

Big Blue® 500 Pro

Issued April 2025 • Index No. ED/11.0

Diesel Engine-Driven
Welder



Quick Specs



Heavy Industrial Applications

Heavy construction
Structural steel
Mining maintenance
Maintenance and repair rigs
Process piping

Processes

Stick (SMAW)
MIG (GMAW)*
Flux-cored (FCAW)*
RMD®**
Pulsed MIG (GMAW-P)**
DC TIG (GTAW)
Submerged arc (SAW)
Air carbon arc (CAC-A)
3/8-inch (9.5 mm) carbons
Air plasma cutting and gouging
with optional Spectrum® models

Output Range DC stick/TIG 20–500 A
DC MIG/FCAW 14–50 V

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

3-phase 27,000 watts peak, 20,000 watts continuous
1-phase 15,000 watts peak, 12,000 watts continuous

Note: See page 4 for specific international specs.

*With wire feeder.

**ArcReach models only with ArcReach Smart Feeder.



Heavy-duty low-speed T4F and T4i industrial diesel engines.

The cleanest, greenest diesel power available. T4F models utilize diesel oxidation catalyst (DOC) technology to keep the air clean with **NO** exhaust aftertreatment maintenance.



Electronic engine display (USA models) simultaneously displays fuel level, engine hours, coolant temperature, oil pressure, battery volts and engine rpm. Also tracks oil change intervals and displays engine diagnostics for quick and easy servicing.



Optimized arc control for stick welding applications. See page 2.



Parameter control at the wire feeder or pendant without needing a control cord. See page 2.



Durable and built to last in harsh industrial environments.



Superior arc performance.



International models available.

USA model shown is



Engine-driven welder is warrantied for three years, parts and labor.
Engine is warrantied separately by the engine manufacturer.



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An ITW Welding Company
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MillerWelds.com
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Big Blue® 500 Pro Features and Controls

Digital meters with SunVision™ technology enable welding parameters to be viewed with greater clarity than analog meters — at virtually any angle. Meters can be seen clearly even in direct sunlight.

Industrial USB port. Quickly upload the latest software and download machine log files.



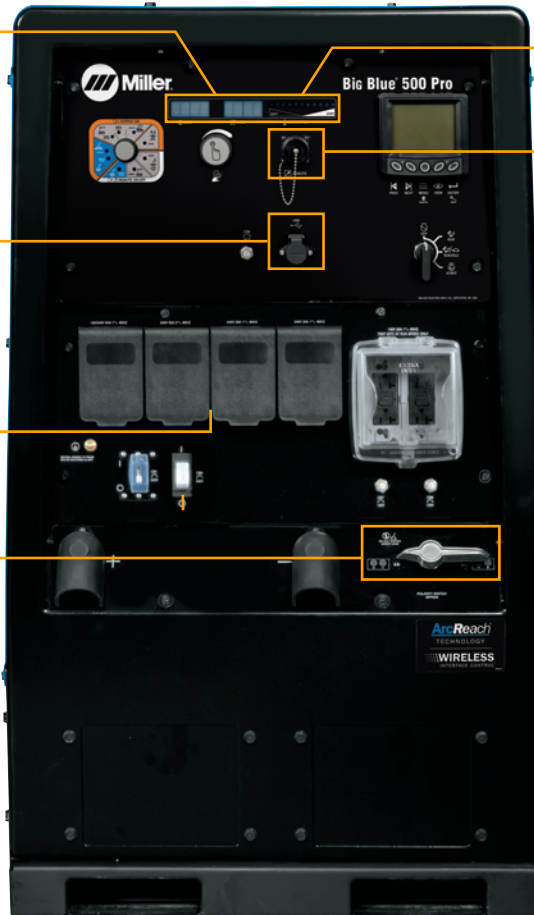
20,000 watts of pure auxiliary power. Plug in an extra Miller® inverter-based power source for a second welding arc.

Polarity reversing switch (Deluxe models only). Quickly change welding polarity, without having to change over cables.

 **56.7°C RATED**

Miller engine drives are tested to perform in high-temperature climates, even at the highest recorded temperature on earth — 56.7°C*. They are designed to excel in extreme heat by optimizing engine cooling, reducing harmful environmental effects.

**According to the World Meteorological Organization Global Weather & Climate Extremes Archive (<https://wmo.asu.edu/content/world-highest-temperature>)*



USA model shown



Arc control is beneficial when welding with stick and solid wires for easier fine-tuning of tough-to-weld materials and out-of-position applications.

Standard 14-pin receptacle with Auto-Remote Sense™ for simple connection of remote controls and wire feeders.

Low OCV stick (VRD), when enabled, reduces the open-circuit voltage to 30 volts when the welding power source is not in use, increasing operator safety without compromising arc starts.

HD powder coat with zinc-rich primer protects sheet metal from rust and corrosion.

Standard features include adjustable Hot Start™, output contactor control, automatic idle, thermal overload protection, 120-volt block heater and Dynamic DIG™.

Big Blue® 500 Pro Technologies

Dynamic DIG™ technology



Ultra-adaptive arc control. Unlike conventional DIG that provides a preset amount of short-clearing current, Miller-exclusive Dynamic DIG technology works on a time-based algorithm to optimize metal

deposition. Dynamic DIG provides independent control of the fluidity of the weld puddle (arc control) and the drive of the arc (DIG range). This delivers a tailorable and user-friendly arc to match the application, material, fit-up and welder technique.

ArcReach® technology (option)



Parameter control at the wire feeder or pendant without needing a control cord.

An ArcReach system allows you to change weld settings from your ArcReach feeder or stick/TIG remote, saving a trip to the power supply. ArcReach technology uses the existing weld cable to communicate welding control information between the feeder or stick/TIG remote and the power source. This technology eliminates the need for control cords, and their associated problems and costs.

ArcReach-equipped power sources work with non-ArcReach accessories; however the ArcReach benefit is only realized with the complete ArcReach system. This includes an ArcReach-equipped machine and one or more of the following accessories:

- ArcReach® SuitCase® feeder
- ArcReach® Smart Feeder
- ArcReach® Stick/TIG Remote

See pages 6 and 7 for more information.

Big Blue® 500 Pro Benefits

Easily update technology



With the industrial USB port, you can easily upload the latest software and download machine log files to retrieve in-depth

information from your machine such as diagnostics and statistics.

Visit MillerWelds.com/support to download the latest software updates.

Less noise



Quiet operation of the Big Blue 500 Pro helps improve jobsite productivity because work crews can communicate easier.

Jobsite safety



Reduce the need to walk back to or climb into the truck bed to make process and parameter changes, or turn your machine on/off.

ArcReach® technology provides parameter control at the wire feeder or stick/TIG remote, so you can lower the risk of encountering potential jobsite hazards.

Specifications (Subject to change without notice.)



Weld Mode/ Process	Weld Output Range	Weld Output Rated at 104°F (40°C)	Max. Open-Circuit Voltage	Auxiliary Power Output Rated at 104°F (40°C)***	Dimensions	Weight
CC/DC (Stick/TIG)	20–500 A	USA models 400 A at 36 V, 100% duty cycle* 450 A at 38 V, 100% duty cycle* 500 A at 40 V, 100% duty cycle* International model 400 A at 36 V, 100% duty cycle* 450 A at 33 V, 60% duty cycle 500 A at 30 V, 40% duty cycle	92 VDC 30 VDC**	USA models 3-phase: 27,000 watts peak 20,000 watts continuous 1-phase: 15,000 watts peak 12,000 watts continuous International model 3-phase: 21,000 watts peak 15,000 watts continuous 1-phase: 15,000 watts peak 12,000 watts continuous	USA models H: 46 in. (1,168 mm) W: 28.5 in. (724 mm) D: 69.5 in. (1,765 mm) International model H: 42 in. (1,067 mm) W: 28.5 in. (724 mm) D: 65.125 in. (1,654 mm) Add 7.5 in. (191 mm) to heights for exhaust pipe	USA models Net: 1,750 lb. (793.8 kg) International model Net: 1,530 lb. (694 kg) Add 51 lb. (23 kg) for ship weight Add 165 lb. (75 kg) when fuel tank is full
CV/DC (MIG/FCAW)	15–50 V					

*Meets NEMA and IEC ratings. **Sense voltage for stick and Lift-Arc™ TIG. ***Will operate either 60 hertz or 50/60 hertz power tools, lights, etc.

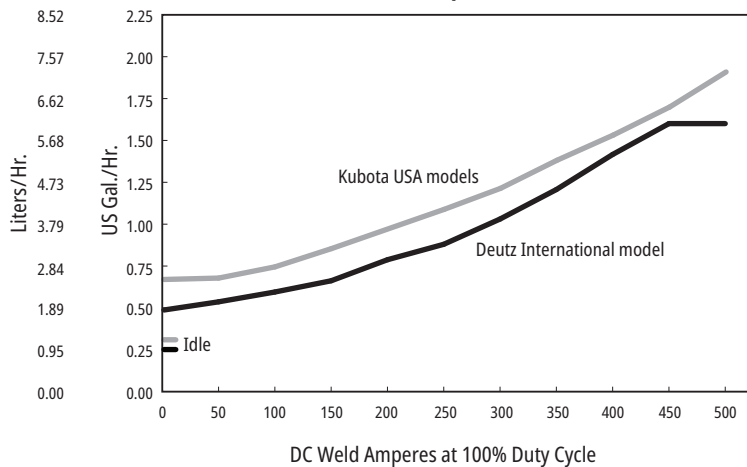
Certified by Canadian Standards Association to both the Canadian and U.S. Standards.

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

Engine Brand	Features	HP	Type	Engine Speeds	Sound Levels at 23 ft. (7 m)	Capacities	Automatic Engine Shutdown
USA Kubota V2403	EPA Tier 4 Final compliant, includes 120 V block heater and automatic glow plugs	48.9	Turbo-charged four-cylinder liquid-cooled industrial diesel	Idle: 1,350 rpm Weld: 1,800 rpm	Idle: 65.9 dB (90.7 Lwa) Weld: 74.3 dB (99.1 Lwa)	Fuel: 25 gal. (95 L) Oil: 10 qt. (9.5 L) Coolant: 9 qt. (8.5 L)	Low oil pressure, high coolant temperature, low fuel level
International Deutz D 2011 L03 i	EPA Tier 4i compliant, includes 120 V block heater and glow plugs	32.0	Three-cylinder oil-cooled industrial diesel	Idle: 1,350 rpm Weld: 1,800 rpm	Idle: 63.4 dB (88.2 Lwa) Weld: 72.2 dB (97 Lwa)	Fuel: 25 gal. (95 L) Oil: 6 qt. (5.7 L)	Low oil pressure, high coolant temperature, low fuel level

Performance Data

Fuel Consumption Curve



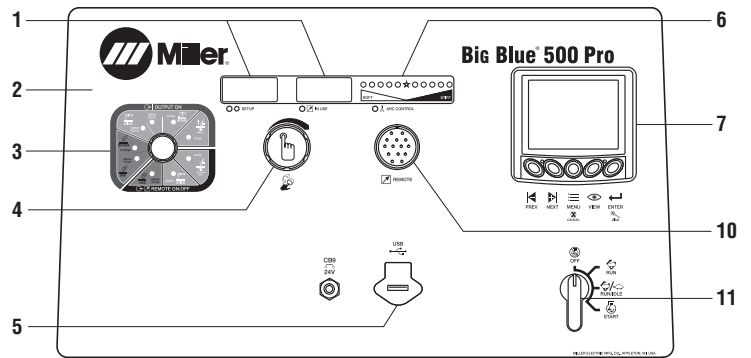
Simultaneous Welding and Power

Weld Amperes	Total Aux. Power Available (Watts) Kubota USA Models	
	1-Ph*	3-Ph
No Weld Output	16,000	20,000
200 A at 28 V	16,000	20,000
300 A at 32 V	13,000	18,000
400 A at 36 V	9,000	12,500
450 A at 38 V	6,500	7,500
500 A at 40 V	4,500	5,750

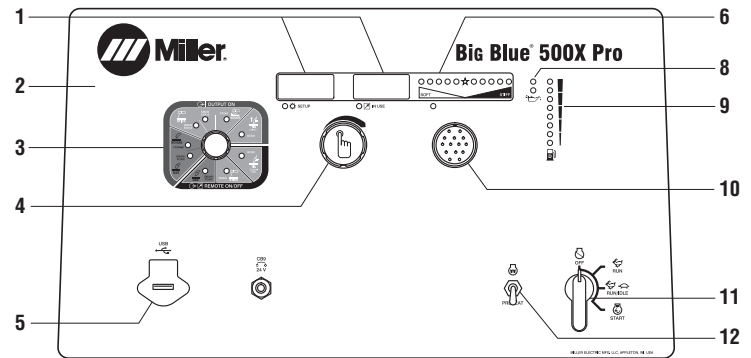
*Single-phase listings include 4,000 watts from the exciter stator.

Function Guide

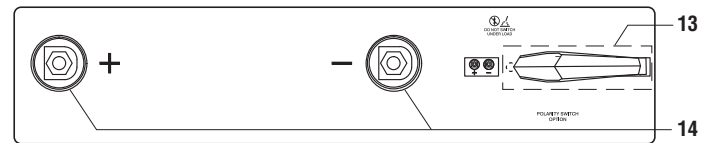
1. **Self-calibrating digital weld meters with fault code indication** display preset or actual weld parameters.
2. **Weatherproof Lexan® nameplate** is super durable and resists cracking and fading.
3. **Weld process selection switch**
4. **Pushbutton main control knob** used for adjusting amperage/voltage, adjusting arc control, and accessing the service menu.
5. **USB port** allows software updates from a USB drive. A summary file of recorded data from the unit will be saved to a USB drive that is inserted.
6. **Adjustable fine arc settings** adjusts arc control when in stick processes or inductance when in CV/wire processes to change the weld puddle fluidity. In TIG, Auto-Stop adjusts the arc length at which the arc will terminate. The fine settings assist the operator to get a more tailored arc for their application.
7. **Electronic engine display** can display fuel level, engine hours, coolant temperature, oil pressure, battery volts, and engine rpm simultaneously or one at a time. Also tracks oil change intervals and displays engine diagnostics for service technicians.
8. **Maintenance interval reminder.** Yellow and red indicator lights let an operator know when the machine is approaching and finally in need of routine maintenance.
9. **Fuel indicator gauge.** Low fuel shutdown shuts engine off prior to running out of fuel to prevent loss of fuel in the system, and make restarts easy.
10. **Standard 14-pin receptacle** for simple connection of remote controls and wire feeders. Includes **Auto Remote Sense™** which automatically switches from panel to remote amperage/voltage (A/V) control with remote connected. Eliminates confusion of a panel/remote switch.
11. **Engine control switch** is used to start engine and then select between auto idle and high speed lock.
12. **Glow plugs** assist in cold weather starting.
13. **Optional polarity reversing switch** changes DC polarity without the use of tools.
14. **Weld output terminals**



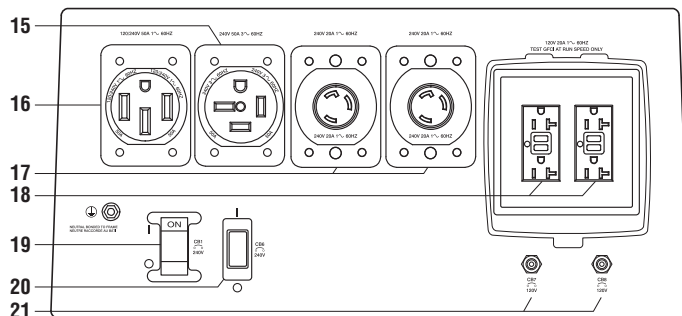
Control panel – USA models



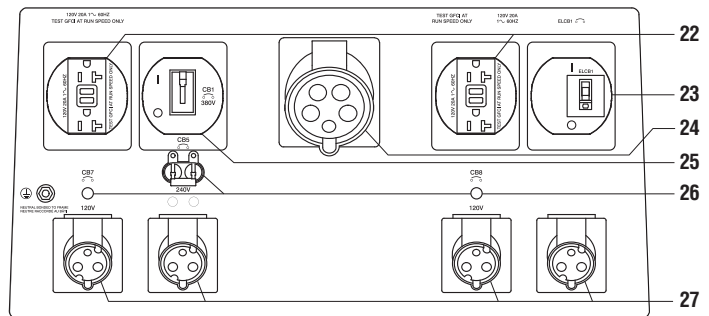
Control panel – International model



Terminal panel – all models



Receptacles and circuit breakers – USA models



Receptacles and circuit breakers – International model

15. **50 A, 240 V, three-phase receptacle**
Note: For matching plug, order 254140.
16. **50 A, 120/240 V receptacle** *Note: For matching plug, order 119172.*
17. **20 A, 240 V receptacles**
18. **20 A, 120 V receptacles with ground fault**
19. **50 A circuit breaker**
20. **20 A, 240 V circuit breaker**
21. **20 A, 120 V circuit breakers**

22. **20 A, 120 V receptacles with ground fault**
23. **240 V residual current circuit breaker with overcurrent protection (RCBO)**
24. **32 A, 400 V three-phase receptacle**
Note: For matching plug, order 255421.
25. **30 A, three-phase circuit breaker**
26. **120 and 240 V circuit breakers**
27. **16 A, 120/240 V receptacles**
Note: For matching plugs, order 255419 for 120 V and 255416 for 240 V.

Genuine Miller® Accessories

Polarity Reversing Switch Kit 301112 Field
Standard on Deluxe models. Changes DC polarity without the use of tools.

Full KVA Adapter Cord 300517 Field
NEMA 14-50P to NEMA 6-50R. Adapts engine drive 120/240 V plug to common Millermatic® and Spectrum® 240 V plug.



Full KVA Plug Kit Field
119172 1-phase, 120/240 V, 50 A plug (NEMA 14-50P)
254140 3-phase, 240 V, 50 A plug (NEMA 15-50P)



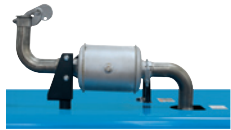
International Plugs Field
255416 1-phase, 240 V, 16 A plug
255421 3-phase, 400 V, 32 A plug

Engine Filter Kits Field

273293 For Kubota

246988 For Deutz

Includes all filters required for proper engine maintenance. Oil filter, primary and secondary fuel filter, and primary air filter.



Spark Arrestor Kit 195012 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 in 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 043947 Field
Fuel cap can be padlocked to prevent vandalism. A built-in flame arrestor prevents flames or sparks from entering the fuel tank.

Remote Output Panel Kit 951850 Field

If your engine-driven welder is mounted on a truck, easily locate the outputs at the point of use with the auxiliary power and weld output remote panel. See literature AY/20.5.



Vandalism Lockout Kit 399802 Field
Standard on Deluxe models. Lockable hinged steel panels cover and protect name plate gauges and ignition switch (padlock included).



Big Blue 500-800 Pro Cold Weather Kit 301482 Field
Adjustable, steel-hinged cover for operating in extremely cold conditions.



Cable Holder 043946 Field
Saddle-bag-style cable holder. Convenient wrap-around storage of coiled cable for transportation. Stores 100 feet of 2/0 cable on each side.

Note: For best results do not weld when cable is coiled! Protective cover cannot be used with cable holder.



Protective Cover Field
301495 Kubota model
194683 Deutz model
Blue water-resistant canvas cover resists stains and mildew, and protects the finish of your welder.

Note: Protective cover cannot be used with cable holder.

MIG/Flux-cored Welding



ArcReach® SuitCase® 8
951726001 With Bernard® BTB Gun 300 A
951727 With Bernard® S-Gun™
951728 With Bernard® Dura-Flux™ gun

ArcReach® SuitCase® 12
951729001 With Bernard® BTB Gun 300 A
951730 With Bernard® S-Gun™
951731 With Bernard® Dura-Flux™ gun

ArcReach® SuitCase® 12 Heavy Duty 301604 Feeder only — for 3/32-inch cored wire
Portable feeder designed to run off of arc voltage. When paired with an ArcReach power source, provides remote control of the power source without a control cord — saving time and money. See literature M/6.55.



ArcReach® Smart Feeder 951733
For use with ArcReach models only (see page 3 for more information). Includes drive rolls and Bernard® PipeWorx 300-15 MIG gun. For MIG, FCAW, and advanced RMD® and pulse processes. See literature M/6.55.



SuitCase® 12RC Wire Feeder 951580001
Lightweight and flexible enough to run wires up to .062-inch diameter. Includes remote voltage control, drive roll kit and Bernard® BTB Gun 300 A. See literature M/6.5.

MIG (GMAW)/Flux-cored (FCAW) Guns

See Bernard® literature SP-BTB for BTB air-cooled MIG guns, and SP-DF for Dura-Flux™ self-shielded flux-cored guns.



Spoolmatic® 30A Spool Gun 130831
Air-cooled, 200-amp, one-pound spool gun for aluminum and

stainless MIG. See literature M/1.73. Requires WC-24 Control **137549**.

XR™ Wire Feeder and Guns

Push-pull system designed to handle difficult-to-feed soft alloy wires such as aluminum. See literature DC/34.0 and M/1.7 through M/1.74.

Stick (SMAW) Welding

Weld Leads

2/0 Stick Cable Set, 50 ft. (15 m) 173851
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) 043952
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) Welding



Dynasty® 210 Series
For portable AC/DC TIG. See literature AD/4.81.

Genuine Miller® Accessories (Continued)

Plasma Cutting



Spectrum 375 X-TREME and 625 X-TREME shown.

Spectrum® 375 X-TREME™ 907529

See literature PC/9.2.

Spectrum® 625 X-TREME™ 907579

See literature PC/9.6.

Spectrum® 875 907583

See literature PC/9.8.

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

Stick/TIG Remote Controls



ArcReach® Stick/TIG Remote 301325

When paired with an ArcReach power source, provides remote control of the power source without a cord — saving time and

money. See literature AY/14.5.



Wireless Remote Hand Control 301582

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

Wireless antenna kit **300749** is recommended.

Wireless Antenna Kit 300749

Optional when improved reception is desired.



RHC-14 Hand Control 242211020

Miniature hand control for remote current, voltage and contactor 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.

Extension Cables for 14-Pin Remote Controls or 24 VAC Wire Feeders

242208025 25 ft. (7.6 m)

242208050 50 ft. (15.2 m)

242208080 80 ft. (24.4 m)

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



HWY-225 Trailer 301338

A 2,700-pound (1,225 kg) capacity highway trailer with welded steel tubing frame, heavy-duty axle with roller bearing hubs and leaf-spring suspension. Includes jack stand, fenders, lights, and dual hitch with 2-inch (50 mm) ball hitch and 3-inch (76 mm) lunette eye.

Cable Tree 043826

For use with HWY-225. Provides an area to conveniently wrap weld cables and extension cords.



Dual Hitch 301441

For use with HWY-225. 2-inch (50 mm) ball hitch and 3-inch (76 mm) lunette eye in one reversible assembly.



2-In-1 Document/Fire Extinguisher Holder 301236

For use with HWY-225. Stores documents and holds a 5-pound fire extinguisher.

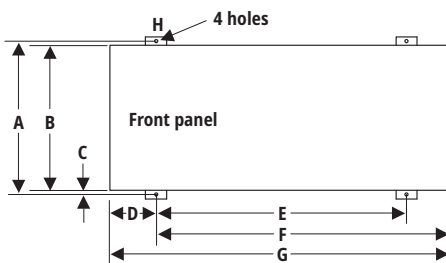
Note: Holder shown mounted on trailer. Fire extinguisher not included.

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-225	3,500 lb. (1,588 kg)	2,999 lb. (1,360 kg)	2,700 lb. (1,225 kg)	19 in. (483 mm)	7.5 in. (191 mm)	50 in. (1,270 mm)	ST175/80R-13 Load Range D	Length: 105.5 in. (2,680 mm) Width: 56.5 in. (1,435 mm)*	280 lb. (127 kg)

*Width at outside of fenders.

Mounting Specifications



Kubota model:

- A. 29.812 in. (757 mm)
- B. 27.5 in. (699 mm)
- C. 1 in. (25 mm)
- D. 11.625 in. (295 mm)*
- E. 46.375 in. (1,178 mm)*
- F. 58 in. (1,473 mm)*
- G. 69.5 in. (1,765 mm)
- H. .562 in. (14 mm) dia.

Deutz model:

- A. 29.812 in. (757 mm)
- B. 27.5 in. (699 mm)
- C. 1 in. (25 mm)
- D. 9.625 in. (244 mm)*
- E. 46.5 in. (1,181 mm)*
- F. 56 in. (1,422 mm)*
- G. 65.125 in. (1,654 mm)
- H. .562 in. (14 mm) dia.

Height:

Kubota model: 46 in. (1,168 mm) to top of cover
Deutz model: 42 in. (1,067 mm) to top of cover
Add 7.5 in. (191 mm) to heights for exhaust pipe
(Exhaust measurement subject to change.)

Width (all models):

28.5 in. (724 mm) (mounting brackets turned in)
30.75 in. (781 mm) (mounting brackets turned out)

*With mounting brackets in center position.
Dimensions vary with location of mounting brackets.

Ordering Information

Equipment and Options	Stock No.	Description	Qty.	Price
Big Blue® 500 Pro (USA) EPA Tier 4 Final compliant engine	907736 907736001	Kubota. USA base model with 240-volt 3-phase power Kubota. USA deluxe model with ArcReach®, polarity reversing switch and vandalism lockout kit		
Big Blue® 500X Pro (International) EPA Tier 4i compliant engine	907788	Deutz. International model with 400-volt 3-phase power and ArcReach®		
Field Accessories				
Polarity Reversing Switch Kit	301112	Changes DC polarity without the use of tools		
Full KVA Adapter Cord	300517			
Full KVA Plug Kits		See page 6		
International Plugs		See page 6		
Engine Filter Kits		See page 6		
Spark Arrestor Kit	195012			
FA-1D Lockable Flame Arrestor Fuel Cap	043947	Padlock NOT included		
Remote Output Panel Kit	951850	For truck-mounted engine-driven welders. Includes auxiliary power and weld output remote panel		
Vandalism Lockout Kit	399802	Lockable front control panel		
Big Blue 500 – 800 Pro Cold Weather Kit	301482	For use in extreme cold		
Cable Holder	043946	Stores up to 200 feet of 2/0 cable		
Protective Cover		See page 6. Canvas cover — will not fit over machine with cable holder attached		
MIG/Flux-cored Welding				
ArcReach® SuitCase® 8	951726001 951727 951728	With Bernard® BTB Gun 300 A. See literature M/6.55 With Bernard® S-Gun™ With Bernard® Dura-Flux™ gun		
ArcReach® SuitCase® 12	951729001 951730 951731	With Bernard® BTB Gun 300 A. See literature M/6.55 With Bernard® S-Gun™ With Bernard® Dura-Flux™ gun		
ArcReach® SuitCase® 12 Heavy Duty	301604	Feeder only — for 3/32-inch cored wire		
ArcReach® Smart Feeder	951733	MIG/FCAW/RMD®/pulse feeder with Bernard® PipeWorx 300-15 MIG gun. Tweco®-style connectors. See literature M/6.55		
SuitCase® 12RC	951580001	With Bernard® BTB Gun 300 A. See literature M/6.5		
MIG (GMAW) and Flux-cored (FCAW) Guns		See Bernard® literature SP-BTB and SP-DF		
Spoolmatic® 30A Spool Gun	130831	Requires WC-24 Control. See literature M/1.73		
WC-24 Control	137549	See literature M/1.73		
XR™ Wire Feeder and Guns		See literature DC/34.0 and M/1.7 through M/1.74		
TIG Welding		See page 6		
Plasma Cutting		See page 7		
Stick/TIG Remote Controls				
ArcReach® Stick/TIG Remote	301325	For use with ArcReach models only		
Wireless Remote Hand Control	301582	Wireless antenna kit 300749 recommended		
RHC-14 Hand Control	242211020			
Extension Cables		See page 7		
Trailers and Hitches				
HWY-225 Trailer	301338	Trailer with lights, fenders and dual hitch. For highway use		
Cable Tree	043826	Trailer-mounted cable holder for HWY-225		
Dual Hitch	301441	Combination 2-inch (50 mm) ball hitch and 3-inch (76 mm) lunette eye in one reversible assembly for HWY-225		
2-In-1 Document/Fire Extinguisher Holder	301236	Stores documents and holds a 5-pound fire extinguisher for HWY-225		

Date:

Total Quoted Price:

Distributed by:

