

2020/21

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TR Fastenings provides bespoke fastening solution to leading Tier 1 automotive company



Faltec Europe employs TR Fastenings to deliver competitive fastener supply and tooling solution

About Faltec Europe

Faltec Europe Ltd, part of the global Faltec Group, is a world-class manufacturing company and an accredited Tier 1 supplier to the automotive sector. Faltec Europe manufacture many of the interior and exterior vehicle trim products you see every day on the most popular cars on UK roads.

Faltec's European division produces over 300 car products from front bumpers to radiator grills, roof mouldings, door mouldings, door sashes, roof finishers, weather strips and lots more.

Faltec's business model is based on being robust, flexible and adaptable to meet customers' requirements within a fast-changing market and global economy. This case study is a true demonstration of that ethos.

Industry landscape

The automotive industry is a vital part of the UK economy. The industry has an £82 billion turnover (plus £20.2 billion value added). More than 30 vehicle manufacturers in the UK rely on a complex network of suppliers - a single car has around 30,000 parts. In the UK there are also around 2,600 component manufacturers supplying parts directly to OEMs.

The automotive industry has a traditional tiered supply chain (Tiers 1, 2 and 3, with Tier 1 feeding directly into OEMs), but some lower tiered component manufacturers, such as TR Fastenings (TRF), are challenging the existing market structure, taking a much larger role in innovation and Tier 1 production-line support.

Project background

Faltec Europe required a bespoke fastening for a new major programme it had recently secured with a key global OEM. The trim product to be developed was an injection moulded exterior trim part for a new vehicle due for release in November 2019.

A late design change to improve the fit of the part to the vehicle required the attachment of a strengthening support via a Peel type rivet. Peel rivets are a type of blind rivet designed to offer improved support in brittle, soft or ductile materials, applicable to the vehicle trim products in this project.

Fired using bespoke tooling, the head of the Peel rivets explode and become mushroom-shaped as they enter the moulding. This creates a large blindside bearing surface, significantly reducing the risk of the rivet sinking into or breaking the moulding.

TR Fastenings (TR) and Faltec are both active within the North East Automotive Alliance (NEAA) network. Following a successful pitch, TR Fastenings was appointed By Faltec as the company's provider.





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Approach and solution

As a global specialist in the design, engineering, manufacture and distribution of high quality industrial and Cat C fastenings, TR was able to identify the original equipment source and submit a competitive supply solution. TR is renowned for working with clients from design table to production line to achieve innovative, effective and efficient solutions. The TR product and tooling for this project offered a robust solution and would guarantee efficient production - this secured the initial business.

Not only could TR provide the specific fastener solution, but in this instance, it was also able to supply bespoke tooling compatible for the fastener. The tooling required a bespoke rivet gun that would not only automatically fire the rivets into the moulding to be joined, but also have capability to apply rivets in a fast production environment.

Project challenges

Timescales were challenging for both parties but with close co-operation qualified parts were supplied along with tooling for development and ongoing production, both being delivered on time. Not only did TRF have to supply production intent rivets in a short timescale but also the gun was ordered late due to last-minute design changes, requiring 24 hour delivery.

The late design change by the OEM required special rapid response by TR and Faltec. TR was able to take the lead on supplying fast-production intent rivets and tooling in a very short period.

Greg Lynch, Automotive Business Development Manager at TR said, "Perhaps the biggest challenge came with technical advice and training. TR had to ensure correct and safe operation of the rivet gun. Due to its bespoke nature, Faltec staff responsible for the operation had no experience in the use of this particular tool and engineering.

Greg further explained that when Faltec first tried the application they thought it had failed. However, once it had been confirmed that the rivet was in fact the correct specification, it was understood that perhaps further assistance would be required in how to use the tool and rivets in a fast production environment.

TR's Quality Manager, Dave Fearon, visited Faltec at the production facility to help lay out the process and demonstrate how to use the Rivet tool in a safe manner. It was acknowledged that without correct use, the application could have been dangerous to operators.

As full service was of the utmost importance to TR their engineers visited Faltec several times, initially to explain how the Rivet gun would operate, but then to train staff in appropriate use and safety.

TR provided ongoing support throughout the initial trial phase and was asked to assist in technical evaluation ready for onsite production at Faltec. This project is indicative of TR's service which goes far beyond product supply and applications.





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Project outcomes and advantages

Following success with this project, TR has been nominated to supply serial production, cementing its ongoing relationship with Faltec.

Outcomes and advantages of the project included:

- Parts and tooling were delivered on specification and on time given challenging timescales
- Due to TR's extensive capability, it was able to offer Faltec additional product tooling over and above the initial bespoke fastening RFQ
- TR provided ongoing project support ensuring onsite production timescales were met
- The successful project has resulted in ongoing work for TR for the supply of serial production for a further three years

Project reflections

"TR Fastenings want to be the first point of contact for Faltec's ongoing fastener requirements and business development, so providing a first-class service and gaining trust from Faltec Europe was of paramount importance to us. Being an active member of the NEAA has enabled good business networking opportunities with new and existing customers."

Greg Lynch, Automotive Business Development Manager

"Following late design changes on a project, Faltec Europe

was faced with a challenging timeline to find a solution. We contacted TR for their input and support, which proved invaluable. TR quickly offered a product that met the design requirements and they also suggested solutions on the assembly equipment that could be used, speeding up our process development. The final result was a change delivered on time and on budget."

Wayne Turnbull, Senior Manager




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Chris Black of TR Fastenings invited to participate in new NEAA trade group



Chris Black, Director of Automotive Business Development at TR Fastenings has been invited to be the industrial lead for the new Trade Working Group set up by the North East Automotive Alliance (NEAA), the largest and fastest growing organisation of its kind in Europe.

This recently launched trade group is a key part of the NEAA's 5 year strategy to better understand and support the trade activity of its members. With over 35 years of industry experience and an active alliance member, Chris Black is well placed to share latest insights, best practices and successes achieved through his global leadership position with international specialist TR Fastenings.

Founded in 2015, the NEAA is an industry-led automotive cluster which aims to be at the forefront of the Government's strategy to progress automotive technologies within the UK. The north east produces 30% of all UK passenger vehicles, which includes 20% of all electric vehicles across Europe and 10% of all UK non-highway vehicles per year. The region has firmly established itself as the leading UK location for battery manufacturing and is now the world leader in power electronics, motors and drives. It is home to a globally competitive supply chain which consists of 31 tier 1 suppliers and a host of specialist SMEs, R&D centres and a strong support network.

Chris Black feels passionately about his involvement with the NEAA; *"Since joining the alliance five years ago, I've been actively involved attending meetings, events and*

providing guidance, whilst also encouraging collaboration between members. The alliance has grown significantly during this time which reflects the buoyancy in this sector and a need for a trade support mechanism for members.

"TR has a vast global footprint which continues to expand and by sharing our experiences with fellow members, we can help to find solutions to the challenges of growing overseas such as investment, recruitment and securing new business.

"This trade group brings together ambitious companies looking to scale up, within the UK and abroad, and I am truly delighted to be working with Rohan Kohli at the NEAA to support this new initiative."

The NEAA Trade Group meetings are held quarterly with the first meeting hosted in November 2019 at the Port of Tyne in South Shields.

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TR Formac expands presence in Thailand and joins Electric Vehicle Association



TR Formac, part of Trifast plc with corporate world headquarters in East Sussex, U.K. has expanded its global presence by moving into larger premises in Prawet, Bangkok, in response to strong growth across Asia and winning new business from global OEMs. The new facility provides around 3000 sq. ft. of space enabling the company to trade more efficiently and to help further strengthen its position in the growing EV market.

Operations in Thailand are headed up by Country Manager David Ng, a knowledgeable and well connected individual who has witnessed the fast development of the automotive sector across the country. Chris Black, Global Director of Automotive Business Development, will be supporting David and the TR Formac team to increase their market share of the Automotive EV sector, sharing his experience and knowledge with the Thailand team.

David commented; *"There are huge growth opportunities in Thailand with key focuses on technology and innovation of electric vehicles. With this in mind, and to collaborate with other companies, we decided to join the Electric Vehicle Association of Thailand (EVAT) which the Thai government was instrumental in launching.*

"There are three phases involving intensive R&D to enable the production of 1.2 million units by 2036 and 690 EV smart charging stations. All types of electrified vehicles are on the agenda; battery, hybrid, plug-in and fuel cell. Moving into bigger premises facilitates our continued growth; it's a key part of our strategic business

development initiative to move us forwards."

The Electric Vehicle Association of Thailand (EVAT) was set up in 2015 by individuals from the private and public sectors to promote and support industrial manufacturing, research and development, and EV usage in Thailand. There has been strong recognition within the country, specifically at government level, to strengthen knowledge and global competitiveness of Thailand as an EV manufacturer. Supported by the Ministry of Energy and the Energy Regulatory Commission, the EVAT enables members to exchange information and initiate changes towards a low-carbon transport community.

TR's manufacturing capacity in Malaysia, Singapore and Taiwan totals over 359,000 sq. ft. of factory space producing 525 million components per month. Thailand is the 13th largest automotive parts exporter and the sixth largest commercial vehicle manufacturer in the world with aims to become one of the top performers in the global automotive market.¹

TR Formac is recognised throughout the industry for world-class products and services, manufacturing and distributing a huge range of industrial fasteners and associated components. PSEP (Power Steel & Electro-Plating) in Malaysia was acquired in 2011 and the Thailand office opened in 2013.

[Source: 1 ASEAN \(Association of Southeast Asian Nations\) briefing online report 2018](#)





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TR Fastenings – keeping it local



For over 45 years TR Fastenings' UK manufacturing plant in East Sussex has produced millions of products, including its own highly regarded Hank® brand.

The current purpose built factory which opened in 1992 houses 50 single and multi-spindle machines and produces 3 million parts each month. The multi-spindle machines can form, turn, drill, knurl and part off a steel component in as little as 1.2 seconds.

In an era where manufacturing is usually focused in the Far East, TR Fastenings is proud to have retained their manufacturing unit in the UK to maintain a competitive advantage through greater flexibility with pricing, volumes and short lead times. Additionally, sourcing raw materials locally allows faster production times to meet customer demands.

