

A photograph of an industrial ultrasonic welding machine. The machine features four vertical welding heads in a row, each with a silver and blue design and the Emerson Branson logo. The heads are positioned over a circular worktable with a grid of small white plastic caps. In the background, there are control panels with blue indicator lights and the Emerson Branson logo. The overall scene is brightly lit, suggesting a clean industrial environment.

Meet Project Timelines, Ensure  
Product Quality And Deliver  
Expected Return On Investment

## Branson GSX Ultrasonic Welding Platform

Meet your critical plastic part assembly challenges with precise control for faster, repeatable high quality welds



## Despite stretched resources, you still need faster development of product lines that deliver the required functionality and quality.

Getting a product line to market isn't easy; you must uphold quality standards, adhere to stringent regulations, and ensure expected return on investment. Inferior manufacturing equipment and inefficient processes cause delays to product development. This impacts the go-to-market business plan, compromising new product functions and differentiation, and ultimately profits. Poorly performing and inflexible equipment also affects a production line throughout its lifecycle. Suboptimal processes result in serious quality issues, excess scrappage and increased operating costs. This is especially true when it comes to material-joining equipment. Stretched resources and a lack of application know-how only compounds the problem. To remain competitive, you must address all these issues when designing your production line.

"For many industries – especially consumer electronics – the trend of shortening product lifespans is adding pressure on R&D teams to reduce product development times."  
– Current Scientific and Industrial Reality: Proceedings of the TRIZ-Future Conference, 2007.



"The medical device industry's direct cost of quality equals **\$26–36 billion** annually, with about two thirds of that cost resulting from poor quality."  
– Fuhr, Ted; Makarova, Evgeniya; Silverman, Steve; and Telpis, Vanya. McKinsey Publishing, 2017.



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Instead of inferior equipment and inefficient processes jeopardizing your product line, what if you could meet your timelines, ensure weld quality and deliver your product's expected return on investment?

## The Branson GSX Series Ultrasonic Welding Platform delivers enhanced control and insight for increased production throughput.



The Branson GSX Series Ultrasonic Welding Platform enables you to meet your project demands and timelines, achieve consistent quality, and maximize operational efficiency to ensure the expected return on investment for your project. Flexible and highly configurable solutions that feature easy-to-use, smart welding technology get your product to market, on time and on budget. Improved control and position accuracy ensures that you achieve consistent, faster, high quality welds for a wide range of plastic parts, even for the most challenging applications, while embedded expertise simplifies operation, improves production efficiency and reduces labor and operating costs.

**BRANSON™**



**“The Branson GSX Welding Platform helps bridge the knowledge gap between rapidly advancing technology and inexperienced operators so that your project can get started faster and experience fewer operational issues.”**  
– Kerry Harrington, Ultrasonics Global Product Manager, Emerson

## Don't allow your technology to affect project timelines

Fully committed to a new container design for its blender and gearing up to fill a large order, Blendtec discovered the horns of its Branson ultrasonic welder needed modification to properly seal the container. Emerson responded immediately, making the necessary adjustments within hours, enabling full production to start and the shipment deadline to be met.

[Project Timelines ▶ p6](#)

## Have the flexibility to meet the needs of your process

A Utah medical manufacturer developing a new microfiltration device was unable to successfully seal a delicate filter membrane to its plastic housing during testing. Emerson designed tailored process parameters and maximized the effectiveness of high-frequency ultrasonic welding. This ensured consistent, repeatable, 360° hermetic seals that withstand the demands of high-volume production and a shortened cycle time, which lower production costs.

[Investment ▶ p10](#)

## Ensure the right weld quality, every time

Branson ultrasonic welding technology is helping Yumbutter to seal its YumbutterGO pouches by displacing product and forming a quick, strong bond. The solution provides consistent weld integrity, critical not only in production and at retail, but also to withstand rough handling during use.

[Quality ▶ p8](#)



## Meet project demands and timelines.

Expectations for your product line continue to grow, but inefficient equipment, and limited resources and expertise threaten your ability to meet project demands and timelines. The Branson GSX Ultrasonic Welding Platform offers a highly configurable system, designed and customized to meet your specific plastic joining needs, helping you to transform your ideas into realities while still respecting your budgetary considerations. Better welds and fewer rejects can be achieved through enhanced process control, so that you can increase production efficiency. The modular architecture of the Branson GSX Platform enables Emerson to offer faster build and delivery times, keeping you on schedule. Intuitive Human Machine Interface (HMI) and smart-welding features make it easy to operate and with full access to Emerson's project support services you can ensure your product gets to market, on time and on budget.

### What's your challenge?



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### What's your opportunity?

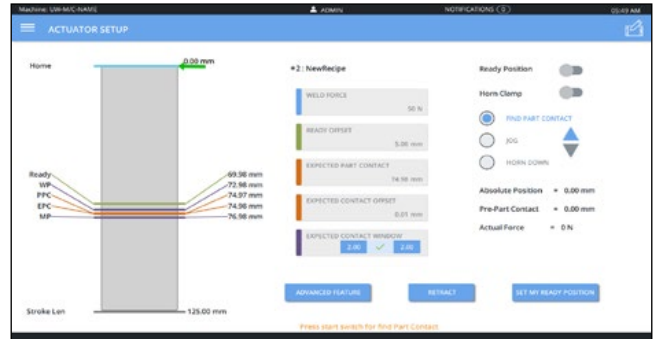


Industry-best lead times help to maintain project timelines. Configurable software and hardware provide flexibility before and after installation within a production line.

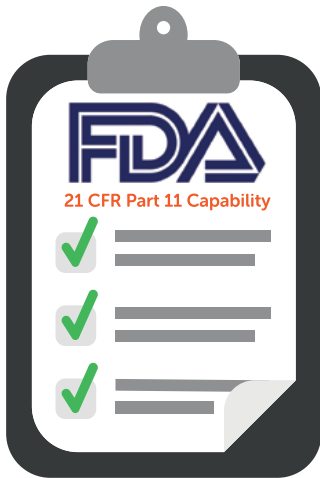
## Complete all steps in the process



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



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



**Sound data management provided by the FDA 21 CFR Part 11 capability gives customers peace of mind. Benefits include:**

### Audit trails

- Greater traceability of events and changes to events
- Data capture and retention of every single weld
- Data output in electronic and non-editable formats (such as PDF) to ensure data integrity and authenticity

### User Access Authorization and Welder Security

- Four levels of user authorization plus configurable privileges for operators
- Automatic disabling of user account after multiple incorrect Login attempts
- Unlimited number of users with validated recipes

### Data and Weld History Retention

- Best in class standard storage offering of 200,000 weld results
- 1,000 weld graphs

FDA 21 CFR Part 11 Capability comes standard with the GSX-Elite Precision Series.

## Meet expectations with available resources



Advanced Actuation System with Advanced Software options delivers tiered offerings and customization ensures correct solution for needs, within budget and without settling for a suboptimal process or design.



Global network of dedicated experts providing first class support and advice from facilities in 70 countries, including 12 main labs and 29 regional technical centres keep your project on target.



To select the right joining solution for your application, visit [Emerson.com/Branson](http://Emerson.com/Branson)



## Consistently achieve quality welds across a wide range of parts and applications.

Increasingly complex product designs and manufacturing demands, variability of materials and diminishing skilled labor threaten your ability to ensure the quality of your product line. It is essential to employ the right technologies, especially joining equipment, to meet these challenges and prevent costly rejects and recalls. The Branson GSX Ultrasonic Welding Multi-tiered advanced actuation system utilizes an electro-mechanical advanced actuation system for the GSX-Elite Precision series to provide unprecedented control and position accuracy, whilst applying a low trigger force for precise ultrasonic welds of small, delicate components. The Branson GSX Platform has the capability to weld across multiple parameters, monitored in real-time, to ensure quality welds across a wide variety of input materials, repeatable across welders. Smart-welding technology and intuitive HMIs enable easier set-up, operation and changeover to help reduce operator error and prevent potential rejects.

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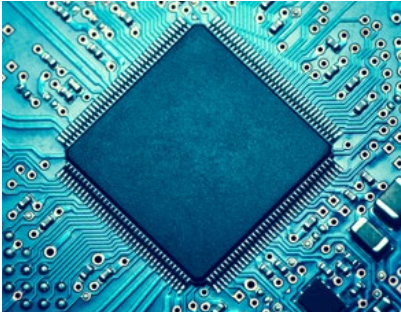
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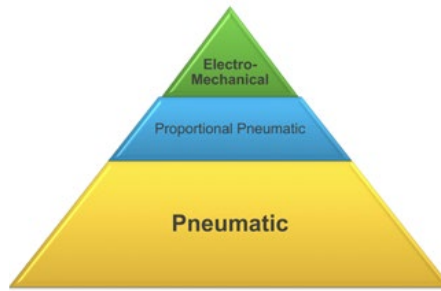
The GSX Platform delivers best-in-class production quality achieved through improved repeatability and embedded software capabilities that use predefined process parameters to identify substandard parts.



## Deliver consistent accurate performance



Multicore processor and best-in-class resolution of linear encoder drives advanced actuation system with closed loop amplitude control that provides enhanced welding control.



Multi-tiered advanced actuation system produces low trigger force enabling joining of small, fragile or thin film components.



Repeatability and advanced actuation system ensures repeatable welds and weld performance across multiple welders.

## Accommodate wide range of variability of parts



Electro-mechanical advanced actuation system, available with the Branson GSX-Elite precision series, instantaneously adjusts based on real-time feedback. This improves accuracy across a wide range of applications and components (closed loop).



Multiple weld modes with new Dynamic Mode ensure quality welds for a wide range of parts by applying multiple parameters to control each welding process.

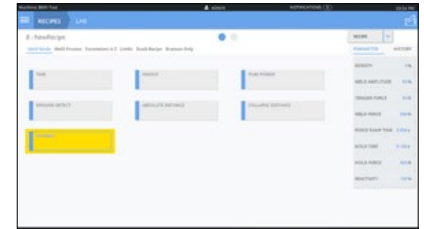
## Overcome lack of process maintenance and operations knowledge



Intuitive HMI with touchscreen display located directly in operator's line of sight ensures operators always have access to critical, actionable weld data.



Optional software packages offering enhanced features and based on customer needs simplify operations, prevent errors and ensure weld quality and throughput.



New Dynamic Mode delivers an intelligent and adaptive weld mode solution that enables the welder to adjust key parameters in real time which can optimize part quality without external sensors or devices during weld applications such as insertion, staking, swaging and other operations.



To select the right joining solution for your application, visit [Emerson.com/Branson](http://Emerson.com/Branson)



## Deliver the expected return on investment for your project.

Rising labor costs, operating and process inefficiencies and inflexible equipment threaten your product line's expected return on investment. The Branson GSX Ultrasonic Welding Platform helps to overcome these challenges by simplifying set-up, operation and changeovers, creating easy-to-use technology requiring less extensive operator training to execute quality welds. When production is ramped up, the modular Branson GSX Platform can be cost-effectively expanded. By ensuring reliable and repeatable welds across multiple welders this minimizes operational costs by preventing rejects and scrap and maximizes throughput. The Branson GSX Platform features a multi-tiered advanced actuation system, with the GSX-Elite precision series offering an electro-mechanical actuation system which eliminates the need to frequently replace cylinders, reducing maintenance costs and extending production availability. The ability to easily achieve consistent quality welds across a wide variety of parts provides the manufacturing flexibility required to meet and benefit from changing market demands.

### What's your challenge?



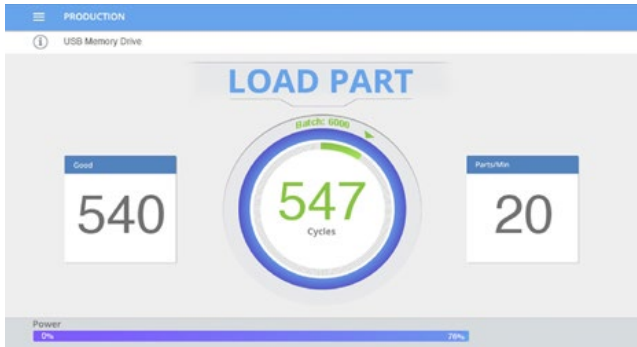
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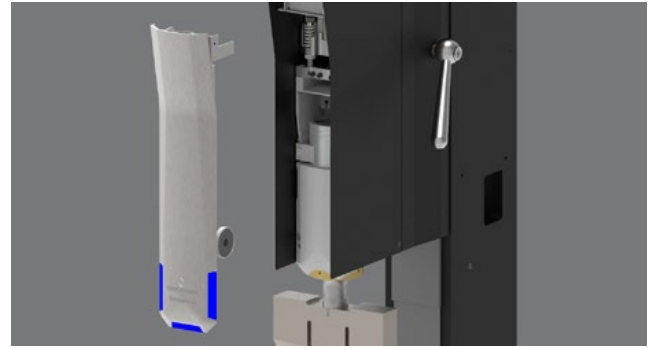


Utilizing Emerson's extensive expertise and over 70 years of welding experience, the GSX Platform has been ergonomically designed to simplify usability, improve production performance and maximize profitability.

## Minimize labor costs



Smart-welding features simplify user interaction, set-up and operation helping to reduce training costs and time to break down and restart applications.



Quick Stack Exchange reduces time to set-up and makes tooling changes less than 5 minutes with easy alignment and zero cable connections.

## Reduce operating costs



Electro-mechanical actuation improves weld repeatability, reduces rejects, and increases system reliability by eliminating the need to replace cylinders.

## Flexibility to meet process needs



Multiple automation ready options that provide configuration flexibility during setup and production.

Tiered portfolio of ultrasonic products within the GSX Platform ensure you implement a joining solution that meets your needs and doesn't exceed your budget.

Modular Software Architecture ensures you can cost-effectively expand your system capability as necessary to accommodate late-stage changes.



To select the right joining solution for your application, visit [Emerson.com/Branson](https://Emerson.com/Branson)

# The Branson GSX Ultrasonic Welding Platform: Optimize and ensure quality welds.



## Flexibility

- Modular architecture provides application flexibility
- Configuration options to suit specific customer needs
- Modular Software Architecture
- Compatible with a wide range of tooling (boosters & converters)

## Repeatability

- Smart software and controls, such as actuator motion control, aligned with NIST calibration regulations, deliver greater repeatability from machine to machine
- Choice of welding parameters and actuation modes

## Precise control

- Patented servo drive, optimized software and Dynamic Follow-Through improve precision accuracy
- Low trigger force

## Size and Modularity

- Slimmest actuator size with modular connectivity delivers easy integration into automation environments

## Connectivity

- Connect to PLCs to control weld process, set up weld parameters, obtain real-time data or previous-cycle data remotely

## Branson GSX Ultrasonic Welding Platform overview

Over 75 years of ultrasonic application experience has been leveraged to design the Branson GSX Ultrasonic Welding Platform. The Branson GSX is a highly configurable, modular welding solution for executing precise, repeatable welds across a wide variety of smaller plastic parts and applications. At the heart of the Branson GSX Platform is a new Electro-Mechanical Advanced Actuation System. This combines Emerson's application experience, a servo-mechanism, software optimisation and Branson proprietary dynamic follow-through to

ensure weld precision and control. The advanced actuation system enables the Branson GSX Platform to provide unprecedented control and position accuracy, applying a wide range of trigger forces, for consistent high-quality welds of very fragile and intricate components. The bottom line: the Branson GSX Platform is the most advanced and intuitive flexible joining solution designed to optimize and ensure quality welds, while meeting project timelines and delivering expected return on investment. [Emerson.com/Branson](https://www.emerson.com/Branson)

## System configuration

### Efficient production speed and volume



- **Standalone** benchtop system

### Faster production speed and volume



- **Semi-automated** manufacturing line

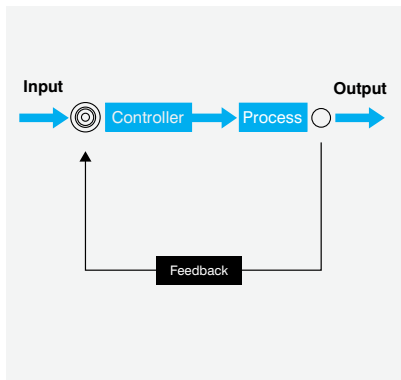
### Fastest and most efficient production speed and volume



- **Fully-automated** manufacturing line

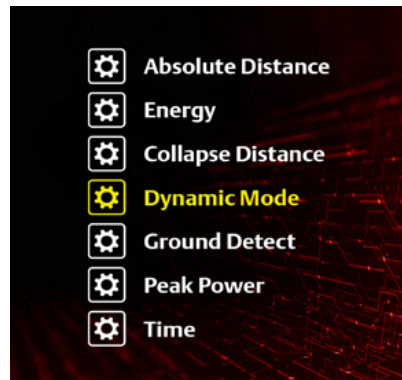
## Weld adjustment

### Closed loop distance and force control



- Multicore processor in power supply and linear encoder drive provides instant adjustment based on real-time feedback

### Welding modes



- Up to 7 different weld modes

### Precise welding performance

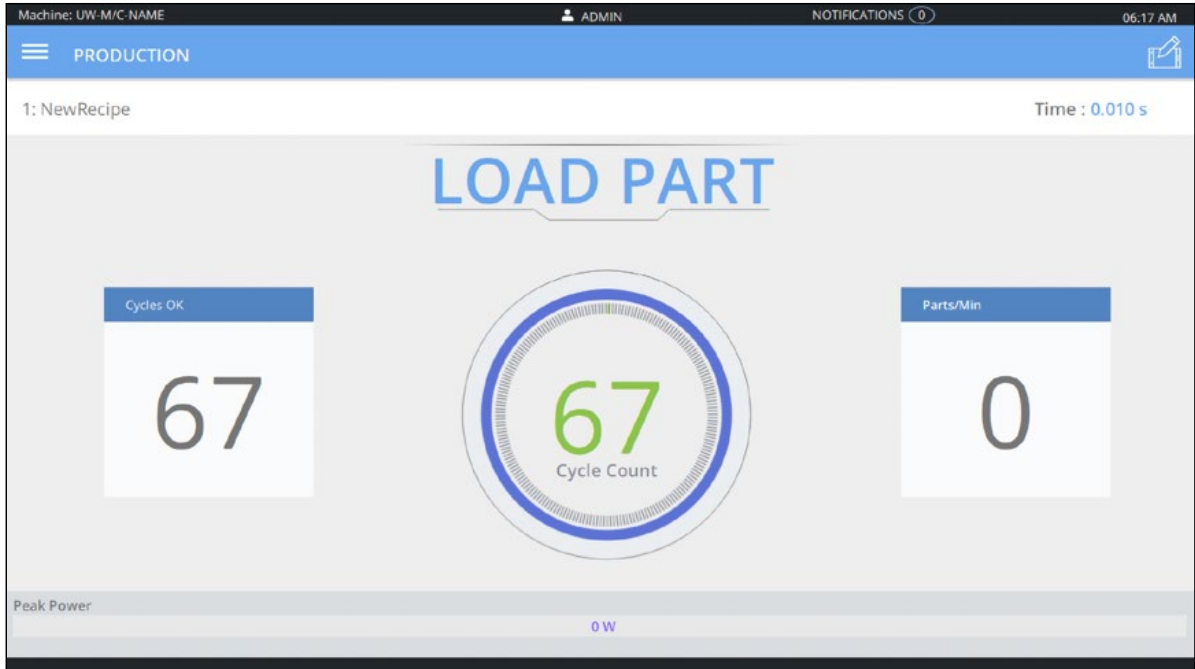


- Adjustable down speed control with energy and force profiling during a weld are key benefits of the electro-mechanical advanced actuation technology

## Actuation force

Force Range	Stroke Length (mm/in.)	Minimum Trigger Force (N/lb.)	Max Force (N/lb.)
Ultra Low – High	125 mm / ~5 in.	5N/1lb.	2500N/562 lbs.

# The Branson GSX Ultrasonic Welding Platform: Improved operational insight and performance.



## Operator user interface overview

Potential skills gaps caused by a loss of operator experience and expertise are met by the Branson GSX Platform using intuitive software that helps to simplify set-up procedures and provide workers with immediate access to critical weld information. Operational data is also easily accessible and viewable in a multi graph format, helping decision-makers analyze operator performance and trends. Using digital connectivity, the GSX Platform is Industry 4.0 ready, which enables operational and diagnostic information to be securely accessed by authorised experts. [Emerson.com/Branson](https://www.emerson.com/Branson)



## INDUSTRY 4.0

### Industry 4.0 ready

By providing easy integration into a digital environment and standardized transfer of relevant data, the Branson GSX Platform is Industry 4.0/IIoT-enabled. This supports access to operational performance and system health data.

**Data management:** Advanced data management tools, including configurable streaming and remote monitoring

**Actionable insights:** Increased traceability and production and maintenance improvements

**Automation capability:** Discrete I/O interface with configurable ready and home position

**Industrial Communication:** Remote control through PLC using Industrial Ethernet protocols

## Connectivity and data access



- Digital I/O, USB and Ethernet ports



- Web Services provides the most secure data transfer capability across industry using authentication key
- Encrypted data transfer ensures data integrity and security



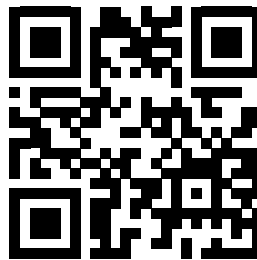
With Industrial Ethernet you can...

- Provide basic weld status in real time
- Provide basic cycle controls in real time
- Collect weld results at the end of each weld
- Change recipe parameters the recipe
- Improve automation start up

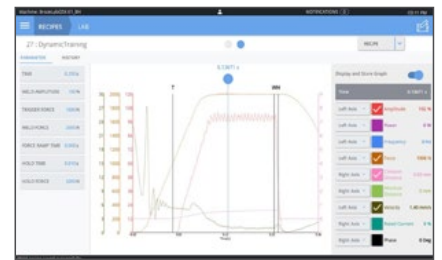
## Operator interface



- Intuitive software tools, such as the Position Tracking Ball (PTB), allows users to have complete access and control of their data at their fingertips



- Barcode and QR Code scanning of part ID adjusts welder accordingly without the need for manual modification



- Graphing overlay with Analytics, show up to 10 weld parameter graphs simultaneously, such as energy, power, velocity distance and force

## Compliance and security



**21 CFR Part 11  
capable**

- NIST compliant



- Four-level user authorization with programmable permission and protection
- Enhanced security through automatic user account disabled after multiple incorrect login attempts

**Consistently execute precise high quality welds across a variety of parts and applications.**



**BRANSON™**

With its ease-of-use, unprecedented control, accuracy and low trigger force, the Branson GSX Ultrasonic Welding Platform can optimize your process and ensure quality to enable your product to deliver the expected return on investment.

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