Auto-Axcess™ 450
with AA-40G Wire Drive Motor

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Digital Robotic Arc Welding System

Quick Specs

Automated Manufacturing Applications
Construction Equipment
Automotive Components
Recreational Vehicle
Farm Machinery
Office Furniture

Processes
Multi-MIG
Accu-Pulse MIG (GMAW-P)
Pulsed MIG (GMAW-P)
MIG (GMAW)
Metal Core

RMD (GMAW-SCT) *Optional*

Rated Output 450 A at 44 VDC, 100% Duty Cycle (460 VAC, 3-Phase)

Voltage Range 10–44 V

Auxiliary Power 120 VAC, 10 A Duplex

Ship Weight 150 lb (79.5 kg)

The Power of Blue®

Seamless integration of digital control technology combines inverter welding power source and robotic interface. Designed to reduce complexity of the system, simplify installation and provide superior welding performance.

New!

Flexible, expandable and upgradeable! Precise, digitally controlled, software-driven, **Multi-MIG** capable welding system is specifically designed for robotic applications.

"Axcess" the ability to accommodate welding data file exchange through downloadable upgrades and new hybrid welding processes using e-mail or Palm handheld (PDA).

HARDWARE

Miller's exclusive **Auto-Line™** technology allows for **any** input voltage hook-up (190–630 V) with no manual linking. Assures rock-solid, consistent output on fluctuating primary lines.

Separate **9-pin Palm™ handheld (PDA) and 9-pin RS-232 serial communication port** for data transfer and optional programs.

72-pin Harting connector for quick, easy connection to common robot controllers (ABB, Fanuc, Kawasaki, Motoman, and Nachi) with optional adapter cables.

Photo for reference only (subject to change).

***NEW!* AA-40G four-drive-roll wire drive motor** provides positive feed (50–1400 IPM) and includes volt-sense lead, enclosed gas valve and quick-change drive rolls that operate on 40 VDC.

SOFTWARE

Multi-MIG includes common carbon steel, aluminum and stainless welding programs, including new patented **Accu-Pulse™**, standard or adaptive pulse, conventional MIG and metal core programs using the most popular wire diameters and gas combinations.

Auto-CAL identifies the robot manufacturer and automatically calibrates analog signal to assure proper scaling.

Sharp Start™ feature provides consistent arc starts by electrically assuring a ball is not left on the wire when welding is stopped.

Optional Axcess-able software:
RMD (Regulated Metal Deposition)
Palm Axcess file management system
WaveWriter™ Palm pulse wave shaping

TRUE BLUE® 3YR. WARRANTY

Power source is warranted for 3 years, parts and labor.

MADE IN USA
APPLETON, WI

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

ISO 9001:2000 REGISTERED QUALITY SYSTEM

Additional Features

HARDWARE

1/4-turn steel connectors	Allow for faster installation of system and reduces thread stripping.
Integrated touch sensor and interface	To be used with external circuitry or peripheral equipment when touch sensing.
Wind Tunnel Technology™	Circulates air over components that require cooling, not over electronic circuitry, which reduces contaminants and improves reliability.
115 VAC duplex receptacle	Provides 10 amp circuit-breaker-protected auxiliary power regardless of primary power.
Fan-on-Demand™	Cooling system operates only when needed. Reduces amount of airborne contaminants pulled through the machine.

