



SONICS[®]
SONICS & MATERIALS, INC.

The strongest bond in
Plastics Assembly

Created with Innovative Equipment, Product Reliability, and Responsive Service





Robert Soloff with an original Sonics' ultrasonic welding press.

founded on innovation

The beginning of ultrasonic plastic welding as we know it today started in 1963, when Sonics' founder, Robert Soloff, was experimenting with an ultrasonic probe. He brought the probe into contact with a plastic tape dispenser and welded the two halves of the dispenser together.

Realizing that sound waves could travel around corners and down the sides of rigid plastics to reach the joint area to be welded, Mr. Soloff recognized the many potential uses for this process and built the world's first ultrasonic press. He was awarded the patent for the ultrasonic method for welding rigid thermoplastic parts in 1965.

Mr. Soloff founded Sonics in 1969, and continues to foster a spirit of innovation at the company. He has been awarded 11 more patents in the field of ultrasonics, and to this day, his philosophy of "experiment for improvement" permeates the company and inspires our engineers to push the boundaries of the industry.

building relationships that last

Leading the world in plastics welding technology since 1969, Sonics manufactures a complete product line of powerful systems and components for ultrasonic welding, staking and inserting, vibration welding and spin welding.

Founded on inspired science and applied technology, Sonics delivers cutting-edge control and process consistency across a broad range of assembly applications.

As a business partner, Sonics has the equipment and expertise to provide real-world solutions and to match your application demands to products that will get the results you need on the plant floor. Working closely with you on application feasibility, customized design, tooling and implementation, our objective is to build long-term customer relationships that continue beyond the sale.

We understand that continually streamlining and maximizing your production is critical to success. Your goals are our goals: to boost productivity, realize cost savings, prevent defects and eliminate inefficiencies. Complementing our standard product line, Sonics' OEM division provides even more flexibility to achieve the goals of systems integrators and machine builders.





always connected

Working with Sonics gives you access to an experienced, dedicated team of plastics assembly specialists with unparalleled experience across a broad spectrum of equipment and applications.

Experience first-hand the many benefits of working with a company that has specialized in plastics assembly and consistently delivered outstanding customer service for over 4 decades.

Consult directly with Sonics' expert engineers to select the best processes, equipment and techniques for your application or parts production demands and enhance the success you achieve on the assembly line. Our recommendations to steer and improve your project, along with after-sales training and technical support are all part of Sonics' standard service.

Sonics continually makes real-world advancements in plastics welding. The latest technology and new mechanical developments can dramatically impact your project. Contact us to discuss design specs, equipment troubleshooting, application analysis, or to request a second opinion.

APPLICATIONS LAB:

testing for savings and service

In our custom-built, fully equipped applications laboratory, sample parts are tested for weldability and performance along with the best procedures for assembly. Employing techniques like continuous cycle tests, Finite Element Analysis (FEA) and stringent real-world simulations, Sonics applications engineers can identify the optimal equipment and processes for your application. Testing can yield additional benefits, such as the development of more effective individual stations or joint designs, for example.



ultrasonics

As a world-class innovator in plastics welding, Sonics has remained focused on setting the standard for ultrasonic assembly. We continue to strive for discoveries that yield greater efficiencies and cost-effectiveness for our customers. Our latest advancements continue to move ultrasonic technology forward with equipment that provides more power, more features and more flexibility across the full range of assembly frequencies.

available frequencies:

40 kHz 35 kHz 30 kHz 20 kHz 15 kHz



ultrasonic equipment

Sonics manufactures a complete line of ultrasonic plastics assembly equipment, tooling and systems, including microprocessor-controlled bench-top presses; remote actuators and kits for automation; power supplies; and hand-held units. Accessories such as linear encoders and optional sound enclosures are also available, along with a line of ultrasonic tube sealing systems, food cutting components and metal welding equipment.

Maximum versatility is provided through ultrasonic components and slimline actuators that can be used for mounting into a machine structure at virtually any angle. Sonics' technical experts will help you determine the best system, frequency and power configuration for your application.

power & control

Sonics builds intelligence into state-of-the-art power supplies and user-friendly controllers. Program, monitor, and display various critical welding parameters as you achieve consistent, repeatable welding results. Select from a variety of power supply models depending upon your specific requirements for welding in energy, time, and/or distance, or even continuous duty applications.



Standard Features include:

- Digital amplitude control
- Ultrasonic horn/stack frequency display
- Good part/bad part output signal
- Automatic frequency tuning
- Multiple job storage
- Digital force triggering
- Optional PLC I/O (Input/Output) ports

hand held ultrasonic welding systems

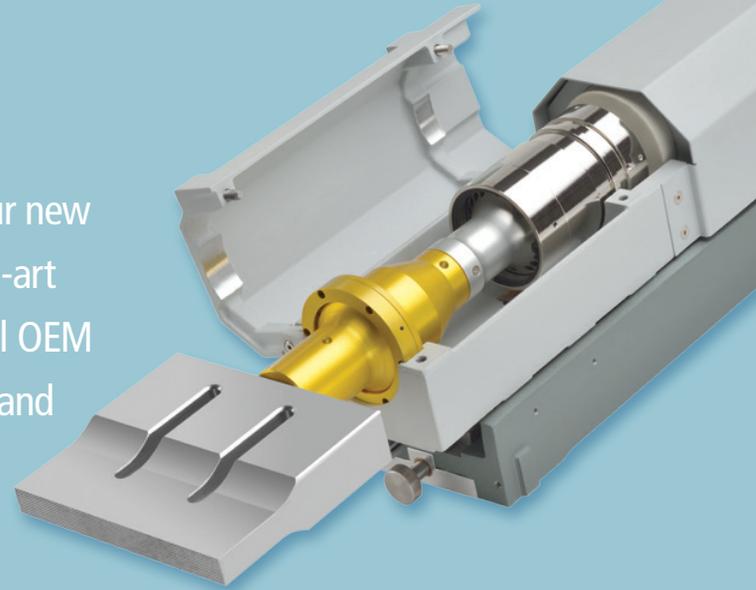
Lightweight, compact and portable hand held welders for 20 kHz and 40 kHz frequencies are designed specifically for



SEAMLESS FUSION:

Sonics and OEM

Seamlessly integrate ultrasonic technology into your new or existing equipment line with Sonics' state-of-the-art components. Sonics leads the industry in successful OEM partnerships and offers a full line of ultrasonic kits and stack components designed for installation into special assembly systems.



Available components include:

- Converter, booster and horn stack
- Ultrasonic kit for NEMA enclosure and PLC external control and sequencing
- Self-contained pneumatic slimline actuator



Ultrasonic kits have consistently proven to be an economical, space-saving option for manufacturers, offering maximum flexibility and the ability to sequentially switch the RF signal from one kit to several weld locations. Additionally, kits and stacks operating at higher frequencies result in lower amplitudes which in turn can yield a strong weld without marking the Class "A" surface or part side that is visible to the customer.

Consulting directly with manufacturers allows us to analyze application feasibility, add process efficiencies, and deliver customized design with innovative implementation. From initial concepts and configuration parameters through production line assembly, Sonics' experienced engineers work with systems' integrators and special machinery builders to simplify integration and maximize throughput.

welding, staking, inserting and spot welding applications. These rugged and reliable units consist of an ultrasonic power supply and hand held converter. Features include auto tuning, microprocessor-controlled time and energy welding modes, digital amplitude control, and overload protection circuits. A variety of optional accessories, such as a Manual Press, Stapler, Pistol Grip and Foot Pedal are available, along with a full range of standard threaded tips.



ultrasonic electropress™

Sonics' trademarked 20 and 40 kHz e-Press Touch systems yield repeatable welds to precise final dimensions and are particularly well-suited for the fine and delicate assemblies found in electronic and medical devices. The e-Press features touch panel controls, a stepper motor drive with optical linear encoder and ball screw actuator that provides superior precision control with a weld depth tolerance of +/-0.0003 inches (0.008 millimeters).

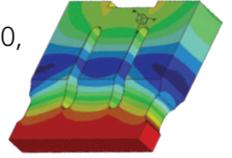
tooling

Sonics provides design, fabrication and custom machining of tooling, fixtures and anvils for ultrasonic plastics welding, ultrasonic cutting and sealing, vibration welding, and spin welding, as well as multi-element configurations for spot welding, staking and inserting. Tool fabrication materials include aluminum, titanium, hardened steel, stainless steel and cast polyurethanes.



ultrasonic horns

Ultrasonic horns in 15, 20, 30, 35 and 40 kHz frequencies are designed with an FEA



(Finite Element Analysis) simulation program that allows our engineers to observe the vibratory action of the horn prior to fabrication.

- Segmented and adjustable fixtures are built to ensure a secure fit with the molded plastic parts
- Contoured fixtures and tools for irregularly shaped parts
- Ultrasonic horns are inspected for even amplitude
- For added strength and durability, carbide facing or chrome plating is applied
- Peripheral devices to clamp, hold and align opposing parts are also available

additional solutions

vibration welders

Sonics' MX Series Linear Vibration Welding Systems are designed for assembling large and/or complex-shaped thermoplastic parts, and can also be tooled to assemble multiple smaller parts simultaneously.

The MX-Series has the most powerful drive mechanism in its class, with the smallest footprint and largest lift table in the industry.



Process data collection capabilities and on-demand PLC controlled in-line job-switching/sequencing capabilities are also available.

spin welders

Sonics' high torque spin welding machines are designed to accommodate a wide range of spherical or cylindrically-shaped thermoplastic parts. Standard PLC-controlled spin welder models are available, as well as custom-built units.



hot plate welders

Custom systems for joining irregularly shaped semi-crystalline and amorphous thermoplastic materials by radiant or direct contact heat.

ULTRASONIC FILM SEALING

packaging

Sonics manufactures a full line of specialized ultrasonic sealing equipment and components for packaging applications such as tube sealing, pouch sealing, clamshell sealing, and automated applications such as cross seals, back seals, gusset seals, zipper crush and fitment welding.

Sonics' ultrasonic film sealing systems provide extremely consistent and reliable performance and are virtually maintenance-free, with seal strength attainable to 100% of parent materials. Customizable ultrasonic equipment is flexible and adaptable for seamless integration into OEM automated systems



tube sealers

Ultrasonic tube sealing systems accommodate a wide variety of plastic tube materials and use cost-saving, on-demand energy for seal strengths attainable to 100% of parent material.

pouch sealers

Ultrasonic pouch sealing systems with new patent-pending technology increase seal strength while eliminating film stress. Mounting configurations available for most rotary and in-line pouch sealing machines.

clamshell sealers

Ultrasonic welding systems to seal clamshell packages, eliminating the need for additional consumables like adhesives or staples, and using cost-saving on-demand energy.

heat staking & inserting machines

Bench model and custom machinery for single point, multi-point or multi-plane thermal staking and inserting applications.

hot air/cold staking systems

Custom systems designed to achieve repeatable and tighter staking results.

textiles & nonwoven bonding or slitting systems

Specialized equipment and components for textile applications such as continuous bonding or slitting; punching; plunge bonding; and hook and loop (Velcro) bonding.



tire cutting systems

Specialized ultrasonic equipment and components to achieve superior cut integrity for rubber cutting applications. Kits and components are flexible and easily adaptable to existing machine designs.

food cutting systems



Ultrasonic components, kits and knife horns for food cutting applications offer better cost-effectiveness and increased consistency at the cutting surface where blades stay sharp longer.



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Plus an international network of distributor sales, service and support representatives.

COMMON APPLICATIONS

AUTOMOTIVE

Instrument Clusters
Tail Lights
Back Up Lights
Side Markers
Inner Door Panels
Floor & Door Carpeting Filters
Sensors
Tanks
Battery Parts
Hub Caps
Cup Holders
Shoddy Pads
Speaker Grilles
HVAC Staking
Glove Boxes
Spoilers
Door Pillars
Tire Cutting

MEDICAL

Catheters
IV Components
Valves
Tubing
Disposables
Syringes
Containers
Instruments
Cartridges

PACKAGING

Clam Shells
Beverage and Retort Pouch
Top Seals
Snack Bag Cross Seals
and Back Seals
Zipper Crush
Trays and Containers

HOME ENTERTAINMENT

TV
Audio / Video
Gaming Components
Radios
CD / DVD Players
Converter Boxes

**COMPUTER/
ELECTRONICS/
ELECTRICAL**

Housings
Connectors
Sockets
Switches
Inserts
Calculators
Flash Lights
Telephones
Batteries
Toner Cartridges
PCMCIA Cards
Circuit Boards
SD Memory Card Adapters

**HOUSEWARES/
APPLIANCES**

Coffee Makers
Hair Dryers
Washing Machines
Dishwashers
Clothes Dryers
Vacuum Cleaners
Insulated Cups, Mugs & Bowls
Cup Handles
Tools
Hot Plates
Mops
Brooms
Electric Toothbrushes
Refrigerators
Floats

NOVELTIES

Toys
Ballpoint Pens
Photo Albums
Whistles
Sporting Goods

**TEXTILE AND
NONWOVENS**

Filter Media
Diaper Products
Feminine Hygiene Products
Erosion Control Materials
Carpets and Rugs
Face Masks
Protective Apparel
Belts and Straps
Hook and Loop
Selvage Trimming
Roll Splicing

FOOD CUTTING

Single Portion Slicing
Bulk Pack Slicing
Continuous Cutting
Cheeses
Candy Products
Baked Goods
Desserts
Meats
Seafood