**Quick Specs**

<table>
<thead>
<tr>
<th>Light Industrial Applications</th>
<th>Processes</th>
<th>Amperage Range</th>
<th>Max. Open-Circuit Voltage</th>
<th>Rated Output</th>
<th>Net Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precision Metal Fabrication</td>
<td>TIG (GTAW)</td>
<td>250: 3 – 310</td>
<td>80 VDC</td>
<td>250: 250 A</td>
<td>250: 378 lb. (172 kg)</td>
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<tr>
<td>Maintenance and Repair</td>
<td>Stick (SMAW)</td>
<td>350: 3 – 400</td>
<td></td>
<td>200 A at 28 VAC, 60% Duty Cycle</td>
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<tr>
<td>Aerospace</td>
<td>Pulsed TIG (GTAW-P)</td>
<td>350: 350 A</td>
<td></td>
<td>350: 350 A at 34 VAC, 40% Duty Cycle</td>
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<tr>
<td>Shipbuilding</td>
<td>Air Carbon Arc (CAC-A)</td>
<td>350: 300 A</td>
<td></td>
<td>300 A at 32 VAC, 60% Duty Cycle</td>
<td></td>
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<tr>
<td>Tube and Pipe</td>
<td>250: 3/16-in. maximum</td>
<td>350: 1/4-in. maximum</td>
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<td>350: 596 lb. (270 kg)</td>
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<tr>
<td>Automotive</td>
<td>250: 300 A</td>
<td>350: 350 A</td>
<td></td>
<td>350: 496 lb. (225 kg)</td>
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</tr>
<tr>
<td>Vocational</td>
<td>250: 250 A at 30 VAC, 40% Duty Cycle</td>
<td>350: 350 A at 34 VAC, 40% Duty Cycle</td>
<td></td>
<td>350: 378 lb. (172 kg)</td>
<td></td>
</tr>
</tbody>
</table>

**Input Power**

1-Phase Power

---

**AC balance** control provides adjustable oxide removal which is essential for creating the highest quality aluminum welds.

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

**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.

**High frequency** for non-contact arc initiation that reduces tungsten and material contamination.

**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.

---

**Syncrowave Complete Package comes complete with:**

- Syncrowave® power source
- Coolmate™ 3CS cooler
- No. 37 running gear
- TIG torch kit with accessories
- Remote foot control
- Four gallons of coolant

---

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

**Pulse.** Pulsing can increase puddle agitation, arc stability and travel speeds while reducing heat input and distortion (optional on 250 DX model).

**TIGRunner™ system packages with Coolmate™ 3CS cooler.** A three-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. Three-year cooler warranty.

**Hot Start™** adaptive control provides positive arc starts without sticking.

**Tilted operator interface** provides 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 by Miller in 1976 to improve your weld quality and make TIG welding easier. 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 degrees Fahrenheit. The aluminum material that is located under this layer of oxide melts at 1200 degrees Fahrenheit. 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 ±10 percent.

**Easy load dual cylinder rack** (see photo at right) minimizes cylinder lifting. Cylinder is not included.

---

**AC Output: Balance Control**

**AC Balance**

- **Balanced**
  - Medium bead
  - Visible oxide removal (etching)

- **Min. Cleaning**
  - Narrower bead for fillet welds
  - Minimum oxide removal (etching)

- **Max. Cleaning**
  - Medium bead
  - Visible oxide removal (etching)

**Balanced Wave Function**

- **Balanced Wave**
  - 50% Electrode Positive
  - 50% Electrode Negative

- **More Heat into Work**
  - 32% Electrode Positive
  - 68% Electrode Negative

- **Greatest Cleaning Action**
  - 55% Electrode Positive
  - 45% Electrode Negative
## Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Input Power</th>
<th>Welding Amperage Range</th>
<th>Rated Output</th>
<th>Amps Input at AC Balance, Rated Load</th>
<th>Max. OCV</th>
<th>Dimensions</th>
<th>Net Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syncro 250</td>
<td>1-phase, 60 Hz</td>
<td>3–310 A</td>
<td>250 A at 30 V, 40% duty cycle</td>
<td>110 — 96 — 48 — 38 22 12</td>
<td>80 V 33.25 in. (845 mm) * 220V 220V 230V 400V 440V 460V 520V 575V KVA KW</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1-phase, 50 Hz</td>
<td>3–310 A</td>
<td>225 A at 29 V, 40% duty cycle</td>
<td>101 — 88 — 44 — 35 20 10</td>
<td>80 V 33.25 in. (845 mm) * 220V 220V 230V 400V 440V 460V 520V 575V KVA KW</td>
<td></td>
<td></td>
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<tr>
<td>Syncro 250 IEC 220/440/440/520</td>
<td>1-phase, 50 or 60 Hz</td>
<td>3–310 A</td>
<td>250 A at 30 V, 40% duty cycle</td>
<td>100 — 55 50 — 42 — 22 12</td>
<td>80 V 33.25 in. (845 mm) * 220V 220V 230V 400V 440V 460V 520V 575V KVA KW</td>
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<tr>
<td>Syncrowave 350 All Models</td>
<td>1-phase, 50 or 60 Hz</td>
<td>3–400 A</td>
<td>350 A at 34 V, 40% duty cycle</td>
<td>146 120 128 66 60 65 51 50 30 14</td>
<td>80 V 33.25 in. (845 mm) * 220V 220V 230V 400V 440V 460V 520V 575V KVA KW</td>
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<td></td>
</tr>
</tbody>
</table>

Notes: See page 6 for Power Factor Correction Kit.

*Add 3 inches (76 mm) for lift eye. **Add 1.5 inches (38 mm) for handle.

IEC models conform to the following standards: IEC 60974-1: 2005, IEC 60974-10: 2004, and EN 50445

Certified by Canadian Standards Association to both the Canadian and U.S. Standards.

## Performance Data

### DUTY CYCLE CHART

- **Syncrowave 350 LX**
- **Syncrowave 250 DX**

<table>
<thead>
<tr>
<th>Welding Amperes</th>
<th>% Duty Cycle</th>
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<tr>
<td>500</td>
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<tr>
<td>450</td>
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<td>10</td>
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<table>
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<th>100</th>
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<tbody>
<tr>
<td>500</td>
<td>450</td>
<td>400</td>
<td>350</td>
<td>300</td>
<td>250</td>
<td>200</td>
<td>150</td>
<td>100</td>
<td>50</td>
</tr>
</tbody>
</table>
Control Panels

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 seconds)
8. Ammeter Display
9. Pulser 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 seconds)**
14. Final Slope Control (0–25 seconds)**
15. Initial Time Control (0–15 seconds)**
16. Final Amperage Control (0–100%)**
17. Initial Amperage Control (0–100%)**
18. Amperage Adjustment Control (3–310/400 A)
19. Output Selector Switch (AC/DC-/DC+)
20. Power Switch (On/Off)

*Optional Pulser for 250 DX
**Optional Sequencer
Syncrowave 250 DX and 350 LX Models/Packages

Syncrowave Power Sources

**Syncrowave 250 DX**
- #907 194 (200/230/460 VAC)
- #907 195 (230/460/575 VAC)
- #907 516 (220/400/440/520 VAC) IEC

**Syncrowave 350 LX**
- #907 198 (200/230/460 VAC)
- #907 199 (230/460/575 VAC)
- #907 517 (220/400/440/520 VAC) IEC

TIG torch connector sold separately. Power cord NOT included.

**TIGRunner® Packages**

**Syncrowave 250 DX TIGRunner 3CS**
- #907 194 032 (200/230/460 VAC)
- #907 195 032 (230/460/575 VAC)

**Syncrowave 350 LX TIGRunner 3CS**
- #907 198 032 (200/230/460 VAC)
- #907 199 032 (230/460/575 VAC)

Completely assembled. TIG Runner includes Syncrowave power source, Coolmate™ 3CS cooler, No. 37 running gear, and RFCS-14 HD remote foot control.

TIG torch connector, Dinse-style connector and TIG coolant sold separately. Power cord NOT included.

**Complete Packages**

**Syncrowave 250 DX Complete**
- #951 117 (200/230/460 VAC)
- #951 118 (230/460/575 VAC)

**Syncrowave 350 LX Complete W-375**
- #951 622 (200/230/460 VAC)
- #951 623 (230/460/575 VAC)

Completely assembled. Includes TIG Runner above (Syncrowave, Coolmate™ 3CS cooler, No. 37 running gear, and RFCS-14 HD remote foot control), plus four gallons of TIG coolant and a water-cooled torch kit (see kits at left) consisting of TIG torch, cable cover, accessory kit, flowmeter regulator, gas hose, torch connector, and work clamp with cable and Dinse-style connector.

Power cord NOT included.

---

**Syncrowave Complete**
- (Syncrowave TIGRunner, TIG Coolant and Torch Kit)

**TIG Coolant**

**W-250 (WP-20) Torch Kit**
- for Syncrowave 250 DX TIGRunner

**W-375 Torch Kit**
- for Syncrowave 350 LX TIGRunner
**No. 37 Running Gear  #195 282**
Includes two 10-inch (254 mm) wheels, two 5-inch (127 mm) casters, two-compartment rack (for gas cylinder(s), and handles. Provides excellent mobility and easy to install.

**Protective Cover  #195 320**
Heavy-duty, water- and mildew-resistant. Protects and maintains the finish of the welder.

**Remote Controls and Switches**

**Wireless Remote Foot Control  #300 429**
For remote current and contactor control. Receiver plugs directly into the 14-pin receptacle of Miller machine. 90-foot (27.4 m) operating range.

**RFCS-14 HD Foot Control  #194 744**
Maximum flexibility is accomplished with a reconfigurable cord that can exit the front, back or either side of the pedal. Foot pedal provides remote current and contactor control. Includes 20-foot (6 m) cord and 14-pin plug.

**RCCS-14 Remote Contactor and Current Control  #043 688**
North/south rotary-motion fingertip control attaches to TIG torch using two hook-and-loop fasteners. Great for applications that require a finer amperage control. Includes 26.5-foot (8 m) cord and 14-pin plug.

**RCC-14 Remote Contactor and Current Control  #151 086**
East/west rotary-motion fingertip control attaches to TIG torch using two hook-and-loop fasteners. Great for production or contractors that need quick ramp-up. Includes 26.5-foot (8 m) cord and 14-pin plug.

**RHC-14 Hand Control  #242 211 020**
Miniature hand control for remote current and contactor control. Dimensions: 4 x 4 x 3.25 inches (102 x 102 x 83 mm). Includes 20-foot (6 m) cord and 14-pin plug.

**RMLS-14 Switch  #129 337**
Momentary- and maintained-contact rocker switch for contactor control. Push forward for maintained contact and backward for momentary contact. Includes 26.5-foot (8 m) cord and 14-pin plug.

**RMS-14 On/Off Control  #187 208**
Momentary-contact switch for contactor control. Rubber-covered pushbutton dome switch ideal for repetitive on-off applications. Includes 26.5-foot (8 m) cord and 14-pin plug.

**Extension Cables for 14-Pin Remote Controls**
- #242 208 025 25 ft. (7.6 m)
- #242 208 050 50 ft. (15.2 m)
- #242 208 080 80 ft. (24.4 m)

**Coolant Systems**

For more information, see the Miller Coolant Systems literature sheet, Index No. AY/7.2.

**Coolmate™ 3X  #300 419**
Includes easy-load dual cylinder rack, running gear, handles and 3CS industrial water cooler—a perfect solution for water-cooled TIG torches.

**Low-Conductivity TIG Coolant  #043 810**
Sold in multiples of four in one-gallon recyclable plastic bottles. Miller coolants contains a base of ethylene glycol and deionized water to protect against freezing to -37°F (-38°C) or boiling to 227°F (108°C).
TIG (GTAW) Torch Connectors

Water-Cooled TIG Torch Connector

#195 377
50-mm Dinse-style with water return line. For use with all Weldcraft® water-cooled torches.

Air-Cooled TIG Torch Connector

#195 379
Used to adapt a Weldcraft® A-200 (WP-26) torch to a Dinse-style connector.

Genuine Miller® Accessories (continued)

Educational Materials

To order, please call Miller Literature at 866-931-9732 or visit MillerWelds.com/resources/tools.

Gas Tungsten Arc Welding (TIG) Publication #250 833

TIG Training DVD #196 567
Designed for anyone who’s looking to better understand the TIG process. Easy to understand instruction, proven teaching steps, and expert advice help to create a more effective academic approach to training. Subject areas covered include system components, process fundamentals, electrical theory, safety, power source operation.

Video – GTAW Setup Procedures #108 241
A detailed demonstration on preparing your equipment for TIG welding. Uses a Syncrowave 250 power source, but topics fit any TIG setup including air-or water-cooled systems. In-depth discussion of tungstens and gases. 13:00 minutes.

TIG Welding Gloves

Performance TIG Gloves

#263 345 X-Small (Women’s)
#263 346 Small (Women’s)
#263 347 Medium
#263 348 Large
#263 349 X-Large
Completely unlined, goat grain leather with triple-padded palm.

Water-Cooled Torch Kits

W-250 (WP-20) Torch Kit #300 185
Recommended for Syncrowave 250 DX
- Weldcraft® W-250 (WP-20) 25-foot (7.6 m) TIG torch with Dinse-style connector
- Torch cable cover
- Work clamp with 15-foot (4.6 m) 1/0 cable and Dinse-style connector
- Flowmeter regulator
- Gas hose (regulator to machine)
- AK4C torch accessory kit includes nozzles, collets, collet bodies and 2% ceriated tungsten electrodes (1/16, 3/32 and 1/8 inch)

W-375 Torch Kit #301 268
Recommended for Syncrowave 350 LX
- Weldcraft® W-375 25-foot (7.6 m) TIG torch with Dinse-style connector
- Torch cable cover
- Work clamp with 15-foot (4.6 m) 1/0 cable and Dinse-style connector
- Flowmeter regulator
- Gas hose (regulator to machine)
- AK4C torch accessory kit includes nozzles, collets, collet bodies and 2% ceriated tungsten electrodes (1/16, 3/32 and 1/8 inch)

W-400 (WP-18SC) Torch Kit #300 186
- Weldcraft® W-400 (WP-18SC) 25-foot (7.6 m) TIG torch with thread lock connector
- Torch cable cover
- Work clamp with 12-foot (3.7 m) 4/0 cable with thread lock connector
- Flowmeter regulator
- Gas hose (regulator to machine)
- AK18C torch accessory kit includes nozzles, collets, collet bodies and 2% ceriated tungsten electrodes (3/32, 1/8 and 5/32 inch)

Note: Requires Water-Cooled TIG Torch Connector #195 377 (sold separately) for Syncrowave 250 DX and 350 LX.

Tungsten

<table>
<thead>
<tr>
<th>Tungsten</th>
<th>Amp Range</th>
<th>2% Ceriated (AC/DC)</th>
<th>2% Lanthanated (AC/DC)</th>
</tr>
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<tbody>
<tr>
<td>1/16 in. (1.6 mm)</td>
<td>70 – 150 A</td>
<td>WC116X7</td>
<td>WL2116X7</td>
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<tr>
<td>3/32 in. (2.4 mm)</td>
<td>140 – 250 A</td>
<td>WC332X7</td>
<td>WL2332X7</td>
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<tr>
<td>1/8 in. (3.2 mm)</td>
<td>225 – 400 A</td>
<td>WC018X7</td>
<td>WL2018X7</td>
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<tr>
<td>5/32 in. (4.0 mm)</td>
<td>300 – 500 A</td>
<td>WC532X7</td>
<td>WL2532X7</td>
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<tr>
<td>Equipment and Options</td>
<td>Stock No.</td>
<td>Description</td>
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<tr>
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<tr>
<td><strong>Syncrowave® 250 DX</strong></td>
<td>#907 194</td>
<td>200/230/460 V, 50/60 Hz, Standard Model</td>
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<tr>
<td></td>
<td>#907 195</td>
<td>230/460/575 V, 50/60 Hz, Standard Model</td>
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<tr>
<td></td>
<td>#907 516</td>
<td>220/400/440/520 V, 50/60 Hz, IEC</td>
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<td></td>
<td>#907 194 032</td>
<td>200/230/460 V, 50/60 Hz, Syncrowave 250 DX TIGRunner® 3X</td>
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<td></td>
<td>#951 117</td>
<td>200/230/460 V, 50/60 Hz, Syncrowave 250 DX Complete</td>
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<td>#907 195 032</td>
<td>230/460/575 V, 50/60 Hz, Syncrowave 250 DX TIGRunner® 3X</td>
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<td><strong>Syncrowave® 350 LX</strong></td>
<td>#907 198</td>
<td>200/230/460 V, 50/60 Hz, Standard Model</td>
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<td>#951 623</td>
<td>230/460/575 V, 50/60 Hz, Syncrowave 350 LX Complete</td>
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</tbody>
</table>

**Sequencer Module**
- Stock No. #300 547
  - Field. For Syncrowave 250 DX and 350 LX

**Pulser Module**
- Stock No. #300 548
  - Field. For Syncrowave 250 DX

**Power Factor Correction Kit**
- Stock No. #194 692
  - Field. For Syncrowave 250 DX
- Stock No. #043 757
  - Field. For Syncrowave 350 LX

**TIG Torch Kits and Connectors**

**Water-Cooled Torch Kits**
- Stock No. #300 185
  - W-250 (WP-20) (recommended for Syncrowave 250 DX)
- Stock No. #300 990
  - W-280 (WP-280)
- Stock No. #301 268
  - W-375 (recommended for Syncrowave 350 LX)
- Stock No. #300 186
  - W-400 (WP-18SC)

**Water-Cooled TIG Torch Connector**
- Stock No. #195 377
  - Connects Weldcraft™ water-cooled torches to Dinse-style connector

**Air-Cooled TIG Torch Connector**
- Stock No. #195 379
  - Connects Weldcraft™ A-200 (WP-26) torch to Dinse-style connector

**Tungsten**
- See page 7

**Remote Controls**

**Wireless Remote Foot Control**
- Stock No. #300 429
  - Foot control with wireless 90-ft. (27.4 m) operating range

**Wireless Remote Hand Control**
- Stock No. #300 430
  - Hand control with wireless 300-ft. (91.4 m) operating range

**RCCS-14**
- Stock No. #043 688
  - North/south fingertip control

**RCC-14**
- Stock No. #151 086
  - East/west fingertip control

**RFCS-14 HD**
- Stock No. #194 744
  - Heavy-duty foot control

**RHC-14**
- Stock No. #242 211 020
  - Hand control

**RML-14**
- Stock No. #129 337
  - Momentary/maintained rocker switch

**RMS-14**
- Stock No. #187 208
  - Momentary rubber dome switch

**Extension Cables**
- See page 6

**Accessories**

**No. 37 Running Gear**
- Stock No. #195 282

**Protective Cover**
- Stock No. #195 320

**Coolmate™ 3X**
- Stock No. #300 419
  - Coolmate 3CS with cart and dual cylinder rack

**TIG Coolant**
- Stock No. #043 810
  - 1-gallon plastic bottle. Protects against freezing to -37° Fahrenheit (-38° C) or boiling to 227° Fahrenheit (108° C)

**Cable Connectors**
- Supplied with power source and torch kits

**Dinse-Style Connector 50 mm (1 male)**
- Stock No. #042 418
  - Used to connect weld lead to Dinse terminal machine

**Dinse-Style Connector 50 mm (1 male, 1 female)**
- Stock No. #042 419
  - Used to extend weld cables

**Dinse/Tweeco® Adapter**
- Stock No. #042 465
  - Male Dinse to female Tweeco

**Dinse/Cam-Lok Adapter**
- Stock No. #042 466
  - Male Dinse to female Cam-Lok

**Gas Tungsten Arc Welding (TIG) Publication**
- Stock No. #250 833

**TIG Training DVD**
- Stock No. #196 567

**Video – GTAW Setup Procedures**
- Stock No. #108 241
  - See page 7

**TIG Welding Gloves**
- See page 7

**Date:**

**Total Quoted Price:**