RAMONA HÖNL

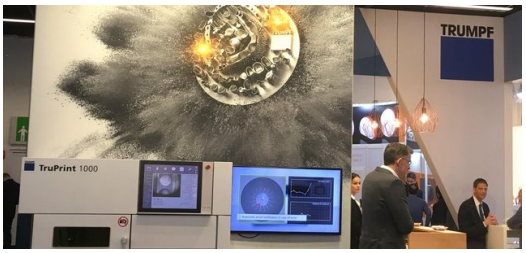
3D-Printed Dentures

The International Dental Show (IDS) in Cologne is the world's leading trade show for the dental industry. Held from March 12 through 15, over 2,300 exhibitors will be in attendance to showcase their latest products and innovations. TRUMPF will also be taking part; after all, dentures are increasingly being manufactured using 3D printers – and TRUMPF is one of the world's top five suppliers of 3D printing solutions.

The ability to print dentures is no longer merely a futuristic vision, it is reality. Nowadays, ever-more dental laboratories are using 3D printing to manufacture bridges, crowns, implants, or even entire sets of teeth. This approach brings with it many benefits. "3D printing is faster and more affordable, particularly when producing high volumes," comments Reinhard Sroka, who is TRUMPF's industry manager for the dental sector. This is because most dental products are custom-made items. For decades, dental technicians have been manufacturing tailor-made models for their patients using milling machines or die casting. "They need around 20 minutes for each part," explains Sroka, who is himself a master dental technician.

TRUMPF 3D printer is the world's fastest dental printer

3D printing – notably the TruPrint 1000 machine from TRUMPF – offers a much faster solution. Whereas dental technicians have to manufacture each tooth individually, the 3D printer builds up an entire platform by itself. The TruPrint 1000 with multilaser functionality is the world's only small format machine to work with two lasers simultaneously. In the space of just two to three hours, up to 80 teeth can be manufactured per cycle – which equates to around three minutes per tooth. "This makes our 3D printer the fastest dental printer on the market," highlights Sroka.



At IDS, TRUMPF will be showing the TruPrint 1000, the fastest dental prosthesis system on the market.

Substrate plates with 3D-printed dental prosthesis.

Using 3D printing for dental technology saves material and improves quality

But that's not the only reason to choose 3D printing for dental technology. The 3D printer only processes the exact amount of metal powder that it actually needs, which saves the user material and, in turn, money. The 3D printer is also better able to create complex geometries such as corners and edges in the smallest of spaces. This ultimately improves the quality of the teeth. A further benefit is that 3D printing significantly reduces the preparations required. When using the casting process dental technicians need to produce a plaster cast of the dentures, but all the 3D printer needs is a scan.

TruPrint 1000 now also prints entire teeth

The glass display cases at TRUMPF's IDS stand will also showcase dentures to be implanted into the jaw. Patients need these "implant-supported dentures" when there is no residual tooth left onto which the dentist can attach the denture. In such cases, the tooth root is replaced by a metal part into which the denture is screwed. This type of denture can now be manufactured using the TruPrint 1000. This process requires a high degree of precision, which is made possible by an advanced IT interface which is linked to the milling machine. "Global demand for implant-supported dentures is rising. More and more people are opting for this luxury, particularly in China. That's why it is crucial to keep pace with this trend," comments Sroka.

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