ecodry ZME Series & ecodryMAX Series Modular Heatless Adsorption Dryers

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

Parker

ZANDER

ENGINEERING YOUR SUCCESS.

What is adsorption drying?

Drying compressed air through adsorption represents a purely physical process in which water vapor (adsorbate) is bound to the drying medium (adsorbent) through binding forces of molecular adhesion. Adsorbents are solids in spherical and granular form which are permeated by an array of pores. The water vapor is deposited onto the internal and external surface of the adsorption medium, without the formation of chemical compounds taking place, therefore the adsorption medium does not have to be replenished but only periodically regenerated.

Heatless

The layout of adsorption dryers with heatless regeneration is clear and simple. Compared with other adsorption dryer systems, pressure dewpoints down to -100°F (-73°C) can be achieved without additional effort.

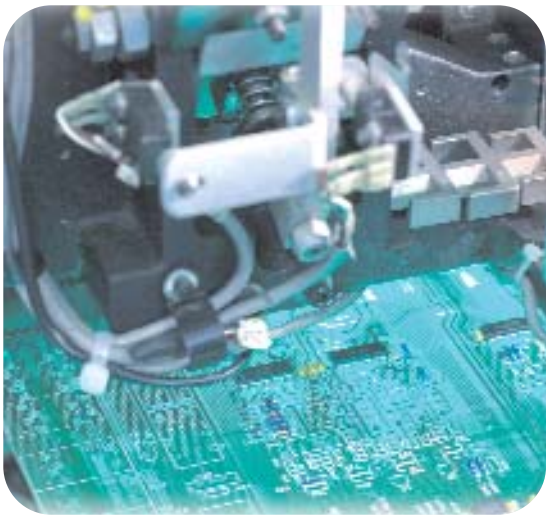
Use in the higher pressure ranges and at low inlet temperatures causes the quantity of air needed for desorption to be reduced to an economical value.

At low operating pressure the demand for already dried compressed air for purposes of regeneration is increased. This increase causes a large proportion of the prepared compressed air to be no longer available for productive purposes.

Depending on the cycle, the quantity of air enclosed in the adsorber expands upon release at regular intervals with an emission noise level of about 90-95 dB(A). Given suitable noise attenuation measures, a reduction of the noise emission level to the region of 10-15 dB(A) can be accomplished.

The use of adsorption dryers with heatless regeneration is preferred in the following applications:

- capacity range of up to 1000 scfm
- higher pressure ranges
- high inlet temperatures
- installation in explosion proof areas
- use under ground
- portable applications
- hazardous locations (pneumatic controls)



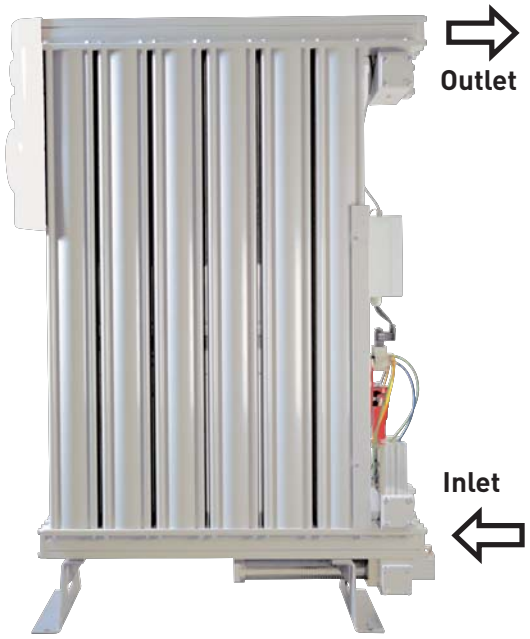
Behind the scenes of ecodry ZME Series & ecodryMAX Series Modular Heatless Adsorption Dryers

ecodry & ecodryMAX utilize high tensile extruded aluminum columns containing twin chambers each filled with desiccant materials which dries the compressed air as it passes through. One chamber is operational (drying), while the opposite chamber is regenerating using the Pressure Swing Adsorption (PSA or Heatless) method of regeneration.

A small volume of the dried compressed air is used to regenerate the desiccant bed by expanding air from line pressure to atmospheric pressure, removing the water adsorbed by the desiccant material, and therefore regenerating the dryer. Using ***ZANDER*** **Microfilter** pre- and after filters will further increase the reliability of the dryer.

Modular design eliminates the need for complex valves and interconnecting piping which are used in conventional twin tower dryers.

ZANDER's unique modular construction means that extra banks can easily be added if air demand increases. Multibanking of dryers enables individual banks to be easily isolated for routine maintenance work, or even a decrease in air capacity requirements (e.g. night shift). This means no interruption to your clean, dry air supply.



- **Patented modular design**
  Potential for future plant expansion or 100% standby capability at a fraction of the cost.
- **Compact, lightweight construction**
  Space saving design is easy to install.
- **'Snowstorm' desiccant filling**
  Consistent airflow and long desiccant life.
- **Corrosion protected**
  Corrosion inhibited by alocroming and dry powder epoxy painting for extended lifetime.
- **Efficient regeneration**
  High quality desiccant with minimum purge requirements.
- **ecotronic energy management system**
  Controls dryer cycle times to match plant requirements.
- **User friendly control and monitoring**
  A range of easy to read and operate control panels to suit your requirements.
- **Quiet operation**
  Reduced blow down noise.
- **Options**
  A wide range of options are available including remote fault indication, re-transmission of dewpoint display and the ability to interface with building management systems via remote communications. ZANDER can specify a system to match your exact requirements.

  -4ºF (-20ºC) and -100ºF (-70ºC) pressure dewpoint options are also available for general purpose and critical applications.

ecodry ZME Series - features & benefits

Dewpoint performance
Clean dry compressed air prevents corrosion and damage

Point of use applications
Only dry the air you need

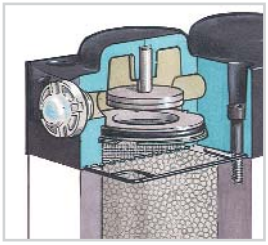
Compact and space saving design
Ideal for use with light industrial compressors

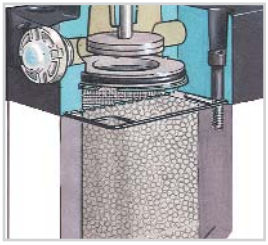
Improve plant efficiency
Protect processes and finished product

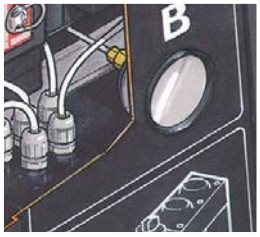
Simple to install and easy to maintain

Economic to operate

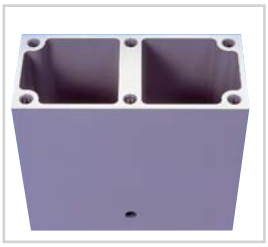
Approved to international standards
Award winning design in accordance with ASME VIII Div 1. Approved to PED, CSA/UL/CRN.

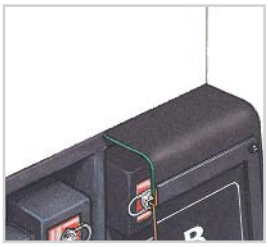

High visibility moisture indicators

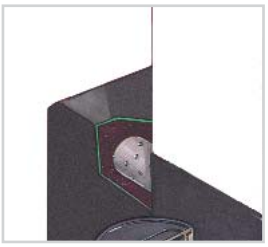

Snow Storm filled to prevent fluidization and channeling



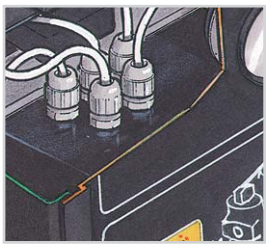
Pressure gauges provide constant system status


High tensile extruded aluminum construction


Corrosion protected by alocrom and epoxy painting


Acoustic shroud lowers noise, and can be piped away


High efficiency Microfilter pre-and after filtration


Reliable high performance electronic controls

Optional energy saving ecotronic

ecodryMAX - features & benefits

Protects your compressed air system

A moisture free system will increase the reliability of production processes, giving better quality finished products and preventing damage to the compressed air system.

Reliable performance

Long-life pneumatic cylinder valves provide reliable switching, and high quality desiccant ensures stable dewpoint performance.

