



2000X d/aed 15kHz

PROCESS CONTROL:

- Multiple weld modes – weld by time, peak power, energy, distance (absolute and collapse), ground detect.
- Patented Amplitude Stepping for optimization of weld strength and appearance (Fig. 1)
- Built-in digital amplitude control for fine tuning of critical applications.
- True alarm messages for ease of troubleshooting, with links to additional information.
- Self-diagnostics and monitoring – visual, audible, and logic output alarms.

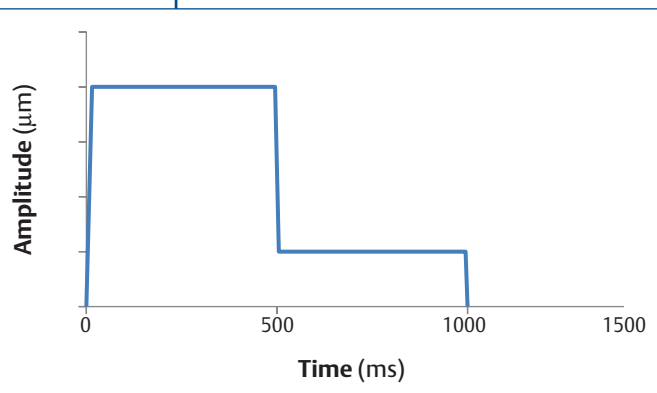


Fig. 1

- Built-in alarm and cycle counters to track production.
- Printing capability provides a record for future comparison and validation. Includes drivers for ESC/P and HPL drivers. Prints single line weld data and print setup, including overlaid color graphs.
- Sixteen nameable presets for ease of setup and changeover of applications.
- Selectable pretriggering auto, distance, and time.
- Password protection feature for lockout of unauthorized process changes once the equipment is set up for a specific application.
- Total cycle time can be displayed in weld results screen.
- Weld results screen allows user to monitor key operating parameters.
- VQSSM (Visual Quality Screen) provides real-time quality monitoring.



- **Programmable Starting Ramp** – Adjustable starting ramps from 10 milliseconds to 1.0 second to accommodate the starting characteristics of a wide range of horns. This feature makes it easier to start more difficult horns. When utilizing smaller horns, you can minimize the starting ramp reducing cycle times.
- **Energy Braking** – a controlled stoppage of the ultrasonic stack. This feature eliminates the traditional “ring down” of the stack creating a more consistent energy input into the parts. Small horns can actually be stopped faster, increasing throughput in high-speed automation.
- **Auto Seek** automatically measures stack frequency and stores it in memory. Five selectable Auto Seek choices are available.
- **Line/Load Regulation** – Corrects for variations due to power line fluctuations and varying load conditions through Branson’s patented closed-loop amplitude control. Output amplitude is maintained with a variation of only +2% with line voltage variations of a +10%, regardless of load, improving weld consistency (Fig. 2).
- **System Protection Monitor (SPM)** – Five levels of power supply protection are provided: 1) phasing, 2) over voltage, 3) over current, 4) over temperature 5) power.
- **Automation Interface** is available for direct hookup with PLCs and PCs. Required automation I/Os are provided through a 24V DC logic interface.
- **Total cycle time** can be displayed in weld results screen.

COMMUNICATIONS

- **Windows CE Operating System** – a fully-functional Windows program specifically designed for non-PC devices.
- **Ethernet** – permits easy access for networking the welder.
- **USB** – the addition of this port allows for any USB device to be linked to the unit, including mouse, memory sticks, printers, etc.
- **X-Net** – an embedded program that allows for remote monitoring and networking.
- **External VGA port** – allows for the addition of either a remote monitor or touch screen to the system.

USER INTERFACE

- **Full VGA touch screen.**
- **Simple navigation** through easy access touch keys.
- **Process graphing** with graph overlay capability – graphing of power, collapse distance, amplitude, force, velocity, and frequency.

- **PMC – Power Match Curve:** a feature that allows the user to develop a standard power graph, then set limits for process monitoring.
- **Choice of language for message display and printout** – English, French, German, Italian, Spanish, Japanese, Korean, traditional and simplified Chinese.
- **Two write-in fields** for additional setup information.
- **USB port** for data collection, mouse, printer, etc.
- **Horn signature graph** with comparison of up to three graphs.

TOTALLY DIGITAL POWER SUPPLY

- **True Digital Autotune with Memory (AT/M)** – Provides fully-automatic tuning and stores horn frequency at the end of each weld.
- **Total Amplitude Control** – Utilizing Branson’s digital power supply technology, you have complete control of amplitude throughout the weld cycle: programmable starting ramp, digital setting of weld amplitude or patented amplitude stepping, and energy braking.

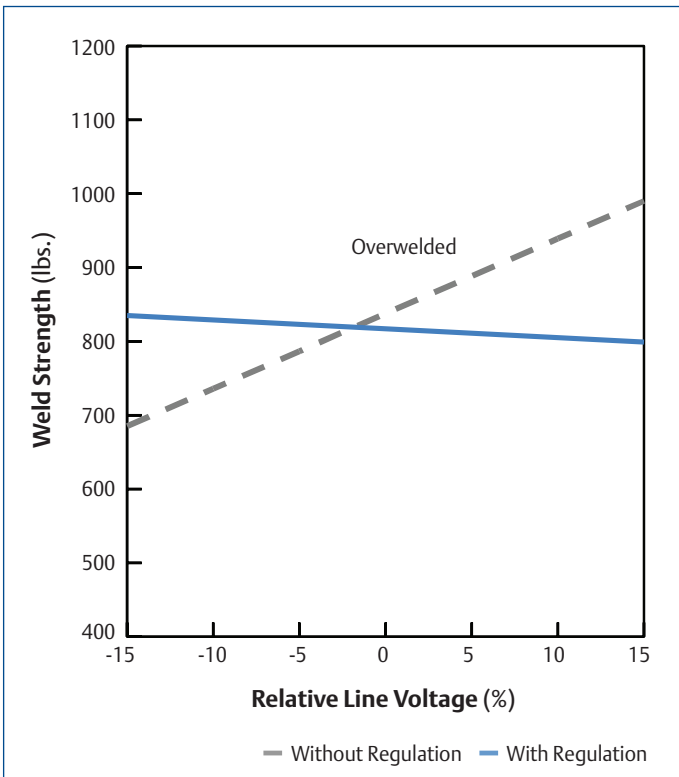


Fig. 2



Actuator

- **Settable pressure** and down speed.
- **Custom single-turn flow control** provides for more accurate setting of down speed and easier resetting during application changeover.
- **Variable Dynamic Triggering** provides consistent weld quality by triggering ultrasonic vibrations 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.
- **Enhanced ergonomics** – easily accessible controls on actuator with improved visibility.

Ultrasonic Welding

AVAILABLE OPTIONS

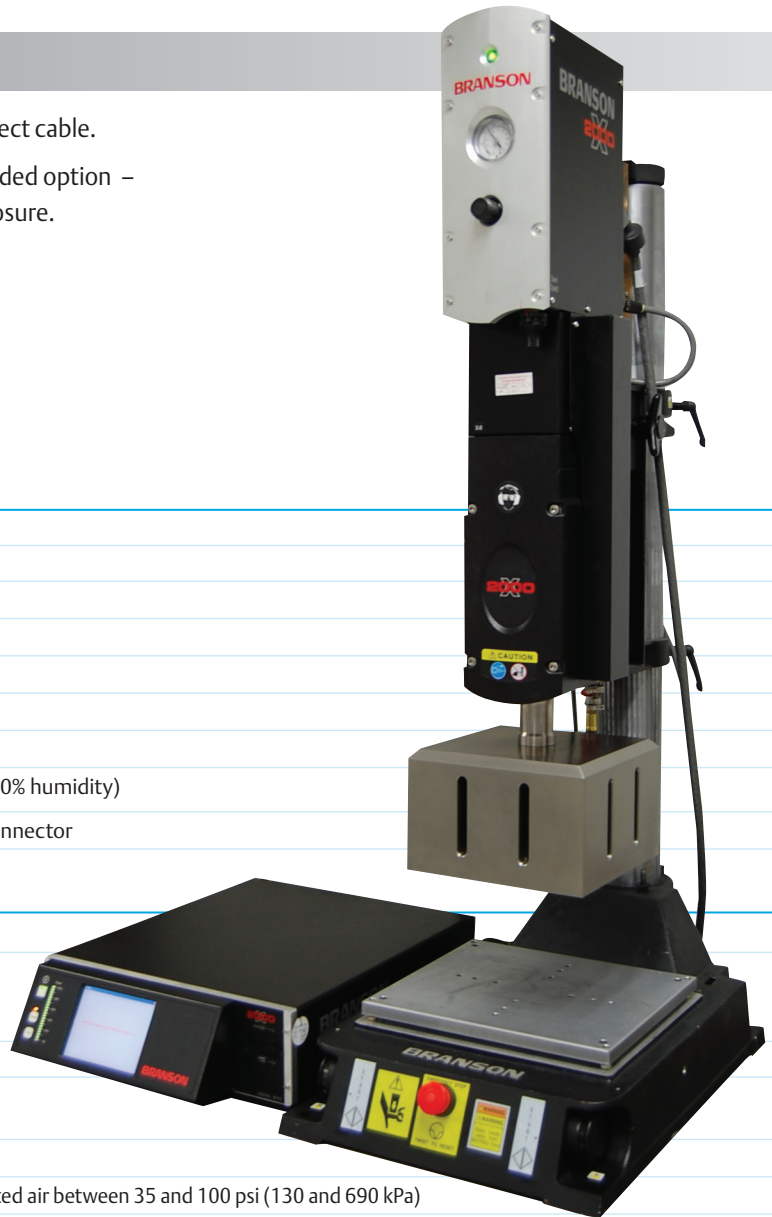
- SPC Software.
- Touch screen monitor.
- Base-mounted leveling plate for horn/fixture/part alignment.
- Solid mount boosters.
- Ground detect cable.
- Recommended option – sound enclosure.

SPECIFICATIONS

2000X d Power Supply	15:33
Output power:	3300 Watts
Line voltage:	200-240V AC, 50/60 Hz, 1Ø
Max. current:	17 amps max.
Receptacle required:	NEMA L6-20R
Frequency:	15 kHz
Max. cycle rate:	80 cpm (application dependent)
Ambient temp. range:	41-122° F (5-50°C)(104° F/40° C max @ 90% humidity)
External inputs/outputs:	9-pin start connector; 44-pin user I/O connector

ACTUATOR MODEL

	aed 3.0
Max. clamp force (at 100 psig/690 kPa) and 4" stroke	640 lbs., 2.84 kN
Dynamic Triggering range:	10-636 lbf., 44 N-2.83 kN
Dynamic Follow-through range:	10-500 lbf., 44 N-2.22 kN
Stroke length:	4" (101.6 mm)
Pneumatic requirement:	Clean (5 micron, filtered), dry, non-lubricated air between 35 and 100 psi (130 and 690 kPa)



BRANSON

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

All units are CE compliant and comply with FCC rules and regulations governing radio frequency interference.

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

Warranty: The Branson 2000X Series ultrasonic assembly systems carry a three-year warranty on materials or workmanship. Note: This warranty applies to equipment purchased and operated in North America. For warranty information units purchased and/or operated outside the U.S. contact your local representative.