

WWW.BMIL.COM

**BMIL**™  
TECHNOLOGIES, LLC  
*Since the 1950s*

**DRYCOOL™ HD**  
**Desiccant** Dehumidifier



**Dry Spaces With NO Added Heat**

## Product Description & Advantages

The Munters DryCool™ HD desiccant dehumidifier provides significant drying capability in a small package. The unit utilizes a refrigerant circuit in conjunction with a heat reactivated desiccant wheel to provide efficient drying capability. Due to the capabilities of the desiccant wheel, the unit can continue to provide substantial capacity and low supply dew point conditions. The hybrid desiccant refrigeration cycle provides the most efficient small dehumidifier available. In addition, the supply air is discharged at approximately space neutral temperature so that it does not add additional cooling load to the space. The DryCool™ HD operates cost-effectively because all of the energy required for the operation of the desiccant dehumidifier cycle is recycled from the cooling components .

## Capacities & Performance

### Blower

250 CFM @ 0.4" ESP

### Efficiency

3.3 Liters per KW

### Capacity

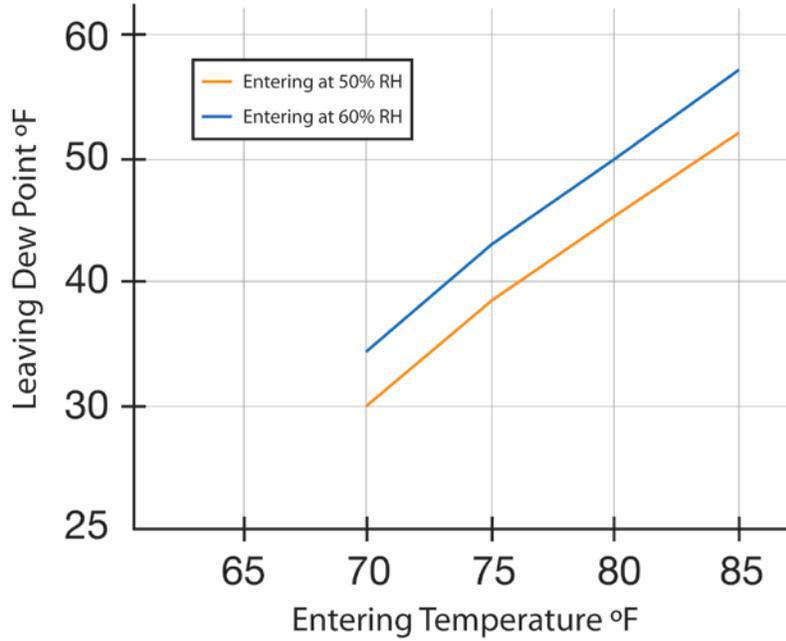
5 lbs/hr @ 80°F, 60% RH

**NO Heat Load  
to A/C System**

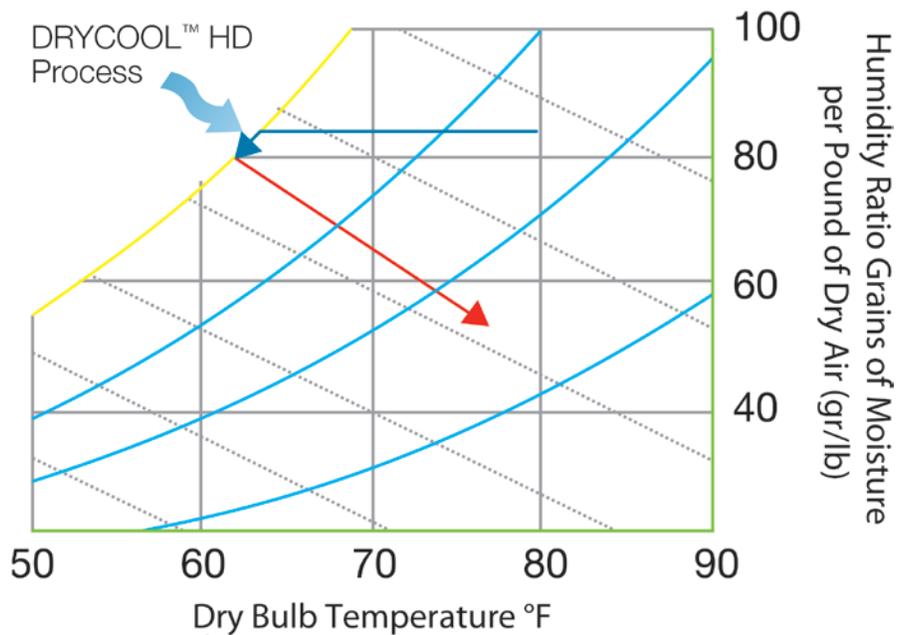
### Electrical

*(Typical Operating Amperage)*  
6.7 amps @ 120 volt 60H Z

## DRYCOOL™ HD Performance

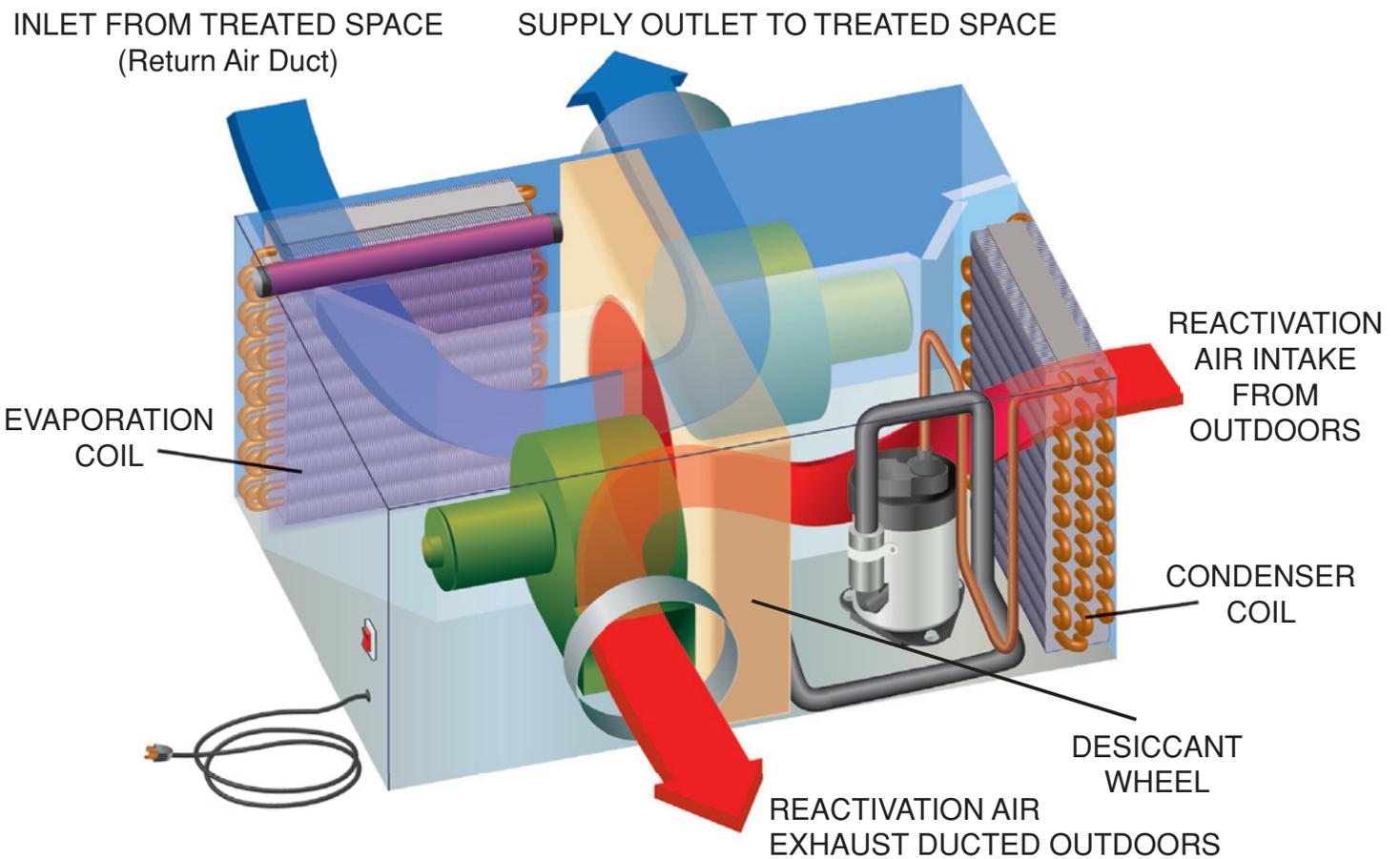


## DRYCOOL™ HD Psychrometric Advantage





## DRYCOOL<sup>TM</sup> HD Airflow Illustration



## How it Works

The DryCool™ HD uses a refrigeration system similar to an air conditioner to remove heat and moisture from the incoming air. A desiccant wheel downstream of the evaporator coil removes additional water from the air stream in the vapor state. The DryCool™ HD dehumidifier uses two air streams to accomplish this task of providing cool dry air at high efficiencies. The supply air stream sends cool dry air to the space while the reactivation air stream removes the water collected by the wheel and sends it to the outside.

## Benefits

- Affordable dehumidification
- Uses environmentally friendly refrigerant R-410a
- Compact size for installations in small spaces
- Prevents mold and mildew
- Total indoor air quality options available

Unit Dimensions			Unit Connect Dimensions			
Width	Length	Height	Supply Inlet	Supply Outlet	React Inlet	React Outlet
24"	36"	16.5"	16" x 14"	8" Round	14" x 12"	8" Round

# DRYCOOL™ HD

## Desiccant Dehumidifier



## OPERATING MANUAL



### GENERAL WARNINGS & CAUTIONS

All electrical work should only be performed by qualified electrical personnel. Repair to electrical components by non-certified technician may result in personal injury and/or damage to the unit. Installation should be conducted by a qualified technician only. Munters and Munters affiliate are not responsible for injuries and /or damages caused by improper installation.

## 1 Installation

### 1.1 Ducting for Dehumidification

The DRYCOOL™ HD Dehumidifier uses a unique arrangement of two air streams to accomplish the task of providing cool dry air at high efficiencies. These are a supply air stream and a reactivation air stream. The supply air stream is meant to dehumidify air for the space being controlled. The reactivation air stream expels the water vapor collected by the desiccant dehumidification wheel.



#### MAKE SURE THE UNIT IS LEVEL.

#### Supply Air Duct

A 16" W x 14 " H inlet located on the same side as an 8" round outlet supply air connection for the unit. The inlet can be connected directly to the return air duct coming from the central part of the structure.

This duct could draw air from the central part of the structure and supply it to the isolated areas of the structure like smaller rooms. The ductwork of the existing heating system can be used to supply air to the structure. If the existing supply goes to isolated areas of the structure, discharge the supply of the DRYCOOL™ HD unit into the supply of the existing central system. DO NOT draw air directly from the kitchen or laundry.

The supply outlet of the DRYCOOL™ HD is located on the same side as the return inlet. A length of 6 feet or more of flex duct on the outlet of the unit will reduce air noise from the blower. A length of flexible duct on all DRYCOOL™ HD duct connections is recommended to reduce noise and

vibration transmitted to rigid ductwork in the structure.

**Ducting the DRYCOOL™ HD as mentioned in section 1.1 requires consideration of the following points:**

**Duct Sizing:** For total duct lengths up to 25', use a minimum 8" diameter round or equivalent rectangular.

**Isolated Areas:** Effective dehumidification may require ducting be branched to isolated, stagnant areas. Use 8" or larger diameter branch ducting to each of two or three areas; use 4" or larger to each of four or more areas.

**Connecting to existing HVAC systems:** An 8" check damper can be installed to prevent reverse flow through the unit. If the DRYCOOL™ HD is ducted to the supply of a high static air handler the check damper may be placed in the unit supply duct.

#### **Ducting Reactivation Air**

A separate set of duct connections are provided for the DRYCOOL™ HD dehumidifier for the reactivation air. The reactivation air is meant to convey the water vapor captured by the desiccant wheel away from the unit and outside the structure.

The reactivation outlet connection is an 8" round connection located on the opposite side of the 14" W x 12" H air inlet. For total duct lengths up to 25', use a minimum 8" diameter round or equivalent rectangular duct. The duct should be brought to an outside wall or louver so that "wet" reactivation air is expelled from the space to the outdoors. Use a conventional dryer vent with back draft damper for penetrating the wall if convenient.

#### **Ducting for Fresh Air**

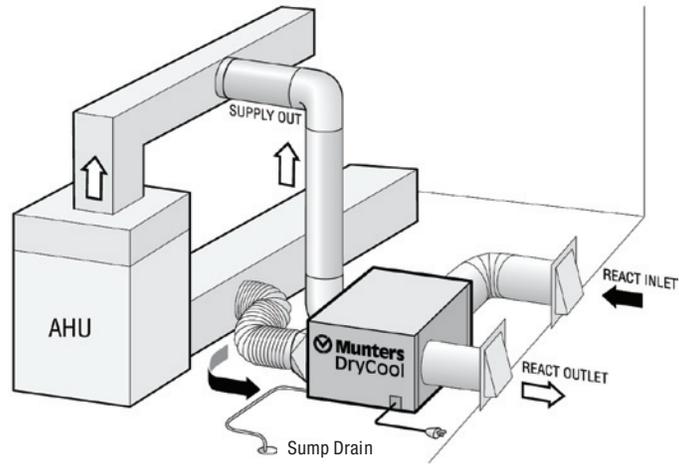
Fresh air can be brought into the structure by connecting a duct from outside to the DRYCOOL™ HD unit inlet and by turning on the fan switch or activating the humidity control. The fresh air duct must be connected to the return air duct of the DRYCOOL™ HD Dehumidifier.

Additional considerations are as follows:

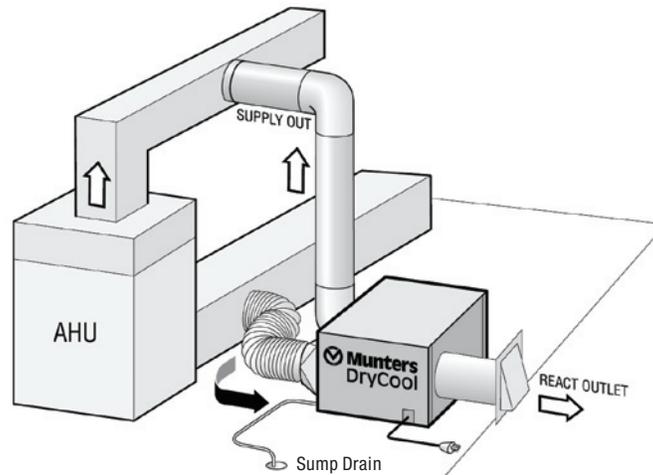
1. Outside air is filtered before entering the building.
2. Outside air will be dehumidified before entering if the unit is running in dehumidification mode.
3. Drawing air from outside and blowing inside aids in slightly pressurizing the structure. This helps prevent dirty and humid air from entering elsewhere.
4. Adequate exhaust fans are recommended in the bath rooms and kitchen.
5. Reactivation outlet must be separated 4' from the Fresh Air inlet.

The DRYCOOL™ HD is designed to move 250 cfm. An insulated 8" diameter duct is generally sufficient to provide up to 75 cfm of outside air. The remaining 175 cfm of return air can be mixed with this fresh air and ducted into the intake of the DRYCOOL™ HD.

### 1.1.2 Installation in Basement or Crawl Space with Existing Forced Air HVAC



Conditioned Unventilated Basement Installation



Ventilated Unconditioned Basement Installation

If the existing system has multiple returns, select one to disconnect from the existing forced air system and use it for the dedicated DRYCOOL™ HD return. Always select a return from a central location in the structure in an area that is always open to the rest of the structure.

Do not use a return from a room that often may have its door closed. If the structure in which the DRYCOOL™ HD is to be installed has an existing forced air HVAC system, utilize the HVAC system to make the DRYCOOL™ HD unit installation easier.

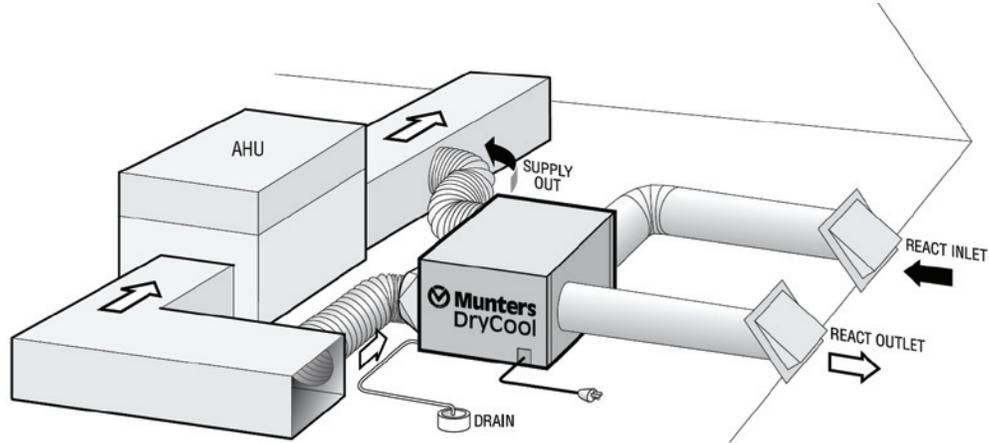
**Basement Installation:** Install a separate 8" return duct for the DRYCOOL™ HD in a central area of the structure. Duct the supply of the DRYCOOL™ HD to an 8" x 8" x 8" tee/damper that is 20% open to the basement. Duct the other side of the tee to the air supply of the existing HVAC system. Connect an 8" reactivation duct to the reactivation outlet to expel moist air outside the basement.

**Crawl Space Installation:** Install a separate return for the DRYCOOL™ HD

in a central area of the structure. Duct the supply of the DRYCOOL™ HD to an 8" x 8" x 8" tee/damper that is 20% open to the crawl space. Duct the other side of the tee to the air supply of the

existing HVAC system. Connect an 8" reactivation duct to the reactivation outlet to expel moist air outside the crawl space.

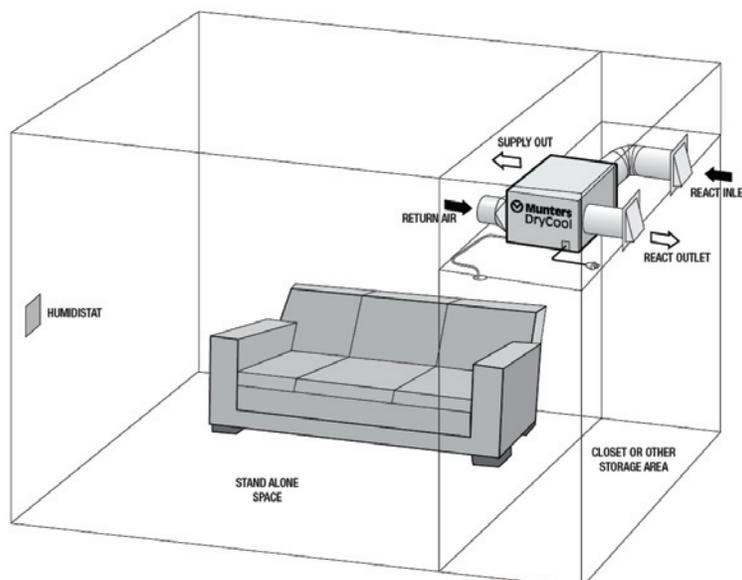
### 1.1.3 Installation in an Attic with an Existing Forced Air HVAC



#### Attic Installation

ALWAYS install a secondary catch pan with a drain or float interrupt for condensate under the DRYCOOL™ HD in an attic. Locate a separate return for the DRYCOOL™ HD in a central area of the structure or draw air from return ductwork. Duct the supply side of the DRYCOOL™ HD to the air supply of the existing HVAC system. Connect an 8" reactivation duct to the reactivation outlet to expel this "moist" air outside the attic.

### 1.1.4 Installation for Dehumidifying for a Stand Alone Space



One of the benefits of a DRYCOOL™ HD is the delivery of dehumidified air to the space at approximately the same temperature that enters the device. This allows an owner to simplify the installation for applications or instances where it is desired to maintain humidity levels in one open space. In these applications the return air from the space is connected directly to the unit and the dehumidified air can be delivered directly back into the room without the need to mix it with cold air coming from a central air conditioning system.

If the space is a large common room and is open to other adjacent rooms, using the DRYCOOL™ HD can have the effect of providing dehumidification to much larger connected areas or even a small structure. Water vapor diffuses from

areas of high vapor pressure to areas of low vapor pressure. When large spaces are dehumidified with a DRYCOOL™ HD, areas of low vapor pressure are created and will induce water vapor movement from other connected open rooms without the need for ducting.

The DRYCOOL™ HD requires the mounting a humidistat away from the discharge in an area that is representative of the larger space. As with all of the installation configurations of a unit, the reactivation air still needs to be ducted to and from the outdoors.

---

## 1.2 Electrical Requirements/Humidistat Installation

The DRYCOOL™ HD plugs into a common grounded outlet on a 15 Amp circuit. It draws between 6 and 7 Amps under normal operating conditions. If used in a wet area, a ground fault interrupter protected circuit is required.

If an extension cord is required, it must have a minimum of 16 gauge conductors if less than 25 feet long and 14 gauge if greater than 25 feet long.

Install the remote humidistat in a central area of the structure where it will sense the relative humidity of the structure accurately. Do not install the humidistat where it may not accurately sense the relative humidity such as near HVAC supply registers, near exterior doors, or near a pool or spa. The installer must supply the

wiring between the dehumidifier unit and the humidistat. Be sure to safely route the control wires to prevent damage during installation. Be careful not to cross the wires when connecting the DRYCOOL™ HD and the humidistat or damage to the transformer may result.

The humidistat of the DRYCOOL™ HD is powered by a low voltage circuit and must NEVER contact or be connected to a high voltage circuit. The control wires leaving the unit and the humidistat are color coded to prevent confusion. Be sure to consult the electrical schematic on the panel of the DRYCOOL™ HD before making the control connections.

### 1.3 Condensate Removal

**CAUTION**

The DRYCOOL™ HD removes large amounts of moisture from the air and the device must be connected to a drain line that will carry away the excess water. A trap in the drain line is strongly recommended.

The drain line should be connected to the 3/4" female pipe thread adaptor on the front of the DRYCOOL™ HD.

Care should be taken to install the drain line with a continuous slope of 1" per 10' to assure proper water removal.

An optional condensate pump may be installed if a lift is required to dispose of the condensate.

**CAUTION**

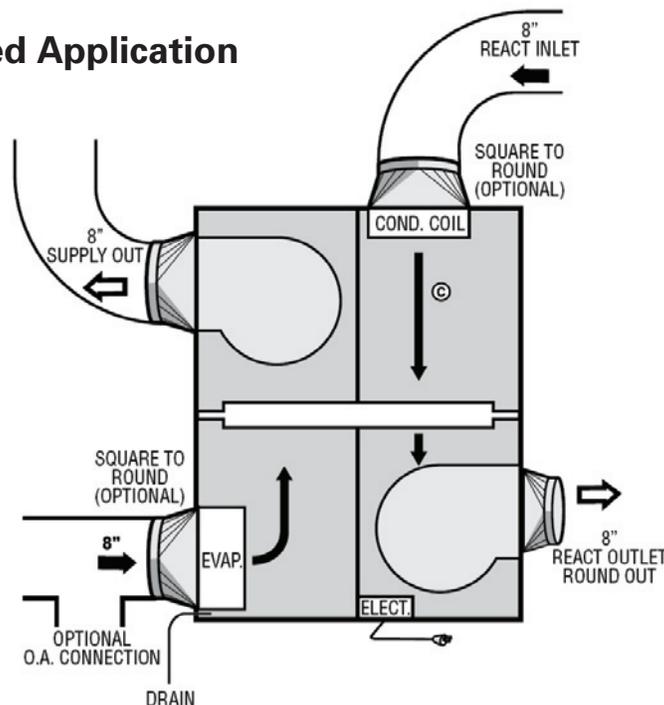
For additional safety, Munters always recommends that a catch pan with float switch be placed under the DRYCOOL™ HD.

### 1.4 Installation in a Structure with No Existing Forced Air HVAC

When installing the DRYCOOL™ HD in a structure that does not have a forced air HVAC system, a single return for the DRYCOOL™ HD should be installed in a central open area of the structure. DO NOT locate the return in a bathroom or a kitchen. The supply of the unit should be located in the remote areas of the structure (such as bedrooms, den, etc...). By

ducting this way the air inside the structure will circulate through the DRYCOOL™ HD to be filtered and dehumidified. 4" diameter duct is recommended for branches to the bedrooms, 6" diameter duct is recommended for branches to larger areas. Connect an 8" reactivation duct to the reactivation outlet to expel moist air outside the space.

## 2 Intended Application



Use of the DRYCOOL™ HD in pool areas will void warranty. In order to efficiently control humidity levels, the area in which the dehumidifier is to be placed must be free of water intrusion or excessive fresh air infiltration. Before installation of the DRYCOOL™ HD, water intrusion or excess air infiltration should be addressed.

DO NOT use the DRYCOOL™ HD as a bench or table.

DO NOT place the DRYCOOL™ HD directly on structural members.

A secondary drain pan MUST be placed under the unit.

The DRYCOOL™ HD could be located near the existing air handling system to minimize the required ductwork. The controls for the DRYCOOL™ HD are remote from the unit and must be located in the space that is to be

conditioned. The controls are low voltage (24 volt) and should be connected to the DRYCOOL™ HD with low voltage thermostat wire.

If fresh air ventilation is desired, thought should be given to the location for the fresh air ducting. An insulated duct will have to be installed on the DRYCOOL™ HD and run to the outside of the structure to bring in fresh air. The unit is not meant to condition more than 75 cfm of outside air. Consult local codes for necessary distances from exhaust ports when installing fresh air return.

Consult all applicable codes for proper installation.

---

## 2.1 Specification

MODEL	DRYCOOL™ DC100
Electrical	115 / 60 / 6.7 A @ AHAM
Capacity	120 Pints/day @ 80°F / 60% RH
Efficiency	3.3 L/kW
Operating Temp.	Reactivation: 40°F–100°F Conditioned Space Limits: 50°F–95°F
Air Flow	250 CFM without external restrictions
Refrigerant	Refrigerant Charge 28 oz. R410
Unit Size	24 L x 36 W x 16.5 H
Unit Weight	95 lbs.
Shipping Weight	110 lbs.

---

## 3 Operation

The DRYCOOL™ HD can be equipped with various accessories to enhance its operation. A remote humidistat must be used with the unit.

## 3.1 Humidity Control Adjustment

Set the humidity control to the desired humidity level for the structure.

The dehumidifier will run continuously until the relative humidity (RH) is reduced to the humidity control dial setting. Setting the humidity control to lower RH levels will NOT increase the

unit's dehumidification rate; the unit will simply run longer to reduce the area's RH to the setting. The DRYCOOL™ HD will reduce a conditioned space's RH to a lower level. Settings below 40% are not recommended.

## 3.2 Fan/Filter Switch

Turning ON the fan/filter switch on the side of the unit will cause the DRYCOOL™ HD internal fan to run continuously, whether the unit is dehumidifying or not.

This function is desirable if the unit is used for air circulation and filtration to

achieve maximum indoor air quality. When the switch is ON; air will be constantly filtered through the unit and circulated throughout the house. When the switch is OFF; the fan will operate only when the humidity control calls for dehumidification.

## 4 Maintenance

### 4.1 Air Filter

The DRYCOOL™ HD is equipped with an air filter. This filter should be checked every three months. Operating the unit with a dirty filter will reduce dehumidifier capacity and efficiency and may cause the compressor to cycle off and on unnecessarily. DO NOT operate the unit without a filter. The heat exchange coils inside the unit could become clogged and require disassembly to clean.



**Servicing the DRYCOOL™ HD with its high pressure refrigerant system and high voltage circuitry presents a health hazard which could result in death, serious bodily injury, and/or property damage. Only qualified service people should service this unit.**

## 5 Humidity Control

The humidistat control is an adjustable switch that closes when the relative humidity of the air in which it is located rises to the dial set point. If the

DRYCOOL™ HD does not run, try turning the humidity control until it reaches the stop and the knob pointer points at "on."

