

Maxstar® 400

TIG/Stick Welding Power Source  

Quick Specs



Industrial Applications

Precision metal fabrication
Tube mills
Pipe and tube fabrication
Tool and die
Exotic material fabrication
Pressure vessel fabrication

Processes

TIG (GTAW)
Pulsed TIG (GTAW-P)
Stick (SMAW)
Air carbon arc (CAC-A)
1/4 in. maximum

Input Power 208–575 V, 3- or 1-phase power

Amperage Range 3–400 A

Rated Output 300 A at 32 V, 60% duty cycle

Net Weight 134 lb. (61 kg)



Allows for any input voltage hookup (208–575 V) with no manual linking, providing convenience in any job setting. Ideal solution for dirty or unreliable power.

Meter calibration allows digital meters to be calibrated for certification.

Cooler Power Supply (CPS) is an integrated 120-volt dedicated-use receptacle for the Coolmate™ 3.5.

Cooler-On-Demand™ feature operates the auxiliary cooling system only when needed, reducing noise, energy use, and airborne contaminants pulled through the cooler.

Wind Tunnel Technology™ protects internal electrical components from airborne contaminants, extending the product life.

Fan-On-Demand™ power source cooling system operates only when needed, reducing noise, energy use and the amount of contaminants pulled through the machine.

New!



Maxstar 400 machine only

Maxstar 400 Wireless Complete



Lift-Arc™ provides DC arc initiation without the use of high frequency.

Blue Lightning™ high-frequency (HF) arc starter for non-contact arc initiation. Provides more consistent arc starts and greater reliability compared to traditional HF arc starters.

DC TIG Features

Exceptionally smooth and precise arc for welding exotic materials.

Pulse. Pulsing can increase puddle agitation, arc stability and travel speeds while reducing heat input and distortion. These models provide extended ranges.

DC Stick Features

DIG control allows the arc characteristics to be changed for specific applications and electrodes. Lower the DIG setting for smooth running electrodes like E7018 and increase the DIG setting for stiffer, more penetrating electrodes like E6010.

Hot Start™ adaptive control provides positive arc starts without sticking.

Program memory features nine independent program memories that maintain/save your parameters.

Auto-postflow adjusts the length of postflow time based on the amperage setting, shielding your tungsten and eliminating the need to set the postflow time.



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



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MillerWelds.com



Specifications (Subject to change without notice.)



| Model | Input Power | Welding Amperage Range | Rated Output | Amps Input at Rated Load Output, 50/60 Hz | | | | | | | Max. Open-Circuit Voltage | Dimensions | Net Weight |
|-------------|-------------|------------------------|--------------------------------|---|-------|-------|-------|-------|-----|------|---------------------------|--|--|
| | | | | 208 V | 230 V | 400 V | 460 V | 575 V | KVA | KW | | | |
| Maxstar 400 | 3-phase | 3–400 A | 250 A at 30 V, 100% duty cycle | 27 | 24 | 14 | 12 | 9 | 9.4 | 9.1 | 75 VDC (10–15 VDC*) | H: 24.75 in. (629 mm) W: 13.75 in. (349 mm) D: 22 in. (559 mm) with TIGRunner® H: 43.125 in. (1,095 mm) W: 23.125 in. (587 mm) D: 43.75 in. (1,111 mm) | 134 lb. (61 kg) with TIGRunner® 251 lb. (114 kg) |
| | | | 300 A at 32 V, 60% duty cycle | 33 | 30 | 17 | 15 | 12 | 12 | 11.6 | | | |
| | 1-phase | 3–400 A | 200 A at 28 V, 100% duty cycle | 36 | 33 | 18 | 15 | 12 | 7.4 | 6.9 | | | |
| | | | 250 A at 30 V, 60% duty cycle | 48 | 43 | 24 | 20 | 16 | 10 | 9.2 | | | |

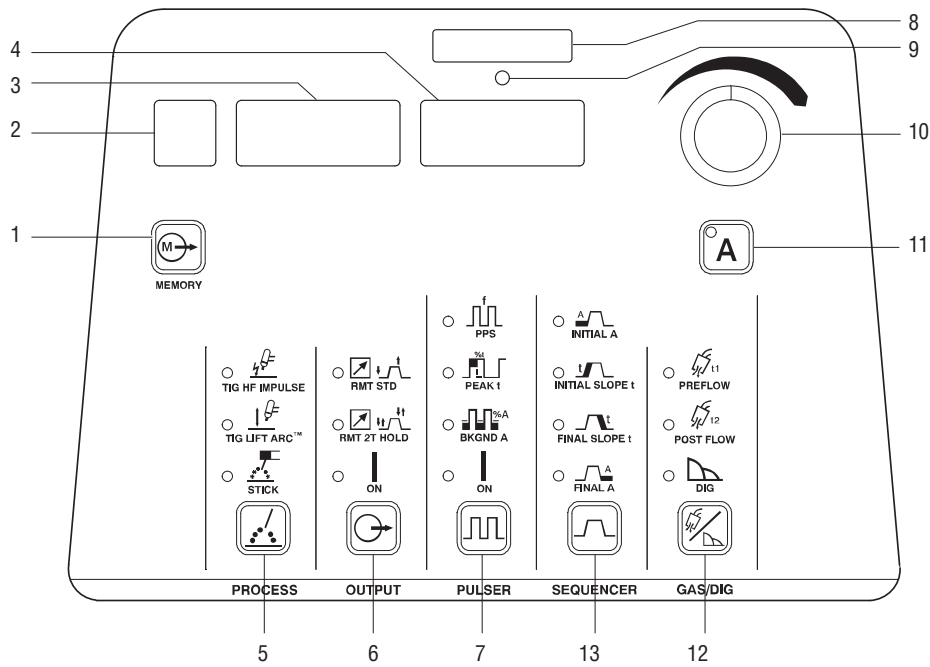
Certified by Canadian Standards Association to both the Canadian and U.S. Standards. All CE models conform to the applicable parts of the IEC 60974 series of standards.

*Indicates sense-voltage for Lift-Arc™ TIG and Low OCV stick.

Performance Data

| Model | Input Power | TIG (GTAW) Duty Cycle | Stick (SMAW) Duty Cycle | DC TIG Material Thickness Range | Stick Electrode Maximum Diameter | Carbon Arc Gouging (CAC-A) Maximum | Generator Requirement |
|-------------|-------------|---|---|---------------------------------|--|------------------------------------|-----------------------|
| Maxstar 400 | 3-phase | 400 A, 20% 300 A, 60% 250 A, 100% | 400 A, 20% 300 A, 60% 250 A, 100% | .012–5/8 in. (0.3–15.9 mm) | 6010: 1/4 in. (6.4 mm) 7018: 1/4 in. (6.4 mm) 7024: 1/4 in. (6.4 mm) | 1/4 in. (6.4 mm) | 20 kW |
| | 1-phase | 300 A, 20% 250 A, 60% 200 A, 100% | 300 A, 20% 250 A, 60% 200 A, 100% | | | | |

Maxstar® 400 Control Panel



Control Panel Parameter Values

| | | | |
|--------------------------------|--|------------------------------|---|
| 1. Memory Switch | 18 Combinations (9 DC TIG) (9 DC stick) | 8. Memory Card Port | |
| 2. Memory Display | | 9. Activity Indicator | |
| 3. Voltmeter Display | | 10. Encoder Control | |
| 4. Ammeter Display | | 11. Amperage Button | |
| 5. Process/Arc Starting | TIG: HF impulse, Lift-Arc STICK: Adaptive Hot Start | 12. Gas/DIG | Preflow Off–25.0 seconds Postflow Auto/Off–50 seconds DIG* Off–100% |
| 6. Output Control | Standard remote, 2T trigger hold, Output on | 13. Sequencer Control | Initial Amps 3–400 A Initial Time Off–25.0 seconds Initial Slope Off–50.0 seconds Weld Time Off–999 seconds Final Slope Off–50.0 seconds Final Amps 3–400 A Final Time Off–25.0 seconds |
| 7. Pulser Control | Pulses per Second* DC: 0.1–5,000 PPS Peak Time* 5–95% Background Amps* 5–95% | | |

*Pro-Set parameter selectable.

User Menu (Press Gas and Amperage buttons.)

1. Tungsten Size = .020–3/16 in./GEN or 0.5–4.8 mm
2. Remote Trigger = 2T/3T/4T/4TL/4TE/4Tm
3. Stick Hot Start = ON/OFF

Tech Menu (Hold Gas and Amperage buttons five seconds.)

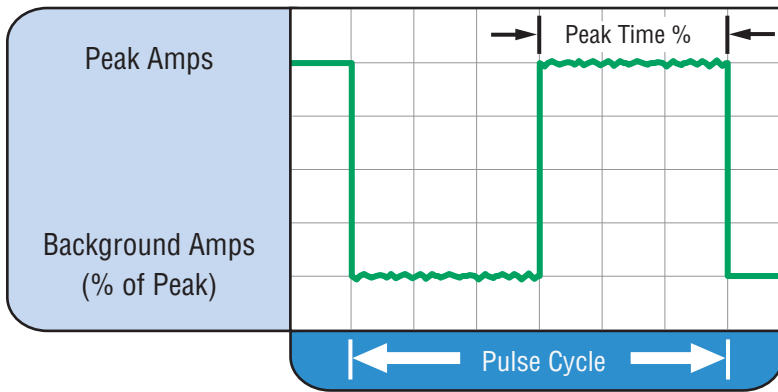
1. Arc Time 0.0–9,999 hours
0.0–59 minutes
0–999,999 cycles
Resettable
2. Error Log = Error event recorder
3. Stick Stuc = OFF/ON
4. OCV = LOW/NORM
5. Weld Timers = OFF/ON
6. Cooler Power = AUTO/ON/OFF
7. Locks = OFF/1–4
8. Meter Display
9. External Pulse Control = OFF/ON
10. Machine Reset
11. Software Number
12. Serial Number
13. Slave (with Modbus® automation expansion) Address = 1–247
Baudrate = 9600/19.2K
Parity = EVEN/ODD/NONE

Pulsed TIG Controls

High-Speed DC Pulsed TIG Controls

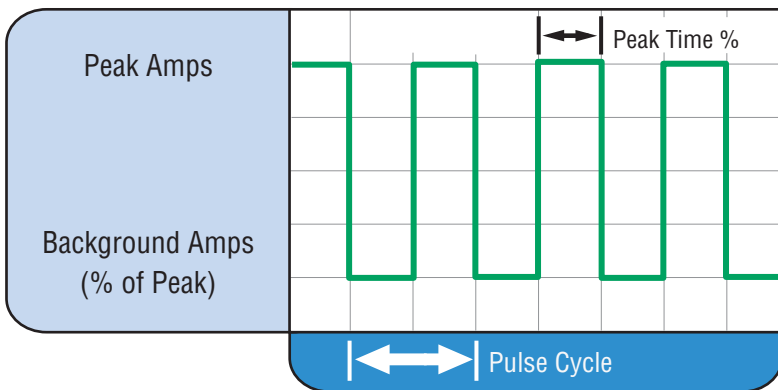
- **PPS Pulses per second (Hz):** DC = 0.1–5,000 PPS
- **% ON – % Peak Time:** 5–95% (Controls the amount of time during each pulse cycle at the PEAK amperage.)
- **Background Amps:** 5–99% (Sets the low-pulse amperage value as a % of the Peak Amps.)

Conventional Pulsed TIG



Typically from 1 to 10 PPS. Provides a heating and cooling effect on the weld puddle and can reduce distortion by lowering the average amperage. This heating and cooling effect also produces a distinct ripple pattern in the weld bead. The relationship between pulse frequency and travel speed determines the distance between the ripples. Slow pulsing can also be coordinated with filler metal addition and can increase overall control of the weld puddle.

High-Speed Pulsed TIG



In excess of 40 PPS, Pulsed TIG becomes more audible than visible — causing increased puddle agitation for a better as-welded microstructure. Pulsing the weld current at high speeds — between a high Peak and a low Background amperage — can also constrict and focus the arc. This results in maximum arc stability, increased penetration and increased travel speeds (Common Range: 100–500 PPS). The Arc-Sharpening effects of high speed pulsing are expanded to new dimensions. The ability to pulse at 5,000 PPS further enhances arc stability and concentration potential — which is extremely beneficial to automation where maximum travel speeds are required.

Maxstar® 400 Models/Packages

Machines and Preconfigured Water-Cooled Packages

Order machine only or use a single stock number to order a complete preconfigured system.



907716 model shown.



907716001 package shown.



951693 package shown.

| Machine Only | | TIGRunner® Package (Machine/Cart/Cooler) | | Complete Package (Machine/Cart/Cooler/Torch Kit/Remote) | |
|--|-----------|---|-----------|---|--------|
| Maxstar 400 (CSA) | 907716 | Maxstar 400 (CSA) | 907716001 | Maxstar 400 (CSA) w/Foot Control | 951692 |
| Maxstar 400 (CE) | 907716002 | | | Maxstar 400 (CSA) w/Wireless Foot Control | 951693 |
| Comes with: • 8 ft. power cord (no plug) (400 model) • Setup DVD and quick reference guide • Two 50 mm Dinse-style connectors (400 model) | | Comes with: • 8 ft. power cord (no plug) (400 model) • Setup DVD and quick reference guide • Runner™ cart 300244 • Coolmate™ 3.5 300245 | | Comes with: • 8 ft. power cord (no plug) (400 model) • Setup DVD and quick reference guide • Runner™ cart 300244 • Coolmate™ 3.5 300245 • 4 gallons of coolant 043810 • W-375 torch kit 301268 • Remote control 194744 (foot) or Remote control 300429 (wireless foot) | |

Build a Water-Cooled Package

Select desired stock number for each step.



907334001 Maxstar 400 TIGRunner® shown with four bottles of 043810 Low-Conductivity Coolant.



194744 remote shown.



301268 kit shown.

| Step #1 • Select Maxstar TIGRunner® and Coolant | | Step #2 • Select Remote Control | | Step #3 • Select Torch Kit | |
|---|-----------|---------------------------------|-----------|-----------------------------|--------|
| Maxstar 400 TIGRunner | 907716001 | Wireless Foot | 300429 | W-250 Kit | 300185 |
| & | | RFCS-14 HD Foot | 194744 | W-280 Kit | 300990 |
| Low-Conductivity Coolant (must be ordered in quantities of four) | 043810 | RCC-14 E/W Fingertip | 151086 | W-375 Kit | 301268 |
| | | RCCS-14 N/S Fingertip | 043688 | (recommended for 400 model) | |
| | | RMS-14 Pushbutton | 187208 | | |
| | | RMLS-14 Momentary/Maintained | 129337 | | |
| | | RHC-14 Hand | 242211020 | | |
| | | Wireless Hand | 300430 | | |

Water-Cooled Torch Kits



W-280 Torch Kit 300990

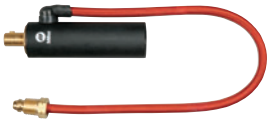
- Weldcraft™ W-280 25-foot (7.6 m) TIG torch with Dinse-style connector
- Torch cable cover
- Work clamp with 15-foot (4.6 m) 1/0 cable and Dinse-style connector
- Flowmeter regulator
- Gas hose (regulator to machine)
- AK4C torch accessory kit includes nozzles, collets, collet bodies and 2% ceriated tungsten electrodes (1/16, 3/32 and 1/8 inch)



W-375 Torch Kit 301268

Recommended for Maxstar 400

- Weldcraft™ W-375 25-foot (7.6 m) TIG torch with Dinse-style connector
- Torch cable cover
- Work clamp with 15-foot (4.6 m) 1/0 cable and Dinse-style connector
- Flowmeter regulator
- Gas hose (regulator to machine)
- AK4C torch accessory kit includes nozzles, collets, collet bodies and 2% ceriated tungsten electrodes (1/16, 3/32 and 1/8 inch)



Water-Cooled TIG Torch Connector 195377

For Dynasty and Maxstar 400.

50 mm Dinse-style with water return line. For use with all Weldcraft™ water-cooled torches.



Coolmate™ 3.5 300245

Designed to integrate with the Dynasty and Maxstar 400 power sources. For use with water-cooled torches rated up to 600 amps. 3.5-gallon capacity.



Runner™ Cart 300244

Designed to accommodate Dynasty or Maxstar 400 power sources and a Coolmate™ 3.5 Cooler. Cart features single cylinder rack, foot pedal holder, three cable/torch holders, and two TIG electrode filler holders.



Low-Conductivity TIG Coolant 043810

Sold in multiples of four in one-gallon recyclable plastic bottles. Miller coolants contains a base of ethylene glycol and deionized water to protect against freezing to -37° Fahrenheit (-38° C) or boiling to 227° Fahrenheit (108° C).

Automation Interface Connection Kit 272232 Field

Provides control of power source welding parameters through a 28-pin receptacle. The 28-pin receptacle replaces the standard 14-pin receptacle and requires a PLC controller to operate the power source. Ideal for automated equipment integration.

Weld Current Sensor 300179 Field

Detects when work clamp is not connected and prevents expensive damage to disconnect devices and input power cord and wiring.

Genuine Miller® Accessories (Continued)

Remote Controls and Switches



Wireless Remote Foot Control 300429

For remote current and contactor control. Receiver plugs directly into the 14-pin

receptacle of Miller machine. 90-foot (27.4 m) operating range.



Wireless Remote Hand Control 300430

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



RCCS-14 Remote Contactor and Current Control 043688

North/south rotary-motion fingertip control attaches to TIG torch using two hook-and-loop fasteners. Great for applications that require a finer amperage control. Includes 26.5-foot (8 m) cord and 14-pin plug.



RCC-14 Remote Contactor and Current Control 151086

East/west rotary-motion fingertip control attaches to TIG torch using two hook-and-loop fasteners. Great for production or contractors that need quick ramp-up. Includes 26.5-foot (8 m) cord and 14-pin plug.



RFCS-14 HD Foot Control 194744

Maximum flexibility is accomplished with a reconfigurable cord that can exit the front, back or either side of

the pedal. Foot pedal provides remote current and contactor control. Includes 20-foot (6 m) cord and 14-pin plug.



RHC-14 Hand Control 242211020

Miniature hand control for remote current and contactor control. Dimensions: 4 x 4 x 3.25 inches (102 x 102 x 83 mm). Includes 20-foot (6 m)

cord and 14-pin plug.



RMLS-14 Switch 129337

Momentary- and maintained-contact rocker switch for contactor control. Push forward for maintained contact and backward for momentary contact. Includes 26.5-foot (8 m) cord and 14-pin plug.



RMS-14 On/Off Control 187208

Momentary-contact switch for contactor control. Rubber-covered pushbutton dome switch ideal for repetitive on-off applications. Includes 26.5-foot (8 m) cord and 14-pin plug.

Extension Cables for 14-Pin Remote Controls

242208025 25 ft. (7.6 m)

242208050 50 ft. (15.2 m)

242208080 80 ft. (24.4 m)



Performance TIG Gloves

263345 X-Small

263346 Small

263347 Medium

263348 Large

263349 X-Large

Completely unlined, goat grain leather with triple-padded palm.



Performance TIG/Multitask Gloves

263352 Small

263353 Medium

263354 Large

263355 X-Large

Goat grain leather with dual-padded palm and wool back.

Memory Cards

Memory Card Expansion

301151 14-pin automation expansion
Provides the ability to access common automation functions through the 14-pin connection.

301152 14-pin Modbus® expansion
Provides the ability to access basic and advanced functions through the 14-pin connection.

Memory Card (Blank) 301080

A blank, commercially available memory card used for transferring software updates and expandable features from your computer to the machine.

Educational Materials

To order, please call Miller Literature at 866-931-9732 or visit MillerWelds.com/resources/tools.

Gas Tungsten Arc Welding (TIG) Publication 250833

Simulator and Setup CD-ROM 233558

Setup DVD 251116

Video topics include tungsten selection, setup menus, DC pulse, sequencer, balance and frequency settings. (Included with machine.)

Tungsten

| Tungsten | Amp Range | 2% Ceriated (AC/DC) | 2% Lanthanated (AC/DC) |
|-------------------|-----------|---------------------|------------------------|
| 1/16 in. (1.6 mm) | 70–150 A | WC116X7 | WL2116X7 |
| 3/32 in. (2.4 mm) | 140–250 A | WC332X7 | WL2332X7 |
| 1/8 in. (3.2 mm) | 225–400 A | WC018X7 | WL2018X7 |
| 5/32 in. (4.0 mm) | 300–500 A | WC532X7 | WL2532X7 |

Ordering Information

| Equipment and Options | Stock No. | Description | Qty. | Price |
|--|---|---|------|-------|
| Maxstar® 400 | 907716 | Auto-Line™ 208–575 V, 50/60 Hz, CSA . 8 ft. power cord | | |
| Maxstar® 400 International | 907716002 | Auto-Line™ 380–575 V, 50/60 Hz, CE . 8 ft. power cord | | |
| Maxstar® 400 TIGRunner® | 907716001 | Auto-Line™ 208–575 V, 50/60 Hz, CSA . 8 ft. power cord. <i>Requires coolant</i> | | |
| Maxstar® 400 Wireless Complete | 951693 | Auto-Line™ 208–575 V, 50/60 Hz, CSA . 8 ft. power cord | | |
| Maxstar® 400 Complete | 951692 | Auto-Line™ 208–575 V, 50/60 Hz, CSA . 8 ft. power cord | | |
| TIG Torches, Kits and Connectors | | | | |
| Water-Cooled Torch Kits | 300990 301268 | W-280 W-375 (recommended for Maxstar 400) | | |
| Water-Cooled TIG Torch Connectors | 195377 | Connects Weldcraft™ water-cooled torches to Dinse-style connector | | |
| Tungsten | | See page 7 | | |
| Remote Controls | | | | |
| Wireless Remote Foot Control | 300429 | Foot control with wireless 90 ft. (27.4 m) operating range | | |
| Wireless Remote Hand Control | 300430 | Hand control with wireless 300 ft. (91.4 m) operating range | | |
| RCCS-14 | 043688 | North/south fingertip control | | |
| RCC-14 | 151086 | East/west fingertip control | | |
| RFCS-14 HD | 194744 | Heavy-duty foot control | | |
| RHC-14 | 242211020 | Hand control | | |
| RMLS-14 | 129337 | Momentary/maintained rocker switch | | |
| RMS-14 | 187208 | Momentary rubber dome switch | | |
| Extension Cables | | See page 7 | | |
| Accessories | | | | |
| Runner™ Cart | 300244 | | | |
| Coolmate™ 3.5 | 300245 | 120 V, 50/60 Hz, CE . <i>Requires coolant</i> | | |
| TIG Coolant (Must be ordered in quantities of four) | 043810 | 1-gallon plastic bottle. Protects against freezing to -37° Fahrenheit (-38° C) or boiling to 227° Fahrenheit (108° C) | | |
| Automation Interface Kit | 272232 | Field. Provides required automation connections | | |
| Weld Current Sensor | 300179 | Field. Installation required | | |
| Dinse-Style Connector 50 mm (1 male) | 042418 | Used to connect weld cable to Dinse terminal machine | | |
| Dinse-Style Connector 50 mm (1 male, 1 female) | 042419 | Used to extend weld cables | | |
| Dinse/Tweco® Adapter | 042465 | Male Dinse to female Tweco | | |
| Dinse/Cam-Lok Adapter | 042466 | Male Dinse to female Cam-Lok | | |
| TIG Welding Gloves | | See page 7 | | |
| Memory Cards | 301151 301152 301080 | 14-Pin automation expansion 14-Pin Modbus® expansion Blank | | |
| Gas Tungsten Arc Welding (TIG) Publication | 250833 | | | |
| Simulator and Setup CD-ROM | 233558 | | | |
| Setup DVD (included with machine) | 251116 | | | |

Date:

Total Quoted Price:

Distributed by:

