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## Pad Grooving and Surface Preparation

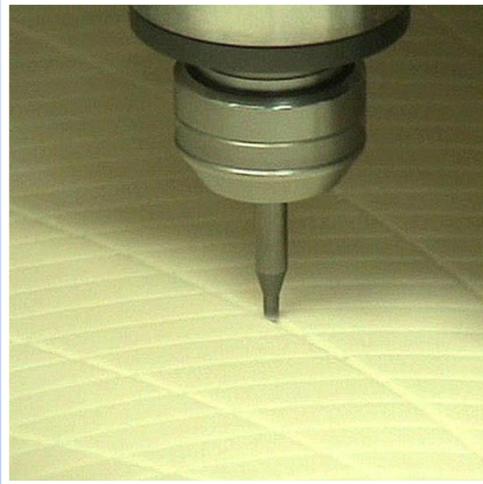
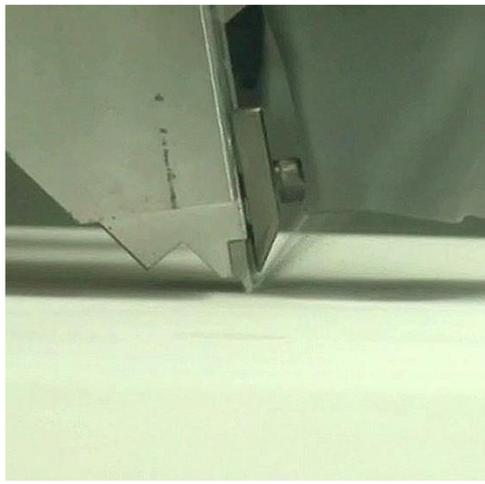
We can precisely and efficiently remove the "skin" from the surface of the pad, and proceed to groove the pad with novel or conventional patterns:

- Control accuracy = 5 micron
- Processing precision =  $\pm 15$  micron

Our experience has shown that "skinned" pads result in much faster removal rate stabilization. They also reduce the burden placed on diamond conditioners to break-in and 'season' the pads.

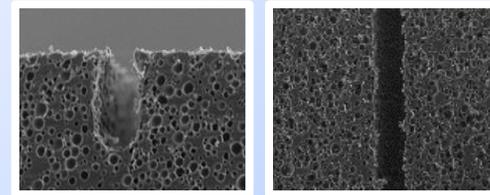
All work is done at Toho Engineering's world-class clean room facility in Mie (Japan) using the CMP-800C and CMP-1000C patented surface preparation and grooving machine.

Araca Incorporated is the **exclusive agent** of Toho Engineering in North America, Europe, and certain Asian countries (including Taiwan) for the sales of pad skinning and grooving services and equipment.

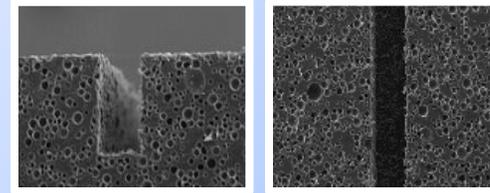


The Grooving Process

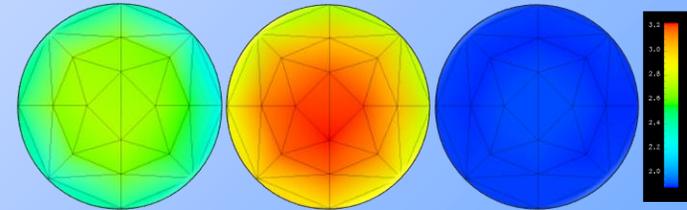
## The Araca Advantage



Cross-Sectional & Top Views of Pad A grooved by the pad maker

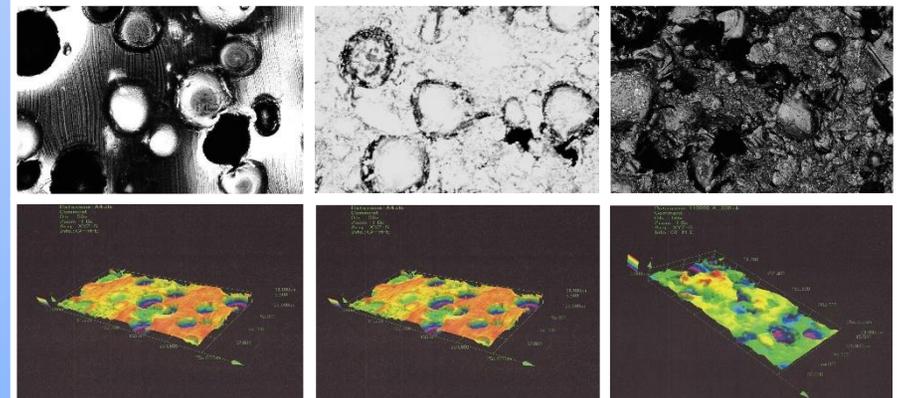


Cross-Sectional & Top Views of Pad A Grooved by Araca



Global Thickness Map of most PU Pads

Global Thickness Map of PU Pads Resurfaced by Araca



Brand New Pad  
Ra = 2.051 micron

Brand New Pad After Break-In by IC Maker  
Ra = 3.327 micron

Broken-In Brand New Pad at Araca  
Ra = 3.453 micron

Our surface preparation process has the potential of reducing pad break-in time for increased productivity & diamond disc life

## CMP-800C and CMP-1000C Pad Grooving Machines

## Specification



<b>Manufacturer</b>	Toho Engineering Co., Ltd.
<b>Exclusive Agent</b>	Araca, Inc. in North America, Europe and selected Asian countries (including Taiwan).
<b>Pad Size</b>	CMP-800C: Up to 800 mm in diameter CMP-1000C: Up to 1000 mm in diameter

<b>Capability</b>	Resurfacing Concentric (straight or slanted angle) Spiral and/or Logarithmic XY Cutting (to any desired final diameter)
<b>Positioning</b>	Control accuracy = $\pm 5$ micron Processing precision = $\pm 15$ micron
<b>Control System</b>	Sequential control
<b>Platen</b>	CMP-800C: $\Phi = 850$ mm CMP-1000C: $\Phi = 1050$ mm Rotation rate = Up to 400 RPM
<b>W x L x H</b>	CMP-800C: 240 x 160 x 220 cm CMP-1000C: 280 x 200 x 220 cm
<b>Weight</b>	CMP-800C: 3,000 kg (appx.) CMP-1000C: 4,000 kg (appx.)
<b>Electrical</b>	220 V and 60 A
<b>CDA</b>	Pressure = 5 kg per cm <sup>2</sup>
<b>Options</b>	Numerical control system Plural blades (for spiral & XY grooves) Plural drill and end-mill unit Dust suction unit Pad cleaning unit Platen rotation rate of up to 1,000 RPM