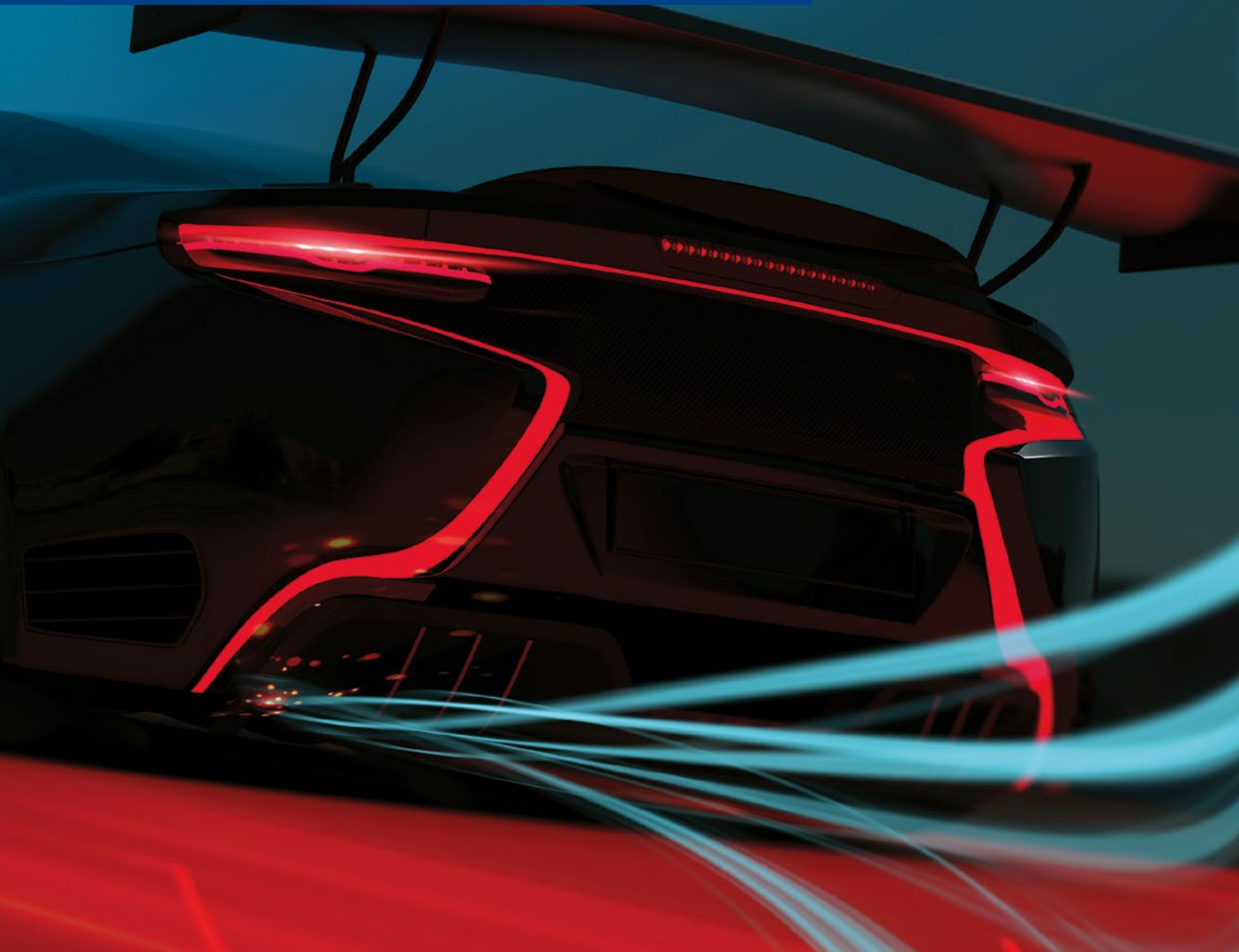


**Achieve greater design freedom and
increased production throughput.**



Branson™ GLX Laser Series

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

“Parts consolidation in automotive and other applications is creating larger parts with more complex geometries.”
– Mikell Knights, Senior Correspondent, Plastics Machinery Magazine



