Aircel

Desiccant Air Dryers

AEHD Series

Externally Heated Desiccant Air Dryer

150 - 3,000 scfm

Since 1994, Aircel has been delivering quality, industry leading compressed air dryers and accessories for production lines and facilities all over the world.

Our precise engineering and designs provide reliable products that will protect your operations for years to come.

Based in Maryville, Tennessee, Aircel is a multi-industry manufacturing leader. Aircel's highly-specialized, engineered products and technologies are powering facilities all over the world. Our products serve industries such as textile, food and beverage, automotive, production, PET market, breathing air, pneumatic instrumentation, and more.

AEHD Series Heated Dryer

Externally Heated Desiccant Dryer

150 - 3,000 scfm

With its energy saving capabilities, the Aircel AEHD Series externally heated desiccant dryers combine efficiency with technology to meet the needs of your application. **Heated process air regenerates the towers, requiring less purge air overall (about 7% the total rated capacity of the dryer)**.

The standard design delivers ISO Quality Class 2 air (-40°F / -40°C) dew point to protect against freezing during low ambient conditions.

For ease of installation, ultimate dryer protection, and downstream process protection, the AEHD Series comes complete with standard installed filtration package. This filtration package includes a coalescing pre-filter with automatic drain and outlet particulate after filter with manual drain.

AEHD Series At a Glance

- Heated adsorption requires less purge air than heatless dryers.
- Integrated Energy Management System maximizes your return on investment by delivering significant energy savings even during various loads and air demands.
- Up to 8 hour additional drying time with demand cycle control with no use of heater, providing maximum energy savings.

Energy Management Standard

The AEHD Series dryers come standard with the Aircel Energy Management System - **a technology that utilizes desiccant bed humidity sensing to maintain dew point and provide energy savings.**

This Energy Management System or demand cycle control system reduces purge air and optimizes dryer performance by monitoring the moisture at the mid portion of the tower desiccant bed. This allows for quick response to moisture changes while maintaining the low outlet dew point.

The control system automatically adjusts the regeneration cycle, maintaining outlet dew point and extending the drying cycle during periods of lower loading. Switching is less frequent, reducing dryer maintenance and fully utilizing desiccant capacity. **This addition improves reliability and performance while sustaining the low outlet dew point.** The end result is an overall purge reduction and significant energy savings.

- Mid-bed humidity sensors provide constant desiccant monitoring, ensuring stable dew point performance.
- Compressed purge air consumption, heater, and blower usage are reduced, optimizing energy performance.
- Up to 8 hours additional drying with demand cycle control.

AEHD Series| Standard Features

Tower Pressure Gauges
Large, easy-to-read 3.5" display

Thermal Relief Valves
ASME UV stamped set at 200 psi for models below 750 scfm; 150 psi for models above 1,000 scfm

Regulated and Filtered Pilot Air
Ensures reliable pneumatic control operation

Desiccant Fill Port
For easy desiccant replacement of premium grade activated alumina with high moisture capacity

Mounted Pre and After Filter
- 0.1 micron pre-filter
- High temperature after filter

Energy Management System
Monitors mid-bed humidity, saving energy by extending drying times and reducing overall regeneration purge

Aircel Programmable Controller (APC)
- NEMA 4 steel electrical enclosure
- Power On/Off switch and light
- Dryer operation status, operation, alarms, and energy savings displayed
- Rated UL, CSA, Class I Division II Groups A, B, C, and D temp code T3C
- Keypad push button

LED Tower Operation
Indicates sequence of operation (drying and regenerating) for towers

Pilot Solenoid (not visible)
Highly reliable and long lasting

ASME Carbon Steel Vessels with High Efficiency, Premium Grade Desiccant
- Below 750 scfm: 200 psi at 400°F
- Above 1000 scfm: 150 psi at 450°F

