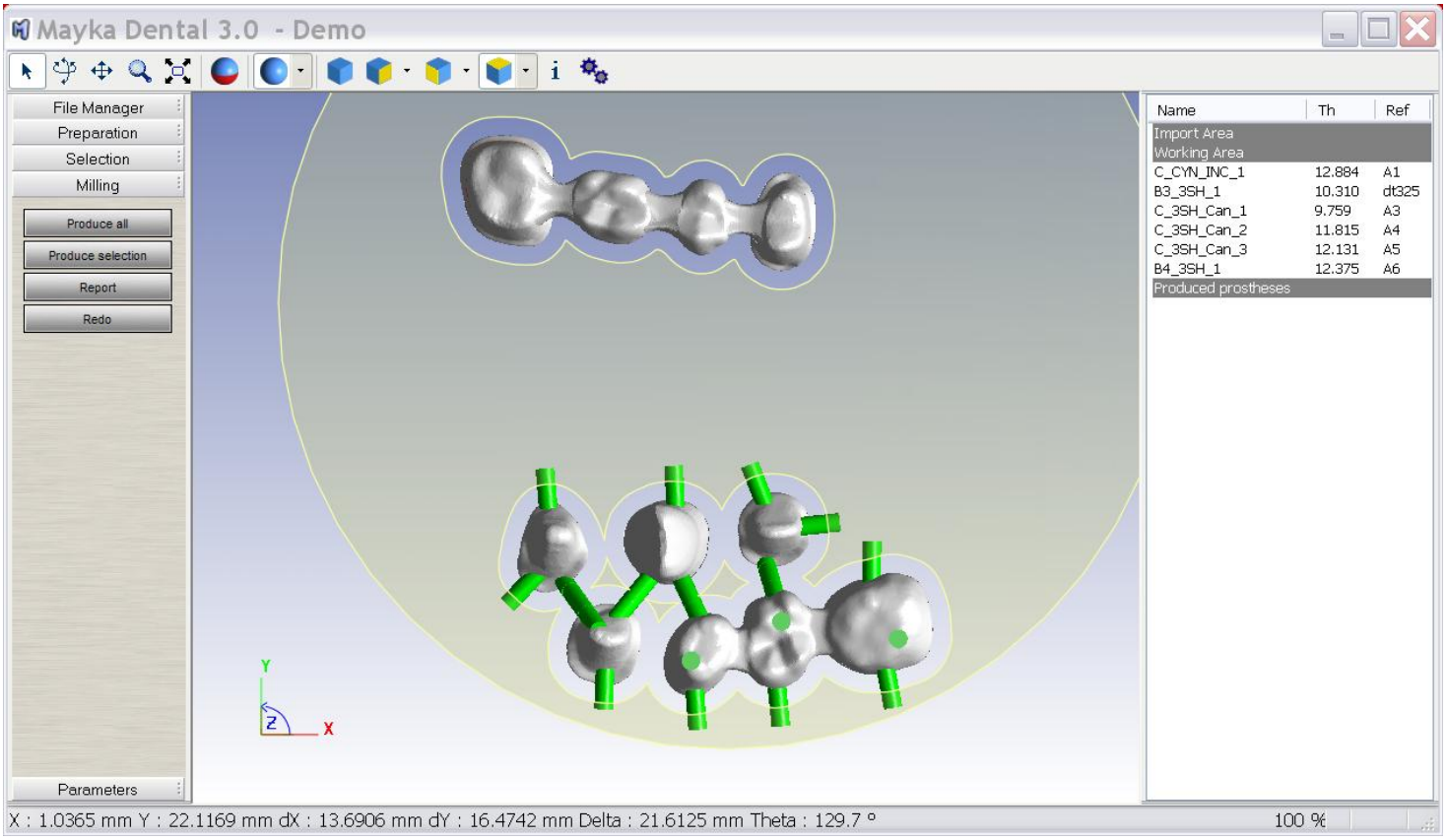
Mayka Dental 3

User Manual



Summary

I. Installation Note :

A. Registration

When you first install the software provided by you reseller you need:

- the original CDRom of Mayka dental or a copy from http://dentalcam.picasoft.com
- One USB Dongle (Protection Key of the software)
- You end user license provided by PicaSoft (This license must includes License number, Serial number and dongle number.)

Follow the instruction of the install package of the software.

Be sure that protection key is not plugged during installation.

Write the requested serial number from license during installation.

After the installation of Mayka dental plug the protection key then start Mayka dental.

B. Demonstration Mode

Demonstration mode is default mode for non registered user.

After installing the software in demonstration Mode you will have access to the full list of feature of the software expected:

- Templates edition
- Nc file computation and export

C. Time limited version

For evaluation purpose you should get a NFR version of Mayka dental.

In this case installation procedure is the same as for registered user.

This version is property of PicaSoft and is time limited version.

After a standard installation, you have to update your key with a serial number provided by PicaSoft.

Time limited version is activated through specific software named PKManager.

This software is available from PicaSoft web site inside customer area.

NFR update Procedure:

- Check that PicaSoft dongle is plug to computer
- Start PKManager
- Enter serial mumber provided by PicaSoft
- Press Update.
- Restart Mayka dental.

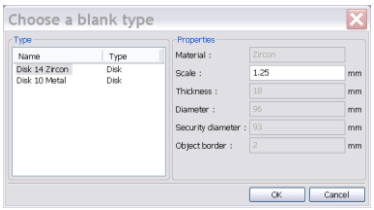
II. File Management

Mayka dental way of working is based on 3 main files format:

- STL files (production files)
- Blank file (Your full job as a Mayka dental file format)
- NC files (Export file for the CNC Milling machines)

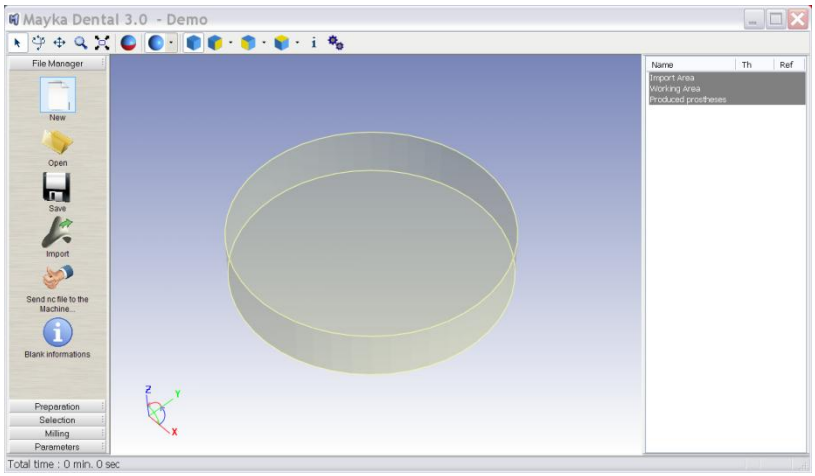
A. New

The « new » feature allows to create a new blank of material by chosing one from the library



(see preferences for library creation)

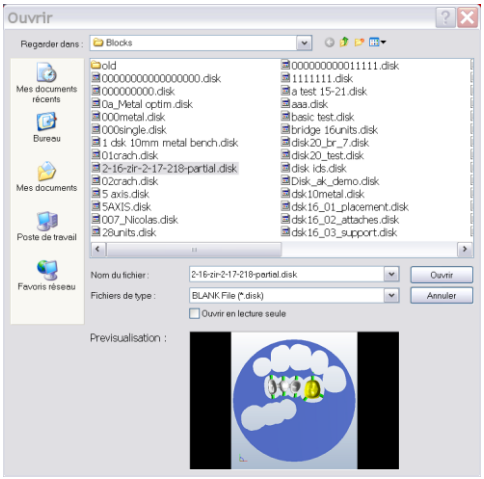
After choosing the kind of blank you define the blank name then the software create empty blank for you on the 3D interface.



