



SONICS®

SONICS & MATERIALS, INC.

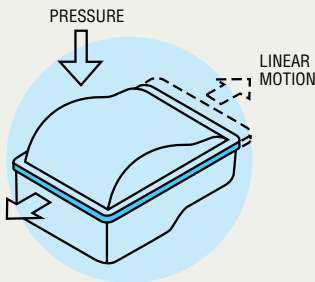
world-wide leader in *ultrasonic technology*

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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

Process



The process of vibration welding is based on simple physics. 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.

MX Series Linear Vibration Welding Systems



Design Sonics' MX 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 MX 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.

Machine Each MX Series Vibration Welder features an Allen-Bradley SLC 5/05 PLC operating system with a PanelView Plus 1000 color touch screen operator interface to program and monitor all parameters of the system insuring quality, consistency and ease in setup and use.

Sonics' patented AUTO-TUNE feature allows the system 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.



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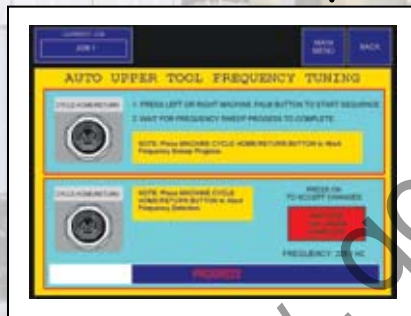
MX Series Linear Vibration Welding Systems

POWER & DRIVE FEATURES

- **Digitally Controlled Electromagnetic Drive System**
- **Patented Automatic Tuning**
Automatically detects, sets and locks the upper tool's optimum frequency in seconds
- **200 to 250 Hz Variable Output Frequency**
- **.040" (1 mm) to .070" (1.78 mm) Amplitude Setting**
- **± 0.003" (.07 mm) Amplitude Accuracy**
- **Return Alignment Accuracy of ± .002" (.05 mm)**
- **Standard Springs - Up to 90 lb. (41 kg) Upper Tool Weight**
- **Heavy Springs - Up to 120 lb. (54 kg) Upper Tool Weight**
- **Multi-Stage Welding**
Increases or decreases amplitude and/or pressure during the weld cycle
- **Lower Tool Weight and Distance Detection**
Automatically detects the lower tool's weight and, with parts loaded, detects exact table travel distance to the upper tool
- **Tooling Options**
Mechanical Clamping, Vacuum Assist, Part-In-Place Sensors

OPERATION FEATURES

- **Allen-Bradley SLC 5/05 PLC Operating System**
- **10.4" (264 mm) Allen-Bradley PanelView Plus 1000 Color Touch Panel Operator Interface**
- **Three Welding Modes**
Time, Distance and Sonic's patented Energy Mode
- **Upper and Lower Limit Settings**
In Time, Distance or Energy Mode, provides for upper and lower weld limit settings
- **Job Library**
Stores up to 15 job settings with quick recall
- **Supervisor Access Level**
Password protected access prevents unauthorized changes to job settings
- **Single Button "Touch-and Go" Start**
Left Hand or Right Hand Cycle Start



MECHANICAL DESIGN FEATURES

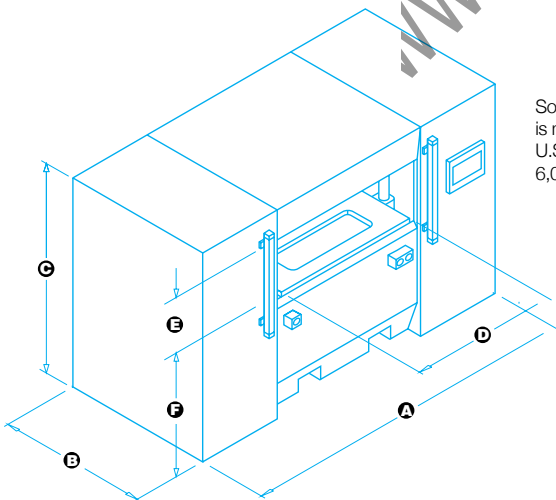
- **Tubular Steel Welded Main Frame Construction**
- **Four Spring Head Bridge**
For large upper tool capacity
- **Multiple "Shock" Mounts**
Minimizes vibration to the main structure
- **Closed Loop Hydraulic Pressure Control**
- **Variable Force Two-Speed Hydraulic Lift Table**
- **20" (508 mm) Table Stroke**
- **10" (254 mm) per second Lift Table Speed**
- **Fork Lift Provision**

SAFETY & SERVICE FEATURES

- **Safety Light Curtains**
- **Emergency Stop**
- **Heavy Duty Noise Insulation**
- **Integrated Pneumatic Door**
- **Hinged Rear Service Doors**
For easy tool changeovers
- **Fully Accessible Electrical Service Panel**
- **Easy Access Hydraulic System**
- **Switched Interior Work Lights**



DIMENSIONAL DATA	MX10	MX15	MX20	MX25
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	Standard	Standard	Standard	Standard
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



Sonics vibration welding 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



Sonics & Materials, Inc.

Registered by UL to ISO 9001