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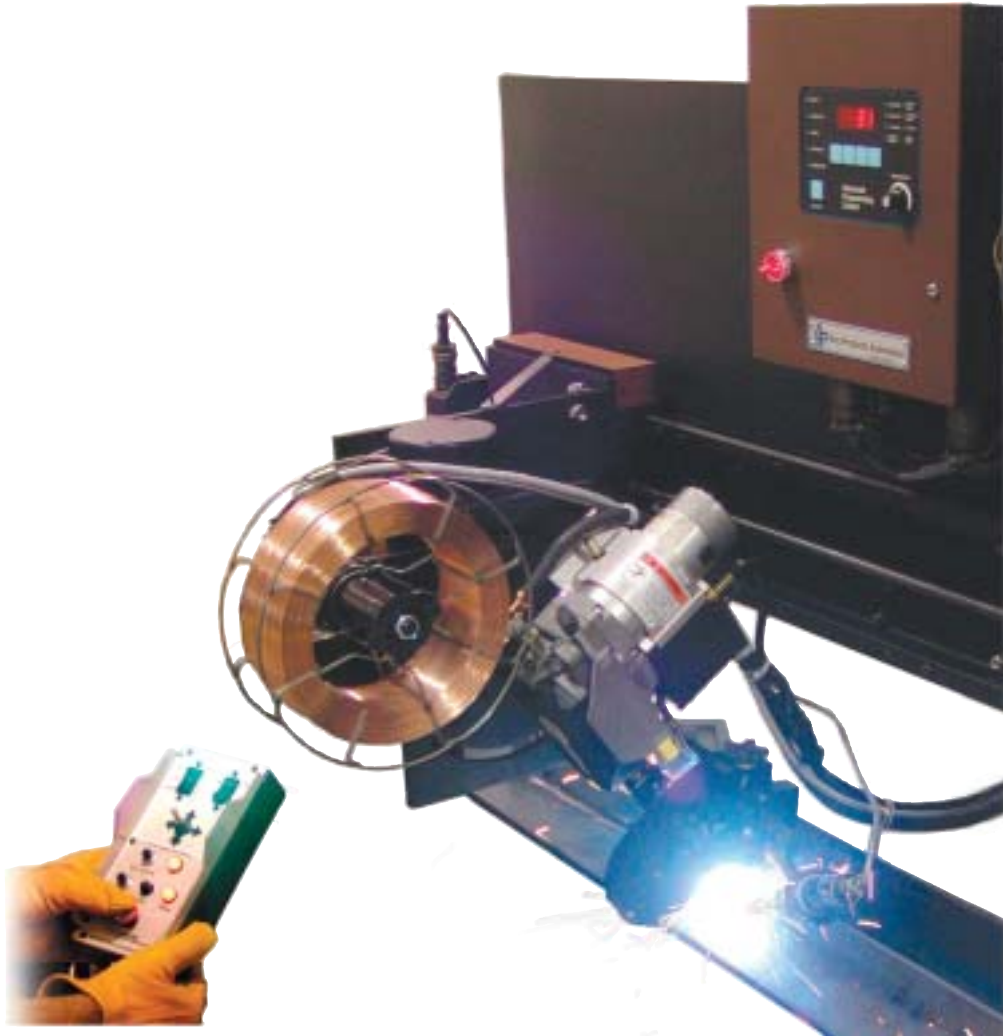
## AP Automation Custom Automation Systems Product Brochure





# Automation Systems

Expert, Custom Engineering for All Applications



Arc Products builds custom automation systems for simple and complex applications. Utilizing seam tracking systems, lathes, positioners and arc voltage controls, the welding torch and movement of your part are completely controlled for pre-programmed, repeatable welds.

We have been building custom systems for over 20 years. Our equipment is rugged, incorporating the latest proven technologies and offered to you at very competitive pricing.

# Introducing Automated Welding in Your Shop:

## Example: Custom-Engineered System for Small Aluminum Connectors

### 1 Customer contacts AP Automation with job requirements:

Customer is currently hand-welding these parts and wants to mechanize in order to:

- Increase production
- Improve weld quality and consistency
- Reduce rejects
- Lower operator skill level requirements

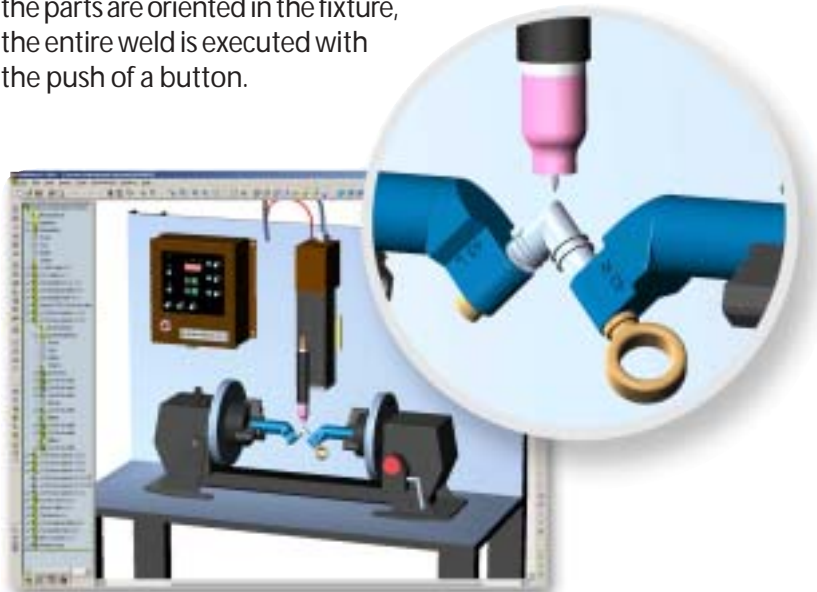
The customer has 45 different aluminum parts, which require quick setup and easy switching between parts.



### 2 AP Automation Custom-Engineers a Welding System:

AP Automation designed fixtures with internal argon purge for each part. The fixtures exactly align the two halves of each part together before welding. Each set of holding fixtures is labeled with a part number which corresponds to the program number in the AP-1000 TIG Controller. The fixtures quickly clamp into a weld lathe, which has synchronized head and tail stock rotation.

The simple programming of the AP-1000 is ideal for this application. AP-1000 controls all welding parameters for each part, including amperage, voltage, wire speed, and lathe rotation speed. Once the parts are oriented in the fixture, the entire weld is executed with the push of a button.



#### System Features

- Slant-back controller cabinet design
- Graphics display—primarily text based with graphics capability



#### Aluminum Fittings

- Parts drawn in SolidWorks
- Exact 3D Model



### 3 Solidworks® 3D CAD model is created and emailed:

This allows the customer to view on his web browser an animated simulation of his job being welded with our system. The customer can zoom in and manipulate the image to view all of his clearance requirements and verify our equipment for his job. No extra software is required to view the model. In addition, AP Automation emails a PowerPoint® presentation detailing the system and its cost, giving the customer all the information needed to make a purchase decision.

# AP-1000 TIG Controller

Rugged and reliable, our microprocessor-based AP-1000 Basic TIG System Controller provides inexpensive, accurate integration and automation of the entire welding process. With a storage capacity for over 30 programs, the AP-1000 synchronizes all the components of your welding system for easy installation and operation.



- **Easy to Program**

*On-screen graphics display and keypad on the front panel*

- **Stores 30 Weld Programs**

*User may select names or part numbers and descriptions*

- **Complete Control of Weld Cycle**

*Analog control of welding current, wire feed speed, desired welding arc voltage, and travel speed. Two auxiliary relays control power to additional equipment selectable throughout the welding cycle*

- **Two Security Levels**

*Operator and Supervisor login for development and modification of your programs*

- **“Weld Enable” Switch**

*Allows for testing without starting an arc*

- **Flexible Control**

*During Welding Using front panel or remote pendant*

## ***Custom Automation Systems are used in these industries:***

- *Tank, Cylinder and Pressure Vessel Fabrication*
- *Beam and structural assemblies*
- *Pipe and tubing fabrication*

## ***Actual Jobs:***

### **Fully Automated Welding System**

This versatile system utilizes the AP-1000 TIG Controller. A variety of pipe sizes are easily welded using Cyclomatic wire feed, magnetic arc control and AVC. The easy-to-program AP-1000 controls all aspects of the weld process.



### **Custom Pipe Welding System**

Eight different diameters and 5 thicknesses of full-length pipe require 100% X-ray for building coil heat exchangers. Four hydraulic clamping jaws with head and tail stock synchronized rotation. The job requires multiple programs for single-pass or two-pass automated welding. Off-line adjustments are made with the custom control pendant.



## AP-1000 Front Panel

Amps, volts, wire speed and travel speed are displayed in real time during welding. These figures are continuously updated.

For security, weld parameters are created and modified only with supervisor password.

"ARC ON" indicates when arc is initiated.

Create up to 30 different weld programs and select them by program number or user-defined name.

Preset desired arc welding voltage when used with an arc voltage control system.

Graph shows actual weld profile for the entire weld, plus initial and final settings.

If pulsed welding is desired, adjustment of the pulses per second (frequency), pulse width (% on time) and background amperage is performed here.

In each screen, weld parameters are entered and modified from the touch key pad.

Amperage adjustments are made easy to access.

"Enter" to store the value you have selected.

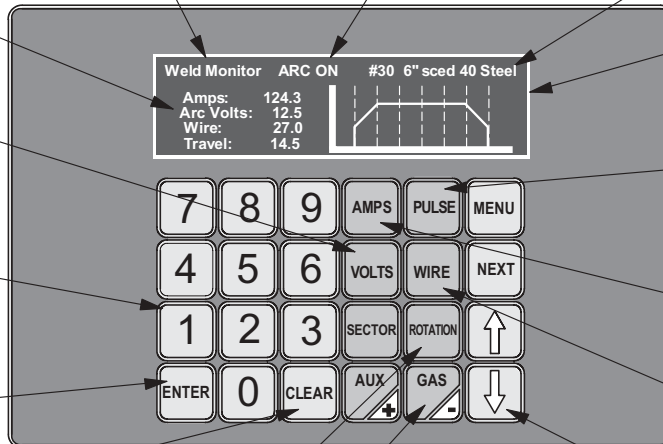
Adjusts speed & wire upslope and downslope times.

"Clear" to erase the value you have selected

Adjusts rotation/travel speed (optional)

Purges shielding gas (5 seconds)

Up/down scroll keys allow for simple, quick selection of value to be modified.



## System Specifications

### Microprocessor-based Controller

- Additional program storage capacity when interfaced with a PC
- 16 digital I/O's (additional ports available)
- Large display screen with real-time weld profile graphics and text
- 7 internal relays for controlling external equipment
- 4 analog outputs
- Interfaces with all manufacturers of welding equipment and automation equipment
- HF protected and "Lift-Start™" capable
- 8 hours of custom-programming available at no extra charge with each controller purchased

### Signal Isolation

- Enclosed isolation interface board provides four I/O channels for complete isolation, eliminating all electrical noise and HF problems.

### Optional Motor Controls

- 4 operating modes:
  - 1) I/R compensation (open loop)
  - 2) DC Tach feedback
  - 3) Encoder speed control
  - 4) Current feedback control
- Pulse width modulated motor control
- 12 to 50 VDC operating range
- 20A peak output current 10A continuous
- 10 to 500 Watt motor capacity

### Remote Pendant (Optional)

- Hand-held or panel mount pendant can be included with controller
- The operator can easily start and stop the weld from the portable, lightweight pendant. Custom controls can be added to the pendant for additional equipment control