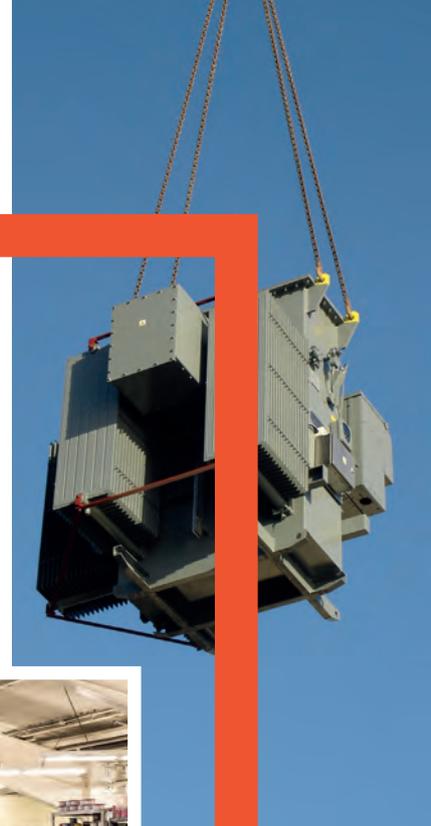






WORLD-CLASS ENGINEERING SOLUTIONS



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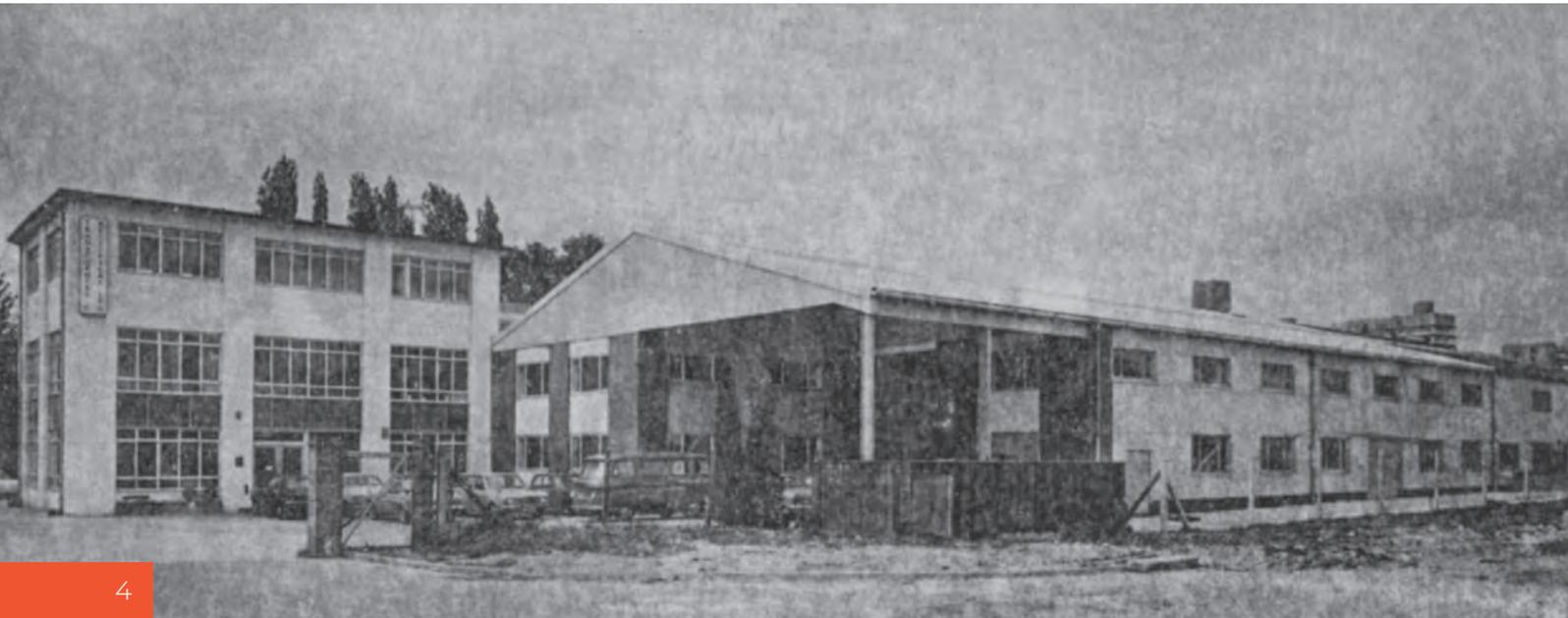
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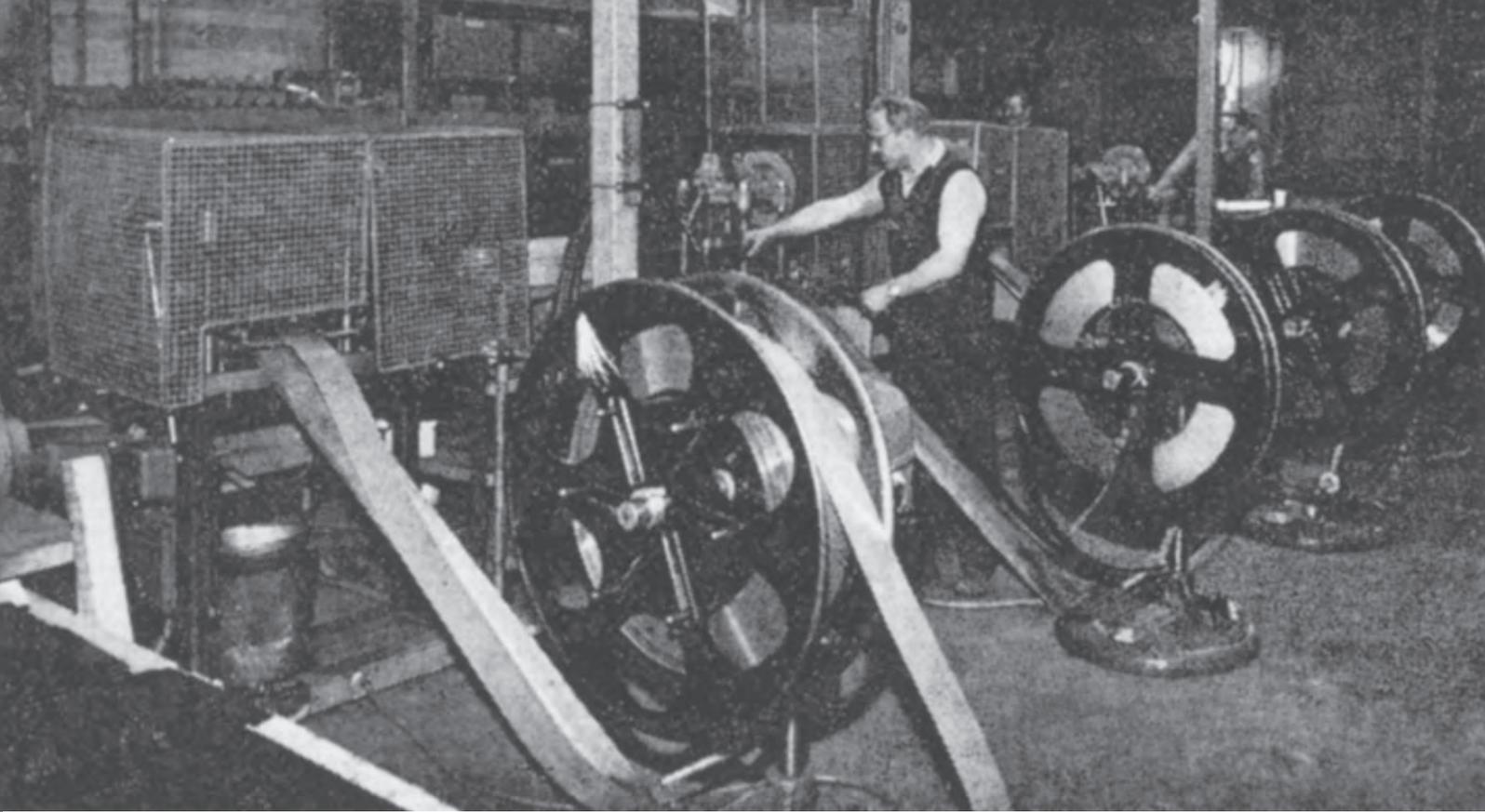
DEDICATED TO PERFECTION

Transformers & Rectifiers (T&R) provide world-class engineering solutions to a global customer base.

We are world leaders in the design, manufacture, commission and maintenance of:

- liquid-filled transformers
- dry type transformers
- transformer rectifiers





A history of excellence

We are an independent, British company with a proud 65+ year history.

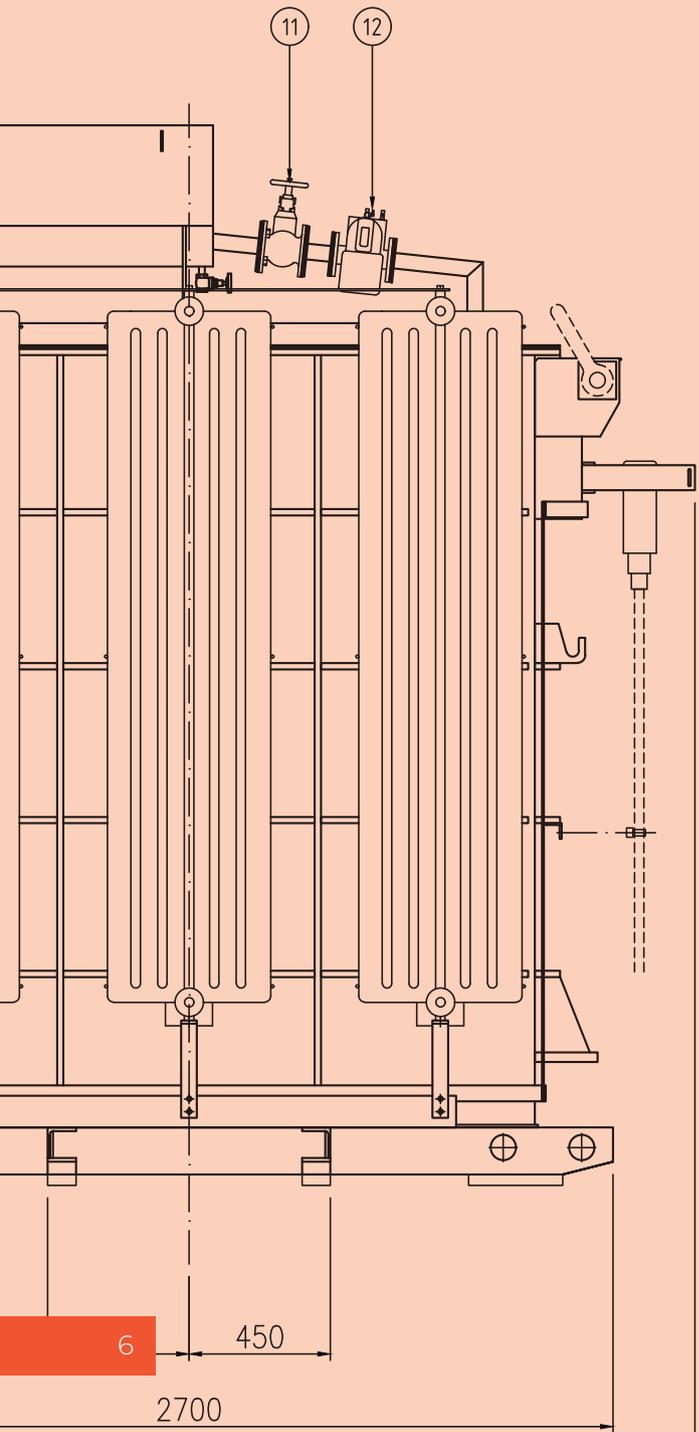
Over the years, we have built an unrivalled wealth and depth of experience, key skills and design expertise. We have also steadily expanded our product range so that, today, the company offers one of the widest ranges available in the world.

Global reach

We supply to market-leading, blue chip companies worldwide, including many in the defence and infrastructure industries and in many challenging environments.

Tailor-made solutions

We design and develop innovative, bespoke solutions for even the most challenging customer requirements. T&R offers an unrivalled capacity and commitment to respond to your needs. Our in-house team can cater for just about any power transformer and power rectifier application.



A STERLING REPUTATION

Our products are the most reliable, robust and efficient to be found anywhere in the world today, giving us a global reputation for service excellence. In cases where product quality is of critical importance to safety and security, we are the supplier of choice.

Our customers, from navy dockyards around the globe, to national railways and metro systems, rely on our expertise and trust us to deliver reliable bespoke solutions to their engineering requirements.

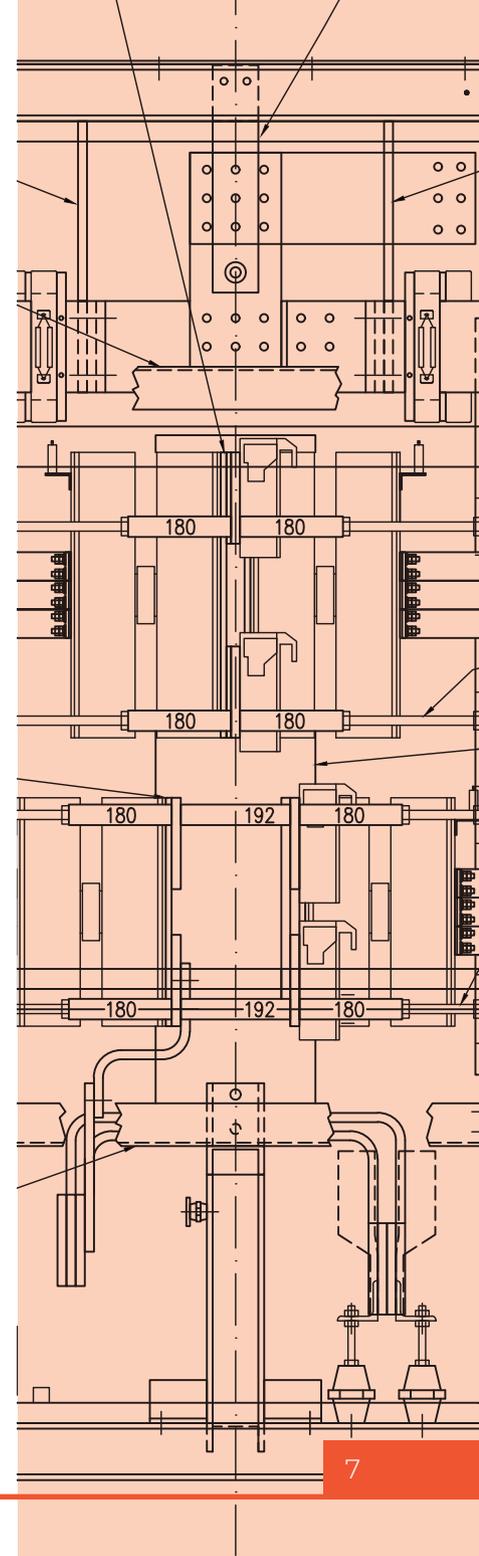
Our sectors include, but are not limited to:

- Rail
- Marine power supply
- Electricity network supplier
- Inner city rail
- Glass
- Steel

British engineering at its best

Accredited to ISO 9001, our customers benefit from our unstinting commitment to delivering the highest quality, which incorporates our ongoing after-sales and maintenance services.

Our in-house design, manufacturing and testing facilities are located in Guildford, Surrey in the United Kingdom. We have excellent transport links to London, the motorway system, rail network, seaports and to Heathrow and Gatwick airports.





POWER TRANSFORMERS

Since its establishment in 1951, T&R has steadily expanded its product range of liquid-filled transformers, incorporating Mineral Oil and Synthetic fluid.

Designed and manufactured in Guildford, our HV/HV transformers range up to 10MVA, 36kV and our HV/LV transformers range up to 7.5MVA, 36kV.

Transformers can be:

- Free air breathing
- Hermetically sealed

TRACTION TRANSFORMER RECTIFIER UNITS

Drawing on a considerable wealth of experience within the industry, T&R is still the only company in the UK to design and manufacture its own range of transformer rectifiers, under one roof.

T&R continue to offer innovative ideas to customers who benefit from our fluid design approach with challenging substation designs.

An approved member of RISQS, T&R offer a wide range of product-approved equipment to distinguished customers such as Network Rail, London Underground, TfL and M.T.R.C. Hong Kong.



INDUSTRIAL TRANSFORMER RECTIFIER UNITS

Given the need to dissipate generated heat, we can provide transformer rectifiers with 'Air Natural', 'Forced Air', 'Water Forced' or 'Oil Immersion'.

Typical Applications include:

- Electrolysis desalination
- Electrophoretic painting for car manufacturing
- Gas distribution
- Metal refining - Mining
- Electroplating



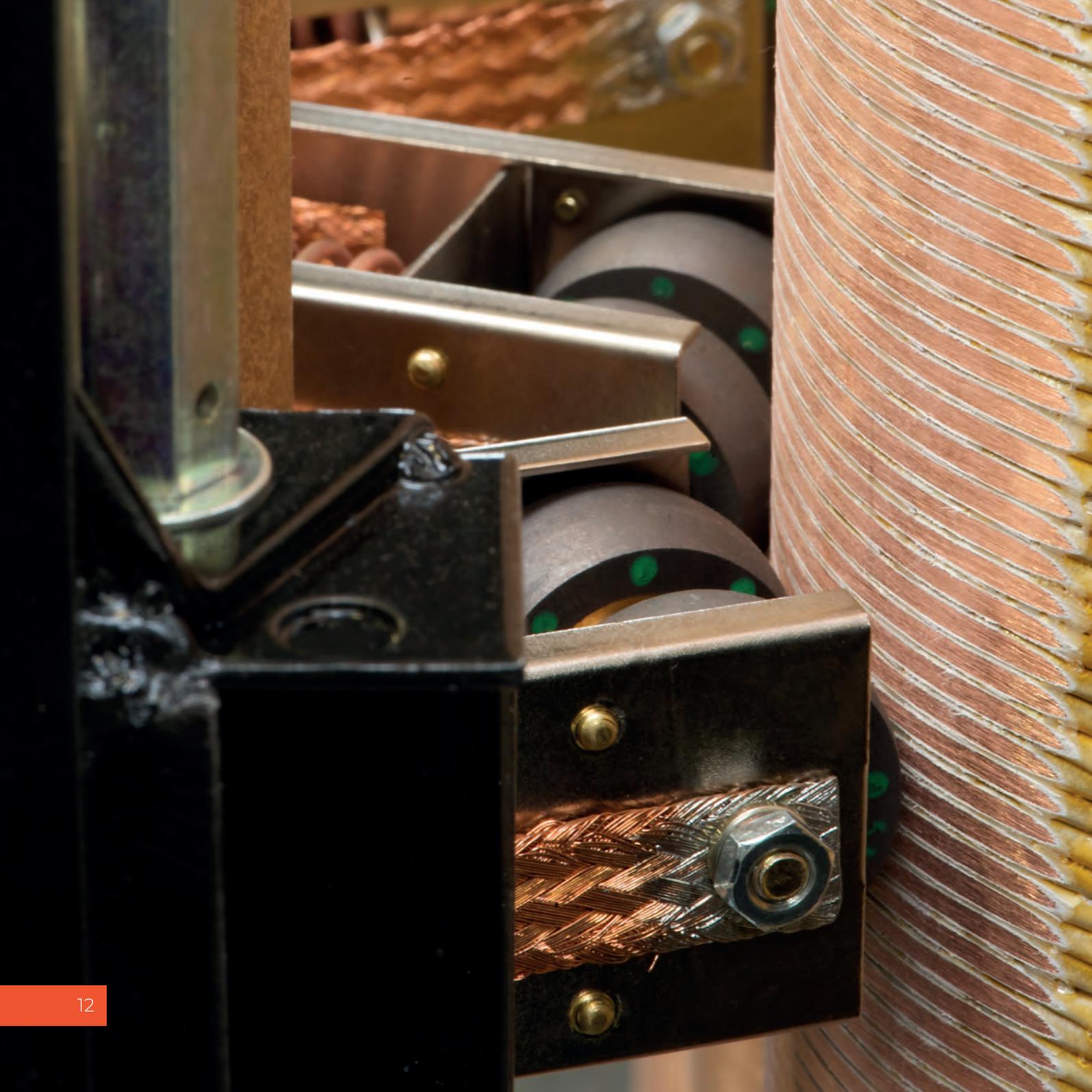
Whether you're looking for kV DC or kA DC, T&R can design and manufacture equipment suitable for your needs.

We can provide purpose-built transformer rectifiers to meet your specific needs.

Product designs vary from 6, 12 and 24 pulse connections with power ratings from a few KW to several MW, utilising 'Diode' or 'Thyristor' devices.

Designed for indoor or outdoor applications.





VOLTAGE REGULATING TRANSFORMERS

T&R own the intellectual property rights to the 'Brentford' linear voltage regulator design.

Based on proven technology, the carbon roller linear voltage regulator provides a varied output, fed from a fixed input voltage, starting from just a few kVA to a few thousand kVA.

Single phase and three phase options are available.

Mineral oil, Midel 7131 or Air Cooled cooling meet the needs of all customers' stringent requirements.

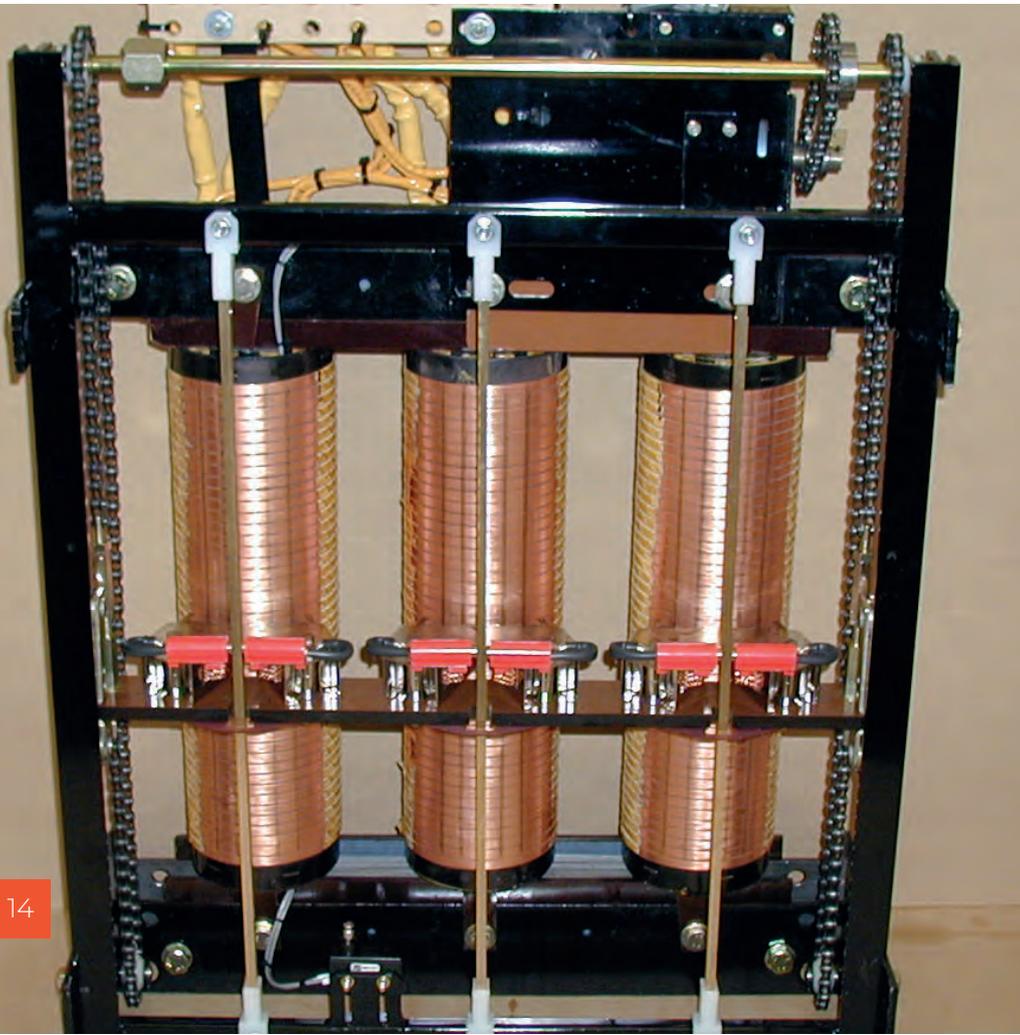
Various applications include:

- Electroplating
- Electrolysis
- Glass manufacture
- Steel manufacture



VOLTAGE STABILISING TRANSFORMERS

The voltage stabiliser is a mature product with a successful track record spanning over 50 years of production and used throughout the world. Continuous research and development has made this voltage regulating transformer a brand leader, well known and respected throughout the industry.



The voltage stabiliser is a device used to supply a reliable and constant voltage to a variable network.

Due to the complex design (and similar principle to the voltage regulating transformer), the voltage stabilising transformer can be manufactured as one component for lower kVA ratings or form part of a transformer package with ratings up to 10MVA.

From the icy climates of Russia to the warmest conditions of the Caribbean, the voltage stabiliser compensates for a voltage variation where it matters.



147 CLIENTS WORLDWIDE INCLUDING





SHORE TO SHIP POWER SUPPLY UNITS

Naval dockyards stretching to all corners of the globe, including Singapore, South Africa, Gibraltar, Scotland and England benefit from using the T&R 'Shore to Ship' power supply unit.

Fed from a 6.6kV or 11kV 60hz supply, the shore to ship power supply equipment provides constant 450 volts.

Equipped with a voltage monitoring relay, the equipment continuously provides a stable voltage to the Submarine or Fleet Support Vessel.



EARTHING AND AUXILIARY TRANSFORMERS

Earthing transformers (Zig-Zag) are generally connected to the line terminals of delta connected grid transformers. Provides a neutral point for the otherwise unearthed system and a facility to limit line to earth faults currents.

Working alongside some of the worlds' largest electrical contractors and manufacturing companies, T&R has built a wide range of earthing transformers and earthing & auxiliary transformers for National Grid, London Underground and Wind Farm and Distribution Networks (DNOs).



DRY TYPE TRANSFORMERS

Built to satisfy the most stringent conditions in terms of safety and reliability, our flexible approach allows us to meet individual customer requirements, where the installation of transformers inside buildings requires a product with minimum fire hazard to person and property.

Our dry type transformer provides the customer with an engineering solution where liquid-filled or resin-encapsulated transformers are not viable or acceptable.

The winding conductor is insulated using Du-Pont's 'Nomex' aramid paper which neither melts nor supports combustion and is self-extinguishing.

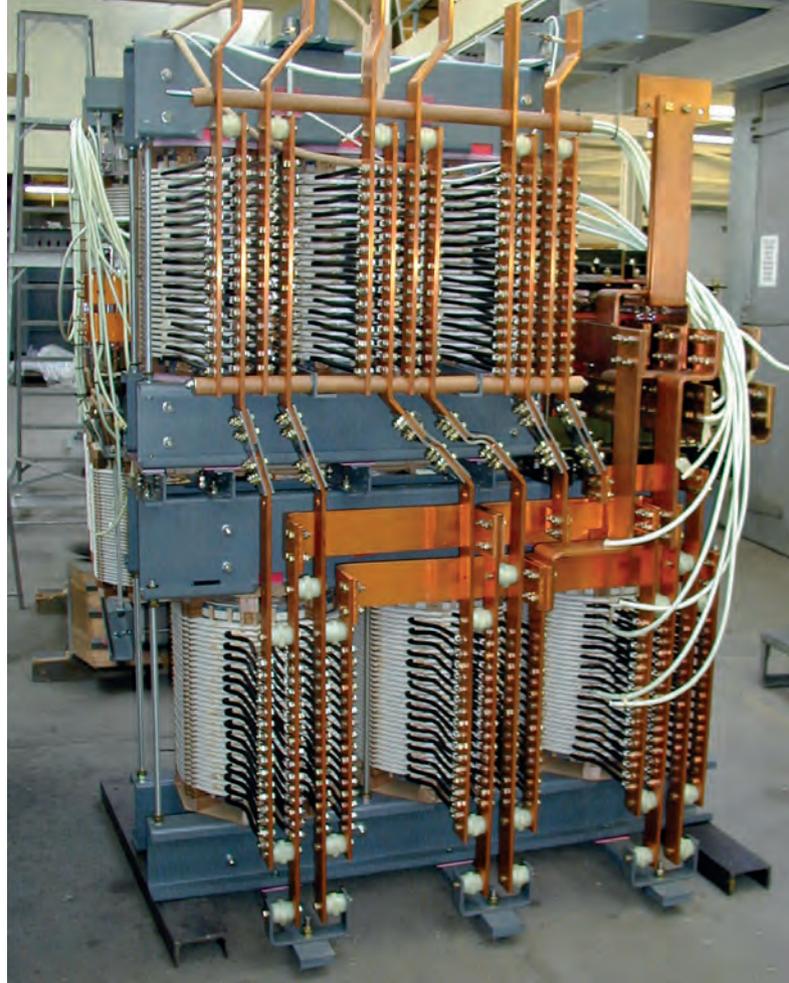


The ISO 14,001 environmental considerations make the dry type non-encapsulated transformer the logical and preferential choice as it does not contain any polluting liquids or toxic chemicals.

Resistant to higher operating and surrounding temperature conditions, the dry type transformer is ideal for any arduous conditions such as:

- Steel industry
- Factories
- Offices
- Housing estates
- Glass industry
- Mining industry

Our range of fire retardant dry type transformers goes to 4,000kVA.





SIGNALLING TRANSFORMERS AND VOLTAGE STABILISERS

In accordance with NWR specifications, T&R is the only approved supplier to the UK railway industry for the 25kV single phase signalling transformers combined with the low voltage stabilisers.

Ratings start from 25kVA to 200kVA with voltage stabiliser output voltages ranging from 230 volts up to 650 volts subject to site voltage requirements.

RAILWAY SUB STATION AUXILIARY AND ISOLATION TRANSFORMERS

As approved manufacturer to Network Rail Ltd, London Underground and Transport for London (TfL), T&R manufacture variants of auxiliary transformers in accordance with each client's relevant standards.

Product approval is essential in this market as it gives the client reassurance that the transformers supplied are designed and built to the highest quality.

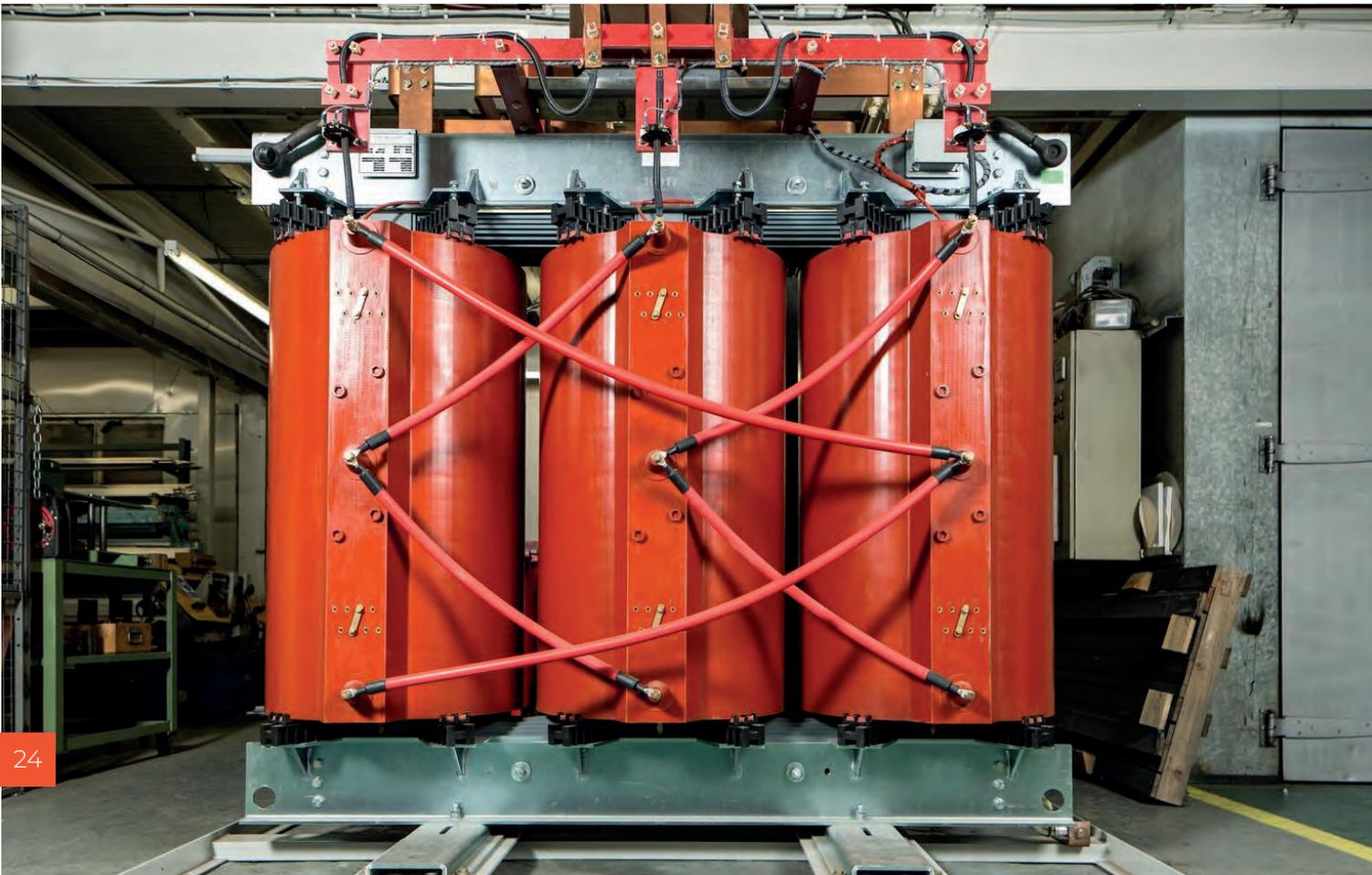
T&R is the only manufacturer in the UK who designs and manufactures traction transformer rectifiers and auxiliary transformers under one roof.

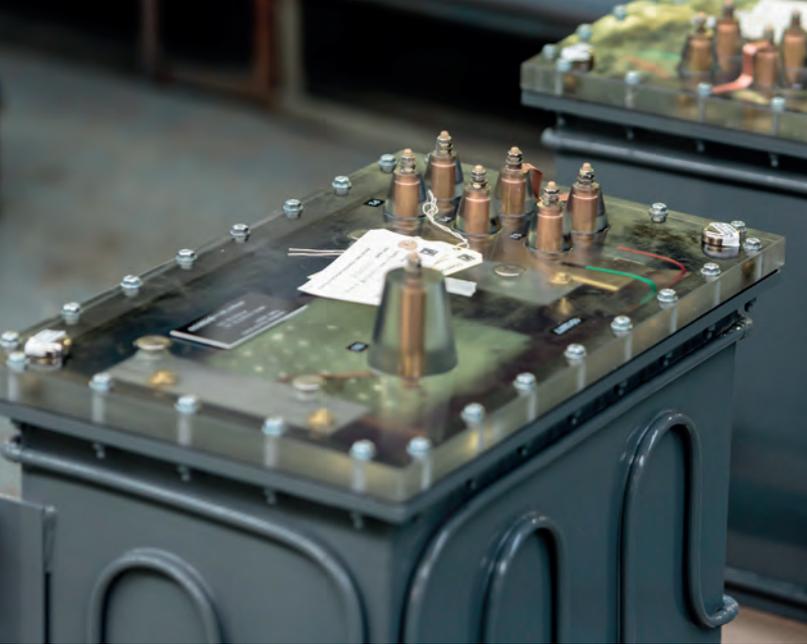


CAST RESIN TRANSFORMERS

Manufactured under joint venture with our European partners, T&R is able to supply cast resin transformers for applications such as:

- Industrial transformer rectifiers – 6, 12 and 24 pulse rectification applications
- Traction transformer rectifiers
- Auxiliary transformers
- General industrial applications





SOUTHERN AND PARTRIDGE TRANSFORMERS

T&R also hold many original designs and specifications, appertaining to products produced by Southern Transformer Products (commonly known as STP), Gresham Transformers Ltd (GTL), and Partridge Transformers Ltd, that enables us to continue to manufacture these product ranges today.

These companies provide vast amounts of small product to the likes of the Ministry of Defence (M.O.D.) under a wide range of NATO Stock Numbers. T&R maintains a database that enables cross-referencing of many of the original manufacturers' part numbers and specifications to a NATO Stock Number.





CUSTOMER SERVICE (REPAIR AND MAINTENANCE)

T&R has a global reputation for service excellence and customer support.

In addition to servicing and commissioning our own products, our dedicated Service Department also offers technical and spares support for a wide range of other products originally manufactured by the various companies which we have acquired over the years.

These companies include:

- Allenwest Brentford Ltd
- Brentford Electric Ltd
- Goodyear Transformers Ltd (Power Transformers)
- Gresham Transformers Ltd
- Partridge Transformers Ltd
- Southern Transformer Products Ltd



T&R Test Equipment design and manufacture high quality test equipment for the power industry. Our equipment is used worldwide in transmission and distribution, power equipment manufacture, maintenance and commissioning.

It has to do the job first time, every time, so we've designed the units to perform and built them to last. Our equipment will make your life easier by being uncomplicated to use and versatile in application. The market demands that testing time is cut to a minimum so we have eliminated costly set up times by putting the engineer in control of the equipment. The manually driven controls allow true flexibility with power at your finger tips.

Secondary Current Injection Equipment (SCITS)

Our range of units covers applications up to 200A and includes single phase and three phase units with applications for testing and timing of IDMT relays, thermal overloads, MCB's and auto-reclosers, and the 200ADM-P captures data directly to a USB memory stick.

Relay Test Equipment

In addition to the current injection units, we offer systems designed for testing voltage relays, frequency relays, G59 scheme relays, df/dt (ROCOF type), vector surge relays, and AVR types. These can also be used in conjunction with our SCITS sets to allow testing of directional relays, power and reverse power relays and distance protection.

Primary Current Injection Equipment (PCITS)

There are several systems available which cover from 750A through to 6000A. Available in single phase, testing applications include testing and timing of under and over current relays, circuit breakers and CT ratio testing.

Digital Micro-ohmmeters

Our micro-processor controlled range of units offers the testing capability of up to 600 amps dc with $0.1\mu\Omega$ resolution. Auto-ranging metering simultaneously displays all three parameters (mV, A, and $\mu\Omega$).

High Voltage AC Test Systems

The range of units cover from 5kVac to 100kVac. All units have a variable trip range setting and key lock operation to prevent unauthorised use. Applications include testing of insulation systems and measurement of break down voltage of electrical plant and components.

High Voltage DC Cable Test Systems

We can offer from $\pm 18\text{kVdc}$ to $\pm 30\text{kVdc}$ units which all have automatic earthing for discharging capacitive loads. They are designed to perform tests on installed cables and jointing systems.





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