



## USER MANUAL

# Driver Gravotech Laser

Paramètres laser | Réglages avancés | Corrections | Source laser | A propos de

Paramètres de configuration

Sans nom

Sauvegarde

+ Ajout - Suppression

YAG 200

Préchauffe

ABC

0,00 0,00 110,00 125,66

Int Ext

TC2

ø 40,00 mm

Circonférence = 125,66 mm

Dpi Y: 300

Dpi X: 300

%	mm/s	1-100	Hz	
90	100	1	30000	Raster / Vecteur
90	100	1	30000	Raster / Vecteur
90	100	1	30000	Raster / Vecteur
90	100	1	30000	Raster / Vecteur
90	100	1	30000	Raster / Vecteur
90	100	1	30000	Raster / Vecteur
90	100	1	30000	Raster / Vecteur
90	100	1	30000	Raster / Vecteur

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Type3

PROPen

TECHNIFOR

GRAVOGRAPH

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### Translation of French original document - Version : 03/15

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## Introduction

The manual corresponds to the 3.29 and later releases of the Gravotech Laser driver that manages Gravotech Galvo machines (YAG, FIBRE, GREEN 200, LASER SOLUTION F/G/H).

### 1. Description

The driver authorizes

- the detection of the Galvo machine connected to the PC, as a Windows® printer.
- the communication between the machine and the graphical editor where the file to mark is done.
- the definition of settings used to mark the file onto material.

### 2. Recommended PC Configuration


<b>Microprocessor</b>	Quad Core
<b>Frequency</b>	2.7 GHz
<b>RAM</b>	4 GB
<b>Internal hard disk</b>	6 GB free
<b>DVD reader</b>	16X DVD-ROM
<b>SVGA monitor</b>	22" - 1280 * 1024 pixels
<b>Machine port</b>	Ethernet
<b>Graphical port</b>	NVIDIA GeForce GTX 1070 8Go GDDR5
<b>USB Peripherals</b>	Printer - Mouse - Keyboard

### 3. Windows® compatibilities

<b>OS</b>	<b>32 bits Version</b>	<b>64 bits Version</b>
<b>Windows® 10</b>	Compatible	Compatible
<b>Windows® 8</b>	Compatible	Compatible
<b>Windows® 7 SP1</b>	Compatible	Compatible
<b>Windows® Vista SP2</b>	Compatible	Compatible
<b>Windows® XP SP3</b>	Compatible	NONE



## Make a GALVO machine ready to mark

 **Open an "Administrator" session.**  
**Do not open "User" session.**  
**Do not start Gravostyle software.**

### Setting up Gravotech Laser driver into Windows

Any previous version of the driver and its components installed in Windows are systematically deleted.

> Deleting current driver...



Next. Click and proceed setting up.









**When the driver can't be deleted Windows reboots. Restart the full driver setup.**









**To update the machine driver set up the new version into Windows.**

### Getting authorizations to configure the machine





1.  Plug the connectors of the RJ45 cable onto Ethernet port of the machine and onto Ethernet port of the PC.
2. Power on the machine and the PC. Let Windows operating system start 
3. **Open the folder that contains the files required to set up the driver:**  
 **D:\Gravograph\added\DRIVER from Gravostyle setup disk.**  
 C:\Gravostyle8xxx\DRIVER, when Gravostyle software has already been set up.
4.  **Right-click setup.exe file** 
5.  **Execute as an Administrator**  
 Follow the instructions shown by the setup wizard.
6.  Click Printers and Peripherals in Start menu. Check that the machine displays as new printer 
7. **Rename the printer** with the name of the machine.



The machine is detected as **new device on the GravotechCom port of the PC.**

1.  Click Peripherals and Printers in Start menu 
2.  Right click the printer linked to the engraving machine 
3.  **Printer settings**
4.  Security Click tab.
5. **Everybody** Click the user.
6. **Click Authorizations for Everybody**
- ☒ **Printing**
- ☒ **Managing printers**
- ☒ **Managing documents**

### Setting marking parameters



### Setting up an additional machine into Windows

1.  Click Peripherals and Printers in Start menu 

2.  Right-click the printer linked to the machine 


3.  **Printing options**

4. [Change the required values.](#)

1.  Click Printers and Peripherals in Start menu. 

2.  **Add printer**

3.  **Add local printer.** Set up printer manually.

4.  **Add a new port**

5. **Type of port: Standard TCP/IP**

 Next

6. **Type Printer name or IP address that must start with 192.168.1.1x**


The last ciffer must differentiate the additional machine from the one already set up (from 2 to 9).

The Port name also displays the new IP address.


7. ☐ Do not Query printer and do not select automatically the driver to



use.  Next

8.  **Tick the Type of Custom**

**peripheral.**  Next

9.  **Select Gravograph in Maufacturer list.**

10. In Printers list select Gravotech Laser printer driver.  Next



11.  **Use the currently set up driver.**  Next

12. **Type the exact name of the machine into Printer name.**

 Next

13.  Do not share printer.  Next









14. ☐ Avoid Selecting as default printer. Do not print test page.

15.  Finish. Check that the machine displays as new printer 



### Finding the IP address of a Galvo machine

! If a problem occurs during the operation call out the software support. Specify IP address of the connected machine to the technician contacted.

1.  Click Peripherals and Printers in Start menu 
2.  Right click the printer linked to the engraving machine 
3.  **Printer settings**
4.  Ports Click tab.
5.  Configure port Click to display the properties of the TCP/IP port.
6. **Note the Printer name or IP address : 192.168.1.1x**
7. Check that the Protocol is RAW and the port Number is 9100.
8. 

Order: 5000

## Windows printer



Its size varies with the used focal, its position depends on the marking origin.

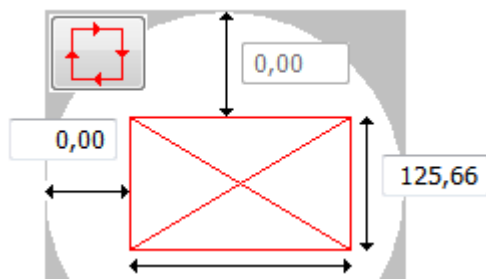


2

**Warming up (YAG and GREEN 200)**

Start the source gradually after a time of inactivity.

3

**Marking zone**

marking zone.

Key in the XY coordinates of the origin and the dimensions of the

At most equal to machine field the dimensions are the values keyed into the graphical editor where the file to mark is done.

The top left corner of the machine is the default marking origin (XY coordinates= 0,0).

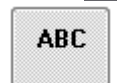
4

**Marking origin**

[Set the origin inside marking field](#)

[It will be differently fixed when the rotative axis is enabled.](#)

5

**Marking orientation**

Set the marking zone (normal or rotated by 90°, topside or mirror).

6

**Raster mode**

[Enabling the raster mode matching the objects to mark.](#)


7

**Aiming diode**

Click twice to switch on the diode used to set the machine focal distance.



Stop diode lightning at need on F/G/H/ machine.

 Click the lightning duration of the diode (20s is default for YAG and, FIBRE and GREEN 200 machine).

8

#### Rotative axis (YAG, FIBRE and GREEN 200)



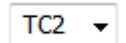
Enable the marking onto cylindrical item. **Set parameters 9 to 12 at need.**



Transfer of values to machine by a technician

9

#### Rotative accessory



Enable the accessory that drives item rotation. [When a message asks for firmware update, achieve the operation in About tab.](#)

10

#### Marking surface

☒ Int ☐ Ext

Tick the external or internal surface of the item.

11

#### Item diameter

Ø 40,00

Key in the internal or external diameter of the item. The circumference will be automatically computed.

12

#### Speed of rotative axis (TC2 accessory only)



Tick to increase the rotation speed and to limit vibrations.

13

#### Resolution of raster filling

Dpi Y: 300

Dpi X: 300

Adjust for each axis the [density of dots marked using raster mode](#).  
Key in Y value, X value is automatically computed. Edit at need.

- In low resolution (50 - 400 DPI) you will obtain fast and clean surface marking.
- In high resolution (over 500 DPI) you will obtain slower but fine in-depth marking.

14

#### Marking settings per color

Color	Angle (%)	Speed (mm/s)	Pulse Width	Frequency (Hz)	Mode
Black	90	100	1	30000	Raster / Vecteur
Red	90	100	1	30000	Raster / Vecteur
Green	90	100	1	30000	Raster / Vecteur
Yellow	90	100	1	30000	Raster / Vecteur
Blue	90	100	1	30000	Raster / Vecteur
Magenta	90	100	1	30000	Raster / Vecteur
Cyan	90	100	1	30000	Raster / Vecteur
Orange	90	100	1	30000	Raster / Vecteur

15

#### Apply Preset

Click the name of the preset in the scrolling list. The marking settings of the selected preset replace previous ones.

16

#### Add preset



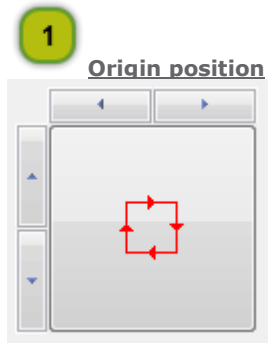
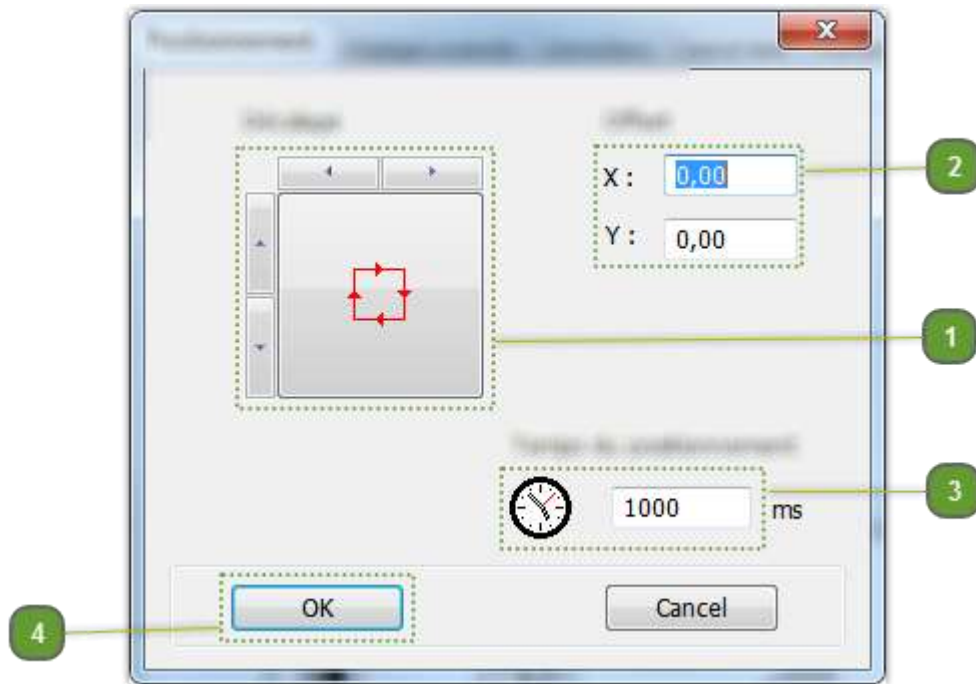
Click to save the active marking parameters into a new preset. Type its name (No name is default).

17

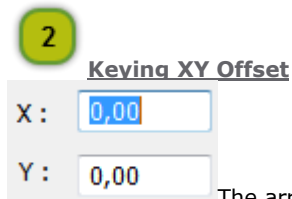
#### Delete selected preset



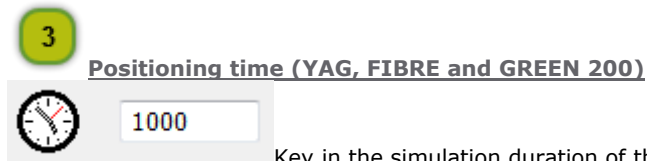
## Gravotech Laser Driver : Setting origin inside the marking field



Move the origin inside marking field, using horizontal or vertical arrows.



The arrow shifting equals the Offset on X or Y axis. Key in a value at need.



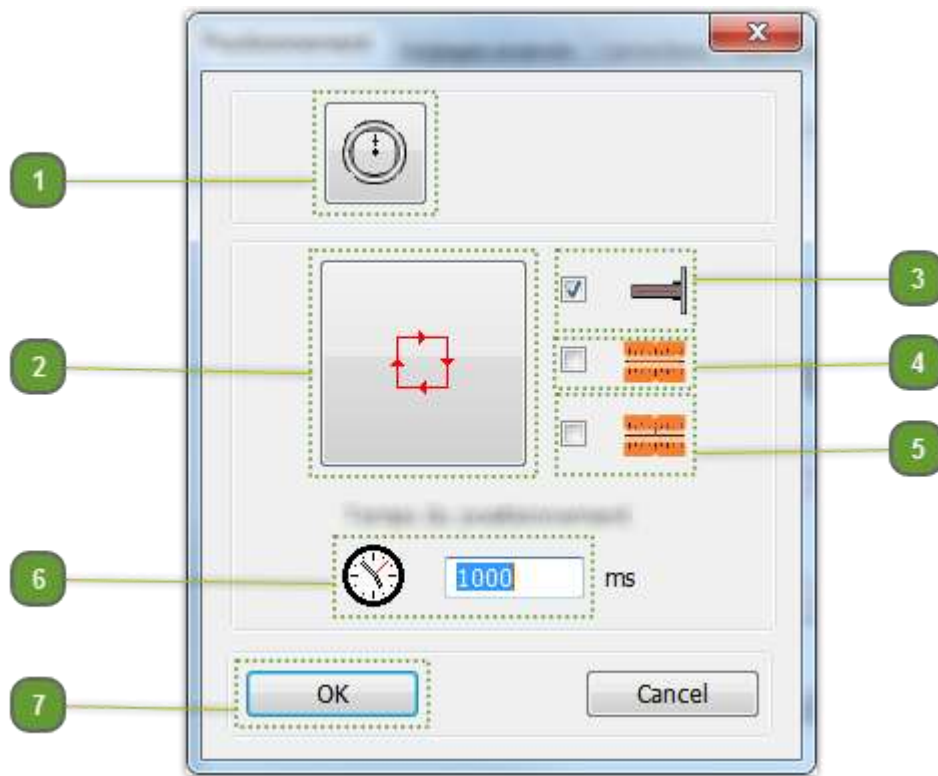
Key in the simulation duration of the marking zone by the red pointer.

4

Validate modifications

OK

## Gravotech Laser Driver : Setting the symmetry axis (YAG, FIBRE and GREEN 200)



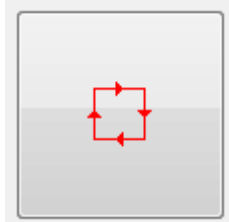
1

Back to origin of the rotative axis for TC2 accessory



2

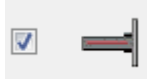
Viewing the symmetry axis using the red pointer



Tick the required simulation relative to the accessory used.

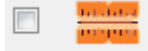
3

Rotative axis of TC2 accessory



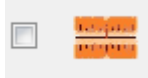
4

X axis centre vice



5

Y axis centre vice



6

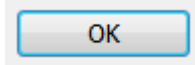
Positioning time



Key in the simulation duration of the symmetry axis using the red pointer.

7

Validate modifications





## Driver Gravotech Laser : Enabling the raster mode matching the objects to mark

Every object shows the color corresponding to the required marking (plotting, cutting, filling).  
The raster mode chosen defines the determining parameters to mark the set of colors.



### Manual raster (is default)

The mode converts every color into a distinct grey level. Objects with different surfaces or sizes can be engraved by controlling the marking setting of every object.

#### For every color, key in the marking parameters among which

- the power in percentage of the max. power of the source
- the speed in percentage of the max. XY speed of the machine

**Colors are marked one by one, according to the power and the speed set for every color.**



### Automatic raster

The mode converts every color into a grey level, proportional to black used as the reference color.

For example, if yellow amounts to a 80%-light grey, the matching marking power of equals 20 % of the power for black.

Use it to mark objects that share identical raster settings (for example, a paragraph of text lines).

#### Key in the marking parameters only for black among which

- the power in percentage of the max. power of the source
- the speed in percentage of the max. XY speed of the machine

#### All the colors are simultaneously marked according to

- the power per color, proportional to the power set for black
- a constant speed, equal to the speed set for black




### Raster diffusion in grayscale

This variant of the automatic mode reproduces every color as a more or less dense cloud of grayscale points, according to the contrast between colors.


The mode suits the materials that do not support or do not react to the power variation (plastic for example).

**All the colors are simultaneously marked with constant power and speed, according to the values set for black.**




☐ 

**Raster photo**  
 This variant of the automatic mode reproduces every color using a geometrical pattern made of black and white points, according to the contrast between colors.

At need, adjust the Light between 0 and 100 to fix the max. raster power for black (except for ).

Colors with higher powers will be marked according to this maximal value.

☐ 

At need, invert the color of points to Negative to mark a material with a light surface and a dark bottom (for example, white on black Gravoglas).

OK

As a rule, every machine marks in the following conditions:



the marking speed must remain constant on the same horizontal route of the laser beam.



the power determines the exposure time of the material.

**i The beam fills up first surfaces to raster, then marks bitmap images and finally plots vectors (surface outlines and open lines).**





## Gravotech Laser Driver: Settings per color

Use the table to configure eight paths linked to specific marking settings. Each path matches a color applied to one type of object in the file.

