

# Fastener World

螺絲世界雙月刊

# 208

Sep. / Oct. 2024



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Machinery Area P.274

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Ad on p.294



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Manufactures

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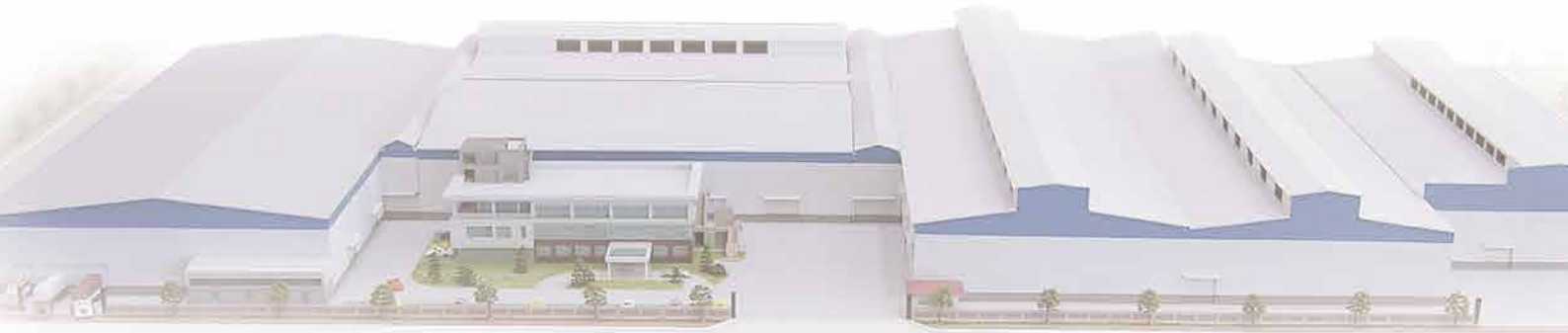
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No. 1, Hsin Tien 2nd St., Jen Der Dist., Tainan City 71752, Taiwan

P.O.BOX 275, Tainan, Taiwan







# YFS 1<sup>st</sup> factory



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We Provide Total Solution.  
Automotive Fasteners • Machinery • Toolings

# FULL PRODUCT RANGE

Various home-produced machines are equipped and suitable to manufacture special components with complexly shaped:



**SAN SHING  
PRECISION NUT FORMER**

## **Linear Feeding System**

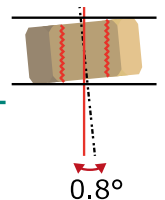
Mechanical linear feeding design serves well-controlled cutting deviation to not only better product quality but also economize material and tooling consumptions.



**SAN SHING  
NUT TAPPING MACHINE**

## **Thread Angularity Within 0.8**

The thread angularity can be effectively controlled within 0.8 degree.





**SAN SHING  
OPTICAL SORTING MACHINE**

**Reliable Solution For Part-Mixing**

Thoughtful sorting software design helps develop solid quality control after the back-end process.



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Taiwan



China



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Fastener World no.208/2024



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EN 14592  
EN 14566



Testing Cert #2677.01  
A2LA-accredited Laboratory:  
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AUTOMOTIVE MANAGEMENT





## Blind Rivet Nuts



SRC-55



A8H



SR-1

**stronger but lighter**  
**faster but quieter**





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<http://www.srcrivet.com>  
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Six Billion (6,000,000,000) pieces  
Blind Rivets Annually



HN-02



HR-702



HR-705



HR-730



HR-710



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http://www.ticl.com.tw E-mail: thread@ticl.com.tw



IATF 16949



ISO 9001



### Nuts

Size: M6~M33 ( 1/4"~1 1/4" )

Various Carbon Steel Nuts.

Hex Nut, Square Nut, Jam Nut, Thin Nut, High Nut,  
Flange Nut, Lock Nut, Cone Nut, Wheel Nut,  
Slot Nut, Castle Nut, Automotive Parts.

Subcontractors: Weld Nut, Keps Nut, Conical Washer Nut

### Bolts & Screws

Size: M5~M24 ( 1/4"~7/8" ) length up to 300mm

DIN912, DIN7991, ISO7380, DIN603, A307 Hex Bolt,  
A325 Heavy Structure Bolt, Hex Tap Bolt, Hex Lag Screw,  
Hex Cap Screw, Socket Cap Screw, Flange Bolt,  
Carriage Bolt, Wood Screw, Frame Bolt, Plow Bolt, Track Bolt, Axle, Pin...

### Small Screws

Size: 3.0~6.3 length up to 150mm

Drywall Screw, Chipboard Screw, Self-Drilling Screw, Tapping Screw

Manufacturer

Exporter / Agent

OEM Manufacturer



Sister Company

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Overseas Factory

VIETNAM

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process



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to enhance product quality  
and customer satisfaction



Material saving  
Cost reduction  
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Short lead time



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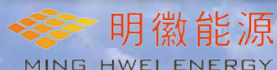
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Maximum Power:

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450w - 2095 x 1039 x 40 mm

Type of Cells:

Mono-Crystalline Solar Cells





Stainless Steel Screw  
Manufacturer

Tapping Screw, Machine Screw

Chipboard Screw and Deck Screw

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018





Hex. Socket Cap Screw

Self Drilling Screw

# Weld Nuts and Cage Nuts



**Cardboard plug series.**

**M8~M10~M12~M14 Automotive**



ISO 9001: 2015



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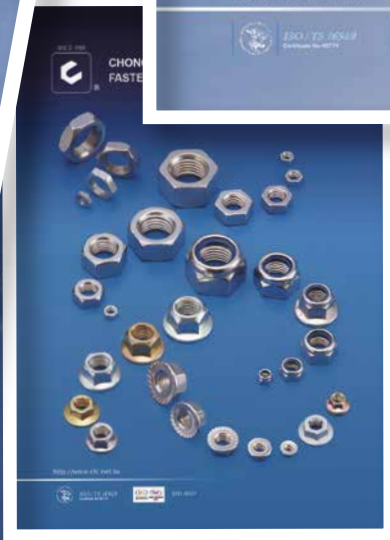
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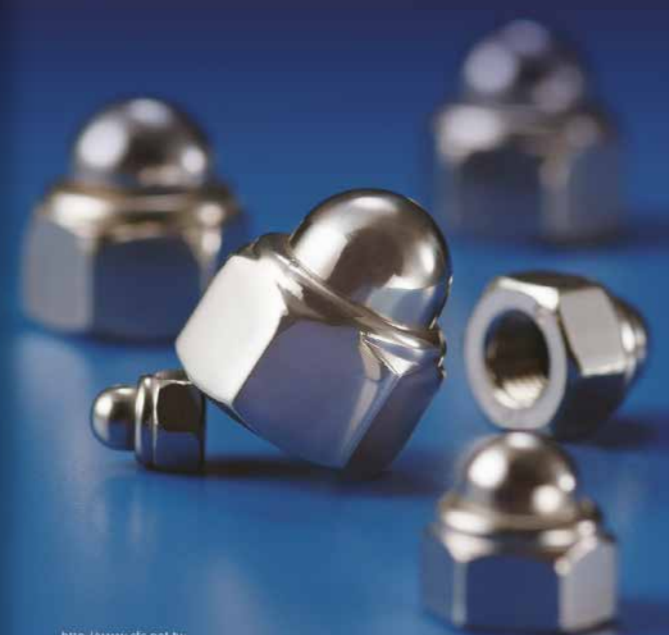
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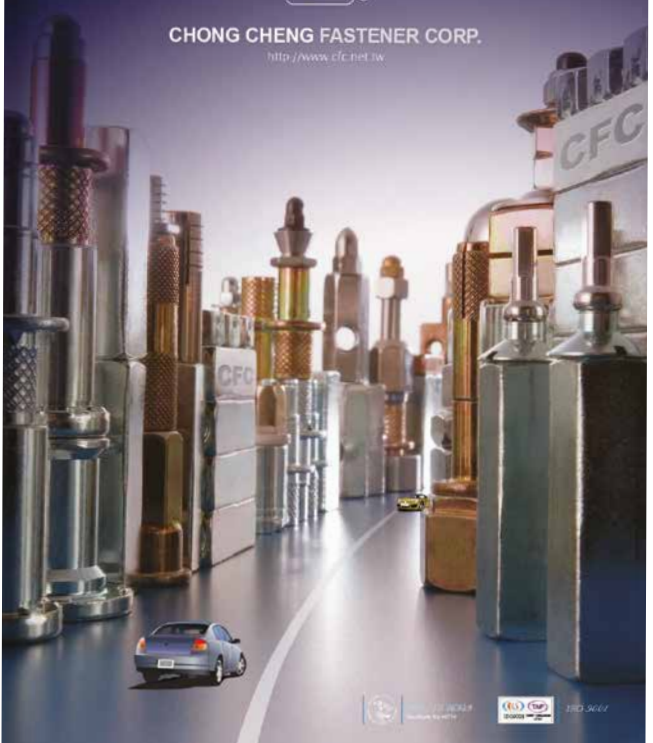
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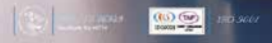

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# RE-HEADING PARTS

We supply more than 10,000 items all made to customers prints/ samples. All factories including our own factory are IATF – 16949/ ISO – 9001 certified. Full certificates: PPAP, IMDS, MSDS.



CBAM Reports Available

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IATF 16949:2016



ISO 9001 : 2015



Testing Cert# 2706.01



ISO 14001



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**Capability** M3-M52 Alloy Steel : Apply Up to Grade 12.9  
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IATF 16949:2016



ISO 9001 : 2015



Testing Cert# 2706.01



ISO 14001

## CBAM Reports Available



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# OPEN-DIE PARTS



ISO 9001:2015

ISO 14001:2015

## DESIGN & MANUFACTURING FOR YOUR OEM REQUIREMENTS

- SPECIALS PER YOUR DRAWINGS
- SPECIAL FORMS UNDER THE HEAD
- WELD BOLTS
- ETC

## MATERIAL AVAILABLE:

- CARBON STEEL, ALLOY STEEL, BRASS, ALUMINUM, BRONZE, STAINLESS STEEL.

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Fastener World no.208/2024

# AUTOMOTIVE PARTS

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- SPECIALS PER YOUR DRAWINGS
- SPECIAL FORMS UNDER THE HEAD
- WELD BOLTS
- ETC

## MATERIAL AVAILABLE:

- CARBON STEEL, ALLOY STEEL, BRASS, ALUMINUM, BRONZE, STAINLESS STEEL.



ISO 9001:2015

ISO 14001:2015

WYSER

Material Test Results  
 Material (Chemical and Physical properties)  
 Analysis evaluated by an A2LA accredited or  
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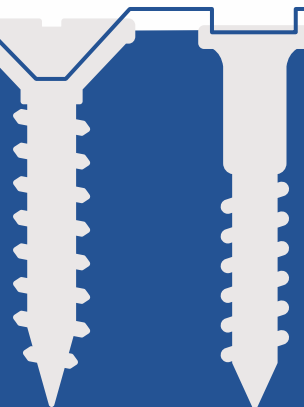
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ISO 14001:2015 ISO 9001:2015 IATF 16949 CE EN14592 CE EN14566



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little things matter

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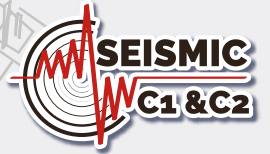
ISO 9001



Option 1



Part 6



A4-STAINLESS



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**ISO 9001:2015**

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**UPGRADED  
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- ① **Optimized Nibs**
- ② **Reinforced Tip**
- ③ **Smooth Minor Diameter**
- ④ **Patent Design**

Featuring sharper saw teeth and raised Tri-claw, BM Quick Drill screws offer reduced drilling torque, quicker insertion, and strong pull-out force.

**Looking for high quality chipboard screws?  
Welcome to ask Bi-Mirth !!**

**Samples Available**

**BEST PRICE !!**

## MATERIALS

- ▶ Carbon Steel
- ▶ A2 & A4 Stainless Steel

## COATING

- ▶ Zinc Plated
- ▶ Zinc Nickel Plated
- ▶ BM Nano Coated
- ▶ BM VG Coated (C4 coating)

## COMMITMENT & INSISTENCE

- ▶ Qualified Wire Materials
- ▶ Strictly Controlled Mechanical Properties
- ▶ High Quality, Affordable Prices

Largest capacity in Asia  
for producing full-thread screws ;  
Competitive prices!



## What advantages can Zinc Nickel Coating give?

- ▶ Reliable corrosion protection
- ▶ High-quality stainless steel appearance
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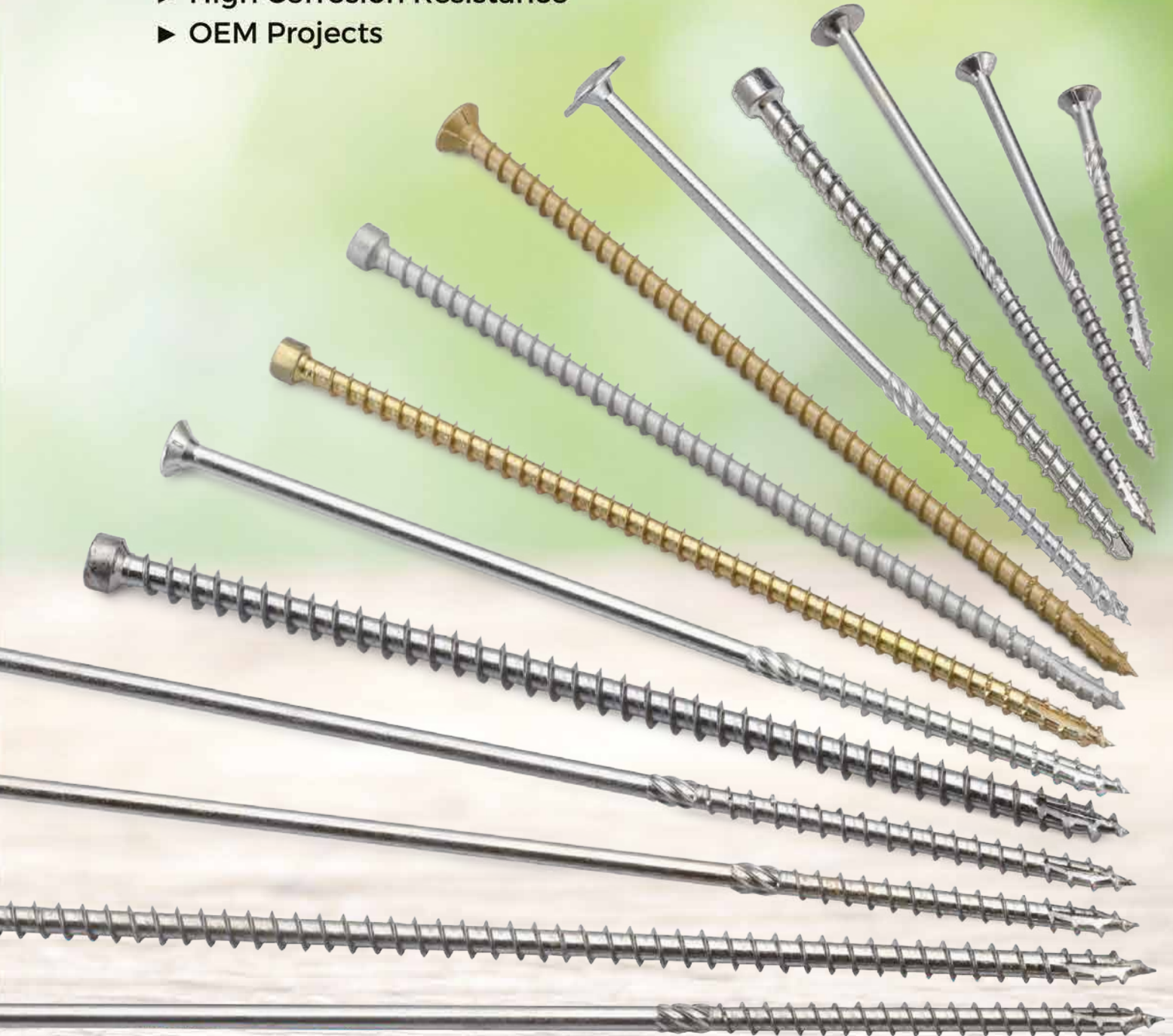
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C4 cert  
VG Coating

## What Bi-Mirth can do for you?

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Expert in Heat Treatment and Surface Treatment

**Excellent Mechanical Properties! (30%-50% Better!)**

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BM VG Coating (RISE approved C4 coating)
- ✓ Minimal Hydrogen Embrittlement!



C4 cert.  
VG Coating

Available size:

4.8~6.3mm and length up to 600mm with #1~#10 point

**Samples Available Upon Request**



**30mm  
metal plate**



*Top Quality*  
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*Guaranteed Performance*



All Metal Insert Self Locking Nut



IATF 16949:2016



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All Metal Insert Self Locking Nut



Conical Washer Nut



Conical Washer Nut





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Manufacturing Factory: No. 9, Ben-Kung 3rd Rd., Ben Chou Industrial Park, Kangshan, Kaohsiung, Taiwan

E-mail: [anne-chenrg@alexscrw.com.tw](mailto:anne-chenrg@alexscrw.com.tw) ; [alexscrw@ms37.hinet.net](mailto:alexscrw@ms37.hinet.net)

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ISO 9001:2015  
 ISO 14001:2015



**Windows Screws** ▶



▲ **Sandwich-Panel Screws**

**Farmer Screws** ▼



▲ **Self-Drilling Screws**



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**CE CERTIFICATE**

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- Roofing Screws
- Sandwich-Panel Screws
- Wood Screws
- Windows Screws
- Farmer Screws
- Nipping Screws
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- Drywall Screws
- Chipboard Screws
- Self-Tapping Screws
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040



Fastener World no.208/2024



# Din Ling group

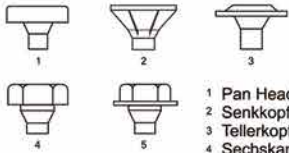
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WBS®

Durchmesser / Diameter  
Länge / Length

3,0 3,5 4,0 4,5 5,0  
6,0 8,0 10,0 12,0 mm  
25 - 600 mm

### Kopfformen Head types



- 1 Pan Head
- 2 Senkkopf / Countersunk head
- 3 Tellerkopf / Wafer head
- 4 Sechskantkopf / Hex head
- 5 Sechskantkopf mit angepresster Scheibe / Hex wafer head

### Antrieb Recess



### Gewinde Thread

#### Teilgewinde Part thread

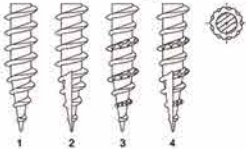
mit Reibeteil über alle Längen  
shank ribs for all lengths

### Oberflächenbeschichtung Coating



verzinkt, ruspert, gleitbeschichtet, hoher Korrosionsschutz DLS 300®  
zinc coated, ruspert, heavy waxed, high corrosion resistant DLS 300®

### Gewindespitzen Types of cone point



- 1 scharfe Spitze / sharp point
- 2 Schabanut an Spitze oder versetzt / Cut to end of cone point or shifted
- 3 Sägeverzahnung / saw thread
- 4 Sägeverzahnung mit Schabanut / saw thread with cut

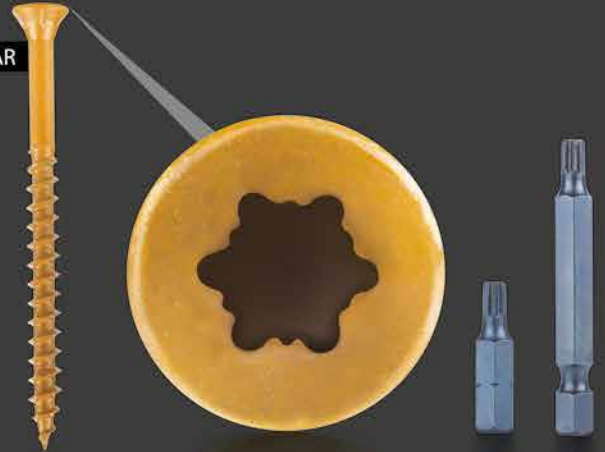


NEW

12 STAR  
PATENT NO: I 622444

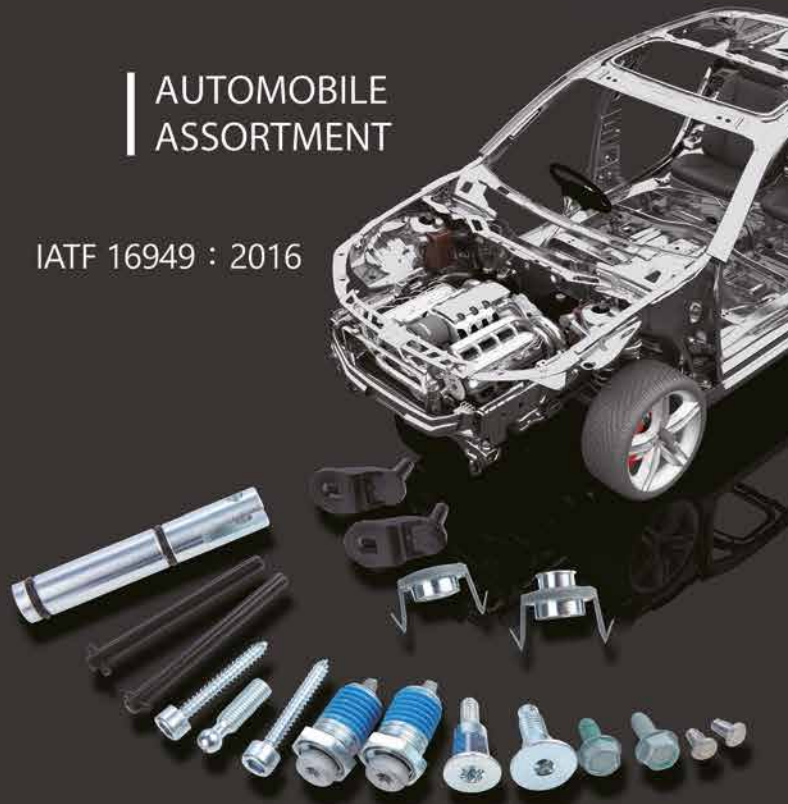
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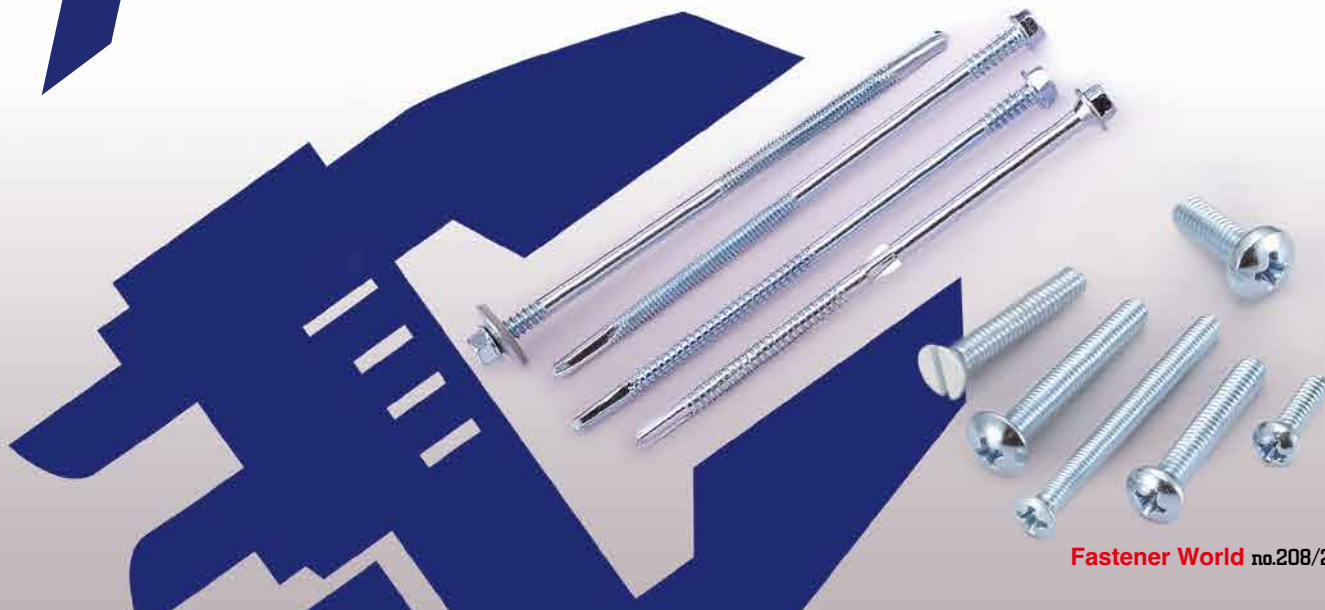
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Kaohsiung 80143, Taiwan (R.O.C.)

Tel: 886-7-281-2668 Fax: 886-7-221-6000

E-mail: [service@we-power.com.tw](mailto:service@we-power.com.tw)

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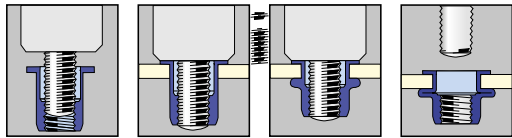
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1 2 3 4



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RC series  
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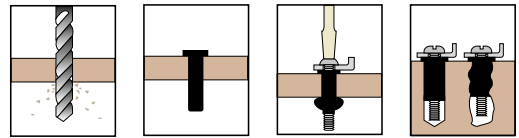
CCP-25  
SPIN-PULL TOOL

LG-081  
SPIN-PULL TOOL

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1 2 3 4

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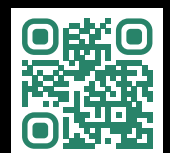


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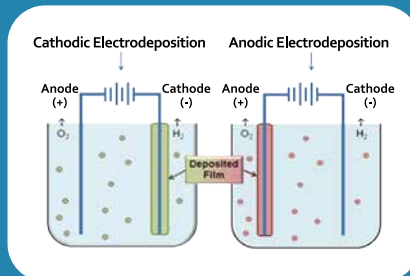
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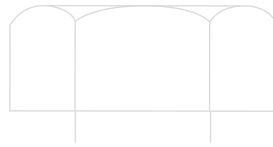
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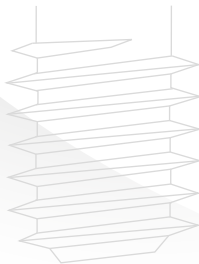


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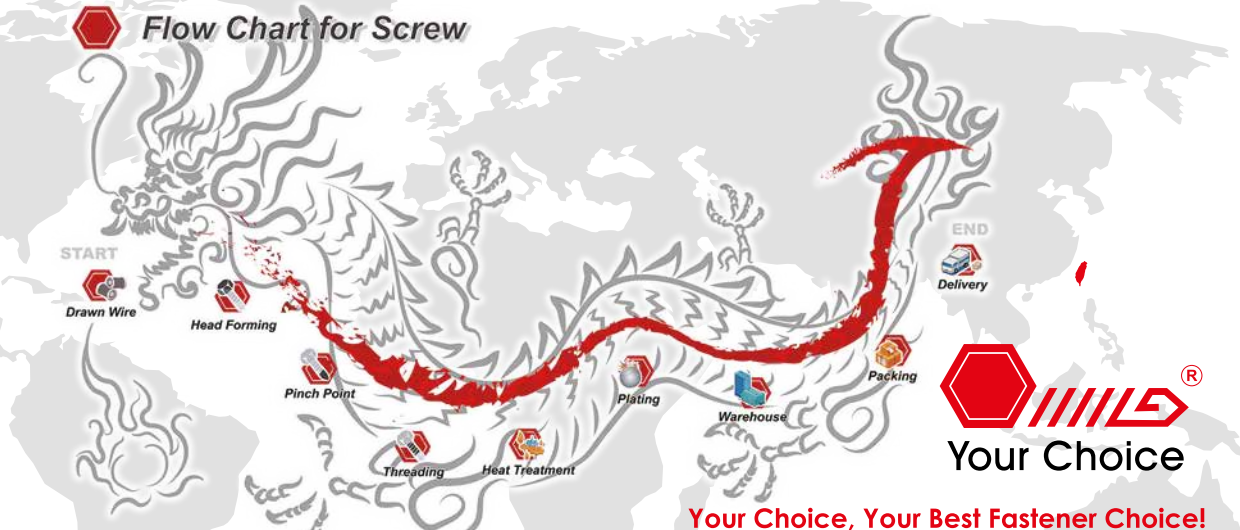


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Self Drilling Screw



Self Tapping Screw



Sandwich Panel Screw



Long Screw



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Window Screw



Furniture Screw



Eye Lag Screw



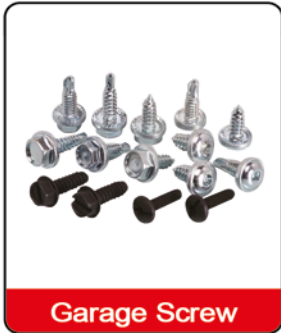
Capped Screw



Rod Hanger Screw



Customized Screw



Garage Screw



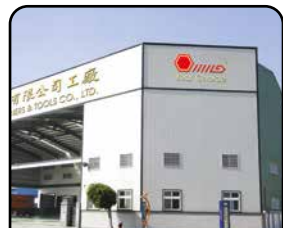
Stainless Steel Screw



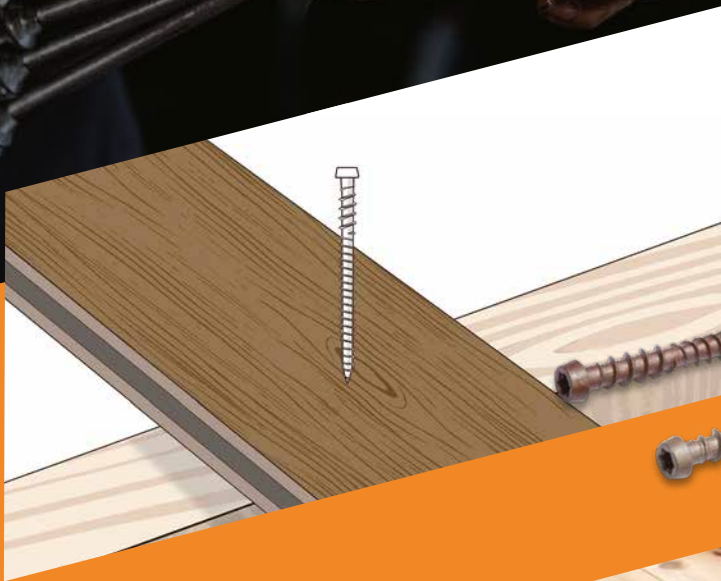
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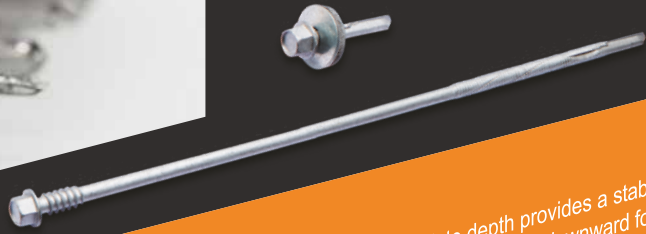


- 4 under-head reverse ribs and reverse threads that prevent the screw from retracting due to external vibration force after driving in.
  - Undercut head design effectively maintains a flat surface of the board.
  - Asymmetric high-low threads enhance pull-out resistance.
  - 4 slots on the tip can effectively cut wood fibers, reduce the driving torque, and save labor.
- Patent No. : US 9624961. CA 2897872





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- . A leading international standard of distortion.



- . Recess with an appropriate depth provides a stable driving-in process and a concentrated downward force.
- . Milling threads effectively enlarge the hole, reduce the driving torque and save labor.
- . TY-168 cut point is designed for enhancing the cutting efficiency.
- . A leading international standard of distortion.
- . With an ETA/CE.



- . The die is precisely made with a raised hexagonal head, which provides a stable driving-in process and a concentrated downward force for the screw when using the socket.
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IATF 16949: 2016



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TEL : +886-4-2493-3000 FAX : +886-4-2493-1000

E-MAIL : [sales@tuz.com.tw](mailto:sales@tuz.com.tw) WEB : [www.tuz.com.tw](http://www.tuz.com.tw)

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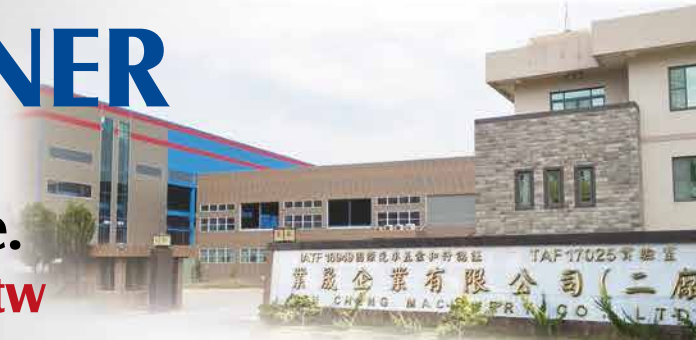




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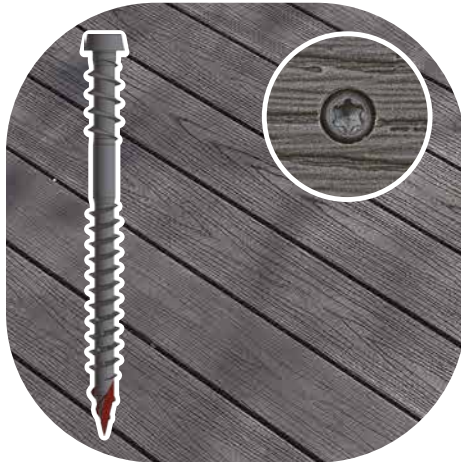
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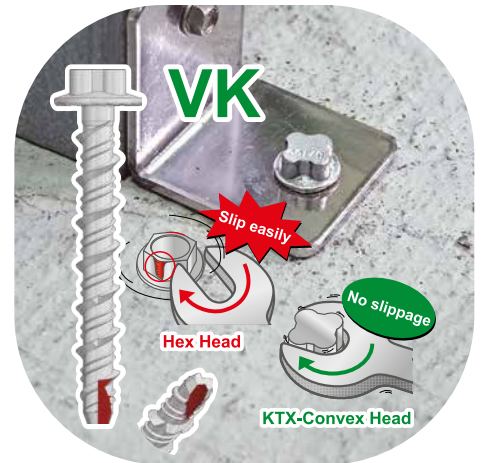
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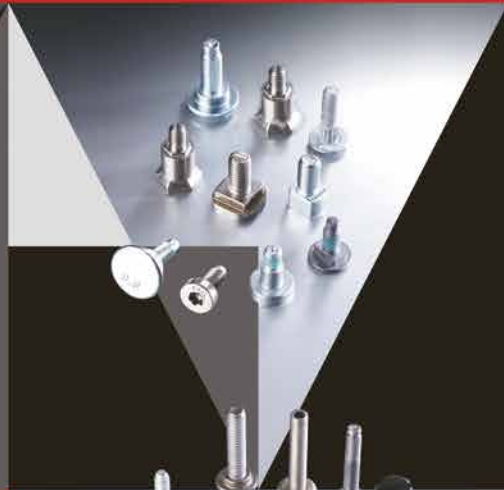
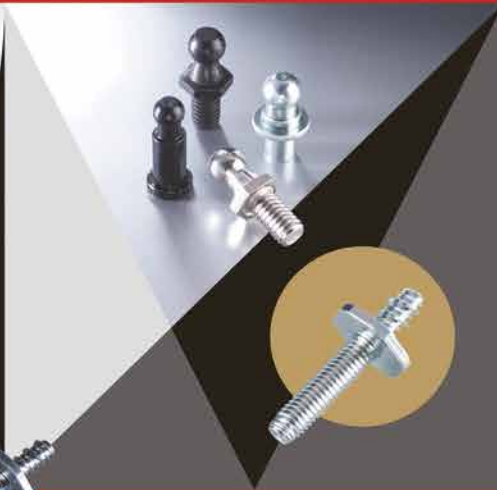
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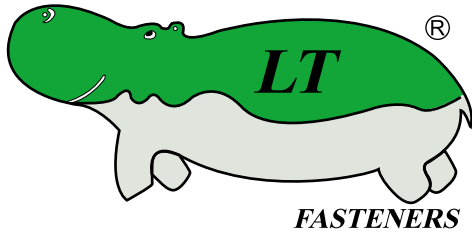


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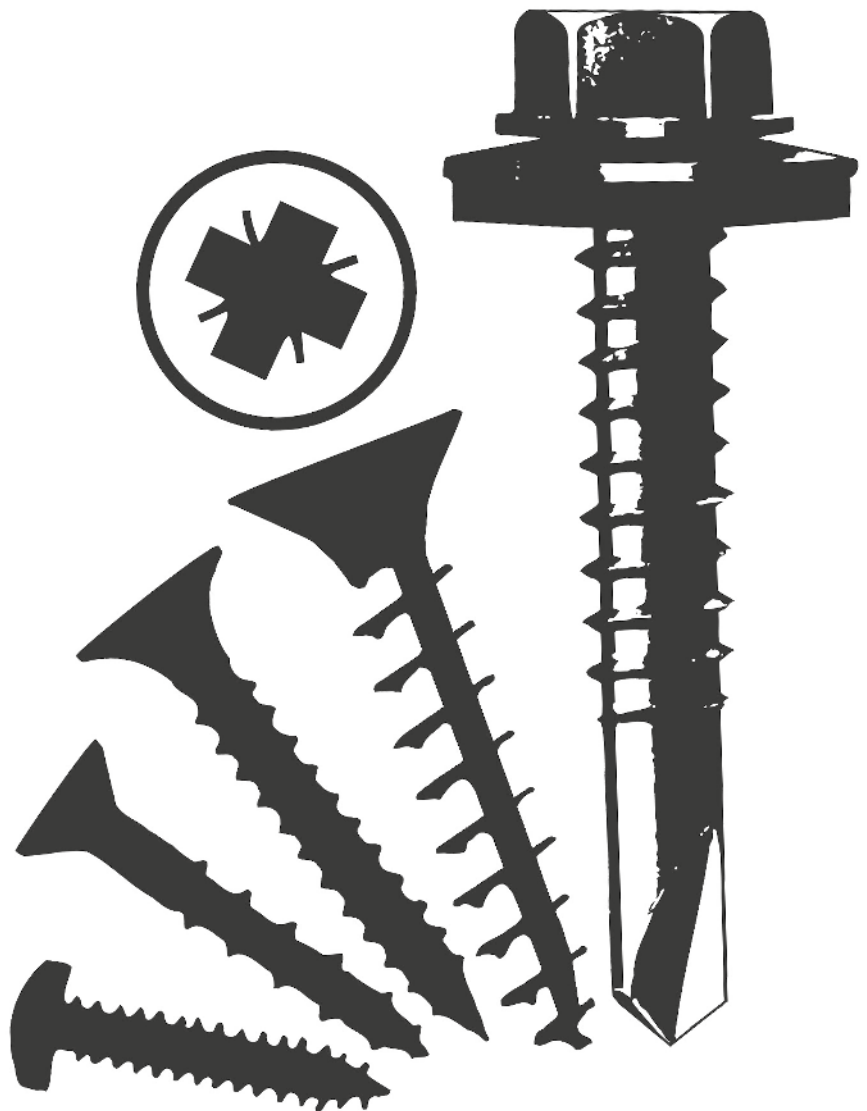
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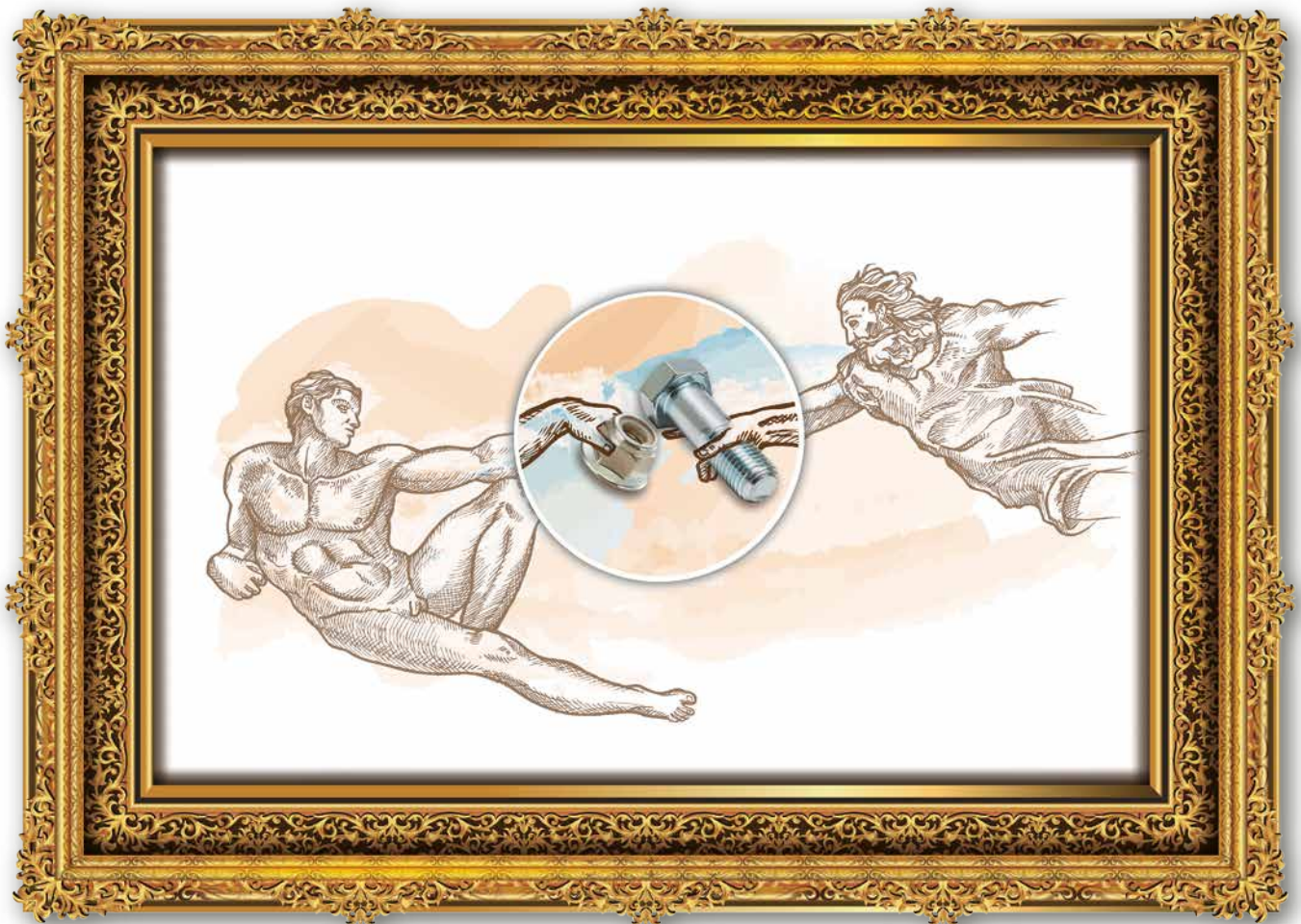
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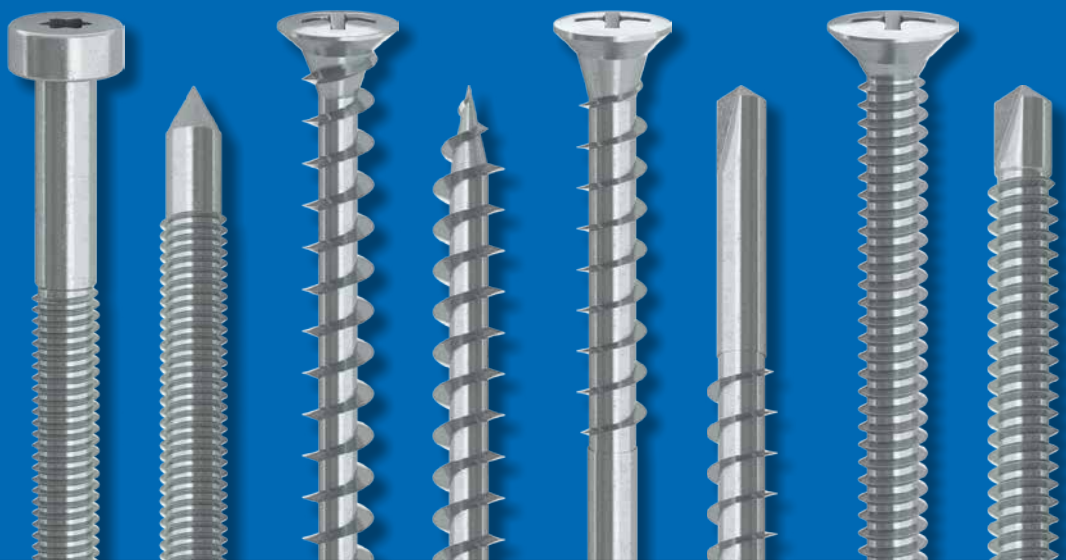
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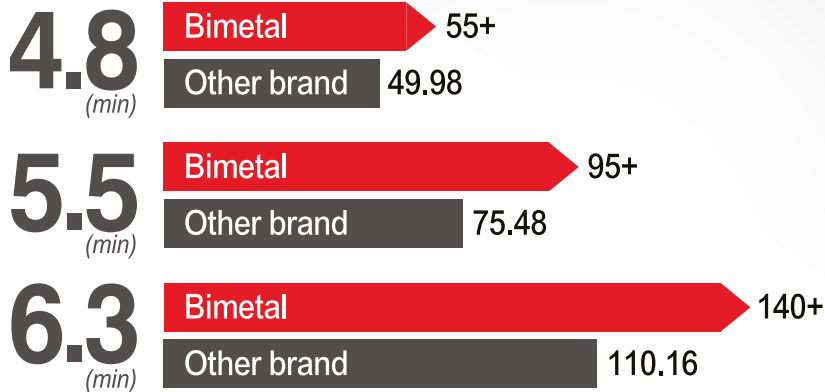


