



Automotive Components

www.trfastenings.com



Introduction

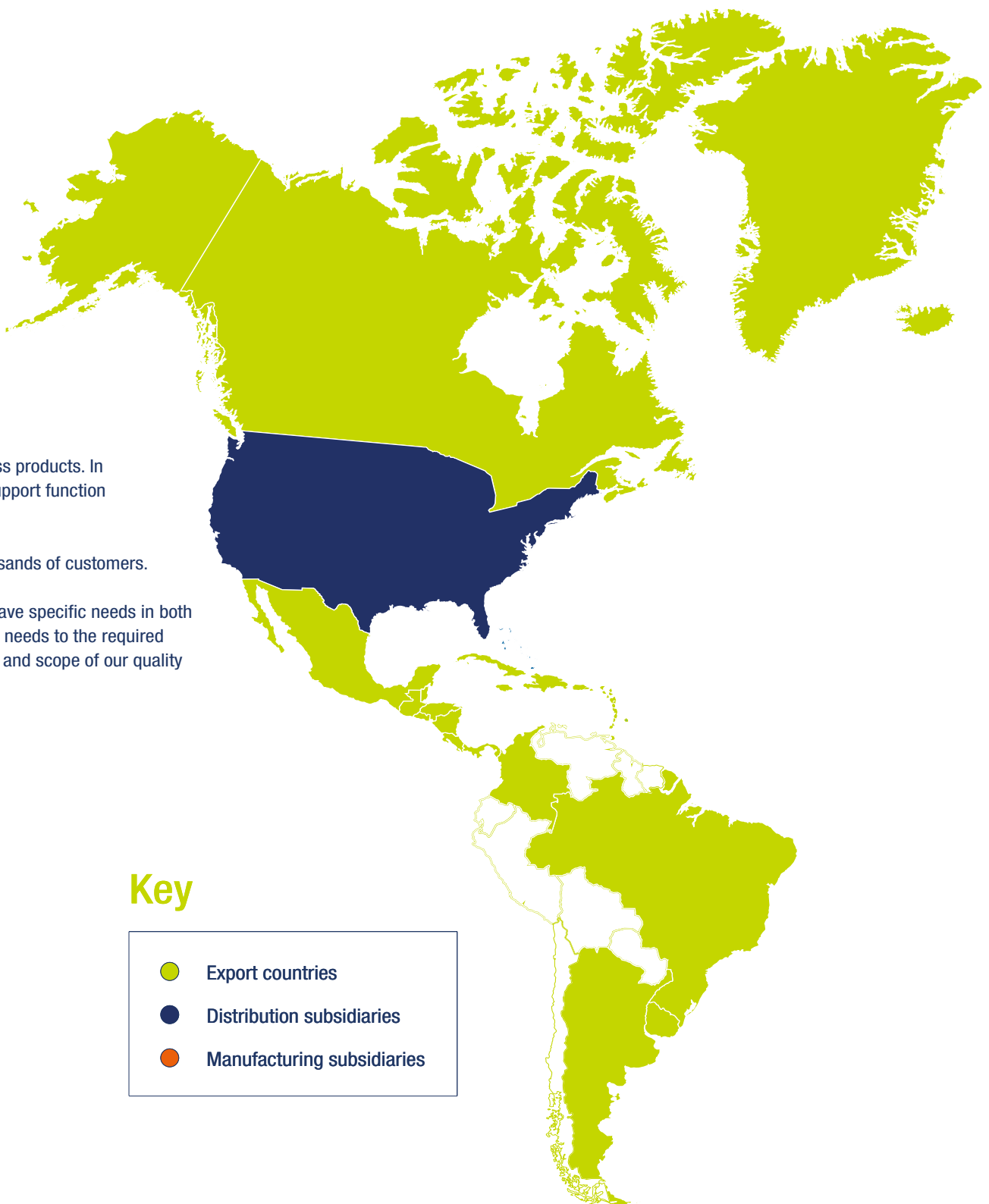
Global Footprint, Local Support

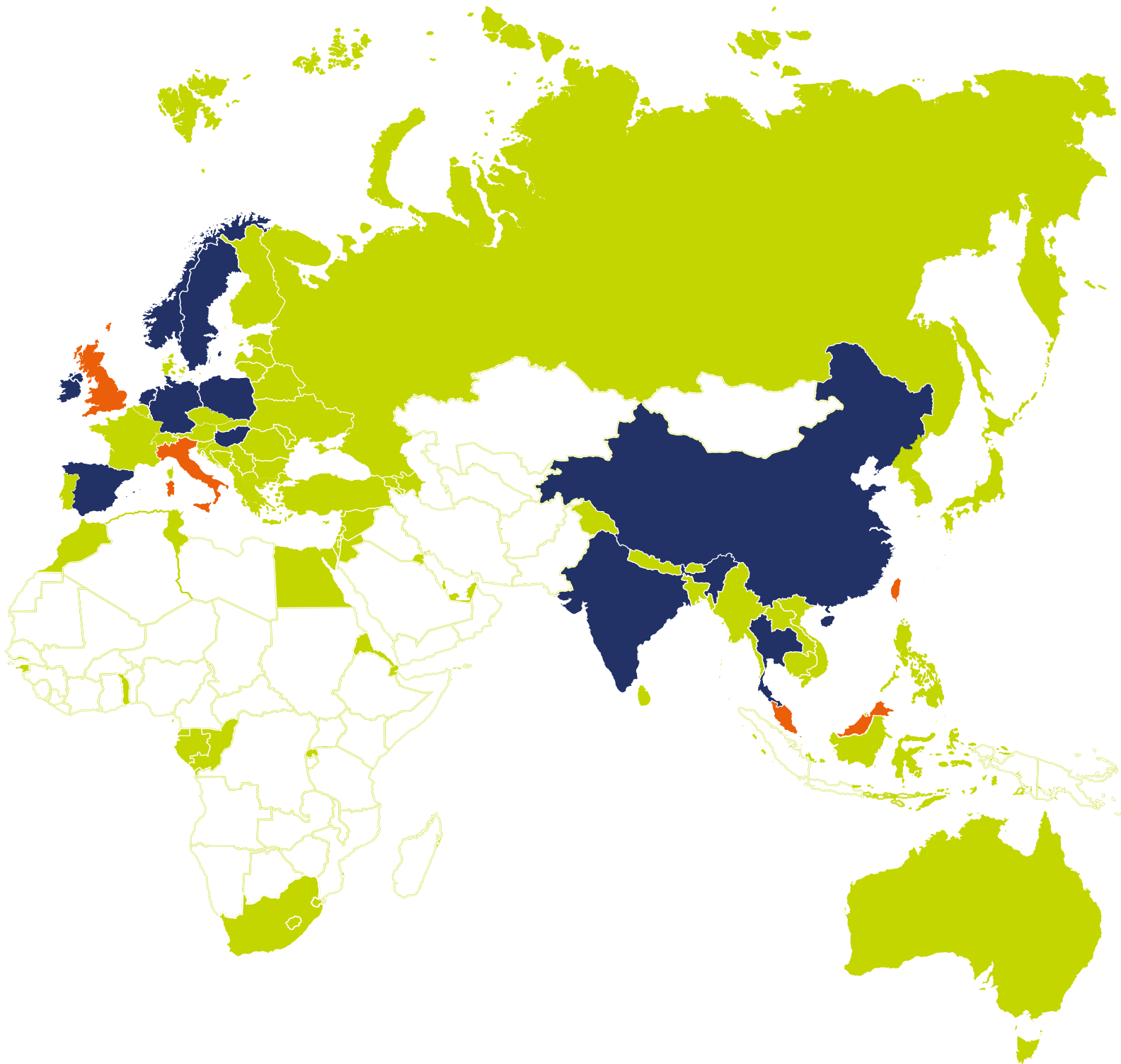
TR is a 'full service provider' to the automotive industry. We are able to assist in reducing the total cost of ownership for companies by working with them from early engineering and design stage right through to specification, manufacturing, quality and logistics.

TR offers a wide range of high quality fasteners and C-class products. In addition, we have developed an application engineering support function and an advanced supply chain structure.

TR supplies over 50 billion components every year to thousands of customers.

We supply over 5000 companies globally. Many of these have specific needs in both product and quality requirements. Our job is to meet these needs to the required industry standard, through the extent of our product range and scope of our quality certification.





UK

- TR* Fastenings Head Office - Uckfield
- TR* Fastenings - Belfast
- TR* Fastenings - Birmingham
- TR* Fastenings - East Kilbride
- TR* Fastenings - Manchester
- TR* Fastenings - Newton Aycliffe
- TR* Fastenings - Poole
- Lancaster Fastener - Lancaster

Europe

- TR* Fastenings - Holland
- TR* Fastenings - Hungary
- TR* Southern Fasteners - Ireland
- VIC - Italy
- TR* Fastenings - Norway
- TR* Fastenings - Poland
- TR* Fastenings - Sweden
- TR* Kuhlmann - Germany
- TR* Fastenings España - Spain

USA

- TR* Fastenings - Houston

Asia

- TR* Formac Asia Headquarters - Singapore
- TR* Formac - China (Shanghai & Suzhou)
- TR* Formac - China (Beijing)
- TR* Formac - India (Bangalore)
- TR* Formac - India (Chennai)
- TR* PSEP - Malaysia
- TR* Formac - Malaysia
- TR* SFE - Taiwan
- TR* Formac - Thailand

Manufacturing

TR Manufacturing

Our factories are dedicated to producing high volume parts specifically to customer drawings. In addition, our strategic partnerships with other major manufacturers allows us to offer a wide range of special parts, including:

- Cold headed products
- Turned & machined parts

Our manufacturing network spans two continents and produces 33% of all the components we sell.

As a manufacturer we appreciate the importance of quality, cost and consistency. We can ensure parts are made in the right part of the world to meet your cost and delivery needs.

- 8 factories
- In-house heat treatment facilities
- Automated optical sorting facilities to strive towards a zero defect policy
- Specialised packing capability

Annual output over **8 billion parts**

SFE Taiwan (two sites) produce **2.5 billion** parts per annum

TR Formac Singapore produce **2 billion** parts per annum

VIC Italy produce **1.1 billion** parts per annum

PSEP Malaysia produce **1 billion** parts per annum

TR Formac Suzhou produce **850 million** parts per annum

TR Formac Malaysia produce **720 million** parts per annum

TR UK produce **40 million** parts per annum





What We Supply

ST & PF Screws:

For IP, DP, panels & seats. ST screws for thin sheet metal, thread forming screws for plastic panels.



Bushings:

Bushings for airbag applications, door grab handles, IP & where high torque load requires a bushing.



Metric Screws & Bolts:

Metric screws & trilobular screws for interior & exterior applications, seats, DP & IP.



Spring Staples & Hog Rings:

Spring staples & hog rings for IP, TC & seats.



Spring Steel Clips:

Spring steel fasteners for A,B and C-pillar, panels, IP, DP, TC, luggage compartment & roof.



Plastic Clips & Rivets:

Fasteners for mounting interior & exterior applications, ABC-pillar, panels, DP, IP & seats.



Washers:

Washers for bolts & axles, interior applications, seats, headliners, IP & DP.



Plastic Parts:

Plastic fasteners for IP, seats, TC, cable management & edge protection.



Rubber Bumpstop, Damper Grommets:

For interior applications, TC, glovebox & IP.



Special Parts:

Fasteners for special applications, rear seat, airbag applications, belt restraints, gear box & more.



Where We Supply

Under Bonnet / Engine

Airbag Applications

Instrument Panel (IP)

Tunnel Console (TC)

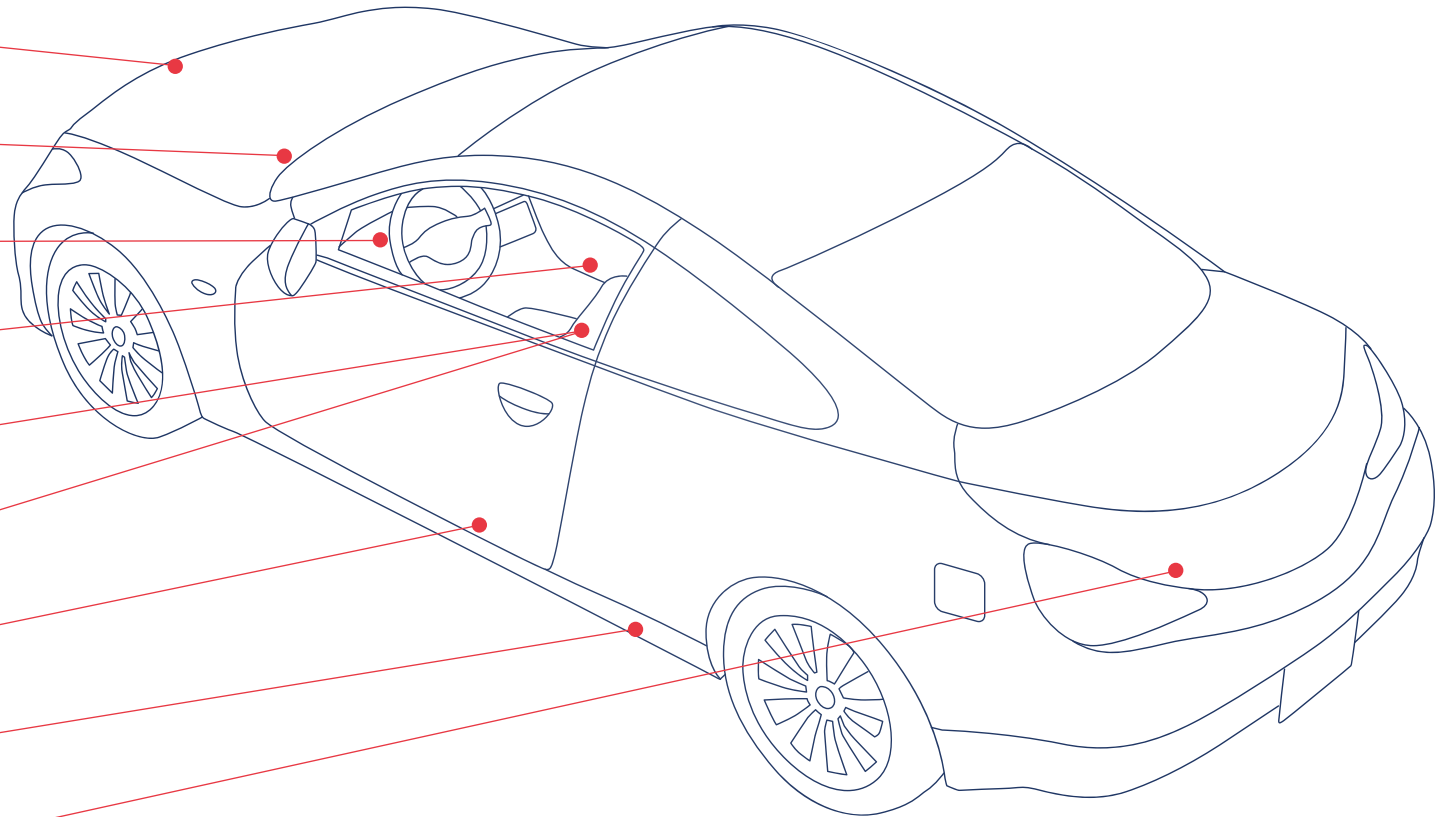
Seating

Seat Belt

Doors (DP)

Chassis

Luggage Compartment



Licences

TR has invested in a number of manufacturing licenses

MATHREAD®

A patented system to prevent cross threading - the unique first threads align with the bolts accurately ensuring optimum assembly time. This feature has been incorporated in the design of the engine sump plug for a newly developed model. The clear advantage is that at both original assembly and subsequent servicing thread damage is avoided. The principal usage is in the automotive industry.

MORTORQ® SUPER

A design that provides an enhanced drive capability and up to 25% material reduction to the head. This shallow head fastener has a good appearance and provides customers with the opportunity to reduce weight in vehicles. This drive is also available in a tamper resistant style.

STRUX®

A self clinching fastener used in automotive structures, often used in conjunction with Mathread®

End-2-End global support

The TR Group of companies work as a global network organised to provide supply solutions wherever our customers need us.

A unique combination of knowledge, communication and collective objectives enables proactivity on a global level.





TR Quality

TR operate in a highly quality focused environment to ensure customer requirements are fully integrated in our processes.

- **Quality Management Systems** - TS16949, ISO9001 and ISO14001 form the backbone of our management system and are supported by processes that ensure we meet our customers' expectations.
- **Product Quality** - TR use a fully integrated PPAP package that captures product requirements and enables realisation of product approval based on an agreed timeline. Feasibility review is carried out by TR Engineers with both design and application knowledge. We adopt a team approach to product development – by providing input to our customers' design verification programs, we ensure that product quality requirements are understood and appropriately managed to reduce unnecessary inspection costs.
- **Supply Chain Quality** - TR recognise the importance of every stage of the supply chain in delivering quality product to the customer. From the supplier of raw materials to in-house processes and outside service providers, the team work to ensure quality is fundamental in every process.
- **Quality Targets** - At TR everyone is responsible for quality and, by focusing on customers' requirements we are able to drive home our “zero defect” philosophy with quality ingrained in our processes.
- **Quality Deliverables** - Accuracy of information and customer response are key to achieving results and on-time delivery within our customer projects.
- **Quality Equipment** - Our feasibility teams ensure that the quality equipment we select provides the most efficient path to demonstrating product compliance. Where possible we use inspection equipment that links to computer software, enabling focused review and analysis of trends that feed into product development processes.

Quality Control / Assurance

| | | | |
|----------------------|--------------------|-------------------------------|--------------------------------|
| Inspection Equipment | Testing Equipment | Stereo Microscope | Static Tensile Testing |
| Digimatic Indicator | Salt Spray Testing | First Scan Inspection Machine | Torque / Axial Tension Testing |
| 3-D Microscope | Hardness Testing | Profile Projector | Plating Thickness Testing |

TR Quality

Automotive standards

ISO/TS 16949

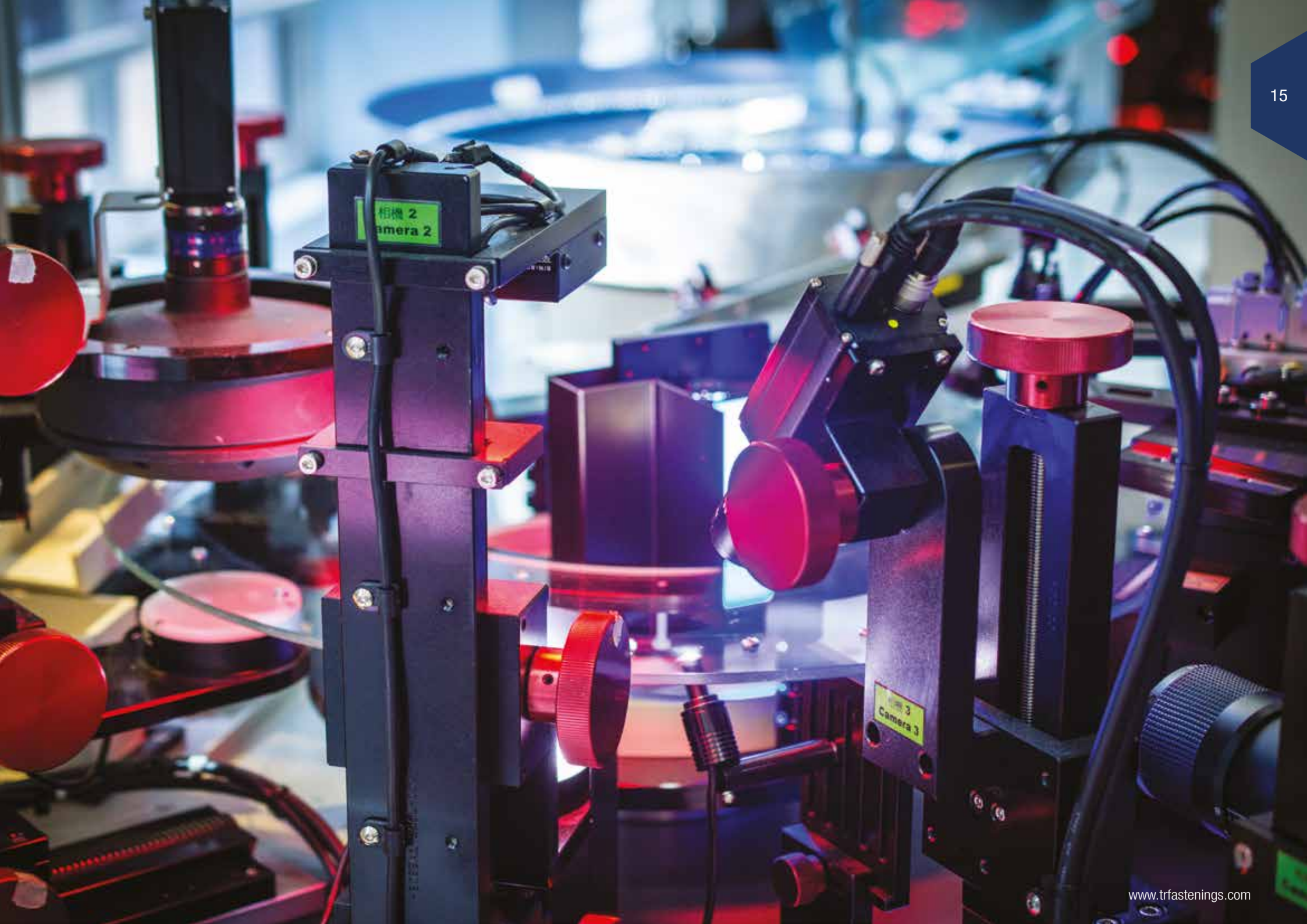
ISO 9001

Health & safety standards

OHSAS 18001

Environmental standards

ISO 14001







Application Engineering

TR understands that the development of applications can be a time consuming process which is why our team of specialists is on hand to support and guide you, from developing new products to adapting an existing range to suit your application.

TR follow a simple process that can be adapted for your individual application.

- **Function:** Confirm the performance requirements of the fastener and application, does the product need to screw, clinch, rivet, weld, glue or clip together?
- **Application Environment:** Our team will ascertain whether the product will require any specific design features for your application.
- **Assembly Method:** How the fastener is installed into the application is a key part of the process and will need to be considered in design or specification stage. Early involvement from our design engineers in your manufacturing planning process allows for systematic reductions in the cost of your assembly and production.
- **Manufacturing Process:** Once we have the product specifications clear we can then assess the best method of manufacturing.
- **Evaluation:** A prototype part is manufactured for you to test in application and any amendments to the specification can be assessed and applied to ensure the finished article is as required.

TR adopts a full service provider ethos, supporting your designers and engineers to ensure your finished part is as required for your application. TR's team of global specialists will work with you from design through to manufacturing and will be on hand to guide and advise where required.





Full Service Provider

Our global footprint

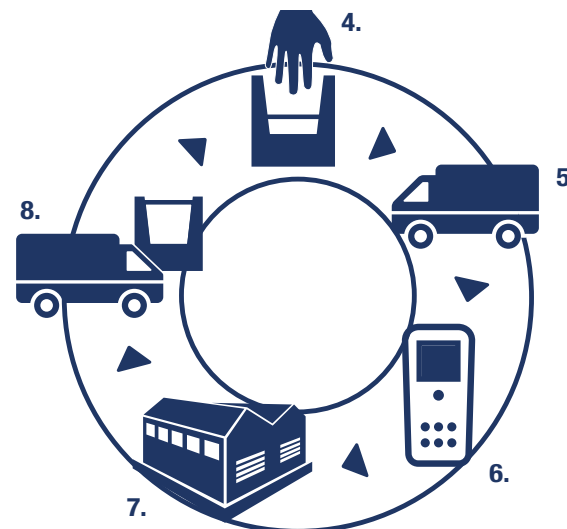
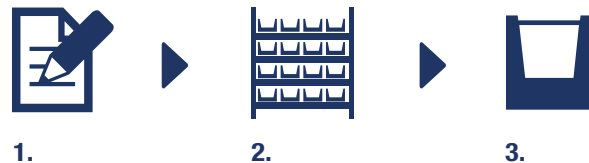
As a full service provider, TR needs to be able to give a quality service from design through to VAVE initiatives. TR's application engineers regularly work side by side with product designers at the early stages of a design and then provide technical assistance.

TR are pioneers in effectively developing the global delivery model. Utilising a three-tier approach that includes local, national and international teams. TR understand that a global solution creates some challenges, including communication, culture and security.

TR's global delivery model has been designed from the ground up to address these challenges. Most importantly, TR's global delivery operations provide our customers with both the quality and economic advantages that they require.

A typical **TR DLF** (Direct Line feed) system

This diagram depicts how the average DLF (Direct Line Feed) system works, although all TR DLF systems are tailored to individual customer requirements. The first 3 points show the initial set up procedure, after that the system operates in a cyclical manner.



Locations in **17** countries

Supply into **61** countries

1. Service Level Agreement (SLA).
2. TR installs racks and bins directly into production area.
3. Initial stock supplied.
4. Production takes stock from bins.
5. On agreed day, TR DLF operator visits customer.
6. TR DLF operator scans all bins that need replenishing.
7. TR DLF operator downloads information to TR location.
8. TR DLF operator delivers stock and replenishes bins.







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