

Invision™ 350 MPa System

Issued Nov. 2007 • Index No. DC/23.5

MIG Welding
Power Source 

Quick Specs

Heavy Industrial Applications

Invision 350 MPa

Railroad
Truck/Trailer Manufacturing
Light Gauge and Tube
Lawn and Garden Equipment
Recreational Vehicles

S-74 MPa

Heavy/Light Manufacturing
Metal Fabrication

Processes

Invision 350 MPa

MIG (GMAW)/Pulsed MIG (GMAW-P)
Flux Cored (FCAW)
Air Carbon Arc Cutting and Gouging
(CAC-A) (1/4 in carbons max.)

S-74 MPa

MIG (GMAW)
Flux Cored (FCAW)
Pulsed MIG (GMAW-P)

Invision 350 MPa

Input Power Requires 3- or 1-Phase Power, 50/60 Hz

Rated Output 10–38 V, 5–425 A

Weight Net: 80 lb (36.3 kg) Ship: 89.1 lb (40.4 kg)

S-74 MPa

Input Power 24 VAC, 10 A, 50/60 Hz

Electrode Wire Dia. Capacity .023–5/64 in (0.6–2 mm)

Wire Speed 50–780 IPM (1.3–19.8 m/min)

Weight Net: 58 lb (26 kg)

The Power of Blue.®

Dynamic Pulsed MIG — highly-engineered pulse programs default to give a tight productive pulse arc. The operator can fine tune the arc if desired.

Auto-Line™ Power Management

Technology allows for any input voltage hook-up (208–575 V) with no manual linking required, providing convenience in any job setting. Ideal solution for dirty or unreliable input power.

Fan-On-Demand™ cooling system

operates only when needed, reducing noise, energy use and the amount of contaminants pulled through machine.

Large, dual digital meters are easy to view and are presettable to ease setting weld output.

Inverter arc control technology provides greater puddle control for outstanding MIG weld performance.

Line voltage compensation keeps welding output constant even if input power varies by +/-10%. XMT 350 models further expand line voltage compensation on 460 VAC to an amazing +37%, -59%.

New!



Invision 350 MPa System

Add the new **S-74 MPa** feeder for a package that gives you the benefit of Synergic-Pulsed MIG. As you increase/decrease the wire feed speed, the pulse parameters increase/decrease matching the right amount of power output to the wire speed.

SharpArc™ technology changes welding arc characteristics in Pulsed MIG welding mode.

Lightweight, aerospace-grade aluminum case offers protection with the benefit of reduced weight.

Easy setup for MIG and Pulsed MIG applications.

TRUE BLUE
3YR. WARRANTY

Power source is warranted for 3 years, parts and labor.
Original main power rectified parts are warranted for 5 years.
Gun warranted for 90 days, 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



Specifications (Subject to change without notice.)



Input Power	Rated Output at 60% Duty Cycle	Voltage Range in CV Mode	Amperage Range in CC Mode	Max. Open-Circuit Voltage	Amps Input at Rated Load Output, 60 Hz,								Dimensions	Weight
					208 V	230 V	400 V	460 V	575 V	KVA	KW			
Three-Phase	350 A at 34 VDC	10-38 V	5-425 A	75 VDC	40.4	36.1	20.6	17.8	14.1	14.2	13.6	H: 17 in (432 mm) W: 12-1/2 in (318 mm) D: 24 in (610 mm)	80 lb (36.3 kg)	
Single-Phase	300 A at 32 VDC	10-38 V	5-425 A	75 VDC	60.8	54.6	29.7	24.5	19.9	11.7	11.2			

Certified to both the Canadian and U.S. Standards for welding equipment.

Additional Features

Exceptional electrical efficiency. At 400 A, efficiency is 87.24%!

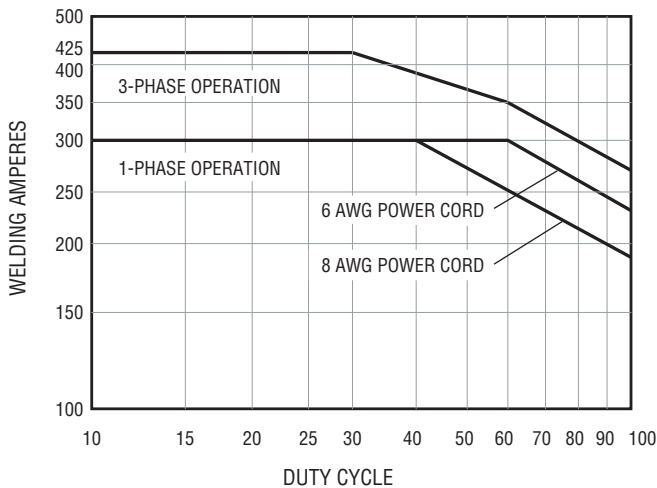
350 A of welding output at 60% duty cycle with superior low-end performance.

Power factor of .95 enables smaller fuses/breakers and primary wiring. Primary amperage draw at rated output is 25% less than the competition.

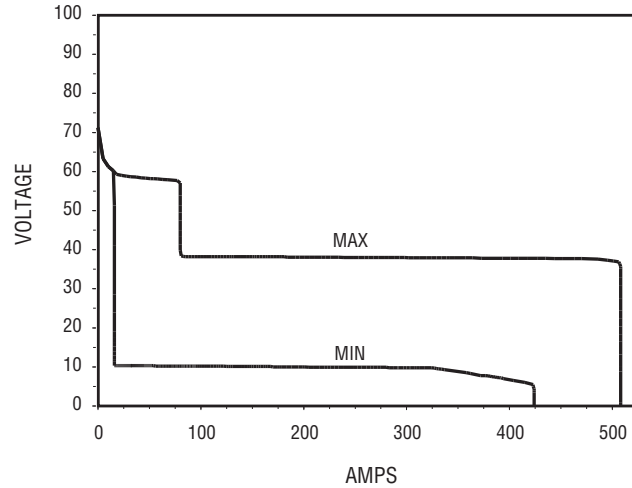
Ultra-tough, polycarbonate-blended cover for control panel protects front controls from damage.

Performance Data

DUTY CYCLE CHART



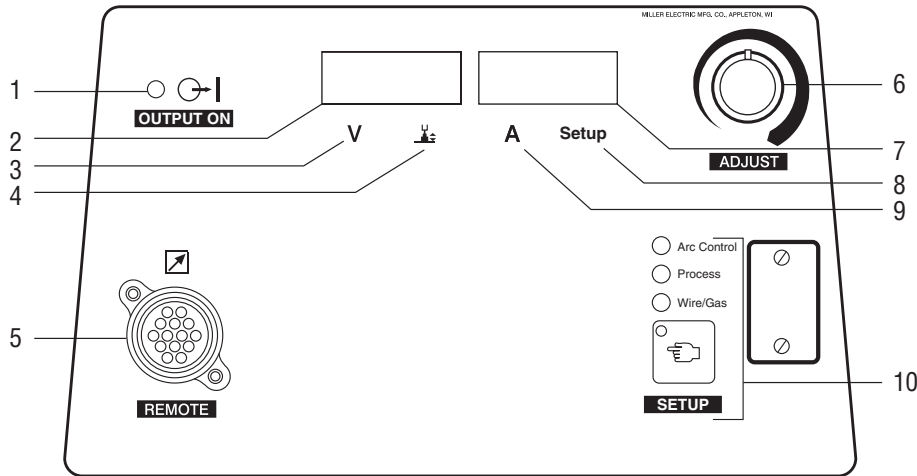
CV VOLT/AMP CURVE



Control Panel



The Invision™ 350 MPa and S-74 MPa combine for a synergic system that simplifies and improves MIG and Pulsed MIG welding applications for industrial manufacturing.



- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Output ON Indicator Light 2. Left Display 3. Voltage Indicator 4. Arc Length Indicator 5. Wire Feeder Receptacle 6. Adjustment Control 7. Right Display | <ol style="list-style-type: none"> 8. Setup Indicator 9. Amperage Indicator 10. Setup Indicator Lights <ul style="list-style-type: none"> • Arc Control Indicator • Process Indicator • Wire/Gas Type Indicator • Setup Button |
|--|--|

Built-In Pulsed MIG Programs

The Invision 350 MPa has built-in dynamic Pulsed MIG capabilities. See the table below for the wide range of Pulsed MIG (GMAW-P) welding applications the Invision 350 MPa can handle.

Wire Types		Gas Types
Steel	.035 STL .045 STL	ARGN CO ₂ (Argon/Carbon Dioxide) ARGN OXY (Argon/Oxygen)
Metal Core	.035 MCOR .045 MCOR .052 MCOR	ARGN CO ₂ (Argon/Carbon Dioxide)
Stainless Steel	.035 SSTL .045 SSTL	TRI MIX (Tri-gas mixture) ARGN OXY (Argon/Oxygen) ARGN CO ₂ (Argon/Carbon Dioxide)
Aluminum	.035 AL4X (4000 Series) 3/64 AL4X (4000 Series) .035 AL4X (5000 Series) 3/64 AL4X (5000 Series)	ARGN (Argon)
Nickel	.035 NI .045 NI	ARGN HE (Argon/Helium)
Silicon Bronze	.035 SIBR	ARGN (Argon)
Copper Nickel	.045 CUNI	HE ARGN (Helium/Argon)

MPa

MPa: M (MIG), P (Pulse), a (Advanced Arc Control). Advanced arc control enables an improved pulse welding arc. The operator has more control over puddle and bead characteristics using SharpArc™. In addition, the unit provides a more robust and stable arc at very low arc length, reducing heat input, and providing the ability to weld on a wider range of material thickness.

Synergic pulsing is available only with the S-74 MPa dedicated wire feeder.

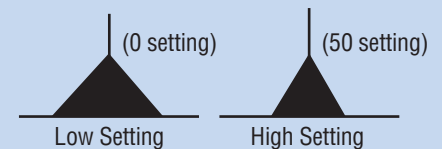
What are some benefits of Synergic-Pulsed MIG?

1. Easier to set up
2. No more changing wire speed, and then having to go back to reset the welding output.

Additional Features

SharpArc™

Changes welding arc characteristics in Pulsed MIG (GMAW-P) welding mode.



Note: Setting has a subtle effect on arc that is exaggerated in graphic for visual emphasis.

If a gas is used other than what is listed on the Pulsed MIG welding program chart (below left), the SharpArc™ can be adjusted to help customize your arc to the gas being used.

Lower SharpArc™ settings widen the arc cone, increase puddle fluidity and flattens the weld bead.

Auto Remote Sense™

Enables unit to automatically use remote control if connected to remote control receptacle.

Dinse International-style weld disconnects

Provide high-quality weld cable connections. Dinse and Tweco connectors are available. When Dinse connectors are specified, two connectors are supplied with the unit.

Optional 115 VAC auxiliary power

Provides 10 amps of circuit-breaker-protected power for water circulators, etc.



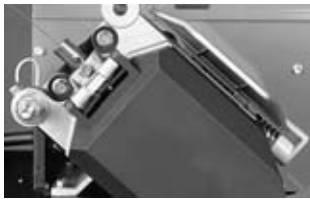
S-74 MPa Single Feeder Features



Posifeed™ Wire Drive Assembly Features

(Synergic Pulsed MIG when connected to the Invision 350 MPa)

- 24 VDC high-torque, permanent-magnet motor.
- Quick-change drive rolls.
- Quick-release, calibrated drive-roll pressure adjustment arm allows drive roll change without losing spring preload setting.
- **Four sealed ball bearing all-gear-driven drive-roll carriers** for smooth, positive and accurate wire feed with long uninterrupted service life.
- Easy loading and threading of welding wire without having to release the drive-roll pressure arm.
- **Solid-state speed control and brake circuit** eliminates the need for electrical/mechanical relays and increases service life.
- Uses Miller standard 1-5/8 in (41 mm) diameter drive rolls.
- Quick-connect for all Miller guns.
- Covered drive rolls—easy access, heavy-duty, molded composite cover over drive assembly.
- Floating positive drive systems provide trouble-free feeding on a variety of wires.



Tool-less rotatable drive assembly allows operator to rotate the drive housing, eliminating severe bends in the wire feed path which reduce gun liner life. Also aids in feeding difficult wires.



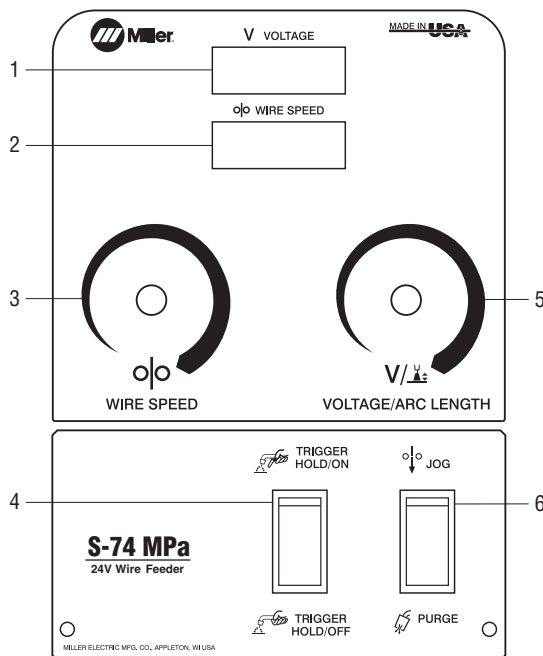
Dual tension control adds flexibility for the operator to fine-tune the pressure on the wire independently when feeding a variety of wires.

Specifications (Subject to change without notice.)

CV (Use with CV Power Sources.)

Input Power	Electrode Wire Diameter Capacity	Wire Speed	Dimensions	Net Weight
24 VAC, 10 A, 50/60 Hz	.023–5/64 in (0.6–2 mm)	50–780 IPM (1.3–19.8 m/min) Optional High Speed Motor: 90–1440 IPM (2.3–36.6 m/min)	H: 14 in (356 mm) W: 12 in (305 mm) D: 26-1/2 in (673 mm)	58 lb (26 kg)

Control Panel



1. Voltage Display Meter
2. Wire Speed Display Meter
3. Wire Feed Speed Select
4. Trigger Hold
5. Voltage Select
6. Jog/Purge

Invision™ 350 MPa System Components

Invision™ 350 MPa MIGRunner™ #907 398

Comes Complete With:

- Invision 350 MPa power source
- S-74 MPa wire feeder
- Bernard® Q™-Gun
- Consumables
- .035/.045 in drive roll kit
- **NEW!** Industrial MIG 4/0 Kit with Dinse Connector
- MIGRunner Cart with cylinder rack
- Bottom tray will hold optional Coolmate 3 (sold separately)



Invision™ 350 MPa Stationary Package #951 113

Comes Complete With:

- Invision 350 MPa power source
- S-74 MPa wire feeder
- Bernard® Q™-Gun
- Consumables
- .035/.045 in drive roll kit
- **NEW!** Industrial MIG 4/0 Kit with Dinse Connector



For Your Aluminum Welding Applications

Invision™ 350 MPa Push-Pull Aluminum Package #951 115

Comes Complete With:

- Invision 350 MPa power source
- XR™-Control Box
- 25 ft (7.6 m) air-cooled XR-Aluma-Pro™ Gun





Industrial MIG 4/0 Kit with Dinse Connector #300 405

This useful pulse-ready MIG kit can be purchased separately. Includes Smith® flowmeter/regulator with 10 ft (3 m) gas hose, 10 ft (3 m) 4/0 feeder weld cable with Dinse connector on one end and a lug on the other, 15 ft (4.6 m) work cable with Dinse connector on one end and 600-amp C-clamp on the other.

Process Selector Control #042 872

Designed for use with dual wire feeders, applications where electrical isolation and/or polarity reversing of weld current is required, and for welding process changes. Includes 115 VAC/2 amp receptacle, two 14-pin receptacles and a 10 ft (3 m) 14-pin cord.

Running Gear



MIGRunner™ Cart #195 445

Small footprint and easily maneuverable, with cylinder rack low enough that you do not have to lift bottles.



XMT Cylinder Cart #042 537

Carries two 160 lb (72.6 kg) gas cylinders, or one gas cylinder and one coolant system for TIG (GTAW) welding. Feeder mounts to tray above power source.



Universal Carrying Cart and Cylinder Rack #042 934

Holds power source, and gas cylinder up to 56 in (142.2 cm) high measuring 6 to 9 in (15.2 to 22.8 cm) in diameter.

Protective Cover



#195 478

Mildew and water resistant, odor-free cover protects your machine's finish. For 300/350 A inverters: Invision, XMT, Maxstar and Dynasty.

Wire Feeders/Guns



70 Series

- S-74 MPA #300 411***
- S-74S #195 057**
- S-74D #195 058**
- S-74DX #195 059**

Wire feeder features Posifeed™ wire drive assembly and handles a variety of wires up to 1/8 in. Comes with FREE Bernard® Q™-Gun. See Lit. Index No. M/3.0.

**Designed exclusively for Invision 350 MPA for Synergic Pulsed MIG benefits.*



XR™-Control #181 538

Push-pull wire feed system offers unparalleled performance for aluminum MIG welding. See Lit. Index No. M/1.7.



XR™-Aluma-Pro™ Gun*

- #300 000** 15 ft (4.6 m) air-cooled
- #300 001** 25 ft (7.6 m) air-cooled
- #300 264** 35 ft (10.6 m) air-cooled
- #300 003** 15 ft (4.6 m) water-cooled
- #300 004** 25 ft (7.6 m) water-cooled
- #300 265** 35 ft (10.6 m) water-cooled

This easy-to-use and easy-to-maintain gooseneck-style MIG gun is designed for push-pull wire feed systems (with required XR-Control). Available in air- or water-cooled versions. Trigger hold reduces operator fatigue (feature available when paired with XR-Control). Gun design allows for better access into tight spots. See Lit. Index No. M/1.7.

**XR-Control is required to operate this gun with the Invision 350 MPA System.*



22A #193 066

Simple, reliable, 24 VAC constant-speed semiautomatic wire feeder, best suited for small diameter wires. Accommodates up to 60 lb (27.2 kg) spool of welding wire when using optional wire reel assembly. Comes with FREE Bernard® Q™-Gun! See Lit. Index No. M/11.0.



24A #195 112

Simple, reliable, 24 VAC constant-speed semiautomatic wire feeder, best suited for small diameter wires. Remote voltage is standard. Features four gear-driven drive rolls for larger wire sizes. Accommodates up to 60 lb (27.2 kg) spool of welding wire when using optional wire reel assembly. Comes with FREE Bernard® Q™-Gun! See Lit. Index No. M/11.0.



Spoolmatic® 30A #130 831

A 1-lb, air-cooled spool gun that extends the weld process range by adding a handy portable system for small wire MIG. Rated 200 A at 100% duty cycle. Includes 30 ft (9.1 m) cable assembly. (WC-24 #137 549 for 14 pin.)



WC-24 Weld Control #137 549

Designed for use with Miller CV power sources supplying 24 VAC and 14-pin receptacles. For use with Spoolmatic 30A spool gun.

Water Coolant Systems

For more information, see the Miller Coolant Systems literature sheet, Index No. AY/7.2.



Coolmate™ 3

#043 007 115 VAC

#043 008 230 VAC

For use with water-cooled torches rated up to 600 amps. Unique paddle-wheel indicator, external filter and easy-fill spout.

Coolmate™ V3 #043 009 115 VAC

For use with water-cooled torches rated up to 500 amps. Vertical design conveniently mounts to Miller cylinder rack in place of one cylinder.

Coolmate™ 4 #042 288 115 VAC

For use with water-cooled torches rated up to 600 amps. Tough molded polyethylene case with carrying handle.

Coolant #043 810

Sold in cases of four 1-gallon recyclable plastic bottles. Miller coolants contain a base of ethylene glycol and deionized water to protect against freezing to -37°F (-38°C) or boiling to 227°F (108°C). Also contains a compound that resists algae growth.

International-Style Connectors

Note: XMT 350 power sources are equipped with International-style connectors for secondary connections. (Power source is shipped with two 50-mm male International-style plugs for use with #1 or #2 AWG size cable.)



International/Tweco® Adapter #042 465
International/Cam-Lok Adapter #042 466

One-piece adapter with International-style male plug (to power source) on one end and female receptacle (Tweco or Cam-Lok for weld cable connection) on other end.

International-Style Connector Kit

#042 418 50 mm

Accepts #4 or #1/0 AWG cable size. Required if male plugs shipped with power source must be replaced, or if additional plugs are needed.

#042 533 70 mm

Accepts #1/0 or #2/0 AWG cable size. Required if #1/0 or #2/0 AWG size cable is to be used.

Kit includes one International-style male plug which attaches to the work and/or weld cables and plugs into the International-style receptacles on the power source.

Extension Kit for International-Style Cable Connectors

#042 419 50 mm

Accepts #4 or #1/0 AWG size cable.

#042 534 70 mm

Accepts #1/0 or #2/0 AWG size cable.

Used to adapt or extend weld and/or work cables. Kit includes one male International-style plug and one in-line female International-style receptacle.

Ordering Information

Power Source and Options	Stock No.	Description	Qty.	Price
Invision™ 350 MPa	#907 397 #907 397-01-1	208–575 VAC with Auto-Line™ 208–575 VAC with Auto-Line™ and Auxiliary Power		
Invision™ 350 MPa System		See page 5 for different packages and components		
Accessories				
Industrial MIG 4/0 Kit with Dinse Connector	#300 405	See page 6		
WC-24	#137 549	For use with Spoolmatic® 30A and power sources with 14-pin		
Process Selector Control	#042 872			
Extension Cords (For 24 VAC wire feeders and remote controls)	#043 690 #043 691	25 ft (7.6 m) 50 ft (15 m)		
Running Gear				
MIGRunner™ Cart	#195 445			
XMT Cylinder Cart	#042 537			
Universal Carrying Cart and Cylinder Rack	#042 934			
Protective Cover				
	#195 478			
Wire Feeders/Guns				
70 Series	#300 411 #195 057 #195 058 #195 059	S-74 MPa. Designed exclusively for Invision 350 MPa for Synergic Pulsed MIG benefits S-74S. See Lit. Index No. M/3.0 S-74D. See Lit. Index No. M/3.0 S-74DX. See Lit. Index No. M/3.0		
XR™-Control	#181 538	See Lit. Index No. M/1.7		
22A	#193 066	See Lit. Index No. M/11.0		
24A	#195 112	See Lit. Index No. M/11.0		
Spoolmatic® 30A Spool Gun	#130 831	Includes 30 ft (9.1 m) cable assembly		
XR-Aluma-Pro™ Gun	#300 000 #300 001 #300 264 #300 003 #300 004 #300 265	15 ft (4.6 m) air-cooled 25 ft (7.6 m) air-cooled 35 ft (10.6 m) air-cooled 15 ft (4.6 m) water-cooled 25 ft (7.6 m) water-cooled 35 ft (10.6 m) water-cooled		
Water Coolant Systems				
		See page 7. See Lit. Index No. AY/7.2		
International-Style Connectors				
		See page 7		

Date:

Total Quoted Price:



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