- **Black**
- **Red**
- **Green**
- **Yellow**
- **Blue**
- **Magenta**
- **Cyan**
- **Orange**

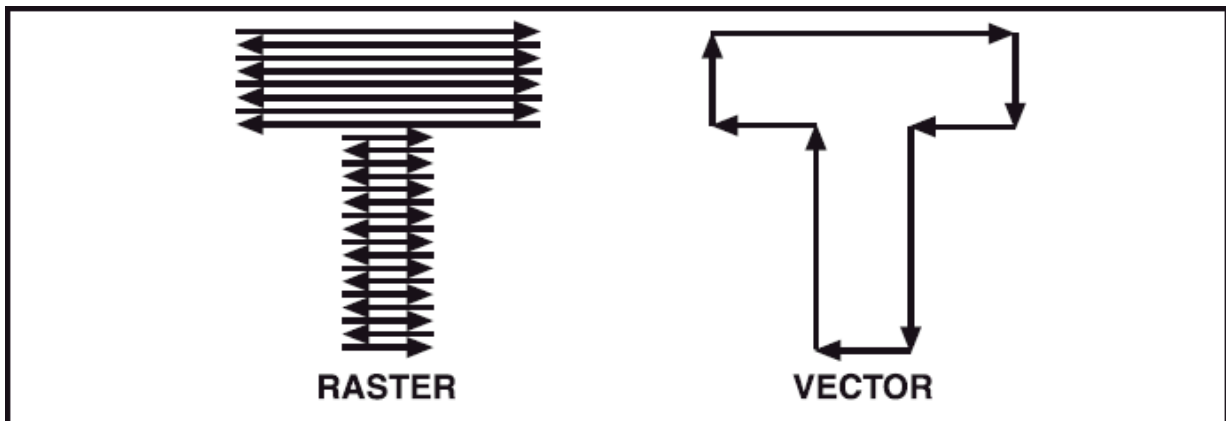


**Set the parameters in accordance with the technical features of the machine. Refer to manual attached.**

<b>Power</b> 	<input type="text"/> Key in as a rate between 0 and 100%, a value proportional to laser source power ( <a href="#">according to the active raster mode</a> ).
<b>Speed</b> 	<input type="text"/> Key in as a rate between 0 and 100%, a value proportional to the max. speed of the machine motion system ( <a href="#">according to the active raster mode, 20 is default</a> ).
<b>Number of passes for cutting or filling</b> <input type="text" value="1"/> ...	<input type="text"/> Key in a number between 1 and 100. A pass equals one round of the laser beam to mark objects. Several passes can be required to gradually reach a given depth in a fragile material.
<b>Impulsion repetition rate</b> (Hz) 	Key in a value between 5000 and 200000 Hz to adjust the frequency of laser shots. The higher the frequency, the higher the number of shots per second. This allows to mark a more or less large dot onto material.
<b>Marking mode</b>  .....	<b>Enable a mode compatible with the marking preset by the color :</b> <ul style="list-style-type: none"> <li><input type="text"/> None : cancels marking</li> <li><input type="text"/> Raster: fills up surfaces or thick lines</li> <li><input type="text"/> Vector: plots open or thin contours</li> <li><input type="text"/> Dot: plots lines using series of points</li> <li><input type="text"/> Raster/Vector: fills up surfaces and plots their lines, when open or thin</li> <li><input type="text"/> Raster/Dot: fills up surfaces and plots their lines using series of points</li> </ul>

 If yellow is a Raster/Vector path, you can select Vector or Raster.

**Example : marking T uppercase**



For a perfect matching between the properties of objects in graphical editor and their marking mode in the driver (thin or thick lines, surface or open lines, color) :

1. Using the graphical editor, apply them the colors managed by the driver. When one color is different, the driver applies the settings of the nearest color among the eight ones in the table.
2. Key in the minimum thickness in the graphical editor, so that lines will be plotted using vector mode, and select a vector mode for the driver color.
3. Close every contour that bounds a surface to fill up.
4. Combining raster and vector modes is possible. When they are, apply distinct colors to surfaces and to thin lines.

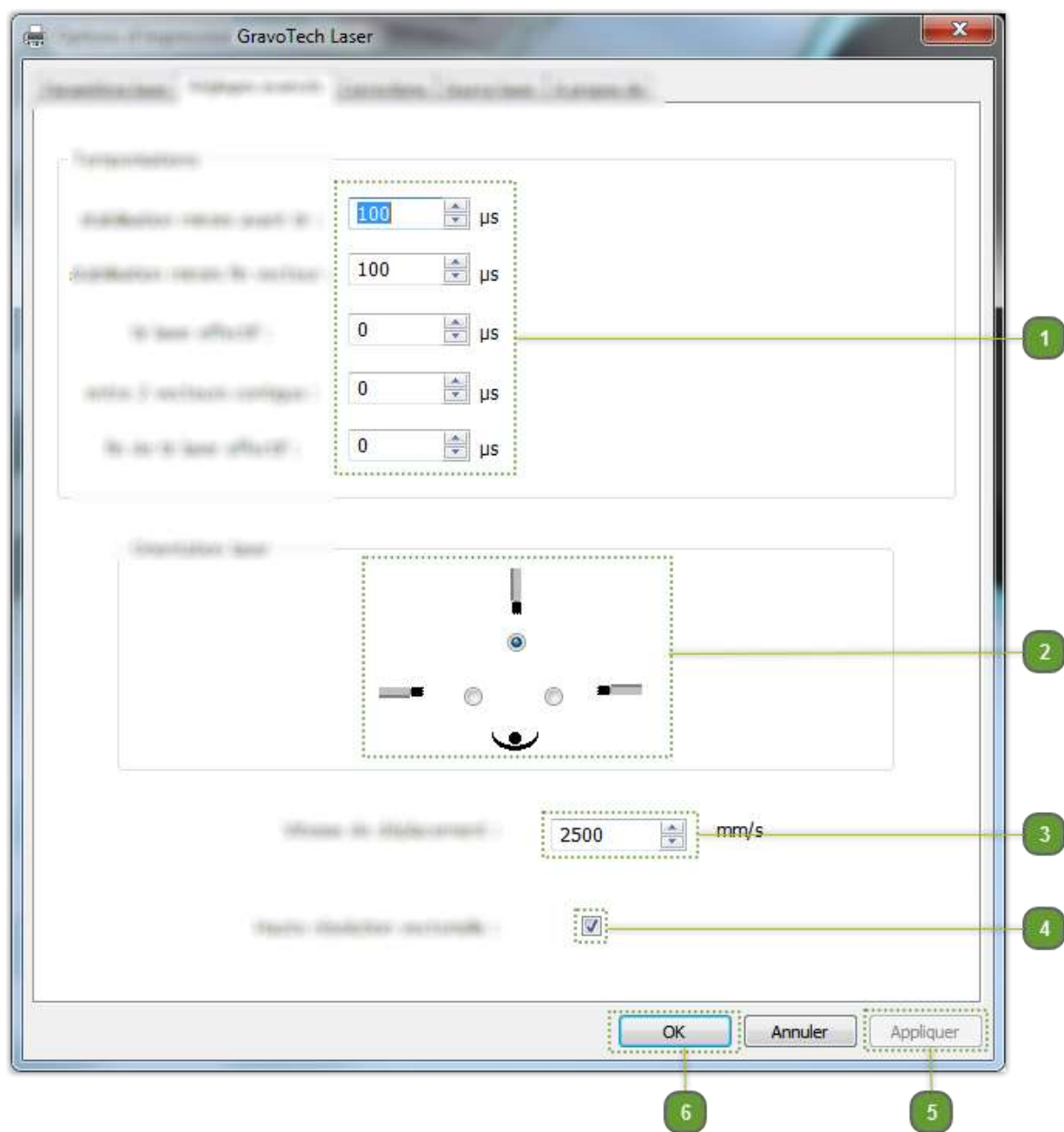
Objects are marked inside file following the order below:

- raster mode
- image(s)
- vector mode

For every type of object, the marking follows the order of the driver colors.

 **Although many graphical editors are compatible with Gravotech laser machines , it is recommended to use Gravotech Gravostyle/Laserstyle software, specially designed to mark with these machines.**

## Gravotech Laser Driver : Advanced settings



1

#### Dwells (LASER SOLUTION F/G/H)

100   μs

100   μs

0   μs

0   μs

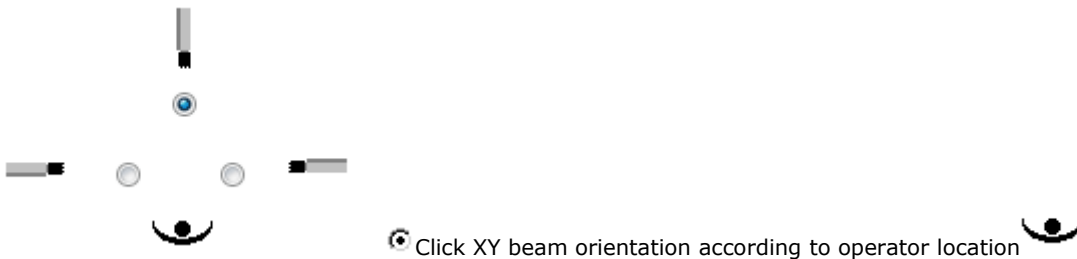
0   μs

Key in the dwell times linked to beam motions.

Dwells are different for YAG, FIBRE and GREEN 200 machines. Dwells at interline and at rotation end display when [TC2 accessory is selected](#).

2

#### Laser orientation (facing the user is default)



3

#### Motion speed

2500

Key in the jump speed between surfaces to fill in.

4

#### Vector high resolution (active is default)

☒ Tick to increase the accuracy of the vector plotting along dimensions over 320 mm (12.598 in).

5

#### Apply

Validate modifications without closing window.

6

#### Validate modifications

OK

## Gravotech Laser Driver : Focal Corrections

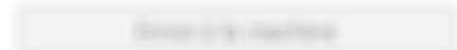
1

### Access to values

! Values get accessible by password. Only an approved Gravotech Marking technician is authorized to modify these settings which influence the marking quality.

2

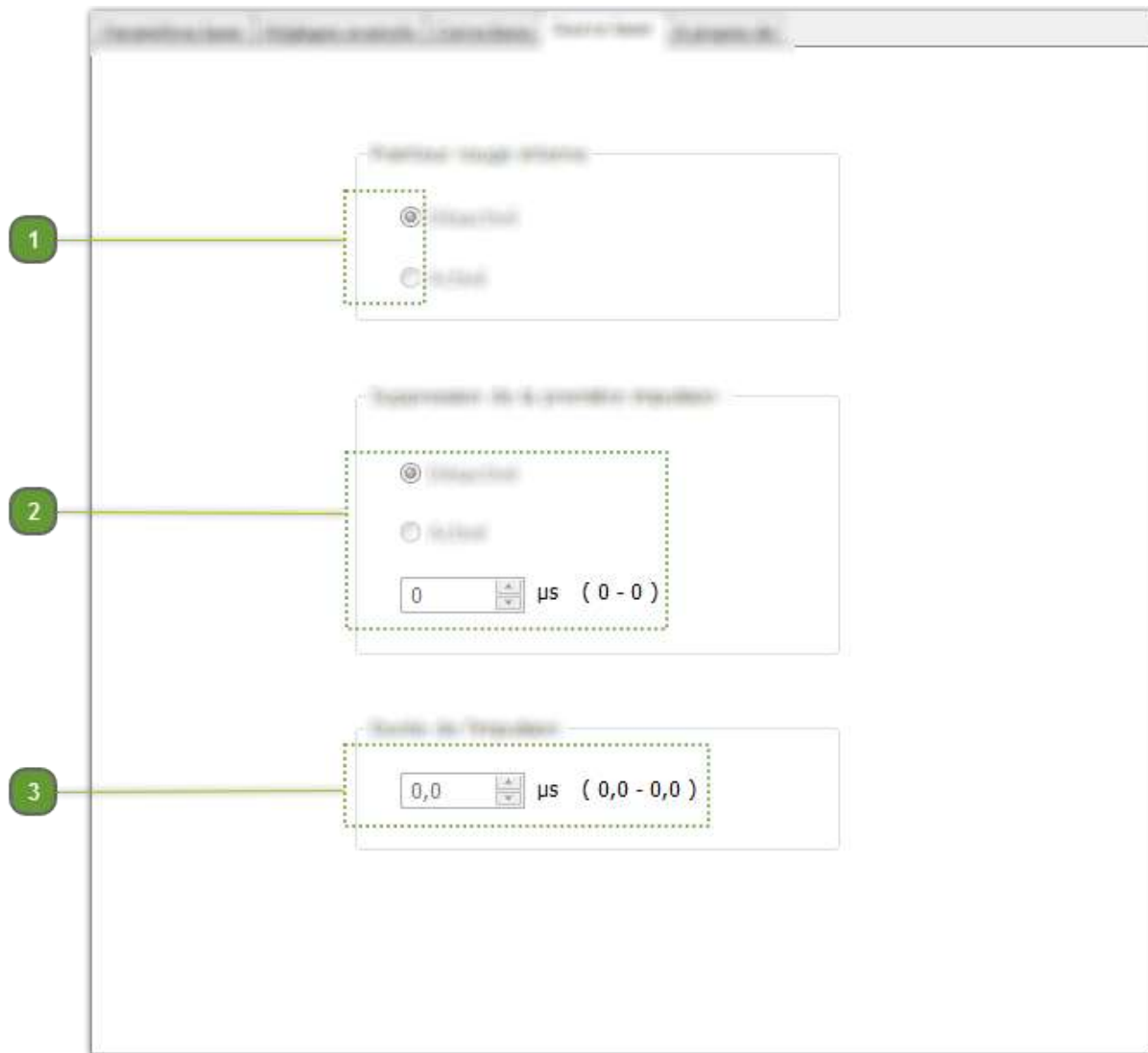
### Saving values onto LASER SOLUTION F/G/H machine



[firmware update.](#)

Transferring corrections onto machine. Resend values, further to

## Gravotech Laser Driver : Source settings (LASER SOLUTION G/H)



**!** Values may be accessible by password. Only an approved Gravotech Marking technician is authorized to modify these settings which influence the marking quality.

1

### Internal red pointer



Switch on or off the red pointer required to simulate marking.

2

**First pulse killing**

☒ Disabled

☐ Enabled

0     $\mu\text{s}$  ( 0 - 0 )

Power reduction on the first pulse at marking start

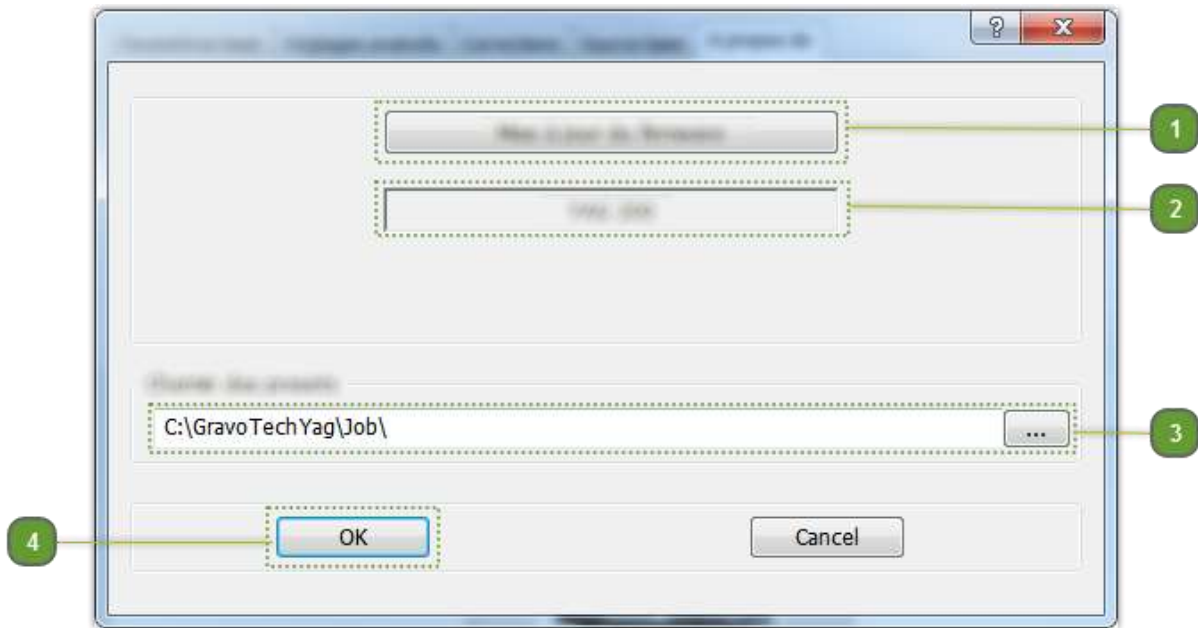
3

**Pulse duration**

0,0     $\mu\text{s}$  ( 0,0 - 0,0 )



## Gravotech Laser Driver : Preferences (YAG, FIBRE and GREEN 200)



1

### Firmware update



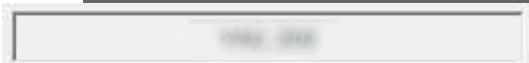
Load a new firmware version for the active machine, and at need for the rotative accessory.



For LASER SOLUTION F/G/H machines , the firmware updates onto machine, via an USB key.

2

### Active machine active and accessory for rotative marking



3

### Path of presets



new [location to save presets.](#)

Click to select the

4

### Validate modifications

