尺寸：148×210mm

材质：128g双铜纸

装订：骑马钉

TOSOT

User Manual

Central Heat Pump System

Before installing and using your TOSOT Air Conditioner,
please read this user manual in its entirety.

MODEL NUMBERS

Indoor Unit	Outdoor Unit
HP-UA36/I	HP-UA36/O
HP-UA60/I	HP-UA60/O

TOSOT

Welcome to the TOSOT Direct Family!

We're extremely happy to welcome you as a new member of our family! Please read the tips below before using your product for the first time.

Tips for First-Time Use

1. The indoor and outdoor units are heavy objects that need two or more people to lift and install. Failure to do so could result in injury or other accidents.
2. Allow the unit to sit upright for at least 3-4 hours before powering on. Shipping carriers may set the unit on its side, which causes the refrigerant to pool in certain areas. Standing the unit upright for 3-4 hours allows the refrigerant to move freely within the coils.
3. Some parts with sharp edges may cause injury, so gloves are highly recommended for unpacking and installing.
4. Run the unit continuously for 24 hours after installation. This allows the unit to work out any "kinks" that may have resulted during shipping from our factory to your doorstep.
5. If you have any problems with your product, please send us an email before submitting a return request, as there might be a simple solution for your issue.

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Safety Precautions



Appliance filled with
flammable magas R32.



Before install the appliance,
read the installation manual first.

CODES & REGULATIONS

This product is designed and manufactured to comply with all national codes. It is the licensed HVAC installing contractor's responsibility to install the product in accordance with all local, state, and federal codes and regulations. The manufacturer assumes no responsibility for equipment installed in violation of any codes or regulations.

FREIGHT DAMAGE, CONCEALED DAMAGE, AND MISSING ITEMS

Inspect the indoor and outdoor units for any damage and missing items at the time of receiving the equipment. Contact our support team immediately to report any issues before beginning the installation process.

EQUIPMENT AND MATERIALS

VERIFY all of the following before installing the Indoor Unit:

1. Model numbers of the Indoor Unit and Outdoor Unit are compatible sizes.
2. Refrigerant pipe sizes required and minimum/maximum allowable lengths.
3. Condensate drain line size required.
4. Size/rating required for power supply wiring, circuit breaker, and fused disconnect.
5. Size/rating required for 24VAC low voltage control wiring.
6. Size, length, and ductwork material required per Duct Design to ensure that the airflow is in accordance with the Indoor Unit fan performance.

PERSONAL PROTECTIVE EQUIPMENT

It is the licensed HVAC installing contractor's responsibility to follow all safety procedures and to utilize all required personal protective equipment including but not limited to gloves, safety glasses, steel-toe boots, ear plugs, hard hats, respirators, coveralls, etc.

Before installing, modifying, or servicing the system, the main electrical disconnect switch must be in the OFF position. There may be more than one disconnect switch. The unit must be permanently grounded. Failure to do so can lead to electrical shock causing personal injury or death.

TOOLS

It is the licensed HVAC installing contractor's responsibility to ensure the proper tools are utilized during the Installation including but not limited to a Level, Tubing Cutter, Deburring Tool, R-410a Flaring Tool, Torque Wrench, Allen Wrenches, R-410a Refrigerant Gauges & Hoses, Digital Refrigerant Scale, Dry Nitrogen and Regulator capable of reaching proper static pressure, Vacuum Pump, Micron Gauge, Multi-meter, Amp Clamp, Wire Strippers & Cutter, all miscellaneous screw drivers & wrenches, and any additional tools needed to complete a proper installation.

WARNING

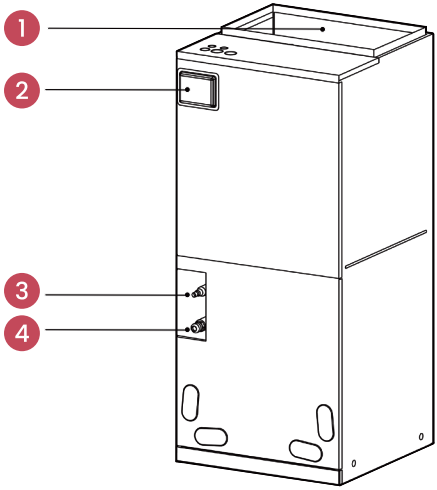
1. The air conditioner should be grounded to avoid electric shock. Do not connect the ground wire to gas pipe, water pipe, lightning arrester or telephone wire.
2. The appliance shall be stored in a well-ventilated area where the room size corresponds to the room area as specified for operation.
3. The appliance shall be stored in a room without continuously operating open flames (for example an operating gas appliance) and ignition sources (for example an operating electric heater).
4. Children should not play with the appliance.
5. Do not put a finger or other objects into the air inlet or return air grill.
6. Please adopt safety protection measures before touching the refrigerant pipe; otherwise your hands may be hurt.
7. Please arrange the drain pipe according to the manual.
8. Never stop the air conditioner by directly cutting off the power.
9. The thermostat should be connected before powering up the unit, otherwise, the thermostat may not function.

Parts List

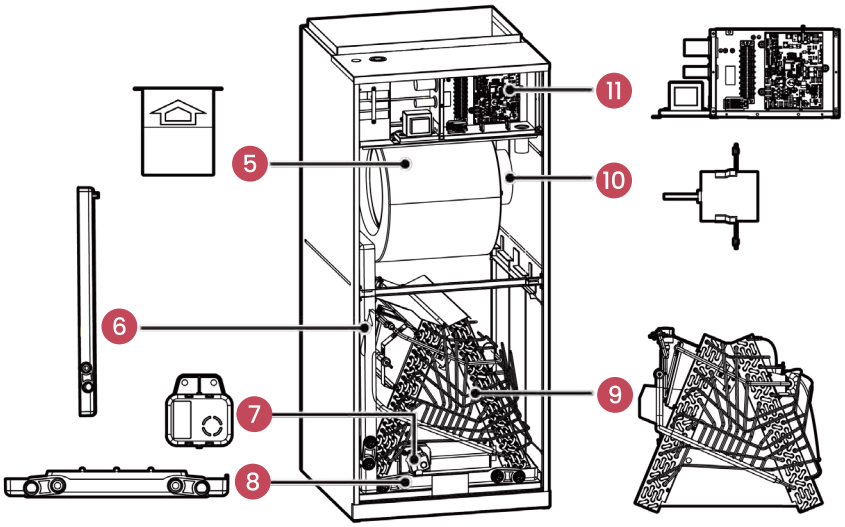
PART	LOOKS LIKE	QUANTITY
Drain Joint		1
Drain Plug		3 or 4
Wall Sleeve		1
Pipe Bundle		2
Sealing Gum		1
Tape		2

Note: Wall sleeve, pipe bundles, sealing gum and tapes are packed in a separate package from the other parts.
The arrival of units and accessories may be at a different time.

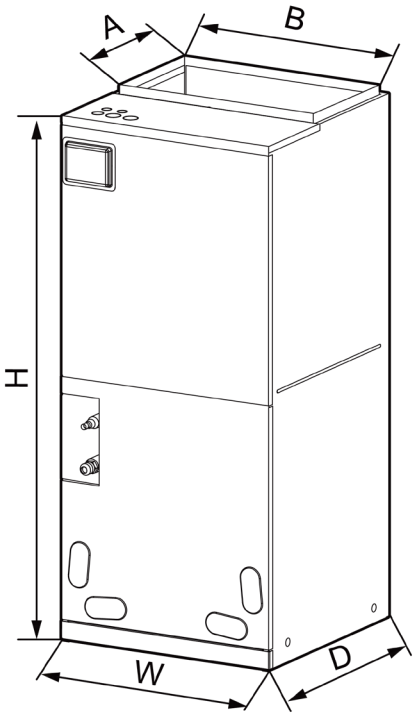
Parts Description



1. Air Outlet
2. Plastic Cover
3. Liquid Valve
4. Gas Valve
5. Centrifugal Fan
6. Secondary Drain Pan
7. Refrigerant Leakage Sensor
8. Primary Drain Pan
9. Evaporator Assy
10. Fan Motor
11. Electric Box Assy

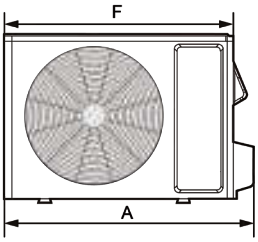


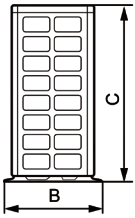
Specifications

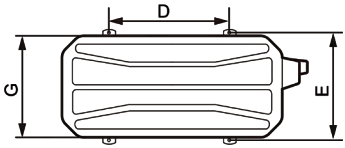


Dimension / Model	W (in/mm)	D (in/mm)	H (in/mm)	A (in/mm)	B (in/mm)
HP-UA36/I	21.25 / 540	21.25 / 540	48.25 / 1224	11.60 / 295	20.00 / 508
HP-UA60/I	24.75 / 630	21.25 / 540	52.00 / 1320	11.60 / 295	20.00 / 508

Model	Cooling Capacity (ton)	Optional Electric Heater (KW)
HP-UA36/I	3	5 / 8 / 10 / 15
HP-UA60/I	5	10 / 15 / 20

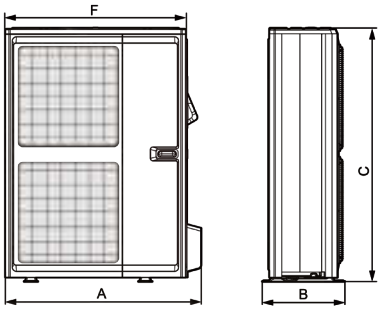


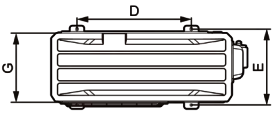




▲ HP-A36/O

▼ HP-A60/O





Dimension / Model	A (in/mm)	B (in/mm)	C (in/mm)
HP-UA36/O	39.38/1000	16.81/427	29.38/746
HP-UA60/O	38.5/978	16.25/412	49.63/1260

Dimension / Model	D (in/mm)	E (in/mm)	F (in/mm)	G (in/mm)
HP-UA36/O	24/610	15.56/396	36.25/920	14.56/370
HP-UA60/O	22.44/570	14.88/378	35.44/900	13.38/340

Model	Gas Pipe Diameter	Liquid Pipe Diameter
HP-UA36/I	3/4″ (19.00mm)	3/8″ (9.52mm)
HP-UA60/I	3/4″(19.00mm)	3/8″ (9.52mm)
HP-UA36/O	3/4″(19.00mm)	3/8″ (9.52mm)
HP-UA60/O	3/4″(19.00mm)	3/8″ (9.52mm)

Air Handler Installation

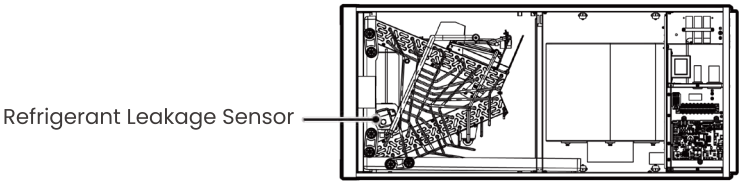
CAUTION

- Before serving or installing this equipment, the electrical power to this unit must be in the “off” position.
- If the air handler is installed in an enclosed area such as a garage, utility room, or parking area and a carbon monoxide-producing device is operated therein, there must be adequate ventilation directly to outside.
- This air handler is designed for indoor installation only.
- DO NOT install the indoor unit in a moist environment. Excessive moisture can corrode the equipment, and electrical components, and cause electrical shorts.
- DO NOT install in areas with strong electromagnetic waves.
- DO NOT install in coastal areas with high salt content in the air.
- DO NOT install in areas with oil drilling or fracking.
- DO NOT install in areas that store flammable materials or gas.
- DO NOT install in areas where there may be detergent or other corrosive gases in the air, such as bathrooms, or laundry rooms.
- DO NOT install in areas where the air inlet and outlet may be obstructed.
- Danger of explosion. Keep flammable materials and vapors, such as gasoline, away from the air handler.
- When installing the air handler, take consideration to minimize the length of refrigerant tubing as much as possible.
- When installing in an area directly over a finished ceiling (such as an attic), an emergency drain pan is required directly under the unit.
- Remove all accessories and packing in the air outlet before installation.

1. Select an Installation Direction

Based on the actual conditions, the air handler can be installed vertically or horizontally.

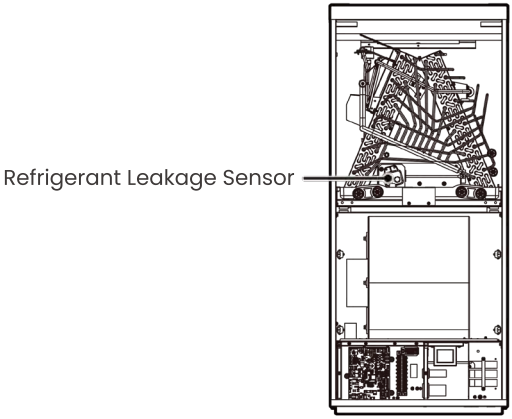
Lying Installation



NOTE: When installing as shown in the figure, the refrigerant sensor needs to be installed in the position shown in the figure, remove the fixing screws of the refrigerant sensor and adjust the internal wiring to ensure that the internal wiring does not touch the sharp side, the wiring cannot exceed the drip pan and the wiring must not come into contact with water.

If the air handler needs to be positioned with the supply air outlet facing right, the secondary drain pan must be removed from the left side and reinstalled on the right side. Please refer to the illustrations and work instructions provided in the table "Disassembly and Assembly of the Evaporator and Drain Pan" for detailed guidance.

Inverted Installation

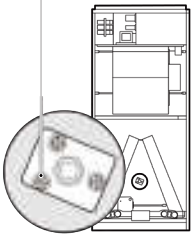


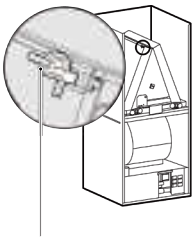
NOTE: When installing as shown in the figure, adjust the internal wiring to ensure that the inner wiring will not meet the sharp side.

The inverted device also needs to adjust the position of the return air temperature sensor, as shown below. Firstly, loosen the screw and remove the component. Then, remove the temperature sensor and install it in the new position.

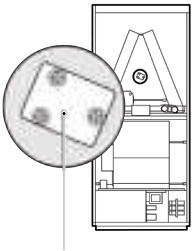
Finally, use aluminum foil or steel plate (accessories) for sealing.

Loosen the screw and remove the component





Remove the temperature sensor and install it here

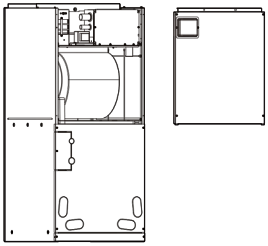
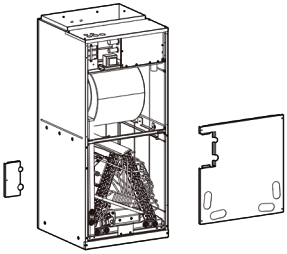


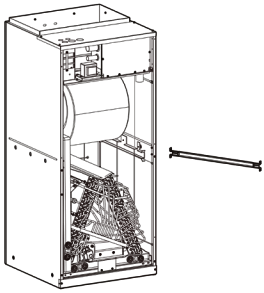
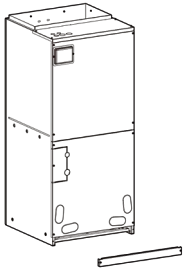
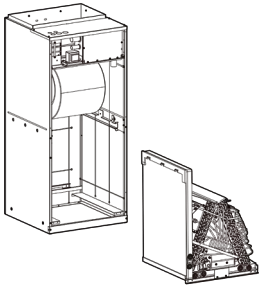
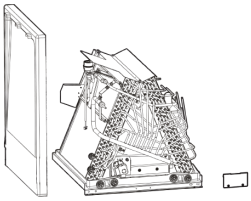
Use aluminum foil or a steel plate (accessories) seal

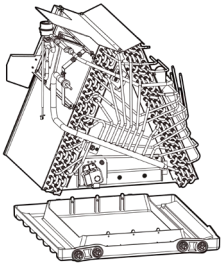
Inverted Installation, reposition the evaporator coil and temperature sensor according to the disassembly and assembly diagrams provided in the table below. Ensure all components are securely reassembled and aligned to maintain system performance and sensor accuracy.

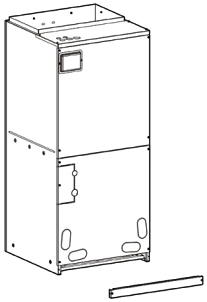
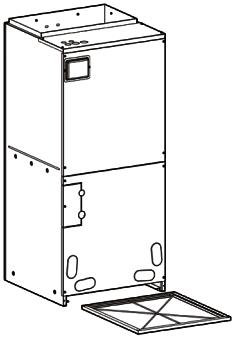
Verify proper airflow direction and test operation post-installation. If you need further assistance, please feel free to contact our support team via email. Attaching pictures or videos of your installation will help us assist you more efficiently.

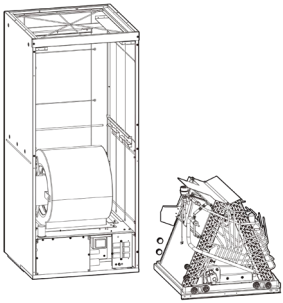
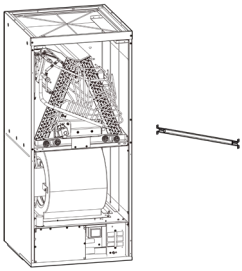
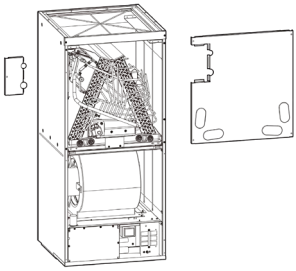
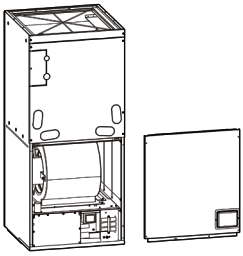
NOTE: Follow manufacturer guidelines and local codes during installation.

Disassembly and Assembly of the Evaporator and Drain Pan		
Step	Picture	Work Instruction
1. Remove the upper panel.		● Loosen screws round the upper panel with a screwdriver. ● Remove the upper panel from the unit.
2. Remove the lower panel (1) and panel (2).		● Loosen screws round the lower panel with a screwdriver. ● Remove the lower panel from the unit.

Disassembly and Assembly of the Evaporator and Drain Pan		
Step	Picture	Work Instruction
3. Remove the enhanced frame if applicable.		● Remove the screws from enhanced frame. ● Disassemble the enhanced frame from the unit.
4. Remove the mounting plate of the drain pan.		● Loosen screws at both side of the mounting plate with a screwdriver. ● Remove the mounting plate from the unit.
5. Remove the primary drain pan.		● Remove the primary drain pan from the unit.
6. Remove the secondary drain pan.		● Remove the secondary drain pan from the unit.

Disassembly and Assembly of the Evaporator and Drain Pan		
Step	Picture	Work Instruction
7. Remove the evaporator.		● Remove the evaporator away from the primary drain pan. ● Reassemble the unit as before.

Disassembly and Assembly of the Filter		
Step	Picture	Work Instruction
1. Remove the mounting plate.		● Loosen screws fixing the mounting plate with a screwdriver. ● Remove the mounting plate away from the unit.
2. Remove the filter screen.		● Pull out the filter from the bottom. ● After replacing the filter screen, reassemble the unit as before.

Installation of Downward Air Supply Mode		
Step	Picture	Work Instruction
1. Turn the air handler upside down.		● Loosen screws around the upper and lower panel with a screwdriver. ● Remove the upper and lower panel away from the unit.
2. Install the enhanced frame.		● Install the screws from enhanced frame. ● Install the enhanced frame from the unit.
3. Install the lower panel (1) and panel (2).		● Install screws round the lower panel with a screwdriver. ● Install the lower panel for unit.
4. Install the upper panel.		● Install screws round the upper panel with a screwdriver. ● Install the upper panel from unit.

NOTE: If the refrigerant sensor is damaged, replace the refrigerant sensor as follows:

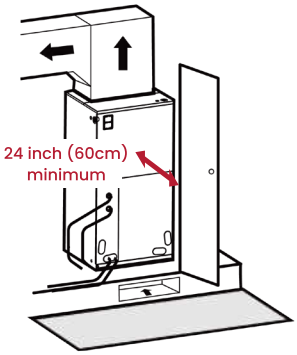
a. Remove the lower front side panel.

b. Remove the fixing screws of the refrigerant sensor.

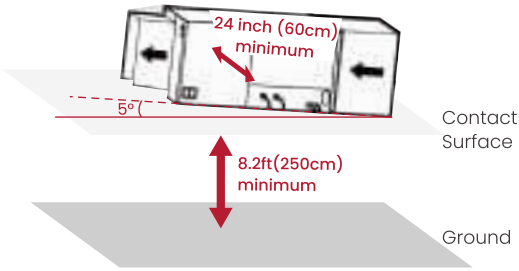
c. Replace the refrigerant sensor with a new one.

The service life of the refrigerant sensor is fifteen years, and the refrigerant sensor of the refrigerant detection system can only be replaced with the particular sensor which is specified by the manufacturer.

- If the air handler is installed as Figure A, the air handler should be concealed in a specific room or space, and make sure the air handler is not accessible to the general public.
- If the air handler is installed as Figure B, make sure that there is enough space for care and maintenance. The height between the air handler and the ground is above 8.2ft (250cm) and is not accessible to the general public. The air handler should maintain a horizontal 5° angle to ensure smooth drainage.
- You can place it as left ventilation or right ventilation. If you choose the right ventilation, the left drain pan should be put to the right side. Screws and take out the downside front panel, and slide out the evaporator assembly with the two drain pans. Take out the left drain pan and place it on the right side. Place back the evaporator assembly and screws the front panel.
- Allow a minimum of 24 inches (61cm) in front of the air handlers for installation and maintenance.



A

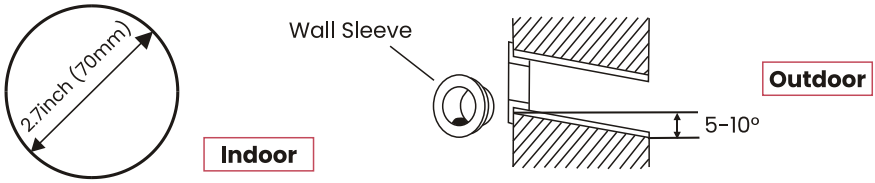


The air handler should be maintained horizontal 5°

B

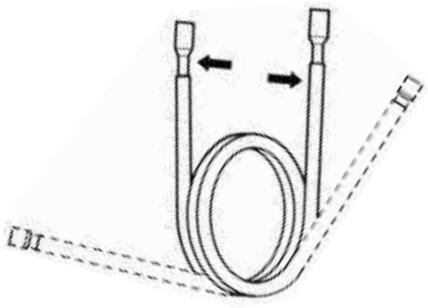
2. Drilling a Piping Hole on the Wall

- You need to drill a hole in the wall for the pipes and cables to connect the indoor and outdoor units.
- Drill a hole with a 2.2-2.8 inches (55-70mm) diameter through the wall where you want the pipe to go through. To ensure better drainage, slope the hole at a slight 5-10 degree angle downwards which is shown in the example figure below.
- Place the wall sleeve in the hole to protect the connection parts.

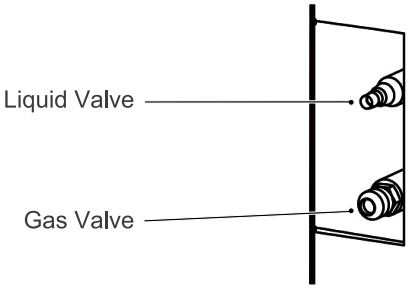


3. Connect the Copper Piping

- Bend the refrigerant pipes with the port facing up as shown in the figure below.

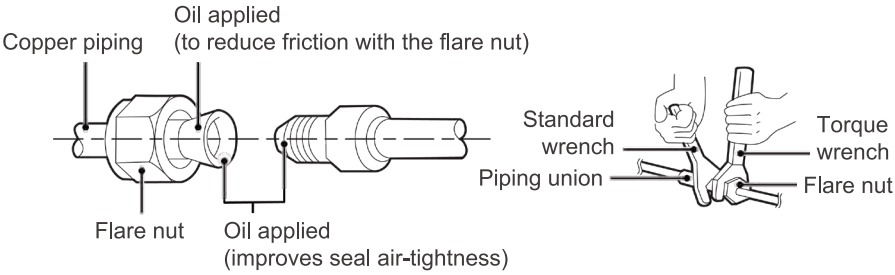


- Take down the cap of the cut-off valves, liquid valve, and gas valve. Unscrew a bit of the liquid and gas valve there will be a sound and a little gas will come out from the valve to indicate the refrigerant has not leaked during transportation. Screw the cap of the liquid and gas valve quickly after checking to keep the refrigerant. If there is no sound, the pipe may be broken, please check for leaks or contact the customer support team.



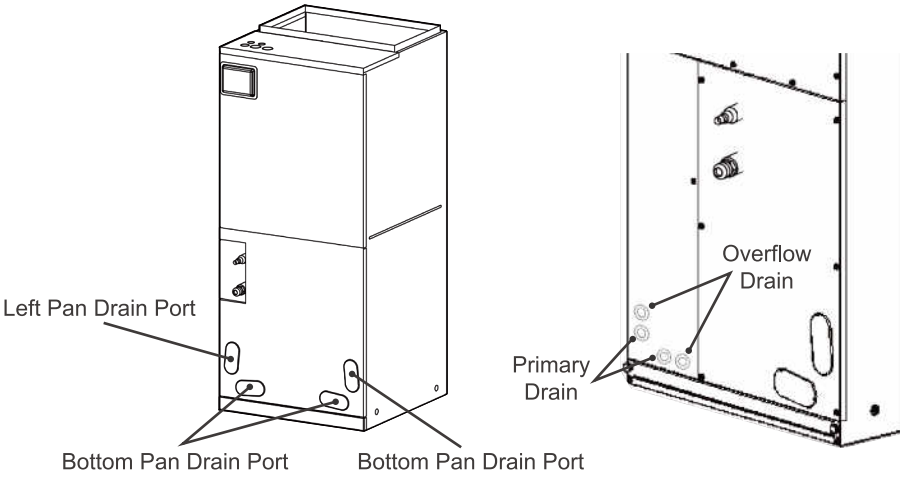
- Align both ends of the copper piping and start to twist on the flare nut by hand. Use a standard wrench on the piping union and an open-end torque wrench on the flare nut to apply the proper torque as shown in the torque table below.

Pipe Diameter	Tightening Torque (ft-lbs)	Tightening Torque (N·m)
3/8" (9.52mm)	26-29	35-40
3/4" (19.00mm)	52-55	70-75

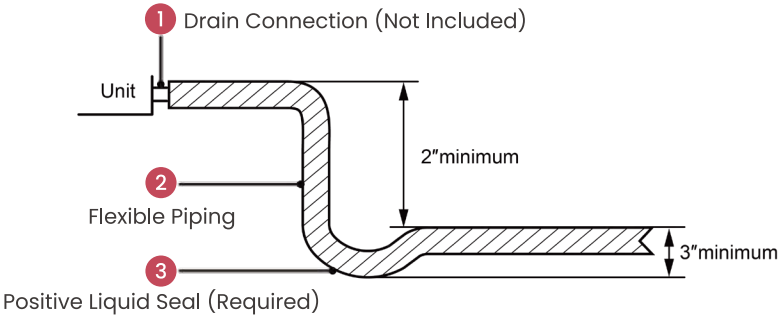


Note: Be extremely careful not to dent or damage the piping while bending them away from the unit. Any dents in the piping will affect the unit's performance.

4. Condensate Removal



- Decide and place the left or right drain pan position according to the installation direction.
- The drain pan has primary and overflow drain ports which are both recommended to connect. Use a 1-inch drain connector and attach a 3/4" PVC pipe. The installation must include a "P" style trap that is located close to the evaporator coil. Do not over-tighten the drain connection in order to prevent possible damage to the drain pan. See the following figure for details of a typical condensate line "P" trap.



- It is not allowed to connect the condensate drain pipe to the rain pipe to prevent rainwater from pouring in.
- The pipe outlet should be at least 3 inches (7.6 cm) above the ground.

5. Ductwork

- Do not operate the unit without all ductwork completed and attached.
- The duct system must be designed within the range of static pressure of the unit (See the **Fan Performance** section). The system airflow must be adequate.
- The return ductwork is to be introduced into the air handler bottom (up-flow configuration).
- Seal the ductwork to the unit to prevent leakage.
- Return air filter is required. This filtering may be performed at the air handler or externally such as a return air filter grille.
- Sheet metal ductwork run in unconditioned spaces must be insulated and covered with a vapor barrier.

6. Connection of Power Cords and Thermostat Wires

CAUTION

Note: A thermostat and its wires are not included.

1. The electrical installation must be conducted by professionals in compliance with local laws and regulations and the instructions in this manual.
2. The electric circuit must be equipped with a circuit breaker and air switch both with sufficient capacity.
3. The unit's operating power must be within the nominal range stated on the label.
4. The air conditioner circuit should be at least 4.9ft (1.5m) away from any inflammable surface.
5. The maximum length of the communication cords between the indoor unit and the thermostat is 98ft (30m).
6. Connect wires correspondingly by referring to the circuit diagram labeled on the electric box. Screws should be tightened up. Slipped screws should be replaced by specialized flat-head screws.

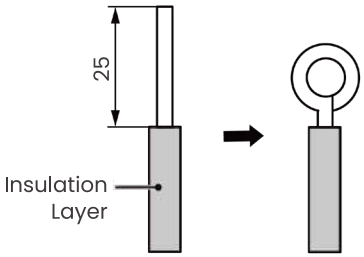
7. The wire gauge recommended for this product is listed below.

Model	MCA	Recommended Power Cord	Recommended Communication Cord
HP-UA36	27.7A	AWG 10+	AWG 18
HP-UA60	39.9A	AWG 8+	AWG 18

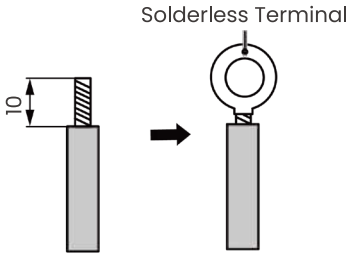
Note: If the electric heater kit is installed, please choose the power cord size according to the heater label.

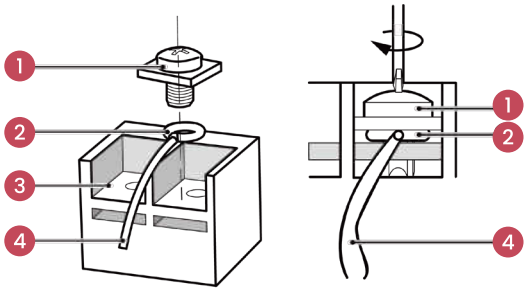
- Before installation, ensure all power supply is disconnected.
- For solid wires:
  a. Use wire cutters to cut off the wire end and then peel away about 1 inch (25mm) of the insulation layer.
  b. Use a screwdriver to unscrew the terminal screw on the terminal board.
  c. Use nippers to bend the solid wire into a ring that fits the terminal screw.
  d. Form a proper ring and put it on the terminal board. Use a screwdriver to tighten up the terminal screw.
- For strand wires:
  a. Use wire cutters to cut off the wire end and then peel away about 10mm of the insulation layer.
  b. Use a screwdriver to unscrew the terminal screw on the terminal board.
  c. Use a round terminal fastener or clamp to fix the round terminal firmly on the peeled wire end.
  d. Locate the round terminal conduit. Use a screwdriver to replace it and tighten up the terminal screw.

A. Solid wire



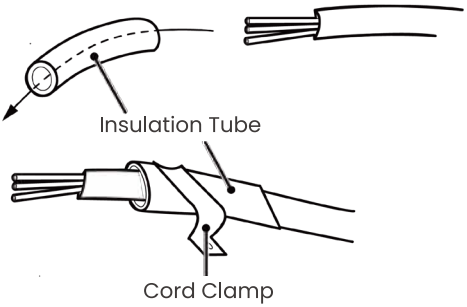
B. Strand wire



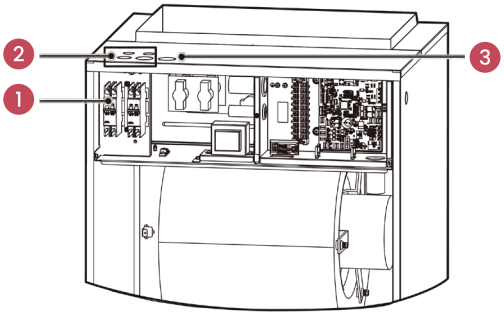


1 Screw with Special Washer
2 Round Terminal
3 Terminal Board
4 Wire

- Choose and knock off the holes for power cords and thermostat wires according to the cord size. Pass the power cords through the top hole and the thermostat wires through the side hole.
- Lead the thermostat wires and power cord through the insulation tube. Then fix the wires with wire clamps.

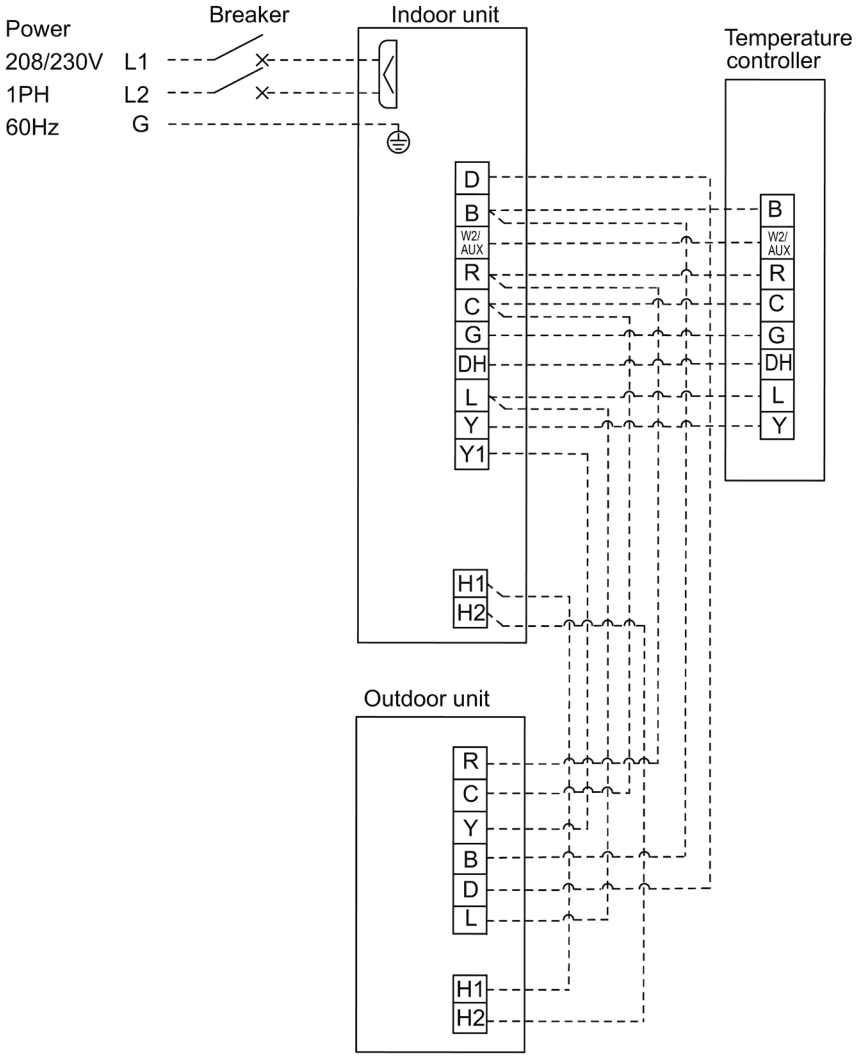


- Connection of power cords and thermostat wires.



1 Circuit Breaker
2 The power cords of indoor unit get in through this hole
3 The thermostat wires get in through this hole

- Connect of the power cords and thermostat wires according to the diagram below. The power cord and communication cord should be led through different rubber rings of the electric box cover.



NOTE:

Y indicates compressor control signal for the outdoor unit.

D indicates a defrosting signal.

B indicates four-way valve control signal (valid in heating mode).

W2/AUX indicates heater control signal.

R indicates 24V AC power supply.

C indicates 24V common.

G indicates indoor unit fan signal for the indoor unit.

L indicates refrigerant leakage protection signal.

DH indicates Initial signal.

Y1 indicates thermostat and compressor output signals.

H1/H2 indicates RS485 communication.

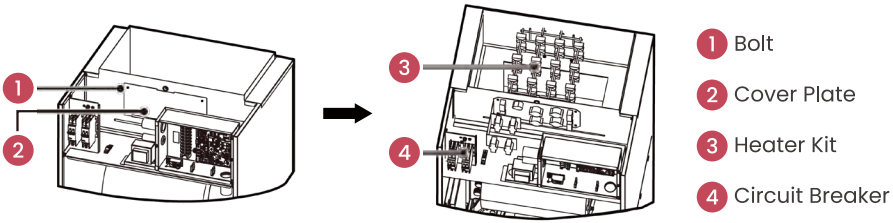
7. Electric Heater Kits Installation(Optional)

A means of strain relief and conductor protection must be provided at the supply wire entrance into the cabinet. Use copper conductors only.

- Choose the electric heater kit model according to the below chart.

Manufacturer	Heat Kit Model	Electric Heat(kW)		Min. Circuit Ampacity		Max. Fuse or Breaker Ampacity	
		240V	208V	240V	208V	240V	208V
TUTCO	21-4217-00	15	11.3	59/28	53/24	60/30	60/25
TUTCO	21-4216-01	10	7.5	56	49	60	50
TUTCO	21-4216-00	8	6	46	40	50	40
TUTCO	21-4227-00	5	3.7	30	27	30	30

- Remove the upper panel and the cover plate from the air handler.
- Slide the heater kit into the slot and secure the element plate with previously removed screws.



Install the circuit breaker of heater kit to the position.

- Disconnect the existing wires and connect the electric heater kit. Insert power cords into the lugs of the heater kit circuit breaker and tighten. Connect the ground wire to the ground lug.
- Reinstall the front panel and cover panel.

Dip Switch Configuration

- Set the indoor fan speed through the eight dip switches of the indoor main control board. The higher the level, the higher the speed of the indoor unit fan.
- Dip switch settings must be completed before powering on the unit.
- After the unit is shut down or stopped at the temperature point, the indoor unit will delay for a few minutes and then shut down. The refrigeration can realize the drying function, and relieve the mold of the air duct, and the heating can blow the waste heat and relieve the heat accumulation in the air duct.
- During installation and debugging, pay attention to checking whether the temperature controller has set the fan delay and shutdown time. If the temperature controller has been set, the actual delay and shutdown time of the fan is equal to the temperature controller setting time plus the fan delay time of the indoor unit.

Model	Level	Heat (SA2)				Cool (SA1)			
HP-UA36	Level 1	0	0	0	1	1	1	1	1
	Level 2	0	0	1	0	0	0	0	0
	Level 3-Default	0	0	1	1	1	1	1	1
	Level 4	0	1	1	0	1	1	1	1
	Level 5	0	1	1	1	1	1	1	1
HP-UA60	Level 1	0	0	0	1	1	1	1	1
	Level 2	0	0	1	0	0	0	0	0
	Level 3-Default	0	0	1	1	1	1	1	1
	Level 4	0	1	1	0	1	1	1	1
	Level 5	0	1	1	1	1	1	1	1

NOTE: 0 means dip switch to “on”, 1 means dip switch to number.

Fan Performance

External static pressure should stay within the minimum and maximum limits shown in the table below to ensure proper operation of cooling, heating, and electric heating operation.

Model	HP-UA36											
Level	Static Pressure (Inches W.C.)											
	0	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Speed 1 (CFM)	1220	1120	1020	960	-	-	-	-	-	-	-	-
Speed 2 (CFM)	1380	1260	1200	1100	950	-	-	-	-	-	-	-
Speed 3 (CFM)	1630	1580	1500	1430	1370	1200	1000	970	-	-	-	-
Speed 4 (CFM)	1840	1800	1750	1710	1640	1590	1500	1420	1330	1220	1100	930
Speed 5 (CFM)	1870	1830	1810	1800	1760	1690	1620	1520	1440	1350	1250	1150

Model	HP-UA60											
Level	Static Pressure (Inches W.C.)											
	0	0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Speed 1 (CFM)	1860	1720	1650	1600	-	-	-	-	-	-	-	-
Speed 2 (CFM)	1920	1800	1730	1650	1480	-	-	-	-	-	-	-
Speed 3 (CFM)	2110	2000	1950	1860	1760	1640	1500	-	-	-	-	-
Speed 4 (CFM)	2300	2260	2230	2200	2150	2115	2050	1990	1920	1790	1650	1470
Speed 5 (CFM)	2320	2280	2250	2230	2190	2140	2080	2040	2000	1950	1920	1890

NOTE: Please refer to the above table for fan speed selection, and "—" indicates that the electric heater is not allowed to be used.

Outdoor Unit Installation

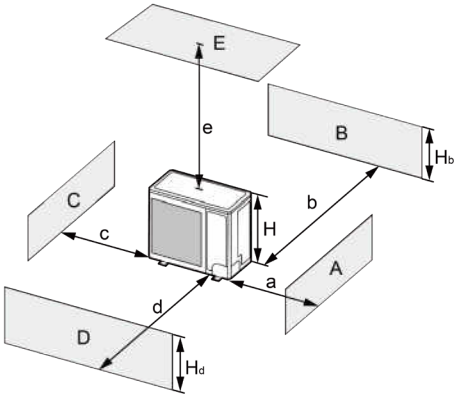
1. Select an Installation Site

The unit must be installed where strong enough to withstand the weight of the unit and fixed securely, otherwise the unit would topple or fall off.

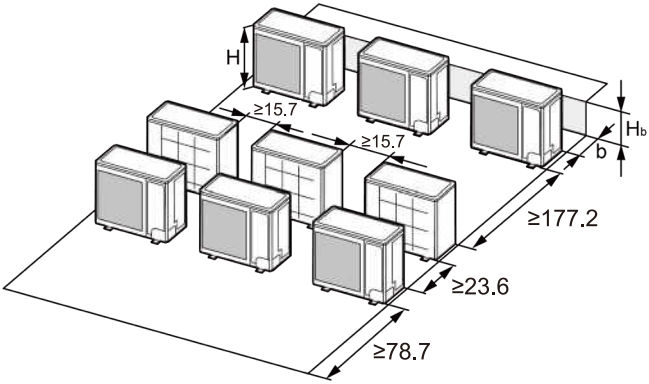
The installation location should be able to withstand the weight and vibration of the outdoor unit and allow the installation to be carried out safely.

Install the air conditioner at a place where the inclination is less than 5°.

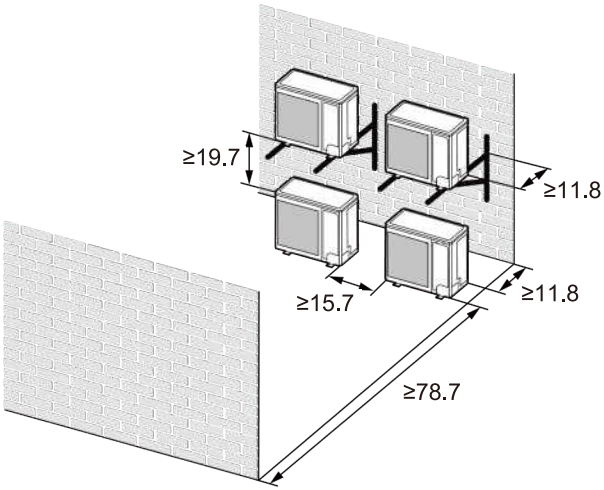
Refer to the following diagram to ensure proper space around the unit:



A~E	Hb Hd H		(inch)				
			a	b	c	d	e
B	—		-	≥3.9	-	-	-
A,B,C,	—		≥11.8	≥3.9	≥3.9	-	-
B,E	—		-	≥3.9	-	-	≥39.3
A,B,C,E	—		≥11.8	≥5.9	≥5.9	-	≥39.3
D	—		-	-	-	≥39.3	-
D,E	—		-	-	-	≥39.3	≥39.3
B,D	$H_b < H_d$	$H_d > H$	-	≥3.9	-	≥39.3	-
	$H_b > H_d$	$H_d < H$	-	≥3.9	-	≥39.3	-
B,D,E	$H_b < H_d$	$H_b \leq 1/2H$	-	≥9.8	-	≥78.7	≥39.3
		$1/2H < H_b \leq H$	-	≥9.8	-	≥78.7	≥39.3
		$H_b > H$	Prohibited				
	$H_b > H_d$	$H_d \leq 1/2H$	-	≥3.9	-	≥78.7	≥39.3
		$1/2H < H_d \leq H$	-	≥7.9	-	≥78.7	≥39.3
		$H_d > H$	Prohibited				



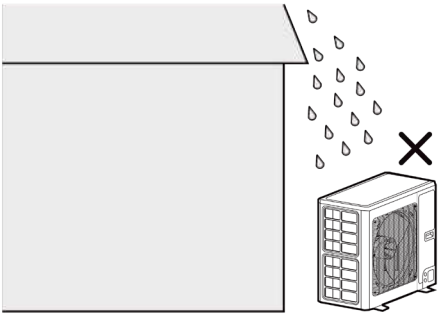
H_b H	(inch)
$H_b \leq 1/2H$	b ≥ 9.8
$1/2H < H_b \leq H$	b ≥ 11.8
$H_b > H$	Prohibited

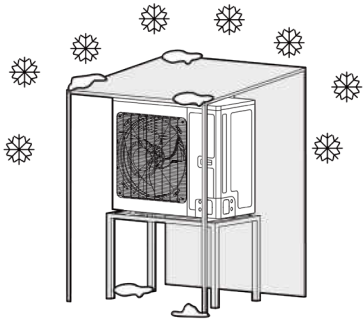


NOTE: Do not install the air conditioner where water, ice, or snow from the overhang or roof may damage or flood the unit. Do not install the air conditioner in a corrosive environment.

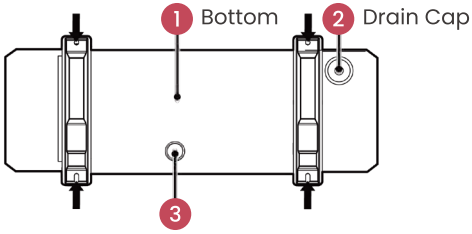
Installation requirements in snowy areas:

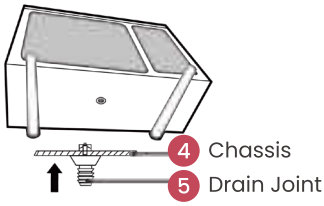
- Install the air conditioner on a stand which more than 20 inches (500mm) higher than the expected snowfall to prevent it from being covered by snow.
- Attach snow hood and snow guard, see the following figures.
- Do not install the air conditioner at a place where a snowdrift is generated.
- Remove the air inlet grille to prevent snow from accumulating on it.
- Plugs and drainage connectors are not recommended.





2. Install the Outdoor Unit Drain Joint





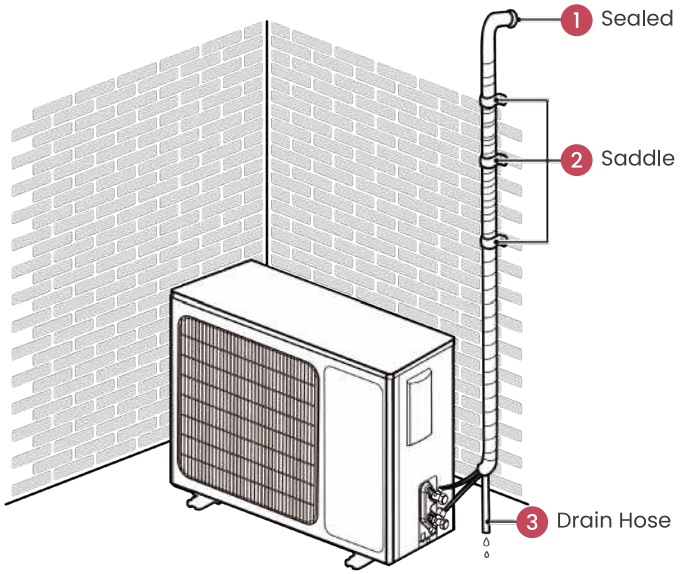
- Connect the outdoor drain joint to the hole in the base pan of the unit, as shown in the picture. Plug the unused drain hole with drain plugs.
- Connect the drain hose to the drain joint. The outdoor unit should be at least 3.9inch (10cm) from the installation ground.

3. Secure the Outdoor Unit

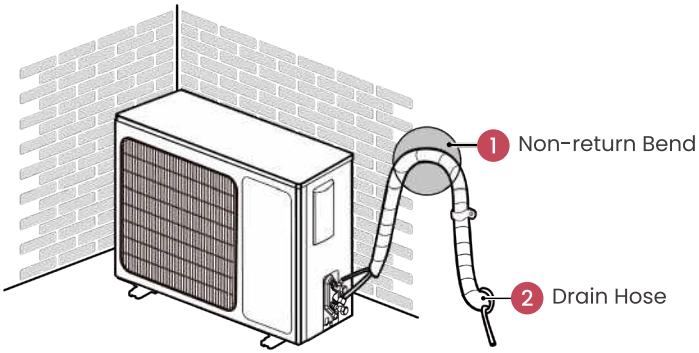
- Use screw bolts and nuts to secure the unit and make sure the unit stands erect and level.
- If it vibrates and causes noise, please add a rubber cushion between the outdoor unit and the installation base.

4. Installation of Drain Pipe

- If the outdoor unit is underneath the indoor unit, arrange the pipeline according to the following diagram.
  a. The drain hose should be placed on the ground and its end should not be immersed in water. The whole pipeline should be supported and fixed onto the wall.
  b. Wind the insulating tape from bottom to top.
  c. The whole pipeline should be wound with insulating tape and fixed onto the wall with saddles.

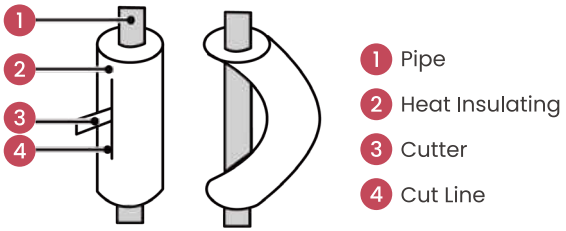


- If the outdoor unit is above the indoor unit, arrange the pipeline according to the following diagram.
  a. Wind the insulating tape from bottom to top.
  b. The whole pipeline should be wound together to avoid water returning to the room.
  c. Use saddles to fix the whole pipeline onto the wall.



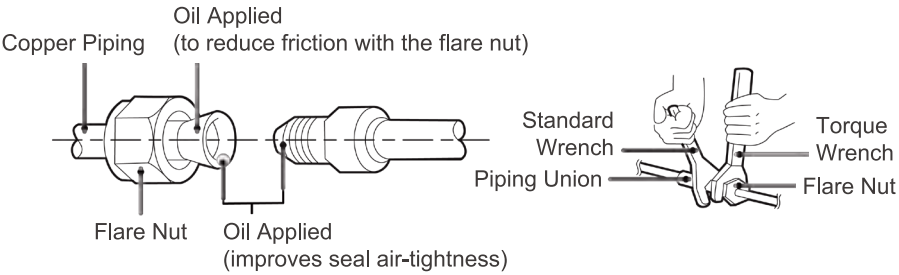
5. Connect the Refrigerant Piping

- Ensure to connect the liquid pipe first then connect the gas pipe.
- As shown beside, use a sharp cutter to cut the heat-insulating pipe and bend it after the pipe is exposed. After bending, place the heat-insulating pipe back on the pipeline and fix it with adhesive tape.



- Do not bend the pipes at an angle of more than 90°. Do not bend or extend the pipe for more than 3 times.
- For HP-A36/O, remove the right front panel. For HP-A60/O, remove the side valve cover.
- Remove the screw cap of the valve and aim the pipe joint at the bellmouth of the pipe.

- Align both ends of the refrigerant piping and start to twist on the union nut by hand.
- Use a standard wrench on the pipe joint and an open-end torque wrench on the union nut to apply the proper torque as shown in the torque table below.



Pipe Diameter (inch/mm)	Tightening Torque (ft-lbs)	Tightening Torque (N·m)
3/8 (9.52)	26-29	35-40
3/4 (19.00)	52-55	70-75

- Wind sponge tape around the joint of the gas pipe and heat insulation sheath of the gas collecting pipe. Ensure to have insulation for gas pipe. Insulation for liquid pipe is optional.

Note on Pipe Length and Drop Height

The length of refrigerant piping will affect the performance and energy efficiency of the unit. Refer to the table below for specifications on the maximum length.

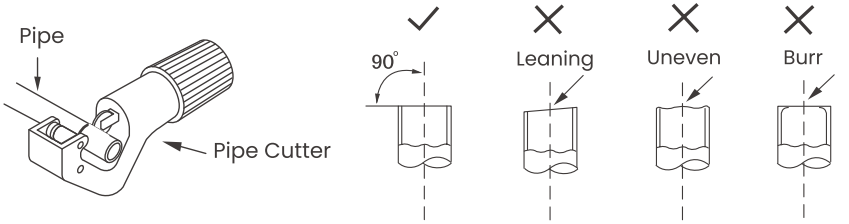
Model	Maximum Pipe Length	Maximum Drop Height Between Indoor and Outdoor Units
HP-UA36, HP-UA60	98.4ft / 30m	49.2ft / 15m

Refrigerant Piping Connection Instructions

Improper pipe shortening or expanding might cause refrigerant leakage. Please take extra care to cut and flare them properly to ensure efficient operation and minimize the need for future maintenance.

a. Cut Pipes

- Measure the distance between the indoor and outdoor units.
- Using a pipe cutter, cut the pipe a little longer than the measured distance.
- Make sure that the pipe is cut at a perfect 90° angle.

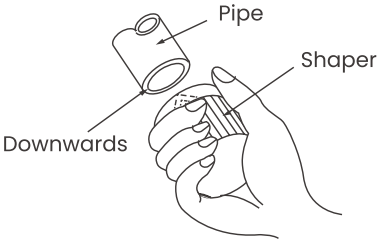


Be extra careful not to damage, dent, or deform the pipe while cutting.
This will drastically reduce the heating efficiency of the unit.

b. Remove Burrs

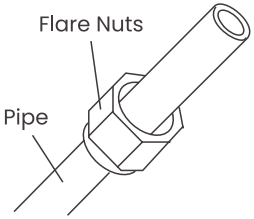
Burrs can affect the air-tight seal of the refrigerant piping connection. They must be completely removed.

- Hold the pipe at a downward angle to prevent burrs from falling into the pipe.
- Using a reamer or deburring tool, remove all burrs from the cut section of the pipe.

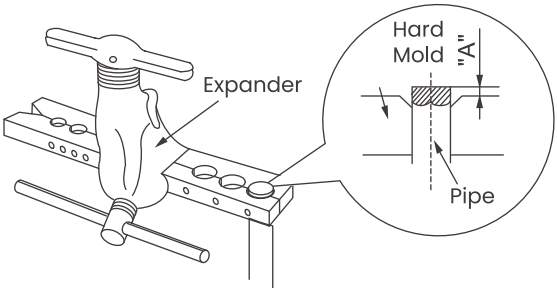


c. Flare Pipe Ends

- After removing burrs from the cut pipe, seal the ends with tape to prevent foreign materials from entering the pipe.
- Sheath the pipe with insulating material.
- Place flare nuts on both ends of the pipe. Make sure they are facing in the right direction, because you can't put them on or change their direction after flaring.



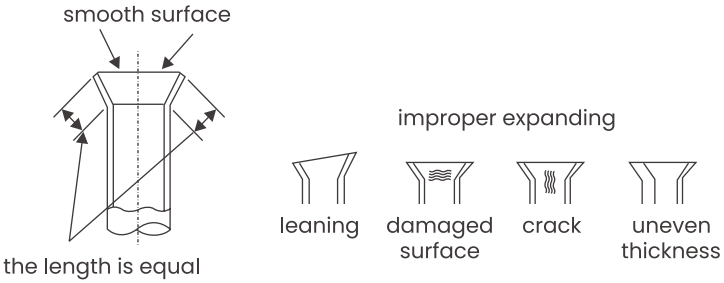
- Remove the tape from the ends of the pipe when ready to perform flaring work.
- Clamp flare form on the end of the pipe. Place the flaring tool onto the form. Turn the handle of the flaring tool clockwise until the pipe is fully flared.



The end of the pipe("A") must extend beyond the edge of the flare form in accordance with the dimensions shown in the table below.

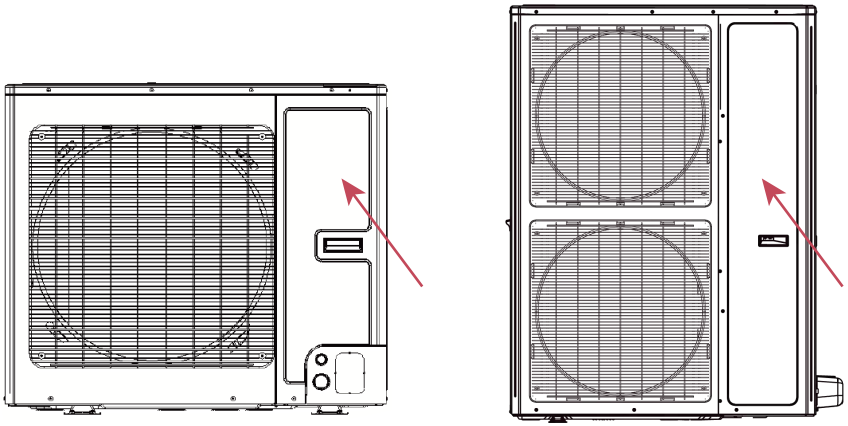
Outer Diameter (mm)	A(mm)	
	Max	Min
Φ6 - 6.35(1/4")	1.3	0.7
Φ9 - 9.52(3/8")	1.6	1.0
Φ12-12.7(1/2")	1.8	1.0
Φ15.8-16(5/8")	2.4	2.2

- Remove the flaring tool and flare form, then inspect the end of the pipe for cracks and even flaring. If there is any blemish, do it again according to the steps above.

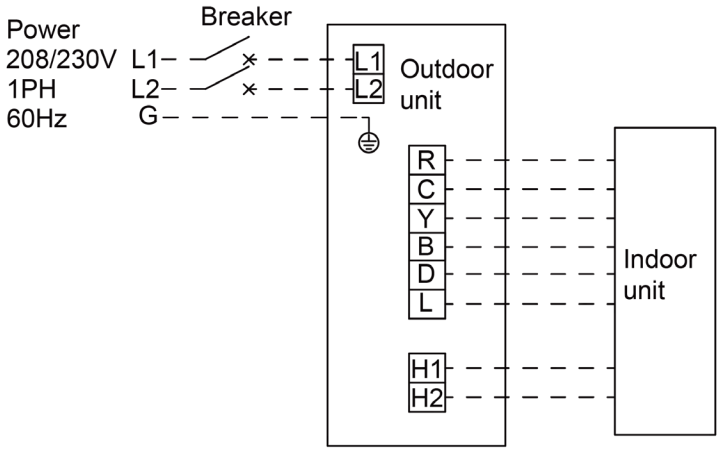


6. Connection of Power Cords and Thermostat Wires

- Remove the screws and remove the right front panel of the outdoor unit.



Electrical Wiring of Outdoor Units



Y indicates compressor control signal for the outdoor unit.

B indicates four-way valve control signal (valid in heating mode).

D indicates a defrosting signal.

R indicates 24V AC power supply.

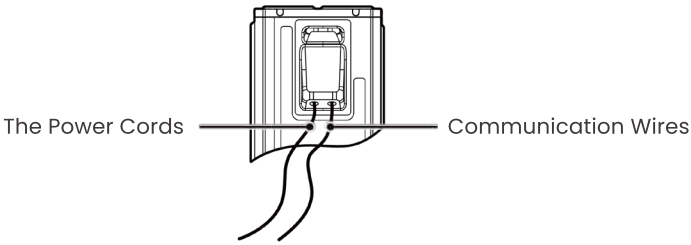
C indicates 24V common.

L indicates refrigerant leakage protection signal.

H1/H2 indicates RS485 communication.

NOTE:

1. When the outdoor unit defrosts, the D terminal of the outdoor unit will send a 24V signal to avoid cold winds.
2. As for the indoor unit which do not include D, there is no need to connect the D terminals.
3. L must be connected and connected to the indoor machine.

⚠ WARNING
(1) High and low voltage wires should be led out from holes in the handle
(2) Do not bundle up the communication wires or lay them side by side, otherwise errors will occur.
(3) High and low voltage wires should be secured separately
(4) Use screws to tighten up the communication wires and power cords of the units on the terminal board. Wrong connection may lead to fire hazard.
(5) If the communication wires of the units and power cords are not correctly connected, the air conditioner may get damaged.
(6) Ground the units through connecting the ground wire.
(7) The units should comply with applicable local and national rules and regulations on power consumption.
(8) When connecting the power cords, make sure the phase sequence of the power supply matches with the corresponding terminals, otherwise the compressor will get reversed and operate abnormally. Schematic diagram of the engineering routing: 

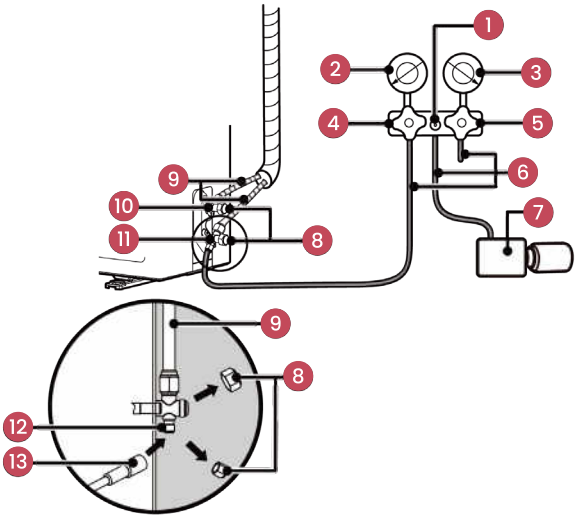
- Place the front panel back and screws it securely.

NOTE:

1. Please apply sealant around the places where the wires, refrigerant pipes and condensate pipes enter the cabinet.
2. Use duct tape or flexible sealant to seal closed any space around the holes where the drain lines exit the cabinet. Warm air must not be allowed to enter through any gaps or holes in the cabinet.
3. Connect the wires firmly to the wiring box. The ground wire should be connected.
4. Power cords and communication wires should be secured separately. Secure the former ones with big clamps and the latter ones with small clamps.
5. Do not bundle up the thermostat wires or lay them side by side.

Air Evacuation

- Evacuation should be performed upon initial installation or when the unit is relocated.
- Before vacuum pumping, ensure the unit cut-off valves are closed.
- Both the liquid pipe and the gas pipe need to be air evacuated individually.



1. Gauge Manifold
2. Pressure Gauge (Low-pressure)
3. Pressure Gauge (High-pressure)
4. Switch (Low-pressure)
5. Switch (High-pressure)
6. Hose
7. Vacuum Pump
8. Cap
9. Connection Pipe
10. Liquid Valve
11. Gas Valve
12. Service Port
13. Hose with the Valve Pin

a. Remove the caps of the liquid valve, gas valve, and the service port.

b. Connect the hose at the low-pressure side of the manifold gauge to the service port of the unit's liquid valve and then connect the hose used for evacuation to the vacuum pump.

c. Open the low-pressure and high-pressure sides of the manifold switches at the same time and start the vacuum pump. The evacuation is 30 minutes for the HP-A36 model and 45 minutes for the HP-A60 model.

d. Check if the pressure gauge at the low-pressure side of the manifold gauge reads -0.1MPa, if not, it indicates there is a leak.

e. Close the vacuum pump and wait for 10 minutes to ensure there has been no change in system pressure. During this time, the reading of the pressure gauge at the low-pressure side can not be larger than 0.005MPa.

f. Remove the manifold gauge, and open the valve core of the liquid valve completely by turning anticlockwise with a Hexagonal Allen Wrench.

g. Place back the caps of the liquid valve and service port. Connect the low-pressure side of the manifold gauge to the service port of the unit's gas valve and repeat above steps. Place back the caps of the gas valve and service port.

Gas Leak Checks

There are two different methods to check for gaseous leaks.

1. Soap and Water Method

Using a soft brush, apply soapy water or liquid detergent to all pipe connection points on the indoor unit and outdoor unit for more than 3 minutes. If there are bubbles coming out, there's a leak.

2. Leak Detector Method

If using a leak detector, refer to the device's operation manual for proper usage instructions.

Note: After confirming that all the pipe connection points DO NOT leak, replace the valve cover on the outside unit.

Note on Adding Refrigerant

Depending on the length of the pipes, you may need to add refrigerant. Refer to the table below for refrigerant amounts to be added:

Model	Maximum Pipe Length without Additional Refrigerant	Maximum Drop Height Between Indoor and Outdoor Units
HP-UA36	24.6 ft (7.5 m)	0.22 oz/ft (20 g/m)
HP-UA60	24.6 ft (7.5 m)	

Checking Items After Installation

After installation, confirm that all electrical wiring is installed in accordance with local and national regulations, and according to the Installation Manual.

1. Check Grounding Work

Measure grounding resistance by visual detection and with a grounding resistance tester. Grounding resistance must be less than 4 ohms.

Note: This may not be required for some locations in the US.

2. Check for Electrical Leakage

During the Test Run, use an electroprobe and multimeter to perform a comprehensive electrical leakage test. If electrical leakage is detected, turn off the unit immediately and call a licensed electrician to find and resolve the cause of the leakage.

Note: This may not be required for some locations in the US.

3. Check if the water can be drained fluently.

4. Check if the piping length and refrigeration charging volume have been recorded.

5. Check if there is an obstruction blocking the air inlet/outlet.

Note: All wiring must comply with local and national electrical codes and must be installed by a licensed electrician.

Test Run

Only perform a test run after you have completed the following steps.

- Electrical Safety Check - Confirm that the unit's electrical system is safe and operating properly.
- Gas Leak Check - Check all flare nut connections and confirm that the system is not leaking.
- Confirm that gas and liquid (high and low pressure) valves are fully open.

Operation after connecting the power:

- If all the above works are finished, power on the unit. Otherwise, it is forbidden to power on the unit.
- If the outside temperature is more than 86°F (30°C), heating mode can't be enabled.
- Before test operation, make sure the unit is powered on and the compressor has been preheated for more than 8 hours. Touch the unit to check whether it's normally preheated. Start test operation after the unit is normally preheated, otherwise, the compressor might be damaged. Debugging must be performed by professional technicians or under the guidance of professional technicians.
- Trial run under several modes and check if the unit operates normally.
- If there's a sound of liquid shock when the compressor is running, then stop the air conditioner immediately. Wait until the electric heating belt is heated enough, and then restart the air conditioner.

Care and Maintenance

- Disconnect from power before cleaning and servicing. Failure to do so may cause electric shock.
- Do not wash the air conditioner with water as this may cause electric shock.
- Do not use organic solvents to clean the air conditioner.
- An air filter should be installed to improve the cooling effect. Do not dry the filter with a naked flame or an air blower.

Model	Recommended Filter Size (in/mm)
HP-UA36/I	19.3 x 20.3 x 0.6 / 490 x 516 x 15
HP-UA60/I	23.0 x 20.3 x 0.6 / 585 x 516 x 15

Offseason Maintenance

If you are going to put the unit into long-term storage, please do the following:

1. Disconnect from power supply.
2. Clean the filter and outer case.
3. Remove dust and debris on the air conditioner.

Preseason Maintenance

If you are going to use the unit again after a long period of non-use, please do the following:

1. Check whether air inlets and air outlets are blocked.
2. Check whether the plug and socket are in good condition.
3. Check whether the filter is clean.
4. Preset the power switch of the air conditioner to “ON” status before 8h of operation, to preheat the crankcase of the outdoor compressor.

Troubleshooting

You may meet some common issues listed below. We recommend you do a self-check first, but if the problem is not resolved, please contact customer support at support@tosotdirect.com

Issues	Self-check	Solutions
The unit can not be activated.	The unit doesn't connect to the power supply.	Connect with the power supply.
	Low voltage.	Check if the circuit voltage is within the rated scope.
	The fuse is broken or the breaker trips off.	Replace the fuse or connect the breaker.
	The wire connection is wrong.	Connect wires according to the wiring diagram.
	Did you just restart the unit after powering it off?	The unit is experiencing the 3-Minute Compressor Protection to help extend the lifespan of your unit. Wait for 3 minutes, and then turn on the unit again.
Abnormal cooling or heating	The air inlet/outlet of the indoor unit is blocked.	Remove obstacles.
	Inappropriate temperature setting.	Adjust the setting at the thermostat.
	Fan speed is too low.	Reset a proper fan speed.
	Direct sunshine.	Draw a curtain or louver.
	Too many heat sources in the room.	Remove the heat source.
	The filter screen is blocked by dirt.	Clean the filter.

Issues	Self-check	Solutions
White mist emitted from the indoor unit	Are the indoor temperature or humidity levels high?	In humid regions, a large temperature difference between the room's air and the conditioned air can cause white mist. After a while, indoor temperature and humidity will decrease and the mist will disappear.
Strange odors emitted	Check whether there's an odor source such as new furniture or smoking, etc.	Remove the odor source and clean the reusable filter.

LED Indicator

LED indicators on the main board of the indoor unit display unit status and malfunction.

Indicator Status	What does it mean?
Red light	The unit is powered on.
Green light	The indoor fan is on.
Flash once and light out 3 seconds	Indoor jumper cap error.
Flash twice and light out 3 seconds	Indoor fan error.
Flash four times and light out 3 seconds	Indoor tube temperature sensor error.
Flash six times and light out 3 seconds	Indoor air outlet temperature sensor error.

Malfunction Codes

Malfunction codes are displayed on the main board of the outdoor unit.

NO.	Error Code	Error
1	E1	Compressor high pressure protection
2	E3	Refrigerant lack protection or compressor low pressure protection
3	E4	Compressor air discharge high-temperature protection
4	H4	Overload protection
5	C6	Discharge temperature sensor error
6	F3	Outdoor ambient temperature sensor error
7	e1	High pressure sensor error
8	e3	Low pressure sensor error
9	EE	Memory chip reading and writing failure
10	C4	ODU jumper cap error
11	C3	Condenser temperature sensor error
12	C7	ODU tube temperature sensor error
13	H3	Compressor overload protection
14	E2	Indoor anti-freezing protection
15	b2	Overcooler gaseous inlet tube temperature sensing error
16	b3	Overcooler gaseous outlet tube temperature sensing error
17	E6	Internal and external machine communication fault
18	H2	IPM Low Temperature Protection
19	FE	Refrigerant sensor fault
20	EH	Protection of auxiliary electric heating by mistake
21	C1	Indoor environment temperature sensing bag fault
22	C2	Indoor tube temperature sensing bag fault
23	FJ	Indoor air outlet temperature sensing bag fault
24	CA	Evaporator inlet tube temperature sensing bag fault
25	Cb	Evaporator output tube temperature sensing bag fault
26	CJ	Internal jumper cap fault

NO.	Error Code	Error
27	Ab	Drive reset protection (fan drive)
28	EA	Internal refrigerant leakage protection
29	A6	Fan communication failure (fan drive)
30	A8	Module temperature too high (fan driven)
31	A9	Drive sensor fault (fan drive)
32	Ad	Phase loss protection (fan drive)
33	AH	Bus voltage too high (fan drive)
34	AL	Bus voltage too low (fan drive)
35	C8	Driver jumper cap fault
36	U2	Compressor phase-sequence protection
37	LE	The compressor is locked
38	P6	Communication fault between main control and driver
39	P8	Heat sink or IPM module or PFC module over temperature
40	UL	Over-current protection of frequency conversion external fan
41	PL	Bus low-voltage protection
42	PH	Bus high-voltage protection
43	PA	ODU AC current protection
44	H5	IPM module current protection
45	L3	DC fan error
46	HC	PFC overcurrent protection
47	Lc	Compressor startup failure
48	P0	Driver reset protection
49	P5	Compressor phase over-current protection
50	U1	Current detection circuit fault or current sensor fault
51	H7	Compressor out-of-step protection
52	P7	Module temperature sensor circuit failure
53	PU	Capacitor charging failure
54	A1	Outdoor fan IPM module protection
55	Ac	Outdoor fan startup failure
56	AE	Outdoor fan current detection circuit error
57	AJ	Outdoor fan out-of-step protection
58	E0	Indoor fan error

Warranty & Customer Support

Warranty Information

1. 5-Year warranty:

TOSOT Central Heat Pump comes with a 5-year warranty from the date of purchase.

This warranty covers manufacturing and material defects. Please visit ***https://tosotdirect.com/warranty*** for more details.

2. Additional 6-Month warranty extension:

You can get a 6-month warranty extension by registering your new product at ***www.tosotdirect.com/extend***

TOSOT

Customer Support

Questions? We are here to help

support@tosotdirect.com

www.tosotdirect.com

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