

Dynasty® 400

TIG/Stick Welding Power Source  

Quick Specs



Industrial Applications

Precision fabrication
Heavy fabrication
Pipe and tube fabrication
Aerospace
Aluminum ship repair
Anodized aluminum 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.

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 AC or 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.

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.



Dynasty 400 machine only

Dynasty 400 Wireless Complete




AC TIG Features


Independent amplitude/amperage control allows EP and EN amperages to be set independently to precisely control heat input to the work and electrode.


Balance control provides adjustable oxide removal which is essential for creating the highest quality aluminum welds. These models provide extended ranges.


Frequency controls the width of the arc cone and can improve directional control of the arc.

AC Waveforms

 **Advanced squarewave**, fast freezing puddle, deep penetration and fast travel speeds.

 **Soft squarewave** for a soft buttery arc with maximum puddle control and good wetting action.

 **Sine wave** for customers that like a traditional arc. Quiet with good wetting.

 **Triangular wave** reduces the heat input and is good on thin aluminum. Fast travel speeds.

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.

AC/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.

AC frequency control adds additional stability when stick welding in AC for smoother welds.



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



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An ITW Welding Company
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Appleton, WI 54912-1079 USA

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Phone: 866-931-9730
FAX: 800-637-2315
International Phone: 920-735-4554
International FAX: 920-735-4125

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			
Dynasty 400	3-phase	3–400 A	250 A at 30 V, 100% duty cycle	28	26	14	13	10	10.3	9.8	75 VDC (10–15 VDC*) with TIGRunner® 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	36	33	19	16	13	13.1	12.5			
	1-phase	3–400 A	200 A at 27.2 V, 100% duty cycle	39	35	19	17	13	8.2	7.5			
			250 A at 29 V, 60% duty cycle	52	47	26	22	17	10.9	9.9			

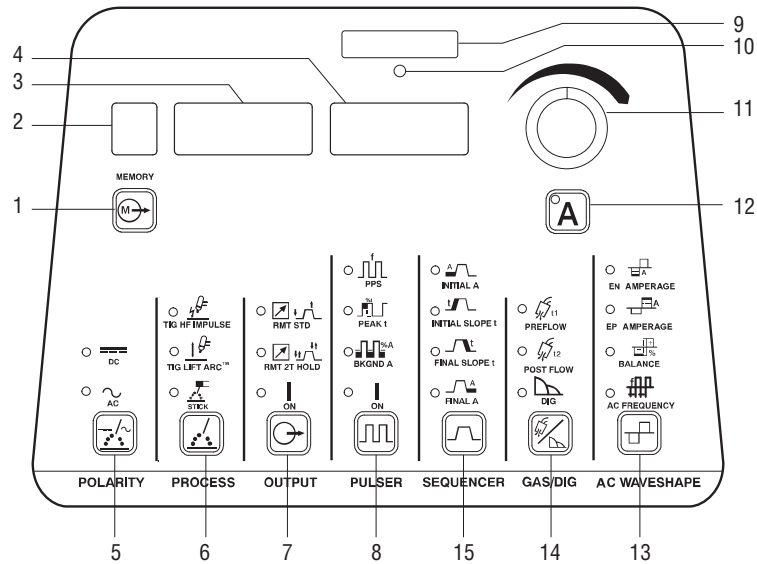
Certified by Canadian Standards Association to both the Canadian and U.S. Standards. All CE models conform to the applicable parts of the IEC 60974 series of standards.

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

Performance Data

Model	Input Power	TIG (GTAW) Duty Cycle	Stick (SMAW) Duty Cycle	AC TIG Material Thickness Range	DC TIG Material Thickness Range	Stick Electrode Maximum Diameter	Carbon Arc Gouging (CAC-A) Maximum	Generator Requirement
Dynasty 400	3-phase	400 A, 20% 300 A, 60% 250 A, 100%	400 A, 20% 300 A, 60% 250 A, 100%	.015–5/8 in. (0.38–15.9 mm)	.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%					

Dynasty[®] 400 Control Panel



- 1. Memory Switch** 36 Combinations
 (9 AC TIG)
 (9 AC stick)
 (9 DC TIG)
 (9 DC stick)

- 2. Memory Display**
3. Voltmeter Display
4. Ammeter Display

- 5. Polarity** AC/DC

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

- 7. Output Control** Standard remote,
 2T trigger hold,
 Output on

- 8. Pulser Control**
 Pulses per Second* DC: 0.1–5,000 PPS
 AC: 0.1–500 PPS
 Peak Time* 5–95%
 Background Amps* 5–95%

*Pro-Set parameter selectable.

- 9. Memory Card Port**

- 10. Activity Indicator**

- 11. Encoder Control**

- 12. Amperage Button**

- 13. AC Waveshape**
 EN Amperage 3–400 A
 EP Amperage 3–400 A
 Balance* 50–99% EN
 Frequency* 20–400 Hz

- 14. Gas/DIG**
 Prewflow 0.0–25.0 seconds
 Postflow Auto/Off–50 seconds
 DIG* Off–100%

- 15. 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

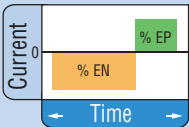
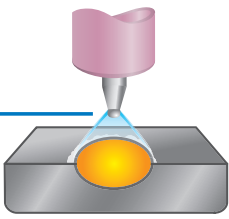
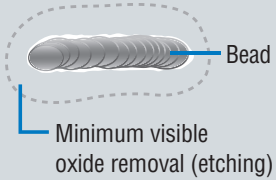
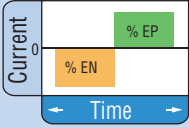
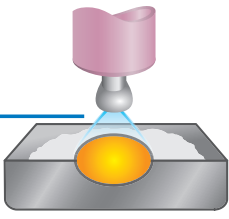
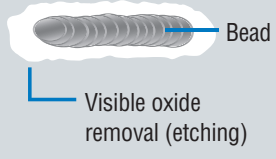
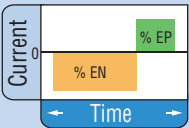
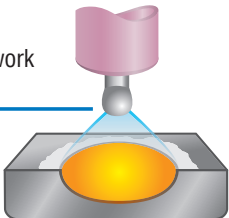
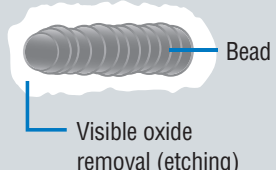
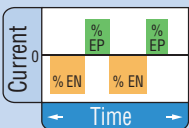
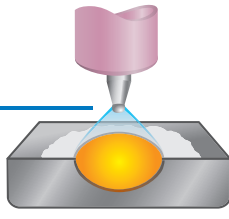
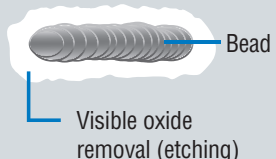
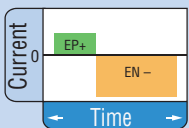
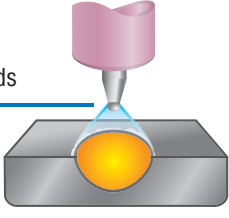
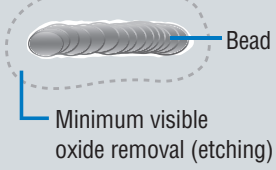
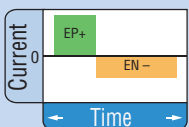
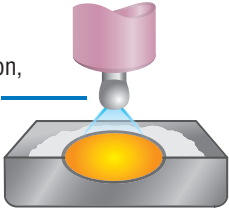
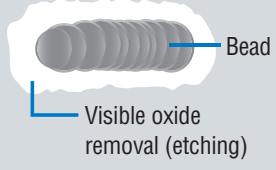
User Menu (Press Gas and Amperage buttons.)

- Tungsten Size 400 = .020–3/16 in./GEN or 0.5–4.8 mm
- Remote Trigger = 3T/4T/4TL/4TE/4Tm
- Independent Amplitude = SAME/INDP
- Wave Form = SOFT/ADVS/SINE/TRI
- Commutation Amperage = HIGH/LOW
- Stick Hot Start = ON/OFF

