

A photograph of a white car door on an assembly line. The door is open, showing the interior panel with a handle and a speaker. The background shows the factory floor with yellow overhead cranes and other vehicles. A blue text box is overlaid on the top left of the image.

Meet the demand for increasingly complex plastic parts.

Branson GLX Laser Series

Achieve unmatched production efficiency with advanced, high speed laser welding.



You need to produce more complex, high quality plastic parts more efficiently and safely.

You are faced with a growing demand for plastic parts with increasing geometric complexity and rising standards of aesthetics. Product designers want to incorporate barely visible weld lines into their designs, whilst offering maximum functional performance. Production requires high quality laser welding solutions that easily integrate into automated production lines and pass-through operations, offering maximum efficiency whilst maintaining safety standards to protect workers.

“Many organizations have quality-related costs as high as 15 to 20% of sales revenue, some as high as 40% of total operations.”

– The American Society for Quality



“Parts consolidation in automotive and other applications is creating larger parts with more complex geometries.”

– Mikell Knights, Senior Correspondent, Plastics Machinery Magazine



“With new firms entering the plastic part manufacturing industry at a high rate (4.4% per year), competition has intensified, leading to lowered prices and profits.”

– IBISWorld industry report, 2017



“30.8 million working days lost in the UK due to musculoskeletal problems (including back pain, neck and upper limb problems), 22.4% of the total.”

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Instead of being constrained by the limitations for frictional welding, what if you could free your designer to shape a part in order to offer maximum aesthetic or functional performance?

The Branson GLX Laser Series sets new standards for welding precision, performance and quality to help elevate your manufacturing capabilities.



The Branson GLX Laser Series delivers superior weld strength and quality with exceptional speed and throughput. It produces particulate-free welds for intricate 3D parts, delicate components and embedded electronics and sensors. Designed to the highest global safety standards, the GLX creates a more productive work environment. It offers unmatched material compatibility and easily integrates into automated and pass-through operations, facilitating tool change to optimize performance.

BRANSON™



“The GLX series produces highly reliable, particulate and flash-free welds of plastic parts with complex geometries. This provides designers with exceptional flexibility and significant advantages to manufactures in highly competitive markets.”
– Priyank Kishor, Global Product Manager, Emerson

Ensure high quality welds free of particulates.

A global manufacturer of catheters required a welding solution that could provide the highest possible quality for this critical device. Emerson’s welding technologies offered the company flash-free welds and stronger bonds, which gave their customers greater assurance of product performance and cleanliness.

Quality ► p6

Flexibility to design more aesthetic and complex products.

“Branson technology has provided our engineers with complete freedom when creating new instrument panels. The resulting designs would have been inconceivable a few years ago, not only in terms of aesthetics and complexity, but also functional performance. As a result, we have been able to reduce material requirements, saving weight and cost.”
– Global automotive manufacturer.

Flexibility ► p8

Increase production efficiency and throughput.

“By eradicating substandard welds, we have been able to reduce the total number of rejected products during our quality assessment phase. This has enabled us to increase throughput and reduce waste, helping our manufacturing department to increase yield and lower operational costs.”
– Global electronics manufacturer

Efficiency ► p10

Protect your workforce.

Branson GLX laser welder has helped a global automotive manufacturer to increase productivity of component production. Its human centred design has improved ease-of-use and lowered the lift table position, reducing physical demands on operators.

Safety ► p12



Higher QUALITY welds, free of particulates.

Evolving markets require you to design and manufacture complex plastic components that offer superior aesthetics and performance. Emerson is ideally placed to meet this need with its patented Simultaneous Through-Transmission Infrared® (STTIr) laser welding technology. Laser welding does not use friction, vibration, or harsh lateral movement to join components. While these methods are suitable for many applications, they may generate particulates, or 'flash'. The Branson GLX provides a particulate-free process, which produces welds that are barely visible resulting in better aesthetics, as well as superior performance. In highly visible applications, such as automotive tail lights, the laser weld does not need to be hidden behind opaque masking, which maximizes the transparent area. With no moving parts during joining, welds are more precise and the strength of the weld is superior.

What's your challenge?



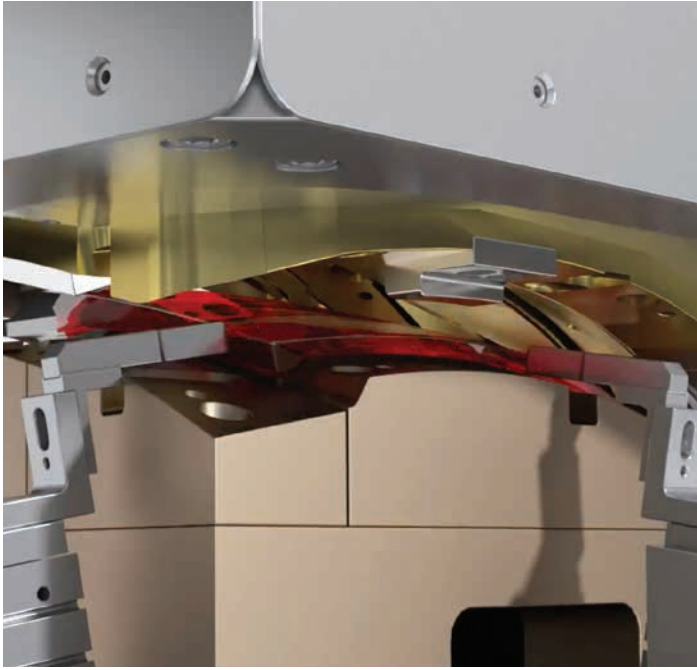
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What's your opportunity?

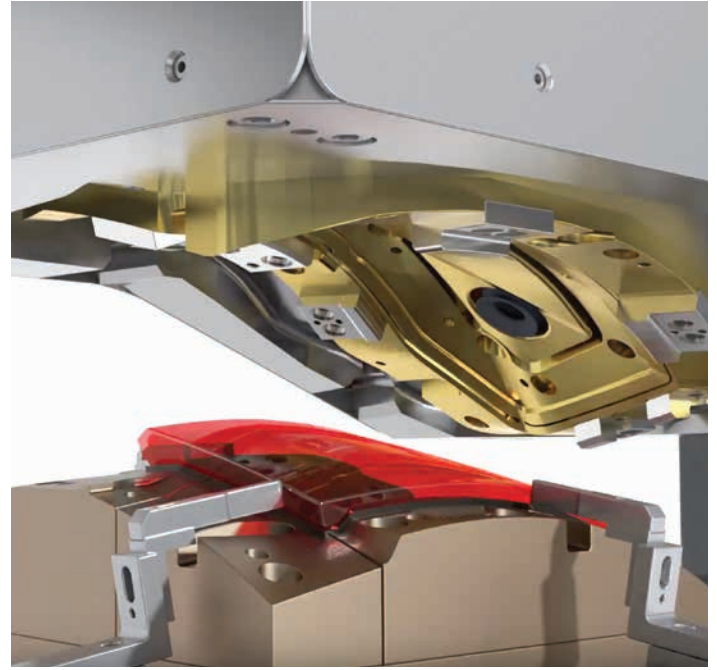


Barely visible, particulate-free weld lines created by Branson laser technology prevent downstream manufacturing complications and ensure superior aesthetics.

Greater weld precision and strength



With **no movement** of the parts during joining, this leads to a more precise weld and hermetic seals can be created if required.



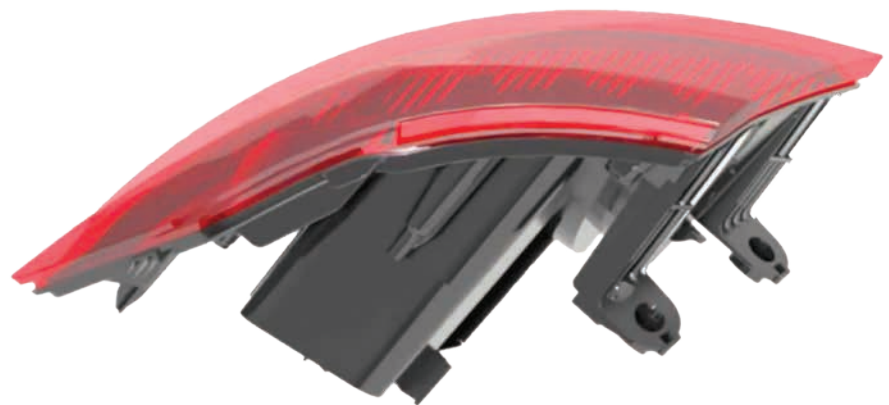
Laser welding puts no mechanical stress on parts, therefore there may be no need for annealing, or less annealing time required, to relieve internal material stresses.

Greater precision and control of melt collapse and energy around the weld perimeter is possible and testing shows that joint strength can be superior to other welding methods.

Reduce surface imperfections



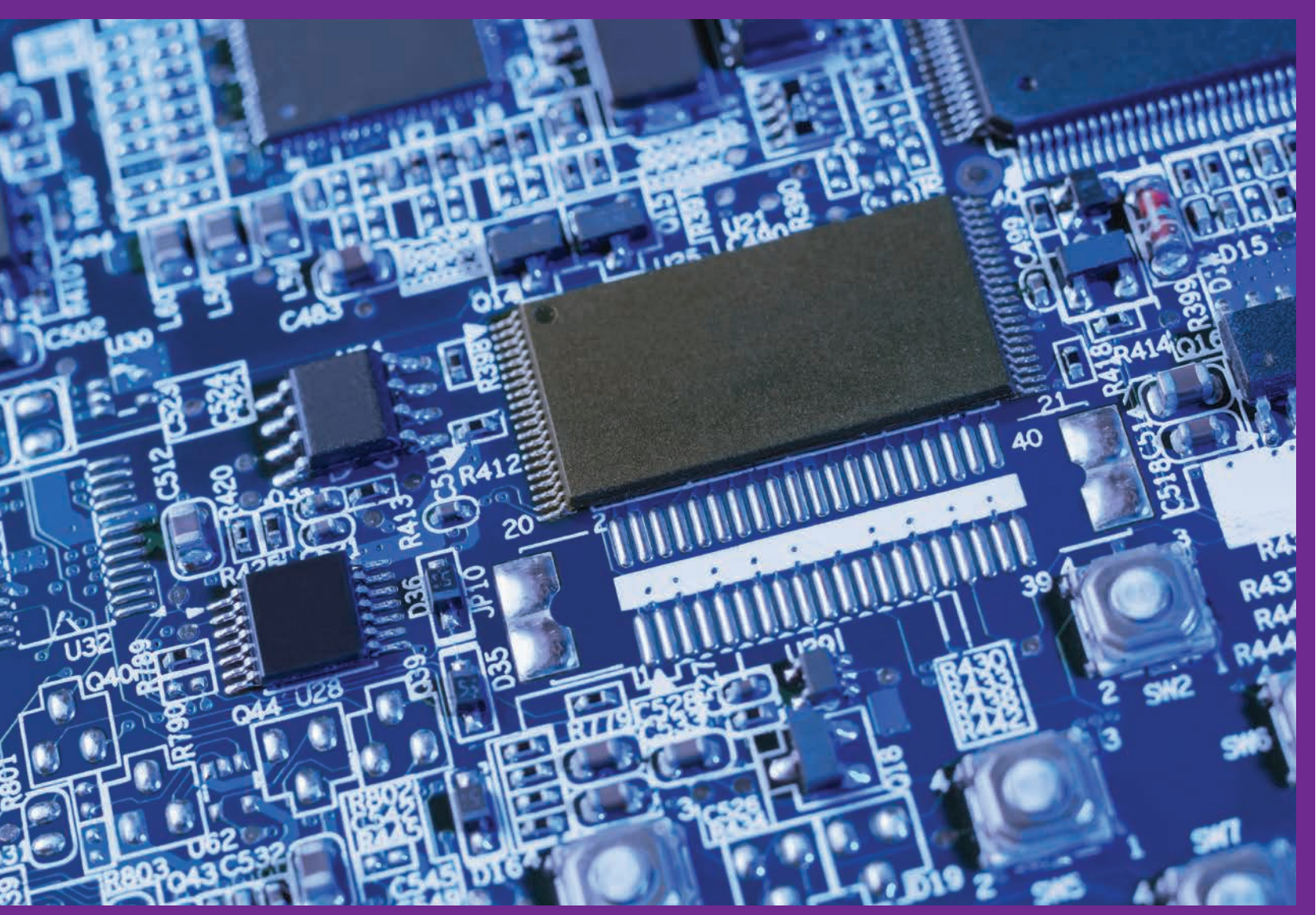
Particulates
Angel hair
Residual strands



Laser welding does not cause bubbles and blistering, substantial flash, angel hair residual strings, and excess particles.



Need help to choose, implement and optimize the right solution for your application, visit [Emerson.com/en-us/automation/brands/branson/welding-joining-application-assistance](https://www.emerson.com/en-us/automation/brands/branson/welding-joining-application-assistance)



Enhanced design FLEXIBILITY incorporating 3D contours and sensitive components.

In addition to better aesthetics, your customers also demand plastic components with increasing geometric complexity. This presents a challenge to traditional plastic welding techniques. With the Branson GLX Laser series, designers are no longer constrained by the limitations of friction welding. Unlike other welding methods that require a flat weld plane, laser beams can be positioned on many axes. The flexibility of laser welding to accommodate complex part geometries gives parts designers the ability to shape a part in order to offer maximum aesthetic or functional performance. In addition, laser welding frees designers to employ multiple reflective compartments; embed sophisticated lighting such as OLEDs, delicate sensors, cameras, scanners, or other electronics; and do more to differentiate their brand.

What's your challenge?



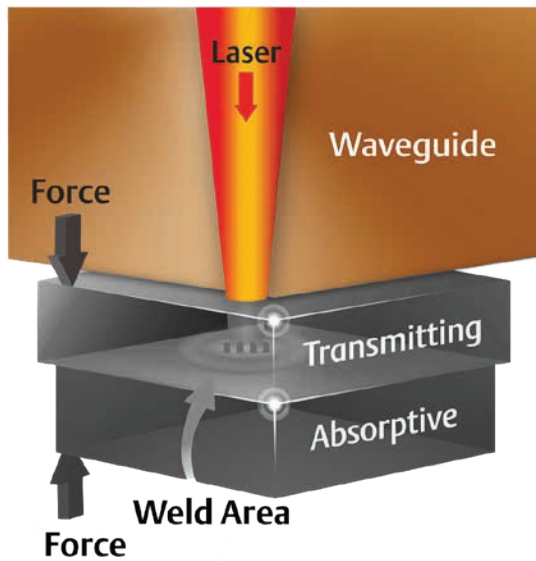
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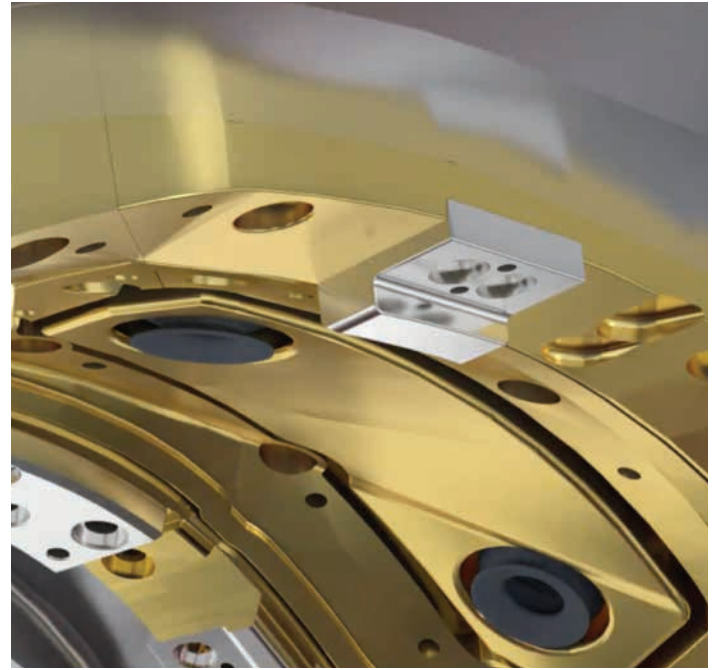


Branson technology enables the welding of challenging and intricate geometries that are impossible with other laser welding techniques to provide parts designers with maximum flexibility.

Greater design freedom

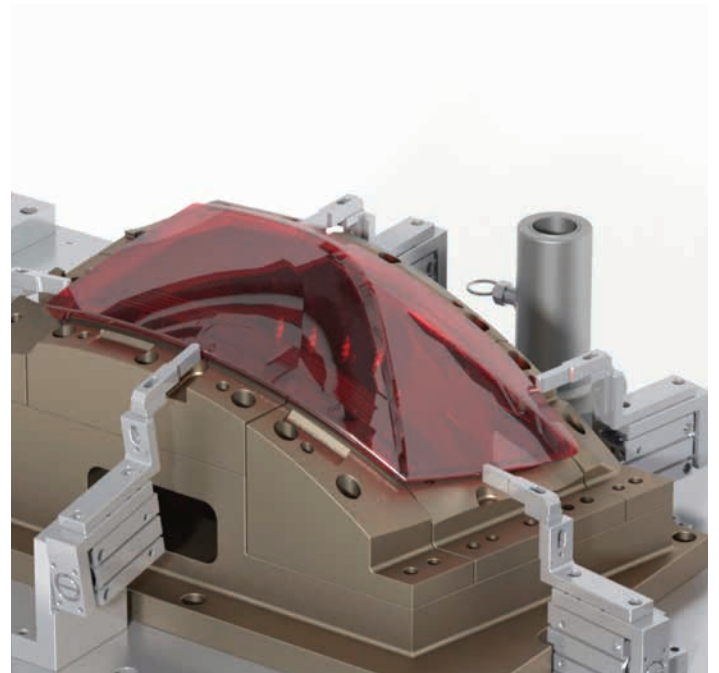
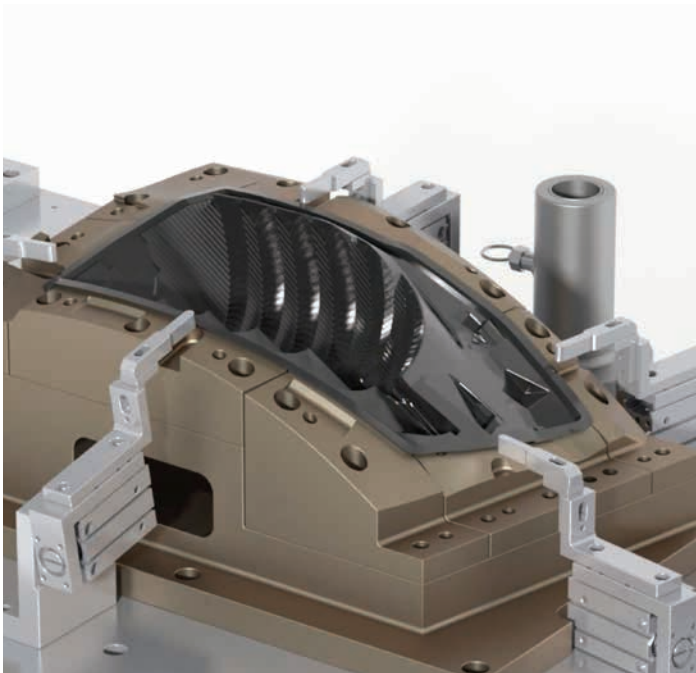


Laser emitting waveguides can be configured in 3D to conform exactly to the geometry of the part surfaces they are to join, melting the entire surface interface at once for a fast, uniform weld joint with precise melt collapse control.



Electronics and sensitive components can be embedded in welded parts.

Compatibility with more materials than other weld methods



Branson laser welding technology is suitable for a larger variety of polymer materials than other welding methods including PC, PA, PS, ABS, Elastomers TPU/TPE, PP, HDPE, LDPE, PETG, PBT, PPS, PMMA, PEEK, COCs, and Ultem.



Need help to choose, implement and optimize the right solution for your application, visit [Emerson.com/en-us/automation/brands/branson/welding-joining-application-assistance](https://www.emerson.com/en-us/automation/brands/branson/welding-joining-application-assistance)



Increase production EFFICIENCY and throughput.

Greater production speed and volume requires more efficient manufacturing processes. The Branson GLX is easily integrated into your automated production lines and pass-through operations with its automatic front and rear door and automatic tool change process. Emerson's patented STTlr laser technology uses simultaneous laser welding, as opposed to the more time-consuming trace or scan laser methods, which results in faster welding cycle times and greater productivity. Further enhancing production speed is the ability to weld multiple parts at once. The Branson GLX can easily accommodate dual cavity tools, or even join three or more parts simultaneously in a single weldment process step. Greater productivity also relies on efficient workers. The Branson GLX operator interfaces are designed with ergonomic and ease-of-use considerations, supporting faster configuration and simple changes.

What's your challenge?



"With new firms entering the plastic part manufacturing industry at a high rate (4.4% per year), competition has intensified, leading to lowered prices and profits."

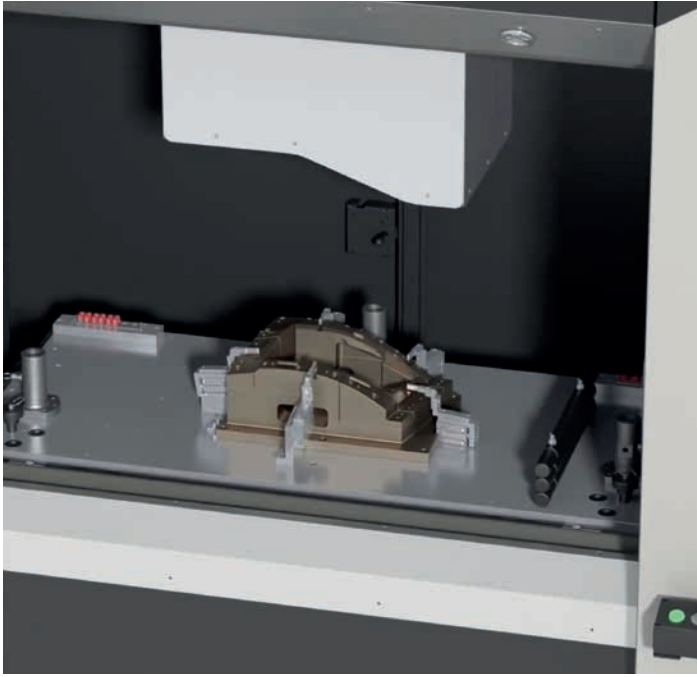
– IBISWorld industry report, 2017

What's your opportunity?



Welds can be completed in as little as 0.5 seconds or less. Emerson has integrated Branson laser welders into in-line manufacturing processes to deliver welds on 750 parts per minute.

Improving throughput and yield

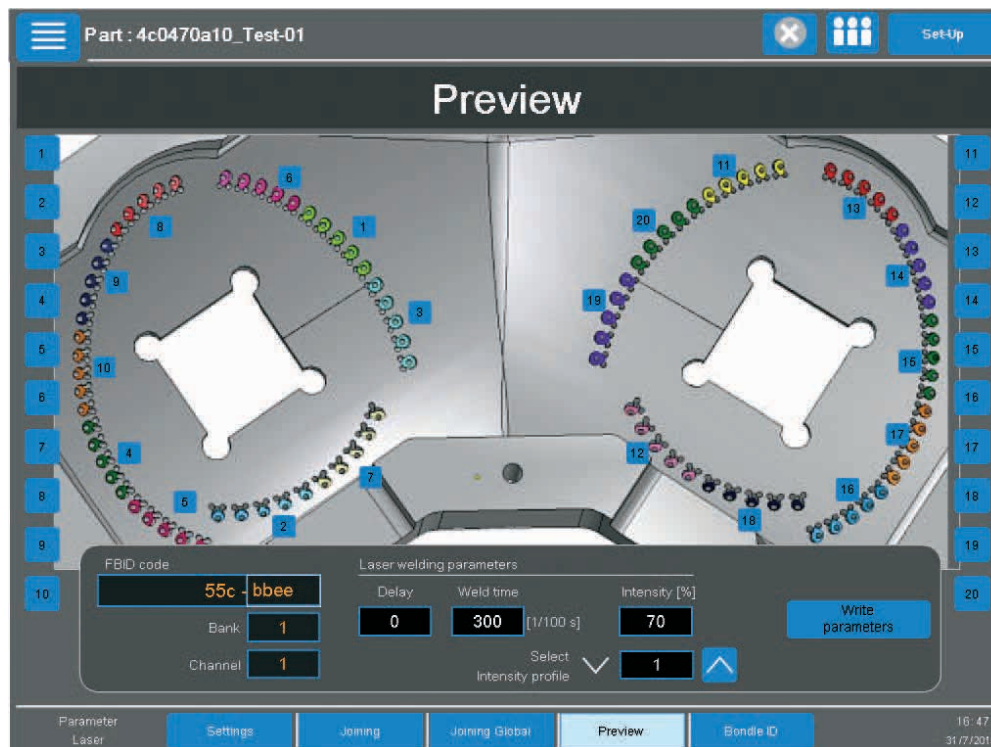


Simultaneous welding, combined with the Branson GLX servo lift table actuation technology results in a high-speed weld cycle that typically ranges from 0.5 to 5 seconds, depending on part material and geometric complexity.



Branson GLX Laser Series produces a strong, uniform, highly reliable weld in a fraction of the time, with less risk of rejects or surface imperfections creating better yield rates.

Increasing operator efficiency



Human centred design ensures the human-machine interface (HMI) offers intuitive machine function sequencing, using easily recognizable icons to improve operator efficiency.



Need help to choose, implement and optimize the right solution for your application, visit Emerson.com/en-us/automation/brands/branson/welding-joining-application-assistance



PROTECT and serve your workforce.

The safety and wellbeing of your workforce is essential. To support this, the Branson GLX Series is designed to the highest global standards (CE and ISO norms) for laser and machine safety. The mechanical features, laser diodes, fiber bundles and tools are fully contained in a Class 1 laser-safe enclosure. Double front doors contain 3.5mm thick laser-safe glass with a large viewing area. An integrated safety PLC coordinates machine functions, such as door, lift table, and tool actions.

What's your challenge?



"30.8 million working days lost in the UK due to musculoskeletal problems (including back pain, neck and upper limb problems), 22.4% of the total.
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What's your opportunity?

The Branson GLX adopts human centered design principles to help protect operators. For example, a low positioned lift table minimizes back strain.

Enhanced operational safety

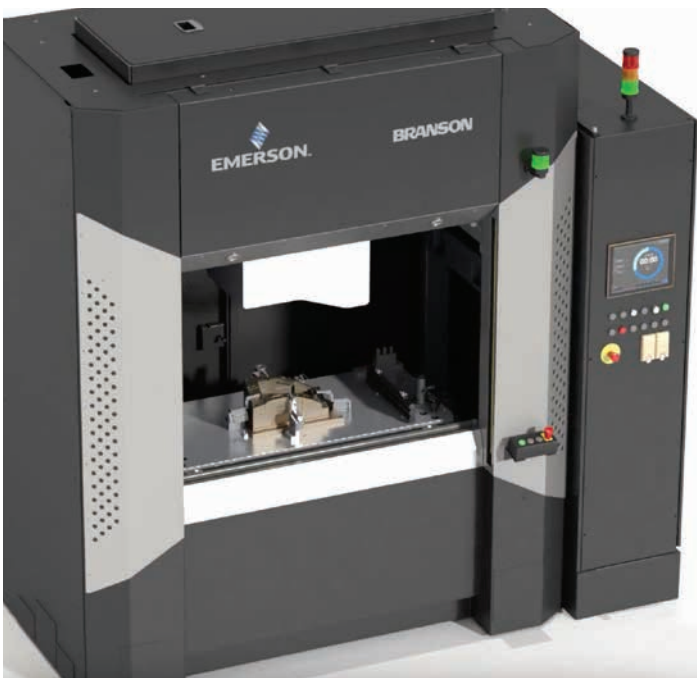


The GLX features built-in light curtains and safety strips as standard.



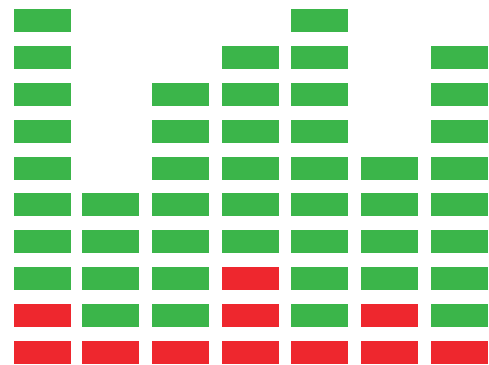
HMI stores up to 99 user profiles, which can be set with varying levels of accessibility to ensure only trained staff can operate the Branson GLX.

Improving the working environment



The lift table is positioned low to minimize potential back strain of workers.

Low 72dBA



Due to a lack of resonating metals, noise levels are dramatically lower, resulting in a quieter, more comfortable work space.



Need help to choose, implement and optimize the right solution for your application, visit [Emerson.com/en-us/automation/brands/branson/welding-joining-application-assistance](https://www.emerson.com/en-us/automation/brands/branson/welding-joining-application-assistance)

The Branson GLX Laser Series: Advanced, high-speed welding.



Greater welding performance

- Typical weld depths are 0.2-0.8 mm, but depths of 1.0 mm or greater are easily achievable.
- Highly repeatable and stable with assembly yield rates of greater than 99.5%.
- By applying force and energy simultaneously to the whole part, and controlling weld depth collapse, the resulting internal stresses in the part are lower.
- Surfaces with scratches or particles of debris may be welded. Normal plastic injection tooling processes are typically sufficient to make suitable parts.

Greater ease-of-use

- Machine function sequencing using easily recognizable icons.
- Tool map makes set-up, adjustments, and diagnostics easier.
- Nine languages available on the HMI.
- HMI stores up to 99 user profiles.
- 12" color touch screen HMI.

Branson GLX Laser Series overview

Simultaneous Through-Transmission Infrared (STTIr) laser welding technology has become the industry standard for high-quality, high-speed laser welding of plastic parts. Emerson has incorporated STTIr technology into the Branson GLX laser welding series. This provides greater weld quality and performance and higher yield rates. The ability to tolerate lesser quality plastics including scratches and debris enables less expensive plastic injection tools to be used, helping to reduce overall costs.

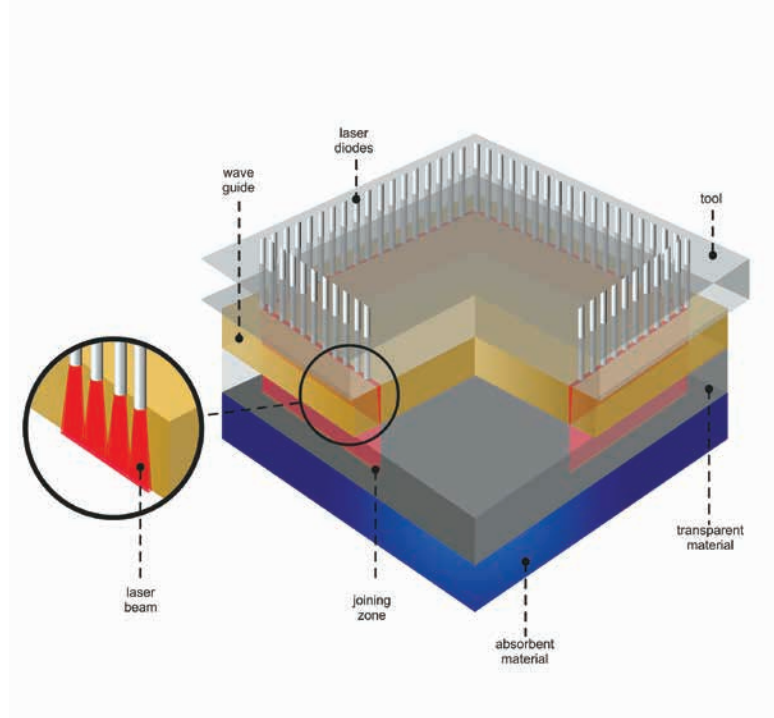
The Branson GLX also uses Human Centered Design to ensure greater ease-of-use for operators, which helps to reduce training and start-up times and enables changes to be made quickly.

[Emerson.com/en-us/automation/precision-welding-cleaning/laser-welding](https://www.emerson.com/en-us/automation/precision-welding-cleaning/laser-welding)

Branson STTlr laser welding technology

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

- STTlr illuminates the entire weld line simultaneously. This allows for weld times of 0.5 to 5 seconds. The technology is scalable to large parts without increasing the time.
- STTlr is less sensitive to part tolerances. Surfaces with scratches, particles or debris may be welded.
- STTlr is highly repeatable and stable, with common assembly yield rates greater than 99.5%.
- By applying force and energy simultaneously to the whole part, and controlling weld depth collapse, the resulting internal stresses in the part can be lower.
- Fibers and ferrules can be positioned in waveguides at almost any angle to create weld lines in three dimensions.



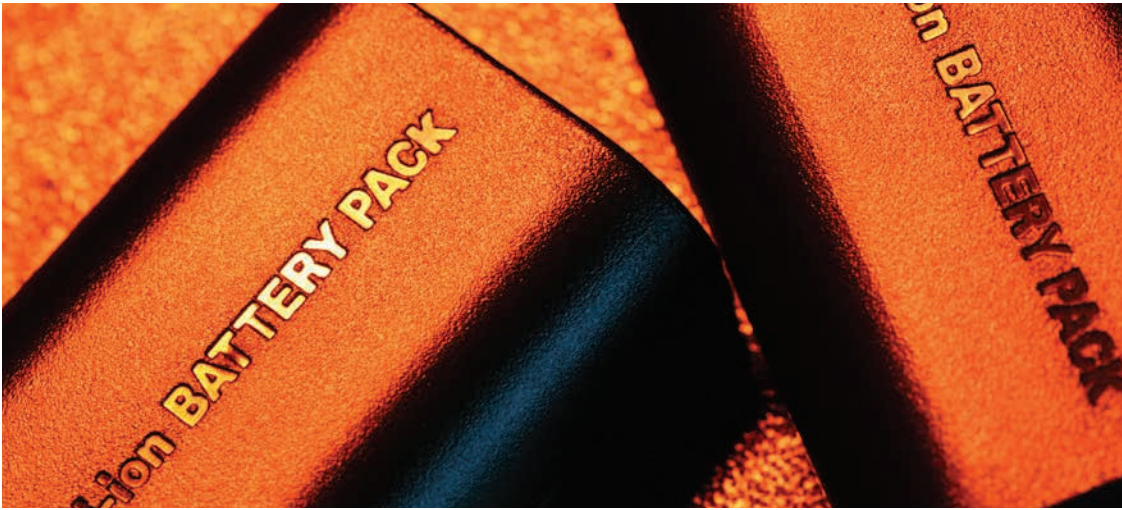
GLX Series Laser Welders



	GLX-4	GLX-3	GLX-2	GLX-1.5	GLX-Micro
Max. Clamp force	25kN	25kN	15kN	10kN	0.05kN
Table size	1770 x 600 mm	1333 x 600mm	1043 x 600mm	800 x 500mm	150 x 150mm
Lift table stroke	685mm	600mm	600mm	650mm	100mm
Tool change	Auto	Auto	Auto	Semi automatic	Manual

*Dimensions can differ due to switches, pneumatic input unit, rubber elements and tolerances. The contents of this publication are presented for information purposes only. We reserve the right to modify or improve the designs or specifications of our products at any time without notice.

Supporting greater design freedom
and production efficiency.



BRANSON™

The industry standard for high-quality, high-speed laser welding of plastic parts, the Branson GLX series provides greater application flexibility and throughput.

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