



ADVANCED CHEMICAL ETCHING LTD

# ELECTRONICS



## ELECTRONICS & COMMUNICATIONS

*In electronics manufacturing and product development, low risk is key. That's why photo chemical etching has become the process of choice for clients who require a fast turnaround, low cost alternative to hard tooling.*

*Our experience working with clients in the aerospace, F1 & Automotive, Medical and Renewables sectors has become a source of transferable expertise that ACE now employs in electronics and communications components manufacturing*

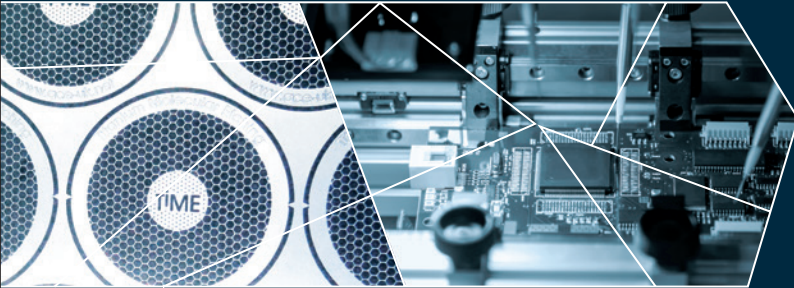
### UNLIMITED POSSIBILITIES

We work closely with designers and engineers to *craft bespoke, high-quality parts* suitable for a range of applications. Where *precision and uniformity are crucial*, our photo etching process ensures that every component we manufacture will perform to specification, from the first etching to the last. We use no hard tooling, *ensuring that parts produced never suffer from heat stress, burrs or distortion.*

The level of intricacy achievable through our photo-etching process makes it possible to produce components with an *unlimited level of complexity at tight tolerances* – ideal in a range of sectors where miniaturisation and durability are essential. ACE can supply micro-precision components in thicknesses as low as 5 microns, and *tolerances of  $> \pm 0.025mm$*  – parts that could fit nicely on a pencil point.

From our facility in Telford we supply the world's leading electronics companies, *providing agile, cost-effective and reliable manufacturing.* Examples of components we produce include *EMI/RFI shielding* for implantable defibrillators, *surveillance UAVS* and *marine GPS, lead frames* and *cooling plates* to the *semiconductor industry*, as well as *lead frames* for the world's smallest reed relays. We work in a variety of materials including *Steel* and *Stainless Steel* in all grades and hardnesses, *Aluminium, Copper, Nickel* and *Titanium Alloys*, and provide surface finishing and plating in *Gold, Silver, Tin, Nickel*, as well as anodising & passivation. In addition ACE can provide a single source components supply solution, and offer a number of in-house processes including *hard and hand forming, spot welding, machining* and *assembly.*

*Contact ACE today on +44 (0)1952 416 666 to find out what we could produce for you – whether it's 1s or millions.*



## TYPICAL ETCHED COMPONENTS

## METALS

### ELECTRONICS

- » Lead frames
- » EMI/RFI shielding
- » Semiconductor cooling plates
- » Squeegee blades

- » Connectors and contacts
- » Shims, gaskets and washers
- » Springs, flexures and diaphragms

### COMMUNICATIONS

- » Connectors
- » Screen cans
- » Antennas
- » Heat sinks
- » RFI shielding
- » RFI finger strip
- » Diaphragm springs
- » Busbars for base stations
- » Terminals
- » Flexures

### METALS

- » Steel (all grades)

- » Stainless steel (all grades)
- » Aluminium alloys

- » Copper alloys
- » Nickel alloys

- » Titanium alloys

**A PROCESS OF INNOVATION**

# ACE CORE CAPABILITIES OVERVIEW

Photo Chemical Etching (net shape)	Technical Information
<ul style="list-style-type: none"> <li>⬢ Low-cost digital tooling, (no hard tooling for etched parts)</li> <li>⬢ Burr-and stress-free, flat etched parts</li> <li>⬢ Unlimited complexity (etching is not a profiling process, so complexity doesn't equal high cost)</li> <li>⬢ Lead-times in days</li> </ul>	<p>Metals ..... <b>Almost all Metals</b></p> <p>Thickness ..... <b>0.005mm – 2.5mm</b></p> <p>Component size..... <b>575mm x 1475mm (max)</b></p> <p>Tolerances ..... <b>&gt; ±0.025mm</b></p> <p>Volumes ..... <b>One to Millions</b></p> <p>Min feature ..... <b>&gt;0.07mm</b></p> <p>Forming, machining &amp; assembly ..... <b>In House</b></p>

Aluminium Etching (net shape)	Technical Information
<ul style="list-style-type: none"> <li>⬢ Proprietary process for etching aluminium</li> <li>⬢ Clean, smooth edges</li> <li>⬢ No expensive hard tooling</li> <li>⬢ Low-cost design iterations – fast turnaround</li> <li>⬢ Burr-and stress-free – metal properties unaffected</li> <li>⬢ 100% tighter tolerances than the industry standard</li> <li>⬢ Serial production capacity</li> </ul>	<p>Metals ..... <b>All grades</b></p> <p>Thickness ..... <b>0.025mm – 2.5mm</b></p> <p>Component size..... <b>575mm x 1475mm (max)</b></p> <p>Tolerances ..... <b>&gt; ±0.025mm</b></p> <p>Volumes ..... <b>One to Millions</b></p> <p>Min feature ..... <b>&gt;0.07mm</b></p> <p>Forming, machining &amp; assembly ..... <b>In House</b></p>

Titanium Etching (net shape)	Technical Information
<ul style="list-style-type: none"> <li>⬢ Lead-times in days</li> <li>⬢ Unlimited complexity (pay for the first hole only)</li> <li>⬢ No hard tooling</li> <li>⬢ Low-cost set up and design iterations</li> <li>⬢ Burr-and stress-free components</li> <li>⬢ Accuracy to ±25 microns</li> <li>⬢ Fine lines as low as 70 microns</li> </ul>	<p>Metals..... <b>All grades</b></p> <p>Thickness..... <b>0.025mm – 1.0mm</b></p> <p>Component size ..... <b>300mm x 500mm (max)</b></p> <p>Tolerances ..... <b>&gt; ±0.025mm</b></p> <p>Volumes..... <b>One to Millions</b></p> <p>Min feature ..... <b>&gt;0.07mm</b></p> <p>Forming, machining &amp; assembly..... <b>In House</b></p>