



# : visi shoes

a step ahead in footwear design

Compared with the tools it replaces – clay, wax and wood or even traditional manual 2D or 3D design software, incorporating the fully integrated VISI Shoes CAD/CAM tool into product design and development can provide significant benefits to many companies; especially in the tool making and manufacturing sector.

## Improved design quality

The system transforms the way products are developed. By combining a parametric environment with a powerful modelling tool, users can quickly create complex soles and heels, previously only possible through time-consuming manual surfacing modelling. These 3D digital models – soles and heels – can be used directly within VISI Shoes to quickly obtain the final manufactured mould tool of each graded size.

## Reduction in development time

Success in the footwear business is largely driven by styling and design but strictly connected with the capability of dramatically reducing the time to market. Yet being cost competitive frequently requires efficient use of offshore production partners. Balancing these elements is difficult for both brand OEMs and manufacturers they work with. As with most product designs, the development starts with a marketing brief that sets design requests, cost parameters, involved subjects etc. 2D design work takes four to six weeks using mostly pencil or pen on paper or 2D drawing programmes. Design typically produces a set of drawings depicting the approved design in top, front, and side aspects, with sectional slices possibly included. This information is then passed to a modelling group to convert the 2D data into 3D product models that can be more effectively evaluated and approved.

The first step, creating the mid-sole/out-sole models is usually produced in clay or resin. Once a design model is complete,

it is sent downstream for a prototype to be produced capable of being manufactured. Many manufacturers use digital tools for engineering and then start by recreating the model in 3D CAD from where CNC tool paths are generated directly from the model. Finally, grading for all sizes can only be done after production prototypes have been approved. This can take anything from 15 to 60 days, with an average of 30 days for the whole process (excluding the possibilities of shipping physical patterns via airfreight).

3D model construction using surface modellers may take anything from 10 to 30 days with an average of 17 days for a complex sole. By taking advantage of the reverse engineering module and its complete automation, VISI Shoes can cut modelling times (starting from a 2D drawing, an image file or scanned data) to one to four days, with an average of only 3 days, including the cutter path generation. In addition, working with a parametric solid model within a flexible hybrid modeller provides production partners with the ability to easily make manufacturing-related changes.

## Reduction in design and manufacturing costs

After initial production samples are complete, it may take several iterations between OEM and manufacturer to solve production problems consistent with the intended design. VISI Shoes automatically re-builds the model after every modification so any change can be quickly and accurately produced.

Once production prototypes are approved by the OEM, manufacturers grade the model into the sizes required for manufacture. Several leading companies do this with software that works directly on triangulated STL data - VISI Shoes, however, allows grading of both 2D and 3D geometry, greatly reducing the time required for producing the sizes for manufacture, the mould tool geometry and the related CNC paths for each size.

dramatically reduced  
time to market

integrated environment

complete solution for heel  
and sole design

concurrent engineering

streamlined geometry  
handling

automatic mold  
tool design and  
manufacturing

powerful tool for  
heel makers



## Physical Model - Total : 30 days



## Traditional CAD/CAM - Total : 17 days



## 2nd generation CAD/CAM - VISI Shoes - Total : 9 days



VISI Shoes is up to 40% more productive than traditional CAD and up to 60% more productive than physical modelling. Companies around the world have chosen VISI because it offers:

**Integrated environment**

Integration has always been a key word in the success of Vero. VISI Shoes now integrates the powerful tools of combined surface/solid modelling with a brand new parametric environment specifically developed for sole/heel modellers and manufacturers. The user will find all the relevant tools for the shoes world including wrapping, surface unfolding, 3D grading with fixed area management, ribs and tread patterns, automatic NC toolpath generation and many others.

**Concurrent engineering**

Several iterations shared between designers, modellers and mould makers are often required to arrive at the 'right' model before passing onto tooling and production. VISI Shoes uses an intuitive, easy-to-use interface with fully editable geometrical parameters within a parametric tree. Any design variation is

possible by simply editing the geometry contained within the parametric tree and automatically rebuilding the model.

**Streamlined geometry handling**

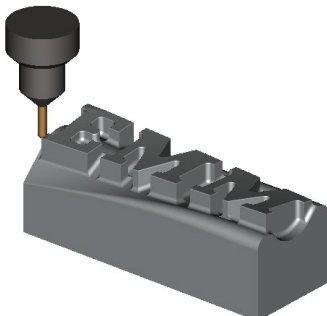
The data acquisition from graphical images, digitizers, robotic arms etc. is easy, fast and accurate when using the VISI solution for reverse engineering. Automatic edge recognition from point clouds or STL data is a unique tool which makes it possible to quickly obtain the geometry required for accurate sole/heel modelling.

**Automatic mould tool design and manufacturing**

The mould tool design is produced automatically from the sole design for each model size. Cavity plates and shoe punches are generated as separate solid models and, through the integrated CAM solution, all geometrical entities are ready for toolpath generation.

**Powerful tool for heel makers**

The heel solution includes powerful tools for easily producing the 3D heel model directly from simple 2D curves. Similar to the sole, the heel application provides easy modifications to the heel design by simply managing the curves and surfaces within the parametric tree. It is also possible to grade the 3D heel model through user defined or standard grading parameters. The mould ready heel tip is automatically produced using user driven extension or extrusion operations.

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