

## This is how a low-grain refrigerant (LGR) dehumidifier works

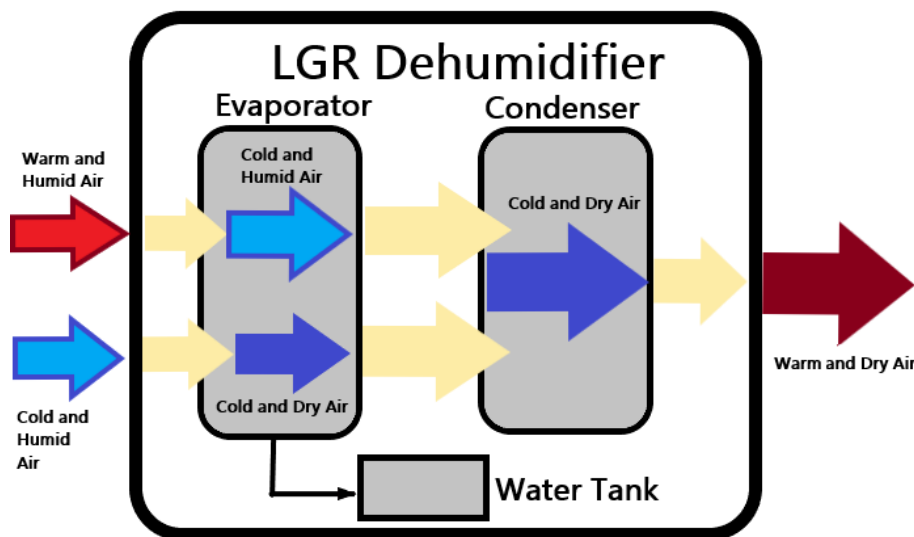
LGR stands for Low Grain Refrigerant (LGR) dehumidifier and works on a system of double cooling, lowering the temperature of moisture. They are particularly good at removing moisture in cooler environments.

This double system of cooling can be seen above: two streams of air arrive at the LGR dehumidifier unit, one being warm and humid, the other is cold and humid.

Moisture is removed as the water is put into a water tank from the evaporator, and the warm humid air is made cold and humid through a cold energy storage.

Eventually, cold, and dry air is made in the condenser, this then becomes warm and dry air.

This pre-cooling system involves the refrigeration system shutting off and the ice melting again, dripping away to be collected as water. It continues to dry to a lower humidity, pulling more water out of the air compared to a similarly sized refrigerant dehumidifiers, and removes more water per kilowatt of electricity consumed than a similarly sized conventional refrigerant dehumidifier.



This is what makes the unit an LGR.

*Diagram 1: Process of how an LGR dehumidifier works.*

<b><u>LGR Dehumidifier</u></b>	<b><u>Compressor Dehumidifier</u></b>
<b>Double-cooling system.</b>	<b>Refrigerant mechanism.</b>
<b>Lowers temperature of moisture in the air once in the machine.</b>	<b>Condenses water vapour by passing air over the refrigerated coils; heat pipe prevents frost from forming.</b>
<b>More condensation on the coils in the machine, therefore more moisture pumped out – less moisture in the air that is returned to the room.</b>	<b>A fan draws in air and passes it across extremely cold coils. This water condenses on the coils and drips into the water tank.</b>
<b>Works on the idea of energy exchange.</b>	<b>Reheated air is pumped back into the room as warmer, drier air.</b>