

# Installation and Operation Manual



F R I E D R I C H



## Models

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Indoor Unit	FSHSW09A1A	FSHSW12A1A
	FSHSW18A3A	FSHSW24A3A

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This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

If it needs to install, move or maintain the air conditioner, please contact dealer or local service center to conduct it at first. Air conditioner must be installed, moved or maintained by appointed unit. Otherwise, it may cause serious damage or personal injury or death.

## Explanation of Symbols



**DANGER**

Indicates a hazardous situation that, if not avoided, will result in death or serious injury.



**WARNING**

Indicates a hazardous situation that, if not avoided, could result in death or serious injury.



**CAUTION**

Indicates a hazardous situation that, if not avoided, may result in minor or moderate injury.

**NOTICE**

Indicates important but not hazard-related information, used to indicate risk of property damage.



Indicates a hazard that would be assigned a signal word **WARNING** or **CAUTION**.

## Exception Clauses

Manufacturer will bear no responsibilities when personal injury or property loss is caused by the following reasons.

1. Damage to product due to improper use or misuse of the product.
2. Alter, change, maintain or use the product with other equipment without abiding by the instruction manual of manufacturer.
3. After verification, the defect of product is directly caused by corrosive gas.
4. After verification, defects are due to improper operation during transportation of product.
5. Operate, repair, maintain the unit without abiding by instruction manual or related regulations.
6. After verification, the problem or dispute is caused by the quality specification or performance of parts and components that produced by other manufacturers.
7. The damage is caused by natural disasters, improper installation environment or force majeure.



### WARNING

#### **Operation and Maintenance**

- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.
- Children shall not play with the appliance.
- Cleaning and user maintenance shall not be made by children without supervision.
- Do not connect air conditioner to multi-purpose socket. Otherwise, it may cause fire hazard.
- Do disconnect power supply when cleaning air conditioner. Otherwise, it may cause electric shock.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- Do not spray water on indoor unit. It may cause electric shock or malfunction.
- After removing the filter, do not touch fins.
- Do not use fire or hair dryer to dry the filter to avoid deformation or fire hazard.

## Precautions



### WARNING

- Maintenance must be performed by qualified professionals. Otherwise, it may cause personal injury or damage.
- Do not repair air conditioner by yourself. It may cause electric shock or damage. Please contact dealer when you need to repair air conditioner.
- Do not extend fingers or objects into air inlet or air outlet. It may cause personal injury or damage.
- Do not block air outlet or air inlet. It may cause malfunction.
- Do not spill water on the remote controller, otherwise the remote controller may be broken.
- When below phenomenon occurs, please turn off air conditioner and disconnect power immediately, and then contact the dealer or qualified professionals for service.
  - Power cord is overheating or damaged.
  - There's abnormal sound during operation.
  - Circuit break trips off frequently.
  - Air conditioner gives off burning smell.
  - Indoor unit is leaking.
- If the air conditioner operates under abnormal conditions, it may cause malfunction, electric shock or fire hazard.
- When turning on or turning off the unit by emergency operation switch, please press this switch with an insulating object other than metal.
- Do not step on top panel of outdoor unit, or put heavy objects. It may cause damage or personal injury.



### WARNING

#### Attachment

- Installation must be performed by qualified professionals. Otherwise, it may cause personal injury or damage.
- Must follow the electric safety regulations when installing the unit.
- According to the local safety regulations, use qualified power supply circuit and circuit break.
- Do install the circuit break. If not, it may cause malfunction.
- An all-pole disconnection switch having a contact separation of at least 3mm in all poles should be connected in fixed wiring.
- Including an circuit break with suitable capacity, please note the following table. Air switch should be included magnet buckle and heating buckle function, it can protect the circuit-short and overload.
- Air Conditioner should be properly grounded. Incorrect grounding may cause electric shock.
- Don't use unqualified power cord.
- Make sure the power supply matches with the requirement of air conditioner. Unstable power supply or incorrect wiring may result in electric shock, fire hazard or malfunction. Please install proper power supply cables before using the air conditioner.
- Properly connect the live wire, neutral wire and grounding wire of power socket.
- Be sure to cut off the power supply before proceeding any work related to electricity and safety.

## Precautions



### WARNING

- Do not power before finishing installation.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.
- The appliance shall be installed in accordance with national wiring regulations.
- Installation must be performed in accordance with the requirement of NEC and CEC by authorized personnel only.
- Air conditioner must be properly grounding with specialized grounding device by a professional. Please make sure it is always grounded effectively, otherwise it may cause electric shock.
- The yellow-green wire in air conditioner is grounding wire, which can't be used for other purposes.
- The grounding resistance should comply with national electric safety regulations.
- All wires of indoor unit and outdoor unit should be connected by a professional.

## Precautions



### WARNING

- Caution: This equipment is not intended for use during construction. The use of equipment during construction could result in premature failure of the components and /or system and is in violation of our standard warranty guidelines and may result in the suspension or termination of the warranty.
- Ensure that proper N.E.C. code is followed.
- If you need to relocate the air conditioner to another place, only the qualified person can perform the work. Otherwise, it may cause personal injury or damage.
- Select a location which is out of reach for children and far away from animals or plants. If it is unavoidable, please add the fence for safety purpose.
- The indoor unit should be installed close to the wall.
- Instructions for installation and use of this product are provided by the manufacturer.



### FCC WARNING

WARNING: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.



### FCC STATEMENT

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions :



### FCC STATEMENT

(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## Precautions



### IC STATEMENT

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This equipment complies with FCC's and IC's RF radiation exposure limits set forth for an uncontrolled environment. The antenna(s) used for this transmitter must be installed and operated to provide a separation distance of at least 20 cm from all persons and must not be collocated or operating in conjunction with any other antenna or transmitter. Installers must ensure that 20cm separation distance will be maintained between the device (excluding its handset) and users.

Cet appareil est conforme aux limites d'exposition au rayonnement RF stipulées par la FCC et l'IC pour une utilisation dans un environnement non contrôlé. Les

## Precautions



### IC STATEMENT

antennes utilisées pour cet émetteur doivent être installées et doivent fonctionner à au moins 20 cm de distance des utilisateurs et ne doivent pas être placées près d'autres antennes ou émetteurs ou fonctionner avec ceux-ci. Les installateurs doivent s'assurer qu'une distance de 20 cm sépare l'appareil (à l'exception du combiné) des utilisateurs.

### Working temperature range

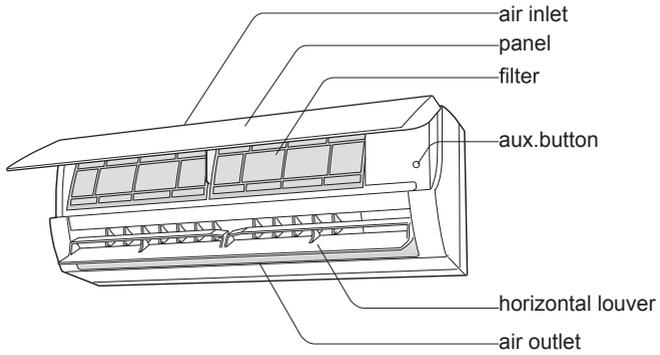
	Indoor side DB/WB(°F/°C)	Outdoor side DB/WB(°F/°C)
Maximum cooling	80/66.9(26.7/19.4)	115/75(46.1/23.9)
Maximum heating	80/-(26.7/-)	75/64.9(23.9/18.3)

### **NOTICE:**

- The operating temperature range (outdoor temperature) for cooling only unit is -0.4°F(-18°C)~115°F(46.1°C); for heat pump unit is -0.4°F(-20°C)~115°F(46.1°C).

# Parts Name

## Indoor Unit



remote controller

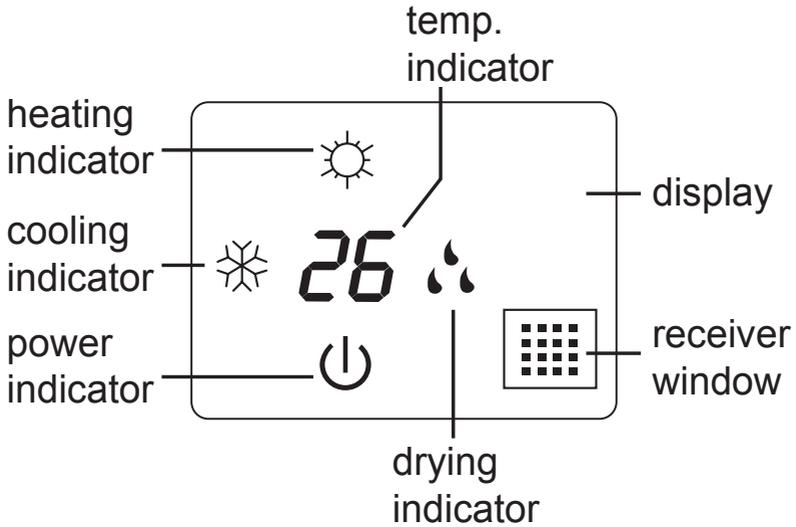
(Display content or position may be different from above graphics, please refer to actual products)

### **NOTICE:**

Actual product may be different from above graphics, please refer to actual products.

# Parts name

## Display



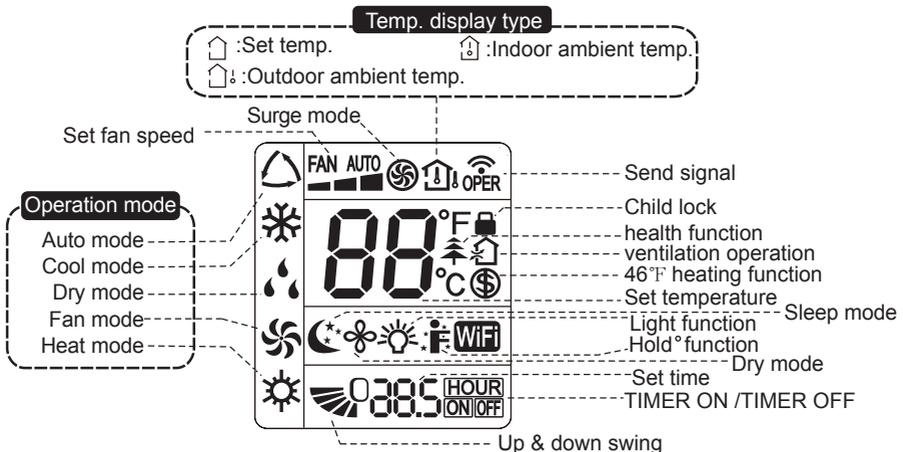
Display content or position may be different from above graphics, please refer to actual products.

# Buttons on remote controller



- 1 On/Off button
- 2 Mode button
- 3 Fan button
- 4 ▲/ ▼ button
- 5 Swing button
- 6 Sleep button
- 7 Temp button
- 8 Surge button
- 9 Hold° button
- 10 Timer button
- 11 Dry button
- 12 Light button

# Introduction for buttons on remote controller



**NOTICE:** "WiFi" This is a general remote controller. Some models have this function while some do not. Please refer to the actual models.

# Introduction for buttons on remote controller

## Note:

- Once power is supplied to unit, unit will chime. Operation indicator "⏻" is ON (red indicator, the colour is different for different models). After that, you can operate the air conditioner by using remote controller.
- In operation mode, button presses on the remote will cause the "📶" to blink. This means that the remote is sending signals to the unit. The air conditioner responds to button presses with a chiming sound.
- In stand-by mode, set temperature and clock icon will be displayed on the display of remote controller (If timer on, timer off and light functions are set, the corresponding icons will be displayed on the display of remote controller at the same time); Under on status, the display will show the corresponding set function icons.

## 1 On/Off button

Press this button to turn on the unit. Press this button again to turn off the unit.

## 2 Mode button

Each time you press this button, a mode is selected in a sequence that goes from AUTO, COOL, DRY, FAN, and HEAT, as the following:

AUTO ► COOL ► DRY ► FAN ► HEAT\*



## 3 Fan button

This button is used for setting Fan Speed in the sequence that goes from AUTO, , to , then back to Auto.

