

Figure 4® Solutions

Making 3D production real with scalable,
modular high-speed additive manufacturing



Productive and Cost-Effective Digital Molding Solutions for Production Environments

Figure 4 is the industry's first scalable, fully integrated 3D printing platform with ultra-fast speed enabling throughput improvement up to 15 times* over other 3D printing systems and up to 20 percent lower parts cost* compared to traditionally manufactured parts and operations.

DIGITAL MOLDING WITH FIGURE 4

Figure 4 technology delivers accurate parts with exceptional surface quality, rivaling traditional mold manufacturing, with ultra-fast print speeds enabling immediate part turnaround without the time, cost, and minimum order quantities (MOQ) of tooling.

Figure 4 platforms are highly productive, cost-effective solutions, ideal for fast product iteration, mass-customization, bridge manufacturing and production.

MODULAR PLATFORM GROWS WITH MANUFACTURING NEEDS

Delivered in configurable units for easy scalability, Figure 4 allows manufacturing capacity to grow alongside demand—from a standalone printer for rapid prototyping and low volume production to modular mid-volume direct production systems that grow as your volume grows, up to a fully-automated, fully-integrated factory solution.

THE FACTORY REDEFINED

Digital molding eliminates design limitations inherent to tooling constraints, enabling the production of high complexity parts for increased performance, design updates or customized goods with no cost penalty.

Your designs go from CAD to prototyping to manufacturing using a common technology to accelerate and simplify your manufacturing workflow and time-to-market.

FASTEST THROUGHPUT VIA TECHNOLOGY

Powered by the non-contact membrane Figure 4 technology, 3D Systems' Figure 4 platforms offer print speeds up to 100mm/hr. Print speed is complemented by a light-based UV curing process that takes minutes versus hours with heat-based curing processes to yield fast throughput and time-to-part.

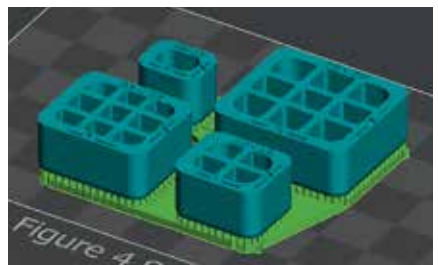
**Throughput improvement compared other 3D printing systems based on various use cases on Figure 4 Production; parts cost compared to traditionally manufactured parts and operations at a volume of 500 parts on Figure 4 Production*

FIGURE 4 SIX SIGMA REPEATABILITY*

	Figure 4 TOUGH-GRY 10	Figure 4 TOUGH-GRY 15
C _{PK}	2.46	2.03

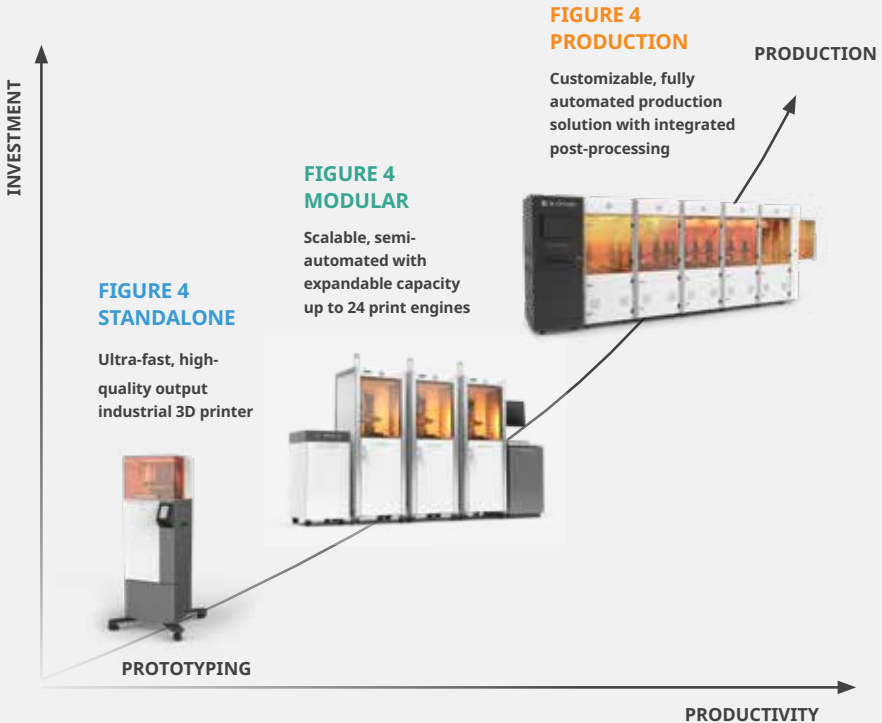
Note: A CPK of 2.0 equals 0.002 ppm out of spec, with inorganic parts in X - Y.

** Based on internal testing on Figure 4 platform, with +/- 100 µm/mm tolerances for the first 25 mm and an additional +/- 1 µm/mm above 25 mm*



Grow with Figure 4, from prototyping to production

Use Figure 4 for rapid functional prototyping and concept models, end-use durable plastic parts, digital texturing applications, elastomeric parts, rapid tooling of molds, master patterns and casting patterns, jigs and fixtures, and in replacement of traditional injection molding and cast urethane processes.



Our People Know



Getting the most out of any additive manufacturing solution requires the right materials, software, and hardware, connected by the right people.

For more than three decades, 3D Systems has demonstrated its industry leadership and expertise to assist manufacturers across a variety of industries redefine their workflows to realize the benefits of additive manufacturing.

3D Systems' experts can help you reach your next manufacturing goal with end-to-end products, services and support.

