

# 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-phase or 1-phase power

**Amperage Range** 1–280 A (DC)

**Rated Output** 250 A at 20 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.

## 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.

**Cooler Power Supply (CPS)** is an integrated 120-volt dedicated-use receptacle for the Coolmate™ 1.3. Available on select models, see page 6.

**Cooler-On-Demand™** feature operates the auxiliary cooling system only when needed, reducing noise, energy use, and airborne contaminants pulled through the cooler. Available on CPS models only.



Maxstar 280

Maxstar 280 DX



**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.

**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 three years, parts and labor.



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f t y i n



# 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	250 A at 20 V, 60% duty cycle	21	19	11	9	7	7.6	7.3	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	250 A at 20 V, 60% duty cycle	35	32	18	16	13	7.3	7.1			
Stick (SMAW)	3-phase	5–280 A	250 A at 30 V, 60% duty cycle	*	*	14	13	10	9.9	9.6			
	1-phase	5–280 A	180 A at 27.2 V, 60% duty cycle*	32	29	*	*	*	6.7	6.5			

\* Refer to owner's manual for complete ratings. \*\* 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
380–575 V	280 A, 40% 250 A, 60% 200 A, 100%	280 A, 35% 200 A, 60% 160 A, 100%	0.004–3/8 in. (0.1–9.5 mm)	6010: 1/4 in. (6.4 mm) 7018: 7/32 in. (5.6 mm) 7024: 3/16 in. (4.8 mm)	3/16 in. (4.8 mm)	12.5 kW
208–240 V	280 A, 40% 250 A, 60% 200 A, 100%	280 A, 15% 180 A, 60% 160 A, 100%				

## 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 V, 60 Hz	4.7 A (60 Hz)	3,400 W (11,600 Btu/hr.) 3.8 qt./min. (3.6 L/min.)	1,330 W (4,540 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)

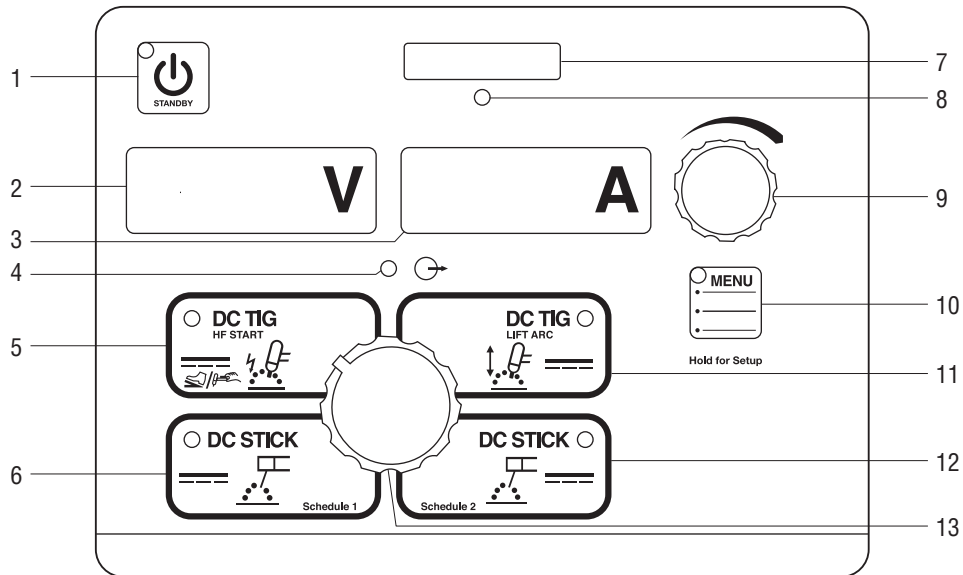
## Weldcraft™ W-280 (WP-280) TIG Torch



- 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

# 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

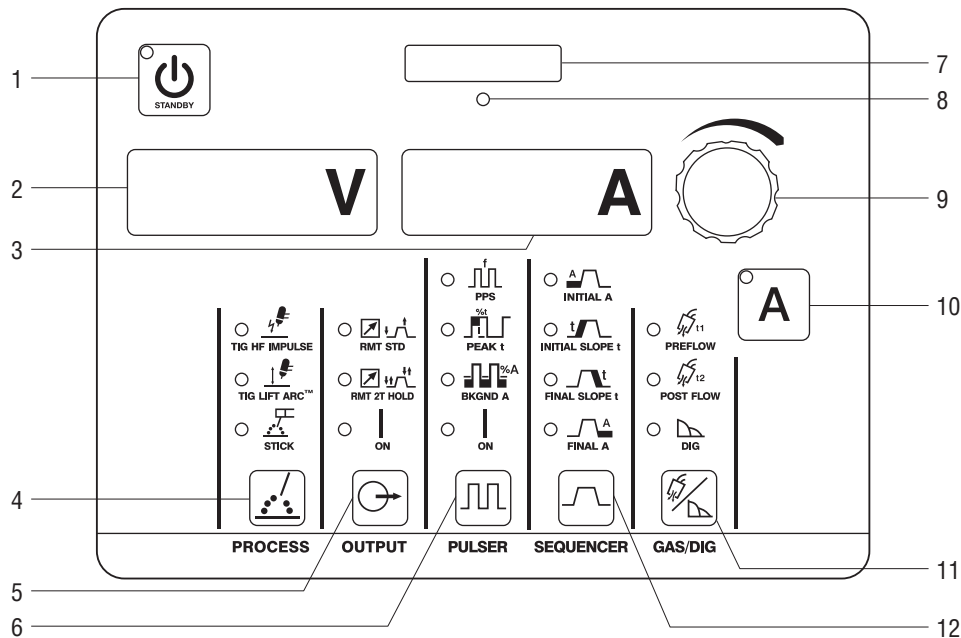
### DC Stick (Schedule 1 and 2)

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

## Tech Menu (Hold Menu button five seconds.)

1. Arc Time 0.0–9,999 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 Time	0.0–25.0 seconds
Initial Slope	0.0–50.0 seconds
Weld Time	0.0–999 seconds
Final Slope	0.0–50.0 seconds
Final Amps	1–200 A
Final Time	0.0–25.0 seconds

\*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/4TE/4Tm
3. Stick Hot Start = ON/OFF

## 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. Sleep Timer = 1/5/10/15/30/45MIN/1HR
4. Stick Stuc = OFF/ON
5. OCV = LOW/NORM
6. Weld Timers = OFF/ON
7. Cooler Power = AUTO/ON/OFF (only on Maxstar models with CPS)
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.



907552  
Maxstar shown.



301311  
kit shown.

Step 1 • Select Maxstar		Step 2 • Select Contractor Kit	
Maxstar 280	907552	A-150 TIG Torch and RFCS-14 HD Foot Control	301309
Maxstar 280 with CPS	907538	A-150 TIG Torch with RCCS-14 Fingertip Control	301311
Maxstar 280 DX	907553	A-200 TIG Torch with RFCS-14 HD Foot Control	301549
Maxstar 280 DX with CPS	907539	A-200 TIG Torch with RCCS-14 Fingertip Control	301550
<p>Note: For models without the Cooler Power Supply (CPS), the Coolmate 1.3 must be powered through an external 120-volt facility power.</p>		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.



907538002  
Maxstar 280  
TIGRunner® shown  
with four bottles  
of 043810  
Low-Conductivity  
Coolant.



301580 remote shown.



300990 kit shown.

Step 1 • Select Maxstar TIGRunner® and Coolant		Step 2 • Select Remote Control		Step 3 • Select Torch Kit	
Maxstar 280 (with CPS) TIGRunner	907538002	Wireless Foot	301580	W-250 Kit	300185
Maxstar 280 DX (with CPS) TIGRunner	907539001	RFCS-14 HD Foot	194744	W-280 Kit	300990
&		RCC-14 E/W Fingertip	151086	(recommended for 280 model)	
Low-Conductivity Coolant	043810	RCCS-14 N/S Fingertip	043688	W-375 Kit	301268
(must be ordered in quantities of 4)		RMS-14 Pushbutton	187208		
		RMLS-14 Momentary/Maintained	129337		
		RHC-14 Hand	242211020		
		Wireless Hand	301582		
Maxstar TIGRunner comes with 8 ft. power cord (no plug), Coolmate™ 1.3 and Small Runner™ cart.		See page 7 for remote descriptions.		See page 7 for kit contents.	

# Genuine Miller® Accessories

## Protective Cover 301382

Fits Dynasty 210/280 and Maxstar 280.



## Small Runner™ Cart 301318

Designed for Dynasty/Maxstar 210 and 280 with or without Coolmate 1.3 cooler. Cart features single-cylinder rack, foot pedal holder, two cable/torch holders, and two TIG filler rod holders.



## Coolmate™ 1.3

300972 120 V

1.3-gallon cooler designed to cool torches up to 280 amps.



## Performance TIG Gloves

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.

## TIG Torches, Kits and Connectors



Contractor kit  
301311 shown.

### Contractor Kits

301309 A-150 with RFCS-14 HD

301311 A-150 with RCCS-14

301549 A-200 with RFCS-14 HD

301550 A-200 with RCCS-14

All-in-one TIG/stick welding kit comes with either a Weldcraft™ A-150 **OR** A-200 TIG torch, RFCS-14 HD foot control **OR** RCCS-14 fingertip control, 200-amp stick electrode holder and 300-amp work clamp with 15-foot (4.6 m) cables, flow gauge regulator with 12-foot (3.7 m) gas hose, gas hose coupler, AK2C torch accessory kit and TIG torch connector.



## 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 195379 connector.



## Weldcraft™ A-250

TIG Torch

301525025 No valve

301526025 With valve

250-amp air-cooled

two-piece torch with

25-foot (7.6 m) cable.

Note: Two-piece torches require connector:

042533 Dinse-style

191981 Tweco-style



## Air-Cooled TIG Torch

Connectors

195379 A-200 (WP-26)

195378\* 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

300185 W-250

300990 W-280 (recommended)

301268 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 AK4GL gas lens torch accessory kit.

Torch kit  
300990 shown.



## Water-Cooled TIG Torch

Connector 195377

50 mm Dinse-style with

water return line. For use with all Weldcraft™ water-cooled torches.

## 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

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.



## 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) control 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. 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.

## 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 250833

## Setup DVD 251116

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	<b>WC116X7</b>	<b>WL2116X7</b>
3/32 in. (2.4 mm)	140–250 A	<b>WC332X7</b>	<b>WL2332X7</b>
1/8 in. (3.2 mm)	225–400 A	<b>WC018X7</b>	<b>WL2018X7</b>
5/32 in. (4.0 mm)	300–500 A	<b>WC532X7</b>	<b>WL2532X7</b>

## Ordering Information

Equipment and Options	Stock No.	Description	Qty.	Price
<b>Maxstar® 280</b>	<b>907552</b>	Auto-Line™ 208–575 V, 50/60 Hz, <b>CSA</b> . 8 ft. power cord		
<b>Maxstar® 280 with CPS</b>	<b>907538</b>	Auto-Line™ 208–575 V, 50/60 Hz, <b>CSA</b> . 8 ft. power cord		
<b>Maxstar® 280 DX</b>	<b>907553</b>	Auto-Line™ 208–575 V, 50/60 Hz, <b>CSA</b> . 8 ft. power cord		
<b>Maxstar® 280 DX with CPS</b>	<b>907539</b>	Auto-Line™ 208–575 V, 50/60 Hz, <b>CSA</b> . 8 ft. power cord		
<b>Maxstar® 280 DX with CPS International</b>	<b>907539002</b>	Auto-Line™ 208–575 V, 50/60 Hz, <b>CE</b> . 8 ft. power cord		
<b>Water-Cooled Packages</b>				
<b>Maxstar® 280 (with CPS) TIGRunner®</b>	<b>907538002</b>	Auto-Line™ 208–575 V, 50/60 Hz, <b>CSA</b> . 8 ft. power cord (Torch kit, accessories and coolant sold separately.)		
<b>Maxstar® 280 DX (with CPS) TIGRunner®</b>	<b>907539001</b>	Auto-Line™ 208–575 V, 50/60 Hz, <b>CSA</b> . 8 ft. power cord (Torch kit, accessories and coolant sold separately.)		
<b>Accessories</b>				
Protective Cover	<b>301382</b>	For Dynasty 210/280 and Maxstar 280		
Small Runner™ Cart	<b>301318</b>	For Dynasty/Maxstar 210 and 280 with or without Coolmate 1.3		
Coolmate™ 1.3	<b>300972</b>	120 V, 60 Hz, <b>CSA</b> . <i>Requires coolant</i>		
TIG Coolant (must be ordered in quantities of 4)	<b>043810</b>	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 Cards		See page 7		
<b>TIG Torches, Kits and Connectors</b>				
Air-Cooled Contractor Kits		See page 7		
Weldcraft™ A-150 (WP-17) TIG Torch	<b>WP-17-12-R</b> <b>WP-17-25-R</b>	12 ft. (3.7 m) cable. Requires <b>195378</b> connector 25 ft. (7.6 m) cable. Requires <b>195378</b> connector		
Weldcraft™ A-200 (WP-26) TIG Torch	<b>WP-26-12-R</b> <b>WP-26-25-R</b>	12 ft. (3.7 m) cable. Requires <b>195379</b> connector 25 ft. (7.6 m) cable. Requires <b>195379</b> connector		
Weldcraft™ A-250 TIG Torch	<b>301525025</b> <b>301525026</b>	No valve. 25 ft. (7.6 m) cable With valve. 25 ft. (7.6 m) cable		
Air-Cooled TIG Torch Connectors	<b>195379</b> <b>195378</b>	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 <b>24-5</b> connector		
Water-Cooled Torch Kits		See page 7		
Water-Cooled TIG Torch Connector	<b>195377</b>	Connects Weldcraft™ water-cooled torches to Dinse-style connector		
Tungsten		See above		
<b>Remote Controls</b>		See page 7		
<b>Educational Materials</b>		See page 7		

Date:

Total Quoted Price:

Distributed by:

