



## Press Release

# EMO 2023: Support-free 3D printing from TRUMPF opens up new applications and reduces waste

**New software for TRUMPF 3D printers eliminates the need for almost all support structures // Users such as toolcraft cut down material usage and reduce part costs // Software opens up new applications**

*Ditzingen/Hannover, Germany, September 8, 2023* – High-tech company TRUMPF recently made improvements to its 3D printing software TruTops Print. Users can now print parts with extreme overhang angles as low as 15 degrees without requiring support structures. TRUMPF will be showcasing its new technology at EMO, the world's leading trade fair for production technology, which will be taking place in Hannover, Germany. "The latest version of TRUMPF's TruTops Print software eliminates the need for virtually all support materials, which ultimately means quicker builds and lower material consumption," says Lukas Gebhard, process development engineer for additive manufacturing at toolcraft. "Support-free printing gets parts close to their final shape. It opens the door to parts and projects that were previously impossible, such as the near-net-shape manufacturing of large-diameter internal cooling channels." In the past, users had to print support structures together with the part in order to anchor the part to the build platform. These structures also serve to dissipate heat from the printed part and prevent internal tensions and deformations during printing. But TRUMPF's innovative new technology means that many 3D printing applications can now be carried out without supports, even when tackling hard-to-process materials such as stainless steel.

### **Software opens up new 3D printing strategies**

"When we 3D print a part, we want as much control as possible over when and where the material melts and re-solidifies. The skill lies in choosing the right exposure strategies to prevent internal tensions and overheating in the overhang region," says Timo Degen, product manager for additive manufacturing at TRUMPF. TruTops Print enables the 3D printer to use the optimum printing strategy for each different area of the part, thus eliminating the need for support structures. At the same time, the improved gas flow of TRUMPF's new 3D printers caters to uniform processing conditions and support-free printing.

### **Support-free 3D printing opens up new applications**

"Users from any industry can benefit from the ability to 3D print parts without supports. The advantages of support-free printing are particularly appealing for

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parts that feature large cavities or challenging overhangs,” says Degen. Examples include tanks, heat exchangers, hydraulic blocks and tool molds.

The new technology also opens up new applications that couldn't be properly exploited when support structures were still necessary, including areas such as additively manufactured radial compressors and shrouded impellers. Previously, manufacturers were unable to print support-free impellers due to their overhang angles. “The need for supports meant that 3D printing wasn't an economically viable alternative to conventional manufacturing. But now things are different,” says Degen.

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### **Support-free 3D printing**

The advantages of support-free printing are particularly appealing for parts that feature large cavities or challenging overhangs.



### **Parts with extreme overhangs**

TruTops Print allows users to print parts with extreme overhangs as low as 15 degrees without requiring support structures.



### **TruTops Print software**

TruTops Print enables the 3D printer to use the optimum printing strategy for each different area of the part, thus eliminating the need for support structures.



### **About TRUMPF**

TRUMPF is a high-tech company offering manufacturing solutions in the fields of machine tools and laser technology. The Company drives digital connectivity in the manufacturing through consulting, platform products and software. TRUMPF is a technology and market



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leader in highly versatile machine tools for sheet metal processing and in the field of industrial lasers.

In 2022/23, the company employed some 17,900 people and generated sales of about 5.4 billion euros. With over 90 subsidiaries, the TRUMPF Group is represented in nearly every European country as well as in North America, South America and Asia. The company has production facilities in Germany, France, the United Kingdom, Italy, Austria, Switzerland, Poland, the Czech Republic, the United States, Mexico and China.

Find out more about TRUMPF at [www.trumpf.com](http://www.trumpf.com)

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