

Auto-Continuum™ Systems

Automated MIG
Welding Systems



Quick Specs

Industrial Automation

Construction equipment
Automotive components
Recreational vehicles
Farm machinery
Office furniture
Mining machinery

Processes

Advanced MIG processes:
Versa-Pulse™
Accu-Pulse® MIG (GMAW-P)
RMD®
MIG (GMAW)
High-deposition MIG (GMAW)
Flux-cored (FCAW)

Input Power Auto-Line™ 230–575 V
3-phase, 50/60 Hz

Rated Output at 104°F (40°C)
350: 350 A at 31.5 V, 100% duty cycle
500: 500 A at 39 V, 100% duty cycle

Output Range
350: 20–400 A, 10–44 V
500: 20–600 A, 10–44 V

Take your welding to the next level.

Next generation automation welding solution delivers advanced arc performance to improve throughput and weld quality.

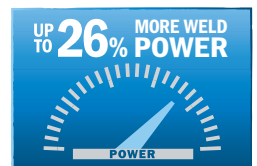
The Auto-Continuum system features an adaptive arc with less spatter and improved gap handling, providing increased travel speeds and high-quality welds on a variety of base materials. Simple integration with fixed and flexible automation systems.

Insight

Integrated Welding Intelligence™ solutions. Delivers information to measure and improve your welding operation. See page 4 for more information.



Auto-Continuum 350 and Auto-Continuum wire drive motor assembly shown.



More power, better reliability



Better weld quality



Easy to set up and install for EtherNet/IP™, DeviceNet or Analog protocols



Easy to add capabilities



Power source is warranted for three years, parts and labor.
Original main power rectifier parts are warranted for five years.



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

Equipment Sales US and Canada
Phone: 866-931-9730
FAX: 800-637-2315
International Phone: 920-735-4554
International FAX: 920-735-4125

MillerWelds.com
f t y i n



More power. Better reliability.

For demanding industrial applications.



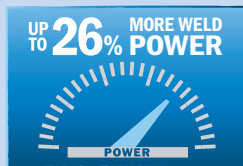
Power source design

Smart and powerful digital design has the fast response needed to deliver the most stable welding performance for better welding results.

Developed as a platform to meet current and future needs with integrated expansion capabilities.

Produces more power at higher duty cycles and temperature ratings than competitive models.

- More power maximizes reliability in demanding automation applications by keeping all internal components operating cooler regardless of the jobs to be done.
- More power ensures better welding results regardless of application or weld process.



More power, better reliability

Auto-Continuum 350: up to 26% more weld power

11,000 watts versus 8,700 watts = 2,300 watts more!
(Continuum: 350 A x 31.5 V at 100% duty cycle = 11,000 watts)
(Competitor: 300 A x 29 V at 100% duty cycle = 8,700 watts)

Auto-Continuum 500: up to 18% more weld power

19,500 watts versus 16,425 watts = 3,075 watts more!
(Continuum: 500 A x 39 V at 100% duty cycle = 19,500 watts)
(Competitor: 450 A x 36.5 V at 100% duty cycle = 16,425 watts)

Wire drive motor assembly

Low-inertia motor provides faster response for the best arc starts with the least amount of spatter.

Reduced-weight design allows for quicker point-to-point arm movement and provides improved servo motor life.



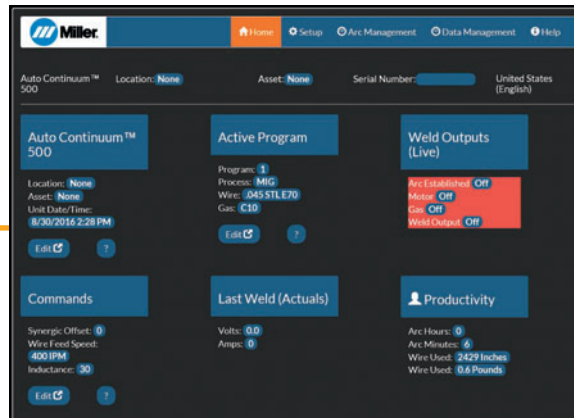
Easy to set up and install

- **Easy communication** from robot and power source
- **Wire drive motor assembly design** utilizes common Miller mounting configurations
- **Designed for easy integration** with fixed and flexible automation systems
- **Integrates** with major industrial robot brands
- **Simple retrofit** to existing automation systems



Webpages

Webpages are an easy way to initialize and configure your automation welding system.



To use the webpage interface connect to the Auto-Continuum power source one of three ways:



Connect to factory network via Wi-Fi



Connect to factory network via Ethernet cable

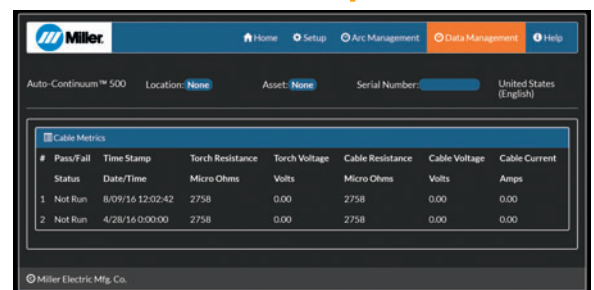


Direct connect to PC via Ethernet cable (see page 11 for recommended Ethernet cable)



Configure your robot settings to establish communication. Options include:

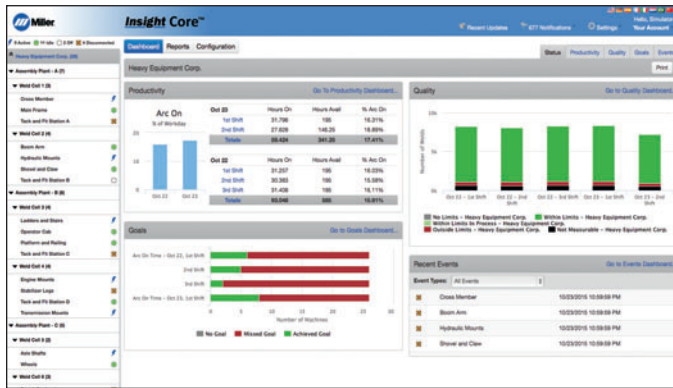
- EtherNet/IP™
- DeviceNet
- Analog



System status / event logs

- Access system logs to help identify weld cell issues (Example: can identify weld cable degradation)

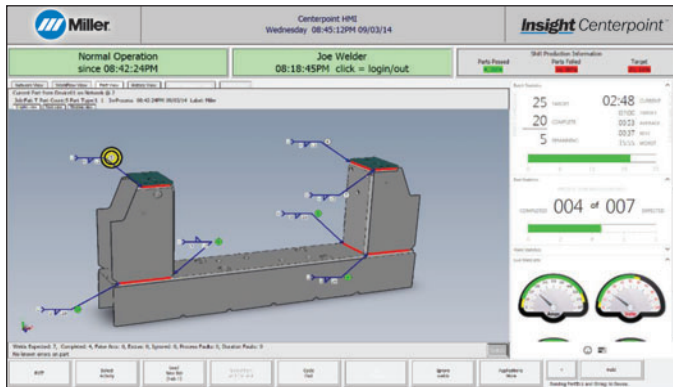
Transform data into actionable information that drives continuous improvement.
Learn more at MillerWelds.com/insight



Insight Core™ (Standard)

Simplified, Internet-based welding information solution that reports cell productivity and weld parameter verification.

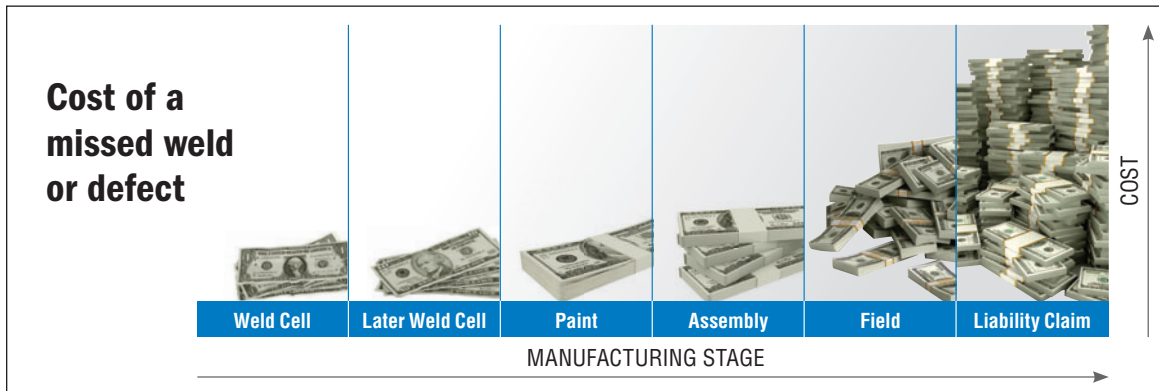
- Provides basic production metrics such as amps, volts, wire feed speed, arc on time and arc on time percentage



Insight Centerpoint™ (Optional)

Advanced, real-time feedback solution to ensure consistent weld quality.

- With built-in features like Part Tracking™ to detect a bad weld and Insight Reporter for preconfigured reports and management charts, Insight Centerpoint can help reduce rework costs and improve quality.



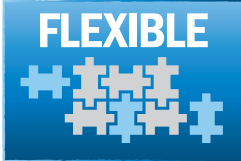
Part Tracking actively detects a bad weld when it happens to reduce rework and improve quality.

- Detected weld errors due to poor parts fit-up, bent torch (due to colliding with a part), part loaded incorrectly, etc.
- Centerpoint will shut the system down either during or after the weld, to alert and direct the operator to which weld(s) are out of parameter, reducing inspection time
- Repair can be done at the weld cell before paint, which significantly reduces the cost of rework and improves overall parts quality

Overall Equipment Effectiveness (OEE) — Centerpoint can provide data on weld cell efficiency.

- Robot on/off time
- Open cell door time tracking
- Duration of off time (due to parts shortage, fixture issue, etc)

Flexibility



Easy to add capabilities

Fleet standardization. Auto-Continuum can be used for both automation and hand-held applications.
Note: To convert Auto-Continuum for manual weld applications, order feeder base (301431) and wire feeder drive (301216).

Adaptable to a variety of fixed and flexible automation configurations and requirements.

Welding Intelligence™ Improve your welding operations by increasing productivity, improving quality and managing costs with Insight Core™ (standard) and Insight Centerpoint™ (optional) welding information management systems.

Easily add new processes and custom programs via the USB interface.

Parameter flexibility allows the system to be set for voltage and wire feed speed control, or for voltage and amperage control.



Communication protocol options:

- EtherNet/IP™
- DeviceNet
- Analog



Automation applications



Hand-held applications

Auto-Continuum™ System Processes

Each weld program is designed for specific wire and gas combinations — for optimized performance.

Low spatter levels at high travel speeds is a requirement in automated welding. The Versa-Pulse process precisely controls the welding arc, significantly reducing spatter size and quantity over traditional processes.



Better weld quality

The adaptive arcs of Versa-Pulse™ and Accu-Pulse® instantly make adjustments to handle weld tacks, large gaps and inconsistent parts. The result is higher quality welds and fewer weld defects.

Versa-Pulse™

- Fast, low-heat, low-spatter process — for high-speed automation on materials 1/4 inch (6.35 mm) and thinner
- Great for gap filling
- Shortest arc length/lowest pulse voltage for lower heat and lower spatter at higher speeds

Accu-Pulse®

- The most popular process for majority of industrial welding applications
- Most adaptive arc on 16 gauge (1.6 mm) and thicker
- Designed for all weld positions

RMD®

- Lowest heat process, best for gap handling
- Limited travel speed

High-deposition MIG

- Higher deposition rates than standard spray transfer on thicker materials
- Designed for welding applications in which spray transfer is preferred

MIG (short circuit)

- Lower spatter than traditional MIG welders
- Better arc performance with silicon bronze and coated materials

Best for	Standard Spray	High-Deposition MIG	Accu-Pulse	Versa-Pulse	MIG Short Circuit	RMD
Deposition	A	A	A	B	D	D
Gap Filing	D	D	B	B	A	A
Low Heat Input	D	C	B	A	A	A
Out-of-Position Welds			A	B	B	B
Low Spatter	A	A	A	A	C	B
Thick Metals	A	A	A	C	D	D
Thin Metals			B	A	A	A
Increased Travel Speed	A	A	A	A	B	C

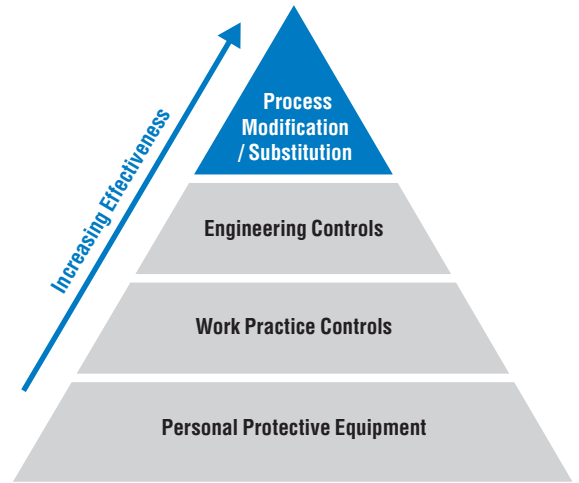
Ratings A, B, C, and D are relative values. An “A” rating indicates a best fit between your performance needs and process. A “blank” rating indicates that the process is not recommended for that application.

Weld Fume Control

Modifying your welding processes to include Versa-Pulse and Accu-Pulse is an effective way of reducing fumes at the source. These processes reduce fume generation by up to 50 percent over traditional CV MIG.

Fume Weight as a Percentage of Wire Weight	
CV MIG	.049%
Accu-Pulse	.024%
Versa-Pulse	.024%

OSHA hierarchy of control

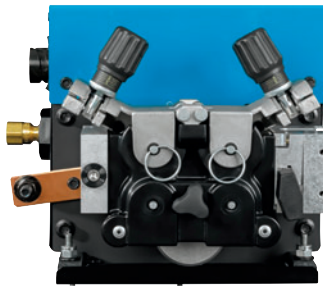


Auto-Continuum™ System Features

Tru-Feed™ technology provides precise feeding operation for stable arc performance.

- **Low-inertia motor** provides faster response for the best arc starts with the least amount of spatter.
- **Balanced-pressure drive-roll design and tensioners** feed wire in its truest and straightest form for consistent feedability.

Spring-loaded Accu-Mate™ connection prevents the gun from being pulled loose.



Quick-change dual-bearing drive rolls give you more consistent wire feeding.

Drive rolls and guides are common with other Miller industrial feeders (use existing, not new parts).

Inlet guide installation is toolless.

Wind Tunnel Technology™ Internal air flow that protects electrical components and PC boards from dirt, dust, debris — greatly improving reliability.

Fan-On-Demand™ operates only when needed reducing noise, power consumption, and the amount of airborne contaminants pulled through the machine.



AUTOLINE™ Power Management Technology Auto-Line™ power management technology allows for any input voltage hook-up (230–575 V) with no manual linking, providing convenience in any job setting. Eliminates weld defects caused by dirty or unreliable power.

Control display for easy reference of weld parameters.

Parameter flexibility allows the system to be set for voltage and wire feed speed control, or for voltage and amperage control.

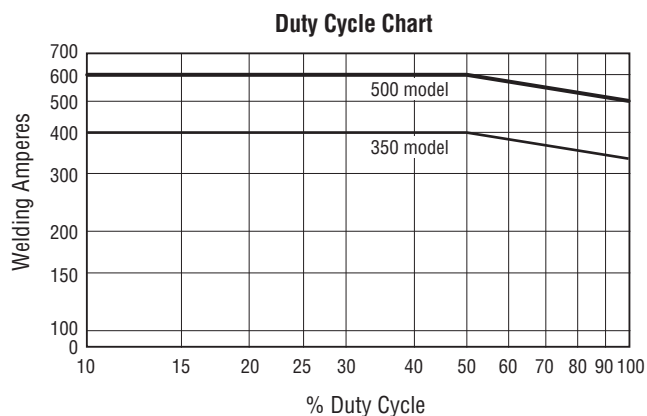
Model	Amp/Volt Ranges	Rated Output	Amps Input at Rated Output, 50/60 Hz, 3-Phase						Max. Open-Circuit Voltage	Dimensions	Net Weight	
			230 V	380 V	400 V	460 V	575 V	KVA				KW
Auto-Continuum 350	20–400 A 10–44 V	350 A at 31.5 VDC, 100% duty cycle	36.7 0–1*	21.8 0–1*	20.8 0–1*	18.8 0–1*	14.6 0–1*	14.4 0.8*	13.8 0.17*	72 VDC	H: 27.19 in. (691 mm) (including lift eye)	130 lb. (59.4 kg)
Auto-Continuum 500	20–600 A 10–44 V	500 A at 39 VDC, 100% duty cycle	57.6 0–1*	34.7 0–1*	33.2 0–1*	28.9 0–1*	23.3 0–1*	23.1 0.8*	21.9 0.17*	72 VDC	W: 17.5 in. (444 mm) D: 28.22 in. (717 mm)	150 lb. (69 kg)

*While idling.



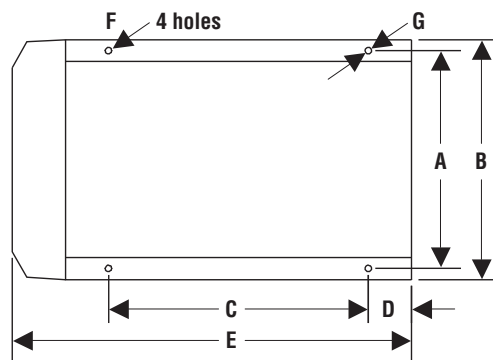
Certified by Canadian Standards Association to both the Canadian and U.S. Standards.

Performance Data



Mounting Specifications

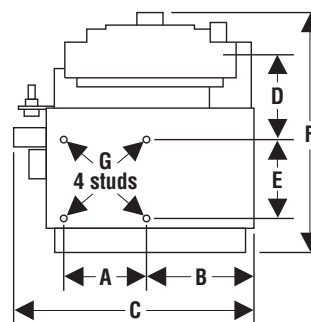
Bottom View Power Source



- A. 16.093 in. (409 mm)
- B. 17.5 in. (444 mm)
- C. 17.375 in. (441 mm)
- D. 2.281 in. (58 mm)
- E. 26.172 in. (665 mm)
- F. .468 in. (12 mm) dia.
- G. .468 in. x 1 in. (12 x 25 mm)

Height: 27.187 in. (691 mm)
Width: 17.5 in. (444 mm)
Depth: 28.125 in. (714 mm)

Bottom View Wire Drive Motor



- A. 3.5 in. (89 mm)
- B. 4.36 in. (111 mm)
- C. 10 in. (254 mm)
- D. 3.56 in. (101 mm) (distance from mounting studs to power pin hole)
- E. 3.25 in. (83 mm)
- F. 10 in. (254 mm)
- G. 1/4 in.-20 mounting studs

Height: 8.75 in. (222 mm)
Width: 10 in. (254 mm)
Depth: 10 in. (254 mm)

Wire Drive Motor Assembly Specifications (Subject to change without notice.)








Auto-Continuum™ Wire Drive Motor Assembly
301207 Left-hand drive
301208 Right-hand drive

Input Power	Welding Power Source	Input Welding Circuit Rating	Wire Feed Speed	Wire Diameter Capacity	Dimensions	Net Weight
50 VDC	Auto-Continuum 350 or 500	500 A at 100% duty cycle	Standard 50–1,000 ipm (1.27–25.4 m/min.)	.035–5/64 in. (0.9–2.0 mm)	H: 8.75 in. (222 mm) W: 10 in. (254 mm) D: 10 in. (254 mm)	16.5 lb. (7.5 kg)

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

Drive Roll Kits and Guides (Order from Miller Service Parts.)

Select drive roll kits from chart below according to type and wire size being used. Drive roll kits include four drive rolls, necessary guides and feature an anti-wear sleeve for 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” clogged for extremely soft wire or soft-shelled cored wires (i.e., hard facing types) 	“U” groove for aluminum wires contains nylon guides 
.035 in. (0.9 mm)	151026	—	151052	—	265255
.040 in. (1.0 mm)	161190	—	—	—	—
.045 in. (1.1/1.2 mm)	151027	151037*	151053	151070	265256*
.052 in. (1.3/1.4 mm)	151028	—	151054	—	—
1/16 in. (1.6 mm)	151029	151039	151055	151072	265257
.068/.072 in. (1.8 mm)	—	—	151056	—	—
5/64 in. (2.0 mm)	—	—	151057	—	—
3/32 in. (2.4 mm)	—	151041	151058	—	—

*Accommodates .045- and .047-inch (3/64-inch) wire.

Nylon Wire Guides for Feeding Aluminum Wire

Wire Size	Inlet Guide	Intermediate Guide
.035 in. (0.9 mm)	221912	242417
.047 in. (1.2 mm)	221912	205936
1/16 in. (1.6 mm)	221912	205937

Note: “U” groove drive rolls are recommended when feeding aluminum wire.

Wire Guides

Wire Size	Inlet Guide	Intermediate Guide
.023–.040 in. (0.6–1.0 mm)	221030	149518
.045–.052 in. (1.1–1.4 mm)	221030	149519
1/16–5/64 in. (1.6–2.0 mm)	221030	149520
3/32–7/64 in. (2.4–2.8 mm)	229919	149521

Consulting Services

Field Application Support 195480

Auto-Continuum™ systems may require factory-trained technical support, depending on the complexity of the application and the local availability and capability of qualified welding engineers or technology experts. Contact the factory with questions. Factory support is available at a flat rate of \$1,263.00 per day (plus expenses) when scheduled more than 10 days in advance. With less than 10-day notice, rates may be higher. Rates are based on a 10-hour day, including travel. One day minimum.

Auto-Continuum with DeviceNet

DeviceNet Communication Cables

300020 9 ft. (2.7 m)
300021 20 ft. (6.1 m)

Auto-Continuum Digital Peripheral Cable

301104 20 ft. (6.1 m)

Auto-Continuum Analog

Analog Receptacle Kits

194793 ABB®
194791 FANUC®
194790 Motoman®
300056 Panasonic®
195002 Universal

One required per machine. 12-inch (305 mm) length. For analog communication with robot controls via 72-pin Harting connector on Auto-Continuum.

DeviceNet to Analog Adapter 301427 Field

Adapts DeviceNet to analog communication. Includes 9-foot (2.7 m) DeviceNet communication cable.

Analog Robot Simulator 195030

Device simulates the analog commands of typical robots. It can be used as a diagnostic tool to determine power source functionality and isolate robot, power source or cable issues.

For All Auto-Continuum Models



ADAM DI/O Module 300803
 Provides a digital I/O interface for communication between a robot /PLC and Auto-Continuum power supply. The interface allows for the interaction of a robot or PLC and the Insight Centerpoint™ application. This module is **required** for all

DeviceNet and analog Auto-Continuum models to run Insight Centerpoint.

Wire Drive Motor Mounting Brackets

300013 Universal – FANUC®/KUKA®/Motoman®
301276 ABB® 1600
301277 ABB® 2600
300483 FANUC® 100 and 120 IC
301282 KUKA® KR5 HW
301275 KUKA® KR16 HW
300375 Motoman® EA1400
300376 Motoman® EA1900

Welding Guns

Manual — see BernardWelds.com
Automation — see Tregaskiss.com

Motor Control Cables

263368025 25 ft. (7.6 m)
263368050 50 ft. (15.2 m)
263368080 80 ft. (24.4 m)
263368100 100 ft. (30.5 m)
 Includes overmolded connections on high-flex cables for optimal service life.

Volt-Sense Cable 242212050

Replacement 50 ft. (15.2 m) cable. One cable supplied with Auto-Continuum power source.

Ethernet Cables

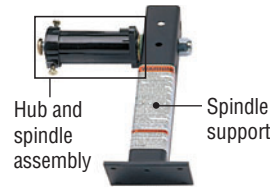
300734 9.8 ft. (3 m)
300735 16.4 ft. (5 m)
300736 32.8 ft. (10 m)
 Industrial-grade 360-degree-shielded Cat 5 Ethernet cable with conventional RJ45 overmolded four-pole connector on one end to connect to factory network, and industrial M12 overmolded connector on the other end to attach to Auto-Continuum power source. Cable supports 10/100 Mbits-per-second transmission rate.

Continuum Feeder Base and Spool Support 301431

Sheet metal construction. Allows mounting of Auto-Continuum wire drive motor for manual welding operations.

Wire Feeder Drive (Left) 301216

Use with feeder base and spool support when converting to a manual weld system.



Hub and Spindle Assembly 072094

Spindle Support 092989



Spool Cover 057607



Wire Reel Assembly 108008

Reel Cover 195412

For 60-pound (27 kg) coil. Helps to protect the welding wire from dust and other contaminants.



Wire Straightener

141580 For .035–.045 in. (0.9–1.1 mm) wire.

141581 For 1/16–1/8 in. (1.6–3.2 mm) wire.

Helps reduce the cast in wire to improve wire feeding performance and increase the service life of the gun liner and contact tip.

Coolant Systems



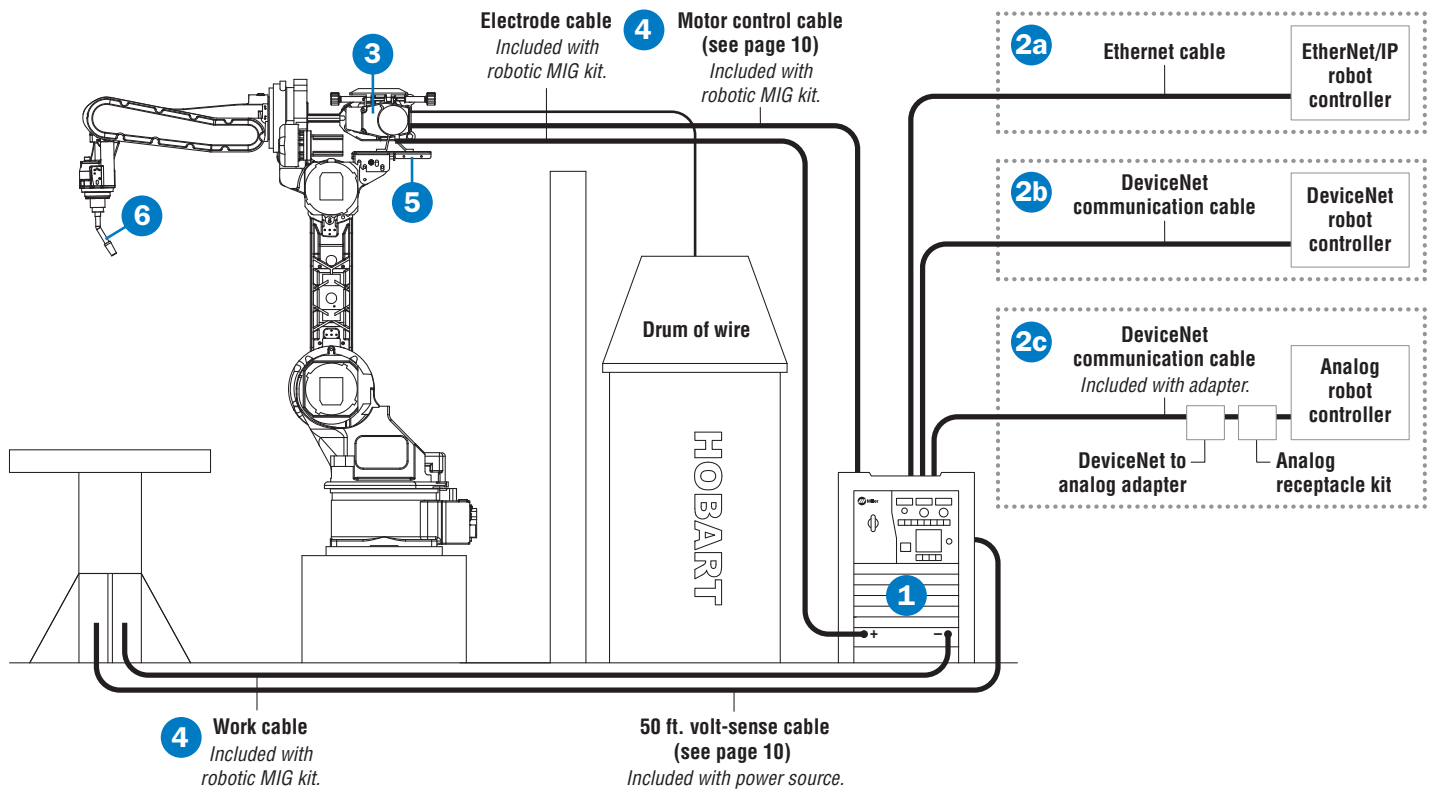
Continuum Cooler 301214

For use with water-cooled torches rated up to 500 amps. Integrated coolant flow switch ensures coolant is flowing in the system. The Continuum cooler mounts to the bottom of the Continuum power source. Power is supplied via an internal connection with the power source.

Low-Conductivity Coolant 043810

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

Typical Installations (Robotic/automation pulsed MIG or conventional MIG.)



1 Power Source

See page 12 for available models. Choose power source according to preferred communication protocol. Each power source includes a 50-foot (15.2 m) volt-sense cable.

2 Robot Controller Connection (choose one)

- a **EtherNet/IP™** — Requires Ethernet cable. 16.4-foot (5 m) cable included with Auto-Continuum robotic MIG kit. See page 10 for individual cables.
- b **DeviceNet** — Requires DeviceNet communication cable. See page 10 for available cable lengths.
- c **Analog** — Requires DeviceNet to analog adapter (301427) and analog receptacle kit (see page 10).

3 Wire Drive Motor Assembly

See page 9 for available drive motor options.

4 Auto-Continuum Robotic MIG Kit

Includes all cables, hoses and hardware for outfitting a robot arm. See description at right for details.

5 Motor Mounting Bracket

See page 10 for available brackets. Motor mounting brackets from other brands must be supplied by robot manufacturer or system integrator.

6 Tregaskiss Robotic MIG Gun

Must be ordered separately. Visit Tregaskiss.com for additional torch information.

Auto-Continuum Robotic MIG Kit 301455

Kit includes the following:

- 25-foot (7.6 m) motor control cable
- 12-foot (3.7 m) motor control extension cable
- 4/0 weld cables
- 16.4-foot (5 m) Ethernet cable
- .035/.045-inch V-groove drive roll kit with guides
- 30-foot (9 m) weld wire conduit assembly
- Conduit and clamps for mounting motor control cable, weld cable and gas hose

Ordering Information

Note: As the technological advances offered by Auto-Continuum extend beyond the capability of Auto-Access™ systems, the two systems are not compatible. Auto-Continuum systems are designed to allow future upgradability, to expand with your operation's needs.

Equipment and Options	Stock No.	Description	Qty.	Price
1 Power Source Auto-Continuum 350 Auto-Continuum 500 Auto-Continuum 350 Auto-Continuum 500	For EtherNet/IP™ Robot Controller	907656 With EtherNet/IP communication		
		907658 With EtherNet/IP communication and auxiliary power		
	For DeviceNet or Analog Robot Controller	907657 With EtherNet/IP communication		
		907659 With EtherNet/IP communication and auxiliary power		
	907656001 With DeviceNet communication			
	907658001 With DeviceNet communication and auxiliary power			
907657001 With DeviceNet communication				
907659001 With DeviceNet communication and auxiliary power				
Robot Controller Connection				
2a Ethernet Cables	300734 9.8 ft. (3 m)			
	300735 16.4 ft. (5 m)			
	300736 32.8 ft. (10 m)			
2b DeviceNet Communication Cables	300020 9 ft. (2.7 m)			
	300021 20 ft. (6.1 m)			
2c DeviceNet to Analog Adapter Analog Receptacle Kit <i>(one required per machine)</i>	301427	Field-installed option. Adapts DeviceNet to analog communication. Includes 9 ft. (2.7 m) DeviceNet communication cable		
	194793	ABB® analog communication		
	194791	FANUC® analog communication		
	194790	Motoman® analog communication		
	300056	Panasonic® analog communication		
195002	Universal analog communication			
Wire Drive Motor Assemblies and Accessories				
3 Auto-Continuum Wire Drive Motor Assembly	301207	Left-hand drive		
	301208	Right-hand drive		
4 Auto-Continuum Robotic MIG Kit	301455	Includes all cables, hoses and hardware for outfitting a robot arm. See page 11 for complete list		
5 Wire Drive Motor Mounting Brackets	300013	Universal — fits FANUC®/KUKA®/Motoman®		
	301276	ABB® 1600		
	301277	ABB® 2800		
	300483	FANUC® 100 and 120 IC		
	301282	KUKA® KR5 HW		
	301275	KUKA® KR16 HW		
	300375	Motoman® EA1400		
300376	Motoman® EA1900			
6 Tregaskiss™ Robotic MIG Guns, Peripherals and Consumables		Order separately. Visit Tregaskiss.com for models and information on TOUGH GUN™ robotic MIG guns, TOUGH GUN™ reamers, QUICK LOAD™ liners and TOUGH LOCK™ consumables		
Welding Intelligence™ Software				
Insight Centerpoint™ Package	301297	Standard capability pack (1 per power source)		
	301322	Advanced capability pack (1 per power source)		
Insight Centerpoint™ License	301255	Version 9.0 single license		
	301256	Version 9.0 site license		
Insight Reporter™ Software	300709	Management reporting system client software		
Insight Reporter™ SQL Database	300710	Management reporting system database software (one required per server)		
Accessories				
Continuum Cooler	301214	Integrated 2-gallon capacity cooler for water-cooled MIG guns		
Low-Conductivity Coolant	043810	1-gallon plastic bottle (must be ordered in quantities of 4)		
Continuum Feeder Base and Spool Support	301431			
Wire Feeder Drive (Left)	301216	For use with feeder base and spool support when converting to a manual weld system		

Date: _____ Total Quoted Price: _____

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