B. Open

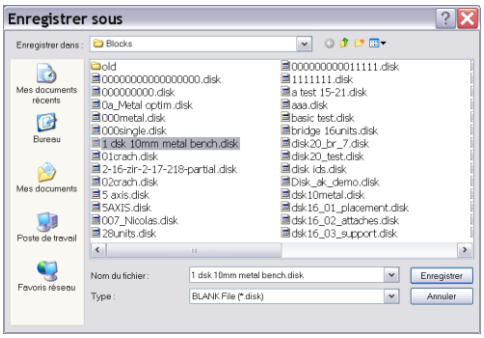
"Open" is used to launh existing blank already used for production.

It allow to nest new file considering previous export



C. Save

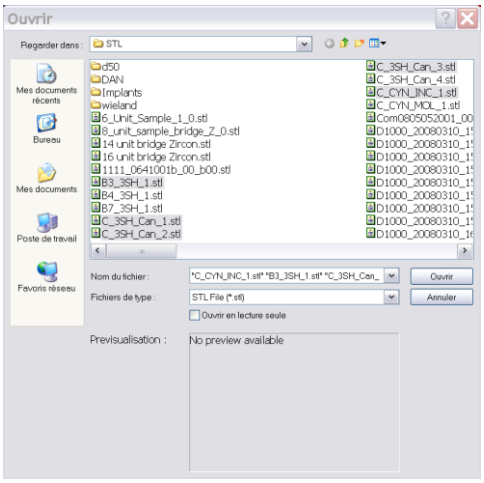
« Save » means save existing block for later preparations

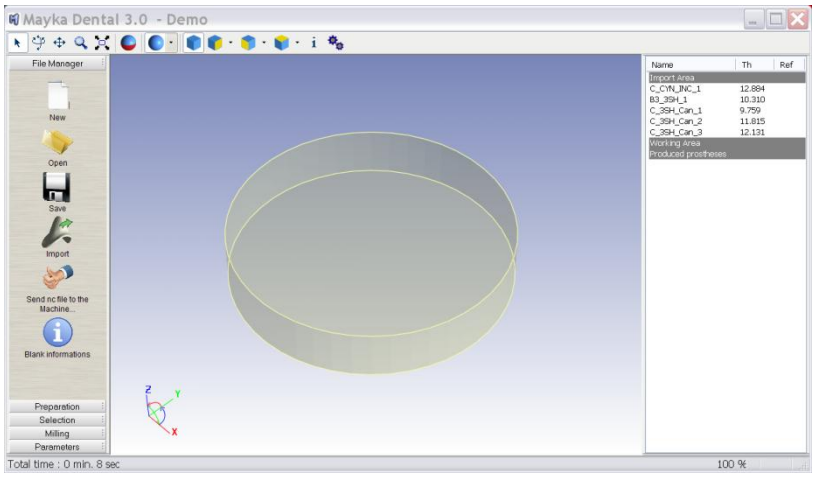


D. Import

« Import » means launch 3D file (STL file mostly) in order to prepare production

In the import dialog box, you can select multiple file to open simultaneously.



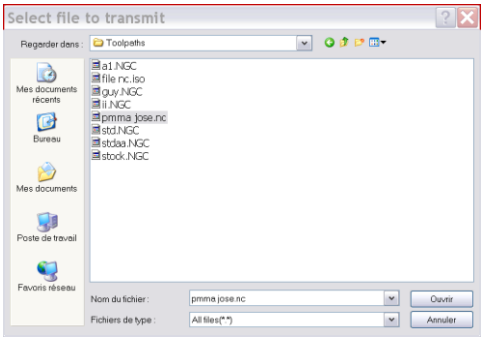


When STL will be imported, they will appear in the right list.

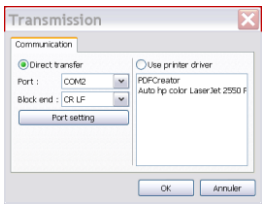
Name	Th	Ref
Import Area		
C_CYN_INC_1	12.884	
B3_3SH_1	10.310	
C_3SH_Can_1	9.759	
C_3SH_Can_2	11.815	
C_3SH_Can_3	12.131	
Working Area		
Produced prostheses		

This list display file name and thickness of each 3D Shape in order to choose the appropriate blank size.

E. Send NC file to the machine



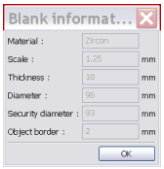
For some specific machine, you can use Mayka dental to transmit file from your computer to you machine. You need first to select the appropriate nc file.



Then you choose the transmission method requested by your machine

Press OK to start transmission.

F. Blank Information



This feature will allow you to recover the file information from an existing blank file:

- Type of material
- Scale factor
- Blank type and size

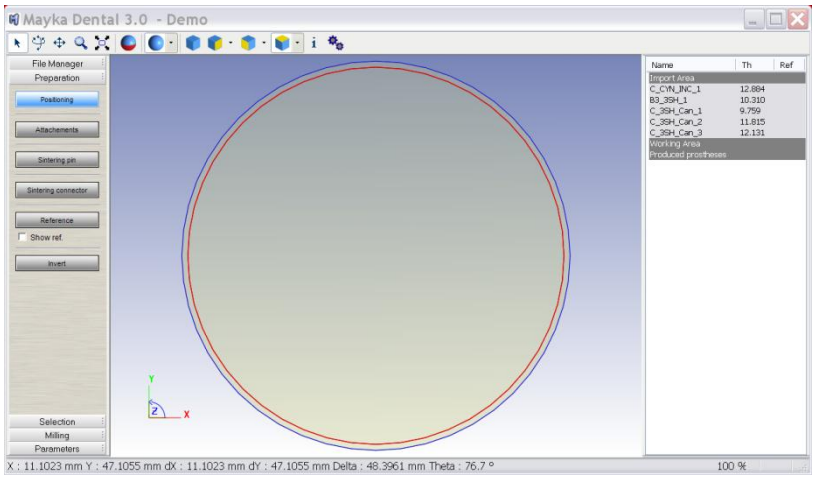
III. Préparation

Preparation mode is the main mode from Mayka dental that will allow you to move and add some geometry in order to produce the shapes.

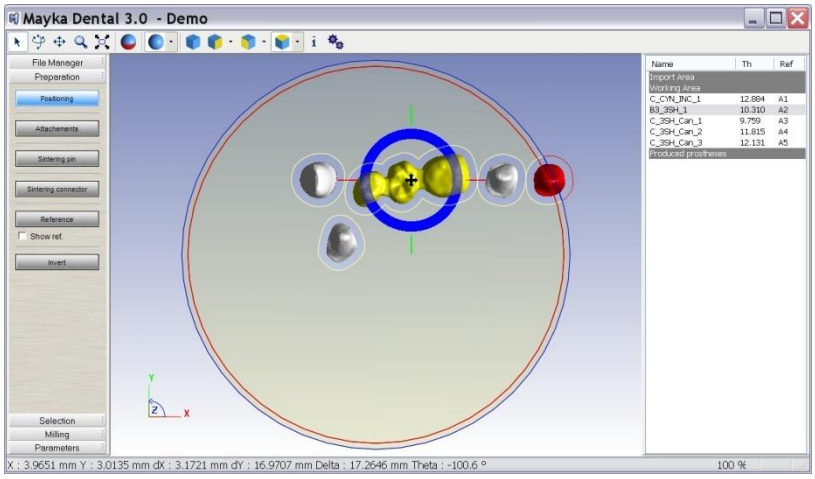
A. Positionning

This feature is used after the import of STL file inside Mayka dental.

