Maxstar[®] 280 Series

Issued Dec. 2016 • Index No. DC/35.0

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 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

WIRELESS REMOTE COMPATIBLE Maxstar 280 DX

Meter calibration allows digital meters to be calibrated for certification.

Wind Tunnel Technology™ protects internal electrical components from airborne contaminates, 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 though 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.



Specifications (Subject to change without notice.)









Welding Mode	Input Power	Welding Amperage Range	Rated Output	,	•			•	nt, 50/60 Hz VA KW	Max. Open- Circuit Voltage	Dimensions	Net Weight
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)	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		D: 22.5 in. (569 mm)	50 lb. (22.7 kg)
Stick (SMAW)	3-phase	5-280 A	200 A at 28 V, 60% duty cycle	20	18	10	9	7	7.2 7.0			with CPS
	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. [CE] 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%	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
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.

Coolmate¹¹ 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

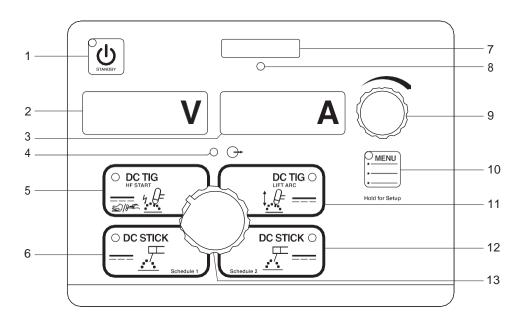
Cooling Method	AC Rating	DC Rating	Consumables	Electrode Range	Cable
Water-cooled	195 A, 100% duty cycle	280 A, 100% duty cycle	13N	.020-1/8 in. (0.5-3.2 mm)	Three-piece

TIG Upgrade Chart

Why Upgrade?	Syncrowave 250 UPGF	RADE Maxstar 280 UPGF	RADE Maxstar 280 DX	Maxstar 280 Benefits		
Thickness Capacity	.012-3/8 in. steel	.004-3/8 in. steel		The Maxstar 280 has a lower bottom end and can weld thinner metals.		
Duty Cycle	200 A, 60%	235 A	., 60%	Weld longer at higher amperages. At 200 A the Maxstar 280 can weld continuously.		
Arc Starting	HF and Lift-Arc™	Blue Lightning™ HF and Lift-Arc™		Blue Lightning arc starting is tailored for each tungsten size to produce perfect starts.		
Precision Controls	Digital and dial %	All digital		Precise adjustments can be made with all-digital controls for greater quality control and repeatability.		
Confusion on Where to Set the Controls?	Trial and error	Pro-Set [™] eliminates setting weld	the guesswork when parameters.	Select the feature and adjust until Pro-Set appears in display. Pro-Set is available for Pulse and DIG parameters.		
Pulser	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.		
Portability	378 lb. (172 kg) crane or cart	,	21.3 kg) or cart	Easier to move because of size and weight. Don't have to wait for a crane operator.		
Power Flexibility	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!
Line Draw at 200 Amps	77 A, 230 V, 1-phase		V, 1-phase 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 0.0-9,999 hours

0.0-59 minutes

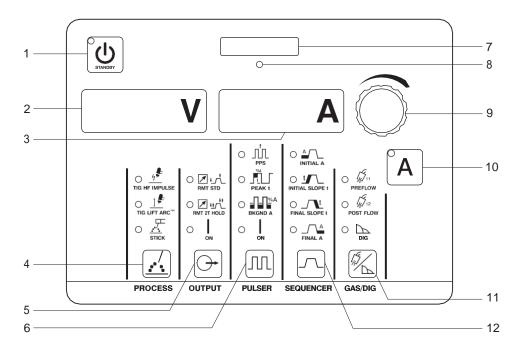
0 - 999,999 cycles

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/ TIG: HF impulse, Lift-Arc Arc StartingStick: Adaptive Hot Start
- 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%

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

- 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

Tech Menu (Hold Gas and Amperage buttons five seconds.)

1. Arc Time 0.0-9,999 hours

 $0.0-59 \ \text{minutes}$

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



^{*}Pro-Set parameter selectable.

Maxstar® 280 Models/Packages

Build an Air-Cooled Package

Select desired stock number for each step.



907552 Maxstar shown.



	Step #1 • S	elect Maxstar	Step #2 • Select Contractor Kit	
Maxstar 280 Maxstar 280 with CPS Maxstar 280 DX Maxstar 280 DX with CPS	907538 907533 907533 907539	Note: For models without the Cooler Power Supply (CPS), the Coolmate 1.3 must be powered through an external 120-volt facility power.	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.		1. 1 0,	See page 7 for kit contents.	

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.





194744 remote shown.



300990 kit shown.

Step #1 • Select Maxstar TIGRunner® and Coolant	Step #2 • Select Remote 0	Step #3 • Select Torch Kit		
Maxstar 280 (with CPS) TIGRunner 907538002 Maxstar 280 DX (with CPS) TIGRunner 907539001	Wireless Foot RFCS-14 HD Foot RCC-14 E/W Fingertip	300429 194744 151086	W-250 Kit W-280 Kit (recommended for 280	300185 300990 model)
Low-Conductivity Coolant 043810 (must be ordered in quantities of 4)	RCCS-14 N/S Fingertip RMS-14 Pushbutton RMLS-14 Momentary/Maintained RHC-14 Hand Wireless Hand	043688 187208 129337 242211020 300430	W-375 Kit	301268
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 conte	ents.



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 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 300972** 120 V 1.3-gallon cooler designed to cool torches up to 280 amps.



Performance TIG Gloves 263345 X-Small 263346 Small 263347 Medium 263348 Large 263349 X-Large

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

Memory Card (Blank) 301080

A blank, commercially available memory card used for transferring software updates and expandable features from your computer to the machine.

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.

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 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 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.



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 torch accessory kit (1/16-, 3/32- and 1/8-inch 2% ceriated tungsten, nozzles, collets and collet bodies).



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 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) 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 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® 280	907552	Auto-Line™ 208-575 V, 50/60 Hz, CSA. 8 ft. power cord		
Maxstar® 280 with CPS	907538	Auto-Line™ 208-575 V, 50/60 Hz, CSA. 8 ft. power cord		
Maxstar® 280 DX	907553	Auto-Line™ 208-575 V, 50/60 Hz, CSA. 8 ft. power cord		
Maxstar® 280 DX with CPS	907539	Auto-Line™ 208-575 V, 50/60 Hz, CSA. 8 ft. power cord		
Maxstar® 280 DX with CPS International	907539002	Auto-Line™ 208-575 V, 50/60 Hz, <i>CE</i> . 8 ft. power cord		
Water-Cooled Packages				
Maxstar® 280 (with CPS) TIGRunner®	907538002	Auto-Line™ 208-575 V, 50/60 Hz, CSA. 8 ft. power cord (Torch kit, accessories and coolant sold separately.)		
Maxstar® 280 DX (with CPS) TIGRunner®	907539001	Auto-Line™ 208-575 V, 50/60 Hz, <i>CSA</i> . 8 ft. power cord (Torch kit, accessories and coolant sold separately.)		
Accessories				
Protective Cover	301382	For Dynasty 210/280 and Maxstar 280		
Small Runner™ Cart	301318	For Dynasty/Maxstar 210 and 280 with or without Coolmate 1.3		
Coolmate [™] 1.3	300972	120 V, 60 Hz, CSA. Requires coolant		1
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		
Memory Card (Blank)	301080			
Memory Card Expansion	301151 301152	14-pin automation expansion 14-pin Modbus® expansion		
TIG Torches, Kits and Connectors				
Air-Cooled Contractor Kits	301109 301311	Foot pedal Fingertip		
Weldcraft™ A-150 (WP-17) TIG Torch	WP-17-12-R WP-17-25-R	12 ft. (3.7 m) cable. Requires 195378 connector 25 ft. (7.6 m) cable. Requires 195378 connector		
Weldcraft™ A-200 (WP-26) TIG Torch	WP-26-12-R WP-26-25-R	12 ft. (3.7 m) cable. Requires 195379 connector 25 ft. (7.6 m) cable. Requires 195379 connector		
Air-Cooled TIG Torch Connectors	195379 195378	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	300185 300990 301268	W-250 W-280 (recommended for Maxstar 280) W-375		
Water-Cooled TIG Torch Connector	195377	Connects Weldcraft™ water-cooled torches to Dinse-style connector		
Tungsten		See page 7		
Remote Controls				
Wireless Remote Foot Control	300429	Foot control with wireless 90 ft. (27.4 m) operating range		1
RFCS-14 HD	194744	Heavy-duty foot control		1
RCC-14	151086	Side-to-side (east/west) fingertip control		
RCCS-14	043688	North/south fingertip control		1
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:

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