English

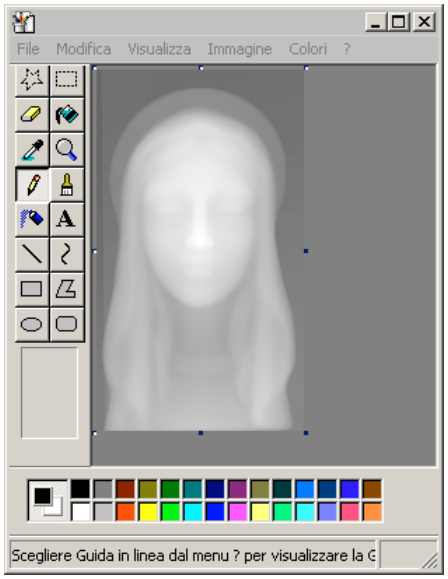
Bmp2MC

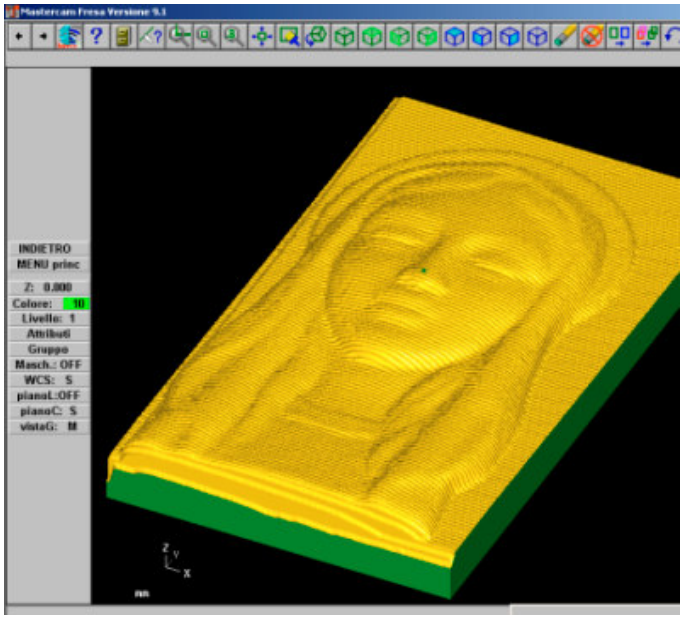
From bitmap to Mastercam 3d

Quickstart guide

Bmp2MC

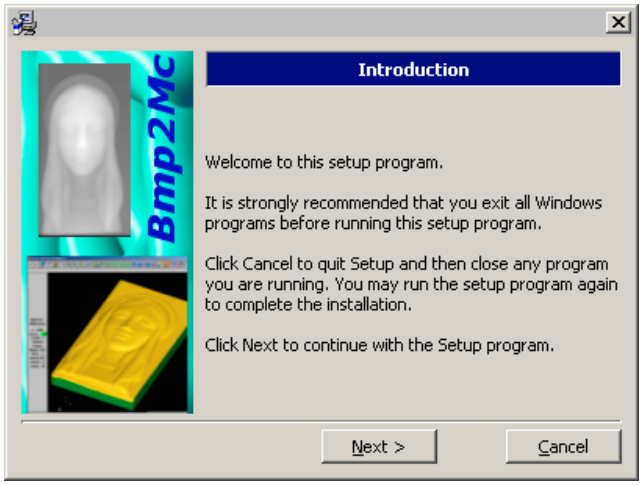
From a gray-scale photo to a 3d toolpath in Mastercam.
Bmp2Mc read the BMP file in gray scale format. Gray-scale is quantified to adjust Z-axis depth, different tool overlaps, depths and tool radius are permitted. Final sizes of X-Y output can be scaled and stored into in the operations manager of Mastercam.
Bmp2Mc uses the different layers or shades to produce the depth of cut or Z-axis, as well as scaling the X-Y coordinates to the desired carving size.
Bmp2Mc manages flat, spherical and conical tools. The operation created in Mastercam can be simulated, be verified and processed.
Bmp2Mc also create an 3d .STL file. This file could be imported in Mastercam and machined as 3d model with the multi-surface function or for to be used in other applications.





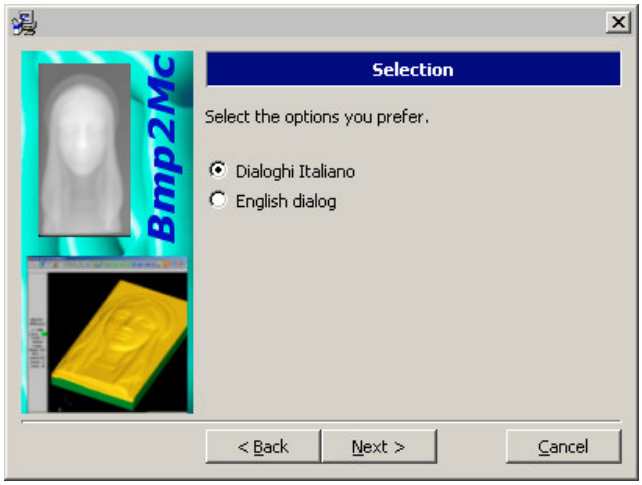
Installation

Download, save and execute in temporary folder the setup.exe file.

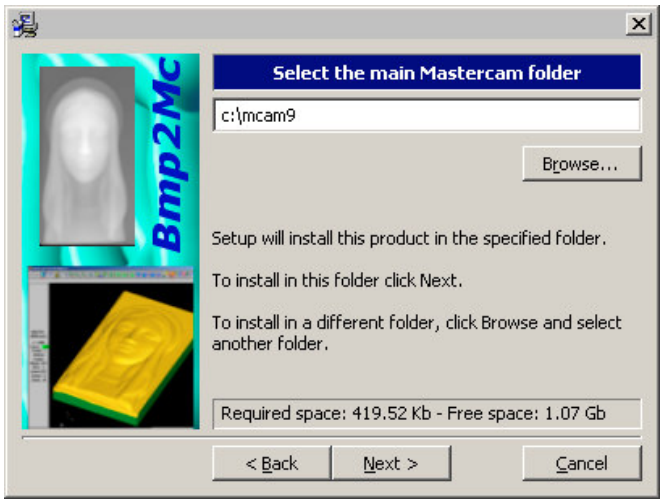


Select Next

Select measure unit and click Next



Select the language for dialog and Next



Select folder **where he is currently installed Mastercam**, usually MCAM9

Select in sequence the buttons Install and Finish.

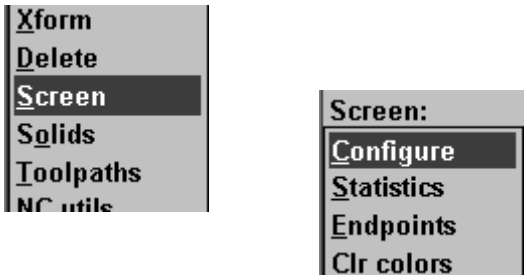
The subsequent files are created in Mastercam folder:

..\chooks\bmp2mc.dll	main application
..\chhoks\bmp2mc.dat	data application
..\chhoks\bmp2mc.txt	dialog text
..\common\icons\bmp2mc.bmp	icon for customize toolbar
..\data\test.bmp	demo picture with 256 grey-scale
..\mill\ops\bmp2mc.prm	parameter used in the last session

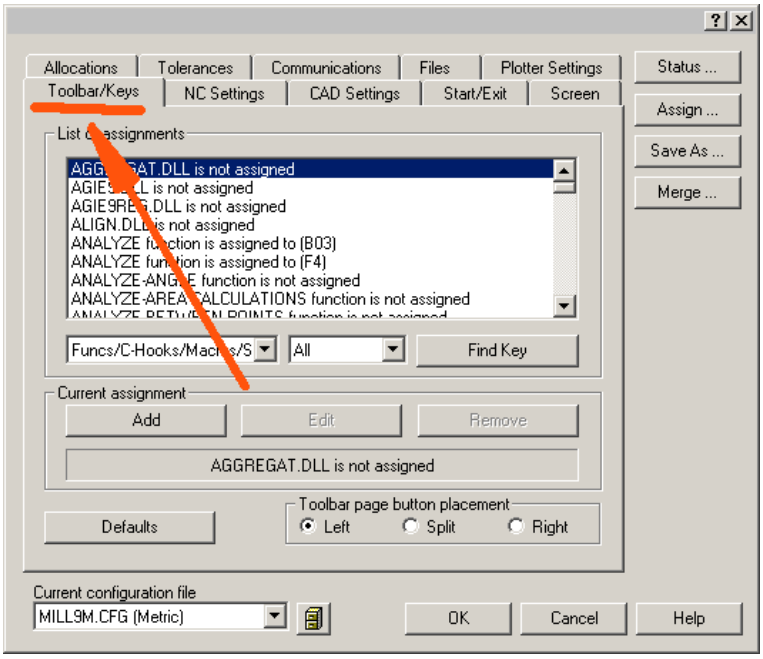
Configuration of Toolbar (optional)

Instead of launching the application with the combination of the [Alt + C] keys is possible to configure the Toolbar in order to assign a button for execute the Bmp2Mc application.

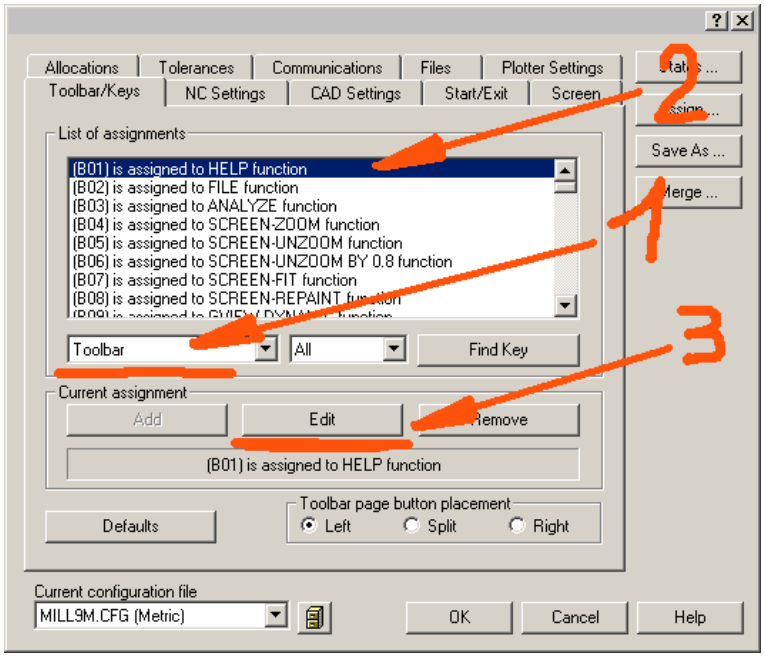
1. In Mastercam, choose Main Menu, Screen, Configure.



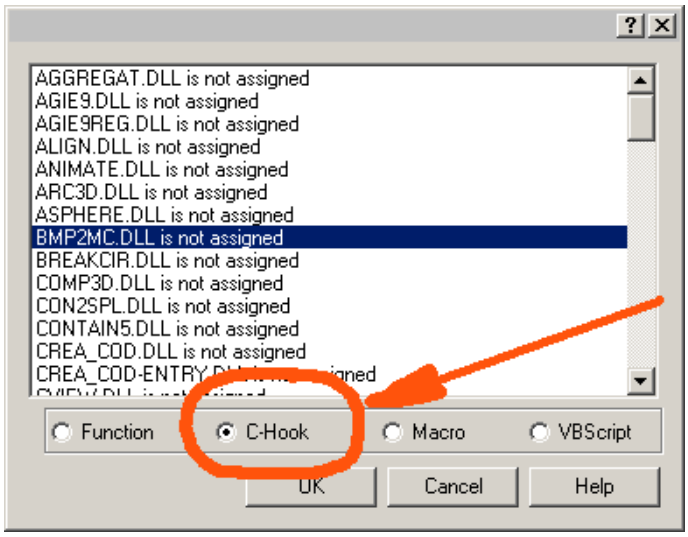
2. The System Configuration dialog box opens. Choose the Toolbar/Keys tab



3. Chose Toolbar (1), the button to assign (2) and Edit (3).

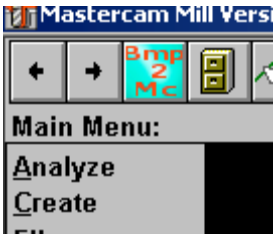


4. The following window will appear. Select C-Hook and from list of the applications point out BMP2MC.DLL.



5. Click Ok for close the window, and click Ok for the save the new configuration.

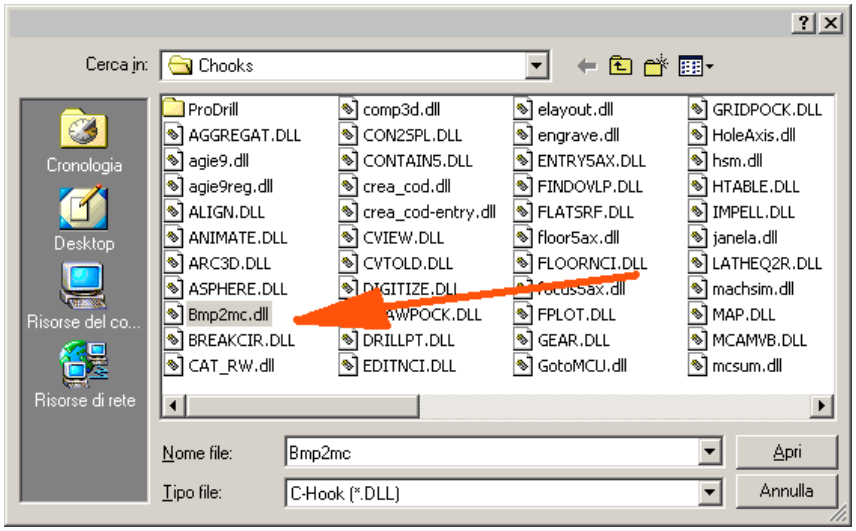
6. The assigned button is visualized with the new icon and with the mouse-click Bmp2MC launched.



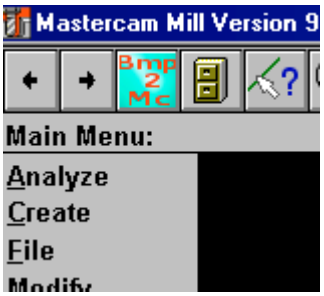
How to create a toolpath from gray-scale image

Step 1 - Execute Bmp2Mc

To execute the Bmp2Mc application, into a Mastercam press Alt+C and select BMP2MC.DLL in the Chooks foolder.



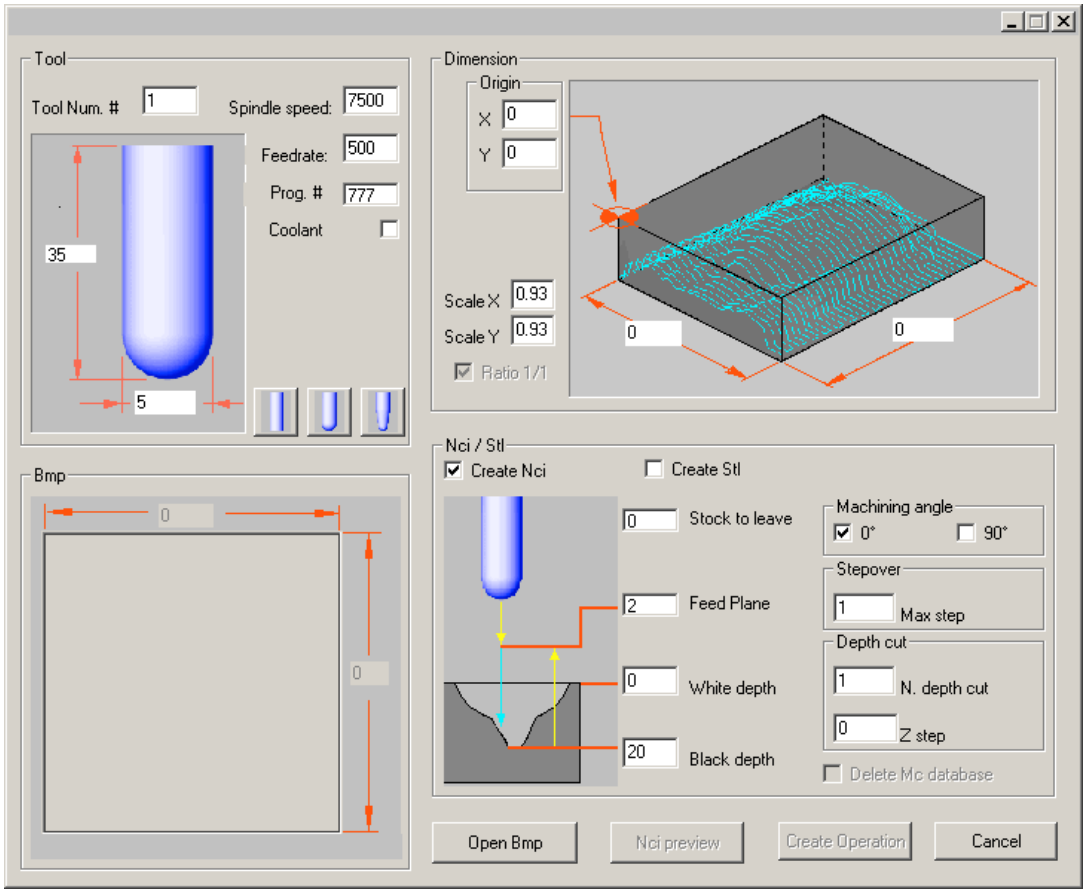
Alternative option (it is necessary to configure a Toolbar – see previous chapter)
Click the Bmp2Mc icon from Toolbar, with the mouse



Step 2 – Application dialog

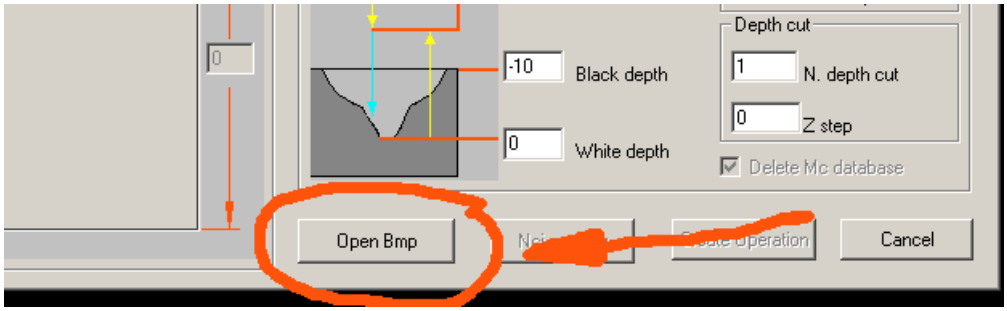
The main dialog of Bmp2Mc show with the four principal section:

Tool : set shape and parameter tool
Bmp: preview bmp image
Dimension: define the dimension and position of nc file
Nci/Stl: define the toolpath parameter or the .STL file creation

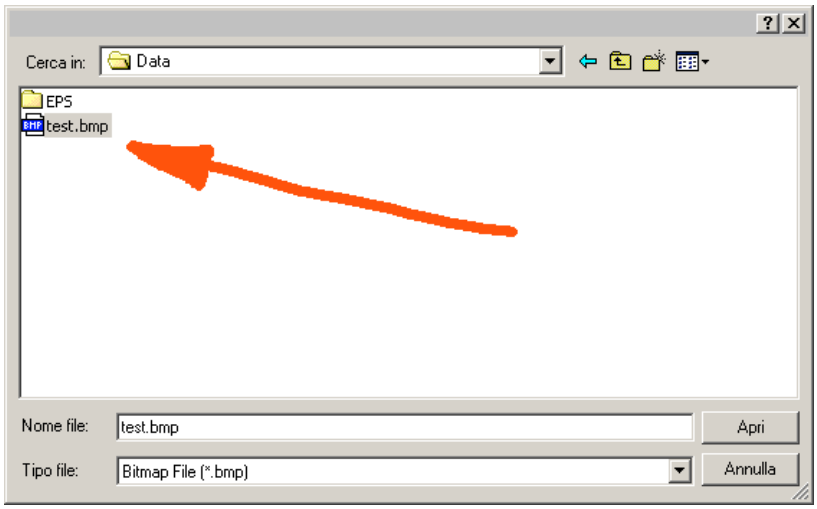


Step 3 – Open the Bmp file

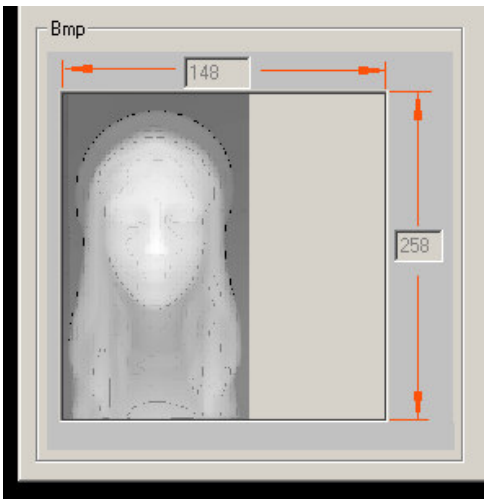
Select the "Open Bmp" button in low area to define the file containing the gray-scale image to convert in toolpath.



The Windows dialog for select file will appear. In the "mcam9/data" directory chose the example "test.bmp" file.



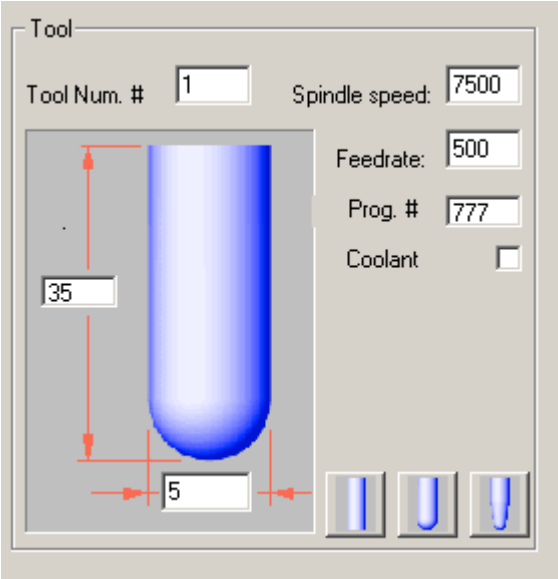
In the section Bmp of the dialog will appear the preview of the image and the relative dimensions in pixel.



Note: The actual version of Bmp2Mc manage only gray-scale image.

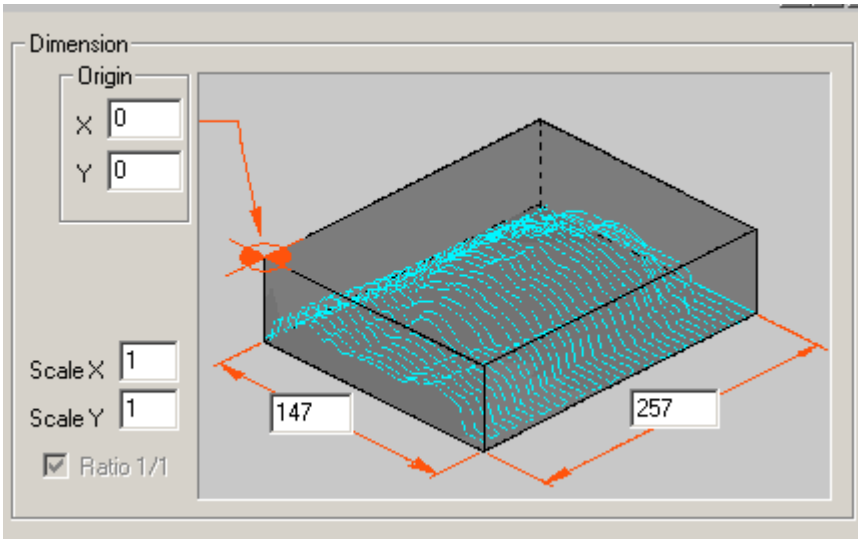
Step 4 – Setting of tool parameter

Set the section as in the next figure (unit of measure is metric)



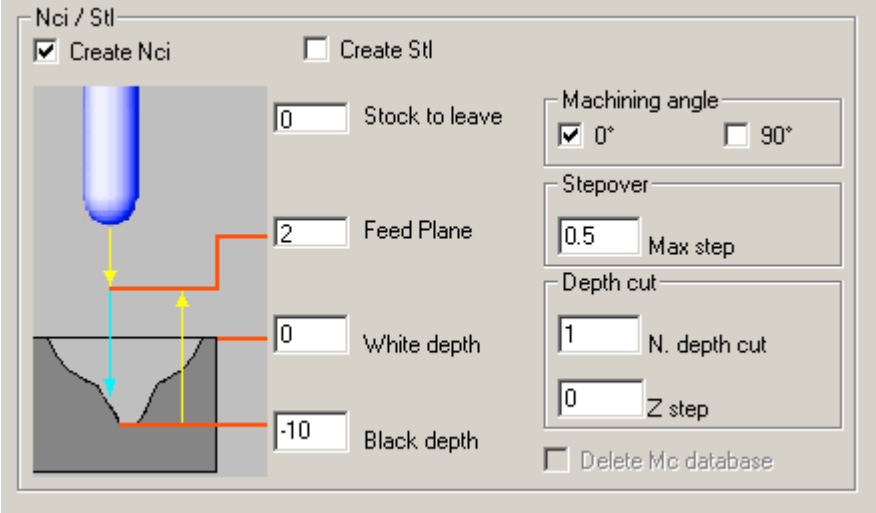
Step 5 – Setting of dimension parameter

Set the section as in the next figure (unit of measure is metric)



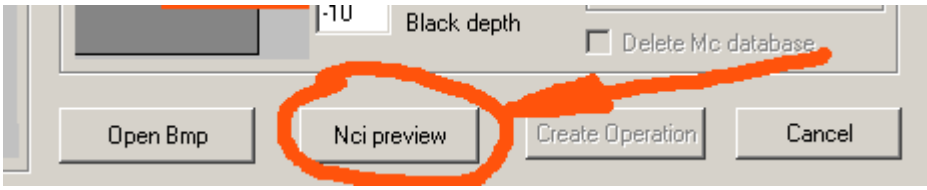
Step 6 – Setting of toolpath parameter

Set the section as in the next figure (unit of measure is metric)



Step 7 – Preview of toolpath

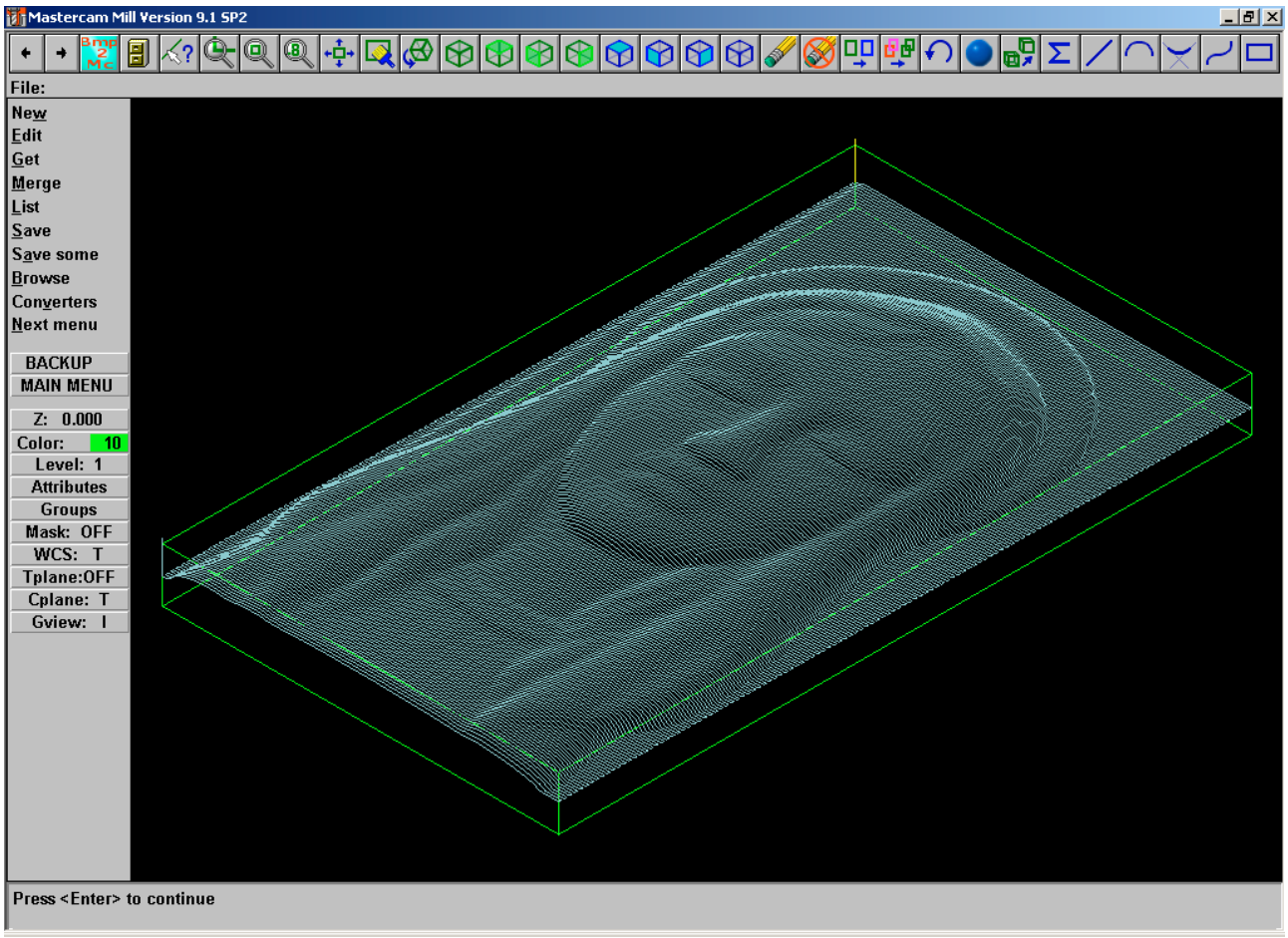
Select the "Nci preview" button for compute the toolpath and simulate it inside to Mastercam.



Step 8 – Calculus and visualization of toolpath

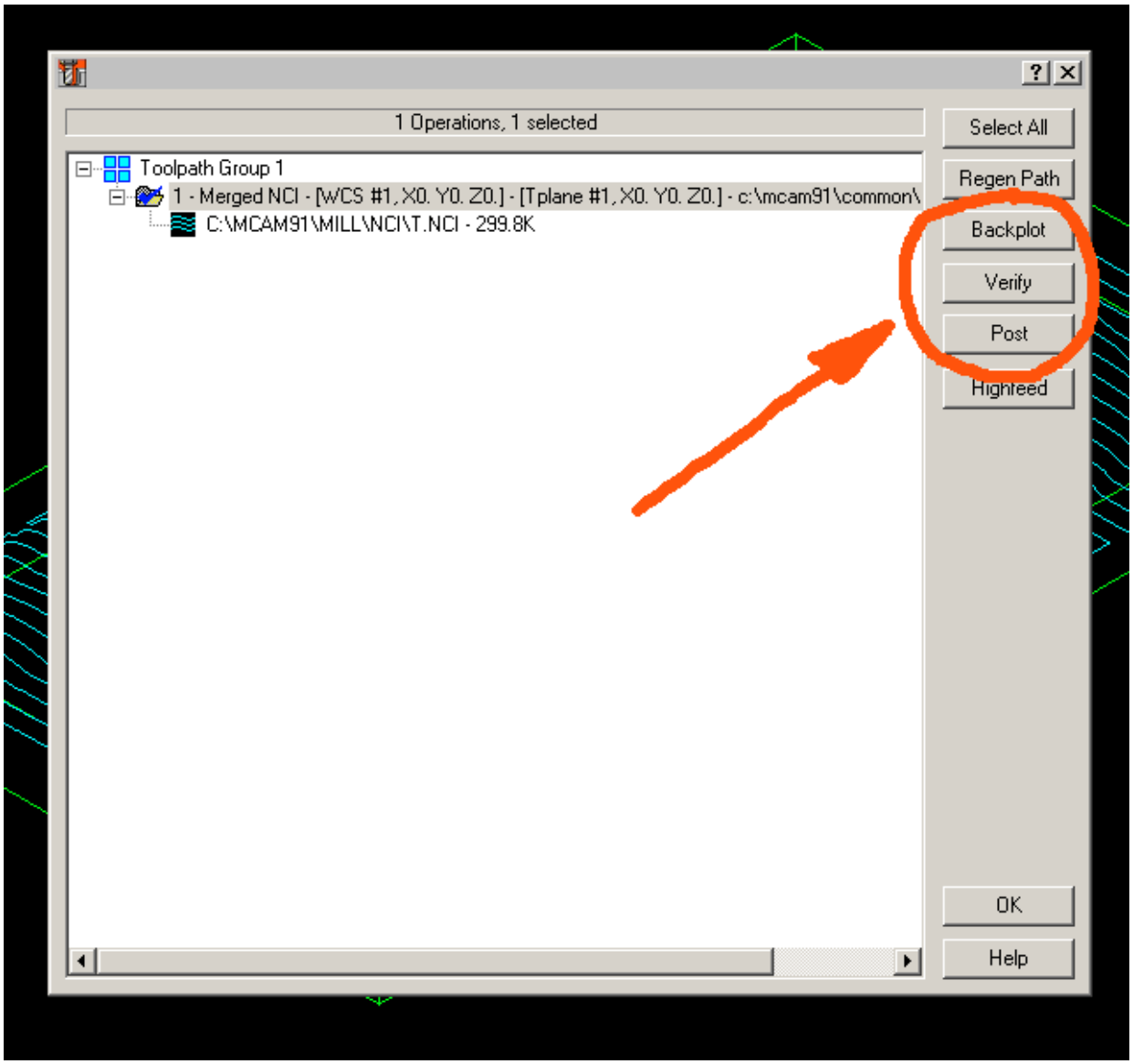
The toolpath is calculated with the settled parameters and visualized in the graphical area of Mastercam.
Press Enter for return in the dialog of Bmp2Mc.
Here it is possible to change the parameters of working, tool and dimensions and repeat steps 7 and 8 to optimize the toolpath.
Within to Mastercam is possible to use the buttons, the function keys function or the right key of the mouse for change the view and or magnification.

Trick: use great values of the "max step" to accelerate the calculation and, only at the end, fix the desired value for the toolpath.



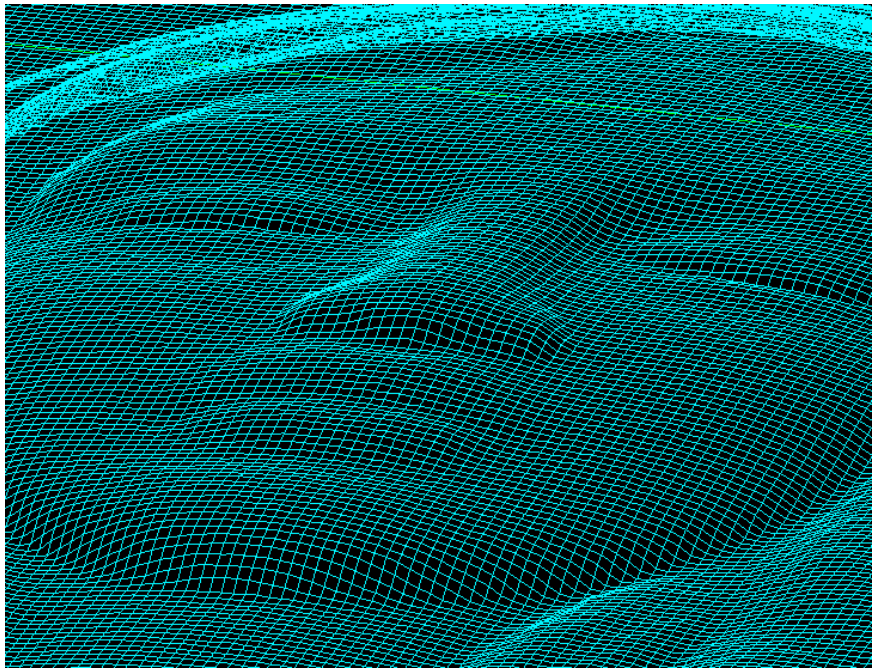
Step 9 – Creation operation

Select the "Create Operation" button for transfer the toolpath in the "Operations Manager" tree of Mastercam.

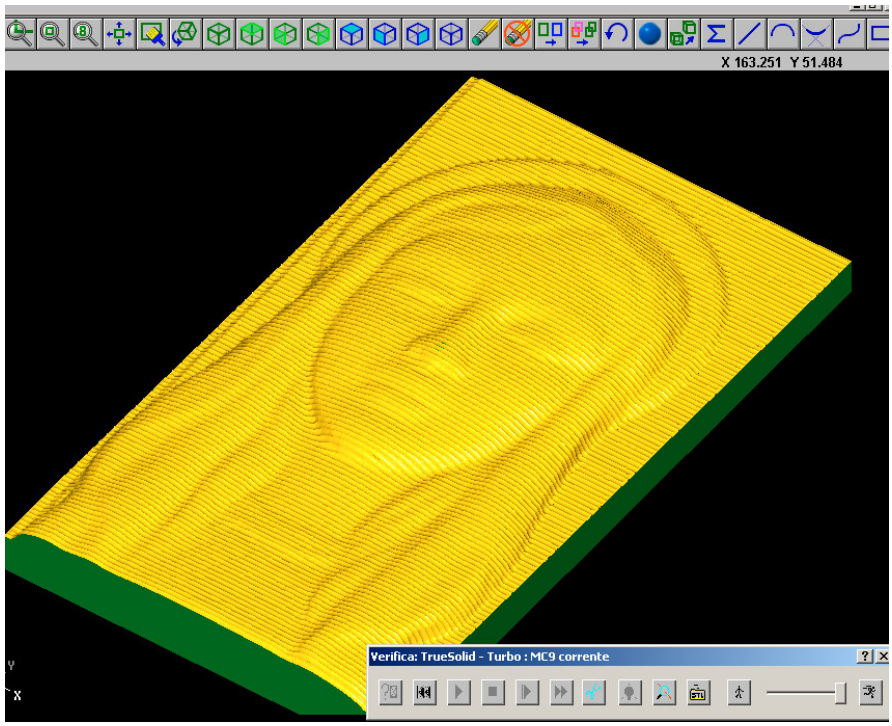


Here the operation could be back-plotted, verified and processed.

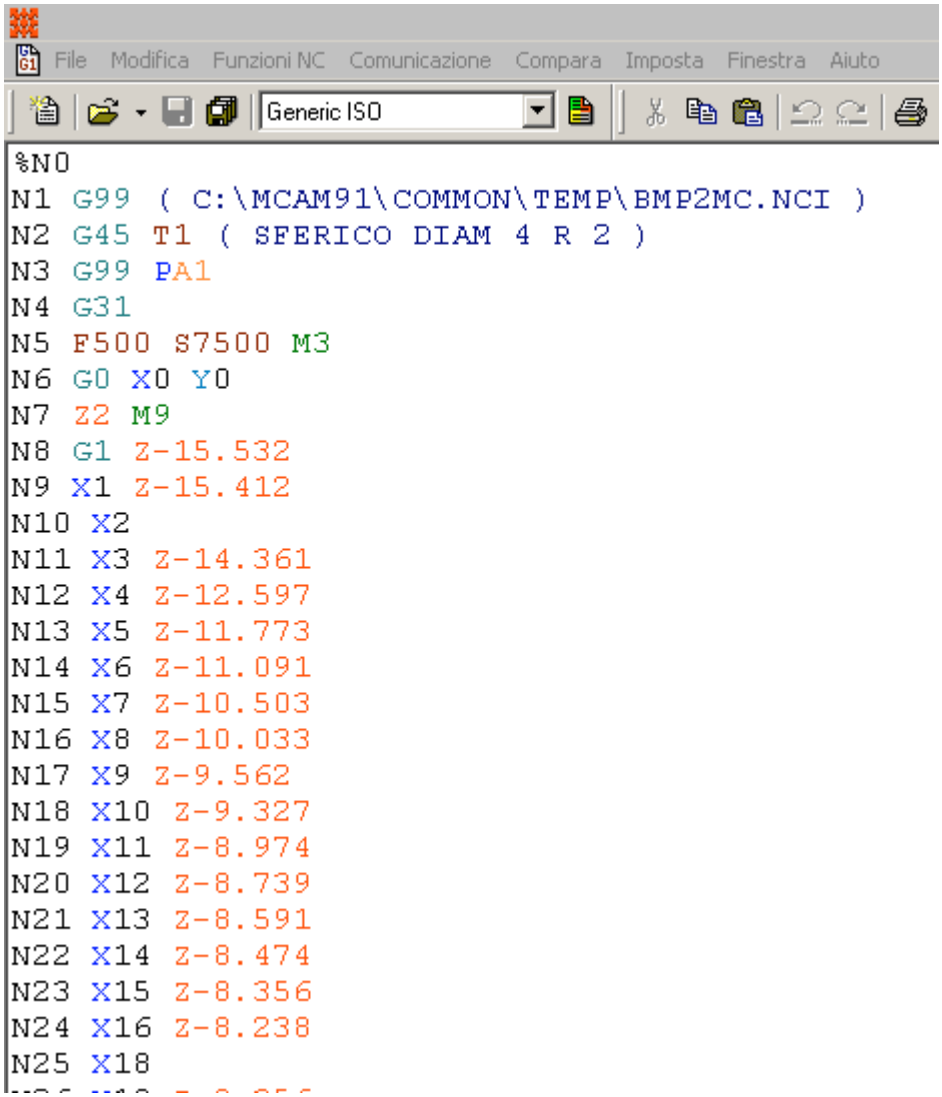
Backplot



Verify

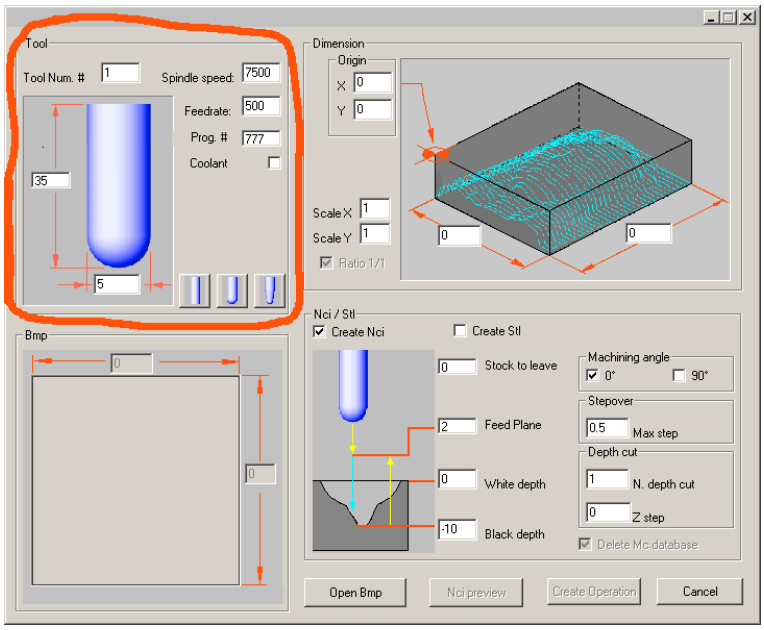


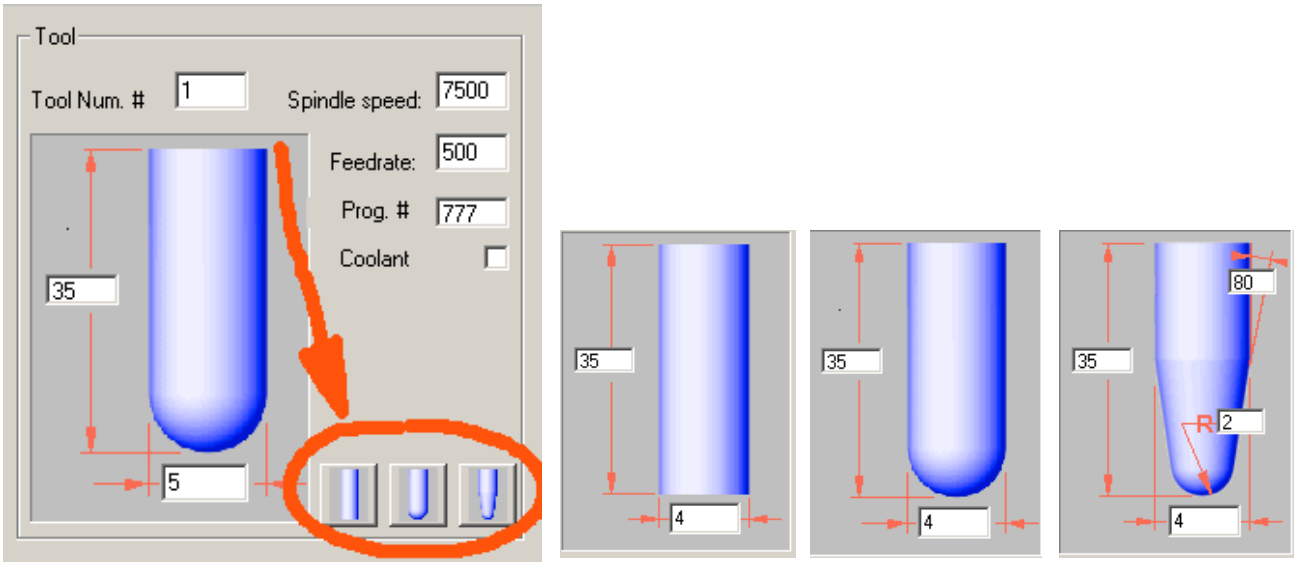
Postprocessor



Dialog parameter

1 - Tool Section





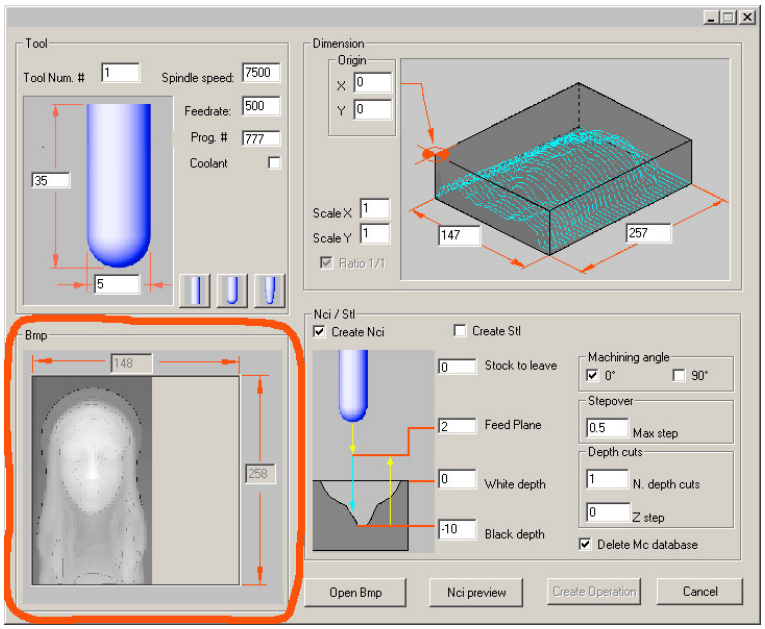
Tool type
Click on one of the three button for select the tool type. Three types of tool are allowed: Cylindrical, spherical and conical. Compile the relative parameters of diameter, length, radius and conicity.
Tool Num.
Define the tool numbers used by the NC program. The postprocessor generated the instruction of tool change (ex. N10 **T1** M6).
Spindle speed
Enter the spindle speed. The postprocessor generated the related instruction (ex. N15 **S7500** M3).

Feed rate
Enter the feed rate. The postprocessor generated the related instruction (ex. N20 G1 X10 **F500**).

Prog #
Enter the program number, only for the cnc that require of this code. The postprocessor generated the related instruction (ex. % **O0777**)

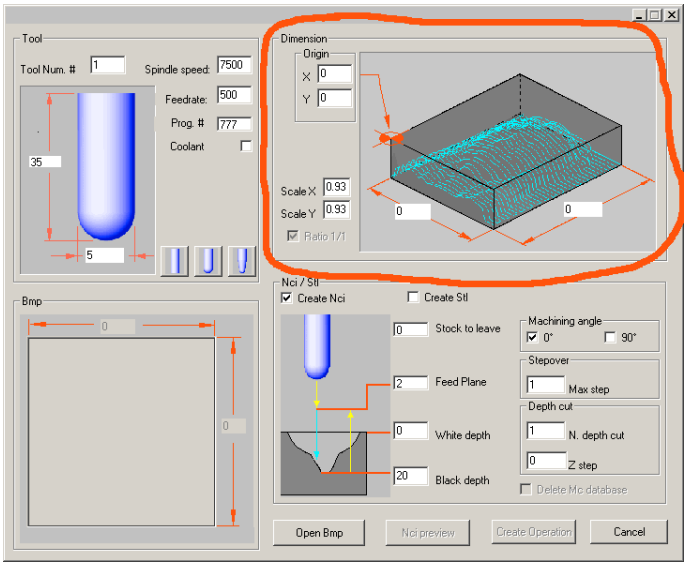
Coolant
Activate this checkbox for coolant option "on/off". The postprocessor generated the related instruction (es. N20 G0 X100 **M8**).

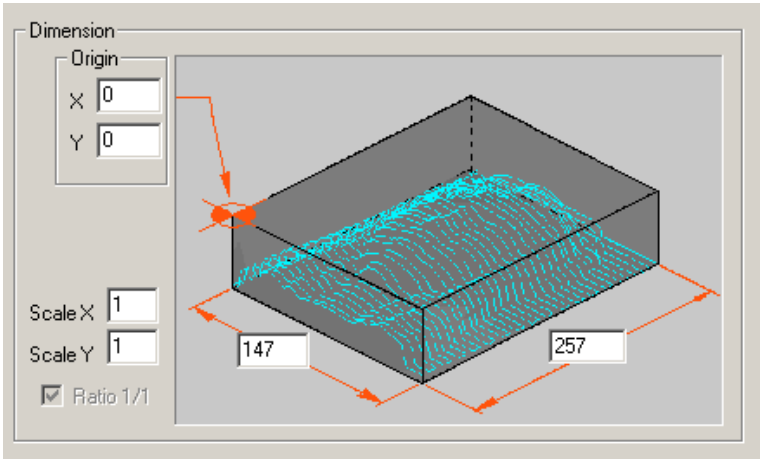
2 - Bmp Section



Shown the preview of the selected image and the width and height in pixel.
.

3- Dimension Section





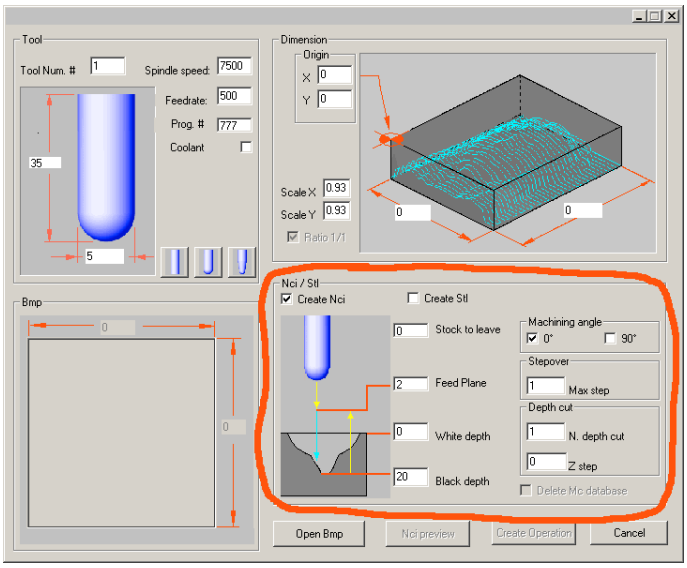
Origin
Enter X, Y coordinates of the low-left vertex of the toolpath.

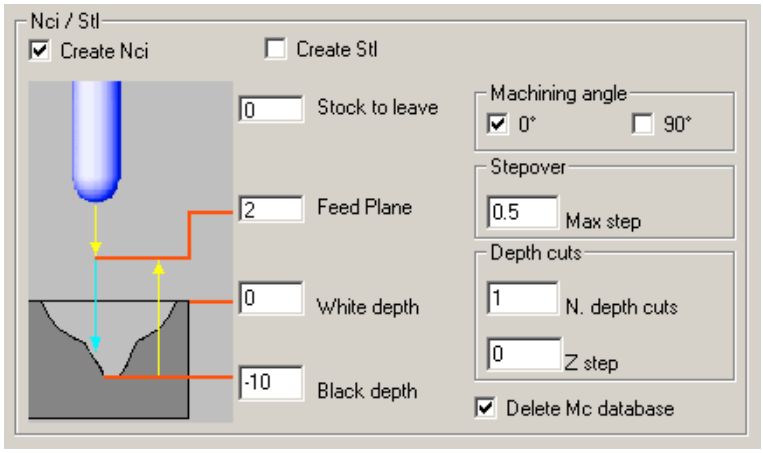
ScaleX / ScaleY
Enter the scale factor between the image pixel and the real dimension of the created toolpath. The change of these values update the Dim.X / Dim.Y fields.

Dimension field X / Y
Enter the value of dimension X / Y of the toolpath. The change of these values update the ScaleX / ScaleY fields.

Ratio 1/1
Uncheck this box for apply a different scale factor for each axis X / Y.

3- Nci/STL Section





Create Nci
Activate this checkbox for create a toolpath within Mastercam.

Create STL
Activate this checkbox for convert a gray-scale Bmp into a 3d .STL file. This file could be imported in Mastercam and machined as 3d model with the multi-surface function or for to be used in other applications.

Stock to leave
Enter the amount of material to leave for an eventual successive finish operation.

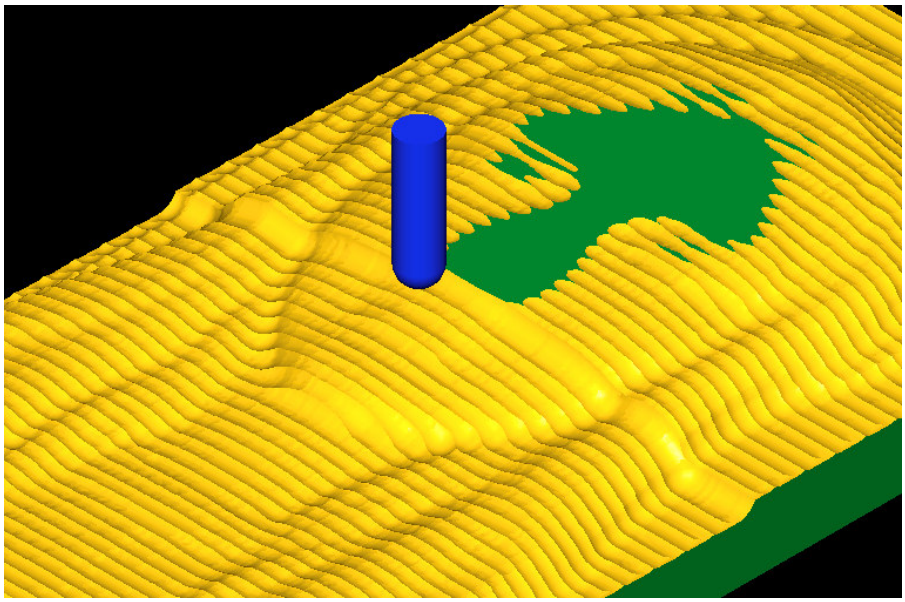
Feed plane
Setting the height that the tool rapids to (G0) before changing to the feed rate (G1) to enter in the part.

White depth / Black depth
Enter the values to attribute to black and white color of the BMP image. All the pixel of intermediate color between black and the white will by interpolated of the relative clear/dark factor. It is possible create an image in relief / bas-relief (concave / convex) simply reversing white and black values.

Machining angle
Check the box relative to the work angle desired.
both boxes are checked, the crossed toolpath is created.
No box checked for don't calculate the toolpath, but enter in Mastercam for change the view or redraw/ zoom the display.

Stepover
Sets the distance between adjacent passes. A smaller stepover value creates a more accurate toolpath, but may take longer to generate the toolpath.

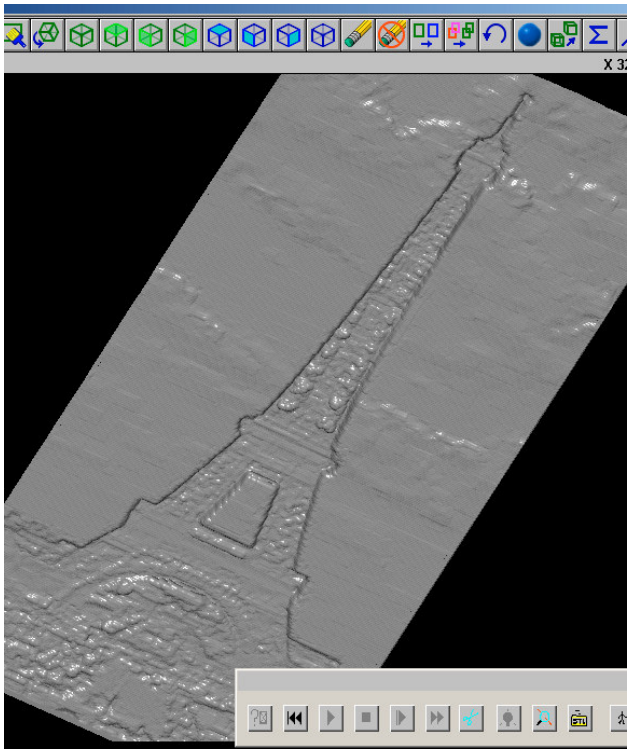
Depth cuts
Use this section for generate a toolpath with multi-depth cuts.
Type in the number of cuts in depth and the Z step for each cut.



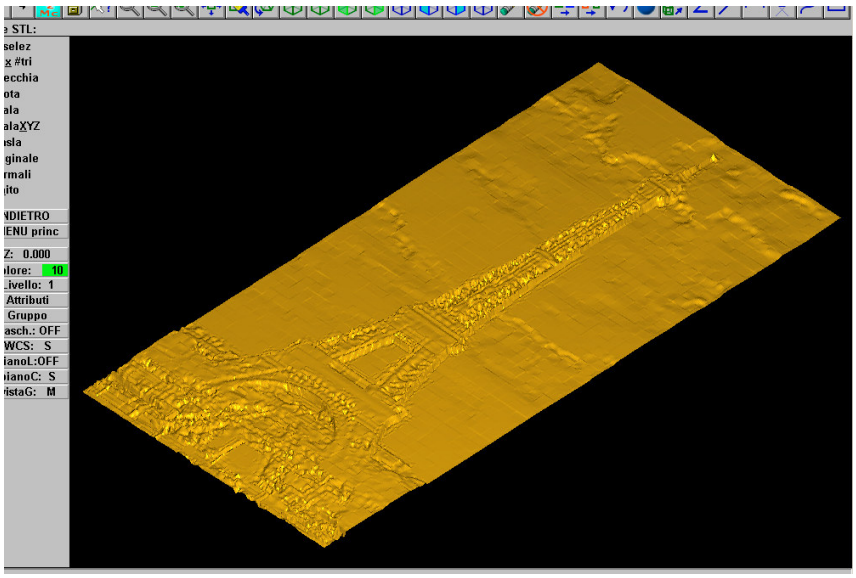
Example: toolpath with multi depth cuts

Delete Mc Database
Activate this checkbox for cancel the list of the operations created previously. With the deactivate checkbox, the operations created are appended to those existing.

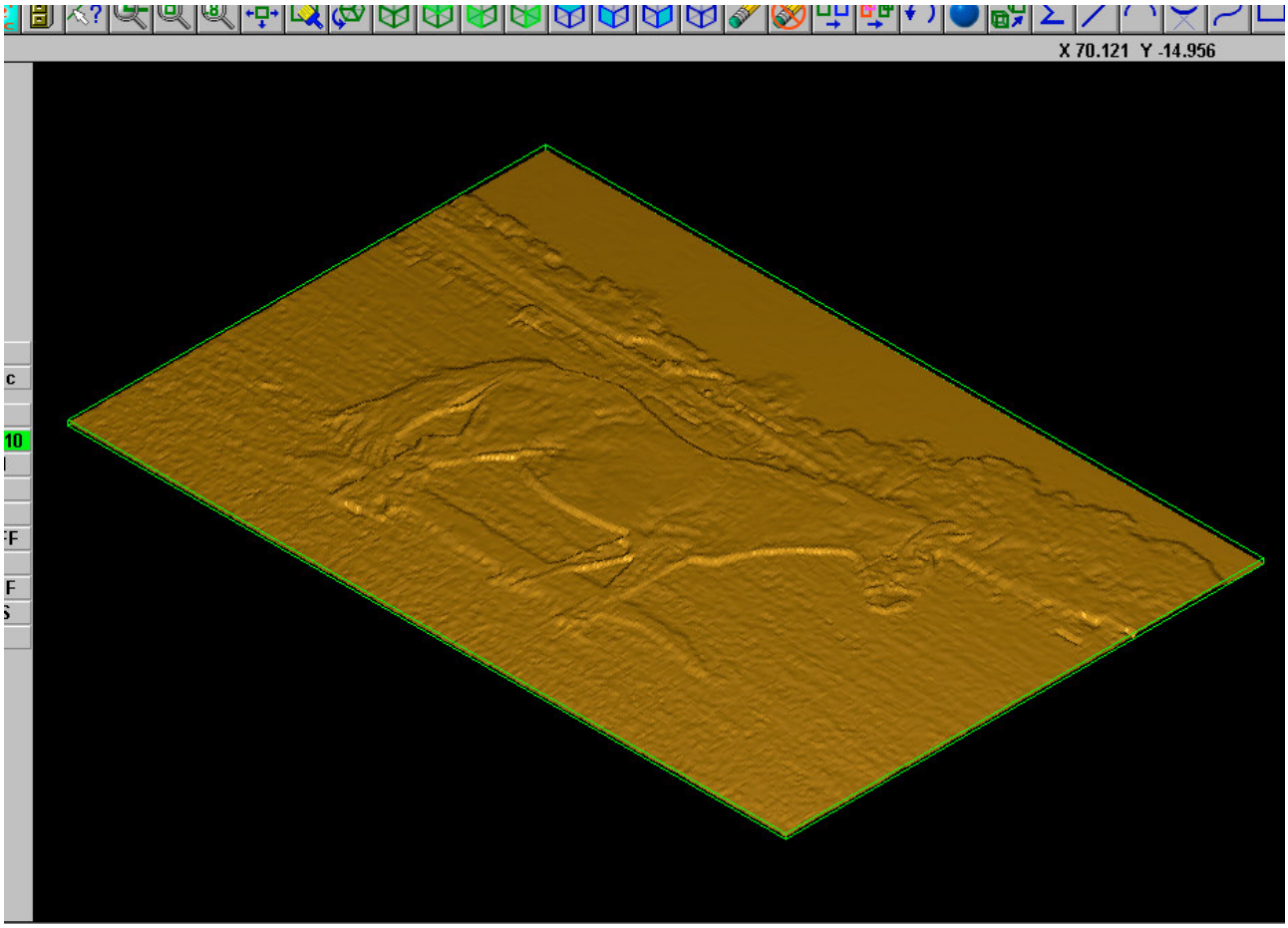
Examples of conversion from image to Mastercam



3d toolpath create with Bmp2Mc



Display .STL file create with Bmp2Mc



Example of the .STL file realized with Bmp2Mc