air inlet duct
- 2 Inside of the flange
- 3 Fixing screw



### Mounting the air inlet panel with a canvas connection

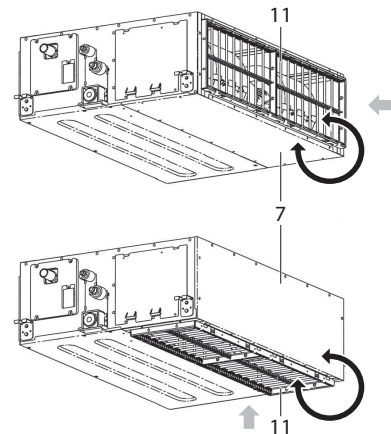


### Mounting the air inlet panel directly



Model	A (mm)
AXSP22 - 36P	610
AXSP45, 56P	760
AXSP71, 90P	1060
AXSP112, 140P	1460

### Bottom suction



**NOTE**



The unit can be used with bottom suction by replacing the interchangeable plate by the air filter holding plate.

- 2 The fan speed for this indoor unit is preset to provide standard external static pressure.
- 3 Make the ceiling opening needed for installation where applicable (for existing ceilings.)
  - Create the ceiling opening required for installation. From the side of the opening to the casing outlet, implement the refrigerant and drain piping and wiring for remote controller (unnecessary for wireless type) and indoor-outdoor unit casing outlet. Refer to each piping or wiring section.
  - After making an opening in the ceiling, it may be necessary to reinforce ceiling beams to keep the ceiling level and to prevent it from vibrating. Consult the builder for details.
- 4 Install the suspension bolts.

Use either a W3/8 or M10 size bolt for the suspension bolt. Use anchors for existing ceilings, and a sunken insert, sunken anchors or other field supplied parts for new ceilings to reinforce the ceiling in order to bear the weight of the unit.

#### INSTALLATION EXAMPLE

- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1 Anchor</li> <li>2 Ceiling slab</li> <li>3 Long nut or turn-buckle</li> <li>4 Suspension bolt</li> <li>5 Indoor unit</li> </ol> |  |
|---|--|

**NOTE** All the above parts are field supplied.

## INDOOR UNIT INSTALLATION

### WARNING

- |   |
|---|
| <p><b>Perform installation work in accordance with this installation manual.</b></p> <p>Improper installation may result in water leakage, electric shocks or fire. </p>  |
| <p><b>Be sure to use only the specified accessories and parts for installation work.</b></p> <p>Failure to use the specified parts may result in water leakage, electric shocks, fire or the unit falling. </p> |

### CAUTION

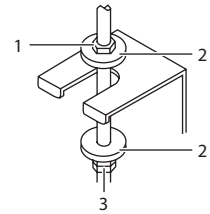
- |   |
|---|
| <p><b>Do not install the unit tilted. The indoor unit is equipped with a built-in drain pump and float switch.</b></p> <p>If the unit is tilted against condensate flow, the float switch may malfunction and cause water to drip. </p> |
|---|

- NOTE**
- When installing optional accessories (except for the decoration panel), read also the installation manual of the optional accessories.
  - Depending on the field conditions, it may be easier to install optional accessories before the indoor unit is installed.

- 1 Install the indoor unit temporarily.
  - Lift the indoor unit's body, and insert the attachment part on the hanger bracket to the suspension bolt. Be sure to fix it

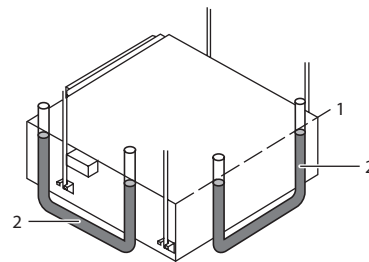
securely by using a nut and washer ③ from the upper and lower sides of the hanger bracket.

- 1 Nut (field supply)
- 2 Washer (supplied with the unit ③)
- 3 Double nut (field supply, tighten)



**NOTE** To ensure they are safely secured, use the supplied washers, and secure them with a double nut.

- 2 Adjust the unit to the right position for installation.
- 3 Adjust the height of the unit.
- 4 Check if the unit is horizontally levelled.
  - Check if the unit is levelled at all four corners with a water level or a water-filled vinyl tube as shown below.



- 1 Water level
- 2 Vinyl tube

- 5 Tighten the upper nut.

## REFRIGERANT PIPING WORK

This equipment use non-flammable refrigerant, R410A exclusively. Be sure to install the unit according to follows:

- Use a pipe cutter and flaring tools suitable for the type of refrigerant.
- Apply compressor oil NL10 around the flare portions before connecting.
- To prevent dust, moisture or other foreign matter from infiltrating the tube, either pinch the end or cover it with tape.

### WARNING

- |   |
|---|
| <p><b>Ask your dealer or qualified personnel to carry out installation work. Do not try to install the machine yourself.</b></p> <p>Improper installation may result in water leakage, electric shocks or fire. All field piping must be provided by a licensed refrigeration technician and must comply with the relevant local and national codes. </p> |
| <p><b>Do not allow anything other than the designated refrigerant to get mixed into the refrigerant circuit, such as air, etc.</b></p> <p>Doing so could cause an explosion or a fire. </p>   |
| <p><b>Never touch the refrigerant leaking from refrigerant piping connection.</b></p> <p>If the refrigerant is put on hands, it may cause a frost bite. </p>  |



**If any refrigerant gas leaks while working on the unit, ventilate the area thoroughly right away.**  
Toxic gas may be produced if the refrigerant gas comes into contact with fire.

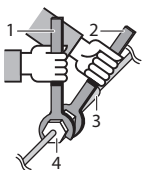
**IMPORTANT REMINDER**

• All field piping must be provided by a licensed refrigeration technician and must comply with the relevant local and national codes.

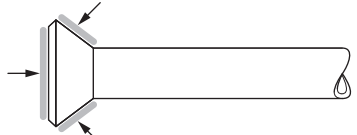
- NOTE**
- For refrigerant piping of outdoor unit, refer to the installation manual attached to the outdoor unit.
  - Execute heat insulation work completely on both sides of the gas piping and the liquid piping to prevent a water leakage. When using a heat pump, the temperature of the gas piping can reach up to approximately 120 deg C, use heat insulation which is sufficiently heat resistant.
  - Reinforce the heat insulation depending on the field conditions. Condensation may form on the surface of the insulating material.
  - Be sure to check the type of R410A refrigerant to be used before installing the unit. Using an incorrect refrigerant will prevent normal operation of the unit.

- The outdoor unit is charged with refrigerant.
- Be sure to use both a spanner and torque wrench together when connecting or disconnecting pipes to/from the unit.

- 1 Torque wrench
- 2 Spanner
- 3 Piping union
- 4 Flare nut



- When connecting the flare nut, coat the flare both with compressor oil NL10 and initially tighten by hand 3 or 4 turns before tightening firmly. Coat here with compressor oil NL10.



**WARNING**

**Tighten the flare with double wrenches and use a torque wrench to check that the tightening torque is proper.**  
If the torque is not proper, a joint broken by over tightening or a joint loose by under tightening could allow refrigerant to leak and cause a shortage of oxygen.

- Refer to Table 1 for the dimensions of flare nut spaces and the appropriate tightening torque. (Overtightening may damage the flare and cause leaks.)

Table 1

Pipe gauge	Tightening torque	Flare dimension A (mm)	Flare shape
Ø6.4 (1/4")	14.2 - 17.2 N·m (144 - 176 kgf·cm)	8.7 - 9.1	
Ø9.5 (3/8")	32.7 - 39.9 N·m (333 - 407 kgf·cm)	12.8 - 13.2	
Ø12.7 (1/2")	49.5 - 60.3 N·m (504 - 616 kgf·cm)	16.2 - 16.6	
Ø15.9 (5/8")	61.8 - 75.4 N·m (630 - 770 kgf·cm)	19.3 - 19.7	

- Use Table 2 as a reference if a torque wrench is not available. As tightening the flare nut with the wrench, there is the position where the torque will suddenly increase. Further tighten the nut to the angle as shown on Table 2 from that position.

Table 2

Pipe size	Further tightening angle (°)	Recommended arm length of tool (mm)
Ø6.4 (1/4")	60 - 90	± 150
Ø9.5 (3/8")	60 - 90	± 200
Ø12.7 (1/2")	30 - 90	± 250
Ø15.9 (5/8")	30 - 90	± 300

**NOTE**  
The flare nut used must be those included with the main body. Failure to do so cause refrigerant to leak.

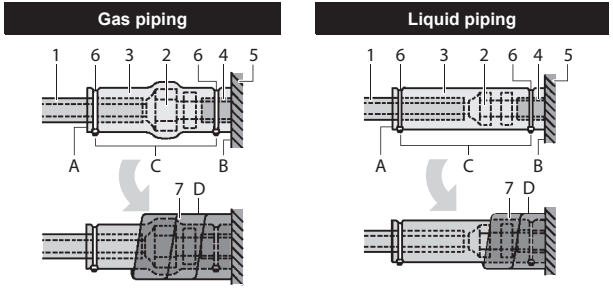
- Check the pipe connector for gas leaks.

**WARNING**

**After completing the installation work, check that the refrigerant gas does not leak.**  
Toxic gas may be produced if the refrigerant gas leaks into the room and comes into contact with a source of fire, such as a fan heater, stove or cooker.

- After checking the pipe-connection for gas leakage, insulate the liquid and gas piping according to the following figure. Be sure to place the joint of insulator upwardly faced on the gas line piping.

**PIPING INSULATION PROCEDURE**



- 1 Piping insulation material (field supply)
- 2 Flare nut connection
- 3 Insulation for fitting of liquid/gas line (supplied with the unit ⑦, ⑧)
- 4 Piping insulation material (main unit side)
- 5 Main unit
- 6 Clamp (field supply)
- 7 Medium sealing pad for gas piping (supplied with the unit ④) / Medium sealing pad for liquid piping (supplied with the unit ⑤)
- A Turn seams up
- B Attach to base
- C Tighten the part other than the piping insulation material / Use 2 clamps per insulation
- D Wrap over from the base of the unit to the top of the flare nut connection

**CAUTION**

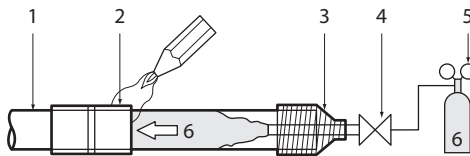
**Be sure to insulate any field piping all the way to the piping connection inside the unit.**  
Any exposed piping may cause condensation or burns if touched.

## Caution for brazing

- Be sure to carry out a nitrogen blow when brazing. Brazing without carrying out nitrogen replacement or releasing nitrogen into the piping will create large quantities of oxidized film on the inside of the pipes, adversely affecting valves and compressors in the refrigerating system and preventing normal operation.
- When brazing the refrigerant piping, only begin brazing after having carried out nitrogen substitution (Note 1) or while flushing the inside of piping with nitrogen gas (Note 2). Once this is done, connect the indoor unit with a flared or a flanged connection.

## IMPORTANT REMINDER

- Do not use flux when brazing refrigerant piping. Therefore, use the phosphor copper brazing filter metal (BCup-2: JIS Z 3264/B-Cu93P-710/795/: ISO 3677) which does not require flux. Flux has extremely harmful influence on refrigerant pipings. For instance, if the chlorine based flux is used, it will cause pipe corrosion or, in particular, if the flux contains fluorine, it will damage the refrigerant oil.
- Do not use any antioxidant sold on the market. It may have an adverse effect on the refrigerant and compressor oil, resulting in equipment breakdown.
- Be sure to prevent spatter generated by welding process from coming in contact with the unit or entering into the unit. It may damage the drain pan and result in equipment breakdown.



- 1 Refrigerant piping
- 2 Part to be brazed
- 3 Taping
- 4 Hands valve
- 5 Pressure reducing valve
- 6 Nitrogen gas

- NOTE**
- Note 1** :Refer to the installation manual attached to the outdoor unit for details about how to carry out nitrogen substitution.
- Note 2** :Nitrogen gas flow should be kept at 0.02 Mpa with a pressure reducing valve when brazing with flushing nitrogen gas.

## DRAIN PIPING WORK

### WARNING

Do not route the drain piping directly into to a location where corrosive gas, such as sulfurous acid gas, could potentially be generated. Corrosive gas could enter the indoor and could cause a gas poisoning or a shortage of oxygen.

### CAUTION

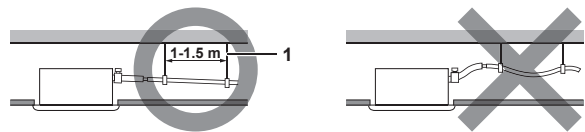
While following the instructions in this installation manual, install drain piping in order to ensure proper drainage and insulate piping in order to prevent condensation. Improper drain piping may result in water leakage and property damage to furniture and belongings.

## IMPORTANT REMINDER

- Do not connect the drain piping directly to sewage pipes that smell of ammonia. The ammonia in the sewage might enter the indoor unit through the drain pipes and corrode the heat exchanger. Keep in mind that it will become the cause of getting drain pipe blocked if water collects on drain pipe.

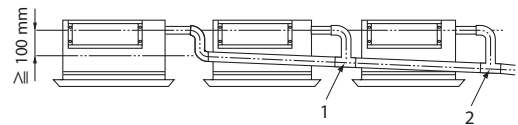
Rig the drain piping as shown in figure and take measures against condensation. Improperly rigged piping could lead to leaks and eventually wet furniture and belongings.

- Install the drain pipes.
  - Keep pipe size equal to or greater than that of the connecting pipe (vinyl pipe of 25 mm nominal diameter and 32 mm outer diameter).
  - Keep piping as short as possible and slope it downwards of 1:100 so that air may not remain trapped inside the pipe.
  - Install hanging bars every 1 to 1.5 m as shown in figure so that the piping does not bend.



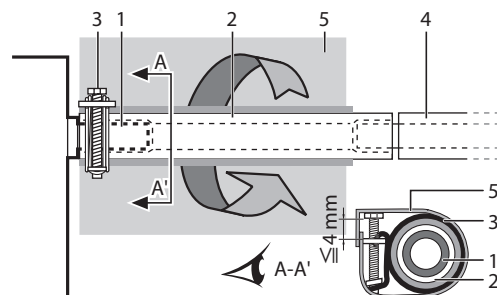
1 Hanging bar

- NOTE**
- If unifying multiple drain pipes, install the pipes as shown in following figure. Select converging drain pipes whose gauge is suitable for the operating capacity of the unit.



- 1 T-joint converging drain pipes
- 2 Slope downwards at a gradient of at least 1:100

- Push the drain hose ② as far as possible over the drain socket.
- Tighten the metal clamp ① until the screw head is less than 4 mm from the metal clamp part as indicated in the illustration.



- 1 Drain socket (attached to the unit)
- 2 Drain hose (supplied with the unit ②)
- 3 Metal clamp (supplied with the unit ①)
- 4 Drain piping (field supply)
- 5 Large sealing pad (supplied with the unit ⑥)

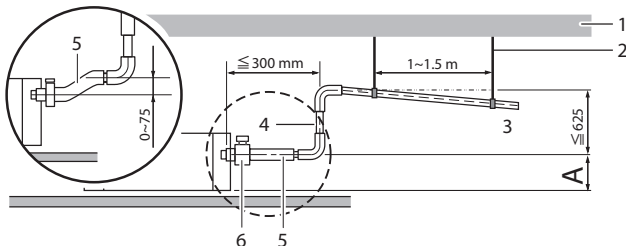
- Wrap the large sealing pad over the metal clamp and drain hose to insulate and fix it with clamps.
- Insulate the complete drain piping inside the building (field supply).

If the drain hose cannot be sufficiently set on a slope, fit the hose with drain raising piping (field supply).

### Precautions

- Install the drain raising pipes at a height of less than 625 mm.
- Install the drain raising pipes at a right angle to the indoor unit and no more than 300 mm from the unit.
- To prevent air bubbles, install the drain hose level or slightly tilted up ( $\leq 75$  mm).

### HOW TO PERFORM PIPING



- 1 Ceiling slab
- 2 Hanging bar
- 3 Adjustable range
- 4 Drain raising pipe (field supply)
- 5 Drain hose (supplied with the unit ②)
- 6 Metal clamp (supplied with the unit ①)

#### NOTE

- Be sure to level or slope upward the drain hose so that air may not remain trapped inside of the drain hose. If air remains trapped, abnormal sound may occur by backflow of drainage when a drain pump stops.
- The incline of attached drain hose should be 75 mm or less so that the drain socket does not have to withstand additional force.
- To ensure a downward slope of 1:100, install hanging bars every 1 to 1.5 m.

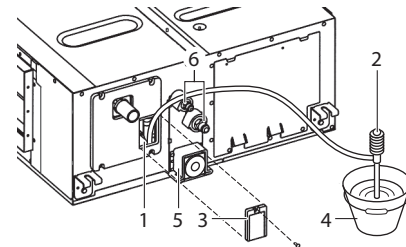
Installation	A
Rear suction installation	231
When canvas duct is installed	350 - 530
When air inlet panel is directly installed	231

- 1 Connect the drain hose ② to the drain raising pipes, and insulate them.
- 2 Connect the drain hose to the drain outlet on the indoor unit, and tighten it with the metal clamp ①.
- 3 Wrap the heat insulation (field supply) over the metal clamp ① and drain hose ② to insulate.

### Testing of drain piping

- After piping work is finished, check if drainage flows smoothly.
  - Make sure that the drain hose is firmly connected.
  - Open the water inlet lid, add approximately 1 liter of water gradually to check the drainage flow.

### METHOD OF ADDING WATER



- 1 Water inlet
- 2 Portable pump
- 3 Water inlet lid
- 4 Bucket (adding water from water inlet)
- 5 Drain outlet for maintenance (with rubber drain plug)
- 6 Refrigerant pipes






If adding water from the charge inlet at the fan casing, be sure to put the lid back in its original position.

First perform electric wiring work as instructed in "Electric wiring work" on page 11 and how to set the remote controller as explained in "Wiring example and how to set the remote controller" on page 12.

### When electric wiring work is finished

Check drainage flow during the cooling operation, explained in "Test operation" on page 16.

### When electric wiring work is not finished

1. Remove the switch box cover and connect the single-phase power supply and the remote controller to the terminals. (Refer to "Electric wiring work" on page 11 for switch box attachment/detachment and wiring work.)
2. Next, press the inspection/test operation button  on the remote controller. The unit will engage the test operation mode. Press the operation mode selector button  until selecting fan operation . Then, press the on/off button . The indoor unit fan and drain pump will start up. Check that the water has drained from the unit. Note that the fan also starts rotating. Press  to go back to the first mode.

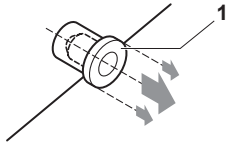
### WARNING

**Do not touch the drain pump during the drainage flow testing.**  
Failure to do so may result in electric shocks.

**NOTE** Be sure not to remove the drain pipe plug. Water might leak out.

The drain outlet is only used to discharge water if the drain pump is not used or before maintenance. Gently put in and out the drain plug. Excessive force may deform the drain socket of the drain pan.

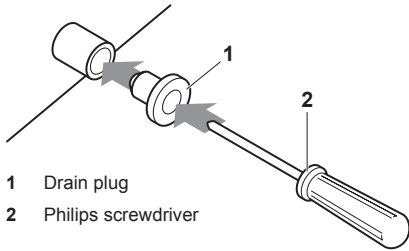
- Pulling out the plug



1 Drain plug

Do not wiggle the plug up and down

- Pushing in the plug



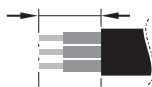
1 Drain plug  
2 Philips screwdriver

Set the plug and push it by using a Philips screwdriver

## ELECTRIC WIRING WORK

### General instructions

- All field supplied parts and materials and electric works must conform to local codes.
- Use copper wire only.
- Follow the "Wiring diagram" attached to the unit body to wire the outdoor unit, indoor units and the remote controller. For details on hooking up the remote controller, refer to the installation manual of the remote controller.
- All wiring must be performed by an authorized electrician.
- A circuit breaker capable of shutting down power supply to the entire system must be installed.
- A main switch or other means for disconnection, having a contact separation in all poles, must be incorporated in the fixed wiring in accordance with relevant local and national legislation. Note that the operation will restart automatically if the main power supply is turned off and then turned back on again.
- This system consists of multiple indoor units. Mark each indoor unit as unit A, unit B..., and be sure the terminal board wiring to each outdoor unit is properly matched. If wiring and piping between the outdoor unit and an indoor unit are mismatched, the system may cause a malfunction.
- Make sure electrical wires are stripped equally.



### WARNING

**Make sure that a separate power supply circuit is provided for this unit and that all electrical work is carried out by qualified personnel according to local laws and regulations and this installation manual.**



An insufficient power supply capacity or improper electrical construction may lead to electric shocks or fire.

**Be sure to install a secure earth connection.**

**Do not earth the unit to the followings:**

- (a) **gas pipes:** might cause explosions or fire if gas leaks.
- (b) **telephone ground wires or lightning rods:** might cause abnormally high electric potential in the ground during lightning storms.
- (c) **plumbing pipes:** no grounding effect if hard vinyl piping is used.



**Be sure to install an earth leakage breaker.**

Failure to do so may result in electric shocks, or fire.



