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# EasySTONE NC - HMI

## User Guide

### Version 6.8



10/12/2021

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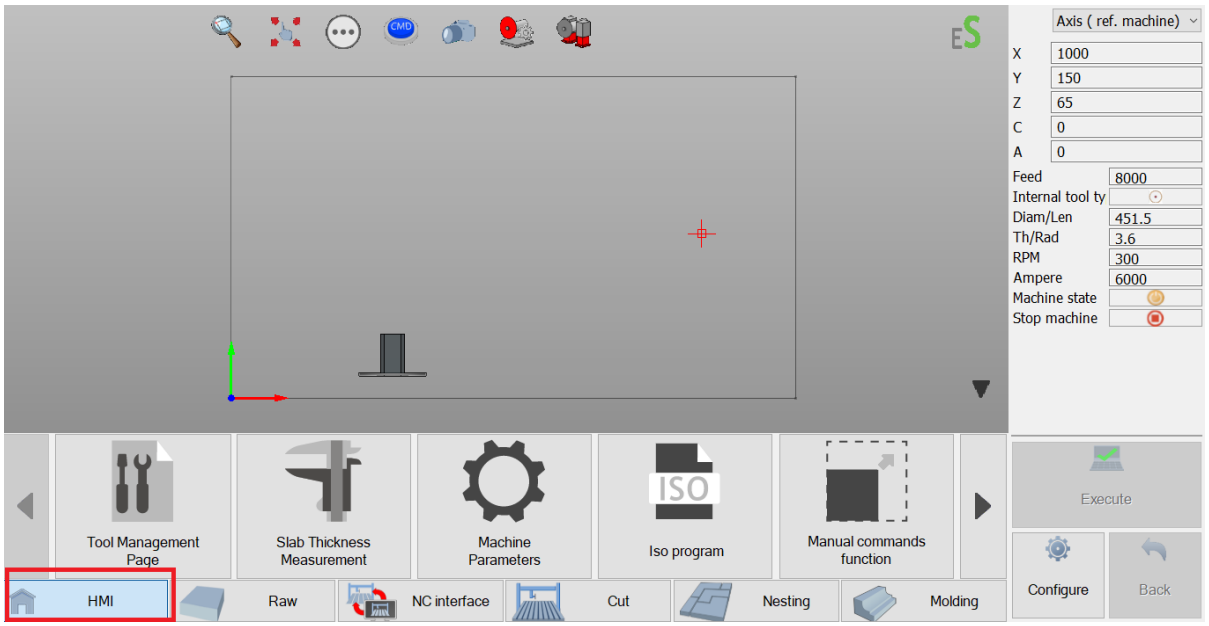
# 1. Introduction

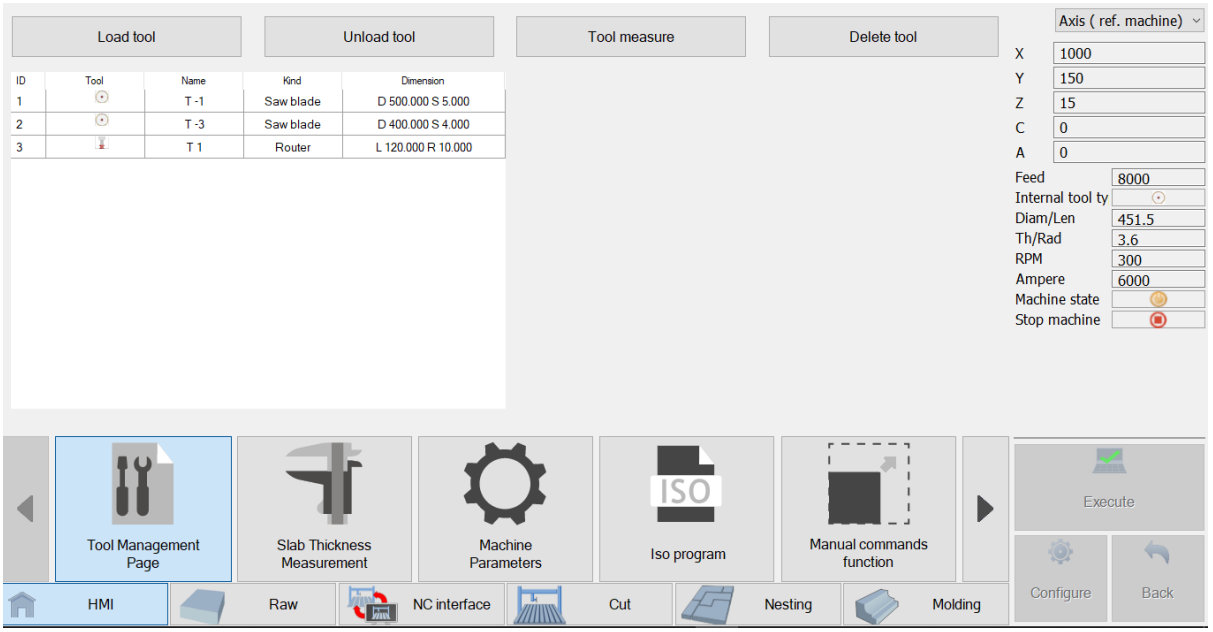
The HMI section is a dedicated set of functions, fully customizable, of EasyStoneNC.
It contains operations focused on working on-board of the machine, communicating with its numeric control.

This user guide describes the HMI section of the Sassomeccanica machines.
The numeric control used for the communication is Tex.

It is possible to enter the HMI section from the main interface of EasyStoneNC, clicking on the button on the bottom-left corner.



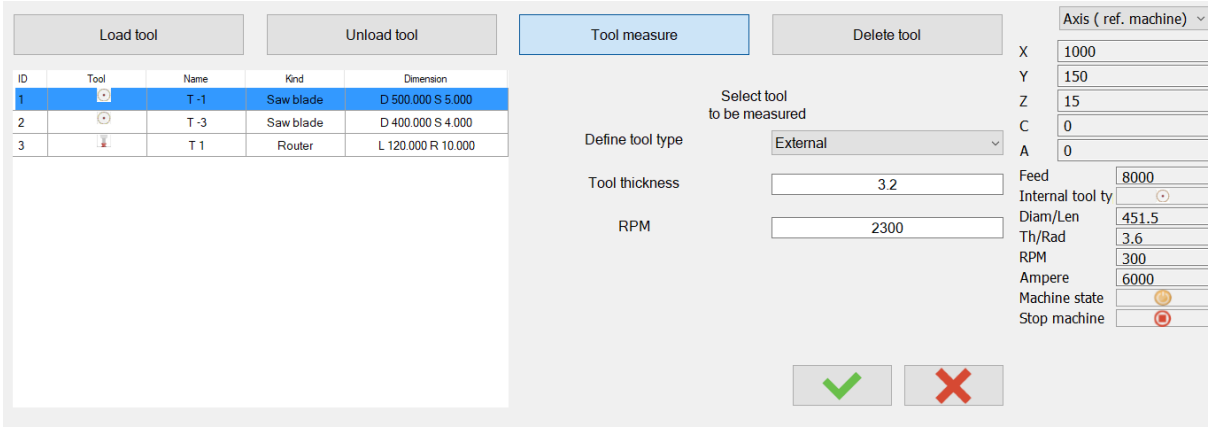
# 2. Tool Management Page




In the tool management page, it is possible to find all the functions that allow cooperation with the machine tool changer.

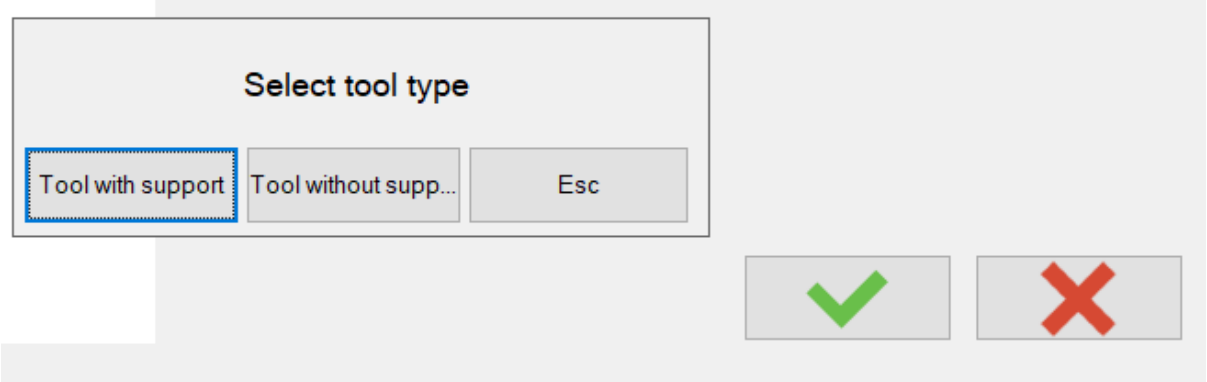
On the left, there is a table with the list of all the tools currently present in the tool storage. Here are written the tool type, the tool code and the dimensions.

With the buttons “Load Tool” and “Unload Tool” it is possible to take a tool, choosing it from the list, or unload it by replacing it in the tool storage.




In the “Tool measure” section it is possible to enable the tool probing. It is necessary to select the tool to measure, the tool type (internal or external), the tool thickness (if the tool is a blade, diameter for routers and drillers), and the default RPM value associated.

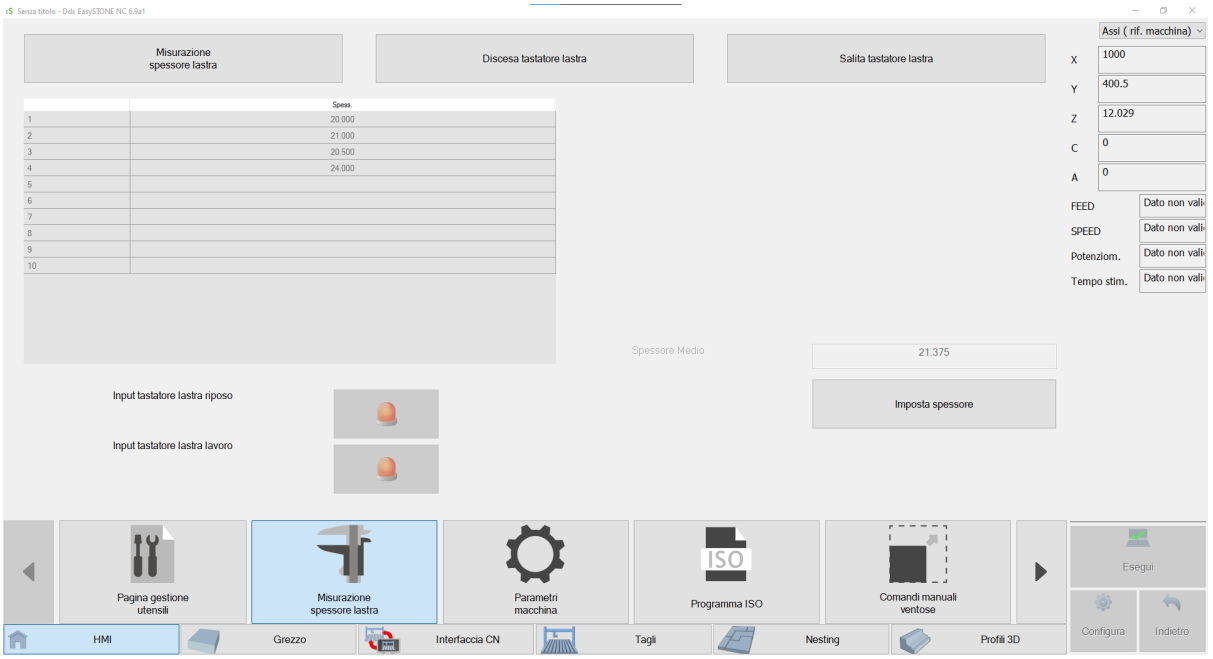
After the confirmation it is possible to choose whether the tool is mounted on the support or not.




“Delete tool” erases the selected tool from the tool list on the left.

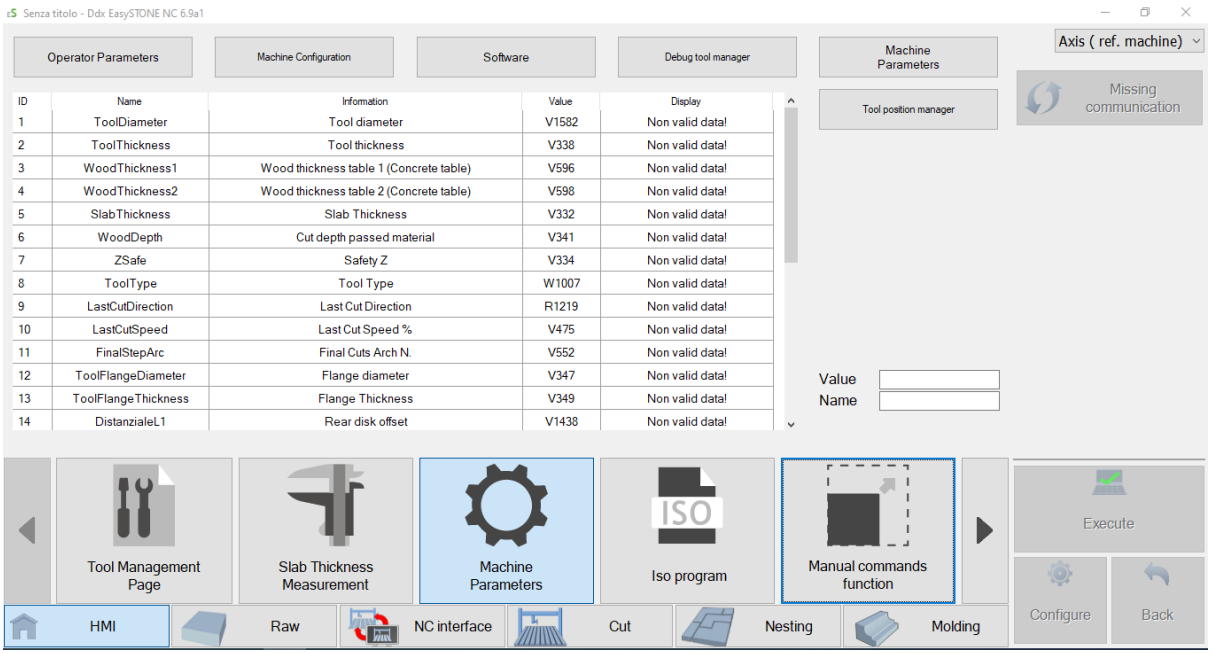
# 3. Slab Thickness Measurement

In this section we find the main command to perform slab thickness measurement.
*Slab Thickness Measurement* function is used to execute the command which allows you to measure the slab thickness; The measured value will appear on the grid below the button.
Automatically, the software will calculate the medium thickness value, and it will be possible to set it as the current slab thickness.
**Thickness Probe Down** / **Thickness Probe Up** functions are used to raise and lower the probe.
**Input Slab Probe Work** / **Input Slab Probe Not Work** are used to check the status of the operation on the machine.



# 4. Machine Parameters

In this section we find all the machine parameters subdivided into different pages *(Operator Parameters, Machine Configuration, Software, Debug Tool Manager and Machine Parameter)*, protected by password.
You can use the filter to search and set the parameters.
**Tool Position Manager** allows you to set the tool position in the tool storage.




| ID | Name | Information | Value | Display |
|---|---|---|---|---|
| 1 | ToolDiameter | Tool diameter | V1582 | Non valid data! |
| 2 | ToolThickness | Tool thickness | V338 | Non valid data! |
| 3 | WoodThickness1 | Wood thickness table 1 (Concrete table) | V596 | Non valid data! |
| 4 | WoodThickness2 | Wood thickness table 2 (Concrete table) | V598 | Non valid data! |
| 5 | SlabThickness | Slab Thickness | V332 | Non valid data! |
| 6 | WoodDepth | Cut depth passed material | V341 | Non valid data! |
| 7 | ZSafe | Safety Z | V334 | Non valid data! |
| 8 | ToolType | Tool Type | W1007 | Non valid data! |
| 9 | LastCutDirection | Last Cut Direction | R1219 | Non valid data! |
| 10 | LastCutSpeed | Last Cut Speed % | V475 | Non valid data! |
| 11 | FinalStepArc | Final Cuts Arch N. | V552 | Non valid data! |
| 12 | ToolFlangeDiameter | Flange diameter | V347 | Non valid data! |
| 13 | ToolFlangeThickness | Flange Thickness | V349 | Non valid data! |
| 14 | DistanzialeL1 | Rear disk offset | V1438 | Non valid data! |

# 5. ISO Program

This section allows to open, manage and launch ISO programs.
The same interface also gets displayed when a program is executed throughout the software; in that case, the generated program will automatically get loaded.
In the bottom left corner, it is possible to browse the loaded program line by line.
On the top of the screen, the following buttons are available:

- **Open ISO file**: loads a new ISO program, discarding the old one if necessary.
- **Open DXF file**: loads a drawing (from a DXF file) to be displayed inside of the scene frame.
- **Save ISO file**: allows the save of the ISO file.
- **Delete ISO file**: allows the deletion of the current file.
- **Edit**: opens DDXEditor, allowing the editing of the program.
    - After the editing is over, it is possible to save the file and select *"Load Edited ISO"* to update the program displayed on the screen.

On the right, it is possible to edit some parameters before executing the program:

- **Origin Type**: sets the type of the origin that will be used.
    - *Head Position*: uses the current position of the head as the program origin.
    - *Raw Box Position*: uses the corner of the raw box (defined previously) as the program origin.
    - *Manual Position*: after selecting this option, clicking a point on the scene on the left will set it as the manual origin (X and Y coordinates will be displayed right below).
- **RPM**: the RPM value is both manually editable and adjustable with up/down arrows, which respectively increase/decrease the value.
- **Thickness:** it is possible to manually edit the thickness of the slab.
- **Start Point:** moves the head of the machine to the origin point used in the last executed program (which can then be taken as the current origin by selecting *"Head Origin"* type).
- **Laser:** moves the head of the machine to the coordinates pointed by the laser marker (which can then be taken as the current origin by selecting *"Head Origin"* type).

At last, in the bottom right corner, the following buttons are available:

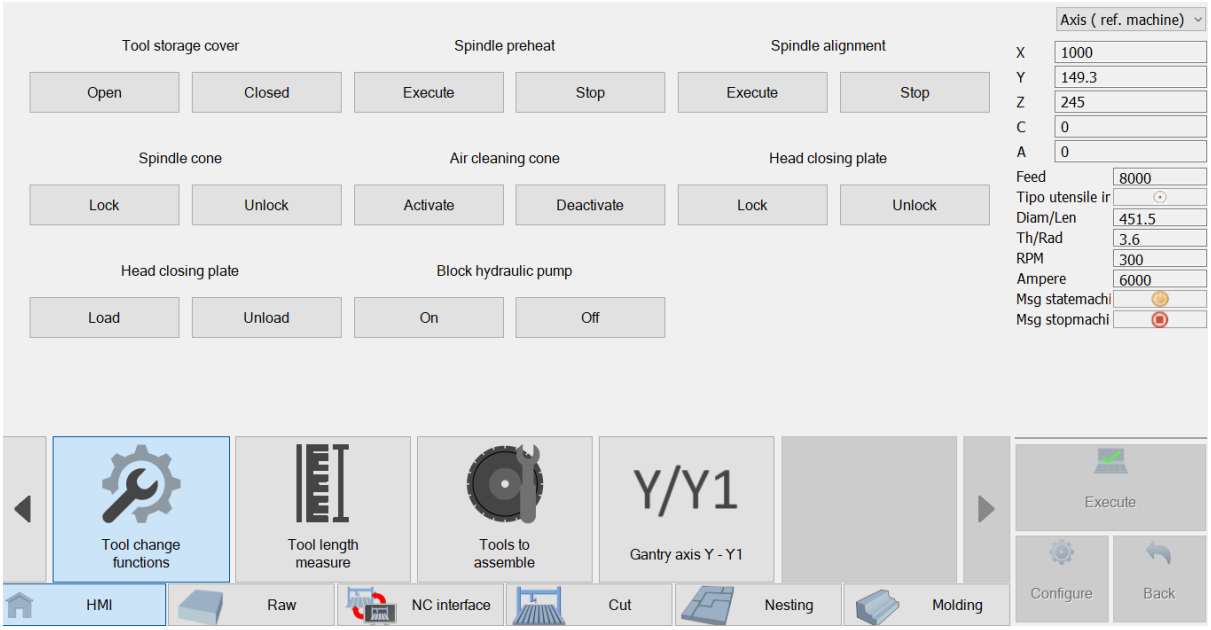
- **Start:** sends the program to the machine to be executed.
- **Stop:** interrupts the program execution.
- **Continue:** if the program had been previously interrupted, this button will resume its execution from a safe point.
- **Restart:** restarts the program from the beginning.

# 6. Manual Commands Function

This section contains a set of buttons that activate miscellaneous CN functions.
Through this section it is possible to enable/disable vacuum suction for the various cups, enable/disable the blowing function and enable/disable the water flow.

# 7. Tool Change Functions

In this section we can find the direct commands with which we can operate the equipment.




**MAIN CONTROL**:

- **Tool storage cover**:
  - **Open**: This command allows the user to open the tool magazine.
  - **Close**: This command allows the user to close the tool magazine.

- **Spindle preheat**:
  - **Execute**: Click on this button to start spindle pre-heating.
  - **Stop**: Clicking on this button stops spindle pre-heating.

- **Spindle alignment**:
  - **Execute**: This command allows the user to carry out spindle timing.
  - **Stop**: This command allows the user to stop spindle timing.

- **Spindle cone**:
  - **Lock**: This command allows the spindle cone to be locked.
  - **Unlock**: This command allows the spindle cone to be unlocked.

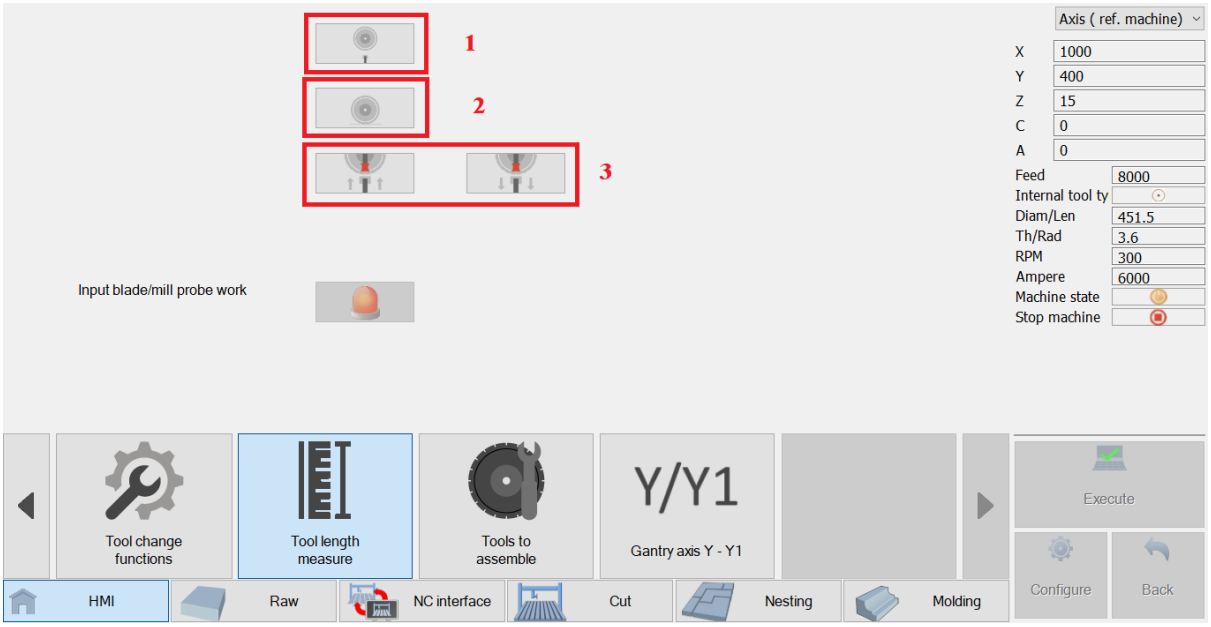
- **Air cleaning cone**:
  - **Activate**: This command activates cone cleaning.
  - **Deactivate**: This command deactivates cone cleaning.

- **Head closing plate**:
  - **Lock**: This command locks the head locking plate.
  - **Unlock**: This command unlocks the head locking plate.

- **Head closing plate**:
  - **Load**: This command loads the head locking plate.
  - **Unload**: This command unloads the head locking plate.

- **Block hydraulic pump**:
  - **On**: This command switches On the hydraulic pump.
  - **Off**: This command switches Off the hydraulic pump.

# 8. Tool Length Measurement

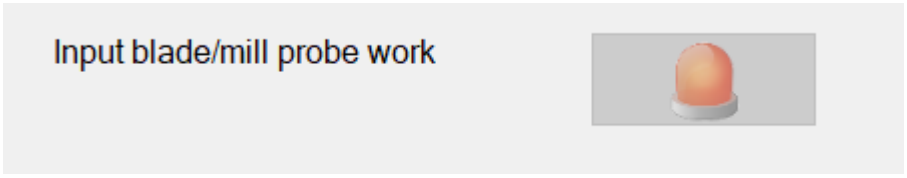



These controls are used to measure the length of the tool mounted on the machine.

The first two buttons at the top of the screen depict the tool that is now on the machine, so the icon can also depict other tools.

**The first button** (view box N°1) is the command that allows the tool to be probed with the touch probe.
**The second button** (view box N°2) is the command that allows the tool to be probed via the table, the tool will be measured by the programme when it comes into contact with it.

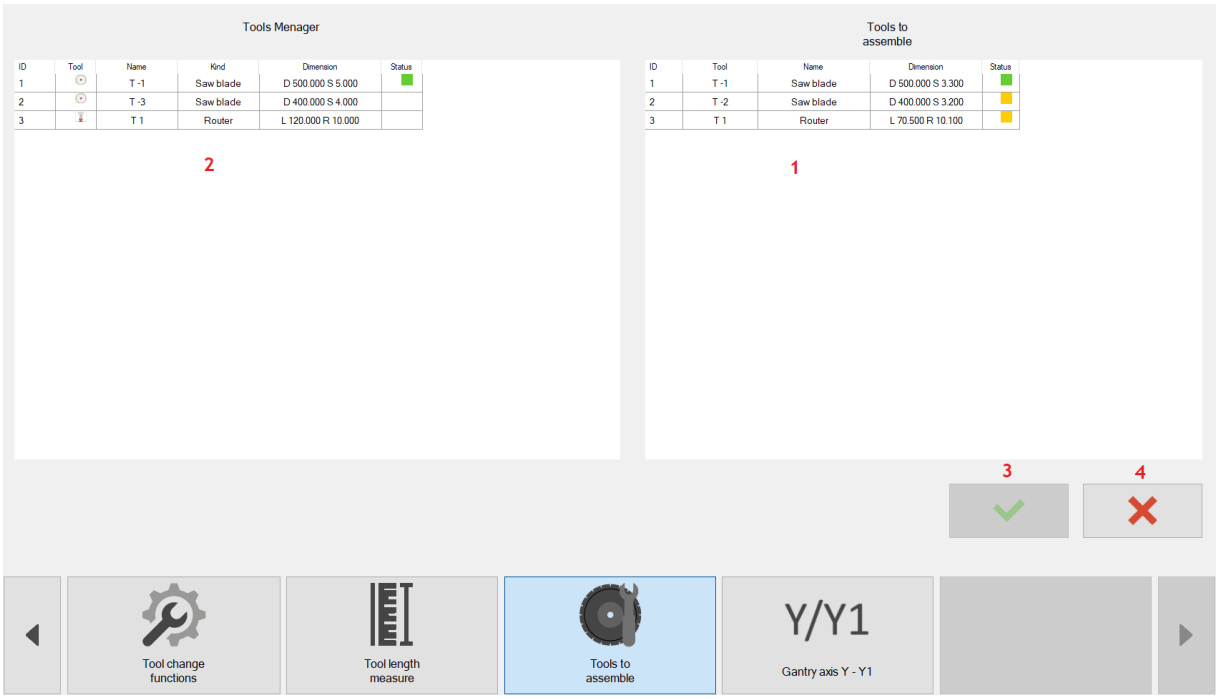
**The two buttons** (shown in box N°3) are two manual buttons that enable and disable the touch probe for tool measurement, the left button activates and the right button deactivates.




When it is switched on, the probe is measuring the length/diameter of the tool; when it is switched off, it means that the probe is not working.

# 9. Tools to Assemble

In this screen you can view the tools called up within the ISO and consequently define the tooling on the machine if the tool is not in the database.

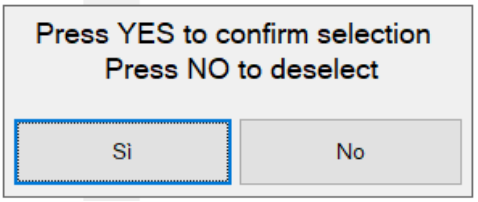



**Section one** contains all the tools that need to be assembled, each tool is distinguished by the various specifications and by a status which, if **green**, indicates that the tool is already in the database and **yellow** indicates that it needs to be equipped.

**Section two** contains all the tools that are already in the database and the tool status will be green if the following tool is found if the tool is called in the iso, otherwise the status will be neutral.

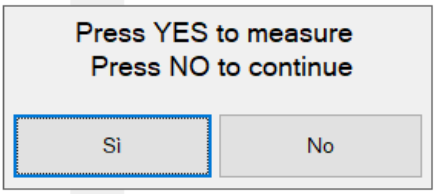
To associate a tool to the magazine, select a tool on the right-screen and a tool on the left-screen and then press on **button 3** as shown in the figure or press on **button 4** to close the dialog.


After clicking on the confirmation button you will be asked if you want to confirm your selection.

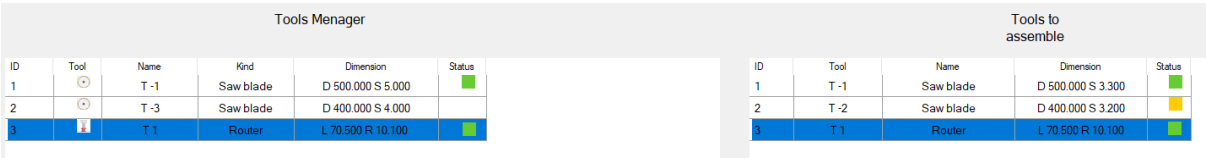



By pressing **YES** we will confirm that we want to proceed with the tooling and consequently the values in the warehouse will also be updated, otherwise pressing **NO** the operation will be canceled.

After the selection we can decide to proceed with the tool measuring to automatically update the tool length within the magazine.



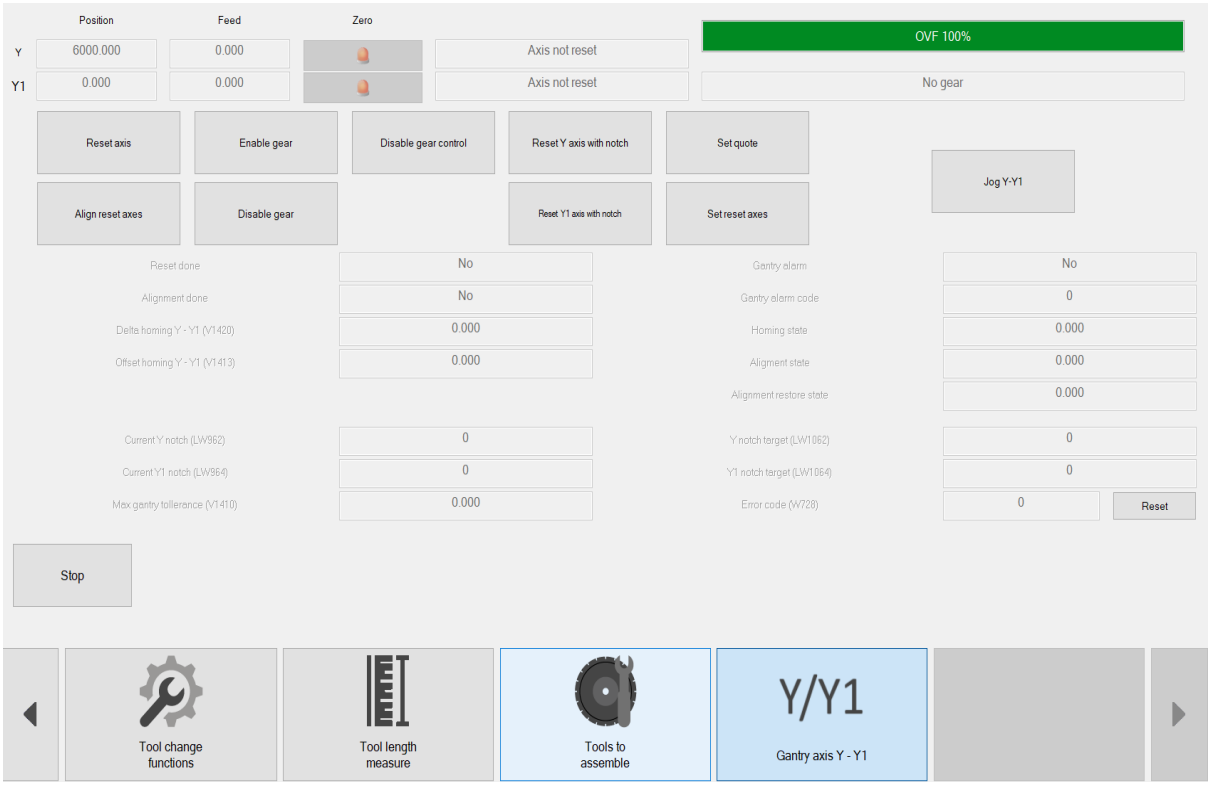

Once the tooling operations have been completed, the dialogue box will update the tool statuses, as in the figure below.



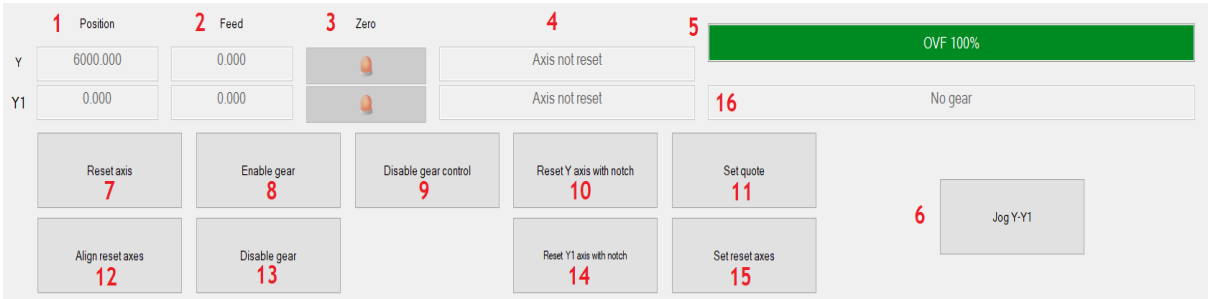

Proceed in the same way with all tools to be equipped.

# 10. Gantry Axis Y-Y1

This section contains a series of advanced functions related to the control and setting of the machine axes.




At the top of the screen each button performs functions on the machine, the functions that each button performs are listed below:




| N° | Function name | Description |
|---|---|---|
| 1 | Position | Absolute quotes axes Y-Y1 ( only display ) |
| 2 | Feed | Feed axes Y-Y1 ( only display ) |
| 3 | Zero | Status Zero, Minimum and Maximum sensors ( only |

| | | |
|---|---|---|
| | | display ) |
| **4** | Reset status | Reset status axes Y and Y1 ( only display ) |
| **5** | Overfeed bar | Overfeed bar from potentiometer ( only display ) |
| **6** | Jog Y-Y1 | Buttons to move the axes Y-Y1 independently ( see Fig 1.1) |
| **7** | Reset axes | Reset axes Y-Y1 |
| **8** | Enable gear | Enable gear on machine |
| **9** | Disable gear control | Disable gear control on machine |
| **10** | Reset Y axis with notch | Reset axis Y with notch |
| **11** | Set quote | Assigns the current axis value of Y-Y1 |
| **12** | Align reset axes | Align reset axes on machine |
| **13** | Disable gear | Disable gear on machine |
| **14** | Reset Y1 axis with notch | Reset axis Y1 with notch |
| **15** | Set reset axes | Set axes as reset axes |
| **16** | Gear status | Gear status on machine ( only display ) |

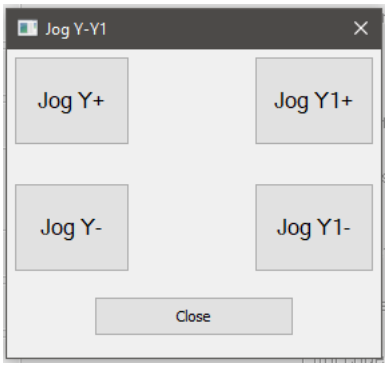
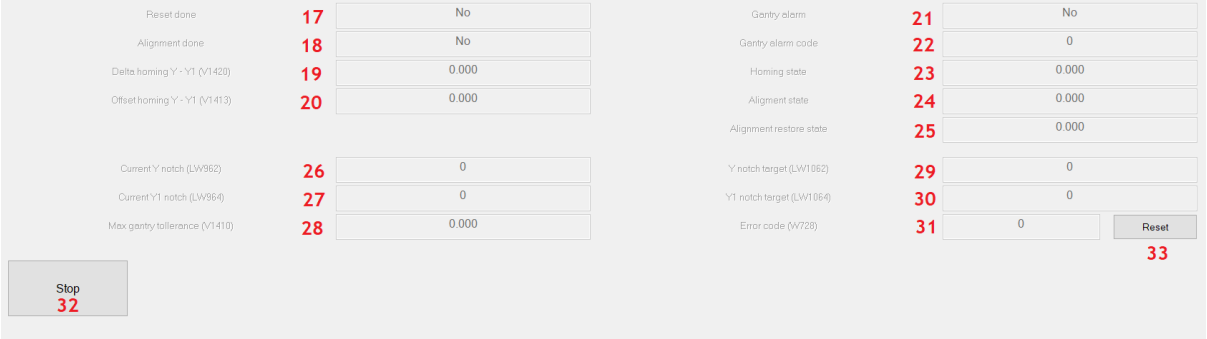


Fig. 1.1 Jog Y-Y1

At the bottom of the screen, a series of parameters are displayed, which refer to the following machine dynamics:




| N° | Function name | Description |
|---|---|---|
| 17 | Reset done | Indicates whether the machine has performed axes zeroing |
| 18 | Alignment done | Indicates whether the machine has performed axes alignment |
| 19 | Delta homing Y-Y1 | Delta value homing axes Y-Y1 homing |
| 20 | Offset homing Y-Y1 | Offset value homing axes Y-Y1 homing |
| 21 | Gantry alarm | Indicates whether the machine is in gantry alarm |
| 22 | Gantry alarm code | Indicates the gantry alarm code |
| 23 | Homing state | Indicates whether the machine is in homing state |
| 24 | Alignment state | Indicates whether the machine is in alignment state |
| 25 | Alignment restore state | Indicates whether the machine is in restoring alignment state |
| 26 | Current Y notch | Indicates current Y notch on machine |
| 27 | Current Y1 notch | Indicates current Y1 notch on machine |
| 28 | Max gantry tolerance | Indicates max gantry tolerance on machine |
| 29 | Y notch target | Indicates the Y coordinate of arrival on machine |
| 30 | Y1 notch target | Indicates the Y1 coordinate of arrival on machine |
| 31 | Error code | Emits the error code in the machine |
| 32 | Stop | Stop machine execution |
| 33 | Reset | Reset the machine error emitted |