Dynasty[®] 350 and 700

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TIG/Stick Welding Power Source



Quick Specs ⊕ C€

Industrial Applications

Precision Fabrication Heavy Fabrication Pipe and Tube Fabrication Aerospace Aluminum Ship Repair Anodized Aluminum Fabrication

Processes

TIG (GTAW) Pulsed TIG (GTAW-P) Stick (SMAW) Air Carbon Arc (CAC-A) 350: 1/4-inch maximum 700: 3/8-inch maximum

Input Power 208	–575 V, 3- or 1-Phase
Amperage Range	350: 3–350 A
	700: 5–700 A
Rated Output	350: 300 A at 32 V, 60% Duty Cycle
	700: 600 A at 44 V, 60% Duty Cycle
Weight	350: 135 lb. (61 kg)
	700: 198 lb. (90 kg)

The Power of Blue[®].



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.

Meter calibration allows meters to be calibrated for certification.

120-volt auxiliary power receptacle for cooling system or small tools.

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 though the machine.

Blue Lightning[™] high-frequency arc starter for more consistent non-contact starts and greater reliability compared to traditional HF arc starters.

Lift-Arc[™] start provides AC or DC arc starting without the use of high frequency.

Program memory features nine independent program memories that maintain/save your parameters.

Auto-postflow calculates the length of postflow time based on the amperage setting. This eliminates the need to independently set the postflow time for different amperages. This feature preserves your tungsten and prevents porosity.





Dynasty 350 Complete Package with Wireless Foot Control

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.

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 Website

MillerWelds.com



AC TIG Features

Independent amplitude/amperage control allows EP and EN amperages to be set independently to precisely control heat input to the work and electrode.

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

AC frequency (20–400 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.

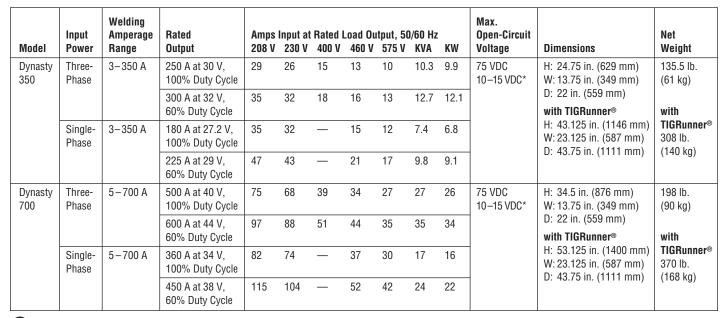
Triangular wave reduces the heat input and is good on thin aluminum. Fast travel speeds.

DC TIG Features

Exceptionally smooth and precise arc for welding exotic materials.

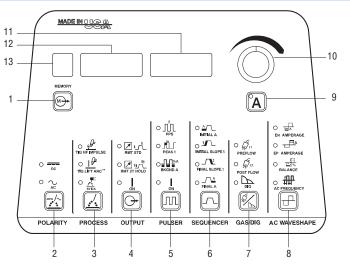
High-speed DC TIG pulse controls. Pulse frequency capable of pulsing 5000 pulses per second. Pulsing adds arc stability, reduces heat input and warpage and can increase travel speeds. Other parameters include peak amperage, peak time and background amperage.

Specifications (Subject to change without notice.)



🚯 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. *Indicates sense-voltage for Lift-Arc™ TIG and Low OCV Stick.

Control Panel



Control Panel Parameter Values

1. Memory	36 Combinations (9 AC TIG) (9 AC Stick) (9 DC TIG) (9 DC Stick)
2. Polarity	AC/DC
3. Process/ Arc Starting	TIG: HF Impulse, Lift Arc STICK: Adaptive Hot Start
4. Output Control	Standard Remote, 2T Trigger Hold, Output ON
5. Pulser Control Pulses per Secon Peak Time Background Am	nd DC: 0.1-5000 PPS AC: 0.1-500 PPS 5-95% ps 5-95%

6. Sequencer Control	
Initial Amps	E

6. Sequencer Control	
Initial Amps	Dynasty 350: 3-350 A
	Dynasty 700: 5-700 A
Initial Slope	0.0-50.0 seconds
Final Slope	0.0-50.0 seconds
Final Amps	Dynasty 350: 3-350 A
·	Dynasty 700: 5–700 A
7. Gas/DIG Preflow	0.0-25.0 seconds
Postflow	Auto Postflow,
	Adjust 0.0-50 seconds
DIG	0-100%
8. AC Waveshape	
EN Amperage	3-350 A/5-700 A
EP Amperage	3-350 A/5-700 A
Balance	30-99%
AC Frequency	20-400 Hz

- 9. Amperage Control
- **10. Encoder Control**
- 11. Ammeter Display
- 12. Voltmeter Display
- 13. Memory Display

Additional Setup Parameter Values

Phase

3 Phase

Preprogrammed Starts

Preprogrammed Star	ris -
Dynasty 350	.020-3/16 in. tungsten
Dynasty 700	.040–1/4 in. tungsten
Programmable Start	S
Amperage	Dynasty 350: 3-200 A
	Dynasty 700: 5-200 A
Time	0–200 milliseconds
Ramp Time	0–250 milliseconds
Minimum Amperage	Dynasty 350: 3–25 A
	Dynasty 700: 5–25 A
Additional Triggers	3T, 4T, Mini Logic,
	4T Momentary
Waveshapes	Advance Squarewave,
	Soft Squarewave, Sine
	Wave, Triangular wave
Amplitude Lock	EN EP Same.
•	EN EP Independent
Spot/Weld Timer	0.0-999 seconds
OCV	Low OCV, Normal OCV
Stick Stuck Check	On/Off
Lockouts	Four levels
Lockouts Arc Timer	Four levels 0.0–9999 hours
Arc Timer	0.0 – 9999 hours and 0 – 59 minutes
Arc Timer Cycle Counter	0.0 – 9999 hours and 0 – 59 minutes 0 – 999,999 cycles
Arc Timer	0.0 – 9999 hours and 0 – 59 minutes



Performance Data

DUTY CYCLE

Dynas	ty 350		Dyna	sty 700
3-PI	IASE		3-P	HASE
%	AMPERAGE		%	AMPERAGE
30%	350 A		30%	700 A
60%	300 A		60%	600 A
100%	250 A		100%	500 A
1-Pi	IASE		1-P	HASE
1-Pi %	IASE Amperage	_	1-P %	HASE Amperage
%	AMPERAGE]	%	AMPERAGE
% 10%	AMPERAGE 350 A		% 10%	AMPERAGE 700 A

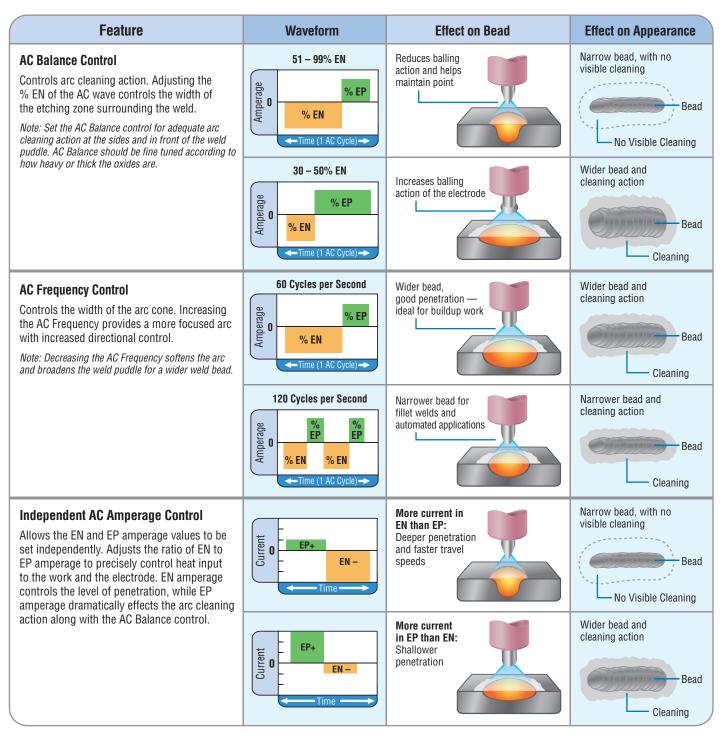
TIG Upgrade Chart

Which Machine is Right for You?

Why Upgrade?	Syncrowave 350	Dynasty 350	Dynasty 350 Benefits
Maximum Thickness Capacity	1/2-in. Aluminum UPGRAD	5/8-in. Aluminum	Increases aluminum thickness.
High Frequency Arc Starting	Continuous HF UPGRAD	Start Only	Start Only limits HF interference issues.
Frequency Control AC Output Control	Fixed at 60 Hz UPGRAD	Variable 20–400 Hz	Higher frequencies provide better arc control and faster travel speeds.
AC Waveforms	Soft Squarewave UPGRAD	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	UPGRADI		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	496 lb. UPGRADI Manual Links 208/230/460 V Single-Phase	135 lb. Auto-Line™ 208–575 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 300 Amps	110 A at 230 V Single-Phase	32 A at 230 V Three-Phase	Power requirement to operate is much less. Smaller electrical service needed, smaller breaker/fuses and power cord.
Precise Controls	Some Digital Controls UPGRAD	All Digital Controls	Accuracy and repeatability with all digital controls.



AC Waveshape Controls

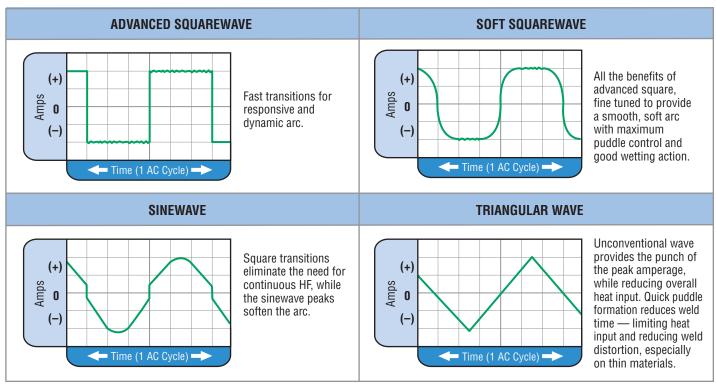




AC Waveshape Controls (Continued)

AC Waveform Selection

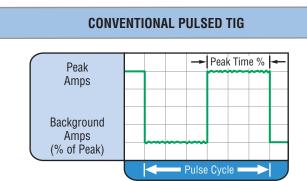
Select from four different AC waveforms to optimize the arc characteristic for your application. Choose from:



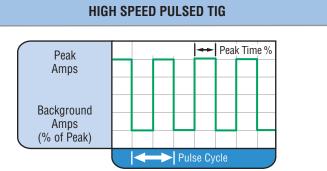
Pulse TIG Controls

High Speed DC TIG-Pulse Controls

- PPS Pulses per second (Hz): DC = 0.1-5,000 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.)



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.



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).

The Arc-Sharpening effects of high speed pulsing are expanded to new dimensions. The ability to pulse at 5,000 PPS further enhances arc stability and concentration potential — which is extremely beneficial to automation where maximum travel speeds are required.



Dynasty[®] 350 and 700 Models/Packages





#907 204-00-1 and #907 101-00-1 packages shown.



package shown.

Machine Only		Water-Cooled (Machine/Cart/Cooler)	Water-Cooled Complete Packages (Machine/Cart/Cooler/Torch Kit/Remote)		
Model		TIGRunner®	Foot Control Complete Wireless Foot Control Co		
Dynasty 350 (CSA)	#907 204	#907 204-00-1	#951 401	#951 402	
Dynasty 350 (CE)	#907 204-02-1	_	-	—	
Dynasty 700 (CSA)	#907 101	#907 101-00-1	#951 403	#951 404	
Dynasty 700 (CE)	#907 101-02-1	_	—	—	
Comes with: ************************************			ference guide) :h Kit #300 183 (350 model) or :h Kit #300 186 (700 model) 4 (Foot) or		

Four Easy Steps to Create Your Own Package (Select desired stock number for each step.)

Step #1 Select TIGRunner	Step #2 Select Remote Control	Step #3 Select Torch Kit	Step #4 Select Coolant
#907 204-00-1 350 TIGRunner #907 101-00-1 700 TIGRunner	#300 429Wireless Foot#194 744RFCS-14 HD Foot#151 086RCC-14 E/W Fingertip#043 688RCCS-14 N/S Fingertip#187 208RMS-14 Pushbutton#129 337RMLS-14 Momentary/Maintained#242 211 020RHC-14 Hand#300 430Wireless Hand	#300 185 250 A, WP20 Kit #300 183 300 A, CS310 Kit (recommended for 350 model) #300 186 400 A, WP18SC Kit (recommended for 700 model)	#043 810 Low-Conductivity Coolant Sold in multiples of four one-gallon recyclable plastic bottles. Miller [®] coolants contain a base of ethylene glycol and deionized water to protect against freezing to -37° Fahrenheit (-38° C) or boiling to 227° Fahrenheit (108° C).

Tungsten

Tungsten	Amp Range	2% Ceriated (AC/DC)	2% Lanthanated (AC/DC)	2% Thoriated (DC)	Zirconiated (AC)
1/16 in. (1.6 mm)	70–150 A	WC116X7	WL2116X7	WT116X7	WZ116X7
3/32 in. (2.4 mm)	140-250 A	WC332X7	WL2332X7	WT332X7	WZ332X7
1/8 in. (3.2 mm)	225-400 A	WC018X7	WL2018X7	WT018X7	WZ018X7
5/32 in. (4.0 mm)	300-500 A	WC532X7	WL2532X7	WT532X7	WZ532X7



Genuine Miller® Accessories

Torch Kits

250 A Water-Cooled Torch Kit #300 185

- 25-foot (7.6 m) Weldcraft[®] WP20 torch with Dinse
- 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 inch)
- Smith[®] regulator/flowmeter HM2051A-580
- Gas hose (regulator to machine)
- 15-foot (4.6 m) 1/0 weld lead with clamp (work or ground lead) and Dinse connector

300 A Water-Cooled Torch Kit #300 183 *Recommended for Dynasty 350*

- 25-foot (7.6 m) Weldcraft[®] CS310 torch with Dinse
- Torch cable cover
- CS310AKC torch accessory kit includes shielding cups, collets, collet bodies and 2% cerium tungsten electrodes (1/16, 3/32 and 1/8 inch)
- Smith[®] regulator/flowmeter HM2051A-580
- Gas hose (regulator to machine)
- 15-foot (4.6 m) 1/0 weld lead with clamp (work or ground lead) and Dinse 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.



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.



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.



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.



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.



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.



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.

Extension Cables for 14-Pin Remote Controls

#242 208 025 25 ft. (7.6 m) **#242 208 050** 50 ft. (15.2 m) **#242 208 080** 80 ft. (24.4 m)

Runner Cart #300 244

Designed to accommodate Dynasty[®] or Maxstar[®] 350 or 700 power sources and a Coolmate[™] 3.5 Cooler. Cart features single cylinder rack, foot pedal holder, (3) cable/ torch holders, and (2) TIG

electrode filler holders.



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Coolmate[™] 3.5 #300 245 Designed to integrate with the Dynasty[®] and Maxstar[®] 350 and 700 power

sources. For use with water-cooled torches rated up to 600 amps. 3.5 gallon capacity.

Low-Conductivity TIG Coolant #043 810

Sold in multiples of four one-gallon recyclable plastic bottles. Miller coolant contains ethylene glycol and deionized water to protect from freezing and boiling – 37° to 227° Fahrenheit (-38° to 108° C).

400 A Water-Cooled Torch Kit #300 186 *Recommended for Dynasty 700*

- 25-foot (7.6 m) Weldcraft[®] WP18SC torch with thread-lock
- Torch cable cover
- AK18C torch accessory kit includes shielding cups, collets, collet bodies and 2% cerium tungsten electrodes (3/32, 1/8 and 5/32 inch)
- Smith[®] regulator/flowmeter H1954D-580
- Gas hose (regulator to machine)
- 12-foot (3.7 m) 4/0 weld lead with clamp (work or ground lead)



For Dynasty and Maxstar[®] 350. Used to adapt WP20, WP18, and CS310 to dinsestyle connector. Order from Miller Parts.



Water-Cooled Thread-Lock Torch Adapter #225 028 For Dynasty and Maxstar 700. Used with (WP125, WP24W, WP25, WP20, WP18, WP12, CS310, CS410, WP22, WP27)

water-cooled torch. Order from Miller Parts.

Automation Interface Connection Kit #195 516 Field

Provides control of power source welding parameters through a 28-pin receptacle. The 28-pin receptacle replaces the standard 14-pin receptacle and requires a PLC controller to operate the power source. Ideal for automated equipment integration.

Weld Current Sensor #300 179 Field

Detects when work clamp is not connected and prevents expensive damage to disconnect devices and input power cord and wiring.

Educational Materials

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

Gas Tungsten Arc (TIG) Welding Book #170 555

Simulator and Setup CD-ROM #233 558

DVD Setup Video #251 116

Video topics include Tungsten Selection, Setup Menus, DC Pulse, Sequencer, Balance and Frequency Settings. (Included with machine.)



Ordering Information

Equipment and Options	Stock No.	Description	Qty.	Price
Dynasty® 350	#907 204	Auto-Line [™] 208-575 VAC, 50/60 Hz, CSA. 8-ft. primary cord		
Dynasty® 350 TIGRunner®	#907 204-00-1	Auto-Line [™] 208-575 VAC, 50/60 Hz, CSA. 8-ft. primary cord. Requires coolant		
Dynasty® 350 Complete with Wireless Remote Foot Control	#951 402	Auto-Line [™] 208-575 VAC, 50/60 Hz, CSA. 8-ft. primary cord		
Dynasty® 350 Complete with Foot Control	#951 401	Auto-Line [™] 208–575 VAC, 50/60 Hz, CSA. 8-ft. primary cord		
Dynasty® 350 International	#907 204-02-1	Auto-Line [™] 380–575 VAC, 50/60 Hz, CE. 8-ft. primary cord		
Dynasty® 700	#907 101	Auto-Line [™] 208−575 VAC, 50/60 Hz, CSA		
Dynasty® 700 TIGRunner®	#907 101-00-1	Auto-Line [™] 208–575 VAC, 50/60 Hz, CSA. Requires coolant		
Dynasty® 700 Complete with Wireless Remote Foot Control	#951 404	Auto-Line [™] 208-575 VAC, 50/60 Hz, CSA		
Dynasty® 700 Complete with Foot Control	#951 403	Auto-Line™ 208–575 VAC, 50/60 Hz, CSA		
Dynasty® 700 International	#907 101-02-1	Auto-Line [™] 380–575 VAC, 50/60 Hz, CE		
IG Torch Kits				<u> </u>
Neldcraft [®] Water-Cooled Torch Kits	#300 185 #300 183 #300 186	250 A, WP-20 Kit. See page 7 300 A, CS310 Kit. See page 7. Recommended for Dynasty 350 400 A, WP18SC Kit. See page 7. Recommended for Dynasty 700		
Neldcraft [®] 200 A Air-Cooled Torch	#WP2625RM	For Dynasty 350 only. Adapter #195 379 required. Order from Miller Parts		
Fungsten		See page 6		
Consumables, Cylinder, Hose and Fittings				
Remote Controls		·		
Wireless Remote Foot Control	#300 429	Foot control with wireless 90-ft. (27.4 m) operating range		
Wireless Remote Hand Control	#300 430	Hand control with wireless 300-ft. (91.4 m) operating range		
RCCS-14	#043 688	North/south fingertip control		
RFCS-14 HD	#194 744	Heavy-duty foot control		
RHC-14	#242 211 020	Hand control		
RMLS-14	#129 337	Momentary/maintained rocker switch		
RMS-14	#187 208	Momentary rubber dome switch		
Extension Cables	#242 208 025 #242 208 050 #242 208 080	25 ft. (7.6 m) 50 ft. (15.2 m) 80 ft. (24.4 m)		
Accessories				
Runner™ Cart	#300 244	See page 7		
Coolmate™ 3.5	#300 245	Requires coolant		
TG Coolant	#043 810	Sold in multiples of four in 1-gallon plastic bottles		
Automation Interface Kit	#195 516	Field. Provides required automation connections		
Veld Current Sensor	#300 179	Field. Installation required		
Forch Adapters		Supplied with torch kits		
Water-Cooled Dinse Torch Adapter	#195 377	Used to connect water-cooled torch to Dinse terminal machine. For WP20, WP18 and CS310 (adapter included in torch kit). <i>Order from Miller Parts</i>		
Water-Cooled Thread-Lock Torch Adapter	#225 028	Used to connect water-cooled torch to Dynasty/Maxstar 700 (adapter included with 700 models). <i>Order from Miller Parts</i>		
Cable Connectors		Supplied with power source and torch kits		
Dinse Connector 50 mm (1 male)	#042 418	Used to connect weld lead to Dinse terminal machine		
Thread-Lock Connectors (2 male)	#225 029	Used to connect weld lead to Dynasty 700 or Maxstar 700. Order from Miller Parts		
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		
TIG Gloves		See page 7		
Nelding Helmet				
Educational Materials				
Gas Tungsten Arc (TIG) Welding Book	#170 555	Order at MillerWelds.com/resources/tools		
Simulator and Setup CD-ROM	#233 558			
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