**Never turn on the unit before finishing the installation work.**

Failure to do so could cause electrical shock or damage to the indoor unit.



### Electrical characteristics

Model	Hz	Volts	Voltage range	power supply	
				MCA	MFA
AXSP22P	50/60	220 - 240/220	± 10%	0.4	16 A
AXSP28P				0.4	
AXSP36P				0.4	
AXSP45P				1.2	
AXSP56P				1.2	
AXSP71P				1.1	
AXSP90P				1.3	
AXSP112P				1.6	
AXSP140P				2.1	

MCA: Min. circuit Amps (A)

MFA: Max. Fuse Amps (A)

**NOTE**



For details, contact your AISIN dealer for the electrical data.

### Specifications for field supplied fuses and wire

Model	Power supply wiring		
	Field fuses	Wire	Size
AXSP22 - 140P	16 A	H05VV - U3G	Local codes

Model	Remote controller wiring and Transmission wiring	
	Wire	Size
AXSP22 - 140P	Sheathed wire (2 core)	0.75 - 1.25 mm <sup>2</sup>

**NOTE**



- For details, refer to the chapter "Wiring example" on page 13.

- Allowable length of transmission wiring between indoor and outdoor units, and between the indoor unit and the remote controller is as follows:

- Outdoor unit - indoor unit: max. 1000 m (total wiring length: 2000 m)
- Indoor unit - remote controller: max 500 m

## WIRING EXAMPLE AND HOW TO SET THE REMOTE CONTROLLER

board for unit transmission wiring. After the connection, securely fix wires with plastic clamp.

### ⚠ WARNING

**When clamping the wirings, be sure to clamp wires appropriately not to apply any excessive power to the wire connections.**

Improper clamping could damage the wires and may result in electric shocks, fire or the terminals overheating.

**Make sure that the remote controller wiring, and the transmission wiring between the units, and other electrical wiring do not pass through the same locations outside the unit separating as followings:**

- Outside the unit; at least 50 mm
- Inside the unit; at least 25 mm

Failure to do so could cause an electrical noise (external static) and result in mistaken operation or breakage.

**When wiring the power supply and connecting the remote controller wiring and transmission wiring, position the wires so that the switch box lid can be securely fastened. When attaching the service lid, make sure no wirings get caught in the edges.**

Improper positioning of the switch box lid may result in electric shocks, fire or the terminals overheating.

**Never connect the power supply wiring to the terminal board for transmission wiring.**

This mistake could damage the entire system.

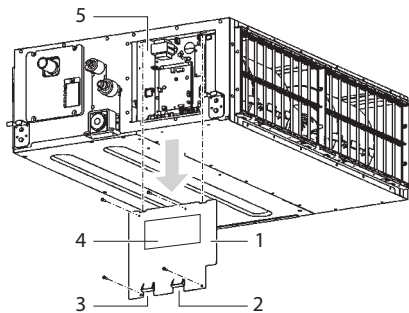
### ⚠ CAUTION

**Locate the indoor and outdoor units, power supply wiring and connecting wires at least 1 meter away from televisions or radios in order to prevent image interference or noise.**

Depending on the radio waves, a distance of 1 meter may not be sufficient enough to eliminate the noise.

### How to connect wiring

Remove the switch box cover and connect the single-phase power supply and the remote controller to the terminals as shown below.



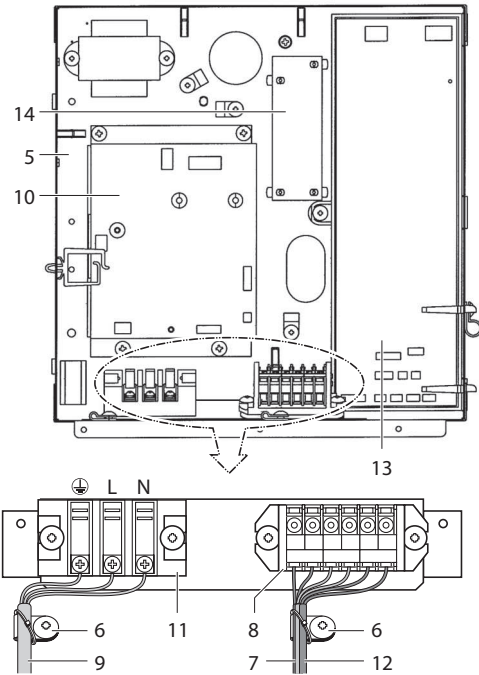
- 1 Switch box cover
- 2 Transmission wiring port
- 3 Power supply wiring port
- 4 Wiring diagram
- 5 Switch box

#### ■ Power supply wiring

Hold the switch box lid and loosen the anchoring screws (x 2 pcs), remove the switch box lid and connect the wires to the power supply terminal board inside. While doing this, pull the wires inside through the power supply wiring port and clamp the wires with the plastic clamp.

#### ■ Unit wiring and remote controller wiring

Hold the switch box lid and loosen the anchoring screws (x 2 pcs), remove the switch box lid and pull the wires inside through the transmission wiring port and connect to the terminal

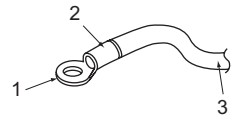


- 6 Plastic clamp (field supply)
- 7 Remote controller wiring
- 8 Terminal board for unit transmission wiring
- 9 Power supply wiring
- 10 Indoor PC board 1
- 11 Power supply terminal board
- 12 Transmission wiring between units
- 13 Indoor PC board 2
- 14 Indoor PC board 3 (only for 71 - 140P units)

### Precautions

- 1 Use round a crimp-style terminal for connecting wires to the power supply terminal board.

- 1 Round-crimp style terminal
- 2 Attach insulation sleeve
- 3 Electric wire



If unavoidable, observe the notes mentioned below when wiring to the power supply terminal board.

- Do not connect wires of different gauge to the same power supply terminal. (Looseness in the connection may cause overheating.)
- When connecting wires of the same gauge, connect them according to the figure.



- 2 Keep total current of crossover wiring between indoor units less than 12 A. Branch the line outside the terminal board of the unit in accordance with electrical equipment standards, when using two power wiring of a gauge greater than 2 mm<sup>2</sup> (Ø1.6).

The branch must be sheathed in order to provide an equal or greater degree of insulation as power supply wiring itself.

- 3 Do not connect wires of different gauge to the same grounding terminal. Looseness in the connection may deteriorate the protection.

- 4 For the remote controller wiring, refer to the installation manual of the remote controller supplied with the remote controller.
- 5 Use only specified wires and tightly connect wires to the terminals. Be careful that wires do not place external stress on the terminals. Keep wiring in neat order so that they do not obstruct other equipment such as popping open the switch box cover. Make sure the cover closes tight. Incomplete connections could result in overheating, and in the worse case, electric shock or fire.
- 6 Use the correct driver for tightening the terminal screws. If the blade is too small, the head of the screw will not be properly tightened. Refer to the table below for the tightening torque of the terminal screws.

Terminal	Tightening torque (N·m)
Remote controller, Transmission wiring and forced off terminal block (6P)	0.79 - 0.97
Power supply terminal block (2P)	1.18 - 1.44
Ground terminal	1.44 - 1.94

- 7 After all wiring connections are done, fill in any gaps in the casing wiring holes with putty or insulation material (field supply) to prevent small animals or dirt from entering the unit from outside and causing short circuits in the switch box.

## WIRING EXAMPLE

### ⚠ WARNING

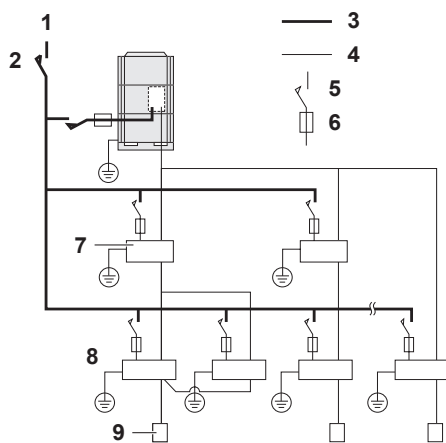
Be sure to install a secure earth connection.

Do not earth the unit to the followings:

- (a) **gas pipes:** might cause explosions or fire if gas leaks.
- (b) **telephone ground wires or lightning rods:** might cause abnormally high electric potential in the ground during lightning storms.
- (c) **plumbing pipes:** no grounding effect if hard vinyl piping is used.



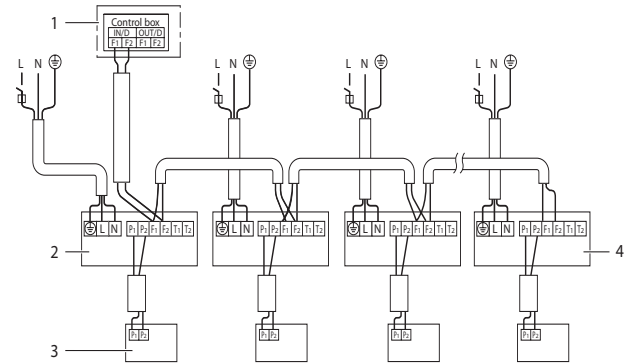
- Fit the power supply wiring of each unit with a switch and fuse as shown below.



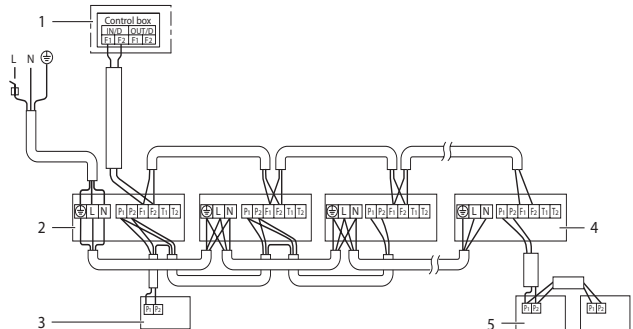
- 1 Power supply
- 2 Main switch
- 3 Power supply wiring
- 4 Transmission wiring
- 5 Switch
- 6 Fuse
- 7 BS unit (only for heat recovery system)
- 8 Indoor unit
- 9 Remote controller

## Complete system example (3 systems)

### 1. When using 1 remote controller for 1 indoor unit. (Normal operation)



### 2. For group control or use with 2 remote controllers

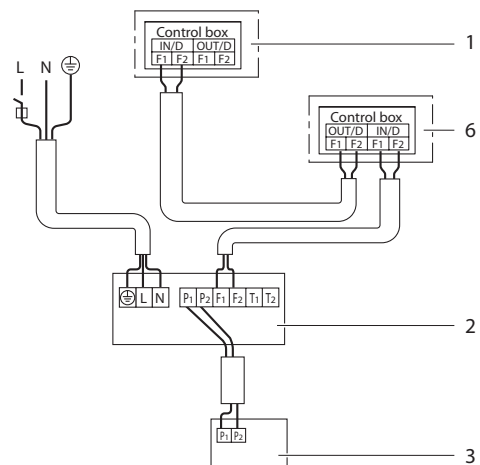


#### NOTE



It is not necessary to designate indoor unit address when using group control. The address is automatically set when the power is activated.

### 3. When including BS unit



- 1 Outdoor unit
- 2 Indoor unit
- 3 Remote controller (optional accessories)
- 4 Most downstream indoor unit
- 5 For use with 2 remote controllers
- 6 BS unit (only for heat recovery system)

**NOTE**

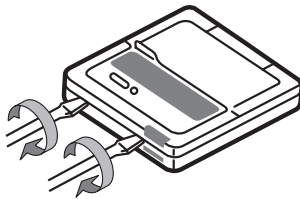
- A single switch can be used to supply power to units on the same system. However, branch switches and branch circuit breakers must be selected carefully.
- For a group control remote controller, choose the remote controller that suits the indoor unit which has the most functions.

**When using 2 Remote Controllers (Controlling 1 indoor unit by 2 remote controllers)**

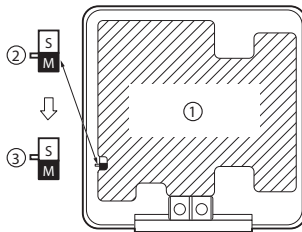
- When using 2 remote controllers, one must be set to "MAIN" and the other to "SUB".

**Main/sub changeover**

1. Insert a wedge-head screwdriver into the recess between the upper and lower part of the remote controller and, working from the 2 positions, pry off the upper part.



- The remote controller PC board is attached to the upper part of the remote controller.
2. Turn the main/sub changeover switch on one of the two remote controller PC boards to "S".



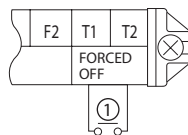
- Leave the switch of the other remote controller set to "M".
- 1 Remote controller PC board
  - 2 Factory setting
  - 3 Only one remote controller needs to be changed if factory settings have remained untouched.

**Computerised control (forced off and on/off operation)**

1. Wire specifications and how to perform wiring
  - Connect input from outside to terminals T1 and T2 of the terminal board (remote controller to transmission wiring).

Wire specification	Sheathed vinyl cord or cable (2 wire)
Gauge	0.75 - 1.25 mm <sup>2</sup>
Length	Max. 100 m
External terminal	Contact that can ensure the minimum applicable load of 15 VDC, 1 mA

1 Input A



2. Actuation

- The following table explains "forced off" and "on/off operations" in response to input A.

Forced off	On/off operation
Input "on" stops operation	input off → on: turns on the unit (impossible by remote controllers)
Input "off" enables control	input on → off: turns off the unit by remote controller

3. How to select forced off and on/off operation
  - To enable forced off and on/off operation, field setting must be preliminary performed. Refer to following "Field setting" on page 14.

**Centralized control**

- For centralized control, it is necessary to designate the group No. For details, refer to the manual of each optional controller for centralized control.

**INSTALLATION OF THE DECORATION PANEL**

When performing a test operation without attaching a panel, refer to "Field setting" on page 14 and "" on page 15 first.

- Refer to the installation manual attached to the decoration panel.  
After installing the decoration panel, ensure that there is no space between the unit body and decoration panel. Otherwise air may leak through the gap and cause dewdrop.

**FIELD SETTING****WARNING**

When performing field settings or test operation without attaching the decoration panel, do not touch the drain pump.