Energy efficient

With low differential pressure and a reliable energy management system cost effective operation is assured.

Space saving

Advanced aluminum forming technology makes **ecodryMAX** typically half the size and weight of traditional twin tower dryers, taking up less floor space and making installation easy.

Modular design

ZANDER's unique modular construction means that extra banks can easily be added if air demand increases.

High quality clean dry compressed air

Used in conjunction with ***ZANDER*** **Microfilters**, **ecodryMAX** will deliver air at -40F (-40C) pressure dewpoint as standard, in accordance with ISO 8573.1 :2001 class 3.2.1.

electronic controllers

A number of electronic control options are available to suit every application. **ZMX-S Series** controllers provide system status display, service indication and are now available with **ecotronic** incorporating a dewpoint display.

The **ZMX-A Series** monitoring control system from ***ZANDER*** provides a full system status display for your compressed air network including dewpoint, temperature and pressure. A reliable energy management system ensures cost effective operation and optimum system performance.

This unique, microprocessor controlled system, can be custom configured to monitor individual plant requirements. System warning and fault alarms can be configured to react in the way that best suites your application.

Not only can alarms be indicated remotely, the system can be configured to by-pass or even shut down your air supply in the vent that air quality falls outside the required specification.

The user interface is simple to use and incorporates a 10cm LCD display with easy to understand symbols, five status LEDs and an integrated keypad.

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 (e.g. during shiftwork and periods of low demand), this energy management system can provide considerable savings.

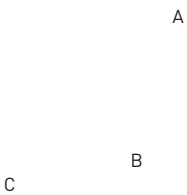
Technical Data

Model	Capacity scfm (Nm³/hr)*	Dimensions in (mm)				Approx Weight per bank lbs (kg)	Prefilter	Afterfilter	Air In/Out
		A	B	C	D				
ZME050	106 (180)	56.4 (1433)	22.3 (566)	8.7 (220)		176 (80)	G11XPDF	G11ZPDH	1" NPT
ZME060	130 (221)	62.9 (1599)	22.3 (566)	8.7 (220)		198 (90)	G11XPDF	G11ZPDH	1" NPT
ZME080	176 (299)	72.7 (1847)	22.3 (566)	8.7 (220)		229 (104)	G11XPDF	G11ZPDH	1" NPT
ZMX-○102c	240 (408)	27.4 (696)	12.8 (326)	21.65 (550)	64.8 (1647)	518 (235)	G14XPDF	G14ZPDH	2" NPT
ZMX-○103c	360 (612)	34.1 (865)	19.5 (495)	21.65 (550)	64.8 (1647)	696 (316)	G14XPDF	G14ZPDH	2" NPT
ZMX-○103	450 (765)	34.1 (865)	19.5 (495)	21.65 (550)	74.5 (1892)	782 (355)	G14XPDF	G14ZPDH	2" NPT
ZMX-○104	600 (1020)	40.7 (1034)	26.1 (664)	21.65 (550)	74.5 (1892)	992 (450)	G14XPDF	G14ZPDH	2" NPT
ZMX-○105	750 (1275)	47.4 (1203)	32.8 (833)	21.65 (550)	74.5 (1892)	1197 (543)	G19XPDF	G19ZPDH	3" NPT
ZMX-○106	900 (1530)	54.0 (1372)	39.5 (1002)	21.65 (550)	74.5 (1892)	1404 (637)	G19XPDF	G19ZPDH	3" NPT
ZMX-○107	1050 (1785)	60.7 (1541)	46.1 (1171)	21.65 (550)	74.5 (1892)	1611 (731)	G19XPDF	G19ZPDH	3" NPT
ZMX-○108	1200 (2040)	67.3 (1710)	52.8 (1340)	21.65 (550)	74.5 (1892)	1818 (825)	G19XPDF	G19ZPDH	3" NPT
ZMX-○205	1500 (2549)	47.4 (1203)	32.8 (833)	21.65 (550)	74.5 (1892)	1197 (543)	G19XPDF	G19ZPDH	3" NPT
ZMX-○206	1800 (3059)	54.0 (1372)	39.5 (1002)	21.65 (550)	74.5 (1892)	1404 (637)	G19XPDF	G19ZPDH	3" NPT
ZMX-○207	2100 (3568)	60.7 (1541)	46.1 (1171)	21.65 (550)	74.5 (1892)	1611 (731)	G19XPDF	G19ZPDH	3" NPT
ZMX-○208	2400 (4078)	67.3 (1710)	52.8 (1340)	21.65 (550)	74.5 (1892)	1818 (825)	G19XPDF	G19ZPDH	3" NPT
ZMX-○306	2700 (4588)	54.0 (1372)	39.5 (1002)	21.65 (550)	74.5 (1892)	1404 (637)	G19XPDF	G19ZPDH	3" NPT
ZMX-○307	3150 (5352)	60.7 (1541)	46.1 (1171)	21.65 (550)	74.5 (1892)	1611 (731)	G19XPDF	G19ZPDH	3" NPT
ZMX-○308	3600 (6117)	67.3 (1710)	52.8 (1340)	21.65 (550)	74.5 (1892)	1818 (825)	G19XPDF	G19ZPDH	3" NPT
ZMX-○407	4200 (7136)	60.7 (1541)	46.1 (1171)	21.65 (550)	74.5 (1892)	1611 (731)	G19XPDF	G19ZPDH	3" NPT
ZMX-○408	4800 (8156)	67.3 (1710)	52.8 (1340)	21.65 (550)	74.5 (1892)	1818 (825)	G19XPDF	G19ZPDH	3" NPT

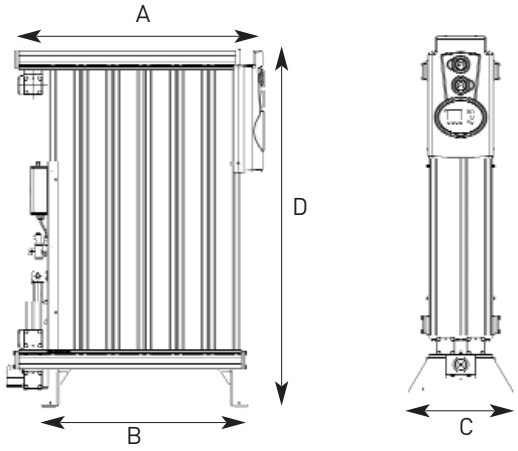
*Nominal flow rates @ 100 psi g (7 bar g). Referenced to 68°F (20°C) and 14.5 psi a (1 bar a).

	ecodry ZME Series	ecodryMAX
Dewpoint:	-40°F (-40°C) Standard -100°F (-70°C) Optional	-40°F (-40°C) Standard -4°F (-20°C) Optional -100°F (-70°C) Optional
Minimum Operating pressure:	58 psi g (4 bar g)	58 psi g (4 bar g)
Maximum Operating pressure:	189 psi g (13 bar g)	190 psi g (13 bar g)
Pipe connections:		2" to 3" NPT
Minimum inlet temperature:	41°F (5°C)	35°F (2°C)
Maximum inlet temperature:	122°F (50°C)	122°F (50°C)

ZME050
to ZME080



ZMX102c
to ZMX408



Technical Data

Flow correction factors

Temperature Correction Factor CFT

psi g	58	73	87	102	116	131	145	160	174	189	203	218	232
bar g	4	5	6	7	8	9	10	11	12	13	14	15	16
Factor	0.63	0.75	0.88	1.00	1.13	1.25	1.38	1.5	1.63	1.75	1.88	2.0	2.13

Pressure Correction Factor CFP

F	77	95	104	113	122
C	25	35	40	45	50
Factor	1.00	1.00	0.97	0.88	0.73

Dewpoint Correction Factor CFD

PDP	-4 (-20)	-40 (-40)	-94 (-70)
CFD	1.1	1	0.7

1. Select your correction factor for minimum pressure (CFP) to inlet of dryer. (Allow for system pressure losses when determining minimum operating pressure)
2. Select correction factor for maximum temperature (CFT) to inlet of dryer.
3. Select dewpoint correction factor (CFD) for required dewpoint.
4. Calculate drying capacity required following the example below.

$$\frac{\text{Inlet flow requirement}}{\text{CFT X CFP X CFD}} = \text{Minimum drying capacity requirements}$$

Using dryer capacity requirement, select dryer model from table, ensuring the dryer model selected is equal to or greater than your drying capacity requirement.

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