

HR & HB Dryers

Precise Air Purification



Dual Tower Heat Reactivated Desiccant Air Dryer



EAP 
Engineered Air Products



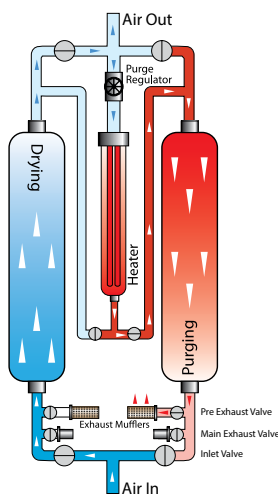
As manufacturing processes continue to improve with rapid advancements in technology, the requirements for clean, dry compressed air critical for sensitive applications is imperative, regardless of the compressor technology. The use of dried and filtered air lowers plant operational costs by preventing corrosion from forming in plant air distribution systems causing expensive pressure drops, premature wear of pneumatic devices and freeze up when seasonal drops in temperature occur. Utilizing dried and filtered compressed air increases overall product quality, decreases rejected material due to inconsistent air quality and reduces maintenance costs associated with condensate contamination of costly production equipment.

Engineered Air Products has been at the forefront of Desiccant Dryer development and manufacturing since 2008, establishing EAP as the leader in low dew point dryer technology with *focus* on desiccant dryers capable of ISO Class 8573-1, class 3 for dew point or better. EAP's team of engineers and product developers designing industry leading products, sales and service teams conveying superior product knowledge and support and manufacturing professionals combining synergies to build the most technologically advanced dryers available anywhere. A customer centric approach with emphasis on customer service enables EAP to flourish and grow a robust independent distribution network with ease of doing business and top-notch customer service top priorities.

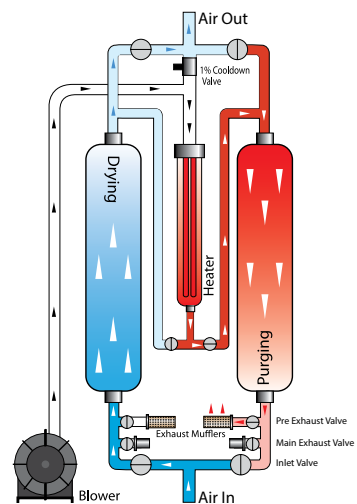
HR & HB Series

The HR / HB Series Heat Reactivated Desiccant Dryers are comprised of two identical and equal columns or towers filled with an adsorbent media called desiccant, a hydroscopic rigid material which is nano-porous and sponge-like providing large surface to mass ratio. The drying process is fairly straightforward with compressed air saturated with water vapor flowing upward through the drying tower with the water molecules adhering to the porous surface of the drying media where the residual water content of the compressed air is lowered to a pressure dew point of -40° F or lower.

Both HR and HB Series Heat Reactivated Dryers add heat with a regulated amount of dried and purified process gas (7% for HR) or pressurized ambient air (0-2% for HB) to regenerate the offline tower. This heated gas flow reduces or eliminates the amount of process purge air required for full regeneration of the offline tower since heated air is much more efficient desorbing the water vapor which has adhered to the desiccant material and supplements the drying action of the purge air, due to its' ability to vaporize and desorb the water molecules to atmosphere.



The Hr Series applies a regulated amount of dried process air is heated by way of a low watt density heater and passed down (counter current) through the desiccant bed. This heated purge air, exhausted to atmosphere, removes the water vapor adhered to the desiccant from the previous cycle.



