

# Maxstar® 210 Series

Issued Dec. 2016 • Index No. DC/32.1

**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)  
except STR model  
Stick (SMAW)

**Input Power** 120–480 V, 1-phase or 3-phase power

**Amperage Range** 1–210 A (DC)

**Rated Output** 210 A at 18 V, 60% duty cycle

**Net Weight** STR: 36 lb. (16.3 kg)  
Base/DX: 38 lb. (17.2 kg)



Maxstar 210 STR

Maxstar 210

Maxstar 210 DX



**Update and expand.** Front panel memory card data port provides the ability to easily update software and expand product features. See memory cards on page 7. 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 specified time.



Allows for any input voltage hookup (120–480 V) with no manual linking, providing convenience in any job setting. Ideal solution for dirty or unreliable power.

**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. Base and DX models only.

**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.



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

## DC TIG Features

**Pulse.** Pulsing can increase puddle agitation, arc stability and travel speeds while reducing heat input and distortion. Base and DX models only. 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. STR model only.

**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. Base and DX models only.

**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.



**Miller Electric Mfg. Co.**  
An ITW Welding 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**





## Specifications (Subject to change without notice.)



Welding Mode	Input Power	Welding Amperage Range	Rated Output	Phase	Amps Input at Rated Load Output, 50/60 Hz 120 V 208 V 240 V 400 V 480 V KVA KW							Max. Open-Circuit Voltage	Dimensions	Net Weight		
TIG (GTAW)	208–480 V	1–210 A	210 A at 18.4 V, 60% duty cycle	3-phase	—	14	12	7	6	5.2	4.9	80 VDC (11 VDC*)	H: 13.6 in. (346 mm) W: 8.6 in. (219 mm) D: 19.5 in. (495 mm)	STR: 36 lb. (16.3 kg) Base/DX: 38 lb. (17.2 kg)		
				1-phase	—	24	20	12	10	4.9	4.9					
	120 V	1–210 A	125 A at 15 V, 60% duty cycle	1-phase	22	—	—	—	—	2.6	2.6					
Stick (SMAW)	208–480 V	5–210 A	160 A at 26.4 V, 60% duty cycle	3-phase	—	15	13	8	6	5.5	5.2					
				1-phase	—	26	22	13	11	5.3	5.3					
	120 V	5–100 A	90 A at 23.6 V, 60% duty cycle	1-phase	23	—	—	—	—	2.8	2.8					

\* 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.

