



AP Automation Arc Voltage Control Systems Product Brochure



Arc Voltage Control

Exact Control of Arc Length



AP Automation Arc Voltage Control (AVC) Systems regulate the arc length by controlling arc voltage to within ± 0.1 volts in both TIG and plasma welding. The AVC-5 allows convenient, flexible control of all welding conditions and operating functions. The new, microprocessor-based controller features extremely rugged resistance to high frequency.

Benefits are immediate and directly measurable:

- *High Frequency no longer needed with our new, patented Lift-Start™ process.*
- *Consistent quality, weld after weld*
- *Minimized setup times*
- *Lower operator skill requirements*
- *Higher-speed welding from your existing equipment*
- *Sound welds on uneven surfaces*
- *Automatic compensation for electrode erosion*
- *Automatic arc shut-off and torch retraction in the event of a burn-through*

AP Automation's AVC Systems offer the following six advantages:

1. *Lift-Start™* capability for non-HF arc starting

2. *Superior resistance to high frequency*



AVC-5 CONTROLLER

The AP Automation AVC-5 system maintains a consistent arc length, resulting in increased travel speeds and high-quality, consistent welds—even on irregular surfaces. The rugged AVC-5 can be used with continuous high-frequency aluminum welding or with all materials requiring start-only HF. It features a microprocessor-based controller: advanced capabilities in a simple-to-operate package. A complete system includes either a standard or compact drive unit with two interface cables.

Our new, **patented Lift-Start™** process allows **reliable, automated, non-HF arc starting** on all metals. Upon touching the work piece, the tungsten is preheated for an adjustable time unique to the diameter of the electrode and the type of material being welded. This provides a smooth, consistent arc start, minimizing tungsten inclusion.

3. Microprocessor-based controls for ease of operation and reliable service

4. Capable of welding in both AC and DC

5. Durable drive unit design

6. Higher load capacity



COMPACT DRIVE UNIT

The space-efficient CAVC compact drive unit is limited to a 1" stroke. A stepper motor driving a precision ball screw provides motion. The high-frequency filter enclosure conveniently mounts near the drive unit, and features up/down jog buttons for torch positioning.

STANDARD DRIVE UNIT

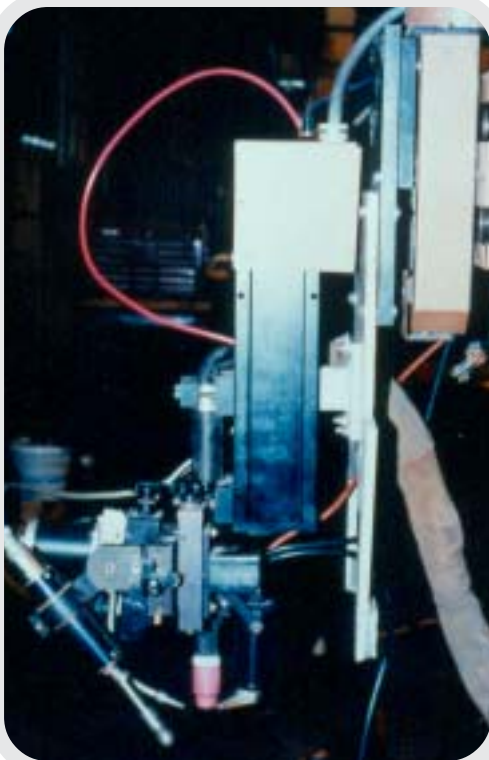
The standard drive unit is a rugged vertical slide designed to minimize mechanical play and backlash. A stepper motor driving a precision lead screw provides motion. Manual up-and-down jog buttons are conveniently located on the side of the unit. Standard stroke length is 6 1/2", with a 45-pound lift capacity.



Arc Voltage Control Systems are used in these industries:

- *Tube and Pipe Mills*
- *Fuel Tanks*
- *Pressure Vessels*
- *Aviation*
- *Aerospace*
- *Multi-pass Pipe Welding*
- *Repetitive TIG or Plasma Manufacturing*

Actual Jobs:



AVC with Seam Tracking

This system utilizes several components to track the edge of a large-diameter pipe. A magnetic oscillator and TIG wire feed system work together with an AVC for high-deposition multi-pass welding. A seam tracking system compensates for side-to-side irregularities.

Tube-to-Fitting Stainless Steel

The AVC system allows a two-pass weld consisting of a precise, low-voltage fusion root and then a second fill pass and cap at a higher amperage and voltage. Magnetic oscillation and wire feed were used only on the second pass.



Product Specifications

AVC-5 Control Unit



- Standard or Lift-Start™ arc starting options
- Deadband Adjustment
- Sensitivity Adjustment
- Adjustable Retract Distance
- Voltage Range, 5 - 50 VDC
- Starting Arc Gap, .01 - .09 in.
- Start Delay, 0.1 - 9.9 seconds
- Lockout Switch and Indicator
- Auto Indicator
- Digital Display
- Drive Indicator
- Manual up/down Jog Switch
- Panel/Remote Switch
- Voltage Set
- Burn-Through Detection

Input Power: 110/220V, 50/60Hz

Net Weight: 13.5 lbs.

Drive Units

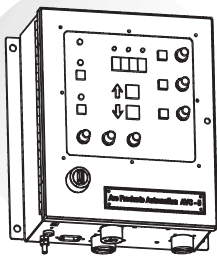
Model	Stroke Length	Compensation Rate	Manual Rate	Load Capacity	Net Weight
Standard (AVC) Drive	6.5 in.	22 ipm max	12 ipm	45 lbs. @ center of torch	15 lbs.
Compact (C-AVC) Drive	1 in.	15 ipm max	7.7 ipm	10 lbs. @ center of torch	10 lbs.

AVC Drive Dimensions:
18" x 3 1/2" x 5 1/2"

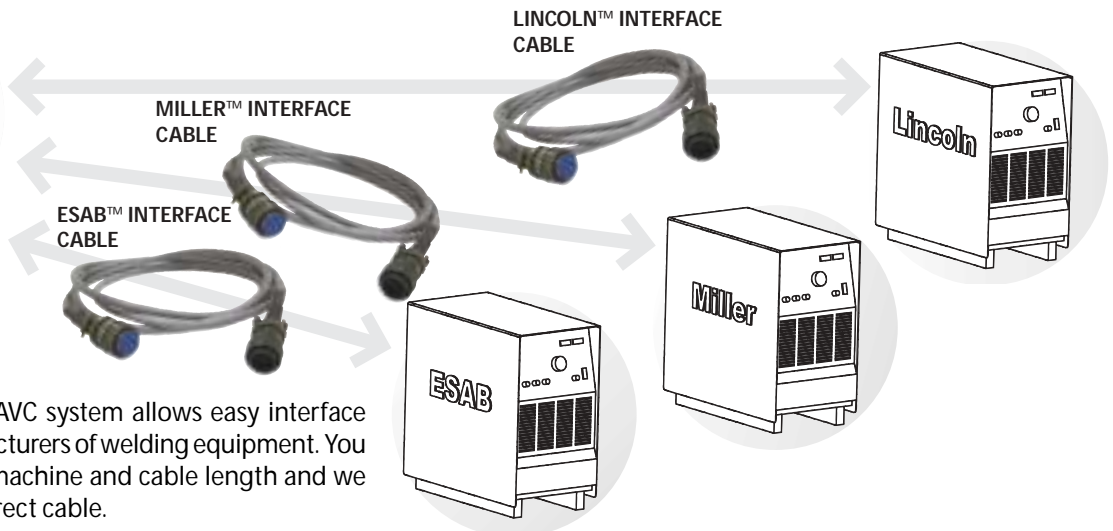
CAVC Drive Dimensions:
5 1/2" x 2 1/4" x 3 1/4"



Cable Assembly



AVC-5 CONTROL UNIT



The AP Automation AVC system allows easy interface with all major manufacturers of welding equipment. You specify the welding machine and cable length and we custom-build the correct cable.

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