



MAC/C.O.S.

Quality...Speed...Price... Unbeatable Combination

- ◆ *Over 1000 batteries per shift*
- ◆ *Low tooling costs*
- ◆ *Automatic lug aligning*
- ◆ *Unsurpassed strap quality.*
- ◆ *Lead saving straps*
- ◆ *Quick battery - type changeover*

The MAC COS has four operating stations in a rotary design to ensure superb strap quality with high production output. At speeds approaching 3 batteries of 6 cells per minute, you can produce over 1,000 automotive-size batteries per shift.

Universal size group holders make machine changeovers easier, faster and much less expensive. There is no need to replace these group holders when battery types are changed.

The built-in aligner includes an element vibrating table. The aligner automatically

lines up the lugs and squares the plates of each cell element.

This equipment eases lug entry into mold cavities and permits you to use smaller size straps. This saves lead cost and reduces the finished battery's internal current resistance.

User friendly operator control panel includes a Visual Information Center. The on-screen visual display conveniently summarizes actual readings and compares this data to desired parameters.

To properly prepare the lugs for better strap adhesion, brushing and fluxing are built-in operations. Lug surfaces and edges are brushed not once, but twice. The brush is specially selected for its fine wire bristles which removes oxide without reducing the lug's thickness or creating deep grooves that could retain wet flux. After brushing, a powered lift raises the flux tray to dip the lugs. To dry the flux, heated air is forced across the lugs.

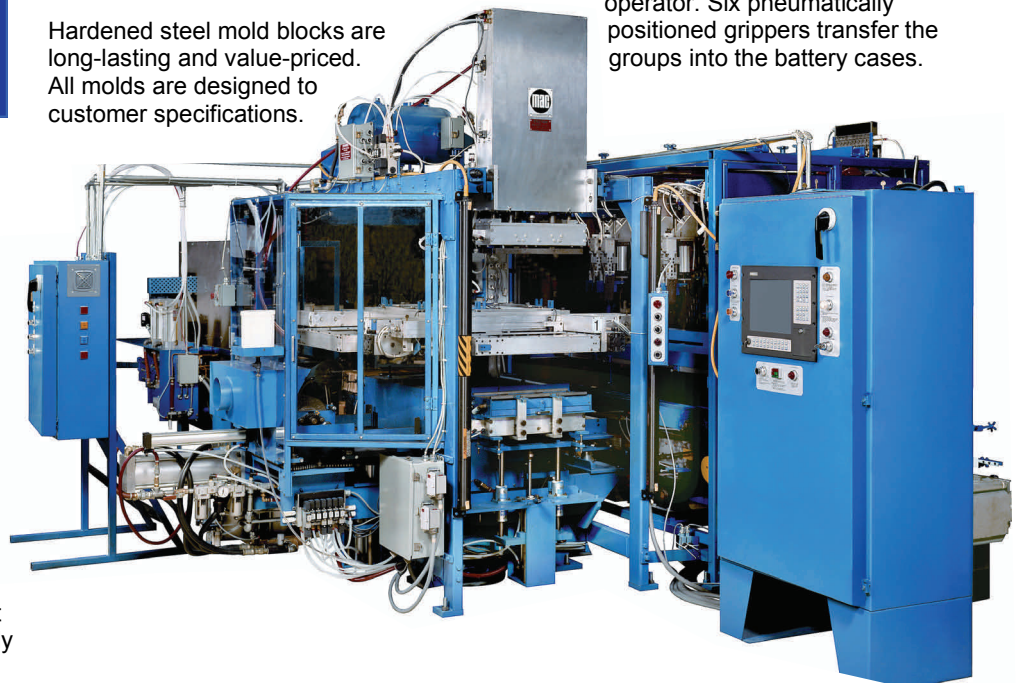
Hardened steel mold blocks are long-lasting and value-priced. All molds are designed to customer specifications.

Mold strap inserts save lead and add flexibility to the machine.

Mold water cooling is controlled at the Visual Information Center. This increases bond quality because you have closer control over cooling rates. Mold pours are quick and accurate. A unique gravity lead leveling system – from the integral lead pot to the mold – ensures equal lead flow to each strap cavity. Quick-release line-to-mold connectors are standard items. Battery-type changeovers are extremely fast .

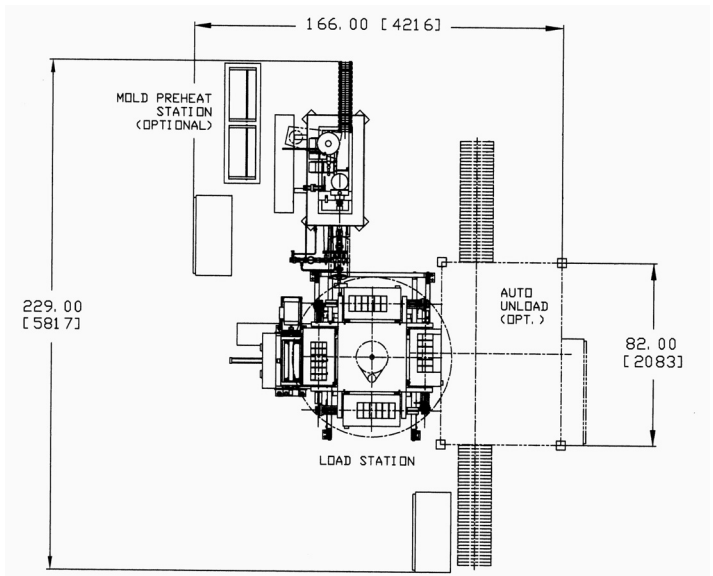
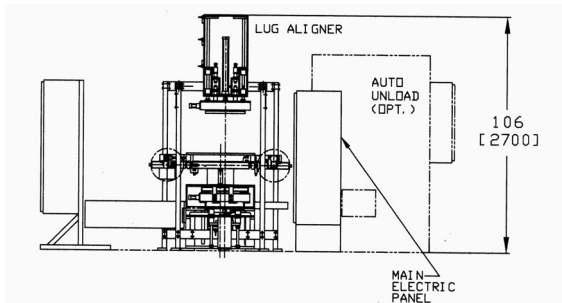
Manual unload is done by a single operator who gathers the cell elements as they are released from the group holder. Full batteries are automatically fed to your assembly conveyor.

As an option, MAC's automatic unload unit eliminates the need for the unload operator. Six pneumatically positioned grippers transfer the groups into the battery cases.



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TECHNICAL SPECIFICATIONS



Required User Data:

- ◆ Specify electrical requirements.
- ◆ Provide drawings of element, element casing, post and straps for use in designing molds.

Production Cycle Rate:

Cycle approaches 3 batteries of 6 cells per minute. Machine capable of 1,000 batteries/8-hour shift.

Operation Personnel Required:

One when optional automatic unload unit is used. Two when manual unload is used.

Cell Element Size Capability:

(using universal group holder handling 6-cell elements)

	Millimeters	Inches
Height:	200	8 maximum
	90	3.5 minimum
Width:	175	7 maximum
	90	3.5 minimum
Stack Thickness:	60	2.75 maximum
	13	0.50 minimum
Terminal post height:	100	4 maximum

Approximate Weights and Dimensions:

Gross Weight:	4,989 kg (11,000 lbs.)
Box 1	Length: 2,743 mm (108 inches) Width: 2,286 mm (90 inches) Height: 2,286 mm (90 inches)
Box 2	Length: 3,302 mm (130 inches) Width: 2,134 mm (84 inches) Height: 2,388 mm (94 inches)
Box 3	Length: 3,048 mm (120 inches) Width: 1,829 mm (72 inches) Height: 2,286 mm (90 inches)

MAC/C.O.S. Machine Requirements:

Standard Electrical:	220-480V/3-phase/50-60-Hz 32 kVA (Gas lead pot) 62 kVA (Electric lead pot)
Control Voltage:	24 volt D.C.
Information Center:	Industrial computer with color display as an operating interface.
Tolerance:	±10% of nominal voltage
Hydraulics:	None
Ventilation:	Customer supplied as required by law. A minimum of 7.500 CFM is typically used. Where protection hoods are used, vent openings are provided.
Water:	Clean water for mold cooling. 18.93 liters (5 gal.) per minute at 40 psi (minimum) at the mold inlet.
Compressed Air:	75 SCFM @ 80 psig minimum
Ambient Operating Temperature:	0° – 45°C (32 – 113°F).
Lug Brush:	203 mm (8-inch) diameter wire brush. Driven by 1.5 HP motor.
Flux Tray:	Machined from a solid Teflon block to avoid corrosion.
Flux Reservoir:	2.8 liter (0.75 gallon) capacity round plastic tank, mounted on machine

	Gas Heated	Electric Heated
Lead Pot:		
Lead Capacity:	900 kg (3,000 lbs.)	900 kg (3,000 lbs.)
Heating Capacity:	57.4 kw/hr. (196,000 BTU/Hour)	30 kVA
Electrical Requirements:	220-480V 50-60 Hz	220-480V 50-60 Hz
Heat Range: (gas and electric)	38° to 538°C (100° to 1000°F)	38° to 538°C (100° to 1000°F)
Insulation:	100 mm (4 inches) of masonry fill insulation	150 mm (6 inches) of masonry fill insulation.
Natural Gas Requirements:	5.7 cu. meter/hr. @ 11 mm Hg (200 cu. ft./hr @ 6 inches W.C.)	
Propane Requirements:	2.3 cu. meter/hr. @ 11 mm Hg (80 cu. ft./hr @ 6 inches W.C.)	

Automatic Unload Unit:

Six pneumatically positioned metal grippers and transfer arms are sized to the universal group holder. Insert guides are provided for battery casing. The integral roller conveyors (inlet and outlet) are each driven by ½ HP electric motors.

Safety Features:

Metal protection guards. See-thru protection guards. Load operator safety light beam (beam interference stops machine). Electrical interlocks



Helping to make the best batteries...yours.

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