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2012 IN AM

#1 The History of Additive Manufacturing

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Welcome to 2012

In 2012, Additive Manufacturing technology had officially existed for 28 years, and the industry for about 25 years. People had already heard of 3D printers, though their understanding of the technology was still limited. For just under three years, it had been possible to purchase a simple and fairly primitive 3D printer for home use. It cost less than $1,000 and produced equally primitive objects. But it was possible!

In January 2012, no one could have predicted just how groundbreaking that year would be for AM. It was the year when the industry gained momentum, becoming, for a few years, "the next big thing" in the world of emerging technologies. Most people who launched their 3D businesses in subsequent years did so influenced by events that took place in 2012.

That year witnessed the largest merger in the history of the industry—Stratasys and Objet Technologies; the debut of one of the most influential companies—Formlabs; and the release of a series of groundbreaking 3D printers that would shape the coming years, such as the MakerBot Replicator (1 & 2), the Cube by 3D Systems, the B9 Creator, the Formlabs Form 1, the Objet 30 Pro, and the SLM 500 HL from SLM Solutions.

But the most impactfulevent in bringing 3D printing to public attention was something that, from today's perspective, might not seem as significant: the creation of Defense Distributed, DEFCAD, and the project for the first-ever firearm that could be 3D printed.

This news catapulted 3D printing into the mainstream media and captured the imagination of the masses. If you can print a gun on a 3D printer, what can't you print?

In 2012, Additive Manufacturing became famous. And in the years that followed, it only grew more and more renowned.

Pawel Slusarczyk
AM Writer | The 3D Printing Historian

January 2012

1. MakerBot Industries released Replicator

On January 10, 2012, MakerBot Industries unveiled the MakerBot Replicator. The 3D printer, showcased at CES fair in Las Vegas, was the company's first fully assembled device aimed at broader accessibility for creators and hobbyists alike. Although the Replicator still featured an amateur wooden casing, it was a major success for the company and served as the trigger for the explosion of consumer 3D printing hype that persisted in the AM industry for the next five years.

Capable of printing objects up to 8.9 x 5.7 x 5.9 inches (22.6 x 14.5 x 15.0 cm), the Replicator significantly improved on its predecessor, the Thing-O-Matic, which had a smaller build volume. Its advanced Stepstruder MK8 extruder allowed for more precise and larger builds, offering compatibility with both ABS and PLA filaments.

Two configurations were available: a single-extruder model for $1,749 and a dual-extruder version for $1,999, enabling multi-color printing—a cutting-edge feature at the time.

These advancements were designed to cater to MakerBot's growing base of enthusiasts, educators, and professionals, as well as to push 3D printing into the mainstream market. The launch was combined with a relaunch of Thingiverse, MakerBot's online platform for sharing digital files. It featured enhanced search functions, improved user profiles, and streamlined sharing tools.

The MakerBot Replicator set a new benchmark for consumer-friendly 3D printing, solidifying MakerBot's position as a leader in the emerging desktop 3D printing industry. Interestingly—something rare in today's market—just eight months later, MakerBot released the next iteration of its 3D printer, the Replicator 2, which raised the bar even higher, becoming an absolute standard for countless successors for years to come.

January 2012

2. 3D Systems debuted Cube, its first consumer 3D printer

On January 9, 2012, 3D Systems unveiled Cube, its first consumer-oriented 3D printer, marking a significant milestone in the company's history. It was showcased at CES fair in Las Vegas. Priced at $1,299, the Cube aimed to bring 3D printing into homes with a user-friendly, ready-to-print device designed for creativity and accessibility.

Weighing less than 9 pounds, the Cube featured a sleek design and a tablet-like touch interface, making it easy to operate. The build area was 5.5 x 5.5 x 5.5 inches (14 x 14 x 14 cm). It used EZ Load cartridges with filament inside. It is worth mentioning though that the Cube's design—although beautiful and excellent for its time—was heavily inspired by the popular Chinese 3D printer Up! manufactured by Tiertime.

3D Systems also launched Cubify.com, a platform offering 50 free 3D printable designs and tools for creators.

In 2012, 3D Systems was already an established leader in the industrial 3D printing market, known for its pioneering role in stereolithography and other advanced additive technologies. However, the launch of the Cube represented a strategic expansion into the consumer market, signaling the company’s ambition to "democratize" 3D printing.

According to Michael Molitch-Hou, and his article from 2015 published on 3D Printing Industry („Hype Hangover: the Rise & Fall of Avi Reichental”): *„Cubify and the Cube (...) were pet projects of former CEO Avi Reichental, saying that roughly 75% or more of the company’s resources – including everything from marketing to engineering to R&D – were devoted to the Cube, while the other five technologies – SLA, DMP, SLS, MJP, and CJP, were left with the rest.”*

This strategy unfortunately failed in the long run, but in January 2012 it seemed as if 3D Systems was once again bringing the rest of the industry to awe...

January 2012

3. Stratasys announced a $1 million contract with the U.S. Department of Defense's to supply 100 uPrint SE 3D printers

On January 19, 2012, Stratasys announced a $1 million contract with the U.S. Department of Defense to supply over 100 uPrint SE 3D printers as part of the STARBASE program. The 3D printers were deployed to support STEM education (science, technology, engineering, and mathematics) for at-risk youth.

At the time of the announcement, Stratasys had already delivered half of the 3D printers, with the remainder shipped in February 2012.

As part of the STARBASE program, students in grades four through six used the 3D printers to create functional models for various projects.

The uPrint SE was a compact, professional-grade 3D printer. Introduced in 2009, the uPrint series was the most affordable FDM 3D printer offered by Stratasys at the time. Despite its relatively high price (approximately $15,900 for the uPrint SE and $20,900 for the uPrint SE Plus), it was the only viable solution for educational applications at that time. The printer utilized ABSplus material in its operations.

January 2012

Other important events

01-03-12

3D Systems completed $135.5 mln acquisition of Z Corporation and Vidar. Entire personal and professional 3D printer businesses were consolidated into a single unit under the leadership of John Kawola, former Z Corp CEO.

01-08-12

Filabot debuted on Kickstarter. Tyler McNaney - a student at Vermont Technical College, launched a Kickstarter campaign for Filabot - machine that grinds up recyclable plastic to create filament for FFF 3D printers.

01-22-12

The first 3D chocolate printer became available to order. Essential Dynamics showcased the Imagine 3D chocolate printer at CES 2012 and announced accepting orders. The 3D printer was fully assembled and priced at $2,995.

01-24-12

The Pirate Bay announced adding a new category to download 3D files. The "Physibles" category was used to host digital designs for 3D printing. Of course, GNU General Public License or Creative Commons licenses were not mandatory.

February 2012

1. LayerWise produced the world's first 3D-printed jaw implant

On February 20, 2012, it was announced that a team of Belgian and Dutch scientists had performed a groundbreaking surgery in which an 83-year-old patient received the world's first 3D-printed jaw implant. Through a collaboration between Hasselt University, Dutch surgeons, and companies specializing in biomedical materials, a personalized titanium implant was created to replace the patient's severely infected mandible.

The implant was 3D printed by LayerWise, a Belgian company specializing in additive manufacturing of metal parts and medical applications. The company was founded in 2008, and was 3D printing a range of components using its proprietary line of metal 3D printers for clients in the aerospace, medical and dental industries.

The 3D printed implant weighed only 107 grams, and the patient was able to speak and swallow just one day after the surgery.

Using Direct Metal Printing (DMP) technology and titanium powder, the implant was meticulously crafted, incorporating joints, grooves for nerve and vein regeneration, and surfaces for muscle attachment. The production of the entire implant took only a few hours, and the final model was coated with a biocompatible ceramic layer.

This groundbreaking achievement marked the beginning of a revolution in personalized medicine, leveraging the innovations of 3D printing to save lives.

Two years later, on September 3, 2014, LayerWise was acquired by 3D Systems, joining French Phenix Systems to jointly develop metal AM in the American company.

February 2012

2. IREPA LASER introduced EasyCLAD MAGIC LF6000 - large format metal 3D printer

On February 21, 2012, French company - IREPA Laser, introduced the EasyCLAD MAGIC LF6000, a system designed for manufacturing aircraft components in a controlled atmosphere. The innovative method, based on the CLAD proces pioneered by IREPA Laser, allowed for the direct manu-facturing of functional parts.

The CLAD process involved depositing successive layers of laser-melted powders to produce dense, homogeneous metallic parts with precisely controlled dimensions.

Its applications ranged from constructing complete functional components to repairing intricate parts, with production speeds varying between 8 and 50 mm^3/s. The machine delivered high dynamic performance through its 5-axis continuous motion capabilities.

All operations occured within a gas enclosure featuring a controlled atmosphere to safeguard alloys and metals sensitive to oxygen and moisture (<40 ppm O_2 & <50 ppm H_2O). The enclosure's 8 m^3 volume enabled the creation of large parts, up to 600 mm in diameter and 1000 mm in length, with a maximum weight of 300 kg.

