



aerospace climate control electromechanical filtration fluid & gas handling hydraulics pneumatics process control sealing & shielding





DHA & DBA Series

Heat Reactivated Desiccant Dryers





ENGINEERING YOUR SUCCESS.

DHA & DBA series externally heated and blower purge desiccant air dryers

Parker domnick hunter Externally Heated and Blower Purge Desiccant Air Dryers use the adsorption method to remove moisture from compressed air. Nominal pressure dew points ranging from -40°F (-40°C) to -100°F (-70°C) are achieved by directing the flow of saturated compressed air over a bed of desiccant.



DHA Series Flowrates from 250 scfm (425 m³/hr) >



DBA Series Flowrates from 500 scfm (850 m³/hr) >

The most commonly used desiccant is activated alumina, a spherically shaped, hygroscopic material, selected for its consistent size, shape and extreme surface to mass ratio. This physically tough and chemically inert material is contained in two pressure vessels commonly referred to as "dual" or "twin" towers. As the saturated compressed air flows through the bed of the "on-line" tower, its moisture content adheres to the surface of the desiccant.

Benefits:

Highest quality air

- Master controller allows for 'on-line' drying and purging thereby stripping accumulated moisture from the 'off-line' bed

Energy efficient

- Maximum energy savings

Dry air means zero corrosion

- Preventing product spoilage, recall and litigation

Optimized air flow

 Heat combines with dry compressed air or ambient air in a slow and precise flow adsorbing moisture accumulated on desiccant surface

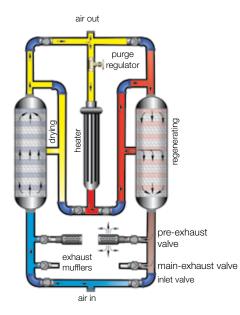
OIL-X EVOLUTION pre & after filtration

The heated, low pressure purge air flows gently through the regenerating bed, adsorbing the moisture that accumulated on the surface of the desiccant during the drying cycle and exhausting it to the atmosphere.



DHA & DBA dryers - How they work

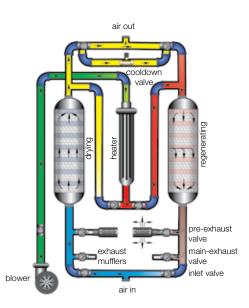
Parker domnick hunter's patented Multi-Port Regeneration System (DHA Series) affects superior desiccant bed regeneration and, as a result, provides better and more consistent performance.



DHA Externally Heated with Patented Multi-Port

The Multi-Port Regeneration System injects heated purge air at precise points up and down the towers' length providing a more balanced distribution of heat. This system prevents the desiccant on top from prematurely deteriorating while providing the bottom of the chamber with enough heated purge air to allow complete regeneration on every cycle.

The energy saving temperature monitoring system senses the exiting purge air temperature. When the purge air temperature increases to a pre-set point at which the desiccant bed is fully heated and regenerated, the heater is turned off.



DBA Series Blower Purge

Parker domnick hunter's Primary Blowdown System is standard on all DHA Series and DBA Series heat reactivated air dryers 1000 scfm and larger. It improves performance and efficiency while increasing desiccant life. The depressurization stage also strips moisture from the bottom of the tank through a purge muffler.

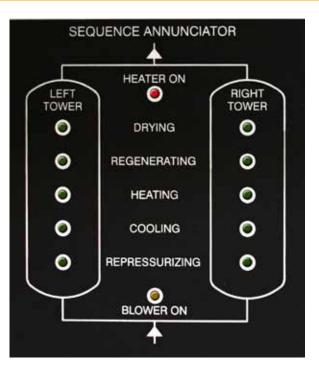
Once depressurization is complete, the system switches to the main exhaust where final regeneration is accomplished with low pressure purge air. By eliminating the main exhaust mufflers, back pressure is also eliminated which allows for more thorough regeneration and less maintenance.

In the event of prefilter/auto drain failure, up flow drying protects the desiccant bed from contamination of bulk liquids and oil since they stay on the bottom of the tank and get discharged during blowdown. When down flow drying, liquids and oil will gravity drain through the entire bed to the bottom of the tank.

