Ultima® 150

PAW | 1/3 PHASE | 50/60 Hz | INVERTER | 208 V | 230 V | 400 V | 460 V | 575 V | DC | CC | 150 AMP

Repeatable welds again, and again, and again

GOLD WARRANTY 5 Year*

Ultima®150 comes with:

- Ultima 150 unit
- Quick Change Torch**
- Torch spare parts kit
- Coolant

Quick Specifications#
Processes
Plasma Arc Welding (PAW)
Industrial Applications
Automation
Appliance Manufacturing
Metal Furniture Manufacturing
Electrical Manufacturing
Aerospace/Aircraft
Computer/Office Equipment
Medical Services
Fabrication
Input Voltage
208-460 VAC 1/3 Phase
575 VAC 3 Phase w/optional module
Rated Output
100A@18V 100% Duty Cycle
150A@25V 50% Duty Cycle
Amperage Range
0.5 – 15 Amps
5 – 150 Amps
Weight
130 lb (59 kg)
Order Information
See ordering information page for details.

* Limited warranty. Refer to warranty schedule.
**Refer to ordering information for torch selection.
Subject to change without notification.

Quick Change Torch!
No tools required.

Cost Savings! The Ultima 150 is priced competitively with automated TIG systems. Plasma welding is measurably the lower cost process with savings gained through increased productivity, reduced scrap, reduced down time and fewer electrode changes.

Wide Current Range!
0.5 – 150amp current range for quality performance over a wide variety of applications.

Very Smooth Arc! Ultra smooth DC arc for repetitive, high quality welds.

Repeatable Arc Starting! Pilot arc allows for repeatable arc starts, reducing defects and rework.

Multiple Voltage! 208-460 VAC in 1 or 3 phase power at 50 or 60 Hz with 575 VAC optional module.

Simple to Set-Up! The Ultima 150 is a self contained unit, which requires attaching input power and gasses, then mounting the torch.

Smart Logic®! Prevents damage to the internal components if installed to improper voltage.

Current Limiter! Limits power source output to torch capability to avoid torch damage.

Preview Set Current! Allows you to display actual current/voltage and avoid costly test set-ups.

Easy to Use! Simple interface for automated or manual control.

THERMAL ARC By THERMADYNE®

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International Customer Care
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What is Plasma Welding?#

Plasma Welding is a superior variation of the TIG process that offers many advantages over TIG:

- Increases productivity by reducing down time
- Reduces scrap by providing consistent arc starting every time
- Improved process control for repeatable, high quality welds
- Reduces interference (noise) with computers, phone systems, CNC controllers

Simply stated, plasma welding is a variation to GTAW (TIG) that encloses the tungsten electrode in a protected environment (Fig. 1) and delivers the arc through a cooled copper tip. Enclosing the electrode protects it from contamination, thus substantially extending electrode life. The consistent arc shape of plasma results in consistent welds for 8 hours or more of operation as compared to automated TIG welding, where deterioration of the exposed TIG electrode (Fig. 2) can result in weld arc variations (Fig. 3) in one hour or less of operation. Plasma welding uses a pilot arc (Fig. 4) to consistently transfer the arc to the work without the repeated use of high frequency current. The Ultima 150 pilot arc circuit results in repetitive starting and reduces problems of high frequency interference with CNC controls, phones and computers which are common with the TIG process.

Protected Electrode

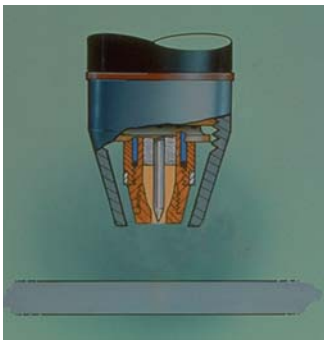

Figure 1

Used Tig Electrode

New Electrode

Used Plasma Electrode

Figure 2

Tig Weld Sample

Figure 3

Pilot

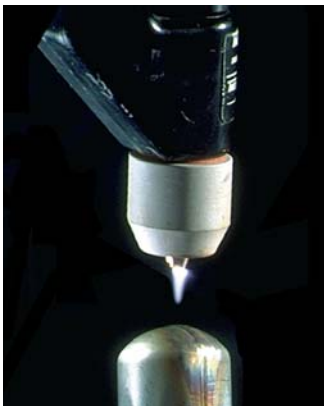

Figure 4

Typical Plasma/TIG Welding Productivity Benefit Analysis

		TIG			PLASMA		
Time	Total Parts at 100% Cap.	Tig Electrode Changes	Minutes to Change Electrode	Parts Lost with TIG	Plasma Electrode Changes	Parts Lost with Plasma	Net Gain Plasma over TIG
Hour	208	1	5	17	0	0	**17**
Day	4,992	24	120	416	3	52	**364**
Week	24,960	120	600	2,080	15	260	**1,820**
Month	108,160	520	2,600	9,013	65	1,127	**7,887**
Year	1,297,920	6,240	31,200	108,160	780	13,520	**94,640**

Shift Hours per Day 24 — Value Per Part: 1

Days worked per Week 5 — Production Parts/Dollars Gained with Plasma: **94,640**

Application: Outside corner welds home appliance

Note: 4 welds required on each part. For more information, contact Thermal Arc or your Authorized Thermal Arc Distributor.

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Features#

Easy fill coolant reservoir with built-in deionizer bag.

Plasma & Secondary gas flow meter.

System status and error indicator lights.

Digital welding/Pilot current amp meter.

Quick disconnect hand held or automated torches available.

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Specifications#

Ultima 150	
Rated Output @ Duty Cycle	150A/25V @ 50% 208-460V, 1/3 Phase 100A/18V @ 100% 208-460V, 1/3 Phase 575V 3 Phase w/optional module
Output Ranges	Low .5-15 A High 5-150A
Load Volts	12-25 V
OCV	60 V DC
Input Hz	50/60 Hz
Flow Meters	Plasma .5-3.0 SCFH (.25-1.5 lpm) Shield 5-30 SCFH (2.5-15 lpm)
Contractor Control	Remote Input
Current Control	Remote or Panel
Analog Control	0-10 Volts DC Input
Shipping Weight	154 lbs/72 kg

Input Voltages		208-575 Volt 1/3 Phase					
		208	230	380	415	460	575
Power (KVA)	1 ph			8			
	3 ph			6			
Current (Amps)	1 ph	37	34	–	–	–	–
	3 ph	20	19	12	12	11	9

Dimensions & Weight		
Dimensions	HxWxD	18 x 15 x 28.5 in (457 x 381 x 724 mm)
Weight		130 lb (59 kg)

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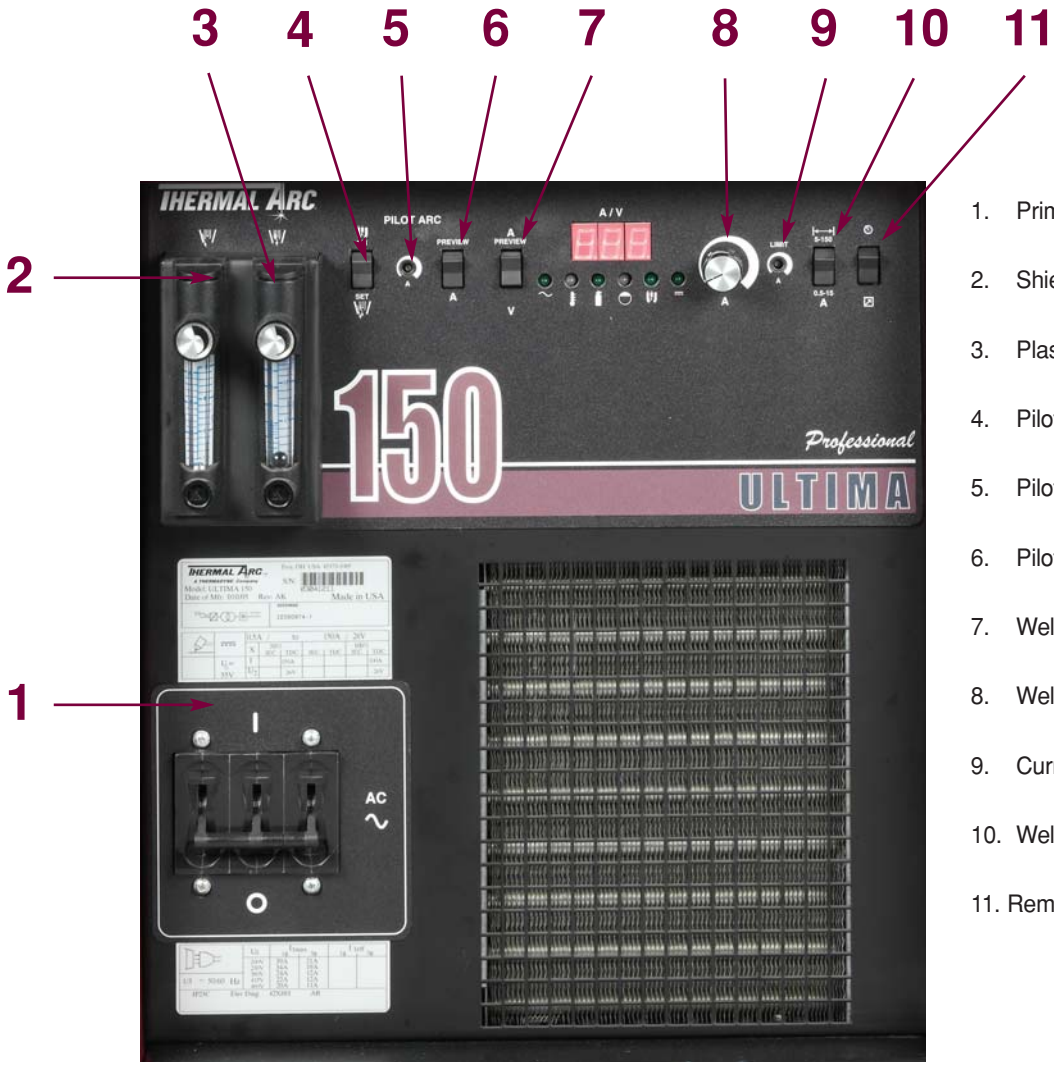
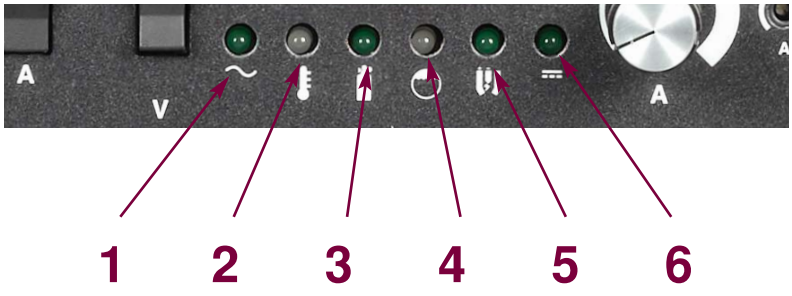
Control Panel#



