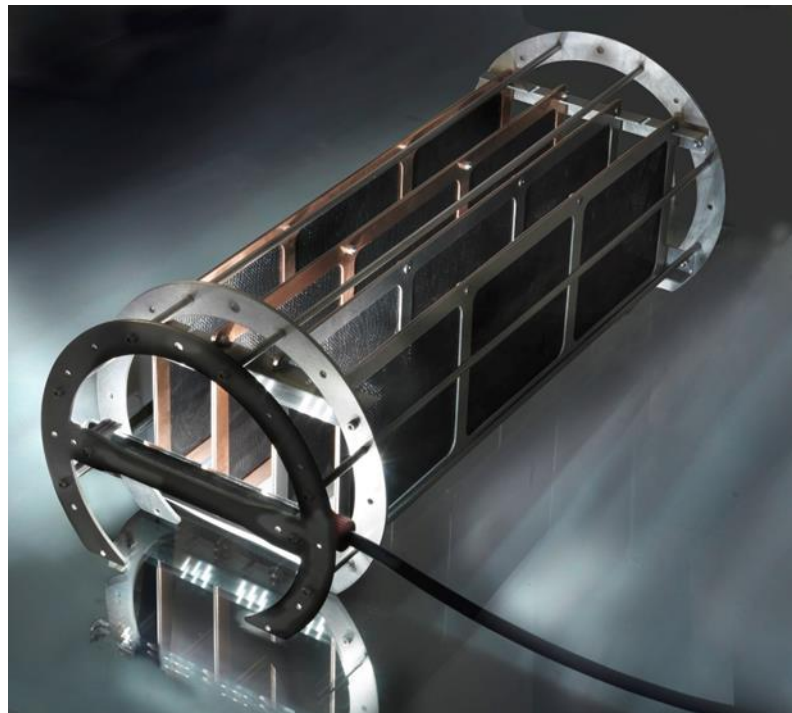


Operating and Maintenance Manual

MOL[®]LIK module

	Type
<input type="checkbox"/>	MOLLIK-M __ __



**Read and keep this operating and maintenance manual carefully!
Warranty and guarantee claims require demonstrable compliance
with the instructions contained in this manual!**

Revision	4
Valid from	18.10.2016
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1 General

1.1 Structure of the documentation

In this documentation the user will find all important information of the specified MOL[®]LIK module:

- Safety instructions
- Instructions on commissioning, handling and maintenance
- Technical data

If you would like more information or should any problems occur that are not covered by this operating and maintenance manual, then please request the missing information directly to MOL Katalysatortechnik GmbH.

1.2 Information on the formal layout of this manual

- Listing and action steps are marked by a “•”.
- References are indicated by “⇒”.
- Highlighting is used to draw particular attention.

1.3 Warranty

The warranty is only accepted when

- The MOL[®]LIK-module is used in accordance with the information contained in this operating and maintenance manual,
- The MOL[®]LIK-module is handled correctly,
- Repairs are carried out exclusively by authorized personnel,
- Only original spare parts or spare parts recommended by MOL Katalysatortechnik GmbH are used for repairs,
- No unauthorized changes are made to the MOL[®]LIK-module.

Excluded from warranty are the typical wear and tear parts i.e., all movable parts, seals, lamps, etc.

2 General safety instructions

2.1 Duty of the operator to exercise due care

The MOL[®]LIK-module has been designed and built under careful consideration of the applicable harmonized standards and technical specifications. It reflects state-of-the-art technology and ensures the maximum amount of safety.

However, the safety of the device can only be achieved in practice if all necessary measures are taken. It is the operator's duty of care to plan these measures and check their implementation.

In particular, the operator must ensure that

- The MOL[®]LIK-module is used as intended,
- The MOL[®]LIK-module is only operated in a faultless, functional condition and in particular that the safety installations are regularly checked for their functionality,
- The required personal protective equipment (PPE) is available for operating, maintenance and repair personnel to wear (and its use must be ensured),
- This operating and maintenance manual is always available in a legible and complete way near the place of installation of the device,
- Only qualified and authorized personnel may operate, maintain and repair the device,
- The staff are regularly instructed in all relevant aspects of occupational safety and environmental protection, and are familiar with the instructions and the safety information contained in this operating and maintenance manual,
- Any modifications to the device may only be made by authorized and qualified personnel.

2.2 Safety information and symbols used

Practical safety instructions are given in this operating and maintenance manual to indicate possible risks when operating the MOL®LIK-module.

These residual risks include hazards to

- People
- MOL®LIK-module
- The environment

The following symbols are primarily intended to draw attention to the safety instructions!



This symbol indicates that particular danger to personnel is likely. (Danger to life and danger of injury)



This symbol indicates that particular danger to device, material and environment is likely.



This symbol indicates information. It does not identify any safety instructions.

2.3 Safety measures during normal operation

The device may only be operated by trained and authorized persons.

Before commissioning the device, check for signs of visible damage and make sure that it will only be operated in a faultless condition! Immediately report any deficiencies found to the person responsible!

Before commissioning the device, remove any material or items from the working area of the device that are not required for operation!

Before commissioning the device, check and make sure that all safety devices are working properly!



In case one of the following circumstances occurs, the device has to be inspected by authorized maintenance staff:

- The MOL[®]LIK module is not working properly, even though the operating and maintenance instructions have been followed.
- The MOL[®]LIK module has been damaged.
- The accessories (optional) exhibit obvious signs of damage.

2.4 Maintenance, repair and cleaning work



Maintenance and repair work must only be carried out by trained personnel!

Shut down the system before performing any maintenance and repair work on the MOL[®]LIK-module!

Before recommissioning after maintenance and repair works:

- Make sure that the MOL[®]LIK-module and/or any other components which was removed (e.g. the lighting unit) are re-installed and correctly positioned.
- Check that any screw connections are tightened properly.

After completing any maintenance or repair work and before resuming production, make sure that

- All the materials, tools and other equipment needed for the execution of any maintenance or repair work have been removed from the working area of the system,
- Any leaking liquids have been removed.
- All the system's safety installations function properly!



Do not insert any objects into the interspaces of the MOL[®]LIK module, this may damage the catalyst module.

You may be injured if you insert your fingers into the interspaces of the MOL[®]LIK module.



Do not use a high pressure washer to clean the MOL[®]LIK module.

2.5 Dangers arising if the safety instructions are not observed

Non-observance of these safety instructions can result in danger to persons, material and environment. If these safety instructions are not observed, any claim for damages may become void.

3 Product description

3.1 Designated use

The MOL[®]LIK technology is used for chemical-free water treatment and serves to keep a high functionality and quality in the water system. The main areas of application include, for example:

- Closed and open cooling water circuits in conjunction with suitable filtering technology.
- Process water circuits with upstream filter technology.

It is forbidden to use the MOL[®]LIK technology in systems for drinking water supply. In special cases, upon agreement with the producer MOL Katalysatortechnik GmbH, this interdiction may be waived. Exceptions may vary from country to country.



We recommend installation by a specialist company.



Any other use or any use beyond what is specified is deemed to be not the intended purpose.

The manufacturer or supplier does not accept any liability for damage resulting from such use. The risk is borne entirely by the user/operator.

The regulations and directions provided in this operating and maintenance manual and those locally applicable must be strictly complied with.

The manufacturer assumes no liability for damage caused by non-observance of this operating and maintenance manual and the other applicable regulations and by improper use.

3.2 Technical data

Parameter	Value
Max. operating temperature	+90°C
Ambient temperature (min. / max.)	+5°C to +40°C
Operating pressure	0 - 10 bar

Module type	Ø Diameter x length (mm)	Weight (kg)
MOLLIK-M 75 xxxx	Ø 180 x 350	2.0/2.0
MOLLIK-M 100L xxxx	Ø 180 x 560	2.7/2.7
MOLLIK-M 150L xxxx	Ø 180 x 560	3.1/3.1
MOLLIK-M 100 xxxx	Ø 250 x 350	3.6/3.6
MOLLIK-M 150 xxxx	Ø 250 x 350	3.9/3.9
MOLLIK-M 225 xxxx	Ø 250 x 600	4.2/4.2
MOLLIK-M 300 xxxx	Ø 250 x 600	4.7/4.7/4.8
MOLLIK-M 600 xxxx	Ø 370 x 600	10.5/10.5/10.7

4 Transport

4.1 Transport



- The MOL[®]LIK module has to be transported carefully, do not throw it!
- The storage location must be dry and dust-free.
- Adhere to the permissible ambient temperatures!

When moving the MOL[®]LIK module, use suitable means of transportation in order to rule out any transport damage.

The entire shipment should be checked for completeness and transport damage immediately on arrival. Transport damage must be reported to the supplier immediately.

Do not drop the MOL[®]LIK module and the control unit (optional) supplied. To avoid damage, protect the MOL[®]LIK module from impact or shocks.

4.2 Content of the shipment

- MOL[®]LIK module(s)
- Operating and maintenance manual
- Optional: MOL[®]LIK LED control unit

4.3 Storage



Do not store and use the MOL[®]LIK module at temperatures over 40°C or below 5°C, which may damage the MOL[®]LIK module.

The MOL[®]LIK module can be stored for a period of several months if the storage conditions are complied with.

5 Installation



- Assembly must be performed according to the MOL Katalysatortechnik GmbH documentation and by qualified personnel in accordance with DIN, VDE or locally valid specifications
- The user must ensure that the MOL[®]LIK module is assembled and installed in such a way that their safe use (and maintenance) is not affected.

The module is suitable for use in non-pressurized vessels. Appropriately, certified catalyst modules are available for use in pressure vessels. The use of appropriate upstream filter technology has been proven to minimize the cleaning time on the catalyst module.

The module is inserted in the fluidic stabilized (non-turbulent) area - but with a good streamflow - and optionally secured with a safety chain.

The area above the installation site should be kept clear for installation purposes and for maintenance works on system equipment (e.g. pipes, air ducts, etc.) or attention must be given to provide sufficient spacing for this system equipment.

This installation site should be easily accessible.

6 Commissioning



In order to avoid faults and damage, please read all the instructions (including the instructions of the component suppliers) prior to commissioning of the system!



The system may only be started up for the first time by an authorized employee or service technician from MOL Katalysatortechnik GmbH.

Before each initial commissioning, the operating staff must make sure that a safe commissioning is possible, and that no one can be injured in the process. All fittings and fastenings must be checked to see whether they are tightened securely!

6.1 Checks prior to commissioning:



The following points must first be ensured before commissioning the system:

- The minimum and maximum values for the operating pressure and operating temperature must be complied with (⇒ Point 3.2 “Technical data”).

The following additional conditions must be met:

- The MOL®LIK module has been correctly and completely installed and commissioned.
- The MOL®LIK module is completely covered with water.
- The MOL®LIK module is securely fixed and is placed in a location characterized by a good water flow.
- A function test has been carried out on the system with water.
- The environmental conditions conform to the specifications.
- The operating staff must be trained on all parts of the system and be aware of the structure, function, operation and maintenance of the system.
- All devices, fixtures and fittings are ready for use and are in operating condition.
- The supply of raw water is ensured, in accordance with the specification.
- The quality of the raw water conforms to the specification and water analysis.

6.2 Basic settings



Before commissioning the system, the basic settings must be made and the values entered in the list of operating parameters. The basic settings will be carried out for you by a service technician of MOL Katalysatortechnik GmbH.

These values are optimized following commissioning.

6.3 Shutting-down of the system in normal situation



The system must be shut down for maintenance or repair work.

6.4 Restart after maintenance or repair



Before each initial start-up, the operating staff must make sure that a safe start-up is possible, and that no one can be injured in the process.

All fittings and fastenings must be checked to see whether they are tightened securely!

(⇒ Point 6.1 “Checks prior to commissioning”)

7 Operation

7.1 Required operating conditions

The water flow and thus the treatment rate of the system depend on the raw water quality and the capacity of the system. In any case, the specifications for the operating pressure and operating temperature must be adhered to.



The maximum values for the operating pressure and the operating temperature must not be exceeded.

Maximum operating pressure: 0 - 10 bar

Maximum operating temperature: 90 °C

7.2 Operating the system

The operation of the system must comply with the operating instructions and maintenance manual from MOL Katalysatortechnik, as well as the documentation of the component suppliers. The system must be regularly checked and maintained (⇒ Point 8 “Maintenance”).



The system must be only operated by trained and authorized personnel. Comprehensive knowledge of the system and all its individual components, as well as knowledge of operation and maintenance are essential.

If an unauthorized modification to the system is carried out without consultation with MOL Katalysatortechnik GmbH, this is performed at the operator's own risk.

The prescribed and required water quality must be ensured solely by the operator of the system. The use of pre-treated water is only possible if the water quality requirements have been met.

7.3 Faults

Possible faults, their causes and their remedies: ⇒ See point 8.3.

8 Maintenance



- Use only original spare parts!
- Always stop the water flow before parts are loosened or removed!
- Switch off the system if electrical components or assemblies are touched or removed!

8.1 Maintenance and cleaning intervals



We recommend to sign a maintenance contract with MOL Katalysatortechnik GmbH and have the system checked annually by the customer service.

8.2 Maintenance and inspection



Operating the system with damaged parts may endanger the operating personnel and cause further damage to the system.

Replace damaged parts immediately!



We recommend to write an operation log, where all relevant data are entered at specified intervals.

8.3 Maintenance and inspection intervals

Parameter	Recommended Interval	Target value/target condition
Check of the equipment	Daily	Check of the water level The MOL[®]LIK module must be completely covered by water.
Control the circulating water for detached deposits.	Weekly	Detached deposits must be removed from the circulating water <ul style="list-style-type: none"> • If necessary, partially replace the water.
Check of the MOL [®] LIK module for possible deposits.	Weekly	Such deposits can reduce the MOL [®] LIK-effect. <ul style="list-style-type: none"> • If necessary, remove these deposits with a soft brush
Functional check by an authorized service technician.	Annually	



In case errors or faults occur, the operator of the system must notify MOL Katalysatortechnik GmbH. The operator is obliged to take every necessary step to prevent any damage or the shutdown of the system.

9 Spare parts

Order spare parts and operating equipment directly from MOL Katalysatortechnik:

MOL Katalysatortechnik GmbH
Leunastraße 6
06258 Schkopau
Germany
Tel.: +49 (0) 3461 / 72 30 97
info@molkat.de

10 Standards and regulations

The following standards and regulations have been applied in developing and producing the device and when drawing up the operating and maintenance manual. The country-specific standards can differ in detail. Compliance with applicable country-specific standards is up to the user.

Table: Standards

DIN 19643	Wasseraufbereitung von Schwimmbeckenwasser
DIN EN 292, Teil 1 + 2	Sicherheit von Maschinen – Grundbegriffe, allgemeine Gestaltungsleitsätze
DIN EN 60204, Teil 1	Sicherheit von Maschinen – Elektrische Ausrüstung von Maschinen Teil 1: Allgemeine Anforderungen
DIN ISO 6394	Geräuschmessung an Maschinen

Table: Regulations

Trinkwasserverordnung	
VBG 125	Sicherheitskennzeichnung am Arbeitsplatz

11 Appendix

MOL Katalysatortechnik GmbH – Fritz Haber Straße 9 – D-06217 Merseburg – info@molkat.de

EG-Konformitätserklärung


Konformitätserklärung des Herstellers über Fertigung und Prüfung

EC Declaration of Conformity

Manufacturer's declaration of conformity on Manufacture and testing

Der unterzeichnende Hersteller bescheinigt hiermit, dass das Produkt (siehe unten) nach den grundlegenden Anforderungen der Niederspannungsrichtlinie hergestellt und geprüft worden ist. Der Unterzeichner bestätigt ferner, dass das Produkt den einschlägigen grundlegenden Sicherheit- und Gesundheitsanforderungen der EG-Richtlinie entspricht. Bei einer nicht mit uns abgestimmten Änderung des Produktes verliert diese Erklärung ihre Gültigkeit.

The signing manufacturer certifies that the product (see below) has been manufactured and tested in accordance with the essential requirements of the Machinery Directive. The undersigned further certifies that the product complies with the essential Safety and health requirements of the EC Directive. Any unauthorized alteration of the product with us this declaration becomes invalid.

Bezeichnung und Benennung/ Description and designation	MOL®LIK-Modul
Benennung/ Description:	MOL®LIK-M... RT, RC, RS, LRS, LRC MOL®LIK-B... RT, RC, RS MOL®LIK-H... RT, RC, RS
Seriennummer/ serial N°:	siehe Typenschild (name plate) am Steuergerät (Controller)
Einschlägige Richtlinien/ Relevant guidelines	EG - Niederspannungsrichtlinie (2006/95/EG) EG - EMV-Richtlinie (2004/108/EG)
Harmonisierte Normen/ Harmonized standards	DIN VDE 0100 410/470 DIN VDE 0620, 0207, 0712, 0105, 0701, 0702
Hygiene – Konformitätsprüfung/ Hygiene conformity test	VDI 6022, Blatt 1 (07/2011) SWKI VA 104-01 (04/2006) Reg. Nr. HKP 03/14 - 01(ILH Berlin)
Das Unternehmen ist zertifiziert/ The Company is certified	ISO 9001:2008 (Reg.-Nr.: 01 100 005111) ISO 14001:2004 (Reg.-Nr.: 01 104 042133) (TÜV Rheinland Cert GmbH).
Datum / Hersteller-Unterschrift: Date / Signature on Manufacture	30.11.2015 (Geschäftsführer / Managing Director) Dr. Jürgen Koppe 

Certificate

TÜV Rheinland Cert GmbH certifies the implementation
and application of a management system

Standard **ISO 9001:2008**

Certificate Registr. 01 100 005111

Certificate Holder: **MOL Katalysatortechnik GmbH**
Fritz-Haber-Str. 9
06217 Merseburg

Scope: development, production and sale of solid metal catalysts
and solid metal solar foils and technologies based on this,
installation and service

An audit was performed, Report No. 042133.
Proof has been furnished that the requirements
according to ISO 9001:2008 are fulfilled.

The due date for all future audits is 11.04.

Validity: The certificate is valid from 13.05.2013 until 12.05.2016
Fist certification 2001

25.04.2013


TÜV Rheinland Cert GmbH
Am Grauen Stein · 51105 Köln



DGA-ZM-58-95-00

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Precisely Right.

Certificate

**TÜV Rheinland Cert GmbH certifies the implementation
and application of a management system**

Standard **ISO 14001:2004**

Certificate Registr. 01 104 042133

Certificate Holder: **MOL Katalysatortechnik GmbH**
Fritz-Haber-Str. 9
06217 Merseburg

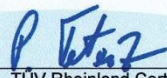
Scope: development, production and sale of solid metal catalysts
and solid metal solar foils and technologies based on this,
installation and service

An audit was performed, Report No. 042133.
Proof has been furnished that the requirements
according to ISO 14001:2004 are fulfilled.

The due date for all future audits is 11.04.

Validity: The certificate is valid from 13.05.2013 until 12.05.2016
Fist certification 2004

25.04.2013


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