Figure 4 Production

Industry's first customizable, fully-integrated factory solution for direct production

Figure 4 Production packages the design flexibility of additive manufacturing in configurable, in-line production modules to deliver a customizable and automated tool-less production solution with six sigma repeatability. Features like automated material delivery and integrated post-processing reduce hands-on processes to streamline operations and lower total cost of operation.

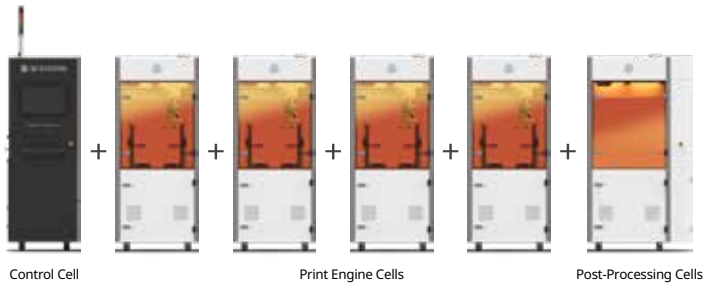


Figure 4 Modular

Scalable, semi-automated 3D manufacturing solution designed to grow with your prototyping and production needs



With expandable capacity up to 24 print engines, automated job management and queuing, automated material delivery, and centralized post-processing, Figure 4 Modular is a scalable, semi-automated 3D production solution that grows with your business. Offering unparalleled flexibility, each printer unit can run different materials and different jobs as part of a single high throughput line serving a multitude of parts being produced.

Figure 4 Standalone

Ultra-fast and affordable industrial 3D printer for rapid, same-day prototyping and low volume production



With a compact and easy-to-use design, Figure 4 Standalone offers quality and accuracy with industrial-grade durability, service and support at an affordable price and low total cost of operations. Featuring a manual material feed, it is augmented with separate post-processing accessories available for curing.

END-TO-END SOFTWARE SOLUTION FOR FIGURE 4 WORKFLOWS

Figure 4 solutions use 3D Sprint, 3D Systems' advanced software for file preparation, editing, printing and management from a single, intuitive interface. 3D Sprint enables the customer to significantly decrease cost of ownership of their 3D printers by reducing the need for costly software seats by third party vendors. 3D Sprint automatically generates exceptionally efficient supports requiring far less material, which can lead to significant savings.

A NEW LEVEL OF MANAGEMENT IN 3D PRODUCTION**3D Connect Service**

3D Connect Service provides a secure cloud-based connection to 3D Systems service teams for proactive and preventative support to enable better service, improve uptime and deliver production assurance for your system.

3D Connect Manage

3D Connect Manage helps customers manage and monitor equipment with anytime, anywhere access to print jobs, system performance metrics and usage.

Broad Range of Materials

3D Systems' Material Design Center has over 30 years of proven R&D experience and process development expertise. The materials available for Figure 4 include a broad and expanding range of industrial, dental and custom materials.

Figure 4™ TOUGH-GRY 10

High speed, rigid, dark gray material for production applications

Figure 4 TOUGH-GRY 15

Rigid gray material for production applications

Figure 4 FLEX-BLK 10

Flexible, exceptional durability, polypropylene-like black material for production applications

**Figure 4 ELAST-BLK 10**

Elastomeric black material for design and test applications

Figure 4 JCAST-GRN 10

Castable green material for jewelry applications

Figure 4 Standalone

Figure 4 Modular

Figure 4 Production

Productivity / Volume	Same-day prototyping (up to 6,000 parts/year)	Bridge manufacturing / Prototyping (up to 120,000 parts/year)	Production (120,000 – 1 million+ parts/year)
Production Capability	Manual operation	Semi-automated	Full Automation
Build Volume (xyz)	124.8 x 70.2 x 196 mm (4.9 x 2.8 x 7.7 in)	124.8 x 70.2 x 346 mm (4.9 x 2.8 x 13.6 in)	124.8 x 70.2 x 346 mm (4.9 x 2.8 x 13.6 in)
Print Speed	Up to 100mm/hr	Up to 100mm/hr	Up to 100mm/hr
Repeatability	Cpk > 2.0	Cpk > 2.0	Cpk > 2.0
Pixel Pitch	65 microns (0.0025 in) (390.8 effective PPI)		
Build Materials	Figure 4 TOUGH-GRY 10 – Rigid dark gray Figure 4 TOUGH-GRY 15 – Rigid gray Figure 4 FLEX-BLK 10 – Flexible black Figure 4 ELAST-BLK 10 – Elastomeric black Figure 4 JCAST-GRN 10 – Castable green	Figure 4 TOUGH-GRY 10 – Rigid dark gray Figure 4 TOUGH-GRY 15 – Rigid gray Figure 4 FLEX-BLK 10 – Flexible black Figure 4 ELAST-BLK 10 – Elastomeric black	30+ UV curable materials, including: • Industrial plastic resins • NextDent biocompatible dental resins • Orthodontic tooling resins • Custom materials (additional cost)
	Additional materials will be available in 2019, including a rigid black and translucent biocompatible material		
Software	3D Sprint for preparing and optimizing design file data and managing the additive manufacturing process. 3D Connect for proactive and preventative remote diagnostics, bringing IoT management to 3D production.		
Material Handling	Manual pour	Automated replenishment	Automated replenishment
Post-Processing	Optional centralized UV post-curing unit	Optional centralized UV post-curing unit	Optional integrated post-processing units

With the Figure 4 Modular or Production, taller build volumes are achieved for longer parts like this textured arm rest cover printed in Figure 4 TOUGH-GRY 10.



NOTE: Not all products and materials are available in all countries - please consult your local sales representative for availability.

Warranty/Disclaimer: The performance characteristics of these products may vary according to product application, operating conditions, material combined with, or with end use. 3D Systems makes no warranties of any type, express or implied, including, but not limited to, the warranties of merchantability or fitness for a particular use.



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