

# Operation manual

Electrolytic marking unit

## EU 80



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MARKINGSYSTEMS

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## 1 Service Address and Hotline



### Östling Marking Systems GmbH

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Tel: +49 (0) 212 2696 - 540

Fax: +49 (0) 212 2696 - 199

E-mail: [stencil@ostling.com](mailto:stencil@ostling.com)

ÖSTLING's service hotline is manned

Mon-Thu from 8:30 am to 4:30 pm (CET)

Fri from 8:30 am to 2:00 pm (CET).

So that your service enquiries can be dealt with quicker, please have the exact designation of the system being used as well as the correct serial number ready! The serial numbers can be found on the labels on the back of the EU control.

If you require further service from the ÖSTLING service team, such as a 24 hour hotline or weekend service for example, then we can provide this by means of a service contract to be concluded separately. Please contact our service team regarding this.

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## 2 Safety

The EU 80 has been developed as the newest, state-of-the-art electrolytic marking system concerning safety and reliability.

We confirm that the EU 80 meets the fundamental safety and health requirements of the low tension guideline 73/23/EWG and the electromagnetic compatibility guideline 89/336/EWG. We provide the "EEC conformity explanation", and the CE marking on the marking equipment.

The type plate is together with the CE marking on the back of the marking equipment.

We, as manufacturers of the marking equipment, want to make you, as operators, completely familiar with the EU 80. An extensive chapter has been devoted to all safety concepts of the marking equipment, and refers to possible dangers and measures to take.

### Note

Consideration must be taken into account that generally accepted safety rules, and rules for the prevention of accidents go beyond these references.

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### 2.1 Definitions

**Danger Area** ... is the range in the periphery of the marking equipment, in which safety or the health of a person is endangered by the stay in this range.

**User** ... is the person, in whose working area the marking equipment is set up and operated.

**Operators/  
Personnel** ... are the persons, who are responsible for transport, list, start-up, enterprise, maintenance including cleaning and repair of the marking equipment.

## 2.2 Operational Safety

The marking equipment is built according to the latest state-of-the-art technology, and is designed for reliability in service.

From this marking equipment, however, dangers can proceed if it is used by untrained personnel inappropriately, or to not intended use. This can result in:

- Dangers for the safety of the operator.
- Impairment of the marking equipment and further real values of the user.
- Impairment of the efficient work of the equipment.

### Intended Use of the Marking Equipment

The EU 80 is an electrolytic marking equipment for marking products with electrically leading surface.

Intended use means in addition:

- The installation of the marking equipment and its operation must stand in conformity with the valid national regulations of the user country. For their observance the user is responsible.

Impermissible is:

- Arbitrary changing or changes of the marking equipment by the user or operator.
- Each function, which could impair safety.

It is possible to interconnect the parts of the equipment so that a short circuit is manufactured. This is e.g. the case, if the marking head contacts the base plate during the marking or if the positive cable is connected directly with the negative cable. Such functions are generally inadmissible!



#### **Danger of a short circuit!**

High current flow. Safety device is destroyed.

- The marking head may not come into contact with the base plate.

We assume no liability from not intended use!

Each use going beyond that is not considered as intended. For material damage and personal injuries resulting from this, the manufacturer is not responsible; the risk for this carries alone to the user.



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## 2.3 Measures Taken by the User/Operator

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### Consider Warning Plates and References

Within operation and handling of the marking system, dangers can arise if not handled with proper care. In this manual, operating instructions are given, including appropriate warning references in the front. In addition, warning plates can be found on the marking equipment.

#### Note

Mind the warning references!

Mind the commands and interdictions of the warning references. They serve for your protection.

These warning references include:

- A symbol.
- References to the source and the kind of the danger.
- Instructions, how you can avoid the danger.

Example:



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#### Electrolytes are oxidizing substances!

Danger of poisoning.

- Do not swallow the electrolyte and keep it away from contact to the mucous membranes or eyes.
- 

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### Personnel Instruction

The marking equipment may be served, waited and repaired only by authorized, trained and instructed personnel.

Work on the electrical equipment may be implemented only by specially trained specialists.

In addition, the following measures must be taken before the personnel begin the work of using the equipment:

- Instructs over arising dangers.
- The user must obligate, to the extent necessary, the personnel for carrying protective clothing and gloves.
- Competencies for operation, maintenance and repair must be clearly specified, so that under the aspect of safety no unclear authority arises.
- Read the technical documentation of the equipment. It is recommended to the user to be confirmed in writing in each case that the personnel has read and understood the technical documentation.

---

## Duty to Care in Handling the Equipment

Guarantee perfect condition of the equipment:

- The user and/or the circle of acquaintances assigned by him may operate the equipment exclusively in the perfect condition.
- The user must ensure cleanliness and clarity of the work place at the equipment by appropriate instructions and controls.
- The user must provide for sufficient circulation of fresh air in the work spaces.
- The operator must announce occurring changes (including the operational behavior) of the equipment which impair safety, immediately to the user. In addition the equipment must be examined at least once per shift for outwardly recognizable lack and damage.

With all work that concern transport, installation, start-up, operation, maintenance and repair, the prescribed switching off procedures must be kept:

- With any adjustments, maintenance and repairs the equipment must always be switched off over the MAIN SWITCH. Exceptions to it, with which the equipment must remain switched on with appropriate work, are noted in the manual in each case.

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## Use of Intended Spare Parts and Operational Funds

Original parts and accessories are particularly designed and manufactured for the marking equipment. Spare parts to use as original parts and accessories, which are not supplied by the manufacturer of the marking equipment, are not examined and approved of the manufacturer. The installation and/or the use of such products can possibly change the constructionally given characteristics of the marking equipment and endanger safety.

### Note

For damage which results from the use of non-original parts and accessories and/or inadequate installation or exchange of original parts and accessories, the manufacturer assumes absolutely no liability or responsibility.

# EU 80

When using the intended operational funds, the instructions for use must be kept. As far as a safety data sheet (European guideline 91/155/EWG) of the manufacturer for operational funds is prescribed, the references made there must be considered obligatorily, like e.g.:

- Chemical characterization.
- Physical and safety-relevant data.
- Transport.
- Regulations.
- Safety measures, Storage and Handling.
- Measures to be taken in case of fire and accidents.
- Toxicological information.
- Ecological information.

This applies in particular to the adequate disposal of operational funds. For this, the safety data sheet indicates the prescribed kind of disposal and the waste key. The safety data sheet can be requested with the manufacturer of the operational funds.

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## Water Protection

In the Federal Republic of Germany the concern principle applies to devices with water-endangering materials. This means that by handling these materials no impurities of waters may arise. This is the central statement § 19 of the water conservation law (WHG). In plant regulations (VAwS) and administrative regulations (VVAwS) of the states of the Federal Republic one concretizes, as is to be followed concerning this principle.

<b>Substance Hazardous to Waters</b>	Electrolyte
<b>Water Pollution Class</b>	WGK 1
<b>Volume of the Substances Hazardous to Waters</b>	≤100 L
<b>Endangerment Stage Overall</b>	A

Water protection information

Tab. 1

## 2.4 Measures Taken by the Manufacturer

The marking equipment contains a transformer, which reduces the input voltage (AC) to max. 24 V output voltage alternating current (AC) or direct current (DC). Correct and proper intended use of the equipment will ensure voltage power does not pose any dangers to the operator.

Due to the building method of the hand marking equipment, it is possible to affect live parts during the marking. This is harmless due to the low voltage of max. 24 V.

**Cardiac Pacemaker** For persons with cardiac pacemakers, a voltage of max. 24 V can become lethal since the cardiac pacemaker is impaired in its function. For this reason the work with the marking equipment is forbidden for persons with cardiac pacemakers.

### Danger of life for persons with cardiac pacemaker!



- Work with the marking equipment is forbidden to persons using a cardiac pacemaker.

The electrolytes used depending upon marking type are oxidizing substances. In this case, the instructions for use must be kept (see page 6).

## 2.5 Danger Overview

The following chart outlines potential hazardous risks and endangerment to one's life from the equipment. Through construction and design, as well as implementation of safety devices as defined by the EEC machine guideline 98/37/EG, will prevent dangers and promote safety to personnel. If the user of the equipment can provide additional measures for the prevention of dangers, the user finds these additional measures in the following chart.

Type of Endangerment	Spot of Endangerment	Danger	Additional Measure
Electrical endangerment <ul style="list-style-type: none"> <li>• By electrical contact</li> </ul>	<ul style="list-style-type: none"> <li>• Contact with parts that are under voltage during the marking</li> </ul>	Danger of life for persons with a cardiac pacemaker	Persons with cardiac pacemaker are not allowed to work with the equipment.
Endangerment caused by substances <ul style="list-style-type: none"> <li>• By contact along or inhalation of poisonous liquids, gases, nebulas, steams and types of dust</li> </ul>	<ul style="list-style-type: none"> <li>• Electrolyte</li> </ul>	Risk of health	Do not swallow the electrolyte and keep it away from contact to the mucous membranes or eyes. Wash hands before pausing and after work.

Tab. 2

# EU 80

## 3 Product Description

Products with electrically leading surface can be marked with the marking equipment EU 80. The marking takes place via a current pulse, which is led by the coinage of the stencil. Thus an accurate image develops on the product to be marked. The surface form of the product to be marked is arbitrary.

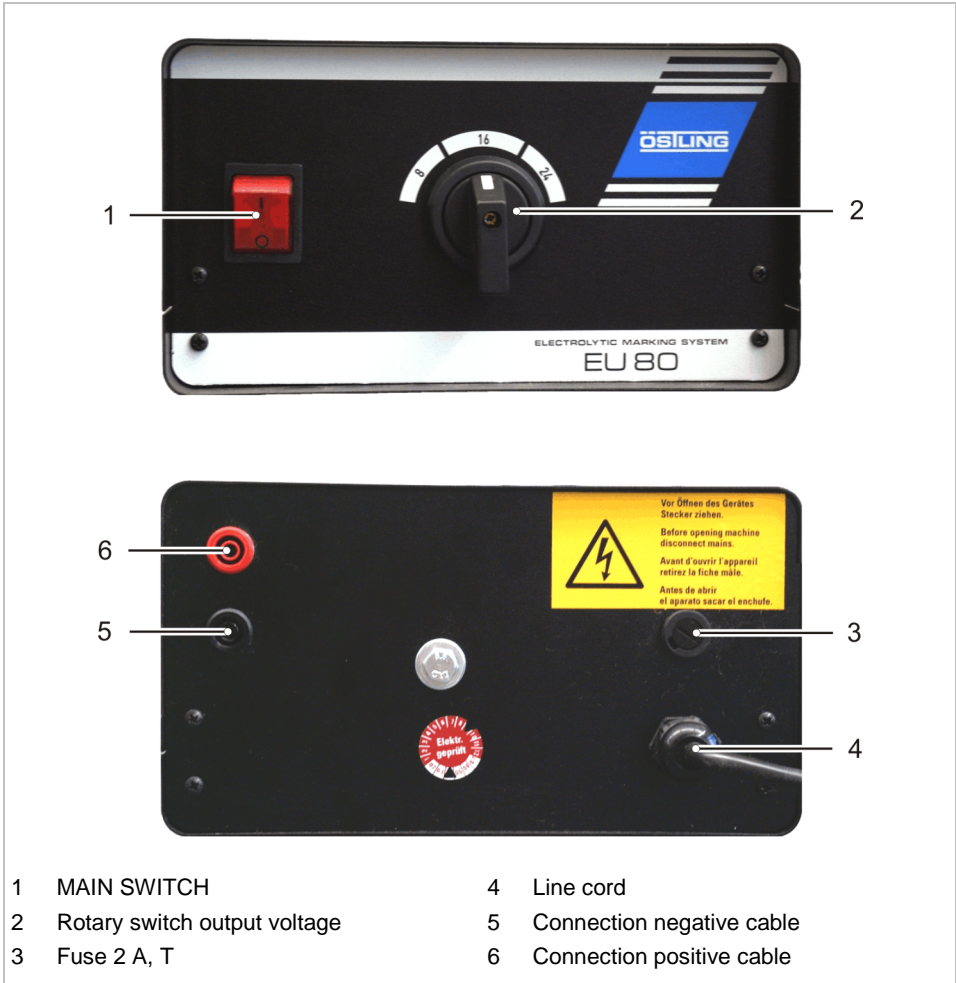
The input voltage of the marking equipment is 230 V alternating current (AC); the output voltage can be adjusted to 8, 16 and 24 V alternating current (AC). Power output amounts to 100 VA.

### 3.1 Technical Data

<b>Input Voltage</b>		[V]	230, AC
<b>Output Voltage</b>		[V]	Max. 24 AC
<b>Power</b>		[VA]	100
<b>Fuse</b>		[A]	2, delayed
<b>Dimensions</b>	Height	[mm]	155
	Width	[mm]	200
	Depth	[mm]	150
<b>EMV checked</b>	EN 50081-1, EN 50082-1		

Tab. 3

### 3.2 Operating Devices



Operating devices EU 80

Fig. 10002

## 3.3 Accessories

**Hand Marking Station** In order to obtain a still more economical function, a hand marking station can be used. It consists of:

- Base plate with T-slots.
- Two adjustment blocks.
- Stencil holder X-Y-Z.

The product is put on the prepared adjustment blocks. The stencil is furnished on the product with the help of the stencil holder X-Y-Z.

**Types of Stencils** Except an ÖSTLING long-term stencil also short-time stencils can be used.

In order to make your own short-time stencils for frequently changing texts very fast and flexibly, the following accessories are available:

- Stencil production system ÖSTLING PT (different versions).
- 9-pin printer with Software Stencil Creator.

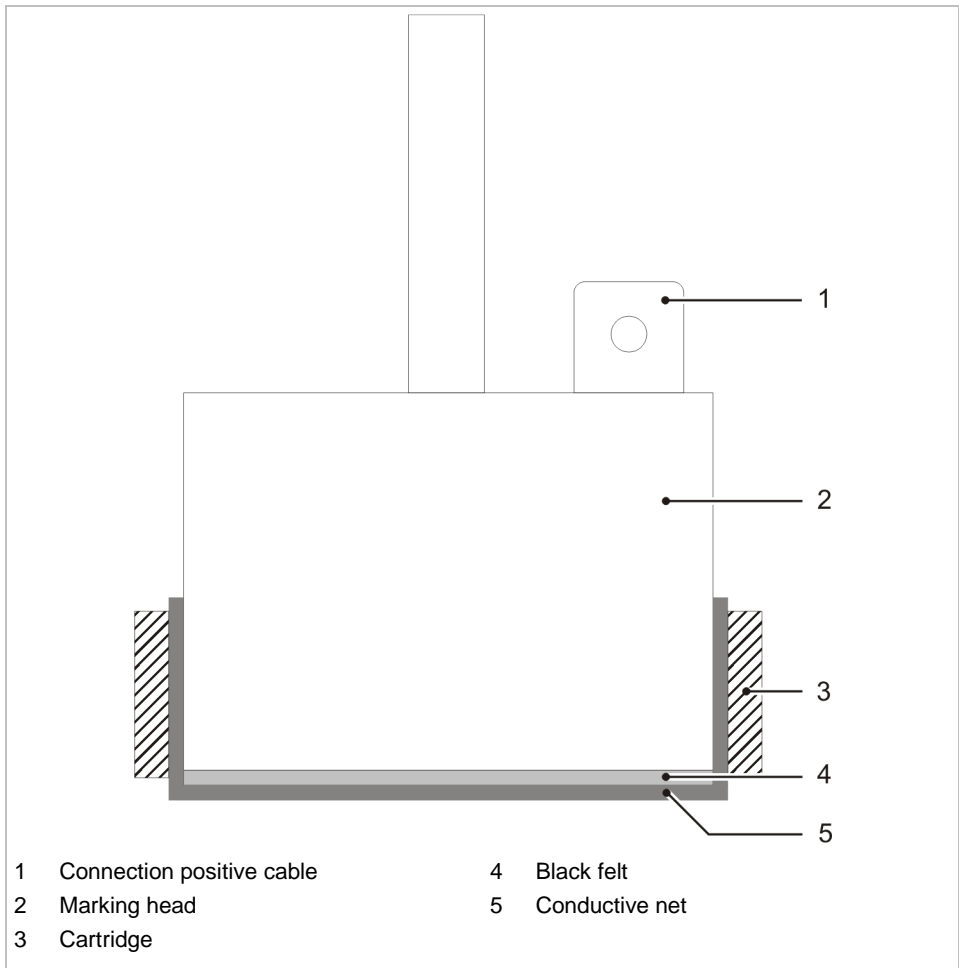
For further technical support please contact our technicians. They will gladly answer your questions about different marking heads and further accessories like e.g. customized devices or installation of the equipment into your production line.

