Issued June 2013 • Index No. DC/24.0

Maxstar® 350 and 700

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)
350: 1/4-in. maximum
700: 3/8-in. maximum

Input Power 208–575 V, 3- or 1-Phase Power

Amperage Range	**350:**	3–350 A
	700:	5–700 A
Rated Output	**350:**	300 A at 32 V, 60% Duty Cycle
	700:	600 A at 44 V, 60% Duty Cycle
Weight	**350:**	135 lb. (61 kg)
	700:	198 lb. (90 kg)

AUTO-LINE™ Power Management Technology 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.

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

Lift-Arc™ start provides arc starting without the use of high frequency.

Meter calibration allows meters to be calibrated for certification.

120-volt auxiliary power receptacle for cooling system or small tools.

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

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

Maxstar 700

Maxstar 350

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

DC TIG Features

Exceptionally smooth and precise arc for welding exotic materials.

High-speed DC TIG pulse controls. Pulse frequency capable of pulsing 5000 pulses per second. Pulsing adds arc stability, reduces heat input and warpage and can increase travel speeds. Other parameters include peak amperage, peak time and background amperage.

DC Stick Features

Tailored arc control (DIG) allows the arc characteristic to be changed for specific applications and electrodes. Smooth running 7018 or stiffer, more penetrating 6010.

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

Auto-postflow calculates the length of postflow time based on the amperage setting. This eliminates the need to independently set the postflow time for different amperages. This feature preserves your tungsten and prevents porosity.

TRUE BLUE® 3YR. WARRANTY

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

Miller®

Miller Electric Mfg. Co.
An ITW Company
1635 West Spencer Street
P.O. Box 1079
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

ISO 9001 REGISTERED QUALITY SYSTEM

Specifications (Subject to change without notice.)

Model	Input Power	Welding Amperage Range	Rated Output	Amps Input at Rated Load Output, 50/60 Hz 208 V	230 V	400 V	460 V	575 V	KVA	KW	Max. Open-Circuit Voltage	Dimensions	Net Weight
Maxstar 350	Three-Phase	3–350 A	250 A at 30 V, 100% Duty Cycle	27	24	14	12	9	9.7	9.3	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. (1095 mm) W: 23.125 in. (587 mm) D: 43.75 in. (1111 mm)	135 lb. (61 kg) **with TIGRunner®** 308 lb. (140 kg)
			300 A at 32 V, 60% Duty Cycle	33	30	17	15	12	12	11.5			
	Single-Phase	3–350 A	180 A at 27.2 V, 100% Duty Cycle	32	32	—	14	11	6.4	6			
			225 A at 29 V, 60% Duty Cycle	41	37	—	19	15	8.6	8.2			
Maxstar 700	Three-Phase	5–700 A	500 A at 40 V, 100% Duty Cycle	67	60	35	30	24	24	23	75 VDC 10–15 VDC*	H: 34.5 in. (876 mm) W: 13.75 in. (349 mm) D: 22 in. (559 mm)	198 lb. (90 kg)
			600 A at 44 V, 60% Duty Cycle	89	80	46	40	32	32	31			
	Single-Phase	5–700 A	360 A at 34 V, 100% Duty Cycle	77	70	—	35	28	16	15			
			450 A at 38 V, 60% Duty Cycle	106	96	—	48	38	22	21			

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

DUTY CYCLE

Maxstar 350

3-PHASE

%	AMPERAGE
30%	350 A
60%	300 A
100%	250 A

1-PHASE

%	AMPERAGE
10%	350 A
30%	250 A
60%	225 A
100%	180 A

Maxstar 700

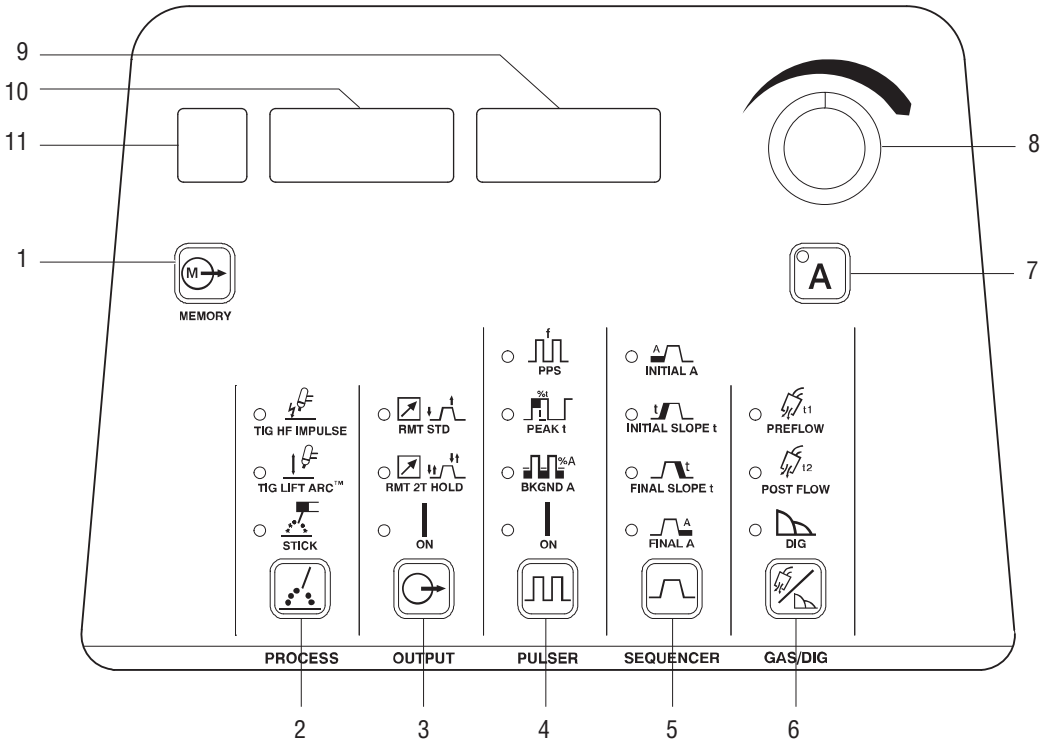
3-PHASE

%	AMPERAGE
30%	700 A
60%	600 A
100%	500 A

1-PHASE

%	AMPERAGE
10%	700 A
30%	500 A
60%	450 A
100%	360 A

Maxstar® 350 and 700 Control Panel



Control Panel Parameter Values

1. Memory 18 Combinations (9 DC TIG) (9 DC Stick)

2. Process/ Arc Starting TIG: HF Impulse, Lift Arc
STICK: Adaptive Hot Start

3. Output Control Standard Remote, 2T Trigger Hold, Output ON

4. Pulser Control

Pulses per Second	DC: 0.1–5000 PPS
Peak Time	5–95%
Background Amps	5–95%

5. Sequencer Control

Initial Amps	Maxstar 350: 3–350 A Maxstar 700: 5–700 A
Initial Slope	0.0–50.0 seconds
Final Slope	0.0–50.0 seconds
Final Amps	Maxstar 350: 3–350 A Maxstar 700: 5–700 A

6. Gas/DIG Preflow 0.0–25.0 seconds

Postflow Auto Postflow, Adjust 0.0–50 seconds

DIG 0–100%

7. Amperage Control

8. Encoder Control

9. Ammeter Display

10. Voltmeter Display

11. Memory Display

Additional Setup Parameter Values

Preprogrammed Starts

Maxstar 350	.020–3/16 in. tungsten
Maxstar 700	.040–1/4 in. tungsten

Programmable Starts

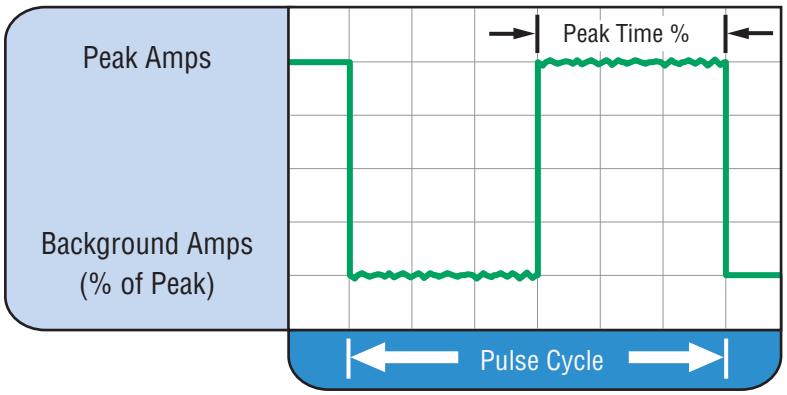
Amperage	Maxstar 350: 3–200 A Maxstar 700: 5–200 A
Time	1–200 milliseconds
Ramp Time	0–250 milliseconds
Minimum Amperage	Maxstar 350: 3–25 A Maxstar 700: 5–25 A
Additional Triggers	3T, 4T, Mini Logic, 4T Momentary
Spot/Weld Timer	0.0–999 seconds
OCV	Low OCV, Normal OCV
Stick Stuck Check	On/Off
Lockouts	Four levels
Arc Timer	0.0–9999 hours and 0–59 minutes
Cycle Counter	0–999,999 cycles
Meter Calibration	±0–20.0 amps ±0–20.0 volts

Pulse TIG Controls

High Speed DC TIG-Pulse Controls

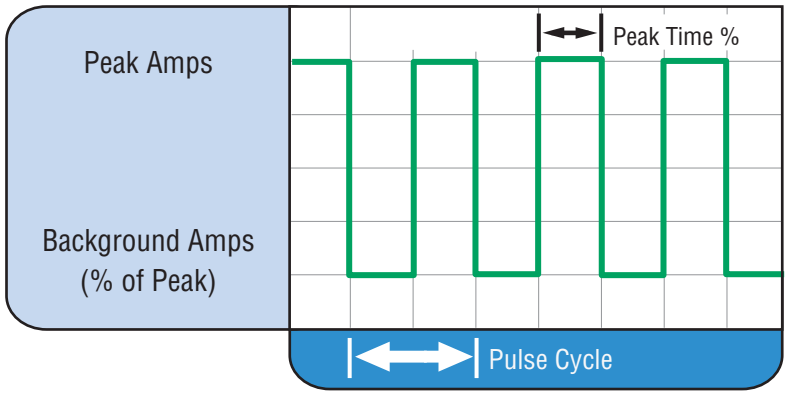
- **PPS Pulses per second (Hz):** DC = 0.1–5,000 PPS
- **% ON – % Peak Time:** 5–95% (Controls the amount of time during each pulse cycle at the PEAK amperage.)
- **Background Amps:** 5–99% (Sets the low-pulse amperage value as a % of the Peak Amps.)

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® 350 and 700 Models/Packages

#907 334 and #907 103 models shown.

#907 334-00-1 package shown.

#951 400 package shown.

Machine Only		Water-Cooled (Machine/Cart/Cooler)	Water-Cooled Complete Packages (Machine/Cart/Cooler/Torch Kit/Remote)	
Model		**TIGRunner®**	**Foot Control Complete**	**Wireless Foot Control Complete**
Maxstar 350 (CSA)	**#907 334**	**#907 334-00-1**	**#951 399**	**#951 400**
Maxstar 350 (CE)	**#907 334-02-1**	—	—	—
Maxstar 350 (Automation)	**#907 334-00-2**	—	—	—
Maxstar 700 (CSA)	**#907 103**	—	—	—
Maxstar 700 (CE)	**#907 103-02-1**	—	—	—
Comes with: • 8-ft. primary cord (350 model) • Setup video and quick-reference guide • Two Dinse 50-mm connectors (350 model) • Two thread-lock connectors (700 model) • One thread-lock water-cooled adapter (700 model)		Comes with: • 8-ft. primary cord (350 model) • Setup video and quick-reference guide • Runner Cart #300 244 • Coolmate 3.5 #300 245	Comes with: • 8-ft. primary cord (350 model) • Setup video and quick-reference guide • Runner Cart #300 244 • Coolmate 3.5 #300 245 • Coolant (4 gal.) #043 810 • 300 A Water-Cooled Torch Kit #300 183 • Remote Control #194 744 (Foot) **or** Remote Control #300 429 (Wireless Foot)	

Four Easy Steps to Create Your Own Package (Select desired stock number for each step.)

Step #1 Select TIGRunner

#907 334-00-1 **350 TIGRunner**
#907 103 **700 machine only (add #300 244 cart and #300 245 Coolmate to create TIGRunner)**

Step #2 Select Remote Control

#300 429 **Wireless Foot**
#194 744 **RFCS-14 HD Foot**
#151 086 **RCC-14 E/W Fingertip**
#043 688 **RCCS-14 N/S Fingertip**
#187 208 **RMS-14 Pushbutton**
#129 337 **RMLS-14 Momentary/Maintained**
#242 211 020 **RHC-14 Hand**
#300 430 **Wireless Hand**

Step #3 Select Torch Kit

#300 185 **250 A, WP20 Kit**
#300 183 **310 A, CS310 Kit (recommended for 350 model)**
#300 186 **400 A, WP18SC Kit (recommended for 700 model)**

Step #4 Select Coolant

#043 810 Low-Conductivity Coolant
Sold in multiples of four one-gallon recyclable plastic bottles. Miller® coolants contain a base of ethylene glycol and deionized water to protect against freezing to -37° Fahrenheit (-38° C) or boiling to 227° Fahrenheit (108° C).

Genuine Miller® Accessories

Torch Kits

250 A Water-Cooled Torch Kit #300 185
- 25-foot (7.6 m) Weldcraft® WP20 torch with Dinse
- Torch cable cover
- AK4C torch accessory kit includes shielding cups, collets, collet bodies and 2% ceriated tungsten electrodes (1/16, 3/32 and 1/8 inch)
- Regulator/flowmeter HM2051A-580
- Gas hose (regulator to machine)
- 15-foot (4.6 m) 1/0 weld lead with clamp (work or ground lead) and Dinse connector

310 A Water-Cooled Torch Kit #300 183
Recommended for Maxstar 350
- 25-foot (7.6 m) Weldcraft® CS310 torch with Dinse
- Torch cable cover
- CS310AKC torch accessory kit includes shielding cups, collets, collet bodies and 2% ceriated tungsten electrodes (1/16, 3/32 and 1/8 inch)
- Regulator/flowmeter HM2051A-580
- Gas hose (regulator to machine)
- 15-foot (4.6 m) 1/0 weld lead with clamp (work or ground lead) and Dinse connector

400 A Water-Cooled Torch Kit #300 186
Recommended for Maxstar 700
- 25-foot (7.6 m) Weldcraft® WP18SC torch with thread-lock
- Torch cable cover
- AK18C torch accessory kit includes shielding cups, collets, collet bodies and 2% ceriated tungsten electrodes (3/32, 1/8 and 5/32 inch)
- Regulator/flowmeter H1954D-580
- Gas hose (regulator to machine)
- 12-foot (3.7 m) 4/0 weld lead with clamp (work or ground lead)

Remote Controls and Switches

Wireless Remote Foot Control #300 429
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 #300 430
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 #043 688
North/south rotary-motion fingertip control fastens to TIG torch using two Velcro® straps. 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 #151 086
East/west rotary-motion fingertip control fastens to TIG torch using two Velcro® straps. 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 #194 744
Maximum flexibility is accomplished with a recon-figurable 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 #242 211 020
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 #129 337
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 #187 208
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.

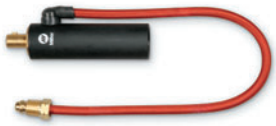
Extension Cables for 14-Pin Remote Controls
#242 208 025 25 ft. (7.6 m)
#242 208 050 50 ft. (15.2 m)
#242 208 080 80 ft. (24.4 m)

Genuine Miller® Accessories (Continued)

Runner Cart #300 244
Designed to accommodate Dynasty® or Maxstar® 350 or 700 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.

Coolmate™ 3.5 #300 245
Designed to integrate with the Dynasty® and Maxstar® 350 and 700 power sources. For use with water-cooled torches rated up to 600 amps. 3.5 gallon capacity.

Low-Conductivity TIG Coolant #043 810
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).



Water-Cooled Dinse Torch Adapter #195 377
For Maxstar® 350. Used to adapt WP20, WP18, and CS310 to Dinse-style connector.

Water-Cooled Thread-Lock Torch Adapter #225 028
For Dynasty and Maxstar 700. Used with (WP125, WP24W, WP25, WP20, WP18, WP12, CS310, CS410, WP22, WP27) water-cooled torch.

Automation Interface Connection Kit #195 516 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 #300 179 Field
Detects when work clamp is not connected and prevents expensive damage to disconnect devices and input power cord and wiring.

Educational Materials

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

Gas Tungsten Arc Welding (TIG) Publication #250 833

Simulator and Setup CD-ROM #233 558

DVD Setup Video #251 116
Video topics include tungsten selection, setup menus, DC pulse, sequencer, balance and frequency settings. (Included with machine.)

TIG Welding Gloves

Industrial TIG Welding Gloves
#249 199 Large
#249 200 X-Large
Unlined pigskin leather palm with reinforced palm patch.

TIG Welding Gloves
#249 178 Medium
#249 179 Large
#249 180 X-Large
Durable goatskin back and palm with flame-resistant cotton fleece back.

TIG Welding Gloves (Short Cuff)
#249 181 Medium
#249 182 Large
#249 183 X-Large
Durable pigskin back and goatskin palm with 3-inch cuff.

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® 350	**#907 334**	Auto-Line™ 208–575 VAC, 50/60 Hz, **CSA.** 8-ft. primary cord		
Maxstar® 350 International	**#907 334-02-1**	Auto-Line™ 380–575 VAC, 50/60 Hz, **CE.** 8-ft. primary cord		
Maxstar® 350 with Automation Interface Connection	**#907 334-00-2**	Auto-Line™ 208–575 VAC, 50/60 Hz, **CSA.** 8-ft. primary cord		
Maxstar® 350 TIGRunner®	**#907 334-00-1**	Auto-Line™ 208–575 VAC, 50/60 Hz, **CSA.** 8-ft. primary cord. *Requires coolant*		
Maxstar® 350 Complete with Wireless Remote Foot Control	**#951 399**	Auto-Line™ 208–575 VAC, 50/60 Hz, **CSA.** 8-ft. primary cord		
Maxstar® 350 Complete with Foot Control	**#951 400**	Auto-Line™ 208–575 VAC, 50/60 Hz, **CSA.** 8-ft. primary cord		
Maxstar® 700	**#907 103**	Auto-Line™ 208–575 VAC, 50/60 Hz, **CSA**		
Maxstar® 700 International	**#907 103-02-1**	Auto-Line™ 380–575 VAC, 50/60 Hz, **CE**		
TIG Torch Kits				
Weldcraft® Water-Cooled Torch Kits	**#300 185** **#300 183** **#300 186**	250 A, WP-20 Kit. See page 6 310 A, CS310 Kit. See page 6. Recommended for Maxstar 350 400 A, WP18SC Kit. See page 6. Recommended for Maxstar 700		
Weldcraft® 200 A Air-Cooled Torch	**#WP2625RM**	For Maxstar 350 only. Adapter #195 379 required		
Remote Controls				
Wireless Remote Foot Control	**#300 429**	Foot control with wireless 90-ft. (27.4 m) operating range		
Wireless Remote Hand Control	**#300 430**	Hand control with wireless 300-ft. (91.4 m) operating range		
RCCS-14	**#043 688**	North/south fingertip control		
RCC-14	**#151 086**	East/west fingertip control		
RFCS-14 HD	**#194 744**	Heavy-duty foot control		
RHC-14	**#242 211 020**	Hand control		
RMLS-14	**#129 337**	Momentary/maintained rocker switch		
RMS-14	**#187 208**	Momentary rubber dome switch		
Extension Cables		See page 6		
Accessories				
Runner™ Cart	**#300 244**	See page 7		
Coolmate™ 3.5	**#300 245**	115 VAC, 50/60 Hz, **CE.** *Requires coolant*		
TIG Coolant	**#043 810**	Sold in multiples of four in one-gallon plastic bottles		
Automation Interface Kit	**#195 516**	Field. Provides required automation connections		
Weld Current Sensor	**#300 179**	Field. Installation required		
Torch Adapters		*Supplied with torch kits*		
Water-Cooled Dinse Torch Adapter	**#195 377**	Used to connect water-cooled torch to Dinse terminal machine. For WP20, WP18 and CS310 (adapter included in torch kit)		
Water-Cooled Thread-Lock Torch Adapter	**#225 028**	Used to connect water-cooled torch to Dynasty/Maxstar 700 (adapter included with 700 models)		
Cable Connectors		*Supplied with power source and torch kits*		
Dinse Connector 50 mm (1 male)	**#042 418**	Used to connect weld lead to Dinse terminal machine		
Thread-Lock Connectors (2 male)	**#225 029**	Used to connect weld lead to Dynasty 700 or Maxstar 700		
Dinse Connector 50 mm (1 male, 1 female)	**#042 419**	Used to extend weld cables		
Tweco® Terminal Adapter	**#042 465**	Male Dinse to female Tweco		
Cam-Lok Terminal Adapter	**#042 466**	Male Dinse to female Cam-Lok		
Gas Tungsten Arc Welding (TIG) Publication	**#250 833**	*To order, call Miller Literature at 866-931-9732 or visit MillerWelds.com/resources/tools*		
Simulator and Setup CD-ROM	**#233 558**			
DVD Setup Video (included with machine)	**#251 116**			
Tungsten		See page 7		
TIG Welding Gloves		See page 7		
Consumables, Cylinder, Hose and Fittings				

Date: **Total Quoted Price:**

Distributed by:

Miller

The Power of Blue®