Note:

- In DRY mode fan speed is set only to low speed, for maximum dehumidification.

## 4 ▲ / ▼ button

Press ▲ / ▼ button to increase/decrease set temperature. In AUTO mode, set temperature is not adjustable. When setting Timer On or Timer Off, press "▲" or "▼" button to adjust the time.

# Introduction for buttons on remote controller

## 5 Swing button

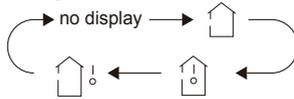
Press this button to set up & down swing angle.

## 6 Sleep button

Under Cool or Heat mode, press this button to turn on Sleep function. Press this button again to cancel Sleep function. Under Fan、Dry and Auto modes, this function is unavailable.

## 7 Temp button

Press this button, you can see indoor set temperature, indoor ambient temperature on indoor unit's display. The setting on remote controller is selected circularly as below:



### Note:

- Outdoor temperature display is not available for some models. At that time, indoor unit receives "🏠!" signal, while it displays indoor set temperature.

## 8 Surge button

Under COOL or HEAT mode, press this button to activate / deactivate the Surge function.

Note: Not applicable for this unit.

## 9 Hold ° button

Press this button to start Hold ° function and "🏠" will be displayed on the remote controller. After this function is set, the remote controller will send the detected ambient temperature to the controller and the unit will automatically adjust the indoor temperature according to the detected temperature. Press this button again to close Hold ° function and "🏠" will disappear. When Hold ° function is turned on, the remote controller should be put within the area where indoor unit can receive the signal sent by the remote controller.

## 10 Timer button

- Under ON status, press this button to set timer OFF; Under OFF status, press this button to set timer ON.
- Press this button once and the characters of HOUR ON (OFF) will flash to be displayed. Meanwhile, press "▲" button or "▼" button to adjust timer setting (time will change quickly if holding "▲" or "▼" button). Time setting range is 0.5~24hours. Press this button again to confirm timer setting and the characters of HOUR ON (OFF) will stop flashing. If the characters are flashing but you haven't press timer button, timer setting status will be quit after 5s. If timer is confirmed, press this button again to cancel timer.

## 11 Dry button

Press this button in COOL or DRY mode to turn on Dry function.

When this function is started up, indoor fan will still operate at low fan speed for a while after turning off the unit by remote controller.

# Introduction for buttons on remote controller

## 12 Light button

Press this button to turn on the display's light and press this button again to turn off the display's light.

# Function introduction for combination buttons

### Combination of "▲" and "▼" buttons: Remote Control lock

Press "▲" and "▼" buttons simultaneously 3s to lock or unlock the keypad. If the remote controller is locked,  is displayed. In this case, pressing any button,  blinks three times.

### Combination of "MODE" and "▼" buttons: About switch between F° and C°

At unit OFF, press "MODE" and "▼" buttons simultaneously to switch between °C and °F.

### Combination of "TEMP" and "TIMER" buttons: Energy-saving Function

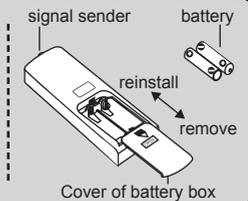
Press "TEMP" and "TIMER" simultaneously in COOL mode to start energy-saving function. Indoor unit displays "SE". Repeat the operation to quit the function.

### Combination of "TEMP" and "TIMER" buttons: About 46° F Heating Function

Press "TEMP" and "TIMER" simultaneously in HEAT mode to start 46° F Heating Function indoor unit displays " and a selected temperature of "46° F". (8° C if Celsius is adopted). Repeat the operation to quit the function.

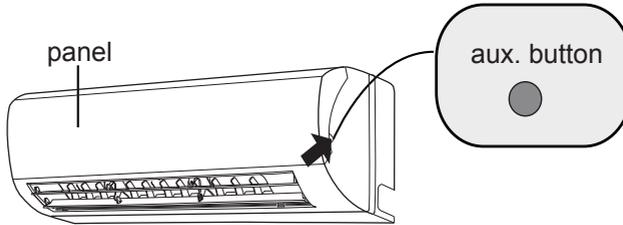
# Replacement of batteries in remote controller

1. Press the back side of remote controller marked with "", as shown in the fig, and then push out the cover of battery box along the arrow direction.
2. Replace two 7# (AAA 1.5V) dry batteries, and make sure the position of "+" polar and "-" polar are correct.
3. Reinstall the cover of battery box.



## Emergency operation

If remote controller is lost or damaged, please use aux. button to turn on or turn off the air conditioner. The operation in details is as below:  
As shown in the fig. Open panel, press aux. button to turn on or turn off the air conditioner. When the air conditioner is turned on, it will operate under auto mode.



### **WARNING:**

Use insulated object to press the auto button

## Clean and Maintenance

### **WARNING**

- Turn off the air conditioner and disconnect the power before cleaning the air conditioner to avoid electric shock.
- Do not wash the air conditioner with water to avoid electric shock.
- Do not use volatile liquid to clean the air conditioner.
- Do not use liquid or corrosive detergent clean the appliance and do not splash water or other liquid onto it, otherwise, it may damage the plastic components, even cause electric shock.

### Clean surface of indoor unit

When the surface of indoor unit is dirty, it is recommended to use a soft dry cloth or wet cloth to wipe it.

### **NOTICE:**

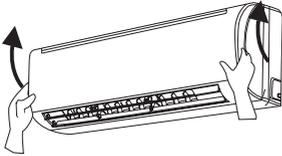
- Do not remove the panel when cleaning it.

# Clean and maintenance

## Clean filter

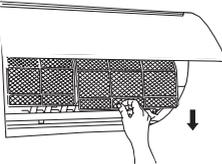
### 1 Open panel

Pull panel out from below to locked position.



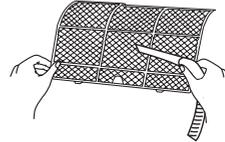
### 2 Remove filter

Pull filter down to remove careful to not get dust and dirt into the coil.