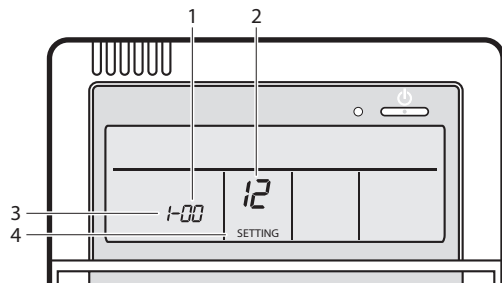
This may cause electric shock.

Field setting must be made on the remote controller in function of the installation condition.

- Make sure that the service lids are closed on the indoor and outdoor units.
- Setting can be made by changing the "Mode number", "First code No." and "Second code No."
- For setting and operation, refer to the "Field settings" in the installation manual of the remote controller

**EXAMPLE:** When setting forced on and on/off operation

- Turn the power on and then use the remote controller to select operation.
- Set the remote controller to the field set mode. For details, refer to the chapter "How to set in the field" in the installation manual attached to the remote controller.
- When in the field setting mode, select mode No.12, then set the first code No. to '1'. Then set second code No. to '01' for forced off and to '02' for on/off operation.



- 1 Second code No.
- 2 Mode No.
- 3 First code No.
- 4 Field set mode

### Summary of field settings

Mode No. (Note 1)	First code No.	Description of setting	Second code No. (Note 2)			
			01	02	03	04
10 (20)	0	Filter contamination - Heavy/Light (Setting of filter sign display interval for cleaning.) (Setting to reduce displaying period to half when filter contamination is high.)	Ultra-long-life filter ±10,000 hrs.	±5,000 hrs.	—	—
		Long-life filter	Light ±2,500 hrs.	Heavy ±1,250 hrs.		
		Standard filter	±200 hrs.	±100 hrs.		
	2	Thermostat sensor selection	Use both the unit sensor (or remote sensor if installed) AND the remote controller sensor. (See note 5+6)	Use unit sensor only (or remote sensor if installed). (See note 5+6)	—	—
	3	Display of air filter cleaning sign (to be set when not setting filter cleaning sign)	Display	Do not display	—	—
	5	Information to I-manager, I-touch controller	Only unit sensor value (or remote sensor value if installed).	Sensor value as set by 10-2-0X or 10-6-0X.	—	—
6	Thermostat sensor in group control	Use unit sensor only (or remote sensor if installed). (See note 6)	Use both the unit sensor (or remote sensor if installed) AND the remote controller sensor. (See note 4+5+6)	—	—	
12 (22)	0	Output signal X1-X2 of the optional KRP1B PCB kit	Thermostat-on + compressor run	—	Operation	Mal-function
	1	ON/OFF input from outside (T1/T2 input) = Setting for when forced ON/OFF is to be operated from outside.	Forced OFF	ON/OFF operation	—	—
	3	Fan setting during thermostat OFF at heating operation	LL	Set speed	OFF (See note 3)	—
	4	Differential automatic changeover	0°C	1°C	2°C	3°C (See note 7)
	5	Auto-restart after power failure	Disabled	Enabled	—	—
15 (25)	3	Drain pump operation + humidifier interlock	Not equipped	Equipped	—	—

**Note 1 :** Setting is carried out in the group mode, however, if the mode number inside parentheses is selected, indoor units can also be set individually.

**Note 2 :** Factory settings of the Second code No. are marked in grey backgrounds.

**Note 3 :** Only use in combination with optional remote sensor or when setting 10-2-03 is used.

**Note 4 :** If group control is selected and remote controller sensor is to be used, then set 10-6-02 & 10-2-03.

**Note 5 :** If setting 10-6-02 + 10-2-01 or 10-2-02 or 10-2-03 are set at the same time, then setting 10-2-01, 10-2-02 or 10-2-03 have priority.

**Note 6 :** If setting 10-6-01 + 10-2-01 or 10-2-02 or 10-2-03 are set at the same time, then setting for group connection, 10-6-01 has priority and for individual connection, 10-2-01, 10-2-02 or 10-2-03 have priority.

**Note 7 :** More settings for "Differential automatic changeover" function temperatures are:

Second code No.	05	4°C
	06	5°C
	07	6°C
	08	7°C

## EXTERNAL STATIC PRESSURE SETTINGS

Settings for external static pressure can be achieved in 2 ways:

### Using the airflow automatic adjustment function

Airflow automatic adjustment is the volume of blow-off air that has been automatically adjusted to the rated quantity.

- 1 Make sure the test run is done with a dry coil.  
If the coil is not dry, run the unit for 2 hours with fan only to dry the coil.
- 2 Check if the power supply wiring to the air conditioning unit is completed along with the duct installation.  
If a closing damper is installed in the air conditioning unit, make sure that it is open.  
Also check if the air filter is properly attached into the air passage on the air suction side of the air conditioning unit.
- 3 If there is more than one air inlet and outlet, adjust the dampers so that the airflow rate of each air inlet and outlet is conform with the designed airflow rate.

Make sure the air conditioning unit is in fan operation mode. Press and set the airflow adjustment button on the remote controller to change the airflow rate to H or L.

- 4 Setting the airflow automatic adjustment settings.

When the air conditioning unit is running in fan operation mode perform the next steps:

- stop the air conditioning unit,
- go to field setting mode,
- select mode No. 21 (or 11 in case of group setting),
- set the first code No. to "7",
- set the second code No. to "03".

Return to normal operating mode after setting these settings and press the ON/OFF operation button. The operation lamp will light up and the air conditioning unit will start the fan operation for airflow automatic adjustment.

**NOTE** Do not adjust the dampers during fan operation for airflow automatic adjustment.

After 1 to 8 minutes, the air conditioning unit stops operating automatically when the fan operation for airflow automatic adjustment has been carried out, the operation lamp will be off.

Mode No.	First code No.	Second code No.	Setting content
11 (21)	7	01	Airflow adjustment is OFF
		02	Completion of airflow adjustment
		03	Start of airflow adjustment

- 5 When the air conditioning unit has stopped, check on an indoor unit if the second code No. of mode No. 21 is set to "02".

If the air conditioning unit does not stop operating or the second code No. is not "02", repeat step 4.

If the outdoor unit is not turned on, the display on the remote controller will show "U4" or "UH" (refer to "Test operation" on page 16). However, you can continue setting this function because these messages are only applicable to outdoor units.

After setting this function, be sure to turn on the outdoor unit before performing the test operation on the outdoor unit.

If any other error display occurs on the display of the remote controller, refer to "Test operation" on page 16 and the operation manual of the outdoor unit. Check the defective point.





## WIRING DIAGRAM

	: FIELD WIRING
	: TERMINAL
	: CONNECTOR
	: WIRE CLAMP
	: PROTECTIVE EARTH (SCREW)

BLK	: BLACK
BLU	: BLUE
ORG	: ORANGE
PNK	: PINK
RED	: RED
WHT	: WHITE
YLW	: YELLOW

33H	.....	FLOAT SWITCH
A1P	.....	PRINTED CIRCUIT BOARD
A2P	.....	TERMINAL BOARD
C1R	.....	CAPACITOR (FAN)
F1U	.....	FUSE (250 V/10 A)
F2U	.....	FIELD FUSE
HAP	.....	LIGHT EMITTING DIODE (SERVICE MONITOR - GREEN)
M1F	.....	MOTOR (FAN)
M1P	.....	MOTOR (DRAIN PUMP)
Q2E	.....	EARTH LEAK DETECTOR
R1T	.....	THERMISTOR (AIR)
R2T,R3T	.....	THERMISTOR (REFRIGERANT)
RyF1-3	.....	MAGNETIC RELAY (FAN)
RyP	.....	MAGNETIC RELAY (DRAIN PUMP)
X1M	.....	TERMINAL STRIP (POWER)
X2M	.....	TERMINAL STRIP (CONTROL)
T1R	.....	TRANSFORMER (220-240 V/22 V)
Y1E	.....	ELECTRONIC EXPANSION CIRCUIT

### OPTIONAL PARTS

F3-5U	.....	FUSE (250 V/16 A)
J1EH	.....	ELECTRIC HEATER
K1R	.....	MAGNETIC RELAY (J1EH)

### ADAPTOR FOR WIRING

RyC,RyF	.....	MAGNETIC RELAY
RyH	.....	MAGNETIC RELAY (J1EH)
F1U,F2U	.....	FUSE (250 V/5 A)
X1A,X2A	.....	CONNECTOR (WIRING ADAPTOR)
X1M	.....	TERMINAL STRIP

### CONNECTOR FOR OPTIONAL PARTS

X16A	.....	CONNECTOR (WIRING ADAPTOR)
X18A	.....	CONNECTOR (WIRING ADAPTOR FOR ELECTRICAL APPENDICES)

RECEIVER/DISPLAY UNIT	:
WIRED REMOTE CONTROLLER	:
SWITCH BOX	:
TRANSMISSION WIRING	:
INPUT FROM OUTSIDE	:
CENTRAL REMOTE CONTROLLER	:

#### NOTE



1. WHEN USING THE CENTRAL REMOTE CONTROLLER, SEE MANUAL FOR CONNECTION TO THE UNIT.
2. X23A IS CONNECTED WHEN THE CENTRAL REMOTE CONTROLLER IS USED.
3. WHEN CONNECTING THE INPUT WIRES FROM OUTSIDE, FORCED OFF OR ON/OFF CONTROL OPERATION CAN BE SELECTED BY THE REMOTE CONTROLLER. SEE INSTALLATION MANUAL FOR MORE DETAILS.

**Ceiling-mounted Medium ESP Duct Type AXSP (22, 28, 36, 45, 56, 71, 90, 112, 140) P7 W**

- THOROUGHLY READ THESE INSTRUCTIONS BEFORE AND FOLLOW ALL PROCEDURES DESCRIBED WITHIN.
- KEEP THIS MANUAL IN A HANDY PLACE ALONG WITH THE OPERATION MANUAL

**⚠ ONLY A QUALIFIED SERVICE PERSON IS ALLOWED TO PERFORM MAINTENANCE.**

BEFORE OBTAINING ACCESS TO TERMINAL DEVICES, ALL POWER SUPPLY CIRCUITS MUST BE INTERRUPTED.

FOR INSTALLATION OF OPTICAL PARTS, ONLY A QUALIFIED PERSON IS ALLOWED TO DO SO TO PREVENT ANY OF WATER LEAKAGE, ELECTRICAL SHOCK OR FIRE.

**SAFETY PRECAUTION**

The types of injuries and damages that can occur if this units are improperly installed are divided into and covered under the “ ⚠ Warning ” and “ ⚠ Caution ” graphics and other symbols. Follow these instructions carefully.

Meaning of warning, caution and other symbols.

<b>⚠ WARNING</b>	Failure to observe a warning may result in death or serious injury.
<b>⚠ CAUTION</b>	Failure to observe a caution may result in injury or damage to the equipment.
<b>⊘</b>	Indicates a prohibited action.
<b>⚠</b>	Indicates a necessary action.
<b>⚡</b>	Indicates a necessity to install a secure earth connection.

**MAINTENANCE**

**⚠ WARNING**

**Be sure to stop operation and turn the power switch off before cleaning the air conditioner.** **⚠**  
Failure do so could result in an electrical shock or injury. To prevent an injury, make sure that the fan has stopped before working on the indoor unit.

**Do not wash the indoor unit with water or a detergent spray.** **⊘**  
Doing so could cause an electrical shock or a fire.

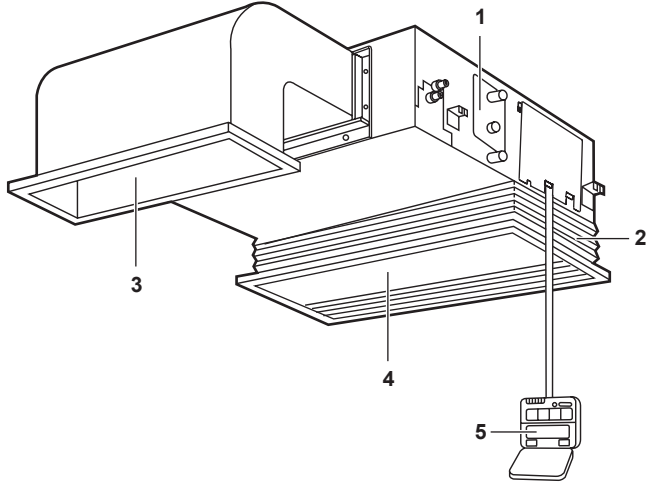
**Be sure to stop operation and turn the power switch off before cleaning the air conditioner.** **⚠**  
Failure do so could result in an electrical shock or injury. To prevent an injury, make sure that the fan has stopped before working on the indoor unit.

**Do not wash the indoor unit with water or a detergent spray.** **⊘**  
Doing so could cause an electrical shock or a fire.

**⚠ CAUTION**

**Do not place anything other than the designated air filter to the air inlet.** **⊘**  
Failure to do so could lower the indoor unit performance and cause damage to household property from the leakage.

**Use a stable tool when cleaning the indoor unit.** **⚠**  
Since it is high-place work, use extra cautions for the place standing at.



- 1 Drain pumping device (built-in) drain water is removed from the room during cooling.
- 2 Air filter (inside suction grill)
- 3 Air outlet
- 4 Decoration panel (optional), this is where the room air is drawn in.
- 5 Remote controller

**How to clean the air filter**

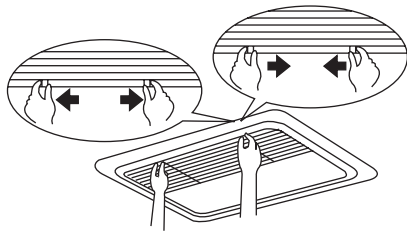
**👉 IMPORTANT REMINDER**

• Do not remove the air filter except when cleaning. Unnecessary handling may damage the filter.

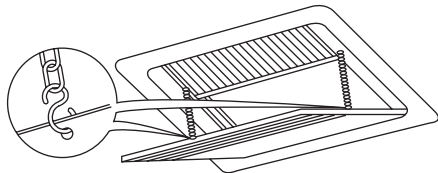
Clean the air filter when the display shows " " (TIME TO CLEAN AIR FILTER).

- Increase the frequency of cleaning if the unit is installed in a room where the air is extremely contaminated.
- (As a yardstick for yourself, consider cleaning the filter once a half year.)
- If the dirt becomes impossible to clean, change the air filter. (Air filter for exchange is optional.)
1. Open the suction grille. (Only for bottom suction.)  
Slide both knobs simultaneously as shown and then pull them downward.

