



# SONICS

## Ultrasonic Food Cutting

Specializing in OEM Components, Kits and Knife Horns

### Compare to conventional cutters:

- More sanitary
- Less down time
- Better cost-effectiveness
- More consistency at cutting surface
- Blades stay sharp longer



A worldwide leader in ultrasonic technology since 1969, Sonics & Materials manufactures a full line of cutting system components, kits and cutting horns, offering superior performance in terms of speed, safety, sanitation, reliability, and cost-effectiveness. When used for guillotine cutting or continuous slitting, our high frequency vibrating horns cut faster and cleaner than conventional motionless cutters.

The ultrasonic cutting horn, which is vibrating at a high frequency, creates a nearly friction-free environment between the horn and the food product. Because the horn is vibrating at such a high frequency, it disrupts the air molecules around it causing a cocoon effect. This cocoon effect virtually eliminates product sticking and with reduced friction, the ultrasonic horn stays sharper longer than conventional cutters.

With our full customization service for OEMs, we can respond to unique customer requirements, and build components, horns and blades to meet the specific needs of your system configuration and processing application. Sonics provides a world-class level of service with international sales and support that offers significant partnering advantages to many of today's multinational organizations.



### Ultrasonic Components

- Stackable, ultrasonic power supplies and panel mount generator kits for NEMA enclosure, integration and sequencing
- Rigid mount ultrasonic boosters for improved stack stability
- Wash-down duty, air-cooled converters (stainless steel body also available)
- Food industry approved titanium blade, slitting and knife horns
- FEA analyzed horn designs for long life and amplitude accuracy

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# Ultrasonic Food Cutting

Typical ultrasonic food cutting components include four major elements: a power supply, a converter, a booster and a cutting horn, as explained below.

## 1. POWER SUPPLY

The ultrasonic power supply, also referred to as a generator, is an electronic device that takes standard 50/60 Hz AC line voltage and converts it to high frequency electrical energy. Sonics' ultrasonic power supplies, which can be remotely activated by a PLC, offer superior features such as automatic tuning, line voltage and load regulation circuitry and fine tune output (amplitude) control. Power supplies are available with power outputs of up to 2000 watts in the 20 kHz frequency and 700 watts in the 40 kHz frequency. The 20 kHz frequency, in which the horn is vibrating 20,000 times per second, is the most commonly used frequency in the industry.

## 2. CONVERTER

The ultrasonic converter is a sealed electro/mechanical device that receives the 20 kHz electrical energy from the power supply and converts this electrical energy to high frequency mechanical vibrations using PZT (piezoelectric) ceramic discs that expand and contract within the converter housing.

## 3. BOOSTER

The booster is a machined metal mechanical amplifier that will either raise or lower the amplitude of the horn's mechanical motion depending on the configuration of the masses machined at each end.

## 4. CUTTING HORN

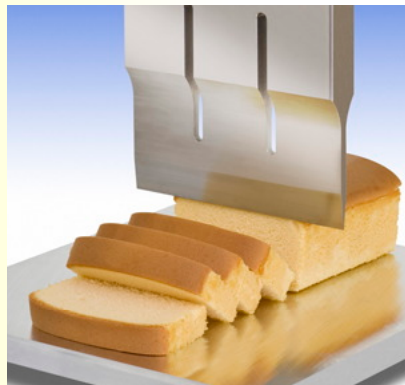
The cutting horn, also referred to as a knife or a blade horn, is the component that comes into contact with the product and does the actual cutting. This horn is machined from titanium because it meets FDA requirements, has excellent acoustic properties, good surface hardness and superior fatigue value. Depending on the application, guillotine and continuous slitting horns are often FEA analyzed by Sonics' tooling engineers prior to manufacture to ensure maximum life and reliability.

Our ultrasonic components and horns are designed for continuous operation under the most demanding production environments. All of our food cutting products are inspected and tested extensively at every stage of manufacturing for optimum life and FDA guideline conformance.



## APPLICATIONS

- Frozen cakes and pies
- Frozen fish
- Snack and health bars
- Fresh/frozen prepared meats
- Dough or baked cookies
- Soft and hard cheeses
- Fresh/frozen vegetables
- Candy and confections
- Ice cream bars



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