



materialise

innovators you can count on



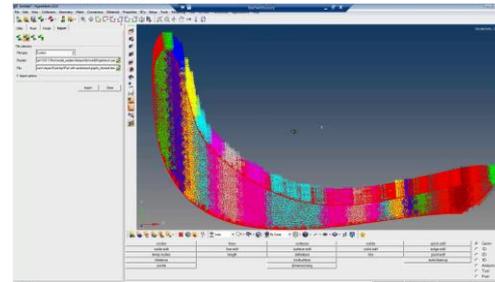
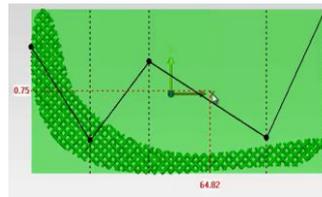
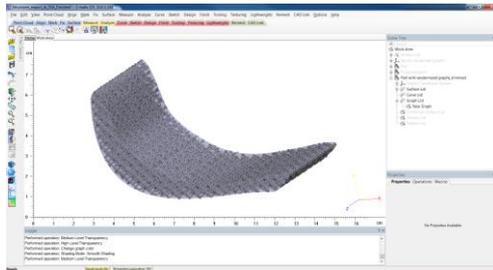
Materialise 3-matic

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Tutorial Videos: Lightweight Structures

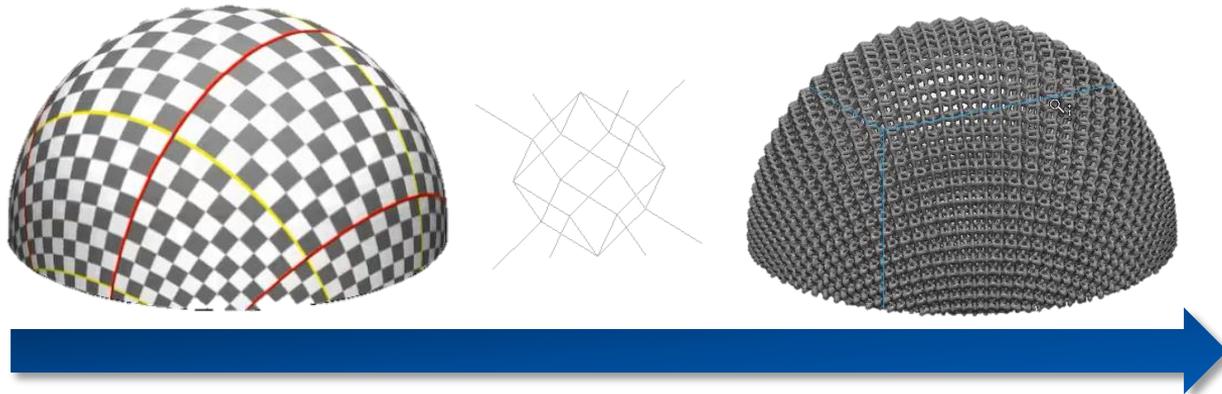
Materialise 3-matic: Design Gradient Thickness Structures Exportable to FEA

- ▶ This video shows how to implement a lightweight structure with a linear gradient thickness on the structure. This structure is then prepared to be exported for Finite Element Analysis.



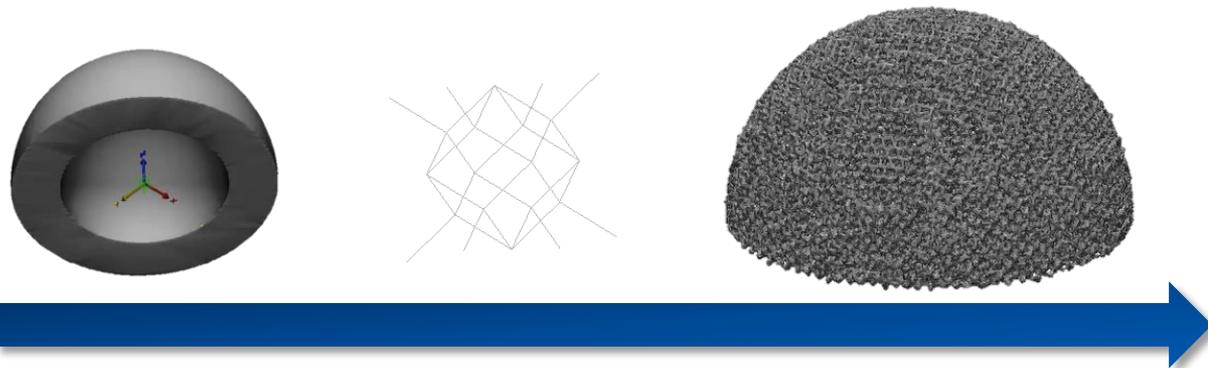
Materialise 3-matic: Design a 3D Conformal Structure

- ▶ This video shows how to design a structure conformal to the surface of your model. The 3-matic patterning function generates 3D patterns that follow the curvature of the part.



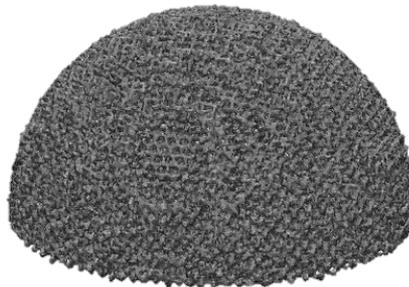
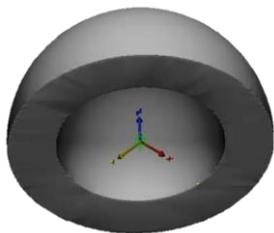
Materialise 3-matic: Design a Randomized Structure

- ▶ This video shows how to design a randomized structure starting from a unit structure and setting minimum and maximum randomization levels.



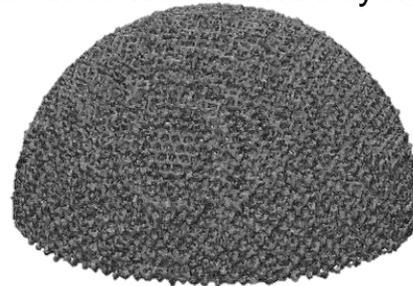
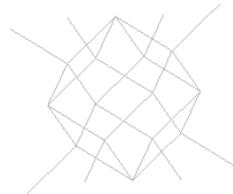
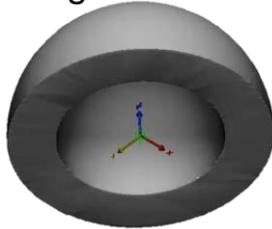
Materialise 3-matic: Design a Trimmed Randomized Structure

- ▶ This video shows how to design a randomized structure starting from a unit structure and trim the small edges that extend beyond the original external surface.



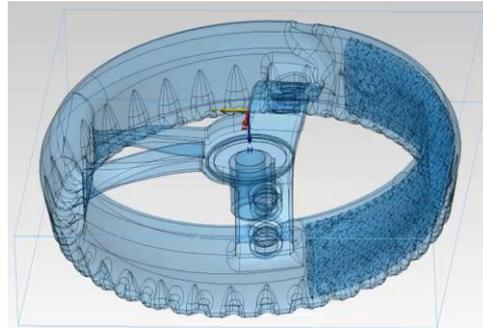
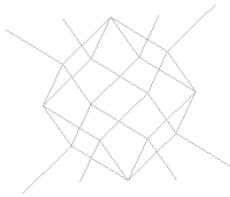
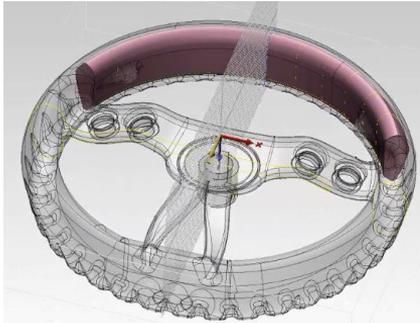
Materialise 3-matic: Design a Randomized Structure with Offset

- ▶ This video shows how to design a randomized structure that fits perfectly to the original model geometry. In this example, no trimming is used.
- ▶ To create this perfect fit, an offset is created from the original model geometry. Starting from a unit structure, minimum and maximum randomization levels are set, generating a randomized structure that does not extend beyond the original external surface.



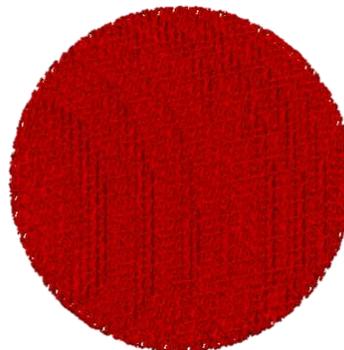
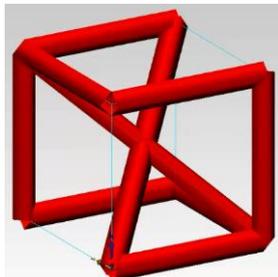
Materialise 3-matic: Design a Structure inside a Steering Wheel

- ▶ This video shows how to design a structure to be applied to the inside of a steering wheel while leaving the other parts of the steering wheel solid.



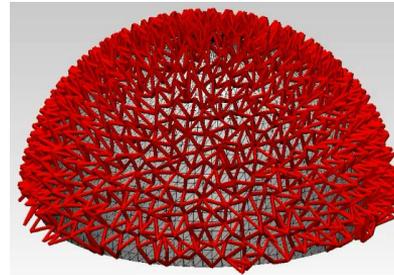
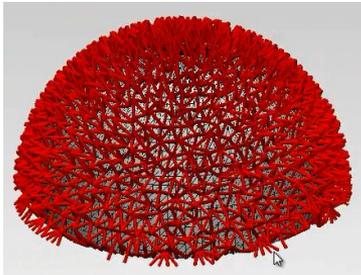
Materialise 3-matic: Design Your Own Unit Cell

- ▶ This video shows how to design a unit cell. This procedure can also be done in any other software and imported to 3-matic as Iges files, which present the structure in lines.



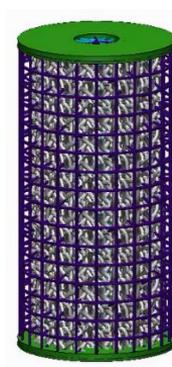
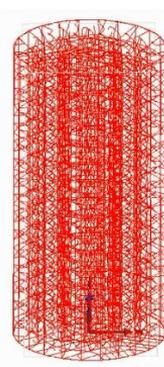
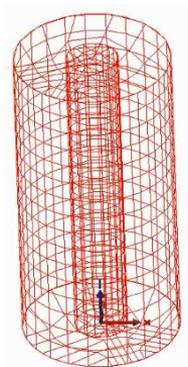
Materialise 3-matic: Design a Randomized Filtered Volume Structure

- ▶ This video shows how to design a volume structure. After designing your structure, lines that have only one connection point and are under a certain angle can be filtered and removed.



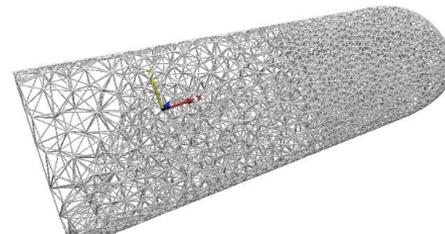
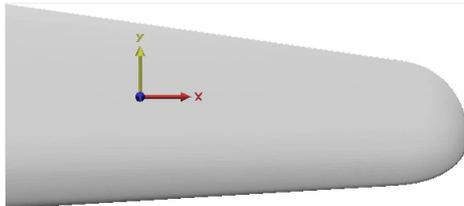
Materialise 3-matic: Design a Radial Structure Within a Filter

- ▶ This video shows one of the possible ways of designing a radial structure within a filter. By creating an offset inside the filter, a connection can be made between the two radial surfaces.



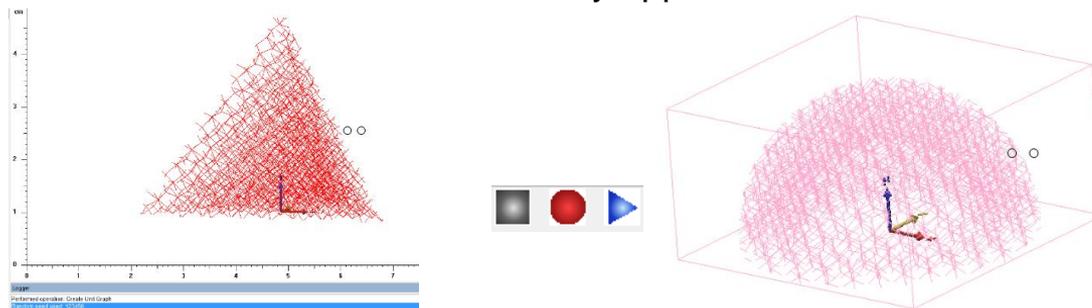
Materialise 3-matic: Design a Wing with Gradient Structure

- ▶ This video shows how to design a structure that has a density gradient. In this example, a wing is subdivided into 3 sections with different mesh sizes. Afterwards, a volume graph is applied.



Materialise 3-matic: Using the randomize seed value and macros

- ▶ This video demonstrates how to use the randomize seed value and how to create and apply a macro.
- ▶ Starting from a randomized graph, the resulting seed value is incorporated into a macro. This macro is then easily applied to create randomized unit graphs.



Thank You!

Any questions? Please contact
software@materialise.be