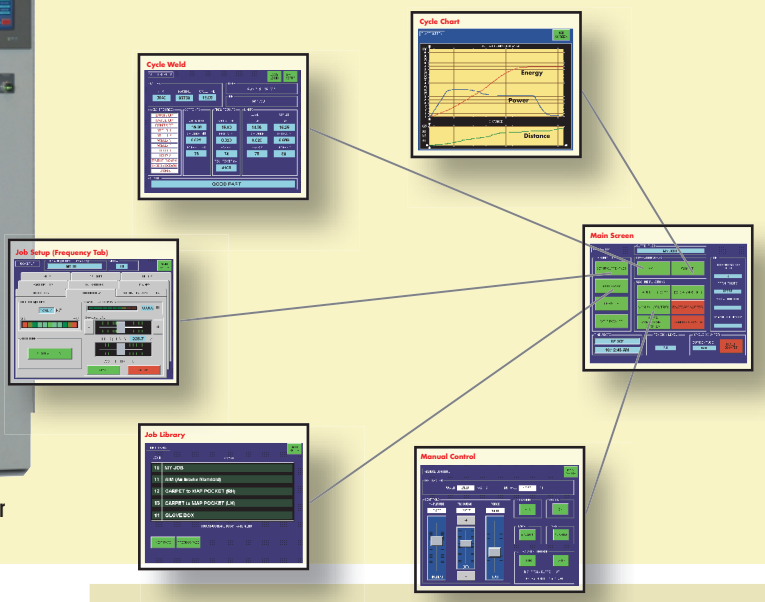
ULTRA SONIC SEAL

Ultra Series

Linear Vibration Welder

US10 Vibration Welder



Ultra Series Linear Vibration Welders are designed for assembling large and/or complex shaped thermoplastic parts. The machines can also be tooled to assemble multiple smaller parts simultaneously. The Ultra Series can bond virtually all thermoplastic materials, whether injection molded, extruded, formed or thermoformed. Dissimilar materials (with compatible melting points), materials with fillers as well as composite materials and fabrics can also be bonded.

Each Ultra Series Vibration Welder features an industrial computer with a Windows™ based operating system and touch panel operator interface to program and monitor all parameters of the system, insuring quality, consistency and ease in setup and use.

The system's patented AUTO-TUNE feature allows it to detect, set and lock the upper tool's optimum frequency in seconds. This facilitates maximum efficiency with minimal power to drive the tool at its pre-set amplitude.

Applications

- Carpet and Trim to Interior Automotive Panels
- Automotive Pillars
- Glove Boxes
- Head Lamp Assemblies
- Tail Lamp Assemblies
- Instrument Panels
- Air Intake Manifolds
- Medical Devices
- Fuel Tanks
- Filters

Power & Drive

- Digitally Controlled Electromagnetic Drive System
- Patented Automatic Tuning
- ± 0.003" (.07 mm) Amplitude Accuracy
- Return Alignment Accuracy of ± .002" (.05 mm)
- "Shift-on-the-Fly" Welding
- Lower Tool Weight and Distance Detection

Operation

- Industrial Computer / PLC Interfaced System
- Windows™ Based Software
- 10.4" (264 mm) Color Touch Panel Operator Interface
- Allen-Bradley PLC
- Three Welding Modes (Time/Distance/Energy)
- Upper and Lower Limit Settings
- Job Data Upload and Download Capability
- Job Library and SPC Data Collecting
- Four User Access Levels
- Single Button "Touch-and-Go" Start

Mechanical Design

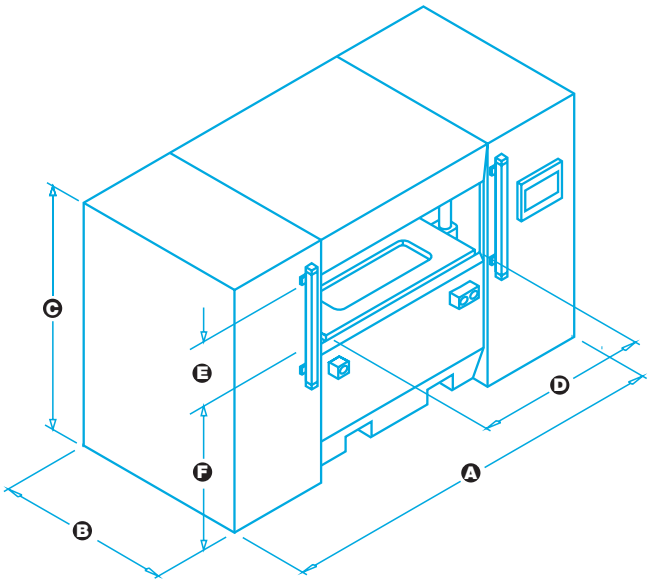
- Tubular Steel Welded Main Frame Construction
- Four Spring Head Bridge for large upper tool capacity
- Closed Loop Hydraulic Pressure Control
- Variable Force Two-Speed Hydraulic Lift Table
- 10" (254 mm) per second Lift Table Speed

Safety & Service

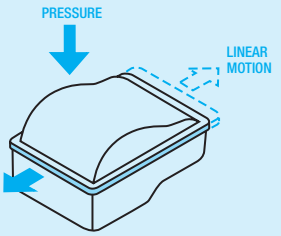
- Safety Light Curtains
- Emergency Stop
- Heavy Duty Noise Insulation
- Integrated Pneumatic Safety Door
- Hinged Rear Service Doors

	US10	US15	US20	US25
DIMENSIONAL DATA				
A - Machine Width	96" (2438 mm)	96" (2438 mm)	120" (3048 mm)	120" (3048 mm)
B - Machine Depth	38" (965 mm)	38" (965 mm)	38" (965 mm)	38" (965 mm)
C - Machine Height	75" (1905 mm)	85" (2159 mm)	75" (1905 mm)	85" (2159 mm)
D - Horizontal Opening	48" (1219 mm)	48" (1219 mm)	72" (1828 mm)	72" (1828 mm)
E - Vertical Opening	23" (584 mm)	23" (584 mm)	23" (584 mm)	23" (584 mm)
F - Floor to Lift Table Load Height	41" (1041 mm)	41" (1041 mm)	41" (1041 mm)	41" (1041 mm)
Lift Table Bed - Front to Back	22" (558 mm)	22" (558 mm)	22" (558 mm)	22" (558 mm)
Lift Table Stroke	20" (508 mm)	20" (508 mm)	20" (508 mm)	20" (508 mm)
Vibration Platen	37.75" x 14.75" (958 mm x 374 mm)	37.75" x 14.75" (958 mm x 374 mm)	37.75" x 14.75" (958 mm x 374 mm)	37.75" x 14.75" (958 mm x 374 mm)
POWER DATA				
Maximum Clamp Force (Less Lower Fixture Weight)	5,000 lbs. (22.2 kN)	5,000 lbs. (22.2 kN)	5,000 lbs. (22.2 kN)	5,000 lbs. (22.2 kN)
10 Horsepower (7.45 kW)	Standard	Standard	Standard	Standard
20 Horsepower (14.90 kW)	Optional	Optional	Optional	Optional
Output Frequency Range	200 to 250 Hz.	200 to 250 Hz.	200 to 250 Hz.	200 to 250 Hz.
Amplitude Range	.040" to .070" (1 mm to 1.78 mm)	.040" to .070" (1 mm to 1.78 mm)	.040" to .070" (1 mm to 1.78 mm)	.040" to .070" (1 mm to 1.78 mm)
WEIGHT DATA				
Approximate Gross Weight	7,500 lbs. (3401 kg)	8,000 lbs. (3628 kg)	8,500 lbs. (3854 kg)	9,000 lbs. (4081 kg)
Upper Tool Weight - Standard Springs	90 lbs. (41 kg) Max	90 lbs. (41 kg) Max	90 lbs. (41 kg) Max	90 lbs. (41 kg) Max
Upper Tool Weight - Heavy Springs	120 lbs. (54 kg) Max	120 lbs. (54 kg) Max	120 lbs. (54 kg) Max	120 lbs. (54 kg) Max
UTILITY REQUIREMENTS				
Electrical *(Other Electrical Voltages Available)*	480 VAC - 3 PH. 50/60 Hz 25 Amps 15 kVa	480 VAC - 3 PH. 50/60 Hz 25 Amps 15 kVa	480 VAC - 3 PH. 50/60 Hz 25 Amps 15 kVa	480 VAC - 3 PH. 50/60 Hz 25 Amps 15 kVa
Pneumatic/Air	80 PSI Min	80 PSI Min	80 PSI Min	80 PSI Min

This equipment and tooling is manufactured under one or more of the following U.S. patent numbers: 6,066,217, 6,227,275, 6,364,977, 6,588,644



The Process



One part is held stationary in a lower tool. Under applied pressure, the mating part is vibrated against the stationary part in a linear direction. This combination of linear motion and pressure creates friction, which in turn, generates heat in the weld joint. The friction brings the two parts to their melt temperatures and bonding occurs.

ULTRA SONIC SEAL
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