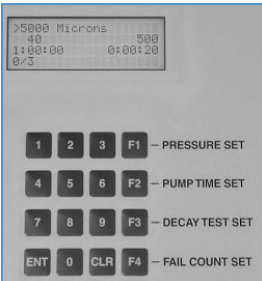
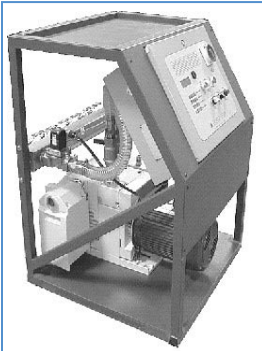




A I R S E R C O

## AUTOMATIC PROCESSING EQUIPMENT AV SERIES AUTOMATIC EVACUATION SYSTEMS



### FEATURES COMMON TO ALL AV SERIES EVACUATION SYSTEMS

- Configured to evacuate one cooling unit, or up to six units at once
- Wide variety of vacuum pumps up to 33 CFM available
- Designed to accept and power AccuCharge Charging System
- Rugged, yet compact design uses less than 3' X 3' of floor space
- Totally automates dehydration process for consistent quality
- No operator intervention required during pump down
- Adjustable parameters with wide range of pressure and timed test inputs
- On board computer prompts operator, displays, and stores process results

### SYSTEM OVERVIEW

The AV Series Automatic Evacuation Systems use a computer based control with adjustable inputs to control the dehydration process of cooling appliances. The operator uses the keypad and digital display to enter: a low pressure set point, a high pressure set point, amount of time for a pressure rise test, a maximum time to pump down before initiating a pressure rise test, and the maximum number of times the pressure rise test can be failed before notifying the operator. With the parameters entered, the operator simply presses the START button. The product(s) coupled to the AV System is dehydrated to the low pressure set point. The product is then isolated from the pump for the pressure rise test. If the pressure rise is below the desired parameters, the operator is notified that the cooling appliance has passed. Should the pressure rise above the input parameter, the process is repeated until the system passes, or until the failure count is exceeded. The pressure reading in microns is continually displayed throughout the process.

### SINGLE UNIT OR MULTI-UNIT PROCESSING

The AV Series is available in a single unit system, AV-1 that can process one cooling appliance, or as a multi-unit system, AV-6. Using the same digital controls, the AV-6 offers a six (6) port stainless steel evacuation manifold. High production rate processing can be accomplished with the manifold and six (6) evacuation hoses and a high capacity vacuum pump. Once the quality control parameters have been entered, very little operator intervention is needed. When adequate dehydration has been achieved, disconnect the six vacuum lines for attachment to the next group of cooling systems to be processed. A wide variety of pump sizes and motor voltages is readily available. All AV Systems feature a recessed top panel fitted to accept Airserco's AccuCharge Charging System. All AV Systems also include a protected 120/VAC designed to power the AccuCharge System.



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# AUTOMATIC PROCESSING EQUIPMENT AV SERIES AUTOMATIC EVACUATION SYSTEMS

## THE CONTROL FUNCTIONS

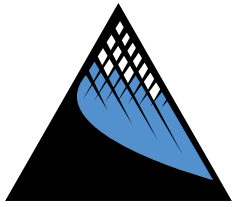
> 5000	MICRONS
50	500
1:30:00	5:00
3	PASS

A four line LCD display provides seven fields of information. Line 1 continually displays pressure reading in microns. The display is updated five times per second with accuracy of +/- 3% of reading or 3 microns. When pressure exceeds 5000 microns, display indicates greater than (>) 5000. The second line displays the low pressure set point on the left and the high pressure set point on the right. These entered values are used to initiate the pressure rise test (low) and serve as a pass/fail value (high). Line 3 displays the maximum pump down input value on the left. This input value instructs the system to begin the pressure rise test after a specific time regardless of the low pressure setting. Input values can range up to 9 hr: 59 min: 59 sec. The desired time to run the pressure rise test is displayed on the right side of the line 3. Input values can range up to 9 hr: 59 min: 59 sec. Line 4 is used to display the pressure rise test fail counter. This is the number of times the vacuum decay test has been run and failed. Input values can range from 1 to 9. The right side of line four is used to inform the operator of pressure rise test results and display instructions.

1	2	3	F1	-PRESSURE SET
4	5	6	F2	-PUMP TIME SET
7	8	9	F3	-DECAY TEST SET
ENT	0	CLR	F4	-FAIL COUNT SET

The sixteen character keypad is used to input the desired process parameters. The four function keys are used to activate the six adjustable settings. By pressing the F1 key, the low pressure setting will flash. To change the value, the numeric keys are pressed followed by the ENT key. The flashing display will then move to the high pressure field. Again, enter the desired value followed by the ENT

key. Pressing the F2 key will cause the maximum pump down time value to flash. The time can be adjusted by using the numeric key pad to enter new values followed by pressing the ENT key. The same procedure applies for the F3 key which is used to enter the desired amount of time to run the pressure rise or vacuum decay test. The F4 key is used to enter the maximum number of times the system will reset the pump down process after the vacuum decay test has been initiated and failed. The AV Series control has a special built in feature that will limit pump time in case of pressure rise test failures. If the pressure rise test is initiated by the pump down time being exceeded (before the low pressure level is reached) and the pressure rise test is failed, the system will limit the maximum pump time to 10% of the input value. This feature can force quick and frequent pressure rise tests to eliminate continued pump time on units that may leak.



A I R S E R C O

## AUTOMATIC PROCESSING EQUIPMENT AV SERIES AUTOMATIC EVACUATION SYSTEMS

### SPECIFICATIONS

**Construction:** Rugged 14 ga. welded tubular steel frame with 1/4" steel base deck. Electrostatic powder coat finish. All internal parts including valves, traps, and manifolds are made of brass or stainless steel. System measures 30" W X 30" D X 39" H, weighs 275-525 lb. depending on pump, and accessories.

**Electrical control panel:** 20" X 16" NEMA 12 enclosure. Microprocessor based system control uses sixteen character keypad and LCD screen to establish and monitor process parameters. All functions have lighted override switches for manual operation and additional testing.

**Vacuum gauge/controller:** Absolute pressure expressed in microns is continuously monitored and displayed on the LCD. Pressure ranges are from 3 to 5000 microns with accuracy of +/- 3%, or five (5) microns. Pirani type pressure sensor is used with a response time of less than .3 seconds.

**Control valves:** Primary system process valves are solid brass 3/4" ID or larger, electrically operated. Valves feature plug in coil connectors with self contained indicator lights. Valves function as directed by system computer, but can be switched manually.

**Communications capability:** All AV Series Systems can be programmed to capture product ID numbers with all vacuum process test results. With the communications feature enabled, the operator is required to enter a product ID number (up to nine numeric characters) before the pump down START can begin. Up to 200 records can be stored for downloads through the systems DB9 port, or the second DB9 port can be used with a serial printer to print records in real time.

**Vacuum pumps:** A wide range of pumps from 5 to 33 CFM are available. All pumps used are heavy duty two stage type, from Kinney, Edwards, and Leybold, designed for continuous use on the production line.

**Vacuum hose(s):** Single line systems (AV-1) features one six (6) foot vacuum hose with auto shut off coupler in 1/4" or 3/8" size. AV-6 Systems include six (6) vacuum hoses, also with quick couplers. The AV-6 vacuum manifold is made of heavy stainless and includes six (6) vacuum tight ball valves to isolate each line individually if desired.

**Power requirements:** 220/VAC-1PH through 460/VAC-3PH dependent on pump and customer application.

**Special features:** All AV series systems have built in protected 120/VAC circuit to power Airserco's AccuCharge Refrigerant Charging System. The AccuCharge can be docked to the specially designed top of all AV Series Systems. Two DB9 ports, one each for Printer and Communications are located on the control panel.



