GRAVOTECH
EXPRESSION OF THINGS

USER MANUAL

Lasertrace

Marking software

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A. Introduction

1. General characteristics of the Lasertrace software

The Lasertrace software has been developed in the Windows® environment. The fruit of long experience, its ergonomic design makes it enormously flexible: marking of a simple text or with configuration of variables.

Lasertrace functionalities include:

- Simultaneous management of marking files.

- Permanent graphic display of marking files and elements to be marked.

- Marking of text in flat, angular, or radial mode.

- Marking of DATA MATRIX codes, barcodes and QR Codes

- Download and marking of logos in HPGL format (.PLT)

- Marking of lines, rectangles, circles, and polygons.

- Marking of typeset text containing dates, counters, variables, teams.

- Marking of text from Excel, text, or database files.

- Management of the size, compression/expansion of characters, inclination, and spacing between characters.

- Download and selection of various character fonts.

- Conversion and management of mm/inch or inch/mm units.

- Multilingual: language chosen by the user.

- Different user levels: supervisor and operator.

- For a single marking file, programming of 100 independent marking blocks, containing a differing type, font, direction, compression, spacing, inclination.

2. Minimum PC configuration

The minimum PC configuration required for the efficient operation of the hardware is as follows:

	Windows Vista – 7 – 8 - 10
Ethernet port	For the control unit
Serial port	COM 1 or 2 for the barcode reader
USB port	For the protection key
Mouse	Required
CD ROM reader	Required for installation of the program

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3. Installation of the software

■ Installing the electronic key

Insert the electronic protection key into the USB port.

■ CCU/PC connection

Connect the PC to the laser array via the Ethernet port. For other connections, see the manual for the

machine in question. Power on the control unit by setting the switch to the On position.

Programme the settings for the Ethernet TCP/IP connection of the PC (see the procedure in the manual for

the machine in question).

■ Installation of Lasertrace - Configuration of the Ethernet port

At installation, enter the IP address and the communication port of the control unit. This information is available on the HMI of the laser.
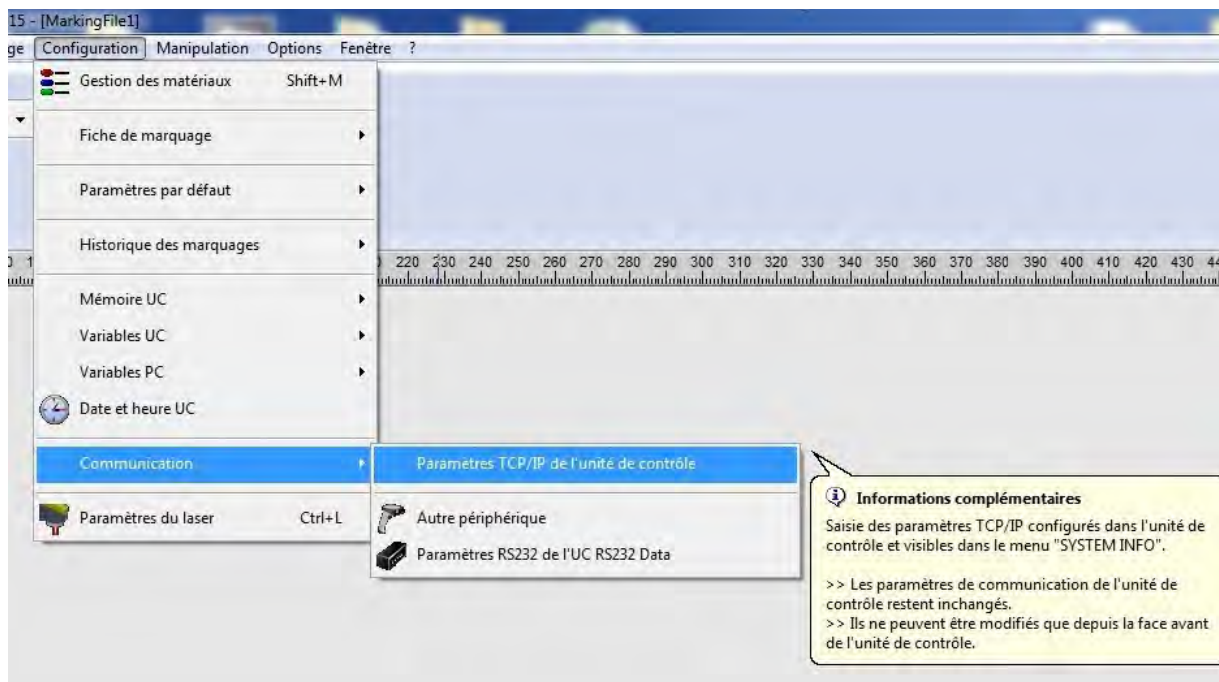
B. General information on Lasertrace

1. General description

The screen below shows the marking surface for the machine. It allows the user to enter the various data required to perform a marking operation.

This screen is split into several areas (Menu bar, Blocks list, Settings list for a block or a file, Graphics display area etc.).

The use of each area will be explained in detail in this document as and when it arises.
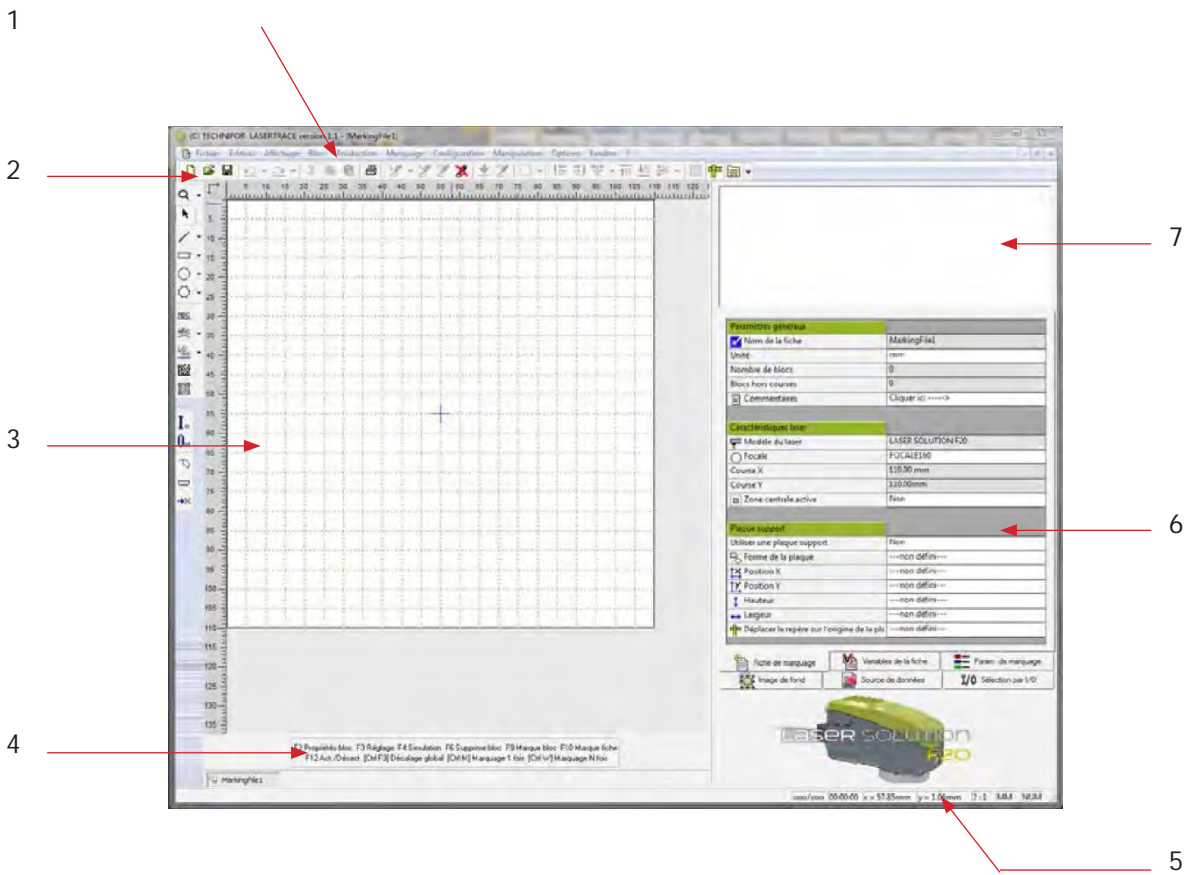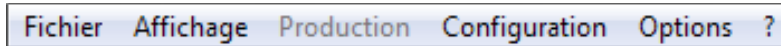

1. Menu bar
2. Toolbar
3. Graphic display area
4. Shortcuts bar
5. Status and help bar
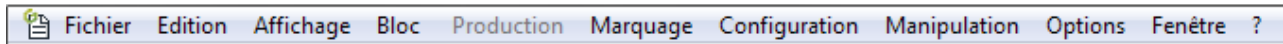6. Settings bar
7. Blocks list

■ Menu bar

The menu bar is one of the most important components of the software as it enables the user to access many functionalities. It appears in two forms, according to whether:

• No marking file is open.

Fichier   Affichage   Production   Configuration   Options   ?

• A marking file is open.

Fichier   Edition   Affichage   Bloc   Production   Marquage   Configuration   Manipulation   Options   Fenêtre   ?

■ Toolbars

There are five toolbars, and they can be positioned at will in the active window.

The buttons making up these toolbars incorporate the most commonly used functionalities from the menus.

Barre "Principale"

Key to the "Main" toolbar:

• Create a file
• Open an existing file
• Save a file
• Undo the last action
• Redo the previously undone action
• Cut
• Copy
• Paste
• Print the active file

Barre "Blocs de marquage"

Key to the "Marking blocks" toolbar:

- Switch to zoom mode
- Switch to selection mode
- Create a line block
- Create a rectangle block
- Create a circle block
- Create a polygon block
- Create a linear text block
- Create a circular text block
- Create a logo block
- Create a Data Matrix block
- Create a QR Code block

Barre "Manipulation/Vue"
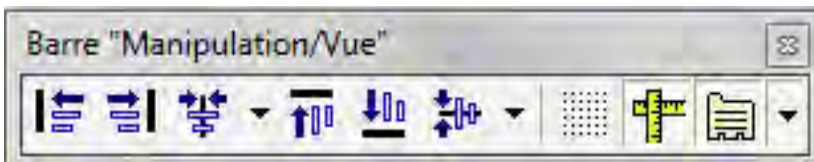
Key to the "Manipulation/View" toolbar:

- Left-align the blocks
- Right-align the blocks
- Centre the blocks vertically
- Top-align the blocks
- Bottom-align the blocks
- Centre the blocks horizontally
- Show/Hide the grid
- Show/Hide the rulers
- Show/Hide the settings bar

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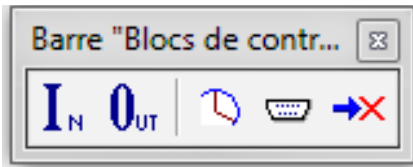
Key to the "Control blocks" toolbar:

- Create a Wait for inputs block
- Create a Position block
- Create a Delay block
- Create an RS232 acquisition block
- Create a Pause block


Key to the "Marking/Production" toolbar:

- Mark the file once
- Mark the file N times
- Mark the file in infinite mode
- Stop marking
- Load the marking file
- Mark the file in independent mode or in infinite mode
- Adjustment by positioning beam

NOTE:

The toolbars can be:

- Set to floating position,
- Anchored along one of the four edges of the software screen,
- Hidden,
- Re-shown.

■ Status and help bar
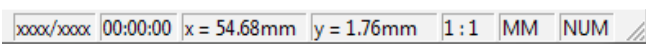
| 1 | 2 | 3 | 3 | 4 | 5 |

This area displays the following information:

1. An information message concerning the action currently in progress.
2. A timer indicating the time required to mark all the text contained in the file.
3. The coordinates of the cursor in the graphic display area.
4. The zoom level applied to a marking file.
5. The working unit (inch or mm) specified in the marking file.

■ Graphic display area

The graphic display area displays the available marking surface for the marking head used.

The linear, circular texts or logos etc. to be marked are arranged very precisely within this graphic display area.

The display visible in this area is an exact representation of the marking as it will be performed in practice.

For more details, refer to Paragraph 3.2: Graphic representation of the file in Lasertrace.
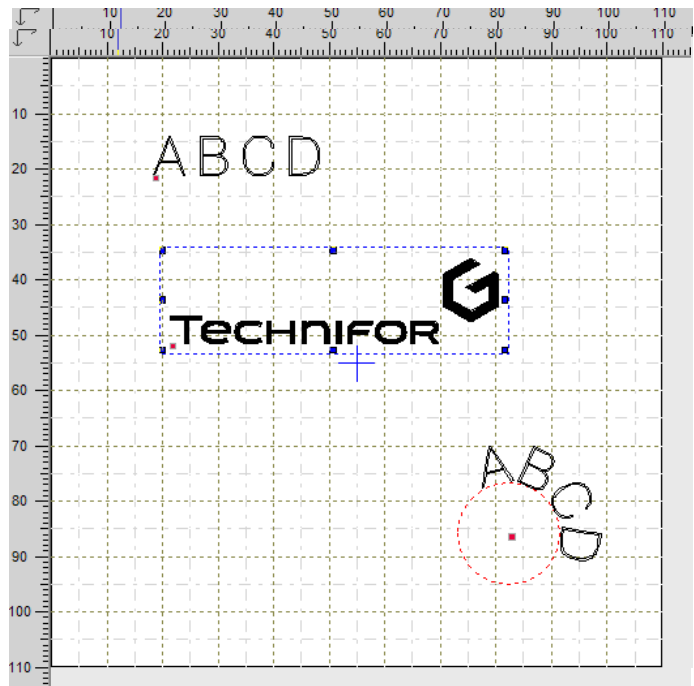
■ Blocks list

The blocks list gives the same information as the graphic display area but in a much more succinct form.

It displays the linear or circular texts or logos etc. to be marked in the form of a suite of icons followed by a description. This list contains as many lines as there are texts to be marked.
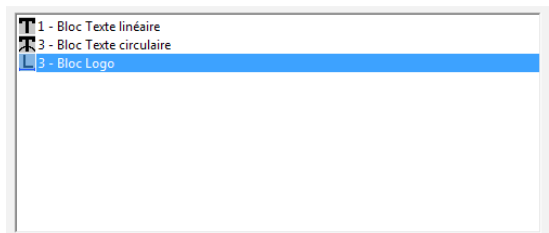
■ Settings bar

The settings bar allows the user to display and modify a certain amount of information relating either to the marking file or to the various texts to be marked.

To modify a setting a setting, click on a cell: this turns into an input or selection field.
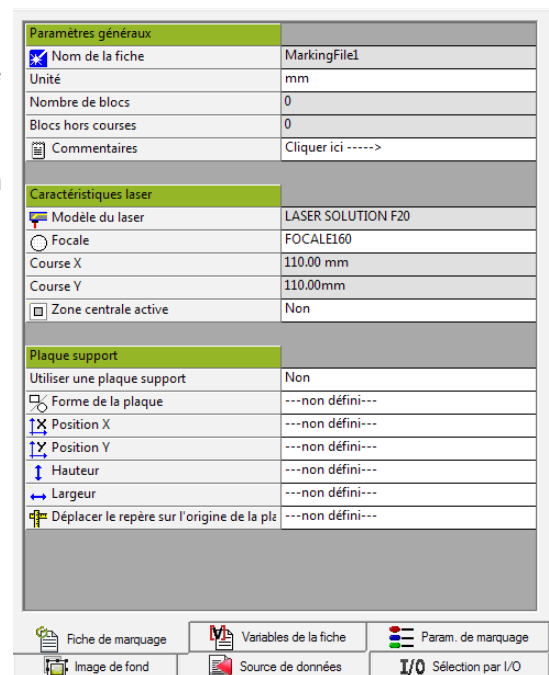
■ Shortcuts bar

This area shows a list of the keyboard shortcuts specific to the Lasertrace marking software. The functionalities to which these shortcuts relate can also be accessed from the menus.

F2 Propriétés bloc F3 Réglage F4 Simulation F6 Supprime bloc F9 Marque bloc F10 Marque fiche
F12 Act./Désact [Ctrl F3] Décalage global [Ctrl M] Marquage 1 fois [Ctrl W] Marquage N fois

2. Navigation mode

The various functions offered by Lasertrace can be accessed via four main means:

- The menus,
- The toolbars,
- The mouse
- The keyboard shortcuts.

The keyboard shortcuts and the toolbars offer the functionalities that are accessible from the menus. Their use facilitates tasks for an experienced user, but it is not obligatory.

For their part, the menu bars and the mouse give the user access all the functionalities of the software. Their use is virtually obligatory during the marking file creation phase.

The software features five pop-up menus, accessible by right-clicking the mouse.

The menu displayed depends on the action currently in progress:

Action to be performed	Pop-up menu
Right-click in the main window	✔ Barre des raccourcis Barre de paramétrage Tab ✔ Barre "Principale" ✔ Barre "Blocs de marquage" ✔ Barre "Blocs de contrôle" ✔ Barre "Marquage/Production" ✔ Barre "Manipulation/Vue"
Right-click in the graphic display area	Coller Ctrl+V Importation de données Historique associé à la fiche Configurer compteurs fiche UC Alt+Shift+K Configurer Variables fiche UC Alt+Shift+V Configurer variables fiche PC Ctrl+Shift+V Simuler fiche F4 Marquer fiche Ctrl+M/F10 Exportation fiche Paramètres de la fiche Shift+F
Right-click on the marking block	Couper Ctrl+X Copier Ctrl+C Centrer sur le champ de marquage ▸ Réglage F3 Simuler bloc Marquer bloc F9 Figer / Défiger bloc(s) Sélection police Activ./desactiv. bloc F12 Copier les paramètres de marquage Coller les paramètres de marquage Propriétés F2
Right-click on a selection of several marking blocks	Couper Ctrl+X Copier Ctrl+C Aligner ▸ Centrer sur le champ de marquage ▸ Egaliser ▸ Simuler sélection Ctrl+F4 Marquer sélection Ctrl+F9 Figer / Défiger bloc(s) Sélection police Activ./désactiv. sélection F12 Coller les paramètres de marquage Grouper ▸
Right-click in the blocks list	Augmenter l'ordre Diminuer l'ordre Figer / Défiger bloc(s) Sélection police Activ./desactiv. bloc F12 Propriétés F2

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3. User levels

Lasertrace features two user levels, according to whether the user is experienced or is performing marking operations only.

■ Supervisor mode

This is the most comprehensive mode offered by the software. It gives access to all the functionalities available. This mode is characterized by:

- A Control Unit connected to the PC.
- A maximum accreditation level.

■ Operator mode

This mode is characterized by:

- A Control Unit connected to the PC.
- A minimal accreditation level.

Most of the software functionalities are inaccessible. Essentially, the operator can open marking files and mark them.

⚠	**This manual, which describes all the functionalities of the Lasertrace software, is intended for supervisors.**

For more details, refer to the chapter entitled "Description of the different user modes"

C. Marking file

1. Definition of a marking file

The various texts or logos to be marked on a workpiece are contained within a set called a "Marking file". Each individual text or logo is called a "Marking block".

A marking file is made up of a set of blocks, and it incorporates all the data necessary to characterize a marking operation to be performed.

A marking file can contain between 1 and 100 marking blocks.

2. Graphic representation of the file in Lasertrace
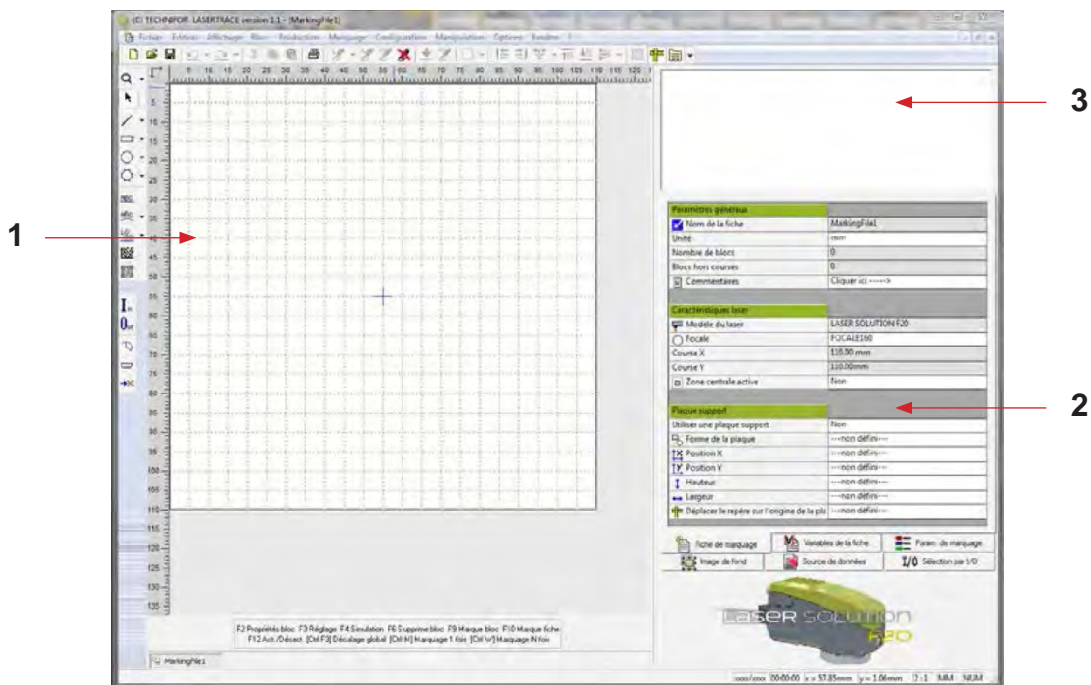
1. Graphic display area for the creation of blocks and the visual display of the file
2. Settings bar for the file or blocks
3. Blocks list

The marking file is represented graphically within three input and display areas:

- Blocks list: summary display of the file content.

- Settings bar: display of the general properties of the file or a selected block.

- Graphic display area: graphic display of the information to be marked.

These three areas are used for display purposes as well as for data input and modification.

■ Graphic display area

Associated with a marking file, the graphic display area shows the area in which the marking will be performed. The marking area is determined by the maximum travel distances along X and Y of the machine used.

NOTES

- If the Control Unit is connected, the marking area shows the maximum travel distances of the marking head connected to the Control Unit. The Lasertrace software auto-detects the hardware being operated.

- If no Control Unit is connected, the marking area shows the maximum travel distances of the marking machine that is defined by default.
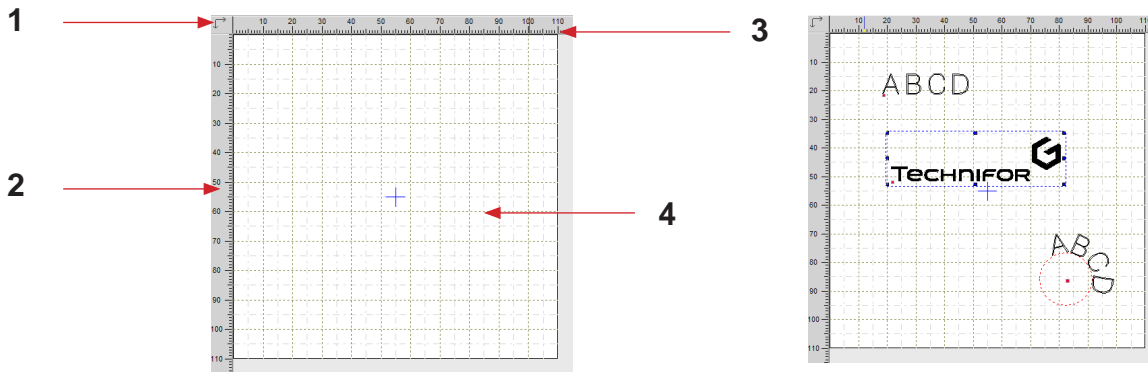
1. Origin position of the machine used
2. Graduated ruler along the X axis
3. Graduated ruler along the Y axis
4. Positioning grid

The user can rapidly evaluate the coordinates and the size of the marking blocks, using:

- The positioning grid

- The graduated rulers

The marking blocks displayed in this graphic display area are highly precise. The display generated is an exact representation of the marking as it will be performed in practice:

- The activated marking blocks are displayed in black

- The deactivated marking blocks are displayed in blue

- The marking blocks outside the travel distances are displayed in red

■ 3.2.2. Use of the zoom function

A zoom function is associated with the graphic display area. It allows the user to enlarge or shrink the representation of the marking area, in full or in part.

Two icons allow the mouse to switch between the selection and zoom modes.

- In selection mode, the mouse is used to select and move blocks.

Selecting this icon switches the mouse to selection mode and changes the cursor into an arrow.

- In zoom mode, the mouse is used to enlarge or shrink the representation of the marking area.

Selecting this icon switches the mouse to zoom mode and changes the cursor into a magnifying glass.

When in zoom mode, use:

- the left button to increase the size of the representation of the marking zone by one level,
- the right button to reduce the size of the representation of the marking zone by one level.

> ⚠️ **As a supplement to the specific action of the zoom function, the point at which the click was performed becomes the new center of the graphic display area. This makes it possible to enlarge a specific detail rapidly by clicking several times in succession on the same spot.**

Notes:

- The graduation of the rulers is automatically recalculated according to the zoom level applied.
- When the entire marking area cannot be represented in the graphic display area following a succession of increases, horizontal and vertical scrollbars appear on the screen.

■ Blocks list

This list presents a summary of the content of a marking file:

- When the marking file contains no blocks, the blocks list is empty.
- When the marking file contains one or more marking blocks, a line represents each block.

Each line of the list is made up of an icon followed by text corresponding to the "Block name".

Each type of marking block has its own icon.

The color of the icon associated with a block varies according to the status of the block:

- Black icon: the block can be marked
- Red icon: the block is outside the travel distance
- Blue icon: the block is deactivated

When a block is selected:

- The corresponding line is highlighted blue in the blocks list
- The angle(s) corresponding to this block appear at the bottom of the "Settings bar".

When no blocks are selected:

- No lines are highlighted in the blocks list
- The "Marking file" tab appears at the bottom of the "Settings bar"

■ ☐ Settings bar

This allows the user to display:

- Either the settings of the marking file
- Or the settings of the marking block selected

The "Settings bar" shows the file settings in the following situations:

- The file contains no blocks
- No block has been selected

- Several blocks are selected simultaneously

The "Settings bar" shows the settings of a marking block when it is selected. In this chapter, only the

settings relating to the marking file will be explained.

These settings are incorporated into 6 tabs:

- Marking file
- File variables
- Marking settings
- Background image
- Data source
- Selection by I/O

3. Non-graphic data relating to the marking file

■   The file settings
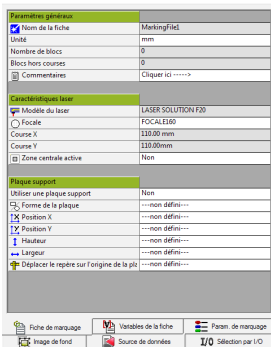
This tab shows three sections:

- General settings
- Laser characteristics
- Support plate

The cells displayed in white are editable. They give direct access to the marking file configuration.
The other cells (displayed in grey) are not editable. They reflect the state of the current configuration.

■   The file variables

The tab displays
- the 5 FK file counters (see the chapter entitled "Management and marking of counters)
- the 5 file variables

■ The marking settings
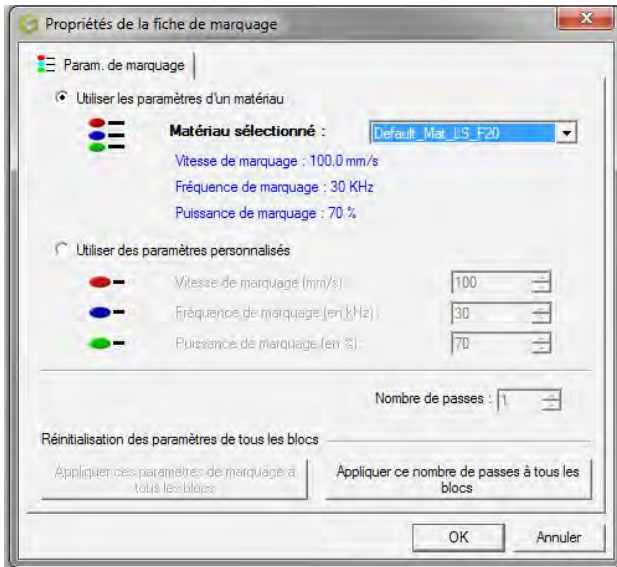
By default:
- a material defined by its marking settings (frequency, speed, power) is attached to the marking file.
- timer settings are defined. All these settings can be optimized according to your application.

■ The background image
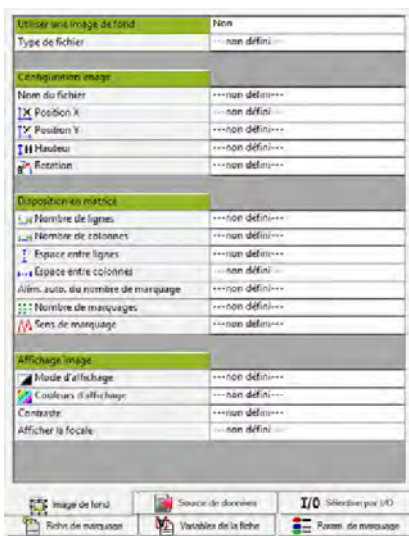
A background image (a bitmap, JPG, EMF file etc.) can be attached to the marking file. This image is directly displayed in the graphic display area.

The marking blocks are then arranged within this image.

This image is not marked; its function is solely to support block positioning.

■ Filename

The filename is used for the automatic selection of files by a PLC.

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D. File menu

1. New

This function is used to create marking files. Several methods are available:

- When the software is launched, a new file is created automatically
- Via the file menu
- Via the toolbar

The marking file that appears is waiting for data input, it contains no marking blocks and has no name.

If the Control Unit is connected and in operation, the graphic display area of the file viewed on-screen shows the marking area of the head connected to the CCU. Whenever a file is created, the connected hardware is automatically auto-detected.

If no Control Unit is connected, the graphic display area of the file viewed on-screen shows the marking area of the head that is defined by default.

2. Open

This function allows the user to open an existing marking file. Several methods are available:

- Via the File menu
- In the toolbar

3. Close

This function allows the user to close an open marking file.

- From the file menu
- From the window frame showing the marking file at the top of the blocks list
- By clicking on the icon associated with the marking file on the left of the "File" menu.

4. Save

These two functions allow the user to save an open marking file, either by saving under its original name or under a different name.

- From the file menu
- From the toolbar

5. Print

This menu allows the user to print the graphic display area of a marking file under preparation, using the system printer. To print correctly, the zoom level must be adapted such that the entire area is displayed on-screen.

If the zoom level is too great, only the top left part of the graphic display area will be printed. Several methods can be used:

- From the file menu
- From the toolbar

E. Display menu

1. Toolbar

This function allows the user to define which of the five available toolbars are to be permanently displayed. Click in the check boxes to show or hide particular toolbars.

The toolbars function can only be accessed in supervisor mode.

2. Status bar

This function allows the user to show or hide the status bar. A box with a checkmark appears in front of this menu when this bar is displayed.

3. Shortcuts bar

This function allows the user to show or hide the shortcuts bar. A box with a checkmark appears in front of this submenu when this bar is displayed.

The shortcuts bar option can only be accessed in supervisor mode.

When the shortcuts bar is hidden, the size of the graphic display area is increased. This feature can be useful when performing manipulations with the mouse.

4. Settings bar

This function allows the user to show or hide the settings bar. A box appears in front of this submenu when this bar is displayed.

When the settings bar is hidden, the graphic display area occupies the whole screen. This feature can be helpful when using the zoom option.

5. Tooltips in the menus

This function allows the user to show or hide a tooltip displayed to the right of the selected submenu. A box appears in front of the submenu when activation is enabled.

The message displayed in the tooltips bubble provides a detailed explanation of the function associated with this submenu.

6. Graphic view

This function allows the user to configure the visual aspect of the graphic display area.

7. Zoom

Associated with the graphic display area, this function allows the user to enlarge or shrink the entire representation of the marking area, or just one portion of it.

Although this is mostly executed using the mouse, the zoom function can be performed from the menu.

8. Main window pop-up menu

This menu can be accessed by right-clicking on the mouse then the cursor is in the main window.

The main window pop-up menu incorporates and allows customization of the functionalities of the "Display" menu, according to needs.

It gives access to the following functionalities:

- Show/Hide the Shortcuts bar
- Show/Hide the Settings bar
- Show/Hide the Toolbars one by one

A right-click on the mouse in the graphic display area brings up the file pop-up window, and not the menu described above.

F. Block menu

1. Introduction

■ Definition of a marking block

A "marking block" means a line of text, a logotype, or a geometric figure. Marking blocks are grouped together into marking files (see the chapter entitled "THE MARKING FILE").

The blocks are intended to receive the data (settings) necessary to describe a marking operation. Lasertrace has several types of blocks.

The various marking blocks that make up a file are created, moved and manipulated using the mouse (see the chapter entitled "MANIPULATION OF BLOCKS USING THE MOUSE).

■ Convention

To facilitate understanding, in this chapter the various settings that must be entered to define a marking block are categorized into:

· Settings relating to block content,

· Settings relating to block positioning,

· Settings common to all types of blocks,

· Settings specific to each individual type of block,

and for the purposes of brevity, several references are made to the paragraphs in which these settings are

explained.

■ Block menu

The "Block" menu allows the user to create, or modify, marking blocks of various types to mark linear or circular text, logos, dates, serial numbers etc.

2. Creation of a line block

■ Creation method

Since the "Line" block has a representation in the graphic display area, it is created in two phases:

1. Select the line block in the drawing block submenu or click on the icon in the "Marking blocks" bar.

The mouse cursor is shown in a form that enables the creation of "Line" blocks.

2. Draw a positioning rectangle in the graphic display area.

This allows the user to determine the start and end coordinates of the block to be created. When the positioning rectangle has been drawn, the "Line" block is created.

The block is added to the marking file blocks list. In this list, it is represented by an identification icon and, by default, is assigned the name "Line block".

The definition settings specific to this block appear in the "Settings bar" in the form of a succession of cells which are either filled in and/or are yet to be filled in.

■ Descriptions of the cells and settings

• **Settings relating to block positioning**
- Positioning status
- Number of rows/columns
- Spaces between rows/columns

• **Settings common to all types of blocks**
- Block name
- Block status
- Pause after marking
- Direction of marking

• **Settings relating to the line block**
- X origin and Y origin

These two settings represent the point of origin of the line. They correspond to the start coordinates of the marking block.

The representation of the line is updated in the graphic display area after each modification.

- X end and Y end

These two settings represent the end point of the line. They correspond to the end coordinates of the marking block.

The representation of the line is updated in the graphic display area after each modification.

Depending on the unit used, the "X origin", "Y origin", "X end" and "Y end" cells express values in:

    - Millimeters, accurate to the nearest 1/100

    - Inches, accurate to the nearest 1/100.

Modifying the "X origin" or "Y origin" coordinates of the line has no impact on the line end coordinates. Unlike other types of blocks, their modification corresponds to a resizing and not a displacement of the marking block.

3. Creation of a "Rectangle" block

■ Creation method

Since the "Rectangle" block has a representation in the graphic display area, it is created in two phases.

1. Select the rectangle block in the drawing block submenu or click on the icon in the "Marking blocks" bar.

The mouse cursor is shown in a form that enables the creation of "Rectangle" blocks.

2. Draw a positioning rectangle in the graphic display area.

This allows the user to determine the coordinates, height, and width of the block to be created. When the positioning rectangle has been drawn, the "Rectangle" block is created.

The block is added to the marking file blocks list. In this list, it is represented by an identification icon and, by default, is assigned the name "Rectangle block".

The definition settings specific to this block appear in the "Settings bar" in the form of a succession of cells which are either filled in and/or are yet to be filled in.

■ Descriptions of the cells and settings

• **Settings relating to block positioning**
· Positioning status
· X and Y position
· Number of rows/columns
· Spaces between rows/columns
• **Settings common to all types of blocks**
· Block name
· Block status
· Pause after marking
· Direction of marking
• **Settings relating to the "Rectangle" block**
· Height

This setting determines that actual height of the rectangle in millimeters or inches, irrespective of its eventual rotation.
Depending on the unit used, the height is expressed in:

- Millimeters, accurate to the nearest 1/100
- Inches, accurate to the nearest 1/100.

Width

This setting determines the actual width of the rectangle in millimeters or inches, irrespective of its eventual rotation.

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Depending on the unit used, the width is expressed in:

- Millimeters, accurate to the nearest 1/100
- Inches, accurate to the nearest 1/100.

• Rotation

This setting determines the angle of rotation of the rectangle. Expressed in degrees, this angle can take values of between -180° and +180°.

• • Shape of the figure

This setting allows the user to plot a filled or empty rectangle.

• Rastering

This setting allows the user to define the direction of filling of the rectangle.

If the shape of the figure is set at "Empty rectangle", the "Rastering" cell is not available.

If the shape of the figure is set at "Filled rectangle", the "Rastering" cell is available.

• Density

This setting allows the user to define the filling density for the rectangle. It corresponds to the number of

lines executed per millimeter to complete the filling.

If the shape of the figure is set at "Empty rectangle", the "Density" cell is not available.

If the shape of the figure is set at "Filled rectangle", the "Density" cell is available.

4. Creation of a "Circle" block

■ Creation method

Since the "Circle" block has a representation in the graphic display area, it is created in two phases.

1. Select the circle block in the drawing block submenu or click on the icon in the "Marking blocks" bar.

The mouse cursor is shown in a form that enables the creation of "circle" blocks.

2. Draw a positioning rectangle in the graphic display area.
This allows the user to determine the coordinates, height, and width of the block to be created. When the positioning rectangle has been drawn, the "Circle" block is created.

The block is added to the marking file blocks list. In this list, it is represented by an identification icon and, by default, is assigned the name "Circle block".

The definition settings specific to this block appear in the "Settings bar" in the form of a succession of cells which are either filled in and/or are yet to be filled in.

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- ■ Descriptions of the cells and settings

  - • **Settings relating to block positioning**
  - • Positioning status
  - • X and Y position
  - • Number of rows/columns
  - • Spaces between rows/columns

  - • **Settings common to all types of blocks**
  - • Block name
  - • Block status
  - • Pause after marking
  - • Direction of marking

  - • **Settings relating to the "Circle" block**
  - • Radius

This setting determines the radius of the circle or of the circular arc.

Depending on the unit used, this value is expressed in:

  - - Millimeters, accurate to the nearest 1/100
  - - Inches, accurate to the nearest 1/100.

  - • Start angle

Expressed in degrees, this setting determines the start angle for the circular arc. It can be between -180° and +360°.

  - • End angle

Expressed in degrees, this setting determines the start angle for the circular arc. It can be between -180° and +360°.

5. Creation of a "Polygon" block

■ Creation method

Since the "Polygon" block has a representation in the graphic display area, it is created in two phases.

1. Select the polygon block in the drawing block submenu or click on the icon in the "Marking blocks" bar.
The mouse cursor is shown in a form that enables the creation of "Polygon" blocks.

2. Draw a positioning rectangle in the graphic display area.
This allows the user to determine the coordinates, height, and width of the block to be created. When the positioning rectangle has been drawn, the "polygon" block is created.

The block is added to the marking file blocks list. In this list, it is represented by an identification icon and, by default, is assigned the name "Polygon block".

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The definition settings specific to this block appear in the "Settings bar" in the form of a succession of cells which are either filled in and/or are yet to be filled in.

■ Descriptions of the cells and settings

• **Settings relating to block positioning**
· Positioning status
· X and Y position
· Number of rows/columns
· Spaces between rows/columns

• **Settings common to all types of blocks**
· Block name
· Block status
· Pause after marking
· Direction of marking

• **Settings relating to the "Polygon" block**
· Radius

This setting determines the radius of the circle into which the polygon fits.

Depending on the unit used, this value is expressed in:

- Millimeters, accurate to the nearest 1/100
- Inches, accurate to the nearest 1/100.

· Number of segments

This setting determines the number of segments making up the polygon. It is between 3 and 360.

· Start angle

Expressed in degrees, this setting determines the start angle for the polygon. It can be between -180° and +360°
In the graphic display area, a blue dot indicates the position of the start angle to provide a visual indication of the general orientation of the polygon.

6. Creation of a "Linear text" block

■ Creation method

Since the "Linear text" block has a representation in the graphic display area, it is created in two phases.

1. Select the linear text block in the drawing block submenu or click on the icon in the "Marking blocks" bar
The mouse cursor is shown in a form that enables the creation of "Linear text" blocks.

2. Draw a positioning rectangle in the graphic display area.

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This allows the user to determine the coordinates and height of the block to be created. When the positioning rectangle has been drawn, the "Linear text" block is created.

The block is added to the marking file blocks list. In this list, it is represented by an identification icon and, by default, is assigned the name "Linear text block".

The definition settings specific to this block appear in the "Settings bar" in the form of a succession of cells which are either filled in and/or are yet to be filled in.

■ Descriptions of the cells and settings

• **Settings relating to block content**
• Block element type
• Text, counter, date

• **Settings relating to block positioning**
• Positioning status
• X and Y position
• Number of rows/columns
• Spaces between rows/columns

• **Settings common to all types of blocks**
• Font
• Block name
• Block status
• Pause after marking
• Direction of marking

• **Settings relating to the "linear text" block**
• Text length

This setting allows the user to set or leave open the length of the linear text (expressed in millimeters or inches).

If the text length is variable (default setting), all the other settings (number of characters, spacing, compression etc.) are liable to vary this length in an unrestricted manner.

The "Imposed length" cell is not available.
If compression imposes the text length, the "Imposed length" cell is accessible. It allows the user to enter the desired text length.

The "Compression" cell becomes inaccessible.

The compression value is calculated automatically.

If height imposes the text length, the "Imposed length" cell is accessible. It allows the user to enter the desired text length.

The "Height" cell becomes inaccessible.

The height value is calculated automatically.

- Imposed length

This setting allows the user to fix the length of the text at a particular value.

It is only available if the text length is imposed by length or by compression.

When the length has been imposed, every change to the settings (number of characters, spacing, compression etc.) will prompt a deformation of the characters.

- Filling

This setting allows the user to define whether or not to fill in the characters of a linear text.

If a single-line font is used in a block, the characters cannot be filled in and the filling cell is not available.

If a double-line font is used in a block, the characters can be filled in and the filling cell is available.

- Rastering

This setting allows the user to define the direction of filling of the letters.

If the filling type is "Contour" filling, the "Rastering cell" is not available.

If the filling type is "Filled in", the "Rastering cell" is available.

- Density

This setting allows the user to define the filling density for a linear text.

It corresponds to the number of lines executed per millimeter to complete the filling.

If a single-line font is used, or in the case of "Contour" type filling, the "Density" cell is not available.

If a double-line font is used and "Filled in" is selected, the "Density" cell is available.

- Height

This setting determines the actual height of the characters marked, in millimeters or inches. Depending on the unit used, the size may be between:

0.1 mm and 99.5 mm, accurate to the nearest 1/10.

0.004 " and 3.930 ", accurate to the nearest 1/100.

- Direction

This setting allows the user to apply special effects to adapt the marking operation to the specific characteristics of the workpieces. Four marking directions are available:

- Normal
- Mirror
- Reflected
- Inverted.

- Spacing

This setting allows the user to modify the spacing between characters, without modifying their size. The spacing value can vary from 0.1 to 9.9. The default value is 1.

- Compression

This setting allows the user to modify the compression of the characters without modifying their height.

The compression rate represents the scaling factor between the height and the width of the character. It is expressed in the form of the width: height ratio.

The compression value can vary from 0.1 to 9.9. The default value is 1.

- Inclination

This setting determines the inclination to the horizontal of the characters of a text. This inclination can be from -85° to +85°.

If the inclination value is positive, then the inclination is to the right; if the value is negative, the inclination is to the left.

- Rotation

This setting determines the angle of rotation of the linear text.

Expressed in degrees, this angle can be between -180° and +360°.

If this angle is equal to 0° (default setting), the text is marked in flat mode.

If this angle is other than 0°, the text is marked in accordance with the angle specified.

7. Creation of a "Circular text" block

■ Creation method

Since the "Circular text" block has a representation in the graphic display area, it is created in two phases.

1. Select the circular text block in the drawing block submenu or click on the icon in the "Marking blocks" bar.

The mouse cursor is shown in a form that enables the creation of "Circular text" blocks.

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2. Draw a positioning rectangle in the graphic display area.

This allows the user to determine the coordinates and height of the block to be created. When the positioning rectangle has been drawn, the "Circular text" block is created.

The block is added to the marking file blocks list. In this list, it is represented by an identification icon and, by default, is assigned the name "Circular text block".

The definition settings specific to this block appear in the "Settings bar" in the form of a succession of cells which are either filled in and/or are yet to be filled in.

■ Descriptions of the cells and settings

• **Settings relating to block content**
• Block element type
• Text, counter, date

• **Settings relating to block positioning**
• Positioning status
• X and Y position
• Number of rows/columns
• Spaces between rows/columns

• **Settings common to all types of blocks**
• Font
• Block name
• Block status
• Pause after marking
• Direction of marking

• **Settings relating to the "Circular text" block**
• Diameter

The value of this setting represents the diameter of the imaginary circle around which the marking of the circular text will be executed.

The size of the diameter is unlimited; it is possible to perform a marking operation over the arc of a large circle, whatever its diameter.

• Filling

This setting allows the user to define whether or not to fill in the characters of a circular text.

If a single-line font is used in a block, the characters cannot be filled in and the filling cell is not available.

If a double-line font is used in a block, the characters can be filled in and the filling cell is available.

- Rastering

This setting allows the user to define the direction of filling of the letters.

If the filling type is "Contour" filling, the "Rastering cell" is not available.

If the filling type is "Filled in", the "Rastering cell" is available.

- Density

This setting allows the user to define the filling density for a linear text.

It corresponds to the number of lines executed per millimeter to complete the filling.

If a single-line font is used, or in the case of "Contour" type filling, the "Density" cell is not available.

If a double-line font is used and "Filled in" is selected, the "Density" cell is available.

- Height

This setting determines the actual height of the characters marked, in millimeters or inches. Depending on the unit used, the size may be between:

0.1 mm and 99.5 mm, accurate to the nearest 1/10.

0.004 " and 3.930 ", accurate to the nearest 1/100.

- Start angle

Expressed in degrees, this setting corresponds to the start angle of the marking operation. It can be between

-180° and +360°.

- Direction and position

These two settings allow the user to apply special effects to adapt the marking operation to the specific characteristics of the workpieces. Two marking directions are available:

- Clockwise
- Anticlockwise

Two positions are also available:

- OUTSIDE position: the bottom of the characters of the text is placed on the support circle.
- - INSIDE position: the top of the characters of the text is placed on the support circle.

- Spacing

This setting allows the user to modify the spacing between characters, without modifying their size. The spacing value can vary from 0.1 to 9.9. The default value is 1.

- Compression

This setting allows the user to modify the compression of the characters without modifying their height.

The compression rate represents the scale factor between the height and the width of the character. It is expressed in the form of the width: height ratio.

The compression value can vary from 0.1 to 9.9.

- Inclination

This setting determines the inclination to the horizontal of the characters of a text. This inclination can be from -85° to +85°.

If the inclination value is positive, then the characters slope to the right; if the value is negative, the characters slope to the left.

8. Creation of a "Logo" block

■ Creation method

Since the "Logo" block has a representation in the graphic display area, it is created in two phases.

1. Select the logo block in the drawing block submenu or click on the icon in the "Marking blocks" bar.

The mouse cursor is shown in a form that enables the creation of "Logo" blocks.

2. Draw a positioning rectangle in the graphic display area.

This allows the user to determine the coordinates and height of the block to be created. When the positioning rectangle has been drawn, le "Logo" block is created.

The block is added to the marking file blocks list. In this list, it is represented by an identification icon and, by default, is assigned the name "Logo block".

The definition settings specific to this block appear in the "Settings bar" in the form of a succession of cells which are either filled in and/or are yet to be filled in.

■ Descriptions of the cells and settings

- **Settings relating to block positioning**
- Positioning status
- X and Y position
- Number of rows/columns
- Spaces between rows/columns

- **Settings common to all types of blocks**
- Block name
- Block status
- Pause after marking
- Direction of marking
- **Settings relating to the "Logo" block**
- Filename

For information purposes, this cell gives a reminder of the name assigned to the selected logo file.

- Direction

This setting allows the user to apply special effects to adapt the marking operation to the specific characteristics of the workpieces. Four marking directions are available:

- Normal
- Mirror
- Reflected
- Inverted.

- Compression

This setting allows the user to modify the compression of the characters without modifying their height.

The compression rate represents the scaling factor between the height and the width of the character. It is expressed in the form of the width: height ratio.

The compression value can vary from 0.1 to 9.9. The default value is 1.

- Rotation

This setting determines the angle of rotation of the linear text.

Expressed in degrees, this angle can be between -180° and +360°.
If this angle is equal to 0° (default setting), the text is marked in flat mode.

If this angle is other than 0°, the text is marked in accordance with the angle.

9. Creation of a "DATA MATRIX" block

■ Creation method

Since the "DATAMATRIX" block has a representation in the graphic display area, it is created in two phases.

1. Select the DATA MATRIX block in the 2-dimensional (2D) barcode submenu, or click on the icon in the "Marking blocks" bar.
The mouse cursor is shown in a form that enables the creation of "DATAMATRIX" blocks.

2. Draw a positioning rectangle in the graphic display area.

This allows the user to determine the coordinates and height of the block to be created. When the positioning rectangle has been drawn, the "DATAMATRIX" block is created.

The block is added to the marking file blocks list. In this list, it is represented by an identification icon and, by default, is assigned the name "DATAMATRIX block".
The definition settings specific to this block appear in the "Settings bar" in the form of a succession of cells which are either filled in and/or are yet to be filled in.

■ Descriptions of the cells and settings

• **Settings relating to block content**
- Block element type
- Text, counter, date

• **Settings relating to block positioning**
- Positioning status
- X and Y position
- Number of rows/columns
- Spaces between rows/columns

• **Settings common to all types of blocks**
- Block name
- Block status
- Pause after marking
- Direction of marking

• **Settings relating to the "DATAMATRIX" block**
- Matrix dimension

This setting corresponds to the number of rows or columns making up the DATA MATRIX code.

- If the dimension of the matrix is set to "Auto" mode, the number of rows and columns changes dynamically according to the length of the text to be encoded.
- - If the dimension of the matrix is set at a fixed value, the number of rows and columns is constant. In this event, it is necessary to check that the length of the text to be encoded is not too large for the chosen dimension.

- Height

This setting determines the actual height of the characters marked, in millimeters or inches. Depending on the unit used, the size may be between:

0.1 mm and 99.5 mm, accurate to the nearest 1/10.

0.004 " and 3.930 ", accurate to the nearest 1/100.

- Rotation

This setting determines the angle of rotation of the DATAMATRIX.

Expressed in degrees, this angle can take values of between -180° and +360°.

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- Density

This setting allows the user to define the filling density for the rectangles making up a DATA MATRIX code. It corresponds to the number of lines executed per millimeter to complete the filling.

- Cell settings

This setting allows the user to make a correction by activating a cleaning area.

10. Creation of a "PPN or UPC barcode" block

■ Creation method

Since the "Barcode" block has a representation in the graphic display area, it is created in two phases.

1. Select the Barcode block in the Linear (1D) barcode submenu.

The mouse cursor is shown in a form that enables the creation of "barcodes" blocks.

2. Draw a positioning rectangle in the graphic display area.

This allows the user to determine the coordinates and height of the block to be created. When the positioning rectangle has been drawn, the "PPN barcode" or "UPC barcode" block is created.
The block is added to the marking file blocks list. In this list, it is represented by an identification icon and, by default, is assigned the name "barcode block".

The definition settings specific to this block appear in the "Settings bar" in the form of a succession of cells which are either filled in and/or are yet to be filled in.

■ Descriptions of the cells and settings

- **Settings relating to block content**
- Block element type
- Text, counter, date
- **Settings relating to block positioning**
- Positioning status
- X and Y position
- Number of rows/columns
- Spaces between rows/columns
- **Settings common to all types of blocks**
- Block name
- Block status
- Pause after marking
- Direction of marking

- **Settings relating to the "barcode" block**
- Plain text

This setting allows the user to define whether or not the decoded text corresponding to the barcode is displayed in the graphic display area. Click in the "Click here" cell to bring up the dialogue box.

This dialogue box allows the user to assign a value to each text setting.

- Barcode format

This setting allows the user to select the format to be used for coding the text in the barcode.

> - PPN barcode: the length of the text to be coded is unlimited.

> - UPC barcode: the length of the text to be coded is limited to 8 characters for the "EAN 8" format and to 13 characters for the "EAN 13" format.

- Width of basic module

This setting determines the width of the narrow bar of the code.

Its value is generally between 0.15 and 0.40 mm.

- Wide bar factor*

This setting allows the user to determine the ratio between the wide and the narrow bar of the code. Its value is generally between 2.5 and 3.

- Height

This setting determines the actual height of the characters marked, in millimeters or inches. Depending on the

unit used, the size may be between:

0.1 mm and 99.5 mm, accurate to the nearest 1/100.

0.004 « and 3.930 «, accurate to the nearest 1/100.

- Rotation

This setting determines the angle of rotation of the barcode.

Four angles are available:0°, 90°, 180° and 270°.

- Left and right margins

These two settings allow the user to determine the silent area located on either side of the barcode. They are essentially use with a barcode marked out in negative format.

- Density

This setting allows the user to define the filling density for the rectangles making up a DATAMATRIX code. It corresponds to the number of lines executed per millimeter to complete the filling.

- Cell settings

This setting allows the user to make a correction by activating a cleaning area.

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- Display mode

This setting allows the user to mark the barcode, marked out in positive or negative mode according to the color of the medium to be marked.

11. Creation of a "QR Code" block

■ Creation method

Since the " QR Code " block has a representation in the graphic display area, it is created in two phases.

1. Select the QR Code block in the 2-dimensional (2D) barcode submenu, or click on the icon in the "Marking blocks" bar.

The mouse cursor is shown in a form that enables the creation of "QR Code" blocks.

2. Draw a positioning rectangle in the graphic display area.

This allows the user to determine the coordinates and height of the block to be created. When the positioning rectangle has been drawn, the "QR Code" block is created.

The block is added to the marking file blocks list. In this list, it is represented by an identification icon and, by default, is assigned the name "QR Code block".

The definition settings specific to this block appear in the "Settings bar" in the form of a succession of cells which are either filled in and/or are yet to be filled in.

■ Descriptions of the cells and settings

- **Settings relating to block content**
- Block element type
- Text, counter, date
- **Settings relating to block positioning**
- Positioning status
- X and Y position
- Number of rows/columns
- Spaces between rows/columns
- **Settings common to all types of blocks**
- Block name
- Block status
- Pause after marking
- Direction of marking

- **Settings relating to the "QR Code" block**
  - Version

This setting corresponds to the number of rows and columns making up the QR Code.
If the QR Code version is set to "Default", the number of rows and columns of the code changes dynamically according to the length of the text to be encoded.

If the QR Code version is set at a fixed value, the number of rows and columns of the code is constant. It is necessary to check that the length of the text to be encoded is not too large for the chosen dimension.

- Error correction level

This setting allows the user to apply a particular error correction level to the QR Code.

- Width of basic module

This setting determines the width of the narrow bar of the code.

Its value is generally between 0.15 and 0.40 mm.

- Format

This setting allows the user to apply a particular format to the QR Code.

- Mask

This setting allows the user to apply a mask to the QR Code.

- Height

This setting determines the actual height of the characters marked, in millimeters or inches. Depending on the unit used, the size may be between:

0.1 mm and 99.5 mm, accurate to the nearest 1/100.
0.004 " and 3.930 ", accurate to the nearest 1/100.

- Rotation

This setting determines the angle of rotation of the QR Code.

Four angles are available: 0°, 90°, 180° and 270°

- Density

This setting allows the user to define the filling density for the rectangles making up a DATAMATRIX code. It corresponds to the number of lines executed per millimeter in order to complete the filling.

- Line correction

This setting allows the user to make a correction taking account of the line width. It is expressed in micrometers.

- Display mode

This setting allows the user to mark the QR code in positive or negative mode according to the color of the medium to be marked.

- Silent area

This setting allows the user to apply a silent area on either side of the QR Code. The silent area is essentially used with a QR code displayed in negative mode.

12. Creation of a "Delay" block

A "Delay" block allows the user to introduce a configurable pause period between the marking of two successive blocks. This period is expressed in seconds.

The marking cycle stops when it encounters a "Delay" block. Marking is automatically resumed when the time period specified in the block has elapsed, without any action on the part of the operator.

Although it does not trigger any marking operations, this block is nevertheless regarded as a separate marking block. Its action corresponds to a waiting operation rather than a marking operation.

■ Creation method

Unlike the other types of blocks, no graphic representation is associated with the "Delay" block. It is created in a single step from the "Block menu".

1. Select the "Delay" block in the control blocks submenu or click on the icon in the "Control blocks" bar.

2. The block is added to the "Blocks list" for the file marking operation. In this list, it is represented by its identification icon, and is assigned the name "Delay" by default.

The definition settings specific to this block appear in the "Settings bar" in the form of a succession of cells which are either filled in and/or are yet to be filled in.

■ Description of the cells and settings

- **Settings common to all types of blocks**
- Block name
- Block status
- Pause after delay
- **Settings relating to the "Delay" block**
- Duration

The content of this cell indicates the duration of the waiting period. This is expressed in seconds and can be between 0.01 and 32.76 seconds.

- Conditions for use

The "Delay" block has no representation in the graphic display area. It can only be selected from the blocks list. It must be placed between two blocks to introduce a variable waiting time between two successive marking operations.

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13. Settings relating to block content

Except for drawing blocks, when a block is selected the settings bar incorporates the data relative to this block in 5 tabs called "Bloc (typedebloc)" (Block (type of block), "Position bloc" (Block position), "Activ./Désactiv." (Activate/deactivate), "Param. de marquage" (Marking settings) and "Exportation du texte" (Text export).

The content of the block is selected from the first two cells of the "Block" tab.

The "Block element type" cell has two functions:

- To define the content required for the marking block to be created.
- To display the content of a selected block.

The dropdown list that appears presents all the content available for the type of marking block selected.

Each content item, except for the item called "COMPOUND", will be referred to below as an "element".

Definition of the elements:

- KEYBOARD DATUM: Simple text input by means of the keyboard and then marked
- COUNTER: Numeric or alphanumeric value managed by the CCU. It is incremented upon completion of each marking operation.
- DATE: Time and current date transcribed in customized formats and then marked.
- TEAM: Time range marked according to the current time in the CCU.
- VARIABLE: Character string stored in a variable of the CCU (allows the user to store the same repeated text in multiple marking files).
- COMPOUND: Block in which the text is made up of several elements.

- A block made up of:

- A single element to be marked, is called a simple block.
- Several elements to be marked, is called a compound block.

■ Simple marking block

A simple marking block is a block made up of a single element.

This element must be selected from those listed in the paragraph above, except for the "COMPOUND" element.

- **KEYBOARD DATUM**

The "KEYBOARD DATUM" element allows the user to enter the text to be marked using the keyboard.

- **COUNTER**

See the paragraph "Use of a counter element"

- **CCU/PC DATE**

The "DATE" element allows the user to create customized formats for marking times, days, months, years.

The "Date format" cell allows the user to select a date format, or indicates the format that is in use.

After confirmation, the representation of the block is updated in the graphic display

area.

List of basic formats (they can be combined according to needs)

DD: number of the day of the month - 01 to 31

MM: number of the month - 01 to 12

YYYY: year in 4 figures

YY: year in 2 figures

Y: year in 1 figure hh: hours - 00 to 23, mm: minutes - 00 to 59

ss: seconds - 00 to 59

WW week number - 01 to 53

CCC: number of the day in the year - 001 to 365

DS: day interpretation code

HS: hour interpretation code

MS: month interpretation code

YS: year interpretation code NOTE

Since all settings relating to the date are stored in the CCU memory, two situations may arise:

- Control Unit connected and in operation: the selected date will be displayed in the graphic display area, based on the date in the Control Unit.
- Control Unit NOT connected or NOT in operation: the selected date cannot be read in the Control Unit and it will be displayed in the graphic display area based on the date in the PC.

- **TEAM**

The "TEAM" element allows the user to define the text to be marked according to the current time.

Since all the teams configuration settings are saved in the Control Unit memory, two situations may arise:

- Control Unit connected and in operation:
  - If the internal time of the Control Unit falls within a programmed time range: the text associated with this time range will be displayed in the graphic display area.
  - If the internal time of the Control Unit does not fall within a programmed time range: the text "#####" will be displayed in the graphic display area to symbolize the "TEAM" element.
- Control Unit NOT connected or NOT in operation: no time range can be read in the Control Unit; the text "#####" will be displayed in the graphic display area to symbolize the "TEAM" element.

- **VARIABLE**

The "VARIABLE" element allows the user to store repeated text that is common to multiple marking files and then to load it to files whenever necessary.

The "Variable no." cell allows the user to assign a variable number to a text, or indicates the number that is in use.

After confirmation, the representation of the block is updated in the graphic display area.

NOTE

Since all the variables configuration settings are saved in the Control Unit memory, two situations may arise:

- Control Unit connected and in operation: the content of the variables selected will be displayed in the graphic display area.
- Control Unit NOT connected or NOT in operation: the content of the selected variable cannot be viewed and the characters "#####" will instead be displayed in the graphic display area.

■ For a compound block

A compound block is a block made up of several elements.
Compound blocks are managed from a specific dialogue box called "Compound block".

All the actions performed in this box (and explained in this paragraph) will only be executed after confirmation using the OK button.

The mode of access to the various elements of a compound block varies according to the desired action:

- Creation of a compound block,
- Modification of an existing compound block.
- **Creation of a compound block**

1. Create a simple marking block.

2. Select "COMPOUND" in the "Block element type" list.

Selecting the "COMPOUND" element in this dropdown list brings up the dialogue box below.
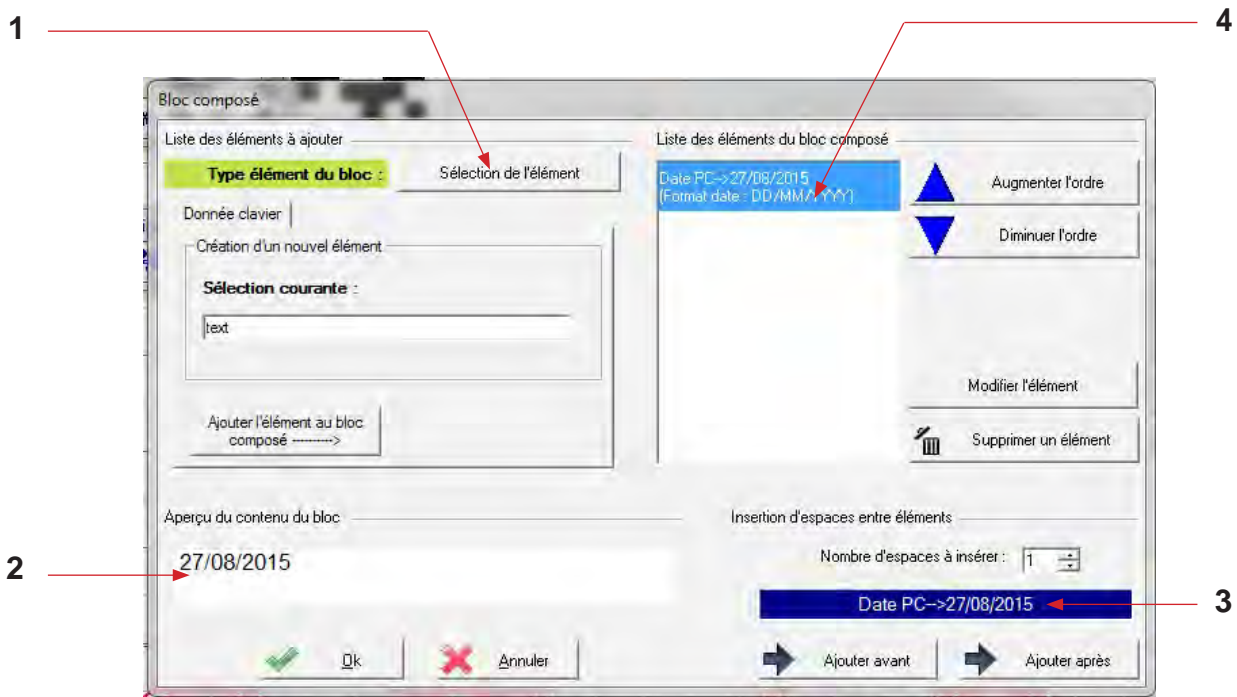
1. Element to be selected to compose the marking block.
2. View area showing the elements making up the marking block.
3. Space insertion area, before or after the selected element.
4. List of elements contained in the marking block.

The element selected first to create the simple block will be displayed first in the box.

- **Modification of an existing compound block**

When the compound block already exists, the various elements of this block are accessed in two steps by means of two successive mouse clicks.

Click twice in the "Click here ---->" cell to bring up the "Compound block" dialogue box which allows the elements contained in the block to be viewed, modified, or added to.

- **Operation of a compound block dialogue box**
- Addition of an element

"KEYBOARD DATUM" element

1. Choose "Keyboard datum" in the "Element selection" menu.

2. Enter the text to be marked

3. Confirm the entry.

The "Keyboard datum" element appears in the list of elements and in the view area.

"COUNTER" element

See the paragraph "Use of a counter element".

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"CCU/PC" element

1. Choose "CCU date" or "PC date" in the "Element selection" menu.

2. Select a date format from the list

3. Confirm the selection.

The "DATE" element appears in the list of elements and in the view area.

The "Date Configuration" button allows the user to configure the date codes in the Control Unit memory directly from this tab, without having to use the "Configuration" menu. Where the "Date" code settings have been modified, the list of elements, and their view area, are updated.

"CCU/PC TEAM" element

1. Choose "CCU team" or "PC team" in the "Element selection" menu.

2. Confirm the selection.

The "TEAM" element appears in the list of elements and in the view area.

The "Team Configuration" button allows the user to configure the date codes in the Control Unit memory directly from this tab, without having to use the "Configuration" menu. Where the "Team" code settings have been modified, the list of elements, and their view area, are updated.

"VARIABLE" element

1. Choose "Keyboard datum" in the "Element selection" menu.

2. Select a variable from the list.

3. Confirm the selection.

The "VARIABLE" element appears in the list of elements and in the view area.

•   Modification of an element

The example below concerns the modification of a "KEYBOARD DATUM" element, but the procedure is identical for the modification of any element. All the tabs have 2 modes: "Creation" mode and "Modification" mode.

1. Double-click on the element to be modified in the "Compound block elements list".

This action activates the tab corresponding to this element in "Modification" mode.

2. Enter the modification by means of the keyboard.

3. Click on the "Modify this element in the list" button.

The update is applied in the "Compound block elements list" and in "Block content preview".

- Deletion of an element

1. Click on the element to be deleted.

2. Click on the "Delete an element" button.

The element is deleted from the "Compound block elements list" and from the "Block content preview".

It is not possible to delete all the elements contained in the "Compound block elements list". When only one element remains, the "Delete an element" button" becomes inactive.

Insertion of spaces

For ease of reading, it is possible to add one or more spaces before or after an element.

1. Click on the element concerned.

2. Indicate the number of spaces to be inserted.

3. Click on the button "Add before" or "Add after" to define the location where the space will be added in relation to the element.

The insertion of spaces is visible in the "Compound block elements list"

14.Settings relating to block positioning

■ Positioning status

This function allows the user to fix the position of a marking block and thus to prevent any unintentional movement of the mouse in the graphic display area.

2 statuses are possible:

- Not fixed: it is possible to move the block in the graphic display area, using the mouse.
- Fixed: it is not possible to move the block in the graphic display area. The X position and Y position cells, described below, become inactive.

■ X and Y position

The content of these cells indicates the start coordinates of the marking block. Depending on the unit chosen, they are given in:

- Millimeters, accurate to the nearest 1/10.
- Inches, accurate to the nearest 1/100.

After any modification of these coordinates, the marking block is moved into the graphic display area.

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15.Settings common to all types of blocks

■ Font

This setting allows the user to select the character font to be used in the marking block. 2 selection modes are available:

Paramètres de la police
F Police
A Remplissage
Tramage
Densité

Paramètres généraux
N Nom du bloc
θ Rotation
Pause après marquage
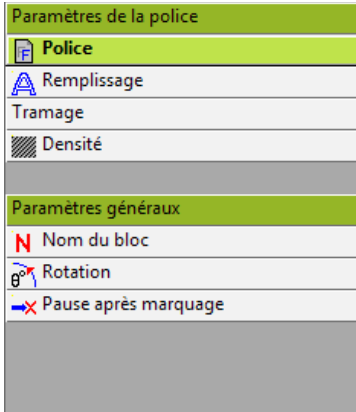
- direct selection based on the font name
- selection from the preview window

The view of the block in the graphic display area is immediately updated after the selection is made.

The list of fonts corresponds to the list of files with the filename extension ".POL" installed on the PC. This list may differ from the fonts actually present on the CCU.

Fonts that are only present on the CCU can neither be selected nor viewed from a PC. It is necessary to delete these fonts from the CCU and then re-upload them to make them available for use again.

■ Block name

To facilitate the identification of marking blocks, it is possible to associate a name with each block.

Upon its creation, a default name made up of the sequence number of the block followed by its type is associated with each block.

This name can be modified by single-clicking on the "Block name" cell.

■ Block status

In the "Activ./Deactiv." tab, this function allows the user to activate/deactivate a marking block in a file that contains multiple blocks. When the file is marked, only the active blocks will be marked; the deactivated blocks will be ignored.

■ Pause after marking

This function allows the user to introduce a pause after a block has been marked.

When the pause function is enabled, marking is interrupted after the marking of each of the blocks concerned. Marking is only resumed after one of the two actions below:

- Press on the start contact switch,
- Confirmation in the dialogue box displayed on-screen.

16. Adjustment

This function allows the user to move the red positioning assistance beam over the surface to be marked, so as to determine precisely the start coordinates of the marking blocks.

1. Select the block in the graphic display area or in the blocks list.

2. Enable the "Adjustment" option from the "Block" menu.

Other options: F3 or the block Pop-up menu.

The positioning assistance dialogue box is displayed. The block to be adjusted is selected in the blocks list.

17. Simulate block

This function allows the user to simulate the marking of the block selected with no impact on the other blocks in the file. The positioning beam is moved over the surface to be marked. This allows the user to check that all the marking settings are correct.

1. Select the block in the graphic display area or in the blocks list.

2. Enable the "Simulate block" function of the "Block" menu.

Other options: the block Pop-up menu

- Normal simulation

The positioning beam plots all the characters without the laser being activated. No actual marking is performed on the workpiece.
The normal simulation is highly precise and assures the user that the marking will be valid.

- Simplified simulation

This is a simulation that is executed based on the imaginary rectangles within which the various marking blocks are contained.

The simplified simulation is only approximate. It does not allow validation of the content of the marking blocks, only their positioning.

18. Mark block

This function allows the user to mark a selected block with no impact on the other blocks in the file.

1. Select the block in the graphic display area or in the blocks list.

2. Select the "Mark block" option from the "Block" menu.

Other options: F9 or the block Pop-up menu

This dialogue box is then displayed.

3. Click on the "Mark" button or on the green button on the CCU.

File marking is launched and executed. When complete, the programme is once again on hold pending an action on the part of the user.

19. Block activation/deactivation

This function allows the user to activate or deactivate a marking block in a file that contains multiple blocks. When the file is marked, only the active blocks will be marked; the deactivated blocks will be ignored.

1. Select the block in the graphic display area or in the blocks list.

2. Enable the "Activate/Deactivate block" option from the "Block" menu.

The text of a deactivated block, and its associated icon, are displayed in blue in the graphic display area and in the blocks list.

The "Block activation/deactivation" function can be applied to multiple blocks selected simultaneously.

20. Properties

This function allows the user to view/modify a set of properties relating to a selected marking block.

1. Select a block in the graphic display area or in the blocks list.

2. Enable the "Properties" function from the "Block" menu.

The block properties appear in three tabs.

- The first allows the user to modify the marking settings associated with the block,
- The second displays information relative to the block dimensions.
- The third allows the user to activate or deactivate a block.

■ Block settings

This window allows the user to apply marking settings to the selected marking block (a customized speed and frequency), to mark it in a different way from the other blocks in the file.

By default, the blocks have no customized marking settings.

This function is primarily use with barcodes or DATA MATRIX codes. These types of blocks require specific marking settings which are often incompatible with those of the file.

■ Block dimensions

This dialogue window indicates the length of the text contained in a block, together with the coordinates of its extreme points.

G. Manipulation of blocks using the mouse

1. Selection of marking blocks

The graphic display area, the blocks list and the settings bar are very closely linked. These three components react simultaneously when a selection is performed.

Prior to any manipulation, the first operation to be performed is to select the block or blocks to be processed.

The various manipulations that can be executed with the blocks contained in a marking file are described below.

■ Single selection

Three block selection modes are available, using the mouse:

- Click on the representation of the block in the graphic display area.
- Draw a catch net in the graphic display area to enclose the representation of the block.
- In the blocks list, click on the line corresponding to the block.

When a block is selected, blue trackers (handles) surround the representation of this block, the line corresponding to this block is highlighted in blue in the "Blocks list" and the settings bar displays the tab(s) corresponding to this block.

Marking blocks having no graphic representation, such as the "Delay" block, can only be selected from the "Blocks list".

■ Multiple selections

To select multiple blocks at the same time, in the graphic display area click in succession on the representation of each block while holding the SHIFT key down.
When multiple blocks are selected at the same time, no elements are highlighted in the "Blocks list" and the "Settings bar" displays information relating to the marking file.

It is not possible to perform multiple selections from the "Blocks list". This can only be performed in the graphic display area.

2. Displacement of the blocks

In the graphic display area, the user can move one or more selected blocks, using the mouse:

■ Displacement of a single block

1. Place the mouse cursor inside the rectangle formed by the block trackers.

2. Press the left button of the mouse and then move the block.

3. Release the mouse button when the block is positioned at the desired coordinates.

The block coordinates are updated automatically in the "Settings bar".

The coordinates displayed in the status and help bar are:

•   Those of the position defined by the mouse, in general cases.

•   Coordinates of the marking block when this block is currently being moved.

■ Displacement of multiple blocks

1. Select all the blocks to be moved,

2. Place the mouse cursor inside the rectangle formed by the trackers of one of the selected blocks,

3. Press the left button of the mouse and then move the blocks,

4. Release the mouse button when all the selected blocks are positioned at the desired coordinates.

3. Resizing of a block

By using the mouse to act on the trackers surrounding a selected block, it is possible to modify its size, compression and coordinates directly in the graphic display area, without needing to use the "Settings bar".

The resizing operation applies to only one block at a time.

To resize multiple blocks in the same way, it is necessary to perform the operations separately for each one.

1. Select the block to be modified.

2. Position the mouse cursor over one of the trackers: it changes into a double arrow.

3. Press the left button of the mouse.

4. Move the mouse while holding the button down: the tracker becomes mobile and tracks the cursor.

5. Release the mouse button.

The displaced tracker is fixed at its new position and the block is automatically resized inside the new rectangle formed by the trackers. The coordinates, compression and size are updated automatically in the "Settings bar".

■ Single line block

A single line has only two trackers, corresponding to the start and end coordinates of the line. Resizing from these two trackers can be performed through 360°.

- **Action on the start tracker:**

The block is resized without maintaining the height: width ratio of the line. The origin coordinates of the block are modified directly.

- **Action on the end tracker:**

The block is resized without maintaining the height: width ratio of the line. The end coordinates of the block are modified directly.

■ Single rectangle block

- **Action on one of the 4 corner trackers:**

The block is resized height-wise and width-wise, maintaining unchanged the height: width ratio.

- **Action on one of the right or left trackers:**

The block is resized horizontally. Only the width or the height of the rectangle is modified depending on its orientation.

- **Action on one of the top or bottom trackers:**

The block is resized vertically. Only the width or the height of the rectangle is modified depending on its orientation.

■ Linear text - single logo

- **Action on one of the 4 corner trackers:**

Linear text: The block is resized height-wise and width-wide, maintaining unchanged the height: width ratio.

"Logo" block: the logo is resized height-wise and width-wise, maintaining unchanged the height: width ratio.

- **Action on one of the right or left trackers:**

Linear text: The block is resized horizontally. Only the compression of the characters is modified.

"Logo" block: The block is resized horizontally. Only the compression of the logo is modified.

- **Action on one of the top or bottom trackers:**

Linear text: The block is resized vertically. The height and compression of the characters are modified.

"Logo" block: The block is resized vertically. The height and compression of the logo are modified.

■ Circular text - DATA MATRIX - QR Code

- **Action on one of the 4 corner trackers:**

Circular text: The block is resized height-wise and width-wise, maintaining unchanged the circle radius: character height ratio. The circle radius and character height are modified. DATA MATRIX and others: the block is resized height-wise and width-wise, maintaining unchanged the height: width ratio.

H. Marking menu

1. Standard marking

The principle of the standard marking mode is to:

- Check the conformity of the data
- Send the marking file from the PC to the CCU
- Mark the file
- Manage the number of cycles using the PC

This mode requires a continual connection between the PC and the CCU, as there is constant communication between them.

This function can only be accessed if the file contains at least one block. Otherwise it is greyed out.

If no connection between the CCU and the PC is established, the programme displays an alert message. In this event, establish all the requisite connections and select the marking menu again.

■ One-time standard marking

This function allows the user to execute a single marking cycle.

1. Select the "One-time" option in the "Marking" menu and the "Standard" submenu.

Other options: "Marking/Production" toolbar, F10 or the file Pop-up menu.

2. This dialogue box is then displayed.

3. Click on the "Mark" button or on the green button on the CCU.
File marking is launched and executed. When complete, the programme is once again on hold pending an action on the part of the user.

GRAVOTECH

■ N times standard marking

This function allows the user to execute the same marking cycle a given number of times and, consequently, to mark the same file N times.

1. Select the "N times" option in the "Marking" menu and the "Standard" submenu.

Other options: "Marking/Production" toolbar.

This dialogue box is then displayed.
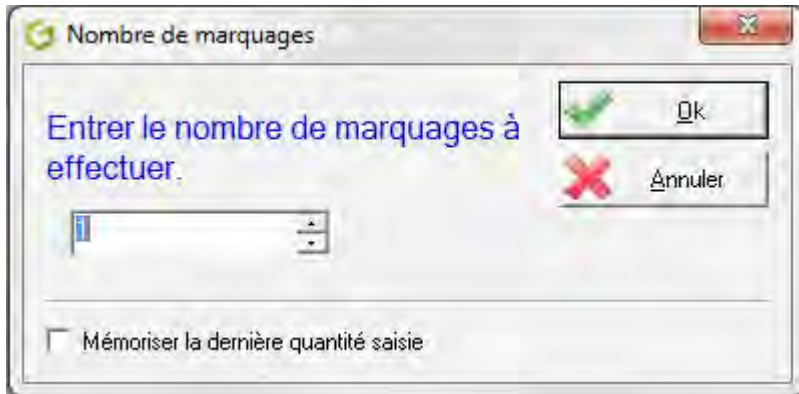
2. Indicate the number of markings to be performed.

3. Confirm.

4. Click on the "Mark" button or on the green button on the CCU.

Upon completion of each marking cycle, the user must either confirm the next marking cycle or stop the N times marking cycle.

■ Infinite standard marking

This function allows the user to execute the same marking cycle an infinite number of times.

1. Select the "Infinite" option in the "Marking" menu and the "Standard" submenu.

Other options: "Marking/Production" toolbar

2. Click on the "Mark" button.

Upon completion of each file marking cycle, the user must confirm the next marking cycle. To stop

infinite standard marking, press the "Cancel" button.

■ Description of the marking

• **During marking**

The "Standard marking" dialogue box disappears when the marking is confirmed.

All the software functionalities are accessible. This allows the user to create or modify marking files during the execution of a marking operation.

The status bar indicates that a marking operation is in progress.

In the status bar, the timer cell changes throughout the marking operation.

• **After marking**

The status bar indicates that the marking operation is complete.

In the status bar, the timer cell indicates the actual duration of this marking operation.

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If variables have been programmed and are active:

- The content of the marking blocks is updated in the graphic display area,

- The counters are incremented or decremented,

- The dates follow the changing time,

- The teams codes are updated according to the changing time ranges.

- **Interruption of marking**

There are 2 marking interruption modes:

- Software interruption (performed from the PC)

By clicking on the "Stop marking" icon in the "Marking" toolbar: the status bar indicates that the marking has been interrupted.

The laser beam stops immediately and a "Marking interruption" dialogue box appears (see below).

- Hardware interruption (performed from the CCU)

1. Press the RESET button connected to the CCU.

As there is permanent communication between the PC and the CCU, Lasertrace detects the marking interruption and displays the "Marking interruption" dialogue box.

2. Acknowledge the marking by pressing the "Apply" button.

The status bar indicates that the marking operation has been interrupted.

2. Independent marking

The principle of the independent marking mode is as follows:

- Verification of the conformity of the data,
- Single-step transfer of the marking file from the PC to the CCU,
- Saving of the data in the CCU memory,
- Disconnection of the PC/CCU connection,
- Independent management by the CCU:
    - Of the execution of the marking operations,
    - Of the number of cycles to be performed.

The data is saved in the CCU memory and will not be lost, even in the event of intentional or unintentional powering off.

The pause been marking blocks is incompatible with independent mode.

To interrupt independent mode, use the "Cancel" option in the "Independent marking" menu.

The presence of the PC is only necessary when loading the marking file to the CCU memory.

■ Infinite independent marking

1. Select the "Infinite" option in the "Marking" menu and the "Independent" submenu.

The marking file is sent to the CCU and a message indicating that the CCU is now in independent mode is displayed on-screen.

The CCU can be disconnected from the PC upon receipt of this message.

It is ready to mark the transferred file "N times". Marking is launched each time by a "Start marking" button connected to the CCU.

■ Cancel

This function allows the user to interrupt the independent marking session that is

currently in progress. Reconnect the PC to the CCU before cancelling the marking

cycle.

1. Select the "Cancel" option in the "Marking" menu and the "Independent" submenu.

Other option: icon in the "Marking" toolbar: the interruption takes place

upon completion of the marking operation currently in progress.

When independent marking has been cancelled, a message is displayed indicating that communication between the PC and the Control Unit has been re-established.

3. Repeat last

This function allows the user to execute the last marking operation performed on the machine and stored by the Control Unit, even if the corresponding file is not visually displayed on the PC screen.

The marking operation performed is completely independent of the marking files open in the Lasertrace software.

The "Repeat last" function can be accessed even if the marking file is still empty.

4. Simulation

This function allows the user to simulate the marking operation, to ensure that all the data is correct.

The positioning beam is moved over the surface to be marked. It is possible to check that all the marking settings are correct.

This function can only be accessed if the file contains at least one block. Otherwise, it is greyed out.

GRAVOTECH

Two types of simulation can be performed:

- Normal simulation

The positioning beam plots all the characters without the laser being activated. No actual marking is performed on the workpiece.

The normal simulation is highly precise and assures the user that the marking will be valid.

- Simplified simulation

This is a simulation that is executed based on the imaginary rectangles within which the marking blocks are contained.

The positioning beam moves to the start point located at the bottom left of the imaginary rectangle of the block being simulated. Then, after confirmation using the keyboard, it moves to the end point located at the top right of this same rectangle.

The simplified simulation is only approximate. It does not allow validation of the content of the marking blocks, only their positioning.

■ Marking file

This function allows the user to simulate all the marking blocks contained in a file.

1. Select the "Marking file" option in the "Marking" menu and the "Simulation" submenu.

Other options: F4 key, file Pop-up menu or the Marking icon dropdown menu in the "Marking/Production" toolbar.
After selecting this function, a dialogue box allows the user to choose the type of simulation.
To check that the simulation of a series of marking blocks is correct, pauses interrupt it.
A pause is inserted at the start of each block, and a dialogue box appears:

2. As applicable, check that:

- The block coordinates are correct, in the case of a normal simulation.
- The coordinates corresponding to the lower left point of the imaginary rectangle in which the block is contained, in the case of a simplified simulation.

A pause is inserted at the end of each block, and a dialogue box appears:

3. As applicable, check that:

- The plotting of the content of the block is correct, in the case of a normal simulation.
- The position reached corresponds to the upper right points of the imaginary rectangle within which the block is contained, in the case of a simplified simulation.

■ Selection

This function allows the user to simulate only the selected blocks in a marking file.

Other options: "Block" pop-up menu or the "Marking" toolbar dropdown menu.

GRAVOTECH

I. Configuration Menu

1. Management of materials

This function allows the user to compile a library of materials.

3 settings characterize each material:

- A marking speed.
- A marking frequency.
- A marking power.

The "New material" button allows the user to define a new material for the selected laser and to add it to the list of available materials.

The "Modify materials" button allows the user to modify the characteristics of an existing material and to re-save this material under the same name.

By default, the material settings can be neither deleted nor modified.

2. Marking file

This menu gives the user access to all the settings of the active marking file displayed on-screen. It can only be accessed in "Supervisor" mode.

When selected, the Control Unit can be disconnected from the PC.

■ File settings
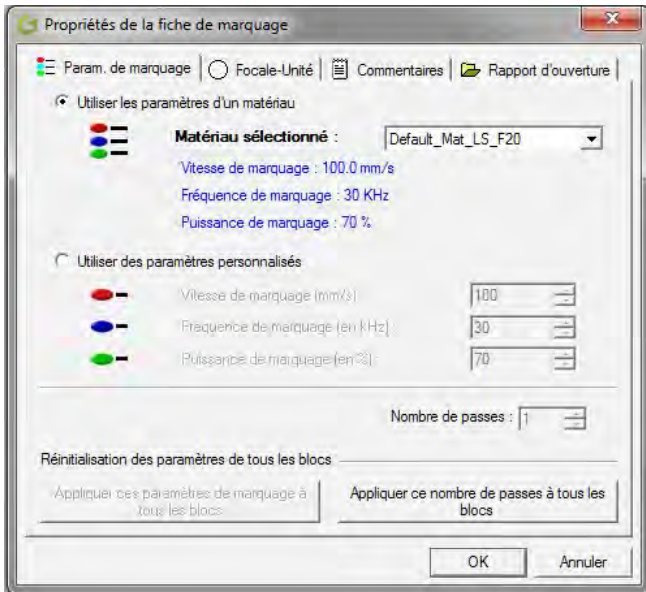
The dialogue box displayed has 4 tabs called "Marking settings", "Focal length-Unit", "Comments" and "Opening report".

• **Marking settings**

This tab allows the user to determine the marking settings (speed, frequency, and power) of the active marking file displayed on-screen. These various settings determine marking quality.

It is possible to:

• Use the settings of a material:

• Use customized settings:

The "Apply these settings to all blocks" button deletes all the customized settings assigned to certain blocks of the active file, to apply the same settings to the entire file.

• **Focal length-Unit**

This tab allows the user to select:

• A focal length from a proposed list and to associate it with the active marking file displayed on-screen,

• The unit of measure to be used in the marking file.

After confirmation of the data of this tab, the marking field of the new focal length selected is immediately updated in the graphic display area and the selected unit is applied to all the marking blocks contained in the file (all data referring to lengths (coordinates, sizes, speeds) is converted).

The focal length of a marking file is changed irrespective of the blocks that make it up. The user must take account of this fact as certain blocks could be located outside the travel distance after a change of focal length.
If several marking files are open at the same time, the change of unit performed in the box opposite only applies to the active file.

- **Comments**

This tab allows the user to:

- Enter a comment regarding the file,
- Display the name of the file and the date of the last file modification.

The comment is used to note important remarks concerning the file. Pressing the "F11" key

brings up this tab directly.

- **Opening report**

This tab allows the user to:

- Display an opening report on the marking file visually displayed on-screen.
- Select the time management mode during marking.

The opening report gives information on fonts, logos, images, and background images which cannot be found on the PC but which are nevertheless used in the marking file.

The time can:

- Be fixed for the duration of a marking operation,
- Change freely during the marking operation.

■ Configure K0 counter

See the chapter entitled "MANAGEMENT AND MARKING OF COUNTERS".

3. Default values

This menu allows the user to define a set of default values general to Lasertrace.

- It can only be accessed in "Supervisor" mode.
- When selected, the Control Unit can be disconnected from the PC.

The dialogue box displayed has 5 tabs called "Laser-Focal length-Unit", "Formats", "Content", "Default directories" and "Miscellaneous settings".

■ Laser-Focal length-Unit

This tab allows the user to pre-determine the default laser, a default focal length and the default unit of measure.
These default settings will be used by the Lasertrace software only if it is operating without the control unit connected.
The default laser selection cell can be accessed if:

- the control unit is not connected,
- no marking file is open.

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If the "Control Unit/PC" connection is not made, the laser and focal length selected here will be used when marking files are corrected.

If the "Control Unit/PC" connection is made, the laser and the focal length represented in the graphic display area upon creation of the marking files will be those identified when the connected hardware is auto-detected. In this event, the laser and the focal length specified by default will be ignored.

■ Formats

This tab allows the user to assign default characteristics to the marking blocks upon creation.

Upon the creation of a linear, axial, or radial text, or a circular text or logo, this will automatically assume the compression, spacing, rotation etc. characteristics defined in this window.

The formats defined in this tab have no impact on existing marking blocks. They will only be applied to marking blocks created in the future.

■ Content

This tab allows the user to pre-determine the content of "Linear text", "Circular text", "DATA MATRIX" or "QR Code" blocks upon creation.

When one of these types of blocks is created, it will automatically be made up of the specified element.

The "Default content" has no impact on the marking blocks already created. Only marking blocks created in the future will be affected.

Depending on the content defined by default, it is possible to define:

- KEYBOARD DATUM: the default content of the text.
- COUNTER: the counter number.
- DATE: the date format.
- VARIABLE: the variable number.
- PC barcode: the number of the associated variable.
- CCU barcode: the number of the associated variable.
- Merge: deletion of spaces

■ Directories

This tab allows the user to define the access path to the various directories used in the software.

To change the access path to one of these directories, click on the corresponding button.

The file directory is the default directory used when a marking file is opened or saved.

The logos directory is the default directory searched to display a list of files (.PLT). It is used when "Logo" blocks are created or downloaded.

The font directory is the default directory used to select font files to be downloaded to the CCU.

4. CCU memory

All the functions of the "CCU memory" menu can only be accessed in "Supervisor" mode. They

can only be used if the Control Unit is connected to the PC.

■ Logo management

After this submenu is validated, an information message is displayed momentarily, and then a dialogue box appears.

This dialogue box acts as a control panel for logo management.
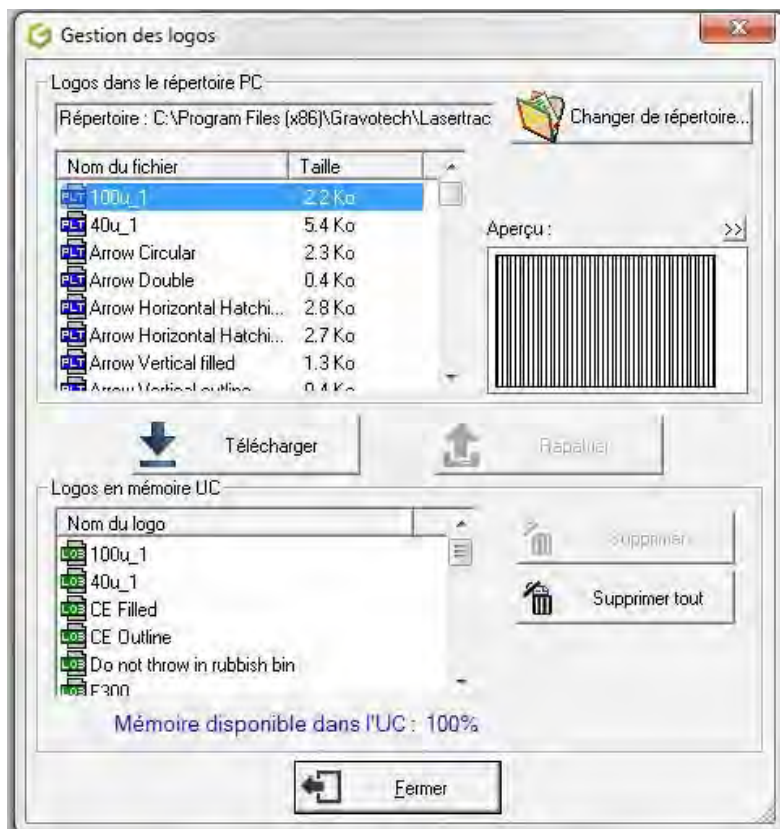
• **Changing the directory**

When the dialogue box opens, the directory searched is the default directory specified for logos.

To view the .PLT files present in another directory or on another disk, click on the "Change directory" button.

After the directory has been changed, the list of .PLT files is automatically updated in the logo management dialogue box.

- **Downloading logos**

The "Logo management" dialogue box allows the user to download several .PLT files simultaneously to the Control Unit memory.

1. Select the .PLT files in the list called "Logos in the PC directory".

2. Hold the shift key on the keyboard down.

3. Click on the "Download" button.

The .PLT files will be downloaded one at a time. Each click on the "Download" button launches the download of the .PLT file whose name appears in the "X/x download" box.

4. Click again on the "Download" button when the name of the next file appears.

Each click on the "Next logo" button prompts the software to move on to the next .PLT file without downloading the current file.

- **Deletion of logos**

The Logo management dialogue box allows the user to delete several logos stored in the Control Unit memory simultaneously.

1. Select multiple logos in the list called "Logos in the CCU memory".

2. Click on the "Delete" button.

After a confirmation message, the selected logos are deleted from the Control Unit memory.

After any action on the "Delete" or "Download" buttons, the two lists in the dialogue box will be updated, but the box will not close.

To close this box, click on the "Exit" button.

GRAVOTECH

■ Programme management

After this submenu is validated, an information message is displayed momentarily, and then a dialogue box appears.

This dialogue box acts as a control panel for programme management.
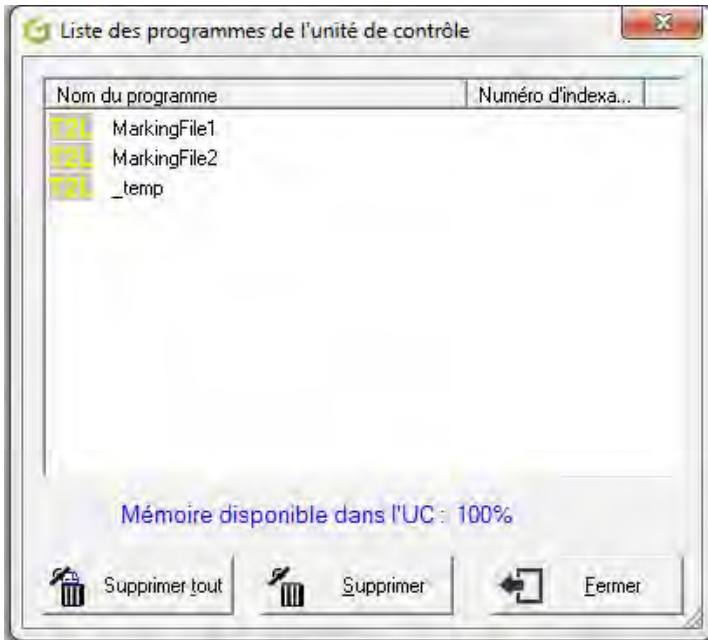
Definition: a marking file stored in the memory of the Control Unit is called a "programme".

The dialogue box displays the list of programmes present in the Control Unit, previously transferred from the PC.

To delete all the programmes stored in the Control Unit, click on the "Delete all" button.

■ Font management

After this submenu is validated, an information message is displayed momentarily, and then a dialogue box appears.

This dialogue box acts as a control panel for font management.
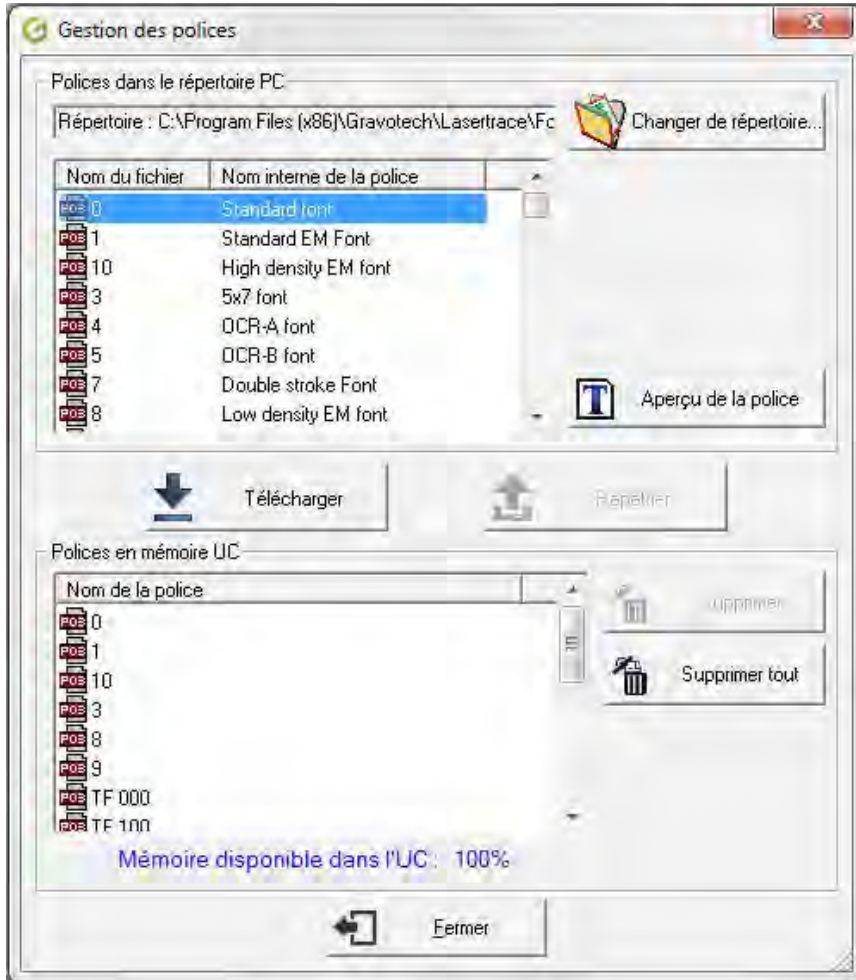
- **Display of fonts**

The character fonts shown in the list are programmed in an EEPROM installed on the motherboard of the Control Unit.

These character fonts will be used to perform the marking operations.

- **Font download**

Font download is an option that allows the user, after delivery of the marking equipment, to add new character fonts to the RAM of the Control Unit.

1. Click on the "Download" button

2. Select the file

3. Assign a name to this font file (8 characters maximum).

This name will identify the font when it has been downloaded to the Control Unit.

Validating the dialogue box launches the download of the character font to the Control Unit.

This may take several seconds, during which a waiting message is displayed.

Upon completion of the download, the font management box is updated automatically and the downloaded font appears in the list after the fonts already present.

When a font has been downloaded, its identification name also appears in the settings bar.

- **Font deletion**

1. Select the name of the font to be deleted in the "Font number" list.

2. Click on the "Delete" button or press the "Del" key on the keyboard.

After any action on the "Delete" or "Download" buttons, the list in the dialogue box will be updated, but the box will not close.

To close this box, click on the "Close" button.

5. Configuration of CCU variables

None of the functions in the "CCU variables" menu can be used unless a Control Unit is connected to the PC.

By default, these functions are not accessible in operator mode.

However, the supervisor can make them available to the operator by acting on his or her user rights.

■ Counters

See the paragraph "Configuration of counters".

■ Teams

This function allows the user to define text to be marked according to the current time, over a 24-hour period.

After configuration of the teams, the content of all the single blocks made up of a "TEAM" element is updated in the graphic display area.

The time used to determine the "Current" team is that of the Control Unit, and not that of the PC.

■ Representative codes for "Year" - "Month" - "Day" - "Hours"

This function allows the user to programme settings for customized formats for marking years, months, days, and hours.

These formats are used in the "DATE" element and are referenced by the codes "MS", "YS", "HS" and "DS".

The various codes are brought together in the form of tabs, with which a format type is associated.

The settings entered in these tabs are applied to all the marking files and are saved in the Control Unit memory.

After configuration of these time-related settings, the content of all the single blocks made up of a "DATE" element is updated in the graphic display area.

■ Variables

This function allows the use to store and load repeated text common to multiple marking files, simply by introducing the number assigned to each variable in the marking blocks.

The variables are "memory locations" which can contain texts up to 32 characters in length. They are

common to all marking files and are saved in the CCU memory. They are identified by the "keywords" V0

to V9.

After configuration of the variables, the content of all the single blocks made up of a "VARIABLE" element is updated in the graphic display area.

6. CCU Date and Time

This menu allows the user to update the internal clock of the Control Unit. Two internal clock update modes are available:

• Manual: modification of the date and time using the double arrows.
• Automatic: transfer of the date and time on the PC.

After any configuration of these two settings, the content of all the single blocks made up of a "DATE" element is automatically updated in the graphic display area.

7. Communication settings

This menu allows the user to customize the settings relating to communication via Ethernet TCP/P with the control unit and by RS232 connection with the accessories.

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■ Settings for communication with the Control Unit

Enter the IP address and the communication port of the control unit. This information is available on the HMI of the laser.
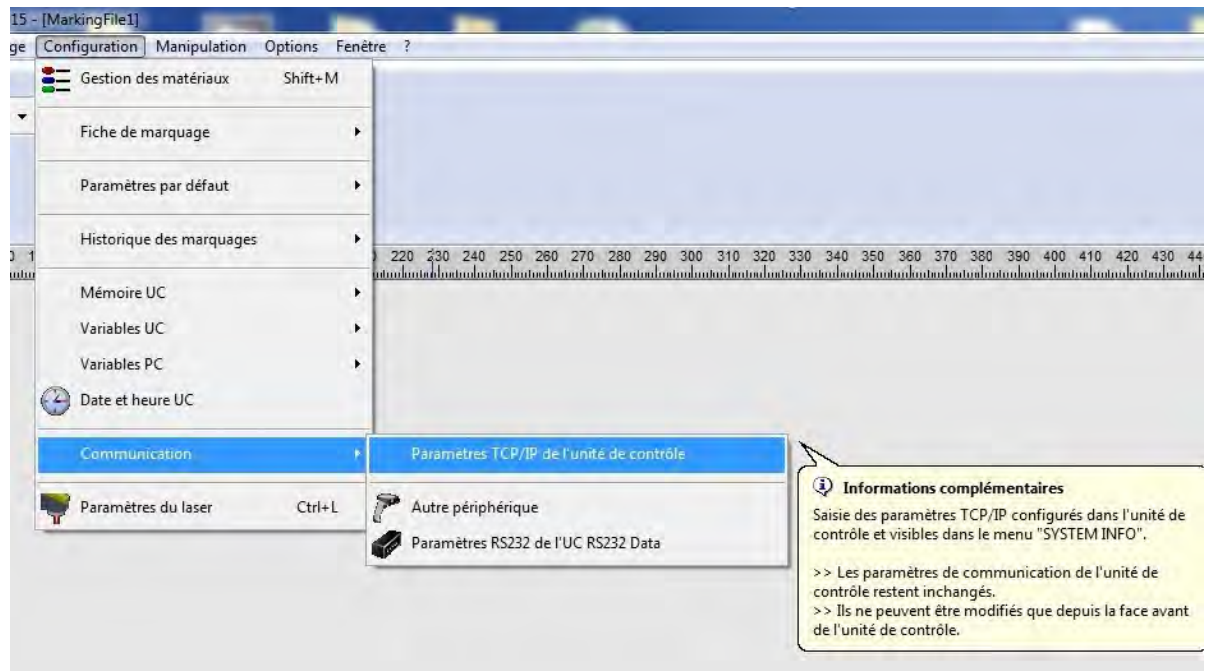
It is necessary to define the IP address and the control unit communication port in Lasertrace. This information is available in the HMI of the CCU.

8. The Laser settings

This menu allows the user to access the hardware configuration settings of the laser. It is password-protected.
This password is the same as that used in the Options menu to switch from Operator mode to Supervisor mode.
The dialogue box displayed has three tabs called "Correction", "Orientation" and "Miscellaneous".

■ Correction settings

These settings are displayed as read-only.

Only a Technifor technician is authorized to modify them.

■ Orientation settings

These settings are displayed as read-only.

Only a Technifor technician is authorized to modify them.

■ Miscellaneous settings

These are settings relating to laser beam positioning and the sighting diode.

J. Manipulation menu

1. Overall offset

This function allows the user to move all the blocks of the marking file having a graphic representation.

This displacement is performed along both the X axis and/or the Y axis.

1. Select "Overall offset" in the "Manipulation" menu.

Other option: Keyboard shortcut Ctrl+F3

2. Click on the files to increase or reduce the coordinates along the X or Y axis.

3. Press OK to confirm.

The coordinates of all the marking blocks are updated automatically.

2. Sequencing

This function allows the user to modify the position of the blocks in the "Blocks list", to determine a new marking sequence.

■ From the "Manipulation" menu

1. Select a block from the list.

2. Click on these arrows to move the selected block up or down.

3. Repeat the operations as many times as necessary.

After validation of the dialogue box, the block marking sequence is updated in the "Blocks list".

■ From the pop-up menu

After selecting a block in the "Blocks list", a pop-up menu allows the user to act directly on the sequencing of this block.

3. Left-alignment (right-alignment respectively)

This function allows the user to left-align (right-align respectively) the selected marking blocks. It is available in the "Manipulation" menu or in the "Manipulation/View" toolbar.

The point used as the reference for the alignment corresponds to the left edge (right edge respectively) of the last block selected. The last block selected is not modified. All the other blocks are moved automatically and their coordinates updated.

4. Top-alignment (bottom-alignment respectively)

This function allows the user to top-align (bottom-align respectively) the selected marking blocks. It is available in the "Manipulation" menu or in the "Manipulation/View" toolbar.

The point used as the reference for the alignment corresponds to the top edge (bottom edge respectively) of the last block selected. The last block selected is not modified. All the other blocks are moved automatically and their coordinates updated.

5. Horizontal centering (vertical centering respectively)

This function allows the user to align the centers of the marking blocks selected such that these blocks are centered in relation to a horizontal line (vertical line respectively). It is available in the "Manipulation" menu or in the "Manipulation/View" toolbar.

The point used as the reference for the horizontal centering (vertical centering respectively) corresponds to the horizontal center (vertical center respectively) of the last block selected. The last block selected is not modified. All the other blocks are moved automatically and their coordinates updated.

6. Equalization of vertical spacing (horizontal spacing respectively)

This function allows the user to move the selected marking blocks such that the vertical spacing (horizontal spacing respectively) between these blocks is equalized.

There are two reference points.

- The first reference is the marking block whose top border (left respectively) is closest to the origin.
- The second reference is the marking block whose bottom edge (right edge respectively) is furthest away from the origin.

These 2 reference blocks are not modified. All the other blocks are moved to equalize the vertical spacing (horizontal spacing respectively) between these two reference blocks.

7. Block positioning by laser diode

This function allows the user to position a block or all the blocks of the marking file by means of a laser sighting diode. It is available in the "Manipulation" menu or in the "Manipulation/View" toolbar.

The displacement can be performed in four directions. It is performed in the unit of measure used in the current file, in pre-determined incremental steps.

Two types of positioning are available:

- Overall: simultaneous displacement of all the blocks of the file.
- By block: displacement of one block selected from the file "Blocks list".

The laser diode describes, on the workpiece to be marked, an imaginary rectangle that encloses the block (or blocks) to be positioned.

■ Use in Supervisor mode

1. Select "Overall offset" in the "Manipulation" menu.

Other options: "Marking/Production" toolbar

2. Adjust the X and Y values using the four direction arrows, or alternatively the keyboard keys.

3. Press OK to confirm.

When positioning is complete, a marking test can be performed directly from the Marking button.

■ Use in Operator mode

In operator mode, this function only allows the user to view the positioning rectangle and to launch marking.

The marking blocks cannot be moved with the arrow keys. Depending on the type of

positioning selected:

- Overall: view and marking of all the blocks of the file.
- By block: view and marking of a block selected from the file "Blocks list".

K. Options menu

1. Control of overtravel

■ CCU control

This function allows the user to activate or deactivate an overtravel control performed by the CCU. This function is enabled by default, and in this case:

- If the marking exceeds the permitted travel distances, the CCU sends an error message.
- The calculation time is extended, and hence a longer total cycle time.

For this reason, it is advisable to use this function only during fine-tuning of the marking files.

■ Software control

At the same time, an overtravel control is systematically performed by Lasertrace. It is displayed in the graphic display area.

For a block containing CCU variables (counter, date, team) the control is only valid if the content is identified. To achieve this, the CCU must be connected.

When a marking block exceeds the travel distances, its icon in the "Blocks list" turns red and it is displayed in red in the graphic display area.

It is only when marking of the file is launched that a message indicates an overtravel and that marking is impossible.

2. User

Lasertrace features two user levels: a "Supervisor mode" and an "Operator mode".

⚠	**The selected mode is saved when the software is closed. It is restored when Lasertrace is next opened.**

■ Supervisor mode

This function allows the switch between "Operator mode" and "Supervisor mode", thus giving access to all the functionalities of the software.

A password is required to change modes.

The graphic interface is modified to allow the use of all functionalities (menus, toolbars etc.).

■ Operator mode

This function allows the switch between "Supervisor mode" and "Operator mode", thus limiting the use of many the functionalities of the software.

No password is required to make this change.

The graphic interface is modified to give access to only those functionalities that are accessible in this mode (menus, toolbars etc.).

If multiple marking files are open when the mode is changed:

- only the active file will remain open,
- all the inactive files will be closed.

■ Password

This function is used to change the password required to switch from "Operator mode" to "Supervisor mode". This password must contain no more than 8 alphanumeric characters. The factory-set password is "12345".

■ Operator user rights

In operator mode, most of the functionalities of the software are inaccessible. By default, the only authorized actions are opening and marking files.

This function, which is only available in "Supervisor mode", allows the supervisor to increase the operator's user rights. The latter will have access to more functionalities.

- **Access to marking blocks**

- The supervisor gives the operator enhanced access to certain marking block properties.

-
- He or she can authorize the modification of certain marking blocks in a marking file, while leaving others completely inaccessible.

If the supervisor ticks the box "Allow modification of certain blocks", the appearance of the blocks list changes. A checkbox appears opposite each element.

The supervisor can act on these checkboxes, block by block, to authorize the modification of some of them.

- If a box is checked, the corresponding block can be modified.
- If a box is not checked, the corresponding block cannot be modified.

After access to the blocks has been defined, the operator will be able to act on the "modifiable" blocks from the settings bar.

If the supervisor checks the box "Keep all blocks inaccessible", the operator will not be able to modify any blocks. By default, all marking blocks are inaccessible to the operator.

- **Access to CCU variables configuration**

- The supervisor can authorize the operator to access the configuration of certain CCU variables.

-
- Upon completion of this operation, the operator will be able to access the configuration of the "authorized" CCU variables from the "Configuration" menu.

3. Languages

The software can be converted into different languages upon simple request.

4. Start-up option

The settings configured in this window will only have an impact on the appearance of the software when it is next started up.

The software can be started up:

- Either systematically in operator mode,

- Or in the mode previously used during the last session (supervisor/operator). The

software can be started up:

- Either with no marking files,

- Or with an empty marking file,

- Or with a previously selected marking file.

5. Inputs/Outputs test

See the chapter entitled "Use of integrated inputs/outputs"

L. "?" menu

1. Keyboard shortcuts table

This function displays the list of all the keyboard shortcuts featured in the software.

Most of the keyboard-accessible functions are also accessible from a menu.

2. About...

This function displays all information relating to the CCU, the Laser and the PC. The CCU must therefore be connected if this information is to be available.

M. Use of integrated inputs/outputs

1. Use of integrated inputs/outputs

The Laser Control Unit has 8 integrated Inputs and 8 integrated Outputs.

These Inputs/Outputs can be used in standard marking mode (One-time, N times or Infinite marking), or in independent marking mode.

When operating in independent mode, the Control Unit itself manages the execution of marking operations, without being connected to a PC.

Marking blocks are used to read the status of the Inputs or to position the Outputs. These are placed in a marking file.

2. Creation of a "Waiting for Inputs" block

A "Waiting for Inputs" block allows for a waiting period before the activation of an Input, or a combination of Inputs, between successive markings of two blocks.

The marking cycle stops when a "Waiting for Inputs" block is encountered.

Marking is automatically resumed when the Input, or the combination of Inputs, has been activated, with no intervention on the part of the operator.

■ Creation method

Unlike the other types of blocks, no graphic representation is associated with the "Waiting for Inputs" block. This is created in a single step, from the "Block menu".

1. Select the "Waiting for Inputs" block in the control blocks submenu or click on the icon in the "Control blocks" bar.

2. The block is added to the "Blocks list" for the file marking operation. In this list, it is represented by its identification icon, and is assigned the name "Waiting for Inputs" by default.

The definition settings specific to this block appear in the "Settings bar" in the form of a succession of cells which are either filled in and/or are yet to be filled in.

■ Settings specific to the "Waiting for Inputs" block

• **Block name**

The "Block type" cell contains an information message.

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- **Mask configuration**

This setting allows the user to define the Inputs mask to be considered, together with their

status. Single-click inside the corresponding cell to bring up the dialogue box.
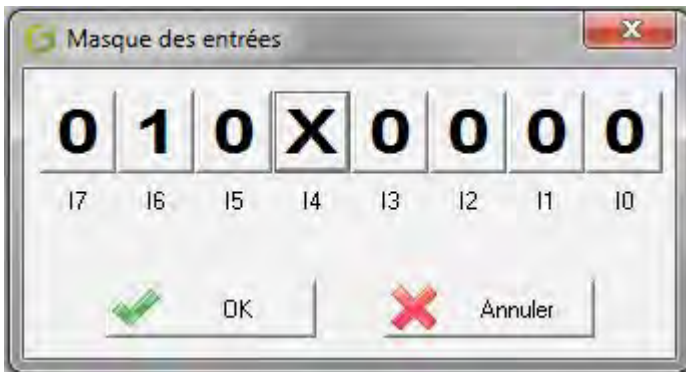
This box allows the user to define the required status for each Input for the file marking to proceed:

1 = waiting for activation of the Input concerned,

0 = waiting for deactivation of the Input concerned

X = status of the Input concerned is ignored.

3. Creation of a "Position Outputs" block

A "Position Outputs" block allows the user to position an Output, or a combination of Outputs, between successive markings of two blocks.

The marking cycle does not stop when a "Position Outputs" block is encountered. The corresponding Outputs are positioned and the marking of the following blocks continues.

■ Creation method

Unlike other types of blocks, no graphic representation is associated with the "Position Outputs" block. This is created in a single step, from the "Block menu".

1. Select the "Position Outputs" block in the control blocks submenu or click on the icon in the "Control blocks" bar.

2. The block is added to the "Blocks list" for the file marking operation. In this list, it is represented by its identification icon, and is assigned the name " Position Outputs **" by default.**

The definition settings specific to this block appear in the "Settings bar" in the form of a succession of cells which are either filled in and/or are yet to be filled in.

■ Settings specific to the "Position Outputs" block

• **Block name**

The "Block type" cell contains an information message.

• **Mask configuration**

This setting allows the user to define the mask for the Outputs to be positioned, together with

their status. Single-click inside the corresponding cell to bring up the dialogue box.
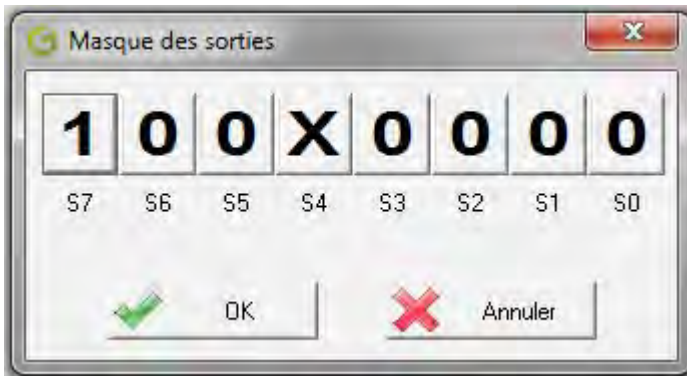
This box allows the user to define the status to be applied for each Output before file marking continues:

1 = the Output concerned is activated,

0 = the Output concerned is deactivated,

X = the Output concerned does not change status.

4. Standard marking using Inputs/Outputs

■ Specifications

A clamping system is used to perform marking on a workpiece.

The Inputs/Outputs of the Control Unit are used to detect the presence of the workpiece and the activation of the clamping system.

Activated by the Output 0, the clamping system activates the Input 0($I0 = 1$ for workpiece clamped, $I0 = 0$ workpiece not clamped).

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■ Marking cycle

1 - Waiting for presence of workpiece,

2 - Clamping,

3 - Waiting for presence of clamped workpiece,

4 - Marking,

5 - Clamp release,

6 - Waiting for clamp release.

The marking cycle is executed in standard mode. The operator opens the file and launches marking.

■ Structure of the corresponding marking file

The marking file is represented by its associated "blocks list".

5. Use of Inputs/Outputs in independent mode

In standard operating mode, the operator selects and opens the marking files from the computer and launches marking (standard One-time, N times or Infinite).

In independent mode, to perform the same operation, two conditions must be met:

The marking files must be loaded to or saved in the Control Unit in advance.

The Control Unit must be able to automatically select and launch the marking of a file from those stored in its memory.

In independent mode, the Inputs/Outputs are managed from the settings bar.

When the settings bar displays the settings relating to the marking file, those connected with Inputs/Outputs management are collected together in the "Selection by I/O" tab.

This tab displays three sections relating to the three types of actions possible.

■ Loading marking files

A marking file saved in the Control Unit memory is called a "programme". To assign a number, click on the

corresponding cell. Enter the number or use the spins.

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After this operation, the file is loaded to the Control Unit from the "Load" menu.

When the file has been loaded to the memory, the corresponding programme is visible in the Control Unit programmes list.

■ Selection of marking files

A marking file is selected from the Inputs available on the Control Unit.

The Control Unit reads the binary code present on the Inputs defined and executes the marking file whose number corresponds to the code (see the paragraph entitled "Loading")

1 Reference input allows the selection of one of 2 files,

2 reference inputs allow the selection of one of 4 files,

3 reference inputs allow the selection of one of 8 files,

4 reference inputs allow the selection of one of 16 files,

5 reference inputs allow the selection of one of 32 files.

To select files, a "reference file" must be loaded to the Control Unit.

• **Reference file**

The role of a reference file is to select the marking files previously loaded to the Control Unit.

A reference file can be marked in infinite independent mode, unlike standard marking files.

The "Reference file" cell allows the file to be defined as:

· either a marking file,
· or a reference file.

If the file is not a reference file, its purpose is to perform standard marking operations and the "First input" and "Last input" cells are inactive.

If the file is a reference file, its purpose is to select files and the "First input" and "Last input" cells are used to define the first and last coding inputs.

• **Coding inputs**

The "First input" and "Last input" cells are used to define the first and last coding inputs.

To select a file, the Control Unit reads the binary code present in the inputs.

This reading is only carried out on the selection inputs defined between the first and the last input.

- **Validation inputs n**

The two cells "Validation inputs" and "Validation mask" are optional. They allow the use of validation inputs prior to the performance of marking.

In the absence of validation inputs, the marking of a file selected by the Control Unit starts immediately.

In the presence of validation inputs, the marking of the file selected by the Control Unit will only start when the validation input(s) are valid.

To define the validation mask, click in the corresponding cell.

■ Example of operation in independent mode

The procedure comprises four successive steps. They are described below, taking the marking of two types of workpiece as an example.

- **Specifications**

There are 2 types of workpieces to be processed: type 1 will be marked with an A, type 2 with a B.

- The presence of a type 1 workpiece activates input 1; the presence of a type 2 workpiece activates input 2.
- A clamping device activated by the Output 0 places the Input 0 into position ($I0 = 1$ for a clamped workpiece, $I0 = 0$ for a workpiece not clamped).

- **Marking cycle**

    1) Waiting for initial conditions: absence of a workpiece,

    2) Waiting for the presence of a workpiece (1 or 2),

    3) Clamping,

    4) Waiting for the clamped workpiece,

    5) Marking A or B,

    6) Clamp release

    7) Waiting for clamp release,

    8) Return to 1.

$I0$ = workpiece clamped information

$I1$ = presence of type 1 workpiece

$I2$ = presence of type 2 workpiece

The successive steps to be followed are:

- Creation and saving on the PC of one or more marking files,
- Loading of the various files created to the Control Unit memory,
- Creation of a main "Reference" file,
- Launch of marking of the "Reference" file in independent mode.

- **Creating and saving marking files**

File indexing

File (also called programme) for marking the type "A" workpiece. File for
marking the type "B" workpiece

- **Loading of the files A and B to the Control Unit memory,**

Load the first file to the Control Unit from the "Load" menu, and then repeat the operation for the second file.

- **Creation of the main "Reference" file,**

This combination of coding Inputs triggers the marking of file 01(for workpiece A), or file 02 (workpiece B), if the Inputs 1 and 2 are activated.

If the combination of Inputs causes an attempt to load a non-existent file, the "cycle start" and "cycle stop" LEDs will flash for 4 seconds.

Two Inputs thus enable the management of up to 4 marking files.

Inputs activation table for this example

- **Launch of marking of the "Reference" file in independent mode**

- Launch marking via the "Independent" submenu of the "Marking" menu.
-
- After this message, pressing once on "Start marking" launches the marking cycle.

6. Inputs/Outputs test

This option assumes thorough knowledge of the machine and must be used by knowledgeable people!

Gravotech accepts no liability in the event of incorrect operation.

This menu offers a view of the status of the Inputs and allows the user to force Outputs.

Deactivated Inputs will display the figure 0; activated Inputs will display the figure 1.

To activate or deactivate an Output, select its associated button using the mouse, then confirm by pressing the "Enter" key or click on the mouse button.

Confirming this menu sets the Outputs to the status zero. A preventive message signals this:

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N. Management and marking of counters

1. Operating principle

The control unit has 10 counters which can be configured and marked. The CCU itself manages the marking and incrementation of the counters. Marking is therefore possible in standard or independent mode.
The marking file open in Lasertrace contains one or more blocks containing a "Counter" element. This file is sent to the CCU and then marked in standard or independent mode.

2. The various types of counters

The counters K0 to K9 are entirely stored and managed by the CCU. They are incremented automatically as marking progresses, irrespective of the marking files using them.

The counter is specific to the marking file. The data of the counter is stored in the file, even though it is still managed by the CCU. Consequently:

- Each marking file has its own FK counters.
- The content of the FK counter varies according to each marking file open.

3. Configuration of the counters

This function is only available if a Control Unit is connected to the PC.

By default, these functions are not accessible in operator mode.

However, the supervisor can make them available to the operator by acting on his or her user rights. (see the paragraph entitled "Operator user rights").

Ten counters, numbered from K0 to K9, are available.

Intended for the incrementation/decrementation function, these counters can be numeric or alphanumeric and each has their own zero reset mode.

- **Management of the type of counter**

The various types associated with the counters are the following:

- Alphanumeric with incrementation at the end of the file (A),
- Numeric with incrementation at the end of the file (N),
- Alphanumeric with incrementation after marking (B),
- Numeric with incrementation after marking (P).

When a counter is alphanumeric, of type (A) or (B), the "In progress", "Start" and "End" input fields accept numeric and alphanumeric characters.

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When a counter is numeric, of type (N) or (P), the "In progress", "Start" and "End" input fields only accept numeric characters.

- **Management of zero resets (resetting to the initial value)**

A zero-reset mode can be associated with each counter.

To find out the time of the zero reset, click on the button associated with it.

The characteristics of the zero reset are automatically adapted to the mode selected. They are displayed at the bottom of the dialogue box.

Six zero reset modes are available:

- Weekly:
- Daily:
- Upon each change of team:
- Annually:
- Monthly:
- Customized:

- **Management of significant zeros**

The significant zeros placed in front of the number of a counter can be shown or hidden. Click on

the number of a counter to show or hide the significant zeros.

The number of significant zeros placed in front of the "In progress" and "Start" values depends on the length of the "End" value.

4. Direct configuration of the counter K0

As the counter K0 is attached to the marking file when it is configured, the Control Unit can be disconnected from the PC.

■ Configuration from a menu

This dialogue box presents the same functionalities as those seen in the paragraph entitled "Configuration of counters". The modifications carried out here only apply to the counter K0.

■ Configuration from the settings bar

When no block has been selected, the settings bar displays the settings relating to the marking file. The settings relating to the counter K0 attached to the file are shown together in the "File variables" tab.

This tab shows one section relating to the counter K0.

The "Configuration" cell is editable. It gives direct access to the dialogue box for configuration of the counter K0. The other cells (displayed in grey) are not editable. They reflect the state of the current configuration.

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5. Use of a Counter element

For the Control Unit counters to be marked in a marking block, the latter must contain "Counter" type content.

Like the other elements, it is managed from the first two cells of the settings bar.

The "COUNTER" element makes it possible to perform incrementations/decrementations.

The "Counter no." cell allows the user to select a counter, or indicates the counter that is in use.

1. Click in the input field located to the right of this cell.

2. Select a counter.

3. Confirm.

After confirmation, the representation of the block is updated in the graphic display area.

Since all the counter configuration settings are saved in the Control Unit memory, two situations may arise:

- Control Unit connected and in operation: the content of the counters selected will be displayed in the graphic display area.
- Control Unit NOT connected and NOT in operation: The content of the selected counters cannot be viewed and the characters "#####" will instead be displayed in the graphic display area.

6. Use of a Compound block

1. Click on the "CCU Counter" button in the "Selection of the element" list.

2. Select a Counter number in the list that is brought up.

3. Confirm the selection.

The "COUNTER" element appears in the elements list and in the visual display area.

The "Counter configuration" button allows the user to configure the counters in the Control Unit memory (see the paragraph entitled "Counter configuration") directly from this tab, with no need to use the "Configuration" menu.

Where "Counter" settings are modified, the elements list and their visual display area are updated.

7. Display in graphic view

After configuration of the counters, the content of all the single blocks made up of a "COUNTER" element is updated in the graphic display area:

- The number of the "In progress" counter will be displayed in the graphic display area if it is type P or B (incrementation after marking).
- The content of the "In progress" counter will be displayed in the graphic display area if it is type A or N (incrementation at the end of file marking).

O. Description of the various user modes

The user mode is selected via the "Options" menu. Switching from operator mode to supervisor mode must be validated by a password.

1. Supervisor mode

This mode gives access to all the functionalities of the software, and requires:

- A Control Unit connected to the PC
- A maximum accreditation level.

■ Adaptation of the user interface

The software is in permanent communication with the Control Unit.

The user interface is updated automatically according to the Control Unit connected.

■ Update of CCU variables

The data specific to a Control Unit (CCU variables: counter, date etc.) are periodically read and updated automatically in the graphic interface.

This update is performed:

- During successive markings,
- Whenever the CCU variables are configured.

2. Operator mode

This mode is characterized by:

- A Control Unit connected to the PC.
- A minimal accreditation level.

The operator has minimal functionalities at his or her disposal for performing file marking.

Depending on the user rights assigned to him or her, the operator can perform some manipulations on the blocks of an open marking file.

These user rights are only configurable in Supervisor mode (see the paragraph entitled "Operator user rights").

■ Adaptation of the user interface

The software becomes single-document. Only one marking file can be open at a time. The first file has to be closed before a second file can be opened.

The menus are simplified. They only display the elements available to the operator.

A single large-size toolbar is available. It is located at the top left of the screen. It is fixed and cannot be moved.

None of the pop-up menus (allowing the user to trigger an action by right-clicking the mouse) are now available.

It is now impossible to move or modify the characteristics of a marking block. Information from the settings bar is now inaccessible. By acting on the user rights (see the paragraph entitled "Operator user rights") some cells in the settings bar can be made editable.

■ Update of CCU variables

The CCU variables concern the settings linked to the marking of dates, counters, and teams.

The content of simple or compound blocks containing this type of variable will only be updated upon completion of a marking operation.

3. Operator user rights

This function allows the configuration of the operator's user and modification rights over marking file blocks.

■ Selection of user rights

• **Access to marking blocks**
• Keep all blocks accessible to the operator

The operator will not be able to modify any blocks.

• Allow the modification of certain blocks

  - Access to the <Text> cell: it is possible to modify the "text content" of a block, regardless of its graphic representation.

  - Access to the <Status of the block> cell: it is possible to Activate (to mark) or Deactivate (to not mark) a block of the file.

• **Access to CCU variables configuration**

This function allows the user to configure blocks containing "CCU variables".

• Access to counter configuration.
• Access to teams configuration.
• Access to Years/Months/Day configuration.
• Access to variables configuration.

■ Selection of blocks

After granting user rights to an operator, the Administrator or Supervisor must select the file blocks that can be modified.

Method of selection:

1. Select a block.

2. Confirm by pressing the space bar.

The rights applied are valid for all files but only the selected blocks will be modifiable.