

# Quest Dry 105, 155, and 205

## Installation, Operation and Maintenance Instructions

– Read and Save These Instructions –

This manual is provided to acquaint you with the dehumidifier so that installation, operation and maintenance can proceed successfully. Ultimate satisfaction depends on the quality of installation and a thorough understanding of this equipment. The dehumidifier is built around tested engineering principles and has passed a thorough inspection for quality of workmanship and function.

The **Quest Dry 105** provides 105 pints per day of water removal at standard rating conditions (80°F/60%RH) while using only 4.9 amps/115V.

The **Quest Dry 155** provides water removal of 155 pints per day at 80°F/60%RH using 8.0 amps/115V.

The **Quest Dry 205** is the largest capacity of the group. This unit removes up to 205 pints of water per day using only 13.2 amps/115V and retains the same cabinet size as the 105 and the 155. Ideally suited for structures with high ceiling applications.



PATENTS:  
D570,988  
8,069,681  
9,052,132

### Features:

- Industry-leading efficiency, most efficient on the market today
- Patented, optimized air-to-air heat exchanger
- High-efficiency, long-life impeller fan
- Quiet operation and superior high static pressure performance
- Superior air filtration (MERV-11 standard)
- Pre-configured for fresh air ventilation
- Auto-restart after power outages
- Environmentally friendly R410A refrigerant

### Water Removal Rates (Pints/Day)

<b>105 pints</b>	<b>80°F, 60% (AHAM)</b>	<b>(Dry 105)</b>
<b>155 pints</b>	<b>80°F, 60% (AHAM)</b>	<b>(Dry 155)</b>
<b>205 pints</b>	<b>80°F, 60% (AHAM)</b>	<b>(Dry 205)</b>



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**FOR HVAC INSTALLER AND OWNER ONLY****Safety Precautions**

Read the installation, operation and maintenance instructions carefully before installing and operating this device. Proper adherence to these instructions is essential to obtain maximum benefit from your Quest *Dry* indoor air quality system.

**READ AND SAVE THESE INSTRUCTIONS**

- The device is designed to be installed **INDOORS IN A SPACE THAT IS PROTECTED FROM RAIN AND FLOODING.**
- Install the unit with space to access the back or side panels for maintenance and service. **DO NOT INSTALL UNIT WITH THE SERVICE PANELS INACCESSIBLE.**
- Avoid directing the discharge air at people, or over the water in pool areas.
- If used near a pool or spa; be certain there is **NO** chance the unit could fall into the water, be splashed and that it is plugged into a **GFI GROUND FAULT INTERRUPT OUTLET.**
- **DO NOT** use the device as a bench or table.
- **DO NOT** place the device directly on structural members. Provide vibration isolation in order to minimize operational vibration and/or noise.
- A drain pan **MUST** be placed under the unit if installed above a living area or above an area where water leakage could cause damage
- Never operate a unit with a damaged power cord. If the power cord is damaged it must be replaced by the manufacturer, its service agent, or similarly qualified person in order to avoid a hazard.
- The unit shall be installed in accordance with national wiring regulations.
- Do not obstruct the air intake and exhaust. Maintain a .3 m (1 ft) clearance around the air intake and exhaust.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

**FOR HVAC INSTALLER AND OWNER ONLY**

**1. Intended Application for Quest Dry**

For the ideal installation, draw air from the central part of the area to be dried and return it to isolated areas. The ductwork of the existing heating system can be used to supply air to the area to be dried.

**2. Registrations**

The Quest Dry units conform to unified standard UL 60335-2-40.

**3. Specifications**

Unit:	4032250 Dry 105	4031080 Dry 155	4031880 Dry 205
<b>Blower:</b> (Tested with duct collars on)	257 CFM @ 0.0" WG 206 CFM @ 0.2" WG 146 CFM @ 0.4" WG	391 CFM @ 0.0" WG 363 CFM @ 0.2" WG 337 CFM @ 0.4" WG	526 CFM @ 0.0" WG 495 CFM @ 0.2" WG 458 CFM @ 0.4" WG
<b>Power:</b>	530 Watts @ 80°F and 60% RH	920 Watts @ 80°F and 60% RH	1525 Watts @ 80°F and 60% RH
<b>Supply voltage:</b>	110-120 VAC - 1 Phase - 60 Hz.	110-120 VAC - 1 Phase - 60 Hz.	110-120 VAC - 1 Phase - 60 Hz.
<b>Current Draw:</b>	4.9 Amps	8.0 Amps	13.2 Amps
<b>Energy Factor:</b>	4.2	3.5	2.7
<b>Operating Temp:</b>	56°F Min - 95°F Max	56°F Min - 95°F Max	56°F Min - 95°F Max
<b>Minimum Performance @ 80°F and 60% RH:</b>			
<b>Water Removal:</b>	105 Pints/Day	155 Pints/Day	205 Pints/Day
<b>Efficiency:</b>	8.8 Pints/kWh	7.3 Pints/kWh	5.7 Pints/kWh
<b>Duct Connections:</b>	Inlet: 10" Round Duct Collar 6" Round Duct Collar Outlet: 10" Oval Duct Collar	Inlet: 10" Round Duct Collar 6" Round Duct Collar Outlet: 10" Oval Duct Collar	Inlet: 10" Round Duct Collar 6" Round Duct Collar Outlet: 10" Oval Duct Collar
<b>Air Filter:</b>	MERV-11 Size: 16" x 20" x 2"	MERV-11 Size: 16" x 20" x 2"	MERV-11 Size: 16" x 20" x 2"
<b>Power Cord:</b>	10' 16/3 SJT w/ 5-15P Plug	10' 16/3 SJT w/ 5-15P Plug	10' 16/3 SJT w/ 5-20P Plug *This unit requires a dedicated 20A circuit
<b>Drain Connection:</b>	3/4 FPT	3/4 FPT	3/4 FPT
<b>Refrigerant Type:</b>	R410A	R410A	R410A
<b>Refrigerant Amount:</b>	1lb. 10oz.	1lb. 13oz.	2lb. 0oz.
<b>Dimensions:</b>	UnitShipping Width: 37.875" 42" Height: 21.75" 28.25" Length: 20.25" 24" Weight: 140 lbs 160 lbs	UnitShipping Width: 37.875" 42" Height: 21.75" 28.25" Length: 20.25" 24" Weight: 140 lbs 160 lbs	UnitShipping Width: 37.875" 42" Height: 21.75" 28.25" Length: 20.25" 24" Weight: 150 lbs 170 lbs



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## 4. Installation

### 4.1 Location

The Quest Dry can be installed in a variety of locations to meet the owner's needs as listed below. In all cases keep the following cautions in mind:

- It is designed to be installed **INDOORS IN A SPACE THAT IS PROTECTED FROM RAIN AND FLOODING.**
- Install the unit with space to access the back and side panels for maintenance and service and also to allow easy access to the filter cover panel. **DO NOT INSTALL UNIT WITH THE FRONT PANEL OR FILTER COVER PANEL INACCESSIBLE.**
- Avoid discharging the air directly at people, or over the water in pool areas.
- If used near a pool or spa, be certain there is **NO** chance the unit could fall into the water or be splashed and that it is plugged into a **GROUND FAULT INTERRUPTER.**
- **DO NOT** use the Quest Dry as a bench or table.
- **DO NOT** place the Quest Dry directly on structural members. Provide vibration isolation in order to minimize operational vibration and/or noise.
- A drain pan **MUST** be placed under the unit if installed above an area where water leakage could cause damage.

Place the Quest Dry on supports that raise the base of the unit 2.5" above the top of the flanges on the drain pan beneath it. Raising the Quest Dry will help the unit drain with gravity flow. Do not place the Quest Dry directly on structural building members without vibration absorbers or unwanted noise may result.

The Quest Dry may be suspended with steel hanger straps or a suitable alternative from structural members, unit must be supported from underneath. Don't hang from sides or ends. Remember to place a drain pan under the unit if it is suspended above a finished area or above an area where water leakage could cause damage.

The Quest Dry should be located near the existing air handling system to minimize the required ductwork for connecting the Quest Dry to the existing air handling system. The controls for the Quest Dry 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 Quest Dry with low voltage thermostat cable.

If fresh air ventilation is desired, thought should be given to the location for the fresh air ducting. A 6" round insulated duct will have to be installed on the Quest Dry and run to the outside of the structure to bring in fresh air. Use an 8" insulated round duct for lengths of more than 50 feet or if more than 100 CFM is needed. Consult local codes for necessary distances from exhaust ports when installing fresh air return.

### 4.2 Electrical Requirements

 **WARNING! DO NOT ALLOW THE YELLOW LEAD FROM THE QUEST DRY TO CONTACT THE RED LEAD OR WHITE LEAD FROM THE QUEST DRY OR DAMAGE TO THE TRANSFORMER WILL RESULT.**

The Quest Dry plugs into a common grounded outlet. The amp draws for each unit under normal operating conditions are listed on page 4. If used in a wet area (pool, spa room, or basement prone to flooding), a ground fault interrupter protected circuit is required.

Install the remote control panel in a central area of the structure where it will sense the relative humidity of the structure

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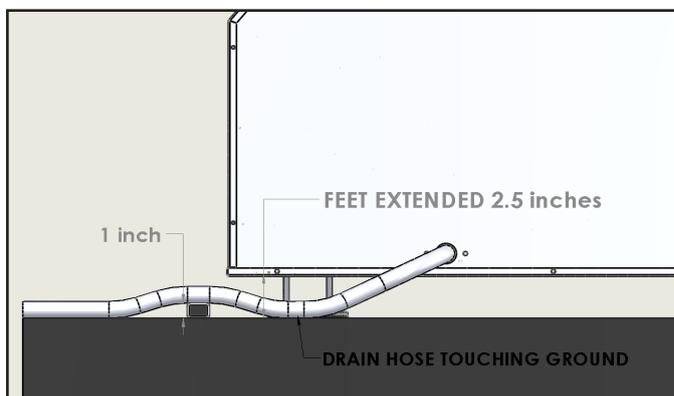
accurately. Do not install the control panel where it may not accurately sense the relative humidity such as near HVAC supply registers, near exterior doors, or near a pool or spa. The installer must supply the wiring between the Quest Dry and the control panel. Be sure to safely route the control wiring to prevent damage during installation. Be careful not to cross the wires when connecting the Quest Dry and the remote control panel or damage to the transformer may result.

The remote controls of the Quest Dry are powered by a low voltage circuit (24 VAC) and must NEVER contact or be connected to a high voltage circuit. The control wires leaving the Quest Dry and the remote control panels are numbered and color-coded to prevent confusion. Some of the control wires leaving the Quest Dry may not be used with certain control panels and should be left safely disconnected with wire nuts taped onto the stripped ends. Be sure to consult the electrical schematic in this manual or inside the access panel of the Quest Dry before making the control connections.

### 4.3 Condensate Water Removal

Condensate drains by gravity via the drain port. Use 3/4" male NPT PVC pipe. Route drain pipe to drain. Install a trap if possible. Take care when installing drain pipe to drain port. Use an adjustable wrench to secure the drain port. An optional condensate pump kit may be installed if a lift is required to dispose of the condensate. The condensate pump kit can be ordered directly from the factory. See the optional parts list for information on the kit.

When installing the drain hose make sure the feet are extended such that the dehumidifier is 2 1/2" off the ground. Then coil the drain hose under itself or position a spacer to lift the hose 1" off the ground after the hose has touched the ground. This procedure will create a trap that ensures your unit drains correctly. See the diagram below for further visual clarification.



### 4.4 Ducting

#### 4.4A Installing Duct Collars

The Quest Dry is equipped with 10" and 6" round inlet collars and a 10" round (ovaled) exhaust collar. Follow instructions included with collars.

#### 4.4B Ducting for Dehumidification

For the ideal installation, draw air from the central part of the area to be dried and return it to the isolated areas. The ductwork of the existing heating system can be used to supply air to the area. If the existing supply goes to isolated areas of the structure, discharge the supply of the Quest Dry into the supply of the existing heating system. If the existing heating system incorporates a central supply, installation of a separate supply duct from the Quest Dry to each isolated area is recommended. All flexible ducting connected to the Quest Dry should be UL listed.

The inlet of the Quest Dry is the 10" diameter hole in the filter enclosure of the unit. A 10" round collar is supplied with the unit to attach to round duct. The duct may be permanently attached to the collar. A 6" round collar is provided with

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the unit to attach to the 6" hole in the filter enclosure. The 6" collar should be capped if fresh make-up air is not desired. If fresh make-up air is desired, see Section 3.4C.

A 10" round (oval) collar is supplied with the unit for the outlet of the Quest Dry.

A length of flexible ducting on all Quest Dry duct connections is recommended to reduce noise and vibration transmitted to rigid ductwork in the structure.

Ducting the Quest Dry as mentioned in Sections 3.4A-3.4G requires consideration of the following points:

**Duct Sizing:** For total duct lengths up to 25', use a minimum 10" diameter round or equivalent rectangular. For longer lengths, use a minimum 12" diameter or equivalent. Grills or diffusers on the duct ends must not excessively restrict airflow.

**Isolated Areas:** Effective dehumidification may require that ducting be branched to isolated, stagnant areas. Use 8" or larger diameter branch ducting to each of two or three areas, use 6" or larger to each of four or more areas.

**Connecting to existing HVAC systems:** An optional 10" check damper is available from the factory to prevent reverse flow through the Quest Dry. If the Quest Dry is ducted to the supply ducting air handler, it is recommended that the check damper be placed in the Quest Dry supply duct. Contact the factory when connecting to a static pressure of greater than or equal to +0.5" WG.

**3.4C Ducting for Fresh Air**

Fresh air can be brought into the structure by connecting an insulated duct from outside to the 6" Quest Dry inlet and by turning on the fan switch or activating the humidity control (on units with the humidity control panel). Activate the ventilation timer on units with the ventilating and humidity control panel to bring in fresh air. Refer to Section 4.5 for programming instructions for the ventilation timer. Advantages of this form of ventilation include:

1. Outside air is filtered before entering the building.
2. Outside air will be dehumidified before entering if the Quest Dry 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. It also reduces the potential for carcinogenic radon gas to enter and provides make-up air for open combustion and exhaust devices like the clothes drier, fireplace, and water heater.

In cold climates or areas where the outdoor dew point is low at times, ventilation can be used to dehumidify the structure. This is accomplished by bringing the dry, low dew point air into the structure during these times. This approach is often more economical than running the dehumidifier to remove excess moisture from the structure. In cold climates, it is critical to adequately ventilate to reduce the inside moisture content to avoid moisture accumulating in the wall cavities. For example; in a structure that experiences condensation on the interior surface of the windows during the winter, increasing the amount of ventilation will often cure the problem.

An insulated 6" diameter duct is generally sufficient to provide up to 100 CFM of outside air. Large quantities of outside air will either positively or negatively impact the performance of the Quest Dry, depending upon inside and outside air conditions. Consult the factory by calling 1-800-533-7533 for recommendations regarding the use of higher flows with your specific application.

The outside air duct should be connected to the 6" round collar on the filter enclosure of the unit. The 6" round collar includes a manual damper. Adjust the manual damper to provide the desired amount of fresh air for ventilation. The amount of fresh air should be based on the size and occupancy of the residence. If you are unsure of your ventilation air requirements, consult the factory by calling 1-800-533-7533 for assistance.

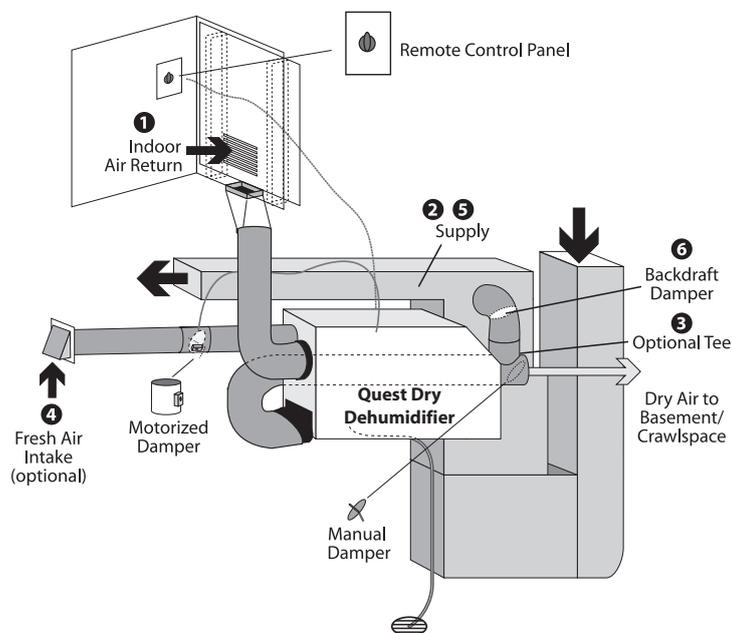
**FOR HVAC INSTALLER ONLY****4.4D Installation in a Basement or Crawlspace with an Existing Forced Air HVAC System**

It is recommended that a new, separate return duct be installed for the Quest Dry from a central area of the structure. If this is not possible, and if the existing system has multiple returns, select one to disconnect from the existing forced air system and use it for the dedicated Quest Dry 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 may have its door closed much of the time.

If the structure in which the Quest Dry is to be installed has an existing forced air HVAC system, utilize the HVAC system to make the Quest Dry installation easier.

**Basement Installation:** Install a separate 10" return for the Quest Dry in a central area of the structure. Duct the supply of the Quest Dry to an optional 10" x 10" x 10" tee/damper that is 20% open to the basement. This allows the ability to discharge a variable amount of dehumidified air into a basement that may not be well served by the existing duct system. Duct the other side of the tee to the air supply of the existing HVAC system. A backdraft damper is required in the duct between the 10" tee and the central supply duct to prevent air from being discharged into the basement during central fan operation. Connect a duct from outside to the 6" collar of the Quest Dry if you wish to provide fresh air ventilation.

**Crawl Space Installation:** Install a separate return for the Quest Dry in a central area of the structure. Duct the supply of the Quest Dry to a 10" x 10" x 10" tee/damper that is 20% open to the crawl space if desired. Duct the other side of the tee to the air supply of the existing HVAC system ventilation. Connect an insulated duct from outside to the 6" collar of the Quest Dry if you wish to provide optional fresh air.

**3.4E Installation in a Ceiling Cavity with an Existing Forced Air HVAC System**

ALWAYS install a catch pan with a drain and/or float interrupt switch for condensate under the Quest Dry in an attic to reduce likelihood of water damage.

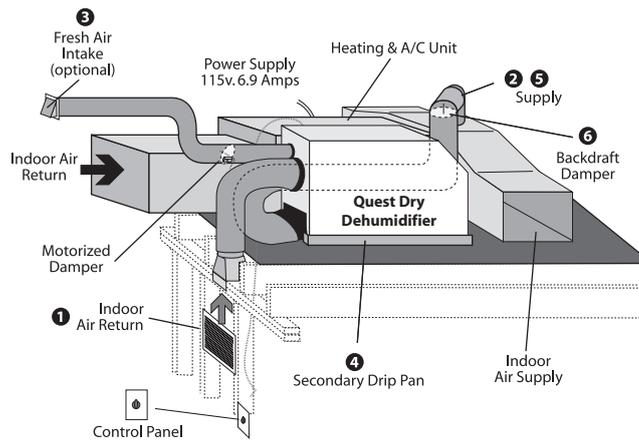
Locate a separate return for the Quest Dry in a central area of the structure. Duct the supply of the Quest Dry to the air supply of the existing HVAC system. Connect an insulated duct from outside to the 6" collar of the Quest Dry if you wish to provide fresh air ventilation. Adjust damper in the collar to provide the desired amount of fresh air. Using a remote control, program the unit to bring in the desired amount of fresh air.

**FOR HVAC INSTALLER ONLY****4.4F Installation in a Structure with Two Forced Air HVAC Systems**

The Quest Dry can be installed into two typical HVAC ducting systems. Install a separate return for the Quest Dry as directed above. Discharge air from the dehumidifier should be split and routed to each supply ducting system. A balancing damper and a backdraft damper is required in each duct between the Quest Dry and the HVAC ducting system. This allows airflow to be adjusted and prevents flow of air between the ducting systems. Contact the factory for assistance, if necessary.

**4.4G Installation in a Structure with No Existing Forced Air HVAC System**

When installing the Quest Dry in a structure that does not have a forced air HVAC system, a single return for the Quest Dry should be installed in central open area of the structure. **DO NOT** locate the return in a bathroom or a kitchen. The supply of the Quest Dry should be located in the remote areas of the structure. By ducting this way, the air inside the structure will circulate through the Quest Dry to be filtered and dehumidified. Avoid discharging all the air from the dehumidifier in one location to prevent heat build up in that area. 4" diameter duct is recommended for branches to the remote rooms, 6" diameter duct is recommended for branches to larger areas. Refer to section 3.4B for branch duct sizing. Connect an insulated duct from outside to the 6" collar of the Quest Dry if you wish to provide fresh air ventilation.

**4.5 Quiet Installation**

Consider compression vibration and airflow noise during installation. Use of flex duct and/or vibration isolation materials during mounting and ducting will result in quieter operation.

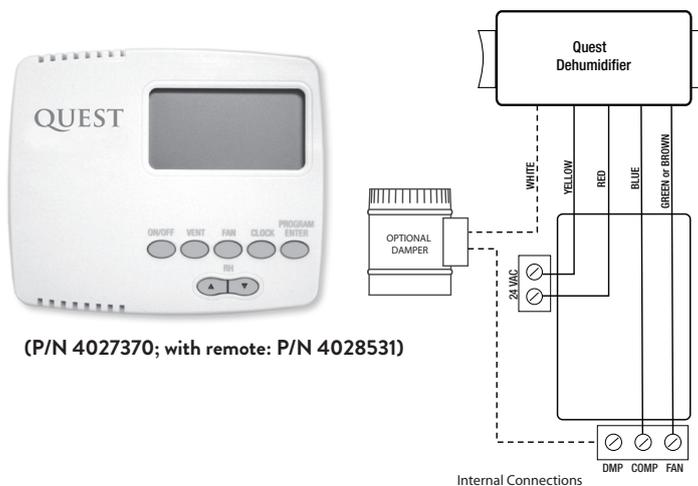
A length of flexible ducting on all Quest Dry duct connections is recommended to reduce noise and vibration transmitted to rigid ductwork in the structure.

FOR HVAC INSTALLER ONLY

5. Controls

The Quest Dry can be equipped with various accessories to enhance its operation. A remote control must be used with the Quest Dry. ThermaStor offers the DEH 3000 proprietary controller. The DEH 3000 allows homeowners the ability to monitor and control relative humidity levels in their home. This control is also offered with a remote sensing option.

**WARNING: DO NOT** allow the yellow lead from the unit to contact the red lead or the white lead from the unit or damage to the transformers will result.



The Quest Dry is controlled using five color-coded wires.

