

PROTECTING YOUR ELECTRONICS



HYTEK
ELECTRONIC MATERIALS LTD

Products & Services

Products:

- Conductive Shielding Gaskets
- Super Thermally Conductive Pads
- EMI Honeycomb Vent Panels
- Conductive Fabrics

Production Services:

- Precision Stampings
- Form-In-Place Dispensed Gaskets
- Fabrication & Manufacturing
- Down Packing Electronic Compounds



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Certificate Number 17088
ISO 14001:2015



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HITEK® SERVICES & PRODUCT RANGE. We offer an extensive range of products and in-house manufacturing and fabrication services. Below we summarise a few areas of interest:

Conductive Shielding:

HITEK® are distributors of EMI shielding materials ranging from conductive elastomers; metal EMI gasketing; spring finger gaskets; EMI cable shielding; conductive coatings and adhesives; shielding laminates and foil tapes; and shielded vents and windows.

Super Thermally Conductive Pads:

Our HEM Super Thermally Conductive Pads offer high thermal conductivity values (14-16W/m-K), conformability (Shore A 20 – 50) and an array of thicknesses (0.2mm to 2.0mm); ensuring the highest levels of thermal coupling tailored for extreme applications.

EMI Honeycomb Vent Panels:

We offer bespoke vent panels, manufactured in-house to customer specification or drawing by HITEK®. From small batches to complete call-off production runs.

Microwave Absorber:

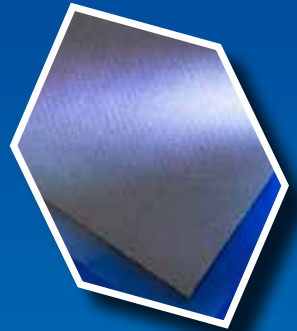
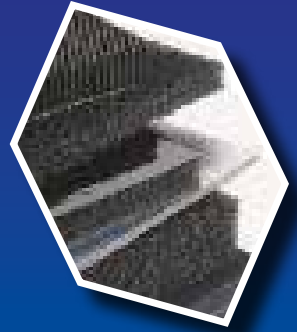
Microwave Absorbers are available in flexible foams, closed cell or open-cell foam and elastomers, as well as rigid polymers, all in standard sheet size and custom configurations available, also die cut to drawing(s) services provided in house.

Form-In-Place Dispensed Gaskets:

Robotically dispensed, precise form-in-place service ideally suited to complicated gasket designs . We offer a rapid service for small and production batch volumes.

Down Packing Electronic Compounds:

Please ask about down packing in your chosen size. Schedule deliveries to meet your requirements.



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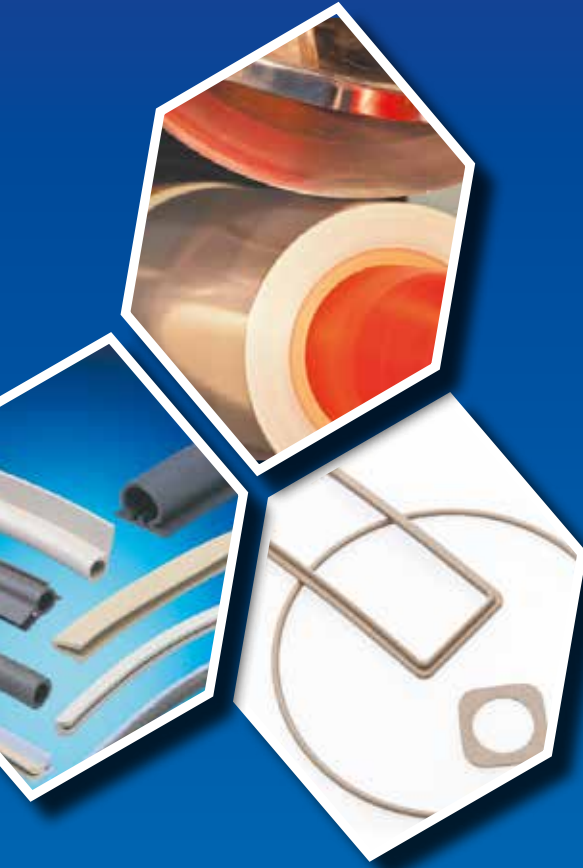
EMC & EMI SHIELDING



EMI Shielding Solutions
and Thermal Management
Solutions

Total Shielding Solutions

- EMI & RF Gasketing
- Conductive Spray Coatings
- EMI & RF Cable Screening
- MIL-Connector EMC Gaskets
- Conductive Compounds
- EMI & RF Optical Display Windows



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EMC & EMI SHIELDING. To resolve EMC concerns or challenges such as EMI & RF interference or achieving metal to metal contact using an EMI & RF shielding solution. Here we offer some ideas based on our experience on EMI & RF Shielding:

EMI & RF Gasketing:

- MIL-DTL-83528 approved with full traceability EMC elastomer materials, which offer high EMC shielding effectiveness with environmental protection, available in spliced O-rings, die-cut or laser cut services.
- Low force compression gasket materials – fabric over foam, silver-plated fibre gasket materials or metal-fingers.
- Low frequency gasket solutions - wire-mesh gaskets, woven mesh gasket or oriented-wires in silicone or fluorosilicone.
- Form-in-place\dispensed gaskets. Low cost and fast turnaround.

Conductive Spray Coatings:

Metallised coatings applied onto composite structures to achieve faraday or grounding effect.

EMI & RF Cable Screening:

Conductive coated heatshrink extrusion to offer complete EMI & RF cable screening and environmental protection, also version available which is flexible, removable for repair, and meets NASA outgassing requirements. Wire-mesh cable screening to resolve low frequency interference.

MIL-Connector EMC Gaskets:

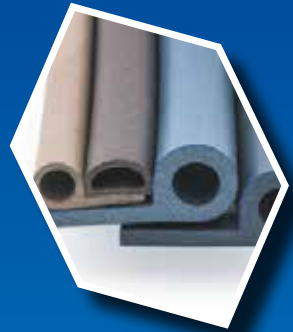
MIL-C-38999 connector gaskets: EMC jam-nut gaskets or EMC flat & square connector gaskets. Sub 'D' connector gaskets.

Conductive Compounds:

- Conductive RTVs which offer EMC shielding effectiveness with environmental protection.
- Resolve EMI & RF leakages on metal to metal contact.
- Conductive grease for grounding requirements on moving metal to metal contact.

EMI & RF Optical Display Windows:

Polycarbonate, cast monomer, glass or acrylic with coating.



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ADHESIVE TECHNOLOGIES



Encapsulants, Adhesives
and Compounds

Complete Assembly Solutions

- Adhesives & Resins Overview
- Bonding & Structural Adhesives
- Alternative to Solder Paste
- Die-Attach
- Film Adhesives
- Down-Packing
- Potting Compounds



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ELECTRONIC ADHESIVE & RESINS. To meet your needs and requirements for electronic assembly processes. Here we offer some ideas based on our experience on adhesives & resins:

Adhesives & Resins Overview:

- General purpose adhesives. Encapsulant/potting adhesives – epoxy, polyurethane or silicone.
- Circuit assembly adhesives - Electrically conductive or thermally conductive adhesives.
- Dielectric adhesives.
- Surface mount adhesives.
- Chip on board encapsulants, glob tops, underfills or dam-and-fill encapsulants.
- Thermal management materials.

Bonding & Structural Adhesives:

Available in single part or two part mix, room temp or heat cure versions. Materials with strong mechanical strength, high operating temperature, chemical resistance and low coefficient thermal expansion.

Alternative To Solder Paste:

Fast curing adhesives designed to replace solder, meeting electrical, thermal and mechanical requirements of solder. Available in room temp or heat cure, single part or two part mix or stencil & screening printing versions.

Die-attach:

Industry standard die-attach epoxies. With high thermal and electrical conductivity properties. Features with high shear & bond strength and single part material.

Film Adhesives:

For grounding, substrate attach, die-attach, component attach and staking requirements, thermally or electrically conductive film adhesives.

Down-packing:

Capabilities to provide material packed in twin-packs, barrels or HEMKIT/SEMKIT cartridges subject to material formation.

Potting Compounds:

Potting compounds are used to fill large voids, protect components against shock and vibration, and provide resistance against chemicals, moisture and low and high temperatures. These compounds come in epoxy, polyurethane and silicone forms; each with vastly differing properties to tailor to your application.



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CONDUCTIVE FABRICS

shieldex

Highly Conductive Yarns
and Textiles

Innovative EMI Shielding

- Conductive Metallised Fabric
- Rip Stop or Plain Weave
- High Levels of Shielding
- Fabric Mesh
- Electrically Conductive “Hook & Loop” Fastening
- Table top shielded enclosures
- Deployable Shelters made to order
- Smart Fabrics For Pressure & Motion Sensing



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CONDUCTIVE FABRICS. There are wide spread applications for plated fabrics, from medical applications to products used in RF shielding. HITEK® provides a wide range of metallised yarns, fabrics and meshes and below is a brief summary of just some from 50 different products in total.

Conductive Metallised Fabric (Example: Nora):

Typically used in RF shielding. High conductivity. Typical shielding effectiveness 85dB from 30MHz to 10 GHz. Material thickness: 0.09mm. Temp range -40 to 90C.

Rip Stop or Plain Weave:

Fabrics available in many different configurations offering a range of performances.

High Levels of Shielding:

Fabrics metallised with single metal or multi-metal layers give high levels of electro-magnetic shielding.

Fabric Mesh (Example Mesh LX):

Good RF shielding properties. High conductivity with silver plated nylon weave mesh. Thickness 0.15mm. Surface resistivity $>.01\Omega/\text{square}$. Shielding effectiveness 70dB @ 30MHz to 1GHz. Weight: 20g/m².

Electrically Conductive “Hook & Loop” Fastening:

Electrically conductive fastener system with minimal gap impedance. Woven nylon coated with silver. 16mm wide.

Table Top Shielding Enclosures:

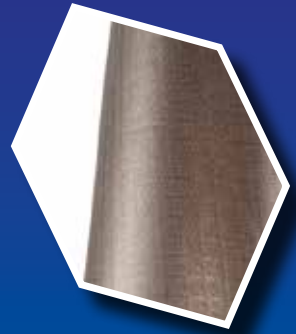
Designed for use within restricted space for isolation of equipment being tested in an electrically ‘quiet’ environment. Easily set up and stored taking up minimal storage space.

Deployable Shelter:

Offering up to 80db+ of shielding from 30MHz to 18GHz, these ultra-portable enclosures can be set up in any room to create an electrically shielded environment for secure for communications or electronic testing.

Smart Fabrics For Pressure & Motion Sensing:

Smart, piezo-resistive fabrics are used as pressure, impact, strain/stretch, bending and chemical vapour sensors; with the ability to monitor pressure whilst in the dynamic mode. Dual stretch fabrics with conductive and non-conductive strips manufactured to any width (within $\pm 1\text{mm}$ accuracy) can also be supplied. Available in any resistance.



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THERMAL MANAGEMENT



EMI Shielding Solutions
and Thermal Management
Solutions

Thermal Control Technology

- Thermally Conductive Gap Filler Pads
- Dispensable Thermal Gels
- Phase Change Materials (Non-Silicone)
- Thermally Conductive Attachment Tapes
- Thermal Compounds (Potting & Underfills)
- Thermal Greases
- Thermally Conductive Dielectric Insulator Pads
- Low Profile Heat Spreaders
- Super Thermally Conductive Pads



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THERMAL INTERFACE MANAGEMENT. The increased use of ever smaller packaged devices and increasing product functionality combines to create a challenge in managing thermal heat issues. Here we offer some ideas based on our experience of thermal management.

Thermally Conductive Gap Filler Pads:

Soft, thermally conductive. Use where heat needs to be conducted over a large gap between hot components and cold surfaces. Choice of grades and thickness.

Dispensable Thermal Gels:

Pre-cured, single component compounds. Low stress. Variable width gaps. Dispensable. No mixing or curing.

Phase Change Materials (Non-Silicone):

Solid at room temperature for easy application. Materials soften as it reaches component temperature. Electrically non-conductive. Choice of thickness and grades.

Thermally Conductive Attachment Tapes:

Thermally conductive tapes on acrylic or silicone pressure sensitive adhesive base.

Thermal Compounds (Potting & Underfills):

Thermally conductive silicone. Dispensable. Heat transfer with no compressive force. Complex geometry possible.

Thermal Greases:

Can be screened, stencilled or dispensed. Silicone based.

Thermally Conductive Dielectric Insulator Pads:

An alternative to greased mica, these are typically used between discrete power devices and heat sinks.

Low Profile Heat Spreaders:

Low cost, effective solution for cooling IC's in areas of restricted space. Copper foil with pressure sensitive adhesive backing for easy installation.

Super Thermally Conductive Pads:

Our HEM Super Thermally Conductive Pads offer high thermal conductivity values (14-16W/m-K), conformability (Shore A 20 – 50) and an array of thicknesses (0.2mm to 2.0mm); ensuring the highest levels of thermal coupling tailored for any application.



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MICROWAVE ABSORBER



Microwave Absorber Material

Microwave Absorber Material

- Control Nearfield Interference
- Dampen Cavity Resonance
- Broadband and Narrow Band
- MAGRAM – Dielectric Foam – Thermoplastic Absorber – Resin Systems
- WAVE-X™ Thin, Low Frequency Absorber
- Custom Solutions and Fabrication



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Microwave Absorber Products are an excellent solution to challenging interference control problems in electronic systems. HITEK® offers absorber products to cover frequencies from 10MHz to 110GHz.

Injection Moulding Thermoplastic Material:

- Low-cost solution to complex interference problems.
- Offering high magnetic and electrical loss properties for frequency solutions ranging from 600MHz to 110GHz.
- Wide range of flexible and rigid thermoplastic compounds and absorptive fillers, offered as moulded parts or in pellet form.
- Ideal for on-board interference problems, waveguide terminations and sub-enclosures.
- Also available as thin extruded sheets.

Foam Absorber Products:

- Several formats: multi-layer, single layer (LS), reticulated, convoluted and specialty; as well as honeycomb absorber.
- Flexible and lightweight for effective broadband interference control.
- Non-magnetic and effective from 650MHz to 40GHz.

MAGRAM (Magnetic Absorber):

- Thin, flexible, durable, high-performance MAGRAM sheets.
- Highly effective near field resonance control.
- Frequency-selective far field absorption.
- Available in an array of thicknesses starting from 0.010" (0.25mm) and in roll or sheet form.
- ARC's high-loss fillers blended into a variety of elastomeric compounds with each providing different chemical and physical properties to tailor to your application and requirements.

Advanced Materials:

- Engineered to meet your electrical and mechanical specifications.
- ARC specialise in blending absorptive fillers into various liquid thermoset resins.
- Available in cast or mouldable systems.

WAVE-X™:

- Suppress EMI and RF at the source.
- Specified frequencies ranging anywhere from 5MHz to 110GHz.
- WAVE-X™ Series comes in 3 forms (which are all UL 94V-0 rated and RoHS compliant):
 - WAVE-X SHEETS – Available in an array of thicknesses from 0.005" to 0.040" and can be formed, cut, and stacked.
 - High permeability values make this product very effective at frequencies from 10MHz to 3GHz.
 - WAVE-X Z – Absorbing cable consisting of WAVE-X, extruded directly onto the cable, eliminating the need for ferrite chokes. Supplied in thermoplastic pellet form, ideal for high volume applications.
 - WAVE-X WT – A blend of WAVE-X and thermoplastics that can be moulded in 3D and is available in pellet form.

Fabrication & Services:

At HITEK® we have the ability to cut and shape Microwave Absorber Material to your specific requirements and we have the capabilities to weatherproof materials.



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NON HAZARDOUS INDUSTRIAL DESCALER



Non Hazardous
Industrial Descaler

Revolutionary Descalers

- HSL Eco Descale
- HSL Safe Descale
- Transportable
- Environmentally Friendly
- Supply & Application Capability



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NON-HAZARDOUS INDUSTRIAL DESCALER. The HSL Descale range of descaling products provides a safe, fast and effective means to dissolve water scale, lime scale, corrosion, deposits and mud from industrial equipment and piping.

HSL Eco Descale:

A biodegradable, rapid action liquid descaler for the removal of water scale, lime and other residual deposits. Non-Toxic and safe to use. Offering multi metal compatibility and safe to use with rubber, plastic and other materials found in most water cooled, heated or operated equipment. Independently tested to have one of the lowest corrosion rates of any descaler available for industrial use on the market.

HSL Safe Descale:

A new descaler designed for use with stainless steel as well as multi metal applications. HSL Safe Descale is also certified by NSF to NSF/ANSI standard 60 for use on potable water systems.

HSL Descale products can be purchased online at www.hitek-ltd.co.uk/dynamic-descaler

Transportable:

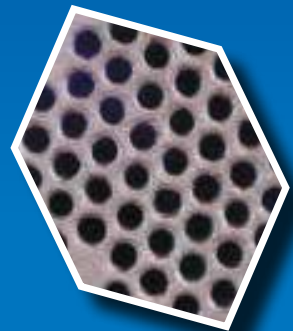
As both materials are not classed as hazardous, it is possible to transport them by air unlike most hazardous descaler available on the market.

Environmentally Friendly:

Both materials are self-neutralising through use. Once the descaler is neutralised, it can be disposed of through normal waste channels.

Supply and Application Capability:

Our sister company, HITEK-nology Solutions can assist and provide on-site services for your descaling requirements. Please call +44 (0)1332 347175 or visit www.hitektechnologysolutions.co.uk for further information.



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INNOVATIVE CORROSION PROTECTION



Environmentally Friendly
Vapour Corrosion
Protection Solution

Superior Anti Corrosion Results

- VpCI® – Vapour Phase Corrosion Inhibitor Technology
- Total Corrosion Protection
- Asset or Metal Component Corrosion Protection
- Supply & Application Capability
- Environmentally Friendly



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COMPREHENSIVE CORROSION PROTECTION. To meet your needs and requirements for total corrosion protection. Here is a list of some of our capabilities and solutions on corrosion protection:

VpCI® – Vapour Phase Corrosion Inhibitor Technology:

Our VpCI® products protect metals with a chemically absorbed molecular layer that provides multimetal corrosion protection. The coverage is complete for all surfaces, including crevices, cavities and other inaccessible void areas.

Total Corrosion Protection:

- Corrosion removal solutions with corrosion protection residue.
- Long term storage corrosion protection packaging.
- Short term storage corrosion protection packaging.
- Corrosion protection for electronics – components, electrical enclosures or cabinets, conformal coating and PCB boards cleaners.
- Corrosion protection packaging with ESD protection.
- Multi-delivery system – foams, powders, water or oil based coatings, cardboard, paper, bubble-wrap, PU\plastics, fabrics, netting, tablets and pouches.
- Bio-degradable.
- Water soluble packaging.

Asset or Metal Component Corrosion Protection:

- Bags (zip-lok or heatseal), heatshrink or film wrap, sheet form, tapes, sprays & coatings, VpCI®-desiccants or emitters.
- Waterbased additives for transit or wash down corrosion protection solutions.
- Additives in coolants, oils & fuels.
- Grease or oil based – corrosion protection lubricants.


Supply and Application Capability:

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PRECISION COMPONENTS

ORBEL

Precision Metal Parts

Highly Precise

- Battery Contacts
- Battery Bus Bars
- Electrical Contacts
- EMI Shielding
- Grounding Contacts
- Connectors
- Circuit Board Stiffeners
- Switch Contacts
- Spring Clips
- Spring Gaskets
- Diaphragms
- Filters
- Sensor Elements



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Orbel's small, highly precise metal parts can be as simple or as intricate as your design requires. A wide choice of metals are available and process flexibility makes it easy to accommodate prototype quantities.

Photo Etching:

Orbel's etching techniques allow them to produce the most intricate components while maintaining extremely tight tolerances. This process provides a fast and cost effective way to produce a wide variety of precision metal parts.

- Offers a wide selection of materials
- Etching metal thickness from 0.0178mm to 0.813mm
- Allows for quick design modifications
- Eliminates the cost of hard tooling
- Produces burr and stress-free high quality precision parts
- In-house photo tooling provides quick turnaround on parts

Custom Stamping:

Orbel's capabilities range from short-run single hit to high volume progressive die stamping.

- Materials ranging from 0.0508mm to 0.813mm thick
- Wide variety of material choices including beryllium copper, stainless steel, brass, phosphor bronze, copper alloys, and others
- A dedicated prototype department
- Short, medium and high volume production
- Tape and reel packaging
- In-house operations include forming, heat treating, plating and assembly

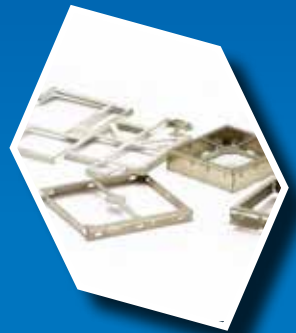
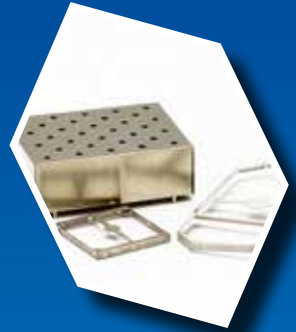
Electroplating:

Orbel's electroplating services are at the core of their production capabilities. From continuous and complete material coverage to intermittent and localised deposits, a wide range of manufacturing flexibility is employed to meet customer requirements. Standard finishes include tin, nickel copper, tin lead, zinc, nickel, electroless nickel, gold, silver, ebino and passivation.

- Plating methods include rack, barrel and reel to reel
- Reel to reel plating of strip from 6.35mm to 660mm wide by 0.018mm to 1.02mm thick materials.
- Coil weights from 0.45kg to 2.25 tonnes
- Tight tolerance rack and barrel plating for the electronic industry
- Custom masking and racking available when required

Heat Treating:

NADCAP Certified Heat Treatment Facility, specialising in beryllium copper heat treating, AMS-H-1799. Heating and soaking the components for a precise time at a precise temperature, followed by a controlled cooling cycle in an atmospheric chamber, brings out the maximum mechanical properties in relation to stress. This process will increase the tensile strength and stress relaxation characteristics of beryllium copper products.



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