







# Content

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### 1 Objectives of this tutorial

#### This tutorial will show how to:

- Import a black and white bitmap
- Combine a graphic file with text
- Add serialization

## **Requires:**

SpeedMarker FL 20 F160 lens SpeedMark 3.1b1 or higher Anodized aluminium tag



Figure 1: SpeedMarker series

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## 2 Import a raster graphic (bitmap)

1. Click the "BMP" element in the graphic tool box. It will become visible by clicking the small arrow next to the "DXF" default icon.

DXF,	DXF	Vector graphic	
	ENP	Raster graphic	Þ
¥ -	POF	PDF	
- 1	\$	Import	

2. Place the cursor in the flow chart and left click to add the bitmap to the flow chart. This will automatically open an import dialogue window as shown on the right below.

	New graphic 🛛 🗙
	New graphic
	Source 3
	🔻
Flow chart ×	dot density [dpi]
Start	Contrast
	brightness
	Dithering
Τ-	Nächste Farbe
1234	Execution mode
EMP -	☐ Invert
	X [mm] Y [mm]
	0,00 0,00
8 -	
<b>₩</b> •	4 Add Cancel

- **3.** Click on the three dots (...) to open the file dialogue and load the file called Anodized\_aluminium\_type\_plate\_file\_SN.bmp that was supplied with the tutorial.
- 4. Add the bitmap

1



- **5.** With the bitmap still highlighted, go to the *Graphic* tab and select a DPI setting of 500
- 6. Choose the *Dithering* mode as shown here (no dithering needed)
- **7.** As *Execution mode* select *Logo*. This will automatically vectorize the bitmap to reduce the marking time

To learn more about importing vector files, refer to chapter 5.2.11 on page 53 ff. of the SpeedMark user manual.

Graphic prope	rties	×
Filling	Transformation	General
Graphic	Marking	Source
Graphic propert	ties	
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Source		
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Dithering	_	
Nächste Fa	rbe	- 6
Execution m	ode	
Logo (Black	(/White)	- 7
□ Invert		



## 3 Add a serial number

- 1. Add a text element. (The text element serves as a placeholder for the serial number and can be added without entering actual text)
- 2. Move the text so that will appear before the bitmap in the flowchart (otherwise the text will be hidden behind the bitmap in the pre-view window)
- 3. Change the text height to 3mm:
  - a. click on the text element to highlight it
  - b. go to the tab called Transformation in the Graphic properties window
  - c. enter 3 under Height [mm] and press enter

Graphic prop	erties	- 🗆 X	
Graphic	Marking	Source	
Filling	Transformation	General	
Position and S	ize		
Anchor point	of the graphic		
2			D
E E			
-	- + +		
Position	Size		
X [mm]	Height [mm]		
0,85	3,00		С
Y [mm]	Width [mm]		
0,00	4,93		
	Proportio	onal	
Rotation			
	Angle [9] 260.00		
	Angle [*] 500,00		



4. Position the text over the bitmap as shown below.

trotec Produktions- und Vertriebs Ges.m.b.H   Linzer Straße 156, 4600 Wels, Austria   Serial No: SM-F Text   Model / Typ: Workstation LWS 570   Manufactured: May 2010   Input Power: 230VAC~, 3,1A, 50/60Hz   Nominal Power: 615 W   Lasertype: Yb, 20W, 1050-1090nm   Wiring Diagram No: Speedmarker FL 10-50W   Constant <0,99mWcw, 655nm		
Trotec Produktions- und Vertriebs Ges.m.b.H Linzer Straße 156, 4600 Wels, Austria Serial No: SM-F Text Model / Typ: Workstation LWS 570 Manufactured: Workstation LWS 570 May 2010 Input Power: Lasertype: 230VAC~, 3,1A, 50/60Hz 615 W Viring Diagram No: Lasertype: Yb, 20W, 1050-109Dnm Speedmarker FL 10-50W <0,99mWcw, 655nm	trotec	Laser
Serial No: SM-F Text Model / Typ: Manufactured: Workstation LWS 570 May 2010 Input Power: Lasertype: Utring Diagram No: Laserdiode: 230VAC~, 3,1A, 50/60Hz 015 W Yb, 20W, 1050-109Dnm Speedmarker FL 10-50W <0,99mWcw, 655nm	Trotec Produktions- ur Linzer Straße 156,	nd Vertriebs Ges.m.b.H , 4600 Wels, Austria
Input Power: Nominal Power: Lasertype: Wiring Diagram No: Laserdiode: 230VAC~, 3,1A, 50/60Hz 615 W Yb, 20W, 1050-109Dnm Speedmarker FL 10-50W <0,99mWcw, 655nm	Serial No: Model / Typ: Manufactured:	SM-F Text Workstation LWS 570 May 2010
EN 60825-1 (2007) www.troteclaser.com	Input Power: Nominal Power: Lasertype: Wiring Diagram No: Laserdiode: EN 60825-1 (2	230VAC~, 3,1A, 50/60Hz 615 W Yb, 20W, 1050-1090nm Speedmarker FL 10-50W <0,99mWcw, 655nm 2007) www.troteclaser.com

- 5. Highlight the text element in the flow chart
- 6. In the graphic properties window on the right side of the screen, go to the *Source* tab and select *Serial number* form the drop-down list.

Graphic properties ×					
Filling	Transformation	General			
Graphic	Marking	Source			
Rule for text		$\smile$			
Static text		-			
Static text Expression Timestamp					
Serial number Serial file					

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The window will change as shown below. Leave the settings for start value, increment and end value unchangend.

- Change the format by selecting %.4d from the drop down list. This will change the serial number format to display a 4 digit number with leading zeros (starting at 0001)
- **8.** Ensure that the three settings at the bottom of the window match the setting shown here.
- 9. Fill the text using 0,03mm hatch spacing

#### <u>Tip:</u>

Serialization can be applied to barcodes in exactly the same manner.

By choosing time stamp from the upper most drop down list, a date or time can be realized as well.

To learn more about these built in SpeedMark functions, refer to chapter 12 on pages 101 ff. in the SpeedMark User Guide.

	perties		×
Filling	Transform	nation	General
Graphic	Mark	ing	Source
ule for text	t		
Gerial numb	er		-
erial numbe	er		
Serial nur	mber paramete	er	
c	Current value	1	×
	Start value	1	
	Increment	1	
	End value	100	
End	value infinite		
Format			
Format			
Format %d			<b>.</b>
Format %d Result	1		•
Format %d Result	1		• 6
Format %d Result	1 actions		• • • •
Format %d Result Optional On End vo	1 actions alue start value		• • • •
Format %d Result Optional On End v. Reset to On Progra	1 actions alue start value am start		• • • •
Format %d Result Optional On End vo Reset to On Progra	1 actions alue start value am start rent value		• • •
Format %d Result Optional On End vi Reset to On Progra Keep curi On Progra	1 actions alue start value am start rent value am save		• • •



### 4 Assign material parameters

The easiest way to assign material parameters to the graphic would be to select a pre-defined set of parameters from the material database. For example there is a set of parameters called *Anodized/Engraving* defined in the database.

To fine tune the parameters and save them as part of the project file rather then in a separate data base, select the project parameter from the menu bar:



Project parameters

Enter the following parameters to a color of you choice:

Power [%]	Marking Speed [mm/sec]	Frequency [kHz]
100%	2.000	50

Highlight first the text and select the project parameter you just defined Highlight the bitmap and change to the project parameter.

#### 5 Start marking

- Have the pilot laser outline the graphic by pressing F7
- Check the correct position
- Start the marking process using the F12 key or the Execute button in the menu bar.



Each time the script is started (F12) the serial number will counted up by one. Alternatively a loop may be added to the flow chart (refer to the LWS-SpeedMark-Tutorial\_1) so that the script only needs to be started once.

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<u>Tip:</u> To reset the serial number to the start value, go to the *Source* tab of the text element and press the red X as shown below.

Graphic properties X						
Filling	Filling Transformation General					
Graphic	Mark	ing	Sour	ce		
Rule for tex	t					
Serial numb	er			•		
Serial numbe	Serial number Serial number parameter Current value 1					
	Endualua	100				
	End Value	100				
End	value infinite					

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Subject to technical changes.

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