Issued June 2023 • Index No. DC/24.5

Maxstar® 400 and 800

TIG/Stick Welding Power Source

Quick Specs

Industrial Applications
Precision 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)

QUIETPULSE™

Activate QuietPulse by selecting sine or triangular waveshape to reduce audible noise.

Blue Lightning™ provides more consistent high-frequency (HF) arc starts and greater reliability compared to traditional arc starters.

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

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.

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.

Maxstar 400 machine only

Maxstar 400 Wireless Complete

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

Pro-Set™ eliminates the guesswork when setting weld parameters.

Meter calibration allows digital meters to be calibrated for certification.

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.

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.

TRUE BLUE® 3YR. WARRANTY

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

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An ITW Welding Company
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MillerWelds.com

ISO 9001 Quality

Weld Process Features

DC TIG

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.

Pulse Waveforms

Square provides a fast freezing puddle for ultimate arc control.

Sine produces a reduced audible sound and provides a more fluid puddle that is good for overlaying applications.

Triangular provides a quick-forming puddle while further reducing heat for thin materials.

QuietPulse™ Activate QuietPulse by selecting sine or triangular waveshape to reduce audible noise.

DC Stick

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.

Stick-Stuck detects if the electrode is stuck to the part and turns the welding output off to safely and easily remove the electrode. Menu selectable.

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			

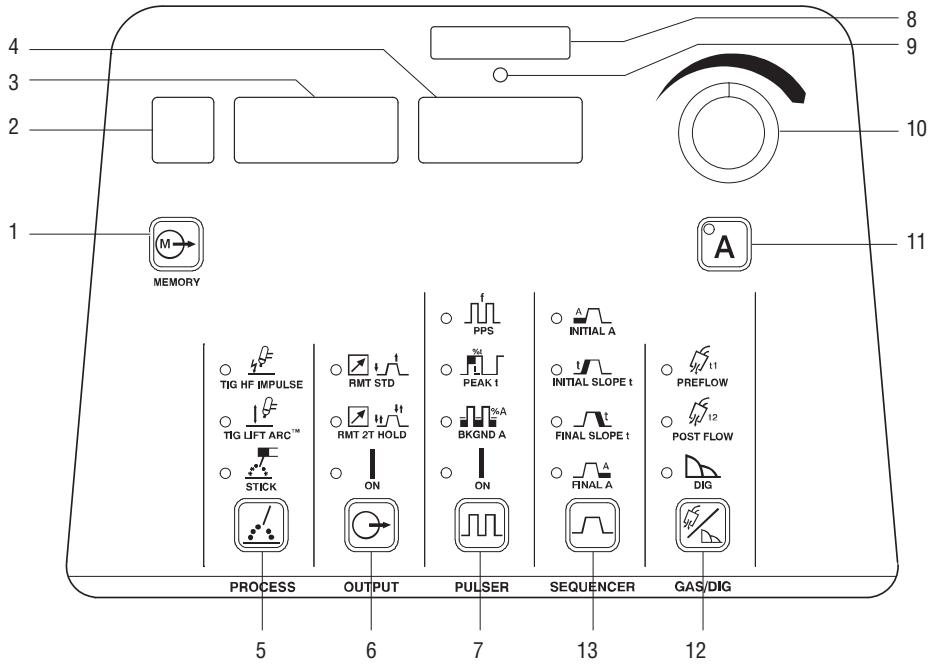
Certified by Canadian Standards Association to both the Canadian and U.S. Standards. CE *All CE models conform to the applicable parts of the IEC 60974 series of standards.*

**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
4. Pulse Waveshaping = Square Wave, Sine Wave (QuietPulse™), and Triangular Wave (QuietPulse™)

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

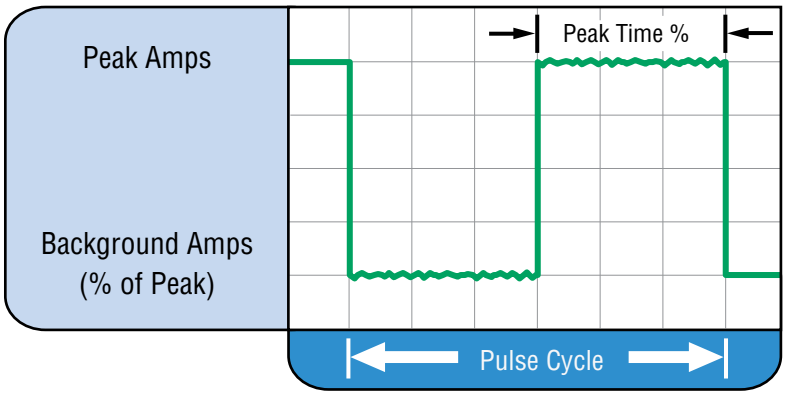
1. Arc Time 0.0–9,999 hours
   0.0–59 minutes
   0–999,999 cycles
   Resettable
2. Error Log = Error event recorder
3. Stick Stuck = OFF/ON
4. OCV = LOW/NORM
5. Weld Timers = OFF/ON
6. Cooler Power = AUTO/ON/OFF
7. Locks = OFF/1–4
8. Meter Display
9. External Pulse Control = OFF/ON
10. Machine Reset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

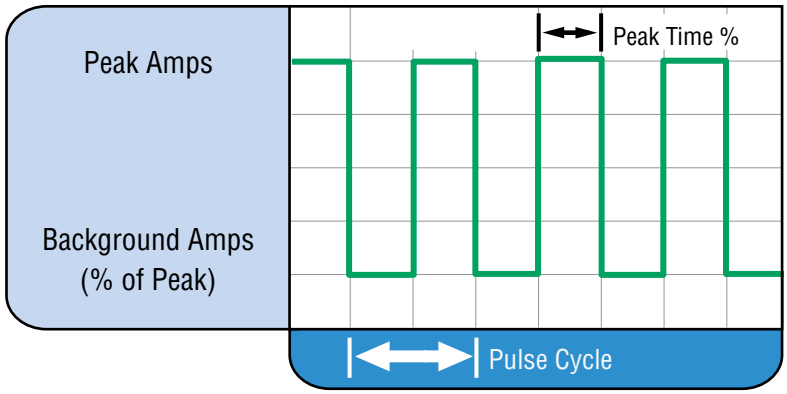
- **Pulses per second (pps) (Hz):** DC = 0.1–5,000 pps
- **% ON – % Peak Time:** 5–95% (Controls the amount of time during each pulse cycle at the PEAK amperage.)
- **Background Amps:** 5–95% (Sets the low-pulse amperage value as a % of the Peak Amps.)

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/Cooler/Cart)		Complete Package (Machine/Cooler/Cart/Torch Kit/Remote)	
Maxstar 400	**907716**	**Maxstar 400**	**907716001**	**Maxstar 400 with Foot Control**	**951000007**
Maxstar 400, CE	**907716002**	Maxstar 400 TIGRunner comes with: • 8 ft. power cord (no plug) • Coolmate™ 3.5 • Runner™ cart		**Maxstar 400 with Wireless Foot Control**	**951874**
Maxstar 400 comes with: • 8 ft. power cord (no plug) • Two 50 mm Dinse-style connectors				Complete package comes with: • Maxstar 400 (907716) • 8 ft. power cord (no plug) • Coolmate™ 3.5 • Coolant (4 one-gallon bottles) • Runner™ cart • W-375 torch kit (see page 6 for contents) • RFCS-14 HD foot control **OR** wireless foot control	
Maxstar 800	**907718**				
Maxstar 800, CE	**907718002**				
Maxstar 800 comes with: • Two thread-lock connectors • One thread-lock water-cooled connector					

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**	**301589**	**W-280 Kit**	**300990**
(to create the Maxstar 800 TIGRunner add Coolmate 3.5 [300245] and Runner cart [300244])		**RCC-14 E/W Fingertip**	**151086**	**W-375 Kit (recommended for 400 model)**	**301268**
&		**RCCS-14 N/S Fingertip**	**043688**	**W-400 (WP-18SC) Kit (recommended for 800 model)**	**300186**
Low-Conductivity Coolant (must be ordered in quantities of four)	**043810**	**RMS-14 Pushbutton**	**187208**	See page 6 for kit contents.	
		RMLS-14 Momentary/Maintained	**129337**		
		RHC-14 Hand	**242211020**		
		Wireless Hand	**301582**		
		See page 7 for remote descriptions.			

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

Must be ordered in quantities of four. One-gallon recyclable plastic bottle. 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)

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.

QUIETPULSE™

301790 QuietPulse™ expansion
For machines manufactured prior to serial number ND040985L. Adds QuietPulse feature.

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.

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.

RFCS-14 HD Foot Control 301589
Heavy-duty foot pedal current and contactor control provides increased stability and durability from larger base and heavier cord. Includes 20-foot (6 m) cord with 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.

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.

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.

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.

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.

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.

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)

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** **907716002**	Auto-Line™ 208–575 V, 50/60 Hz. 8 ft. power cord 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. 8 ft. power cord. *Requires coolant*		
Maxstar® 400 Complete w/Foot	**951000007**	Auto-Line™ 208–575 V, 50/60 Hz. 8 ft. power cord		
Maxstar® 400 Complete w/Wireless Foot	**951874**	Auto-Line™ 208–575 V, 50/60 Hz. 8 ft. power cord		
Maxstar® 800	**907718** **907718002**	Auto-Line™ 208–575 V, 50/60 Hz Auto-Line™ 380–575 V, 50/60 Hz, **CE**		
TIG Torch 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		
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		
TIG Gloves		See page 7		
Memory Cards	**301151** **301152** **301790** **301080**	14-Pin automation expansion 14-Pin Modbus® expansion QuietPulse™ expansion Blank		
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		
Remote Controls				
Wireless Remote Foot Control	**301580**	Foot control with wireless 90 ft. (27.4 m) operating range		
RFCS-14 HD	**301589**	Heavy-duty foot control		
RCC-14	**151086**	East/west fingertip control		
RCCS-14	**043688**	North/south fingertip control		
RMS-14	**187208**	Momentary rubber dome switch		
RMLS-14	**129337**	Momentary/maintained rocker switch		
RHC-14	**242211020**	Hand control		
Wireless Remote Hand Control	**301582**	Hand control with wireless 300 ft. (91.4 m) operating range		
Extension Cables		See page 7		
Educational Materials		See page 7		

Date: **Total Quoted Price:**

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The Power of Blue®