

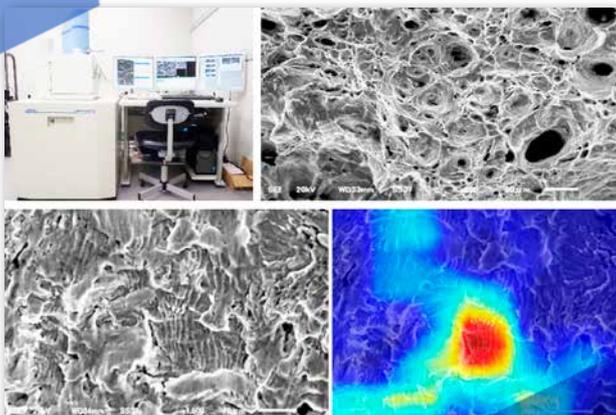
## Automotive Aluminum Bolt "ALTIMA"

### 「ALTIMA」铝合金汽车螺栓

Born from a joint patent between Yamashina and Nippon Light Metal Company in Japan, the game-changing automotive aluminum bolt "ALTIMA" is now available. Surpassing traditional designs, it prioritizes durability and safety by mitigating stress corrosion cracking risks from prolonged stress concentration. Matching the corrosion resistance of legacy bolts used in European and select Japanese cars, ALTIMA boosts strength by over 10%. It is built on the July 11, 2024 joint patent (No. 7496106) and four years of rigorous safety validation. Features: Tensile strength over 460 MPa, yield strength over 380 MPa—equivalent to JIS aluminum grade AL5 (one tier above conventional AL4)—with anti-cracking and void-free processing for flawless internals. Targeting EVs, unmanned aerial mobility, robots, inverters, batteries, aluminum busbars, and eco-infrastructure, it excels in lightweighting, non-magnetism, conductivity, corrosion resistance, and anti-loosening, supporting low-carbon circular economies. Nippon Light Metal and other partners will continue collaborating to expand. ALTIMA doesn't just enhance vehicle safety—it powers the green mobility revolution and sets new precision manufacturing benchmarks.



# Fastener Innovation Alley | 紧固件新品大道



## Fract AI: Metal Fracture Analysis Tool

### 金属断裂分析神器「Fract AI」

Osaka Research Institute of Industrial Science and Technology, in collaboration with Osaka Metropolitan University, has rolled out its AI-powered metal fracture analysis software "Fract(ure) AI" at public testing and research institutions across Japan. This service integrates scanning electron microscope (SEM) imagery for AI-driven metal fracture analysis, ushering manufacturing failure diagnostics into the intelligent era. Manufacturing floors frequently encounter trial and error, where pinpointing failure (fracture) causes is crucial for boosting product reliability. "Metal fracture analysis" examines fracture surface features to uncover root causes. Fract AI uses just SEM images to automatically predict fracture types like fatigue or ductile failure

with high precision, highlighting key areas via color contour maps. Incorporating judgment criteria from veteran technicians' years of observations, it powerfully supports novices, sharpening their skills amid labor shortages and succession challenges—doubling as an invaluable training tool. Future updates will include fracture origin prediction features for ongoing evolution, accelerating product improvements and sharpening corporate competitiveness.

## Rivet Mounting System for Genius Trackers

### Genius 追踪器专用铆钉固定系统

GameChange Solar, a leading U.S.-based provider of PV trackers and fixed-tilt racking systems from Connecticut, has unveiled an innovative two-piece rivet mounting solution compatible with its Genius series trackers. This alternative delivers faster field installation, reduced long-term costs versus bolt methods, and proven reliability through independent and internal lab testing. The rivet system—featuring a rivet pin and tubular collar—employs a rivet gun for automatic locking and pin trimming, bypassing torque adjustments entirely. Unlike bolt connections through pre-punched holes that demand regular tightening for environmental resilience, this design ensures permanent tightness and durability. Targeted at EPC firms as a bolt replacement, the solution has passed rigorous UL 2703 testing for structural integrity, electrical grounding, and flat-type PV module performance. Certification came from third-party Intertek labs and GameChange's in-house facilities, with zero failures. Installation and removal tools were validated at the company's training center, confirming real-world deployment efficiency. This advancement streamlines solar project timelines while enhancing system longevity for developers.



