NANODIMENSION
Electrifying Additive Manufacturing®

smartTec
smart technology products and solutions

DragonFly LDM™

Lights-out Digital Additive Manufacturing for Printed Electronics

DragonFly LDM™

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

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

Benefits of the DragonFly LDM Technology

24/7
Enables long, uninterrupted runs round the clock, with minimal supervision. This capability is designed to improve 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 times. Enables on-site prototyping in a matter of hours instead of weeks, even for complex designs.

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

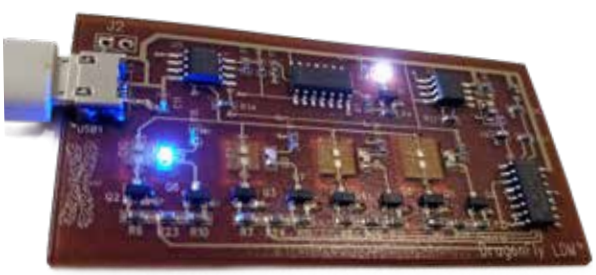
COMPLEX GEOMETRIES
Enables increased design capabilities & manufacturability of components. Added agility enables designing, testing and iterating in real time, on site.

COMPONENT CONSOLIDATION
Multi-material Additive Manufacturing enables functional, compact, denser, non-planar electronics parts.

CONFIDENTIALITY
Enables retention of sensitive IP in-house during development. Eliminates concerns and costs related to IP infringement.

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

DC2DC Transformer



Integrated Capacitor

Applications:

- Multi-layer Rigid Electronic Circuits
- Side contacts
- Vertically integrated ICs
- Printed Capacitors
- RF: Antennas up to 6Ghz,
- Transmission line up to 20Ghz
- BGA/SMT mounting
- Inductor: Coils
- Sensors: torque, touch, strain gauge
- Transformers: AC2AC, AC2DC, DC2DC

Industries:

- Aerospace and aviation
- Automotive and industrial
- Defense
- Consumer Electronics and IoT
- Academic and research
- Telecommunications
- Medical devices

Outstanding Performance and Best Maintenance Cost Reduction

The DragonFly LDM™ is the newest edition to the DragonFly family from Nano Dimension, incorporating proprietary, state-of-the-art technology that enables 24/7 uninterrupted 3D printing, improved uptime, streamlined workflows and easy operation.

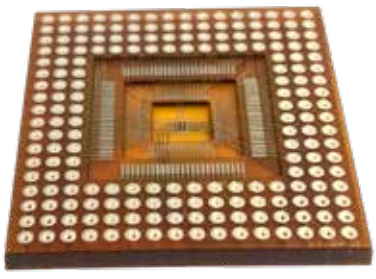
Companies can now reduce demand on prototyping and short-run manufacturing resources and lower total cost of operation in comparison to traditional manufacturing methods.

The DragonFly LDM offers these benefits:

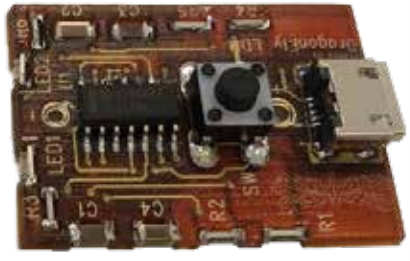
- High uptime/productivity, including weekends and holidays
- New, automatic print head maintenance and cleaning system
- Simpler and faster operation, including new warm-up plane
- Lower maintenance and operator interactions

Electrifying Additive Manufacturing

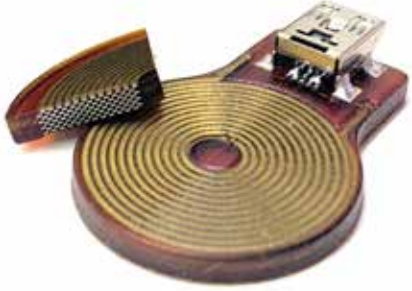
Nano Dimension (Nasdaq: NNDM) is a leading additive electronics provider of 3D printed electronics that is disrupting, reshaping, and defining the future of how functional and connected products are made. With its unique additive manufacturing technologies, Nano Dimension targets the growing demand for electronic devices that require sophisticated features. Demand for circuitry, including PCBs, sensors and antennas - which are the heart of electronic devices - cover a diverse range of industries, including consumer electronics, medical devices, defense, aerospace, automotive, IoT and telecom. These sectors can all benefit greatly from Nano Dimension's products and services for short-run manufacturing and rapid prototyping. For more information,
please visit www.nano-di.com



Vertical IC intergrated



Side mount



Inductor coil

DragonFly LDM™ Specifications*

Deposition Technology	Piezo drop on demand inkjet
Number of Printheads	2, one for each ink: conductive Ag nano particles and polymeric dielectric
Minimum Trace Layer Thickness	17 micron
Minimum Dielectric Layer Thickness	35 micron
Inks	Nano Dimension Optimized Silver nano particles and dielectric inks
Trace Conductivity Relative to Copper	5% to 30% process dependent
Dielectric Constant**	From 2.9 @ 200MHz to 2.69 at 20GHz
Build Volume	160mm x 160mm x 3mm
Mechanical Accuracy	0.001mm (1 micron)
properties	Proprietarty DragonFly and SWITCH
External File Compatibility	Gerber
Operating System	Windows
Network Connectivity	Ethernet TCP/IP 10/100/1000
Availability	> 85%
Dimensions	1400mm x 800mm x 1800mm
Weight	520Kg, (1150 lbs)
Power Supply***	230VAC, 20A, 50-60Hz
Operational Temperature	64°F (18°C) to 72°F (22°C)
Operational Humidity	35% - 55% non-condensing
Regulatory Compliance	UL, CE, FCC

* Subject to change
** See Dielectric Properties table
*** Must use customer provided 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

Manufacturer

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Distributor

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