- Green (or brown) = Fan control
- Blue = Dehumidification (fan and compressor) control
- Red = 24volt AC power transformer neutral side (common with white)
- White = 24volt AC power transformer neutral side (common with red)
- Yellow = transformer high side

Between the red/white lead and the yellow leads is a 40VA transformer. This low voltage power source powers the relay coils which control the fan and compressors. This 24VAC transformer can also be used to power HVAC accessories external to the dehumidifier.

- To turn the dehumidifier on make contact between yellow and blue wires.
- To turn the fan on make contact between yellow and green(or brown) wires.
- To power an HVAC accessory, connect the accessory to the white (or red) wire and the yellow wire.

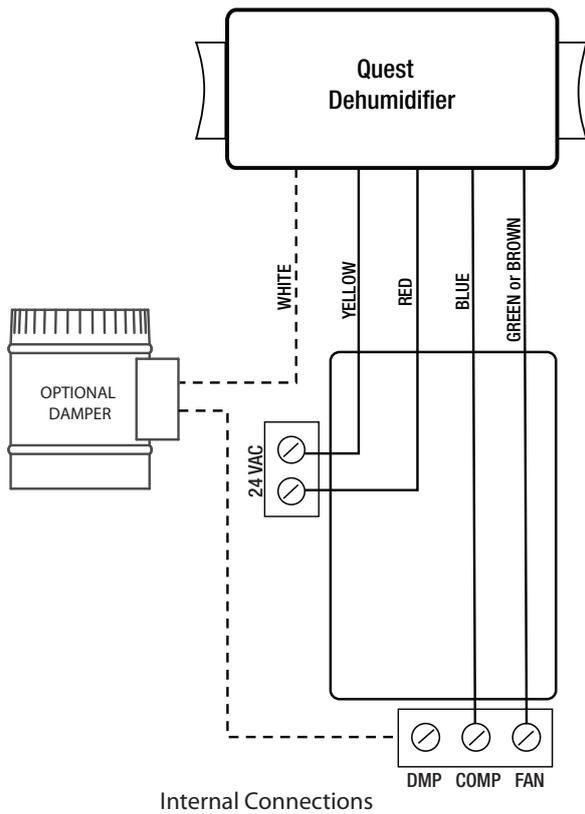
**FOR HVAC INSTALLER ONLY**

Dehumidifier on : Connect yellow and blue wires.

Fan only on : Connect yellow and green (or brown) wires.

Accessory power : 24volt AC power supply available for HVAC accessories between yellow and white(and/or red) wire. Red and white wires are common with each other.

**Quest DEH 3000 dehumidification & ventilation control**



**Control Part No. 4027370**

FOR HVAC INSTALLER ONLY



# DEH 3000/DEH 3000R

Part No. 4027370

Part No. 4028531



## 6. Optional Dehumidifier & Ventilation System Controller

When used with Quest Dry Whole Structure Ventilating Dehumidifiers, the DEH 3000/3000R allows end-users the ability to monitor and control relative humidity levels in their structure.

<b>DEH3000 P/N:</b>	4027370
<b>DEH3000R (remote) P/N:</b>	4028531
<b>Model:</b>	DEH 3000 DEH 3000R (remote)
<b>Operating Voltage:</b>	24 VAC
<b>Max Current DMP, COMP, FAN:</b>	1 AMP each
<b>Humidity Range/Accuracy:</b>	10 – 95% RH, ± 5%
<b>Auxillary Relay Capacity:</b>	5 Amps, 24VAC
<b>Temp Range/Accuracy:</b>	30°-90°F, 2%
<b>Size:</b>	4.95"L x 1.06"W x 4.19"H

### Major Operations

- Digital control of Relative Humidity (Digital Set-Point)
- Fan/Filter Operation
- Programmable Ventilation Timer
- Large, easy-to-read backlit LCD display
- Easy interaction with air handler fan (Interlock/Lockout)
- High Temperature Cut-Out
- Dryout Cycle Timer
- Auto Reboot
- Remote Sensor (DEH 3000R Only)

**To order call Therma-Stor at  
1-800-533-7533**

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## 7. Maintenance

### 7.1 Standard Air Filter

The Quest Dry is equipped with a pleated cloth air filter. This filter should be checked every six 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 on the defrost control.

To access the air filter, remove the filter access panel from the end of the Quest Dry. The filter should be readily visible and can be removed by pulling them straight out of the Quest Dry.

The pleated cloth filter can generally be vacuumed clean several times before needing replacement. Replacement filters can be ordered from the factory or purchased locally if available. DO NOT operate the unit without the standard filter or with a less effective filter than the standard filter. The heat exchange coils inside the unit could become clogged and require disassembly to clean. Filter non-compliance invalidates the product warranty.

### 7.2 High Efficiency Air Filter - MERV 14

An optional high efficiency pleated microglass paper filter is available for the Quest Dry. This filter is rated as 90%-95% efficient by the ASHRAE Dust Spot test method 52-76. The high efficiency pleated microglass paper filter should be used in conjunction with the standard filter, and placed directly beneath the standard filter.

This filter is able to remove allergy causing particles from the airstream. The high efficiency filter has a much larger surface area than the standard filter, thus the standard filter may need to be cleaned or replaced several times before the high efficiency filter requires replacement. Be careful not to damage the fabric media when handling the high efficiency pleated paper filter. Do not attempt to clean the high efficiency pleated paper filter. It should be replaced when it becomes restrictive (See Figure 7).

### 7.3 Impeller Fan Oiling

The impeller fan motor is factory lubricated for many years of normal operation, and no further oiling is required.

### 7.4 Optional Fresh Air Return

Check and clean the screen on the outdoor fresh air return seasonally. The screen may become plugged during the seasons when there are many particles in the outdoor air.

## 8. Service

### 8.1 Warranty

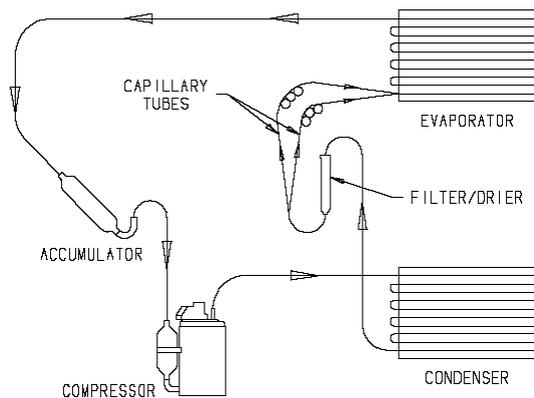
A warranty certificate has been enclosed with this unit; read it before any repair is initiated. If a warranty repair is required, call the factory first at 1-800-533-7533 for warranty claim authorization and technical assistance.

**FOR HVAC INSTALLER AND OWNER****8.2 Technical Description**

The Quest Dry uses a refrigeration system similar to an air conditioner's to remove heat and moisture from incoming air, and add heat to the air that is discharged (See Figure 15).

Hot, high-pressure refrigerant gas is routed from the compressor to the condenser coil (See Figure 3). The refrigerant is cooled and condensed by giving up its heat to the air that is about to be discharged from the unit. The refrigerant liquid then passes through a filter/drier and capillary tubing which causes the refrigerant pressure and temperature to drop. It next enters the evaporator coil where it absorbs heat from the incoming air and evaporates. The evaporator operates in a flooded condition, which means that all the evaporator tubes contain liquid refrigerant during normal operation. A flooded evaporator should maintain nearly constant pressure and temperature across the entire coil, from inlet to outlet.

The mixture of gas and liquid refrigerant enter the accumulator after leaving the evaporator coil. The accumulator prevents any liquid refrigerant from reaching the compressor. The compressor evacuates the cool refrigerant gas from the accumulator and compresses it to a high pressure and temperature to repeat the process.



**Figure 15: Refrigeration System of Quest Dry**

**8.3 Troubleshooting**

**Neither fan nor compressor running. Dehumidification is being called for. No fan call.**

1. Unit unplugged or no power to outlet.
2. Humidity control set too high.
3. Loose connection in internal or control wiring.
4. Defective Compressor relay.
5. Defective control transformer.

**Compressor is not running. Dehumidification is being called for. No fan call.**

1. Defective compressor run capacitor (Sec. 7.6).
2. Loose connection in compressor circuit.
3. Defective compressor overload (Sec. 7.6A).
4. Defective compressor (Sec. 7.6).
5. Defrost thermostat open.

**FOR HVAC INSTALLER AND OWNER****Compressor cycles on and off. Dehumidification is being called for. No fan call.**

1. Low ambient temperature and/or humidity causing unit to cycle through defrost mode.
2. Defective compressor overload (Sec. 7.6A).
3. Defective compressor (Sec. 7.6).
4. Defrost thermostat defective (Sec. 7.8).
5. Dirty air filter(s) or air flow restricted.

**Fan is not running. Dehumidification or fan is being called for.**

1. Loose connection in fan circuit.
2. Obstruction prevents fan impeller rotation.
3. Defective fan.
4. Defective fan relay.

**Low dehumidification capacity (evaporator is frosted continuously). Dehumidification is being called for**

1. Defrost thermostat loose or defective (Sec. 7.8).
2. Low refrigerant charge
3. Dirty air filter(s) or air flow restricted.
4. Excessively restrictive ducting connected to unit.

**No ventilation. Ventilation is being called for.**

1. Loose connection in ventilation control circuit
2. Loose connection in damper power circuit.
3. Defective fresh air damper.

**Unit removes some water, but not as much as expected.**

1. Air temperature and/or humidity have dropped.
2. Humidity meter and or thermometer used are out of calibration.
3. Unit has entered defrost cycle (Sec. 5.8).
4. Air filter dirty (Sec. 4.1 & 4.2).
5. Defective defrost thermostat (Sec 5.8).
6. Low refrigerant charge (Sec. 5.4).
7. Air leak such as loose cover or ducting leaks.
8. Defective compressor (Sec. 5.6).
9. Restrictive ducting (Sec. 2.4).
10. Optional Condensate Pump Safety Switch open (Sec 5.11).

**Unit Test to determine problem:**

**FOR HVAC INSTALLER AND OWNER**

1. Detach field control wiring connections from main unit.
2. Connect the yellow and green pigtails from the main unit together; only the impeller fan should run. Disconnect the wires.
3. Connect the yellow and blue pigtails from the main unit together; the compressor and impeller fan should run.
4. If these tests work, the main unit is working properly. You should check the control panel and field control wiring for problems next.
5. Remove the control panel from the mounting box and detach it from the field installed control wiring. Connect the blue, yellow, and green wires from the control panel directly to the corresponding colored pigtails on the main unit. Leave the violet, white and red wires disconnected!
6. Turn on the fan switch; the impeller fan should run. Turn off the fan switch.
7. Turn on the humidity control; the compressor and impeller fan should run.
8. If these tests work, the problem is most likely in the field control wiring.

**8.4 Refrigerant Charging**

If the refrigerant charge is lost due to service or a leak, a new charge must be accurately weighed in. If any of the old charge is left in the system, it must be recovered before weighing in the new charge. Refer to the unit nameplate for the correct charge weight and refrigerant type.

**8.5 Impeller Fan Replacement**

The motorized impeller fan is a unitary assembly consisting of the motor and impeller fan. If defective, the complete assembly must be replaced.

1. Unplug the power cord.
2. Remove the cabinet access panel.
3. Remove the screw attaching the impeller fan support bracket to the base.
4. Disconnect the impeller fan leads inside the electric box.
5. Remove fan/bracket assembly by removing 3 screws from the bracket and inlet ring assembly.
6. Remove the defective impeller fan from the bracket and replace with it with the new impeller fan.
7. Reassemble the new impeller fan by reversing the above procedure. Note: There are two pins on the backside of the cabinet that must align with the two holes in the impeller fan support bracket.

**8.6 Compressor/Capacitor Replacement**

This compressor is equipped with a two terminal external overload and a run capacitor, but no start capacitor or relay (See Figure 4).

**8.6A Checking Compressor Motor Circuits**

Perform the following tests if the impeller fan runs but the compressor does not with the fan switch and ventilation timer OFF and the humidity control ON.

1. Unplug the unit; remove the cabinet side and the electrical connection cover on the compressor top.
2. Plug in the unit and turn the humidity control to ON. Check for 110 volts from compressor terminal R to overload terminal 3 using an AC voltmeter. If voltage is present, go to step 3. If no voltage, there may be a loose connection in the compressor circuit. Test each component for continuity. See the appropriate section if a defect is suspected.
3. Unplug the unit, and then disconnect the red and yellow wires from compressor terminals R & S. Using an ohmmeter check continuity between the points listed below.

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4. Compressor terminals C and S: No continuity indicates an open start winding. The compressor must be replaced. Normal start winding resistance is 3 to 7 ohms.
5. Compressor terminals C and R: No continuity indicates an open run winding. The compressor must be replaced. Normal run winding resistance is .5 to 2 ohms.
6. Compressor terminal C and overload terminal 1: No continuity indicates a defective overload lead.
7. Overload terminals 1 and 3: If there is no continuity, the overload may be tripped. Wait 10 minutes and try again. If there is still no continuity, it is defective and must be replaced.
8. Compressor terminal C and compressor case: Continuity indicates a grounded motor. The compressor must be replaced.
9. Disconnect the wires from the run capacitor. Set the ohmmeter to the Rx1 scale. The capacitor is shorted and must be replaced if continuity exists across its terminals. If there is no needle movement with the meter set on the Rx100000 scale, the capacitor is open and must be replaced.
10. Reconnect the wires to the compressor and capacitor. Plug in and turn on the unit. If the compressor fails to start, replace the run capacitor.
11. If the unit still does not start, adding a hard-start kit (relay & capacitor) will provide greater starting torque. If this doesn't work, the compressor has an internal mechanical defect and must be replaced.

**8.6B Replacing a Burned Out Compressor**

The refrigerant and oil mixture in a compressor is chemically very stable under normal operating conditions. However, when an electrical short occurs in the compressor motor, the resulting high temperature arc causes a portion of the refrigerant oil mixture to break down into carbonaceous sludge, a very corrosive acid, and water. These contaminants must be carefully removed otherwise even small residues will attack replacement compressor motors and cause failures.

The following procedure is effective only if the system is monitored after replacing the compressor to insure that the clean up was complete.

1. This procedure assumes that the previously listed compressor motor circuit tests revealed a shorted or open winding.
2. Remove and properly dispose of the system charge. **DO NOT** vent the refrigerant or allow it to contact your eyes or skin.
3. Remove the burned out compressor. Use rubber gloves if there is any possibility of contacting the oil or sludge.
4. To facilitate subsequent steps, determine the type of burn out that occurred. If the discharge line shows no evidence of sludge and the suction line is also clean or perhaps has some light carbon deposits, the burn out occurred while the compressor was not rotating. Contaminants are therefore largely confined to the compressor housing. A single installation of liquid and suction line filter/driers will probably clean up the system.

If sludge is evident in the discharge line, it will likely be found in the suction line. This indicates the compressor burned out while running. Sludge and acid have been pumped throughout the system. Several changes of the liquid and suction filter/driers will probably be necessary to cleanse the system.

5. Correct the system fault that caused the burn out. Consult the factory for advice.
6. Install the replacement compressor with a new capacitor and an oversized liquid line filter.

In a running burn out, install an oversized suction line filter/drier between the accumulator and compressor. Thoroughly flush the accumulator with refrigerant to remove all trapped sludge and to prevent the oil hole from becoming plugged. A standing burn out does not require a suction line filter/drier.

7. Evacuate the system with a good vacuum pump and accurate vacuum gauge. Leave the pump on the system for at least an hour.
8. Operate the system for a short period of time, monitoring the suction pressure to determine that the suction filter is not becoming plugged. Replace the suction filter/drier if pressure drop occurs. If a severe running burn out has occurred, several filter/driers may have to be replaced to remove all of the acid and moisture.

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**NOTE: NEVER use the compressor to evacuate the system or any part of it.**

**8.6C Replacing a Compressor, Nonburn Out**

Remove the refrigerant from the system. Replace the compressor and liquid line filter/drier. Charge the system to 50 PSIG and check for leaks. Remove the charge and weigh in the refrigerant quantity listed on the nameplate. Operate the system to verify performance.

**8.7 Remote Controls**

The Quest Dry is controlled by devices mounted on a panel that is remote from the unit. You may or may not have the devices listed below depending on the model of the remote control panel you purchased. If the Quest Dry fails to operate as desired, always check the settings of the controls to insure that they are correct. Check that the controls are receiving 24Vac from the Quest Dry. Check the connections between the Quest Dry, the control panel, and the field control wiring.

**8.7A Humidity Control**

The humidity 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. It opens when the RH drops 4 to 6% below the set point. If the Quest Dry does not run, try turning the humidity control clockwise until it reaches the stop and the knob pointer points at "Max Dry" (see back of control panel cover). If it still does not run, remove the stop screw from the panel and turn the knob farther. If it then runs, the humidity control is out of calibration or the RH is below 40%.

The Quest Dry is equipped with an automatic defrost mechanism. If the Quest Dry operates in conditions that develop frost on the evaporator, it will sense the frost build-up and automatically defrost the evaporator. The Quest Dry may not appear to be operating correctly during the defrost sequence, but once the defrost sequence is completed, the Quest Dry will resume dehumidifying.

**8.7B Programmable Ventilation Timer**

The ventilation timer controls the impeller fan and the motorized fresh air damper. When the ventilation timer is activated, the Quest Dry will circulate the indoor air, and bring in fresh air from outside. The ventilation timer should be set for the required ventilation of the residence. The structure should be ventilated with fresh air as suggested by applicable codes and standards.

If the Quest Dry fails to ventilate as expected, check that the time on the timer is correct. For the timer to carry out the program schedule, the slide switch in the upper left corner on the timer must be set to "AUTO". The slide switch in the upper right corner of the Quest Dry must be set to "RUN". Also check the programs on the timer to be sure that the timer is calling for ventilation at the correct times. If the timer fails to operate or operates erratically, reset the timer; see section 4.5 of this manual.

**8.8 Defrost Thermostat**

The defrost thermostat is attached to the refrigerant suction tube between the accumulator and the compressor. It will automatically shut the compressor off if the low side refrigerant temperature drops due to excessive frost formation on the evaporator coil. The impeller fan will continue to run, causing air to flow through the evaporator coil and melt the ice. When the ice has melted, the evaporator temperature will rise and the thermostat will restart the compressor.

**8.9 Electric Ventilation Damper**

The electric ventilation damper is controlled by the ventilation timer. The damper will open when the ventilation timer is activated to allow fresh air into the structure through the 6" diameter fresh air inlet duct. The electric ventilation damper will remain closed when the ventilation timer is not activated to prevent over-ventilating the structure when the unit is dehumidifying or recirculating the indoor air.

The electric ventilation timer operates on 24 VAC from the control circuit. **DO NOT** connect high voltage to the damper motor or damage to the motor may result. **DO NOT** force the blade of the damper by hand or damage to the damper motor may result.

The damper opens in one direction only. The damper rotates very slowly, allow sufficient time for the damper to cycle. The damper

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will take approximately 1 minute to cycle from closed to open or from open to closed.

If the electric ventilation damper fails to operate:

1. Check that the wiring is correct and that voltage is present at the damper motor.
2. Check for any obstruction inside the damper. If the electric ventilation damper fails to operate after performing these checks, it must be replaced.

**8.10 Condensate Pump Kit**

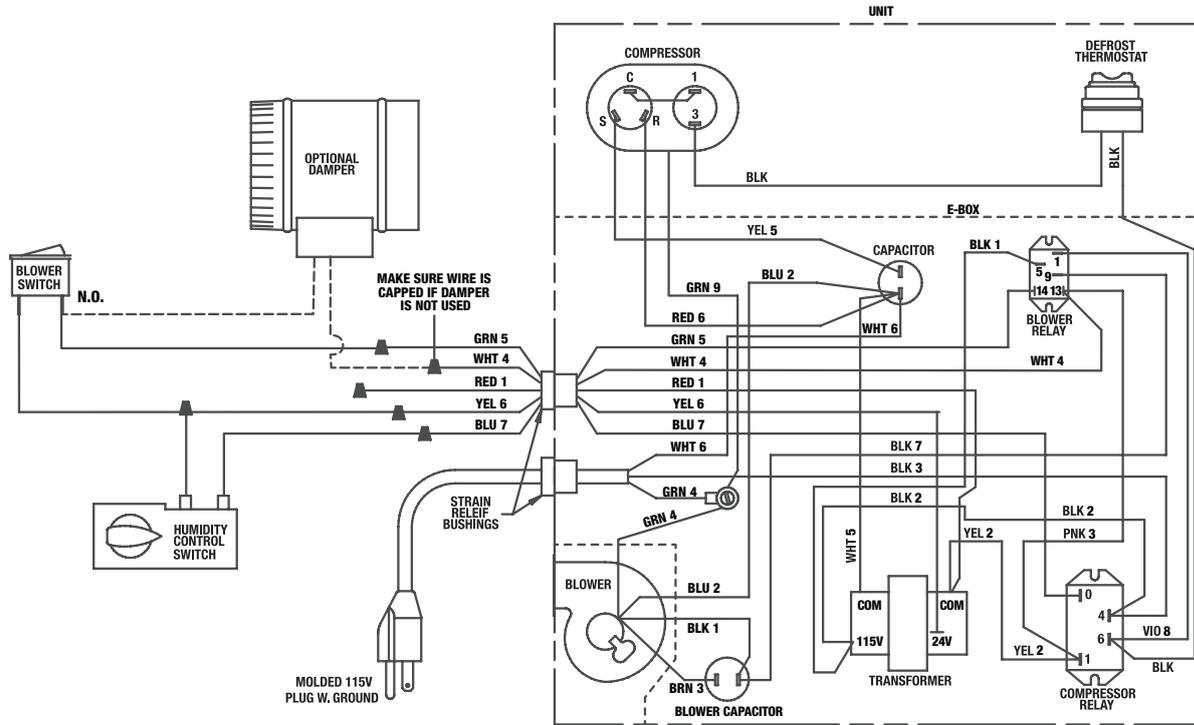
An optional condensate pump kit is available from the factory for use with the Quest Dry. Condensate is automatically pumped to a remote location when the water level in the pump's reservoir rises to close the float switch.

The pump also contains a safety float switch. The white leads from this switch extend from beneath the pump cover. This switch should be installed in series with the field wire that connects the blue (#5) lead from the Quest Dry to the blue (#5) lead on the control panel.

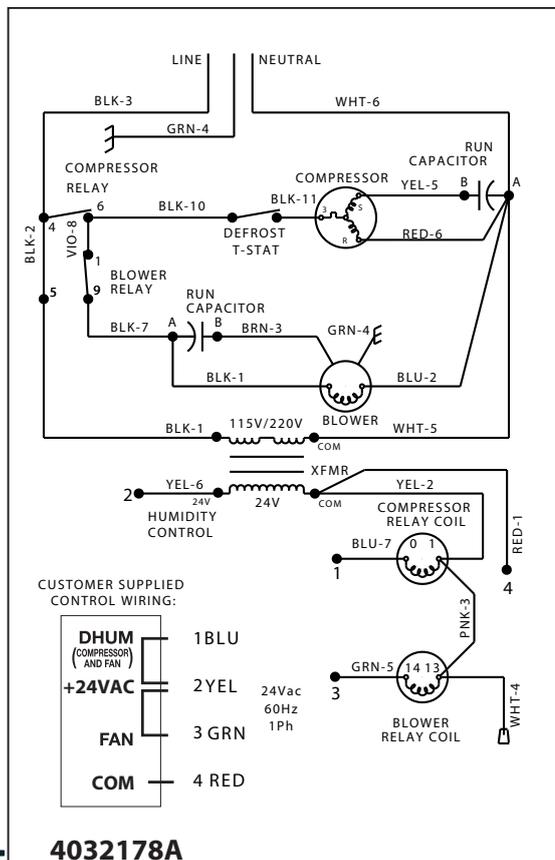
If the pump fails, this switch opens the compressor control circuit and stops water production before the reservoir overflows. The Quest Dry will continue to ventilate or circulate air as normal, but will not dehumidify until this switch closes.

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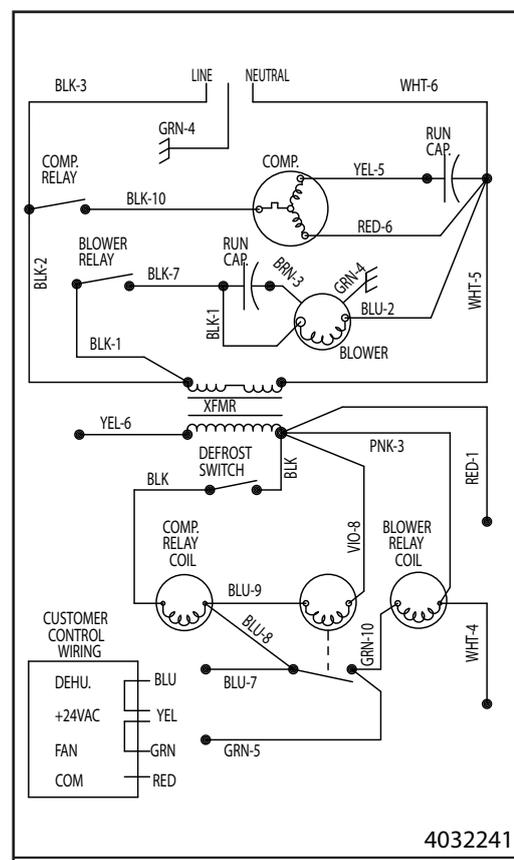
Electric Schematics of the Quest Dry



105  
155



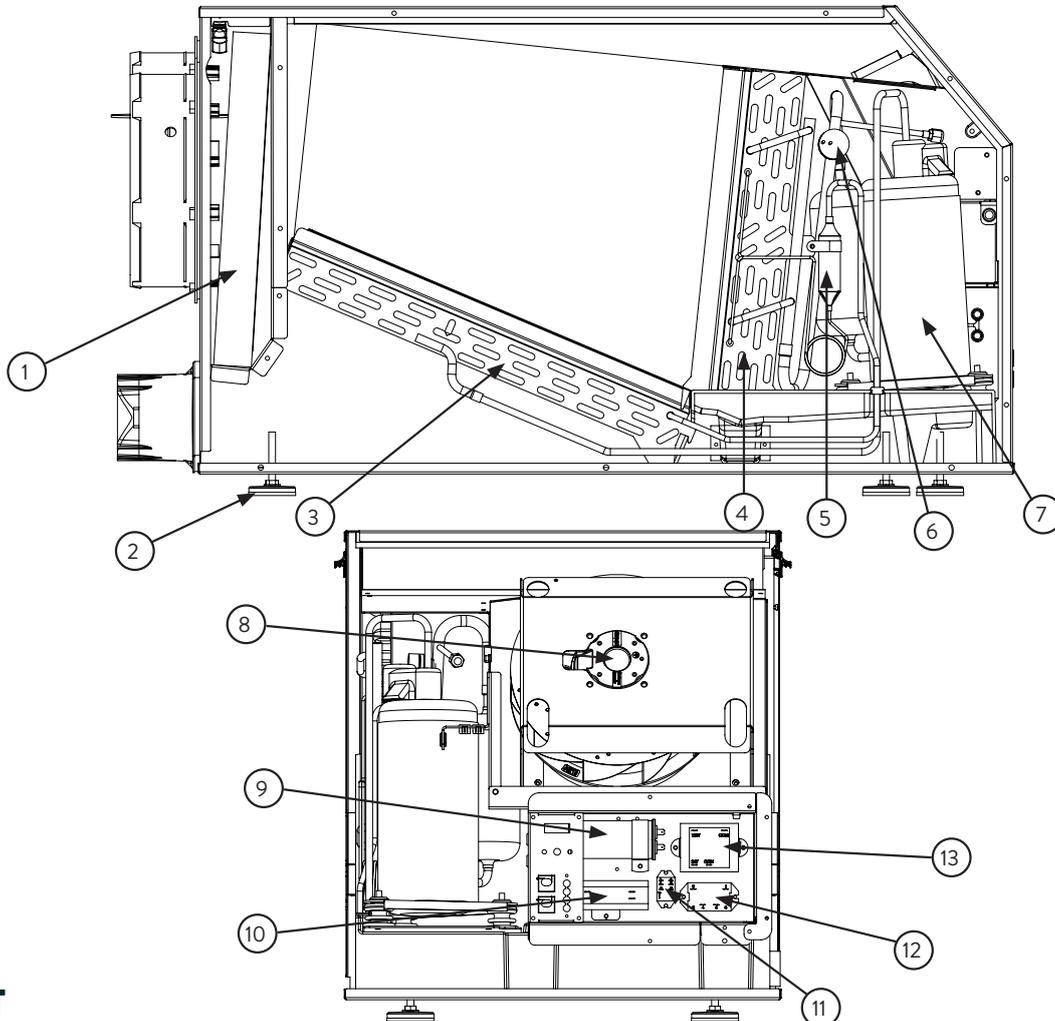
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FOR HVAC INSTALLER AND OWNER

Service Parts List

Item	Part No	Qty	Description	Item	Part No	Qty	Description
1	4021475	1	Air Filter 16x20x2" MERV-11	8	4032196	1	(Dry 105) Impeller
2	4026221	4	Foot, Leveling, 5/16-18 x 2.25	8	4026657	1	(Dry 155) Impeller
3	4031085	1	Condenser Coil	8	4031089	1	(Dry 205) Impeller
4	4031086-02	1	E-Coat Evaporator Coil	9	4033032-03	1	(Dry 105) Capacitor, Run 35 MFD, 370V, Oil
5	4029510	1	Filter/Drier	9	4033032-05	1	(Dry 155 & Dry 205) Capacitor, Run, 45 MFD, 370V
6	4025741	1	(Dry 105 & Dry 155) Thermostat, Defrost Control, 43"	10	4033031-02	1	(Dry 105) Capacitor, Fan, 5 MFD, 370V, Dry
6	4032229	1	(Dry 205) Thermostat, Defrost Control	10	4033031-07	1	(Dry 155) Capacitor, Fan, 15 MFD, 370V
7	4032225	1	(Dry 105) Compressor Replacement Kit	10	4033031-08	1	(Dry 205) Capacitor, Fan, 20 MFD, 370V, Dry
7	4032224	1	(Dry 155 & Dry 205) Compressor Replacement Kit	11	4020924	1	Relay, SPDT, 24V, 15A
4029568	1	(Dry 105) Compressor Overload NOT SHOWN	12	4022484	1	Relay, SPST, 24V, 30A	
4029714	1	(Dry 155) Compressor Overload NOT SHOWN	13	4022487	1	XFMR, 120V, 60Hz, 24V, 40VA	
4031574	1	(Dry 205) Compressor Overload NOT SHOWN					