A I R S E R C O

# AUTOMATIC PROCESSING EQUIPMENT AV SERIES AUTOMATIC EVACUATION SYSTEMS

<b>AV-1 Ordering Information</b>		
<b>Product</b>	<b>Description</b>	<b>Order Code</b>
Automated Vacuum System	AV-1 Base Unit includes: Steel Frame, SS single port manifold with ball valve, Control Panel (Microprocessor controlled), Vacuum Gauge Controller, Solenoid Valves, One six (6) foot hose with 1/4" or 3/8" quick coupler, and optional voltage rating based on customer requirements	AV-1
Hose Diameter	3/8" I.D. X 7/8" O.D. Clear vacuum tubing 1/2" I.D. X 1" O.D. Clear vacuum tubing	1200-6V 1600-8V
Hose Fittings	1/4" Quick Coupler Socket & Plug 3/8" Quick Coupler Socket & Plug	9840/9841 9850/9851
Voltage (Choose voltage)	1 Phase Motor	
	50 HZ 230V 100V 115V 208-230V	60 HZ 230V 110V 115V 208-230V
	3 Phase Motor	
	50 HZ 230/400V 200/236V 200-220/380V	60 HZ 250/440V 208/360V 208-230/460V
Vacuum Pump (Choose size)	90350 8.0 CFM 90450 10.0 CFM 90540 13.4 CFM 90550 14.7 CFM 90640 20.9 CFM 90650 22.3 CFM 90740 32.5 CFM (See vacuum pump catalog section for more details)	
<b>Hose Options</b>		
Flexible Wire-Reinforced	3/8" I.D. X 5/8" O.D. 1/4" MPT 3/8" I.D. X 5/8" O.D. 3/8" MPT 1/2" I.D. X 3/4" O.D. 1/2" MPT	9836VDX 9837VDX 9838VDX
Stainless Braided	1/4" I.D. 1/4" MPT 3/8" I.D. 1/4" MPT 3/8" I.D. 3/8" MPT 1/2" I.D. 1/2" MPT	9836 9837 1/4 9837 3/8 9838
Hi-Lo Coupling Yoke - Stainless	Branch Tee with 3/8" Plug and Two 18" Long, 3/8" I.D. Braided Stainless steel hoses with 3/8" Quick Connect Sockets (Specify additional lengths if required)	4058
Hi-Lo Coupling Yoke - Flexible Wire-Reinforced	Branch Tee with 3/8" Plug and Two 24" Long, 1/2" I.D. Wire Reinforced Hoses with 3/8" Quick Connect Sockets (Specify additional lengths if required)	4058VDX



A I R S E R C O

# AUTOMATIC PROCESSING EQUIPMENT AV SERIES AUTOMATIC EVACUATION SYSTEMS

<b>AV-6 Ordering Information</b>		
<b>Product</b>	<b>Description</b>	<b>Order Code</b>
Automated Vacuum System	AV-6 Base Unit includes: Steel Frame, SS six (6) port manifold with ball valve, Control Panel (Microprocessor controlled), Vacuum Gauge Controller, Solenoid Valves, Six hoses – two (6) foot, two (8) foot, and two (10) foot hoses with 1/4" or 3/8" quick coupler, and optional voltage rating based on customer requirements	AV-6
Hose Diameter	3/8" I.D. X 3/4" O.D. Clear vacuum tubing 1/2" I.D. X 1" O.D. Clear vacuum tubing	1200-6V 1600-8V
Hose Fittings	1/4" Quick Coupler Socket & Plug 3/8" Quick Coupler Socket & Plug	9840/9841 9850/9851
Voltage (Choose voltage)	1 Phase Motor	
	50 HZ 230V 100V 115V 208-230V	60 HZ 230V 110V 115V 208-230V
	3 Phase Motor	
	50 HZ 230/400V 200/236V 200-220/380V	60 HZ 250/440V 208/360V 208-230/460V
Vacuum Pump (Choose size)	90350 8.0 CFM 90450 10.0 CFM 90540 13.4 CFM 90550 14.7 CFM 90640 20.9 CFM 90650 22.3 CFM 90740 32.5 CFM (See vacuum pump catalog section for more details)	
<b>Hose Options</b>		
Flexible Wire-Reinforced	3/8" I.D. X 5/8" O.D. 1/4" MPT 3/8" I.D. X 5/8" O.D. 3/8" MPT 1/2" I.D. X 3/4" O.D. 1/2" MPT	9836VDX 9837VDX 9838VDX
Stainless Braided	1/4" I.D. 1/4" MPT 3/8" I.D. 1/4" MPT 3/8" I.D. 3/8" MPT 1/2" I.D. 1/2" MPT	9836 9837 1/4 9837 3/8 9838
Hi-Lo Coupling Yoke - Stainless	Branch Tee with 3/8" Plug and Two 18" Long, 3/8" I.D. Braided Stainless steel hoses with 3/8" Quick Connect Sockets (Specify additional lengths if required)	4058
Hi-Lo Coupling Yoke - Flexible Wire-Reinforced	Branch Tee with 3/8" Plug and Two 24" Long, 1/2" I.D. Wire Reinforced Hoses with 3/8" Quick Connect Sockets (Specify additional lengths if required)	4058VDX