Aircel

Desiccant Air Dryers

AHLD E-Series

Heatless Desiccant Air Dryer

70 - 8,000 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.

AHLD E-Series Heatless Dryer

Heatless Desiccant Dryer
70 - 8,000 scfm

Designed for maximum energy savings, the Aircel AHLD E-Series dryers are reliable, **fully automatic, heatless desiccant dryers with integrated Energy Management System for purge reduction**. Each model combines innovative engineering and technically advanced, highly durable components to produce the most reliable heatless dryers available on the market.

The Aircel Programmable Controller (APC) provides complete, reliable control of the system with text descriptions of each step in the sequence of operation.

The AHLD E-Series reliable operation and robust valving requires virtually no user adjustment or maintenance. **Our precision engineered components and design deliver outstanding service life and operational durability.**

For ease of installation, ultimate dryer protection, and downstream customer process protection, the AHLD E-Series comes complete with standard filtration system consisting of inlet coalescing pre-filter with automatic drain and outlet particulate after filter with manual drain.

AHLD Series At a Glance

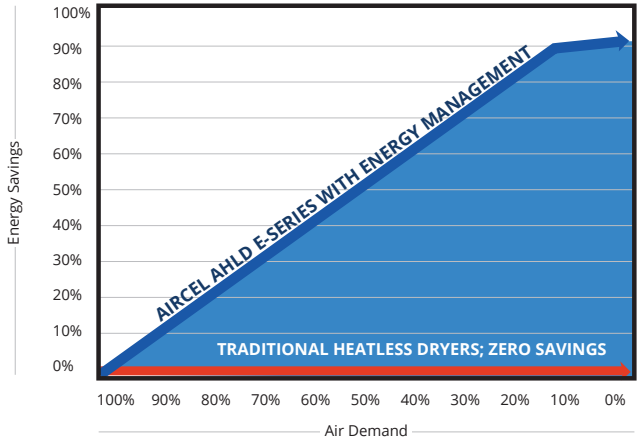
- Heatless adsorption produces continuous low dew point without heat and dew point spikes at switchover. This provides a simple, reliable, and cost-effective compressed air dryer system.
- Integrated Energy Management System maximizes your return on investment by delivering significant energy savings even during various loads and air demands.
- A relative humidity sensor with light and alarm is included in the middle of each tower to maintain dew point.

Energy Management Made Standard

The Aircel Programmable Controller (APC) with Energy Management System (EMS) is standard on the AHLD E-Series dryer systems. This EMS, 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.**

- Integrated Energy Management System maximizes your return on investment by delivering significant energy savings during varying loads and air demands.
- Constant mid-bed desiccant humidity monitoring ensures a low outlet dew point throughout cycle.
- Controller displays energy savings (hours), cycle modes (dryer operation) and alarm conditions.
- Outlet dew point selection and dew point displayed (provided with outlet dew point monitoring option)



AHLD E-Series | Standard Features

Tower Pressure Gauges
Large, easy-to-read 3.5" diameter dial

Inlet Valves
Highly reliable, long-life, and consistent operation designed to reduce seal wear and leakage. Models up to 750 scfm have automatic piston valves. Models 1000 and up utilize high performance butterfly valves.

Regulated and Filtered Pilot Air
Ensures reliable pneumatic control operation

Mounted Pre and After Filter
- 1 micron pre-filter with automatic condensate drain
- 5 micron outlet after filter with manual drain

Aircel Programmable Controller (APC)
- NEMA 4 steel electrical enclosure
- Power On/Off switch and light
- Dryer operation status, alarms, and energy savings displayed
- Electrical panel UL 508A rated
- Keypad push button

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

Pilot Solenoid
Highly reliable and long lasting

Outlet Valves
Highly reliable, long-life, and consistent operation designed to reduce seal wear and leakage. Models up to 750 scfm have automatic piston valves. Models 1000 and up utilize check valves.

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

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

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

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

Desiccant Drain Port
For easy desiccant removal

Purge Exhaust Valves
Highly durable valve. Models up to 1,250 scfm have angle-body piston valves. Models above 1,500 scfm have high performance butterfly valves

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

Rugged Steel Frame
Mounted on durable platform

AHLD Dryer Configurations & Options

Critical Dew Point Series (CDP) · The CDP Series provide an ultra-low -100°F outlet dew point in a heatless, regenerative desiccant dryer. Designed to ensure low dew point for critical applications such as semi-conductors, cryogenics, and medical devices.

Corrosion Resistant Series (AHCR) · The AHCR Series is a rugged desiccant dryer with NEMA 4X stainless steel electrical enclosure, stainless steel control air tubing, no yellow metals, and marine-grade industrial paint (UV resistant outdoor, caustic resistant paint) applied with the Aircel Premium Paint Process.

300 PSI Max Pressure Series (AHLD300PSI) · The AHLD-300 PSI heatless dryer series combines the reliability and efficiency of the AHLD, plus a maximum pressure rating of 300 psig and a maximum working pressure of 270 psig.