## FOR HVAC INSTALLER AND OWNER

**Optional Parts List**

<b>PART NO.</b>	<b>QTY.</b>	<b>DESCRIPTION</b>
4024375	1	Check Damper, 10" Diameter (not shown)
4022220	1	Condensate Pump Kit, External
4024155	1	Control Panel Assembly, Humidity/Fan
4024125	1	Control Panel Assembly, Ventilation Timer & Humidity
4023660	1	Controller, Humidity
4023672	1	Duct Damper, 6" Diameter, Electrically Actuated (not shown)
4024153	1	Cover for Items 28 & 29 (not shown)
4021495	1	Knob, Black, .25" shaft
4024150	1	Instructions, Humidity/Fan (not shown)
4024122	1	Instructions, Ventilation Timer & Humidity (not shown)
4025560	1	Switch, Black, SPDT, On/Off
4022486	1	Timer, 7-Day, 24 Vac, Programmable
4024369	1	Merv 11 Standard Filter 20" x 16 "x 2"
4032221	1	Filter Box

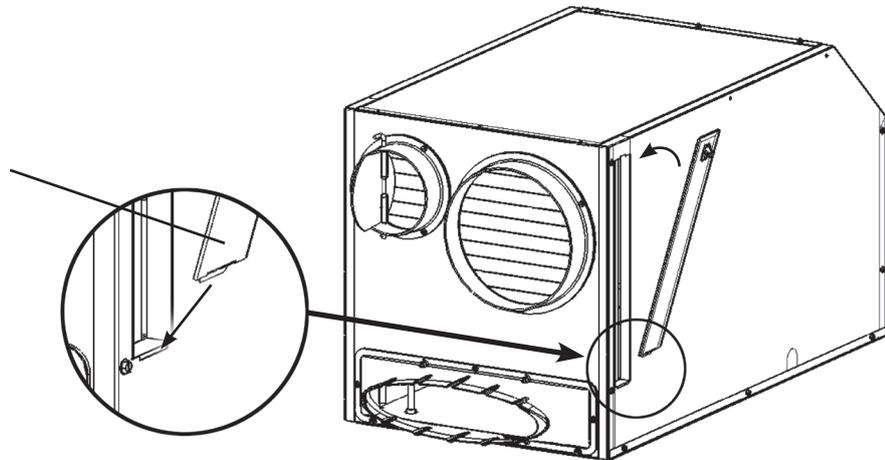
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**Door And Collar Assembly**

**Door Install**

Insert tab on the bottom of the door, in between the foam installation and the metal side.

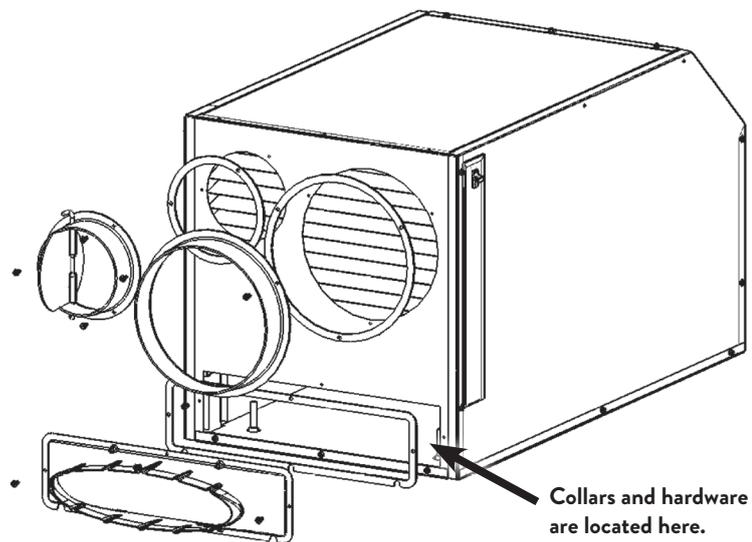
Push down on the plastic door latch and swing door shut. Once the door is shut release the door latch.



**Collar Install**

Remove the 2 round ducts, 3 seals and small bag of mounting hardware from inside the rectangle opening.

Adhere seals onto the back of each duct and mount the ducts to the front of the dehumidifier using screws provided.



## Quest Dry Dehumidifier Limited Warranty

### WARRANTOR:

Therma-Stor LLC  
4201 Lien Rd  
Madison, WI 53704  
Telephone: 1-800-533-7533

**WHO IS COVERED:** This warranty extends only to the original end-user of the Quest Dry dehumidifier, and may not be assigned or transferred.

**FIRST YEAR WARRANTY:** Therma-Stor LLC warrants that, for one (1) year the Quest Dry dehumidifier will operate free from any defects in materials and workmanship, or Therma-Stor LLC will, at its option, repair or replace the defective part(s), free of any charge.

**SECOND THROUGH FIFTH YEAR WARRANTY:** Therma-Stor LLC further warrants that for a period of five (5) years, the condenser, evaporator, and compressor of the Quest Dry dehumidifier will operate free of any defects in material or workmanship, or Therma-Stor LLC, at its option, will repair or replace the defective part(s), provided that all labor and transportation charges for the part(s) shall be borne by the end-user.

**END-USER RESPONSIBILITIES:** Warranty service must be performed by a Servicer authorized by Therma-Stor LLC. If the end-user is unable to locate or obtain warranty service from an authorized Servicer, he should call Therma-Stor LLC at the above number and ask for the Therma-Stor LLC Service Department, which will then arrange for covered warranty service. Warranty service will be performed during normal working hours.

The End-user must present proof of purchase (lease) upon request, by use of the warranty card or other reasonable and reliable means. The end-user is responsible for normal care. This warranty does not cover any defect, malfunction, etc. resulting from misuse, abuse, lack of normal care, corrosion, freezing, tampering, modification, unauthorized or improper repair or installation, accident, acts of nature or any other cause beyond Therma-Stor LLC's reasonable control.

**LIMITATIONS AND EXCLUSIONS:** If any Quest Dry Dehumidifier part is repaired or replaced, the new part shall be warranted for only the remainder of the original warranty period applicable thereto (but all warranty periods will be extended by the period of time, if any, that the Quest Dry Dehumidifier is out of service while awaiting covered warranty service).

UPON THE EXPIRATION OF THE WRITTEN WARRANTY APPLICABLE TO THE Quest Dry DEHUMIDIFIER OR ANY PART THEREOF, ALL OTHER WARRANTIES IMPLIED BY LAW, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL ALSO EXPIRE. ALL WARRANTIES MADE BY THERMA-STOR LLC ARE SET FORTH HEREIN, AND NO CLAIM MAY BE MADE AGAINST THERMA-STOR LLC BASED ON ANY ORAL WARRANTY. IN NO EVENT SHALL THERMA-STOR LLC, IN CONNECTION WITH THE SALE, INSTALLATION, USE, REPAIR OR REPLACEMENT OF ANY Quest Dry DEHUMIDIFIER OR PART THEREOF BE LIABLE UNDER ANY LEGAL THEORY FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES INCLUDING WITHOUT LIMITATION WATER DAMAGE (THE END-USER SHOULD TAKE PRECAUTIONS AGAINST SAME), LOST PROFITS, DELAY, OR LOSS OF USE OR DAMAGE TO ANY REAL OR PERSONAL PROPERTY.

Some states do not allow limitations on how long an implied warranty lasts, and some do not allow the exclusion or limitation of incidental or consequential damages, so one or both of these limitation may not apply to you.

**LEGAL RIGHTS:** This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