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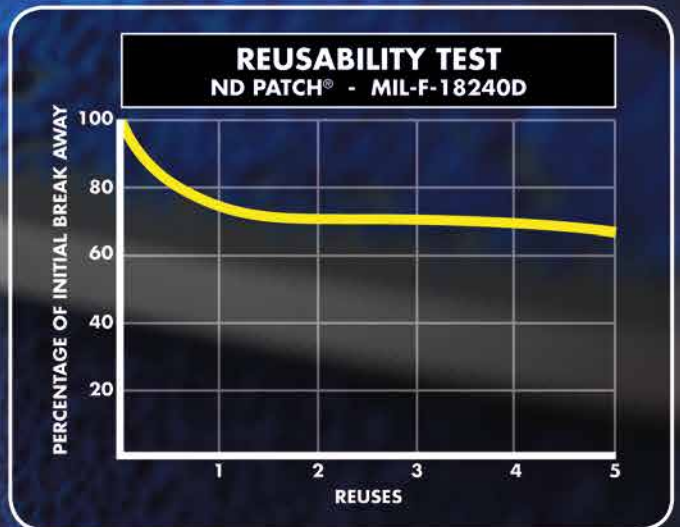
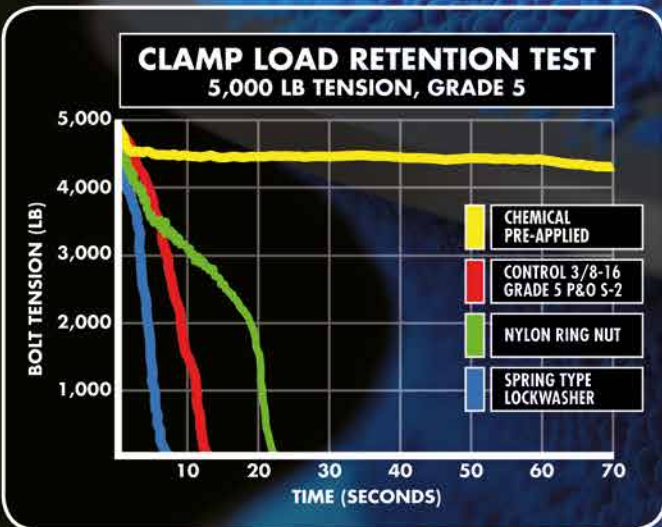
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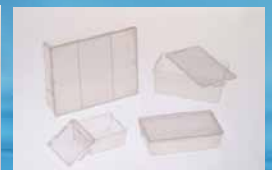
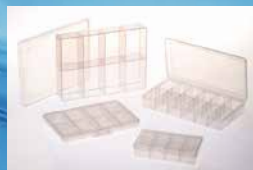
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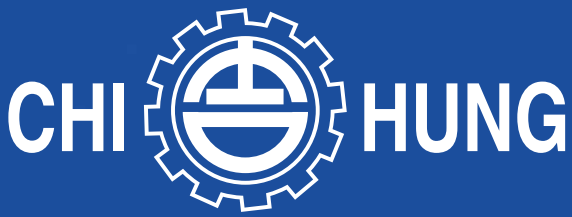
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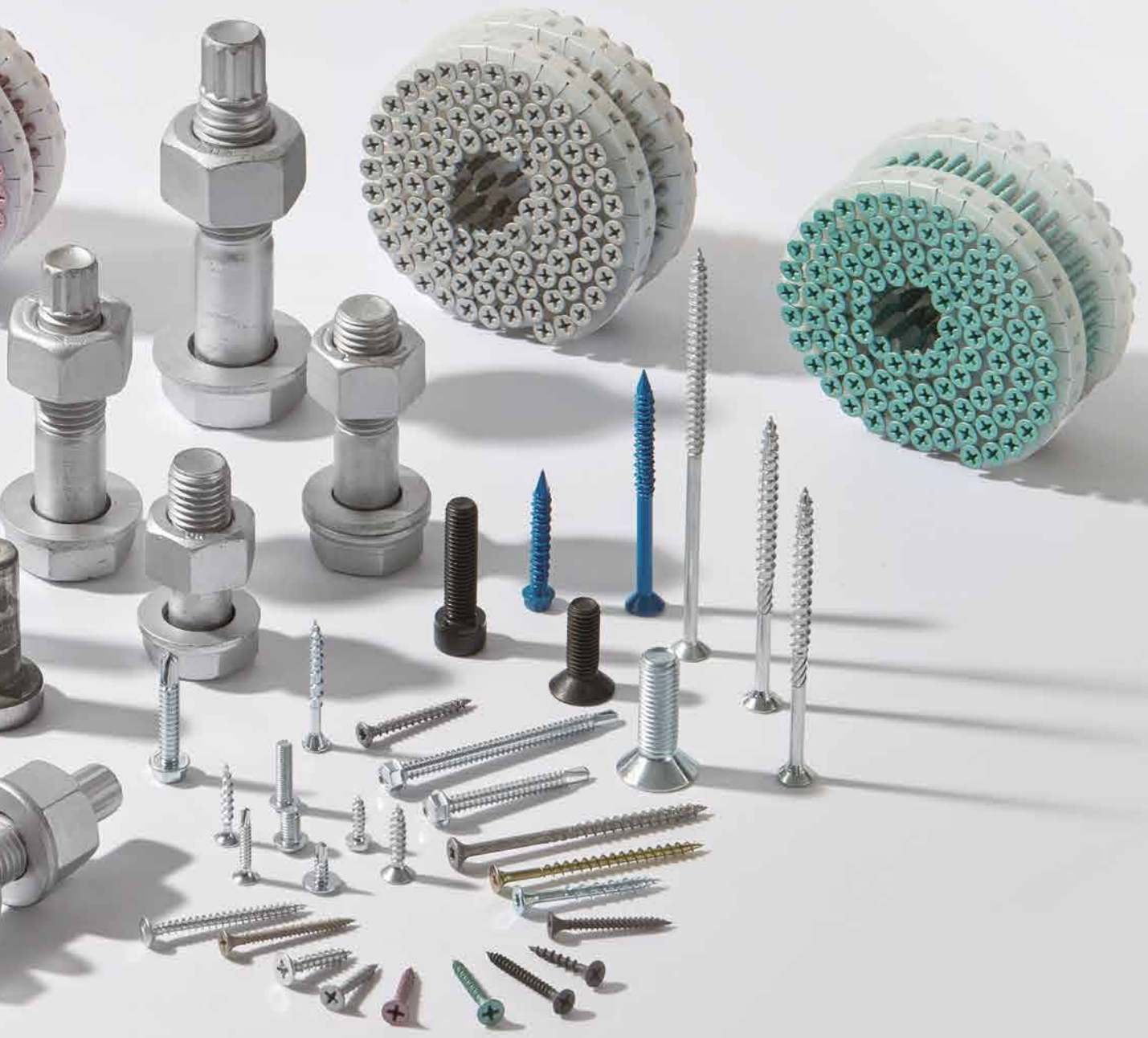
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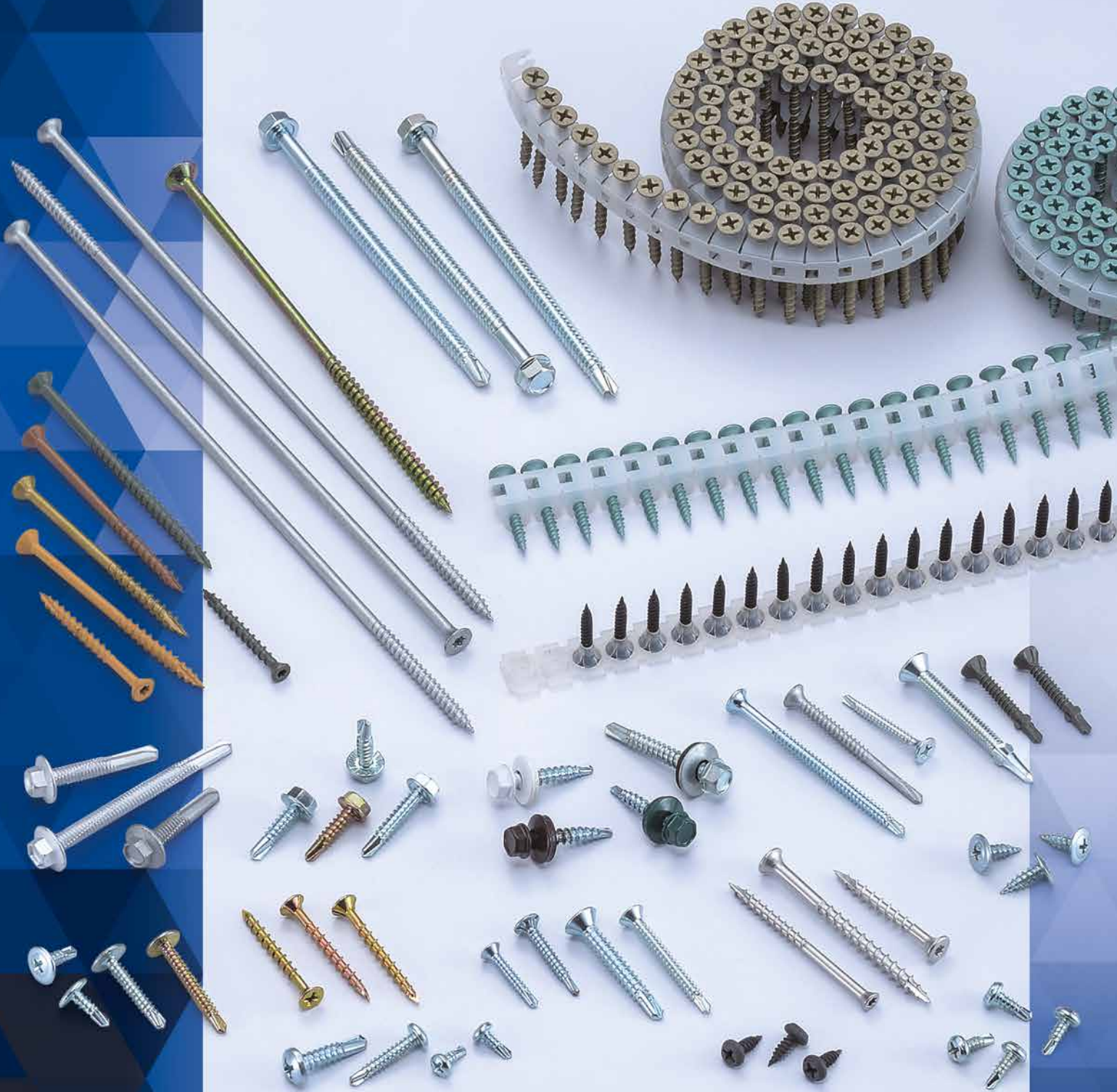


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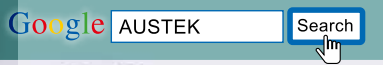
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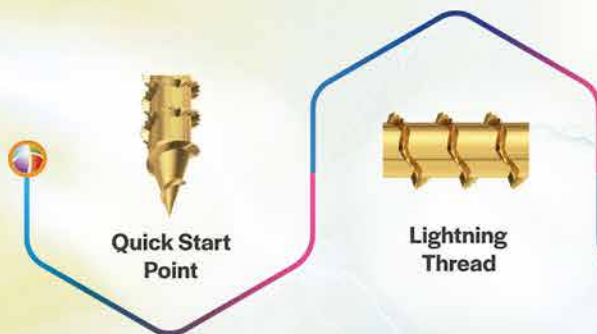


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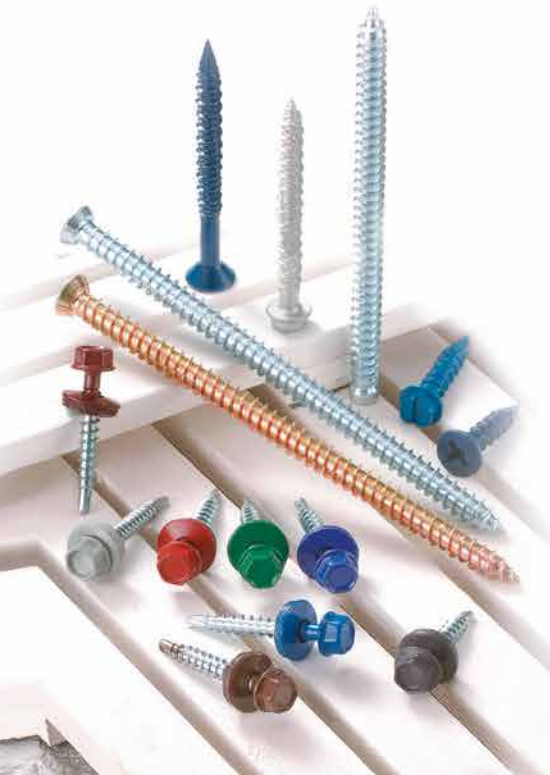
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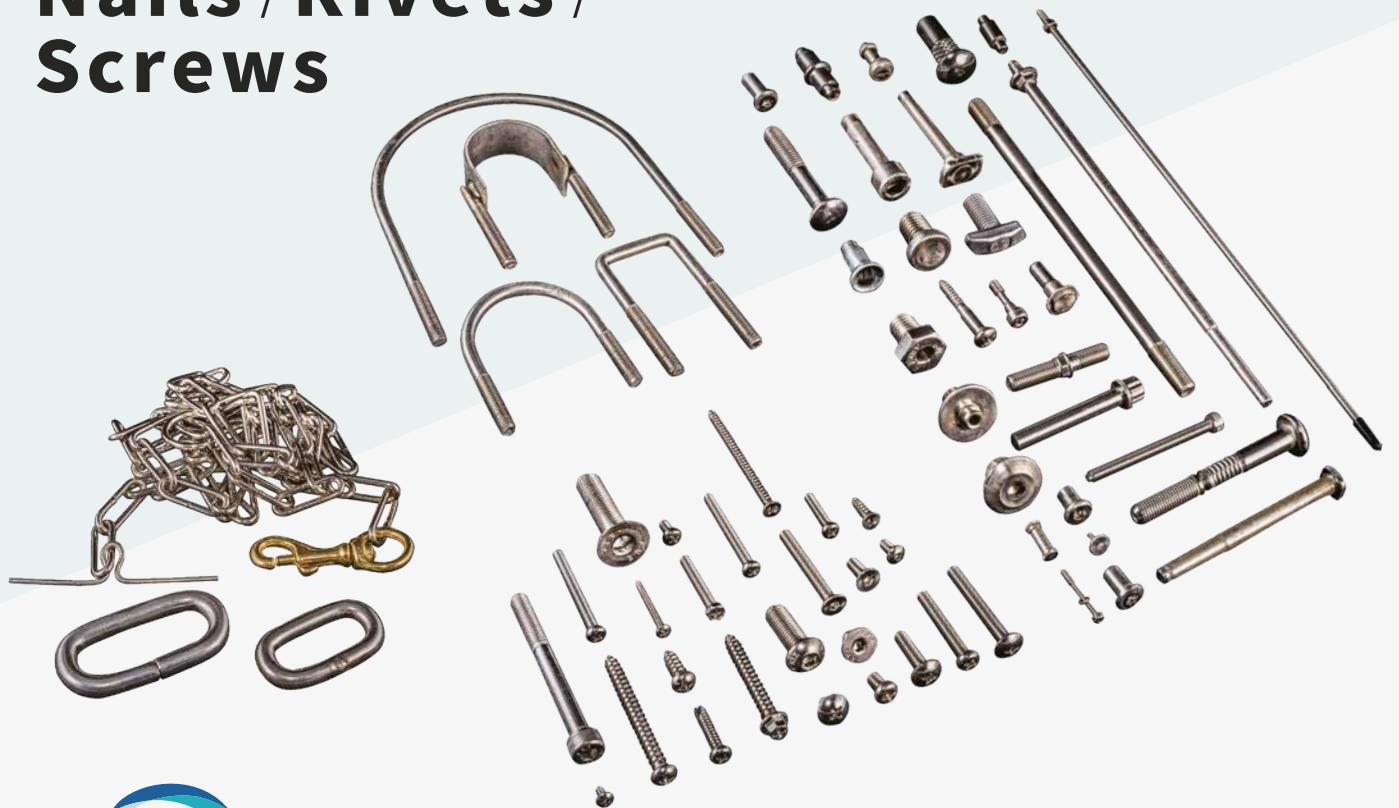
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“TSLG was established in 1984. Over the past 40 years, our group has developed the most advanced pre-coating application technology. We cooperate with the world leading adhesive brands, NYLOK, precote and Loctite and the products have also been certified by NAS (U.S. Aerospace Industry Standards), U.S. Military Specifications, IFI (International Fasteners Institute), DIN (German standards), GM/FORD and other vehicle manufacturers certification and approved by relevant international environmental protection and quality project certification. TSLG is the designated partner of several leading companies in the world, such as Tesla, Apple, DELL, hp, acer, ASUS, Giant and Amazon, etc. By the precise pre-coating on fasteners technology, we not only improve the efficiency of customers’ production, but also achieve the demand of thread locking, sealing and other applications, greatly enhancing the quality, reliability, safety and value of customers’ products.” said TSLG CEO Jack Chung.



President Robert Hsiao pointed out that “after 40 years of hard work, the team members have braved the difficulties and challenges, and have made TSLG the world's largest and most complete group for pre-coating on fasteners. TSLG has established 9 service centers in Taiwan and China. Based on the global layout and development plan, TSLG set up a factory in Vietnam in 2023 and has planned a new factory project in Thailand in 2024. The site for the factory in Thailand is decided and is now under construction. The mass production is scheduled to be ready by the end of 2025 to provide more complete and timely services for customers worldwide.” ■



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# Revenue Ranking of Top Taiwanese Fastener Related Companies for 2024

▼ Fastener ▼ Wire Rod ▼ Machine ▼ Hardware Parts ▼ Hand Tool

Source: Commonwealth Magazine Issue no. 798 / Data range: Financial reports in 2021 to 2023  
Unit of revenues, profit after tax, and total asset in 0.1 bn NTD

## Fastener Manufacturers

Ranking Among Top 2,000 Taiwanese Manufacturers			Company Name	Revenue (NTD 0.1 Billion)	Revenue Growth (%)	Earnings After Tax (NTD 0.1 Billion)	Profit Margin (%)	Total Asset (NTD 0.1 Billion)
2023	2022	2021						
47	43	54	Ta Chen International	1,012.57	-11.29	53.31	5.26	1,351.15
272	250	274	Tong Ming Enterprise	129.66	-15.96	1.35	1.04	122.86
286 ↑	319	330	QST International	122.38	6.64	4.74	3.87	185.92
372	328	293	Chun Yu Works	84.61	-23.43	2.54	3.00	121.68
444 ↑	448	452	San Shing Fastech	66.45	-7.26	9.97	15.00	87.83
448 ↑	460	450	Boltun	65.35	-4.28	4.45	6.81	114.23
609	595	709	OFCO	43.21	-10.30	1.51	3.49	52.03
673	565	724	Jinn Her Enterprise	36.09	-29.76	---	---	225.59
720	620	635	Lu Chu Shin Yee	32.80	-26.41	3.41	10.40	47.13
730	636	768	Jau Yeou Industry	31.88	-26.27	---	---	31.35
739 ↑	992	1243	NAFCO	30.71	40.04	3.08	10.03	50.78
802 ↑	853	975	Sumeeko	27.77	-2.60	3.30	11.88	34.23
815	607	744	Tong Hwei Enterprise	26.98	-42.10	---	---	---
879	947	1044	Intai Technology	24.45	1.33	3.41	13.95	47.89
905	901	848	Sheh Fung Screws	23.24	-10.30	2.67	11.49	33.94
912 ↑	919	1003	Spec Products	22.85	-19.63	2.09	9.15	19.89
1113	873	944	Rodex Fasteners	15.36	-43.76	0.81	5.27	24.82
1129	1083	1078	King Point (PATTA)	14.97	-17.29	0.64	4.28	19.87
1150 ↑	1217	1237	Sheh Kai Precision	14.29	-1.45	2.45	17.14	19.97
1248	898	1183	Min Hwei Enterprise	12.05	-53.67	---	---	---
1306 ↑	1311	---	Easylink Industrial	11.21	-9.30	---	---	---

In the fastener manufacturer category, a total of 21 companies have entered the top 2,000 rankings. This is two companies fewer than the 23 companies revealed by Commonwealth Magazine last time. Easylink Industrial entered the list for the first time previously and continues to be included this time.

In 2023, 9 companies with their revenue ranking moving up are marked with a red arrow. Compared with 17 entrants that moved up in 2022, the number of entrants for 2023 dropped by nearly half. In 2023, there were as many as 18 companies on the list with declining revenue, and the average revenue growth rate of all 21 companies on the list was minus 14.6%; the average profit margin was 8.25%. This reflects that Taiwan's fastener revenue leaders saw a sharp increase in orders in 2022 and a sharp drop in 2023, but maintained positive profit margin growth in 2023.



In terms of revenue scale, the top three were Ta Chen International, Tong Ming Enterprise and QST International. The combined revenue of the three companies alone accounted for 68% of the total revenue (NTD 184.888 billion) of all 21 entrants. Among them, the revenue of Ta Chen International is seven to eight times higher than that of Tong Ming Enterprise and QST International.

In 2023, the top three entrants with the highest total assets were Ta Chen International, Jinn Her Enterprise, and QST International.

### Fastener Traders

Ranking Among Top 2,000 Taiwanese Service Providers			Company Name	Revenue (NTD 0.1 Billion)	Revenue Growth (%)	Earnings After Tax (NTD 0.1 Billion)	Profit Margin (%)	Total Asset (NTD 0.1 Billion)
2023	2022	2021						
77	77	90	Brighton-Best International	246.27	-6.09	31.25	12.69	474.96

In the fastener trader category, only Brighton-Best International is on the list. This is one company fewer compared with the previous ranking. Brighton-Best International's revenue fell 6% to NTD 24.627 billion. Profit margin dropped to 12% from 17% recorded in 2022, but still maintained a double-digit growth momentum.

### Fastener-related Material & Equipment Manufacturers

Ranking Among Top 2,000 Taiwanese Manufacturers			Company Name	Revenue (NTD 0.1 Billion)	Revenue Growth (%)	Earnings After Tax (NTD 0.1 Billion)	Profit Margin (%)	Total Asset (NTD 0.1 Billion)
2023	2022	2021						
14	13	13	China Steel Corporation	3,633.27	-19.18	16.82	0.46	6,787.57
53	47	39	Dragon Steel Corporation	895.74	-19.11	-51.95	-5.80	1,604.47
107	102	88	Chung Hung Steel Corporation	377.64	-15.14	1.59	0.42	329.93
373	365	316	Tycoons	84.20	-12.05	0.81	0.96	89.11
409	382	392	New Best Wire	75.85	-16.04	2.57	3.39	85.41
539	402	436	Tycoons Worldwide Group (Thailand)	50.17	-39.80	1.23	2.45	51.99
572	546	533	Kuang Tai Metal Industrial	46.38	-13.55	---	---	62.27
748	732	675	Quintain Steel	30.28	-14.90	-2.59	-8.55	110.54
971	930	820	Yuang Hsian Metal	20.48	-16.98	---	---	20.54
1134	---	---	Jern Yao Enterprises <b>(New Entrant)</b>	14.85	1.09	3.40	22.90	30.36
1168	1015	1097	Chen Nan Iron Wire	13.90	-33.24	1.32	9.50	25.57
1276 ↑	1295	1228	Chun Zu Machinery	11.72	-7.79	0.74	6.31	19.63

In the machine and equipment category, there were Chun Zu Machinery, as well as the new entrant Jern Yao Enterprises. Jern Yao Enterprises' revenue grew 1.09%, and it is worth noting this company's two-digit growth in profit margin. Although Chun Zu Machinery's revenue fell by 7%, its still moved up the rank. In the raw material category, the revenue of all entrants on the list fell by double digits, with an average decline of 20%. It shows that orders received by Taiwanese fastener-related raw material manufacturers in 2023 was also greatly impacted.

### Hand Tool Manufacturers

Ranking Among Top 2,000 Taiwanese Manufacturers			Company Name	Revenue (NTD 0.1 Billion)	Revenue Growth (%)	Earnings After Tax (NTD 0.1 Billion)	Profit Margin (%)	Total Asset (NTD 0.1 Billion)
2023	2022	2021						
612	538	502	Stanley Chiro International	42.66	-23.60	2.07	4.85	121.39
632 ↑	759	839	Mobiletron	40.04	18.99	-1.29	-3.22	84.00

In the hand tool category, Stanley Chiro International's revenue fell by double digits, while Mobiletron's grew by double digits. The former's revenue decreased from NTD 5.584 billion in 2022 to NTD 4.266 billion. The latter increased from NTD 3.36 billion to NTD 4.004 billion. In terms of capital, Stanley Chiro International's scale reached the NTD 10 billion mark. ■

Compiled by Fastener World



# Fastener World's Vietnam Investment Tour Report



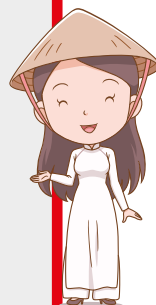
## Vietnam Profile:

1. The Vietnamese population broke the 100 million mark in 2023. The labor population aged 15 to 64 accounted for nearly 70%, of which 21.1% was aged 10 to 24, and 31% was aged 30 to 49. In Q1 2024, the labor population above 15 years old was 51.3 million, an increase of 174,100 people, or 0.34%, which translates to very abundant manpower.
2. High-tech industries are mainly concentrated in North Vietnam, so attention must be paid to the lack of electricity in this region. Local transportation and infrastructure for economic development are being rapidly constructed.
3. In order to protect local agriculture, Vietnam sets higher environmental regulations and requirements than those in Taiwan that should not be taken lightly.
4. According to the CPTPP agreement, 95% of Vietnam's exports to Canada enjoy zero-tariff treatment, and exports to Europe and the U.S. enjoy preferential tariffs. Under the EVFTA agreement, 71% of Vietnam's exports to the EU are tariff-free, and so are 65% of the EU's exports to Vietnam.
5. At present, quite a few Taiwanese fastener manufacturers have set up factories in Vietnam since many years ago. Most of the companies around Ho Chi Minh City are small screw factories focused on production and export. In recent years, Japanese, South Korean, Chinese and Taiwanese companies have gradually concentrated in Hanoi and Haiphong in the north doing domestic sales and export. Wire rods, equipment, surface treatment companies have followed setting up bases in the surrounding area. A local supply chain is taking shape.

## Motive for the Vietnam Investment Tour

From the US-China trade war, to COVID-19, Russia-Ukraine war, the dramatic changes in the economic status of China and India, and the rise of Southeast Asian market, the global market landscape has continued to undergo major reshuffles in the past five years, accelerating the overseas expansion of Taiwanese fastener manufacturers to diversify risks, maintain price competitiveness, and **meet customers' expectation for Taiwanese suppliers to have overseas bases. Taiwan's fastener manufacturing costs continue to rise, and so are the costs of labor, land, electricity, and raw materials, forming the motives for Taiwanese fastener manufacturers to set up factories in Vietnam.**

Among many major Taiwanese fastener manufacturers, Sheh Fung Screws has already achieved success with a factory built in Vietnam many years ago. The company has a vision to build this Vietnam factory into a large platform that replicates Taiwan's fastener supply chain. For potential collaborators who want to jointly tap into Vietnam, the company is inviting them to form satellite factories within Sheh Fung Screws's Vietnam plant, where Sheh Fung Screws can provide the manufacturing land, information, capital allocation, and factory construction permit handling, in order to switch from outsourcing to in-plant production and help collaborators connect with the world.





To attain a prosperous future for Taiwanese fastener industry in Vietnam, Sheh Fung Screws President Terry Tu and General Manager Kent Chen strongly supported a multi-month collaboration with Fastener World to arrange for and successfully launch Taiwan fastener business owners' Vietnam investment tour this year. The tour attracted up to 50 participants who were keen to be part of this tour, and there was a lot gained from it. For this achievement, Fastener World must thank Terry and Kent for their strong support.

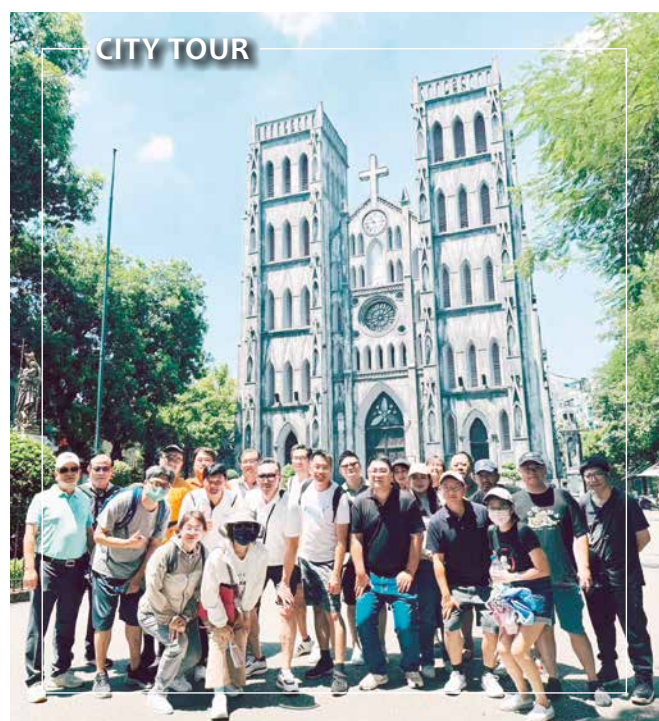
In addition, Fastener World is grateful to President Mr. Chung-Jen Yen of Thread Industrial, as well as Vice President Ms. Ya-Pei Yen and Manager Mr. Yao-Feng Yen based in Thread Industrial's Vietnam plant, as well as the employees there who gave their best to welcome and entertain all the participants.

Finally, Fastener World would like to say thank-you to President Kenny Huang of Tycoons Group Enterprise— a long successful enterprise in the wire business in Southeast Asia, Thailand, and Vietnam— for his dinner gala and hospitality. Kenny invited the President of The Council of Taiwanese Chambers of Commerce in Vietnam as well as the tour participants to join in the fest in a Michelin-starred, most high-priced restaurant in Ho Chi Minh City. Fine wine and cuisines were shared, and everyone was having a great time.

During the tour in Vietnam, Fastener World observed that Vietnam now looks like China back in 1995 with factories set up everywhere and developing rapidly. Vietnam has very low costs of manpower and land, while its manpower is abundant. In addition to Taiwan CSC and China's wire rod plants, Vietnam's two major local steel plants (Viet Nam Steel Corporation and Formosa Ha Tinh Steel Corporation) have completed construction and begun to supply sufficient fastener materials. Many participants of the tour told us that Taiwan's fastener industry chain is well suited to take root in the highly inclusive Vietnamese market. We anticipate for Taiwanese fastener companies to invest in Vietnam.



There are five major highlights of this visit, including visiting a visit to Fastener Fair Vietnam, visits to five Vietnamese companies, briefings at three Vietnamese industrial zones, and post-tour interviews with several participants. The following articles will focus on these highlights to provide readers with an in-depth and comprehensive analysis report on the Vietnamese market.





## Post-show Analysis — Fastener Fair Vietnam

### Investment opportunities in Southeast Asia are expected to grow

Fastener Fair Vietnam 2024, a three-in-one hybrid show, combining Vietnam Manufacturing Expo, Vietnam Material Handling, and the Fastener Pavilion, was held at ICE Hanoi from August 7 to 9. According to the exhibitor list released by the show organizer, there were a total of 145 exhibitors, of which 44 were fastener and related exhibitors, accounting for 30%.

Fastener World brought four manufacturers representing Taiwanese high-quality fasteners and services to exhibit in the show, including A-Stainless International, Taiwan Kodai, Ching Chan Optical Technology, and Uni-Protech Industrial. There were other companies visiting the show independently, including Spec Products Corp., San Yung Electric Heat Machine, Shyeh Mennq Development, Shin-Mone Screw, Accuvision Technology, and so on. From here, we can see that in addition to Thailand, Vietnam has also become a part of Taiwan's popular investment destinations in Southeast Asia in the past three years.



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Fastener World's exhibitor said that in addition to fastener product exhibitors, most of the others were machinery manufacturers. Although this was not a very large exhibition, it attracted a good number of crowds. Visitors came from a wide range of fields, providing exhibitors with business opportunities to develop new industry fields. Among the visitors to Fastener World's booth, in addition to buyers looking for industrial fasteners, there were purchasing representatives from local large hardware stores looking for sources to purchase fasteners. This means that household fastener products also have business opportunities in Vietnam.

The Vietnamese market has experienced an upward V-turn since the pandemic, and such growth potential is expected to continue this year.





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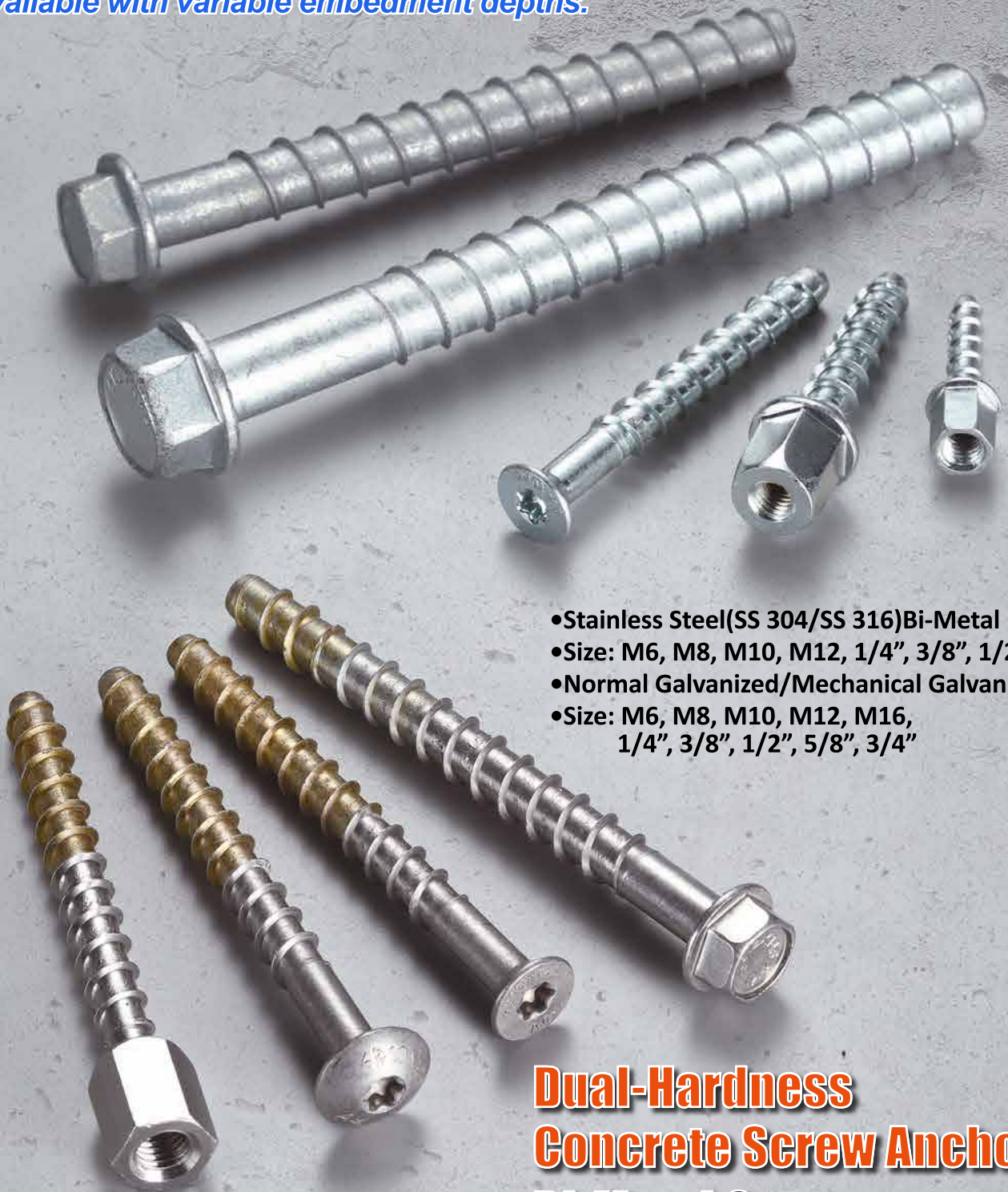
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# Fastener World Leads Taiwan Companies to Visit Sheh Fung's Vietnam Factory

Fastener World organized a Vietnam investment delegation consisting of more than 40 reps from Taiwan fastener companies to visit Sheh Fung Screws' Factory in Vietnam on Aug. 5th.

When the delegation arrived in Phan Thiet City, Sheh Fung kindly invited them to join a grand welcome dinner on the same night. The atmosphere was cordial and lively, and Sheh Fung President Terry Tu, General Manager Kent Chen, and important senior executives, who attached great importance to the visit, attended to warmly welcome the delegation. In order to make every guest feel at home, during the dinner, Sheh Fung also specially assigned their company staff at each table to interact and exchange business cards with the visiting guests and share with the guests all



kinds of experience in setting up factories in Vietnam in a relaxing atmosphere, making every guest feel Sheh Fung's heartfelt preparations and strong hospitality.



The day after the welcome dinner, the delegation took a bus to Sheh Fung's factory and the Industrial Park for a visit and listening to detailed briefings. Sheh Fung is a professional manufacturer of construction screws in Taiwan, with more than 50 years of experience in innovative R&D and dominating the industry with its unique painting technology. Sheh Fung's one-stop process planning, systematic and data-based management, and successful transformation of industrial intelligence have also won the favor and recognition of many international supply chain partners. Sheh Fung spent NT\$1.2 billion on establishing a new factory in Phan Thiét City of Southern Vietnam, which occupies an area of 20 hectares and has been officially put into operation since January 2024, hoping to replicate the success of its Taiwan HQ to the new factory in Vietnam and capitalize on the advantages of the local raw material supply chain and Vietnam's production hinterland, so as to make Sheh Fung's future development in Southeast Asia and the global market more flexible and competitive. (More details on the factory visit will be released in future Fastener World issues.)

In addition to the factory visit, the delegation also met with the management rep of the Industrial Park where Sheh Fung's factory is located today. The rep of the Industrial Park, Sheh Fung's Sales Assistant VP Rita Su, and KPMG rep successively briefed the guests in detail about the outline of the Industrial Park, Sheh Fung's valuable experience in setting up a Vietnam factory, and the solutions to tax problems and problems Taiwanese companies may encounter if they want to set up factories in Vietnam. The rep of the Industrial Park hoped that the visit and the informative presentations would help the guests have a comprehensive understanding of setting up factories in Vietnam and market development, and more importantly, stimulate the strong desire of more Taiwanese manufacturers to invest in Vietnam, and hoped that with more Taiwanese manufacturers coming to invest in Vietnam, an important industry cluster of fasteners, similar to the "Screw Industry Cluster" of Gangshan (Kaohsiung, Taiwan), could be created in Vietnam, thus achieving mutual benefits and a win-win situation. At the meeting, Sheh Fung's staff on-site also prepared delicious desserts and exquisite souvenirs to make every guest feel their hospitality.



Some Taiwanese companies joining the delegation told Fastener World that the visit to Sheh Fung's factory and the Industrial Park was very fruitful for them, and they also learned a lot from their valuable experience in setting up factories and investing in Vietnam through the briefing. They are very grateful to all Sheh Fung's staff for their generous arrangement and hospitality, and also look forward to the next few days of the visit to have a fuller understanding of the Vietnamese market.

**Sheh Fung contact:**  
**Rita Su, Sales Assistant VP**  
**Email: rita\_su@shehfung.com**





**Thread Industries Contact:**  
**Ya Pei Yen, Vice President**  
**Email: yapei@ticl.com.tw**



## Fastener World Leads Taiwan Companies to Visit Thread Industries (Vietnam)

On August 6th, a delegation of more than 40 people from Fastener World Vietnam Investment Delegation visited the plant of Taiwan's leading nut, bolt and small screw manufacturer, Thread Industries, in Dai Dan Industries Zone, Binh Duong Province (Vietnam). General Manager Ya Pei Yen, Manager Yao Feng Yen and the key management team of Thread Industries warmly welcomed the delegation at the entrance.

During the visit, the representatives of Thread Industries not only guided the delegation to see the internal planning and actual operation of the plant, but also prepared rich presentation material to introduce the process of Thread Industries' establishment in Vietnam and related experience as well as the investment status of the industrial zone in which Thread Industries is located to the visiting Taiwanese guests. After that, the delegation also visited the local industrial zone and listened to the presentation made by the representative of the industrial zone. The interaction between on-stage and off-stage was very lively, and the guests were able to gain valuable information about the investment environment, market situation and potential expansion opportunities in the region.



Established in 1987, Thread Industries has been investing in Vietnam for more than 20 years, and has obtained a number of certificates including IATF 16949, ISO9001 and TAF. Currently, Thread Industries has two plants in Binh Duong Province (Vietnam), one of which is the Dai Dan plant with an area of 40,000 square meters, which mainly produces nuts, bolts and small screws for export to advanced countries such as Japan, Europe and America. Adhering to the business philosophy of integrity, practicality and innovation, and the management principle of sustainable management and pursuit of excellence, Thread Industries is looking at the international market and marketing all over the world, and expects to become an outstanding manufacturer and supplier of fasteners for the construction, industrial, and automotive industries.





## Tycoons Holds a Banquet to Welcome Fastener World Vietnam Investment Delegation

On Aug. 5, President Kenny Huang of Tycoons Group Enterprise, a leading carbon steel fastener manufacturer in Taiwan, hosted a reception dinner in Ho Chi Minh City to welcome the Fastener World Vietnam Investment Delegation from Taiwan.



In addition to inviting representatives of many well-known Vietnamese construction companies to attend the dinner, a number of guests from Taiwan fastener industry were also invited to meet and exchange with the delegation. President Kenny Huang also flew to attend the dinner to welcome the delegation to Vietnam. In an atmosphere of fine wine & food and relaxed networking, President Huang and the guests toasted each other by raising their glasses and wished the delegation a successful visit.

Tycoons Group Enterprise, established in 1980, specializes in the production of spheroidized wire rods and screws as well as the development of a wide range of construction screws and automotive fasteners, and is currently one of the listed companies on the TWSE. With the ISO9001:2015 and CE certificates such as EN14566 and EN14592, world-class flexible mass production scale, integration and division of labor in the group, and a working environment that pursues sustainable development, Tycoons Group also has overseas factories in China, Thailand and Vietnam, in addition to its headquarters in Taiwan. Adhering to the business philosophy of "Innovation, Transcendence, Quality, and Customer Satisfaction", and through the integration of upstream and downstream resources, and consistent vertically integrated technology, Tycoons has been well recognized by its customers around the world.



**Viettycoons Steel Co., Ltd contact:**  
**Ms. Nguyen Thi Quy (Vice President)**  
**Email: quyntq@gmail.com**



## Fastener World Leads Taiwan Companies to Visit AMA Group

On August 8, Fastener World Vietnam Investment Delegation made the third stop of its visit to the Bac Ninh factory of AMA Group, a leading manufacturer with rich mechanical engineering and machining expertise in Vietnam, in the hope of gaining a better understanding of the management and operation of local Vietnamese enterprises by observing one of the representative manufacturing plants in the country.

AMA Group Bac Ninh Branch sent a number of executives to warmly welcome the delegation and led them to visit various areas of its factory and introduced their main products. AMA also prepared a detailed presentation to introduce the history of the company, the development of AMA, and its main service targets.

AMA Group specializes in serving many industry sectors, including automation, CNC processing machinery, die casting, casting, plastic injection molding, sheet metal fabrication, fasteners, traffic safety equipment. At present, the Group has large-scale production bases in Hanoi, Vinh Phuc Province and Bac Ninh City. Its production lines have been not only equipped with modern equipment, but also have complied with the quality management systems of ISO 9001:2015 and IATF 16949:2016, fully satisfying the strict requirements of global customers. Stringent management and excellent product quality have made AMA Group a long-term partner of several well-known manufacturers such as Panasonic (Japan), Samsung and LG (S. Korea), and VINFAST (Vietnam).



## Fastener World Leads Taiwan Companies to Visit Brother Fasteners Vietnam

On August 9, Fastener World Vietnam Investment Delegation's factory visit came to the final stop - Brother Fasteners Vietnam, which is also the second local Vietnamese enterprise visited by this delegation.

In addition to a tour of the factory's internal operations, the delegation also listened carefully to a corporate presentation prepared by a representative of Brother Fasteners. Moreover, New Best Wire Industrial, a major wire rod manufacturer in Taiwan that has a cooperative relationship with Brother Fasteners, also took this opportunity to come and give a presentation to the guests.



After the meeting, Mr. William Liao, President of Fastener World, presented a trophy to Brother Fasteners for their kindness and hospitality.

Brother Fasteners Vietnam, established in 2017 and headquartered in Bac Ninh, with a factory area of more than 2,000 square meters, specializes in the production of a wide range of screws, bolts, nuts and industrial components. The company mainly serves domestic and foreign customers in the automobile, motorbike, bicycle, home appliance, electric/electronic equipment and related peripheral industries, and has recently begun to aim at the development of products for the aerospace industry. The company continues to provide customers with high quality products and actively invests in expanding its factories in the hope of gaining access to the supply chain of more domestic and overseas manufacturers. The professional service attitude and responsiveness as well as the excellent quality have made the company quickly become a professional fastener manufacturer in Vietnam which is recognized and trusted by a wide range of customers.



## Visiting Industrial Parks

### TASECO Dong Van 3 Industrial Park

The planned TASECO Dong Van 3 Industrial Park is oriented as a multi-industry industrial park located in North Vietnam with a future external transportation network connecting Hanoi and neighboring provinces. With its large-scale and synchronous infrastructure, TASECO Industrial Park is an ideal destination for companies looking for sustainable development and high profitability. **The 223-hectare park, with 166.89 hectares of land specifically for industrial use, will have a complete technical infrastructure, including a fully independent rainwater drainage system, comprehensive water supply and sewage treatment systems, and an adequate & stable power supply.**

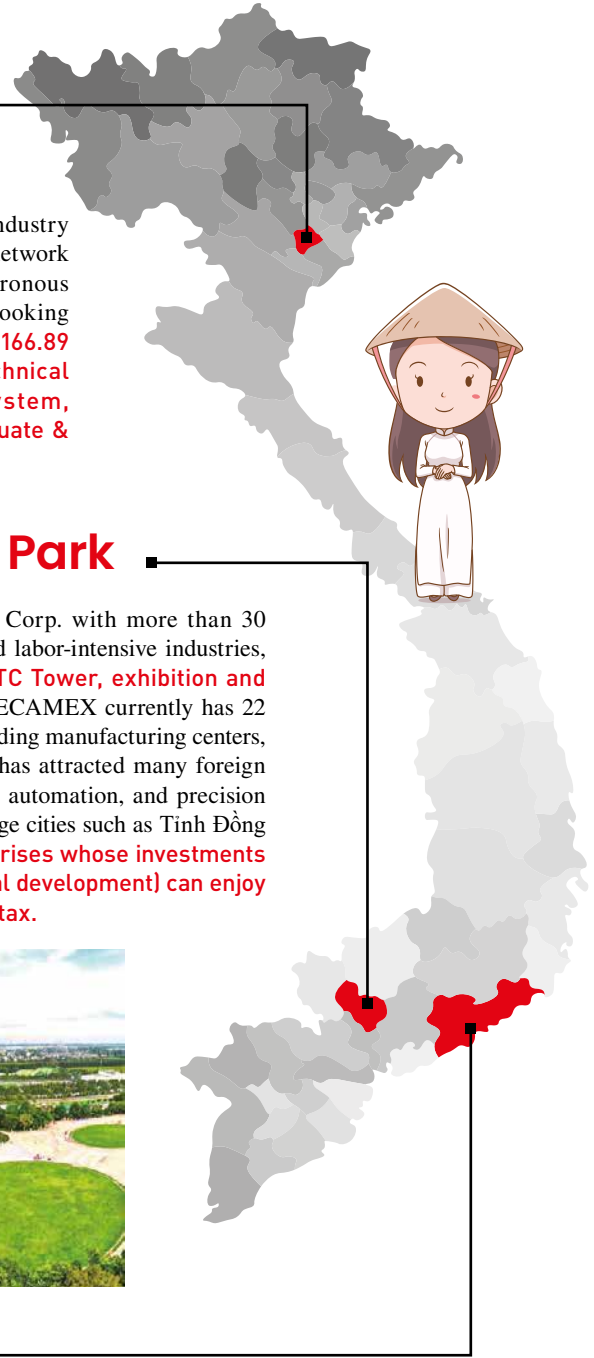
### Binh Duong Technology Industrial Park

Binh Duong Technology Industrial Park is developed by BECAMEX IDC Corp. with more than 30 years of experience in developing industrial parks, attracting high value-added and labor-intensive industries, and **surrounded by a complete service and trade ecosystem, including WTC Tower, exhibition and conference centers, five-star hotels, shopping centers, and dining areas.** BECAMEX currently has 22 industrial parks in 14 provinces of Vietnam. Binh Duong itself is one of Vietnam's leading manufacturing centers, with a population of 2.8 million people, and a well-developed infrastructure that has attracted many foreign investors, including large factories in the electronics, raw materials & equipment, automation, and precision instruments industries, as well as modern logistics infrastructure that connects to large cities such as Tỉnh Đồng Nai, Ho Chi Minh City and Tỉnh Bà Rịa - Vũng Tàu. **It is understood that enterprises whose investments are planned to be located in industrial parks (except for areas with good social development) can enjoy a two-year tax exemption and a four-year 50% reduction in corporate income tax.**



### Ham Kiem II Industrial Park

Ham Kiem II Industrial Park developed by Bita's Company is located in Binh Thuan, Vietnam, which is 12 km from Phan Thiet City and 187 km from Ho Chi Minh City, with good access to the surrounding roads. It is also the first location for Sheh Fung Screws to invest and set up a factory in Vietnam. **The Park consists of 433 hectares of land for industrial use and 31.2 hectares of multi-function and services zones, with well-planned roads, electricity & water supply and wastewater treatment systems. In addition, the Park also allows manufacturers whose processes include electroplating to invest and set up factories, creating a one-stop service lines.** For enterprises investing and setting up factories in the Park, they will be exempted from corporate income tax for the first 2 years, then enjoy a preferential tax rate of 8.5% for the next 4 years, and then 17% for the subsequent 4 years (the current general corporate income tax rate in the region is 20%).



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“

## Bi-Mirth President Thomas Shih:

The factories of Sheh Fung, Thread Industries (Vietnam) and the local Vietnamese enterprises we visited this time are all very large in scale. Their well-established automated production lines and factory operation models can also serve as references for us when we need to plan new production lines in the future. However, the cost of land in industrial zones is getting higher and higher. If we've got the opportunity to invest in Vietnam or other places in the future, not only is it important to understand the local market conditions and investment environment, but adequate capital is also a prerequisite.

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## Wellfly President James Su:

Due to geopolitics and the influence of “requirements for extra factories overseas” as well as the consideration of anti-dumping and favorable tax rates, I think investing in Vietnam will be the future trend. At Fastener Fair Vietnam, I saw that there were lots of Chinese exhibitors. Many Chinese and S. Korean companies set up factories in North Vietnam, so Taiwanese companies wanting to maintain their competitiveness must pay attention to this trend. The atmosphere of foreign investment in Vietnam is very vibrant and many investors are export oriented. When more infrastructure is completed in the future, it'll definitely bring more opportunities and benefits.

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## Ching Chan Optical President Alex Wu:

We had originally arranged to attend Fastener Fair Vietnam and go to TASECO Dong Van 3 Industrial Park to sign a contract to set up a factory, so when we heard the opportunity to go with Fastener World's Vietnam investment delegation, we joined at once. We've been observing the Vietnamese market for 2+ decades, and noticed many Taiwanese and Chinese enterprises have set up factories there. No matter it is due to the cheap land cost or the “requirement for overseas factories” caused by the U.S. tariffs on China, all of them are trying to get more orders. At this stage, Vietnam's land and labor costs are still much lower than those in Taiwan and China. Considering the labor-intensive and high-pollution nature of fastener manufacturing, I think Vietnam is really worth investing in, and several of the companies we visited this time have demonstrated good results. Many of our customers have invested in Vietnam and continue to grow, and as their equipment supplier, it's important for us to provide localized service. Vietnam also enjoys preferential tariffs for exports to many countries, has a young labor force of 100+ million, and low land costs, which is definitely more advantageous than Taiwan.