The HB Series of dryers also use heated air to regenerate the off-line tower. A high efficiency packaged blower assembly directs heated atmospheric air counter current through the desiccant bed, removing the water vapor collected from the previous drying cycle. Dew point spikes or heat bumps are mitigated by enabling the auxiliary cooling / stripping feature that uses a small percentage of dry process air (1.7%)

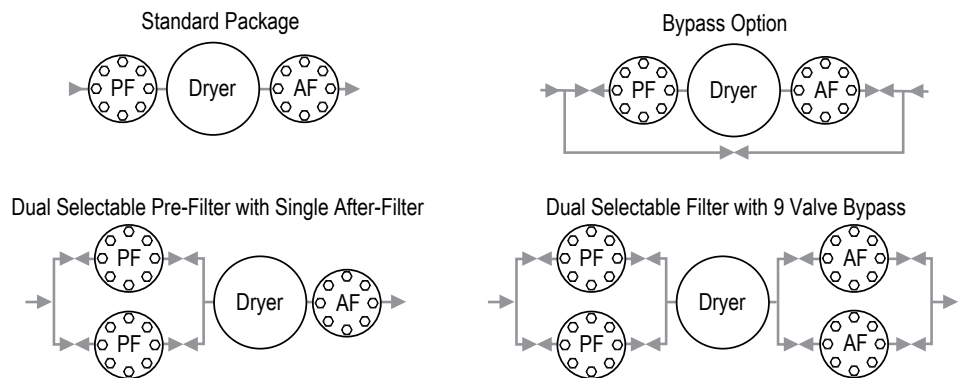
All EAP dryers take advantage of gravitational forces and utilize Up-flow drying and down-flow (counter current) regeneration resulting in minimum desiccant abrasion and attrition. This method of drying and regenerating also keeps bulk liquid moisture from system upset on the bottom of the drying tower where it is easily expelled during depressurization and regeneration, ensuring optimum performance by safeguarding the driest desiccant towards the top of the tower nearest to exit. HR / HB Series heated dryers are the most energy efficient of the "twin tower" types since they use significantly less (7% HR) or no purge air (0% HB) than a heatless dryer and with the addition of **Demand Control**, greater savings can be achieved during part load operation.



Complete Air Treatment



The HR / HB Series dryers are designed to be a complete air treatment solution sized for low pressure drop and performance, outfitted with standard equipment to include an oil removal 0.01 micron coalescing pre-filter, desiccant dryer for moisture removal, and a 1 micron particulate after filter in one complete package. Standard differential pressure indicators on each filter with pre-filter automatic drain all mounted to a rugged industrial steel base to enable a solidly anchored system.



Consult factory for additional filter packages

Designed for Reliability

All EAP HR / HB Series dryers are designed for reliability and reduction of costly down time. EAP accomplishes this by using Premium High Performance Non-Lubricated Rotary Actuated Valves to direct inlet flow of compressed air. They provide more opening and closing force compared to other types of valves and are designed specifically for high temperature applications featuring carbon steel bodies with stainless steel internals utilizing Buna or Viton seats. **These valves are so reliable that they come with a three-year limited factory warranty.**

HR & HB Logic Pro Master Controller



The EAP HR/HB Dryer controller features the dependable Allen Bradley PLC with an Allen Bradley Panel View touch screen for an interactive HMI, creating a highly reliable, repeatable and expandable platform preferred by industry professionals. Within the EAP HR / HB Externally Heated and Blower Purge proprietary programming are 16 steps of operation which initiate and control all aspects of dryer operation, allowing a direct interface with the dryer.

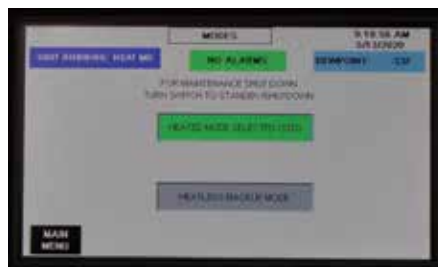


View Touch Screen, all black or blue buttons are menu buttons allowing screen movement, operations, review, and operating parameters and features within the dryer. Colored buttons for indication only.

