



part of the *Trifast plc* Group

An Introduction to TR

**Our fastenings enable
innovation today to build a
better tomorrow**

Edition 5

Introduction

Holding the world together.

TR Fastenings Ltd (TR) is part of Trifast plc and is a global specialist in the design, engineering, manufacture and distribution of high quality industrial and Cat C fastenings principally to major global assembly industries.

The TR Group consists of 32 business locations within the UK, Asia, Europe and the USA including seven high volume, high-quality and cost-effective manufacturing sites. We supply components to over 5000 companies globally across a wide range of industries.

As a full service provider to multinational OEM's and Tier 1 companies spanning several sectors, we deliver comprehensive support to our customers across every requirement, from concept design through to technical engineering consultancy, manufacturing, supply management and global logistics.

UK

- Trifast plc & Group Services – Uckfield
- Belfast
- Birmingham
- East Grinstead
- East Kilbride
- Lancaster
- Manchester
- Newton Aycliffe
- Poole

USA

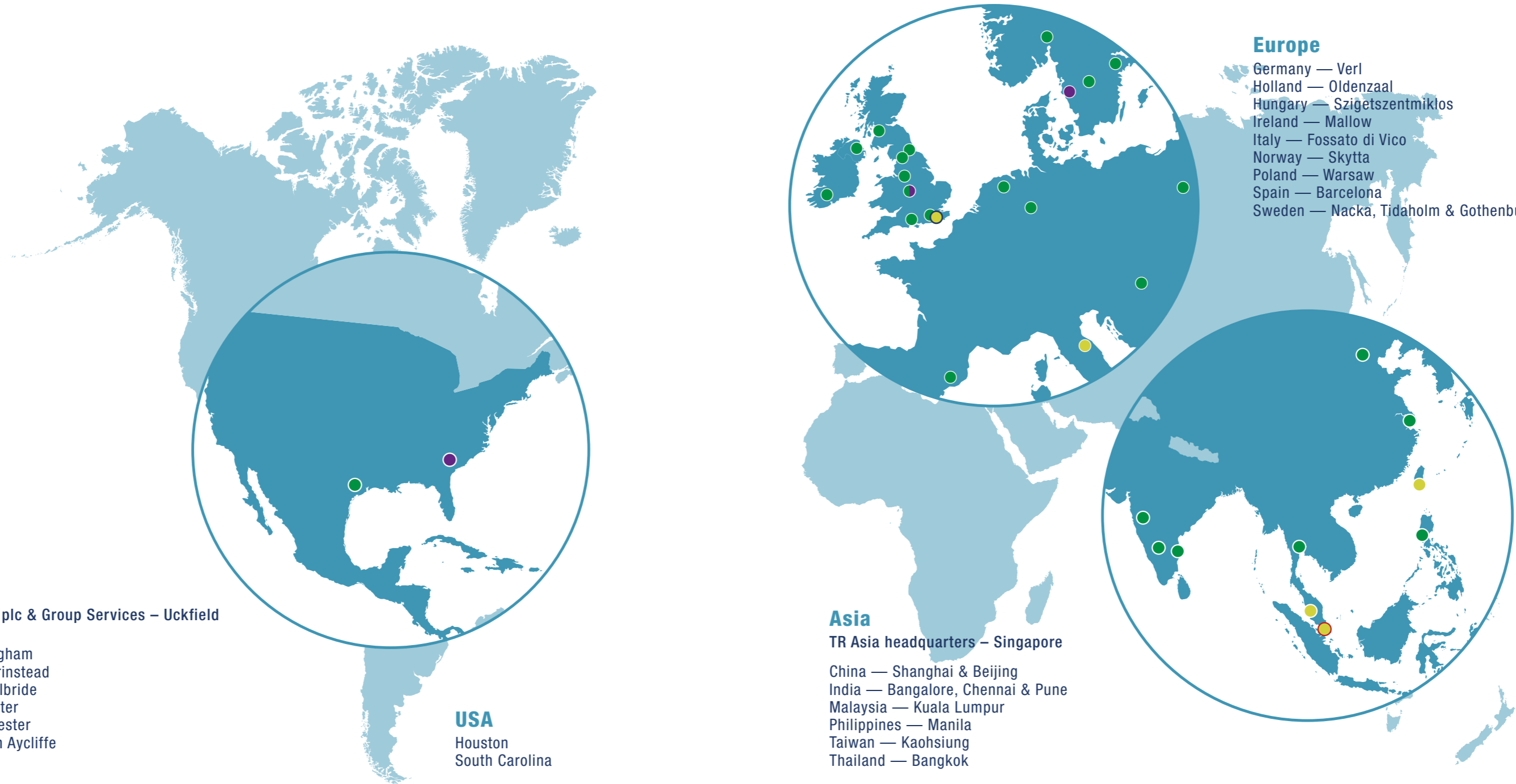
- Houston
- South Carolina

Asia

- TR Asia headquarters – Singapore
- China — Shanghai & Beijing
- India — Bangalore, Chennai & Pune
- Malaysia — Kuala Lumpur
- Philippines — Manila
- Taiwan — Kaohsiung
- Thailand — Bangkok

Europe

- Germany — Verl
- Holland — Oldenzaal
- Hungary — Szigetszentmiklos
- Ireland — Mallow
- Italy — Fossato di Vico
- Norway — Skytta
- Poland — Warsaw
- Spain — Barcelona
- Sweden — Nacka, Tidaholm & Gothenburg



 **18**
Countries

 **32**
Global facilities

 **7**
Manufacturing sites

 **3**
Technical & innovation centres

-  Head office Trifast plc
-  TR Asia Headquarters
-  Manufacturing & distribution sites
-  Distribution sites
-  Technical & innovation centres

Manufacturing

Dedicated to producing high volume parts specifically to customer drawings.

Our strategic partnerships with other major manufacturers allow us to offer a wide range of special parts, including:

- Cold headed products
- Complex multi stage forging
- Special parts to customer drawing
- Turned and machined parts

Our manufacturing network spans two continents and represents approximately a third of the Group's business.

We can ensure parts are made in the right part of the world to meet your quality, volumes, cost and delivery needs.

- 7 factories
- In-house heat treatment facilities
- Automated optical sorting facilities
- Specialised packing capability

Annual output approximately **8 billion parts**



TR SFE
(Taiwan) x 2



TR Formac
(Singapore)



TR VIC
(Italy)



TR PSEP
(Malaysia) x 2



TR Hank
(UK)





Industry

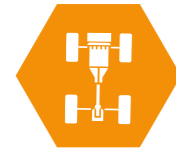
We supply components to over 5000 companies globally across a wide range of industries.

We are a major supplier to the automotive, electronics and domestic appliance sectors, and have a robust business model for large OEM's and SME's.

TR has the ability to meet customer requirements through the extent of our portfolio and scope of our quality certification.

In addition to an extensive range of standard and branded fasteners, a large part of what we supply are to customer drawings, special parts and Cat C components.

Sectors we supply



Automotive

Interior Trim | Seating | Braking & Steering Systems | Lighting Clusters | Chassis & Body in White (BIW) | Safety Systems | Powertrain



Electric Vehicle

Battery Pack Modules (EVB) | Electric Vehicle Charging Units



Electronics & Telecoms

Telecoms | Information Technology | Lighting | ATM & Retail Hardware | Consumer Electronics | Medical | Power & Energy Products | General Industrial



Domestic Appliances

Hot | Wet | Cold | Small Appliances | Catering | Special Components



General Industrial

Robotics | Elevator/Escalator Products | Conveyor Systems | Security & Fire Products | Sensors & Switches | Heat Pumps | Water Heaters | Energy Meters



Medical

Ventilators | Medical Beds & Furniture | Ultrasound Machines | Medical Imaging Equipment | Defibrillators | Incubators | Medical Computer Stands | Volumetric Pumps & Infusion Devices | Vacuum Extractors



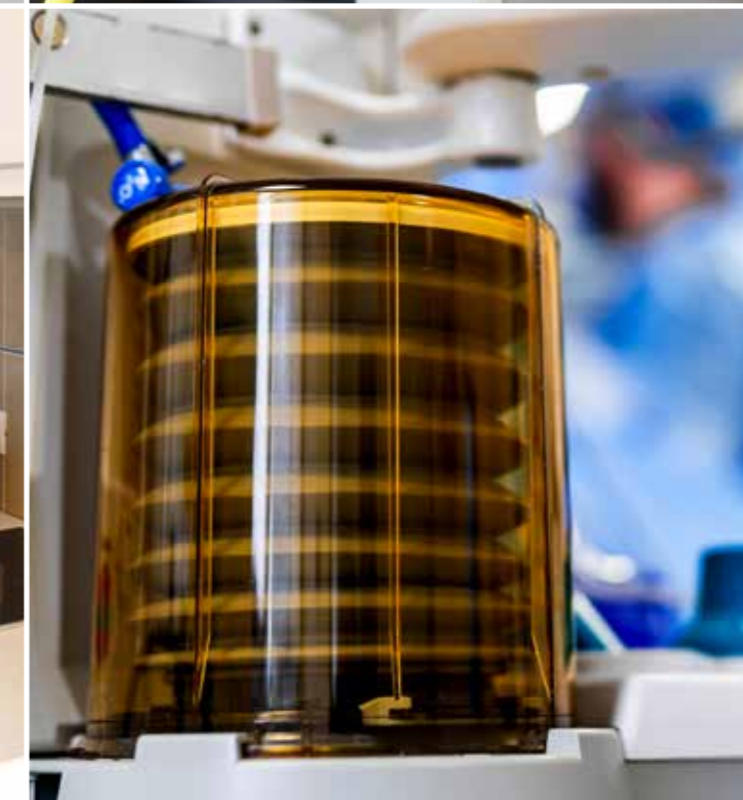
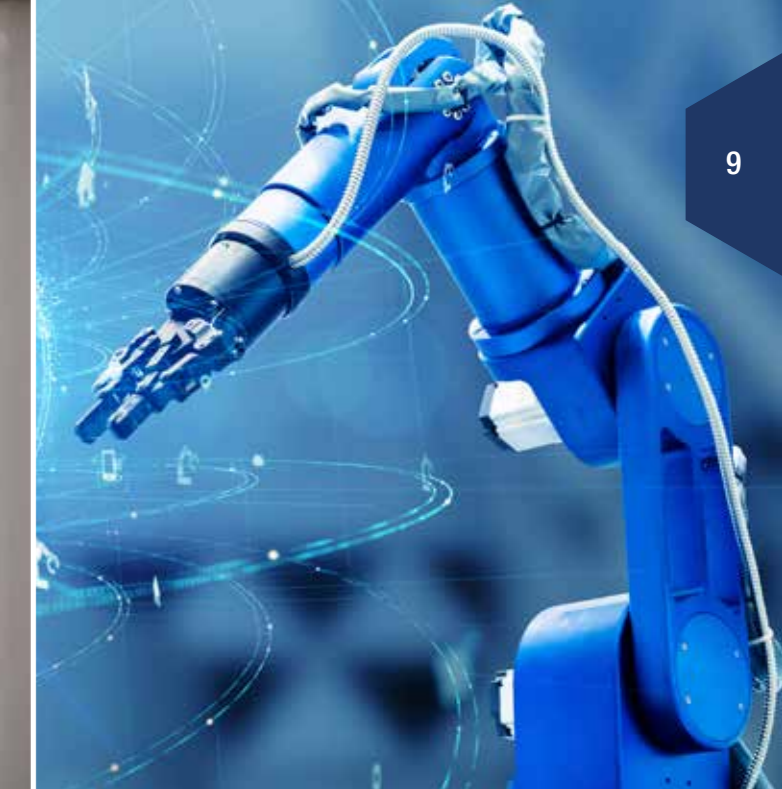
Aerospace & Defence

NAS/MS/BSA/SP/AGS Parts | Screws | Nuts | Washers | Turned Parts



Other

Medical | Leisure | Distributor | Offshore | Marine | Rail



Full Service Provider

As a full service provider 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.

We adopt a three-tier approach that includes local, national and international teams. TR understands that a global solution creates some challenges; including communication, culture and security.

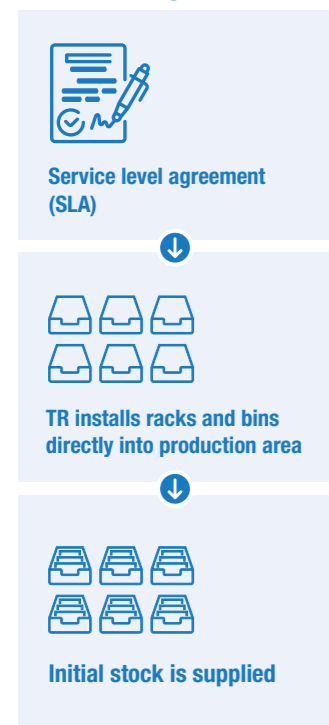
TR's global delivery model has been designed from the ground up to address these challenges. Most importantly, our global delivery operations provide customers with both the quality and economic advantages that they require.

Locations in **18** countries
Supplying approx. **75** countries

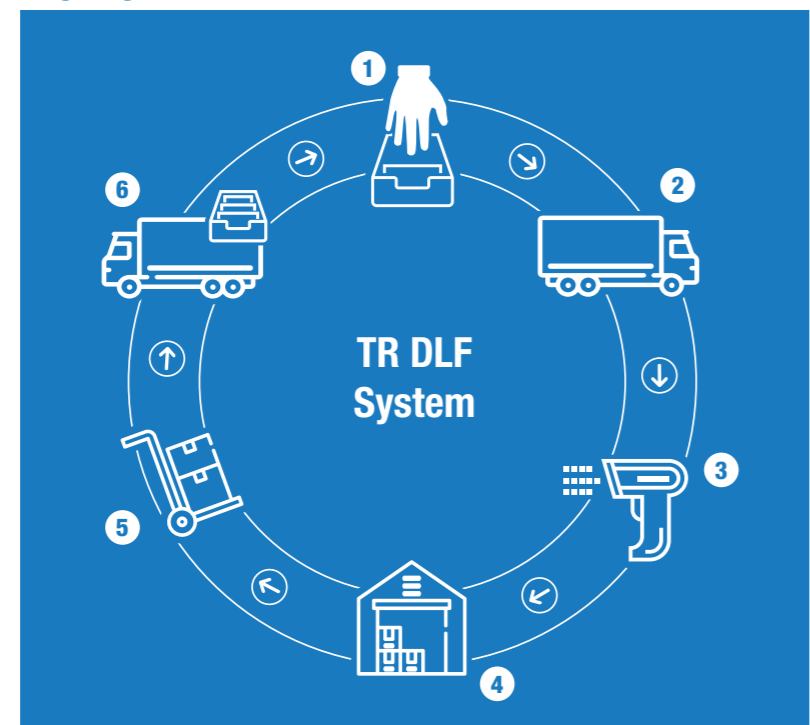


A Typical TR DLF System

Initial setup



Ongoing



1. Production takes stock from bins
2. On agreed day, TR DLF operator visits customer
3. TR DLF operator scans all bins that need replenishing
4. TR DLF operator downloads information to TR location
5. TR removes empty bins off site and returns to TR location
6. TR DLF operator delivers stock and replenishes bins

Benefits:

- Dramatically reduced vendor base and associated administration costs.
- TCO - Total Cost of Ownership visible.
- Inspection costs reduced as quality approved parts can be shipped direct to the production line.
- Reduced cost of stockholding and storage as only a few days' stock is held on the production line.
- Production is allowed to focus on its core function as parts are always available at the point of use.



Design, Engineering & Quality

Design and Engineering

Our engineering research and development capabilities are integrated within the sales and manufacturing structure of TR, utilising a multitude of engineering disciplines and specialisms to either develop new products or optimise customer applications.

Early involvement in development with our customers results in the largest benefits for sustainable solutions, thereby considering not only the design, but also the manufacturing and potential recyclability of the products. We collaborate in various ways with our customers to optimise the design, performance, or assembly efficiency, taking into consideration the stage of the product lifecycle of the application.

Tear down exercises have proven a successful tool in optimising existing applications, thereby improving quality and considering installation and disassembly.

VA/VE programmes normally consist of multiple events reviewing all aspects of the fasteners, application, and installation methods.

Customer workshops either on-site or at one of our Technical and Innovation Centres, facilitate stimulating interaction between TR and our customers engineers through workshop activities and training.

Product development, including new concept development and testing, expansion of existing ranges or customer specific products for manufacture in our own facilities or by one of our AVL suppliers.

Reverse engineering of products to improve manufacturability or production process, such as changing from part machining to cold forming.

Simulation and prototyping utilising 3D simulation software to shorten the development process, with prototyping allowing for in situ testing.

Quality

Quality is an integral part of TR's processes. Our aim is to provide a level of product quality that prevents the production of non-conforming fasteners, with the objective of approaching zero defects for specified characteristics.

Customer specific quality standards can also be provided as required. The means of achieving these higher quality standards include electronic PPAP, supplier development, strategic sourcing as well as camera, laser and roller sorting.



Research & Development
(Including patents)



CAD Design & Development
(Including 3D modelling)



Prototype & Testing
(Including 3D printing)



Innovative Manufacturing Processes



Technical & Innovation Centres



Quality Certifications

Quality Management System
ISO 9001
IATF 16949
AS9120 (UK only)

Environmental Standards
ISO 14001

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