Dynasty 350 and 700

Issued Feb. 2007 • Index No. AD/5.0

TIG/Stick Welding Power Source



Quick **Specs**

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)

Input Power 208–575 V, 3- or 1-Phase Amperage Range 350: 5-350 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:** 135.5 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.

120 V 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.

TIGRunner® packages feature a 3.5 gallon (13.2 L) cooling system. The cart is equipped with cylinder carrying capabilities, filler rod holder, foot pedal holder, torch and cable holders. A pullout drawer provides additional storage for torch consumables and tools. See page 6.

Programmable start parameters allow independent starting conditions based on process and memory selections (amperage, time and polarity).

Program memory features 9 independent program memories that maintain/save your parameters.

High-frequency arc starter for non-contact arc initiation.

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

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.





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.

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

International Headquarters

Phone: 920-735-4505 USA FAX: 920-735-4134 Canadian FAX: 920-735-4169 International FAX: 920-735-4125 controls the amount of oxide cleaning (amperage time in EN)

work and electrode.

AC TIG Features

welds on aluminum. AC frequency (20–400 hz) controls the width of the arc cone and the force of the arc.

Independent Amplitude/Amperage

amperages to be set independently

to precisely control heat input to the

Extended AC balance (30-99%)

which is essential for high quality

Control allows EP and EN

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

Web Site

www.MillerWelds.com

Exceptionally smooth and precise arc for welding exotic materials.

High-Speed DC TIG Pulse Control 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.)

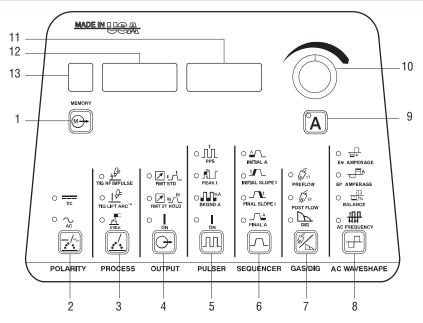


Model	Input Power	Welding Amperage Range	Max. Open-Circuit Voltage	Rated Output	Amps 208 V	input at 230 V	Rated L 400 V	.oad Ou 460 V	tput, 50 575V)/60 Hz KVA	KW	Dimensions	Net Weight
Dynasty 350	Three- Phase	5-350 A	75 VDC 10-15 VDC*	250 A at 30 V, 100% Duty Cycle	29	26	15	13	10	10.3	9.9	H: 24-3/4 in (629 mm) W: 13-3/4 in (349 mm)	135.5 lb (61 kg)
				300 A at 32 V, 60% Duty Cycle	35	32	18	16	13	12.7	12.1	D: 22 in (559 mm) with TIGRunner®	with
	Single- Phase	5-350 A	75 VDC 10-15 VDC*	180 A at 27.2 V, 100% Duty Cycle	35	32	—	15	12	7.4	6.8	H: 45-1/8 in (1146 mm) W: 23-1/8 in (587 mm) D: 43-3/4 in (1111 mm)	TIGRunner® 268.5 lb (122 kg)
				225 A at 29 V, 60% Duty Cycle	47	43	_	21	17	9.8	9.1	D. 45-5/4 III (1111 IIIII)	(122 ky)
Dynasty 700	Three- Phase	5-700 A	75 VDC 10-15 VDC*	500 A at 40 V, 100% Duty Cycle	75	68	39	34	27	27	26	H: 34-5/8 in (879 mm) W: 13-3/4 in (349 mm)	198 lb (90 kg)
				600 A at 44 V, 60% Duty Cycle	97	88	51	44	35	35	34	W: 23-1/8 in (587 mm)	with
	Single- Phase	5-700 A	75 VDC 10–15 VDC*	360 A at 34 V, 100% Duty Cycle	82	74	_	37	30	17	16		TIGRunner® 331 lb (150 kg)
				450 A at 38 V, 60% Duty Cycle	115	104	_	52	42	24	22		(130 Kg)

🐠 Certified to both the Canadian and U.S. Standards for welding equipment. 🛛 💽 Conforms to European 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)	5 . Pul Pul Pea Bac
2. Polarity 3. Process/	AC/DC TIG: HF Impulse, Lift Arc	6. Sei Init
Arc Starting 4. Output Control	STICK: Adaptive Hot Start Standard Remote, 2T Trigger Hold,	Init Fin Fin
	Output ON	LII!

5. Pulser Control						
Pulses per Second	DC: 0.1-5000 PPS					
	AC: 0.1-500 PPS					
Peak Time	5–95%					
Background Amps	5-95%					
6. Sequencer Control						
Initial Amps	Dynasty 350: 5–350 A					
	Dynasty 700: 5–700 A					
Initial Slope	0.0-50.0 Seconds					
Final Slope	0.0-50.0 Seconds					
Final Amps	Dynasty 350: 5–350 A					

7. Gas/DIG Preflow 0.0–25.0 Seconds Postflow Auto Postflow,

Auto Postflow, Adjust 0.0–50 Seconds 0–100%

8. AC Waveshape EN Amperage EP Amperage Balance AC Frequency

DIG

5-350 A/5-700 A 5-350 A/5-700 A 30-99% 20-400 Hz

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

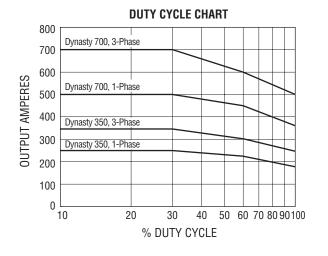
Additional Setup Parameter Values

Programmable St Amperage Time Polarity	arts 5–200 A 1–200 Milliseconds EP, EN					
Additional Triggers	3 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					
Lockouts	Four levels					
Arc Timer	0.0–9999 Hours and 0–59 Min					
Cycle Counter	0-999,999 Cycles					

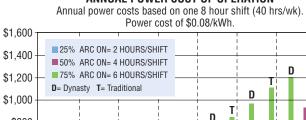


Dynasty 700: 5-700 A

Performance Data

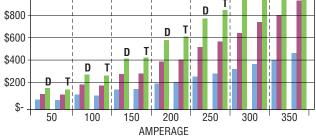


TIG Upgrade Chart



ANNUAL POWER COST OF OPERATION

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Which Machine is Right for You?

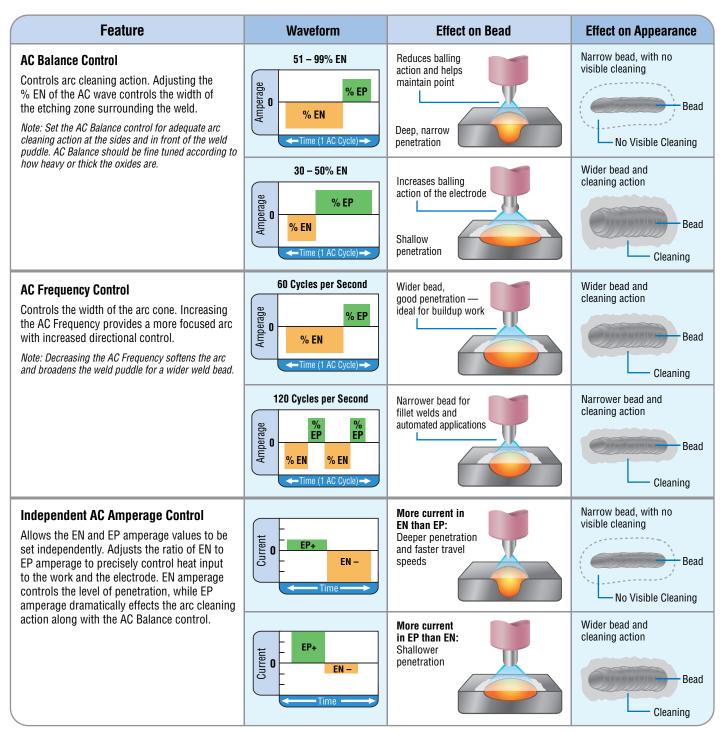
Why Upgrade?	Syncrowave 350		Dynasty 350	Dynasty 350 Benefits
Maximum Thickness Capacity	1/2 in Aluminum	PGRADE	> 3/4 in Aluminum	Increase aluminum thickness by 50%.
High Frequency Arc Starting	Continuous HF	PGRADE	Start Only	Start Only limits HF interference issues.
Frequency Control AC Output Control	Fixed at 60 Hz	PGRADE	Variable 20–400 Hz	Higher frequencies provide better arc control and faster travel speeds.
AC Waveforms	Soft Squarewave	PGRADE	Advanced Squarewave Soft Squarewave	Advanced Squarewave=Travel faster
				Soft Squarewave= Maximum puddle control
			Sine Wave Triangular Wave	Sine Wave= Traditional characteristics
				Triangular Wave= Reduced heat input
Weld Aluminum with Pointed Tungsten		PGRADE		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 Manual Links 208/230/460 V Single-Phase	PGRADE	> 108 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	PGRADE	> 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	PGRADE	All Digital Controls	Accuracy and repeatability with all digital controls.

\$1,600

\$1,400

\$1,200

AC Waveshape Controls

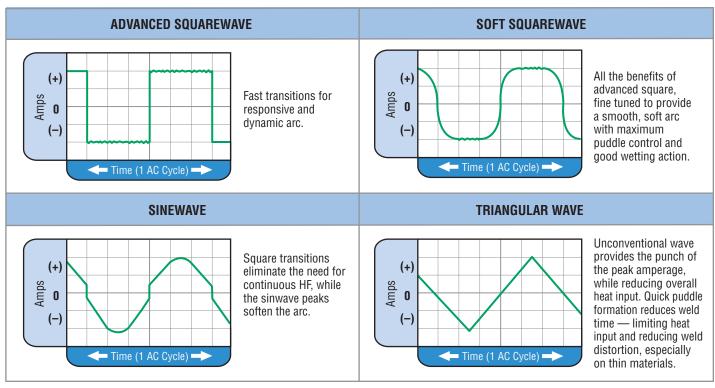




AC Waveshape Controls (Continued)

AC Waveform Selection

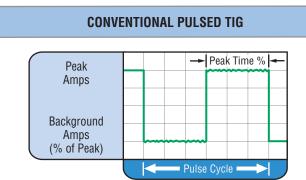
Select from four different AC waveforms to optimize the arc characteristic for your application. Choose from:



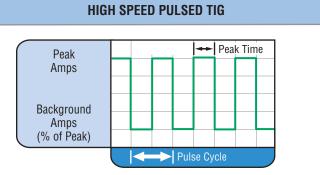
Pulse TIG Controls

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.



Packages and Torch Kits





See page 7 for additional Torch Packages

Dynasty® Power Sources

Dynasty[®] **350 #907 204 (CSA)** (Auto-Line[™] 208-575 VAC)

Dynasty[®] **350 #907 204-01-2 (CE)** (Auto-Line[™] 380-575 VAC)

8 ft (2.4 m) primary cord, (2) international (Dinse 35/50) connectors, (1) water-cooled torch adapter for #18 or #20 torches, and (2) 5/8-18 barbed gas fittings.

TIGRunner® Packages

Dynasty 350 TIGRunner® #907 204-01-1 (CSA)

Completely assembled.

Package includes:

- Dynasty[®] 350 (#907 204)
- RFCS-14 HD foot control
- Coolmate[™] 3.5 Coolant System
- Cart with the following features: single cylinder rack, foot pedal holder, (3) cable/torch holders, (2) TIG electrode filler holders and a convenient drawer for tungsten and consumable storage

Note: Torch package must be ordered separately.

TIGRunner[®] with Torch Packages

Dynasty 350 TIGRunner[®] with Torch Kit #951 062 (CSA)

Completely assembled.

Package includes:

- Dynasty[®] TIGRunner[®] (#907 204 4011)
- 25 ft (7.6 m) Weldcraft CS310 watercooled torch
- 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 in)
- Smith regulator/flowmeter HM2051A-580
- 12 ft (3.7 m) rubber gas hose (regulator to machine)
- Water-cooled Dinse torch adapter
- 12 ft (3.7 m) 1/0 weld lead with clamp (work or ground lead) and Dinse connector

Note: Coolant must be ordered separately.

Dynasty[®] 700 #907 101 (CSA) (Auto-Line[™] 208-575 VAC)

Dynasty[®] **700 #907 101-01-2 (CE)** (Auto-Line[™] 380-575 VAC)

(2) thread lock weld cable connectors, and
(1) water-cooled thread lock torch adapter for #18 or #20 torches.

Primary cord not included.

Dynasty 700 TIGRunner® #907 101-01-1 (CSA)

Completely assembled.

Package includes:

- Dynasty[®] 700 (#907 101)
- RFCS-14 HD foot control
- Coolmate[™] 3.5 Coolant System
- Cart with the following features: single cylinder rack, foot pedal holder, (3) cable/torch holders, (2) TIG electrode filler holders and a convenient drawer for tungsten and consumable storage

Note: Torch package must be ordered separately.

Dynasty 700 TIGRunner[®] with Torch Kit #951 064 (CSA)

Completely assembled.

Package includes:

- Dynasty[®] 700 TIGRunner (#907 101 011)
- 25 ft (7.6 m) Weldcraft WP18SC watercooled torch
- 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 in)
- Smith regulator/flowmeter H1954D-580
- 12 ft (3.7 m) rubber gas hose (regulator to machine)
- Water-cooled thread lock torch adapter
- 12 ft (3.7 m) 4/0 weld lead with clamp (work or ground lead)

Note: Coolant must be ordered separately.



Genuine Miller Accessories

Torch Kits

250 A Water-Cooled Torch Kit #300 185

- 25 ft (7.6 m) Weldcraft[®] WP20 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
- 12 ft (3.7 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 ft (7.6 m) Weldcraft[®] CS310 torch
- 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 in)
- Smith[®] regulator/flowmeter HM2051A-580
- 12 ft (3.7 m) rubber gas hose (regulator
- to machine)
- Water-cooled Dinse torch adapter
- 12 ft (3.7 m) 1/0 weld lead with clamp (work or ground lead) and Dinse connector

Runner Cart #300 244

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

holders, (2) TIG electrode filler holders and a convenient drawer for tungsten and consumable storage.



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.



TIG Coolant #043 810

4 gallons of pre-mixed low-conductivity coolant. Miller coolant contains ethylene glycol and deionized water to protect from freezing and boiling -37° to 227°F (-38° to 108°C). Coolant contains 2.4% algae growth inhibitor.

TIG Welding Gloves

#227 813 Small **#227 815** Large **#227 814** Medium **#227 816** X-Large These gloves are designed to meet the specific requirements high-quality TIG welding demands. Made from soft grain goatskin. Sewn with Kevlar® thread.

Automation Interface Kit **#195 516** Field Includes automation PC board, 28-pin socket receptacle with harness, 28-pin plug connector. Provides required and advanced automation controls.

Gas Tungsten Arc (TIG) Welding Book #170 555

Tungsten

Tungsten is 7 in length and available in pkgs of 10. **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

For all Miller solid-state power sources after serial number JK674521. North/south rotary-motion fingertip control fastens to TIG torch using two Velcro[®] straps. Great for applications that require a finer amperage control. Includes 26.5 ft (8 m) control cord.

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

- 25 ft (7.6 m) Weldcraft[®] WP18SC torch
- 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 in)
- Smith[®] regulator/flowmeter H1954D-580
- 12 ft (3.7 m) rubber gas hose (regulator
- to machine)
- Water-cooled thread lock torch adapters 10 ft (0,7 m) 4/0 would lead with alarge
- 12 ft (3.7 m) 4/0 weld lead with clamp (work or ground lead)



RFCS-14 HD Foot Control #194 744 For all Miller solidstate power sources after serial number JK674521. This new

design increases stability with a larger base, and durability with a heavier cord. 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: $4 \times 4 \times$ 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 For all Miller

solid-state power sources after serial number JK674521. Momentary- and maintainedcontact 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.



MS-14 On/Off Control #187 208

For all Miller solid-state power sources after serial number JK674521. Momentarycontact 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® 350	#907 204	Auto-Line [™] 208-575 VAC, 50/60 Hz, CSA. 8 ft primary cord		
Dynasty® 350 TIGRunner®	#907 204-01-1	Auto-Line™ 208–575 VAC, 50/60 Hz, CSA. 8 ft primary cord. Requires coolant		
Dynasty® 350 TIGRunner® w/Torch Kit	#951 062	Auto-Line [™] 208–575 VAC, 50/60 Hz, CSA. 8 ft primary cord. <i>Requires coolant</i>		
Dynasty® 350 International	#907 204-01-2	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®	#907 101-01-1	Auto-Line [™] 208-575 VAC, 50/60 Hz, CSA. Requires coolant		
Dynasty® 700 TIGRunner® w/Torch Kit	#951 064	Auto-Line [™] 208-575 VAC, 50/60 Hz, CSA. Requires coolant		
Dynasty® 700 International	#907 101-01-2	Auto-Line™ 380-575 VAC, 50/60 Hz, CE.		
TIG Torch Kits				
Weldcraft® 250 A Water-Cooled Torch Kit	#300 185	See page 7		
Weldcraft® 300 A Water-Cooled Torch Kit	#300 183	See page 7. Recommended for Dynasty 350		
Weldcraft [®] 400 A Water-Cooled Torch Kit	#300 186	See page 7. Recommended for Dynasty 700		
Consumables and Tungsten		Distributor: See Miller Parts Catalog		
Gas Cylinder, Hose and Fittings				
Remote Controls				
RCCS-14	#043 688	North/south fingertip control		1
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	25 ft (7.6 m)		
	#122 974	50 ft (15.2 m)		
	#122 975	75 ft (22.9 m)		
Accessories				
Runner™ Cart	#300 244	See page 7		
Coolmate™ 3.5	#300 245	Requires coolant		
TIG Coolant	#043 810	4 gallons		
Automation Interface Kit	#195 516	Field. Provides required automation connections		
Gas Tungsten Arc (TIG) Welding Book	#170 555	Contact your distributor		
Torch Adapters		Supplied with power source and torch kits		
Water-Cooled Dinse	#195 377	Used to connect water-cooled torch to Dinse terminal machine		
Water-Cooled Thread Lock	#225 028	Used to connect water-cooled torch to Dynasty/Maxstar 700		
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		
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				

Total Quoted Price:

Date:



Distributed by: