

ADVANCED CHEMICAL ETCHING LTD

ACE GUIDELINES



CAPABILITY GUIDELINES

These guidelines are to help you understand our capability.

CAD DATA – HOW TO SUPPLY YOUR DATA

- ⬢ Please ensure all lines are continuous (no breaks) and all dimensions on nominal.
- ⬢ Please provide a scale line on data.
- ⬢ For QA inspection measurement we require a drawing with critical features identified.
- ⬢ Please clearly identify any ½ etched features and which side of part, detail is required.

CAD DATA – WE ACCEPT THE FOLLOWING FILE FORMATS:

DWG IGES DXF
Gerber Step Fully dimensioned drawing

Please supply to our Sales Team by email
info@ace-uk.net | www.ace-uk.net

OUR BENEFITS AT A GLANCE

- » Low cost digital tooling
- » Soft tooling
- » Design changes at minimal cost
- » Short lead times
- » Burr-and stress free
- » 100% tighter tolerances
- » Excellent for prototypes
- » No metal stress or part deformation
- » Flexibility in design
- » No work hardening
- » Fine detail can be achieved
- » Accuracy to ± 25 microns
- » Complex designs
- » Bespoke service available

A PROCESS OF INNOVATION



ADVANCED CHEMICAL ETCHING LTD

ACE TECHNICAL GUIDELINES

MATERIALS, THICKENESSES & SIZES

- Advanced Chemical Etching (ACE) processes more than 2,000 different metal types in a wide range of sheets sizes, thicknesses, finishes and grades.
- We can also etch on special metal on request and work with customer-supplied material.
- All dimensions & tolerances are a guide only, all subject to metal type, part size, feature and volumes.

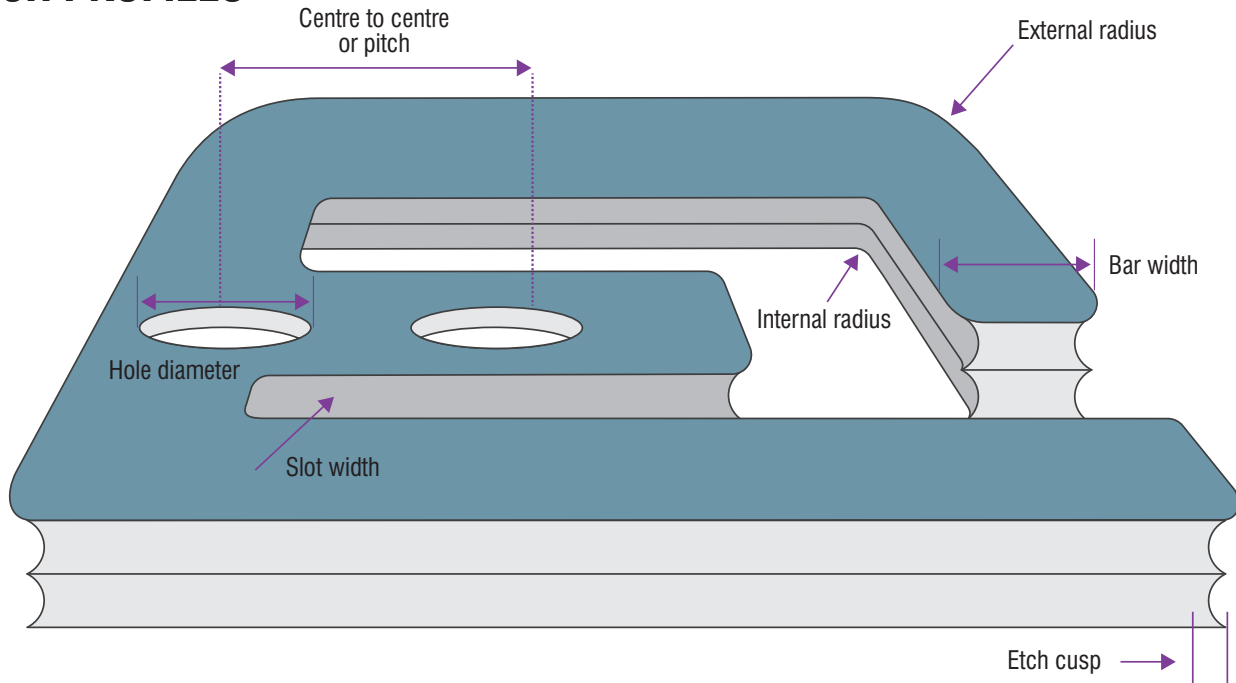
METAL FAMILY	THICKNESS RANGE	MAXIMUM SHEET SIZE
Steel & Stainless Steels	0.005mm – 1.5mm	600mm x 1500mm
Nickel & Nickel Alloys	0.01mm – 1.5mm	600mm x 1500mm
Copper & Copper Alloys	0.01mm – 2.0mm	600mm x 1500mm
Aluminium Alloys	0.025mm – 2.5mm	600mm x 1500mm
Titanium & Titanium Alloys	0.01mm – 1.0mm	300mm x 500mm

ETCHING TOLERANCES & FEATURES

- Tolerances and feature sizes are best possible for standard process, for more accurate results a technically controlled process may be required.

METAL THICKNESS	HOLE / SLOT SIZE	BAR SIZE	INTERNAL RADIUS	EXTERNAL RADIUS	PROFILE TOLERANCE	ETCH PROFILE CUSP
0.050mm	0.100mm	0.100mm	0.050mm	0.040mm	±0.025mm	10-20% x T
0.100mm	0.110mm	0.110mm	0.100mm	0.080mm	±0.025mm	10-20% x T
0.150mm	0.170mm	0.170mm	0.150mm	0.120mm	±0.025mm	10-20% x T
0.200mm	0.220mm	0.220mm	0.200mm	0.160mm	±0.025mm	10-20% x T
0.250mm	0.275mm	0.275mm	0.250mm	0.200mm	±0.030mm	10-20% x T
0.500mm	0.550mm	0.550mm	0.500mm	0.400mm	±0.055mm	10-20% x T
0.700mm	0.770mm	0.770mm	0.700mm	0.560mm	±0.077mm	10-20% x T
1.000mm	1.100mm	1.100mm	1.000mm	0.800mm	±0.110mm	10-20% x T
1.500mm	1.650mm	1.650mm	1.500mm	1.200mm	±0.165mm	10-20% x T
2.000mm	2.200mm	2.200mm	2.000mm	1.600mm	±0.220mm	10-20% x T

ETCH PROFILES



ETCH PROFILES

During the etching process metal is simultaneously removed from each side and during this process the etchant attacks the profile laterally resulting in an edge “cusp” which is typically 25%-33% of metal thickness. The **etch profile (cusp)** can be controlled to produce a range of profiles. This gives products unique characteristics, such as sharp cutting edges or conical openings.



TAGGED INTO SHEET

- ⬢ This is a term used by Advanced Chemical Etching (ACE) when we have to retain parts into the sheet during our process. They are required when parts have a **tight tolerance** or **feature requirement** or **parts are surface coated** (plated, painted or other special processes).

Advanced Chemical Etching (ACE) have 4 different tag types (as below), once the parts have been manufactured and inspected parts can be **supplied in sheet form** or **removed from sheet**. In some cases Advanced Chemical Etching (ACE) can process parts as loose / discrete items without tagging.

Sunken tag half thickness.

Default option



Sunken tag, full metal thickness.



V Shaped tag, full metal thickness.



V Shaped tag with a half etched line.



LEADERS IN CHEMICAL ETCHING

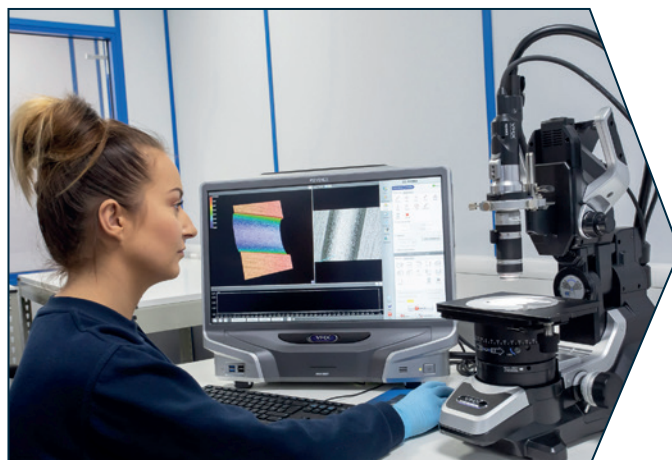
- ⬢ Advanced Chemical Etching (ACE) manufacture and supply **precision made components**, to our **existing** and **new customers world wide**.

In collaboration with our customers we will deliver **added value** through **technical leadership**, **problem solving**, **mass flexibility** and **fast reaction**, through the application of **world class quality** and **delivery service**.

OUR TECHNICAL TEAM ARE READY TO HELP

+44(0)1952 416 666

info@ace-uk.net | www.ace-uk.net





ADVANCED CHEMICAL ETCHING LTD

BENEFITS OF CHEMICAL ETCHING



- IDENTIFICATION NUMBERS AND LOGOS CAN BE ETCHED ONTO PARTS, NO NEED FOR POST LASER MARKING
- EXCEPTIONALLY ACCURATE TIGHTER TOLERANCES
- MATERIAL PROPERTIES AND TEMPER OF MATERIAL REMAIN UNCHANGED
- SOFT TOOLING
- COMPLEXITY OF DESIGN NOT AN ISSUE
- NO METAL STRESS OR PART DEFORMATION
- LOW COST DIGITAL TOOLING
- ULTIMATE NET SHAPE MACHINING REDUCING THE NEED FOR TRADITIONAL FINISHING
- SHORT LEAD TIMES

- FINE DETAIL CAN BE ACHIEVED
- EXCELLENT FOR PROTOTYPES
- DESIGN CHANGES AT MINIMAL COST
- NO HARD TOOLING
- FLEXIBILITY IN DESIGN
- NO WORK HARDENING
- EXOTIC MATERIALS CAN BE ETCHED
- VARIETY OF DIFFERENT MATERIALS AND THICKNESSES CAN BE ETCHED
- BURR-FREE
- STRESS-FREE



ACE – THE RIGHT CHOICE

Close liaison with the customer at every stage ensures full traceability and allows us to offer value design and manufacturing, often securing significant lower costs in the process.



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