



SUPPORTING OUR CUSTOMERS IN MANUFACTURING WORLD CLASS PRODUCTS

BUSBARS

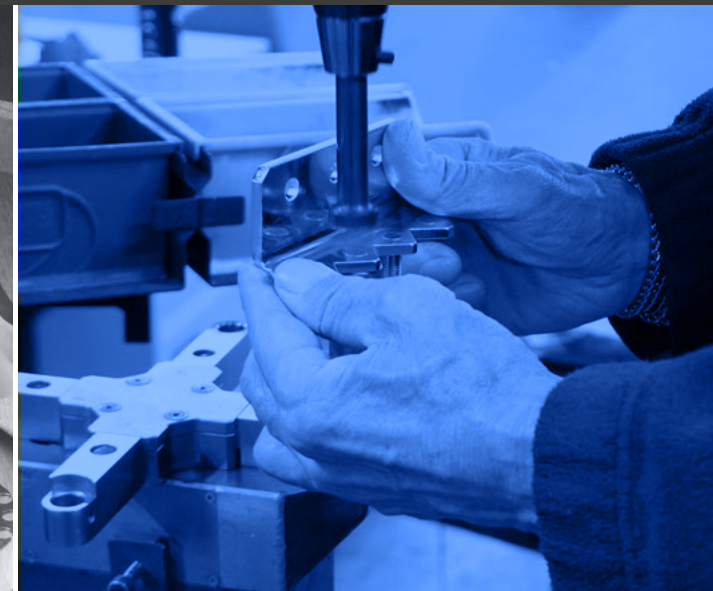
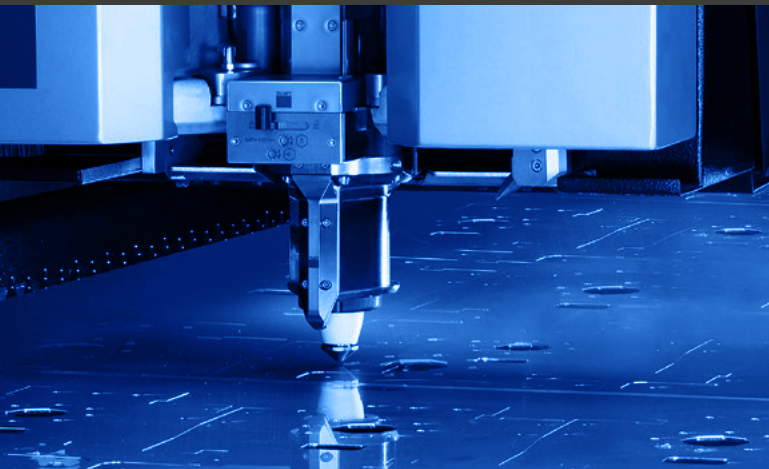
WIRE EROSION

LASER CUTTING

PRESSWORK & TOOLING

ASSEMBLY

ELECTROPLATING



www.hvwooding.co.uk



> ESTABLISHED OVER 50 YEARS

Offering an unrivalled wealth of engineering resources, skills and experience

Ongoing investment in cutting edge technology, including the latest CNC equipment and 3D SolidWorks, has positioned us as a leading force in precision manufacturing within the UK, covering sectors such as renewable energy, electric vehicles and science & research, where we support businesses from startups to major manufacturers and institutions worldwide.

Investment
over last 3 years

£1.6m

Established
1968

No. of
employees

92

Turnover

18/19 **9.6m**

19/20 **9.1m**

20/21 **12m**

21/22 **11.8m**

22/23 **11.9m**

Projected

23/24 **12m**



A MEMBER OF
SILVERSTONE
TECHNOLOGY
CLUSTER

F4N



ISO 9001 • ISO 14001
ISO 45001

SMMT
MEMBER

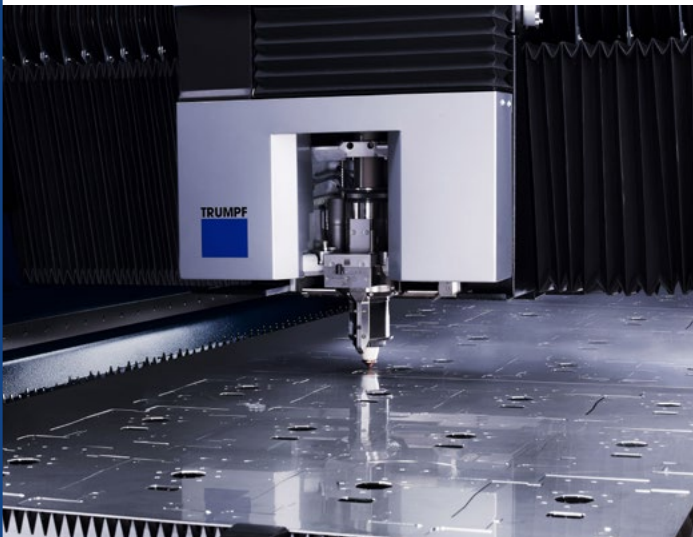


UK Magnetic Society

Contact us on: ☎ 01303 264471 or email sales@hvwooding.co.uk



www.hvwooding.co.uk



> OUR SERVICES:

VISION, SUPPORT AND QUALITY

From design assistance and prototyping through to hard tooling and large volume production.

BUSBARS

High-quality busbars in copper and aluminium.

POWDER COATING

In-house epoxy powder coating facilities.

ELECTRICAL MOTORS

Precision manufacture of complex motor laminations and core packs.

LASER CUTTING

Laser cutting components to high tolerances.

WIRE EROSION

Wire erosion, precision components manufactured down to 3 microns tolerance.

PRESSWORK & TOOLING

Precision presswork delivered in volume and on time.

ASSEMBLY

Mechanical sub-assembly, busbar sub-assembly and general sub-assembly.

ELECTROPLATING

In-house electroplating in tin, silver, nickel and zinc.

PLANT LIST

Our latest equipment list.

> SECTORS

- ✓ Laminations/core packs, wire erosion, laser cutting & stamping.
- ✓ Post & pre-bonding processes.
- ✓ Prototype, development and small series production. Wide range of electrical steels and cobalt iron



- ✓ Projects include motorsport/high performance/transportation.
- ✓ Laminations/core packs for motors/drivetrains for delivery vehicles, truck applications and next-generation cars, taxis and public transport.
- ✓ Busbars for battery packs & systems electroplating and insulation



- ✓ Annually we are producing over 325,000 components for the sector including components for surgical electrodes, respiratory heater plates, medical and spinal implants.



- ✓ Manufacturing techniques for prototype and volume production. Suppliers of ventilator components for the UK ventilator challenge initiative fighting the effects of Covid-19

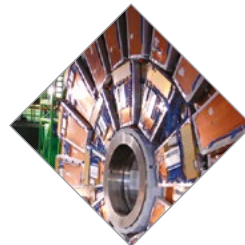
- ✓ Power conversion, power electronics & electrical systems



- ✓ Busbar connections, terminals in copper/aluminium. Electroplating (tin, silver, zinc and nickel) and insulation

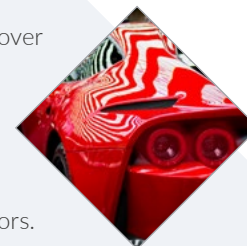
- ✓ Generator busbar assemblies and segmented lamination assemblies

- ✓ CERN – yokes and collars for large magnets
- ✓ Fusion UK – Research and Innovation (UKRI) through the Science and Technology Facilities Council (STFC)



- ✓ Satellite applications
- ✓ Universities and research institutes

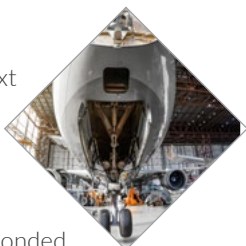
- ✓ HVW have been supplying F1 for over 20 years, applications include key components for ERS-K/MGU/K.



- ✓ Other High-performance vehicles applications such as segmented pole pieces, rotor and stator lams/stacks for oil pump generators/rotors.

- ✓ Also supplying Formula E Motors and MOTO E

- ✓ Motors/generators/actuators – cobalt, nickel irons, silicon steels next generation electric planes and heat exchangers.



- ✓ Wire erosion of laminations and core packs, using various coated electrical steels with pre and post bonded applications

- ✓ Components and assemblies for LV & MV switchgear, busbars to utility, nuclear, rail and oil & gas industries



- ✓ Laser cut and pressed parts – zinc electroplating, volume production – optimised delivery and batch sizes

- ✓ Busbars for critical power applications.
- ✓ Busbars for LV & MV Switchgear.
- ✓ Components for racks and enclosures, busbars for data centres



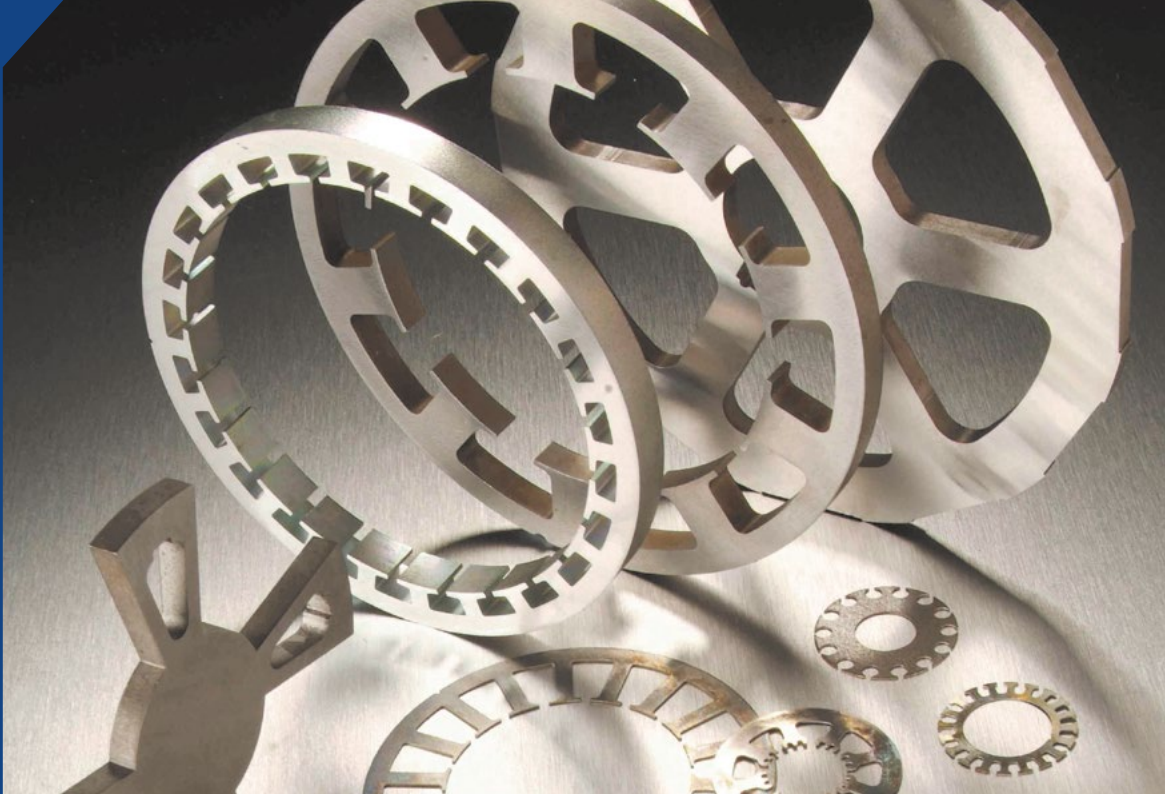


➤ EXHIBITIONS & EVENTS

HV Wooding maintain a busy schedule, actively participating in exhibitions and events to engage with our current clientele and establish new connections with prospective partners.

Our proactive approach extends to staying informed about developments within the industries that we specialise in. For a comprehensive overview of our forthcoming events, please visit our website at www.hvwooding.co.uk





Our focus on product quality, customer service and innovation is the reason why companies such as Schneider Electric, Honeywell, Rolls Royce and General Electric have worked with us for over 40 years.

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> OUR VISION

We aim to exceed all expectations including quality, efficiency and innovation to become the partner of choice for our customers from concept and prototype to volume production

TECHNICAL ADVICE AND EXPERTISE

A key part of our business success has been our ability to work closely with our customers.

Our objective is to understand customer needs and become the partner of choice by supporting manufacturing while also managing external supply chains.

Technical support can be provided on manufacturing route, material selection and design assistance to help our customers optimise their product offering to the market.

PERFORMANCE AND QUALITY

As a customer-focused business operating in a highly competitive marketplace, we recognise the need for continuous improvement and innovative ideas. In addition to achieving ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018 accreditation, we have developed our own unique Buffer Management System to enhance manufacturing performance and delivery.



> BUSBARS

High quality busbars with flexible short lead-time service

Advanced manufacturing techniques enable us to produce a huge variety of customised busbars for major projects incorporating thousands of variants to single part demand with little or zero tooling costs.

We manufacture busbars for electrical switchgear, transformers, data centres, power conversion and EV/Hybrid vehicles.

- ✓ Over 50 years' experience of busbar production
- ✓ ISO 9001:2015, ISO 14001:2015, and ISO 45001:2018 accredited.
- ✓ Quick response times: project and spot order lead times from two days
- ✓ One-off requirements and production volumes
- ✓ Production of complex shapes / edge-bending
- ✓ Capability to reduce copper usage and assembly time
- ✓ Assembly of earth bars and insulators
- ✓ In-house electroplating facility: silver, tin, zinc and nickel

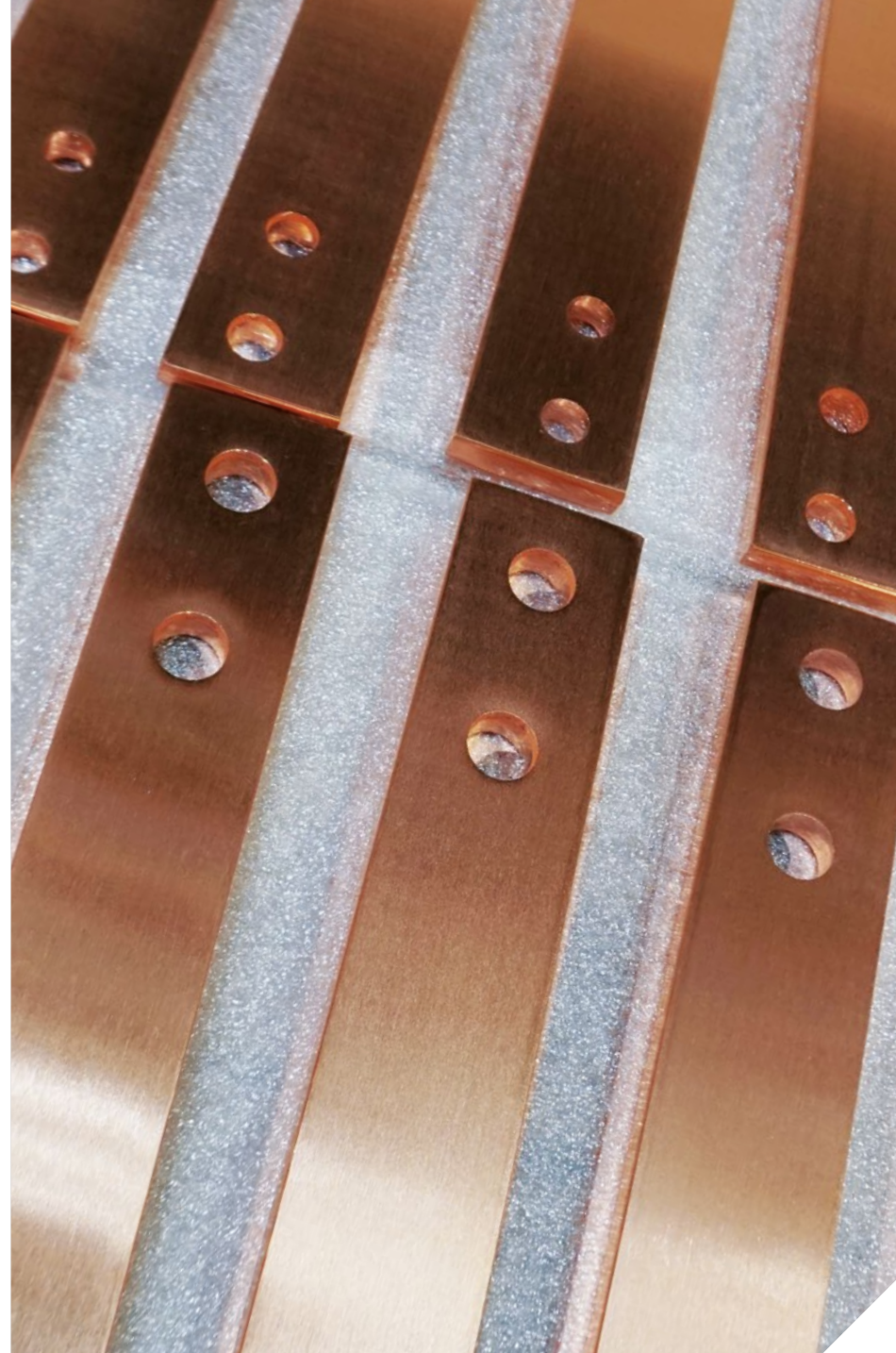
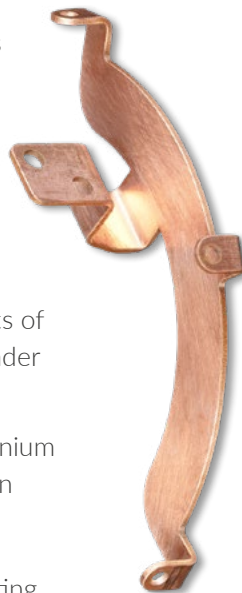
> COPPER BUSBARS

At HV Wooding we have the most advanced copper busbar manufacturing equipment available, so we can offer exceptionally high levels of quality and delivery performance.

In the realm of electrical power distribution, copper busbars have been a cornerstone of efficient power distribution for decades, and their benefits continue to shine. Renowned for its exceptional conductivity, low resistance, and durability, copper has consistently proven to be a reliable and efficient choice for transmitting electricity.

Copper busbars equate to around 85% of the busbars manufactured by HV Wooding. There are numerous benefits of using copper busbars and this material remains a top contender in power distribution applications.

- ✓ Superior electrical conductivity – 60% higher than aluminium allows for efficient and low resistance power transmission
- ✓ Working with 0.3mm gauge and upwards
- ✓ Excellent thermal conductivity, can dissipate heat mitigating risks of overheating



➤ ALUMINIUM BUSBARS

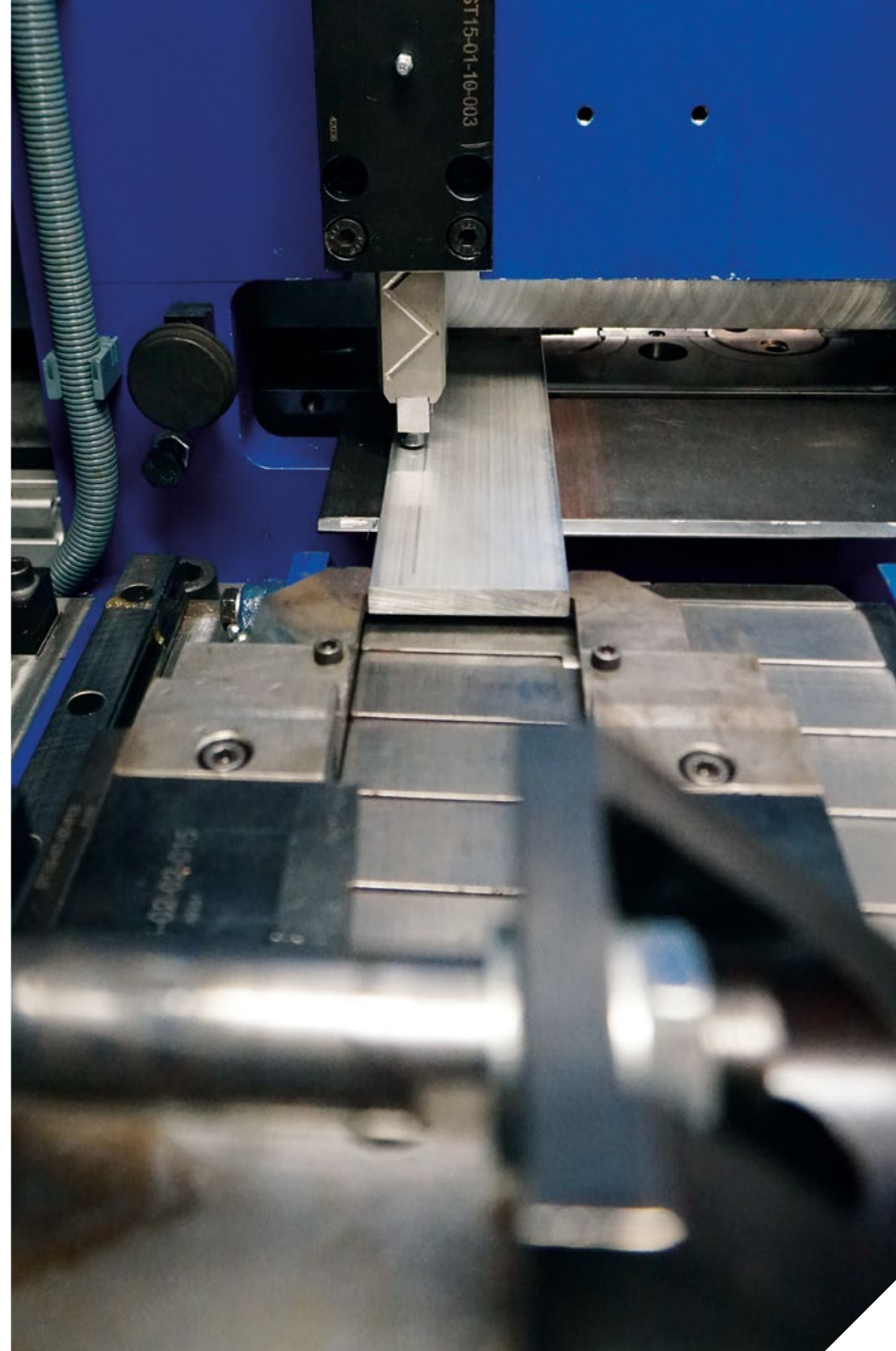
Aluminium is used for busbar production where final weight is a consideration. We have produced aluminium busbars for applications including the power conversion, rail, marine and aerospace industries.

We have produced aluminium busbars for transformers, electrical panel boards and distribution boards.

We produce Aluminium busbars to specification, down to 0.5mm, and offer powder coating, epoxy coating, heat shrink sleeving, and electroplating in tin, silver and nickel to meet your specific requirements.

Our applications range from utilizing polyolefin and PVC for 11KVA switchgear in the energy and rail sectors, to more complex busbars for EV/Hybrid battery systems that are coated with a range of insulation materials, including resicoat HGF03R (red), HFG03R (orange) and Nylon BB, to achieve ratings between 1.5 and 5KV.

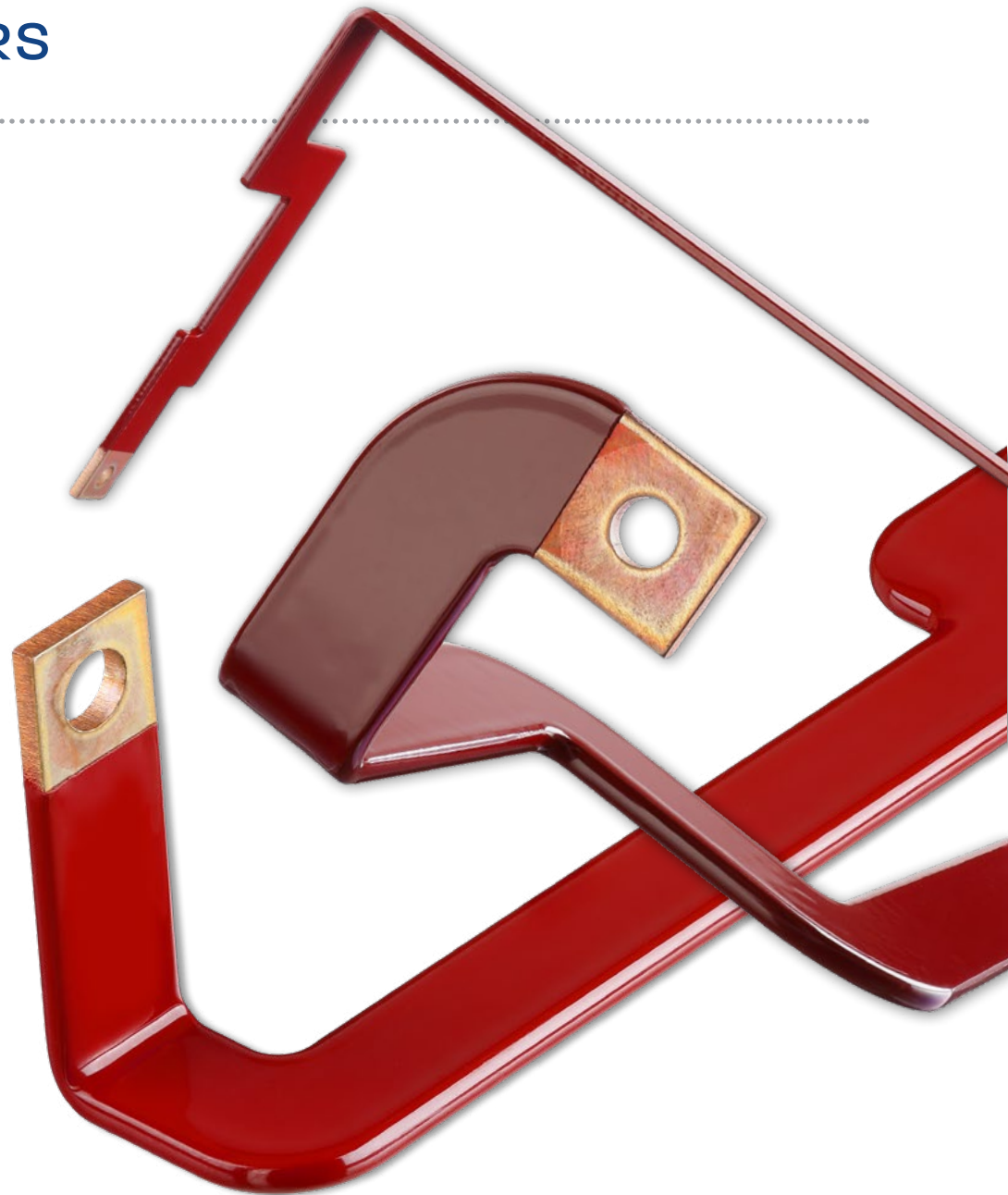
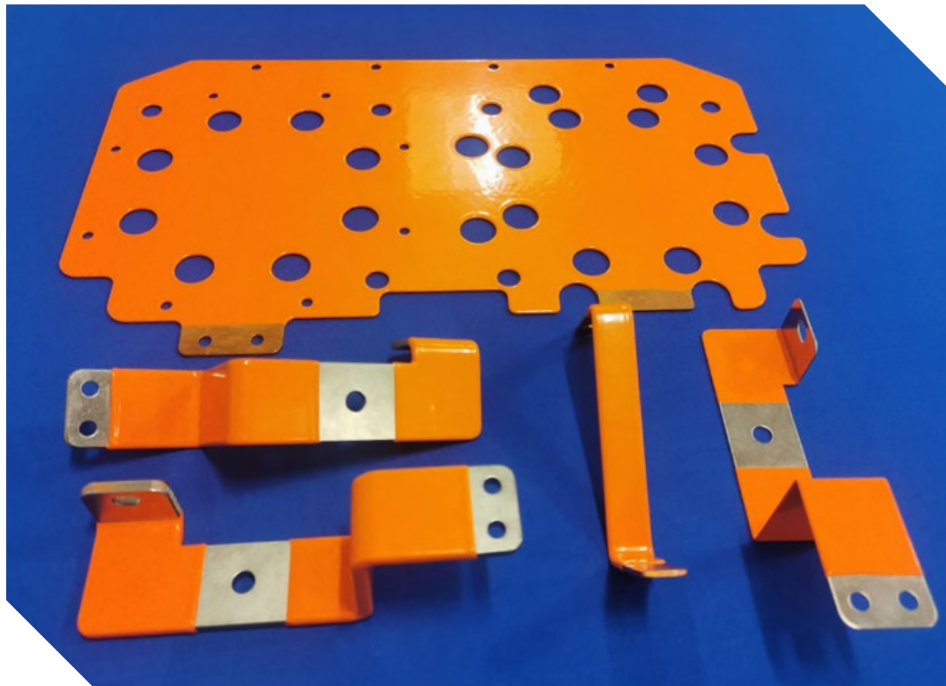
- ✓ Aluminium busbars can be designed with larger cross-sectional areas to increase conductivity
- ✓ Natural corrosion resistance, increasing lifespan and reliability
- ✓ Greater design flexibility due to high malleability
- ✓ Lower weight than copper



➤ POWDER COATING FOR BUSBARS

Following our work with materials and engineering researchers from the AMRC and the University of Sheffield, supported by Innovate UK through the Faraday Battery Challenge, HV Wooding have enhanced the powder coating process to improve the quality and performance of electric vehicle busbars for the fast-growing market.

Our work focuses on epoxy powder coatings, applied by fluidised bed or spray processes. Powder coatings allow better coating coverage to complex shapes than heat shrink sleeved insulation for electric vehicle busbars, and offer better thermal and electrical performance which allow for a more compact battery design. Powder coating busbars is a huge benefit in many sectors, including vehicle electrification.



➤ ELECTRICAL MOTORS

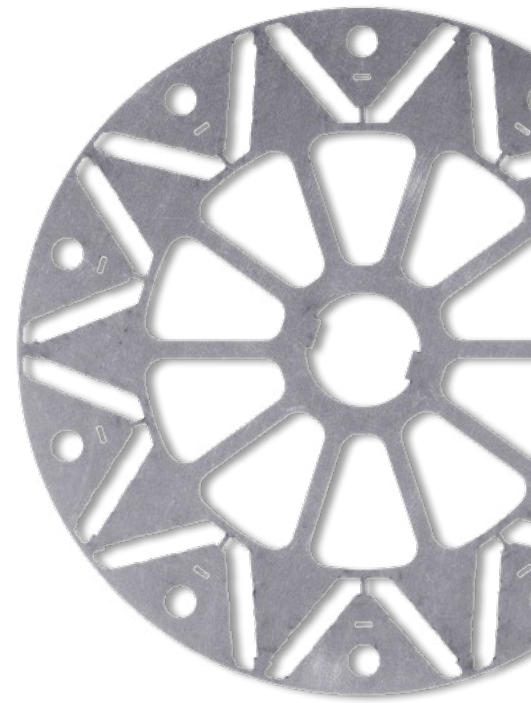
We focus on adding value for our customers by optimising the design and manufacturing of complex motor laminations and core packs. Utilising advanced equipment processes we are able to achieve the most demanding tolerances in a range of silicon steels and cobalt materials.

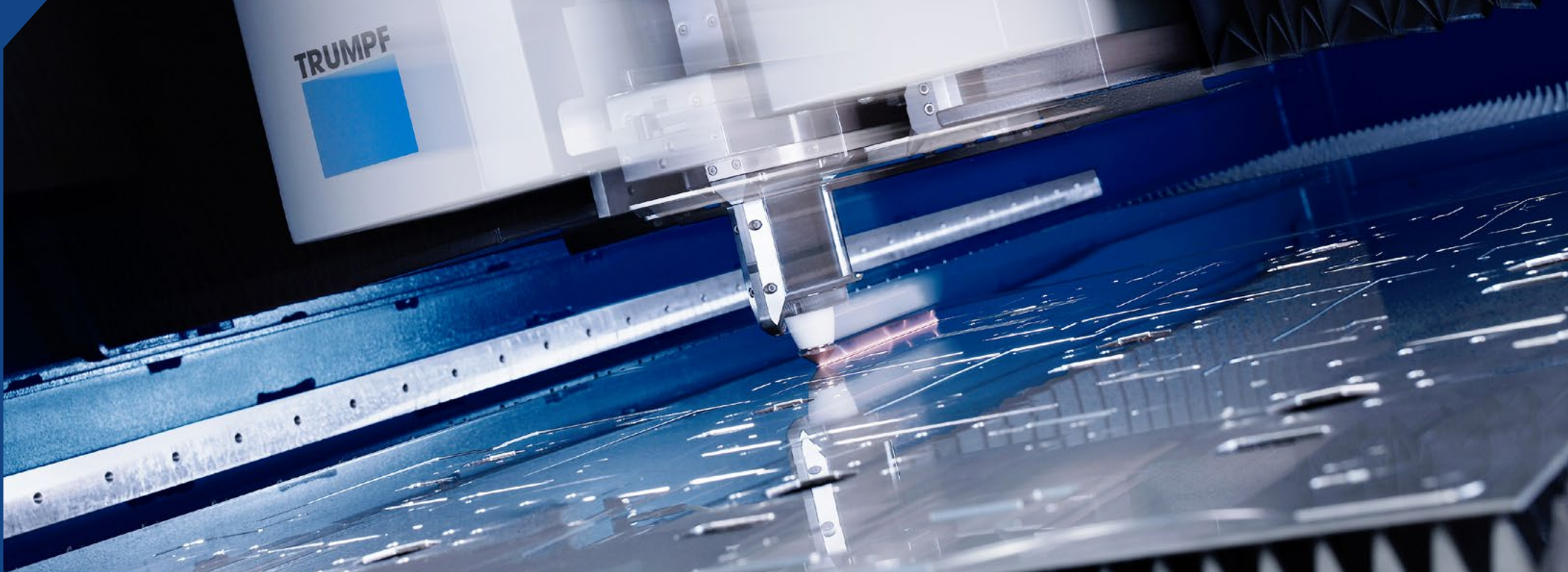
We have been supporting this sector for 40 years by offering motor lamination production using wire erosion, laser cutting and stamping technologies.

Our core activity in this arena is focused on demanding and complex high-end motor applications where we are able to offer customers years of experience in working with a wide range of materials and complex geometries to achieve the demands of the new generation industries.

Pre-bonded wire eroded stacks are commonly used for prototyping and initial testing. We can then scale up production using laser cutting, stamping and post-bonding to satisfy customer requirements.

- ✓ Laminations and core packs, wire erosion, laser cutting & stamping
- ✓ Post & Pre bonding processes
- ✓ Prototype, development & small series production
- ✓ Wide range of electrical steels, ranging from 0.1mm to 1.0mm thick, including silicon and cobalt irons, as well as pre-glued material with tolerances from +/- 3 microns
- ✓ Our equipment features automatic wire feeding and submerged cutting, as well as a large loading area, accommodating up to 500mm diameter and 200mm depth





> LASER CUTTING

Precision components produced with speed and accuracy



Our latest fibre laser cutting technology has capabilities to laser cut copper up to 8mm in thickness. Together with enhanced deburring equipment and our in house electroplating, we produce highly toleranced parts and sub-assemblies.

Applications for this service are wide-ranging including everything from motor laminations, battery terminals and contacts within the growing hybrid & electric vehicle sector to busbars for power electronics, electrical systems and transportation.

EV, BATTERY STORAGE & ENERGY SECTOR SPECIALISTS

- ✓ Prototype to volume
- ✓ Silicone & cobalt irons 0.1-1mm
- ✓ Tolerances +/- 0.1mm
- ✓ Copper – up to 8mm, aluminium up to 25mm, stainless steel up to 20mm, brass up to 8mm

> WIRE EROSION

Wire erosion, precision components manufactured to five microns tolerance

Our facilities include Agie Charmilles wire EDM machines with automatic wire feed, submerged cutting and large beds for multi-loading. We have vast experience within wire erosion and offer a flexible 24-hour service, covering everything from prototyping to volume production, with expert technical support.



- ✓ Exceptional technical knowledge and over 40 years of wire erosion experience to call on
- ✓ Up to 500mm diameter, 200mm depth; tolerance to +/- 5 microns
- ✓ Evolved processes for volume production
- ✓ Expert technical advice and demonstrations
- ✓ Prototype components and tooling
- ✓ ISO 9001:2015, ISO 14001:2015, and ISO 45001:2018 accredited
- ✓ Reverse engineering for special projects
- ✓ Specialists in wire eroded laminations for high-end motors (aerospace, F1, defence, electrification)



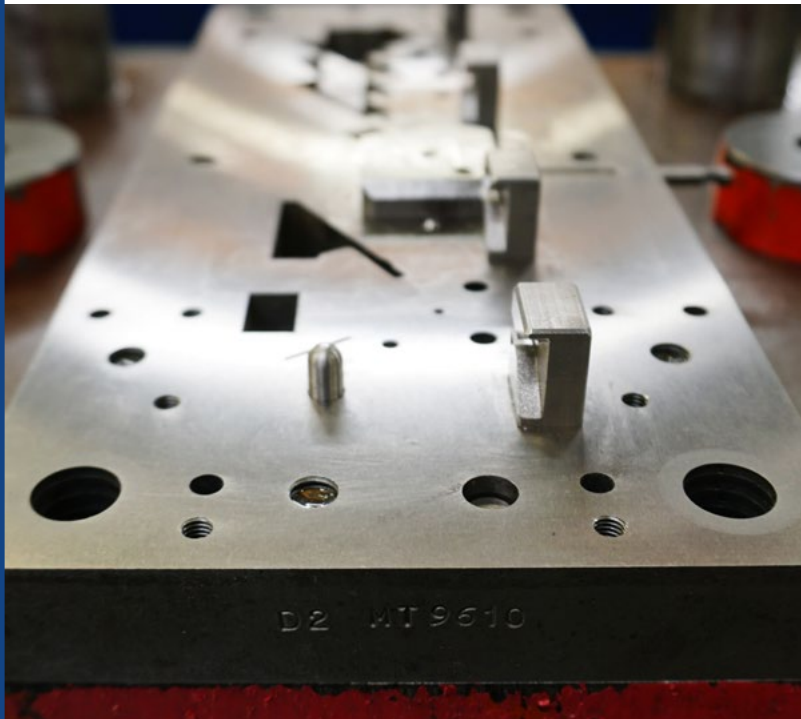
> PRESSWORK & TOOLING

Precision presswork delivered in volume and on time

We have over 50 years' experience and expertise of providing economic presswork solutions to major names within the electrical switchgear, electronic, power generation, medical, marine and automotive industries, so you can rely on us to provide you with a prompt, efficient service.

Many customers find it beneficial to consult us at the start of their presswork manufacturing projects, enabling us to optimise tooling and production processes using advanced quality planning and value chain management techniques. We have the skills and resources to cope with short lead times, high volumes and can provide a full project management service if required.

- ✓ Modern pressing's manufacturing techniques
- ✓ Advanced capacity planning
- ✓ Tool design/value engineering/opportunities for cost reduction through international partnerships
- ✓ In-house electroplating facility: silver, tin, nickel and zinc
- ✓ Major OEMs/multinationals
- ✓ ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018 accredited
- ✓ Customer service and supply chain – Kanban /Eban/VMI
- ✓ Inhouse toolmaking facilities



> ASSEMBLY

HV Wooding are increasingly partnering with customers to conduct additional operations, provide complete kits or supply sub-assemblies direct to line or to the customer's warehouse.

Our advanced sub-assembly facility allows our customers to outsource the assembly at low risk, and focus on their core business activities, secure in the knowledge that we will provide them with a fast, cost-effective service. Reducing inventories, part numbers and supply base saves time and effort and can also result in significant cost savings.

MECHANICAL SUB-ASSEMBLY

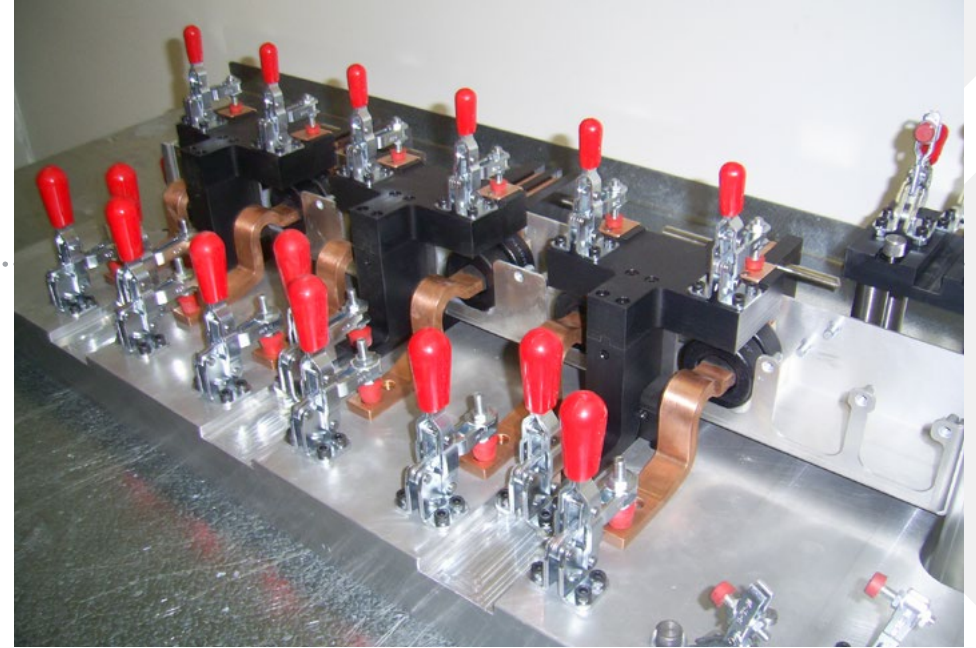
- ✓ Spot welding
- ✓ Tapping and screw insertion
- ✓ Rotary table and manual assembly
- ✓ Motor core pack assemblies, specialising in high-end motors for PEMD applications across numerous e-machine sectors

BUSBAR SUB-ASSEMBLY

- ✓ Pemming and insertion of studs, nuts and helicoils
- ✓ Sleeving and insulation materials
- ✓ Earth bar assemblies
- ✓ Pre-packaged kits direct to line side/warehouse multi-type busbar assemblies

GENERAL SUB-ASSEMBLY

- ✓ Cross material type assembly including metal and plastic components
- ✓ Pressed and machined components.
- ✓ Finished products
- ✓ Direct to warehouse including part marking, bar-coding and packaging to customer requirements



➤ ELECTROPLATING

At HV Wooding, we pride ourselves on offering an in-house electroplating facility for tin, zinc, nickel, and silver. This allows us to maintain a high degree of quality control, ultimately enhancing the performance and quality of the finished product. Our electroplating facility includes both rack and barrel options to accommodate a wide range of projects.

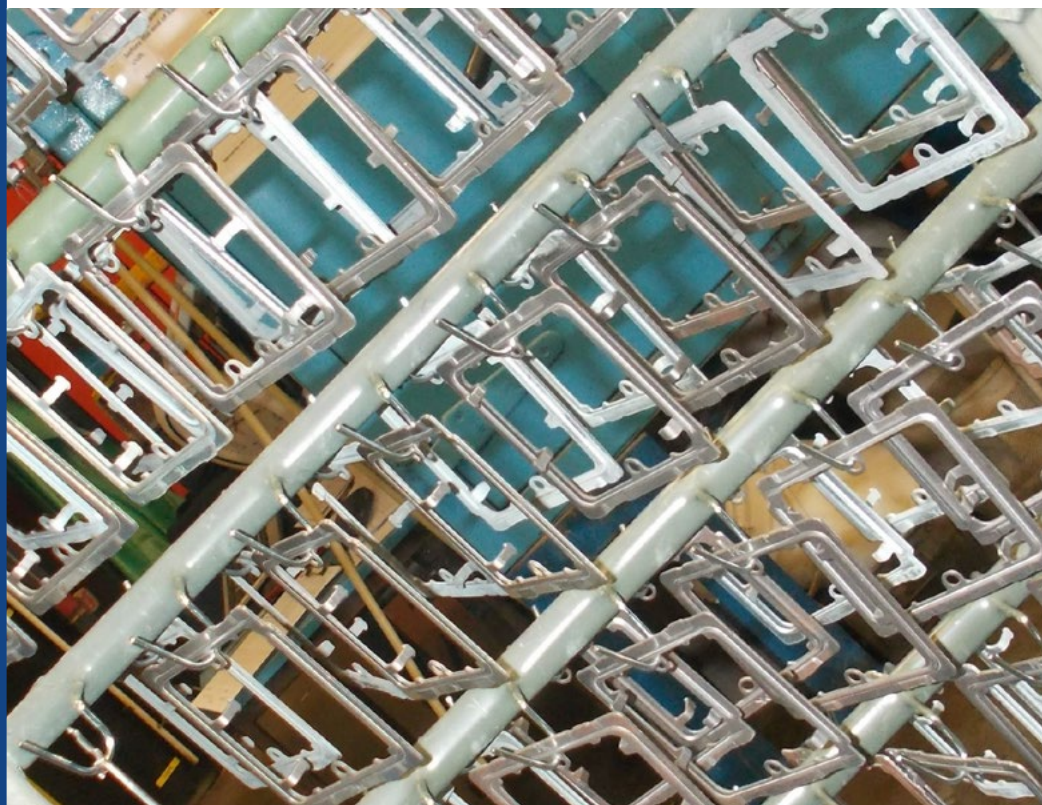
In addition to the aesthetic benefits, our electroplating services also provide several functional

advantages such as stabilizing electrical contacts and preventing corrosion. Our experienced team is available to provide expert guidance and advice on the most suitable coating for your specific project.

We have our own laboratory for maintaining chemical plating solutions, complimented by our advanced X-ray facilities to ensure we are providing the correct dimensional and quality specifications.

Our quality department ensures that all plating is carried out to the highest standards.

- ✓ Tin rack & barrel plating
- ✓ Silver rack & barrel plating
- ✓ Zinc rack & barrel plating
- ✓ Nickel rack & barrel plating



> PLANT LIST

CNC Equipment

- ✓ 1 x Trumpf 3KW Fiber Laser 3030 (2021)
- ✓ 1 x Trumpf 4KW Fiber Laser 3030 (2016)
- ✓ 3 x Bystronic Xpert 80/1530 CNC pressbrake (2021)
- ✓ 2 x Mazak VTC 200C vertical machining centres
- ✓ 1 x Cincinatti Arrow 1000 vertical machining centre
- ✓ 1 x XYZ SMX 2000 CNC milling machine
- ✓ 1 x XYZ SMX 3500 CNC milling machine

Busbar Manufacturing Equipment

- ✓ 1 x 40/10 EHRT punching machine (2021)
- ✓ 1 x 40/6 EHRT punching machine
- ✓ 1 x 40 Ton CNC EHRT forming machine (2017)
- ✓ 1 x Amada 5012 press brake
- ✓ 1 x 40 Ton Euromac forming machine
- ✓ 1 x DS60 HV Plus ring roller

Pressing Equipment

- ✓ 1 x SEYI SNS 200 ton coil fed
- ✓ 1 x SEYI SNS 110 ton coil fed (2017)
- ✓ 1 x SEYI SNS 80 ton coil fed (2016)
- ✓ 1 x BRUDERER 25 ton (2021)
- ✓ 1 x SMV 125 ton coil fed
- ✓ 2 x 75 ton HME strip fed
- ✓ 1 x 55 ton HME strip fed

Wire Erosion Equipment

- ✓ 1 x Charmilles CUT P 550 (2017)
- ✓ 1 x Charmilles CUT 400
- ✓ 1 x Charmilles 640 CCS
- ✓ 1 x Charmilles 510F
- ✓ 1 x Charmilles CUT E 600

Electroplating Equipment

- ✓ 1 x Tin rack plating line (2017)
- ✓ 1 x Silver rack plating line (2017)
- ✓ 1 x Zinc rack plating line
- ✓ 1 x Tin barrel (2017)
- ✓ 1 x Silver barrel (2017)
- ✓ 1 x Zinc barrel CA I
- ✓ 1 x Nickel rack
- ✓ 1 x Nickel barrel

Secondary Operation Equipment

- ✓ 20 x Second operation presses ranging from 6-75 tons
- ✓ 2 x Haeger pemming machines
- ✓ 2 x Steinel multi spindle tapping machines
- ✓ 2 x Rascamat tapping machines
- ✓ 4 x Single spindle tapping machines
- ✓ 3 x Pedestal drills
- ✓ 2 x Spot welding machines
- ✓ 2 x Orbital riveting machines
- ✓ 5 x Ovens

Finishing Equipment

- ✓ 1 x Vapour degreasing plant in Kemet Opal 80 Ultrasonic Cleaner
- ✓ 1 x Grindmaster belt sanding machine
- ✓ 2 x Vibro deburrers with maize driers
- ✓ 1 x Schallberger routing machine
- ✓ 4 x Linishing machines
- ✓ 1 x Burr bench
- ✓ 1 x Fladder 300/gyro including hammer

Toolroom Equipment

- ✓ 4 x XYZ Turret milling machines
- ✓ 4 x Jones & Shipman 540 surface grinders
- ✓ 1 x XYZ 1530 VS Gap bed center lathe (2018)
- ✓ 1 x Eurospark Joemars JM322 spark erosion machine (2017)
- ✓ 1 x Radial drill
- ✓ 1 x Heat treatment oven
- ✓ 1 x Shadograph

Specialised Equipment

- ✓ 1 x Planer vision Inspection system (2021)
- ✓ 2 x CMM – Aberlink & Mitutoyo
- ✓ 1 x Trimos V4-700 Height gauge
- ✓ 2 x Taylor Hobson surface testers
- ✓ 3 x Profile projectors
- ✓ 2 x Elcometer Holiday testers
- ✓ 1 x Fischerscope XDL X-ray
- ✓ 1 x Sonatest Prisma Ultra Sonic tester
- ✓ 1 x Vickers hardness tester



SUPPORTING OUR CUSTOMERS IN MANUFACTURING WORLD CLASS PRODUCTS

WE CAN SUPPORT YOUR REQUIREMENTS AND ADD VALUE TO YOUR BUSINESS

- ✓ Strategic outsourcing partner
- ✓ Helping our customers engineer solutions for manufacture
- ✓ Adding value through technical support and innovation
- ✓ Managing multiple supply chains – sub-assemblies
- ✓ Developing cost effective solutions


Contact us to discuss your requirements in more detail

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