

GESPODO FootCAD3D

User Manual

Version 6.0.6.26

Release : 12th January 2023

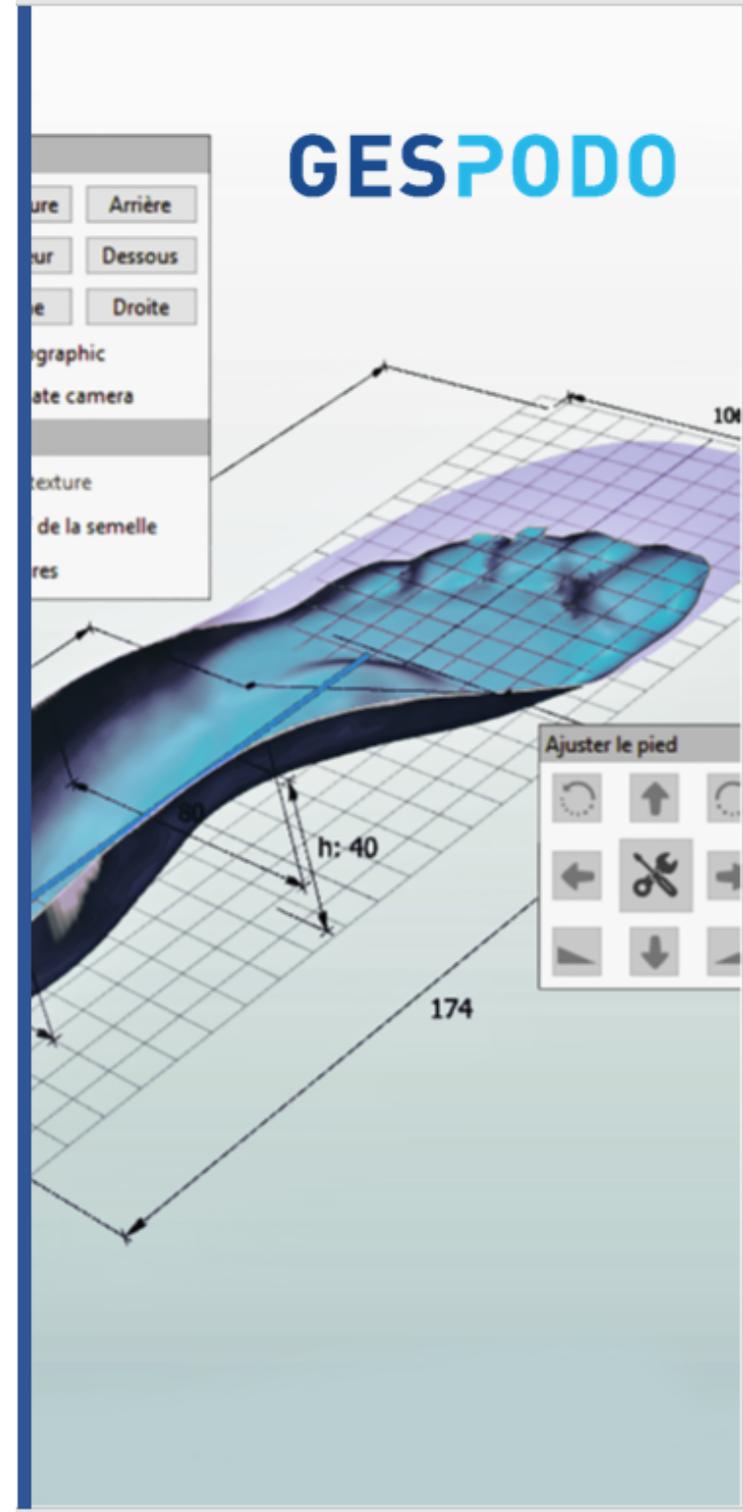
English version

Languages validated : EN, FR, CN

Languages being implemented: Spanish, German, Deutch

Feedback & Support: Help@gespodo.com

Editor: david@gespodo.com



What's new in 6.0.6.26 release

INNOVATION NEVER STOPS - We are committed to deliver ongoing improvements and value add features based on your feedback and evolving requirements. Feel free to send your ideas/feedback to - Help@gespodo.com

Key benefits to move to this new version release :

General

- New boolean function increasing the trimline, solidification, deformation functions
- Fast drag and drop menu to quickly add modifiers to template before fusion
- New total contact fusion presets & controls
- Multi-libraries/multi-language support in one single executable

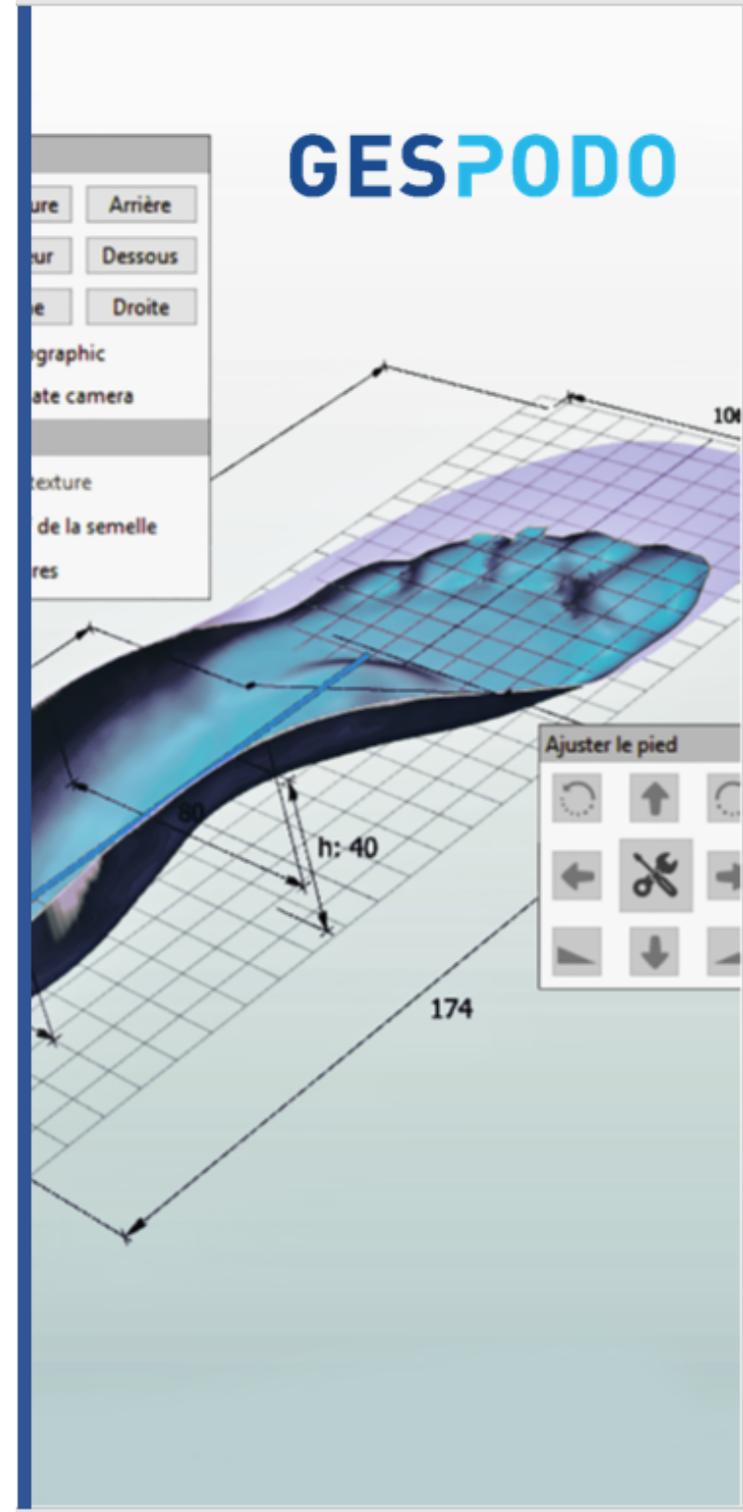
3D Design for CNC milling (insoles)

- Insoles bottom design for top/bottom milling
- New templates for 3/4 insoles CNC milling (and printing)

3D Design for 3D Printing (insoles) - available with 3DP features pack

- Addition of core 3D printing solidification features for hard material printing
- Addition of core 3D printing features for soft material filament printing (FDM)
- Addition of personalisation features for 3D printing (Text, logo engraving)
- Support of multi-durometry design for FDM printing
- New automated bottom design generator
- New and updated edge design function (tapering, rounding, collar, slope controls)
- Improved management of the versioning and licences management

Expected next version release : Mid February 2023



Support Index (1)

Before your start

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- A.2 **Visual Control of the 3D Model**
- A.3 **Positioning the Anatomic Landmarks - Positive & Inprint/Foambox**
- A.4 Manual denoising
- A.5 Rectification of the 3D Footprint / 3D Scan - Along STJ axis
- A.6 **Virtual Fusion between 3D Scan and Orthotics template**
- A.7 Visualizing the 3D insole - Understanding the "Show" menu

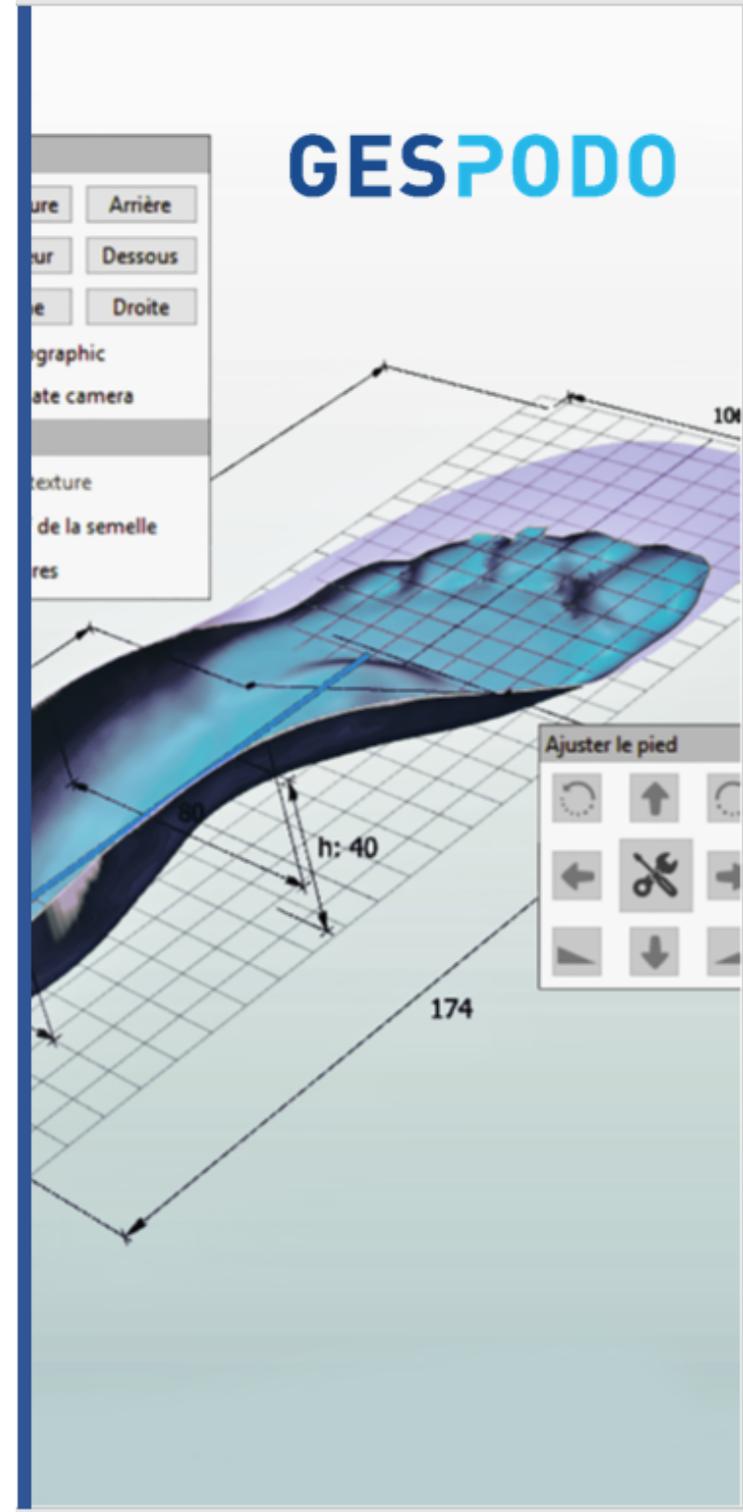
B. **Save & Export Menu + Creating a template**

C. **Modifiers Toolbox**

D. **3D Printing Solidification Toolbox**

E. **Settings Menu**

F. **Expert Users Features (work in progress)**



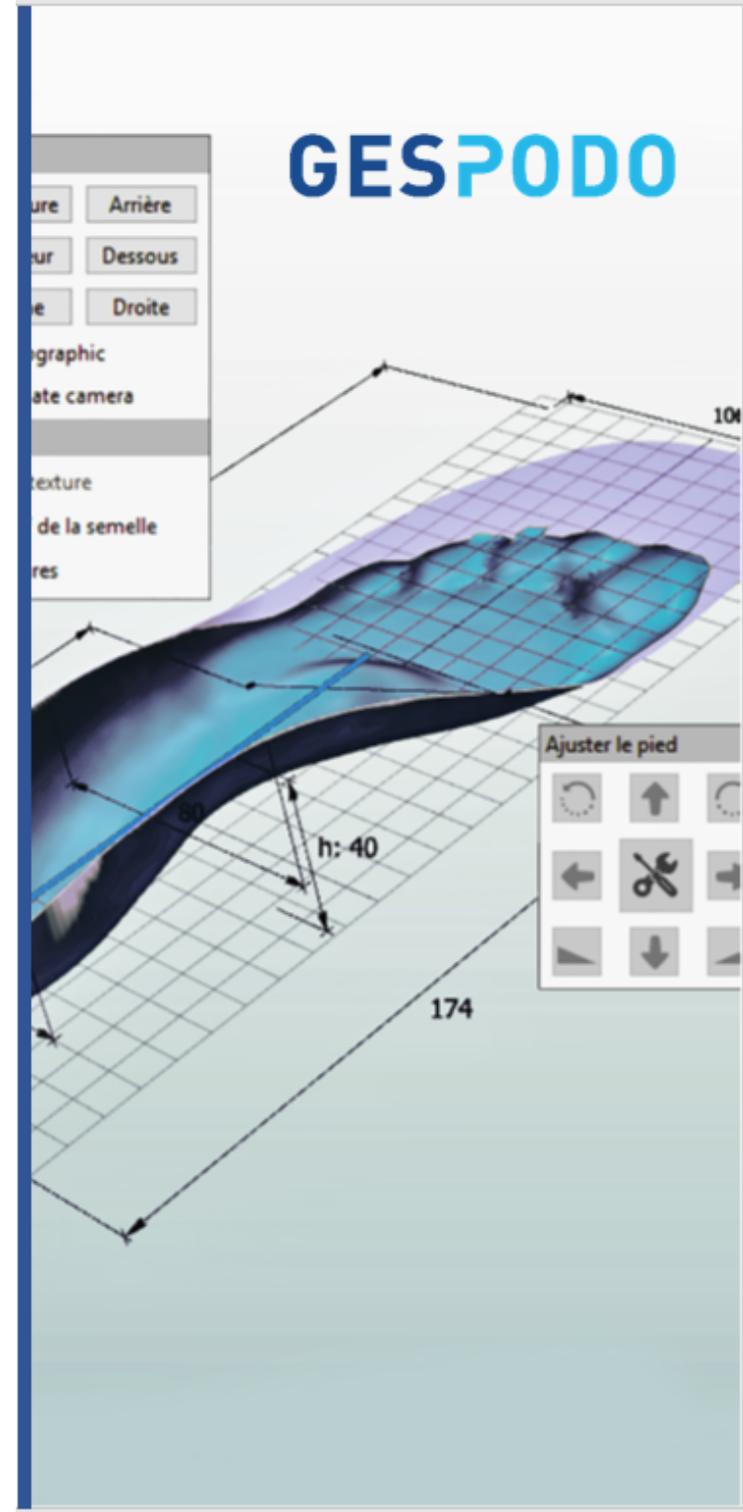
Support Index (2)

C. Modifiers Toolbox

C.1 Modifiers Toolbox - Quick Wedge & Fitting tools (left menu)

C.2 Modifiers Toolbox - Summary (right menu)

- C.2.01 Mirroring tool
- C.2.02 Heel & Toes Raise tool (Compensation)
- C.2.03 Quick Release tool
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- C.2.06 Twist, Posting & Wedge toolbox
- C.2.07 Heel Skive tool
- C.2.08 Virtual Brush, Filer and Grinder toolbox
- C.2.09 Local Shrinkwrap tool (localized full contact)
- C.2.10 Trimline tool



Support Index (3)

