part of the **Trifast plc** Group

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Driving success with simplified fastener supply solutions, world-class engineering and manufacturing

TR Launches Immersive Datacentre 360° Experience

By TR, part of the Trifast plc Group

TR has launched a new Datacentre 360° Interactive Experience, providing a virtual walkthrough of a modern data centre and demonstrating how its fastening solutions support critical infrastructure.

As AI and digital transformation drive rapid growth in hyperscale and modular data centres, reliability and performance are more important than ever. The experience showcases TR's role across power distribution, cooling, IT hardware, fire and environmental systems, control systems, and renewable energy integration.

The experience features engineering animations, product tear-downs, and real-world applications, helping engineers, designers, and operators understand where fastening technology plays a critical role.

Explore the Data Centre through our fully interactive 360° experience

Engineering reliability in a changing world – The TR perspective

By Engineering Magazine

Engineering has shaped society for centuries, from the earliest tools to today's advanced systems. While technologies have evolved dramatically since Engineering magazine was founded 160 years ago, the core responsibility of engineers has remained the same; to deliver safe, reliable and efficient solutions that perform under real-world conditions.

At TR, that responsibility has guided the business for more than 50 years. Founded in 1973, TR has grown from a specialist fastener supplier into a global engineering partner supporting some of the world's most demanding industries. Today, as part of the Trifast plc Group, TR designs, manufactures and supplies fasteners and Category C components for automotive, smart infrastructure and medical applications across more than 65 markets worldwide.

Our role is often unseen, yet critical. From electric vehicles and medical devices to data centres and energy infrastructure, fasteners may be small, but their performance underpins the reliability, safety and longevity of the systems they support.

Supply Chain simplification

TR's approach to reducing customer supply chain complexity combines process streamlining with the implementation of appropriate supply solutions, such as monitored bin systems. This is further supported by TR's integrated engineering capabilities, which enable part number reduction through design simplification, improved efficiency and a reduction in the cost of quality.

These outcomes are delivered through successful VAVE (Value Analysis and Value Engineering) implementations that contribute to stronger supplier partnerships, helping to create leaner, more agile operations.

Focused growth driven by engineered sector expertise

Fasteners, whether standardised or manufactured to drawing, are used across almost every industry worldwide to assemble components and bring product engineers' designs to life. With a meticulous eye for detail, TR's engineers specialise in joining solutions, fastening products and their associated manufacturing methods, while building deep knowledge of the markets in which they operate. This is why early-stage collaboration with customer engineering teams is so important. While customers are specialists in their own designed products, they often have a more generalist understanding of fastening solutions and can benefit from TR's specialist expertise.

Starting my career over 25 years ago, working on a nuclear power application, I was responsible for detailing and preparing equipment for manufacture and assembly. A quick visit to the warehouse to select readily available fasteners resulted in significant design changes, ultimately delaying the project. Early involvement from a TR fastening specialist would have shortened the design cycle and potentially improved the final design.

While TR operates across multiple markets, many joining solutions are transferable from one industry to another. Adapting to and understanding industry-specific standards, requirements and materials helps to strengthen overall design capability and improve the success rates of collaborating organisations.

The engineering landscape has shifted significantly in recent years. While automotive manufacturing continues to undergo structural transformation driven by electrification and supply chain pressure, sectors such as smart infrastructure and medical

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equipment are expanding rapidly.

At TR, growth in both smart infrastructure and medical applications has offset challenges in traditional automotive markets. This reflects our deliberate focus on industries where engineering precision, regulatory compliance and lifecycle reliability are essential and where early engineering engagement adds measurable value.

Smart infrastructure is a clear example. The global expansion of data centres and digital networks is changing the demands placed on fastening solutions. Systems must support dense installations, efficient assembly and long service life. These challenges cannot be addressed through off-the-shelf product selection alone; they require collaborative engineering.

Embedding sustainability into fastener design and manufacturing

One of the most significant developments at TR has been the integration of sustainability into both product innovation and global operations.

Following an extensive R&D programme, TR has introduced new ranges of fasteners manufactured from 100% recycled nylon, delivering up to a 90% reduction in raw-material CO_2 emissions while maintaining over 80% of the mechanical performance of traditional virgin materials. This drive towards more sustainable fastener products was not only to increase TR's product range, but also to serve as a call to action for the wider fastener industry to place greater focus on sustainability.

These components including cable ties, push-lock rivets, snap rivets, drive fasteners, threaded pillars and wire saddles serve critical roles in smart infrastructure applications such as data cabling, control systems and enclosure assembly. Until now, recycled plastics have rarely met the requirements of functional, load-bearing components. TR's breakthrough demonstrates that sustainability and engineering performance can co-exist.

Operational sustainability is also advancing at pace. At TR Italy, a major on-site solar energy installation delivered in partnership with INVECO, now powers the majority of the facility's manufacturing operations.

This supports both carbon reduction and long-term energy resilience. The investment forms part of a wider ESG strategy that includes improved resource efficiency, waste reduction and deployment of arc-furnace steel to lower embodied carbon in metallic components.

From fastener supplier to full-service engineering partner

As customer expectations evolve, TR has shifted from traditional product supply towards engineering-led partnership with collaboration driving innovation in bespoke components. For a global monitor manufacturer, TR developed a unique push-screw fastener capable of repeated use without degradation, a solution unavailable anywhere else in the market.

Similarly, for a leading EV customer, TR's engineering teams across the US and Sweden co-developed a complex spring and spool assembly that enables smooth, controlled movement of a central console mechanism.

These projects demonstrate how TR's engineers support customers throughout the full development cycle, from concept and prototyping

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to testing, validation and global supply.

Engineering resilience through a global manufacturing network

TR's ability to support customers worldwide is underpinned by its international manufacturing footprint and a consistent, engineering-led approach that aligns standards, capability and operational excellence across regions. This ensures customers benefit from reliable manufacturing performance, simplified supply chains and continuous innovation, regardless of location.

In Germany, sustained investment has expanded capacity and strengthened TR's ability to support automotive, medical and smart infrastructure customers across Central Europe.

In Singapore, the introduction of a vacuum solvent cleaning system has replaced kerosene-based processes, improving safety, air quality and environmental performance while supporting cleaner, more efficient manufacturing operations.

Across its global footprint, TR's Engineering and Innovation Centres enable rapid problem-solving, advanced testing and close collaboration with customers, ensuring engineering expertise remains central to manufacturing quality, supply chain optimisation and product innovation worldwide.

Developing future engineering capability through collaboration and education

With the engineering sector facing a sustained skills shortage, TR contributes to capability-building through education and hands-on experience. Our continued sponsorship of the KTH Formula Student Stockholm team equips young engineers to apply theory to real-world challenges, from lightweighting and structural fasteners to high-voltage cabling and advanced materials.

This investment helps ensure that the engineering talent of tomorrow enters the industry with strong practical foundations.

Looking ahead - TR's engineering priorities beyond 2026

As engineering enters a new era defined by digitalisation, sustainability and intelligent systems, fasteners will continue to play a fundamental role.

AI-driven design and predictive modelling will influence how components are optimised. Material innovation, particularly in recycled and lower-carbon alternatives will accelerate. Supply chains will become more integrated, requiring greater transparency and engineering input earlier in the design cycle.

TR will remain focused on three priorities:

1. Engineering-led innovation: Advancing materials, performance and fastening technology.
2. Sustainable operations: Reducing carbon footprint across global manufacturing.
3. Collaborative partnership: Supporting customers from concept through to production, with solutions tailored to sector-specific challenges.

If the past 160 years of engineering show us anything, it is that progress depends on resilience, expertise and a willingness to adapt. At TR, our focus is on delivering fastening solutions that support the next generation of engineering through performance, responsibility and global capability.

Introducing our Virtual Innovation Centre: An immersive engineering platform

By TR, part of Trifast plc Group

We are proud to announce the launch of our Virtual Innovation Centre, a next-generation digital platform designed to provide an immersive, interactive view of our engineering capabilities, product innovation and operational expertise.

The Virtual Innovation Centre offers a fully interactive 360° environment, enabling users to explore solutions in real-world contexts. Through rich multimedia content, including videos, animations, and in-depth technical insights, visitors can engage with our technologies in a dynamic and meaningful way.

The platform delivers practical insights across key areas such as product optimisation, application engineering and teardown analysis, helping users better understand performance and design considerations.

It also provides end-to-end visibility of our supply chain capabilities, including vendor-managed inventory and advanced distribution solutions.

Users can navigate dedicated sector experiences tailored to industries such as automotive, smart infrastructure and data centres, ensuring relevance and clarity for diverse applications.

In addition, the Virtual Innovation Centre highlights our commitment to sustainability, showcasing investments in renewable energy integration and circular material development.

This platform reflects a fundamental shift in how we engage, moving beyond static content to an experience-led approach that enables deeper understanding, faster decision-making and stronger collaboration.

Start your tour: The Virtual Innovation Centre is available to explore.