DMP Flex 350 Triple

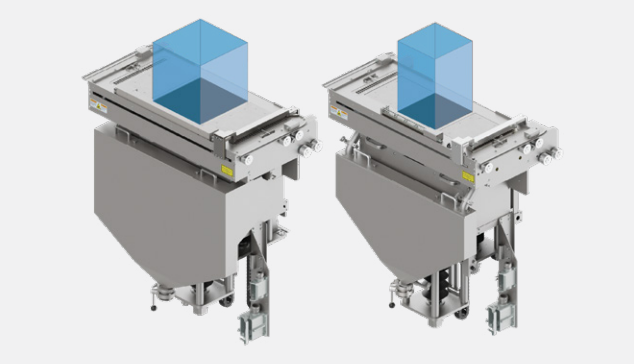
Three laser metal printing, Oqton's 3DXpert® software and solid baseline parameters on industry-standard alloys for reliable metal production.

3D SYSTEMS
Additive Manufacturing Solutions

DMP Flex 350 Triple

TRUSTWORTHY, CONSISTENT AND ALWAYS READY TO GO

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 allows the user to select from two RPM options. The optional larger area 350 x 350 x 350 mm build volume, or the standard 275 x 275 x 420 mm build volume with a taller z-height. This enables the DMP Flex 350 Triple to be the most compact system with a 350 x 350 mm build area for more cost-effective processing of parts such as impellers or cooling plates. Swap between RPMs for increased application and 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 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.

Typical Applications for DMP Flex 350 Triple

MEDICAL
Tibial knees, hip cups, surgical guides

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

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

ENERGY
Stator vanes, impellers, turbine blades, blisks, cryogenic components

CARBON CAPTURE
Gas contactors, heat exchangers, gas condensers

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

Go Further with Direct Metal Printing

- **UNLOCK YOUR PRODUCT'S POTENTIAL**
  With complete design freedom, directly printed metal 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 varying 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[1]
Laser Wavelength	1070 nm
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:	LaserForm AlSi10Mg (A) LaserForm AlSi7Mg0.6 (A) LaserForm Ni625 (A) LaserForm Ni718 (A) LaserForm TiGr5 (A) LaserFrom TiGr23 (A) Certified CuNi30 (A)[2] Certified HX (A) Certified A6061-Ram2 (A) LaserForm 316L (A) Aheadd® CP1
Material Deposition	Soft blade recoater
Repeatability	Δx (3σ) = 60um, Δy (3σ) = 60um, Δz (3σ) = 60um
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)[4]
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
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
Build Volume Reduction Kit	Optional, reduces build volume to Ø100 mm x 160 mm Build Volume Reduction kit only compatible with 275 x 275 x 420 mm RPM
POWDER MANAGEMENT	
Powder Management	Optional external
Material Loading	Manual
CERTIFICATION	CE, NRTL

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

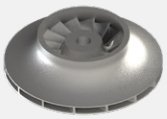
[2] Only available on the 350x350x350 mm sized build volume

Metal Alloys Options

3D Systems' broad range of premium LaserForm materials are 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.

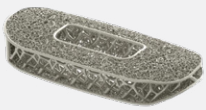
A cooling table in LaserForm AlSi10Mg (A) that leverages aluminum's good thermal conductivity and incorporate smart design features such as internal flow channels to efficiently transfer heat away from semiconductor devices

Volutes in LaserForm Ni718 (A) deliver excellent strength and toughness across a wide temperature range. The large internal channel of this particular design is printed without internal support structures



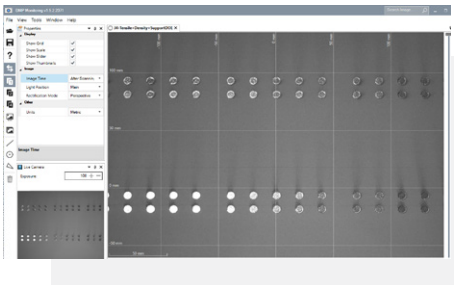
LaserForm 316L (A) offers solid tensile and yield strength for rotating components such as shrouded impellers, while providing robust resistance to oxidation and chemical attack in aggressive media

Nozzle guide vanes produced in LaserForm Ni625 (A) combine high oxidation and corrosion resistance with strength and integrity even above 1000 °C, and offer excellent creep and fatigue resistance to withstand cyclic thermal loads



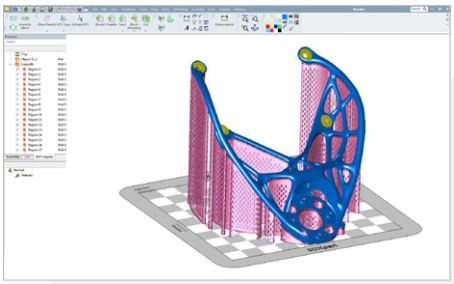
Spinal implants produced in LaserForm Ti Gr23 (A) benefit from low-oxygen powder bed fusion in a vacuum chamber that prevents alpha casing for improved fatigue performance, while offering biocompatibility and an excellent strength-to-weight ratio

Valve body in CuNi30 (A) with exceptional resistance to seawater corrosion and biofouling, while direct metal printing eliminates the typical porosity concerns associated with casting



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.