

Application Areas. One material system. Eight environments.

ARES-MATRIX™ — 3D-woven fiber + UHT ceramic coating.

Reusable protection for heat, radiation, impact, corrosion, EMI/EMP.

Founder-led · Early-stage · In development.

Christian Gridley · Founder & CEO

Hybrid Shield Tech LLC · Dortmund / Texas build-out

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THE COMPANY

What Hybrid Shield Tech is

Hybrid Shield Tech is building **ARES-MATRIX™**: one self-healing material architecture instead of a stack of single-use layers. A 3D-woven high-performance fiber structure is fused with ultra-high-temperature ceramic coatings (target system: ZrB₂ / HfB₂ / TaC). The intent is a shield that takes heat, radiation, impact, corrosion and EMI/EMP — and can be flown or fielded again.

Conventional thermal protection is still tile-plus-gap-plus-sacrificial wrap, or ablators that are consumed on first use. Inspection and closeout, not raw tile output, set the cadence. Hybrid Shield’s thesis is architectural: fewer joints, less mass, lower maintenance, higher inherent robustness — and the same base chemistry adapted to aerospace, defense, energy, medicine, industry, drilling and lunar surfaces.

This is a founder-led, early-stage company. Specs below are **design targets**, not flight-qualified data. IP is being prepared and filed as a family that protects the system architecture (fiber, weave, coating, process, repair), not a single recipe.

3,800°C Target thermal resistance	~1,200°C Target self-healing onset	144+ Filings / applications in family	N× Designed for reuse, not one shot
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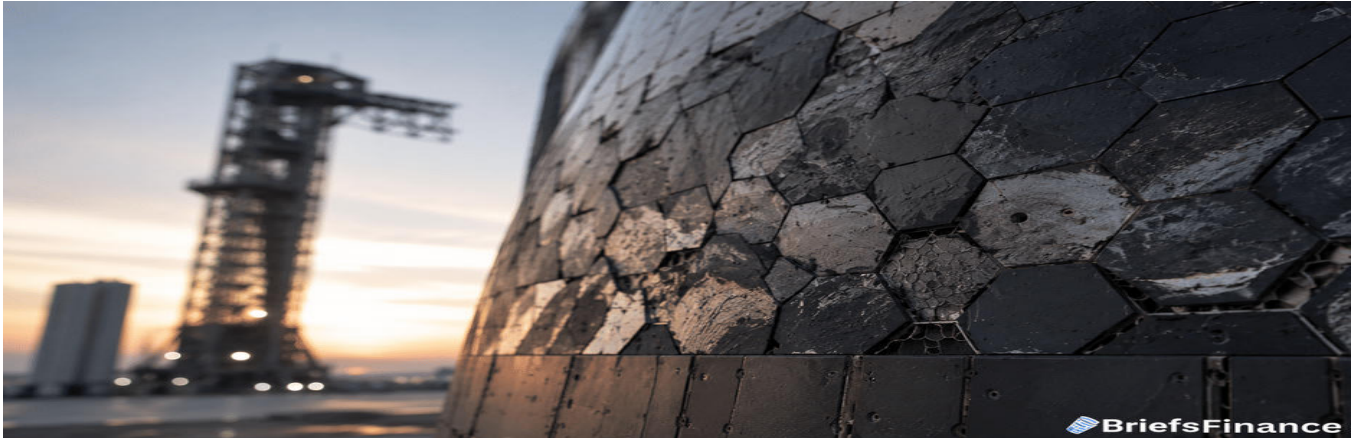
Status note: figures are development targets. Patent counts mix prepared drafts, provisionals and filings in progress. Always verify current docket status with counsel before relying on any number in a term sheet.

WHERE IT GOES

Application areas

Same fiber chemistry, different cut, coating thickness and architecture. Heat shield is the lead product because re-entry is the hardest thermal case and the market already feels the maintenance problem.

01 PRIMARY / Reusable heat shield — aerospace & re-entry



Lead application. Current large reusable vehicles still rely on thousands of ceramic tiles, gap fillers and a sacrificial wrap at the joints. Production of tiles can be fast. Installation, inspection and closeout are not. After flight, local ablation at joints and plasma paths through gaps force a maintained assembly rather than a skin you fly again the next day.

ARES-MATRIX™ is specified as a continuous, 3D-woven, coated panel or blanket: no tile grid, no wrap at every seam. Target: survive re-entry heating, close micro-cracks above ~1,200°C, and come off the pad with inspection measured in hours, not weeks. Same architecture scales from lander belly to full ship acreage.

- Problem it replaces: brittle tiles + joints + sacrificial wrap + two-week closeout.
- Buyer: launch providers, lander OEMs, TPS primes who need cadence, not another tile factory.
- Why first: hardest thermal case; every other product is a derating of this stack.

02 / Spacesuits & EVA thermal / debris layers



EVA and planetary suits today stack many single-purpose layers (thermal, micrometeoroid, restraint). Mass and bulk grow with every threat. A hybrid fiber-coating skin can take a share of thermal load, radiation and puncture resistance in fewer layers — cut to suit panels, not tiles.

- Cut-to-size laser panels; digital patterns per suit size.
- Buyer: suit primes and national programs that need lower mass without losing protection.

03 / Defense — multi-threat protective systems



Soft and hard armor today split blast, fragment, heat and EMI into separate packages. A woven hybrid can be built as vest panels, vehicle liners or shelter skins: impact structure from the 3D weave, heat and oxidation from the ceramic face, optional EMI in the same stack. Not a replacement for every plate — a lighter multi-threat layer around it.

- Formats: vest inserts, vehicle spall liners, portable shields.
- Buyer: defense procurement, vehicle OEMs, special-operations kit makers.

04 / Nuclear & radiation facilities



Reactor halls, hot cells and decommissioning sites still lean on lead, concrete and rigid composites that are heavy, hard to retrofit and poor against combined heat plus ionizing radiation. Hybrid panels and blankets can line hot-work zones, pipe runs and mobile barriers: radiation attenuation in the fiber architecture, heat and corrosion on the coated face, no tile grid to inspect after a thermal event.

- Use: temporary/permanent lining, pipe wrap, mobile screens during outages.
- Buyer: utilities, decommissioning contractors, research reactors.
- Note: nuclear insertion requires licensed testing. This is a configuration of the same material, not a certified plant product today.

05 NEW / Hospital & medical radiation environments



Radiotherapy bunkers, PET/CT, interventional radiology and isotope labs still default to lead aprons, leaded drywall and rigid mobile shields. Lead is heavy, toxic in disposal, and uncomfortable for staff who wear it all day. A non-lead hybrid textile can be cut into aprons, table skirts, doorway curtains and equipment wraps: radiation attenuation from the dense weave, cleanable coated face, no ceramic tile logic in a clinic.

Same family as the nuclear line, derated: lower temperature, higher flexibility, hygiene and weight as the buying criteria — not 3,800°C.

- Products: staff aprons, mobile screens, room curtains, device blankets.
- Buyer: hospital groups, radiotherapy OEMs, radiology fit-out firms.
- Why it belongs: same IP, faster certification path than flight TPS, recurring replacement market.

06 / Industrial extreme-heat process



Foundries, glass, steel and chemical parks destroy conventional blankets and need frequent shutdowns to re-line. Hybrid panels and furnace curtains take radiant heat and slag splash with a coated face and a woven backbone that can be pulled, inspected and, where the thermal cycle allows, returned after a controlled heat soak.

- Use: furnace curtains, ladle shields, cable and pipe protection.
- Buyer: steel, glass, chemicals — including sites the founder already knows from Ruhr Oel / BP / Shell park work.

07 / Drilling systems — hybrid strings & heads



Land and deep-sea strings see heat, abrasion, corrosion and fatigue at the same time. The fiber architecture is wound into pipe and coupling sections; self-healing chemistry is triggered by process heat or a controlled soak. Drill-head hardware is a separate manufacturing path (not basalt fiber) and is treated as a licensable module so the core IP stays on pipe and fabric.

- Keep in-house: pipes / fabric / weave.
- License path: drill-head geometry to a specialist OEM.
- Buyer: oilfield service, geothermal, mining.

08 / Lunar & planetary surface infrastructure



Landing blast, dust, thermal swing and radiation destroy unprepared regolith and force heavy sintered pads. Rollable hybrid mats and modular tiles give robots a deployable pad and road: heat and plume on the coated face, structure in the weave, repair by heat rather than a second cargo of spare tiles.

- Products: roll-out landing mats, robot-laid road sections, shelter skins.
- Buyer: lunar lander primes, national surface programs, site-prep contractors.

WHO BUILDS IT

Founder

Christian Gridley — Founder & CEO, Hybrid Shield Tech / ARES-MATRIX™. The company exists to take UHT ceramic and 3D-woven fiber out of the slide deck and into cut panels, pipes and pads.

Background is industrial, not academic theatre: Clerk of Works / site supervisor on Ruhr Oel BP / Shell chemical-park work, SCC management-level, logistics and transport safety officer, Bundeswehr pipeline pioneer and pump machinist, IT security officer and BSI IT-Grundschutz practitioner. That mix is why the first factory plan is a real hall with a controllable furnace — not a lab poster.

Relevant qualifications (summary)

- High-stakes industrial safety & leadership — chemical parks, SCC Doc 017, risk assessment.
- Information security — IT-SiBe, BSI IT-Grundschutz, DPO.
- Technical — pipeline / pump machinery (Bundeswehr), EuP industrial electrical systems.
- Security readiness stated for Grade-A industrial and defense manufacturing environments.

NEXT STEP

Investor links

Click through. AngelList holds the live round terms. Data-room access on request after NDA.

Website — <https://www.hybrid-shield.tech>

Current site (preview) — <https://hybrid-shield-eight.vercel.app>

LinkedIn — Christian Gridley — <https://www.linkedin.com/in/christian-gridley-a6b162238>

AngelList — <https://stack.angellist.com/s/l4bzl4vofm>

Crunchbase — <https://www.crunchbase.com/organization/hybrid-shield-tech-llc>

Gust — <https://gust.com/companies/hybrid-shield-tech-llc>

Dealum — <https://app.dealum.com/#/company/154209>

Vestbee — <https://app.vestbee.com/s/hybrid-shield-tech>

Company Brief — <https://thecompanybrief.com/briefs/0q3lr>

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