

# Big Blue® 450 Duo CST™ Diesel Engine-Driven Welder/AC Generator

## Quick Specs



### Industrial Applications

Pipe Welding  
Structural  
General Fabrication  
Maintenance and Repair  
Rental Fleets

### Processes

Stick (SMAW)  
DC TIG (GTAW) Lift-Arc™  
Air Carbon Arc (CAC-A)  
Rated: 3/16 in. (4.8 mm) carbons (paralleled)

### Output Range

DC Stick/TIG 5–280 A (separate)  
10–450 A (paralleled)

Max. Open-Circuit Voltage 77 V

Generator Output Rated at 104° F (40° C)

3-Phase 12,000 Watts continuous

1-Phase 10,000 Watts continuous

**Accu-Rated™—Not Inflated Generator Power**

The Big Blue 450 Duo CST is a rugged, compact, fuel-efficient diesel welder/generator that provides two superior arcs in one economical package.

**Superior Stick arc performance** even on the difficult-to-run electrodes like E6010.

**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.

**Lift-Arc™ start** provides TIG arc starting without the use of high frequency.

**Remote amperage control** provided through 14-pin receptacle on front of the machine. This permits use of standard remote amperage control devices.

**Vandalism lockout kit.** Lockable hinged steel panel protects front control panels and ignition switch.

**BUILT TOUGH**



USA model shown.



**MITSUBISHI ENGINE NORTH AMERICA, INC.**

**Mitsubishi S4L2 diesel engine.** Used in industrial applications around the world, the S4L2 is designed to run 10,000 hours before major overhaul.

### Meter maintenance displays.

- Hour meter function
- Oil change interval
- High coolant temperature and low oil pressure shutdowns
- Low fuel shutdown—engine shuts down before system runs out of fuel, making restarts easy.

**Quiet operation.** At just 72.2 decibels at 23 feet (7 m), it's quieter than most single-operator models, improving jobsite communication and safety.

**Thermal overload protection** prevents machine damage if the duty cycle is exceeded or airflow is blocked.

**High efficiency.** Three-phase, rotating-field generator requires less fuel and horsepower to operate.

See page 3 for more machine features/benefits.



Welder/generator is warranted by Miller for 3 years, parts and labor.  
Engine is warranted separately by engine manufacturer.



**Miller Electric Mfg. Co.**  
An ITW Welding Company  
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Appleton, WI 54912-1079 USA

**Equipment Sales US and Canada**  
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International FAX: 920-735-4125

**MillerWelds.com**  
   



# Specifications (Subject to change without notice.)



Weld Mode/ Process	Output Mode	Weld Output Range	Weld Output Rated at 122° F (50° C)	Max. Open-Circuit Voltage	Generator Power Output Rated at 122 F (50° C)	Sound Levels at Rated Output, 23 ft. (7 m)	Dimensions	Weight (without fuel)*
CC/DC (Stick/TIG)	Separate (dual outputs)	5–225 A (each side) 5–280 A (one side only)	<b>USA Model</b> 175 A, 27 VDC, 100% duty cycle <b>International Model</b> 200 A, 28 VDC, 100% duty cycle	77	3-phase: 12,000 watts, 240 VAC, 60 Hz continuous  1-Phase: 10,000 watts, 120/240 VAC, 60 Hz continuous	72.2 dB (97 Lwa)	H: 32 in. (813 mm) W: 26.25 in. (667 mm) D: 56 in. (1422 mm)	Net: 1064 lb. (483 kg) Ship: 1114 lb. (505 kg)
	Paralleled (combined)	10–450 A	<b>USA Model</b> 350 A, 27 VDC, 100% duty cycle <b>International Model</b> 400 A, 28 VDC, 100% duty cycle					

\*Additional 95 lb. (43 kg) when fuel tank is full.

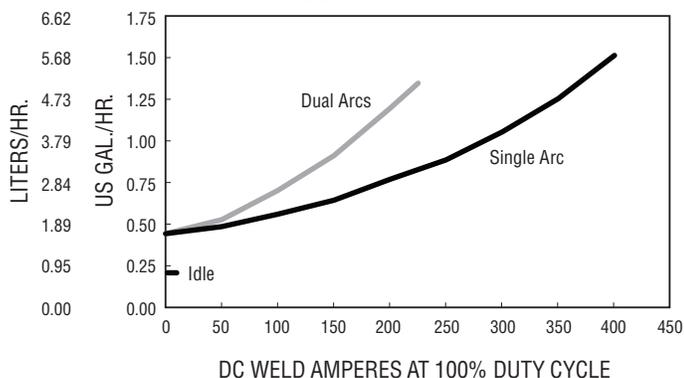
Certified by Canadian Standards Association to both the Canadian and U.S. Standards. Meets NEMA and IEC output ratings.

## Engine Specifications (Engines warranted separately by the engine manufacturer.)

Engine Brand	Features	HP	Type	Engine Speeds	Capacities	Automatic Engine Shutdown
Mitsubishi S4L2	EPA Tier 4 Final compliant	24.7	Four-cylinder, liquid-cooled industrial diesel	Weld: 1800 RPM	Fuel: 11.5 gal. (43.5 L) Oil: 6.3 qt. (6 L) Coolant: 10 qt. (9.5 L)	Low oil pressure, high coolant temperature, low fuel level

## Performance Data

FUEL CONSUMPTION CURVE



SIMULTANEOUS WELDING AND POWER

Weld Amperes	Total 1-Phase Aux. Power Available (Watts)
No Weld Output	10,000
200 A	5,200
300 A	2,700
400 A	0

# Function Guide

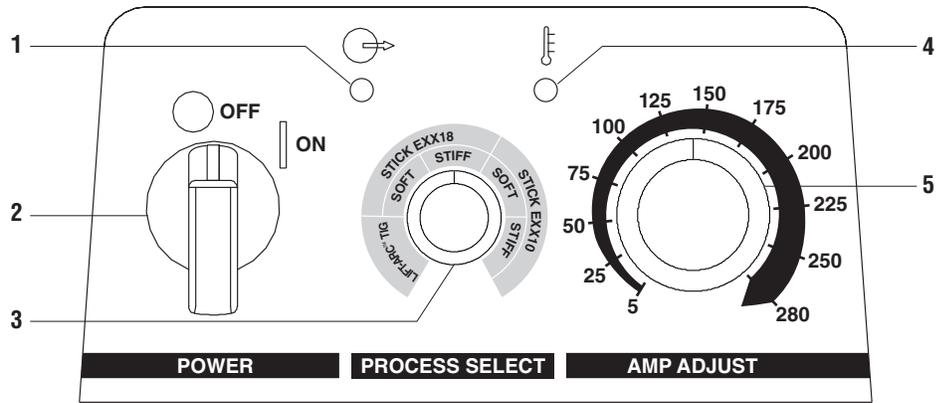
1. Output Light
2. On/Off Switch
3. Weld Process Selector Switch
4. Overtemp Light
5. Amperage Adjustment Control (5–280 Amps)
6. Standard 14-pin Receptacle for simple connection of remote controls and wire feeders. It features **Auto Remote Sense™** which automatically switches from panel to remote amperage/voltage (A/V) control with remote connected. Eliminates confusion of the panel/remote A/V switch.
7. Negative (–) Weld Output Terminal
8. Glow Plugs assist in cold weather starting.
9. Meter Maintenance Displays show fuel level, engine hours, oil change interval and high temp/low pressure/low fuel shutdown information.
10. Engine Control Switch is used to start and stop the engine and select power range.

## USA Model Receptacles and Circuit Breakers

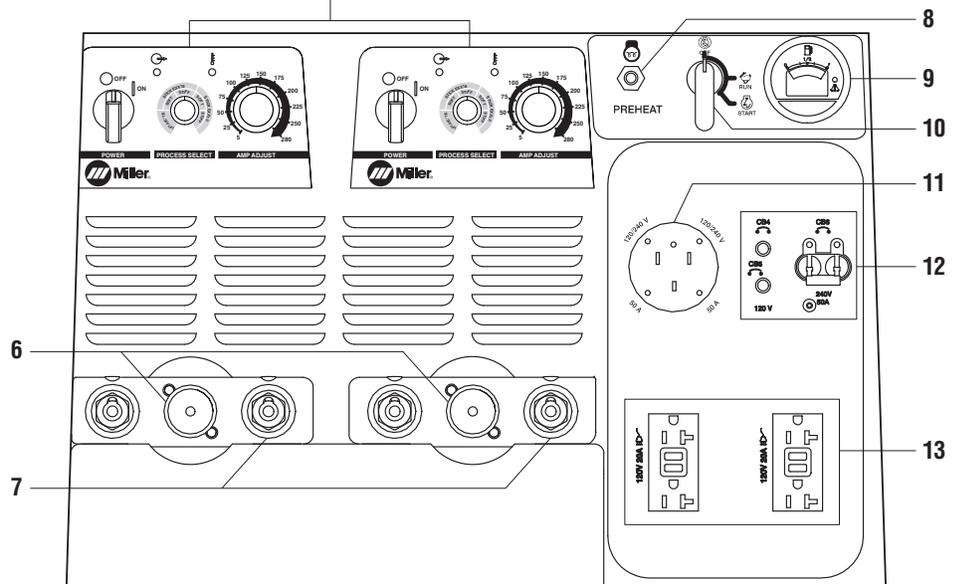
11. 120/240 V, 50 A, AC Receptacle  
*Note: For matching plug, order #119 172.*
12. 120 and 240 V Circuit Breakers
13. 120 V, 20 A, AC Receptacles with Ground Fault

## International Model Receptacles and Circuit Breakers

14. 120 V, 20 A, AC Receptacles with Ground Fault
15. 240 V Earth Leakage Circuit Breaker
16. 120 V Circuit Breakers
17. 120 V/16 A and 240 V/16 A, AC Receptacles

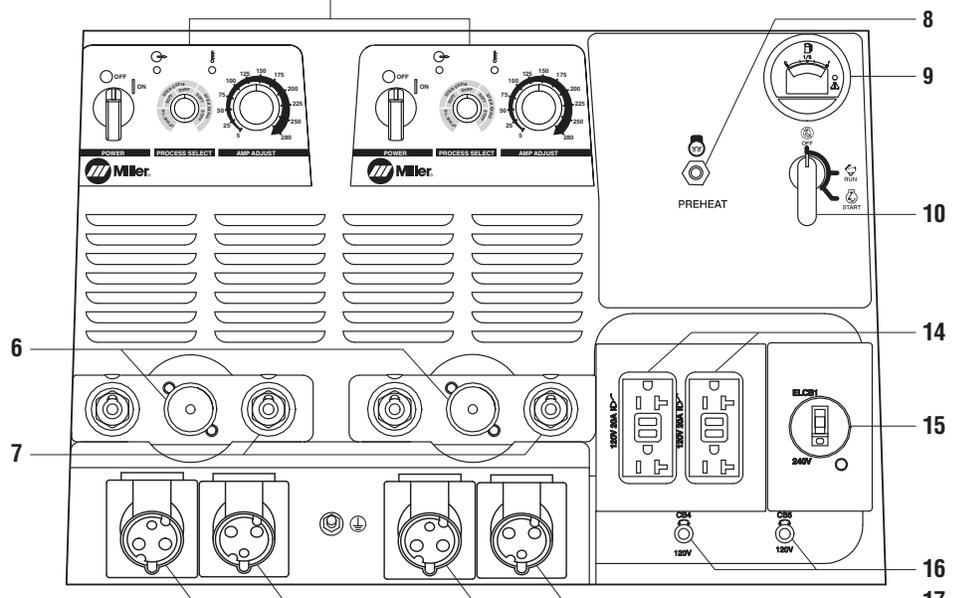


See top panel for feature callouts



USA Model

See top panel for feature callouts



International Model

## Genuine Miller® Accessories



**USA Model Full KVA Plug Kit #119 172** Field  
1-phase, 120/240 VAC, 50 A plug (NEMA 14-50P) to fit full KVA receptacle.



**International Plugs** Field  
**#255 419** 1-Phase, 120 VAC, 16 A plug  
**#255 416** 1-Phase, 240 VAC, 16 A plug

**Cold Weather Starting Kit #300 664** Field  
120 V block heater.

*Note: All models come standard with preheaters (glow plugs).*

**Engine Filter Kit #252 782** Field  
Includes all filters required for proper engine maintenance. Oil filter, primary and secondary fuel filter, and primary air filter.

**Spark Arrestor (Muffler) Kit #300 585** Field  
Prevents particles from leaving the muffler that could potentially start a fire.



**FA-1D Lockable Flame Arrestor Fuel Cap #043 947** Field

Fuel cap can be padlocked to prevent vandalism. A built-in flame arrestor prevents flames

or sparks from entering the fuel tank.

**Chalwyn Safety Valve #300 576** Field  
Shuts off air flow to the engine to prevent over-speed condition. Required on many petroleum jobsites, this valve provides both manual and automatic operation giving you two methods of operation to meet jobsite compliance standards.



**Protective Cover #195 301** Field  
Blue water-resistant cover with Miller logo resists stains and mildew, and protects the finish of your welder.

## Stick (SMAW) Welding

### Weld Leads

**No. 2 Stick Cable Set, 15 ft. (4.6 m) #195 196**

Consists of 15-foot (4.6 m) No. 2 electrode cable with holder, and 15-foot (4.6 m) work cable with clamp. 200 A, 100% duty cycle.

**No. 2 Stick Cable Set, 50 ft. (15 m) #300 836**

Consists of 50-foot (15 m) No. 2 electrode cable with holder, and 50-foot (15 m) work cable with clamp. 200 A, 100% duty cycle.

**2/0 Stick Cable Set, 50 ft. (15 m) #173 851**

Consists of 50-foot (15 m) 2/0 electrode cable with holder, and 50-foot (15 m) work cable with clamp. 350 A, 100% duty cycle.

**2/0 Stick Cable Set, 100/50 ft. (30.5/15 m) #043 952**

Consists of 100-foot (30.5 m) 2/0 electrode cable with holder, and 50-foot (15 m) work cable with clamp. 300 A, 100% duty cycle.

## TIG (GTAW) Torches



### Weldcraft® TIG Torches

The Weldcraft line of TIG torches complements the most popular TIG power source line available today. The Weldcraft torch line includes both air-cooled and water-cooled models. Available with genuine Weldcraft parts.

**#WP-17V-12-2** 150 A, 12 ft. (3.7 m)  
air-cooled torch with valve, two-piece cable.

**#WP-17V-25-2** 150 A, 25 ft. (7.6 m)  
torch with valve, two-piece cable.

**#WP-26V-25-2** 200 A, 25 ft. (7.6 m)  
air-cooled torch with valve.

*These two-cable TIG torches require the installation of a Dinse-Style Connector (#042 418) or Tweco-Style Connector (#195 115) depending on the CST model connector type.*

## Plasma Cutting



**Spectrum® 375 X-TREME™ #907 529**  
See Lit. Index No. PC/9.2.

**Spectrum® 625 X-TREME™ #907 579** with 12-foot (3.7 m) torch  
**#907 579 001** with 20-foot (6 m) torch  
See Lit. Index No. PC/9.6.

The Spectrum 375 X-TREME and 625 X-TREME come complete with protective X-CASE™ (not shown).

## Genuine Miller® Accessories (Continued)

### Remote Controls



#### Wireless Remote Hand Control\* #300 430

For remote current control. Receiver plugs directly into the 14-pin receptacle of Miller machine. 300-foot (91.4 m) operating range. Requires Wireless Antenna Kit #300 749.



#### Wireless Remote Foot Control\* #300 429

For remote current control. Receiver plugs directly into the 14-pin receptacle of Miller machine. 90-foot (27.4 m) operating range. Requires Wireless Antenna Kit #300 749.

#### Wireless Antenna Kit #300 749

Required for Pro Series engine drives. Optional on other compatible Miller products where improved reception is desired.



#### PRHC-14 Hand Control\* #195 511

Complete current control brings 120 volts GFCI power to work area in a single cord. Housed in a durable light aluminum case and includes 125-foot (38 m) cord with plugs.



#### RHC-14 Hand Control\* #242 211 020

Miniature hand current control. Dimensions: 4 x 4 x 3.25 inches (102 x 102 x 82 mm). Includes 20-foot (6 m) cord and 14-pin plug.



#### RCC-14 Remote Current Control\* #151 086

East/west rotary-motion fingertip control attaches to TIG torch using two hook-and-loop fasteners. Includes 26.5-foot (8 m) cord and 14-pin plug.



#### RCCS-14 Remote Current Control\* #043 688

North/south rotary-motion fingertip control attaches to TIG torch using two hook-and-loop fasteners. Includes 26.5-foot (8 m) cord and 14-pin plug.



#### RFCS-14 HD Foot Control\* #194 744

Heavy-duty foot current control. Includes 20-foot (6 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)

*\*Controls only amperage on the Big Blue 450 Duo CST—electrode always hot.*

## Cable Connectors and Adapters

#### Dinse-Style Connector #042 418

Accepts #4 to #1/0 AWG cable size. Required if male plugs shipped with power source must be replaced or if additional plugs are needed. Kit includes one Dinse-style male plug which attaches to the work and/or weld cables and plugs into the Dinse-style receptacles on the power source.

#### Extension Kit for Dinse-Style Cable Connectors #042 419

Accepts #4 to #1/0 AWG cable size. Used to adapt or extend weld and/or work cables. Kit includes one male Dinse-style plug and one in-line female Dinse-style receptacle.



#### Dinse/Tweco® Adapter #042 465

A one-piece adapter which has a Dinse-style male plug (to power source) on one end and a female Tweco receptacle (for weld cable connection) on other end.



#### Dinse/Cam-Lok Adapter #042 466

A one-piece adapter which has a Dinse-style male plug (to power source) on one end and a Cam-Lok receptacle (for weld cable connection) on other end.



#### Tweco-Style Connector #191 981

Accepts #1/0 to #2/0 AWG cable size. Kit includes one Tweco-style male plug which attaches to the work and/or weld cables and plugs into the receptacle on the power source.



#### Tweco/Dinse Adapter #210 061

A one-piece adapter which has a Tweco-style male plug (to power source) on one end and a female Dinse-style receptacle (for weld cable connection) on other end.

## Trailers and Hitches (Note: Trailers are shipped unassembled.)



### HWY-224 Trailer #043 805

A 2650-pound (1202 kg) capacity trailer for highway use. Welded steel tubing frame, heavy-duty axle with roller bearing hubs and leaf-spring suspension. Includes jack stand, 2-inch (50 mm) ball hitch, fenders and lights.

### Cable Tree #043 826

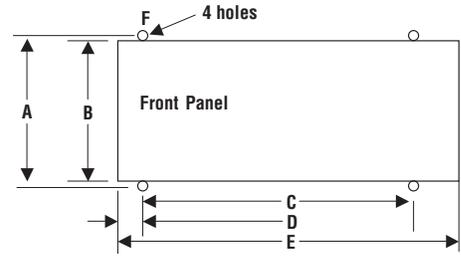
Provides an area to conveniently wrap weld cables and extension cords.



### Dual Hitch #300 831

2-inch (50 mm) ball hitch and 3-inch (76 mm) lunette eye in one reversible assembly.

## Mounting Specifications



- A. 27.75 in. (705 mm)
- B. 26.25 in. (667 mm)
- C. 52 in. (1321 mm)
- D. 2 in. (51 mm)
- E. 56 in. (1422 mm)
- F. .562 in. (14 mm) diameter

**Height:** 32 in. (813 mm)  
**Width:** 26.25 in (667 mm)  
**Depth:** 56 in. (1422 mm)

## Trailer Specifications (Subject to change without notice.)

Model	Gross Axle Weight Rating	Gross Vehicle Weight Rating	Net Payload	Height of Bed	Road Clearance	Track (Center to center of tires)	Standard Tires (Standard rating or P-size rating)	Dimensions	Net Weight
HWY-224	3500 lb. (1588 kg)	2960 lb. (1343 kg)	2650 lb. (1202 kg)	18.5 in. (470 mm)	7.25 in. (184 mm)	52 in. (1321 mm)	B78-13	Length: 105 in. (2667 mm) Width: 59.5 in. (1511 mm)*	320 lb. (145 kg)

\*Width at outside of fenders.

# What Makes Miller® Industrial Engine Drives So **[TOUGH]**?

## Rigorous Testing for Tough, Real-World Conditions

To prove our machines go to the limit, Miller industrial engine drives are put to the test in very extreme environmental conditions.

- **Airborne dust and sand.**

Critical components are exposed to abusive airborne particles in a special testing chamber for weeks, helping make sure they'll operate while facing extreme levels of dirt, dust or sand on the jobsite.

- **Humidity and corrosion.**

Inside our Houston testing room, critical components are subjected to extended moisture and corrosive salt exposure to ensure they'll run even when exposed to humid climates, corrosive coastal environments, and driving rain.

- **Temperature extremes.** Miller industrial engine drives are tested to ensure performance in scorching heat. All Miller engine-driven machines are weld rated at 104 degrees Fahrenheit, but actual tests are conducted up to 122 degrees Fahrenheit to assure peak performance.



- **Jobsite/over-the-road abuse.** Miller industrial engine drives are shaken for hours on transportation bed simulators, subjected to severe vibration, and test-dropped and jerked to ensure they'll withstand the stresses that can shut down competitive machines.

- **Continuous operation.** Miller industrial engine drives run day and night, in all weather conditions, to assure they'll perform without interruption in the field.



## Why Industrial Engine Drive Customers Choose Miller

The ultimate test of Miller reliability is how it performs in the field. Read stories demonstrating our superior reliability at [MillerWelds.com](http://MillerWelds.com).

## Typical Installations

### Electrode Hot

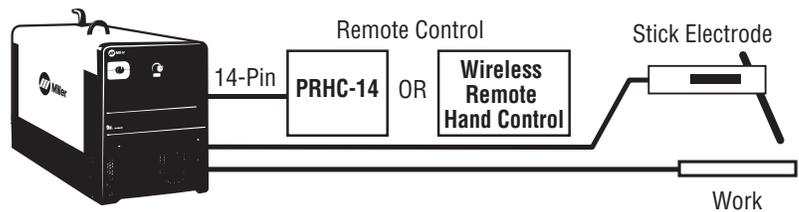


#### Stick (SMAW) Basic Equipment

PRHC-14 #195 511

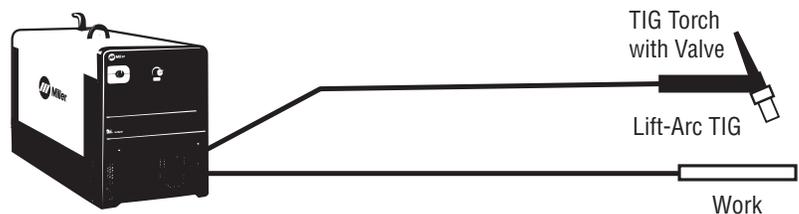
Wireless Remote Hand Control #300 430

*Note: Illustration at right shows single arc installation. For dual arc installations, two sets of cables, two remote controls and two electrode holders are needed.*



#### Lift-Arc™ TIG (GTAW) Basic Equipment

*Note: Illustration at right shows single arc installation. For dual arc installations, two sets of cables and two TIG torches are needed.*



## Ordering Information

Equipment and Options	Stock No.	Description	Qty.	Price
<b>Big Blue® 450 Duo CST™</b>	<b>#907 477</b>	USA model with Tweco®-style connectors		
<b>Big Blue® 450X Duo CST™</b>	<b>#907 473</b>	International model with Dinse-style connectors		
	<b>#907 473 001</b>	International model with Dinse-style connectors and VRD		
<b>Field Accessories</b>				
USA Model Full KVA Plug Kit	<b>#119 172</b>	1-phase, 120/240 VAC, 50 A		
International Plugs	<b>#255 419</b> <b>#255 416</b>	1-phase, 120 V, 16 A 1-phase, 240 V, 16 A		
Cold Weather Starting Kit	<b>#300 664</b>	120 V block heater		
Engine Filter Kit	<b>#252 782</b>	Includes air, oil and fuel filters		
Spark Arrestor Kit	<b>#300 585</b>			
FA-1D Lockable Flame Arrestor Fuel Cap	<b>#043 947</b>			
Chalwyn Safety Valve	<b>#300 576</b>			
Protective Cover	<b>#195 301</b>			
<b>Stick Welding Leads</b>				
		See page 4		
<b>Weldcraft® TIG Torches</b>				
		See page 4		
<b>Plasma Cutting</b>				
Spectrum® 375 X-TREME™	<b>#907 529</b>	Includes X-CASE™ See Lit. Index No. PC/9.2		
Spectrum® 625 X-TREME™	<b>#907 579</b> <b>#907 579 001</b>	With 12-ft. (3.7 m) torch and X-CASE™ See Lit. Index No. PC/9.6 With 20-ft. (6 m) torch and X-CASE™ See Lit. Index No. PC/9.6		
<b>Remote Controls</b>				
Wireless Remote Hand Control	<b>#300 430</b>	Amperage control only — electrode always hot		
Wireless Remote Foot Control	<b>#300 429</b>	Amperage control only — electrode always hot		
Wireless Antenna Kit	<b>#300 749</b>	Required for wireless remotes when using Pro Series engine drives		
PRHC-14 Hand Control	<b>#195 511</b>	Amperage control only — electrode always hot		
RHC-14 Hand Control	<b>#242 211 020</b>	Amperage control only — electrode always hot		
RCC-14 Remote Current Control	<b>#151 086</b>	Side-to-side rotary amperage control only — electrode always hot		
RCCS-14 Remote Current Control	<b>#043 688</b>	Up-and-down rotary amperage control only — electrode always hot		
RFCS-14 HD Foot Control	<b>#194 744</b>	Amperage control only — electrode always hot		
Extension Cables	<b>#242 208 025</b> <b>#242 208 050</b> <b>#242 208 080</b>	25 ft. (7.6 m) 50 ft. (15.2 m) 80 ft. (24.4 m)		
<b>Cable Connectors and Adapters</b>				
Dinse-Style Connector	<b>#042 418</b>	#4 to #1/0 AWG cable size		
Extension Kit for Dinse-Style Connector	<b>#042 419</b>	#4 to #1/0 AWG cable size		
Dinse/Tweco® Adapter	<b>#042 465</b>	One-piece adapter with Dinse-style male plug and Tweco-style female receptacle		
Dinse/Cam-Lok Adapter	<b>#042 466</b>	One-piece adapter with Dinse-style male plug and Cam-Lok receptacle		
Tweco®-Style Connector	<b>#191 981</b>	#1/0 to #2/0 AWG cable size		
Tweco®/Dinse Adapter	<b>#210 061</b>	One-piece adapter with Tweco-style male plug and Dinse-style female receptacle		
<b>Trailers and Hitches</b>				
HWY-224 Trailer	<b>#043 805</b>	Trailer with lights, fenders and 2-in. (50 mm) ball hitch. For highway use		
Cable Tree	<b>#043 826</b>	Trailer-mounted cable holder for HWY-224		
Dual Hitch	<b>#300 831</b>	Combination 2-in. (50 mm) ball hitch and 3-in. (76 mm) lunette eye in one reversible assembly for HWY-224		

Date:

Total Quoted Price:

Distributed by:

