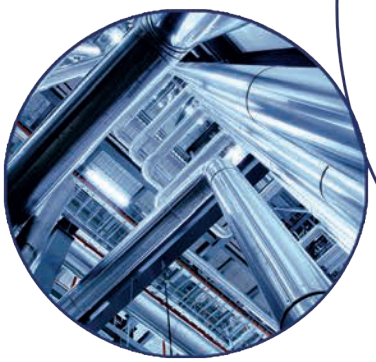
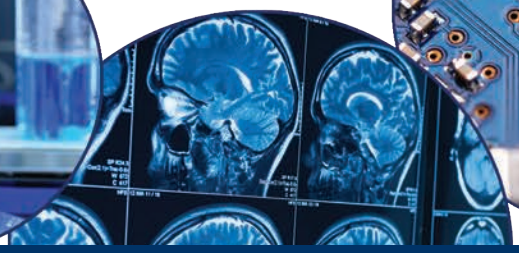
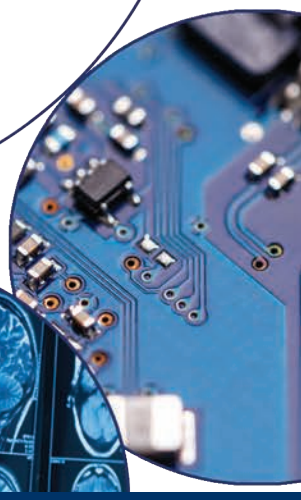
nano

aircel







twin tower desiccant compressed air dryers

flow capacity: 100 to 6,000 scfm (170 to 10,140 Nm^3/hr)

“We needed special options c helped guide us to make in the perfect dryer for our co

a parts manufacturer - southwestern US

Clean, dry compressed air is essential in every efficient and profitable manufacturing operation worldwide.

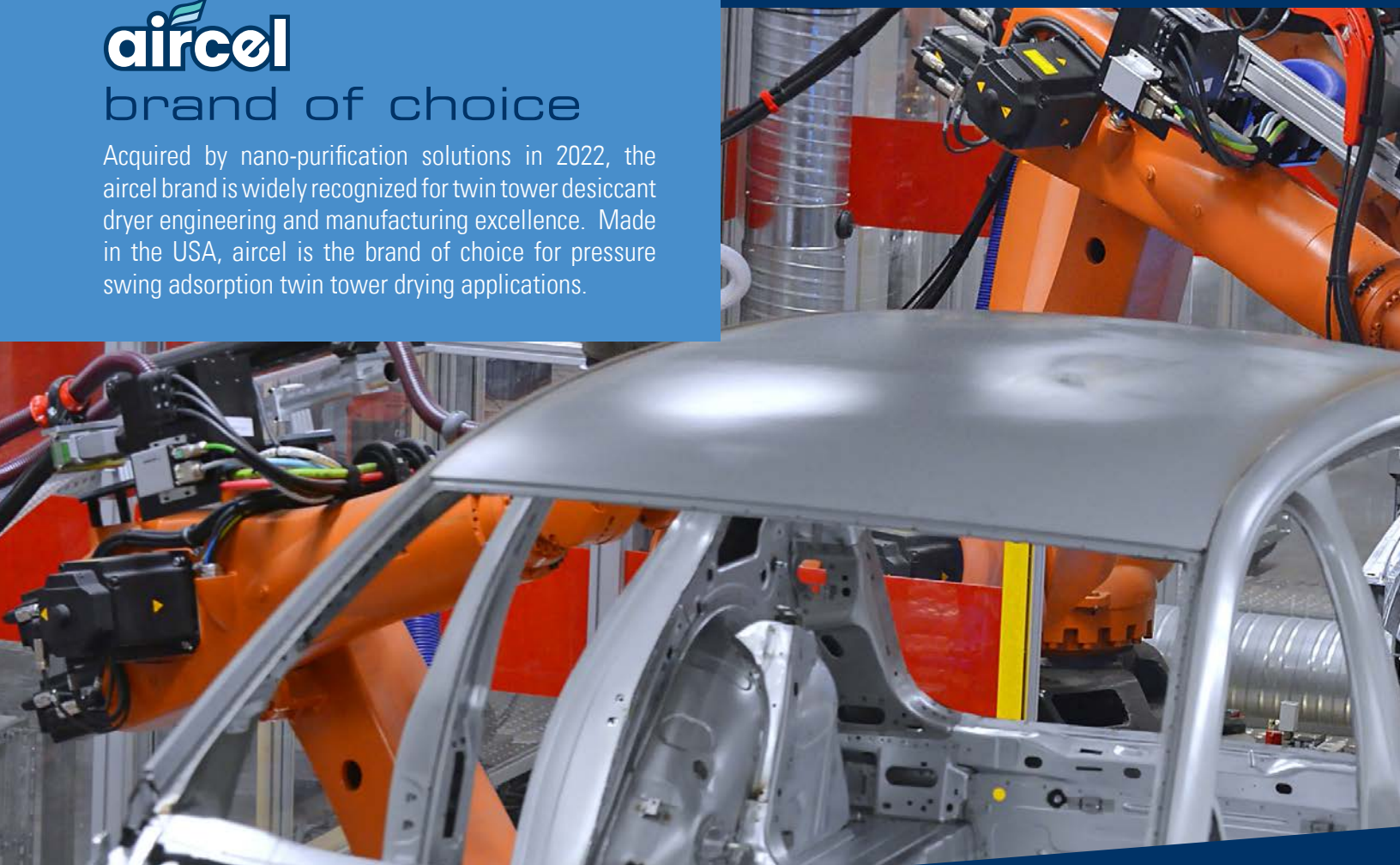
Ambient air contains high levels of moisture, dust, hydrocarbons and other contaminants and, when left untreated, the results are corrosion, bacteria, mold growth and freezing within your compressed air lines. This contamination can cause damage to downstream equipment and lead to increased maintenance, downtime and product spoilage.

