

Syncrowave® 250 DX/350 LX TIG/Stick Welding Power Source

Quick Specs



Light 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 on 250 DX models)
Air Carbon Arc (CAC-A)
250: 3/16-in. maximum
350: 1/4-in. maximum

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)



Standard Machine

See Page 2 for Additional Features

Syncrowave Complete Package includes:

- Syncrowave®
- Coolmate™ 3CS 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 page 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.



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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™ 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.

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 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. 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° Fahrenheit. The aluminum material that is located under this layer of oxide melts at 1200° 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?

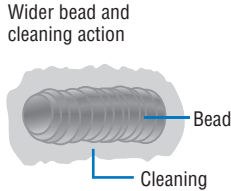
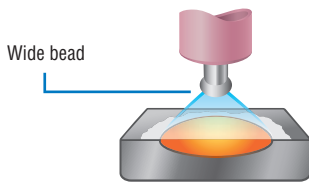
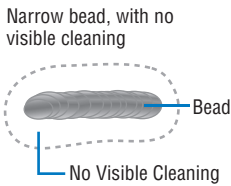
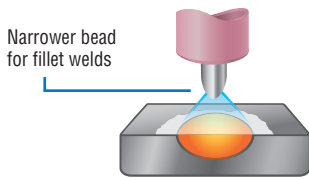
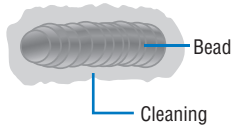
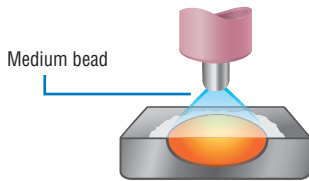
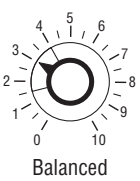
The Syncrowave compensates for power fluctuation without changing your welding parameters. **Line voltage compensation** works on fluctuating power ± 10 percent.

Easy Load Dual Cylinder Rack (see photo at right) minimizes cylinder lifting. Cylinder is not included.



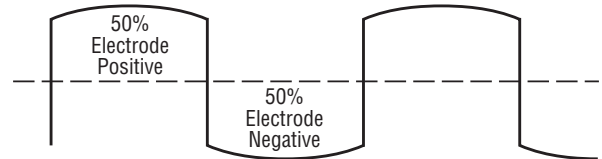
AC Output: Balance Control

AC Balance

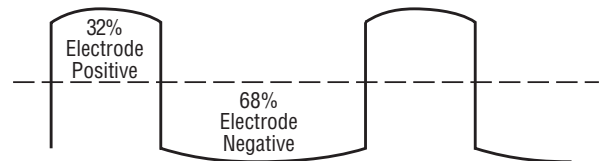


Balanced Wave Function

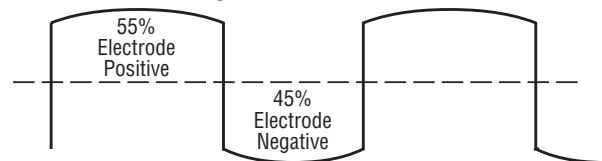
Balanced Wave



More Heat into Work



Greatest Cleaning Action



Specifications (Subject to change without notice.)



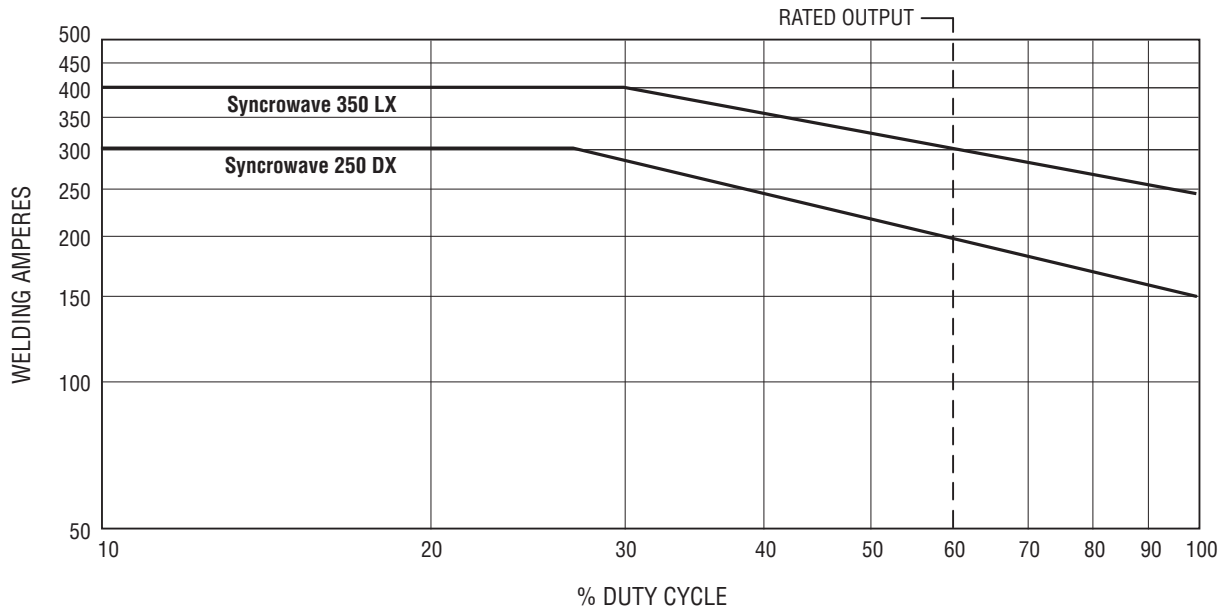
Model	Input Power	Welding Amp Range	Max OCV	Rated Output	Amps Input at AC Balance, Rated Load								Dimensions	Weight		
					200V	220V	230V	400V	440V	460V	520V	575V			KVA	KW
Syncrowave 250	60 Hz, 1-Phase	3-310 A	80 V	250 A at 30 V, 40% Duty Cycle	110	—	96	—	—	48	—	38	22	12	H: 33.25 in. (845 mm)* W: 22.5 in. (572 mm) D: 25 in. (635 mm)** with TIGRunner® H: 46 in. (1168 mm)* W: 28.5 in. (724 mm) D: 40.5 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 IEC 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: 33.25 in. (845 mm)* W: 22.5 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: 33.25 in. (845 mm)* W: 22.5 in. (572 mm) D: 25 in. (635 mm)** with TIGRunner® H: 46 in. (1168 mm)* W: 28.5 in. (724 mm) D: 40.5 in. (1029 mm)**	496 lb. (225 kg) 596 lb. (270 kg)

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

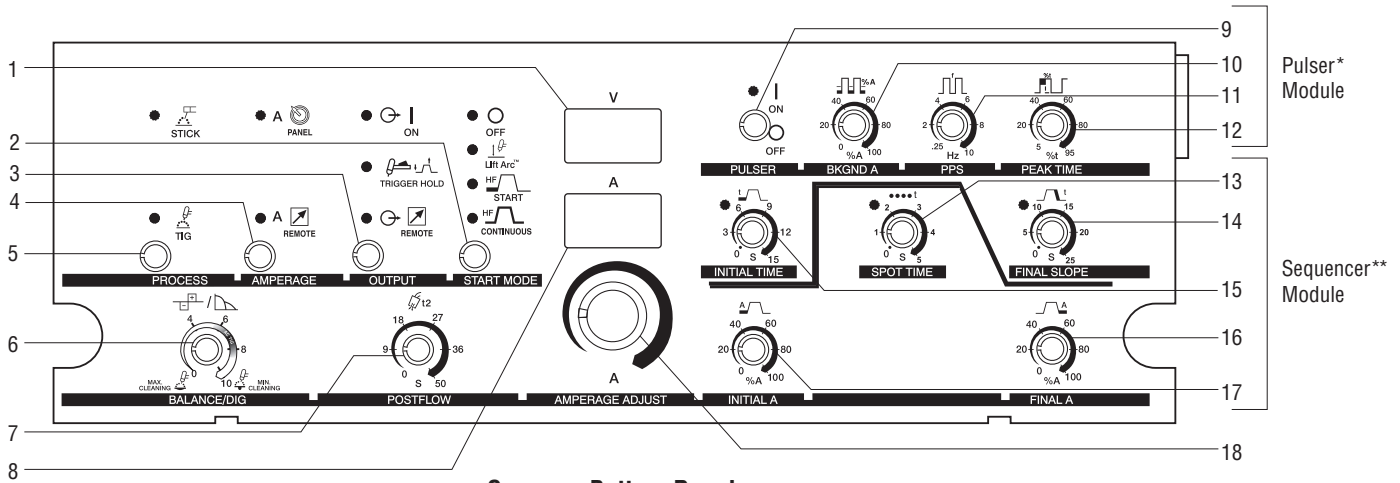
Certified by Canadian Standards Association to both the Canadian and U.S. Standards.

Performance Data

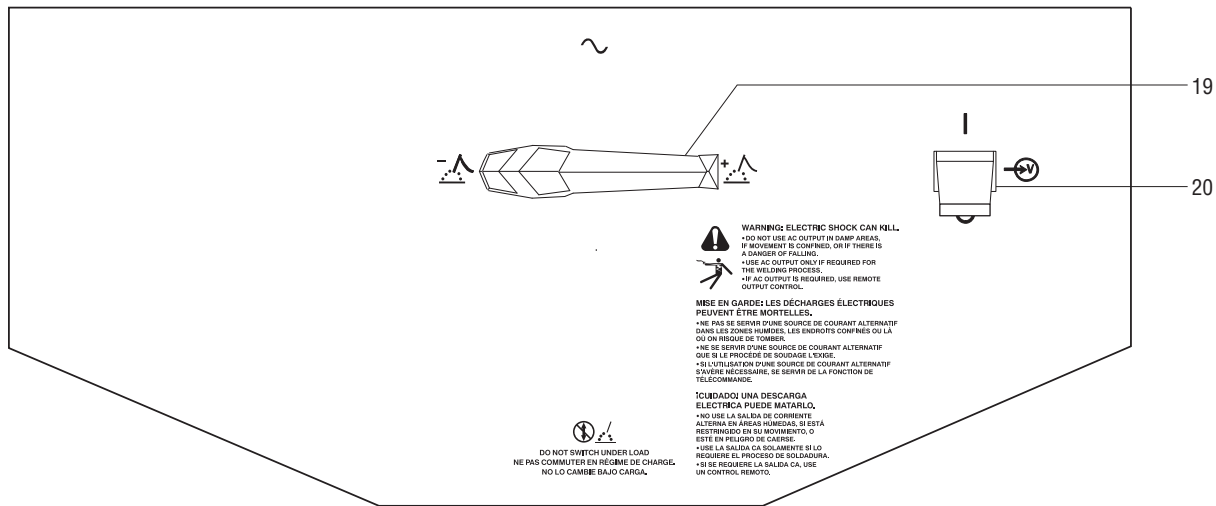
DUTY CYCLE CHART



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 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

Packages

Standard Model



Syncrowave TIGRunner



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



250 A Water-Cooled Torch Kit
for Syncrowave 250 DX TIGRunner



310 A Water-Cooled Torch Kit
for Syncrowave 350 LX TIGRunner

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

Primary cord and TIG torch adapter
sold separately.

TIGRunner® Packages

Syncrowave® 250 DX TIGRunner® 3CS

#907 194-03-2 (200/230/460 VAC)

#907 195-03-2 (230/460/575 VAC)

Syncrowave® 350 LX TIGRunner® 3CS

#907 198-03-2 (200/230/460 VAC)

#907 199-03-2 (230/460/575 VAC)

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

Primary cord, TIG torch adapter, Dinse connector and TIG coolant sold separately.

Syncrowave® Complete Packages

Syncrowave® 250 DX Complete

#951 117 (200/230/460 VAC)

#951 118 (230/460/575 VAC)

Syncrowave® 350 LX Complete

#951 119 (200/230/460 VAC)

#951 120 (230/460/575 VAC)

Completely assembled. Includes TIGRunner 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 to left) consisting of torch, cable cover, accessory kit, regulator/flowmeter, gas hose, torch adapter, and weld lead with clamp and Dinse connector.

Primary cord sold separately.

Genuine Miller® Options

Field Options

Sequencer Module

#300 547 Field Kit for Syncrowave 250/350
Effective with serial number LE282983.
Provides a starting current higher or lower than the welding current. Provides final slope and final current for trailing the weld. Provides a spot timer for TIG spot application.

Pulser Module

#300 548 Field Kit for Syncrowave 250 DX
Effective with serial number LE282983.
For welding of thin materials. Provides a heating and cooling effect of the weld puddle to reduce heat input and control distortion of the material. Provides 0.25 to 10 pulses per second.

Power Factor Correction Kit

#194 692 Field Kit for Syncrowave 250 DX
#043 757 Field Kit for Syncrowave 350 LX
Reduces primary amperage draw by approximately 25 percent allowing the use of smaller breakers/fuses and smaller primary cord. Power Factor *does not* reduce the power consumption/electrical bill.

Genuine Miller® Accessories



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.



RCCS-14 Remote Contactor and Current Control #043 688

North/south rotary-motion fingertip control fastens to TIG torch using two Velcro® straps. 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 fastens to TIG torch using two Velcro® straps. Great for production or contractors that need quick ramp-up. Includes 26.5-foot (8 m) cord and 14-pin plug.



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.



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)

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.



Wireless Remote Hand Control #300 430

For remote current and contactor control. Receiver plugs directly into the 14-pin receptacle of Miller machine. 300-foot (91.4 m) operating range.

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.

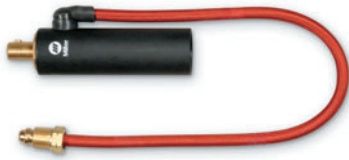


Low-Conductivity TIG Coolant #043 810

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° Fahrenheit (-38° C) or boiling to 227° Fahrenheit (108° C).

Genuine Miller® Accessories (continued)

TIG (GTAW) Torch Adapters



Water-Cooled Dinse #195 377
Used to adapt a 250- or 350-amp water-cooled torch (WP20, WP18, CS310) to a Dinse-style connector.



Air-Cooled Dinse #195 379
Used to adapt a one-piece 200-amp air-cooled torch (WP26) to a Dinse-style connector.

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



TIG Gloves
#249 178 Medium
#249 179 Large
#249 180 X-Large
Durable goatskin back and palm for extended wear and ultimate dexterity.

Flame-resistant cotton fleece back and padded palm provide excellent protection.

Torch Kits



250 A Water-Cooled Torch Kit #300 185
Recommended for Syncrowave 250 DX

- 25-foot (7.6 m) Weldcraft® WP20 torch
- Torch cable cover
- AK4C torch accessory kit includes shielding cups, collets, collet bodies and 2% ceriated tungsten electrodes (1/16-, 3/32- and 1/8-inch)
- Regulator/flowmeter HM2051A-580
- Gas hose (regulator to machine)
- Water-cooled Dinse torch adapter
- 15-foot (4.6 m) 1/0 weld lead with clamp (work or ground lead) and Dinse connector



310 A Water-Cooled Torch Kit #300 183
Recommended for Syncrowave 350 LX

- 25-foot (7.6 m) Weldcraft® CS310 torch
- Torch cable cover
- CS310AKC torch accessory kit includes shielding cups, collets, collet bodies and 2% ceriated tungsten electrodes (1/16-, 3/32- and 1/8-inch)
- Regulator/flowmeter HM2051A-580
- Gas hose (regulator to machine)
- Water-cooled Dinse torch adapter
- 15-foot (4.6 m) 1/0 weld lead with clamp (work or ground lead) and Dinse connector



400 A Water-Cooled Torch Kit #300 186

- 25-foot (7.6 m) Weldcraft® WP18SC torch
- Torch cable cover
- AK18C torch accessory kit includes shielding cups, collets, collet bodies and 2% ceriated tungsten electrodes (3/32-, 1/8- and 5/32-inch)
- Regulator/flowmeter H1954D-580
- Gas hose (regulator to machine)
- Water-cooled thread lock torch adapters
- 12-foot (3.7 m) 4/0 weld lead with clamp (work or ground lead)

Note: Requires water-cooled Dinse torch adapter #195 377 (sold separately) for Syncrowave 250 DX and 350 LX.

Tungsten

Tungsten	Amp Range	2% Ceriated (AC/DC)	2% Lanthanated (AC/DC)
1/16 in. (1.6 mm)	70–150 A	WC116X7	WL2116X7
3/32 in. (2.4 mm)	140–250 A	WC332X7	WL2332X7
1/8 in. (3.2 mm)	225–400 A	WC018X7	WL2018X7
5/32 in. (4.0 mm)	300–500 A	WC532X7	WL2532X7

Ordering Information

Equipment and Options	Stock No.	Description	Qty.	Price
Syncrowave® 250 DX	#907 194	200/230/460 V, 50/60 Hz, Standard Model		
	#907 195	230/460/575 V, 50/60 Hz, Standard Model		
	#907 516	220/400/440/520 V, 50/60 Hz, IEC		
	#907 194-03-2	200/230/460 V, 50/60 Hz, Syncrowave 250 DX TIGRunner® 3X		
	#951 117	200/230/460 V, 50/60 Hz, Syncrowave 250 DX Complete		
	#907 195-03-2	230/460/575 V, 50/60 Hz, Syncrowave 250 DX TIGRunner® 3X		
Syncrowave® 350 LX	#907 198	200/230/460 V, 50/60 Hz, Standard Model		
	#907 199	230/460/575 V, 50/60 Hz, Standard Model		
	#907 517	220/400/440/520 V, 50/60 Hz, IEC		
	#907 198-03-2	200/230/460 V, 50/60 Hz, Syncrowave 350 LX TIGRunner® 3X		
	#951 119	200/230/460 V, 50/60 Hz, Syncrowave 350 LX Complete		
	#907 199-03-2	230/460/575 V, 50/60 Hz, Syncrowave 350 LX TIGRunner® 3X		
Sequencer Module	#300 547	Field. For Syncrowave 250 DX and 350 LX		
	#300 548	Field. For Syncrowave 250 DX		
Pulser Module	#300 548	Field. For Syncrowave 250 DX		
Power Factor Correction Kit	#194 692	Field. For Syncrowave 250 DX		
	#043 757	Field. For Syncrowave 350 LX		
TIG Torch Kits				
Weldcraft® 250 A Water-Cooled Torch Kit	#300 185	See page 7. Recommended for Syncrowave 250 DX TIGRunner 3X		
Weldcraft® 310 A Water-Cooled Torch Kit	#300 183	See page 7. Recommended for Syncrowave 350 LX TIGRunner 3X		
Weldcraft® 400 A Water-Cooled Torch Kit	#300 186	See page 7		
Consumables and Tungsten		See page 7		
Gas Cylinder, Hose and Fittings				
Remote Controls				
Wireless Remote Foot Control	#300 429	Foot control with wireless 90-ft. (27.4 m) operating range		
Wireless Remote Hand Control	#300 430	Hand control with wireless 300-ft. (91.4 m) operating range		
RCCS-14	#043 688	North/south fingertip control		
RCC-14	#151 086	East/west fingertip control		
RFCS-14 HD	#194 744	Heavy-duty foot control		
RHC-14	#242 211 020	Hand control		
RMLS-14	#129 337	Momentary/maintained rocker switch		
RMS-14	#187 208	Momentary rubber dome switch		
	#242 208 025	25 ft. (7.6 m)		
	#242 208 050	50 ft. (15.2 m)		
	#242 208 080	80 ft. (22.9 m)		
Accessories				
No. 37 Running Gear	#195 282			
Protective Cover	#195 320			
Coolmate™ 3X	#300 419	Coolmate 3CS with cart and dual cylinder rack		
TIG Coolant	#043 810	Sold in multiples of four in one-gallon plastic bottles		
Torch Adapters	#195 377	Adapts 250 or 350 A water-cooled torch to Dinse-style connector		
<i>Supplied with power source and torch kits</i>	#195 379	Adapts 1-piece 200 A air-cooled torch to Dinse-style connector		
Cable Connectors		<i>Supplied with power source and torch kits</i>		
Dinse Connector 50 mm (1 male)	#042 418	Used to connect weld lead to Dinse terminal machine		
Dinse Connector 50 mm (1 male, 1 female)	#042 419	Used to extend weld cables		
Tweco Terminal Adapter	#042 465	Male Dinse to female Tweco		
Cam-Lok Terminal Adapter	#042 466	Male Dinse to female Cam-Lok		
Gas Tungsten Arc Welding (TIG) Publication	#250 833			
TIG Training DVD	#196 567			
Video – GTAW Setup Procedures	#108 241			

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

Date:

Total Quoted Price:

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