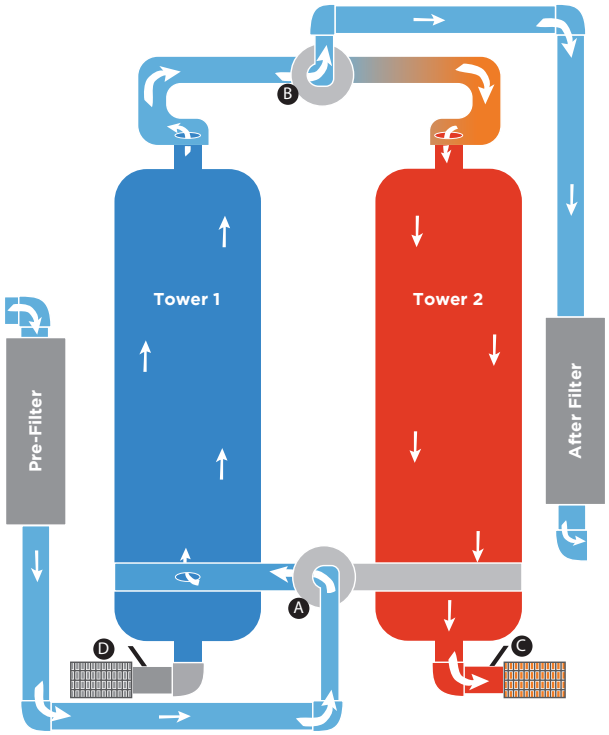
	AHLD-E	CDP	AHCR	AHLD300PSI
Dew Point	-40°F	-100°F	-40°F	-40°F
Energy Management System Standard	√	X	√	Optional
Electrical Enclosure	NEMA 4	NEMA 4	NEMA 4X	NEMA 4
Optional All Pneumatic Control	√	√	√	√
Control Air and Instrument Tubing	Nylon	Nylon	304 Stainless Steel	304 Stainless Steel
ISO 8573.1 Air Class	2.2.2	2.1.2	2.2.2	2.2.2
Paint	Alkyd Enamel	Alkyd Enamel	Epoxy, Maritime	Alkyd Enamel

Standard Features

- Remote start/stop control
- Stainless steel desiccant supports and air diffusers to prevent channeling
- Counter current 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
- Adjustable (5 & 10 minute) NEMA cycle
- Standard communication through RS-232/RS-485 combo port

Optional Equipment

- All pneumatic control package (no electricity required)
- Various configurations of pre-piped filters and bypass valve packages
- 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
- High pressure dryer system up to 7,000 psig
- 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 flows 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 5 minutes unless the Energy Management System is extending drying time period during low load conditions to a maximum of 30 minutes 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 30 minutes).

Model Number	Capacity	Voltage	Connection	Weight (lbs)	Dimensions (in.) Height	Width	Depth
AHLD-70 E	70	115-1-60	3/4" NPT	410	72	26	22
AHLD-100 E	100		1" NPT	490	75	30	24
AHLD-150 E	150		1" NPT	560	75	30	24
AHLD-200 E	200		1-1/2" NPT	800	85	34	24
AHLD-250 E	250		1-1/2" NPT	870	85	34	24
AHLD-300 E	300		1-1/2" NPT	990	86	46	30
AHLD-350 E	350		2" NPT	1,020	87	46	30
AHLD-450 E	450		2" NPT	1,140	87	46	30
AHLD-500 E	500		2" NPT	1,250	89	50	30
AHLD-600 E	600		2" NPT	1,450	89	50	30
AHLD-750 E	750		2" NPT	1,850	90	50	30
AHLD-1000 E	1,000		3" FLG	2,800	94	66	40
AHLD-1250 E	1,250		3" FLG	4,000	98	70	40
AHLD-1500 E	1,500		3" FLG	4,600	99	70	40
AHLD-2000 E	2,000		4" FLG	5,800	109	82	50
AHLD-2500 E	2,500		4" FLG	7,800	120	109	65
AHLD-3000 E	3,000		4" FLG	9,200	120	118	65
AHLD-3500 E	3,500		6" FLG	9,900	120	120	70
AHLD-4000 E	4,000		6" FLG	10,900	120	128	70
AHLD-4500 E	4,500		6" FLG	12,100	120	128	70
AHLD-5000 E	5,000		6" FLG	13,200	131	138	80
AHLD-6000 E	6,000		6" FLG	15,800	131	138	80
AHLD-7000 E	7,000		8" FLG	17,700	156	148	97
AHLD-8000 E	8,000		8" FLG	19,300	164	150	97

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 180 psig (models 70 - 750); 60 - 135 psig (models 1,000 - 8,000)
Ambient air temperature: 38°F to 120°F | **Inlet air temperature:** 40°F to 120°F

For larger capacities, higher pressures, 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: **AHLD-100**
Standard Capacity: **100 scfm**
Actual Operating Conditions:
100°F inlet temperature: C1 = 1
120 psig system pressure: C2 = 1.8

Adjusted Capacity: 100 scfm x (1 x 1.8) = 118 scfm

To Size the Dryer Model for Actual Conditions

Adjusted Capacity = scfm / (C1 x C2)
Example:
Given Flow: **350 scfm**
Actual Operating Conditions:
100°F inlet: C1 = 1
120 psig system pressure: C2 = 1.18

Adjusted Capacity: 350 scfm / (1 x 1.18) = 297 scfm
Selected Dryer Model: AHLD-300

Correction Factors for Differing Inlet Air Temperature (C1)

Inlet Temperature (°F)	70	80	90	**100**	105*	110*	115*	120*
Correction Factor	1.2	1.15	1.1	**1**	0.9	0.8	0.7	0.6

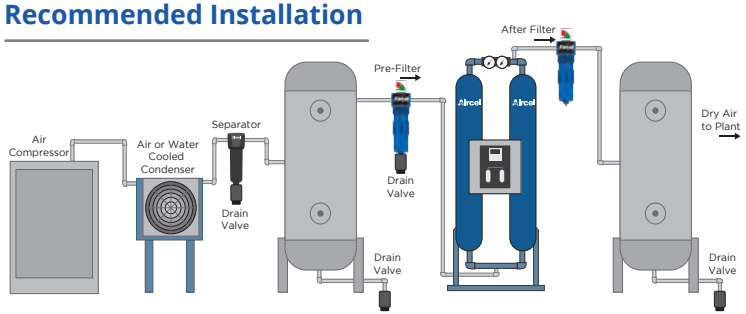
* For inlet temperature above 100°F, molecular sieve desiccant is required.

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

* For inlet pressure above 135 (models 1,000+), consult factory.