While compressed air filters will remove solid particulate, liquids and aerosols, they cannot remove the moisture that remains in the form of vapor. This vapor condenses into liquid water throughout your compressed air system as the pressure and temperature of the compressed air changes.

aircel

brand of choice

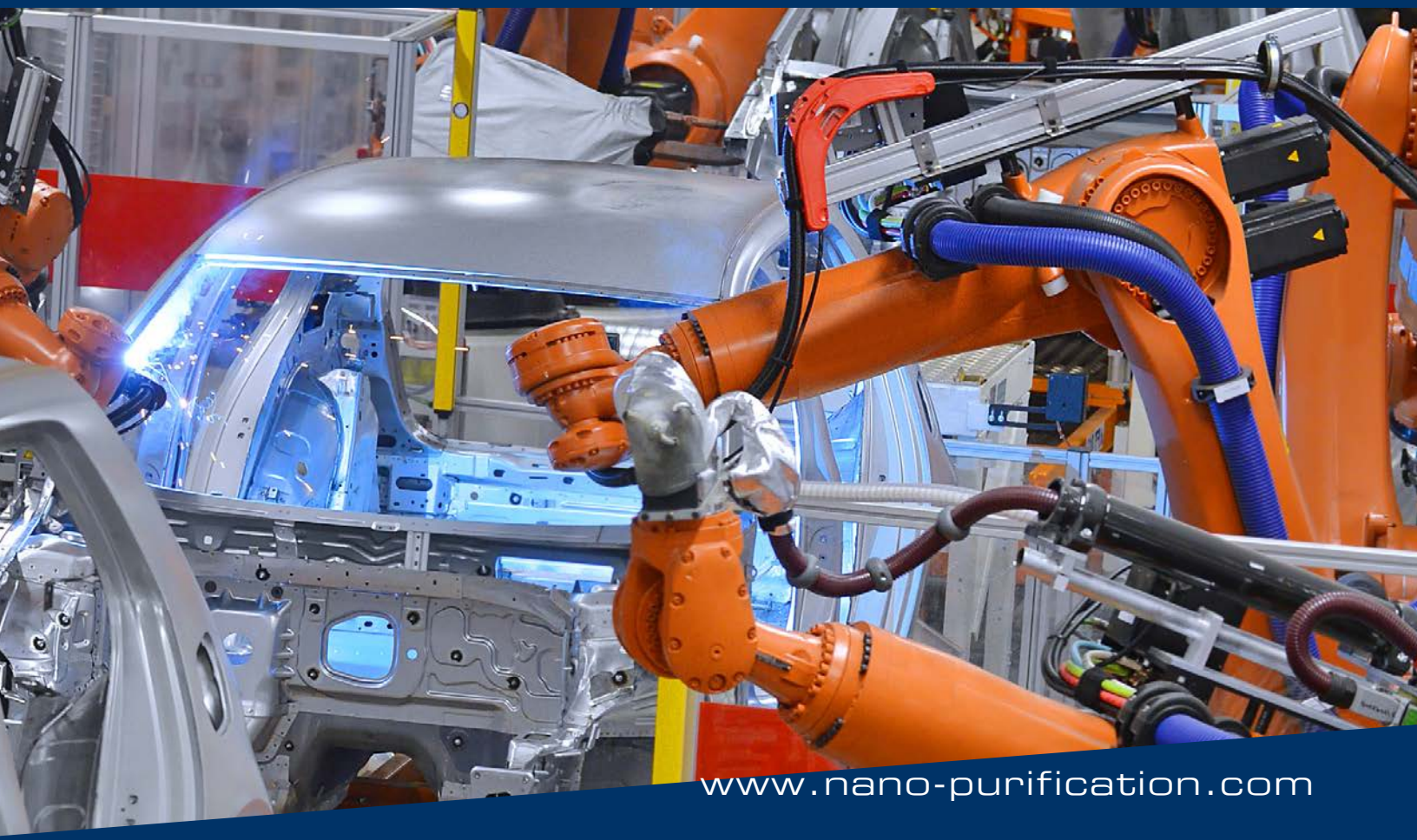
Acquired by nano-purification solutions in 2022, the aircel brand is widely recognized for twin tower desiccant dryer engineering and manufacturing excellence. Made in the USA, aircel is the brand of choice for pressure swing adsorption twin tower drying applications.



on our desiccant dryer. nano nformed decisions and built ompany.”

nano D5 aircel brand twin tower desiccant compressed air dryers

- removal of water vapor by lowering the pressure dew point of your compressed air stream to -40°F/°C (-94°F/-70°C optional on HLA range) to ensure a continuous supply of dry air
- low pressure drop and consistent dew point performance
- designed for the most demanding applications
- flexibility to build a complete compressed air solution to match the requirements of the customer



WHICH DRYER IS RIGHT FOR YOU

HLA heatless

use expanded dry purge air to regenerate desiccant beds

- lowest initial investment
- require the most purge air at 15%
- -40°F/°C dew point as standard for ISO class 2 applications
- -94°F/-70°C dew point available as option for ISO class 1 applications

AEHD externally heated

use an electric heater to heat the dry purge air to regenerate the desiccant beds

- mid-priced initial investment
- excellent ROI
- use less purge air than heatless at approximately 6-8%
- -40°F/°C dew point as standard for ISO class 2 applications

ABP blower purge

use a combination of an ambient blower and heater followed by dry purge air to regenerate the desiccant beds

- higher initial investment
- fastest ROI
- further reduces (or even eliminates) purge air usage to approximately 0-2% averaged over 4-hour cycle for dry air cooling
- dry air cooling can be turned off allowing zero air loss operation
- -40°F/°C dew point as standard for ISO class 2 applications

HOW IT WORKS

In a twin tower desiccant air dryer, one tower is on-line drying the compressed air while the other is off-line regenerating, which means it is eliminating the water vapor it has collected so it can be used to dry again. The two towers switch back and forth so one is always drying while the other is regenerating or in standby.

The nano D^5 aircel branded twin tower desiccant dryers remove moisture from your compressed air system in the same way and to the same exacting standards of performance and reliability. The difference is how they regenerate and the amount of compressed air and/or power required to do so.

HLA 100 to HLA 800 Heatless Range

A 0.01 micron pre-filter removes all particulate, liquid water and oil aerosols to 0.01 ppm

B clean, saturated air enters the inlet valve which directs it to one of the desiccant towers

C compressed air travels through tower A for 5 minutes and moisture vapor is adsorbed to -40°F/°C pdp or better

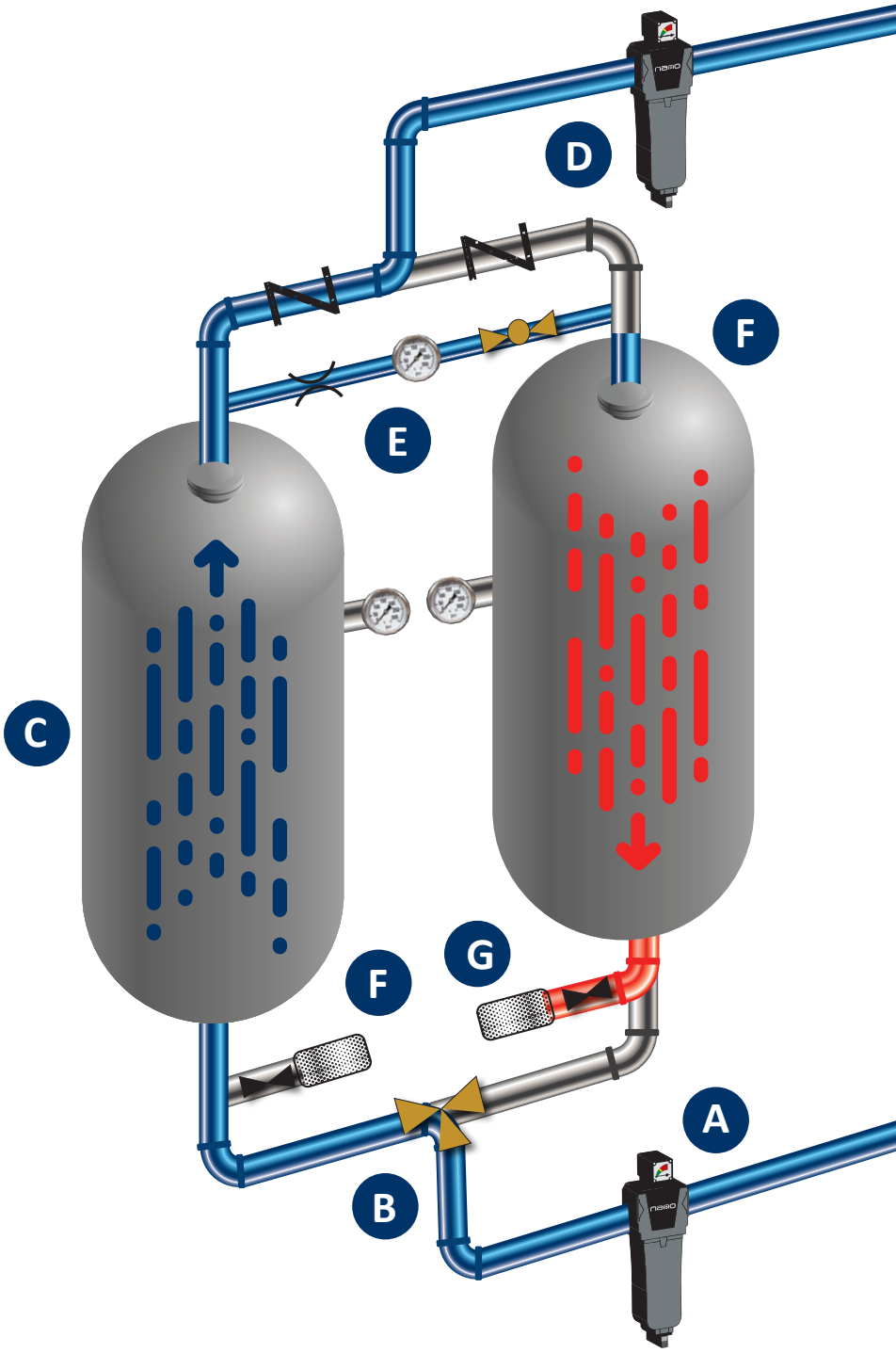
D a final filter removes particulate to 1.0 micron or better

