

OMEGA III MCX

ULTRASONIC WELDER

Forward Technology's Omega III MCX ultrasonic welder is designed for applications requiring the highest amount of control and precision. The MCX has the optimum features to monitor and improve overall production management.



OPERATIONAL FEATURES

Microprocessor control: allows programming of weld parameters and several quality management features. Increases overall weld quality.

Four mode functioning: allows user to achieve maximum weld results for each application.

- **Constant time mode:** uses time to control exact duration of the weld.
- **Constant height mode:** a constant stack height is maintained from part to part.
- **Constant travel mode:** actual melt travel is measured and kept constant.
- **Constant energy mode:** supplies a specific amount of energy for each weld.

Reactive Welding System (RWS): senses changes in the weld cycle and automatically adjusts welding parameters for each part to ensure that all parts are welded consistently, regardless of dimensional variations.

Proportional valve: allows four adjustable weld pressures during weld cycle. Trigger pressure, weld pressure, cooling pressure and head return can all be controlled separately. Increases weld integrity.

Amplitude control: amplitude curves can be tailored for each application. Ten memorized amplitude profiles are available. Assists when welding difficult applications. Custom profiles can be created with optional PC control.

Automatic frequency control: automatically adjusts frequency during operation. Provides consistent energy for the application and protects parts from damage.

Selectable frequency matching: manual shifting of frequency into high, medium or low range. Allows greater flexibility and ability to tune almost any horn.

Pre-trigger or dynamic start: ultrasonic emission can start either before the horn reaches the part or upon contact with the part. Provides greater flexibility and control on difficult applications.

A NEW GENERATION OF EXCELLENCE



The large, back-lit screen on the MCX controller graphically displays weld results. A rotary selector facilitates programming.

Dual speed control: two head down speeds are utilized for increased reliability and reduced cycle time. Speed during weld cycle is adjustable and displayed.

Six adjustable control windows: monitors weld result to verify if welded part matches specification.

DESIGN FEATURES

Modular design: the generator and controller are separate units, allowing a variety of system configurations.

Adjustable leveling booster: precise and easy adjustments keep face of horn exactly parallel to workpiece.

Quick change tooling: booster and horn assembly can be removed as one unit allowing for quick changes between applications. Additionally, horn can be removed without removing stack assembly.

Optical encoder: sends detailed feedback to microprocessor regarding part contact point and weld travel.

Lower limit mechanical stop: utilized when maintaining an overall length tolerance. Crucial for limiting stress when welding fragile components.

Zero force start buttons: decrease operator fatigue.



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QUALITY MANAGEMENT FEATURES

Printed graphic capabilities: data can be downloaded to a printer via a RS232 port.

Large screen display: graphically displays weld results. Screen is back-lit for better visibility. Entire program can be viewed on-screen. Operator can change individual parameters quickly and easily.

20-program storage: memorizes welding parameters for 20 different parts. Allows rapid changeover between welding applications.

Production counters: monitors production rates and number of part rejects. Can be reset after each shift or any preferred length of time.

External signal control: operation can be controlled from an external source for integration in automatic production lines (requires optional Sub-D connector).

PC/SPC connection (optional): programs and welding results can be downloaded and stored on a standard PC.

PROTECTION FEATURES

Automatic overload protection: ensures protection of machine components in case of a fault.

Self-diagnostic monitoring: welder will shut down if idle power exceeds the programmed value. Detailed error messages appear on display screen to notify operator of exact problem.

Automatic overheat protection: machine will automatically shut down the power supply if the temperature exceeds 180° F.

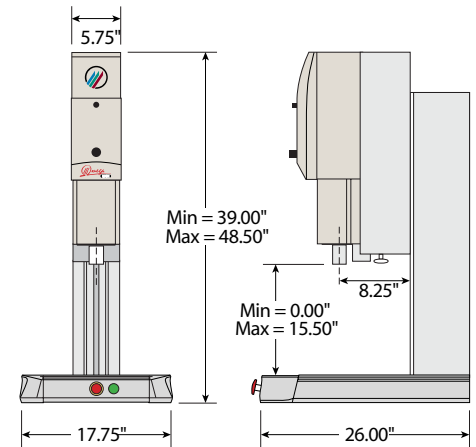
Password protection: controls operator changes to welding parameters.

OPTIONAL FEATURES

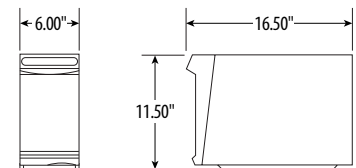
- Remote PC control
- Rotary table
- Sound enclosure
- SPC Package
- Hydraulic damper
- Parts eject arm

ONE YEAR WARRANTY

The Omega III MCX ultrasonic welder is warranted to be free from defects in material and workmanship for a period of one year (excludes tooling).



Generator and Controller Dimensions



MECHANICAL SPECIFICATIONS

Dimensions:	48 1/2" H x 17 3/4" W x 26" D (1232 mm x 450 mm x 660 mm)
Baseplate dimensions:	11 3/4" W x 14 1/2" D (300 mm x 393 mm)
Pneumatic:	80 psi minimum/100 psi maximum. Clean, dry, unlubricated air, 3/8" (10 mm) ID supply line
Electrical:	220 volts AC single phase, 60 Hz (available with 110 volts AC or 480 volts AC with optional transformer)
Holding fixture:	Eight 3/8"-16UNC tapped holes on 7" and 4 7/16" bolt hole pattern (on center, X and Y axis)
Cylinder diameter:	2 1/2" (63 mm); Optional 40 mm, 80 mm
Cylinder stroke:	4" (100 mm); optional 8" (200 mm)
Height adjustment:	9 3/4" (250 mm)
Weight:	215 lb. (98 kg)

GENERATOR

- Frequency meter on front panel
- Power indicator
- Ultrasonic emission manual test
- Frequency range selector
- Maximum power: 10% greater than nominal power

20 kHz	1000 Watts, 1500 Watts 2000 Watts, 3000 Watts
30 kHz	1000 Watts

ADDITIONAL REQUIRED FEATURES

Tooling: ultrasonic horns and holding fixtures are not included as part of the base machine price and must be purchased separately.



ULTRASONIC WELDING DIVISION

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