

# SpreaderShield™ Flexible Graphite Cooling Fins

## TECHNICAL DATA SHEET 522

### Product Overview

Next-generation electric automotive, marine, and aviation batteries will need to charge quickly and have extended lifetimes. For this, they need thermal-management materials that are thin, lightweight, and long-lasting. These materials not only cool the cells under harsh operating conditions but must also prevent propagation in the event of a cell failure. SpreaderShield Flexible Graphite Cooling Fins directly replace thick and heavy aluminum in these lithium-ion transportation battery modules, where energy density, specific energy, safety, and performance are critical. For the same heat spreading as aluminum, graphite has half the thickness and a third of the weight.

### Applications

In battery-powered vehicles (EV, marine, aviation), traditional thermal management metals, such as aluminum, result in battery modules that are unacceptably thick and heavy. SpreaderShield Flexible Graphite Cooling Fins directly replace aluminum to:

- Extend cell lifetimes
- Enable fast charge/discharge operations
- Prevent thermal propagation in the event of a single cell failure

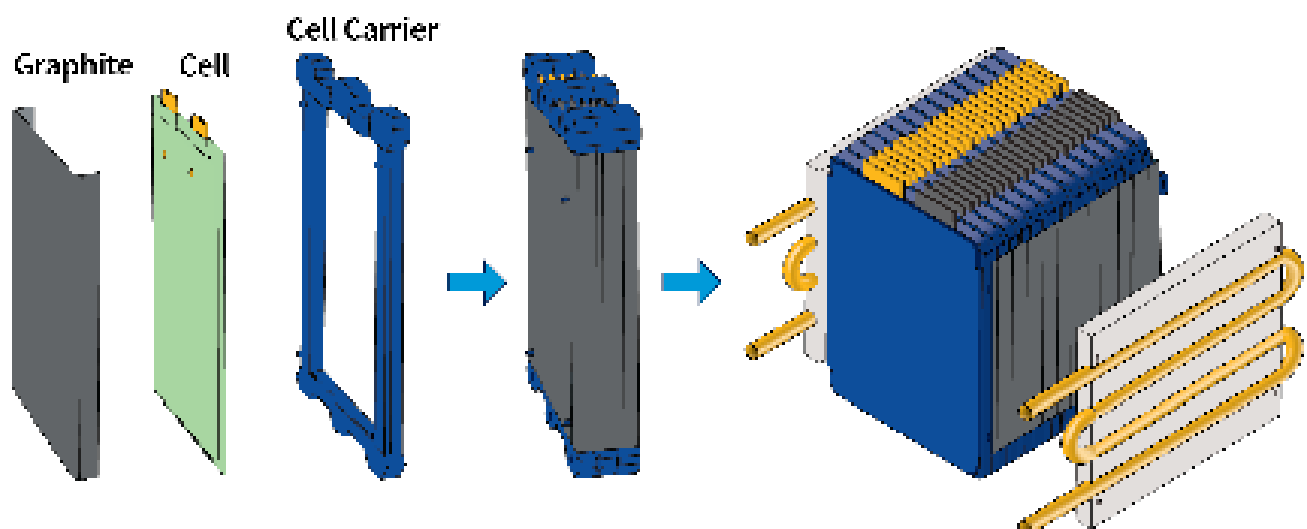
### Application Notes

SpreaderShield Flexible Graphite Cooling Fins are designed for direct aluminum substitution in pouch cell battery module designs. For Fast Charging and Extended Cell lifetimes, a foam pad is typically installed between cells to maintain a constant pressure between the graphite and the cell. For Thermal Propagation Prevention, an additional high-temperature film is typically added to seal each cell, helping prevent the escape of hot gasses. Please consult a NeoGraf Solutions Application Engineer for more design information.

### Certifications

SpreaderShield Flexible Graphite Cooling Fins are composed exclusively of graphite (carbon) enclosed in thin dielectric PET plastic laminates. As such, they meet all of the common environmental and chemical standards.

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



## Typical Properties\*

CHARACTERISTIC	UNIT	SS400	SS500
Product Thickness (Without Coatings)	mm	0.060 – 0.940	0.076 – 0.40
Thermal Conductivity (In-Plane)	W/m·K	400	500
Thermal Conductivity (Through Plane)	W/m·K	3.7	2.8
Roll Width	mm	355 – 610	305 – 508
Roll Length	m	30 – 100	30 – 100
Operating Temperature	°C	-40 to +150	-40 to +150
UL Flammability Rating	-	94 V-0 (Non-flammable)	94 V-0 (Non-flammable)
RoHS Compliant	-	Yes	Yes
Lead / Halogen Free	-	Yes	Yes
REACH Compliant	-	Yes	Yes
Conflict-Free Mineral	-	Yes	Yes
Dielectric Coatings	-	0.025mm PET plastic on the top and bottom surfaces	0.025mm PET plastic on the top and bottom surfaces
Adhesive Option	-	Pressure Sensitive Acrylic	Pressure Sensitive Acrylic

\* Note:

Properties listed are typical and cannot be used as accept/reject specifications. Please see NeoGraf Solutions Technical Data Sheet 321 and 322 for more information.

## Commitment to Excellence

NeoNxGen is produced in North America and meets or exceeds all environmental and quality standards in a sustainable manner.

- ✓ ISO 9001:2015
- ✓ RoHS
- ✓ California Proposition 65 Compliant
- ✓ Lead-free
- ✓ ISO 14001:2015
- ✓ Conflict-Free Minerals
- ✓ REACH

## Technical Support

Our global team of Application Engineers specializes in providing technical support to a wide variety of applications, design and modeling for the latest high-tech devices, fuel cells, industrial gaskets, fire-rated building materials, and LED lighting. With over 140 years of carbon and graphite innovation and leadership, we specialize in the development and manufacture of high-quality flexible natural and synthetic graphite sheets as well as expanded and expandable graphite powders.

Regardless of your product design phase (concept, prototyping, or mass production), we offer technical answers and thermal modeling support to some of your most challenging problems with a fast response time.



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10.27.2021