

Maxstar® 210 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)
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

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.

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 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.



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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						Max. Open-Circuit Voltage	Dimensions	Net Weight
					120 V	208 V	240 V	400 V	480 V	KVA			
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)
	120 V	1–210 A	125 A at 15 V, 60% duty cycle	1-phase	—	24	20	12	10	4.9	4.9		
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.

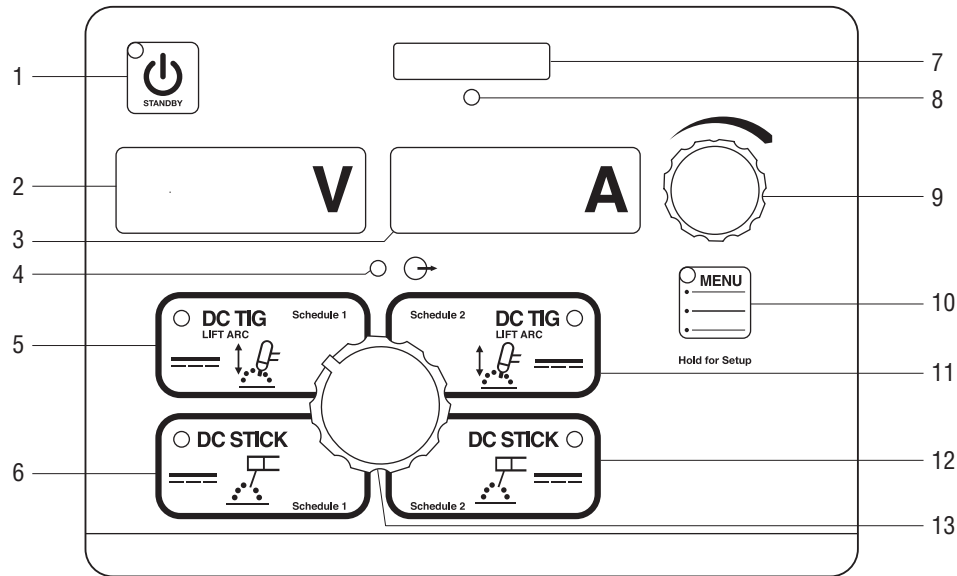
Performance Data

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.
Pulsar	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)

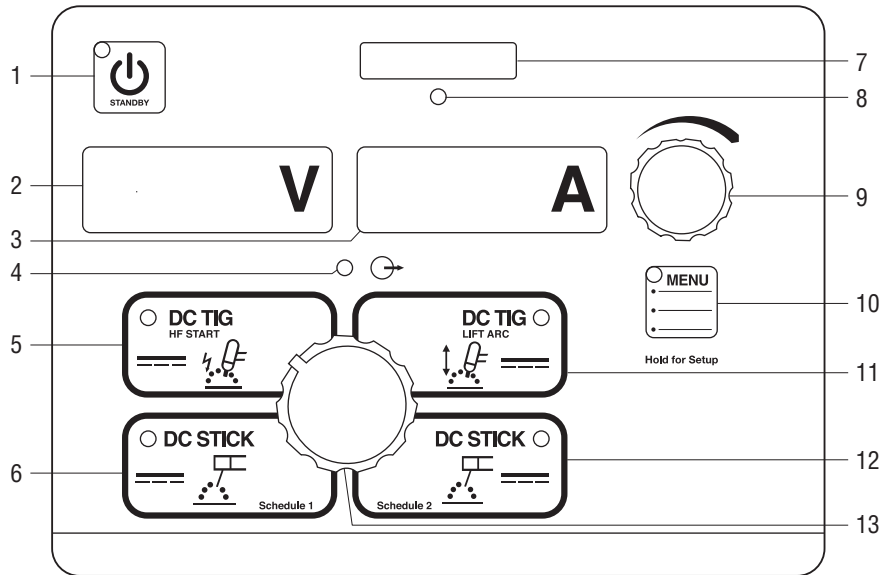
1. Remote Trigger = OUTPUT ON/STD

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

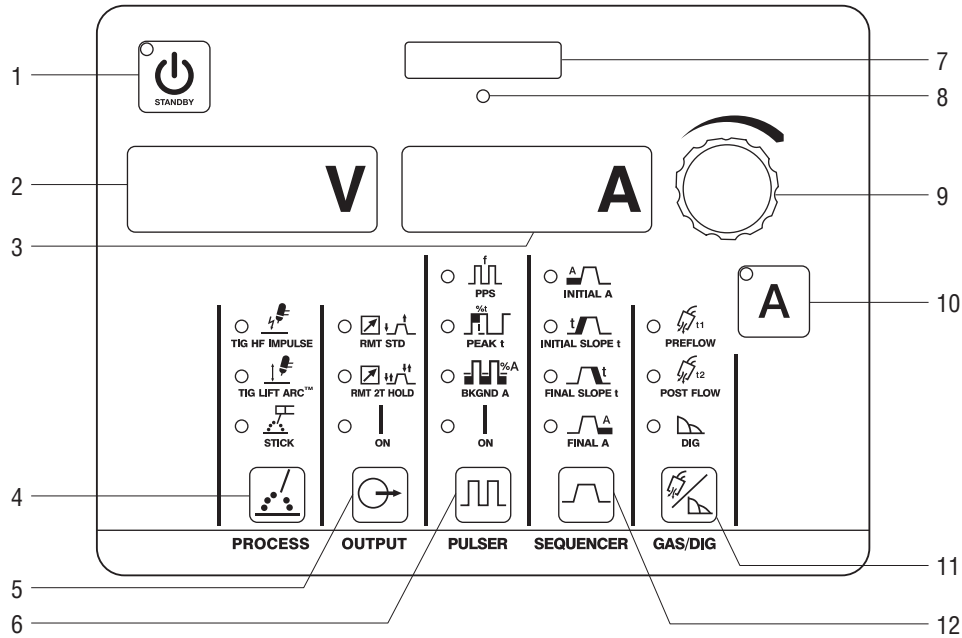
DC Stick (Schedule 1 and 2)

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		Step #2 • Select Cable Set/TIG Torch/Regulator OR Contractor Kit	
Select One Maxstar 210 STR 907682 Maxstar 210 907683 Maxstar 210 DX 907684		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	
Maxstar comes with adjustable shoulder strap, 8 ft. power cord (no plug) and two 50 mm Dinse-style connectors.		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	Step #2 • Select Remote Control	Step #3 • Select Torch Kit
Select One Maxstar 210 907683 Maxstar 210 DX 907684	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 242211020 Wireless Hand 300430	Select One W-250 Kit 300185 (recommended for 210 model) W-280 Kit 300990
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 301312 (required for mounting to Coolmate 1.3) Low-Conductivity Coolant 043810 (must be ordered in quantities of 4)		
Maxstar comes with adjustable shoulder strap, 8 ft. power cord (no plug) and two 50 mm Dinse-style connectors.	See page 7 for remote descriptions.	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.

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
Maxstar® 210 STR	907682	Auto-Line™ 120–480 V, 50/60 Hz, CSA . 8 ft. power cord		
Maxstar® 210	907683	Auto-Line™ 120–480 V, 50/60 Hz, CSA . 8 ft. power cord		
Maxstar® 210 DX	907684	Auto-Line™ 120–480 V, 50/60 Hz, CSA . 8 ft. power cord		
Maxstar® 210 DX International	907684001	Auto-Line™ 120–480 V, 50/60 Hz, CE . 8 ft. power cord		
Accessories				
Protective Cover	301381	For Maxstar 210 only		
2-Wheel Trolley Cart	300971	See page 7		
Small Runner™ Cart	301318	See page 7		
Coolmate™ 1.3	300972	120 V, 60 Hz, CSA . <i>Requires coolant</i>		
Maxstar Mounting Bracket	301312	Required for mounting the Maxstar 210 to the Coolmate 1.3		
TIG Coolant (Must be ordered in quantities of 4)	043810	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	195196	See page 7		
Memory Cards		See page 7		
TIG Torches, Kits and Connectors				
Air-Cooled Contractor Kits	301309 301311	Foot pedal Fingertip		
Weldcraft™ A-150 (WP-17) TIG Torch	WP-17-12-R WP-17-25-R WP-17V-12-2 WP-17V-25-2	12 ft. (3.7 m) 1-piece cable. Requires 195378 connector 25 ft. (7.6 m) 1-piece cable. Requires 195378 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	WP-26-12-R WP-26-25-R WP-26V-12-2 WP-26V-25-2	12 ft. (3.7 m) 1-piece cable. Requires 195379 connector 25 ft. (7.6 m) 1-piece cable. Requires 195379 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	195378 195379	Connects all air-cooled Weldcraft™ torches (except A-200) to Dinse-style connector. A-80 (WP-24) torches require 24-5 connector Connects Weldcraft™ A-200 (WP-26) torch to Dinse-style connector		
Water-Cooled Torch Kits	300185 300990	W-250 (recommended for Maxstar 210) W-280		
Tungsten		See above		
Remote Controls				
Wireless Remote Foot Control	300429	Foot control with wireless 90 ft. (27.4 m) operating range		
RFCS-14 HD	194744	Heavy-duty foot control		
RCC-14	151086	Side-to-side (east/west) fingertip control		
RCCS-14	043688	North/south fingertip control		
RMS-14	187208	Momentary rubber dome switch		
RMLS-14	129337	Momentary/maintained rocker switch		
RHC-14	242211020	Hand control		
Wireless Remote Hand Control	300430	Hand control with wireless 300 ft. (91.4 m) operating range		
Educational Materials				
Gas Tungsten Arc Welding (TIG) Publication	250833			
Setup DVD	251116			

Date:

Total Quoted Price:

Distributed by:

