

PLASMA ARC WELDING

ULTIMA® 150



CALL FOR Details and Ordering Information For Items Shown on This Page

PROCESS	PLASMA ARC WELDING	230 / 460 Volts		
Part Number	Rated Output @ Duty Cycle	Output Range	Dimensions (H x W x D)	Net Weight
1-155X-XX CALL FOR INFO.	150 A / 25 V @ 60%	0.5 - 15 Amps (Low) 5 - 150 Amps (High)	18" x 15" x 28.5" 457 x 381 x 724 (mm)	154 lbs. (72 kg)

PLASMA ARC WELDERS



Ultima™ 150 COMPLETE
A Complete All-In-One Plasma Welding System
 Part No.1-155X-XX

- Increase productivity by reducing down time or automatically.
- Reduce scrap with constant arc start every time
- Improve process control to make a quality weld every time
- Reduces interference with computers, phone systems, CNC controllers
- Enclosed and protected electrodes

CONVERT POWER SOURCES Such As The: PRO-PLUS® 500 Into PLASMA With A

300 Amp Plasma Welding Modular Systems

Reliable, easy-to-operate Thermal Arc® Plasma Welding Systems boost profits and productivity by helping you achieve consistently high quality repeatable welds – manually or automatically. Whatever your application needs, the broad, versatile line of Thermal Arc® consoles, torches, power supplies and accessories provide the right tools for the job. All have been carefully designed to work together in producing high quality welds in most metals such as stainless steels, high-nickel alloys, high-strength alloys, carbon steels, copper and copper/nickel alloys.

WC-1

The Thermal Arc WC-1 Controller, allows a compact packaged micro-processor system to be added onto a Thermal Arc



Ultima-150™ or WC100B Component plasma welding package to provide accurate, and repeatable parameter control over the entire welding system. The Controller provides a full-featured current Pulser to aid in controlling warpage, penetration and the weld puddle. The Sloper function is designed to permit the development of a complete sequence of operation for a specific welding job. Two programmable outputs are featured; one is used to control the Plasma power source and the second, controls a Cold Wire Feed Motor Drive Control. The Controller provides 32 user selectable weld schedules.

HE-100A

COOLANT RECIRCULATOR



For All Thermal Arc Torches to 300 Amps High efficiency and completely non-ferrous internal construction

(including a reusable metal filter) make the HE100A a useful, dependable companion for any Thermal Arc® plasma welding system to 300 Amps.

A positive displacement, rotary vane pump delivers a maximum of 2.3 gpm (8.7 lpm) at 100 psi (.91 lpm at 7 kg/cm2). The pressure is adjustable. Maximum rating is 20,000 BTU/hr (5040 K/Cal/hr) [based on 100° F (38.8° C) difference between ambient air and high coolant temperature and 40° F (4° C) difference between high and low coolant temperature]. Coolant Capacity: 1 3/4 gal. (6.6 L) 24" H x 20" W x 20" D Shipping Wt: 125 lb

WC100B

WELDING CONSOLE

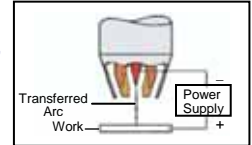
Automatic / Manual Operation, Pilot Arc Usable with any of the Thermal Dynamics® line of plasma welding torches, the WC100B features reliable arc starting by means of a pilot arc. It offers advantages in low-current welding operations, and in repetitive, high-duty-cycle, automatic applications.



The pilot arc can be used in either the interrupted or continuous mode. The latter provides greater arc stability along with instant arc starting at low currents or in high-duty-cycle, fast cycling welding. Among other WC100B features are: LED amperage/voltage display; large, readable plasma and shield gas flow meters; internal torch leads connections for increased safety; hi/low pilot current switch to provide the best arc starting characteristics at various main arc current levels; plug-in enclosed relays; and auxiliary control receptacle for automatic or manual operation. 15" H x 18 5/8" W x 19 5/8" D Shipping Wt: 125 lb

What is Plasma Welding?

- Plasma is the "super-heating" of a gas that becomes highly conductive, which for welding, allows for the transfer of an electrical current.
- Temperature of a plasma flame can reach as high as 30,000° F. The "fourth" state of matter.



What is Plasma Welding?

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 that are common with the TIG process.

Protected Electrode

Fig. 1

Used TIG Electrode
New Electrode
Used Plasma Electrode

Fig. 2

TIG Weld Sample
Pilot

Fig. 3
Fig. 4

PLASMA WELDING OFFERS MANY FEATURES AND BENEFITS

Protected Electrode - The tungsten electrode, which is secured inside of the plasma torch and behind the orifice, is constantly protected from outside impurities that would normally attack its hot surface.

Pilot Arc - The pilot arc is a low current DC arc that is sustained in the tip area of the torch to ionize a gas as it passes around the electrode and through the orifice.

Constricted, Columnated Arc - The placement of a small orifice into the front end of the torch provides for the laminar flow of the plasma gas and constriction of the arc.

Protected Electrode - When welding materials such as motor laminations, stampings or formed parts, the surface contaminants (stamping or forming oils, oxides or degreasers) can constantly attack an "exposed" electrode. This contamination can require the changing of the electrode on a repetitive basis. The protected electrode in the plasma welding torch normally requires a change approximately every 8 hours of operation. This reduction in electrode changes allows for increased productivity and less part rejects.

Pilot Arc - The use of a pilot arc instead of conventional high frequency circuitry provides extremely reliable arc starting. This repeatable arc initiation minimizes the number of rejects or reworks.

Constricted, Columnated Arc - Delivers high heat concentration and arc directability to the work segment allowing for greater penetration and a reduction in current levels in many applications. The columnar arc also permits a greater standoff between the torch and work piece

