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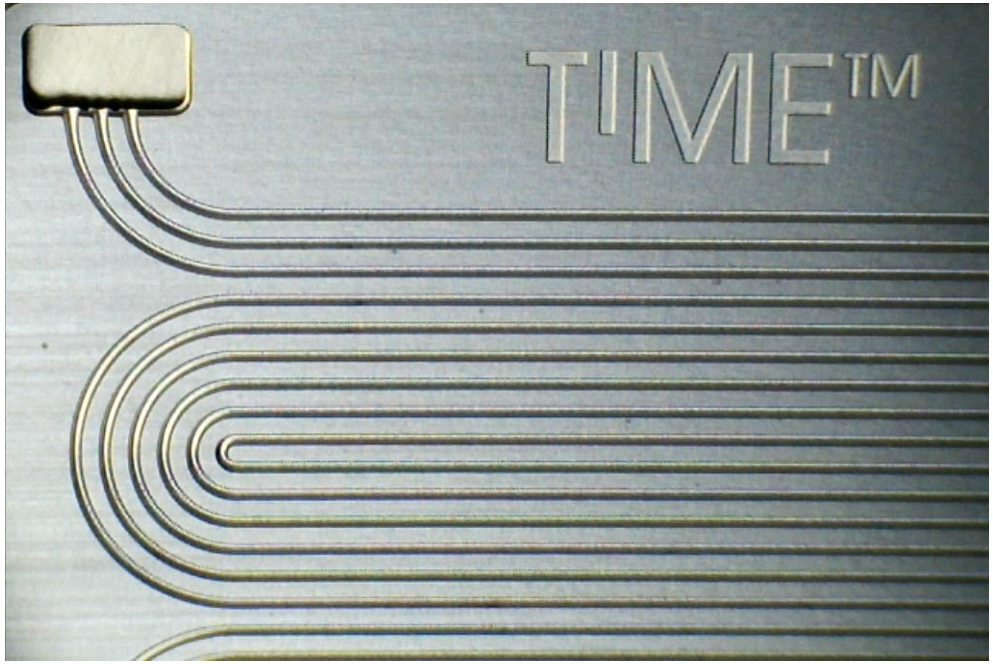
ADVANCED CHEMICAL ETCHING

a process of innovation

TiME Process

Titanium Molecular Etching



TiME Technical capability

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Material	Thickness	Profile Tolerance	Hole & Aperture Size	Min External Radi	Min Internal Radii	Convex Etch Cusp Size
Titanium	0.025mm	+/-0.0125mm	0.125mm	0.075mm	0.08mm	0.025mm
Titanium	0.05mm	+/-0.0125mm	0.125mm	0.075mm	0.08mm	0.025mm
Titanium	0.075mm	+/-0.0125mm	0.125mm	0.1mm	0.08mm	0.05mm
Titanium	0.1mm	+/-0.0125mm	0.125mm	0.125mm	0.1mm	0.05mm
Titanium	0.125mm	+/-0.02mm	0.125mm	0.125mm	0.1mm	0.05mm
Titanium	0.15mm	+/-0.02mm	0.15mm	0.15mm	0.13mm	0.05mm
Titanium	0.2mm	+/-0.02mm	0.2mm	0.2mm	0.15mm	0.05mm
Titanium	0.25mm	+/-0.025mm	0.25mm	0.25mm	0.19mm	0.05mm
Titanium	0.3mm	+/-0.03mm	0.3mm	0.3mm	0.23mm	0.06mm
Titanium	0.38mm	+/-0.04mm	0.38mm	0.38mm	0.29mm	0.08mm
Titanium	0.4mm	+/-0.04mm	0.4mm	0.4mm	0.3mm	0.08mm
Titanium	0.45mm	+/-0.05mm	0.45mm	0.45mm	0.34mm	0.09mm
Titanium	0.5mm	+/-0.05mm	0.5mm	0.5mm	0.38mm	0.1mm
Titanium	0.6mm	+/-0.065mm	0.6mm	0.6mm	0.45mm	0.12mm
Titanium	0.7mm	+/-0.075mm	0.7mm	0.7mm	0.53mm	0.14mm
Titanium	0.8mm	+/-0.09mm	0.8mm	0.8mm	0.6mm	0.16mm
Titanium	0.9mm	+/-0.1mm	0.9mm	0.9mm	0.68mm	0.18mm
Titanium	1.0mm	+/-0.12mm	1.00mm	1.0mm	0.75mm	0.2mm

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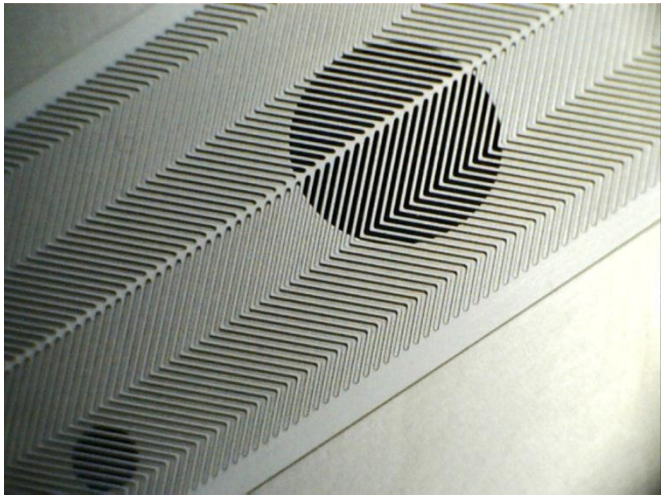
T^{i}ME
Titanium Molecular Etching

New levels of quality achievable
Smooth edge profile and smooth surface etch profile
No Surface Burr



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T^{i}ME
Titanium Molecular Etching

Flexible Process

Suitable for all known grades and Hardness of Titanium and a number of its alloys.

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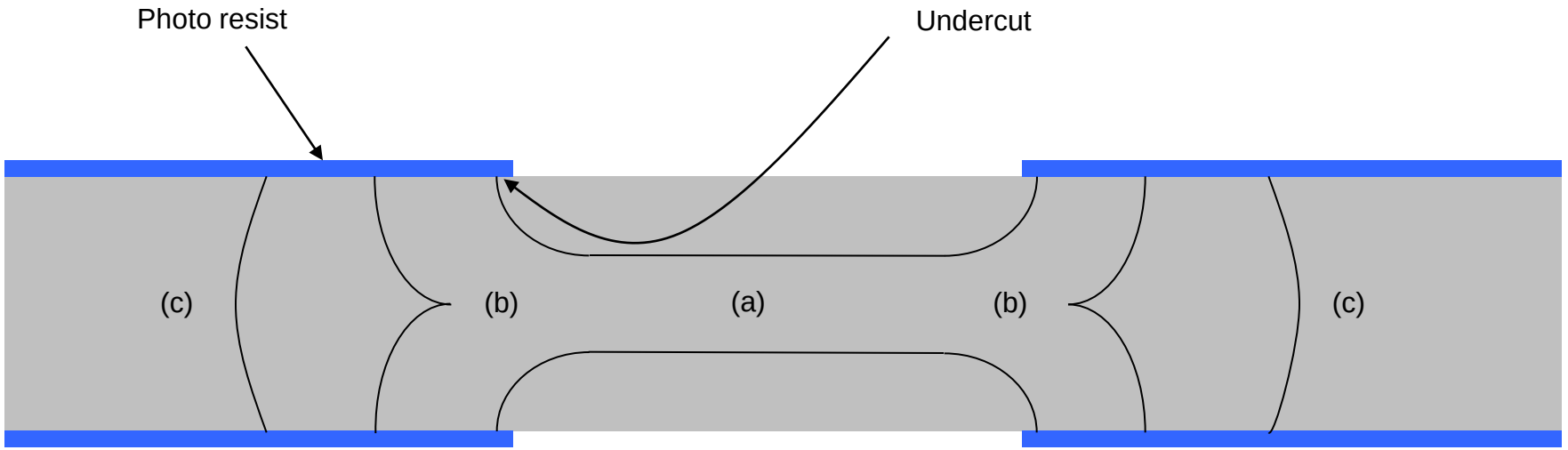

(a) Profile etching, (b) Convex, (c) Concave

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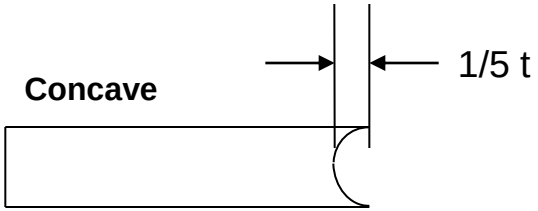
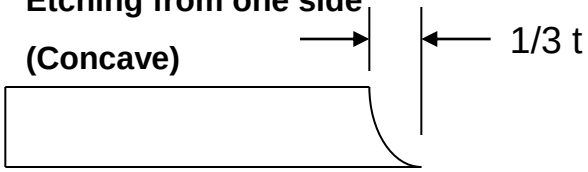
Tolerance: 10% of material thickness
Bend allowance typically 1.5 t

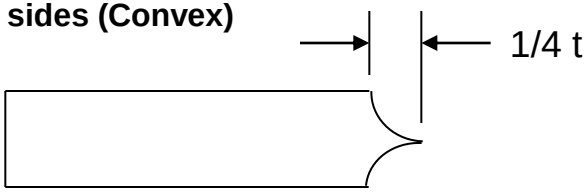
Concave



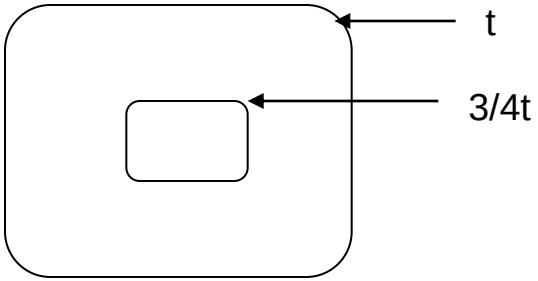
Etching from one side (Concave)



Etching from both sides (Convex)



Minimum radii



Smallest hole & aperture sizes