Within the main menu you can select from sub menus including operating modes, pressures, temperatures, 24 hour graphical data, device status, service main and alarms, as well as obtain the general status of the dryer with indication of dryer position (of the 16 steps) and time remaining at that particular step. You will also see the status of the auxiliary purge, active alarms, dew point if so equipped, tower status drying, regenerating and temperatures of exhaust and heater cycle with default and current system settings. A very versatile and intuitive controller allows fine tune adjustment for optimal performance and energy efficiency.



- **Mode button** initiates auxiliary cool-down and heatless backup modes.
- **Pressure menu** will display system inlet pressure, dryer inlet pressure, system discharge pressure, total system differential pressure (PSID) Pre-filter PSID and after-filter PSID.



- **Temperature menu** will display heater cycling temperature, heater core temperature, left and right tower temperatures.



- **24-hour graphical data** trending for dew point, heater temperature, tower temperature, and pressures.



cETLus Listed Control Panel
UL Listed Components, CSA Compliant

- **Device status** with displays for valve positions, heater and blower contactors, aux. purge, and common alarm.



- **Service menu** and retentive alarms for monitoring and control of all operating parameters including pre-exhaust, heating, cooling, re-pressurization, cooldown temperature, heater cycling temp and dryer dew point set point and alarms for high dew point, heater over temperature, pre-filter alarm high PSID, After filter alarm high PSID, system alarm PSID, low pressure alarm and high pressure alarms both critical and warnings with event log with active time, date and duration of event.



- Shutdown / Standby / Run Switch for dryer status.
 - Common Alarm
 - Emergency stop
 - Cycle Stepping with Manual Technician Override
 - Exhaust Temperature Shutdown saves energy by interrupting heating cycle once optimal exhaust temperature is reached
 - cETLus Listed Control Panel
 - UL Listed Components, CSA Compliant
 - Modbus RTU Communication standard. Ethernet and other languages and protocols available.
- Consult factory for alternates.

Optional EcoTronic Demand Control

Automatically adjusts energy use to actual moisture loads. Typically, compressed air loads vary due to changes in inlet air temperature, pressure, relative humidity and flow. Since dryers are generally sized for worst case scenarios, and rarely take into consideration these varying loads, fixed cycle dryers switch based on a timed cycle only, and thus regenerate more frequently than probably necessary. Dryers equipped with **EcoTronic Demand Control** operate by sensing dryer discharge dew point and regenerate only as dew point dictates. If dryer load is lower than worst case conditions, the online tower may remain online beyond its fixed cycle time, thus saving energy by not switching and purging unnecessarily. Includes continuous digital dew point display and 4-20m/a Outputs and adjustable high dew point alarm.



HR & HB Standard Equipment



User Interface / Low Voltage Control Box:

- Allen Bradley PLC with Panel View Display
- NEMA 4X Control Enclosure
- Heated Backup Mode (HB Only)
- Heatless Backup Mode
- Interactive Control System with Visual Indication of Current Condition
- Full Compliment of Critical Pressure, Temperature, and Alarms Readouts With Interactive Set Points and Alarms
- Retentive Alarm Log with Fault Code Readout and Time Stamping
- Modbus RTU Standard. Ethernet and other Communication Protocols Available
- Countdown Timer for All Operations
- Cycle Stepping with Manual Technician
- Emergency Stop
- 24-Hour Graphs for Trending Temps and Pressures
- Exhaust Temperature Monitors for Energy Savings
- Switch Failure Alarm
- Pre-Filter, Dryer, After-Filter Differential Pressures
- Tri-Mode Operation

Primary High Voltage Control Box:

- Lockable, Gasketed NEMA Enclosures
- Single Disconnect Switch
- Single Point Electrical Connection
- Dual Contactors for Heaters
- Primary Cycling Contactor Controls Heater Operations
- Secondary Over Temperature Contactor Protects Circuit
- Fused Voltage Transformer for Low Voltage Controls
- Blower Starter with Overload Protection (HB Only)

Regulated Purge:

- Factory Pre-Set
- Optimum Purge Regardless of Operation Pressure
- Independent Re-Pressurization Circuit

Hardware:

- Premium Non-Lubricated Rotary Actuated Valves
- Inlet - Dual Acting Fail Safe with Position Indicators
- 3-Year Warranty on Switching Valves
- Exclusive Patent Pending Tuned Regeneration Regulates Energy Consumption to Optimize Dryer Performance
- Regenerative Blower (HB-130 To HB-3000)
- Positive Displacement Blower (HB-4000 To HB-6000)

Filter Package:

- Hard Point Mounting for Installation Integrity
- Delta Psi Gauges for Element Condition
- Pre-Filter Timer Drain

Tower Dew Point Indicators:

- Visual Dew Point Condition

Welded Frame Base:

- Maintains Structural Integrity of Dryer
- Move with Standard Fork Truck

Premium Desiccant:

- High Crush Strength
- Resists Abrasion And Dusting

Additional Features:

- cETLus Approved Control Panel
- Tower Pressure Gauges
- OSHA Approved Mufflers
- ASME / CRN Approved Vessels
- Desiccant Fill and Drain Ports
- ASME Safety Relief Valves

Optional Equipment

- Dual Filter and By-Pass Packages
- High Pressure (200-600 PSIG)
- -100° F Pressure Dew Point
- EcoTronic Dew Point Display and 4-20 mA Contacts
- Custom Paint and Finish Systems
- Alternate Allen Bradley Controller Platforms
- NEMA7 Electrics Or Other Area Classifications
- Modbus and Other Communication Protocols
- Custom Designs
- Differential Pressure Gauges and Transmitters
- 304 Stainless Steel Control Tubing with Swagelok Fittings
- Blower Amp Monitor

Specifications



HR

| Model | SCFM @ 100 PSIG | Line Size (Inches) | Electrics | Heater KW | Approx Purge (SCFM) | Dimensions W x D x H (Inches) | Unit Weight (lbs) |
|----------------------|-----------------|--------------------|-----------|-----------|---------------------|-------------------------------|-------------------|
| HR-100 | 100 | 1 | 120V/1/60 | 1.5 | 8 | 27 x 30 x 79 | 550 |
| HR-130 | 130 | 1 | 120V/1/60 | 1.5 | 10 | 27 x 32 x 79 | 630 |
| HR-200 | 200 | 1½ | 480V/3/60 | 3.0 | 15 | 31 x 36 x 90 | 940 |
| HR-300 | 300 | 1½ | 480V/3/60 | 3.0 | 23 | 31 x 38 x 91 | 1,095 |
| HR-400 | 400 | 2 | 480V/3/60 | 5.0 | 30 | 32 x 40 x 94 | 1,390 |
| HR-550 | 550 | 2 | 480V/3/60 | 6.0 | 41 | 44 x 49 x 93 | 1,700 |
| HR-650 | 650 | 2 | 480V/3/60 | 7.5 | 49 | 44 x 52 x 93 | 1,855 |
| HR-800 | 800 | 2 | 480V/3/60 | 9.0 | 60 | 44 x 52 x 98 | 2,270 |
| HR-1000 | 1000 | 3 FL | 480V/3/60 | 12.0 | 75 | 52 x 48 x 102 | 2,900 |
| HR-1250 | 1250 | 3 FL | 480V/3/60 | 12.0 | 94 | 96 x 70 x 101 | 4,180 |
| HR-1500 | 1500 | 4 FL | 480V/3/60 | 18.0 | 113 | 96 x 70 x 101 | 4,530 |
| HR-2000 | 2000 | 4 FL | 480V/3/60 | 25.0 | 150 | 96 x 84 x 121 | 6,210 |
| HR-2600 | 2600 | 4 FL | 480V/3/60 | 25.0 | 185 | 96 x 84 x 127 | 6,795 |
| HR-3000 | 3000 | 4 FL | 480V/3/60 | 30.0 | 225 | 90 x 92 x 112 | 7,620 |
| HR-4000 ¹ | 4000 | 6 FL | 480V/3/60 | 38.0 | 300 | 117 x 127 x 112 | 9,565 |
| HR-5000 ¹ | 5000 | 6 FL | 480V/3/60 | 50.0 | 375 | 133 x 116 x 105 | 11,055 |
| HR-6000 ¹ | 6000 | 6 FL | 480V/3/60 | 60.0 | 450 | 145 x 123 x 104 | 14,125 |

HB

| Model | SCFM @ 100 PSIG | Line Size (Inches) | Electrics | Heater KW | Dimensions W x D x H (Inches) | Unit Weight (lbs) |
|----------------------|-----------------|--------------------|-----------|-----------|-------------------------------|-------------------|
| HB-130 | 130 | 1 | 120V/1/60 | 2.2 | 27 x 37 x 80 | 705 |
| HB-200 | 200 | 1½ | 480V/3/60 | 3.0 | 32 x 40 x 91 | 950 |
| HB-300 | 300 | 1½ | 480V/3/60 | 6.0 | 26 x 44 x 91 | 1,240 |
| HB-400 | 400 | 2 | 480V/3/60 | 7.5 | 32 x 48 x 94 | 1,595 |
| HB-550 | 550 | 2 | 480V/3/60 | 12.0 | 44 x 55 x 96 | 1,880 |
| HB-650 | 650 | 2 | 480V/3/60 | 12.0 | 44 x 55 x 96 | 2,030 |
| HB-800 | 800 | 2 | 480V/3/60 | 15.0 | 44 x 59 x 98 | 2,595 |
| HB-1000 | 1000 | 3 FL | 480V/3/60 | 18.0 | 48 x 65 x 103 | 2,845 |
| HB-1250 | 1250 | 3 FL | 480V/3/60 | 25.0 | 90 x 74 x 100 | 4,885 |
| HB-1500 | 1500 | 3 FL | 480V/3/60 | 25.0 | 90 x 74 x 100 | 5,260 |
| HB-2000 | 2000 | 4 FL | 480V/3/60 | 38.0 | 96 x 84 x 121 | 7,065 |
| HB-2600 | 2600 | 4 FL | 480V/3/60 | 50.0 | 96 x 84 x 126 | 8,030 |
| HB-3000 | 3000 | 4 FL | 480V/3/60 | 50.0 | 90 x 94 x 112 | 8,630 |
| HB-4000 ¹ | 4000 | 6 FL | 480V/3/60 | 75.0 | 119½ x 123 x 113 | 13,985 |
| HB-5000 ¹ | 5000 | 6 FL | 480V/3/60 | 90.0 | 163 x 129 x 117 | 16,055 |
| HB-6000 ¹ | 6000 | 6 FL | 480V/3/60 | 110.0 | 172 x 134¾ x 116 | 18,380 |

¹ Unites 4000 SCFM and larger with factory packaged filters are provided on two bases designed to bolt together at installation.

Sizing based on the Compressed Air and Gas Institute CAGI ADF 200 Standard for Compressed Air of 100 PSIG inlet pressure, 100 degrees F inlet temperature and -40 degrees F pressure dew point providing ISO Quality to standard 8573-1 rating 1-2-1 for Compressed Air Quality.

Inlet temperatures to 120° F (49° C)

200 - 1000 psig unit available.