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

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

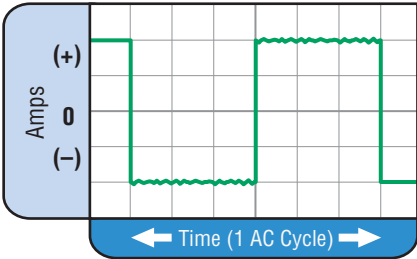
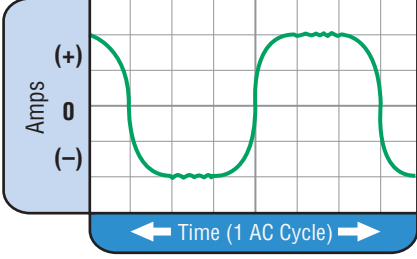
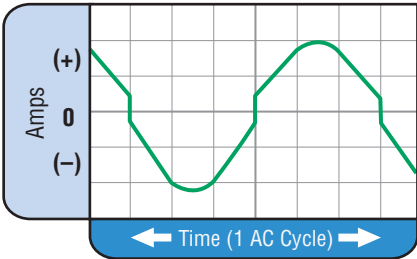
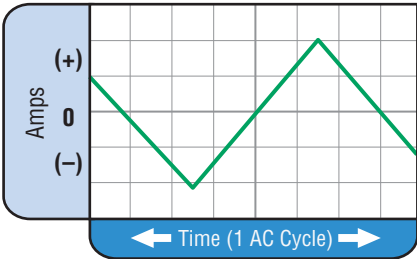
AC Waveshape Controls

Feature	Setting	Arc Effect	Weld Effect
AC Balance Control Controls arc cleaning action. Adjusting the % EN of the AC wave controls the width of the etching zone surrounding the weld. <i>Note: Set the AC Balance control for adequate arc cleaning (etching) action at the sides and in front of the weld puddle. AC Balance should be fine-tuned according to the amount of etching desired.</i>	75% EN 	Reduces balling action and helps maintain point 	 Bead Minimum visible oxide removal (etching)
	50% EN 	Increases balling action of the electrode 	 Bead Visible oxide removal (etching)
AC Frequency Control Controls the width of the arc cone. Increasing the AC Frequency provides a more focused arc and increased directional control. <i>Note: Decreasing the AC Frequency softens the arc and broadens the weld puddle for a wider weld.</i>	60 Hz 	Wider profile ideal for buildup work 	 Bead Visible oxide removal (etching)
	120 Hz 	Narrower profile for fillet welds and automated applications 	 Bead Visible oxide removal (etching)
Independent AC Amperage Control Allows the EN and EP amperage values to be set independently. Adjusts the ratio of EN to EP amperage to precisely control heat input to the work and the electrode. EN amperage controls the amount of heat directed to the work, while EP amperage dramatically affects the arc cleaning action (along with the AC Balance control). Increased EN amperage also provides deeper penetration and allows for increased travel speeds.	100A EP 200A EN 	More current in EN than EP: Faster travel speeds and deeper penetration 	 Bead Minimum visible oxide removal (etching)
	200A EP 100A EN 	More current in EP than EN: Shallow penetration, increased balling and etching 	 Bead Visible oxide removal (etching)

AC Waveshape Controls (Continued)

AC Waveform Selection

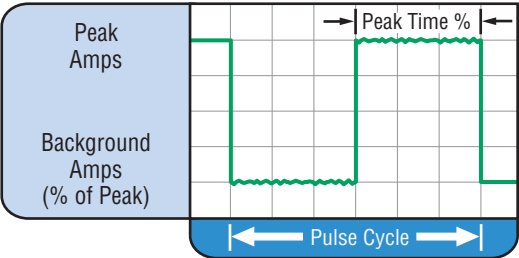
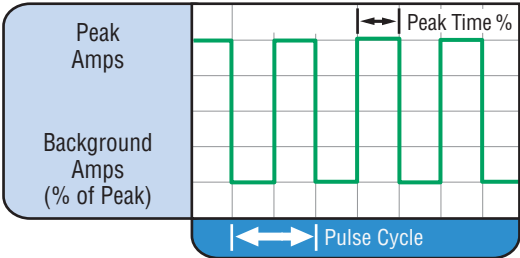
Select from four different AC waveforms to optimize the arc characteristic for your application. Choose from:

Advanced Squarewave	Soft Squarewave
 <p data-bbox="615 401 797 485">Fast transitions for responsive and dynamic arc.</p>	 <p data-bbox="1312 365 1511 548">All the benefits of advanced square, fine tuned to provide a smooth, soft arc with maximum puddle control and good wetting action.</p>
Sinewave	Triangular Wave
 <p data-bbox="615 722 824 856">Square transitions eliminate the need for continuous HF, while the sinewave peaks soften the arc.</p>	 <p data-bbox="1312 693 1536 957">Unconventional wave provides the punch of the peak amperage, while reducing overall heat input. Quick puddle formation reduces weld time — limiting heat input and reducing weld distortion, especially on thin materials.</p>

Pulsed TIG Controls

High-Speed Pulsed TIG Controls

- **PPS Pulses per second (Hz):** DC = 0.1–5,000 PPS / AC = 0.1–500 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	High-Speed Pulsed TIG
 <p data-bbox="180 1640 812 1843">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.</p>	 <p data-bbox="870 1640 1536 1696">In excess of 40 PPS, Pulsed TIG becomes more audible than visible — causing increased puddle agitation for a better as-welded microstructure.</p> <p data-bbox="870 1709 1536 1822">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).</p> <p data-bbox="870 1835 1536 1948">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.</p>

Dynasty® 400 Models/Packages

Machines and Preconfigured Water-Cooled Packages

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



907717 model shown.



907717001 package shown.



951695 package shown.

Machine Only		TIGRunner® Package (Machine/Cart/Cooler)		Complete Package (Machine/Cart/Cooler/Torch Kit/Remote)	
Dynasty 400 (CSA)	907717	Dynasty 400 (CSA)	907717001	Dynasty 400 (CSA) w/Foot Control, W-375	951694
Dynasty 400 (CE)	907717002			Dynasty 400 (CSA) w/Wireless Foot Control, W-375	951695
Comes with:		Comes with:		Comes with:	
<ul style="list-style-type: none"> • 8 ft. power cord (no plug) • Setup DVD and quick reference guide • Two 50-mm Dinse-style connectors 		<ul style="list-style-type: none"> • 8 ft. power cord (no plug) • Setup DVD and quick reference guide • Runner™ cart 300244 • Coolmate™ 3.5 300245 		<ul style="list-style-type: none"> • 8 ft. power cord (no plug) • Setup DVD and quick reference guide • Runner™ cart 300244 • Coolmate™ 3.5 300245 and 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.



907717001 Dynasty 400 TIGRunner® shown with four bottles of 043810 low-conductivity coolant.



194744 remote shown.



301268 kit shown.

Step #1 • Select Dynasty TIGRunner® and Coolant		Step #2 • Select Remote Control		Step #3 • Select Torch Kit	
Dynasty 400 TIGRunner	907717001	Wireless Foot	300429	W-250 Kit	300185
&		RFCS-14 HD Foot	194744	W-280 Kit	300990
Low-Conductivity Coolant	043810	RCC-14 E/W Fingertip	151086	W-375 Kit	301268
(must be ordered in quantities of four)		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		

Genuine Miller® Accessories

Water-Cooled Torch Kits

W-250 Torch Kit 300185

- Weldcraft™ W-250 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-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 Dynasty 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)

Genuine Miller Accessories (Continued)



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.



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.



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.

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 195116 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.

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.



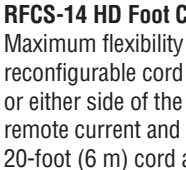
Wireless Remote Hand Control 300430
For remote current and contactor control. Receiver plugs directly into the 14-pin receptacle of Miller machine. 300-foot (91.4 m) operating range.



RCCS-14 Remote Contactor and Current Control 043688
North/south rotary-motion fingertip control attaches to TIG torch using two hook-and-loop fasteners. 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. 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)

TIG Welding Gloves



Performance TIG Gloves
263345 X-Small
263346 Small
263347 Medium
263348 Large
263349 X-Large
Completely unlined, goat grain leather with triple-padded palm.

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
Dynasty® 400	907717	Auto-Line™ 208–575 V, 50/60 Hz, CSA . 8 ft. power cord		
Dynasty® 400 International	907717002	Auto-Line™ 380–575 V, 50/60 Hz, CE . 8 ft. power cord		
Dynasty® 400 TIGRunner®	907717001	Auto-Line™ 208–575 V, 50/60 Hz, CSA . 8 ft. power cord. <i>Requires coolant</i>		
Dynasty® 400 Wireless Complete W-375	951695	Auto-Line™ 208–575 V, 50/60 Hz, CSA . 8 ft. power cord		
Dynasty® 400 Complete W-375	951694	Auto-Line™ 208–575 V, 50/60 Hz, CSA . 8 ft. power cord		
TIG Torches, Kits and Connectors				
Water-Cooled Torch Kits	300185 300990 301268	W-250 W-280 W-375 (recommended for Dynasty 400)		
Water-Cooled TIG Torch Connector	195377	Connects Weldcraft™ water-cooled torches to Dinse-style connector		
Weldcraft™ A-200 (WP-26) TIG Torch	WP-26-25-R	For Dynasty 400 only. 25 ft. (7.6 m) cable. Requires 195379 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 rang		
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	195516	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:

