Issued June 2021 • Index No. DC/24.5

Maxstar® 400 and 800

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)
400: 1/4 in. maximum
800: 3/8 in. maximum

Input Power 208–575 V, 3-phase or 1-phase power
Amperage Range **400:** 3–400 A
800: 5–800 A
Rated Output **400:** 300 A at 32 V, 60% duty cycle
800: 600 A at 44 V, 60% duty cycle
Net Weight **400:** 134 lb. (61 kg)
800: 198 lb. (90 kg)

AUTO-LINE™ 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.

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 though the machine.

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.

TRUE BLUE® 3YR. WARRANTY

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

Miller®

ISO 9001 Quality

Specifications (Subject to change without notice.)

CC DC 3 Phase 1 Phase

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 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			
Maxstar 800	3-phase	5–800 A	500 A at 40 V, 100% duty cycle	68	61	34	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	90	80	45	39	31	32	31			
	1-phase	5–800 A	400 A at 36 V, 100% duty cycle	89	80	44	38	30	19	17			
			500 A at 40 V, 60% duty cycle	126	112	61	53	41	26	24			

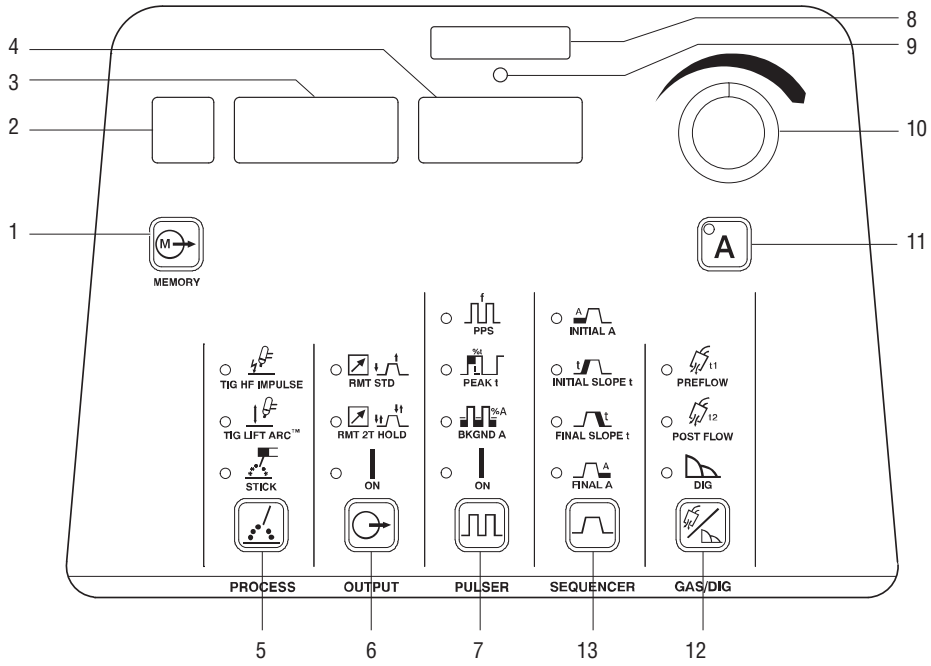
Certified by Canadian Standards Association to both the Canadian and U.S. Standards. *All CE models conform to the applicable parts of the IEC 60974 series of standards.*

**Sense voltage for low OCV stick and Lift-Arc™ TIG.*

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 kVA
	1-phase	300 A, 20% 250 A, 60% 200 A, 100%	300 A, 20% 250 A, 60% 200 A, 100%				
Maxstar 800	3-phase	800 A, 20% 600 A, 60% 500 A, 100%	800 A, 20% 600 A, 60% 500 A, 100%	.020–1 in. (0.5–25.4 mm)	6010: 1/4 in. (6.4 mm) 7018: 1/4 in. (6.4 mm) 7024: 1/4 in. (6.4 mm)	3/8 in. (9.5 mm)	45 kVA
	1-phase	500 A, 60% 400 A, 100%	500 A, 60% 400 A, 100%				

