

# Startup and operation of the laser marking system TOPMARK NEO

Original operating instructions



# Original operating instructions

## Startup and operation of the laser marking system

### TOPMARK NEO

UM EN TOPMARK NEO, Revision 01

2018-07-18

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This user manual is valid for:

Designation	Revision	Order No.
TOPMARK NEO		1012015
TOPMARK NEO SET		1012018

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# 1 For your safety

Read these instructions for use carefully and keep it for future reference.

## 1.1 Identification of warning notes



This symbol indicates hazards that could lead to personal injury.

There are three signal words indicating the severity of a potential injury.

### **DANGER**

Indicates a hazard with a high risk level. If this hazardous situation is not avoided, it will result in death or serious injury.

### **WARNING**

Indicates a hazard with a medium risk level. If this hazardous situation is not avoided, it could result in death or serious injury.

### **CAUTION**

Indicates a hazard with a low risk level. If this hazardous situation is not avoided, it could result in minor or moderate injury.



This symbol together with the **NOTE** signal word warns the reader of actions that might cause property damage or a malfunction.



Here you will find additional information or detailed sources of information.

## 1.2 Requirements for the operating personnel

The operator of this device must ensure that the user has read and understood this operation manual.

The operator of this device is obligated to comply with relevant safety guidelines and standards. Do not perform any cleaning or maintenance work that extends beyond the steps described here.

Only Phoenix Contact or personnel authorized and qualified by Phoenix Contact may carry out further work. This applies in particular for work that involves removal of housing parts and covers.

## 1.3 Field of application

The TOPMARK NEO laser marker is only suitable for marking material from Phoenix Contact. The material must be authorized for marking with the TOPMARK NEO. LS, UCT and UM material from Phoenix Contact is suitable for marking. You may only mark complete UCT and UM material.

Using other materials may damage the device. If unauthorized materials are used, there is risk of combustion.

You can operate the TOPMARK NEO using the accompanying marking software or via the control panel.

You must always operate the TOPMARK NEO with a suitable extraction system for drawing in particles and gas residues. Any other or additional use is not intended.

The device is state-of-the-art and complies with recognized safety-related rules and regulations. Despite this, risk of injury or death could occur for users or third parties, and the device or other property could be damaged while operating the system.

You may only use the device while in proper working order and only for the intended purpose. Users must act safely, be aware of potential dangers, and comply with these operating instructions. Do not make changes to the device.

Monitor the device during the marking process so that you can press the EMERGENCY STOP button if a malfunction occurs.

Do not tamper with the safety equipment. Bridging safety circuits can have serious consequences.

The operator of the device must ensure that the maintenance recommendations and requirements specified by Phoenix Contact are observed and followed.

## 1.4 Safety notes

### Hazards to health and the environment due to byproducts of laser machining

Machining with lasers can generate byproducts that are hazardous to health and the environment. These can be carcinogenic and harmful to the lungs. This applies in particular for byproducts when using lasers to mark LS material.

Always operate the TOPMARK NEO with a properly installed extraction system. You can acquire this from Phoenix Contact separately or in a set together with the TOPMARK NEO. In this case, always read the instructions for use accompanying the extraction system prior to installation as well as the safety notes in these instructions.

Always operate the TOPMARK NEO with a properly installed extraction system. If you wish to install a different extraction system, a bypass plug is available.

During cleaning and maintenance work, wear disposable polypropylene gloves and a class 3 respirator. Use a suitable extraction system when cleaning the processing area.

### Life-threatening danger from mains voltage

There is life-threatening voltage present inside the housing. Therefore, do not remove housing elements or covers. You are only permitted to open the cover over the processing area because there are no hazardous voltages there.

### Electrical safety

The TOPMARK NEO is designed for power grids with an AC mains voltage according to the rating plate. Only connect the device to sockets with a ground conductor contact.

Switch off the device before connecting or disconnecting it from other systems (such as extraction system or computer). Only connect the device to interfaces that carry a safety extra-low voltage (SELV).

Disconnect the TOPMARK NEO completely from the mains before carrying out maintenance work. Never operate the device if components are damaged or if covers are open.

Also observe the general work regulations, regulations for electrical safety as well as the local regulations at the installation site.

The device is equipped with an EMERGENCY STOP button. When you press the button, the power supply to the laser and controller is interrupted.

### Laser safety

During operation as intended, the device meets the requirements for class 1 lasers according to DIN EN 60825-1. The accessible laser radiation is not dangerous under reasonably foreseeable conditions.

Within the housing there is a hazard due to class 4 laser radiation. The laser beam is invisible and only becomes visible when smoke develops. It is very dangerous for the eyes and skin. Even scattered or invisible radiation can be dangerous. The laser radiation can pose fire and explosion hazards.

Do not operate the device with the housing elements or covers damaged. Do not remove the housing elements or covers. You are only permitted to open the cover over the processing area because laser radiation cannot be emitted when the processing area is open.

Do not carry out repairs or adjustments when the laser is switched on. These may only be performed in the presence of a laser safety officer.

The possibility exists that the laser safety pane could break. Therefore monitor the device during the marking process so that you can press the EMERGENCY STOP button if a malfunction occurs.

**The operator of the laser unit is responsible for ensuring compliance with the safety measures.** Further information, accident prevention regulations, and operating instructions for all laser protection classes can be found in the applicable directives.

You must always operate the laser marker with a suitable extraction system for drawing in particles and gas residues. Any other or additional use is not intended.

### Radio interference

This is a Class A item of equipment (EN 55022). When using the equipment in residential areas, it may cause radio interference. In this case, the operator is obligated to implement appropriate measures.

## 1.5 Shutdown and disposal

### Shutdown

In order to shut down the TOPMARK NEO, disconnect it from the mains power supply and all other devices, and secure it against unauthorized start-up.

### Storage

For storage, observe the general storage conditions and store the device in the original packaging. The original packaging can be ordered from Phoenix Contact. Ordering data can be found on [Page 34](#).

### Disposal

Machining with lasers can generate byproducts that are hazardous to health and the environment. These can be carcinogenic and harmful to the lungs. Surfaces or modules that have been contaminated with these harmful substances have to be cleaned by qualified personnel or disposed of separately at suitable collection points according to legal regulations.

Used devices contain valuable recyclable materials, which should be utilized. The modular design means that the device can be disassembled into its component parts. Dispose of the decontaminated used device via appropriate collection sites.



## 1.6 Meaning of the safety symbols

On the device, various safety symbols inform the user of hazards.

To ensure that the user is alerted to potential hazards, never remove, damage or cover the safety symbols.