Recommended Installation



Aircel

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Aircel

Desiccant Air Dryers

ABP Series

Blower Purge Desiccant Air Dryer

70 - 8,000 scfm

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

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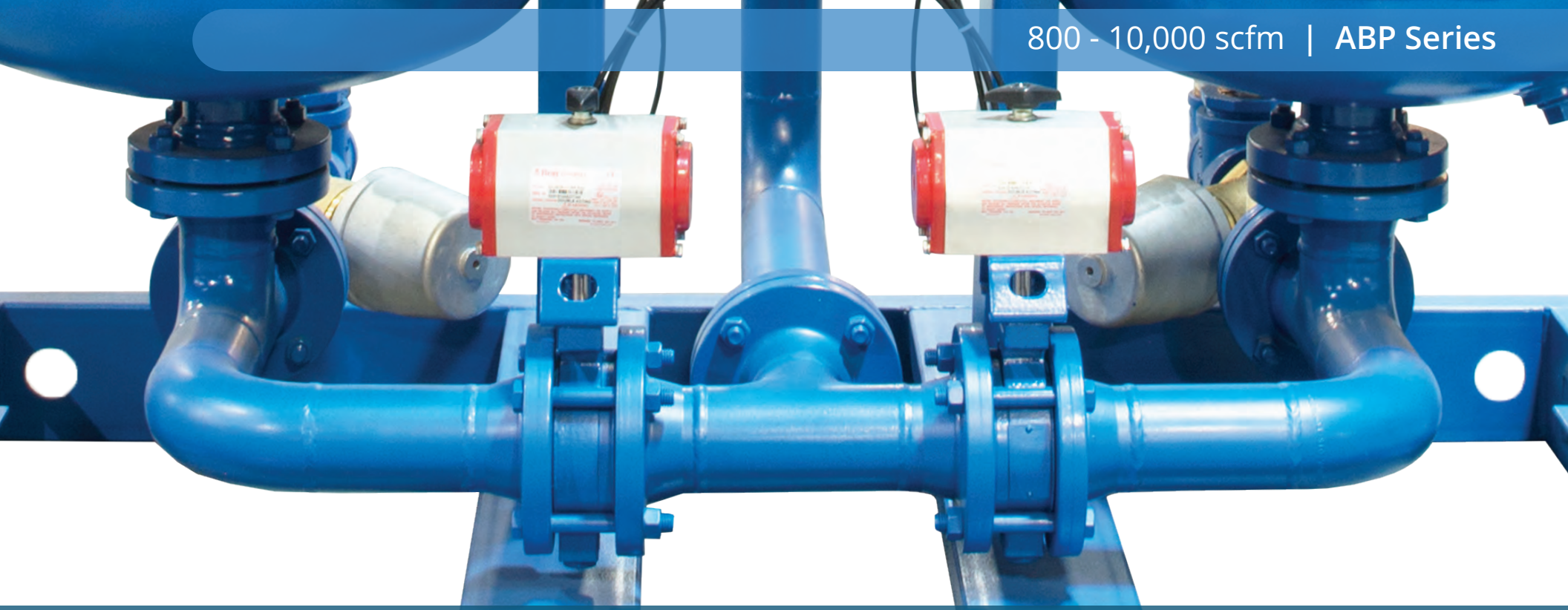
ABP Series Blower Purge

Heated Desiccant Dryer

800 - 10,000 scfm

The ABP Series was created with energy savings and efficient usability in mind. A high efficiency blower brings in ambient air for the regeneration cycle while the Energy Management System and unique Parallel Cooling Mode work seamlessly to create maximum energy savings to the bottom line. Easily link your control system to the 7" Allen-Bradley™ touch screen to monitor and access the controller data through your plant's overall control system.

- ISO 8573.1 Class 2 (-40°F/-40°C) dew point performance
- 2% average purge consumption
- Making use of the blower to draw in ambient air rather than relying solely on compressed air greatly reduces energy consumption and purge loss



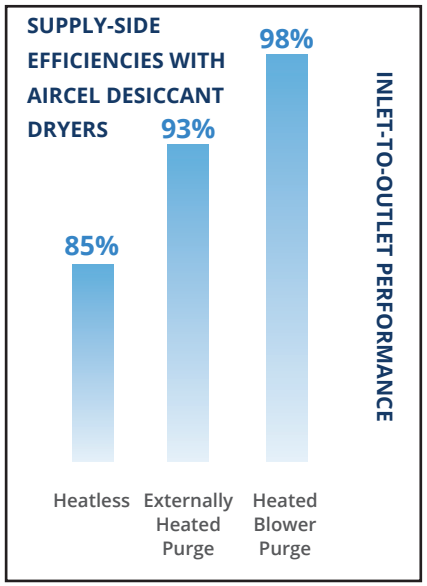
What Makes the ABP Different?

For added energy savings, the ABP Series uses a high-efficiency blower to take in ambient air required during the heat regeneration cycle to desorb moisture from the desiccant. **No compressed air is used during this phase.**

Dry compressed air is used during the dry air cooling regeneration period for reduced heat and dew point spike at tower switchover. This amounts to an **average process air use of 2% of the rated capacity of the dryer**.

Aircel's unique **Parallel Cooling Mode** further reduces the heat and dew point spike prior to tower switchover. During the parallel cooling mode, both inlet valves are open for a 10 minute period and divert half-load to each tower, further cooling the previously regenerated desiccant bed with a larger volume of air.