1. Primary On/Off Circuit Breaker
2. Shield Gas Flow Control
3. Plasma Gas Flow Control
4. Pilot Arc On/Set
5. Pilot Current Adjust
6. Pilot Current Preview
7. Weld Current Preview/Actual
8. Weld Current Adjust
9. Current Limiter Adjust
10. Weld Current Range
11. Remote/Panel Control



PANEL INDICATOR LIGHTS

1. AC - indicates correct input voltage is applied
2. TEMP - over temperature indicator light
3. Gas - lights to indicate Plasma & Shield gas pressure switches are satisfied
4. Coolant - indicates proper coolant flow to torch
5. Pilot - indicates pilot arc is active
6. DC - indicates output welding DC current is active

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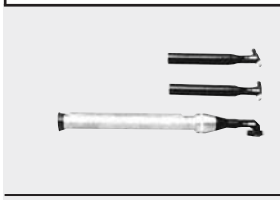
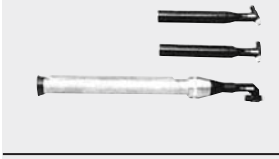
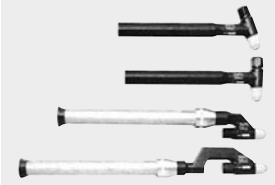
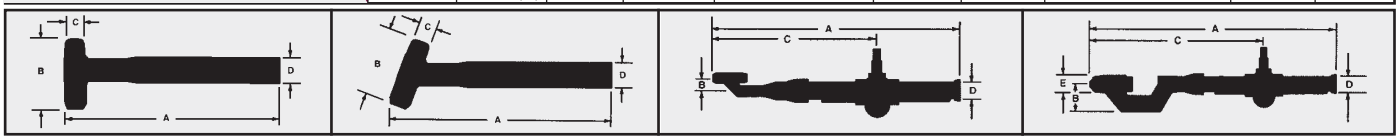
Torch Specifications#

	Type	Part No.	Torch Lead Length	Current Rating	Coolant Requirements	Torch Dimensions A	B	C	D	E
 2A	PWH-2A 70°	2-2100 (H) 2-2104 (H)	12.5 ft. 25 ft.	75 Amps (DCSP)	2,000 BTU/hr (504 K/Cal/hr) 1/4 gpm coolant flow @ 50 PSI (0.9 lpm @ 3.7 kg/cm²)	7-15/16" (202 mm)	1-11/16" (43 mm)	5/8" (16 mm)	7/8" (22 mm)	
	PWH-2A 90°	2-2101 (H) 2-2105 (H)	12.5 ft. 25 ft.			7-3/4" (196 mm)	1-11/16" (43 mm)	5/8" (16 mm)	7/8" (22 mm)	
	PWM-2A 180° Offset	2-2102 (H) 2-2103 (M)	12.5 ft.			18-1/4" (463 mm)	13/16" (21 mm)	Min. 7-1/8" (181 mm) Max. 15" (381 mm)	1-3/8" (35 mm)	
		2-2106 (H) 2-2107 (M)	25 ft.							
 3A	PWH-3A 70°	2-2110 (H) 2-2114 (H)	12.5 ft. 25 ft.	150 Amps (DCSP)	6,000 BTU/hr (1513 K/Cal/hr) 1/3 gpm coolant flow @ 50 PSI (1.25 lpm @ 3.7 kg/cm²)	8-3/4" (222 mm)	2-5/8" (67 mm)	7/8" (22 mm)	1-1/16" (27 mm)	
	PWH-3A 90°	2-2111 (H) 2-2115 (H)	12.5 ft. 25 ft.			8-1/2" (216 mm)	2-5/8" (67 mm)	7/8" (22 mm)	1-1/16" (27 mm)	
	PWM-3A 180° Offset	2-2112 (H) 2-2113 (M)	12.5 ft.			19-1/4" (489 mm)	1" (25 mm)	Min. 9-1/4" (235 mm) Max. 16-3/4" (425 mm)	1-3/8" (35 mm)	
		2-2116 (H) 2-2117 (M)	25 ft.							
 4A	PWH-4A 70°	2-2120 (H) 2-2125 (H)	12.5 ft 25 ft.	200 Amps (DCSP)	8,000 BTU/hr (2017 K/Cal/hr) 1/2 gpm coolant flow @ 50 PSI (1.9 lpm @ 3.7 kg/cm²)	12-1/2" (318 mm)	3-3/16" (81 mm)	1-1/4" (32 mm)	1-3/8" (35 mm)	
	PWH-4A 90°	2-2119 (H) 2-2126 (H)	12.5 ft. 25 ft.			12-1/4" 311 mm)	3-3/16" (81 mm)	1-1/4" (32 mm)	1-3/8" (35 mm)	
	PWM-4A 180° Offset	2-2121 (H) 2-2122 (M)	12.5 ft.			18" (457 mm)	1-3/4' (44 mm)	Min. 8-1/4" (209 mm) Max. 16" (406 mm)	1-3/8" (35 mm)	1-1/4" (32 mm)
		2-2127 (H) 2-2128 (M)	25 ft.							
	PWM-4A1 180° Inline	2-2123 (H) 2-2124 (M)	12.5 ft.			21" (.53 m)	1-3/4" (44 mm)	Min. 11-1/4" (286 mm) Max. 19" (483 mm)	1-3/8" (35 mm)	1-1/4" (32 mm)
		2-2129 (H) 2-2130 (M)	25 ft.							



NOTE: All torches listed incorporate a quick disconnect connector specifically for operation with the Ultima 150.

(H) designates torch with molded handle

(M) designates torch with rack and pinion assembly

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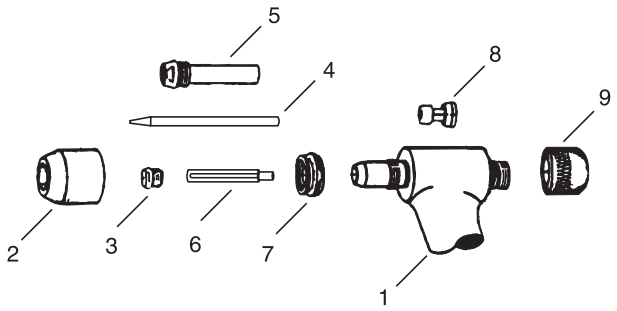
Torch Parts#