DHA & DBA dryers - operational status

The sequence annunciator indicates the status of each tower. LED's indicate which tower is "on-line" drying, "off-line" regenerating as well as the regeneration stages.





Digital Readout

The Control Center features a backlit four line character display that monitors operation and status. Including regenerating countdowns and time remaining.

ThermaLoc™

(10 Year Heater Warranty)

The Control Center also controls domnick hunter's "ThermaLoc[™] heater protection system. ThermaLoc[™] ensures maximum reliability and eliminates the safety concerns often associated with heat reactivated dryers. Heaters are protected by a totally redundant dual shutdown system that utilizes independent contactors. In addition to the redundant temperature controllers, the system monitors pressure and shuts the heater down in the event of low line pressure. Blower purge dryers have controls to prevent the heater from energizing if the blower is not running.

Dual Mode Heatless Back Up System

Allows the dryer to function in either the primary heated mode or the auxiliary heatless mode. Should the system experience a temporary overload or a heater failure, the dryer can easily be switched over to operate in the heatless mode. This way the dryer will remain on line until such time as service can be conveniently scheduled. The Dual Mode Back Up System offers unparalleled flexibility, eliminates downtime and prevents business interruptions.

Manual Stepping allows the operator to quickly and safely step the dryer through a complete 8 hour cycle, in a matter of minutes.

DHA & DBA dryers - components and equipment

Parker domnick hunter's Externally Heated and Blower Purge dryers are designed to process a specific volume of compressed air and deliver it to the discharge at a desired pressure dewpoint. Both dryers are rated for a -40°F (-40°C) pressure dewpoint.







Non-Lubricated Valves

Dryers up to 800 scfm are equipped with our time-proven and dependable non-lubricated switching valves. These independent, air operated valves are specifically designed for compressed air service. They are resistant to desiccant dust and can be maintained without being removed from the dryer.

Butterfly Actuated Valves

High Performance Butterfly Actuated Switching Valves are standard on dryers 1000 scfm and larger. These premium, air operated butterfly valves are specifically designed for compressed air. They provide more opening and closing force compared to other types of valves. An indicator shows the "opened/closed" position of the valve and service can be performed without disturbing dryer piping.

Tower insulation

The tower, heater, and purge lines are insulated to increase dryer performance and efficiency by reducing radiant heat loss. It also keeps the unit within the safety parameters set forth by OSHA. Insulation suitable for indoor service is standard on all Parker domnick hunter Heat Reactivated Dryers (Insulation suitable for outdoor service is an available option).

- Failure to Switch Alarm
- Contacts for Common Alarm
- Systems Sequence
 Annunciator
- Auxiliary Cooldown
- Heater, Blower Flow Interlock (DBA Models)
- Blower Silencer (DBA Models)
- Compressor Surge Protection
- Control Center
- Redundant Heater Control System (ThermaLoc[™])
- Cycle Stepping
- Dual Mode, Heatless Backup
- Fail-Safe Operation
- Control Air Filter
- Long Life and Low Watt
 Density Heater
- Independent Switching Valves

- Moisture Indicator
- Purge Flow Indicator
- Full Instrumentation
- Indoor Tower Insulation
- Separate Tower Fill/Drain Ports
- Power Saver Exhaust Termination (early regeneration)
- Pressure Equalization
- Stainless Steel Diffuser Screens
- Standby Mode
- Structural Steel Base (1000 scfm & larger)
- Cushioned Seat Check Valves
- High Performance Butterfly Valves (1000 scfm & Larger)
- ASME Coded Vessels
- 10 Year Heater Warranty
- Actuator Valve Limit Switch*

***Optional Equipment**

- Pre and After Set Filters*
- Outdoor Insulation*
- ModBus
- All NEMA Classifications*
- Non-Yellow Metals*
- Pressure to 1000 psi g (69 bar g)*
- Star Watch®*
- Non-Standard Voltages*
- PowerLoc[™]*
- Ethernet connection*
- RS485 connection*

Dewpoint spikes, inherent on all blower and heat purge dryers, can be reduced by activating Parker domnick hunter's standard Supplemental Cool Down Purge feature. Standard ratings are based on inlet conditions of +100°F (38°C), 100 psi g (7 bar g) and 100% flow. Dryer performance will vary with different inlet conditions.

Dewpoint Dependent Switching (DDS)

The Control Center is designed to accomodate domnick hunter's optional Dewpoint Dependent Switching Controller (DDS). DDS automatically adjusts energy use to actual moisture load. Moisture loading is affected by inlet temperature, pressure, relative humidity, and flow. These conditions vary throughout the day and rarely combine in such a manner as to produce maximum moisture loads.



An inlet temperature reduction of just 20°F (-7°C) will reduce the moisture load by almost 50%. Desiccant dryers are normally sized for "worst case" operation with the cycle fixed to accommodate maximum moisture loads. Because the fixed cycle does not compensate for fluctuating loads, dryers not equipped with DDS waste energy by regenerating more often than necessary. DDS eliminates this unnecessary use of energy by delaying regeneration until the total design moisture load is achieved. The system monitors actual moisture loading and limits the number of purge cycles accordingly.

Digital dew point control provides for additional energy savings by allowing the operator to select higher dewpoints when appropriate. The moisture probe is contained in and protected by a rugged, stainless steel housing with a 80 micron sintered metal guard and a pressure rating of 3000 psi g. This housing increases the sensor's ability to withstand reasonable shock and vibration.

The housing also contains an electronics package for continuous self calibration, temperature compensation, and signal stabilization. Due to less frequent cycling, switching valves and desiccant will last longer and require less maintenance.

The DDS ceramic sensor is made from state-of-theart metallized ceramic and replaces traditional materials such as aluminum, silicon and hydroscopic salts. This fast response sensor is made from a ceramic tile that is plated and vapor deposited to form a surface that is very sensitive to small changes in water vapor pressure.

The proprietary coating processes make the ceramic sensor inherently faster to respond than other impedance or capacitive sensors curently available. The ceramic sensor features the latest digital technology with calibration data stored directly in the sensor's memory, and is equipped with a built-in thermistor for automatic temperature compensation. DDS is traceable to the National Institute of Standards and Technology. A certificate of traceability is available.

At \$0.08 per KWH, DDS would save \$6,730 annually when used with a 1000 scfm externally heated dryer operating at 75% load for 8,000 hours, at an average inlet temperature of +80°F (27°C).

DHA & DBA Dryers - control center

Parker domnick hunter's Control Center for Heat Reactivated Desiccant Air Dryers features a complete complement of data acquisition functions. All Parker domnick hunter Heated Desiccant Dryers are remotely accessible by RemoteWatch[™] software which can be downloaded at <u>http://divapps.parker.</u> <u>com/divapps/pdf/Starwatch/</u>. Star Watch[®] activated dryers can monitor and analyze every moment of operation, 24-7; it can be done wirelessly.







- RemoteWatch[™] Software virtual control, diagrams and graphics
- Star Watch[®] ready with 68 channels of data and over 60 process values
- Temperature and pressure instrumentation package
- Energy Management PowerLoc[™] dewpoint digital readout with Power Save (optional)
- Two extra user defined 4-20 mA or 1-5 Vdc inputs with setpoints and alarms for connection to your flow meter, power meter, etc.

- Intelligent display with operational information
- Full system retentive alarm network (event) log
- Programmable process set
 points
- Dryer operating "state" annunciation display
- Automatic data logging 24/7, 365 days of all operational information
- 16 Channel "programmable" common alarm

- RS-232 communications port (Optional RS-485)
- Access system via Star Watch[®] or Modbus protocols
- UL Rated Components
- 160 Fields of operational information
- Dual Mode communications.
 Modbus Protocol, and Star Watch[®] Protocol
- Connectivity: telco line and cellular wireless modem
 - Ethernet (optional)

DHA Series Dryers



Product Selection -40°F (-40°C) with Activated Alumina Desiccant

			Dime	nsions ins (m	m)	Wei	ght				
Model	Flowrate @ 100 psi g (scfm)	Heater (kW)	Height (H)	Width (W)	Depth (D)	lbs	kg	Dryer Connection Size	Pre-Filter	After-Filter	
DHA100	100	1.5	83 (2108)	31 (787)	18 (457)	680	308	1" NPT	AA025ENFI	JC0150-FH	
DHA130	135	1.5	83 (2108)	40 (1016)	22 (559)	720	327	1" NPT	AA030ENFI	JC0150-FH	
DHA200	200	3	85 (2159)	40 (1016)	22 (559)	920	417	1 1/2" NPT	AA030GNFI	JC0350-FH	
DHA250	250	3	85 (2159)	40 (1016)	22 (558)	1180	535	1 1/2" NPT	AA035GNFI	JC0350-FH	
DHA300	300	4	87 (2209)	43 (1092)	27 (686)	1370	621	1 1/2" NPT	AA035GNFI	JC0350-FH	
DHA400	400	6	88 (2235)	47 (1194)	27 (686)	1400	635	2" NPT	AA040HNFI	JC0450-FH	
DHA500	500	6	89 (2261)	50 (1270)	27 (686)	2060	934	2" NPT	AA045HNFI	JC0625-FH	
DHA600	600	9	92 (2337)	52 (1321)	28 (711)	2350	1066	2" NPT	AA045HNFI	JC0625-FH	
DHA800	800	9	93 (2362)	63 (1600)	35 (889)	3035	1377	2" NPT	AA050INFI	JC0800-FH	
DHA1000	1000	13	102 (2591)	74 (1880)	41 (1041)	4195	1903	3" Flg	AA055JNFI	JC1008-FH	
DHA1200	1200	13	113 (2870)	74 (1880)	41 (1041)	5215	2365	3" Flg	AA055JNFI	JC1008-FH	
DHA1500	1500	18	113 (2870)	78 (1981)	60 (1524)	7765	3522	4" Flg	DH-AA250NDFI-1	FT3-801-HT	
DHA2000	2000	25	110 (2794)	78 (1981)	60 (1524)	8565	3885	4" Flg	DH-AA250ODFI-1	FT4-1201-HT	
DHA2600	2600	25	112 (2845)	96 (2438)	60 (1524)	11562	5244	4" Flg	DH-AA300ODFI-1	FT4-1201-HT1	
DHA3000	3000	30	112 (2845)	96 (2438)	60 (1524)	12002	5444	6" Flg	DH-AA350PDFI-1	FT6-1201-HT	
DHA4000	4000	38	CF	CF	CF	CF	CF	6" Flg	DH-AA350PDFI-1	FT6-1201-HT1	
DHA5000	5000	50	CF	CF	CF	CF	CF	6" Flg	DH-AA400PDFI-1	FT6-1803-HT	
DHA6000	6000	60	CF	CF	CF	CF	CF	6" Flg	DH-AA400PDFI-1	FT6-1803-HT	
DHA8000	8000	60	CF	CF	CF	CF	CF	6" Flg	DH-AA450QDFI-1	FT8-2004-HT	

*Referenced to 68°F (20°C) and 14.5 psi a (1 bar a).



Description	Flow Range @ 100 psi g (7 bar g)	Nominal Dewpoint	Max Operating Pressure	Min Operating Pressure	Max Inlet Temp	Min Inlet Temp	Controls	Dewpoint Control	Standard Electrical Supply
DHA100 - DHA250	100 - 250 cfm	-40°F (-40°C) Standard	150 psi g (10.3 bar g)	80 psi g (5.5 bar g)	120°F (49°C)	50°F (10°C)	Microprocessor	Optional	240V/1PH/60Hz 460V/3Ph/60Hz (optional)
DHA300 - DHA1500	300 - 1500 cfm	-40°F (-40°C) Standard	150 psi g (10.3 bar g)	80 psi g (5.5 bar g)	120°F (49°C)	50°F (10°C)	Microprocessor	Optional	460V/3Ph/60Hz Control Power 115V/1Ph/60Hz (575V/3Ph/60Hz Optional
DHA2000 - DHA8000	2000 - 8000 cfm	-40°F (-40°C) Standard	135 psi g (9.3 bar g)	80 psi g (5.5 bar g)	120°F (49°C)	50°F (10°C)	Microprocessor	Optional	460V/3Ph/60Hz - Control Power 115V/1Ph/60Hz (575V/3Ph/60Hz Optional

Notes

Notes
 "Grade AA & AR filters ARE included in base unit price. Filters supplied mounted on Models DHA250 - DHA800.
 "DDS (Dewpoint Dependent Switching) includes: energy saving purge cycle control with high humidity alarm and digital dewpoint display. When ordering DDS, use DS as suffix. (Example: DHA500DS)
 Above information should be used as a guideline. Flows are at 100 psi g inlet pressure, 100°F inlet temperature and 100°F ambient temperature. For specific applications, please consult Parker domnick hunter Technical Services at fafquotes@parker.com.
 Weight includes desiccant (shipped loose Models DHA2000 and up).
 For sizing at other temperatures, pressures, and dew points please consult factory.

Correction Factors

To obtain dryer capacity at new conditions, multiply nominal capacity x C1 x C2.

Temperature Correction Factor CFT													
Maximum Inlet Temperature (C1)	°F	80		85	90	95		100	105	110		115	120
	°C	27		29	32	35		38	41	43		46	49
	CFT	1.17	1	1.17	1.17	1.15		1.00	0.87	0.76		0.66	0.58
Pressure Corre	ction Factor	CFP											
Minimum	psi g	80	85	90	95	100	105	110	115	120	125	130	135
Inlet Pressure (C2)	bar g	5.51	5.86	6.21	6.55	6.89	7.24	7.58	7.93	8.27	8.62	8.96	9.31
	CFP	0.83	0.87	0.91	0.96	1.00	1.04	1.09	1.13	1.17	1.22	1.26	1.31

DBA Series Dryers



Product Selection -40°F (-40°C) with Activated Alumina Desiccant

			Dime	Wei	ght							
Model	Flowrate Model @ 100 psi g (scfm)		HP	Height (H)	Width (W)	Depth (D)	lbs	kg	Dryer Connection Size	Pre-Filter	After-Filter	
DBA100	100	.75	3	83 (2108)	49 (1245)	37 (940)	1050	308	1" NPT	AA025ENFI	JC0150-FH	
DBA200	200	.75	6	85 (2159)	56 (1422)	39 (991)	1500	417	1 1/2" NPT	AA030GNFI	JC0350-FH	
DBA300	300	1.5	6	87 (2210)	43 (1092)	27 (686)	1900	621	1 1/2" NPT	AA035GNFI	JC0350-FH	
DBA400	400	1.5	9	88 (2235)	47 (1194)	27 (686)	2180	635	2" NPT	AA040HNFI	JC0450-FH	
DBA500	500	12	2	89 (2261)	50 (1270)	27 (686)	2840	1288	2" NPT	AA045HNFI	JC0625-FH	
DBA600	600	12	2	92 (2337)	52 (1321)	28 (711)	3420	1551	2" NPT	AA045HNFI	JC0625-FH	
DBA800	800	18	5	93 (2362)	64 (1646)	35 (889)	4490	2037	2" NPT	AA050INFI	JC0800-FH	
DBA1000	1000	18	5	102 (2591)	74 (1879)	41 (1041)	5700	2585	3" Flg	AA055JNFI	JC1008-FH	
DBA1200	1200	25	5.5	113 (2870)	74 (1879)	41 (1041)	6300	2858	3" Flg	AA055JNFI	JC1008-FH	
DBA1500	1500	30	7.5	113 (2870)	78 (1981)	60 (1524)	7165	3250	3" Flg	DH-AA250NDFI-1	FT3-801-HT	
DBA2000	2000	30	7.5	112 (2845)	114 (2896)	66 (1676)	9850	4468	4" Flg	DH-AA250ODFI-1	FT4-1201-HT	
DBA2600	2600	50	10	112 (2845)	132 (3353)	72 (1829)	12210	5538	4" Flg	DH-AA3000DFI-1	FT4-1201-HT1	
DBA3000	3000	60	10	112 (2845)	132 (3353)	72 (1829)	12650	5738	6" Flg	DH-AA350PDFI-1	FT6-1201-HT	
DBA4000	4000	75	15	114 (2896)	168 (4267)	84 (2134)	18910	8577	6" Flg	DH-AA350PDFI-1	FT6-1201-HT1	
DBA5000	5000	100	15	114 (2896)	156 (3962)	92 (2337)	21590	9793	6" Flg	DH-AA400PDFI-1	FT6-1803-HT	
DBA6000	6000	115	20	112 (2845)	146 (3708)	92 (2337)	24890	11290	6" Flg	DH-AA400PDFI-1	FT6-1803-HT	
DBA7500	7500	135	25	CF	CF	CF	CF	CF	8" Flg	DH-AA450QDFI-1	FT8-2004-HT	
DBA9000	9000	150	30	CF	CF	CF	CF	CF	8" Flg	DH-AA450QDFI-1	FT8-2004-HT	

*Referenced to 68°F (20°C) and 14.5 psi a (1 bar a).



Description	Flow Range @ 100 psi g (7 bar g)	Nominal Dewpoint	Max Operating Pressure	Min Operating Pressure	Max Inlet Temp	Min Inlet Temp	Controls	Dewpoint Control	Standard Electrical Supply
DBA100 - DBA1500	500 - 1500 cfm	-40°F (-40°C) Standard	150 psi g (10.3 bar g)	80 psi g (5.5 bar g)	120°F (49°C)	50°F (10°C)	Microprocessor	Optional	460V/3Ph/60Hz, Control Power 115V/1Ph/60Hz - (575V/3Ph/60Hz Optional)
DBA2000 - DBA9000	2000 - 9000 cfm	-40°F (-40°C) Standard	135 psi g (9.3 bar g)	80 psi g (5.5 bar g)	120°F (49°C)	50°F (10°C)	Microprocessor	Optional	460V/3Ph/60Hz, Control Power 115V/1Ph/60Hz - (575V/3Ph/60Hz Optional)

Notes

"Grade AA & AR filters ARE included in base unit price. Filters supplied mounted on Models DBA500 - DBA800.
"DDS (Dewpoint Dependent Switching) includes: energy saving purge cycle control with high humidity alarm and digital dewpoint display. When ordering DDS, use DS as suffix. (Example: DBA900DCS)
Above information should be used as a guideline. Flows are at 100 psi g inlet pressure, 100°F inlet temperature and 100°F ambient temperature. For specific applications, please consult Parker dominck hunter Technical Services at fafquotes@parker.com.

Weisht includes designent (shipped loose Models DBA2000 and up).

5. For sizing at other temperatures and pressures, please consult factory.

Correction Factors

To obtain dryer capacity at new conditions, multiply nominal capacity x C1 x C2.

Temperature Correction Factor CFT													
Maximum Inlet Temperature (C1)	°F	80		85	90	9	5	100	105	110		115	120
	°C	27		29	32	3	5	38	41	43		46	49
	CFT	1.17		1.17	1.17	1.1	5	1.00	0.87	0.76		0.66	0.58
Pressure Corre	ction Factor	CFP											
Minimum	psi g	80	85	90	95	100	105	11(0 115	120	125	130	135
Inlet Pressure (C2)	bar g	5.51	5.86	6.21	6.55	6.89	7.24	7.58	8 7.93	8.27	8.62	8.96	9.31
	CFP	0.83	0.87	0.91	0.96	1.00	1.04	1.09	9 1.13	1.17	1.22	1.26	1.31

Worldwide Filtration Manufacturing Locations

North America

Compressed Air Treatment Filtration & Separation/Balston Haverhill, MA 978 858 0505

www.parker.com/balston Finite Airtek Filtration Airtek/domnick hunter/Zander Lancaster, NY 716 686 6400

www.parker.com/faf Finite Airtek Filtration/Finite

Oxford, MI 248 628 6400 www.parker.com/finitefilter

Engine Filtration & Water Purification

Racor Modesto, CA 209 521 7860 www.parker.com/racor

Holly Springs, MS 662 252 2656 www.parker.com/racor

Beaufort, SC 843 846 3200 www.parker.com/racor

Racor – Village Marine Tec. Gardena, CA 310 516 9911 desalination.parker.com

Parker Sea Recovery Carson, CA 310 637 3400 www.searecovery.com

Hydraulic Filtration

Hydraulic Filter Metamora, OH 419 644 4311 www.parker.com/hydraulicfilter

Laval, QC Canada 450 629 9594 www.parkerfarr.com

Process Filtration

domnick hunter Process Filtration Oxnard, CA 805 604 3400 www.parker.com/processfiltration

Madison, WI 608 824 0500 www.scilog.com

Phoenixville, PA 610 933 1600 www.parker.com/processfiltration

Aerospace Filtration

Velcon Filtration Colorado Springs, CO 719 531 5855 www.velcon.com

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