



Ultrasonic Cutting of Nomex Honeycomb



Challenges

- Uneven machined surface, severe burrs and excessive dust
- Vulnerable to workpiece deformation, tearing and collapse due to compression

Conprofe Solution

- **Dual Ultrasonic-Green 5-Axis Gantry Machining Center**

BRW6030-5AXIS

- + **Ultrasonic** Machining System + **Ultrasonic** Straight-Edge Cutting Blade
- + **Ultrasonic** Cutting Disc + **Cryogenic Air Blasting Technology**



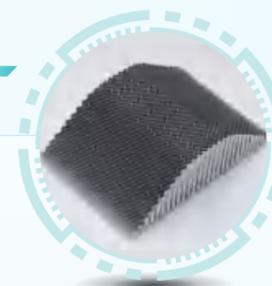
Material: Nomex Honeycomb
Feature: Outer Contour Cutting

Conprofe Benefits

- Smooth and **burr-free** surface finish with significant dust reduction
- Reduced cutting force and mitigated material damage
- **Flat surface** without indentation
- **One-pass cutting** with an arc length of **552mm** and a chamfer angle **< 18°**
- Minimum thickness of **0.75mm**



Ultrasonic Cutting of Aluminum Honeycomb



Challenges

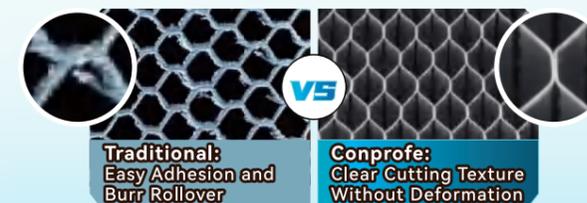
- Large burrs
- Prone to honeycomb cell deformation
- Edge burning risk
- Material adhesion and burr rollover

Conprofe Solution

- **Dual Ultrasonic-Green 5-Axis Gantry Machining Center**

BRW6030-5AXIS

- + **Ultrasonic** Machining System
- + **Ultrasonic** Cutting Disc
- + **Ultrasonic** Assembled Cutting Tool
- + **Cryogenic Air Blasting Technology** (-60°C)



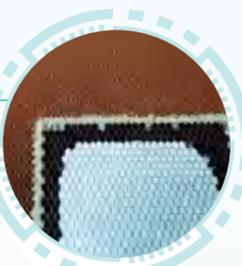
Material: Aluminum Honeycomb Structure
Feature: Milling & Cutting

Conprofe Benefits

- Effectively reduced cutting force to prevent delamination and deformation
- Excellent surface quality with **burr-free curved surfaces**
- Dimensional accuracy **within ±0.03mm**
- Clean cutting without contamination



Ultrasonic Milling of Fuselage Honeycomb Sealing Assembly



Challenges

- Nomex Honeycomb: severe burring, cell deformation and collapse, cell wall tearing
- Foam: melt and adhesion to cutting tool, closed-cell honeycomb structure prone to damage
- Glass Fiber Honeycomb: workpiece delamination and chipping, easy tool tip chipping

Conprofe Solution

- **Dual Ultrasonic-Green 5-Axis Gantry Machining Center**

BRW6030-5AXIS

- + **Ultrasonic** Machining System
- + **Cryogenic Air Blasting Technology** (-60°C)
- + **Ultrasonic** Assembled Cutting Tool
- + **Solid PCD Helical Milling Tool**

»» Cycle Time (min)



Material: Assembly of Nomex Honeycomb, Glass Fiber Honeycomb and Foam

Feature: Surface Milling
1,968(L)x407(W)x105(H)mm

Conprofe Benefits

- Total cycle time: **3h**
- Effective cutting heat dissipation, no burning of the machined surface or heat-induced change in resin properties
- Cutting force reduction, even force distribution on workpiece surface, less material damage and collapse-free surface



Ultrasonic Cutting of T800 Carbon Fiber Preform



Challenges

- Tool adhesion and breakage
- Low efficiency
- Uneven edges with fiber pull-out and delamination

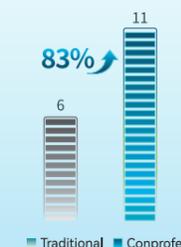
Conprofe Solution

- **Dual Ultrasonic-Green 5-Axis Gantry Machining Center**

BRW6030-5AXIS

- + **Ultrasonic** Machining System
- + **Ultrasonic** Straight-Edge Cutting Blade
- + **Cryogenic Air Blasting Technology**

»» Max. Cutting Depth (mm)



Material: T800 Carbon Fiber Preform Multi-Layer Prepreg

Feature: Complex Contour Cutting at Joint Area
(Thickness: 11 mm)

Conprofe Benefits

- **11mm** full edge length cutting without tool chipping
- Smooth and even workpiece edges without burrs
- Cutting temperature controlled below **25°C**

