

IsoUs – Ultimate Step
User Interface

www.promax.it



PROMAX

Motion
&
Control

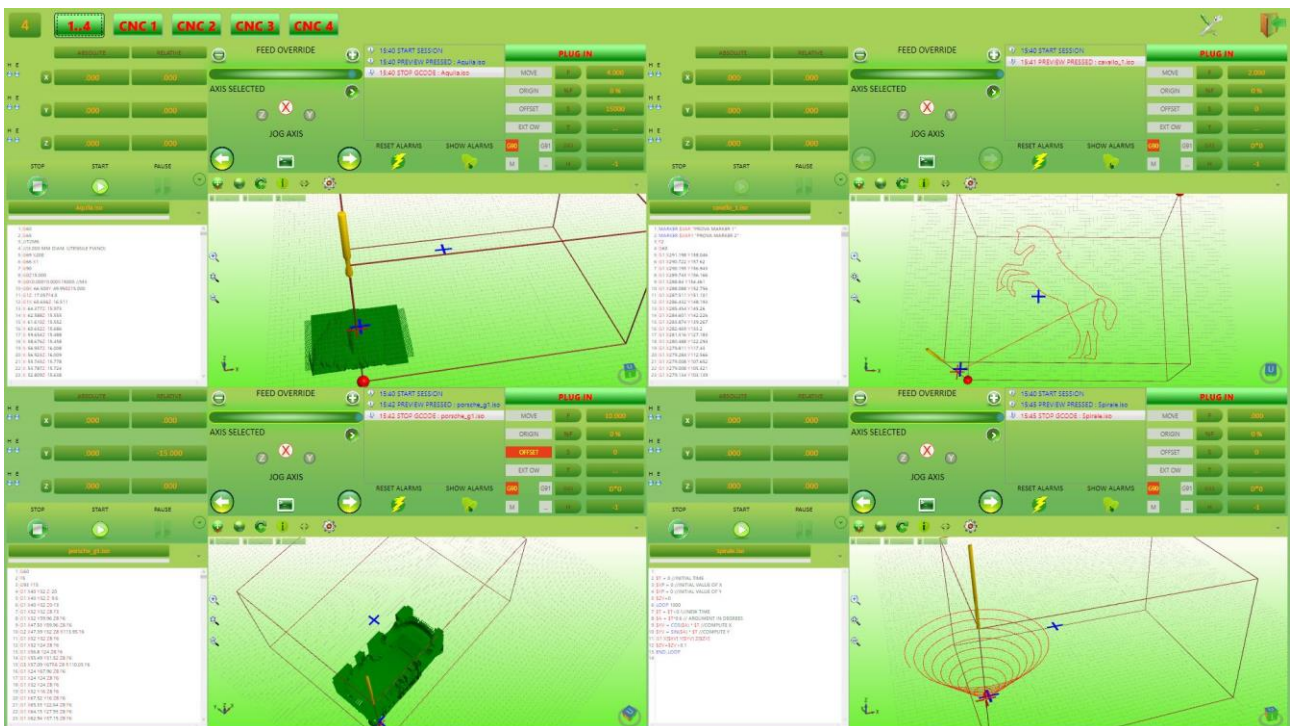
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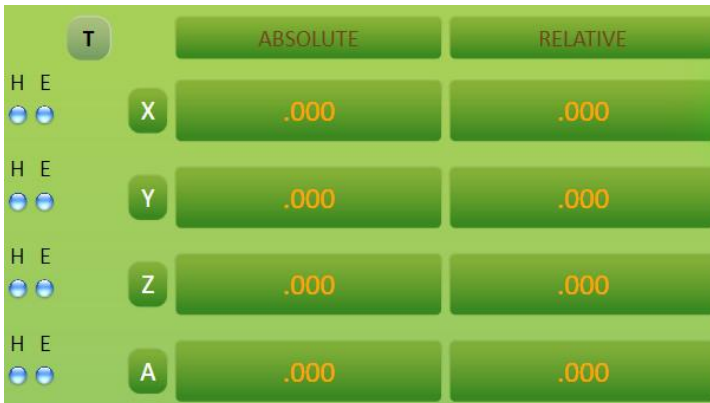
1 Preface

The new IsoUs is the EVOLUTION of IsoNs application. IsoUs is adaptable all modern PC interfaces. IsoUs has been simplified in the use but enhanced about the capabilities. The "MULTIPROCESS" interfaces are more clear and you can see all CNC simultaneously



2 Axes Panel

The Axes panel integrates all informations about the Axes values.



2.1 Button Type Values Visualization

Press the following Button for change the type values visualization:



T → Axes Demand Position

R → Axes Real Position

E → Following Error

This button is present only if the **MACHINE PARAMETER** “*VISUAREAL*” is setted on **DEMAND** or **ERROR**. Besides for enable the Real Position or Following Error the VTB application must read these values.

2.2 Axes State

The LED **H** and **E**, show the state **ENABLE** (E) or **HOMING** (H) of the Axis.



ON operation made



OFF operation is not made

2.3 Absolute Axes Values

This field indicates the **ABSOLUTE AXES VALUES** from the machine origins.

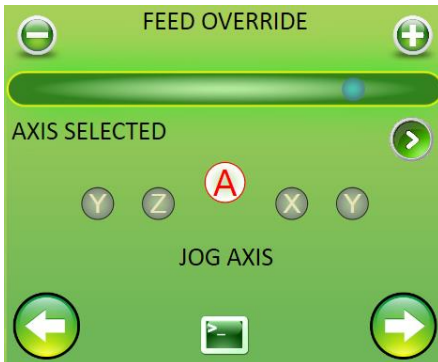
2.4 Relative Axes Value

This field indicates the **RELATIVE AXES VALUES** from the **WORK ORIGIN SETTED**.

3 JOG Panel

The **JOG panel** allows the **MANUAL** Axes movement.

Before Axis jog, it must be Enabled and the **HOMING** must be performed.



3.1 Feed Override

With the **VIRTUAL POTENTIOMETER** you can change the Axes **FEED** from 0-100%. The Override acts also when the Gcode is in execution.

3.1.1 SLIDER



Drag the **SLIDER** to left for decrease or to right for increase, the Axes **FEED**

3.1.2 Buttons



Press the buttons - + for decrease / increase the Axes **FEED**

3.2 Axis Selector for JOG

With the **AXIS SELECTOR** you can activate the relative axis for **JOG** or **MDI JOG**.



3.2.1 Select by Button



Press the Button until the desired Axis isn't selected:



3.2.2 Direct Selection

Press in the desired **Label** for select the Axis for **JOG**.



3.3 JOG Axes

Press the **BUTTONS JOG** for move the selected Axis in the desired direction.

The Axis will move to **FEED** setted in the relative Parameter and with the relative percentage setted in the **OVERRIDE**.

For **STOP** the movement, release the **BUTTON**.

The Axes can't exceed the relative Axis **LIMIT** setted in the Axis Parameter:

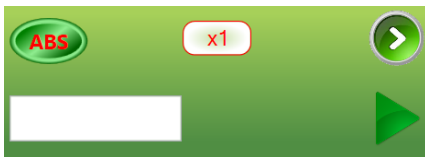


3.4 MDI JOG

For activate the **MDI JOG WINDOW** press the **BUTTON**:



MDI:



3.4.1 Select Absolute or Incremental movement

Press **BUTTON**:



ABSOLUTE

With this selection the **JOG**, and [TARGET VALUE](#), are referred to **ABSOLUTE VALUES** from Machine Origins.

INCREMENTAL

With this selection, the **JOG Buttons** moves the Axis with an INCREMENT **x1** (0.001mm) **x10** (0.010mm) **x100** (0.100mm) **x1000** (1mm)

Determined by [AXES INCREMENT SELECTOR](#).

The Values **INSERTED IN THE MDI WINDOW** are relative to **CURRENT AXIS POSITION**.

3.4.2 Axes Increment Selector

For select the Increment Value x1 x10 x100 x1000 press the **BUTTON**:



x1	0.001 mm
x10	0.010 mm
x100	0.100 mm
x1000	1 mm

3.4.3 Target Value

With **MDI**, you can insert a **TARGET** value for the Axis [SELECTED](#).

Insert in the Field the **TARGET VALUE** (with sign **-** if it is <0)

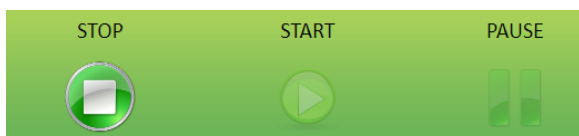


Press the **BUTTON** for **START**:



The selected Axis will move to the **TARGET** in the mode described [MOVEMENT SELECTED AXES](#)

For **STOP** press [BUTTON STOP in the COMMAND PANEL](#)

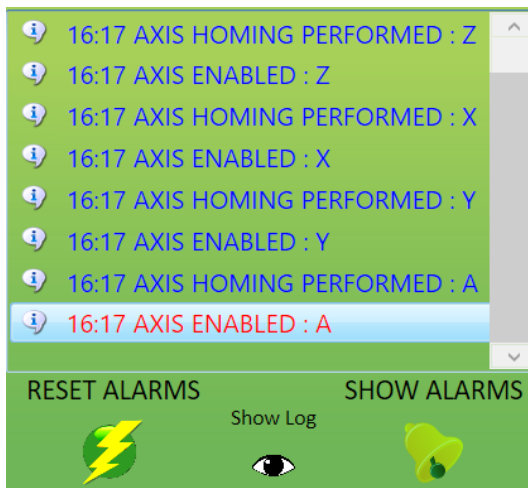


WARNING

**THE BUTTON STOP DOESN'T GUARANTEE AN EMERGENCY CONDITION
THIS OPERATION MUST BE GURANTEED FROM EXTERNAL CERTIFIED PARTS**

4 Notify Panel

In this Panel, IsoUs show all **INFORMATIONS**.



4.1 Reset CN Alarms

For **RESET** a **NOTIFY** of **CN ALARM**, press the **BUTTON**:



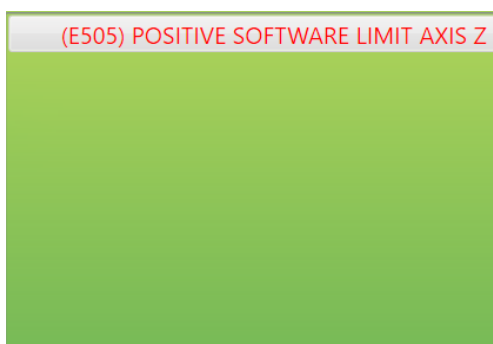
The **NOTIFY** will be **RESET** only if the **ALARM** will be deleted.

4.2 Show CN Alarms

When the **CN** is in **ALARM**, the **ALARM** button blink:



Press this button for show the **CN ALARMS**



Press the button for return to **NOTIFY**

4.3 Show LOG File

IsoUs records a LOG file that contains all operation made in a time.
This file can be showed.

Press the **BUTTON**:



```

UsLogFile Created : martedì 2 febbraio 2016 15:34:48
martedì 2 febbraio 2016 15:34:48 -> UsInfo --> START SESSION :
martedì 2 febbraio 2016 15:34:48 -> UsInfo --> AXIS HOMING PERFORMED : X
martedì 2 febbraio 2016 15:34:49 -> UsInfo --> AXIS HOMING PERFORMED : Y
martedì 2 febbraio 2016 15:34:49 -> UsInfo --> AXIS HOMING PERFORMED : Z
martedì 2 febbraio 2016 15:34:49 -> UsInfo --> AXIS HOMING PERFORMED : A
martedì 2 febbraio 2016 15:34:49 -> UsInfo --> AXIS ENABLED : X
martedì 2 febbraio 2016 15:34:49 -> UsInfo --> AXIS ENABLED : Y
martedì 2 febbraio 2016 15:34:49 -> UsInfo --> AXIS ENABLED : Z
martedì 2 febbraio 2016 15:34:49 -> UsInfo --> AXIS ENABLED : A
martedì 2 febbraio 2016 15:34:55 -> UsInfo --> START SESSION :
martedì 2 febbraio 2016 15:34:56 -> UsInfo --> AXIS HOMING PERFORMED : X
martedì 2 febbraio 2016 15:34:56 -> UsInfo --> AXIS HOMING PERFORMED : Y
martedì 2 febbraio 2016 15:34:56 -> UsInfo --> AXIS HOMING PERFORMED : Z
martedì 2 febbraio 2016 15:34:56 -> UsInfo --> AXIS HOMING PERFORMED : A
martedì 2 febbraio 2016 15:34:56 -> UsInfo --> AXIS ENABLED : X
martedì 2 febbraio 2016 15:34:56 -> UsInfo --> AXIS ENABLED : Y
martedì 2 febbraio 2016 15:34:56 -> UsInfo --> AXIS ENABLED : Z
martedì 2 febbraio 2016 15:34:56 -> UsInfo --> AXIS ENABLED : A
martedì 2 febbraio 2016 15:39:52 -> UsInfo --> PREVIEW PRESSED : cavallo_1.iso
martedì 2 febbraio 2016 15:40:38 -> UsInfo --> PREVIEW PRESSED : cavallo_1.iso
martedì 2 febbraio 2016 15:41:44 -> UsInfo --> PREVIEW PRESSED : cavallo_1.iso
martedì 2 febbraio 2016 15:45:54 -> UsInfo --> STOP GCODE : cavallo_1.iso
martedì 2 febbraio 2016 15:50:02 -> UsInfo --> PREVIEW PRESSED : porsche_g1.iso
martedì 2 febbraio 2016 15:50:02 -> UsInfo --> STOP GCODE : porsche_g1.iso
martedì 2 febbraio 2016 15:57:08 -> UsInfo --> PREVIEW PRESSED : cavallo_1.iso
martedì 2 febbraio 2016 16:11:26 -> UsInfo --> END SESSION :
martedì 2 febbraio 2016 16:11:30 -> UsInfo --> START SESSION :
  
```

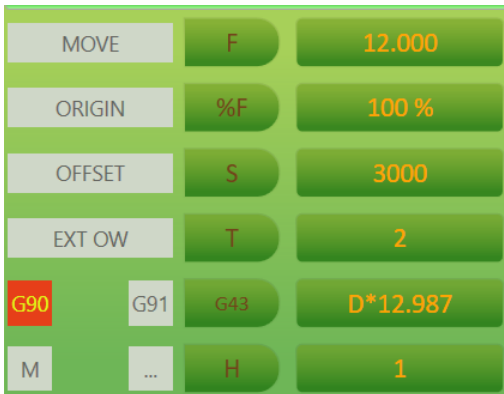
When this file has reached a determinate dimension (setted in the IsoUs configuration), a BackUp copy is made and a new LOG file is created.

For Showed a BackUp copy press **BUTTON**:



5 MONITOR Panel

Monitor Panel shows the main indications of IsoUs.



5.1 Signal LED

When The signal is Activated, the color is **RED**

MOVE

Indicates when the Axes are in movement



ORIGIN

Indicates when the Work Origins are activated (G92-G94 etc.)



When the Origins are activated, one click with left mouse on the **LABEL**, will show the values setted

ORIGIN		
Axis	Index	Value
X	0	2.268
Y	0	4.392
Z	0	-13.947
A	0	145.419

Index Origin Index Setted for the Axis
Value Origin Value Setted for the Axis

OFFSET

Indicates when the Work **OFFSET** are activated (G93-G95 etc.)



When the Offset are activated, one click with left mouse on the **LABEL**, will show the values setted

OFFSET		
Axis	Index	Value
X	0	230
Y	0	120
Z	0	-18
A	0	14.12

Index Origin Index Setted for the Axis
Value Offset Value Setted for the Axis

EXT OW

Indicates when the **EXTERNAL OVERRIDE** is Activated



Click on the **LABEL** for **ENABLE/DISABLE** the **EXTERNAL OVERRIDE**.

G90 G91

Indicates the Movement type **ABSOLUTE G90 INCREMENTAL G91**



M



Indicates f is in **EXECUTION** an **M** on **CN**. In The right field the number of **M** is showed

5.2 General Informations

F

Indicates teh current **FEED** setted with Function Gcode **F**

%F

Indicates the **OVERRIDE** Percentage - [FEEDOVERRIDE](#)

S

Indicates the **SPINDLE SPEED** setted with Function Gcode **S**

T

Indicates the **CURRENT TOOL NUMBER SETTED** with Function Gcode **T**

G43

Indicates if the **TOOL LENGTH** is activated with Function Gcode **G43**

If the tool length is **ACTIVATED** the following informations are showed:



The value **D*** indicates the Tool Length read with the function **T** from the **TOOL TABLE, BUT THIS ISN'T ENABLED**

If the Tool Length is **ENABLED**, by function **G43** o **G45** (ex: G43 x125 Z+), the LABEL BLINK:



The Value indicates the tool length **SETTED**

H

Indicates the **HEAD SETTED** with the Function Gcode **H**

6 COMMANDS Panel

COMMAND Panel allows to use the **FUNCTIONS**: **START,STOP,PAUSE** etc.



6.1 Button START

When the Gcode file is loaded and it is correct, the button **START** will be **ENABLED**. Push it for Gcode execution.



6.2 Button STOP

The button **STOP** is always **ENABLED** and allows the following operations:

STOP EXECUTION GCODE FILE
STOP EXECUTION MDI COMMAND [TARGET VALUE](#)



6.3 Button PAUSE

The button **PAUSE** is **ENABLED** when the Gcode is in **EXECUTION**.
 When the Gcode is in **PAUSE**, the **BUTTONS START** or **STOP** can be pressed.



6.4 Button EXPANDER

The button **EXPANDER** allows the access to additional some functions.



6.4.1 Preview

PREVIEW allows the show the Gcode file in the [SIMULATION](#).



6.4.2 Step

STEP Enables/Disables the Gcode execution **STEP** by **STEP**, i.e. the Gcode is executed a **BLOCK** at time at each **START** button pressure.



6.4.3 Calculation Work Time

The button **TIME** allows to calculate the time of Gcode execution.



The expected time is showed in the [Gcode Editor Panel](#).

The TIME can change with some situations, it is calculated considering the **OVERRIDE FEED** at 100%.

The TIME uses only the G0-G1-G2-G3 and G4, therefore other situations are excluded (ex: wait_input etc.)

Is possible to add the extra time by the Gcode function Gcode **G4.1 Ftime**. This function, is coconsidering only during the calc time. This function should be insert in the M functions M3-M4-M5_m6 etc. For configure the Calc Time use the [Editor Configuration](#).

6.4.4 Off Line Simulation

The Button **SIMULATION**, allows to activate the Off Line Simulation.

This no needs of CNC connected



The simulation Speed can be changed by cursor:

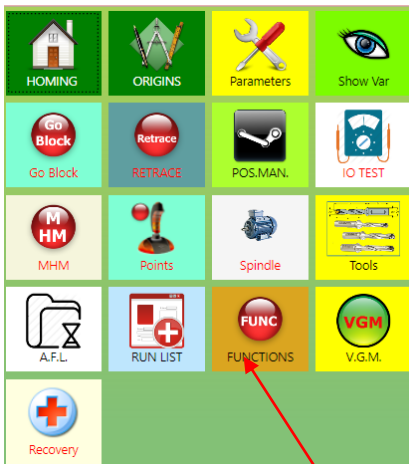


7 Panel PLUG IN

The **PLUG IN** panel contains all PlugIn installed .



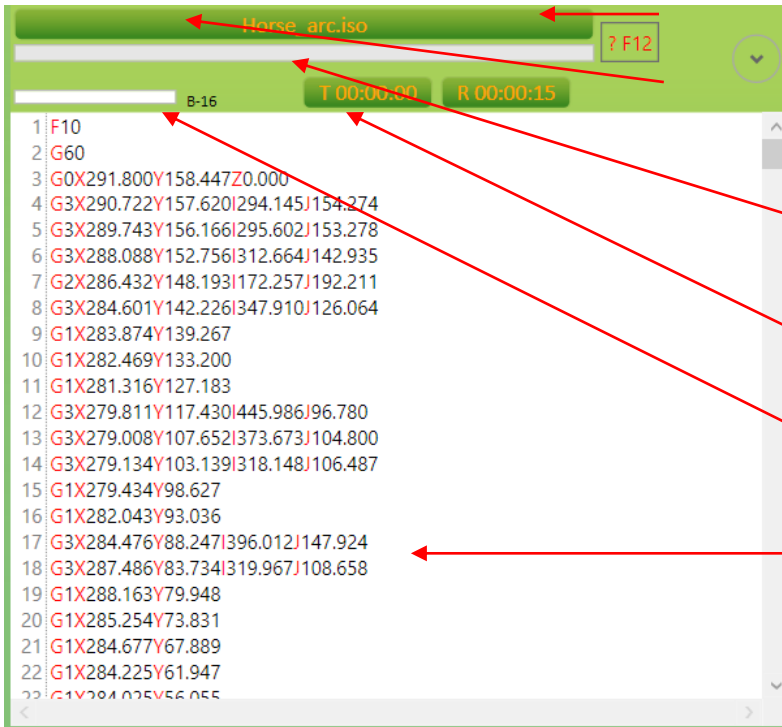
Press the **BUTTON** for open or close the **PLUG IN** window.



For PlugIn activation press **BUTTON**.

8 Gcode EDITOR

Gcode EDITOR allows the Gcode files management.
LOAD, SAVE, MODIFY, etc.



EXPANDER

PERCENTAGE GCODE WORKED

REMAINING TIME

TIME PASSED DURING GCODE PROCESSING

BUFFER LEVEL

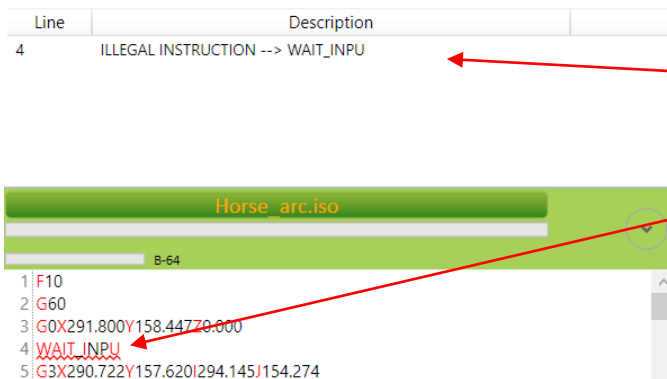
EDITOR WINDOW

8.1 EDITOR Window

EDITOR allows to show or edit a Gcode file.

8.1.1 Syntax Errors

The Syntax errors are **AUTOMATICALLY** showed in the window

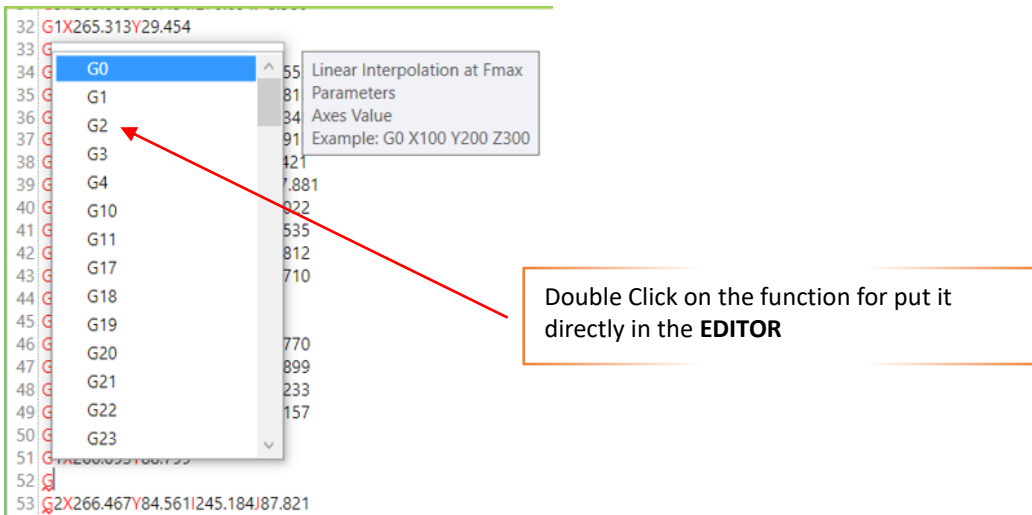


SYNTAX ERRORS WINDOW

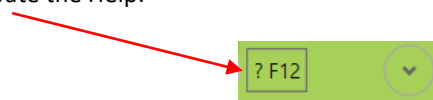
Double Click on the error line for show it in the EDITOR

8.1.2 Help ON LINE

Help **ON LINE** is showed **AUTOMATICALLY** or by **FUNCTION** Key **F1-F12**.
 Help shows all Gcode functions and their use



When the Help On Line is configured by Key **F1-F12**, a **BUTTON** is showed.
 You can also Press it for activate the Help.



8.1.3 Percentage Gcode Worked

The Progress Bar indicates the percentage of Gcode worked:



8.1.4 Buffer Level

The buffer level shows an information very important.

It indicates the **"TANK LEVEL"** of the **BLOCKS LOADED** in the **CN**.

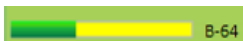
This information is valid only when is used the **FUNCTION G60** and the **"TANK LEVEL" MUST NOT BE NEVER** empty except when some functions are executed (**G0, M, G62** etc.)

B-n indicates the number of block that the CN can contain (ex: B-64 indicates 64 Blocks)

This value can change from CN used



Buffer Full – Functions Regular



Buffer during the emptying phase

8.1.5 Show Demand Line Worked

When IsoUs works a Gcode file, in the **EDITOR** (if configured) can be showed the **DEMAND LINE WORKED**. The Demand Line Worked generally is greater than **REAL LINE WORKED**.

```
42 G3X272.612Y40.586I260.227J46.812
43 G3X272.763Y41.915I268.640J41.710
44 G1X273.339Y52.821
45 G1X272.487Y61.320
46 G0X0Y0
47 G3X271.433Y69.819I104.239J44.770
48 G3X269.803Y78.243I171.744J54.899
49 G3X267.470Y86.617I203.319J64.233
50 G2X266.818Y88.448I271.705J89.157
```

Demand Line Worked (Yellow)

8.1.6 Show Real Line Worked

When IsoUs works a Gcode file, in the **EDITOR** (if configured) can be showed the **REAL LINE WORKED**. The Real Line Worked generally is lower or equal than **DEMAND LINE WORKED**.

```
116 G3X151.088Y191.567I110.116J145.787
117 G3X149.407Y192.996I147.093J188.571
118 G1X147.225Y193.146
119 G1X144.968Y193.397
120 G1X138.346Y194.199
121 G1X131.699Y194.951
122 G3X129.567Y194.926I130.739J185.858
123 G2X125.378Y195.076I127.691J201.093
124 G2X122.218Y196.155I152.097J278.494
```

Linea Reale in Lavorazione (Cyan)

8.1.7 Button Expander

The Button **EXPANDER SHOW** or **HIDE** additional functions of Gcode EDITOR.



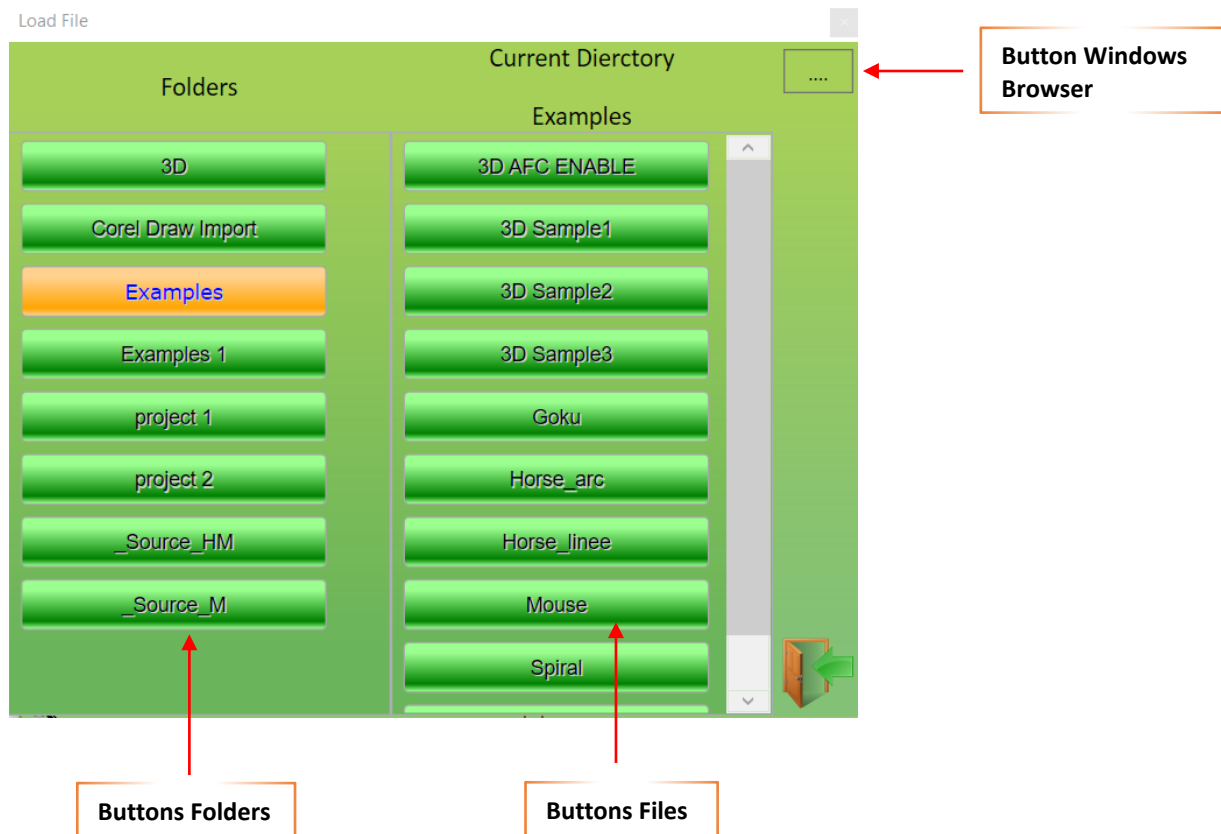
8.2 Load a Gcode File

For load a Gcode file press **BUTTON**:



Following the Load **BROWSER** is showed.

8.2.1 Us Browser – Load File



Buttons Folders

Press the relative Button for open the folder and show the files

Buttons Files

Press the relative button for load a file in the **EDITOR**.

Button Windows Browser

Press this button for open the standard windows browser.

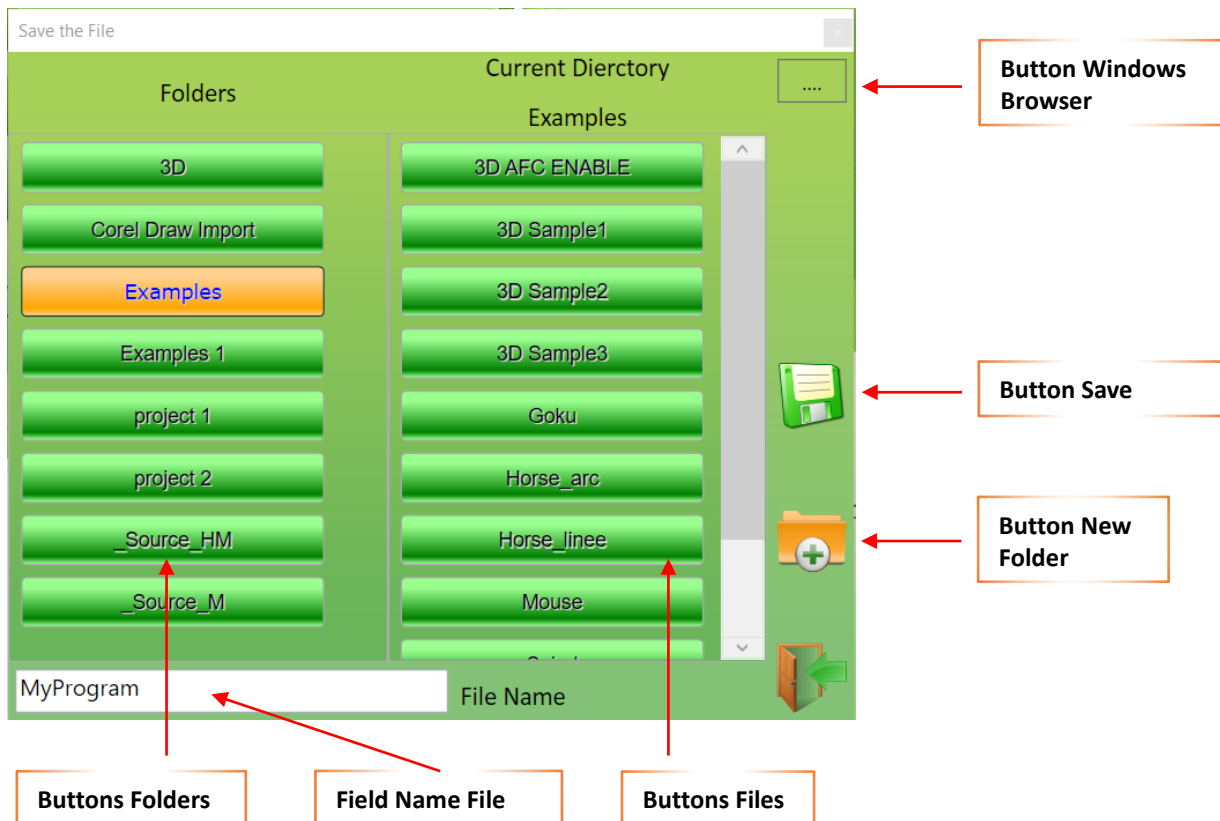
8.3 Save a Gcode File

For Save a Gcode file press the **BUTTON**:



Following the Save **BROWSER** is showed.

8.3.1 Us Browser - Save File



Buttons Folders

Press the relative Button for open the folder and show the files

Buttons Files

Press the relative button for Select the name file in the button.

Button Windows Browser

Press this button for open the standard windows browser.

Button Save

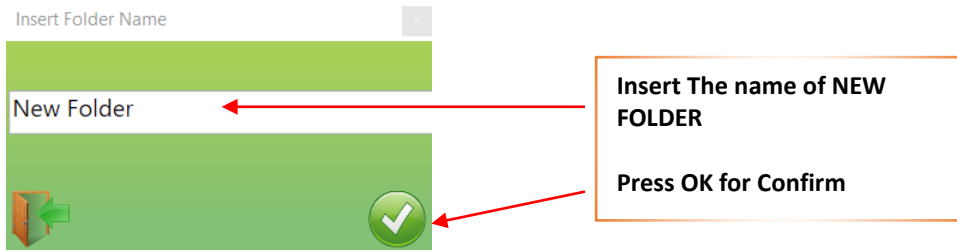
The file name inserted in the **FIELD NAME FILE** will be saved in the **SELECTED FOLDER**

Field File Name

Insert the file name.

Button New Folder

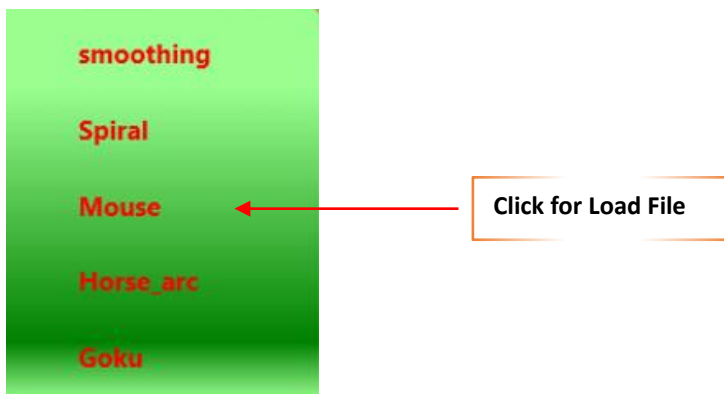
Press this button for create a new Folder.



8.4 Last Files Used

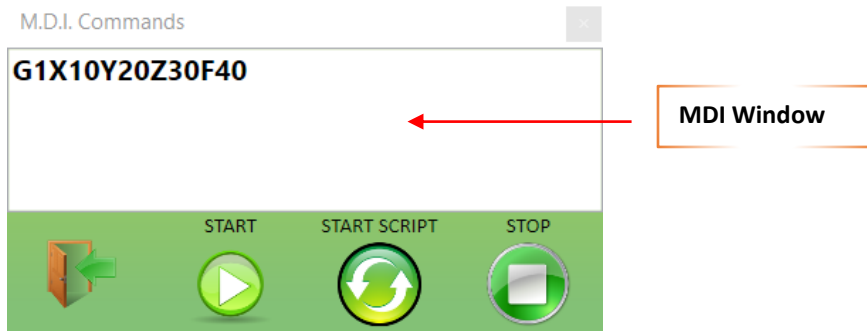
Is possible choose the files for load by the list of the **LAST FILES USED**.

Press the **BUTTON**:



8.5 MDI Interface

The **MDI** interface allows to put direct Gcode commands.
For open MDI press **BUTTON**:



8.5.1 Button Start



The button **START** of **MDI** executes the **COMMAND** inserted in the **WINDOW MDI** in **NORMAL MODE**.
This means that the Gcode will be execute in the same mode of the **EDITOR WINDOW**.
All Gcode functions are managed.
This button **ISN'T ACTIVATED** during **PAUSE**.

8.5.2 Button Start Script



START SCRIPT of **MDI** executes the **COMMAND** inserted in the **WINDOW MDI** in **SCRIPT MODE**.
In **SCRIPT MODE** all functions are not activated – Only **G0-G1-M-F**.
This buttons **IS ACTIVATED** during **PAUSE**.

8.5.3 Button Stop



The **MDI** button **STOP** is the same of **STOP** of **COMMAND PANEL**.

8.6 Input Data Mask

IsoUs can use the “**INPUT DATA MASK**” combine with a Gcode file.

This allows to insert some parameters (IsoUs Variables) in direct Mode with a simple **DATA INPUT INTERFACE**.

When a Gcode files, contains a **DATA INPUT MASK**, the following **BUTTON** is showed in the **EDITOR**



When the button is pressed, the following window is showed “**INPUT PARAMETERS**”.

Input Mask Window

Description	Value
OFFSET X	10
OFFSET Y	10
ENUM VAR	VAL ENUM 2

```

1  //# INIT MASK AREA
2  $VAR1=10 //OFFSET X
3  $VAR2=10 //OFFSET Y
4  $_PARAM_1=1 //ENUM VAR
5  $VAR2=1 //TEST VAR 1
6  $_PARAM_7=1 //TEST VAR 2
7  $_PARAM_10=1 //TEST VAR 3
8  //# END MASK AREA
9  F10
10 G1X[$VAR1] Y[$VAR2]
    
```

The **DATA INPUT MASK** can contain one or more **TABLES** (In this ex. We have two **TABLES** “**File Data**” - “**New Mask 1**”).

Above the Gcode file that contains the **INPUT DATA MASK**.

The lines contained among **//# INIT MASK AREA** and **//#END MASK AREA**, can’t be modified by **EDITOR**.

Only the **INPUT DATA MASK INTERFACE** can modify these values.

The **INPUT DATA MASK**, can manage also **ENUMERATIVE VALUES**, that allows to insert **VALUES** by **DESCRIPTION**.

For insert a value, make a double click in the **VALUE FIELD**.

If the field is an enumerative value, a Combo Box with description will be showed.

Press Button **OK**  for confirm all data input

For add an **INPUT DATA MASK** to Gcode file see [New Input Mask](#)

8.7 Break Points

IsoUs allows to use **BREAK POINTS** in the Gcode file

This functions, generally is used, for a **DEBUG** a Gcode file and it must be enabled from [EDITOR CONFIGURATION](#)

When the Break Point is reached, teh Gcode will go in **PAUSE MODE**.

For resume the execution press [BUTTON START](#).

This procedure, allows to check the IsoUs Variables and also to use the [STEP MODE](#).

8.7.1 Break Point Insertion

Click with Right Mouse on the desired line

If the break point is inserted, the line, will be showed in color **BROWN**.

```
13:G1 X 868.3704 Y 61.7429  
14:G1 X 868.4095 Y 61.6424  
15:G1 X 868.4205 Y 61.6149
```

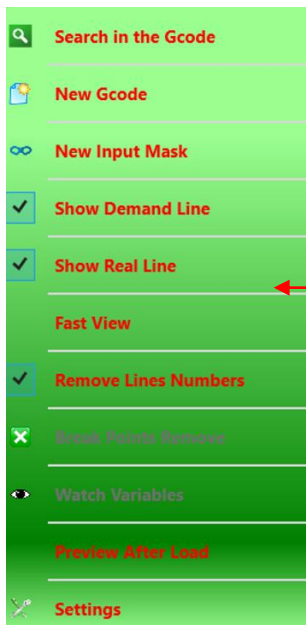
8.7.2 Break Point Remove

Click with Right Mouse on the desired line that contains the Break Point

You can also use [REMOVE ALL BREAK POINTS](#) Function

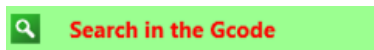
8.8 Options and Utility

For access to **OPTIONS** and **UTILITY** menù press **BUTTON**:



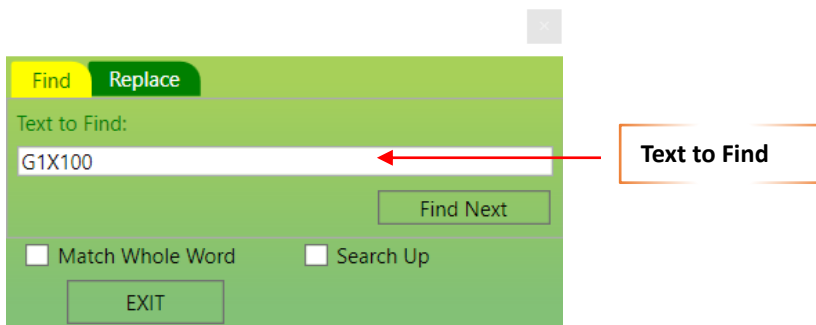
Click On for Activate the Option

8.8.1 Find and Replace in the Gcode



Allows to **FIND** and **REPLACE** a Text in the Gcode.

Find



Insert the Text in the field **"TEXT TO FIND"**

Press **BUTTON FIND NEXT** to find.

Match Whole Word If Enabled, only the Whole Word will be found

Search Up Search Up or Down in the file

Replace

Find Replace

Text to Find:
G1X100

Replace With:
G1X101

Find Next Replace Replace All

EXIT

Text to Find

New Text

8.8.2 New Gcode



Press New Gcode for delete the **EDITOR**

8.8.3 New Input Mask



Allows to Modify or Create a new **INPUT DATA MASK**

The [BROWSER LOAD FILE](#) will be open for choose the Gcode file for association the New Mask or Modify the existing Mask.

Mask Input Management -> Topolino.iso



8.8.3.1 Add a New Table to Input Data Mask

For add a new Table to Input Data Mask press the **BUTTON**:



Mask Input Management -

New Mask 0

8.8.3.2 Remove a Table from Data Input Mask

For Remove a Table from Data Input Mask press **BUTTON**:
(For select the table click on the Table Name)



8.8.3.3 Add a Variable to Table Selected

Select the Table and press the **BUTTON**:



Variables Input Management ✕

Mask Name	New Mask 0
Variable Name	\$SAVEA ▾
Description	VAR 0
Minimum Value	0
Maximum Value	100
Default Value	1
Decimal Place	0
<input type="checkbox"/> Enumerative	

← ✓

Mask Name Insert The Table Mask Name

Variable Name Choose a Gcode variables that are present in the Gcode file.

Description Insert the description

Minimum Value Insert the **MINIMUM** value

Maximum Value Insert the **MASSIMO** value

Default Value Insert the **DEFAULT** value

Decimal Place Insert the **DECIMAL PLACE**

Enumerative If this flag is activated, the menù for **ENUMERATIVE VALUES** will be showed

Enumerative + ✕

Header	Value

← ✓

Add an Enumerative FieldPress **BUTTON**:

Header	Value
F0	0

Insert in the Field **HEADER** the enumerative description (make a double click).

Header
Enum Description Example

Insert in the field **VALUE** the enumerative value that will assigned when the field is select**Remove an Enumarative**Press **BUTTON**:**Confirm the Values Inserted**Press **BUTTON**:**8.8.3.4 Modify a Variable from the Table**Select the desired Variable and press **BUTTON**:See [Add Variable to Table Selected](#)**8.8.3.5 Remove a Variable from Table**Select the desired Variable and press **BUTTON**:**8.8.3.6 Save the Data**Press **BUTTON**:The Mask will be inserted in the **FILE GCODE**.

8.8.4 Show Demand Line

Show Demand Line

This flag **ENABLE/DISABLE** the [SHOW DEMAND LINE WORKED](#) during Gcode execution.

8.8.5 Show Real Line

Show Real Line

This flag **ENABLE/DISABLE** the [SHOW REAL LINE](#) during Gcode execution.

8.8.6 Fast View

Fast View

FAST VIEW is an option that allows to work Big Gcode files, this option doesn't loads the file in the **EDITOR** (for minimize memory usage) but executes directly the Gcode file.

When this function is activated, the Gcode file is loaded in **BMC MODE** (Block Mode Compiler), it means that the Gcode File will worked in **BLOCKS** each time (you can configure the number of blocks in the IsoUs configurator)

This allows to accelerate the Gcode execution when these have a BIG dimensions.

When a Gcode file is open, and it has a Big dimension, IsoUs Shows a message that indicates the use of **BMC MODE**



In **BMC MODE**, are showed only a portion of Gcode lines if is configured the option [FULL](#).

LIMITATION OF BMC MODE

There must be no **CYCLES IF - ENDIF**

There must be no **CYCLES LOOP**

There must be no **GOTO to LABEL**

There must be no **GOSUB or IMPORT**

8.8.7 Remove Lines Numbers



Removes the lines numbers in the Gcode – **Nxxx**, otherwise the lines numbers are considered as Label and can use many memory
 Normally in IsuUs the lines numbers aren't considered.

8.8.8 Remove All Break Points

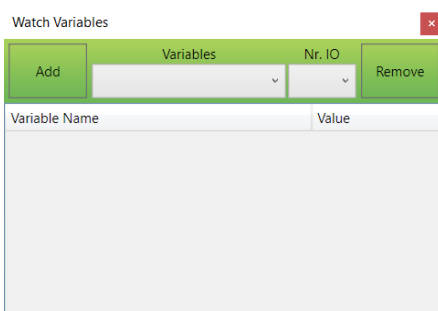


Remove all Break Points inserted in the Gcode file

8.8.9 Watch Variables



Allows to see the Variables Values or set the values in the variables

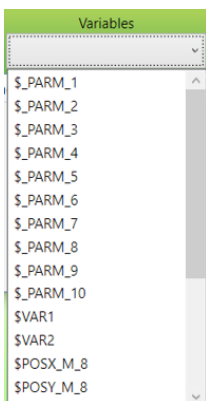


Variables Type:

- All \$ variables used in the Gcode file*
- All Digital Inputs*
- All Digital Outputs*
- All User generic Variables*

8.8.9.1 Add a \$ Variables in the watch window

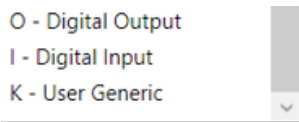
Open the list



Choose the **\$ VARIABLE** desired and press the **BUTTON ADD**.

8.8.9.2 Add a Digital Input, Output or User Generic

Open the list
Choose type:



Choose the I/O number (Input, Output, User Generic) desired in the field Nr. IO



Press **BUTTON ADD**.

8.8.9.3 Write a Value in the Variable

Make a double click on the field value of the desired variable, insert the value and press Key CR of keyboard

WARNING

The digital inputs can't be forced to a value.

8.8.9.4 Remove a Variable from List

Select the Variable and press **BUTTON REMOVE**.

8.8.10 Preview After Load



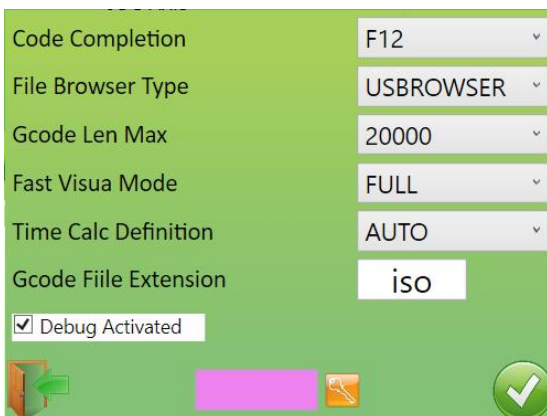
If this option is activated, after the Gcode load, a **PREVIEW** is invoked

8.8.11 Editor Settings



EDITOR can be configured base on Your preferences.

PassWord LEVEL 0 or greater is required only for **DEBUG FUNCTION** activation ([Break Points](#) and [Watch Variables](#))



8.8.11.1 Code Completion

Defines how the [HELP ON LINE](#) is managed.

NORMAL	The Help is activated during the code typing
DISABLE	Help disable
F1...F12	Help activated from Key F1-F12

8.8.11.2 File Browser Type

Defines which file Browser is used for [LOAD](#) and [SAVE](#) files.

WINDOWS	Browser standard of Windows
USBROWSER	Browser of IsoUs

8.8.11.3 Gcode Len Max

Defines the Max len gcode in Kbytes before, that the message, [BMC MODE](#) will showed
Default value **20000 Kb**

8.8.11.4 Fast Visua Mode

Defines how the [BMC MODE](#) is managed

FULL	Some Gcode lines will be showed during the execution
NORMAL	None Gcode lines will be showed during the execution

8.8.11.5 Time Calc Definition

It defines the precision of Time Calculation.

AUTO	The algorithm is chosen based on Length of Gcode file
ULTRA FAST	Algorithm ultra fast time valued for 35000 lines approximately 4 sec precision 5-8%
FAST	Algorithm fast time valued for 35000 lines approximately 10 sec precision 4-7%
MEDIUM	Algorithm medium time valued for 35000 lines approximately 16 sec precision 3-4%
PRECISION	Algorithm precise time valued for 35000 lines approximately 33 sec precision 1-2%
HIGH PRECISION	Algorithm high precision time valued for 35000 lines approximately 66 sec precision 0-1%

The real percentages can be different to those indicated


8.8.11.6 Gcode File Extension

Defines the Gcode File Extension. Default **.ISO**

8.8.11.7 Debug Activated

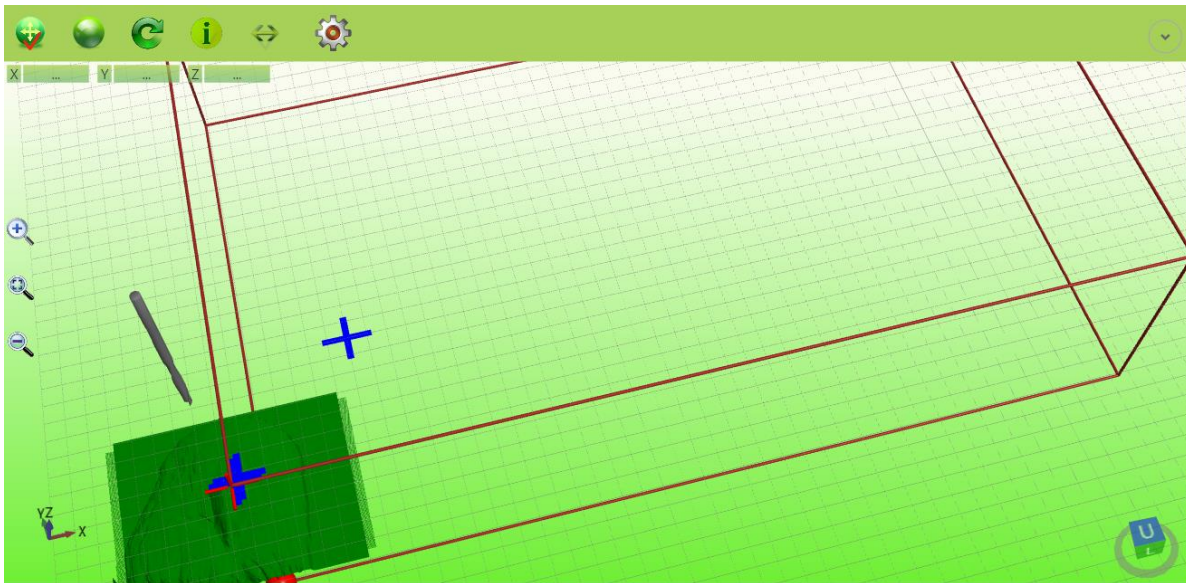
This option is activable with **PASSWORD LEVEL 0** or greater.

If the option is activated is possible the managing [BREAK POINTS](#) and [WATCH VARIABLES](#)

Pres **OK**  for save the **CONFIGURATION**

9 PREVIEW Panel

PREVIEW allows to simulate a Gcode file.



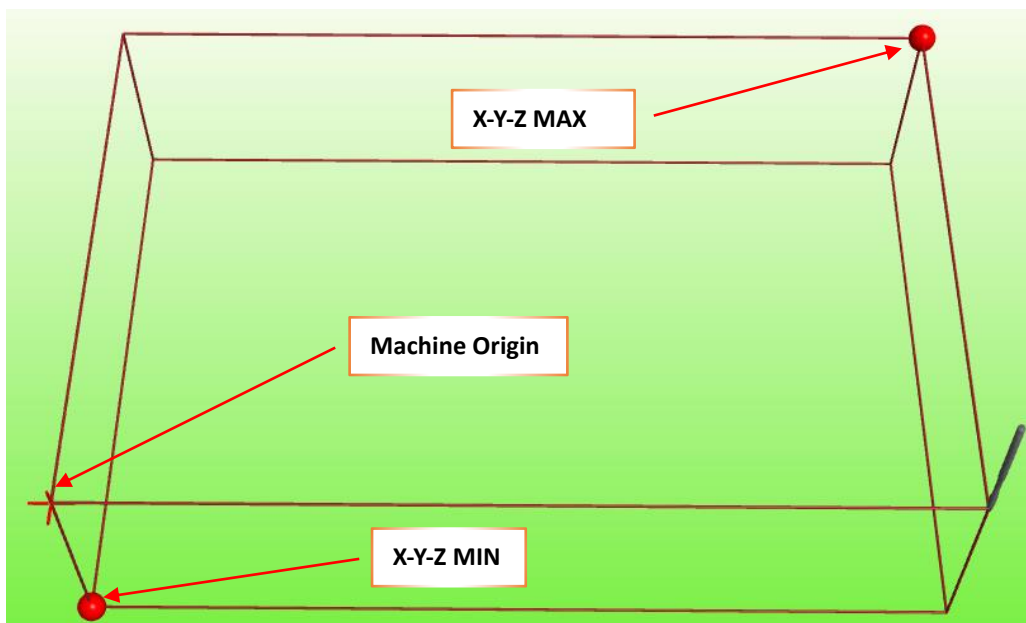
9.1 Simulate a Gcode

For simulate a Gcode, it must be load in the [EDITOR](#) and press [BUTTON PREVIEW](#).

The Gcode file is simulated in **REAL MODE** all Gcode functions are worked and the result is really how it will work in the machine.

9.2 Machine Work Plane

The **MACHINE WORK PLANE** is showed as a **CUBE** with real dimensions set in the losUs parameters **LIMIT X,Y,Z**



9.3 Zoom and Pan

With mouse buttons is possible to make **ZOOM** and **PAN** of entire area.

9.3.1 Zoom with Mouse

Use the mouse wheel for **ZOOM +** and **ZOOM -**

9.3.2 Zoom with resistive Touch

Use the following Buttons. These must be enabled in [CONFIGURATION PREVIEW](#)



Zoom +



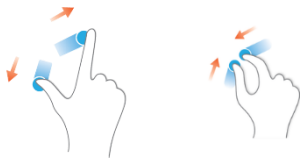
Zoom -



ZOOM Center

9.3.3 Zoom with capacitive Touch

Use the fingers for **PINCH TO ZOOM**.



9.3.4 Pan with Mouse

Enable the button **PAN**:



Click with left mouse button in the area and drag

9.3.5 Pan with resistive and capacitive Touch

Enable the button **PAN**:



Use the finger and drag in the area.

If the **ROTATION** is activated, [DISABLE IT](#)



9.4 Draw Rotation

Is possible rotation the draw in all directions.

9.4.1 Rotation with Mouse

Clcik with right mouse button and drag in the area.

9.4.2 Rotation with resistive Touch

Enable the button **ROTATION**:



Use the finger and drag in the area.

9.4.3 Rotation with capacitive Touch

Press the finger in the area for 1 sec without moves it until the square will showed:



Release the finger. Press new the finger and drag in the area

9.5 Origins and Offset


In Preview all informations about Origins and Offset are showed

9.5.1 Symbols


 **Minimum and Maximum** Origins of Work Plane

 Origins **ACTIVATED** (ex. G94 etc.)

 Offset **ACTIVATED** (ex. G93 etc.)

 Origins define in the **ORIGINS FILE**
(that doesn't means the origins activated)

 HEAD Origins **ACTIVATED** (ex. H1)

 Machine Origins **XOYOZO**

 Work Plane

9.5.2 Marker on Origins

For get informations about **ORIGINS** and **OFFSET** set, activate the **BUTTON**:



Following click with mouse on the origin symbol desired
The **MARKER** are showed based on [configuration](#).

ORIGINS

X [142,788]

Y [183,885]

Z [0]

File Origin [0]

X [142,788]

Y [142,788]

Work Offset

X [220]

Y [330]

Z [0]

9.6 Gcode Line information

Activate **BUTTON**:



Move the muse pointer on the desired line:

G1 [592]

F: 19.98

X: 425.241

Y: 580.234

Z: 0

A: 0

L3D: 5.847

L2D: 5.847

SGLP: 77

SGL3D_X: 26

SGL3D_Y: 14

SGL3D_Z: 0

SGL3D_A: 0

AFC_X: 1739

AFC_Y: 998

AFC_Z: 0

AFC_A: 0

- F:** Current Feed
 - X,Y,Z,A:** Axes values
 - L3D:** Len 3D
 - L2D:** Len 2D (ex: X,Y)
 - SGLP:** Edge threshold (refer **MACHINE PARAMETER SGLP**)
 - SGL3D_** Edge threshold 3D (refer **MACHINE PARAMETER SGL3D_**)
 - AFC_** Refer **MACHINE PARAMETER AFC**
- If the line is an ARC:*
- R:** Arc Radius
 - ACCR:** Centrifugal Acceleration Arc (refer **MACHINE PARAMETER ACC_RAGGIO_MAX**)

9.7 Show Path

For show path activate the **BUTTON**:



Click with mouse on the first desired line for activate **SCROLL PATH**:



Press these buttons for scroll path to each direction.

9.8 General Informations on Gcode

Push on **EXPANDER** to show the general informations about the Gcode in preview:

Number of G0	2
Number of G1	82
Number of G2	168
Number of G3	149
Total Dimensions (mm)	X:328.847 Y:325.022 Z:0
Total Length (mm)	1442.609
Min X	0
Max X	328.847
Min Y	0
Max Y	325.022
Min Z	0
Max Z	0



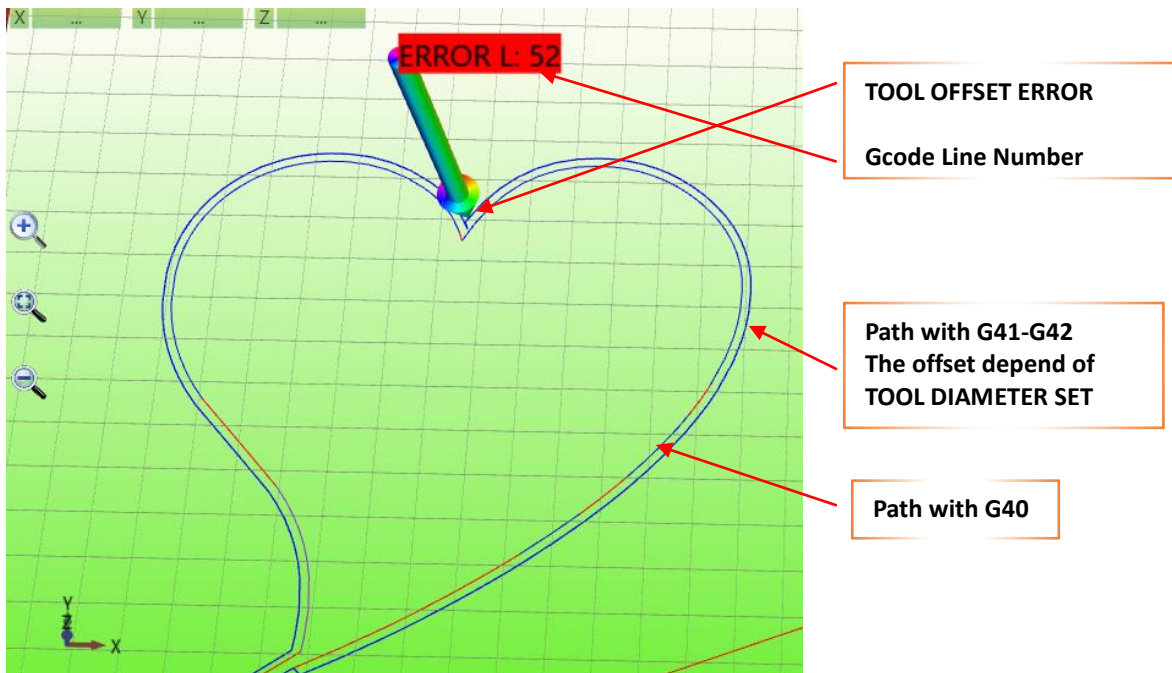
If the Gcode in preview will have some errors, the expander will open automatically

Min X	600
Max X	928.847
Min Y	0
Max Y	325.022
Min Z	0
Max Z	0

Click on the **LABEL** for view in the **EDITOR** the relative line that has generate the **ERROR**

9.9 Simulation with G41-G42

When the Gcode file contains the **G41/G42** functions (offset Tool), this is showed in the preview with possible **OFFSET TOOL ERRORS**



The path is showed based to **TOOL DIAMETER SET** in the Gcode, by function **D** or **Tn**.

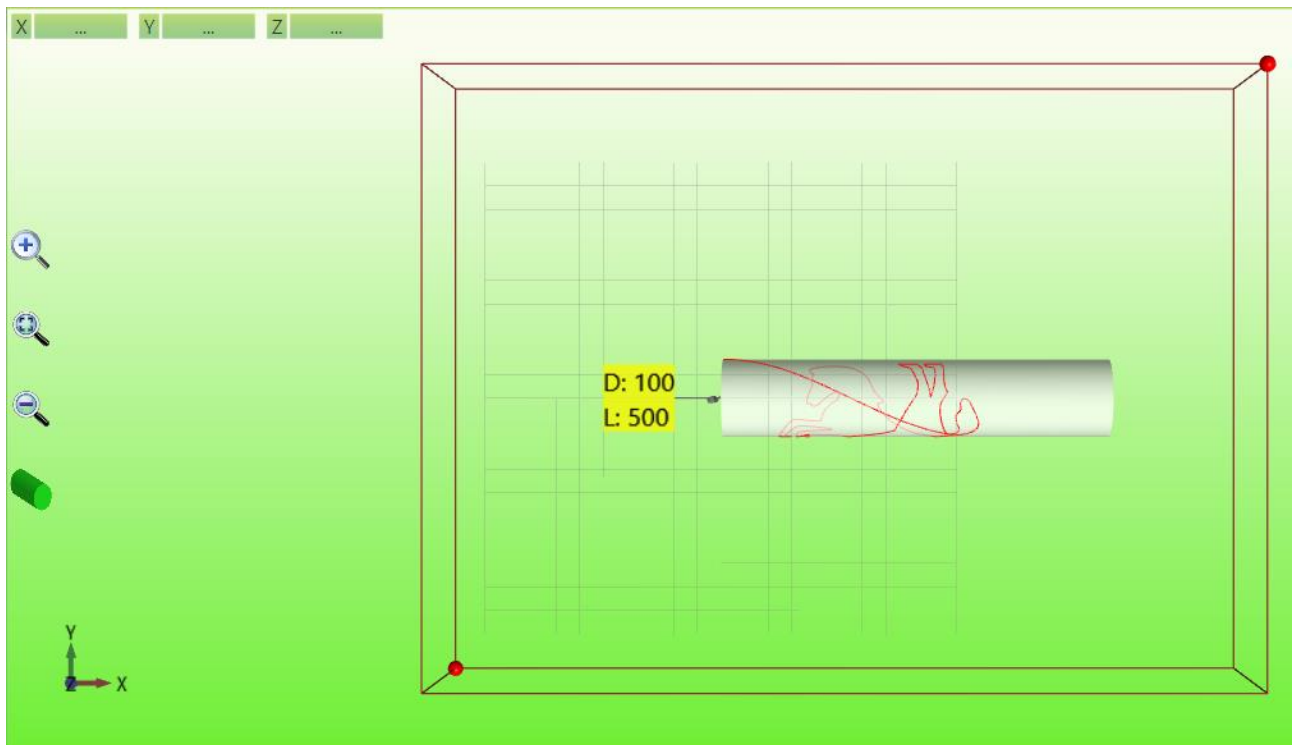
Possible **ERRORS** caused by **TOOL DIAMETER TO BIG**, are showed with a **MARKER** and a **LABEL**, this indicate the line number that has generated the **ERROR**.

9.10 Rotative Axis Simulation

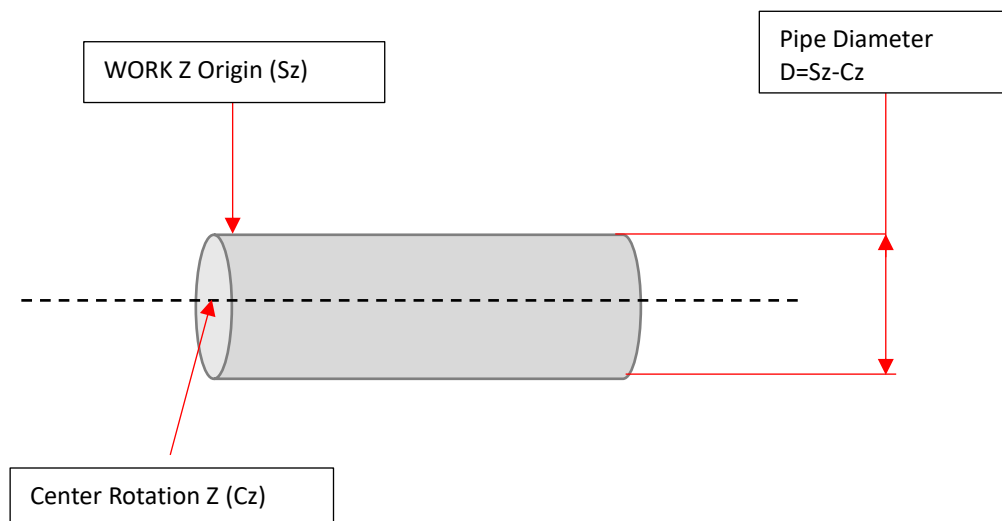
IsoUs can simulate the ROTATIVE AXIS in preview

For enable the simulation see [Preview Settings – Rotative Axis](#)

IsoUs represents the Gcode in the **PIPE with DIAMETER SETTED**



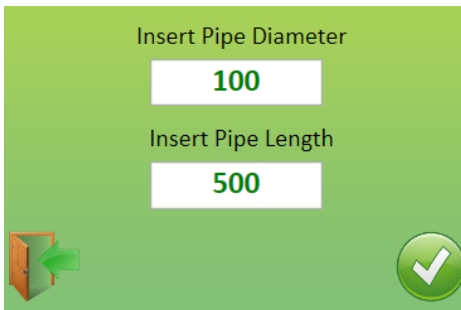
The PIPE Diameter is setted from the WORK ORIGIN of Z Axis and the CENTER Z parameter



The final diameter is showed in the simulation

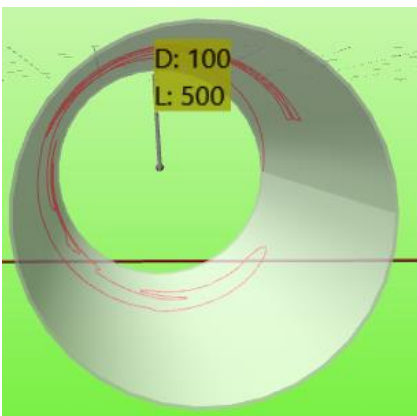
D: 100
L: 500

This diameter should be equal to desired diameter.
Is possible change this diameter with right click on button:

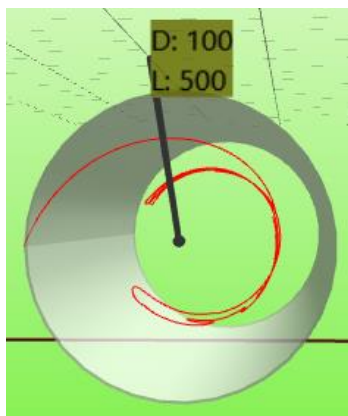


The preview shows the Z depth

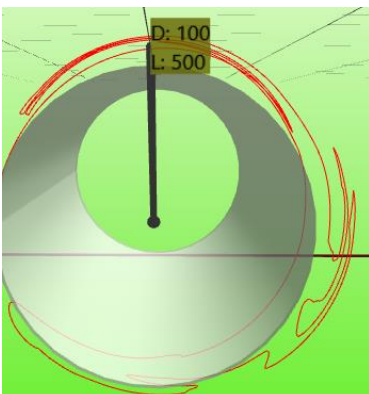
Depth Z=0



Depth Z<0 (with Z negative in down direction)



Depth Z>0 (with Z negative in down direction)

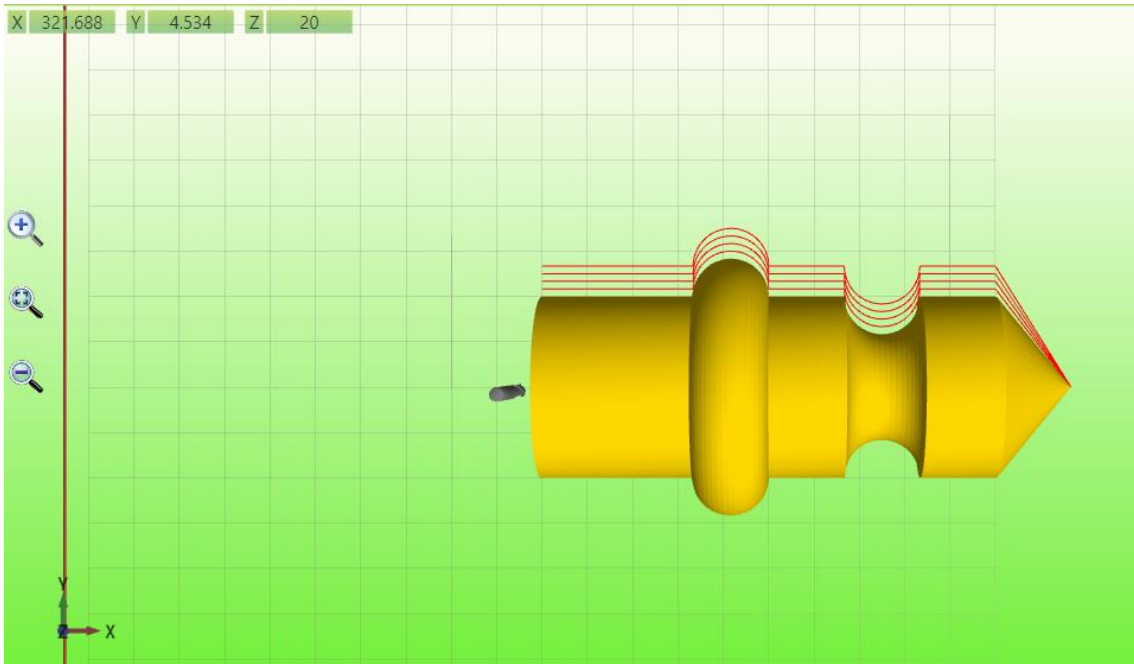


9.11 Lathe simulation

About LATHE MACHINES, IsoUs allows a special preview that can show the 3D solid model. The Solid Diameter is obtained from X Axis value.

For enable the Simulation Lathe insert in [Preview Settings Simulation Type](#) type **LATHE**.

If enabled this type, the simulation for rotative axis, will be disabled

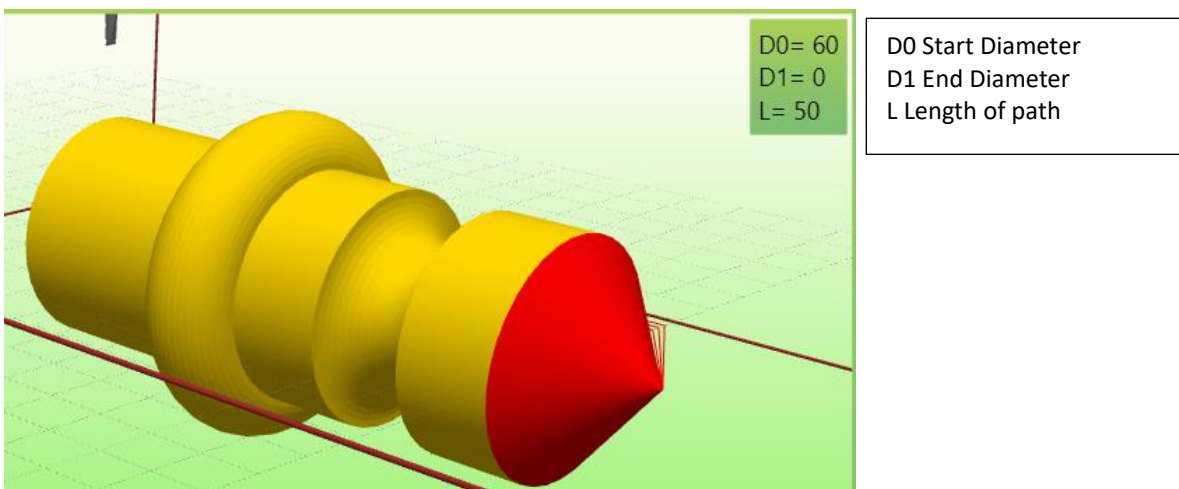


The final result is a real 3D model

With the button INFO

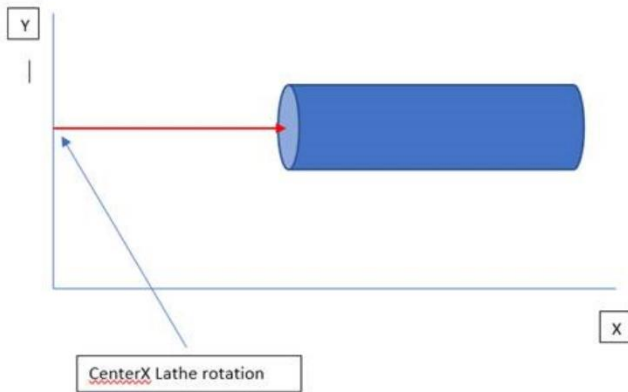
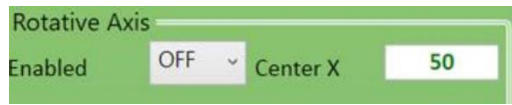


Is possible show the Diameter and Length by mouse. (move the mouse cursor on the desired path)



The Lathe Preview, uses a parameter that indicate the Center of Rotation Axis referred to Y coordinate in Preview. This is got from the parameter Center X (see [Rotative Axis](#))

Warning: this parameter is indicated as Center X, but it is referred to Y axis in the Preview
In this case, the rotative Axis Enabled Must be OFF

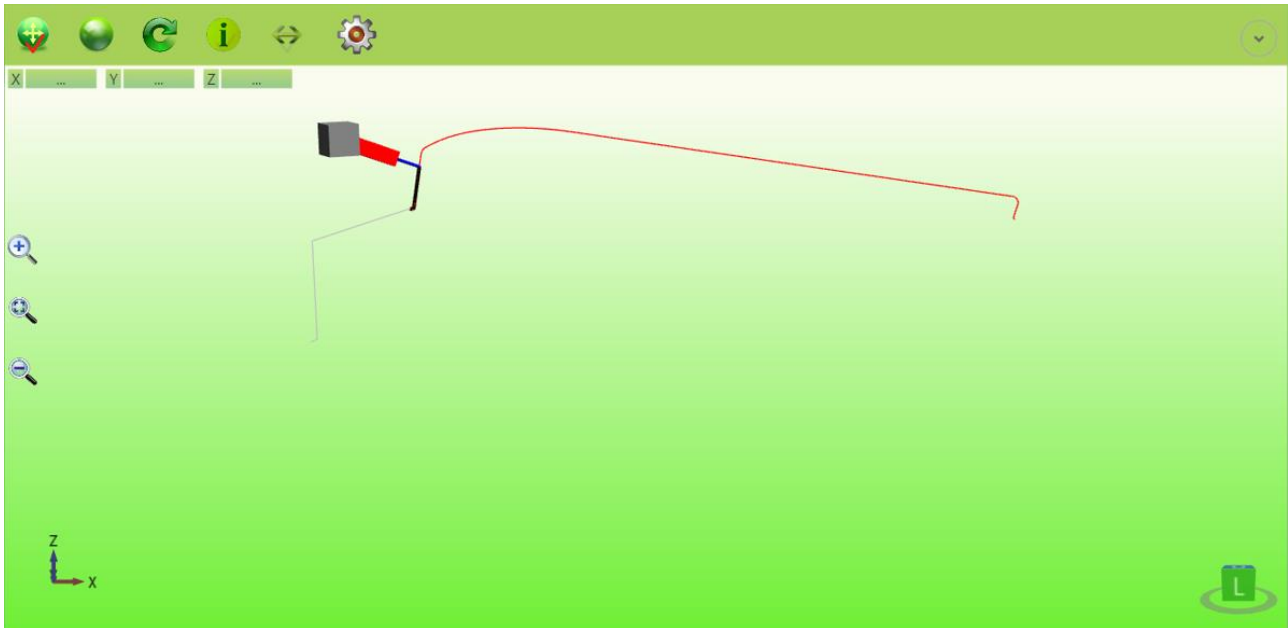


9.12 5 Axes RTCP Simulation (Rotate Tool Center Point)

This simulation is for the 5 Axes machines with RTCP in A,C Axis.

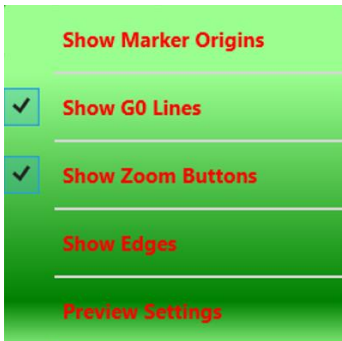
The parameters for the rotation Axes are get from the machines parameters section RTCP

This simulation is enabled from [Preview Settings](#) – [Cursor Type](#)



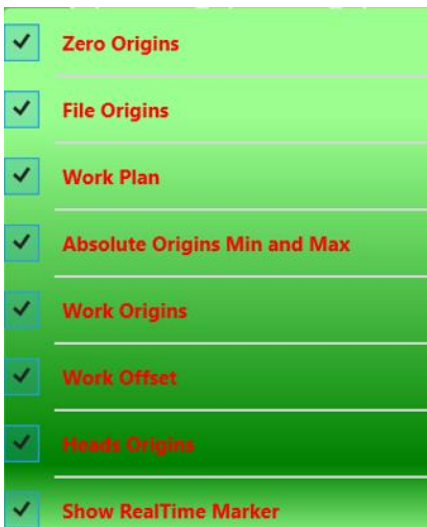
9.13 Preview Setting

For preview setting press **BUTTON**:



9.13.1 Show Marker Origins

Allows to configure the **MARKER** that will be showed in the simulation.



9.13.1.1 Zero Origins

Enabled/Disabled the visualization of [MACHINE ZER ORIGINS](#)

9.13.1.2 File Origins

Enabled/Disabled the visualization of [FILE ORIGINS](#)

9.13.1.3 Work Plane

Enabled/Disabled the visualization of [WORK PLANE ORIGINS](#)

9.13.1.4 Absolute Origins Min and Max

Enabled/Disabled the visualization of [ABSOLUTE ORIGINS](#)

9.13.1.5 Work Origins

Enabled/Disabled the visualization of [WORK ORIGINS](#)

9.13.1.6 Work Offset

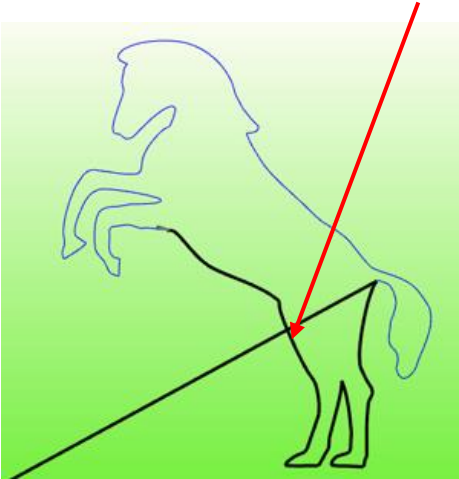
Enabled/Disabled the visualization of [WORK OFFSET](#)

9.13.1.7 Heads Origins

Enabled/Disabled the visualization of **HEAD ORIGINS SETTED**

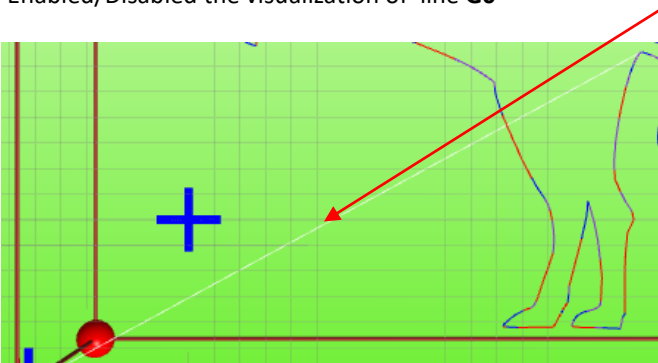
9.13.1.8 Show Real Time Marker

Allows to show the lines of Gcode **worked**



9.13.2 Show GO Lines

Enabled/Disabled the visualization of line **G0**



9.13.3 Show Zoom Buttons

Enabled/Disabled the visualization of **ZOOM BUTTONS**

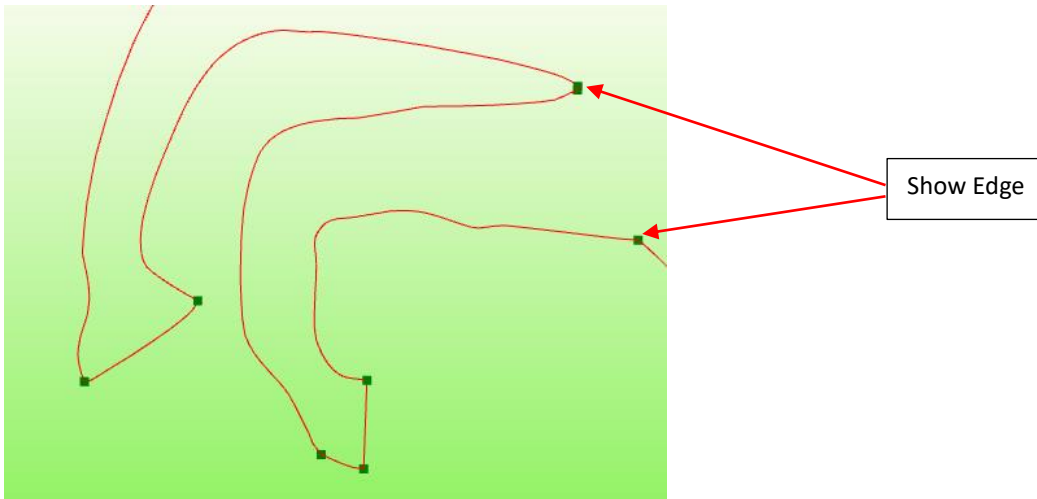


9.13.4 Show Edges

Enabled/Disabled the visualization of Edges based on SGLP e SGL3D_.

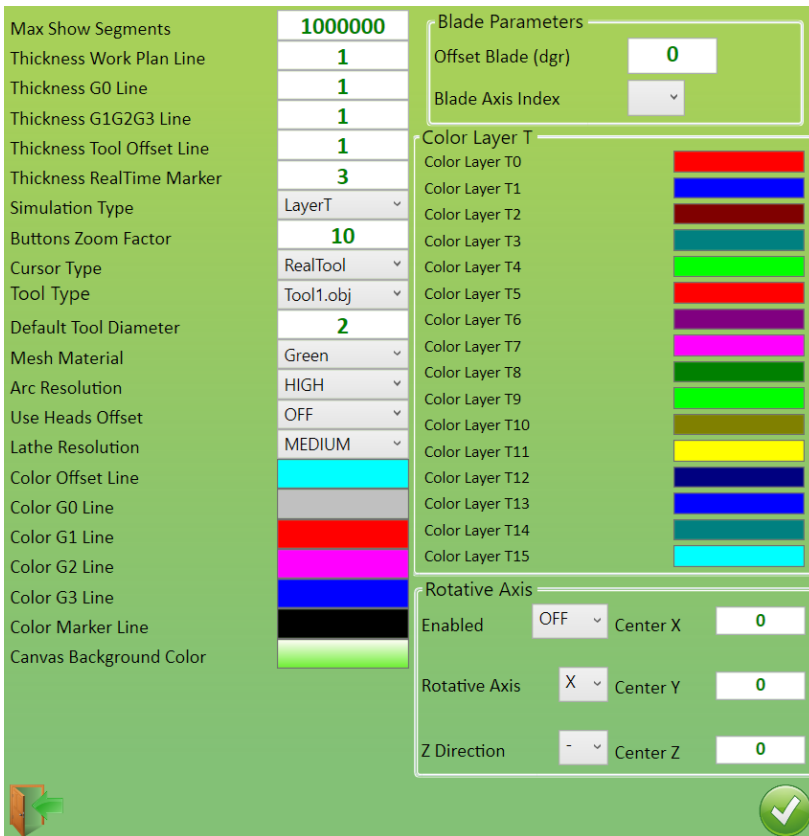
The Edges are the points where the CNC stop the axes

The edge is shown by a little square



9.13.5 Preview Settings

Preview parameters configuration



9.13.5.1 Max Show Segments

Maximum number of **LINES G0-G1_G2-G3** can be showed in the SIMULATION. When this limit is reached, no more segments will be showed in the preview. Its value, depend of PC **MEMORY RAM INSTALLED**

Indicative Values:

35.000 lines G1 with Mesh Tot RAM 110 Mb
 witout Mesh Tot RAM 80 Mb

9.13.5.2 Thickness Work Plan Line

Thickness line of **WORK PLANE**.

9.13.5.3 Thickness G1 G2 G3 Line

Thickness line of **G1-G2-G3**

9.13.5.4 Thickness G0 Line

Thickness line of **G0**

9.13.5.5 Thickness Tool Offset Line

Thickness line of Tool Offset **G41-G42**

9.13.5.6 Thickness Real Time Marker

Thickness line of Gcode Lines Worked

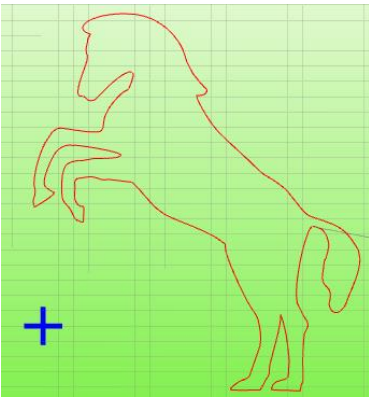
9.13.5.7 Simulation Type

Type of Simulation.

Lines
Mesh
Lathe
CloseMesh
LayerT

Lines

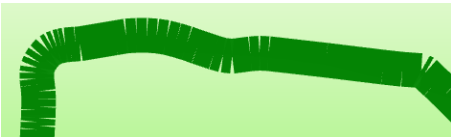
Uses a lines for preview. Generally it is used for **BIDIMENSIONAL GCODE**.



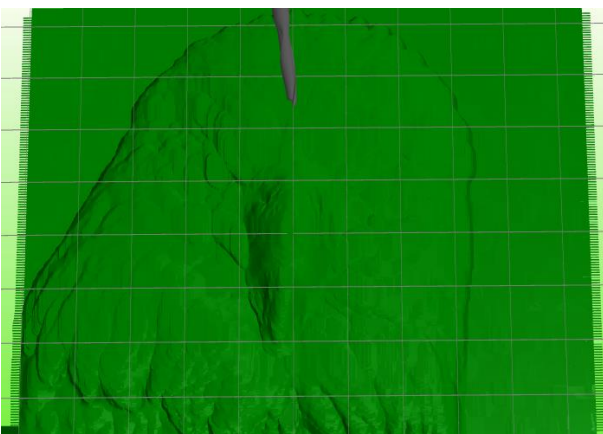
Mesh/CloseMesh

Uses a **MESH** for Preview. Generally it is used for **TRIDIMENSIONAL GCODE**.
 The thickness of **MESH**, depend by **TOOL DIAMETER SETTED**.

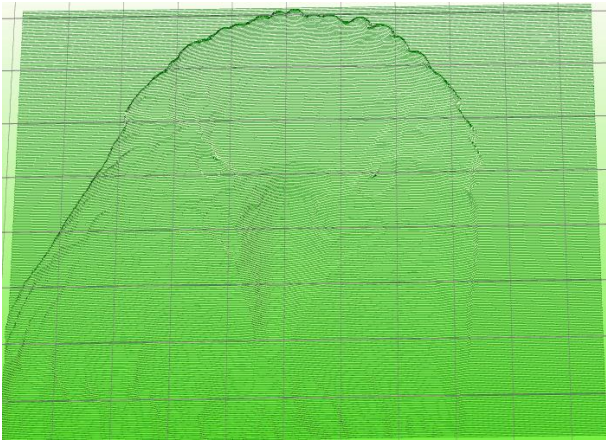
Without CloseMesh



With CloseMesh



**TOOL DIAMETER
 CORRECT.
 All mesh are connected**



TOOL DIAMETER SMALL.
The mesh are not connected

Lathe

Simulatio for LATHE MACHINE
See [Simulation for Lathe](#)

LayerT

Allows to show different colors for Gcode parts worked with different tools selected by function **Tn**.
For each tool is associated a color from 0 to 15, so for a 16 tools



By the selection , the layer is show or hidden

9.13.5.8 Button Zoom Factor

Buttons [ZOOM FACTOR](#)

9.13.5.9 Cursor Type

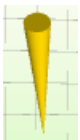
Type of cursor used for simulation

- RealTool** MILLING TOOL (Select Tool Type **Toolxx**). The real tool diameter will be showed
- Pointer** Pointer
- Blade** **CUTTER** (Select Tool Type **Bladexx**)
This cursor can be linked to a Rotative Axis that really manages the cutter in the machine. It allows to visualization the real position of cutter
- RTCP** Cursor for 5 Axes machines with RTCP **A,C**.
The parameters for the cursor type are get directly from the machines parameters section



9.13.5.10 Tool Type

Choose the tool.



Pointer

Tool1.obj



Tool2.obj



Tool3.obj



Tool4.obj



Blade1.obj



Blade2.obj



Blade3.obj



9.13.5.11 Default Tool Diameter

Indicates the **DEFAULT DIAMETER** (mm) for **TOOL TYPE TOOLxx** If no diameter is set in the Gcode file.

9.13.5.12 Mesh Material

Type of **MATERIAL** for **MESH**.

9.13.5.13 Arc Resolution

Indicates the resolution for **ARC** when the lines are **G2-G3**.

A high resolution uses more **RAM MEMORY** of **PC**.

ULTRAHIGH	Max Definition (recommended for PC with RAM >=8 Gb)
HIGH	High Definition (recommended for PC with RAM >=4 Gb)
MEDIUM	Medium Definition (recommended for PC with RAM >=2 Gb)
LOW	Low Definition (recommended for PC with RAM <=1 Gb)
ULTRALOW	Ultra Low Definition (recommended only for big Gcode with G2-G3)

9.13.5.14 Use Heads Offset

If is **ON**, is used the Heads Offset during Preview, therefore the Drawing is shifted on the Preview.

If is **OFF**, the Heads offset is not used

9.13.5.15 Lathe Resolution

Indicates the resolution **SOLID** for lathe simulation

More high is the resolution , more high is the Solid definition, but more slow is the Simulation

ULTRAHIGH	Max Definition
HIGH	High Definition
MEDIUM	Medium Definition
LOW	Low Definition
ULTRALOW	Ultra Low Definition

9.13.5.16 Color Offset Line

Color of **G41/G42** lines

9.13.5.17 Color G0-G1-G2-G3 Line

Color of **G0-G1-G2-G3** lines

9.13.5.18 Color Marker Line

Color of **real time marker line**

9.13.5.19 Canvas Background color

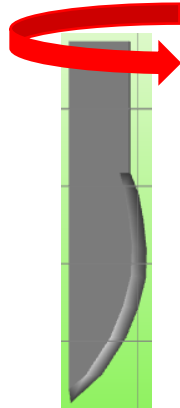
Color of **BackGround canvas**

9.13.5.20 Blade Parameters

IsoUs can simulate a **ROTATIVE CUTTER AXES** .

The real angle position of cutter will be showed in the simulation.

This option is valid only if selected a **BLADE** [Cursor Type](#) . Set a **Bladexx** [Tool Type](#)



Offset Blade (Degrees)

Insert the **BLADE OFFSET** for adjust the simulation angle to machine angle

Blade Axis Index

Insert the Index of Axis where the **BLADE** is connected in the machine.

Ex: for 4 Axes

X *Index 0*

Y *Index 1*

Z *Index 2*

A *Index 3*

9.13.5.21 Color Layer T

Allows to select a color for the single tool (0-15) when the simulation type is set to **LayerT**

9.13.5.22 Rotative Axis

Enable or Disable the simulation for Rotative Axis X or Y

Enabled

ON OFF

Rotative Axis

Axis X or Y

Z Direction

Axis Z Direction DownWard (negative or positive)

CENTER X,Y,Z

Rotation center of X,Y and Z for rotative Axis

10 Multiprocess Interface

IsoUs can manage up to 8 Process in the same PC. When the **MULTIPROCESS** is enabled is possible choose which interface is showed.

10.1 Select a Single Interface

Press the desired interface **BUTTON** (ex for 4 Interfaces):



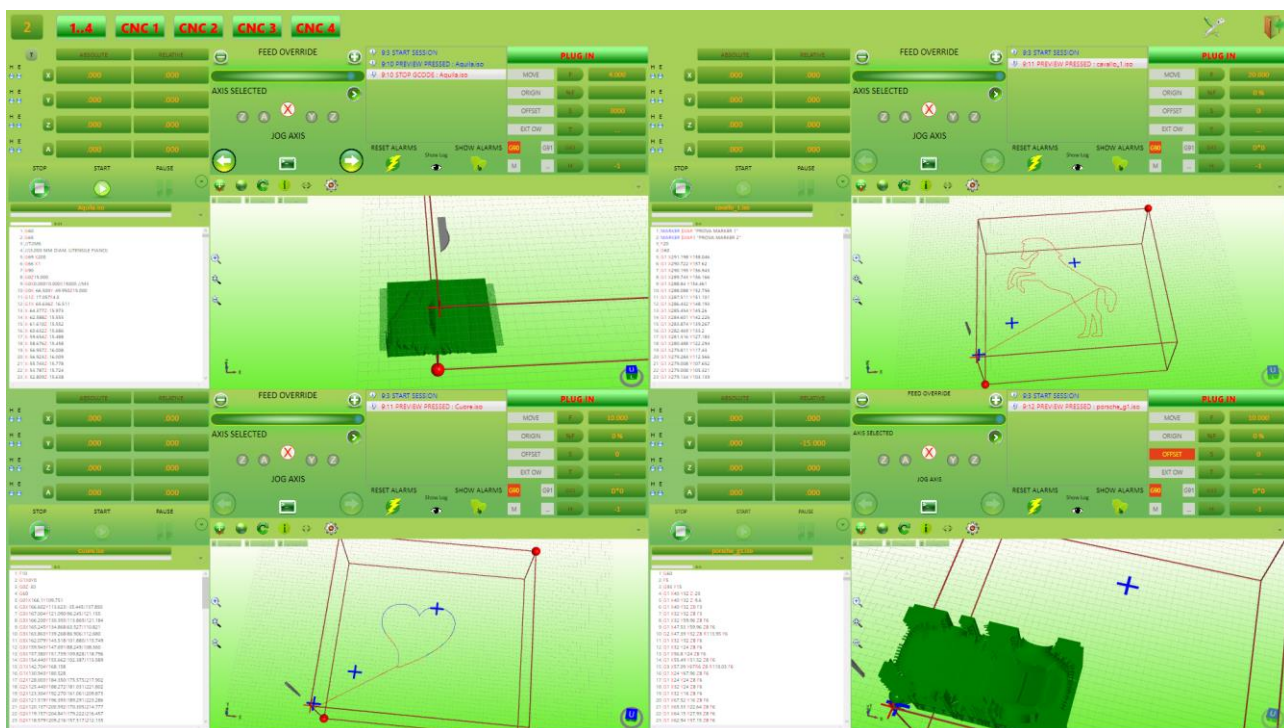
Current Interface

- CNC 1 Interface CN 1
- CNC 2 Interface CN 2
- CNC 3 Interface CN 3
- CNC 4 Interface CN 4

10.2 Select all Interface

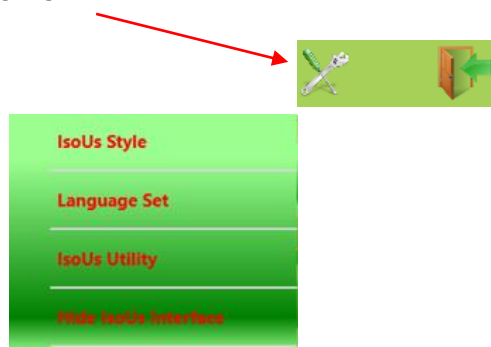
IsoUs can show all **INTERFACES** simultaneously.

Press **BUTTON**:



11 Configuration and Utility

Press **BUTTON**:



11.1 IsoUs Style

Choose Your preferred style

11.2 Language Set

Set the IsoUs Language

11.3 IsoUs Utility

See the **ISOUS UTILITY DOCUMENTATION**.

11.4 Hide IsoUs

Press the button for HIDE the IsoUs window

Press the **ISOUS ICON** in Windows Task Bar for return to IsoUs interface.



WARNING:

In this mode IsoUs is working, but **NONE MESSAGE OR ALARMS WILL BE SHOWED**

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