

# MITSUBISHI ELECTRIC Air-Conditioners

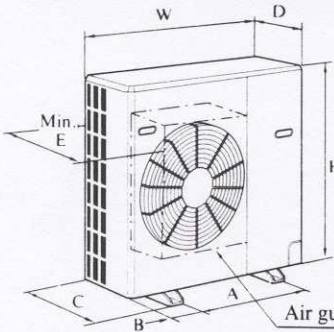
# Mr. SLIM

Models : PU12,18,24,30,36EK,42EK (2,7)  
PUH18,24,30,36EK,42EK (7)

## Installation Manual

For safe and correct use, please read this installation manual thoroughly before installing the air-conditioner unit. How to install indoor units is described in the indoor unit installation manual.

### 1. Outline dimensions



Models	W	D	H	A	B	C	E
PU12EK	34-1/4	11-5/8	25-9/16	19-11/16	5-5/16	13	19-1/2
PU18EK PUH18EK	34-1/4	11-5/8	33-7/16	19-11/16	5-5/16	13	19-1/2
PU24.30EK PUH24EK	34-1/4	11-5/8	49-1/2	19-11/16	5-5/16	13	19-1/2
PU36EK,42EK(2,7) PUH30,36EK,42EK(7)	38-3/16	13-9/16	49-1/2	23-5/8	5-5/16	15	21-7/16

(inch)

#### Warning

Units should be installed by licensed contractor according to local code requirements.

### 2. Selecting the Installation Location

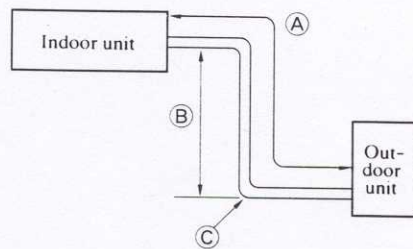
#### Caution

- Install in location unexposed to direct sunlight or other radiated heat. If direct sunlight cannot be avoided, always install a sunshade to protect the outdoor unit from the sun.
- Select location from which noise emitted by the unit will not inconvenience neighbors.
- Select location permitting easy wiring and piping to the power source and indoor unit.
- Avoid locations in which combustible gas may be generated, settle or leak.
- Bear in mind that during operations drain water may flow from the unit.

Check that the difference between heights of indoor and outdoor units, length of refrigerant piping and the number of bends in piping are within the limits shown below.

Models	Ⓐ Piping length (one way)	Ⓑ Height difference	Ⓒ Number of bends (one way)
PU12EK PU (H) 18EK	Max.130feet	*Max.130feet	Max.of 12
PU (H) 24,30,36EK	Max.164feet	*Max.164feet	Max.of 15
PU42EK(2,7) PUH42EK(7)	Max.164feet	*Max.164feet	Max.of 15

\* Height difference limitations are binding regardless of which unit, indoor or outdoor, is positioned higher.



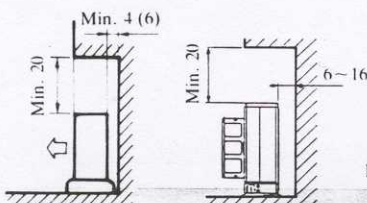
### 2.1. Free Space Required Around the Outdoor Unit

#### 1) When the Outdoor Unit is Installed Singly

(Dimensions inside parentheses apply to type PU24, 30, 36EK, 42EK(2,7), PUH24, 30, 36EK, 42EK(7))

##### 1. Top side obstacles

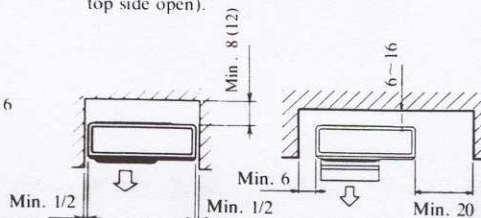
If there are obstacles at the side only, other obstacles may be permitted as shown in the diagram of top side.



When using the air guide (inch)

##### 2. Front side (blowing side) open

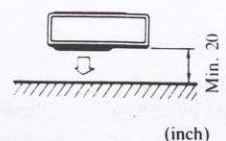
If only the space shown in diagram can be reserved, obstacles can be allowed in the other 3 directions (but top side open).



When using the air guide (inch)

##### 3. Obstacles on front side (blowing side) only

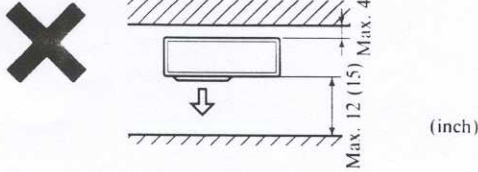
If there are obstacles on the front side, keep the back, left/right & top side open.



(inch)

**4. Obstacles on front & rear sides**

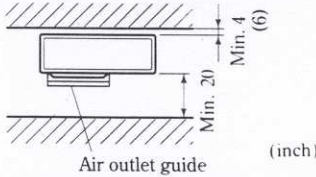
Unusable in case of the dimensions shown in following diagram. See item 5.



**5. Obstacles on front & rear sides only**

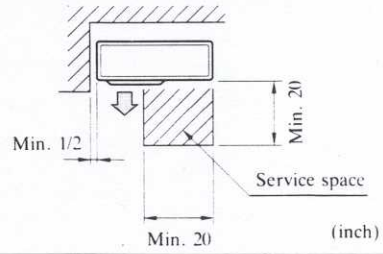
Becomes usable by fitting the outdoor air (outlet) guide (obtained locally) (left/right & top side open). But if natural wind, like that flowing between buildings, cannot be expected, keep the height or width of obstacles within the following range. Otherwise, there is the risk of short cycle occurring. (If the front or rear side satisfies the requirements, there is no special restriction on the remaining side).

Obstruction width: 1.5 times width of outdoor unit or smaller  
Obstruction height: Unit height or lower



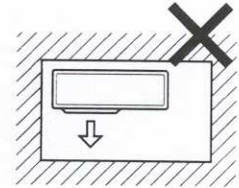
**SERVICE SPACE**

Allow the service space shown in the following diagram to remain open, for maintenance etc. in front of the unit.



**6. Obstacles on 4 surrounding sides**

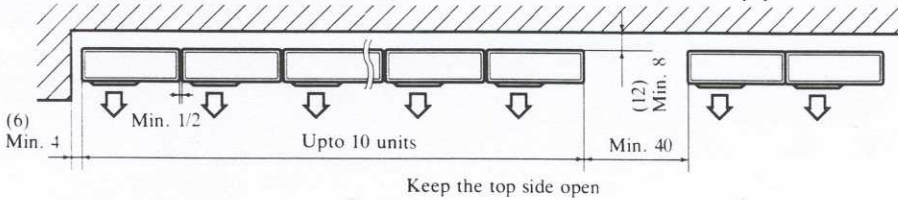
Unusable if there are obstacles on all 4 surrounding sides, even if there is more than the prescribed amount of space around the outdoor unit and even if the top side is open.



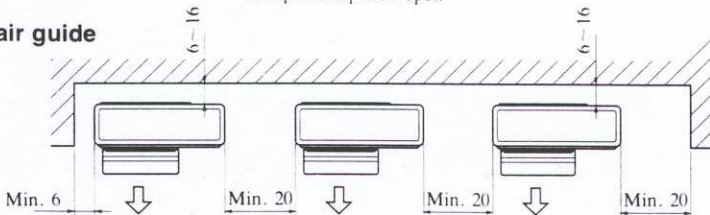
**2) Relative Positioning of Units Installed Together**

(Dimension inside parentheses apply to type PU24, 30, 36EK, 42EK (2,7), PUH24, 30, 36EK, 42EK (7))

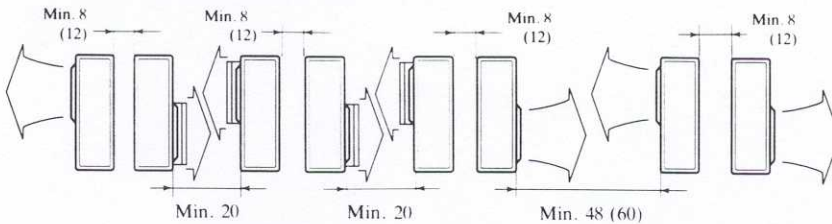
**(1) When installed consecutively sideways** ● Remove the side screw of pipe cover



**When using the air guide**



**(2) When arranged longitudinally**

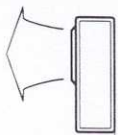


Only when the outdoor air outlet guide is set at "upward blow"

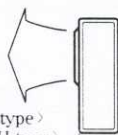
When not using the outdoor air outlet guide

● Install air outlet guide, if the unit is installed at a place where the powerful blast of typhoon, etc. comes directly on the air outlet.

**When not using the outdoor air (outlet) guide**

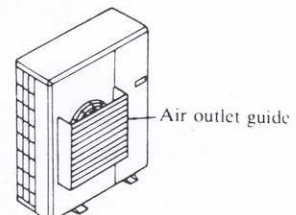


**When using the outdoor air (outlet) guide**



80(100) <PU type>  
120(150) <PUH type>

Min. 40 (60) (inch)

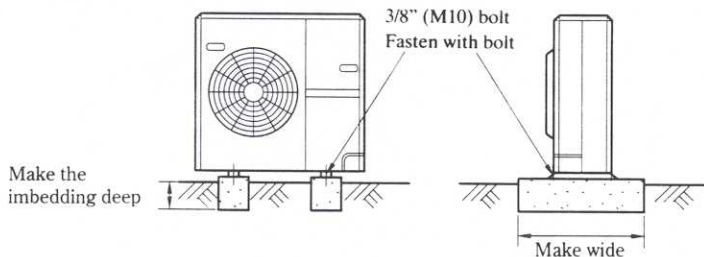


**3. Installing the Unit**

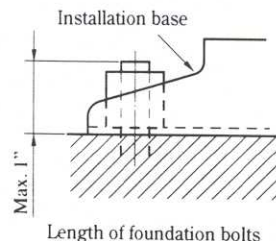
**⚠ Caution**

- Try as much as possible to transport the unit to the installation site in its original packaging.
- Since the center of gravity of the unit is off-center, caution is necessary when lifting the unit using a rope, etc.
- The outdoor unit should not be tilted by more than 45° when transporting. (Do not stack them sideways.)

- Always anchor outdoor unit legs by means bolts. (Procure anchor bolts locally.)
- Secure strongly to prevent overturning by earthquakes or gusts of wind.
- Prepare concrete foundation as shown at below.

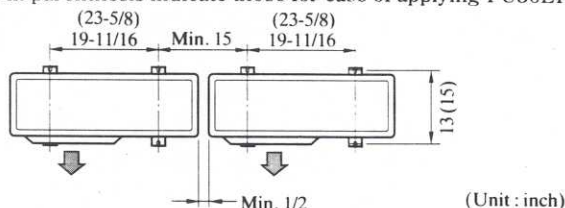


Note : Keep the length of foundation bolts upto 1 inch from the bottom side installation base.



#### Bolt pitch for the case of parallel connection of units.

Values enclosed in parenthesis indicate those for case of applying PU36EK, 42EK (2.7) , PUH30, 36EK, 42EK (7) type.



## 4. Refrigerant Piping

### 4.1. Piping Connection Work

- This unit has flared connections on the outdoor sides.
- The refrigerant pipes and the indoor unit contain a nitrogen holding charge which must be removed by evacuation.

#### 1. When using optionally purchased refrigerant piping:

Piping connection procedures

See that the stop valve on outdoor unit is fully shut (unit is shipped with valve shut). Remove the caps from the piping and unit and make flare connection promptly. Repeat for each connection, one at a time.

After all piping connections between indoor and outdoor unit have been completed, vacuum-purge air from system through the service port for the stop valve on the outdoor unit.

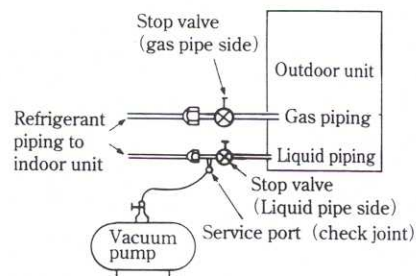
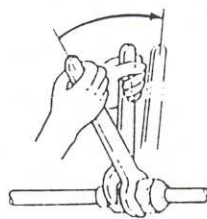
#### 2. When using commercially available copper piping:

See that stop valve on outdoor unit is fully shut (unit is shipped with valve shut). After all piping connections between the indoor and outdoor unit have been completed, vacuum-purge air from the system through the service port for the stop valve on the outdoor unit.

#### 3. After completing procedures 1 or 2 above, open the outdoor unit stop valves stem fully. This completes connection of the refrigerant circuit between the indoor and outdoor units. Stop valve instructions are marked on the outdoor unit.

- Apply thin layer of refrigerant oil provided with the unit to the pipe and joint seating surfaces before tightening flare nuts.
- Use two wrenches to tighten piping connections.

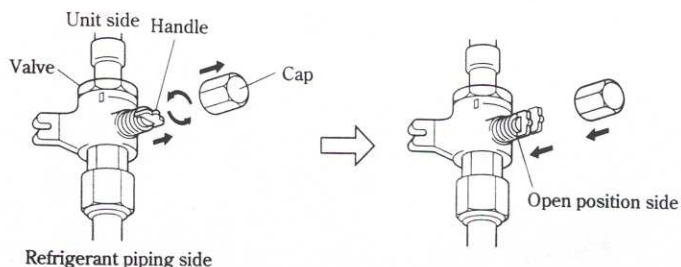
Pipe diameter		Tightening torque (ft · lbs)
mm	inch	
9.52	3/8	25 to 30
12.7	1/2	36 to 42
15.88	5/8	54 to 58
19.05	3/4	72 to 101



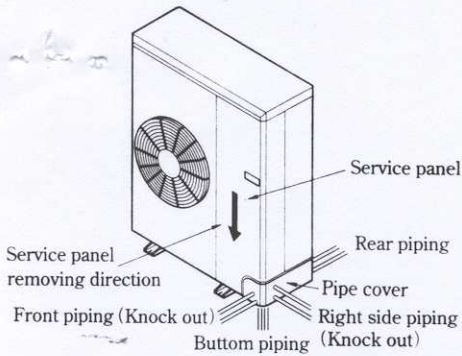
- Don't air-purge with the refrigerant charged in the outdoor unit.
- Use a leak detector or soapy water to check for gas leaks after connections are completed.

### Stop Valve

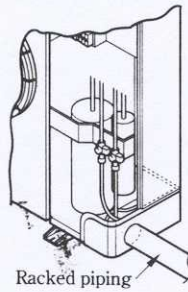
- ① Perform refrigerant piping connections for the indoor/outdoor unit when the outdoor unit's stop valve is completely closed.
- ② After connecting the tubes, test for gas leaks between the indoor unit and the preexisting pipes by running nitrogen through the stop valve's service port on the outdoor unit.
- ③ Release the vacuum inside of the service port mentioned above by completely opening the stop valves of the outdoor unit. Operation of the unit while the valves are closed may cause damage to the compressor, controller, etc.
- ④ Use a sealant to protect the tube connections to prevent water from saturating the ends of the insulation material.
- ⑤ Remove the cap, pull the hand toward you and rotate 1/4 turn in a counterclockwise direction to shut.
- ⑥ Make sure that the stop valve is open completely, push in the handle and rotate the cap back to its original position.



1. Pipe access directions (4 possible directions)

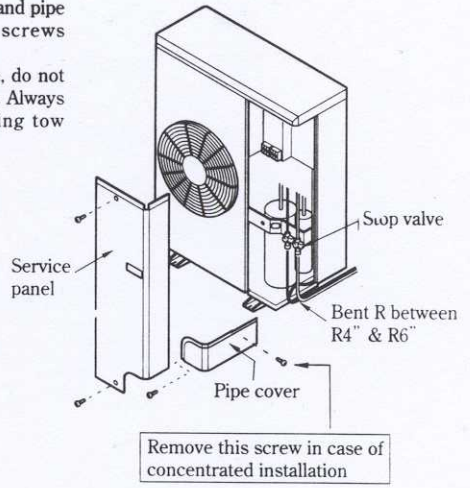


In case of racking the piping do the piping below the pipe cover, so as to enable mounting & dismantling of the service panel.



2. Remove the service panel and pipe cover (by taking off 2 screws each).

3. When connecting the pipe, do not further bend the bent part. Always tighten the flare nut using tow wrenches.

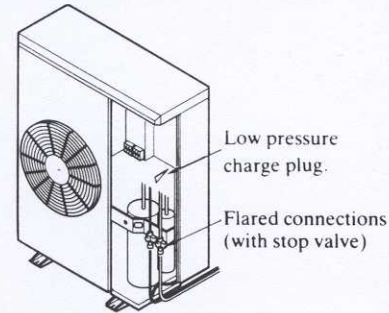


## 4.2. Amount of Refrigerant

- Outdoor unit has been charged with refrigerant of the amount sufficient for 100 feet of piping. When the actual length of the pipe exceeds 100 feet, charge an additional amount of refrigerant (R-22).

Models	Additional charge piping length exceeds 100ft	Refriger piping length (one way) [R-22 (oz)]						Factory charged
		100ft	115ft	130ft	145ft	160ft	164ft	
PU12EK	0.7oz/5ft	0	2	4	—	—	—	4lbs 14oz
PU (H) 18EK		0	2	4	—	—	—	5lbs 8oz
PU (H) 24EK		0	2	4	6	8	9	9lbs 15oz
PU (H) 30EK	1.6oz/5ft	0	5	10	14	19	20	10lbs 2oz
PU (H) 36EK		0	5	10	14	19	20	10lbs 9oz
PU (H) 42EK7		0	5	10	14	19	20	11lbs 0oz
PU42EK2, PUH42EK		0	5	10	14	19	20	12lbs 9oz

• Refrigerant charging position



- The refrigerant should be charged using the low pressure charge plug in the service panel as shown in the figure left.

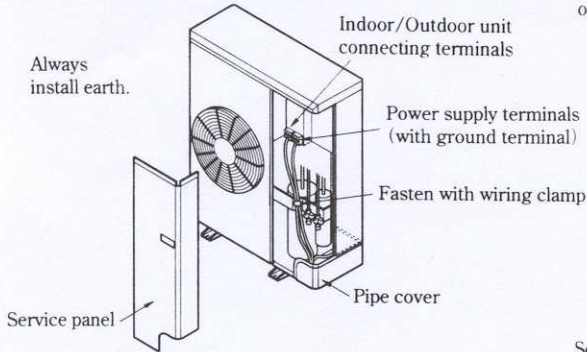
Note : When charging refrigerant, always measure the refrigerant amount.

## 5. Electrical Work

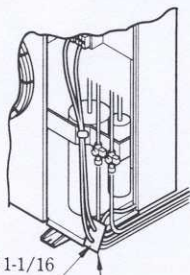
### Electrical Wiring Connections (Tighten terminal screws securely)

Remove the service panel (2 screws).

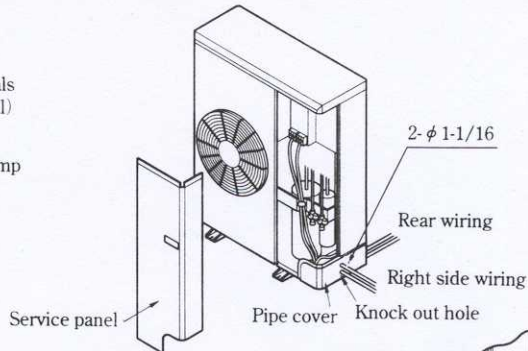
Wiring outlet contains a rear pipe hole and wiring hole of pipe cover (Knock out).



Use the accompanying "conduit holder", when wiring by using wiring conduit on the rear side.



Wiring conduit holder  
Not needed in other cases.



At the end of piping & wiring, fill up the clearance between the pipe cover and main unit with the blocks of urethane foam provided on the inside of the service panel.