As the only producer of the genuine Hank® Rivet Bush, the site also manufactures the K-Series® nuts as well as bespoke items in aluminium, brass, stainless and steel. The diverse range of machines enables TR to produce products as small as M2 and as large as M36, which are used across a host of industry sectors.

Looking to the future, the TR Fastenings UK manufacturing plant will continue to make the product it is famous for – the Hank® Rivet Bush. As well as the design and manufacture of new products, such as the recently introduced K-Series® Thin Nuts, TR will continue to work with customers with any application requirements and manufacturing bespoke parts, when required.

Simon Lockyear, Production Manager, who has worked for TR Fastenings for the last 37 years comments: *'The company is proud of its factory, the quality of the products we produce and the loyal and skilled workforce. In a day of dominant foreign imports, it is a breath of fresh air to have a UK producer holding its own in a very competitive market place.'*





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Getting a grip on fasteners and their coatings within the transport sector



A focus on automotive and the EV market

By Sven Brehler, Engineering Project Manager at TR Fastenings

As a full service provider with a worldwide reach from the USA to Asia and Europe to the UK, TR Fastenings works closely with automotive Tier 1 companies to respond to their needs and global developments. Supplying 10,000 different fasteners annually into the automotive sector, TR is playing a central role in shaping the future of the fastener industry within this changing space.

The global electric-vehicle (EV) industry is expanding rapidly with 60% year on year increase and sales growing to 2.1 million units in 2018¹. As a result, advanced technology is now a top priority for competing OEM's and the role of fasteners is significant.

Transport technology companies around the world are under pressure to innovate as a result of rising cost pressures, and trends such as lightweighting, autonomous driving and electro mobility growing apace.

Suppliers into Tier 1, such as TR Fastenings are increasingly required to come up with technical innovations for fasteners that work harder and 'smarter' that can be produced quickly and cost-effectively.

The key fastening applications within automotive include sub tier manufacturers; seating; power trains; thermal management; HVAC; high-end performance cars and the EV market - the latter being the fastest growing sector for TR Fastenings to which they supply automotive grade fasteners to OEM specification.

It's an evolving application that is leading the fastener industry to greater sophistication.

Lightweighting in fastener technology

Achieving fastener weight reduction whilst maintaining high torque demands have become an important requirement in automotive applications. Industrial drive systems such as the Mortorq® screw require up to 25% less material in the head yet still provide super high strength internal drive – an example of an innovative system providing the lowest head possible without compromising on fastener assembly performance.

One of the heaviest components in an EV is the electric battery, which runs the risk of negating the idea of carbon emission reductions if the vehicle's weight increases energy consumption. As a result, fastener companies such as TR and their supply chains are constantly looking to innovate and are inspired by other transport industries such as aerospace.

Fastenings and their coatings within the EV sector

Batteries, motors, transmissions and all their associated electronics are the leading technology areas of EV R&D and the fastenings and their coatings play an essential role.

Innovative engineering techniques are now being applied throughout the design and manufacturing process in order to meet customers fast changing needs.





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Getting a grip on fasteners and their coatings within the transport sector

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Why are fastening innovations crucial for EV battery (EVB) manufacturers?

There are a number of components which are particularly relevant for EVB assembly - fasteners with electrically isolating coatings; lightweight, non-magnetic fasteners; battery retention bolts; cable management hardware and compression limiters.

All these require fasteners to provide robust and secure settings for the costly battery. And fasteners are essential, not only in the electric vehicles themselves but also in supporting technology and applications including charging units, EV battery casings, and general infrastructure equipment.

Coatings do more than just provide protection against corrosion

An EV's battery module can be secured with inserts for plastics that are used to maintain either good connectivity where required or avoid unwanted short-circuits due to corrosion or product failure.

Fasteners for the EV batteries are designed to incorporate various coatings to suit the functionality of the joint. Examples of these include: silver plating to improve connectivity or high temperature resistant organic top coat to provide an electrical barrier.

Sven Brehler, Engineering Project Manager at TR Fastenings explains: "Component suppliers are beginning to work closely with battery module manufacturers to develop and apply functional coatings to fasteners including protection from corrosion.

These help to either maintain good electrical connectivity or retain isolation where needed to avoid unwanted electrical resistance or potential short circuits."

Battery heat

Highly conductive coatings can be applied to certain materials such as plastic fasteners or fasteners prone to corrosion so they can act as electrical conductors, being part of the electrical circuitry. Increase in electrical resistance causes generation of heat together with loss of energy.

Sven continues; "EV batteries can generate high levels of heat, so it's essential that it is distributed over the assembly to provide general cooling and avoid localized overheating. Busbars can support the distribution of heat from local hotspots to heat sinks, but only when correctly tightened to optimise heat transfer between the various elements. Using fasteners in thermally and electrically conductive coatings will aid an effective service life."

Insulation coatings are advantageous

Regarding insulation coatings, in certain cases electrical currents must be contained. Barrier coatings avoid electricity from going where it shouldn't and causing interference or a risk to safety through electrocution or fire.

Specific coatings used include PTFE (Polytetrafluoroethylene) because it is highly heat resistant with the ability to retain its properties across a temperature range, from -200°C to +260°C.



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Getting a grip on fasteners and their coatings within the transport sector

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It also has low predictable friction, which can help to create secure joints through torque control essential when assembling the battery module.

One solution does not fit all

As well as hardware in battery casings and structures, many differing conditions also need to be considered so adopting a 'one solutions fits all' approach to applying coatings would not be appropriate.

Depending on the material and the function of a particular component and the task it performs, different solutions are necessary.

Automotive quality standards

TR Fastenings supplies from its own IATF 16949 as well as from a select range of external suppliers. The International Standard for Automotive Quality Management Systems is based on ISO 9001 and applicable to organisations that manufacture components, assemblies and parts for the supply into the automotive industry.

Only manufacturers passing strict audits and reviews by TR's fully VDA 6.3 certified auditors, and able to deliver to the highest OEM quality standards are used to provide the necessary high quality products into the battery market. This helps to ensure a stable and sustainable supply chain in addition to the engineering and logistics TR can deliver.

Early engagement in design

Manufacturers and sub-contractors must work together from the start to ensure the correct Design for

Manufacturing (DfM) considerations. When cost-efficiency, sourcing, materials and product lifecycle concerns are discussed early on at the design table; costly delays later on can be avoided.

As an emerging transport sector, the fasteners needed in EV charging units and their associated structures, requires manufacturers and their supply chain to have technical knowledge and experience. There are increasing pressures and opportunities involved working within intricate global supply chain networks, and manufacturers servicing the automotive, electronics and technology sectors will be best placed to work with emerging EV related businesses.

Looking to the future

The EV sector is a fascinating one to watch as it develops and gains momentum. As the requirement for robust EV charging points grows, the automotive industry continues to innovate with fasteners playing a major role in the electric vehicle revolution.

It is a rapidly accelerating market with huge potential for manufacturers and suppliers. It is therefore essential the supply chain has the infrastructure, technology and solutions in place to meet future demand for electric car use.

Source 1: <https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/expanding-electric-vehicle-adoption-despite-early-growing-pains>





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TR responds to unprecedented global sheet metal fastener demand



The outbreak of the Covid-19 pandemic created a surge in global demand for medical equipment, with the subsequent knock-on effect of a huge demand for sheet metal fasteners, specifically for those companies producing essential equipment, including ventilators. International specialist TR Fastenings focused on being as responsive as possible to meet this demand and is now further investing in its sheet metal range to accelerate growth of this product portfolio.

TR has been leading the sheet metal fastening industry for over 45 years, providing products to more than 5,000 global customers from 32 business locations in 18 countries. TR's ability to move with the times and adopting a fast track approach has firmly positioned the company as a market leader; an internationally respected manufacturer who is flexible enough to continually adapt its range and stay ahead of the competition.

This latest investment sees expansion of its own highly regarded Hank® Self Clinch Fasteners and the launch of a new range of K-Series® Thin Nuts. TR's own facility in the UK can manufacture as small as M2 and as large as M36 which are used across a wide range of industry sectors.

TR has a robust business model for large OEM's and SME's and competitive advantage is achieved through flexible pricing, volumes and short lead times with the capability to source raw materials locally, allowing faster production times to meet demand.

There are many application challenges within the sheet metal industries and TR can offer fastener testing capabilities across mechanical, dimensional, installation, and plating and finishes. TR supplies sheet metal products for pressing, riveting or welding during manufacturing or assembly processes.

TR's website leads the way in showcasing sheet metal fastening solutions

TR's industry leading website now further enriches the customer journey by showcasing the very latest information on sheet metal fasteners with technical, explanatory animations and visualisation tools showing how products can be installed.

The videos and enhanced online resources provide key insights including detailed product specifications such as dimensions, materials and performance guides, FAQs, spotlight pieces and customer feedback supported by global sales and marketing activity.

Steve Wallis, Sales Office Manager at TR Fastenings, said: *"The recent pace of change across the industry has been unprecedented and TR has been able to utilise years of experience to adapt to this. Customers are looking for higher quality and smarter application-based sheet metal fasteners, and selecting and installing the right fastener, within tight timeframes, is a challenge. This is where TR's global teams can add real value, from our knowledgeable customer services assisting with product suitability through to our expert quality and application engineers providing guidance from early design through to specification and manufacturing."*





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TR achieves prestigious aerospace AS9120 Certification



International fastener specialist TR Fastenings has achieved the [AS9120 Certification](#) following an extensive audit of its operations and in response to customer demand. AS9120 recognises the continuing commitment to aerospace quality and conformance and places TR amongst a select group of companies that have been recognised for practicing the highest quality standards required in this sector.

The AS9120 Certification is specific to organisations holding and distributing Aerospace related components such as fasteners and is designed to ensure that parts are handled and tracked properly while they are en route from the original manufacturer to the end customer.

It adds almost 100 additional requirements specific to aerospace suppliers beyond the general manufacturing standard ISO 9001:2015, including traceability from receipt to delivery, counterfeit parts prevention and detection, and evidence of conformity and on-time delivery. All of which are critical for meeting the most stringent requirements of supplying components into the aerospace and defence sectors.

With a proven track record in these sectors, TR's post Brexit strategy is to focus on differentiation by using its industry experience, technical expertise and proven capabilities to further expand its business within aerospace.

Kevin de Stadler, Sales Director at TR Fastenings comments: *"It was a long process but the rigorous work*

behind it further strengthens TR's position within this sector and guarantees the highest level of competence. It's proof that we are committed to being a major player in the supply of fastenings to the aerospace and defence industries and continuing to increase our footprint.

"It will open up opportunities such as improved performance against competitors and expansion of our UK market. We also hold ISO 9001 and 14001, however, AS9120 sets us apart in the industry and now firmly positions us at the forefront of fastener provision in this highly regulated sector."





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30 years with TR Fastenings



2020 marks 30 years with TR Fastenings for Glenda Roberts. She recently stepped down from the Trifast plc Board, as she considers her retirement plans and will be working on special projects. She has seen the company grow from a UK business to become a global Full Service Provider.

Here editor Will Lowry, speaks to Glenda about how the Group, and the market, has developed over the last three decades, and about future opportunities.

Although Glenda is celebrating her 30th anniversary at TR Fastenings, she's actually been in the industry a little longer. Before joining TR, she had been with another fastener company for seven years. "When I first joined, TR had already positioned itself between the manufacturer and the customer. It was a smaller company with 8 sites focused very much on the UK market – and it was doing very nicely developing JIT fastener supply systems inside larger customers".

Then Glenda remembers that a standard enquiry could take two to four weeks to complete using post, telex and fax machines. "Developments such as the internet and email connected us to the world, and really helped us to take a leap forward. Mobile phones weren't commonplace when I first joined the company. Very few people had them, and everyone was nervous about using them because of the cost - how far have we come today when everyone wants instant responses?"

In 1998, TR Fastenings decided to expand outside of the

UK, largely because its customers and other businesses were migrating to countries with lower manufacturing costs. "We would have lost these customers if we hadn't taken that decision," says Glenda. "I was asked to put together a global team and to follow the business initially to China and India. That success led TR to open operations in other parts of the world to support global customers."

"We carried the processes and the direct line style feed systems from the UK to the new customer locations. Not only did this help to keep the business, it was a big success story for us. We made it easy for companies setting up in these new areas to have consistency of supply, processes and services. Continuing this successful strategy, TR Fastenings opened operations in America, China and India and has continued that strategy today adding Hungary, Italy, Germany, Spain, Thailand and the Philippines in recent years. Focusing on large global companies, and our tier one suppliers, rather than going after local business, was undoubtedly the best thing we did. We worked with companies that needed the services and support that they were used to getting from the UK and Europe."

"Working with these multi nationals, and their global commodity teams, enabled us to demonstrate how well we could service them almost anywhere. Consequently, they were keen for us to work with them in other countries, and so we were able to meet their needs at their locations – whether in Europe, America, or Asia."

Wherever customers have moved geographically, TR has identified opportunities to acquire manufacturing





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30 years with TR Fastenings

Continued



businesses already established within those geographic markets.

"This was another big step in our development as adding manufacturing sites to the group meant we weren't just another distributor – we were now a full-service provider and it gave us gravitas", Glenda says. "By evolving our engineering and technical support services, we were able to work more closely with customers on applications and solutions."

"We now have eight manufacturing sites – 32 sites in total. We are also proud of the 36 master distributors who support us, especially in areas where we need geographical coverage. They are integral to our Group and have enabled us to get our proprietary branded products to customers as quickly and effectively as possible."

Application engineering and technical support

TR sees this as a key part of its success story, and this enables the company to work closely with its customers with early involvement at the design and development stage.

"A high percentage of the parts we supply are dedicated customer specials to customer drawings. But often there is a need for technical input to assist and this is where our engineering teams are involved", explains Glenda.

"Building up these relationships and supporting the different disciplines on a customer's site encompassing quality, logistics, sourcing and technical demonstrates that we understand their needs and can meet their requirements."

"Whilst working with customers has become easier, their requirements have become much more demanding over time", Glenda tells me. "They have very specific needs and wants. There's also a lot more documentation these days, with more detailed work involved. We even have in house lawyers to deal with the vagaries of the contracts that each new piece of business entails. Some companies might see this as a challenge, but thanks to our experience, knowledge and capabilities, we are more than able to meet these requests. This hopefully helps us stand out." Glenda continues, "We are no longer just supplying a humble fastening; these products do an important job and could be involved in a safety critical application. Therefore, guaranteeing quality and reliability is essential."

"A lot of contracts, especially for the automotive market, can be for five to ten years. This means we have to make sure we get everything right and are flexible enough to accommodate any changes that might happen. Customers have heightened expectations on quality with zero ppm as a requirement. However, we believe it's really about having a zero-defect philosophy – because that encompasses everything we try to do".

Handling Covid-19

The Covid-19 pandemic is unprecedented and certainly has proved one of the most challenging times in Glenda's 30 years at TR.

"Because our operations are located around the world, we felt the impact of the virus from the first outbreak in China, and we monitored this as it spread globally," says Glenda.



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30 years with TR Fastenings

Continued



"Our first concern was to make sure our staff were safe, and all of the correct health and safety protocols were in place. After this we focused on supporting our customers and our vendors." TR set up a Covid-19 task force, which included the board and key personnel, to help it manage its supply chains and customer base. "When you are an FSP there is no buffer as you are the only line of supply. "As part of our business continuity plan that originally was put in place during the SARS outbreak, we looked at all the risk factors, the numbers of weeks stock and in WIP for every customer special. Then we mapped out where our vendors were based compared to the virus epicentres. This enabled us to stand back and evaluate whether we had supply issues looming. We went into minute detail as it was no small task, but it was important to do it thoroughly. There have been challenges along the way, but customers have not been impacted and we have had great support from our vendor base."

Glenda believes the next challenge is the length of time it will take markets to get back to 'normal' post Covid-19. "The pandemic will undoubtedly impact companies – particularly those in the automotive industry, and liquidity will become a critical factor for many. The shape of recovery will also have a huge impact. Will it be a 'U' curve, a 'V' curve or a fast return to a new normal? She believes the next three months will give us a good indication of how things will develop. "TR is in a strong position financially, so we can manage the current situation. It won't slow us down or prevent us from focusing on opportunities and interesting markets for the future."

Future opportunities

"Coming out of the pandemic we see opportunities in providing even more product to the Medical industry. The move to 5G and the infrastructure requirements is another area of focus as we have worked on projects for 3G and 4G in previous years."

"But the key and potentially the largest growth area is in supporting builds in the EV sector which is the future. If Covid-19 has taught us anything it is that our health and welfare is paramount, and a cleaner environment is essential. We will have to adapt to the materials we'll be working with in the future, such as composites, and how we adapt to any new opportunities this may create. For instance, we are currently looking into silver plating for fasteners, which is not as common, but this is required along with the need for electro-static finishes in applications involving EV batteries. This is an example of how we are being pulled into new areas and providing the right products for these applications. These new opportunities are fastener rich which is good for our industry and I think we are all in for an interesting time".

Credit:

Will Lowry - Editor
Fastener + Fixing Magazine
www.fastenerandfixing.com





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Fixing the mobility future

By Ian Parker



Catastrophe theory is a branch of mathematics which looks at sudden and often unexpected change. Such events are usually both good and bad. They can be anything from a bent ruler suddenly flexing the other way to the spread of a new virus. And they're not unforeseen by everyone. Bill Gates warned of a virus pandemic five years ago. Selling prevention is always much harder than selling cures.

When a catastrophe is underway, changes can be rapid as can human responses to them. Everyone can see that the Covid-19 pandemic is firstly a health issue, but it will go on to affect much more than that. Mathematicians are not the only people trying to see where things are going. Engineers are too, including those in the fasteners and fixings business.

How will recent trends, reinforced by the pandemic, affect transport and what developments will the fasteners business have to make to support them? Will there be much less travelling and will many people eschew public transport to avoid getting close to others? Will travel and transport broaden out into mobility, with a much wider range of vehicles and their operation.

TR ponders the issues

Some 34% of TR Fastenings Ltd's business is in automotive, so the company has a great interest in where the business is going. The company is part of Trifast plc and is an international specialist in the design, engineering, manufacture and distribution of high quality

industrial and Cat C fastenings principally to major global assembly industries. TR has 32 business locations within the UK, Asia, Europe and the USA including eight high volume manufacturing sites. TR's manufacturing network represents a third of the group's business.

It was founded in 1973 by Mike Timms and Mike Roberts who gained their business knowledge through previously working as managers in the fastener industry.

In 2018 TR Fastenings celebrated 45 years of "Holding the world together". Today, it has some 1,300 colleagues working in 32 divisions in 18 countries across three continents, with three Technical and Innovation Centres located in the UK, USA and Sweden. TR's first Centre opened in 2018 and is in the heart of Sweden's automotive industry, on the Lindholmen Science Park in Gothenburg which is home to many of the key players developing forward-thinking solutions for the automotive market, including Electric Vehicle (EV) technology. With major OEM firms and IT software developers and technical and engineering teams from Tier 1 manufacturers, Lindholmen is fast becoming a hub for automotive innovation in Europe.

Sven Brehler, engineering project manager at TR, spoke to Fastener and Fixing Magazine about how he sees the transition from automotive to mobility. He says:

"We use the term mobility because there may be a lot of changes following coronavirus. For example it may hasten people towards electric, self-driving vehicles. The whole automotive sector might actually physically change away from the combustion engine and steering wheel control."





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Fixing the mobility future

Continued



"We use the term mobility because there may be a lot of changes following coronavirus. For example it may hasten people towards electric, self-driving vehicles. The whole automotive sector might actually physically change away from the combustion engine and steering wheel control."

But will the adoption of electric propulsion make that much difference to the fasteners used in vehicles? Brehler thinks it will. He continues "Electric vehicles are designed on such a different platform - for example we can drive individual wheels or we can work through a gearbox or converters - we have many more choices than we have with a conventional car. We use the term mobility because units may become smaller, if we can get round the status symbol element of a car, particularly in the UK.

"Home deliveries from companies such as Amazon, Ocado, Tesco and Asda etc, have increased dramatically during the lockdown and if autonomous vehicle development is pushed forward, we might be able to include that in mobility as well. We don't know yet what directions such things might take."

Being ready for such changes is not easy and companies will need to watch the market closely and move quickly. TR is watching the mobility business with keen eyes as a large proportion of its sales are in that area and it's increasing. The company's automotive business has just hit 34% of sales and could go higher as this sector becomes mobility. Smaller vehicles may mean more vehicles and so more fasteners.

Even though the automotive industry is currently hard hit by the effects of coronavirus, the mobility industry

will remain an important sector in the near future. There will likely be some large changes to the current automotive industry in the next decade, and the need for individualised mobility will rise. Therefore, the company expects the mobility industry to be a large part of its future business, but with more diversification into other markets, such as healthcare and automation.

Brehler continues *"The new technologies required for development and maturation of the New Energy Vehicles (NEVs) and the subsequent energy supply has seen a large influx from technologies developed in other industries, such as the mobile technology and aerospace market. Our expertise in high tech applications, electronics and electrical switch gear has allowed TR to follow and support the advances in electrical propulsion, storage, charging and infrastructure for the transport of tomorrow."*

The current standstill of production has allowed the OEM and Tier 1 suppliers to take stock of their current designs and projects still in the pipeline, the main focus being on overall reduction of cost and weight without compromising on the current designs. composites and honeycomb structures, which benefit from bonding. However, adhesives need large contact points between the materials to be able to create structural joints, favouring mechanical fasteners for lean and slender designs. Furthermore, a refocus on maintenance and repair as well as reuse and recyclability prefer the application of removable fasteners."

What effect will NEVs have on fastener demands? Interior and trim applications are expected to maintain a similar route to reduce weight whilst promoting an increased modularity to allow customer's individualism at lowest





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assembly costs. The greatest disruption to the original bill of materials will come from the change in propulsion and the safe storage of on-board energy.

Ensuring safe storage and delivering it to the propulsion on demand requires electronic control mechanisms which cannot be disrupted by electro-magnetic waves or affected by corrosion, contamination or moisture. This is where there will be a growth in uptake of isolating coatings and non-magnetic fasteners. Initial NEV designs used bolted-on batteries, whereas new designs are looking to integrate the battery assembly as part of the structural design of the vehicle. Battery retention bolts and compression limiters are playing a large role in the materialisation of these designs to allow transfer of forces through the structure, whilst allowing access for repair and maintenance. Well designed cable management will secure the ever growing wiring looms for delivery of energy to all parts of the vehicle and report back any key information picked up by the multiple sensors.

Quality and recycling

Reliability and quality are controlled through fastener traceability from manufacturers on the AVL (approved vendor list) which are signed up to TR's code of conduct following a thorough auditing programme.

This avoids the introduction of counterfeit or products with questionable quality to enter the supply chain. Brehler says "Early involvement of application engineers allow our customers to optimise the design by selecting the right product to suit the requirements. System testing has been a mandatory requirement within the automotive industry.

We cannot stress enough the importance of these tests as they can make a difference in case of a vehicle accident. The PPAP (production part approval process) proves that parts are manufactured to the required standards.

"The majority of fasteners have a high content of steel, which can generally be reused in the recycling process. The automotive industry has been a forerunner restricting dangerous materials, making recycling of fasteners possible without the need of firstly needing to separate them from the rest of the scrap. Our plastic fasteners are generally manufactured of similar hydrocarbons used in trim and interior applications, allowing these parts to follow the main recycling stream. When involved with new projects and applications TR's application engineers consider the removability of the fasteners as well as the installation and function during operation."

Thailand and the EVAT

In keeping with its international and forward-looking philosophy, TR Formac, part of Trifast plc, has expanded its global presence by moving into larger premises in Prawet, Bangkok, in response to strong growth across Asia and winning new business from global OEMs. The new facility provides around 3000 sq. ft. of space enabling the company to trade more efficiently and to help further strengthen its position in the growing EV market.

Operations in Thailand are headed by Country Manager David Ng, who has witnessed the fast development of the automotive sector across the country. Chris Black, Global Director of Automotive Business Development, will be supporting Mr Ng and the TR Formac team to increase



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Fixing the mobility future

Continued



their market share of the automotive EV sector, sharing his experience and knowledge with the Thailand team.

Ng says *"There are huge growth opportunities in Thailand with key focuses on technology and innovation of electric vehicles. With this in mind, and to collaborate with other companies, we decided to join the Electric Vehicle Association of Thailand (EVAT) which the Thai government was instrumental in launching.*

"There are three phases involving intensive R&D to enable the production of 1.2 million units by 2036 and 690 EV smart charging stations. All types of electrified vehicles are on the agenda - battery, hybrid, plug-in and fuel cell. Moving into bigger premises facilitates our continued growth; it's a key part of our strategic business development initiative to move us forwards."

EVAT was set up in 2015 by individuals from the private and public sectors to promote and support industrial manufacturing, research and development, and EV usage in Thailand. There has been strong recognition within the country, specifically at government level, to strengthen knowledge and global competitiveness of Thailand as an EV manufacturer. Supported by the Ministry of Energy and the Energy Regulatory Commission, the EVAT enables members to exchange information and initiate changes towards a low-carbon transport community.

TR's manufacturing capacity in Malaysia, Singapore and Taiwan totals over 359,000 sq. ft. of factory space producing 525 million components per month. Thailand is the 13th largest automotive parts exporter and the sixth largest commercial vehicle manufacturer in the world with

aims to become one of the top performers in the global automotive market. PSEP (Power Steel & Electro-Plating) in Malaysia was acquired in 2011 and the Thailand office opened in 2013.

Responding to the Covid-19 pandemic will require a huge range of responses from many industries and the companies which will benefit are those which can look ahead and move quickly. Most people would probably think that the fasteners business would be not be affected at all and certainly not quickly. But the reality is very different.

Following the pandemic, transport will probably never be the same again. There will be winners and losers and in some cases it will be extreme. As Zoom is finding in the IT sector, it is an ill wind that blows no one any good. TR is watching the weather and setting its sails for maximum benefit.

Credit: Ian Parker - Freelance Journalist

Original article: [Fastener + Fixing Technology - 'Fixing the mobility future' - 24.07.2020](#)

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TR VIC continues to invest in the latest high precision fastenings machinery



International fastener specialist TR VIC spa, part of the Trifast plc group of companies, has made a substantial investment in the very latest fastening machinery in response to increasing and evolving requirements from European customers.

The high precision Carlo Salvi cold former is the newest addition to its growing portfolio of machinery, which further increases manufacturing capacity for high level applications within automotive, household appliances and electrical sectors in Europe.

High-tech cold forming capability

The advanced Carlo Salvi 1 Die 2 Blow Header provides the highest productivity in cold forming and has been specially developed and designed for the production of screw blanks as well as solid parts at high speed up to 190 parts per minute. Complementing TR's [application engineering](#) expertise, this high-tech header machine enables the technical precision and versatility required in manufacturing fasteners for evolving applications across several different industries into which TR supplies.

Investment and responding to changing markets

Since its acquisition in 2014, TR VIC has invested significantly in manufacturing equipment, including an automated packaging and labelling machine, a heat treatment line, a high quality pointing machine and laboratory equipment including a high class Keyence microscope. All of these upgrades have resulted in a sharp rise in productivity, in some cases doubling output in half the time.

The company has grown considerably by expanding its workforce, customer base, improving processes and technologies whilst also achieving quality accreditations, most recently the IATF 16949 during the Covid-19 pandemic. It has been business as usual these last few months and TR VIC is responding to the evolving market by continuing to invest in the company and in newer, faster equipment to the benefit of customers.

Karol Gregorczyk, Director of Sales and Operations at TR VIC in Italy, said: *"Machine capability is an area we are continually reviewing as part of our on-going improvement of operational efficiencies. With our on-site manufacturing we can add real value to our customers by developing bespoke products – our new machine is a boost to our already impressive manufacturing credentials."*

"We understand that investment is critical to thrive and that is why we are committed to the continued growth and development of our production capabilities and competitive position. The sectors we work in are extremely demanding requiring a combination of precision, speed and quality that only the most advanced machining techniques can deliver."

Marco Pizzi, Chief Operating Officer at Carlo Salvi commented: *"We are pleased to support TR VIC in their continued investment in cold forging machinery, supplying modern/plug-in machines. Great collaboration between Carlo Salvi and TR VIC allowed fast commissioning and the machinery being up and running within 48 hours from delivery."* Installation of the latest Carlo Salvi machinery

[To view on YouTube click here](#)




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The Nuts and Bolts of Med-Tech

by Ian Bolland



Ian Bolland spoke to Jeremy Scholefield, director of strategic business at TR Fastenings about the company's role in the medical device supply chain.

The company has been involved in the medical industry for over a quarter of a century. It has 32 locations worldwide, including seven manufacturing sites with three technical & innovation centres based in the UK, US and Sweden, whilst working with some of the most recognised brands within the industry.

Explaining when the company comes into the process, Scholefield explains: *"It's important for us to get involved very early on with our customers, whether it's at the design stage or the conceptual stage and then it's working through to supply the products to the point of use."*

"For example, when the purchasing manager has a bill of materials and requires a quotation for fastenings, we often see specifications that aren't clear, or we have to ask many questions to finalise the exact details. It's much better if we can work early on in the design stage."

[Click here to read the full story on Med-Tech Innovation News](#)



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Tightening the fastener choice for sheet metal



Sven Brehler, Engineering Project Manager, TR Fastenings

There are as many joining methods as there are sheet metal applications. Selecting the best fastener for an application might not be the best fastener for assembly or disassembly. In most cases fasteners are selected based on a range of factors including physical performance, designers experience with a technology, used installation methods within the manufacturing environment, available sizes and lengths as well as piece price and overall cost.

The most recognizable method of joining two parts together would be with bolt and nut connections. Bolt-nut connections are generally used for detachable mounting of components and sheet metal parts. A nut is retained based on creating sufficient friction within the thread and between the interfaces of the fastener and sheet metal. The preload is created by stretching the bolt during tightening up. A relatively longer bolt can stretch more than a short bolt and is therefore better capable in retaining a nut by friction alone. Because of this, standard nuts and bolts are not always the best solution for joining sheet metal.

There are multiple methods to improving the retention of nuts onto bolts, such as the application of polymeric patches on the screw, which fills the cavities between the two mating threads. Similarly, a nylon ring attached to the nut will provide a light interference between the thread and the polymer. Other options can be mechanical deformation of the nut or thread to increase pressure within the thread. The retention does not address the

function of the joint. Most bolted joints are designed to be friction-grip joints: the preload in the bolt presses the sheet metal components together with such a magnitude that the friction between the components is enough to withstand forces along the sheet metal. If the forces along the metal sheets exceed the friction forces, the joint will slip, and the bolted joint will be subjected to shear forces. Henceforth the joint becoming practically a shear joint.

Accurate tightening and creating of pre-load functions better with longer than with shorter bolts and is therefore more suited in heavy laden dynamic applications with components with greater thickness.

Lockbolts

Can be a permanent solution if joints are not subject to maintenance. A metal ring is squeezed around a pin with helical or annular grooves, thereby providing a continuous pre-load.

The fasteners do however need access from both sides. Single sided access can improve assembly efficiency or even might be a requirement due to difficulty to reach both sides of the application.

Blind rivets

Have been specifically designed to allow single sided access. Most designs are based on applying tension to an integrated or reusable mandrel, which increases the body diameter on the blind side by splitting, bulging or expansion. Compared to nut and bolt joints, blind rivets provide a lower pre-load. Therefore, blind rivets are mainly used as shear joints.



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Tightening the fastener choice for sheet metal

Continued



Some blind rivets have the additional benefit of being hole filling, increasing joint integrity.

Blind rivet nuts and studs

Can be used as a hybrid solution, whereby the rivet part either fits in a single-layer component or joins multiple layers together. The addition of a metric thread, either as stud or nut, enables further metal sheets or components to be joined with respectively a nut or screw.

The concept of blind rivets can be found in the use of solid rivets, where one side of the fastener is deformed using an anvil or die when the fastener has been placed in the hole. Solid rivets do therefore need access from both sides and through-holes in the sheet metal.

Self-piercing rivets are a variant on this subject, where a cup shaped, hardened rivet is pushed into the metal. The hardened rivet deforms the layers of sheet metal and forms an interference joint. Generally, a die is used on the blind side to create a mating profile. In certain materials, such as aluminum, it is possible to set the fasteners without the use of a blind side die. The benefit of this method is the possibility to automate assembly without the need of preparing the joints with holes to fit the fasteners.

Developing products for a 'circular economy' finds its fundamentals in developing products with an extended economic life span and are then suitable for re-use, repurpose or recycling at minimum cost and maximum efficiency and retention of value.

This does place again emphasis on the use of reversible threaded fasteners, allowing reuse of parts during repair

and maintenance and easy recovery of individual parts when the application is dismantled.

As was earlier established the use of bolts and nuts have the benefit of being removable, but require access from both sides, unless either part has a pre-fitted nut or male threaded part. Cage nuts and captive screws are well-known examples. The nuts can be clipped into square holes and are often used to compensate for some misalignment in joints.

One option is to attach the male threaded part to one of the components. This can be done either by welding or clinching. Weld studs can be manually or fully automatically placed and have an aesthetic benefit of being (nearly) invisible from the blind side, because no part will protrude. A downside is that parts have to be welded before coating or painting and generally the stud and component material have to be similar to allow welding. If double sided access is possible before assembly, studs could be fitted to the component by clinching. Self-clinching studs do require a prepunched hole, but the stud to be of a dissimilar material to the component material. All parts can also be pre-painted or coated. Instead of fitting a male fastener part to the component, it is possible to pre-fit a nut. This can also be done using self-clinching products such as the K-Series® nut. Alternatively, self-piercing nuts or weld nuts are an option. Eventually, it might be possible to remove the nut completely and fit a screw directly into the sheet material. With a preference for isometric threads, it can be possible to cut punch or laser a hole or deep drawn a collar, which can then be tapped with a thread.



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Tightening the fastener choice for sheet metal

Continued

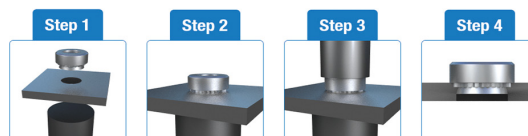


Doing this requires additional operations during the manufacturing of the individual components adding to cost.

The use of thread forming or cutting screws removes the need of creating a screw thread in the counter parts, reducing number of operations, part numbers and overall cost. Some methods require a pilot hole, where other types of screws can be installed directly into the sheet metal without the need of a hole. Self-drilling screws are equipped with a drill bit shaped point which creates a hole into which the thread is formed. Even though not requiring a hole for installation is attractive, formation of swarf limits the use in mass production environments.

Flow drilling and flow forming screws are also equipped with a special tip, but instead of drilling, it is designed to melt the material locally to allow the sheet material to flow and a mating thread to be formed by the screw. The joint will be resilient against vibrational loosening due to intimate mating of the threads. Flow drilling screws do require robotic installation and high installation speeds, whereas flow forming, such as the TR EPW screws can be installed manually.

Equipping parts with pilot holes or pre-extruded holes, thread forming screws can be used. These can either be fitted with a thread forming tip or have a trilobular design, which aids thread rolling. These types of fasteners are used extensively in automotive and other high-volume assembly lines. The benefit of this type of screws is the adherence to a metric thread form, allowing the fastener to be replaced by a standard metric screw in case of repair and maintenance.



TR Clinch Nut Installation:

Program Requirements

An important point to consider when selecting a fastener are the features and benefits versus the limitations of the various systems. It is also useful to consider what assembly methods are already used on the assembly and production lines to be able to utilize existing tools and equipment without the need for capital investment.

Key points to consider with any joint:

Materials and thickness to be joined – is it possible to standardize?

Strength of the connection and type of joint – torque tightening or shear joint?

Corrosion resistance – do materials suit together or is there chance of galvanic corrosion?

Accessibility – can the joint be reached from both sides or would single sided access be required or beneficial?

Automation – are the fasteners to be installed automatically to cope with high volumes?

Takt time – not every fastener installs at the same speed.

Poka-yoke – ensure that the correct fastener is used in the correct joint. **Credit: Institute of Sheet Metal Engineering**





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TR Viterie Italia Centrale successfully passes IATF 16949 audit



Stefano Pisoni, Managing Director (pictured left), TR VIC commented;

"I am pleased to report that Bureau Veritas audited TR VIC in April 2021, in accordance with the requirements of IATF 16949. The Bureau Veritas auditor certified that the Quality Management System of TR VIC has been found to be in accordance with the requirements of IATF 16949.

This was an intense 4-day audit, which involved detailed checks in all departments. The final report, issued by the auditor, declared only 2 minor non conformities. I am extremely proud of the way the whole team in TR VIC have performed, especially when we are already exceptionally busy meeting customers increased demands."

Andrew Nuttall, European Managing Director (pictured right), expressed his gratitude;

"Knowing how very busy the manufacturing location is and that all employees are working incredibly hard, so to accommodate a 4-day audit was a big ask. But as usual they did not fail the task, and in fact exceeded our expectations."





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Collaboration a top priority as Trade Group strategy unveiled



The North East Automotive Alliance (NEAA) has signalled its continued commitment to driving collaboration within the region's automotive sector, with the unveiling of its Trade Group strategy for 2021.

Established in 2019, as a result of the NEAA advisory board's five-year strategy review, the Trade Group supports member needs in relation to trade activity through networking, collaboration and shared best practice.

Its 2021 strategy has been formulated using updated intelligence received from a member survey that revealed 100% of respondents benefitted from group initiatives and 94% gained value from networking with likeminded individuals.

The updated strategy includes sharing best practice, support with the latest industry challenges in relation to trade and identifying, facilitating, and understanding funding opportunities for overseas trade missions. With only 58% of members having a strategy for international expansion, the group also plans to support companies with developing a new trade strategy.

Within the 2021 plans, the group will look to showcase the positive impact it has provided members to date, with a view to attracting new companies who can add further value.

A notable example of success is the member collaboration between GT Group and global logistics specialist, ThinkPrime. The latter came to the aid of GT Group,

helping to expedite the release of urgently needed goods held up at Heathrow by HM customs. As a result of its knowledge and experience of HM Customs' operating procedures, ThinkPrime helped to quickly unlock the delay and ensure the goods reached GT Group.

Chris Black, global sales director of automotive business development at TR Fastenings and chair of the Trade Group, said:

"The group brings together member companies to help one another when it comes to trade and export. TR Fastenings has proudly been part of the group since its formation in 2019. We have shared experience, knowledge, and best practice with members to assist them with growth and international expansion plans. TR Fastenings has, itself, greatly benefited from collaborating with fellow NEAA members on a number of trade related subjects.

We are now in a position where we can showcase the benefits of being part of the group and 2021 is really about highlighting these, as well as getting companies ready to maximise future trade missions and face-to-face events."

Rohan Kohli, project manager at the NEAA, said: *"The Trade Group has gone from strength-to-strength in terms of member participation and we are now starting to see the real impact from our activity. Continuing to strengthen engagement and momentum going forward, is a key priority. We have been very proactive in supporting members over the past year with regards to current challenges and the changing landscape.*



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Collaboration a top priority as Trade Group strategy unveiled

Continued



The strategy for 2021 is to document and showcase the significant impact the group has made, continue to share experiences and support members in growing their export business in key regions.

We encourage organisations who are exporting, or those with export intentions, to get in touch to discuss the benefits the group can offer. If there is one thing the past year has shown us, it's that we can achieve more by working together."

The NEAA was established to support the economic growth and competitiveness of the automotive sector in the North East by providing a single unified voice to key stakeholder groups. It also promotes the value created by the region's automotive industry.



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Plastics – Sustainability and the Environment



Over the last century plastics have impacted all industry sectors by providing innovative solutions to the world's evolving needs. In more recent years, major material improvements have seen a global surge in demand for plastic in rapidly advancing industries such as healthcare. Today's most ground breaking medical applications are dependent on plastics; from MRI and X-ray machines to prosthetic limbs, artificial joints, heart valves and the smallest of tubing, modern healthcare would not be possible without the use of plastic materials.

By Kevin Rogers, Director of Plastics and Rubber Commodity at TR Fastenings. Originally written for Med-Tech Innovation News

With net zero targets in place and environmental sustainability now an important priority for medical plastics and device manufacturers and their supply chain, the industry is now moving in an entirely new direction, that of a sustainable and eco-friendly plastic product. In this article we explore how plastic meets the sustainability agenda.

Let's start with the facts

- In 2019, global plastics production reached 370 million tonnes, with 57.9 million tonnes produced in Europe generating a turnover of more than 350 billion euros in the European plastics industry
- 60% of plastic products and parts have a use phase of between 1 to 50 years plus and this lapse of time

determines when they will potentially become waste

- Only 5% of worldwide oil supply is used to manufacture plastic, producing around 5% of the polluting hydrocarbons

(Sources: [Plastics Europe Market Research Group](#) and [Association of Plastic Manufacturers 2020](#)).

Now for the Science part

Plastics are polymers, long chains of molecules made from repeating links called monomers, often produced from chemicals like petroleum. Operating temperatures can vary by hundreds of degrees Celsius and its molecular structure can be engineered to present different characteristics—to be flexible or hard, transparent or opaque. They are recyclable, durable, strong, lightweight, water resistant and relatively easy and inexpensive to manufacture.

Most modern plastics are made from fossil fuels like natural gas or petroleum; but as new technology emerges, plastics are also being produced from renewable materials like corn or cotton, recycled oils, secondary plastics, responsibly sourced biomass and even CO₂. There are thousands of patented plastics spanning countless sectors, all with unique attributes that make them fit for purpose.

Plastics fall into two primary groups:

Thermosets strengthen when heated, but they cannot be melted or re-moulded once set, such as melamine, vinyl, silicone and acrylic.





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Plastics – Sustainability and the Environment

Continued



Thermoplastics, as used by TR Fastenings, can be re-heated, re-moulded and re-used repeatedly, such as polyethylene (PE), polypropylene (PP) and polyvinyl-chloride (PVC). These are not single use throw away items, they are generally in place for many years, and when finally discarded, can be re-cycled.

Versatility and recyclability of Plastic

The variety and complexity of modern injection moulding means multiple 'metal' parts can be replaced by a single plastic component; beneficial in reducing costs but more importantly retaining necessary strength and integrity, increasing efficiency and lowering emissions.

During the process of moulding, some thermoplastic material is always left over and can usually be recovered from factory components like sprues, gates, flash and runners. While the plastic has already been used once, it can be used again by blending it with virgin resin and this is known as "regrind".

At this point, it's important to understand that not all plastic products are the same and not all have the same service life. Some are a product in itself (e.g. bottle) and some are parts of an end-user product (e.g. an electronic device, a face visor or mechanical ventilator).

According to a recent report by the [Ellen Macarthur Foundation](#), plastic usage has increased twenty-fold in the past 50 years and is expected to double again in the next 20 years. The New Plastics Economy is gathering momentum and with this opportunities to create an effective after-use value chain.

Response to COVID-19

COVID-19 triggered a dramatic upturn in demand for TR's fasteners and components that were essential for medical devices needed on the front-line, typically used in ventilators, medical beds and furniture, ultrasound machines, imaging equipment and defibrillators amongst others.

Plastic components such as cable management, PCB fasteners and various other clips have also been in demand and from TR's point of view these products can often be reused or recycled.

Part of a sustainable future

The strength of TR's partnerships with companies on an engineering level enables the team to not only keep up to date with advancing technologies but to react quickly to customers changing requirements, with sustainability a key factor with all products supplied. The rise in demand for plastic fasteners across a multitude of sectors has seen TR's range expand dramatically with new products recently launched including the premium [HUMMEL cable glands range](#) used in medical applications.

The medical plastics industry is complex and fast evolving with growing opportunities to advance sustainability from design inception through to product end-of-life. The transition to a low-carbon circular economy - where products are designed smartly with their whole life cycle in mind - is certainly on its way, with plastics continuing to shape our lives.





Women in the Fastener Industry - Glenda Roberts, TR Fastenings



Glenda Roberts, Global Projects & Marketing Director at TR Fastenings, talks staying connected through hybrid working practices, company plans for expansion and her love for the industry with Torque Magazine...

Credit: Torque Magazine

How did you get into Fastenings?

By default, if I am honest! I was Regional Sales Manager with several American owned companies selling fast moving consumables e.g. food and beverage products to the HQs of supermarkets and pharmacies.

This was in the 1980's before computerization, and stock management and replenishment planning to ensure that the product was in the right place, in volume and on time was a very manual process. I could see that with new technologies emerging the need for large sales forces would become a thing of the past. I put my CV out with agencies and the rest as they say is history and that is how I joined a Fastener Distribution Company.

My career Highlights and Milestones

I joined TR as Sales Director for one of the Manufacturing facilities and progressed to Sales Director for the UK and Ireland. Over time as TR developed sites around the world, I became the Group Sales and Marketing Director and formed a Global Strategic Team to manage major OEM's and their subcontractors. This proved to be a successful strategy and I joined the Trifast plc Main Board in 2011. Currently my role is on the Operational Executive Board and I have responsibility for Global Projects and Marketing.

What are the biggest changes that you have seen in the Industry?

Without doubt it is the Modern workplace that we have today with all of the tools that we have at our fingertips. We have 32 sites in 16 countries and as a global company connectivity is key.

This was never more evident than during this Pandemic where we were able to communicate with our workforce, customers, and suppliers through video conferencing tools such as Microsoft Teams and Zoom. Having data and statistics instantly, as well as search engines to assist with research and varying information, has transformed the way we all work. Adopting "hybrid" working practices encompassing the ability in certain roles to work from anywhere and still be effective, has also changed the perspective that we need to be in an office to be productive. That could not have happened even 5 years ago.

Other changes in my 31 years with TR is that we have a far more balanced gender workforce as this industry had been notoriously male dominated.

Seven of our locations have female General Managers who have progressed through the company from differing disciplines including Quality, Project Management, Finance and Sales.

What do you think needs to be done to encourage more women joining the Fastener Industry

I don't believe that we need to do anything. The world will always need fasteners, so it has longevity and our teams





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Women in the Fastener Industry - Glenda Roberts, TR Fastenings

Continued



interact globally, so it is an exciting company to be in.

I have travelled on company business to four continents, and so have a number of colleagues which gives you many interesting experiences that people rarely get in their usual job roles. It is a fascinating industry as our fastenings go into an amazing range of products from Domestic Appliances to 5G infrastructures to Electric vehicles. We are members of WIFI who promote roles for women in the Industry. I have loved being in this Industry.

The effect Covid has had on TR and the consequences

As the Pandemic moved around the world, we saw the impact that it had quite quickly in our Asia operations. As the virus moved into Europe, the UK and then North America we saw the scale of the reduced requirements from the OEM's. So yes, we were impacted, and we felt the financial pain that everyone else did. We had a strong balance sheet which carried us through, and we saw recovery as soon as August of last year.

All of our locations, including the manufacturing sites thankfully remained open as we were classed as an "Essential Supplier" by many of our customers. This included companies in the medical sector where we worked to support them particularly with parts for their ventilator productions. We are seeing that there is pent-up demand in the marketplace for everything from washing machines, vacuum cleaners, power tools and now of course from the burgeoning electric vehicle and battery developments. We are already quite heavily involved and have received some good business awards. The challenge now, which is a good one, is in managing the volume

increases that have ramped up in the last 5 months.

From a people perspective within the company despite remote hybrid working we somehow have been more connected than ever. It has consolidated the team spirit. However, as a company we are conscious that lockdowns and working from home can also bring other stresses. We have been proactively working with anyone that needed help and providing support as for some it has been a lonely existence and they miss the office environment. We all just want to get back to whatever the new normal will look like in the future as soon as possible.

We have a 5-year plan in place to expand

Despite the Covid situation we have invested in new machinery in Asia, Italy and in the UK to build up our inhouse capability and increase the capacity.

We are focused on new products to add to our existing extensive range, some of which are meeting the needs of the latest industry requirements in EV and BEV. We are actively seeking acquisitions of companies with a similar culture to TR to increase our manufacturing portfolio and our production capacity. At this moment in time we are recruiting in a number of our regions to further strengthen the teams, and also to bring in new skills. A good example which helped earlier this year would be where we have recruited specialists in customs processes due to Brexit which helped us through this difficult learning curve. Basically, there is never a dull moment



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Appointment of a new Managing Director in TR VIC



Stefano Pisoni has joined international fastener specialist TR VIC spa, part of the Trifast plc group of companies, as the new Managing Director. An inspirational leader with a proven track record in several industry sectors, Stefano has many years of experience working in senior management roles for a number of influential corporations, including Italian automotive giants Magneti Marelli spa and Pirelli Steelcord. His previous roles and his in-depth knowledge of international business markets combine to make him a natural choice to lead TR VIC into the future.

Stefano worked as both a Quality Manager and a Technical Director at Black & Decker Italia, and during that time he spearheaded a number of important initiatives. These included the development and introduction of several brand new products as well as the restyling of many more. Under Stefano's guidance, the Italian operation became the first Black & Decker section in the world to adopt a JIT – KANBAN inventory control system.

His successes at Black & Decker led on to a General Manager role at Sirci spa, a leading Italian manufacturer of plastics and plastics systems with more than 100 employees. Improved quality and supply chain systems helped the company to increase both domestic turnover and export sales. Stefano went on to work for Sirci Grestinex spa as General Manager and then, in 2011, he was named Managing Director of GDS srl, a large organisation with more than 350 workers and three

offshoot companies.

Stefano joins TR VIC after several years working as a specialist consultant and, latterly, as a Plant Manager and BU Director for Proma spa, a market leader in the production of various components aimed at the automotive sector. Like TR VIC, Proma plays a crucial role in this field, and has a strong presence in a number of countries around the world.

His appointment underlines TR's on-going commitment to expand its European operations, especially in the wake of continuing demand increases across the region. TR VIC is a hugely important part of the company's infrastructure, and the arrival of Stefano will dovetail with a major focus on increasing capacity to reflect growth in vital markets. The Italian operation has recently passed an important 4-day audit as part of its IATF 16949 assessment.

Helping Stefano to achieve targets along with his Co-Director Francesco Cricco, will be a talented team of five senior individuals, consisting of managers in Procurement, Quality Assurance, Operations, Production Engineering and Application Engineering. Along with European Managing Director Andrew Nuttall, Stefano and his team will be looking to use upcoming investment to expand the company's initiatives in the energy, tech and infrastructure markets.

In the wake of the Covid-19 pandemic, one of Stefano's more pressing responsibilities will be to guide the company's adjustment to new working conditions and practices. Supporting staff members during this difficult time will be vital, as will ensuring safe working



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Appointment of a new Managing Director in TR VIC

Continued



environments and responding appropriately to the need for more flexible working. TR VIC has more than 120 employees, so this flexibility will be a must-have.

Andrew Nuttall, European Managing Director at TR Fastenings says:

"During his career, Stefano has displayed a strong focus on innovation, product development and opportunities to increase market share, and we look forward to heralding a new era for TR VIC both regionally and within the global operation."





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New investment in lathe technology at TR's Hank® manufacturing plant



TR Fastenings, part of the Trifast plc group of companies, has maintained a strong presence in East Sussex for many years, and the latest arrival at its Hank® manufacturing facility in Uckfield represents an important investment in its UK operations. Despite the challenges that Covid-19 has presented, demand for TR's products continues to increase and the purchase of a high performance CNC Sliding Head machine reflects this.

Sliding head technology

The SR-32JII Type A unit is a high performance sliding head lathe supplied by Star Micronics GB. Its utilisation will enable TR to get products to market faster and with more efficiency, a vital requirement during the economy's post-Covid recovery. With pent up demand, the machine will work alongside the 50 existing units, enabling TR to meet the needs of customers.

Amongst its many benefits, the SR-32JII Type A offers greater accuracy, higher rigidity and, crucially, opportunities to expand productivity levels. Increased spindle power and more flexible tooling options will also help TR to add to the number of products already manufactured at the plant.

The strength of UK manufacturing

In the wake of Brexit and the Covid-19 pandemic, there has been a greater emphasis on UK manufacturing, and TR Fastenings is delighted to have worked alongside

Derby-based Star Micronics GB in the commission of this new machine. This is TR's commitment and undertaking to increase its British production capabilities. Star Micronics has been pleased to support the installation, saying *"thank you to TR for placing your trust in our products"*.

Specialists from Star Micronics were on-site to commission the machine and to oversee relevant training for TR users. The SR-32JII Type A weighs more than four tonnes, and the installation and implementation process took four days.

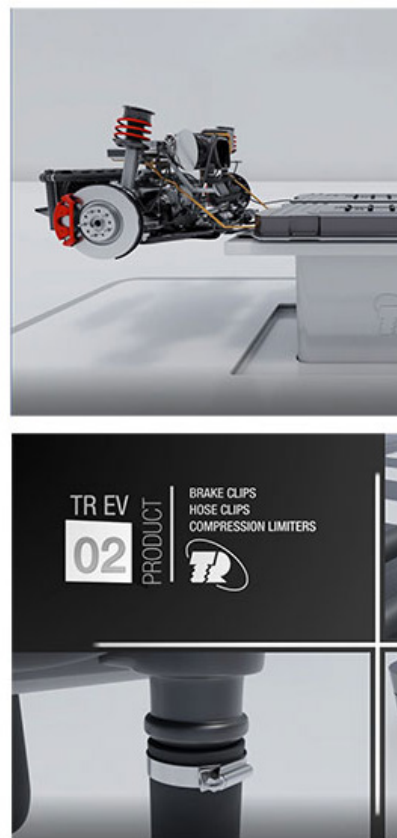
The European Managing Director of TR Fastenings, Andrew Nuttall, is already looking forward to the benefits that this investment will bring, saying *"this purchase underpins our commitment to the future of our British manufacturing, and it represents our continuing faith in our East Sussex facility"*.

[Click here](#) to watch our YouTube video.



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The changing requirements of Fastenings in the evolving Electric Vehicle market



By Sven Brehler, Director of Engineering, TR Fastenings

The rapid acceleration of growth in the Electric Vehicles and associated products such as batteries and charging units has required a different approach. No longer does it take time to go to market as with conventional vehicle production. Instead “fast to market” is the byword as new and existing companies enter the market with the mindset that we are far more used to seeing in the Electronics and IT sectors. In conjunction with this comes technical challenges as new products are developed requiring different solutions that meet the stringent requirements particularly in the battery casings.

Where are fasteners used within the Electric Vehicle?

TR's Electric Vehicle animation details the areas within the vehicle where the fasteners are specified.

Meeting the EV Battery challenge

As you can see from our animation showing where fastenings are used, the new designs of the interior of the car are also changing.

The latest “Skateboard” platform is the basis for many new electric vehicles, including people movers, delivery vehicles and buses. This new manufacturing concept cuts down on complexity and can be common across different vehicles and scaled easily.

The modular, self-contained Skateboard designs can form the basis of multiple vehicles with minimum requirement

for re-design. Much focus is placed on the load bearing structure, which integrates the battery pack and drive train. Interchangeability of various modules within this design allow the Skateboard and therefore new vehicle models to stay at the cutting edge of battery and drive train innovation.

The interior of the vehicles is changing dramatically too, particularly within the cockpit. We are seeing many new concept designs which all require fresh thinking in terms of fastener applications. Fasteners are now also being used as a visual design feature, which you will see in new models with the manufacturers name stamped in the head. These need to be aesthetically pleasing, and the finish quality is critical for longevity. The increase of in-car technology e.g. IT connections with 5G and large IP console screens, and concept seating are challenging the conventional fixings, especially into composites.

Correct fastener design and selection is key to the success of the modularity and design life of the Skateboard platforms, by strategically selecting serviceable fasteners where modules or elements will require maintenance or potential updating in future. Designing in reversible joining – bolt and nuts – does allow for a more economical - potentially automated - retrieval of undamaged individual components. The right selection of fasteners will also help meet eco-design criteria. This retains the maximum value at the end of a vehicles life and plays a part in the preparation of extended producer responsibility regulations, where they have to consider final responsibility for disposal of their manufactured products.

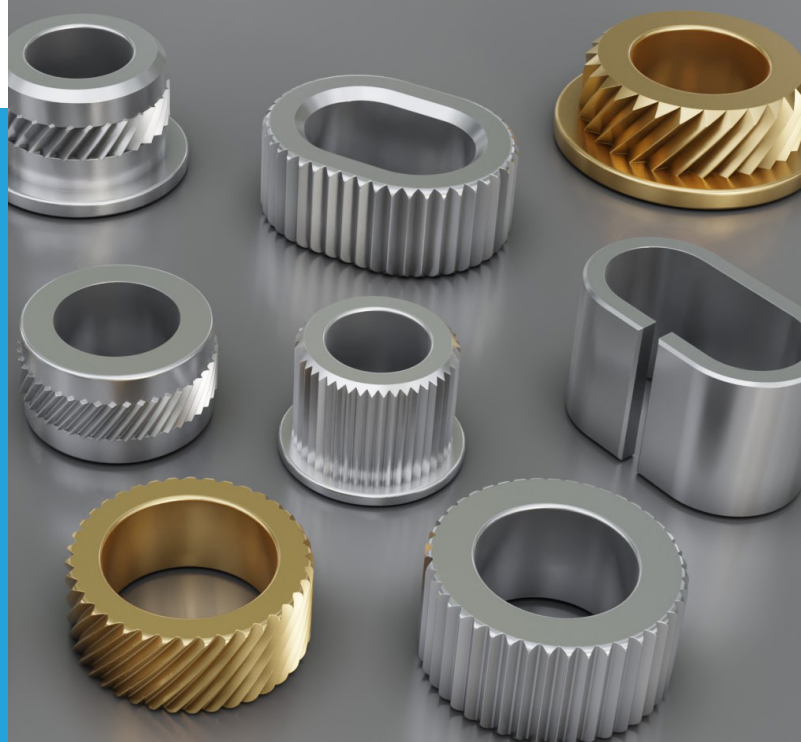




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The changing requirements of Fastenings in the evolving Electric Vehicle market

Continued



Where appropriate, non-serviceable joints, such as moulded inserts and self clinching products can be designed in. TR's engineering expertise has supported several companies to optimise design, considering the ease of manufacturing, product cost and where possible considering lightweighting saving the use of mixed materials.

One of the best illustrations of this has been the increasing use of composites in assemblies. Therefore, the need for product such as Compression Limiters which are designed to take the fastener load and provides a structural through hole without a risk of delamination, creep or stress cracking. Generally, these are produced in steel, stainless steel, brass and aluminium and designed and manufactured to exact specifications. There may also be a need for electromagnetic shielding requiring electrically conductive fasteners.

The demands of the Circular Economy and meeting the recyclability of product is a strong consideration in any new design. At the end of the economic life of either the vehicle or mobile battery, there is the option to re-use or repurpose. The importance of the highest number of components capable of being recycled is a key factor and fastenings are no exception. Ease of disassembly for battery pack removal is an additional factor. Most of these challenges can be overcome or their effects reduced, with the right engineering choices. TR can provide support and delivery of suitable products.

Rationalisation and standardisation of fixing methods and drive systems, such as hex lobular fasteners, which have a

similar torque capacity during assembly and disassembly can support automation. TR engineers can also share their experience in fastener positioning for easy access or help to select suitable materials or coatings to avoid fastener damage through galvanic corrosion.

Often connectors, charging pins and busbar components are not considered as fastener products but they are part of a holistic product offering as their mating components. It is important that the entire assembly is viewed in the round to enable a better understanding of requirements. We have the capability to deliver thermal and electrically conductive products in copper, aluminium, brass. These can be tin, or silver plated - and if required, compliant with technical cleanliness requirements.

We can also challenge designs, originally machined, to be partially or completely cold formed, increasing cost effectiveness and carbon footprint of the product. At the end of the economic life of either the vehicle or mobile battery, there is the option to re-use or repurpose. Unfortunately, not all battery technologies lend themselves for repurposing due to poor cycling performance. In other cases, the limitations are due to few available disassembly facilities or lack of batteries themselves to consider repurposing on a commercial scale.

So, the consideration of assembly of new materials and their recyclability make for new challenges in this fast paced growth opportunity.





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TR Fastenings' Sven Brehler to judge Electronics Industry Awards 2021



The 2021 Electronics Industry Awards is an important and influential event, and this year we're delighted to announce that Sven Brehler, Director of Engineering at TR Fastenings, will be one of the judges. The awards celebrate and reward outstanding talent within the industry, and are understandably seen as a prestigious opportunity to showcase people and projects that are shaping the future of the sector.

The event is organised by Datateam Business Media in association with several high priority industry organisations, including Components in Electronics magazine, Electronics World magazine, Electronics magazine and the Electronic Components Supply Network. Now in its fourth year and rightly regarded as a key occasion in the industry's calendar, the awards ceremony will be taking place at London's Tower Hotel on October 21st, 2021.

There are three main awards sections to be decided. One is for businesses, which will be decided by public vote, while product and individual awards will be decided by a team of industry experts, including Sven Brehler. One individual is set to be a winner, while nine products will also be commemorated. Many of the most celebrated electronics companies have been previous winners in the Electronics Industry Awards.

TR has been supplying to global customers in this sector for over 40 years. Sven's technical involvement in this and other sectors, such as Electric Vehicle and battery development, makes him an ideal candidate.

TR Fastenings, a Trifast plc company, are specialists in

the design, manufacture and supply of a diverse range of fastenings across the light vehicle, heavy vehicle, health & home, energy, tech & infrastructure and general industrial sectors. Sven was pleased to be invited as a judge and will enjoy this involvement. He will use his knowledge and experience of global manufacturing to ensure that he assists in selecting the best company to receive the award.





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The acquisition of Falcon Fastening Solutions Inc enhances Trifast plc (TR) North America footprint



TR continues to expand its presence in strategic areas globally to support the localised service required by many of its OEM customers. Mark Belton, Trifast's CEO comments:

"The Carolinas region is a strategically important area for us where a number of our global OEM's have facilities. The culture, values and work ethic at Falcon in many ways reflect those of TR. We believe that the combination of Falcon and Trifast's locations, experience, knowledge base and skill sets will open up significant opportunities."

Now branded as TR Falcon, the company will continue to be managed by their President Giovanni Cespedes, a well-known figure in the fastenings industry who has worked for the business since 2008. Based in Charlotte and Kentucky, TR Falcon was founded in 1979 and has remained as a family business during that time.

Trifast's customer proposition is built around experienced design and application engineers, supported by its own manufacturing locations which combine to provide innovative and responsive fastener solutions to customers' application problems. This is supported by Trifast's reliable distribution and supply operations around the world which flex to fit customers' needs across a broad range of industrial fastenings and C-class components.

Trifast and Falcon have much in common in their approach. Providing a high level of customer service coupled with logistics support is an important part of both companies offering. Following the acquisition, TR Falcon will have the benefit of access to the TR group's

7 manufacturing sites, and the additional support of technical and engineering teams to assist them in their growth plans. Giovanni sees this as "a fantastic opportunity for Falcon's employees, customers and suppliers" which will build on the existing business and thanked his Team for their hard work and loyalty over the years. Being part of a global company will create new avenues for sharing, collaboration, and growth.

This acquisition is complimentary to TR's existing North American operations in Houston, with TR Falcon adding their expertise in the areas of Energy, Health and Home and General Industrial to Houston's capabilities in the Automotive sector.

Additional investment and further acquisitions are a key part of Trifast's future expansion plans in North America. TR are continuing their search for other strategic acquisitions both for distribution and to add local capacity to TR's fastener manufacturing portfolio.



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Glenda Roberts Q&A: Women in Fasteners feature

Credit: Interplas Insights, Grace Nolan



Q: How did your career path lead to your current role?

I was Regional Sales Manager with several American owned companies selling fast moving consumables such as food and beverage products to supermarkets and pharmacies. This was in the 1980's before computerization, when stock management and replenishment planning to ensure that the product was in the right place, in volume and on time, was a very manual process. I could see that with new technologies emerging the need for large sales forces would become a thing of the past. I interviewed with an agency and landed a role in a Fastener Distribution company and the rest is history! I just about knew the difference between a screw, nut and washer, but I had a good sales track record and fortunately a few good mentors who helped me with the product knowledge over time.

Q: Could you discuss the strategy behind TR's success in plastics as a growth area.

TR has been known for their Vendor Managed Systems within customers production facilities since the 1980's. It was quite revolutionary at the time and JIT stock became the vogue. As these systems provided real benefits for customers in terms of TCO - Total Cost of Ownership e.g. reduced stock levels and increased stock turns more product was added to the system. It was inevitable the plastic fasteners and cable management products were added. We recruited Kevin Rogers as Commodity Manager to develop the range, identify vendors, and create the sales and marketing strategy for the product range.

Kevin came with a wealth of experience from his previous

role and was recently promoted to Director of Plastics and Rubber - Sourcing and Category Management.

Initially we focused on supplying the non-automotive industry sector, but over time as we have developed the vendor base this is now a growth area for us. Having a prototyping capability, with much shorter tooling lead times for specials has been a winning combination. We focus on collaborating and giving support to customers providing the right solution for their application, whether it is a standard product or one that needs developing from scratch. Early involvement is a key factor.

Training internal and external sales personnel is vital and we have online training tools to assist, and staff in our products team who are on hand to give technical and commercial support. The TR website is a go to place for Engineers and Designers and we have added over a thousand new products to enhance the range in recent months. Full technical specifications are available supported by CAD models and an increasing number of animations to illustrate where the product can be used.

Recruiting in expertise in this Commodity has been key and Andrew Fletcher joined earlier this year as Director of Plastics and Rubber – Commercial and Technical.

Q: What are your hopes for 2021? Do you have any upcoming projects?

The pent-up demand following lockdown, and the trend for people upgrading their home, managing their health during this period has seen a significant rise in Domestic Appliance production and Health related products.



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Glenda Roberts Q&A: Women in Fasteners feature

Continued



All of these are fastener rich with a high content of plastic fasteners required.

To drive business forwards during the Covid-19 period, we have invested in new production machinery in Asia, Italy and the UK to build up our in-house capability and increase capacity on metal fasteners. The plastic fastener range is very diverse, and our focus is developing further world class vendors and adding them to our supply base. Kevin and Andrew have been frustrated at not being able to travel during this period of time and hopefully now we can see some easing of restrictions, this could become possible again. We do have SQE engineers based on each Continent and that has helped us to a degree in assessing new vendors. We are focused on adding new products to our existing extensive range and meeting the needs of the latest and exciting opportunities in Electric Vehicle (EV) and Battery Housings (BEV).

We are actively seeking acquisitions of companies with a similar culture to TR to increase our manufacturing portfolio and increase our production capacity. At this moment in time we are recruiting in a number of our Regions to further strengthen the teams, and also to bring in new skills. A good example which helped earlier this year would be where we have recruited specialists in customs processes due to Brexit which helped us through this difficult learning curve. Basically, there is never a dull moment!

Q: How important do you feel female role models are to the younger generation and did you have one?

It was a very male dominated industry many years ago

as most fastener companies then were manufacturers and not distributors. I did not have a female role model and never felt that I needed one either. I had some great people early on who recognised that if they helped and supported me that we would make a strong team with a combination of sales skills and their engineering expertise..

Young recruits today just expect to see a well-balanced and diverse workforce.

Q: Do you feel there is enough information/opportunities for the next generation to be encouraged to have a career in your line of work?

There are so many opportunities for the next generation in our industry. The world will always need fasteners, so it has longevity and our teams interact globally, so it is an exciting company to be in. I have travelled on company business to four continents and love sharing interesting experiences with my colleagues! It is a fascinating industry as our fastenings go into an amazing range of products from Medical, Domestic Appliances, Defence, 5G infrastructures to Electric Vehicles.

We are members of Women in The Fastener Industry (WIFI) who promote roles for women in the industry to open up opportunities and see the potential for a great career in fastenings, and I am living proof.



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TR VIC host important Confindustria Umbria executive board meeting



Confindustria Umbria, Italy's influential Industrial Federation of Umbria, asked TR VIC to host their monthly executive board meeting in September. The event, held at TR VIC's headquarters in Fossato di Vico, Perugia, was a great success, and provided the perfect opportunity to showcase the company's recent successes, despite the difficulties caused by the Covid-19 pandemic.

VIC to the Umbrian business community.

The executive board comprises 25 members, many of them from prominent Italian corporations such as Colacem S.p.A., Colabeton S.p.A. and Rocchetta S.p.A. All 25 members were able to attend on the day, and one of the main highlights was the chance to view TR VIC's manufacturing processes and quality lab.

Stefano Pisoni, TR VIC Managing Director, was asked to give a presentation about the company's outstanding successes during the pandemic, and he was able to pass on valuable advice for other corporations to follow during the Covid-19 recovery period. TR VIC is one of the few companies in the region to have performed well over the last 18 months.

Francesco Cricco, CFO of TR VIC, gave a speech on the importance of customers and competitors, and Operations Manager Tommaso Bussini spoke about TR VIC's manufacturing processes, its overall manufacturing organisation and its products.

The day itself was extremely successful, having generated numerous positive responses from those who were in attendance, and served to underline the importance of TR