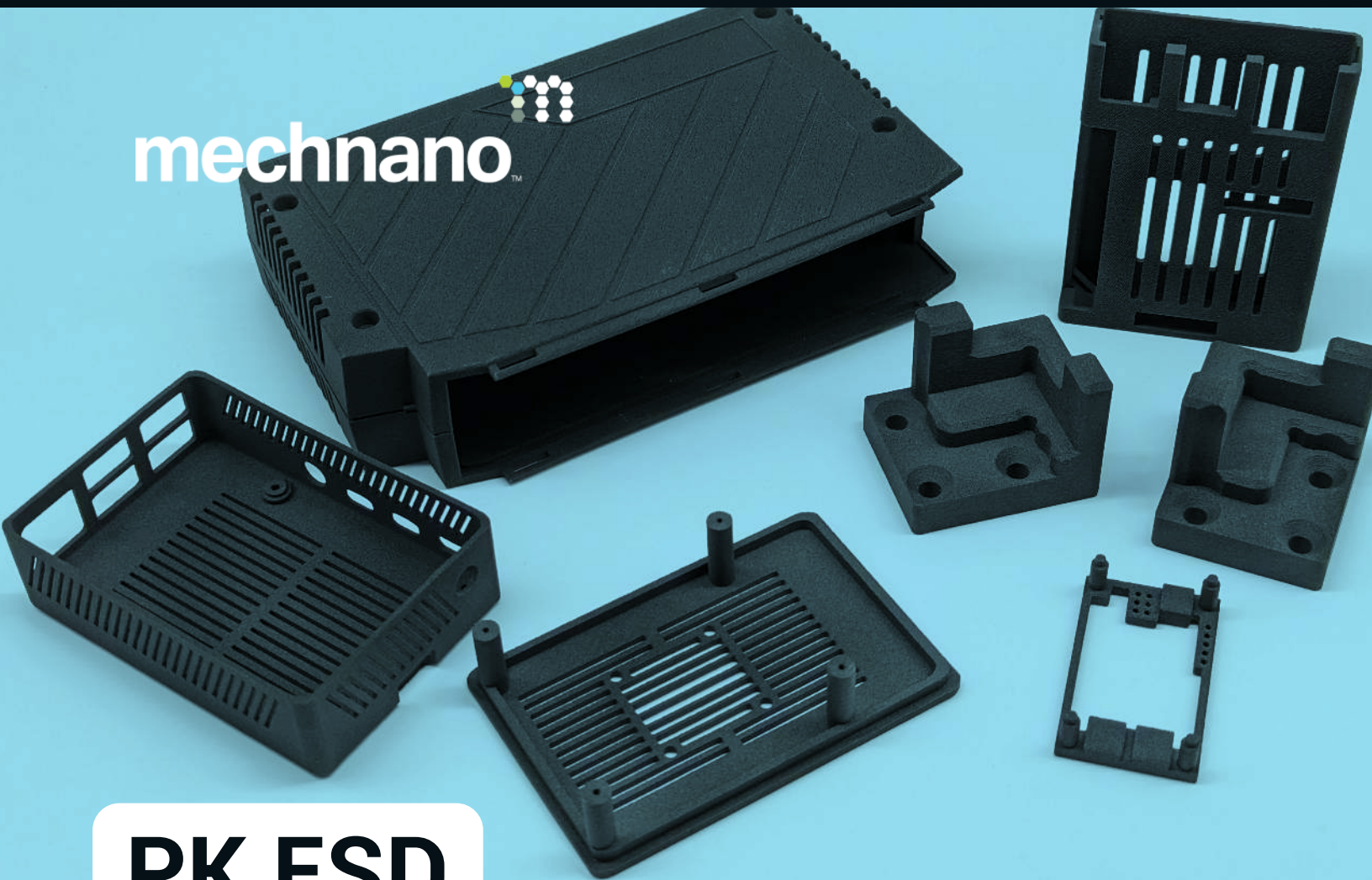




mechnano™



PK ESD

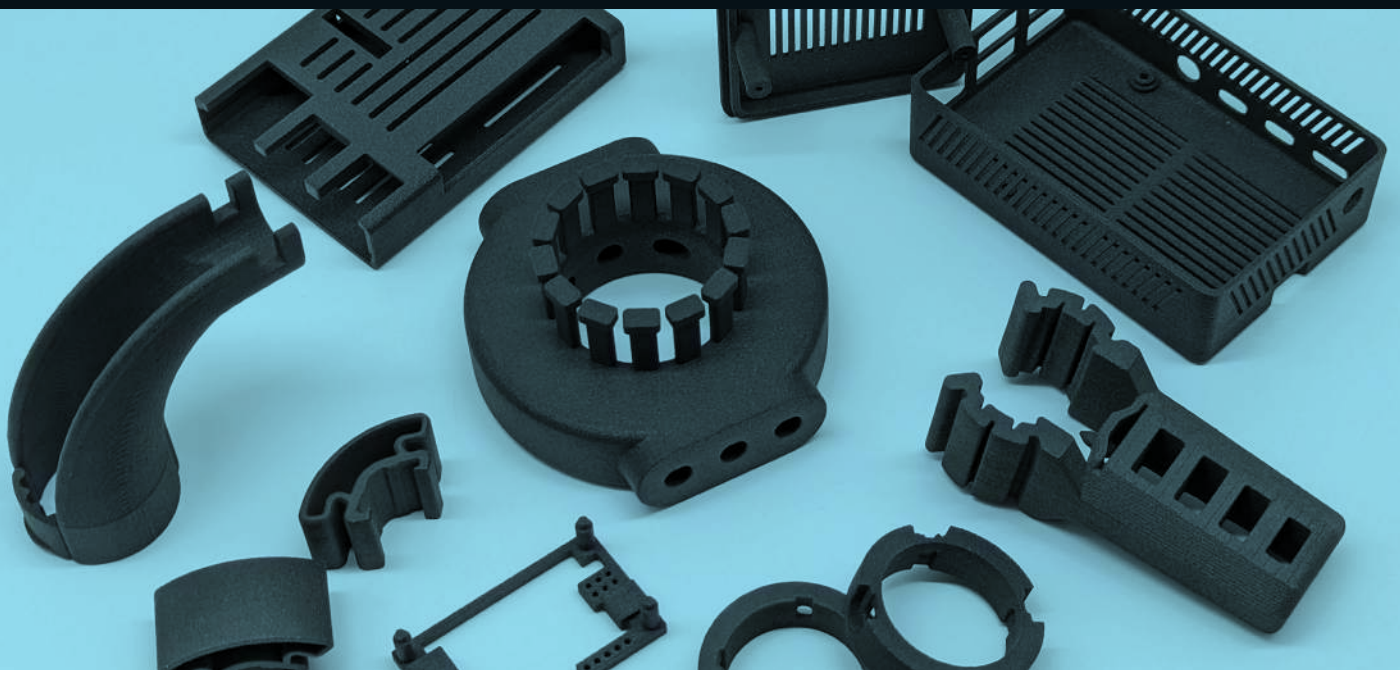
Empowering Large-Scale ESD Parts Production:

Innovate with Mechnano's PK ESD Material

Laser Sintering of Nano-Uniform ESD Parts for Harsh Environments

PK ESD is the first Laser Sintering powder to incorporate D'Func technology - Discrete, Dispersed, & Functionalized CNTs. This innovative material offers a unique blend of chemical and mechanical properties that facilitate the production of environmentally friendly components with exceptional impact strength, chemical and abrasion resistance, and enhanced elongation compared to traditional polyamides—ensuring durability during functional testing and usage. Additionally, the eco-friendly base polyketone resin used in PK ESD production is derived from carbon monoxide, providing a low-carbon alternative that may help reduce overall carbon emissions.

PK ESD Laser Sintering Powder signifies a major advancement in the fabrication of components with advanced electrostatic dissipative (ESD) capabilities by significantly reducing cost and lead time compared to traditional manufacturing methods.



Key Features & Benefits of PK ESD

- **Nano-Uniform ESD Performance:** Achieves isotropic 10^7 ohms surface resistivity, ensuring parts are safe from electrostatic damage while maintaining uniform ESD protection.
- **Exceptional Mechanical Performance:** Compared to commonly used polyamides (PA) in Laser Sintering processes, PK ESD stands out with:
 - Outstanding impact strength, IZOD notched 90 J/m (10-80% higher than PA ESD)
 - Heat deflection temperature 20-70°C higher compared to PA ESD, ensuring enhanced heat resistance
 - Exceptional elongation at break, surpassing 30%, while delivering comparable to PA tensile and flexural performance
- **Chemical & Water Resistance:** PK exhibits excellent resistance to a wide range of chemicals, including solvents, acids, and alkalis; PK displays lower hygroscopicity compared to PA6 and PA66.
- **Eco-Friendly Material:** Utilizes a Polyketone resin made from carbon monoxide, providing an environmentally responsible option that may help reduce the carbon footprint of manufacturing processes.
- **Cost-Effective Part Fabrication:** The production cost of 3×4-inch PCB enclosure reduces the unit cost to approximately \$2 compared to the traditional fabrication methods (~\$150) per part.
- **Efficient Part Manufacturing:** Certain static dissipative components, which typically require a lead time of 3 months, can now be manufactured in quantities exceeding 100 units in just one build job within a span of 24 hours.
- **Versatile Application:** Ideal for industries requiring ESD safe parts with high impact resistance and elongation, suitable for functional testing and use in demanding environments.
- **Accessible to All:** Available directly to laser sintering companies or as a white-label product, with Mechnano providing full support to interested end-users.

