

ecodry KA-MT 1-4

Efficient compressed air adsorption dryer
with final activated carbon purifier



KA-MT 1-4 heatless adsorption dryers with integral activated carbon purifiers are designed to dry industrial compressed air reliably and efficiently down to a pressure dew point of $-70\text{ }^{\circ}\text{C}$, whilst achieving a remaining oil content of $0,003\text{ mg/m}^3$. The units are constructed in a compact manner and designed to be free-standing or wall mounted. They are equipped with built-on pre- and after filtration and are sized for volumetric flows of up to $35\text{ m}^3/\text{h}$ (suction capacity of the compressor referring to a compression of 7 bar).

Compressed air first enters the validated GL pre-filter. Continuing on, the air flows into one of two twin-vessels (twin-chamber aluminium profiles); both filled with molecular sieve - a renowned drying-agent, where the air is dried. During the drying process, the second chamber undergoes regeneration: At the start of the drying-cycle, this chamber is open to atmosphere and a small proportion of dried compressed air passes through the adsorption bed, transporting the humidity out. When this procedure is complete, the chamber is re-pressurised in readiness to repeat the drying procedure. Continuous, uninterrupted operation is maintained utilising so-called pressure-swing technology together with individually operated main- and exhaust valves.



Dry compressed air then enters the integral activated carbon purifier stage, where oil-vapour and odour is reliably removed. Finally the clean, dry air exits via a validated GL after-filter preventing the migration of particles into the downstream compressed air network.

The KA-MT 1-4 adsorption dryer series operates a fixed, timed, changeover-cycle between the two dryer chambers. Where the application calls for a unit able to cope with variations in operating pressure and load, the installation of a dew point sensor at the

outlet of the dryer is available as an option: In such an operating mode, the changeover-cycle between chambers only takes place when required, and is dependent on the required dew point being achieved: Only on reaching this adjustable set-point does changeover to the pre-dried vessel occur. This feature enables the drying phase to be lengthened and thus avoids the unnecessary use of purge air for regeneration.

Compressed air can be selectively dried to meet a dew point of $-25\text{ }^{\circ}\text{C}$ up to $-70\text{ }^{\circ}\text{C}$.

Scope of supply:

Adsorption dryer - ready for installation, including GL pre- and after filters; available with dew point dependent switching (DDS) as an option.

Product Specification

ecodry KA-MT 1-4 air treatment package

Ordering – and performance data

| Model | Order No. | Volumetric flow ¹⁾ in m ³ /h | Nominal pipe size ²⁾ | Pre-filter | After-filter | Nominal Pressure in bar _e | Nominal Temp. °C |
|---------|----------------|--|---------------------------------|------------|--------------|--------------------------------------|------------------|
| KA-MT 1 | K1/16DA2-G230M | 8 | 1/4 | GL2XL | GL2ZLH | 16 | 50 |
| KA-MT 2 | K2/16DA2-G230M | 15 | 1/4 | GL2XL | GL2ZLH | 16 | 50 |
| KA-MT 3 | K3/16DA2-G230M | 25 | 1/4 | GL2XL | GL2ZLH | 16 | 50 |
| KA-MT 4 | K4/16DA2-G230M | 35 | 1/4 | GL2XL | GL2ZLH | 16 | 50 |

¹⁾ m³/h, referring to 1 bar_a and 20 °C at compressor suction capacity. Subsequently compressed to 7 bar_e and 35 °C inlet temperature to the dryer at 100 % relative humidity – for pressure dew points of -25 °C and -40 °C.

²⁾ In accordance with DIN ISO 228 (BSP-P); alternatively ANSI B 1.20.1 (NPT-F).

Operating range

| | |
|----------------------------------|---|
| Site selection | frost-free indoor installation in a non-hazardous environment |
| Ambient temperature | 1.5 to 50 °C |
| Compressed air inlet temperature | 25 to 50 °C |
| Operating pressure | 5 to 16 bar _e |
| Medium | Compressed air and gaseous nitrogen |

Optional dew point sensor ZHM100

| | |
|--|---|
| Pressure dew point at 7 bar _e | -40 °C ex-factory setting; adjustable via the menu from -25 to -70 °C in 5 deg.C. steps |
|--|---|

Electrical connections

| | |
|---------------------|-----------------------------|
| Mains voltage | 230 V, 50-60 Hz |
| Alternative voltage | 115 V, 50-60 Hz and 24 V DC |
| Protection class | IP65 |

Materials of construction

| | |
|------------------|---|
| Filters | See product-specification regarding GL filter ref: XL and GL filter ref: ZL |
| Pressure vessels | Normal steel, welded |
| Valve blocks | Aluminium |
| Seals | NBR |
| Dryer filling | 100 % Molecular sieve |
| Purifier filling | 100 % Activated carbon |

Pressure vessel approvals

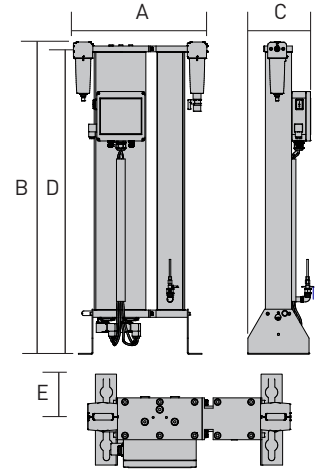
| | |
|-----|--|
| EU | Approval for fluid group 2 in accordance with the Pressure Equipment Directive 97/23/EC. Product range KA-MT1 to 2 in accordance with article 3, paragraph 3; product KA-MT3 in accordance with category I (module A). |
| USA | Approval to ASME VIII Div. 1 not required |
| AUS | Approval to AS1210 not required |
| GUS | TR (formerly GOST-R) |

Product Specification

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Dimensions (mm) and weight (kg)

| Model | A | B | C | D | E | Weight |
|---------|-----|------|-----|------|-----|--------|
| KA-MT 1 | 459 | 400 | 216 | 376 | 101 | 15 |
| KA-MT 2 | 459 | 575 | 216 | 551 | 101 | 20 |
| KA-MT 3 | 459 | 825 | 216 | 801 | 101 | 28 |
| KA-MT 4 | 459 | 1075 | 216 | 1051 | 101 | 35 |



Quality assurance

| | |
|-------------------------|-----------------------------------|
| Development/Manufacture | DIN EN ISO 9001, DIN EN ISO 14001 |
|-------------------------|-----------------------------------|

Correction factors (f) in accordance with the actual minimum operating pressure in bar_e

| For a pressure dew point from -25 °C to -40 °C | Inlet temperature to the dryer in °C | | | | | |
|--|--------------------------------------|------|------|------|------|------|
| | 25 | 30 | 35 | 40 | 45 | 50 |
| Minimum operating pressure in bar _e | | | | | | |
| 5 | 0.80 | 0.79 | 0.75 | 0.64 | 0.61 | 0.59 |
| 6 | 0.92 | 0.91 | 0.89 | 0.78 | 0.73 | 0.67 |
| 7 | 1.03 | 1.02 | 1.00 | 0.91 | 0.82 | 0.79 |
| 8 | 1.16 | 1.15 | 1.13 | 1.00 | 0.94 | 0.86 |
| 9 | 1.30 | 1.28 | 1.26 | 1.08 | 1.03 | 0.99 |
| 10 | 1.39 | 1.37 | 1.31 | 1.16 | 1.07 | 1.03 |
| 11 | 1.52 | 1.49 | 1.36 | 1.24 | 1.10 | 1.07 |
| 12 | 1.61 | 1.61 | 1.49 | 1.36 | 1.23 | 1.18 |
| 13 | 1.75 | 1.75 | 1.62 | 1.47 | 1.35 | 1.29 |
| 14 | 1.89 | 1.89 | 1.71 | 1.57 | 1.46 | 1.38 |
| 15 | 2.00 | 2.00 | 1.79 | 1.67 | 1.57 | 1.46 |

For a pressure dew point from -70 °C (at max. 35 °C inlet temperature, 100% relative humidity, continuous operation & with gas-tight piping)

0.53

Example: maximum inlet volumetric flow of 32 m³/h, at a minimum pressure of 8.3 bar_e and 35 °C inlet temperature:
 15 m³/h : 1.13 = 13.3 m³/h – suitable model KA-MT 2 for a pressure dew point of -25 °C or -40 °C;
 15 m³/h : 0.53 = 28.3 m³/h – suitable model KA-MT 4 for a pressure dew point of -70 °C.

Air quality classes, in accordance with ISO 8573-1:2010

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|-------------------------|---|
| Particulate | Class 2 |
| Humidity / (gaseous) | Class 2 and Class 1 (depending upon sizing and dew point setting) |
| Total oil contamination | Class 1 |

Product Specification

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Product key

| Series | Range* | Nominal pressure | Version | Generation | Connections* | Mains voltage* | Controls | Options* |
|---|--------|------------------|---------|------------|--------------|----------------|----------|----------|
| K | 1 - 4 | /16 | DA | 2 | - G | 230 | M | T |
| K | 1 - 4 | /16 | DA | 2 | - N | 115 | M | |
| K | 1 - 4 | /16 | DA | 2 | - G | 24D | M | |
| Examples | | | | | | | | |
| K | 3 | /16 | DA | 2 | - G | 230 | M | |
| KA-MT 3 standard version with G1/4" (BSP-P) connections, 230 V/50-60 Hz Multitronic -plus control | | | | | | | | |
| K | 3 | /16 | DA | 2 | - N | 115 | M | T |
| KA-MT 3 with NPT1/4i connections, 115 V/50-60 Hz Multitronic-plus control and dew point sensor ZHM100 | | | | | | | | |

* variable information

Service-kits: Kits for preventative maintenance

| Order No. | Suitability | Interval | Scope of supply |
|----------------|-------------|----------------|---|
| SKK1-K4/DA2/12 | KA-MT 1 - 4 | 12/36 month | Re-set module, silencer and filter elements |
| SKK1-K4/DA2/24 | KA-MT 1 - 4 | 24 month | Re-set module, wear part set for in-/outlet valves, silencer and filter elements |
| SKK1-K4/DA2/48 | KA-MT 1 - 4 | 48 month | Re-set module, wear part set for in-/outlet valves, solenoid-coils, non-return valves, Demister, perforated plate, perforated plate gaskets, silencer and filter elements |
| P02/ZR | KA-MT 1 - 4 | when necessary | Indicator-tube for oil-indicator OP01/18AK |

DESPACs: Amount of required desiccant packs for each model - for preventive maintenance after 12 and 48 months

| Maintenance interval | Order No. | KA-MT 1 | KA-MT 2 | KA-MT 3 | KA-MT 4 |
|----------------------|------------|---------|---------|---------|---------|
| 12 month | DESPAC3AK | 1 | 1 | 1 | 1 |
| | DESPAC10AK | | | | |
| 48 month | DESPAC1MS | 1 | | 1 | |
| | DESPAC4MS | | 1 | 1 | 2 |

Loose accessories

| Order No. | Description | Suitability | Order No. | Description | Suitability |
|----------------|---------------------------|-------------------|-----------------|-----------------------|-------------------|
| VASRGR/K1-K8 | Regeneration gas return | KA-MT 1 - KA-MT 4 | VASNOZ/K1-K95 | Nozzle kit | KA-MT 1 - KA-MT 4 |
| VASDPDP/K1-K95 | Dew point measurement | KA-MT 1 - KA-MT 4 | VASVPB/K1-K4/08 | Start-up device G1/4i | KA-MT 1 - KA-MT 4 |
| VASMBS420 | Signal duplicator 4-20 mA | KA-MT 1 - KA-MT 4 | VASFS3/K1-K4 | Fine filter muffler | KA-MT 1 - KA-MT 4 |

EMEA Product Information Centre

Free phone: 00 800 27 27 5374

(from AT, BE, CH, CZ, DE, DK, EE, ES, FI, FR, IE, IL, IS, IT, LU, MT, NL, NO, PL, PT, RU, SE, SK, UK, ZA)

US Product Information Centre

Toll-free number: 1-400-27 27 537

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