

## CREATE FULLY FUNCTIONAL POPULATED ELECTRONIC DEVICES

LEVERAGE PROVEN TECHNOLOGIES TO GENERATE END-TO-END RAPID  
PROTOTYPING OF ADDITIVELY MANUFACTURED ELECTRONICS (AME)



DragonFly IV

- Multi-material, multi-layer PCB printer • Generates entire circuits
- Ensures IP protection
- Environmentally sustainable
- Designs from concept to validation
- Lowers R&D operation costs



fox.

- Combined place & dispense processes
- Small footprint
- Expandable in any direction
- Mineral cast chassis
- Nonstop feeder & production changeover
- Fast, durable linear motors

DragonFly IV® is a multi-material 3D printing system able to craft functional circuit boards and electronic devices within hours by simultaneously depositing proprietary conductive and dielectric substances, while integrating in-situ capacitors, antennas, coils, transformers, and electromechanical components.

Essemtec Fox is a proven surface-mount-technology (SMT) pick-and-place system that allows for printed circuit board (PCB) production. Only machine in the market that allows dispensing and pick-and-place in one system.

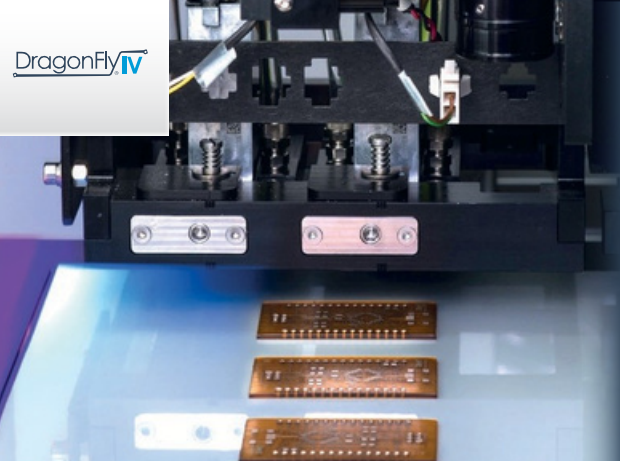
Side-by-side they are a complete AME prototyping solution that accelerates the assembly process, overcomes soldering challenges, protects IP, and creates supplementary internal synergy.

Solution compatible with both Dielectric 1092 and the new INSU™ 200 dielectric inks. Dielectric 1092 ink allows low temperature reflow soldering at 170°C and 200°C of all types of components including BGA. INSU200 with exceptional thermal properties, provides full support in standard SMT processes, allowing reflow soldering at 240°C.

MULTI-LAYER  
PCB PRODUCED  
ON DRAGONFLY  
AND FOX



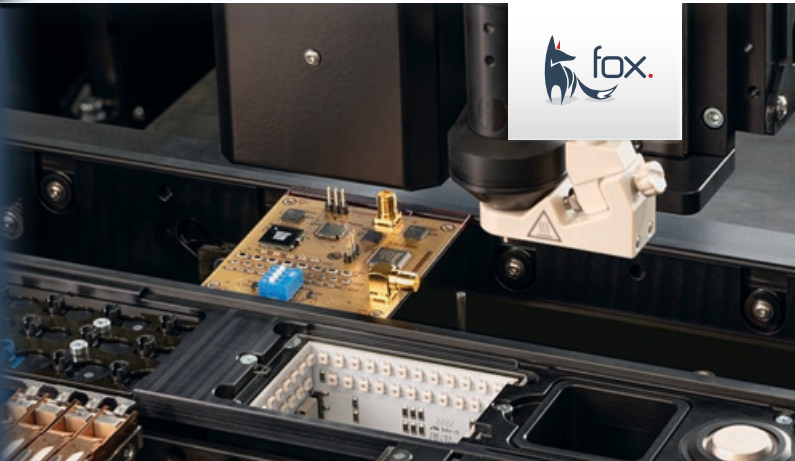
## COMBINING AME & SMT MAXIMIZES R&D POSSIBILITIES!



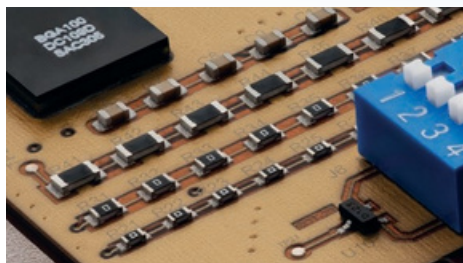
DragonFly IV

- PoC for 3D Hi-PEDs
- Build volume 160x160x3 mm
- Conductive and dielectric inks
- Conductivity 30%  $\pm$  5%
- 75/100  $\mu$ m L/S
- 150  $\mu$ m VIA
- Low thickness variation <5%
- IPC650 reliability tests: Mechanical shock, vibrations, IST & HATS
- Shear test MIL-STD-883K
- Footprint: 1400x800x1800 mm

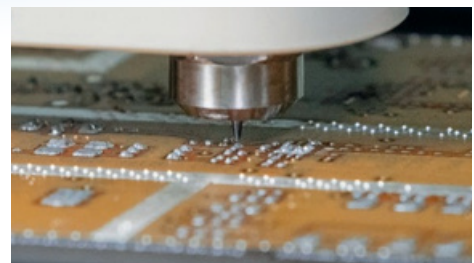
- 2 axis pick-and-place with 1 dispensing
- Component range: 008004 (imp.) - 80x80 mm •
- All types of BGA / Smallest BGA pitch: 400  $\mu$ m •
- Placement speed up to 12'000 cph
- Feeder package 4-72 mm tape
- Tray sliders for single components
- Solder paste jet valve build-in
- Dispensing speed up to 150,000 dph
- User-friendly software, Gerber file import
- Footprint: 880x1090 mm



fox.



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Nano Dimension® is a sole provider of intelligent machines that are changing the way the world manufactures. Our pioneering solutions are transforming design and production to match the efficiency demands of Industry 4.0.

Essemtec, a Nano Dimension division, leads the industry in adaptive SMT pick-and-place robotics and equipment for both high-speed- and micro-dispensing, as well as an intelligent production storage and logistic systems.