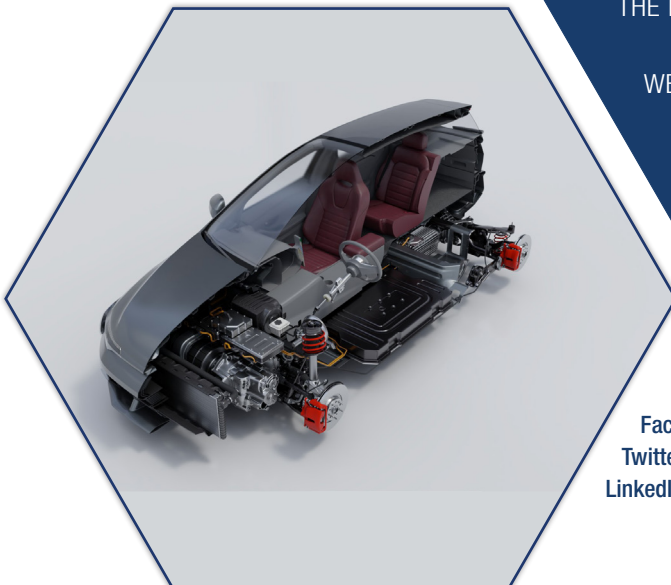




## TR PRESS PACK In the Spotlight

**TR FASTENINGS** IS RECOGNISED THROUGHOUT  
THE INDUSTRY FOR WORLD CLASS PRODUCTS  
& SERVICES

WE MANUFACTURE, STOCK & DISTRIBUTE  
A VAST RANGE OF INDUSTRIAL  
FASTENERS & COMPONENTS



[marketing@trfastenings.com](mailto:marketing@trfastenings.com)  
[www.trfastenings.com](http://www.trfastenings.com)

Facebook - [www.facebook.com/trfastenings](https://www.facebook.com/trfastenings)  
Twitter - [www.twitter.com/trfastenings](https://www.twitter.com/trfastenings)  
LinkedIn - [www.linkedin.com/company/tr-fastenings](https://www.linkedin.com/company/tr-fastenings)

# TR In the Spotlight

## Starting with a bang: Encouraging young people into STEM careers



August 2019



At TR Fastenings we are really proud to champion young engineering talent. We have long recognised the need for Science, Technology, Engineering and Mathematics (STEM) skills across many aspects of our business, not just in the 'traditional' engineering departments.

In this blog, we will share our experience of nurturing interest amongst young people to embark on STEM careers and in particular, the schemes and apprenticeships we are proud to run in our business.

---

### What are STEM skills and why are they so important?

The rapid growth of high-tech jobs and a lack of uptake in STEM education in recent years, particularly by girls (a government report highlights that only 8% of STEM apprenticeships are undertaken by women) have combined to cause a massive shortfall in the young people suitable and available for STEM roles. This is bad news for our economy.

Why are STEM skills so important? STEM education is vital for critical thinking skills which are fundamental to innovation and business success. It's not just the tech and engineering sectors that need employees with a STEM education.

The manufacturing, R&D, financial services, medicine and healthcare sectors and more rely on young people choosing STEM career pathways. In fact, critical thinking skills are essential for innovation across almost all industries.

---

### TR Fastenings gets involved in Sussex Big Bang Fair

We were delighted to be involved in the recent STEM Sussex Big Bang Fair South East. Two TR employees, Luke Murphy, HR Manager and Keith Gibb, Head of Web Development, were judges at the event to select finalists from heats for the Big Bang UK Young Scientists and Engineer Awards.

The event, now in its seventh year, aims to inspire young people to study STEM courses and pursue STEM careers. The Mid Sussex Times reported that more than ten thousand young people from 250 schools attended the annual event.

Luke Murphy said, *"This event is more important now than ever before. Technology around the globe is changing at such a rapid pace. We need to engage young people in STEM subjects, not only to address the current skills gap, but to ensure UK businesses are able to compete on the world stage in the future. The importance of nurturing upcoming talent has never been more pressing."*

# TR In the Spotlight

## Starting with a bang: Encouraging young people into STEM careers



August 2019



### Our apprenticeships

It sounds dramatic but the world would be a very different place without STEM. We need STEM to make a difference and to stay competitive in business and as a nation.

It's why we believe so passionately in investing in young people. Our two-year apprenticeship schemes offer school leavers an alternative route into a STEM career with TR Fastenings. Young people with a GCSE pass in Maths and English, who have an enthusiasm for business, good communication skills and an aptitude for learning, are invited to apply.

We also offer NVQ training in business administration and customer services.

### The future: what else needs to be done?

In 2015, the UK Commission for Employment and Skills reported that 43% of STEM vacancies were hard to fill. The skills gap has improved but there is still much work to be done by government, schools and business.

Encouraging and nurturing interest among children and young people is vital from an early age. This relies on educational policy, parents and collaboration between businesses and schools. Diversity across genders and ages also needs addressing. Supporting key influencers, (teachers, carers and parents), to help young people access STEM pathways is key.

Our young people are crucial for pushing the boundaries, making new discoveries and influencing the future of our business. STEM is the future and we're really proud to be helping young people be part of it.

August 2019



This week, (13/08/19) the [Government has announced an additional £2.5 million](#) to fund new electric car charging points on UK residential streets, it's clear that both consumer appetite and official policy are beginning to switch gear on the [issue of electric vehicles \(EV\)](#).

But it's still very much a chicken and egg situation. Mass consumer adoption of EVs will not become apparent until substantial charging infrastructure is visibly prevalent and not just a surprising addition to public places such as service stations and the occasional supermarket. Equally, extensive investment in infrastructure is not feasible until there are significant indications that EV take-up is growing and sustainable.

---

### Meeting the 2050 net zero emissions target

The additional funding aims to encourage people to charge their cars nearer their homes, in order to meet the 2050 net zero emissions target, satisfy demand and increase the widespread adoption of electric vehicles.

However, with range anxiety one of the major factors stopping this mass take-up of EVs, it's just as important, if not more so, to invest in infrastructure throughout travel routes. In the same way that petrol stations are never more than a few miles away, it's vital that charging points become part of the fabric of our lives, available at every place we visit.

The [automotive](#), [electronics](#) and [sheet metal](#) sectors all have their part to play in this wider EV adoption story. The supply chains behind these industries must all do their best to present cost-effective, easily accessible and sustainable products and solutions to support the growing infrastructure network. The Government funding announced this week is certainly a step in the right direction but more will be needed not only to meet demand but also to assert that the government and UK PLC is ready to embrace this fundamental shift in the automotive story.

---

### Facilitating large scale production

Here at TR, [we work very closely with partners, customers and OEMs](#) to ensure that all the components, materials and processes are ready to facilitate large scale production of EV charging points.

Our branded [sheet metal fasteners](#), [security fasteners](#) and [enclosure hardware](#) are all ideal for charging units and our specialist components are widely used in the [production of EV battery \(EVB\) parts and modules](#). Not only can we advise our customers on the best solutions for this evolving corner of the market but we can also provide insight-driven consultancy on the market trends and technology developments that are shaping the future of EV and charging networks.

July 2019



In June, London Mayor Sadiq Khan announced his ambitious plan to radically expand the capital's EV charging infrastructure, but what does this mean for the market of electronic vehicles?

Speaking at the launch of the London EV Infrastructure Delivery Plan, Mr. Khan declared; *"We need to reject the fossil fuels of the past and embrace an electric revolution in London's transport."*

In a bid to tackle the twin dangers of London's toxic air crisis and the climate change emergency, Khan's plan to become a zero-emission city proposes;

- 2,300 to 4,100 rapid charging points (full charge within 20-30 minutes) to be installed by 2025
- Installation of five flagship charging hubs, allowing for multiple cars to be charged quickly in one location
- Expansion of EV clubs, and bringing more vehicles to market

### Industry-wide approval

London Electric Vehicle Company (LEVC)'s CEO, Joerg Hofmann, voiced his support for the plan, stating; "The Mayor's announcement today marks a major milestone in the creation of a robust and capable EV charging network in the UK's capital. The news comes at a time when charging infrastructure is at the top of LEVC's agenda".

