German RepRap

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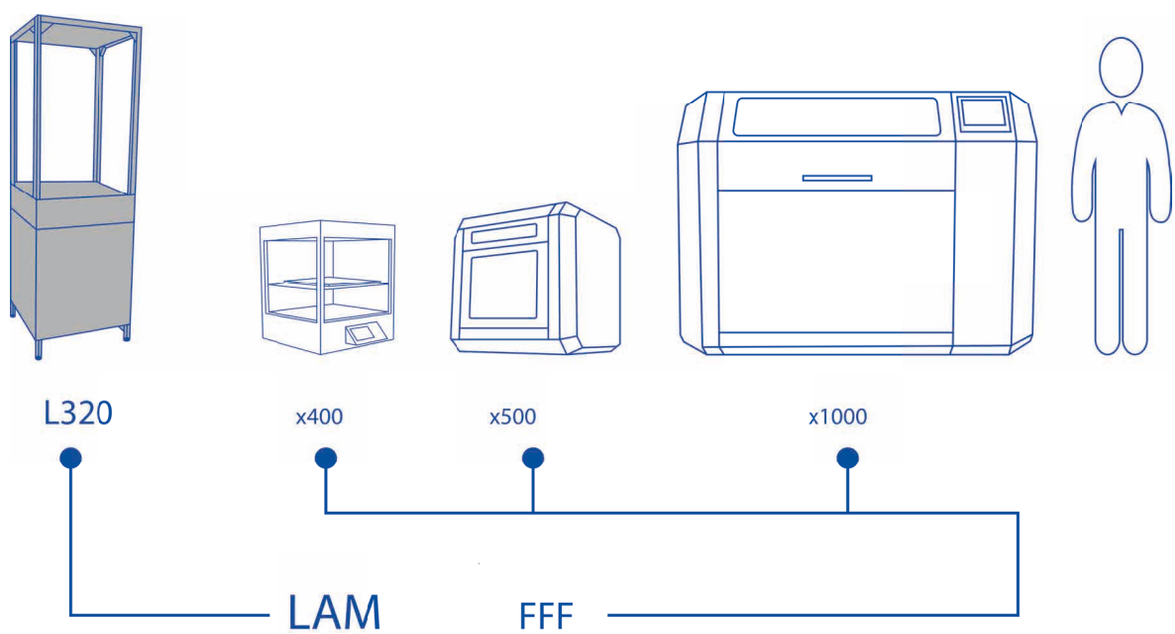
L320 3D printer

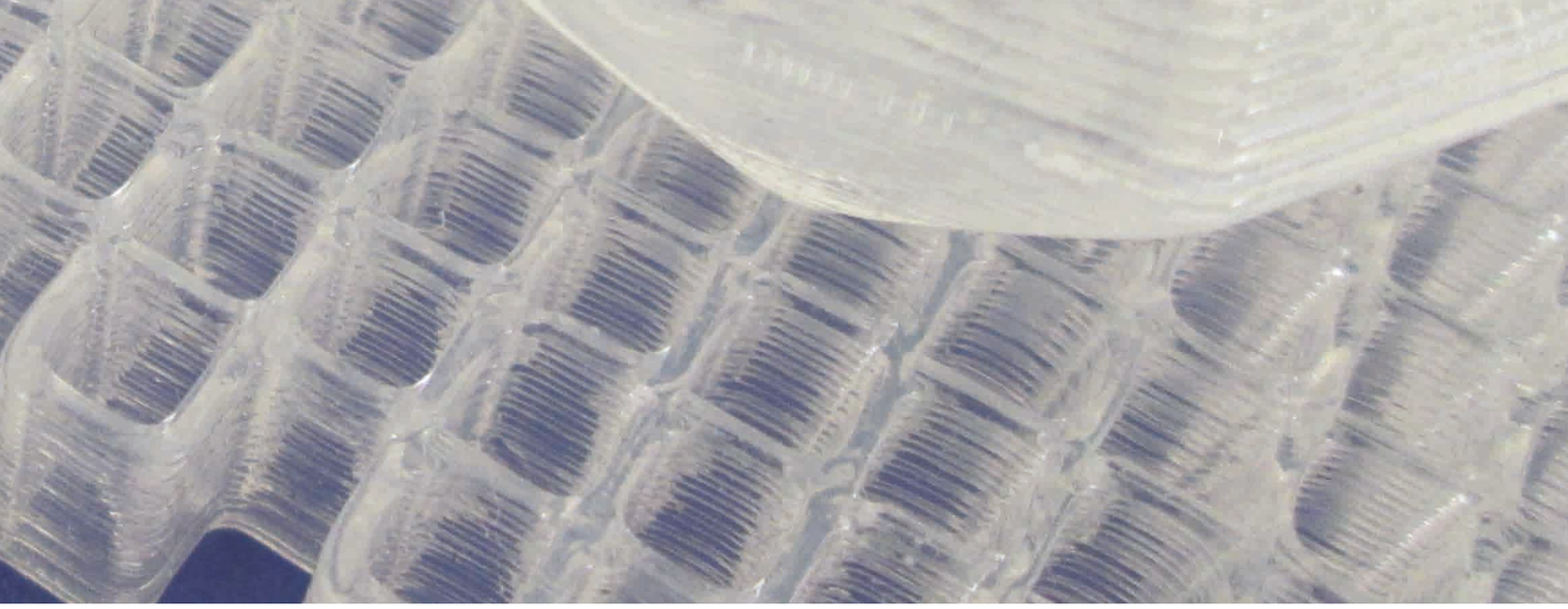
Liquid Additive Manufacturing (LAM)

Liquid additive manufacturing (LAM) is an additive manufacturing process in which liquids (or low-strength materials) can be additively processed, such as liquid silicone rubber (LSR). The technical characteristics of the LAM printed objects and the injection molding process are almost identical. Further advantages include high process speeds and distortion-free 3D printing of any component.



CONTENT


L320



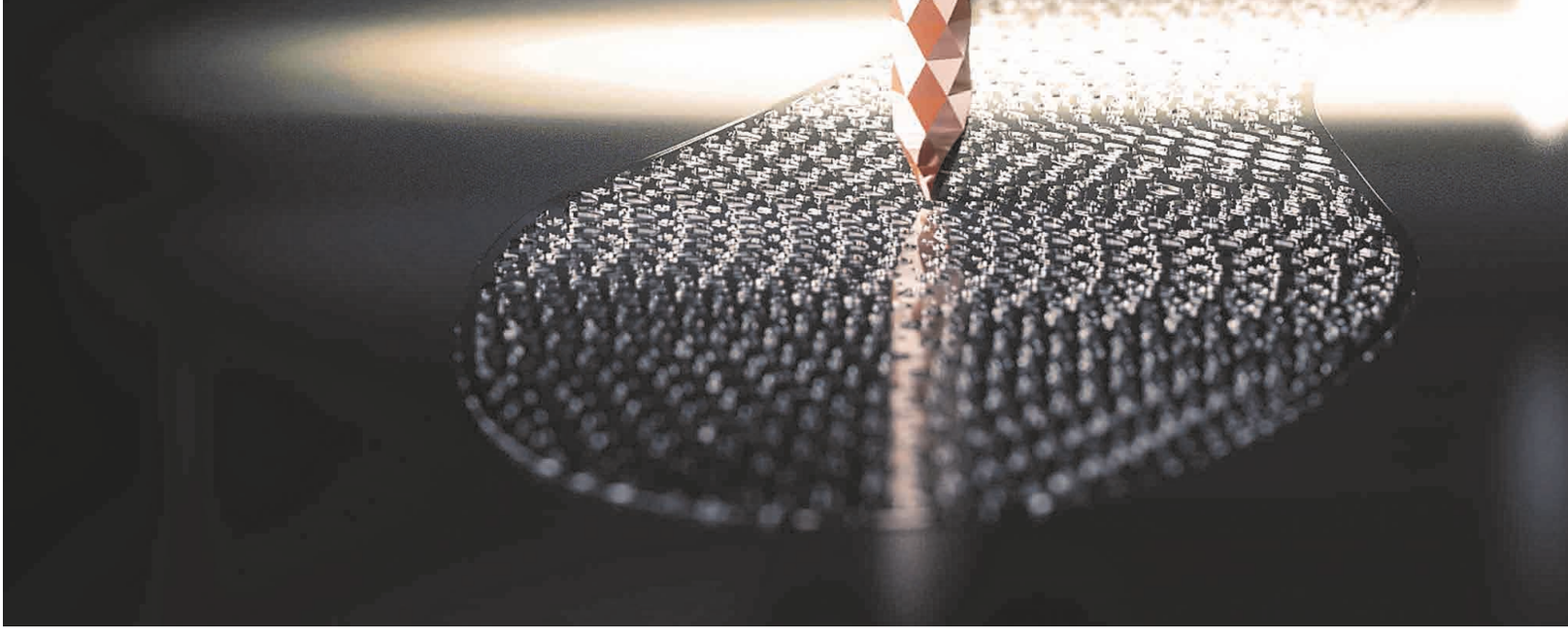
Liquid Additive Manufacturing

Discover new possibilities

With the Liquid Additive Manufacturing (LAM) 3D printer from German RepRap a true „Game Changer“ enters the market. For the first time it is possible use liquid material such as liquid silicone rubber (LSR) for additive manufacturing. The same material is already used for many products and different applications. This brings new possibilities in terms of shapes and geometries, which are not processable with other traditional manufacturing methods. Bionic shapes or other complex objects can be manufactured, in quantities of 1 as well as in mass production - with almost identical and sometimes even better properties compared to injection molding. The build platform of the L320 is suitable for the printing of small and large objects, as well as for small series.

Your advantages at a glance

- ✓ Use of a material that is already used in conventional production processes - almost identical material properties, that customers already know
- ✓ Enormous time and cost savings, faster production (time to market) compared to traditional manufacturing technologies
- ✓ Prototypes serve as fully functional initial samples and, after certification, can speed up the following process of high-volume production
- ✓ Very high process stability and stand-alone printing

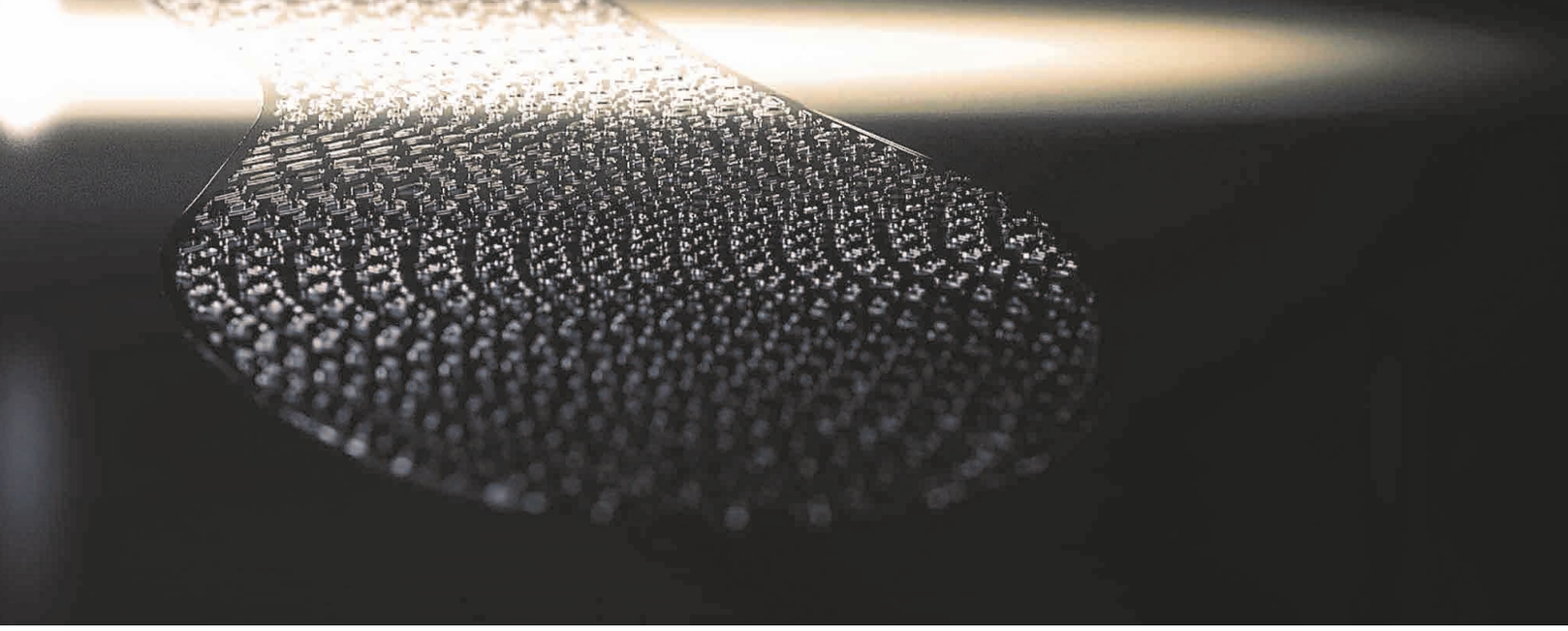


New possibilities in terms of geometry and shape

The Liquid Additive Manufacturing technology enables new possibilities in terms of geometries and shapes, that are normally very difficult or even impossible to process with conventional production methods

With the LAM 3D printing technology, the application of the material can be precisely controlled thanks to volumetric extrusion. Thus, cross, lattice or honeycomb structures are not a problem, the structure in the object can be applied according to their own ideas and the respective application. This in turn leads to other technical characteristics. Where conventional production processes such as injection molding require all molecules to be aligned, LAM technology can be used to influence the application direction and, thus, the cross-linking at the macro molecular level, resulting in better material strength compared to injection molding.

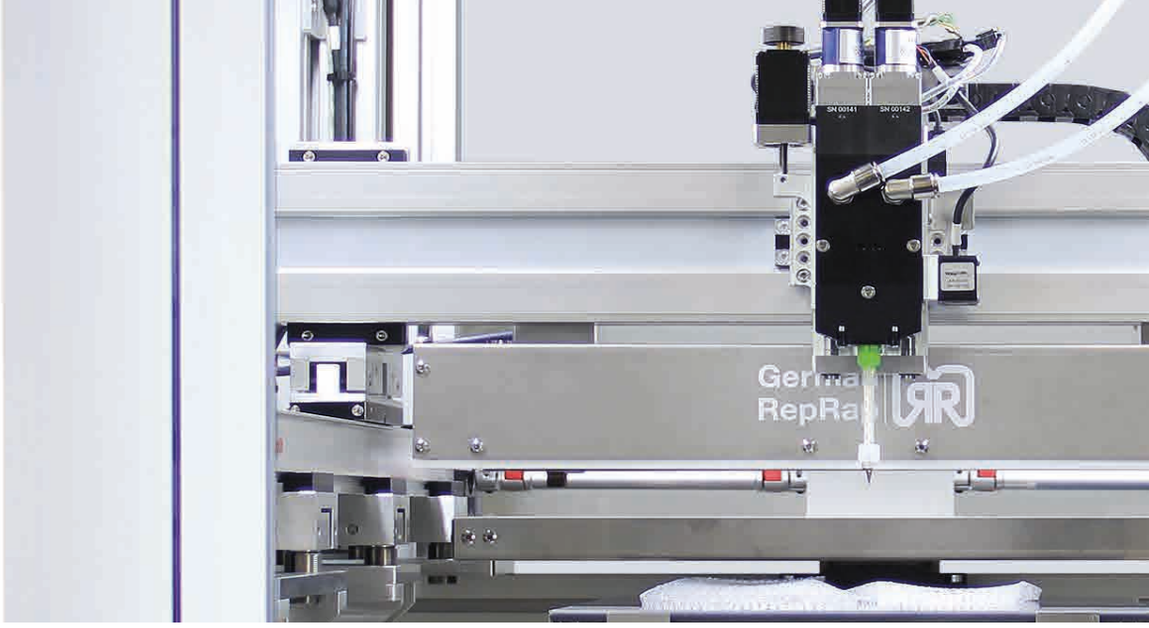
Business is already rethinking processes. For the first time it is now possible to apply liquid or soft materials such as silicone in a free form, on almost all surfaces. This brings unique innovative possibilities to the world.



Material - EVOLV3D from DOW

DOW's SILASTIC ™ 3D 3335 Liquid Silicone Rubber is already being used in many companies for a wide range of products, saving customers from having to re-certify their materials

As the name implies, it is a liquid silicone. An important point should be clarified in advance: It is a real silicone, an LSR, which is thermally cross-linking.
The material does not contain any acrylic hardener, does not become UV-crosslinked and is almost identical to injection molding in all properties. Especially for products that require a high degree of fineness, the material is a big advantage. Companies already using this silicone can now combine the unique benefits of already used silicone with faster prototyping and small batch production of highly complex parts. The variation of different infill options of the same material, results in a wide range of possibilities, for example, for different damping properties. Depending on the mixing ratio, flexible products or even rigid printing results can be produced. This brings a decisive new possibility - away from the pure prototype process, individual parts can now be produced, in unit number 1, but with the technical requirements of injection molding quality.



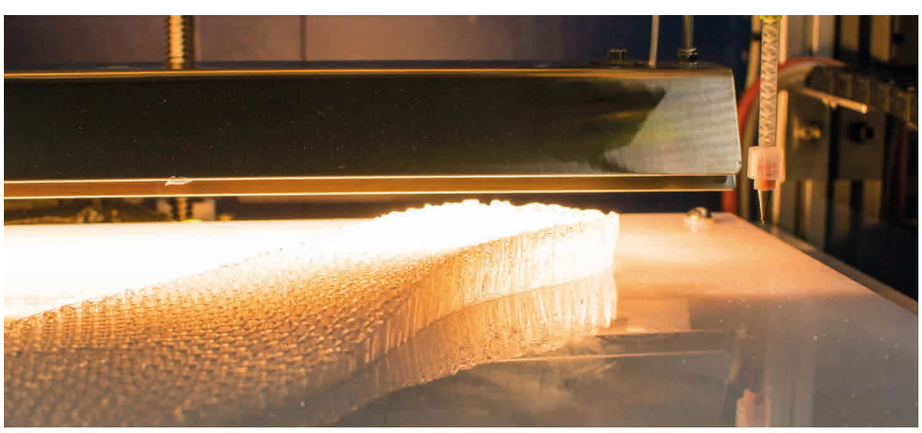
Applications and Branches

Silicones are indispensable in many industries. From the soother to the Computer keyboard – these plastics are used for a wide variety of products. They are mainly used in the construction, automotive and electrical & electronics industries, as well as in medical technology, cosmetics, textiles and paper. Demand is fairly balanced across several large industries. The construction industry needs silicones for sealants, adhesives and coatings. The electronics industry mainly uses silicones to protect electronic components from extreme heat, moisture, salt, corrosion and dirt. Silicones are included in computers, telephones, and LED lights, and their capabilities are being gradually expanded.

- Automotive
- Aerospace
- Medicine
- Electronics
- Food
- Prototyping
- Research
- Tool and Mold Making

Thermal Cross-linking

The special halogen lamp releases activation energy to accelerate the complete cross-linking, on a molecular level, between the two components. A finely tuned action, for both small and large objects, is ensured by the travel speed of the lamp. Due to this thermal cross-linking, the printing time is considerably reduced, at the same time the printing result, especially in terms of time savings, sets new standards. In comparison to conventional production methods, such as injection molding, a time saving of 50% and more can be achieved here. In addition, Liquid Additive Manufacturing eliminates the high tooling costs, which results in great price savings.

