CLASSIC SYSTEM SERIES

OPTOMEC®
Production Grade 3D Printers... with a Material Difference

LENS® 1500 ADDITIVE MANUFACTURING CONTROLLED ATMOSPHERE SYSTEM

Proven Industrial Additive Manufacturing System for Repair, Rework, Modification and Manufacturing

LENS 1500 AM CA is a state-of-the-art Additive Manufacturing system, using advanced alloys to restore the functionality of high value metal components.

Impeller repaired by LENS 1500 AM CA System

LENS 1500 AM CA System

The LENS 1500 AM CA system offers a large 900 x 1500 x 900mm working volume, making it ideal for repair, rework and modification of large industrial components. The LENS 1500 AM CA uses a high-power IPG Fiber Laser to build up structures one layer at a time directly from metal powder. The resulting material has mechanical properties that can be equivalent to or superior than the original component. The 1500 AM CA offers a full range of features, including 5-axis CNC-controlled motion, closed loop controls, and full atmosphere control. These features, backed by Optomec's full application and service support, make the 1500 AM CA the system of choice for industrial additive manufacturing users.

KEY FEATURES

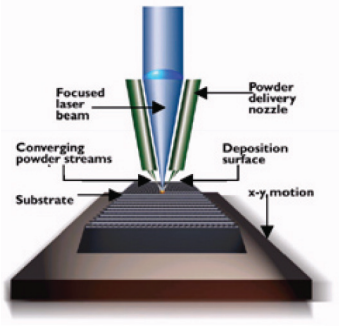
- Large working volume - ideal for blisks, impellers and shafts
- 5-axis motion - rotary and complex repairs
- Closed-loop controls – precision process control
- Fiber Lasers – reduced cost of ownership
- Full software suite – generate toolpaths rapidly
- Full atmosphere control – superior material quality

Common materials: Inconel Alloys, Stainless Steels, Titanium alloys

APPLICATIONS

- Repair of worn components
- Rework of mis-machined components
- Modification of tooling for re-use
- Hybrid Manufacturing
- Advanced Product Development

Laser Engineered Net Shaping

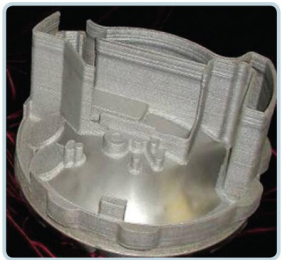


LENS® Deposition Head

How the LENS system works:

LENS systems utilize a high-power laser together with powdered metals to build fully dense structures directly from a 3-dimensional CAD solid model. The CAD model is automatically sliced into a tool-path, which instructs the LENS machine how to build the part. The part is constructed layer by layer under the control of software that monitors a variety of parameters to ensure geometric and mechanical integrity.

The LENS process is housed in a chamber which is purged with argon such that the oxygen level stays below 10 parts per million to ensure there is no impurity pick-up during deposition. The metal powder is fed to the process by Optomec's proprietary powder-feed system, which is able to flow small quantities of powder very precisely. When complete, the part is removed and can be heat-treated, Hot-Isostatic Pressed, machined, or finished in any other manner.



Defense Housing
Fabricated by LENS/CNC Process

Compressor Blade
Repaired by LENS System

Exhaust Duct
Fabricated by LENS System

LENS 1500 ADDITIVE MANUFACTURING CONTROLLED ATMOSPHERE SYSTEM

	SPECIFICATIONS	CS 1500 AM CA
AUTOMATION PLATFORM	XYZ Travel (mm)	900x1500x900
	Positional Accuracy (mm)	± 0.186
	Positional Repeatability (mm)	± 0.005
	Tilt Rotate Table	Standard
	Maximum Workpiece Size Ø, H (mm)	610x508
	Maximum Workpiece Weight "C" Orientation (kg)	1427
	Maximum Workpiece Moment "Vertical" Oreintation (Nm)	3920
	Rotary axis "C "(degrees)	360
	Tilt range "A" axis (+/- degrees)	± 90
	CNC Controller	Siemens 840D
	System Approx Weight (kg)	2900
	System Dimensions (mm)	2700x2700x2700
LENS DEPOSITION	CDRH Class 1 Air Tight Enclosure	Standard
	Antechamber Ø (mm)	375
	Pneuma Seal Door with Glove Access	Standard/4 Glove Ports
	Oxygen/Moisture Level (ppm)	<10
	Gas Purification and Recirculation System	Standard
	Standard Powder Feeders	Up to 4
	Laser Power Standard (W)	1000 - 3000
	Closed Loop Process Control	Option
	Thermal Imaging Pyrometer	Option
	2.5D Tool Path Software	Option
	5 Axis Tool Path Software	Option

ABOUT OPTOMEC

Optomec® is a privately-held, rapidly growing supplier of Additive Manufacturing systems. Optomec's patented Aerosol Jet Systems for printed electronics and LENS 3D Printers for metal components are used by industry to reduce product cost and improve performance. Together, these unique printing solutions work with the broadest spectrum of functional materials, ranging from electronic inks to structural metals and even biological matter. Optomec has more than 300 marquee customers around the world, targeting production applications in the Electronics, Energy, Life Sciences and Aerospace industries. For more information about Optomec, visit http://www.optomec.com.

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