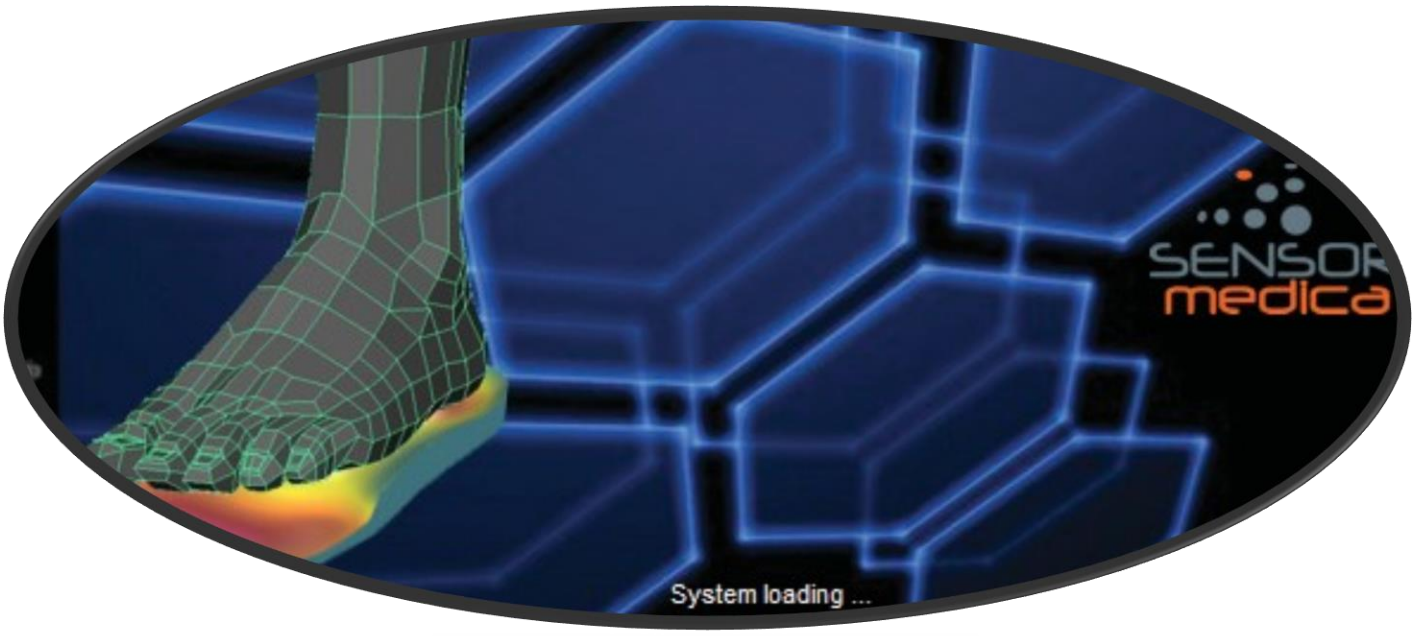


USER MANUAL

English language

EasyCAD Professional and Light

Summary

Introduction

Congratulations on your purchase of EasyCAD!

EasyCAD is an innovative three-dimensional software that offers all the possibilities for designing CAD-CAM orthotics.

EasyCAD is not simply a CAD modelling software, but a complete tool for storing and printing of numerically controlled milling projects.

Furthermore, for the Professional version, there is also a CAM module for post-processing of the projects (see Production)

EasyCAD (Lite and Professional versions) is a program so powerful and complex, but at the same time extremely easy to use.

This manual will guide you step by step through learning the basics of Easy CAD orthotic design.

Installing Easy CAD

Installing the program

Click on the Next button, which will give important information about the program.

Click the Next button again. This opens a dialogue box where you can specify the installation path. Again, press "Next" to store your path selection. If something is wrong, simply press "Back" to return to the de- sired installation program and make your correction.

By pressing "Next" you will run the installation. Depending on the speed of the system, this may take a few minutes.

At the end of the installation you must restart the computer. You can then launch the program directly from EasyCAD.

Compatibility

EasyCAD is compatible with most video cards that support OpenGL 3D technology.

In some cases, however, it has found that some integrated video cards are not able to properly handle the 3D graphical environment of the program.

In most cases the problem can be solved by going into Advanced Settings for the video card, then change the Hardware Acceleration back to it's default setting.

System Requirements

Operating system: Windows 7 Professional or later
Processor: Intel i5
RAM: 4Gb or higher
Hard drive: 5Gb of free space
Video card: 512MB RAM or higher with minimum resolution of 1024x768
Printer: Inkjet or laser, monochrome or colour
Baropodometric systems supported:

- Sensor Medica 4040, 6050, 8040 16040, 24040, 32040 and Run Time
- Medicapteurs S-Plate, Win-Pod and Win-Track
- RS-Scan Tekscan
- Others on enquiry

Before running the software

When you first run the program, both for the Light and Professional version, you must enter the activation code license to use the product.

To obtain a valid EasyCAD license, please contact helpdesk@sensormedica.com. After entering the activation code click on OK button.
We recommend that you write down the activation code and store it in a safe place, as the code will need to be reused on the same computer if ever you need to format the hard drive or reinstall the product. On subsequent executions of the program you will no longer need to enter the activation code.

To see which updates are available for the software, note also the version number shown on the panel on the left.

Application Setup

Before you start using the software, it is essential to correctly set the parameters for the application. – Settings (menu item) - Setup application can access the Setup procedure.

Data centre

Enter your details in the spaces provided. The information will be used both in the print sheet project and when the project is sent to the remote milling production centre.

Software settings

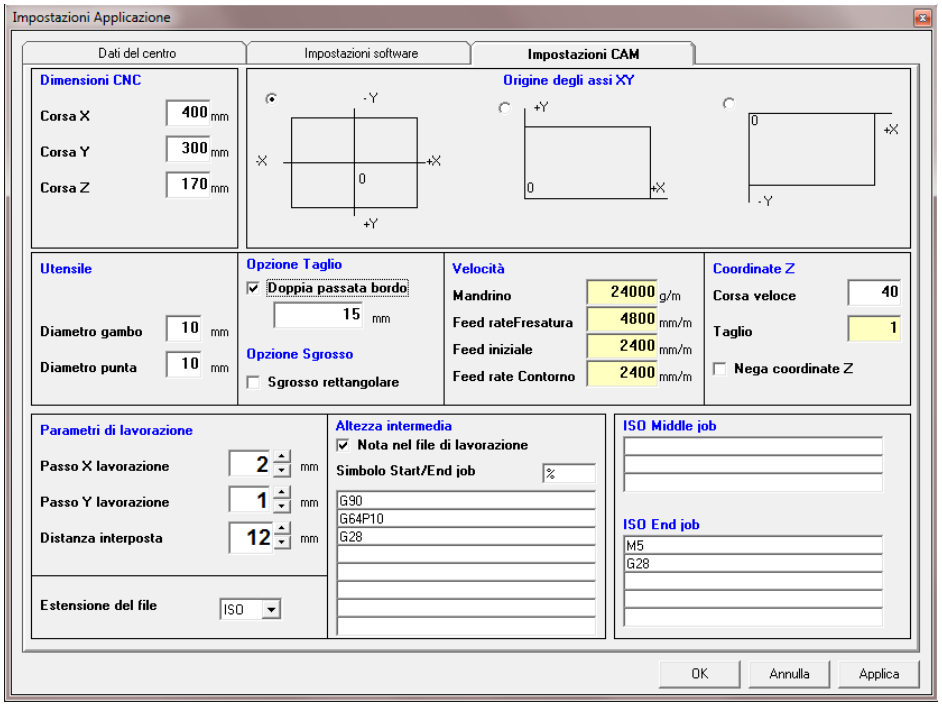
In the submenu of software settings you can select the language of the software, as well as the unit of measurement (metric or imperial).

CAM settings

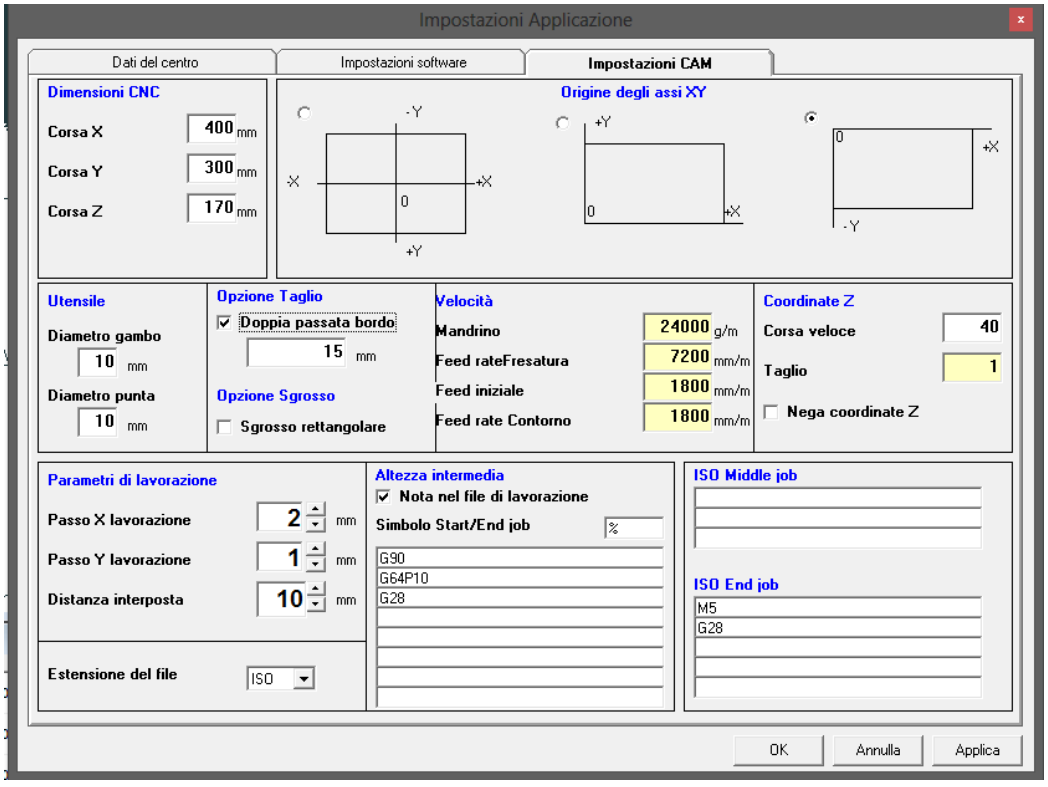
For those who have purchased a CNC Milling machine with the USBCNC program, it will be necessary to configure the parameters in this submenu for proper production of orthotics.

In particular, to obtain accurate and reliable work, you must correctly set the parameters for the tool shank diameter and the diameter of the tool tip. To obtain information about these parameters refer to the manual of the CNC milling machine and its configuration.

Parameters for Milling Machine Vulcan model Vx1



Parameters for Milling Machine for Vulcan model TwinCAM



Guide to using EasyCAD

Quick menu bar

The menu bar below shows you the fastest way to access the basic commands of the program.

From left to right, the respective symbols represent the following commands:

New Project: Creating a new project in a single document mode (see following paragraphs).
Archive: Archive access of patients and projects.
Open: Open a previously saved project, or as a document received from a remote centre (see section remote centers).
Save: Saving a project in development.
Print Preview: Print Preview of the project under development.
Print: Print the project in development.
Copy: Copies the selected data to the clipboard.
Cut: Cuts the selected data to the clipboard.
Paste: pastes the data previously saved to the clipboard.

View Plan: the three-dimensional representation enables or disables the display of the zero plane of reference.
View Edge: the three-dimensional representation enables or disables the display of the edge of the foot.
Left foot: Go to the left foot to allow for the design.
Right foot: Go to the right foot to allow for the design.
Produce: Relevant to the Professional version only, converts the file to a type that is compatible with the CNC Milling Machine.
Exit: Closes the program EasyCAD

The main menù

The main menu is all the functions available in the software itself. The menu is structured and divided into themes for ease of use even for less experienced users.

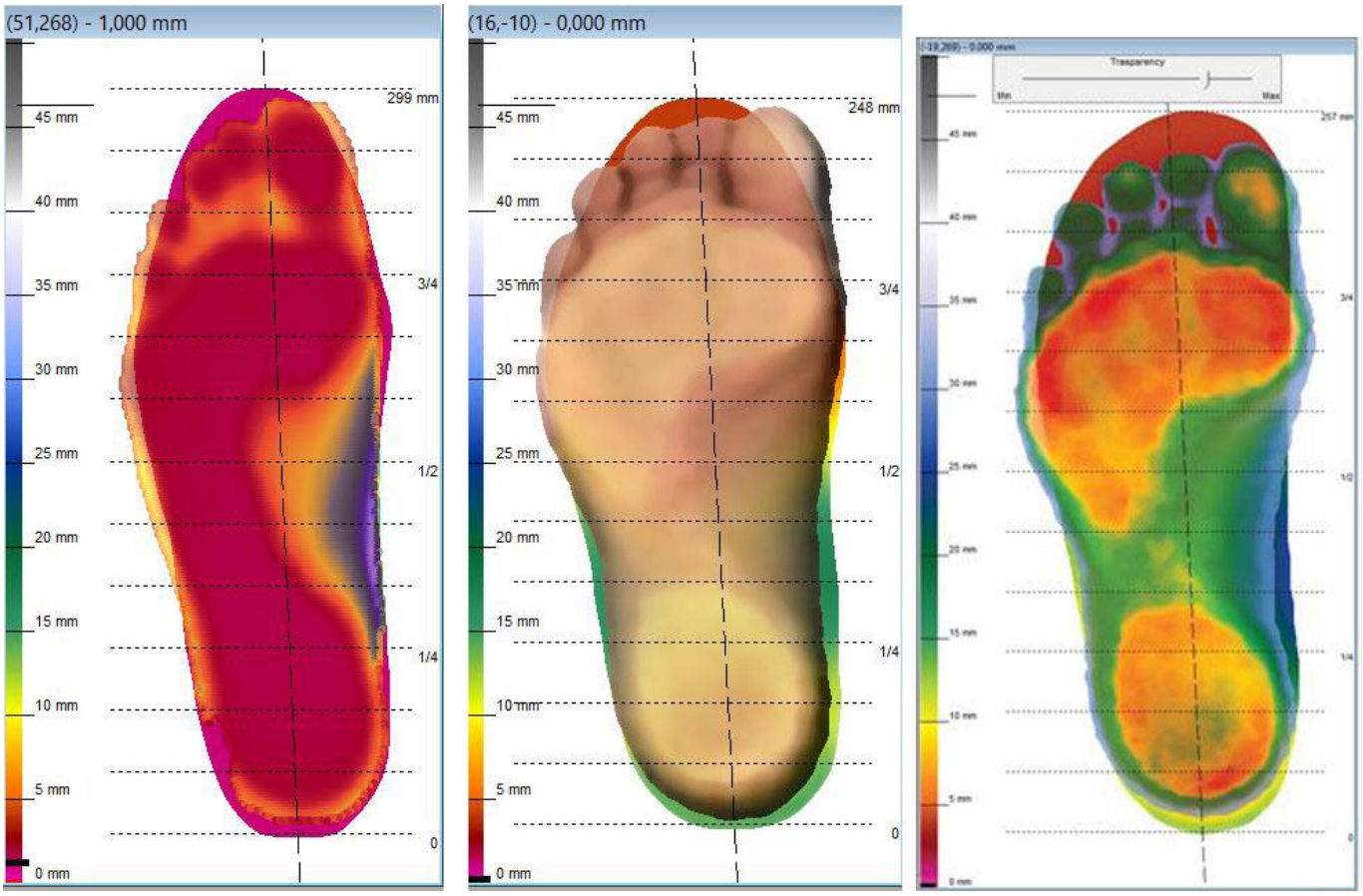
For example, the FILE menu and all its entries, collects all the functions of opening, saving, exporting and printing projects, including access to the archive.
The menu can be activated from the keyboard using the Alt key.
Some menus, when invoked, may refer to options on the toolbar. In these cases the panel will turn on automatically.
For example, in the main menu under the menu item "Tools" - EasyCAD self-modelling, the panel on the right of the screen will display pallet options with its configuration parameters.

The tollbar

The toolbar, located to the right of the screen contains all the commands related to the design of computerized orthotics.
Every single item in the toolbox gathers information, options and tools for designing computer-foot orthotics.

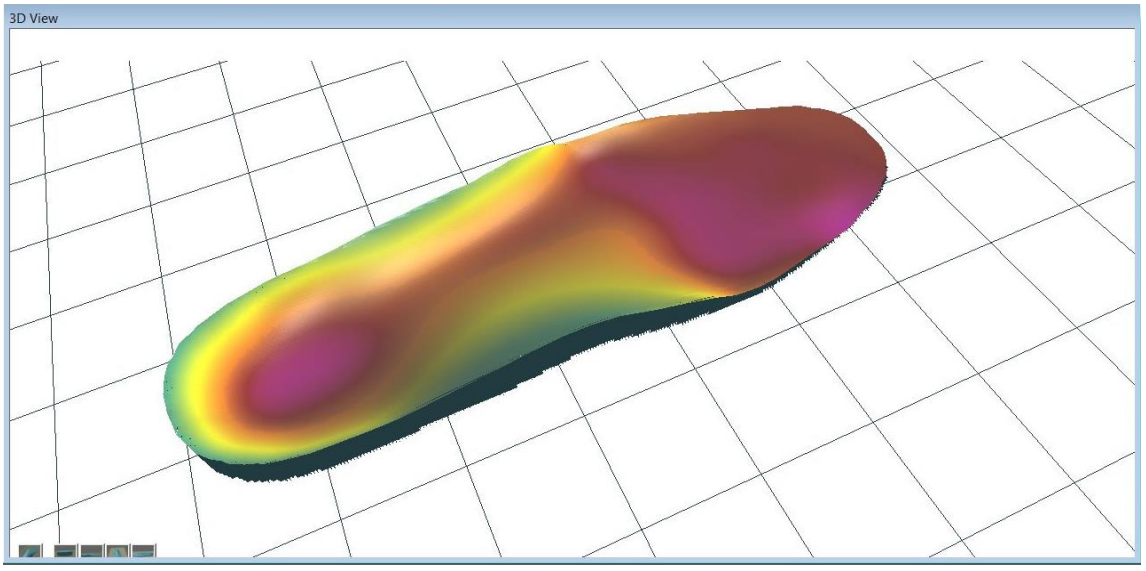
2D View

The 2D view allows you to see the images of the acquired examination superimposed on foot and you can adjust the transparency thanks to the scroll bar.



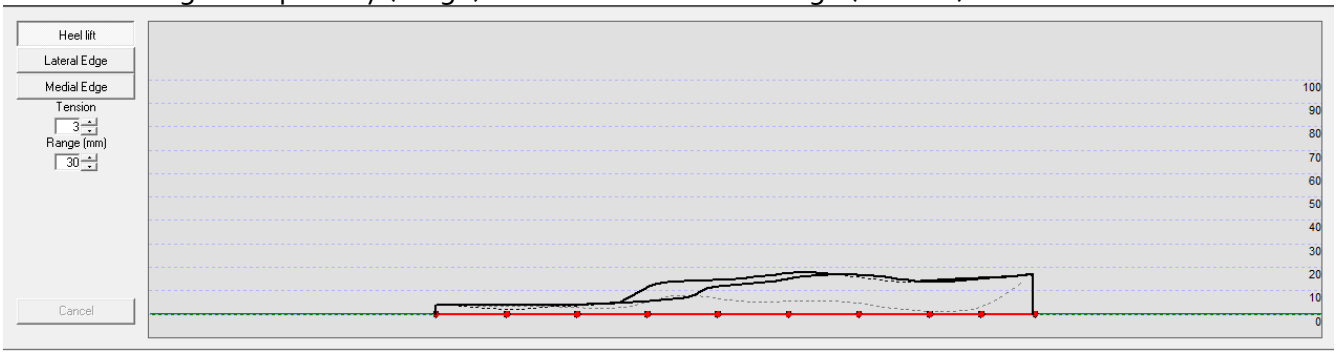
3D View

In the 3D view, you can see the foot-3dimensionally, the changes made in the 2D view will be displayed in real time in the 3D View. Thanks to the right and the left mouse button you can rotate on all axes.
Double click on the mouse displays the 3D full-screen, a second double click brings 3D to standard view.



