

## **FAQ on Air-Conditioning for KM Marketing website**

### **1. Should I repair my current old air-con or just replace the system?**

A difficult decision here no doubt. But first you may need to consider the age of your current system. If it is anything more than 10 years, technically it is behind times in terms of efficiency. Therefore, replacement is a wise choice.

The owner has to consider whether it is cost-effective to carry out the repair and what the additional repair costs will be down the road. Will the current system be able to provide the level of comfort that you want even after repair?

Or perhaps you may like to compare the total cost of repair and operating this old system against the cost of installing and operating a new system, considering the payback period.

### **2. Will an oversized air-con system operate efficiently and economically?**

Air-conditioning systems need to be correctly sized. Incorrectly sized systems (either too big or too small) will consume more energy than necessary, reducing its efficiency and increasing the amount of electrical bill you will pay to the electric company every month.

To determine the best size (capacity) of the air-con unit to be used, you may visit the Government's website (HDB or NEA) for guidelines and references on capacity calculation. Alternatively, a system professional may be able to provide a more accurate calculation using several factors to determine a cooling load.

### **3. Who can I approach to select a suitable air-conditioning system?**

Professionals such as system engineers from dealers' sales office or contractors specialized in air-conditioning system designs are able to assist you in selecting a suitable air-conditioning system that suits your application.

### **4. What are the primary considerations when selecting an air-conditioning system?**

The system engineers need to know the size of the room and facing of each room wall, type of wall material, the desired operating habit, need of each user and the purpose of the room, before he can size-up the cooling capacity needed for each room and suitable system configuration to be proposed, considering limitations like outdoor space, pipe length and available power supply.

## **5. How do I know whether a properly selected system will operate efficiently?**

A properly selected system will operate efficiently if the installation is carried out by a qualified installer. Installing the system within manufacturer specifications and guidelines on pipe lengths, refrigerant charge and unit location, to allow effective airflow across indoor and outdoor heat exchanger, avoiding hot air short-cycling.

However, a planned Preventive Maintenance Program on the installed system will further enhance system efficiency and economical operation throughout its operating life span.

## **6. What can I do to ensure that my installed Air-Conditioner operate efficiently?**

You can help by simply cleaning and maintaining cleanliness of the air-filters in the indoor units on a regular basis. Increased dust loading on dirty air filters will restrict airflow, causing inefficient system operation and ineffective cooling.

Your installer should be able to give you a demonstration on how to remove the air-filter for cleaning and re-installation. In addition, you would need to engage a qualified service company to carry out routine preventive maintenance service and inspection of the system.

## **7. What is the advantage of a Preventive Maintenance Program?**

The air conditioner is a vital piece of equipment that can cause your energy bill to soar if left unchecked. The only ways to keep your energy costs down without sacrificing the comfort you feel inside your home is to engage a professional service company to maintain and inspect you air-conditioning system on a regular basis. Besides giving you the assurance and peace of mind that the air-conditioning equipment is under professional care - imminent problems identified and rectified before system breakdown, an effective preventive maintenance program also helps in prolonging the service life of the equipment.

## **8. How Long Can I Expect A New Air-Con Unit To Last?**

In general, a new air-con unit can be expected to last approximately 8 to 10 years. This depends on the make and model purchase, how often you use your air-con and also, whether or not maintenance is performed on a regular basis. To keep your new air-con unit functioning properly and efficiently over the effective service life, keep the area around and inside the air-con clear and free of debris, clean out any leaves and twigs that become stuck in the unit, and finally, engage a certified service company to have the unit inspected, maintained on a regular basis.

### **9. Do I need to top up refrigerant gas regularly for my air-conditioning system?**

If the air-conditioning system is properly installed with the correct amount of gas charged by your qualified installer, there is NEVER a need to top-up any more gas.

If gas toping-up is required regularly, likely the system is leaking and should be checked by a qualified Air Conditioning technician and rectified accordingly. Failure to rectify a leaking system may result in premature failure of the refrigerant compressor.

### **10. Why is water leaking from my air-con unit (indoor)?**

Generally, there are 2 considerations for water leaking from the indoor unit. In order to correctly identify the cause, you can study the rate of leaking water. If it is continuous, it is likely from the condensate drainage or water from outside. If the nature of the leak of water droplets at minutes or hours interval, it is likely from dew condensation on cold surfaces.

*Water leaking from the condensate drain could be due to;*

- 1) Poor connection between the drain pipe and drain pan.
- 2) Choked /blocked drain pipe causing water backflow and overflow from unit.
- 3) Clogged drain pan causing condensate water overflow from unit
- 4) Incorrect drain pipe gradient causing water backflow and overflow from unit,
- 5) Water leaks in from the outside through unsealed opening on wall for pipe penetration, etc.

*Dew condensation from cold surfaces could be due to;*

- 1) Drain pipe not sufficiently insulated or NOT insulated.
- 2) Refrigerant pipe insufficiently insulated or deterioration of insulation material/Pipe torn or loose.
- 3) Air leaking in from unsealed opening for pipe penetration etc. causing dew condensation on cold surfaces (unit body, unit base, drain pipe & refrigerant pipe etc.)