“Real-time data is creating the foundation of smart factories, starting with product quality. Improving cycle times and reducing scrapped parts by using real-time data to better troubleshoot and solve process, batch and machinery related problems.”
– Forbes



“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



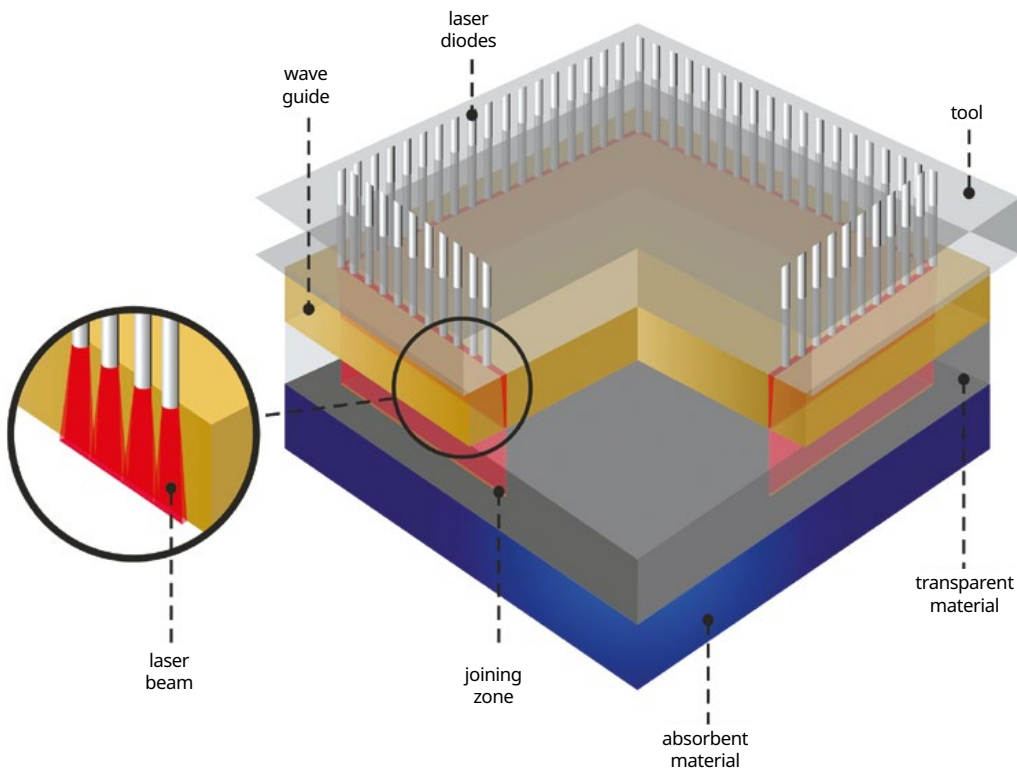
“With new firms entering the plastic part manufacturing industry at a high rate (4.4% per year), competition has intensified, leading to lowered prices and profits.”
– IBISWorld industry report





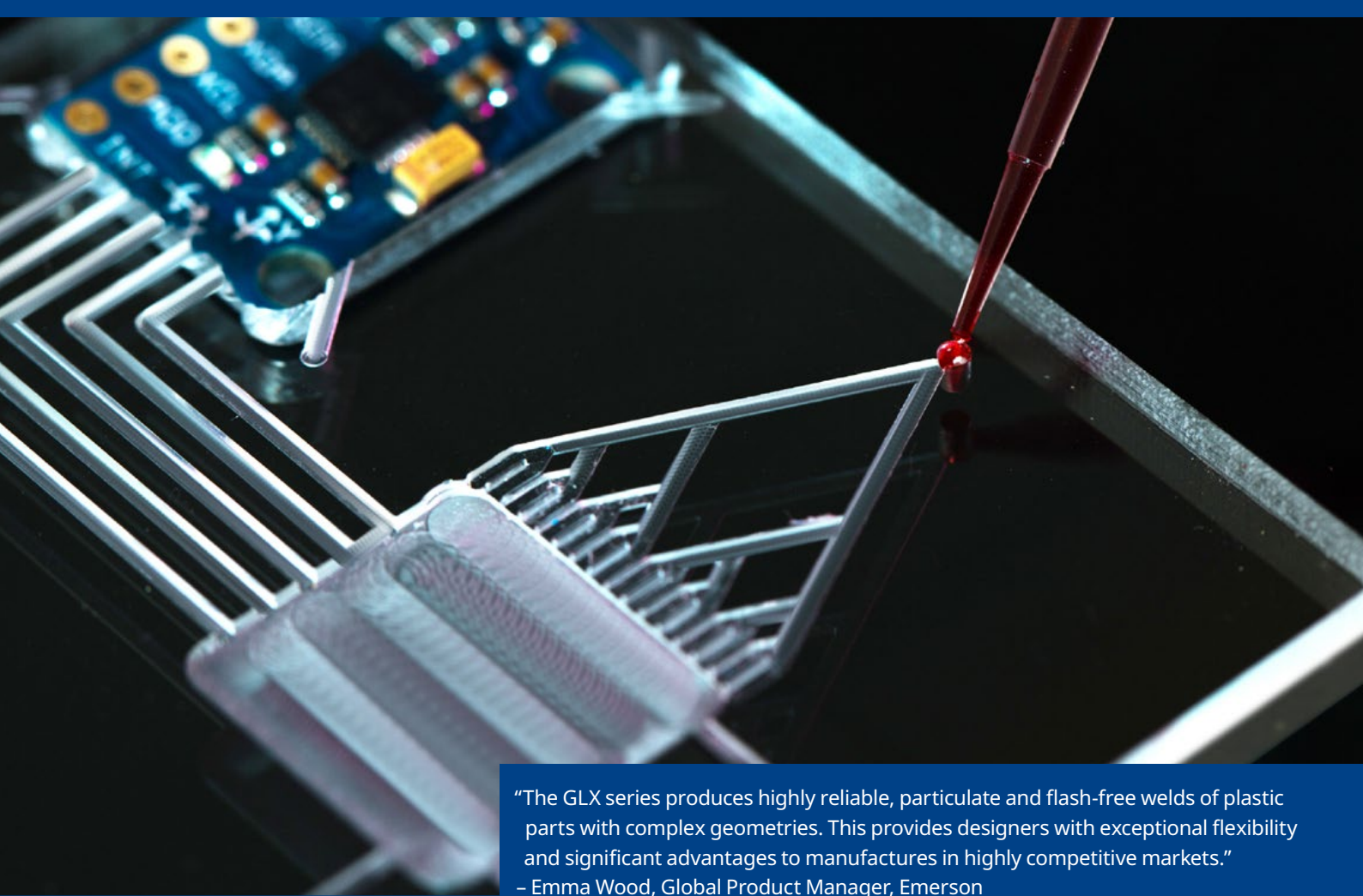
Instead of being constrained by the limitations for frictional welding, what if you could free your designer to shape a part in order to offer maximum aesthetic or functional performance?

Branson STTir® laser welding technology



The GLX series uses the patented Simultaneous Through-Transmission Infrared® (STTir®) welding process. With STTir, 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.

- STTir 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.
- STTir is less sensitive to part tolerances. Surfaces with scratches, particles or debris may be welded.
- STTir 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.



“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.”
– Emma Wood, Global Product Manager, Emerson

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 electronics manufacturer

Flexibility ► p6

Get actionable machine performance data

“Access to welding machine performance data allows us to identify, in real time, if predefined production parameters and cycle parameters are not being reached, enabling us to take immediate steps that prevent waste and increase production efficiency.”

Data ► p8

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 ► p10

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 ► p12



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?



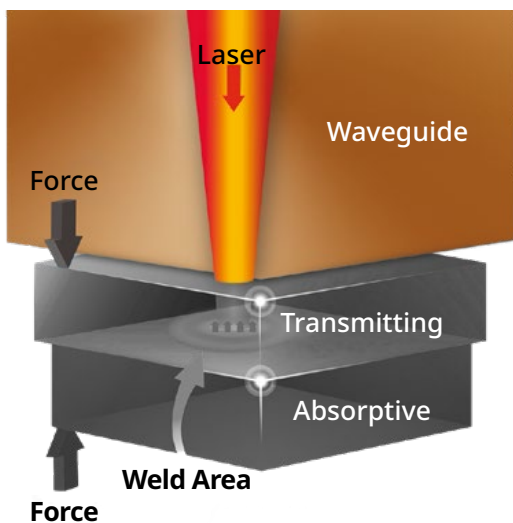
"Parts consolidation in automotive and other applications is creating larger parts with more complex geometries."
– Mikell Knights, Senior Correspondent, Plastics Machinery Magazine

What's your opportunity?



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

Material	
• Polycarbonate	• Xenoy (Polyester/PC blend)
• Nylon	• Acrylic
• Nylon 66	• Urethane
• Nylon 6	• PC/ABS
• Acetal	• Ultem
• ABS	• Polypropylene
• PEEK	• LDPE & HDPE
• Styrene	• AES
• POM	• TPE
• PBT	• TPU
• PPS	• COC's
• EVA	



Branson laser welding technology is suitable for a larger variety of polymer materials than other welding methods.



Need help to choose, implement and optimize the right solution for your application, visit Emerson.com/Branson



Get visibility of machine performance.

The lack of visibility of actionable machine data can hinder your operational efficiency, potentially affecting quality and production throughput. By facilitating access to real-time performance data, Emerson enables you to understand what is happening with individual machines as well as the interaction between multiple machines. IIoT solutions provide seamless transfer of actionable data to your manufacturing execution system (MES). This enables you to monitor that machines and production cycles are operating within desired parameters and address issues quicker, helping to maximize operational efficiency and expected return on investment.

What's your challenge?



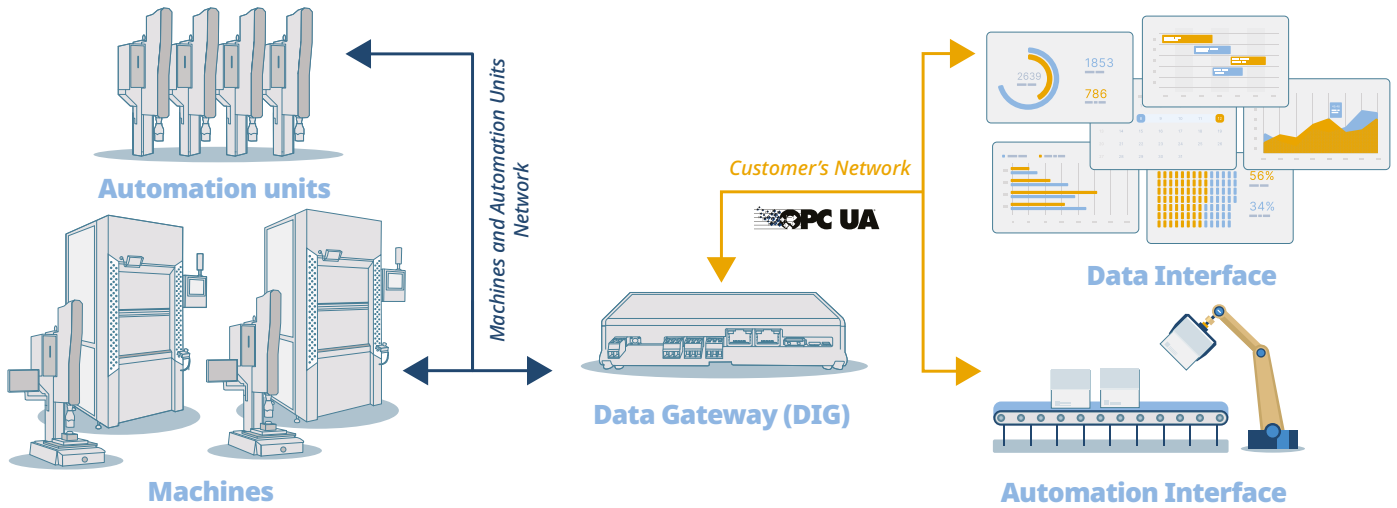
"Real-time data is creating the foundation of smart factories, starting with product quality. Improving cycle times and reducing scrapped parts by using real-time data to better troubleshoot and solve process, batch and machinery related problems."
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What's your opportunity?



The ability to see, in real-time, whether machine and production cycle parameters are being attained enables rapid intervention that can contribute to less waste, lower costs and increased throughput.

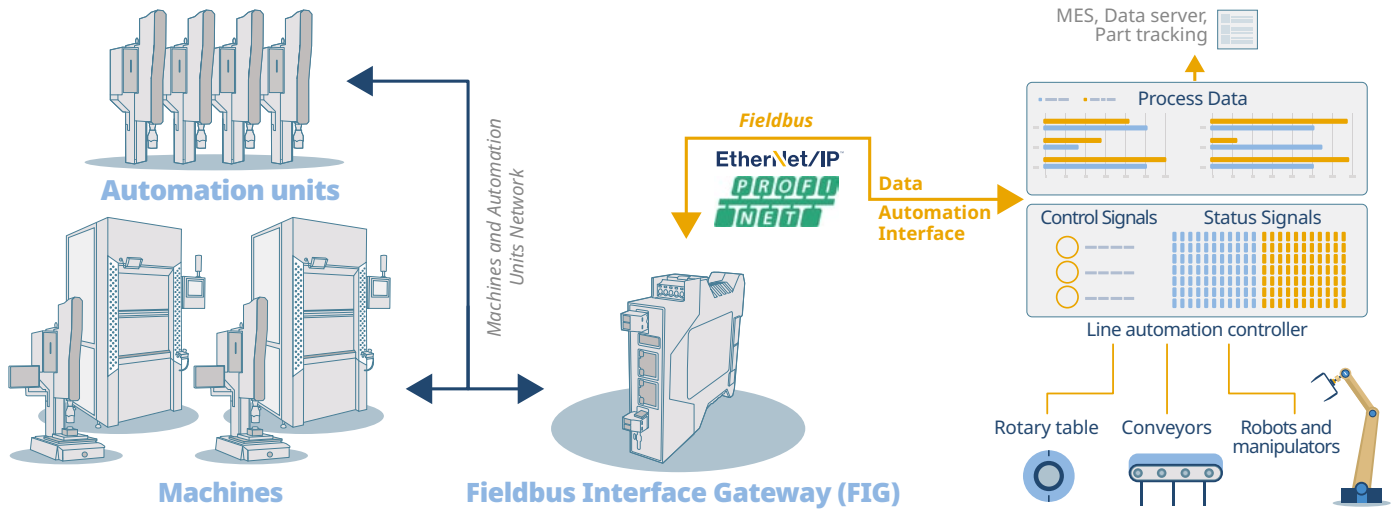
Connectivity and data access



Data Interface Gateway (DIG) provides the capability to securely and easily transfer weld and system data from multiple systems to customer MES. DIG is designed with embedded proprietary software that allows for secure transmission of weld data in accordance with OPC-UA protocol. OPC-UA is a machine to machine communication protocol for industrial automation.

Key features

- Configurable and easy data transfer to MES
- OPC-UA protocol
- Allows for flexible data storage
- Secure data transfer
- Compatible with Branson technologies
- Up to ten connected devices



Easily connect Branson equipment to your network with Fieldbus Interface Gateway (FIG), acting as a smart bridge between your machines and your automation systems. Built for seamless fieldbus communication, FIG simplifies integration with MES platforms and other interfaces, ensuring smooth, reliable data flow across your operation.

Key features

- FIG is engineered to manage and control up to 10 welding machines simultaneously, receiving crucial welding process values effortlessly through fieldbus technology
- With its intelligent design, FIG automatically detects connected machines, streamlines automation interface commands, and provides real-time status and process data directly to your line automation controller
- Experience unparalleled connectivity and control with the FIG – optimizing your network communication and elevating operational efficiency

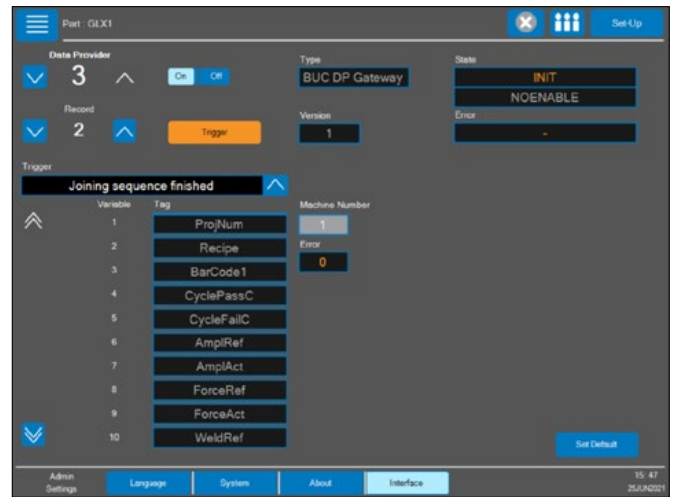


Need help to choose, implement and optimize the right solution for your application, visit Emerson.com/Branson

Complete all steps in the process



Emerson project support and consulting help you design, implement and operate the most effective material-joining solutions for your specific needs.



Intuitive and ergonomic user interface features simplify the set up process and allows customers to speed up their production processes.

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?



"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

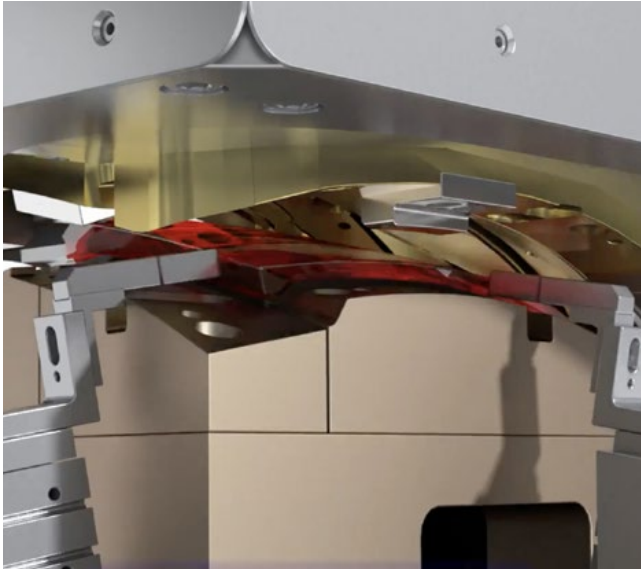
What's your opportunity?



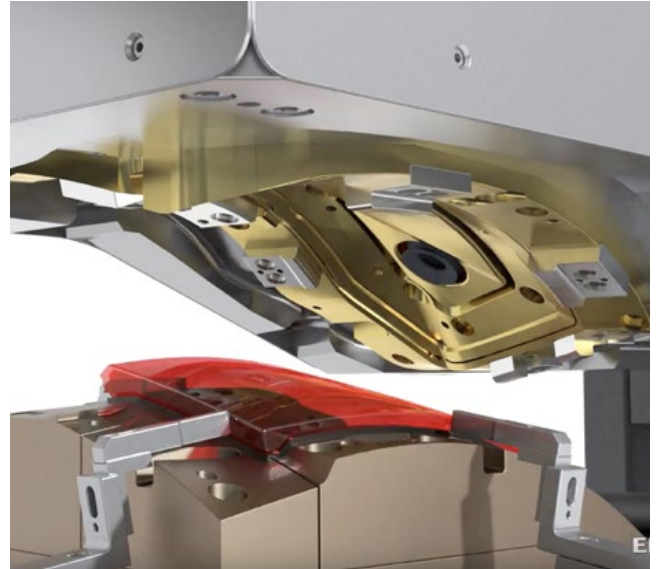
Barely visible, particulate-free weld lines created by Branson laser technology prevent downstream manufacturing complications and ensure superior aesthetics.



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/Branson](https://www.emerson.com/Branson)



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 STT_{Ir} 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?



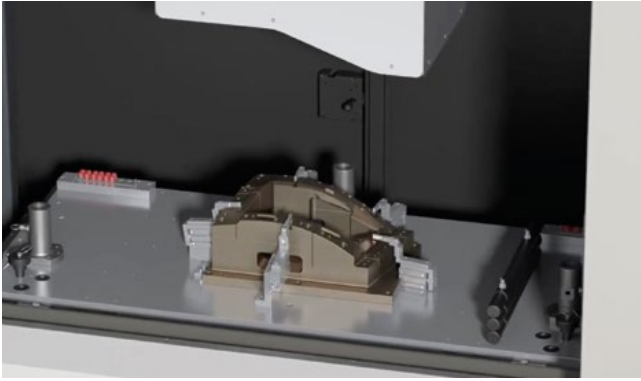
"With new firms entering the plastic part manufacturing industry at a high rate (4.4% per year), competition has intensified, leading to lowered prices and profits."
- IBISWorld industry report

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

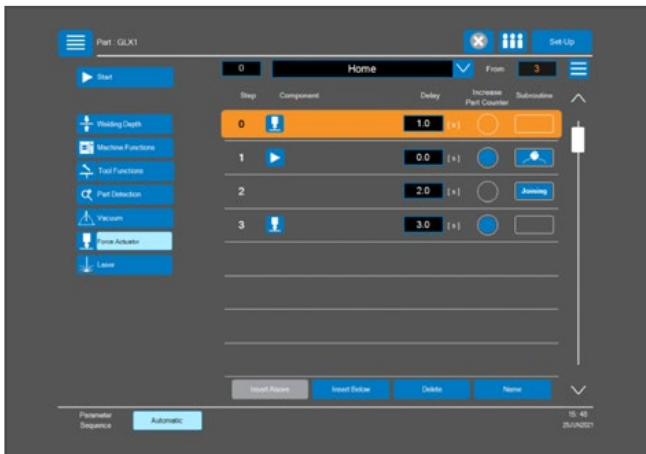


Simultaneous welding, combined with the Branson GLX servo lift table actuation technology results in a high-speed weld cycle that typically ranges from 0.5 to 5 seconds, depending on part material and geometric complexity.



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.

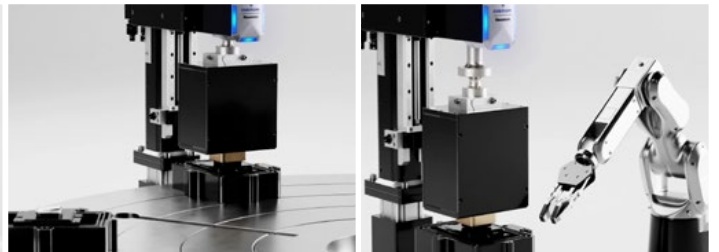
Flexibility to meet process needs



Scalable



Flexible



Multiple automation ready options that provide configuration flexibility during setup and production. Recognizable icons to improve operator efficiency.



Need help to choose, implement and optimize the right solution for your application, visit [Emerson.com/Branson](https://www.emerson.com/branson)

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 incorporating Emerson's patented Simultaneous Through-Transmission Infrared (STTir®) laser welding technology delivers superior weld strength and quality with exceptional speed and throughput. It provides particulate-free welds for intricate 3D parts, delicate components and embedded electronics and sensors. It also offers unmatched material compatibility and easily integrates into automated and pass-through operations, facilitating tool change to optimize performance. Human Centered Design helps to reduce training and start-up times and enables changes to be made quickly, while access to machine performance information helps provide actionable data that can support greater operational efficiency.

Greater welding performance

- Weld depths of 1.0 mm or greater easily achievable
- Assembly yield rates of greater than 99.5%
- STTir technology produces low internal stresses on parts
- Ability to tolerate lesser quality plastics

Greater ease-of-use

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

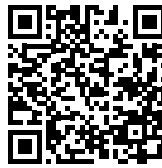
GLX Series Laser Welders

GLX-AS & GLX-AP



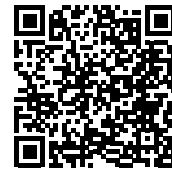
- **Laser energy:** Configurable, 50W-500W
- **Actuation:** Pneumatic or Servo
- **Data Interface:** Data Interface Gateway (OPC-UA), Fieldbus Interface Gateway (Ethernet/IP, Profinet, other on request), Digital I/O

GLX-1



- **Laser energy:** Configurable, 50W-500W
- **Data Interface:** USB, optional (OPC-UA, Fieldbus)
- **Maximum clamp force:** Dependent on Servo or Pneumatic Actuator selection
- **Table size:** 360 x 314mm

GLX-1.5



- **Laser energy delivered to weld line:** Up to 2000 W
- **Data Interface:** USB, optional (OPC-UA)
- **Maximum clamp force:** 10KN
- **Table size:** 800 x 500mm
- **Lift table stroke:** 650mm
- **Tool change:** Semi automatic

GLX-3



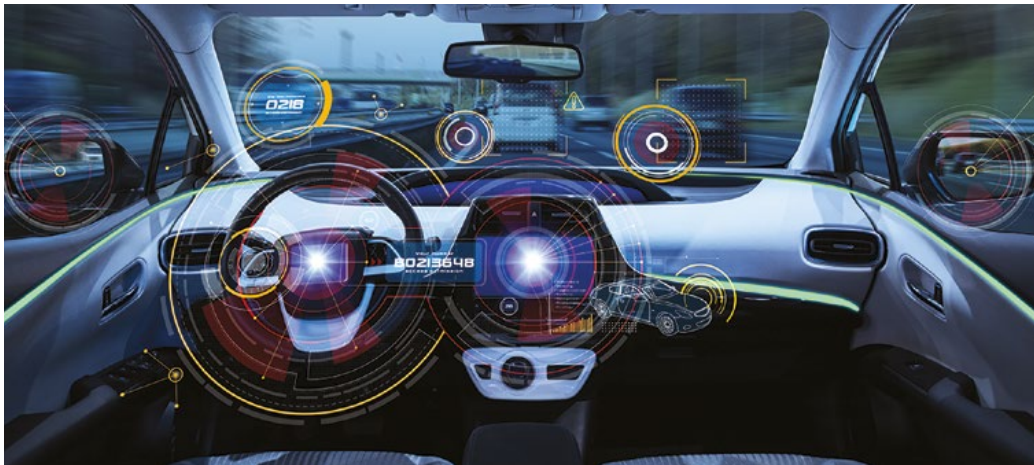
- **Laser energy delivered to weld line:** Up to 4000 W
- **Data Interface:** USB, optional (OPC-UA)
- **Maximum clamp force:** 25KN
- **Table size:** 1333 x 600mm
- **Lift table stroke:** 600mm
- **Tool change:** Auto

GLX-4



- **Laser energy delivered to weld line:** Up to 5000 W
- **Data Interface:** USB, optional (OPC-UA)
- **Maximum clamp force:** 25KN
- **Table size:** 1770 x 600mm
- **Lift table stroke:** 685mm
- **Tool change:** Auto

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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