

Handheld **Ultrasonic** Pneumatic Drill  
**HUP-P**



- Empowered by **Ultrasonic Drilling**
- Applicable for Composites and Hard-to-Cut Metals
- Significant Hole Quality Improvement



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## Product Highlights

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**Ultrasonic amplitude from 0.5μm to 18μm**  
 Applicable to a **wide range of materials**
- 
**Significant tool wear reduction**  
**Longer tool life**
- 
**Minimized delamination and fiber pull-out**  
**Hole quality improvement**
- 
**Ergonomic design for**  
**more stable handheld drilling**
- 
**Reduced cutting force**  
**Lower physical labor intensity**
- 
**Flexible** for mobile operation  
 in limited space

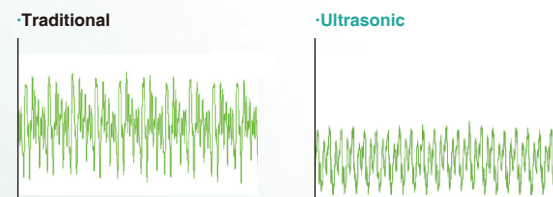
## Applicable Materials

CFRP, GFRP, Titanium Alloy, Stainless Steel, Superalloy, Aluminum Alloy, etc.

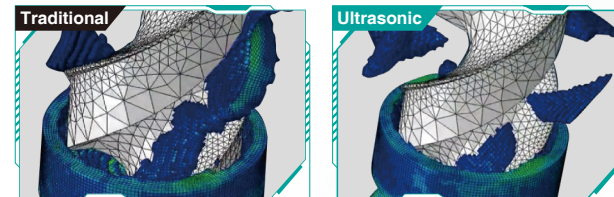
## Ultrasonic Drilling and Milling

- The periodical separation between the drill bit and the workpiece generated by ultrasonic vibration effectively reduces the cutting force.
- Better chip breaking and evacuation facilitate heat dissipation and thus lower the cutting temperature.

### Comparison of Cutting Force



### Comparison of Chip-Removing Performance



## Application Case — Carbon Fiber Reinforced Plastic (CFRP) Plate Drilling



Dimension: 350 (L) × 260 (W) × 5 (T) mm

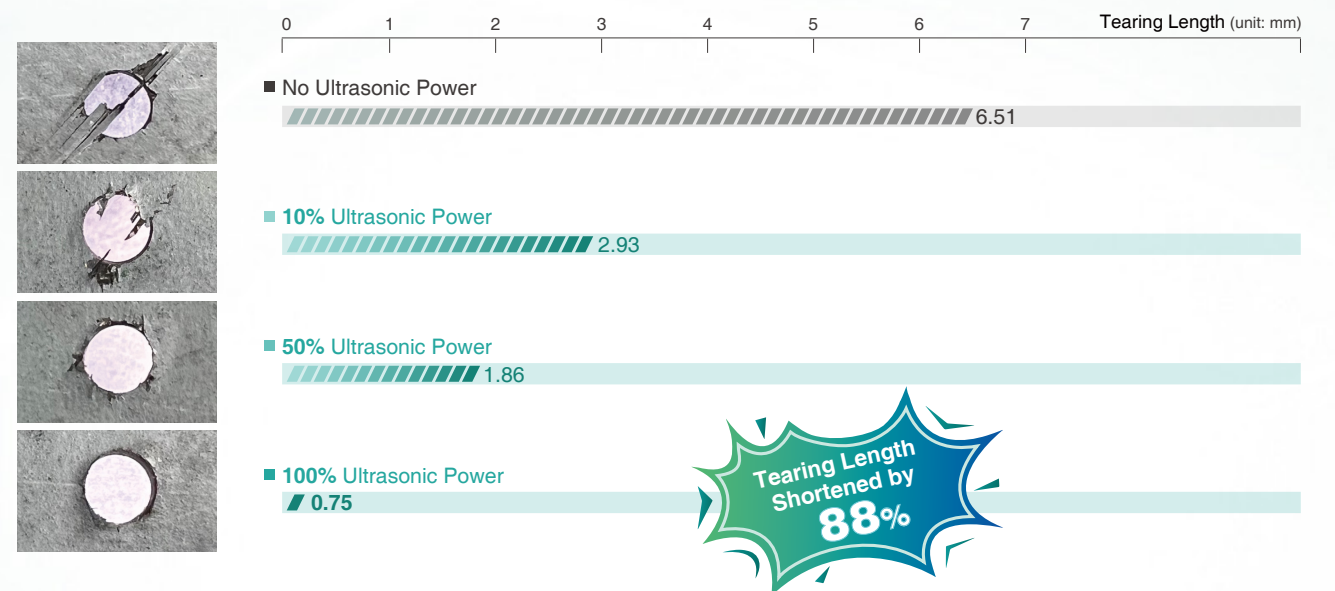
### • Traditional Drilling

Fiber pull-out and delamination at the exit hole edges, with a tearing length of **6.51mm**

### • Ultrasonic Drilling

**Better hole quality with a tearing length of 0.75mm, an improvement of 88%**

### »» Comparison of Tearing Length under Different Ultrasonic Power Output Values



## Technical Parameters

Item	Unit	Value
Ultrasonic Frequency	kHz	15-30
Amplitude	μm	0.5-12
Rated Rotary Speed	rpm	4,000
Max. Power	W	180
Clamping Range	mm	Φ2-Φ8
Customized Clamping Spec.	-	SK06/SK10
Air Pressure	Mpa	0.49
Operating Voltage	V	AC220
Ultrasonic Drill Dimension	mm	235 (L) × 231 (W) × 80 (H)
Ultrasonic Generator Dimension	mm	227 (L) × 350 (W) × 107.4 (H)

