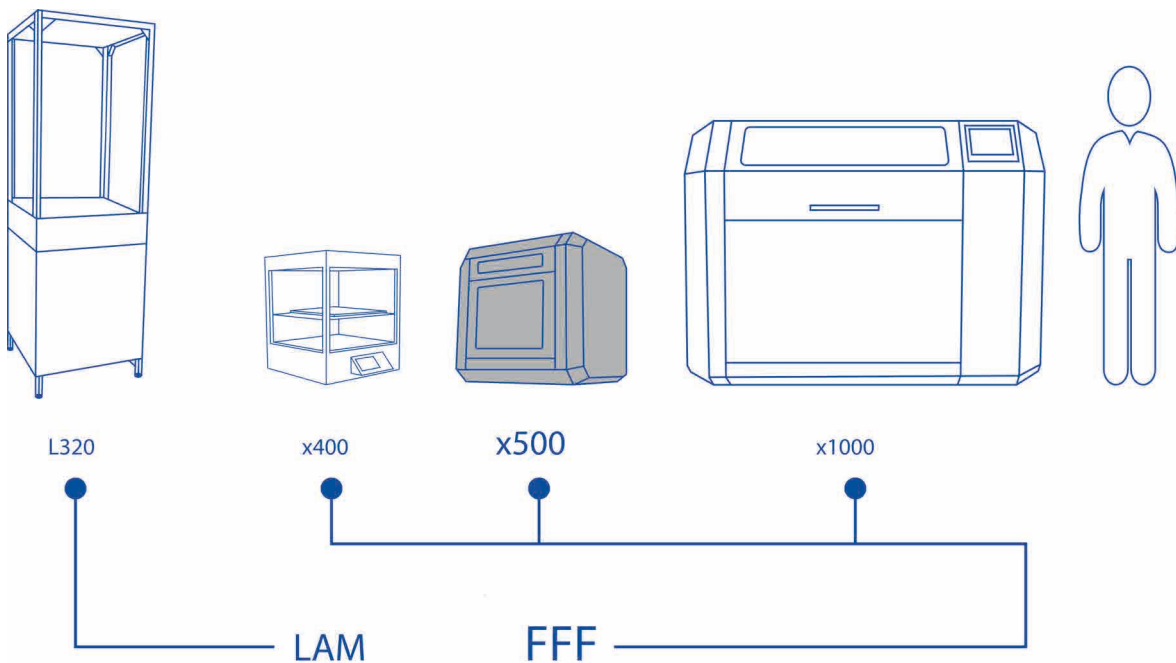


German RepRap
x500pro 3D printer

Fused Filament Fabrication (FFF)

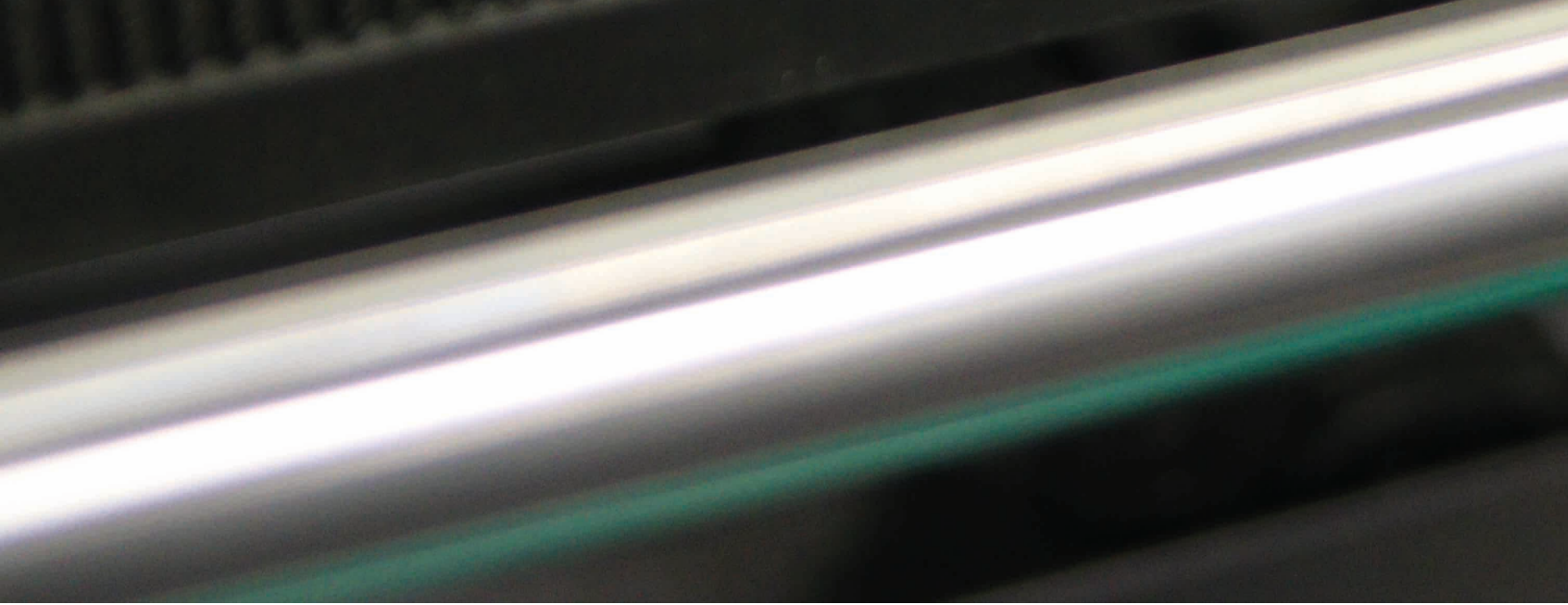
Fused Filament Fabrication (FFF) is a manufacturing process where an object is printed in layers from a fusible plastic. The process involves heating the plastic and extruding it from a nozzle on to the print bed. Through repeated cycles of application and curing, the printed object takes form.

Our open system allows the selection of a wide range of materials to provide an optimized solution for your specific application.



CONTENT

Advantages	2
New Possibilities	3
Application & Branches	5
Maintenance & Service	10
Technial Specifications	11



Unbeatable Reliability

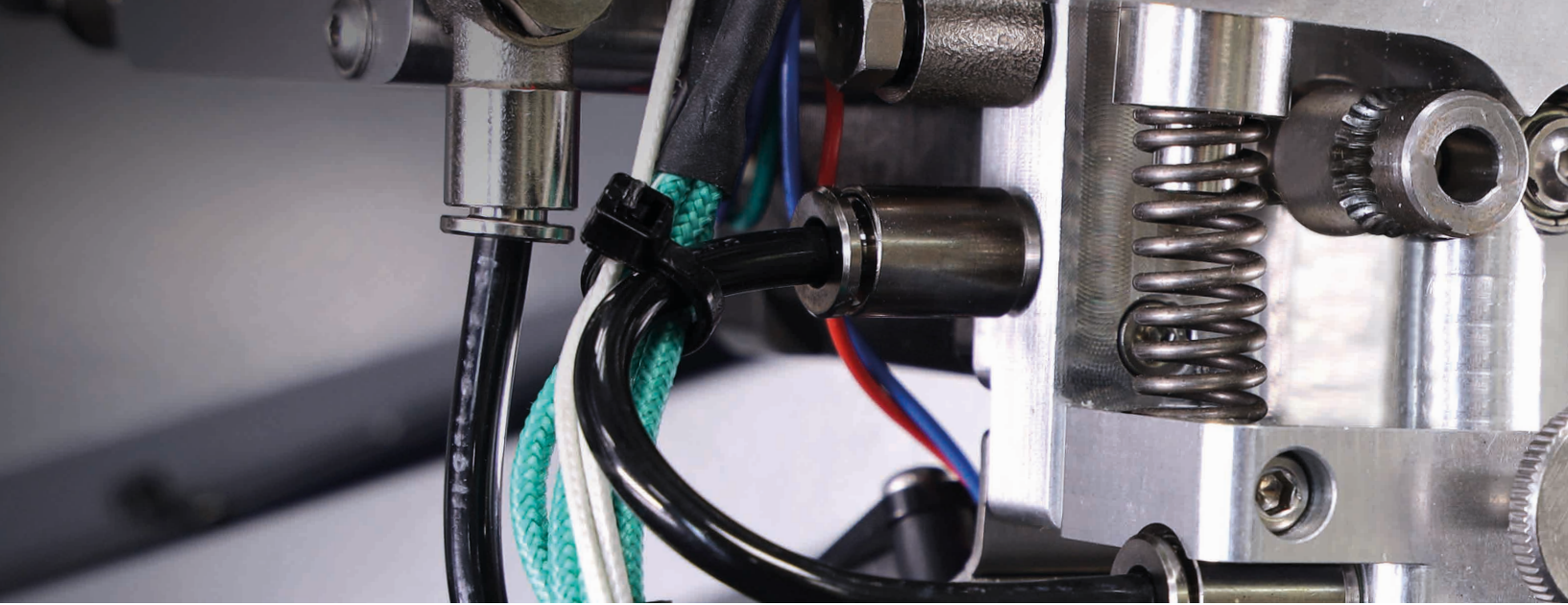
for industrial use

The x500pro is the solution for mass-production of high-performance materials, such as high temperature materials, abrasive or other materials.

In addition to the large construction volume of 500 x 400 x 450 (X / Y / Z) millimeters, it offers further innovations that are essential for the requirements of industrial applications. With its solid steel frame and a total weight of over 180 kilograms, the system offers extremely high stability and smoothness. Equipped with a heated chamber and a water-cooled high-temperature printhead, the x500pro, in combination with the philosophy of the open material platform, creates the basis for the use of future materials.

Your advantages at a glance

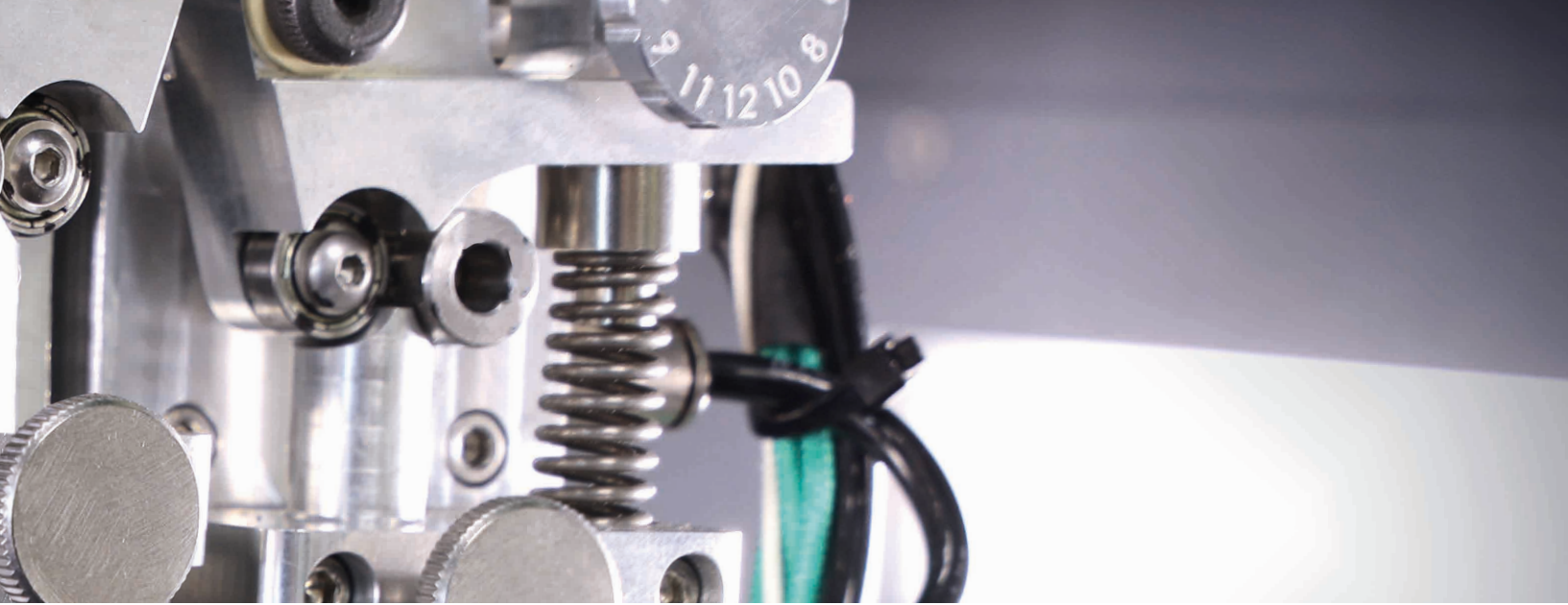
- ✓ The heated Chamber and water-cooled, high-temperature print head enables, in combination with the open material platform philosophy, the usage of a wide range of materials
- ✓ Enormous time and cost savings, faster production (time-to-market) compared to traditional manufacturing technologies
- ✓ Tailored to the needs of industrial use, we provide you with application know-how and customised maintenance and service agreements
- ✓ Very high process stability, even in continuous operation and „stand-alone“ production



New possibilities in terms of geometry and shape

The x500pro offers a whole new design freedom and enables the production of extremely complex structures

Complex geometries are three-dimensional structures that are often hollow, have spaces or undercuts. For example this can be a bionic or an organic structure. Many complex geometries can't be produced or only at high costs with conventional technologies such as milling, molding or casting. Compared to that, the additive manufacturing guarantees developers and designers maximum geometric design freedom. Cost-relevant mostly is only the size of an object. The complexity, however, hardly plays a role or the production costs. In most cases, cost reduction can even be achieved due to the lower material consumption. In the last few years, there has been a rethink in the minds of developers and designers: the complexity of an object no longer has to be based on the manufacturing process. The construction of an object can now be based on the desired function and the design of the product. In general, the more complex the geometry of an object is, the more it can be worthwhile to use additive manufacturing with a 3D printer of German RepRap.



Precision in Continuous Operation

Excellent stand-alone printing in continuous operation for industrial use

High-quality components according to industry standard, such as office-compatible roller fans, the highly sensitive touch display, the solid construction, as well as innovative techniques, such as the Dual Lift Extruder System, build the basis for a production and development in high industrial quality.

With its aesthetic design in octagonal shape and the integrated lighting concept, the x500pro sets new standards in terms of its technical advantages as well as in optics.





Application & Branches

The technology of additive manufacturing has become indispensable for the majority of the industry and continues to gain in importance. Creating new opportunities for our customers, new ideas for production, new innovations, it is impressive that almost every industry now uses 3D printers, from the automotive industry and aerospace to the medical sector.