Desiccant Drain Port
For easy desiccant removal

Angle Body Depressurization Valve
Highly durable valve

Purge Exhaust Mufflers
For low noise with built-in safety relief valve

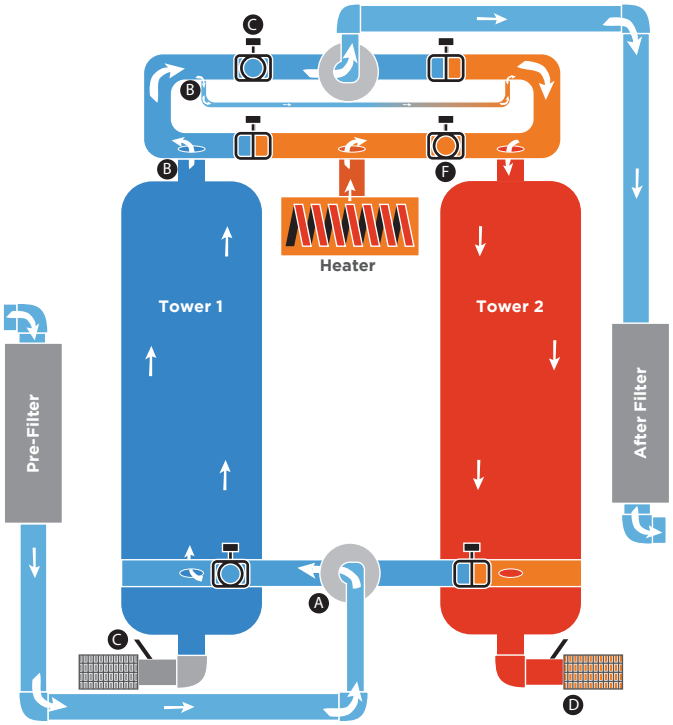
Rugged Steel Frame
Mounted on durable platform

Additional Standard Features

- Remote start/stop control
- Stainless steel desiccant supports and air diffusers to prevent channeling
- Countercurrent regeneration, upflow drying, and downflow depressurization
- 3/16" premium grade F200 activated alumina high capacity desiccant for pressure dew point performance
- Easy installation with single point connection for electrical supply power and inlet/outlet air connections
- Dry relay contact alarm for remote indication of system alarms
- 8 hour NEMA cycle
- Standard communication through RS-232/RS-485 combo port

Optional Equipment

- Various configurations of pre-piped filters and bypass valve package
- Failure to switch alarm using pressure transducers (monitors for correct vessel pressure during dryer operation, energizes alarm if incorrect)
- Outlet dew point monitoring
- Optional communications: Profibus-DP, AS-I, CANpen, DeviceNet, and Ethernet
- NEMA 7 explosion-proof electrical classification (class 1, division 2, group C and D)



How It Works

- Compressed air flows through the pre-filter to remove oil and then enters the on-line Tower 1 through valve (A).
- Air moves upward, where the desiccant removes moisture from the air stream. The majority of clean, dry compressed air exits valve (B) and cycles through the after filter to then flow downstream.
- During the drying process, a small amount of the clean air exiting valve (B) travels to Tower 2 (shown in regeneration mode) to assist in the regeneration process.
- To regenerate Tower 2, valve (C) opens and the tower is depressurized to near atmospheric pressure. The air flowing from valve (B) moves down the tower, removing moisture from the desiccant bed. Once it travels to the bottom of Tower 2, it exits the tower through valve (C) and the exhaust muffler to ambient.
- Once Tower 2 is fully regenerated, valve (C) will close, repressurizing Tower 2 to line pressure with the slight airflow coming through valve (B).
- Next, valve (D) will open to depressurize Tower 1 and valve (A) will switch (not pictured), directing wet incoming air to Tower 2 for drying while Tower 1 is regenerating the desiccant bed.
- This process will repeats continuously every 4 hours unless the Energy Management System is extending drying time period during low load conditions to a maximum of 12 hours each cycle. The Energy Management System continually monitors the mid-bed humidity level in the drying tower to save energy by extending the drying cycle (up to 12 hours).

Aftermarket Parts & Service

Aircel's aftermarket and service teams will assist you with the information necessary to ensure your air is pure for years to come. From the vital data about your dryer's capabilities and details on how to install parts into your dryer, as well as pricing and ordering information, you have the convenience of ordering the products you need when you need them.