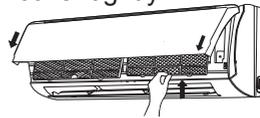
### 3 Clean filter

- Use vacuum or clean filter in sink with water.
- If filter is very soiled, use hot water (113°F) to clean and disinfect. Allow filter to dry before placing back in unit.



### 4 Install filter

Install the filter and then close the panel cover tightly.



## WARNING

- The filter should be cleaned every three months. If there is much dust in the operation environment, clean frequency can be increased.
- After removing the filter, do not touch fins to avoid injury.
- Do not use fire or hair dryer to dry the filter to avoid deformation or fire hazard.

# Troubleshooting

## General troubleshooting

Please check below items before asking for maintenance. If the issue still can't be eliminated, please contact local dealer or qualified professionals.

Issue	Check items	Solution
Indoor unit can't receive remote controller's signal or remote controller has no action.	<ul style="list-style-type: none"> <li>Whether it's interfered severely (such as static electricity, stable voltage)?</li> </ul>	<ul style="list-style-type: none"> <li>Pull out the plug. Reinsert the plug after about 3min, and then turn on the unit again.</li> </ul>
	<ul style="list-style-type: none"> <li>Whether remote controller is within the signal receiving range?</li> </ul>	<ul style="list-style-type: none"> <li>Signal receiving range is 8m.</li> </ul>
	<ul style="list-style-type: none"> <li>Whether there are obstacles?</li> </ul>	<ul style="list-style-type: none"> <li>Remove obstacles.</li> </ul>
	<ul style="list-style-type: none"> <li>Whether remote controller is pointing at the receiving window?</li> </ul>	<ul style="list-style-type: none"> <li>Select proper angle and point the remote controller at the receiving window on indoor unit.</li> </ul>
	<ul style="list-style-type: none"> <li>Is sensitivity of remote controller low; fuzzy display and no display?</li> </ul>	<ul style="list-style-type: none"> <li>Check the batteries. If the power of batteries is too low, please replace them.</li> </ul>
	<ul style="list-style-type: none"> <li>No display when operating remote controller?</li> </ul>	<ul style="list-style-type: none"> <li>Check whether remote controller appears to be damaged. If yes, replace it.</li> </ul>
	<ul style="list-style-type: none"> <li>Fluorescent lamp in room?</li> </ul>	<ul style="list-style-type: none"> <li>Take the remote controller close to indoor unit.</li> <li>Turn off the fluorescent lamp and then try it again.</li> </ul>
No air emitted from indoor unit	<ul style="list-style-type: none"> <li>Air inlet or air outlet of indoor unit is blocked?</li> </ul>	<ul style="list-style-type: none"> <li>Eliminate obstacles.</li> </ul>
	<ul style="list-style-type: none"> <li>Under heating mode, indoor temperature is reached to set temperature?</li> </ul>	<ul style="list-style-type: none"> <li>After reaching to set temperature, indoor unit will stop blowing out air.</li> </ul>
	<ul style="list-style-type: none"> <li>Heating mode is turned on just now?</li> </ul>	<ul style="list-style-type: none"> <li>In order to prevent blowing out cold air, indoor unit will be started after delaying for several minutes, which is a normal phenomenon.</li> </ul>

# Malfunction analysis

Phenomenon	Check items	Solution
Air conditioner can't operate	● Power failure?	● Wait until power recovery.
	● Is plug loose?	● Reinsert the plug.
	● Circuit break trips off or fuse is burnt out?	● Ask professional to replace circuit break or fuse.
	● Wiring has malfunction?	● Ask professional to replace it.
	● Unit has restarted immediately after stopping operation?	● Wait for 3min, and then turn on the unit again.
	● Whether the function setting for remote controller is correct?	● Reset the function.
Mist is emitted from indoor unit's air outlet	● Indoor temperature and humidity is high?	● Because indoor air is cooled rapidly. After a while, indoor temperature and humidity will be decrease and mist will disappear.
Set temperature can't be adjusted	● Unit is operating under auto mode?	● Temperature can't be adjusted under auto mode. Please switch the operation mode if you need to adjust temperature.
	● Your required temperature exceeds the set temperature range?	● Set temperature range: 16°C ~30°C (61~86°F).
Cooling (heating) effect is not good.	● Voltage is too low?	● Wait until the voltage resumes normal.
	● Filter is dirty?	● Clean the filter.
	● Set temperature is in proper range?	● Adjust temperature to proper range.
	● Door and window are open?	● Close door and window.

# Malfunction analysis

Phenomenon	Check items	Solution
Odours are emitted	<ul style="list-style-type: none"><li>• Whether there's odour source, such as furniture and cigarette, etc.</li></ul>	<ul style="list-style-type: none"><li>• Eliminate the odour source.</li><li>• Clean the filter.</li></ul>
Air conditioner operates normally suddenly	<ul style="list-style-type: none"><li>• Whether there's interference, such as thunder, wireless devices, etc.</li></ul>	<ul style="list-style-type: none"><li>• Disconnect power, put back power, and then turn on the unit again.</li></ul>
"Water flowing" noise	<ul style="list-style-type: none"><li>• Air conditioner is turned on or turned off just now?</li></ul>	<ul style="list-style-type: none"><li>• The noise is the sound of refrigerant flowing inside the unit, which is a normal phenomenon.</li></ul>
Cracking noise	<ul style="list-style-type: none"><li>• Air conditioner is turned on or turned off just now?</li></ul>	<ul style="list-style-type: none"><li>• This is the sound of friction caused by expansion and/or contraction of panel or other parts due to the change of temperature.</li></ul>

# Malfunction analysis

## Error Code

- If an error is present, lights will flash and an error code should be displayed.

Error code	Troubleshooting
U8	It can be eliminated after restarting the unit. If not, please contact qualified professionals for service.
E5	It can be eliminated after restarting the unit. If not, please contact qualified professionals for service.
E6	It can be eliminated after restarting the unit. If not, please contact qualified professionals for service.
E8	It can be eliminated after restarting the unit. If not, please contact qualified professionals for service.
H6	It can be eliminated after restarting the unit. If not, please contact qualified professionals for service.
C5	Please contact qualified professionals for service.
F0	Please contact qualified professionals for service.
F1	Please contact qualified professionals for service.
F2	Please contact qualified professionals for service.

