



SONITEK

ULTRASONIC HORNS

20 kHz through 40 kHz

For use on all makes of
Ultrasonic Welders:

BRANSON

DUKANE

SONICS & MATERIALS

ULTRA SONIC SEAL CO

MECASONIC

HERRMANN





The Rule On Joint Design:

Let Sonitek do it!

Perhaps the most critical facet of part design for ultrasonic welding is joint design (*the configuration of the two mating surfaces*). The joint should be considered when the parts to be welded are still in the design stage and incorporated into the molded parts. There are a variety of joint designs, each with specific features and advantages. Their selection is determined by such factors as type of plastic, part geometry, weld requirements, machining and molding capabilities, and cosmetic appearances.

At Sonitek it's our job to make you look good. Successfully welding parts off the first mold shot makes us all look good.

Follow the rule on joint design -

Let Sonitek do it!

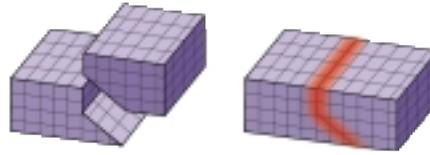


Fig. 1 Scarf joint
Good joint when cosmetics don't count

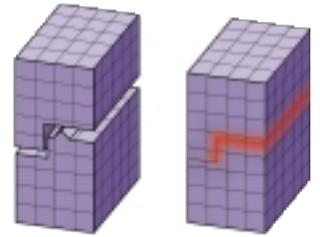


Fig. 2 Step joint
Great for hiding flash

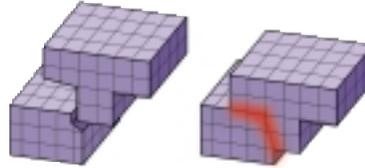


Fig. 3 Shear joint
The best for hermetic seals, and the strongest joint

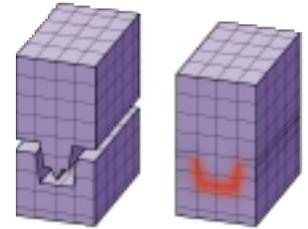


Fig. 4 Tongue and groove joint
Helps to locate parts

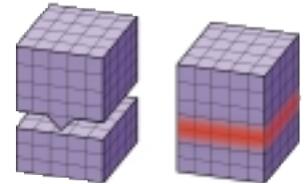
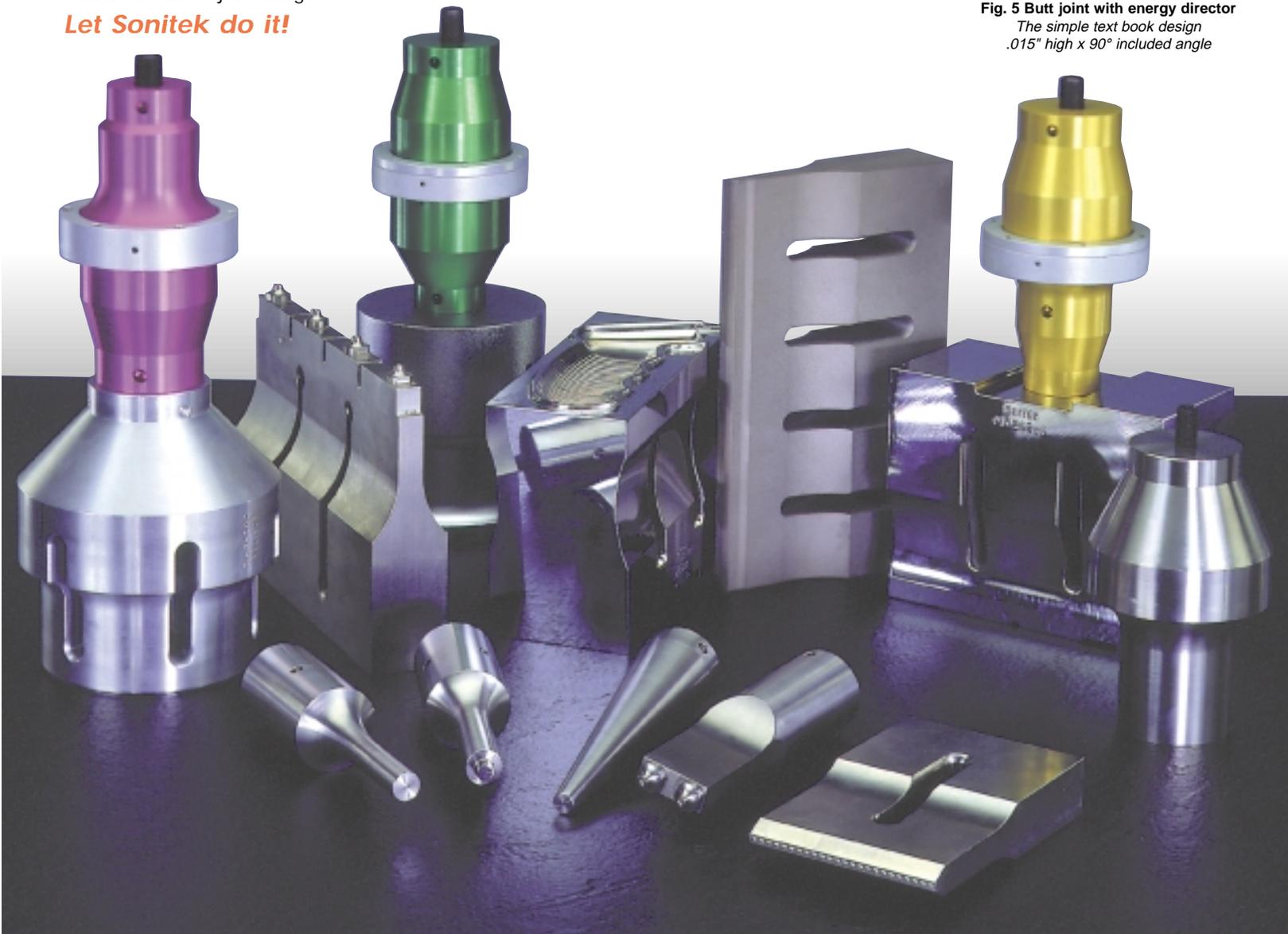


Fig. 5 Butt joint with energy director
*The simple text book design
.015" high x 90° included angle*



There's a "New" Ultrasonic Welder in Town!

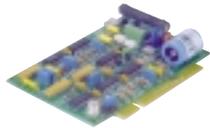
So Simple: "They're Elegant!"

So Reliable: "They're Legendary!"

The World's Best Known 20kHz Ultrasonic Plastic Welding Systems.

That's how we would describe our ultrasonic welders. Simply put: "They are simple!" Simple to learn. Easy to set up, safe and simple to operate. Available in 900 or 1500 watt power supplies, these totally integrated systems can handle most applications appropriate for ultrasonic welding. The proven circuitry is well known throughout the world for its durability and reliability. The **S800** has an ergonomic heavy-duty base with dual anti tie-down palm buttons. Front panel controls make set-up and monitoring simple, only minimal training is required.

See, it really is that simple!



Program cards and system protection (overload) boards.



Be sure to own a complete set of boosters to maximize the capabilities of your sonic welders.



Motherboards and frequency control modules.



See the 870S brochure on our website: www.sonitek.com

At Sonitek We Are Application Engineers...

... and We Don't Care!

That's right, at Sonitek we don't care what make or model welder you have because at Sonitek we have them all.

Successful first-shot part welding and on-time delivery is our motto. At Sonitek we understand how important this is to an engineer, after all we are engineers ourselves. Our reputation in designing and debugging custom tooling is unsurpassed in the industry.

When you purchase ultrasonic tooling from Sonitek it will be set up and debugged on the same type of welder that you will run in your facility. Our lab is equipped with all the popular makes of ultrasonic welders from the oldest to the newest. Sonitek stays on top of all technology to provide you with turnkey service. We will also provide you with a comprehensive set-up sheet to work from "FREE". With our hands-on experience and comprehensive technical support you can rest assured of production parts on the "First-Shot".

At Sonitek we are secondary to none! 1-800-875-HORN (4676)



We Buy/Sell
Used
Sonic Welders

STANDARD HORNS

Available in titanium/aluminum or hardened steel

Exponential /Catenoidal Horns. Fig 1
These horns are available with tapped faces for replaceable tips up to 1" in diameter or with solid faces up to 2-1/2" and are available in titanium, aluminum or hardened tool steel. All tapped horns are machined from titanium. Special faces can be machined onto these designs including contour milling and EDM machining.



Fig. 1 Exponential & catenoidal horns. Fig. 2 Round horns; hollow.

Round Horns: Solid & Hollow. Fig 2
These horns are available with high or low gain ratios and are made from titanium or aluminum. The face diameter (working surface) can start at .010" O.D. and any dimension up to 6" with a flat solid face. Platings such as hard chrome, carbide coatings and titanium nitride are commonly used to protect against wear.

Rectangular Horns 26" Long. Fig 3,5
Standard designs are available in lengths up to 26" long with a 2-1/2" maximum width. All of our horns are designed to vibrate with even amplitude across the entire face at reduced power.



Fig. 3 Rectangular bar horn.

Block Horns/couplers Fig 4
Machined from aluminum only, these horns are available up to 9" x 12". They require higher power units to run efficiently. Extender horns are sometimes attached to the face to weld applications requiring high amplitude.

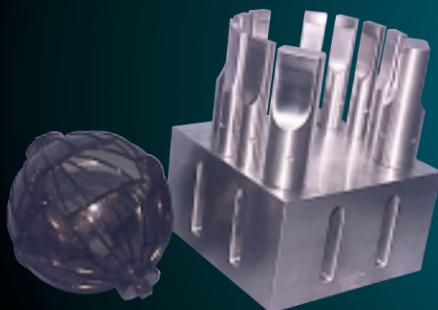


Fig. 4 Large composite block horn for welding complex geometries.

Standard 20 kHz Tips
These standard tips, which are fabricated from titanium, are used for staking plastic bosses, installing inserts or spot welding plastic sheet material. Flat tuned tips and knurled as well as custom designed faces for your applications are available.

Other Standard Horns

- Circular slotted up to 12" OD
- Full wave horns (2x the usual length)
- D-2 hardened steel insertion horns
- Vacuum horns
- Knurled face horns
- 5" x 5" chrome plated horns

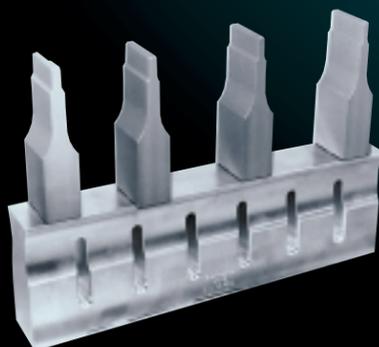


Fig. 5 Large rectangular horn with four extenders.

All horns available in the following frequencies:

15 kHz, 20 kHz, 30 kHz, 40 kHz

Call Toll Free
1-800-875-4676



Fig. 6 Round solid horns (Larger horns have slotted faces) up to 12 1/8" O.D.



Fig. 7 Composite horn with four contoured milled extenders

We're Secondary to NONE



CUSTOM HORNS

Engineered to fit your special welding requirements



Fig. 8 Horn with nodal plunger.

Nodal plungers Fig 8
A built-in spring loaded isolated clamp is used to reduce stress damage on certain welding applications. They are ideal for staking applications that require a pre-clamp for a tight assembly.



Fig. 9 Contoured milled block horn (chrome plated aluminum).

Composite Horns Fig 4,5,7
Ideal for welding large parts requiring high amplitude avoiding deep reliefs into the horn. They are also used to stake multiple studs or install several small inserts, reducing the need for additional welders.

Contoured Horns: Fig 7,9,10
Machined into the face of any horn directly from the molded part. These chrome plated horns are designed to weld complex geometrical shapes often found in the toy and medical industry.



Fig. 10 Contoured milled horn (with part) and poured rigid epoxy nest.

Custom Fixtures Fig 10-15
We design and manufacture support and alignment tools from basic machined contours and poured nests through sliding mechanisms for part presentation and complex geometric support. Manual and automatic part clamping and eject mechanisms can be easily incorporated into our fixture designs.



Fig. 11 Machined fixture with horizontal locking/support lever.



Fig. 13 Custom fixture with part eject lever.

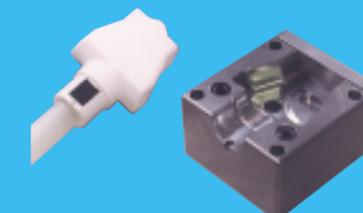


Fig. 12 Machined nest with deep recess for total wall parameter support.



Fig. 14 Fixture with pneumatic eject.



Fig. 15 Two position sliding fixture on linear rails with toggle clamp.

FIXTURES

Additional Products and Services Offered by Sonitek

- Ultrasonic welders (new & used).
We'll buy your used welders.
- Polyfilm electric feeders for welders.
Eliminates part marking from horns.
Easily mounts to any welder.
- Poly film.
- Converter clamp/bench vise.
- Boosters and converters for all Branson, Dukane, USS, & Sonics & Materials welders.
- We repair damaged converters (Branson & Dukane)
- Machine stand tables with casters & lower shelf.
- Hydraulic decelerators for sonic welders.
- Rotary systems.
- Linear slide systems.
- Thermal conversion kits for sonic welders.
- Pneumatic presses for other assembly needs.

Sonitek's line of thermal assembly equipment for **HEAT STAKING**

Our thermal assembly systems offer many distinct advantages over other methods of assembly.

- Lower capital investment • Unlimited tooling design • Interchangeability of tools • Increased productivity by combining several operations into a single cycle.

Model TS-100

Ideal for short runs or prototypes, available with single or multipoint tooling.



Model TS-500/550

Our most popular bench top model for production line assembly. "EZ" Series, an economical unit with basic functions. "MP" Series, a smart system with many options to choose from.



Thermal Thrusters

Designed for restricted areas and used in automated systems on any axis or plane. Sixteen models to choose from. Modular power supplies available for remote locations.

High Tonnage Press

Eighteen models and up to 20 tons of force, these heavy duty presses are used for large parts or multipoint assembly

INSERTION

- Extremely quiet operation
- Install all your inserts in one cycle
- Will not produce metal flakes, chips, or dust
- No limit on quantity, size, planes or distance
- Minimal tool wear
- Very low maintenance cost
- Minimal hoop stresses applied to boss
- Works on thin wall designs without cracking
- 10% to 20% more holding retention
- Large inserts easily installed
- No material limitations

STAKING

- Stake one or several stakes on multiple planes
- No cracking, splitting, breaking, or stresses applied to boss
- 100% aesthetically pleasing
- No damage to fragile electronic or other sensitive mating components
- Minimal tool wear
- No flash or particulate matter created
- Extremely tight stakes created with our proven methods
- Any thermoplastic material easily staked

Ask for our "Pro's" and "Con's" on Heat Staking Sheet.

Typical Heat Applications

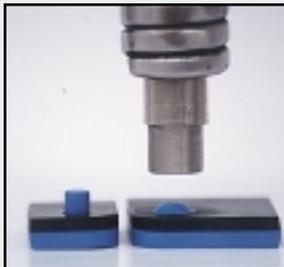
Insertion

Standard tips available for inserts up to 3/8" or M10.



Staking

Custom platens available to stake several studs/tabs simultaneously.



Hot Knife De-Gating

Heated sharp blades with beveled edge can cut gate flush to .010"



Date Coding/Serialize

Type holders or multi-wheel numbering heads for permanent I.D.



Also, local sales and service provided by:



Sonic & Thermal Technologies, Inc.
84 Research Drive, Milford, CT 06460

Tel: (203) 878-9321 • Fax (203) 878-6786

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