

# 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](http://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.

**Lift-Arc™** starting provides x-ray clean welds in AC or DC arc starting without the use of high frequency.

**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.

**New!**



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
				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	6.0	6.2	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)
	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	7.0	7.2			
	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



- 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)

## 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
- Mechanical fittings provide a secure gas and water connection to prevent leakage and allow easy hose replacement

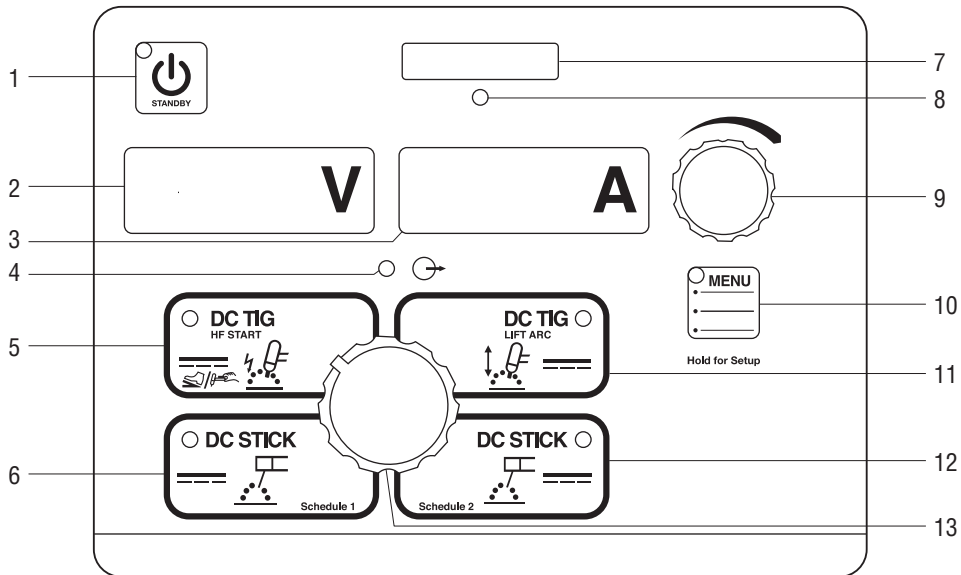
Cooling Method	AC Rating	DC Rating	Consumables	Electrode Range	Cable
Water-cooled	195 A, 100% Duty Cycle	280 A, 100% Duty Cycle	13N	.020–1/8 in. (0.5–3.2 mm)	Three-piece

Conforms to IEC Standard 60974-7.

## TIG Upgrade Chart

Why Upgrade?	Syncrowave 250	UPGRADE	Maxstar 280	UPGRADE	Maxstar 280 DX	Maxstar 280 Benefits
<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 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!
<b>Line Draw at 200 Amps</b>	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

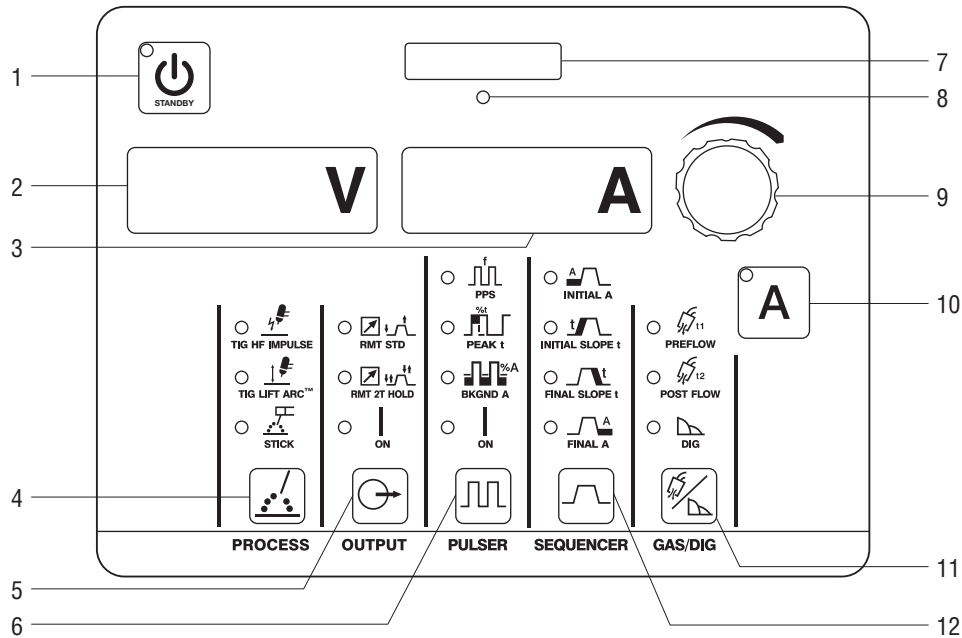
### DC Stick (Schedule 1 and 2)

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. Machine Reset
7. Software Number
8. 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. Weld Timers = OFF/ON
7. Locks = OFF/1–4
8. Meter Display
9. External Pulse Control = OFF/ON
10. Machine Reset
11. Software Number
12. 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 DX	#907 553	Fingertip Control Contractor Kit	#195 055
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.



#907 552 Maxstar shown with Coolmate 1.3, coolant and Small Runner Cart.



#194 744 remote shown.



#300 185 kit shown.

Step #1 • Select Maxstar, Cooler, Coolant and Cart		Step #2 • Select Remote Control		Step #3 • Select Torch Kit	
Maxstar 280	#907 552	Wireless Foot	#300 429	250 A, WP-20 Kit	#300 185
Maxstar 280 DX	#907 553	RFCS-14 HD Foot	#194 744	280 A, WP-280 Kit (recommended)	#300 990
	&	RCC-14 E/W Fingertip	#151 086	300 A, CS310 Kit	#300 183
Coolmate™ 1.3	#300 972	RCCS-14 N/S Fingertip	#043 688		
Low-Conductivity Coolant (4 gal.)	#043 810	RMS-14 Pushbutton	#187 208		
Small Runner Cart	#300 988	RMLS-14 Momentary/Maintained	#129 337		
		RHC-14 Hand	#242 211 020		
		Wireless Hand	#300 430		
Maxstar comes with adjustable shoulder strap, 8-ft. primary cord and two Dinse 50-mm connectors.		See page 7 for remote descriptions.		See page 7 for kit contents.	



## Genuine Miller® Accessories



**Small Runner Cart #300 988**  
Designed to accommodate Dynasty or Maxstar 280 power sources and a Coolmate 1.3 cooler. Cart features single cylinder rack, foot pedal holder, three cable/torch holders, and two TIG electrode 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, WP-20 Kit  
#300 990 280 A, WP-280 Kit (recommended)  
#300 183 300 A, CS310 Kit  
Kit comes with 25-foot (7.6 m) Weldcraft® torch with Dinse adapter, torch cable cover, 15-foot (4.6 m) 1/0 work lead with clamp and Dinse connector, Miller I Smith® regulator/flowmeter with hose (HM2051A-580) and a torch accessory kit (1/16-, 3/32- and 1/8-inch 2% ceriated tungsten, shielding cups, collets and collet bodies).



**Water-Cooled Torch Adapter #195 377**  
Used to adapt a 250- or 350-amp water-cooled torch (WP-20, WP-18, CS310) to a Dinse-style connector.

**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 RFCS-14 HD foot **or** RCCS-14 fingertip control, protective carrying case, Weldcraft® 150-amp WP-17 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, and AK2C torch accessory kit.



**200 Amp Air-Cooled Torch**  
#WP2612RM (12 ft)  
#WP2625RM (25 ft)  
Torch body gas valve models are available.

Note: Adapter #195 379 required for WP26.



**Air-Cooled Torch Adapters**  
#195 378 WP-17, WP-9, WP-50, WP-23  
#195 379 WP-26

Used to adapt a one-piece torch to a 50-mm Dinse-style connector.

### 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 #242 211 020**  
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**

**DVD Setup Video #251 116**  
Video topics include Tungsten Selection, Setup Menu, 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 DX	#907 553	Auto-Line™ 208–575 VAC, 50/60 Hz, CSA. 8-ft. primary cord		
<b>Accessories</b>				
Small Runner Cart	#300 988	See page 7		
Coolmate™ 1.3	#300 972	115 VAC, 60 Hz, CSA. <i>Requires coolant</i>		
TIG Coolant	#043 810	Includes four 1-gallon plastic bottles. 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		
<b>TIG Torches, Kits and Adapters</b>				
Weldcraft® Water-Cooled Torch Kits	#300 185 #300 990 #300 183	250 A, WP-20 Kit. See page 7 280 A, WP-280 Kit (recommended for Maxstar 280). See page 7 300 A, CS310 Kit. See page 7		
Water-Cooled Torch Adapter	#195 377	Connects WP-20, WP-280, WP-18 or CS310 torch to Dinse terminal machine		
Air-Cooled Contractor Kits	#195 054 #195 055	Foot pedal. See page 7 Fingertip. See page 7		
Weldcraft® 150 A Air-Cooled Torch	#WP1712RM #WP1725RM	12-ft. cable. Adapter #195 378 required 25-ft. cable. Adapter #195 378 required		
Weldcraft® 200 A Air-Cooled Torch	#WP2612RM #WP2625RM	12-ft. cable. Adapter #195 379 required 25-ft. cable. Adapter #195 379 required		
Air-Cooled Torch Adapters	#195 378 #195 379	Connects WP-17, WP-9 or WP-23 torch to Dinse terminal machine Connects WP-26 torch to Dinse terminal machine		
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	<i>To order, call Miller Literature at 866-931-9732</i>		
DVD Setup Video	#251 116	<i>or visit <a href="http://MillerWelds.com/resources/tools">MillerWelds.com/resources/tools</a></i>		

Date:

Total Quoted Price:

Distributed by:

