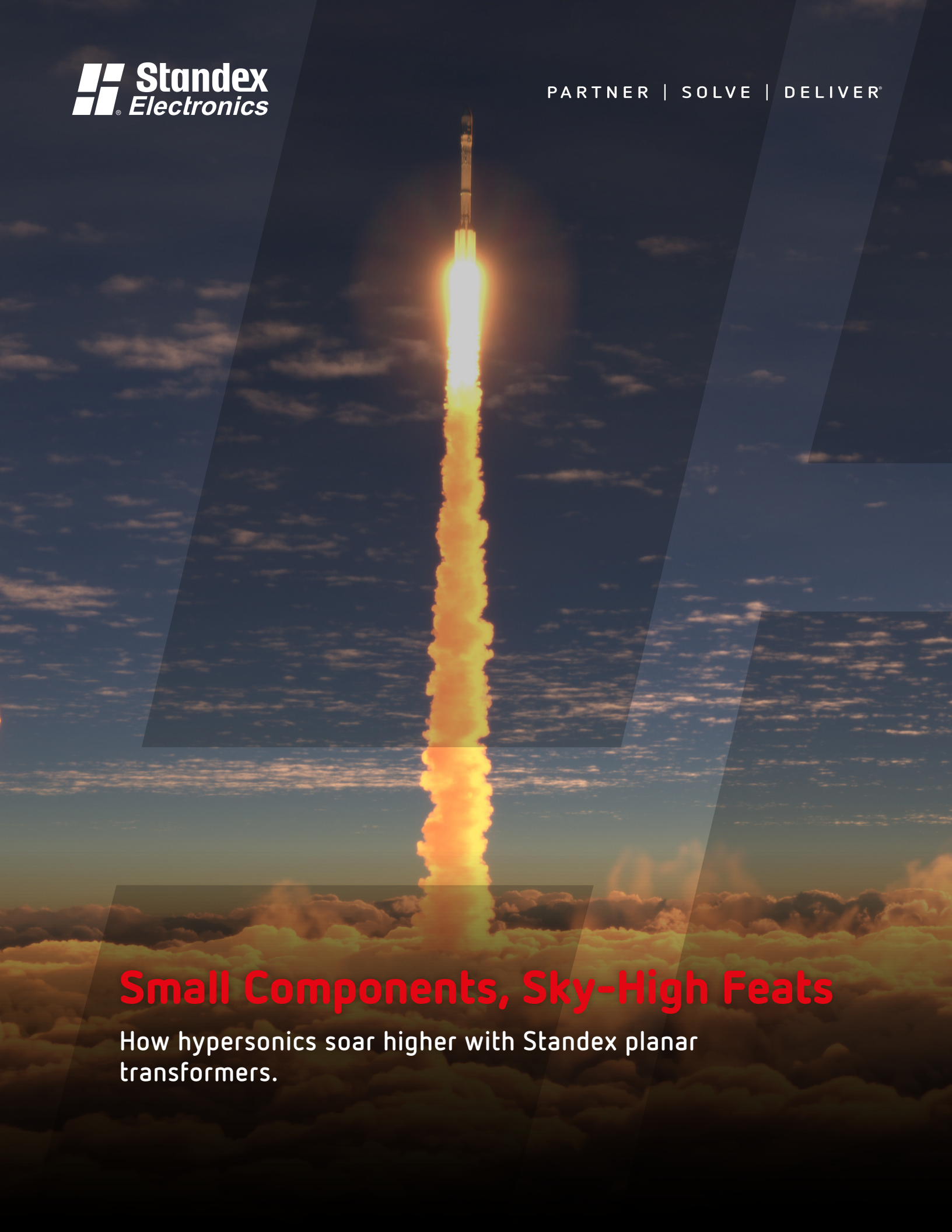


A full-page background image showing a hypersonic missile launching vertically from a cloud layer. The missile is a long, slender object with a conical nose, leaving a massive, bright orange and yellow plume of fire and smoke that extends from the clouds to the top of the frame. The sky above the clouds is a deep blue with scattered white clouds. The overall image has a high-contrast, dramatic feel.

Small Components, Sky-High Feats

How hypersonics soar higher with Standex planar transformers.

A hypersonic missile is shown in flight, angled upwards from the bottom left towards the top right. It is positioned just above the Earth's horizon, which is visible as a curved line with a blue atmosphere and white clouds. The background is the dark, star-filled expanse of space. The missile is white with a black crosshair on its nose. A faint blue trail is visible behind the base of the missile.

The Mission

When designing some of the world's most sophisticated hypersonics, every millimeter counts. You're aiming for extreme speed, pinpoint accuracy, and unshakeable reliability, all wrapped up in a package that's as compact and lightweight as possible. Every cubic centimeter saved means more room for other critical components — and smaller, more agile systems.

You might think increased capacitance and parasitic elements are an inherent planar design compromise. But not with Standex. Many of their designs use special techniques to minimize capacitance and parasitic losses. For this missile project, the Standex planar transformer solution offers a lower capacitance than competing wire-wound parts — an impressive feat for this lightweight, low-profile package.

This client in the defense industry ran into the problem head on. Building a hypersonic system with extreme height requirements proved challenging. The restrictions were so tight that, at first glance, many vendors turned away from the project. But not Standex Electronics.

Why pick planar transformers over **standard wire-wound designs?**

Lower Profile

Flat windings etched into a printed circuit board (PCB) reduce Z-height, allowing more turns within a flatter footprint.

Lightweight

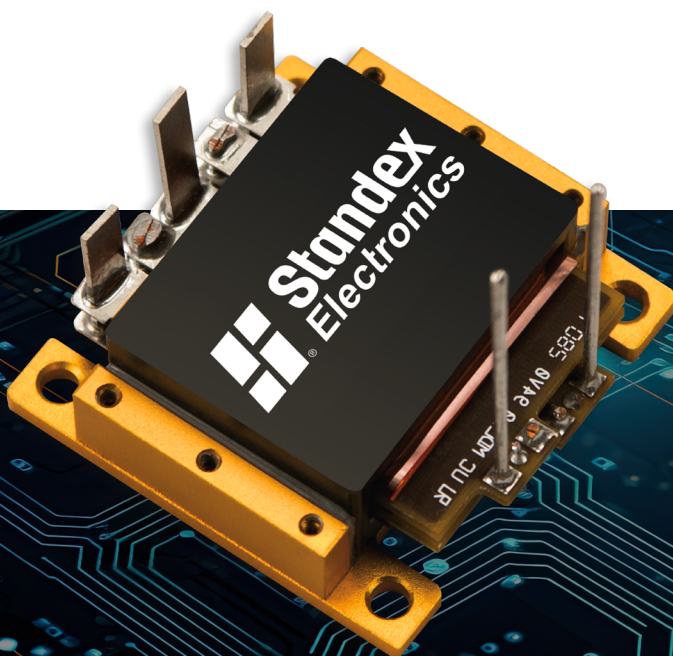
Compact and lighter for applications where space and weight come at a premium.

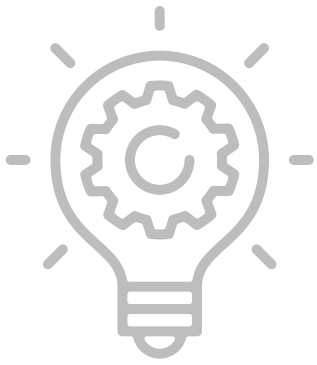
High Power Density

Squeeze higher power levels into tighter spaces. Power efficiency is unmatched at 99%+ while using significantly less material.

Improved Heat Management

Maintain operational reliability and prevent overheating. Flat winding structure makes planar components easier to cool.





The **Answer**

To balance power density and thermal dissipation, the team at Standex Electronics had to analyze every aspect of the planar transformer. From foundational concepts to the finest details, every element was reexamined, reimagined, and retooled from raw materials to bonding methods.

Rethinking Every Inch

Instead of choosing a conventional method for stacking parts, Standex opted for a technique that permitted thinner insulators and adhesives.

