



DirectMark Tutorial 1

Quick-Start-Guide ProMarker Series

DirectMark Tutorial 1 for ProMarker Series | V001_DM-Tutorial (08/2015)
ENGLISH



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1 Objectives of this tutorial

This document will show how to do the first steps with a ProMarker laser system.

- Power up the laser
- Focus the laser
- Mark directly from Corel Draw using the DirectMark printer driver
- Use the positioning graphics
- Select pre-defined parameters from the material database
- Mark vectors

Requires:

- ProMarker 300
- 20 Watt
- F160 lens
- Corel Draw installation
- Anodized pen



Figure 1: ProMarker series



2 Turning on the ProMarker laser

- 1) Turn on the computer
- 2) Turn on the laser rack with main switch as shown in the picture below

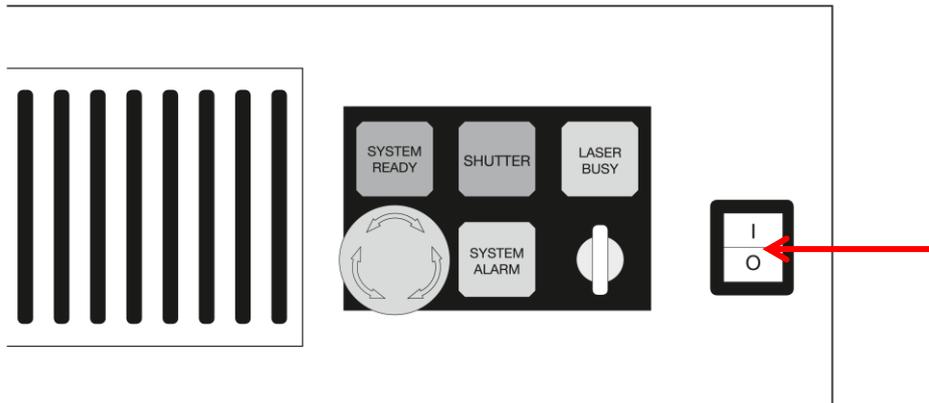


Figure 2: laser rack ProMarker

3) Reset System Alarm

When the laser is turned on the “System Alarm” needs to be reset as shown in the picture below. If the alarm cannot be reset, check the E-stop switch at the front of the rack and ensure that no external E-stops circuits are open (X31 and X11).

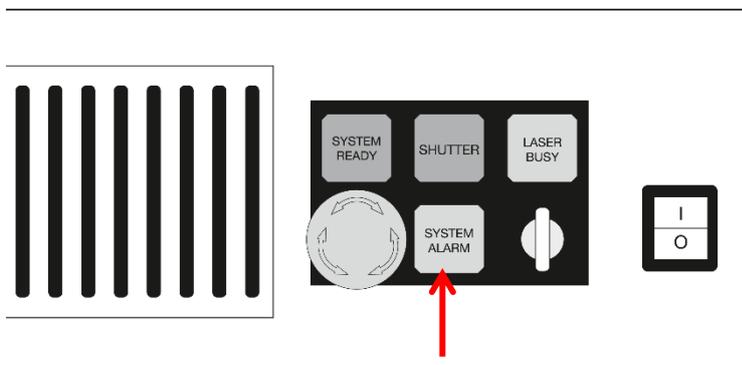


Figure 3: Reset system alarm at laser rack

4) Check control lights

Check that the green “System Ready” and “Shutter” lights are both on. If they are not lit, first check that the key switch is in the horizontal position as shown above. When the ProMarker is built into an enclosure (ProMarker 300), the green lights will only come on once the cover is closed. If the lights remain off, check that the interlock circuits are closed (connector X11 on rear of rack).

The ProMarker is now ready to print from any customer software.



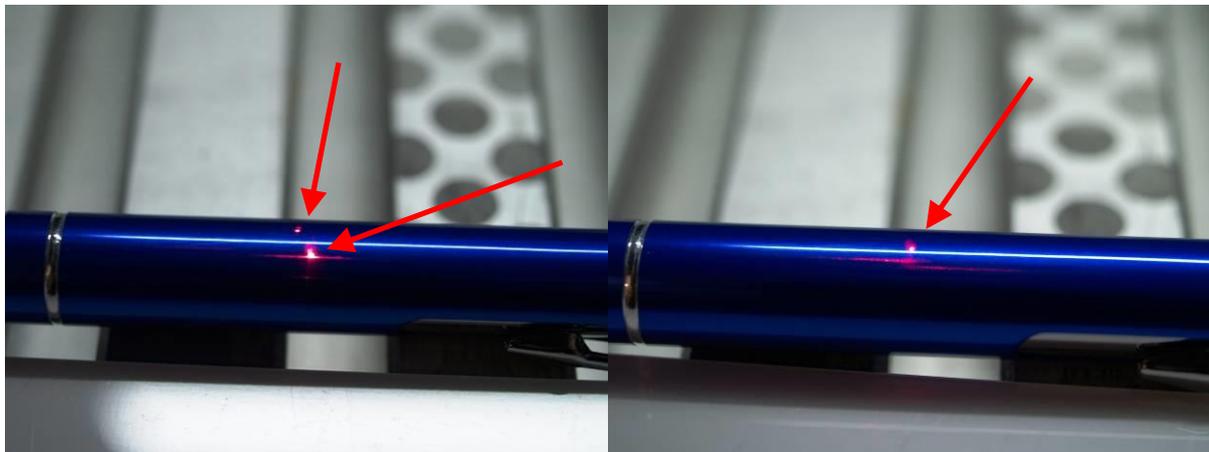
3 Focus the laser

Besides picking correct marking parameters, finding the correct focus distance is the most important step for a good mark. Depending on the setup, the focus can be adjusted by either moving the marking head up or down relative to the fixed object or by adjusting the height of the work piece relative the marking head. There are several ways to find the correct focus distance.

Here, two options are shown.

3.1 Focus Finder

The FocusFinder is a useful option to quickly and without additional tools find the correct focus distance. It uses a second pilot laser pointed under a defined angle that will exactly overlap with the moving pilot laser dot when in the focal plane.



out of focus

in focus

Figure 4: Focus finder

The laser should be focused on the crown of the pen.

3.2 Measuring the distance

b) Measuring the distance between the galvanometer scan head and the work piece is a second way of focusing if the FocusFinder is not installed. Using a ruler or tape measure adjust the distance between the bottom side of the galvanometer scanner and the crown of the pen to be 212 mm (8.33 inches).



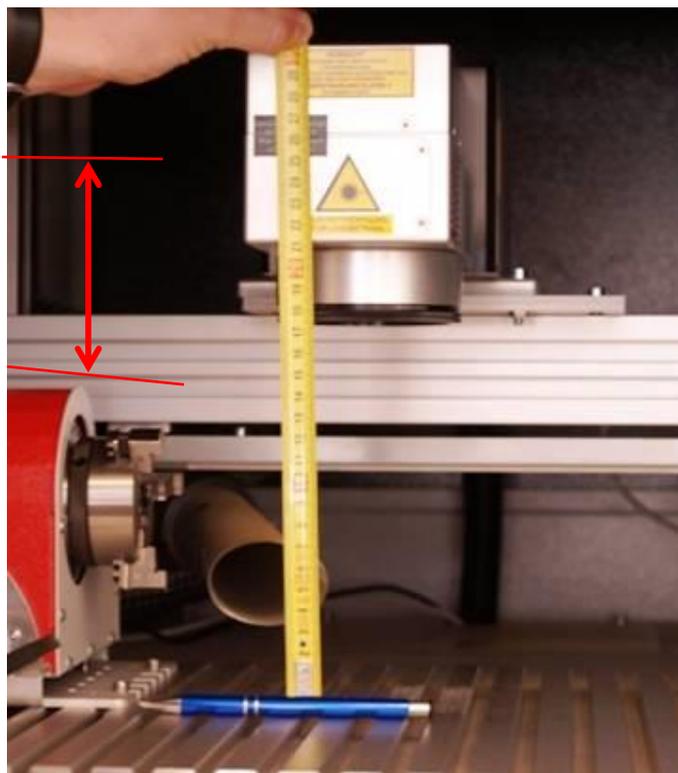


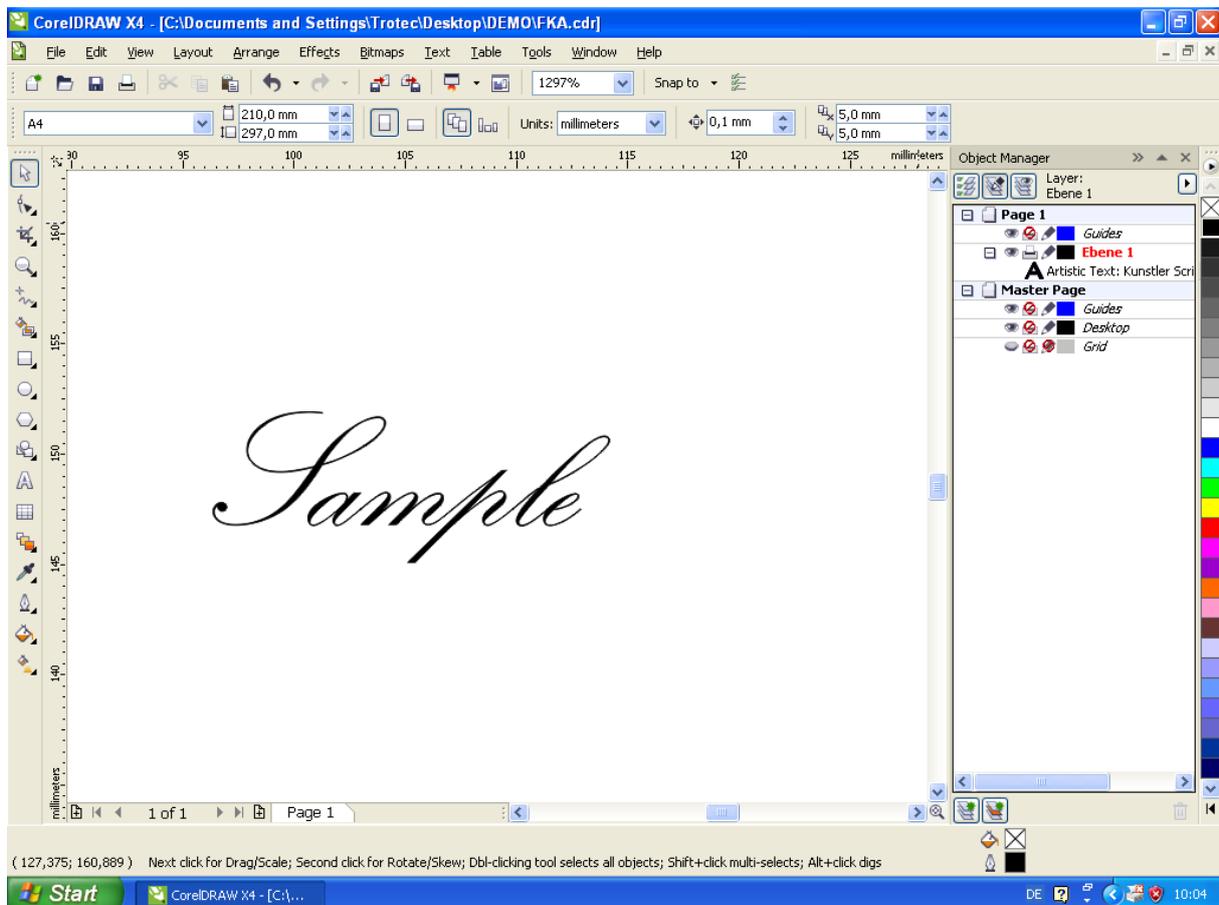
Figure 5: Measuring the distance



4 Creating the graphic

This tutorial was created using Core Draw. Other graphic software may be used as the DirectMark printer driver will print from almost any software.

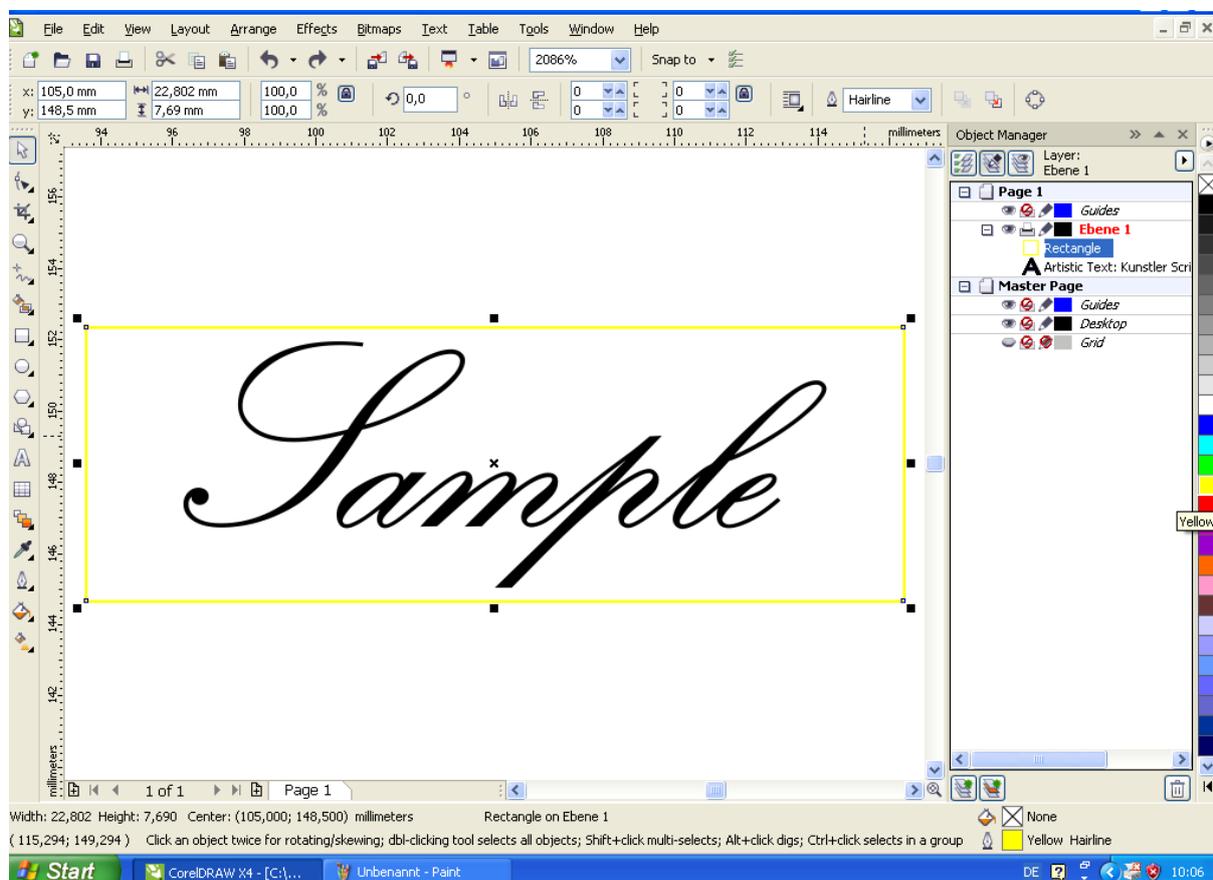
1. Open a new page in Core Draw.
2. Set the page size to 110x110mm as this is the size of the marking area of the ProMarker.
3. Create a text with text height 7 mm so the text will fit on the pen.



5 Create a positioning graphic

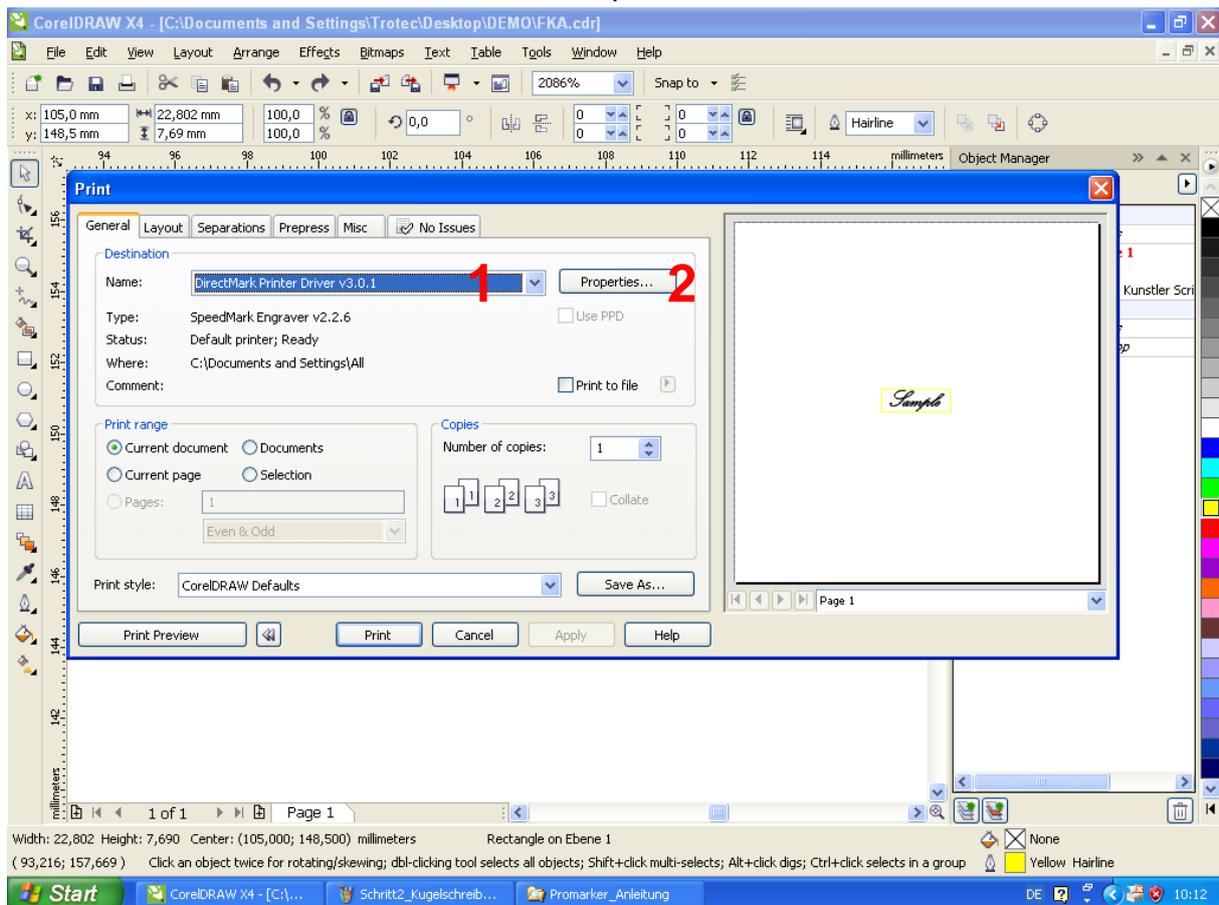
Positioning graphics are vector lines used to check and adjust the position of the actual mark on the work piece. As such they will be outlined by the pilot laser but will not be marked on the part. By default yellow vectors are interpreted as positioning graphics. This can be changed in the material database. To create a positioning graphic,

1. Draw a rectangle around the text
2. With the rectangle still active, right click on the yellow color in the color palette. The result should appear as shown below.
3. To double check, make sure the line is a hairline and that the color chosen has the RGB values R 255, G 245

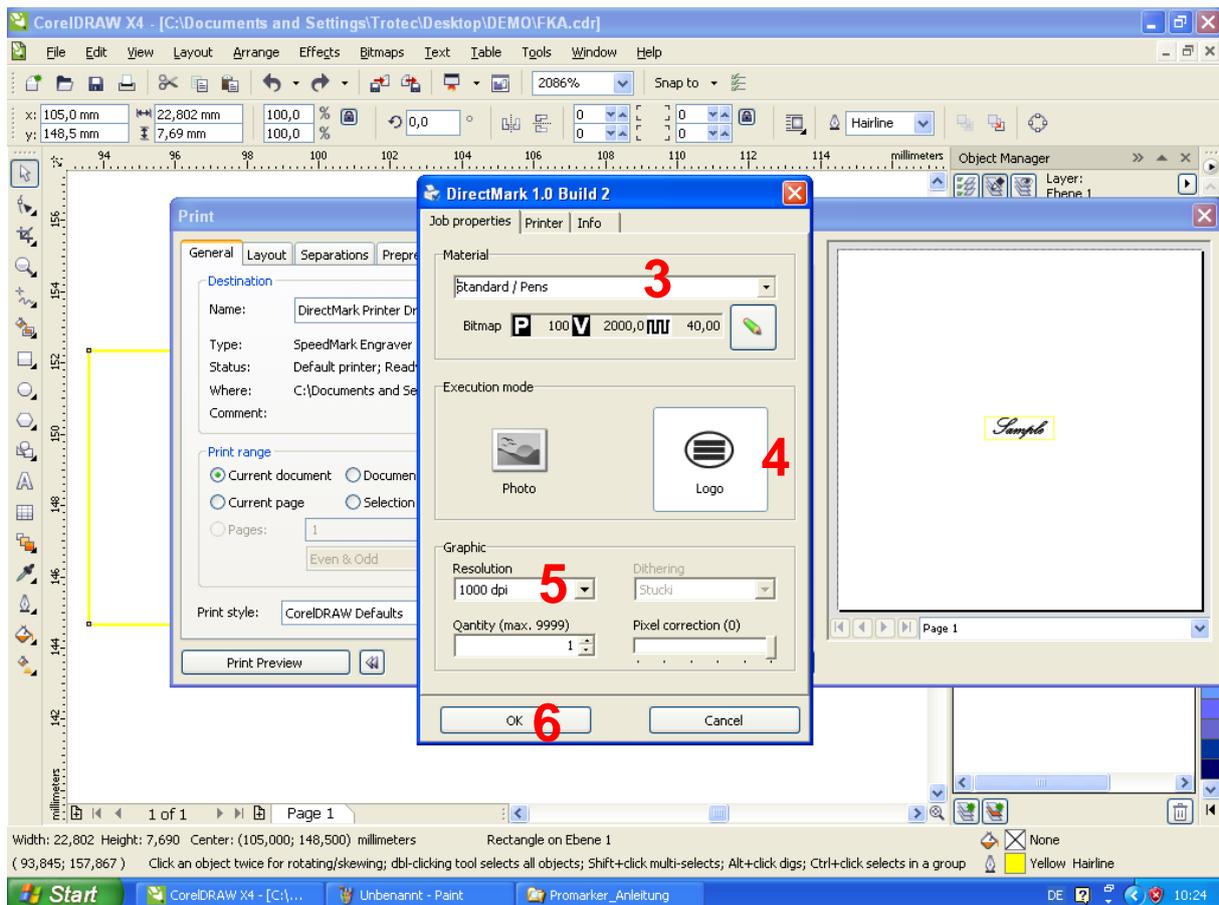


6 Setting the marking properties

1. Go to **File- Print** in Corel Draw 3 and select the DirectMark Printer Driver as printer (1).
2. Click on the **Properties** button (2) to the right of the drop down list to set marking properties including the laser parameters.

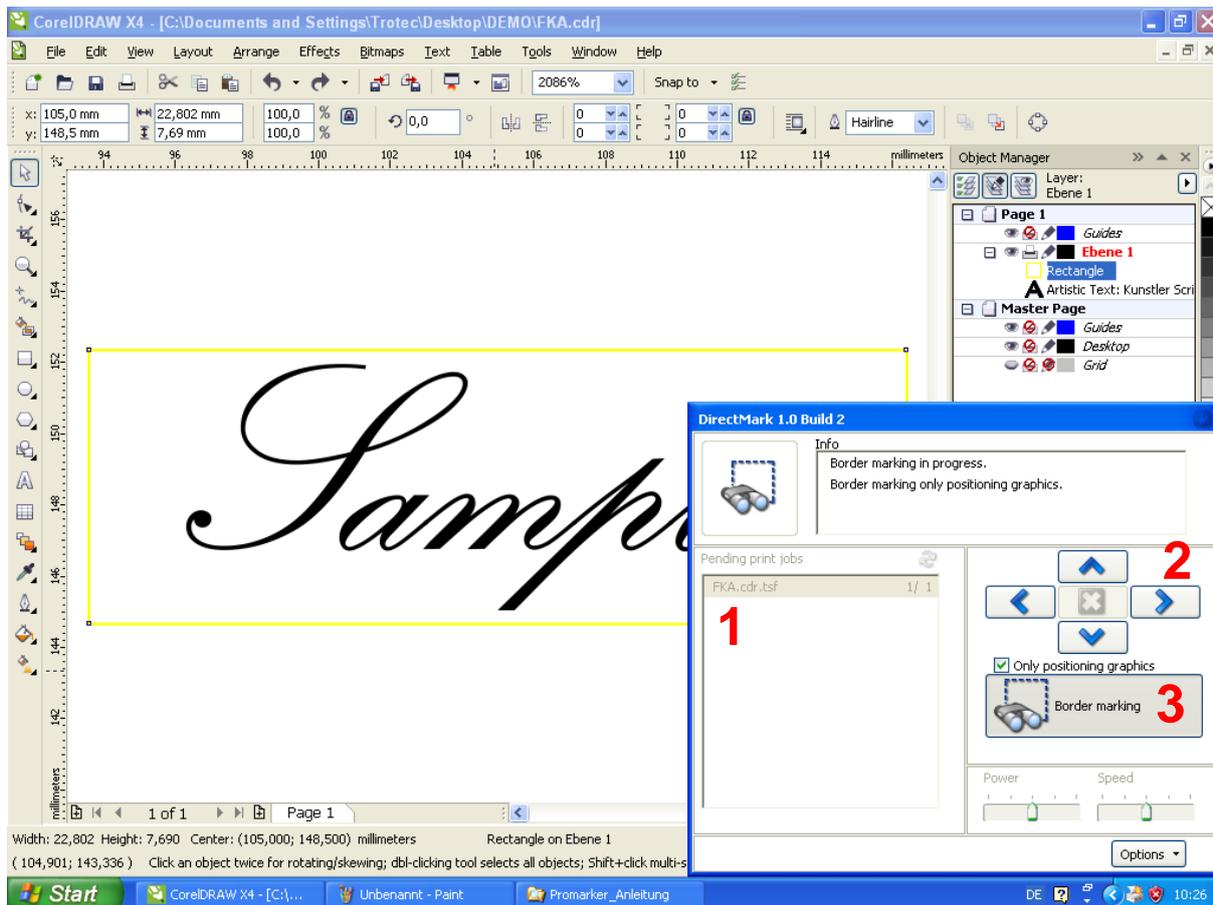


3. For this particular sample, the material parameters should already exist in the material database. To select the correct parameters, select **Standard/Pens** from the drop down list as shown below (3). (If the exact material does not exist, select anodized aluminum from the list)
4. Click on the **Logo** icon (4). This will convert the graphic into black and white only (no grey tones) and automatically vectorize the graphic for higher marking speeds.
5. Select a resolution of **1.000 DPI** (5)
6. Pressing **OK** will return you to the **Print** page of Corel Draw (6).

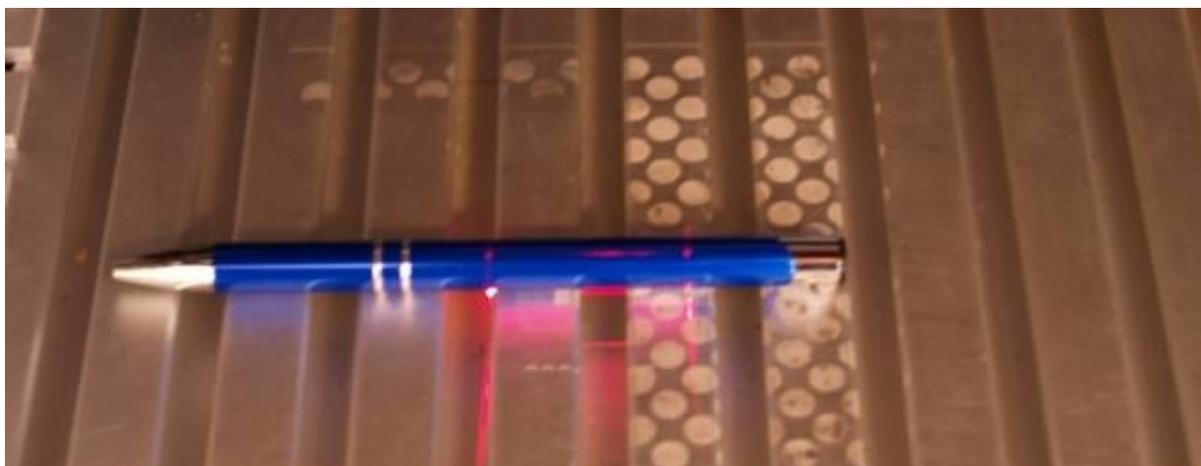


7 Position the job

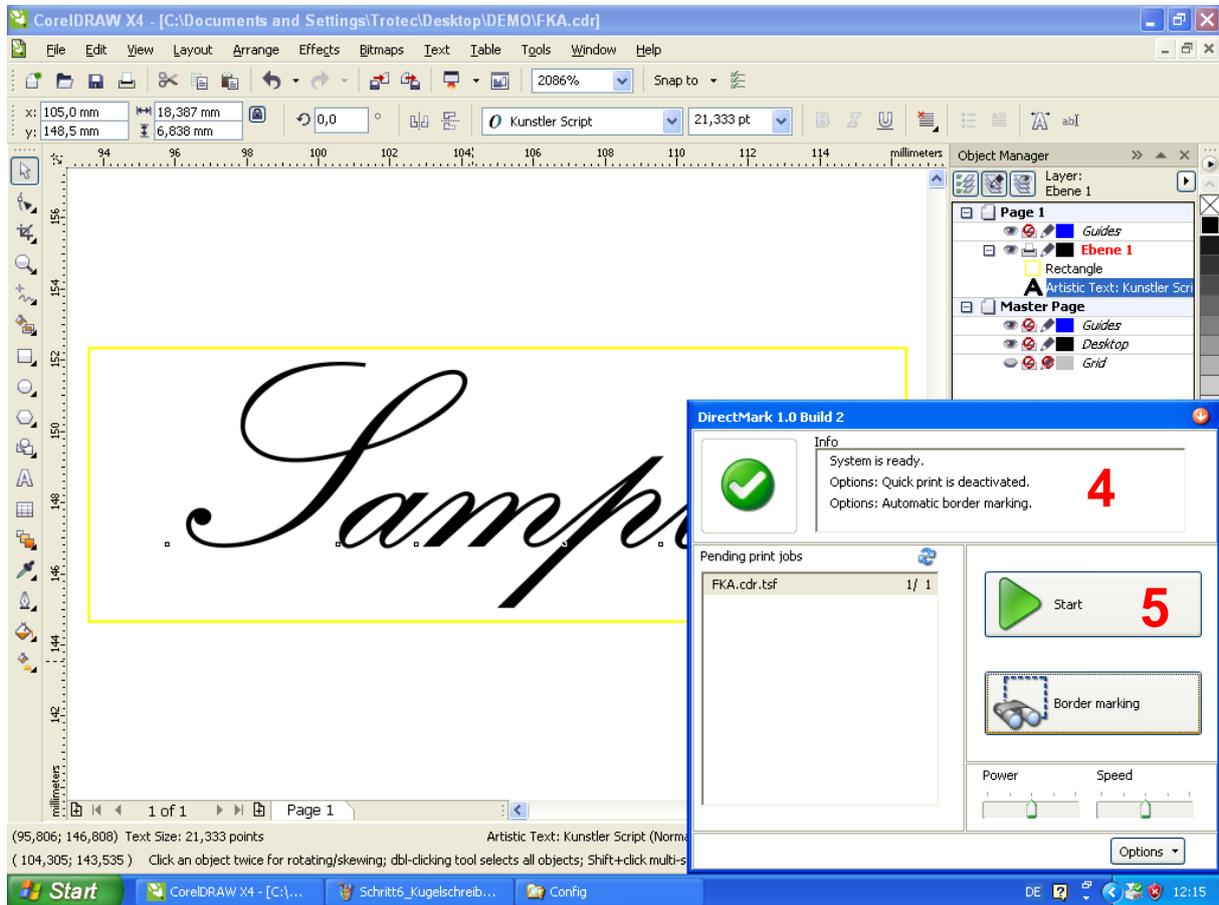
1. With all the parameter set, the job can be send to the laser using the **Print** button in the printer window of Corel. This will send the print job to the DirectMark printer driver. After the printer driver has been started, the DirectMark interface window will appear automatically as shown below. The printer queue (1) lists all pending jobs. The current job is highlighted.



2. By default the pilot laser will continuously outline the positioning graphic that was drawn in Corel. The arrow buttons (2) may be used to reposition the graphic on the part.



3. To stop the pilot laser, press the **Border marking** button (3). Stopping the border marking process will show the system status at the top of the window (4) along with the **Start** button (5).



8 Start marking

To mark the pen, press the *Start* button. The result should appear as shown below.



Once the job is finished, it is automatically removed from the printer queue.

9 Marking vectors

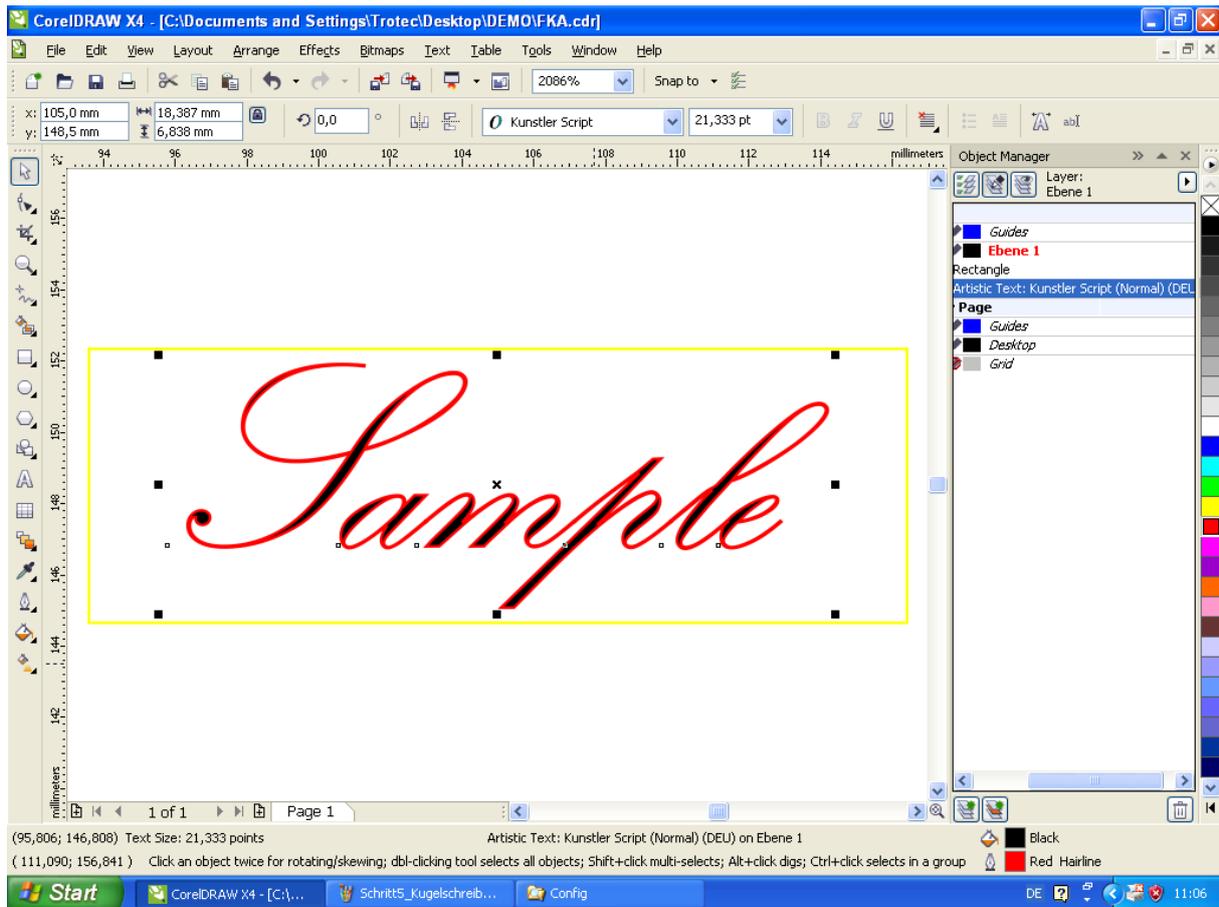
The printer driver by default interprets any graphic as a bitmap. These means

- a) DirectMark will use the marking parameters associated with a bitmap regardless of the color the graphic is drawn in
- b) Marking will be carried out line by line with the line spacing defined by the DPI setting chosen.

The exceptions are hairlines (vectors) that are drawn in a color that has also been defined in the printer drivers' material parameter database. These hairlines will be marked as vectors exactly as drawn. The position graphic is an example for such a vector.

As an easy example the border of the sample text can be turned into a red hairline by selecting the text and right clicking the color red in the color palette. The text should appear as shown below.





1. Open the Corel printer window using CTRL+P.
2. Check to see that the material parameters for the pen are still selected.
3. Press **OK** and print the job.
4. Adjust the position of the mark and start the job.

Close observation will show that the laser first marks the text line by line and in a second step trace the text outline.

Vectors not only help reduce the marking time, as they are marked as continuous lines, they are independent of the DPI resolution. As a test the sample can be reproduced with a low DPI setting.

Trotec Laser GmbH
Linzer Straße 156
A – 4600 Wels
AUSTRIA

Trotec Laser GmbH
Freilingenstraße 99
A – 4614 Marchtrenk
AUSTRIA



www.troteclaser.com

Subject to technical changes.