

CASE STUDY: DEFENSE

HENSOLDT — A BREAKTHROUGH IN RAPID PROTOTYPING FOR ELECTRONICS

Significant time reduction by use of AME-Electronics prototyping



CLIENT PROFILE

HENSOLDT is a pioneer of technology and innovation in the field of defense and security electronics. Based in Taufkirchen near Munich, the company is a German Champion with strategic leadership positions in the field of sensor solutions for defense and non-defense applications. HENSOLDT develops new products to combat a range of threats based on innovative approaches to data management, robotics and cyber security. With approximately 5,500 employees, HENSOLDT generated revenues of 1.14 billion euros in 2019.

www.hensoldt.net

BACKGROUND

HENSOLDT – a true pioneer and early adopter of disruptive technologies – has always immensely believed in the potential of additive manufacturing of electronics (AME). This made them a natural fit with Nano Dimension, becoming one of the first customers to purchase the DragonFly system in 2016.

CHALLENGE

Over the years, HENSOLDT had developed a robust in-house capability to produce complex PCBs. Their main challenge was, that the realization of a first prototype took several months until a proof of concept with a fully functional PCB could be tested. Working with clients in the defense arena, HENSOLDT often faced urgent demands to provide quick turnaround, so they needed a way to reduce prototyping time. However, while a two-sided population of components would enable such a reduction, no one had yet been able to offer a 3D printed board that could bear the soldering process necessary for two sides.

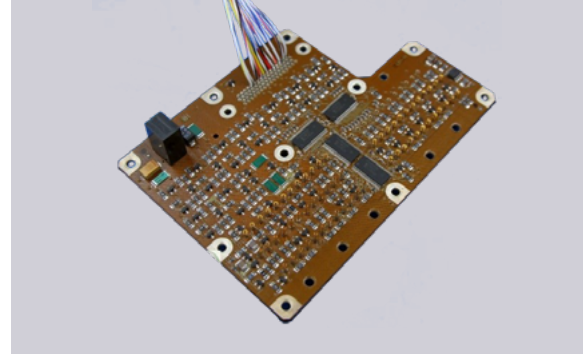
In 2019, HENSOLDT approached Nano Dimension to explore solutions to expedite the prototyping process.

SOLUTION

Nano Dimension provided HENSOLDT with their newly developed combination of dielectric polymer ink and conductive ink. This combination enables the creation of complex structures containing both blind and buried vias. It also enables the creation of a higher density board in a smaller space and lays the groundwork for digital inventory and on-demand production of individual parts.

Using this unique groundbreaking process, HENSOLDT was able to assemble the world-wide-first 10-layer printed circuit board (PCB) to carry high-performance electronic structures soldered to both outer sides. Moreover, the board was robust enough to withstand the assembly process and to pass every electrical test with flying colors.

The result of using this highly agile and individualized engineering methodology was that HENSOLDT was able to reduce the prototyping time of its new electronic circuitry from months to several days; an extraordinary achievement and truly a game-changer for the company, as it reduced not only the time but also the cost of the development process. Furthermore, by giving HENSOLDT a verified and approved design before they began production, ultimately led to a higher quality final product.



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“Military sensor solutions require performance and reliability levels far above those of commercial components. To have high-density components quickly available with reduced effort by means of 3D printing gives us a competitive edge in the development process of such high-end electronic systems.”

Thomas Müller,
CEO of HENSOLDT