- 10 minute duration
- At the end of the regeneration period, both inlet valves open, sending air into both towers
- Minimizes temperature and dew point spikes associated with heated dryers
- Maximum savings with accurate dew point control



Thermal Relief Valves
ASME UV stamped set at 150 psi

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

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

Regulated and Filtered Pilot Air
Ensures reliable pneumatic control operation

Aircel Programmable Controller (APC)
- NEMA 4 steel enclosure
- Outlet dew point reading
- Dryer operation status
- MicroLogix 1100 PLC Controller
- 7" LCD color touch screen
- UL 508A control assembly

Pressure Control (not shown, behind control box)
Accurate stainless tower transducers that are reliable and rugged with safety alarms

Energy Management System with Outlet Dew Point Sensor
Standard digital readout and adjustable alarms

Desiccant Drain Port
For easy desiccant removal

Pilot Solenoid
Highly reliable and long lasting

High Efficiency Blower
- Utilizes atmospheric air for regeneration
- Easy maintenance and a rugged construction with TEFC premium motor that includes filtered air intake

Tower Pressure Gauges (other side)
Large, easy-to-read 3.5" display

High Temperature Tubing
UV resistant and easy component replacement

NEMA 4 Immersion Heater
Incoloy sheath material that is highly corrosion and heat resistant with low-watt density

ASME Carbon Steel Vessels
150 psi at 450°F

Angle Body Depressurization Valve
Highly durable valve

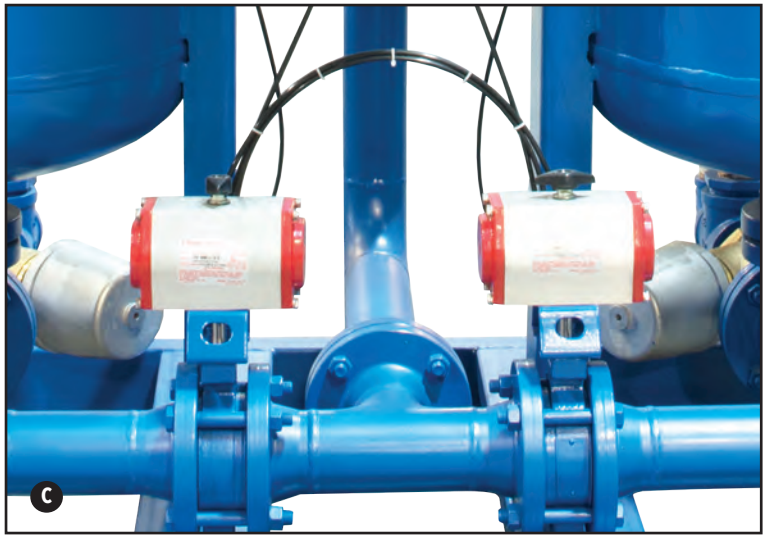
Purge Exhaust Mufflers
For low noise with built-in safety relief valve

Rugged Steel Frame
Mounted on durable platform

High Performance Butterfly Valve
Highly reliable with long-life and consistent operation designed to reduce seal wear and leakage

Additional Standard Features

- Purge air consumption reduced down to an average of 2%
- Fail-safe design: failure of power causes the purge exhaust valves to close, drying air flow is uninterrupted
- Stainless steel desiccant supports and air diffusers to prevent channeling
- Counter-current down flow regeneration, upflow drying, and downflow depressurization
- Ambient air used for heat regeneration, no compressed air used
- 10 minutes of parallel flow with both desiccant chambers online at switch-over to reduce the temperature and moisture spikes



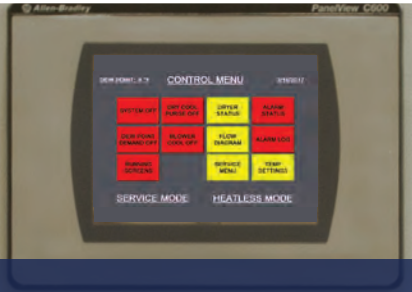
A **Maximize Energy Savings** · The standard **Energy Management System (EMS)** control incorporates an integral air outlet dew point sensor to continually monitor the outlet moisture content. This extends the drying time if the outlet dew point is below a preset adjustable set point, saving a tremendous amount of energy as well as valve wear and tear during low loading conditions. Energy saving is achieved since the overall regeneration time and dry air cooling time is reduced. *(See page 6 for more)*

B **Automatic Controls & Flexible Programming**· The Aircel ABP Series utilizes the Allen-Bradley™ MicroLogix 1100 PLC Controller for automatic control and flexible programming. This addition sets a higher standard of configurations and capabilities that exceed other blower purge dryers on the market. *(See page 7 for more)*

C **Parallel Cooling Mode** · Aircel's unique Parallel Cooling Mode opens both inlet vavles for 10 minutes prior to tower switchover, diverting half-load to each tower. This cools the previously regenerated desiccant bed faster and more efficiently than regular cooling alone. *(See page 3 for more)*

D **Filtration Standard** · Each ABP Series dryer comes standard with high quality pre and after filters to further ensure the cleanest air available in a blower purge.

Maximum Savings with Accurate Dew Point Control



The **Aircel Programmable Controller (APC)** and **Energy Management System (EMS)** is standard on the ABP Series. This energy-saving control reduces purge air and optimizes dryer performance by monitoring the dry air outlet dew point with a sensor. This control panel automatically adjusts the regeneration cycle; maintaining dew point and extending the drying cycle. Switching is less frequent, reducing dryer maintenance and fully utilizing desiccant capacity. This addition will improve reliability and performance while sustaining a constant dew point. The end result is an overall purge reduction and significant energy savings.

The Aircel ABP Series utilizes the Allen-Bradley™ 1100 PLC Controller for automatic control and flexible programming. **This addition sets a higher standard of configurations and capabilities that exceeds other blower purge dryers in the market.** With built-in Ethernet connection, you can access, monitor, and program from any available connection. An embedded web server is also included to configure controller data on a web page.

- 4 hour NEMA cycle or up to 16 hours with Demand Cycle Control
- The Energy Management System (EMS) continually monitors outlet dew point, maintaining -40°F
- Demand Cycle Control extends drying per tower to up to 16 hours, saving purge consumption as well as blower and heater usage, saving energy and money

Standard Control Features

- Aircel unique backup heatless mode operation
- NEMA 4 steel enclosure
- UL 508a control assembly
- Allen-Bradley™ MicroLogix 1100E PLC controller
- 7" LCD color touch screen
- Outlet dew point reading (using EMS sensor)
- On-screen display of dryer operation status
- Service mode of operation
- 10/100 MB/s with built-in peer-to-peer messaging
- Communication through RS-232/RS-486 combo port
- UL, CE, C-Tick, and Class 1 Div 2 certified controller
- Data logging - time based or event triggered
- Supports DHCP
- Add up to four 1762 I/O modules
- Backup heatless mode operation
- Early heat/cool termination for energy savings
- Heater backup safety contactor

Standard Control Alarms

- Failure-to-switch (pressure control safety)
- High dew point
- Dew point sensor failure
- Regeneration thermocouple failure
- Loss of system pressure
- Blower not running
- Blower motor overload
- Heater outlet low temperature
- Heater outlet high temperature
- Heater over temperature
- Vessel 1 repressurization failure
- Vessel 2 repressurization failure
- Vessel 1 depressurization failure
- Vessel 2 depressurization failure
- Regeneration pressure equal
- Parallel pressure not equal

Standard Control Readout

- Heater sheath temperature (°F)
- Regeneration outlet temperature (°F)
- Heater outlet temperature (°F)
- Vessel 1 pressure
- Vessel 2 pressure
- Outlet dew point

Optional Controls (consult factory)

- Digital flow meter
- Valve inlet position switches
- Valve regeneration outlet position switches
- Condensate drain alarm
- High air inlet temperature alarm
- Inlet temperature
- Vessel bed thermocouple temperature (°F)
- Filter differential pressure alarm

APC On Screen Features

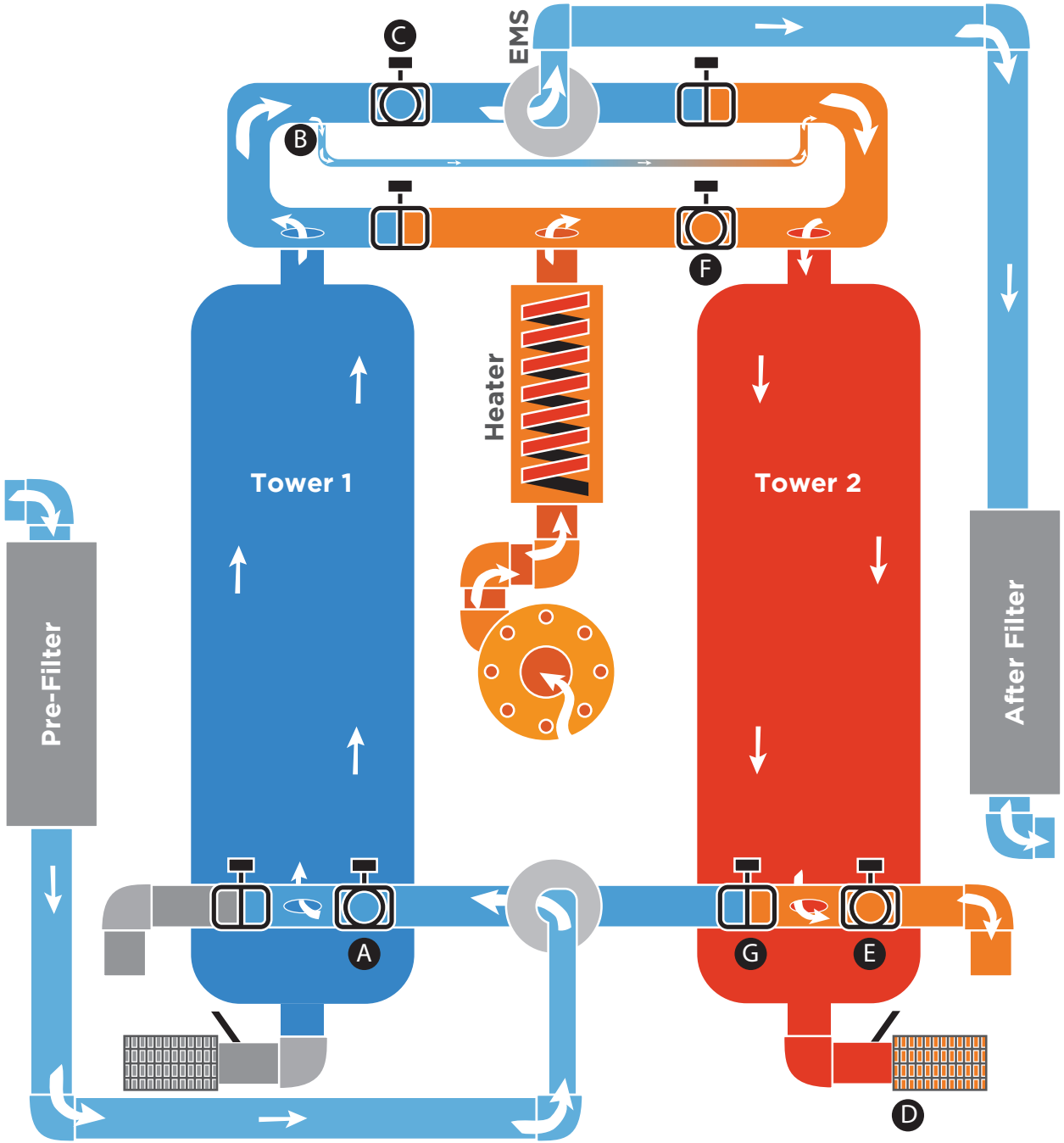
Main Control Menu	Provides easy road map for on-screen navigation
Flow Diagram	Visual piping and instrumentation diagram with real time data: active objects, temperature, pressure, and dew point
Interactive Service Menu	User step-by-step service screens
Operation Screens	Step-by-step, real time process data
Alarm Banner	Provides immediate pop-up display
History Log	Captures triggered alarm with time and date stamp
Alarm Status Screen	Indicates all alarm states
Settings Screen	Provides user access to various control set points
Control Push Buttons	Touch system control, EMS power control
Dryer Status	Days of operation, hours of energy savings, system timers, and mode of operation

Superior Control with Energy Management

The standard **Energy Management System (EMS)** control incorporates an integral air outlet dew point sensor to continually monitor the outlet moisture content, which is then displayed on the system color touch screen. **The EMS extends the drying time if the outlet dew point is below a preset adjustable set point, saving a tremendous amount of energy as well as valve wear and tear during low loading conditions.** Energy saving is achieved since the overall regeneration time and dry air cooling time is reduced. The EMS control also provides an outlet high humidity alarm.

Even more energy savings are realized with the early Heat Regeneration Termination Feature. This feature terminates the heat regeneration early if the temperature at the regeneration outlet reaches a specified temperature, then automatically switches to cooling mode. **This feature eliminates unnecessary heater and blower usage, saving significant energy.**

Aircel has many other features built into the ABP Series controls such as Backup Heatless Mode Operation, Heater Safety Backup Contactor, High Performance Butterfly Valves, Angle Body Piston Valves, Failure-to-Switch Alarm using pressure transducers and many other unique features.

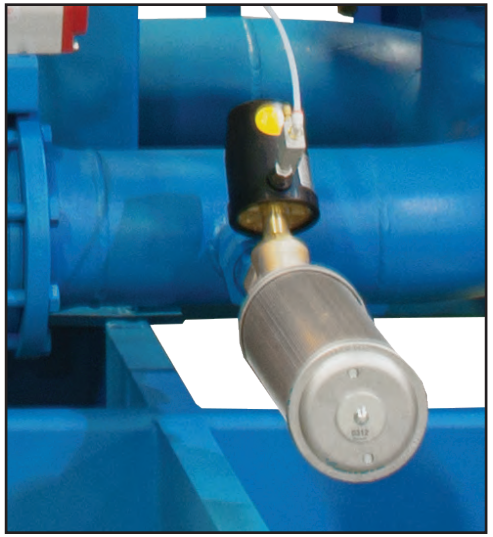


- Compressed air flows through the pre-filter to remove oil and then enters the on-line Tower 1 through valve (A).
- Air moves upward, where the desiccant removes moisture from the airstream and lowers the dew point. The majority of clean, dry compressed air exits valve (C) and cycles through the after filter to the rest of the system.
- Tower 2 (shown in regeneration mode) depressurizes to atmosphere through an angle seat valve and muffler (D).
- Valves (E & F) open and the heater turns on.
- The high efficiency blower pulls in ambient air, moving it through the immersion heater and check valve. The ambient airstream passes through valve (F) and flows downward through the moist desiccant in Tower 2, collecting water vapor before exiting valve (E) and exhausting to atmosphere.
- Once Tower 2 exhausts, and the regeneration tower reaches its set point, the heater turns off. This happens regardless of whether the cycle is finished as an energy savings feature of the EMS.
- A small amount of air exits Tower 1 through a slipstream (B), where it will join Tower 2 to repressurize and cool the tower.
- Ten minutes prior to vessel switchover, the Parallel Cooling Mode will begin (not pictured). Valve (E & H) will close and valves (A & G) will open, allowing incoming air to flow through both towers. This minimizes dew point spikes associated with heated dryers. Parallel Cooling Mode requires no purge air.
- At the end of Parallel Cooling Mode, valve (G) will open, valve (A) will close, and place tower 2 online (not pictured). The EMS Settings will determine if this is at a fixed time interval or Demand Control Cycle based on outlet dew point sensor readings.
- Operations will switch and Tower 1 will be regenerated.

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 including service kits, and technical support for your dryer, please contact your Aircel representative.



Model Number	Capacity	Voltage	Connection (FLG)	Heater kW (full load)	Blower HP	FLA	Weight (lbs)	Dimensions (in.) Height	Width	Depth
ABP 800	800		3"	18	5	31.3	3,600	100	87	60
ABP 1,000	1,000		3"	22	5	36.3	4,500	100	90	60
ABP 1,200	1,200		3"	27	7.5	46	5,400	105	98	61
ABP 1,400	1,400		3"	32.5	10	55.9	6,800	106	105	70
ABP 1,600	1,600		4"	37	10	61.5	7,500	107	106	81
ABP 2,000	2,000		4"	45	10	71.6	9,000	116	106	81
ABP 2,500	2,500		4"	52	15	87.4	10,700	116	128	83
ABP 3,000	3,000	460-3-60	6"	64	15	102.4	13,400	127	131	111
ABP 3,500	3,500		6"	78	15	120	15,600	120	134	105
ABP 4,000	4,000		6"	90	15	135.1	17,900	128	147	106
ABP 5,000	5,000		6"	110	20	166.2	22,300	138	163	109
ABP 6,000	6,000		8"	120	25	185.7	26,800	147	169	118
ABP 7,000	7,000		8"	150	25	223.4	31,300	C/F	C/F	C/F
ABP 8,000	8,000		8"	175	30	260.7	35,800	C/F	C/F	C/F
ABP 10,000	10,000		8"	200	30	292.1	44,700	C/F	C/F	C/F

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 135 psig
Ambient air temperature: 38°F to 120°F
Inlet air temperature: 40°F to 120°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: **ABP-1200**
Standard Capacity: **1,200 scfm**
Actual Operating Conditions:
80°F ambient: C1 = 1.15
90 psig system pressure: C2 = 0.91

Adjusted Capacity: 1,200 scfm x 1.15 x 0.91 = 1,256 scfm

To Size the Dryer Model for Actual Conditions

Adjusted Capacity = scfm / (C1 x C2)
Example:
Given Flow: **1,200 scfm**
Actual Operating Conditions:
80°F inlet: C1 = 1.15
130 psig system pressure: C2 = 1.27