View parallel to the plane

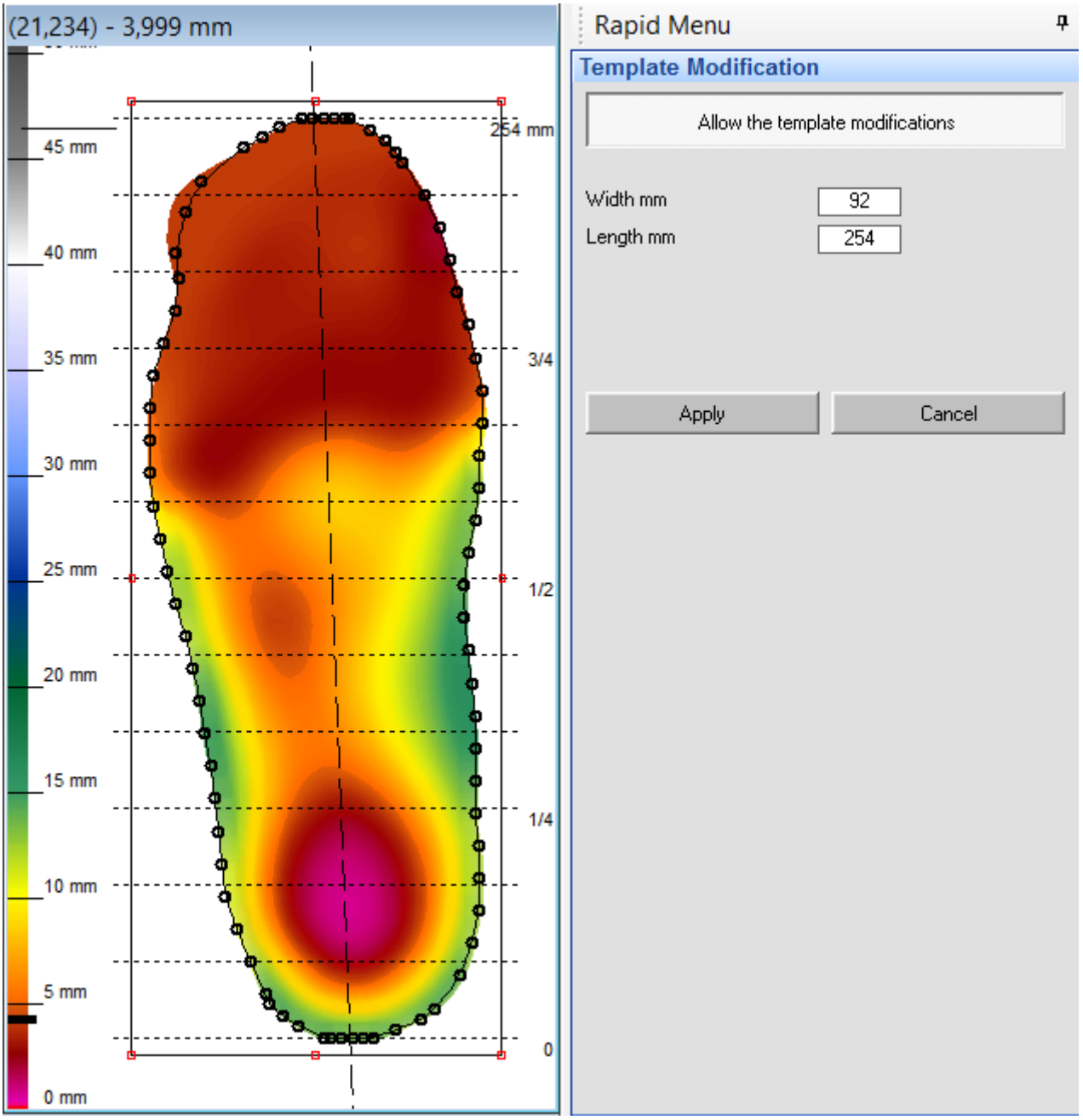
In the View parallel to the plane, new control points allow the dynamic modification of the medial and lateral edge and Hell lift.
You can change the quantity (range) and the' amount of change (tension).



Now you can press the F4 key to change the 'height of each surface point or entire areas

Orthotic Template Adjustment

With the new management menu template you can edit the template directly from the 2D view
The change can be point to point
And it's possible to deform length and width by moving the points of the bounding box automatically.

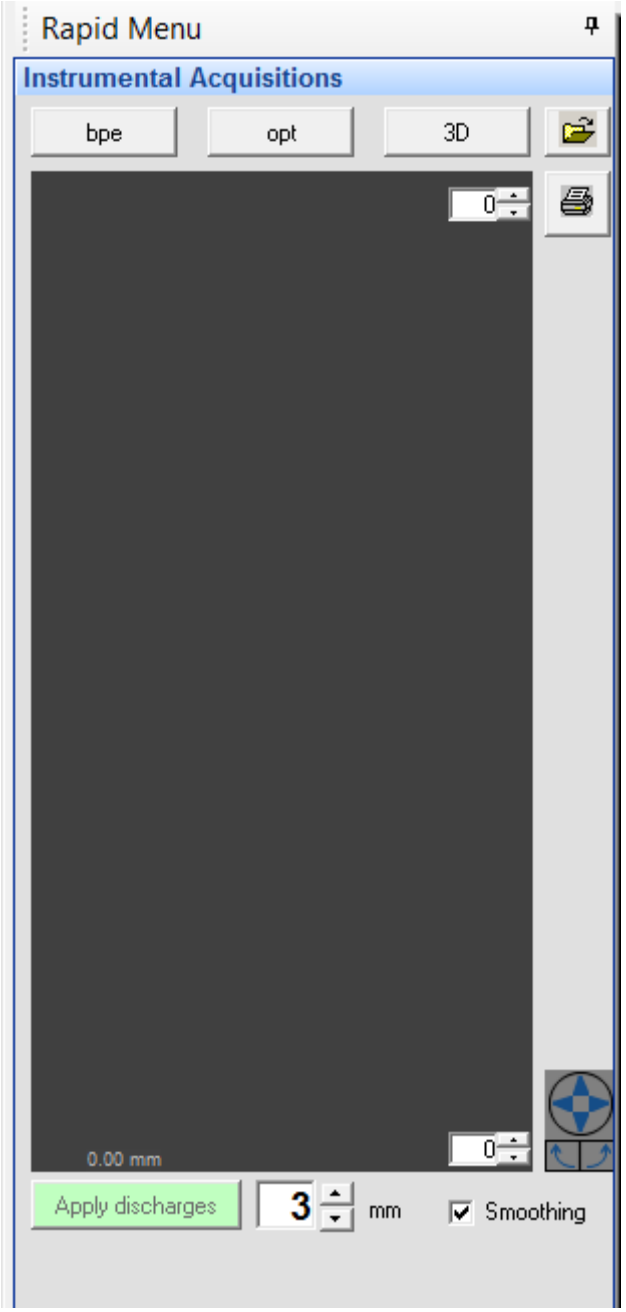


Sub menu items under tools

General information

General information shows a collected summary of the project including the style of model template; the measure selected; the gender (man or woman) when provided; the material you want the orthotic milled on; the finish (coating) of the product; a text list of actions performed for the design of both the left and right foot.

In this section, during the design of the orthotic, you can change the material and finish using the appropriate drop- down menu.



If you want to use materials or finishes not listed, you can click through the [...] to activate the archive of materials and finishes and include new ones (only if supported by the milling centre, or for your records to cover yourself).

Instrumental Acquisition

You can import tests from baropodometric platforms or photoelectric (optical scanners) of the most popular manufacturers in the world.

After selecting the Open folder, choose the Pressure/3D file you wish to import .

Adding STL 3D image

Step 1 : Click Instrument Acquisition in the Tools pallet Step 2 : Click "Open" icon at the bottom of the window Step 3 : Click "Import" button

Step 4 : Select 3D Survey

Step 5 : Change drop down to STL

File Step 6 : Click "Open" icon under

file. Step 7 : Select the Left Foot

Icon
Step 8 : Click the open file icon

Step 9 : Navigate to the file and select the STL file you want to open

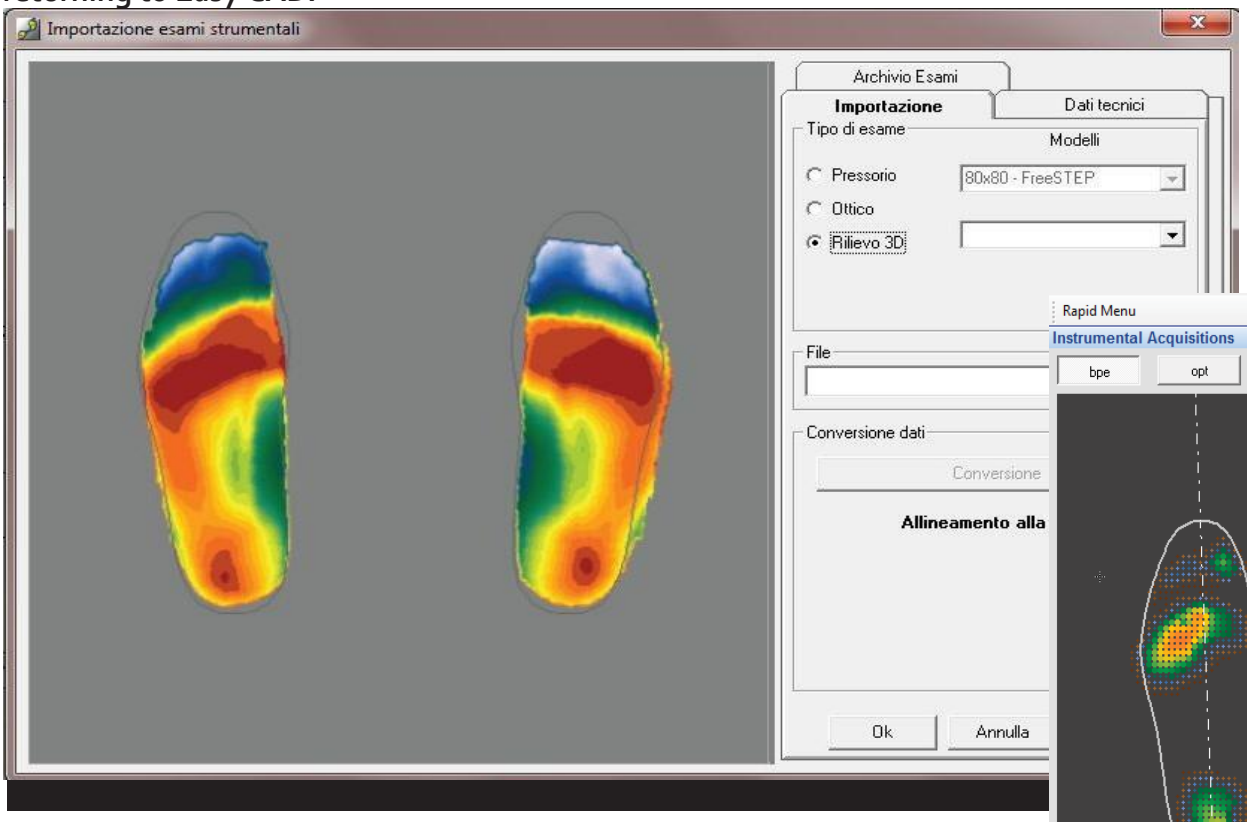
Step 10 : Choose 90 Rotation anti clockwise

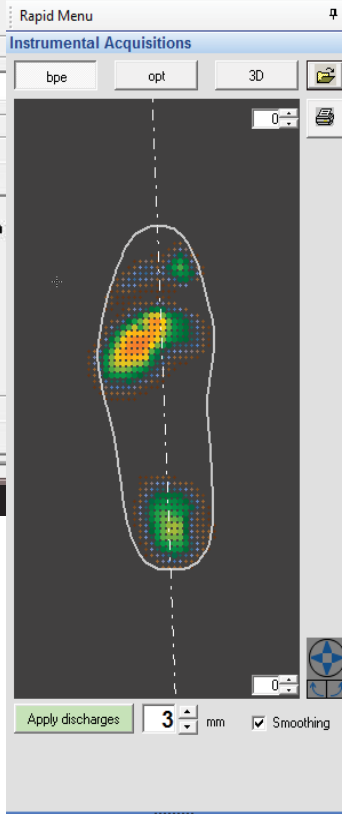
Step 11 : Choose Flip 'Y' Axis
Step 12 : Click on "Modify 3D File" menu item

Step 13 : Click the right foot icon

Step 14 : repeat steps 8 to 12 to import the right foot STL

NB - you can use the Cut tool and Fill surface tool in the STL editor to clean up the image before returning to Easy CAD.





Step 15 : When you have imported and checked both 3D scans click "Save"

button to return to Easy CAD.

Step 16 : Reposition the foot on the template, then remove tick for smoothing and APPLY

Step : 17 : When you are happy with the position of both scans click APPLY

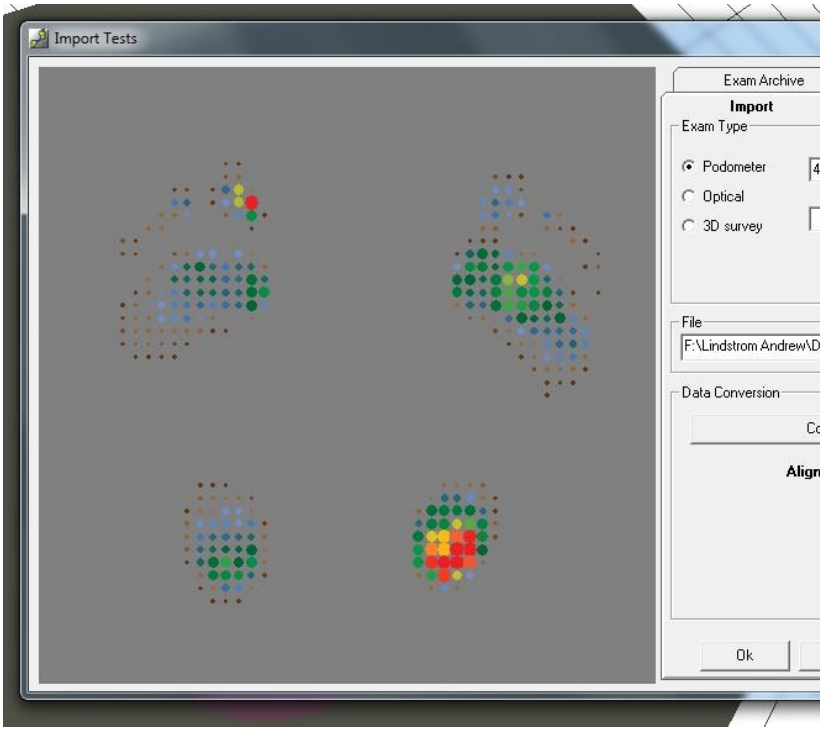
YOU CAN TOGGLE BETWEEN YOUR PLATE'S DATA AND 3D SCANNER BY CLICKING ON THE "bpe" AND 3D BUTTONS ON THE RIGHT OF THE TOOLS PALLET

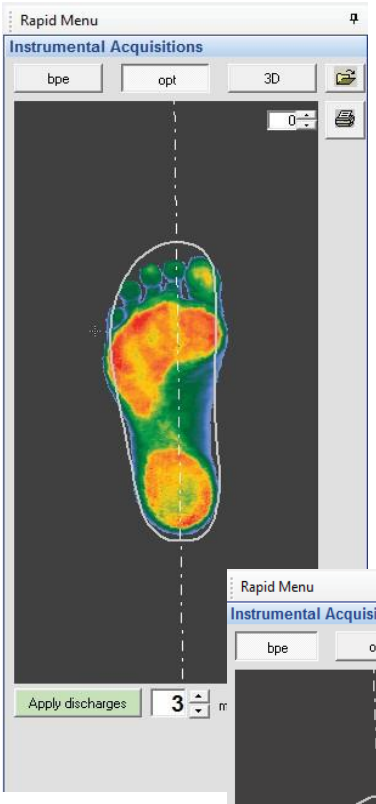
NOTE: if at any stage 3D appears blue, click "display" and select 3D color.

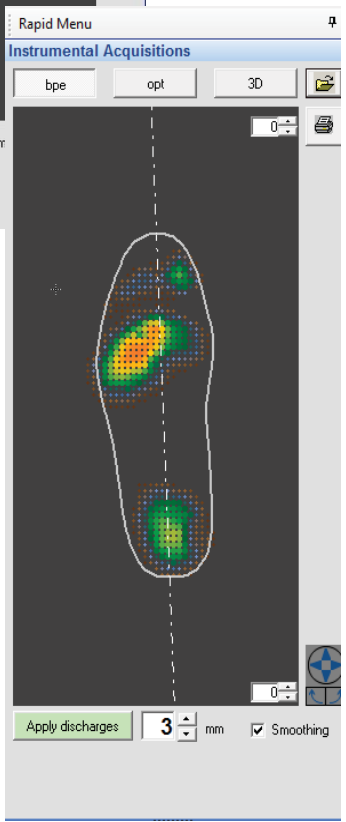
You want the 3D image to be positioned as above (ie not flush with the heel of the template line, but the arch flush with the template border). At the end of the alignment, click Apply to confirm the import or OK to confirm and return to the main orthotic design.

When applying this image, it is recommended that you deselect smoothing (not as shown in image), and only smooth the plantar surface at the end of the project.

Adding Biomechanical Plate Data







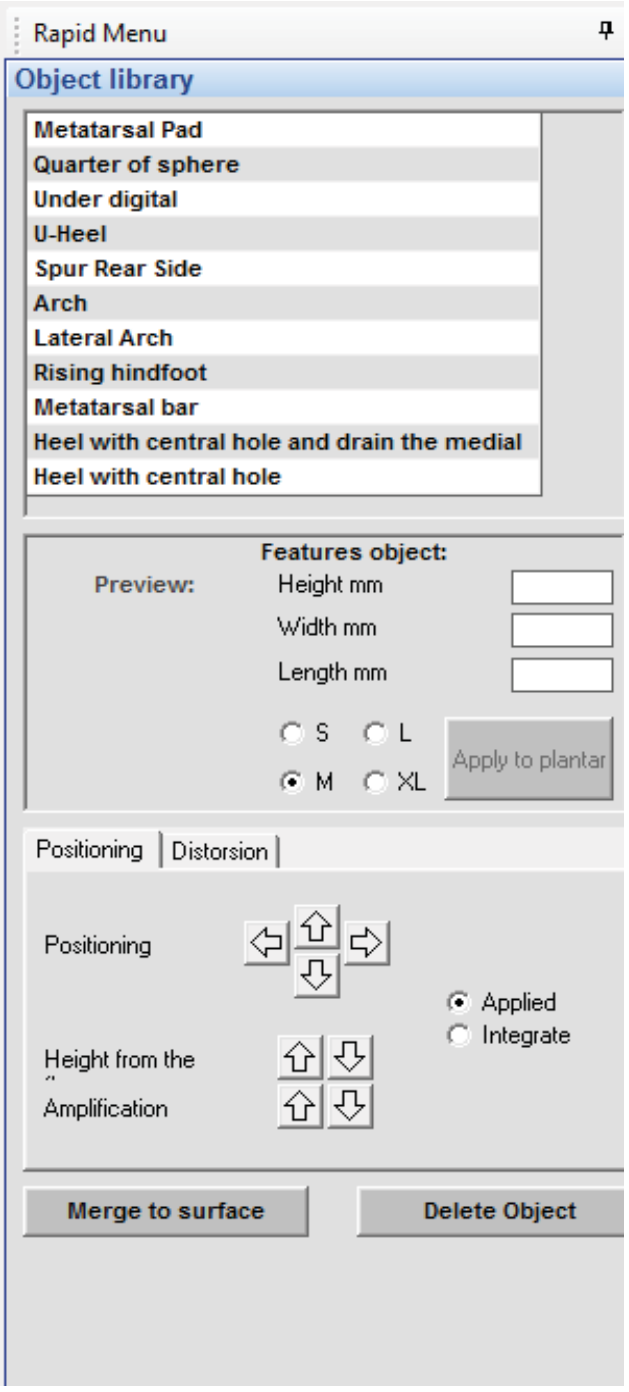
Step 1 : Click "open" under the Tools pallet and go to Instrumental Acquisition.
Step 2 : Click "Import" tab
Step 3 : Select Podometer and make sure the drop down is YOUR PLATE ie WinPod, Win Track or RS Scan, etc
Step 4 : Click "Open" icon under file
Step 5 : Select the file you want to import - double click on it.
Step 6 : Press conversion button

Step 7 : Reposition your Left and Right scans on the templates. Step 8 : Click apply to add the data to your tools pallet.
If the baropodometric pressure platform in your possession is not among those listed in the system, through the appropriate Technical Data panel you can set

custom parameters to perform the data import. For more information on the platform, the structure of the files containing the test pressure in your possession, please contact the manufacturer.

For each project you can import a plantar pressure test and a 3D test at the same time.

Object library



Object Libraries lists options for the integration of classical objects arranged mainly used for the production of orthotics.

To apply an object to the current project select the object from the list. In the preview pane a photograph of the object will display, click on Apply to place the insole on the scene (box 2D and 3D).

Each object is available in 4 different sizes, Small, Medium, Large and Extra Large, select the one best suited to the project under development.

In the Positioning Tab, adjust the position, height from floor and amplification of the shape.

As an alternative to the Positioning arrows, you can drag the object with the mouse (on the 2D image) and drop.

For proper positioning it is recommended to use the ruler available reference from the main menu, under the heading View - Ruler of reference.

At the end of the positioning click Merge to Surface to complete the process and then continue with the other changes.

Self Modeling EasyCAD

The revolutionary self-modeling EasyCAD, through personalization and the combination of parameters available, combined with the most appropriate templates, allow you to create a base plantar ideal for the project you want to accomplish.

Easy-Cad is unique in offering a self-modeling system with the ability to create a virtually infinite resource base foot.

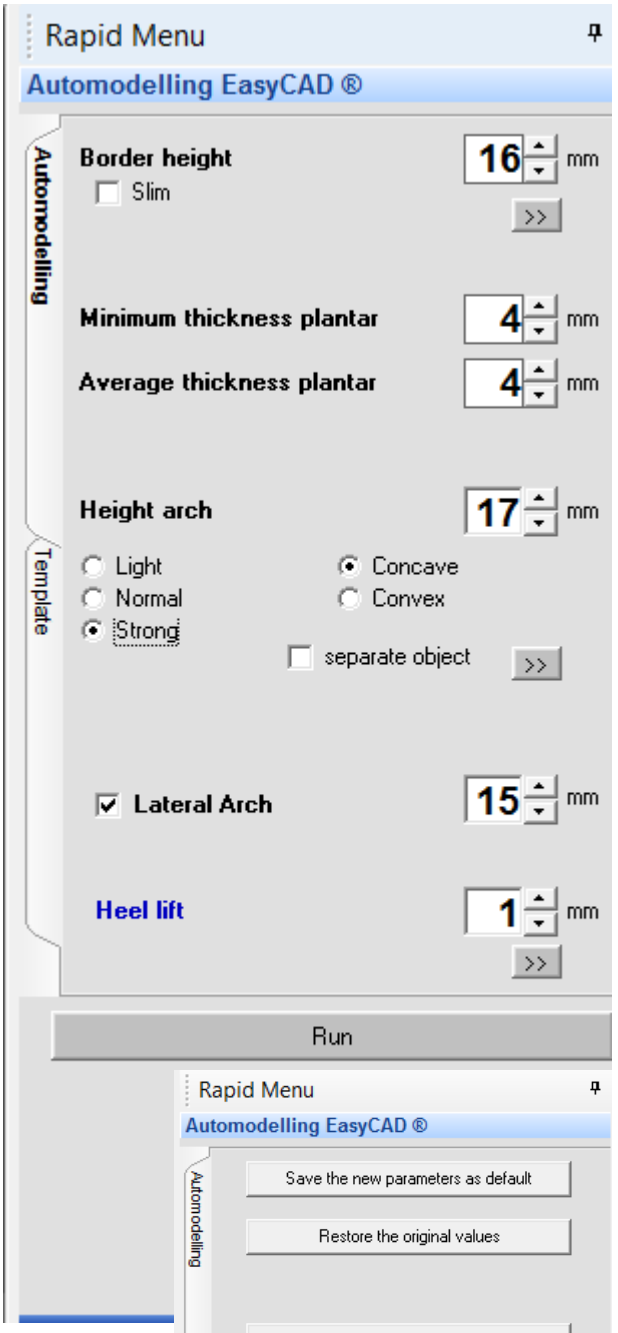
In addition, by applying a sophisticated mathematical algorithm to imported tests (pressure or optical) the model created is able to fit the geometry of the patient's foot. If you have imported the Pressure map, it will ask if you would like the settings you put here to work in conjunction with the shape of the foot as shown in the pressure map. By doing this, you will be able to generate a template with the arch shaped accurately.

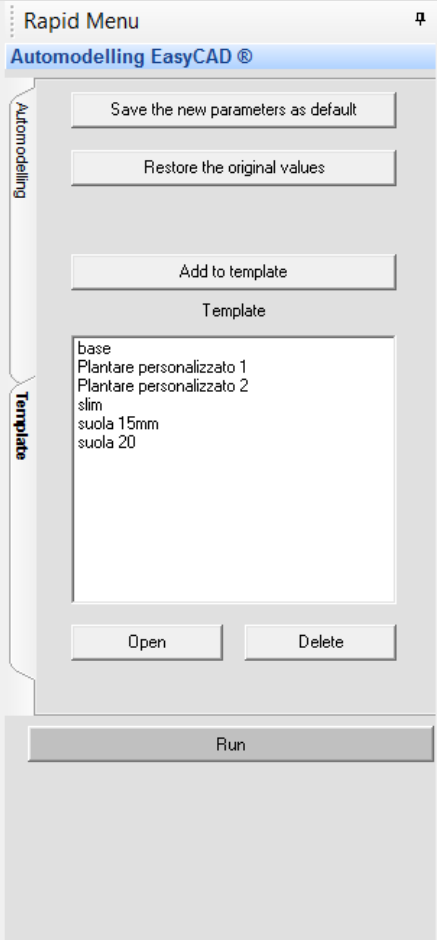
Creating Self-Modeling Templates

Under the options TAB you can save several tem- plates of your Self-Modeling setups.

This makes keeping a record of your favorite set- ting simple and easy.

To re-use a saved template simple open the options tab, select the template and click open. This will restore your Self-modeling setting to the saved settings.





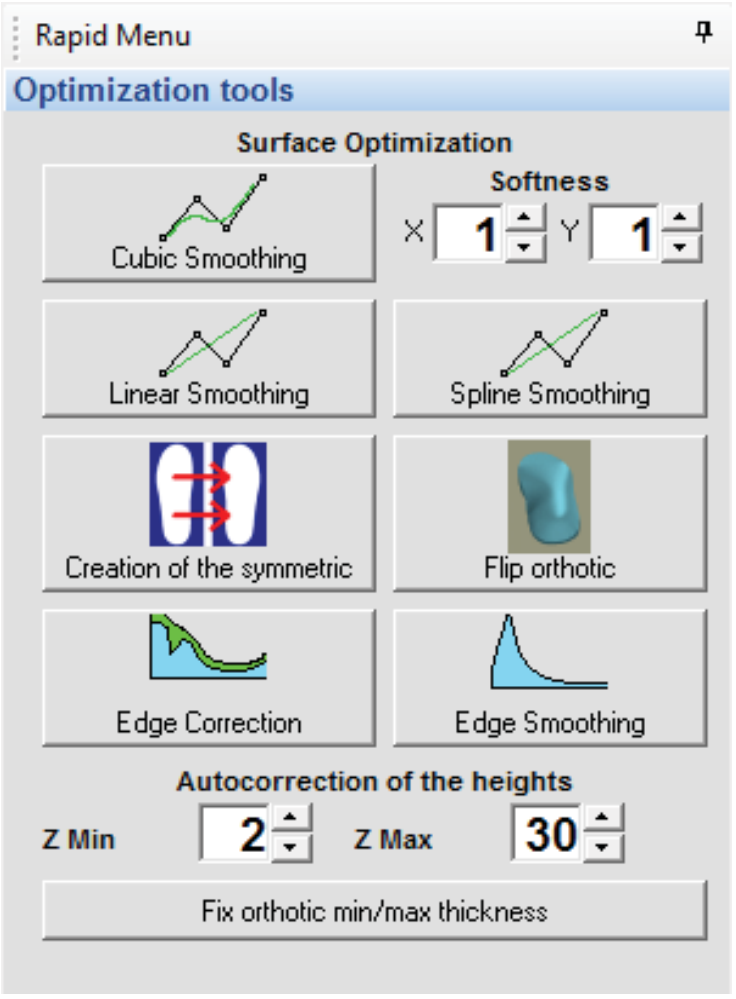
Optimization tools

The panel for the optimization of the design, simple in appearance, has some features that facilitate the design and optimization of the surfaces made.

The optimization of the surface automatically corrects any bumps that are created during the three-dimensional modeling. By selecting either the Cubic type (Bezier curves) or Linear interpolation, the optimal correction of the surface is complete.

Another function is the ability to use the Contra lateral Symmetrical, which duplicates the design of one foot and repeats it to the other, saving time and room for human error in the creation of the pair of insoles similar to each other.

The automatic Correction Board compensates for any missed 'rough' edges created during the design that could have been missed. This option will save reduce the amount of smoothing required one the project has been milled, thus saving on time wastage.

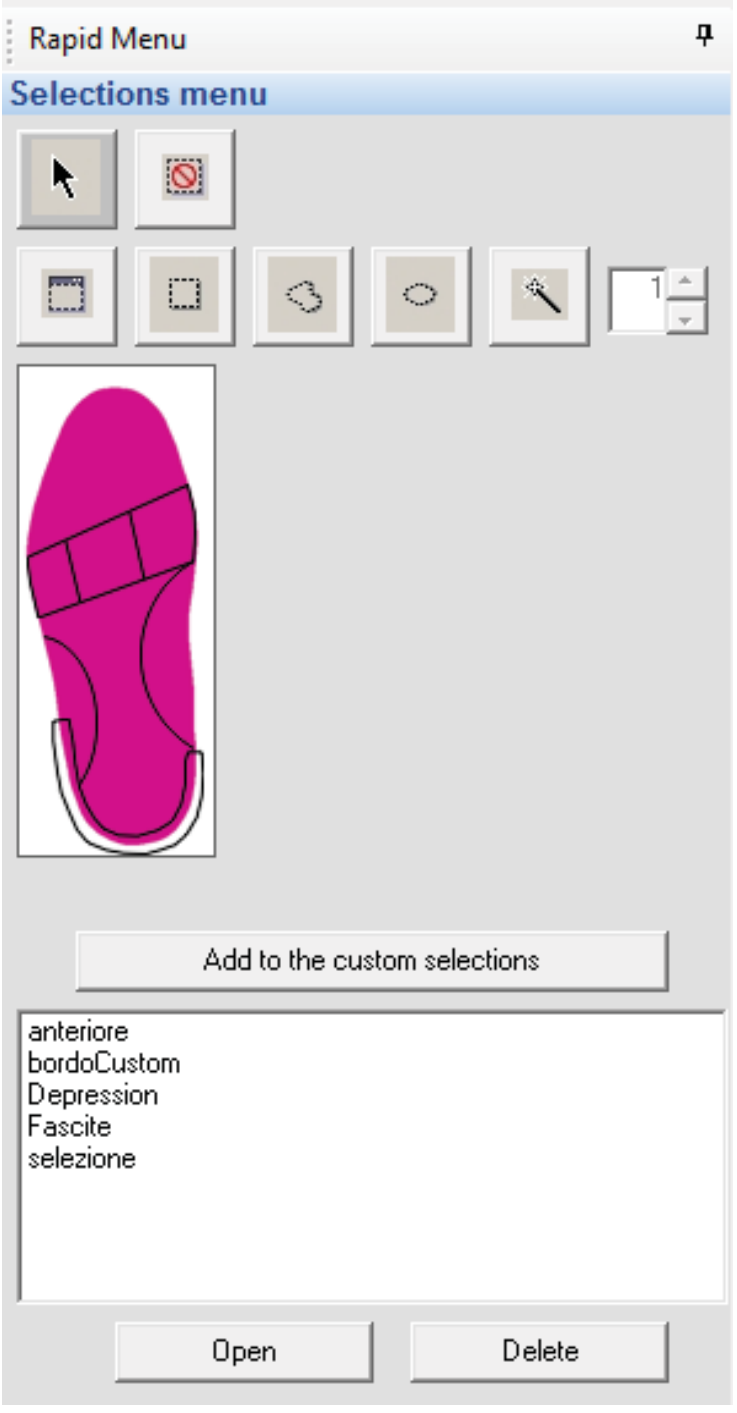


BE CAREFUL NOT TO USE THE SMOOTHING BOARD CORRECTION AS THIS WILL REMOVE YOUR BORDER AND MAKE YOUR ORTHOTIC UN-USABLE

The Autocorrect shares allows you to proportionally reduce your orthotic to fit onto a variety of materials. If you have designed an orthotic with a 29mm arch and want to make sure it will fit onto the 22mm material you can select the ZMAX at 22mm and please Fix Plantar. Easy CAD will morph your orthotic to fit the new max height or thickness.

Selection menu

This section also allows the more experienced operator to manipulate CAD design, with extreme precision, onto the surface of the foot.



Use the appropriate procedures for **selecting the area** you want to edit. The available modes are: **Rectangle**; **Broken line** (start by clicking once in the area you want to draw the line, then move the mouse, then click again. Repeat until the shape is drawn and close the loop off by double clicking); **Oval**; **Select all**.

After choosing the most appropriate selection, with the help of the mouse and click and drag technique, on the image to determine the boundary of 2D to change.

The action you wish to perform with the selected area can be managed through the appropriate sidebar. When doing this, by also selecting the **Smoothing** (ie disabled, Linear or Ring Cubic), your changes in height will be smoothed as much or as little as you wish). The sidebars let you:

By mouse clicking on the various highlights areas on the template, you can make pre deter- mined selection like the Heel border, Medial and lateral aspects of the arch.

Once your selection is made the Freehand tools become available for you to do you modifications.

Should you wish to make your own selections, the standard tools set is also available for you to use.

These include: Select All
Rectangular Selection Manual Selection Magic Wand

You now have the option of moving the selection after placing it. If you have used the free- hand tools to modify the selection, this will change on the fly as you move the selection around.

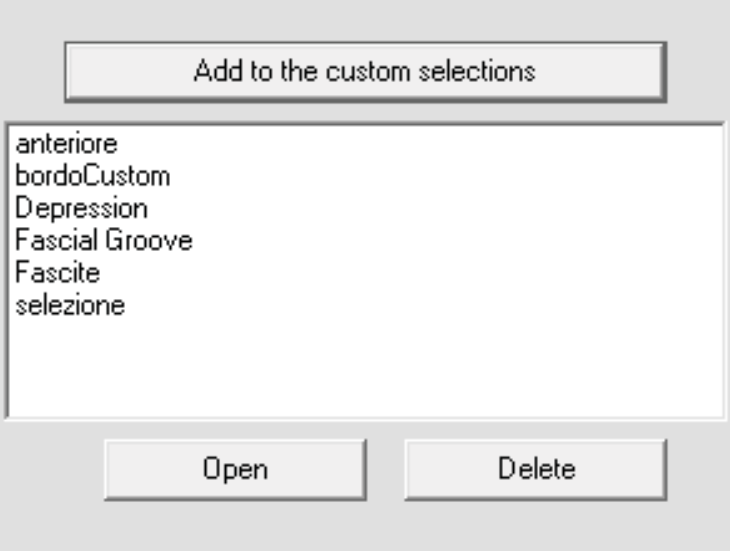
To select the heel border click on the curved heel selection area on the template layout. Once selected, you can move the shape of the border by clicking and dragging the red squares. You can also adjust the **medial** and **lateral gradient** by moving the sliders back and forward. 0 = a square junction, as the number increases the junction will flatten out.

You can set the height of the border by sliding the height selector. Make sure your border is at least 2mm higher than the maximum point on your patients arch.

This will allow for a smooth transition between your border and your patients imprint.

The border is very important when using the 3D scan as your starting point (see Methodology 1) or of you want to modify the shape and height of the border of any orthotic.

Creating your own Custom Selections



You can add your own pre-defined selections as well.

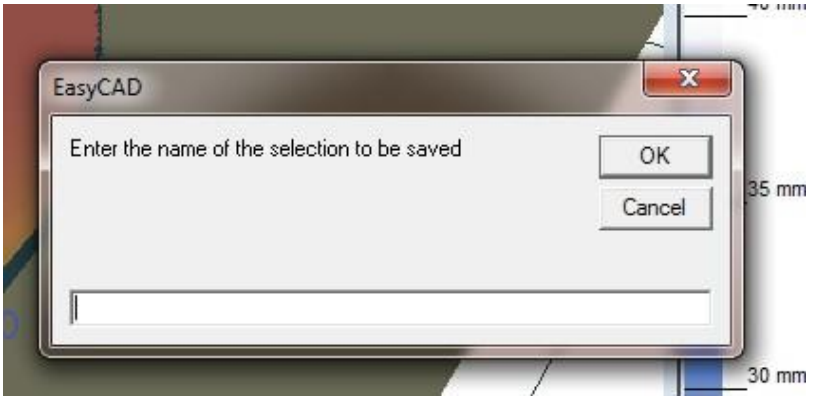
Use the Selection tool to create your selection. After you have made your selection it will take you to the Freehand pallet.

Should you wish to add this selection to your custom selection window then click back on Selection Menu and click "Add to Custom Selection"

A pop will appear, name the feature.

You can now use this selection on the other foot or any other orthotic.

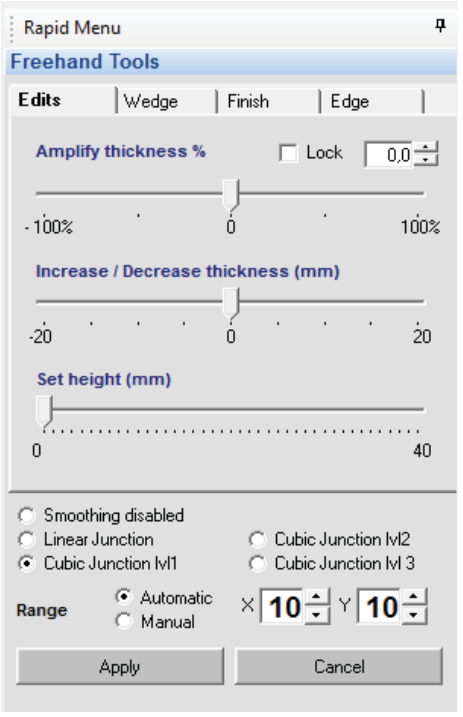
Select the named item and click "open"



The new selection will take size and template design into account when making the selection.

You can then tweak your new selection should this be necessary before applying your Free- hand Modifications.

Freehand tools



Amplify Thickness of the highlighted section by increasing or decreasing in proportion to the whole area affected by the change;

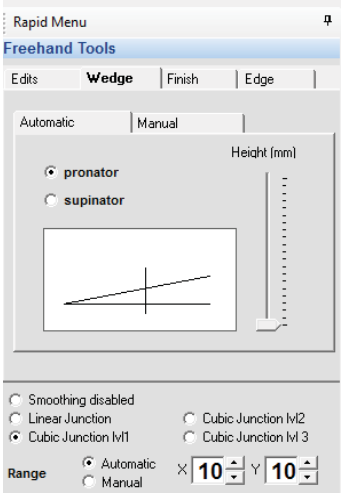
Increase / Decrease the thickness of the highlighted (eg if you select the whole template, then raise 1mm, you will effectively add 1mm to the base, leaving surface unchanged. If however you select an area within the template and raise 1mm, you will add 1mm on every point within that selected area only);

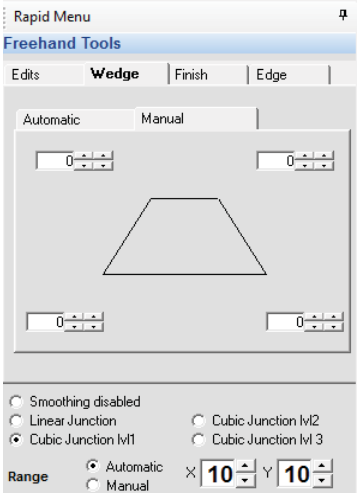
Set Height (this pays no attention to the contour you already have on the template, and will adjust the whole selected area to specified height);

The Wedge tab lets you set up an inclined plane pronator or supinator automatically, or manually. You can set them either positively OR negatively, but not a combination.

During these manual editing operations the changes can be inspected in real time in the 2D view. You can assess the height in mm by hovering the mouse over the relevant area on the 2D, as well as get the 3D view for assessing the results.

If the change is as you wish, confirm your choice by Applying. Alternatively the cancel button will return the values to those previously set.



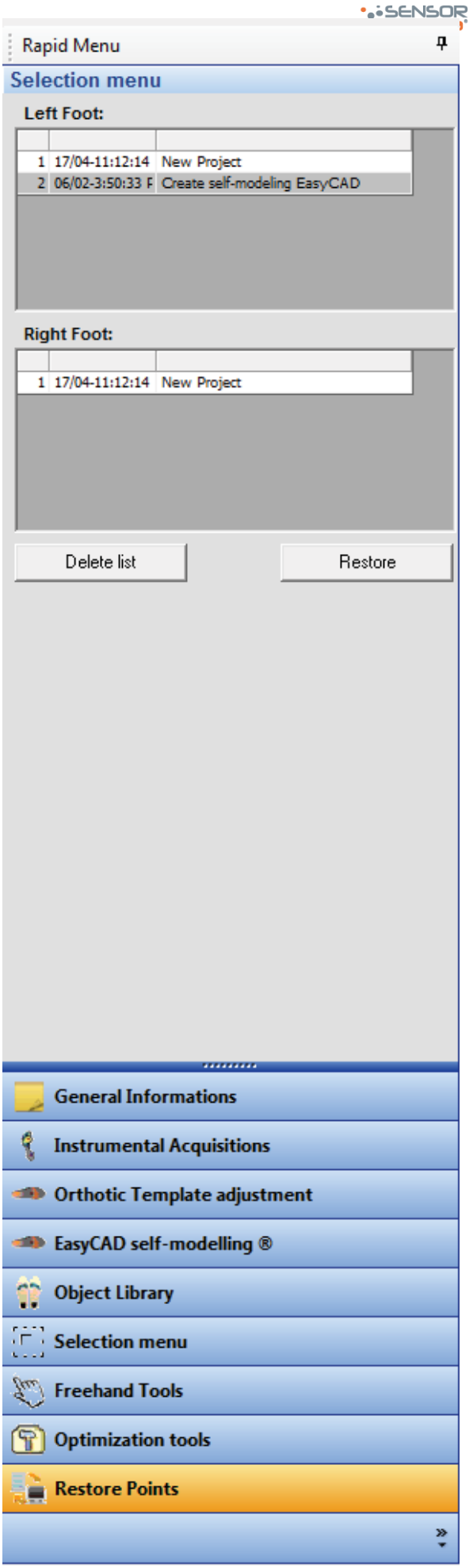


Restore points

During the design, if you want to restore back to a specific step of the design, you can do so. All changes made thereafter will be lost. This simple option allows you to explore the various functions of the software to obtain optimal results.

These restore points are always there, detailing each step that you have applied to the surface. This means that at any stage, should you be unhappy with how the project has evolved, you can return to the point at which you are happy, and start again. Furthermore, if ever you are redesigning a pair for a client, you can reload the original project (or create a duplicate), and should there be an adjustment to make, you can find the step you want to start from.

CTRL-Z allows you to quickly undo a placed component, it will take you back a step in your workflow without you having to leave the window you are working in to open the Restore Points tab.



Display Options

F5 Pressure Overlay

You can press F5 on your keyboard to overlay the pres- sure data on the 2D view of the orthotic.

F6 Scanner

If you have used a 2D scanner in your patient management and would like to see what the patient foot looks like on the orthotic, press F6 on your keyboard.

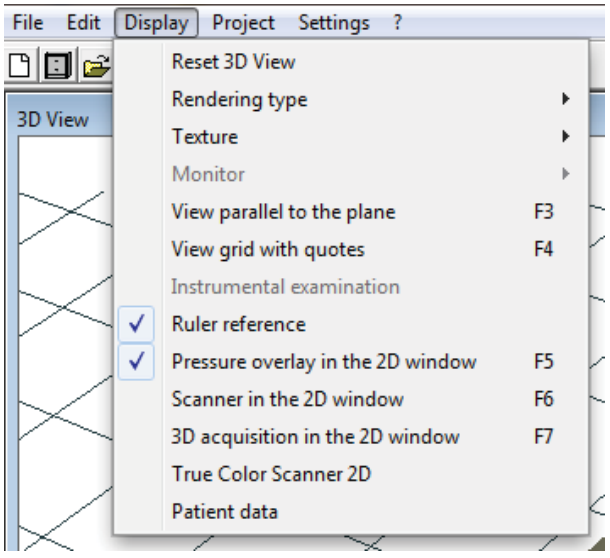
F7 3D acquisition

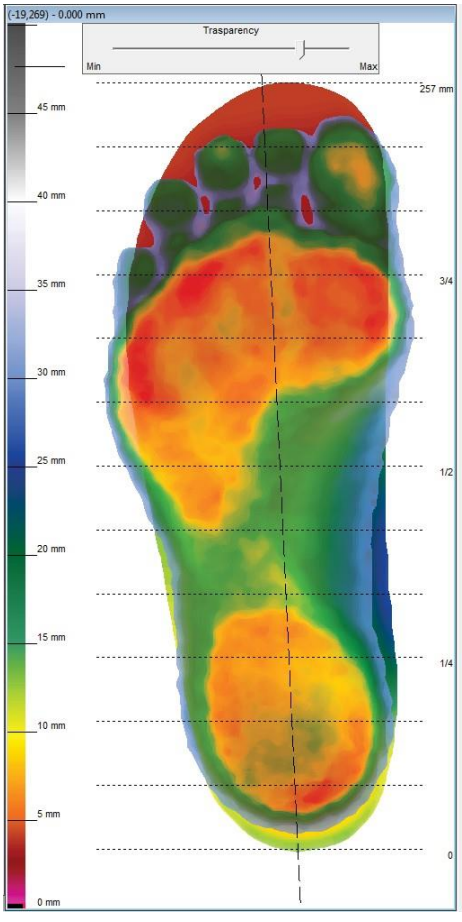
If you have used a 3D scanner, you can press F7 on your keyboard to see the 3D data overlaid on your 2D image.

All of the display options assist you is positioning the various elements carefully on the orthotic to ensure greater patient compliance.

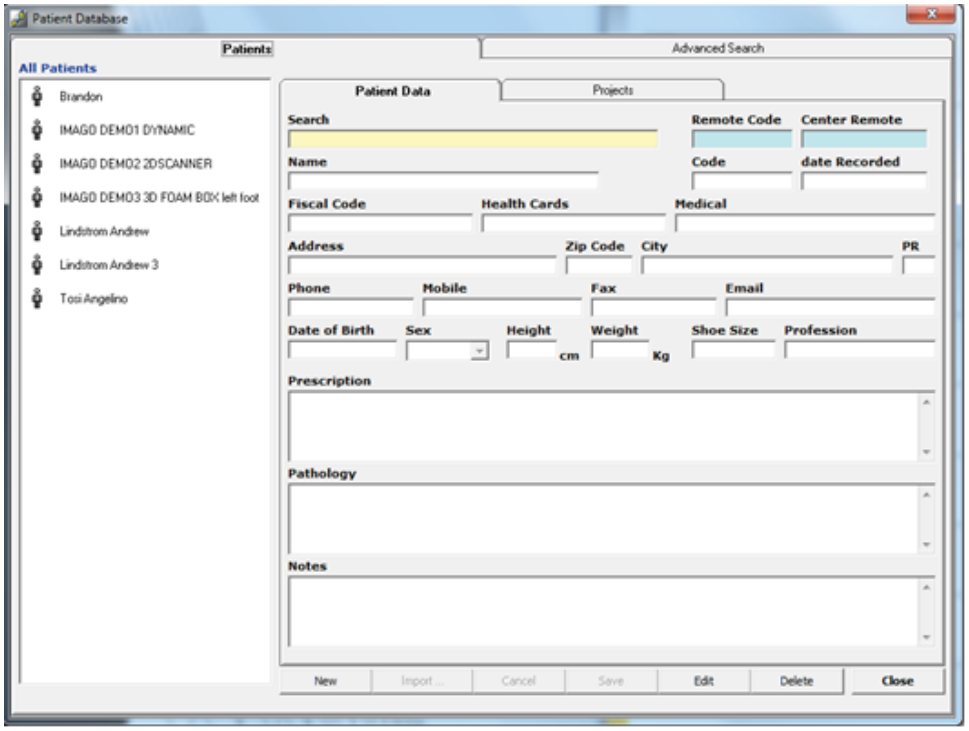
Transparency Slider

You can you the transparency slider to make the image more or less transparent. This will allow you to see the 2D surface a lot clearer.





Archiving Options



The program offers two types EasyCAD design and data storage. One is based on Single Document mode and the other on management through the archives.

Single document mode

If you decide to manage your own projects as individual documents it is recommended to determine a common directory where to save all documents.

This mode allows you to save the entire project, including all file accessories, within a single file. The file can be saved to any disk or directory on your computer and can be opened, updated and saved again at any time, even from other computers with the same EasyCAD software.
To activate the Single Document you will need to start the design through the menu item - New Project. The compilation of patient data, can be done with the help of the module EasyGRAB as more fully described in subsequent paragraphs.

After selecting the most appropriate template, the shoe size and the patient's name, you can proceed with the creation of the new project by clicking on the OK button. In the rescue phase of the project created as a single document, you will be asked where to save.

During the reopening of an EasyCAD document, the software will ask if it is your intention to integrate the document in the Archives. If so, you will also be asked if you want to delete the source file as a duplicate of the one on file.

If there is a copy of the same project as a single document and a copy in the archive, the program will show us which one is more recent.

Archive

If you want to keep an archive of projects and examinations this can be done in the Archives Project.
The archive contains all the data sheets of all patients treated in EasyCAD.
The management and search of the database is simple and intuitive.

A complete data sheet provides all the information necessary for proper management and execution of projects.

If you use the utility EasyGRAB and are creating a new patient card, through the Import button you can enter patient data automatically.

To create or retrieve a plantar project, simply select the patient (or create a new one), select the Projects section, choose the type of template and the size and click Create New Project.

Moreover, in the top pane of the same screen will be displayed all the exams (or optical pressure) associated with the patient. New ones can also be added, through the use of the EasyGRAB utility. To do this, click the Import button ... select the file containing the valid data.

To recall an earlier draft from the archive, select the project from the list in the centre of the screen and click on Upload Project.

There are also options to preview and details of projects in the archive (View Details) or "Send for Processing" which creates a file of the project which can then be sent to a remote centre for milling.

Creating a new patient

Step 1 - Double click on the Easy CAD icon to open EASY CAD
Step 2 - Click on the Archive Icon (Second Icon from the Left)
Step 3 - Click "New" at the bottom of the Patient Data Base Menu
Step 4 - Enter the following data:
Patients name (Surname and Name)
Address
Mobile
Date of birth (YYYY/MM/DD)

The only critical piece you need is the Shoe size, Date of Birth and the Patients name - the rest of this information is optional.

Step 5 - Click Save

Creating a new patient from the import option

Step 1 - Double click on the Easy CAD icon to open EASY CAD

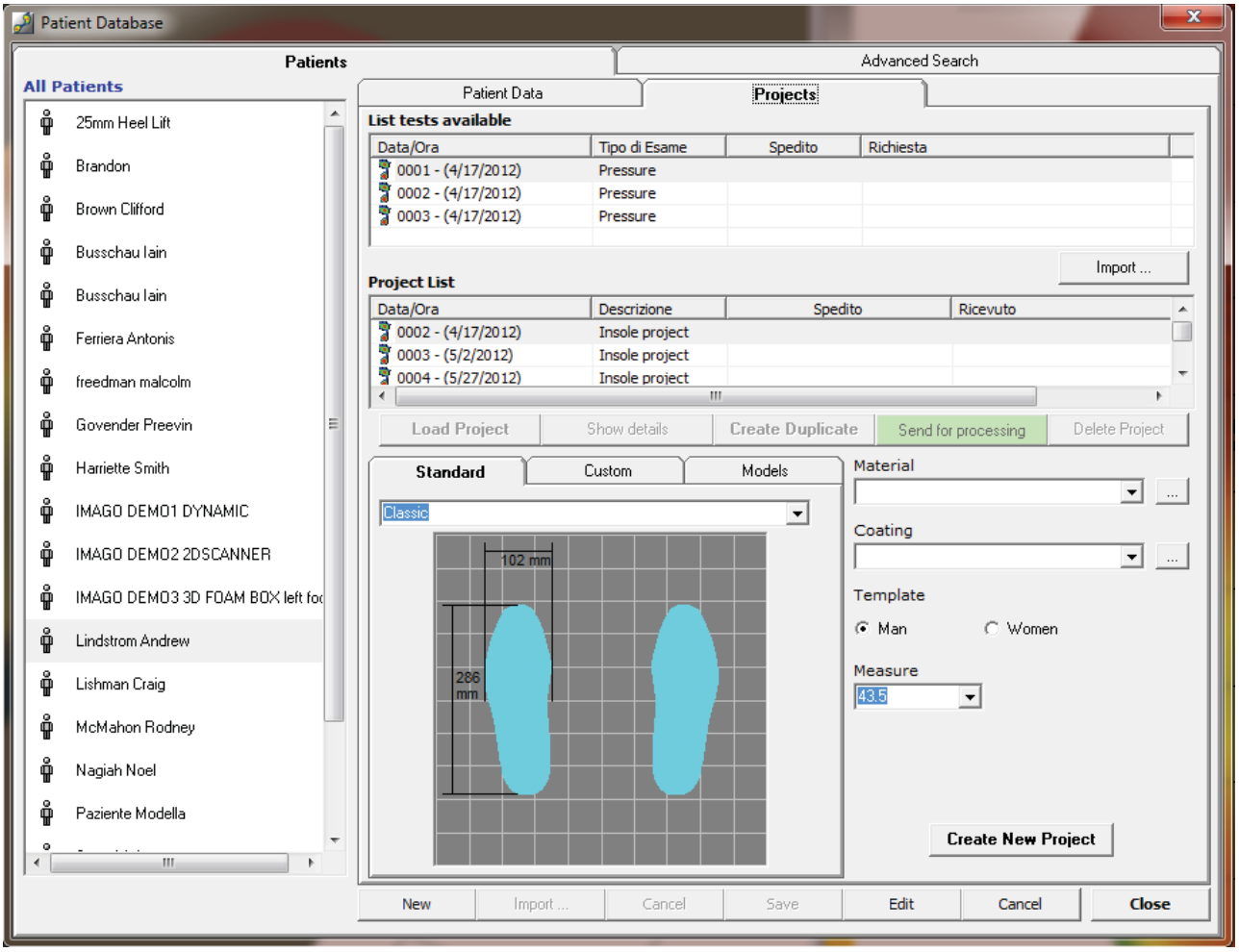
Step 2 - Click on the Archive Icon (Second Icon from the Left)

Step 3 - Click "New" at the bottom of the Patient Data Base Menu, then "Import".

Step 4 - On the window that opens, change the drop down of the "Files of Type" to "Generic Ini File (*.ini)", then double click the file of the relevant patient from the "Patient Digital Data" folder, which is in **"My Documents".**

Creating a new project

Step 1 - Click on the Projects button
Step 2 - Make sure the shoe size is correct
Step 3 - Select the template shoe shape
Step 4 - Click "Create new Project"



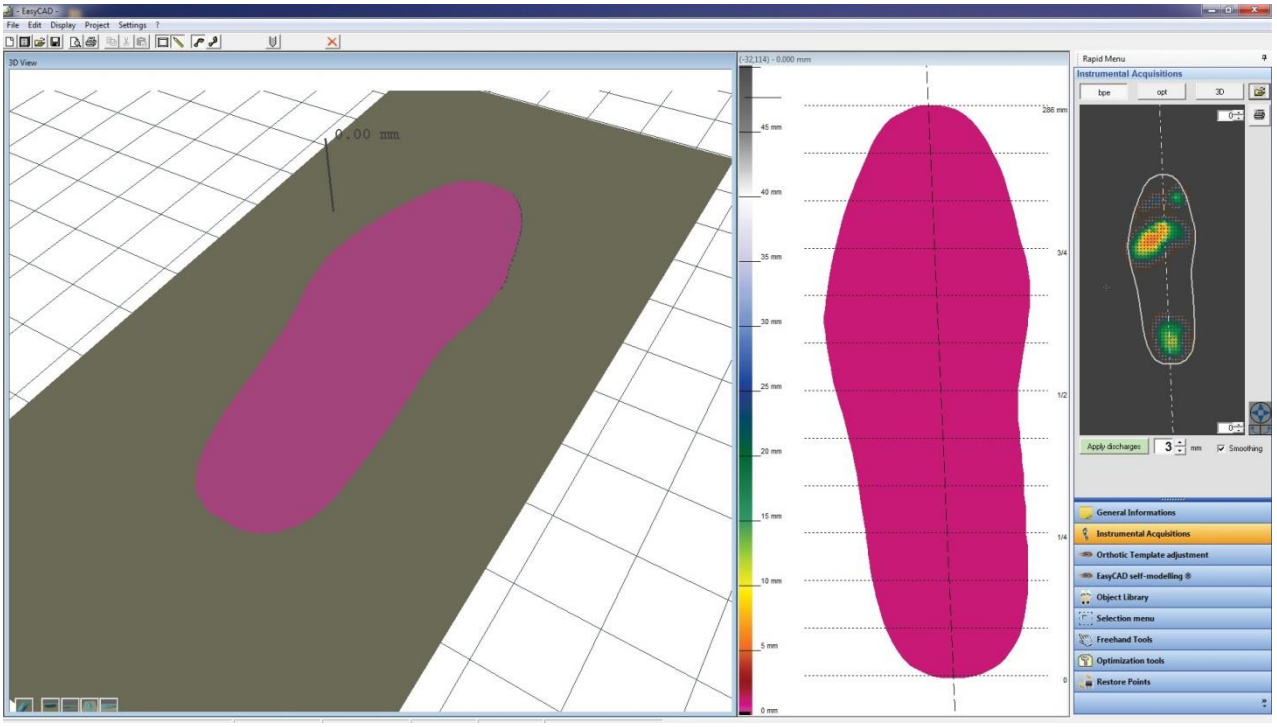
Methodologies for building orthotics

There are many ways you can create orthotics within EasyCAD. The more experienced you become with using the software and the outcomes you get, you will find what works best for you. Until that point though, please find three different methodologies that will work for you.

