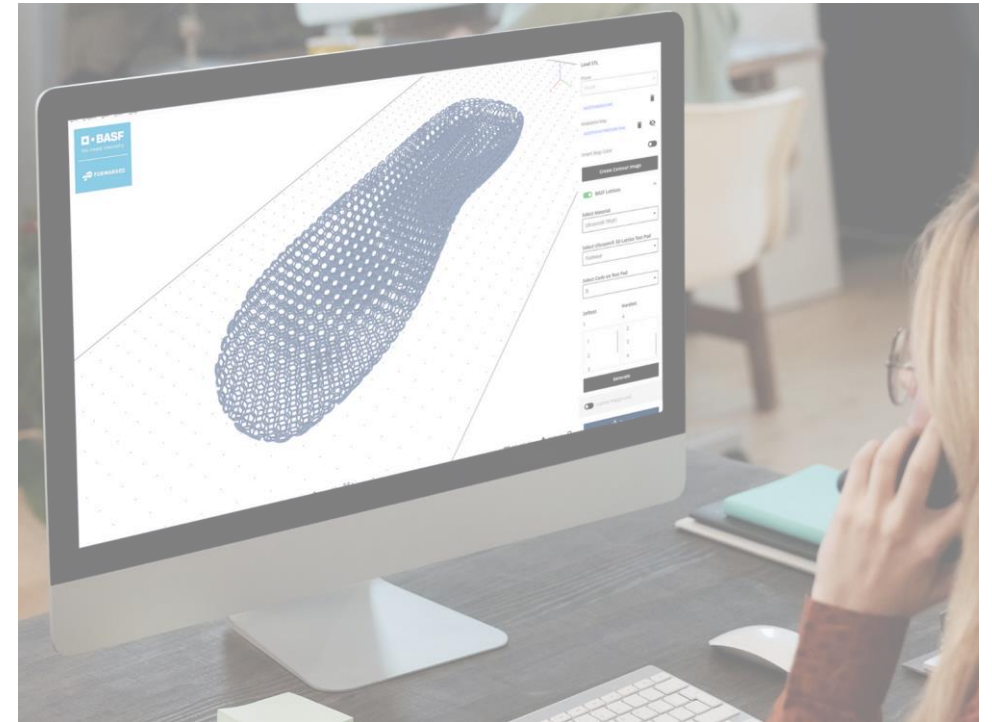


Ultrasim® 3D Lattice Engine Offering








What are 3D printed Lattices?

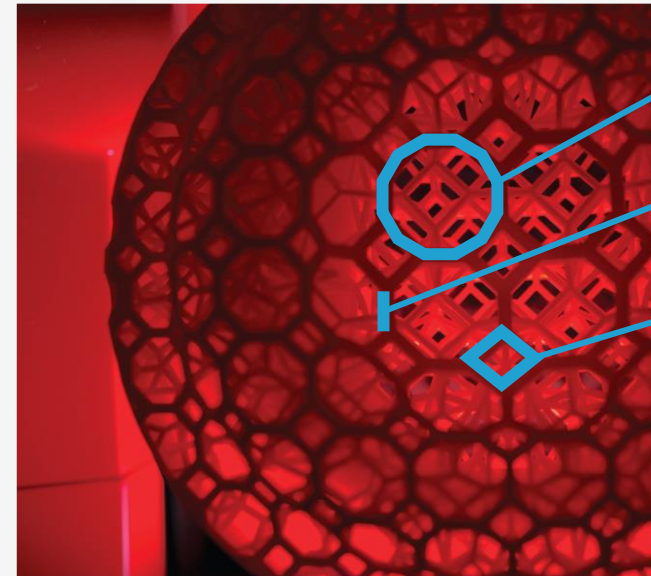
Lattices Background

- 3D-printed lattices are **repeated patterns** comprised of a network of cells, beams, and nodes.

Benefits at a Glance

-  Heat transfer & ventilation
-  Aesthetics
-  Lightweight
-  One material, many lattices, many behaviors
-  Local hardness control

Lattice Characteristics



Lattice Cell

Lattice Beam

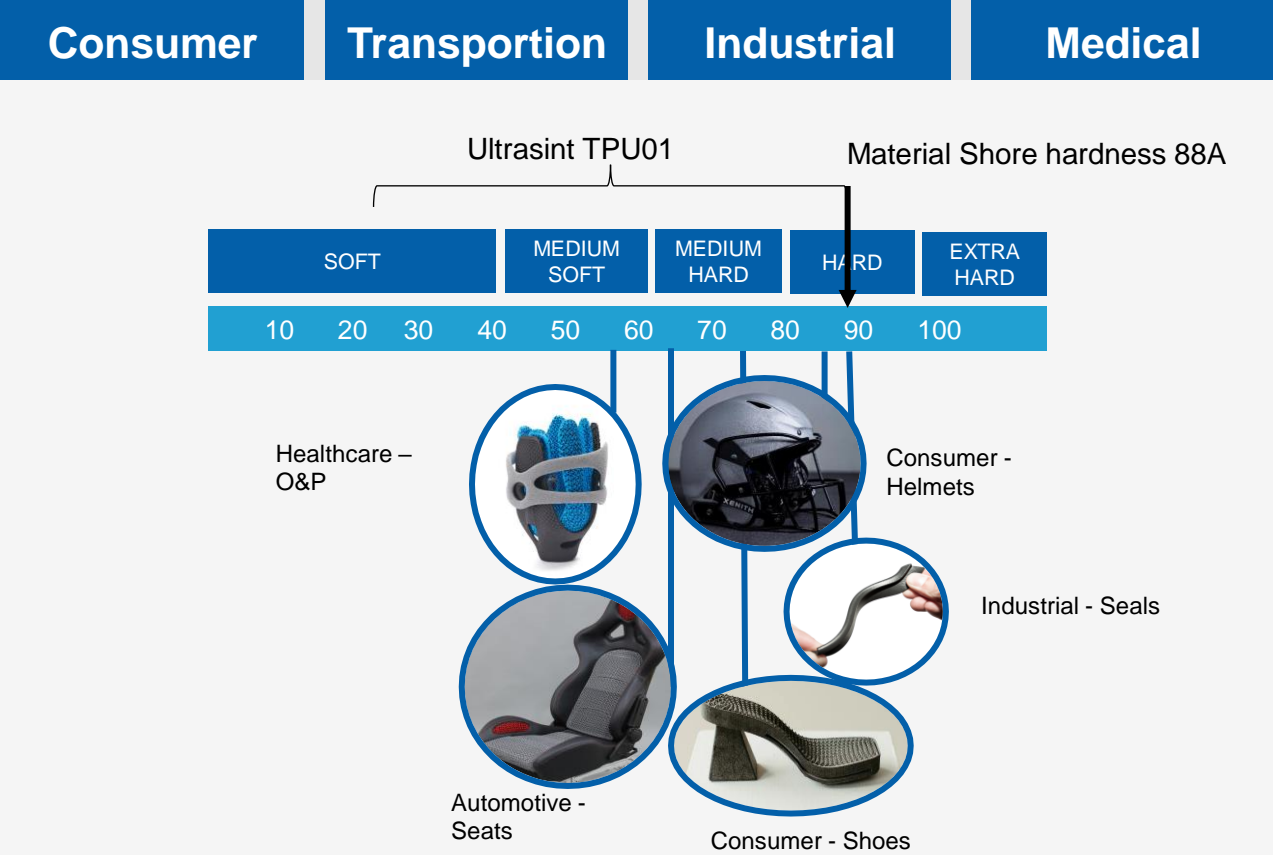
Lattice Node

 Lattices unlock entirely new function & designs

Ultrasint® TPU01

Value Proposition:

- High shock absorption, energy return and resistance to fatigue
- Use in wide range of industries
- Good chemical resistance
- Passed skin contact tests
- 80/20 (old/new) Recyclability ratio
- Ultrasim® 3D Lattice Design for application enablement
- Post-processing like coating and vapour smoothing

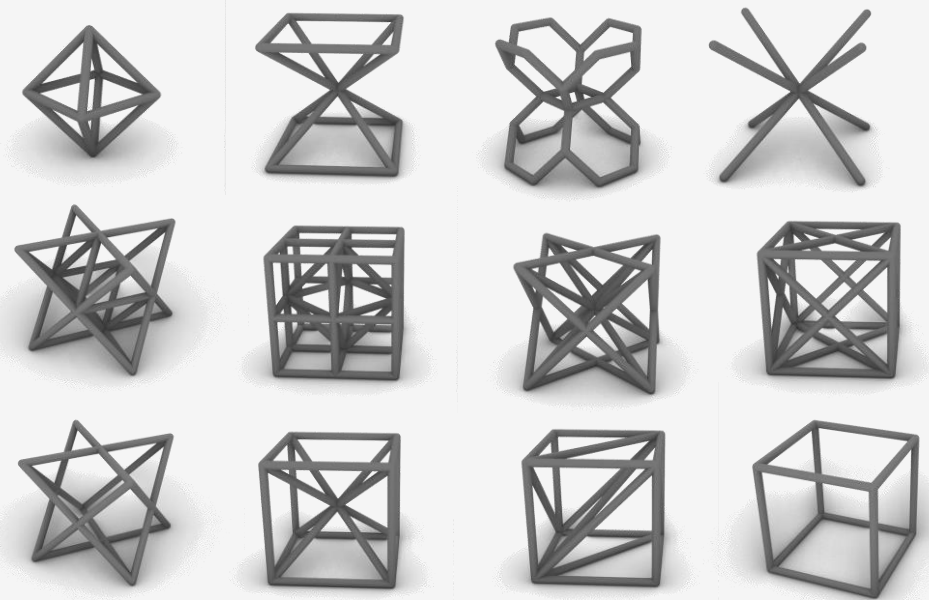
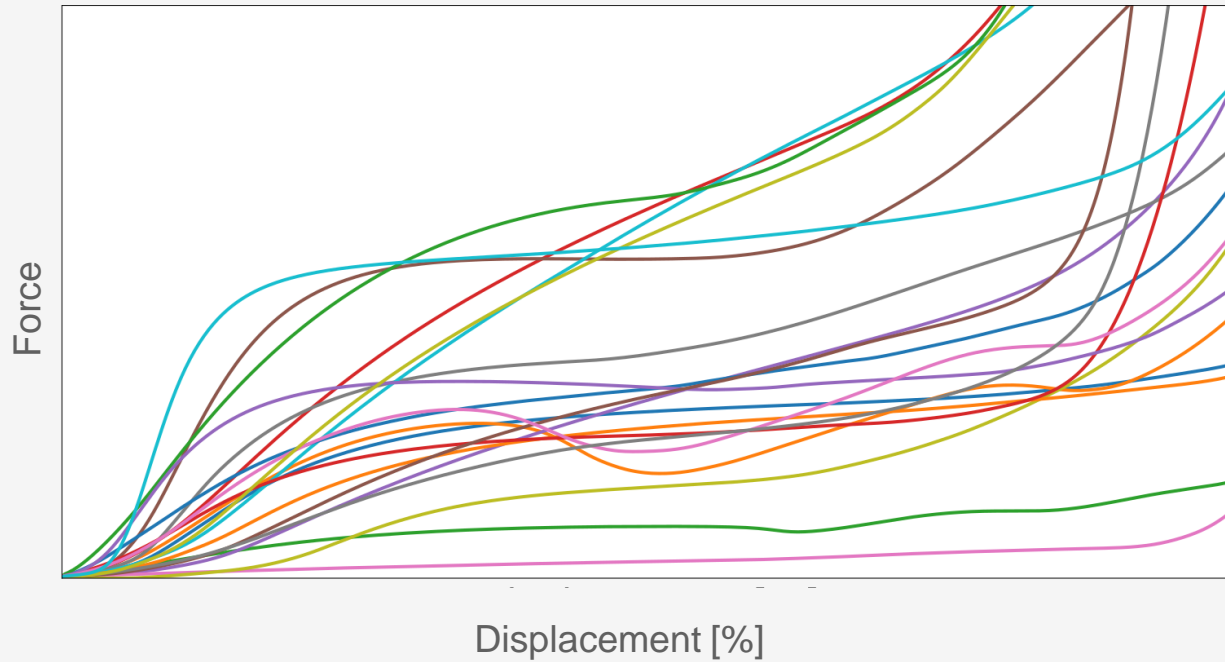


Ultrasint® TPU01 used as single material in wide range of industries

There are millions of different lattices out there

Where to start?

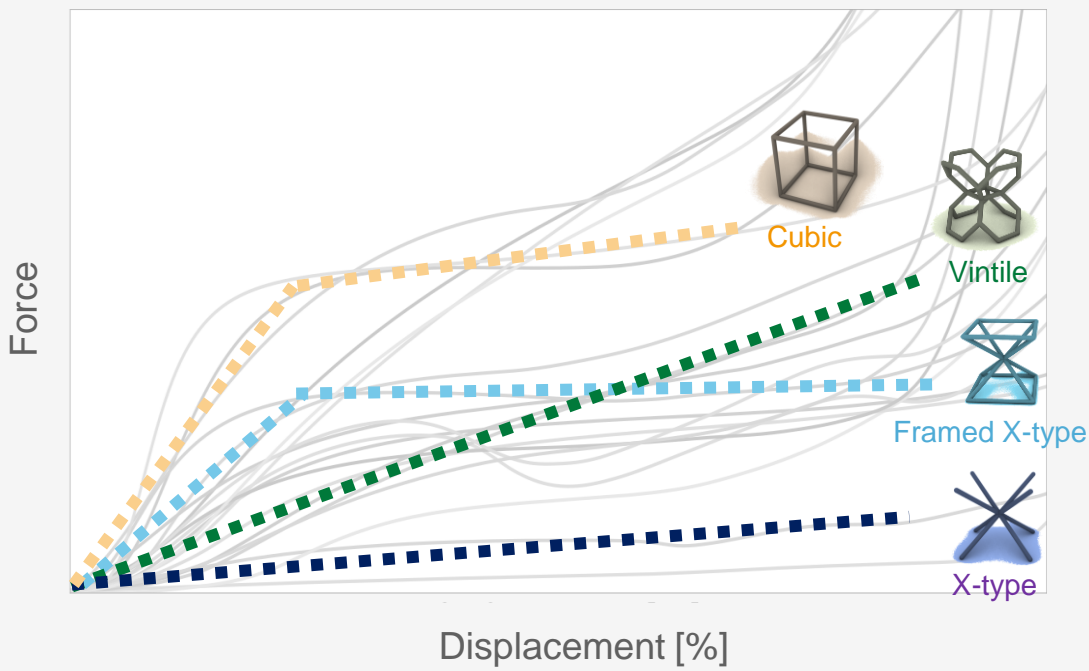
Force-displacement curves of different lattices:



Endless options lead to selection problem

How to find the right lattice for your application?

One material, many behaviors



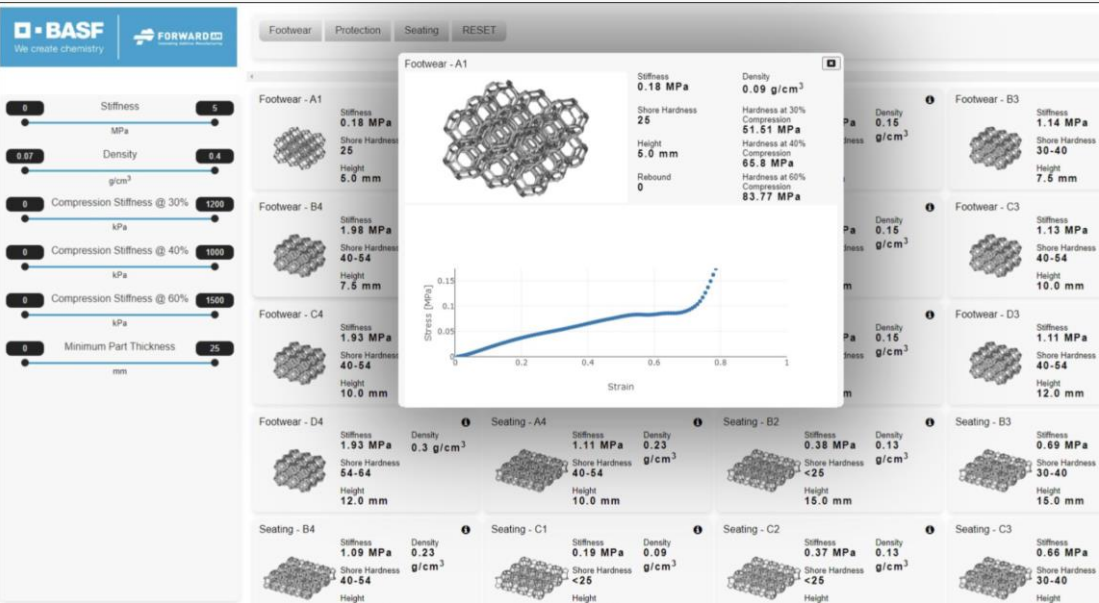
High energy absorber
 Low energy absorber
 High linear stiffness
 Low linear stiffness



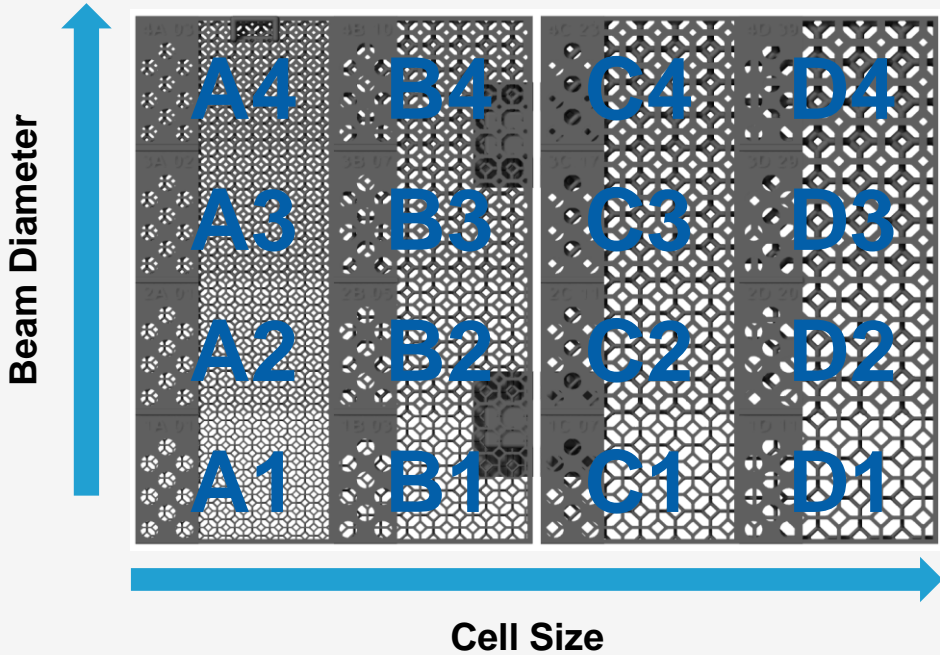
➤ Match lattice behaviour with application requirements

How to implement the right lattice in your application?

1 Digital Ultrasim® 3D Lattice Library:



2 Printed Ultrasim® 3D Lattice Test Pad:



➤ Ultrasim® 3D Lattice Library allows to choose from a large database of lattices

Ultrasim® 3D Lattice Engine

Fill your design in seconds with the lattice you need

- Forward AM Ultrasim® 3D Lattice Engine powered by Hyperganic enables you quickly generate validated lattices

Benefits at a Glance



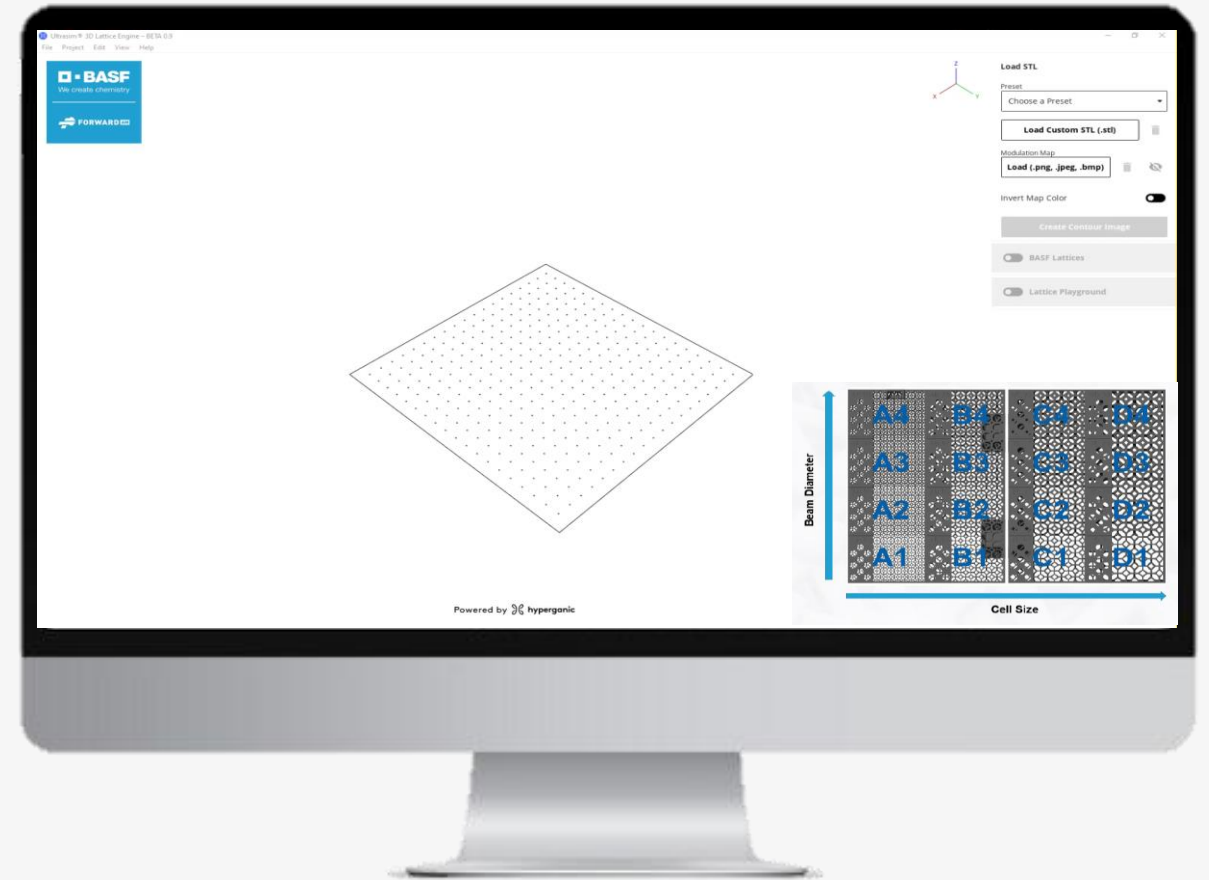
It's Simple - One-click lattice engineering



It Works - Pre-selected, validated lattices for Ultrasint® TPU01



It's Affordable – No high investment costs



Pricing Models

Choose your suitable solution

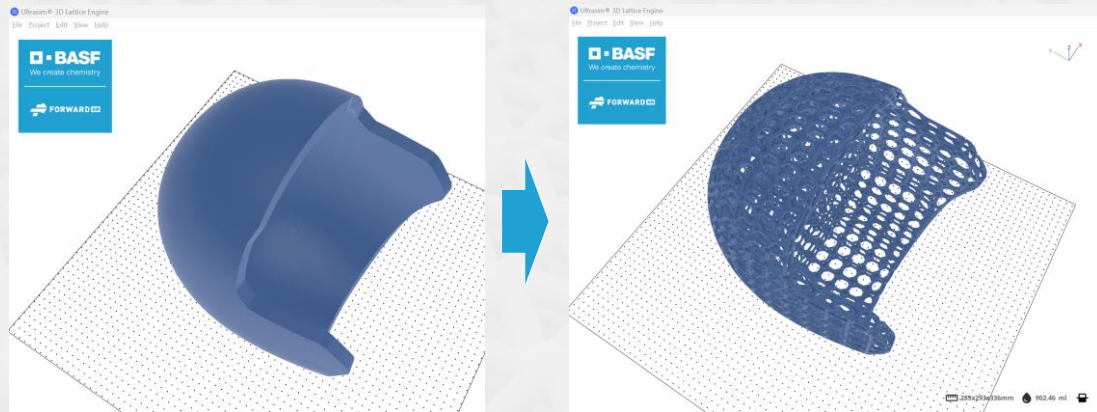
Free Trail
0 €
Start your 7-day free trial now
No exports

Single User Flat Rate
299 €/month
User/month
Billed quarterly
Unlimited exports

Enterprise User Flat Rate
199 €/month
Minimum of 5 Users
User/month
Billed quarterly
Unlimited exports

What can the Ultrasim 3D® Lattice Engine do? What can it NOT do?

Ultrasim® 3D Lattice Engine



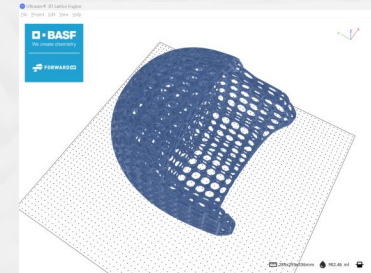
- Fill a volume with functional, validated lattices instantly.
- Powerful first lattice design and starting point for further product development.

Ultrasim® 3D Lattice Design



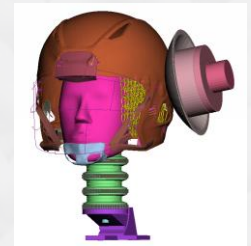
Final application

first designs/
sketches



Experi-
mental
validation

Design
and
simulation



- With Ultrasim® 3D Lattice Design services we can further develop your lattice design in more sophisticated CAD software and convert the designs to real series applications

FAQs: Ultrasim® 3D Lattice Engine

- **Q: What problem is the Ultrasim 3D Lattice Engine solving?**

- A: Ultrasim 3D Lattice Engine aims to solve 2 major problems:

- (1) Selection problem: Finding the right lattice out of millions is difficult. Choose from pre-selected lattices designed specifically for different applications such as footwear, seating and protection and QC-proven to be printable and depowderable by partners.
- (2) Design problem: Designing the right lattice in CAD software takes time and expertise. Ultrasim 3D Lattice Engine simplifies the design problem, so that everyone can design lattices instantly. At low cost.

- **Q: What type of customers do you target with the Ultrasim 3D Lattice Engine?**

- A: Companies within the footwear, protection and seating industry who are seeking innovative advantage using 3D printed lattices and want to accelerate the lattice development process.

- **Q: What can it do?**

- A: Ultrasim 3D Lattice Engine can generate functional lattices within seconds without engineering know-how. Users can choose from pre-selected lattices based on codes (A1, A2, ..., D4) to design lattices themselves. They can also translate those codes into the mechanical data (e.g. shore hardness) using the Ultrasim 3D Lattice Library. In addition, the Ultrasim 3D Lattice Engine can generate multi-zone lattices based on heat maps to design the right shore hardness where it is needed.

- **Q: What can it NOT do?**

- A: Ultrasim 3D Lattice Engine is a starter software. It typically does not deliver the final series design as advanced features like skin generation, merging of parts, etc. is not provided. It delivers powerful first lattice design and starting point for further product development which we support with our Ultrasim 3D Lattice Design Service.

- **Q: Who do I need to contact for support?**

- A: Technical support: For any questions you have on Software or Lattices use our [forum](#). Commercial support: For any questions you have on new licences please contact: sales@basf-3dps.com

Any Questions? Contact Us!

Dr. Florian Fischer
Head of Service and Solutions

Marius Haefele
Product Manager Services

AMS@basf-3dps.com

 - **BASF**

We create chemistry



FORWARD AM

Innovating Additive Manufacturing