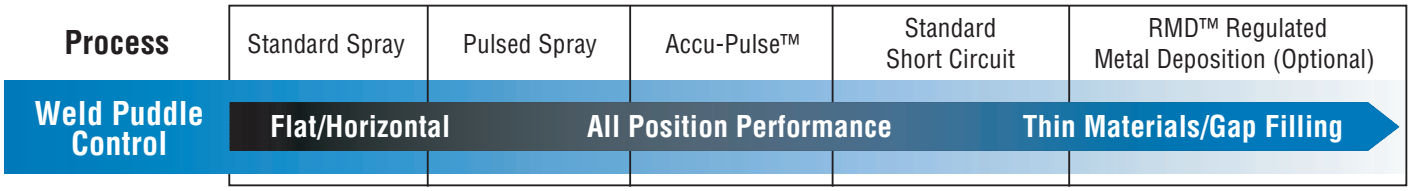
SOFTWARE

Remote program select	Allows changing weld programs from the robot controller to take advantage of up to 8 programs or Multi-MIG welding process capabilities.
***IMPROVED!* SharpArc®**	Control offers a simple way to tailor factory pulse weld programs by adjusting the arc plasma cone to accommodate a variety of welding applications without the need for any reprogramming or changing any hardware.

Multi-MIG Process Capability

"Axcess™" the ideal welding process for any weld joint at hand. Whether you need high travel speed combined with high deposition rates or require gaps to be filled, any combination of the available welding processes can be "Axcess"-ed either at the start of a welding sequence or anywhere in the weld while actually welding by using trigger program select.

For a given wire-feed speed, the chart below shows from left (hottest) to right (coolest) all the possible arc mode transfer ranges of "Axcess"-able MIG processes. This shows compatible spray gas combinations such as 90 Ar/10 CO_2 (90% Argon and 10% Carbon Dioxide) on steel using the same wire-feed speed and also gives an indication of puddle control characteristics based on arc type selected.



Specifications (Subject to change without notice.)

CV DC 3 Phase

Auto-Axcess 450

Rated Output	Voltage Range	Amperage Range in CC Mode	Max. Open-Circuit Voltage	Amps Input at Rated Output, 50/60 Hz 230 V	400 V	460 V	575 V	KVA	KW	Dimensions	Ship Weight
450 A at 44 VDC, 100% Duty Cycle	10 – 44 V	5 – 600 A	85 VDC	52	29	26	20	19.8	19	H: 41 in (1041 mm) W: 15-1/2 in (394 mm) D: 22 in (559 mm)	150 lb (79.5 kg)

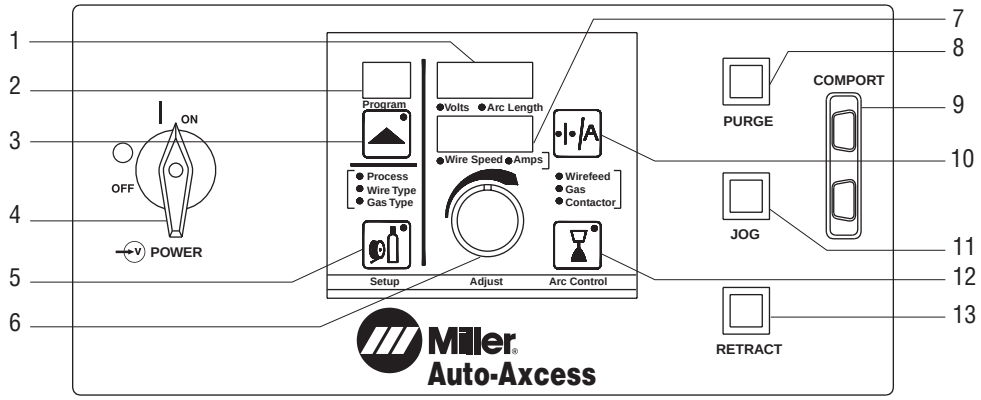
AA-40G Wire Feed Motor with Volt-Sense Kit

Gas Valve	Type of Input Power	Interconnect Cable	Wire Feed Speed Range*	Wire Diameter Range	Dimensions	Ship Weight
Included and enclosed	40 VDC (from Auto-Axcess 450)	50 ft (15.2 m)	50 – 1400 IPM (1.3 – 35.56 MPM)	.030 – 3/32 in (0.8 – 1.6 mm)	H: 10 in (254 mm) W: 12 in (305 mm) D: 15 in (381 mm)	33 lb (15 kg)

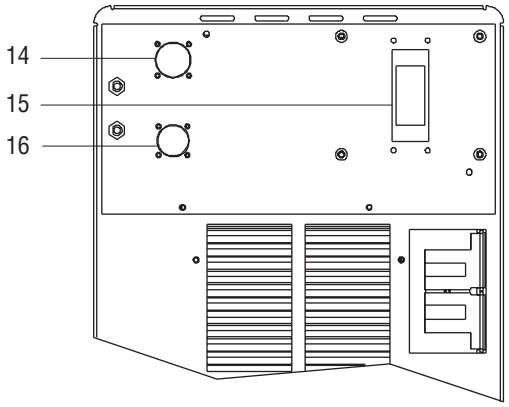
**This is the wire feed speed range while using MIG. With pulsed MIG, the wire feed speed range may be more limited.*

Control Panels

Front Panel



Back Panel



1. Voltage/Arc Length Display Meter
2. Program Display
3. Program # Select
4. Power Switch
5. Process Setup Button
6. Control Knob
7. Wire Speed/Amperage Display Meter
8. Purge Pushbutton
9. Palm™/PC RS-232 Ports
10. Wire Feed/Amperage Select
11. Jog Forward Pushbutton
12. Arc Control
13. Jog Retract Pushbutton
14. Motor Connector
15. Robot Connection
16. Peripheral Connector

Capabilities

Front Panel Features
- Weld Process Selection
- Wire Size and Type
- Gas Type
- Wire Jog Forward Button
- Wire Jog Reverse Button
- Purge Button
- Digital Display Meters:
  - Voltage/Trim
  - Wire Feed Speed/Amperage
- Program Number
- Arc Control (SharpArc® and Inductance)

Digital Outputs
- Arc On
- Wire Stick
- Welder Ready

Digital Inputs
- Start
- Jog Forward
- Jog Reverse
- Purge
- Program Select
- E-Stop

Analog Outputs
- Voltage
- Current

Analog Inputs
- Voltage/Trim
- Wire Feed Speed

Auto Setup
- Robot Specific

Sequence
- Preflow: 0–9.9 sec
- Start Power: 0–2.5 sec
- Voltage: 10–44/Trim: 0–100
- IPM: 40–1400
- Crater: 0–2.5 sec
- Retract
- Postflow: 0–9.9 sec

Auto Thread

Auto Cal

Software Options – Palm OS® Based

Note: Either Palm™ Axcess™ File Management or Wavewriter™ is required to download software upgrades. One license per Palm™ handheld.

Axcess™ File Management

#195 249

Simply put, the new Miller Palm OS-based file management software turns a standard Palm™ handheld (PDA) into a data card and a remote pendant control for all Axcess systems. This is in addition to all other functions a Palm is typically used for. By using a Palm handheld in this manner, we have built a powerful intuitive interface on a common affordable, portable platform. This opens the door to functions and capabilities not previously available from Miller or from the welding industry as a whole.

With Miller's Palm Axcess File Management installed on your Palm "m" Series you can:

- E-mail Axcess files anywhere worldwide
- Configure any Axcess system as desired
- Configure multiple Axcess systems exactly the same or any way you choose
- Save and store Axcess files
- Transfer Axcess files to computers
- Transfer Axcess files from machine to machine
- Backup Axcess files and programs
- Set-up and modify Axcess welding sequences
- Adjust and store welding program Locks & Limits for restricting or limiting operator "Axcess" to programs
- Enable Auto-Thread™ feature to program torch length into Axcess memory. When a combination of purge and jog are depressed, the Axcess feeding system delivers exact programmed length of wire.

There are 3 basic types of files:

1) **Programs** – Contain all the welding data that create an arc: volts, amps, wire feed rates, wire type, size, gas and appropriate arc control. They also contain all the time-based functions typically used in welding: pre-flow, start conditions, ramps, crater fill, retract, and post-flow.
2) **Configuration** – Files contain Locks, Errors and Feeder information that include robot selection type (**Robot Control** – PS Wire and Gas, **Shared Control** – Arc on Analog, and **Power Source Control** – Robot Arc no Analog). Configuration enables error messages, dual schedule, and remote program select to be selected. It also allows for checking software revisions and arc/ cycle time data. Using configuration you can set Auto-Thread torch length allowing for pushbutton feed of an exact wire length.
3) **Back-up** – Back-up files allow a convenient and simple way to store all files from a welding power source in a Palm.

Each type can reside or be "Axcess"ed in any of 3 locations:

1) **Welder** – The welding power source holds the main library of welding programs.
2) **Palm** – The Palm acts as an interim storage device where files can be pulled from the power source stored or modified.
3) **E-mail** – Files can be stored for Email in this location.

Any of the files can be cut, copied, pasted, modified, UN-protected files can also be beamed.

Copyright-protected and Miller proprietary files cannot be transferred such as Palm Axcess File Management, WaveWriter™, and RMD™ welding process. WaveWriter pulsed MIG graphical wave-shaping software for Palm "m" Series handheld (PDA).

WaveWriter™ Graphical Wave Shaping

#195 250

WaveWriter is our premium Palm software package for Axcess systems. For Palm "m" Series handhelds (PDAs), it includes all of the Palm Axcess file management functions plus a simple, graphical pulsed MIG wave-shaping program for the most demanding pulsed MIG applications. Customers can expect exceptional welding performance from any Axcess system from the programs for common wire and gas combinations — right out the box. For those who need to adjust pulse parameters for special situations or to achieve a specific result, WaveWriter will allow anyone to alter a factory program for a specific wire, gas or weld joint configuration to achieve a unique or different desired result. Many welding engineers may find this tool useful in developing their own unique competitive advantage and having their own proprietary weld programs.

With WaveWriter it is possible to change parameters while welding and immediately see the effect of the change in the arc while welding. Real-time feedback helps in understanding the effect of changing the sometimes confusing pulse wave form variables (such as pulse peak, pulse width, background, and rise and fall rates) which saves enormous expense and time in welding procedure development. A scaleable screen at the lower portion of the Palm screen shows the exact geometry of the waveform you are creating for reference. Most of the essential variables required for process and procedure development are not only precisely controllable and stored, but the upper and lower control limits can be established to assure shop floor control.

Standard Welding Processes

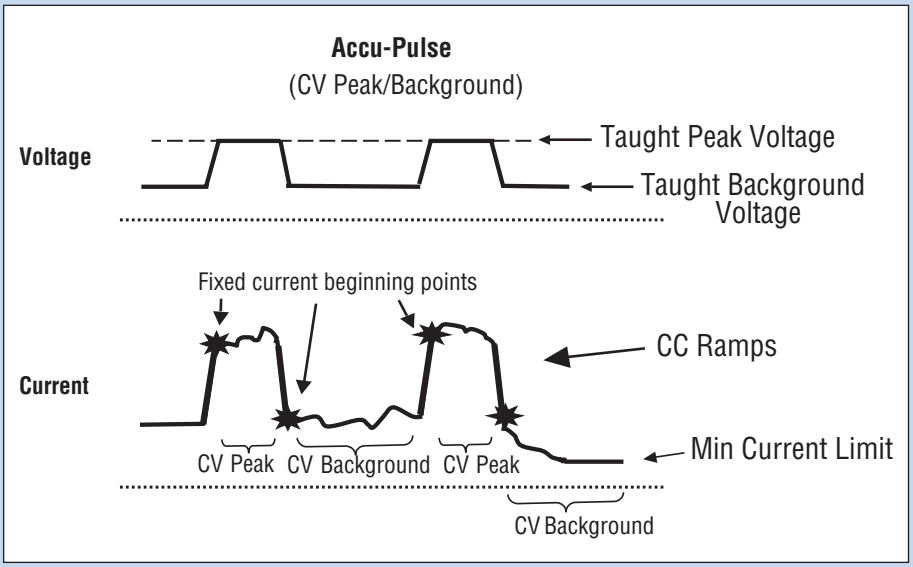
Accu-Pulse™

Standard pre-programmed welding processes include **new** patented Accu-Pulse, conventional MIG and pulsed MIG optimized for the most common steel, stainless steel, aluminum and metal-cored wires, using the most common wire diameters and gas combinations. Programs for new processes and different materials are planned and currently in development. In most cases, slightly different ratios of gas mixtures will perform well using a similar program and adjusting arc length or the appropriate arc control for the selected process. Contact Miller for more information on less common materials and gas combinations.

Benefits of Accu-Pulse

(Compared to conventional pulse)

- Shorter arc lengths possible
- Better puddle control
- More tolerant of contact tip to work variation
- Less audible noise
- No arc wandering in tight corners
- Narrow arc plasma column
- Allows weld to fill in at toes increasing travel speed and deposition
- More tolerant of poor fit up and gaps
- Ideal for seam tracking robot welding applications



Optional Software-Based Welding Process

Regulated Metal Deposition (RMD)

Factory #195 251

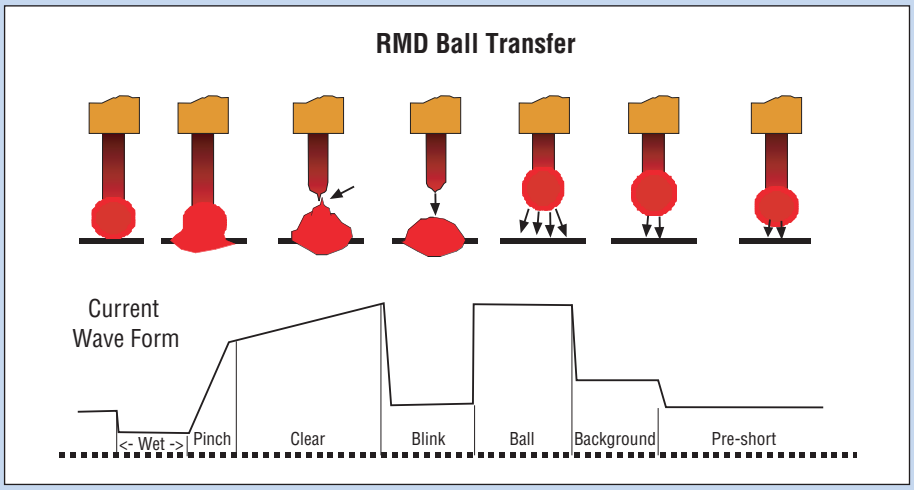
Field #195 252

Field installation requires Palm handheld, and Palm Axcess File Management or WaveWriter™ software.

The unique patented design of Regulated Metal Deposition (RMD) is a precisely controlled short-circuit transfer. It is a method of detecting when the short is going to clear and then rapidly reacting to this data changing the current levels. Features Proactive Dynamic Puddle Control.

Benefits of RMD

- Weld suited to thin materials
- Can replace TIG process in some applications
- Gap filling
- Spatter reduction
- Provides less heat into work piece
- Excellent performance on stainless steel
- Can be combined with other Axcess™-related programs
- Minimize distortion
- Use larger diameter wire on thin materials



Drive Roll Kits (Order from Miller Service Parts.)

Select drive roll kits from chart below according to type and wire size being used. Drive roll kits include necessary guides and feature an anti-wear sleeve for the inlet guide.

Wire size	"V" groove for hard wire	"U" groove for soft wire or soft-shelled cored wires	"V" knurled for hard-shelled cored wires	"U" cogged for extremely soft wire or soft-shelled cored wires (i.e., hard facing types)
.030 in (0.8 mm)	**#151 025**	—	—	—
.035 in (0.9 mm)	**#151 026**	**#151 036**	**#151 052**	—
.040 in (1.0 mm)	**#161 190**	—	—	—
.045 in (1.1/1.2 mm)	**#151 027**	**#151 037***	**#151 053**	**#151 070**
.052 in (1.3/1.4 mm)	**#151 028**	**#151 038**	**#151 054**	**#151 071**
1/16 in (1.6 mm)	**#151 029**	**#151 039**	**#151 055**	**#151 072**

**3/64 (.047) "U groove."*

Genuine Miller Accessories

AA-40G Motor/Volt-Sense Robotic Kit
#195 248 50 ft (15.2 m)
#195 257 20 ft (6.1 m)
Includes AA-40G (left-hand drive, 50–1400 IPM, 1.3–35.8 MPM), motor control cable (20 or 50 ft), and 30 ft volt-sense lead.

AA-40G Motor #194 801
Left-hand drive. 50–1400 IPM (1.3–35.8 MPM).

Receptacle/Adapter Kits
One required per machine.
#194 793 ABB
#194 791 Fanuc
#194 860 Kawasaki
#194 790 Motoman
#194 874 Nachi
#195 002 Universal

Shell Connector #194 847
For use by anyone wishing to interface peripherals but not wanting to source the appropriate female amphenol connector.

Swivel Mount Kit #043 807
Emulates mounting of AA-40G drive motor.

Water Flow Switch #043 576
To ensure coolant is flowing in the system. Lack of coolant flow may cause damage to water-cooled guns. Module allows wiring into the peripheral connector port. 50 ft (15.2 m) cable with connector and separate shell connector for simple modification to desired length in the field. It can be mounted on the Auto-Axcess or as desired elsewhere.

Notes

Ordering Information

Equipment Options	Stock No.	Description	Qty.	Price
Auto-Axcess™ 450 *(Robotic receptacle kit sold separately)*	**#907 153** **#907 153-01-1**	190 – 630 V. Inverter power supply with robotic interface 190 – 630 V. Inverter power supply, robotic interface, and RMD software upgrade		
Auto-Axcess™ 450 Package *(Robotic receptacle kit sold separately)*	**#951 032**	190 – 630 V. Inverter power supply, robotic interface, and 50 ft Motor/Volt-Sense Kit		
AA-40G Motor/Volt-Sense Robotic Kit	**#195 248** **#195 257**	Includes AA-40G, 50 ft (15.2 m) motor control cable and 30 ft volt-sense lead Includes AA-40G, 20 ft (6.1 m) motor control cable and 30 ft volt-sense lead		
Receptacle/Adapter Kits *(One required per machine)*	**#194 793** **#194 791** **#194 860** **#194 790** **#194 874** **#195 002**	72-pin Harting connector with ABB-style plug 72-pin Harting connector with Fanuc-style plug 72-pin Harting connector with Kawasaki-style plug 72-pin Harting connector with Motoman-style plug 72-pin Harting connector with Nachi-style plug 72-pin Harting Universal connector		
Drive Roll Kit *(Required)*		See page 6		
Software Options – Palm OS® Based				
Wavewriter™	**#195 250**	File management software with graphical wave shaping		
Palm™ Axcess™ File Management	**#195 249**	File management software		
Software-Based Welding Process Option				
Regulated Metal Deposition (RMD)	**#195 251** **#195 252**	Factory installed Field. Requires Palm handheld, and Palm Axcess File Management or Wavewriter software		
Motor				
AA-40G Motor	**#194 801**	Left-hand drive, 50 – 1400 IPM (1.3 – 35.8 MPM). Does not include cables or hoses		
Accessories				
Motor Cable	**#194 802** **#194 XXX**	25 ft (7.6 m) High-flex gas/motor cable for rigorous applications 50 ft (15.2 m) High-flex gas/motor cable for rigorous applications		
Shell Connector	**#194 847**	For peripheral		
Swivel Mount Kit	**#043 807**	For AA-40G wire feed motor		
Water Flow Switch	**#043 576**			
Auto-Remote Operator Interface	**#195 239**			

Date: **Total Quoted Price:**

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