The device is delivered with a sticker in English affixed to the back. Stickers in other languages are enclosed. **Failing to affix a sticker in the relevant national language voids the device's operating permit. The operating company is obliged to affix a sticker in the relevant national language (included in the scope of delivery) beside the English sticker.**

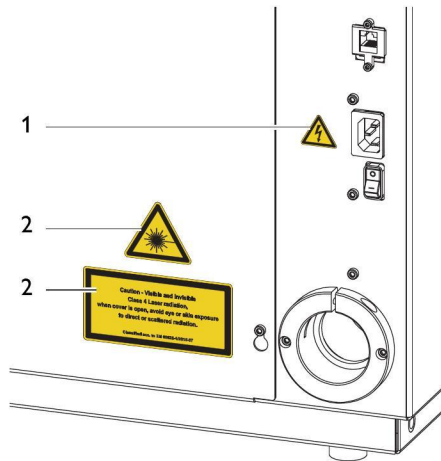


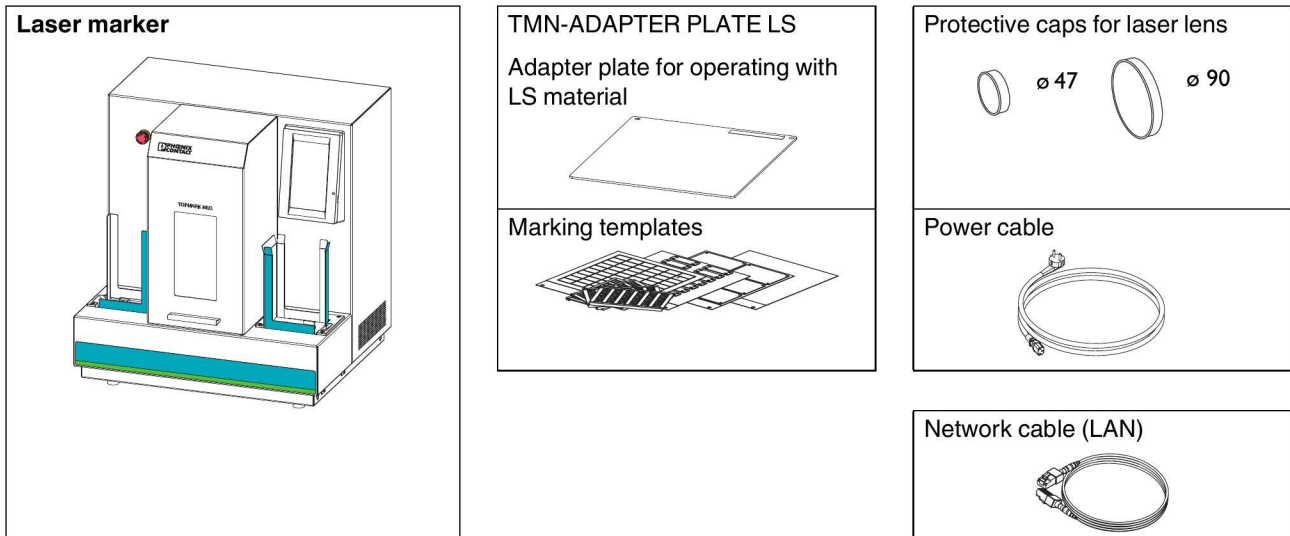
Figure 1-1 Locations of the safety symbols

Table 1-1 Safety symbols

Item	Safety symbols	Meaning
1		<b>Life-threatening danger from mains voltage</b> Do not remove housing elements or covers.
2		<b>Health hazard as well as fire and explosion hazard due to class 4 laser</b> Within the housing there is a hazard due to class 4 laser radiation. For this reason, the user should never remove housing elements or covers. This laser radiation is very dangerous for the eyes and skin. Even scattered or invisible radiation can be dangerous. The laser radiation can pose fire and explosion hazards. Maintenance work with the housing opened may be carried out only by service personnel authorized and qualified by Phoenix Contact and only when the laser is switched off.

## 2 Installation and startup

### 2.1 Scope of supply



## 2.2 Unpacking



**WARNING: Risk of injury from heavy load**

The step of unpacking the TOPMARK NEO is a job for two people.

Retain the original packaging for subsequent transport or storage. If lost, the original packaging can be ordered from Phoenix Contact.

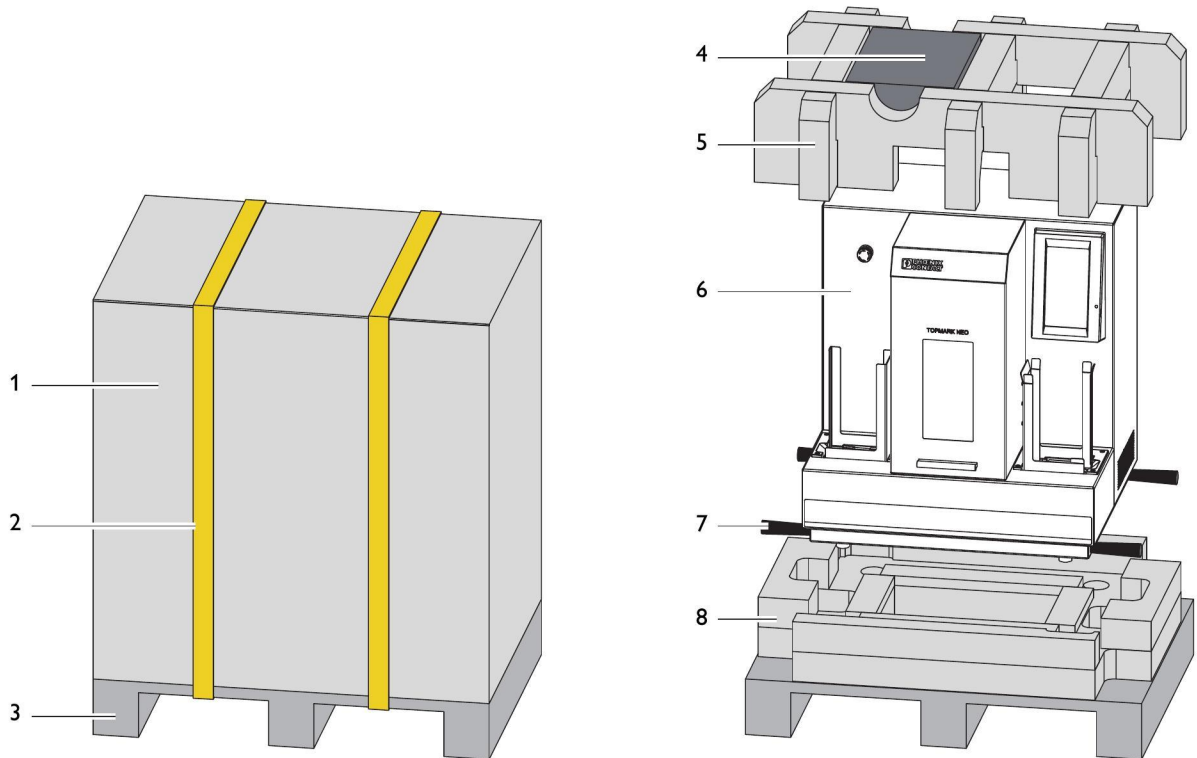


Figure 2-1 Unpacking and repacking the TOPMARK NEO

### Unpacking

The device is delivered on a pallet (3) in a vertical position.

- Remove the lashing straps (2).
- Lift the carton (1) upwards to remove.
- Remove the carton together with the accessories kit (4).
- Remove the top foam pad (5).
- Have two persons lift the TOPMARK NEO (6) from the bottom foam pad (8).

A set of four handles (7) is available (TMN-HANDLE SET, Order No. 1012105) as an accessory. The handles can be screwed into the sides of the base.

### Repacking

Repack the unit in reverse order.

## 2.3 Requirements for the installation location



### NOTE: Damage to the TOPMARK NEO

Observe the following notes.

- Only operate the TOPMARK NEO in a dry environment that is protected against moisture such as splash water or mist.
- If water condensation forms, this could impact the operational reliability. Avoid significant temperature fluctuations and do not put the device into operation until it has acclimated to room temperature.
- Do not operate the device near high-voltage lines.
- The installation site must be free of any mechanical loads. Vibrations and impacts can damage the device and its components.
- Do not expose the device to excessive dust.
- Heat accumulation may damage the device. Ensure sufficient ventilation. Make sure the ventilation slots (see Figure 2-4) are not obstructed.
- Set up the device so that the shaded clearance areas are as specified in Figure 2-2.

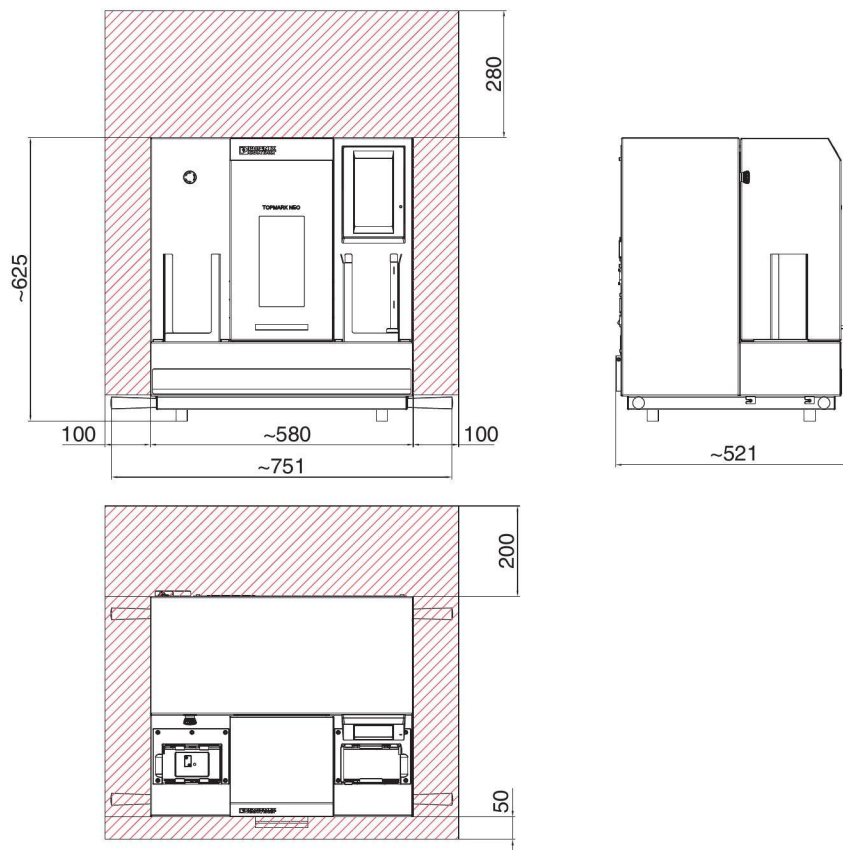


Figure 2-2 Clearances and dimensions of the TOPMARK NEO

## 2.4 Setup

Set the TOPMARK NEO on a table or similar surface that is suitable for the load. The table has to stand on a level floor with sufficient bearing capacity.

**WARNING: Risk of injury from heavy load**

The step of unpacking the TOPMARK NEO is a job for two people.

- Take the components of the device out of the packaging.
- Two people should work together to place the device on the table.

**NOTE:** Open the cover and remove the protective cap from the laser lens.**When using the Phoenix Contact extraction system:**

- Place the extraction system on the floor near the laser marker.
- Lock the wheel brakes of the extraction system.

Extraction system available as an option or in a set

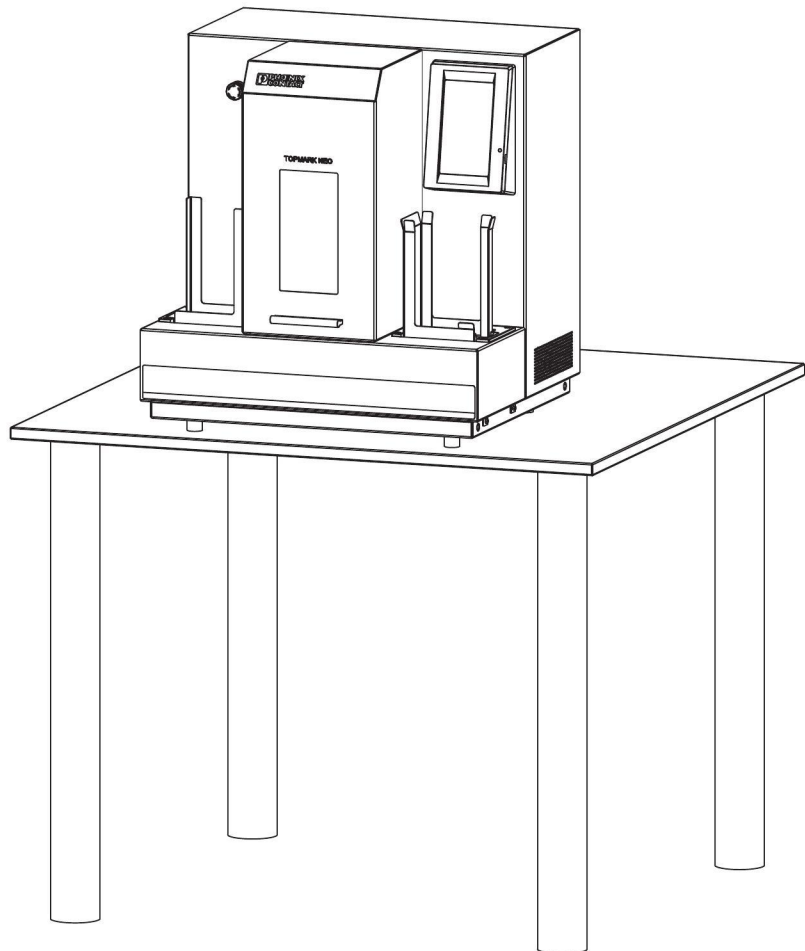
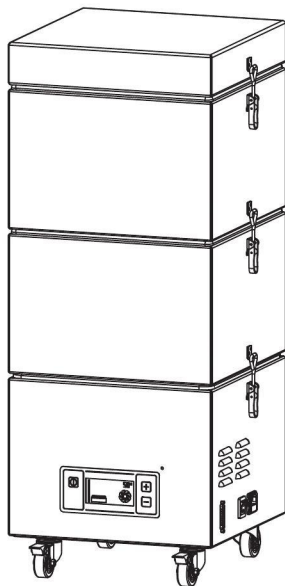


Figure 2-3 Setting up the TOPMARK NEO

## 2.5 Overview of the laser marker

### 2.5.1 Operating elements and connections

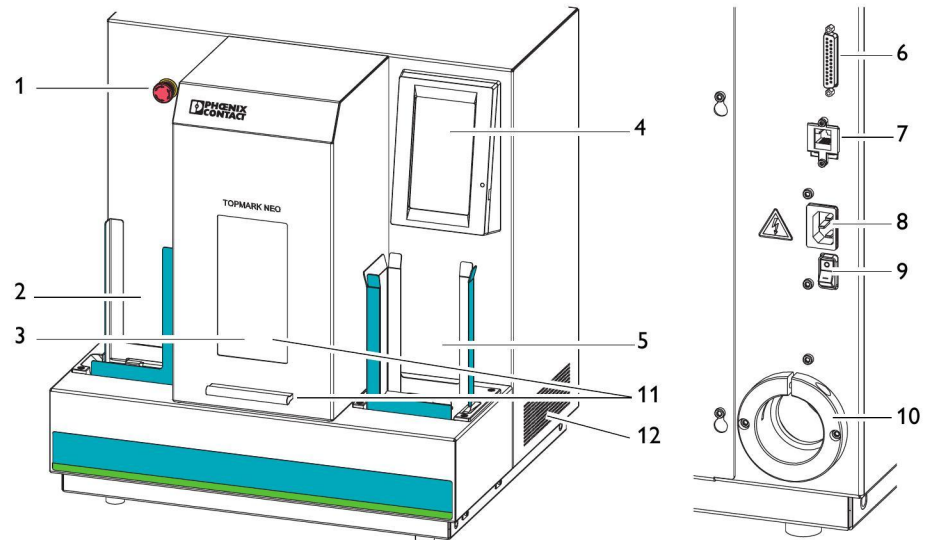


Figure 2-4 Front an connections on the back side

- |   |                                  |    |                             |
|---|----------------------------------|----|-----------------------------|
| 1 | EMERGENCY STOP button            | 7  | Ethernet/LAN port           |
| 2 | Output magazine                  | 8  | Connection for power cable  |
| 3 | Processing area                  | 9  | On/Off switch               |
| 4 | Control panel                    | 10 | Connection for suction hose |
| 5 | Infeed magazine                  | 11 | Hood with laser safety pane |
| 6 | Connection for extraction system | 12 | Ventilation slots           |

