ACRYLINE
Plastic products and Advertising products

Application Areas in 3D-Printing

Prototype construction
Additive manufacturing has been used for many years as a cost-effective technology for rapidly available prototypes in the development of new products. Regardless of whether these are simple dummy components, illustrative samples of complicated and complex component geometries or even functional 0-series.

Architecture and model making
The high level of detail in 3D printing processes means that even intricate geometries can be reproduced. There are also other advantages such as solid-colored models and easy reproducibility when making changes.

Sanitary area
By applying material layer by layer, 3D printing enables unprecedented geometric freedom. This opens up new possibilities for the design of fittings, bathroom ceramics and sanitary i nstallations. Designers and engineers can create complex and organic shapes that are both aesthetically and functionally convincing. Additive manufacturing can be used to develop innovative and unique products that stand out from the crowd.

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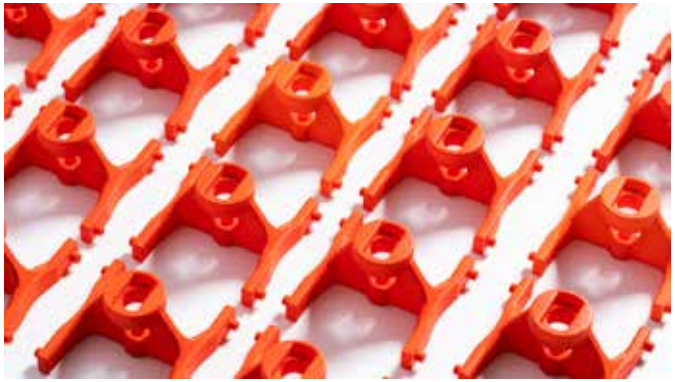

Small and medium-sized series
Without being tied to tools and molds, thin-walled and complex parts can be produced using the additive manufacturing process without initial investment. We will be happy to advise you on how to produce functional parts despite reduced material properties.

Customized Products
The trend towards batch size 1 can be realized effectively and efficiently, especially in 3D printing. The often free choice of material, shape and color means that individual customer requests can be responded to immediately and products can be produced quickly and with consistently high quality.

Design freedom and creation process
Components produced using the additive manufacturing process give designers and engineers almost complete freedom in terms of shape, functional integration, structure and weight reduction. In contrast to traditional manufacturing processes, product developers can completely rethink their approach and generate many advantages as a result.

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Materials and processes und Verfahren

Over 100 materials are available in the 3D Print Store from the following categories:

– Plastics
– fiber-reinforced plastics
– Metals
– Plaster
– Quartz sand

The following additive manufacturing technologies are available to you:

– Binder Jetting (BJ)
– ColorJet Printing (CJP)
– Digital Light Processing (DLP): perfect for series components
– Direct Metal Printing (DMP)
– Fused Deposition Modeling (FDM)
– Multi Jet Fusion (MJF)
– Multi Jet Modeling (MJM)
– Selective Absorption Fusion (SAF): Material PA11 e.g. for series components
– Selective Laser Melting (SLM)
– Selective Laser Singering (SLS)
– Silicone Additive Manufacturing (SAM): real medical silicone
– Stereolithography (SLA)
– Vacuum Casting (VC)

Technology	Feature	Field of application	Usable materials
Selective laser sintering (SLS)	In selective laser sintering, plastic powder is melted layer by layer.	Functional components Series parts Functional prototyping	– Aluminum-reinforced (PA-AL) – Chemically resistant (PP) – Fiber-reinforced (HST) – Strong and flexible (PA-12) – Glass-reinforced (PA-GF) – Rubber-like (Flex) – Rubber-like (TPU)
Stereolithography (SLA)	In the SLA process, liquid plastics (photopolymers) are hardened using a UV laser.	Small series Model making Presentation materials	– Accura 25 – NEXT – ClearVue (translucent) – ClearVue (transparent) – Resin – Resin-High Temp – Resin-Tough – Xtreme
Fused Deposition Modeling (FDM)	In fused deposition modeling (FDM) or fused filament fabrication (FFF), wire-shaped plastic is melted and applied layer by layer.	Illustrative models Concept models Prototype construction	– ABS – ABS-ESD7 – ABSi – ASA – GreenTEC – PA 6 – PC – PC-ISO – PC/ABS – PLA – PLA-containing metal – PLA-stony – PETG – PETG-CF – PPSF/PPSU – ULTEM 1010 – ULTEM 9085 – Rubber-like (TPU) – Onyx (carbon fiber reinforced)

Technology	Feature	Field of application	Usable materials
Multi Jet Fusion (MJF)	With Multi Jet Fusion, the binder liquid is printed into a plastic powder bed using a print head. The thermally conductive liquid binds the plastic powder.	Consumer products Architecture Aircraft industry	– PA-12 – PA-12 multicolored – PA-GF
Selective Absorption Fusion (SAF)	Powder particles are fused in discrete layers using the Big WaveTM powder management system. This process ensures uniform heating and part consistency. By using piezo-electric print heads, both fine details and large areas can be produced without compromising throughput.	Series production Spare parts production End user parts	– PA 11
Multi Jet Modeling (MJM)	In MultiJet-Modeling (MJM), a photopolymer, i.e. light-sensitive plastic, is applied to a platform through several nozzles (hence the name). This plastic is cured there immediately.	Model making Aircraft industry Automotive industry	– Agilus30 – Digital ABS – Vero – VeroClear
Silicone Additive Manufacturing (SAM)	Similar to SLA and DLP, SAM works by selectively exposing silicone to a light source to form very thin solid layers that are stacked on top of each other to form the geometry of the component.	Seals Medicine Prostheses	– TrueSil A25 – TrueSil A30 – TrueSil A50 – TrueSil A60
ColorJet Printing (CJP)	The full-color 3D printer builds individual layers based on the digital CAD file and prints the fine polyamide powder layer by layer from bottom to top. A binder-containing ink is used to bond the powder in a targeted manner.	Illustrative models Presentation materials Model making	– VisiJet PXL

Technology	**Feature**	**Field of application**	**Usable materials**
Hot-Lithography	The core of the technology is a specially developed and patented heating and coating mechanism, which can process even highly viscous resins and pastes at working temperatures of up to 120°C safely and with the utmost precision.	Injection molded components Automotive industry Mechanical engineering Spare parts	– Evolution – Evolution FR – Precision
Binder Jetting (BJ)	In binder jetting, sand is bonded in layers by a binder in layers.	Toolmaking Illustrative models Mold making	– Quartz sand
Vacuum casting	Duplication of a previously produced master model (e.g. by 3D printing or stereolithography) in a silicone rubber mold.	Production of small & prototype series within the process chain	– MG 703 (PP/PE similar) – MG 804 (ABS/PA similar) – PU casting resin – ProtoFlex (rubber-like)
Selective laser melting (SLM)	Beim Selektiven Laserschmelzen wird Metallpulver durch einen Laser Schicht für Schicht aufgeschmolzen.	In selective laser melting, metal powder is melted layer by layer using a laser.	– Aluminium AlSi10Mg – Corrax – Inconel (IN625) – Inconel (IN718) – Stahl (1.4542) – Steel (1.2709) – Steel (1.4404) – Titanium (TiAl6V4)
Direct metal printing (DMP)	A high-precision laser is directed at metal powder particles, building up the component layer by layer.	Automotive industry Mechanical engineering Spare parts	– Aluminum AlSi10Mg – Steel (1.4542) – Titanium (TiAl6V4)