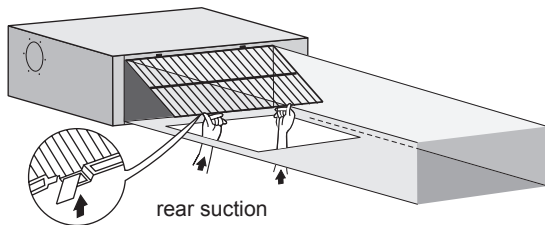
**NOTE** Do not let go of the suction grille when opening or closing it. If released, the grille will spring back closed.



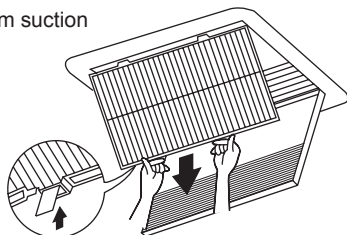
If chains are present, unhook the chains.



- Remove the air filters.  
Remove the air filters by pulling their cloth upward (rear suction) or backward (bottom suction).

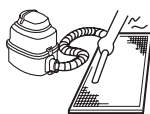


bottom suction



- Clean the air filter.  
Remove dust from the air filter using vacuum cleaner (A) and gently rinse them in cool water (B). Do not use detergent or hot water to avoid filter shrinking or deformation.

(A) Using a vacuum cleaner



(B) Washing with water

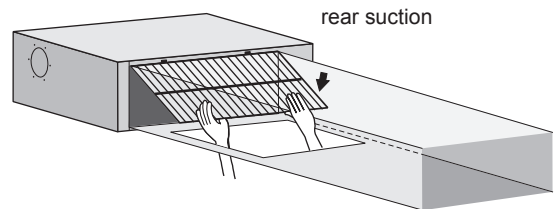


When the air filter is very dirty, use soft brush and neutral detergent.  
After cleaning, remove water and dry them in the shade.

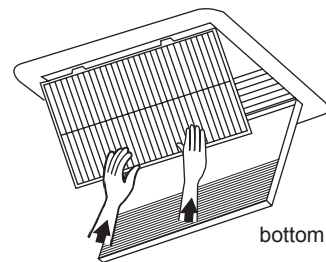
**NOTE**

- Do not wash it with hot water of more than 50°C, as doing so may result in discoloration and/or deformation.
- Do not expose it to fire, as doing so may result in burning.

- Fix a air filter.



rear suction



bottom suction

- Align the two hanger brackets and push the two clips in their place (pull the cloth if necessary).
- Confirm that four hangers are fixed.

**NOTE** Once cleaning is done be sure to replace the air filter as it was.

- Close the air inlet grille by performing step 1 in reverse order. (Only for bottom suction.)
- After turning on the power, press FILTER SIGN RESET button. The "TIME TO CLEAN AIR FILTER" display disappears. (For details, refer to the operation manual of the outdoor unit.)

### How to clean air outlet and outside panels

- Clean with soft cloth.
- When it is difficult to remove stains, use water of neutral detergent.

**NOTE**

- Do not use gasoline, benzene, thinner, polishing powder nor liquid insecticide. It may cause discolouring or warping.
- Do not let the indoor unit get wet. It may cause electric shock or fire.
- Clean the air suction grille when it is closed.

### Start up after a long stop

- Confirm the following:
  - Check that the air inlet and outlet are not blocked. Remove any obstacle.
  - Check if the earth is connected.
- Clean the air filter and outside panels.
  - After cleaning the air filter, make sure to attach it.
- Turn on the main power supply switch.
  - The control panel display lights when the power is turned on.
  - To protect the unit, turn on the main power switch at least 6 hours before operation.

### What to do when stopping the system for a long period

- Turn on FAN OPERATION for half a day and dry the unit.
  - Refer to the operation manual of the outdoor unit.
- Cut off the power supply.
  - When the main power switch is turned on, some wattage is being consumed even if the system is not operating.

- The remote controller display is turned off when the main power switch is turned off.

## NOTES

### DISPOSAL REQUIREMENTS

Dismantling of the unit, treatment of the refrigerant, of oil and of other parts must be done in accordance with relevant local and national legislation.

A large grid area for taking notes, consisting of 20 columns and 30 rows of small squares.

## EC Declaration of Conformity

### Dichiarazione di Conformità CE



**WE:** TECNOCASA S.p.A.  
**La:** VIA MANZONI 17  
60025 Loreto (AN)  
ITALY

**Declare under its own responsibility that the units:**

Dichiara sotto la sua Responsabilità che le Unità interne:

**Type:**

Tipo:

AXJP22A2D	AXJP28A2D	AXJP36A2D	AXJP45A2D	AXJP56A2D	
AXFP22AVD	AXFP28AVD	AXFP36AVD	AXFP45AVD	AXFP56AVD	AXFP90AVD
AXFP112 AVD	AXFP140AVD				
AXMP45P7D	AXMP56P7D	AXMP71P7D	AXMP90P7D	AXMP112P7D	AXMP140P7D
AXMP224P7D	AXMP280P7D				
AXAP22PAD	AXAP28PAD	AXAP36PAD	AXAP45PAD	AXAP56PAD	AXAP71PAD
AXLP22P2D	AXLP28P2D	AXLP36P2D	AXLP45P2D	AXLP56P2D	AXLP71P2D
AXCP22AVD	AXCP28AVD	AXCP36AVD	AXCP45AVD	AXCP56AVD	AXCP71AVD
AXCP90AVD	AXCP112AVD	AXCP140AVD			
AXSP22P7D	AXSP28P7D	AXSP36P7D	AXSP45P7D	AXSP56P7D	AXSP71P7D
AXSP90P7D	AXSP112P7D	AXSP140P7D			
AXHP36AVD	AXHP71AVD	AXHP112AVD			
AXDP22P7D	AXDP28P7D				

**Brand:** AISIN SEIKI CO.LTD

Marca:

**Serial number:** See the number on the unit label

N° di serie: vedere il numero sulla targa dati

**Year of production:** See the year on the unit label

Anno di produzione: vedere il numero sulla targa dati

**Comply with following Directives of the council of the European Community:**

**E' conforme alle seguenti Direttive della Comunità Europea:**

- 1) Directive 98/37/CE and subsequent modification, relating to machinery  
Direttiva 98/37/CE e successive modifiche, relativa alle Macchine
- 2) Directive 2006/95/CE and subsequent modification, relating to low voltage LVD  
Direttiva 2006/95/CE e successive modifiche, relativa alla Bassa Tensione LVD
- 3) Directive 2004/108/CE and subsequent modification, relating to electromagnetic compatibility EMC  
Direttiva 2004/108/CE e successive modifiche, relative alla compatibilità elettromagnetica EMC

Date: Loreto 01 Aprile 2014

Name:

TECNOCASA S.p.A.

Position:

Mr.Mogliani Graziano

Signature:

*Legal Representative*

TECNOCASA S.p.A.

Via Manzoni, 17  
60025 LORETO - AN  
Tel. 071 977805 - Fax 071 976481  
Part. IVA 01057530424



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**AISIN**  
*Geared up for the future*



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