Maxstar® 400 and 800 Control Panel



Control Panel Parameter Values

1. Memory Switch 18 Combinations
(9 DC TIG)
(9 DC stick)

2. Memory Display

3. Voltmeter Display

4. Ammeter Display

5. Process/Arc Starting TIG: HF impulse, Lift-Arc
STICK: Adaptive Hot Start

6. Output Control Standard remote,
2T trigger hold,
Output on

7. Pulser Control

Pulses per Second*	DC: 0.1–5,000 pps
Peak Time*	5–95%
Background Amps*	5–95%

8. Memory Card Port

9. Activity Indicator

10. Encoder Control

11. Amperage Button

12. Gas/DIG

Preflow	Off–25.0 seconds
Postflow	Auto/Off–50 seconds
DIG*	Off–100%

13. Sequencer Control

Initial Amps	3–400 A/5–800 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/5–800 A
Final Time	Off–25.0 seconds

**Pro-Set parameter selectable.*

User Menu (Press Gas and Amperage buttons.)

1. Tungsten Size 400 = .020–3/16 in./GEN or 0.5–4.8 mm
800 = .040–1/4 in./GEN or 1.0–6.4 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.)

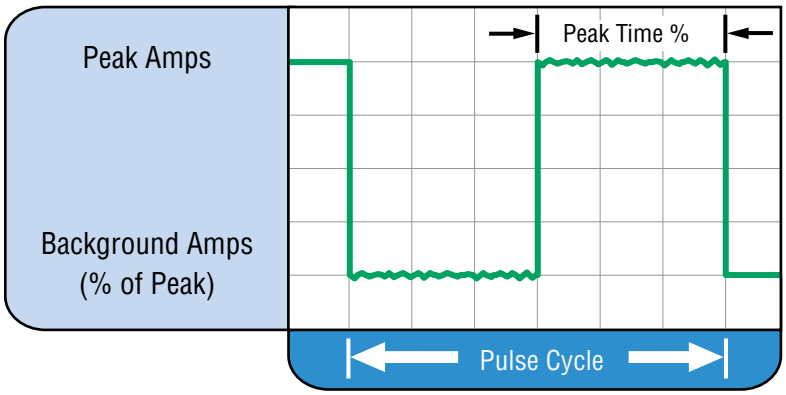
1. Arc Time 0.0–9,999 hours
0.0–59 minutes
0–999,999 cycles
Resettable
2. Error Log = Error event recorder
3. Stick Stuc = OFF/ON
4. OCV = LOW/NORM
5. Weld Timers = OFF/ON
6. Cooler Power = AUTO/ON/OFF
7. Locks = OFF/1–4
8. Meter Display
9. External Pulse Control = OFF/ON
10. Machine Reset
11. Software 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

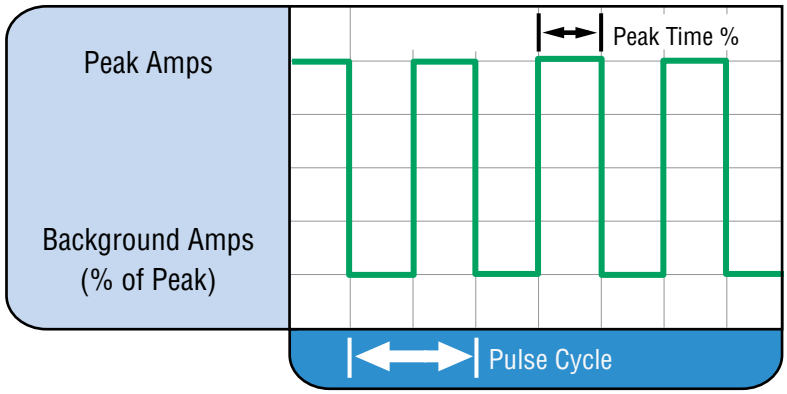
- **Pulses per second (pps) (Hz):** DC = 0.1–5,000 pps
- **% ON – % Peak Time:** 5–95% (Controls the amount of time during each pulse cycle at the PEAK amperage.)
- **Background Amps:** 5–95% (Sets the low-pulse amperage value as a % of the Peak Amps.)

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 and 800 Models/Packages

Machines and Preconfigured Water-Cooled Packages

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

907716 and 907718 models shown.

907716001 package shown.

951874 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**	**951874**
Maxstar 800 (CSA)	**907718**				
Maxstar 800 (CE)	**907718002**				
Comes with: • 8 ft. power cord (no plug) (400 model) • Two 50 mm Dinse-style connectors (400 model) • Two thread-lock connectors (800 model) • One thread-lock water-cooled connector (800 model)		Comes with: • 8 ft. power cord (no plug) (400 model) • Runner™ cart 300244 • Coolmate™ 3.5 300245		Comes with: • 8 ft. power cord (no plug) (400 model) • Runner™ cart 300244 • Coolmate™ 3.5 300245 • 4 gallons of coolant 043810 • W-375 torch kit 301268 • Remote control 194744 (foot) **or** Remote control 301580 (wireless foot)	

Build a Water-Cooled Package

Select desired stock number for each step.

907716001 Maxstar 400 TIGRunner® shown with four bottles of 043810 Low-Conductivity Coolant.

301580 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**	**301580**	**W-250 Kit**	**300185**
Maxstar 800	**907718**	**RFCS-14 HD Foot**	**194744**	**W-280 Kit**	**300990**
(add 300244 cart and 300245 Coolmate to create Maxstar 800 TIGRunner)		**RCC-14 E/W Fingertip**	**151086**	**W-375 Kit**	**301268**
&		**RCCS-14 N/S Fingertip**	**043688**	**(recommended for 400 model)**	
Low-Conductivity Coolant	**043810**	**RMS-14 Pushbutton**	**187208**	**W-400 (WP-18SC) Kit**	**300186**
(must be ordered in quantities of four)		**RMLS-14 Momentary/Maintained**	**129337**	**(recommended for 800 model)**	
		RHC-14 Hand	**242211020**		
		Wireless Hand	**301582**		

Genuine Miller® Accessories

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)
- AK4GL torch accessory kit includes short back cap, nozzles, gas lenses, collets 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)
- AK4GL torch accessory kit includes short back cap, nozzles, gas lenses, collets and 2% ceriated tungsten electrodes (1/16, 3/32 and 1/8 inch)

W-400 (WP-18SC) Torch Kit 300186

Recommended for Maxstar 800

- 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 short back cap, nozzles, collets, collet bodies and 2% ceriated tungsten electrodes (3/32, 1/8 and 5/32 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.

Water-Cooled TIG Torch Connector 225028

For Dynasty and Maxstar 800.

50 mm thread-lock with water return line. For use with all Weldcraft™ water-cooled torches.

Runner™ Cart 300244

Designed to accommodate Dynasty or Maxstar 400 or 800 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 300245

Designed to integrate with the Dynasty and Maxstar 400 and 800 power sources. For use with water-cooled torches rated up to 600 amps. 3.5-gallon capacity.

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 278161 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 301580
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 301582
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
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.

Free software updates and feature expansions can be downloaded at MillerWelds.com/tigsoftware.

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

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. *Requires coolant*		
Maxstar® 400 Wireless Complete	**951874**	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		
Maxstar® 800	**907718**	Auto-Line™ 208–575 V, 50/60 Hz, **CSA**		
Maxstar® 800 International	**907718002**	Auto-Line™ 380–575 V, 50/60 Hz, **CE**		
TIG Torches, Kits and Connectors				
Water-Cooled Torch Kits (see page 6 for contents)	**300990** **301268** **300186**	W-280 W-375 (recommended for Maxstar 400) W-400 (WP-18SC) (recommended for Maxstar 800)		
Water-Cooled TIG Torch Connectors	**195377** **225028**	Connects Weldcraft™ water-cooled torches to Dinse-style connector Connects Weldcraft™ water-cooled torches to Maxstar 800 (thread-lock connector included with 800 models)		
Tungsten		See page 7		
Remote Controls				
Wireless Remote Foot Control	**301580**	Foot control with wireless 90 ft. (27.4 m) operating range		
Wireless Remote Hand Control	**301582**	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**	See page 6		
Coolmate™ 3.5	**300245**	120 V, 50/60 Hz, **CE.** *Requires coolant*		
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	**278161**	Field installation required. Provides 28-pin automation connections		
Weld Current Sensor	**300179**	Field installation required. Detects when work clamp is not connected		
Dinse-Style Connector 50 mm (1 male)	**042418**	Used to connect weld cable to Dinse terminal machine		
Thread-Lock Connectors (2 male)	**225029**	Used to connect weld cable to Dynasty 800 or Maxstar 800		
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**			

Date: **Total Quoted Price:**

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The Power of Blue®