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## Hu Pao General Manager Bill Wang:

During my visit to the industrial parks in North & South Vietnam, I observed that Vietnam is a favorable investment environment and potential market for the fastener industry, while North Vietnam has also formed important industrial clusters. Vietnam not only has an abundant labor force, but also has signed FTAs with advantages of regional economic integration. This visit helped us understand the situation of Vietnamese fastener industry, demand and competition, policies, regulations and incentives, establish contacts with local enterprises and governments, evaluate cooperation opportunities, understand the land and factory costs, and possibilities of setting up local production or sales network, as well as helping us formulate marketing strategies. I also noticed that both Taiwanese and Vietnamese fastener factories there need one-stop manufacturing processes, which is valuable info for our future investment evaluation. Vietnam values Taiwanese investment, but manufacturers also need to manage their relationships with local government and organizations. This visit helped us assess the opportunities and challenges in Vietnam and prepare for possible future investments.

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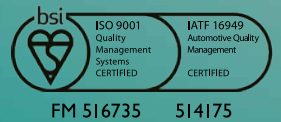


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### **A-Stainless Sales Manager Angie Lu:**

The visit this time helped me learn more about the differences in production models between Vietnam and Taiwan. Vietnam has sufficient labor supply, and I was surprised that the factories there have done a very good job in automated production and AI technology, which is worthwhile for Taiwanese manufacturers to learn from and include in their future production lines or investment references.

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### **Chiang Shin Fasteners G.M. James Lee:**

Thread Industries (Vietnam), and Sheh Fung Screws I visited this time have developed very maturely in Vietnam by taking advantage of the country's land and labor force, specializing in their own industries and laying out their business globally, which are good examples of SOP of overseas investment for Taiwanese companies. Local Vietnamese enterprises have adopted a multi-industry model to satisfy domestic demand. The Vietnamese market is very large with several opportunities to develop.

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### **PPG Business Director Julia Lin:**

Fastener World's visit to Vietnam was really well-arranged and successful, not only helping me understand the differences between the operation of Taiwanese factories there and local enterprises, but also providing me with the opportunity to learn about the Vietnamese market, the conditions for setting up factories, and to communicate with the delegation members. In particular, Sheh Fung Screws arranged local staff to answer questions from the delegation in a timely manner, which was very rewarding and impressive.

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### **Dunfa President Kenneth Ko:**

Fastener World has planned this trip perfectly. I listened to the presentations by reps from Taiwanese-invested factories and industrial parks, which helped me understand more about the investment environment (especially regulations and taxes) and other important information. I also observed the differences and strengths and weaknesses of the investment environment in South and North Vietnam, which is very helpful for us to make market selection and investment evaluation in the future. We hope that Fastener World will organize similar visits to more countries/markets.

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### **MAC Precision Sales Director Willis Tung:**

Vietnamese fastener industry has continued to make progress in automation upgrades in recent years. Although the overall market development is still immature, I believe that Vietnam is still a good target for overseas investment and establishment of factories in the future due to the signing of trade agreements with various countries and sufficient labor force.

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**Ben Yuan G.M. Peter Chen:**

One-stop service is a very important key for manufacturers to enter Vietnam. We've seen a lot of well-planned factories in Vietnam, which can be used as reference cases for our future overseas development.

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**Nova. Fastener Ms. May Chen:**

In Vietnam, because of the long distance between different factories, it is necessary to consider setting up one-stop production lines, especially those for electroplating and heat treatment.

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**Ho Hong Works Manager Bill Wang:**

I'm satisfied with the arrangement and itinerary of this visit. Not only did we have the opportunity to see more Taiwanese-invested worker-friendly factories with good ventilation and sufficient lighting in Vietnam, but we also noticed the motivation and efficiency of local employees in their work.

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**Asia Technical Services Manager Michael Wu:**

The factory planning and automated production lines of Taiwanese factories I visited this time are quite modern, which is significantly different from the traditional practices of local factories in Vietnam. The briefings by manufacturers and presentations by the reps of industrial parks about the investment environment and various incentives for overseas investment were also very clear, helping me better understand the Vietnamese market.

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**L&W Fasteners Sales Director Gary Lin:**

The local factories in Vietnam I visited made me realize the operation and trend of the fastener industry in Vietnam, which is relatively small in scale but continues to expand due to its close proximity to the market and its ability to provide corresponding products according to customers' needs. In addition, I also saw that the factories invested by Taiwanese leading manufacturers are not only large-scale and well-organized, but also have sets of equipment to deal with the main production process of fasteners, which will be especially attractive to customers from Europe and the U.S. ■

”





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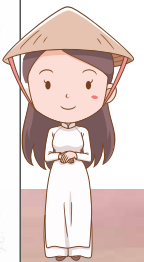
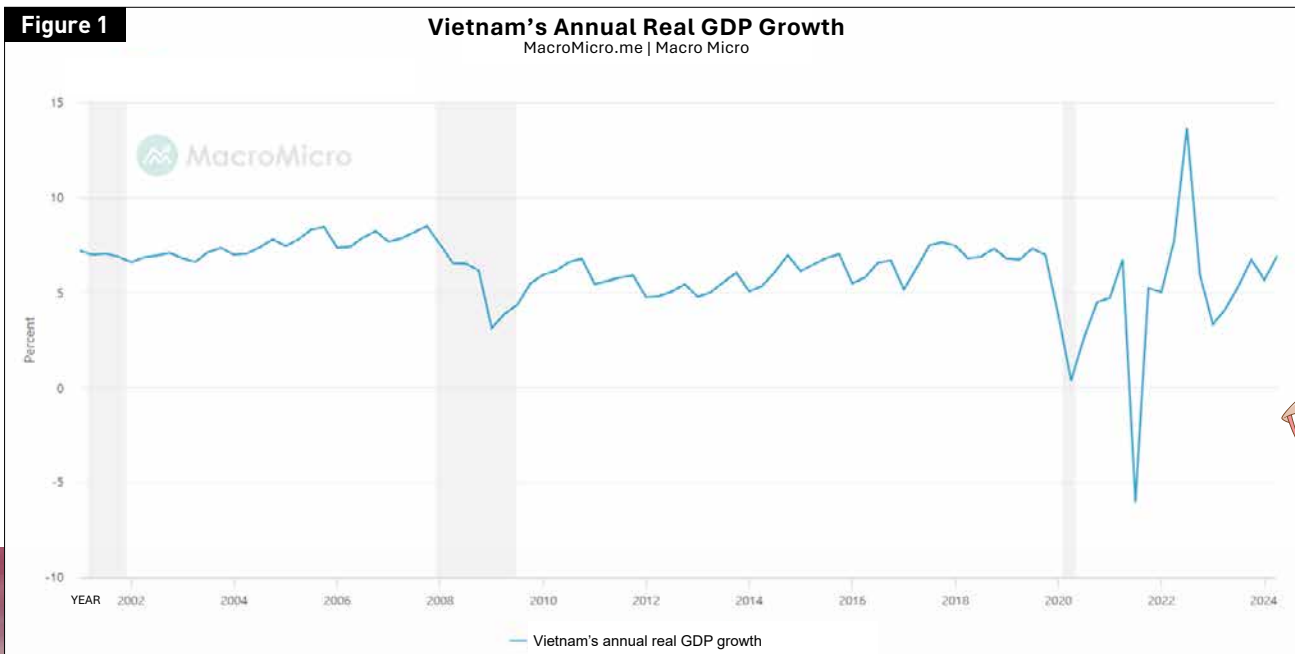


## Vietnam, the Next Top Economy in ASEAN?

According to statistics from Ministry of Planning and Investment (MPI) of Vietnam, Vietnam's GDP growth in Q2 2024 was strong, growing by 6.9% compared with the same period last year (Figure 1). The full-year GDP growth rate is expected to exceed 7%. It is evident that Vietnam's economy performs well and has recovered to the levels before COVID-19. As in Figure 1, excluding the pandemic period, Vietnam's annual GDP growth rate has maintained an average of more than 5% in the past 20 years, making it a country with stable economic growth. Vietnam is already the fourth largest economy in ASEAN and the fifth largest economy in Southeast Asia. The British research organization CEBR even predicts that **by 2038 Vietnam's GDP will reach USD 1.56 trillion and rank 21st in the world. It may overtake Indonesia and top the ASEAN countries.**

## Top 5 Countries' Investment in Vietnam Accounts for 73% of the World's Total

In 2023, the top five countries with the highest total value of new registration, capital increase, joint ventures and stock purchases in Vietnam (Table 1) were Singapore (USD 6.803 billion, 18.58%), Japan (USD 6.566 billion, 17.94%), Hong Kong (USD 4.684 billion, 12.80%), China (USD 4.470 billion, 12.21%), and South Korea (USD 4.400 billion, 12.02%). Among the 111 countries investing in Vietnam, the combined proportion of these five countries was as high as 73.55%, and each had a share of more than 10%, exceeding the USD 1 billion mark, which indicates that the five countries invested quite a lot in Vietnam. From here, we can tell that **the five countries were optimistic about the potential of investing in Vietnam. However, most of the countries with the highest anticipation for investment in Vietnam were Asian countries. The U.S. only took a share of 1.71%. Judging from the fact that Taiwan had a share of 7.88%, Taiwan was competing with other Asian countries for a share in the Vietnamese market.**



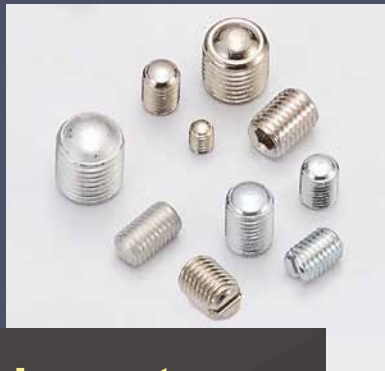
## FASTENER WORLD Market Insights:

# Vietnam Investment Market Overview and Opportunities





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## Taiwan’s Investment in Vietnam Ranked Fourth in the Past 25 Years

A press release from the Taipei Economic and Cultural Office in Vietnam shows that from 1988 to 2023 Taiwan’s cumulative investment in Vietnam reached USD 39.31586 billion, ranking fourth. Considering political concerns and protection for investment, quite a few Taiwanese businessmen invest overseas under the identity of other countries. Otherwise, their numbers and investment value in Vietnam would have been bigger.

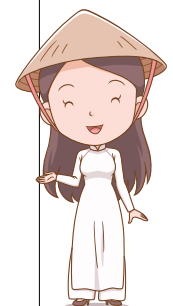
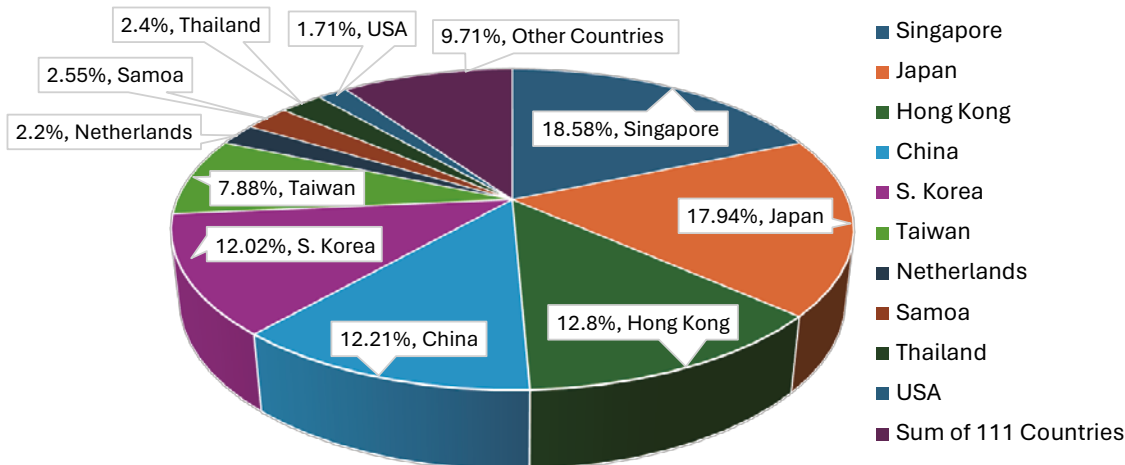
If we narrow the time frame to within 2023, **Table 1** and **Figure 2** show Taiwan’s total value of new registrations, capital increases, joint ventures, and stock purchases in Vietnam reached USD 2.883 billion (up 113.36%, accounting for 7.88%, and ranking 6th). In terms of the number of new investments, there were 210 investments by Taiwan in Vietnam in 2023, accounting for 6.58 % of the sum of all 111 countries. These figures tell that the **Vietnamese market weighs a lot to Taiwanese investors.**

**Table 1. Statistics of Various Countries' Investment in Vietnam in 2023**  
(Source: Taipei Economic and Cultural Office in Vietnam)

Unit: Million USD

Ranking	Country/Region	Number of New Investments	Value of Newly Registered Investment	Number of Capital Increase Cases	Value of Capital Increase	Number of Joint Ventures & Stock Purchases	Value of Joint Ventures & Stock Purchases	Total Value of New Registrations, Capital Increases, Joint Ventures & Stock Purchases	Value Share (%)
1	Singapore	410	3,769.98	153	832.03	349	2,201.49	6,803.51	18.58
2	Japan	302	2,856.35	144	767.17	230	2,942.52	6,566.04	17.94
3	Hong Kong	315	3,413.01	107	1,139.12	91	131.91	4,684.04	12.80
4	China	707	3,544.39	179	766.36	412	160.14	4,470.89	12.21
5	South Korea	472	1,840.88	327	2,159.25	961	400.81	4,400.94	12.02
6	Taiwan	210	2,246.22	103	351.05	235	286.54	2,883.82	7.88
7	Netherlands	20	275.93	17	76.04	24	453.79	805.76	2.20
8	Samoa	43	257.28	24	465.81	15	211.65	934.74	2.55
9	Thailand	57	490.59	15	352.79	44	36.12	879.50	2.40
10	USA	124	113.09	27	315.46	150	197.77	626.32	1.71
0	Sum of 111 Countries	3,188	20,185.62	1,262	7,880.77	3,451	8,541.23	36,607.63	100.00

**Figure 2. Value Shares of New Registrations, Capital Increases, Joint Ventures and Stock Purchases in Vietnam by Top Ten Countries**



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+ Hardened Steel



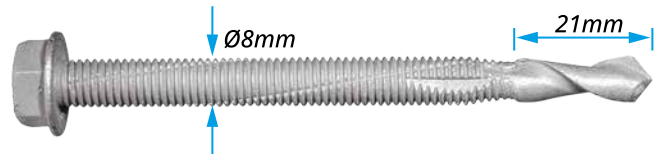
**Improved welding point,  
30% higher breaking torque!**

## Spiral Self-Drilling Screws for Thick Steel



Drilling Capacity:  
Q5:12mm  
Q6:15mm  
Q7:18mm  
Q8:21mm  
Q9:25mm  
Q10:30mm

Size:  
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Length:  
From 38mm to 350mm



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Shear Load >2000 kgf  
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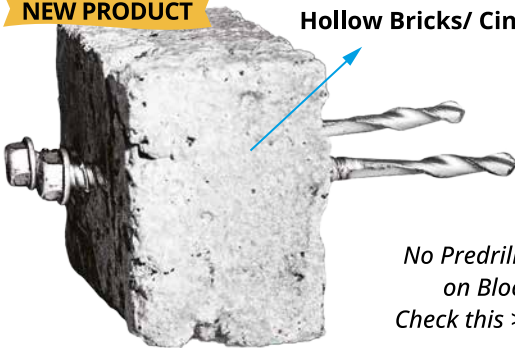
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No Predrilling  
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Tensile Strength > 1400MPa  
Yield Strength > 1120 MPa  
Breaking Elongation > 10%  
Size Available from M3 to M12

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## Taiwan’s Investment in N. Vietnam (by Value) is the Highest

### Southern Vietnam Has the Largest Number of Taiwanese Investors

According to Taipei Economic and Cultural Office in Vietnam (Table 2), the top five Vietnamese regions with the highest investment value from Taiwan in 2023 were Quang Ninh Province (USD 925 million), Ha Nam Province (USD 386 million), Hanoi City (USD 253 million), Nam Dinh Province (USD 176 million), and Dong Nai Province (USD 161 million). Ho Chi Minh City ranks 12th (USD 74.79 million). Among them, Quang Ninh Province ranks first in the provincial competitiveness index in Vietnam; Hanoi City is the capital of Vietnam and the second largest city after Ho Chi Minh City. Nam Dinh Province is where Quanta Computer, founded by Taiwan’s richest man Barry Lam, officially set foot in Vietnam. Dong Nai Province is an economic powerhouse in southern Vietnam, and its attraction to foreign investment frequently ranks first in Vietnam.

Roughly dividing Vietnam into northern, central and southern parts, Taiwan invested USD 2.219 billion in the northern part (accounting for 76.95%) and USD 522 million in the south (accounting for 18.13%). The least investment by Taiwan was in the central part which was USD 522 million, accounting for 4.91%. **In terms of investment value, Taiwan has the highest proportion of investment in the north.**

However, it should be noted that according to a press release from 104HeadHunter website, **in terms of the number of companies, Taiwan had the highest proportion of investments in the south** (about 2,195 companies) in 2022, followed by the north (about 525 companies) and the central part (about 125 companies). Among them, there are many high-tech, automotive, electronics and financial industry manufacturers in the north, as well as screw manufacturers, such as the TSLG (Bac Ninh Province), New Best Wire Vietnam Industrial (Hung Yen Province), Boltun (Quang Ninh Province), etc. In the south are many manufacturers of conventional industries such as textiles, garments, and furniture, including many fastener related manufacturers like Sheh Fung Screws (Phan Thiet City), Easylink Industrial’s subsidiary Ting Ray Joint Stock Company (Ba Ria-Vung Tau Province), Linkwell Industry’s subsidiary Viet-Screw Company (Binh Duong Province), Diing Sen Fasteners Industrial’s subsidiary Co-Win Fasteners Industrial Vietnam Joint Stock (Binh Duong Province), Homn Reen (Dong Nai Province), Stand Dragon Technology (Dong Nai Province), Thread Industries (Binh Duong Province), as well as wire rod company Kuang Tai Metal (Ho Chi Minh City) and other dozens of companies. The list goes longer coupled with machinery and peripheral companies.

**In terms of the number of new investments, Ho Chi Minh City (64 cases) and Hanoi City (33 cases) have the most.**

In terms of industry type (Table 3), Taiwan’s total value of new registration, capital increase, joint ventures and stock purchases in Vietnam’s processing and manufacturing industries was USD 2.765 billion, accounting for 95.89% of the total investment value. It means that **Taiwan has anticipation for Vietnam’s industrial development potential. Vietnam has become a popular target for Taiwan to set up overseas manufacturing bases to diversify manufacturing costs and geopolitical risks.**

## Vietnam Mainly Trades General Steel Screws and Bolts

According to customs statistics provided by ASEANstats, Vietnam’s fastener import value in 2023 (USD 692 million) accounted for 18.87% of the total fastener import value of all ASEAN countries (USD 3.666 billion), second to Thailand’s share at 27.9%. Vietnam’s fastener export value (USD 525 million) accounted for 27.18% of the sum of ASEAN countries (USD 1.931 billion), second to Thailand’s share at 31.33%. **Vietnam is the second largest fastener trading country in ASEAN.**

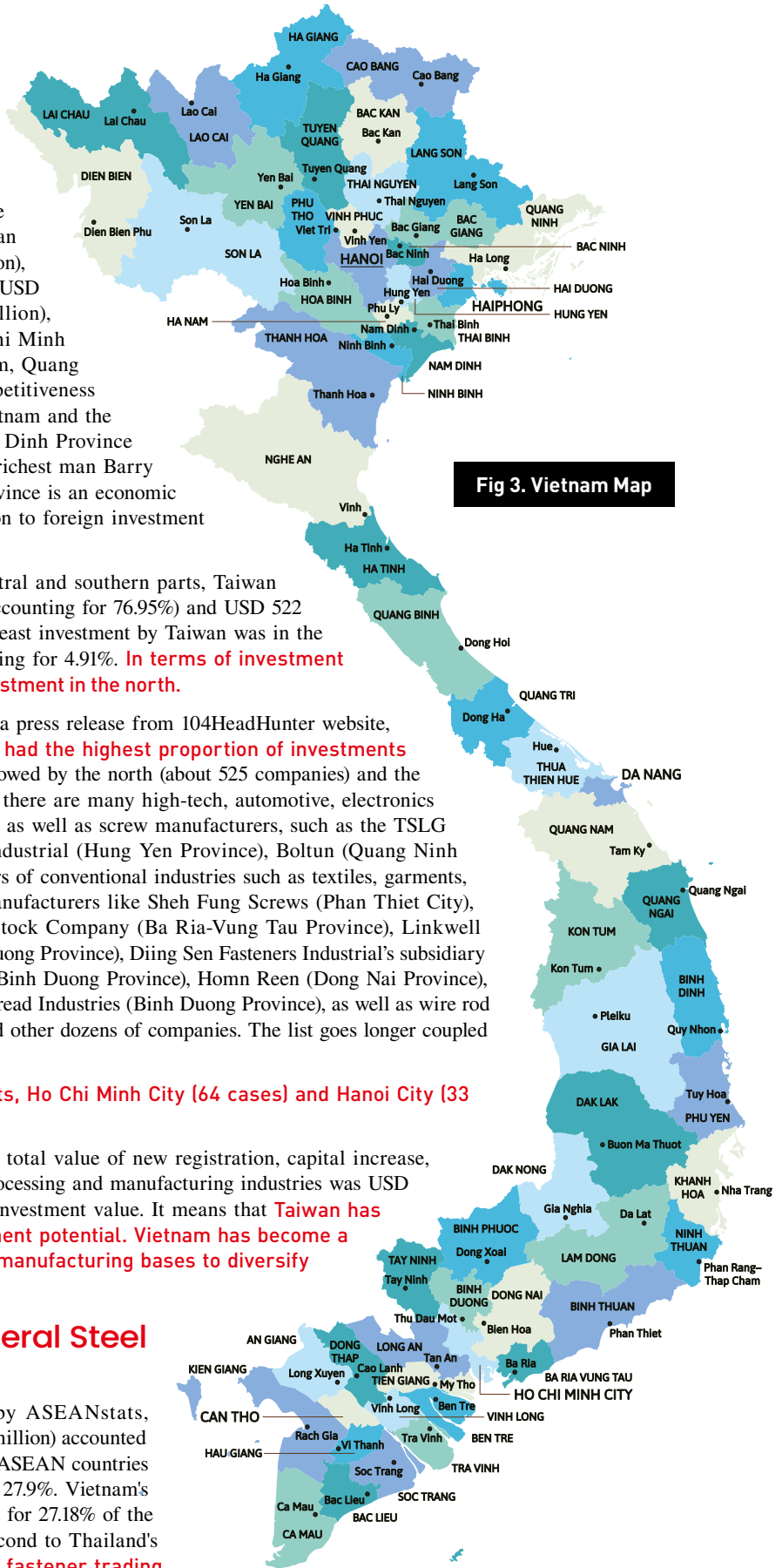


Fig 3. Vietnam Map





Hex Washer Head Screws  
Indent Hex Head Screws  
Self Tapping, Self Drilling

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**Table 2. Statistics of Taiwan's Investment in Vietnam in 2023 (By Region)**

(Source: Taipei Economic and Cultural Office in Vietnam)

Unit: Million USD

Ranking	Region	Number of New Investments	Value of Newly Registered Investment	Number of Capital Increase Cases	Value of Capital Increase	Number of Joint Ventures & Stock Purchases	Value of Joint Ventures & Stock Purchases	Total Value of New Registrations, Capital Increases, Joint Ventures & Stock Purchases
1	Quang Ninh Province	0	925.30	0	0	0	0	925.30
2	Ha Nam Province	17	231.93	2	155.00	0	0	386.93
3	Hanoi City	33	217.17	12	35.37	7	1.05	253.59
4	Nam Dinh Province	5	176.38	0	0	0	0	176.38
5	Dong Nai Province	5	22.00	9	46.74	15	92.80	161.53
6	Binh Duong Province	14	96.09	16	10.54	50	36.58	143.21
7	Da Nang City	2	135.10	1	-1.09	0	0	134.01
8	Hung Yen Province	6	94.60	1	30.00	0	0	124.60
9	Bac Ninh Province	24	84.59	11	27.64	2	0.25	112.47
10	Ba Ria-Vung Tau Province	2	6.00	0	0	5	101.81	107.81
11	Vinh Phuc Province	5	100.70	0	0	2	0.20	100.90
12	Ho Chi Minh City	64	16.60	23	25.15	132	33.03	74.79
13	Hai Phong City	6	44.84	2	6.31	2	3.95	55.10
14	Thai Binh Province	5	39.33	0	0	0	0	39.33
15	Bac Giang Province	4	14.96	3	5.07	1	0.14	20.17
16	Hai Duong Province	4	9.30	3	4.92	2	0.04	14.26
17	Vinh Long Province	1	13.50	0	0	0	0	13.50
18	Tay Ninh Province	0	0	6	12.35	0	0	12.35
19	Thanh Hoa Province	1	8.03	0	0	0	0	8.03
20	Lam Dong Province	0	0	0	0	4	7.20	7.20
21	Binh Phuoc Province	0	0	3	6.12	3	0.14	6.26
22	Binh Thuan Province	1	3.60	0	0	0	0	3.60
23	Quang Ngai Province	0	0	1	2.89	0	0	2.89
24	Ha Tinh Province	1	2.41	0	0	0	0	2.41
25	Quang Nam Province	0	0	0	0	1	2.30	2.30
26	Phu Tho Province	0	0	0	0	1	1.28	1.28
27	Ca Mau Province	0	0	1	1.00	0	0	1.00
28	Hoa Binh Province	0	0	0	0	1	0.84	0.84
29	Dong Thap Province	0	0	0	0	1	0.35	0.35
30	Dak Lak Province	0	0	0	0	1	0.17	0.17
31	Ninh Binh Province	0	0	0	0	1	0.17	0.17
32	An Giang Province	0	0	0	0	1	0.05	0.05
33	Long An Province	6	3.80	9	-16.94	3	4.18	-8.96
	<b>Sum</b>	<b>210</b>	<b>2,246.22</b>	<b>103</b>	<b>351.05</b>	<b>235</b>	<b>286.54</b>	<b>2,883.82</b>

In 2023, Vietnam's top three fastener import sources were China (USD 363 million), Japan (USD 99.91 million), and South Korea (USD 90.65 million), with Taiwan ranking fourth (USD 41.25 million). The top three fastener export destinations were the U.S. (USD 106 million), Germany (USD 93.73 million), and Japan (USD 72.39 million), with Taiwan ranking 18th (USD 5.06 million).

In the same year, the top three fastener products imported by Vietnam were 731815 - Other iron and steel screws and bolts (USD 255 million), 731822 - Iron and steel washers (USD 109 million), and 731816 - Iron and steel nuts (88.03 million). The top three fastener products exported by Vietnam were 731815 - Other iron and steel screws and bolts (USD 330 million), 731814 - Iron and steel self-tapping screws (USD 379.4 million), 731819 - Other iron and steel threaded products (USD 28.85 million).





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Table 3. Statistics of Taiwan's Investment in Vietnam in 2023 (By Industry Type)  
(Source: Taipei Economic and Cultural Office in Vietnam)

Unit: Million USD

Ranking	Industry Type	Number of New Investments	Value of Newly Registered Investment	Number of Capital Increase Cases	Value of Capital Increase	Number of Joint Ventures & Stock Purchases	Value of Joint Ventures & Stock Purchases	Total Value of New Registrations, Capital Increases, Joint Ventures & Stock Purchases
1	Processing, Manufacturing Industry	93	2,177.22	67	344.49	75	243.68	2,765.40
2	Wholesale, Retail	80	21.03	18	7.43	119	29.75	58.20
3	Accommodation And Catering	1	22.00	-00	-00	3	1.51	23.51
4	Administrative Services	9	10.03	2	1.02	4	0.30	11.34
5	Transportation, Warehousing	3	8.51	1	0.10	6	0.77	9.38
6	Information And Telecommunication	9	1.11	3	5.11	1	0.04	6.26
7	Real Estate	4	4.71	2	-0.87	5	1.11	4.96
8	Construction	-00	-00	5	3.03	4	0.35	3.38
9	Specialized Projects, Science and Technology	10	1.61	2	0.18	12	1.54	3.33
10	Other Service Industries	-00	-00	1	0.07	-00	-00	0.07
11	Finance, Banking, Insurance	1	0.00	-00	-00	1	0.01	0.01
12	Agriculture, Forestry and Fishery	-00	-00	2	-9.50	5	7.47	-2.03
	Sum	210	2,246.22	103	351.05	235	286.54	2,883.82

## Vietnam's Investment Environment is Highly Open to Foreign Investors

Vietnam has rolled out many preferential measures to attract foreign investors in local industries, including tax-free periods, corporate income tax incentives, and import tariff exemptions. Foreign investors investing in Vietnamese industrial parks can enjoy preferential treatment, including the corporate income tax rate of 10% for 15 years, 4-year exemption from corporate income tax beginning from the first year of profit gain, halved corporate income tax payable for 9 years, land rent exemptions, etc. Each province has its own preferential tax rules, so investors should look up and compare.

Vietnam has signed free trade agreements with many trading partners. Among the ten ASEAN countries, only Vietnam and Singapore have signed free trade agreements with the EU. Under the EVFTA agreement, 71% of Vietnam's exports to the EU are tariff-free, and so are 65% of the EU's exports to Vietnam. According to the CPTPP agreement, 95% of Vietnam's exports to Canada enjoy zero-tariff treatment, and exports to Europe and the U.S. enjoy preferential tariffs.

## Heads Up for the Cruel Reality Behind Big Dreams; Calculated Planning is Required Before Entering Vietnam

Although the market environment of Vietnam is suitable for foreign investors, some veterans suggest that new entrants must keep their eyes peeled for some things before entering Vietnam, the first of which is that **the current production cost of investing in Vietnam no longer qualifies as an incentive for investment**. This was warned by a Taiwanese fastener manufacturer at a meeting between Taiwan CSC and several dozen Taiwanese fastener business owners two years ago. Therefore, it is recommended that new entrants have the mentality of setting up factories in Vietnam with a focus on answering the call of overseas customers for diversifying geopolitical risks.

The next one is a deep understanding that Vietnam is a planned economy, which means the country's production, resource allocation, and consumption are all based on economic plans. Therefore, **Vietnam will strictly review foreign investment plans**. The plan must include mentioning the person in charge, the company's output value, the operating site, and the benefits for the Vietnamese society. Vietnam stipulates that the legal representative of a foreign company must be resident locally, and the foreign company's headquarters operator cannot be named the legal representative. Ignoring this will affect the tax benefits and increase the cost of revisions.

The third one is to recognize the reality of the aforementioned preferential measures. For example, although Vietnam provides a four-year exemption from corporate income tax, it only takes effect from the first year of having profit gains. The catch is that setting up an overseas factory may not necessarily make you profitable early, and you won't be able to enjoy the preferential measures if you make profits too late. **Therefore, new entrants must precisely plan the timetable for turning losses into profits**. When investing in Vietnam, factories and land can only be leased for a period of about 50 years. ■

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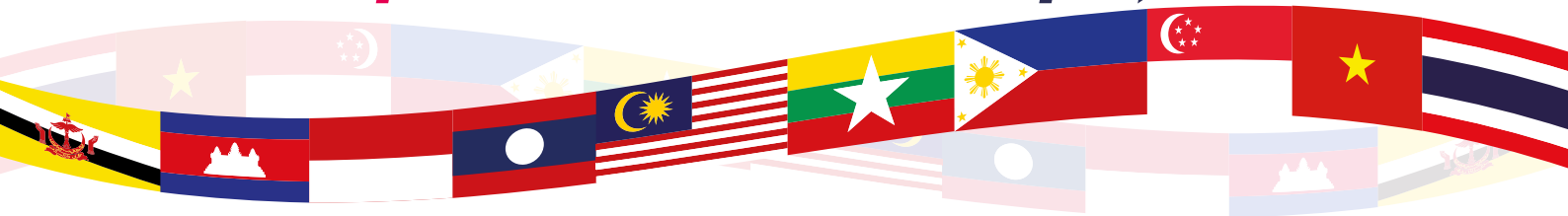
## Manufacture and Sale of Screws, Nuts and Fasteners

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# Ranking of Taiwanese Fastener Companies in ASEAN Top 1,000



Ranking of Taiwanese Fastener Companies in ASEAN Top 1,000			Company Name	Affiliated to	Location	Revenue (NTD 0.1 billion)		Revenue Growth (%)
2024	2023	2022				2024	2023	
91	79	81	<b>Tycoons Worldwide Group (Thailand) Public Co., Ltd.</b>	Tycoons	Thailand	80.0	79.6	0.5%
↑106	119	111	<b>Tong Herr Resources Berhad</b>	Tong Ming Enterprise	Malaysia	67.0	50.6	32.4%
↑138	150	120	<b>Chinwell Holdings Berhad</b>	---	Malaysia	44.7	33.1	35.0%
↑184	228	246	<b>Tong Heer Fasteners (Thailand) Co., Ltd.</b>	Tong Ming Enterprise	Thailand	31.9	20.7	54.1%
320	297	294	<b>PT. Moonlion Industries Indonesia</b>	Taiwan Steel Group	Indonesia	16.4	15.1	8.6%
393	365	378	<b>Homn Reen (Vietnam) Co., Ltd.</b>	---	Vietnam	11.5	11.0	4.5%
429	390	468	<b>Brighton-Best International (AU), PTY Ltd.</b>	Ta Chen International	Australia	10.3	9.9	4.0%
↑467	558	511	<b>Dura Fasteners Co., Ltd.</b>	Rodex Fasteners	Thailand	8.6	5.1	68.6%
479	458	468	<b>Summit Chugoku Seira Co., Ltd.</b>	QST International Corp	India	8.4	7.3	15.0%
562	524	518	<b>PT. Shye Chang Batam Indonesia</b>	Rodex Fasteners	Indonesia	6.1	5.6	8.9%
645	624	546	<b>Acku Metal Industries (M) SDN. BHD.</b>	San Shing Fastech	Malaysia	4.5	3.9	15.4%
697	676	573	<b>Thailock Fasteners Co., Ltd.</b>	---	Thailand	3.7	3.4	8.8%



A total of 12 companies are included in the 2024 rankings, 4 of which marked with a red arrow up have moved up the ranks. They are Tong Herr Resources, Chinwell Holdings, Tong Heer Fasteners (Thailand), and Dura Fasteners.

The entrant with the highest revenue growth rate is Dura Fasteners, at 68.6%, followed by Tong Heer Fasteners (Thailand) at 54.1%, Chinwell Holdings at 35%, and Tong Herr Resources at 32.4%.

In this ranking, the entrant with the highest revenue is Tycoons Worldwide Group (Thailand) Public, reaching NTD 8 billion. However, its revenue growth rate is the smallest among all the entrants on the list and its growth momentum declines significantly. The entrant with the second highest revenue is Tong Herr Resources, followed by Chinwell Holdings. The combined revenue of the three companies accounts for 65% of the aggregated revenue of all entrants on the list.

In the early years, most Taiwanese fastener companies invested and set up factories in Malaysia, Thailand, and Indonesia. However, in recent years, most of their investments have been concentrated in Vietnam. During Fastener World's many overseas visits and exhibiting in many shows, we frequently encountered many Taiwanese fastener companies that had already set up factories or bases in Southeast Asian countries. There is only one entrant in Vietnam revealed on the 2024 list, but it is worth noting that most Taiwanese companies would keep a low profile about running factories overseas, otherwise we would have seen more prominent Taiwanese companies on the list. ■

Table Source: Business Today, Issue No. 1435  
Compiled by Fastener World

## SCREWS & NAILS

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# 2024 Ranking of

## Taiwanese Fastener Companies in China

Source: Commercial Times, August 2024 Issue, Top 1000 Taiwanese Enterprises in China  
Sorted by net revenue

Top 1,000 Ranking			Company Name	Affiliated To	Net Revenue (RMB 1,000)	Revenue Growth (%)	Total Assets (RMB 1,000)	Net Income After Tax (RMB 1,000)	Net Profit Margin After Tax (%)	Capital (RMB 1,000)	Business Content
2024	2023	2022									
193 ▲	210	---	Zhejiang Tong Ming	Tong Ming Enterprise	2,314,561	-16.52	2,624,820	23,880	1.03	706,000	Stainless steel fastener and wire rod production and sales
239 ▲	242	194	Gem-Year Industrial	Gem-Year	1,970,761	-16.80	4,993,477	2,688	0.13	956,740	Fastener production and sales
631 ▲	707	620	Suzhou New Best Wire Tech	New Best Wire Industrial	587,055	-14.54	621,868	50,991	8.68	151,334	Carbon steel and alloy steel wire rod production and sales
913	--	---	Huanghua Jujin Hardware Products <i>New Entrant</i>	Tycoons Group Enterprise	329,385	26.68	207,918	8,796	2.67	81,667	Production and sales of high-strength bolts and spheroidized wires
959 ▲	999	791	Chun Yu (Dongguan) Metal Products	Chun Yu Works	300,089	-26.62	288,595	-2,124	-0.70	522,755	Fastener production and sales

In the category of fastener manufacturers, a total of 5 companies are ranked in the top 2,000. This is 3 companies fewer, compared with 8 companies listed last time by Commercial Times. Zhejiang Tong Ming and Gem-Year Industrial continue to remain the top two Taiwanese fastener companies in China. Suzhou New Best Wire Tech jumped from the sixth largest in 2023 to the third largest this year.

The 2024 ranking list is missing three entrants because two companies affiliated to Gem-Year which were newly added to the list last year, including Gem-Safe which is engaged in fastener sales, and Gem Duo which is engaged in the production and sales of hardware products and fasteners, do not remain in the list this year. Hama Naka Motogawa Metal Product (Kunshan), which is engaged in the production and sales of fasteners and is a subsidiary of Hama Naka Shoukin Industry, had been on the list from 2021 to 2023 but has discontinued to

be on the list this year. In addition, Xiamen Boltec, a subsidiary of QST International, was newly added to the list last year, but has discontinued to be on the list this year. However, a new company has appeared in the 2024 ranking—Huanghua Jujin Hardware Products, a subsidiary of Tycoons Group Enterprise which produces and sells high-strength bolts and spheroidized wires.

In 2024, 4 entrants with increased revenue are marked with an upward red arrow. Excluding the new entrant, almost all entrants have moved up the ranking. As a comparison, last year, all entrants moved down the ranking, and most of them had negative revenue growth, with only a few having positive growth of about 3%.

Despite moving up the ranking, judging from their revenues, 4 of the 5 entrants on the 2024 list have a double-digit decline in revenue. Only Huanghua Jujin Hardware Products has increased by two digits. This shows that in recent years most of the leading Taiwanese fastener companies in China have faced huge challenges brought about by market environment factors such as the global geopolitical turmoil and declining economic performance in China.

Judging from the revenue scale in 2024, the combined revenue of the top two entrants alone accounts for 77% of the sum of all five entrants (RMB 5.501 billion). Among them, the revenue gap between the top entrants is RMB 343 million, compared with the RMB 404 million gap in 2023, which means that the gap between the top two entrants has narrowed and this is worth monitoring and tracking. ■

Compiled by Fastener World





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# European Market Opportunities — Spanish Automobile and Parts Industry

## Overview of the Automotive Industry

Spain is a country with the largest automobile production in Europe after Germany. In 2023, the output value of the country's automobile industry was USD156 billion, accounting for 10.2% of Spain's GDP. This output value (including whole vehicles and components) accounted for 18.1% of its exports. The automobile production volume was 2.45 million units (including 40 new car models and 22 EV models), ranking 9th in the world. There are 9 world-leading car manufacturers, 17 assembly plants and 15 R&D centers in Spain. The automobile industry clusters there include Santander (Mercedes-Benz, Nissan), Vigo (Opel, Fiat, Stellantis), Palencia (Renault), Valladolid (Renault, Mitsubishi, Iveco), Victoria (Seat), Pamplona (Audi, Opel, etc.), Avila (Nissan), Zaragoza (Opel, Citroen, Stellantis, etc.), Barcelona (Seat, Audi, etc.), Madrid (Iveco, Citroen, Stellantis, etc.), Valencia (Ford), Sevilla (Renault, etc.). In addition to being sold domestically in Spain, 89.8% of the assembled vehicles and 60.2% of the components (more than 1,600 manufacturers in the supply chain, with an output value of USD 41.95 billion) are exported. In addition to being sold to major EU countries, they are also sold to Turkey, Morocco, Egypt, the U.S., UAE and other countries. The Spanish automobile industry employs more than 2 million people and occupies a very important position in Spain's manufacturing industry.

## Current Status of Spanish Automobile Production and Sales

### Automobile

According to the data from the Spanish Automobile and Truck Manufacturers Association (ANFAC), Spanish vehicle production totalled 2.45 million units in 2023, an increase of 10.4%. Despite this, it has not recovered to the pre-pandemic level of 2.5 million vehicles.

In 2023, Spain's automobile production was still dominated by conventional gasoline vehicles, accounting for 54.8%, where diesel vehicles accounted for 24.4%, and EVs accounted for 13.2% (323,255 units), a growth of 21.3%, of which pure EVs (BEV) were 157,751 units (accounting for 6.4%), an increase of 24.2%, and plug-in hybrid EVs (PHEV) were 165,504 units (accounting for 6.8%), an increase of 18.7%. In 2023, Spanish automobile export sales totaled 2.2 million and 1,802 units, an increase of 13.9%, equivalent to 9 out of every 10 cars produced in Spain being exported. **The EU is Spain's main export destination, accounting for 90% of total export sales and growing by 13.4%. The top five destinations for Spain's automobile exports are France, Germany, the UK, Italy and Turkey, in order.** *Figure 1* is the Spanish automobile production forecast.

According to the association's report, Spanish car sales in June 2024 were 123,068 units, an increase of 3.23%, among which the sales of alternative energy vehicles (including BEV+EREV, PHEV, natural gas vehicles, hybrid EVs and FCEV) were 52,214 units, an increase of 11.4%. From January to June, the cumulative sales of automobiles was 640,857 units, an increase of 7.83%, of which the sales of alternative energy vehicles was 270,129 units, an increase of 18.4%.



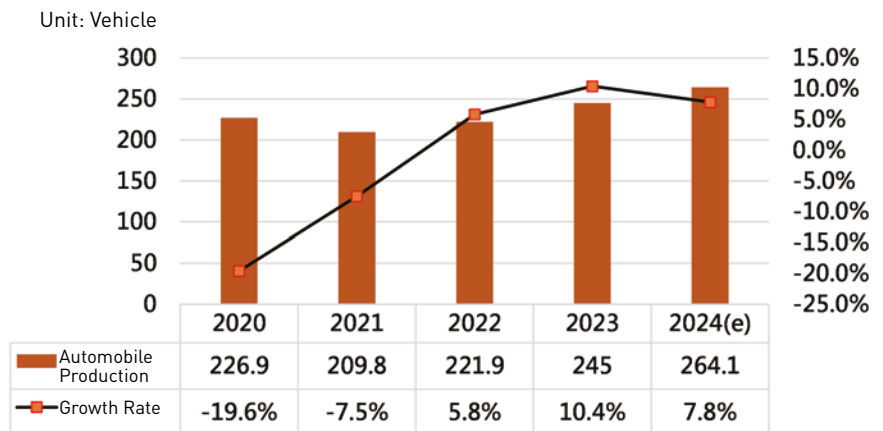
Although the overall automobile sales showed a growth trend, the sales of EVs (BEV and PHEV) in June were only 11,658 units, a decrease of 11.47%. The cumulative sales in the first half of the year were 60,734 units, a decrease of 1.5%. **If we look at the policy goals of Spain's climate change and energy transformation law (PNIEC), the Spanish EVs and plug-in hybrid vehicles are expected to reach 280,000 units in 2024. The current sales status varies a lot from the government's goals, and the EV promotion goal could miss the set mark.**

### Parts and Components

**Despite the turbulence of the global economic situation and the uncertainty in EV transformation, the Spanish automotive parts industry still has competitiveness, with an output value of USD41.95 billion in 2023, an increase of 16.8% compared with 2022. In addition to the rapid growth of marketing due to industrial development, it is also related to the rising costs of raw materials, energy, logistics, labor and prices.** The Spanish export value of parts and components in 2023 was USD26.73 billion, an increase of 14.7% compared with 2022, and the export revenue accounted for approximately 63.7% of the industry's total revenue. The domestic market value was USD15.22 billion, of which USD12.02 billion supplied the assembly needs of various car manufacturers, and USD3.2 billion was for domestic components repair and replacement.

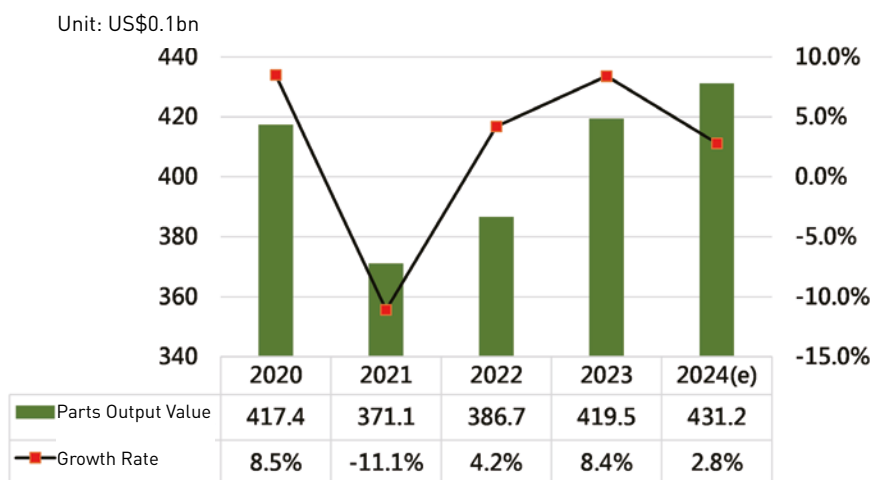
The global automotive industry is accelerating electrification, and lowering manufacturing costs of the EV industry as well as the pressure from product competitiveness. **The Spanish auto parts industry association predicts that the automotive parts industry will still grow by 2.8% in 2024 compared with 2023.** In addition, Spanish government policy incentives and European funds will also be a critical key factor in supporting the development of the automotive parts industry. *Figure 2* is a forecast of Spanish auto parts output value.

Figure 1. Spanish automobile production forecast



Data source: ITRI/ISTI (2024/07)

Figure 2. Forecast of Spanish automotive parts output value



Data source: ITRI/ISTI (2024/07)

### New Energy and EV Industry Development

The Spanish government has implemented an EV industry incentive plan since 2019, providing subsidies for the construction of charging stations and consumers' purchase of EVs. At the end of 2023, the Spanish government allocated an additional USD1.3 billion to extend the incentive program to mid-2024. In 2021, the Spanish government approved an economic recovery and strategic transformation project for the development of EVs and supporting networks, which was supported by the EU Recovery Plan. The USD2.5 billion funds for the first phase will be provided by more than 550 companies. Another focus of the project is to provide USD6.6 billion in funds to invest in battery production and promote the development of the EV industry value chain. **Spain has abundant solar and wind energy resources, and cities such as Barcelona have convenient transportation and have significant advantages in developing the EV industry.**

Stellantis Group has invested more than USD1.1 billion to produce small EVs in Zaragoza and Vigo, Spain. It plans to start mass production in 2025. It will introduce the "STLA Small" production platform to promote the electrification of the manufacturing process, which



will ensure a 10-year sustainable development for the car factory.

The 2015 Paris Agreement represents the determination of all countries around the world to curb global warming. The European Commission issued the package proposal "Clean Energy for All Europeans" at the end of November 2016 to ensure compliance with the Paris Agreement. **The Spanish government realizes that it needs to reduce its dependence on fossil fuels in order to effectively reduce greenhouse gas emissions. The relevant measures proposed to the transportation authorities is urgent and have set a target of putting 5 million EVs on the road by 2030.**

The Spanish government has successively launched relevant plans to encourage people to replace conventional fuel vehicles with EVs and install EV charging infrastructure. The MOVES program was launched in February 2019 and is managed by the Institute for Energy Diversification and Energy Efficiency (IDAE). The funding is co-financed by the European Regional Development Fund (ERDF) within the Spanish Multiregional Operational Plan (POPE) 2014-2020. The total budget of the MOVES project is USD49.5 million, which is allocated to autonomous regions according to population size. Each autonomous region's budget allocation must meet the requirements of 20% to 50% for vehicle purchase subsidies, and 30% to 60% for the construction of infrastructure such as charging systems (of which at least 50% will be used for fast or ultra-fast charging stations), 5% to 20% for financing loan services, and the remainder for supporting transportation plans.

In order to encourage the development of the EV industry, Spain has implemented vehicle purchase subsidies to encourage replacement of old vehicles with new ones. The subsidies are applicable to individuals, legal persons, enterprises, administrative agencies, etc. The policy requires the replacement of M1 vehicles that are more than 10 years old or N1 vehicles that are more than 7 years old. The MOVES program provides different subsidies for personal and enterprise versions for purchase of new energy vehicle. Take the general public as an example, if you purchase a new M1 or N1 vehicle and keep it for more than one year, you can receive subsidies ranging from USD1,430 to USD6,600 depending on electric mileage, and the manufacturer or dealer must provide at least USD1,100 or more discount offers.

## Focused on Catalonia, Spain is Becoming the New Energy Vehicle Manufacturing Center in Europe

In 2022, German VW Group launched a massive investment overseas. According to its EV layout plan, VW prepares to invest at least 33 billion euros globally, of which nearly one-third (or 10.6 billion euros) is for Spain. This capital will be used at a critical moment when the automotive industry is facing a major change. Its weight and use undoubtedly have an important strategic value.

**Catalonia is a hotspot for investment by German automobile manufacturers in Spain. As a major automobile industry hub in Spain, Catalonia has a complete automobile industry chain. According to Catalonia's official statistics, there are more than 350 local companies, accounting for 21.8% of the total number of Spanish automobile companies, forming a strong industrial agglomeration efficacy.**

## Catalonia Becomes the Center of Focus

Catalonia is the most economically prosperous region in Spain. Catalonia only accounts for 15% of the country's population, but its total output value accounts for 20% and exports account for 25%. Because new energy vehicles present an industrial division of labor completely different from conventional vehicles in terms of energy sources and intelligence, the global automobile industry is facing a reshuffle. Major conventional automobile brands have adjusted their strategies and laid out their plans in advance, which has also brought about major changes in the global automobile industry landscape.

In the process of adjustment, Spain is not only favored by Western industries and investors such as Germany. The complete automobile industry chain and marketing network are the top factors that attract investment from manufacturers from various countries, and the focus of various countries is particularly concentrated on Catalonia. **International automobile brands are using Spain and Catalonia as the entrance to the European market and production bases, and are vigorously developing there.**

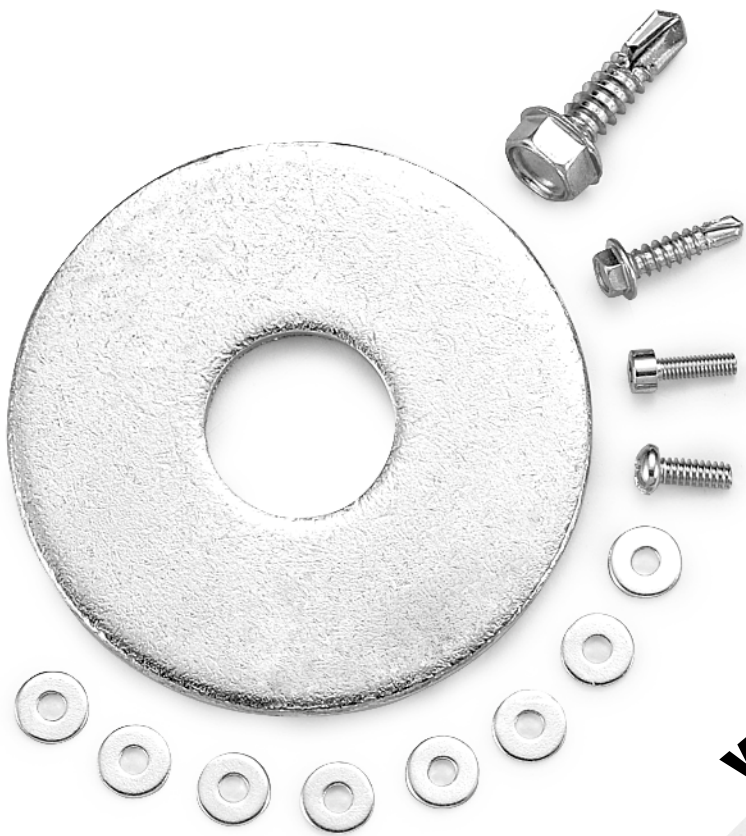
The Spanish government announced the MOVEA initiative (Plan to Boost Mobility with Alternative Energy Vehicles) to increase the research, development and sales of new energy vehicles through subsidies. The MOVEA initiative has been modified in several versions, focusing on providing subsidies for electric transportation. EVs in Spain have generally benefited from this plan, and the application of EVs in Catalonia has achieved greater development.

## Conclusions and Suggestions

For a long time, Taiwan has focused on the European and North American markets and paid less attention to Spain. Its import and export of auto parts with Spain, in terms of value, type and quantity, is much smaller than with the other European and North American markets. Spanish automobile assembly technology and components manufacturing technology are mostly derived from leading international manufacturers. Taiwan has technical advantages in manufacturing high precision and cost competitive dies and fixtures. Spanish automobile manufacturing automation happened early, and it has accumulated many years of collaboration with international leading manufacturers. Spain has a vast market in Europe, and its manufacturing technology and production capacity are bigger than Taiwan. However in recent years, due to changes in industrial structure and economic development, Spain has experienced high unemployment and stagnant domestic demand. There is room for complementary industries in fasteners, precision stamped parts, rubber and plastic injection molding relevant to the automobile industry. Spain, located in Western Europe, is close to Africa. Geographically, it can be regarded as a springboard for Taiwanese manufacturers to enter Europe and even the emerging African market. These manufacturers can make contact with Spanish manufacturers and attend international exhibitions to expand visibility and demonstrate competitive edges to gain business opportunities. ■

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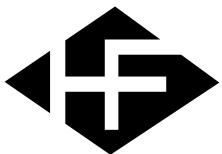


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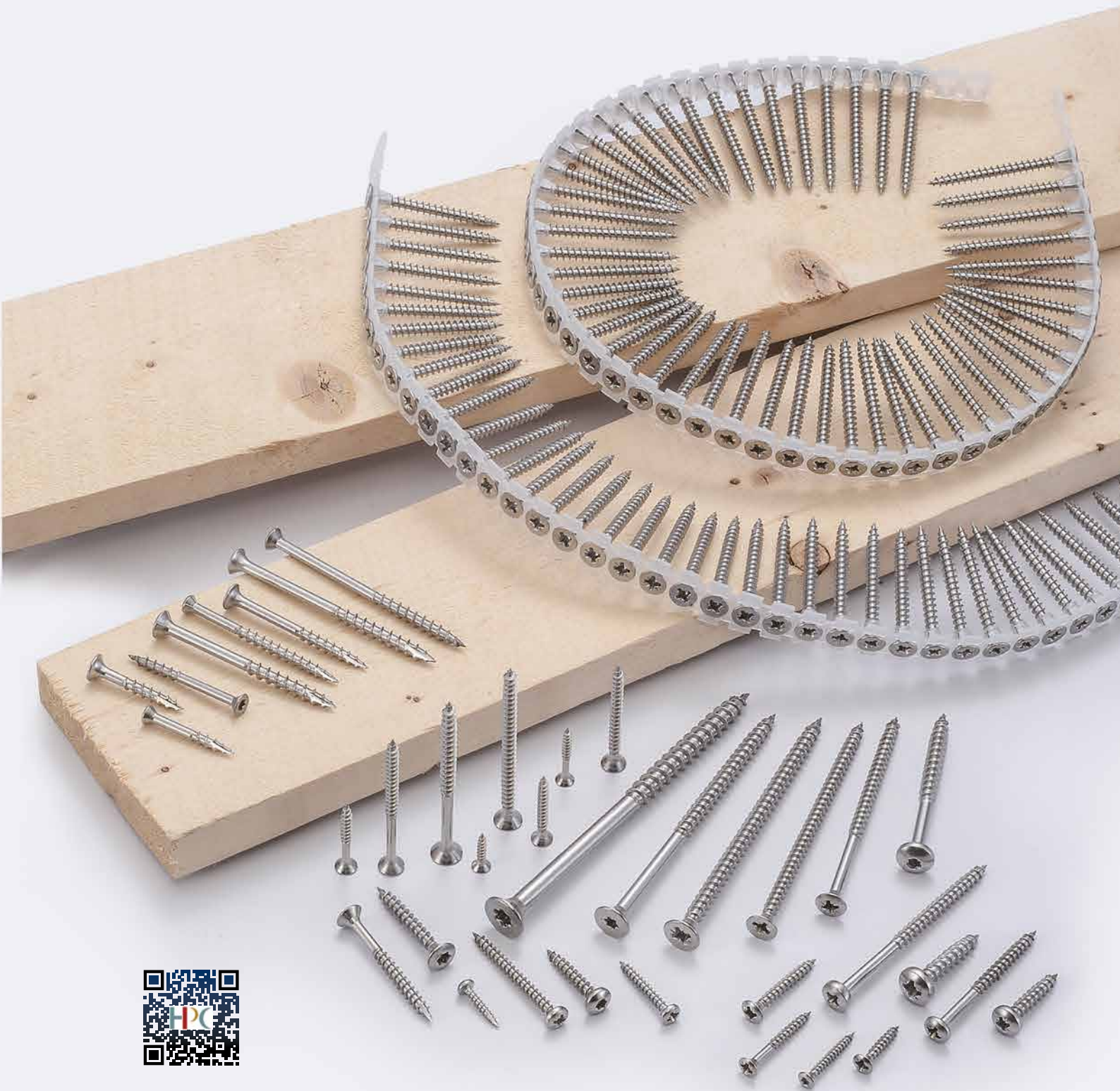


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# Fastener World News

compiled by Fastener World

## Association News

### CBAM to Stay on the Agenda for BIAFD Autumn Meeting 2024



Gearing up for October's Autumn meeting, one topic which will once again take center stage is CBAM. In line with BIAFD's mission to keep its members better informed, the association is committed to shedding light on the nuances of CBAM, ensuring that all members are equipped to navigate this significant policy shift. Despite its potential impact, awareness of CBAM remains limited within the industry. Many businesses are still in the dark about its full implications and how to prepare for its implementation. This challenge is exacerbated by the ongoing government consultation, leaving many details about CBAM's application and enforcement still unresolved. For fastener distributors, understanding CBAM is not just beneficial—it's essential. BIAFD will have answers for members at this year's Autumn meeting, which is scheduled to take place on Thursday, October 10 at the Leonardo Hinckley Island Hotel, Leicestershire.

## Industry Development

### Taiwan ITRI's Briefing on UK CBAM

Taiwan ITRI (Industrial Technology Research Institute) briefed on "Taiwan's Economic and Trade Measures in Response to UK CBAM" which detailed the content of UK CBAM and the differences from EU CBAM. Below are the key points extracted from the briefing.

#### UK CBAM Progress:

1. According to the Office for National Statistics (UK), 54% of the UK's consumption-based emissions in 2021 came from imported products, which means that imported products with no carbon cost have led to UK's high emissions.
2. To achieve the 2050 net-zero target and solve carbon leakage caused by imported goods, UK CBAM is to be implemented to ensure that carbon prices equivalent to the emissions of British products are paid for imported products.
3. UK CBAM is currently under public consultation. The next step is the legislative phase and then the implementation in 2027.
4. The first UK CBAM report must be submitted by May 30, 2028.
5. UK importers or customs agents have to request emissions data and other necessary information from suppliers to complete the UK CBAM reporting.



#### Carbon Emissions Calculation :

1. [ Direct emissions + Indirect emissions ] ÷ [ Total production weight during the statistical period ] = [ Emissions level relative to each operating unit ] (tCO<sub>2</sub>e/t)
2. [ Emissions level relative to each operating unit ] x [ Volume of CBAM goods purchased in the previous quarter ] = [ Carbon emissions of goods ]
3. [ Carbon content of goods ] x [ Effective UK carbon price (deducting subsidies) - Overseas carbon price ] = [ CBAM liability ]
4. [ CBAM liability ] x [ volume of goods (in tons) ] = price payable by UK importers
5. If actual emission data are not available, the default values announced by the UK can be used.

#### UK CBAM's Impact on Taiwan:

1. In 2023, the output value of CBAM products exported from Taiwan to UK was USD 413 million.
2. In the same year, among the CBAM products exported from Taiwan to UK, steel products reached a value of USD 382 million,





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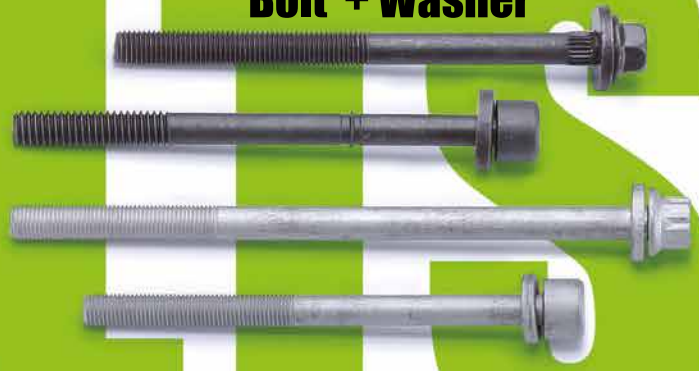
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accounting for 2.33% of Taiwan's global steel export value, followed by aluminum and glass products. Among those products, fasteners totaled USD 159 million (35,700 tons).

3. Taiwan fastener industry is subject to a large impact.

## Main Differences Between UK CBAM and EU CBAM:

Country Type	Products Affected	CBAM Financial Adjustment Scope	Tax Point	Price Signal	Tax Payment
UK CBAM	Aluminum, cement, ceramics, fertilizers, glass, hydrogen, steel (excluding imported electricity)	Direct and indirect emissions	The British responsible person (or tax agent) must pay tax if the person imports more than 10,000 pounds worth of CBAM goods on a twelve-month rolling period.	Single rate for the whole year of 2027; after 2028, rates for various products will be announced quarterly.	Taxes are paid according to the rates for each of the 7 major product categories, after deducting subsidies.
EU CBAM	Aluminum, cement, fertilizer, hydrogen, steel (including imported electricity)	Direct emissions only	Goods worth more than 150 euros per shipment are subject to tax.	EU ETS weekly auction prices	The CBAM certificates that should be purchased in the previous year are settled at the end of May each year and paid in the following month.

## Integration of the UK's and EU's CBAM Faces Challenges

British industries are affected by CBAM, especially the steel industry, which exports about 75% of their products to the EU. Corporations have recently expressed dissatisfaction with the significant bureaucratic differences between the EU and the UK. The UK CBAM is mainly regarded as a tax system similar to VAT, administered by HM Revenue & Customs and requiring businesses to provide quarterly reports as with VAT. However, the EU CBAM is a customs system managed by national customs authorities and will require local companies to provide annual reports when it comes into force in 2026.



To further complicate matters, the UK decides to include glass and ceramics in its CBAM (building materials are a major source of emissions) due to domestic factors, whereas the EU does not and includes electricity in a slightly separate CBAM regime.

In the early days of Brexit, compliance with the EU's CBAM by UK exporters, with the exception of Northern Ireland, was thought to have no significant impact. This was because the CBAM only applied to the difference in carbon prices between the EU and the exporting countries, and the UK carbon price at the time was close to the EU's, but the situation today is very different. The carbon price difference between the UK and the EU is currently about 30 euros. A recent report by Frontier Economics, an economy analysis company, shows that the difference in carbon prices between the UK and Europe may result in a revenue loss of 3.5 billion to 8 billion pounds for the British treasury between 2025 and 2030.

## German Industry Representatives Criticize EU CBAM

German newspaper F.A.Z. reported on August 5 that EU CBAM stipulates that steel, iron ore, aluminum, cement, ammonia, nitric acid, hydrogen and electricity importers must provide information on the carbon footprint of imported goods. EU plans to impose surcharges on the emitted CO2 starting in 2026. However, this measure has recently been criticized by the German Machinery and Equipment Manufacturers Association (VDMA), the Federation of German Industries (BDI) and the Association of German Chambers of Industry and Commerce (DIHK) for high bureaucratic costs and data reliability issues. These organizations are calling on the European Commission to improve the legislative mechanism.



- (1) High bureaucratic costs: To determine the carbon footprint of goods, importers must calculate and record the carbon emissions generated during the production process of goods and prepare a CBAM quarterly report. Even if the number and value of transaction is not large, the operations are still time-consuming. The organizations hope for adjusting the current CBAM exemption threshold of 150 euros.
- (2) Data reliability: Under the current mechanism, importers are responsible for the correctness of the registered data. However, the organizations said that it is difficult for importers to verify the authenticity of the data provided by foreign suppliers. They hope that the European Commission or relevant national authorities will come up with solutions such as extending the use of the default value for calculation.

The report also pointed out that even if the European Commission promises to review the content of CBAM, the aforementioned issues of concern are not the primary topic of discussion. An EU spokesperson said that the CBAM exemption threshold is based on customs regulations and the Commission is not going to revise it just yet. As for the reliability of data, the spokesperson said that if importers continue to use default values or submit incomplete information, they may be fined 10 to 50 euros per ton. However, if they can prove that they have made every effort to obtain the data, the national authorities may exempt them from penalty.





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The most obvious solution is to integrate the UK and EU emissions trading systems (ETS). After all, the UK was part of the EU ETS before Brexit, and the UK-EU Trade and Cooperation Agreement makes it clear that both parties should seriously consider integrating each other's systems.

**Liew: "Malaysia Must Start Carbon Pricing and Taxation Before EU CBAM in Force by 2026."**



Malaysia is about to introduce carbon pricing to promote carbon trading and will explore the imposition of a carbon tax, according to Mr. Liew Chin Tong, Deputy Minister of Investment, Trade and Industry. Liew stressed that the revenue from these initiatives should be used for green investment, especially in the green steel sector. He also said:

"Carbon pricing, trading and taxation are key steps in the decarbonization agenda. Malaysia must implement carbon pricing and taxation before the EU's 2026 carbon border tax kicks in." Liew explained that the implementation of CBAM means that steel and other products exported by Malaysia will be taxed by the EU unless Malaysia imposes a similar tax.

**World's Largest Steelmaker Warns: China is in a Severe Crisis Harder To**



**Endure Than Expected**

Baowu Steel Group (China), the world's largest steelmaker, warned that China's steel industry is facing a crisis more serious than the downturns in 2008 and 2015. According to the group's statement, this industry crisis may last longer and "be more unbearable than expected."

China, by far the world's largest steel market, has seen steel prices slump to multi-year lows and steelmakers suffering losses as a result of real estate downturn and weak factory activities that have severely damaged domestic demand this year. The multiple warning signals from Baowu Steel, which produces about 7% of the world's steel, could worry rivals in Asia, Europe and North America as steelmakers across the world gird up the loins for a new wave of exports from China. China's steel industry suffered a devastating recession during the global financial crisis in 2008-2009, and was hit hard again in 2015-2016.

Baowu Group did not reveal much about the reasons for the current economic downturn. The company said cash now prioritizes over profits in weathering a long, harsh "winter".



**USITC Tariff Revision: Different Rates for Chinese Fasteners**

According to the recently announced revision to the General Schedule of Tariff Applications of the U.S. International Trade Commission (USITC), certain fasteners from People's Republic of China under HS Code 7318 and its subcategories will be subject to different tariff rates (and up to 45% for some subcategories), in addition to the preferential rates for certain countries and the normal rates for the rest of countries. For details of the applicable rates, please visit <https://hts.usitc.gov> and click "Chapter 73" for further detail or download the list.

**Indian Government Bans Screw Imports Priced Less Than Rs 129 Per Kg**

In a move to promote local manufacturing of screws, the government of India has prohibited the imports of certain kinds of screws priced lower than Rs 129 per kg. "The import policy of screws...is revised from free to prohibited. However, import shall be free if CIF (cost, insurance, freight) value is Rs 129 or above per kg," the Directorate General of Foreign Trade (DGFT) said in a notification. The ban is imposed on coach screws, machine screws, wood screws, hook screws, and self-tapping screws. India imported screws, bolts, nuts, washers and similar articles worth US\$468.15 million during April-October FY24 and US\$827 million in entire FY23 mostly from France, China, Belgium, Australia, Bangladesh and Brazil.



Directorate  
General of Foreign  
Trade

**Trust Shattered with Indian Finance Minister's Decision to Reduce the SME's Budget**



The trust of Ludhiana-based industrialists got shattered as Finance Minister Nirmala Sitharaman did not announce relaxation in the 45-day payment rule for the micro, small and medium enterprises (MSMEs). During the campaigning for the Lok Sabha poll, the industrialists had met Sitharaman, who had promised a rollback of the rule. Further, the Finance Minister's decision to reduce the Budget of the Ministry of Micro, Small and Medium Enterprises from Rs 23,177 crore to Rs 21,549 crore has taken the industrial hub by surprise.

Badish Jindal, President of Federation of Punjab Small Industries Association, said, "Finance Minister Nirmala Sitharaman didn't speak a word on Section 43B (45-day payment rule), which she had promised to roll back while





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campaigning in Ludhiana. MSMEs are feeling cheated throughout India. Instead of announcing subsidies or incentives, the Budget of the ministry has been reduced. The only saving grace is that one can avail loan up to Rs 20 lakh instead of Rs 10 lakh," said Jindal.

Gurmeet Kular, Chief of the Federation of Industrial and Commercial Undertaking, said the industrialists had appealed to the Finance Minister to review the 45-day payment rule due to the cancellation of contracts by buyers and suppliers who need to pay tax on delayed payments. "This new clause came into effect from April 1. The Finance Minister had promised to review it, but nothing has been done in this regard," he added.

Even the Fastener Manufacturers' Association of India is extremely disappointed. Narinder Bhamra, President of Fastener Manufacturers' Association of India, said, "There is nothing much for the MSMEs. They should have taken steps to form a steel regulatory authority, upgradation of credit linked capital subsidy scheme, reduction in import duty on machinery and provisions of social security for taxpayers. There is no fresh subsidy or support in the Budget for the MSMEs. There is no word on withdrawal of Section 43B, which is hurting the MSMEs. Several schemes such as the Pradhan Mantri Mudra Yojana, credit support to the MSMEs during stress period and credit guarantee scheme for the MSMEs in the manufacturing sector existed only on paper," said Bhamra.



## CSE India's New Report Shows How Global South Can Minimize the CBAM Impact

The report by the Centre for Science and Environment (CSE) of India estimated that at a rate of €100 (or US\$106) per tonne of carbon dioxide equivalent, CBAM would impose an average tax burden of 25% annually over and above the value of CBAM-covered goods exported to the EU by India. The report shared recommendations on how developing countries can proactively take steps to mitigate CBAM's liability, while also transforming their manufacturing sectors to shift towards low-carbon processes.

In line with their demand for financing, developing countries must have sectoral mitigation plans in place outlining specific measures and targets for emissions reductions in key emitting sectors of their economies, the report suggested. In order to lessen the effects of paying the tax to the EU (or any other nation enforcing a similar mechanism), developing nations should tax their exports domestically and reinvest the proceeds into a decarbonization fund under government management, the report recommended.

This strategy does not interfere with fair trading conditions with the EU and satisfies the EU's demand for the establishment of a domestic carbon pricing system, in this case, a carbon tax. Additionally, it keeps the money in the developing nation. The report suggested that emerging nations take into consideration varied production techniques for various markets and trade partners as a stopgap strategy. Using green production methods for products going to areas with CBAMs may be a temporary measure while the nation's manufacturing sector progressively becomes less carbon-intensive.

The report said that if climate policies are to permeate trade agreements, climate justice must be at the core of this development. In this light, the report proposed a system where developing countries could impose a 'historical polluter tax' on trade partners to fund their own decarbonization efforts. Trade partners who have contributed a specific amount to the total historical CO2 emissions since the pre-industrial era may be subject to this tax.

## Companies Development

### Spec Products to Launch AI Smart Factory in September in Tainan (Taiwan)

Automotive fastener supplier Spec Products' new factory in Xinji Industrial Park of Tainan City (Southern Taiwan), which costs NTD 700 million, is expected to be fully completed in September 2024. The new AI smart factory will complete its transformation to smart manufacturing. The company said that the new factory covers an area of 13,408 square meters. Including a land cost of NTD 240 million, the total cost of construction and the factory's software and hardware equipment is NTD 500 million. The factory design and process setting are based on a 10-year operation plan. The land area in use in the first phase is 5,950 square meters, and the building covers 6,942 to 7,272 square meters. This factory is planned to have smart manufacturing and smart trucks to reduce manufacturing costs and cope with problems such as manpower and talent shortages. The goal is to increase the self-production rate from the current 15% to 30% by 2027.

Spec Products has been operating in the automobile fastener industry for a long time, with hundreds of partnering factories. Its end customers include BMW, Ford, GM, Porsche, Tesla, TOYOTA and other European, American and Japanese car manufacturers, as well as Tier 1 manufacturers like Bosch, Continental Group, agricultural machinery and home appliance manufacturers like Electrolux and John Deere. Its market territory includes the Americas which account for about 50% to 60%, the European market (20% to 30%), and the rest in Japan and Southeast Asia.





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C-Parts  
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**sheh fung**  
screws company

## Sheh Fung's Q2 2024 Revenue and Net Income Increase

Sheh Fung Screws announced on August 2 that its consolidated revenue in Q2 2024 reached NTD 605 million and its after-tax net income reached NTD 58 million, an increase of 17% and 4.26% respectively over the same period last year. The company stated that it benefited from increased orders from European and American customers, coupled with properly controlled operating costs and expenses. The EPS in Q2 was NTD 1.01, which was still stable compared with the same period last year. In Q2 2024, the company's do-it-yourself home repair and construction market revenue proportions were 25.94% and 74.06% respectively. The group is actively investing in the R&D of diversified screw products. In addition, the new factory in Vietnam delivered products for small batch orders in Q2 and it will help boost Sheh Fung Screws's overall business performance.



**Fastenings**

## TR Fastenings Opens New Facility in China

TR Chai Yi Precision Fastenings Manufacturing, now part of the Trifast plc group of companies, is celebrating the launch of its Chinese manufacturing facility in the key industrial city of Dongguan, within the Guangdong Province, capitalising on years of increasing demand in the region. Guangdong is a vibrant world-class centre of innovation and technology, providing the perfect place for TR to produce its precision engineered screws to OEM's and their sub-contractors, whilst leveraging its global scale on a local basis.

The new 2,800 sq. metres of manufacturing space houses 44 cold forging machines and 36 thread rolling machines producing 0.6mm to 4mm micro screws and thread forming screws, in steel, stainless and titanium, with an output of around 1 billion pieces per annum.

TR Chai Yi is proud to have achieved the globally recognised ISO 9001 certification demonstrating that TR has met the stringent criteria required for quality, safety and efficiency standards for its products and services to customers in the region. The accreditation affirms that the team is committed to providing the highest level of quality across the organisation and are continually looking at ways to improve.

Jeremy Scholefield, Asia Pacific Managing Director, comments: "We're delighted to open this new facility and in such a renowned area. It's such a positive move for TR as a group. Our focus is on producing competitive products and continuing to build a strong capability in China and across the Asia Pacific region to meet market demands."

"Here in Guangdong, one of our key differentiators is our technical engineering knowledge to produce very precise and often complex components, those that are manufactured to exact measurements and mass-produced. This latest investment is key for us, as it highlights TR's robust development in the region and our commitment to staying close to key customers here." The new China plant is the company's seventh global manufacturing facility with factories now also in Italy, Singapore, Taiwan and Malaysia.

## BUMAX Announces New US Master Distributor

Swedish premium fastener manufacturer BUMAX AB is excited to announce the recent appointment of Star Stainless Screw Company, as its new master distribution partner in the US. The announcement marks a notable step forward in the BUMAX route to market in the US and is part of the company's ongoing development strategy for the North America region. Established in 1950, Star Stainless Screw Co. has built an unrivaled reputation throughout the US as an importer and distributor of fastener products in a range of stainless steel and other exotic alloy materials. With a network of distribution centers in strategic locations, Star Stainless is well placed to serve its extensive customer base of fastener and industrial component suppliers across the country.

"We at Star Stainless Screw Company are so excited to be partnering with BUMAX. We feel the quality of products from BUMAX, partnered with the reputation Star has for offering the highest quality of products and service will be a perfect fit. We look forward to our partnership and thank BUMAX for their trust in Star's excellence in distribution," says Tim Roberto, President of Star Stainless Screw Co. Star Stainless will be responsible for stocking and supplying the extensive BUMAX range of high-strength stainless steel products to fastener distributors and industrial product suppliers throughout the US. This partnership will significantly improve the availability, accessibility and speed of supply of BUMAX products to customers in the US.

"After a long road, I am happy to see our agreement finalized. A key challenge in the US has always been the geographic size and diversity of the market. Bringing together the expertise of both companies, we can now begin the important work of raising awareness of the advantages of BUMAX high-strength stainless steel fasteners in the US market and making our products more readily available throughout the region," says Jacob Bergström, BUMAX Segment Manager for Distribution.





**Jeff Watts Promoted to President and CSO of Fastenal, Dan Florness to Continue as CEO**



Fastenal Company has appointed Jeff Watts, a 28-year Company veteran with deep global sales experience, to the position of President and Chief Sales Officer, effective August 1, 2024. Mr. Watts assumes the President role from Dan Florness voluntarily vacating the President position on the effective date. Mr. Florness continues to serve as Fastenal's CEO and as a member of its Board of Directors.

In addition to serving as President, Mr. Watts continues in his role as the Company's Chief Sales Officer (CSO), a position he has held since May 2023. As CSO, his responsibilities include establishing priorities, setting goals, and providing guidance and oversight for the Company's global sales activities, which today span 25 countries.

Mr. Watts brings decades of sales experience to both roles, having previously served as Fastenal's Executive Vice President – International Sales, Vice President – International Sales, and Regional Vice President of the Company's Canadian business. Prior to this, he served in a variety of sales roles on the district and local market levels, giving him a direct understanding of what's important to customers and to employees around the world. He joined the Company (as a part-time branch employee) on February 5, 1996.

**Acquisition**

**BOSSARD** Proven Productivity **Bossard to Acquire the Aero Necoce International Group and Significantly Expand Its Presence in the Aerospace Industry**

The Bossard Group has signed an agreement to acquire the French Aero Necoce International Group (ANI).

Aero Necoce International SAS, headquartered in Béziers, France, employs 33 people and expects net sales of around EUR 25 million for the current financial year. ANI is a leading French distributor of fastening solutions and provider of logistics services in the aerospace industry. The company also has locations in the USA and Malaysia. Through the contemplated acquisition, Bossard will significantly expand its market presence in the strategically important aerospace industry and in France. In combination with Boysen (now Bossard Aerospace Germany), acquired in 2019, Bossard would become a leading distributor of fastening systems and provider of logistics services in the European aerospace industry.

“The intended acquisition of Aero Necoce International SAS is an important step to accelerate our growth strategy in the aerospace industry and strengthens our strategic presence in the Aerospace Valley in France. In addition, we see great market opportunities in the cooperation with Bossard Aerospace Germany, which will further strengthen our position in the European aerospace industry,” says Daniel Bossard, CEO of the Bossard Group. “We are thrilled about this transaction. The Bossard Group's backing will provide Aero Necoce International SAS with a great opportunity to continue its growth trajectory while preserving the service-oriented ethos that has defined our family business since its inception,” said Patrick and Nathalie Bianchini, who led the company in the second generation.

The closing of the transaction is expected within 2024 and is subject to the approval of the regulatory authorities and other customary closing conditions. The acquisition will be financed through the use of existing credit facilities.

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## MITOS: A New Company

by Marco A. Guerritore, Editor in Chief, Italian Fasteners magazine

A bright star has been shining in the skies of the Italian Fastener Industry for some time now. MITOS started out as a company specialising in the marketing of screws and bolts. Over time, it expanded its operations to include manufacturing. Today, MITOS is a well-established, ISO 9001 certified company with a functional organisational setup and, most importantly, a clear marketing strategy.

We met with Gabriele Pastorelli, CEO of MITOS S.r.l, who graciously answered a few of our questions.

### [How do you perceive the evolution of the fastener industry over time?](#)

Mitos is too young to be able to answer this question comprehensively and using adequate criteria. However, we can see that there is a growing demand for a higher standard of quality, for people with more specialised skills and expertise and for continuous research aimed at enhancing production efficiency, sales and services within the industry.

### [The economic model solely focused on development is being challenged, particularly by environmental advocates. How can industrial production align with today's obligation to protect the environment?](#)

Paying more and more attention to consumption and waste management is undeniably pivotal in reconciling industrial production with environmental responsibility today. Moreover, the search for new renewable energy sources and the adoption of production methods with minimal environmental impact can be key strategies. Partnering with environmentally conscious collaborators and suppliers can promote cooperation, such as efforts to optimise the number of shipments and prioritise local sourcing wherever possible. In essence, a production development plan should focus on reducing environmental impact, particularly in terms of logistics and energy consumption. Technological innovation stands as a potent ally in achieving this objective and addressing other pertinent concerns.

### [Competition from both European and non-European markets is intensifying in the fasteners sector. What marketing principles do you think can be used to overcome these challenges?](#)

I believe fostering collaborations and synergies with influential companies in the fastener market is imperative to mitigate competition from both European and non-European manufacturers. For this reason, working groups and sector associations, such as UPIVEB, are valuable and necessary for consolidating synergies and strengthening the strategies of each manufacturing company within the country.

### [Do you believe there are new markets for MITOS to explore?](#)

Our main challenge right now is to consolidate the positive results we have achieved in the domestic market while capitalising on the potential for further expansion into the European market. Currently, Mitos supplies products to Germany, Spain and France. One of our aims for the future is to increase our presence in these countries while also expanding into other markets.

### [There are a number of contingent difficulties associated with manufacturing in Italy, such as high taxes and energy prices. How do you think it is possible to remain competitive while overcoming the difficulties we are facing in Italy?](#)

What sets Italian companies apart is their flexibility and ability to meet specific customer and market requirements while ensuring that finished products maintain a high level of reliability. Proper planning could be an effective strategy for controlling company and production expenses and reducing waste. Certainly, at the political level, industry associations may need to engage in dialogue with governmental representatives to address issues like rising utility bills and taxes.

### [What kind of Europe do you expect to emerge from the upcoming elections?](#)

My concern is that individual interests may continue to overshadow the collective interests, even within Europe. I fear that the upcoming elections may not bring about a shift in the mindset of decision-makers.

### [The current geopolitical scenario is definitely worrying. What impact do you think the ongoing hostility in the Middle East and Ukraine will have on the Italian economy as a whole and its operational trajectory?](#)

We are already witnessing a general decrease in demand. Mitos has, thankfully, managed to carve out a niche in the market where the company's objectives can still be achieved. However, we're closely monitoring developments in neighbouring regions as part of our risk analysis. In any case, maintaining a lean company structure with controlled fixed costs has proven beneficial, maybe more than ever, given the geopolitical scenario you accurately describe as "worrying."

### [Which managerial function do you believe is appropriate to assign to Trade Associations?](#)

As I said before, Trade Associations could play a crucial role in engaging with government representatives in order to protect companies in the industry from increases in operating costs, direct and indirect expenses, taxes and other challenges beyond the control of individual companies.

### [What is your final wish to conclude this interview?](#)

We obviously hope for a positive shift towards conflict resolution in Europe and beyond and for a revitalisation of the market in which we operate. This would empower companies like Mitos and others to enthusiastically pursue their projects with the success that comes from unwavering commitment and dedication to their craft. ■





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Range of External Diameter Processing	0.6 - 4mm		
Range of Length Processing	2 - 45mm		
Precision of External Diameter Grinding	0.003mm		
Superficial Roughness	Below Ra0.1		

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## Machine Key

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# EUROPEAN NEWS

**FASTENER  
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## Hilti Group Continues Growth in a Challenging Environment

Over the first four months of 2024, Hilti Group recorded sales growth of 2.9% in local currencies compared to the same period of the previous year. Translated into Swiss francs, sales declined by 1.8% to CHF 2.103 billion (€2.161 billion) resulting from an ongoing significant negative currency effect.

Jahangir Doongaji, CEO at Hilti, explains: "Construction activity in Europe has slowed down significantly, while in other parts of the world, such as Asia and Latin America, we still see some market growth. We are confident that our robust global footprint will enable us to outperform the market." Although the Swiss franc has weakened against the euro and the US dollar in recent weeks, the negative currency effect on sales remains significant and amounts to -4.7% for the first four months of the current year.

The sales development in the business regions varies strongly. Europe recorded a slight growth of 0.5% in local currencies, with southern Europe being the only region to escape this downward trend. The Americas increased sales by 2.6%, primarily driven by double-digit growth in Latin America. The Asia/Pacific region took advantage of an improved market environment to increase sales by 6.7%. The eastern Europe / Middle East/Africa region also remained on the growth track (+16%).

For 2024, the company anticipates sales growth in the low to mid single digit range in local currencies.



## A New CEO Europe at KAMAX

Peter-Thomas Büsing recently took over the role of CEO Europe at KAMAX, a global technological leader for high strength fasteners and complex cold form parts in the automotive industry. In his role, Peter-Thomas Büsing is in charge of all European plants, the subsidiary GALOL, and the sales, supply chain, technology and tools departments – making him responsible for around 2,500 employees, more than half of KAMAX's workforce.

At KAMAX he will now drive forward the development of processes and the organizational structure. "My goal is to consolidate KAMAX's position in Europe as a strategic partner for our customers that can be relied upon even in times of upheaval and complex challenges. Technologically, we will continue to build on our strengths to offer innovative and individual solutions in the future," states Peter-Thomas Büsing.

Previously, the 55-year-old was president of the EMEA region and, since October 2022, a member of the executive committee of Grammer AG. In this role, he had overall operational responsibility for Europe, Middle East, and Africa, which has 18 organizational units.

Peter-Thomas succeeds Dr. Reinhard Rupprecht, who has been appointed CEO of the KAMAX Group, with Peter-Thomas reporting directly to Dr. Rupprecht.

## Novastone Capital Advisors Acquires Mecavit

Novastone Capital Advisors GmbH, a Swiss company renowned for managing the world's largest Entrepreneurship Through Acquisition (ETA) programme, has successfully acquired 100% of Mecavit Srl, through an Italian special purpose vehicle.

With a 40 year history and based in Castel Guelfo di Bologna, Mecavit has established itself as a trusted name in the fastener manufacturing industry, known for its high-quality products. The company's growth and reputation have been carefully nurtured by its partners over the years. The sellers will reinvest in the project, ensuring its continuity and future success.

Nicoletta Nutrito, an engineer and local resident with extensive experience in both national and international industries, will lead the company. Her vision is to maintain the company's high standards of quality while fostering innovation and growth. "Our goal is to prioritise quality, technical expertise, and reliability, while expanding our offerings to new markets," explains Nicoletta Nutrito.





Former partners Giuseppe Verdoliva and Giorgio Grillini will continue to support the company alongside Mrs. Nutrito. “We are pleased to pass the management to a professional from our region who not only possesses the necessary skills but also shares our values and is committed to ensuring growth and continuity,” adds Bruno Carafa, director, speaking on behalf of the other partners.

## AICHELIN Group Signs Joint Venture Agreement

AICHELIN Group and Sistem Teknik have signed an agreement to establish a joint venture in Austria, to produce and distribute industrial vacuum heat treatment technologies and services in Europe.

With this joint agreement, AICHELIN Group is adding a promising segment to its existing product portfolio. Christian Grosspointner, CEO of AICHELIN Group, explains: “As one of the global market leaders in the production of industrial furnaces for industrial heat treatment, we want to become an even stronger partner in the supply of vacuum furnaces for the industry. The joint venture combines the best of two worlds, with the products developed by Sistem Teknik and our global aftersales and service network, we create maximum customer focus – a perfect combination to better meet the increasing demand for vacuum solutions in the future.”

Mehmet Özdeslik, CEO of Sistem Teknik Sanayi Firinlari A.S, adds: “The motivation of our joint venture is to offer the best possible technology that fits our time, which inevitably demands environmental efficiency and sustainability. We have noticed that there is a strong market for megatrends such as carbon footprint, electromobility and lean production. With our vacuum furnaces, we aim to provide solutions that ensure low carbon emissions and maximum process quality. I am very confident that this collaboration will not only bring innovation, but also benefit our industry.”



Proven Productivity

## Bossard Acquires Dejond

Bossard Group has expanded its market position within innovative fastening technologies, acquiring Belgian company Dejond Fastening – a manufacturer of blind rivet nuts and specialist in the distribution of high-quality fastening systems.

Dejond Fastening N.V, headquartered in Antwerp, employs 68 people and expects net sales of around €15 million for the current financial year. With its own brand Tubtara®, the company is a pioneer in innovative solutions for sheet metal, profiles, composites and plastic fastening solutions for a wide range of industries. Dejond’s solutions enable engineers to optimise both their product design and manufacturing processes, which fits well with Bossard’s ‘Proven Productivity’ philosophy. With this acquisition, Bossard will further strengthen its market presence in the Benelux region.

“Bossard has been working with Dejond for over 30 years. We have consistently been impressed by the company’s reliability and innovations ever since. By combining technical expertise with our global market reach, technical sales expertise, and access to a wide range of industrial customers, we see great potential to offer even more value to our existing and new customers,” reports Daniel Bossard, CEO of Bossard Group.

“Becoming part of the Bossard Group guarantees continuity for our existing customers and it opens up completely new possibilities to expand the global market presence of Tubtara®. It will give us new opportunities to widen our product offering and invest in new technologies and sales capabilities,” concludes Jan Maeyens, director R&D and manufacturing at Dejond.

The metal business, including the Metal Service Center, is not part of the acquisition and will continue to operate independently under the name Dejond N.V. ■





# Brazilian News

## “A Glass Shield, That's What We Have for Today”

### The exchange rate works as a glass shield for Brazilian industrial production

At the end of the first half of 2014, over ten years ago, one US dollar costed R\$ 2.20 (real, the Brazilian currency). In the first quarter of 2024, US\$ 1.00 costed around R\$5.65. It currently costs R\$ 4.46.

So, it made me think about the domestic production could be at a more competitive level if we had policies more in favor of Brazilian production. However, with the exchange rate at the current level, it's already a lot to keep our heads above water.

Just on fasteners, the importers sold US\$1.053 billion worth of fasteners to Brazil in 2022; US\$977 million in 2023 and US\$533 million in the first half of this year. And since one more dream doesn't hurt, imagine an inversion that leads us to produce, let's say, 20% of that over here.

We can consider the fastener production overseas has been continuously dynamic because the industrial policies of Asian countries in particular work more in favor than against local producers. And with less hostile taxation, simpler financial access, as well as the acquisition of new and more modern machines, for example, productivity will make all the difference, in addition to the fact that some players such as China have high production scales, which drastically reduces cost.

In any case, the immediate effect of the exchange rate works as a shield to protect local manufacturing, but you can't count on a glass shield, which is therefore of limited resistance. But That's what we have for today.

Dr. Ricardo M. Castelhana is the CEO of Jomarca Fastener, a Brazilian manufacturer with more than 900 employees and capacity to produce 5 thousand tons per month.



▲ Written by Dr. Ricardo M. Castelhana



## Recall: Failure with Renault Kardian's Fastening

From July 15, 2024, Renault Brazil started a recall involving "Kardian Evolution", produced in its local industrial plant unit between March 15 and May 3, 2024.

"An investigation found a production defect where the rear wheel bolts had not been sufficiently fastened, due to possible deterioration of the threads of the rear brake drums. Inadequate fastening could cause noise and displacement of the rear wheels, generating a loss of the original drivability. On extreme cases, this could result in accidents with serious and/or fatal injuries to passengers", according to the note on the local website.

The note also says the repair consists of replacing the rear brake drums and the front and rear wheel bolts, requiring around one hour of maintenance.

## Ford Keeps 1,500 Jobs in Brazil

### Ford Motor's local production cycle in Brazil lasted 102 years, from 1919 to 2021

One of the most iconic brands in history in the automotive sector, Ford still maintains a development and technology centre in Brazil, in Camaçari Town, Bahia State, operating with over 1,500 employees involved in various activities, such as virtual reality laboratories and “teardown” (which performs disassembly and analysis of components).

Even without local manufacturing activities since 2021, in a recent note on Ford's website, Ford announced a new expansion, which will create a new space to house another thousand employees and which will conclude by 2026, is expected to increase the total number of direct jobs to 2,500. ■



News provided by Sergio Milatias, Editor  
Revista do Parafuso (The Fastener Brazil Magazine)

milatias@revistadoparafuso.com.br  
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# TURKISH NEWS



Compiled by Fastener World

## Turkey's Fastener Trade Statistics in 2023

Turkey's Fastener Import (Source: Trademap)			
Import Source	Import Value in 2023 (Thousand USD)	Share in Turkey's Import (%)	Import Quantity in 2023 (Tons)
<b>Total</b>	<b>840,136</b>	<b>100</b>	<b>90,250</b>
Germany	187,350	22.3	15,216
China	103,574	12.3	20,880
USA	85,265	10.1	1,500
Italy	68,823	8.2	8,213
S. Korea	50,122	6	4,951
Japan	48,320	5.8	5,795
France	47,280	5.6	3,596
Taiwan	32,679	3.9	4,619
Spain	23,400	2.8	2,476
Czech Republic	21,811	2.6	3,517
Malaysia	20,472	2.4	6,901
Switzerland	20,411	2.4	342
India	19,193	2.3	4,994
Mexico	17,541	2.1	69
UK	17,473	2.1	1,359
Brazil	13,985	1.7	34
Poland	10,123	1.2	1,315
Sweden	9,636	1.1	706
Israel	5,091	0.6	9
Bosnia and Herzegovina	3,564	0.4	724

Turkey's Fastener Export (Source: Trademap)			
Export Destination	Export Value in 2023 (Thousand USD)	Share in Turkey's Export (%)	Export Quantity in 2023 (Tons)
<b>Total</b>	<b>855,874</b>	<b>100</b>	<b>185,176</b>
Germany	281,356	32.9	60,026
France	49,625	5.8	11,741
USA	43,607	5.1	9,048
Italy	32,343	3.8	9,858
Russia	30,530	3.6	3,951
Poland	26,104	3	8,502
Slovakia	21,285	2.5	6,685
Spain	20,169	2.4	4,644
Netherlands	19,911	2.3	5,416
UK	18,925	2.2	3,469
Czech Republic	18,261	2.1	2,789
Romania	17,204	2	4,073
Kazakhstan	17,075	2	5,001
Austria	15,116	1.8	2,649
Bulgaria	14,501	1.7	2,927
China	12,626	1.5	2,181
Sweden	12,228	1.4	3,016
Belgium	11,895	1.4	2,694
Iraq	11,634	1.4	3,197
Hungary	11,100	1.3	1,616

The fastener market in Turkey is an integral part of the country's industrial sector, playing a significant role in various industries including automotive, construction, machinery, and electronics.

### Import

In 2023, Turkey imported approximately US\$1 billion worth of fasteners. The majority of these imports came from Germany, China, USA and Italy. Germany was the leading supplier, accounting for over 20% of Turkey's fastener imports. China and Italy followed with shares of around 15% and 10%, respectively.

### Export

During the same period, Turkey's fastener exports amounted to about US\$700 million. Turkey mainly exported these products to European Union countries, the Middle East, and North Africa. Major export destinations included Germany, France, and the USA. Germany accounted for 25% of Turkey's fastener exports.

### Trade Balance

In the fasteners sector, Turkey has a trade deficit of import exceeding export. However, the increasing trend in export is a positive sign for reducing this deficit.

## Turkey's Automotive Export Value Amounted to US\$2.6 Billion in June

Turkey's automotive industry's export value in June decreased by 12.4% to US\$2.6 billion. The share of the sector, which ranks first in the country's exports, was 14.1 percent. The sector recorded an increase of 20% in the United Kingdom, 7% in Spain, 23% in Romania and 3% in the United States. In the first six months of the year, exports increased by 2.3% to US\$17.7 billion. The export value of passenger cars decreased by 4% to US\$942 million. The export value of motor vehicles for the transport of goods decreased by 3% to US\$394 million. The export value of bus/minibus/midibus exports decreased by 14% to US\$177 million and Tow Trucks decreased by 83% to US\$30 million. While Germany was the country with the most exports in the Supply Industry, exports to this country decreased by 20%. There was a decrease in exports to the USA by 2%, to Russia by 13%, and an increase of 79% in exports to Romania. While there was a 17% decrease in exports to France, one of the important markets in passenger cars, there was a 29% increase in exports to Spain, 14% to Italy, 83% to the United Kingdom and 2% to Germany.

In motor vehicles for the transport of goods, there was a 20% increase in exports to the United Kingdom, 15% to Slovenia, 5% to Belgium, a very high increase in exports to the Netherlands, a 13% decrease in exports to Italy, 36% to France, 21% to Spain and 18% to Australia. In the bus/minibus/midibus product group, there was a 24% decrease in exports to France, a 44% decrease in exports to Germany, a 59% increase in exports to Spain, a 15% increase in exports to the United Kingdom, and a 66% increase in exports to the USA.

### 20% Increase in Exports to the Largest Market, the United Kingdom

In June, exports to the United Kingdom, the largest market, increased by 20% to US\$322 million. Germany was the second largest market with US\$319 million, while exports decreased by 18%. Automotive exports to France decreased by 21% to US\$315 million. While there was a 7% increase in exports to Spain, 23% to Romania and 3% to the USA, there was a decrease in exports to Italy by 7%, Slovenia by 2%, Poland by 35% and Belgium by 30%.

### Exports to EU Countries Decreased by 12 Percent

Exports to EU Countries, which rank first in the country group with a share of 68 percent, decreased by 12% and reached US\$1.787 billion. While other European countries ranked second among country groups with a share of 14%, exports to this group of countries increased by 14%. There was an 18% decrease in exports to the Commonwealth of Independent States and 28% to African Countries.



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## US\$1 Billion Investment from Chinese BYD to Turkey

Chinese electric car manufacturer BYD has signed an agreement for a production facility investment in Turkey. According to the agreement, BYD will invest approximately US\$1 billion in Turkey.

BYD is expected to establish an R&D center for sustainable mobility technologies with an annual capacity of 150,000 vehicles and an electric and rechargeable hybrid car production facility in Turkey with an investment of approximately US\$1 billion.



The facility, which is targeted to start production by the end of 2026, is planned to provide direct employment for up to 5 thousand people.

### Europe Will be Reached with Turkey's Unique Advantages

In the statement made regarding the preference of Turkey by BYD, which produces more than 3 million cars annually and is the world leader in electric vehicle sales, "Thanks to Turkey's unique advantages such as its developing technology ecosystem, strong supplier base, exceptional location and qualified workforce, BYD's investment in this new production facility will further improve the brand's local production capabilities and increase logistics efficiency. We aim to reach consumers in Europe by meeting the growing demand for new energy vehicles in the region."

### First Foreign Investment in Automotive After 27 Years

With BYD's signature, a foreign direct investment has come to the Turkish automotive industry for the first time in 27 years. BYD's investment is expected to have a positive impact on other foreign investors. SWM Motor, which operates under Shineray Group, one of China's leading automotive manufacturers, of other Chinese brands such as Chery and MG, announced that it has applied to produce in Turkey. ■



## 40 Years Experience in Stamping Manufacturing in Taiwan

**Production Specification:**

**Thickness:** Max. 6.5mm

**Material:** Low/Mid/High Carbon, Stainless, Brass, Copper, Aluminum

**Finish:** Galvanized, Nickel, GEOMET, DACROMET, Powder Coating, Phosphate, Hot Dip Galvanized, Black Oxide, Sand Blasting...

**Strict Quality Control:**

- ▶ Inspection on each process
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- ▶ Traceability of material no., each process, equipment used, and personnel involved in



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Stamping and Assembly



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Other Metal Stampings



Tee Nuts



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News provided by Irem Yaren BAYSAL,  
 Editor of Fastener Eurasia Magazine  
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# AMERICAN NEWS

Compiled by Fastener World

## U.S. Aerospace Fastener Market to Grow 6.4% CAGR

The U.S. aerospace fastener market is forecasted to grow at a CAGR of 6.4% through 2034. Valued at US\$8.9 billion in 2024, the market is projected to expand as both commercial and military aircrafts get approval, prompting increased demand for fasteners, according to Future Market Insights (FMI).

Commercial flights are becoming even more frequent as more tourists make long-distance trips. The increasing disposable income of the working-class population in developed and developing countries has more people turn to commercial air travel. By 2034, the market is expected to top US\$16.5 billion.

One way through which market players are expanding the trust placed in their products is by making them able to withstand harsh conditions. Fasteners that provide enhanced protection from corrosion and can operate at high pressure are set to add considerable value to the market.

Market downsides persist. “The pricey nature of raw materials makes the production process costly and sees new entrants back off. The competition provided by composite materials also serves to slow down progress.”

### Key Takeaways:

1. Aluminum is the top material, expected to account for 37.5% of the market share in 2024.
2. Commercial aerospace leads the application segment, with mechanical commercial aerospace expected to account for 67.5% of the market share in 2024.
3. India shows promise for the market, with an estimated CAGR of 9.5% for the forecast period.
4. China and Spain are forecasted to be lucrative countries for the market, with predicted CAGRs of 7.2% and 4.8%, respectively, over the forecast period.
5. The market is expected to register CAGRs of 2.5% and 3.6% in the UK and the U.S., respectively, over the forecast period.



## FINdex Drops on Lower First-Half Manufacturing

The FIN Fastener Stock Index fell 10.2% in the second quarter of 2024 amid ongoing weakness in the U.S. manufacturing sector.

Manufacturing economic activity contracted in June for the third consecutive month and the 19th time in the last 20 months, according to the Institute for Supply Management. The Manufacturing PMI registered 48.5% in June, down 0.2 percentage point from the 48.7% recorded in May.

Facing those headwinds, only two FINdex companies — aerospace suppliers Carpenter Technology and Howmet Aerospace — achieved stock price gains in the second quarter.

CarTech’s shares rose 53.5% amid continuing OEM demand strength. “We see no impact (from Boeing’s delivery delays) near term and anticipate no impact longer term,” Carpenter CEO Tony Thene told investors. “We supply to OEM, MRO, narrowbody, widebody, Boeing, Airbus, what(ever) it might be.”

Howmet shares rose 13.4% in Q2.

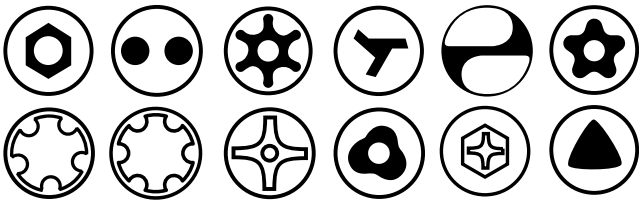
The FINdex performed better in the first six months, with strong gains (14.7%) in the opening quarter lifting it 3% for the period.



# Security Fasteners



## Tamper Proof Fasteners

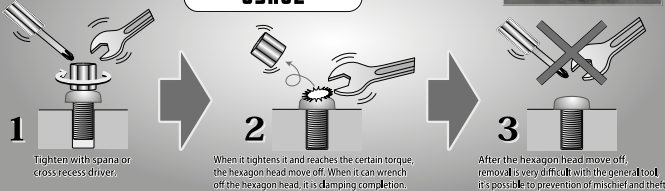


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## Holo-Krome Celebrates 95 Years of Manufacturing

Holo-Krome, a subsidiary of Fastenal, hosted a 95th anniversary celebration to honor its staff on July 10, 2024, at its facility in Wallingford, CT, USA. Attending were Connecticut Chief Manufacturing Officer, Paul Lavoie; Wallingford Mayor, Vincent Cervoni; John Bairos, Small & Minority Business Liaison from Senator Blumenthal's office; and members of the Greater New Haven and Quinnipiac Chambers of Commerce.

Founded in 1929 in Hartford, CT, USA, Holo-Krome pioneered the cold forming process of mass-producing fasteners with greater structural integrity and less material waste.

The Holo-Krome brand is now synonymous with premium-quality socket head products for critical applications—all made in the USA. The fastener manufacturing industry was largely offshored in the 1970s and 1980s, but Holo-Krome stayed true to its roots, employees and community.

Fastenal acquired Holo-Krome in 2009, kept the team intact and invested in a new 200,000 ft<sup>2</sup> site in Wallingford. Ongoing investments in technology and job training continue to make Holo-Krome a leader. Recent improvements include three advanced cold forming headers and bolt makers.



## MDM's Top Fastener Distributors List

The Modern Distribution Management (MDM) has released the '2024 Top Distributors' directory, ranking of the top nearly 200 North American industrial, construction and commercial product distribution companies by revenue across 20 product categories. Rank estimates indicate specific product category standing, but with 2023 total company revenues listed.



MDM says after riding the inflation wave in 2021/2022, distributors found 2023 to be less advantageous from an economic tailwind perspective. While inflation persisted throughout 2023, it leveled out over the year and led to far tougher year-over-year financial comparables. Disinflation and lower volumes resulted in the USA wholesale distribution sector finishing with 2023 annual revenues of US\$7.887 trillion, down 1.8% from 14.8% and 20.5% in 2022 and 2021.

MDM's top 20 Fastener Distributors are as follows— 1. Fastenal Company, 2. Würth Industry North America, 3. McMaster-Carr, 4. MSC Industrial Supply, 5. The Hillman Group, 6. Boeing Distribution, 7. Optimas OE Solutions, 8. AFC Industries, 9. Endries International, 10. Bossard (Americas), 11. Applied Industrial Technologies, 12. Distribution Solutions Group, 13. EFC International, 14. Grainger, W.W., 15. Copper State Bolt & Nut, 16. Motion, 17. Field Fastener, 18. Incora, 19. Bisco Industries, 20. Kimball Midwest.



## Rotor Clip Wins Caterpillar Supplier Excellence Award & Launches Multilingual Website

Rotor Clip has received the Caterpillar Supplier Excellence Award, awarded to suppliers who consistently demonstrate excellence in service and delivery performance, meeting or exceeding Caterpillar's stringent standards for product quality and on-time delivery. To be recognized with this certification, suppliers must maintain a delivery performance of over 95% and demonstrate a commitment to a zero defects culture.

In addition, Rotor Clip launched its new multilingual website, designed to cater to a diverse and global audience. The comprehensive technical translations are now available in German and French, marking a strategic initiative to enhance the user experience for customers worldwide. The new website reflects Rotor Clip's commitment to providing seamless communication technical product information and support to a broader international clientele.

Rotor Clip seeks to connect with global partners, acknowledging the need for clear and effective communication in the world of manufacturing and engineering. This is the first step towards better serving the market, with plans to encompass additional languages in the future. ■

News provided by:

John Wolz, Editor of FIN ([globalfastenernews.com](http://globalfastenernews.com))

Mike McNulty, FTI VP & Editor ([www.fastenerstech.com](http://www.fastenerstech.com))

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TIFI Chairman Yung-Yu Tsai

# Taiwan CSC Production & Sales Meeting for Q4 2024 with the Fastener Industry

## Market Momentum Supports Taiwan Fastener Industry to Keep Moving Forward

On September 3 at an important gathering of Taiwan fastener business owners, the main representatives of Taiwan CSC, together with Mr. Yung-Yu Tsai, the new chairman of Taiwan Industrial Fasteners Institute, as well as Mr. Tu-Chin Tsai, the former TIFI chairman, briefed on the status of the global economy and Taiwan fastener industry in front of more than a hundred business owners and professionals working in the fastener, wire rod, surface treatment, and machinery industries. This time, the event had professionals from abroad who came to listen and exchange thoughts with the participants.

Through Taiwan CSC's briefing on global economic outlook, we can get a glimpse of some future opportunities. From the perspective of market demand, Southeast Asia is a rising star with positive market development potential. The Asian Development Bank predicts that the GDP growth rates of Vietnam and the Philippines will exceed 6% in 2024, and Indonesia will reach 5%. In addition, as of July this year, ASEAN's manufacturing purchasing managers' index has been above the boom-bust line (the line which is at a reading of 50) for seven consecutive months, indicating that Southeast Asia's growth momentum is strong. The IMF predicts that the GDP growth rate of the entire ASEAN will reach 4.6% in 2025. Another market with obvious growth momentum is Europe. Its GDP growth rate was 0.5% in 2023, and is expected to reach 0.9% in 2024 and 1.5% in 2025, which will be three consecutive years of growth. However, it should be noted that compared with Southeast Asia, which will achieve a GDP growth rate of more than 4% for three consecutive years, Europe's growth momentum is relatively weak, but it can count as a stable recovery. The Fed's cutting interest rates is expected to bring momentum to Europe.

As for Taiwan, the National Development Council of Taiwan announced that Taiwan's leading indicators and concurrent indicators continue to rise, indicating that the domestic economy maintains a growth trend. As of July, Taiwan's purchasing managers' index has exceeded the boom-bust line for three consecutive months and remains in an expansion state. Export orders have achieved positive growth for five consecutive months. The cumulative export orders value from January to July this year increased by 2.7% compared with the same period last year. The IMF, Taiwan Institute of Economic Research and other institutions predict that Taiwan's GDP growth rate in 2024 will exceed 3% (and up to as high as 3.9%).

In the first seven months of 2024, Taiwan CSC imported 277,000 tons of wire rods from around the world, an increase of 34% from 206,000 tons over the same period last year. Among them, 33% of wire rod imports were from Indonesia, 21% from South Korea, 12% from India, 11% from China, 8% from Japan, and 7% from Vietnam. The materials of imported wire rods were mainly low carbon steel (accounting for 50%) and alloy steel (42%).

According to statistics from Taiwan Industrial Fasteners Institute, the export weight of fastener products in the first seven months of 2024 was 740,100 tons, a year-on-year decrease of 2.77%. The average export unit price was USD 3.5, an annual decrease of 8.05%. Although Taiwan's fastener export weight to Germany dropped by 13.31%, the export weights to the U.S., Japan and Canada increased by 1.83%, 0.40% and 22.17% respectively. As of the second quarter of 2024, Taiwan's fastener export weight to the world achieved a quarterly increase of 1.6%.

Taiwan Fastener Export Volume and Price		
Product	Export Volume	Unit Price
Wood Screws	-4.94%	-13.20%
Self-tapping Screws	-0.79%	-10.85%
Bolts	-5.21%	-9.14%
Nuts	+2.61%	-5.30%

Mr. Yung-Yu Tsai said after the briefing that Taiwan fastener industry has survived the headwinds of the past three year with its most important key competitiveness still intact. That key is a unique and complete supply chain which is an advantage unseen in other countries. Therefore, even when the world is facing political and economic turmoil as well as cost and price challenges, he is looking forward to the future development of Taiwan fastener industry and is confident that the industry can usher in the next glorious decade through continuous optimization of production lines and corporate systems.

Finally, Taiwan CSC announced the launch of a new technology at the meeting. Because some Taiwanese fastener manufacturers need to supply products for automobile and motorcycle safety-critical products, Taiwan CSC launched the HCWQ4/A4 precision rolling technology. The wire rods produced with this technology are mainly used for automotive fasteners. Taiwan CSC's exclusive know-how is used to reduce the occurrence of cracks in the wire rods during the cold forming process and comprehensively improve the surface quality of the wire rods.





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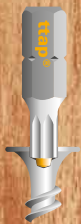
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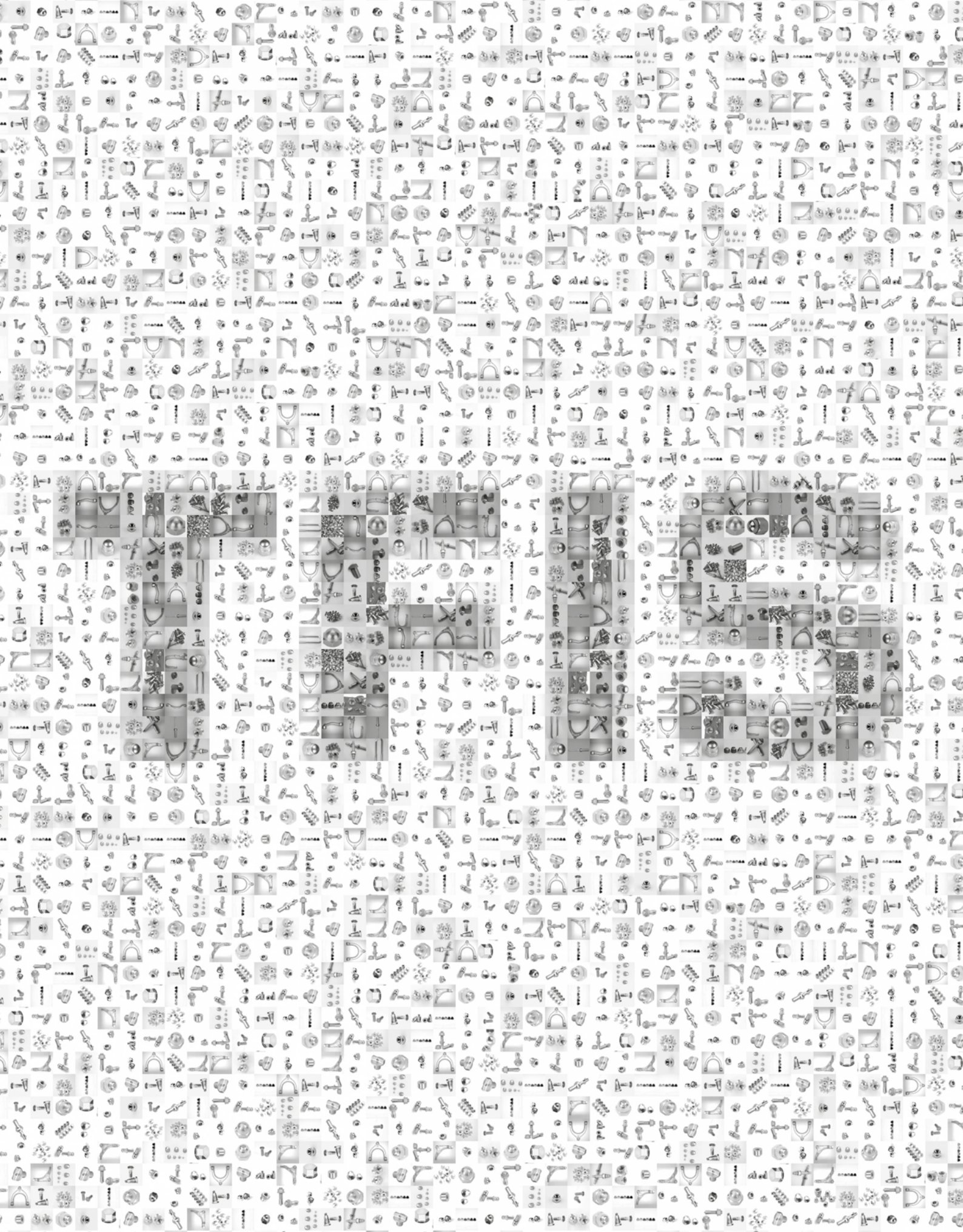
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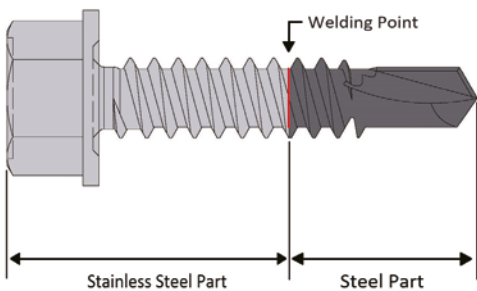
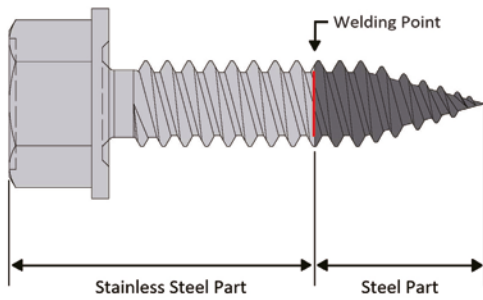
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**SMETA**





# FASTENER POLAND® Trade Fair -

## Experts in the fastener industry from around the world will meet again in Krakow

The FASTENER POLAND® trade fair, which will be held on September 25-26 at EXPO Kraków, is the only international trade fair of fasteners organized in Central and Eastern Europe. Every year, 70% of exhibitors and 50% of guests from abroad take part in them. This year will be no different. For 7 years, the event has been a key forum for exchanging experiences, learning about new products, and building lasting business relationships.

### Poland - European Strategic Supplier

Poland, thanks to its central location in Europe, plays a key role as a supplier of fasteners to European markets. Polish manufacturers are famous for high-quality fasteners. Their products, thanks to constant, regular investments in employee training and modern technologies, meet the highest standards of workmanship. Although the costs of electricity and employee maintenance are rising, Poland is still price-competitive compared to other European countries.

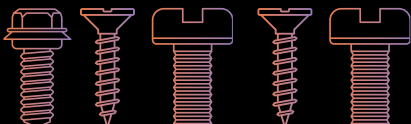
### International and Professional

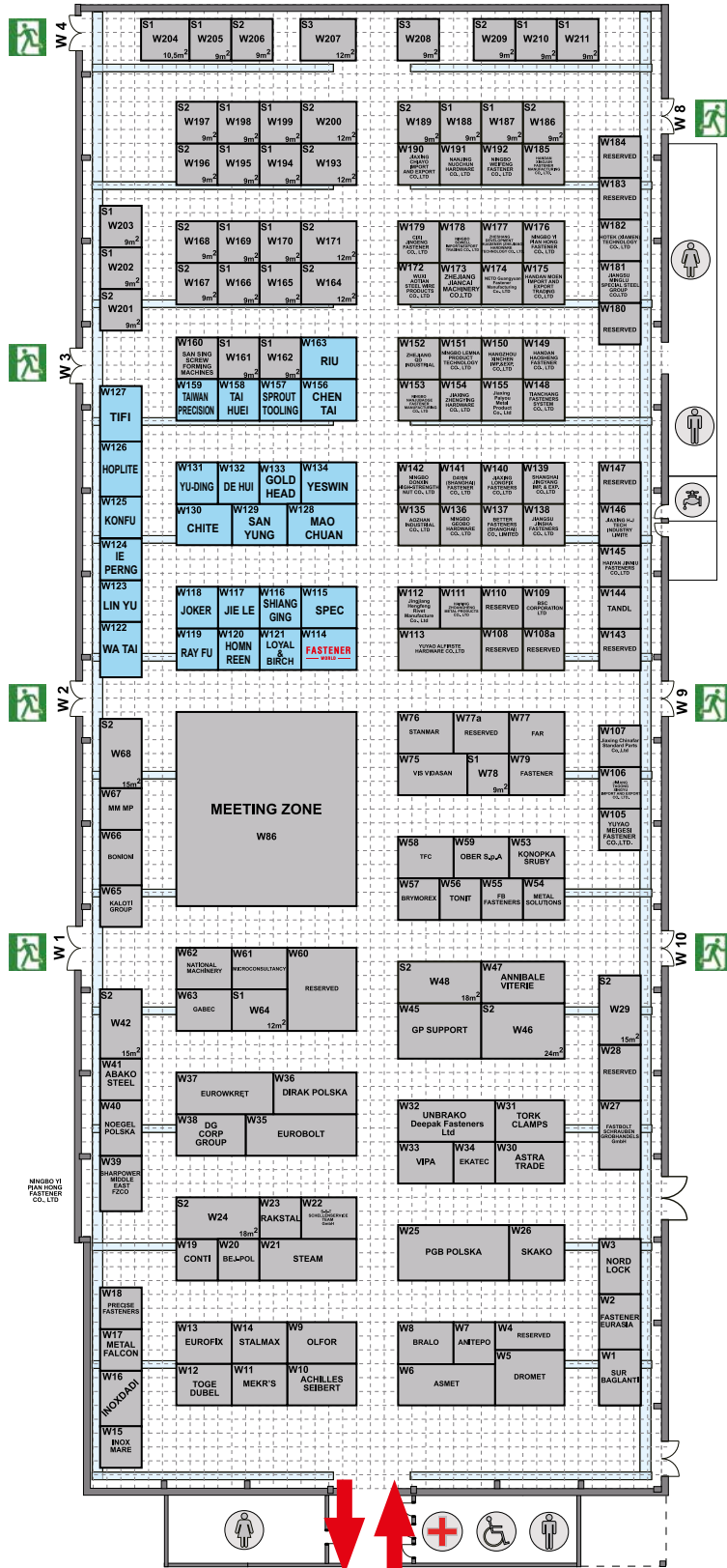
This year's topics will certainly include environmental issues - carbon duties and sustainable development, increased quality and normative requirements, shortened supply chains, technological progress, and rising prices of materials. The list of exhibitors is constantly growing. In addition to Polish suppliers, companies from the Czech Republic, Spain, India, Malta, Germany, Turkey, Taiwan, Italy, and China will be presented. They will present the most modern industrial connectors and fasteners (from screws, through rivets, to nuts, dowels, and wedges), construction connectors (anchors, concrete screws, fastening of facades and insulation), advanced assembly and installation systems (with a presentation of the latest riveting devices, screwdrivers, and mounting brackets), as well as connector production technologies and devices for their storage and distribution. Many of them have been participating in the event since the first edition. Mr. Tomasz Karwowski, Commercial Director of DROMET Sp. z o. o. Sp. k. appreciates, above all, the opportunity to meet many new customers, "... our main goal is to meet new customers - customers from outside our country. Every year we manage to achieve this goal. I'm very happy with this. Among the foreign customers who visited our stand, there were also those with whom we had no contact before." An important and interesting aspect is noted by Andrea Villa, Vice-President of the Management Board of EUROFIX Italia, "The FASTENER POLAND® trade fair is not as large as other events in the world, but it is very specialized, which means that I have time to talk to every customer. I can spend several minutes talking to him and discuss in detail all the issues that interest him. This is very important for us."

### End Users in the Spotlight

The trade fair is addressed to industry buyers who use fasteners to produce products. The machinery industry, photovoltaics, household appliances, automotive, power engineering and electronics are the sectors with the greatest demand for all types of connectors and fasteners. This year, FASTENER POLAND® will be accompanied by a special zone of fasteners for construction, which will allow specialists in the insulation industry, installers of air conditioning, ventilation, and refrigeration systems, facade installers, scaffolding manufacturers, and contractors of industrial and warehouse halls to establish contacts with suppliers.

Stabilization of the economic situation in Poland in 2024 allows for increased investor activity. Poland is still one of the largest warehouse markets in Europe. The country's favorable geographical location, well-educated staff, and relatively low costs of building halls mean that foreign investors will continue to choose this country for their logistics operations. After the introduction of the special loan program last year, there was a large demand for premises, and another state initiative is on the horizon. The continuing demand for apartments, commercial, office, and production facilities increases the demand for materials, including specialized fasteners for construction. The program of expansion of expressways, railway infrastructure, and construction of bridges, tunnels, and energy networks will result in a high demand for fasteners for engineering construction. The fasteners industry is constantly improving its solutions to meet the demanding construction market.





Entrance & Exit

# Taiwan Exhibitors



				W163 RIU
W127 TIFI	W159 TAIWAN PRECISION	W158 TAI HUEI	W157 SPROUT TOOLING	W156 CHEN TAI
W126 HOPLITE	W131 YU-DING	W132 DE HUI	W133 GOLD HEAD	W134 YESWIN
W125 KONFU	W130 CHITE	W129 SAN YUNG	W128 MAO CHUAN	
W124 IE PERNG	W118 JOKER	W117 JIE LE	W116 SHIANG GING	W115 SPEC
W123 LIN YU	W119 RAY FU	W120 HOMN REEN	W121 LOYAL & BIRCH	W114 FASTENER WORLD
W122 WA TAI				

Partial enlarged floorplan



# Taiwan Exhibitors

September 25-26 at EXPO Kraków

## W114

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[www.hoplite.com.tw](http://www.hoplite.com.tw)



Hoplite Industry Co., Ltd. specializes in supplying screws, nuts, and tools to the building, electronics, automotive, and general industries.

With 24 years of experience, we partner with skilled manufacturers to provide expert fastener knowledge, quality products, and customer-oriented service. The collaboration with European firms has been a fruitful win-win for all.

Our full hand concept of products and solid solutions create value for You!

**W121**

**LOYAL & BIRCH CO., LTD.**

[sales@loyalbirch.com](mailto:sales@loyalbirch.com)  
[www.loyalbirch.com](http://www.loyalbirch.com)



Loyal & Birch focuses on making constructional fasteners, including drywall screws, self-drilling screws, sheet metal screws, wood screws, concrete screws, deck screws and many more. We have our own patented coating for metal protection, and also work with global brands power tools for collated screws with 50 pcs and 100 pcs.

**W128**

**MAO CHUAN INDUSTRIAL CO., LTD.**

[maochuan@maochuan.com.tw](mailto:maochuan@maochuan.com.tw)  
[www.maochuan.com.tw](http://www.maochuan.com.tw)



MAO CHUAN is professional stampings manufacturer in Taiwan, and has more than 50 years of experience in O.E.M for the automotive, electronic, and construction industries. MAO CHUAN is qualified with ISO9001, IATF16949, ISO14001, VDA 6.1, ISO 14064, and has earned a Bronze Medal of EcoVadis. MAO CHUAN provides customized products with the most comprehensive services and is granted great reputation with customers.

**W119**

**RAY FU ENTERPRISE CO., LTD.**

[export@ray-fu.com](mailto:export@ray-fu.com)  
[www.ray-fu.com](http://www.ray-fu.com)



Ray Fu is a professional manufacturer and exporter of wires and fasteners. With wire, screw, packaging, and heat treatment plants, we offer a one-stop service. Our products are exported to the construction, household renovation, and automotive markets in global markets. Ray Fu is committed to quality and has attained certifications like ISO 9001, ISO 14001, IATF16949, CE, ETA, AS9100D and ISO 14064-1 to enhance product variety and customer service.

**W163**

**RIU PRECISION HARDWARE FASTENER CO., LTD.**

[sales@riu-fastener.com.tw](mailto:sales@riu-fastener.com.tw)  
[www.riu-fastener.com.tw](http://www.riu-fastener.com.tw)



We focus on Construction Screws, especially Tapping Screws which can drive through 2 pieces of 1.25mm thick steel sheet



together in only 2 seconds without pre-drilling a hole. This screw not only has powerful drilling performance, but also can pass 1,000hrs SST test.

In addition, we also have special design decking screws— Momentum Screws have anti-crack function, and also have speed performance on wood materials.

RIU company was set up in 2010, starting as a trading company to supply fastener related products.

Driven by market demands, in 2021, we founded our factory Chiuan Yeou Industrial Co to supply wood screws and high-speed performance tapping screws for the construction industry.

You are very welcome to visit our booth to take a look into our products, and try and test our powerful screws, because seeing is believing, right!

**W115**  
**SPEC PRODUCTS CORP.**



[sammy.chang@spec.com.tw](mailto:sammy.chang@spec.com.tw)  
[www.spec.com.tw](http://www.spec.com.tw)

Wedge Locking Washer: Consisting of a pair of washers with cams on one side and radial teeth on the other. It's the best anti-loosening wedge lock washer.

We are a manufacturer from Taiwan, IATF16949, ISO9001, ISO14001 and A2LA Certified. We have exported over 10,000 customized items per year to USA, Europe and Japan, including cold forging, machining, pressing, plastic, etc. We offer recommendation for cost saving and easier assembly. We own product patents including Nordic Bolt & Nut, SPEC Locking washers and some assembly devices.

**W129**  
**SAN YUNG ELECTRIC HEAT MACHINE CO., LTD.**



[tsy@sanyung.com](mailto:tsy@sanyung.com)  
[www.sanyung.com](http://www.sanyung.com)

CONTINUOUS BRIGHT CARBURIZING (HARDENING) QUENCHING FURNACE

Features:

1. Uniform temperature: The inner uniform

temperature guarantees to satisfy CQI-9 norms, further to get stable & precise HT quality.

2. Sales-service: San-Yung owns the strongest team of sales-service division to offer periodical sales-service and also transfers the know-how of heat-treatment for customers, San-Yung also has online service by video conference & remote control.

Taiwan San-Yung Company was established in 1970. San-Yung is praised as the world's best supplier of continuous furnace, based on our excellent performance & experience in the fastener industries. San-Yung occupies over 85% of the market share of Taiwan fasteners industry. Also many European famous fasteners companies have chosen our furnaces, like WÜRTH GROUP, NORM, WKRET-MET, HECO, EJOT, NEDSCHROEF, FONTANA, TR FASTENINGS, RAWPLUG KOELNER, MARCOPOL...ETC.

**W116**  
**SHIANG GING METAL ENTERPRISE CO., LTD.**



[sgcarbide@sgcarbide.com.tw](mailto:sgcarbide@sgcarbide.com.tw)  
[www.sgmetal.com.tw](http://www.sgmetal.com.tw)

Over the past 35 years, we have continued to meet customer needs and gained rich design experience and trust in the automotive, screw, aerospace, screw and nut industries.

SG has ISO 9001:2015 international certification, a variety of CNC machine tools that are suitable for various types of processing, and uses a variety of testing instruments to achieve the most complete processing methods and help customers reduce production costs.

SHIANG GING Metal Enterprise was established in 1990.

SG has maintained commitment to providing customers with manufacturing specialist carbide dies for cold forming and cold heading industries.

The important factor for excellent quality forging products forms our mold design technology and manufacturing technology.

We ensure compliance with ISO 9001:2015 requirements during dies & tools manufactured.

**W159**  
**TAIWAN PRECISION FASTENER CO., LTD.**



[sales@taiwan-precision-fastener.com](mailto:sales@taiwan-precision-fastener.com)  
[www.taiwan-precision-fastener.com](http://www.taiwan-precision-fastener.com)

XDC wood screw: To reduce torsional resistance.

Special Self-Drilling Screw: for heavy duty, sheet metal up to 30 mm.

Taiwan Precision Fastener Co., Ltd (TPF) is dedicated to being the most reliable supplier of the best quality products. We strive to exceed our customer's requirements and expectations in every possible way. We are a professional producer of wood screws and self-drilling screws. Our products include wood screws, Mill Point self-drilling screws, chipboard screws, and self-drilling screws. Furthermore, we provide our own patented designs of wood screws.

**W158**  
**TAI HUEI SCREW INDUSTRY CO., LTD.**



[service@taihuei.com](mailto:service@taihuei.com)  
[www.taihuei.com](http://www.taihuei.com)

- Drywall Screw (EN14562 CE)
- Chipboard Screw (EN14592 CE)
- Timber Construction Screw (EN14592 CE)
- Self Tapping Screw
- Self Drilling Screw
- Machine Screw
- Concrete Screw
- Furniture Screw
- Decking Screw
- Roofing Screw
- Wood Screw
- Nail Screw

Tai Huei is a professional screw manufacturer in Taiwan from 1980. We focus on the construction and furniture screws which are made of carbon steel. At present we have 100 sets of heading and threading machines. The maximum capacity is 600 tons per month.

Only Taiwanese exhibitors exhibiting through Taiwan's exclusive agent Fastener World are listed.



# Joker Industrial

## Coupling Concrete Screws with Smart Software to Help Clients Attain Carbon Reduction

Joker Industrial is one of the world's leading developers and designers of concrete screws, anchor plugs and rivet nuts, providing total solutions covering order taking to design and manufacturing, as well as laboratory test figures. They know well about the environmental conditions and regulatory requirements in different countries and can design unique products for clients. Last year, Joker Industrial started to push for digital manufacturing process (MES). Now their whole production line uses an online reporting system and is continuously being optimized. Fastener World has a latest scoop for readers that this year they will feature four products at FASTENER POLAND® trade fair, and promote a new tool which will help clients reduce carbon emissions.

Booth. **W118**



### 4 Highlights of Joker Industrial's Booth

- (1) Concrete screw:** ETA and seismic C1/C2 certified. Certified 120-minute fire resistance test. Exceptional carbon reduction performance against industry counterparts, powered by a golden ratio by design which calculates "total carbon emission volume versus performance" per individual screw, lowering total carbon emission of clients' fasteners while complying with certification and construction safety standards.
- (2) Hollow Wall Anchor:** Combined with metric screws and designed specifically for base materials such as gypsum board or plywood. Users can pre-position and install it using Joker Industrial's installation tools. It can perfectly align with base materials during installation and will not be damaged when installed beyond limit.
- (3) Jack Nut:** Used for automotive parts, certified to IATF16949, applicable to thin, soft or brittle materials, and suitable for installing automotive iron plates and decorative panels without damaging the base material. Available in carbon steel and stainless steel.
- (4) A4 316 Stainless Steel Bi-metal Anchor:** More rust-proof. Patent triple-thread design giving high pull-out strength. Special slots on the anchor's front end to save efforts for users.

### 3 Joker Industrial's Hacks to Achieve Carbon Reduction

Including the regional intensive wars, the Red Sea crisis, regional economic decline, and irregular ship dates, Joker Industrial observed that the turbulence in the global landscape impacts European clients' interest in placing orders. Therefore, they pay extra attention to European market intelligence and adjust coping methods in transactions with clients. On another note, they receive many emails from European clients requesting carbon emission data, to which they have implemented three energy-saving and carbon-reducing measures:

- (1) Installing solar panels to the factory to save electricity and reduce reliance on conventional energy sources.
- (2) Rolling out lightweight concrete screws. Carbon emission volume is proportional to weight, so they reduce product weight to lower carbon emission. In addition, starting this year, their outgoing anchor products will no longer contain fiber washers in support for net-zero carbon emission.
- (3) Promoting DESIGNFiX software which supports 15 languages and can be used with concrete screws. Clients only have to download the installation file from Joker Industrial to set the required tensile force, shear force and other parameters, and calculate the number of concrete screws required for construction projects based on the EOTA TR045 seismic module designed for earthquake loads. The design parameters are in accordance with international standards, making it easier for clients to design projects in advance that save time, effort, construction steps, and achieve the ultimate goal of low carbon emission.

Joker Industrial has more than 40 years of experience in production, OEM/ODM, quality, flexible delivery and communication. With digital transformation in place, the service they provide will definitely reach higher levels. Want to know how handy it is to use ETA and C1/C2 certified concrete screws? Joker Industrial welcomes global readers looking for high-quality, customized products and long collaborative relationship to visit its booth and find out!

**Joker Industrial's contact:**  
**Ryan Huang, Product Manager**  
**Email: info@joker.com.tw**







## Fastener Fair Italy, the Essential Showcase for Fastener And Fixing Technology, Returns to Milan

Fastener Fair Italy 2024, the biennial international event dedicated to the fastener and fixing systems industry returns to Milan from 29 to 30 October 2024. The great success of the 3rd edition saw over 2,800 industry experts turn out, as well as more than 2,300 visitors including managers, executives and engineers and over 200 exhibitors from 18 countries.

The show will be hosted in the CityLife - Allianz MiCo (hall 3). Coming from 16 countries, with a strong representation of companies from Italy, China, Taiwan, Germany and Turkey, among the booked exhibitors are Ambrovit S.p.A., Fosfantartiglio L.E.I. S.p.A., Bull-Vit Srl, Vipa S.p.A., Berardi Bullonerie Srl, VITAL S.p.A., Linkwell Industry Co. Ltd., Böllhoff S.r.l., Piloni Srl, UGC Ugur Gürbüz Civata A.S., Bralo Italia, Carlo Salvi S.p.A., Lederer GmbH, Fastbolt Schraubengroßhandels GmbH, ISB Baglanti Elemanlari San. Tic. Ltd. Sti., PGB EUROPE NV, DIV Group Ltd. and many more.

The show represents a unique opportunity and a central meeting point for industry professionals. It offers a platform to share new trends, launch new products, and promote corporate marketing activities. Attendees will have the

chance to personally meet customers, suppliers, and business partners, all gathered under one roof in one of Europe's leading industrial economies.

The fasteners market has become strategic in many production sectors such as the automotive, aerospace, manufacturing and construction sectors and, from an Italian perspective, it appears to be growing strongly, driven by the internationalization of markets and represents a great opportunity for commercial expansion for the entire sector.





# Taiwan Exhibitors

29 to 30 October 2024  
CityLife - Allianz MiCo (hall 3)

1019

## FASTENER WORLD INC.

foreign@fastener-world.com.tw  
www.fastener-world.com

**FASTENER**  
— WORLD —



### Exhibit profile:

- Fastener World Magazine
- China Fastener World Magazine
- Hardware & Fastener Components Magazine
- Emerging Fastener Markets Magazines
- B2B sourcing platform
- Global marketing packages

<b>FASTENER</b> WORLD www.fastener-world.com	Chun Yu 1017	Corwall 1015	Vertigo 1013	Mao Chuan 1011
Joker 1110	Ray Fu 1018	Wan Iuan 1016	Kai Shyun 1014	Chirek 1012

1015

## CORNWALL ENTERPRISE CO., LTD.

arianna@cornwall.com.tw  
www.cornwall.com.tw



Non-Ferrous Fasteners (Brass, Silicon Bronze, Aluminum), Hex Nuts, SQ Nuts, Round Nuts, Weld Nuts, Wheel Nuts, Cold Forge parts, Pressed Parts, Machine Parts

1012

## CHIREK FASTENER CORPORATION

kai@chirek.com.tw  
www.chirek.com.tw



Stainless Steel Fasteners, Non-Ferrous Fasteners (Brass, Titanium, Aluminum, Copper), Concrete Anchors, Wood / Chipboard / Decking Screws, Self-Drilling / Tapping Screws

1017

## CHUN YU WORKS & CO., LTD.

sales@chunyu.com.tw  
www.chunyu.com.tw



Screws, Self-Tapping / Thread Forming Screws, Wood / Chipboard / Decking Screws, Structural Steel Fasteners, Self-Drilling Screws

1110

## JOKER INDUSTRIAL CO., LTD.

info@joker.com.tw  
www.joker-fastener.com



Blind Fasteners (Rivets, Rivet Nuts, Cage Nuts), Concrete Anchors, Light Duty Anchors and Fixings, Concrete Screws, Wall Plugs

1014

## KAI SHYUN ENTERPRISE CO., LTD.

sales@kaishyun.com.tw  
www.kaishyun.com.tw



Adhesives and Tapes, Chemical Anchors and Resins, Assembly and Installation Systems

Founded in 1981, Kai Shyun is a professional manufacturer of caulking guns. Initially, Kai Shyun focused on providing caulking guns for DIY users. Through continuous research, development, and improvements in design and quality, Kai Shyun has evolved into a successful supplier in the professional caulking gun market and maintains high satisfaction.

1011

## MAO CHUAN INDUSTRIAL CO., LTD.

maochuan@maochuan.com.tw  
www.maochuan.com.tw



Nuts, Washers and Pressed Parts, Springs, Circlips / Retaining Rings, Stainless Steel Fasteners

Mao Chuan was founded in 1970, specialized in stamping manufacturing in various industries including automobile, electronic, construction and home appliances. Mao Chuan has been certified by IATF 16949, ISO 9001, ISO 14001 and VDA 6.1 for years, and worked with qualified suppliers to meet customer requirements. Mao Chuan offers excellent service with flexibility and suitable solutions upon customer's urgent needs.

1013

## VERTIGO FORMING SOLUTIONS CO., LTD.

vfs.amychang@gmail.com  
vertigoformingsolutions.com



Tooling Mold & Fastener Machines, Screws, Bolts, Nuts, Cold Forged Fasteners and Parts, Turned / Machined Parts

1018

## RAY FU ENTERPRISE CO., LTD.

export@ray-fu.com  
www.ray-fu.com



Screws, Self-Tapping & Thread Forming Screws, Stainless Steel Fasteners, Concrete Screws, Roofing and Solar Installation Fixings

Ray Fu is a professional manufacturer and exporter of wires and fasteners. With our integrated facilities for wire production, screw manufacturing, heat treatment and packaging, we offer a comprehensive one-stop service. Our products cater to a wide range of industries including construction, household renovation, and automotive components, with a primary focus on markets in Europe, the Americas, and the Asia Pacific region. At Ray Fu, we prioritize quality and continuously strive for excellence, and we have successively attained ISO 9001, ISO 14001, IATF16949, CE, ETA, AS9100D and ISO 14064-1 certifications to expand our product range and provide better customer service.

1016

## WAN IUAN ENTERPRISE CO., LTD.

sales@w-i.com.tw  
www.w-i.com.tw



Hot Forged Fasteners and Parts, Cold Forged Fasteners and Parts

Only Taiwanese exhibitors exhibiting through Taiwan's exclusive agent Fastener World are listed.





# FASTENER FAIR INDIA

## Fastener Fair India 2024

### High Demand for Construction and Industrial Fasteners in the South Asian Market

The show was held in Hall 6 of Pragati Maidan, divided into a three-day fastener show and a four-day parts & components show. According to the organizer's statistics, this year's event attracted more than 10,000 visitors from all over the world and more than 250 exhibitors to display their professional products and services. Fastener World also led 6 Taiwanese exhibitors to the show, including Ray Fu Enterprise, Chite Enterprises, Hurmg Yieh Machinery Industrial, L & W Fasteners, Homn Reen Enterprise, and Yih Tieng Machinery Industrial, bringing Taiwan's high-quality and well-received fastener and machinery suppliers with high cost performance ratio to the Indian market. Meanwhile, Fastener World introduced many Taiwanese suppliers to Indian visitors through its publications.

Fastener World's staff on-site observed that this exhibition was an important platform to promote the exchange and cooperation among suppliers, sellers, buyers and manufacturers. The majority of exhibitors were local Indian companies, with the rest from Japan,

China and other countries. The visitors were mainly local fastener importers, distributors and manufacturers. The products that visitors inquired about were mainly fasteners, CNC products, fastening tools, precision parts, and machines. It was quite good considering the number of visitors. In addition to interacting with visitors, many exhibitors took the opportunity to meet long-time customers. Many buyers were very interested in working with Taiwanese and Chinese fastener and machine manufacturers, looking to find more high-quality product sources. The demand for construction fasteners and various industrial parts was high there. Many Indian manufacturers said they purchase machines from Taiwan. They said Taiwan provides better quality. There were also some Indian manufacturers looking for Chinese suppliers offering cheaper prices.

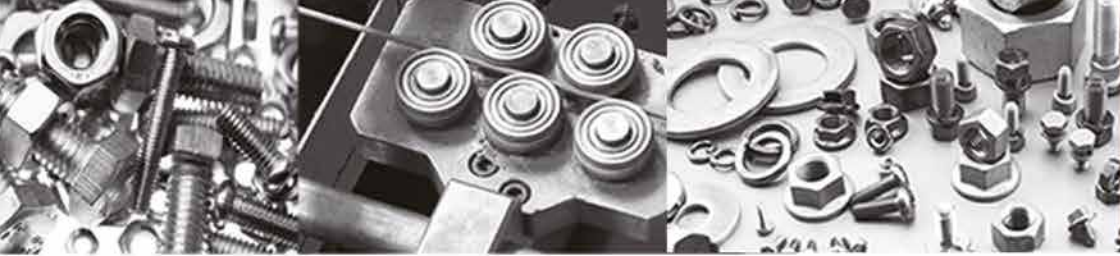
In addition, a key highlight of this year's event was the emphasis on quality standards. In collaboration with the Ministry of Commerce and Industry of India, the Bureau of Indian Standards (BIS) presented a comprehensive framework known as the BIS Quality Control Order for 'Bolts, Nuts, and Fasteners'. A dedicated conference featuring a BIS masterclass provided valuable insights into quality control, implementation challenges, and solutions for the fasteners industry and OEMs. BIS certification will pose a future challenge. Initially, only Indian manufacturers were required to have this certification, but in the future, overseas manufacturers who want to sell products to India will also be required to pass this certification. However, the implementation details are currently only drafts and have not yet been officially in force. Companies interested in entering the Indian market must pay more attention to BIS information.

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The next show will be held on May 8-10, 2025 at The Bombay Exhibition Centre in Mumbai.  
For more information, please visit our website at [www.fastener-world.com](http://www.fastener-world.com)





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Tel: +86-20-38861363 Fax: +86-20-38812687 Email: [tradeshow@jzzfastener.net](mailto:tradeshow@jzzfastener.net)



# MTA Vietnam 2024

**Vietnam's Largest Machine Tool, Precision Engineering and Metal Processing Technology Exhibition**

Saigon Exhibition & Convention Center opened its gate for MTA Vietnam from July 2 to 5, 2024. According to the organizer's released list of exhibitors, there were 322 exhibitors coming from Germany, India, Italy, Japan, Taiwan, South Korea, Malaysia, Poland, China, Singapore, Thailand, Turkey, the U.S. and Vietnam. The products displayed by the exhibitors related to the fastener industry included fasteners and hardware products, metal forming machines, power tools, tool holders, inspection equipment and gauges, packaging technology, dies, heat treatment technology, etc.

For this edition, the organizer planned pavilions of Germany, Taiwan, and China. In addition, an exhibitors exchange meeting titled "The Journey Towards Sustainability and Carbon Neutrality in Manufacturing" was held for discussing topics including sustainability, carbon neutrality, greenhouse gases, and ISO 14064 certification.

Fastener World's booth encountered visitors from Japan, the U.S., Hong Kong, Arabia, China and India. The largest number of visitors were from Vietnam, showing strong interest in Taiwan's high-quality fastener suppliers. Visitors from the U.S. and Japan were mostly specialized fastener traders, hoping to find more price-competitive fastener suppliers in Vietnam and around the world through Fastener World. The remaining visitors were mostly machine manufacturers and end users of fasteners. Using the most complete database across the fastener industry, Fastener World recommended suitable suppliers to these visitors based on their product needs, connecting Vietnam with the world's fastener business opportunities. ■

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The organizer has announced that the next show will be held on July 2-5, 2025 at the Saigon Exhibition & Convention Center (SECC) in Ho Chi Minh City. For more information about the show, please follow us on our website at [www.fastener-world.com](http://www.fastener-world.com).



