

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

Net Weight **350:** 135 lb. (61 kg)
700: 198 lb. (90 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.

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

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.

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.



Maxstar 350 machine only

Maxstar 350 Wireless Complete W-375



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 3 years, parts and labor.



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
Facebook Twitter YouTube



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 350	3-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			
	1-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	3-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			
	1-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

Maxstar 700

3-PHASE

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

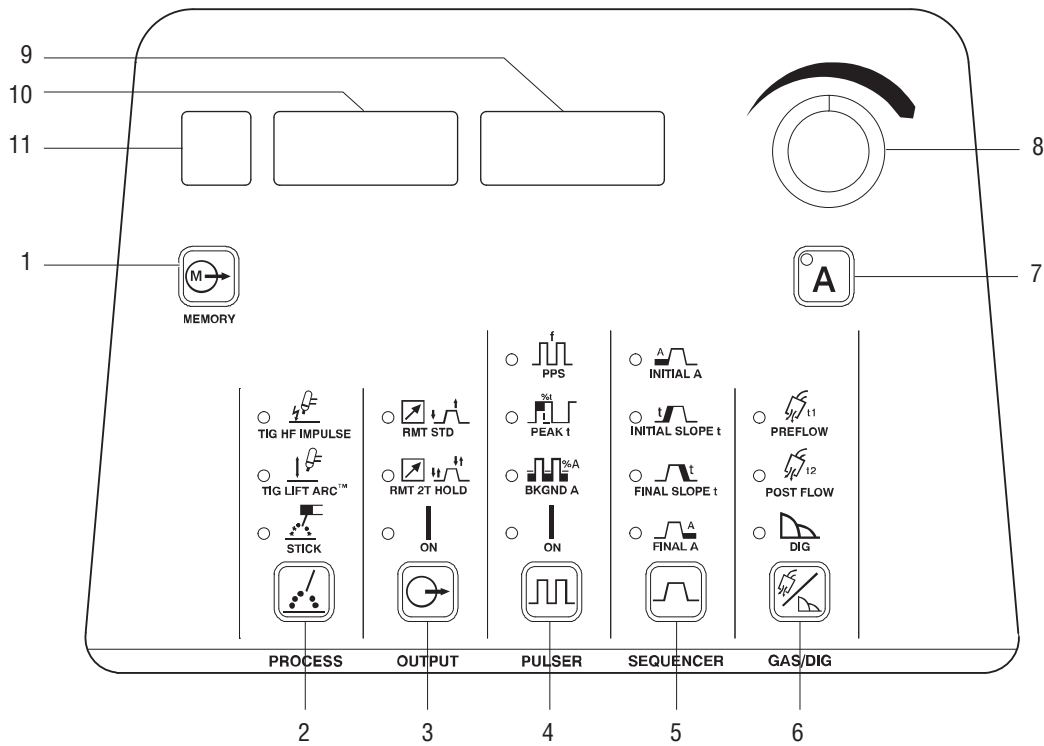
1-PHASE

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

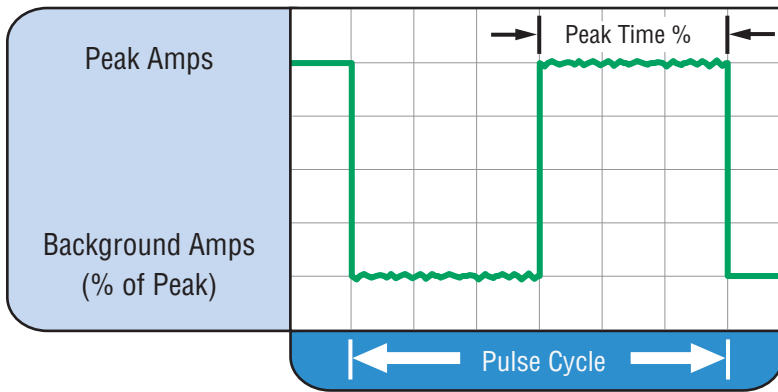
Additional Setup Parameter Values	
Preprogrammed Starts	
Maxstar 350	.020–3/16 in. tungsten
Maxstar 700	.040–1/4 in. tungsten
Programmable Starts	
Amperage	Maxstar 350: 3–200 A Maxstar 700: 5–200 A
Time	1–200 milliseconds
Ramp Time	0–250 milliseconds
Minimum Amperage	Maxstar 350: 3–25 A Maxstar 700: 5–25 A
Additional Triggers	3T, 4T, Mini Logic, 4T Momentary
Spot/Weld Timer	0.0–999 seconds
OCV	Low OCV, Normal OCV
Stick-Stick 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

Pulsed TIG Controls

High-Speed DC Pulsed TIG Controls

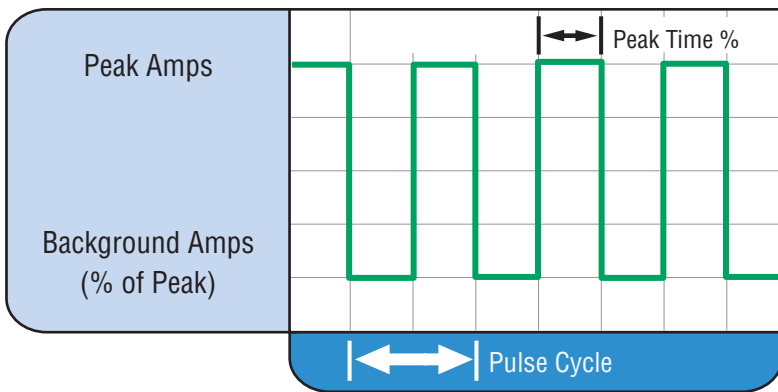
- **PPS Pulses per second (Hz):** DC = 0.1–5,000 PPS
- **% ON – % Peak Time:** 5–95% (Controls the amount of time during each pulse cycle at the PEAK amperage.)
- **Background Amps:** 5–99% (Sets the low-pulse amperage value as a % of the Peak Amps.)

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® 350 and 700 Models/Packages

Machines and Preconfigured Water-Cooled Packages

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



Machine Only		TIGRunner® Package (Machine/Cart/Cooler)	Complete Package (Machine/Cart/Cooler/Torch Kit/Remote)		
Maxstar 350 (CSA)	#907 334	Maxstar 350 (CSA)	#907 334 001	Maxstar 350 (CSA) w/Foot Control, W-375	#951 624
Maxstar 350 (CE)	#907 334 021			Maxstar 350 (CSA) w/Wireless Foot Control, W-375	#951 625
Maxstar 350 (Automation)	#907 334 002				
Maxstar 700 (CSA)	#907 103				
Maxstar 700 (CE)	#907 103 021				
<p>Comes with:</p> <ul style="list-style-type: none"> • 8-ft. power cord (no plug) (350 model) • Setup DVD and quick reference guide • Two 50-mm Dinse-style connectors (350 model) • Two thread-lock connectors (700 model) • One thread-lock water-cooled connector (700 model) 		<p>Comes with:</p> <ul style="list-style-type: none"> • 8-ft. power cord (no plug) (350 model) • Setup DVD and quick reference guide • Runner™ cart #300 244 • Coolmate™ 3.5 #300 245 	<p>Comes with:</p> <ul style="list-style-type: none"> • 8-ft. power cord (no plug) (350 model) • Setup DVD and quick reference guide • Runner™ cart #300 244 • Coolmate™ 3.5 #300 245 • 4 gallons of coolant #043 810 • W-375 torch kit #301 268 • Remote control #194 744 (foot) or • Remote control #300 429 (wireless foot) 		

Build a Water-Cooled Package

Select desired stock number for each step.



Step #1 • Select Maxstar TIGRunner® and Coolant		Step #2 • Select Remote Control		Step #3 • Select Torch Kit	
Maxstar 350 TIGRunner	#907 334 001	Wireless Foot	#300 429	W-250 (WP-20) Kit	#300 185
Maxstar 700	#907 103	RFCS-14 HD Foot	#194 744	W-375 Kit	#301 268
(add #300 244 cart and #300 245 Coolmate to create Maxstar 700 TIGRunner)		RCC-14 E/W Fingertip	#151 086	(recommended for 350 model)	
&		RCCS-14 N/S Fingertip	#043 688	W-400 (WP-18SC) Kit	#300 186
Low-Conductivity Coolant	#043 810	RMS-14 Pushbutton	#187 208	(recommended for 700 model)	
(must be ordered in quantities of four)		RMLS-14 Momentary/Maintained	#129 337		
		RHC-14 Hand	#242 211 020		
		Wireless Hand	#300 430		

Water-Cooled Torch Kits



W-250 (WP-20) Torch Kit #300 185

- Weldcraft™ W-250 (WP-20) 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 #301 268

Recommended for Maxstar 350

- 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)



W-400 (WP-18SC) Torch Kit #300 186

Recommended for Maxstar 700

- Weldcraft™ W-400 (WP-18SC) 25-foot (7.6 m) TIG torch with thread-lock connector
- Torch cable cover
- Work clamp with 12-foot (3.7 m) 4/0 cable with thread-lock connector
- Flowmeter regulator
- Gas hose (regulator to machine)
- AK18C torch accessory kit includes nozzles, collets, collet bodies and 2% ceriated tungsten electrodes (3/32, 1/8 and 5/32 inch)



Water-Cooled TIG Torch Connector #195 377

For Dynasty® and Maxstar® 350. 50-mm Dinse-style with water return line. For use with all Weldcraft™ water-cooled torches.



Water-Cooled TIG Torch Connector #225 028

For Dynasty® and Maxstar® 700. 50-mm thread-lock with water return line. For use with

all Weldcraft™ water-cooled torches.



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).

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.

Genuine Miller® Accessories (Continued)

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 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 #151 086

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 #194 744

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 #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)

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

Setup DVD #251 116

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

TIG Welding Gloves



Classic TIG Welding Gloves #249 199 Large

#249 200 X-Large

Unlined pigskin leather palm with reinforced palm patch.



Performance TIG Gloves #263 345 X-Sm (Women's)

#263 346 Small (Women's)

#263 347 Medium

#263 348 Large

#263 349 X-Large

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



Performance TIG/Multitask Gloves #263 352 Small

#263 353 Medium

#263 354 Large

#263 355 X-Large

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

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. power cord		
Maxstar® 350 International	#907 334 021	Auto-Line™ 380–575 VAC, 50/60 Hz, CE . 8-ft. power cord		
Maxstar® 350 TIGRunner®	#907 334 001	Auto-Line™ 208–575 VAC, 50/60 Hz, CSA . 8-ft. power cord. <i>Requires coolant</i>		
Maxstar® 350 Wireless Complete W-375	#951 625	Auto-Line™ 208–575 VAC, 50/60 Hz, CSA . 8-ft. power cord		
Maxstar® 350 Complete W-375	#951 624	Auto-Line™ 208–575 VAC, 50/60 Hz, CSA . 8-ft. power cord		
Maxstar® 700	#907 103	Auto-Line™ 208–575 VAC, 50/60 Hz, CSA		
Maxstar® 700 International	#907 103 021	Auto-Line™ 380–575 VAC, 50/60 Hz, CE		
TIG Torches, Kits and Connectors				
Water-Cooled Torch Kits	#300 185 #301 268 #300 186	W-250 (WP-20) W-375 (recommended for Maxstar 350) W-400 (WP-18SC) (recommended for Maxstar 700)		
Water-Cooled TIG Torch Connectors	#195 377 #225 028	Connects Weldcraft™ water-cooled torches to Dinse-style connector Connects Weldcraft™ water-cooled torches to Maxstar 700 (thread-lock connector included with 700 models)		
Weldcraft™ A-200 (WP-26) TIG Torch	#WP-26-25-R	For Maxstar 350 only. 25-ft. (7.6 m) cable. Requires #195 379 connector		
Tungsten		See page 7		
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 7		
Accessories				
Runner™ Cart	#300 244			
Coolmate™ 3.5	#300 245	120 VAC, 50/60 Hz, CE . <i>Requires coolant</i>		
TIG Coolant (Must be ordered in quantities of four)	#043 810	1-gallon plastic bottle. Protects against freezing to -37° Fahrenheit (-38° C) or boiling to 227° Fahrenheit (108° C)		
Automation Interface Kit	#195 516	Field. Provides required automation connections		
Weld Current Sensor	#300 179	Field. Installation required		
Dinse-Style Connector 50 mm (1 male)	#042 418	Used to connect weld cable to Dinse terminal machine		
Thread-Lock Connectors (2 male)	#225 029	Used to connect weld cable to Dynasty 700 or Maxstar 700		
Dinse-Style Connector 50 mm (1 male, 1 female)	#042 419	Used to extend weld cables		
Dinse/Tweco® Adapter	#042 465	Male Dinse to female Tweco		
Dinse/Cam-Lok Adapter	#042 466	Male Dinse to female Cam-Lok		
Gas Tungsten Arc Welding (TIG) Publication Simulator and Setup CD-ROM	#250 833 #233 558			
Setup DVD (included with machine)	#251 116			
TIG Welding Gloves		See page 7		

Date:

Total Quoted Price:

Distributed by:

