




TECHNOLOGY IN MOTION



*Baropodometria
Stabilometria
Biofeedback
Goniometria
Videografica morfologica*

www.sensormedica.com



Sensor Medica was founded in 2011 after twenty years of experience in the areas of foot pressures & gait, biomechanics, posture and CAD-CAM orthotic systems.

We study, design and develop entirely in Italy high-tech products and software for the medical-scientific and sports fields, offering a real evolution in diagnostic systems, for the optimization of human biomechanical balance.

Sensor Medica technologies are actually available in 48 countries with over **8,000** software licenses purchased and **500** CNC milling systems working.

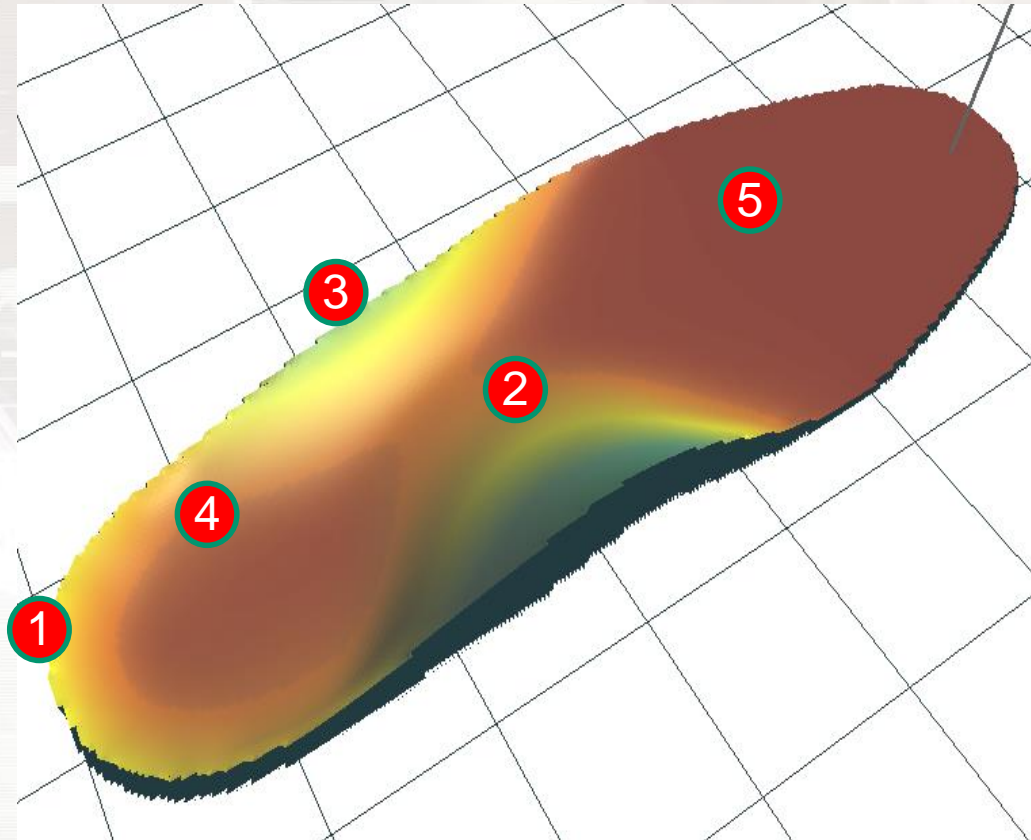
Thanks to a commitment to ongoing research, we can produce sensor systems among the most advanced of the sector: from the most evolved detection systems, to the most complete analysis software, all completely integrated with cad-cam for orthotic production.

Sensor Medica works constantly to update technology and products to ensure them among the most advanced and innovative in the world.

easyCAD insoles project,
using foot scanner images
and dynamic foot pressures.

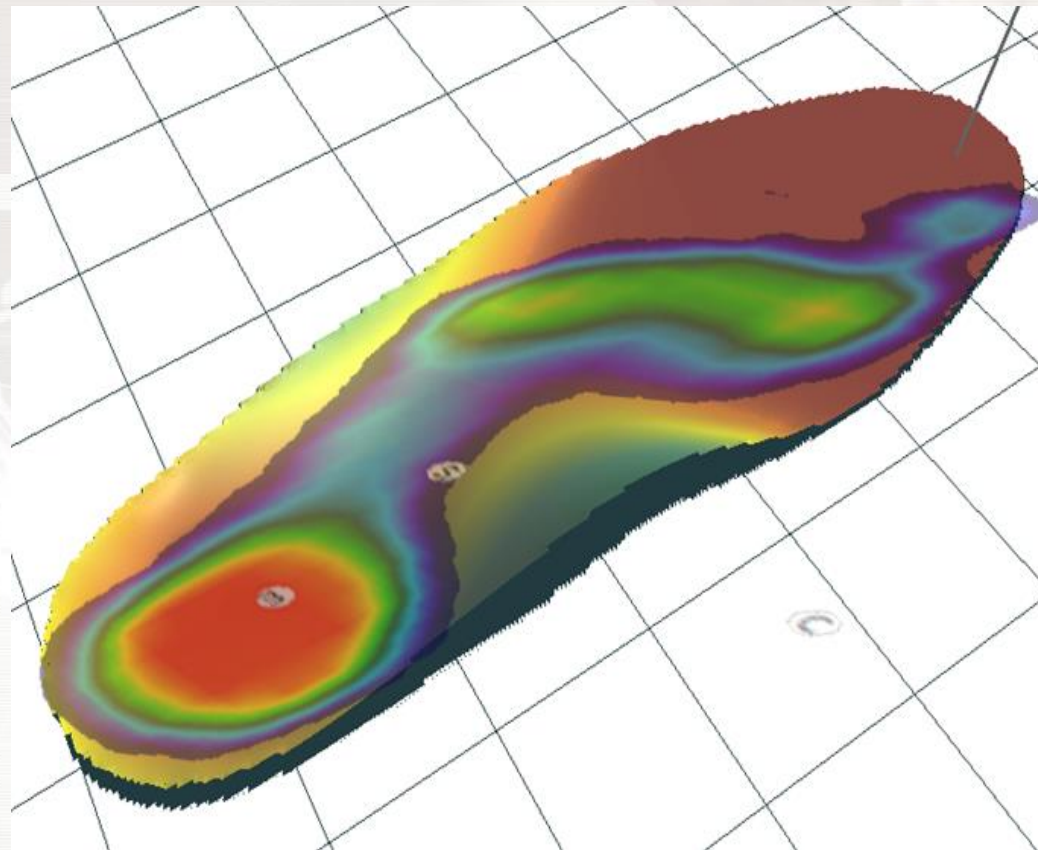
Techniques in orthotic production, pressures analysis and 2D PodoScan

- 1 - Wrapping of the hill
- 2/3 – Medial-lateral support
- 4 - Thickness of rearfoot
- 5 - Thickness of forefoot



Techniques in orthotic production, pressures analysis and 2D PodoScan

easyCAD software is using dynamic numerical values to superimpose the basic parameters chosen by the designer, changing the area of contact with the actual type of support.

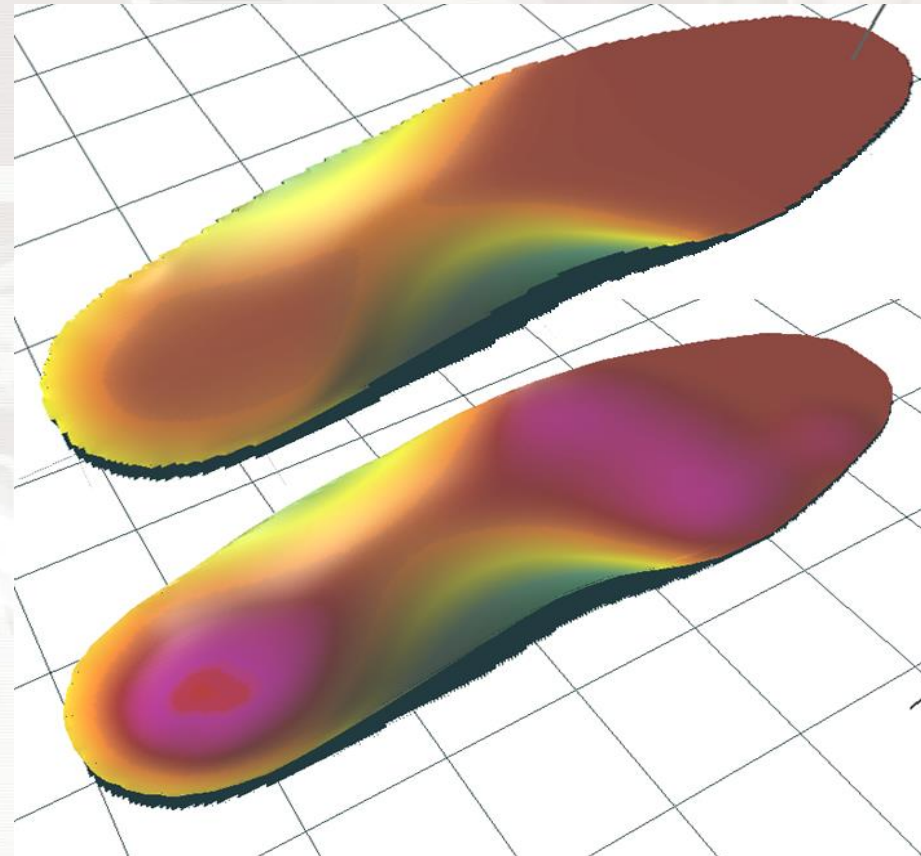


Techniques in orthotic production, pressures analysis and 2D PodoScan

Automatic changing pressure areas

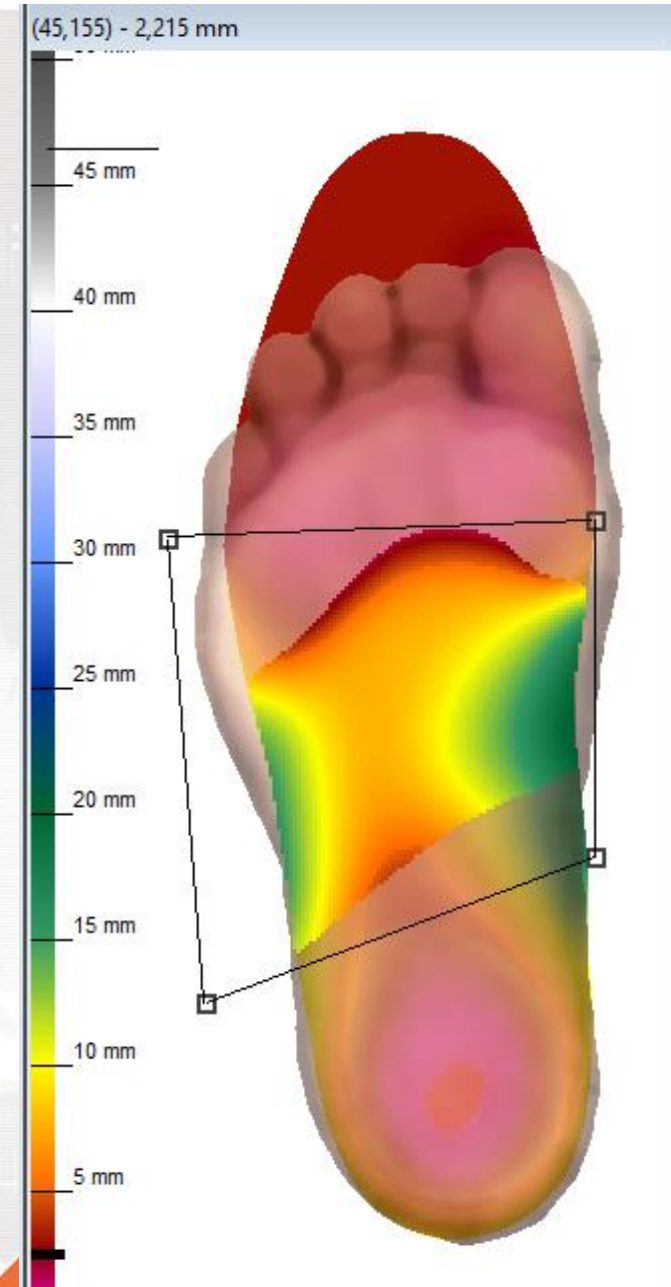
Dynamic values allow not only to create the ideal contact surface, but also to locate the areas of overload, automatically creating a depression on the foot insole.

The designer can decide the range of the pressures immersion and to diversify forefoot and rearfoot.



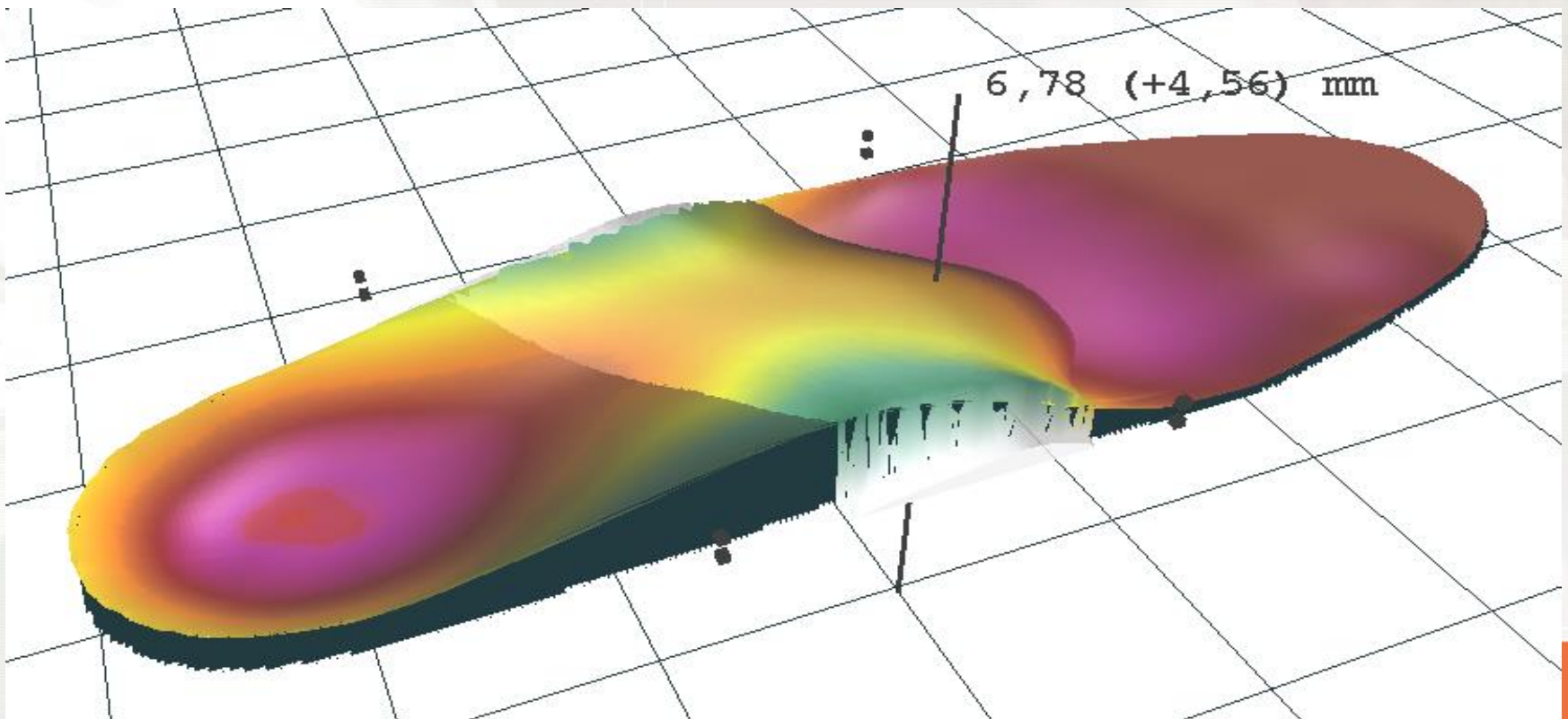
New elements of correction

Using foot image from the 2D **PodoScan**, you can place the correction elements directly on the insole picture, adjusting its position and size to make it fit properly.

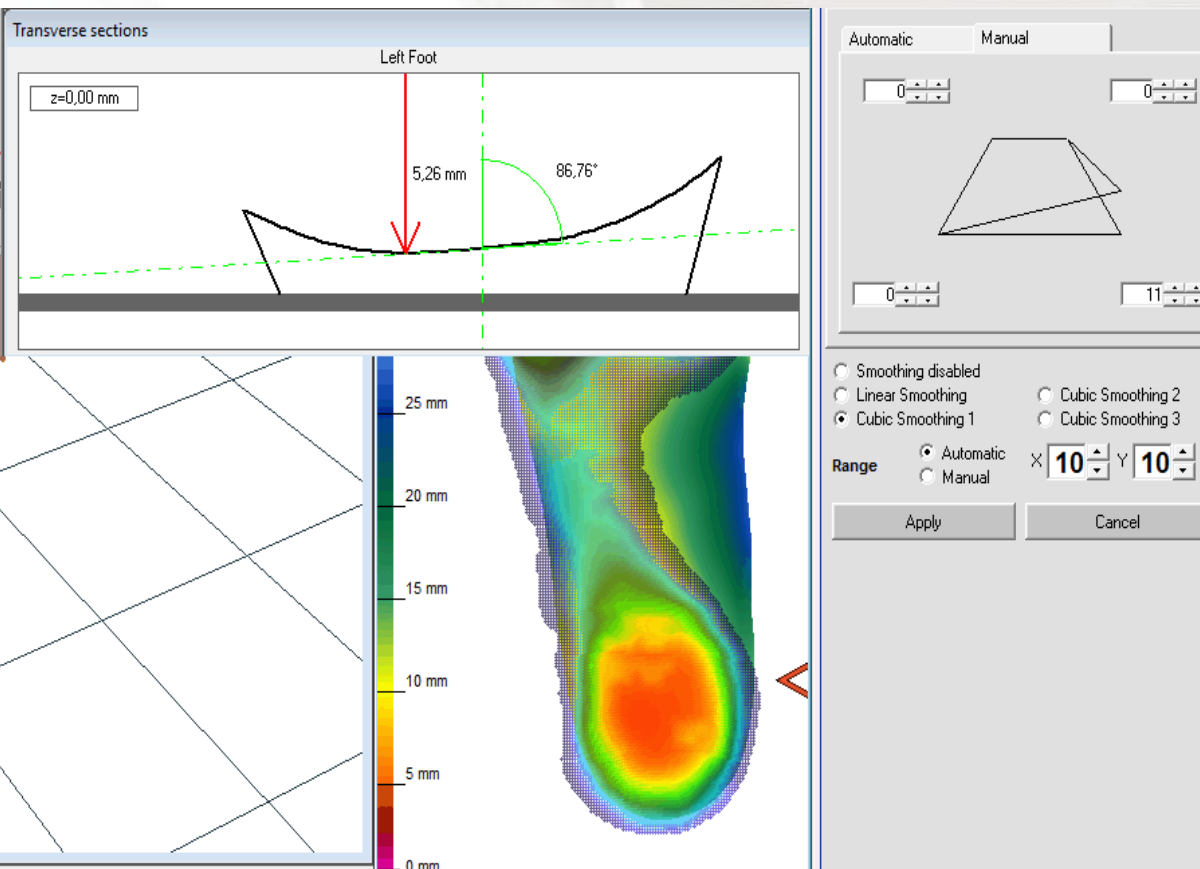


Adding corrective elements

In addition to the size and the position, we need to set the thickness of the corrections, always keeping under control the height of each element.



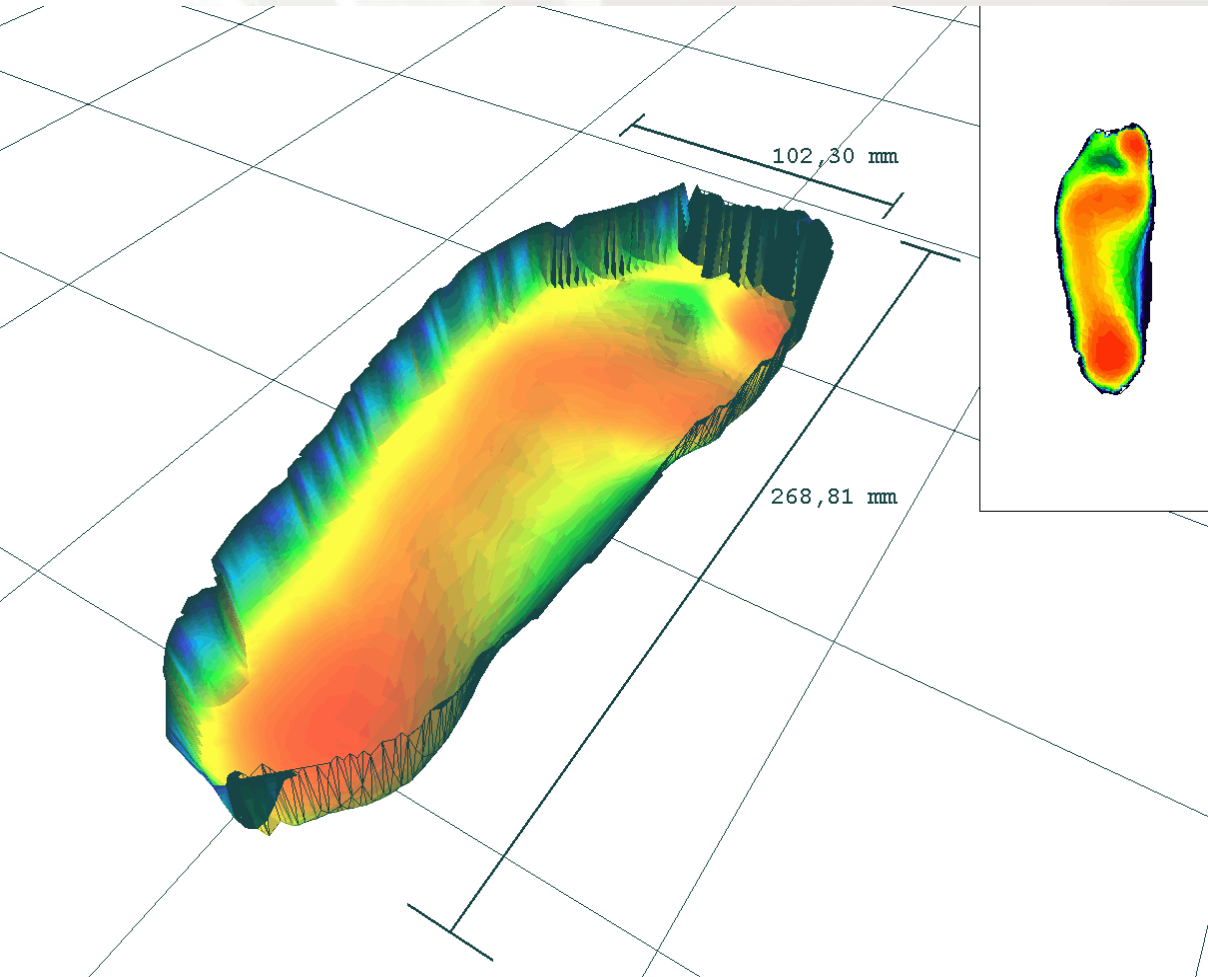
Stability of the support



After designing the contact surface and decide that is good for your patient, you have the possibility to modify the dynamic phase of the orthotic.

Using pressures data, you can choose the height of the wedges and with a special tool control the correction you have designed.

Design from 3D PodoScan

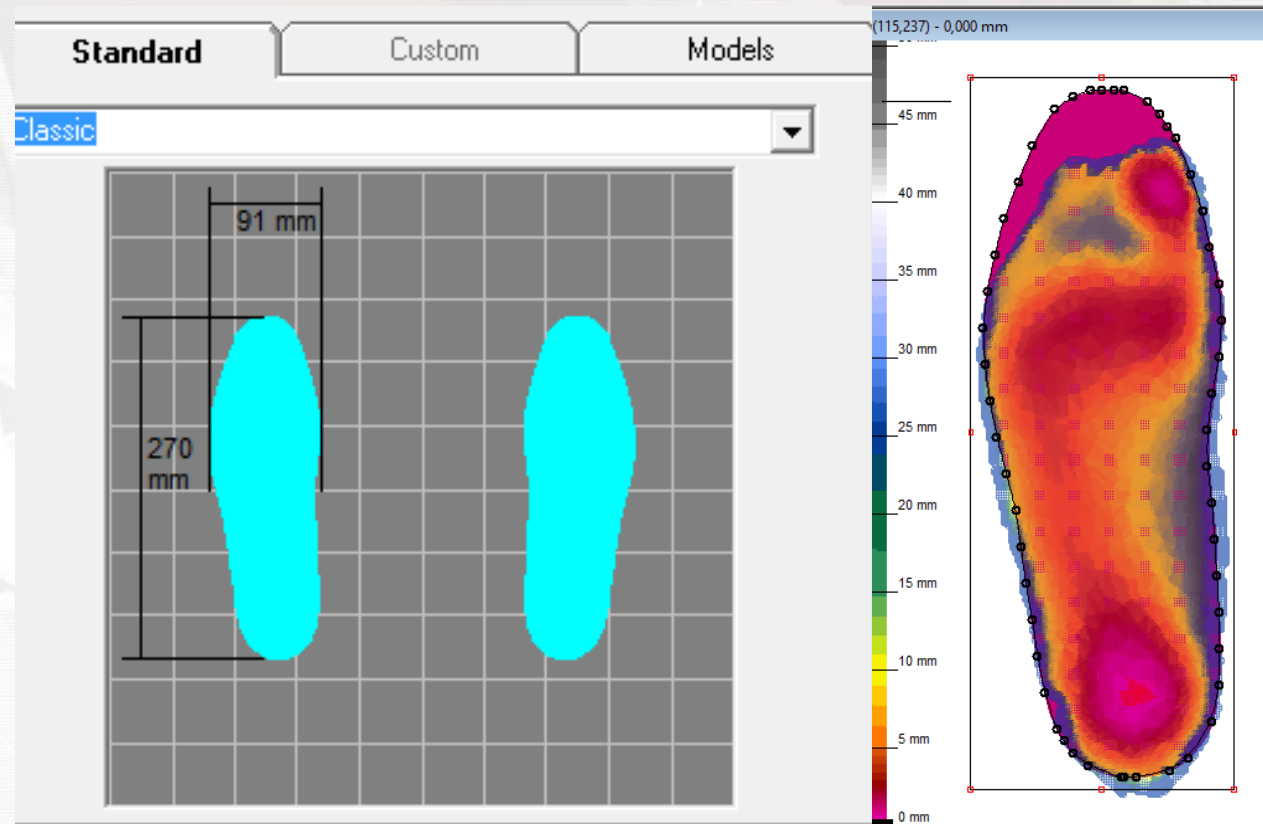


You will use the height resulting from the scanning that is similar to the following picture.

Template selection

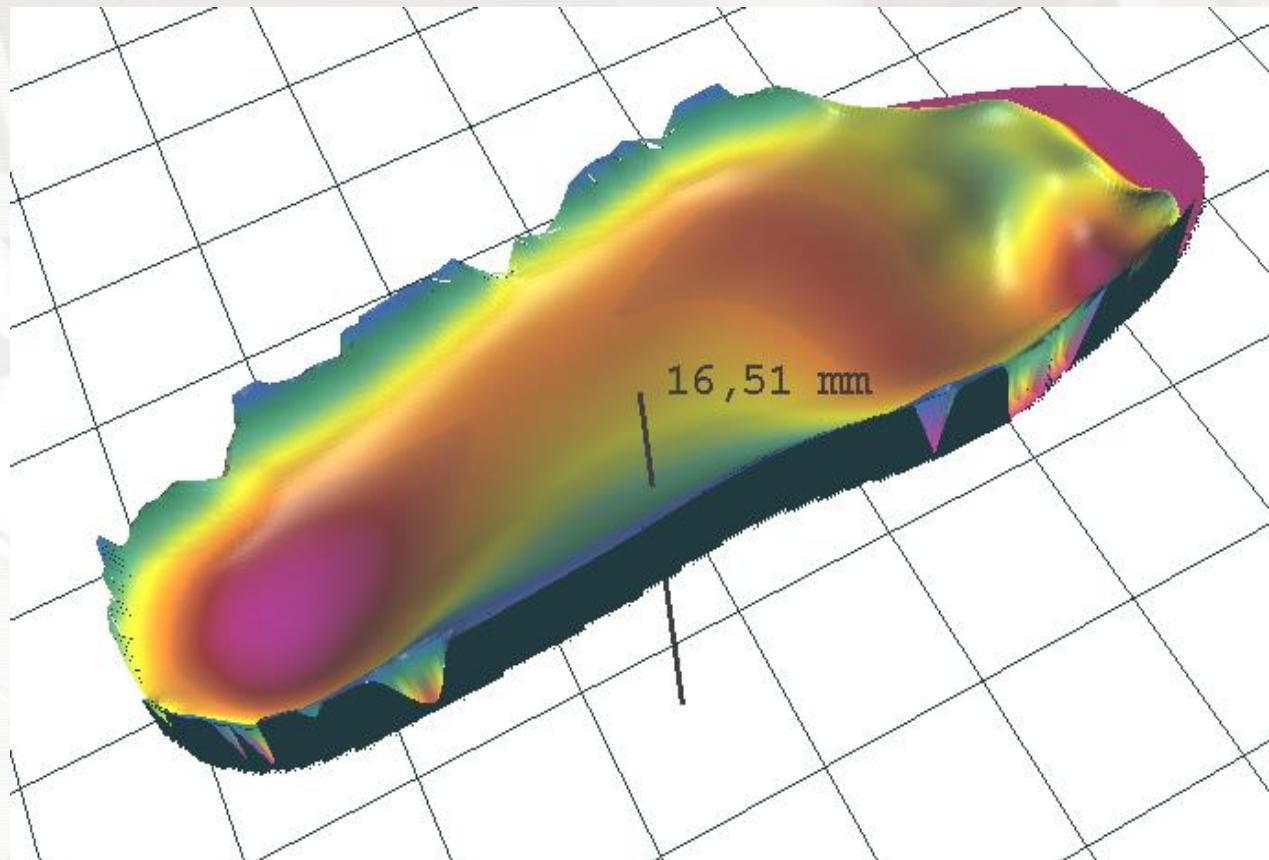
The template selection is made considering 2 key factors:

- Shoes normally used
- Foot morphology



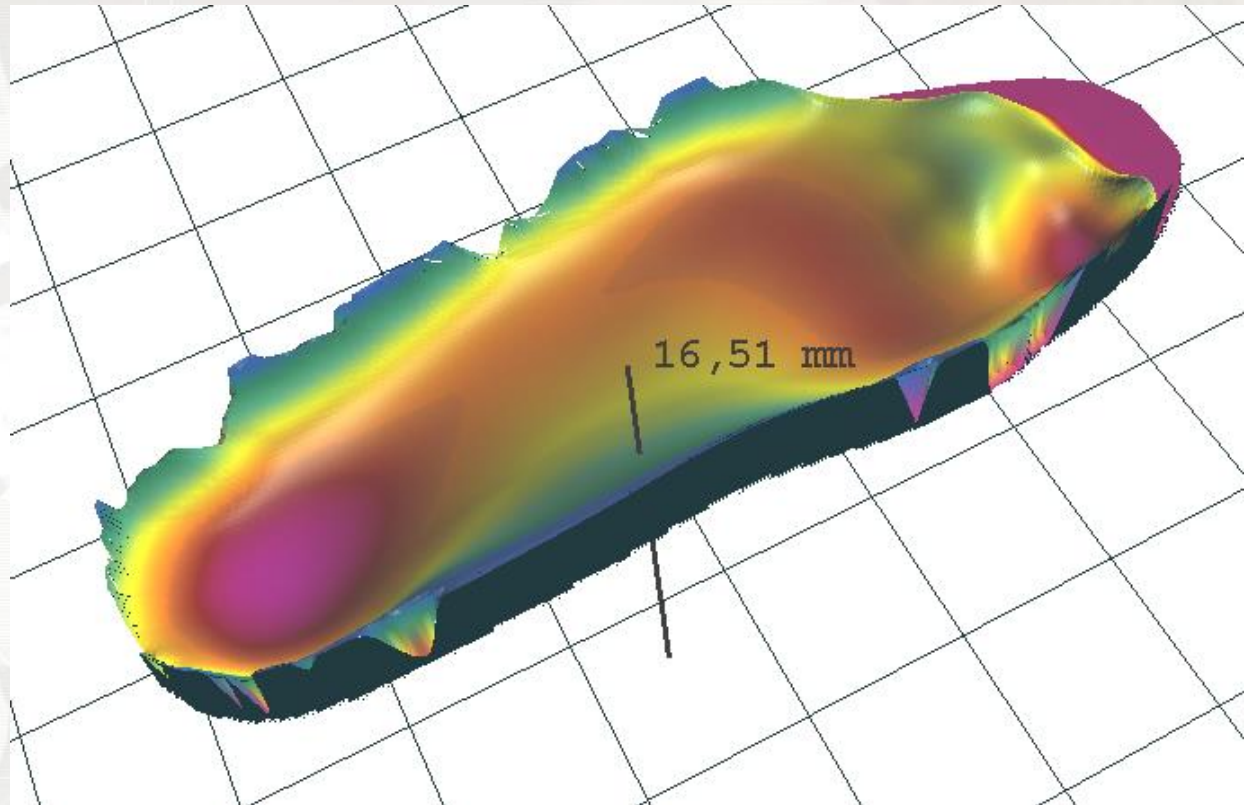
3D positioning

Using 3D PodoScan you already know the value of the heights, although you do not have any information on the pressures performance during the gait.



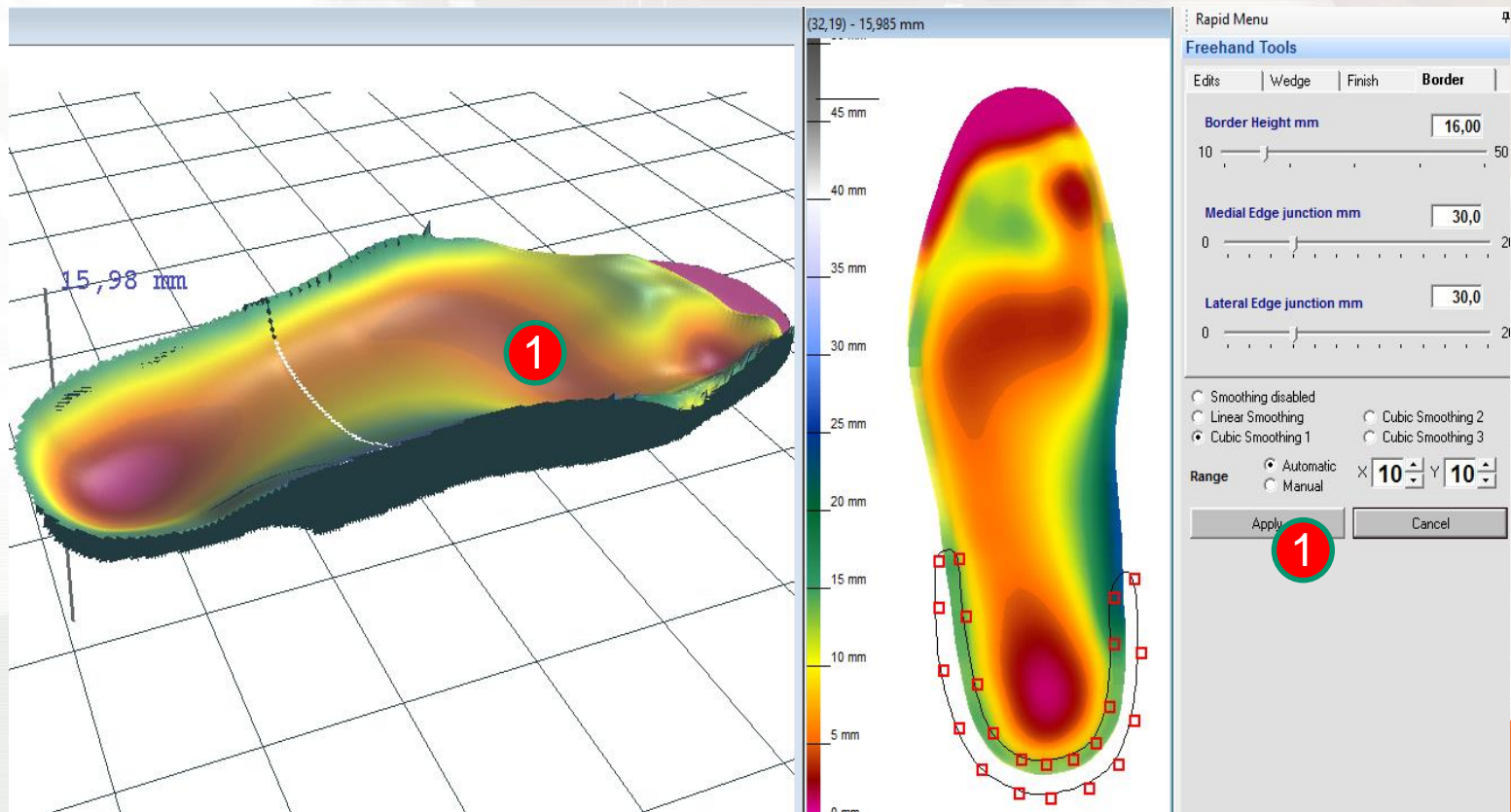
Cleaning the 3D surface

It is necessary to adjust the edges, which appear uncompleted or otherwise different from what you need.



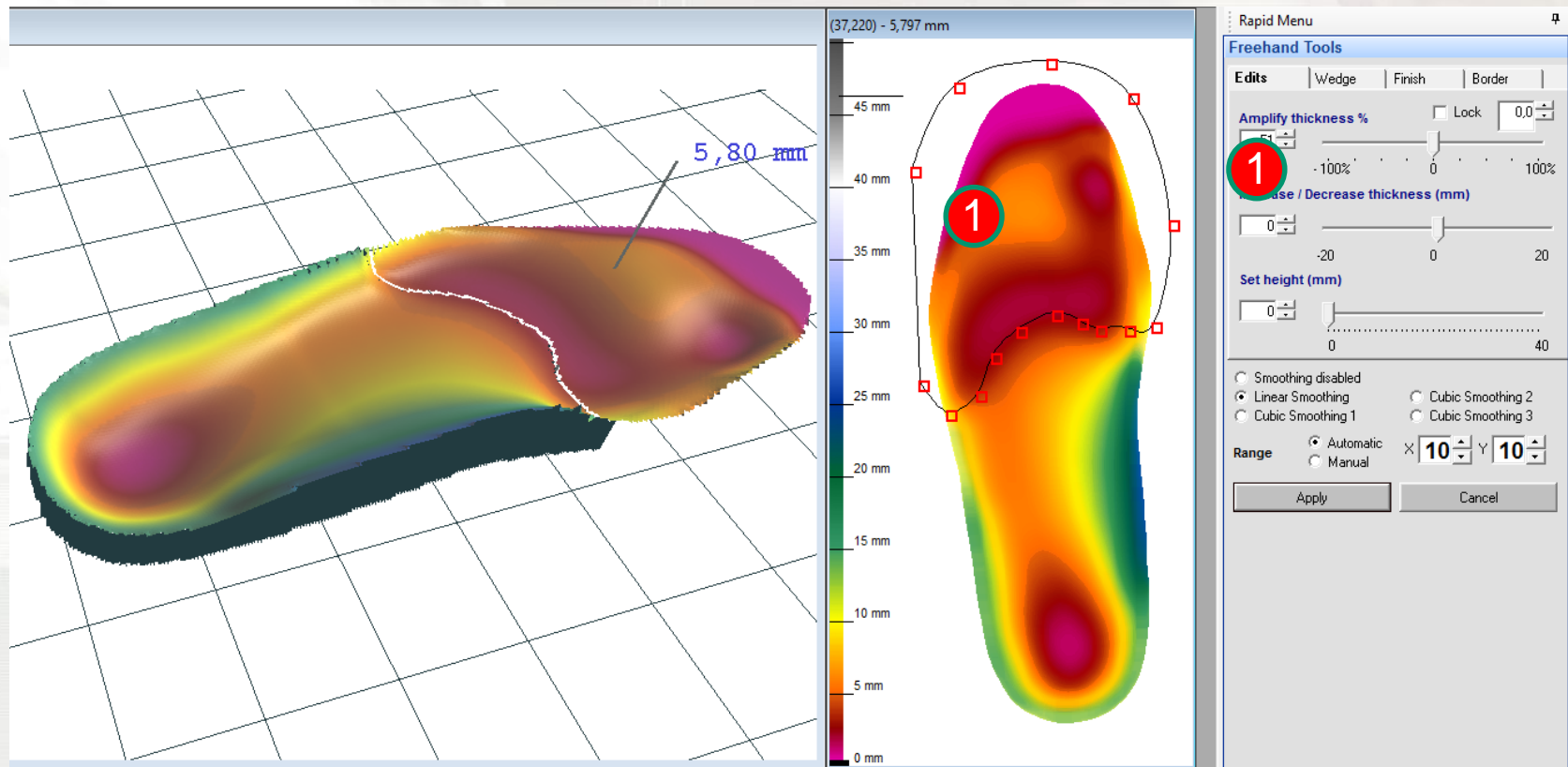
Cleaning of the 3D surface

We optimize the rear edge by selecting the height and length in the middle foot (fitting time) and on each side.



Forefoot adjustment

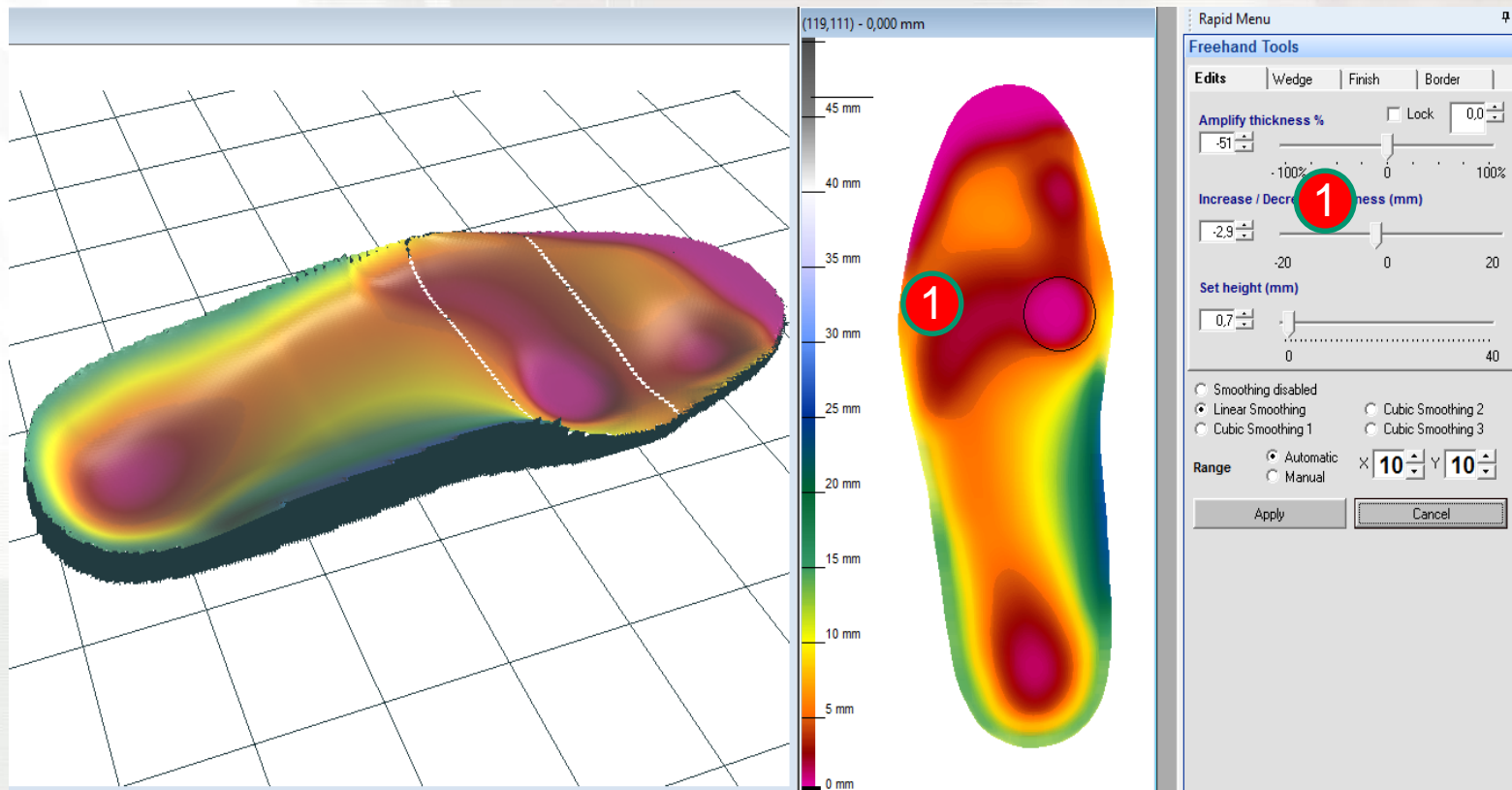
The scanning of a phenolic foam box will leave too material in the forefoot, but an excellent survey of the elevation of the sub-diaphyseal femoral would be appropriate to be maintained.



Depressed areas

To depress an area affected by over loads, not being in the presence of blood pressure problems, you can isolate that area manually, by drawing directly on the orthotic picture.

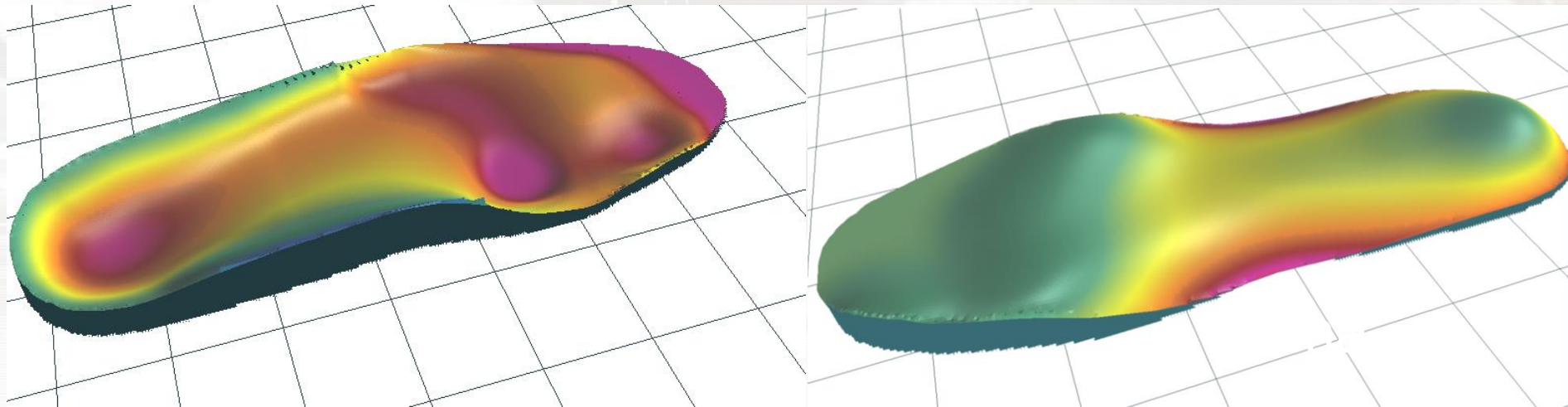
At this point it is possible to choose the thickness.



Milling the orthotic

As soon as finished the CAD design, we send the project to the milling machine, for the orthotic production or for the production of the positive (foot cast).

With the positive, you can mold the orthotic using materials that cannot be milled (thermoformable).



Orthotic Milling (negative)

We choose the best material for the patient, considering his weight, activity and pathology, then we place it on the machine plane.

At the end of the milling the orthotics are almost ready-to-use, but not yet finished.

It remains to grind them and decide the best top cover.

Orthotic finishing is very important for using them inside any kind of shoes.



Vulcan Vx1

Professional advanced 3 axes milling machine for orthotic production.

Work area: 300x400 mm

Z Max stroke 140 mm, work. area 80 mm

Speed of processing 80mm/sec

Acceleration of 500 mm / sec ²

Accuracy maximum working, 0.05 mm

Tool in high speed steel (HSS)

2 cutting Utensil optimized for milling 20 to 75 sA

Screws and guides ball;

Moving to 4 pads per axle for increased rigidity

Axes aluminium G25

Motors fitted on board without straps

1,500 W Power Tool 24,000 rpm

Mill a pair of orthotic on shaped blanks of different sizes

Vacuum table with vacuum pump and filters

Bell, brush and antistatic suction hose

Certificate of compliance with machines



Vulcan TwinCAM

4 axis CNC milling machine
 The first dual spindle worldwide.
 Double 1,500 W Power Tool 24,000 rpm
 The first Dual Spindle machine for orthotic production
 4 axis machine double Z
 Milling time for a pair 4-6 min
 Work area: 300x400 mm
 Z Max stroke 140 mm, working area 80 mm
 Speed of processing 125 mm/sec
 Acceleration of 700 mm / sec ²
 Accuracy maximum working, 0.05 mm
 Tool in high speed steel (HSS)
 2 cutting Utensil optimized for milling 20 to 75 sA
 Moving to 4 pads per axle for increased rigidity
 Axes aluminium G25
 Motors fitted on board without straps
 Mill a pair of orthotic on shaped blanks of different sizes
 Vacuum table with vacuum pump and filters
 Bell, brush and antistatic suction hose



Thank you for your attention

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