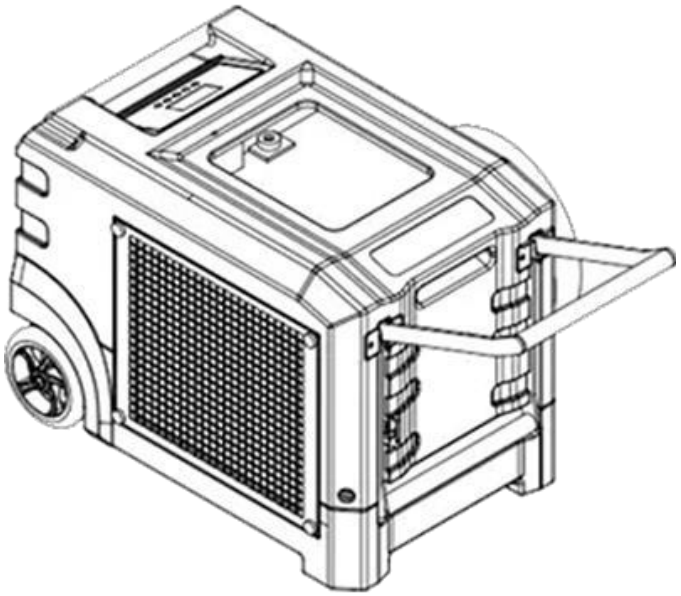
LGR Technology in Dehumidifiers

What is the LGR?

LGR refers to the "low-grain refrigerant". In dehumidifiers, the term "grains" refers to the amount of moisture in the air. One grain is equivalent to approximately 1/7000th of a pound of moisture. When we say "**low grain**", we're referring to a refrigerant that is **particularly effective at removing moisture from the air**.



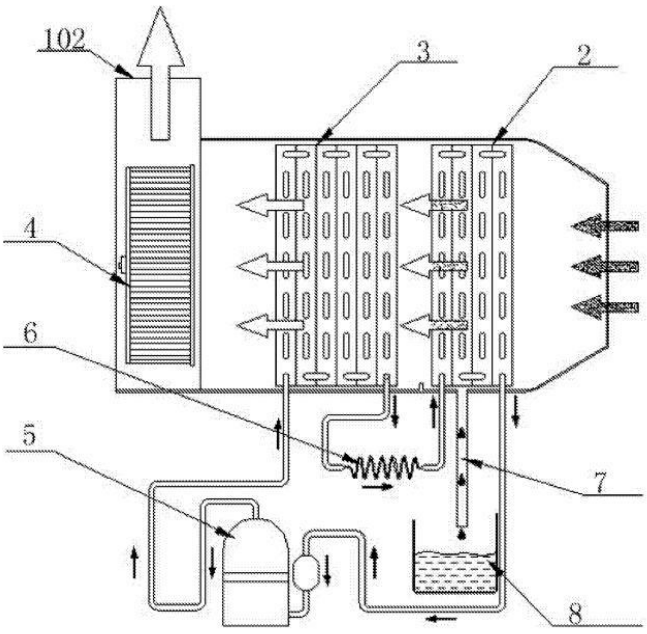
(Figure1: LGR dehumidifier)

Low-grain refrigerants are often used in industrial and commercial dehumidification systems where moisture removal is a critical function. These refrigerants are designed to work efficiently even in high humidity conditions.

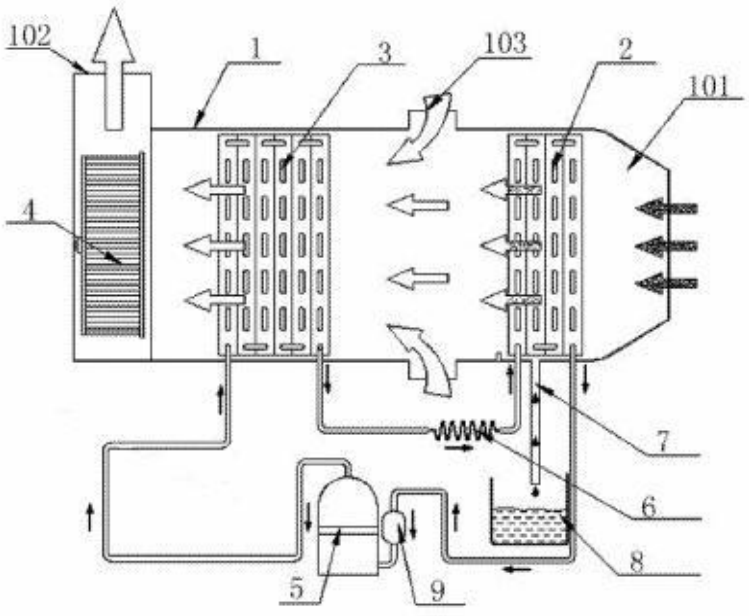
Using a low-grain refrigerant allows a dehumidifier to remove more moisture from the air per unit of energy used. This can lead to faster and more effective dehumidification, which is important in applications like industrial drying processes, indoor pools, food processing, and other environments where moisture control is crucial.

“Deep Supercool” Patent

The deep supercooling patent solves the shortcomings of non-LGR dehumidifiers with poor dehumidification effect under low humidity conditions. The disadvantage of the traditional non-LGR dehumidifier is that the refrigerant liquid at the end of the condenser is insufficient “undercooling”, the refrigerant liquid temperature is much higher than the refrigerant evaporation temperature in the evaporator, and a small amount of refrigerant evaporates and vaporizes in advance before entering the evaporator, resulting in a decrease in dehumidification capacity. The deep supercooling technology patent improves the supercooling degree of the refrigerant liquid at the end of the condenser by reducing the temperature of the refrigerant at the end of the condenser, which is conducive to reducing the gasification ratio of the refrigerant liquid in the throttling device, ensuring the integrity and effectiveness of the evaporation heat absorption capacity of the refrigerant in the evaporator, so as to improve the evaporation heat absorption capacity and dehumidification capacity of the evaporator.



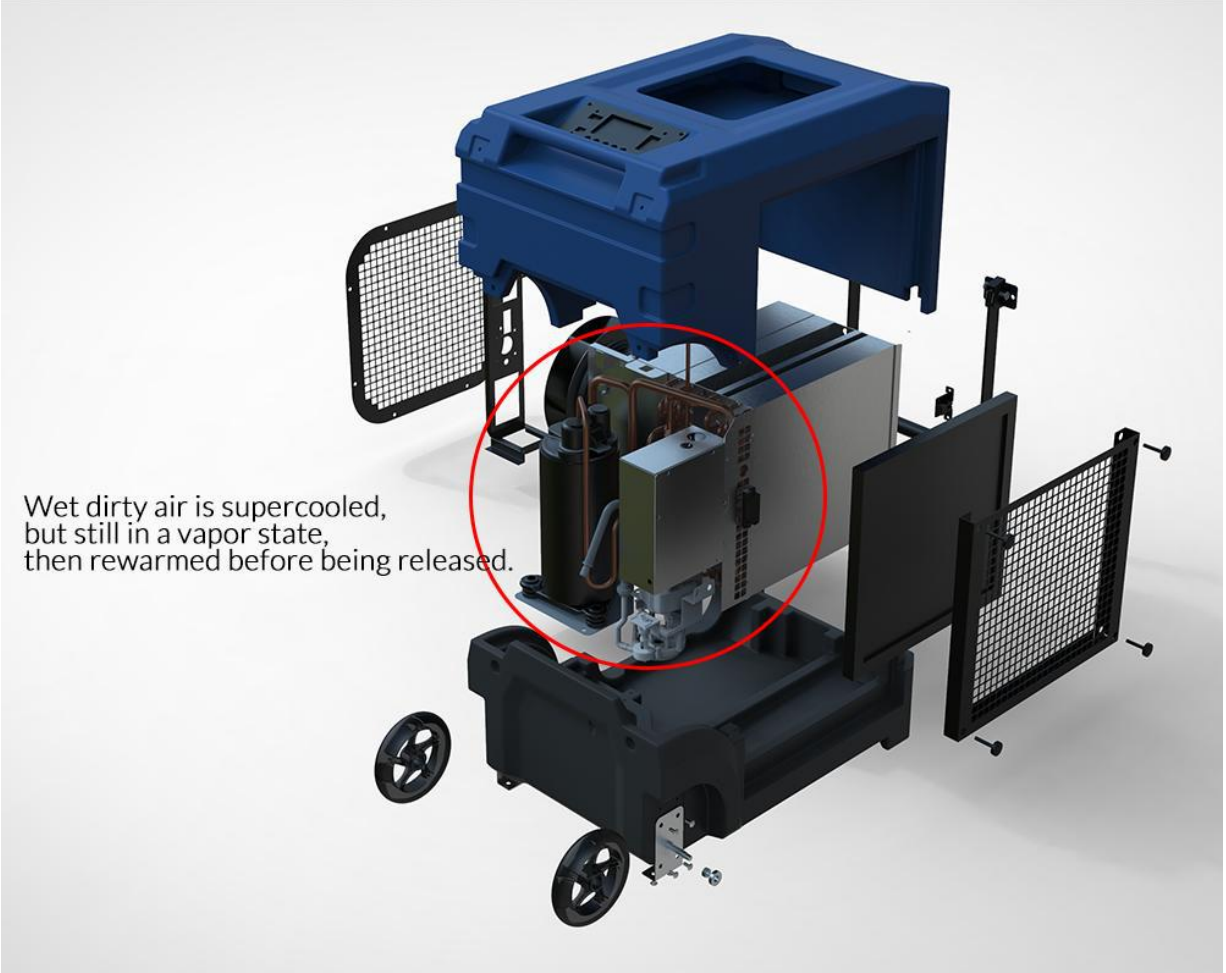
(Figure2: Non-LGR Dehumidifier)



(Figure3: “DEEP SUPERCOOL” Patent)

By supercooling the air, the dehumidifier can extract even more moisture before it reaches the dew point and condenses. This allows for more efficient dehumidification, especially in environments with extremely high humidity levels. It's a more **advanced and precise technique** compared to standard refrigerative dehumidification.

** LGR dehumidifiers developed by Preair adopt the **"DEEP SUPERCOOL" patent**.*

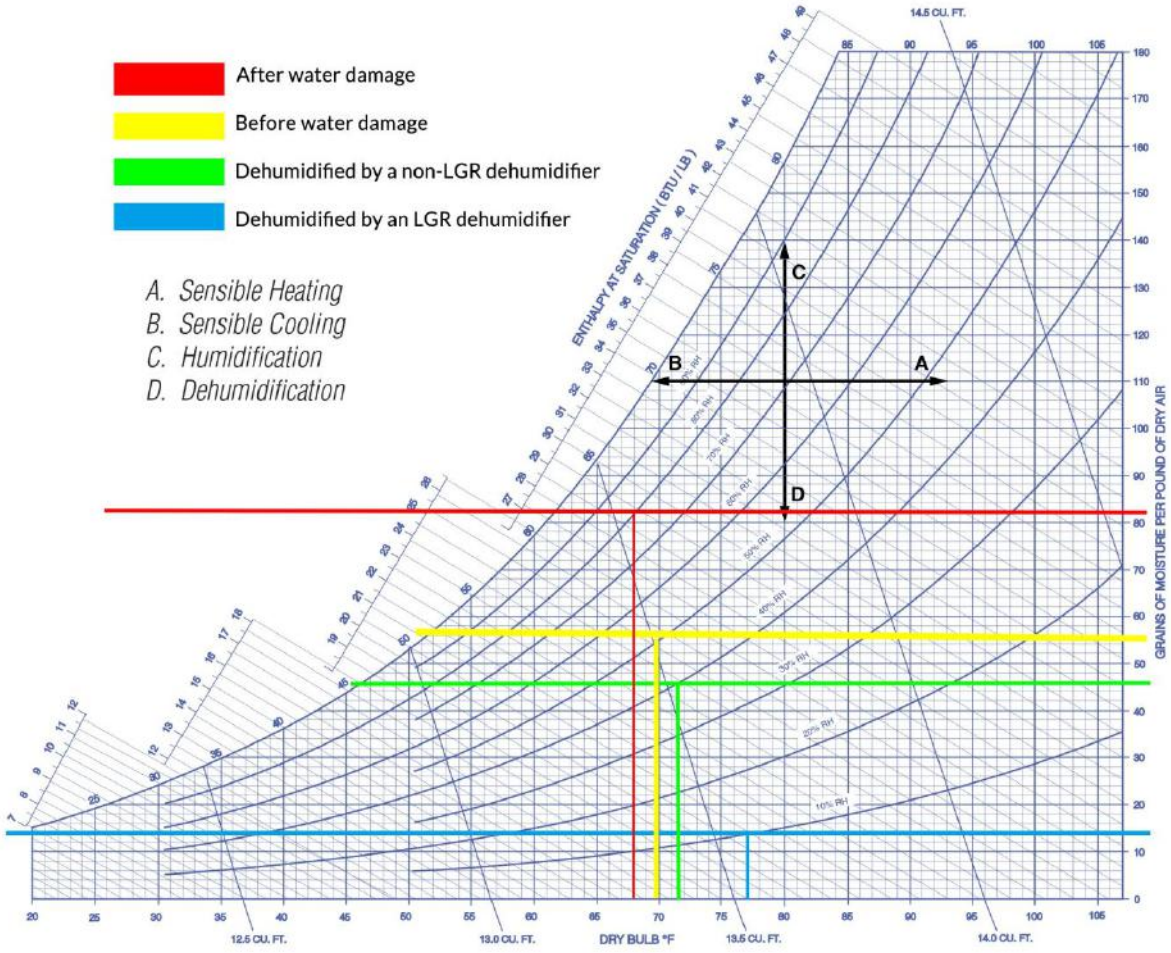


(Figure4: "DEEP SUPERCOOL" in LGR155 dehumidifier)

Differences between LGR and Non-LGR Dehumidifiers

At room temperature, ordinary (non-LGR) dehumidifiers can reduce the RH level of the work zone to the normal range (40% RH or 55GPP AH). The disadvantage is that after the indoor RH level approaches the normal range, they can not make RH continuously lower nor adsorb excess moisture from items.

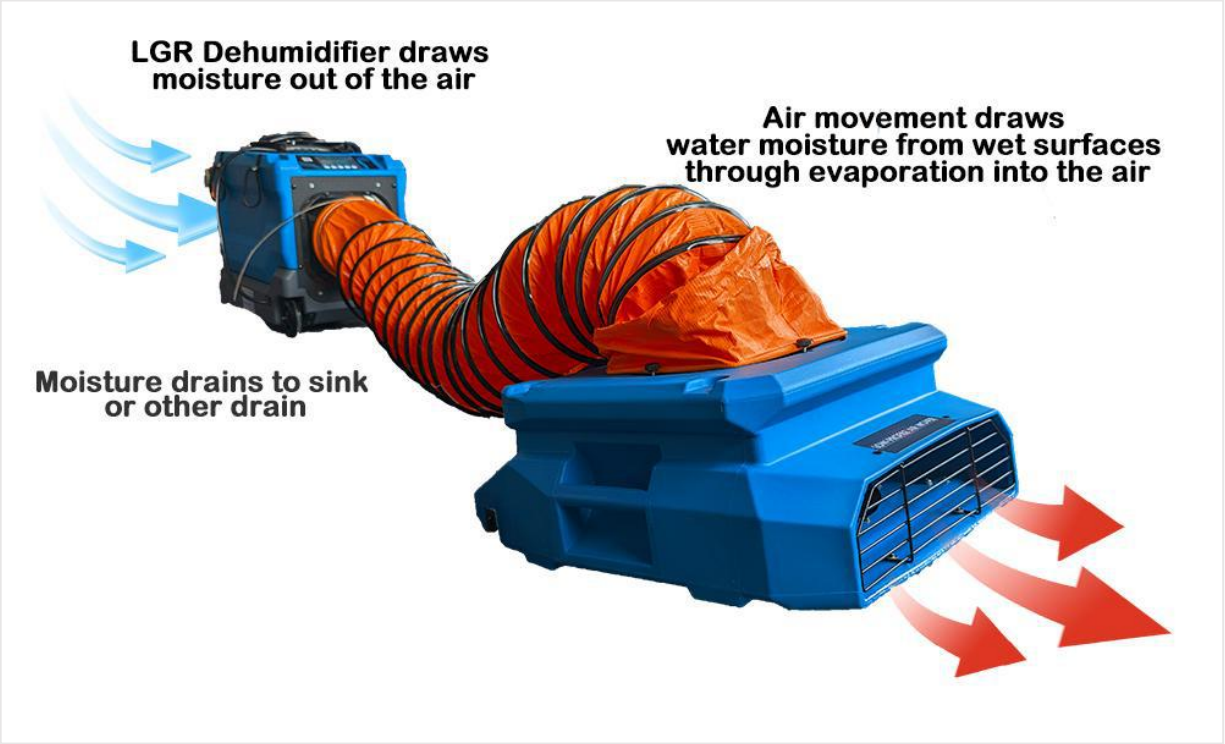
LGR dehumidifiers can perform well in high-humidity environments and continue to operate in environments below 55GPP. In high-humidity environments, LGR dehumidifiers can work efficiently which helps customers save energy bills. In low-humidity environments, LGR dehumidifiers are able to deeply absorb water vapor from structures such as furniture, walls, and floors.



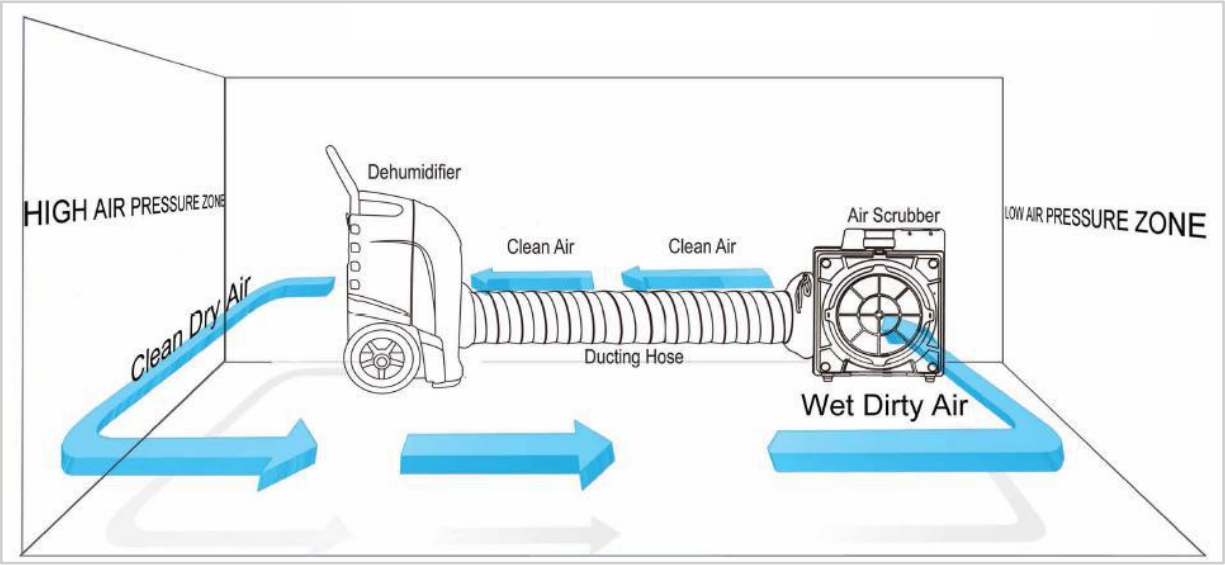
(Figure5: RH & AH & temperature relationship)

** 68℉(20℃)/RH80%*	*After water damage*
** 69.8℉(21℃)/RH50%*	*Before water damage*
** 71.6℉(22℃)/RH40%*	*Dehumidified by a non-LGR dehumidifier*
** 77℉(25℃)/RH10%*	*Dehumidified by an LGR dehumidifier*

Indoor Air Moving, Purifying and Drying System



(Figure6: Horizontal LGR dehumidifier & air mover fan)



(Figure7: Vertical LGR dehumidifier & air scrubber)

Choose LGR dehumidifier

XACTIMATE is a powerful software package designed to help contractors and insurance claims adjusters estimate repair costs faster and more accurately than ever before.
Currently, 22 out of 25 property insurance companies in the United States and all 10 insurance companies in Canada use the XACTIMATE property insurance claims tool.

XACTIMATE Code	AHAM Range
WTR DHM	UP To 69PPD
WTR DHM>	70 To 109PPD
WTR DHM>>	110 To 159PPD
WTR DHM>>>	160 and higher

Xactimate Estimating Software Codes and Descriptions	
POL	SWIMMING POOLS & SPAS
PTG	PAINTING – LOW OR NO VOC
RFG	ROOFING
SCF	SCAFFOLDING
SDG	SIDING
SFG	SOFFIT, FACIA, & GUTTER
SPE	SPECIALTY ITEMS
SPG	SPORTING GOODS & OUTDOORS
STJ	STEEL JOIST COMPONENTS
STL	STEEL COMPONENTS
STR	STAIRS
STU	STUCCO & EXTERIOR PLASTER
TBA	TOILET & BATH ACCESSORIES
TIL	TILE
TMB	TIMBER FRAMING
TMP	TEMPORARY REPAIRS
TOL	TOOLS
TOY	TOYS & GAMES
WDA	WINDOWS – ALUMINUM
WDP	WINDOWS – SLIDING PATIO DOORS
WDR	WINDOW REGLAZING & REPAIR
WDS	WINDOWS – SKYLIGHTS
WDT	WINDOW TREATMENT
WDV	WINDOWS – VINYL
WDW	WINDOWS – WOOD
WPR	WALLPAPER
WTR	WATER EXTRACTION & REMEDIATION
XST	EXTERIOR STRUCTURES