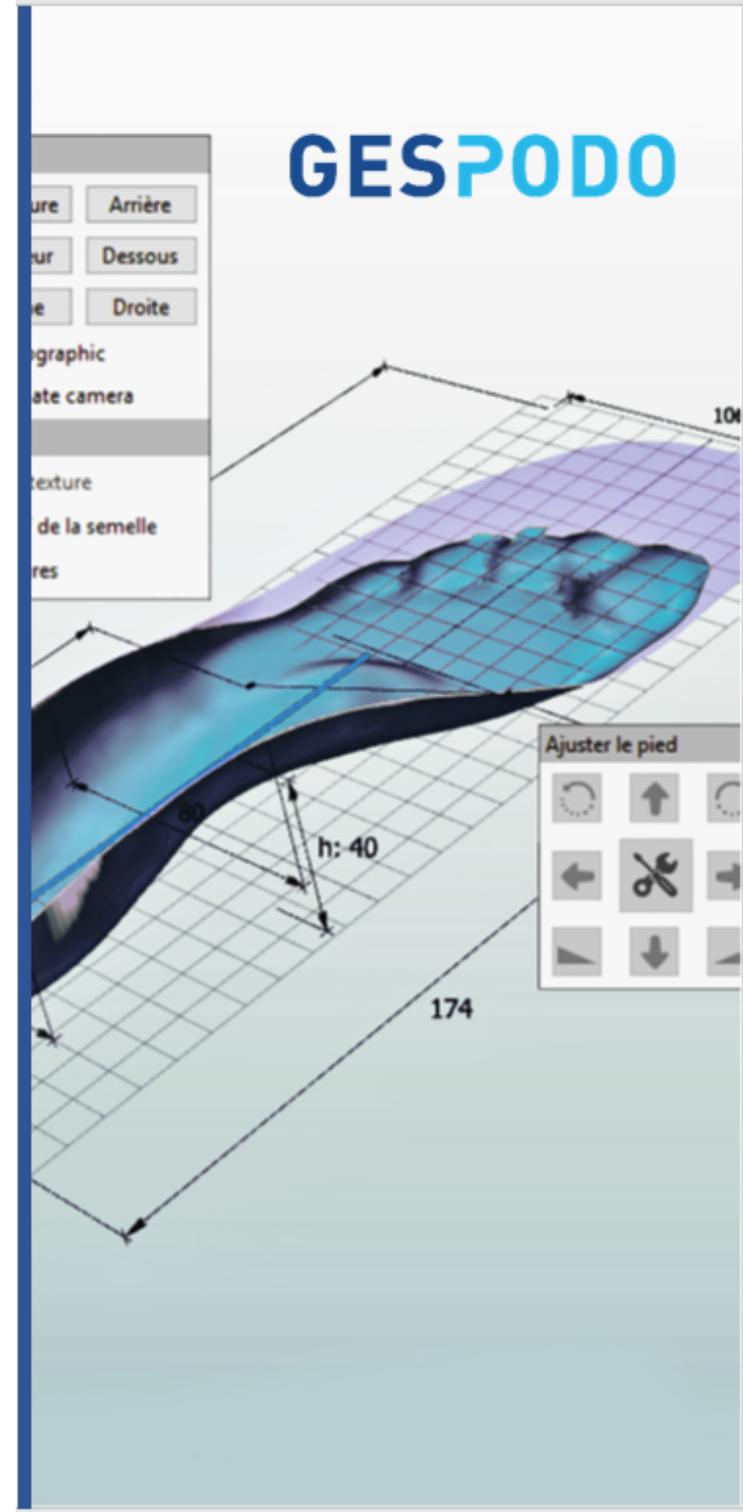
D. 3D Printing - Solidification Toolbox

D.1 Soft Material Printing: TPU, EPU, TPA on FDM, MJF, SLS, SLA

- A.01 Designing Bottom
- A.02 Edges Design - Collar & Slopes

D.1 Soft & Hard material Printing

- B.01 Trim holes (Not available yet for soft material)
- B.02 Extrude
- B.03 Insert Text (Job ID, Patient's name)
- B.04 Insert Logo & Stamp (3D files)
- B.05 Insert Addition (3D Files)
- B.06 Zones Segmentation (Multidurometrie)



The GESPODO Workflow

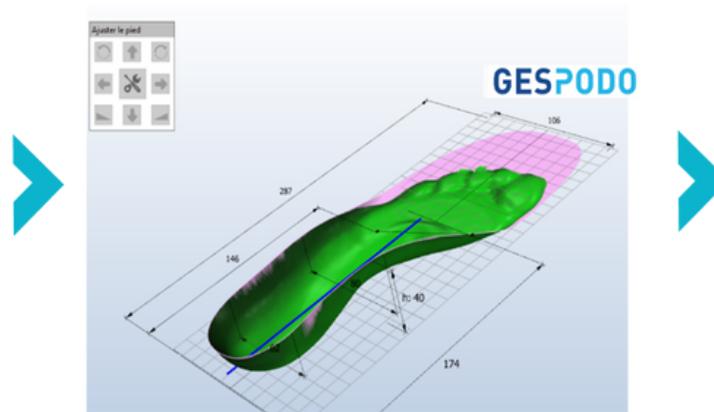
GESPODO

Empowering the 3D orthotics Generation

1 2D/3D footprint & measures



2 Intuitive custom 3D Design



3 On Demand Production (CNC/3DP)



GESPODO

Strictly Confidential - do not share

3

FULL-CUSTOM 3D ORTHOTICS

An easy 5 steps process

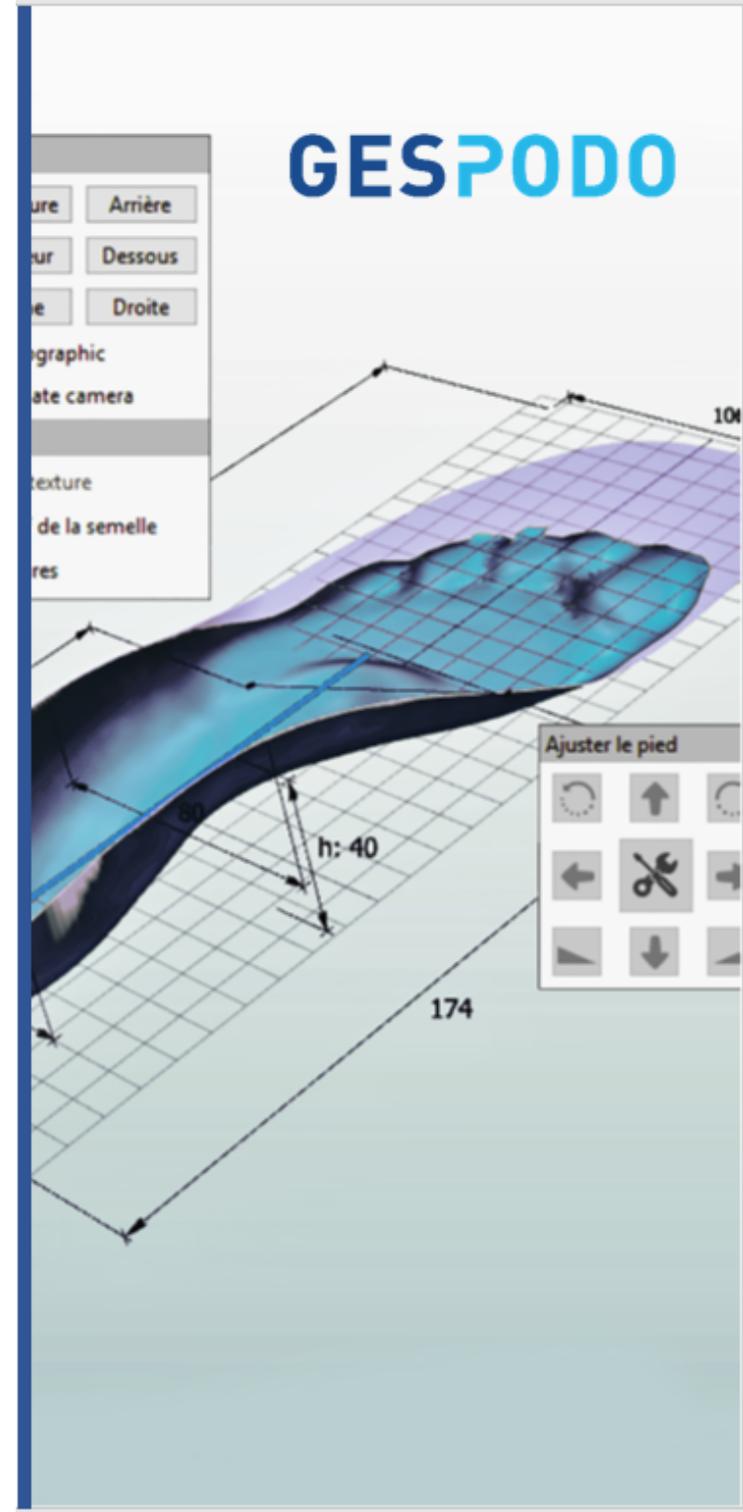
STEP 1: Import your 3D footscan /inprint, **select your template** of orthotics, **set anatomical landmarks**

STEP 2: Rectify your 3D Footscan (Optional)

STEP 3: Merge 3D model & orthotics **template**

STEP 4: Implement your **modifiers** & **solidify** if you want to 3D print

STEP 5: Export your milling/printing file or save as template



SEMI-CUSTOM 3D ORTHOTICS

An faster 3 steps process

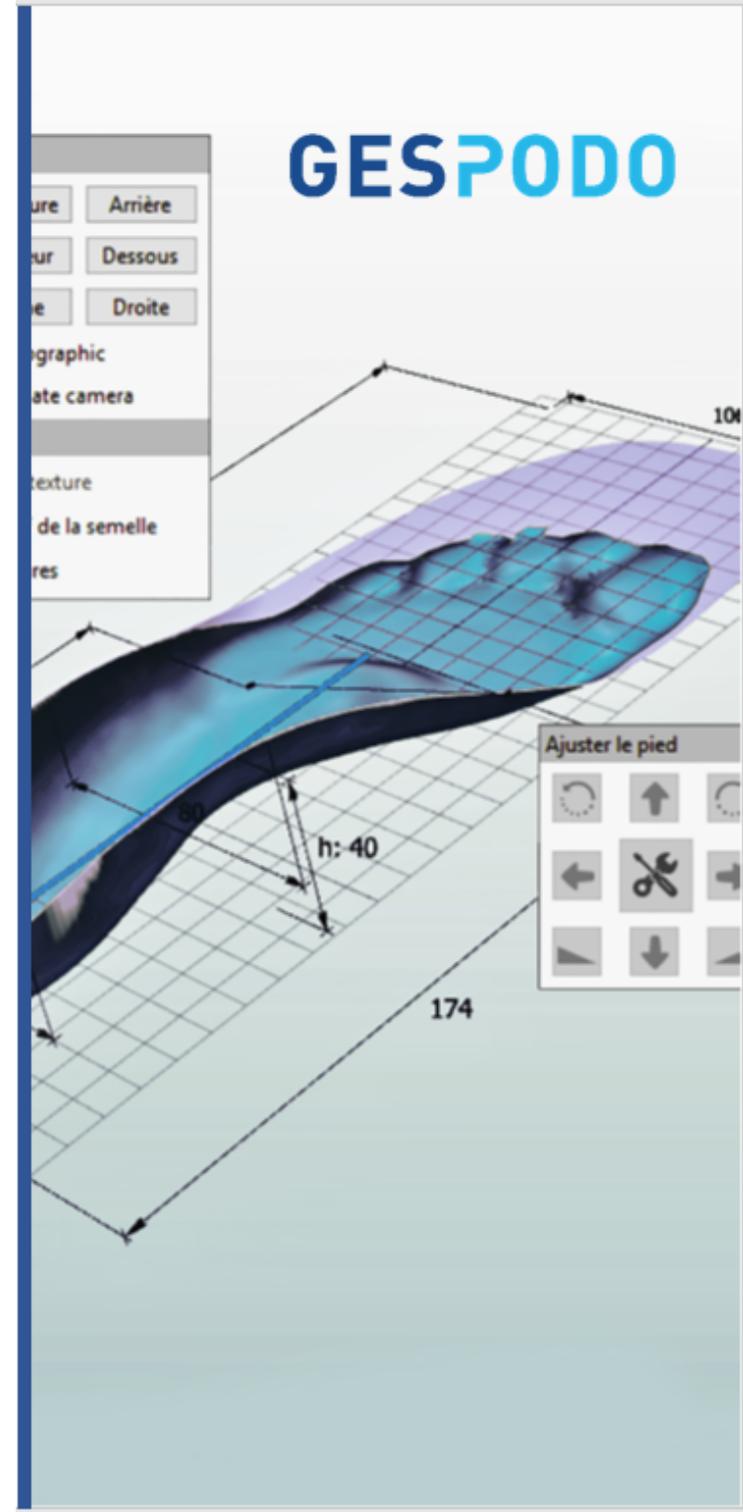
STEP 1: Select your template of orthotics

STEP 2: Implement your modifiers
& **solidify** if you want to 3D print

STEP 3: Export your milling/printing file
or save as template

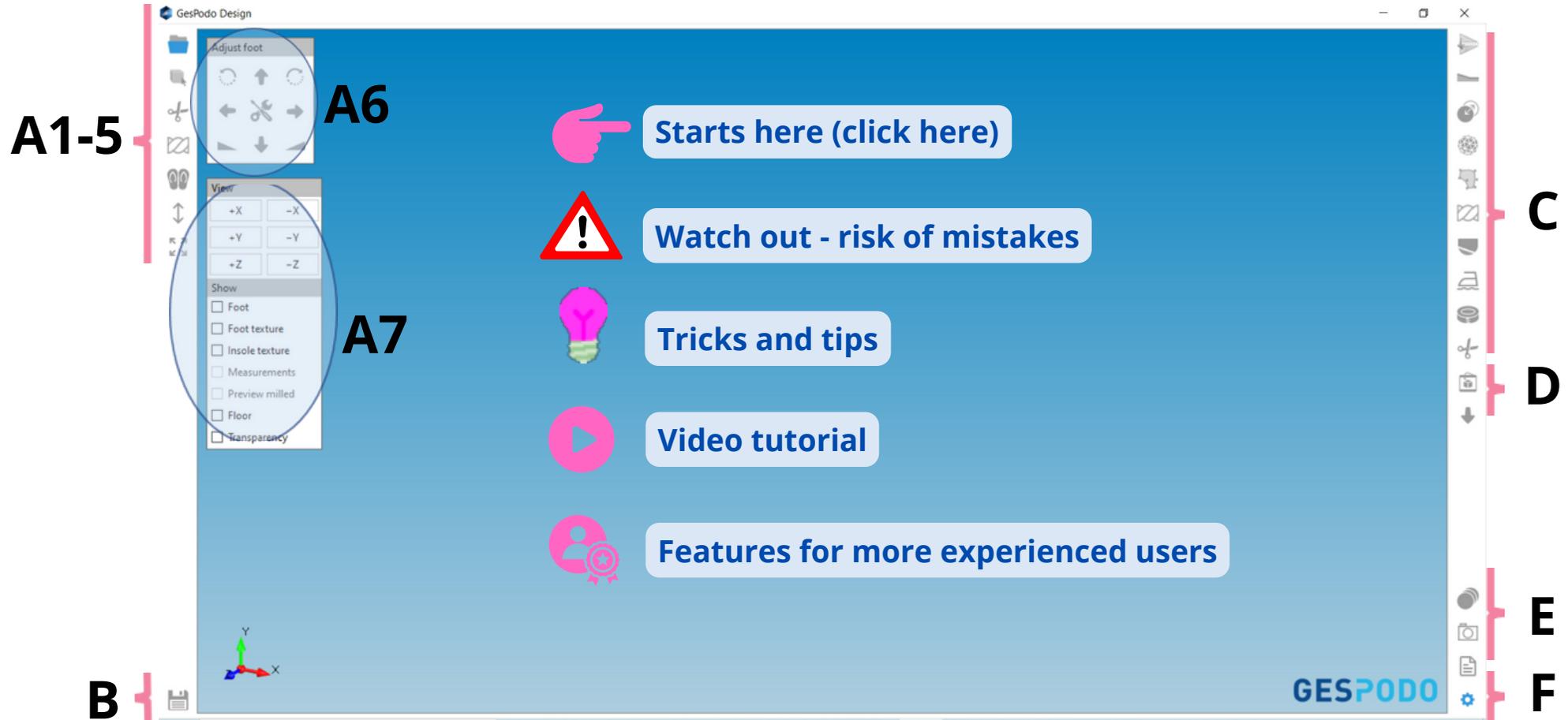


You can **save a lot of time** by designing first your library of 3D Templates and presets to recycle and improve in an iterative mode



FootCAD3D Menu display

Main controls & Legends



A 1-5: Footprint import & rectification controls

A 6: 3D object View controls

A7: Footprint to template Fusion controls

B. Saving & export controls

C. Generic modifiers controls

D. 3D Printing solidification controls

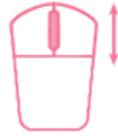
E. Modifications history - Images - Prescription notes

F. Settings - languages & versions

Before you start

Basic Keyboard Shortcuts

- **Zoom-in / Zoom-out**



Scroll the Wheel

- **Pan Control the rotation**
of the foot or insole 3D model in the XYZ space



Hold & Drag Wheel

- **Translate** the foot or insole 3D Model up /down
– right / left in the XYZ space



CTRL
+ Hold & Drag Wheel

- **Measure distance** between 2 xyz points



Keyboard "M"
+ Left button

- **Rotate a Modifier or element**



Keyboard "R"
+ Left button

- **Switch Modifier's edition mode :**
from mode « edit shape » to mode « position
the model »

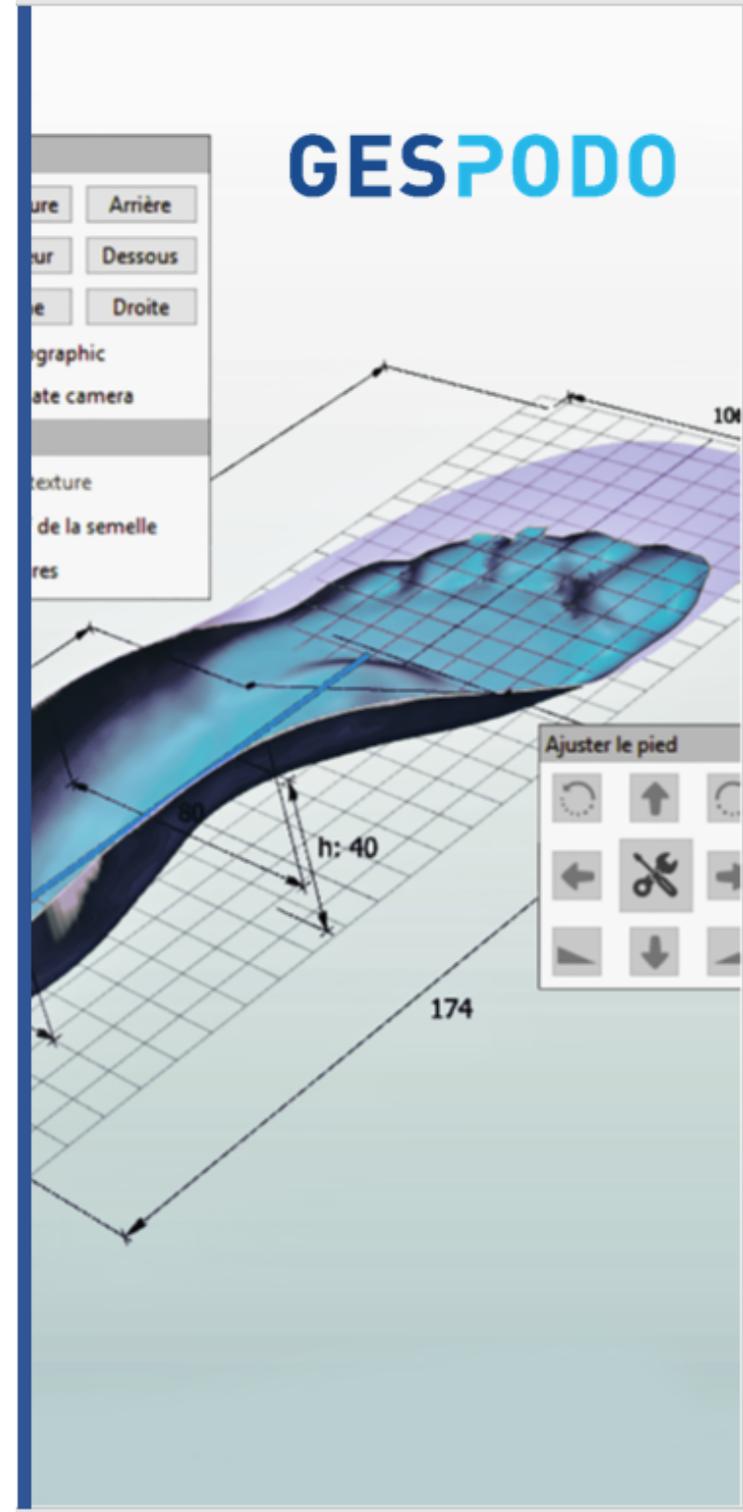


CTRL + Keyboard "A"
Then Hold & Drag
Left button

- **Add Points to Deform Tool or
create an element from scratch**



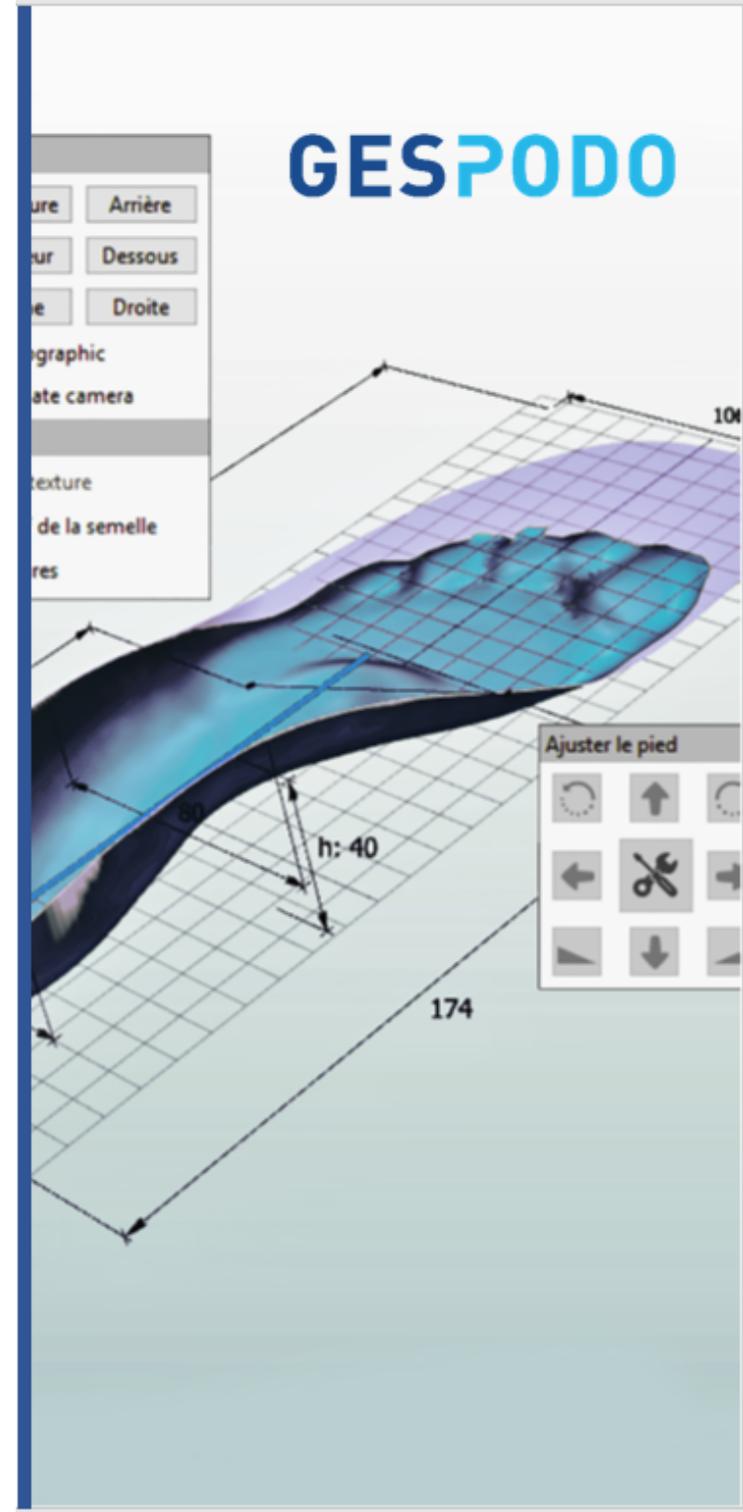
ALT + Left button



Before you start

Advanced Keyboard Shortcuts

- **Cancel Operation** **Keyboard "Escape "**
 - **Select All** **CTRL + Keyboard "A"**
 - **Quick Access to Smoothing tool** **Keyboard "S"**
 - **Visualize MTP Points** **Keyboard "Z"**
 - **Visualize foot volume** **CTRL + Keyboard "F"**
 - **Visualize 3D Coordinate & Origin** **Keyboard "C" and Keyboard "O"**
 - **Measure distance** between 2 points **Keyboard "M" + Left button**
- **Debug Layer (on/off)** **CTRL + "D"**
 - **Show Wireframe (on/off)** **CTRL + "W"**
 - **Show 3D Normals (coloring black)** **CTRL + "B"**
 - **Fix Normals** **CTRL + "N"**
 - **Fix Normals (Brute Force)** **CTRL + SHIFT + "N"**
 - **Delete Triangle** **DELETE**



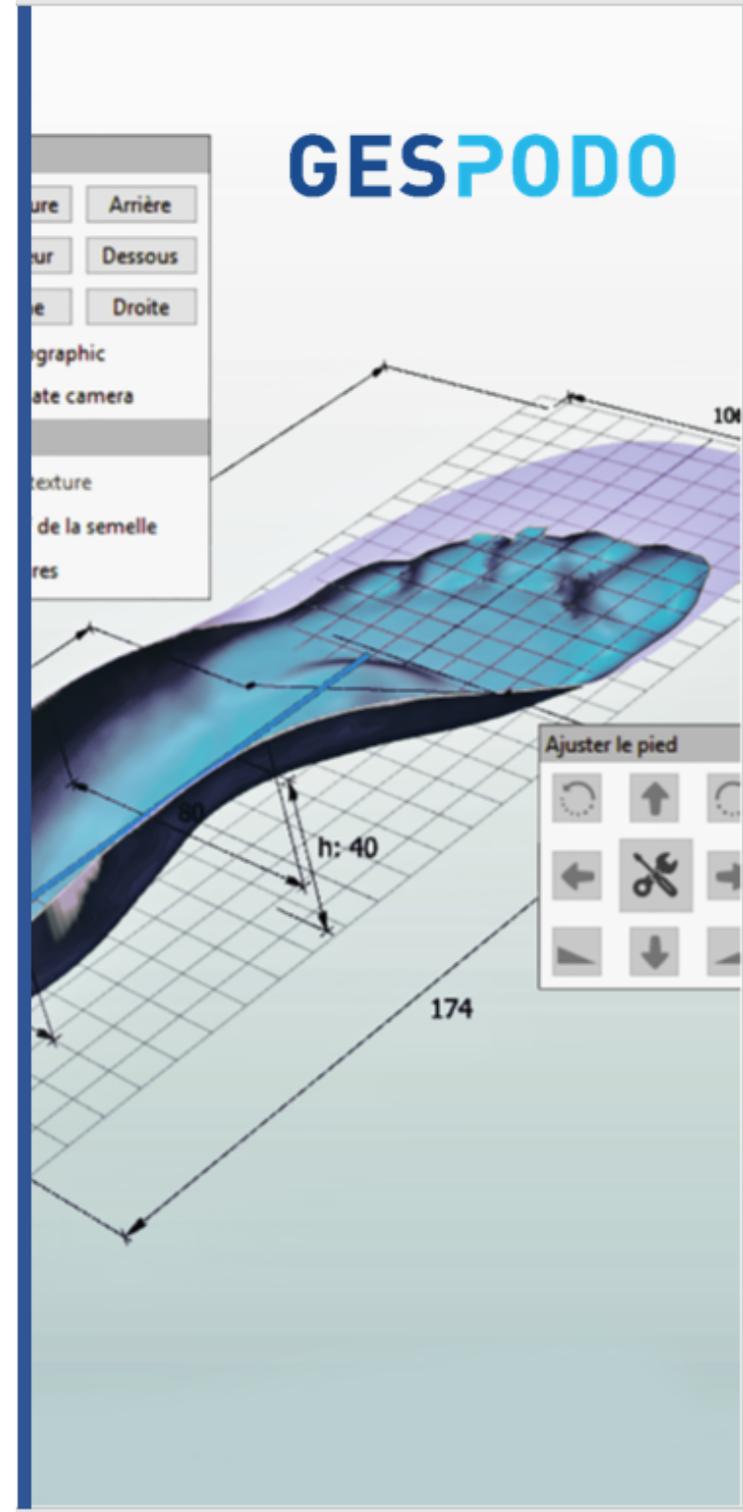
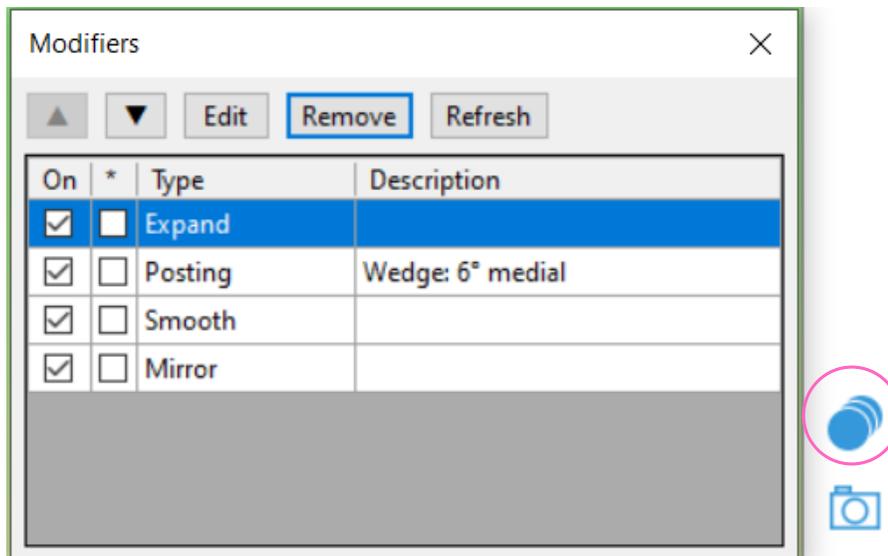
Before you start

Tip 1 - Edit your modifiers anytime

When designing you don't want to redo all your work when you noticed an error in a previous step...

Anytime - using the  you can:

- **activate / deactivate / reorder** any design steps
- **remove** the wrong modifier from the list
- **edit** the setting of each modifier

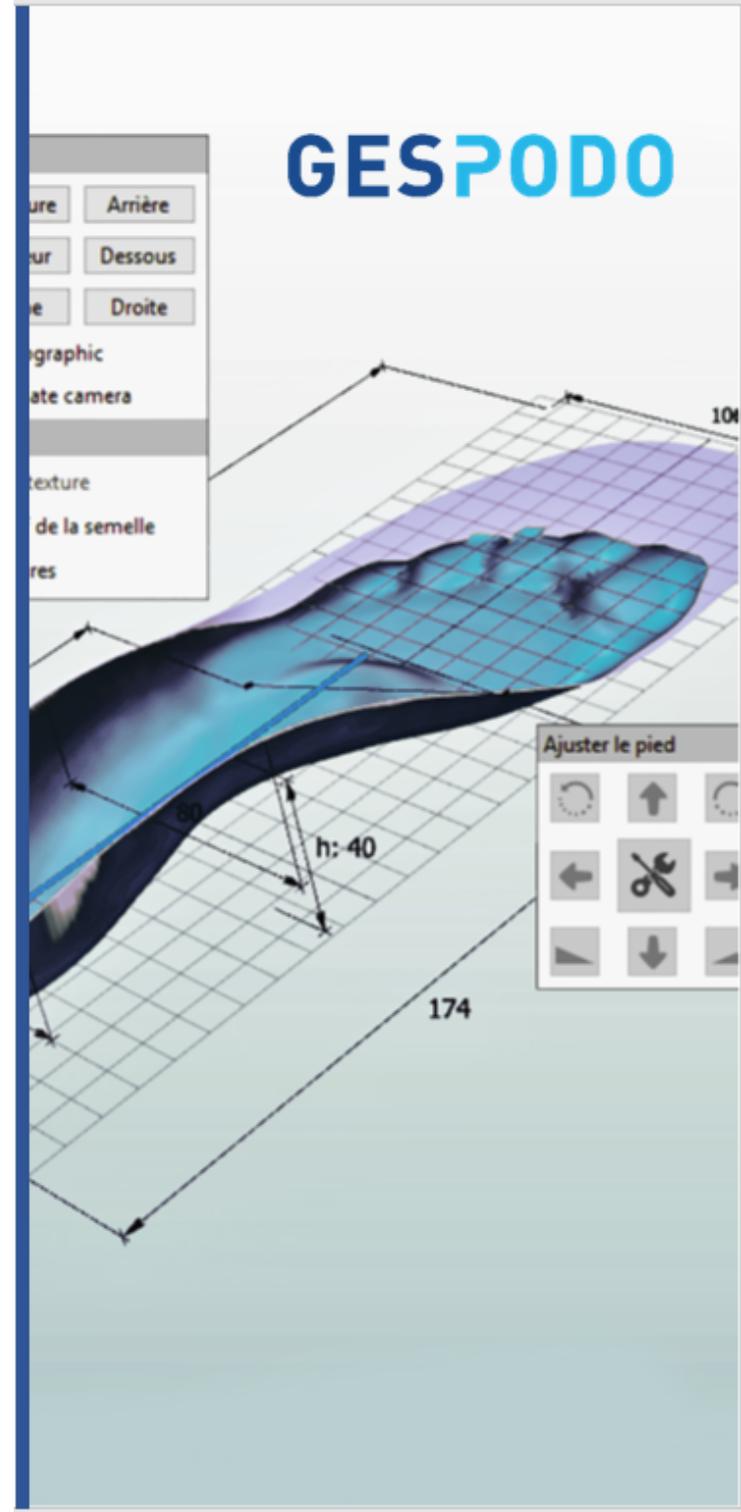
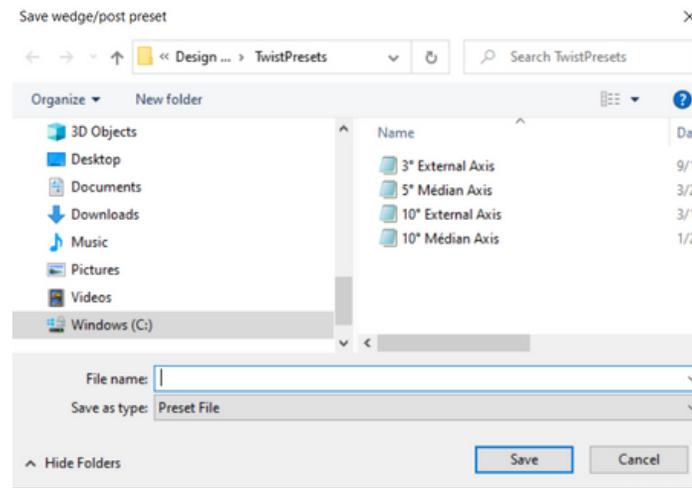
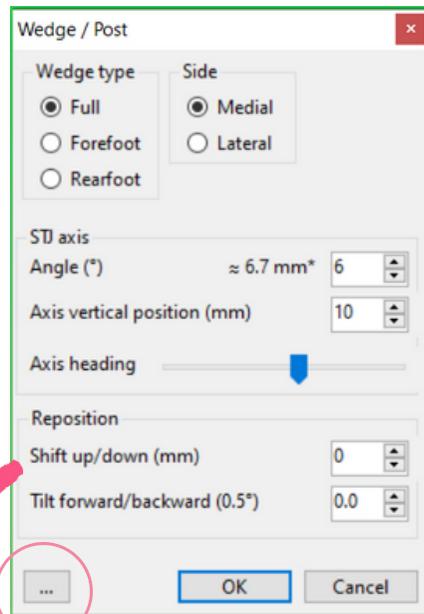


Before you start

Tip 2 - Save Modifiers as Preset in your own Library

Sometimes, you don't want to redefine each settings of a modifier for each and every new design you work on.

Anytime - using the  box within a modifier's popup, you can **"Save as"** the settings of your designed modifier **as a new preset** for that modifier **in your own library of modifiers**.

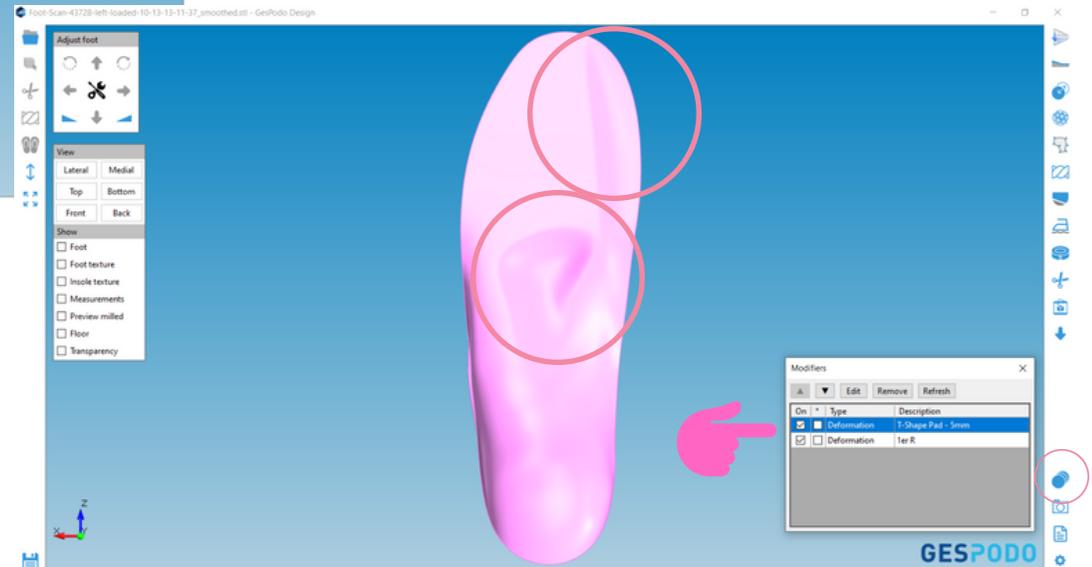
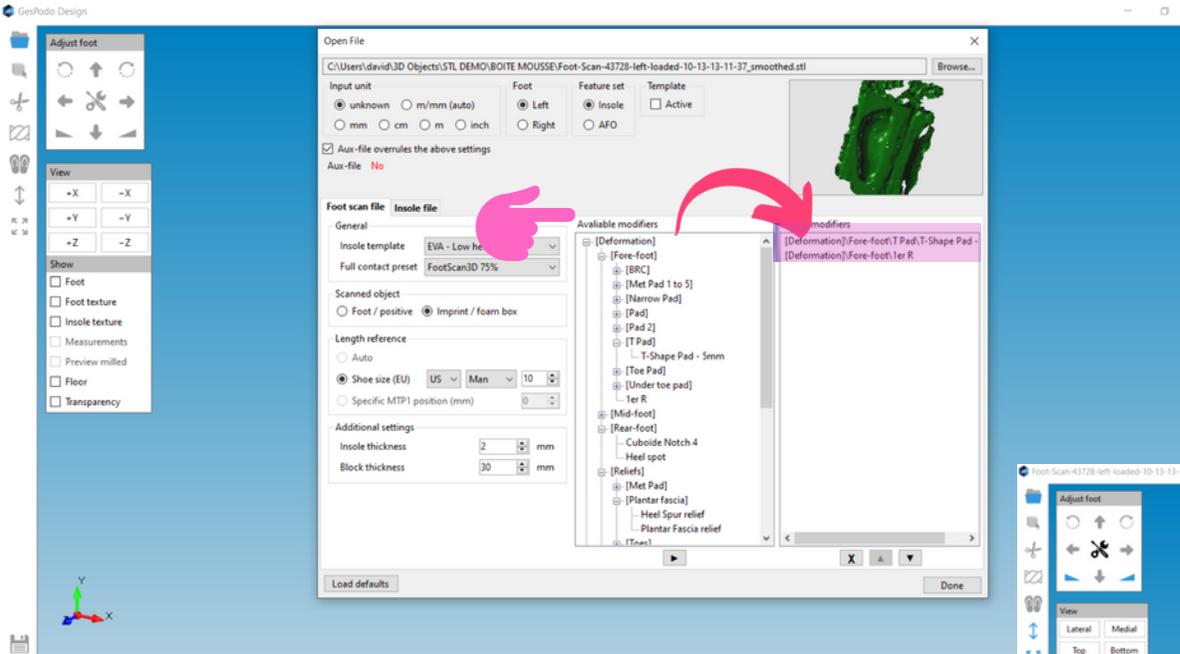


Before you start

Tip 3 - Drag and drop Modifiers from first screen

To increase your productivity

- Use the **Modifier's Drag & Drop** menu from initial screen.
- If you have properly designed your libraries of templates and modifiers, you will reduce your full custom design **to less than 2 minutes**

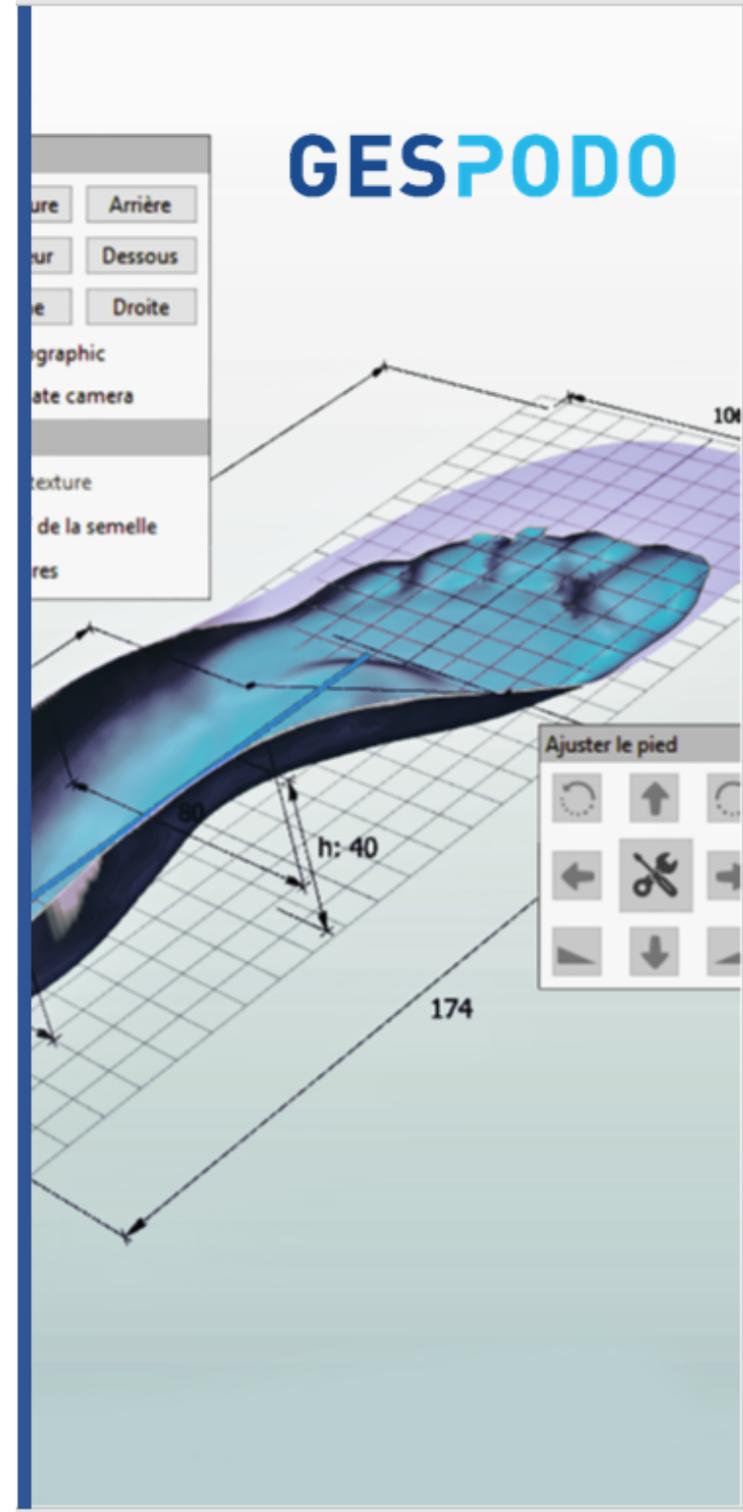


The fusion between your template and the 3D Model will include the modifiers selected.

After the fusion you can edit modifiers if needed (resize, reposition or full edit)

A STEP BY STEP USER GUIDE

For full custom 3D orthotics design



A.1 Import Footprint - File opening

A.1.1. Open a file

The screenshot displays the 'Open File' dialog in the GesPod Design software. The dialog includes fields for 'Input unit' (radio buttons for unknown, m/mm (auto), mm, cm, m, inch), 'Foot' (radio buttons for Left, Right), 'Feature set' (radio buttons for Insole, AFO), and 'Template' (checkbox for Active). A checked box indicates 'Aux-file overrides the above settings' with 'Aux-file No'. Below these are sections for 'Foot scan file' (General, Scanned object, Length reference, Additional settings) and 'Insole file' (Available modifiers, Active modifiers). A 'Browse...' button is highlighted in the top right of the dialog.

Overlaid on the right is a Windows File Explorer window showing the '3D Objects' folder. The file '1_1-RightFoot' is selected and highlighted. The 'File name' field at the bottom contains '1_1-RightFoot' and the 'Supported file types' dropdown is set to 'All files (*.*)'. The 'Open' button is highlighted.

A.1.2. Select a footprint file

A.1.3. Select an .STL or .OBJ file

A.1.4. Click to Open

A.1 Import Footprint - select preferences

A.1.6. Select scale unit for the 3D model if any

A.1.7. Select right or left foot ⚠

A.1.5. Display the 3D model

A.1.8. Select the orthose template of your choice ⚠

A.1.9. Select if positive or inprint model ⚠

A.1.10. Select shoesize ⚠

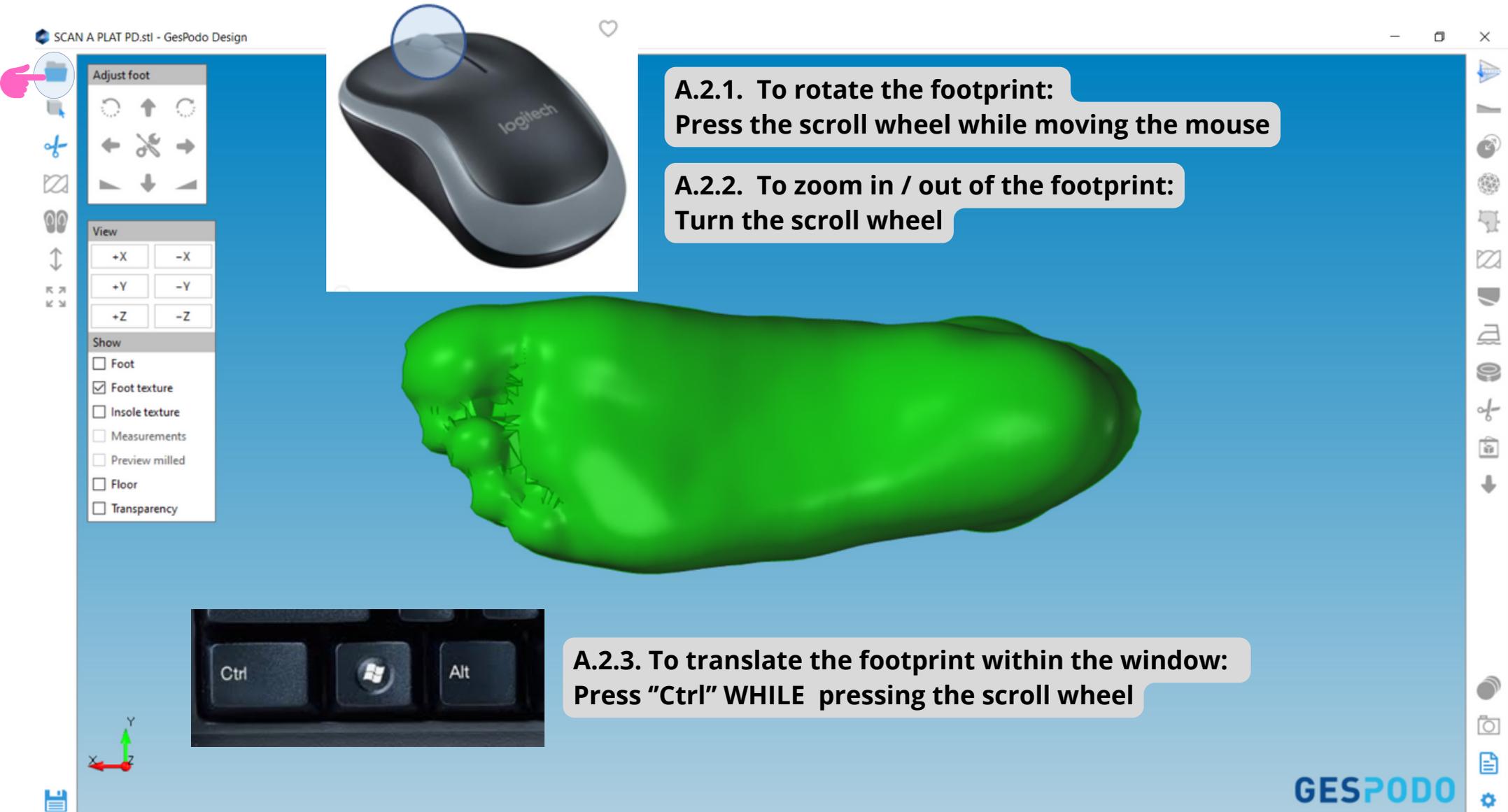
A.1.12. if you mill specific blocs - define blocks thickness

MANDATORY SELECTIONS : Red highlighted fields are MANDATORY to complete before



EXPERT USERS : for details about Input units, AFO feature set, Starting from Templates, Perfect fit version, Full contact preset,... please see advanced users guide

A.2 Visual control of the 3D Model



The screenshot displays the GESPODO software interface. At the top left, the window title is "SCAN A PLAT PD.stl - GesPodo Design". On the left side, there is a vertical toolbar with icons for various functions. Below the toolbar are three panels: "Adjust foot" with directional arrows, "View" with buttons for +X, -X, +Y, -Y, +Z, and -Z, and "Show" with checkboxes for Foot, Foot texture, Insole texture, Measurements, Preview milled, Floor, and Transparency. In the center, a 3D model of a foot is shown in a bright green color. Above the 3D model, a Logitech mouse is shown with a blue circle highlighting the scroll wheel. To the right of the mouse, two text boxes provide instructions: "A.2.1. To rotate the footprint: Press the scroll wheel while moving the mouse" and "A.2.2. To zoom in / out of the footprint: Turn the scroll wheel". Below the 3D model, a close-up image of a keyboard shows the Ctrl, Windows, and Alt keys. To the right of this image, a text box states: "A.2.3. To translate the footprint within the window: Press 'Ctrl' WHILE pressing the scroll wheel". At the bottom left, there is a small 3D coordinate system with X, Y, and Z axes. At the bottom right, the GESPODO logo is visible.

A.2.1. To rotate the footprint:
Press the scroll wheel while moving the mouse

A.2.2. To zoom in / out of the footprint:
Turn the scroll wheel

A.2.3. To translate the footprint within the window:
Press "Ctrl" WHILE pressing the scroll wheel

A.3 Positioning Anatomic landmarks

Positive model

Adjust foot

A.3.1. Click on the Anatomic Point icon

View

+X -X

+Y -Y

+Z -Z

Show

Foot

Foot texture

Insole texture

Measurements

Preview milled

Floor

Transparency

A.3.2. Select Head of 1st Meta

A.3.5. Middle of the medial arch

A.3.4. Center of the heel

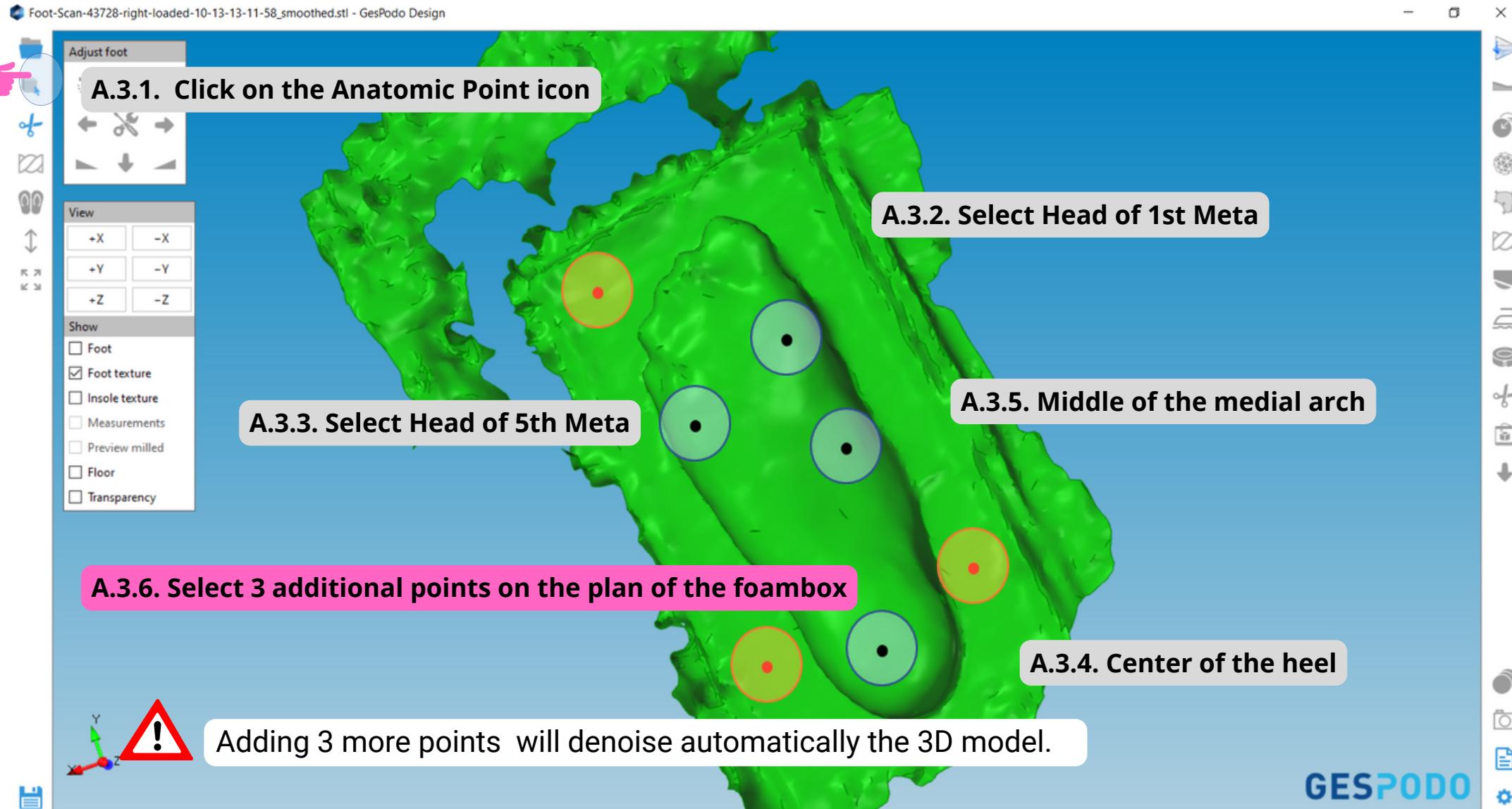
A.3.3. Select Head of 5th Meta

Important to position properly the 4 points as it has impact on automatic positioning of the modifiers, the scaling and the positioning control of the model

GESPODO

A.3 Positioning Anatomic landmarks

Inprint / foambox - adding 3 more points to denoise automatically



A.4. Easy control & Manual denoising

Manual denoising is generally not needed

A.4.1. For additional denoising - select the scissor icon

Moving forward, **the view control** is helping you to navigate in 3D

A.4.3. Position the 3D model in the space (medial or back) with the view control

- select a rectangle area to cut by pressing the **left mouse button**
- **press the delete button** of the keyboard to delete red portions

Sometimes you will want to cut lower to increase productivity of your "fusion" settings

A.5. Rectification of the 3D scan /footprint

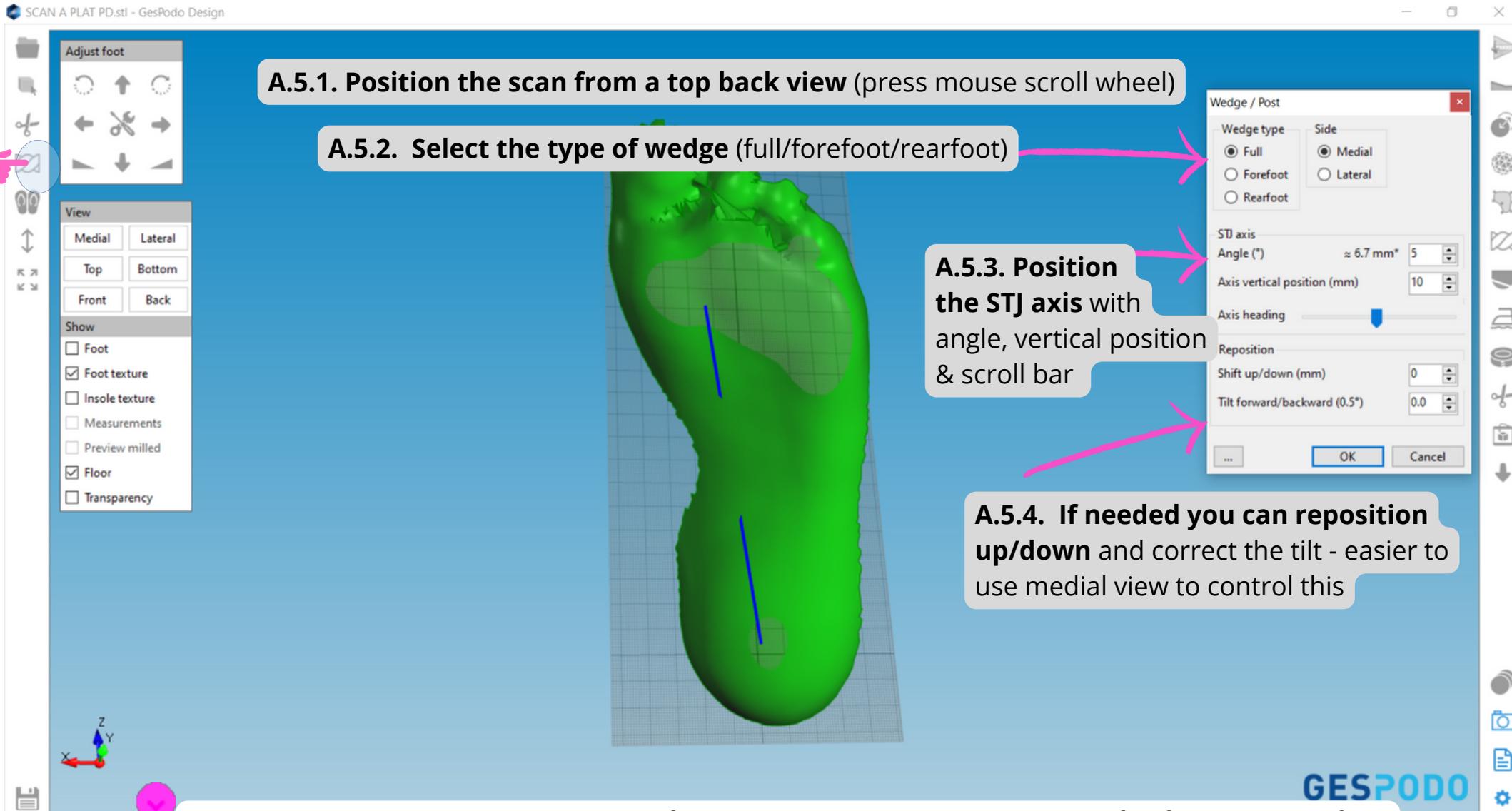
Along Sub-talar joint axis

A.5.1. Position the scan from a top back view (press mouse scroll wheel)

A.5.2. Select the type of wedge (full/forefoot/rearfoot)

A.5.3. Position the STJ axis with angle, vertical position & scroll bar

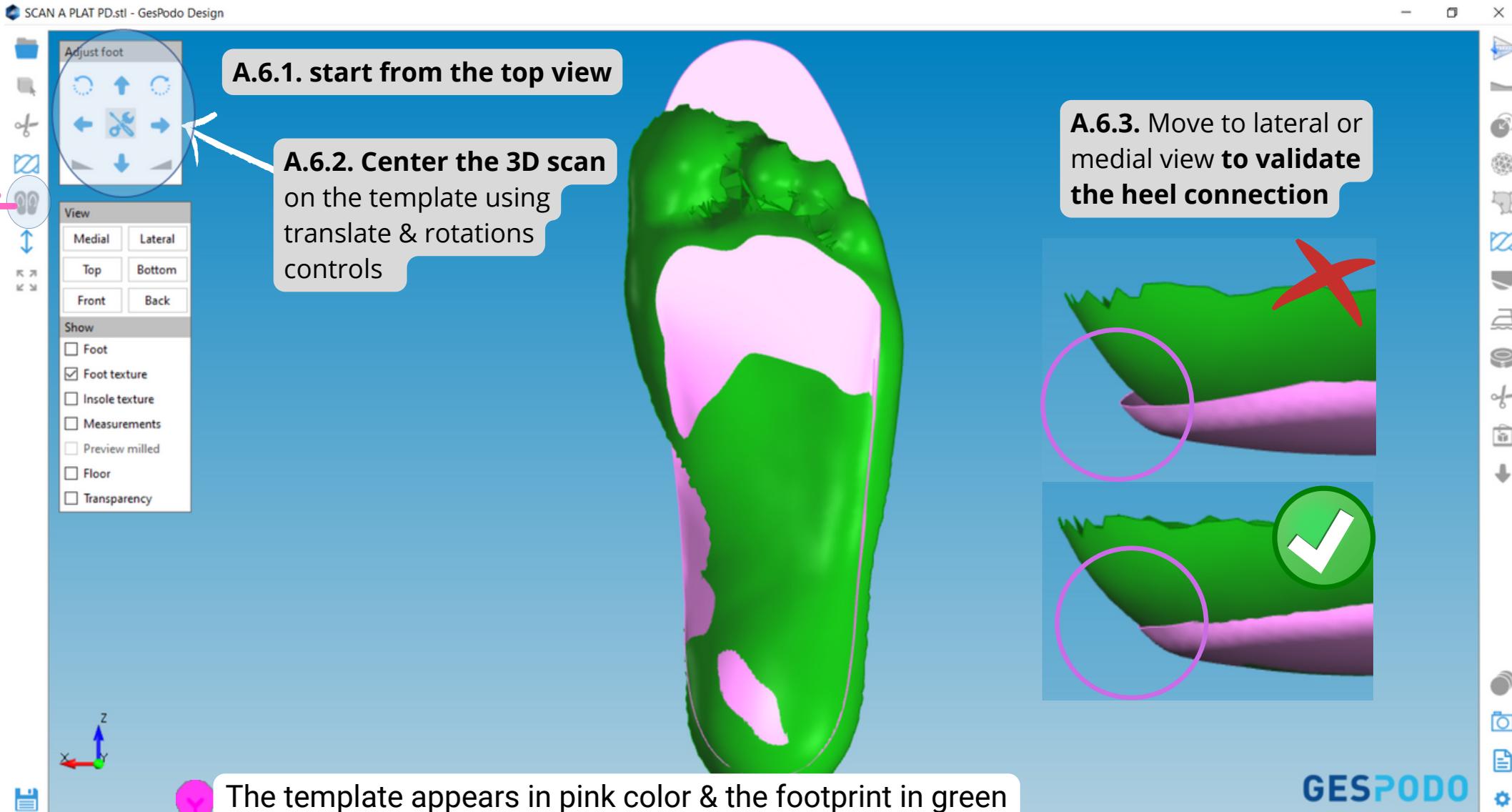
A.5.4. If needed you can reposition up/down and correct the tilt - easier to use medial view to control this



You can apply multiple de/tortions if needed - changing axis location for fore and rearfoot

A.6. Fusion btw 3D scan & insoles template

Adjust foot, then check positioning and heel connection



A.6. Fusion btw 3D scan & insoles template

Adjust lenght & width then proceed to fusion

The screenshot shows the 'SCAN A PLAT PD.stl - GesPodo Design' window. On the left, there is a toolbar with icons for scaling, rotation, and other functions. Below the toolbar are two panels: 'Adjust foot' and 'View'. The 'Adjust foot' panel has a central wrench icon surrounded by directional arrows. The 'View' panel has buttons for 'Medial', 'Lateral', 'Top', 'Bottom', 'Front', and 'Back', and a 'Show' section with checkboxes for 'Foot', 'Foot texture', 'Insole texture', 'Measurements', 'Preview milled', 'Floor', and 'Transparency'. A 'Lengthen' dialog box is open, showing 'Lengthen by 0 mm', 'Widen forefoot by 0 mm', and 'Widen rearfoot by 0 mm'. The main 3D view shows a green foot model on a pink template. Dimensions are shown: 96 (width), 174 (total height), 157 (height to heel), 81 (width at heel), 63 (width at heel), h: 26 (heel height), h: 25 (heel height), z: 1.7 (heel height), and z: 1.2 (heel height). The 'GESPODO' logo is in the bottom right corner.

A.6.4. Back from the top view press the scaling icon

A.6.5. Add /remove lenght & width from back and rearfoot

A.6.6. When ok, click on the Fusion Icon on the top left "adjust" menu

By using the "measurements" feature, you can use manual measurement of the shoe sole for a precise scaling of the template

EXPERT USERS : for details on fusion presets, please see advanced users guide

A.7. Visualise customised 3D insole

Understanding the "Show Menu"

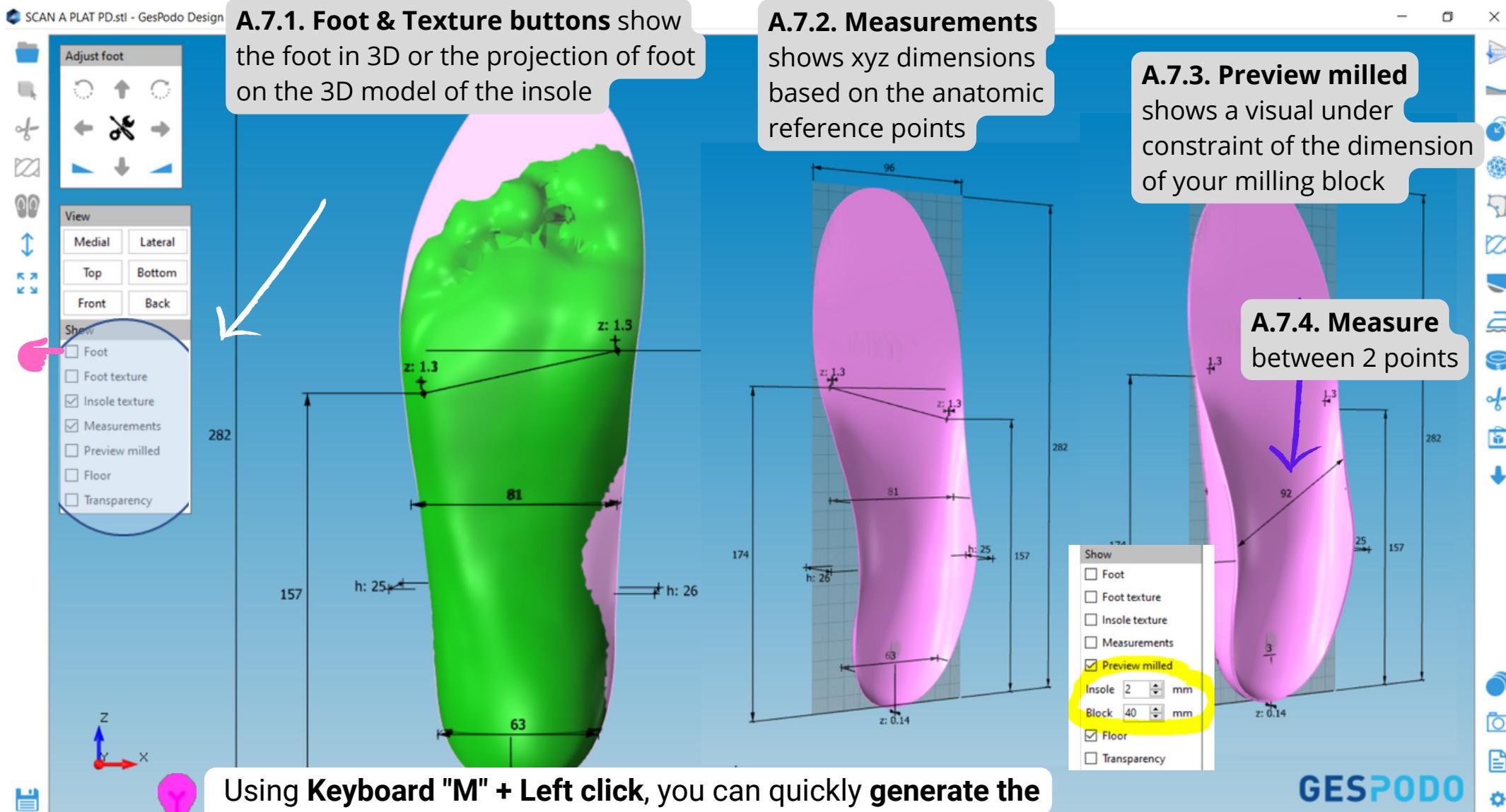
A.7.1. Foot & Texture buttons show the foot in 3D or the projection of foot on the 3D model of the insole

A.7.2. Measurements shows xyz dimensions based on the anatomic reference points

A.7.3. Preview milled shows a visual under constraint of the dimension of your milling block

A.7.4. Measure between 2 points

Using **Keyboard "M" + Left click**, you can quickly **generate the measure** between 2 xyz points



B.1. The Save & Export Menu

SCAN A PLAT PD.stl - GesPodo Design

Adjust foot

View

Medial Lateral
Top Bottom
Front Back

Show

Foot
 Foot texture
 Insole texture
 Measurements
 Preview milled

Insole: 2 mm
Block: 30 mm

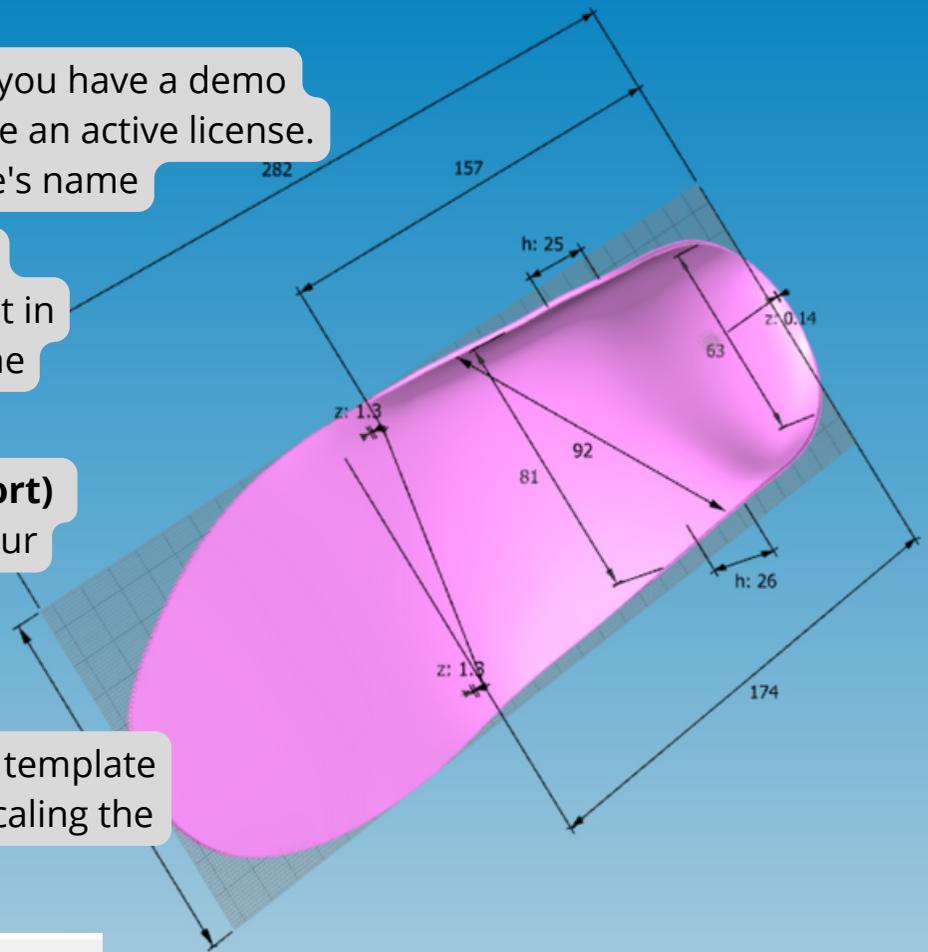
Floor
 Transparency

B.1. Export to File (local export)
You can export your project in .CMO (if you have a demo version) or in .STL file format, if you have an active license. The suffix _Mill will be added to your file's name

B.2. Export as Positive (local export)
You can export a positive of your project in .CMO or in .STL if you want carve/mill the positive for thermo-forming purpose.

B.3. Export to the Cloud (remote export)
You can export to the cloud folder of your production partner if that feature is enabled.

B.4. Export as new Insole Preset
Expert users can generate a new insole template preset from your work at anytime. For scaling the new template - see advanced features



Export to file

- Export as positive
- Upload to GesPodo for production
- Save as insole preset (advanced)

File name: Foot-Scan-43728-right-loaded-10-13-13-11-58_smoothed-MILL

Save as type:

- StereoLithography
- CMO Archive
- StereoLithography
- Wavefront
- WebGL

Hide Folders

B.2 Creating a template (insole preset)

A. Scaling a template to shoesize table



Expert users features

SCAN A PLAT PD-MILL.stl - GesPodo Design

A. Scale in length options

- either by shoesize (easiest)
- either based on the 4 anatomic landmarks (MTP1, MTP5, Center of heel, Medial top of the Arch.)
- ⚠ Set Reference shoesize to be the one used when designing the template

B. Scale in height options

- either based on the 4 anatomic landmarks
- either Uniformly scaled with the length (easiest)
- either not scaled at all ==> all elements remains at initial set height size whatever the shoesize

C. Scale in width options

- either based on the 4 anatomic landmarks
- either Uniformly scaled with the length (easiest)
- either by projecting Fore/Rearfoot widths adding a margin on top of "normal shoesize scale"

A. Scale in length options

B. Scale in height options

C. Scale in width options

Export to file
Export as positive
N/A
Save as insole preset (advanced)

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C. The Modifiers Toolbox

1. Quick wedge and Fitting tools

The screenshot displays the GesPodO software interface with a 3D model of a foot insole. On the left, there is a 'Modifiers Toolbox' with several icons. A red arrow points to the 'Adjust foot' section, which includes a 'Wedge' icon. Another red arrow points to the 'View' section, specifically the 'Medial' and 'Lateral' buttons. A third red arrow points to the 'Expand' dialog box. The 3D model shows various dimensions: 282, 96, h: 25, z: 1.3, 81, 92, and z: 0.14. Two dialog boxes are open: 'Lengthen' and 'Expand'. The 'Lengthen' dialog has 'Lengthen by' set to 0 mm, 'Widen forefoot by' set to 0 mm, and 'Widen rearfoot by' set to 0 mm. The 'Expand' dialog has 'Expand by' set to 2.0 mm. A lightbulb icon is located at the bottom left of the interface.

C1.1. Implement a quick lateral or medial edge
Will add 0.5° wedge to the entire length along the STJ axis eventually defined at the scan rectification phase.

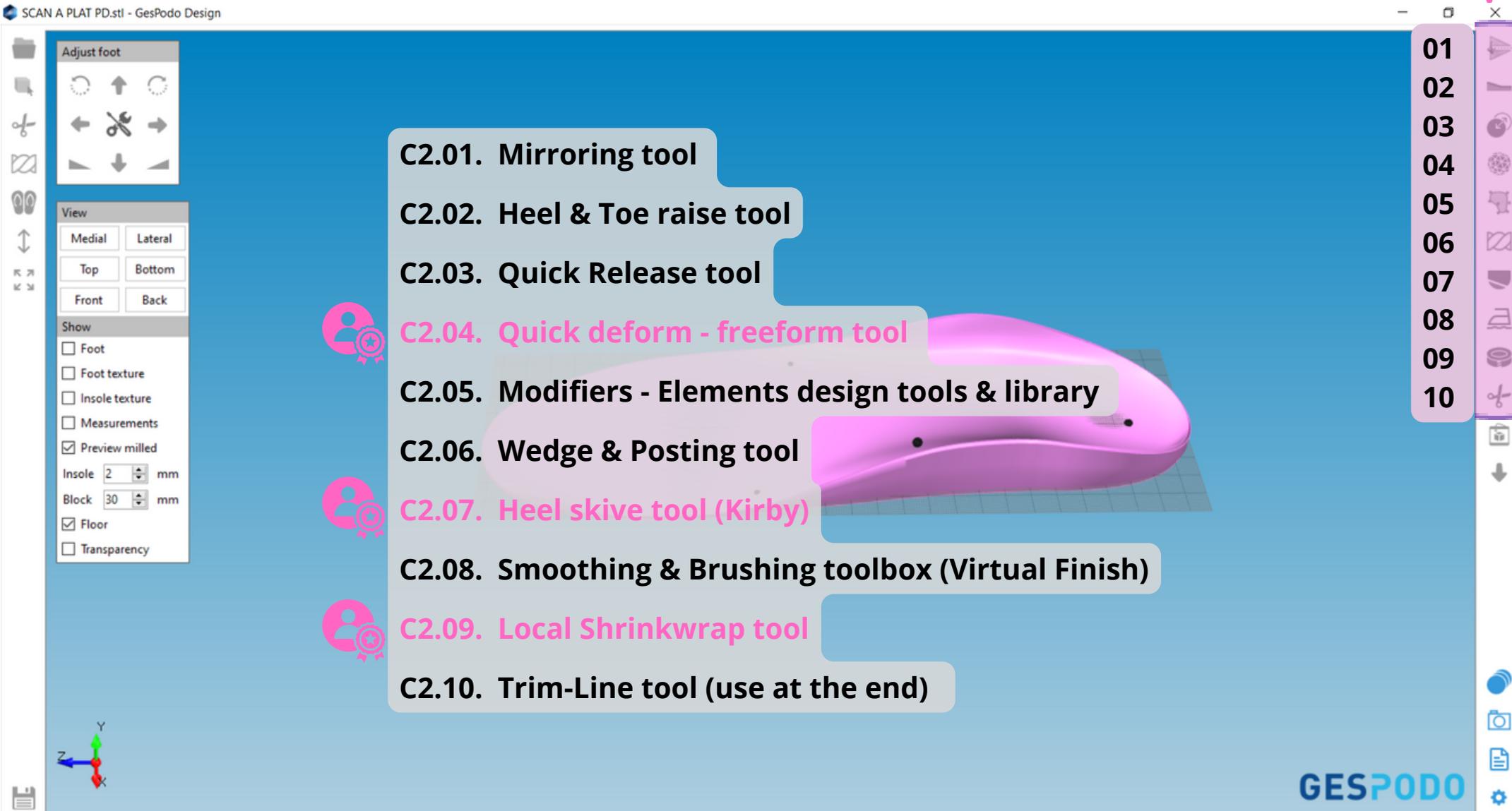
C1.2. Increase quickly the length and width of your insole
As previously, you can just add/remove mm in length, fore and back foot width using the

C1.3. Expand quickly in XYZ direction width using the

You can still edit your wedge settings afterwards with the icon if needed

C.2. The Modifiers Toolbox

Menu

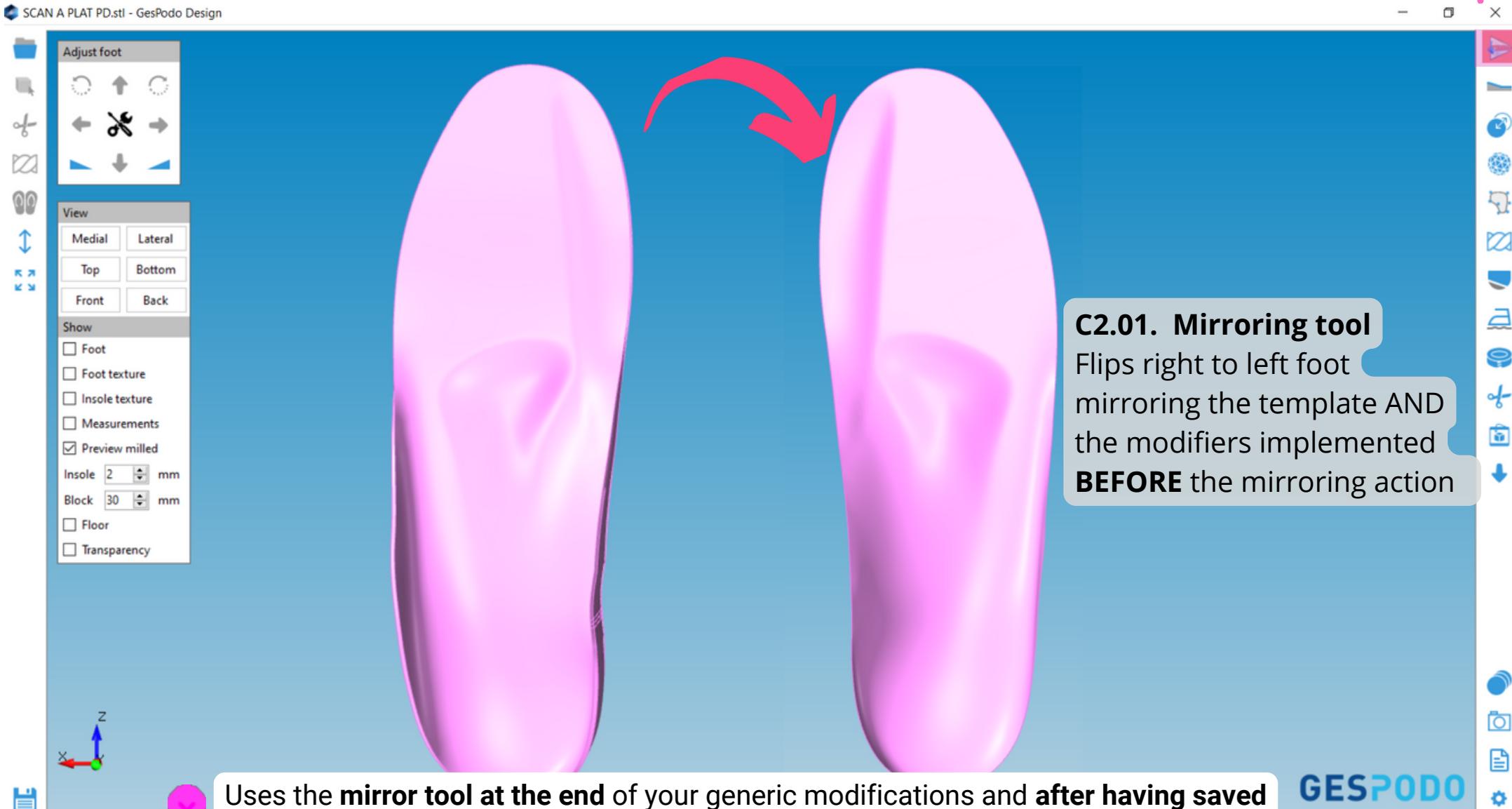


- C2.01. Mirroring tool
- C2.02. Heel & Toe raise tool
- C2.03. Quick Release tool
- C2.04. Quick deform - freeform tool
- C2.05. Modifiers - Elements design tools & library
- C2.06. Wedge & Posting tool
- C2.07. Heel skive tool (Kirby)
- C2.08. Smoothing & Brushing toolbox (Virtual Finish)
- C2.09. Local Shrinkwrap tool
- C2.10. Trim-Line tool (use at the end)

 Features reserved to "Expert" users

C.2. The Modifiers Toolbox

01. The Mirroring tool



C.2. The Modifiers Toolbox

02. The Heel & Toes Raise tool



SCAN A PLAT PD.stl - GesPodo Design

Adjust foot

View

- Medial
- Lateral
- Top
- Bottom
- Front
- Back

Show

- Foot
- Foot texture
- Insole texture
- Measurements
- Preview milled
- Floor
- Transparency

Heel raise 6mm

Bend

- Raise heel By height
- Raise toes

Height (mm): 6

Angle (°): 2.4

Bend position (mm): 0

Fade length (mm): 20

OK Cancel

Toes raise 6mm

Bend

- Raise heel By height
- Raise toes

Height (mm): 6

Angle (°): 2.4

Bend position (mm): 0

Fade length (mm): 20

OK Cancel

Dimensions: 93, 2.0, 76, 282, 78, 1735, 62, z: 5.9

Dimensions: 9, 2.0, 94, 282, 78, 1735, 63, z: 0.11



Expert users can define the **angulation, bending and fade length** of the heel/toes Raise functions. Don't forget to save as preset in your own library if you want to recycle

C.2. The Modifiers Toolbox

03. The Quick Release tool



SCAN A PLAT PD.stl - GesPodo Design

Adjust foot

View

Medial Lateral
Top Bottom
Front Back

Show

- Foot
- Foot texture
- Insole texture
- Measurements
- Preview milled
- Floor
- Transparency

Create Relief

Flat Part 50%

Depth: 3.0 mm
Size (diameter): 40 mm
Flat part: 50 %

Create Relief

Flat Part 0 %

Depth: 3.0 mm
Size (diameter): 37 mm
Flat part: 0 %

C2.03. Quick release tool

- **Click left** on the **center** of the release zone
- Keep pressing Click Left **to reposition**
- **Define depth, diameter** in the toolbox
- **Define Flat Part %** if you want to fill-in the release with technical material.



When adding a release **the minimum thickness of the insole** in your "preview milled" menu, is **calculated at the lowest point of the therapeutic surface** of the insole.

The overall thickness of the insole will increase if you don't reduce the min thickness.

C.2. The Modifiers Toolbox

04. The Quick Deform - Freeform tool



Expert users feature



SCAN A PLAT PD.stl - GesPodo Design

C2.04. Free Form tool

- **Select the plan of view** via the View Menu
- **Select the Freeform tool**
- **Define Brush size** to define deform zone
- **Center the zone** by clicking on **left** mouse
- **Deform** by holding & dragging the **Right** mouse

Limit the distance to keep better control on deform

The Freeform tool is deforming all the elements in the zone along the plan of the visualisation at the time of deformation. Therefore, we advise to **use this tool only AFTER you have reset the view as top/bottom/medial/Lateral** with the View menu



C.2. The Modifiers Toolbox

05. Deformation - Import Extrinsic Element from libraries



SCAN A PLAT PD.stl - GesPodo Design

Adjust foot

View

Medial Lateral

Top Bottom

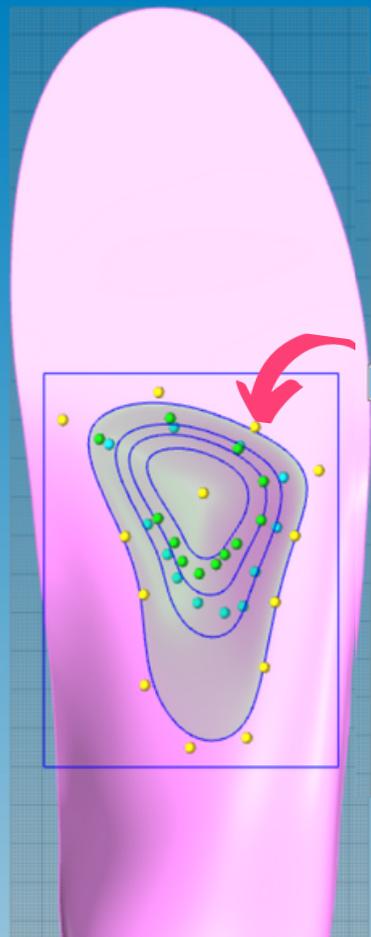
Front Back

Show

- Foot
- Foot texture
- Insole texture
- Measurements
- Preview milled
- Floor
- Transparency

C2.05.1. Import Element from Preset libraries

- Open Folder or Load libraries
- Select from library
- Element will position itself as per presets



T-Shape Pad - 5mm

Deformation

Preset

Load

- Reliefs
- Rear-foot
- Mid-foot
- Fore-foot
 - Derijker fascia groov
 - Hike T Shape
 - Jan's TPAD
 - Michael TPAD
 - Syed's TPAD

Inner weight 0 mm

Outer weight 0 mm

Smooth the region 50 times

Mapping to foot (when loaded as preset)

- Complete mapping
- Map by length and width only
- Fixed size

OK Cancel

1

1

Element's position and x/y shape is dependent from the way it has been built and saved in the library and **from the position of the anatomic points** (from the template AND from the current 3D scan. Make sure to be diligent when you position your anatomic points especially when you save your 3D model as a future template.



C.2. The Modifiers Toolbox

05. Deformation - 2.Reposition - 3. Resize - 4. Reshape

SCAN A PLAT PD.stl - GesPodo Design

C2.05.2. Reposition

- **Press Left button** anywhere to translate the frame on the top surface of the orthotics
- **Keyboard R + Left mouse** to **rotate** the element

C2.05.3. Resize

- **Left Click** to the corner or the external frame lines of the element box to resize it proportionally

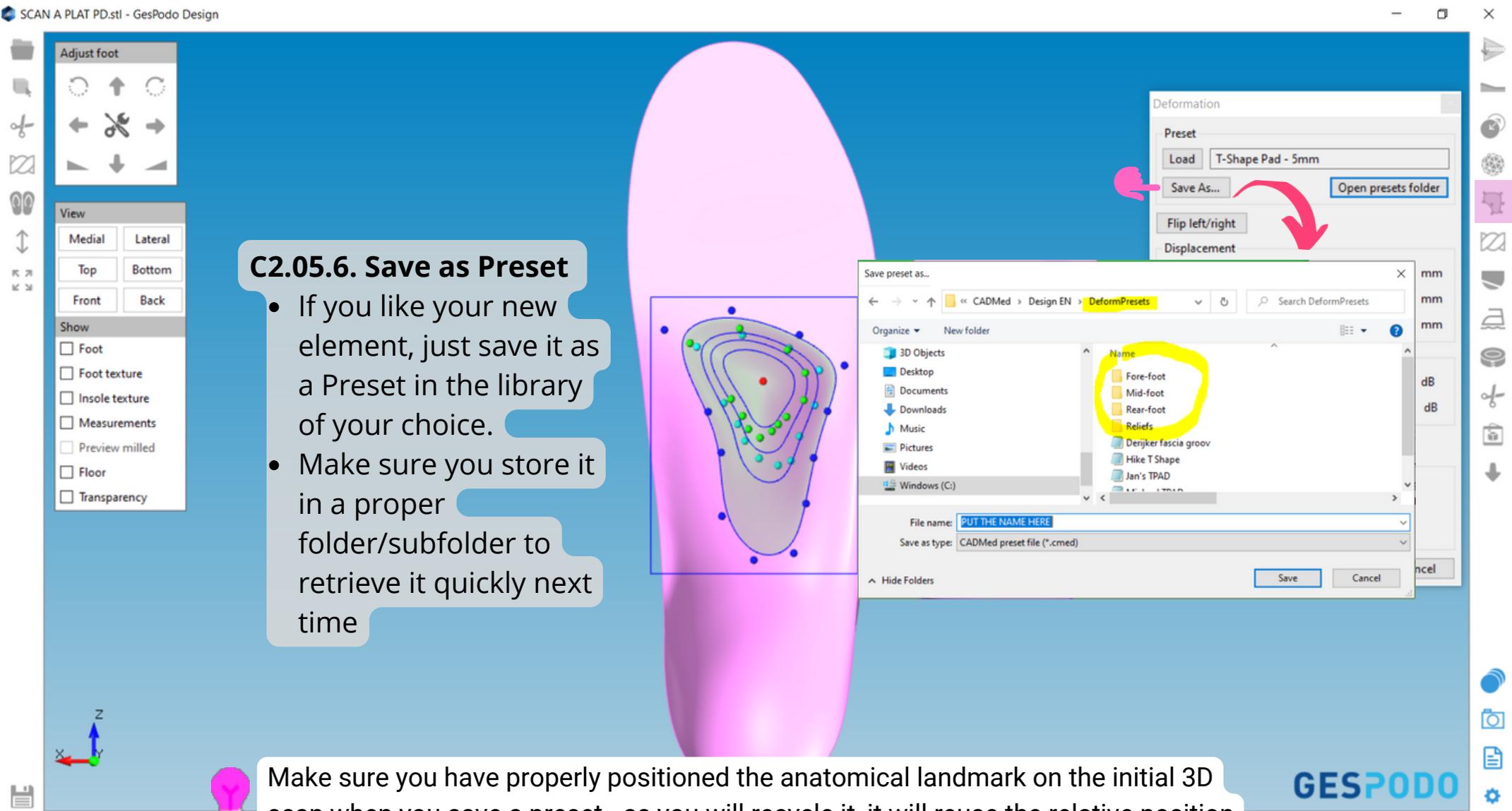
C2.05.4. Reshape point by point

- **Left Click inside the frame**
- When external bubbles turn **blue**, you can **left click** select 1 or multiple bubbles (they turn yellow) and translate them as you wish
- Start with External line, then Apex, then inside points to save time

To increase the thickness of the element use the Displacement tool along the Y axes and add/remove mm

C.2. The Modifiers Toolbox

05. Deformation - 6. Save as Preset



C2.05.6. Save as Preset

- If you like your new element, just save it as a Preset in the library of your choice.
- Make sure you store it in a proper folder/subfolder to retrieve it quickly next time

Make sure you have properly positioned the anatomical landmark on the initial 3D scan when you save a preset - as you will recycle it, it will reuse the relative position to the new landmarks

C.2. The Modifiers Toolbox

05. Advanced features from Deformation menu



Expert users features

SCAN A PLAT PD.stl - GesPodò Design

The screenshot shows the software interface with several toolboxes and a central 3D model of a foot. On the left, there are toolboxes for 'Adjust foot' (with directional arrows and a wrench icon), 'View' (with buttons for Medial, Lateral, Top, Bottom, Front, Back), and 'Show' (with checkboxes for Foot, Foot texture, Insole texture, Measurements, Preview milled, Floor, and Transparency). In the center, a 3D model of a foot is shown with a grid of points and a control surface. On the right, the 'Deformation' dialog box is open, showing a 'Preset' dropdown set to 'T-Shape Pad - 5mm', 'Save As...' and 'Open presets folder' buttons, a 'Flip left/right' button, and sections for 'Displacement' (with checkboxes for 'Along X', 'Along Y', and 'Along Z', each with a numerical input field and 'mm' unit), 'Control-surface' (with 'Inner weight' and 'Outer weight' input fields and 'dB' units), and 'Smooth the region' (with a '50' input field and 'times' unit). Below these are 'Mapping to foot (when loaded as preset)' options: 'Complete mapping', 'Map by length and width only', and 'Fixed size'. The 'Fixed size' option is selected. At the bottom right, there are 'OK' and 'Cancel' buttons. A large red arrow points from the 'Deformation' dialog to the 3D model. Three pink hand icons with numbers 6, 7, and 8 point to the 'Displacement', 'Control-surface', and 'Mapping to foot' sections respectively. A large black text 'To be updated' is overlaid on the center of the image.

C2.05.6. Deform Element

- Via click right or via Displacement menu apply X/Y/Z deformation by translating the Apex point.

C2.05.7. Control Surface

- XXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXX

C2.05.8. Mapping to foot

- XXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXX



If you mouse over the frame while pressing RIGHT Button, an emulation of the Freeform tool will deform the element inside the frame

C.2. The Modifiers Toolbox

06. Twist, Posting and Wedge Tools

C2.06.1. Wedges

- Select wedge type (Full/Fore/Rearfoot)
- Position STJ Axis according to your clinical measures
- Apply Wedge Angle



Wedge / Post

Wedge type

Side

Full Medial

Forefoot Lateral

Rearfoot

STJ axis

Angle (°) $\approx 6.0 \text{ mm}^*$ 5

Axis vertical position (mm) 10

Axis heading

Reposition

Shift up/down (mm) 0

Tilt forward/backward (0.5°) 0.0

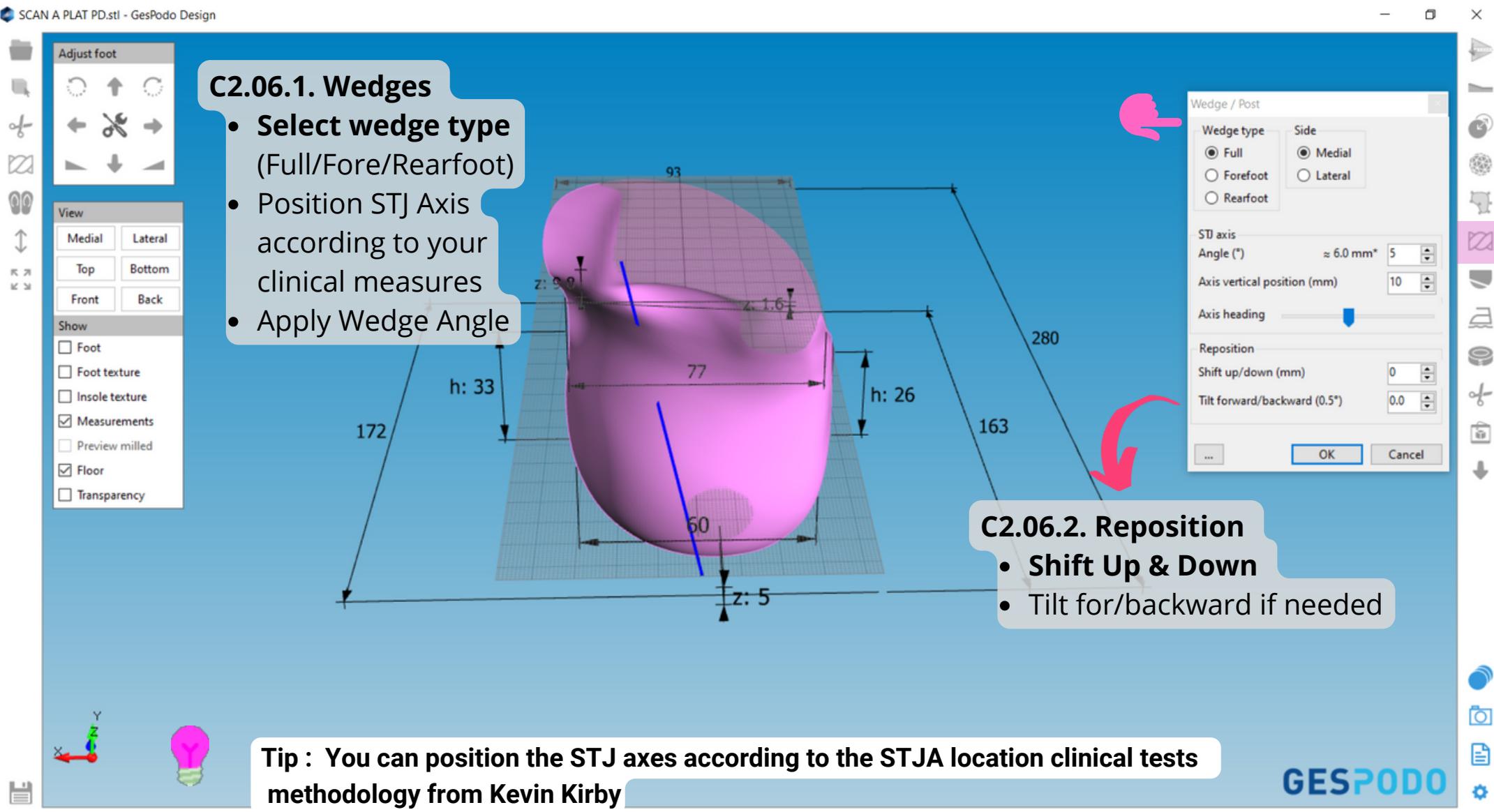
OK Cancel

C2.06.2. Reposition

- Shift Up & Down
- Tilt for/backward if needed



Tip : You can position the STJ axes according to the STJA location clinical tests methodology from Kevin Kirby



C.2. The Modifiers Toolbox

07. Heel Skive Tool (Kevin Kirby - Bonano)



Expert users features

SCAN A PLAT PD.stl - GesPodò Design

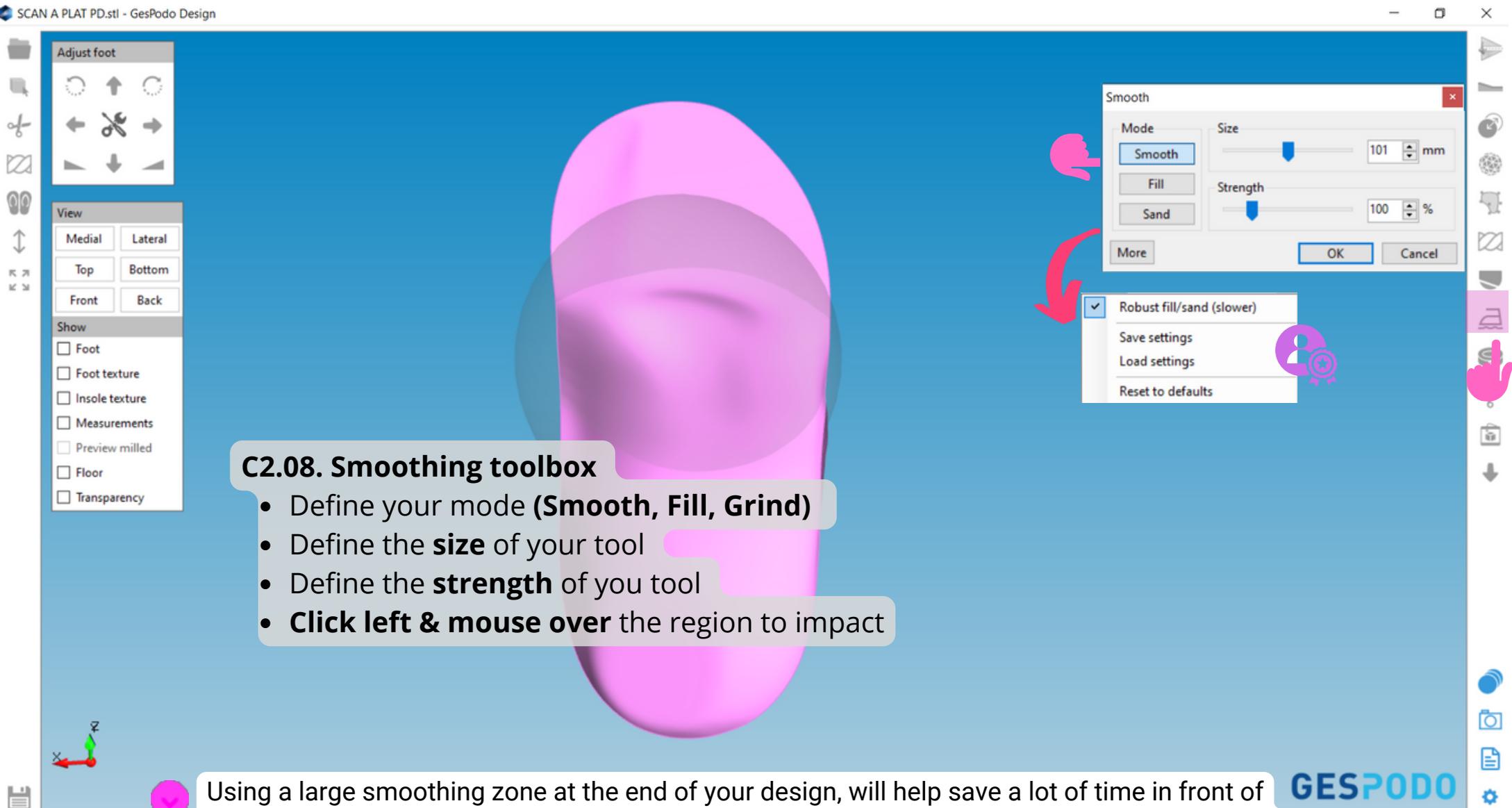
C2.07. Heel Skive

- Define the **depth**
- Define transition
- Define the angle of the skive **in the frontal plane**
- Define the angle of the **sagittal plane**
- Select **Medial or Lateral**

NB: The **medial heel skive** technique creates a **varus wedge** within the **heel cup** of a foot orthosis. This wedge is intended to increase the force acting on the medial plantar heel, which is hypothesised to increase the supination moment acting across the subtalar joint axis. **Different depths [4 or 6mm]** of medial heel skive can be prescribed, with greater depths indicated when greater pronatory control is desired (Bonano, 2012)

C.2. The Modifiers Toolbox

08. Virtual Brush, Filer or Grinder toolbox



C.2. The Modifiers Toolbox

09. Local Shrinkwrap tool (Localised full contact)



Expert users features

SCAN A PLAT PD-MILLstl - GesPodo Design

Adjust foot

View

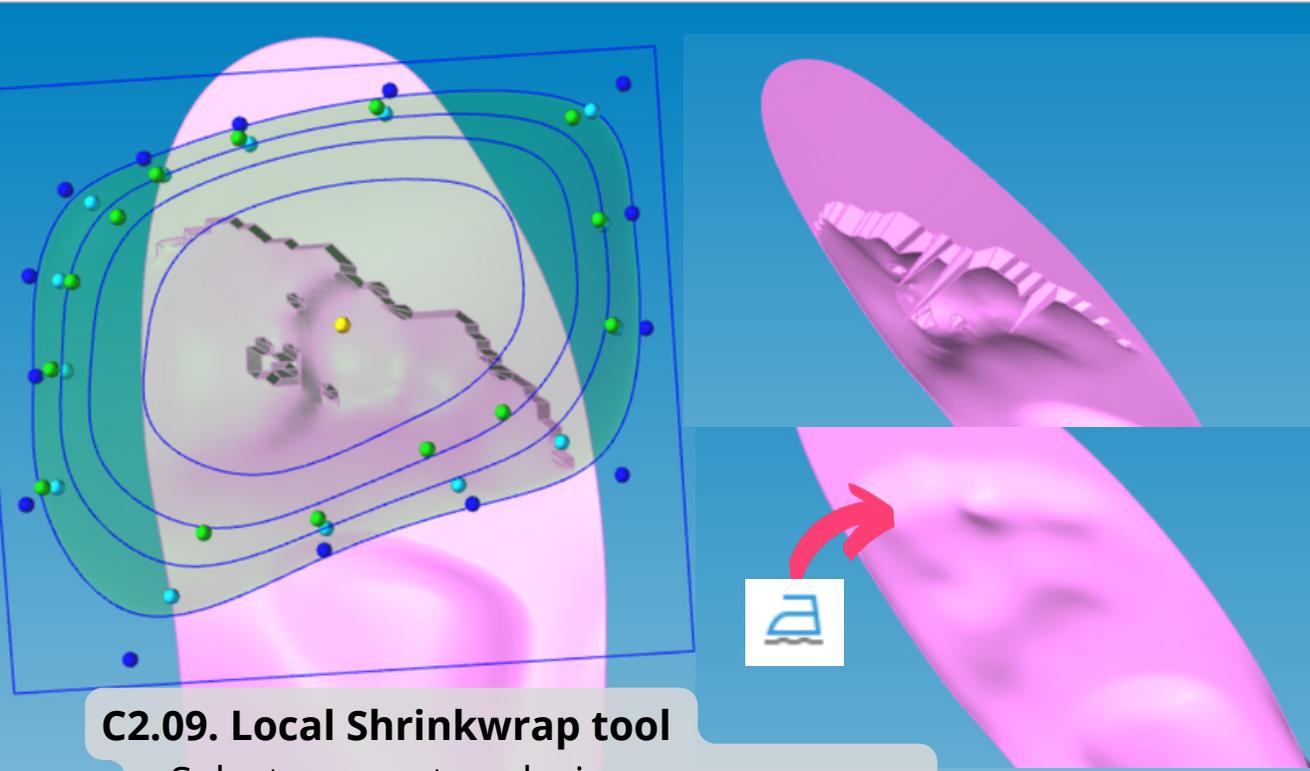
Medial Lateral

Top Bottom

Front Back

Show

- Foot
- Foot texture
- Insole texture
- Measurements
- Preview milled
- Floor
- Transparency



Shrinkwrap region

Preset

Load Fore-foot

Save As... Open presets folder

Flip left/right

Control-surface

Inner weight 0.0 dB

Outer weight 0.0 dB

Strength 40 %

Mapping to foot (when loaded as preset)

- Complete mapping
- Map by length and width only
- Fixed size

OK Cancel

C2.09. Local Shrinkwrap tool

- Select a preset or design your own zone
- Position the zone where you want a total contact
- Manage the strenght & surface control to moderate the "contact" properties
- Use the Smoothing tool (Iron icon) to smooth eventual artefacts

To be updated

Create your own shrinkwrap zone from scratch by clicking on the

C.2. The Modifiers Toolbox

10. Trimline tool

Adjust foot

- **Select the different point** of the edges to redesign the contour. Blue line is the original edge. Red line is the trimline defined
- Could be used to **trim the forefoot** or **modify the height of the lateral/medial heelcup**

TrimLineTool

Preview OK Cancel

View

Medial Lateral

Top Bottom

Front Back

Show

- Foot
- Foot texture
- Insole texture
- Measurements
- Preview milled
- Floor
- Transparency

Original trimline in blue.
New one in red

Y Z

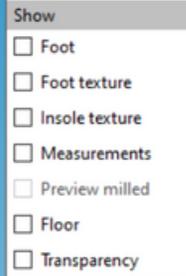
Ideally use the **Trimline tool AFTER** you have implemented your other modifiers

GESPODO

D. The Solidification Toolbox

1. Soft Material Printing (FDM/TPU)

SCAN A PLAT PD-MILL.stl - GesPodo Design

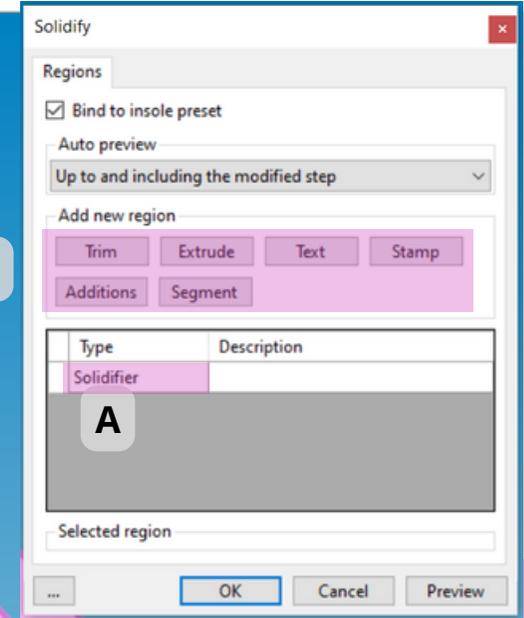


A. Solidifer Menu - will allow you to design bottom and edit edges slopes, tapering and basic features

B. 3DP Features add-ons - Allow you to :

1. **Trim holes**
2. **Extrude material** (Posting, Textures)
3. **Add** and position **text** (possibly in an automated way)
4. **Engrave 3D logos & stamps**
5. **Attach 3D objects** to or conformed to the surface
6. **Segment by zones** to possibly implement different durometry settings thanks to **lattice structures**

B



A



3D Printing features are dependent from the printing technology (Filament, Powder or Resine) and the Material (Soft or Hard) you choose. Restrictions applies

D.1 Soft Material Printing

A. Design Bottom for EPU, TPU, TPA on FDM/MJF/DLS printers

A. Click on the Solidifier Box

B. For Soft Material Printing
==>check the **"Use bottom Profiled"** box

3D Soft Material Printing will often require to draw a flat bottom especially if you consider to print flat. If you want to avoid usage of "supports" design need to be well thought

Type	Description
Solidifier	

Selected region

Thickness: 1.5 mm

Edge rounding facets: 1

Flatten bottom: 0 mm

Use bottom profiled

Taper edge

Enabled

Taper front only

Edge thickness (tapered): 0.5 mm

Taper cutoff: 20 %

Front start: 60 %

Fade length: 40 %

D.1 Soft Material Printing

A.01. Bottom Design

SCAN A PLAT PD-MILLstl - GesPodò Design

Adjust foot

View

Medial Lateral

Top Bottom

Front Back

Show

- Foot
- Foot texture
- Insole texture
- Measurements
- Preview milled
- Floor
- Transparency

Design Bottom by moving the bottom trimline

A

B

Solidify

Regions

- Bind to insole preset
- Auto preview: Up to and including the modified step
- Add new region: Trim, Extrude, Text, Stamp
- Additions, Segment

Type	Description
Solidifier	

Selected region

Thickness: 1.5 mm

- Use bottom profiled
- Bottom profile options
 - Bottom thickness: 2 mm
 - Collar widen amount: 0 %
 - Rounded bottom edges
 - Collar slope start height
- Slopy McSlopeFace
- Bottom Spring
 - Enabled
 - SpringHeight: 3 mm
 - Spring Position
 - Spring Width

OK Cancel Preview

! When Printing for FDM/TPU: Keep the slope of the hedges at min 60% to avoid filament consolidation problems especially on the 2 highlighted areas

GESPODO

D.1 Soft Material Printing

A. 02. Edges Design - Collar & Slope settings

SCAN A PLAT PD-MILLstl - GesPodo Design

The image displays three shoe insole models in a 3D software environment. The first model on the left is a standard flat insole. The second model in the middle has a 'Collar' feature, which is a raised edge around the perimeter. The third model on the right has a 'Sloped' edge, which is a beveled edge. Red circles and arrows highlight these features, labeled 'A - rounded', 'B - Collar', and 'C - Slopey'. The 'Solidify' settings panel is open on the right, showing various options for the insole's properties. The 'Selected region' section is active, showing a thickness of 1.5 mm and a 'Rounded bottom edges' checkbox that is checked. The 'Collar slope start height' and 'Slopy McSlo' sliders are also visible. A pink hand icon points to the 'Slopy McSlo' slider, and a vertical stack of letters 'A', 'B', and 'C' is next to it, corresponding to the labels on the models.

Type	Description
Solidifier	

Selected region

Thickness: 1.5 mm

Use bottom profiled

Bottom profile options

Bottom thickness: 2 mm

Collar widen amount: 0 %

Rounded bottom edges

Collar slope start height

Slopy McSlo

Bottom Spring

Enabled

SpringHeight: 3 mm

Spring Position

Spring Width

When Printing for FDM/TPU : Implementing a Collar and Slope features will help you generate a much more "durable" design, especially a better solidity of the top layers printed

D.1 Soft or Hard Material Printing

B.02. Extrude

SCAN A PLAT PD-MILLstl - GesPodo Design

02.B. Design your zone by left clicking to insert extrude points

02.A. Select/ highlight Extrude

02.B. Select positive/negative extrusion # mm

02.C. Smooth the slope btw inner and outer part of the extrusion

Type	Description
Solidifier	
Extrusion	

Parameter	Value
Height/depth	0.4
Inner size	100

100% **95%** **90%**

You can extrude on any faces of the orthotics,

but if you print with FDM, you won't be able to print an extrusion on the bottom face easily

D.1 Soft or Hard Material Printing

B.03. Insert Text (Job ID, Patient's Name,...)

SCAN A PLAT PD-MILLstl - GesPodo Design

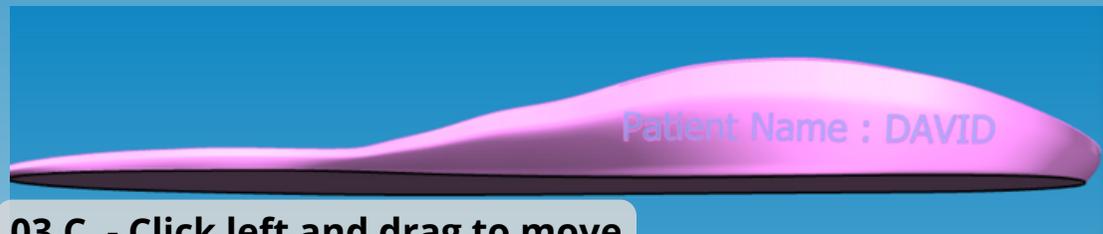
Adjust foot

View

Medial Lateral
Top Bottom
Front Back

Show

- Foot
- Foot texture
- Insole texture
- Measurements
- Preview milled
- Floor
- Transparency



03.C. - Click left and drag to move the text to the medial edge
Click right if you want to rotate

Solidify

Regions

- Bind to insole preset

Auto preview

Up to and including the modified step

Add new region

Trim Extrude **Text** Stamp Additions Segment

Type	Description
Solidifier	
Text	

03.A. Insert Text

03.B. Select Characters size and depth in mm

Selected region

Patient Name : DAVID

Text height 7

Extrusion depth (+:out) -0.5

More accurate (slower)

Cancel Preview

For FDM: better to put Patient name on the Medial edge with minimum 7 mm characters
EXPERT USERS : When building your template, you can implement special instructions to automate the collection of job ID & Patient's name - see advanced tips & tricks

D.1 Soft or Hard Material Printing

B.04. Insert Logo or Stamp (must be 3D files)

SCAN A PLAT PD-MILL.stl - GesPodo Design

04.C. - Click left and drag to move
the logo to the bottom side,
medial, lateral or back side.
Click right if you want to rotate

04.A. Insert 3D logo

04.B. Select Size and depth in mm

Type	Description
Solidifier	
CustomStamp	

Selected region

Size: 65

Extrusion depth (+:out): -0.5

More accurate (slower)

OK Cancel Preview

For FDM: Logo & Stamp will work better on bottom face but need to be large

EXPERT USERS : to create your own 3D logos & Stamps - see advanced tips & tricks



For FDM: Logo & Stamp will work better on bottom face but need to be large

EXPERT USERS : to create your own 3D logos & Stamps - see advanced tips & tricks

D.1 Soft or Hard Material Printing

B.05. Insert "Additions" (must be 3D files)

SCAN A PLAT PD-MILLstl - GesPodo Design

05B. - Click left and drag to move the stamp to the bottom or medial side
Click right if you want to rotate

Bug on the positioning of the Addition

05.A. Insert 3D Stamp/label/Logo

05B. Select Size and depth in mm. Add positive height

05C. Conform to surface will integrate the 3D model to the surface.

For FDM: Addition will NOT work on bottom face
Stick it aside to print a label with jobID and Patient's name

EXPERT USERS : to create your own 3D logos & Stamps - see advanced tips & tricks

Solidify

Regions

- Bind to insole preset

Auto preview

Up to and including the modified step

Add new region

Trim Extrude Text Stamp

Additions Segment

Type	Description
Solidifier	
PrintStamp	

05.A. Insert 3D Stamp/label/Logo

Selected region

Delete

Scale 80 %

Scale Height 100 %

Height -0.1 mm

Conform to surface

Subtract instead of union (and vice versa)

Auto placement on ref-points

OK Cancel Preview

D.1 Soft Material Printing

B.06. Implement Zones Segments (for multi-durometry printing)

SCAN A PLAT PD-MILL.stl - GesPodo Design

06.B - Create your zone by left clicking to insert trimming points

06.A. Select Segment

06.C. Define the slope of the segment

Segment bottom slope with rounding bottom of segment

100% 100%

75% 75%

50% 50%

0% 0%

06.A. Select Segment

06.C. Define the slope of the segment

Selected region

Invert Delete

Segment bottom scale 75 %

Rounded bottom of segment

OK Cancel Preview

GESPODO



When Printing for FDM/TPU : we advise to keep the slope at 50 or 75% with rounded bottom segment

E. Settings Menu

SCAN A PLAT PD-MILL.stl - GesPodo Design

Adjust foot

View

Medial Lateral

Top Bottom

Front Back

Show

Foot

Foot texture

Insole texture

Measurements

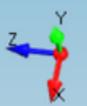
Preview milled

Insole 2 mm

Block 30 mm

Floor

Transparency



01. Clinic ID (as per registration)

02. Change your **backscreen color** and **light settings** preferences

03. **Image resolution** has an impact on screen rendering and 3D model export precision (300 DPI recommended)

04. **Preview milled** : aselect your default block and min thickness to previsualize potential challenges before milling

05. **Language Settings** : applies on both user interfaces and libraries: EN, FR, SW, DE, CN, supported

06. **View and Manage your licenses**

Settings

General

General settings

Clinic ID David B

Viewport settings

Top color [Blue]

Bottom color [Light Blue]

Advance Light Settings

Design settings

Show rtf-file when a foot scan file is opened

Image setting (default values)

Image resolution (DPI) 300

Image forward direction Up

Flip right/left

Preview milled (default values)

Insole thickness 2 mm

Block thickness 30 mm

Language settings

Language English

Apply and restart

License settings

View license Change license

Program Version

Version



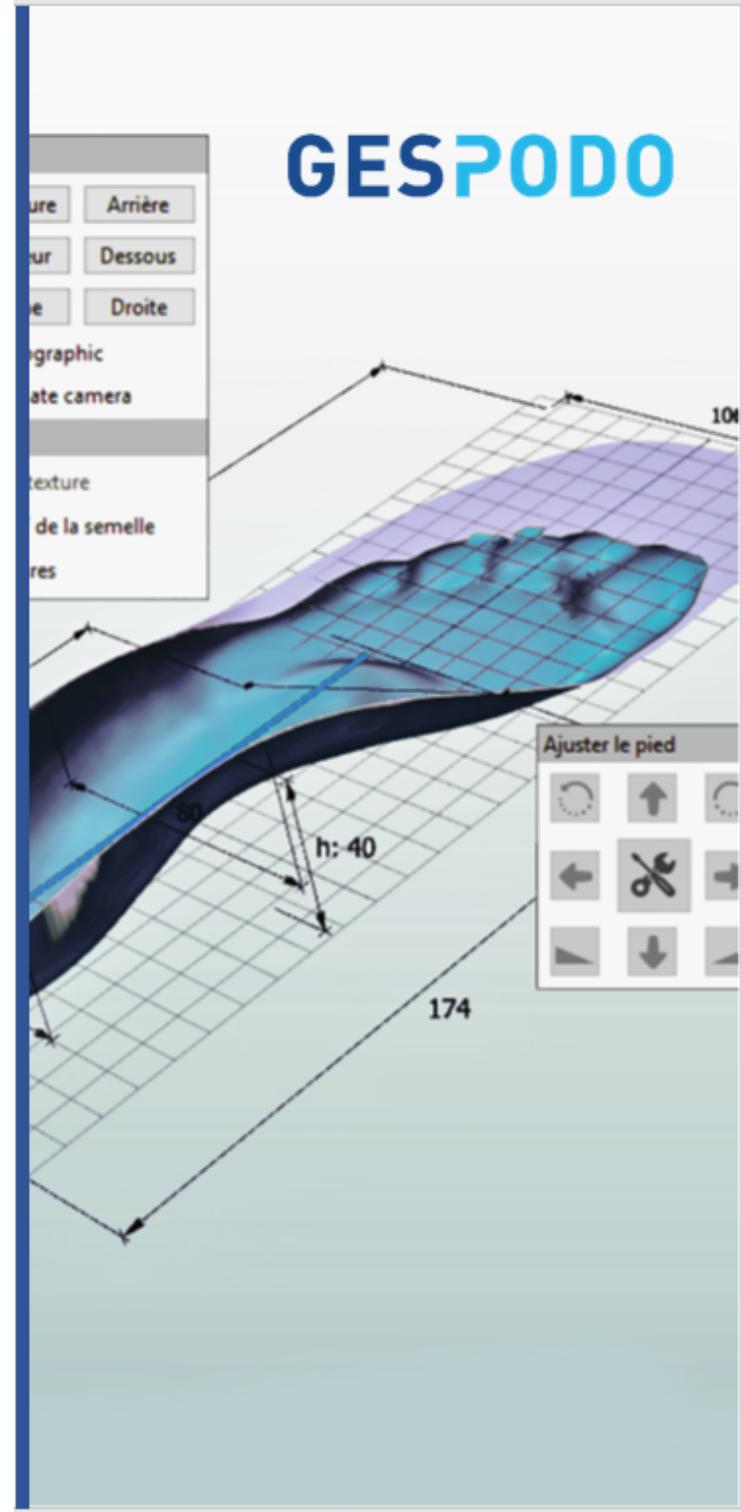
GESPODO FootCAD3D

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ADV. Soft Material printing (MJF - TPU)

Lattice engine

**To be updated -
Why and
how to use it**

