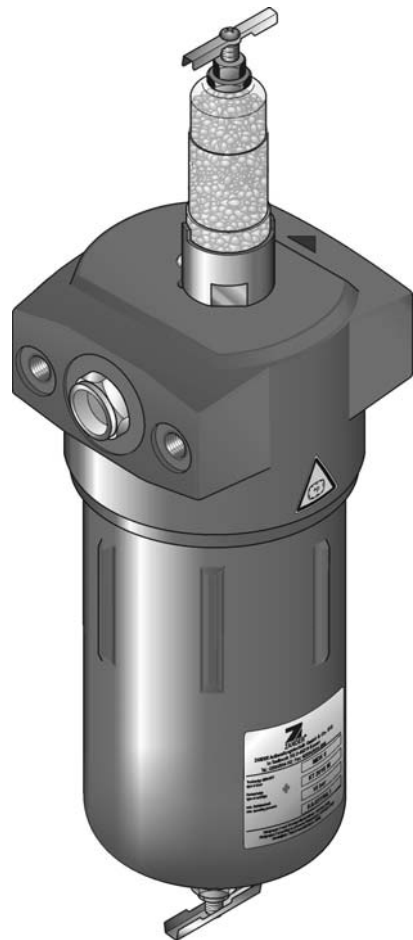


# Terminal Dryer

Mini-Dry MDK 6-15

16 bar



Operating Instructions

Revision 0 — 2006/EN

# Manufacturer Declaration

**Zander Aufbereitungstechnik GmbH**

**Im Teelbruch 118**

**D-45219 Essen**

declare under our sole responsibility that the products

**Compressed air terminal dryer**

**MDK 6-10**

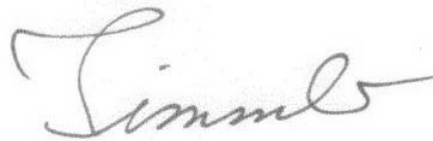
comply with the following standards and technical specifications:

- EN 1050
- 97/23/EG (DGRL)

Monitoring of the quality assurance system occurs by Lloyd's Register Quality Assurance GmbH, Hamburg (ID No. 0525).

**Essen,**

30.09.2009



**Datum / Date**

**i. V. Dr. Jürgen Timmler**

Leiter Technik und Entwicklung /  
Manager Engineering and Development

# Declaration of Conformity

**Zander Aufbereitungstechnik GmbH**

**Im Teelbruch 118**

**D-45219 Essen**

declare under our sole responsibility that the product

**Compressed air terminal dryer**

**MDK 15**

to which this declaration refers,

- complies with directive 98/37/EC and
- was subjected to the conformity assessment according to Appendix III, module A.

Monitoring of the quality assurance system occurs by *Lloyd's Register Quality Assurance GmbH, Hamburg* (ID No. 0525).

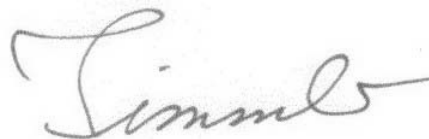
The following standards and technical specifications were applied:

- harmonised standards:
  - EN 292-1, EN 292-2,
  - EN 1050

**Essen,**

**30.09.2009**

**Datum / Date**



**i. V. Dr. Jürgen Timmler**  
Leiter Technik und Entwicklung /  
Manager Engineering and Development

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## General information

Terminal dryers of the Mini-Dry MDK series provide for dry compressed air directly at the consumer. The cartridge integrated in the dryer housing is filled with a drying agent. This highly hygroscopic substance removes the water vapour from the compressed air flowing through it. The flow direction through the cartridge is from bottom to top. A moisture indicator filled with gel beads is fitted on top of the dryer. A colour change of the beads indicates when the cartridge is saturated and must be replaced.

## Notes on these operating instructions

The present operating instructions contain all information required for safe and economic operation of the Mini-Dry MDK terminal dryer series.

These instructions are meant for specialists such as fitters whom we expect to have basic experience in handling pneumatic devices.

### Characters and symbols used

- ▶ Work steps that you have to carry out in the given sequence are marked with a triangle.
- Lists are marked by a small box.

#### Note:

**These notes provide tips for safer and more efficient handling of machines and units.**



#### Caution!

**These safety notes warn you of material damage and assist you in preventing them.**



### **Danger!**

**These danger notes with a grey background warn against personal injury and/or danger to life and limb; danger notes help you to avoid dangerous or life-threatening situations for yourself and/or third parties.**

## Notes on handling operating instructions

The operating instructions must be permanently available at the installation site of the terminal dryer. We recommend to make a photocopy and to store this copy in a readily accessible place near the terminal dryer. Please store the original in a safe place.

## Warranty notes

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In the following cases, the warranty shall be void:

- If the terminal dryer is not used in accordance with its intended use.
- If the terminal dryer is not serviced as specified in these operating instructions.
- If other than original spare parts are used.

## For your own safety

### Proper use

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The MDK terminal dryers described in the present instructions must be used for drying compressed air only. The technical data specified on the type plate must be observed and complied with. Any use other than with the data specified on the type plate is not permitted without prior release by the manufacturer and will be regarded as improper use.

### Particularly hazardous maloperation



#### **Hazard from drying of critical media!**

**Terminal dryers designed for compressed air must not be used for drying explosive, flammable or poisonous gases.**



#### **Explosion hazard when drying oxygen!**

**Never use the terminal dryers described herein to dry oxygen! The materials used for the terminal dryer are not oxygen-proof. The terminal dryer could explode or catch fire.**

**You need a special dryer if you wish to dry oxygen. Please contact the manufacturer for this purpose.**



#### **Hazard due to application in varnish-compatible plants!**

**The terminal dryers described here are varnish-incompatible. For this reason, application of the dryer in varnish-compatible environments can result in varnish flaws. For application in varnish-compatible environments you need a special dryer. Please contact the manufacturer for this purpose.**

## Safety notes

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#### **Hazard due to a sudden release of pressure!**

**Never remove any parts of the terminal dryer, or manipulate the same in any way, for as long as the terminal dryer is still pressurised! A sudden escape of pressure may cause serious injuries.**

**Before carrying out any work on the terminal dryer, first depressurise the terminal dryer.**



#### **Hazard caused by hot surfaces!**

**The media that flow through the terminal dryer can have a temperature of up to 80°.**

**Do not touch hot surfaces. Note the operating instructions issued by the operator.**



#### **Caution!**

**Functional wear debris can exit from the cartridge, contaminate the downstream compressed air network and thus degrade the quality of the compressed air.**

**You should therefore protect the downstream network by installing a downstream ZP fine filter.**

- **Make sure to heed the applicable national regulations for the prevention of accidents whenever you work on the dryer! The activities on the terminal dryer described in these operating instructions may be carried out by authorized, qualified and trained personnel only.**
- **A sudden pressure build-up can result in an increased wear and in the worst case damage the dryer. You should therefore prevent pressure spikes.**

## Notes on transportation and installation

- Always install terminal dryers where the compressed air is coolest.
- Install a type XP strainer filter to ensure a uniformly high air quality and a long service life.
- Never put a dryer into operation that was damaged during transport.
- Also heed the dead weight of the terminal dryer during installation and provide a support device if necessary. Construct the support device such that it can bear the weight of a terminal dryer completely filled with water.
- There must always be a direct connection to a safety device for maintaining the maximum working pressure and the permissible fluid temperature.

## Notes on terminal dryer operation

- Operate the terminal dryer according to the minimum and maximum operating conditions indicated on the type plate only.
- Changes or modifications to the terminal dryer are not permitted unless authorised by the manufacturer beforehand. Unauthorised changes will void the warranty coverage, negatively affect the operational safety and can result in damages or injuries.
- Prevent sudden pressure build-up and drop. Too fast pressure changes can damage the terminal dryer.
- The terminal dryer surfaces can become extremely hot during operation. Consider this and always take suitable measures when working on the terminal dryer.
- When using accessories with an external power supply, there is a hazard from electrical voltage. Perform work on electrical components only if the device is deenergised.

## Notes on maintenance

- Always maintain the prescribed service intervals. If these are not complied with, the terminal dryer may not function correctly and the manufacturer does not accept any liability whatever for any possible consequences.
- Repairs and maintenance should be carried out by specialist personnel only.

## Notes on disassembly and disposal

- The housings of terminal dryers and the cartridges may be contaminated by dried substances. You must therefore make sure to heed the safety data sheet for the fluid in question. Heed the statutory waste disposal regulations when disposing of any dryer components.

# Installing the terminal dryer

The terminal dryers are supplied in a ready to operate condition and can be installed directly into the pipe system. To prevent transport damage, any ordered options come separately packed. Install these accessories to the terminal dryer according to the respective enclosed instructions prior to commissioning.

## Requirements and preparatory activities

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- Always install the terminal dryer at the coldest point of the pipe system.
- Reserve sufficient space for cartridge exchange below the terminal dryer.
- A safety device for maintaining the maximum working pressure and the permissible fluid temperature must be available.
- Install a type XP strainer filter to ensure a uniformly high air quality and a long service life.
- Dust may escape from the cartridge. Protect the downstream compressed air network by installing a ZP filter.

## Installing and commissioning the terminal dryer

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### Caution!

**A reversed air flow through the cartridge can damage the cartridge.**

**Make sure the air always flows through the cartridge from bottom to top.**

- ▶ Depressurise the respective section in the pipe system.
- ▶ Check the terminal dryer for possible transport damage. Never install a damaged terminal dryer.
- ▶ Construct the terminal dryer mounting such that it can bear the weight of a terminal dryer completely filled with water. Provide a support device if necessary.
- ▶ The terminal dryer must always be fitted vertically. Heed the flow direction indicated by an arrow on the upper casing.
- ▶ Now install the terminal dryer in the pipe system.
- ▶ Slightly open the valve on the moisture indicator and leave it in this position to ensure a constant low air flow through the gel beads. Make sure the valve always remains slightly open during operation,
- ▶ Re-pressurize pipe section and check for leaks.



## Maintenance intervals and work



Before carrying out any work on the terminal dryer, first depressurise the terminal dryer.



**Hazard caused by hot surfaces!**

**Do not touch hot surfaces. Note the operating instructions issued by the operator.**

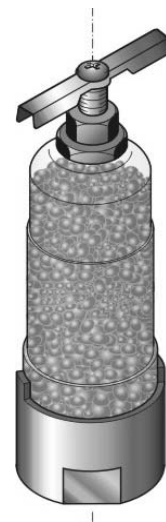
## Maintenance intervals

Component/series	Action	Maintenance interval	
		Daily	Determine in dependence of the load and by measuring
Moisture indicator	Check the gel beads' colour	•	
Cartridge	Renew cartridge		•
Moisture indicator	Renew gel beads in the moisture indicator		Concurrently with the cartridge renewal

## Monitoring the moisture indicator colour change

You can roughly determine the dew point by the gel beads' colour and thus a suitable moment for cartridge renewal.

As a rule, the following applies: orange indicates a good dewpoint while a colour change indicates a deterioration of the dewpoint.



Moisture indicator

Colour	approx. dewpoint [°C]
orange	- 25
transparent	+ 15

## Renewing the gel beads in the moisture indicator

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- ▶ Shut off the fluid flow into the terminal dryer.
- ▶ Depressurise the dryer housing. To do so, slowly open the manual drain valve.
- ▶ Unscrew the moisture indicator from the upper housing. To do so, turn the moisture indicator by 180°.
- ▶ Remove the seal and replace it by a new one.
- ▶ Separate the lower indicator casing from the upper casing by unscrewing it.
- ▶ Take out and clean the rubber foam pad. Empty the used gel beads into a container.
- ▶ Fill new gel beads into the upper casing and put the cleaned rubber foam pad on top.
- ▶ Assemble indicator bottom and top casings again and screw together.
- ▶ Place a new seal onto the thread of the upper casing.
- ▶ Turn the indicator by 180° and screw it into the upper casing.
- ▶ Carefully pressurise the terminal dryer again.

## Renewing the cartridge

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**Before carrying out any work on the terminal dryer, first depressurise the terminal dryer.**



**Risk due to incorrect flow direction!**

**Make sure the air always flows through the cartridge from bottom to top.**

Renew the cartridge as soon as the gel beads turn from orange to transparent.

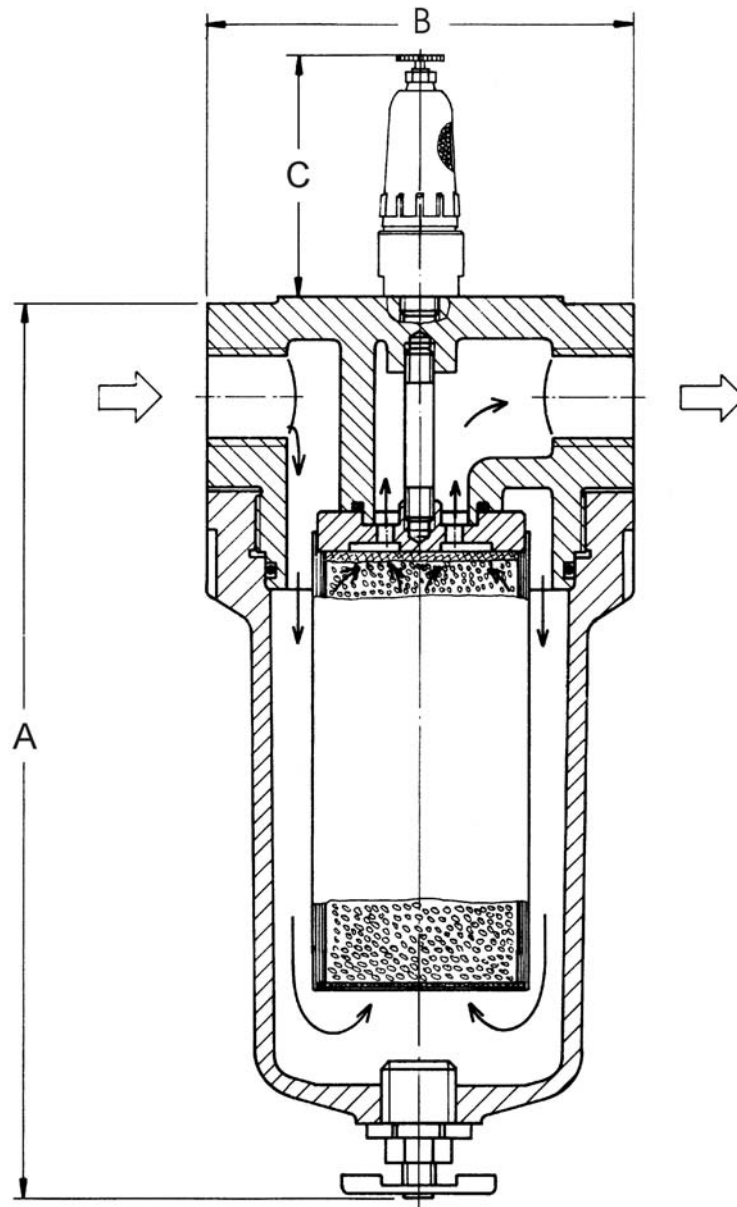
- ▶ Shut off the fluid flow into the terminal dryer.
- ▶ Depressurise the housing. To do so, slowly open the manual drain valve and wait until the pressure has escaped.
- ▶ Loosen and remove the lower casing.
- ▶ Loosen and remove the cartridge.
- ▶ Fit a new O-ring to the new cartridge and screw the cartridge back into the upper casing. Make sure the O-ring is correctly seated.
- ▶ Apply a thin coat of petroleum jelly on the casing parts' acme thread.
- ▶ Screw the lower casing into the upper casing by hand again.
- ▶ Then turn back the lower casing by 30°. This will make it possible to easily open the lower casing even after a longer time with frequent pressure changes.
- ▶ Close the manual drain valve.
- ▶ Check the casing for leaks.

# Technical data and drawings

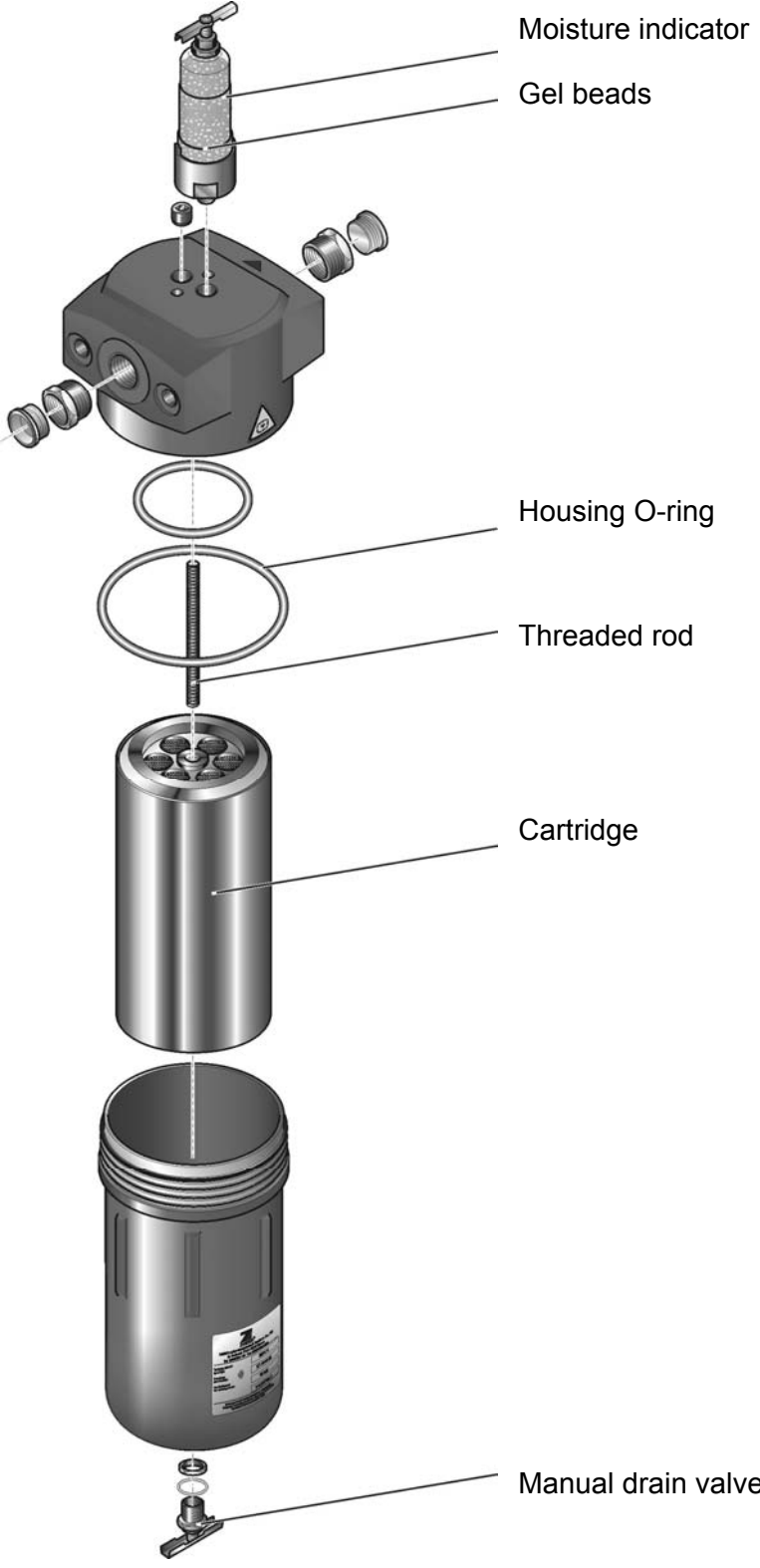
## Technical data

Type	Capacity*	Approx. volume	Port	Dimensions [mm]			Weight	Cartridge
				A	B	C		
MDK 6	0.5	29	1/2"	310	140	105	5.0	KT 2016 M
MDK 10	1.0	64	1/2"	510	140	105	7.3	KT 2033 M
MDK 15	1.5	105	1/2"	710	140	105	9.5	KT 2053 M

max. positive operating pressure = 16 bar  
 \* related to 1 bar abs. and 20 °C at 7 bar positive operating pressure



# Exploded view



## Spare parts and optional accessories

### Spare parts list for MDK 6 – 15

Designation	Spare part acc. to size	Article number/type
Moisture indicator ZI-1	for all sizes	799410000001
Gel beads for moisture indicator ZI-1	for all sizes	675050000003
Housing O-ring	MDK 6	671000010440
	MDK 10	671000010440
	MDK 15	671000010440
Threaded rod	MDK 6	737100006002
	MDK 10	737100006002
	MDK 15	737100006002
Cartridge	MDK 6	KT 2016 M
	MDK 10	KT 2033 M
	MDK 15	KT 2053 M
Manual drain valve HV01	for all sizes	632100000001

### Accessories

The following accessories are available for series MDK terminal dryers:

- Wall holder





# Manufacturer

## Name and address

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