

# DMP Flex 350 Triple

Three laser metal printing, Oqton's 3DXpert<sup>®</sup> software and advanced materials



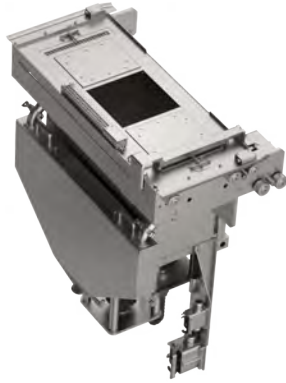
# DMP Flex 350 Triple

High precision, high throughput

Enjoy larger build volume and three-laser configuration in a compact frame. The DMP Flex 350 Triple provides an efficient and adaptable solution for metal part production. This printer includes the company's best-in-class vacuum chamber design, features full seamless stitching capability and extends the signature Removable Print Module (RPM) concept by supporting two distinct RPM modules with different build volumes.



350 x 350 x 350 mm RPM



275 x 275 x 420 mm RPM

## LARGER BUILD CAPACITY, SAME FOOTPRINT

The DMP Flex 350 Triple features an alternate RPM with a 350 x 350 x 350 mm build volume besides the standard RPM with 275 x 275 x 420 mm build volume. This renders the DMP Flex 350 Triple the most compact system that supports a 350 x 350 mm build area ideal for cost-effective processing of, for instance, impellers or cooling plates. Swap between RPMs for increased application and material flexibility.

## SEAMLESS THREE-LASER LOAD-BALANCED PRINT CAPABILITY

The DMP Flex 350 Triple utilizes advanced multi-laser load balancing and seamless surface quality scan strategies. There is no visible seam or perceptible change in roughness in zones where multiple lasers work together. The DMP Flex 350 Triple enables a productivity and throughput increase of up to 30% over the DMP Flex 350 Dual and DMP Factory 350 Dual.

## IMPROVED ARGON GAS FLOW SYSTEM

The DMP Flex 350 Triple has an upgraded argon gas flow system that pushes a steady stream of argon across the build plate, and strongly vacuuming it out at the back of the build chamber. This new system ensures the prompt and thorough removal of soot and condensate from the build area.

## EXPANDED CAPABILITIES

Leverage supportless printing with NoSupports\* technology, as well as Hybrid Alignment\* which blends the use of subtractive and additive processes.

## Typical DMP Flex 350 Triple Applications

### AEROSPACE & DEFENSE

Heat exchangers, EVTOL motor components, fuel injectors, swirlers, mixers, stator vanes, impellers

### CARBON CAPTURE

Gas contactors, heat exchangers, gas condensers

### MEDICAL

Tibial knees, hip cups, surgical guides

### TRANSPORTATION

Brackets, housings, heat exchangers, manifolds, conforming cooling tools, heavy duty tool inserts, battery and electrical terminal components

### SEMICONDUCTOR

Wafer tables, fluid manifolds, linear stage coolers, showerheads, gas feeders & mixers

### ENERGY

Stator vanes, impellers, turbine blades, blisks and other components

## Go Further with Direct Metal Printing

### UNLOCK YOUR PRODUCT'S POTENTIAL

With complete design freedom, direct metal 3D printed parts can be stronger, lighter, longer lasting and higher performing than machined or cast assemblies. Manufacture superior performing products faster and at a lower cost compared to traditional fabrication methods.

### STREAMLINE SUPPLY CHAINS

With DMP, you have complete control over your production without relying on specialty components from suppliers. Print entire assemblies on demand, with fewer components.

### ACCELERATE TIME-TO-MARKET

Conduct R&D, develop prototypes and manufacture production parts all in the same system. DMP users design faster and shorten production times. Transform complex assemblies taking hundreds of hours to manufacture and assemble into a single high-value part printed in hours.

### INCREASE MANUFACTURING AGILITY

Metal additive manufacturing requires no tooling. You are able to quickly update designs and change production to meet variable market demands.

\*Contact our AIG Team to learn how you can utilize NoSupports and Hybrid Alignment in your application.

# DMP Flex 350 Triple Printer Specifications

Laser Power Type	3 x 500W Fiber laser <sup>1</sup>	
Laser Wavelength	1070 nm	
Single Build Volume (X x Y x Z) Height inclusive of build plate	275 x 275 x 420 mm (10.82 x 10.82 x 16.54 )	or 350 x 350 x 350 mm (13.78 x 13.78 x 13.78 in)
Layer Thickness	Adjustable, minimum 5 µm, typical values: 30, 60, 90 µm	
Metal alloy options for dual laser configurations:	LaserForm AlSi10Mg (A) LaserForm AlSi7Mg0.6 (A) LaserForm Ni625 (A) LaserForm Ni718 (A)	Certified HX (A) Certified A6061-Ram2 (A) LaserForm 316L (A) CP1
Material Deposition	Soft blade recoater	
Repeatability	Δx (3σ) = 60µm, Δy (3σ) = 60µm, Δz (3σ) = 60µm	
Minimum Feature Size	200 µm	
Typical Accuracy	± 0.1-0.2% with ± 100 µm minimum	
Build Platform Heating	250°C	

## SPACE REQUIREMENTS

Dimensions, uncrated (WxDxH)	2360 x 2400 x 2870 mm (93 x 95 x 113 in) <sup>4</sup>
Weight, uncrated	Approx. 4200 kg (9240 lbs)

## FACILITY REQUIREMENTS

Electrical Requirements	400 V/15 KVA/50-60Hz/3 phase
Compressed Air Requirements	6-10 bar
Gas Requirements	Argon, 4-6 bar
Water Cooling	Chiller supplied with printer

## QUALITY CONTROL

DMP Monitoring	Optional
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## CONTROL SYSTEM AND SOFTWARE

Software Tools	Oqton's 3DXpert all-in-one software solution for metal additive manufacturing
Control Software	DMP Software suite
Operating System	Windows 10 IoT Enterprise
Input Data File Formats	All CAD formats, e.g. IGES, STEP, STL, native read formats incl PMI data, all Mesh formats
Network Type and Protocol	Ethernet 1 Gbps, RJ-45 plug

## ACCESSORIES

Interchangeable Build Modules	Optional secondary Removable Print Modules (RPMs) for fast material changeover
Volume Reduction Kit on removable print module with 275 x 275 x 420 mm build volume	Optional

## POWDER MANAGEMENT

Powder Management	Optional external
Material Loading	Manual

## CERTIFICATION

CE, NRTL

<sup>1</sup> Maximum laser power at powder layer is typical 450W for 500W lasers <sup>2</sup> Set up A <sup>3</sup> Set up B <sup>4</sup> Height exclusive of signal tower \*Only for evaluation purposes through AIG Services in the United States

# Metal Alloys for the DMP Series

3D Systems' broad range of ready-to-run LaserForm materials is formulated and fine-tuned specifically for 3D Systems' DMP printers to deliver high part quality and consistent part properties. 3D Systems provides a print parameter database that has been extensively developed, tested and optimized with materials in 3D Systems' part production facilities. These facilities hold the unique expertise of printing over one million challenging metal production parts in various materials year over year.



Heat exchanger with complex cooling channels in LaserForm AlSi10Mg (A)



Minireactor for scale testing built in LaserForm 17-4PH (A)



Gas burner with integrated cooling channels in LaserForm Ni718 (A)



Dental partials, copings and bridges in LaserForm CoCr (C)



High corrosion resistant impeller in LaserForm 316L (A)



Blow mold with conforming holes in LaserForm Maraging Steel (B)



Turbine vane with corrosion resistance at high temperatures in Certified HX (A)



High thermal heat transfer heat exchanger in Certified CuCr2.4 (A)



Short wavelength EMS collimator in Certified Tungsten (A)



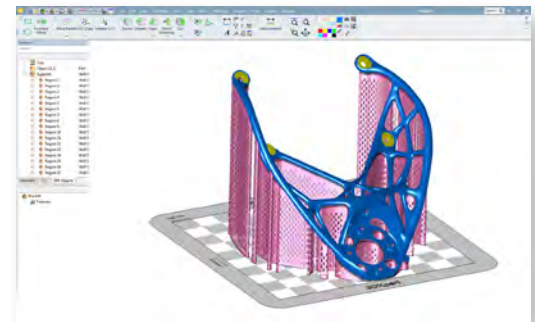
Belled end reducer in Certified CuNi30 (A)

\* Availability varies by printer model



## DMP MONITORING FOR REAL-TIME PROCESS MONITORING

Advanced Manufacturing requires close monitoring of process variables. DMP Monitoring is a process monitoring and non-destructive quality control system, providing a wealth of data for informed decisions on product quality and also serving as process traceability and documentation for highly regulated industries.



## FASTER DATA PREPARATION AND EXCEPTIONAL BUILD OPTIMIZATION

Oqton's 3DXpert precision metal printing software, is delivered with every DMP printer. Benefit from intelligent design tools and fast build preparation, relying on the extensively tested build parameter database for your material of choice. No other software lets you localize print strategies for increased precision of metal parts.

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