Automotive



Aerospace



Medicine



Electronics



Food Industry



Prototyping



Research



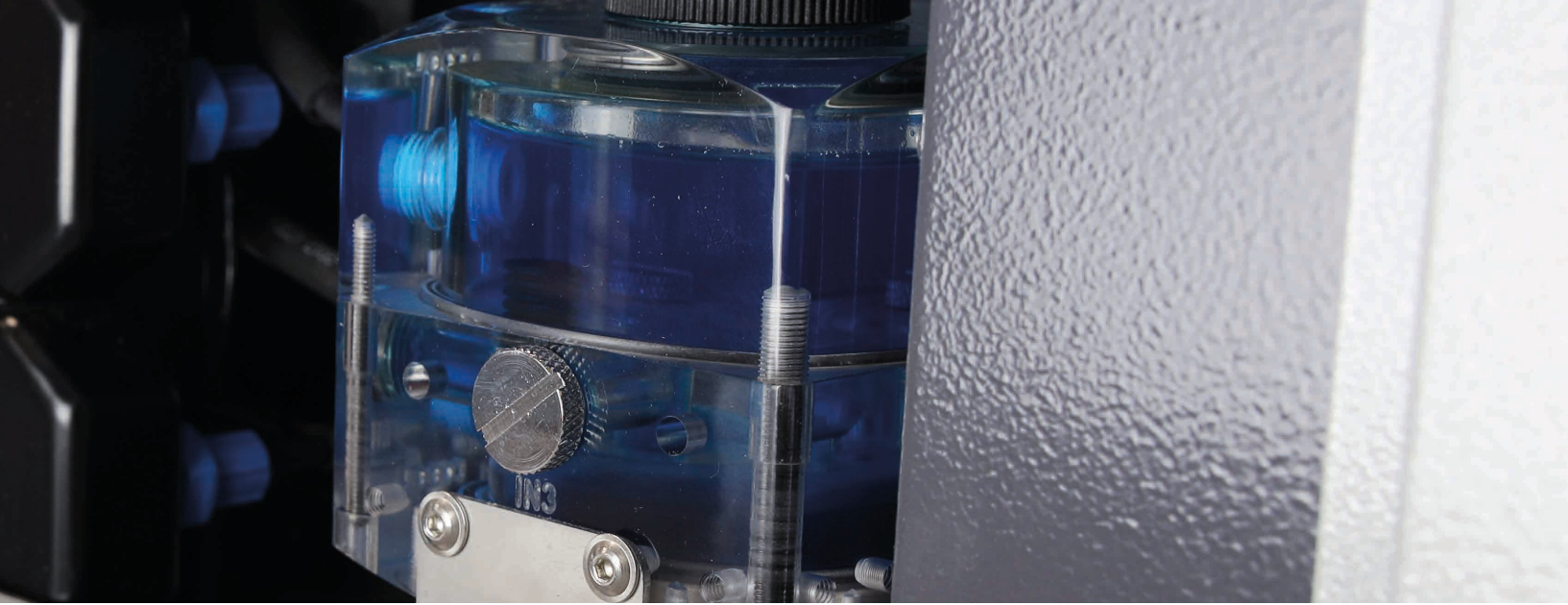
Tool and Mold Making



Architecture

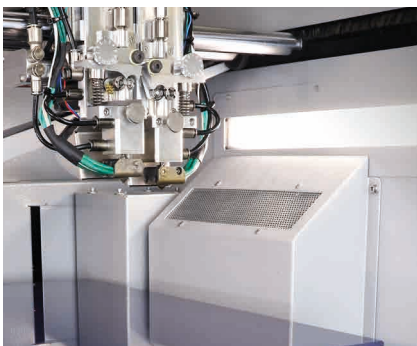


Design



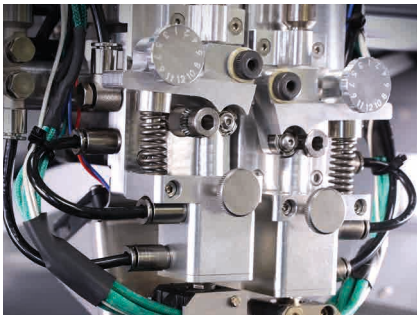
Heated ceramic print bed

The 6mm thick, heated glass ceramic print bed (150 °C / 302 °F) optimises the process quality by improving the adhesion of the object to the print bed and at the same time increases the accuracy of fit in the produced object. The high-quality ceramic print bed rests on a cast aluminum plate, which ensures homogeneous heat distribution and remains free of deformation even at the highest temperatures. For easy removal of the finished object, the print bed can be removed from the printer.



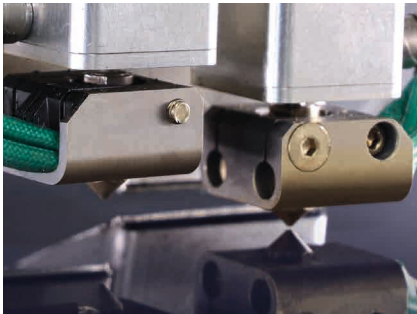
Heated Chamber

The x500pro is designed for the production of parts made of abrasive, high temperature or other materials. The chamber can be heated up to 80 °C / 176 °F in a short time (about 12 minutes). Together with the high-temperature Printhead (400 °C / 752 °F), this allows the processing of technically demanding materials, for the production of highly stressable components and functional models.



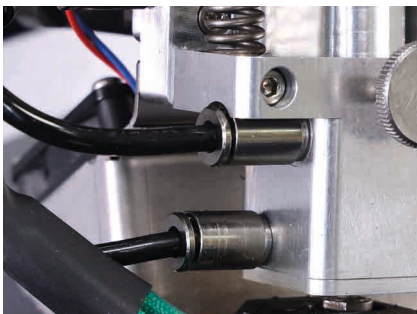
Direct Drive material guidance

The high-quality material handling system ensures a closed and transition-free material guidance, automatically even after a filament change. Especially flexible materials can be processed easily. The system is made of hardened steel, which is why abrasive materials are no problem. The replenishment feeder is optimally adapted to a material diameter of 1.75 mm and thus also supports the high process reliability.



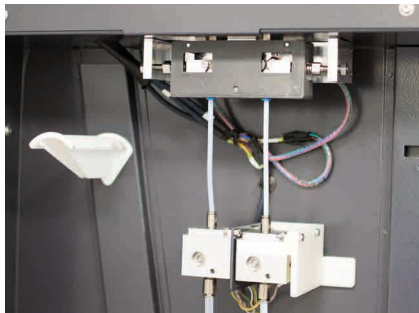
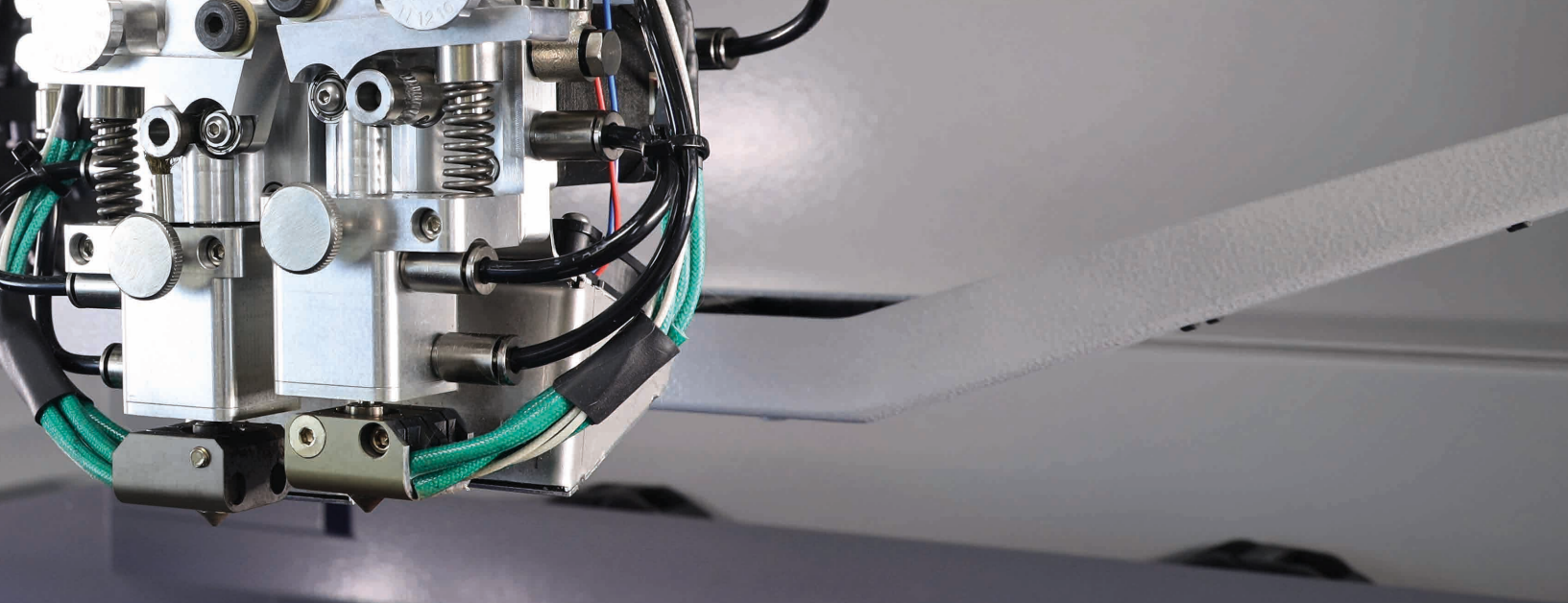
Dual Lift Extruder System

The new Dual Lift Extruder system was developed to ensure automatic lifting and lowering of the extruders, especially for dual print jobs. Thus, the non-working unit is removed from the printing process. The leveling of the two extruders takes place independently of each other on the printing bed.



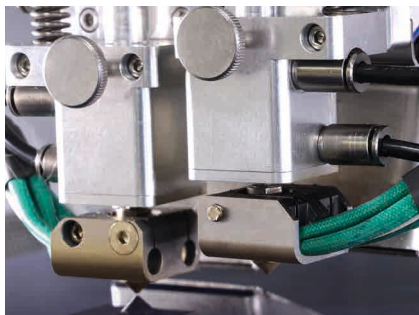
Water cooling

The x500pro all-encompassing water cooling system ensures optimal temperature for the filament. It is kept at an optimized conveying temperature (80 °C/ 176 °F) in a heated chamber, before entering the hot nozzle (400 °C/ 752 °F), via a water-cooled zone. This is an important factor for smooth process stability and repeatability. In addition the engines are water cooled.



Filament Feeder and Tracking System

The filament feeder and the tracking system significantly improve the process reliability of the printing process. The system monitors the feed of the material during operation and pauses if, for example, there is no material left. Afterwards the print job can be continued. In addition, a difference between the target and the actual material consumption rate is registered by the system, which is not visible for the user, and accordingly automatically regulates the printing speed.



Print Head

The x500pro works with the water-cooled DD4 Dual Extruder technology and is equipped with the new Dual Lift extruders, which guarantee easy operation and high process reliability. Depending on the application and choice of material, the print heads can be equipped with various nozzles, such as wolfram-copper, and are thus also suitable for abrasive materials. The nozzle change is user-friendly and done within a few seconds.



Fully automatic system leveling

Due to the fully automated system leveling the laborious adjustment of the print bed before each print job is not necessary any more. The print bed is automatically leveled by a high-precision laser measurement, with a three-point method, during commissioning and reloading of the print bed. This is taken over by two independent motors and thus ensures an optimal setting for printing. This process is done in less than 5 minutes.



Electronics for Demanding Users

The entire electronics of the x500pro are housed in a special electrical cabinet. The industrial computer can be intuitively operated via the 7-inch touch screen. The network connection can be established via Ethernet, allowing remote access and monitoring via tablet, smartphone or computer. Print jobs can be started directly via a USB stick or the browser-based control.



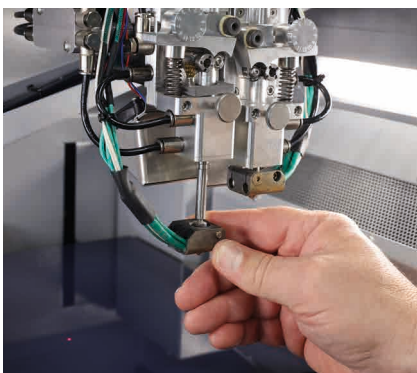
Professional cooling Solution

The x500pro is equipped with the latest water cooling technology, which are all in the cooling concept. This ensures high process reliability, even when using materials with the highest processing temperature and long print jobs. The object fan and the building space ventilation at optimal object and ambient temperature, in order to prevent bulging or material distortion, even with temperature-sensitive materials. All components of the water cooling system are housed in a separate pull-out compartment outside the electrical cabinet.



Safety Solutions according to industry standards

The x500pro is equipped with a comprehensive industry-standard security concept. The foot switch enables controlled and safe intervention in the system while the process is running. This can be used, for example, for the fine adjustment of the control loop of the printing parameters.



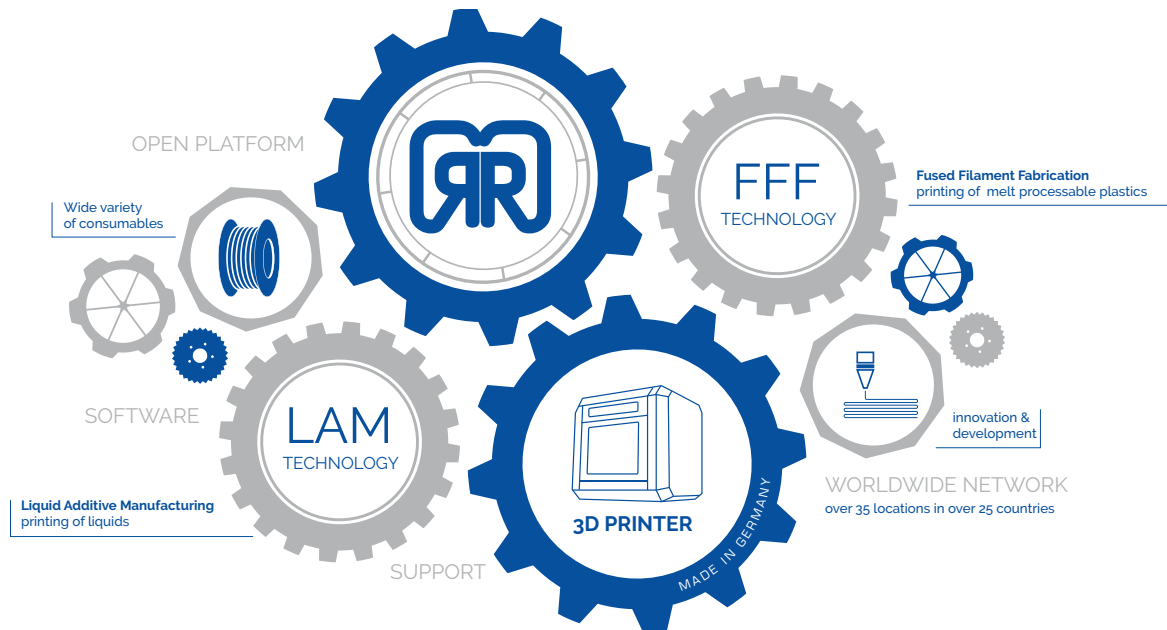
Maintenance and Service

The x500pro has proven its reliability in continuous operations. Tailored to the needs of industrial use, an optional maintenance contract and a professional on-site service provided by trained technicians are available. In addition to the maintenance and repair of the 3D printer, this also includes software and hardware training. On individual requests can be received at any time.

Specifications

Print area* (X/Y/Z)	500 x 400 x 450 mm (19.7 x 15.7 x 17.7 in)
Printing speed*	10 – 150 mm/s (0.4 – 5.9 in/s)
Positioning speed*	10 – 300 mm/s (0.4 – 11.8 in/s)
Repeatability* (X/Y)	+/- 0,02 / 0,05 mm
Layer thickness* (min.)	0,02 mm (0.0008 in)
Filament / Nozzle diameter	1,75 mm / 0,40 mm
Optional nozzles*	0,25 0,30 0,35 0,50 0,60 0,80 mm
Material* (filament)	To find out more about consumables, please contact your German RepRap representative.
Material holder	Four filament spools can be loaded at a time: one large (4.6 lb/2.1 kg) and three small spools (1.65 lb / 750 g). The printer can use one spool per print head.
Extruder	DD4 Dual Extruder with Dual Lift Extruder System (water cooled)
Extruder temperature (max.)	752 °F (400 °C)
Heated chamber temperature	176 °F (80 °C)
Heated print bed temperature	302 °F (150 °C)
Options	Service contract
Data transfer	Stand-alone printing with touch display, USB flash drive, and Ethernet
Included Software	Simplify3D
Supply voltage*	230 VAC
Exterior dimensions (W/D/H)	23.6 x 17.5 x 20.4 in (1120 x 850 x 955 mm)
Weight, approx.	408 lb (185 kg)
Technology	FFF (Fused Filament Fabrication)

* Variances are possible depending on options/materials/processes.



What makes us different?

- ✓ Largest German manufacturer of FFF 3D printers with enclosed print area
- ✓ Global leader in new 3D printing technologies, including LAM technology
- ✓ Variety of services, including training and sample printing
- ✓ Further development tailored to customer requirements, cooperative product development
- ✓ Open material platform, no closed system
- ✓ Wide variety of materials and products

German RepRap GmbH

Kapellenstr. 7
85622 Feldkirchen
Germany

+49 (0)89 2488986-0
info@germanreprap.com
www.germanreprap.com