

BRANSON[™]



Contoured Laser Technology

Simultaneous, Precise Plastics Joining
for Parts Demanding Particulate-free and
Aesthetically Clean Weld Joints

BRANSON Contoured Laser Technology (CLT)

Maximizes Product Integrity and Cost-effectiveness

- **Simultaneous weld joint illumination:**
Branson's patented technology enables the heating and plastification of the entire weld line at once.
- **High-volume production capability:**
Contoured Laser Technology's 0.5 to 5-second weld times help deliver lower-cost production, less energy consumption, with no compromise to product quality or performance.
- **High-efficiency SmartFiber optic bundles:**
CLT employs SmartFiber optics along with application-specific wave guides with reflective coatings to deliver highly efficient laser energy for optimum results.
- **Clean, clear, weld-bead aesthetics:**
The clean welds created with Branson CLT are virtually free of particulates that can complicate downstream manufacturing, or compromise aesthetics and product performance.



Fiber optic bundles transmit laser energy through a wave guide that creates simultaneous, uniform laser light output, contoured to the shape of the weld joint.

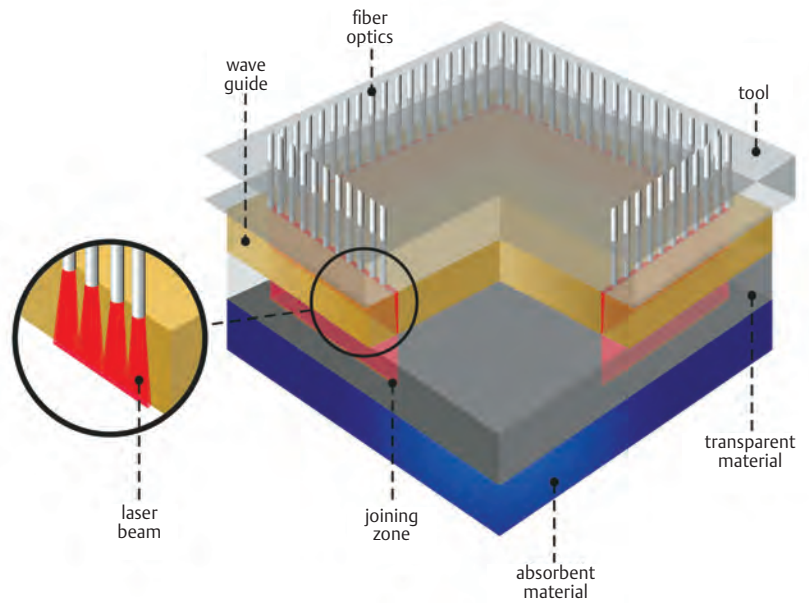
- **Application flexibility:**
Standard CLT systems are suitable for weld lines up to 1000 mm. They can be configured to "clean-weld" small applications, such as printer ink cartridges, or larger applications, such as automotive instrument clusters and lighting assemblies with complex weld areas. Custom applications are virtually limitless.
- **Efficient welding of pre-assembled parts:**
For applications that require internal components to be held in place during welding, CLT allows for parts to be placed into the welder in the same position and orientation as the final, assembled position demands.
- **A broad range of weld materials:**
CLT has successfully welded a broad range of materials, including PC, PA, PS, ABS, Elastomers (TPU/TPE), PP, HDPE, LDPE, PETG, PBT, PPS, and PMMA.
- **Precision meltdown control:**
The CLT 2000X actuator ensures precise part collapse (meltdown) and is available with manual or automated operation in varying configurations to properly match the application.

How Contoured Laser Technology (CLT) Works

STTlr® Welding

Branson CLT employs an exclusive process called Simultaneous Through-Transmission Infrared® (STTlr) welding. Simultaneous welding equates to speed, uniform collapse, and low localized power density.

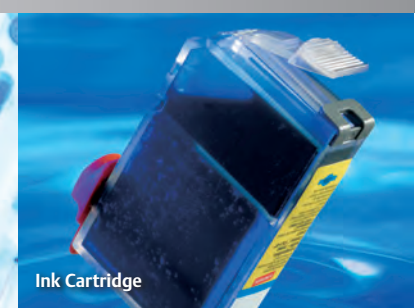
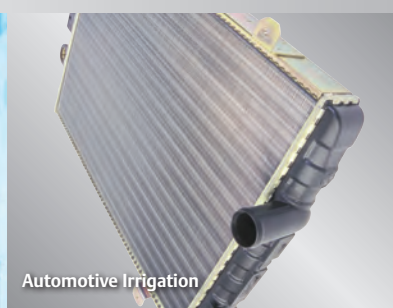
With STTlr®, laser energy produced by laser diodes passes through one plastic component (the transmissive component), and then is absorbed at the bond line by the second component (the absorptive component). This absorption heats and plasticizes the entire welding surface simultaneously while the two parts are held together under precision-controlled pressure. The result: a strong, uniform weld, with less risk of rejects due to surface imperfections, than traditional trace laser welding can produce.



In addition, CLT laser energy can be adjusted around the weld profile to optimize weld results. CLT units also offer quick-change capability that allows for fast exchange of tools for different applications.

Laser-emitting wave guides conform exactly to the contours of the part surfaces they are to join, melting the entire interface at once for fast, uniform weld joints.

CLT can be configured with one laser bank with 125 Watts of power for small parts (e.g., ink cartridges) or with up to four laser banks with 500 Watts of power for larger parts (e.g., instrument clusters).



Branson System Controllers Provide Flexibility and Ease of Use

Branson offers two standard models of CLT welder controllers. The 3G is a compact bench-top controller designed to interface with a 2000X actuator and 1 or 2 CLT laser banks capable of delivering up to 250 Watts of laser power.

The 3I is a free-standing controller designed to interface with a 2000X actuator and up to 4 CLT laser banks capable of delivering up to 500 Watts of laser power.

3G Welder Controller



3I Welder Controller

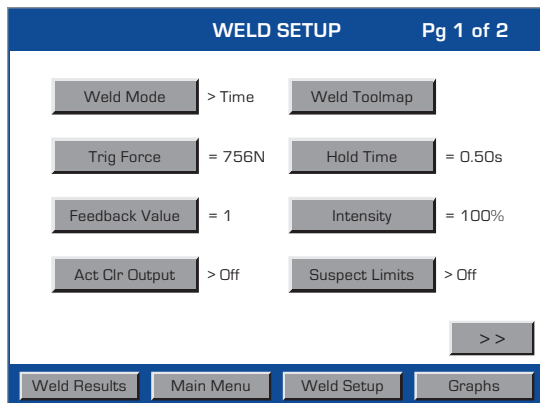


Both systems allow operators to control and monitor the following functions:

- Time and distance welding modes (both collapse and absolute)
- Force measurement
- Process limits with alarms
- Multiple preset memory
- Graphing and weld history data
- Multiple languages

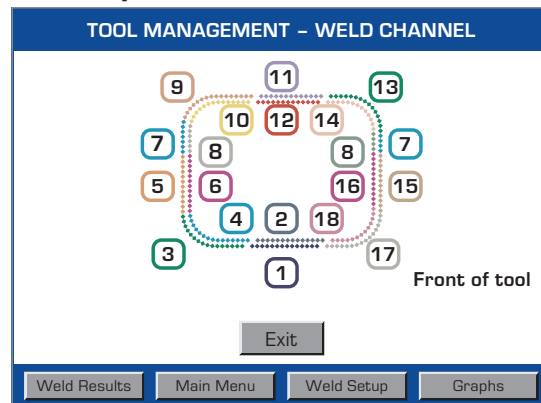
Optional: In some cases, a custom system adapted to special applications can be offered.

Control Interface



User-friendly interface allows for the control and monitoring of time and distance of welding modes and pressure measurements.

Tool Map



An innovative tool map feature allows for control of discrete tooling segments via an on-screen graphic representation of the tool.

Precise, High Volume, High Efficiency Clean Plastic Welding

As one of Branson's leading-edge clean plastics-joining technologies, which include Clean Vibration Technology and Contoured Infrared Technology, CLT meets the growing trend toward applications using performance-engineered materials with increasing geometric complexity. CLT allows designers to incorporate visible, virtually particulate-free weld lines into the product design for superior aesthetics, maximum product integrity, and enhanced production efficiency.



Contoured Laser Technology (CLT) is another Branson clean plastics-joining technology ideal for welding 2D and 3D-contoured parts. It is capable of high-volume production of small to medium parts with excellent weld-to-weld uniformity using rapid weld times of 0.5 to 5 seconds.

CLEAN
VIBRATION
TECHNOLOGY

CONTOURED
INFRARED
TECHNOLOGY

CONTOURED
LASER
TECHNOLOGY

CLEAN JOINING TECHNOLOGIES



Food Dispenser

Medical Fluidic Device



Actuator



Sensor

The Branson Advantage

BRANSON is committed to not only engineering and supplying CLT equipment to meet your needs, but also to providing applications support, employee training, troubleshooting, and ongoing customer service so that your equipment continually operates as expected. To learn more about Contoured Laser Technology, contact your Branson representative or call the Branson office in your area.

True Global Support & Service

BRANSON Contoured Laser Technology is backed by our proven commitment to providing superior global technology, support, and customer service through a worldwide network of 70 offices. Branson is part of the Industrial Automation division of Emerson, a diversified international manufacturing and technology company committed to developing technological breakthroughs that enhance the performance of a wide range of products and processes.

Specifications

Branson Laser Bank	
Wavelength:	980 nm
Laser Power:	25 Watts per channel, 125 Watts total per laser bank
Input Power:	48V DC, 19 Amps, 24V DC, 1 Amp
Cooling:	Water/Dow Frost mix @ 16° C and 3 LPM
Air:	Clean, dry air @ 420 kPa, 2 LPM
Size:	92mm W x 491mm D x 374mm H
Weight:	Approx. 16 kg
3G Controller	
Input Power:	200-240V or 400V AC, 12 Amps, 50/60 Hz, 3 Phase
Air:	Clean, dry air @ 420 kPa and 2 LPM per attached laser bank
Size:	569mm W x 751mm D x 619mm H
Weight:	93 kg
Capacity:	Up to 2 laser banks
3I Controller	
Input Power:	200-240 or 400 V AC, 30 Amps, 50/60 Hz, 3 Phase
Air:	Clean, dry air @ 420 kPa and 2 LPM per attached laser bank
Size:	622mm W x 1061mm D x 1752mm H
Weight:	Approx. 357 kg
Capacity:	Up to 4 laser banks
2000X Actuator	
Air:	Clean, dry air @ 690 kPa

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All specifications subject to change without notice. All dimensions are nominal.

Note: All sales shall be subject to the Supplier's terms and conditions of sale as described in Branson's quotations and sales contracts.