## Enhanced Screw Terminals with Anti-Rotation Feature for Compact PCBs

### 防旋转螺丝端子 适用高密度印刷电路板

Keystone Electronics unveils an upgraded SEMS screw variant for its PCB screw terminals, designed to streamline wire connections and boost mechanical reliability in dense board assemblies. The pre-assembled SEMS screw enables secure fastening of wire leads—including bare wires—without the rotation issues common during tightening. Rated for 15- and 30-amp applications, these terminals feature an anti-rotation, non-wobbling structure ideal for high-density PCB layouts. The SEMS screw incorporates a captive, free-spinning lock washer that preserves clamping pressure and stops wire spin under torque. Available in horizontal and vertical orientations, they suit diverse board configurations. Constructed from tin-plated brass, the terminals ship either fully assembled with SEMS hardware or as components for custom integration. Keystone distributes them via its worldwide network and e-commerce platforms, alongside its extensive interconnect solutions and custom machining, stamping, and assembly services.



## "Tentacle" Anti-Loosening Nut with New M2 Size

### Tentacle 防松脱螺母 (新 M2 款式)

Japanese YS Corporation has developed the "Tentacle® Nut", based on years of screw research that thoroughly analyzes nut loosening causes. This patented product is now expanding into the market. Designed like an octopus tentacle "firmly wrapping" bolts, it fits standard M6, M8, M10, M12, and M16 bolts, with the latest addition of M2 size for more precise applications. Loosening mainly occurs due to vibration causing



cumulative thread gap shifts. "Tentacle Nut" uses a double-nut structure where the upper nut compresses the lower nut's protrusion, filling tolerance gaps to ensure axis alignment and no bolt damage. The lower nut manages torque and tension, with easy removal by reverse rotation from upper to lower. Ideal for vibrating machinery in factories, amusement rides, towers/bridges, or high-temperature sterile environments, it enhances safety and maintenance-free operation. In NAS3350 impact tests (30Hz, 30,000 vibrations) it retained over 80% tension; DIN25201 vibration tests (2,000 cycles) show no detachment with 94.3% residual tension, far surpassing standard nuts. Analysis confirms no self-rotation, achieving "never-loosening" bolt-nut combos with simple nut replacement.

## World's First "Seal Up® Screw" with New Hex Socket Bolt "Seal Up Cap" Variant

### 世界首创「Seal Up® Screw」系列： 六角孔螺栓专用「Seal Up Cap」款式

Japanese Fuji Seira Company has unveiled the globally pioneering trademark-registered (No. 5757876) "Seal Up® Screw," featuring a large-contact-area flat sealing gasket automatically embedded in the seat's annular groove. This dramatically enhances waterproofing, oil-proofing, and dust-proofing performance. Simply replace the screw to use immediately on existing equipment—no hole modifications needed. Key advantages include no gasket detachment: the inner diameter is smaller than the thread outer diameter for secure fixation. The gasket offers high adhesion volume for superior waterproofing. Even with larger pilot holes in workpieces (standard: nominal thread diameter +0.5mm Max.), it reliably compresses and deforms, enabling easy screw swaps. Performance rigorously verified: tightened in a sealed fixture under 115MPa water pressure (equivalent to 11,000m depth), confirming no leaks; withstands Mariana Trench pressure (10,994m depth), the world's deepest. Ideal for marine engineering, high-pressure environments, or precision machinery. Fuji Seira announces the addition of the Hex Socket Bolt "Seal Up Cap" variant to the series, enhancing sealing for hex socket bolts. ■

