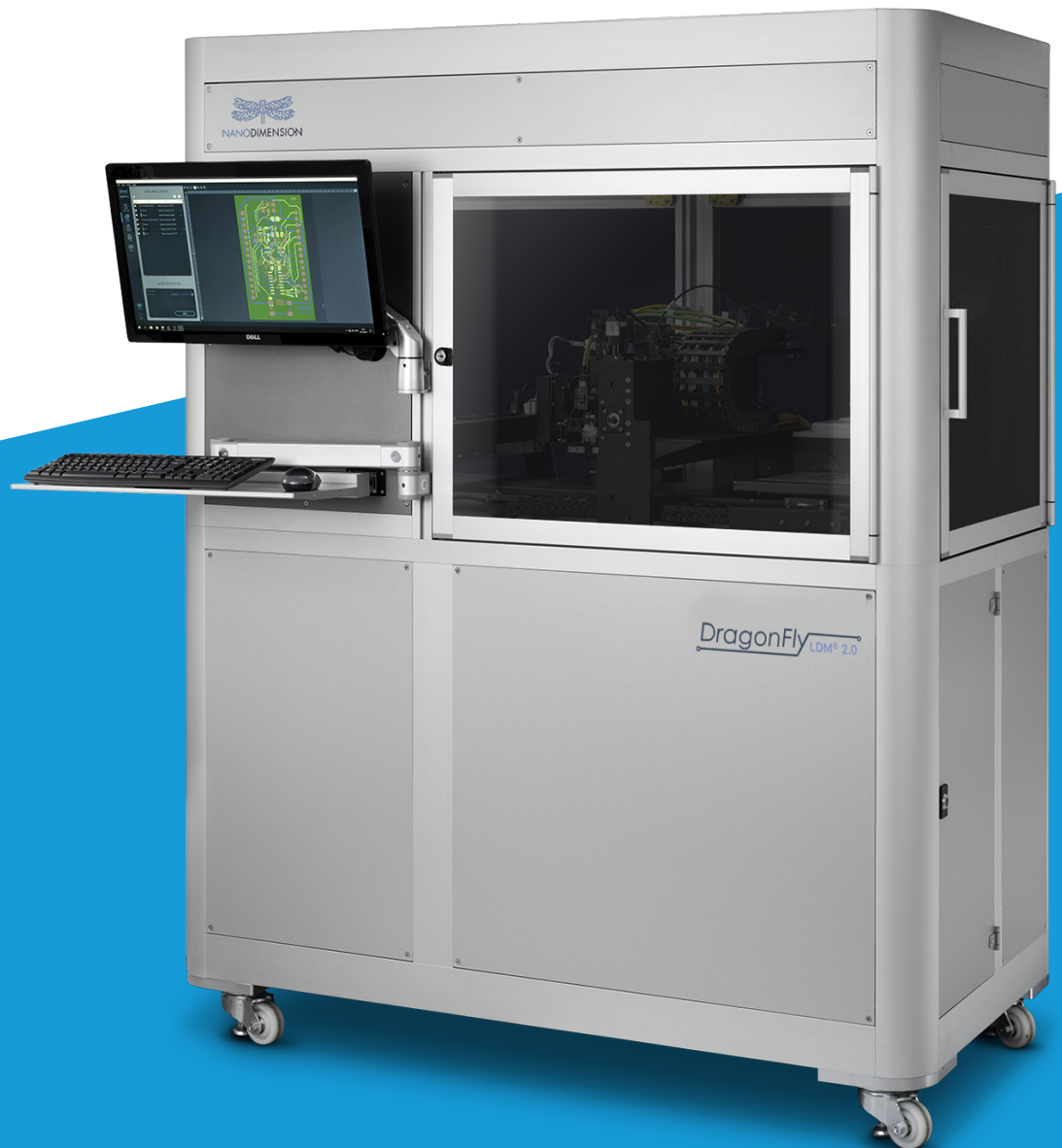




NANO DIMENSION  
Electrifying Additive Manufacturing®

# DragonFly LDM® 2.0

Lights-out Digital Additive Manufacturing  
for Printed Electronics



*DragonFly* LDM® 2.0

## Expanding Possibilities with Lights-out Digital Additive Manufacturing of Printed Electronics

Additively Manufactured Electronic (AME) functional circuits and devices can now be produced 24/7 with little to no operator intervention using the DragonFly Lights-out Digital Manufacturing (LDM®) 2.0 printer. A Nano Dimension product, the DragonFly LDM® 2.0 precision additive manufacturing system is the most advanced platform for rapid prototyping and low-volume manufacturing of high resolution, multilayered 3D printed electronics.

### Benefits of the DragonFly LDM® 2.0 Technology



#### 24/7

Enables long, uninterrupted runs round the clock, with minimal supervision, allowing an improvement of overall throughput of the system.



#### AUTOMATION

Automatic printhead management mechanism and algorithms, allowing for uninterrupted printing with minimal print job set up and preventive maintenance.



#### TIME

Reduces development cycles time. Enables on-site prototyping in a matter of hours instead of weeks, even for complex designs.



#### COST

Eliminates need for large order minimums. Provides the ability to discover design errors in early development stage with agile rapid prototyping.



#### COMPLEX GEOMETRIES

Enables expanded, non conformal design, unbounded by 2D planar limitations, to achieve improved miniaturization and real-estate utilization.



#### COMPONENT CONSOLIDATION

Multi-material Additive Manufacturing enables functional, compact, dense, non-planar electronics components.



#### SAFE AND ASSURED MANUFACTURING

Enables retention of sensitive IP in-house during development. Eliminates concerns relating to IP theft, infringement, data security and more.



#### SUSTAINABILITY

Limits environmental impact through optimized design, size & weight. Reduces waste with additive manufacturing capabilities.

## Applications and Capabilities:

- Printed RF Antennas
- Heterogenous Integration
- Multi-layer Electronic Circuits
- Side contacts
- Vertically integrated ICs
- Printed, embedded Capacitors
- Printed, embedded Coils
- Printed Coax
- Printed, embedded Sensors: torque, touch, strain gauge
- Converters: AC2AC, AC2DC, DC2DC with embedded printed coils.

## Industries:

- Aerospace
- Defense
- Medical
- Academic and Research
- Telecommunications
- Automotive and Industrial

## Best in Class 3D Printer for Electronics

The DragonFly LDM® 2.0 incorporates proprietary, state-of-the-art technology that enables 24/7 uninterrupted 3D printing, streamlined workflows and easy operation.

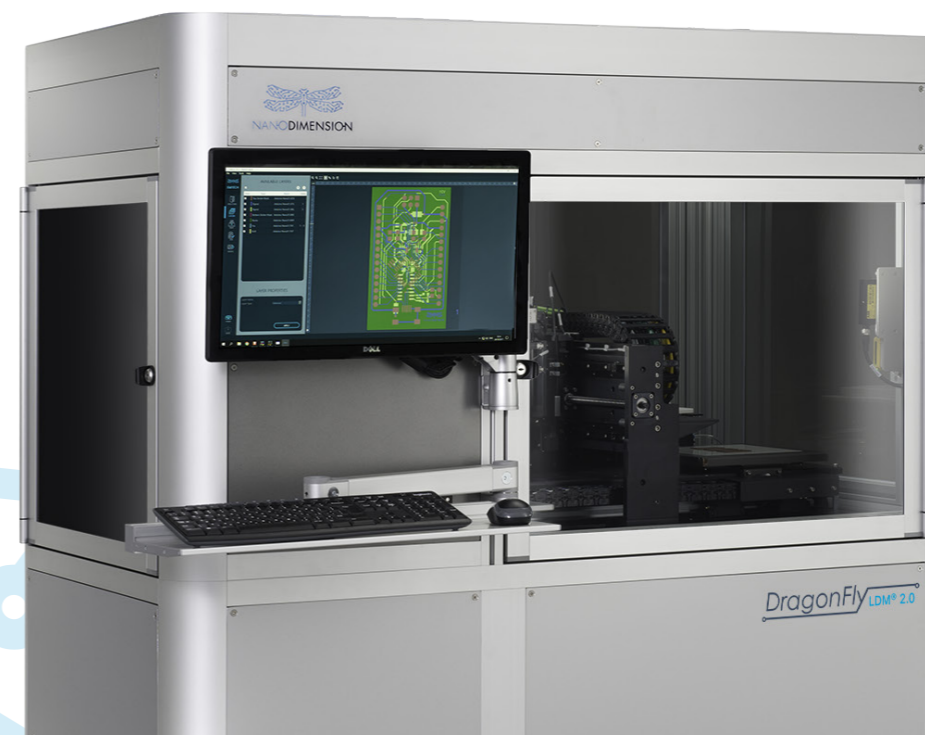
Users can now reduce demand on prototyping and short-run manufacturing resources and lower total cost of operation in comparison with traditional manufacturing methods.

The DragonFly LDM® 2.0 offers these benefits:

- High print quality
- Smart management for printer uptime
- Simple and fast operation
- Automatic print head maintenance and cleaning system

## Electrifying Additive Manufacturing

Nano Dimension (Nasdaq: NNDM) is a provider of intelligent machines for the fabrication of Additively Manufactured Electronics (AME). High fidelity active electronic and electromechanical subassemblies are integral enablers of autonomous intelligent drones, cars, satellites, smartphones, and in vivo medical devices. By developing the AME technology that enables smarter, cleaner, and faster manufacturing of High-Performance Electronic Devices (HI-PEDs™), Nano Dimension is the leading force behind a new wave of electrics production. For more information, please visit [www.nano-di.com](http://www.nano-di.com).



# DragonFly LDM<sup>®</sup> 2.0 Specifications\*

Deposition Technology	Piezo drop on demand inkjet
Number of Printheads	2, one for each ink: conductive and dielectric
Minimum Trace Layer Thickness	17 micron
Minimum Dielectric Layer Thickness (Prepreg)	25 micron
Inks	Optimized Silver nano particles and dielectric inks
Trace Conductivity Relative to Copper	Up to 30%
Dielectric Constant**	From 2.9 @ 200MHz to 2.69 at 20GHz
Build Volume	160mm x 160mm x 3mm
Mechanical Accuracy	0.001mm (1 micron)
External File Compatibility	Gerber & Excellon, STLs
Network Connectivity	Ethernet TCP/IP 10/100/1000
Dimensions	1400mm x 800mm x 1800mm
Weight	520Kg, (1150 lbs)
Power Supply***	230VAC, 20A, 50-60Hz
Operational Temperature	18°C (64°F) to 28°C (82°F)
Operational Humidity	Above 35% non-condensing
Regulatory Compliance	UL, CE, FCC

\* Based on current design rules (not the technical limitation of the system)

\*\* See Dielectric Properties table

\*\*\* Must use UPS

## Dielectric Properties Table

	200MHz	500MHz	1GHz	2GHz	5GHz	10GHz	15GHz	20GHz
Dielectric Constant (Dk)	2.80	2.81	2.81	2.80	2.78	2.76	2.75	2.78
Tangential Loss (Df)	0.000	0.004	0.006	0.011	0.012	0.013	0.013	0.012