

BRANSON



Clean Joining Technologies for Plastics

Advanced, Energy-Efficient Options for
Joining 2D and 3D Contoured Parts


EMERSON
Industrial Automation



Branson Meets the Demands of a Changing Plastics Industry.

The ever-changing plastics industry continues to raise the standard for aesthetics and performance of plastic weld joints.

Use of low-viscous high-temperature polymer formulations with functional fillers, optical parts with visible weld lines, 3D geometries, lightweight constructions, and joining of mixed materials with zero particulate are just some of the trends that have added complexity to the plastics assembly process.

Branson Clean Joining Solutions

As a pioneer in the development of leading-edge plastics joining for over five decades, Branson's clean joining technologies use different methods of pre-heating the surfaces to be joined, eliminating the particulates and "angel hair" that can cause inferior aesthetics and downstream manufacturing delays.



**CLEAN
VIBRATION
TECHNOLOGY**

**CONTOURED
INFRARED
TECHNOLOGY**

**CONTOURED
LASER
TECHNOLOGY**

CLEAN JOINING TECHNOLOGIES

Branson offers three distinct clean joining technologies to ensure that customers get the best solution for their unique application:

- **Clean Vibration Technology (CVT)**
- **Contoured Infrared Technology (CIT)**
- **Contoured Laser Technology (CLT)**

Branson clean joining technologies produce the clean, clear welds, advanced 3D molding capability, superior aesthetics, and energy-efficient production that today's manufacturers demand.

Branson's Global Advantage

Whether you manufacture and distribute in one country, or in multiple markets around the world, Branson's global presence allows you to quickly and economically respond to new trends affecting the plastics manufacturing industry. From consultation, design, and prototype development to production testing and final installation, Branson is a leader in developing and refining plastics joining solutions, helping companies use innovative technologies like clean joining to meet the changing demands of the marketplace.



Clean Vibration Technology (CVT)

CLEAN VIBRATION TECHNOLOGY

Branson CVT is uniquely capable of producing clean, clear, particle-free joints for even complex 3D moldings and curved surfaces.

Using a non-contact, metal-foil emitter that's contoured to match the two surface planes to be joined, this hybrid technology preheats the two surfaces simultaneously. The emitter is removed, and the plasticized surfaces are brought together under pressure and vibration with no solid friction, no local melt zones, and uniform material flow. The result: clean welds with high mechanical loads.



In addition to excellent capabilities producing complex 3D moldings, CVT offers these advantages:

- Clean, precise, visible weld lines that can become part of the design aesthetic
- Emitter specifications matched to each material's absorption characteristic for increased energy efficiency
- Welds capable of withstanding high mechanical loads
- Widespread application in automotive taillights and media-carrying systems under the hood
- Good tolerance compensation, short cycle times, and low recurring costs



Contoured Infrared Technology (CIT)

CONTOURED INFRARED TECHNOLOGY

Branson Contoured Infrared Technology is an especially attractive clean joining solution for small, medium, and large contoured parts.

Precise plasticization is achieved using non-contact heat input produced by medium-wave, metal-foil

emitter systems that match the melt properties of common thermoplastics. These are robust, precisely controlled, and have low energy consumption. Branson is a pioneer in this field.

During the CIT process, the two part halves are positioned just

few a millimeters away from the infrared emitter (without any molding-specific masks), which is exactly adapted to the profile of the weld seam. Through precise melting of only the melt region, damage to preassembled inner parts is minimized. Once plasticization occurs, the emitter is removed, and the halves are brought together under pressure and allowed to re-solidify, producing a clean, clear, particle-free weld.



Contoured Infrared Technology offers these advantages:

- Improved capability for welding small, medium, and large parts
- Fewer contouring limitations adapting to 3D moldings
- Eliminates drawbacks inherent in contact heating methods: materials sticking to the hot plate, stray emissions, tooling and repair
- Lower energy consumption for improved cost-effectiveness
- A more compact and cosmetic weld seam
- Clear-to-clear joining without additives (self-absorption range of all most common thermoplastics)
- Very short reaction times
- Large weld areas without molding-specific masks

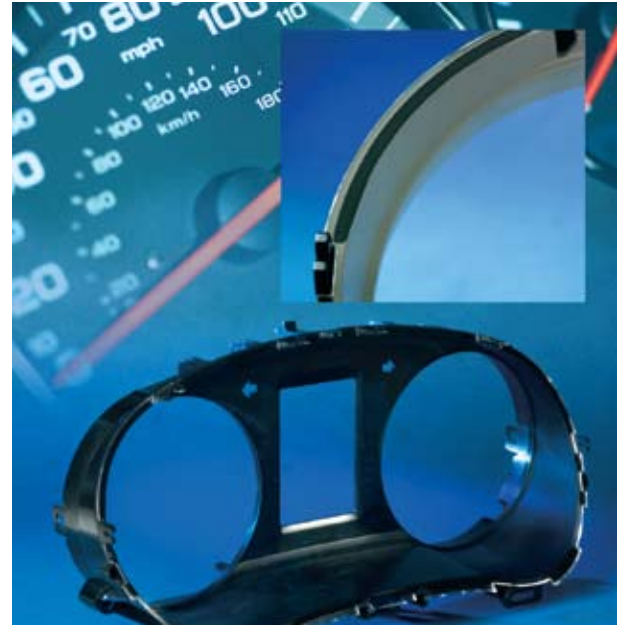


Contoured Laser Technology (CLT)

CONTOURED LASER TECHNOLOGY

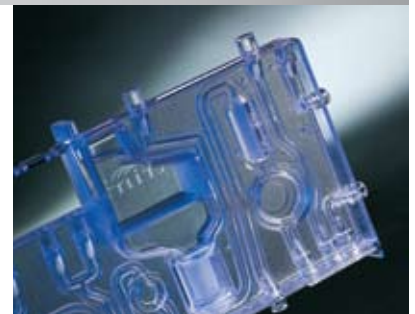
Branson's Contoured Laser Technology specializes in high-speed production of small- to medium-sized moldings with 2D or 3D contours. Its rapid cycle time of 1 to 5 seconds allows for precise part-to-part uniformity in high-volume applications.

CLT laser radiation is emitted from fiber-contact diodes. The radiation passes through a transmissive component, then illuminates the entire weld surface and absorptive component in one shot; this melts the interface, and the two components are joined under controlled pressure.



CLT delivers reduced cycle times as well as these important advantages:

- Precise, controlled laser energy for reliable, repeatable welds
- Maximum flexibility for joining 2D and 3D configurations
- Exceptional ability to join components using dissimilar materials
- Excellent capability for welding preassembled parts that need to maintain internal components in place during welding



Markets and Applications

Branson's clean joining technologies meet the specialized requirements of a range of applications in a variety of business sectors, delivering exceptional aesthetics, product integrity, superior part performance, excellent value and, ultimately, customer satisfaction. Branson offers customers an eco-friendly outcome – energy efficient, free from consumables, and recyclable, without chemical adhesives and solvents.



Clean Vibration

Automotive

- Taillights
- Liquid Reservoirs
- Air Intake Manifolds
- Electronic Modules
- Cylinder Head Covers

Medical

- Chest Drainage Units

Contoured Infrared

Medical

- Blood Filters

Automotive

- Instrument Panels
- Engine Compartment Components
- Interior Features
- Glove Boxes

Household Appliances

- Coffee Makers

Contoured Laser

Office Supplies

- Toner bottles and ink cartridges

Automotive

- Sensors and Control Modules
- Filter Assemblies
- Instrument Clusters
- Small Media Tanks
- Electronic Enclosures
- Irrigation Systems

Global Technologies. Local Solutions.

Branson's unmatched global resources ensure optimal solutions for the most challenging materials joining and precision cleaning applications.

With 1800 employees in over 70 sites worldwide, we can rapidly respond to our customers' needs, wherever they are located.

Branson understands local markets and regulations, and the open collaboration among our global offices and extensive staff of application specialists quickly produces solutions for customers. We partner with companies of every size and hope to help resolve critical issues ranging from market changes, product quality/life cycles

and production costs, to employee safety and environmental compliance. And, Branson's commitment to the publicly funded industrial collective research initiative and cooperation with various research centers have produced widespread innovations in plastics joining technology that are benefiting companies everywhere.

Branson is a leading innovator in the Industrial Automation division of Emerson, a diversified global manufacturing and technology company. Emerson is a progressive company working to develop products and processes to resolve global issues, including energy supply and distribution, information and networking, climate and

environment, manufacturing efficiency, and product performance. Emerson is dedicated to the pursuit of breakthrough technology developments never before envisioned.

Branson brings exceptional quality, fast delivery and competitive prices. Contact your nearest regional center today.

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