## 4 Setup

### 4.1 Electrical Connection

1. Tuck the banana plug of the red positive cable into the red connection (6, Fig. 10002, page 9) at the equipment.
2. Tuck the other end of the red positive cable into the connection at the marking head (1, Fig. 10010, page 11).
3. Tuck the banana plug of the blue negative cable into the black connection (5, Fig. 10002, page 9) at the equipment.
4. Tuck the other end of the blue negative cable at an electric conductive base plate or directly at the product to be marked.
5. Plug in the line cord (4, *ibid.*).

## 4.2 Preparing the Marking Head



Marking head for black/white markings Fig. 10010

1. Tailor black felt (4) to the size of the surface of the marking head (2).
2. Tailor conductive net (5), so that it gets over approx. 15 mm at all sides of the marking head.
3. Place the felt onto the marking head.
4. Lay the conductive net over the felt.
5. Clamp the felt and conductive net with the cartridge (3).
6. Soak the marking head with electrolyte.



## 5 Operation

### 5.1 Marking a Product

#### Electrolytes are oxidizing substances!



Danger of poisoning.

- Do not swallow the electrolyte and keep it away from contact to the mucous membranes or eyes.
- Wash hands before pausing and after work.



#### Open-end output voltage!

Danger of life for persons with a cardiac pacemaker.

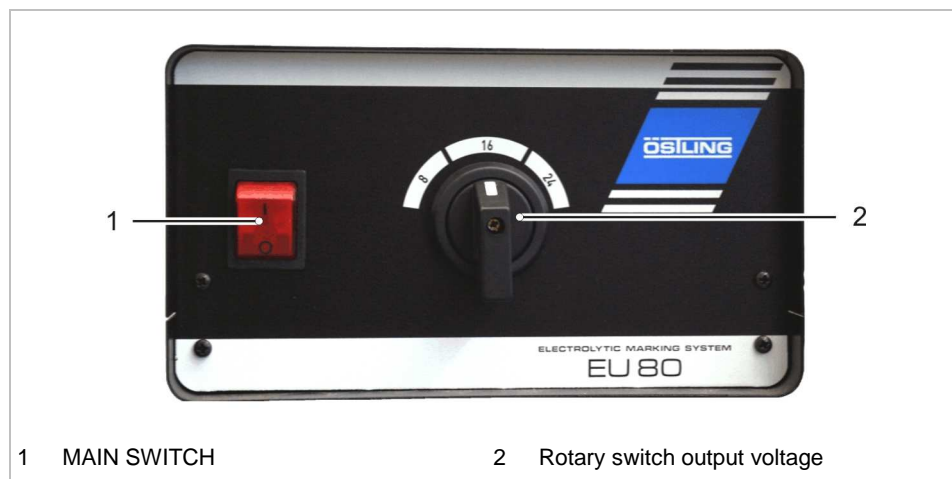
- Work with the marking equipment is forbidden for persons with a cardiac pacemaker.



#### Danger of a short circuit!

High current flow. Safety device is destroyed.

- The marking head may not come into contact with the base plate.



1 MAIN SWITCH

2 Rotary switch output voltage

Fig. 10001

Operating devices EU 80

1. Switch on the equipment over MAIN SWITCH (1).
2. Set the desired output voltage with the rotary switch (2).
3. Place the product to be marked onto a base plate or another rig.
4. Place the stencil onto the product.
5. Moisten the prepared marking head with electrolyte.
6. Press the marking head slightly on the product to be marked.  
The marking time normally is 1 - 1.5 s for black/white markings.
7. Remove electrolyte remainders from the product.
8. Rinse marking head and stencil under clear water after marking.

#### Note

If the marking picture worsens, examine felt and conductive net. Since an operating conditioned carbonization of felt takes place, the felt must be changed occasionally.



## 5.2 Choice of Electrolytes

With the electrolytes specified here you find a selection of the frequently used electrolytes. Electrolytes for special materials can be supplied after attempt markings in most cases.

Number of Electrolyte	For Marking of...
33	hard chrome plated metals
332	carbides
676	tool steels ball bearings
67/10/3	all corrosion-susceptibly, ordinary steels
6744	chrome steels and other stainless steels
639	aluminum die casting zinc plated materials
71	chemically nickel plated materials high-alloyed tool steels
72	chrome steels (18/8, VA)
74	saw blades
75	chrome plated materials
98	titan
117	black oxidized (bronzed) materials
119	steam-finished materials

Tab. 4

**Note**

The electrolytes 676, 67/10/3 and 74 are non-corrosive and do not have to get neutralized. For the neutralization of ferrous metals the neutralyte N8 is suitable, for non-ferrous metals the neutralyte N2 is suitable. Clean non-corrosive materials after marking with warm water. Treat corrosion-susceptible materials with ÖSTLING corrosion protection.

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## 5.3 Troubleshooting

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### Problem: No Mark at All

Check the following points:

- Is the line cord plugged in?
- Are all the other cables plugged in correctly?
- Has been set a voltage?
- Is the fuse on the backside of the control in order?
- Is the marking head moistened with electrolyte?
- Does a current flow between marking head and negative contact pin?

#### Note

Only electrically leading surface can be marked!

Painted, anodized or otherwise coated surfaces are not suitable for marking by electrolytic marking systems.

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### Problem: Mark Is not Clear

Check the following points:

- Is the stencil clean?
- Wash the stencil and the complete marking head with water to remove the oxides.
- Is the surface of the product clean? Wipe off dirt and excess oil with a dry cloth before marking.

---

### Problem: Black Spots around the Mark

The stencil was treated inappropriately. It was broken and became permeable or was torn in another way. In order to solve the problem, the stencil must be replaced.

In emergency holes in the stencil can be sealed with tape or ÖSTLING stencil tape until another stencil is available.

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## 6 Maintenance

Regular maintenance of the control is not necessary. With the occurrence of a disturbance please contact our service department.

#### Note

Opening of the control without authorization voids the warranty.