Adjusted Capacity: 1,200 scfm / (1.15 x 1.27) = 822 scfm
Selected Dryer Model: ABP-1,000

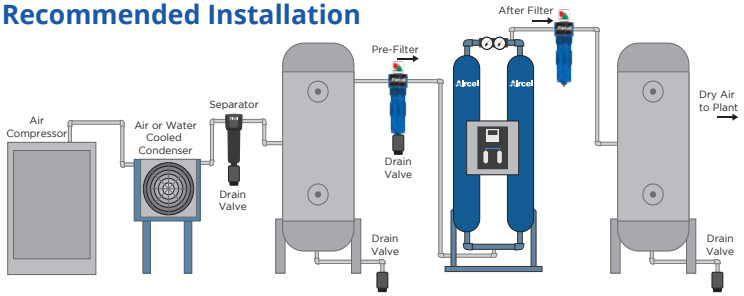
Correction Factors for Differing Inlet Air Temperature (C1)

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



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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

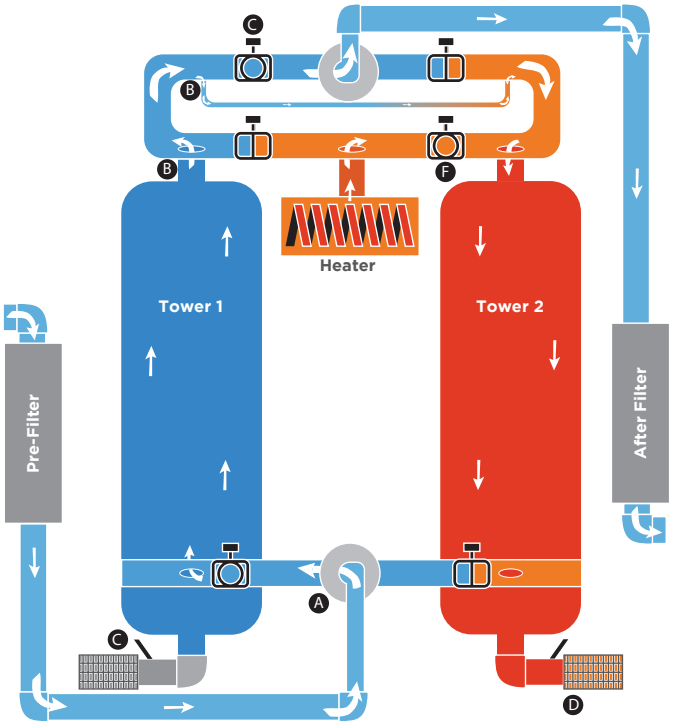
Rugged Steel Frame
Mounted on durable platform

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

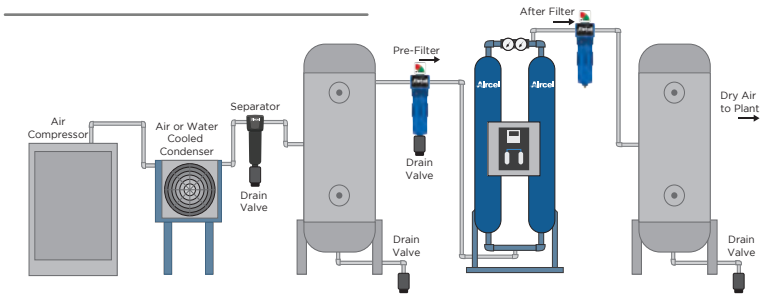
Correction Factors for Differing Inlet Air Temperature (C1)

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



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BHD SERIES

Breathing Air System

BHD-100

The **Aircel BHD** series is fully automatic breathing air system that utilizes a unique dual tower regeneration process. The BHD Series purifies compressed air to breathable air by removing a variety of contaminants including dust, dirt, water, oil, hydrocarbon vapor and dangerous levels of carbon monoxide.

The Aircel Programmable Controller (APC) provides complete control of the system with text description of each step in the sequence of operation. A high quality Carbon Monoxide (CO) Monitor is standard providing constant sensing of CO concentrations to ensure the safety of all users. The BHD Series has robust valving and includes high quality coalescing pre-filter, activated carbon after-filter, and a particulate final-filter mounted as a standard feature.

The BHD Series achieves a unique seven stage purification process without the addition of a 3rd purification vessel that is required and utilized by many competitive designs.

Standard Features & Benefits

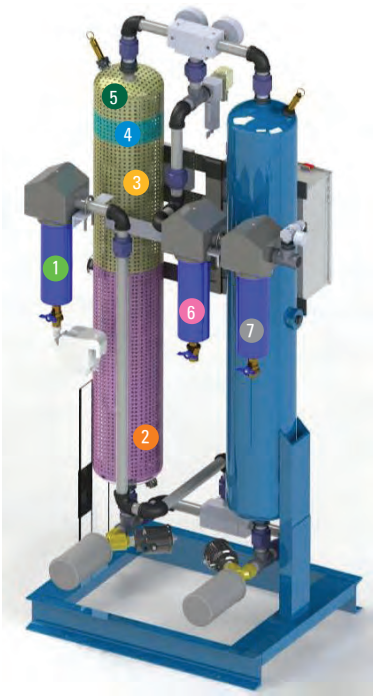
- Compact digital Carbon Monoxide (CO) monitor/alarm.
- Efficient electronic purge reduction with EMS
- Mounted filtration: pre-filter, carbon after-filter and final-filter.
- APC protected with a NEMA 4 electrical steel enclosure
- LED tower operation display indicating sequence of operation.
- Automatic piston valve (inlet/outlet) with 10 year longevity.
- Purge exhaust mufflers for quiet operation.
- Angle-body purge exhaust valve with 10 year longevity.
- Tower pressure gauges with large easy-to-read 3.5” display.
- Counter-current regeneration, upflow drying, and downflow depressurization.
- Easy access to fill and drain ports for media replacement.
- ON/OFF switch and power ON light.
- Red alarm strobe light.
- Tower failure to switch alarm.

Aircel Programmable Controller

Carbon Monoxide Monitor

3-Stage Filtration

BHD SERIES
How it Works



Stage 1: Inlet Particulate & Coalescing Pre-Filter
The pre-filter removes particulates, water aerosols, and oil mist content efficiently. The pre-filter is equipped with a differential pressure indicator and a Zero-loss automatic condensate drain valve.

Stage 2: 13X Molecular Sieve
The inlet portion first layer of the adsorbent media filled in the towers is 13X molecular sieve to remove contaminants such as volatile organic compounds, acid forming gases, base gases and moisture.

Stage 3: Activated Alumina
This layer of activated alumina removes moisture to a dewpoint of -40°F and below at line pressure.

Stage 4: Carulite Catalyst
The catalyst layer is used to convert carbon monoxide to carbon dioxide and to oxidize residual hydrocarbon vapors.

Stage 5: Activated Alumina
This final layer of activated alumina is installed at the top of the towers to remove residual contaminants.

Steps 2-5: The towers adsorb and regenerate alternatively. The regeneration of this unique multi-layer adsorbent media and catalyst arrangement typically extends its life under normal conditions to three to five years. The control system sequence is monitored by a standard fail to switch system using pressure transducers and alarms when the system does not function properly.

Stage 6: Activated Carbon After-Filter
The activated carbon contained in the filter element assures a residual oil vapor content below 0.003 ppm. The filter is equipped with a manual ball valve.

Stage 7: Sub-Micron Final-Filter
The final-filter efficiently removes fine aerosols and particulates generated in the system. The filter is equipped with a differential pressure indicator and manual ball valve.

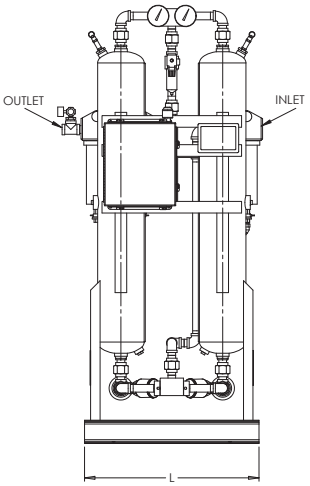
The outlet air is monitored by a high quality Carbon Monoxide (CO) analyzer and triggers an alarm when a preset level is reached.

BHD SERIES
TECHNICAL SPECIFICATIONS

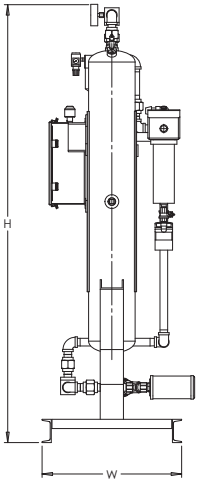
BHD Model Comparison

Model	Inlet Capacity[1] (scfm)	Outlet Capacity[1] (scfm)	Inlet/Outlet Connection (NPT)	Dimensions (inches)			Weight (lbs)	Voltage (Standard)
				H	L	W		
BHD-50	50	40	1/2" NPT	73	30	24	475	115V/60 HZ
BHD-80	80	64	3/4" NPT	76	36	26	550	115V/60 HZ
BHD-100	100	80	1" NPT	76	36	29	675	115V/60 HZ
BHD-150	150	120	1" NPT	84	39	29	850	115V/60 HZ
BHD-200	200	160	1-1/2" NPT	85	40	32	975	115V/60 HZ
BHD-250	250	200	1-1/2" NPT	86	51	36	1150	115V/60 HZ
BHD-300	300	240	1-1/2" NPT	86	51	36	1250	115V/60 HZ
BHD-350	350	280	2" NPT	88	51	36	1350	115V/60 HZ
BHD-450	450	360	2" NPT	90	55	43	1550	115V/60 HZ
BHD-500	500	400	2" NPT	90	55	43	1750	115V/60 HZ
BHD-600	600	480	2" NPT	92	55	43	2050	115V/60 HZ

[1]Capacity rated in accordance with CAGI ADF 200 @ 100 psig, 100°F inlet, 100° ambient, and a PDP of -40°F.
Operating Pressure: 60-175 psig. Ambient Air Temperature: 38°-105°F. Inlet Air Temperature: 40°F-100°F.
Due to a continuous program of product improvement, specification and dimensions are subject to change without notice.



FRONT SIDE



RIGHT SIDE

Standard Features

- Energy Management System (EMS)
- CO-Guard Carbon Monoxide (CO) monitor with range of 0-55 ppm
- Aircel Programmable Controller (APC)
- Unique Purification Media
- Tower Failure to Switch Alarm
- Coalescing Pre-filter, Activated Carbon After-filter, and a Particulate Final-filter

Available Options

- High inlet temperature alarm
- Dew point monitor
- Visual moisture indicator
- VOC monitor
- Oxygen monitor
- Optional communications: Profibus-DP, AS-I, CANopen, DeviceNet, and Ethernet

BHD Series
Outlet Air Quality

THE BHD SERIES MEETS OR EXCEEDS THE BREATHING AIR STANDARDS BELOW

Contaminant	USA (OSHA)[1]	Canadian (CSA)
Carbon Monoxide (CO)	10 ppm or less	5 ppm or less
Carbon Dioxide (CO_2)	1,000 ppm or less	500 ppm or less
Hydrocarbon (condensed)[2]	5 mg/m^3	1 mg/m^3
Oxygen Content[4]	19.5-23.5%	20-22%
Odor[5]	Lack of noticeable odor	Lack of noticeable odor

1 OSHA Regulations (Standard -29CFR), 1910.134-Respiratory Protection
2 Removes only hydrocarbons adsorbed by activated carbon (does not remove methane).
4 System does not add or reduce oxygen level. Inlet air must have adequate oxygen content.
5 Removes only odors adsorbed by activated carbon.

http://airtec.global/

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