



Resin based 3D Printers gain traction in Professional/Industrial markets in 2016

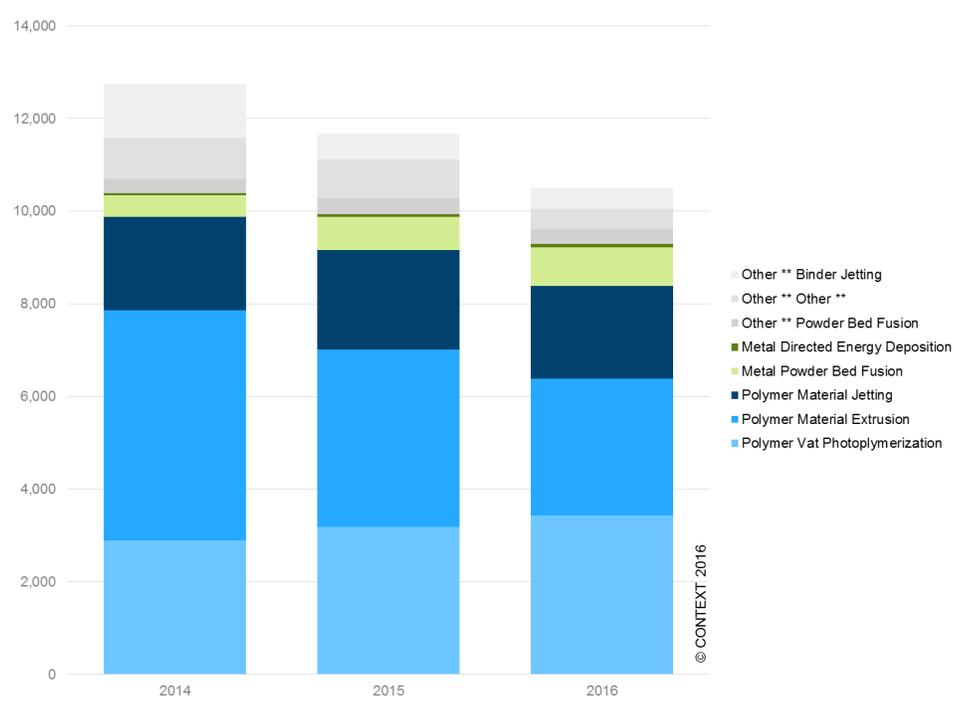
As Polymers look to join Metals in move into manufacturing, Resin and Powder technologies seem to have the near term edge

LONDON, 20th March 2017 – The worldwide Industrial/Professional* segment of the 3D Printing market again struggled in 2016, seeing -10% fewer printers ship for the year compared to 2015 mostly due to the difficulties on the polymers side in making headway into production and away from just prototyping.

Polymer technologies making the most headway into the manufacturing sector for 2016 included resin-based, Vat Photopolymerization printers (most commonly known as SLA or stereolithography but also including many other sub-technologies) and polymer Powder Bed Fusion printers (which include not only SLS - Selective Laser Sintering - technologies but also newer technologies like HP's MultiJet Fusion).

Resin based printers saw global shipments increase +8% in 2016, putting this category ahead of Material Extrusion as the top technology on the Industrial/Professional side of the market for the first time since 2000. Material Extrusion still dominates the total market (Industrial/Professional plus Desktop/Personal) however with the bulk of the Desktop/Personal printers being of this type.

Figure 1: 2014-2016 Polymer & Metal Global Industrial/Professional 3D Printer Shipments by ASTM Process



“While 3D printing in metals has already begun crossing this chasm into production, plastics are still largely stuck in prototyping, This is especially true in Material Extrusion,” noted Chris Connery, VP of Global Analysis for CONTEXT.

When considering Desktop/Personal 3D Printers, a category which again saw growth in 2016, with +33% more printers shipped in this sub \$5K category than a year ago, Material Extrusion still rules the market. This Desktop/Personal category of 3D Printers was once thought to be able to penetrate more deeply into mainstream consumer usage, but still largely caters to non-consumer markets such as education and even more and more into the professional realm, while still remaining popular with hobbyists. A notable trend has been the acceptance of Desktop/Personal 3D Printers for professional use over the last two years as this sub-\$5K Desktop category remains the gateway to 3D Printing for many and an important part of the ecosystem.

While the sale of Polymer based Industrial/Professional 3D Printers struggled again in 2016, metal-based systems again showed growth with both Powder Bed Fusion solutions and Directed Energy Deposition solutions seeing share gains. Powder Bed Fusion metal 3D Printers were up +17% while Directed Energy Deposition System sales were up +28% Y/Y.

Market leaders **Stratasys** and **3D Systems** both saw fewer Industrial/Professional 3D Printers ship globally in 2016 than in 2015 with notable Y/Y increases coming from **EnvisionTEC**, privately held **EOS**, **Concept Laser** (with heavy new investment from **GE**) and **SLM Solutions** with all but EnvisionTEC having metal as part of their portfolio.

EnvisionTEC showed some of the greatest growth Y/Y with a heavy emphasis on mass customization as opposed to mass production, evidenced by their focus on the Dental and Jewelry industries. Powder Bed Fusion solutions in Polymers saw a slight decrease in unit shipments for the year, with -3% fewer printers shipped in this category than in a year ago. New solutions on the powder polymer side which allow for faster or better throughput by the way of the use of multiple lasers (as for EOS) or new technologies for sintering powder (as for HP), show machine trends to be skewed a bit for the period however with overall growth still seen in this technology as evidenced by growing material sales.

As the Polymers side of 3D Printing shifts some of its attention toward production, the industry still needs to prove itself in terms of part repeatability, production of isotropic parts and materials cost.

* Industrial/Professional segment excludes sub \$5,000 Desktop/Personal 3D Printers.

** Other printer types and materials include Material Jetting, Sheet Lamination, Sand, Wax, Bio-matter, Ceramic/Gypsum, Paper and Composites.

About CONTEXT

CONTEXT's market intelligence, performance benchmarks and opportunity analysis empower clients to optimise operations and accelerate tomorrow's revenues. With over 30 years of industry partnership and of experience reporting on large datasets, CONTEXT delivers analytics at all points in the value chain, providing clients with actionable insights rooted in concrete data and a profound understanding of customer needs. CONTEXT is headquartered in London, with over 250 staff across the world.

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