

eGraf® Battery Thermal Management Solutions

TECHNICAL DATA SHEET 522

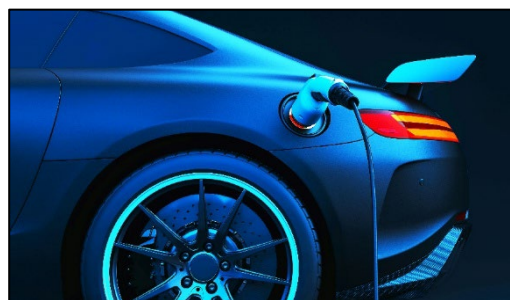
Product Overview

Next-generation electric vehicles (EVs), electric airplanes (ePlanes), and marine battery systems require rapid charging, high energy density, safety, and long lifespans. For this, they need thermal-management materials that are thin, lightweight, and durable. These materials must not only cool the cells under harsh charging and operating conditions but also prevent propagation in the event of a cell failure. SpreaderShield® flexible graphite is used as cooling fins between the cells of a pack or module. It directly replaces bulky, heavy aluminum fins in these lithium-ion battery packs, where being lightweight, compact, and safe is essential.

Applications

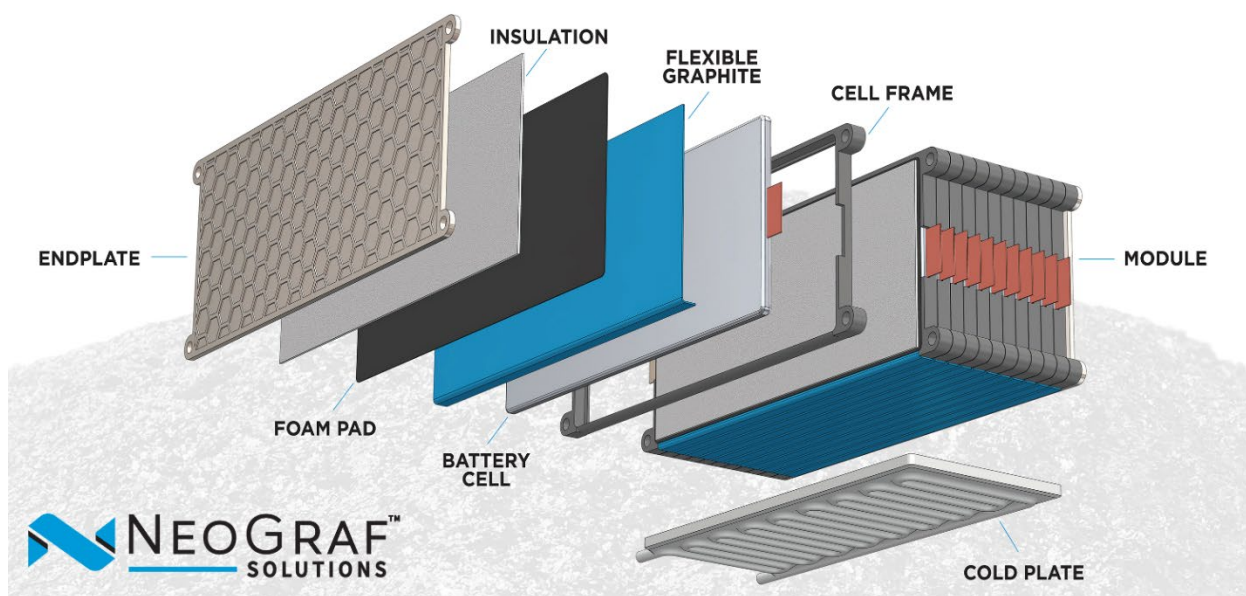
In EVs, ePlanes, and maritime battery systems, traditional thermal management metals, such as aluminum, result in battery modules and packs that are too thick and heavy to be practical. SpreaderShield flexible graphite cooling fins directly replace aluminum to:

- Extend cell lifetimes
- Enable fast charge and discharge operations
- Prevent propagation if a cell fails



Flexible Graphite Best Practice Module

SpreaderShield flexible graphite cooling fins are designed to attach directly to pouch and prismatic cells using the included pressure-sensitive adhesive. Additionally, a foam pad is often installed between cells to maintain consistent pressure between the graphite and the cell. The graphite evenly distributes heat across the cell, reducing hot spots and extending the cell's lifespan. It then transfers excess heat to the cold plate or heat sink, dissipating heat into the surrounding environment.



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SpreaderShield® Certifications

SpreaderShield flexible graphite cooling fins are made entirely of graphite (carbon) and wrapped in thin dielectric PET plastic laminates and meet the following standard environmental and chemical requirements.

- RoHS
- REACH
- UL 94 V-0
- Lead / Halogen-Free
- Conflict-Free

Graphite Physical Properties

Flexible graphite heat spreaders are thin, lightweight, and flexible. The general properties are listed below. For full specifications, please refer to TDS-321, TDS-322, and TDS-600.

- Thermal Conductivities of between 400 and 1000 W/m·K
- Thicknesses between 0.051 and 0.51mm
- Densities between 1.75 and 1.85 g/cm³
- Operating temperature from -40° to 140°C with plastic/adhesive coatings
- Operating temperature from -250° to 400°C without plastic/adhesive coatings
- Standard dielectric PET coatings with pressure-sensitive adhesive available

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All products are made or assembled in Lakewood, Ohio, USA

+1 (800) 253.8003 (Toll-Free in USA) | +1 (216) 529.3777 (International)

www.neograf.com | info@neograf.com | www.neograf.com/ask-an-engineer

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