

# HARDWARE INNOVATION ALLEY

## 五金新品大道

Compiled by Fastener World

### "Electrical Devil" Pliers

#### 「電工小惡魔」電工鉗

IPS PLIERS (Japan) has recently unveiled the "Electrical Devil" plier with its compact and ultra-lightweight design. *Measuring just 148mm in length and weighing only 107g, it securely grips objects from 9mm to 43mm in diameter with a 5-stage adjustment for ultimate flexibility.* Perfect for electrical conduit connectors, knockout waterproof fittings, paint can opening, or tight-space maintenance.

It shines in professional electrical work and DIY tasks. Equip it with a drop-prevention strap for easy attachment, and it takes up minimal space in your tool pouch—far slimmer than traditional models. It is under 150mm long and 5mm wide. Shaped like a flathead screwdriver, it handles tightening and loosening without switching tools. Built tough with cation electrodeposition coating for wet environments (10x more durable than nickel-chrome plating).

Crafted from high-carbon steel body with PVC-coated handles, it features an 8mm head thickness, 43.6mm head length, and 40mm handle width. It blends practicality and portability—essential for electrical and DIY pros.



### Diamond Supreme (Fine Hard) Bit (+2×100)

#### 鑽石頂級螺絲起子 (+2×100)

This stepped screwdriver bit, featuring an ultra-fine shank diameter of  $\Phi 3.8\text{mm}$ , comes from Japan's Anex Tool. *Designed for the toughest screws, its diamond particles grip relentlessly—even non-magnetic stainless steel screws stay put without dropping. Boasting high toughness and top-tier hardness (HRC62.5), it resists breakage and wear, delivering twice the durability of traditional stepped bits.*

Magnet-free design prevents iron filings from sticking, with uniform thick electroless nickel plating for perfect screw fit and superior rust resistance. Ideal for stainless steel, brass, aluminum, or resin screws, as well as interior, decorative, precision, and electronic applications. Hex shank (6.35mm across flats), no magnet, compatible with 40V tools (also 18V).

Made from chrome-molybdenum-vanadium steel for exceptional wear resistance. A must-have for professional interior and electronics work—say goodbye to slipping and snapping for smoother, more efficient jobs.

### Fract AI: Metal Fracture Analysis Tool

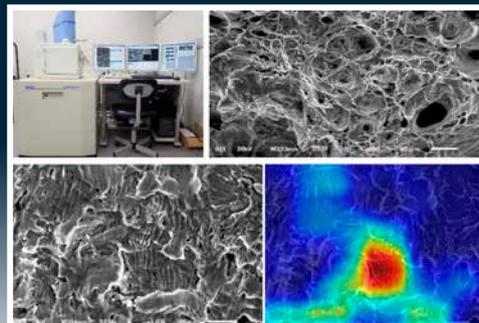
#### 金屬斷裂分析神器「Fract AI」

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.



## BX 3-22 Cordless Fastening Tool

### Hilti BX 3-22 無線固定工具

Hilti's brand-new "BX 3-22 Cordless Fastening Tool" is tailored for MEP and interior finishing contractors. *This fully electric model with a 30-nail magazine replaces traditional drilling and anchoring, delivering faster, more consistent performance. A single lithium battery charge drives up to 850 nails for stunning efficiency.*

Key features include an ergonomic contoured grip, short stroke design, and LED light for better handling, reduced recoil, and lower noise. Compact at 475 x 135 x 368 mm and just 3.5 kg, it offers Bluetooth connectivity, a 21.6V battery platform, and supports 14-30 mm nails on reinforced concrete, masonry, or steel.

Versatile applications: securing drywall tracks to floors, ceilings, and walls; fastening mesh, waterproof membranes with special washers to concrete; wall connectors; and light-duty fixes like cables, conduits, and grids. No gas cans or powder needed—battery-powered for 800/500/400 nails (model-dependent) at 1.3 nails per second. BX 3-22 boosts contractor productivity with reliable quality and zero waste.

## "ECO Series" Thread Whirling Lineup

### 螺紋旋削「ECO 系列」

NTK Cutting Tools has launched *the all-new "ECO Series" for its Thread Whirling tools, dramatically cutting costs compared to traditional models. Users can now select the insert's number of teeth and corners based on workpiece needs, enabling production at minimal expense. This series newly supports left-hand thread cutters, expanding applications to meet diverse machining demands.*



Key features: Unlike fixed 9-tooth conventional cutters, ECO offers 3, 6, or 9 teeth for flexible productivity and surface finish control. For small batches like medical screws, choose 1- or 2-corner inserts to minimize wear based on volume. Left-hand thread standard cutters are included for the first time, covering all thread types without custom orders.

The ECO Series empowers precision manufacturers with adaptability, reduced tool investment, and boosts competitiveness—for high-volume runs or custom medical parts alike.

## Automotive Aluminum Bolt "ALTIMA"

### 「ALTIMA」鋁合金汽車螺栓

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. ■