### 2.5.2 EMERGENCY STOP button

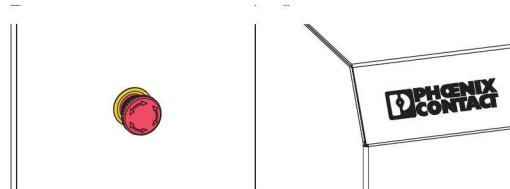


Figure 2-5 EMERGENCY STOP button

#### EMERGENCY STOP button

Pressing the EMERGENCY STOP button interrupts the power supply to the laser and controller.

To reestablish the power supply, turn the EMERGENCY STOP button until it unlatches.

## 2.6 Connecting the extraction system



**WARNING: Risk of injury**

Always read the instructions accompanying the extraction system prior to installation. Observe the safety and warning notes contained in the instructions.

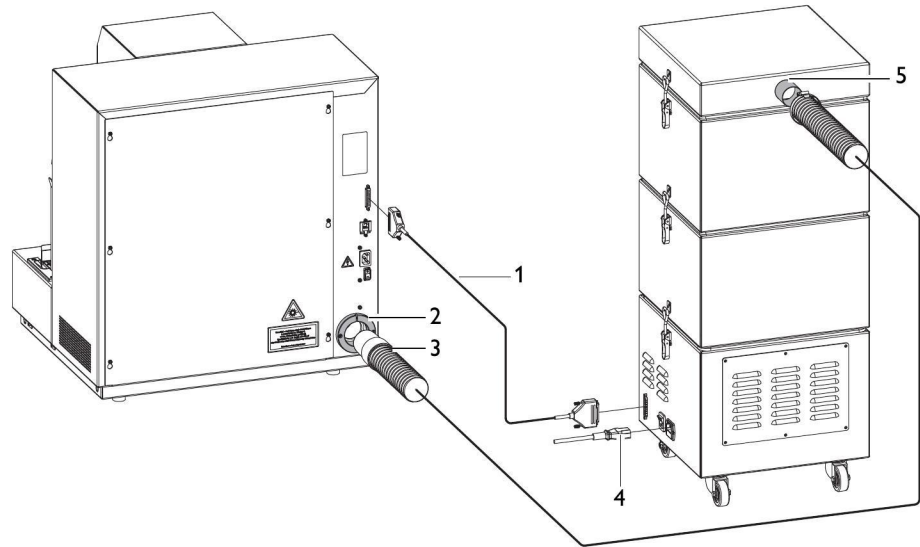


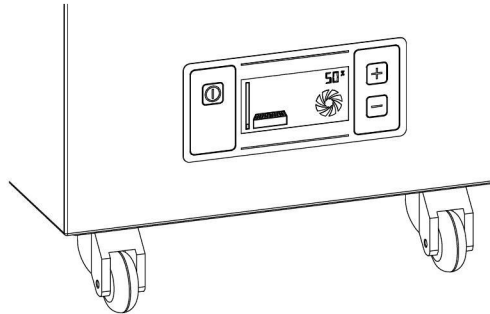
Figure 2-6 Installing the Phoenix Contact extraction system

- Connect the Phoenix Contact extraction system in the following order:
- The device and extraction system must be switched off.
- Connect the interfaces on the device and the extraction system using the connecting cable (1). The cable is included with the extraction system.
- Connect the device (2) and the extraction system (5) to the suction tube (3). The tube is included with the extraction system.
- Attach the tube to the device (at position 2) by turning the screw located there.
- Secure the tube to the extraction system (5) using the accompanying tube clamp (see instructions for extraction system).
- Connect the extraction system to the power grid using the cold device cable (4).



**NOTE:** For further details on connecting the extraction system supplied by Phoenix Contact, please refer to the instructions accompanying the extraction system.

## 2.7 Setting the extraction system



Set the extraction system according to the accompanying instructions.

The suction power of the extraction system supplied by Phoenix Contact is set automatically to match the relevant material using the accompanying software. Please note that this function is not available on other extraction systems.

## 2.8 Operating extraction systems from other manufacturers



### **WARNING: Health and environmental hazards from byproducts of laser machining**

Machining with lasers can generate byproducts that are hazardous to health and the environment. These can be carcinogenic and harmful to the lungs.

- The operator of the laser unit is responsible for ensuring compliance with the safety measures.
- Always operate the TOPMARK NEO with a properly installed extraction system.
- Make sure that the extraction system is always switched on during operation. In order to operate the device with an alternative extraction system, you will require a bypass plug (TMN-BP, Order No. 1012081).
- Secure the suction tube on the device using the screw on the TOPMARK NEO (see chapter 2.6).
- Always use the laser marker with a suitable extraction system for drawing in particles and gas residues. Any other or additional use is not intended.
- Check the effectiveness of the extraction system regularly.

Operate the laser marker only with a properly installed extraction system. You can acquire this separately or in a set together with the TOPMARK NEO.

### **Advantages:**

- Only the extraction system supplied by Phoenix Contact can guarantee maximum operational safety.
- This extraction system is perfectly adapted to be used together with the TOPMARK NEO. Both units communicate via the data interface. If the filter needs changing, the system indicates this automatically.
- The software regulates the suction power automatically, which reduces energy requirements and operating noise.



## 2.9 Connecting the laser marker



**NOTE:** Damage to the laser marker

The laser marker is designed for operation with a voltage of 100 V AC ... 240 V AC/50 Hz ... 60 Hz.

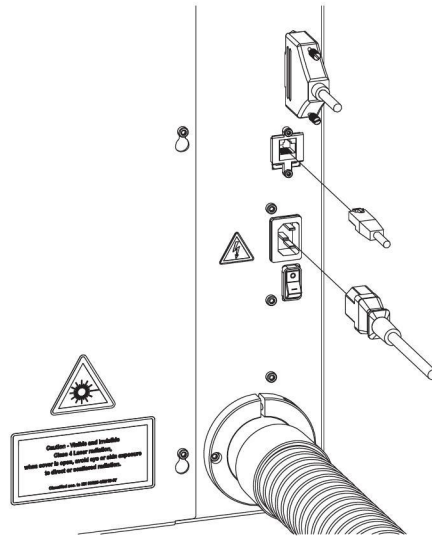


Figure 2-7 Connecting the power and computer

### Connecting the power supply (1)

- Make sure that the laser marker is switched off.
- Connect the power cable of the laser marker with the connection socket.
- Then connect the power cable with a socket with ground conductor contact.

### Connecting a computer (2)

- Connect a computer to the laser marker either directly using the supplied Ethernet cable or via a network.
- Install the software on the computer.  
The software is available to download at [phoenixcontact.net/qr1012015](https://www.phoenixcontact.net/qr1012015).

## 2.10 Switching the laser marker on and off

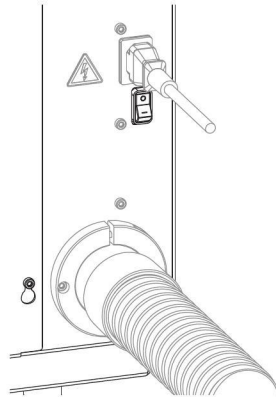


Figure 2-8 On/Off switch on the TOPMARK NEO



**WARNING: Health and environmental hazards from byproducts of laser machining**

Machining with lasers can generate byproducts that are hazardous to health and the environment. These can be carcinogenic and harmful to the lungs.

- The operator of the laser unit is responsible for ensuring compliance with the safety measures.
- Always operate the TOPMARK NEO with a properly installed extraction system.
- Make sure that the extraction system is always switched on during operation. If you intend to operate the device with an extraction system from another manufacturer, you will require a bypass plug (TMN-BP, Order No. 1012081).
- Check the effectiveness of the extraction system regularly.

### Switching on

- Switch on the computer.
- Switch on the extraction system.
- Switch on the laser marker.

### Switching off

- Exit all applications and shut down the computer.
- Switch off the laser marker.
- Switch off the extraction system.

## 3 Operation

### 3.1 Device menu

#### 3.1.1 Using the control panel

- To select a menu item, briefly touch the corresponding symbol.
- Move your finger up and down the control panel to scroll the list.

If the TOPMARK NEO is not used for a longer period, the device automatically switches to standby mode. Touch the control panel briefly to wake up the device.

#### 3.1.2 Changing language

The language of the TOPMARK NEO is set to English by default. To select a different language, proceed as follows:



- Touch this symbol.



- Touch this symbol.
- Enter the admin PIN ("0000").














- Touch this symbol.
- Touch the desired language.

#### 3.1.3 Home screen












Figure 3-1 Home screen TOPMARK NEO

### 3.1.4 Device settings

Menu item	Setting option
 	Adjust brightness of the display
	Here you can find help on all device issues as well as videos that explain TOPMARK NEO handling and error removal.
	Here you can select the keyboard layout. When entering data, you can switch between the pre-selected keyboard layouts.
	The test print projects that can be output directly from the TOPMARK NEO. are stored here.
	The user will find the following functions here: <ul style="list-style-type: none"> <li>- Extraction ON/OFF</li> <li>- Standby</li> </ul>
	You can find information about the hardware here: <ul style="list-style-type: none"> <li>- Device order number</li> <li>- Device designation</li> <li>- Device serial number</li> <li>- Number of print jobs</li> <li>- Operating time in hours</li> <li>- Network address</li> </ul>
	Display of the installed firmware version
	Extended settings. This menu is protected with a PIN
	Software license terms of the Open Source Initiative (OSI)
	Imprint and contact information

### 3.1.5 Advanced settings (PIN-protected)

Menu item		Setting option
		Extended settings Admin PIN "0000"
		Set LAN parameters
		Export the log file
		Set the date and time
		Set the language
		Set the country to view the Phoenix Contact subsidiary (under "Imprint and contact information" ⓘ)
		Change the admin PIN
		Hardware settings <ul style="list-style-type: none"> <li>- LS material offset X</li> <li>- LS material offset Y</li> <li>- UCT material offset X</li> <li>- UCT material offset Y</li> <li>- Device name</li> </ul>

### 3.2 Materials and magazines



**NOTE: Damage to the laser marker**






The TOPMARK NEO laser marker is only approved for marking material from Phoenix Contact. Material approved by Phoenix Contact includes:

- LS material
- UCT material
- UM material.

UCT and UM material must be complete in order to be processed. No signs or strips may be removed.

Using other materials can damage the laser marker. If unauthorized materials are used, there is risk of combustion.

- You may have to use different adapter plates or magazines, depending on the material used:

<p><b>UCT material</b></p> 	<p>Only used in conjunction with the stacking magazine</p>
<p><b>UM material</b></p> 	<p>Used in conjunction with BLUEMARK MAG UM-TM (Order No. 0803335)</p> <p>Adapter in the stacking magazine. No material detection.</p> 
<p><b>LS material</b></p> 	<p>Used in conjunction with LS adapter plate TMN-ADAPTER PLATE LS (Order No. 1012104)</p> 

### 3.3 Creating print jobs

You can create print jobs on the control panel or on the computer. You can connect an external keyboard or mouse to the USB interface on the control panel to enter information on the display.

#### Creating a print job using the control panel

- Select “Marking-Editor” on the control panel and create a marking.
- Place LS material in the processing area. Close the hood.  
Alternatively, you can place UCT material in the infeed magazine.
- Select “SMART EDIT” on the control panel and create a marking.
- To start printing, touch the printer icon in the top right corner.
- Touch the button for printing.



If LS and UCT material is inserted, LS material is preferred for SMART EDIT.

#### Creating print jobs on the computer

- Create the print jobs using the marking software.

The marking software can be used to create markings on the computer that are adapted to the Phoenix Contact marking material.

- There, select the TOPMARK NEO as the output device. You will be provided with a list of materials that are suitable for this device.

The marking software is available to download at [phoenixcontact.net/qr/1012015](https://www.phoenixcontact.net/qr/1012015).

### 3.4 Loading and removing the UCT material

#### 3.4.1 Loading UCT material

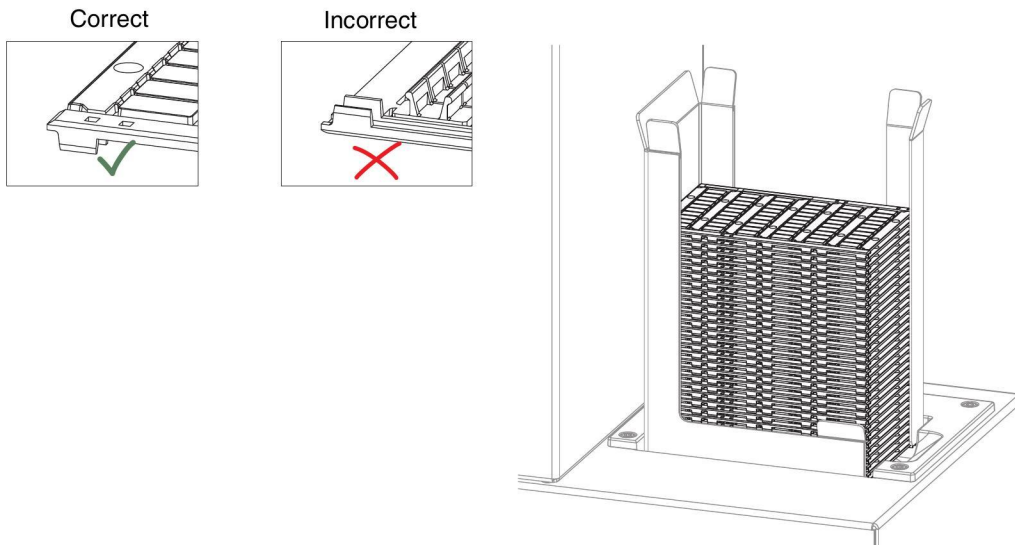


Figure 3-2 Loading UCT material



**CAUTION: Risk of injury from rotating parts**

Make sure that clothing, hair, jewelry, or similar personal items do not come into contact with the exposed rotating parts.



**NOTE:** Make sure that the material is loaded with the marking side facing up (see [Figure 3-2](#)).

When the marking material is loaded, the individual specimens must be stacked precisely on top of one another in the infeed magazine.

It is permissible to rotate the material horizontally by 180° when inserting it. The device detects the orientation of the material and adjusts the marking accordingly.