Methodology 1 - With 3D Scanner Only

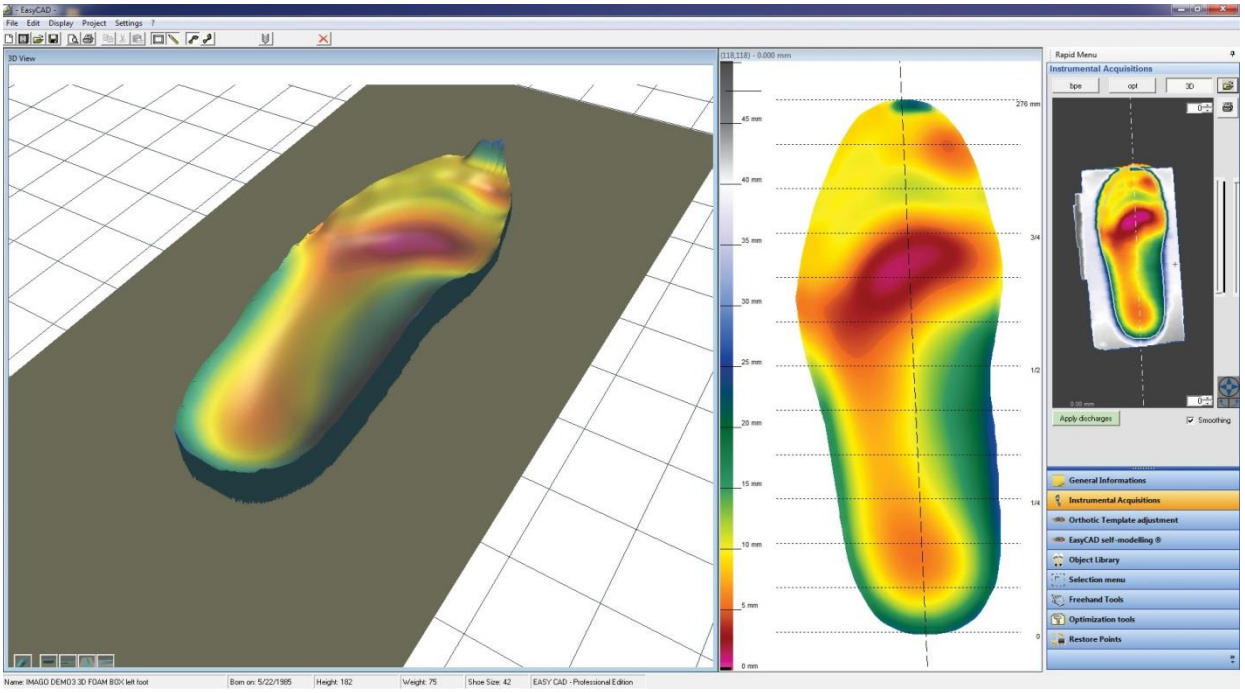
There are many ways you can create orthotics within EasyCAD, The more experienced you become with using the software and the outcomes you get, you will find what works best for you. Until that point though, please find three different methodologies that will work for you:

Step 1 : Import 3D and pressure images**, but do not apply** yet.

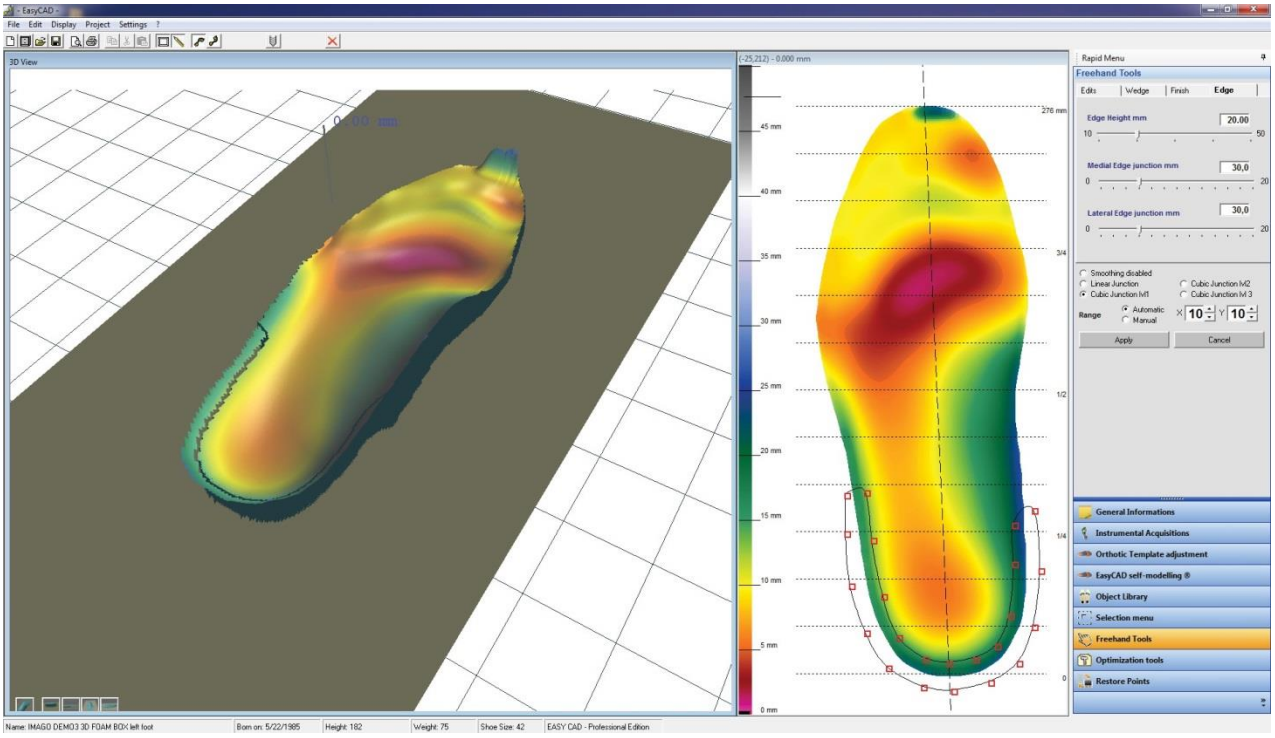


Step 2 : In Instrument Acquisition pallet select 3D scan.

Step 3 : Position the image using the tools/arrows in bottom right corner**, deselect "Smoothing" selection,** as you will be able to do this at the end. Click apply to add your 3D scanner information to your template.



Step 4 : Under Selection Menu select the Border on the template and add your border. In general terms, the border does not usually extend beyond the beginning of the arch, but this is at your discretion. Ad- just the gradient profile for the border. Select Heel cup contour ie Cubic/Linear etc. Click Apply



Step 5 : If you wish to set the height of the forefoot (ie smooth out the forefoot area) you can use the magic wand tool in the Selection Menu section. Click on the 2D image of the template, in all the areas that you want selected, then in the Edit tab change the height (usually in this case using "Set Height"). This will take the selected area all to the height you determine. Click Apply.

Step 6 : If you wish to change the height of the whole orthotic (ie you feel it is too deep , or shallow), select the whole foot, using either the F Selection Menu "Magic Wand", or the Selection Menu "Select the section" button. You can then use the Edit: Increase/Decrease in thickness". This will uniformly add or subtract the specified amount off the whole orthotic.

Step 7 : Do the border optimization by selecting the Correction Border button, from the Optimization Tools drop down. Click two or three times to smooth external borders.

Step 8 : Last step before adding corrective elements like bars etc apply the force plate Pressure Acquisition for smoothing at the end. This will reconfirm the position of the necessary elements to add.

Step 9 : Add any other adaptations or changes to the orthotics, such as from the Object Library. Select the relevant option, then adjust height, position etc as you wish. Then click "Apply to Plantar". Now it is on the 2D and 3D, however not yet merged to surface. Position and fine tune the element, then once happy, "Merge to Surface".

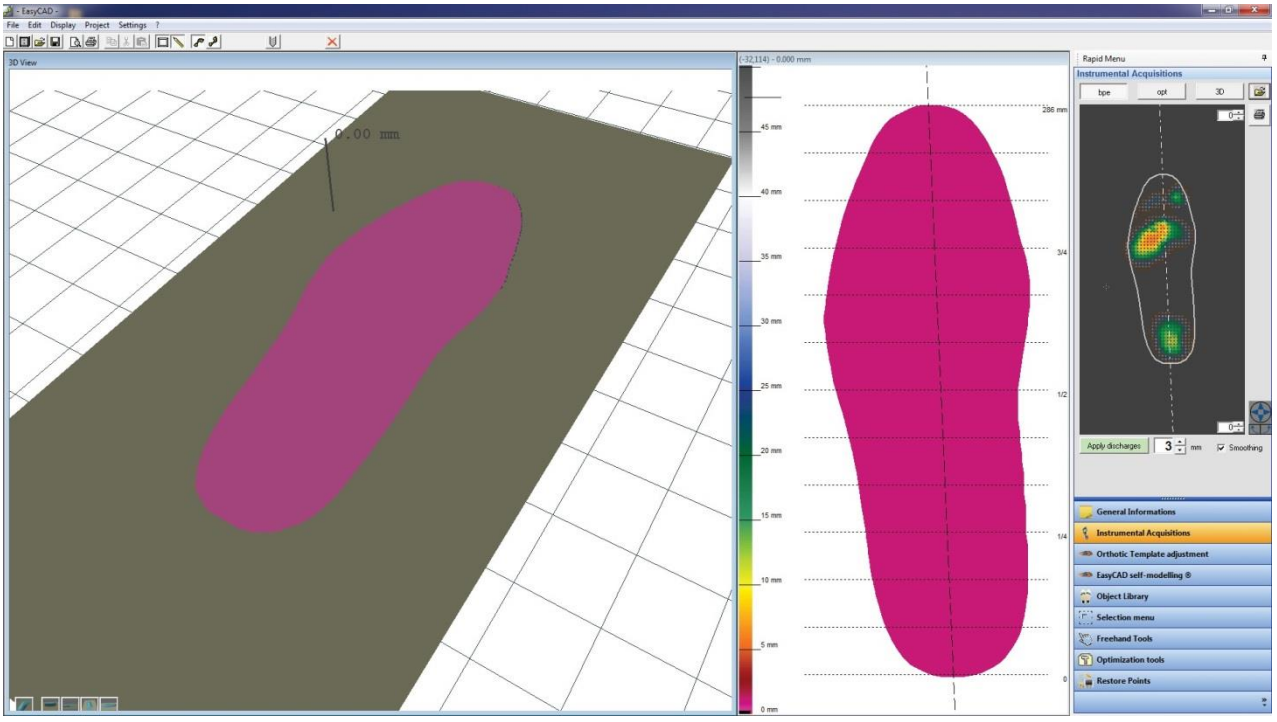
If you want to change the shape of the Object, select the "Distortion Tab" and adjust as you wish.

Step 10 : You can either design the right foot from scratch, or copy across all the elements from the left. Whichever the preference, create the base for the right foot, by placing the 3D and Pressure map on the template from the Instrumental Acquisition. Then, if you are creating the right foot yourself, follow from Step 3 above. If you wish to copy across the elements from the left foot, select the left foot, then go to the Optimization Tools drop down, and choose Contra lateral Symmetrical. This will place all the elements you created, plus the borders, heights etc onto the right foot. Go back to the right foot to check it has carried everything across.

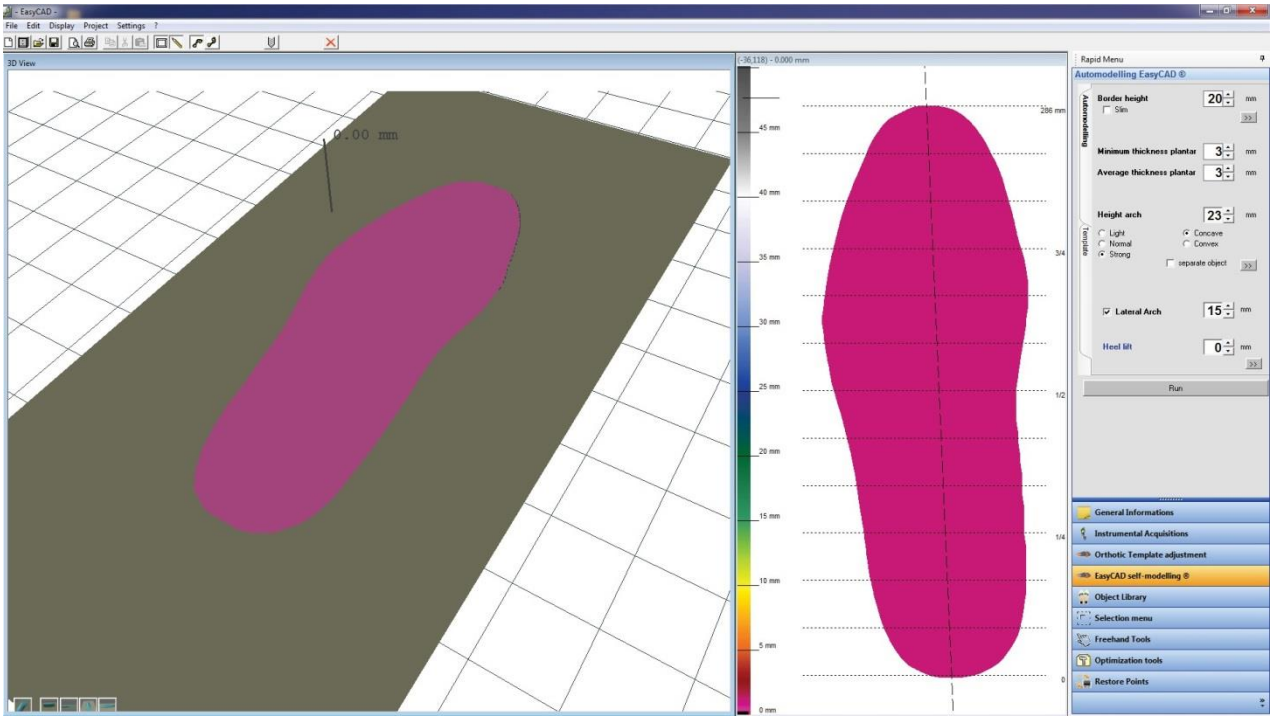
ONCE COMPLETE, SAVE!

Methodology 2 - Using Biomechanical data and applying 3D image.

Step 1 : Import 3D and pressure images, but do not apply yet.

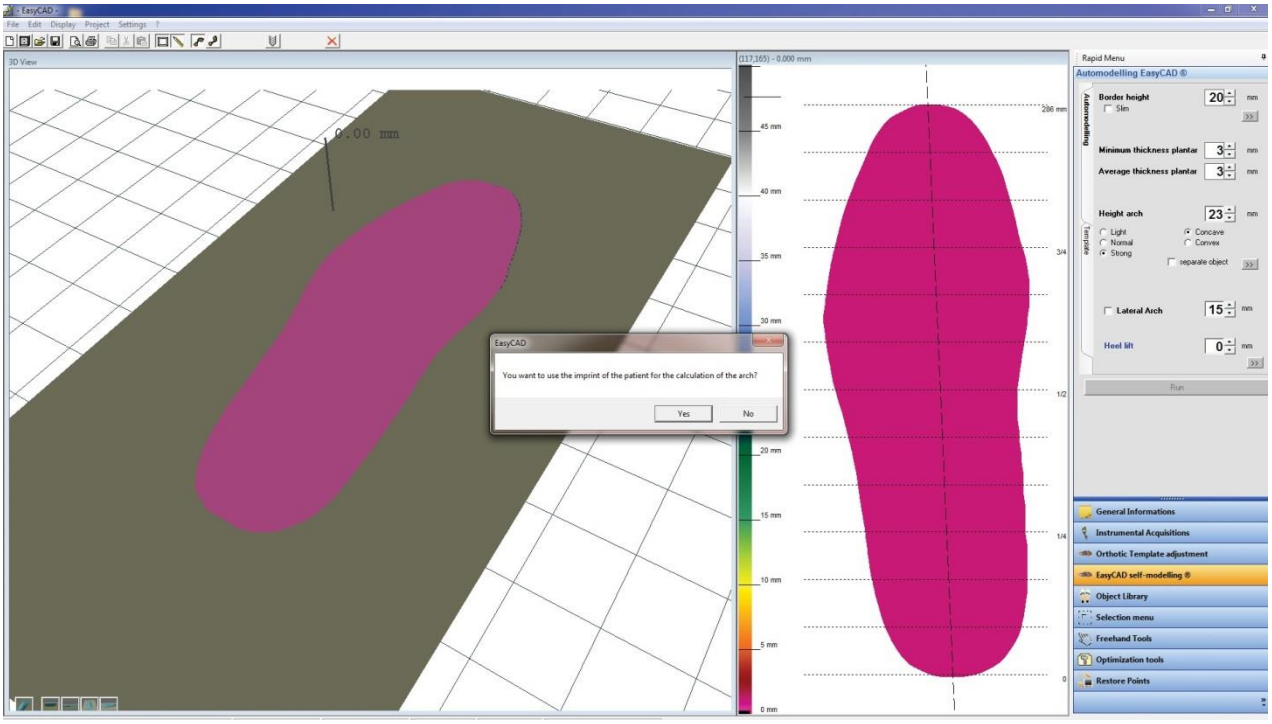


Step 2 : Go to Self Modeling Easy Cad, to set the following settings:

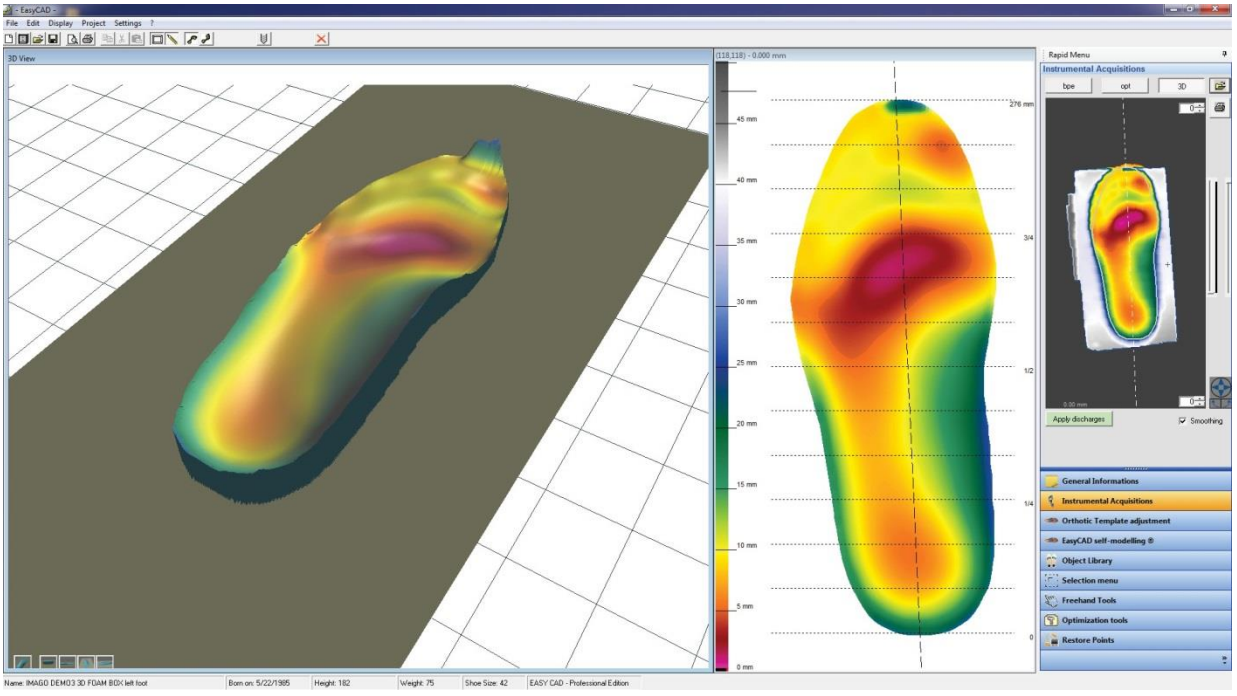


Make sure they are set as above, then click Run.

Select Yes. This creates a basic template of the foot using a combination of the settings entered and the pressure map.



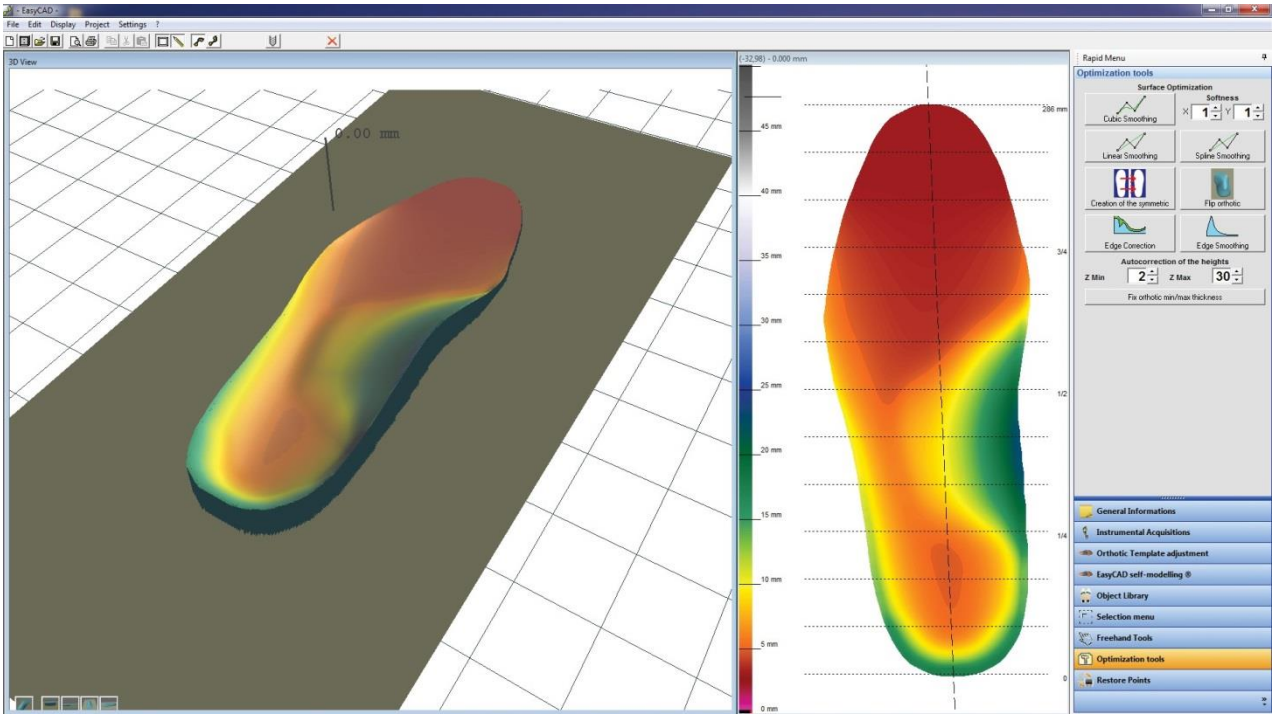
Step 3 : Now apply 3D image



You have two options to clean up the edges.

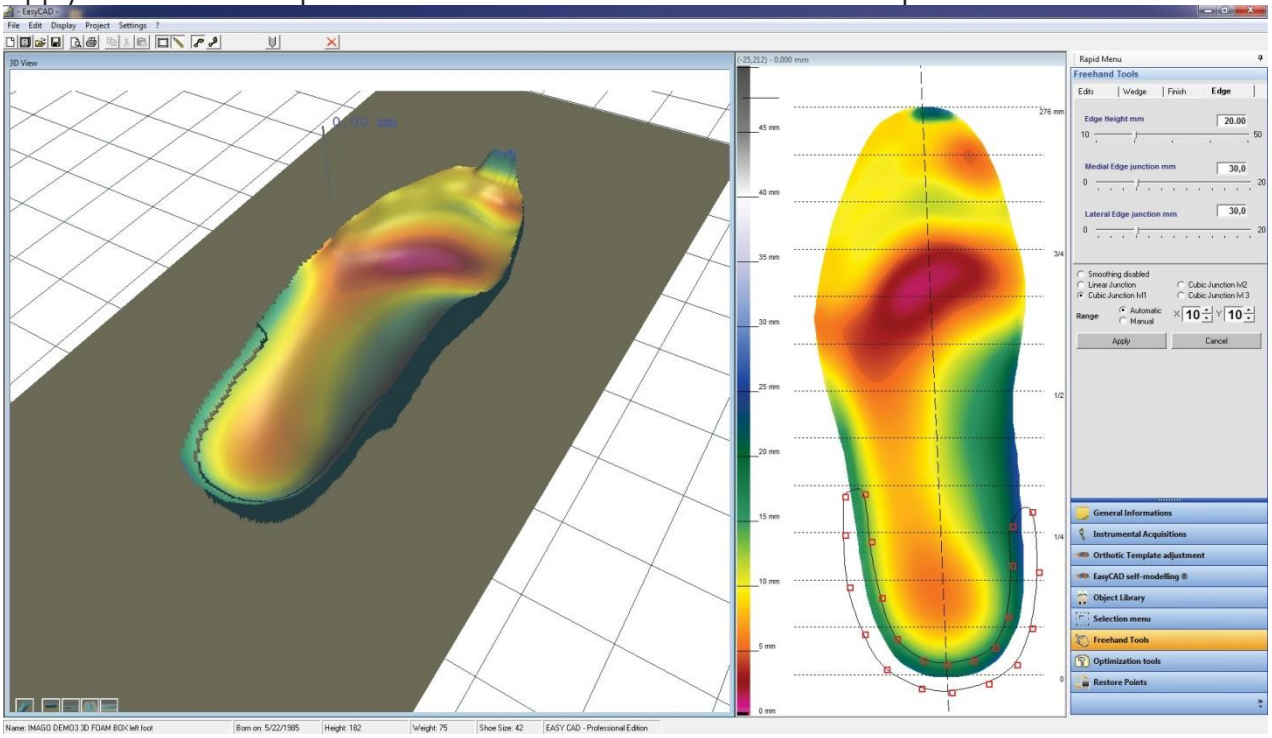
If the foot and size of the template are the same, use the Correction Board in Optimization Tools.

If the foot is smaller or larger, apply a border from Selection Menu. Manipulate the border to give a smooth edge to the orthotic. Also use the Medial and Lateral Gradient adjustments to get the shape you want. Apply these additional corrections.



Step 4 : At this stage, you would add any corrections you wish, such as from the object library.

Step 5 : Smoothing the Forefoot (Probably the quickest and most accurate process for smoothing), Apply the Pressure map on to the orthotic from the Instrumental Acquisition.



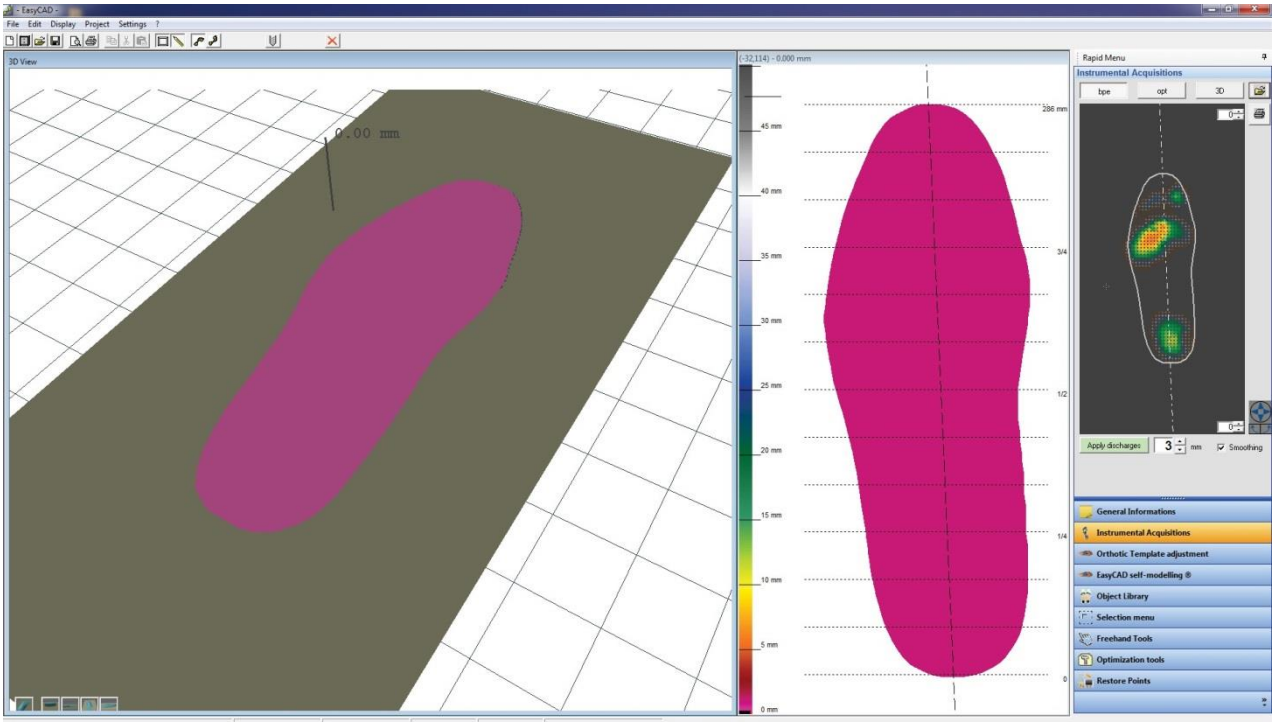
If you want to have it completely flat, select the area required (using the selection tool), adjust "Set Height" from the "Edit" tab, as well as ticking one of the smoothing boxes. Apply.

If you want to have some mild shaping to the forefoot to match the 3D image, select the area as previously, choose Increase/Decrease in thickness, as well as one of the smoothing boxes. If you

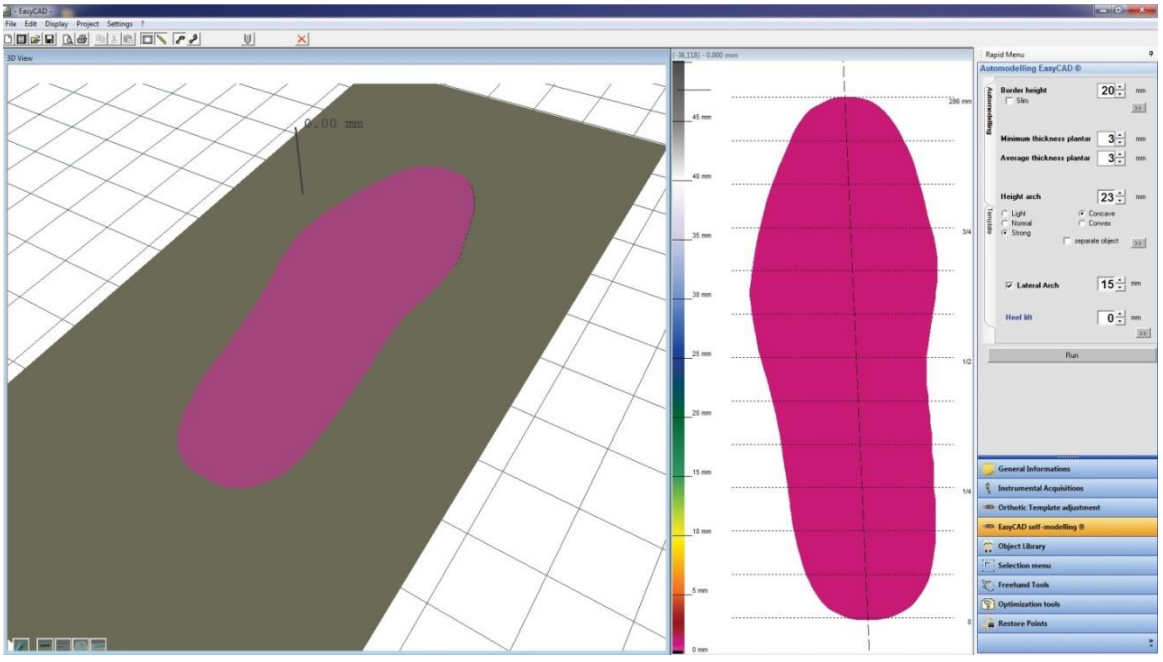
want to set the height you can, alternatively if you just want to smooth, select the Increase/Decrease, but don't ad- just it, choose one of the smoothing boxes, then apply.

Methodology 3 - Biomechanical data only

Step 1 : Import pressure images.



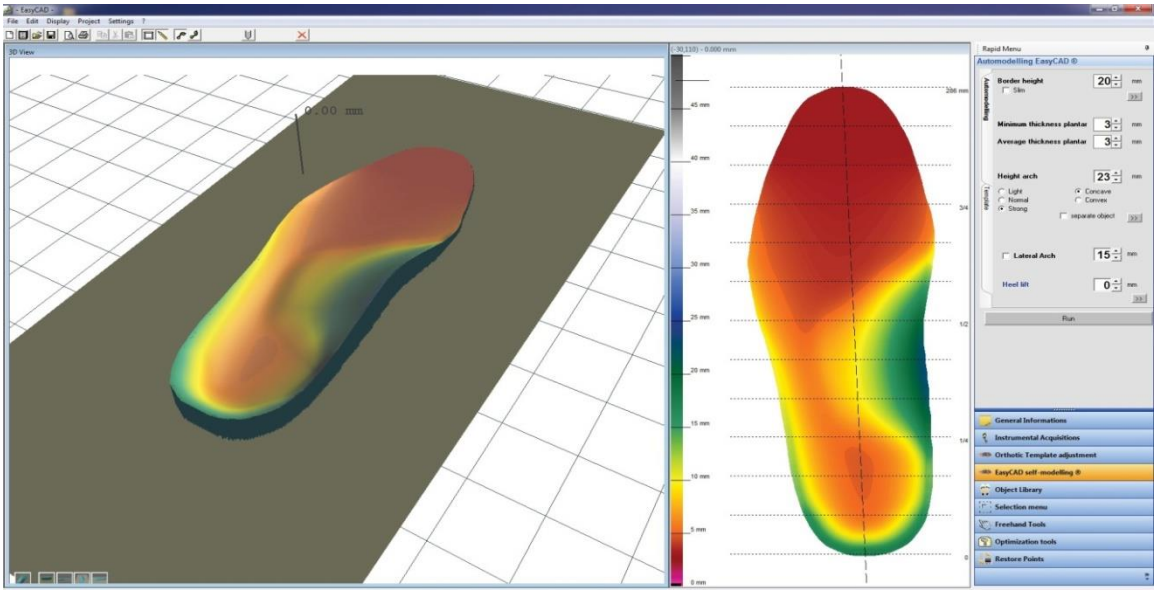
Step 2 : Go to Self Modeling Easy CAD, to set the following settings:



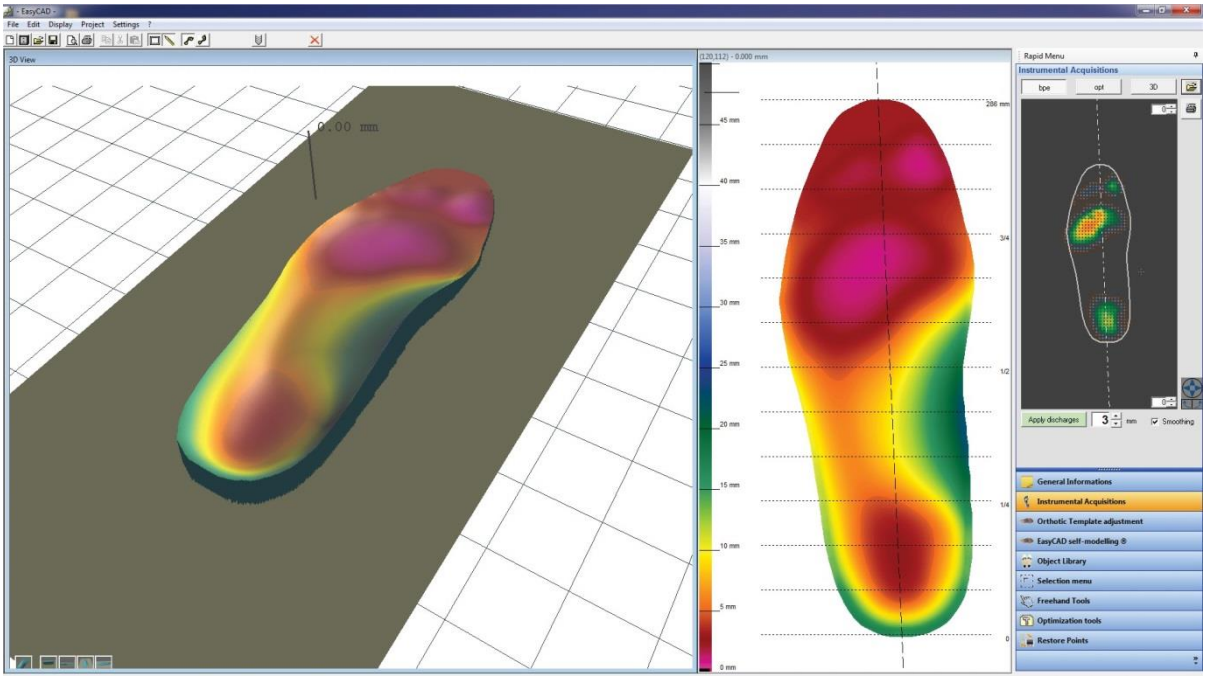
Make sure they are set as above, then click Run. Once you have made a couple of pairs start to vary the settings to add additional enhancements to your orthotics. If you have a patient with a high arch and you want to reinforce the arch support select "Strong" to give a more substantial arch shape.

Click "Yes" to allow the software to map the arch shape of the patient's foot and extrapolate the arch

height. This creates a basic template of the foot using a combination of the settings entered, combined with the pressure map.



Step 3 : Now apply your modification and adjustments
Step 4 : Apply Pressure map smoothing

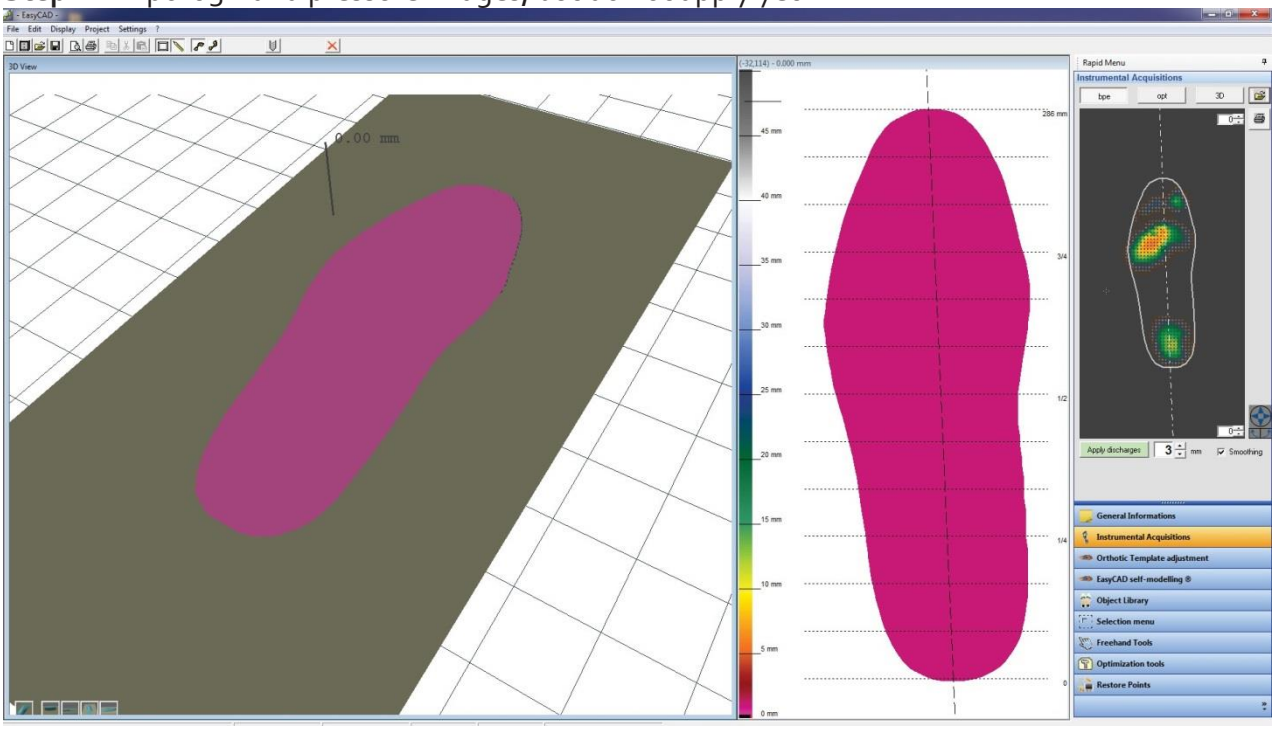


By varying the value you apply, more smoothing can be applied.
ONCE COMPLETE, SAVE!

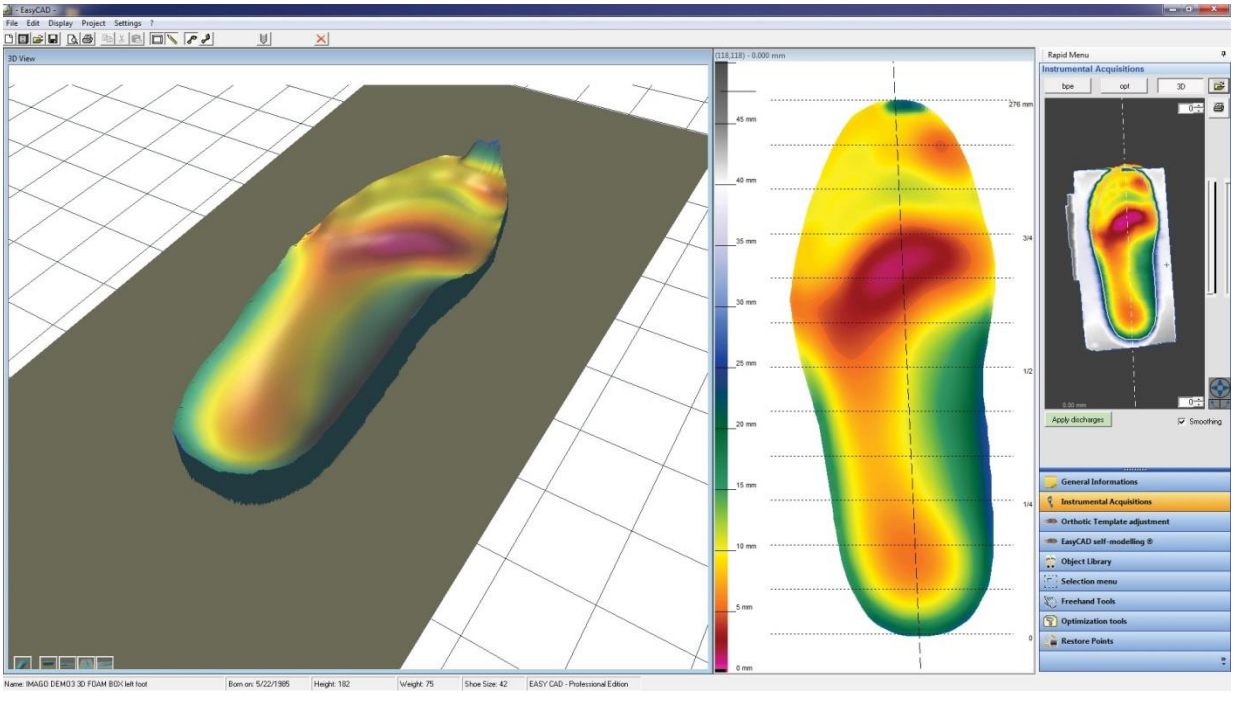
Methodology 4 - Stuart Alexander's "quick" method

This methodology allows you to take advantage of the 3D scanner data but remove the longer process of designing the heel cup and smoothing the forefoot area.

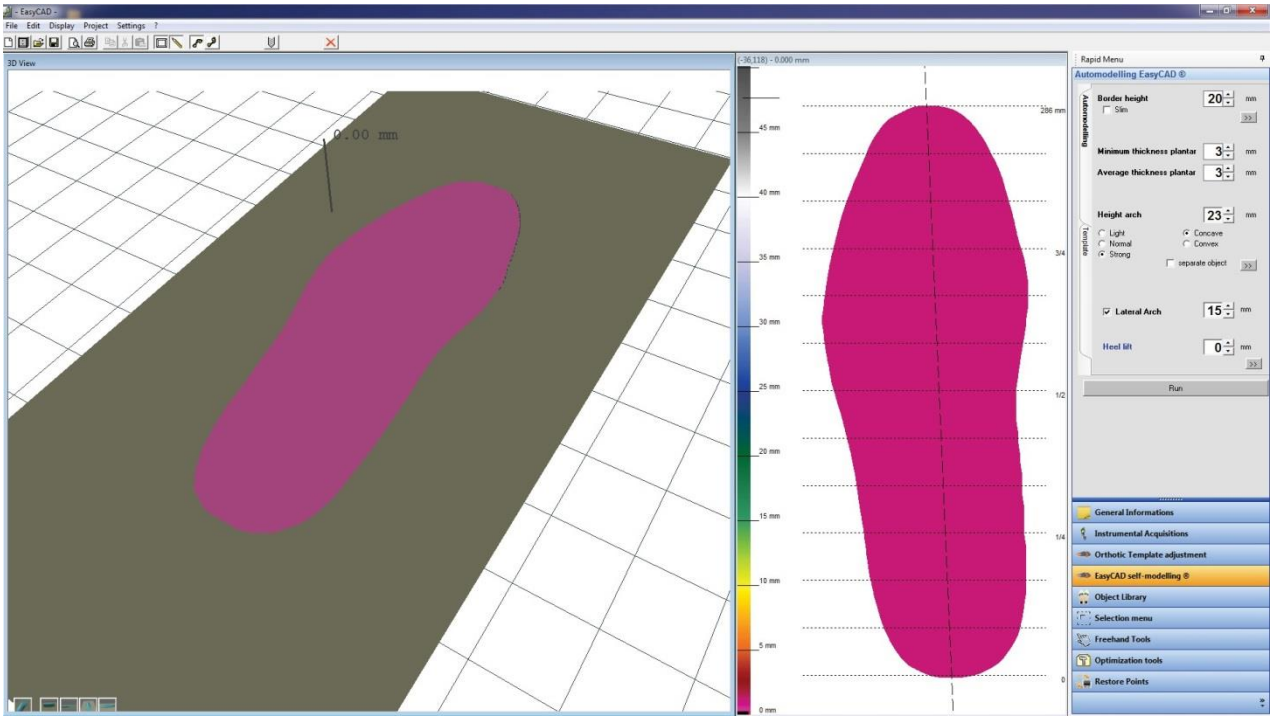
Step 1 : Import 3D and pressure images, but do not apply yet.



Step 2 : In Instrument Acquisition pallet select 3D scan.
Step 3 : Position the image using the tools/arrows in bottom right corner, **deselect "Smoothing" selection,** as you will be able to do this at the end. Click apply to add your 3D scanner information to your template.



Step 4 : Use the Selection Menu "Select all" tool and adjust the forefoot and heel to 3mm heights. Use the manual wedge tool to raise or lower these areas.
Step 5 : Use the cursor and hover over the 2D image and measure the arch heights of the patient.
Step 6 : Then follow on from step 2 of Methodology 3 and use the arch heights you have measured to
create a Self-Modeling foot bed onto which you can add you modifications.



As usual save frequently to avoid any time loss should the application close unexpectedly.

Step-by-step Quick Guide

Export from Medicapteurs Biomechanical Plate

Step 1 : Make sure you are in detailed analysis.
Step 2 : Right click on the image
Step 3 : Select EasyCAD from the drop down menu
Step 4 : Click OK. Easy Grab will capture the patient information and create a folder for your patient in the documents folder.

This folder will have both the patient.ini file and the dynamic or static export from the Medicapteurs plate.

Note: if you have an alternative Biomechanical Plate, follow their instructions for exporting the pressure maps.

Using the 3D Scanner

Step 1 : Make sure the VGA/HDMI or Network (and USB if not using a hub) cable is connected to laptop
Step 2 : Switch on the scanner (on the side), then press the Power button on the control pad ONCE. Allow for lamp to warm up. Also, on the screen, ensure "Video Out" is on 2, otherwise your computer screen will project through the laptop.

Step 3 : Position patient's foot in the middle of the glass, with their standing leg either on the floor, on the rubber mat on the side of the glass, or sitting on a high chair so that neither foot is weight bearing.

Step 4 : Select "Project" from the file icons, then rename it with the patient name and press enter.

Step 5: With the new project selected, click "Single Scan", rename it as left or right foot, press enter, then press "Scan".

Step 6: Allow for the image/mesh to upload, then do the same for the other foot, by selecting "Single Scan" again, and following as Step 5 above.

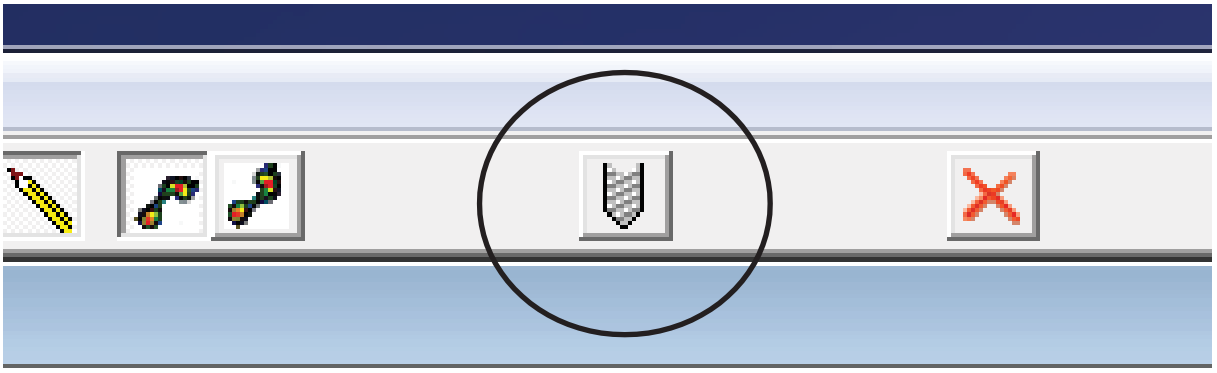
Step 7: "Save as" and name file (separately) for both the left and right foot (for the mesh only).

Step 8: Either leave scanner ready for next patient, or to switch off the scanner, press the Power button on the control pad TWICE to power off. Once it has shut down, you can power off on the side as well.

If you are milling the orthotic yourself, follow the instructions for producing an ISO file. Otherwise follow the instructions to produce an ADM file.

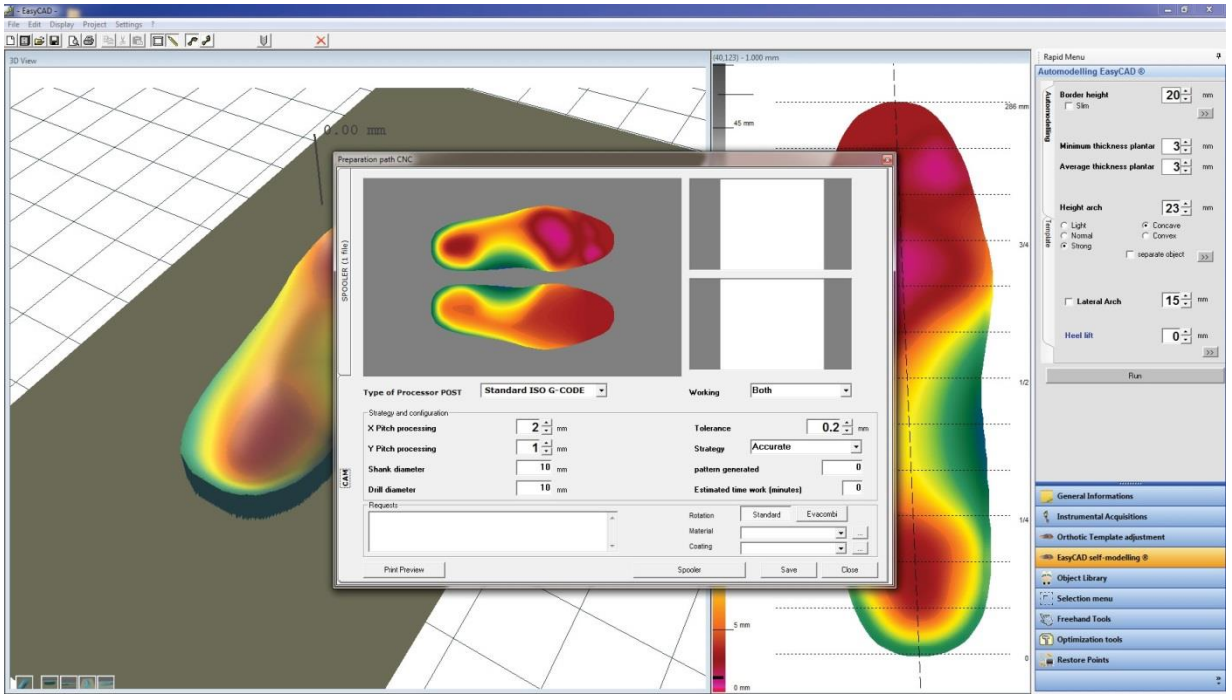
Producing ISO File

Step 1 : Within the project, click on "Produce: button (drill bit-like tool)



Step 2 : Select the Y Pitch either:

a. 0.5mm for HD (Milling time 22 to 27 minutes depending on foot size on Vx1, 11 To 13 on TwinCAM)
d. 1mm for SD (Milling time 12 to 18 minutes depending on foot size, 6 To 9 on TwinCAM))
e. 2mm for LD (Milling time 9 to 12 minutes depending on foot size 4 To 6 on TwinCAM)

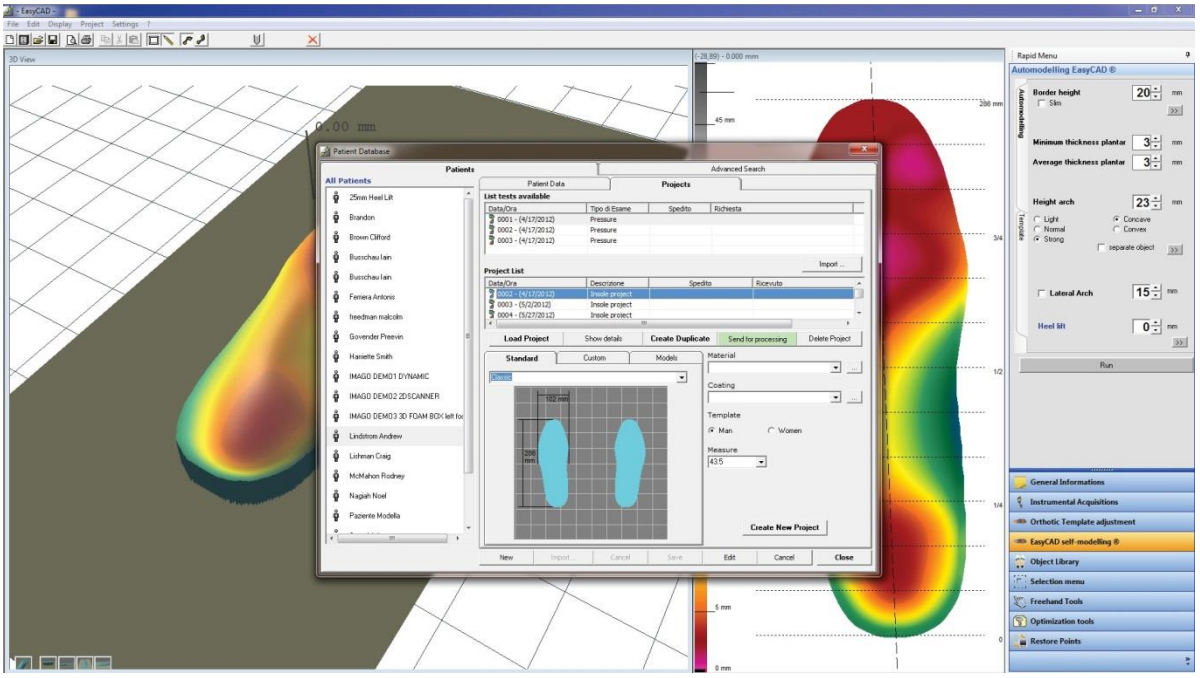


Step 3: Select the type of post processor depending on the model of cutter used:
Vx1: select ISO G-CODE
TwinCAM: select VULCAM TWINCAM

Save to the file location (ie USB Memory Stick)

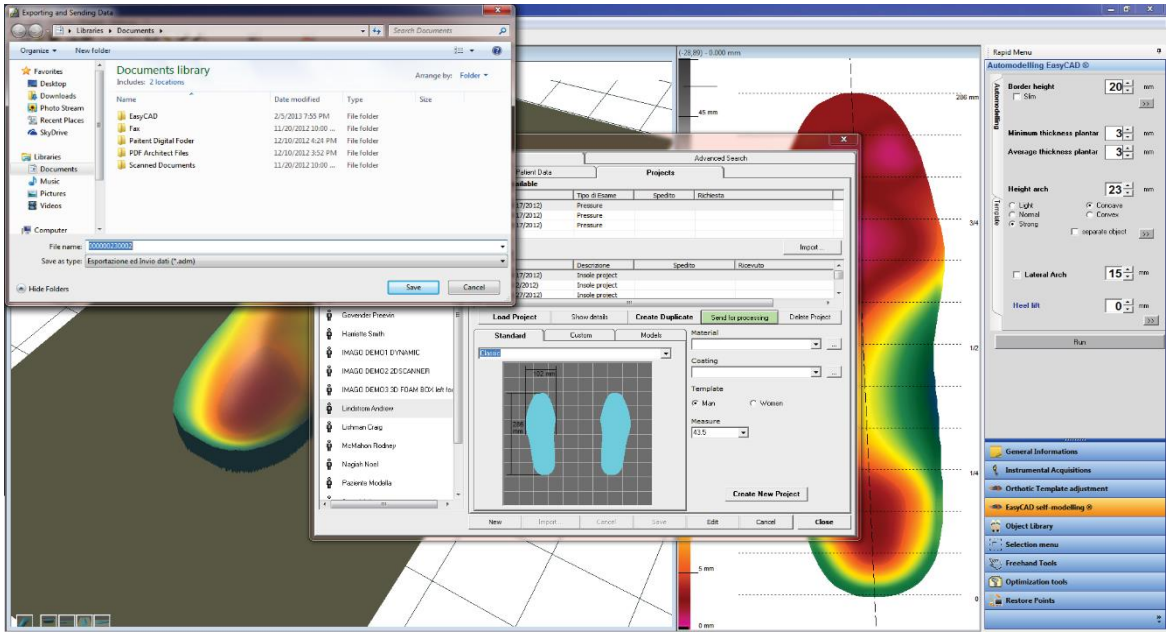
Producing ADM File

Step 1 : Click on Archive button (Top left hand button)
Step 2 : Select the patient under "All Patients"
Step 3 : Click on the project tab
Step 4 : Highlight the project you want to output.



