## SLIM CASSETTE TYPE AIR CONDITIONER
### INSTALLATION MANUAL

<table>
<thead>
<tr>
<th>Indoor Unit</th>
<th>Outdoor Unit</th>
<th>Power Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>42TSV052P1</td>
<td>38TSV052P1</td>
<td>220-240V ~ 50Hz</td>
</tr>
<tr>
<td>42TSV067P1</td>
<td>38TSV067P1</td>
<td>220-240V ~ 50Hz</td>
</tr>
<tr>
<td>42TSV080P1</td>
<td>38TSV080P1</td>
<td>220-240V ~ 50Hz</td>
</tr>
<tr>
<td>42TSV110P1</td>
<td>38TSV110P1</td>
<td>220-240V ~ 50Hz</td>
</tr>
<tr>
<td>42TSV130P1</td>
<td>38TSV130P1</td>
<td>220-240V ~ 50Hz</td>
</tr>
</tbody>
</table>
Thank you very much for purchasing our air conditioner,
Before using your air conditioner, please read this manual carefully and keep it for future reference.
Be sure to be in conformity with the local, national and international laws and regulations.

Read "PRECAUTIONS" carefully before installation.

The following precautions include important safety items. Observe them and never forget.

Keep this manual with the owner's manual in a handy place for future reference.

The safety precautions listed here are divided into two categories.

**WARNING**

Failure to observe a warning may result in death.

**CAUTION**

Failure to observe a caution may result in injury or damage to the equipment.

After completing the installation, make sure that the unit operates properly during the start-up operation. Please instruct the customer on how to operate the unit and keep it maintained. Also, inform customers that they should store this installation manual along with the owner's manual for future reference.

**WARNING**

Be sure only trained and qualified service personnel to install, repair or service the equipment.

Improper installation, repair, and maintenance may result in electric shocks, short-circuit, leaks, fire or other damage to the equipment.

Install according to this installation instructions strictly. If installation is defective, it will cause water leakage, electrical shock and fire.

When installing the unit in a small room, take measures against to keep refrigerant concentration from exceeding allowable safety limits in the event of refrigerant leakage. Contact the place of purchase for more information. Excessive refrigerant in a closed ambient can lead to oxygen deficiency.

Use the attached accessories parts and specified parts for installation. otherwise, it will cause the set to fall, water leakage, electrical shock and fire.

Install at a strong and firm location which is able to withstand the set's weight. If the strength is not enough or installation is not properly done, the set will drop to cause injury.

The appliance must be installed 2.5m above floor. The appliance shall not be installed in the laundry. Before obtaining access to terminals, all supply circuits must be disconnected. The appliance must be positioned so that the plug is accessible. The enclosure of the appliance shall be marked by word, or by symbols, with the direction of the fluid flow.

For electrical work, follow the local national wiring standard, regulation and this installation instructions. An independent circuit and single outlet must be used. If electrical circuit capacity is not enough or defective in electrical work, it will cause electrical shock or fire.

Use the specified cable and connect tightly and clamp the cable so that no external force will be acted on the terminal. If connection or fixing is not perfect, it will cause heat-up or fire at the connection.

Wiring routing must be properly arranged so that control board cover is fixed properly. If control board cover is not fixed perfectly, it will cause heat-up at connection point of terminal, fire or electrical shock.

If the supply cord is damaged, it must be replaced by the manufacture or its service agent or a similarly qualified person in order to avoid a hazard. An all-pole disconnection switch having a contact separation of at least 3mm in all poles should be connected in fixed wiring.

When carrying out piping connection, take care not to let air substances go into refrigeration cycle. Otherwise, it will cause lower capacity, abnormal high pressure in the refrigeration cycle, explosion and injury.

Do not modify the length of the power supply cord or use of extension cord, and do not share the single outlet with other electrical appliances. Otherwise, it will cause fire or electrical shock.

Carry out the specified installation work after taking into account strong winds, typhoons or earthquakes. Improper installation work may result in the equipment falling and causing accidents.
If the refrigerant leaks during installation, ventilate the area immediately.
Toxic gas may be produced if the refrigerant comes into the place contacting with fire.

Temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.

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

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**2. INSTALLATION INFORMATION**

- To install properly, please read this "installation manual" at first.
- The air conditioner must be installed by qualified persons.
- When installing the indoor unit or its tubing, please follow this manual as strictly as possible.
- If the air conditioner is installed on a metal part of the building, it must be electrically insulated according to the relevant standards to electrical appliances.
- When all the installation work is finished, please turn on the power only after a thorough check.
- Regret for no further announcement if there is any change of this manual caused by product improvement.

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**INSTALLATION ORDER**

- Select the location;
- Install the indoor unit;
- Install the outdoor unit;
- Install the connecting pipe;
- Connect the drain pipe;
- Wiring;
- Test operation.

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**CAUTION**

Ground the air conditioner.
Do not connect the ground wire to gas or water pipes, lightning rod or a telephone ground wire.Incomplete grounding may result in electric shocks.

Be sure to install an earth leakage breaker.
Failure to install an earth leakage breaker may result in electric shocks.

Connect the outdoor unit wires, then connect the indoor unit wires.
You are not allow to connect the air conditioner with the power source until wiring and piping the air conditioner is done.

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

Install the indoor and outdoor units, power supply wiring and connecting wires at least 1 meter away from televisions or radios in order to prevent image interference or noise.
Depending on the radio waves, a distance of 1 meter may not be sufficient enough to eliminate the noise.

The appliance is not intended for use by young children or infirm persons without supervision.

Don't install the air conditioner in the following locations:

- There is petrolatum existing.
- There is salty air surrounding (near the coast).
- There is caustic gas (the sulfide, for example) existing in the air (near a hot spring).
- The Volt vibrates violently (in the factories).
- In buses or cabinets.
- In kitchen where it is full of oil gas.
- There is strong electromagnetic wave existing.
- There are inflammable materials or gas.
- There is acid or alkaline liquid evaporating.
- Other special conditions.

The appliance shall be installed in accordance with national wiring regulations.
Do not operate your air conditioner in a wet room such as a bathroom or laundry room.

An all-pole disconnection device which has at least 3mm clearances in all poles, and have a leakage current that may exceed 10mA, the residual current device (RCD) having a rated residual operating current not exceeding 30mA, and disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.
3. ATTACHED FITTINGS

Please check whether the following fittings are of full scope. If there are some spare fittings, please restore them carefully.

<table>
<thead>
<tr>
<th>NAME</th>
<th>SHAPE</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installation Fittings</td>
<td>1. Installation paper board</td>
<td>1</td>
</tr>
<tr>
<td>Tubing &amp; Fittings</td>
<td>2. Insulation sheath</td>
<td>1</td>
</tr>
<tr>
<td>Drainpipe Fittings</td>
<td>3. Out-let pipe sheath</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>4. Out-let pipe clasp</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>5. Drain joint</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>6. Seal ring</td>
<td>1</td>
</tr>
<tr>
<td>Wired controller (Match with wire controller)</td>
<td>7. Wired controller</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>12. Owner's manual</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>13. Installation manual</td>
<td>1</td>
</tr>
<tr>
<td>Installation accessory (The product you might not be provided the following accessory)</td>
<td>14. Expansible hook</td>
<td>4</td>
</tr>
<tr>
<td>EMC &amp; Its Fitting (on some models)</td>
<td>16. Magnetic ring</td>
<td>1</td>
</tr>
</tbody>
</table>

Cautions on remote controller installation: (depending on the models)

- Never throw or beat the controller.
- Before installation, operate the remote controller to determine its location in a reception range.
- Keep the remote controller at least 1m apart from the nearest TV set or stereo equipment. (It is necessary to prevent image disturbances or noise interferences.)
- Do not install the remote controller in a place exposed to direct sunlight or close to a heating source, such as a stove.
- Note that the positive and negative poles are right positions when loading batteries.
- This manual is subject to changes due to technological improvement without further notices.
4. INSPECTING AND HANDLING THE UNIT

At delivery, the package should be checked and any damage should be reported immediately to the service agent.

When handling the unit, take into account the following:

1. Fragile, handle the unit with care.
2. Keep the unit upright in order to avoid compressor damage.
3. Choose on before hand the path along which the unit is to be brought in.
4. Move this unit as originally package as possible.
5. When lifting the unit, always use protectors to prevent belt damage and pay attention to the position of the unit’s centre of gravity.
6. Minimum installation height of this unit is 2.5 meter.

5. INDOOR UNIT INSTALLATION

5.1 Installation place

(Refer to Fig.5-1, Fig.5-2, Fig.5-3 and Table 5-1 for specification.)

The indoor unit should be installed in a location that meets the following requirements:

- There is enough room for installation and maintenance.
- The ceiling is horizontal, and its structure can endure the weight of the indoor unit.
- The outlet and the inlet are not impeded, and the influence of external air is the least.
- The air flow can reach throughout the room.
- The connecting pipe and drainpipe could be extracted out easily.
- There is no direct radiation from heaters.

CAUTION

Keep indoor unit, outdoor unit, power supply wiring and transmission wiring at least 1 meter away from televisions and radios. This is to prevent image interference and noise in those electrical appliances. (Noise may be generated depending on the conditions under which the electric wave is generated, even if 1 meter is kept.)

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<table>
<thead>
<tr>
<th>MODEL</th>
<th>A</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>42TSV052P1</td>
<td>205</td>
<td>&gt;235</td>
</tr>
<tr>
<td>42TSV067P1</td>
<td>245</td>
<td>&gt;275</td>
</tr>
<tr>
<td>42TSV080P1</td>
<td>245</td>
<td>&gt;275</td>
</tr>
<tr>
<td>42TSV110P1</td>
<td>245</td>
<td>&gt;275</td>
</tr>
<tr>
<td>42TSV130P1</td>
<td>287</td>
<td>&gt;317</td>
</tr>
</tbody>
</table>
5.2 Install the main body

1 Cut a quadrangular hole of 880x880mm in the ceiling according to the shape of the installation paper board. (Refer to Fig.5-2)
   • The center of the hole should be at the same position of that of the air conditioner body.
   • Determine the lengths and outlets of the connecting pipe, drainpipe and cables.
   • To balance the ceiling and to avoid vibration, please enforce the ceiling when necessary.

2 Select the position of installation hooks according to the hook holes on the installation board.
   • Drill four holes of Ø12mm, 45~50mm deep at the selected positions on the ceiling. Then embed the expansible hooks (fittings).
   • Face the concave side of the installation hooks toward the expansible hooks. Determine the length of the installation hooks from the height of ceiling, then cut off the unnecessary part.

   If the ceiling is extremely high, please determine the length of installation hook according to facts.

3 Adjust the hexagonal nuts on the four installation hooks evenly, to ensure the balance of the body.
   • If the drainpipe is awry, leakage will be caused by the malfunction of the water-level switch.
   • Adjust the position to ensure the gaps between the body and the four sides of ceiling are even. The body's lower part should sink into the ceiling for 10~12 mm (Refer to Fig.5-4).
     • In general, L is half of the screw length of the installation hook.(Refer to Fig.5-4)
     • Locate the air conditioner firmly by wrenching the nuts after having adjusted the body's position well.(Refer to Fig.5-5)

5.3 Install The Panel

CAUTION
Never put the panel face down on floor or against the wall, or on bulgy objects.
Never crash or strike it.

1 Remove the air-in grill.
   • Slide two grill switches toward the middle at the same time, and then pull them up. (Refer to Fig.5-7)
   • Draw the grill up to an angle of about 45, and remove it. (Refer to Fig.5-8)

2 Remove the installation covers at the four corners
   • Wrench off the bolts, loose the rope of the installation covers, and remove them. (Refer to Fig.5-9)

5.3 Install The Panel

CAUTION

After installing the body, the four bolts(M6x12)must be fastened to the air conditioner onto ensure the body is grounded well.
3 Install the panel
- Align the swing motor on the panel to the tubing joints of the body properly. (Refer to Fig.5-10)
- Fix hooks of the panel at swing motor and its opposite sides to the hooks of corresponding water receiver. (Refer to Fig.5-10.1) Then hang the other two panel hooks onto corresponding hangers of the body. (Refer to Fig.5-10.2)

4 Hang the air-in grill to the panel, then connect the lead terminator of the swing motor and that of the control box with corresponding terminators on the body respectively.

5 Relocate the air-in grill in the procedure of reversed order.

6 Relocate the installation cover.
- Fasten the rope of installation cover on the bolt of the installation cover. (Refer to Fig.5-14-left)
- Press the installation cover into the panel slightly. (Refer to Fig.5-14-right)

CAUTION
Do not coil the wiring of the swing motor into the seal sponge.

- Adjust the four panel hook screws to keep the panel horizontal, and screw them up to the ceiling evenly. (Refer to Fig.5-10.3)
- Regulate the panel in the direction of the arrow in Fig.5-10.4 slightly to fit the panel's center to the center of the ceiling's opening. Guarantee that hooks of four corners are fixed well.
- Keep fastening the screws under the panel hooks, until the thickness of the sponge between the body and the panel's outlet has been reduced to about 4~6mm. The edge of the panel should contact with the ceiling well. (Refer to Fig.5-11)
- Malfunction described in Fig.5-12 can be caused by inappropriate tightness the screw.
- If the gap between the panel and ceiling still exists after fastening the screws, the height of the indoor unit should be modified again. (Refer to Fig.5-13-left)
- You can modify the height of the indoor unit through the openings on the panel's four corners, if the lift of the indoor unit and the drainpipe is not influenced (Refer to Fig.5-13-right).
Drainage test

- Check whether the drainpipe is unhindered.
- New built house should have this test done before paving the ceiling.

The unit with pump.

1. Remove the test cover, and stow about 2000ml water to the water pan.
2. Operate the air conditioner in "COOLING" mode. The sound of the drain pump shall be heard. Check whether the water is discharged well (1 min lag is possible, according to the length of the drain pipe), and check whether the water leaks from the joints.
3. Power off the air conditioner and recover the cap.
5.4 Install the distribution duct

Conditioned air can be distributes by means of a distribution duct.

MODEL (TSV052-130)

NOTE

model TSV052 to TSV080 Series A=160mm; Series B=75mm
model TSV110 to TSV130 Series A=160mm; Series B=95mm

In case of one duct connection

The air volume in duct is around 300-360m³/h for model TSV052 to TSV080 unit.
The air volume in duct is around 400-640m³/h for model TSV110 to TSV130 unit.
The max. length of duct is 2m.
The original air outlet with the same direction of duct should be sealed In case of two duct connection.

In case of two duct connection

The air volume in one duct is around 200-260m³/h for model TSV052 to TSV080 unit.
The air volume in one duct is around 300-500m³/h for model TSV110 to TSV130 unit.
The max. length of duct is 1.5m for one duct.
The original air outlet with the same direction of duct should be sealed.
6. OUTDOOR UNIT INSTALLATION

6.1 Installation Place

- The outdoor unit should be installed in the location that meets the following requirements:
  - There is enough room for installation and maintenance.
  - The air outlet and the air inlet are not impeded, and cannot be reached by strong wind.
  - It must be a dry and well ventilating place.
  - The support is flat and horizontal and can stand the weight of the outdoor unit. And will no additional noise or vibration.
  - Your neighborhood will not feel uncomfortable with the noise or expelled air.
  - It is easy to install the connecting pipes or cables.
  - Determine the air outlet direction where the discharged air is not blocked.
  - There is no danger of fire due to leakage of inflammable gas.
  - The piping length between the outdoor unit and the indoor unit may not exceed the allowable piping length.
  - In the case that the installation place is exposed to strong wind such as a seaside, make sure the fan operating properly by putting the unit lengthwise along the wall or using a dust or shield. (Refer to Fig.6-1)
  - If possible, do not install the unit where it is exposed to direct sunlight.
  - If necessary, install a blind that does not interfere with the air flow.
  - During the heating mode, the water drained off the outdoor unit, the condensate should be well drained away by the drain hole to an appropriate place, so as not to interfere other people.
  - Select the position where it will not be subject to snow drifts, accumulation of leaves or other seasonal debris. If unavoidable, please cover it with a shelter.
  - Locate the outdoor unit as close to the indoor unit as possible.
  - If possible, please remove the obstacles nearby to prevent the performance from being impeded by too little of air circulation.
  - The minimum distance between the outdoor unit and obstacles described in the installation chart does not mean that the same is applicable to the situation of an airtight room. Leave open two of the three directions (M,N,P) (Refer to Fig.6-5)

6.2 Figure of body size

Split type outdoor unit

NOTE

All the pictures in this manual are for explanation purpose only. They may be slightly different from the air conditioner you purchased (depend on model). The actual shape shall prevail.
6.3 Space of installation and maintenance
Split type outdoor unit

![Diagram](Fig.6-5)

- Air inlet
- Air outlet
- Maintain channel
- Keep ≥30cm above

**NOTE**

All the figures in this manual are for explanation purpose only. They may be slightly different from the air conditioner you purchased (depend on model). The actual unit shall prevail.

6.4 Moving and installation
- Since the gravity center of the unit is not at its physical center, so please be careful when lifting it with a sling.
- Never hold the inlet of the outdoor unit to prevent it from deforming.
- Do not touch the fan with hands or other objects.
- Do not lean it more than 45°, and do not lay it sidelong.
- Make concrete foundation according to the specifications of the outdoor units. (Refer to Fig.6-6)
- Fasten the feet of this unit with bolts firmly to prevent it from collapsing in case of earthquake or strong wind. (Refer to Fig.6-6)

7. REFRIGERANT PIPE
7.1 Vacuum with vacuum pump
- Use the vacuum pump which vacuum level lower than -0.1MPa and the air discharge capacity above 40L/min.
- The outdoor unit is not necessary to vacuum, don’t open the outdoor unit gas and liquid pipe shut-off valves.
- Make sure the vacuum pump could result as -0.1MPa or below after 2 hrs or above operation. If the pump operated 3 hrs or above could not achieve to -0.1MPa or below, please check whether water mix or gas leak inside of the pipe.

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**Table 6-1**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>H</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>38TSV 052P1</td>
<td>845</td>
<td>560</td>
<td>335</td>
<td>360</td>
<td>312</td>
<td>320</td>
<td>700</td>
<td>Fig.6-2</td>
</tr>
<tr>
<td>38TSV 067P1</td>
<td>900</td>
<td>590</td>
<td>333</td>
<td>355</td>
<td>302</td>
<td>315</td>
<td>860</td>
<td>Fig.6-2</td>
</tr>
<tr>
<td>38TSV 080P1</td>
<td>990</td>
<td>624</td>
<td>366</td>
<td>396</td>
<td>340</td>
<td>354</td>
<td>966</td>
<td>Fig.6-2</td>
</tr>
<tr>
<td>38TSV 110P1</td>
<td>938</td>
<td>634</td>
<td>404</td>
<td>448</td>
<td>368</td>
<td>392</td>
<td>1369</td>
<td>Fig.6-3</td>
</tr>
<tr>
<td>38TSV 130P1</td>
<td>938</td>
<td>634</td>
<td>404</td>
<td>448</td>
<td>368</td>
<td>392</td>
<td>1369</td>
<td>Fig.6-3</td>
</tr>
</tbody>
</table>

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**NOTE**

All the pictures in this manual are for explanation purpose only. They may be slightly different from the air conditioner you purchased (depend on model). The actual shape shall prevail.

---

**Concrete Foundation**
1. Foundation could be on flat and is recommended be 100-300mm higher than ground level.
2. Install a drainage around foundation for smooth drain
3. When installing the outdoor unit fix the unit by anchor bolts of M10.
4. When installing the unit on a roof or a veranda, drain water sometimes turns to ice on a cold morning. Therefore, avoid draining in an area that people often use because it is slippery.
8. INSTALL THE CONNECTING PIPE

Check whether the height drop between the indoor unit and outdoor unit, the length of refrigerant pipe meet the following requirements:

Table 8-1

<table>
<thead>
<tr>
<th>The type of models</th>
<th>Model</th>
<th>The length of refrigerant pipe</th>
<th>The max height drop</th>
</tr>
</thead>
<tbody>
<tr>
<td>R410A inverter Split type air conditioner</td>
<td>42TSV050P1</td>
<td>25</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>42TSV067P1</td>
<td>25</td>
<td>10</td>
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<td>42TSV080P1</td>
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<td></td>
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<td>15</td>
</tr>
<tr>
<td></td>
<td>42TSV130P1</td>
<td>30</td>
<td>15</td>
</tr>
</tbody>
</table>

8.1 The Procedure of Connecting Pipes

1. Drill a hole in the wall (suitable just for the size of the wall conduit), then set on the fittings such as the wall conduit and its cover.

2. Bind the connecting pipe and the cables together tightly with binding tapes. Pass the bound connecting pipe through the wall conduit from outside. Be careful of the pipe allocation to do on damage to the tubing.

3. Connect the pipes. Refer to "How to Connect the pipes" for details.

4. Expel the air with a vacuum pump. Refer to "How to expel the air with a vacuum pump" for details.

5. open the stop valves of the outdoor unit to make the refrigerant pipe connecting the indoor unit with the outdoor unit in fluent flow.

6. Check the leakage. Check all the joints with the leak detector or soap water.

7. Cover the joints of the connecting pipe with the soundproof / insulating sheath (fittings), and bind it well with the tapes to prevent leakage.

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CAUTION

Don’t mix up the different refrigerants or abuse the tools and measurements which directly contact with refrigerants.

Don’t adopt refrigerant gas for air vacuuming.

If vacuum level could not get to -0.1MPa, please check whether resulted by leakage and confirm the leakage site. If no leakage, please operate the vacuum pump again 1 or 2 hrs.

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How to connect the pipes

1. Flaring

   • Cut a pipe with a pipe cutter. (refer to Fig.8-1)

   • Insert a flare nut into a pipe and flare the pipe.

   • Refer to Table 8-2 for the dimension of flare nut spaces.

---

Table 8-2

<table>
<thead>
<tr>
<th>Pipe gauge</th>
<th>Tightening torque</th>
<th>Flare dimension A min (mm)</th>
<th>Flare dimension A max (mm)</th>
<th>Flare shape</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø6.4</td>
<td>14.2 – 17.2 N·m</td>
<td>8.3</td>
<td>8.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(144 – 176 kgf-cm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ø9.5</td>
<td>32.7 – 39.9 N·m</td>
<td>12.0</td>
<td>12.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(333 – 407 kgf-cm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ø12.7</td>
<td>49.5 – 60.3 N·m</td>
<td>15.4</td>
<td>15.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(504 – 616 kgf-cm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ø15.9</td>
<td>61.8 – 75.4 N·m</td>
<td>18.6</td>
<td>19.0</td>
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</tr>
<tr>
<td></td>
<td>(630 – 770 kgf-cm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ø19.1</td>
<td>97.2 – 118.6 N·m</td>
<td>22.9</td>
<td>23.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(990 – 1210 kgf-cm)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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CAUTION

Be sure to with insulating materials cover all the exposed parts of the flare pipe joints and refrigerant pipe on the liquid-side and the gas-side. Ensure that there is no gap between them. Incomplete insulation may cause water condensation.
2 Connect the indoor unit at first, then the outdoor unit.

- Bend the tubing in proper way. Do not harm to them.
  
  Bend the pipe with thumb
  
  min-radius 100mm  
  
  Fig.8-2

  - The bending angle should not exceed 90.
  - Bending position is preferably in the middle of the bendable pipe. The larger the bending radius the better it is.
  - Do not bend the pipe more than three times.
  - When connecting the flare nut, coat the flare both inside and outside with either oil or ester oil and initially tighten by hand 3 or 4 turns before tightening firmly.

- Be sure to use both a spanner and torque wrench together when connecting or disconnecting pipes to/from the unit. (Fig.8-4)

- Be sure to use both a spanner and torque wrench together when connecting or disconnecting pipes to/from the unit. (Fig.8-4)

  **CAUTION**

  Too large torque will harm the bellmouthing and too small will cause leakage. Please determine the torque according to Table 8-2.

  After the connecting work is finished, be sure to check that there is no gas leak.

### How to expel the air with a vacuum pump

- **Stop valve operation introduction**

  1. **Opening stop valve**
     1) Remove the cap and turn the valve counterclock-wise with the hexagon wrench.
     2) Turn it until the shaft stops. Do not apply excessive force to the stop valve. Doing so may break the valve body, as the valve is not a backseat type. Always use the special tool.
     3) Make sure to tighten the cap securely.

  2. **Closing stop valve**
     1) Remove the cap and turn the valve clockwise with the hexagon wrench.
     2) Securely tighten the valve until the shaft contacts the main body seal.

    Make sure to tighten the cap securely. 
    For the tightening torque, refer to the table below.

<table>
<thead>
<tr>
<th>Stop Valve size</th>
<th>Shaft (valve body)</th>
<th>Cap (Valve lid)</th>
<th>Maintenance nut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø6.4</td>
<td>5.4~6.6</td>
<td>13.5~16.5</td>
<td>11.5~13.9</td>
</tr>
<tr>
<td>Ø9.5</td>
<td>8.1~9.9</td>
<td>18~22</td>
<td></td>
</tr>
<tr>
<td>Ø12.7</td>
<td>13.5~16.5</td>
<td>23~27</td>
<td></td>
</tr>
<tr>
<td>Ø15.9</td>
<td>27~33</td>
<td>36~44</td>
<td></td>
</tr>
<tr>
<td>Ø22.2</td>
<td>27~33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ø25.4</td>
<td>27~33</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### CAUTION

Always use a charge hose for service port connection.

After tightening the cap, check that no refrigerant leaks are present.

- **Using the vacuum pump**

  1. Loosen and remove the maintenance nuts of stop valves A and B, and connect the charge hose of the manifold valve to the service port of stop valve A. (Be sure that stop valves A and B are both closed)

  2. Connect the joint of the charge hose with the vacuum pump.

  3. Open the Lo-lever of the manifold valve completely.

  4. Turn on the vacuum pump. At the beginning of pumping, loosen the maintenance nut of stop valve B a little to check whether the air comes in (the sound of the pump changes, and the indicator of compound meter turns below zero). Then fasten the maintenance nut.

  5. When the pumping has finished, close the Lo-lever of the manifold valve completely and turn off the vacuum pump. Make pumping for 15 minutes or more and check that the compound meter indicates -76cmHg (~-1X10^4 Pa)

  6. Loosen and remove the cap of stop valves A and B to open stop valve A and B completely, then fasten the cap.

  7. Disassemble the charge hose from the service port of stop valve A, and fasten the nut.
8.2. Refrigerant pipe installation

**Allowed Length and Drop of Pipes**
Requirements are different when installing the outdoor unit, please refer to outdoor unit installation manual for detailed information.

**Material and Size of the Pipes**
Three lengths (3m, 5m, 10m) of pipes are available to purchase.

**CAUTION**
- Ventilate the air if there was any refrigerant leakage during the installation. Leaked refrigerant will generate poisonous gas if meeting fire.
- Make sure there is no refrigerant leakage after the installation. Leaked refrigerant will generate poisonous gas if meeting fire.

8.3 Additional Refrigerant Charge

The outdoor unit is factory charged with refrigerant. Some systems require additional charging of refrigerant depending on pipe lengths. The additional refrigerant to be charged can be calculated from the following formula:

The standard pipe length is vary according to the requirements of different area. For example, in North America area, the standard pipe length is 7.5m (25ft). While in the other areas, the standard pipe length is 5m (16ft).

Inverter R410A:
- Liquid side: φ 6.35 (1/4") (Total pipe length - standard pipe length) x 15g (0.16oz)/m (ft)
- Liquid side: φ 9.52 (3/8") (Total pipe length - standard pipe length) x 30g (0.32oz)/m (ft)

---

**CAUTION**
Refrigerant cannot be charged until field wiring has been completed.

Refrigerant may only be charged after performing the leak test and the vacuum pumping.

When charging a system, care shall be taken that its maximum permissible charge is never exceeded, in view of the danger of liquid hammer.

Charging with an unsuitable substance may cause explosions and accidents, so always ensure that the appropriate refrigerant is charged.

---

9. CONNECT THE DRAIN PIPE

**Install the drainpipe of the indoor unit**
- You can use a polyethylene tube as the drainpipe (out-dia.37-39mm, in-dia.32mm). It could be bought at local market or from your dealer.
- Set the mouth of the drainpipe onto the root of the body's pump-pipe, and clip the drainpipe and the out-let pipe sheath (fittings) together firmly with the out-let pipe clasp (fitting).
- The body's pump pipe and the drainpipe (especially the indoor part) should be covered evenly with the out-let pipe sheath (fitting) and be bound tightly with the constrictor to prevent condensation caused by entered air.
- To prevent water from flowing backwards into the air conditioner while the air conditioner stops, please lean the drainpipe down toward outdoor (outlet-side) at a degree of over 1/50. And please avoid any bulge or water deposit.
- Do not drag the drainpipe violently when connecting to prevent the body from being pulled. Meanwhile, one support point should be set every 1~1.5m to prevent the drainpipe from yielding. Or you can tie the drainpipe with the connecting pipe to fix it.
- In the case of prolonged drainpipe, you had better tighten its indoor part with a protection tube to prevent it from loosing.
- If the outlet of the drainpipe is higher than the body's pump joint, the pipe should be arranged as vertically as possible. And the lift distance must be less than 200mm, otherwise the water will overflow when the air conditioner stops.
- The end of the drainpipe should be over 50mm higher than the ground or the bottom of the drainage chute, and do not immerse it in water. If you discharge the water directly into sewage, be sure to make a U-form aquaseal by bending the pipe up to prevent the smelly gas entering the house through the drain pipe.

**Drainage test**
- Check whether the drainpipe is unhindered.
- New built house should have this test done before paving the ceiling.

1. Remove the test cover, and stow water of about 2000ml to the water receiver through the stow tube.
2. Turn on the power, and operate the air conditioner under the "COOLING" mode. Listen to the sound of the drain pump. Check whether the water is discharger well (a lag of 1min is allowed before discharging, according to the length of the drain pipe), and check whether water leaks from the joints.
3. Stop the air conditioner, turn off the power, and reset the test cover to its original position.

**NOTE**
The drain plug is used to empty the water-receiver for maintenance of the air conditioner. Please stuff it imposition at all times during operation to avoid leakage.
Install the drain joint of the outdoor unit

Fit the seal into the drain joint, then insert the drain joint into the base pan hole of outdoor, rotate 90° to securely assemble them. Connect the drain joint with an extension drain hose (locally purchased), in case of the condensate draining off the outdoor unit during the heating mode.

![Fig.9-1]

10. WIRING

The appliance shall be installed in accordance with national wiring regulations.

The air conditioner should use separate power supply with rated voltage.

The external power supply to the air conditioner should have ground wiring, which is linked to the ground wiring of the indoor and outdoor unit.

The wiring work should be done by qualified persons according to circuit drawing.

An all-pole disconnection device which has at least 3mm separation distance in all pole and a residual current device (RCD) with the rating of above 10mA shall be incorporated in the fixed wiring according to the national rule.

Be sure to locate the power wiring and the signal wiring well to avoid cross-disturbance.

Do not turn on the power until you have checked carefully after wiring.

The power cord type designation is H07RN-F.

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.

10.1 Connect the cable

- Disassemble the bolts from the cover. (If there isn’t a cover on the outdoor unit, disassemble the bolts from the maintenance board, and pull it in the direction of the arrow to remove the protection board.) (Refer to Fig.10-1)
- Connect the connective cables to the terminals as identified with their respective matched numbers on the terminal block of indoor and outdoor units.
- Re-install the cover or the protection board.
- The temperature of refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.

NOTE

All the pictures in this manual are for explanation purpose only. They may be slightly different from the air conditioner you purchased (depend on model). The actual shape shall prevail.

NOTE

Remark per EMC Directive 2004/108/EC
For to prevent flicker impressions during the start of the compressor (technical process), following installation conditions do apply.

1. The power connection for the air conditioner has to be done at the main power distribution. The distribution has to be of a low impedance, normally the required impedance reaches at a 32 A fusing point.

2. No other equipment has to be connected with this power line.

3. For detailed installation acceptance please refer to your power supplier, if restrictions do apply for products like washing machines, air conditioners or electrical ovens.

4. For power details of the air conditioner refer to the rating plate of the product.

5. For any question contact your local dealer.
10.2 The Specification of Power
(Refer to Table 10-1)

10.3 Wiring figure
(Refer to Fig. 10-4)

10.4 Outdoor unit
1. Remove the electric parts cover from the outdoor unit.
2. Connect the connective cables to the terminals as identified with their respective matched numbers on the terminal block of indoor and outdoor units. (Connective cable sheath length to be removed and insert into the terminal block.)
3. To prevent the ingress of water, from a loop of the connective cable as illustrated in the installation diagram of indoor and outdoor units.
4. Insulate unused cords (conductors) with PVC-tape. Process them so they do not touch any electrical or metal parts.

![Fig.10-2](image)

5. The U type plug or circular type plug must be added to wiring terminal. (refer to Fig.10-3)

![Fig.10-3](image)

CAUTION
Wrong wiring connections may cause some electrical parts to malfunction.

11. TEST OPERATION
1. The test operation must be carried out after the entire installation has been completed.
2. Please confirm the following points before the test operation:
   a. The indoor unit and outdoor unit are installed properly.
   b. Tubing and wiring are correctly completed.
   c. The refrigerant pipe system is leakage-checked.
   d. The drainage is unimpeded.
   e. The heating insulation works well.
   f. The ground wiring is connected correctly.
   g. The length of the tubing and the added stow capacity of the refrigerant have been recorded.
   h. The power voltage fits the rated voltage of the air conditioner.
   i. There is no obstacle at the outlet and inlet of the outdoor and indoor units.
   j. The gas-side and liquid-side stop valves are both opened.
   k. The air conditioner is pre-heated by turning on the power.

3. According to the user’s requirement, install the remote controller frame where the remote controller’s signal can reach the indoor unit smoothly.
4. Test operation
   a. Set the air conditioner under the mode of "COOLING" with the remote controller, and check the following points. If there is any malfunction, please resolve it according to the chapter "Troubleshooting" in the "Owner’s Manual".
   1) The indoor unit
      a. Whether the switch on the remote controller works well.
      b. Whether the buttons on the remote controller works well.
      c. Whether the air flow louver moves normally.
      d. Whether the temperature is adjusted well.
      e. Whether the indicator lights normally.
      f. Whether the temporary buttons works well.
      g. Whether the drainage is normal.
      h. Whether there is vibration or abnormal noise during operation.
      i. Whether the air conditioner heats well in the case of the HEATING/COOLING type.
   2) The outdoor unit
      a. Whether there is vibration or abnormal noise during operation.
      b. Whether the generated wind, noise, or condensed of by the air conditioner have influenced your neighborhood.
      c. Whether any of the refrigerant is leaked.

The Specification of Power for the invert type air conditioner (independence power supply)

<table>
<thead>
<tr>
<th>MODEL</th>
<th>POWER (indoor)</th>
<th>POWER (outdoor)</th>
<th>FREQUENCY AND VOLT</th>
<th>PHASE</th>
<th>FREQUENCY AND VOLT</th>
<th>PHASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>42TSV052P1 38TSV052P1</td>
<td>1Phase</td>
<td>1Phase</td>
<td>220-240V</td>
<td>220-240V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>42TSV067P1 38TSV067P1</td>
<td>1Phase</td>
<td>1Phase</td>
<td>220-240V</td>
<td>220-240V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>42TSV080P1 38TSV080P1</td>
<td>1Phase</td>
<td>1Phase</td>
<td>220-240V</td>
<td>220-240V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>42TSV110P1 38TSV110P1</td>
<td>1Phase</td>
<td>1Phase</td>
<td>220-240V</td>
<td>220-240V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>42TSV130P1 38TSV130P1</td>
<td>1Phase</td>
<td>1Phase</td>
<td>220-240V</td>
<td>220-240V</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MODEL</th>
<th>CIRCUIT BREAKER/FUSE(A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>42TSV052P1 38TSV052P1</td>
<td>15/10</td>
</tr>
<tr>
<td>42TSV067P1 38TSV067P1</td>
<td>15/10</td>
</tr>
<tr>
<td>42TSV080P1 38TSV080P1</td>
<td>15/10</td>
</tr>
<tr>
<td>42TSV110P1 38TSV110P1</td>
<td>15/10</td>
</tr>
<tr>
<td>42TSV130P1 38TSV130P1</td>
<td>15/10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MODEL</th>
<th>CIRCUIT BREAKER/FUSE(A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>42TSV052P1 38TSV052P1</td>
<td>30/20</td>
</tr>
<tr>
<td>42TSV067P1 38TSV067P1</td>
<td>30/20</td>
</tr>
<tr>
<td>42TSV080P1 38TSV080P1</td>
<td>40/30</td>
</tr>
<tr>
<td>42TSV110P1 38TSV110P1</td>
<td>40/35</td>
</tr>
<tr>
<td>42TSV130P1 38TSV130P1</td>
<td>40/35</td>
</tr>
</tbody>
</table>
The wiring must be operated according to the wiring scheme, or it damages the unit.

Before obtaining access to terminals, all supply circuits must be disconnected.

**CAUTION**

The power supply is included in the power supply above mentioned can be applied to the table.

- Ground the air conditioner properly in case to affect its anti-interference function.

**CAUTION**

The wiring must be operated according to the wiring scheme, or it damages the unit.

Before obtaining access to terminals, all supply circuits must be disconnected.
12. DR CONTROL BOX INSTRUCTIONS

Before you start

- Read and understand this manual before operating this equipment. The manual should be kept for future reference with the product supplied. Improper installation or handling will cause leakage, electric shock, or fire.

- DR control box is only to be installed by a qualified person who is familiar with the installation, construction, operation or maintenance of the equipment and the hazards involved. In addition this person is competent, trained and authorized to undertake the work involved in accordance with established safety and working procedures.

- Do not turn on the power before all work has been completed. Otherwise it may cause serious accidents such as electric shock or fire.

12.1 Feature

1. This product is designed to be compatible with air conditioning demand response program. The DR control box connected with your air conditioner and Demand Control Signal Receiver(DCSR)(field supply) needs to be installed in your air conditioning system, and you need a separate arrangement.

2. The power consumption of the compressor will be reduced after receipt of the signal from the energy provider if the DR control box is fitted to the preconfigured air conditioner.

Demand Response Flow:

12.2 Functions

1. During the operation of the unit, if DR control box receives the signals via the mains input from the DCSR, it will send signals of DR1,DR2 or DR3 to the indoor unit. Then the indoor unit display area will display “d1”, “d2” or “d3”. The DR information(including DR malfunction) can not be displayed when the unit is off or under abnormal condition, self clean operation, or LED display feature is activated.

2. When DR signal input malfunction occurs, the display area of indoor unit will display “dE” and the unit will perform the operation without DR mode.

3. Either initiating forced cool operation under DR mode, or going into DR mode under forced cool operation is valid. Under DR mode, after the unit operates on forced cool mode for half an hour, the unit will go into Auto mode with the setting temperature of 24℃.

4. The DR mode is not valid under Self Clean operation. Activating Self Clean feature by using the remote controller are valid in DR mode.

5. When the unit goes into a DR mode, it performs moderate operation though the cooling or heating effect may be reduced.

12.3 Wire connection to DR board

![Diagram](image)

**WARNING**

Before performing any electrical work, unplug the unit and turn off the main power to the system. During connection, no wire should be allowed to touch refrigerant tubing, the compressor or any high voltage parts.

1. Remove the top panel and shield panel from the outdoor unit.

2. Connect the DR board to the Demand Control Signal Receiver(DCSR)(field supply), according to the colour of the wires.

3. Please see the wiring diagrams as shown below. For more details, please refer to the Installer’s Manual of Demand Control Signal Receiver supplied by Electric Power Company.

<table>
<thead>
<tr>
<th>DR mode</th>
<th>Description of operation in this mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>DR mode 1</td>
<td>Compressor off.</td>
</tr>
<tr>
<td>DR mode 2</td>
<td>The air conditioner continues to cool or heat during the Demand Response event, but the electrical energy consumed by the air conditioner in a half hour period is not more than 50% of the total electrical energy that would be consumed if operating at the rated capacity in a half hour period.</td>
</tr>
<tr>
<td>DR mode 3</td>
<td>The air conditioner continues to cool or heat during the Demand Response event, but the electrical energy consumed by the air conditioner in a half hour period is not more than 75% of the total electrical energy that would be consumed if operating at the rated capacity in a half hour period.</td>
</tr>
</tbody>
</table>
1. First remove the top panel.

2. Then remove the shield panel to find the DR board.

For some models, to connect the DR board, just remove the top panel.

Connect the cable with DR board

First remove handle cover.

Plug-in connector

Insert the connector all the way.