KTA Series

Heatless Desiccant Air Dryers

Parker Zander

ENGINEERING YOUR SUCCESS.

KTA Series Heatless Desiccant Air Dryers

Parker Zander KTA Series Heatless Desiccant Air Dryers remove water vapor from compressed air through a process known as Pressure Swing Adsorption. A pressure dew point of -40°F (-40°C) is attained by directing the flow of saturated compressed air over a bed of desiccant.

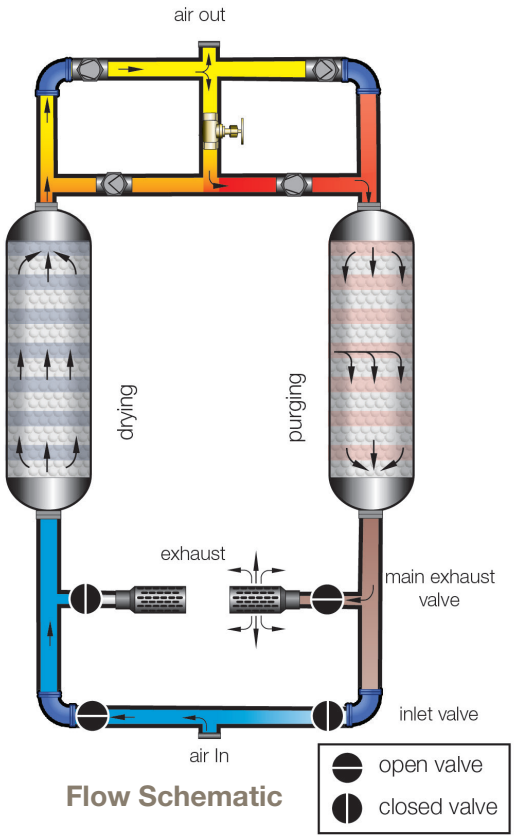
The most commonly used desiccant is activated alumina, a spherical shaped, hygroscopic material, selected for its consistent size, shape and extreme surface to mass ratio. This physically tough and chemically inert material is contained in two separate but identical pressure vessels commonly referred to as "dual" or "twin" towers.

As the saturated compressed air flows up through the "on-line" tower, its moisture content adheres to the surface of the desiccant. The dry compressed air is then discharged from the chamber into the distribution system.

An Allen Bradley® PLC controller automatically cycles the flow of compressed air between the towers. While the "on-line" tower is drying, the "off-line" tower is regenerating. Regeneration, sometimes referred to as purging, is the process by which moisture accumulated during the "on-line" cycle is stripped away during the "off-line" cycle. As dry low pressure purge air flows gently through the regenerating bed, it attracts the moisture that had accumulated on the surface of the desiccant during the drying cycle and exhausts it to the atmosphere.

To protect the desiccant bed from excess liquid, all Parker Zander KTA Series Heatless Air Dryers are designed to work with the natural pull of gravity. By directing the saturated air into the bottom of the "on-line" tower and flowing up through the bed, liquid condensate caused by system upset, is kept away from the desiccant and remains at the bottom of the tower where it can be easily exhausted during the regeneration cycle. Counter flow purging ensures optimum performance by keeping the driest desiccant at the discharge end of the dryer.

Heatless dryers in general are the most reliable and least expensive of all desiccant type dryers. Parker Zander KTA Series Heatless Desiccant Air Dryers are more energy efficient than competitors thanks to standard features such as: variable cycle control, CycleLoc™, and regulated purge flow.



Flow Schematic

Controllers

Basic Controller Features:

- Allen-Bradley® PLC
- Nema 4X enclosure
- LCD user interface
- Four line digital display features:
  - Tower drying indication
  - Tower regenerating indication
  - Run status
  - Time remaining in cycle
- Selectable cycle settings
- Programmable drain timer (drain on, time and test)
- Compressor demand via external dry contact (CycleLoc™)
- Power ON/OFF switch
- Step-through regeneration for maintenance

Basic Controller
(Standard on Models KTA10 - KTA800)

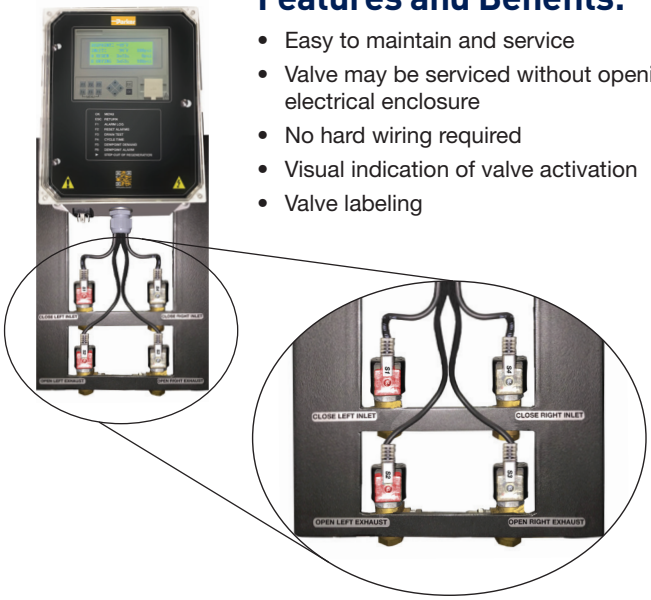
Advanced Controller Features:

- Allen-Bradley® PLC
- Ecotronic Energy Demand System
- Nema 4X enclosure
- 3.5” LCD user interface
- Dew point sensor input (-148 to 68°F)
- Optional 4-20 mA output for remotely monitoring dew point
- Tower pressure sensors
- Inlet pressure and temperature sensors
- Compressor demand via external dry contact (CycleLoc™)
- Modbus/TCP communications via standard ethernet port
- Modbus RTU communications via optional RS232/485 port (Using external gateway device)
- SD card slot for accessing historical data and alarm information
- Selectable cycle settings
- Programmable drain timer (drain on, time and test)
- User selectable alarms with common alarm relay
  - High inlet temperature
  - Low inlet pressure
  - Tower failed to blow down (switch failure)
  - Tower failed to pressurize
  - High dew point
  - Sensor failure for all sensors
- Filter maintenance & alarm
- Clogged muffler maintenance and alarm
- Power ON/OFF switch
- Alarm log stores most recent alarms
- Flashes green when in energy savings mode
- Flashes red when an alarm is present
- Dry contact for common alarm

LED Din Connectors

Features and Benefits:

- Easy to maintain and service
- Valve may be serviced without opening electrical enclosure
- No hard wiring required
- Visual indication of valve activation
- Valve labeling



Advanced Controller
(Standard on Models KTA1000 - KTA6000
or KTA10 - KTA800 with Ecotronic Option)

Ecotronic Energy Management System

Energy savings of up to 80% can be achieved with the proven Ecotronic energy management system.

Regeneration requirements are dependent on flow, pressure and temperature. The Ecotronic system allows the cost of drying compressed air to be matched exactly to your plant conditions.

Ecotronic controls the drying cycle by continuously reacting to the loading under which the dryer is operating and minimizes the energy input required.

As dryers rarely operate at full rated capacity all of the time (eg. during shift work and periods of low demand), this energy management system can provide considerable savings.

Ecotronic standard on models KTA 1000 - KTA 6000.

The Advanced Controller is designed to accommodate Parker Zander's Ecotronic Energy Management System. Flashes green when in energy saving mode.

Valves

Features and Benefits:

KTA10 - KTA55	KTA75 - KTA800	KTA1000 & Larger
• CERAM valve • 4-way valve • Long life • Low sensitivity to air quality changes • Low friction switching, low wear of valve/seal assembly • **5 year valve warranty**	• High performance poppet valve • Stainless steel body • Stainless steel internals • PTFE seal • Air activated, spring return • Visual position indicator on exhaust valves • ANSI Class VI shutoff • Long service life • Repair kits available • **5 year valve warranty**	• High performance butterfly valve • Non-lubricated • Carbon steel body • Stainless steel internals • RTFE seat • Double offset stem and disc design for reduced seatwear and zero leakage • Repair kits available • **5 year valve warranty**

Complete Air Treatment System

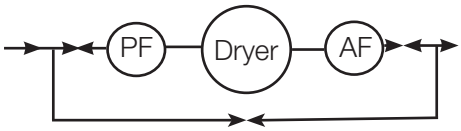
Without proper filtration, desiccant air dryers will not work. Desiccant dryers are designed to adsorb vapor from compressed air they are not designed for liquid. When liquid, especially oil, is allowed to enter the desiccant chamber, it coats the desiccant material preventing any further adsorption. Oil coated desiccant can not be regenerated, and must be replaced.

The coalescing pre-filter is installed at the dryer inlet. It protects the dryer by removing liquids and reducing the contamination level of the compressed air. A differential pressure gauge is provided to determine element condition.
An automatic float drain is provided on systems 10 through 6000 scfm to ensure proper drainage.

To protect downstream equipment from desiccant dust, a particulate after-filter is installed at the dryer discharge. The after-filter element is designed to remove solid particulates from compressed air. The hybrid pleated filter media provides high dirt retention, low pressure drop, and long element life. A differential pressure gauge is provided to determine element condition.

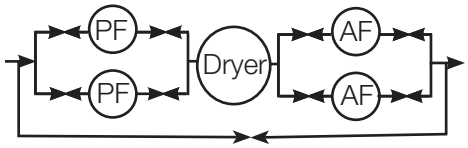
In-line Filter
(KTA10 - KTA1000)

Package Schematic



Package "B" (Standard KTA10 - KTA800)
Includes dryer with factory installed (optional KTA1000 and larger) pre-filter and after-filter with system bypass.

Package "F" (Standard KTA1000 & Larger)
Includes dryer with pre-filter and after-filter shipped loose.



Package "D" (Optional)
Includes dryer with factory installed dual selectable pre and after-filters with system bypass.

Compressed Air Quality to ISO 8573.1 - the industry standard method for specifying compressed air cleanliness

The ISO 8573.1 international standard for compressed air quality provides a simple system of classification for the three main contaminants present in any compressed air system - Dirt, Water, and Oil. To specify the quality class required for a particular application, simply list the class for each contaminant.

CLASS	Dirt			Water	Oil
	Maximum number of particles per m^3			Pressure Dew point °F (°C)	(incl. vapor) mg/m^3
	0.1 - 0.5 micron	0.5 - 1 micron	1 - 5 micron		
1	100	1	0	-94 (-70)(-70°C)	0.01
2	100,000	1,000	10	-40 (-40) (-40°C)	0.1
3	-	10,000	500	-4 (-20)	1
4	-	-	1,000	37.4 (3)	5
5	-	-	20,000	44.6 (7)	-
6	-	-	-	50 (10)	-

Engineering Data Specifications

Product Selection

Package	Model	Flowrate @ 100 psig (scfm)	Approx Purge (scfm)	Standard Packaged Dimensions ins (mm)			Weight		Dryer Air In/Out
				Height (H)	Width (W)	Depth (D)	lbs	kg	
B	KTA10	10	2	46	22	25	108	50	3/8" NPT
	KTA15	15	2	46	22	25	112	51	3/8" NPT
	KTA25	25	4	64	22	25	156	71	1/2" NPT
	KTA40	40	6	49	22	25	190	86	1/2" NPT
	KTA55	55	9	65	22	31	230	104	3/4" NPT
	KTA75	75	11	81	35	28	384	174	3/4" NPT
	KTA100	100	15	80	37	30	468	212	1" NPT
	KTA130	130	20	80	37	30	496	225	1" NPT
	KTA200	200	30	82	42	37	692	314	1 1/2" NPT
	KTA250	250	38	82	45	37	776	352	1 1/2" NPT
	KTA300	300	45	82	45	37	796	361	1 1/2" NPT
	KTA400	400	60	84	48	41	1626	737	2" NPT
	KTA500	500	75	84	50	45	1735	788	2" NPT
	KTA600	600	90	84	53	48	1740	789	2" NPT
	KTA800	800	120	85	55	48	2120	961	2" NPT
F	KTA1000	1000	150	93	74	41	3676	1667	3" Flg
	KTA1200	1200	180	104	74	41	4605	2089	3" Flg
	KTA1500	1500	225	115	78	48	4985	2261	3" Flg
	KTA2000	2000	300	97	78	60	5206	2361	4" Flg
	KTA2600	2600	390	111	108	66	7600	3447	4" Flg
	KTA3000	3000	450	111	108	66	8300	3765	6" Flg
	KTA4000	4000	600	CF	CF	CF	CF	CF	6" Flg
	KTA5000	5000	750	CF	CF	CF	CF	CF	6" Flg
	KTA6000	6000	900	CF	CF	CF	CF	CF	6" Flg

*Flowrates at the following climatic conditions - Inlet Temperature: 100°F (38°C), Inlet Pressure: 100 psig (7 bar g).
Dimensions and weight shown on Models KTA10—KTA800 includes dryer with factory installed pre and after filter with system bypass.
Dimensions and weight shown on Models KTA1000—KTA6000 dryer only (filters are shipped loose).

Description	Flow Range @ 100 psi g (7 bar g)	Dew point	Design Pressure	Max Operating Pressure	Min Operating Pressure	Max Inlet Temp	Min Inlet Temp	Controls	Electrical Supply
KTA10 - KTA1500	10 – 1500 scfm	-40°F (-40°C) Standard	150 psig (10.3 barg)	150 psig (10.3 barg)	80 psig (5.5 barg)	120°F (49°C)	50°F (10°C)	Allen Bradley® PLC	120V/1Ph/60Hz
KTA2000 - KTA6000	2000 – 6000 scfm	-40°F (-40°C) Standard	150 psig (10.3 barg)	135 psig (9.3 barg)	80 psig (5.5 barg)	120°F (49°C)	50°F (10°C)	Allen Bradley® PLC	120V/1Ph/60Hz

Notes:
1. Above information should be used as a guideline. Flows are at 100 psig inlet pressure, 100°F inlet temperature and 100°F ambient temperature. For specific applications, please consult Parker Zander Technical Services.
2. Weight includes desiccant (shipped loose Models KTA2000 and up).
3. For sizing at other temperatures and pressures, please consult factory.
4. Dryer with basic controller FLA is 2 Amp, Advanced controller FLA is 3 Amp
5. Pressure relief valve variance +/- 10%.

Correction Factors

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

Temperature Correction Factor								
Maximum Inlet Temperature (C1)	°F	90	95	100	105	110	115	120
	°C	32	35	38	41	43	46	49
	CF	1.17	1.15	1.00	.87	.76	.66	.58

Pressure Correction Factor							
Minimum Inlet Pressure (C2)	psig	80	90	100	110	120	130
	barg	5.5	6.2	6.9	7.6	8.3	9.0
	CF	.83	.91	1.00	1.09	1.17	1.26

Standard Equipment

Allen Bradley® PLC

- 4 line display
- NEMA 4X enclosure
- Selectable cycles

Switching Valves

- Five year switching valve warranty from manufacturer's defects (see warranty policy)

Factory Installed Filtration (KTA10 - KTA800)

- Single point connection for system integrity
- Differential pressure gauges for element condition
- Filter drains

Regulated Purge (KTA75 & larger)

- Factory set
- Optimum purge regardless of operating pressure
- Repressurization circuit

Additional Features

- Separate tower pressure gauges
- OSHA approved mufflers with safety relief
- ASME/CRN vessels (KTA100 and larger)
- Desiccant fill and drain ports
- Safety relief valves
- Stainless steel diffuser screens
- CycleLoc® demand control
- Control air line filter
- ETL listed (UL/CSA standards)
- LED din connector(s) all solenoid valves
- Two year dryer warranty (parts and labor)
- 120 VAC power (other options available - consult factory)
- Power cord with basic controller
- Power din connector with advanced controller
- Power ON/OFF switch with advanced controller
- Steel base KTA1000 and larger

Options

- Custom filter packaging
- Ecotronic Energy Demand Control (KTA10 - KTA800)
- All NEMA classifications
- Control air tubing - stainless steel
- Low ambient package (-20°F to +40°F air temperature)
- Instrumentation
  - Locally mounted pressure and temperature gauges at inlet and outlet
- Pneumatic controls
- ASME B31.3 piping
- Corrosion allowance
- -100°F pressure dew point (See Parker Zander KTL literature)
- High pressure applications (See Parker Zander KTX literature)

Contact Factory for additional options, customization, and specifications

Worldwide Filtration Manufacturing Locations

North America

Compressed Air Treatment

Gas Separation & Filtration Division
Airtek/Finite/domnick hunter/Zander
Lancaster, NY
716 686 6400
www.parker.com/faf

Balston
Haverhill, MA
978 858 0505
www.parker.com/balston

Engine Filtration

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

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

Hydraulic Filtration

Hydraulic & Fuel Filtration
Metamora, OH
419 644 4311
www.parker.com/hydraulicfilter

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

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

Process Filtration

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SciLog
Oxnard, CA
805 604 3400
www.parker.com/processfiltration

Water Purification

Village Marine, Sea Recovery,
Horizon Reverse Osmosis
Carson, CA
310 637 3400
www.parker.com/watermakers

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Racor Research & Development
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