

# 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

**Net Weight** 47 lb. (21.3 kg)

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

Visit [MillerWelds.com/TIGSoftware](http://MillerWelds.com/TIGSoftware) for the latest software updates and expansions.

**Pro-Set™** eliminates the guesswork when setting weld parameters. Use Pro-Set when you want the speed, convenience and confidence of preset controls. Simply select the feature and adjust until Pro-Set appears on the display.

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



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.

**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 (HF) arc starter for non-contact arc initiation. Provides more consistent arc starts and greater reliability compared to traditional HF arc starters.



Maxstar 280

Maxstar 280 DX



**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 through the machine.

## DC TIG Features

**Pulse.** Pulsing can increase puddle agitation, arc stability and travel speeds while reducing heat input and distortion. DX models provide extended ranges.

**Exceptionally smooth** and precise arc for welding exotic materials.

## DC 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).

**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.



Power source is warranted for 3 years, parts and labor.



**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

[MillerWelds.com](http://MillerWelds.com)



# 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
				208 V	230 V	400 V	460 V	575 V	KVA	KW			
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 (WP-280) TIG Torch



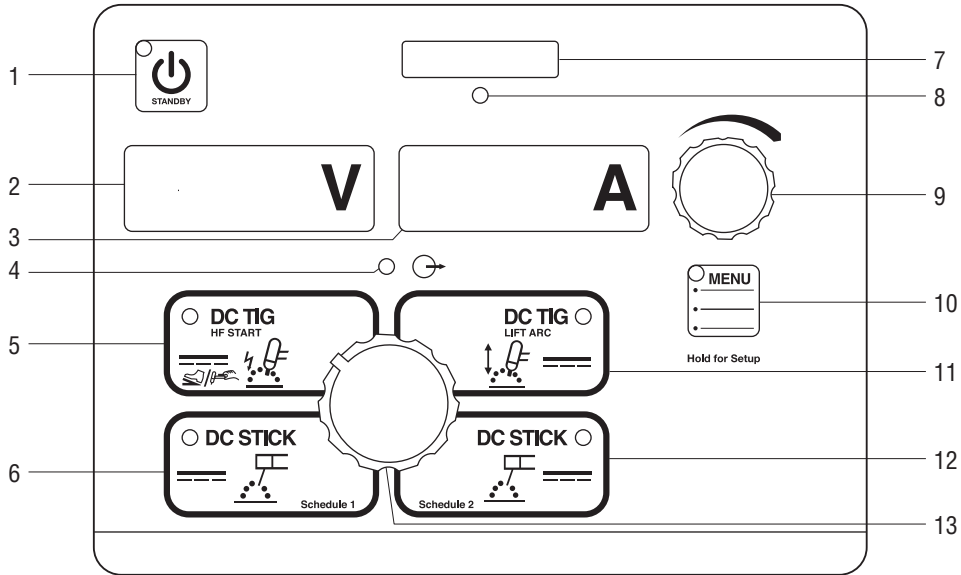
- Two-piece torch head and exclusive Super Cool™ Technology provides additional surface area to increase cooling efficiency and capacity
- Torch body includes an anti-rotation feature and multi-position locking to prevent handle movement during welding and improve operator control
- Secure mechanical fittings and connections minimize leakage

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

## TIG Upgrade Chart

Why Upgrade?	Syncrowave 250	UPGRADE	Maxstar 280	UPGRADE	Maxstar 280 DX	Maxstar 280 Benefits
<b>Thickness Capacity</b>	.012–3/8 in. Steel	➔	.004–3/8 in. Steel			The Maxstar 280 has a lower bottom end and can weld thinner metals.
<b>Duty Cycle</b>	200 A, 60%	➔	235 A, 60%			Weld longer at higher amperages. At 200 A the Maxstar 280 can weld continuously.
<b>Arc Starting</b>	HF and Lift-Arc™	➔	Blue Lightning™ HF and Lift-Arc™			Blue Lightning arc starting is tailored for each tungsten size to produce perfect starts.
<b>Precision Controls</b>	Digital and Dial %	➔	All Digital			Precise adjustments can be made with all-digital controls for greater quality control and repeatability.
<b>Confusion on Where to Set the Controls?</b>	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.
<b>Pulser</b>	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.
<b>Portability</b>	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.
<b>Power Flexibility</b>	Manual Link, 208/230/460 V 1-Phase Only	➔	Auto-Line™, 208–575 V 1-Phase or 3-Phase			Auto-Line allows the unit to operate on any voltage. 1- or 3-phase. Even generators!
<b>Line Draw at 200 Amps</b>	77 A, 230 V, 1-Phase	➔	21 A, 230 V, 1-Phase 13 A, 230 V, 3-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

