

Maxstar® 280 Series

**TIG/Stick Welding
Power Source**



Quick Specs



Industrial Applications

Precision Fabrication
Petro Chemical
Aerospace
Food/Beverage Industry
Dairy
Shipboard

Processes

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)

Rated Output 200 A at 28 V, 60% Duty Cycle

Weight 47 lb. (21.3 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™ 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™ 1.3. The power switch on the Maxstar also activates the receptacle to help prevent torch failure. Available on select models, see page 6.

Blue Lightning™ 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.



Maxstar 280

Maxstar 280 DX

Meter calibration. Digital meters can be calibrated to a standard device 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 through the machine.

DC TIG Features

Full-featured pulse capabilities of .01–500 PPS.

Exceptionally smooth and precise arc for welding exotic materials.

Stick Features

Dual schedule allows operators to switch welding parameters for specific electrodes without readjusting the machine, minimizing downtime and enhancing quality. Base model only (not DX).

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™ 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.



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



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Specifications (Subject to change without notice.)



Welding Mode	Input Power	Welding Amperage Range	Rated Output	Amps Input at Rated Load Output, 50/60 Hz							Max. Open-Circuit Voltage	Dimensions	Net Weight
TIG (GTAW)	3-Phase	1–280 A	235 A at 19.4 V, 60% Duty Cycle	17	15	9	7	6	6.2	6.0	60 VDC (11 VDC**)	H: 13.6 in. (346 mm) W: 8.6 in. (219 mm) D: 22.5 in. (569 mm)	47 lb. (21.3 kg) 50 lb. (22.7 kg) with CPS
	1-Phase	1–280 A	235 A at 19.4 V, 60% Duty Cycle	28	26	15	13	10	6.0	6.0			
Stick (SMAW)	3-Phase	5–280 A	200 A at 28 V, 60% Duty Cycle	20	18	10	9	7	7.2	7.0			
	1-Phase	5–280 A	180 A at 27.2 V, 60% Duty Cycle*	30	27	15	13	10	6.2	6.2			

* 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	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%	.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™ 1.3 Cooler



- Maxstar® 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

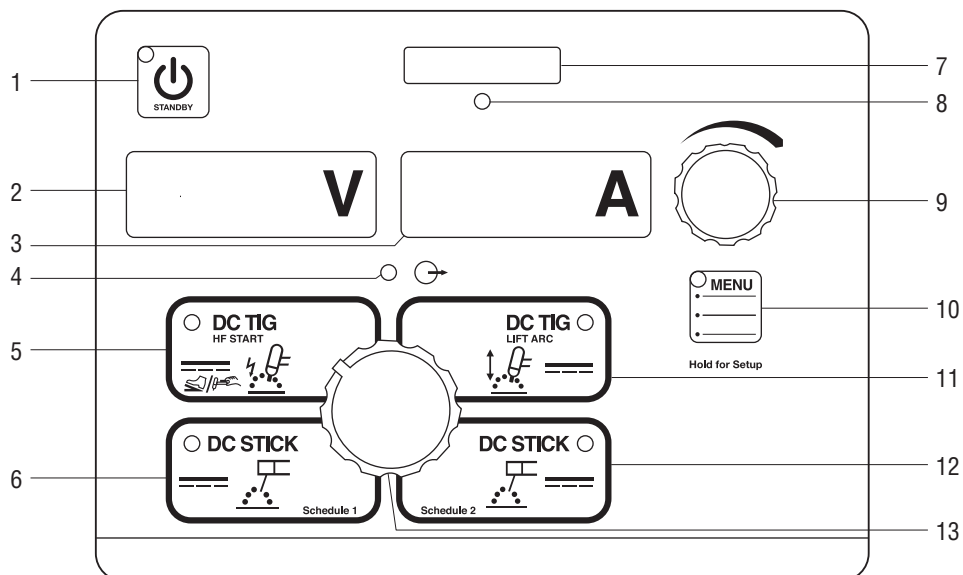
Cooling Method	AC Rating	DC Rating	Consumables	Electrode Range	Cable
Water-cooled	195 A, 100% Duty Cycle	280 A, 100% Duty Cycle	13N	.020–1/8 in. (0.5–3.2 mm)	Three-piece

Conforms to IEC Standard 60974-7.

TIG Upgrade Chart

Why Upgrade?	Syncrowave 250	UPGRADE	Maxstar 280	UPGRADE	Maxstar 280 DX	Maxstar 280 Benefits
Thickness Capacity	.012–3/8 in. Steel	➡	.004–3/8 in. Steel			The Maxstar 280 has a lower bottom end and can weld thinner metals.
Duty Cycle	200 A, 60%	➡	235 A, 60%			Weld longer at higher amperages. At 200 A the Maxstar 280 can weld continuously.
Arc Starting	HF and Lift-Arc™	➡	Blue Lightning™ HF and Lift-Arc™			Blue Lightning arc starting is tailored for each tungsten size to produce perfect starts.
Precision Controls	Digital and Dial %	➡	All Digital			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	➡	Pro-Set™ eliminates the guesswork when setting weld parameters.			Select the feature and adjust until Pro-Set appears in display. Pro-Set is available for Pulse and DIG parameters.
Pulser	Optional Field Kit 0.25–10 PPS	➡	Easy pulse with Pro-Set, .01–250 PPS	➡	Full featured with Pro-Set, .01–500 PPS	Higher speed pulse provides better arc control and faster travel speeds.
Portability	378 lb. (172 kg) Crane or Cart	➡	47 lb. (21.3 kg) Carry 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	➡	Auto-Line™, 208–575 V Single-Phase 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	➡	21 A, 230 V, Single-Phase 13 A, 230 V, Three-Phase			Line requirement to operate is much less. Smaller electrical service needed, smaller breaker/fuses and power cord.

Maxstar® 280 Control Panel



1. Standby Switch

2. Voltmeter Display

3. Ammeter Display

4. Output Contactor "On" Indicator

5. DC TIG (HF Start) Process Menu Parameters

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

6. DC Stick (Schedule 1) 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 (Lift-Arc) Process Menu Parameters

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

12. DC Stick (Schedule 2) Process Menu Parameters

Amperage 5–280 A
DIG* Off–100%

13. Process Selector

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

User Menu (Hold Menu button three seconds.)

DC TIG (HF Start)

1. Tungsten Size = .020–1/8 in. or .05–3.2 mm
2. Remote Trigger = STD/HOLD/OUTPUT ON

DC TIG (Lift-Arc)

1. Tungsten Size = .020–1/8 in. or .05–3.2 mm
2. Remote Trigger = STD/HOLD/OUTPUT ON

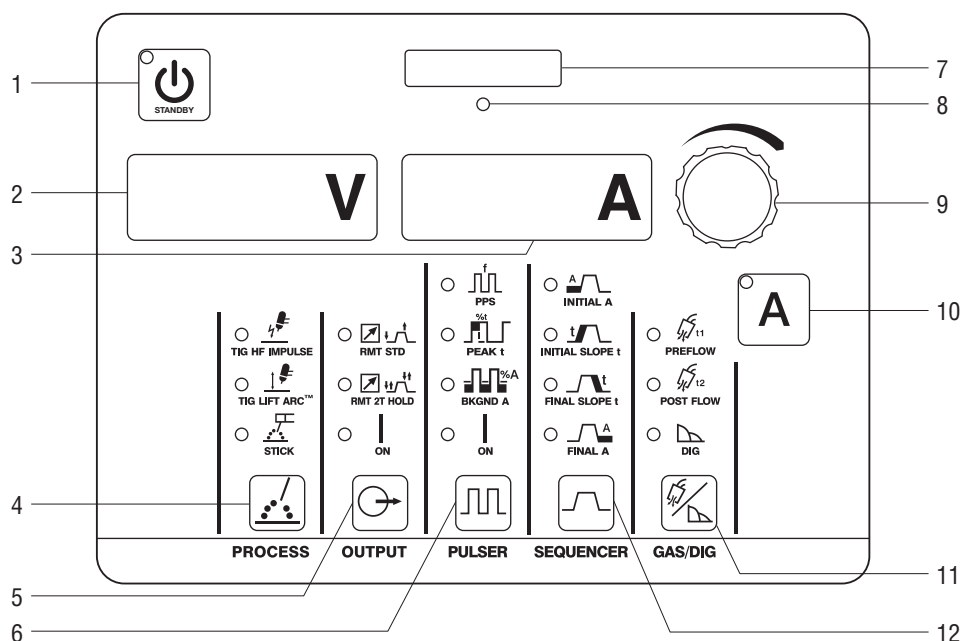
DC Stick (Schedule 1 and 2)

1. Hot Start = ON/OFF
2. Remote Trigger = OUTPUT ON/HOLD/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 Maxstar models with CPS)
7. Machine Reset
8. Software Number
9. Serial Number

Maxstar® 280 DX Control Panel



1. Standby Switch

2. Voltmeter Display

3. Ammeter Display

4. Process/ Arc Starting

TIG: HF Impulse, Lift-Arc
STICK: Adaptive Hot Start

5. Output Control

Standard Remote,
2T Trigger Hold,
Output ON

6. Pulser Control

Pulses per Second* DC: 0.1–500 PPS
Peak Time* 5–95%
Background Amps* 5–95%

7. Memory Card Port

8. Activity Indicator

9. Encoder Control

10. Amperage Button

11. Gas/DIG

Preflow	0.0–25.0 seconds
Postflow	Auto/Off–50 seconds
DIG*	Off–100%

12. Sequencer Control

Initial Amps	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	1–200 A

*Pro-Set parameter selectable.

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. Stick Hot Start = ON/OFF

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 = OFF/5/10/15/30/45MIN/1HR
4. Stick Stuc = OFF/ON
5. OCV = LOW/NORM
6. Cooler Power = ON/OFF (only on Maxstar models with CPS)
7. Weld Timers = OFF/ON
8. Locks = OFF/1–4
9. Meter Display
10. External Pulse Control = OFF/ON
11. Machine Reset
12. Software Number
13. Serial Number

Maxstar® 280 Models/Packages

Build an Air-Cooled Package

Select desired stock number for each step.



#907 552
Maxstar shown.



#195 055
kit shown.

Step #1 • Select Maxstar			Step #2 • Select Contractor Kit	
Maxstar 280	#907 552	Note: For models without the Cooler Power Supply (CPS), the Coolmate 1.3 must be powered through an external 115-volt facility power.	Foot Control Contractor Kit	#195 054
Maxstar 280 with CPS	#907 538		Fingertip Control Contractor Kit	#195 055
Maxstar 280 DX	#907 553			
Maxstar 280 DX with CPS	#907 539			
Maxstar comes with adjustable shoulder strap, 8-ft. primary cord and two Dinse 50-mm connectors.			See page 7 for kit contents.	

Build a Water-Cooled Package

Select desired stock number for each step.



#907 538 002
Maxstar 280
TIGRunner™ shown
with four bottles
of #043 810
Low-Conductivity
Coolant.



#194 744 remote shown.



#300 990 kit shown.

Step #1 • Select Maxstar TIGRunner and Coolant			Step #2 • Select Remote Control		Step #3 • Select Torch Kit	
Maxstar 280 (with CPS) TIGRunner	#907 538 002		Wireless Foot	#300 429	250 A, W-250 (WP-20) Kit	#300 185
Maxstar 280 DX (with CPS) TIGRunner	#907 539 001		RFCS-14 HD Foot	#194 744	280 A, W-280 (WP-280) Kit (recommended)	#300 990
Low-Conductivity Coolant	#043 810		RCC-14 E/W Fingertip	#151 086	310 A, W-310 (CS310) Kit	#300 183
(must be ordered in quantities of 4)			RCCS-14 N/S Fingertip	#043 688		
			RMS-14 Pushbutton	#187 208		
			RMLS-14 Momentary/Maintained	#129 337		
			RHC-14 Hand	#242 211 020		
			Wireless Hand	#300 430		
Maxstar TIGRunner comes with 8-ft. primary cord, two Dinse 50-mm connectors, Coolmate™ 1.3 and small runner cart.			See page 7 for remote descriptions.		See page 7 for kit contents.	

Genuine Miller® 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™ 1.3

#300 972 115 VAC
1.3-gallon cooler designed to 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.

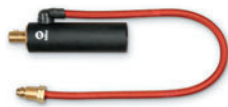
Memory Card Expansion

#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® 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® 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® 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® 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® 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

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
Maxstar® 280	#907 552	Auto-Line™ 208–575 VAC, 50/60 Hz, CSA . 8-ft. primary cord		
Maxstar® 280 with CPS	#907 538	Auto-Line™ 208–575 VAC, 50/60 Hz, CSA . 8-ft. primary cord		
Maxstar® 280 DX	#907 553	Auto-Line™ 208–575 VAC, 50/60 Hz, CSA . 8-ft. primary cord		
Maxstar® 280 DX with CPS	#907 539	Auto-Line™ 208–575 VAC, 50/60 Hz, CSA . 8-ft. primary cord		
Water-Cooled Packages				
Maxstar® 280 (with CPS) TIGRunner	#907 538 002	Auto-Line™ 208–575 VAC, 50/60 Hz, CSA . 8-ft. primary cord (Torch kit, accessories and coolant sold separately.)		
Maxstar® 280 DX (with CPS) TIGRunner	#907 539 001	Auto-Line™ 208–575 VAC, 50/60 Hz, CSA . 8-ft. primary cord (Torch kit, accessories and coolant sold separately.)		
Accessories				
Small Runner Cart	#300 988	See page 7		
Coolmate™ 1.3	#300 972	115 VAC, 60 Hz, CSA . <i>Requires coolant</i>		
TIG Coolant (Must be ordered in quantities of 4)	#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® water-cooled torches to Dinse terminal		
Air-Cooled Contractor Kits	#195 055	Fingertip. See page 7		
	#195 054	Foot pedal. See page 7		
Weldcraft® A-150 Air-Cooled Torch	#WP-17-12-R	12-ft. cable. Requires #195 378 adapter		
	#WP-17-25-R	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	A-200 (WP-26)		
	#195 378	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	<i>To order, call Miller Literature at 866-931-9732</i>		
DVD Setup Video	#251 116	<i>or visit MillerWelds.com/resources/tools</i>		

Date:

Total Quoted Price:

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