



# ESG Carbon Management + AI Lean Transformation HU PAO Turns into a World-Class Green Fastener Manufacturer



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Facing the global automotive industry's push for supply chain decarbonization and digital transformation, Taiwanese fastener manufacturer, Hu Pao Industries Co., Ltd., continues to pursue dual sustainability and efficiency goals through international-level carbon footprint verification, AI implementation, and process optimization. Not only has it successfully positioned itself as a green fastener supplier with immediate competitiveness in the CBAM era, but it also sets an exemplary transformation model for other SMEs.

## Carbon Footprint Verification Completed / Recognized Carbon Reduction Achievements

Hu Pao has completed the ISO 14064-1 verification and annually upgrades the quality and scope of its carbon footprint verification. To achieve visual management, its carbon emissions data has been integrated with the internal ERP system. Data verified by ARES in 2022 shows that its carbon emissions from 2,448 tons of shipped finished products reached 10,959 tons (4.47 CO<sub>2</sub>e/ton). Data verified by French AFNOR in 2024 shows the carbon emissions from 2,663 tons of shipped finished products reached 10,239 tons (3.84 tons CO<sub>2</sub>e/ton). This demonstrates remarkable performance in maintaining production capacity and quality while achieving an 8.8% increase in shipment volume and a 14.1% reduction in emissions per ton within just two years.

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## Self-developed "Waste Oil Recycling Trough" Amplifies ESG Benefits

Metal forming requires substantial amounts of lubricating oil, but the environmental pollution caused by untreated waste oil discharge has long been a headache for manufacturers. To address this, Hu Pao independently developed a waste oil recycling trough that can filter and store waste oil for reuse, fully implementing green innovation in the manufacturing process. This solution reduces monthly oil consumption by 20% while also lowering workplace safety risks and eliminating unpleasant odors in the factory area, thereby improving environmental quality. Such an innovation earned Hu Pao an honor as one of Tainan City's Top 10 SBIR Outstanding Projects in 2024, establishing it as an industrial benchmark.

Monthly oil consumption reduced by 20%

## Introducing the AI Platform to Enhance Service Efficiency and Accuracy

To enhance operational efficiency and reduce human error, Hu Pao introduced the Intellicon EgentHub AI platform to strengthen the management capabilities of quotation effectiveness, internal quality control, preventive maintenance, etc.

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internal quality control, preventive maintenance, etc. Such as initiative also improves its delivery reliability and operational transparency as required by Tier 1 automotive supply chains. For example, the platform automatically parses customers' RFQ documents and cross-references them with ERP cost data, significantly reducing its quoting time from 120 minutes to just 5 minutes and ensuring consistent quoting logic.

## The Sustainable Manufacturing Technology Partner with Differentiated Features

Compared to thousands of Taiwanese fastener manufacturers still in the early stages of ESG implementation, Hu Pao has established a significant competitive edge through its leadership in carbon emission verification, process innovation, AI integration, and internalizing ESG/CBAM into its corporate culture. Beyond conducting annual carbon footprint verification and completing third-party GHG verification every 2 years, the company drives internal improvements through innovative processes like waste oil recycling and energy intensity optimization. It also leverages AI to integrate quotation documents and resolve production bottlenecks. Hu Pao's President and its management team's deep understanding of ESG and CBAM trends has embedded sustainability as a core corporate value. "We don't just produce fasteners; we provide customers with parts backed by credible carbon data and quality traceability, helping them navigate ESG and CBAM requirements with confidence," said General Manager Bill Wang.

Hu Pao has implemented ESG practices and leveraged AI alongside innovative green manufacturing processes to meet the regulatory requirements of global industrial buyers, successfully demonstrating its value as a technology partner capable of collaborating with the industry to co-create sustainability. For other SMEs, this serves not only as a successful model but also as a benchmark example for Taiwan's fastener industry to enhance competitiveness and advance into the next decade. ■

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