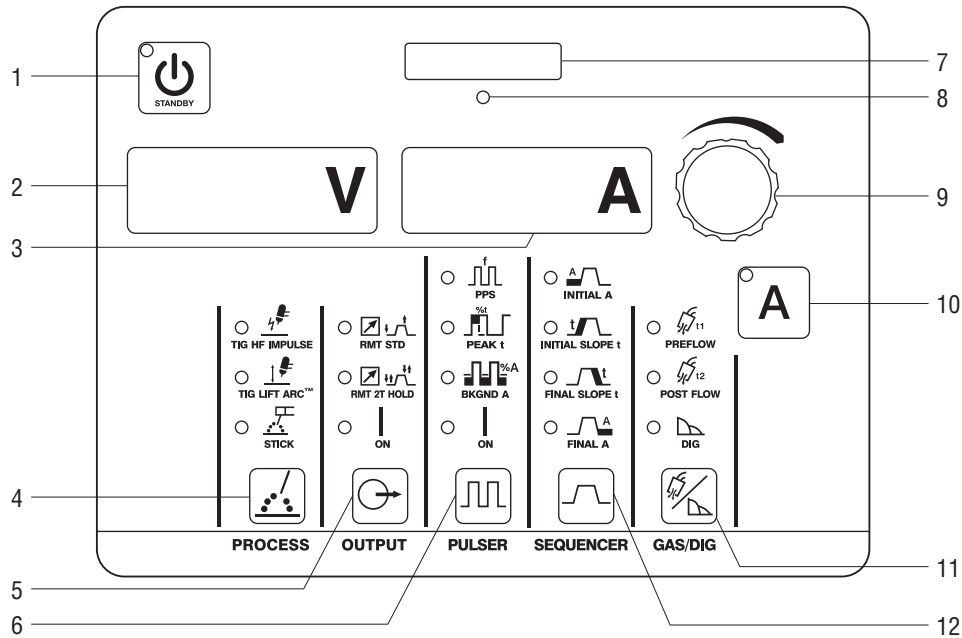
### DC Stick (Schedule 1 and 2)

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 = 1/5/10/15/30/45MIN/1HR
4. Stick Stuc = OFF/ON
5. OCV = LOW/NORM
6. Cooler Power = AUTO/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 = 1/5/10/15/30/45MIN/1HR
4. Stick Stuc = OFF/ON
5. OCV = LOW/NORM
6. Cooler Power = AUTO/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	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		
<i>Note: For models without the Cooler Power Supply (CPS), the Coolmate 1.3 must be powered through an external 120-volt facility power.</i>		See page 7 for kit contents.	
Maxstar comes with adjustable shoulder strap, 8-ft. power cord (no plug) and two 50-mm Dinse-style connectors.			

## 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	W-250 (WP-20) Kit	#300 185
Maxstar 280 DX (with CPS) TIGRunner	#907 539 001	RFCS-14 HD Foot	#194 744	W-280 (WP-280) Kit	
		RCC-14 E/W Fingertip	#151 086	(recommended)	#300 990
Low-Conductivity Coolant	#043 810	RCCS-14 N/S Fingertip	#043 688	W-375 Kit	#301 268
(must be ordered in quantities of 4)		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. power cord (no plug), two 50-mm Dinse-style 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** 120 VAC  
1.3-gallon cooler designed to cool torches up to 280 amps.



**Performance TIG Gloves**  
#263 345 X-Small (Women's)  
#263 346 Small (Women's)  
#263 347 Medium  
#263 348 Large  
#263 349 X-Large

Completely unlined, goat grain leather with triple-padded palm.

### 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.

**#301 152** 14-Pin Modbus® Expansion  
Provides the ability to access basic and advanced functions through the 14-pin connection.

## TIG Torches, Kits and Connectors

### Contractor Kits

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



**Weldcraft™ A-200 (WP-26) TIG 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 connector.*



**Air-Cooled TIG Torch Connectors**  
#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 connector.

### Water-Cooled Torch Kits

#300 185 W-250 (WP-20)  
#300 990 W-280 (WP-280) (recommended)  
#301 268 W-375

Kit comes with Weldcraft™ 25-foot (7.6 m) TIG torch with Dinse-style connector, torch cable cover, work clamp with 15-foot (4.6 m) cable, flowmeter regulator with gas hose and torch accessory kit (1/16-, 3/32- and 1/8-inch 2% ceriated tungsten, nozzles, collets and collet bodies).



**Water-Cooled TIG Torch Connector #195 377**

50-mm Dinse-style with water return line. For use with all Weldcraft™ water-cooled torches.

## 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**

East/west rotary-motion fingertip control attaches to TIG torch using two hook-and-loop fasteners. Includes 26.5-foot (8 m) control cord and 14-pin plug.



**RCCS-14 Remote Contactor and Current Control #043 688**

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.



**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](http://MillerWelds.com/resources/tools).

**Gas Tungsten Arc Welding (TIG) Publication #250 833**

**Setup DVD #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, <b>CSA</b> . 8-ft. power cord		
Maxstar® 280 with CPS	#907 538	Auto-Line™ 208–575 VAC, 50/60 Hz, <b>CSA</b> . 8-ft. power cord		
Maxstar® 280 DX	#907 553	Auto-Line™ 208–575 VAC, 50/60 Hz, <b>CSA</b> . 8-ft. power cord		
Maxstar® 280 DX with CPS	#907 539	Auto-Line™ 208–575 VAC, 50/60 Hz, <b>CSA</b> . 8-ft. power cord		
<b>Water-Cooled Packages</b>				
Maxstar® 280 (with CPS) TIGRunner®	#907 538 002	Auto-Line™ 208–575 VAC, 50/60 Hz, <b>CSA</b> . 8-ft. power 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, <b>CSA</b> . 8-ft. power cord (Torch kit, accessories and coolant sold separately.)		
<b>Accessories</b>				
Small Runner™ Cart	#300 988			
Coolmate™ 1.3	#300 972	120 VAC, 60 Hz, <b>CSA</b> . <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 #301 152	14-pin automation expansion 14-pin Modbus® expansion		
<b>TIG Torches, Kits and Connectors</b>				
Air-Cooled Contractor Kits	#195 055 #195 054	Fingertip Foot pedal		
Weldcraft™ A-150 (WP-17) TIG Torch	#WP-17-12-R #WP-17-25-R	12-ft. (3.7 m) cable. Requires #195 378 connector 25-ft. (7.6 m) cable. Requires #195 378 connector		
Weldcraft™ A-200 (WP-26) TIG Torch	#WP-26-12-R #WP-26-25-R	12-ft. (3.7 m) cable. Requires #195 379 connector 25-ft. (7.6 m) cable. Requires #195 379 connector		
Air-Cooled TIG Torch Connectors	#195 379 #195 378	Connects Weldcraft™ A-200 (WP-26) torch to Dinse-style connector Connects all air-cooled Weldcraft™ torches (except A-200) to Dinse-style connector. A-80 (WP-24) torches require 24-5 connector		
Water-Cooled Torch Kits	#300 185 #300 990 #301 268	W-250 (WP-20) W-280 (WP-280) (recommended for Maxstar 280) W-375		
Water-Cooled TIG Torch Connector	#195 377	Connects Weldcraft™ water-cooled torches to Dinse-style connector		
Tungsten		See page 7		
<b>Remote Controls</b>				
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		
<b>Educational Materials</b>				
Gas Tungsten Arc Welding (TIG) Publication	#250 833			
Setup DVD	#251 116			

Date:

Total Quoted Price:

Distributed by:

