SONOFILE®
Ultrasonic Cutter Series

SONOFILE® maximizes the effect of high-speed, microscopic ultrasonic vibrations in “cutting.”
The amplitude of the blade is a microscopic vibration of 30–70 microns, depending on the model, with ultrafast reciprocation at 20,000–40,000 vibrations per second, which results in a sharp and cleanly-cut edge.

From a highly-workable small desktop type to a high-precision model mounted on industrial robots or automated machinery, select the model that is suitable for your application. We also have a standard line of blades of various shapes and materials so you can choose according to your particular cutting conditions and/or materials.
SONOTEC Co., Ltd. has been aggressively tackling ultrasonic technology since putting ultrasonic cutters on the market in 1994. Since then, our cutters have been assisting various production sites.

In order to respond to clients’ requests, we are continuously improving SONOFILE® to meet their needs.

Ultrasonic power produces high-quality products: SONOFILE Ultrasonic Cutter Series.
SONOFILE SYSTEM & LINE UP

The basic configuration is a set of an oscillator and a hand piece (transducer). Before use, install a tool (blade) with a screw, which is necessary for the operation.

**Ultrasonic cutter**

**SH-3510 BASE**
- Mount for high-power ultrasonic cutters on automated machinery or industrial robots. Suitable for high-powered cutting. Compatible with a large blade of 40 mm in length.

**SF-3410 BASE**
- Easy to mount on automated machinery or industrial robots. Makes sharp cuts with high-power, high-frequency ultrasonic cutters. A new, highly versatile product allowing you to choose and change blade thickness.

**SF-3400 BASE**
- Mountable on automated machine/robot. High-power ultrasonic cutter that can be combined with various types of transducers.

**SF-8500**
- High-speed and high-performance ultrasonic cutter realizing a sharp cut, with user-friendly hand piece and desktop controller.

**SF-650 BASE**
- Mountable on automated machine/robot. High-power ultrasonic cutter that can be combined with various types of transducers. Compact and yet powerful. Designed to fully utilize the robot's operation area. Equipped with air inlet.

**SF-651 BASE**
- High-speed and high-performance ultrasonic cutter makes a sharp cut! Easy to mount on automated machinery or industrial robots.

**SF-60 BASE**
- High-speed and high-performance ultrasonic cutter that can be combined with various types of transducers. Highly practical desktop ultrasonic cutter with stable vibration output and easy-to-hold hand piece. Automated machinery/plotting cutter mounted types also available.

**SF-7400**
- Compatible with large tools, such as chisel and knife shapes, to assist high-power manual operations, including stripping exterior walls of buildings and rust removal.

**SF-3441 BASE**
- Mountable on automated machine/robot. High-power ultrasonic cutter that can be combined with various types of transducers. Compact and yet powerful. Designed to fully utilize the robot's operation area. Equipped with air inlet.

**SF-3400**
- High-speed and high-performance ultrasonic cutter realizing a sharp cut, with user-friendly hand piece and desktop controller.

**SF-650 (Oscillator)**
- High-speed and high-performance ultrasonic cutter that can be combined with various types of transducers. Ideal for up-and-down push cut and punching.

**SF-651 (Oscillator)**
- High-speed and high-performance ultrasonic cutter makes a sharp cut! Easy to mount on automated machinery or industrial robots.

**SF-60 (Oscillator)**
- Compact hand piece suitable for light labor.

Possible to select a horn suitable for your application and custom-make a blade that best suits your work requirements. Ideal for up-and-down push cut and punching.

High-amplitude ultrasonic cutter ideal for cutting three-dimensional parts with industrial robots, not to mention sheeting material cutouts.

High-speed and high-performance ultrasonic cutter that can be combined with various types of transducers. Suitable for high-powered cutting. Compatible with a large blade of 40 mm in length.

High-power and high-rigidity transducer. Equipped with air inlet.

Compatible with guillotine-type tools. Ideal transducer for gate-cutting, including push cutting of difficult-to-cut gates containing glass.

Equipped with a rotary head. The rotary connector for electric signal as well as the air inlet rotates simultaneously.

High-power and high-frequency ultrasonic cutters. Equipped with air inlet.

High-speed and high-performance ultrasonic cutter making a sharp cut! Easy to mount on automated machinery or industrial robots.

Extended and continuous use possible with our controlling circuit and the air inlet for forced cooling.

Compact and yet powerful. Designed to fully utilize the robot's operation area. Equipped with air inlet.

High-amplitude ultrasonic cutter ideal for cutting three-dimensional parts with industrial robots, not to mention sheeting material cutouts.

SF-8500 with rotary connector. Plotter-mounted type.

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SF-8500 with rotary connector. Plotter-mounted type.
High-power ultrasonic cutter with maximum power output of 500 W.

Oscillator with maximum power output of 500 W enables powerful cutting of difficult-to-cut and extra-tough materials. Abrasion resistant carbide blade with 1 mm thickness can be used. Signals for on/off, emergency stop, change of output level, and other features with automated machinery or industrial robots can be performed.

Oscillator SH-3510

Features
- High-power ultrasonic cutter with maximum power output of 500 W is compatible with materials needing high-power cutting.
- Highly-versatile 30 kHz frequency.
- Takes carbide and large blades.
- Mountable on automated machinery/industrial robots.

SH-8700

The transducer generates powerful and stable vibrations for high-power cuttings, and is designed to allow for extended continuous use.

Specification
- Vibration element: PZT piezoelectric transducer
- Housing material: SUS 303
- Outer dimensions: \( \phi 12/\phi 28/\phi 55 \times 179.5 \) L (mm)
- Weight: 1100 g
- Blade thickness: 1.0 mm

HG-110

When the blade is mounted on guillotine-type machines, it displays a remarkable performance with gate-cutting of difficult-to-cut fabricated products containing glass or carbon fiber.

Specification
- Vibration element: PZT piezoelectric transducer
- Housing material: Aluminum alloy
- Outer dimensions: \( \phi 20/\phi 45/\phi 60 \times 259 \) L (mm)
- Weight: 1400 g

Applicable materials
- Carbon (CFRP)
- A range of prepregs (boron, Kevlar, polyethylene fiber, etc.)
- Rubber (vulcanized latex, non-vulcanized latex, sheeting material, sealing material, and tube)
- Thermoplastics (board, sheeting material, film, and laminated material)

Optional tools
- FB-8112-50K

Please contact us for details.
Large-amplitude cutter with vibration frequency of 40 KHz.

Ultrasonic controller that enables signal communication for on/off, emergency stop, reset, and other features with the body of the machine such as automated machinery, industrial robots, plotters, etc.

Oscillator SF-3441

<table>
<thead>
<tr>
<th>Features</th>
<th>Specification</th>
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<tr>
<td>- High-power ultrasonic cutter with maximum amplitude of 60 micron and power output of 300W.</td>
<td>Frequency</td>
</tr>
<tr>
<td>- Stable large amplitude in a high-frequency spectrum of 40 KHz.</td>
<td>Frequency adjustment</td>
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<td>- Automated machinery/plotter-mountable</td>
<td>Maximum power output</td>
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<td>- Overload relay</td>
<td>Power output adjustment</td>
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<td>Power supply</td>
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<td>Outer dimension</td>
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<td>Weight</td>
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</tbody>
</table>

Even more compact and powerful ultrasonic cutter than previous models with high frequency, realizing a sharper cut. User-friendly design by fully utilizing the robot’s operation area. Forced cooling system with air inlet enables extended continuous use.

**SF-8541**

- Equipped with the rotary-type head; not only the rotary connector for electric signal but also the air inlet rotates simultaneously. No matter how many times the blade rotates on a plotter, the electric cable and the air tube remain fixed.

**SF-8541R**

- V Various options available for blade thickness and shape. Please contact us for details.

**Standard tool**

- FB-3136-5H

### Specified Tool

- Ultrasonic controller that enables signal communication for on/off, emergency stop, reset, and other features with the body of the machine such as automated machinery, industrial robots, plotters, etc.

### Applicable materials

- A range of prepregs (boron, Kevlar, polyethylene fiber, etc.).
- Rubber (vulcanized latex, non-vulcanized latex, sheeting material, sealing material, and tube).
- Leather (natural and artificial).
- Thermoplastics (board, sheeting material, film, laminated material, and floor cover).
- Cloth, nonwoven fabric and paper (specially treated paper and coated paper).
Ultrasonic cutter

SONOFILER SF-3410

Automated machinery-mounted-type. Reduced resistance for a quicker and cleaner cut!

High-power ultrasonic cutter with ultrasonic power output of 220 W. Remarkable oscillator consistency. This cutter enables signals for on/off, emergency stop, reset, and other features with automated machinery. The tool’s ultrasonic vibrations have a frequency of 22 kHz (22,000 vibrations per second), greatly reducing cutting resistance. Select the one that best suits your application from the three combinations available for SF-3410.

Oscillator SF-3410

Features
- Infinite adjustment of power output between minimum and maximum.
- Amplitude control circuit ensures stable vibration amplitude at all times.
- External connection terminals are compatible with your automatic operation system/plotting cutter.
- Equipped with overload-control relay and protection circuit.

Specifications
- Frequency: 22 kHz
- Frequency adjustment: Auto-tracking type
- Maximum power output: 220 W
- Power output adjustment: Infinite adjustment
- Power supply: AC200V 50/60Hz 1φ
- Electricity consumption: 500 VA
- Outer dimension: φ16 x 168 L (mm)
- Weight: 4.5 kg

* The tool that best meets your application can be selected from our wide range in stock. Special tools can also be designed and manufactured.

SF-3110

- The main body of the transducer consists of a cylindrical duralumin case that can be easily installed in automated machinery. Since a horn suitable for your application is selectable, a blade that best suits your work requirements can be designed. This cutter is ideal for up-and-down push cutting (guillotine system) and punching.

SF-8500/SF-8500R

- Large vibration amplitude of the blade with increased amplitude compared with the conventional model. Easy to install in automated machinery, industrial robots, and plotters with 42 φ cylindrical shape. Ideal not only for sheets and cutout, but also for cutting and cutout of three-dimensional parts by mounting on industrial robots.

Features
- High-rigidity stainless steel SUS 303 is used for the housing material.
- High-durability robot cable 7.5 mm in diameter is used for the oscillator and transducer connection cable.
- Composite materials include a range of prepregs, Kevlar and glass wool.
- Rubber, leather, and a range of thermoplastic materials.
- A range of car industry synthetic floor covers and sealing materials.

Specifications
- Vibration element: PZT piezoelectric transducer
- Screw thread: M6
- Cord length: 4 m (maximum extension is 10 m)
- Housing material: SUS 303
- Outer dimension: φ117 x 42 x 160 L (mm)
- Weight: 560g

* Specifications are subject to change without notice due to continual improvements. Please confirm when placing your order.

Standard tool

A range of tool holders is available for the vice-grip blade.

* Specifications are subject to change without notice due to continual improvements. Please confirm when placing your order.

* The tool that best meets your application can be selected from our wide range in stock. Special tools can also be designed and manufactured.
Clear cut with low processing pressure assists manual operations.

High-power ultrasonic cutter with ultrasonic power output of 220 W. The tool’s ultrasonic vibrations at a frequency of 22 kHz (22,000 vibrations per second) greatly reduces cutting resistance. A variety of materials can be cut even more quickly and cleanly with lower processing pressure. Ideal combinations for SF-3400 available for your application.

Oscillator SF-3400

Features
- Infinitive adjustment of power output between minimum and maximum.
- Amplitude control circuit ensures stable vibration amplitude at all times.
- Equipped with overload-protection circuit.
- Equipping with air inlet enables forced cooling.

Specification
- Frequency: 22KHz
- Frequency adjustment: Auto-tracking type
- Maximum power output: 220 W
- Power output adjustment: Infinitive adjustment
- Power supply: AC200V 50/60Hz 1φ
- Electricity consumption: 500VA
- Outer dimension: 143W x 294D x 262H (mm) (Exclusive of the handgrip: 212H)
- Weight: 4.5 kg

Hand piece

Manual transducer for use with large tools such as chisel and knife shape, assisting high-power manual operations including food processing, stripping exterior walls of buildings, and rust removal.

Specifcation
- Vibration element: PZT piezoelectric transducer
- Screw thread: M8
- Cord length: 4m (maximum extension is 10 m.)
- Housing material: Polyoxymethylene (Duracon)
- Outer dimension: φ12 / φ27 / φ40 x 245 (mm)
- Weight: 560g (Exclusive of the cord)
- Handy switch: Push button

Applicable materials
- Food processing.
- Stripping exterior walls of buildings.
- Rust removal.

Applicable materials
- Rubber (Vulcanized/Unvulcanized)
- Cloth/Fabric, Bonded textile
- Paper, Cardboard
- Standard tool

* Specifications are subject to change without notice due to continual improvements. Please confirm when placing your order.
Clear cut with low processing pressure assists manual operations.

High-frequency ultrasonic cutter with the tool vibration frequency of 40 kHz (40,000 vibrations per second) and an amplitude of 30 microns, maximizing the effect of ultrasonic vibrations that are high-speed and microscopic. A wide range of materials, including newly-developed composite materials, rubber, and leather, can be cut freely with low processing pressure, a sharp cutting edge, and little dust.

**Features**
- Stable vibrations with a maximum amplitude of 30 microns ensure remarkable cutting performance.
- Workability-oriented hand piece that is light and easy to hold (145 g).
- Simplified and secure installation of the tool with special square-headed screw and driver.

**Specification: Oscillator**
- Frequency / adjustment: 40KHz / Auto-tracking type
- Max. power output / adjustment: 45W / Infinite adjustment
- Power supply: AC100V 50/60Hz
- Electricity consumption: 135VA
- Outer dimension: φ12/φ20/φ27 × 150 L (mm)
- Weight: approx. 145 g

**Hand piece HP-650**

**Applicable materials**
- A range of prepregs (boron, Kevlar, polyethylene fiber, etc.).
- Rubber (vulcanized latex, non-vulcanized latex, sheeting material, and tube) and leather (natural and artificial).
- Thermoplastics (board, sheeting material, film, laminated material, and floor covers).
- Cloth, nonwoven fabric, and paper (specially treated paper and coated paper).

**Features**
- Stable vibrations with a maximum amplitude of 30 microns ensure remarkable cutting performance.
- Our unique development prevents the transducer from overheating, allowing for extended and continuous use.
- Simplified and secure installation of the tool with special square-headed screw and driver.

**Specification: Oscillator**
- Frequency / adjustment: 40KHz / Auto-tracking type
- Max. power output / adjustment: 45W / Infinite adjustment
- Power supply: AC100V 50/60Hz
- Electricity consumption: 135VA
- Outer dimension: φ12/φ30 × 130 L (mm)
- Weight: approx. 270 g

**Hand piece HP-651**

**Applicable materials**
- A range of prepregs (boron, Kevlar, polyethylene fiber, etc.).
- Rubber (vulcanized latex, non-vulcanized latex, sheeting material, and tube) and leather (natural and artificial).
- Thermoplastics (board, sheeting material, film, laminated material, and floor covers).
- Cloth, nonwoven fabric, and paper (specially treated paper and coated paper).

**Notes:**
- Specifications subject to change without notice due to continual improvements. Please confirm when placing your order.
- * Various options available for blade thickness and shape. Please contact us for details.
- * 200 V version can also be manufactured.
SONOFILE SF-60

Ideal for fine work with a delicate touch!
Ultrasonic power output of 45 W. Ideal for cutting, cutting-out, and window work of thin sheet materials as well as gate-cutting and deburring of small plastic parts. Just a light touch is all it takes to polish the work surface, and very little hand vibration.

Oscillator SF-60

Features
- Desktop-type ultrasonic cutter that is compact and lightweight.
- Clean work surface is achieved with a light touch and little hand.

Tool holders for vice-gripping type available for off-the-shelf and made-to-order blades.

Specifi cation
- Frequency 25kHz
- Frequency adjustment Auto-tracking type
- Maximum Power output 45 W
- Power output adjustment Infinite adjustment
- Power supply AC100V 50/60Hz 1.0
- Electricity consumption 135 VA
- Outer dimension 145W x 180D x 125H (mm)
- Weight 1.9 kg

Applicable materials
- Thin sheet material (specially-treated paper, cloth, etc.)
- Rubber sheets.
- Plastic sheets.

SF-9400

Compact and lightweight, easy to hold and user-friendly, making it suitable for light labor.

Specification
- Vibration element PZT piezoelectric transducer
- Screw thread M6
- Cord length 0.6-metre curly cord, extended to 2.5m
- Housing material Polyoxymethylene (Duranon)
- Outer dimension φ11.5 / φ28 x 128 (mm)
- Weight 130g (exclusive of the cord & tool)
- Blade thickness 0.4 mm

SF-6100/SF-6000

When the oscillator for SF-60 is combined with the machine-mounted transducer SF-6100, the cutting unit can be used on the automatic cutting machine that cuts and processes sheets and films. Alternatively, when used with the transducer SF-6000 equipped with a rotary connector, it becomes a cutting unit mountable on the plotting cutter.

Specification
- Vibration element PZT piezoelectric transducer
- Screw thread M6
- Cord length 4 m (maximum extension is 10 m)
- Housing material Polyoxymethylene (Duranon)
- Outer dimension As shown in the drawing
- Weight 150g (exclusive of the cord)
- Blade thickness 0.4 mm

* Specifications are subject to change without notice due to continual improvements. Please confirm when placing your order.
## Specification

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<th>SF-650</th>
<th>SF-651</th>
<th>SF-60</th>
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<tr>
<td>Transducer</td>
<td>SH-8700</td>
<td>SF-8500</td>
<td>SF-8500</td>
<td>SF-8300</td>
<td>SF-8600</td>
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<tr>
<td>Frequency</td>
<td>30kHz</td>
<td>40kHz</td>
<td>22kHz</td>
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<td>40kHz</td>
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<tr>
<td>Maximum output power</td>
<td>500W</td>
<td>300W</td>
<td>220W</td>
<td>220W</td>
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<tr>
<td>Power supply voltage</td>
<td>200V</td>
<td>200V</td>
<td>200V</td>
<td>100V</td>
<td>100V</td>
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<td>Maximum amplitude</td>
<td>80 µ</td>
<td>60 µ</td>
<td>60 µ</td>
<td>60 µ</td>
<td>30 µ</td>
<td>10 µ</td>
<td></td>
</tr>
</tbody>
</table>

### Manual-operation type
- Oscillator
- Transducer

### Rotary connector
- Oscillator
- Transducer

### Forced air cooling
- Oscillator
- Transducer

### Vice-gripping blade
- Oscillator
- Transducer

### Carbide blade
- Oscillator
- Transducer

### Exclusive tool
- Oscillator
- Transducer

### Robot code
- Oscillator
- Transducer

### Standard code length
- Oscillator
- Transducer

### Weight
- Oscillator
- Transducer

### External switch
- DIN connector
- Hand switch

### Carbon
- Oscillator
- Transducer

### Range of prepregs
- Oscillator
- Transducer

### Composite materials
- Oscillator
- Transducer

### Rubber
- Oscillator
- Transducer

### Thermoplastics
- Oscillator
- Transducer

### Cloth, paper, and corrugated cardboard
- Oscillator
- Transducer

### Sponge and foaming materials
- Oscillator
- Transducer

### Exterior walls of buildings
- Oscillator
- Transducer

### Food (Frozen foods, cakes, breads)
- Oscillator
- Transducer

### Sheet metal (Galvanized, steel, and others)
- Oscillator
- Transducer

### Applicable material
- Oscillator
- Transducer

### Carbon (CFRP)
- Oscillator
- Transducer

### NR Sponge
- Oscillator
- Transducer

### Corrugated elbow
- Oscillator
- Transducer

### Wide-mouthed bottle
- Oscillator
- Transducer

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*1 Power supply voltage can be changed. *2 The maximum amplitude changes according to the tool to be used. *3 Rotary type can also be manufactured. *4 It is a built-to-order item (variable price). *5 The code near the transducer is a straight code, and it changes to a robot code afterwards. *6 The robot code can be extended to 10 m. Please specify the transducer’s code length when placing your order. *7 Please consider the applicable materials as standards. Since the ideal model may vary depending on the shape and other conditions, please confirm the performance by a test cut or using a demonstration machine.