But with an 'electric revolution in the capital's transport' just around the corner, what's involved in making EV technology a viable future for the automotive sector? As highlighted by the Mayor, the public sector and private sector must work in union to deliver the charging network that Londoners need. The issue of infrastructure vs demand is very much a 'chicken and egg' situation. Investment in infrastructure is challenging without the justification of consumer appetite for EVs, but consumers will not take up electric vehicles en masse until there are sufficient charging points in place to reduce range anxiety, the fear that EVs will run out of battery over long journeys.

Christina Calderato, head of transport strategy and planning for Transport for London (TfL), agrees, adding; *"The Mayor's Electric Vehicle Infrastructure Delivery Plan shows how important it will be for the whole sector to work together to foster the expected uptake of electric vehicles"*.

July 2019



### The EV supply chain – what's next?

We continue to work with companies in this sector, producing the valuable components of EV charging units, as well as fastenings for EV battery casings and parts.

This in itself is a fascinating journey in engineering and manufacturing, as these parts need to be specially designed and produced to meet specific requirements and conditions. For example, fasteners need to have isolated coatings to ensure they do not short in the presence of electricity. Lightweighting is another key innovation in this field, as every effort is made to reduce the overall weight of EVs, whose batteries can significantly increase the weight of the vehicle.

The overwhelming support for Khan's plan poses a positive future for a revolutionary 'electric highway', with London leading the world in the ambition of 'zero-emission cities'. This collaborative cross industry initiative is an incredible opportunity for businesses to work together to make EVs a viable future for the automotive sector. The supply chain is prepared, so let the revolution commence!

---

### Further reading

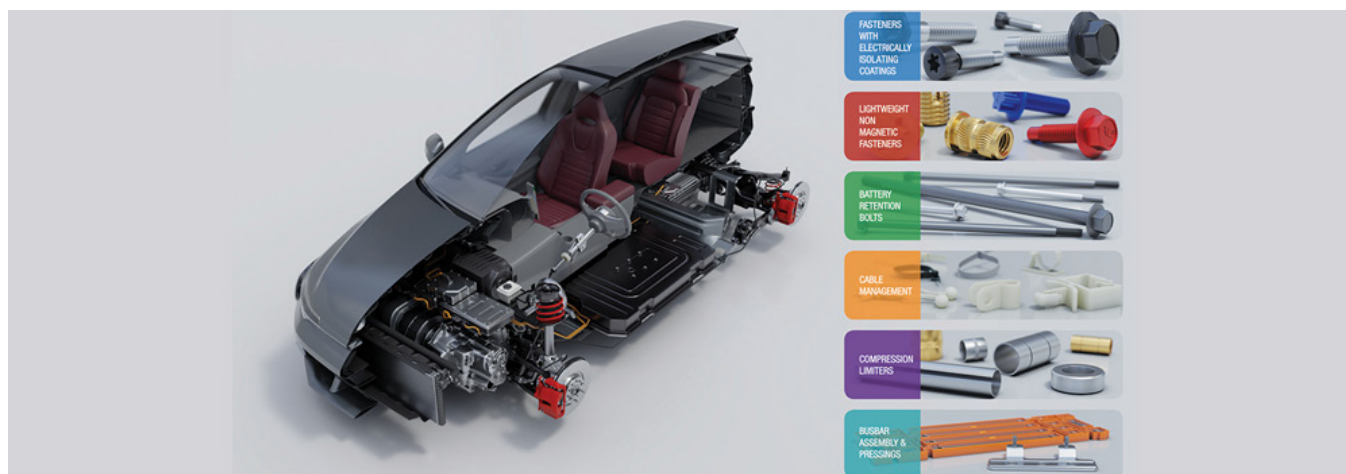
To learn more about our role in the development of EV and EVB technology, visit our [EV charging product page](#) or read our article on [powering progress in EVB](#).

# TR In the Spotlight

## Powering progress: the EV battery journey and its impact on the supply chain



July 2019



As the automotive market continues to evolve and environmental and economic pressures increasingly demand a shift towards sustainable solutions and lower carbon emissions, Electric Vehicles (EV) is one of the fastest growing markets to have emerged in recent years. As this sector adapts to public and market demands, the whole supply chain is working to flex to these changes, with considerable developments being made in technology, cost-saving initiatives and lightweighting techniques.

In this article we look at the rapidly developing EV and EV Battery (EVB) sectors and how fasteners are helping to shape the future of this exciting new chapter in automotive and electronic history.

### Fasteners: Securing the development of EV and EVB

The role of fasteners in this bigger picture around EV is not insignificant: not only are they needed for the vehicles themselves, but charging units, EV battery casings and general infrastructure equipment all require high quality fastenings to provide robust and secure settings for this valuable technology.

The growing consumer demand for EVs, coupled with the rapid development of EV and EVB technology has enabled TR Fastenings to combine our extensive fastener product range and breadth of knowledge into the ideal package to support and contribute to these ground-breaking sectors.

The EV and EVB markets are such exciting, fast-moving sectors and the resulting impact on global supply chains in both the automotive and electronic industries has been huge in terms of demand and opportunity. It's a real privilege to be involved in such a cutting-edge field, delivering our products and knowledge to start-ups, OEMs and Tier 1 suppliers developing transformative technology such as longer lasting batteries, lightweight solutions and connected devices.

### EV: The industry landscape

According to BloombergNEF's latest Electric vehicle (EV) Outlook report, published in January 2019, 57% of all global passenger vehicle sales and 30% of the global passenger vehicle fleet will be electric by 2040.

2 million EVs were sold worldwide in 2018, and this number is expected to rise to 10m by 2025, 28m by 2030 and 56m by 2040. The growth in this sector has been rapid, rising quickly into the millions, a far cry from 2010 when only a few thousand EVs were sold across the globe.

An obvious factor in this market growth is the significant development of the technology, both in terms of the vehicles themselves and of the infrastructure and accessories needed to support the market. However, infrastructure still remains a major challenge for the sector, as the chicken and egg dilemma of supply vs demand continues to amount to far fewer charging points than needed being installed.

July 2019

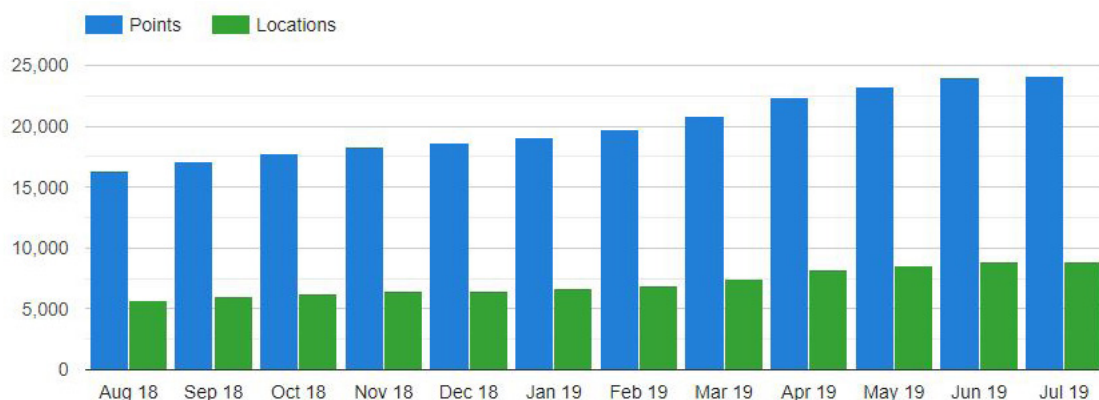
### Leading the charge

For the electric car market to grow at a sustainable and profitable rate, investment must be made into growing the charging infrastructure across Europe and, crucially, awareness of the charging network.

Once consumers are satisfied that there are sufficient charging points to ease any range anxiety, we will likely see an uplift in electric vehicle adoption.

According to the UK charging point platform, [Zap-map.com](http://Zap-map.com), there are currently (as of 31 May 2019) 23,417 charging connectors, in 13,788 devices, at 8,614 locations across the UK. The total number of connectors has increased from just over 13,000 in November 2017 to over 23,000 in May 2019, a 57% increase in just 18 months.

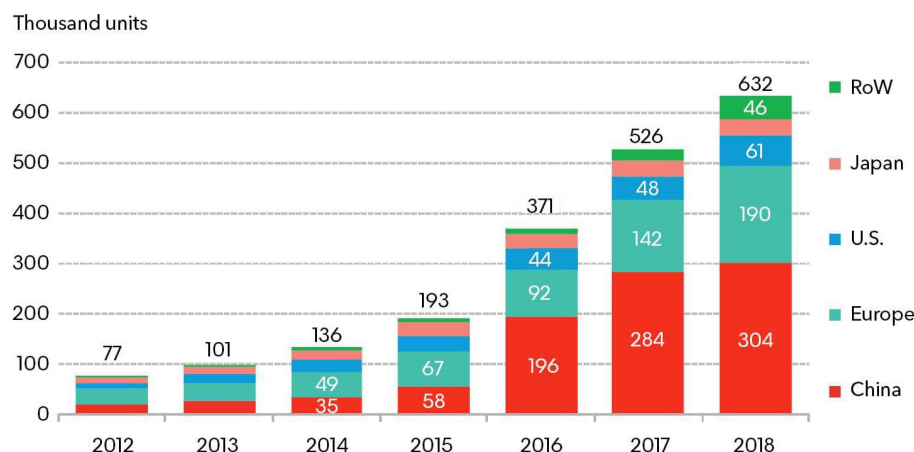
#### Number of UK charging locations and connectors over past 12 months: Zap-Map May 2019:



ZAP MAP®

The global charging landscape looks healthy as well. There are 630,000 public charging points installed globally, as well as commercial charging points serving the utilities, oil and gas and automotive sectors. China leads the way, followed by Europe, the US and Japan in terms of volume of charging points installed.

#### Public charging outlets installed globally:



Source: BloombergNEF. Note: Data current as of January 1, 2019. Data will be updated on the BNEF data hub at the end of 1H 2019.

July 2019

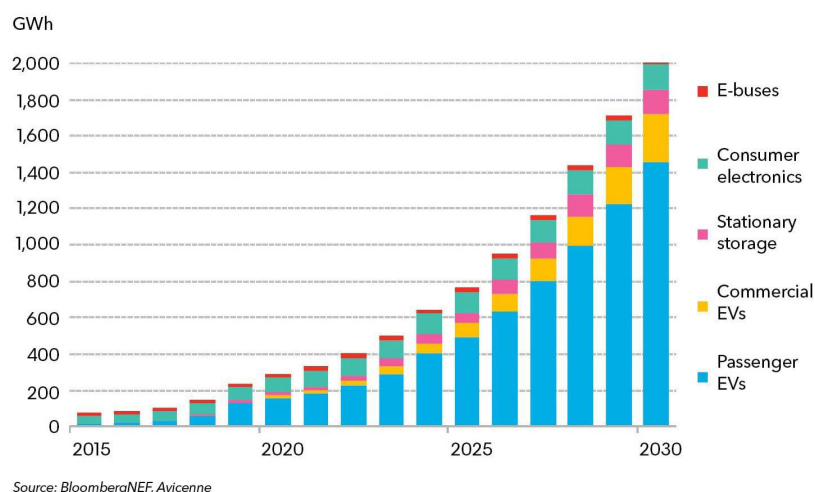
### EVB: the latest growth area

Although charging infrastructure continues to grow, resources and investment are also being routed towards battery development, exploring different options in battery types, materials and longevity.

The battery sector is naturally the major focus for growth, as battery and lithium prices continue to drop and significant investment is made into new chemistry and technology, such as single state battery development.

According to Bloomberg's EV Outlook forecast, "Lithium supply looks sufficient until at least the mid-2020s, but new cobalt and nickel mining capacity will need to come online to meet growing demand. Solid state batteries are still a decade away from use in mass-produced vehicles, but steady advances in the current family of lithium-ion batteries will bring continued improvements in energy density."

#### Annual lithium-ion battery demand:



### The global outlook

According to Bloomberg, China is expected to continue leading the market in battery manufacturing capacity for the foreseeable future, with Europe as the second largest region in this regard.

As a global market, the signs are looking good for rapid growth: it is predicted that battery cell manufacturing capacity will pass 1TWh by 2025. Further decreases in battery prices are also expected, with today's \$176/kWh per pack price projected to drop to \$87/kWh by 2025 and \$62/kWh by 2030.

In addition to lithium, high nickel chemistries are also set to emerge and start taking more market share over the next decade, widening the options for manufacturers and suppliers. In an effort to speed up the discovery and development of the ideal battery solution for the EV market, European governments are coming together to fund research and production in this area.

In early May 2019, it was announced that France and Germany were forming a consortium and launching a €multi-billion initiative into EV battery research, sourced from private European companies such as Automotive OEMs and energy businesses. With this level of European backing, the battery market is in good stead to make progress in terms of a viable and sustainable solution to meet the growing demands of the global EV industry.

July 2019

### Lightweighting and the link to fastening technology

Another concern in terms of EVB is lightweighting: as one of the heaviest components in an EV, the electric battery runs the risk of negating the idea of carbon emission reductions if the vehicle's weight increases energy consumption.

As a result, fastener companies and other members of the supply chain are constantly looking at ways to achieve gains in lightweighting, looking to industries such as aerospace for inspiration.

A McKinsey report into global lightweighting trends states that: "Lightweight materials and design have always been an important topic in product design across several industries. The concept has been most important in aviation but also in industries where large rotating parts (e.g., rotor blades of wind turbines) are key elements of product design and in automotive, where driving dynamics are a major consideration. Global trends toward CO2 reduction and resource efficiency have significantly increased the importance of this topic over the last years."



As a result of this shift towards lighter materials, industries are beginning to learn from each other. In aviation, the Boeing 787 Dreamliner is constructed largely of carbon-fibre-reinforced plastics instead of the traditional aluminium, which is inspiring automotive firms such as BMW to look at carbon-fibre for its new electric vehicle, in order to reduce the vehicle's weight and enhance the driving experience.

At TR, we work with Tier 1 suppliers such as seat manufacturers to ensure

that where possible, lightweight solutions, such as the Mortorq® screw we are licensed to manufacture by Phillips Screw Company, are used throughout vehicle applications to make weight savings and counterbalance the impact made by the battery weight.

**Fastening technology is crucial for EV and EVB manufacture, and our range includes a number of parts which are particularly relevant for EVB assembly, such as:**

- Fasteners with electrically isolating coatings
- Lightweight non-magnetic fasteners
- Battery retention bolts
- Cable management hardware
- Compression limiters

**In addition, our branded ranges comprise every component listed in a typical Bill of Materials (BOM) for EV charging units, including:**

- [Sheet metal fasteners](#)
- Thread-forming screws for [plastics/metals](#)
- [Plastic hardware](#)
- [Enclosure hardware](#)

# TR In the Spotlight

## Powering progress: the EV battery journey and its impact on the supply chain



July 2019

- [Security fasteners](#)
- [Standard fastenings](#)
- [Cable management parts](#)
- Specials and bespoke designed fasteners

### The ideal partnership

Our role in this ever-evolving market is to support and consult with our customers on the best solutions which meet the demands of the changes and developments facing their industries.

As a trusted, Full Service Provider (FSP), our engineering, design and manufacturing expertise as well as our global reach and longstanding industry experience make us the ideal partner for any firm involved in the burgeoning EV industry: from battery manufacturers to charging point manufacturers to Automotive Tier 1s and OEMs.

As a business, we constantly challenge ourselves to identify and stay on top of industry and technological trends and developments, and we do this by placing ourselves at the very heart of industry innovation. Our global technical and innovation centres in Gothenburg and the UK allow us to operate right at the centre of automotive excellence and innovation, meaning we work directly alongside the big players really making a difference in this exciting industry.

---

### Featured articles:

[Fasteners in e-mobility and their impact on the supply chain - Government Europa - 28th June 2019](#)



## CONTACT US

[www.trfastenings.com](http://www.trfastenings.com)

[sales@trfastenings.com](mailto:sales@trfastenings.com)

[info@trfastenings.com](mailto:info@trfastenings.com)



Master Distributor Details

### UK

t: +44 (0)8454 811 800 f: +44 (0)870 458 7851  
e-mail: [uk@trfastenings.com](mailto:uk@trfastenings.com)

### Ireland

t: +353 (0)22 22301 f: +353 (0)22 22056  
e-mail: [ireland@trfastenings.com](mailto:ireland@trfastenings.com)

### Netherlands

t: +31 (0)541 511515 f: +31 (0)541 517134  
e-mail: [netherlands@trfastenings.com](mailto:netherlands@trfastenings.com)

### Norway

t: +47 67 06 70 00 f: +47 67 06 70 10  
e-mail: [norway@trfastenings.com](mailto:norway@trfastenings.com)

### Sweden

t: +46 (0)8 578 44 900 f: +46 (0)8 578 44 950  
e-mail: [sweden@trfastenings.com](mailto:sweden@trfastenings.com)

**Gothenburg - Technical and Innovation Centre**  
t: +46 (0)31 31 760 776 f: +46 (0)8 578 44 950  
e-mail: [sweden@trfastenings.com](mailto:sweden@trfastenings.com)

### Spain

t: +34 93 647 22 45  
e-mail: [spain@trfastenings.com](mailto:spain@trfastenings.com)

### Hungary

t: +36 (06)24 516970 f: +36 (06)24 516961  
e-mail: [hungary@trfastenings.com](mailto:hungary@trfastenings.com)

### Poland - Representative

t: +48 (22)402 36 14 f: +48 (22)402 36 24  
e-mail: [poland@trfastenings.com](mailto:poland@trfastenings.com)

### Italy

t: +39 (0)75 9149015 f: +39 (0)75 9190165  
e-mail: [info@trvic.it](mailto:info@trvic.it)

### Germany

t: +49 (0) 5246 . 50320 - 0 f: +49 (0) 5246 . 50320 - 70  
e-mail: [info@trkuhlmann.com](mailto:info@trkuhlmann.com)

### Slovakia - Representative

m: +421(0)911 012 016  
e-mail: [slovakia@trfastenings.com](mailto:slovakia@trfastenings.com)

### USA

t: +1 800-280-2181 f: +1 281-807-0620  
e-mail: [usa@trfastenings.com](mailto:usa@trfastenings.com)

### Singapore

t: +65 6759 6033 f: +65 6759 6022  
e-mail: [singapore@trfastenings.com](mailto:singapore@trfastenings.com)

### Malaysia

t: +6 (03) 5519 1444 f: +6 (03) 5510 8505  
e-mail: [psep@psep.com.my](mailto:psep@psep.com.my)

### China

t: +86 21 5032 5696 f: +86 21 5032 5775  
e-mail: [china@trfastenings.com](mailto:china@trfastenings.com)

### Taiwan

t: +886 7 557 6366 f: +886 7 557 1977  
e-mail: [taiwan@trfastenings.com](mailto:taiwan@trfastenings.com)

### Philippines

t: +63-25768476  
e-mail: [philippines@trfastenings.com](mailto:philippines@trfastenings.com)

### India

t: +91 (0)44 4280 3932  
e-mail: [india@trfastenings.com](mailto:india@trfastenings.com)

### Thailand

t: +66(0)20413 340 f: +66(0)20413 340  
e-mail: [thailand@trfastenings.com](mailto:thailand@trfastenings.com)

### Japan - Representative

t: +81(0)70 4467 1118  
e-mail: [japan@trfastenings.com](mailto:japan@trfastenings.com)