18 Month Bumper to Bumper Warranty
3 Year Warranty on Blower, Heater and 3 way Switching Valve

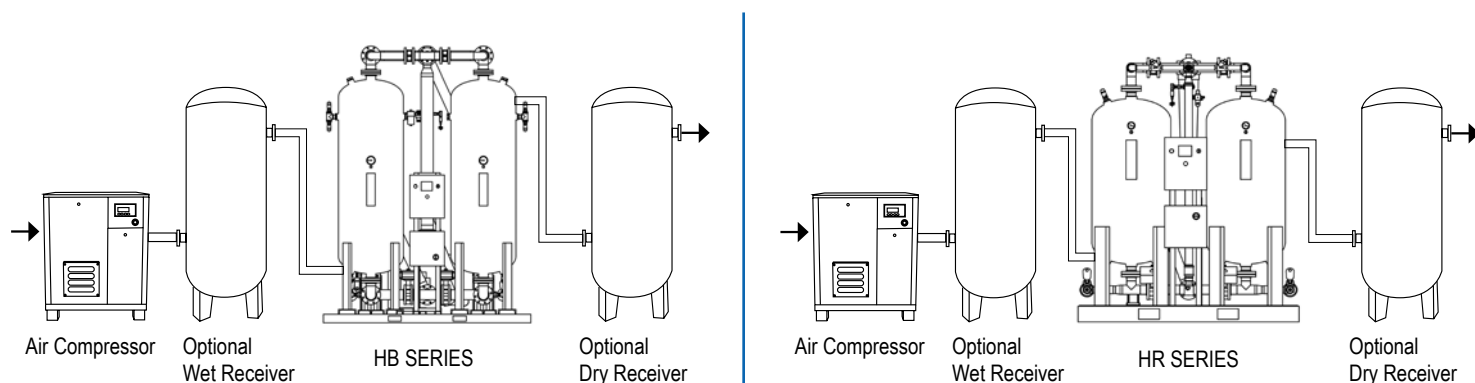


| ISO 8573:2010 Quality Class | DIRT Maximum Number of Particle Size per m ³ in micron | | WATER Pressure Dewpoint °C (ppm. Vol.) at 7 bar g | OIL (including vapour) mg/m ³ |
|-----------------------------|--|---------|--|---|
| 0 | As specified by equipment or supplier. More stringent than Class 1. | | | |
| 1 | <20,000 | 0.1-0.5 | -70 (0.3) | 0.01 |
| 2 | <400,000 | 0.1-0.5 | -40 (16) | 0.1 |
| 3 | <90,000 | 0.5-1.0 | -20 (128) | 1.0 |
| 4 | <10,000 | 1.0-5.0 | +3 (940) | 5 |
| 5 | <100,000 | 1.0-5.0 | +7 (1240) | 25 |
| 6 | | | +10 (1500) | - |

HR/HB Series meet ISO 8573-1 Air Quality of 1.3.1

Capacity Correction Factors

| | Inlet Temperature in °F | | | | | | |
|-----|-------------------------|------|------|------|------|------|-----|
| | 60 | 70 | 80 | 90 | 100 | 110 | 120 |
| 60 | 1.04 | 1.04 | 1.00 | .86 | .66 | .49 | .37 |
| 70 | 1.05 | 1.05 | 1.00 | .97 | .72 | .55 | .42 |
| 80 | 1.25 | 1.25 | 1.18 | 1.10 | .82 | .62 | .47 |
| 90 | 1.30 | 1.30 | 1.30 | 1.20 | .90 | .68 | .52 |
| 100 | 1.40 | 1.40 | 1.40 | 1.32 | 1.00 | .75 | .58 |
| 110 | 1.41 | 1.41 | 1.41 | 1.40 | 1.07 | .80 | .62 |
| 120 | 1.55 | 1.55 | 1.50 | 1.50 | 1.15 | .87 | .67 |
| 130 | 1.56 | 1.56 | 1.53 | 1.53 | 1.24 | .93 | .72 |
| 140 | 1.60 | 1.60 | 1.55 | 1.55 | 1.33 | 1.00 | .76 |
| 150 | 1.70 | 1.70 | 1.67 | 1.67 | 1.40 | 1.06 | .81 |



Since all HR and HB Series Dryers are provided with factory mounted filtration and drain systems, installation is a snap.

EAP
Engineered Air Products

©2020 Engineered Air Products, Lancaster, NY 14086

800.943.7924 • www.engineeredairproducts.com