# **Dynasty 280 Series**

aluminum filler.

### Issued Nov. 2013 • Index No. AD/4.9

TIG/Stick Welding Power Source





### Industrial Applications Precision Fabrication Heavy Fabrication Pipe and Tube Fabrication

Aerospace Aluminum Ship Repair Anodized Aluminum Fabrication Processes AC/DC TIG (GTAW) Pulsed TIG (GTAW-P) Stick (SMAW) Air Carbon Arc (CAC-A)

# Input Power 208–575 V, 3- or 1-Phase Power Amperage Range 1–280 A (DC) 2–280 A (AC)

**Rated Output** 200 A at 28 V, 60% Duty Cycle **Weight** 52 lb. (23.6 kg)

# Upgradeable and expandable.

Front panel memory card data port provides the ability to easily upgrade software and expand product features.

Visit MillerWelds.com/TIGSoftware for the latest software upgrades and expansions.

### Pro-Set<sup>™</sup> feature (professional

settings) eliminates the guesswork when setting weld parameters. Use Pro-Set when you want the speed, convenience and confidence of pre-set controls. Simply select the feature and adjust until Pro-Set appears on the display. The Pro-Set feature is available for Balance, Frequency, Pulse, and DIG parameters.

**Sleep timer** conserves electricity. This programmable feature will power down the machine if it sits idle for a specific time.



Allows 208-575 V input voltage hookups.

# **Cooler Power Supply (CPS).** An integrated 120-volt dedicated-use receptacle to power the Coolmate<sup>™</sup> 1.3. The power switch on the Dynasty also activates the receptacle to help prevent torch failure. Available on select models, see page 6.

**Blue Lightning**<sup>™</sup> high-frequency arc starter for non-contact arc initiation. Provides more consistent arc starts and greater reliability compared to traditional HF arc starters. Easy to set and increases productivity.





**Meter calibration.** Digital meters can be calibrated to a standard device for certification.

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

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



Power source is warranted for 3 years, parts and labor. Original main power rectifier parts are warranted for 5 years.

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

# AC TIG Features

**Extended AC balance** (50–99%) controls the amount of oxide cleaning (amperage time in EN) which is essential for high quality welds on aluminum.

**AC frequency** (20–400 Hz) controls the width of the arc cone and the force of the arc.

# **AC Waveforms**

Advance 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.

# Stick Features (AC/DC)

**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**<sup>™</sup> adaptive control provides positive arc starts without sticking.

AC frequency control adds stability for smoother welds when AC Stick welding.

**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.)



Welding Mode	Input Power	Welding Amperage Range	Rated Output					Output, 575 V	-		Max. Open- Circuit Voltage	Dimensions	Net Weight
TIG (GTAW)	3-Phase	1-280 A (DC) 2-280 A (AC)	235 A at 19.4 V, 60% Duty Cycle	19	17	10	9	7	7.0	6.7	60 VDC (11 VDC**)	H: 13.6 in. (346 mm) W: 8.6 in. (219 mm)	52 lb. (23.6 kg)
	1-Phase	1-280 A (DC) 2-280 A (AC)	235 A at 19.4 V, 60% Duty Cycle	33	30	17	15	12	6.9	6.8		D: 22.5 in. (569 mm)	55 lb. (25 kg)
Stick (SMAW)	3-Phase	5–280 A	200 A at 28 V, 60% Duty Cycle	22	20	11	10	8	8.2	7.9			with CPS
	1-Phase	5–280 A	180 A at 27.2 V, 60% Duty Cycle*	34	31	17	15	12	7.1	7.0			

\* Refer to owner's manual for 208 V output ratings and duty cycle. \*\* Low OCV sense voltage for Stick and Lift-Arc™ TIG.

*IP23 rating* — This equipment is designed for outdoor use. It may be stored, but is not intended to be used outside during precipitation unless sheltered.

Operating temperature range is 14 to 104° F (-10 to 40° C). Storage temperature range is -22 to 149° F (-30 to 65° C). Portions of the preceding text are contained in EN 60974-1: "Welding power sources for arc welding equipment."

🚯 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.

# **Performance Data**

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
3-Phase	280 A, 25% 235 A, 60% 200 A, 100%	280 A, 15% 200 A, 60% 160 A, 100%	.012-3/8 in.	.004–3/8 in.	6010: 1/4 in. 7018: 7/32 in. 7024: 3/16 in.	3/16 in.	12.5 kW
1-Phase*	280 A, 25% 235 A, 60% 200 A, 100%	280 A, 10% 180 A, 60% 160 A, 100%					

\* Refer to owner's manual for 208 V output ratings and duty cycle.

# Coolmate<sup>™</sup> 1.3 Cooler



- Dynasty<sup>®</sup> models with CPS turn Coolmate 1.3 on and off
- · Power indicator light
- Fluid level sight window
- Rustproof polyethylene-molded coolant tank and filler spout
- 1/4-HP motor is thermally protected to guard against overheating
- · Efficient fin and tube heat exchanger
- Factory-set pressure relief valve (55 PSI) maintains consistent pressure during operation
- Filter and coolant filling spout are conveniently located
- Brass-body, positive displacement rotary vane pump provides consistent coolant flow and pressure rating with long pump-life expectancy

Input Power	Maximum Current Draw	Maximum Cooling Capacity	Rated Cooling Capacity	Tank Capacity	Dimensions	Net Weight
115 VAC, 60 Hz	4.7 A (60 Hz)	3400 W (11,600 BTU/hr.) 3.8 qt./min. (1.7 L/min.)	1330 W (4540 BTU/hr.) 1.1 qt./min. (1 L/min.)	1.3 gal. (4.9 L)	H: 11.25 in. (286 mm) W: 10.375 in. (264 mm) D: 24 in. (610 mm)	43 lb. (20 kg)



# Weldcraft° W-280 TIG Torch



- Two-piece torch head and exclusive Super Cool™ Technology provides additional surface area to increase cooling efficiency and capacity
- Torch body includes an anti-rotation feature and multi-position locking to prevent handle movement during welding and improve operator control
- Mechanical fittings provide a secure gas and water connection to prevent leakage and allow easy hose replacement

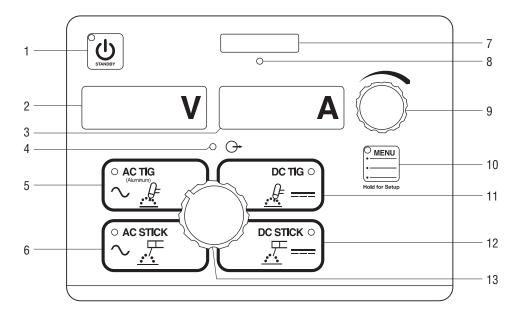
Cooling Method	AC Rating	DC Rating	Consumables	Electrode Range	Cable
Water-cooled	195 A, 100% Duty Cycle	280 A, 100% Duty Cycle	13N	.020-1/8 in. (0.5-3.2 mm)	Three-piece

Conforms to IEC Standard 60974-7.

# **TIG Upgrade Chart**

Why Upgrade?	Syncrowave 250 UPG	RADE	Dynasty 280 UPC	RADE Dynasty 280 DX	Dynasty 280 Benefits
Thickness Capacity	.015–3/8 in. Aluminum .012–3/8 in. Steel	$\rightarrow$		n. Aluminum '8 in. Steel	The Dynasty 280 has a lower bottom end, and can weld thinner metals.
Duty Cycle	200 A, 60%				Weld longer at higher amperages. At 200 A the Dynasty 280 can weld continuously.
High Frequency Arc Starting	Continuous HF	$\rightarrow$	Start	Only HF	HF on Start Only limits HF interference issues during the weld.
Precision Controls	Digital and Dial %		0		Precise adjustments can be made with all-digital controls for greater quality control and repeatability.
Confusion on Where to Set the Controls?	Trial and Error			the guesswork when I parameters.	Select the feature and adjust until Pro-Set appears in display. Pro-Set is available for Balance, Frequency, Pulse and DIG parameters.
AC Frequency Control (Aluminum TIG)	Fixed at 60 Hz	$\rightarrow$	Variable 70–150 Hz 🛛	Variable 20–400 Hz	Higher frequencies provide better arc control and faster travel speeds.
AC Balance Control (Aluminum TIG)	45–68% Electrode Negative	$\rightarrow$	60-80% Electrode Negative	50–99% Electrode Negative	Greater electrode negative helps to produce welds with less etching for more aesthetic looking welds.
AC Waveforms (Aluminum TIG)	Soft Squarewave		Soft Squarewave	Advanced Squarewave Soft Squarewave Sine Wave Triangular Wave	Advanced Squarewave = Travel faster Soft Squarewave = Maximum puddle control Sine Wave = Traditional characteristics Triangular Wave = Reduced heat input
Weld Aluminum with Pointed Tungsten (Aluminum TIG)	<b>N</b>				Extended Frequency and Balance controls permit welding aluminum with pointed tungsten. The benefits are reduced heat input into your part, smaller weld beads, better starting, more control of the arc and faster travel speeds.
Portability	378 lb. (172 kg) Crane or Cart			(23.6 kg) or Cart	Easier to move because of size and weight. Don't have to wait for a crane operator.
Power Flexibility	Manual Link, 208/230/460 V Single-Phase Only	$\rightarrow$		, 208–575 V or Three-Phase	Auto-Line allows the unit to operate on any voltage. Single- or three-phase. Even generators!
Line Draw at 200 Amps	77 A, 230 V, Single-Phase		· · · · ·	Single-Phase , Three-Phase	Line requirement to operate is much less. Smaller electrical service needed, smaller breaker/fuses and power cord.

# **Dynasty<sup>®</sup> 280 Control Panel**



- 1. Standby Switch
- 2. Voltmeter Display
- 3. Ammeter Display
- 4. Output Contactor "On" Indicator
- 5. AC TIG Process Menu Parameters

Amperage	2-280 A**
Balance*	60-80%
Frequency*	70–150 Hz
Postflow	Auto/Off-50 seconds

6. AC Stick Process Menu Parameters Amperage 5-280 A DIG\* Off-100%

- 7. Memory Card Port
- 8. Activity Indicator
- 9. Encoder Control
- **10. Menu Ranges**

### **11. DC TIG Process Menu Parameters**

1-280 A\*\* Amperage Pulse\* Off-250 PPS Postflow Auto/Off-50 seconds

**12. DC Stick Process Menu Parameters** 

5-280 A Amperage DIG\* Off-100%

**13. Process Selector** 

\*Pro-Set parameter selectable. \*\*Amperage range is tungsten size dependent.

# User Menu (Hold Menu button three seconds.)

# AC TIG

- 1. Start = HF/Lift Arc
- 2. Tungsten Size = .020 1/8 in. or .05 3.2 mm 3. Remote Trigger = STD/HOLD/OUTPUT ON

# AC Stick

1. Hot Start = ON/OFF 2. Remote Trigger = OUTPUT ON/STD

# DC TIG

- 1. Start = Lift Arc/HF
- 2. Tungsten Size = .020 1/8 in. or .05 3.2 mm 3. Remote Trigger = STD/HOLD/OUTPUT ON

# **DC Stick**

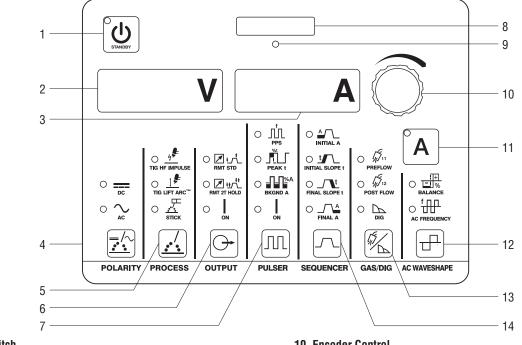
- 1. Hot Start = ON/OFF
- 2. Remote Trigger = OUTPUT ON/STD

# Tech Menu (Hold Menu button five seconds.)

- 1. Arc Time 0.0-9999 hours 0.0-59 minutes 0-999,999 cycles Resettable
- 2. Error Log = Error event recorder
- 3. Sleep Timer = OFF/5/10/15/30/45MIN/1HR
- 4. Stick Stuc = OFF/ON
- 5. OCV = LOW/NORM
- 6. Cooler Power = ON/OFF (only on Dynasty models with CPS )
- 7. Machine Reset
- 8. Software Number
- 9. Serial Number



# **Dynasty 280 DX Control Panel**



- 1. Standby Switch
- 2. Voltmeter Display
- 3. Ammeter Display

4. Polarity	AC/DC
5. Process/	TIG: HF Impulse, Lift-Arc
Arc Starting	STICK: Adaptive Hot Start

- 6. Output Control Standard Remote, 2T Trigger Hold, Output ON
- 7. Pulser Control

Pulses per Second\* DC: 0.1-500 PPS Peak Time\*

- AC: 0.1-500 PPS 5 - 95%Background Amps\* 5–95%
- 8. Memory Card Port
- 9. Activity Indicator

# User Menu (Press Gas and Amperage buttons.)

- 1. Tungsten Size = .020-1/8 in./GEN or .05-3.2 mm
- 2. Remote Trigger = 3T/4T/4TL/4TLE
- 3. Wave Form = SOFT/ADVS/SINE/TRI
- 4. Stick Hot Start = ON/OFF

- **10. Encoder Control**
- 11. Amperage Button
- 12. AC Waveshape
  - Balance\* Frequency\*
- 13. Gas/DIG Preflow

Postflow DIG\*

- 14. Sequencer Control
  - Initial Amps AC: 2-280 A DC: 1-280 A Initial Slope 0.0-25.0 seconds Weld Time 0.0-999 seconds Final Slope 0.0-25.0 seconds Final Amps AC: 2-280 A DC: 1-280 A

50-99% EN

20-400 Hz

Off-100%

0.0-25.0 seconds

Auto/Off-50 seconds

\*Pro-Set parameter selectable.

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

1. Arc Time	0.0–9999 hours
	0.0–59 minutes
	0–999,999 cycles
	Resettable
2. Error Log =	Error event recorder
3. Sleep Timer	r = 0FF/5/10/15/30/45MIN/1HR
4. Stick Stuc =	■ OFF/ON
5. OCV = LOW	/NORM
6. Cooler Pow	er = ON/OFF (only on Dynasty models with CPS )
7. Weld Timer	s = OFF/ON
8. Locks = OF	-/1-4
9. Meter Displ	ay
10. External P	ulse Control = OFF/ON
11. Machine F	leset

- 12. Software Number
- 13. Serial Number





# **Genuine Miller<sup>®</sup> Accessories**



### Small Runner Cart #300 988 Designed for Dynasty or Maxstar 280 with or without a Coolmate 1.3 cooler. Cart features single cylinder rack, foot pedal holder, two cable/ torch holders, and two TIG filler holders.



Coolmate<sup>™</sup> 1.3 #300 972 115 VAC 1.3-gallon cooler designed to cool torches up to 280 amps.



1.3-gallon cooler designed t cool torches up to 280 amps TIG Gloves #249 178 Medium

#249 179 Large #249 180 X-Large Durable goatskin back and palm for extended wear and ultimate dexterity. Flame-

resistant cotton fleece back and padded palm provide excellent protection.

# Memory Card (Blank) #301 080

A blank, commercially available memory card used for transferring software updates and expandable features from your computer to the machine.

### **Memory Card Expansion**

**#301 151** 14-Pin Automation Expansion Provides the ability to access common automation functions through the 14-pin connection.

# **TIG Torches, Kits and Adapters**

Weldcraft<sup>®</sup> Water-Cooled Torch Kits #300 185 250 A, W-250 (WP-20) #300 990 280 A, W-280 (WP-280) (recommended) #300 183 310 A, W-310 (CS310) Kit comes with 25-foot (7.6 m) TIG torch with Dinse adapter, torch cable cover, work clamp with 15-foot (4.6 m) cable, Miller I Smith<sup>®</sup> regulator/flowmeter with gas hose and torch accessory kit (1/16-, 3/32- and 1/8-inch 2% ceriated tungsten, shielding cups, collets and collet bodies).



### Water-Cooled TIG Torch Adapter #195 377 50-mm Dinse

with water return line. For use with all Miller I Weldcraft® water-cooled torches.

# Contractor Kits

**#195 055** 150 A RCCS-14 Fingertip Kit **#195 054** 150 A RFCS-14 HD Foot Pedal Kit All-in-one TIG/Stick welding kit comes with either a RCCS-14 fingertip control **or** RFCS-14 HD foot control, Weldcraft<sup>®</sup> A-150 TIG torch with Dinse adapter, 200-amp Stick electrode holder with 15-foot (4.6 m) cable, 300-amp work clamp with 15-foot (4.6 m) cable, Miller I Smith<sup>®</sup> flow gauge regulator with 12-foot (3.7 m) gas hose, gas hose coupler, AK2C torch accessory kit, and protective carrying case.



Weldcraft® A-200 Torch #WP-26-12-R (12 ft.) #WP-26-25-R (25 ft.) 200-amp air-cooled torch. Torch body gas valve models also available. Note: A-200 (WP-26) torches require #195 379 adapter.



 Air-Cooled Torch Adapters

 #195 379
 A-200 (WP-26)

 #195 378\*
 All others

 50-mm Dinse-style for

one-piece air-cooled torch.

\*A-80 (WP-24) torches require 24-5 adapter.

# **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.



# 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.



### RCC-14 Remote Contactor and Current Control #151 086 14-pin plug

Side-to-side (east/west) rotary-motion fingertip control fastens to TIG torch using two Velcro<sup>®</sup> straps. Includes 26.5-foot (8 m) control cord.



RCCS-14 Remote Contactor and Current Control #043 688 14-pin plug North/south rotary-motion fingertip control fastens to TIG torch using two Velcro® straps. Includes 26.5-foot (8 m) control cord.



# 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.



### 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.



### 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.



**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.

# **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

# DVD Setup Video #251 116

Video topics include Tungsten Selection, Setup Menus, DC Pulse, Sequencer, Balance and Frequency Settings.

# **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® 280	#907 550	Auto-Line™ 208-575 VAC, 50/60 Hz, CSA. 8-ft. primary cord		
Dynasty <sup>®</sup> 280 with CPS	#907 537	Auto-Line <sup>™</sup> 208-575 VAC, 50/60 Hz, CSA. 8-ft. primary cord		
Dynasty <sup>®</sup> 280 DX	#907 551	Auto-Line <sup>™</sup> 208-575 VAC, 50/60 Hz, CSA. 8-ft. primary cord		
Dynasty® 280 DX with CPS	#907 514	Auto-Line <sup>™</sup> 208-575 VAC, 50/60 Hz, <b>CSA.</b> 8-ft. primary cord		
Water-Cooled Packages				
Dynasty <sup>®</sup> 280 (with CPS) TIGRunner	#907 537 002	Auto-Line <sup>™</sup> 208-575 VAC, 50/60 Hz, CSA. 8-ft. primary cord		
		(Torch kit, accessories and coolant sold separately.)		
Dynasty® 280 DX (with CPS) TIGRunner	#907 514 001	Auto-Line <sup>™</sup> 208-575 VAC, 50/60 Hz, <b>CSA.</b> 8-ft. primary cord (Torch kit, accessories and coolant sold separately.)		
Dynasty® 280 (with CPS) Complete w/Foot Control	#951 466	Auto-Line <sup>™</sup> 208-575 VAC, 50/60 Hz, <b>CSA.</b> 8-ft. primary cord		
Dynasty® 280 DX (with CPS) Complete w/Foot Control	#951 468	Auto-Line <sup>™</sup> 208-575 VAC, 50/60 Hz, CSA. 8-ft. primary cord		
Dynasty® 280 DX (with CPS) Complete with Wireless Foot Control	#951 469	Auto-Line <sup>™</sup> 208–575 VAC, 50/60 Hz, <b>CSA.</b> 8-ft. primary cord		
Accessories				
Small Runner Cart	#300 988	See page 7		
Coolmate™ 1.3	#300 972	115 VAC, 60 Hz, <b>CSA</b> . Requires coolant		
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)		
TIG Gloves		See page 7		
Memory Card (Blank)	#301 080			
Memory Card Expansion	#301 151	14-pin automation expansion		
TIG Torches, Kits and Adapters				
Weldcraft® Water-Cooled Torch Kits	#300 185	W-250 (WP-20). See page 7		
	#300 990	W-280 (WP-280) (recommended for Dynasty 280). See page 7		
	#300 183	W-310 (CS310). See page 7		
Water-Cooled TIG Torch Adapter	#195 377	Connects Weldcraft <sup>®</sup> water-cooled torches to Dinse terminal		
Air-Cooled Contractor Kits	#195 055 #195 054	Fingertip. See page 7 Foot pedal. See page 7		
Weldcraft <sup>®</sup> A-150 Air-Cooled Torch	#WP-17-12-R #WP-17-25-R	12-ft. cable. Requires #195 378 adapter 25-ft. cable. Requires #195 378 adapter		
Weldcraft® A-200 A Air-Cooled Torch	#WP-26-12-R	12-ft. cable. Requires #195 379 adapter		
	#WP-26-25-R	25-ft. cable. Requires #195 379 adapter		
Air-Cooled TIG Torch Adapters	#195 379 #195 378	A-200 (WP-26) All other torches. A-80 (WP-24) torches require 24-5 adapter		
Tungsten		See page 7		
Remote Controls				
Wireless Remote Foot Control	#300 429	Foot control with wireless 90-ft. (27.4 m) operating range		
RFCS-14 HD	#194 744	Heavy-duty foot control		
RCC-14	#151 086	Side-to-side (east/west) fingertip control		
RCCS-14	#043 688	North/south fingertip control		
RMS-14	#187 208	Momentary rubber dome switch		
RMLS-14	#129 337	Momentary/maintained rocker switch		
RHC-14	#242 211 020	Hand control		
Wireless Remote Hand Control	#300 430	Hand control with wireless 300-ft. (91.4 m) operating range		
Educational Materials				
Gas Tungsten Arc Welding (TIG) Publication	#250 833	To order, call Miller Literature at 866-931-9732		
DVD Setup Video	#251 116	or visit MillerWelds.com/resources/tools		

Date:

**Total Quoted Price:** 



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