Using the integrated PowerCLAD software, manufacturing trajectories and ISO programs were automatically generated from source files (ProE, Catia, SolidWorks, etc.) or standard formats (STEP, IGES, etc.), supporting both manufacturing and reconstruction modes.

February 2012

3. 3D Systems released Print3D - a plug-in for CAD software

On February 21, 2012, 3D Systems released Print3D, an interactive CAD plugin tool for SolidWorks, Pro/Engineer, Autodesk Inventor and Alibre Design. It provided real-time design feedback and quotes directly within the CAD environment. Plugin was available for free download.

Print3D allowed users to generate cost estimates and order parts directly from within the design environment, eliminating the need to export STL files or use external web services.

The plugin provided dynamic cost information and immediate access to 3D Systems' on-demand services. It also enabled designers to easily and quickly optimize models for cost efficiency.

Through integration with Print3D, the design process became more intuitive and efficient, opening new opportunities in prototyping and on-demand production.

Users could for example quote an entire assembly of parts in one go. This was a game-changer because up until then, the only options were to send quote requests via email or upload separate projects to the third-party website.

February 2012

Other important events

02-03-12

Engineering student Andreas Bastian developed a $700 low-cost laser sintering 3D printer using wax powder mixed with activated carbon. The printer made detailed wax models for traditional lost-wax casting, enabling affordable production of complex metal parts. Bastian shares the project as open source, encouraging further innovation in low-cost manufacturing.

02-16-12

Hectic Media announced *„The Man Who Prints Houses"* - a film about Italian inventor Enrico Dini, creator of the D-Shape 3D printer and a pioneer of 3D concreto printing. Dini was co-creator of the first 3D printed pedestrian bridge in Madrid, Spain.

02-27-12

Slic3r 0.7.0 was released. The popular open-source G-code generator offered new features like support material, cooling control, and AMF file compatibility. Developed by Alessandro Ranellucci, Slic3r converted STL files to G-code in minutes, surpassing Skeinforge - the very first opensource slicer.

March 2012

1. The 3D Printing Industry portal published its first article

On March 20, 2012, 3D Printing Industry published its first article. The portal, which would go on to become a leading media outlet in the AM sector, began rather modestly. The first article, titled "Pirates! An Adventure with Scientists Videos" contained just 37 words (but included two videos!).

3D Printing Industry was founded by Ari Honka and Eetu Kuneinen in Hong Kong. The domain was registered on March 17, 2012, just three days before the publication of the first article.

Over the years, the portal hosted contributions from several now-prominent figures in the AM industry, including Michael Molitch-Hou (Editor-in-Chief at 3DPrint.com), Davide Sher (founder and CEO of VoxelMatters), Tyler Koslow (longtime editor at 3DPrint.com and All3DP), and Pawel Slusarczyk (founder of Centrum Druku 3D and the author of this publication).

The portal's development was also greatly influenced by its esteemed editor-in-chief, Rachel Park.

In its early years, the platform was supported by Meckler Media, a reputable analytical firm and organizer of technology conferences, and 3D Systems, then the largest AM company.

Unfortunately, in late 2015, both sponsors faced financial difficulties (Meckler Media soon ceased operations), prompting the owners of 3D Printing Industry to seek a buyer.

That buyer turned out to be iMakr.VC, a British owner of large 3D printer stores in the UK and the USA, which bought and took over the site in early 2016.

March 2012

2. Blueprinter announced start of sale of its SHS, powder-based 3D printers

On March 21, 2012, Danish company Blueprinter ApS announced the sale of an affordable, desktop-friendly 3D printer utilizing polyamide powders. Leveraging its proprietary Selective Heat Sintering (SHS) technology, the company offered its machines at an exceptionally low price for the time—€9,995, with equally low powder costs at €49 per kilogram.

Blueprinter was founded in 2009 in Denmark with the vision of creating an affordable, office-friendly 3D printer that provided a higher standard than the FFF technology developed under the RepRap project.

In 2011, Blueprinter showcased its patented SHS technology at the Euromold trade fair. Few months later it announced sales of the market ready machine.

While the process was similar to SLS, Blueprinter replaced the costly laser head with heat-based sintering using thermal heads, significantly reducing costs. At that time, Blueprinter systems were more than ten times cheaper than alternative SLS systems on the market.

The powder bed was maintained at an elevated temperature, and the thermal head slightly increased the temperature at specific points, causing selective sintering of the powder.

Unfortunately, the system had its drawbacks—relatively small print volume: 16 x 20 x 14 cm, and slow printing speed, only 10 mm/hour.

The company gained momentum for several years, but without long-term success. Ultimately, Blueprinter closed in 2016.

March 2012

3. Diane's Mailroom store in Buckley, US, became the first postal outlet to offer 3D printing services

On March 1, 2012, Ted Griffiths opened Diane's Mail Room in Buckley, USA—a postal service center combined with office supply sales and the first 3D printing service in the United States located in a retail setting.

Before starting his own business, Griffiths was a clinical engineer for a company manufacturing hospital equipment. During a factory tour, he noticed engineers creating toys with their 3D printer. Inspired by the possibilities of 3D printing, he aimed to offer services allowing people to use the 3D printer in-store to produce their designs or replace broken parts.

In addition to traditional shipping services and selling office and printing supplies, Griffiths installed a dual-head 3D printer, the BitsFromBytes 3000, along with a computer station equipped with 3D modeling programs such as Blender and AutoCAD.

For $15 an hour, anyone could come into the store and use the 3D printer.

Griffiths also established a close collaboration with 3D Systems. The BitsFromBytes 3D printer was purchased from them (BFB had been part of 3D Systems since October 2010), and he utilized their services for larger and more advanced orders.

It is unclear how long Diane's Mail Room remained operational in offering 3D printing services, but it is known that the store itself no longer exists.

March 2012

Other important events

03-05-12

PotteryPrint app debuted on Kickstarter. Las Vegas-based developers Cameron Schaefer, Shlok Vaidya, and Brian Brooks created PotteryPrint, an iPad app introducing kids to 3D printing. Despite its potential, the app did not receive funding.

03-09-12

Italian Robot Factory introduced the 3D-ONE 3D printer. It featured a large build volume (245 x 245 x 245 mm) and high precision (0.01mm Z-axis resolution). It supported ABS, PLA, PVA, and PC materials.

03-12-12

High-speed 3D printing with nanoscale precision. Researchers at Vienna University of Technology achieved a breakthrough in 3D printing using two-photon lithography. Their system printed intricate objects, like a 285-micrometer race car, at record speeds of 5m/s with nanometer precision.

03-24-12

Bre Pettis recognized by Time Magazine. Time Magazine announced „Game Changers" - innovators and problem-solvers that were inspiring technology changes in America. One of them was Bre Pettis - CEO of MakerBot.

QUALUP SAS

HIGH TEMPERATURE 3D PRINTER

Qu4-HT is a high temperature 3D printer designed to work with high-performance materials like Poly-carbonate (PC), PEI 9085, PEI 1010, PEKK, PEAK, PPSU. At the same time, it offers a range of exceptional features.

Qu4-HT MAIN FEATURES:

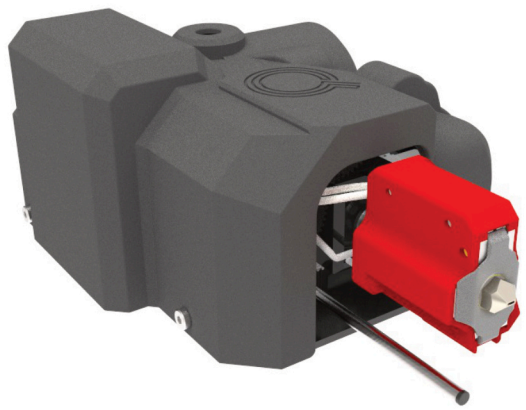
Large print volume: 400 x 400 x 400 mm, with other sizes available on request (400 x 400 x 500mm & 500 x 500 x 500mm)

Ultra fast heating time: the adaptive chamber ensures minimal warm-up time, so the printjobs start quickly (3 min. heating time for Polycarbonate (140°C) and less than 7mn for PEI 1010 (220°C).

High temperature printhead camera: a camera in a high-temperature enclosure which offers exceptional image quality and nozzle visualization.

PIVOT

HEAVY DUTY ROTATING PRINTHEAD



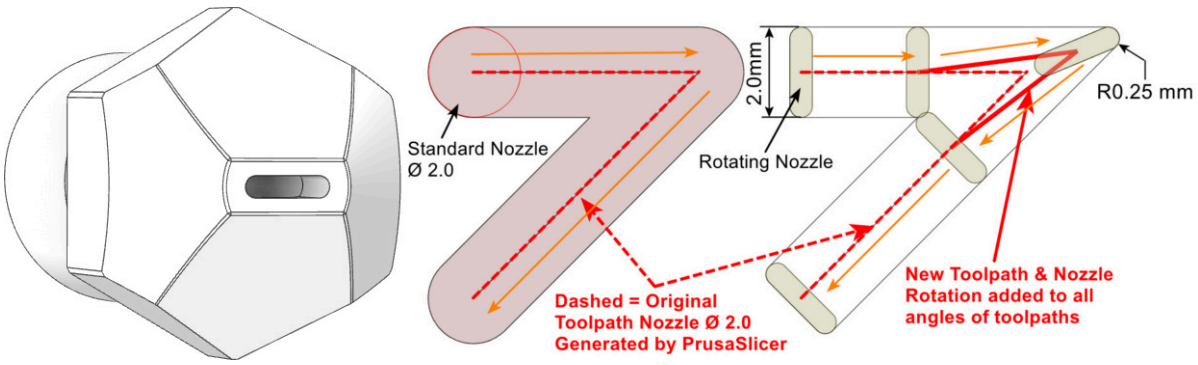
- **Rounded Rectangular Nozzle**
- **Infinite 360 Rotation**
- **Combining Precision with High Speed**

PIVOT FEATURES:

PIVOT printhead can rotate infinitely in both directions, which allows for continuous adjustment of the nozzle's orientation relative to the movement in the X and Y axes. This means that the nozzle is always positioned perpendicular to the direction of movement. It is especially beneficial for creating smooth surfaces and precise details.

The design of the printhead enables faster production of parts, cutting print time by more than half while still maintaining high precision. The head offers a material flow rate comparable to a 1.1 mm nozzle, yet achieves high precision with radii as small as 0.25 mm on sharp corners.

Internal nozzle pressure is also greatly reduced, limiting oozing. Although it may seem impossible, it is only impossible with standard types of printheads. Our rotating printhead makes this available to everyone as a standard feature.



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April 2012

1. Stratasys and Objet agreed to merge

On April 16, 2012, Stratasys and Objet announced that they will merge in a $1.4 billion all-stock transaction to form Stratasys Ltd., a new global leader in the 3D printing industry. The merged company established dual headquarters in Eden Prairie, Minnesota, and Rehovot, Israel.

David Reis, previously CEO of Objet, became CEO of the combined entity, while Elan Jaglom became chairman and Scott Crump, co-founder of Stratasys, took on the role of director. Stratasys shareholders held 55% of the company, with Objet shareholders owning 45%.

The merger combined Stratasys' FDM and Solidscape technologies for durable functional prototyping and manufacturing with Objet's PolyJet technology for high-resolution, detailed prototyping.

Stratasys and Objet had already played key roles in shaping the 3D printing industry. Founded in 1989, Stratasys pioneered the Fused Deposition Modeling (FDM) technology, enabling the creation of durable prototypes and functional production parts.

Meanwhile, Objet, established in 1998 in Israel, revolutionized the sector with its PolyJet technology, known for high precision and multi-material 3D printing with photopolymer resins.

The unified organization significantly increased its global sales network, boasting over 260 resellers and agents, which improved customer service and expanded market reach.

The merger was completed in December 2012 following shareholder and regulatory approvals.

April 2012

2. 3D Systems launched ZPrinter 850 full color 3D printer

On April 24, 2012, 3D Systems introduced the ZPrinter 850, the largest model in its ZPrinter lineup, offering increased print volume, enhanced productivity, and vibrant full-color capabilities. The professional-grade 3D printer catered to designers, engineers, and architects, enabling the creation of larger and more detailed prototypes at a faster pace.

The ZPrinter 850 doubled the print volume of its predecessor, the ZPrinter 650, while maintaining its premium full-color output. Its advanced features included high-speed printing, automated setup and monitoring, and affordability, making it an attractive option for businesses seeking efficient prototyping solutions.

ZPrinter 850 produced parts 5 to 10 times faster than most AM systems of that time, delivering results within hours. It provided automated processes for setup, powder and binder loading, and recycling simplified operation. With a resolution of 600 x 540 dpi, the printer created detailed and accurate parts.

Additionally five print heads (cyan, magenta, yellow, black, and clear) allowed for the creation of 390,000 unique colors and countless combinations.

The launch of the ZPrinter 850 marked a significant step in advancing large-format, full-color 3D printing, providing professionals with powerful tools to streamline the design and development process.

April 2012

3. voxeljet introduced the first continuous 3D printer

On April 12, 2012, voxeljet introduced the world's first continuous 3D printing machine, revolutionizing the production of molds and models for metal casting. This innovative system allowed simultaneous building and unpacking processes without interrupting operations, significantly enhancing speed and cost-efficiency in patternless small-batch production.

The machine's core innovation was a novel horizontal belt conveyor design (which was patent pending). Layers were built at the conveyor's entrance, while unpacking occurred at its exit.

Printing was performed on a tilted plane, enabling faster positioning of the print head. The process began with a recoater spreading a powder layer at an angle smaller than its repose angle, followed by selective bonding with a high-performance print head. The conveyor then advanced the material layer by layer, producing parts that could be removed from the system's rear.

The machine featured a build space of 800 x 500 millimeters in height and width, with virtually unlimited length determined only by mold manageability. The tilted print plane reduced print time, while the system's design eliminated the need for build containers or separate unpacking stations, lowering investment and operating costs.

Voxeljet's technology also ensured sustainability, with unprinted material automatically recycled back into the build zone, reducing material usage and setup costs. The system supported layer thicknesses of 150 to 400 µm and used voxeljet's proven 600 dpi print head for high-definition results.

April 2012

Other important events

04-04-12

Leapfrog announced plans to launch fully assembled 3D printers at competitive prices starting at €1,250. Their entrylevel model, Creatr, featured a robust aluminum build, a large 300 x 250 x 260 mm print area, ABS/PLA support, and a heated bed up to 90°C.

04-05-12

MiiCraft introduced a home-built DLP 3D printer using a "pico" projector for 450ppi resolution and a build area of 43mm x 27mm. With a speed of 1.5–2 cm/hour, it supported blue and transparent resin. An evaluation kit was planned for release at $2,000.

04-06-12

Choc Edge launched Choc Creator, the world's first commercial chocolate 3D printer. Designed for custom chocolate creations, it featured a 175 x 175 x 70 mm build area and open-source software. Pre-orders started at £2,488.

04-20-12

Solidoodle launched its 2nd Generation 3D printer starting at $499. It featured a 6x6x6" build area, a durable metal frame, and user-friendly operation. Three models—Base, Pro, and Expert—offered varying features.

May 2012

1. Stratasys released Mojo - its first desktop grade 3D printer

On May 8, 2012, Stratasys introduced the Mojo 3D Printer as part of its $9,900 Mojo 3D Print Pack. It was the market's lowest-priced professional-grade 3D printing system at that time. The package included the printer, materials, and a WaveWash55 support-removal system, offering a complete solution for model production.

The Mojo printer featured Stratasys's patented FDM technology. It used the innovative QuickPack print engine, combining an ABS material spool and print head into a single unit.

Each material replacement included a fresh print head, ensuring reliability. Loading material was as simple as replacing an ink cartridge in a standard printer.

Mojo measured 25x21x18 inches and required no special training to operate. Users managed settings through the host computer, and the Print Wizard software streamlined the workflow.

Mojo delivered fine feature detail with a resolution comparable to the high-end Dimension Elite and Fortus Production lines.

The printer was described y Stratasys as ideal for engineers, educators, entrepreneurs, and designers seeking professional-grade output.

The name "Mojo" officialy symbolized the magic of 3D printing. In fact it was an unsuccessful attempt to respond to the much cheaper desktop-grade systems from MakerBot, Solidoodle, or Ultimaker that appeared on the market a year before.

May 2012

2. Mcor Technologies announced Mcor Iris full color 3D printer

On May 22, 2012, the Irish company Mcor Technologies announced during RAPID 2012 Conference the launch of the Mcor IRIS, the world's first 3D printer capable of producing full-color models. The machine used paper as its feedstock, which was printed with ink, selectively glued, and cut into layer shapes. The resulting models were highly realistic and had a wood-like texture.

The Mcor IRIS stood out for its ability to reproduce over a million shades simultaneously, surpassing competing devices that typically limited colors to a few solid patches. Its key innovation was using ordinary paper as the build material, allowing natural color transfer with ink.

Unlike gypsum, which could alter hues by absorbing ink, paper provided high-quality, stable colors. Consequently, models produced by the Mcor IRIS had a visual quality comparable to images seen on a computer screen.

The model creation process with the Mcor was quite complex. Each sheet was first printed in color, then transported to the worktable, glued, pressed, and finally cut into the desired layer shape. This process took considerable time, and removing supports without damaging delicate components was an additional challenge.

The printer offered a build volume of 256 x 169 x 150 mm for A4 paper and 9.39 x 6.89 x 5.9 inches for Letter-size paper. With a 0.1 mm layer thickness, it ensured exceptional detail. The color resolution reached 5760 x 1440 x 508 dpi.

May 2012

3. Objet released Objet30 Pro 3D printer

On May 22, 2012, Objet presented at the RAPID 2012 Conference Objet30 Pro 3D printer, that offered seven different resins, including for the first time on a desktop system, clear transparent and high temperature resistant materials.

With a small footprint and professional 28 micron 3D print quality, the Objet30 Pro was producing high quality prototypes with a choice of seven different materials and functional properties:

- VeroClear - clear transparent material for simulating PMMA/glass,
- High temperature material for heat-resistant static functional testing,
- DurusWhite - polypropylene-like material for simulating snap-fit parts
- and four rigid, opaque materials for standard plastic simulation (Objet Vero Family in black, white, gray, and blue).

The build area tallied up to 294 x 192 x 148.6 mm with axis resolutions of 600 dpi, 600 dpi, and 900 dpi for the X-axis, Y-axis, and Z-axis respectively. It had a dual extruder setup - one for printing material and the other for support material.

The configuration allowed layer resolutions ranging from 16 to 28 microns depending on whether it prints on the high quality or high-speed setting.

The Objet30 Pro was offered for $19,900 (excluding VAT, options, shipping and installation). The expanded material capabilities of the Objet30 Pro were also available as an upgrade for existing Objet30 or Objet Alaris30 customers.

May 2012

Other important events

05-10-12

The B9 Creator 3D printer debuted on Kickstarter, introducing a high-resolution DLP-based resin printing system. Designed for jewelry, prototyping, and engineering applications, it gained strong support from backers. The campaign's success helped establish B9Creations as a leader in affordable, high-precision 3D printing using photopolymer technology.

05-23-12

PP3DP (a company associated with Chinese Tiertime) launched the UP! Mini 3D Printer for under $1,000. Featuring a 120x120x120mm build area, 250-micron resolution, and user-friendly design, it offered professional-quality prints. It also had enclosed chamber and open material compatibility.

05-24-12

3D Systems acquired Bespoke Innovations, a San Francisco-based startup specializing in custom-fit prosthetics, orthotics, and orthopedic devices using proprietary scan-to-print technology. The acquisition aimed to expand 3D Systems' healthcare solutions, with customizable medical devices.

June 2012

1. Shapeways raised $6.2M Series B funding round

On June 19, 2012, Shapeways announced securing an additional $6.2 million in Series B funding. The investment was led by New York-based Lux Capital, with participation from existing investors Union Square Ventures and Index Ventures.

Founded in the Netherlands in 2007, Shapeways had printed over one million 3D objects by June 2012. Its platform hosted more than 6,000 online shops where users could sell their designs, and the Shapeways community had grown to over 150,000 members—a significant increase from 100,000 users in November of the previous year.

By mid-2012, the company employed over 50 staff members and operated its own 3D printing facility in Eindhoven, the Netherlands, while also relying on external providers to expand its production capacity.

Shapeways had previously raised $6 million in Series A funding in 2010 and an additional $5.1 million during the first part of its Series B round in 2011. The new tranche of funding in 2012 was aimed at supporting initiatives like the development of a "factory of the future" in New York.

The Shapeways platform offered a wide selection of 30 materials for creating designs, including ceramics. With this diverse range of materials and its growing community, the company sought to democratize 3D printing technology, enabling anyone to bring their creative ideas to life and commercialize them.

June 2012

2. EOS and Cookson Precious Metals (CPM) sign strategic developmet partnership

On June 6, 2012, EOS announced a strategic partnership with Cookson Precious Metals (CPM), a renowned supplier to the precious metal industry. Together, they aimed to revolutionize the jewelry and watch industries through the development of precious metal applications using Direct Metal Laser Sintering (DMLS) technology.

Under this partnership, EOS and CPM created new production solutions, including bespoke design processes, precious metal alloy development, and high-volume production capabilities. Initially, CPM offered AM services for 18-carat yellow gold (3N color).

CPM, the UK's largest one-stop shop for jewelers, provided over 12,000 products, from bullion in gold, silver, and platinum to gemstones and jewelry-making tools.

They also used sustainable practices by supplying fair-trade and recycled gold under their Ecogold initiative, minimizing environmental impact by utilizing above-ground metal stocks.

The result of the collaboration between companies was PRECIOUS M 080 Direct Metal Laser Sintering system presented two years later, on September 2014, at the Hong Kong Jewellery and Gem Fair.

The 3D printer was equipped with a 100-watt fiber laser, designed to meet the needs of the jewelry and watch industry. It had an 80 mm diameter round build platform with a working stroke of 95 mm high (including the building platform).

Unfortunately, despite considerable media buzz at the time of its debut, the machine did not stand the test of time and was withdrawn from the market.

June 2012

3. Objet broke the 100 material range barier

On June 20, 2012, Objet announced the release of 39 new "Digital Materials" for its Objet Connex multi-material 3D printing systems. This significant milestone expanded the company's total range of materials to 107, marking a breakthrough in additive manufacturing technology.

Among the 107 materials offered, 90 were classified as "Digital Materials." These materials were created through the composite mixing of primary Objet materials, allowing users to achieve highly specific properties tailored to their needs.

This capability enabled designers, engineers, and manufacturers to closely replicate the physical characteristics of end products, enhancing realism and functionality in prototypes.

The Objet Connex systems also supported combining up to 14 materials in a single model, enabling intricate designs that incorporated features such as rigid and flexible, or opaque and transparent properties.

These materials found applications across various industries and stages of product development, from form modeling to functional testing.

In addition to the new materials, Objet launched enhancements to two existing products. The improved Objet VeroBlackPlus offered better dimensional stability and surface smoothness, making it ideal for general-purpose prototyping.

Additionally, the company's high-temperature material, released in 2011, was made available for all Objet Connex and EdenV systems, as well as the Objet30 Pro Desktop 3D Printer.

June 2012

Other important events

06-06-12

MiiCraft launched an Indiegogo campaign for their resin-based personal 3D printer, priced at $1,999. The package included a 3D printer, post-curing device, and 500ml blue resin.

06-07-12

London-based Makielab raised $1.4 million in seed funding led by Lifeline Ventures and Sunstone Capital, with support from industry veterans. Their Makies.me platform enabled customizable 3D-printed dolls.

06-14-12

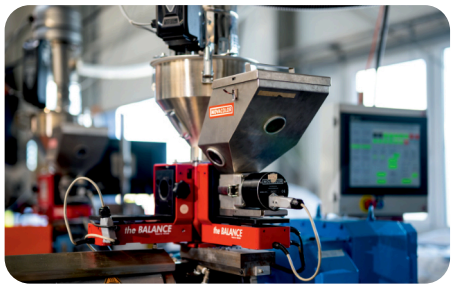
The B9 Creator 3D printer raised $513,422 on Kickstarter, surpassing its funding goal. Created by Michael Joyce, the DLP-based resin printer attracted strong backing due to its high-resolution capabilities for jewelry, prototyping, and engineering applications.

06-22-12

i.materialise (on-line platform for consumers run by Materialise) added bronze as a new 3D printing material. Polished and unpolished options were available, with pricing similar to stainless steel.

Spectrum®
FILAMENTS

Largest European 3D filament manufacturer



Leading European 3D filament manufacturer

We bring extensive experience in filament production and a deep understanding of industry needs. Our commitment to innovation drives the development of new materials.

80+ various types of filament in our portfolio

From eco-friendly materials to advanced composites, we offer a filament for every application. Our diverse selection ensures high performance and versatility across all 3D printing projects.

~1.5 milion kg annual production capacity

We are ready to meet the growing demand for 3D printing materials. Our efficient production processes ensure reliable supply and consistent product quality.

Our brands: Spectrum® FILAMENTS · The Filament · PROGRAFEN

Spectrum®
FILAMENTS

High quality filament manufacturer

Our company is a dynamically growing manufacturer and supplier in the 3D printing materials industry, specializing in the production of 3D filaments used in FDM/FFF technology printers. Based on many years of experience and advanced technological solutions, we deliver top-quality 3D filaments that meet the needs of both individual and institutional customers. Thanks to our advanced production facilities, we have become one of the key players in the European 3D filament market.

We are open to new ideas and ready to meet customer expectations, offering a wide portfolio of 3D printing materials and the production capacity of one of the largest filament manufacturers in Europe. With an annual production capacity of approximately 1.5 million kilograms of 3D filament, we are able to fulfill large orders and quickly respond to the dynamic needs of the market.

High production capacity
Allows us to fulfill both small and large-scale orders, ensuring a reliable and consistent supply.

Private label services
Allowing to customize and brand our premium filaments with customer's labels, fostering collaboration and tailoring products to customer's unique needs.

European manufacturing
We maintain proximity to our customers, enabling us to offer efficient and responsive services with a commitment to European quality standards.

Rigorous quality control system "Verify your spool"
We guarantee that each filamenta meets our strict quality standards, assuring customers of the reliability of our products.

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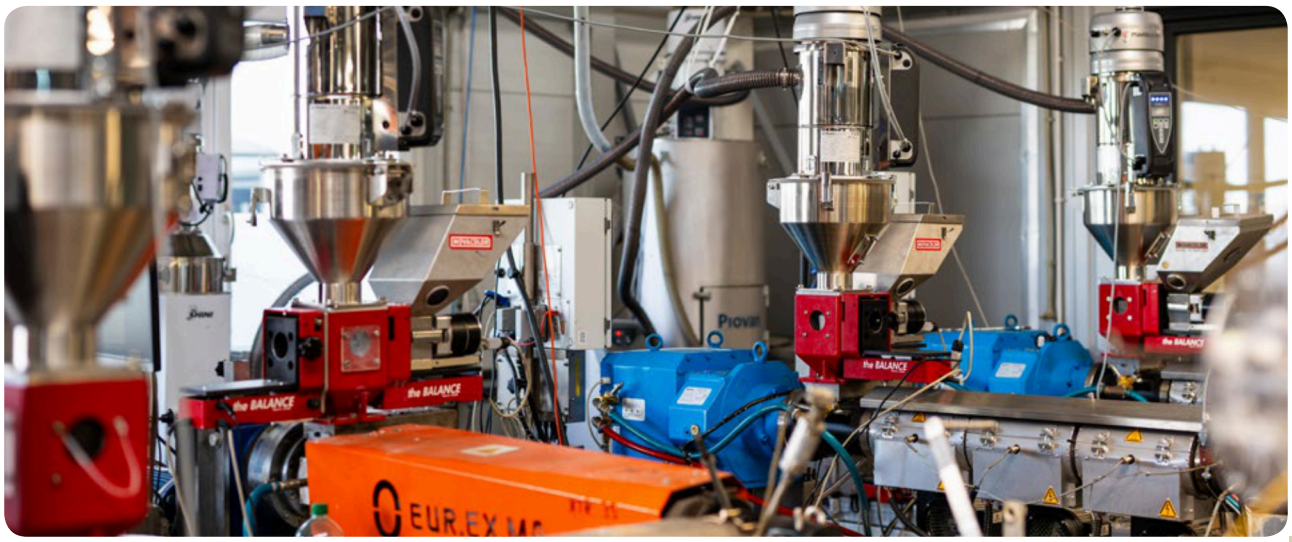

July 2012

1. Penn Researchers created vasculature in living tissues with RepRap 3D printer

On July 1, 2012, researchers at the University of Pennsylvania announced achieving a groundbreaking advancement in bioengineering. The team, led by Jordan S. Miller and Christopher S. Chen, addressed a critical challenge in creating 3D tissues—developing vascular systems capable of delivering nutrients and oxygen to cells. Previous methods, such as bioprinting, encountered difficulties due to structural seams and cell survival issues.

To overcome these obstacles, the researchers adopted a novel approach by prioritizing vascular design. They created 3D printed templates of vascular networks using a sugar-based material.

These templates, inspired by the ancient lost-wax casting technique, enabled the formation of complex vascular structures within tissue molds. The sugar material dissolved harmlessly, leaving behind channels that mimicked natural blood vessel networks.

The team utilized an open-source RepRap 3D printer to manufacture the vascular templates. This approach was not only cost-effective but also scalable, allowing rapid experimentation with multiple configurations. A thin polymer coating reinforced the sugar templates, ensuring stability during the casting process while preserving the health of nearby cells.

Once embedded in gels, the vascular templates enabled the flow of nutrient-rich media through the networks. This system significantly enhanced cell survival and functionality. Furthermore, the vascular networks supported natural capillary growth, mirroring the body's mechanisms.

July 2012

2. Solidscape launched high precision 3Z Pro 3D printer

On July 11, 2012, Solidscape introduced the 3Z PRO, a revolutionary high-precision wax 3D printer. The 3ZPRO featured one-touch simplicity, enabling users of any skill level to produce high-precision wax parts suitable for casting.

Designed for office desktops and retail environments, this fully automated printer combined functionality with user-friendly design. Wireless connectivity and remote desktop job management further enhanced its versatility.

Solidscape incorporated software that allowed operators to select printing options using a slider bar. These updates streamlined workflows, improved scheduling flexibility, and supported remote management.

The 3ZPRO measured 21 x 18 x 16 inches, weighed 80 pounds, and offered high resolution, achieving 197 x 197 dots per minute in the X and Y axes and 158 dots per minute in the Z axis.

Its accuracy of ±0.0254 mm and selectable layer thickness ensured exceptional precision. The build envelope measured 6 x 6 x 4 inches, with a surface finish of 32 to 63 microns.

Alongside the 3ZPRO, Solidscape launched advanced materials, including 3ZMODEL and 3ZSUPPORT. They provided greater strength and durability while maintaining the precision essential for investment casting. The 3ZMODEL material, 23% stronger than plusCAST and over 50% stronger than earlier iterations, melted cleanly during burnout for accurate casting.

July 2012

3. Afinia presented compact H480 desktop 3D printer

On July 26, 2012, Afinia, a division of Microboards Technology, introduced the H-Series 3D Printer. The printer was designed to deliver a seamless "Out of the Box 3D Printing Experience" and came fully assembled with software compatible with both PC and Mac systems.

Priced affordably at $1,499, the H-Series provided a portable solution for prototyping parts or models with dimensions up to 5 inches cubed. Weighing less than 11 pounds, it was highly portable, making it suitable both for professional workspaces as home offices.

The custom-designed software offered an intuitive interface, enabling users to layout, orient, duplicate, and scale their designs. After calibrating the printhead height with the included utility, users could start printing within minutes.

The software imported .stl files, allowing for customization of support material and raft printing. Breakaway support structures generated during the process were easy to remove, with accompanying tools included in the package.

Afinia ensured compatibility with various design tools, ranging from professional software like SolidWorks to free online platforms. This versatility enabled both beginners and advanced users to explore the possibilities of 3D printing.

Specifications included a build platform of 140 x 140 x 135 mm, layer thickness adjustable between 0.20 and 0.40 mm, and compatibility with Windows and Mac operating systems. The compact printer measured 245 x 260 x 350 mm and came with a one-year warranty covering parts and labor.

July 2012

Other important events

07-05-12

Artec Group launched the EVA 3D scanner, a lightweight device capturing full-color 3D scans at 16 fps and 288,000 data points/second. With no calibration needed, it simplified scanning for industries like forensics, medicine, and animation, moving professional-grade 3D scanning closer to small businesses and consumers. The price was €14,900.

07-14-12

Johann Rocholl developed the Rostock 3D printer prototype, delta robot design with a 20x20x40 cm build volume and speeds up to 400 mm/s. It was created withuse of lightweight, printable parts and stationary heated glass bed.

07-28-12

3D Systems launched Cubify Invent, a $49 CAD software for consumers equipped with 3D printers like the Cube. It offered essential design tools, including 2D-to-3D extrusion and direct-to-print functionality. Part of 3D Systems' broader strategy, Cubify Invent simplified design-to-manufacturing. However, while powerful, its unappealing user interface could deter casual users.

August 2012

1. Cody Wilson launched the Wiki Weapon Project - a collective of individuals designing 3D printed guns

On August 22, 2012, Cody Wilson and his new established collective – Defense Distributed, launched the Wiki Weapon Project. Their goal was to design a fully functional firearm that could be 3D printed and distributed via open-source CAD files.

Defense Distributed launched a crowdfunding campaign on IndieGoGo to raise $20,000 but faced an early obstacle when the platform removed their listing, citing a violation of terms of service.

Despite this setback, the group secured alternative funding sources, including direct donations via PayPal and Bitcoin. The organisation reportedly raised over $12,000 and began prototyping efforts. The project proposed creating a firearm using mostly plastic components, supplemented by metal parts to ensure compliance with detection requirements.

The Wiki Weapon Project underscored the disruptive potential of 3D printing in firearms manufacturing. Although initial prototypes were rudimentary, the project demonstrated how digital fabrication could challenge traditional regulatory frameworks.

This initiative marked the beginning of ongoing discussions about the intersection of additive manufacturing and public safety, influencing future debates about the accessibility and regulation of 3D printing technologies.

August 2012

2. Stratasys and HP terminated agreement on the production and distribution of 3D printers

On August 1, 2012, Stratasys and HP agreed to discontinue their manufacturing and distribution agreement for 3D printers, effective at the end of 2012. The companies initially partnered in mid-January 2010, with Stratasys manufacturing HP-branded 3D printers, which were marketed under the Designjet 3D brand. The first 3D printers, based on FDM technology, were shipped in May 2010 to France, Germany, Italy, Spain, and the UK.

The Designjet 3D printer was essentially a rebranded version of Stratasys's "affordable" uPrint model. It was intended as a response to the growing global popularity of the RepRap project and the rapid emergence of companies producing inexpensive, amateur 3D printers.

The distribution partnership between Stratasys and HP was limited to the aforementioned European countries and was managed by HP's Graphic Solutions Business, part of the company's Imaging and Printing Group.

It is also worth mentioning that at the turn of 2011 and 2012, after the merger with Objet, leadership at Stratasys began transitioning to the Israeli team, led by David Reis, who replaced the company's founder and FDM technology inventor Scott Crump as CEO.

The shift in strategy and the introduction of PolyJet 3D printers to Stratasys' offer played also a significant role in the decision to end the partnership with HP.

August 2012

3. Solidscape unveiled fully automated 3ZSTUDIO 3D printer for custom retail jewelers

On August 31, 2012, Solidscape unveiled the 3ZSTUDIO, a 3D printer specifically tailored for custom retail jewelers. This launch marked a significant advancement in additive manufacturing for the jewelry industry, offering precision and ease of use in a compact, retail-friendly design.

The 3ZSTUDIO 3D printer was designed to simplify the production of intricate wax patterns used in investment casting, enabling jewelers to create their own designs on demand. Featuring a retail tabletop design, the machine incorporated an intuitive, icon-based touchscreen interface and offered variable resolutions for greater control.

Its specifications included a resolution of up to 5000 dpi in the X and Y axes and 4000 dpi in the Z-axis, with a build envelope measuring 6 x 6 x 2 inches.

The device delivered accuracy within ±0.0010 inch per inch, ensuring precise and consistent results. Users could select layer thickness through a variable slider, making it adaptable for a variety of design requirements.

The 3ZSTUDIO also introduced Solidscape's next-generation materials, 3ZMODEL and 3ZSUPPORT, which improved durability and usability while maintaining the smooth finish essential for casting.

At a price point of $24,650, the printer was positioned as an affordable yet high-performing solution for small-scale jewelers who previously had to compromise on precision, performance, or cost. The compact dimensions and lightweight construction allowed jewelers to integrate the printer seamlessly into their retail spaces.

August 2012

Other important events

08-01-12

Japanese firm Fasotec introduced the "Shape of an Angel" service, offering 3D-printed models of fetuses based on MRI scans. Using clear and white resin, the models replicate the fetus's position in the womb.

08-03-12

University of Twente released the Pwdr Model 0.1, an open-source powder-based rapid prototyping machine. Compatible with 3DP and SLS processes, it enabled experimentation with various materials like ceramics, plastics, and metals.

08-15-12

Peter Thiel's Breakout Labs funded Modern Meadow, a company advancing 3D bioprinting to create lab-grown meat and leather using tissue engineering.

08-27-12

Formula Group T, a team of 16 engineering students from Group T University, unveiled "Areion," the first mostly 3D-printed race car, achieving 0-100 km/h in 4 seconds and a top speed of 141 km/h. Using advanced 3D printing techniques, the car excelled in Formula Student competitions.

September 2012

1. Formlabs launched Kickstarter campaign for Form 1 - desktop grade SLA 3D printer

On September 26, 2012, Formlabs – a young Boston-based startup – launched a Kickstarter campaign for its debut 3D printer, the FORM 1. It was the first desktop-class SLA 3D printer and one of the first low-cost 3D printers using photopolymer resin.

The campaign formally launched Formlabs' career, which in later years gained a dominant position in the AM market, becoming a leader in the supply of SLA and SLS 3D printers.

Formlabs was founded in September 2011 by three MIT graduates – Maxime Lobovsky, David Cranor, and Natan Linder. From the beginning, the company focused on developing accessible and precise 3D printers based on stereolithography (SLA) technology.

Stereolitography (SLA) method was previously been reserved mainly for expensive, industrial-grade machines, developed mostly by 3D Systems.

Simultaneously, at that time, consumer 3D printers exclusively used FDM technology, which didn’t offer the level of precision that Formlabs was aiming for.

The Form 1 offered much higher resolution and precision compared to the popular FDM printers of the time, and its price was significantly lower than industrial SLA models.

The Form 1 featured a 405 nm semiconductor laser with a 300-micrometer spot size, a layer thickness of 25, 50, or 100 micrometers, and a build volume of 125 × 125 × 165 mm.

The price was $2,299 (super early bird).

September 2012

2. MakerBot launched Replicator 2 - fully assembled desktop 3D printer

On September 20, 2012, MakerBot held a press conference announcing the launch of its new fully assembled desktop 3D printer, the Replicator 2, as well as its first retail store.

The 3D printer was designed to work with PLA filament, and its build volume was 11.2 x 6.0 x 6.1 inches (28.5 x 15.3 x 15.5 cm) — 37% larger than the original MakerBot Replicator. Furthermore, the company announced that it was working on a more advanced dual-extrusion version, the MakerBot Replicator 2X (Experimental), which would hit the market in early 2013.

The event was quite remarkable as the "Replicator 2" was launched just nine months after the debut of the first-generation of this line of 3D printers.

The Replicator 2 became one of the most popular 3D printers in the history of desktop FFF 3D printing, elevating the design of 3D printers from the rough RepRap aesthetic ("doesn't matter how it looks, as long as it works") to a sleek, consumer-ready product.

This 3D printer was simply beautiful and looked like a true consumer product. Moreover, it printed really well (for the time), setting a high bar for the competition. Photos of Bre Pettis casually holding the printer in his hand (or on his shoulder) became an iconic image of the growing 3D printing industry.

September 2012

3. Kai Parthy presented LAYWOO-D3 – the very first wood-filled filament for 3D printing

On September 16, 2012, Kai Parthy – a German inventor, made a significant development in 3D printing materials with the introduction of LAYWOO-D3. It was the very first filament designed to mimic wood. Developed as an alternative material for FFF printers, LAYWOO-D3 enabled users to create objects resembling real wood, complete with annual ring effects, achieved by varying printing temperatures.

LAYWOO-D3 was created using a composite of recycled wood and PLA, offering a unique material that was paintable, sandable, and cuttable. The filament performed similarly to PLA in terms of thermal durability and was designed to avoid warping.

Parts printed with LAYWOO-D3 could range in appearance from light to dark wood tones depending on the extrusion temperature, allowing for the creation of natural wood grain patterns.

The material adhered well to print beds without requiring a heated platform, and it delivered a surface texture comparable to medium-density fiberboard (MDF).

One of the first practical applications of LAYWOO-D3 was the recreation of a toy locomotive design from the 1980s, highlighting its versatility for artistic and functional projects.

The filament proved easy to use, with a wide extrusion temperature range from 175°C to 250°C, ensuring compatibility with various printers without risking nozzle blockages.

Although not a fully biodegradable product due to its polymer content, LAYWOO-D3 showcased the potential for combining natural materials with advanced manufacturing techniques.

September 2012

Other important events

09-09-12

HYREL 3D printer was launched on Kickstarter, offering a fully assembled, tested machine with a rugged metal frame, interchangeable extruder system, and expandable features. The campaign was successful raising $152,942 from 73 backers.

09-11-12

ExOne launched M-Flex 3D printer at the International Manufacturing Technology Show. Designed for metal part manufacturing, it offered seven Times the volume output of previous machines. The M-Flex features a 400mm x 250mm x 250mm build chamber, and faster build speeds.

09-17-12

Fortune Magazine listed 3D Systems in its Fastest-Growing Companies rank. 3D Systems ranked 5 in tech, 12 overall, and in the top 6 for profit growth.

09-28-12

Mcor Technologies launched the Matrix 300+, a paper-based 3D printer, claiming to be the lowest cost, eco-friendly, and three times faster than previous models.

Technology Applied®

Technology Applied is an advanced 3D printing company specializing in contract producing of plastic parts. It provides e.g. functional parts for machines, devices and production lines, as well as small and medium series of products. The company's expertise includes a wide range of printing technologies: SLS, MJF, DLP and FDM, as well as post-processing methods: polishing, vapor smoothing, coloring, threaded inserts, bonding.

The company's experience in the industry and its own industrial machinery means that the offered prints are characterized by high accuracy, repeatability and durability. The company has ISO 9001:2015 certified processes, confirming a commitment to the highest standards.

Technology Applied is a pioneer in its sector – it is the only company in this part of Europe with a professional vapor smoothing system which allows it to deliverproducts of a quality that surpasses anything previously available on the market.

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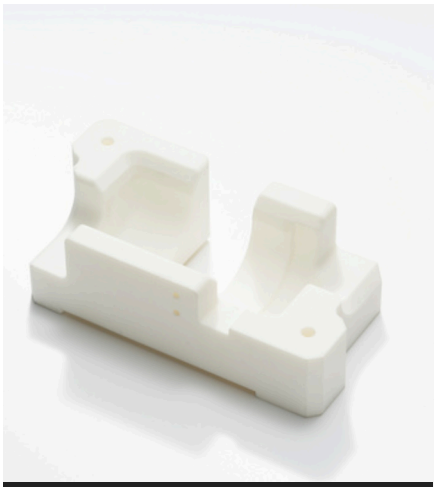
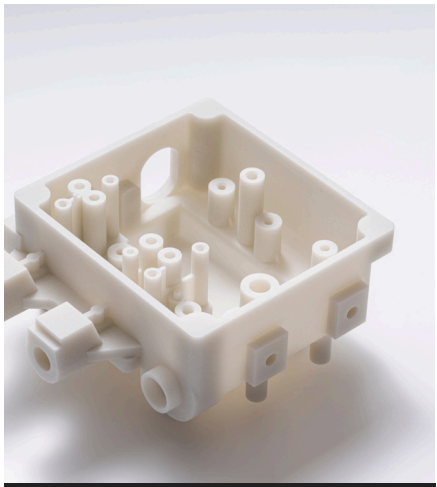
MATERIALS & TECHNOLOGIES

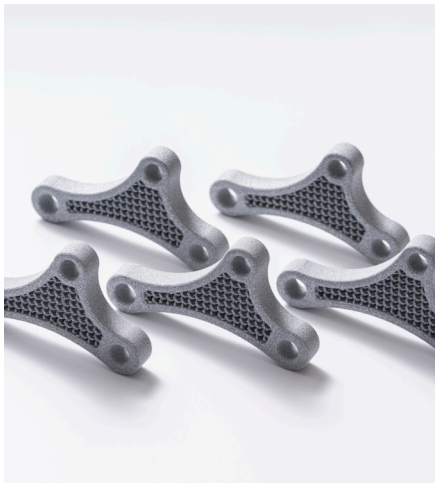
Certified materials enable the production of parts and products meeting stringent international standards. Depending on specifications, these parts and products can be food-safe, fire-resistant, mechanically durable, chemically resistant, or biocompatible.



