



## Automated System for Arcing of Sugar Mill Crusher Rolls

The Mavrix RA-4000 for automatic arcing of sugar mill rolls has been developed after extensive consultation with many mills to assess their requirements. Use of this system will result in greatly increased efficiency of arcing with the additional benefits of longer roll life and improved crushing efficiency.

The RA-4000 can be used for straight line welding and roll rebuilding in workshop as well as arcing during crushing. The system can be quickly broken down into individual components with the largest component fitting through a 600 x 600 mm (24" x 24") opening. The system can be easily relocated from one location to another by one person in 10-15 minutes. Lightweight and portable the total weight is approximately 155 lbs (70 kg) with the heaviest individual component weighing 44 lbs (20 kg).

### Benefits

- Lower consumable consumption by as much as 75%.
- Reduced time (Properly arc a roll on three faces in as little as 2 hours).
- One operator can operate two (2) Systems with time to spare.
- Repeatability - weld each roll the same way each time. No manual variations.
- Greater health and safety - remove operator out of hazard area of fumes etc.
- Automate welding tasks in workshop during slack period.

### System Components

#### Main Control

The main control contains the controls necessary to operate the ROLL-ARC system in one compact (400 x 350 x 175 mm) light weight (10kg) box. Manufactured from high strength, light weight thermoplastic and is well sealed against moisture. A new indexing controller will allow programming flexibility resulting in the system being capable of arcing in 1, 3, 5, 7 (or more) locations on each tooth of the roll. This capability will allow the complete face of each tooth to be arced in one traverse of the beam if required.

FOR MORE INFORMATION, PLEASE CALL, WRITE or EMAIL

**MAVRIX AUTOMATIC WELDING**

[info@mavrixweld.com](mailto:info@mavrixweld.com)    [www.mavrixweld.com](http://www.mavrixweld.com)

3020 S. Calhoun Road \* New Berlin, WI. 53151 \* (262) 439-8477 \* FAX (262) 4399-8877

## **WIRE FEEDER**

The wire feeder is a PA-11 extra heavy duty, constant potential type with 4 drive rolls to allow continuous, positive feeding of arcing wire. Drive rolls are covered for protection from moisture and crushing residue during operation. The feeder can be fitted on the top of the main carriage assembly to overcome the need to drive wire long distances. (Maximum length to torch tip 900 mm (3'))

## **WELDING TORCH**

The welding torch is a heavy duty, open arc type requiring no shielding gas and no water cooling. These features overcome the problems associated with auxiliary water cooling. Torch is rated for continuous welding at 600 amps, thus, ensuring long and reliable service life. The torch can be adjusted in the forward plane from vertical down to 10° below horizontal and rotated to + 45° to allow for welding on the sides of the roll teeth. Torch feeds forward and reverses automatically for ease of contact tip change. Torch is fitted with quick disconnect power cable for ease of set up and removal.

## **WELD ARM**

The weld arm is fully automatic with in-out axis of 800 mm plus pivot axis through 45°, all controlled electronically from the pendant.

## **PENDANT CONTROL**

Provided is a compact and light (2kg), sealed box to allow the operator remote and close-up adjustment of the weld centering, inching, weld direction, carriage speed, wire speed (current) and weld voltage on electronically controlled power supplies. All functions may be adjusted during operation and are integrated with the welding power supply contactor. This ensures that weld voltage is off when the shutdown switch is activated.

## **MAIN BEAM**

High strength, blue zinc plated main beam with precision engineered drive rack is supplied for corrosion protection. Beam mounting is by U-Shaped brackets to customer supplied mounting points.

## **MAIN TRAVERSING CARRIAGE**

The main carriage is fitted with variable speed DC gear motor driving through a positive rack and pinion. Motor has an encoder to give infinitely adjustable pitch settings with precision and repeatability. Motor and encoder are fitted with an additional cover giving extra mechanical protection and water proofing.

## **ADDITIONAL FEATURES**

**WATER PROOFING:** Improved waterproofing including the use of waterproof connectors and switches.

**SYSTEM SHUTDOWN ON MILL STOPPAGE:** This function is to ensure that the ROLLARC System will shut down if there are any unexpected mill stoppages. This switch is located in the main control box and an adjustable potentiometer is provided to allow settings for shutdown point to be changed.

FOR MORE INFORMATION, PLEASE CALL, WRITE or EMAIL

MAVRIX AUTOMATIC WELDING

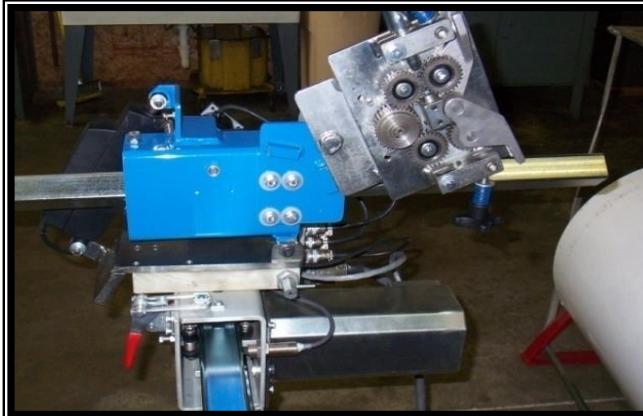
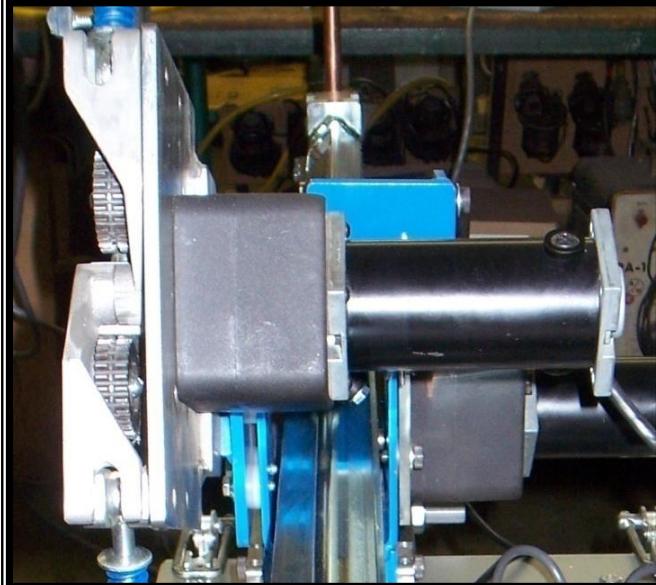
[info@mavrixweld.com](mailto:info@mavrixweld.com)   [www.mavrixweld.com](http://www.mavrixweld.com)

3020 S. Calhoun Road \* New Berlin, WI. 53151 \* (262) 439-8477 \* FAX (262) 4399-8877

**SHUTDOWN ON LOSS OF WELD CURRENT:** To ensure the wire feeder does not continue to feed if there is a loss of welding current, a current sensing circuit has been added to the system which will stop the system operation completely upon weld current failure.

**OPERATION AND SHUTDOWN INDICATION:** Flashing indicator light has been fitted to indicate remotely to others in the area the status of the machine.

## Photo Gallery



<b>OPERATING INSTRUCTIONS</b>																						
<ol style="list-style-type: none"> <li>1. MAKE SURE RUN/STANDBY SWITCH(1) IS DOWN</li> <li>2. TURN ON POWER (2)</li> <li>3. SET UP PROGRAM COUNTER (5) (See Manual)</li> <li>4. SET MODE SWITCH (3) TO ROLLARC IF PRESENT</li> <li>5. SET WELD TIMER (4) FOR WELD TIME ON EACH STEP</li> <li>6. TURN ON WIRE FEEDER (6)</li> <li>7. SET WIRE SPEED (7) TO 50% TO START</li> <li>8. SET CARRIAGE SPEED (8) TO 50%</li> <li>9. JOG CARRIAGE (9) TO THE FIRST ROLL APEX</li> <li>10. RE ZERO COUNTER (5). PRESS F1 REPEATEDLY UNTIL TOTAL APPEARS.</li> <li>NEXT PRESS F2 UNTIL ALL ZEROS APPEAR ON LOWER LINE</li> <li>11. SET STARTING OFFSET - JOG CARRIAGE (9) REVERSE A DISTANCE EQUAL TO THE SMALL STEP SIZE X NUMBER OF SMALL STEPS ON THAT SIDE. (THIS ASSUMES ODD NUMBER OF SMALL STEPS PER APEX).</li> <li>12. RESET CARRIAGE DIRECTION</li> <li>FIRST SET CARRIAGE SPEED TO ZERO (8) JOG CARRIAGE IN CORRECT RUN DIRECTION. (9) OBSERVE DIODE LITES (10) TO VERIFY DIRECTION</li> <li>13. PUSH COMPUTER RESET (11) AT LEAST 1 SECOND.</li> </ol>		<table border="1" style="width: 100px; border-collapse: collapse;"> <tr><td>POWER</td><td>MODE</td><td>LOSS OF MOTION</td></tr> <tr><td>ON OFF</td><td>ROLL ARC + WRAP</td><td>ON + OFF FAULT</td></tr> <tr><td colspan="3">STEP DISTANCE</td></tr> <tr><td colspan="3">TOTAL 1985</td></tr> <tr><td colspan="3">F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16</td></tr> </table>	POWER	MODE	LOSS OF MOTION	ON OFF	ROLL ARC + WRAP	ON + OFF FAULT	STEP DISTANCE			TOTAL 1985			F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16			<table border="1" style="width: 100px; border-collapse: collapse;"> <tr><td>WELD TIMER</td><td>LOSS OF GROUND</td></tr> <tr><td>+ FAULT</td><td>ON OFF FAULT</td></tr> </table>	WELD TIMER	LOSS OF GROUND	+ FAULT	ON OFF FAULT
POWER	MODE	LOSS OF MOTION																				
ON OFF	ROLL ARC + WRAP	ON + OFF FAULT																				
STEP DISTANCE																						
TOTAL 1985																						
F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13 F14 F15 F16																						
WELD TIMER	LOSS OF GROUND																					
+ FAULT	ON OFF FAULT																					
		5	4																			
		-12	-1																			
		-13																				
		-14																				
		-15																				
		-16																				
		-6																				
		-7																				
<b>ROLL ARC RA 4000</b> COMPUTER RESET   STANDBY   RUN <small>HOLD 1 SEC. PLUS POWER CYCLE FOR IN PROGRESS CORRECTING POSITION</small> MAIN CARRIAGE   WELD VOLTAGE  STEP AXES   WIRE FEEDER 																						

FOR MORE INFORMATION, PLEASE CALL, WRITE or EMAIL

**MAVRIX AUTOMATIC WELDING**

[info@mavrixweld.com](mailto:info@mavrixweld.com)   [www.mavrixweld.com](http://www.mavrixweld.com)

3020 S. Calhoun Road \* New Berlin, WI. 53151 \* (262) 439-8477 \* FAX (262) 4399-8877