



ADVANCED CHEMICAL ETCHING LTD

RENEWABLES



RENEWABLE ENERGY

Advanced Chemical Etching Ltd (ACE) is at the forefront of renewable technology component supply. Unlike other manufacturing methods, our process eliminates heat and stress to the material inherent with hard tooling and other processes, removing the risk of distortion to the metal.

Our experience gained from working with our partners in the Automotive & F1, Aerospace, Military, Medical, Precision Engineering and Communications sectors has become a source of transferable expertise, allowing us to supply our photo chemical etching and rapid prototype production process to this rapidly developing market.

PHOTO ETCHING IS DIFFERENT

Energy-related products manufactured by ACE will always exhibit **excellent strength-to-weight ratio**, **corrosion resistance** and **low-coefficient of thermal expansion**. Every component we produce performs to a uniform specification with zero deviation in quality as volumes increase. **The level of complexity possible is limitless**, with **tolerances** to $> \pm 0.025\text{mm}$ and **thicknesses** between **0.01mm – 2.0mm**.

Our etching process means that rather than go through costly re-tooling whenever a change is required, design alterations can be easily incorporated with a minimum lead time. Thanks to the incredibly high level of precision achievable, ACE are able to produce **increasingly intricate, miniaturised parts suitable for a wide range of current and emerging renewable sector applications**, including **fuel cells, heat exchangers** and **mechanical components for wind turbines**.

From our plant in Telford we operate a continuous program of product and process development, and work closely with our industry partners to **ensure we stay at the forefront of new developments in renewables**. Our knowledge of precision photo etching means that we can offer totally **bespoke components** in a wide range of metals to suit client needs, including **Aluminium, Nickel Superalloys, Titanium** and **Marine-grade Stainless Steel**. 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.

No matter your requirements, our expert team will work with you to produce the **high performance, lightweight** and **reliable** parts you need.

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

- » Fuel cell plates
- » PEM fuel cell stacks
- » Bipolar plates
- » Meshes, filters and sieves
- » Heat exchanger plates
- » Gaskets
- » Manifolds
- » Wind turbine gaskets

METALS

- » Titanium (all alloys)
- » Inconel's
- » Aluminium (all grades)
- » Copper alloys
- » Stainless Steel (all grades)

A PROCESS OF INNOVATION

ACE CORE CAPABILITIES OVERVIEW

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

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

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