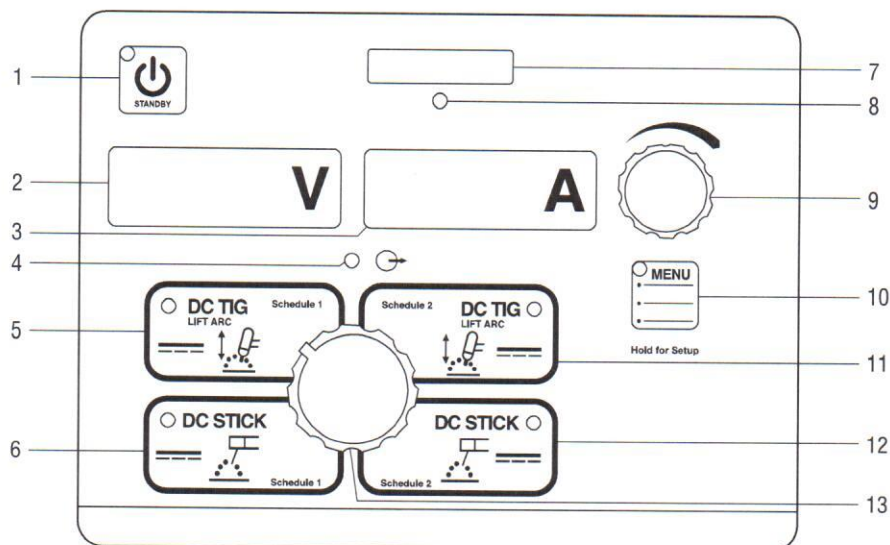
## Performance Data

Input Power	TIG (GTAW) Duty Cycle	Stick (SMAW) Duty Cycle	DC TIG Material Thickness Range	Stick Electrode Maximum Diameter	Generator Requirement
208–480 V	210 A, 60% 175 A, 100%	210 A, 30% 160 A, 60% 125 A, 100%	STR: 0.025–1/4 in. (0.6–6.4 mm) Base/DX: 0.002–1/4 in. (0.05–6.4 mm)	6010: 3/16 in. (4.8 mm) 7018: 5/32 in. (4.0 mm) 7024: 5/32 in. (4.0 mm)	9 kW
120 V	150 A, 40% 125 A, 60% 100 A, 100%	100 A, 40% 90 A, 60% 75 A, 100%			

## TIG Upgrade Chart

Why Upgrade?	Maxstar 210 STR	UPGRADE	Maxstar 210	UPGRADE	Maxstar 210 DX	Upgrade Benefits
Amperage Range	10–210 A	➡	1–210 A		1–210 A	Base and DX models offer wider range and improved low-amperage performance.
Arc Starting	Lift-Arc™ Only	➡	Lift-Arc™ or Blue Lightning™ HF		Lift-Arc™ or Blue Lightning™ HF	Base and DX models provide the ability of non-contact arc starting.
Internal Shielding Gas Valve	No	➡	Yes		Yes	Base and DX models control flow of shielding gas for TIG welding.
Pulser	No	➡	Easy pulse with Pro-Set™, Off–250 PPS	➡	Full featured with Pro-Set™, Off–500 PPS	Higher speed pulse provides better arc control and faster travel speeds.
Sequencer	No		No	➡	Yes	Improves repeatability on similar parts.

## Maxstar® 210 STR Control Panel



1. Standby Switch

2. Voltmeter Display

3. Ammeter Display

4. Output Contactor "On" Indicator

5. DC TIG (Lift-Arc Schedule 1) Process Menu Parameters

Amperage 10–210 A

6. DC Stick (Schedule 1) Process Menu Parameters

Amperage 10–210 A

DIG Off–100%

7. Memory Card Port

8. Activity Indicator

9. Encoder Control

10. Menu Button

11. DC TIG (Lift-Arc Schedule 2) Process Menu Parameters

Amperage 10–210 A

12. DC Stick (Schedule 2) Process Menu Parameters

Amperage 10–210 A

DIG Off–100%

13. Process Selector

### User Menu (Hold Menu button three seconds.)

#### DC TIG (Lift-Arc)

1. Remote Trigger = OUTPUT ON/STD

#### DC Stick (Schedule 1 and 2)

1. Remote Trigger = OUTPUT ON/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

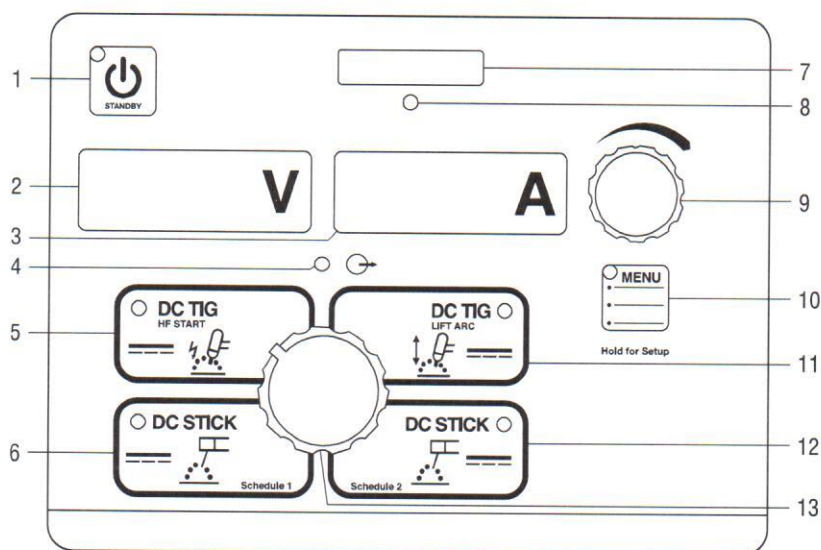
5. OCV = LOW/NORM

6. Machine Reset

7. Software Number

8. Serial Number

## Maxstar® 210 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 1–210 A\*\*  
 Pulse\* Off–250 PPS  
 Postflow Auto/Off–50 seconds