- Feed an individual specimen into the infeed magazine. Place the material so that the corresponding grooves are positioned on the tips in the infeed magazine.
- Stack any other material precisely on top of the specimen at the bottom.



### 3.4.2 Removing the UCT material

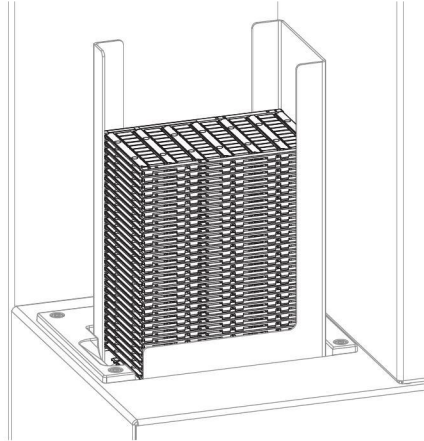


Figure 3-3 Removing the UCT material



**CAUTION: Risk of injury from rotating parts**

Make sure that clothing, hair, jewelry, or similar personal items do not come into contact with the exposed rotating parts.



The fill level in the output magazine is not monitored. Remove the marked materials in time to prevent them from overflowing.

- Take out the marked material at the end of the print job.

## 3.5 Marking LS material

### 3.5.1 Inserting an adapter plate

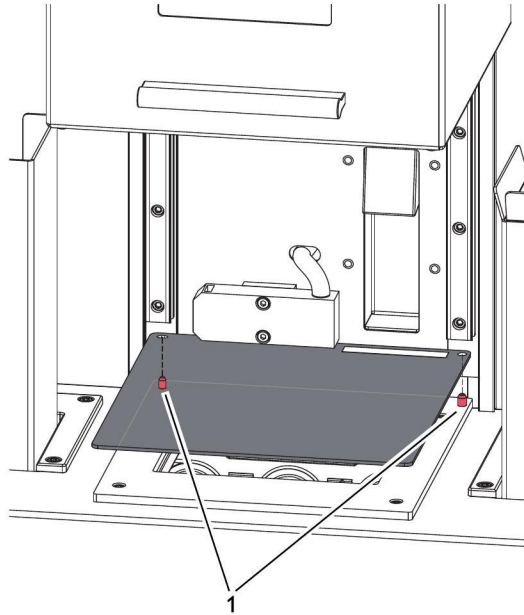


Figure 3-4 Inserting an adapter plate

- Open the hood.
- Place the adapter plate (TMN-ADAPTER PLATE-LS) onto the positioning pins (1).

### 3.5.2 Loading LS material

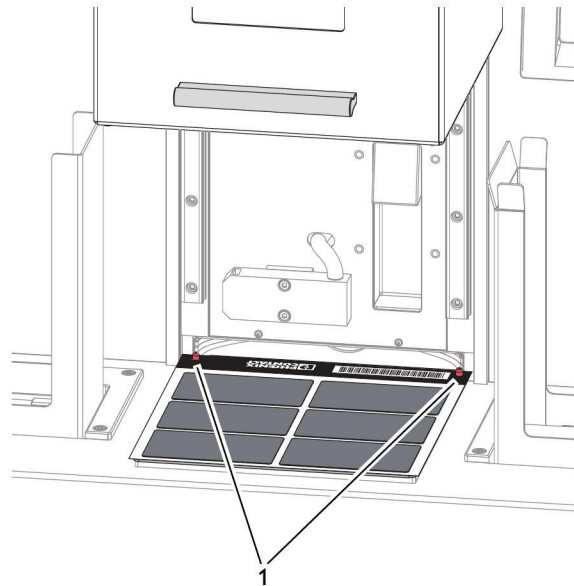


Figure 3-5 Loading LS material

- Place the required LS material onto the pins (1) with the correct orientation.
- Close the hood.
- Load the correct marking layout in the marking software.
- Send the marking layout to the laser marker.
- Open the hood once marking has been completed.
- Take out the marked material.
- Insert new material for the next marking.

## 4 Maintenance and troubleshooting



The described maintenance tasks may only be carried out by persons that have been trained and authorized as maintenance personnel by Phoenix Contact.

Only use original replacement parts. Ordering data can be found on [Page 34](#).

Any further operations are not permitted. For this, please contact Phoenix Contact.

Maintenance schedule		Monthly	Quarterly	Semi-annually	Yearly	
M2	Check prefilter of the extraction system and replace if necessary*	X				**
M3	Check particle filter of the extraction system and replace if necessary*	X				**
M4	Clean processing area	X				<a href="#">Page 28</a>
Q1	Check activated carbon filter of the extraction system and replace if necessary*		X			**
Q2	Clean the protective glass of the laser lens and check for mechanical damage		X			<a href="#">Page 29</a>
Q3	Clean the protective glass of the barcode scanner		X			<a href="#">Page 31</a>
Y1	Check safety symbol on the laser marker				X	<a href="#">Page 7</a>
Y2	Replace the protective glass of the laser lens				X	<a href="#">Page 29</a>
Y3	Replace the activated carbon filter*				X	**

\* optionally with extraction system from Phoenix Contact

\*\* see instructions for extraction system

## 4.1 Opening the hood over the processing area

In order to mark LS material and perform maintenance work, you must open the processing area by raising the hood. The device is secured against the emission of dangerous laser radiation when the processing area is open.



**WARNING: Health and environmental hazards from byproducts of laser machining**

Machining with lasers can generate byproducts that are hazardous to health and the environment. These can be carcinogenic and harmful to the lungs. This applies in particular for byproducts when using lasers to mark LS material.

Use a suitable extraction system to extract dust.

During all cleaning and maintenance work, wear disposable polypropylene gloves and a class 3 respirator.



**NOTE: Electrostatic discharge!**

The device contains components that can be damaged or destroyed by electrostatic discharge. When handling the device, observe the necessary safety precautions against electrostatic discharge (ESD) in accordance with EN 61340-5-1 and IEC 61340-5-1.

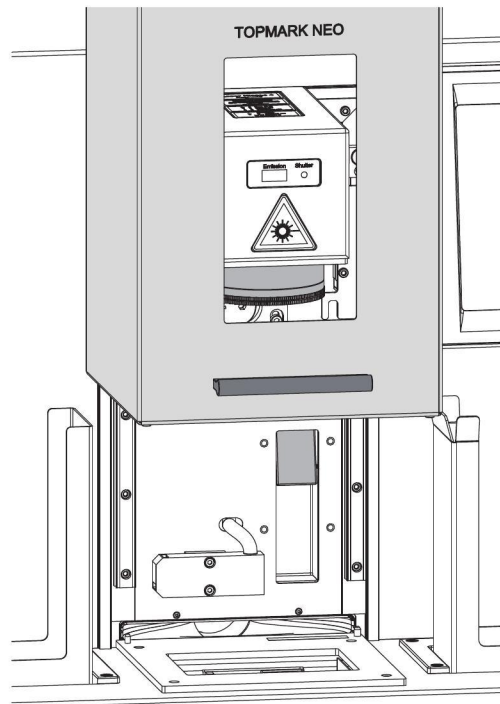


Figure 4-1 Opening the processing area

- Move the hood upwards to open
- Carry out only the required tasks.
- Close the hood again.