E ~15% purge air expands through an orifice and regenerates tower B (HLA)

F after 3.5 minutes, the purge exhaust valve closes and tower B repressurizes and is ready for adsorption to begin

G at the 5-minute mark (fixed cycle), tower A exhaust valve opens to regenerate. A PLC controls all operations

H compressed air is expensive but nano dryers can be fitted with an energy savings device to save air and save money. By measuring actual pressure dew point, the PLC will extend the dryer cycle reducing compressor energy, wasted purge air and valve wear and tear



FEATURES

PLC controlled operation

- the dryer is operated by a robust and reliable PLC control system offering valuable features including 'power on', 'hours run' and 'service required indicators'
- memory retention built into the PLC enables the controller to pick up where it left off in the drying cycle, ensuring consistently clean and dry air downstream
- compressor synchronization is a standard energy saving feature on HLA range which starts and stops the dryer with a signal from the compressor to eliminate purge loss when drying is not required
- NEMA 4 control panel

low noise exhaust mufflers

- specifically designed to minimize the noise of depressurization and purge exhaust
- high flow design improves regeneration

low watt density heater (AEHD & ABP ranges)

- regeneration circuit is fully insulated for maximum efficiency
- specifically designed for a long and dependable operating life in harsh industrial environments

secondary heater contactor (AEHD & ABP ranges)

- provides protection against overheating in the event of a primary contactor failure

regenerative blower (ABP range)

- utilizes atmospheric air for regeneration
- easy maintenance and a rugged construction with TEFC premium motor that includes filtered air intake
- vortex regenerative blower (models 2500 scfm and below); centrifugal blower (models 3000 scfm and larger)

FEATURES

pneumatically operated 3-way valves

- three-way valves with stainless steel internals and Teflon® seats ensure reliable field proven performance
- used for inlet valves on models HLA 100 to HLA 800

high performance butterfly valves

- pneumatic actuators ensure precise proportional control and a bubble tight seal; no soft seals
- rugged stainless steel disk and Teflon® seats combined with a low pressure drop design
- used for inlet valves on models 1000 scfm and larger for HLA and AEHD ranges; 800 scfm and larger for ABP range

stainless steel spring check valves

- metal on metal seats for reliable operation, even high temperature operation
- provide worry-free operation and minimal maintenance

parallel cooling mode (ABP range)

- features a unique Parallel Cooling Mode to further reduce the heat and dew point spike prior to tower switch over. During the parallel cooling mode, both inlet valves are open and divert half-load to each tower, further cooling the previously regenerated desiccant bed with a larger volume of air.
- maximum savings with accurate dew point control

high quality construction

- ASME coded pressure vessels
- UL/cUL compliant
- activated alumina desiccant made in the USA
- lifting lugs and/or fork lift pockets on all products

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UPGRADE

energy saving dew point control option

- STANDARD on AEHD and ABP ranges
- with this option, a dew point sensor is incorporated into the dryer providing the ultimate in energy and power savings
- outlet dew point is constantly monitored allowing the cycle time to be adjusted depending on the actual moisture load saving valuable purge air on all styles of dryers
- saves additional energy on heated dryers by reducing heater on-time and blower run-time
- the -ES option reduces valve actuation

validated compressed air filter packages

- nano pre and after filtration packages standard on AEHD and ABP ranges; HLA range optional
- nano F^2 flanged filters used on models above 1500 scfm
- 3-valve bypass available for single pre- and after-filter packages

other options include

- low ambient kits for outdoor environments
- special paint finishes
- enhanced corrosion allowances for harsh ambient conditions
- NEMA 7 explosion-proof designs
- rental packages with air driven controls and after cooler available
- custom designs to comply with specifications welcome

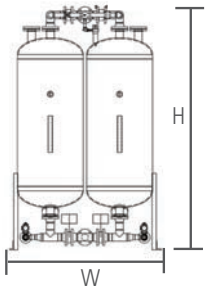
HLA HEATLESS SPECIFICATIONS

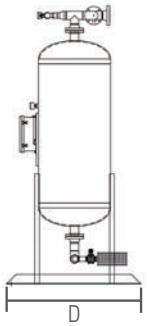
dryer model	inlet & outlet [1]	rated flow [2]		dimensions (inches)			approx. weight [3]	recommended filtration [4]	
	NPT (F) / Flg	scfm	Nm³/h	W	D	H	lbs	pre filter	after filter
HLA 100	1"	100	170	38	31	88	300	GF0105M01	GF0105M1
HLA 150	1"	150	255	40	32	89	415	GF0175M01	GF0175M1
HLA 200	1 ½"	200	340	41	31	90	540	GF0325M01	GF0325M1
HLA 250	1 ½"	250	425	43	32	87	590	GF0325M01	GF0325M1
HLA 350	1 ½"	350	595	45	33	88	735	GF0450M01	GF0450M1
HLA 500	2"	500	850	47	41	89	1100	GF0700M01	GF0700M1
HLA 650	2"	650	1150	51	43	89	1600	GF0700M01	GF0700M1
HLA 800	2 ½""	800	1359	51	43	89	2000	GF0850M01	GF0850M1
HLA 1000	3"	1000	1699	74	53	97	2650	GF1250M01	GF1250M1
HLA 1250	3"	1250	2124	74	56	112	3000	GF1250M01	GF1250M1
HLA 1500	3"	1500	2549	83	74	112	3500	GF1500M01	GF1500M1
HLA 2000	4"	2000	3398	111	78	112	4600	NFZ2500M01	NFZ2500M1
HLA 2500	4"	2500	4247	123	81	112	5100	NFZ2500M01	NFZ2500M1
HLA 3000	4"	3000	5097	129	90	112	6500	NFZ3500M01	NFZ3500M1

specifications	standard	optional
maximum particle size (ISO class) [5]	class 2 (1 micron)	class 1 (0.01 micron)
maximum water content (ISO class) [5]	class 2 (-40°F pdp)	class 1 (-94°F pdp)
minimum/ design /maximum operating pressure range [6]	80 psig / 100 psig / 150 psig	-
minimum / design/ maximum ambient temperature	38°F / 100°F / 120°F	-
minimum / design / maximum inlet temperature	38°F / 100°F/ 120°F	-
power supply requirements	115V/1Ph/60Hz	230V/1Ph/60Hz & 12 VDC

pressure correction factors [7]									
operating pressure (psig)	60	70	80	90	100	110	130	140	150
correction factor	0.65	0.74	0.83	0.91	1.00	1.04	1.12	1.16	1.20

temperature correction factors [7]								
inlet temperature (°F)	70	80	90	100	105	110	115	120
correction factor	1.12	1.10	1.06	1.00	0.93	0.86	0.80	0.75





(1) 3" and below are NPT(F) threaded. 4" and above are flanged. All units with 3" piping and above will be ANSI welded pipe
(2) in compliance with ADF 100 specifications for compressed air dryers: Inlet temperature: 100°F, ambient temperature: 100°F, inlet pressure dew point: -40°F. For all other conditions refer to the correction factors or contact support@nano-purification.com
(3) approx. weight for all models includes desiccant; units 1000 scfm and above ship with desiccant loose
(4) recommended for all applications. Add -F2 suffix to dryer model for factory mounted filtration
(5) per ISO 8573.1:2010
(6) maximum working pressure for all models is 150 psig. For higher pressures, contact support@nano-purification.com
(7) be used as a rough guide only. All applications should be confirmed by nano. Contact nano for sizing assistance
(8) all models are UL/cUL compliant
(9) all models have ASME coded pressure vessels. For other approvals, consult support@nano-purification.com
(10) for sizes above 3000 scfm and pressure below 60 psig, please contact support@nano-purification.com
(11) technical specifications subject to change without notice. Direct inquiries to support@nano-purification.com or contact 704.897.2182

AEHD EXTERNALLY HEATED SPECIFICATIONS

dryer model	inlet & outlet [1]	rated flow [2]		heater		dimensions (inches)		approx. weight [3]	included filtration [4]	
	NPT (F) / Flg	scfm	Nm^3/h	kW	W	D	H	lbs	pre filter	after filter
AEHD 150	1"	150	254	2.5	36	58	77	1000	GF0175M01	NHT0150M1
AEHD 250	1 ½"	250	423	3.75	44	58	87	1500	GF0325M01	NHT0300M1
AEHD 350	2"	350	592	6	53	62	87	2000	GF0450M01	NHT0450M1
AEHD 500	2"	500	845	7	53	66	87	2300	GF0700M01	NHT0650M1
AEHD 750	2"	750	1268	11	53	70	89	2700	GF0850M01	NHT1000M1
AEHD 1000	3"	1000	1690	15	68	80	92	4100	GF1250M01	NHT1000M1
AEHD 1250	3"	1250	2113	18	68	85	97	4900	GF1250M01	NHT1250M1
AEHD 1400	3"	1400	2366	22	68	85	97	5200	GF1500M01	NHT1600M1
AEHD 1600	4"	1600	2704	27	73	85	99	7200	NFZ2500M01	NHT1600M1
AEHD 2000	4"	2000	3380	32.5	91	94	109	7800	NFZ2500M01	NFZ2500M1HT
AEHD 2500	4"	2500	4225	37	94	94	109	9500	NFZ2500M01	NFZ2500M1HT
AEHD 3000	6"	3000	5070	45	113	113	119	11500	NFZ3500M01	NFZ3500M1HT

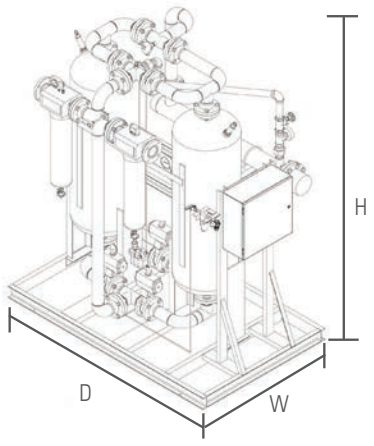
specifications	standard	optional
maximum particle size (ISO class) [5]	class 2 (1 micron)	class 1 (0.01 micron)
maximum water content (ISO class) [5]	class 2 (-40°F pdp)	-
minimum/ design /maximum operating pressure range [6]	60 psig / 100 psig / 150 psig	58 to 250 psig
minimum / design/ maximum ambient temperature	38°F / 100°F / 120°F	-
minimum / design / maximum inlet temperature	38°F / 100°F/ 120°F	-
power supply requirements	460VAC/60Hz	-

pressure correction factors [7]

operating pressure (psig)	60	70	80	90	100	110	130	140	150
correction factor	0.65	0.73	0.82	0.91	1.00	1.09	1.27	1.35	1.44

temperature correction factors [7]

inlet temperature (°F)	70	80	90	100	105	110	115	120
correction factor	1.20	1.15	1.10	1.00	0.90	0.80	0.70	0.60



(1) 2" and below are NPT(F) threaded. 3" and above are flanged. All units with 3" piping and above will be ANSI welded pipe
(2) in compliance with ADF 100 specifications for compressed air dryers: Inlet temperature: 100°F, ambient temperature: 100°F, inlet pressure dew point: -40°F. For all other conditions refer to the correction factors or contact support@nano-purification.com
(3) approx. weight for all models includes desiccant; units 1000 scfm and above ship with desiccant loose
(4) pre and after filters mounted on dryer as standard
(5) per ISO 8573.1:2010
(6) maximum working pressure for all models is 150 psig. For higher pressures, contact support@nano-purification.com
(7) be used as a rough guide only. All applications should be confirmed by nano. Contact nano for sizing assistance
(8) all models are UL/cUL compliant
(9) all models have ASME coded pressure vessels. For other approvals, consult support@nano-purification.com
(10) technical specifications subject to change without notice. Direct inquiries to support@nano-purification.com or contact 704.897.2182

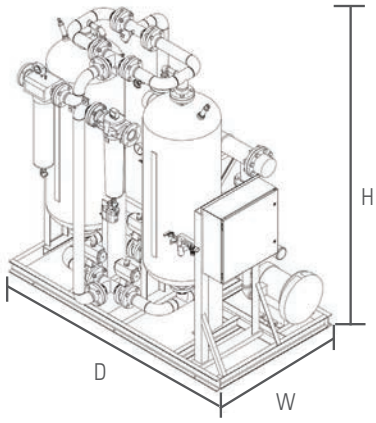
ABP BLOWER PURGE SPECIFICATIONS

dryer model	inlet & outlet [1]	rated flow [2]		heater	blower		dimensions (inches)		approx. weight [3]	included filtration [4]	
	Flg	scfm	Nm^3/h	kW	hp	W	D	H	lbs	pre filter	after filter
ABP 800	3"	800	1352	18	5	60	87	100	3600	GF0850M01	NHT1000M1
ABP 1000	3"	1000	1690	22	5	60	90	100	4500	GF1250M01	NHT1000M1
ABP 1200	3"	1200	2028	27	7.5	61	98	105	5400	GF1250M01	NHT1250M1
ABP 1400	3"	1400	2366	32.5	10	70	105	106	6800	GF1500M01	NHT1600M1
ABP 1600	4"	1600	2704	37	10	81	106	107	7500	NFZ2500M01	NHT1600M1
ABP 2000	4"	2000	3380	45	10	81	106	116	9000	NFZ2500M01	NFZ2500M1HT
ABP 2500	4"	2500	4225	52	15	83	128	116	10700	NFZ2500M01	NFZ2500M1HT
ABP 3000	6"	3000	5070	64	15	111	131	127	13400	NFZ3500M01	NFZ3500M1HT
ABP 3500	6"	3500	5915	78	15	105	134	120	15600	NFZ3500M01	NFZ3500M1HT
ABP 4000	6"	4000	6760	90	15	106	147	128	17900	NFZ4000M01	NFZ4000M1HT
ABP 5000	6"	5000	8450	110	20	109	163	138	22300	NFZ5000M01	NFZ5000M1HT
ABP 6000	8"	6000	10140	120	25	118	169	147	26800	NFZ7500M01	NFZ7500M1HT

specifications	standard	optional
maximum particle size (ISO class) [5]	class 2 (1 micron)	class 1 (0.01 micron)
maximum water content (ISO class) [5]	class 2 (-40°F pdp)	-
minimum/ design /maximum operating pressure range [6]	60 psig / 100 psig / 150 psig	58 to 250 psig
minimum / design/ maximum ambient temperature	38°F / 100°F / 120°F	-
minimum / design / maximum inlet temperature	38°F / 100°F/ 120°F	-
power supply requirements	460VAC/60Hz	-

pressure correction factors [7]									
operating pressure (psig)	60	70	80	90	100	110	130	140	150
correction factor	0.65	0.73	0.82	0.91	1.00	1.09	1.27	1.35	1.44

temperature correction factors [7]								
inlet temperature (°F)	70	80	90	100	105	110	115	120
correction factor	1.20	1.15	1.10	1.00	0.90	0.80	0.70	0.60



(1) all units are flanged, ANSI welded pipe
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EXPERIENCE. CUSTOMER. SERVICE.

Leading edge technology and hundreds of years of *experience*...nano-purification solutions, your world-class manufacturer of state-of-the-art compressed air and gas solutions to industry.

Our commitment at nano is to work alongside our *customers* and provide unique solutions with the highest quality products to solve your specific challenges.

A wealth of experience and leading edge products are only part of the equation. nano recognize that world-class customer *service* is the most important component to any successful business.

DESIGN

Our experienced team of design engineers are always looking for new and unique technologies and products to bring you the highest level of performance and lowest overall operating cost.

RESEARCH & DEVELOPMENT

Our R&D team endeavor to provide solutions that go beyond developing an existing product. They are continually researching new technologies which can provide unique advantages over competitive offerings.

MANUFACTURE

The reliable and energy saving nano aircel range of twin tower desiccant air dryers are manufactured to the highest standards of build quality to ensure equipment reliability and high levels of performance.

ENVIRONMENTALLY FRIENDLY

Through both product development and manufacturing, we strive to produce high quality products compliant to both local and global environmental legislation. Reduction of carbon footprint through energy saving products and use of environmentally friendly components are our commitment to you.

MEMBER OF CAGI Compressed Air & Gas Institute

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