ITEM NO.	PART DESCRIPTION	2A TORCH	SPARE PARTS KIT 5-2984	3A TORCH	SPARE PARTS KIT 5-2985	4A TORCH	SPARE PARTS KIT 5-2986
1	Torch Head Assembly	8-2027 (70°) 8-2028 (90°) 8-2097 (180° offset)		8-3030 (70°)) 8-3031 (90°) 8-3032 (180° offset)		8-4014 (70°) 8-4015 (90°) 8-4016 (180° offset) 8-4054 (180° inline)	
2	Shield Cup	8-3236 (use w/ext. tip) 8-2071 (use w/std. tip)	2	8-3040	1	8-4088	1
3	Tip	8-2023 (.045) 35A-std 8-2024 (.062) 55A-std 8-2025 (.081) 75A-std 8-2079 (.031) 15A-lg 8-2080 (.045) 25A-lg 8-2082 (.062) 35A-lg 8-2083 (.081) 50A-lg	 5 5	9-1788 (.031) 35A-lg 9-1789 (.046) 50A-lg 9-1790 (.062) 75A-lg 9-1791 (.081) 100A-lg 9-1811 (.-093) 130A-lg	 5 5 5	9-1890 (.062) 100A-lg 9-1891 (.093) 125A-lg 9-1892 (.125) 150A-lg*	5 5 5
4	Electrode	8-2033 (.093) std 8-2006 (.093) ext. 8-2044 (.040) std. 8-2046 (.040) ext.		8-2007 (.093) std. 9-1775 (.093) ext.	2	9-1827 (.187) std. 9-1834 (.187) ext.	2
5	Liner	N/A		N/A		8-4011	2
6	Gas Distributor (insulating sleeve)	8-2040 (.093-electrode) 8-2042 (.040-electrode)	1	9-2240	1	9-2204	1
7	Gas Diffuser	N/A		8-3059		8-4087	
8	Collet Assembly	8-2039 (.093-electrode) 8-2041 (.040-electrode)		9-1780	1	9-1876	
9	Back Cap	8-2032 (std-electrode) 8-2030 (ext-electrode)		9-1779 (std-electrode) 9-1803 (ext-electrode)		8-4158 (std-electrode) 9-1877 (ext-electrode)	
N/S	Collar	N/A		N/A		8-4024	
N/S	O-ring (liner)	N/A		N/A		8-0560	
N/S	O-ring (internal)	N/A		N/A		8-0528	
N/S	O-ring (back-cap)	8-2035		8-0527		8-0530	
N/S	Gasket (shield cup)	8-2036		8-3057		8-4069	
N/S	Gage/Wrench Assy	8-2021	1	9-1810	1	9-1873	1
N/S	Lubricant	8-4025	1	8-4025	1	8-4025	1
N/S	Tool Box	8-3141	1	8-3141	1	8-3141	1

NOTE: The use of extended electrode requires an extended back cap.
Tip ratings @ minimum electrode setback.
*Tip maximum current rating not to exceed the maximum output of Ultima-150

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Ordering Information

PRODUCT	PART NO.	DESCRIPTION	QTY	PRICE
Ultima 150	3-2770	Power source only inc. quick disconnect assembly		

	PART NO. w/12.5ft torch & leads	PART NO. w/25ft torch & leads	SYSTEM DESCRIPTION	QTY	PRICE
Ultima 150 System Torch (rating)					
2A (75 Amps)	1-1551-21	1-1552-21	PWH-2A, 70 degree		
	1-1551-22	1-1552-22	PWH-2A, 90 degree		
	1-1551-23	1-1552-23	PWH-2A, 180 degree		
	1-1553-23	1-1553-23	PWM-2A, 180 degree		
3A (150 Amps)	1-1551-31	1-1552-31	PWH-3A, 70 degree		
	1-1551-32	1-1552-32	PWH-3A, 90 degree		
	1-1551-33	1-1552-33	PWH-3A, 180 degree		
	1-1553-33	1-1553-33	PWM-3A, 180 degree		
4A (200 Amps)	1-1551-41	1-1552-41	PWH-4A, 70 degree		
	1-1551-42	1-1552-42	PWH-4A, 90 degree		
	1-1551-43	1-1552-43	PWH-4A, 180 degree		
	1-1551-53	1-1552-53	PWH-4A1, 180 degree		
	1-1553-43	1-1553-43	PWM-4A, 180 degree		
	1-1553-53	1-1553-53	PWM-4A1, 180 degree		

ACCESSORIES	PART NO.	DESCRIPTION	QTY	PRICE
Quick Disconnect Kit	5-2990	Allows existing torches to be converted for use with Ultima 150		
Regulator - Argon	9-2722			
Regulator - Argon/Hydrogen	9-3053			
Foot Control	7-3080			
Hand Pendant	10-2005	Requires 7-3316 adapter		
Remote Interface Cable 10ft.	9-4063			
Weld Process Controller - WC-1	600279			
Remote Hand Pendant 25ft.	600280			
Cable Assembly (required for WC-1)	9-4129			

TOTAL QUOTE PRICE

NOTE: PWH designates a torch with a molded handle; PWM designates a torch with rack and pinion.

Torch amperage rating based on minimum electrode set back.

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