

Syncrowave® 350 LX

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**TIG/Stick Welding
Power Source** 

Quick Specs



Industrial/Heavy Industrial Applications

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

Processes

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

Input Power Requires 1-Phase Power

Amperage Range 3–400

Max. Open-Circuit Voltage 80

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

Weight 515 lb (234 kg)

The Power of Blue.®

Squarewave output with AC balance control features adjustable penetration and cleaning action while increasing arc stability on various aluminum alloys, and helps eliminate tungsten spitting and arc rectification.

NEW! Built-in cable hangers on both sides conveniently fold out of power supply to allow all weld cables to be neatly stored, to prevent torch or cable damage.

NEW! Built-in consumable storage drawer located on the front panel allows the operator to store and readily access the needed consumables to be more productive.

Line voltage compensation keeps power source constant regardless of fluctuations in input power ($\pm 10\%$).

Last procedure recall automatically recalls the last procedure set-up when switching polarity. Prevents operator confusion and reduces training time requirements.

Help messages provide assistance to the operator about output status for machine circuitry.

Standard built-in **preflow** 0–10 seconds will purge the weld area prior to welding. Standard built-in **postflow** 0–50 seconds will protect the weld and tungsten when welding is completed.



Syncrowave 350 LX TIGRunner® with torch shown

Dual digital meters allow for quick and easy viewing of actual and preset values of amperage and voltage. Allows for greater accuracy and repeatability in the welding procedure.

Fan-On-Demand™ reduces maintenance by reducing the amount of airborne contaminants pulled through the machine.

Lift-Arc™ for DC TIG arc starts allows TIG starting without the use of high frequency. This feature starts the arc in DC at any amperage without contaminating the weld or the tungsten.

Adaptive Hot Start™ for Stick arc starts automatically increases the output amperage at the start of a weld should the start require it. Prevents the electrode from sticking and creating an inclusion.

Built-in pulser provides a heating and cooling effect on the weld puddle to reduce the heat input and distortion of the material.

Optional built-in sequencer allows the operator to set a start current that is higher or lower than the welding current. The final slope/final amperage controls provide crater fill and tailout of the weld.



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

MADE IN **USA**
APPLETON, WI **USA**



Miller Electric Mfg. Co.
An Illinois Tool Works Company
1635 West Spencer Street
Appleton, WI 54914 USA

International Headquarters
Phone: 920-735-4505
USA FAX: 920-735-4134
Canadian FAX: 920-735-4169
International FAX: 920-735-4125

Web Site
www.MillerWelds.com



Specifications (Subject to change without notice.)



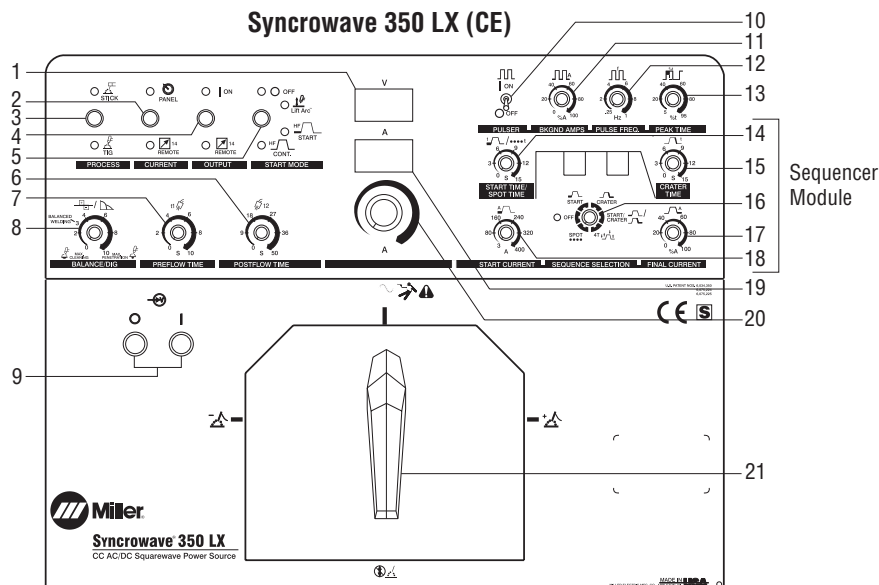
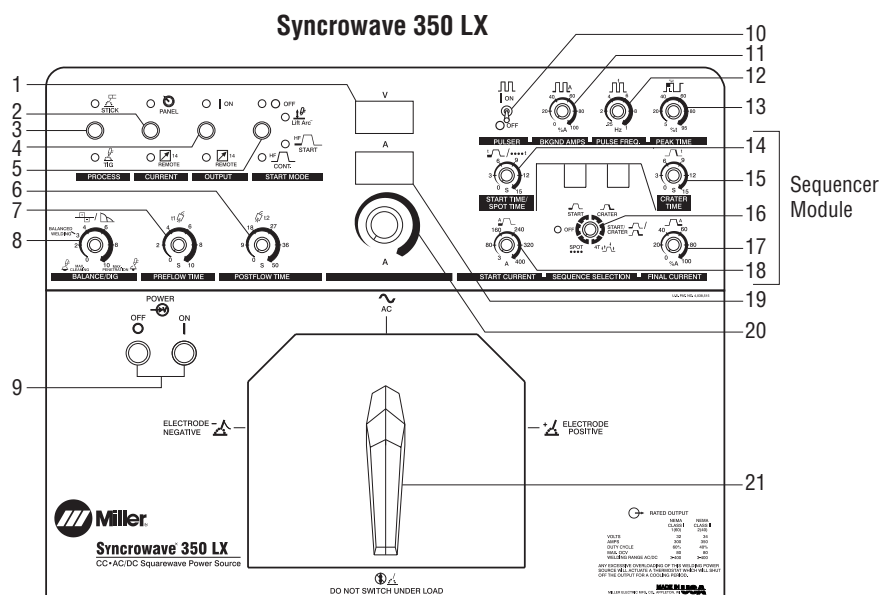
Rated Output	Power Factor Correction	50/60 Hz Amps Input at AC Balance, Rated Load, 1-phase										Welding Amp Range	Max OCV	Dimensions	Weight
		200 V	220 V	230 V	400 V	440 V	460 V	520 V	575 V	KVA	KW				
350 A, 34 VAC, 40% Duty Cycle	Without	129	117	112	65	58	56	49	45	25.8	14.3	3-400 A	80 V	H: 40 in (1016 mm) W: 22-7/8 in (581 mm) D: 25-1/4 in (641 mm)	515 lb (234 kg)
	With	98	89	85	49	44	43	37	34	19.6	14.0				
300 A, 32 VAC, 60% Duty Cycle	Without	150	137	131	75	68	66	57	53	30.5	17.7	3-400 A	80 V		
	With	118	107	103	59	53	52	45	41	23.6	17.7				

*While idling. Certified by Canadian Standards Association to both Canadian and U.S. Standards. Conforms to European standards.

Control Panel (English version shown.)

1. Voltmeter Display
2. Current Control
3. Process Control
4. Output Control
5. Start Mode Control
6. Postflow Time Control
7. Preflow Time Control
8. Balance/Dig Control
9. Power Switch Push Buttons
10. Pulse On/Off Switch
11. Background Amps Control
12. Pulse Frequency Control
13. Peak Time Control
14. Start Time/Spot Time Control*
15. Crater Time Control*
16. Sequence Selection Switch*
17. Final Current Control*
18. Start Current Control*
19. Ammeter Display
20. Amperage Adjustment Control
21. Output Selector Switch

*Sequencer Module

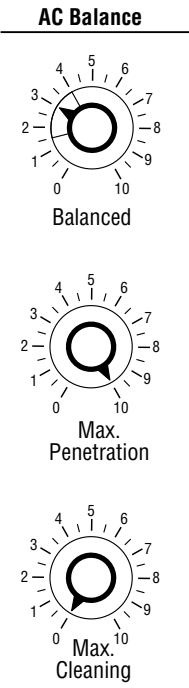
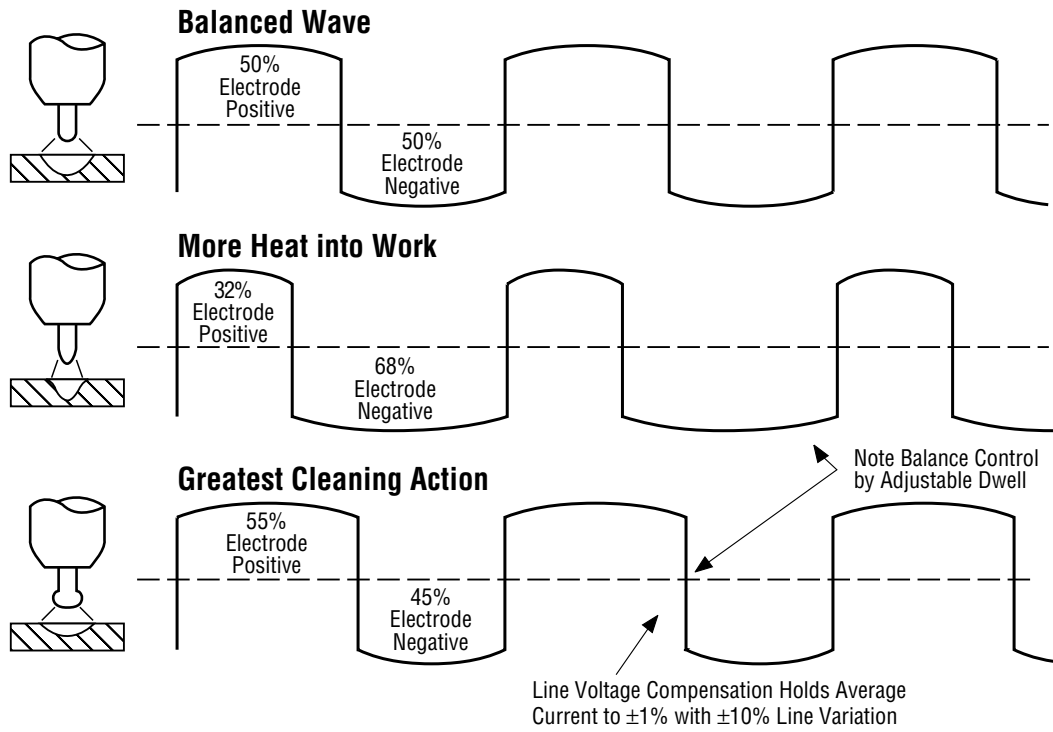


Control Panel Parameter Values

A. Preflow (s)	0–10.0	E. Background Amperage (%A)	0–100*	I. Start Current (A)	3–400*
B. Balance/Dig	0–10	F. Pulse Frequency (Hz)	.25–10.0*	J. Spot Time (s)	0–15*
C. Postflow (s)	0–50.0	G. Peak Percent Time (%)	5–95*	K. Crater Time (s)	0–15*
D. Weld Amperage (A)	3–400	H. Start Time (s)	0–15*	L. Final Current (%A)	0–100*

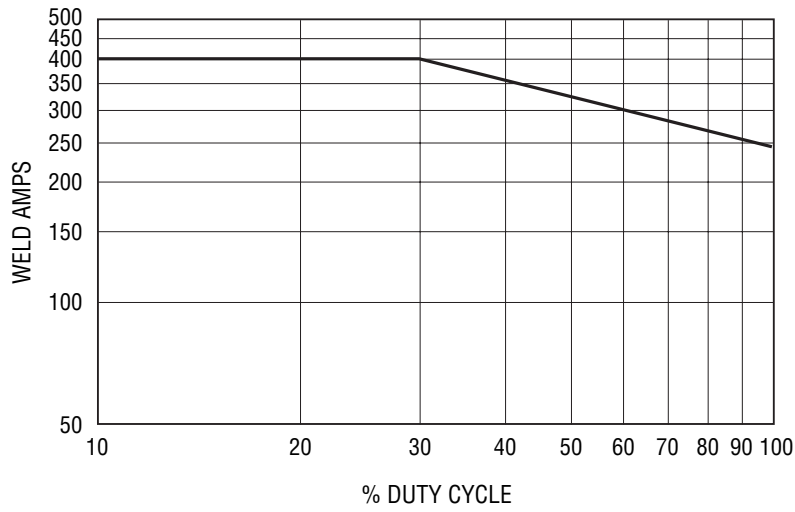
*Optional

Balanced Output Control

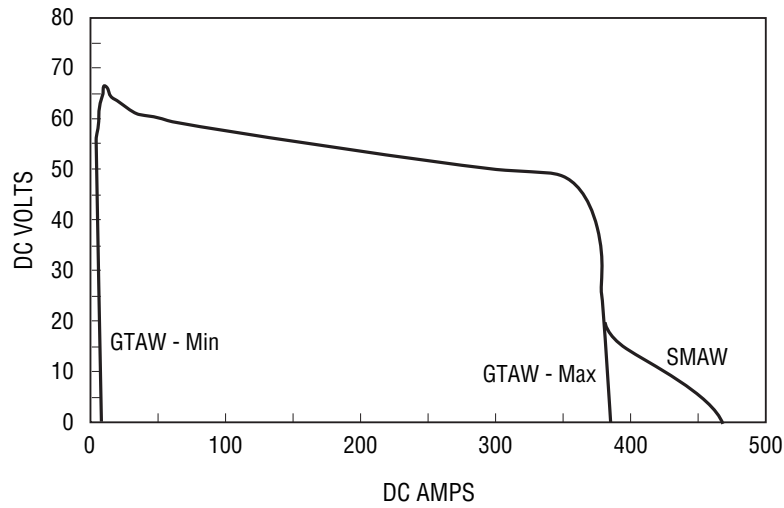


Balanced Wave Function

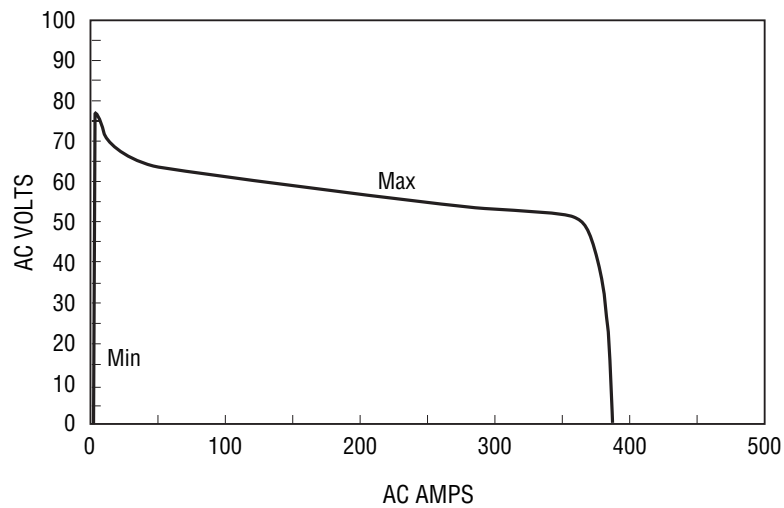
DUTY CYCLE CHART



DC VOLT/AMP CURVES



AC VOLT/AMP CURVES



Genuine Miller Options

TIGRunner Packages

Syncrowave 350 LX TIGRunner® #903 736

Includes Syncrowave 350 LX (model #903 513), Cool Runner™ 3X, No. 32 Running Gear, and remote foot control (completely assembled). Also includes 45V11 TIG block.

Syncrowave 350 LX TIGRunner® with Torch #903 736-01-1

Includes Syncrowave 350 LX (model #903 513), Cool Runner™ 3X, No. 32 Running Gear, and remote foot control (completely assembled). Also a 25 ft, 250 amp water-cooled DB20M25R Diamondback™ torch, work clamp, 45V11 TIG block, 10 ft gas hose, regulator/flowmeter, cable cover and an AK-4 accessory kit.

Sequencer Module #043 788 Field Provides a starting current higher or lower than the welding current. Provides final slope and final current for trailing the weld. Provides a spot control for TIG spot application.

Power Factor Correction Kit #043 757 Field

Genuine Miller Accessories



No. 32 Running Gear #194 997

Includes two 10 in (254 mm) wheels, two 5 in (127 mm) casters, two-compartment rack (for gas cylinder(s) or Coolmate V3 coolant system), and handles. Provides excellent mobility and easy to install.



RCCS-14 Remote Contactor and Current Control #043 688 14-pin plug For all Miller solid-state power sources after serial number JK674521. 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 ft (8 m) control cord.



RMS-14 On/Off Control #187 208 For all Miller solid-state power sources after serial number JK674521. Momentary-contact switch for contactor control. Rubber-covered pushbutton dome switch ideal for repetitive on-off applications. Includes 26.5 ft (8 m) cord and 14-pin plug.



RCC-14 Remote Contactor and Current Control #151 086 14-pin plug For all Miller solid-state power sources after serial number JK674521. Side-to-side 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 ft (8 m) control cord.



RHC-14 Hand Control #129 340 Miniature hand control for remote current and contactor control. Dimensions: 4 in (102 mm) x 4 in (102 mm) x 3-1/4 in (82 mm). Includes 20 ft (6 m) cord and 14-pin plug.

Remote Controls and Switches



RFCS-14 HD Foot Control #194 744 For all Miller solid-state power sources after serial number JK674521. This new design increases stability with a larger base, and durability with a heavier cord. 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 ft (6 m) cord and 14-pin plug.



RMLS-14 Switch #129 337 For all Miller solid-state power sources after serial number JK674521. Momentary- and maintained-contact rocker switch for contactor control. Push forward for maintained contact and backward for momentary contact. Includes 26.5 ft (8 m) cord and 14-pin plug.

Extension Cords for 14-Pin Remote Controls
#122 973 25 ft (7.6 m)
#122 974 50 ft (15.2 m)
#122 975 75 ft (23 m)

Gas Tungsten Arc (TIG) Welding Book #170 555

To order this item, distributors can call the Miller Literature Distribution Center at 1-920-751-2120, or FAX 1-920-751-2121. 86 pages — 8-1/2 x 11 in. A comprehensive text on all aspects of the GTAW process. Filled with figures and tables to illustrate process technique and equipment setup. Glossary of TIG terms also provided.

Video – GTAW Setup Procedures #108 241

To order this item, distributors can call the Miller Literature Distribution Center at 1-920-751-2120, or FAX 1-920-751-2121. 13:00 minutes. 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.

TIG Training CD #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.

TIG (GTAW) Torches

Diamondback™ TIG Torches

The NEW Diamondback line of ergonomically designed TIG torches from Miller Electric complements the most popular TIG power source line available today. The Diamondback torch line includes both air-cooled and water-cooled models. The air-cooled models range in size from 125 to 200 A. The water-cooled models include 250 and 350 A torches. All models are standard with a rigid head. See Diamondback TIG Torch Selector Guide.



Water Coolant Systems

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

Coolmate™ 3

#043 007 115 VAC
#043 007-01-2 115 VAC, CE
#043 008 230 VAC
#043 008-01-2 230 VAC, CE

For use with water-cooled torches rated up to 600 amps. Unique paddle-wheel indicator, external filter and easy-fill spout.

Coolmate™ V3

#043 009 115 VAC
#043 009-01-2 115 VAC, CE

For use with water-cooled torches rated up to 500 amps. Vertical design conveniently mounts to Miller cylinder rack in place of one cylinder.

Coolmate™ 4

#042 288 115 VAC
#042 288-01-5 115 VAC, CE

For use with water-cooled torches rated up to 600 amps. Tough molded polyethylene case with carrying handle.

Cool Runner™ 3X

#043 994 115 VAC
#043 994-01-1 115 VAC, CE

Provides the perfect solution for industrial, water-cooled TIG applications. For water-cooled TIG torches rated up to 500 amps.

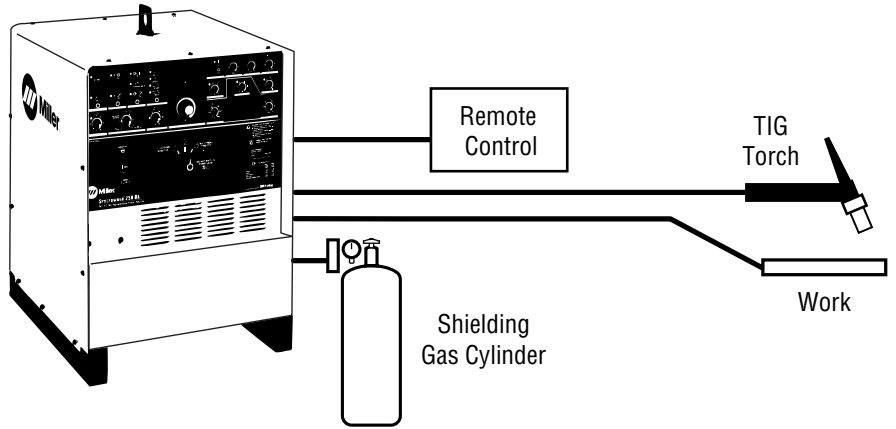
Low Conductivity Coolant #043 810

Sold in cases of four 1-gallon recyclable plastic bottles. Miller coolants contain a base of ethylene glycol and deionized water to protect against freezing to -37°F (-38°C) or boiling to 227°F (108°C). Also contains a compound that resists algae growth.

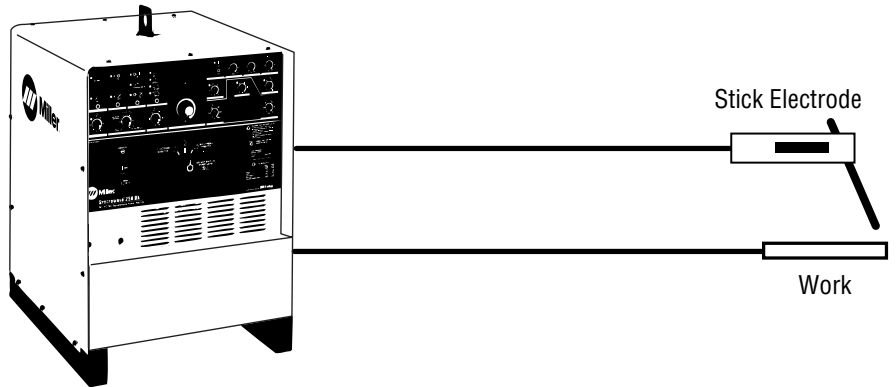
Typical Installations



TIG (GTAW) Basic Equipment



Stick (SMAW) Basic Equipment



Ordering Information

Equipment and Options	Stock No.	Description	Qty.	Price
Syncrowave® 350 LX	#903 513	200/230/460 V, 50/60 Hz, Standard Model		
	#903 514	230/460/575 V, 50/60 Hz, Standard Model		
	#903 515	220/400/440/520 V, 50/60 Hz, CE , Standard Model		
	#903 515-01-1	220/400/440/520 V, 50/60 Hz, CE , Full-Feature Model		
	#903 516	220/400/440/520 V, 50/60 Hz, English, Standard Model		
	#903 516-01-1	220/400/440/520 V, 50/60 Hz, English, Full-Feature Model		
	#903 736	Syncrowave 350 LX TIGRunner® (includes #903 513 model)		
	#903 736-01-1	Syncrowave 350 LX TIGRunner® with torch (includes #903 513 model)		
#907 166-01-1	230/460/575 V, 50/60 Hz, Syncrowave 350 LX TIGRunner® with torch			
Sequencer Module	#043 788	Field		
Power Factor Correction Kit	#043 757	Field		
TIG Accessories				
No. 32 Running Gear	#194 997			
Diamondback TIG Torches		See Diamondback™ TIG Torch Selector Guide		
Consumables and Tungsten		See Diamondback™ TIG Torch Selector Guide		
Gas Cylinder				
Gas Hose and Fittings				
Water Coolant Systems				
Coolmate™ 3	#043 007	115 VAC		
	#043 007-01-2	115 VAC, CE		
	#043 008	230 VAC		
	#043 008-01-2	230 VAC, CE		
Coolmate™ V3	#043 009	115 VAC, Upright		
	#043 009-01-2	115 VAC, CE , Upright		
Coolmate™ 4	#042 288	115 VAC		
	#042 288-01-5	115 VAC, CE		
Cool Runner™ 3X	#043 994	115 VAC		
	#043 994-01-1	115 VAC, CE		
Low Conductivity Coolant	#043 810			
Coolant System Hoses				
Stick Accessories				
Stick Hook-Up Kit	#173 851	2/0 cable, 50 ft (15.2 m). Includes electrode holder, weld cable, and work cable with clamp		
Stick Electrodes				
Remote Control				
RFCS-14HD	#194 744	Heavy-duty foot control		
RCCS-14	#043 688	North/south fingertip control		
RCC-14	#151 086	Side-to-side fingertip control		
RMLS-14	#129 337	Momentary/maintained rocker switch		
RMS-14	#187 208	Momentary rubber dome switch		
RHC-14	#129 340	Hand control		
Miscellaneous				
Extension Cords	#122 973	25 ft (7.6 m)		
	#122 974	50 ft (15.2 m)		
	#122 975	75 ft (22.9 m)		
Welding Cables				
Work Cable and Clamp				
Welding Gloves and Helmet				

Date:

Total Quoted Price:

Distributed by:

