

Dynasty® 200 Series

Issued Jan. 2010 • Index No. AD/4.8

**TIG/Stick Welding
Power Source** 

**Quick
Specs**



Industrial Applications

Precision Fabrication
Petro/Chemical
Aerospace
Food/Beverage Industry
Dairy
Shipboard

Processes

TIG (GTAW)
Pulsed TIG (GTAW-P)
Stick (SMAW)
Air Carbon Arc (CAC-A) 5/32 in max.

Input Power 115–460 V, 3- or 1-Phase Power

Amperage Range 1–200 A

Rated Output 200 A at 28 V, 20% Duty Cycle

Weight 45 lb (20.5 kg)

The Power of Blue.®



Allows for any input voltage hookup (115–460 V) with no manual linking, providing convenience in any job setting. Ideal solution for dirty or unreliable power.

Fan-On-Demand™ power source cooling system operates only when needed, reducing noise, energy use and the amount of contaminants pulled through the machine.

NEW! Complete Packages — See page 6 for more information.

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.

More consistent arc starts compared to traditional HF arc starters.

Greater reliability and no maintenance on solid state components. Preset parameters for tungsten sizes from .020–1/8 inch provide optimized starting for applications from thick to micro thin. For unique applications, custom settings are programmable.



Dynasty 200 DX
Foot Pedal
Complete Package


Dynasty 200 SD


AC TIG Features


Extended AC balance (30–99%) controls the amount of oxide cleaning (amperage time in EN) which is essential for high quality welds on aluminum.


AC frequency (20–250 hz) controls the width of the arc cone and the force of the arc.

AC Waveforms

 **Advance Squarewave**, fast freezing puddle, deep penetration and fast travel speeds.

 **Soft Squarewave** for a soft buttery arc with maximum puddle control and good wetting action.

 **Sine wave** for customers that like a traditional arc. Quiet with good wetting.

 **Triangular wave** reduces the heat input and is good on thin aluminum. Fast travel speeds.

DC TIG Features

Exceptionally smooth and precise arc for welding exotic materials.

Stick Features (AC/DC)

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.

AC frequency control adds additional stability when Stick welding in AC for smoother welds.



Power source is warranted for 3 years, parts and labor.
Original main power rectifier parts are warranted for 5 years.
Water cooler is warranted for 1 year, parts and labor.

MADE IN **USA**
APPLETON, WI



Miller Electric Mfg. Co.
An Illinois Tool Works Company
1635 West Spencer Street
Appleton, WI 54914 USA

Equipment Sales US and Canada
Phone: 866-931-9730
FAX: 800-637-2315
International Phone: 920-735-4554
International FAX: 920-735-4125

Web Site
www.MillerWelds.com



Specifications (Subject to change without notice.)



Welding Mode	Welding Amperage Range	Max. Open-Circuit Voltage	Input Power	Rated Output	Amps Input at Rated Load Output, 50/60 Hz						Dimensions	Net Weight
					115 V	230 V	400 V	460 V	KVA	KW		
TIG (GTAW)	AC 5–150 A DC 1–150 A (115 VAC)	80 VDC 5–10**	3-Phase	200 A at 18 V, 20% Duty Cycle	—	13.7	8.7	6.9	5.5	5.2	H: 13-1/2 in (343 mm) W: 7-1/2 in (191 mm) D: 21-1/2 in (546 mm) with TIGRunner® H: 46-1/4 in (1,175 mm) W: 23-1/2 in (597 mm) D: 22-1/4 in (565 mm)	45 lb (20.5 kg) with Contractor Kit 77 lb (34.9 kg) with TIGRunner® 137 lb (62.1 kg)
				150 A at 16 V, 60% Duty Cycle	—	9.4	6.0	4.7	3.8	3.6		
	1-Phase		150 A at 16 V, 60% Duty Cycle	—	15.8	—	7.9	3.6	3.6			
			140 A at 15.6 V, 40% Duty Cycle	31.0	—	—	—	3.6	3.5			
Stick (SMAW)	AC 5–105 A DC 1–105 A (115 VAC)	80 VDC 5–10**	3-Phase	200 A at 28 V, 20% Duty Cycle	—	20.8	13.0	10.2	8.1	7.8		
				130 A at 25.2 V, 60% Duty Cycle	—	12.3	7.6	6.0	4.8	4.6		
	1-Phase		130 A at 25.2 V, 60% Duty Cycle	—	20.0	—	10.0	4.7	4.7			
			100 A at 24 V, 60% Duty Cycle	31.3	—	—	—	3.6	3.6			
	AC 5–200 A DC 1–200 A (200–460 VAC)			90 A at 23.6 V, 100% Duty Cycle	27.6	—	—	—	3.2	3.2		
				100 A at 14 V, 100% Duty Cycle	20.7	—	—	—	2.3	2.3		

* While idling. ** Sense voltage for Stick and Lift-Arc™ TIG. Note: Duty cycle limitations on units with 115 V input power are due to the input power cord supplied with the unit.

Certified by Canadian Standards Association to both Canadian and U.S. Standards.

All CE models conform to the applicable parts of the IEC 60974 series of standards.

Performance Data

DUTY CYCLE

110–120 V INPUT VOLTAGE

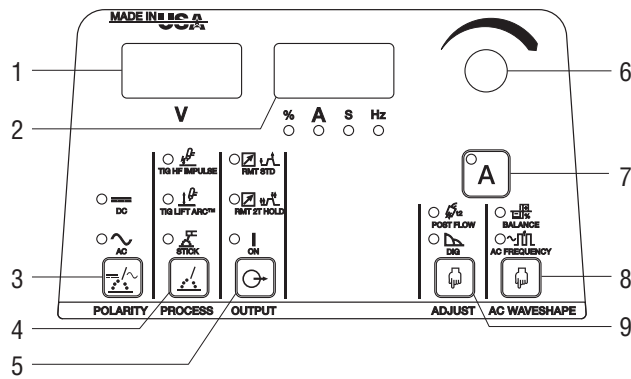
%	TIG	STICK
30%	150 A	100 A
40%	140 A	100 A
60%	120 A	100 A
100%	100 A	90 A

200–460 V INPUT VOLTAGE

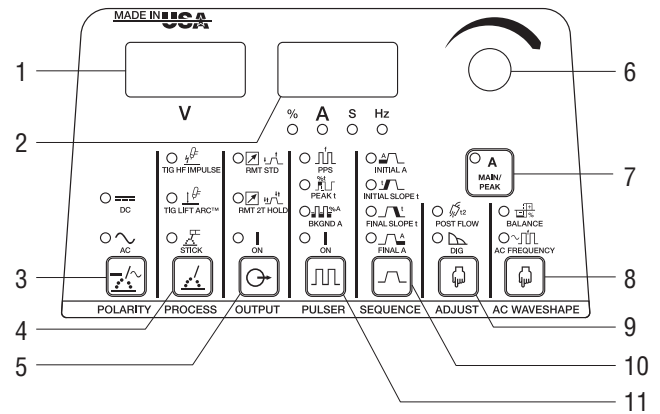
%	TIG	STICK
20%	200 A	200 A
30%	180 A	170 A
40%	166 A	150 A
60%	150 A	130 A
100%	120 A	110 A

Control Panel

Dynasty 200 SD



Dynasty 200 DX



Control Panel Parameter Values

1. Voltmeter Display

2. Ammeter Display

3. Polarity AC/DC

4. Process/
Arc Starting TIG: HF Impulse, Lift Arc
STICK: Adaptive Hot Start

5. Output Control Standard Remote,
2T Trigger Hold,
Output ON

6. Encoder Control

7. Amperage Control

8. AC Waveshape
Balance 30–99%
AC Frequency 20–250 Hz

9. Gas/DIG Preflow 0.0–25.0 Seconds

Postflow 0–50 Seconds

DIG 0–100%

Advanced features on the Dynasty DX only:

10. Sequencer Control

Initial Amps AC: 5–200 A
DC: 1–200 A
Initial Slope 0.0–25.0 Seconds
Final Slope 0.0–25.0 Seconds
Final Amps AC: 5–200 A
DC: 1–200 A

11. Pulser Control

Pulses per Second DC: 0.1–500 PPS
AC: 0.1–500 PPS
Peak Time 5–95%
Background Amps 5–95%

Additional Setup Parameter Values

Preprogrammed Starts

.040 – 1/8 in Tungsten

Programmable Starts

Amperage AC: 5–200 A
DC: 1–200 A
Time 1–200 Milliseconds
Ramp Time 1–250 Milliseconds
Minimum Amperage 1–20 A
Polarity EP, EN

Additional Triggers 3T, 4T, Mini Logic,
4T Momentary

Waveshapes Advance Squarewave,
Soft Squarewave, Sine
Wave, Triangular wave

Spot/Timer 0.1–25.0 Seconds

OCV Low OCV, Normal OCV

Stick Stuck Check On/Off

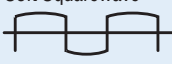
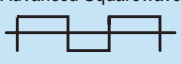

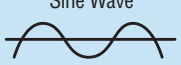
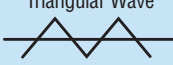


Lockouts Four levels

Arc Timer 0.0–9999 Hours
and 0–59 Min

Cycle Counter 0–999,999 Cycles

TIG Upgrade Chart

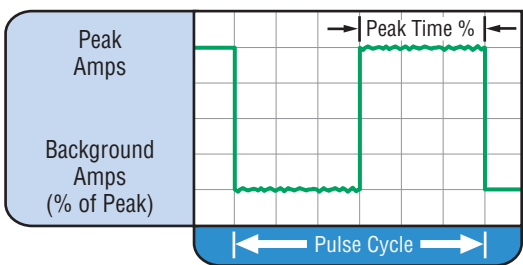
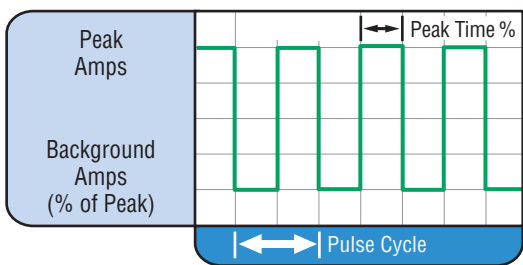
Which Machine is Right for You?

Why Upgrade?	Syncrowave 200	Dynasty 200	Dynasty 200 Benefits
Maximum Thickness Capacity	1/4 in Aluminum	1/4 in Aluminum	Same material thickness capacity.
High Frequency Arc Starting	Continuous HF	UPGRADE → Start Only	Start Only limits HF interference issues.
Frequency Control AC Output Control	Fixed at 60 Hz	UPGRADE → Variable 20–250 Hz	Higher frequencies provide better arc control and faster travel speeds.
AC Waveforms	Soft Squarewave 	UPGRADE → Advanced Squarewave  Soft Squarewave  Sine Wave  Triangular Wave 	Advanced Squarewave = Travel faster Soft Squarewave = Maximum puddle control Sine Wave = Traditional characteristics Triangular Wave = Reduced heat input
Weld Aluminum with Pointed Tungsten		UPGRADE → 	Waveshaping controls maintain the point. The benefits are: reduced heat input into your part, smaller weld beads, better starting and more control of the arc.
Portability	238 lb Manual Link 208–230 or 460–575 V Single-Phase	UPGRADE → 45 lb Auto-Line™ 115–460 V Single-Phase or Three-Phase	Easier to move because of size and weight. Auto-Line™ allows the unit to operate on any voltage. Single- or three-phase. Even generators!
Power Draw at 150 Amps	54 A at 230 V Single-Phase	UPGRADE → 15.8 A at 230 V Single-Phase	Power requirement to operate is much less. Smaller electrical service needed, smaller breaker/fuses and power cord.

Pulse TIG Controls

High Speed DC TIG-Pulse Controls

- **PPS Pulses per second (Hz):** DC = 0.1 – 500 PPS / AC = 0.1 – 500 PPS
- **% ON – % Peak Time:** 5 - 95% (Controls the amount of time during each pulse cycle at the PEAK amperage.)
- **Background Amps:** 5 – 99% (Sets the low-pulse amperage value as a % of the Peak Amps.)

CONVENTIONAL PULSED TIG	HIGH SPEED PULSED TIG
 <p>Typically from 1 to 10 PPS. Provides a heating and cooling effect on the weld puddle and can reduce distortion by lowering the average amperage. This heating and cooling effect also produces a distinct ripple pattern in the weld bead. The relationship between pulse frequency and travel speed determines the distance between the ripples. Slow pulsing can also be coordinated with filler metal addition and can increase overall control of the weld puddle.</p>	 <p>In excess of 40 PPS, Pulsed TIG becomes more audible than visible — causing increased puddle agitation for a better as-welded microstructure. Pulsing the weld current at high speeds — between a high Peak and a low Background amperage — can also constrict and focus the arc. This results in maximum arc stability, increased penetration and increased travel speeds (Common Range: 100 – 500 PPS).</p>

AC Waveshape Controls

Feature	Waveform	Effect on Bead	Effect on Appearance
AC Balance Control Controls arc cleaning action. Adjusting the % EN of the AC wave controls the width of the etching zone surrounding the weld. <i>Note: Set the AC Balance control for adequate arc cleaning action at the sides and in front of the weld puddle. AC Balance should be fine tuned according to how heavy or thick the oxides are.</i>	51 – 99% EN 	Reduces balling action and helps maintain point Deep, narrow penetration 	Narrow bead, with no visible cleaning
	30 – 50% EN 	Increases balling action of the electrode Shallow penetration 	Wider bead and cleaning action
AC Frequency Control Controls the width of the arc cone. Increasing the AC Frequency provides a more focused arc with increased directional control. <i>Note: Decreasing the AC Frequency softens the arc and broadens the weld puddle for a wider weld bead.</i>	60 Cycles per Second 	Wider bead, good penetration — ideal for buildup work 	Wider bead and cleaning action
	120 Cycles per Second 	Narrower bead for fillet welds and automated applications 	Narrower bead and cleaning action

AC Waveform Selection

Select from four different AC waveforms to optimize the arc characteristic for your application. Choose from:

ADVANCED SQUAREWAVE	SOFT SQUAREWAVE
<p>Fast transitions for responsive and dynamic arc.</p>	<p>All the benefits of advanced square, fine tuned to provide a smooth, soft arc with maximum puddle control and good wetting action.</p>
SINEWAVE	TRIANGULAR WAVE
<p>Square transitions eliminate the need for continuous HF, while the sinewave peaks soften the arc.</p>	<p>Unconventional wave provides the punch of the peak amperage, while reducing overall heat input. Quick puddle formation reduces weld time — limiting heat input and reducing weld distortion, especially on thin materials.</p>

Packages and Torch Kits



Dynasty® 200 Power Sources

- Dynasty® 200 SD #907 099 (CSA)
 Dynasty® 200 DX #907 099-01-1 (CSA)
 Dynasty® 200 DX #907 356 (CE ROHS)

Includes adjustable shoulder strap, 10 ft (3 m) primary power cord, (2) international (Dinse 50) connectors, (1) air-cooled TIG torch adapter (#195 378)

Note: See page 7 for recommended Contractor Torch Kit



Dynasty® 200 DX Contractor Kit Packages (Air Cooled)

Dynasty 200 DX Foot Pedal Contractor Package #951 174 (CSA)

Dynasty 200 DX Fingertip Contractor Package #951 175 (CSA)

Packages include:

- Dynasty® 200 DX (#903 099-01-1)
- Adjustable shoulder strap
- 10 ft (3 m) primary power cord
- (2) international (Dinse 50) connectors
- RFCS-14 HD foot pedal (#194 744) *or* RCCS-14 fingertip control (#043 688)
- Protective carrying case

- Weldcraft® 25 ft (7.6 m) WP17 TIG torch with adapter
- Smith® flow gauge regulator with 12 ft (3.7 m) gas hose
- AK2C accessory kit
- .040", 1/16" and 3/32" cerium tungsten
- Collets and cups
- 200 amp, 15 ft (4.6 m) Stick electrode holder
- Work clamp with 15 ft (4.6 m) #4 cable
- (1) air-cooled TIG torch adapter (#195 378)



TIGRunner® Package (Water Cooled)

Dynasty 200 DX TIGRunner® #907 099-02-1 (CSA)

Completely assembled.

Package includes:

- Dynasty® 200 DX (#907 099-01-1)
- Coolmate™ 1, 120 VAC (#300 360)
- (2) international (Dinse 50) connectors
- 1 gallon of pre-mixed, low conductivity coolant (#043 810)

- 2-Wheel Trolley Cart (#300 480) with the following features: easy-to-maneuver single-cylinder cart with cable and torch holders. Easy to release and remove welder from cart for even more portability. Convenient tray for consumable storage and filler rod holders.

Notes: TIG Torch Adapter must be ordered separately. See page 7 for recommended 250 A Water-Cooled Torch Kit (#300 185)

The Coolmate 1 requires a separate source for electricity. The Dynasty 200 does not contain auxiliary power.



Dynasty 200 DX Fingertip Complete Package

Complete Packages (Water Cooled)

Dynasty 200 DX Foot Pedal Complete #951 139 (CSA)

Dynasty 200 DX Fingertip Complete #951 140 (CSA)

Completely assembled.

Package includes:

- Dynasty® 200 DX (#907 099-01-1)
- Coolmate™ 1, 120 VAC (#300 360)
- (2) international (Dinse 50) connectors
- 1 gallon of pre-mixed, low conductivity coolant (#043 810)

- 2-Wheel Trolley Cart (#300 480) with the following features: easy-to-maneuver single-cylinder cart with cable and torch holders. Easy to release and remove welder from cart for even more portability. Convenient tray for consumable storage and filler rod holders.
- RFCS-14 HD foot pedal (#194 744) *or* RCCS-14 fingertip control (#043 688)
- 250 A Water-Cooled Torch Kit and Accessories (#300 185) See pg. 7 for more details.

Note: The Coolmate 1 requires a separate source for electricity. The Dynasty 200 does not contain auxiliary power.

Genuine Miller Accessories



2-Wheel Trolley Cart #300 480

Easy to maneuver two-wheel cart features: single-cylinder rack, chain for cylinder, straps (quick and easy to detach and carry machine), cable holders, torch holder, storage area, and filler rod

storage area. Works with Dynasty® or Maxstar® 200 and Coolmate™ 1.

Contact your local distributor for filler material holders.



Universal Carrying Cart and Cylinder Rack #042 934

Holds power source, and gas cylinder up to 56 in (142.2 cm) high measuring

6 to 9 in (15.2 to 22.8 cm) in diameter.



Coolmate™ 1 #300 360

120 VAC 60 Hz **CSA**

#300 360-00-1

120 VAC 60 Hz **CE**

#300 459 240 VAC 50/60 Hz **CSA**

#300 459-00-1 240 VAC 50/60 Hz **CE**

1-gallon water cooler designed for 200 amp portable welders. Features include: Fin-and-Tube heat exchanger, back-lit power switch, external filter, polyethylene tank and coolant level sight gauge.



250 A Water-Cooled Torch Kit #300 185

- 25 ft (7.6 m) Weldcraft® WP2025RM torch
- Torch cable cover
- AK4C torch accessory kit includes shielding cups, collets, collet bodies and 2% cerium tungsten electrodes (1/16, 3/32 and 1/8 in)
- Smith® regulator/flowmeter HM2051A-580
- 12 ft (3.7 m) rubber gas hose (regulator to machine)
- Water-cooled Dinse torch adapter
- 15 ft (4.6 m) 1/0 weld lead with clamp (work or ground lead) and Dinse connector



TIG Coolant #043 810

Sold in multiples of 4. Pre-mixed low-conductivity Miller coolant contains ethylene glycol and deionized water to protect

from freezing and boiling -37° to 227°F (-38° to 108°C). 1-gallon plastic recyclable bottles.



Water-Cooled Dinse #195 377

Used to adapt WP20, WP18, and CS310 to dinse-style connector. Order from Miller Parts.



Contractor Kits

#195 054 Foot Pedal Kit

#195 055 Fingertip Kit

RFCS-14HD foot or RCCS-14 fingertip control, protective carrying case, 150 amp WP17 25 ft (7.6 m) TIG Torch with adapter, Smith® flow gauge regulator and 12 ft (3.7 m) gas hose, AK2C Accessory Kit (.040, 1/16, and 3/32 in cerium tungsten, collets and cups), Stick electrode holder, 200 Amp, 15 ft (4.6 m) #4 cable, and work clamp with 15 ft (4.6 m) #4 AWG cable.



200 Amp Air-Cooled Torch

Order from Miller Parts

#WP2612RM (12 ft)

#WP2625RM (25 ft)

Torch body gas valve models are available
Note: Adapter #195 379 required for WP26.



Air-Cooled Torch Adapters

Order from Miller Parts

#195 378 WP17,

WP9, WP50, WP23

#195 379 WP26

TIG Welding Gloves

#227 813 Small #227 815 Large

#227 814 Medium #227 816 X-Large

Made from soft grain goatskin. Sewn with Kevlar® thread. Order from Miller Parts.

Gas Tungsten Arc (TIG) Welding Book #170 555

To order, distributors can call the Miller Literature Distribution Center at 1-920-735-4356, or FAX 1-920-735-4011.

Ron Covell TIG Welding Basics DVD

To order go to MillerWelds.com

Tungsten

Tungsten is 7 in length and available in pkgs of 10. Order from Miller Parts

2% Ceriated (orange) for AC/DC applications

#WC040X7 .040 in, 10–80 A

#WC116X7 1/16 in, 70–150 A

#WC332X7 3/32 in, 140–250 A

#WC018X7 1/8 in, 225–400 A

#WC532X7 5/32 in, 300–500 A

1.5% Lanthanum (gold) for AC/DC applications

#WL040X7 .040 in, 10–80 A

#WL116X7 1/16 in, 70–150 A

#WL332X7 3/32 in, 140–250 A

#WL018X7 1/8 in, 225–400 A

#WL532X7 5/32 in, 300–500 A

Remote Controls and Switches



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 ft (8 m) control cord.



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 ft (6 m) cord and 14-pin plug.

RHC-14 Hand Control #129 340

Miniature hand control for remote current and contactor control. Dimensions: 4 x 4 x 3-1/4 in (102 x 102 x 83 mm). Includes 20 ft (6 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 ft (8 m) cord and 14-pin plug.



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 ft (8 m) cord and 14-pin plug.

Extension Cords for 14-Pin Remote Controls

#122 973 25 ft (7.6 m)

#122 974 50 ft (15.2 m)

#122 975 75 ft (23 m)

Ordering Information

Equipment and Options	Stock No.	Description	Qty.	Price
Dynasty® 200 SD	#907 099	Auto-Line™ 115–460 VAC, 50/60 Hz, CSA . 10 ft primary cord		
Dynasty® 200 DX	#907 099-01-1	Auto-Line™ 115–460 VAC, 50/60 Hz, CSA . 10 ft primary cord		
Air-Cooled Systems				
Dynasty® 200 DX Foot Pedal Contractor Kit	#951 174	Auto-Line™ 115–460 VAC, 50/60 Hz, CSA . 10 ft primary cord		
Dynasty® 200 DX Fingertip Contractor Kit	#951 175	Auto-Line™ 115–460 VAC, 50/60 Hz, CSA . 10 ft primary cord		
Water-Cooled Systems				
Dynasty® 200 DX TIGRunner®	#907 099-02-1	Auto-Line™ 115–460 VAC, 50/60 Hz, CSA . 10 ft primary cord. (Torch kit and accessories sold separately.)		
Dynasty® 200 DX Foot Pedal Complete	#951 139	Auto-Line™ 115–460 VAC, 50/60 Hz, CSA . 10 ft primary cord		
Dynasty® 200 DX Fingertip Complete	#951 140	Auto-Line™ 115–460 VAC, 50/60 Hz, CSA . 10 ft primary cord		
TIG Torch Kits				
Weldcraft® 250 A Water-Cooled Torch Kit	#300 185	See page 7		
Contractor Kit Foot Pedal (Air-Cooled)	#195 054	See page 7		
Contractor Kit Fingertip (Air-Cooled)	#195 055	See page 7		
Consumables and Tungsten		Distributor: See Miller Parts Catalog		
Remote Controls				
RCCS-14	#043 688	North/south fingertip control		
RFCS-14 HD	#194 744	Heavy-duty foot control		
RHC-14	#129 340	Hand control		
RMLS-14	#129 337	Momentary/maintained rocker switch		
RMS-14	#187 208	Momentary rubber dome switch		
Extension Cords	#122 973 #122 974 #122 975	25 ft (7.6 m) 50 ft (15.2 m) 75 ft (22.9 m)		
Accessories				
2-Wheel Trolley Cart	#300 480	See page 7		
Universal Carrying Cart and Cylinder Rack	#042 934	See page 7		
Coolmate™ 1	#300 360 #300 360-00-1 #300 459 #300 459-00-1	120 VAC, 60 Hz, CSA . <i>Requires coolant</i> 120 VAC, 60 Hz, CE . <i>Requires coolant</i> 240 VAC, 50/60 Hz, CSA . <i>Requires coolant</i> 240 VAC, 50/60 Hz, CE . <i>Requires coolant</i>		
TIG Coolant	#043 810	Sold in multiples of 4. 1-gallon plastic bottles		
Gas Tungsten Arc (TIG) Welding Book	#170 555	<i>Order at MillerWelds.com/resources/tools</i>		
Ron Covell TIG Welding Basics DVD		<i>Order at MillerWelds.com/resources/tools</i>		
Water-Cooled Dinse <i>Order from Miller Parts</i>	#195 377	Used to connect water-cooled torch to Dinse terminal machine. For WP20, WP18 and SC310 (adapter included in Complete Package)		
Air-Cooled Dinse <i>Order from Miller Parts</i>	#195 378 #195 379	Used to connect WP17, WP9 and WP23 torch to Dinse terminal Used to connect WP26 torch to Dinse terminal machine		
Dinse Connector 50 mm (1 male)	#042 418	Used to connect weld lead to Dinse terminal machine		
Dinse Connector 50 mm (1 male, 1 female)	#042 419	Used to extend weld cables		
Tweco® Terminal Adapter	#042 465	Male Dinse to female Tweco		
Cam-Lok Terminal Adapter	#042 466	Male Dinse to female Cam-Lok		
Miscellaneous				
Stick Electrodes				
Welding and Work Cables				
Welding Gloves and Helmet				

Date:

Total Quoted Price:

Distributed by:

