

## Air Conditioning Guide

### Heat Pumps

Heat Pumps are a type of system that can be used to provide both heating and cooling.

They have both indoor and outdoor units and a reversing valve. This enables the refrigerant to be pumped either way around the system. In the summer this enables heat inside to be removed and in the winter available heat outside to be drawn in.

There are good reasons to install a heat pump:

- **Most rooms usually require both cooling and heating**
- **Heat pumps are generally more energy efficient than other types of heating**

Heat pumps achieve lower running costs for heating because rather than burning a fuel such as oil or gas to provide your heat, they are simply moving heat from one place to another.

Because a heat pump uses a refrigerant to heat the air, even if the outside temperature is as low as  $-15^{\circ}\text{C}$ , it is still at a temperature high enough to deliver heat inside.

Heat pumps can extract heat from both air and water, achieving a room temperature of up to  $28^{\circ}\text{C}$  and may be controlled thermostatically between  $19^{\circ}\text{C}$  and  $28^{\circ}\text{C}$ . The system is completely automated and switches between heating and cooling as required.

### Cooling Only

Cooling only air conditioning cools the building by removing heat from the inside air and transferring it outside. The system uses a refrigerant to transfer the unwanted heat through a system of pipes to the outside unit. When it reaches the outside condenser a fan blows the outside air over the hot coil, transferring the heat from the refrigerant to the outside air.

The majority of air conditioning units are split systems. They have a unit outside, which comprises of the condensing coils, compressor and a fan. There is also a unit located inside the building that consists of an evaporator coil and fan. The fan distributes the air around the room.

### F-GAS

F-Gases are the commonest refrigerants in air conditioning, heat pumps and refrigeration systems. They contain HFCs (Hydrofluorocarbons) which affect global warming if they escape into the air. The European Union's F-Gas Regulation became law on 4 July 2006 to minimise emissions of these gases.

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