For manuals, drawings, spare parts list including service kits, and technical support for your dryer, please contact your Aircel representative.

Dimensions (in.)

Model Number	Capacity	Voltage	Connection	Heater kW (full load)	FLA	Weight (lbs)	Height	Width	Depth
AEHD-150	150	460-3-60	1" NPT	2.5	3.7	1,000	95	58	36
AEHD-250	250		1-1/2" NPT	3.75	5.2	1,500	100	58	44
AEHD-350	350		2" NPT	6	8.1	2,000	100	62	53
AEHD-500	500		2" NPT	7	9.3	2,300	110	66	53
AEHD-750	750		2" NPT	11	14.3	2,700	112	70	53
AEHD-1000	1,000		3" FLG	15	19.4	4,100	112	80	68
AEHD-1250	1,250		3" FLG	18	23.1	4,900	122	85	68
AEHD-1400	1,400		3" FLG	22	28.2	5,200	122	85	68
AEHD-1600	1,600		4" FLG	27	34.4	7,200	132	85	73
AEHD-2000	2,000		4" FLG	32.5	41.3	7,800	135	94	91
AEHD-2500	2,500		4" FLG	37	47	9,500	147	94	94
AEHD-3000	3,000		6" FLG	45	57	11,500	147	113	102

Capacity rated in accordance with CAGI ADF 200 @ 100 psig, 100°F inlet, 100°F ambient and a PDP of -40°F

Operating pressure: 60 to 150 psig | **Ambient air temperature:** 38°F to 125°F | **Inlet air temperature:** 40°F to 1!0°F

For larger capacities and custom dryer options, please contact an Aircel factory representative

Capacity Correction Factors

To Size the Dryer Capacity for Actual Conditions

Adjusted Capacity = scfm x (C1 x C2)
Example:
Dryer Model: **AEHD-500**
Standard Capacity: **500 scfm**
Actual Operating Conditions:
80°F inlet: C1 = 1.15
90 psig system pressure: C2 = 0.91

Adjusted Capacity: 500 scfm x (1.15 x 0.91) = 523 scfm

To Size the Dryer Model for Actual Conditions

Adjusted Capacity = scfm / (C1 x C2)
Example:
Given Flow: **500 scfm**
Actual Operating Conditions:
80°F inlet: C1 = 1.15
130 psig system pressure: C2 = 1.27

Adjusted Capacity: 500 scfm / (1.15 x 1.27) = 342 scfm
Selected Dryer Model: AEHD-350

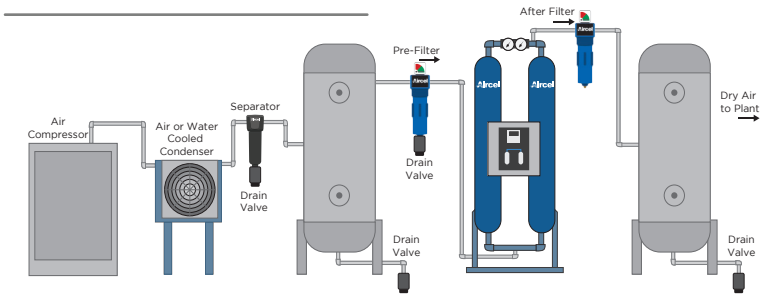
Correction Factors for Differing Inlet Air Temperature (C1)

Inlet Temperature (°F)	70	80	90	**100**	105	110	120
Correction Factor	1.2	1.15	1.1	**1**	0.9	0.8	0.6

Correction Factors for Differing System Air Pressure (C2)

System Pressure (psig)	60	70	80	90	**100**	110	120	130	140	150
Correction Factor	0.65	0.73	0.82	0.91	**1**	1.09	1.18	1.27	1.35	1.44

Recommended Installation



Aircel

MADE IN THE USA

1100 NW Loop 410 #764 · San Antonio, TX 78213 | Phone: +1 (210) 632-6320 | support@airtec.global

Please visit us at: **airtec.global**