### **11. Will my air-con become cooler if there is icing on or around the indoor cooling coil?**

Icing on or around the indoor cooling coil will not make the air-con cooler, on the contrary, a frozen coil will result in insufficient cooling.

Icing on or around the cooling coil may be due to numerous factors;

- 1) Restricted or low airflow rate at the indoor heat exchanger
- 2) Low refrigerant charge or refrigerant gas is leaking from system.
- 3) Expansion valve jammed in the “Open” position
- 4) Wrong termination of control wiring (multi-split) at outdoor termination, etc.

Restricted or low airflow rate at the indoor heat exchanger can result from a dirty filter, clogged coils, damaged blower parts or faulty fan motor (speed) related to air-circulation. Due to restricted airflow, the refrigerant is not able to absorb enough heat to keep condensate fluids from freezing, thus the formation of ice on cooling coil.

Low refrigerant charge or a refrigerant gas leak can also lead to the formation of ice on the coil. Without sufficient refrigerant, heat is not properly absorbed. Condensate liquid can freeze easily before they drip away.

Jammed expansion valve (open position) and wrong termination of control wiring allows refrigerant gas flowing into non-operating indoor unit heat exchanger when other indoor units are running. The situation is similar to a heat exchanger with restricted or low airflow rate with limited or no heat exchange causing freezing of condensate liquid.

## **12. How do I determine whether the noise from my air-con unit is normal?**

Like any machine, your air-conditioner sometimes makes mysterious noises. Newer systems are engineered for quieter operation, but even a quiet system makes a few characteristic noises that should not cause alarm.

One of the most common noises your air-conditioner will make is the quiet hum of the properly functioning inverter motor.

Your air-con unit actively moves air over evaporator coils and draws return air up through the filter. You should normally hear the motor of the indoor unit in operation and a little air noise when the selection is on high fan speed. The outdoor unit of your air conditioner also has a fan and a motor to drive it, but it tends to be noisier than the indoor part of the system. As long as it produces a steady engine hum, the extra noise is not cause for concern.

Sometime audible cracking noise can be heard during normal operation of the indoor unit. This is normal plastic cracking noise due to expansion and contraction of front cover due to the temperature change.

### *Unusual Noises*

If you hear a sudden loud rattle from the outdoor unit, a twig or other debris could be the cause. Turn the system off immediately, shut off power to the external unit and remove any debris if you can. Alternatively, call for service support.

Sometimes audible hissing (flushing) can be heard during system operation, an indication of a refrigerant leak or unstable refrigerant flow (unnecessary dents or bends along the refrigerant pipes). Damage to the refrigerant lines due to leaking or pipe dents or bends requires attention from your air-con repair team.

Loud knocking noises are signs of something unusual happening to your air-conditioner. Sometimes, the cause could simply be a missing or loose screw. Otherwise, it's an indication of a serious malfunction.

Rattling noises from the indoor unit is another common issue. It could simply due to unbalanced fan motor and blower assembly or that the indoor unit mounting plate has worked loose.

It may be hard to diagnose the difference yourself, so our advice is to turn off the unit and call for service professionals to get the equipment checked and rectified accordingly.

A regular preventive maintenance program is your best bet for keeping your air-conditioning system running in tip-top condition. Most MVAC sounds are normal, but regular maintenance inspections can identify the ones that are not before they become a bigger problem.

### **13. Why is my air-con unit not cold enough (sometimes)?**

There are various reasons why a normal operating system is not cold enough. Before you start to trouble-shoot, you must first confirm that the air-con cooling capacity selected and installed meets your intended needs and applications. Next, check and confirm that the operation settings are correctly set at the remote control. Checklist is as follows:

- 1) Is the operation "mode" correctly set?
- 2) Is the desired temperature correctly set?
- 3) Is the fan speed correctly set?
- 4) Is the unit wrongly set to "ECONO" mode?

If there is nothing wrong with the remote control setting, check whether:

- 1) Is the air-intake and outlet grille of the air-con unit blocked?
- 2) Is the window or door of the room opened?
- 3) Is additional heat load (sunlight) allowed into the room?
- 4) Is there additional heat load from a wall facing direct sunlight?
- 5) Is there additional head load from heating apparatus, equipment, or too many people in the room, etc.?

#### **14. What causes indoor odour and how to remove it?**

Poor ventilation may contribute to unpleasant odours. Moisture condensation on walls and windows, as well as stale air, are signs of poor ventilation.

Bacteria, dust mites, animal dander, cat saliva and mould may also be causes of your home's odour problems.

Damp and musty odour is commonly reported when air-conditioning is operated in poor-ventilated and damp environments. This odour problem is almost never due to a problem with the air-conditioning equipment.

Homeowners always try to cover up indoor odours by spraying air fresheners or lighting candles. Unfortunately, these tactics only mask the odour. They don't get rid of them altogether.

You may engage the services of MVAC experts to help inspect your home to see whether poor ventilation is an issue and seek recommendation for improvement, if any.

Alternatively, you may wish to consider purifying the air in your home with germicidal (UV) light, which helps kill odours and inhibit the growth of biological contaminants, sterilizing surfaces in the MVAC system.

The root cause(s) of indoor odour must be totally eradicated before indoor air quality is improved.