Function is available from Preparation Panel.

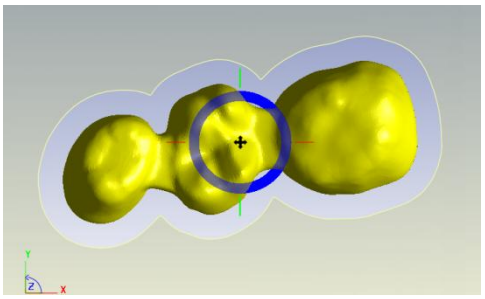


To perform nesting, we must first drag the files from Import Area (Inside the list on the right Panel)



Every file will appear in the 3D view.

3D object can be selected by 2 ways (by picking with mouse in 3D view or in the object list by clicking on the name)

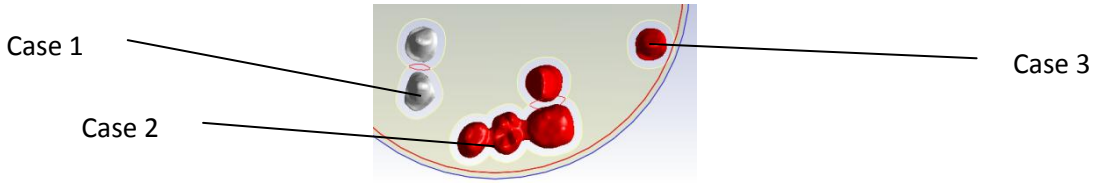


A selected object appears with a specific 3D control that allow :

- XY translation simultaneously (black arrow)
- X translation (red line)
- Y translation (green line)
- Z translation (blue line)
- Rotation around Z axis (blue circle)

COLLISION Information display

During the nesting of the 3D Shapes, curves colors and object color may change to red.

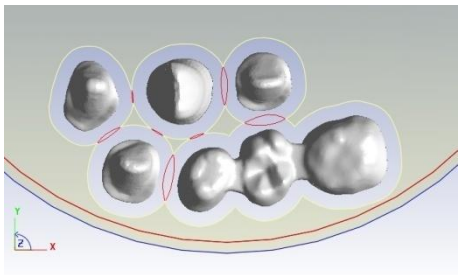


Red color on contour :

There is no vertical wall between 2 crows or bridges (case 1). In this case user must pay attention to attachment position. This way of working will create island and some material should fall during milling. It is the best way to save material.

Red Color on Shape :

This is a **dangerous** situation it must be removed by translation the shapes before milling.



For safety reason some warnings message will inform you before you start tool path computation if collision have been detected or not.

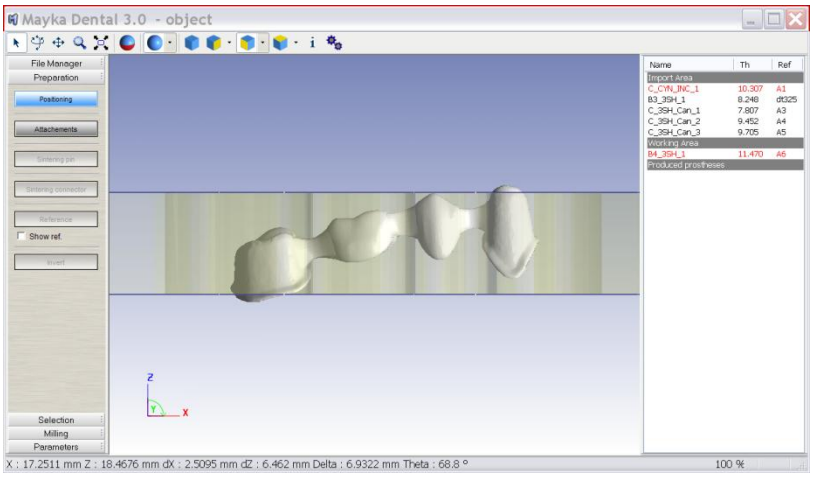
There are 2 possibilities:

- There is not enough space between 2 shapes for the milling (case 2) Shape will be milled partially and finishing tool should break.
- There is not enough space between shape and the bordure of the blank (case 3). In this case tool will break

B. Bridges inclination in a disk

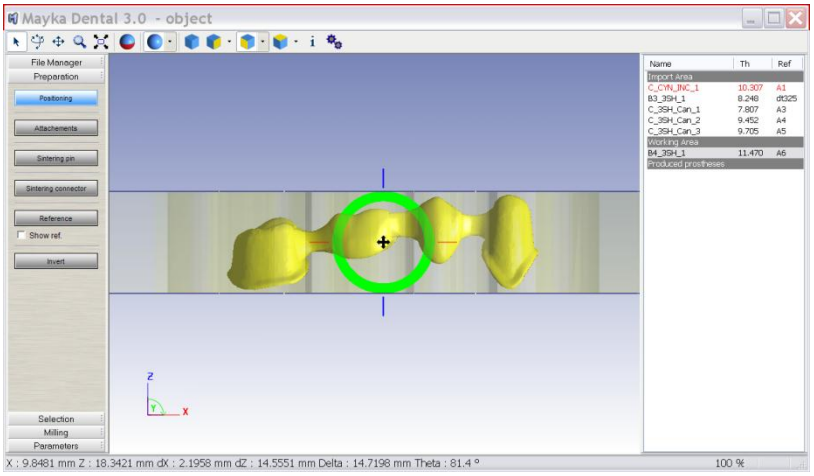
This Function is available from Preparation Panel by choosing positioning feature.

This function is really important in order to save material when milling large bridges.



In this case if construction axis is not interesting for production, we can inclinate a STL in the disk.

Inclination is restricted automatically to machine capabilities considering machine kinematics for 4 or 5 axis with angle limits on each axis.



Now, the shape feet the blank and can be milled properly.

C. Attachement

Attachments are a way to keep a 3D shape attached to the blank during milling process.

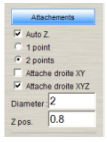
Attachment creation is activated by choosing “Attachments” from Preparation menu.

By choosing Attachment a new interface will appear in left panel with parameters.

