

# Syncrowave® 250 DX/350 LX

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TIG/Stick Welding  
Power Source



## Quick Specs



### Industrial Applications

Precision Metal Fabrication  
Maintenance and Repair  
Light and Heavy Manufacturing  
Aerospace  
Shipbuilding  
Tube and Pipe  
Automotive  
Vocational

### Processes

TIG (GTAW)  
Stick (SMAW)  
Pulsed TIG (GTAW-P)  
(Optional)

**Input Power** Requires 1-Phase Power

**Amperage Range** 250: 3–310 350: 3–400

**Max. Open-Circuit Voltage** 80 VDC

**Rated Output** 250: 250 A at 30 VAC, 40% Duty Cycle  
200 A at 28 VAC, 60% Duty Cycle

350: 350 A at 34 VAC, 40% Duty Cycle  
300 A at 32 VAC, 60% Duty Cycle

**Weight** Standard: 250: 378 lb (172 kg) 350: 496 lb (225 kg)  
TIGRunner®: 250: 478 lb (217 kg) 350: 596 lb (270 kg)

## The Power of Blue.®



See page 2 for  
additional features

Standard Machine

### Syncrowave Complete

#### Package includes:

- Syncrowave®
- Coolmate™ 3X cooler
- No. 37 running gear
- TIG torch kit with accessories
- Foot pedal
- Four gallons of coolant

The **balance control** is adjustable to provide additional oxide removal (more cleaning) or less cleaning based on the condition of the material being welded. See pg 2 for more information on this feature.

**Syncro Start™** allows the choice of Soft, Standard or Hot TIG starts based on the application, lead lengths and tungsten size.

**Dual inline high-frequency** points provide intense high frequency for arc starting and stabilization. Internal machine components are protected from HF interference with additional grounding and filtering for extended product life.

**Digital welding meters** display both amperage and voltage for viewing of the actual and preset values for greater accuracy and repeatability in your welding procedure.

**Last procedure recall** simplifies changing your Syncrowave back and forth from aluminum TIG to stainless TIG to stick welding. One switch makes all the control panel changes.



Power source is warranted for 3 years, parts and labor.  
Original main power rectifier parts are warranted for 5 years.

MADE IN USA  
APPLETON, WI



### Miller Electric Mfg. Co.

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Appleton, WI 54914 USA

### Equipment Sales US and Canada

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International FAX: 920-735-4125

### Web Site

www.MillerWelds.com



## Additional Features

**Pulsed TIG control** lowers the heat input into the part and reduces warping and distortion (optional on 250 DX models).

**TIGRunner™ system packages with Coolmate™ 3X cooler.** A 3-gallon cooling system equipped with a visual flow indicator ensures that the coolant is flowing. An external coolant filter stops foreign objects from entering the water cooled torch cable for better flow and longer life. Extended cooling capacity ensures maximum productivity. 3-year cooler warranty.

Stick welding features such as **Adaptive Hot Start™** provide good arc strikes without sticking. Once welding, the DIG control makes dynamic adjustments to the welder to ensure smooth E7018 and deep penetration E6010.

**Tilted operator interface and built-in consumable drawer** provide added convenience to your welding experience.

**Arc timer/cycle counter** records actual welding time and number of arc starts. Great for estimating job costs.

**Squarewave technology** developed and patented by Miller Electric in 1976. Squarewave technology was developed to improve your weld quality and make TIG welding easier. Miller Squarewave technology provides arc stability when welding aluminum, prevents arc rectification and eliminates tungsten erosion.

**Welding aluminum?** Oxides that form on aluminum melt at temperatures over 3700° F. The aluminum material that is located under this layer of oxide melts at 1200° F. The Syncrowave's **AC Squarewave welding current** automatically removes the layer of oxide which is necessary for producing high quality welds.

### Do you have power fluctuations?

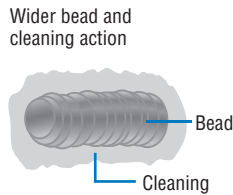
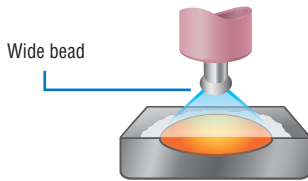
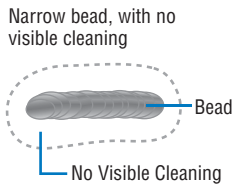
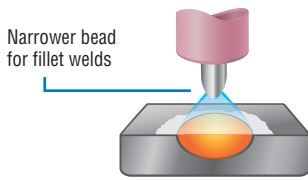
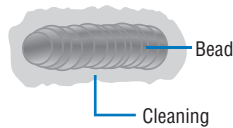
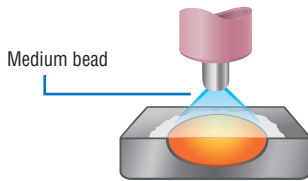
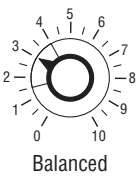
The Syncrowave compensates for power fluctuation without changing your welding parameters. **Line voltage compensation** works on fluctuating power  $\pm 10\%$ .

**NEW! Easy Load Dual Cylinder Rack** ➔ minimizes cylinder lifting. (Cylinder not included.)



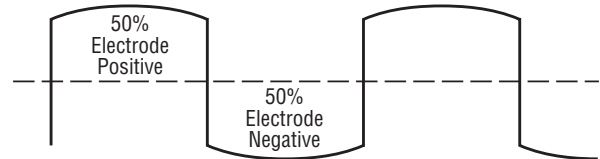
## AC Output: Balance Control

### AC Balance

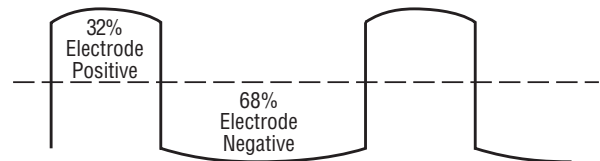


### Balanced Wave Function

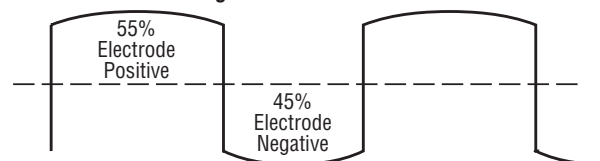
#### Balanced Wave



#### More Heat into Work



#### Greatest Cleaning Action



# Specifications (Subject to change without notice.)



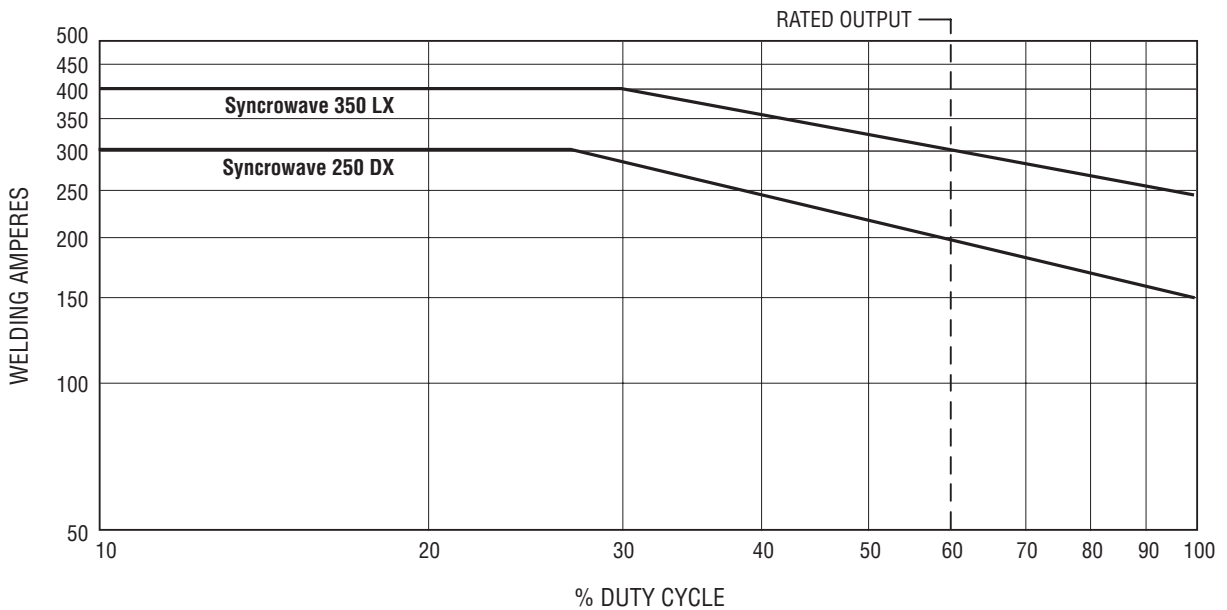
Model	Input Power	Welding Amp Range	Max OCV	Rated Output	Amps Input at AC Balance, Rated Load								Dimensions	Weight		
					200V	220V	230V	400V	440V	460V	520V	575V			KVA	KW
Syncrowave 250	60 Hz, 1-Phase	3-310 A	80 V	250 A at 30 V, 40% Duty Cycle	110	—	96	—	—	48	—	38	22	12	H: 33-1/4 in (845 mm)* W: 22-1/2 in (572 mm) D: 25 in (635 mm)** <b>with TIGRunner®</b> H: 46 in (1168 mm)* W: 28-1/2 in (724 mm) D: 40-1/2 in (1029 mm)**	378 lb (172 kg)
	50 Hz, 1-Phase			225 A at 29 V, 40% Duty Cycle	101	—	88	—	—	44	—	35	20	10		
Syncrowave 250 CE 220/400/ 440/520	50 or 60 Hz, 1-Phase			250 A at 30 V, 40% Duty Cycle	—	100	—	55	50	—	42	—	22	12	H: 33-1/4 in (845 mm)* W: 22-1/2 in (572 mm) D: 25 in (635 mm)**	378 lb (172 kg)
Syncrowave 350 All Models	50 or 60 Hz, 1-Phase	3-400 A	80 V	350 A at 34 V, 40% Duty Cycle	146	120	128	66	60	65	51	50	30	14	H: 33-1/4 in (845 mm)* W: 22-1/2 in (572 mm) D: 25 in (635 mm)** <b>with TIGRunner®</b> H: 46 in (1168 mm)* W: 28-1/2 in (724 mm) D: 40-1/2 in (1029 mm)**	496 lb (225 kg)
																596 lb (270 kg)

Note: See pg 6 for power factor correction kit. \*Add 3 in (76 mm) for lift eye. \*\*Add 1-1/2 in (38 mm) for handle.

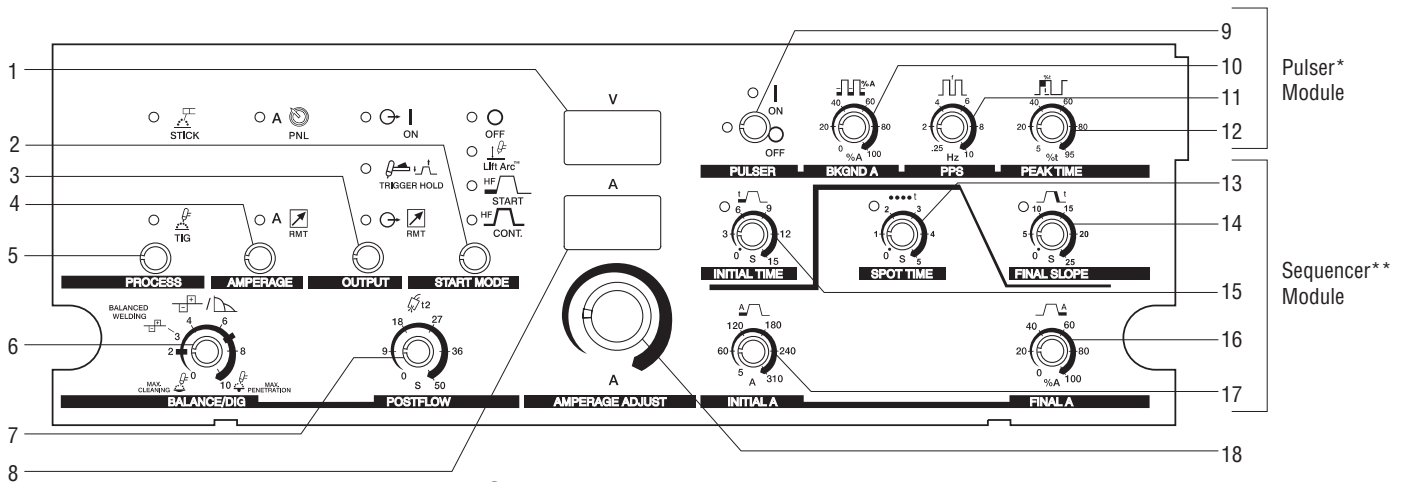
Certified to both the Canadian and U.S. Standards for welding equipment. All CE models conform to the applicable parts of the IEC 60974 series of standards.

# Performance Data

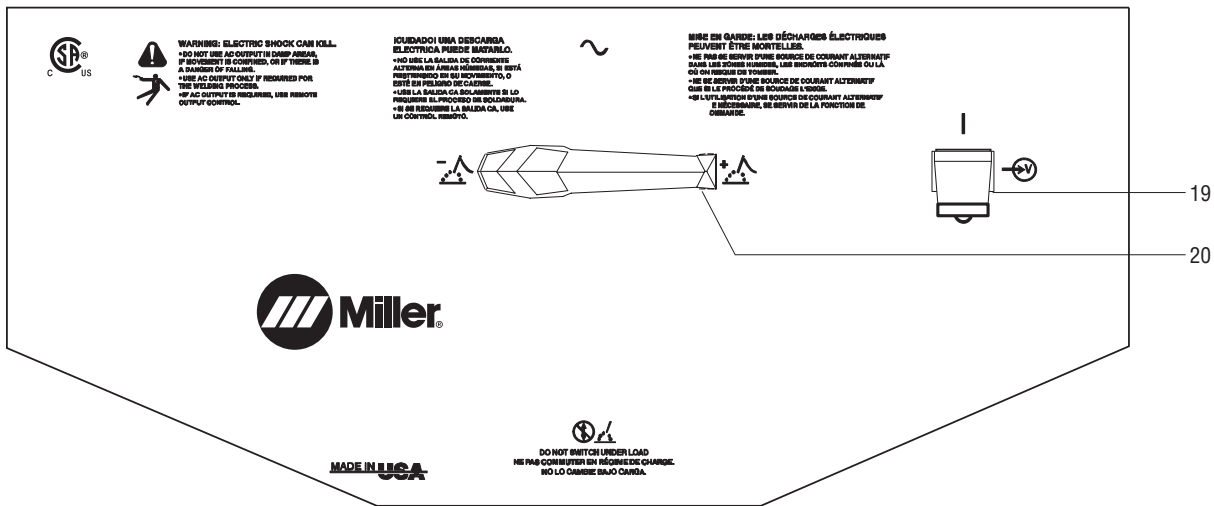
DUTY CYCLE CHART



# Control Panels



## Common Bottom Panel



1. Voltmeter Display
  2. Start Mode Control  
(Lift-Arc, HF Start, HF Continuous)
  3. Output Control
  4. Amperage Control (Panel/Remote)
  5. Process Control (Stick/TIG)
  6. Balance/Dig Control (0-10)
  7. Postflow Time Control (0-50 sec)
  8. Ammeter Display
  9. Pulsar Control\*
  10. Background Amps Control (0-100%)\*
  11. Pulse-Per-Second Control (0.25-10 Hz)\*
  12. Peak Time Control (5-95%)\*
  13. Spot Time Control (0-5 sec)\*
  14. Final Slope Control (0-25 sec)\*
  15. Initial Time Control (0-15 sec)\*
  16. Final Amperage Control (0-100%)\*
  17. Initial Amperage Control (3-310/400 A)\*
  18. Amperage Adjustment Control (3-310/400 A)
  19. Power Switch (On/Off)
  20. Output Selector Switch (AC/DC-/DC+)
- \*Optional Pulsar for 250 DX  
\*\*Optional Sequencer