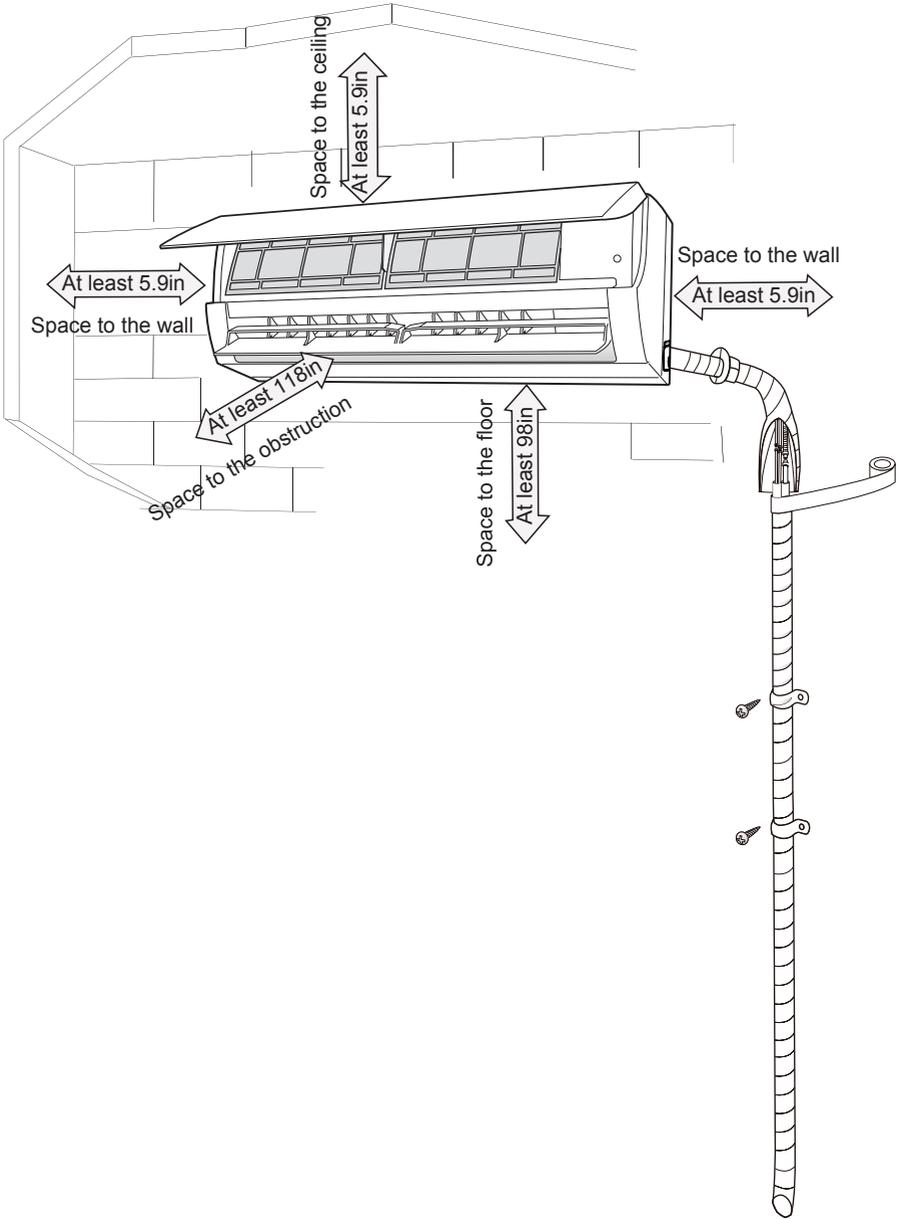
**Note:** If there're other error codes, please contact qualified professionals for service.



## WARNING

- If any of the below errors occur, please turn off air conditioner and contact a certified Technician.
  - There's abnormal sound during operation.
  - Air switch trips off frequently.
  - Air conditioner gives off burning smell.
  - Indoor unit is leaking.
- Do not repair product yourself. Please contact a certified HVAC company.
- If the air conditioner operates under abnormal conditions, it may cause malfunction, electric shock or fire hazard.

# Installation dimension diagram



## Safety precautions for installing and relocating the unit

To ensure safety, please be mindful of the following precautions.

### Warning

- **When installing or relocating the unit, be sure to keep the refrigerant circuit free from air or substances other than the specified refrigerant.**  
Any presence of air or other foreign substance in the refrigerant circuit will cause system pressure rise or compressor rupture, resulting in injury.
- Only qualified technicians, should install, move or service this equipment. Please follow the units nameplate and installation instruction to ensure safe and accurate operation of product.
- If there is a need to recover refrigerant during installation, ensure system is running in cooling mode. Fully close high pressure service valve (Liquid valve) and allow to pump-down for 30-40 seconds, then fully close the low pressure service valve (Gas valve) and immediately remove power from unit. Do not exceed 1 minute in pump-down otherwise system contamination or breakage can occur.
- Ensure unit is leak free by applying 500psig of dry nitrogen and check all flares with a liquid bubble solution. Watch carefully for small bubbles indicating a leak.
- Do not install unit in a area where corrosive gases or flammable gases exist. Otherwise premature failure of product can occur, or fire.
- Do not use supply (power) cords or extension cords with equipment. This product must be installed by a certified installer. Wired per NEC codes.
- Follow local and national codes for interconnection between indoor and outdoor units.

## Tools for installation

1 Level	2 Screw driver	3 Impact drill
4 Drill	5 Pipe expander	6 Torque wrench
7 Wrench	8 Pipe cutter	9 Leakage detector
10 Vacuum pump	11 HVAC manifold	12 Multi-Meter
13 Allen wrenches		14 Measuring tape

### Note:

- Please contact a license installer.
- Install following all local and national codes.

## Selection of installation location

Basic requirement	Indoor unit
<p>Installation in the following locations can cause system failures prematurely. If location is questionable, please contact the manufacturer for assistance.</p> <ol style="list-style-type: none"> <li>1. Any location with excessive heat, vapors or flammable gases.</li> <li>2. Areas that utilize High frequency or variable frequency devices, such as welding equipment or medical equipment such as X-Ray</li> <li>3. Coastal regions- If installed in coastal locations care to keep equipment out of direct exposure should be made. Regular cleaning should be done more frequently in these areas.</li> </ol>	<ol style="list-style-type: none"> <li>1. Ensure no obstructions near the air inlet/outlet of unit.</li> <li>2. Be sure condensation management is considered when choosing installation location.</li> <li>3. Do not install indoor unit above heat sources such as cook tops and electric appliances which also generate heat.</li> <li>4. Keep unit away from fluorescent lamps and neon.</li> </ol>

# Requirements for electric connection

## Safety precaution

1. Follow local and national electrical codes when wiring.
2. Ensure proper wire sizing.
3. Follow wiring diagrams
4. Be sure to disconnect power before performing installation or maintenance.
5. Refrigerant can operate at very high temperatures. Please be sure to keep wires separate from piping.

## Grounding requirement

1. Ensure proper grounding
2. Yellow/Green wire is reserved for Ground only
3. Grounding should comply with Local and National codes

# Installation of indoor unit

## Step one: choosing installation location

Provide recommendation to customer for the most ideal location to install unit.

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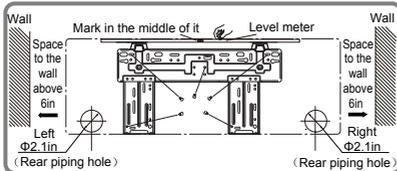
## Step two: install wall-mounting frame

1. When hanging wall mounting plate, be sure to set level, once level is set mark all locations for mounting screws.
  2. Drill holes and use appropriate mounting hardware. (Example: Wall Anchors, Self Tapping Screws or other)
  3. Affix wall mounting plate and ensure no flex from the wall surface to guarantee secure mounting.
- 

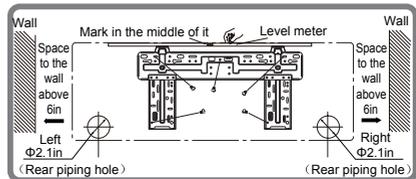
## Step three: open piping hole

1. Choose the position of piping hole according to the direction of outlet pipe. The position of piping hole should be a little lower than the wall-mounted frame, shown as below.

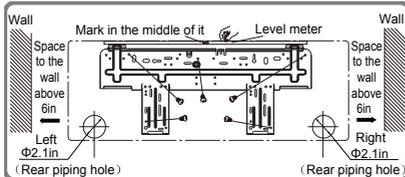
QB:



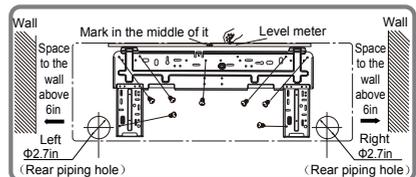
QC:



QD:



QE:

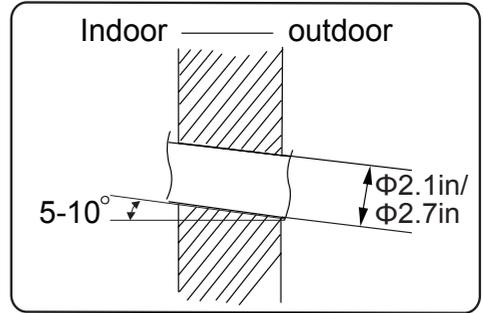


2. Open a piping hole with the diameter of  $\Phi 2.1\text{in}$  or  $\Phi 2.7\text{in}$  on the selected outlet pipe position. In order to drain smoothly, slant the piping hole on the wall slightly downward to the outdoor side with the gradient of  $5\text{-}10^\circ$ .

# Installation of indoor unit

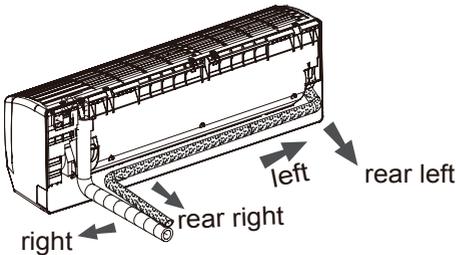
## Note:

- Dust prevention is recommended when drilling hole for piping.
- It is recommended to purchase a PVC sleeve to protect piping in the wall. (Supplied by after-market suppliers)

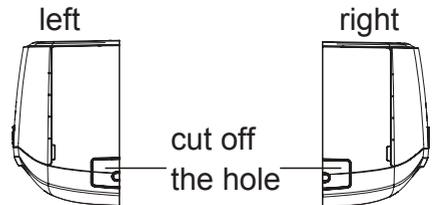


## Step four: outlet pipe

1. The pipe can be led out in the direction of right, rear right, left or rear left.

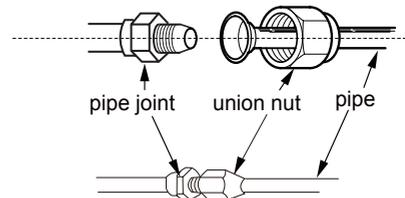


2. Choose which locations piping must go, if left, right or bottom cut off ABS plate to access.

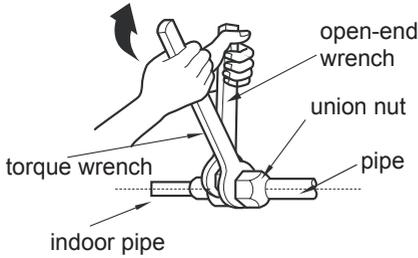


## Step five: connect the pipe of indoor unit

1. Position flare and fitting together.
2. Tighten flare by hand.
3. Use torque wrench to finalize mechanical connection between flare and fitting.

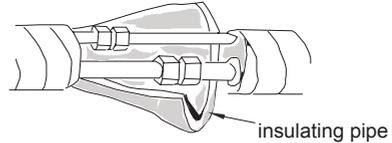


# Installation of indoor unit



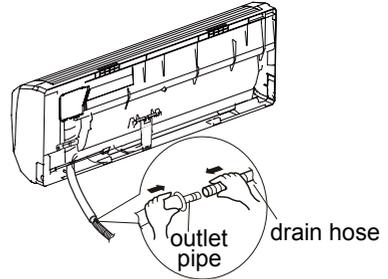
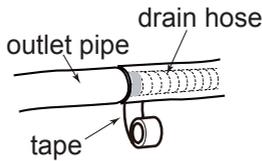
Hex nut diameter	Tightening torque (N·m)
1/4"	15~20
3/8"	30~40
1/2"	45~55
5/8"	60~65
3/4"	70~75

4. Wrap the indoor pipe and joint of connection pipe with insulating pipe, and then wrap it with tape.



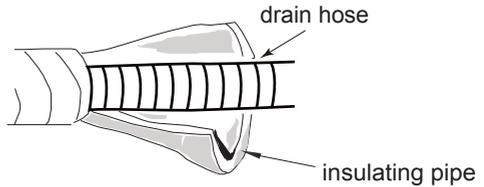
## Step six: install drain hose

1. Connect the drain hose to the outlet pipe of indoor unit.
2. Bind the joint with tape.



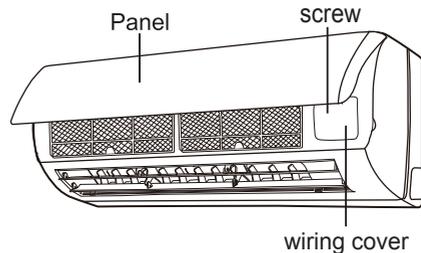
### Note:

- Add insulating pipe in the indoor drain hose in order to prevent condensation.



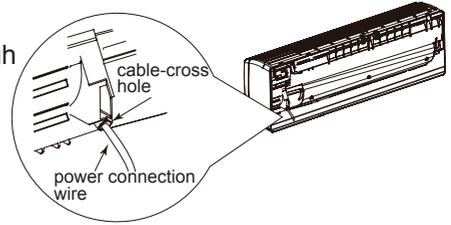
## Step seven: connect wire of indoor unit

1. Open the panel, remove the screw on the wiring cover and then take down the cover.

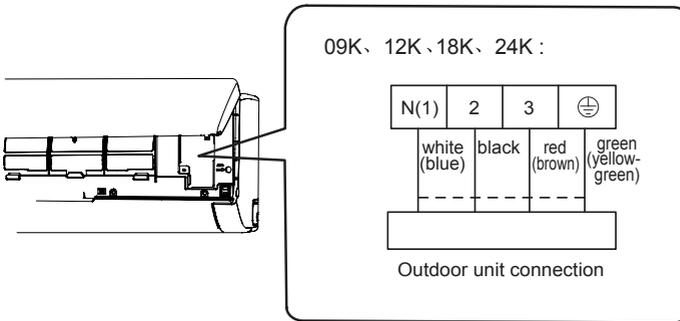


# Installation of indoor unit

2. Ensure that power wires are routed through the proper opening behind the unit.



3. Remove wire strain relief. Connect each wire to the corresponding terminal. Tighten the terminals to ensure solid connections.



4. Put wiring cover back and then tighten the screw.  
5. Close the panel.

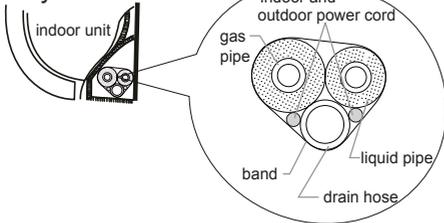
## Note:

- All wiring should be done by a certified technician.
- If the length of power connection wire is insufficient, please contact the supplier for a new one. Avoid extending the wire by yourself.
- For the air conditioner with plug, the plug should be reachable after finishing installation.
- For the air conditioner without plug, an circuit break must be installed in the line. The circuit break should be all-pole parting and the contact parting distance should be more than 3mm.

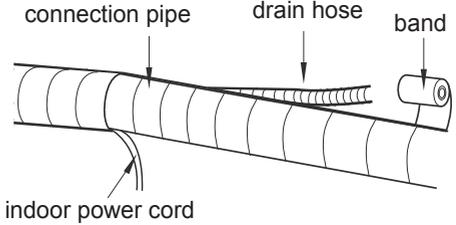
# Installation of indoor unit

## Step eight: bind up pipe

1. Combine pipes, wires and drain line in a UV rated line set covering system.



2. Be sure to allow for extra line set, wire and drain to connect to outdoor unit.



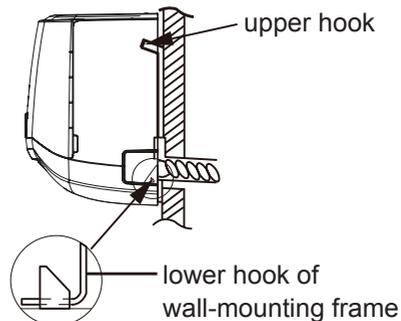
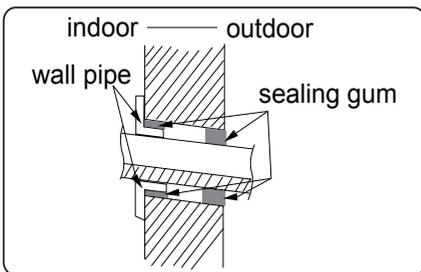
3. Bind them evenly.
4. The liquid pipe and gas pipe should be bound separately at the end.

Be sure that drain pipe is routed at the bottom of the banded pipe. To ensure proper drainage.

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## Step nine: hang the indoor unit

1. Put the bound pipes in the wall pipe and then make them pass through the wall hole.
2. Hang the indoor unit on the wall-mounting frame.
3. Stuff the gap between pipes and wall hole with sealing gum.
4. Fix the wall pipe.
5. Check if the indoor unit is installed firmly and closed to the wall.



### Note:

- Do not bend the drain hose too excessively in order to prevent blocking.

## Check after installation

- Check according to the following requirement after finishing installation.

Items to be checked	Possible malfunction
Has the unit been installed firmly?	The unit may drop, shake or emit noise.
Have you done the refrigerant leakage test?	It may cause insufficient cooling (heating) capacity.
Is heat insulation of pipeline sufficient?	It may cause condensation and water dripping.
Is water drained well?	It may cause condensation and water dripping.
Is the voltage of power supply according to the voltage marked on the nameplate?	It may cause malfunction or damaging the parts.
Is electric wiring and pipeline installed correctly?	It may cause malfunction or damaging the parts.
Is the unit grounded securely?	It may cause electric leakage.
Does the power cord follow the specification?	It may cause malfunction or damaging the parts.
Is there any obstruction in the air inlet and outlet?	It may cause insufficient cooling (heating) capacity.
The dust and sundries caused during installation are removed?	It may cause malfunction or damaging the parts.
The gas valve and liquid valve of connection pipe are open completely?	It may cause insufficient cooling (heating) capacity.
Is the inlet and outlet of piping hole been covered?	It may cause insufficient cooling (heating) capacity or waster eletricity.

## Test operation

### 1. Preparation of test operation

- The client approves the air conditioner.
- Specify the important notes for air conditioner to the client.

### 2. Method of test operation

- Put through the power, press ON/OFF button on the remote controller to start operation.
- Press MODE button to select AUTO, COOL, DRY, FAN and HEAT to check whether the operation is normal or not.
- If the ambient temperature is lower than 16°C(61°F), the air conditioner can't start cooling.

# Configuration of connection pipe

1. Standard length of connection pipe
  - 15ft, 22.5ft, 24ft
2. Min. length of connection pipe is 9Ft.
3. Max. length of connection pipe.

Max. length of connection pipe

Unit: ft

Cooling capacity	Max. length of connection pipe
5000Btu/h	45
7000Btu/h	45
9000Btu/h	45
12000Btu/h	60
18000Btu/h	75

Cooling capacity	Max. length of connection pipe
24000Btu/h	75
28000Btu/h	90
36000Btu/h	90
42000Btu/h	90
48000Btu/h	90

4. Additional refrigerant may be required when extending the line-set.

- After the line-set has been extended 33ft past standard length of 25ft, adding additional 5ml of refrigerant oil for each additional 16ft.
- The calculation method of additional refrigerant charging amount (on the basis of liquid pipe):  
 Additional refrigerant charge amount = extended length of liquid line x required additional amount per foot.
- Basing on the length of standard pipe, add refrigerant according to the requirement as shown in the table. The additional refrigerant charging amount per foot is different according to the diameter of liquid pipe. See the following sheet.

# Configuration of connection pipe

Additional refrigerant charging amount for R410A

Diameter of connection pipe		Outdoor unit throttle	
Liquid pipe(mm)	Gas pipe(mm)	Cooling only(g/m)	Cooling and heating(g/m)
Φ6	Φ9.52 or Φ12	15	20
Φ6 or Φ9.52	Φ16 or Φ19	15	50
Φ12	Φ19 or Φ22.2	30	120
Φ16	Φ25.4 or Φ31.8	60	120
Φ19	—	250	250
Φ22.2	—	350	350

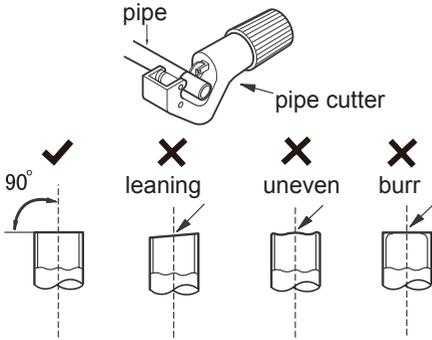
# Pipe expanding method

## Note:

Improper pipe expanding is the main cause of refrigerant leakage. Please expand the pipe according to the following steps:

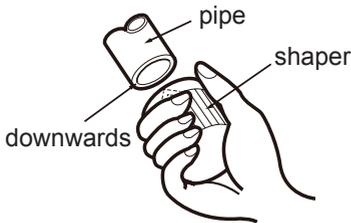
### A: Cut the pipe

- Confirm the pipe length according to the distance of indoor unit and outdoor unit.
- Cut the required pipe with pipe cutter.



### B: Remove the burrs

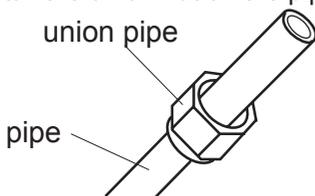
- Remove the burrs with shaper and prevent the burrs from getting into the pipe.



### C: Put on suitable insulating pipe

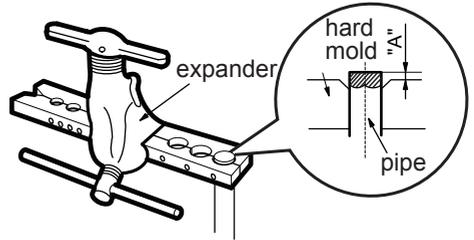
### D: Put on the union nut

- Remove the union nut on the indoor connection pipe and outdoor valve; install the union nut on the pipe.



### E: Expand the port

- Expand the port with expander.



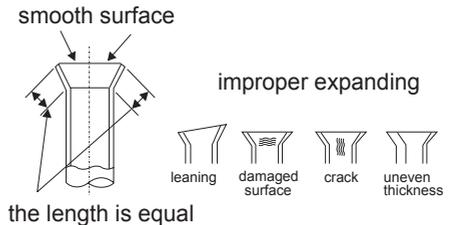
### Note:

- "A" is different according to the diameter, please refer to the sheet below:

Outer diameter	A(in)	
	Max	Min
(1/4")Φ6-6.35	0.05	0.03
(3/8")Φ9.52	0.06	0.04
(1/2")Φ12-12.7	0.07	0.04
(5/8")Φ15.8-16	0.94	0.09

### F: Inspection

- Check the quality of expanding port. If there is any blemish, expand the port again according to the steps above.



the length is equal





**F R I E D R I C H**

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