## 4.2 Cleaning the processing area

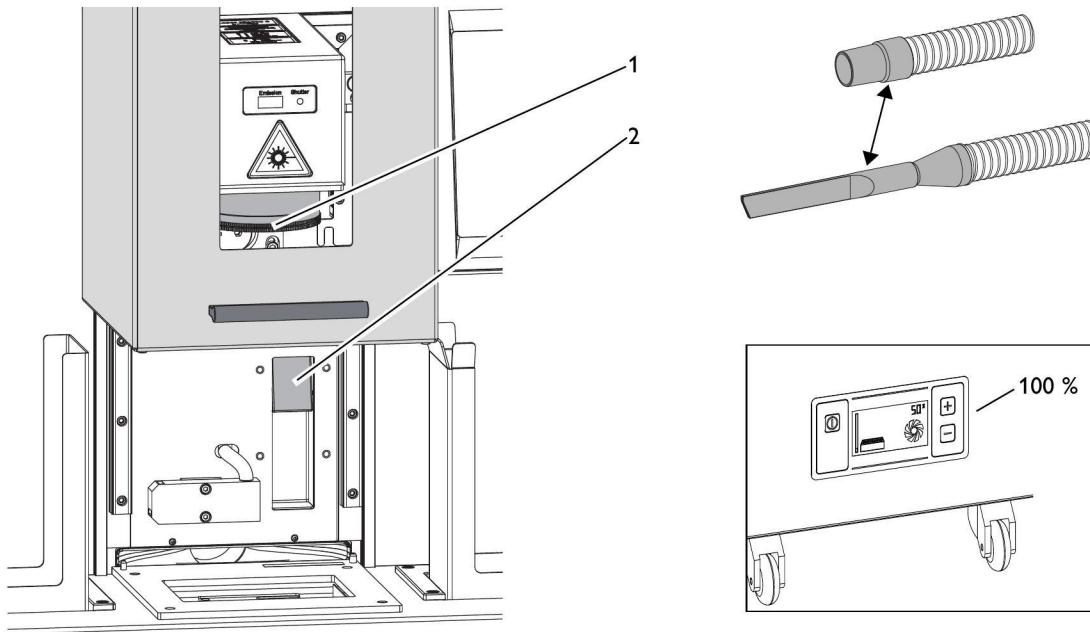


Figure 4-2 Cleaning the processing area

- Open the hood.
- Remove the adapter plate, if necessary.



**NOTE: Damage to the laser marker**

Take care not to touch the glass surfaces of the laser lens (1) and the barcode scanners (2) with bare fingers or pointed and/or sharp objects.

You can use the supplied protective cap to protect the laser lens against damage. Be sure to remove the protective cap after the cleaning.

Do not clean the surfaces with tools or other hard objects.

Do not use compressed air to remove dust or dirt particles.

- Remove all contamination in the processing chamber and on the inside of the paneling using a suitable extraction system.  
You can use an extraction system from Phoenix Contact for cleaning work. To do so, replace the suction tube adapter with the supplied cleaning nozzle. Contrary to the norm, the thread of the suction tube comes loose when rotated clockwise.  
Activate the extraction system in the control panel menu. Alternatively, use the marking software to switch the extraction system on and off for cleaning. Set the exhaust capacity to 100 %.
- After cleaning, insert the adapter plate again, if necessary.
- Remove the protective cap, if fitted.
- Close the hood over the processing area.

### 4.3 Cleaning the protective glass of the laser lens

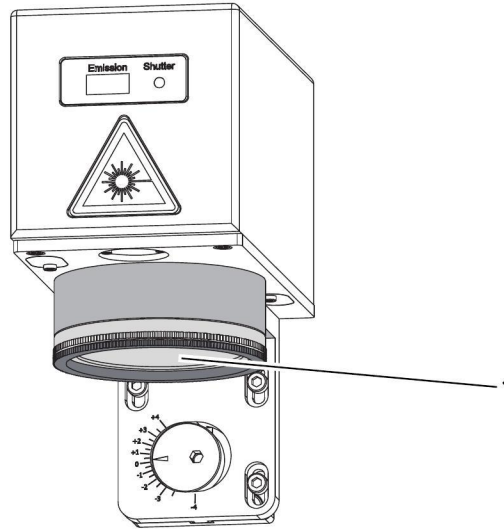


Figure 4-3 Protective glass of the laser lens



**NOTE: Damage to the laser marker**

Do not touch the glass surfaces of the laser lens with bare fingers. Do not use sharp or pointed objects.

Do not clean the surfaces with tools or other hard objects.

Do not use compressed air to remove dust or dirt particles from the surface.

Never wipe over the optical components with a dry cloth or paper.

**Cleaning the protective glass**

- Open the hood over the processing area.
- To remove soiling, use only suitable lens cleaning paper in combination with isopropyl that has an optical degree of purity of 99 %.
- Allow the solution to drip onto the lens cleaning paper. Do not touch the moistened area.
- Draw the lens cleaning paper slowly in one direction across the surface of the protective glass (1). Do not apply any pressure.
- Repeat the process with a new lens cleaning paper until the surface has been cleaned completely.
- Close the hood over the processing area.

#### 4.4 Replacing the protective glass of the laser lens

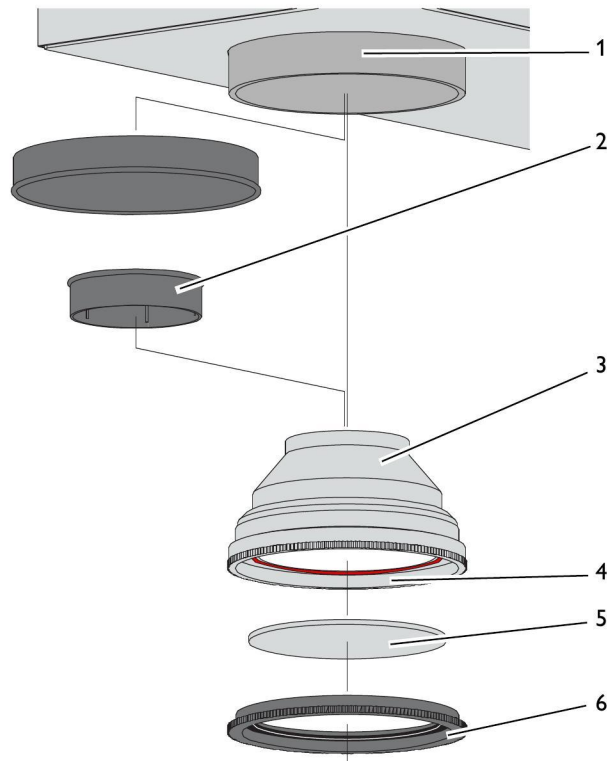


Figure 4-4 Replacing the protective glass of the laser lens



**NOTE: Damage to the laser marker**

Do not touch the glass surfaces of the laser lens with bare fingers. Do not use sharp or pointed objects.

- Open the hood over the processing area.
- Turn the laser lens (3) counter-clockwise. Remove it from the mount (1).
- Place the supplied protective cap (2) over the laser lens.
- Turn the ring (6) counter-clockwise. Remove it from the laser lens.
- Remove the protective glass from the rubber lip (4) in the laser lens.
- Insert the new protective glass (5) centrally in the ring. For the ordering data, please refer to the Appendix.
- Screw the ring tight on the laser lens.
- Remove the protective cap (2).
- Install the laser lens in the mount.
- Close the hood over the processing area.



## 4.5 Cleaning the barcode scanners

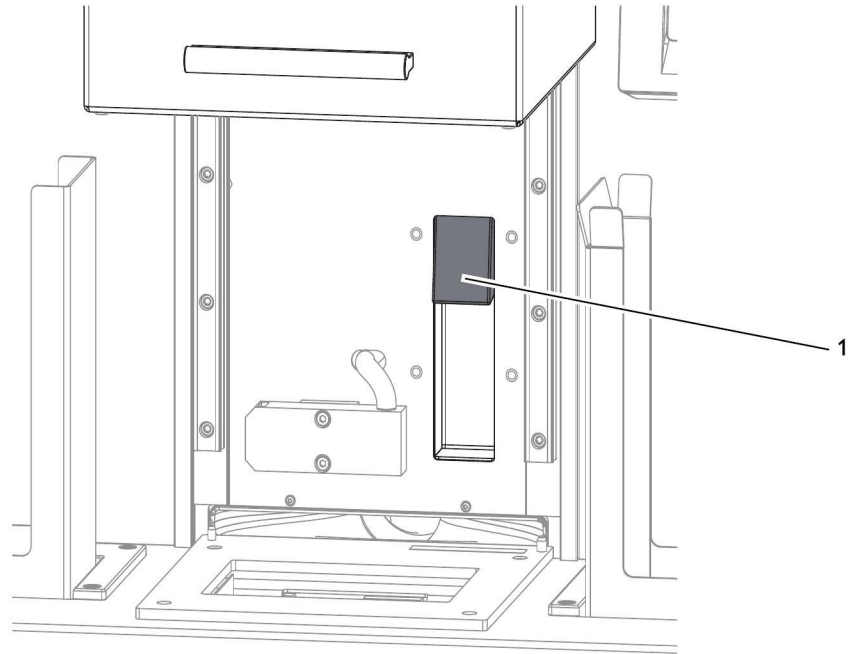


Figure 4-5 Cleaning the barcode scanners

- Open the hood over the processing area.
- Clean any contamination from the protective glass of the barcode scanner (1) using isopropyl and lens cleaning paper.
- Close the hood over the processing area.

## 4.6 Troubleshooting

### Troubleshooting

Table 4-1 Troubleshooting

Error	Possible cause	Remedy
Device does not start	Device plug not plugged in	Connect device
	Device not switched on	Switch on the device
	Extraction system not connected	Connect and switch on extraction system
	Filters in extraction system full	Replace filters
Media is not recognized	Barcode scanners soiled	Clean the barcode scanners
	Barcode on the marking material soiled or damaged	Clean the barcode
		Discard material
Marking on the material is shifted	Material loaded incorrectly	Load material correctly
	Output position has shifted in the Phoenix Contact marking software	Adjust the output position in the marking software on the control panel or computer
Marking erratic	Material does not lie flat	Load material correctly or discard
	Material soiled	Clean or discard material
	No adapter plate inserted for LS materials	Check and insert LS adapter plate, if necessary
	Lens soiled	Check lens. Clean lens, if necessary
	Lens not fitted correctly after cleaning	Check lens. Adjust lens, if necessary
Marking too faint	Material does not lie flat	Load material correctly or discard
	Material soiled	Clean or discard material
	Wrong marking mode in the Phoenix Contact marking software	Correct the mode
	No adapter plate inserted for LS materials	Check adapter plate. Insert LS adapter plate, if necessary
	Lens soiled	Check lens. Clean lens, if necessary
	Lens not fitted correctly after cleaning	Check lens. Adjust lens, if necessary
Marking too intense	Material soiled	Clean or discard material
	Wrong marking mode in the Phoenix Contact marking software	Correct the mode
Material cannot be separated	Material stacked incorrectly in the infeed magazine	Stack material correctly



If there are any faults that cannot be resolved using this table, please contact Phoenix Contact.

## 4.7 Transporting and returning a product

The TOPMARK NEO has to be sent back in its original packaging. The original packaging can be ordered from Phoenix Contact. Ordering data can be found on [Page 34](#).

When packing, please refer to the notes in section [2.2](#).

# A Appendix

## A 1 Ordering data

### Laser marking system

Description	Type	Order No.	Pcs./Pkt.
<b>Laser marker TOPMARK NEO</b> including instructions for use, declaration of conformity, LAN cable, type E and F power cables, sample marking material for start-up	TOPMARK NEO	1012015	1
<b>Laser marker TOPMARK NEO</b> including extraction system TMN-EXTRACTION	TOPMARK NEO SET	1012018	1
<b>Extraction system</b> , 100 V ... 240 V, including: basic filter equipment, suction tube AF5/6 (length: 2.5 m), crevice nozzle set, type E and F power cables, angled (length: 2.0 m), 25-pin D-SUB cable, male/male (length: 3.0 m), instructions for use, declaration of conformity	TMN-EXTRACTION	1012102	1

### Replacement parts

Description	Type	Order No.	Pcs./Pkt.
<b>Adapter plate</b> for TOPMARK NEO, for accommodating LS material	TMN-ADAPTER PLATE-LS	1012104	1
<b>Prefilter</b> for extraction system	TMN-PRE FILTER	1012100	1
<b>Particle filter</b> for extraction system	TOPMARK LASER HEPA FILTER	0803305	1
<b>Activated carbon filter</b> for extraction system	TOPMARK CARBON FILTER	0803306	1
<b>Protective glass</b> for the laser lens	TOPMARK LASER LPR	0803435	1
<b>Suction tube</b> for extraction system, length: 2.5 m	TMN-EXTRACTION HOSE	1012101	1
<b>Cleaning nozzle</b> for plugging onto the suction tube of the extraction system	TOPMARK LASER CLEANING NOZZLE	0803310	1
<b>Bypass plug</b> , D-SUB plug, 25-pin for simulating an extraction system	TMN-BP	1012081	1
<b>Carrying handles</b> for carrying the laser marker	TMN-HANDLE SET	1012105	4
<b>TOPMARK NEO</b> , original packaging	TMN-TRANSPORT BOX	1012103	1

## A 2 Technical data

<b>Laser marker</b>	
<b>Laser source</b>	
Laser type	Ytterbium fiber laser, pulsed
Wave length	1064 nm
Maximum CW laser power	20 W
Pulse energy	1 mJ
Pulse width	120 ns
Pulse repetition frequency	20 kHz ... 60 kHz
Cooling	Air cooled, no heat exchanger
<b>Scanner head and laser lens</b>	
Scanning lens	F-Theta 254
Working distance	302 mm ±2 mm
Marking field	180 mm x 180 mm
Spot diameter	50 µm
Resolution (in theory)	500 dpi without material feedback
<b>Interfaces</b>	
Connection, data	Ethernet
Connection, extraction system	RS-232 and status signals
<b>Operating data</b>	
Voltage	100 V AC ... 240 V AC / 50 Hz ... 60 Hz
Power consumption	250 W
Temperature/Humidity, operation	+5 °C ... +35 °C / 10 % ... 85 % non-condensing
Temperature/Humidity, storage	-5 °C ... +60 °C / 20 % ... 85 % non-condensing
Temperature/Humidity, transport	-25 °C ... +60 °C / 20 ... 85 % non-condensing
Laser class acc. to EN 60825-1	Class 1
Sound level	approx. 65 db(A)
Approval	CE, EAC, FCC, ICES3, FDA
Dimensions (width x height x depth)	580 mm x 615 mm x 485 mm (without handles)
Weight	47 kg
<b>Barcode scanner</b>	
Wavelength	650 nm
Scanning method	Bidirectional
Scan rate	100 scans/s
Interface	RS-232
Trigger	Automatic
<b>Optional extraction system from Phoenix Contact</b>	
See instructions for extraction system	

## A 3 Approvals and statements

### A 3.1 Federal Communications Commission (FCC) Statement

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. The equipment generates, uses, and can radiate radio frequency and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user may be required to correct the interference at his own expense.

### A 3.2 Industry Canada Compliance Statement

CAN ICES-3 (A)/NMB-3(A)

### A 3.3 GPL Code Statement

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