



ADVANCED CHEMICAL ETCHING LTD

BENEFITS OF CHEMICAL ETCHING



- LOW COST DIGITAL TOOLING
- SHORT LEAD TIMES
- COMPLEXITY OF DESIGN DOES NOT DICTATE COST
- CLASS-LEADING TOLERANCE CAPABILITIES
- IDENTIFICATION NUMBERS AND LOGOS CAN BE ETCHED ONTO PARTS, NO NEED FOR POST LASER MARKING
- MATERIAL PROPERTIES AND TEMPER OF MATERIAL REMAIN UNCHANGED
- NO METAL STRESS OR PART DEFORMATION
- ULTIMATE NET SHAPE MACHINING REDUCING THE NEED FOR TRADITIONAL FINISHING
- SOFT TOOLING

- 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.

MATERIALS, THICKNESSES & SIZES

- Advanced Chemical Etching (ACE) processes more than 2,000 different metal types in a wide range of sheet 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.

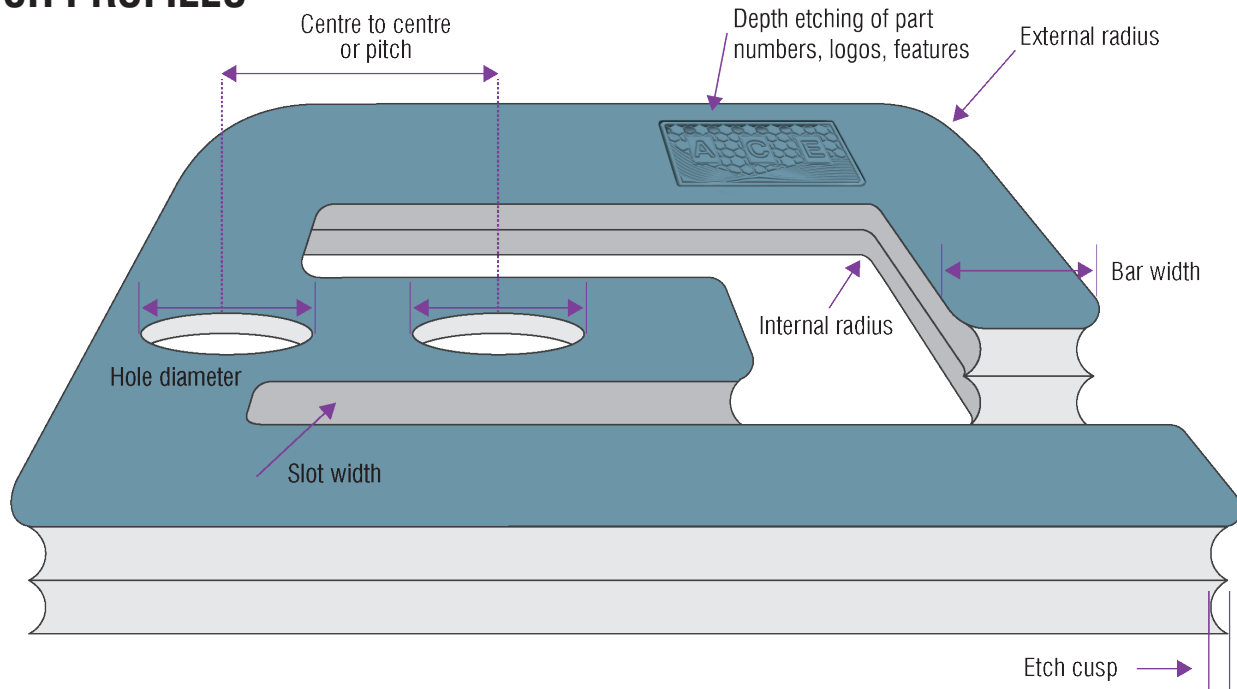
METAL TYPE	THICKNESS RANGE	MAXIMUM SHEET SIZE
Steel & Stainless Steels	0.005mm – 1.5mm	600mm x 1500mm
Nickel & Nickel Alloys	0.01mm – 1.5mm	600mm x 1500mm
Copper & Copper Alloys	0.01mm – 2.0mm	600mm x 1500mm
Aluminium Alloys	0.025mm – 2.5mm	600mm x 1500mm
Titanium & Titanium Alloys	0.01mm – 1.0mm	300mm 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. Contact ACE's technical experts for more information and to discuss your project.

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

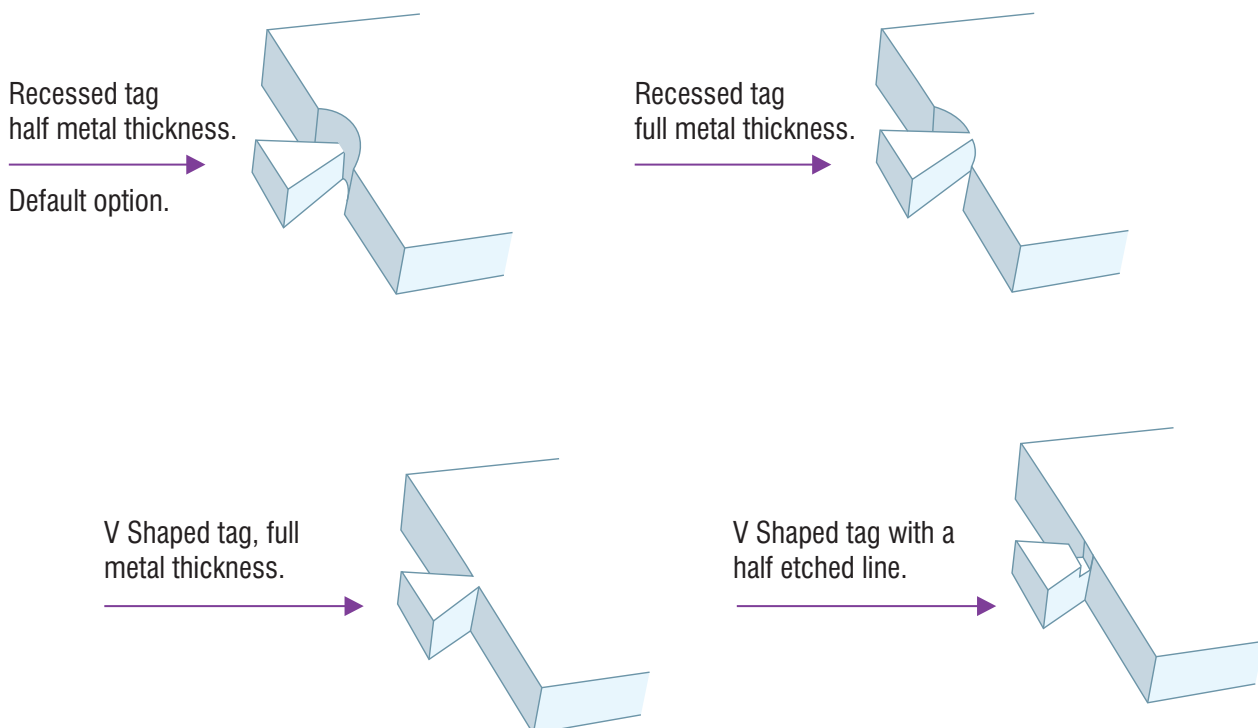
During the etching process metal is simultaneously removed from each side and during this process the etchant attacks the profile laterally resulting in an edge “cusp” which is typically 10% to 20% of metal thickness. The **etch profile (cusp)** can be controlled to produce a range of profiles. This 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 if **parts require surface coating** (plated, painted or other special processes).

There are **4 different tag types** (see below), once the parts have been manufactured and inspected, parts can be supplied either in sheet form or removed from the sheet. In some cases, parts can be processed as loose/discrete items without tagging.

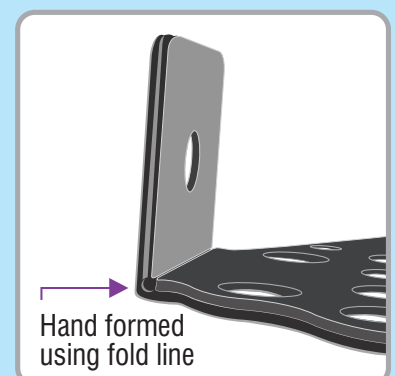
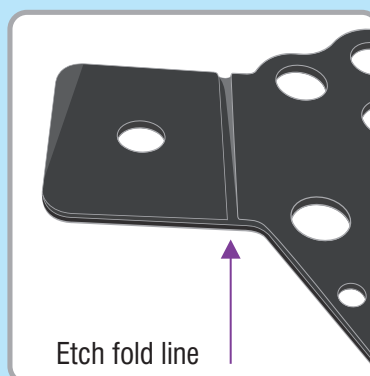


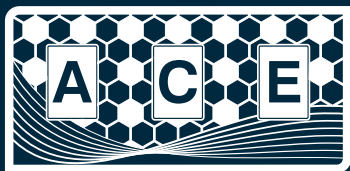
ETCH FOLD LINES

- ⬢ A **fold line (bend line)** is a depth etched line for hand folding, etched halfway through the metal. **Utilising half etched fold lines allows hand forming without the need for costly form tooling or resultant tooling marks** among many other benefits.

Contact **ACE's technical experts** for further information.

+44(0)1952 416 666 | info@ace-uk.net





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ACE GUIDELINES



CAD DATA REQUIREMENTS

These guidelines are to help you understand our capability.

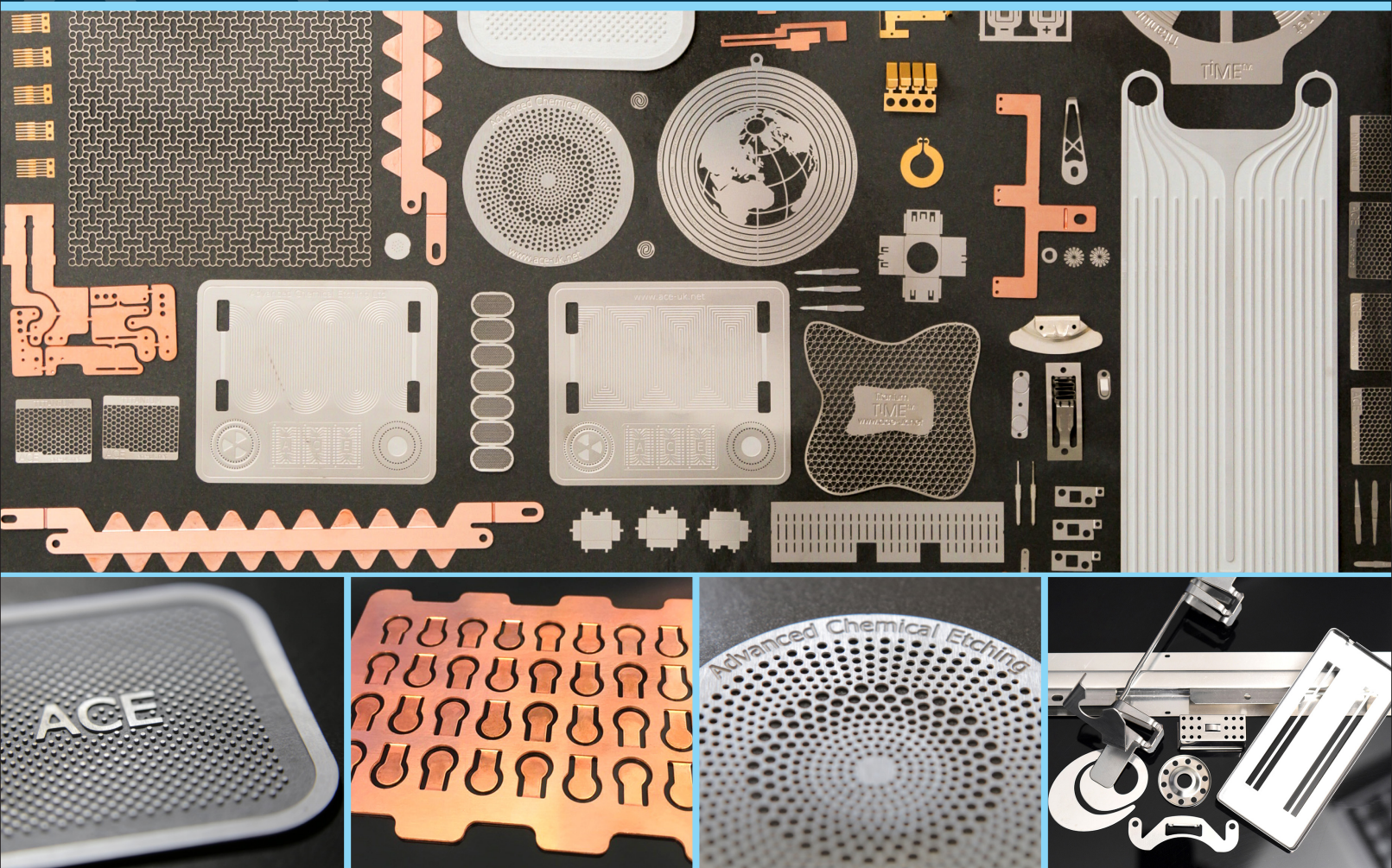
CAD DATA – HOW TO SUPPLY YOUR DATA

- 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 $\frac{1}{2}$ etched features and which side of part, detail is required.

CAD DATA – WE ACCEPT THE FOLLOWING FILE FORMATS:

.dwg .igs .dxf
.gbr .stp Fully dimensioned drawing

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



A PROCESS OF INNOVATION



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