

# PAS

## PLASTIC ASSEMBLY SYSTEMS

### Omega III MCR Spin Welder

Mecasonic's spin welders offer a simple approach to assembling cylindrical components quickly and cost-effectively. Microprocessor control increases overall weld and production quality.

During spin welding, one part half is held stationary in a holding fixture while a second part half is rotated against it, under pressure, at speeds from 1,000 to 16,000 rpm. Friction causes the joining edges to melt and fuse together, producing a strong hermetic seal. Cycle times are short, typically in the range of 3-6 seconds.

Spin welders are easily fitted with rotary tables (optional) for integration into production lines. For special applications, Plastic Assembly Systems also offers a horizontal spin welder and orienting spin welder.

#### Operational Features:

- **Microprocessor control:** allows programming of weld parameters and several quality management features. Increases overall weld and production quality.
- **Air motor with roller bearing design:** allows a full range of speeds up to 16,000 rpm for flexibility to handle the widest variety of applications.
- **Tachometer:** provides rotational speed input to microprocessor. Increases consistency of the weld cycle.
- **Adjustable stroke velocity:** for the vertical speed of the welding head. Allows more precise control for sensitive applications.

#### Design Feature:

- **Modular design:** controller is a separate unit, allowing a variety of system configurations.
- **Rigid column:** extruded design offers strength and rigidity without extra weight. Improves weld quality and repeatability.
- **Encoder:** sends detailed feedback to microprocessor to control head stroke.
- **3-step cycle:** spin-up, head-down, and cooling are separately monitored and controlled.
- **Spin-up:** allows spin driver to reach pre-set rotation speed for proper welding.
- **Head-down:** upper tooling moves downward until the part halves make contact and the part is welded.
- **Cooling:** pressure is maintained on the part after circular-welding motion has ceased. Allows thermoplastic material to solidify, ensuring the optimum seal.
- **Wired for auto/semi automatic operation:** for direct plug in of automatic options such as a rotary table. Allows existing welder to be easily upgraded.
- **Dual start buttons:** Ensure safety. Operator must depress dual control buttons to activate welder.
- **Auto-learning:** senses height of a welded part during set-up to use as a baseline for controlling weld parameters.
- **Hand grips on base:** for easy movement of the welder.



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### Quality Management Features:

- **Control windows:** can be independently programmed to monitor rotation speed, head stroke speed, and final part height.
- **Production Counters:** monitor production rates and number of 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).

### Optional Features:

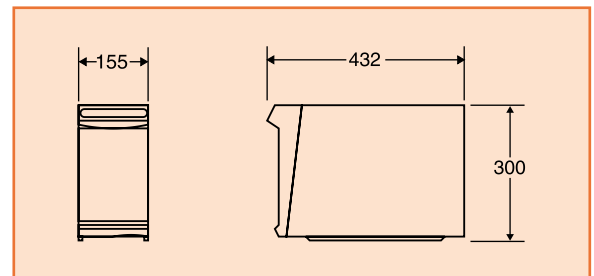
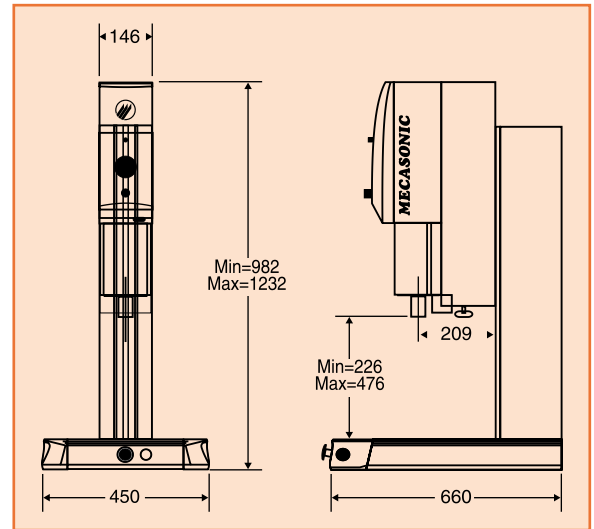
- **Electronic brake:** recommended on applications under 1" (25mm) in diameter. Allows tooling to be stopped quickly to prevent over-welding small applications. Can be controlled by height or speed.
- **5-program storage:** memorizes five sets of welding parameters. Allows rapid changeover between welding applications.
- **Printer output:** weld results can be downloaded to a printer via a RS232 port.
- **Rotary Table:** increases through-put by allowing the operator to load and unload parts while welding operation is taking place on other parts. (450mm / 6 nests standard)
- **Zero force start buttons:** side mounted, ergonomically designed start buttons for ease of operation.
- **Parts eject arm:** for automatic removal of parts.
- **Surge tank:** to ensure adequate and consistent air pressure.
- **Spin motors:** 2 different speed motors available; 4,800 & 16,000 RPM

### Mechanical Specifications:

- **Dimensions:** 43 1/2" H x 16" W x 33 1/2" D (1105mm x 406mm x 851mm)
- **Base Plate:** 15" W x 13 1/2" D (394mm x 343mm)
- **Pneumatic:** 80 psi minimum/100 psi maximum. Clean, dry, unlubricated air, 3/8" (10mm) ID supply line. Two separate air inlets required; one for the rotary air motor, and one for the vertical movement of the head.
  - Air supply for rotary motor: ID supply line 5/16" (8mm). An average 5-second cycle consumes 2.5 SCFM of air.
  - Air Supply for head movement: ID supply line 1/4" (6mm).
- **Electrical:** 220 volts AC, 60 Hz (available with 110 volts AC or 480 volts AC with optional transformer).
- **Holding fixture:** Eight 3/8-16 UNC tapped holes on 7" and 4" bolt hole pattern (on center, X and Y axis).
- **Head height adjustment:** 14" (250mm).
- **Cylinder diameter:** 2 1/2" (63mm). 3.15" (80mm) cylinders available as an option.
- **Cylinder Stroke:** 4" (100mm). 8" (200mm) stroke available as an option.
- **Center of drive to column:** 8 1/4" (210mm).
- **Weight:** 200lb. (91 kg).

### Additional Required Features:

- **Tooling:** "upperchuck" (spin welding drive head) and holding fixtures are not included as part of the base machine price and must be purchased separately.



**PAS**

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