



System Components

Since the early 1970's, Branson products have been used to cut food products. Today, Branson has food manufacturing customers all over the world cutting products such as cakes, pies, granola bars, cheese, pizza dough, confectionery products, bread, gum, candy, and even licorice.



Clean cuts through multiple layers produce visual appeal. Fillers, such as nuts or raisins, are cut cleanly and produce less fragmentation than with conventional cutting

methods. Depending upon the type of product, ultrasonics can even be used to shape and form.

Ultrasonic Advantages

The advantages of ultrasonic cutting range from increased blade life to cleaner product cut surfaces, to the most important: reduced down time for cleaning.

- ▶ The ultrasonic blades vibrate at either 20,000, 30,000, or 40,000 times per second (20, 30, or 40 kHz) which means minimal surface friction between them and the product being cut. For the user, this means that typically no special coatings are required, and the product does not remain on the blade surface (as happens in a static blade design). The cuts are clean and the product does not smear through layers. Ultrasonic blades can cut as deep as 5½" and up to 14" in width, while slitting blades can slit product down to ½" on centers and cover up to 8" to 10" across.
- ▶ Systems can be cleaned in-place. Typically the cleaning down time is cut by 70% to 90% as compared to conventional blades. This is accomplished through the use of

titanium and stainless steel components which can be washed down.

- ▶ Ultrasonic equipment can be adapted to existing equipment with minor modifications, or a custom cell can be integrated into a new systems design.



Guillotine cut-to-length system using three 20 kHz blade horns.

Ultrasonic Components

Depending upon production requirements, Several equipment configurations are available.

Power Supplies

The ultrasonic power supply converts standard 50/60 Hz current into at ultrasonic frequencies: 20, 30, and 40 kHz. All Branson 2000 Series power supplies provide Autotune features with operator control of amplitude, down to 10% nominal. Power supply configurations vary from the 2000bdc, with digital up-front user control of amplitude, to the Panel Mount design for direct mounting



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inside an electrical cabinet and fully controlled by a user-supplied PLC.

The Panel Mount unit's front panel includes terminal blocks for 220V AC power and user I/O, an advanced function connector, power meter, tuning and reset tactile switches and LED lights for +24V, line power and faults. Both styles are available at 20, 30, and 40 kHz frequencies



Converters

The ultrasonic converter transforms electrical energy from the power supply to mechanical vibrations. This energy is transferred through the booster to the cutting blade (horn).

Food processing converters are available in several configurations.



Some models utilize a 302 stainless steel outer housing and titanium output driver. A CIP model is supplied with an SHV RF fitting, while an SST utilizes a sealed RF pigtail cable that is available in several lengths. Some models incorporate air cooling fittings that are a quick disconnect style and O-ring sealed for wash down. Aseptic models have O-rings as backups to their press fit design.

New coax style RF cables can be run at lengths up to 100 feet between a 20 kHz converter and the 2000 Series power supply.

Boosters

The booster is a component between the converter and the horn which provides rigidity to the stack compo-



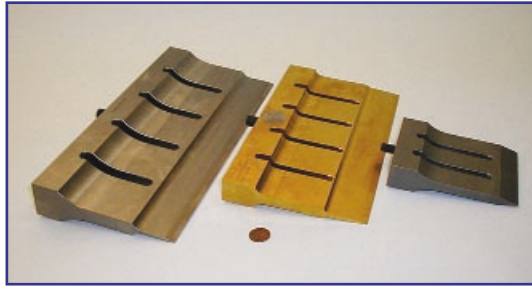
nents, and is also used to modify the amplitude of vibration at the horn face.

Like aseptic converters, Branson boosters are available in titanium. The solid mount design will eliminate movement during high-speed cutting operations. These boosters utilize replaceable aluminum clamp rings. Standard O-ring style titanium boosters and anodized aluminum boosters are also available.

Ultrasonic Blade Horns

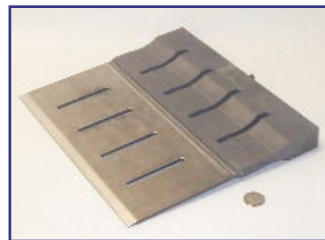
Guillotine

Branson manufactures half-wave titanium blade horns in standard lengths up to 14" for guillotine systems.



Half-wave horns

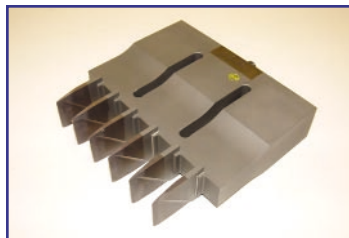
Full-wave cutting profiles are available to cut at depths up to 6".



Full-wave horn

Slitter

Slitter horns can slit products down to 3/8" wide and span up to 10" across. Branson's patented design of these horns allows for thinner blades, thus producing less compression to the product. Less stress is generated at the joint between the blades and the back driver than



Half-wave slitter horn

with conventional screw-on designs.

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