

# Big Blue® 400 X CC/CV

Issued September 2010 • Index No. EDX/10.1

**Diesel Welder/  
Generator** 

## Quick Specs

### Heavy Industrial Applications

Pipe Welding  
Structural  
General Fabrication

### Processes

Stick (SMAW)  
Flux Cored (FCAW)  
Lift-Arc DC TIG (GTAW)  
Air Carbon Arc (CAC-A)  
thru 6.4 mm (1/4 in) carbons

**Output Range** DC Stick 20–410 A  
DC TIG 20–410 A  
FCAW 14–40 V

**Generator Output Rated at 40°C (104°F)**  
12,000 Watts Peak, 10,000 Watts Continuous

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



## The Power of Blue.®

The Big Blue 400 X is ideal for pipeline contractors, rental or fleet managers who value reliability, ease of service, and long life at an economical price.

### Superior arc performance

- Preset DIG settings (Stick)
- Hot Start™ (Stick)
- Lift-Arc™ TIG with Auto-Stop™ and Crater-out
- FCAW arc performance

**Tailored arc control (DIG)** allows the arc characteristics to be changed for specific applications and electrodes. Smooth running 7018 or stiffer, more penetrating 6010 electrodes.

**Simple-to-set controls** require no elaborate procedure—just select process and weld!

**Auto Remote Sense™ (ARS)** detects if a remote control is plugged into the 14-pin receptacle and eliminates confusion of the remote/panel switch.



**The Vault**—ultimate control board reliability. See page 4.

**BUILT TOUGH**

**Improved!**

**Superior Arc Performance!**

**EPA Tier 4i  
Compliant**

**CAT**  
Diesel Power

**CATERPILLAR C1.5  
3-cylinder diesel.**

**Heavy-duty low-speed industrial engine** is designed to operate over 10,000 hours before the first basic overhaul. Backed by worldwide support and service.

### Meter maintenance displays

- Fuel gauge
- 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.** Improves work site communication and safety.

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

**High efficiency.** 3-phase, rotating-field welding generator requires less fuel and horsepower to operate.

**IEC and NEMA compliant for welders.** Degree of protection by enclosure IP23.



See inside for more machine features/benefits.

**TRUE BLUE**  
3YR WARRANTY

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

**MADE IN USA**  
APPLETON, WI 



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

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

**Web Site**  
www.MillerWelds.com



# Specifications (Subject to change without notice.)



Weld Mode	Weld Output Range	Weld Output Rated at 40°C (104°F)	Max. Open-Circuit Voltage	Generator Power Output Rated at 40°C (104°F)	Sound Levels at Rated Output, 7 m (23 ft)	Dimensions	Net Weight (without fuel)*
CC/DC	20–410 A	400 A, 20 VDC, 30% Duty Cycle	65	12,000 Watts Peak 10,000 Watts Continuous Single-phase, 91/46 A, 110/220 VAC, 50/60 Hz	71.2 dB (96 Lwa)	H: 813 mm (32 in) W: 667 mm (26-1/4 in) D: 1422 mm (56 in)	Net: 499 kg (1100 lb) Ship: 522 kg (1150 lb)
CV/DC	14–40 V	300 A, 32 VDC, 60% Duty Cycle					

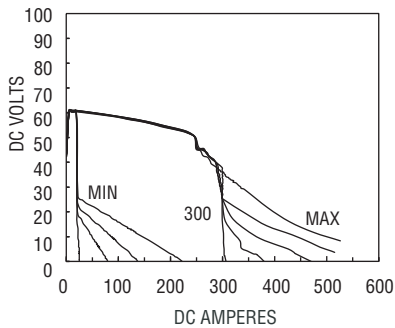
approved — meets NEMA and IEC output ratings. \*Additional 43 kg (95 lb) when fuel tank is full.

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

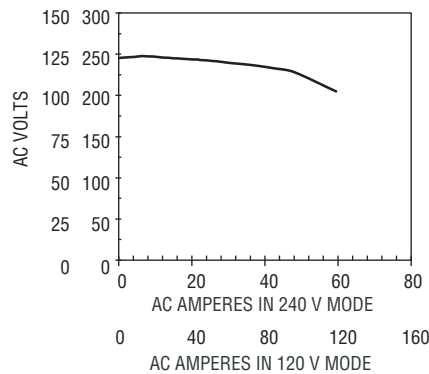
Engine Brand	Features	HP	Type	Engine Speeds	Fuel Capacity	Oil Capacity	Coolant Capacity	Automatic Engine Shutdown
CATERPILLAR C1.5	EPA Tier 4i compliant, indirect-injected, liquid-cooled engine. Right-side service access with intervals of 250 hrs for oil and filters.	21.7	3-cylinder, industrial liquid-cooled, diesel	1850 RPM weld	43.5 L (11.5 gal)	5.7 L (6 qt)	5.7 L (6 qt)	Low Oil Pressure, High Coolant Temperature, Low Fuel Level

## Performance Data

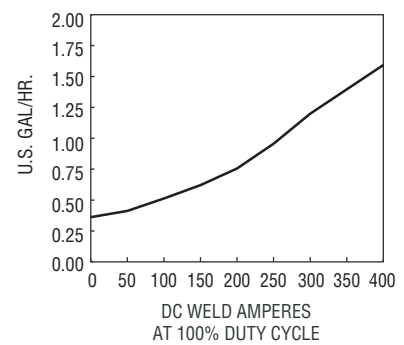
**STICK/TIG MODE V/A CURVE – MAX DIG**



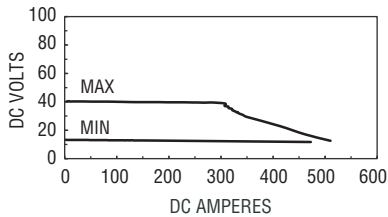
**GENERATOR POWER CURVE**



**FUEL CONSUMPTION CURVE**



**CV FCAW MODE V/A CURVE**



**SIMULTANEOUS WELDING AND POWER**

Weld Amperes	Total Power Available (Watts)	120 V	240 V
225	3000	25	12.5
175	5000	41.6	20.8
125	5900	49.2	24.6
75	7300	60.8	30.4
25	10,000	83.5	41.7

# Big Blue 400 CX CC/CV Function Guide

**1. Optional Self-calibrating Digital Weld Meters with Fault Code Indication** (order #195 289) display preset or actual weld parameters.

**2. Eight Preset DIG Settings** offer the best arc characteristics for different electrodes and joint designs. The amount of DIG determines how much amperage (heat) varies with Stick arc length. The combined Process switch along with preset DIG settings make the Big Blue 400 X easy to set without the complication of multiple switches.

**Hot Start™** provides positive Stick electrode starts making it easy to start all types of electrodes and it also works great for bead tie-ins.

**3. Lift-Arc™ TIG with Auto-Stop™ and Crater-out**

**4. Great FCAW Performance and Arc Starts.** Makes it easy to run all flux cored wires up to 2 mm (5/64 in) in diameter.

**5. 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.

**6. Weatherproof Lexan® Nameplate** is super durable and resists cracking and fading. Color coding is for ease of operation.

**7. Meter Maintenance Displays** show fuel level, engine hours, oil change interval and hi temp/low pressure/low fuel shutdown information.

**Low Fuel Shutdown** shuts engine off prior to running out of fuel to prevent loss of fuel in the system, and make restarts easy. Display will read noFUEL. Turn the machine off, add fuel, and restart.

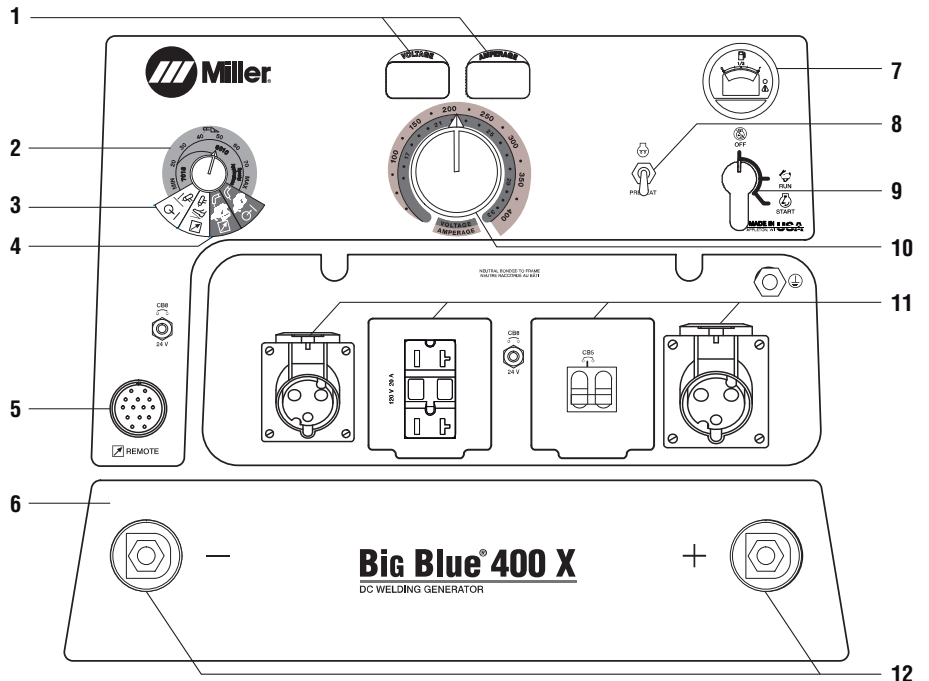
**8. Glow Plugs** assist in cold weather starting.

**9. Engine Control Switch** is used to start and stop the engine.

**10. Amperage/Voltage Adjust Control**

**11. 220 VAC Receptacles with Earth Leakage Circuit Breakers**

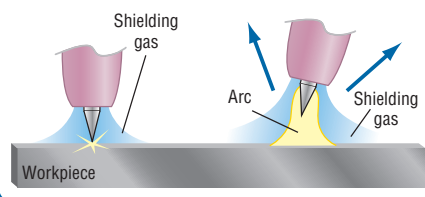
**12. Weld Output Terminals**



## ARC START with Lift-Arc™

**Touch or scratch**

**Lift at any angle**

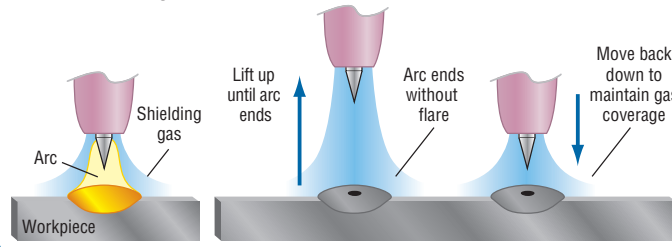


- Reduces or eliminates sticking
- Reduces or eliminates electrode/work contamination
- Low open-circuit voltage

## ARC END with Auto-Stop™

**While welding**

**For Auto-Stop, lift up to terminate arc**

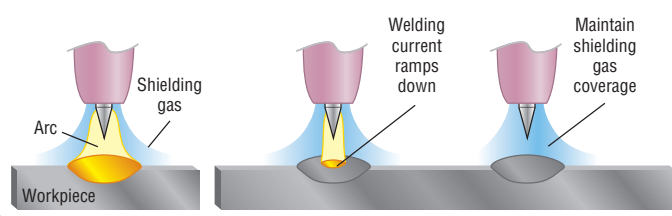


- Eliminates need for a remote control
- Maintains shielding gas coverage
- Eliminates tungsten and workpiece contamination
- Eliminates unwanted arc strikes outside the weld area

## ARC END with Crater-out

**While welding**

**To start Crater-out, press momentary contact switch**

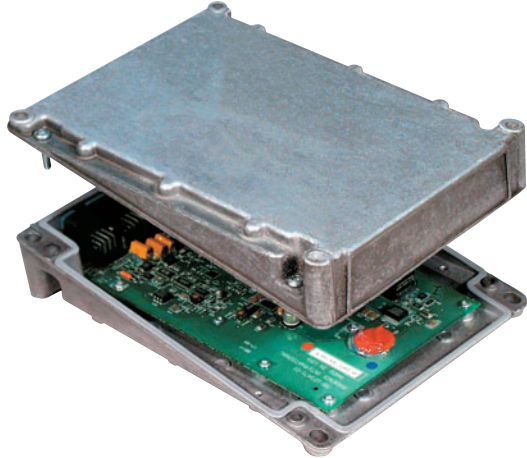


- Maintains shielding gas coverage
- Eliminates tungsten and workpiece contamination
- Crater-out time allows for addition of filler
- Eliminates unwanted arc strikes outside the weld area

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

## Superior Circuit Board Design

Miller's critical circuit boards are engineered to carry *low power* and *low heat* to reduce thermal stress and minimize expansion and contraction. In contrast, our competitor's boards carry *high power* and *high heat*, making them more vulnerable to failure.



## "The Vault" Makes Upgrading to Miller CC/CV Units Worry-Free

Concerns with circuit board reliability have resulted in some operators steering clear of CC/CV welder/generators — even though they offer a superior arc and multiple welding processes. Miller's circuit board reliability isn't a concern since all Big Blue multiprocess industrial engine drives feature the Vault.

Created out of two aluminum halves sealed with silicone, as well as watertight harness connections, the Vault provides a clean circuit board environment, protecting the electronics — and controlling output — in heavy industrial applications. No other competitor protects their electronics with a sealed vault, leaving critical circuit boards exposed to harsh elements that can disrupt the machine's electronics, and therefore, its operation.



*"The Big Blue 300 Pro\* worked year 'round and never caused any problems. We were amazed at the cold-weather starting. A machine that doesn't run means we have to work overtime... secondly, you don't want to have a crew standing around at \$200 an hour while someone tries to start the machine."*

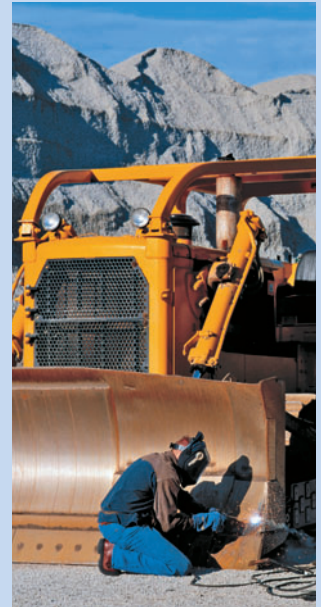
*Edward McNaughton, Nordcap Steel Docks*

\*Big Blue 400X is similar to Big Blue 300 Pro.

## 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 job site.
- **Humidity and Corrosion** — Inside Miller's 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's industrial engine drives are tested to ensure performance in scorching heat. All Miller engine driven machines are weld rated at 40°C, but actual tests are conducted up to 50°C 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's 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's reliability is how it performs in the field. The quote on the left provide a glimpse of how Miller industrial engine drives perform for customers. Read the full stories, and many others demonstrating Miller's superior reliability, at [MillerWelds.com](http://MillerWelds.com).

## Genuine Miller Accessories

**Cold Weather Starting Aid #195 056** Field  
120 V block heater.

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

**Engine Filter Kit #246 987** Field  
Includes all filters required for proper engine maintenance. Oil filter, primary and secondary fuel filter, and primary air filter.

**Spark Arrestor (Muffler) Kit #195 291** Field  
Prevents particles from leaving the muffler that could potentially start a fire. Mandatory when operating on California grasslands, brush, or forest-covered land, and all national forests. For other areas, check your state and local laws. Meets U.S. Forest Service Standard 5100-1B.



**FA-1D Lockable Flame Arrestor Fuel Cap #043 947**  
Fuel cap can be padlocked to prevent vandalism. A built-in flame arrestor prevents flames or sparks from entering the fuel tank.

**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

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

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

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

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

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

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

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

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

### Plasma Cutting



**Spectrum® 375 X-TREME™ #907 339**

See Lit. Index No. PC/9.2.

**Spectrum® 625 X-TREME™ #907 404**

See Lit. Index No. PC/9.6.

**Spectrum® 875 #907 390-01-1**

See Lit. Index No. PC/9.8.

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

### MIG (GMAW) or Flux Cored (FCAW)



**Millermatic® Passport® Plus #907 401**

Portable, all-in-one MIG package features ultimate arc performance, self-contained gas

bottle, and flexibility to plug into 115 or 230 V power with Miller exclusive Multi-Voltage Plug. See Lit. Index No. DC/12.53.



**SuitCase® X-TREME™ 8VS Wire Feeder #300 656**

**SuitCase® X-TREME™ 12VS Wire Feeder #300 659**

Lightweight, voltage-sensing wire feeders include secondary contactor and gas valve. Requires drive roll kit. See Lit. Index No. M/6.41.

### TIG (GTAW) Welding



**HF-251 Series #042 388**

HF-251D-1, 115 VAC  
High-frequency arc starter and stabilizer. See Accessory Lit. Index No. AY/5.0.

### Multiple Operator Welding

*The XMT 350, CST 280 and Dynasty 200 power sources can be run off the machine's generator to provide two arcs with only one engine. There is no arc interaction under 180 amps.*



**XMT® 350 Series #907 161, #907 224 #907 366**

See Lit. Index No. DC/18.83.



**CST™ 280 #907 244, #907 244-01-1 #907 251, #907 251-01-1**

See Lit. Index No. DC/29.55.



**Dynasty® 200 Series #907 099**

**#907 099-01-1**  
See Lit. Index No. AD/4.8.

## Genuine Miller Accessories (continued)

### Remote Controls



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



**Wireless Remote Hand Control #300 430**  
For remote current, voltage and contactor control. Receiver plugs directly into the 14-pin receptacle of Miller machine. 91.4 m (300 ft) operating range.



**RFCS-14 HD Foot Control #194 744**  
Heavy-duty foot control for remote current, voltage and contactor control. Includes 20 ft (6 m) cord and 14-pin plug.



**RHC-14 Hand Control #242 211 020**  
Miniature hand control for remote current, voltage and contactor control. Dimensions: 102 x 102 x 82 mm (4 x 4 x 3-1/4 in). Includes 6 m (20 ft) 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 8 m (26.5 ft) cord and 14-pin plug.



**RCC-14 Remote Contactor and Current Control #151 086**  
14-pin plug Rotary-motion fingertip control fastens to TIG torch using two Velcro® straps. Includes 8.5 m (28 ft) control cord.

**Extension Cords for 14-Pin Remote Controls or 24 VAC Wire Feeders**  
#242 208 025 7.6 m (25 ft)  
#242 208 050 15.2 m (50 ft)  
#242 208 080 24.4 m (80 ft)

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



Shown with ball hitch, fenders and lights.

**HWY-224 Trailer #043 805** For highway use.  
**OFR-224 Trailer #043 802** For off-road use.

A 1202 kg (2650 lb) capacity trailer. Welded steel tubing frame, heavy-duty axle with roller bearing hubs and leaf-spring suspension. Includes jack stand, 50 mm (2 in) ball hitch. *HWY-224 also includes fenders and lights.*

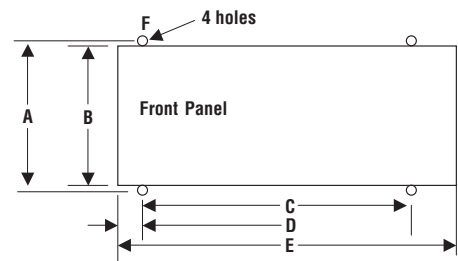
*Note: Trailer is shipped unassembled.*

**Cable Tree #043 826**  
Provides an area to conveniently wrap weld cables and extension cords.



**Dual Hitch #300 831**  
50 mm (2 in) ball hitch and 76 mm (3 in) lunette eye in one reversible assembly.

### Mounting Specifications



**A.** 705 mm (27-3/4 in)  
**B.** 667 mm (26-1/4 in)  
**C.** 1321 mm (52 in)  
**D.** 51 mm (2 in)  
**E.** 1422 mm (56 in)  
**F.** 14 mm (9/16 in) dia.

**Height:** 813 mm (32 in)  
**Width:** 667 mm (26-1/4 in)  
**Depth:** 1422 mm (56 in)

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

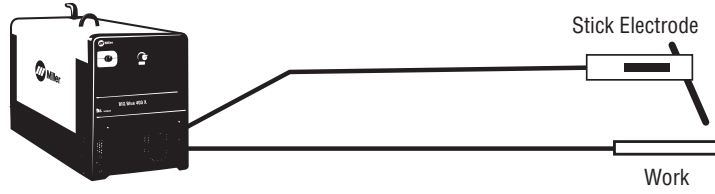
Model	Gross Axle Weight Rating	Gross Vehicle Weight Rating	Net Payload	Height of Bed	Road Clearance	Track (Center to center of tires)	Standard Tires (Standard rating or P-size rating)	Dimensions	Net Weight
HWY-224 OFR-224	1588 kg (3500 lb)	1343 kg (2960 lb)	1202 kg (2650 lb)	470 mm (18-1/2 in)	191 mm (7-1/2 in)	1321 mm (52 in)	B78-13	Length: 2667 mm (105 in) Width: HWY- 1511 mm (59-1/2 in)* OFR-1484 mm (58-7/16 in)	145 kg (320 lb)

\* Width at outside of fenders.

# Typical Installations

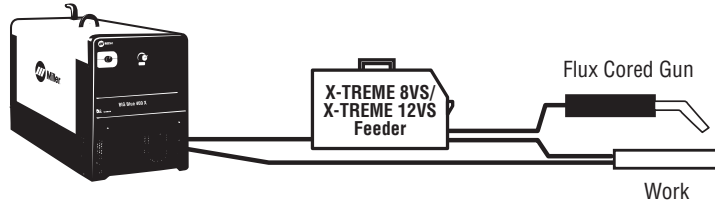


## Stick (SMAW) Basic Equipment



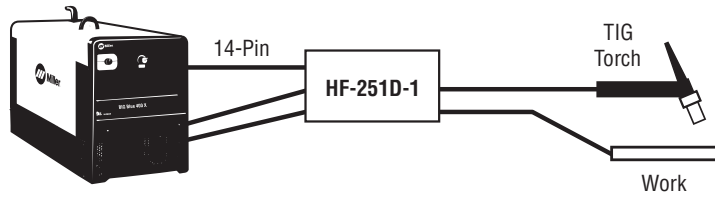
## Flux-Cored (FCAW) Basic Equipment

SuitCase® X-TREME™ 8VS #300 656  
 SuitCase® X-TREME™ 12VS #300 659



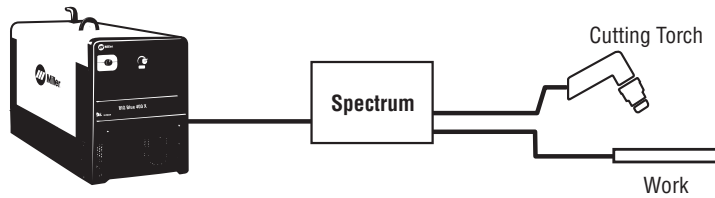
## TIG (GTAW) Basic Equipment

Dynasty® 200 Series  
 HF-251D-1 #042 388\*  
 \*TIG power cable adapter required



## Plasma Basic Equipment

Spectrum® 375 X-TREME™ #907 339  
 Spectrum® 625 X-TREME™ #907 404  
 Spectrum® 875 #907 390-01-1



# Ordering Information

Equipment and Options	Stock No.	Description	Qty.	Price
<b>Big Blue® 400 CX CC/CV (Flux Cored, CE)</b>	<b>#907 143</b> <b>#907 143-00-1</b>	CATERPILLAR Engine with 220 V Receptacle Package CATERPILLAR Engine with 220 V Receptacle Package and Weld Meters		
<b>Field Accessories</b>				
Digital Weld Meter Kit	<b>#195 289</b>	Field. For #907 143 only		
Cold Weather Starting Aid	<b>#195 056</b>	Field. 120 V block heater		
Engine Filter Kit	<b>#246 987</b>	Field. Includes air, oil and fuel filters		
Spark Arrestor (Muffler) Kit	<b>#195 291</b>	Field		
FA-1D Lockable Flame Arrestor Fuel Cap	<b>#043 947</b>	Field		
Protective Cover	<b>#195 301</b>	Field		
<b>Stick Welding Leads</b>				
		See page 5		
<b>Plasma Cutting</b>				
Spectrum® 375 X-TREME™	<b>#907 339</b>	Includes X-CASE™. See Lit Index No. PC/9.2		
Spectrum® 625 X-TREME™	<b>#907 404</b>	Includes X-CASE™. See Lit Index No. PC/9.6		
Spectrum® 875	<b>#907 390-01-1</b>	See Lit Index No. PC/9.8		
<b>MIG/Flux Cored Welding</b>				
Millermatic® Passport® Plus	<b>#907 401</b>	Includes gas bottle and MVP. See Lit. Index No. DC/12.53		
SuitCase® X-TREME™ 8VS	<b>#300 656</b>	See Lit Index No. M/6.41		
SuitCase® X-TREME™ 12VS	<b>#300 659</b>	See Lit Index No. M/6.41		
<b>TIG Welding</b>				
HF-251 Series	<b>#042 388</b>	115 VAC. See Lit. Index No. AY/5.0		
<b>Multiple Operator Welding</b>				
XMT® 350 Series	<b>#907 161</b> <b>#907 224</b> <b>#907 366</b>	CC/CV model w/Dinse-style connectors. See Lit Index No. DC/18.83 VS model w/Tweco®-style connectors. See Lit Index No. DC/18.83 MPa model w/Dinse-style connectors. See Lit Index No. DC/18.83		
CST™ 280 CC/DC	<b>#907 244</b> <b>#907 244-01-1</b> <b>#907 251</b> <b>#907 251-01-1</b>	220-230/460–575 VAC w/Dinse-style connectors. See Lit Index No. DC/29.55 220-230/460–575 VAC w/Tweco®-style connectors. See Lit Index No. DC/29.55 208-230/400–460 VAC w/Dinse-style connectors. See Lit Index No. DC/29.55 208-230/400–460 VAC w/Tweco®-style connectors. See Lit Index No. DC/29.55		
Dynasty® 200 SD	<b>#907 099</b>	Basic controls for AC/DC TIG/Stick, 120–460 VAC. See Lit Index No. AD/4.8		
Dynasty® 200 DX	<b>#907 099-01-1</b>	Full feature controls for AC/DC TIG/Stick, 120–460 VAC. See Lit Index No. AD/4.8		
<b>Remote Controls and Switches</b>				
		See page 6		
<b>Trailers and Hitches</b>				
HWY-224 Trailer	<b>#043 805</b>	Trailer with lights, fenders and 50 mm (2 in) ball hitch. For highway use		
OFR-224 Trailer	<b>#043 802</b>	Trailer with 50 mm (2 in) ball hitch. For off-road use		
Cable Tree	<b>#043 826</b>	Trailer-mounted cable holder for HWY-224 or OFR-224		
Dual Hitch	<b>#300 831</b>	Combination 50 mm (2 in) ball hitch and 76 mm (3 in) lunette eye in one reversible assembly. For HWY-224 or OFR-224		

Date:

Total Quoted Price:



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