

Marking Systems for  
Products and Packing

Electrolytic Marking Systems  
Laser Marking Systems  
Pneumatic / Scraping  
Impulse Jet Systems  
Red Printing  
Identification System  
Special Purpose Machines



# **OPERATING INSTRUCTIONS**

## **LP-FLOWETCH**

### **Semi-automatic marking system**

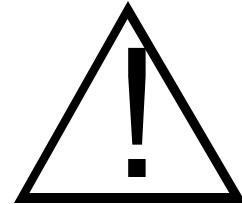
---

Östling/Tykma Marking Systems  
95 North Bridge Street  
Chillicothe, Ohio 45601  
Tel.: 740-779-9918  
Fax.: 740-779-9910  
Email: [sales@permanentmarking.com](mailto:sales@permanentmarking.com)  
Internet: <http://www.permanentmarking.com>

Lp\_flow\_e.doc  
Version 06/99

### Safety tip

- Only authorised persons may open the machine. Unplug the machine before opening.
- In handling the electrolyte you expose yourself to organic and inorganic oxide substances in conjunction with pure water.
- Please obtain a safety manual for each Electrolyte number 91/155/EWG.



### General information

The below described unit is designed to mark products with metal, electrically conductive surfaces in conjunction with electrolyte. Proper functioning of this unit depends upon correct treatment and maintenance of the system. The operation and maintenance instructions must be studied carefully by all operating personnel before the system is used.

### Copyright

All parts of this technical document including any patents described or trademarks contained therein are the sole property of Östling Markiersysteme GmbH Solingen. Without prior approval no part of this document may be duplicated or made available to a third party. No misuse of this manual is permitted. No form of misrepresentation of the content of this document is permitted.

### Liability


For any error in shipment or damage caused during shipment our liability is limited to those conditions outlined in the Terms of Delivery. Duration of the warranty is stated in the Terms and Conditions. We are not responsible for damage caused from improper handling of the equipment or for damage caused by disregarding the operating instructions.



## EU - Conformity declaration

We herewith declare that the construction of the following illustrated unit conforms to all regulations as required by EU guidelines.

Alterations to the machine not performed by our technicians invalidates this declaration.

Machine type:	Electrolytic marking machine
Model:	LP-FLOWETCH
Marking machine:	EU-CLASSIC 300 / EU CLASSIC 500
Machine guidelines: altered through:	89/392/EWG 91/368/EWG; 93/44/EWG; 93/68/EWG;
Low tension guideline: altered through:	73/23/EWG 93/68/EWG
Electromagnetic agreement: altered through:	89/336/EWG 91/263/EWG; 92/31/EWG; 93/68/EWG;
Applied harmonized norms:	EN 292-1; EN 292-2; EN 60 204-1; EN 50 081 -1; EN 50 082-1; EN 60 947; EN 60 439;
Applied national standards:	DIN VDE 0100; DIN VDE 0110; DIN VDE 0113; DIN VDE 0660
Place, date:	Solingen, 14.11.97
Legally binding signature:	 Rolf Östling

This declaration conforms to the terms of the applicable guidelines, and is not an assurance of quality.

The safety precautions included in delivery of this produce are to be followed.

<b>CONTENTS</b>	<b>Page</b>
<b>1 General information.....</b>	<b>5</b>
<b>2 Function description .....</b>	<b>5</b>
2.1 Technical Data .....	5
<b>3 Unit drawing .....</b>	<b>6</b>
<b>4 Operating the machine.....</b>	<b>8</b>
4.1 Tungsten carbide outlet (Option).....	8
4.2 Stencil assembly .....	9
4.3 Preparing the marking head.....	9
<b>5.0 Programming procedure .....</b>	<b>10</b>
5.1 Marking voltage .....	10
5.2 Marking time .....	12
5.3 Pumping time .....	12
5.4 Retarder (Option).....	12
5.5 Counter (Option).....	12
5.6 Original settings.....	14
<b>6 The Marking Process .....</b>	<b>15</b>
6.1 Notices.....	17
<b>7 Maintenance .....</b>	<b>17</b>
<b>8 Accessories .....</b>	<b>18</b>
<b>9 Troubleshooting .....</b>	<b>18</b>
9.1 Problem: No mark .....	18
9.2 Problem: Mark is unclear .....	18
9.3 Problem: Black spots around the mark.....	19

## OPERATING INSTRUCTIONS LP-FLOWETCH

---

9.4 Problem: Magnetic valve does not activate.....	19
10 Choice of electrolytes .....	20

## 1 General information

The LP-Flowetch is a semi-automatic marking system made of the EU Classic series, the electrolyte pump, and the mechanics of automation (basin, tripod, and product holder).

## 2 Function description

The LP-FLOWETCH is for marking products with metallic, electrically conductive surfaces. It does not matter if the product is hardened, steamed, bronzed, chromed, nickel plated, large, small, flat, or round.

The entry voltage is 115 V or 230 V (AC), the exit voltage can be set at infinite settings between 0 - 30 V (AC or DC), power can be set at 310 VA or 510 VA.

In addition, a timer can delay marking times infinitely between 0,6 - 10 seconds.

The marking head gets electrolyte via a pump. Working in conjunction with electric current and electrolyte, an electrochemical process takes place which marks an image on the product via a prepared stencil.

### 2.1 Technical Data

	<b>EU-CLASSIC 300</b>	<b>EU CLASSIC 500</b>
Entry voltage	115 V or 230 V, AC	115 V or 230 V, AC
Exit voltage	0 - 30 V (AC or DC)	0 - 30 V (AC or DC)
Power	310 VA	510 VA
Dimensions (L x W x H)	140 x 380 x 220 mm	140 x 380 x 220 mm
EMV tested	EN 50081-1; EN 50082-1	EN 50081-1; EN 50082-1



## OPERATING INSTRUCTIONS LP-FLOWETCH

---

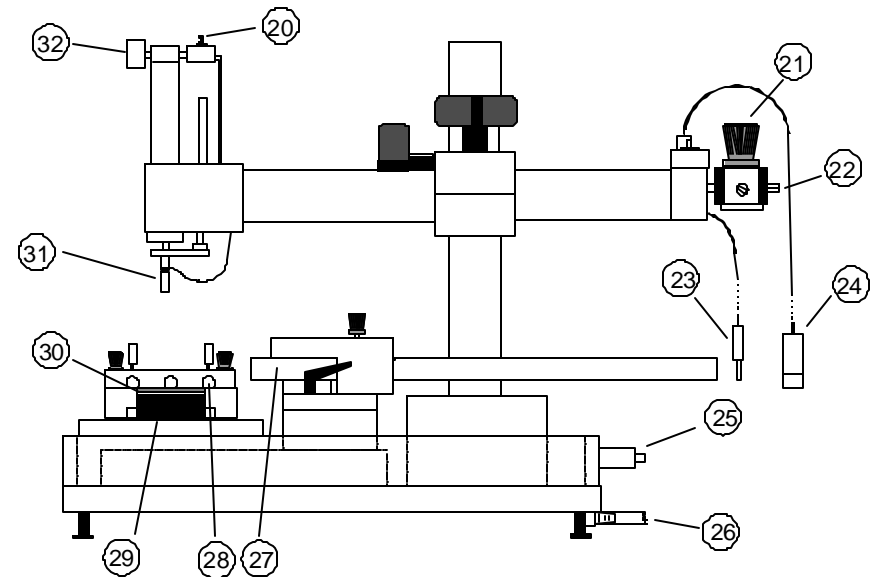
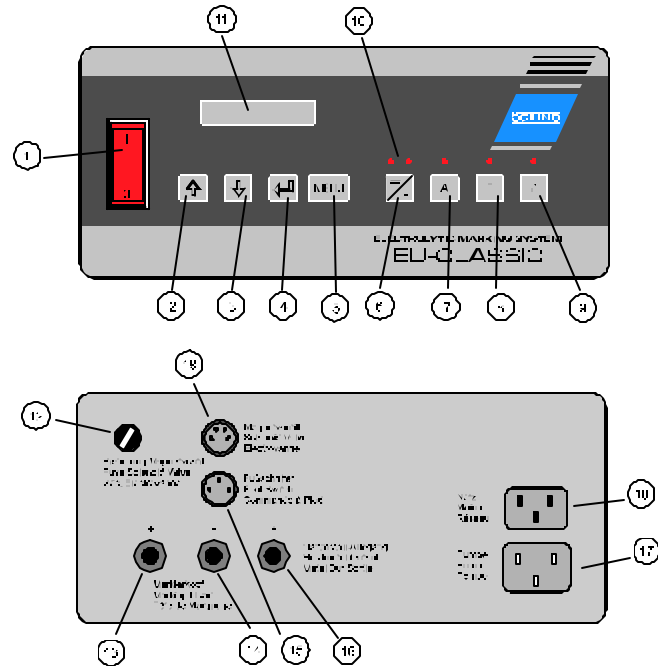
### 3 Unit drawing

Pos. 1	Power switch on / off	Pos. 11	Display	Pos. 22	Air pressure valve
Pos. 2	key ↑ (increase value)	Pos. 12	Circuit breaker solenoid valve	Pos. 23	Negative cable
Pos. 3	key ↓ (decrease value)	Pos. 13	Positive cable connection	Pos. 24	Connector-Solenoid valve
Pos. 4	key ↵ (Enter)	Pos. 14	Negative cable connection	Pos. 25	Electrolyte input
Pos. 5	key MENU	Pos. 15	Footswitch connection	Pos. 26	Electrolyte outlet
Pos. 6	key =/~ (DC/AC)	Pos. 16	Tungsten carbide outlet	Pos. 27	End fastener
Pos. 7	Automatic key	Pos. 17	Pump connection	Pos. 28	Side fastener
Pos. 8	Timer key	Pos. 18	Power cable connection	Pos. 29	Marking head with positive cable
Pos. 9	Pump key	Pos. 19	Solenoid valve connection	Pos. 30	Stencil
Pos. 10	LED DC/AC	Pos. 20	Cylinder speed regulating valve	Pos. 31	Negative contact point

## OPERATING INSTRUCTIONS LP-FLOWETCH

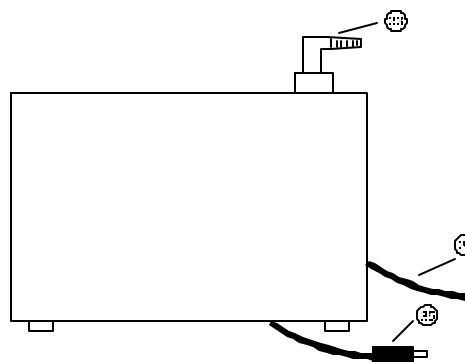
Pos. 21 Pressure regulating valve

Pos. 32 Pressure gauge





- Pos. 33 Electrolyte runoff pump
- Pos. 34 Electrolyte entry pump
- Pos. 35 Connector 230 V, AC



## 4 Operating the machine

Set the marking voltage over the power cord with voltage (Pos. 18) and set the connector (Pos. 35) of the electrolyte pump in the accompanying connection (Pos. 17) the marking voltage.

Bind the socket with the footswitch with the entry socket (Pos. 15) and solenoid valve plug (Pos. 24) with the entry socket (Pos. 19), which are on the back of the control.

Please connect with the included cables (red and blue) the marking output (Pos. 13 and Pos. 14) with the negative contact point (blue) as well as the marking head (red). To that you will find on the side of the basin a fitting connecting piece.

Close Electrolyte outlet tube (Pos. 26) on the filter mechanism of the Electrolyte pump (Pos. 33). Then connect the electrolyte supply of the pump (Pos. 34) with the cut-off valve (Pos. 25).

Equalise air pressure as indicated on the valve/outlet/gauge (Pos. 22). For this use a tube PUN8.

Now fill the pump with electrolyte (approx. 3,5 Litres).

### 4.1 Tungsten carbide outlet (Option)



If you would like to use the tungsten carbide option you will find an appropriate socket (Pos. 16), which must be connected to the marking head.

## 4.2 Stencil assembly

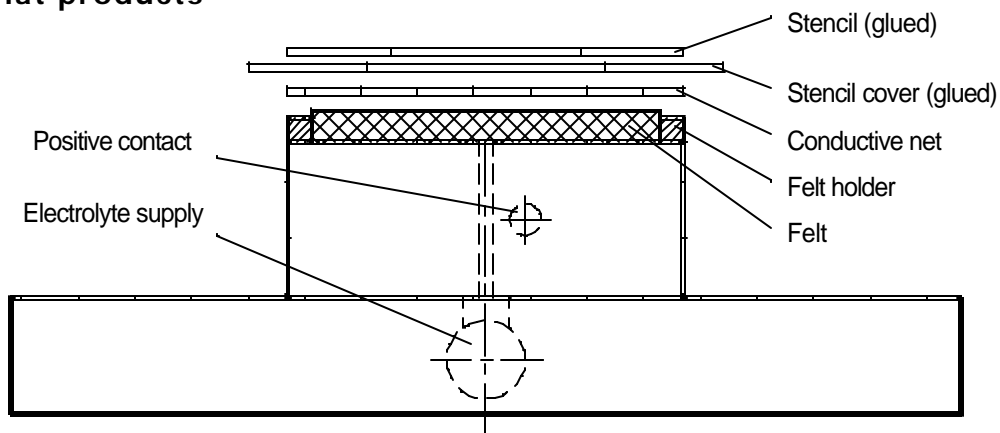
There are several ways to assemble the stencils, depending on the nature of the product to be marked. The different manners to mark the product are described below. We will be happy to assist you with any questions you might have.

## 4.3 Preparing the marking head

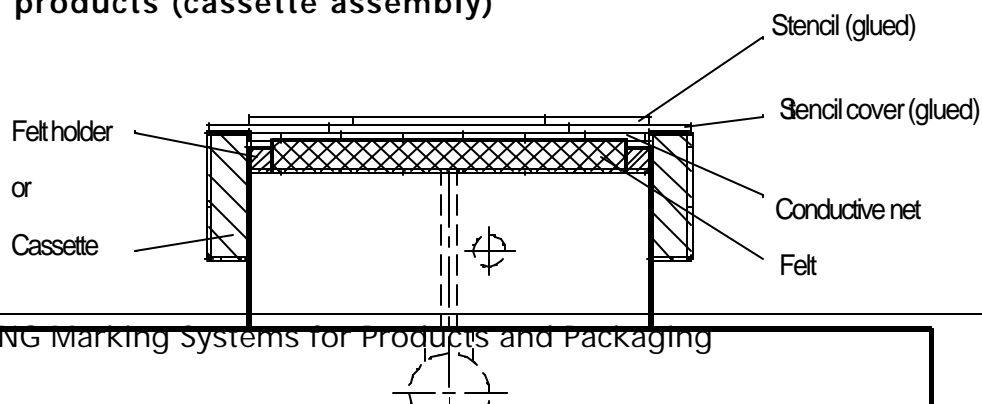
The marking surface of the marking head is covered with black felt and conductive net for black marking. For deep marking, use the green or grey felt.

**Stencil assembly for:**

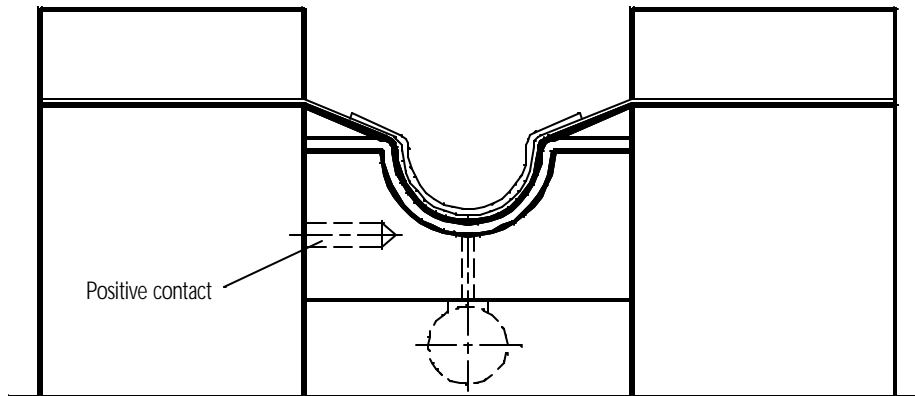
- **flat products**



- **flat products (cassette assembly)**



- **for round products** (sequence as above)  
The maximum writing field is ca. 150°



In case of a curved marking head we recommend that you increase the delay time. Here a current passes through after the product is pressed by the pneumatically. Otherwise this can lead to unclear marks.

## 5.0 Programming procedure

After being switched on, the unit will be in the Main Menu mode (see point 3.1). The values and settings last adjusted will be kept when the unit is switched off.

- The keys A, T, P and the START-Input (footswitch) can be operated within the main menu only.
- The keys MENU, ↑, and ↓ have no function within the main menu.
- The key ↵ is used to leave the main menu and enter the sub menu *marking voltage*.

### 5.1 Marking voltage

Within the sub menu *marking voltage* only the keys ↑, ↓, ↵, MENU and =/~ can be operated.

- The key =/~ allows you to switch between DC and AC voltage. The LED's above the key show the present current flow.

## OPERATING INSTRUCTIONS LP-FLOWETCH

---

- The key  $\uparrow$  (Pos. 2) increases, the key  $\downarrow$  (Pos. 3) decreases the output voltage by 0.2 Volt ( $U_{\min} = 0.2 \text{ V}$ ;  $U_{\max} = 30.0 \text{ V}$ ) each.
- By operating the key  $\downarrow$  the adjusted value is accepted.
- By operating the MENU key (Pos. 5) the adjusted value is not accepted, and the main menu is re-entered.
- From the sub menu *marking voltage adjustment*, you may enter the sub menu *marking time*.



## 5.2 Marking time

In the sub menu *marking time* only the keys  $\uparrow$ ,  $\downarrow$ ,  $\leftarrow$  and MENU can be operated.

- The key  $\uparrow$  increases, the key  $\downarrow$  decreases the marking time MT by 0.1 second each ( $MT_{\min} = 0.1 \text{ s}$ ;  $MT_{\max} = 15.0 \text{ s}$ ).
- By using the key  $\leftarrow$  the new value is accepted, and you will re-enter the main menu.
- By using the key MENU the new value is not accepted, and you will re-enter the main menu.
- If the pumping time option is activated, it is possible to enter the sub menu *pumping time*.

## 5.3 Pumping time

In the sub menu pumping time only the keys  $\uparrow$ ,  $\downarrow$ ,  $\leftarrow$  and MENU can be operated.

- The key  $\uparrow$  increases, the key  $\downarrow$  decreases the pumping time PT by 0.1 second each ( $PT_{\min} = 0.1 \text{ s}$ ;  $PT_{\max} = 10.0 \text{ s}$ ).
- By operating the key  $\leftarrow$  the new value is accepted, and you will re-enter the main menu.
- By operating the key MENU the new value is not accepted, and you will re-enter the main menu.
- If the option delay is activated, you may enter the sub menu *delay*.

## 5.4 Retarder (Option)

In the sub menu retarder only the keys  $\uparrow$ ,  $\downarrow$ ,  $\leftarrow$  and MENU can be operated.

- The key  $\uparrow$  increases, the key  $\downarrow$  decreases the delay by 0.1 second each ( $RT_{\min} = 0.1 \text{ s}$ ;  $RT_{\max} = 10.0 \text{ s}$ ).
- By operating the key  $\leftarrow$  the new value is accepted, and you will re-enter the main menu.
- By operating the key MENU the new value is not accepted, and you will re-enter the main menu.

## 5.5 Counter (Option)

You can see the actual value of markings on the display:

Counter= 00022



By operating the key ↓ the counter will be reset.



### 5.6 Original settings

All settings can be reset to their original settings by depressing the key MENU and turning the unit on.

Output voltage	U = 8.0 V
Marking time	MT = 2.0 s
Pumping time	off; PT = 0.00 s
Delay	off; DT = 0.01 s
Type of output voltage: AC	AC-LED = on; DC-LED = off
Timer function	off; T-LED = off
Output magnet valve (24 V)	off; A-LED = off
Output Pump (230 V)	off; P-LED = off
Counter	00000
Language	German



## 6 The Marking Process

- Set the marking voltage and turn on the unit by pressing (Pos. 1).
- Depending on the material to be marked, select the appropriate electrical current with the key =/~. Refer to section 10 to select the appropriate electrolyte. Also select the exit voltage to an appropriate level as indicated in the display window (Pos. 11).
- Set your desired marking time (see point 5.3)
- Now touch the Automatic key (Pos.7) and Timer key (Pos. 8). The appropriate LED lights should be showing.
- Next touch the Pump key (Pos.9) so that the electrolyte moves from the pump to the marking head. When the marking head is soaked with electrolyte, you may turn off the pump. Pump time is described under point 5.4 For every marking cycle, electrolyte should be added in order to accommodate the pump times.
- Lay the product to be marked on the marking head (Pos. 29) and position it with help of the side fastening device (Pos. 27 and 28). Now depress the footswitch.
- The negative contact (Pos. 31) goes down and presses the product to be marked on the stencil (Pos. 30) and remains there for the allotted time in the marking time. In order to produce a satisfactory impression the cylinder needs ca. 3 - 5 bar, as shown by the pressure gauge (Pos. 32).
- You may adjust pressure with the installed pressure (Pos. 21). The negative contact should quickly and evenly pass the product. The speed of the Cylinder is adjustable with the choker valve (Pos. 20).
- After completing the set marking time, the cylinder rises and the product can be removed.
- If the option counter is activated the display shows after a few seconds the actual value of markings:

Counter = 00156





The counter adds the marking process (s. display). After a product charge has been marked and the required counter reading has been reached, the counter can be returned to zero (see point 5.5).



### 6.1 Notices

- A general hint for voltage and marking duration is not possible in an owner's manual because these data are product specific.
- In order to extend the life of the stencil it pays to use a low voltage and short marking time.
- After ending the marking process, the felt, conductive net, and stencil should be rinsed with clean water.
- Should you notice that the marking image gets poorer, check the felt and conductive net. Under normal operation carbon deposits could form. If this is the case, simply replace the felt and conductive net.
- In order to minimise risk of a short circuit, be sure that the marking head does not come in contact with the tool holding fixture.

## 7 Maintenance

Regular maintenance is not necessary. Should there arise a problem, however, please contact our service department. Opening the unit by a non-Östling technician will void the warranty.



## 8 Accessories

The modular construction of our machine makes it possible to automate the marking process. Our technicians will be pleased to answer any questions you might have.

## 9 Troubleshooting

### 9.1 Problem: No mark

**Please check the following:**

- Is the power cord attached and is it properly plugged in?
- Are the electric and pneumatic cables properly installed?
- Have you set a voltage?
- Is the pressure properly set?
- Is the over-current protection switch (Pos. 13) in the proper position?  
After a cooling period the unit is ready again for operation
- Is the electrolyte pump filled?

**Please note:**

- You can only mark electrically conductive surfaces.
- Lacquered, anodised, or other protected surfaces are unsuitable mark using the electrolytic system.

### 9.2 Problem: Mark is unclear

- Make sure that the stencil is clean.
- Rinse the stencil with water in order to remove any oxidation.
- Be sure that the surface of the product is clean. Remove any dirt or oil with a dry towel or rag before you begin to mark.



### **9.3 Problem: Black spots around the mark**

- The stencil is old or has been damaged. The stencil has a hole or a tear and is letting current through. The stencil should be replaced.

### **9.4 Problem: Magnetic valve does not activate**

- Check the fuse on reverse side of system
- If this fuse is not defective check the fuse on the transformer (see page 6). For this the system must be opened!

### **Reminder:**

#### **Please call us when:**

- technical problems arise
- sample products need to be marked.
- you need accessory parts such as different marking head sizes, felt, electrolyte, stencil holders, or anything else.
- you need to know about other Östling products such as pin marking, pad printing, laser marking, or inkjet printing.

## OPERATING INSTRUCTIONS LP-FLOWETCH

### 10 Choice of electrolytes

Type of marking	Type of voltage	Voltage	Marking time	Felt	Material	Electrolyte	Remarks
Black-etching	AC	8 V	1-2 s	Black with conductive net	Stainless steel	6744, 70 ,72 ,SP1	
					Alloyed Steel	6744	
					Steel	676, 74, 67/10/3, 676R74	Corrosion free electrolyte
					Chrome , Nickel	75	The marking time is dependent on coating thickness with chrome products. In case of unclear marking, send us sample.
					Zinc coated	639, 6578	
					Titanium	6578	
White-etching	AC	8 V	1-2 s	Black with conductive net	Hard metal	332/2	Depending of alloy, the hard metal option may be necessary.
					Black oxidised (Homo steamed)	114 Soft	Neutralise with N8
						119 Medium	
Deep-Etching	DC	approx. 20 -25 V	> 3 s	Green	Brass	DE40, DE90	In the case of deep etching the marking time is dependent on the desired depth. This can last up to a few minutes.
					Aluminium	DE40, DE90	

Electrolyte must be discarded after the marking process is complete

## ÖSTLING - Worldwide



Email: [info@ostling.com](mailto:info@ostling.com)

**ÖSTLING Markiersysteme GmbH**

Brosshauserstraße 27  
D- 42697 Solingen  
Tel.: +49 212 - 2696-0  
Fax: +49 212 - 2696-199

Internet: <http://www.ostling.com>

### Switzerland

**ÖSTLING  
Markiersysteme AG**  
Eichenweg 16  
CH- 4900 Langenthal  
Tel.: +41 - 62 - 922 80 20  
39  
Fax: +41 - 62 - 922 66 17  
29

### France

**ÖSTLING  
Système de Marquage**  
Z.A. Route De Colligny  
F- 57645 Retonfey  
Tel.: +33 - 387 - 76 83  
Fax: +33 -387 - 76 83

### Sweden

**ÖSTLING  
Märksystem AB  
Ltd**  
Box 10 24  
Industrivägen 10 B  
S- 17121 Solna  
Tel.: +46 - 8 - 51490510  
Fax: +46 - 8 - 51490529

### Singapore

**ÖSTLING  
Marking Systems Pte**  
32 Wallich Street  
#01-64 Wallich Building  
SGP- Singapore 078880  
Tel.: +65 - 323 - 6901  
Fax: +65 - 323 - 6903

### USA

**ÖSTLING  
O-T Marking Systems Inc.**  
95 N. Bridge St., PO Box 917

Chillicothe, Ohio 45601  
Tel.: +1 – 877-318-9562  
Fax: +1 – 740-779-9910