Step 5 : Click the "send for processing" button (green button)

Step 6 : You can leave the file name as is - the last digits show the Patient's Database number and the project number. Alternatively you can change the file name to your patient's name.



Step 7 : Choose the location to save the file.

Step 8 : Click "save"

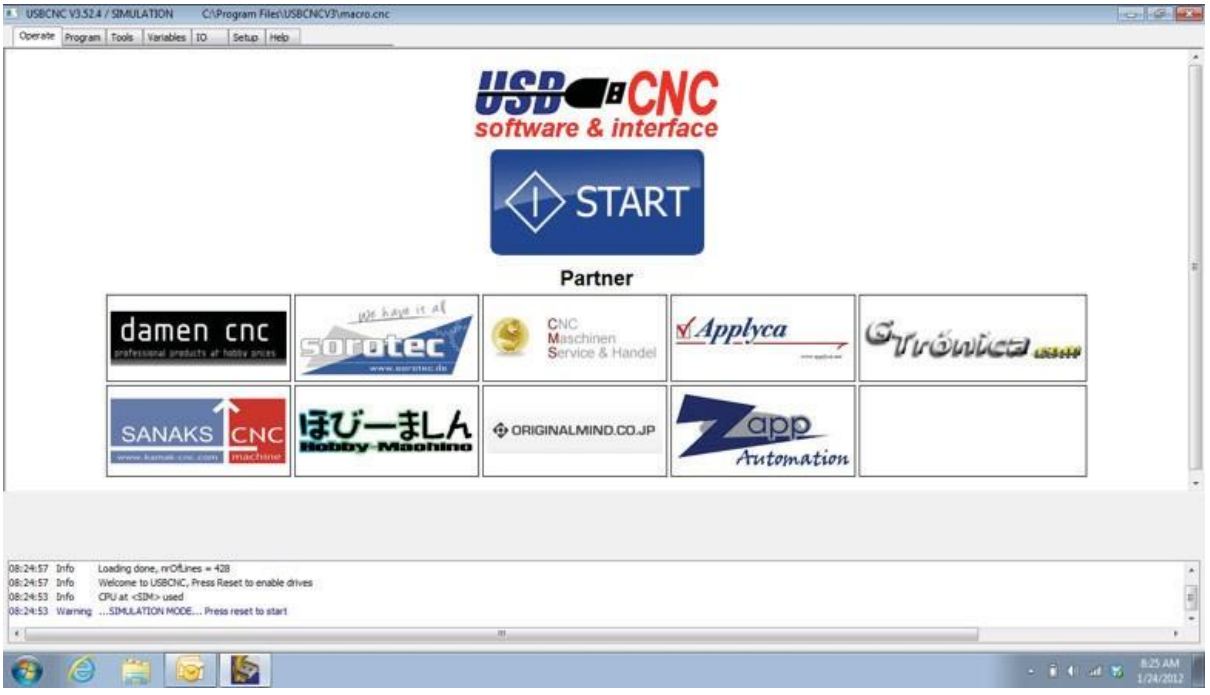
Step 9 : Email the file to us for milling, to insole@sensormedica.com . In the email please clearly state the following:

a. EVA Selection - Color or code
b. Quality of finish (Low, Medium or High)
c. Any special finishes or angles on the reverse skiving

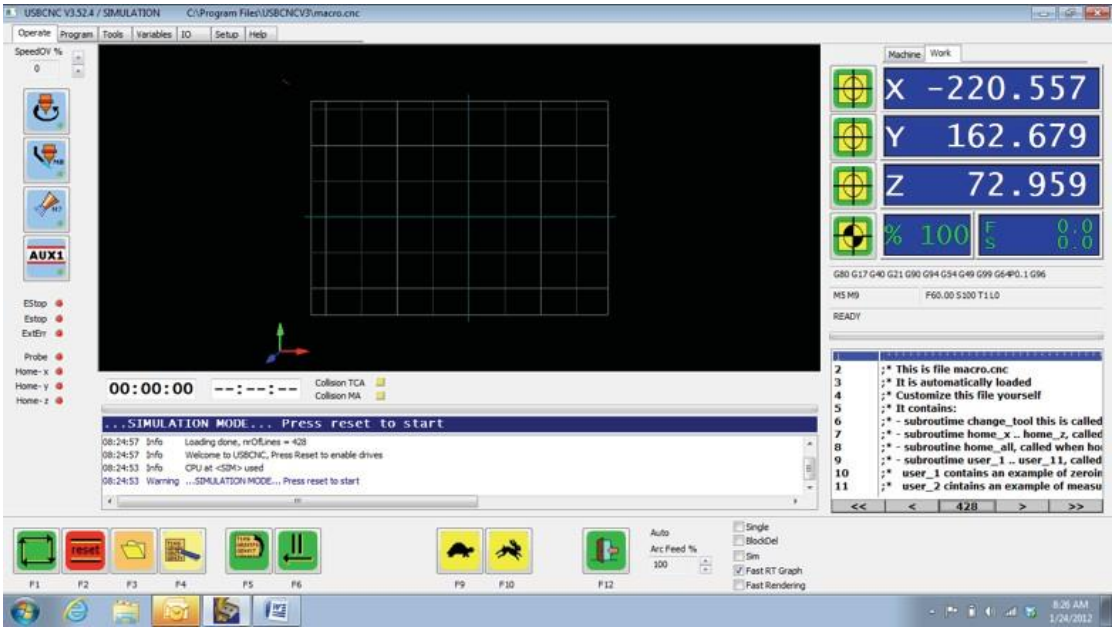
NB - the file size is determined by foot size, amount of modifications on the pair. File size can vary from 500Kb to 3MB.

To operate the milling machine

Step 1: Plug in the milling machine and Vacuum Pump, as well as the USB from the milling machine into the laptop
Step 2: Switch on the milling machine using the red 'dial' on the right side of the machine.
Step 3: Plug in the USB Memory Stick to the laptop (if you are using one to transfer the ISO files).
Step 4: Select the USBCNC logo on the desktop. Once open, click on Start.

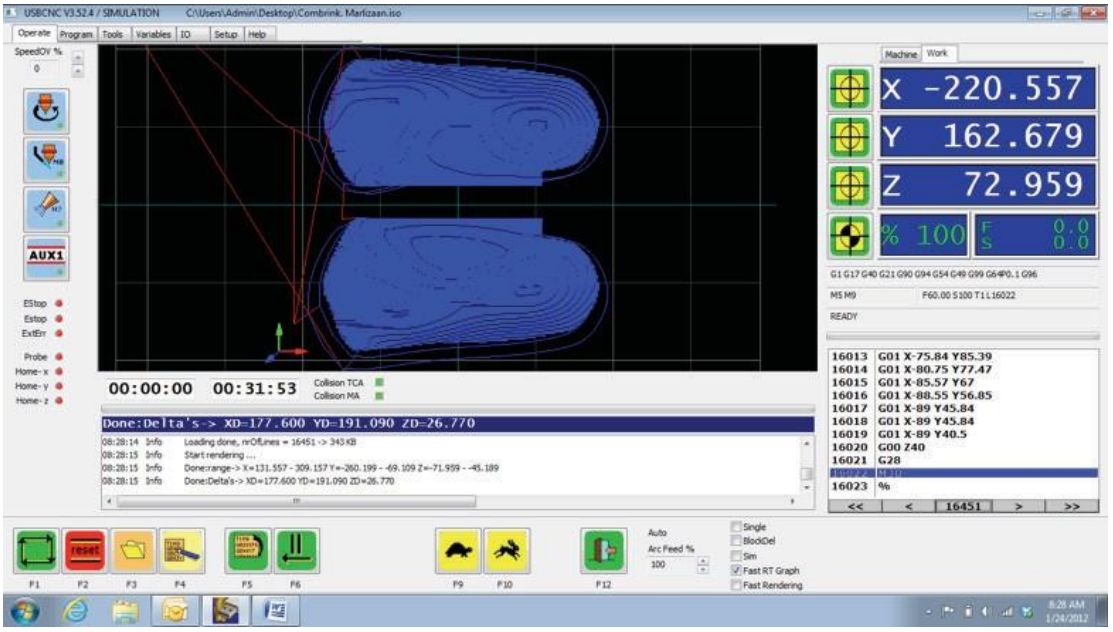


Step 5: Select the Auto button (or F5)



Step 6: Select the Open Folder button (or F3), choose the file from your USB Memory Stick , local drive or network drive. Double click to open the file.

Step 7: Load the EVA block making sure it is centered on the bed, and press the Vacuum button on the right side of the front of the milling machine. Ensure that it is suctioned into place, so that there is no lateral movement, otherwise it will pull out of place on the final cutout of milling.



Note: If your milling machine does not have a vacuum bed, you will need to use the Imago CAD CAM block stickers. When first applying, peel back the white side and apply sticker to EVA block. Make sure there is no dust residue on the block (or as little as possible, to make the sticker last longer). Then, remove yellow/brown side, and carefully place on the bed of milling machine, ensuring the block is positioned centrally. Rub down on the block, to ensure the sticker adheres fully. There should be no lateral movement of the block.

Step 8: Go back to main menu by pressing F12, then Home Sequence the machine by clicking on.

Step 9: Click on the Reset/F2 button.

Step 10: Double click on Run/F1 button, and turn on the dust extraction unit.

Step 11: You can follow the path of the cutting on the screen. Once complete, turn off the vacuum but- ton (if you have) and remove the block. Vacuum any dust off the bed, and return to Step 1 for the next project.

Note: If you have used the stickers, before removing the block, vacuum or sweep out any debris from the block, then carefully remove the block from the sticker. The sticker can be used until it no longer holds the block sufficiently, so by doing this carefully and minimizing the dust that drops off onto the sticker, you will maximize the life of the sticker (usually somewhere between 3-6 pairs).

When starting the next project, place the block on to the sticker and rub down firmly. If there is no lateral movement once done (when trying to push/pull the block sideways), the sticker is usable. If the block moves, you will need to peel off the sticker, and start again from step 7.

Special features

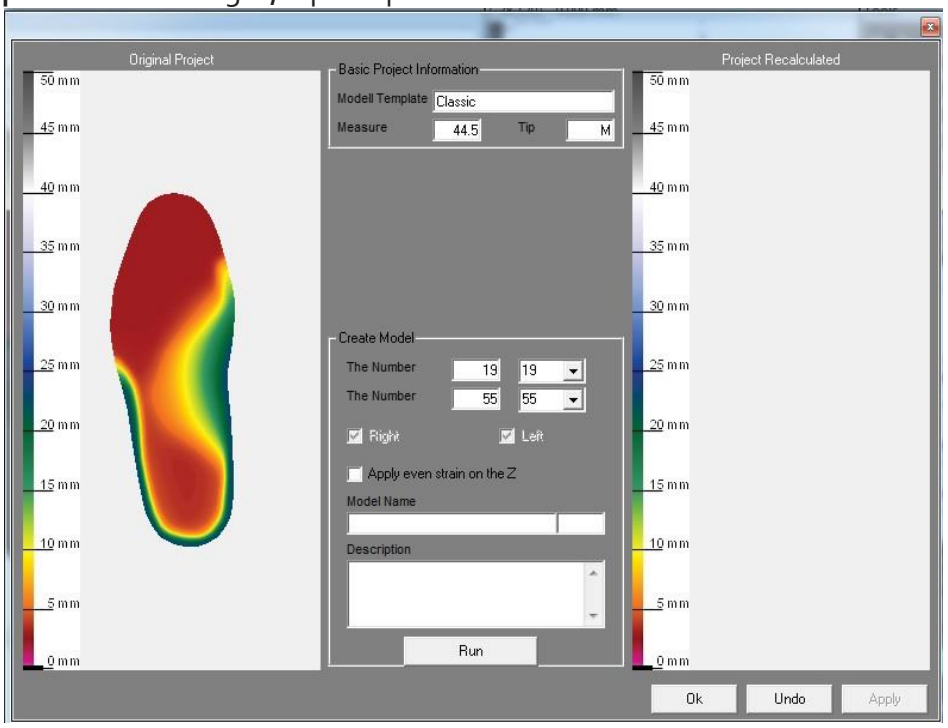
Models

You can build a model of a design or part thereof. The model feature will take the design and extrapolate all the sizes of the design on the selected template. You can choose to do both left and right as well as the size range you want the model to create.

This is a handy tool should you have completed a design for a patient and then realized it is either too small or too big for the shoe. The Model tool will allow you to create a range of sizes. You can then use the appropriate size for your patient without having to re-create all the steps you used before.

Step 1 : Open the patients project

Step 2 : Click "Settings", "option pak1" and "Models"

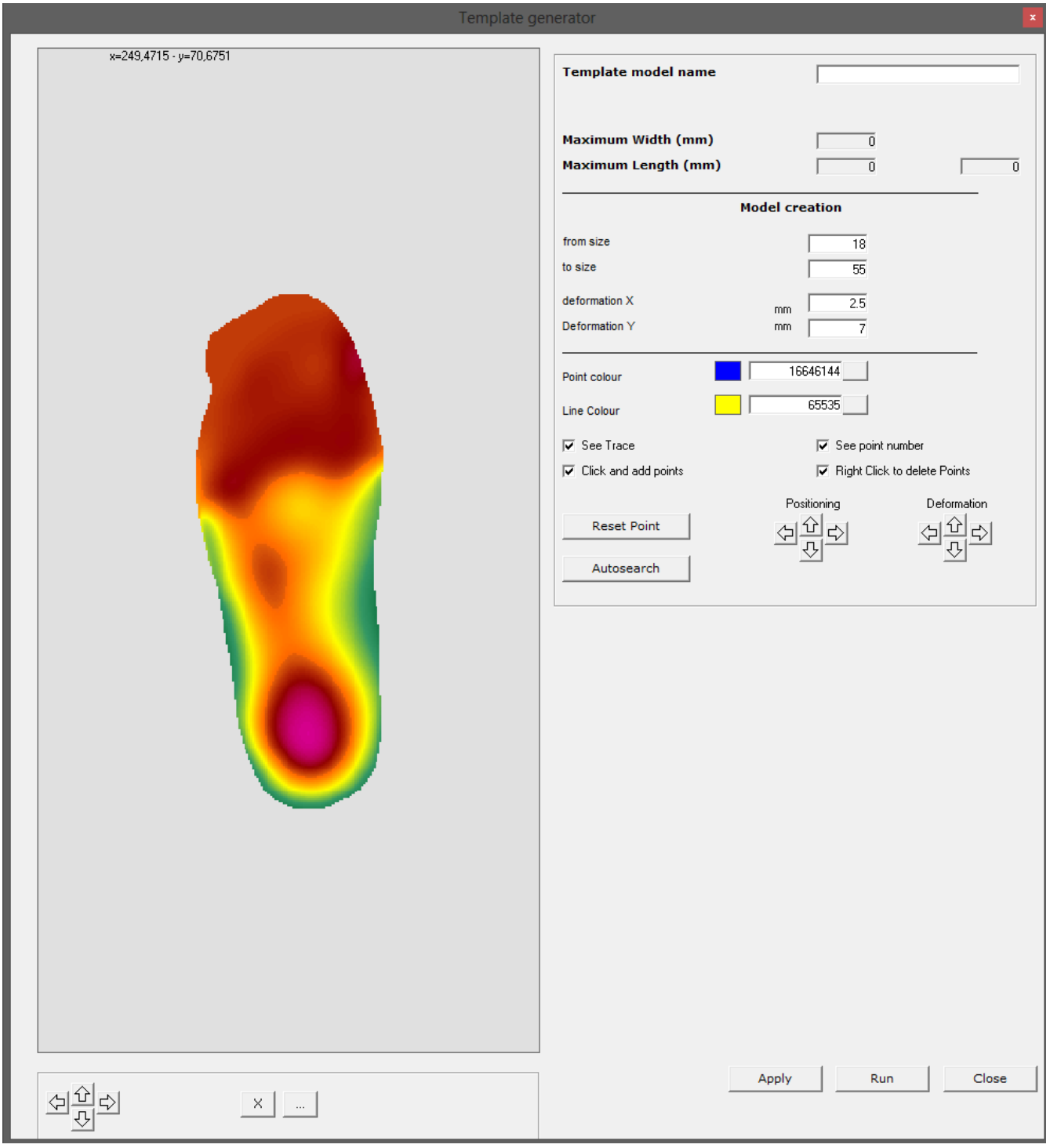


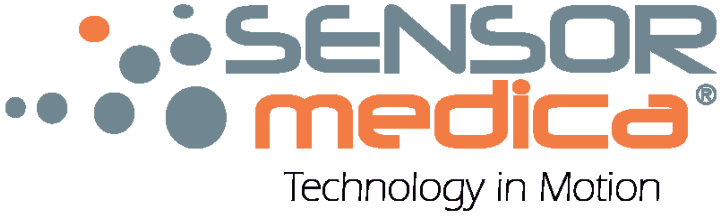
Step3: Select sizes (default is all sizes) - note the incorrect size description - just ignore

Step 4: Click "run"

Custom Generator

You can build a custom template of the orthotic.
You can create a single template (single cut) or the whole numbers using the software engine.





Via Umberto Agnelli 11 – 00012 – Guidonia Montecelio – Rome – Italy
www.sensormedica.com – info@sensormedica.com