

# Figure 4<sup>®</sup> Modular

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



# Productive and Cost-Effective Digital Molding with Figure 4 Modular

Figure 4 Modular is a scalable manufacturing solution that grows with your business

## WIDE RANGE OF APPLICATIONS

3D Systems' Figure 4 platform delivers high quality parts in a diverse range of robust materials. 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, jigs and fixtures, and in complement of traditional injection molding and cast urethane processes.

## SPEED, ACCURACY AND REPEATABILITY THROUGH FIGURE 4 TECHNOLOGY

Our versatile Figure 4 solutions use projector-based imaging to quickly form each layer in a single image, combined with non-contact membrane Digital Light Printing (DLP) technology for ultra-fast print speeds up to 100 mm/hour. Throughput and time-to-part is further enhanced with a light-based UV curing process that takes minutes versus hours with heat-based curing processes, enabling same day print and ship.

Your designs go from CAD to prototyping to manufacturing using a common technology to accelerate and simplify your manufacturing process and time-to-market. Digital molding reduces development costs, increases productivity and eliminates tooling requirements. These systems also deliver repeatable, true-to-CAD part accuracy with six sigma repeatability.

## GROW WITH FIGURE 4, FROM PROTOTYPING TO PRODUCTION

Figure 4 solutions allow manufacturing capacity to grow alongside demand—from a standalone printer for rapid prototyping to modular mid-volume direct production systems that grow as your volume grows, up to a fully-automated, fully-integrated production platform for a complete factory solution.



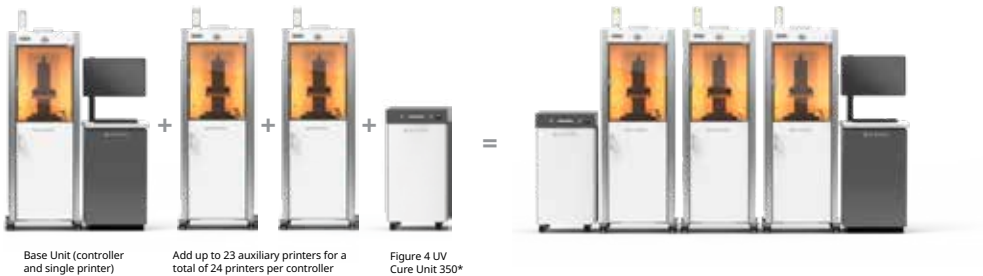
Produce parts up to 346 mm high with Figure 4 Modular

# Figure 4 Modular

## Scalable solution for same-day prototyping and direct 3D production

Figure 4 Modular is a scalable, semi-automated 3D production solution that grows with your business, enabling capacity to meet your present and future needs, up to 10,000 parts per month, for unprecedented manufacturing agility.

With expandable capacity up to 24 print engines, automated job management and queuing, automated material delivery, and centralized post-processing, Figure 4 Modular's end-to-end digital manufacturing workflow is ideal for low to mid volume production and bridge manufacturing. In addition, each printer can run different materials and different jobs as part of a single high throughput line serving a multitude of parts being produced.



### MODULAR SCALABILITY

The base configuration of Figure 4 Modular is comprised of a single printer and a central controller. This can be easily scaled to up to 24 printer modules on a single controller, with layout configuration flexibility, empowering production to rapidly multiply without disruption to the shop floor.

### LOW TOTAL COST OF OPERATIONS

Figure 4 Modular enables companies to move directly into manufacturing from a digital CAD file, bypassing tooling costs and delays to start delivering final parts immediately.

This semi-automated solution reduces labor through automated job management and queuing, and an automated material feed system.

### UNPARALLELED FLEXIBILITY

Figure 4 Modular's individual printers enable simultaneous production of a wide variety of part sizes and shapes, in multiple materials for a diverse range of parts for production and prototyping.

### END-TO-END PRODUCTIVITY

Fast and easy print jobs preparation, ultra-fast print speeds, post-curing in minutes instead of hours and production management ensure high parts throughput with high accuracy and repeatability.

Bumper plugs printed on Figure 4 platform in Figure 4 ELAST-BLK 10



\* UV curing is a required step for finishing parts, and 3D Systems has two light-based UV curing units available.

# 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 Modular include a broad and expanding range of materials.

## Figure 4™ TOUGH-GRY 10

High speed, ABS-like dark gray material for production applications

## Figure 4 TOUGH-GRY 15

Economical, ABS-like 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 validation of rubber-like parts

## Figure 4 TOUGH-BLK 20\*

Rigid ABS-like black material for production applications



## Figure 4 MED-AMB 10\*

Transparent biocompatible material capable of meeting ISO 10993-5, 10 criteria

## Figure 4 JCAST-GRN\*

Castable green material for jewelry applications

\* Expected availability in 2019

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

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## APPLICATIONS VERSATILITY - EXAMPLES



Electrical connector in Figure 4 TOUGH-GRY 10, TOUGH-GRY 15 AND ELAST-BLK 10



Painted automotive door handle in Figure 4 TOUGH-GRY 15



Rubber-like bumper plug prototype in Figure 4 ELAST-BLK 10



Textured gear shift cover in Figure 4 TOUGH-GRY 10



Re-manufacturing of legacy pilot knob in Figure 4 TOUGH-GRY 10



Customized ear buds in Figure 4 TOUGH-GRY 15



## 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.

# Post-Processing Units

Centralized UV curing post-processing units are available as part of the overall solution. UV curing is a required step for finishing parts and obtaining the final material properties. Figure 4 materials use a light-based curing process which takes minutes versus hours for heat-based curing processes. 3D Systems has two optional light-based curing units available:

## FIGURE 4 UV CURE UNIT 350

Equipped with 12 UV light bulbs placed inside of the four walls, the Figure 4 UV Cure Unit 350 achieves highly efficient and uniform curing of parts printed in Figure 4 materials. The interior allows you to place products on multiple layers to cure more parts at once, and is optimized for Figure 4 Modular parts at the maximum build height of 346 mm.

## LC-3DPRINT BOX UV POST-CURING UNIT

The LC-3DPrint Box is available for UV-curing parts and is the recommended UV-curing unit for Figure 4 Modular print materials for parts under 195 mm. The LC-3DPrint Box is a revolutionary UV light box equipped with 12 UV light bulbs strategically placed inside to ensure a product is illuminated from all sides, which results in a quick and uniform curing cycle.

Figure 4 UV Cure Unit 350



LC-3DPrint Box UV Post-Curing Unit

## Figure 4 Modular

Technology	Digital Light Printing (DLP)
Build Volume (xyz)	124.8 x 70.2 x 346 mm (4.9 x 2.8 x 13.6 in)
Print Speed	Up to 100mm/hr
Small Feature Accuracy and Repeatability	Cpk > 2.0
Max Resolution	1920 x 1080 pixels
Pixel Pitch	65 microns (0.0025 in) (390.8 effective PPI)
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.
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 TOUGH-BLK 20* – Rigid black Figure 4 MED-AMB 10* – Transparent biocompatible Figure 4 JCAST-GRN* – Jewelry casting
Material Handling	Automated replenishment
Configurations	Base unit (controller and a printer), scalable to a total of 24 printer units per controller
Post-Processing	Optional centralized post-curing accessories: 3D Systems Figure 4 UV Cure Unit 350 or LC-3DPrint Box

\* Expected availability in 2019



Digital texturing printed with Figure 4 technology in Figure 4 TOUGH-GRY 15

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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