

Ultrasonic Plastic Welding Assembly Systems



Branson™ Series 2000Xc

Digital, Precise & Consistent, Plastics Welding Technology



Emerson Combines Precise And Consistent High Quality Welds with the Branson 2000X

The Branson 2000Xc ultrasonic assembly system combines precise and consistent high quality welds, fast cycle times, and the process control needs of today's manufacturing environment. The 2000Xc locks in the welding process with fully electronic welder settings, hierarchical password protection, and Ethernet connectivity access.

The system offers secure process controls and detailed weld data to meet the global compliance, traceability, and security needs of today's medical, automotive, business and consumer electronics markets.

The Branson 2000Xc can be adapted to automation systems or as a stand-alone complete system.



Standard Features

- Weld by time, energy, peak power, ground detect, collapse, or absolute
- Electronic programmable weld pressure, hold pressure, and down speed
- FDA 21 CFR part 11 capability
- Batch control and processing
- USB barcode for recording part Unique Device Identification or recalling presets
- 100,000 weld result histories stored
- Full VGA touch screen
- Four levels of assignable password hierarchy
- Three frequencies: 20, 30, and 40kHz
- Digital amplitude setting and amplitude stepping
- Weld pressure stepping
- Web Services Ethernet
- 1,000 weld recipe presets
- Multiple language choices
- Rapid Traverse actuator speeds
- Actuator dual down speed
- Copy weld history and other files to a PDF format

Process Controls

- **Multiple weld modes:** Weld by time, peak power, energy, distance (absolute and collapse), and ground detect.
- **Amplitude and/or Actuator Pressure Stepping** during weld for optimization of weld strength and appearance.
- **Electronic Settable Weld and Hold Pressures:** Separate hold and weld pressures can be set and stored in a weld recipe preset for process control security.
- **Electronic Settable Actuator Down Speed** can be set and stored in a 2000Xc weld recipe preset for process control and security.
- **Batch Control** for programming number of welds to run in a batch.
- **Barcode Scan** ability for recording Part ID and recalling weld presets.
- **1,000 Nameable Presets** for ease of setup and changeover of applications.
- **Preset recall:** Recall presets through I/O (31 available) or from USB barcode scan.



- **Automation Interface:** Available for direct hookup with PLCs or other automation controllers. Includes tool options such as part detect and part clamp.
- **Selectable Trigger method:** Trigger start by either force, distance, or pre-trigger of part.
- **Weld Results Screen** allows user to monitor key operating parameters.
- **Digital Ultrasonic Power Supply:** Provides amplitude regulation and control throughout the entire weld process. Digital Autotune with memory provides fully-automatic tuning and stores horn frequency at the end of each weld.
- **Password Protection** feature for lock-out of unauthorized operation or process changes (4 levels).

Track and Monitor the Weld Process and Data

- **Weld History and Retention:** Part ID, User ID, equipment serial number, and time and date stamp are recorded along with weld process characteristics. The last 100,000 welds are saved in a non-volatile memory. Weld history can be saved to a PDF file or downloaded from Web Services.
- **Audit Trails:** Event History records all changes made to the system configuration and validated weld presets along with a time stamp and user.
- **Authorized Access to the 2000Xc:** Users and passwords are created and saved in the 2000Xc along with the authority rights and active status. Four levels of authority and access ranging from basic operation to supervisor levels can be assigned to users of the 2000Xc.
- **Validation:** Weld recipe presets can be validated and locked assuring no unauthorized changes are made to a validated preset. Any authorized changes made are recorded in the Event History.

Communications

- **USB:** Two USB ports allow for a USB device such as a mouse, keyboard, flash drive and barcode scanner to be used with the system.
- **Ethernet:** Connect to a PC using Windows Remote Desktop or use Web Services for complete access to the 2000Xc for setup, configuration, and data collection.
- **External VGA Port:** Allows for the addition of a remote touch screen monitor to the system.
- **Automation Interface:** 44 pin I/O connector for control and status of the 2000Xc offers configurable I/O functions such as part present, part rejected and part clamped. With recall for up to 31 weld presents and discrete 24v level signals the I/O allows for the addition of customized configurations and controls.
- **Choice of Language for Message Display:** English, French, German, Italian, Spanish, Japanese, Korean, traditional and simplified Chinese.

Actuator

- **Electronic Settable Pressure and Down Speed:** All pressure and down speed settings are made at the 2000Xc controller and stored in a weld recipe preset.
- **Precision Electronic Regulator:** The linear and fast adjusting air pressure regulator delivers precise and consistent forces.

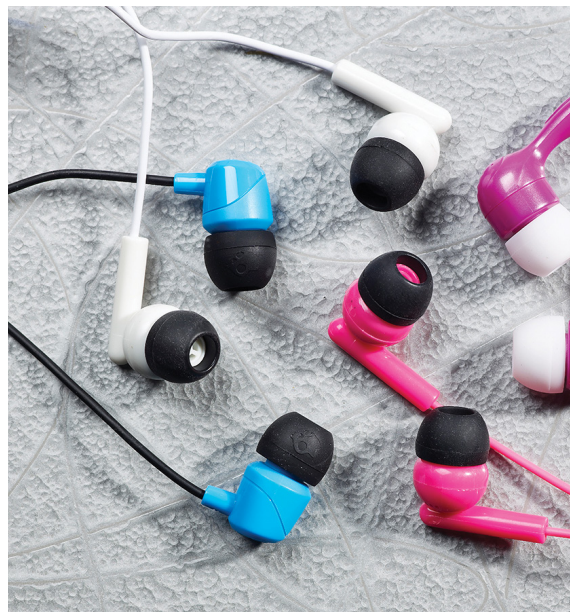


- **Rapid Traverse:** Dual down speed option for fast cycle rates.
- **Variable Dynamic Trigger** provides consistent weld quality by triggering ultrasonics after a preset force is applied to the part.
- **Dynamic Follow-Through** ensures the smooth efficient transmission of ultrasonic energy into the part by maintaining horn-part contact and force.
- **High Resolution Linear Encoder** measures weld collapse resolution up to 0.0001" or 2.5µm for critical part detection and precision weld results.



Available Options

- SPC Software
- Touch Screen Monitor
- Base-Mounted Leveling Plate for Horn/Fixture Part Alignment
- Solid Mount Boosters
- Longer Columns - 6' length
- Square Column
- Ground Detect Cable
- X-Port Data Collection



2000Xc Power Supply Specifications

2000Xc Power Supply	20:1.25	20:2.5	20:4.0	30:1.5	40.0.8
Output power:	1250 Watts	2500 Watts	4000 Watts	1500 Watts	800 Watts
Line voltage:	100-120V AC/200-240V AC 50/60 Hz	200-240V AC 50/60 Hz	220-240V AC 50/60 Hz	100-120V AC/200-240V AC 50/60 Hz	100-120V AC/200-240V AC 50/60 Hz
Maximum current:	14 /7 amps. max.	14 amps. max.	25 amps. max.	26/10 amps. max.	10/5 amps. max.
Frequency:	20 kHz	20 kHz	20 kHz	30 kHz	40 kHz
Maximum cycle rate:	80 cpm (application dependent)				
Ambient Temperature Range:	41-122° F (5-50° C)				





2000Xaec Actuator Model	1.5	2.0	2.5	3.0	3.3
Max. clamp force on part (at 100 psig/690 kPa) and 4" stroke	130 lbs. 578 N	270 lbs. 1.2 kN	440 lbs. 1.96 kN	640 lbs. 2.84 kN	770 lbs. 3.42 kN
Dynamic triggering range:	5 - 159 lbf. 22 - 707 N	5 - 282 lbf. 22 N - 1.25 kN	10 - 440 lbf. 44 N - 1.96 kN	10 - 636 lbf. 44 N - 2.83 kN	10 - 725 lbf. 44 N - 3.22 kN
Dynamic follow-through range:	5 - 159 lbf. 22 - 707 N	5 - 282 lbf. 22 N - 1.25 kN	10 - 350 lbf. 44 N - 1.56 kN	10 - 350 lbf. 44 N - 1.56 kN	10 - 350 lbf. 44 N - 1.56 kN
Stroke length:	4" (95 mm)				

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