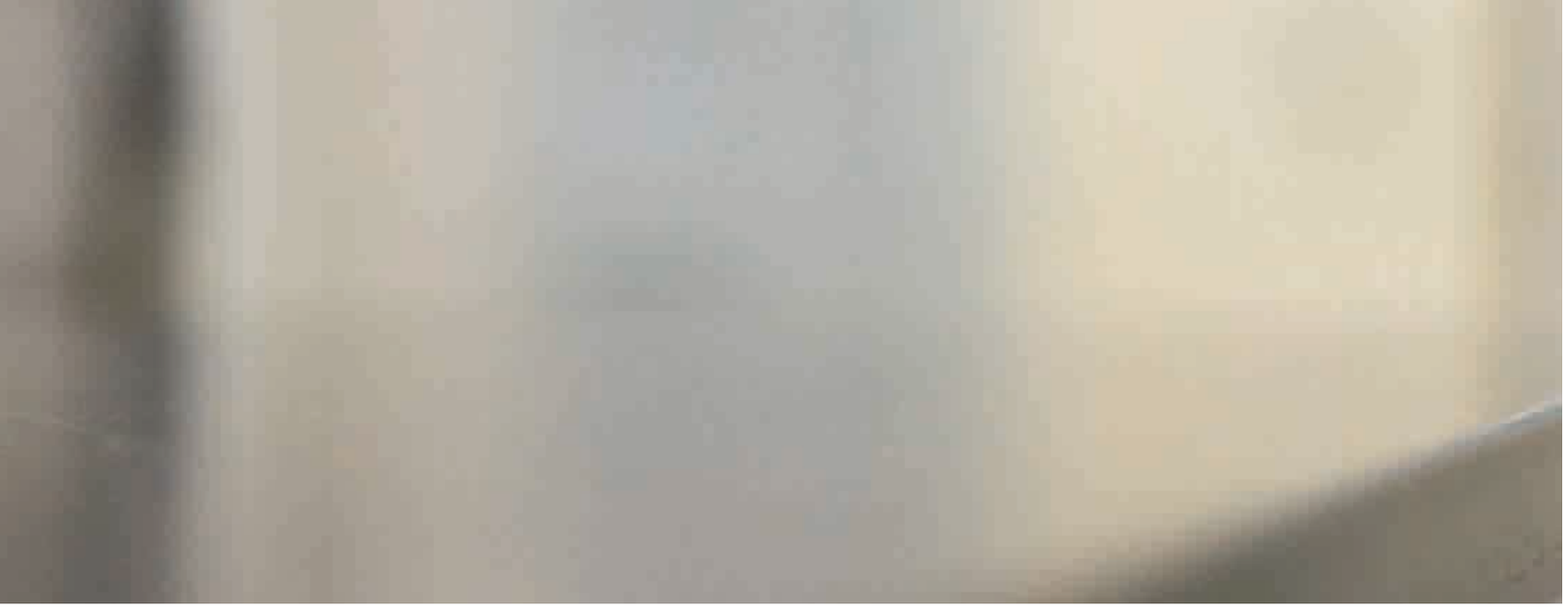


Variable Nozzles

By using different nozzles, both fine structuring and larger objects can be processed within a short printing time. Depending on the application, different dosing nozzles can be used by a Luer-lock system. The nozzles are easily exchanged at any time. The high dosing accuracy of the volumetric extrusion, the modular and robust design has been proven in a wide variety of industries.

Material Feed

The material supply comes with a cartridge system or optionally with material pails. When using cartridges, the pressure is automatically adjusted by an upstream pressure regulator.

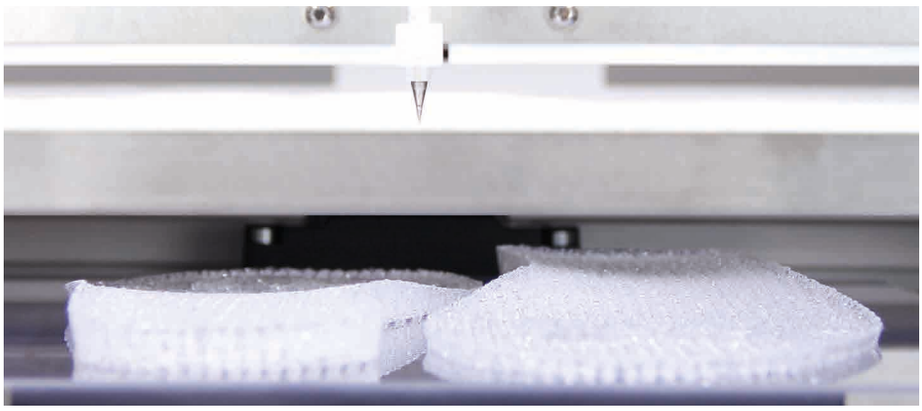


Safety

The sound safety technology monitors the curing process. The mechanics of the system and program run independent. Deviations are registered and displayed by the system. An integrated traffic light system displays the status of the safety electronics for the customer on a signaling light that also operates independently. In the case of irregularities, the print job is automatically stopped. In addition, according to industry standards, the machine is accessible at any time via two doors.

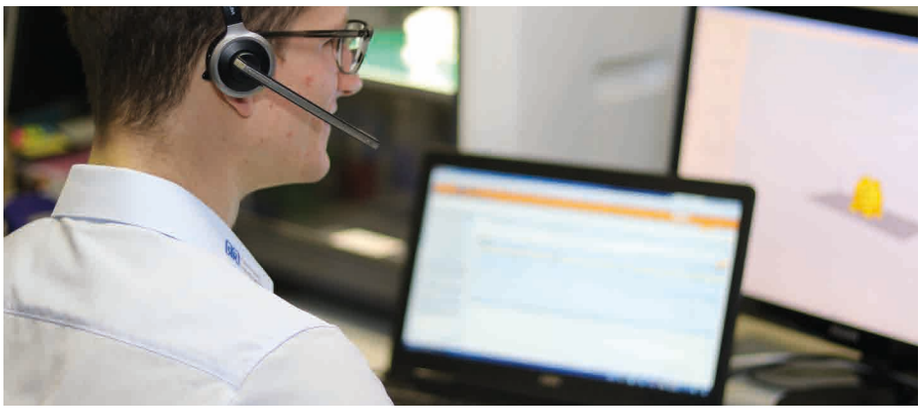
Fully automatic Bed-Leveling

The integrated fully automatic bed leveling improves handling and print quality by performing a three-point survey with the help of a precision laser. Two of the three points are automatically leveled so that the bed gets the ideal setting for the printhead level. The printhead can be readjusted manually, the nozzle is additionally adjusted automatically with the aid of a laser forked photocell. Irregularities that are not even recognized by the human eye can be compensated.



Maintenance and Service

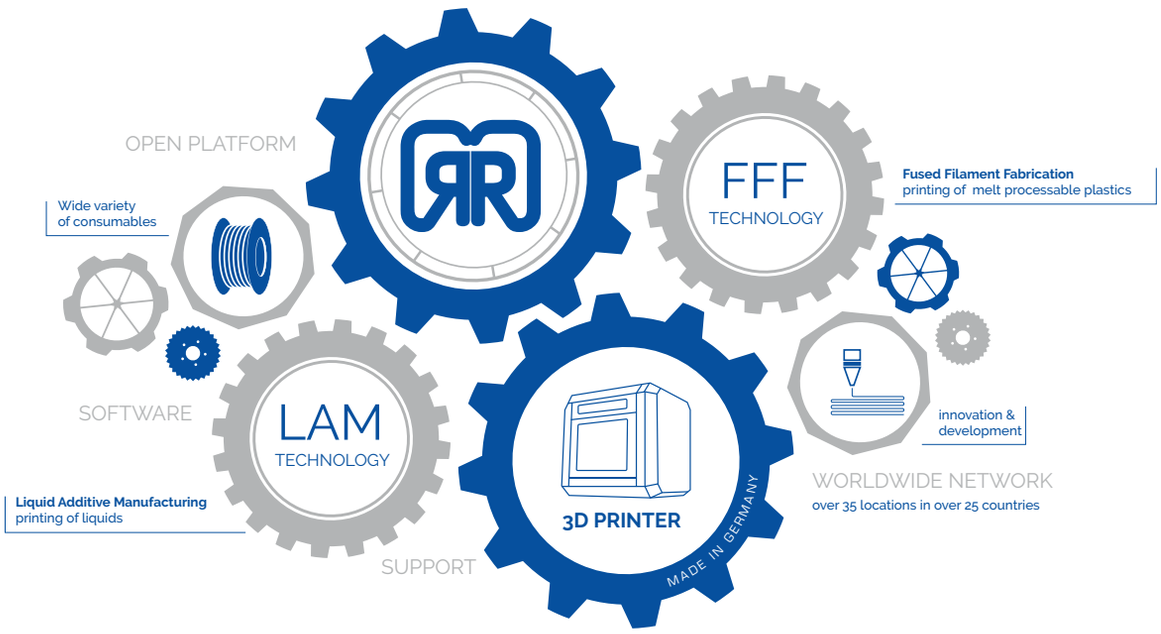
Tailored to the needs of industrial use, the customer is optionally offered a maintenance contract as well as professional on-site service by a trained technician. The worldwide German RepRap partner network ensures a reliable service through a personal contact person.



Specifications

Build platform* (XxYxZ)	250 x 320 x 150 mm
Print speed *	10 – 150 mm/s
Travel speed*	10 – 300 mm/s
Position accuracy* (X/Y)	+/- 0,2 mm
Layer height (min.)	0,22 - 0,9 mm
Nozzle Options*	0,23 | 0,4 | 0,8 mm
Material*	SILASTIC™ 3D 3335 Liquid Silicone Rubber (LSR)
Extruder	Lift and sunk system, volumetric extrusion
Options	Maintenance contract, material pails
File transfer	with USB-Stick, Stand-alone printing with Touch Display, ethernet
Software	Simplify3D
Display	15,6 inch Touch Display
Operating voltage	230 VAC
Outer dimensions (B/T/H)	Printer without cartridge system and display: 800 x 960 x 1957 mm (fits through 1-wing doors, standard dimensions)
Weight	approx. 350 kg (without cartridge system)
Technology	LAM (Liquid Additive Manufacturing)
Hardware	Industrial rollers and stand for easy handling

* Variances are possible depending on options/materials



What makes us different?

- ✓ Largest German manufacturer of FFF 3D printers with enclosed print area
- ✓ Global leader in new 3D printing technologies, 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
- ✓ We find the best product for your application

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