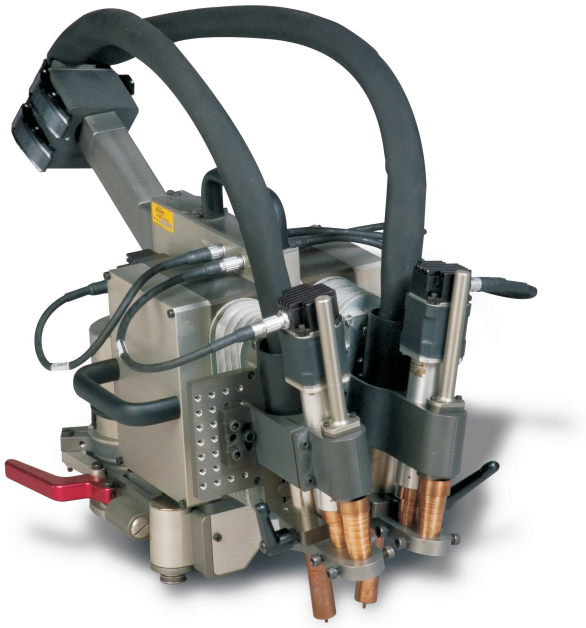
P-600 Computerized Welding Machine



Advanced Technology

The P-600 external welder is a new generation of external welding incorporating two independent torches. This dual torch external welding system offers consistent welding parameter quality control, and provides the user with 32 programmable welding passes per torch. In addition this welding machine offers both horizontal and vertical tracking to maintain the center of the bevel and tip to work distance.

The P-600 platform incorporates carriage with torch and tracking controls on board and on external wirefeeder and on external power supply controller with easy to use hand held user interface controller.

This machine is suitable for GMAW or Pulsed-GMAW welding process. This machines versatile design easily interfaces with most constant voltage or pulsed current welding power sources including the new inverters. The P-600 has the ability to perform external root pass in addition to standard hot, fill and cap pass welding.

The onboard computer ensures precise control of welding parameters: volts, amps, travel speed, oscillation, dwell times, etc. A secure smart card prevents unauthorized weld parameter variables from being changed. The removable smart card also allows the user to store a real-time log of all essential weld data for further processing in a user-friendly Excel spreadsheet format.

Welding System	
Features	**Benefits**
• Narrow-gap joint design	• Less weld metal required
• Increased deposition rate	• Higher production rates
• Microprocessor control	• Programmable for all passes
• Easy operation	• Lower cost per weld
• Consistent weld properties	• Less physical strain on welders
	• Consistent weld quality

CRC-Evans Automatic Welding

Mechanical Specifications

Length (includes torch whip holder)	24.5”	622mm	Wire Spool Weight	30lbs	13.6kg
Width	14.5”	368mm	Vertical Axis Stroke	2”	50.8mm
Height	15.5”	393mm	Head Angle Adjustment	±0-10^{O}	-
Weight	39lbs	17.7kg			
Oscillation Rate[1]			0-220 osc/min	-	
Oscillation Width[2]			0-2”	0-50.4mm	
Dwell Time[2]			0-2.0 seconds	-	
Wire Feed Speed[3]			100-625 IPM	2.56-16 meter/min	
Travel Speed[4]			4-60 IPM	0.1-1.54 meter/min	
Tilt Sensor			Accurate to ±1°		
Wire Feed Motor (DC Brush-type motor)			Speed controlled via digital encoder		
Travel Motor (DC Brush-type motor)			Speed controlled via digital encoder		
Oscillation/Horizontal Motor			Uses a digital stepper motor		
Vertical Motor			Uses a digital stepper motor		
Minimum Cutback Distance (bevel to coating)			Please consult CRC for your application		
Minimum Cutback Distance (bevel to concrete)			12.75”	323.9mm	

Electrical Specifications

Required main power: 36 VDC regulated. Auto-switching AC (120V to 240V) to DC 36V power supply provided by CRC-Evans with P-600 system.
Auxiliary power 24VDC for land lines. (For tractors with single battery an optional 12V to 24V converter is available from CRC)
Generator requirement: 440 Volt 50/60 Hz with output 100 kVA nominal (4 pulse welding power sources)
Temperature Range: -40^{O}C to +60^{O}C Contact CRC-Evans for extreme weather application setup applications.

Welding Power Supplies Supported[5]

Miller 456MP, Miller XMT304

Lincoln 350 PRO, Lincoln DC400

Lincoln STT (External Root)

Fronius TPS Series

(Contact CRC for support of other power source)

[1] Uses 70:1 gear box for high torque; speed based on width setting, dwell time
[2] Based on beats per minute
[3] For 55.3:1 gear box
[4] For 941:1 gear box

Additional Features
Tip-to-Work Tracking maintains the torch at a constant stick-out distance. Horizontal Tracking maintains the center of the joint
Thirty-two programmable welding passes per torch
Enforced limits on programmable welding parameters (motor speeds, oscillation width, etc.)
Secure smart card limits unauthorized access to programmable welding parameters
Data logging is made easy with the smart card, laptop, and Excel interface software supplied by CRC-Evans
Position-Based Welding allows real-time weld parameter changes via the tilt sensor
No trim pots or jumper settings on any hardware component
Feedback from optical encoders on digital motors removes the need for motor calibration
Adjustable arc trim for pulse welding helps control heat input
Removable elastomeric keyboard is easy to replace after prolonged use of the hand held unit
Onboard touch screen display shows critical weld parameters (Travel Speed, Wire Feed Speed, Tilt Angle, Oscillation Width and Frequency, Volts, Amps, and Pass Name) as well as user-friendly diagnostic information
Easy-to-use graphical interface program allows upload and download of welding parameters via laptop or desktop computer
Onboard menu system allows weld parameters to be modified from the touch screen using the secure smart card
System can be configured to perform a single pass on multi-station jobs or perform all passes on a single station
Microprocessor-based PID loop control is available for controlling constant-voltage welding power supplies in short arc applications
Independent modular power driver stages for all motors assist in easy troubleshooting
Programmable potentiometer can be set to control wire feed speed or travel speed
Programmable start and stop positions for the welding torch

Special Features and Applications	
Design	Totally modular design. Two autonomous welding torches.
Use Fewer Consumables	The P-600 system utilizes two water cooled torches for prolonged tip life and precise wire feed control for tracking.

Conformance Testing	
CE European Certification	The CRC Evans External Welder (P-600) was tested to EN 55011, Group 1 Class A and was found to be in compliance with the required criteria.

Programmable Welding Parameters	
Pass and Weld Names	Crater Fill Time
Pipe/Band/Wire Diameters	Burn Back Time
Welding Process	Blow Wire In Puddle Delay and Period
Motor Speeds	Post-Purge Time
Motor Ramp Times	Units (English or Metric)
Motor Speed Limits	Clockwise or Counterclockwise Bug Type
Potentiometer Function	Horizontal Bias
Oscillation Width and Width Limits	Auto Tilt-Based Welding Mode
Oscillation Frequency	Dry Cycle Mode
Welding Power Supply PID Parameters	Turn Display On or Off
Arc Trim Range and Limits	Enable/Disable Oscillation Width Adjustment
Work Point Range, Limits, and Ramp Time	Oscillation Width Adjustment Increment
Arc Voltage Range and Limits	Support for multiple shielding gas
Hot Start Work Point, Voltage, and Time	Reverse Travel Speed
Vertical/Horizontal Tracking Speed	Enable/Disable Data Logging
Vertical Target (Amps and Volts)	Data Logging Distance
Vertical Target Limits (Amps and Volts)	Weld Position etc.
Vertical Target Increment (Amps and Volts)	Out of Limit Weld Cut Off
Vertical Tracking Thresholds (Amps and Volts)	

Note: More programmable welding parameters can be made available based on customer need.