### 6. DC Stick (Schedule 1) Process Menu Parameters

Amperage 5–210 A  
 DIG\* Off–100%

### 7. Memory Card Port

### 8. Activity Indicator

### 9. Encoder Control

### 10. Menu Button

### 11. DC TIG (Lift-Arc) Process Menu Parameters

Amperage 1–210 A\*\*  
 Pulse\* Off–250 PPS  
 Postflow Auto/Off–50 seconds

### 12. DC Stick (Schedule 2) Process Menu Parameters

Amperage 5–210 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)

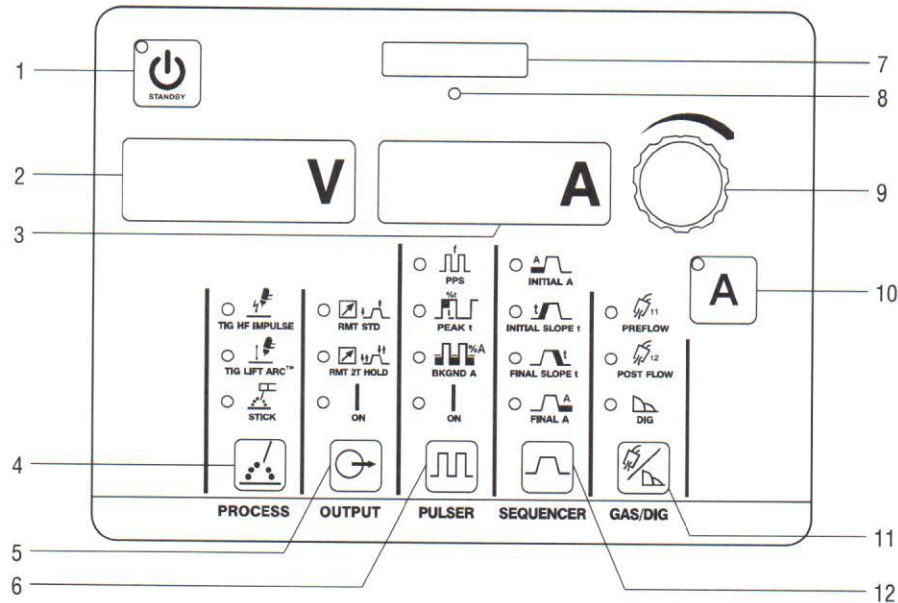
1. Hot Start = ON/OFF
2. Remote Trigger = OUTPUT ON/STD

## 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. Machine Reset
7. Software Number
8. Serial Number



## Maxstar® 210 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

TIG	1–210 A**
Stick	5–210 A

- 11. Gas/DIG

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

- 12. Sequencer Control

Initial Amps	1–210 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	1–210 A**
Final Time	0.0–25.0 seconds

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

### User Menu (Press Gas and Amperage buttons.)

- 1. Tungsten Size = .020–1/8 in./GEN or .05–3.2 mm
- 2. Remote Trigger = 2T/3T/4T/4TL/4TE/4Tm
- 3. Stick Hot Start = ON/OFF

### Tech Menu (Hold Gas and Amperage buttons three 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. Locks = OFF/1–4
- 8. Meter Display
- 9. External Pulse Control = OFF/ON
- 10. Machine Reset
- 11. Software Number
- 12. Serial Number

## Maxstar® 210 Models/Packages

### Build an Air-Cooled Package

Select desired stock number for each step.



907683  
Maxstar 210 shown.



301311  
Contractor Kit shown.

#### Step #1 • Select Maxstar

##### Select One

Maxstar 210 STR	907682
Maxstar 210	907683
Maxstar 210 DX	907684

Maxstar comes with adjustable shoulder strap, 8 ft. power cord (no plug) and two 50 mm Dinse-style connectors.

#### Step #2 • Select Cable Set/TIG Torch/Regulator OR Contractor Kit

##### For Maxstar 210 STR Only — Select All (Cable Set/TIG Torch/Regulator)

No. 2 Stick Cable Set	195196
Weldcraft A-150V (WP-17) TIG Torch	WP-17V-25-2
Flow Gauge Argon Regulator	31-50-580

##### For Maxstar 210 OR 210 DX — Select One

Foot Control Contractor Kit	301309
Fingertip Control Contractor Kit	301311

See page 7 for descriptions and kit contents.

### Build a Water-Cooled Package

Select desired stock number for each step.



907683 Maxstar  
210 shown with  
301318 Small  
Runner Cart and  
Coolant System.



300429 remote shown.



300185 kit shown.

#### Step #1 • Select Maxstar/Cart/Coolant System

##### Select One

Maxstar 210	907683
Maxstar 210 DX	907684

##### Select One

2-Wheel Trolley Cart	300971
Small Runner Cart	301318

##### Select All (Coolmate/Bracket/Coolant)

Coolmate™ 1.3	300972
Mounting Bracket for Maxstar 210 (required for mounting to Coolmate 1.3)	301312
Low-Conductivity Coolant (must be ordered in quantities of 4)	043810

Maxstar comes with adjustable shoulder strap, 8 ft. power cord (no plug) and two 50 mm Dinse-style connectors.

#### Step #2 • Select Remote Control

##### Select One

Wireless Foot (recommended)	300429
RFCS-14 HD Foot	194744
RCC-14 E/W Fingertip	151086
RCCS-14 N/S Fingertip	043688
RMS-14 Pushbutton	187208
RMLS-14 Momentary/Maintained	129337
RHC-14 Hand	24221020
Wireless Hand	300430

See page 7 for remote descriptions.

#### Step #3 • Select Torch Kit

##### Select One

W-250 Kit	300185
(recommended for 210 model)	
W-280 Kit	300990

See page 7 for kit contents.



## Genuine Miller® Accessories

### Protective Cover 301381

Fits Maxstar 210 only.



### 2-Wheel Trolley Cart 300971

Easy-to-maneuver two-wheel cart features single-cylinder rack, chain for cylinder, cable holders, torch holder, storage area, and filler rod storage area. Works with Dynasty®/Maxstar® 210 and 280 with Coolmate 1.3

cooler. Straps also included for mounting Dynasty/Maxstar 200 with Coolmate 1 cooler.



### 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.

*Note: Requires 301312 Mounting Bracket to mount to Maxstar 210.*



### Performance TIG Gloves

263345 X-Small

263346 Small

263347 Medium

263348 Large

263349 X-Large

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



### No. 2 Stick Cable Set 195196

Consists of 15-foot electrode cable with holder and work cable with clamp. 200 A, 100% duty cycle.

## 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 Kits

301309 150 A RFCS-14 HD Foot Pedal Kit

301311 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 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-150 (WP-17) 150-Amp Air-Cooled TIG Torches

**One-Piece Cable**

WP-17-12-R (12 ft.)

WP-17-25-R (25 ft.)

*Note: A-150 (WP-17) one-piece torches require 195378 connector.*

### Two-Piece Cable and Valve

WP-17V-12-2 (12 ft.)

WP-17V-25-2 (25 ft.)



### Weldcraft™ A-200 (WP-26) 200-Amp Air-Cooled TIG Torches

**One-Piece Cable**

WP-26-12-R (12 ft.)

WP-26-25-R (25 ft.)

*Note: A-200 (WP-26) one-piece torches require 195379 connector.*

### Two-Piece Cable and Valve

WP-26V-12-2 (12 ft.)

WP-26V-25-2 (25 ft.)

### Air-Cooled TIG Torch Connectors

195378\* All air-cooled torches (except A-200)

195379 A-200 (WP-26)

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 (recommended)

300990 W-280

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).

## Remote Controls and Switches

### Wireless Remote Foot Control 300429

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) 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 300430

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	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
<b>Maxstar® 210 STR</b>	<b>907682</b>	Auto-Line™ 120–480 V, 50/60 Hz, <b>CSA</b> . 8 ft. power cord		
<b>Maxstar® 210</b>	<b>907683</b>	Auto-Line™ 120–480 V, 50/60 Hz, <b>CSA</b> . 8 ft. power cord		
<b>Maxstar® 210 DX</b>	<b>907684</b>	Auto-Line™ 120–480 V, 50/60 Hz, <b>CSA</b> . 8 ft. power cord		
<b>Maxstar® 210 DX International</b>	<b>907684001</b>	Auto-Line™ 120–480 V, 50/60 Hz, <b>CE</b> . 8 ft. power cord		
<b>Accessories</b>				
Protective Cover	<b>301381</b>	For Maxstar 210 only		
2-Wheel Trolley Cart	<b>300971</b>	See page 7		
Small Runner™ Cart	<b>301318</b>	See page 7		
Coolmate™ 1.3	<b>300972</b>	120 V, 60 Hz, <b>CSA</b> . <i>Requires coolant</i>		
Maxstar Mounting Bracket	<b>301312</b>	Required for mounting the Maxstar 210 to the Coolmate 1.3		
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		
No. 2 Stick Cable Set	<b>195196</b>	See page 7		
Memory Cards		See page 7		
<b>TIG Torches, Kits and Connectors</b>				
Air-Cooled Contractor Kits	<b>301309</b> <b>301311</b>	Foot pedal Fingertip		
Weldcraft™ A-150 (WP-17) TIG Torch	<b>WP-17-12-R</b> <b>WP-17-25-R</b> <b>WP-17V-12-2</b> <b>WP-17V-25-2</b>	12 ft. (3.7 m) 1-piece cable. Requires <b>195378</b> connector 25 ft. (7.6 m) 1-piece cable. Requires <b>195378</b> connector 12 ft. (3.7 m) 2-piece cable and valve 25 ft. (3.7 m) 2-piece cable and valve		
Weldcraft™ A-200 (WP-26) TIG Torch	<b>WP-26-12-R</b> <b>WP-26-25-R</b> <b>WP-26V-12-2</b> <b>WP-26V-25-2</b>	12 ft. (3.7 m) 1-piece cable. Requires <b>195379</b> connector 25 ft. (7.6 m) 1-piece cable. Requires <b>195379</b> connector 12 ft. (3.7 m) 2-piece cable and valve 25 ft. (7.6 m) 2-piece cable and valve		
Air-Cooled TIG Torch Connectors	<b>195378</b> <b>195379</b>	Connects all air-cooled Weldcraft™ torches (except A-200) to Dinse-style connector. A-80 (WP-24) torches require <b>24-5</b> connector Connects Weldcraft™ A-200 (WP-26) torch to Dinse-style connector		
Water-Cooled Torch Kits	<b>300185</b> <b>300990</b>	W-250 (recommended for Maxstar 210) W-280		
Tungsten		See above		
<b>Remote Controls</b>				
Wireless Remote Foot Control	<b>300429</b>	Foot control with wireless 90 ft. (27.4 m) operating range		
RFCS-14 HD	<b>194744</b>	Heavy-duty foot control		
RCC-14	<b>151086</b>	Side-to-side (east/west) fingertip control		
RCCS-14	<b>043688</b>	North/south fingertip control		
RMS-14	<b>187208</b>	Momentary rubber dome switch		
RMLS-14	<b>129337</b>	Momentary/maintained rocker switch		
RHC-14	<b>242211020</b>	Hand control		
Wireless Remote Hand Control	<b>300430</b>	Hand control with wireless 300 ft. (91.4 m) operating range		
<b>Educational Materials</b>				
Gas Tungsten Arc Welding (TIG) Publication	<b>250833</b>			
Setup DVD	<b>251116</b>			

Date:

Total Quoted Price:

Distributed by:

