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ADVANCED CHEMICAL ETCHING

*a process of innovation*

# **T<sup>i</sup>ME Process**

## **Titanium Molecular Etching**





# TiME Technical capability

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Material	Thickness	Profile Tolerance	Hole & Aperture Size	Min External Radii	Min Internal Radii	Convex Etch Cusp Size
Titanium	0.025mm / 0.001"	+/-0.0125mm / 0.0005"	0.125mm / 0.005"	0.075mm / 0.003"	0.08mm / 0.003"	0.025mm / 0.001"
Titanium	0.05mm / 0.002"	+/-0.0125mm / 0.0005"	0.125mm / 0.005"	0.075mm / 0.003"	0.08mm / 0.003"	0.025mm / 0.001"
Titanium	0.075mm / 0.003"	+/-0.0125mm / 0.0005"	0.125mm / 0.005"	0.1mm / 0.004"	0.08mm / 0.003"	0.05mm / 0.002"
Titanium	0.1mm / 0.004"	+/-0.0125mm / 0.0005"	0.125mm / 0.005"	0.125mm / 0.005"	0.1mm / 0.004"	0.05mm / 0.002"
Titanium	0.125mm / 0.005"	+/-0.02mm / 0.0008"	0.125mm / 0.005"	0.125mm / 0.005"	0.1mm / 0.004"	0.05mm / 0.002"
Titanium	0.15mm / 0.006"	+/-0.02mm / 0.0008"	0.15mm / 0.006"	0.15mm / 0.006"	0.13mm / 0.005"	0.05mm / 0.002"
Titanium	0.2mm / 0.008"	+/-0.02mm / 0.0008"	0.2mm / 0.008"	0.2mm / 0.008"	0.15mm / 0.006"	0.05mm / 0.002"
Titanium	0.25mm / 0.010"	+/-0.025mm / 0.001"	0.25mm / 0.010"	0.25mm / 0.010"	0.19mm / 0.007"	0.05mm / 0.002"
Titanium	0.3mm / 0.012"	+/-0.03mm / 0.0012"	0.3mm / 0.012"	0.3mm / 0.012"	0.23mm / 0.009"	0.06mm / 0.0024"
Titanium	0.38mm / 0.015"	+/-0.04mm / 0.0016"	0.38mm / 0.015"	0.38mm / 0.015"	0.29mm / 0.011"	0.08mm / 0.003"
Titanium	0.4mm / 0.016"	+/-0.04mm / 0.0016"	0.4mm / 0.016"	0.4mm / 0.016"	0.3mm / 0.012"	0.08mm / 0.003"
Titanium	0.45mm / 0.018"	+/-0.05mm / 0.002"	0.45mm / 0.018"	0.45mm / 0.018"	0.34mm / 0.013"	0.09mm / 0.0035"
Titanium	0.5mm / 0.020"	+/-0.05mm / 0.002"	0.5mm / 0.020"	0.5mm / 0.020"	0.38mm / 0.015"	0.1mm / 0.004"
Titanium	0.6mm / 0.024"	+/-0.065mm / 0.003"	0.6mm / 0.024"	0.6mm / 0.024"	0.45mm / 0.018"	0.12mm / 0.005"
Titanium	0.7mm / 0.028"	+/-0.075mm / 0.003"	0.7mm / 0.028"	0.7mm / 0.028"	0.53mm / 0.021"	0.14mm / 0.006"
Titanium	0.8mm / 0.032"	+/-0.09mm / 0.004"	0.8mm / 0.032"	0.8mm / 0.032"	0.6mm / 0.024"	0.16mm / 0.006"
Titanium	0.9mm / 0.036"	+/-0.1mm / 0.004"	0.9mm / 0.036"	0.9mm / 0.036"	0.68mm / 0.027"	0.18mm / 0.007"
Titanium	1.0mm / 0.040"	+/-0.12mm / 0.005"	1.00mm / 0.040"	1.0mm / 0.040"	0.75mm / 0.030"	0.2mm / 0.008"



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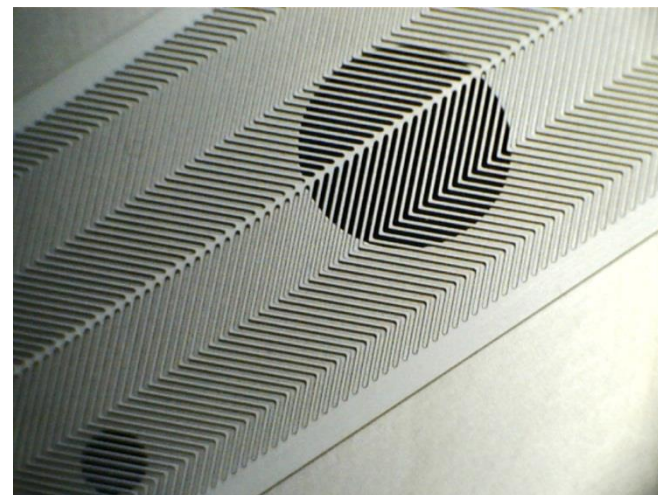
**TiME**

**Titanium Molecular Etching**

**New levels of quality achievable**

Smooth edge profile and smooth surface etch profile

No Surface Burr





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**TiME**

**Titanium Molecular Etching**

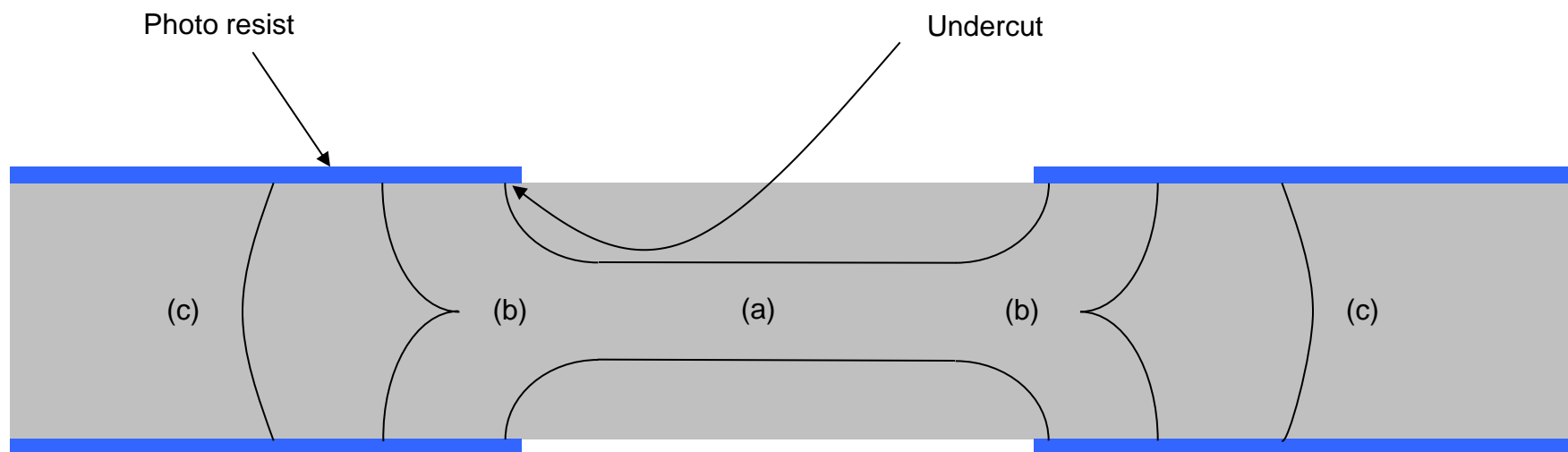
**Flexible Process**

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



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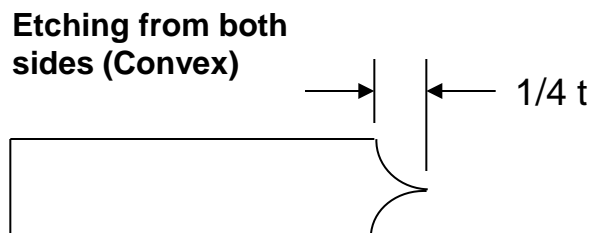
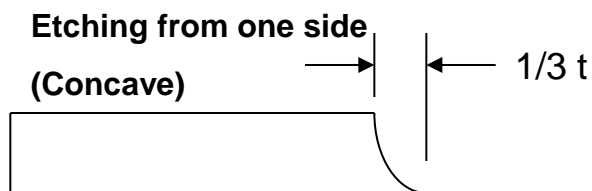
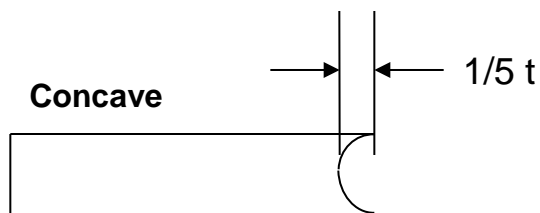
(a) Profile etching, (b) Convex, (c) Concave



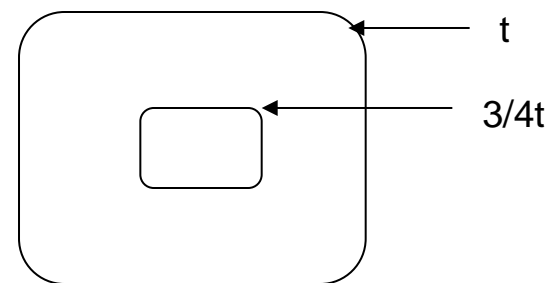
# ADVANCED CHEMICAL ETCHING

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



**Minimum radii**



**Smallest hole & aperture sizes**

