

inspired by  
technology



# Adsorption dryers



*ecodry*  
*KE-MT multitronic*



# Adsorption Dryer ecodry KE-MT multitronic

## The safe base...

ZANDER cold-regenerating adsorption dryers are based on a long-standing, well-proven design following a clear concept. Characteristic features of the KE-MT series adsorption dryers such as:

- stainless steel wedge wire screens on the wet side
- high quality desiccants
- separately activated main and exhaust valves
- generously dimensioned and tightly closing non-return valves, guarantee continuous operating safety with at the same time high reliability



The multitronic microprocessor control is the control centre of the KE-MT series adsorption dryers.

In connection with the ZHM 100 pressure dew-point sensor, it precisely and continuously detects the relevant operating and loading state of the desiccant.

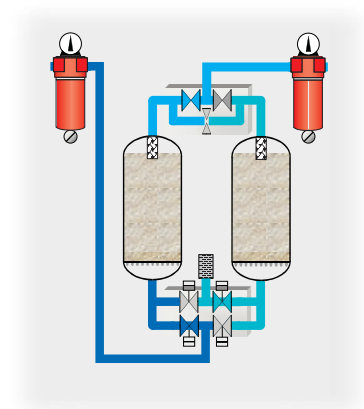
This is a prerequisite for the optimal utilisation of the available adsorber capacity with highest economic benefit.

The combination of a KE-MT series dryer with pre-and after-filters of the XP and ZP series of the "Advanced Technology" product line fulfils even very high requirements on the compressed air quality.

## ...adsorbs und regenerates...

During the adsorption the desiccant accumulates the moisture contained in the compressed air. ZANDER is using only desiccants of the molecular sieve type or similar adsorbents with high adsorption capacity. These desiccants are distinguished by a long service life even at high inlet temperatures and low pressure dew-points. Regeneration

is carried out in counterflow with respect to the adsorption flow direction. A partial flow of the dried compressed air is depressurised to atmospheric pressure and then passed through the desiccant bed which is to be regenerated. The moisture retained during the adsorption phase is removed with the partial flow of dry purge air.



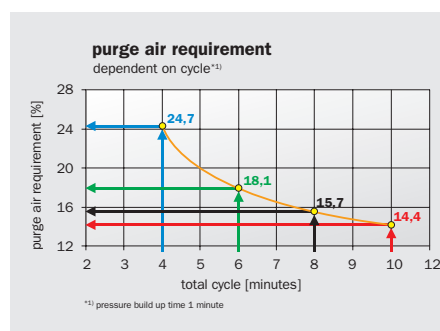
## ...in the ZANDER-10-minute-cycle

The regenerating air requirement of 14.3% for cold-regenerated adsorption dryers is based on:

Operating pressure 7 bar  
Inlet temperature 35°C  
Pressure dew-point -40°C

at a cycle of

- 5 minutes adsorption,
- 4 minutes desorption and
- 1 minute pressure build-up



The ZANDER 10-minute cycle with an adsorption time of 5 minutes leads to 12 load alternations per hour. The customary 6-minute cycle with an adsorption time of only 3 minutes requires 20 load alternations per hour. The consequence: ZANDER dryers save 5.6 % of regeneration energy.

## *multitronic, the control system...*

with trendsetting functions and modern design is in detail perfectly matched to the cold-regenerating adsorption dryers of the KE-MT series.

It allows the optimum adjustment of the dryer even in extremely difficult operating conditions. From permanently visible status indication to pressure dew-point control of the adsorption dryer with the multitronic system, the advantage for the operator is considerable.

The multitronic system, accommodated in a clearly designed,

readily accessible control cabinet, offers:

- a microprocessor controller for all ZANDER heatless dryers.
- flexible adjustment of the cycle times of up to 240 hours.
- a flow circuit with front LEDs for functions such as
  - operation
  - adsorption
  - desorption
- a selector switch for fixed cycles or variable cycles as synchronisation control with the compressor.



Possible options:

- direct pressure dew-point measurement including digital display
- potential free output for the pressure dew-point limit value
- setting of the pressure dew-point within the range of -25°C to -40°C.

## *...which pays off*

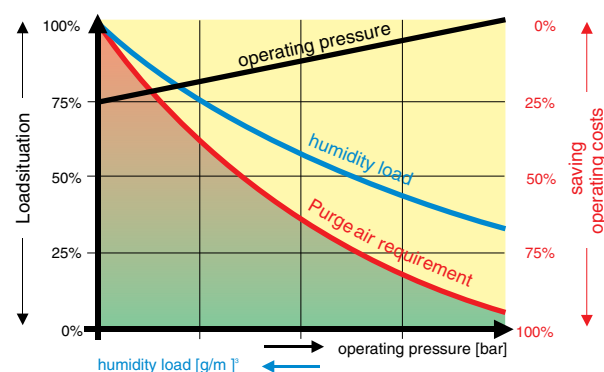
The load situation of adsorption dryers is constantly changing, depending on, among other things, pressure fluctuations and changing inlet temperatures with variable moisture load. In combination with the dew-point meter ZHM 100, the multitronic allows an efficient, dew-point dependent control even for smaller cold-regenerating adsorption dryers.

The multitronic continuously and automatically adjusts the individual dryer cycles to the respective load situation. The regeneration time is held constant, but the adsorption time is varied exactly proportional to the load situation. The signal "economy cycle" indicates:

This operating mode saves energy and considerably reduces the

operating costs. A special feature of the multitronic control system is the permanent alignment with respect to the set limit value - this function allows for additional reduction in power consumption. The advantage of this control technique: Only that amount of regeneration air is consumed which is actually needed.

It has to be observed, however, that changing the input value always has an effect on the output value. This means that the load situation at the dryer inlet in the long term influences the pressure dew-point at the dryer outlet. The limit value "pressure dew-point for switchover" can be set by the customer to any desired value in the range from -25°C to -40°C.



**multitronic,  
an investment  
which pays off.**

## Seen from close up...

the dehumidification of the compressed air for pressure dew points of  $-25^{\circ}\text{C}$  or higher is reserved to adsorption drying. Two vessels for adsorbent filled with desiccant are alternately adsorbed and regenerated at continuous operation.

All adsorption dryers are operating according to the same principle – there are, however, design details which make the difference and lead to an extraordinarily effective dryer operation.

The KE-MT series, for example, has on the inlet side of the adsorbers special self-cleaning wedge wire screen of stainless steel with water-separating effect, offering several advantages:



- The transition from the smaller pipe cross-section to the wider adsorber reduces the flow velocity
- the desiccant remains free from entrained condensate
- the stainless steel wedge wire screen guarantees a smooth compressed-air flow through the desiccant bed.

This ensures: only water vapour can get into the desiccant bed which at the same time increases the service life of the high-grade desiccant. The consequences of these design features: A compact design is able to provide a maximum drying capacity.

The vessels are manufactured according to the present state of the art and following the applicable European and international directives.

The KE-MT series adsorption dryers can optionally be supplied with special test and acceptance certificates, e.g. in accordance with ASME, China Stamp, ISPESEL, SdM and UDT.

## KEA-MT, unit with activated carbon stage...



its the ideal complement for the system. It is utilised whenever it is necessary to clean and dry the compressed air or to remove odorous substances. Adsorption dryers of the KE-MT series and activated carbon adsorbers of the AK series constitute a dependable preparation unit which can cope with extreme requirements where the compressed air must be dry as well as free from oil and odours. The constant high quality throughout the operating time is achieved with careful process engineering design.

Co-operation of the individual components such as the pre-fil-

ter of the XP series, KE-MT adsorption dryers, the activated carbon stage AK and the after-filter of the ZP series ensure maximum purity:

- residual moisture down to  $-70^{\circ}\text{C}$
- residual oil content up to  $0,003 \text{ mg/m}^3$

and are corresponding to highest quality grades according to DIN/ISO 8573-1. The preparation unit KEA-MT is predestined for utilisation in laboratory technology, in the foodstuffs industry, for pharmaceutical applications, in semiconductor production, in painting shops or within air conditioning systems.

# Based on: Quality

ZANDER has decisively contributed to the market trend for adsorption dryers.

The adsorption dryer KE-MT redefines the cost/benefit ratio: highest quality and safety with very reasonable operating costs.

# Adsorptionstrockner ecodry KE-MT multitronic

## 1 Vessel

Welded design in acc. with PED, minimum alternations of load 1,000,000 at max.  $\Delta p$   
**10 years continuous operation**

## 2 10-minute cycle

Only 12 load alternations per hour  
**= 5.6 % energy saving**

## 3 Adsorbers for wet areas

quiet zone due to stainless steel wedge wire screen protects the desiccant from accumulated moisture  
**i.e. longer service life**

## 4 Desiccants

Highly active desiccant ensures stable pressure dew-points of  $-25^{\circ}\text{C}$  up to  $-70^{\circ}\text{C}$ .  
**for high process safety**

## 5 Valve design

with directly controlled main and exhaust valves. Clearly defined valve positioning - even during standby operation. **Stability in all operating situations**

## 6 Regeneration unit

Passive presetting of the purge air. **Matching via multitronic control system**

## 7 multitronic

Microprocessor control system in clearly designed readily accessible housing  
**Adjustable pressure dew-point optionally possible**

## 8 Functional display

with LEDs on the covering:  
- Power  
- Adsorption  
- Regeneration  
- Economy cycle  
**permanently signalised status indication**

## 9 Load dependent control

as pressure dew-point control including digital display and potential free output, complete with dew-point sensor, measurement chamber and spiral  
**Reduction of the operating costs directly proportional to the partial load.**



# Technical data

Type	Capacity*) m³/h	Dimension mm			Connection	Pressure bar	Weight kg	Electr. Connection watts
		Width	Height	Depth				
KE-MT 10	105	670	1445	510	G 1	16	125	50
KE-MT 15	145	670	1690	515	G 1	16	143	50
KE-MT 20	200	670	1710	530	G 1	16	178	50
KE-MT 25	255	710	1770	535	G 1	16	218	50
KE-MT 35	350	841	1790	570	G 1½	16	252	50
KE-MT 45	420	841	1815	570	G 1½	16	286	50
KE-MT 60	620	841	1845	590	G 1½	16	375	50
KE-MT 75	750	1010	1980	610	G 2	16	430	50
KE-MT 95	940	1010	2000	630	G 2	16	505	50

KE-MT 10 - KE-MT 95 including pre- and afterfilter. KE-MT 10 - KE-MT 95 following PED 97/23EC Cat. IV

KE-MT 120	1200	1060	2080	840	50	10	640	50
KE-MT 150	1550	1270	2120	900	65	10	830	50
KE-MT 200	2000	1350	2160	990	65	10	955	50
KE-MT 250	2500	1530	2210	1040	80	10	1075	50
KE-MT 300	3000	1600	2255	1100	80	10	1500	50
KE-MT 380	3800	1875	2385	1200	100	10	1990	50
KE-MT 500	4850	1925	2660	1250	100	10	2410	50
KE-MT 600	6100	2160	2820	1565	125	10	2850	50

KE-MT 120 - KE-MT 600 excluding pre- and after-filter. KE-MT 120 - KE-MT 600 following PED 97/23EC Cat. IV

KEA-MT 10	105	870	1445	510	G 1	16	158	50
KEA-MT 15	145	870	1690	515	G 1	16	183	50
KEA-MT 20	200	1010	1710	530	G 1	16	235	50
KEA-MT 25	255	1075	1770	535	G 1	16	295	50
KEA-MT 35	350	1096	1790	570	G 1½	16	340	50
KEA-MT 45	420	1145	1815	570	G 1½	16	390	50
KEA-MT 60	620	1295	1845	590	G 1½	16	525	50
KEA-MT 75	750	1610	1980	610	G 2	16	570	50
KEA-MT 95	940	1650	2000	630	G 2	16	685	50

KEA-MT 10 - KEA-MT 95 including pre- and after-filter. KEA-MT 10 - KEA-MT 95 following PED 97/23EC Cat. IV

\*) referred to 1 bar (abs) and 20 °C.

## Conversion factor load / conversion factor temperature

Temperature °C	Pressure bar(g)											
	5	6	7	8	9	10	11	12	13	14	15	16
35	0,75	0,89	1,00	1,08	1,26	1,31	1,36	1,49	1,62	1,71	1,79	1,90
40	0,64	0,78	0,91	1,00	1,08	1,16	1,24	1,36	1,47	1,57	1,67	1,77
45	0,61	0,73	0,82	0,94	1,03	1,07	1,10	1,23	1,35	1,46	1,57	1,66
50	0,59	0,67	0,79	0,86	0,99	1,03	1,07	1,18	1,29	1,38	1,46	1,55

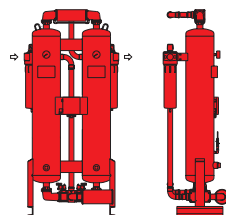
Operating pressure smaller than 5 bar (e) on request or alternatively heat-regenerating adsorption dryers. Higher inlet temperatures on request

### Design model

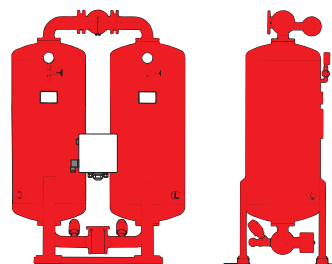
Compressed air is to be dried  
 flow 350 m³/h  
 operating pressure 9 bar(g)  
 inlettemperature 35 °C  
 pressure dew point -40 °C  
 dryer Capacity  $\frac{350}{1,26}$  278 m³/h

Selected: KE-MT 35

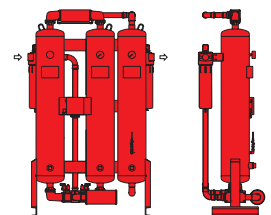
KE-MT 10-95



KE-MT 120-600



KEA-MT 10-95



Concerning all furnished data, we reserve the right to make alterations to the constructive design, dimensions and design.



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