There are is 2 kinds of attachments:

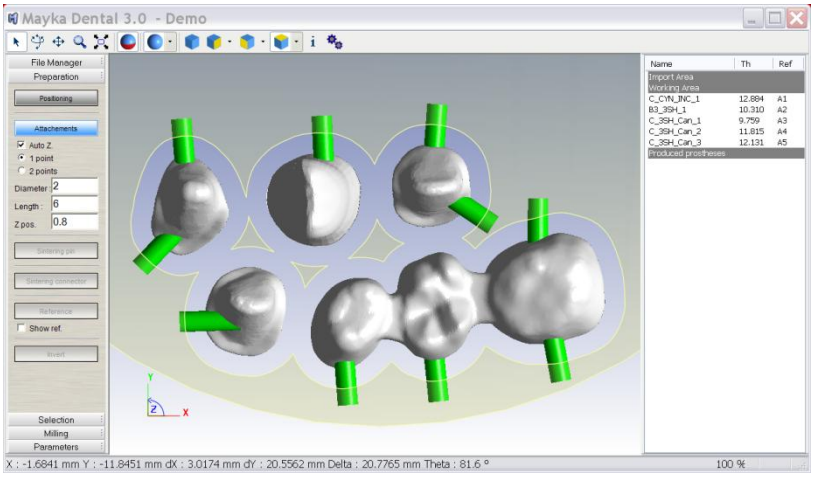
- 1 point attachment (used between shape and blank)
- 2 points attachment (used between 2 shapes)

Parameters for 1 point attachment:

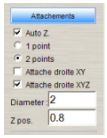


- “Auto Z” : this means that z position of the attachment is computed by Mayka automatically. Attachment is put on the partition line of the shape. If the attachment touch the margin line, then attachment is moved in z above the margin line with a distance of “Zpos”
- Diameter
- Length
- “Z pos “: This parameter is used in conjunction with Auto Z parameter. If the attachment touch the margin line, then attachment is moved in z above the margin line with a distance of “Zpos”

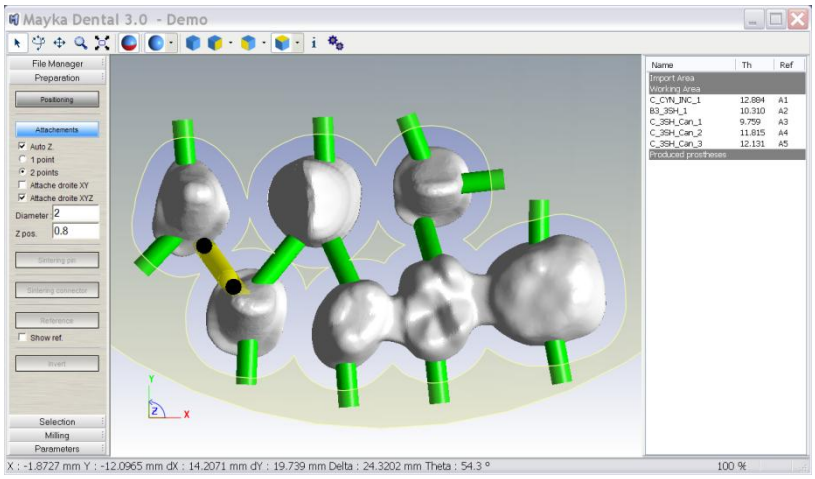
Creation of attachment can be done from the top view by clicking on the shape



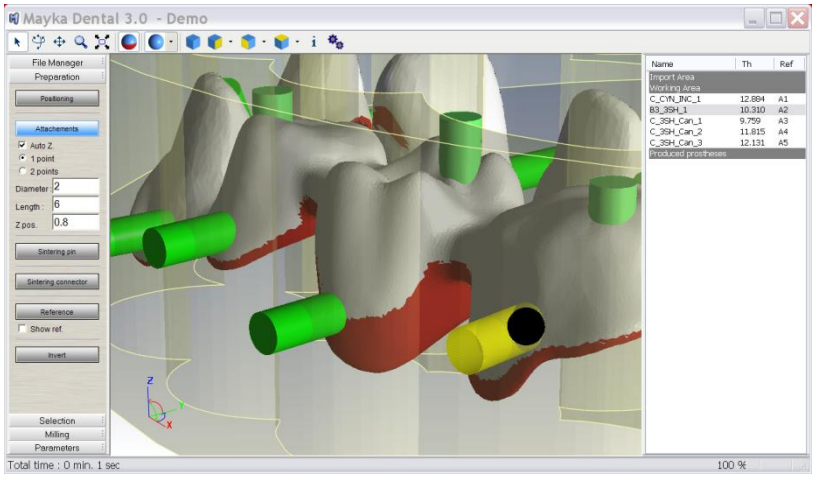
Parameters for 2 points attachments:



- "Auto Z" : this means that z position of the attachment is computed by Mayka automatically. Attachment is put on the partition line of the shape. If the attachment touch the margin line, then attachment is moved in z above the margin line with a distance of "Zpos"
- Diameter
- "Z pos" : This parameter is used in conjunction with Auto Z parameter. If the attachment touch the margin line, then attachment is moved in z above the margin line with a distance of "Zpos"
- Straight attachment XY
- Straight attachment XYZ



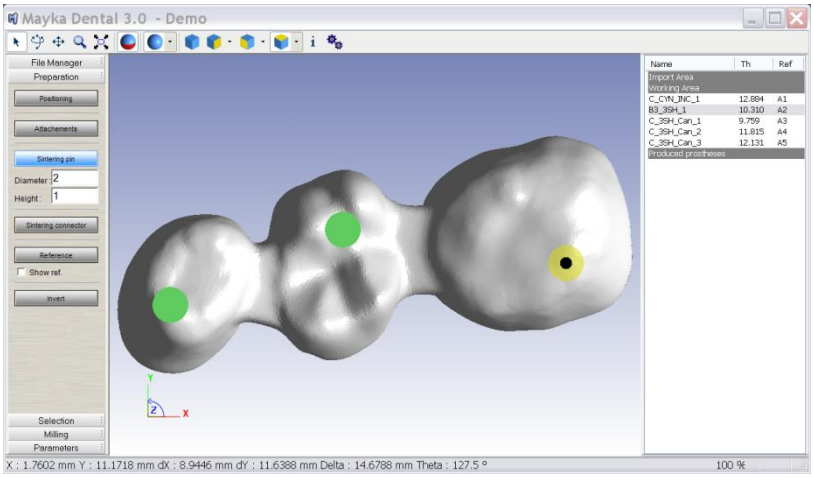
Activation of undercut visualisation



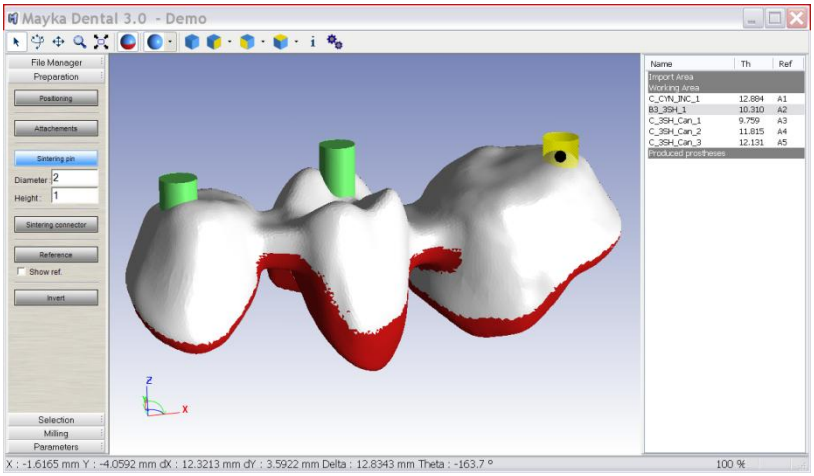
Undercut visualization in red

D. Sintering Pins

Sintering pins are used to complete shapes in with vertical pins. Pins are use to keep bridges horizontal during sintering process in order to prevent distortion of the shape.



User can specify diameter and the height of the cylinder above the shape.

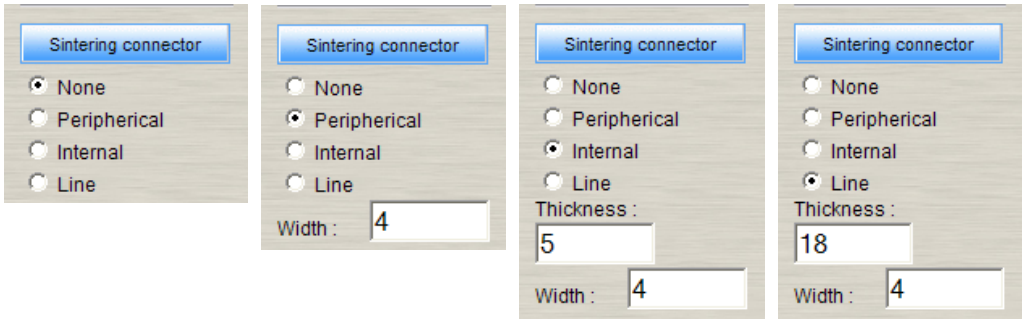


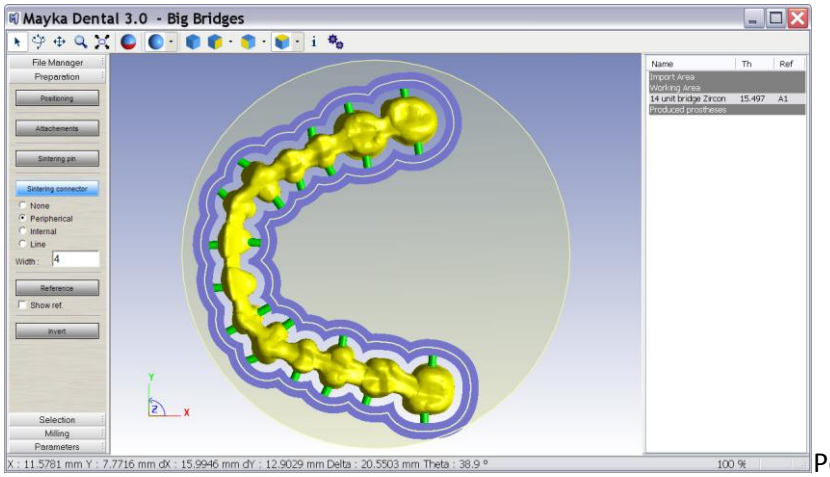
E. Sintering connectors

Sintering connectors are used for Zircon big bridges to prevent distortion during sintering process.

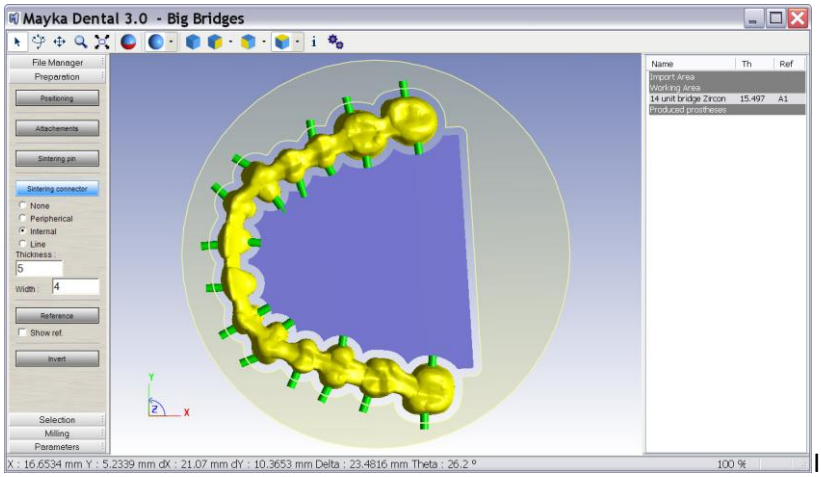
Sintering connectors are extra shapes made by automatically by Mayka on the periphery of the bridges.

User can specify the geometry (peripherical, internal, line) and the size of the edded shape through the interface in the left panel.

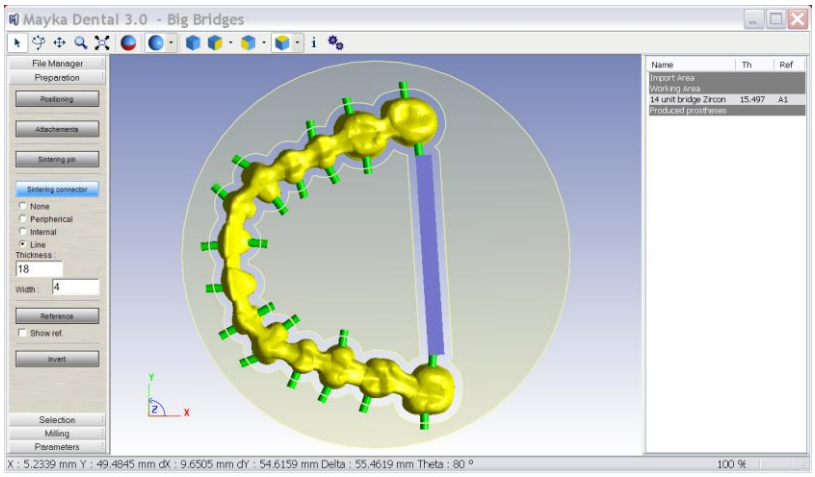




Peripherical connector



Internal connector

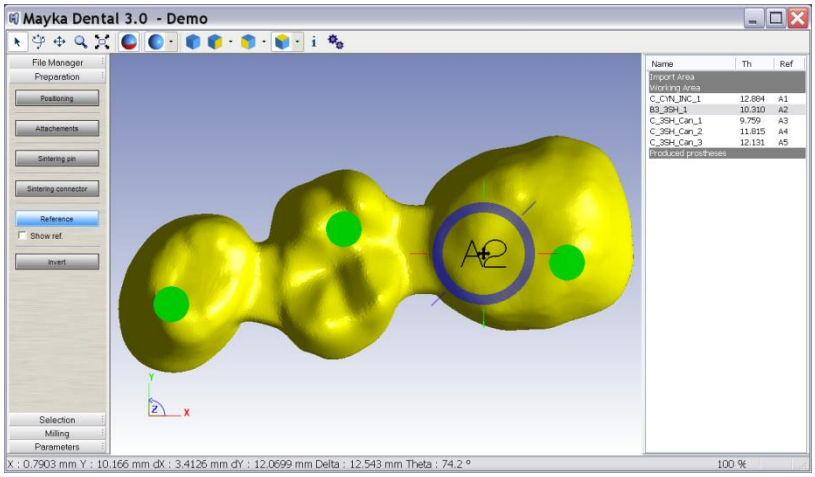


Line connector

F. References

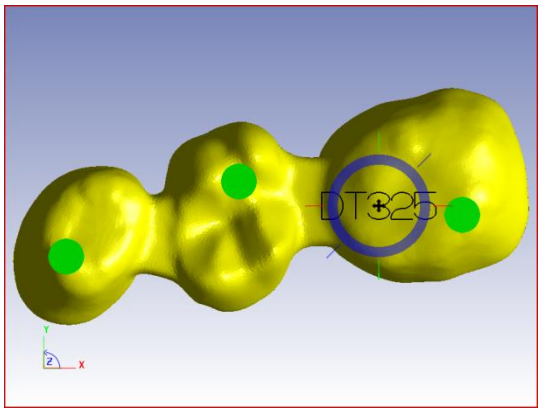
References are letter positioned on the Shape.

This letters wil be engraved on the shape in order to recognized easily shapes after production.



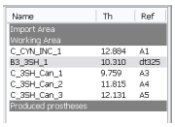
A specific control allows translating, rotating and scaling the references.

- Black cross is used for XY translation
- Red line is used for X translation
- Green line is used for Ytranslation
- Yellow inclinated line is used for scaliong reference
- Blue circle is used for rotation



References are created automatically using letters and numbers.

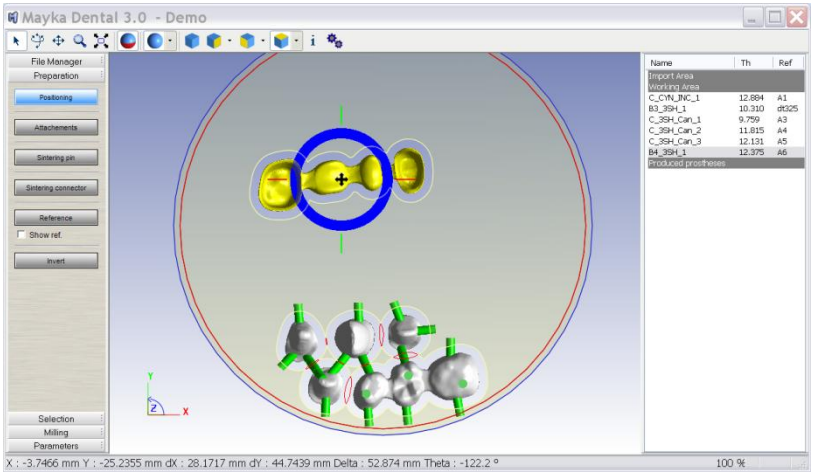
User can modify the text of reference by clicking on the text in the right panel.



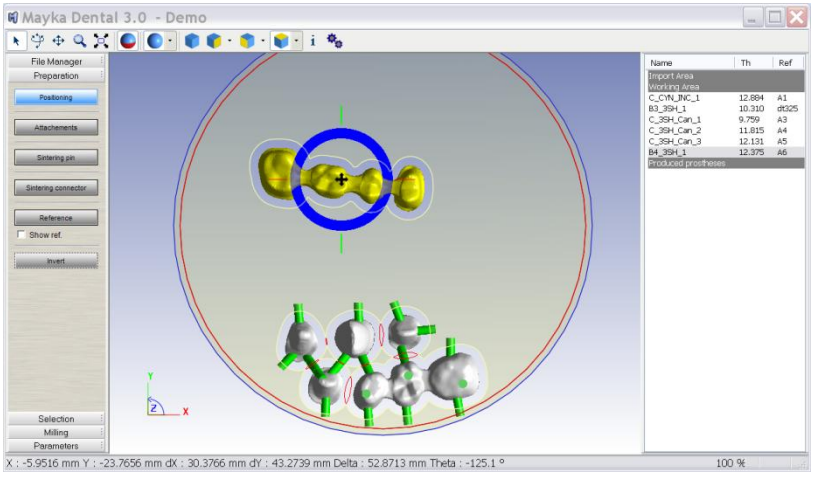
G. Invert

Mayka will always consider that margin line are bottom faced.

In this case if CAD software does not produce STL with this orientation file have to be inverted in Mayka dental



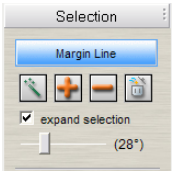
In order to perform shape inversion, Shape must be selected then press invert button.



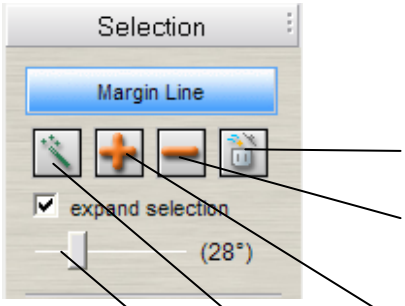
IV. Selection

A. Margin Line

Margin line selection is set of functionalities that will allow selecting margin line.



After margin line recognition, Mayka toolpath computation will allow to choose the accuracy of milling for inside and outside margin line. It will at the end give user a way to produce elements in a shorter time.



Erase selection.

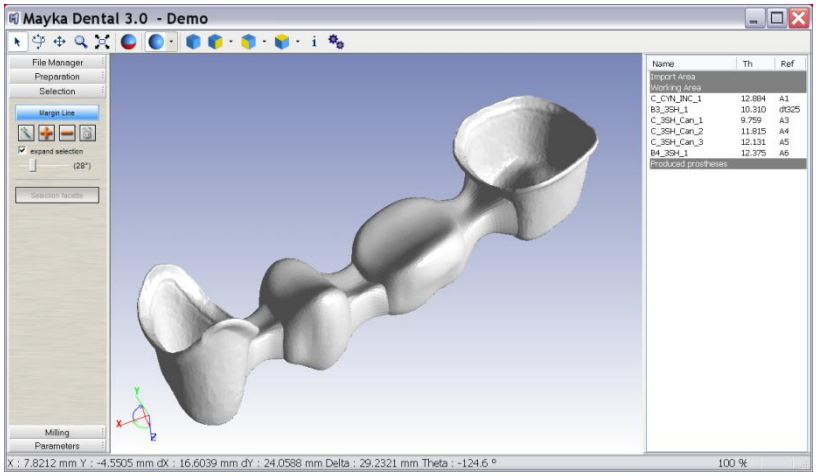
remove curent selection (blue display) from record selection (red display)

Add curent selection (blue display) to record selection (red display)

AUTOMATIC détection of Margin Line

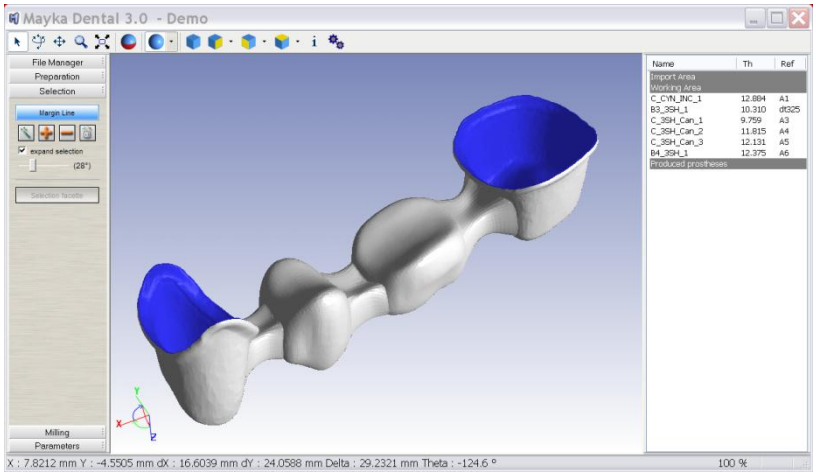
Neighborhood Selection tolerancy

Neighborhood Selection tolerancy define the angle of propagation from mouse picked point during manual selection.



To perform margin line selection, first select a bridge, then press “Margin Line” from Selection Panel

Then press magic wand for automatic detection. If result is ok press “+” button to save selection.



B. Abutments

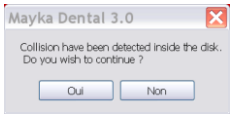
Description coming soon

V. Milling

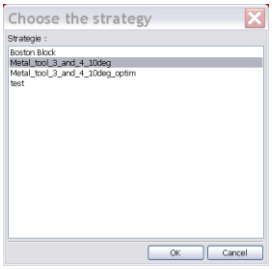
Milling section from left panel allow to compute tool path for the machine tool

A. Produce all

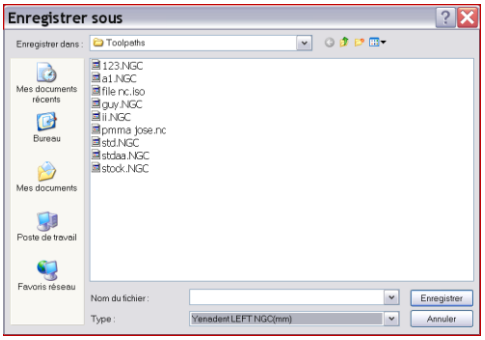
Produce All feature will allow to generate nc file for the full list of shape listed in “Production area” from right panel’s list.



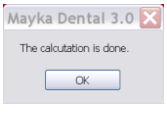
Before starting computation user will be inform of any risk of collision .



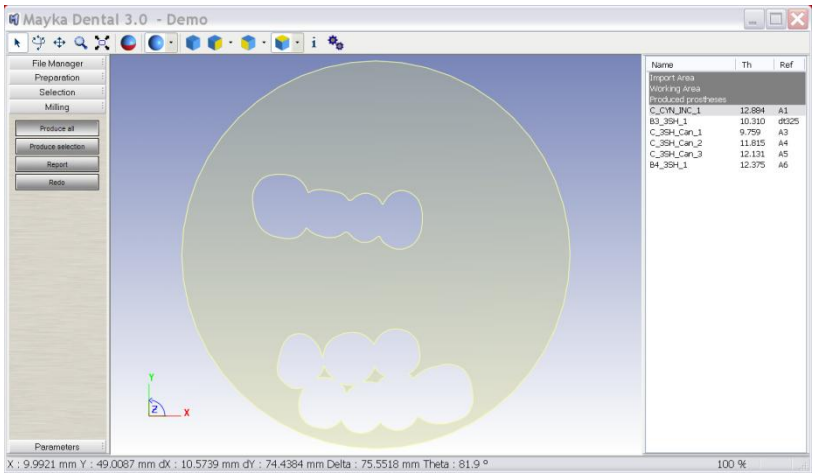
In order to compute the toolpath user will have to choose one of the ready to use template



User will then choose the name of the file to export and the position on the machine (for multiple position machine like dual disk for instance)



A message will inform you when computation is finished.

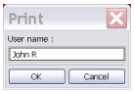


At this time blank file can be save in order to recover later disk state for next production.

B. Produce selection

"Produce Selection" work exactly the same as "produce all". With this feature user can choose the shape he want to produce now

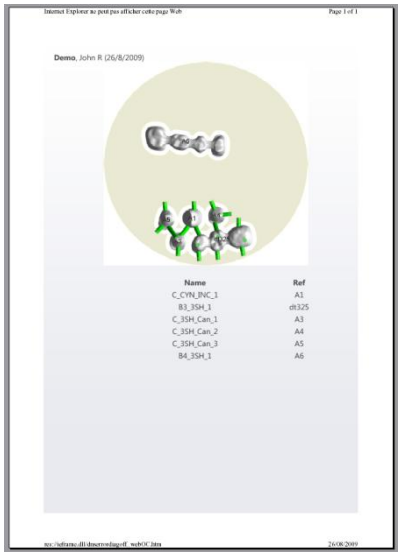
C. Report



In order to create a report, just put user name and print it to you printer or to pdf file.

This document will help you to recover produced parts.

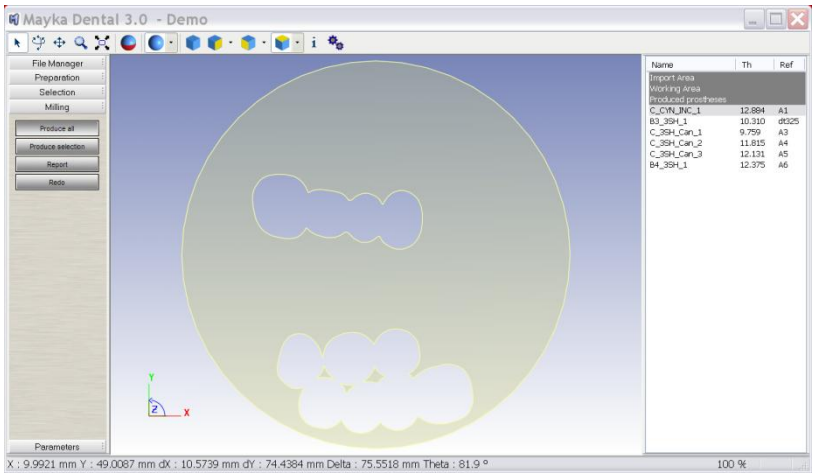
Parts identity is known as references engraved on shapes.



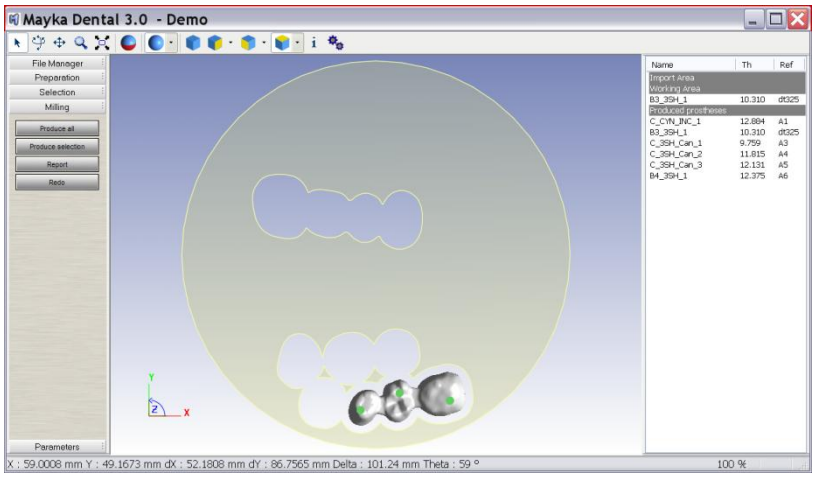
D. Redo

« Redo » function is used to reproduce a shape.

In this case, you can select a shape from produced area (Right Panel) and press redo.



At this time the shape will restored in 3D view and then it will be possible to put it in a blank area for a second production.



VI. Parameters

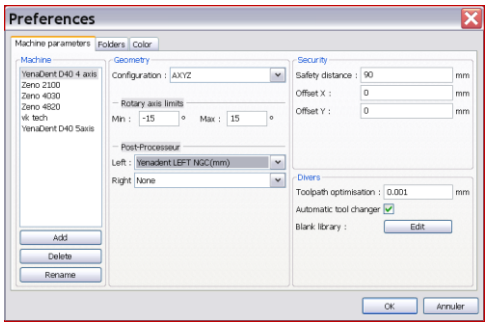
A. Template edition

This function is an option.

This manual will not cover template edition. Template edition describe in Mayka Expert 7 Manual where template is fully describe as milling Methode.

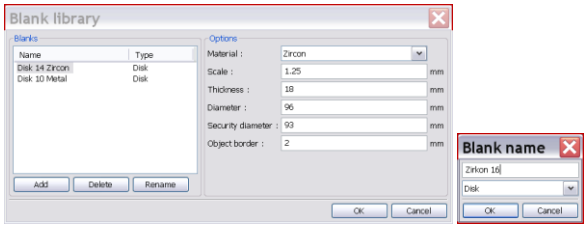
B. Preferences

i. Machine Parameters



- **Configuration :** Kinematics definition of the machine
- **Rotary axis limits :** Minimum and maximum axis rotation
- **PostProcessor :** file format translator to export file for a specific machine
- **Safety distance :** Offset X and Offset Y : define parking position before rotary axis rotation
- **Tool Path optimization :** is the cordal error for exporting toolpath

Blank Library

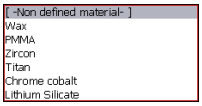


There is 3 kind of blanks (disk, bloc or custom)

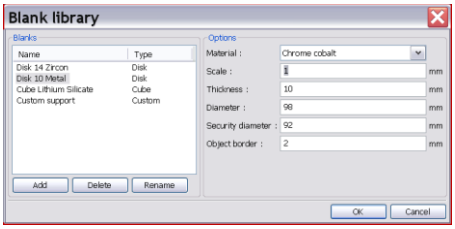
It is possible to add, remove and rename blank from the list

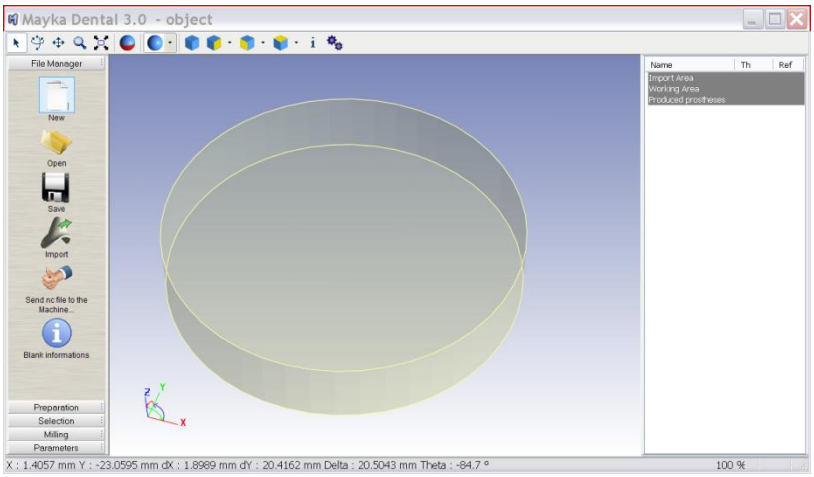
Each blank type have specific parameters :

Disk Blank :

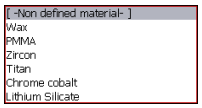
- **Material :** choose from the following list : 

- **Scale :** available anly for zircon (according to shrinking rate)
- **Thickness, diameter :** size of the cylinder
- **Security diameter :** define the inside diameter of the fitting ring
- **Object border :** define the amount of material removed around a shape.

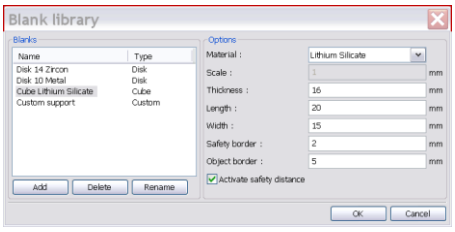


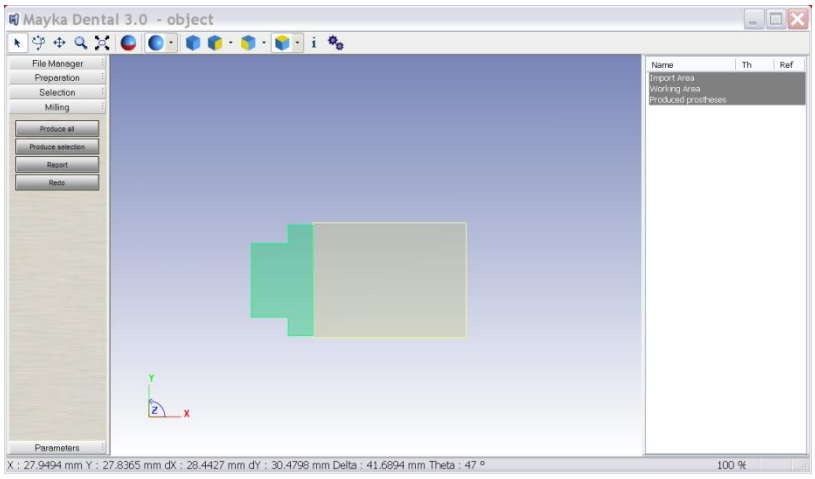


Cube blank

- **Material :** choose from the following list : 

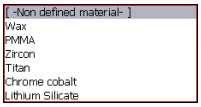
- **Scale :** available anly for zircon (according to shrinking rate)
- **Thickness, length width :** size of the cylinder
- **Safety border:** define the amount of material to keep on the periphery of the cube.
- **Object border:** define the amount of material removed around a shape.



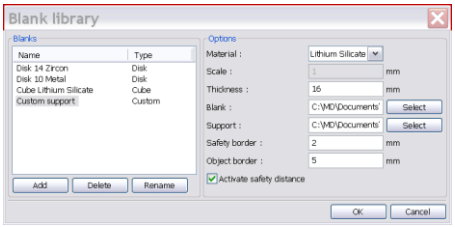


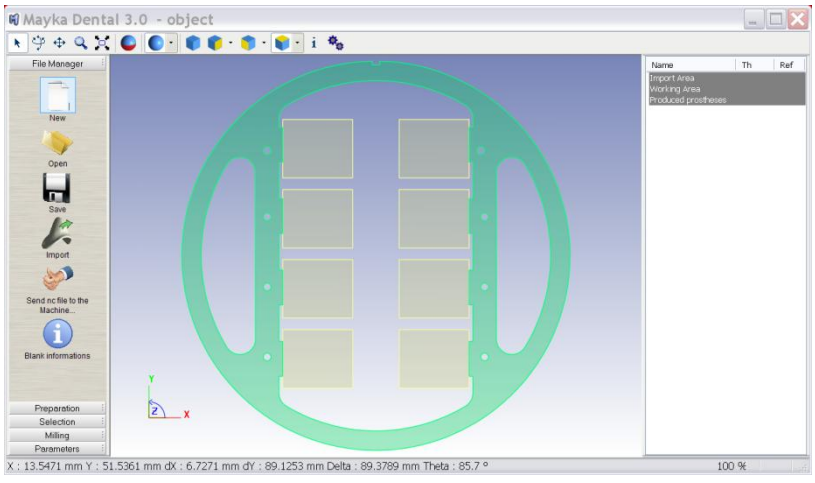
Custom blank :

- **Material :** choose from the following list :

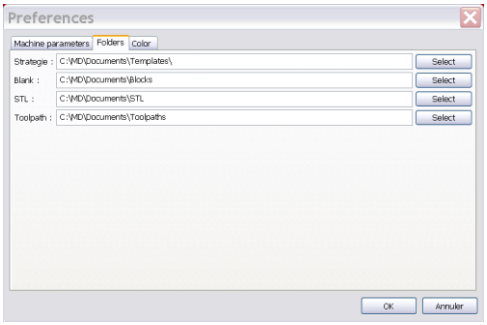


- **Scale :** available anly for zircon (according to shrinking rate)
- **Thickness, length width :** size of the cylinder
- **Safety border:** define the amount of material to keep on the periphery of the cube.
- **Object border:** define the amount of material removed around a shape.





Folders



"Strategy folder" where are stored template milling parameters for any materials

"Blanks" is current working folder for user saved jobs

"STL" is default import folder

"Toolpath" is default export toolpath

ii. Colors