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2024



# METALEX VIETNAM

Vietnam's International Exhibition on Machine Tools & Metalworking Solutions for Production Upgrade  
17th Edition

# 02-04 OCT 2024

Saigon Exhibition  
& Convention Centre (SECC)



**METALEX  
BINH DUONG**  
Road Show

**HIGHLIGHT EVENT**  
**22-24 MAY 2024**  
WTC NEW CITY BINH DUONG



## FROM LINES TO CYCLE BUILDING A CARBON NEUTRAL MANUFACTURING LEGACY

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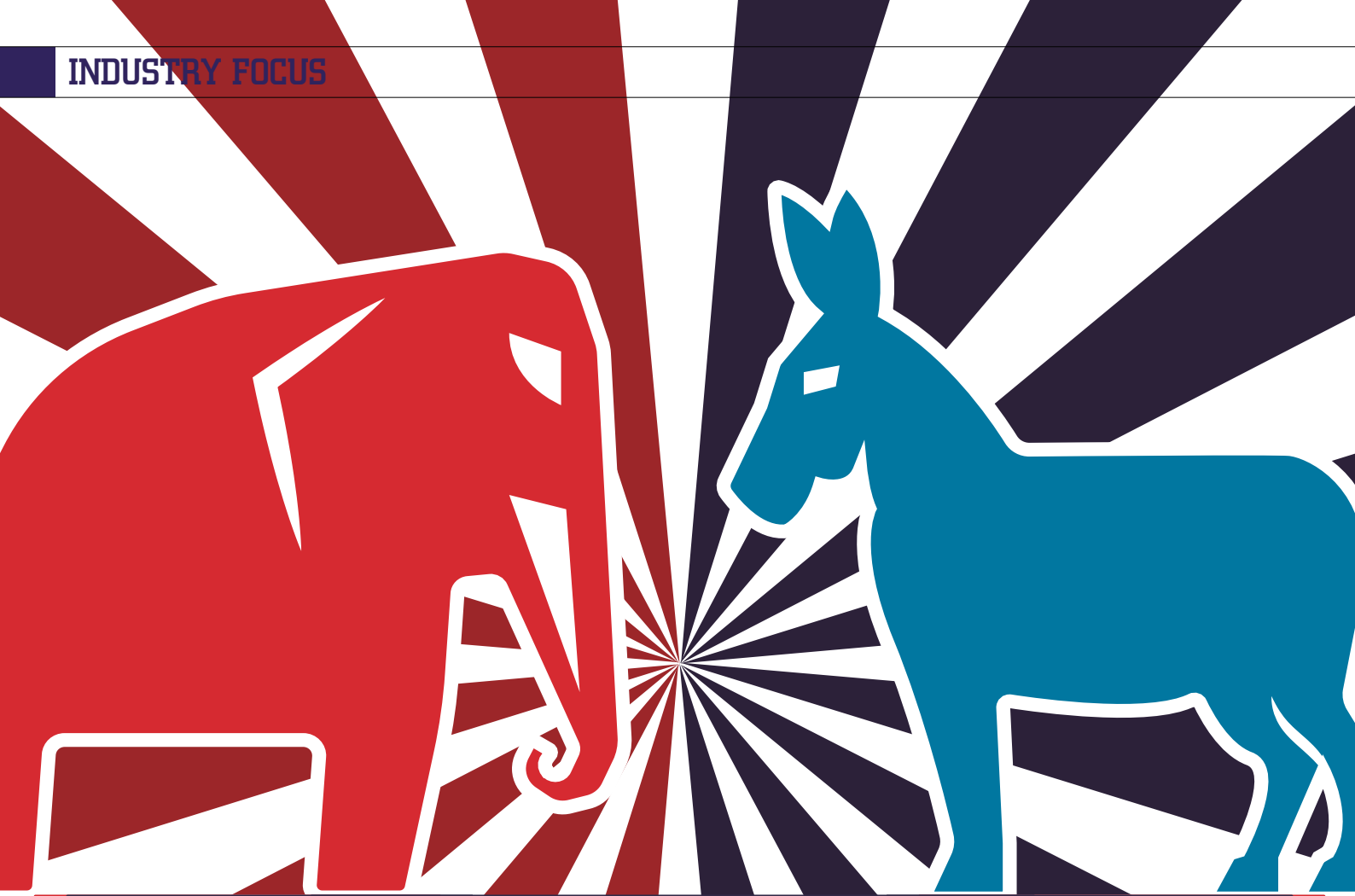
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## How **U.S. Election 2024** will Impact Taiwan Fastener Industry

The 2024 U.S. presidential election is scheduled for Tuesday, November 5, 2024, U.S. time. The election is the 47th presidential election of the U.S., and all 435 seats in the House of Representatives and 33 seats in the Senate will be up for reelection to form the 119th U.S. Congress, with the two major parties, the Republicans and the Democrats, both seeking full power which is the presidency, and a majority of seats in the House of Representatives and the Senate. On July 15, 2024, the Republican Party nominated Donald Trump as its presidential candidate. On August 19, incumbent Vice President Kamala Harris, who became the Democratic nominee for President after incumbent President Joe Biden withdrew from the race, received support from a majority of Democratic delegates and has become the Democratic candidate for President.

The U.S. presidential election was originally a contest between two experienced men, but unexpectedly on July 13, 2024, former U.S. President Donald Trump was shot by an American man, Thomas Matthew Crooks, during a presidential campaign rally at the Butler Farms Fairgrounds in Pennsylvania. Trump suffered a gunshot wound to his right upper ear, and his face was stained with blood. After the shooting, Trump got up under the cover of U.S. Secret Service bodyguards,

raised his fist and arm to the crowd and shouted 'fight!' three times, a scene that has become a widely circulated iconic image. The shooting made Trump's reputation soar, and this bullet also made the Democratic Party's original nominee, President Joe Biden, announce on July 21st that he would give up his bid for reelection, and that he would support Vice President Kamala Harris' candidacy. The U.S. presidential election has been an exciting and fascinating event that has captured the attention of the world, as it will not only affect the American people, but also the political and financial future of the world.

In the 21st century the global environment is changing rapidly, so Taiwan fastener industry must carefully observe the impact of the U.S. election. Currently, the world situation is bad, and several wars including the war Russia launched against Ukraine on Feb./24/2022, the civil war in Sudan launched on April/15/2023, and the Israel's war against the Hamas launched on Oct./07/2023 have continued for a long time. Instead of stopping, the wars are getting more and more complicated with the flow of time. Under the continuous support of arms and materials from the West, Ukraine actually penetrated into the Kursk of Russia on August 6. Russian President Vladimir Putin urgently convened the National Security Council, dispatched reinforcements to stop the attack and declared a "federal-level" state of emergency in Kursk on August





[www.korea-metal.com](http://www.korea-metal.com)



# KOREA METAL WEEK 2024

16(Wed.)~18(Fri.), October, 2024

10:00 AM ~ 5:00 PM

Exhibition Center 1, KINTEX, S. Korea



**Joint Exhibition**

KOREA METAL WEEK 2023 / KOAA-GTT SHOW / TOOL TECH+SMART WELDING AUTOMATION FAIR



## Materials

Powder / Composite / Nonferrous /  
Wire / Raw materials / Sheet / Steel / Pipe



## Parts

Mold / Cold Forging / Hot Forging /  
Diecasting / Foundry / Assembly



## Machinery

Machine Tool / Metal Processing / Equipment /  
Control and Measuring Instrument /  
Former / Press / Plant



## Advanced Technology

Tools / Factory Automation / Laser / Welding /  
Heat Treatment / Pump / Surface Treatment /  
Environment / 3D Technology



Enquiry to Korea Trade Fairs Ltd. Tel. 82-2-783-8261 / Email. [ktfairs@ktfairs.com](mailto:ktfairs@ktfairs.com)

9, and the Russian authorities also indicated that 76,000 people had been evacuated from the border. On July 31, Ismail Haniyeh, the leader of the Palestinian extremist group Hamas, was killed in a bombing at the Iranian Revolutionary Guards (IRGC) in Tehran while attending the inauguration of the Iranian President, causing the Iranian authorities to threaten retaliation against Israel. Under U.S. President Joe Biden's military principle of "not sending U.S. troops", there is no sign of the two wars ending so far. In particular, the question of whether or not Iran, a powerful country in the Middle East, will engage in a war that could lead to a regional war, or even to a third world war, has become a top concern for 8.1 billion people around the world.

**Taiwan fastener industry after 2 years of heyday in 2021 and 2022" faced a rapid contraction of orders in 2023.** Was there a turnaround from July 2024? Let's check the import and export statistics of Taiwan Customs. The respective export values and weights of iron and steel fasteners (7318) in the first 7 months of 2020-2024 are shown in the following Tables 1-3 and Charts 1-2. **The data show that the total export values and weights of iron and steel fasteners (7318) continued to decline, much less a turnaround the decline had reduced.** We are looking forward to the recovery of the export value and weight in the 2nd half of 2024. Of course, **regarding the U.S. Presidential election this November, who is going to be the next U.S. President will bring a decisive impact on Taiwan's fastener export.**

**Table 1. Iron and Steel Fasteners (7318) Export Sales Value and Weight Statistics in Jan.-Jul. 2020-2024**

Year Month	2020		2021		2022		2023		2024	
	US\$1,000	Tons	US\$1,000	Tons	US\$1,000	Tons	US\$1,000	Tons	US\$1,000	Tons
Jan.	351,358	119,060	386,494	126,753	545,304	147,883	460,220	117,245	373,663	104,286
Feb.	290,671	100,771	351,183	115,907	463,425	125,391	368,822	93,624	308,539	89,031
Mar.	384,458	134,432	454,532	148,358	580,390	154,970	424,705	111,162	391,312	111,718
Apr.	284,006	97,329	401,168	130,067	520,750	138,010	394,959	103,026	337,706	96,224
May	291,540	102,609	430,557	132,596	533,470	140,025	403,121	107,701	377,746	107,114
Jun.	296,725	104,679	423,100	133,732	539,338	138,798	386,689	104,455	371,118	105,594
Jul.	337,043	117,362	476,092	144,330	535,969	137,216	363,390	98,382	349,503	100,218
<b>Total</b>	<b>2,235,801</b>	<b>776,242</b>	<b>2,923,126</b>	<b>931,743</b>	<b>3,718,646</b>	<b>982,294</b>	<b>2,801,906</b>	<b>735,596</b>	<b>2,509,587</b>	<b>714,185</b>
Average	319,400	110,892	417,589	133,106	531,235	140,328	400,272	105,085	358,512	102,026

**Table 2. YoY Growth of Jan.-Jul. Export Values of Iron and Steel Fasteners (7318) in 2020-2024**

Unit: US\$1,000

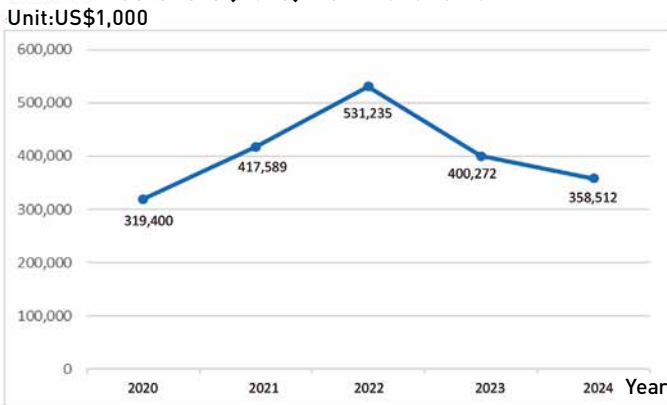
Year	2020	2021	2022	2023	2024
Average	319,400	417,589	531,235	400,272	358,512
YoY Growth		30.74%	27.21%	-24.65%	-10.43%

**Table 3. YoY Growth of Jan.-Jul. Export Weights of Iron and Steel Fasteners (7318) in 2020-2024**

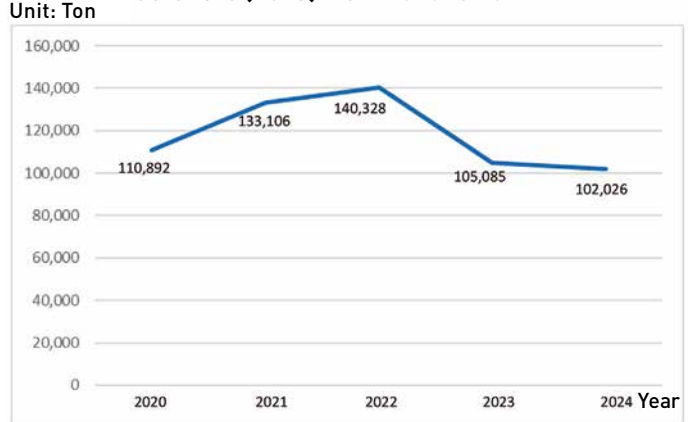
Unit: Ton

Year	2020	2021	2022	2023	2024
Average	110,892	133,106	140,328	105,085	102,026
YoY Growth		20.03%	5.43%	-25.11%	-2.91%

**Chart 1. Jan.-to-Jul. Export Values of Iron and Steel Fasteners (7318) from 2020 to 2024**



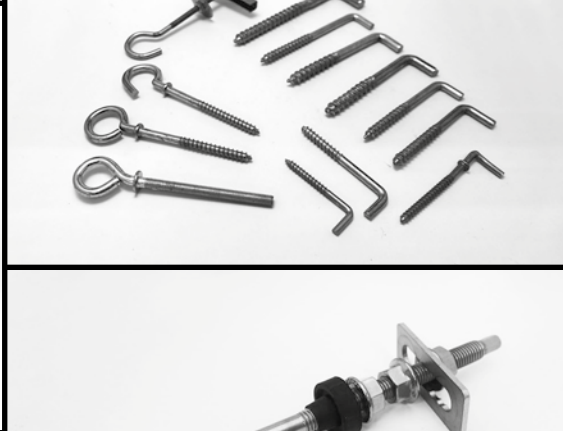
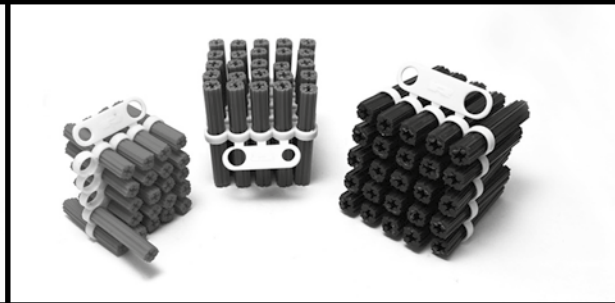
**Chart 2. Jan.-to-Jul. Export Weights of Iron and Steel Fasteners (7318) from 2020 to 2024**



President Biden announced his withdrawal from this year's presidential race and endorsed incumbent Vice President Kamala as the Democratic candidate. Kamala was born in 1964 and is now 60 years old. Compared to Trump, Kamala's relatively lower age enables her to change the talk of the election. After Kamala appeared as a new presidential candidate, the Democratic Party's polls have improved, and become neck and neck with the Republican Party's polls on Trump. Although it is still uncertain whether the Democratic Party can win the presidential election, the poll brings great hope to the Democratic Party's House and Senate elections.



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Let's go over at a few topics on this election.

## 1. U.S. Domestic and Financial Situation

All 435 seats in the House of Representatives and 33 seats in the Senate will be reelected in this election. In the Senate, two-thirds of the 34 seats to be reelected are Democrats, and according to a U.S. domestic election assessment, 3 of the seats currently held by Democrats may be taken by others, as well as the states of Ohio and Montana, which Trump easily won in the previous two presidential elections. If so, the Democrats will find it difficult to retain their current slight majority in the Senate, which is only two seats more (51 Democrats versus 49 Republicans), while the Republicans are likely to regain control of the Senate.

As for the House of Representatives, due to the large number of seats, the election result is sometimes more unpredictable, but the popularity of the presidential candidates will generally affect the congressional election. After the assassination, Republican presidential candidate Donald Trump's image as the new hero of the U.S. has boosted the election sentiment of the Republican House of Representatives candidates all over the U.S., and the Republican Party is predicted to have a very good chance of obtaining a majority of the seats in the House of Representatives.

Winning the majority in both the Senate and the House of Representatives, a state known as a full government, would provide a strong backing for "protectionism" that is the centerpiece of Trump's economic policy. However, even if Trump is elected president but fails to win a majority in the Senate and the House of Representatives, Trump can still use his power under Section 232 of the U.S. Trade Act to raise tariffs, citing national security concerns. He has proposed to raise tariffs on Chinese imports to 60% and to phase out all essential goods from China. In addition, a basic tariff of 10% would be imposed on goods imported from other parts of the world, which, if implemented, would have a significant impact on U.S. inflation.

Trump's immigration policy will be even more stringent, as he has promised to deport 15 million illegal immigrants, and has suggested referencing the deportation at the U.S.-Mexico border by President Eisenhower in 1954. However, since job growth in the U.S. has almost entirely relied on immigration in recent years, reduction in immigration is likely to exacerbate the problem of labor shortages in the U.S., which would lead to a re-acceleration of wage growth and further aggravate inflationary pressures.

## 2. Social Stability Concerns After the U.S. Presidential Election

After then-President Trump lost his re-election bid in 2020, around 2,000-2,500 pro-Trump protesters stormed the U.S. Capitol on Jan. 6, 2021 to disrupt a joint session of the U.S. Congress, which

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was counting the votes in the congressional election and certifying the results of the 2020 U.S. presidential election to declare Democrat Joe Biden the official winner. The Capitol complex was sealed off by protesters, lawmakers and staff inside were evacuated, and the U.S. Capitol was then occupied and vandalized by rioting crowds for several hours. Waves of clashes resulted in five deaths and many injuries, including 174 police officers, in a 36-hour period. Whether the same riots that occurred in 2021 will happen again if the Republican Party loses the presidential election in 2024, is worrisome.

### 3. China-US Relations

The U.S.-China trade war began in 2018 and was initiated by then U.S. President Donald Trump, who imposed tariffs up to 25% on US\$350 billion worth of Chinese imports, including solar panels, washing machines, iron & steel and aluminum, accounting for about 65% of China's total exports to the U.S. in 2018. This was countered by China imposing high tariffs on U.S. goods. After the start of the trade war, U.S. importers began to redirect orders from China to other regions and Taiwan fastener industry became the biggest beneficiary since in 2018-2022 its fasteners exported to the U.S. continued to hike, thanks to the trade war between China and the U.S. Thus far, **Trump has made it clear that if he wins this year's presidential election, he'll raise tariffs on Chinese imports to 60% or higher, in which case the damage that China's economy will suffer will be much worse than the trade war in Trump's first term.** CNA's July 17, 2024 press release noted "Former U.S. President Donald Trump's popularity rating is on the upswing, and experts say U.S.-China relations have been dormant since the election, but if Trump is re-elected, it could be a turbulent ride for the U.S. and China." However, Taiwan could once again reap the benefits of more orders redirected from China. Therefore, if the Republican Trump is elected as the next President, it will be a great benefit to Taiwan fastener industry.

### 4. U.S.-Taiwan Relations

The U.S. press has specified four possible candidates for the Trump administration's China policy and national security staff, most of whom being hawkish toward China and friendly toward Taiwan, including former national security adviser Steve Yates, former Deputy Assistant Secretary of Defense Elbridge Colby, former State Department Policy Planning Director Kiron Skinner, and former Secretary of State Michael Pompeo. Yates has been to Taiwan several times and has met former Taiwan President Tsai on behalf of the Trump administration, and met with President Lai Ching-Te during the 2024 election. Colby, on the other hand, has publicly advised the U.S. government on numerous occasions about China's ambitions, arguing that the U.S. military protection for Taiwan is crucial, and that military resources for Taiwan should be prioritized over other countries, even over Ukraine. Skinner defined the U.S.-China conflict as a "clash of civilizations," saying that China was a longer-term threat than the Soviet Union. As for Pompeo, he visited Taiwan twice, in March 2022 and September 2022, during which time he met with former President Tsai Ing-Wen and current President Lai Ching-Te, having good relations with Taiwan.

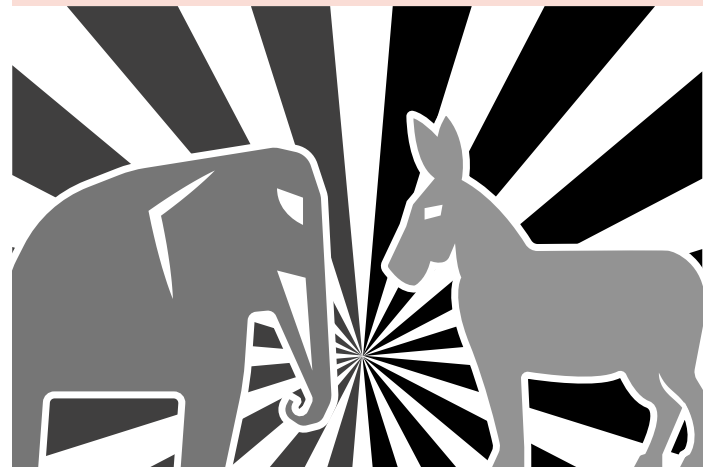
Secondly, the White House has recently announced its 2025 budget, which includes sustaining Taiwan's security and the provision of military aid on a budget of US\$100 million. This is the first time that a military aid to Taiwan has been included in the budget since the 1979 U.S.-China Joint Defense Treaty, and it is of symbolic significance. It

is expected that this policy of military aid to Taiwan will remain unchanged no matter which party is in charge.

Finally, during his election campaign, Trump mentioned several times that chips used to be made-in-USA, but that Taiwan is "taking all the chip business" and he thinks Taiwan must be taxed. In fact, TSMC has already set up factories in the U.S., Germany and Japan, and TSMC is no longer just for Taiwan, but for the world. Certainly, if Trump is elected, Taiwan will have to be mentally prepared to increase its military spending.

The Democratic Party's candidate for the U.S. presidential election and incumbent Vice President Kamala is the first female Vice President in U.S. history, the highest-ranking female elected official in the U.S. to date, and the first African and Asian American Vice President. Her father is an immigrant from Jamaica and her mother is a Tamil from South India. Whether or not her African- and Asian-American identity will attract a large number of African-American and Asian-American votes for the election is the key to whether or not she wins. Whether she will attract a large number of African-American and Asian-American votes in the election will be the key to her victory. Barack Obama, the first African-American President of the U.S., was elected the 44th U.S. President in 2008 with 365 votes against Republican candidate John McCain's 173 votes. Whether or not the great unity of immigrant communities will happen again in this year's election will depend on the performance of the Democratic candidate in the coming months.

Overall, **if Kamala is elected the next U.S. President, her policy should be maintained in the direction of the current Biden administration, but if Trump is elected, U.S. domestic situation and external relations will have a huge change, which will bring more advantages to Taiwan fastener industry rather than disadvantages.** By the time you read this issue published in September 2024, the U.S. presidential election result is about to be unveiled, so let's see who will finally take the oval office. ■



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Article by Dr. Wayne Sung





# Lost in the Digital Transformation of Fastener Industry

## 1. Introduction

Led by AI, technologies including digitization, automation, personal and public cloud storage, machine learning, Moore's Law, Metcalfe's Law has unlimited impact on large and small enterprises as well as organizations, and it is constantly expanding. Government authorities also advocate that enterprises need rapid digital transformation to seize opportunities and increase competitiveness. Leaders must be fully prepared to keep their footing in the digital era. Facing global competition and Industry 4.0, as well as unexpected changes such as the US-China trade war, COVID-19, and issues regarding business succession, the fastener industry is on the crossroad of transformation based on their technology and experience management. Considering fastener market environment, contracts and orders, R&D, and manufacturing knowhow, is there any way for the fastener industry to react efficiently? How to manage more effectively? How to more properly strengthen digital awareness? How to use digital tools? How to manage and make decisions with limited resources? These are all the issues that the fastener industry will face further.

Even in the Internet era with an explosive amount of information, fastener production is still based on pragmatic on-site manufacturing knowhow and R&D. Having multiple uncertain market factors, even if fastener companies come up with a new idea, it doesn't necessarily mean they can change the market trend. The market is still oriented on customer demand. Operating in the market will inevitably be met with bottlenecks. The key is how fast fastener companies can adjust quickly when faced with problems. Taiwan fastener industry mostly comprises small and medium enterprises, with a rich heritage and technical knowhow. Facing AI and digitization, do you tend to think of yourself as being stuck in hardware and software related digital issues? Do you already think you are up to par with the requirements of Industry 4.0 and AI just because you have upgraded your hardware and software? Can hardware and software upgrades change market demand driven by clients' needs? Can bottlenecks be overcome after hardware and software upgrades? Can hardware or software upgrades enhance product quality? Can hardware or software upgrades improve productivity? Are the ERP, CRM and other systems used by enterprises not up to the requirements? Can't these systems handle clients' problems? Can the upgraded and advanced digital transformation technology tools fill the gaps in improving the flaws in fastener industry's management?

When it comes digital transformation and AI, we often hear about the paths that others said should be taken in the Industry 4.0 phase. But in fact, there is no need to aim at the wrong target and spend a lot of time judging which phase it is now or which one to start with. **Be it Industry 4.0, digital transformation or AI, it is all about using technology to solve business problems. Digitalization and smart technologies both describe scenarios that can be achieved with technology. The obsession with hardware and software upgrades and technology tool investments without thinking about the problems encountered by enterprises will result in getting lost along the way.**

## 2. Transformation Goals for Fastener Industry Management

The fastener industry can use planned production to predict market demand for the production of non-diverse standardized industrial fasteners. However, low-volume and diverse fasteners, such as DIY fasteners for hand tools and automotive and motorcycle fasteners, which make up the majority of the market still require order-based production to arrange for R&D and manufacturing. The main procedures of fastener production include: contract review, R&D, fastener production arrangement, wire drawing, wire heat treatment, fastener forming, threading, semi-finished fastener heat treatment, surface treatment, and packaging. Fastener companies should first examine their internal structure as the top priority, and then set key targets for improvement after straightening out issues. For Industry 4.0, digital transformation and AI, the three key milestones should be:

- 1. Reduce costs, improve efficiency, and build steady advantages:** integrate production supply chain and control production costs;
- 2. High-value customization and expansion of niche markets:** strengthen supply capabilities, supply high-value fasteners with high added values, and avoid price-cutting competition in the market.
- 3. Innovative R&D and exploring growth opportunities:** create new types of high value-added fasteners; apply for certification of fastener products to strengthen market foothold; create bigger gaps among competitors and develop niche markets.



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- A2 & A4 - 50/70/80/90
- 321/310/347
- B8/B8M/B8T
- B8X/B8MX/B8TX
- B8/B8M/B8T-Class 2

#### CARBON & ALLOY STEEL

- Mild Steel
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- 605M36 (EN16)
- 708M40 (EN19)
- 817M40 (EN24)
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Location: Room 307, 6th Floor, Tian Kelai B Building, Jinghe Road, Tengzhou, Shandong, China

Based on these milestones, **companies should use their existing ERP, CRM and other systems to effectively utilize supply chain and control production costs. It is not appropriate to implement changes in ERP and CRM systems already in use since it could cause risks on the supply chain and production management.** If supply chain management and production cost control of the existing ERP and CRM systems are not effectively utilized, rash investment in hardware or software technology tools is only an unnecessary capital expense, resulting in a waste of investment getting you lost in the digital jungle. In that case, you would wonder why there is no achievement even if you have purchased the equipment and labeled the products. It's like regarding digital transformation as merely investing in digital tools, only to find, figuratively speaking, having spent a lot of money buying a full-fledged ship but not knowing where to sail it. If the fastener industry wants a successful digital transformation, it must have a deep understanding of what the necessary resource requirements and digital resources are, in order to see the best opportunities. If a fastener company can use existing ERP and CRM systems to obtain appropriate data and information on supply chain and control production costs, it should use the existing data to analyze and apply digital transformation or AI.

Examining the main manufacturing procedures, upstream and downstream technical integration and peripheral collaborators' support— covering dies development, heat treatment and surface treatment—the biggest issues are consumers' demand and regional regulations. Fastener owners should think about and define the

problems that most need to solving in current operations from the perspective of an enterprise's value chain of production, marketing, human resources, R&D, and finance. In particular, small and medium enterprises have limited resources and are unlikely to be able to fully focus on transformation in production, marketing, human resources, R&D, finance, etc., like some large enterprises do. Small and medium enterprises should get the priorities straight, establish a transformation structure and hierarchy, and use digital methods to solve the most critical and urgent parts, and then gradually extend to the less important ones. This is the most efficient way to transform.

If you are basing digital transformation on marketing, and if your existing ERP and CRM systems can provide data on how consumers' needs change towards the same product types, it may not be necessary to upgrade to advanced digital transformation tools, nor is there an urgency to immediately enter automated and smart production on the manufacturing end. Making decisions based on big data analysis of sales channels is a "type" change. The focus of such transformation is increasing production of best-selling fasteners, discover new products to develop, and mass produce and test the waters as early as possible. If market demand increases, we can then make decisions to start large-scale production.

For those who base digital transformation on controlling production cost, the type change should focus on production efficiency of fastener formers and threading machines, dies supply and dies life. **The point in digital transformation is Transformation, not Digital; the point in transformation is "type", not the act of transformation.** Figuratively saying, what kind of butterfly does the caterpillar, or you, want to become? Therefore, the real "type" change is reducing defective products in fastener production, extending the life of dies, breaking through bottlenecks, and reducing consumables. The important thing is to have a clearer idea of what business model to upgrade to in the short, medium and long-term stages of the fastener production process, so as to more effectively implement your vision, stack up protection, and achieve cost control. Transformation is just work performed at different stages in the process. With CBAM, carbon emission intensity has become a cost item for the production and marketing business of the fastener industry. If you don't have the ability of managing and analyzing carbon emission intensity data, you should tweak or strengthen existing ERP and CRM systems to ensure that your future climate and energy policies can meet the set goals and cope with ESG.

For those who base digital transformation on integrating the production and supply chain, like fastener OEM/ODM manufacturers and traders do, if the existing CRM system can accurately manage and master data such as lead time, quantity, cost and quality control, this will give you a grasp of complete production information on the supply end and will lead to the transformation of third parties in the supply chain. Big manufacturers will lead small factories to collect and accumulate information starting from installing sensors or inputting data at the most important parts of the production process. The data will be analyzed, so that big manufacturers will master important production data, and in the future they can combine and analyze other data, and third parties will have also begun to take a step towards digital transformation.



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### 3. The Best Way of “Type” Change for Fastener Industry Management

The key to the success of "digital transformation" is usually not technology. After all, the computing capabilities of digital technology tools are advancing rapidly. From early PCs to industrial computers and servers, the development of AI is no longer stuck in a bottleneck. Start from the perspective of problem solving, and you will find the key is to clearly "define the problem". Technology is just a means to the goal and the goal is the top priority.

*"What are the core problems that cannot be solved by conventional workforce?"*

*"What are the core problems in the fastener industry that should be solved via changing 'types' ? "*

*"What kind of digital tools can help with the core problem?"*

*"How do digital technology tools and workforce complement each other?"*

These questions seem simple, but surprisingly, many fastener manufacturers have not found objective answers before planning the tools and paths for digital transformation, and have become lost in operational, technical, and investment issues.

Even with the best digital technology tools and AI, if the workforce and processes are not in place, having digital systems can easily result in only half the result with twice the effort when changing types. Fastener companies should think from another perspective, which is from the existing fastener production and management process. Orient product modularization towards customer value, give priority to making good fastener products, and lastly work on vertical or horizontal innovation. I believe this will improve the efficiency of product R&D and project management. All fastener products and services are to solve customers' problems and meet their needs, not just for selling. Market differentiation lies in the fastener companies' knowledge of the industry and expertise. Only by fully understanding the pain points and needs of clients can you become more down-to-earth and become the expert in the industry, rather than keep changing the needs.


Today, most fastener manufacturers have established basic management systems, such as ISO 9001, ISO 14001, and ISO 45001, all of which have been standardized. However, most of them are still stuck in paper-based operations and lack automatic integrated analysis, making it impossible to grasp the process in real time and turn experience into output value. Therefore, the combination of future leadership and digitalization of the fastener industry is the "new digital thinking" that is the key to the strength of an enterprise. In this new concept, digital transformation is not just an IT issue. Digitalization is only a tool and not the ultimate goal. What is more important is whether the company's system and thinking have been in sync with the digitalization trend.

The production process of the fastener industry is conventional, relying on manufacturing equipment, dies and manual adjustment and monitoring. Different processes will have different quality conditions and anomaly handling. Without comprehensive understanding and integration with fastener quality management, adding IT equipment is not the "type" change in "new digital thinking".

Should the fastener industry start digital transformation or is this already in process? This can be answered with 3 steps— A. Collect core issues and define them, B. Determine whether the issue is a core fundamental issue, C. Prioritize important/urgent issues. By setting priorities, the real critical needs can be clarified as quickly as possible. The best way to transform the management of the fastener industry could be to make good use of data analysis to ensure that information is in place, or to make good use of operation experience to manage knowledge and create a knowledge economy.


In the "type" change of fastener industry management, continuation and passing down of fastener production experience and knowledge is not something that software and hardware system tools of IT technology can solve. The habit of using IT software and hardware system tools internally and the corporate culture of using existing data for analysis and reporting should be properly established by senior managers. **In the first step to avoid getting lost in digital transformation, the most important thing is to put more effort into rectifying and developing the mentality and cognition of the entire company.** ■


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**Chang Bing Enterprise Co., Ltd.**  
**彰濱企業有限公司**

No.49, Xingong Rd., Shengang Township, Changhua County 50971, Taiwan  
Tel: 886-4-798-0619 Fax: 886-4-798-0622  
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# Analysis of Chilean Fastener Market in 2019-2023



## Chile: A Brief Economic Overview

Chile has established itself as a stable and prosperous economy in Latin America. It has a market-oriented system, rich in natural resources, and a strong commitment to free trade. With a population of 19.2 million and a GDP (PPP) of US\$579.4 billion, Chile boasts a stable and growing economy. The country's GDP grew by 2.4% in 2023, with a five-year average growth rate of 2.6%. This translates to a GDP per capita of US\$29,221. However, Chile also faces some challenges, such as an unemployment rate of 9.1% and an inflation rate of 11.6%. Despite these challenges, Chile remains an attractive destination for foreign direct investment (FDI), with an inflow of US\$19.8 billion. The country's public debt is also manageable, at 38.0% of its GDP.



## Overview of the Fastener Market of Chile

### The Export Sector

Analyzing the export data for fasteners in Chile from 2019 to 2023 reveals trends and market shares. The world's imports of fasteners from Chile have shown fluctuations, starting at US\$12,783,000 in 2019, dropping to US\$9,282,000 in 2020, and gradually increasing to US\$13,435,000 in 2023. This indicates a recovery and growth in the market post-2020.

Chile's Fastener Exports to the World in 2019-2023

Numbers in thousand USD	2019	2020	2021	2022	2023
Exports to the World	12,783	9,282	9,889	11,745	13,435

In 2023, the major export destinations were Peru, accounting for 52% of the total exports with US\$6,967,000 and Brazil followed with US\$1,183,000, making up 9% of the exports. Panama and the USA contributed 8% (US\$1,008,000) and 7% (US\$921,000) respectively. The remaining 25%, totalling US\$3,356,000 were exported to various countries. This distribution highlights Peru's dominant position in the fastener exports of Chile, while also showing significant contributions from other Latin American countries and the USA.

Chile's Major Fastener Export Destinations in 2023

Country	2023	Shares
Peru	6,967	52%
Brazil	1,183	9%
Panama	1,008	8%
USA	921	7%
Others	3,356	25%

Note: Numbers in thousand USD

### The Import Sector

Analyzing the import data for fasteners to Chile from 2019 to 2023 shows significant growth and variability over the years. The world's exports of fasteners to Chile started at US\$64,152,000 in 2019, peaked at US\$240,266,000 in 2022, and then slightly decreased to US\$188,897,000 in 2023. This overall trend reflects a notable increase in import activity with some fluctuations.

Chile's Fastener Imports from the World in 2019-2023

Numbers in thousand USD	2019	2020	2021	2022	2023
Imports from the World	64,152	138,905	203,812	240,266	188,897

In 2023, the primary import origins of Chile were the USA and China. The USA led the market with US\$65,226,000, accounting for 35% of the total imports. China closely followed with US\$61,226,000, representing 32% of the market share. Other countries collectively contributed US\$62,445,000, making up the remaining 33% of the imports. This distribution indicates a strong presence of both the USA and China in the fastener market in Chile, with other countries also playing a significant role.



## Chile's Major Fastener Import Origins in 2023

Country	2023	Shares
USA	65,226	35%
China	61,226	32%
Others	62,445	33%

Note: Numbers in thousand USD



## Fastener Demand in Chile

The Chilean economy's focus on infrastructure development, mining, and construction presents significant opportunities for the fastener market.

### · Key Industries Driving Fastener Demand

**Mining:** Chile is a global leader in copper production, requiring extensive infrastructure and equipment. Fasteners are essential for mining machinery, transportation, and construction of mining facilities. There are more than 709 copper mines in operation globally, of which 67 are in Chile, according to GlobalData's mines and projects database.<sup>1</sup> Chile is a producer representing 24% of global copper production and, according to United States Geological Survey (USGS), the world's second largest producer of lithium with approximately 30% of world production.<sup>2</sup>

**Construction:** The construction sector is a major consumer of fasteners, driven by residential, commercial, and infrastructure projects. Government initiatives to improve housing and transportation infrastructure boost demand. The Chilean construction industry was forecast to decline by 3.7% in 2023 and edge up marginally in 2024 reflecting weakened consumer and investor confidence. According to the Banco Central de Chile, the construction industry's value adds fell by 1.9% year on year (YoY) in Q2 2023, preceded by Y-o-Y decline of 0.6% in Q1 2023 and 3.4% in Q4 2022. The decline was attributed to weakness in the residential sector in which the total area of new residential construction permits issued in the country fell sharply by 22% YoY in the first eight months of 2023, preceded by annual decline of 18.1% in 2022, according to the Camara Chilena de la Construcción (CChC). This is heavily influenced by supply chain disruptions and persistence of high inflation. In light of this uncertainty, the government expected construction investments to fall by 5.9% in 2023 due to a drop in both public and private investment. The construction industry is expected to grow at a 3.2% annual average rate from 2025 to 2027, supported by investments in industrial sector, infrastructure and renewable energy projects. Chile's railway infrastructure will be supported by the government's aim of constructing 27 rail infrastructure projects by 2027 with a total investment of US\$5 billion. This involves modernization of the passenger and freight railway infrastructure operated by the Chilean Railways Company, Empresa de Ferrocarriles del Estado (EFE), and to expand to 150 million passengers by 2027 (up from 50 million in

2021) to and to double the volume of freight transported to 21 million tons per year by 2027 from 2021.<sup>3</sup>

**Machinery:** Fasteners are used in machinery. The machinery & equipment market is projected to achieve a value of US\$256.3 million in 2024, with a compound annual growth rate (CAGR) of 1.26% expected from 2024 to 2029.<sup>4</sup>

**Manufacturing:** While not as dominant as other sectors, manufacturing is growing. Fasteners are essential for various industrial applications. The manufacturing market is poised to generate a value of US\$18.3 billion in 2024, with a compound annual growth rate (CAGR) of 1.26% anticipated from 2024 to 2029. Per capita, the value is expected to reach US\$930.8, and the value-added margin is projected at 27%. The market's total output is forecasted to be US\$66.6 billion in 2024, growing at a CAGR of 1.06%. Each enterprise in the market is predicted to produce an average output of US\$18.3 million, with a manufacturing intensity of 21.1%. The number of enterprises is expected to be 3,640, with an enterprise density of 185 and a CAGR of 1.90%. The workforce in the market is projected to 383,400 employees, growing at a CAGR of 1.26%, with an employment rate of 1.95%. Labor efficiency is anticipated to be US\$173.7K, while labor productivity is projected to be US\$47.7K in 2024.<sup>5</sup>

**Automotive:** Revenue in the Passenger Cars market is projected to reach US\$6.9 billion in 2024, with an annual growth rate (CAGR 2024-2028) of 1.39%, leading to a projected market volume of US\$7.3 billion by 2028. The market's largest segment, SUVs, is expected to have a market volume of US\$2.6 billion in 2024. Unit sales of passenger cars are anticipated to reach 264,500 vehicles by 2028, with a volume-weighted average price of US\$27,120 in 2024. Chevrolet is expected to have one of the highest market shares in the region, with a vehicle unit sales share of 17.8% in 2024, while Nissan's value market share is projected at 18.5%. Internationally, the highest revenue in the passenger cars market is expected to be generated in the United States, amounting to US\$558 billion in 2024.



## Conclusion

After a period of stagnation in 2023, Chile's economy is on track for a robust recovery, with projected growth rates of 2.3% in 2024 and 2.2% in 2025.<sup>6</sup> This anticipated economic revival, fuelled by rising real wages and a decline in inflation, will foster a favourable environment for increased consumer spending. The fastener industry in Chile is expected to benefit significantly from this recovery. In 2023, the industry saw exports rise to US\$13,435,000, with Peru, Brazil, Panama, and the USA being major export destinations. Imports also reached US\$188,897,000, dominated by the USA and China. As Chile's economy strengthens, demand for fasteners is likely to grow, presenting new opportunities for both domestic and international players in the market. This growth will likely be driven by increased industrial activities and infrastructure development, supported by the country's improving economic conditions. ■

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<sup>1</sup><https://www.mining-technology.com/marketdata/five-largest-copper-mines-chile/#:~:text=There%20are%20more%20than%20709,GlobalData's%20mines%20and%20projects%20database.>

<sup>2</sup><https://www.trade.gov/country-commercial-guides/chile-mining>

<sup>3</sup><https://www.businesswire.com/news/home/20231220581329/en/Chile-Construction-Market-Size-Trend-Analysis-by-Sector-Competitive-Landscape-and-Forecast-to-2027--3.2-Annual-Average-Growth-Rate-Expected-from-2025-to-2027---ResearchAndMarkets.com>

<sup>4</sup><https://www.statista.com/outlook/io/manufacturing/industrial-products-services/machinery-equipment/chile>

<sup>5</sup><https://www.statista.com/outlook/io/manufacturing/chile>

<sup>6</sup>[https://www.allianz-trade.com/en\\_global/economic-research/country-reports/Chile.html#:~:text=After%20a%20period%20of%20stagnation,conducive%20to%20increased%20consumer%20spending.](https://www.allianz-trade.com/en_global/economic-research/country-reports/Chile.html#:~:text=After%20a%20period%20of%20stagnation,conducive%20to%20increased%20consumer%20spending.)



# Fastener Corrosion Categories and Protection Against Corrosion

## Forewords

Generally, fastener products in use could be exposed to environments including: (1) The air atmospheric environment in contact, generally called an atmospheric corrosive environment; (2) The environment where products are immersed in water or other solutions, called an underwater corrosion or solution corrosion environment; (3) Installation in a solidified material environment or buried in soil, called a soil corrosive environment or a solidified corrosive environment.

In an exposed environment, the signs of corrosion appear as exposure time increases. Therefore, in expected corrosive environment conditions, long-term exposure tests (tests lasting one or more years) are conducted to explore the relationship between corrosion factors and metal corrosion rates. Most of the time, the metal corrosion rate is calculated and evaluated based on the first year of exposure to corrosive environmental conditions. Regardless of the exposure environment types, changes in weight loss or weight gain on the exposed surface of the material may occur. The shedding of the products of corrosion causes weight loss, and the attachment of the products of corrosion causes weight gain. Therefore, the corrosion rate is often measured by the change in corrosion weight per unit of exposed area during the first year, or the surface corrosion depth in the first year. According to ISO 11845-2020, corrosion weight change or corrosion depth is usually measured and calculated after removing the products of corrosion. It is recommended to test fasteners for more than one year with reference to ISO 11845, ASTM G4, ASTM G31, ASTM G50 and other standards. However, due to the very small change in corrosion weight, long-term tests lasting at least one year are often time-consuming. Therefore, international standards, national standards, association test standards and certification standards classify corrosion categories based on corrosion resistance levels corresponding to corrosive environmental conditions.

The corrosive environmental conditions and the corresponding corrosion category classifications defined by international standards are shown in **Table 1**. Considering the environment corrosivity corresponding to corrosive environmental conditions, surface treatment design and protection against corrosion, it is recommended to choose appropriate corrosion prevention methods as well as the evaluation process for fasteners. Since the tolerance of fasteners directly affects the safety of fasteners in use, the European Union Building Regulations 305/2011/EU (CPR) clearly lists the types of construction fasteners expected to be used with corrosion category C3 or above, whose tolerance is in the required items of Technical Document Function Declaration (DOP) for CE certification. In addition, certifications in other countries or regions, such as the American ICC-ES, also have certification requirements for related tolerances.

● Table 1. Corrosive Environment Conditions and Relative Corrosion Level Classifications Defined in International Standards

Corrosive Environment Conditions	Categories	Environment Corrosivity	Typical Environment Conditions
Atmospheric Corrosion	C1	Very low corrosivity	Dry room
	C2	Low corrosivity	Dry urban inland
	C3	Medium corrosivity	Coastal or light industrial areas
	C4	High corrosivity	Smooth coastline
	C5	Extreme corrosivity	Wave-pounding coast
	CX	Extreme corrosivity	Harsh wave-pounding coast
Immersive Corrosion	Im1	Immersive corrosion by clean water	Freshwater lakes, rivers
	Im2	Immersive corrosion by semi-salty seawater	Estuaries, saltwater lakes, intertidal zones, and the sea
Soil Erosion	Im3	General soil corrosivity	Embedment in land soil or buildings
	Im4	Semi-salty sea water soil corrosivity	Soil or structures at the bottom of estuaries/saltwater lakes/intertidal zones, and soil or buildings at the bottom of sea



## Environment Corrosivity During the Service Life of Fasteners

Fasteners with or without surface treatment should at least be able to perform against the expected environment corrosivity. If so, it will mean the fasteners are enduring against the environment corrosivity during the service life. Take coastal and light industrial areas for example, fasteners should be above corrosion category C3. Fasteners with corrosion categories C1 or C2 do not meet EU's building regulations for outdoor use. According to ISO 14713-1, typical indoor or outdoor environments defined in environment corrosivity categories are shown in **Table 2**.

● **Table 2. Typical Indoor or Outdoor Environments Defined in Environment Corrosivity Categories**

Category	Typical Environmental Conditions	
	Indoor	Outdoor
C1	Heated spaces with relatively low humidity and low pollution, such as dry indoor environments without condensation, offices, schools, museums	Dry or cold zone: Atmospheric environment with very low pollution and low humidity. For example: some deserts, the North and South Poles.
C2	Unheated spaces subject to changes in temperature and relative humidity. Low condensation frequency, low pollution, and there is temporary condensation in the indoor environment. For example: storage room, gym.	Temperate zone: low pollution in the atmospheric environment (SO <sub>2</sub> , < 5 μg/m <sup>3</sup> ). For example: rural areas. Dry or cold areas, atmospheric environments with short wet periods (for example: deserts, polar regions)
C3	Manufacturing plant, a space with moderate condensation frequency and moderate pollution. For example: food processing plants, laundries, breweries, dairies.	Temperate zone: moderate air pollution (SO <sub>2</sub> : 5 μg/m <sup>3</sup> ~ 30 μg/m <sup>3</sup> ) or with some degree of impact from chloride. For example, cities, coastal areas with low chloride deposition rates. Subtropical and tropical areas: low atmospheric pollution. (SO <sub>2</sub> , < 5 μg/m <sup>3</sup> )
C4	Manufacturing plant, a space with high condensation frequency and/or serious pollution. For example: industrial processing plants, swimming pools.	Temperate zone: high atmospheric pollution (SO <sub>2</sub> : 30 μg/m <sup>3</sup> ~ 90 μg/m <sup>3</sup> ) or with substantial impact from chloride. For example: polluted urban areas, industrial areas, coastal areas where salt water is not sprayed. Subtropical and tropical areas: Moderately polluted atmosphere.
C5	Manufacturing plant, a space with very high condensation frequency and/or serious pollution, such as mineral processing, industrial caves, unventilated sheds in subtropical and tropical areas.	Temperate and subtropical zones: extremely high atmospheric pollution (SO <sub>2</sub> : 90 μg/m <sup>3</sup> ~ 250 μg/m <sup>3</sup> ) and/or have significant chloride effects. For example: industrial areas, coastal areas.
CX	Manufacturing plant, a space with almost permanent condensation or prolonged exposure to extreme humidity and/or high pollution. For example: unventilated sheds in humid tropics allow penetration of outdoor contaminants, including airborne chlorides and corrosion-activating substances or particles.	Subtropical and tropical areas (extremely high humidity): Extremely high levels of SO <sub>2</sub> pollution in the atmospheric environment (above 250 μg/m <sup>3</sup> ) including factors formed in the process of corrosion and/or strong effects of chlorides. For example: extreme industrial areas, coasts and offshore areas.

In addition, in the AS 4312 standard, the recommended corresponding corrosivity categories for environmental conditions are based on the distance from the coastline, as shown in **Table 3**. The corrosivity category for fasteners is evaluated based on the destination countries or regions to which the fasteners are sold.

● **Table 3. Recommended Corresponding Corrosivity Categories for Environmental Conditions Based on The Distance from the Coastline (Data Source: as 4312)**

Location	Distance from Coastline					
	0 ~ 50 M <sup>a</sup>	50 ~ 100 M <sup>a</sup>	100 ~ 500 M <sup>a</sup>	0.5 ~ 1 KM <sup>a</sup>	1 ~ 10 KM <sup>b</sup>	10 ~ 100 KM <sup>c</sup>
Temperate zone: Wave-pounding coast	CX	CX/C5	C5	C4	C3	C3
Temperate zone: Semi-shaded coast	C5	C4	C4	C3	C3	C2
Temperate zone: Coast with calm waves	C4	C3	C3	C3	C2	C2
Tropical: Coast with calm waves	CX	CX	C5/C4	C3	C2	C2



According to the EU standard EN 1993-1-4:2006+A1:2015, the risk index ( F1 ) of exposure to chloride in salt water or deicing salt is assessed based on the distance from the coastline or road; risk index ( F2 ) of exposure to SO2 is assessed based on environment status.; risk index of exposure to water vapor ( F3 ) is evaluated based on cleaning by using cleaning agents or by exposing to rain. Calculate the corrosion resistance factor (CRF) risk index of stainless steel fasteners corresponding to environment conditions (  $CRF = F1 + F2 + F3$  ), and then determine the corrosion resistance category (CRC) of the fasteners using CRF. According to EU standards, if the distance from the coastline is  $< 0.25$  km, the risk of corrosion is extremely high; if the distance from the coastline is 0.25 km - 1 km and the distance from road is  $\leq 0.01$  km, the risk is high; if the distance from the coastline is 1-10 km, and the distance from road is between 0.01 km and 0.1 km, the corrosion exposure risk is medium; If the distance from the coastline is  $> 10$  kilometers and the distance from the road is 0.1 kilometers, the corrosion exposure risk is low. **The smaller the CRF risk index, the better the corrosion tolerance. The risk index is usually referred to low corrosion resistance.** The corrosion resistance categories of stainless steel completed by EU standards are divided into 5 categories, as shown in **Table 4**.



● **Table 4. EU Standard Stainless Steel Corrosion Resistance Category ( CRC )**

CRC	I CRF=1	II $0 \geq CRF > 7$	III $-7 \geq CRF > -15$	IV $-15 \geq CRF \geq 20$	V CRF < 20
Stainless steel type	1.4003 ( AISI 410L )	1.4301 ( AISI 304 )	1.4401 ( AISI 316 )	1.4439 ( AISI 317 LMN )	1.4565 ( UNS S34565 )
	1.4016 ( AISI 430 )	1.4307 ( AISI 304L )	1.4404 ( AISI 316L )	1.4462 ( AISI 318 LN )	1.4529 ( AISI 926 )
	1.4512 ( AISI 409 )	1.4311 ( AISI 304LN )	1.4435 ( AISI 316 L )	1.4539 ( AISI 904 L )	1.4547 ( UNS S31254 )
		1.4541 ( AISI 321 )	1.4571 ( AISI 316 Ti )		1.4410 ( UNS S32750 )
		1.4318 ( AISI 301L )	1.4429 ( AISI 316 LN )		1.4501 ( UNS S32760 )
		1.4306 ( AISI 304L )	1.4432 ( AISI 316L )		1.4507 ( UNS S32550 )
		1.4567 ( AISI 304Cu )	1.4162 ( UNS S32101 )		
		1.4482 ( UNS S32001 )	1.4462 ( AISI 318 LN )		
			1.4362 ( UNS S32304 )		
			1.4062 ( UNS S32202 )		
		1.4578 ( AISI 303Cu )			

ISO 3506-1 A2 stainless steel fasteners are equivalent to the corrosion resistance category (II) of steel type 1.4301; A3 stainless steel fasteners are equivalent to the corrosion resistance category (II) of steel type 1.4541; A4 stainless steel fasteners are equivalent to the corrosion resistance category (III) of steel type 1.4401 and 1.4404; A5 stainless steel fasteners are equivalent to the corrosion resistance category (III) of steel type 1.4571. **A1 stainless steel fasteners have low corrosion resistance and high risk indicators, and should not be used as corrosion resistance fasteners without surface protection.** Agricultural environment, urban environment, industrial environment, and ocean environment are used to evaluate four different environment conditions. **Table 5** shows the recommended stainless steel corrosion resistance categories corresponding to ISO 3506-1 stainless steel fasteners.

● **Table 5. Anti-Corrosion Steel Types Suitable for Stainless Steel Fasteners Corresponding to the Environment**

Corresponding steel types for stainless steel fasteners	Environment Conditions and Corrosion Risks											
	Agricultural Environment			City Environment			Industrial Environment			Ocean Environment		
	Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High
1.4003, 1.4016 ISO 3506-1 Grade F1	Y <sup>1</sup>	X	X	Y <sup>1</sup>	X	X	X	X	X	X	X	X
1.4301, 1.4311, 1.4541, 1.4318. ISO 3506-1 Grade A2 or A3	Y	Y	Y	Y	Y	(Y)	(Y)	(Y)	X	Y	(Y)	X
1.4362, 1.4401, 1.4404, 1.4406, 1.4571 ISO 3506-1 Grade A4 or A5	O	O	O	O	Y	Y	Y	Y	(Y)	Y	Y	(Y)



**Low:** Tempering through low humidity or low temperature  
**Medium:** Typical corrosion conditions  
**High:** Persistent high humidity, high surrounding temperatures, or particularly aggressive air pollutants

**O:** Potentially out of specification judging from a corrosion perspective  
**Y:** Probably the best choice for corrosion resistance and cost.  
**YI:** For indoor applications only. Avoid using ferritic stainless steel on bathrooms or toilets  
**X:** May be subject to excessive corrosion  
**(Y):** Appropriate precautions may be considered

However, stainless steel fasteners under ISO 3506-1 do not have specific corresponding corrosion categories. **In addition to the chemical composition of steel, inappropriate solution heat treatment, sensitization due to processing the sensitizing zone, microstructure deformation due to processing-induced deformation, and reduced corrosion resistance due to stress concentration during processing, are the reasons for corrosion of stainless steel fasteners.** Therefore, stainless steel fasteners should be classified into corresponding corrosivity categories ( C1, C2, C3, C4, C5, CX ) according to ISO 11845, ASTM G4, ASTM G31, ASTM G50 among other standards, and should be tested for over a year to observe the actual corrosion rate, and then classify the fasteners (under ISO 3506-1) for their corresponding actual corrosion rates specified in international standards.

## Resistance Test and Corrosion Categories Specified In International Standards

Based on the time frame of possible corrosion protection failure, ISO 12944-1 further divides each corrosion category into 4 endurance levels and their possible failure time frames as shown in **Table 6**.

● **Table 6: Endurability and Required Hours of Endurance Test During Possible Failure of Corrosion Protection**

Corrosivity Category ISO 9223	Tolerance ISO 12944-1		Withstand Test Requirements ISO 12944-2			
	Endurance Level	Post-failure Maintenance Cycle	Required Hours of Endurance Test (h)			
			Iso 6270 Water Vapor Condensation Test	Iso 9227 Salt Water Spray Test	12944-6 Cyclic Aging Test	
C1	Low	Under 7 years	Unspecified (not applicable)	Unspecified (not applicable)	Unspecified	
	Medium	7 to 15 years				
	High	15 to 25 years				
	Extremely High	Over 25 years				
C2	Low	Under 7 years			Unspecified	
	Medium	7 to 15 years	48			
	High	15 to 25 years	120			
	Extremely High	Over 25 years	240	480		
C3	Low	Under 7 years	48	120	Unspecified	
	Medium	7 to 15 years	120	240		
	High	15 to 25 years	240	480		
	Extremely High	Over 25 years	480	720		
C4	Low	Under 7 years	120	240	Unspecified	
	Medium	7 to 15 years	240	480		
	High	15 to 25 years	480	720		
	Extremely High	25 years	720	1,440		1,680
C5	Low	Under 7 years	240	480	Unspecified	
	Medium	7 to 15 years	480	720		
	High	15 to 25 years	720	1,440		1,680
	Extremely High	Over 25 years	Unspecified	Unspecified		2,688
CX	Low	Under 7 years		Unspecified	Unspecified	
	Medium	7 to 15 years		Unspecified		
	High	15 to 25 years		Unspecified		
	Extremely High	Over 25 years		Unspecified		



For example, we usually use salt water spray test hours to indicate the durability of ASTM F1941 or ISO 4042 certified stainless steel fasteners. According to ISO 12944-2 resistance test requirements, fasteners should be verified with their required resistance tests and hours, as shown in Table 6. Durability test methods include ISO 6270 water condensation test, ISO 9227 neutral salt water spray test, and cyclic aging test specified in ISO 12944-6 Annex B.

Take a fastener passing 120 hours of salt water spray test for example. With a stable condition of corrosivity category C2, there is almost no risk of corrosion within 7 years. Maintenance starts between 7 and 15 years of service. With corrosivity category C3, although corrosion could occur within 7 years, durability could last up to 7 years. With fasteners of corrosivity categories C4 and C5, considering the extremely high risk of damage by corrosive environments, the fasteners should be verified to meet the resistance test requirements to avoid the risk of corrosion damage. Fasteners passing less than 240 hours of salt spray resistance test cannot deliver the basic protection at corrosivity category C4. "Fewer salt spray resistance test hours" leads to a higher risk of corrosion, and is more likely to cause damage and reduce the said fasteners' service life. Such fasteners are not suitable for corrosivity category C4, C5, and CX environments.

Fasteners for corrosivity category CX should cater to higher environment corrosion risks based on actual corrosive environmental conditions, corrosion protection design and actual corrosion rates, so as to clearly specify the required endurance test methods, verification hours



and verification standards. For example, acid rain test standardizes the number of hours and cycles. When using resistance test hours to indicate the fastener durability, the resistance test method and the verification criteria for compliance should be clearly shown. Refer to ISO 12944 to see if the endurance test result meets the corrosion categories defined by international standards. **Given the uncertainty in the environment where a fastener is used, the service life of fasteners cannot be indicated simply with corrosivity categories or guaranteed number of service years. Without standard regulations for fastener resistance test methods, corrosivity categories should not be used to indicate the service life of fasteners. ■**

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## Why Should I Upgrade My Quality Management System to Comply with IATF16949?

Everyone is aware of the tragic events of April 14, 1912. This is the night that the White Star Line's "unsinkable" ship Titanic struck an iceberg and sank, taking more than 1,500 souls to a premature watery grave. For years the belief was that the iceberg tore a long gash through the ship's hull causing it to take on water and sink. After the wreck was "discovered" in September of 1985, multiple investigative explorations would follow. On several of these, researchers sought to determine how the ship sank. To their surprise no gash was found, but they did locate multiple vertical openings of the hull plates in the area believed to have impacted the iceberg.

Now this is a very interesting mystery, but what does it have to do with modern day industrial Quality Management Systems (QMS)? To cut to the chase, scientists at the US National Institute of Standards and Technology (NIST) probed this mystery and came away with a very compelling theory. Lead researcher, Timothy Foecke, discovered that the wrought iron rivets used to attach the bow and aft hull plates were substandard. He discovered that many of these rivets contained high amounts of slag, entrapped exogenous inclusions that weaken the strength and metallurgical toughness of the iron. A simple interpretation, the parts were weak and not capable of performing at the level they were expected to. Foecke theorized that when the ship struck the iceberg, the impact forces were such that they caused the rivet heads to separate, opening the hull plates allowing water to flood into the Titanic and cause her to sink.





At this point you may still be asking about how this has anything to do with a quality system. As part of his project Foecke engaged a social scientist/historian, Jennifer McCarty, to investigate if there was any explanation for these substandard parts. Remarkably, records from Titanic's Irish ship builder Harlan and Wolfe divulged that they had experienced significant wrought iron rivet shortages during the period they were building the Titanic. To address this problem, they made two fateful decisions. First, they declared that the rivets could be produced from Number 3 "Best Quality" bar instead of the traditional Number 4 "Best-Best Quality" bar. Secondly, they increased their supply base by opening their doors to multiple small and unknown forges. It is highly likely that one or more of these new, but not really vetted suppliers produced rivets that were substandard and incapable of holding up to the rigors experienced during the collision.

Today, these cavalier manufacturing practices would simply not be allowed for any organization that claimed to abide by a modern-day, registered QMS. Had Haran and Wolfe had a robust QMS, like ISO 9001 or IATF 16949, it is possible that the wrought iron rivets would have been stronger and maybe resulted in fewer or no hull plates separating. For this reason, this makes the Titanic a compelling example of why a QMS is so crucial to today's manufacturing businesses.

So, what is a Quality Management System (QMS)? It is a little unfortunate that the first word in the title is "Quality". This is not because it is wrong, quite the contrary these systems are all about making good quality parts. In my opinion the problem this instills is that many read the word "quality" and immediately think it is a program that belongs only to the "Quality Department". Nothing could be more wrong because



a company's QMS is simply about the way a company goes about their business. As such, every company has a QMS. Not every company, however, has a registered QMS to an industry standard such as ISO9001 or IATF 16949. In fact, the subject of this article, IATF16949, is an automotive industry specific QMS that adds an additional 277 requirements above the 135 contained in ISO 9001. **Therefore, IATF16949, like its foundation, ISO 9001, is a standard that dictates the minimum system requirements that a company should have in-place to receive recognition and certification. Unless a customer requires it (and some do), companies do not need to be certified, but those that do achieve registration are easily recognized by potential and current customers as a step above those not registered.**

Now that we understand that IATF 16949 is a standard which sets forth some minimum capabilities and requirements to achieve registration, what is its fundamental underlying philosophy? For the last century or more, the traditional way of thinking about quality is that "parts are fine as long as they stay within a defined set of limits." Another way of saying this is that parts are good if they are "in specification. To gauge this, we must thoroughly investigate finish parts to "detect" when one is bad. In many industries this may actually be a suitable strategy, but it does create challenges for high volume producing industries like fasteners. There are simply too many parts to be able to inspect them all. Therefore, we must consider a better way. Starting in about the 1950s, Japanese manufacturers began using novel manufacturing techniques. Their techniques involve collecting data to control the process. The fundamental reasoning was best articulated by the Japanese Quality Specialist, Taguchi. Taguchi developed what would become known as the "Taguchi Loss Function". In essence it says that a customer becomes less satisfied with a product as it begins to stray from its ideal condition. In other words, a part could be "in specification" but still fails to satisfy the customer. The only way to produce good parts, therefore, is to understand the process. This philosophy can best be summed up as, "good process equals good parts." To adopt this philosophy manufacturers must have tools that allow them to understand what kind of parts are being produced from their process and once the targeted ideal condition is dialed in to have tools to monitor the process and notify operators that it is getting off-track. The new QMS systems, such as ISO9001, IATF16949, and AS9100 are all fundamentally based on this process control philosophy.

IATF 16949 started as QS9000 about 1997. From its beginning it was a derivative of ISO9000 based standards for automotive industry suppliers. It came about because the US "Big Three" automotive OEMS wanted to be able to eliminate their individual, and often cumbersome, Quality System requirements and replace them with one universal set of standards that could be utilized by all suppliers across the industry. After several years it was absorbed by an ISO Committee and became ISO/TS 16949. The standard was once again revised in 2016 to become the current IATF 16949 standard. Although ISO 9001 and its derivatives have always been closely linked with the automotive supplement, one of the big updates for IATF 16949 was to completely align it in structure and layout to ISO 9001. This update served to make it obvious that the two are linked together, with the IATF 16949 supplementing ISO 9001. In fact, **any company that receives an IATF 16949 registration will also receive an ISO 9001 registration.**

The original QS9000 had 20 different parts or topics that it addressed. This was reduced to 8 parts when QS9000 evolved into ISO/TS16949. However, in 2015 ISO 9001 was updated to have 10 parts. Therefore, IATF 16949 was updated to also have ten parts. These are:

0. Introduction
1. Scope
2. Normative References
3. Terms and Definitions
4. Context of the Organization
5. Leadership
6. Planning
7. Support
8. Operation
9. Performance Evaluation
10. Improvement

Since IATF 16949 is a supplement to ISO 9001, meaning that it adds requirements to those already existing, the document basically states that **to gain IATF 16949 registration one must meet all the requirements of ISO 9001 and the supplemental IATF 16949 requirements.**



## What are the highpoints from each section?

### Part 1 - Scope:

The scope of the document basically tells the user where the standard does and does not apply. ISO 9001 is intended to cast a broad net and be applicable to any industry. IATF 16949 narrows this down to any size manufacturer within the automotive supply chain.

### Part 3 - Definitions:

This section is for guidance and doesn't have any requirements. However, it is helpful to be able to understand what certain terms mean when used in the standard. Once again, **IATF 16949 inserts terms that are specific only to the automotive segment.**

### Part 4 - Context of the Organization:

This section may not be immediately intuitive to some users. It is intended, however, to ensure that organizations understand the internal and external influences that are relevant to their purpose and strategic direction. This section provides guidance on how to define the scope of the QMS. **IATF 16949 provides additional guidance regarding exclusions to the scope, a practice where the requirements an organization is prepared to achieve are limited by the organization. In IATF 16949, it stipulates**

**that the only exclusion a company may make are for design related requirements when a company does not have design responsibility. It also adds requirements for product safety that do not exist with ISO 9001.**

### Part 5 - Leadership:

This section is all about detailing top management involvement in the QMS. It includes requirements for Top Management involvement, commitment to customers, establishing a formal Quality Policy, and the rules by which Top Management can delegate authority and responsibility for the different aspects of the QMS. IATF 16949 identifies several responsibilities that require delegation beyond those in ISO 9001.

### Part 6 - Planning:

This section includes elements for risk assessment, establishing quality objectives, and planning for changes to the QMS. **IATF 16949 adds additional requirements for specific risk analyses, taking preventative actions, forming contingency plans and involvement of Top Management in developing quality objectives.**

### Part 7 - Support:

This section starts to really get into the depths and important aspects of the QMS. It provides requirements for training and competency building, having the right tools and infrastructure for individuals to properly perform their jobs, providing a safe environment, calibrating tools and measuring devices, and providing good communication throughout the organization. **IATF 16949 adds additional requirements such as adopting Lean Manufacturing techniques, using Measurement System Analysis (a way to monitor the effectiveness of gauges and measuring devices), identifying laboratory requirements, requiring a written Quality Manual (a requirement dropped by ISO 9001), maintaining records, and making sure that pertinent engineering standards are available and up to date.**

### Part 8 - Operation:

This is the section that includes all the operational parameters, such as operation planning and control, customer communication, understanding product requirements, conducting thorough contract and feasibility reviews, maintaining a formal design process (for design responsible entities), managing vendors, managing traceability, and addressing non-conforming products. **IATF 16949 adds many additional requirements to this section. Perhaps a few exemplary items are understanding special characteristics, conducting manufacturing feasibility, adding specific supplier selection criteria, using control plans, adopting Total Productive Maintenance practices, managing change control, and adding extra requirements for non-conforming products.**

### Part 9 - Performance Evaluation:

This section covers measuring customer satisfaction, internal auditing, and management review. **IATF 16949 adds requirements for process capability studies, additional internal auditing requirements, and expanded management review.**

### Part 10 - Improvement:

This section addresses corrective action and continuous improvement. **IATF 16949 adds additional requirements relative to problem solving, error proofing, and expanded continuous improvement.**

If you currently do not have a formal QMS or only have ISO 9001, you might be asking why you would want to add the burden of these added requirements? The answer is simple, the IATF 16949 Quality Management System is far more comprehensive than ISO 9001. Adapting your QMS to meet its requirements will make your organization stronger and better, and likely establish you as a superior organization in the eyes of your customers. This reason alone makes achieving IATF 16949 a strategic decision and one well worth considering if you are or aspire to be a supplier to the automotive market segment. ■

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# The Fastener Market in Peru: Current Trends and Future Prospects



## Overview of Peru's Economy

### General Economic Landscape

Peru, located on the western edge of South America, has a diverse and growing economy characterized by significant contributions from mining, agriculture, manufacturing, and services. As of 2023, Peru's Gross Domestic Product (GDP) stood at US\$267.6 billion. This figure reflects the country's economic activities across various sectors, including a substantial informal sector that contributes significantly to the economy but is often not fully captured in official statistics.

### Key Economic Indicators

- **Purchasing Managers' Index (PMI):** The PMI is a critical indicator of the economic health of the manufacturing and services sectors. From December 2022 to August 2023, the PMI for manufacturing showed a consistent downward trend, indicating contraction in the sector. The figures declined from 45.3 in December 2022 to 43.0 in August 2023. This downward trend suggests that the manufacturing sector faced challenges such as reduced production levels and declining new orders, reflecting broader economic slowdowns.

Conversely, the services sector demonstrated stronger performance, indicating growth and expansion. The PMI for services increased from 49.9 in December 2022 to a peak of 55.9 in April 2023, before slightly declining to 49.5 in August 2023. This growth in the services sector was driven by increased consumer spending and business activities, though it experienced a slight slowdown towards the end of the period.

- **Inflation:** The annual inflation rate for consumer prices in Peru was 6.5% in 2023. This rate reflects the general increase in prices of goods and services, impacting purchasing power and cost of living.
- **Unemployment:** The total unemployment rate in Peru, as estimated by the International Labour Organization (ILO), was 4.8% in 2023. This figure indicates the percentage of the labor force that is without work but is available for and seeking employment.

## Industrial Sectors Driving Fastener Demand

### The Construction Industry

The construction industry in Peru is a major economic driver, contributing significantly to GDP and employment. Ongoing urbanization and infrastructure projects have bolstered this sector, leading to increased demand for construction materials, including fasteners.

### Key Projects

Investment in infrastructure is pivotal for Peru's development, enhancing both citizens' quality of life and the economy. The Ministry of Economy and Finance (MEF) of Peru projects a 3% GDP growth to compare with the last year, which hinges on significant infrastructure investments.

Key projects include the New San Juan de Marcona Port Terminal (US\$405 million) and the Peripheral Road Ring (US\$3.4 billion). Additionally, several projects are expected to be awarded this year, such as the Huancayo – Huancavelica Railway (US\$394 million), Longitudinal de la Sierra Section 4 (US\$1.2 billion), 15 electricity sector projects worth US\$900 million, and the Puerto Maldonado Wastewater Treatment Plant (US\$98 million). These initiatives are crucial for driving Peru's economic progress.

### The Mining Industry

Peru is one of the world's leading producers of minerals such as copper, gold, and silver. The mining sector is vital for the national economy, contributing significantly to GDP and providing employment.

This country is home to one of the largest copper mines globally, among other mines that have attracted significant international investment. **The construction and operation of these mines require a vast array of fasteners for equipment, machinery, and infrastructure.**

### The Automotive Industry

The automotive industry in Peru is experiencing growth, driven by increasing domestic demand and the establishment of manufacturing facilities. This sector includes vehicle production and auto parts manufacturing, both of which heavily rely on fasteners.

**Several international automobile manufacturers are establishing assembly plants in Peru to cater to the regional market.** These plants require a wide range of fasteners for vehicle assembly and component manufacturing. The production of auto parts has seen growth due to domestic demand and export opportunities. Fasteners are essential in manufacturing various auto parts, including engines, chassis, and body parts.



## The Renewable Energy Sector

Peru is investing in renewable energy projects, including wind, solar, and hydroelectric power. The shift towards sustainable energy sources is driving demand for specialized fasteners used in renewable energy installations.

Various solar power projects are underway in Peru, particularly in the northern regions. These projects require specific types of fasteners for mounting solar panels and constructing support structures.

In the heart of the Nazca Desert lies Peru's largest wind farm. The construction and maintenance of the wind turbines at this site involve the use of high-strength fasteners.

## Market Analysis of the Fastener Industry

### Market Size and Trade Statistics

In 2024, the sales of industrial fasteners in Latin America are estimated to reach USD 488.6 million. The market is projected to expand at a compound annual growth rate (CAGR) of 3.8%, reaching approximately USD 709.46 million by the end of 2034. The key contributors to this market include Brazil, Mexico, Argentina, Chile, and Peru.

By 2034, the sales of industrial screws are expected to total USD 135.47 million, while the market for industrial nuts is predicted to grow at a steady CAGR of 4.5%, reaching a value of USD 161.82 million.

In the same category (HS Code 7318), Peru imported approximately USD 150 million worth of fasteners in 2023, primarily from China and the United States. In contrast, Peru exported only about USD 9.6 million worth of fastener products. The major importers and exporters of Peru's fastener products are illustrated in the following tables.

Peru's Fastener Exports Over the Last Five Years (in USD million)

Importers	2019	2020	2021	2022	2023
Chile	0.42	0.26	0.98	1.98	4.30
Colombia	2.80	2.09	3.11	3.63	1.62
USA	1.10	0.48	0.47	1.10	1.01
Mexico	0.15	0.02	0.13	0.53	0.80
Bolivia	1.09	0.60	0.47	1.47	0.55
Others	1.65	1.02	1.46	1.63	1.33
Total	7.20	4.47	6.61	10.35	9.62

Peru's Fastener Imports Over the Last Five Years (in USD million)

Exporters	2019	2020	2021	2022	2023
China	43.65	33.59	67.43	60.89	48.76
USA	34.84	28.71	36.89	42.87	41.87
Italy	5.41	4.24	8.42	8.66	8.71
Germany	5.32	4.16	5.99	5.71	6.99
Chile	3.71	3.00	3.38	3.77	5.42
Others	33.01	24.33	34.29	40.10	38.03
Total	125.94	98.03	156.40	162.00	149.78

As stated above, Peru imports a significant portion of its fasteners due to limited domestic production capabilities. However, there is a growing trend towards local manufacturing, especially in the automotive and industrial sectors.

## Key Segments

- Industrial Fasteners:** This segment includes fasteners used in heavy machinery, construction, and mining equipment. The growth of the mining and construction industries directly impacts the demand for industrial fasteners.
- Automotive Fasteners:** The growth of the automotive sector has led to an increased demand for specialized fasteners used in vehicle manufacturing and assembly. This segment is expected to grow significantly as more assembly plants are established. Since 2010, Peru's vehicle market has consistently expanded at an annual growth rate of 12.1%. In 2023, Peru ranked 52nd globally in vehicle registration numbers, just behind Denmark, which also registered approximately 261,000 units.
- Aerospace Fasteners:** Although not a major player in the aerospace and technology sectors, Peru has shown interest in space research and satellite technology. Despite its smaller size, the aerospace fastener market is growing, driven by Peru's increasing involvement in regional and international aerospace activities.

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## Challenges

- **Economic Volatility:** Fluctuations in global economic conditions and internal political instability can impact the construction and mining sectors, thereby affecting the demand for fasteners.
- **Import Dependency:** Heavy reliance on imported fasteners can lead to supply chain disruptions and increased costs, especially during global trade tensions or logistical challenges.
- **Technological Advancements:** Keeping pace with technological advancements in fastener manufacturing requires substantial investment in research and development, which can be a challenge for local producers.

## Opportunities

- **Local Manufacturing:** Encouraging local production of fasteners can reduce dependency on imports, create jobs, and boost the economy. Investments in advanced manufacturing technologies can enhance the quality and competitiveness of locally produced fasteners.
- **Sustainable Construction:** The global shift towards sustainable construction practices presents an opportunity for the fastener industry to innovate and develop eco-friendly products. Fasteners made from recyclable materials or designed for easy disassembly and reuse can gain market traction.
- **Expansion of Industrial Sectors:** Continued growth in the construction, mining, automotive, and renewable energy sectors will drive demand for a wide range of fasteners. Companies can capitalize on this demand by diversifying their product offerings and entering new markets.

## Conclusion

The fastener market in Peru is poised for growth, driven by robust industrial activities and infrastructure development. Key sectors such as construction, mining, automotive, and renewable energy are expected to contribute significantly to the demand for fasteners. While challenges such as economic volatility and import dependency exist, the opportunities for local manufacturing and sustainable product development present a positive outlook for the industry.

Strategic investments, technological advancements, and supportive government policies can further enhance the growth prospects of the Peruvian fastener market. By addressing the challenges and leveraging the opportunities, the industry can play a vital role in supporting Peru's economic development and industrial advancement. ■

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**UNIVERSAL PRECISION SCREWS**

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## Should I Have My Lab Accredited to



In 1993 the Automotive Industry Action Group (AIAG) established guidelines for the Production Part Approval Process, commonly known as PPAP. In those early days, the PPAP process was little more than a couple of pages of dimensional and performance test verifications. Thirty years later, a PPAP submission has transformed into a 20 to 30mm thick package full of verifications, certifications, and quality plans. Since many of those documents require some sort of lab or testing verification, the authors of PPAP became concerned about the veracity and quality of the results. For this reason, later revisions to PPAP would include a requirement (Section 2.2.12) that all inspection and testing is conducted by a qualified laboratory.

This is just one example of the importance of having a universal standard available that provides both users and customers guidelines on proper procedures and processes to competently run a laboratory or testing operation that provides consistent and reliable results. Thus, enter ISO/IEC 17025 onto the international stage.

**ISO/IEC 17025 is the logical evolution of the third (1990) edition of ISO Guide 25. In essence, the new 17025 standard incorporated the Quality Management System principles of ISO 9000 with the technical lab competency requirements of Guide 25.** ISO/IEC 17025 has evolved several times since its introduction in 1999. The standard was revised a second time in 2005 to become more aligned with the 2000 revision of ISO 9001 and then again in 2017 to align it with the 2015 version of ISO 9001.

### Why is an Accredited Lab Important?

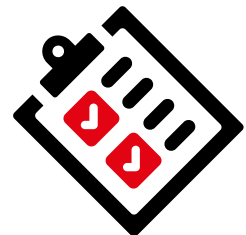
The simple answer to the question is that having a universally accepted standard for laboratory and calibration services gives consumers confidence in the products they are purchasing because testing and verification is done by competent and qualified laboratory sources. This accreditation emphasizes that the lab is using best and consistent technical practices, employs well-trained and competent team members, has verification steps that are traceable back to an established reference, emphasizes continuous improvement practices, and is obtaining accurate, repeatable, and consistent results. Labs that have taken the initiative to rise to the level demanded by this standard and meet its requirements are truly the best in-class. Manufacturers that have an in-house accredited lab or only use accredited labs are able to stand apart from those that do not.

### Highlights of ISO/IEC 17025:

**ISO/IEC 17025 can be viewed in two parts, a laboratory Quality Management System (QMS) and a technical guide for the tests, processes, and activities conducted by the laboratory.** Although different from ISO 9001, many of the QMS aspects of ISO/IEC 17025 are similar or identical to ISO 9001 requirements.

The ISO/IEC 17025 standard is broken into eight sections. They are:

1. Scope
2. Normative References
3. Terms and Definitions
4. General Requirements
5. Structural Requirements
6. Resource Requirements
7. Process Requirements
8. Management System Requirements



The first three sections are common to many standards. The “Scope” is important because it acts as an executive summary and tells the user what the standard is intended to cover and often what it may not cover. The term “normative” means related to or derived from a standard. Therefore, the second section is a list of any standards that the ISO/IEC 17025 standard may reference within its body. There are, in fact, only two standards cited. These contain additional information that may be helpful to the users of this standard. Finally, section three defines a series of terms that are used throughout the standard. A definition section can be extremely helpful because it can educate users on the meaning of terms they may not know or establish a baseline for terms that may have multiple meanings or ambiguity in the marketplace.

**Section 4 is the “General Requirements” section. This section addresses two important concepts related to testing labs; impartiality, and confidentiality.** Testing labs must be impartial, even if they are an in-house department of a larger organization. The purpose of a test is to without bias assess whether a part meets a requirement or not. It is critical that lab personnel be able to do this without bias or fear of retribution should results be deemed unfavorable. In a similar vein, often multiple customers may be using a lab, and they must have confidence that the lab is not sharing their test results with other parties. Therefore, labs must have strict policies regarding confidentiality and the safeguarding of their customers’ information and data.

**Section 5 is titled “Structural Requirements”.** This section defines requirements about the way a lab is set up. It gives requirements for organizational structure, management, and personnel. Most importantly, this section defines requirements emphasizing that the lab has managers and personnel that are aware of what is going on and have authority to conduct the multitude of actions necessary for everyday business.

**Section 6 is “Resource Requirements”.** This section is full of requirements that direct the lab to have the necessary resources to properly and efficiently conduct the activities of the lab. This means that they are required to have the right people in-place, proper conditions and facilities, the right equipment, traceability (measurement results are traceable back to a known reference standard), and that externally provided products and services are available and controlled when necessary.

**Section 7 is “Process Requirements”.** This is the technical section of the document and lays out many requirements for the processes that are necessary from the start to the finish of getting each test sample properly and accurately evaluated, recorded, and results communicated back to the customer.

The final section, Section 8, is “Management System Requirements”. This section is the primary bridge to either ISO 9001 or a QMS with similar attributes. This section defines two options; A and B. Option B is for a lab that already has a QMS certified to ISO 9001 (or an equivalent). Option A is for a lab that does not have a registered QMS and sets out some minimum requirements that are otherwise included in an ISO 9001 system. These include:

- That the QMS has certain documentation such as documented policies and procedures.
- That documents, when necessary, are controlled.
- That records, when necessary, are controlled.
- That risks and opportunities are considered, and appropriate actions taken when deemed necessary.
- That the organization is engaged in improvement activities.
- That the organization has a corrective action process.
- That the organization undertakes internal audits.
- That the organization conducts regular management review.

## Who Should Have ISO/IEC 17025?

This is a question that every organization must ask themselves and the answer will depend on individual circumstances. Therefore, there is no right or wrong answer. However, in my opinion, any fastener organization that is routinely engaging in metrology, testing, or calibration activities will be much stronger and better with an ISO/IEC 17025 accreditation, than without one.

## How do You Get Registered?

On the surface, registration can seem like a daunting task. However, the old adage about “how do you eat an elephant- one piece at a time” is probably the most appropriate answer. It is a process that an organization must take one step at a time. There are many resources that can be obtained to assist in this process from simple guides to hiring an expert consultant. Whichever approach is taken though essentially involves developing the system, assessing the system for gaps, fixing these, proving the system out, and then hiring a registrar partner to come in and independently assess and critique the system.

Once registered to ISO/IEC 17025 the registrar will continue to conduct routine assessments to make sure that your system is maintaining compliance. Usually, these repeated audits will identify gaps not previously discovered or that have gone off-track since the last assessment. As such, these repeated audits should not be seen as burdensome but rather as opportunities to continue to improve the laboratory.

## Wrap-up:

Not every fastener organization needs an ISO/IEC 17025 accredited laboratory, however, for organizations that want to be best-in-class, to offer their customers a higher level of value, or engage in a large volume of testing or calibration, having accreditation makes a great deal of sense. ISO/IEC 17025 truly makes a difference and effectively provides confidence that tests, dimensional verifications, and calibrations are being done in a way that they are accurate, traceable, and consistent. ■



# Latest Update on African Fastener Industry

## Foreword

With a vast area and a population of more than 1.4 billion, Africa enjoys a demographic dividend and consumption potential, and with a middle class of more than 300 million people, it attracts a large amount of international investment. Economically, Africa's GDP reached US\$2.99 trillion in 2023, with an average economic growth rate of 3.3%, and it is estimated that the GDP will grow to US\$3.15 trillion in 2024, with a growth rate of 4%. Africa is considered the new engine of the global economy, and this article takes South Africa, Morocco, and the Congo, which has a high rate of compounded growth of imports, as the targets, and puts forward suggestions for the development of the fastener industry in these three countries.

## Africa's Fastener Import and Export

### Import

**Table 1** shows Africa's fastener import trend in 2019-2023. In 2023, Africa imported US\$1.184 billion worth of fasteners and the CAGR in the last five years was about 4.3%. Africa's top 3 fastener importers were: South Africa (US\$200 million), Egypt (US\$140 million), Morocco (US\$133 million). The CAGR of Congo ranked 4th in import value was up to 36.8%. Africa's fastener imports in the global share is low (only 2.4%), but high demand for infrastructure, large hinterland, populous Africa make it a potential market in the future.

**Table 1. Africa's Fastener Import Trend in 2019-2023**

Unit: US\$0.1 bn;%

Country	2019	2020	2021	2022	2023	2023 Share	CAGR
South Africa	1.77	1.41	2.03	2.20	2.00	16.9%	3.1%
Egypt	1.37	1.35	1.19	1.36	1.40	11.8%	0.5%
Morocco	1.01	0.90	1.06	1.19	1.33	11.2%	7.0%
Congo	0.24	0.27	0.51	0.84	0.84	7.1%	36.8%
Algeria	0.93	0.69	0.60	0.59	0.74	6.3%	-5.5%
Tunisia	0.46	0.37	0.52	0.56	0.61	5.2%	7.2%
Nigeria	0.36	0.42	0.50	0.42	0.45	3.8%	5.8%
Senegal	0.09	0.10	0.07	0.17	0.39	3.3%	45.2%
Angola	0.33	0.24	0.24	0.41	0.34	2.9%	0.9%
Ghana	0.29	0.31	0.33	0.43	0.31	2.6%	1.2%
<b>Subtotal of Top 10 Fastener Importers</b>	<b>6.86</b>	<b>6.06</b>	<b>7.06</b>	<b>8.17</b>	<b>8.41</b>	<b>71.0%</b>	<b>5.2%</b>
<b>Subtotal of Other African Importers</b>	<b>3.14</b>	<b>2.64</b>	<b>3.32</b>	<b>3.64</b>	<b>3.43</b>	<b>29.0%</b>	<b>2.3%</b>
<b>Africa's Total Fastener Import</b>	<b>10.00</b>	<b>8.70</b>	<b>10.38</b>	<b>11.81</b>	<b>11.84</b>	<b>100.0%</b>	<b>4.3%</b>
<b>World's Total Fastener Import</b>	<b>428.04</b>	<b>384.13</b>	<b>484.24</b>	<b>535.99</b>	<b>499.72</b>	--	<b>3.9%</b>
<b>Africa's Share in World's Total Fastener Import</b>	<b>2.3%</b>	<b>2.3%</b>	<b>2.1%</b>	<b>2.2%</b>	<b>2.4%</b>	--	<b>0.4%</b>

### Export

**Table 2** shows Africa's fastener export trend in 2019-2023. In 2023, the top 3 fastener exporters in Africa were South Africa (US\$100 million), Morocco (US\$25.145 million), and Tunisia (US\$3.629 million). Africa's export CAGR was about 4.5% in the past five years, and those of Morocco and Tunisia were both more than 10%. 70% of South Africa's fastener exports were for the supply of internal demand in Africa (mainly for Congo), Africa's fastener exports amounted to about US\$144 million, accounting for only 0.3% of the global fastener exports.





Table 2. Africa's Fastener Export Trend in 2019-2023

Unit: US\$10,000: %

Country	2019	2020	2021	2022	2023	2023 Share	CAGR
South Africa	8667.4	7571.9	9012.8	9710.1	10068.4	70.1%	3.8%
Morocco	1650.0	1621.9	1870.1	1845.5	2514.5	17.5%	11.1%
Tunisia	160.6	161.5	215.2	382.5	362.9	2.5%	22.6%
Egypt	601.7	469.5	368.5	380.1	259.8	1.8%	-18.9%
Zambia	103.6	149.7	212.8	359.4	240.5	1.7%	23.4%
Ghana	15.0	36.0	60.6	99.1	240.0	1.7%	100.0%
Namibia	136.6	67.7	233.7	77.6	139.2	1.0%	0.5%
The Ivory Coast	105.4	226.5	115.3	135.6	100.1	0.7%	-1.3%
Kenya	113.2	46.7	60.3	67.4	89.9	0.6%	-5.6%
Mauritius	25.4	82.3	67.0	0.9	44.8	0.3%	15.2%
<b>Subtotal of Top 10 Exporters</b>	<b>11578.9</b>	<b>10397.7</b>	<b>12216.3</b>	<b>13058.2</b>	<b>14060.1</b>	<b>97.9%</b>	<b>5.0%</b>
<b>Subtotal of Other African Exporters</b>	<b>463.8</b>	<b>248.3</b>	<b>342.9</b>	<b>883.5</b>	<b>306.6</b>	<b>2.1%</b>	<b>-9.8%</b>
<b>Africa's Total Fastener Export</b>	<b>12042.7</b>	<b>10646.0</b>	<b>12559.2</b>	<b>13941.7</b>	<b>14366.7</b>	<b>100.0%</b>	<b>4.5%</b>
<b>World's Total Fastener Export</b>	<b>4011686.0</b>	<b>3693515.0</b>	<b>4624584.0</b>	<b>5051066.0</b>	<b>4822755.0</b>	<b>--</b>	<b>4.7%</b>
<b>Africa's Share in World's Total Fastener Export</b>	<b>0.30%</b>	<b>0.29%</b>	<b>0.27%</b>	<b>0.28%</b>	<b>0.30%</b>	<b>--</b>	<b>-0.2%</b>

## The Trend of Taiwan's Fastener Export to Africa

Table 3 shows the trend of Taiwan's fastener export to Africa in 2019-2023; in recent years, the main destinations in Africa of Taiwan's fastener export were South Africa and Egypt, with South Africa accounting for 67.2%. The CAGR of Taiwan's fastener export to South Africa in the past five years has been flat. Algeria, the third largest fastener exporter destination in Africa, has a CAGR of 15.5%, though its export value was much lower than that of South Africa, making it a market that can be assessed for its benefits.

Table 3. The Trend of Taiwan's Fastener Export to Africa in 2019-2023

Unit: NT\$0.1 bn: %

Country	2019	2020	2021	2022	2023	2023 Share	CAGR
South Africa	5.35	3.43	4.22	5.05	5.52	67.2%	0.8%
Egypt	1.31	1.27	1.40	1.49	0.91	11.1%	-8.5%
Algeria	0.46	0.48	0.40	0.47	0.81	9.9%	15.5%
Mauritius	0.21	0.11	0.15	0.18	0.18	2.2%	-3.9%
Libya	0.21	0.13	0.17	0.20	0.15	1.8%	-8.4%
Morocco	0.23	0.10	0.09	0.15	0.12	1.5%	-14.4%
Kenya	0.08	0.09	0.13	0.11	0.12	1.5%	11.2%
Tanzania	0.04	0.02	0.01	0.03	0.04	0.4%	-0.6%
Ghana	0.04	0.06	0.06	0.07	0.03	0.4%	-2.6%
Tunisia	0.06	0.03	0.03	0.00	0.02	0.3%	-19.5%
<b>Subtotal of Top 10 Fastener Export Destinations</b>	<b>7.97</b>	<b>5.72</b>	<b>6.65</b>	<b>7.75</b>	<b>7.92</b>	<b>96.4%</b>	<b>-0.2%</b>
<b>Subtotal of Other African Fastener Export Destinations</b>	<b>0.17</b>	<b>0.18</b>	<b>0.21</b>	<b>0.30</b>	<b>0.30</b>	<b>3.6%</b>	<b>15.5%</b>
<b>Taiwan's Total Fastener Export to Africa</b>	<b>8.14</b>	<b>5.90</b>	<b>6.86</b>	<b>8.05</b>	<b>8.22</b>	<b>100.0%</b>	<b>0.2%</b>



## Africa's Major Fastener Import Origins

### South Africa

Table 4 shows the trend of imported fasteners in South Africa in 2019-2023. In 2023, the value of fasteners imported by South Africa from the world was US\$200 million, and the CAGR of import in the past five years was about 3.1%. The values of the top three import origins were: China (US\$65.213 million), the U.S. (US\$26.595 million), Germany (US\$25.086 million). The top 10 import origins accounted for 85.8% of South Africa's fastener imports; it is worth noting that Taiwan was South Africa's fourth largest fastener import origin, but its CAGR in the past five years was -4.9%, showing that Taiwan's advantage in South Africa in terms of fastener supply has been gradually taken over by its competitors like Italy and Japan.

**Table 4. The Trend of Imported Fasteners in South Africa in 2019-2023**

Unit: US\$10,000; %

Country	2019	2020	2021	2022	2023	2023 Share	CAGR
China	5770.0	4178.9	7107.2	7987.1	6521.3	32.6%	3.1%
USA	1930.2	1641.1	2014.1	2461.2	2659.5	13.3%	8.3%
Germany	2404.1	2002.9	2658.0	2595.5	2508.6	12.5%	1.1%
Taiwan	1682.9	1120.4	1442.0	1595.5	1378.4	6.9%	-4.9%
Italy	910.3	784.9	1043.1	1328.7	1276.5	6.4%	8.8%
Japan	646.6	585.2	891.2	1382.2	948.7	4.7%	10.1%
India	618.2	656.3	807.3	814.3	749.8	3.7%	4.9%
Thailand	545.9	464.1	550.5	434.1	524.8	2.6%	-1.0%
France	431.9	346.1	356.9	360.9	346.6	1.7%	-5.4%
Netherlands	168.7	130.7	183.9	181.0	258.8	1.3%	11.3%
<b>Subtotal of Top 10 Fastener Import Origins</b>	<b>15108.8</b>	<b>11910.6</b>	<b>17054.2</b>	<b>19140.5</b>	<b>17173.0</b>	<b>85.8%</b>	<b>3.3%</b>
<b>Subtotal of Other Fastener Import Origins</b>	<b>2626.0</b>	<b>2181.1</b>	<b>3271.1</b>	<b>2863.3</b>	<b>2849.3</b>	<b>14.2%</b>	<b>2.1%</b>
<b>Total of Africa's Fastener Import Origins</b>	<b>17734.8</b>	<b>14091.7</b>	<b>20325.3</b>	<b>22003.8</b>	<b>20022.3</b>	<b>100.0%</b>	<b>3.1%</b>

Table 5 shows the types of fasteners imported into South Africa in 2019-2023; the values of various types of fasteners imported into South Africa in 2023 were: other iron and steel screws and bolts (US\$89,051 million), iron and steel nuts (US\$32,892 million), and the above two products accounted for more than 60% of the total import; the imported product with the highest CAGR was: iron and steel self-tapping screws (7.0%), a potential product together with the iron and steel screws and bolts with the highest import value.

In terms of market opportunities, South Africa's fastener-related industries include: traditional automotive and EV industries, renewable energy, medical materials, etc. In terms of policy, the South African government's national infrastructure programs, special economic zones to attract foreign investment, and investment in 21 industries including metal manufacturing and aerospace defense, are all areas of concern for Taiwan fastener industry.

**Table 5. The Types of Fasteners Imported into South Africa in 2019-2023**

Unit: US\$10,000; %

HS Code	Product	2019	2020	2021	2022	2023	2023 Share	CAGR
731815	Other Iron and Steel Screws/Bolts	7909.2	6173.2	8985.7	9573.9	8905.1	44.5%	3.0%
731816	Iron and Steel Nuts	2950.5	2229.3	3401.4	3420.7	3289.2	16.4%	2.8%
731814	Iron and Steel Self-tapping Screws	1444.2	1304.4	1905.2	2416.1	1891.6	9.4%	7.0%
731822	Other Iron and Steel Washers	1434.3	1138.7	1571.9	1741.7	1500.8	7.5%	1.1%



731829	Other Iron and Steel Non-threaded Articles	1116.5	965.1	1136.2	1284.8	1328.2	6.6%	4.4%
731812	Other Iron and Steel Wood Screws	1047.6	820.0	1316.5	1319.7	987.8	4.9%	-1.5%
731819	Other Iron and Steel Threaded Articles	724.7	484.4	736.6	863.0	726.0	3.6%	0.0%
731824	Iron and Steel Pins and Cotter Pins	401.0	412.5	427.9	504.8	576.6	2.9%	9.5%
731821	Iron and Steel Spring/Lock Washers	338.9	265.1	400.1	454.1	416.1	2.1%	5.3%
731823	Iron and Steel Rivets	213.5	179.9	250.8	204.4	237.3	1.2%	2.7%
731813	Iron and Steel Screw Hooks and Rings	41.6	39.9	50.2	84.8	83.2	0.4%	18.9%
731811	Iron and Steel Automotive Screws	112.8	79.2	142.8	135.8	80.4	0.4%	-8.1%
<b>Total of South Africa's Import</b>		<b>17734.8</b>	<b>14091.7</b>	<b>20325.3</b>	<b>22003.8</b>	<b>20022.3</b>	<b>100.0%</b>	<b>3.1%</b>

### Morocco

Table 6 shows the trend of imported fasteners in Morocco in 2019-2023. The import value of fasteners in Morocco was about US\$133 million in 2023 and the CAGR of import in the last five years was 7.0%. The values of Morocco's top three fastener import origins were: France (US\$45.778 million), China (US\$16.414 million), Spain (US\$14.155 million). The top 10 import origins accounted for more than 90% of the fastener import. French fasteners increased its influence in Morocco, accounting for 34.5% of the total import. Taiwan was Morocco's eighth largest import origin, making it the one among the top 10 import origins with the highest growth rate (23.3%).

**Table 6. The Trend of Imported Fasteners in Morocco in 2019-2023**

Unit: US\$10,000: %

Country	2019	2020	2021	2022	2023	2023 Share	CAGR
France	3391.9	2889.6	3661.2	4044.0	4577.8	34.5%	7.8%
China	1318.3	982.7	1509.3	1791.7	1641.4	12.4%	5.6%
Spain	1731.6	1215.0	1126.1	1124.2	1415.5	10.7%	-4.9%
Italy	587.9	653.2	816.3	826.3	1054.1	7.9%	15.7%
Germany	492.0	355.5	441.2	532.7	923.9	7.0%	17.1%
Turkey	610.2	876.6	1149.0	1057.3	784.4	5.9%	6.5%
UAE	485.0	602.2	409.2	740.8	748.8	5.6%	11.5%
Taiwan	177.6	222.3	341.9	365.8	411.0	3.1%	23.3%
USA	167.5	158.2	120.3	192.7	295.4	2.2%	15.2%
Portugal	146.9	151.2	233.1	237.2	270.7	2.0%	16.5%
<b>Subtotal of Top 10 Import Origins</b>	<b>9108.9</b>	<b>8106.5</b>	<b>9807.6</b>	<b>10912.7</b>	<b>12123.0</b>	<b>91.3%</b>	<b>7.4%</b>
<b>Subtotal of Other Import Origins</b>	<b>1024.5</b>	<b>904.6</b>	<b>774.5</b>	<b>971.8</b>	<b>1150.9</b>	<b>8.7%</b>	<b>3.0%</b>
<b>Total of Morocco's Fastener Import</b>	<b>10133.4</b>	<b>9011.1</b>	<b>10582.1</b>	<b>11884.5</b>	<b>13273.9</b>	<b>100.0%</b>	<b>7.0%</b>

Table 7 shows the types of fasteners imported into Morocco in 2019-2023. In 2023, the values of various types of fasteners imported into Morocco in 2023 were: other iron and steel screws and bolts (US\$64.017 million), iron and steel nuts (US\$24.356 million). The products with the highest CAGR in the past five years were: iron and steel screw hooks and rings (26.1%) and iron and steel rivets (20.4%), the main potential products together with the other iron and steel screws and bolts showing the highest import value.

In terms of market opportunities, Morocco's fastener-related industries include: traditional automotive, renewable energy (solar and wind power), space, etc.; in terms of policy, the Moroccan government is accelerating the construction of national housing and new towns, and is increasing the port, transportation (high-speed rail and highway) and industrial infrastructure, such as the construction of a new port in Tanger and the FTA, coupled with the fact that Morocco is located in the northwestern of Africa, and even signed an FTA with the U.S. and Europe, making it an important gateway to the EU.



Table 7. The Types of Fasteners Imported into Morocco in 2019-2023

Unit:US\$10,000;%

HS Code	Product	2019	2020	2021	2022	2023	2023 Share	CAGR
731815	Other Iron and Steel Screws/Bolts	4947.1	4124.1	5247.9	5604.5	6401.7	48.2%	6.7%
731816	Iron and Steel Nuts	1696.4	1850.8	1680.6	2009.9	2435.6	18.3%	9.5%
731829	Other Iron and Steel Non-threaded Articles	1498.8	1222.0	1506.4	1821.8	1523.2	11.5%	0.4%
731819	Other Iron and Steel Threaded Articles	699.3	755.5	729.3	951.7	1019.3	7.7%	9.9%
731822	Other Iron and Steel Washers	264.3	266.8	344.0	433.2	513.6	3.9%	18.1%
731814	Iron and Steel Self-tapping Screws	323.5	228.0	328.5	380.2	463.7	3.5%	9.4%
731823	Iron and Steel Rivets	173.5	136.0	163.3	279.4	364.1	2.7%	20.4%
731824	Iron and Steel Pins / Cotter Pins	180.1	179.9	194.8	149.5	165.2	1.2%	-2.1%
731813	Iron and Steel Screw Hooks and Rings	65.1	51.3	101.7	101.2	164.5	1.2%	26.1%
731821	Iron and Steel Spring/ Lock Washers	43.4	69.8	64.7	41.3	88.8	0.7%	19.6%
731812	Other Iron and Steel Wood Screws	202.8	93.6	147.5	97.4	80.1	0.6%	-20.7%
731811	Iron and Steel Automotive Screws	39.1	33.3	73.4	14.4	54.1	0.4%	8.5%
<b>Total of Morocco's Fastener Import</b>		<b>10133.4</b>	<b>9011.1</b>	<b>10582.1</b>	<b>11884.5</b>	<b>13273.9</b>	<b>100.0%</b>	<b>7.0%</b>

Congo

Table 8 shows the trend of imported fasteners in Congo in 2019-2023. In 2023, the import value of fasteners in Congo was about US\$83.797 million USD and the CAGR of imported fasteners in the past five years reached 36.8%, the highest among African countries. The top three fastener import origins of Congo were China (US\$30.936 million), South Africa (US\$25.581 million), and Zambia (US\$9.095 million). The CAGRs of imports of these 3 countries in the past five years were all over two digits, among which China's imports and growth rate were both in the 1st place, while South Africa, the 2nd largest import origin, showed the advantage of nearby supply, though still a tug-of-war with China in the Congo market.

Table 8. The Trend of Imported Fasteners in Congo in 2019-2023

Unit: US\$10,000;%

Country	2019	2020	2021	2022	2023	2023 Share	CAGR
China	609.9	589.3	1372.6	2042.5	3093.6	36.9%	50.1%
South Africa	909.6	1183.0	2070.6	2771.6	2558.1	30.5%	29.5%
Zambia	87.1	270.0	529.2	1993.1	909.5	10.9%	79.8%
India	67.1	30.3	214.2	306.4	247.1	2.9%	38.5%
USA	157.7	94.5	190.9	251.6	213.1	2.5%	7.8%
Finland	34.4	53.4	48.2	117.5	198.4	2.4%	55.0%
Germany	47.4	49.5	45.2	101.7	170.5	2.0%	37.7%
Sweden	30.0	30.4	29.6	69.1	134.5	1.6%	45.5%
Italy	130.0	66.1	114.5	140.9	124.5	1.5%	-1.1%
Turkey	0.2	3.2	13.2	5.4	122.1	1.5%	397.1%
<b>Subtotal of Top 10 Import Origins</b>	<b>2073.4</b>	<b>2369.7</b>	<b>4628.2</b>	<b>7799.8</b>	<b>7771.4</b>	<b>92.7%</b>	<b>39.1%</b>
<b>Subtotal of Other Import Origins</b>	<b>322.1</b>	<b>314.4</b>	<b>513.3</b>	<b>601.4</b>	<b>608.3</b>	<b>7.3%</b>	<b>17.2%</b>
<b>Total of Congo's Fastener Import</b>	<b>2395.5</b>	<b>2684.1</b>	<b>5141.5</b>	<b>8401.2</b>	<b>8379.7</b>	<b>100.0%</b>	<b>36.8%</b>



**Table 9** shows the types of fasteners imported into Congo in 2019-2023. In 2023, the values of fasteners imported into Congo were: other iron and steel screws and bolts (US\$50.192 million), other iron and steel non-threaded articles (US\$13.787 million); the imported products with the highest CAGR were other iron and steel non-threaded articles (75.1%) and other iron and steel wood screws (108.1%), but the value of imported wood screws was not high.

In terms of market opportunities, Congo's fastener related industries include: metal furniture, automobile, machinery, etc.; in terms of policy, due to Congo's weak infrastructure, the Congo government's investment in infrastructure, airports and railroads are all potential demand for fasteners; however, China's involvement in the country's infrastructure is relatively deep, which suppresses Taiwan's potential participation; in addition, due to the increasing proportion of the middle class in Congo, it is recommended that further market assessment of the demand for fasteners for local private sector construction can be made. The demand for fasteners in the local civil construction industry can be further assessed.

**Table 9. The Types of Fasteners Imported into Congo in 2019-2023**

Unit: US\$10,000; %

HS Code	Product	2019	2020	2021	2022	2023	2023 Share	CAGR
731815	Other Iron and Steel Screws/Bolts	1557.2	1731.0	2925.6	4781.5	5019.2	59.9%	34.0%
731829	Other Iron and Steel Non-threaded Articles	146.8	142.4	443.3	1726.8	1378.7	16.5%	75.1%
731816	Iron and Steel Nuts	126.7	95.2	242.0	411.1	514.3	6.1%	41.9%
731819	Other Iron and Steel Threaded Articles	280.6	454.9	874.9	654.6	497.8	5.9%	15.4%
731822	Other Iron and Steel Washers	157.6	147.4	349.0	387.3	468.5	5.6%	31.3%
731824	Iron and Steel Pins/Cotter Pins	72.5	64.2	210.8	265.2	317.3	3.8%	44.6%
731821	Iron and Steel Spring/Lock Washers	7.2	8.3	15.4	28.6	49.1	0.6%	61.6%
731814	Iron and Steel Self-tapping Screws	23.8	23.0	32.8	26.7	39.0	0.5%	13.1%
731812	Other Iron and Steel Wood Screws	1.7	0.8	12.5	12.7	31.9	0.4%	108.1%
731811	Iron and Steel Automotive Screws	3.0	3.6	8.2	39.7	29.1	0.3%	76.5%
731823	Iron and Steel Rivets	16.3	8.3	26.2	65.0	26.7	0.3%	13.1%
731813	Iron and Steel Screw Hooks/Rings	2.1	5.0	0.8	2.0	8.1	0.1%	40.1%
<b>Total of Congo's Fastener Import</b>		<b>2395.5</b>	<b>2684.1</b>	<b>5141.5</b>	<b>8401.2</b>	<b>8379.7</b>	<b>100.0%</b>	<b>36.8%</b>

## Conclusions

Although Africa is not the main import region of global fasteners, but the potential is promising. In 2018, 44 African countries signed the African Free Trade Agreement (AfCFTA) to promote Africa's market integration, not only strengthening the economic development, but also promoting trade and investment, tariff reductions and exemptions to help the African manufacturing industry and lead the supply chain. Below are some recommendations:

a. **Market Demand:** To gain a better understanding of the African fasteners market demand, competitors' layout, growth potential, investment policies, import & export regulations and tariffs.

b. **Selecting Potential Countries:** Select countries with potential, stable economic growth, and complete infrastructure and logistics hardware, such as South Africa, Nigeria, Egypt, Morocco, Congo, Algeria, etc., for evaluation.

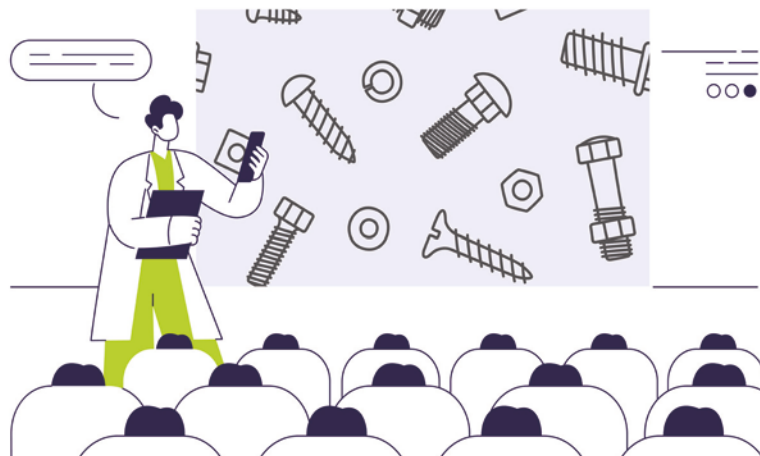
c. **Establishing Local Partnerships:** As the "AfCFTA" will increase self-sufficiency in the region, reducing dependence on foreign imports, Taiwan fastener industry can cooperate with local experienced and reputed factories in Africa to develop the market to share the risk, enabling them to effectively penetrate into the markets with less entry barriers.

d. **Establishing Brand Image Locally:** Providing fasteners meeting the needs and consumption power of Africa and establishing a brand image or set up a factory locally if it is cost-effective to do so, in order reduce costs and improve market feedback. ■

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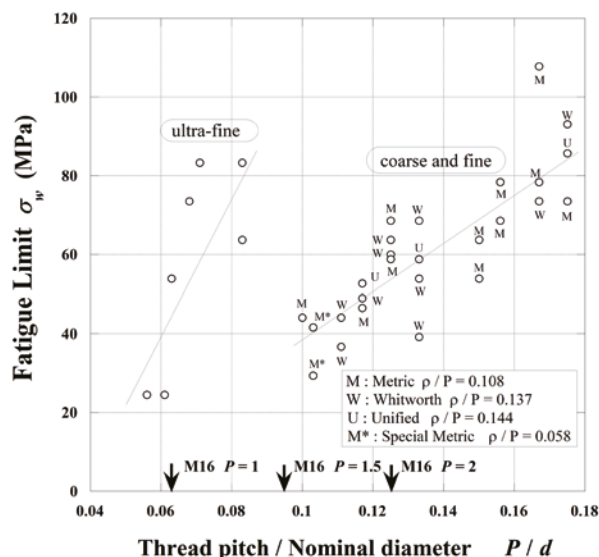
# DR. Fastener- Measures to Prevent Fatigue Failure of Threads



**<Q1> What factors other than stress amplitude affect the fatigue strength of threads?**

**Answer:** Although threads with high material strength tend to have a high fatigue limit, the rate of increase is not as high as that of yield stress or tensile strength. In fatigue tests in which alternating loads are applied to the bearing surfaces of bolt head and nut so that the tensile load is applied to the bolt, the fatigue limit is reported to be over the range from 20 MPa to a little over 100 MPa. **Figure 1** shows the relationship between: (1) the fatigue limit obtained from the test, and (2) the ratio of pitch  $P$  to nominal diameter  $d$ , which represents the non-linearity of threaded parts. The effect of  $P/d$  on fatigue limit is clearly observed. Fatigue limit decreases when the nominal diameter is large and the pitch is small, but it starts to increase sharply at a certain value, and when  $P/d$  becomes further smaller, the fatigue limit drops significantly thereafter. Shown on the horizontal axis are the  $P/d$  values of M16 coarse thread and two types of fine threads. The experimental results given in the figure include the data of different standards of screw threads, thread materials, and thread root radius  $r$ , but it can be seen that **the ratio of pitch to nominal diameter has a dominant effect on the fatigue limit.**

Fig. 1



**<Q2> Can fatigue failure be prevented by using threads made of high-strength materials?**

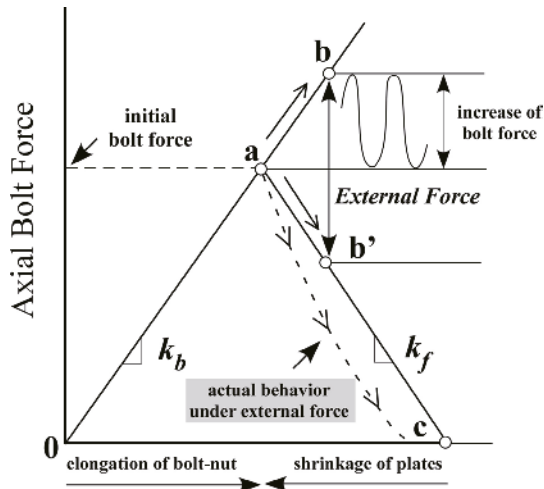
**Answer:** With only the previous given answer, it may seem pointless **using high-strength bolts, but using high-strength threads increases the fatigue strength because they can be tightened with a high axial force.** In a simple fatigue test carried out in **Figure 1**, the fatigue limit of high-strength materials is not so high. However, the fastening with high axial force makes the contact surfaces less likely to separate even when an external force is applied, so it reduces the stress amplitude and improves fatigue strength.

**<Q3> Can a bolted joint diagram be used to estimate the fatigue strength of threads?**

**Answer:** Bolted joint diagrams are found in machine design textbooks around the world, but the stress amplitude, which is the basic index of fatigue strength, can be evaluated with sufficient accuracy only in the limited cases. The bolted joint diagram shown in **Figure 2** represents the relationship among the axial bolt force, the bolt-nut elongation, and the contraction of the fastened plates, using the spring constants of bolt-nut and fastened plates,  $kb$  and  $kf$ . The state at "point a" where the fastening is completed is mechanically correct. The problem is the behavior of the fastened plates when an external force is applied. In actual practice, due to the influence of contact surface separation, it deviates from the line c-a during the fastening operation and varies nonlinearly as represented by the dashed line in the figure. When fastened, the plates are subjected to a compressive load. However, since the external force is a tensile load, the spring constant in this case is different from the  $kf$  value during the fastening operation. On the other hand, the actual stress amplitude is usually lower than that obtained by the bolted joint diagram as long as the interfaces of the fastened plates don't separate greatly, so no problem arises. However, as the separation progresses, the stress amplitude increases sharply, and it increases the risk of fatigue failure. Furthermore, in the bolted joint diagram, it is assumed that the external force acts concentrically. In most cases, however, bending moment acts in actual bolted joints. As the separation develops, the external load acts according to the "principle of leverage" and the stress amplitude can possibly show a very large increase.



Fig. 2

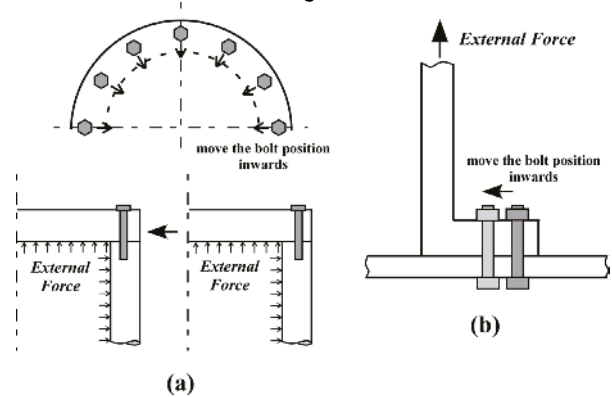


**<Q4> Please tell me an easy way to enhance the fatigue strength of bolted joints.**

**Answer:** Bolts with thin shanks, such as crankpin bolts, have smaller stress amplitudes, and therefore increased fatigue strength is expected. Also, provided that there are no problems like plastic deformation of the threaded parts or collapse of bearing surfaces, **increasing the axial bolt**

**force** gives higher fatigue strength. As explained in Q3, this is because the interfaces of fastened plates are less likely to separate even when subjected to an external force. It is also possible to improve the fatigue strength by **devising the shape of the bolted joint**. However, since it is difficult to largely change the shape of the fastened plates, by **designing the mounting position of bolts**, as shown in **Figure 3**, the applied bending moment is lowered and the stress amplitude can be suppressed.

Fig. 3



Reference:

1. Toshimichi Fukuoka, "The Mechanics of Threaded Fasteners and Bolted Joints for Engineering and Design", pp. 173 -215, ELSEVIER. (2022) ■

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# When Washers

# Fail



Fig. 1. Washer fracture

## The Helical Spring Lock Washer

Millions of lock washers are sold every year; more likely, every month. Why do we sell this much? Because users ask for them because of prior use or they are automatically included in assortment kits.

This is one product which has caused many debates over the years as to its usefulness in today's environment and this section will undoubtedly spur even more controversy. That is to say, there are many other products on the market whose performance and reliability is far superior to the venerable lock washer.

But first, let us put this into proper context: **there are many applications where the common lock washer will work, what it was designed to do originally, while there are others where it does not. In fact, its use could be dangerous.**

The common lock washer is a helical spring. At one time it was also referred to as a 'split washer' since there are two ends. One end was slightly bent upwards and the other bent down. Both of these 'ends' may have sharp corners from the forming operation which may help its effectiveness by digging into the surface of a softer joint material.

Lock washers are made from medium carbon steel (1055-1065) heat treated to a Rockwell hardness of up to C45. They used to be as high as 51 Rc but were lowered in the mid-1990s. Originally, they were electroplated. However, their high hardness made them very susceptible to hydrogen embrittlement: a delayed brittle failure caused by atomic hydrogen being absorbed into the steel during the plating and/or a chemical cleaning process. The current trend is to have the lock washers mechanically zinc plated to minimize the potential for hydrogen embrittlement.

## How Lock Washers Work

When either the nut or bolt head is tightened against the lock washer, the open ends are compressed against the surface of the joint flattening the washer. The idea is, if clamp load is lost, the sharp ends of the lock washer spring into action by producing a counter force against the nut or bolt head and the joint surface to prevent any further loosening.

The fact is **the fastener or joint must first lose clamp load or have moved sufficiently to cause the lock washer to spring open enough to produce a counter force against the nut and the joint surface.**

**A relative amount of clamp load is lost from just a slight amount of movement of the joint. Going back to Hooke's Law; a joint losing 0.001", per inch of joint thickness, will produce a clamp load loss of 30,000 pounds per square inch. This is significant enough to cause further loosening or the beginning of metal fatigue on the lock washer.**

The basic problem is with the user's perception between what the lock washers can do and what they want it to do. A lock washer does not improve nor increase a fastener's ability to maintain preload nor will it prevent preload from being lost.

## How It Really Works

The last statement is very powerful and should be remembered: **a lock washer will not prevent preload from being lost.**

Springs flex. If compressed, it will produce a force in the opposite direction. This is the reaction of a coiled spring. A helical spring is of but one revolution and acts a little different. If the washer compression is graphed on a load cell, the spring rate looks like an 'S' curve.

This means that when it is fully compressed, there is little to no backwards force as the preload applied to the fastener takes precedence. As the preload decreases, the split ends of the lock washer open and the backwards force begins to increase. This is the point where the 'locking effect' takes place. Continuing through the 'S' curve, there is also a point where it decreases again, much like drawing on a compound bow, then increases again.

Essentially, for a lock washer to work, something must go wrong: the joint becomes loose. The fastener wasn't properly tightened during the initial installation and preload was lost, or the preload was lost in service from excessive loads or was lost due to compression from the joint materials.

So let's say the lock washer is doing its job. The ends are only opened a few thousandths of an inch. Visually, this is impossible for anyone performing a visual PM (Preventive Maintenance) to detect, due to dirt or positioning. The joint stays loose for a while, absorbing the daily cyclic impact of the service loads on the connection.



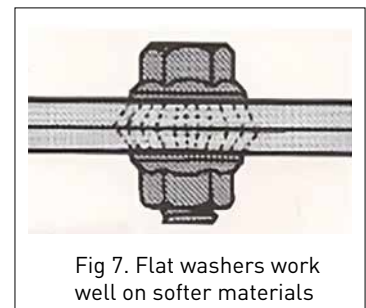
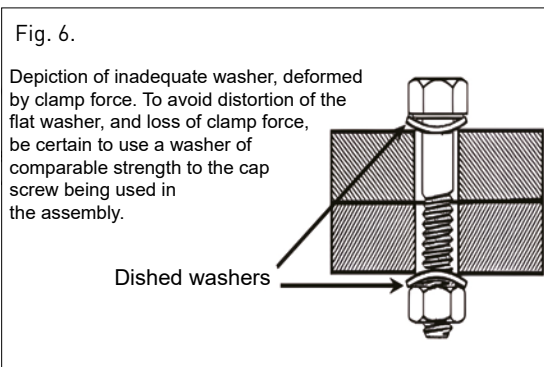
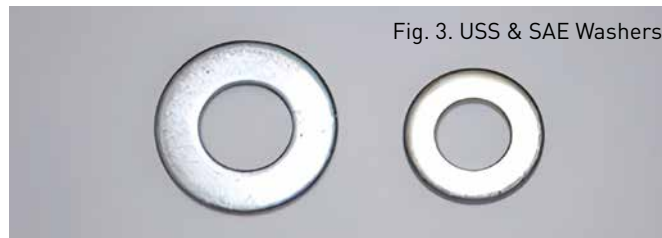


When the joint and lock washer begin to absorb these normal service loads, the joint and lock washer compress. Once the load is switched off and removed, or cycles, the joint and lock washer ends spring back open again. This cyclic compression and relaxation promote metal fatigue in hardened steels. Soon, the lock washer separates from fracture (Fig. 1).

The dangerous condition here is, there is no warning of any imminent failure. Now, with the lock washer gone, the nut is free to vibrate off and disassemble because we used a standard free-spinning nut.

As far back as 1969, the SAE (Society of Automotive Engineers) recommended against the use of helical spring lock washers with any Grade 8 (10.9) fastener and in any critical application. In the early 1980s, the specifications for lock washers were removed from the SAE Handbook. However, dimensions, specifications and testing methods can still be found in the IFI (Industrial Fasteners Institute) Handbook referencing the ANSI/ASME B18.21.1 standard.

There have been instances where a less expensive lock washer, due to inadequate hardening or thickness, would actually spread open during tightening. (Fig. 2)



## Flat Washers

We have always had a choice between the style of ordinary flat washers to use. However, choosing the incorrect type for some applications can cause failures.

Many years ago, USS stood for United States Standard. The current terminology is 'Unified' when related to threads. Therefore, when we specify UNC threads, it means Unified Coarse. UNF would indicate Unified Fine.

However, the larger diameter series of flat washers are still named USS. This does not reflect on the type of fasteners it needs to be mated with, such as a USS washer and a UNC (USS) bolt. The better choice to offer customers is the SAE (narrow) flat washer to be used with all SAE Grade 5 and Grade 8 inch fasteners and/or 8.8 and 10.9 Property Class metric fasteners, because the inside diameter of the SAE washer is smaller than the USS washer and will support the entire load under the fastener's head whereas the USS inside diameter is too large for most applications.

In Figure 3, the larger USS flat washer is on the left and the SAE flat washer is to the right.

When soft washers from annealed steel are used under the head of the bolt, the bolt head can cause massive distortion to the washer and does not fully provide support under the bolt head, as in Fig. 4.

The same type of deformation and loss of clamp load will occur when tightening a washer under the nut. (Fig. 5)

Figure 6 is another illustration of using an inadequate washer and/or having the hole in the joint too large.

It is also important to realize that a large washer will not increase the load bearing resistance on hard materials. The flat washers work well on softer materials, such as fiberglass, plastics, bumpers, etc. A flanged nut will increase the stress load over the joint and maintain joint integrity. (Fig. 7)

## Conclusion

- If the parts did not come from the factory with a lock washer, do not use one for repairing the part.
- If the flat washers look like any in Figure 4 or 5, use hardened flat washers.
- It is always best to use an SAE style flat washer against hardened steel.
- Flanged nuts and bolts (Fig. 7) will increase the load bearing surface area. ■

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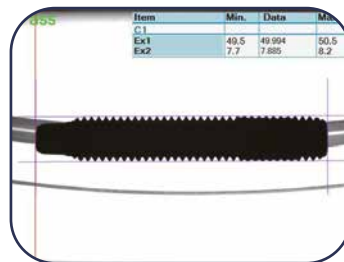
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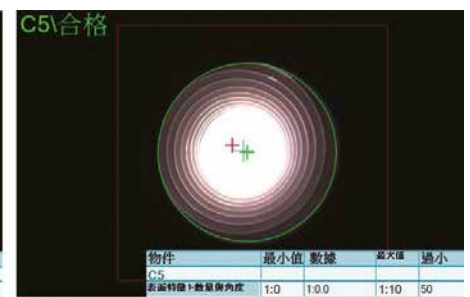
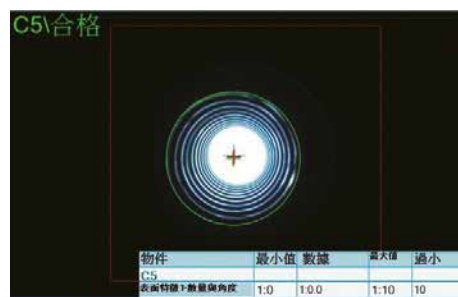
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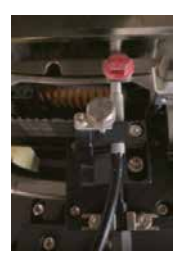
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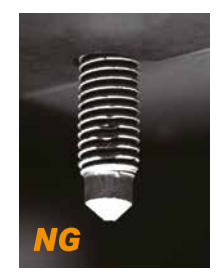
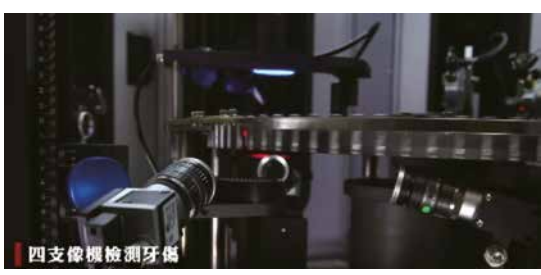
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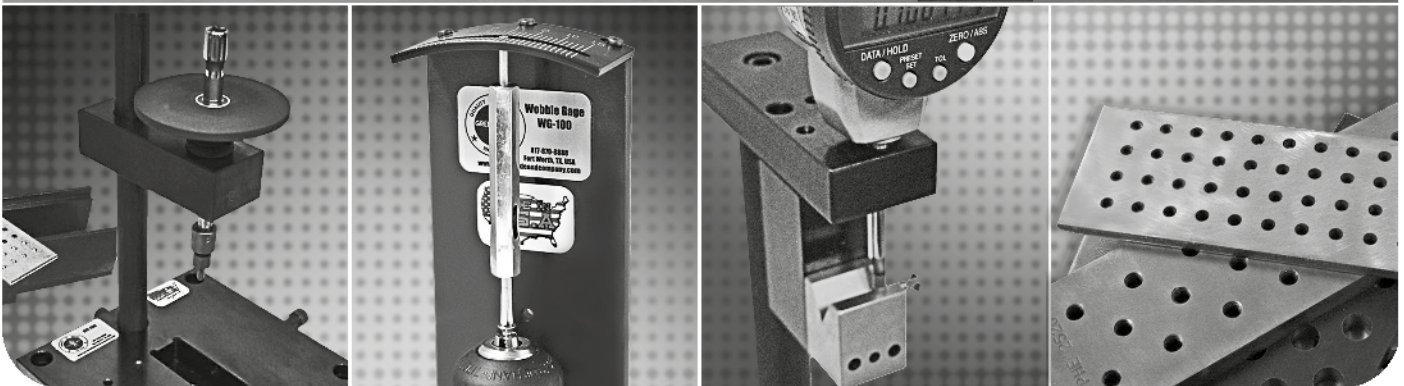
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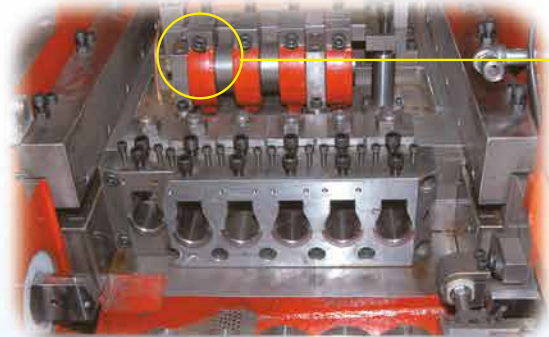
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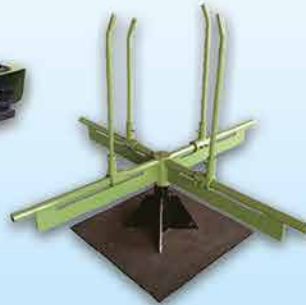


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Figure 1



Figure 2



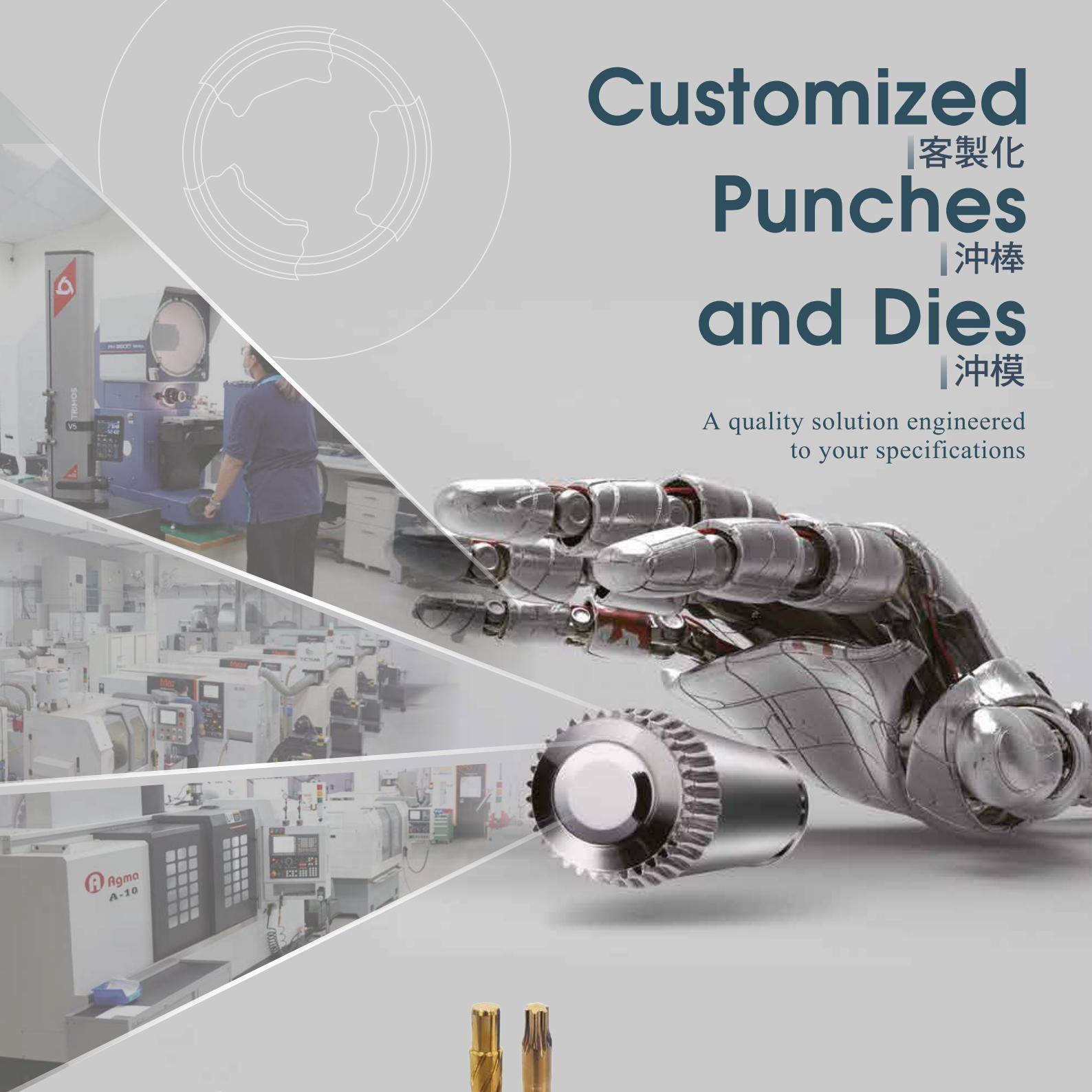
Figure 3

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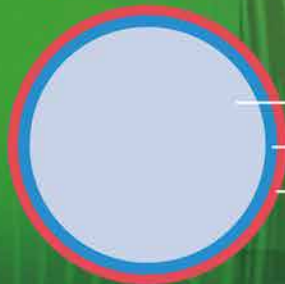
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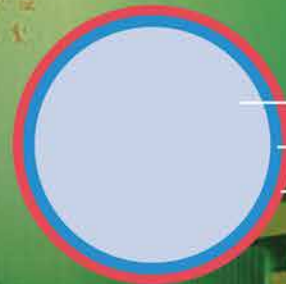
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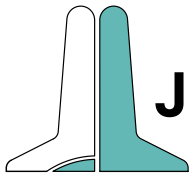
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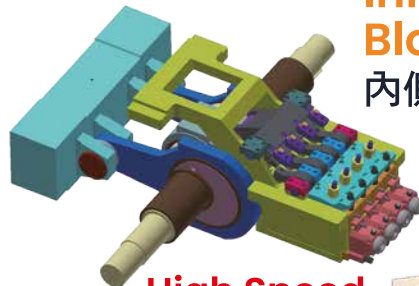
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# Analysis of Argentinean Fastener Market in 2019-2023

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## Argentina's Economic Overview

Argentina, a country rich in natural resources with a diverse industrial base, has experienced economic fluctuations in recent years. Despite these fluctuations, the country presents potential for the fastener market due to its ongoing infrastructure projects and various industrial sectors. Argentina's economy has been characterized by its volatility, with periods of growth interspersed with economic downturns. The country has grappled with high inflation rates, currency devaluation, and political uncertainties. While these factors have impacted overall economic performance, certain sectors continue to show resilience and growth potential.

### GDP and Economic Growth

The population of the country stands at 45.8 million, with an economy reflected in a Gross Domestic Product (GDP) based on Purchasing Power Parity (PPP) of US\$1.2 trillion in 2022. The economy experienced a notable growth rate of 5% in 2022, contributing to a five-year average growth rate of 0.2%. On a per capita basis, the GDP is approximately US\$26,484. Their GDP growth rate was about 3% in 2023.

High inflation rates have been a persistent challenge for Argentina. This economic instability affects consumer spending, investment decisions, and business operations. Inflation, measured by the Consumer Price Index (CPI), was exceptionally high at 100% in 2023, indicating significant economic pressure on consumers. Despite these challenges, the country attracted Foreign Direct Investment (FDI) inflows amounting to US\$15.1 billion. Public debt remains substantial,

accounting for 84.7% of the GDP. The labor market faces challenges, with an unemployment rate of 10.9%.

Argentina's economic activity has faced a deep recession in early 2024 due to measures addressing macroeconomic imbalances. However, recovery is anticipated in the latter half of the year. Key points influencing the PMI include:

- **Fiscal Surplus:** Argentina achieved a primary fiscal surplus of 1.1% of GDP in early 2024, aiming for a sustainable fiscal consolidation.
- **Inflation:** Inflation has decelerated more rapidly than expected, with projections suggesting a year-end rate of 140% for 2024, down from previous highs.
- **GDP Contraction and Recovery:** The GDP is expected to contract by 4% in 2024.

### Key Industries Driving Fastener Demand

Argentina's diverse industrial landscape creates opportunities for the fastener market. Several key sectors contribute significantly to fastener demand:

1. **Construction:** The construction sector is a major consumer of fasteners in Argentina. Residential, commercial, and infrastructure projects drive demand for a wide range of fasteners, including anchors, bolts, screws, and nails. Government initiatives to stimulate the construction industry, such as housing programs and infrastructure development, can positively impact fastener demand. The construction industry in Argentina is set to decline by 8.6% in real terms in 2024 and 1.9% in 2025, owing to high inflation, construction material costs, and interest rates, coupled with falling building permits. According to the National Institute of Statistics and Census of Argentina (INDEC), the total area authorized for building permits by 176 municipalities fell by 7.8% year on year (YoY), in 2023, preceded by an annual decline of 9.3% in 2022.
2. **Automotive:** Argentina's automotive industry, while facing challenges, remains an important consumer of fasteners. Both original equipment manufacturers (OEMs) and the aftermarket contribute to the demand for various fasteners used in vehicle assembly and maintenance. In 2024, the passenger cars market is anticipated to generate a revenue of US\$27.7 billion. This market is expected to experience an annual growth rate (CAGR) of 1.42% from 2024 to 2028, reaching a projected market volume of US\$29.3 billion by 2028. SUVs will be the largest segment within this market, with a projected market volume of US\$6.9 billion in 2024. Unit sales for passenger cars are expected to reach 758.20 thousand vehicles by 2028. The volume-



weighted average price for passenger cars is forecasted to be US\$44.06 thousand in 2024. Volkswagen is projected to capture one of the highest market shares in the selected region, with a vehicle unit sales share of 18.7% and a value market share of 19.5% in 2024. On an international scale, the most revenue in the passenger cars market will be generated in the United States, amounting to US\$558 billion in 2024.

**3. Agriculture:** As a major agricultural producer, Argentina relies on machinery and equipment for farming and harvesting. The demand for fasteners used in agricultural implements and infrastructure is influenced by factors such as crop yields, commodity prices, and government policies supporting the agricultural sector. **The Argentina agricultural machinery market size is estimated at US\$ 1.33 billion in 2024, and is expected to reach US\$ 1.77 billion by 2029, growing at a CAGR of 5.80% during the forecast period (2024-2029).**

**4. Oil and Gas & Renewable Energy:** Argentina possesses significant oil and gas reserves, and the energy sector's activities create demand for fasteners used in exploration, production, and transportation infrastructure.

On the other hands, Argentina has been investing in renewable energy sources, such as wind and solar power. The growth of this sector can create opportunities for fastener manufacturers supplying components for wind turbines, solar panels, and related infrastructure.

- Argentina aims to increase the share of wind and solar to 20% of electricity production in 2025 and reduce GHG emissions by 21% in 2030 compared to its 2007 emission peak.
- According to its Long-Term Strategy, the country aims to reach net zero emissions by 2050.
- Four companies represent 1/3 of the installed power capacity.
- YPF is the largest producer of oil.
- The share of natural gas in the power mix varies greatly with the level of hydropower (47% in 2023).
- The share of wind has increased by 10 points since 2010.
- The country holds South America's 3rd largest gas reserves.

**5. Transportation Infrastructure:** Investments in roads, railways, and airports can create significant demand for fasteners used in construction and related activities.

- Airports: Seven airports across the country received maintenance and some upgrades in 2022. Additional airports will seek different forms of modernization, including the expansion of the busiest domestic airport, Aeroparque Jorge Newbery in Buenos Aires, which is run by the private operator, Aeropuertos Argentina 2000. Runway lighting systems, new or refurbished buildings, and passenger tracking systems will be required.
- Roads: There are 18,000 miles of paved roads in Argentina. Many roads have been neglected, especially in more rural areas. Road construction and maintenance

are mainly developed using local labor and materials. There are opportunities for porous lights and guardrails.

- Railways: There are 12,000 miles of rails in Argentina, half of which existed in the past due to the lack upkeep and profitability.

## Overlook of the Fasteners Industry of Argentina

The fastener industry in Argentina, as reflected by global trade data from 2019 to 2023, shows significant fluctuations and trends that are critical for understanding its performance and future outlook.

Thousand USD	2019	2020	2021	2022	2023
World Importers	7,784	8,103	9,232	8,603	7,405
Growth		4%	14%	-7%	-14%
World Exporters	164,473	123,821	211,168	239,528	253,476
Growth		-25%	71%	13%	6%
Total Trade	172,257	131,924	220,400	248,131	260,881

### World Importers

The number of world importers increased from US\$7,784,000 in 2019 to a peak of US\$9,232,000 in 2021, showing a growth of 18.61% over these two years. However, this number declined to US\$7,405,000 by 2023, a decrease of 19.82% from the peak in 2021.

### World Exporters

The world exporters figures show a significant drop from US\$164,473,000 in 2019 to US\$123,821,000 in 2020, a decrease of 24.72%. However, it rebounded sharply in 2021 to US\$211,168,000 showing a growth of 70.53% from the 2020 low. The upward trend continued with figures reaching US\$239,528,000 in 2022 and US\$253,476,000 in 2023.

## Last Word

The future of Argentina's economy and industry appears promising, with a projected rebound of 6% in 2025. This anticipated recovery is expected to be fueled by increased investments and robust private consumption. Despite current challenges such as high unemployment and inflation, these positive forecasts indicate potential for economic revitalization and growth. Strategic investments and a focus on boosting private consumption will be crucial in driving this recovery, paving the way for a more stable and prosperous economic future for Argentina. ■

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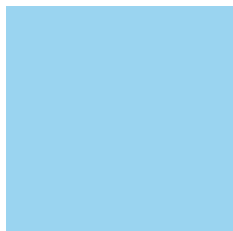
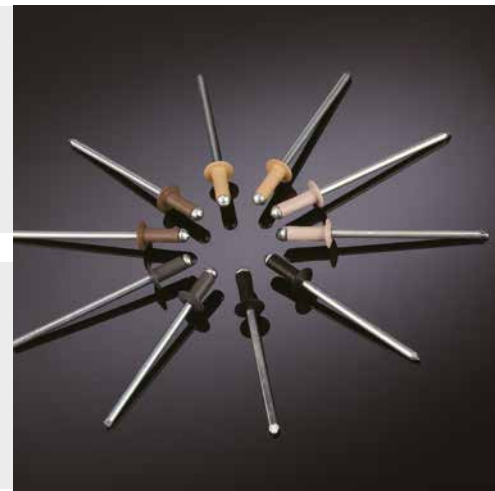
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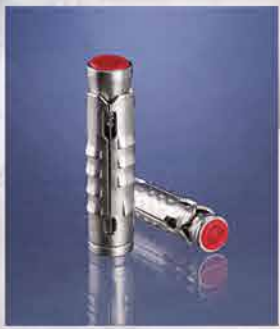
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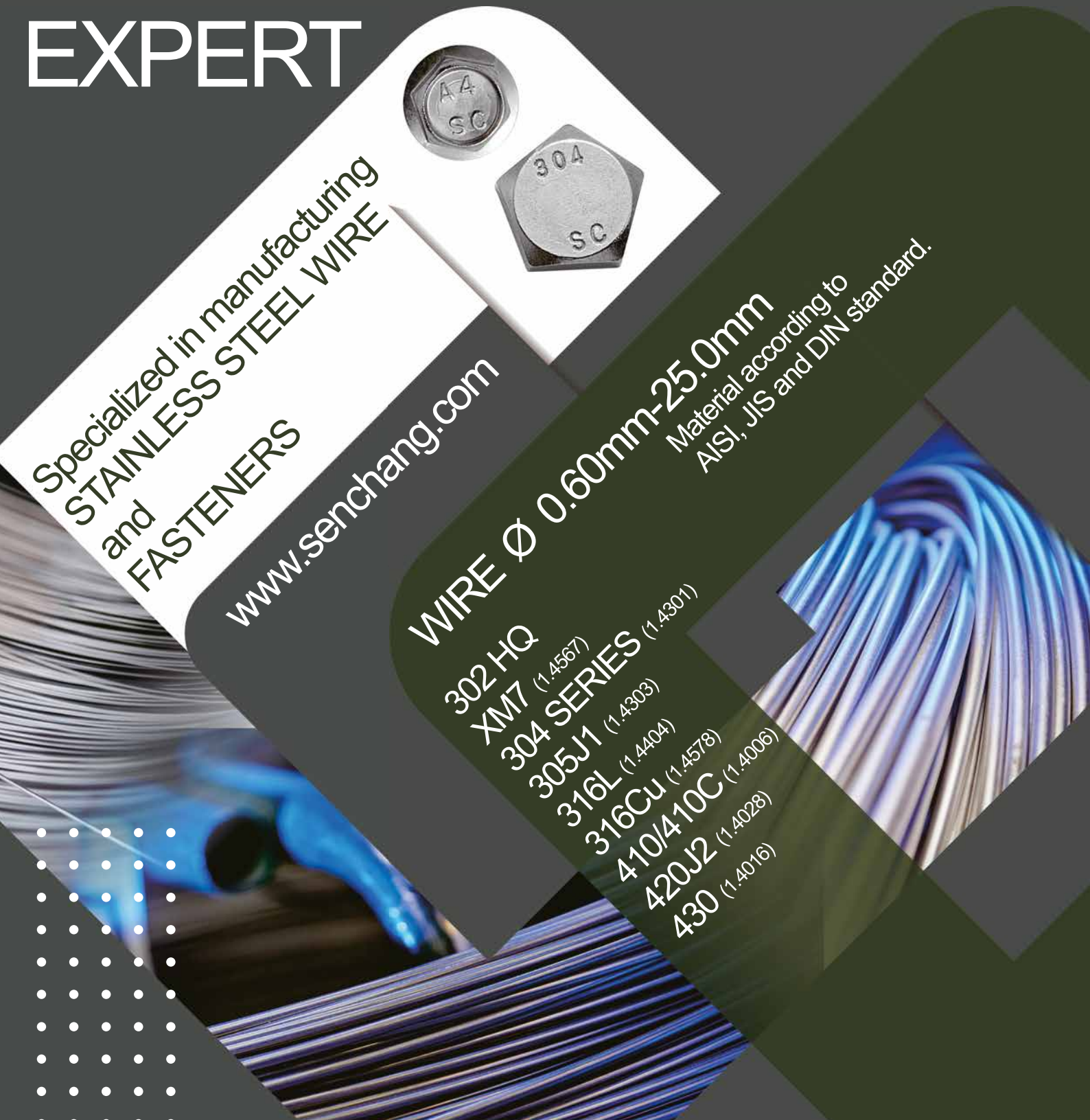
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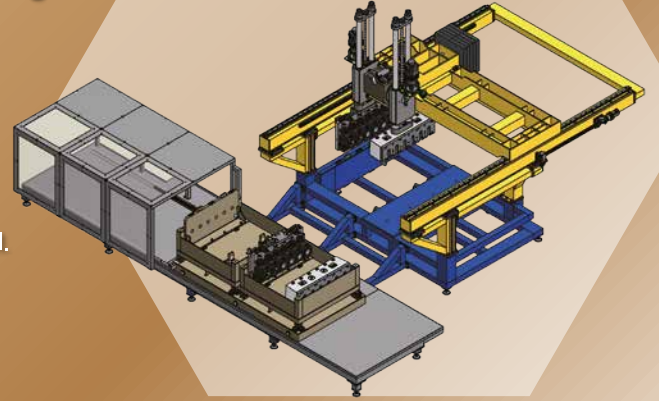


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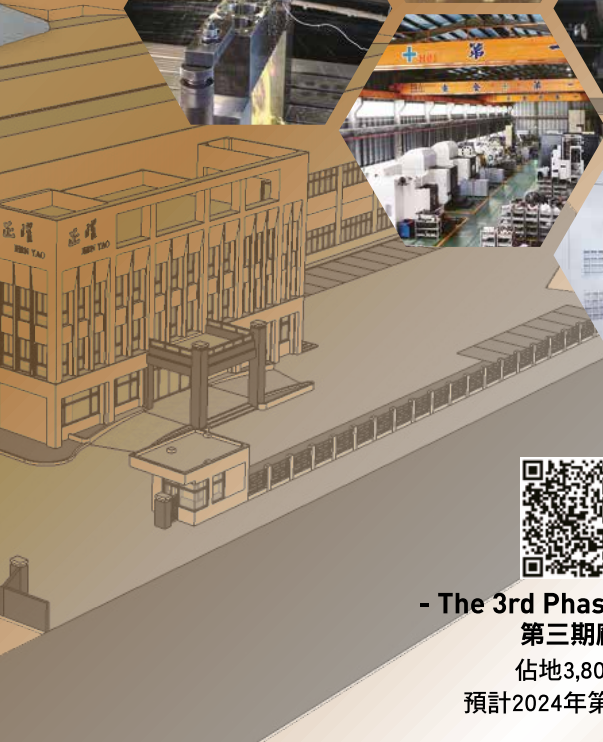
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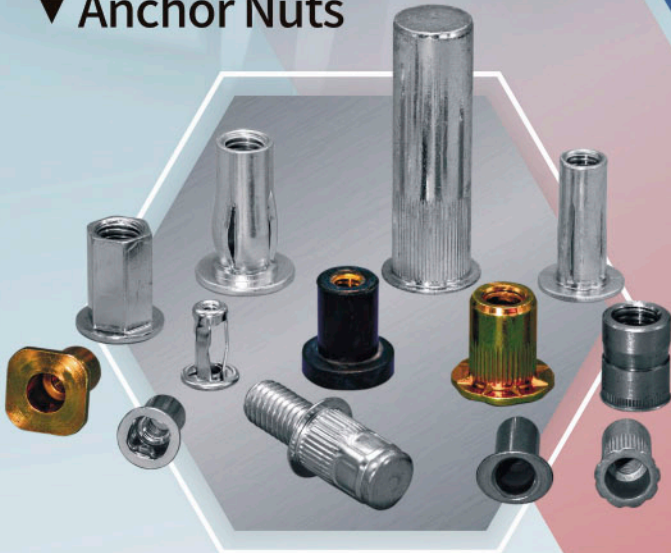


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