PA12 SLS



PA3200GF SLS



ALUMIDE SLS

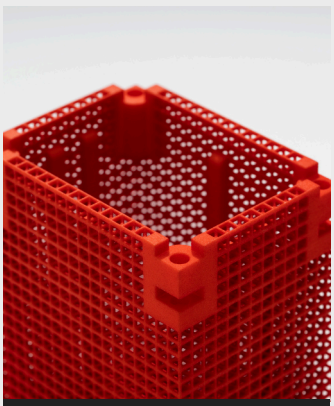
PA2241 FR / PA2210 FR SLS

TPU SLS

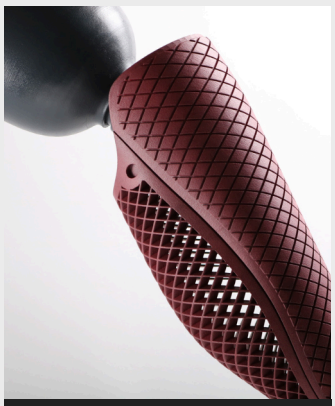
PA12 HP MJF

POST- PROCESSING

Additional print finishing processes are dedicated to industrial solutions and are often used for the production of final devices.



DEEPDYE COLORING



POLISHING

VAPOUR SMOOTHING

THREADED INSERTS

October 2012

1. Formlabs secured historic Kickstarter funding

On October 26, 2012, Formlabs Kickstarter campaign ended and turned out be a massive success, serving as a major inspiration for many companies entering the desktop-grade 3D printing market. Initially aiming to raise $100,000, the project reached $664,763 on its first day and ultimately secured $2,945,885 from 2,068 backers.

At the time, this was one of the highest-funded technology campaigns on Kickstarter and the first major success in the 3D printing industry on the platform.

This record-breaking funding amount was significant for the 3D printing market, as it demonstrated a strong demand for high-quality, affordable 3D printing solutions. In 2012, stereolithography (SLA) printing was mostly limited to expensive industrial systems, costing tens or even hundreds of thousands of dollars. Formlabs proved that it was possible to offer a high-resolution 3D printing solution at a fraction of the cost of competing systems. This breakthrough opened the market to small businesses, engineers, designers, and hobbyists.

The campaign not only enabled the production of the Form 1 printer but also attracted the attention of investors and competitors. The funds raised on Kickstarter allowed Formlabs to launch its first production runs and laid the foundation for the company's growth, eventually making it one of the leading players in the 3D printing industry.

The story of Formlabs' Kickstarter campaign was even featured in the Netflix documentary Print the Legend, released in 2014. The campaign became one of the key moments in the film, highlighting the growing popularity and significance of 3D printing technology in the early 2010s.

October 2012

2. Shapeways announced the opening of the largest 3D printing factory in the World

On October 19, 2012, Shapeways announced plans to open a new 3D printing facility, named the "Factory of the Future," in Long Island City, New York. The 25,000-square-foot facility was set to become the largest consumer-focused 3D printing factory in the world, with the capacity to produce three to five million unique products per year. The plan included installing 30 to 50 industrial 3D printers and creating up to 50 jobs within a year of launching.

Founded in 2007 as a spin-off from Royal Philips Electronics LifeStyle Incubator, Shapeways initially allowed users to upload their designs for 3D printing, quickly building a community-driven model. In 2010, the company relocated its headquarters to New York City, continuing its expansion into the 3D printing market.

The "Factory of the Future" aimed to bring manufacturing back to New York, offering a local alternative to overseas production. The facility was planned to house cutting-edge 3D printers from manufacturers like EOS (SLS technology) and ZCorporation (CJP full-color printing). Additionally, the site was to include a Shapeways lab dedicated to R&D for new materials and post-processing techniques.

This development was a significant milestone for the 3D printing industry, highlighting New York's growing role as a hub for additive manufacturing innovation—(also home to companies like MakerBot and Solidoodle). Shapeways' initiative expanded access to 3D printing for consumers and promoted local production, helping drive the growth and adoption of 3D printing technology in the years that followed.

October 2012

3. EnvisionTEC launched Perfactory Micro 3D printer

On October 28, 2012, EnvisionTEC introduced the Perfactory Micro, the smallest model in the Perfactory family, designed for high-resolution 3D printing. This device utilized Direct Light Projection (DLP) technology, featuring an LED light source that provided low operating costs and an extended lifespan of up to 30,000 hours.

The Perfactory Micro was aimed at dental labs and prototyping firms with limited budgets but requiring high-quality prints. It offered a build area of 40 x 30 x 100 mm and an impressive pixel resolution of 31 micrometers. The built-in USB connection allowed the printer to be directly connected to a personal computer, eliminating the need for calibration and significantly reducing setup time.

Founded in 2002, EnvisionTEC was a pioneer in 3D printing, introducing innovative DLP-based solutions. The company gained recognition in industries such as dentistry, jewelry, and hearing aid manufacturing, providing precise and reliable equipment for rapid prototyping and small-batch production.

October 2012

Other important events

10-02-12

Stratasys canceled the lease of uPrint SE 3D printer from Defense Distributed, and seized the printer, citing its policy against illegal use. The printer was used to develop 3D-printed weapons under the Wiki Weapon project.

10-03-12

3D Systems acquired TIM (The Innovative Modelmakers BV), a Netherlands-based provider of on-demand custom parts services. TIM specialized in rapid prototyping, model making, and manufacturing solutions for engineers and designers, focusing on consumer electronics and appliances.

10-10-12

3D Systems acquired Rapidform, a Seoul-based provider of 3D scan-to-CAD and inspection software, for 35 million in cash. Rapidform's software integrated scan data processing, mesh optimization, and CAD modeling, enhancing product development efficiency. The acquisition expanded 3D Systems' capabilities in South Korea and Japan, aiming to create a comprehensive digital scan, design, and print platform.

November 2012

1. Solidoodle launched its third generation 3D Printer - Solidoodle 3

On November 16, 2012, Solidoodle announced the release of its latest 3D printer model – Solidoodle 3. This new addition to the company's lineup featured a larger build volume compared to previous models. The Solidoodle 3 offered a print area of 8 x 8 x 8 inches (512 cubic inches), more than twice the volume of its predecessor, Solidoodle 2 (216 cubic inches). This upgrade allowed users to print larger objects while maintaining a high layer resolution of up to 0.1 mm.

The Solidoodle 3 was unveiled just before Black Friday, with sales starting on November 16, 2012. The new model introduced several key technological improvements, including an expanded build space and an upgraded heated print bed system. It featured a durable metal frame, a heated platform, internal lighting, and an open-frame design without an external enclosure.

The printer used 1.75 mm filament and was powered by a nichrome-driven extruder with a 0.35 mm nozzle. The device weighed 20 pounds and was priced at $799. Preorders for the new model began in November 2012, with the first units scheduled to ship to customers in January 2013.

Solidoodle was founded in late 2011 by Sam Cervantes, an aerospace engineer and experienced 3D printing industry expert. Within its first year, Solidoodle grew to over 60 employees and delivered more than 1,200 printers. At the time, the company offered several models, including Solidoodle 2, available in Basic, Pro, and Expert versions, each differing in price and functionality.

The release of Solidoodle 3 marked another significant step in the company's evolution, aiming to meet the increasing demand for larger and more advanced 3D printing solutions.

November 2012

2. voxeljet announced building three Aston Martin models for James Bond movie - Skyfall

On November 7, 2012, the German company voxeljet announced its involvement in the production of Skyfall, the latest installment in the James Bond franchise. voxeljet supplied three Aston Martin DB5 models, which were used in action scenes, replacing the original, priceless 1960s car. These models were 3D printed, ensuring a high level of detail and realism essential for a film of this scale.

The task of creating the Aston Martin models was commissioned by Propshop Modelmakers Ltd., a British company specializing in film props. Unlike traditional modeling methods, 3D printing enabled the precise reproduction of intricate details while allowing for the integration of functional elements.

Each model was divided into 18 components, which were then printed using the VX4000 printer, capable of producing objects up to eight cubic meters in size. The material of choice was PMMA (polymethyl methacrylate), known for its high durability and suitability for precise mechanical finishing.

Once printed and cleaned of excess material, the 54 parts of the three car models were transported to Pinewood Studios, near London. There, they were assembled, painted in the original color, finished with chrome-plated details, and weathered with realistic bullet holes. The final result was so highly detailed that in close-up shots, the models were indistinguishable from the real Aston Martin DB5. One of the models was used in an explosion scene, ensuring that the original, irreplaceable car remained intact.

voxeljet' contribution to Skyfall opened new opportunities in the film industry, showcasing the potential of 3D printing in creating highly realistic props.

November 2012

3. 3D Systems sued Formlabs for patent infringement, and Kickstarter for Formlabs promotion

On November 20, 2012, 3D Systems filed a lawsuit against Formlabs and the crowdfunding platform Kickstarter, alleging patent infringement related to stereolithography technology. The dispute centered around the Form 1 3D printer, which gained immense popularity on Kickstarter, raising over $2.9 million through its crowdfunding campaign. The legal battle lasted two years, featured numerous twists and turns, and concluded with a settlement on December 1, 2014.

3D Systems' lawsuit accused Formlabs of violating two key claims under U.S. Patent No. 5,597,520. The company argued that the use of this technology in the Form 1, as well as its promotion on Kickstarter, caused "irreparable financial and reputational damage." Kickstarter was also named in the lawsuit, as 3D Systems claimed that its 5% commission on funds raised made the platform partly liable for the alleged losses.

Formlabs contended that it had designed the Form 1 3D printer in compliance with the law, leveraging expired patents.

In November 2013, 3D Systems voluntarily dismissed the case against both Formlabs and Kickstarter, only to file another lawsuit the same day. This time, it accused Formlabs alone of infringing on an additional eight patents.

In December 2014, the dispute ended in a settlement. The details were not disclosed. The only known fact is that 3D Systems granted Formlabs a license for the patents involved in exchange for "8.0% of net sales of Formlabs products during the effective period."

November 2012

Other important events

11-08-12

Autodesk launched 123D Design, a free 3D modeling tool enabling users to create digital models for 3D printing across iPad, Mac, PC, and web browsers. The software featured intuitive design tools, pre-set kits, and base shapes to simplify the design process, making 3D modeling accessible to non-experts.

11-15-12

Solidscape presented the 3Z LAB wax 3D printer, designed for dental labs to streamline digital workflows. Priced at $25,650, it offered high precision for producing crowns, bridges, and copings with superior marginal integrity.

11-22-12

German RepRap introduced the PRotos X400, the largest 3D printer in the low-cost segment, featuring a build volume of 400 x 400 x 350 mm (56 liters). Designed for professional prototyping and small-batch production, it included a Direct-Drive-Extruder, high-quality components, and compatibility with Open Source RepRap software. The printer was priced at €1,589 (excl. VAT) and debuted at Euromold 2012.

December 2012

1. Cody Wilson launched DEFCAD.org - the largest archive of 3D-printed gun designs

On December 22, 2012, Cody Wilson launched DEFCAD.org, a file-sharing platform hosting blueprints and STL files necessary to 3D print firearms or their critical components. The platform was created in response to the removal of such files from MakerBot's Thingiverse platform just two days earlier.

On December 20, 2012, Thingiverse, removed all firearm-related designs, citing its terms of service prohibiting such content. In response, that same day, Wilson registered the domain DEFCAD.org. Within two days, the platform was operational.

Wilson described DEFCAD.org as a response to the "censorship" implemented by Thingiverse. The site aimed to be a space where users could freely share and download firearm designs, provided the files were free of malware. Initially, DEFCAD.org was in its early stages; users couldn't upload files directly but could email them to Wilson's team, which then published them on the site. Within its first days, the platform featured 14 designs, with more queued for upload.

The platform became fully functional on March 12, 2013. One of the most notable uploads was the Liberator, the first fully functional 3D-printed plastic pistol. This design was downloaded tens of thousands of times within just a few days.

December 2012

2. SLM Solutions released SLM 500 HL metal 3D printer

On December 6, 2012, SLM Solutions unveiled the SLM 500 HL — one of the first metal 3D printers on the market featuring four lasers. The machine had a build chamber measuring 500 x 280 x 325 mm, enabling the production of large components in a single manufacturing cycle.

A key feature of the 3D printer was its configuration of four lasers: two 400 W lasers and two 1000 W lasers, operating within two independent heads. Each of these lasers worked on the same powder bed, significantly increasing the process speed. The use of "dual spot scanning" technology allowed the lasers to operate simultaneously, resulting in productivity up to three times higher compared to single-laser systems.

The SLM 500 HL employed an advanced powder bed fusion method based on two different laser beam profiles — "shell-core imaging." This approach enabled selective melting of the material with different power settings depending on the geometry and layer thickness. The layer thickness ranged from 20 to 200 micrometers, with a scanning speed of up to 15 m/s.

Additionally, the use of a continuous powder transport system eliminated the need for manual material refilling. The process of removing excess powder was also automated and conducted in a specially designed, interchangeable build chamber.

The SLM 500 HL offered a build rate of 70 cm^3/h, which was significantly higher than that of SLM Solutions' previous models. Thanks to its four lasers, different areas of the build chamber could be processed simultaneously, reducing the production time for large components. The modern cooling system and interchangeable build platform allowed the next production cycle to start without waiting for the previous print to cool down, further enhancing the device's efficiency.

December 2012

3. Sculpteo secured $2.5 million in funding from XAnge Private Equity and angel investors

On December 12, 2012, French 3D printing service provider Sculpteo announced that it had secured $2.5 million in funding from XAnge Private Equity and angel investors. The investment was intended to support the company's growth and expansion, particularly into the U.S. market.

Founded in 2009, by Éric Carreel and Clément Moreau, Sculpteo specialized in cloud-based 3D printing solutions, allowing both individual customers and businesses to order custom products based on 3D files. In 2012, the company introduced the first mobile applications for consumers, enabling them to design 3D models directly from mobile devices.

Sculpteo offered a wide range of services, including 3D printing via mobile apps, product customization tools, and integrated online stores. Its solutions made it easy for users to transform digital designs into physical objects, marking a significant step toward mainstream adoption of 3D printing technology.

The company quickly gained recognition in the market, becoming one of Europe's leading 3D printing service providers.

The December 2012 funding round played a key role in Sculpteo's further development, enabling the company to strengthen its international presence, with a particular focus on expanding operations in the United States.

December 2012

Other important events

12-01-12

Ultimaker launched its fully assembled 3D printer, featuring a large build volume of 21x21x20.5 cm, an Ulticontroller with LCD interface, and open-source hardware. Priced at 1699 Euro, it required final calibration before use. A limited edition of 25 signed units was also released to celebrate the launch.

12-03-12

Stratasys and Objet formally merged to form Stratasys Ltd., creating a global leader in additive manufacturing. The projected valuation was 3 billion dolars.

11-12-12

taulman launched 618 1.75mm Nylon Co-Polymer filament. The material, designed for RepRap 3D printers, offered high strength, chemical resistance, and machinability, enabling functional part production.

11-20-12

LeapFrog announced it had sold its 1000th 3D printer worldwide within nine months. Founded in March 2012 by TU Delft graduates, the company aimed to provide affordable 3D printers, with the Creatr model priced at €1,250.

Summary

The year 2012 ended in the AM industry with great hopes for the future. Paradoxically, the biggest controversy—3D printing of firearms and the DEFCAD platform—contributed to a massive surge in interest in 3D printing. Meanwhile, the launches of Formlabs, the Cubify brand, and MakerBot Replicator 3D printers finally allowed everyday users to access devices that not only worked but worked well.

The merger of Stratasys with Objet was also one of the most groundbreaking events in the industry - and not only in the industrial segment.

The year 2013 was shaping up to be even better...

TOP 2012 COMPANIES

1. **Stratasys & Objet**
2. 3D Systems
3. MakerBot Industries

...

- EOS
- envisionTEC
- Materialise
- SLM Solutions
- Solidoodle
- Solidscape
- voxeljet

TOP 2012 NEW COMPANIES

1. **Formlabs**
2. 3D Printing Industry
3. Afinia

...

- B9 Creations
- Blueprinter
- HYREL
- LeapFrog
- MiiCraft

TOP 2012 NEW 3D PRINTERS (I)

1. **SLM 500 HL**
2. Objet30 Pro
3. 3D Systems ZPrinter 850

...

- envisionTEC Perfactory Micro
- Mcor Iris full color
- Solidscape 3Z LAB
- Solidscape 3Z PRO
- Solidscape 3Z STUDIO

TOP 2012 NEW 3D PRINTERS (D)

1. **Formlabs Form 1**
2. MakerBot Replicator 2
3. 3D Systems Cube

...

- Afinia H-Series
- LeapFrog Creatr
- MakerBot Replicator
- Rostock Delta (RepRap)
- Solidoodle 3
- Stratasys Mojo
- Up! Mini

TOP 2012 EVENTS

1. **Stratasys & Objet merger**
2. Formlabs Kickstarter
3. 3D printed guns

...

- LayerWise makes first 3D-printed jaw implant
- Sculpteo raises $2,8 mln
- Shapeways opens NY factory

TOP 2012 PERSONALITIES

1. **Bre Pettis**
2. Avi Reichental
3. Cody Wilson

...

- Adrian Bowyer
- Hans Langer
- David Reis
- Iris Van Herpen

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