Press Release

TRUMPF Ltd.
Public Relations Dept.

President Way,
Airport Executive Park,
Luton, Bedfordshire. LU2 9NL

Tel. No. 01582 725335
Fax No. 01582 399250
e-mail. sales@uk.trumpf.com
Web: www.trumpf.com
Twitter: @TRUMPF_Ltd

Ref: TMT\863
Transmission date: July 2017

TCT Show, NEC Birmingham
26-28 September 2017
Stand no: B24

3D printing: TRUMPF presents highly productive multi-laser system

At the 22nd TCT Show in Birmingham, laser and laser system manufacturer TRUMPF will present its TruPrint 1000 3D printer with multi-laser option. What's special about the system, which is designed to process metal powder, is its multi-laser principle: the highly productive TruPrint 1000 features two, 200-Watt fiber lasers that work in tandem to create components of the required shape by layering metal powder. The hallmarks of the system are the great flexibility it offers for satisfying specific customer demands and increased productivity.

In its standard version, the compact and robust TruPrint 1000 is equipped with one 200-Watt laser. Although TRUMPF developed the multi-laser version with two lasers with the dental industry in mind, this highly productive system is also suitable for other industries. The main advantage the multi-laser version has over the standard model is increased productivity. With no change in capacity utilisation, the machine generates up to 80 percent more parts; pure processing time for producing parts in the powder bed is cut almost in half.

Easy and intuitive to operate, the TruPrint 1000 can quickly and flexibly produce parts with a maximum diameter of 100 millimeters and up to 100 millimeters in height. It does this using the laser metal fusion (LMF) technique, in which one or more lasers melt metallic powder layer by layer in a powder bed to produce complex parts. LMF is particularly suited to the cost-effective and efficient manufacture of geometrically complex and custom parts – such as those required not only in the dental industry, but also in the automotive, medical engineering, supply and jewellery industries.

Apart from the TruPrint 1000 TRUMPF will also introduce the new TruPrint 3000 and TruPrint 5000 3D printers to the market. These medium format machines are based on laser metal fusion (LMF) technology, using lasers to generate complete parts layer by layer in a powder bed. These parts can measure up to 300 millimetres in diameter and 400 millimetres in height. Thanks to an ingenious interchangeable cylinder concept, which allows the construction chamber and supply cylinders to be switched out quickly, and an industry-ready periphery, these new machines are geared towards the large-scale production of complex metal parts. What's more, with the TruPrint 3000, TRUMPF is putting the spotlight on the complete process chain for additive manufacturing.

The first link in the process chain is preparing the data for the 3D design and production program. With its “TruTops Print with Siemens NX” software package, TRUMPF is offering the first comprehensive software solution with a standardized user interface across systems. By doing so, TRUMPF now has industry-ready solutions that cover every aspect of additive manufacturing – from a practical powder feed that supplies the large internal powder container and additive manufacturing technology itself, to downstream tasks such as the unpacking and cleaning of the newly minted part. And the laser pioneer’s approach to additive manufacturing also addresses Industry 4.0 in a move to optimize business processes across the board. For instance, users can apply any of a variety of solutions to monitor, analyze and remotely adjust a wide range of condition parameters during the manufacturing process. Industry 4.0 solutions by TRUMPF are brought together under TruConnect; the name references connected manufacturing, which links machines, people and information.

Both the TruPrint 3000 and TruPrint 5000 systems can be used to manufacture complex metal parts out of powder. Depending on the part in question, it may be made from any weldable material – such as various forms of steel, nickel-based alloys, titanium or aluminium – in powder form. Since the TruPrint 3000 is equipped with two supply cylinders, up to 75 litres of powder are available for each job, which is around two and a half times the construction volume – enough powder, in other words, to complete the entire manufacturing process without having to stop for refilling. And even if the powder were to run low, the ingenious tool change cylinder feature kicks in: the TruPrint 3000 is designed so that the supply and overflow cylinders can be changed out without interrupting the manufacturing process. This reduces downtimes while also increasing the 3D printer’s productivity.

Industrial powder and parts management

Among the decisive factors in any industry-ready, large-scale production process are system periphery and powder management. The automated sieve station by TRUMPF refines several hundred kilograms of powder every hour, thereby ensuring consistent powder quality. When it comes to powder, TRUMPF leaves nothing to chance: no matter whether it’s a question of grain size, grain-size distribution or flowability, developers working in a special lab determine the optimum parameters and test what laser output and process speed will maximize powder performance. Before the powder is delivered, TRUMPF performs an internal check to ensure it meets the customer’s quality requirements.

Once the manufacturing process is complete, the new parts then have to be removed from the machine, cleaned and detached from the substrate plate. This is why TRUMPF added an unpacking station to the production program, seamlessly integrated into the process chain. The covered construction chamber can be fitted directly into this station. Customers benefit from the higher machine availability that results from the external unpacking. Thanks to the station’s safety gloves and sight protection, users don’t come into direct contact with the powder during unpacking and cleaning. Excess material ends up back in the sieve station, ensuring a safe and sealed powder cycle.

And what about the next generation of 3D printers? TRUMPF is working on machine concepts to make additive processes still more productive. The TruPrint 5000 demonstrator on show at formnext is based on the multi-laser principle. It features three 500-Watt TRUMPF lasers, which are simultaneously active at multiple points in the process chamber. This means they can generate parts in the construction cylinder faster and more efficiently.

Regardless of the number and geometry of the parts, they can be exposed to all three lasers in the construction chamber at the same time. The lasers are not limited to predefined areas, leading to faster build-up rates. Smart exposure strategies automatically determine the ideal laser paths so that all three lasers can always expose multiple parts. In addition, the lasers can be easily assigned to specific parts – the advantage being that the outer contours are produced, literally seamlessly, by a single laser. Thanks to its integrated preheating function that can go up to 500 degrees Celsius, the TruPrint 5000 also offers high part quality and meets the stringent manufacturing requirements for large-scale industrial production.

What sets TRUMPF apart are the company's many years of expertise and the range of technologies it offers in the fields of machine tools, laser technology and additive manufacturing. TRUMPF has mastered the two additive technologies relevant for metallic 3D printing: laser metal fusion and laser metal deposition. The company offers its customers a comprehensive package comprising laser beam source, machine, powder, services and application consulting – all from a single source.

-ENDS-

For press enquiries and additional images please contact NEW RIVER
Tel: 01920 468443 Email: info@newriver.co.uk www.newriver.co.uk

Follow us on Twitter