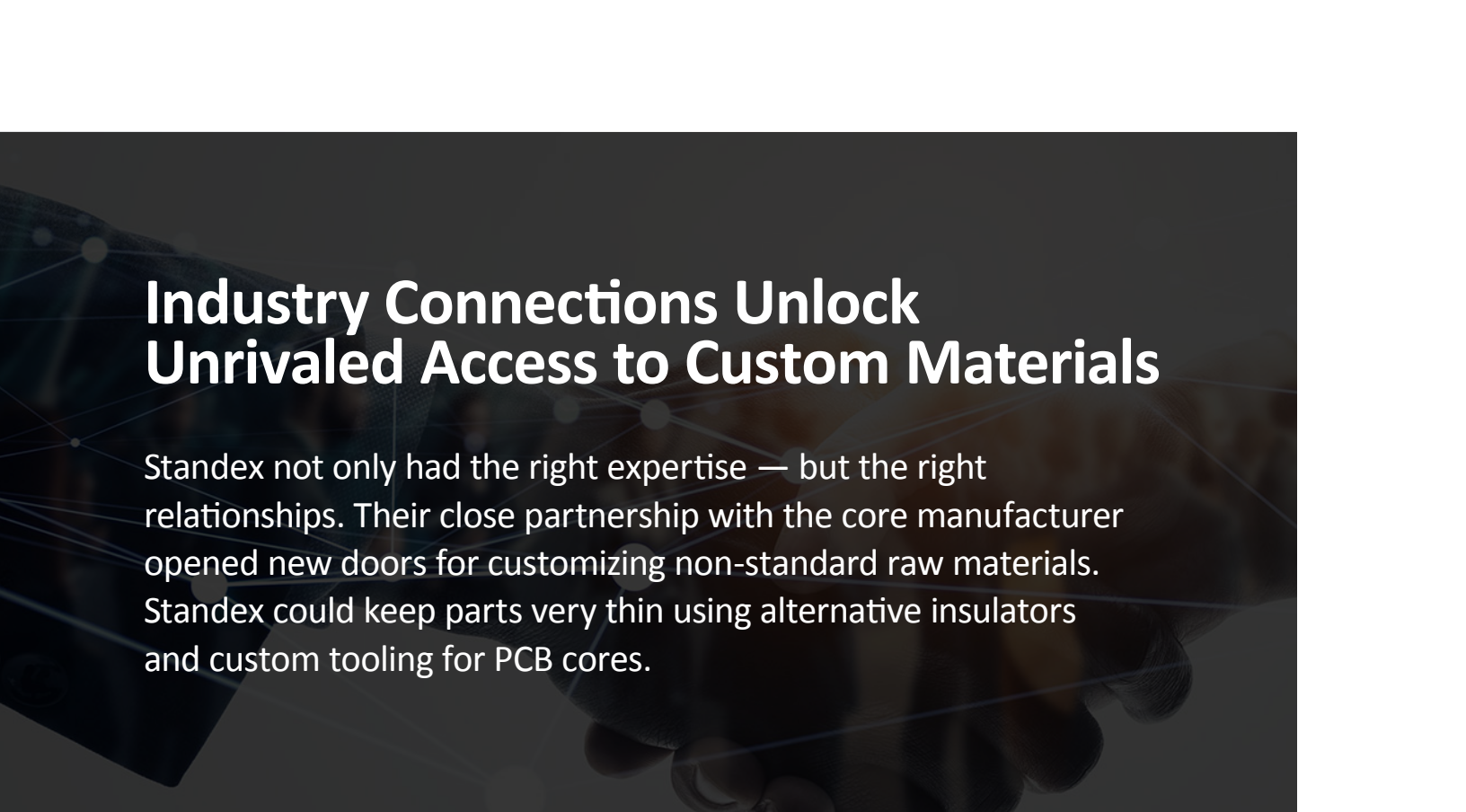
This decision controlled height tolerances to the client's precise needs. The final design was also more flexible: Standex could easily make changes to the winding with an ultra-fast turnaround.



Expert Simulation Techniques

Standex quickly familiarized themselves with the client's custom topology using sophisticated simulation programs.

Throughout the process, Standex ran several computer-aided tests to learn how the new magnetic part would work with the client's power converter. Ansys simulations crunched through multiple simulated sets using customer-specific waveforms. The Standex team's expertise collaborating with advanced tech accelerated delivery and helped pinpoint ways to optimize the transformer construction.



Industry Connections Unlock Unrivaled Access to Custom Materials

Standex not only had the right expertise — but the right relationships. Their close partnership with the core manufacturer opened new doors for customizing non-standard raw materials. Standex could keep parts very thin using alternative insulators and custom tooling for PCB cores.

Lockstep Collaboration

According to this missile manufacturer, the high level of responsiveness and flexibility from the Standex team drove the project's success.

Standex engineers worked closely with the client's engineering team to make tweaks throughout the design process. Their collaborative relationship didn't stop on product delivery: Standex provided lasting support from eleventh-hour design tweaks to part upgrades.

PARTNER | SOLVE | DELIVER®



Standex Electronics

Worldwide Headquarters

4150 Thunderbird Lane
Fairfield, OH 45014 USA
+1.866.STANDEX (782.6339)
info@standexelectronics.com

Agile Americas (NH)
+1.800.805.8991
info@agilemagco.com

Minntronix Americas (SD)
+1.605.884.0195
productsales@minntronix.com

Northlake Americas (WI)
+1.262.857.9600
sales@northlake-eng.com

Renco Americas (FL)
+1.800.645.5828
sales@rencousa.com

StandexMeder Europe (Germany)
+49.7733.9253.200
salesemea@standexelectronics.com

StandexMeder Asia (Shanghai)
+86.21.37606000
salesasia@standexelectronics.com

Standex Electronics India (Chennai)
+91.98867.57533
salesindia@standexelectronics.com

Standex Electronics Japan (Kofu)
+81.42.698.0026
sej-sales@standex.co.jp



standexelectronics.com