**Equipment Alert**

Wet-Ring Vacuum system must be installed per local plumbing and electrical codes. Allow Wet-Ring Vacuum system to reach room temperature before installing. Refer to “Site Requirements” and “Site Layout” in this manual for site restrictions and piping layout. Do not turn water by-pass valve. The valve is factory set for recycler mode in CLOSED position. (Refer to ClassicSeries® Service Manual on www.Documark.com for more information.)

**Applies to Models:**
- Single Non-Recycler Models: CV3, CV5
- Twin Non-Recycler Models: CV6, CV10
- Single Recycler Models: CV3R, CV5R
- Twin Recycler Models: CV6R, CV10R

**Diagram:**
- Anti-Siphon Vacuum Breaker
- Vacuum Relief Valve
- Vacuum Gauge
- Line Connection to Operatory
- Vacuum Inlet Strainer
- Fresh Water Supply Connection
- Motor
- Fuse
- Hour Meter
- Electrical Box
- Remote Low Voltage Leads
- Water By-Pass Valve - Closed Position For Recycler Mode (Recycler Models Only)
- Air Filter / Cap
- Solenoid
- Vacuum Housing
- AA185600

**Single Recycler Model Shown**
## Wet-Ring Vacuum Site Requirements

### Equipment Alert
Harmful odors, vapor contaminants and nitrous oxide gasses are vented out the top of the separator, while liquid waste flows out of the lower drain and into a “P”-Trap or floor sink. **Verify all local codes before installing.**

### Electrical

<table>
<thead>
<tr>
<th>Supply</th>
<th>Single Models</th>
<th>Twin Models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>CV3 CV3R CV5 CV5R CV6 CV6R CV10 CV10R</td>
<td>115 or 208-230 (Each Pump) 115 or 208-230 (Each Pump) 208-230 (Each Pump) 208-230 (Each Pump)</td>
</tr>
<tr>
<td>Phase</td>
<td>Single Phase, 50 / 60 Hz</td>
<td></td>
</tr>
<tr>
<td>Wire Size to Control Panel</td>
<td>18 / 3 Jacketed Bell Wire</td>
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<tr>
<td>Branch Circuit Breaker Size</td>
<td>20 AMP (per each pump)</td>
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### Product Electrical Ratings

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<thead>
<tr>
<th>115 VAC 50/60 HZ</th>
<th>15.0 AMPS</th>
<th>15.0 AMPS</th>
<th></th>
<th>15.0 AMPS</th>
<th>15.0 AMPS</th>
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<tbody>
<tr>
<td>208/230 VAC 50/60 HZ</td>
<td>8.2 AMPS</td>
<td>8.2 AMPS</td>
<td>13.1 AMPS</td>
<td>13.1 AMPS</td>
<td>8.2 AMPS</td>
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### Plumbing

#### Intake (Suction Line)

<table>
<thead>
<tr>
<th>Type</th>
<th>PVC</th>
<th>PVC</th>
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<tbody>
<tr>
<td>Line Sizing</td>
<td>1&quot; Hose with 3/4&quot; NPT Connection</td>
<td>1 1/2&quot; Hose with 1 1/4&quot; NPT Connection</td>
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</table>

#### Water Source

<table>
<thead>
<tr>
<th>Type</th>
<th>Poly Tubing</th>
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<tr>
<td>Line Sizing</td>
<td>1/2&quot; NPT x 1/4&quot;</td>
</tr>
<tr>
<td>Pressure Range</td>
<td>20-120 psi / 1.4-8.3 bar</td>
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<tr>
<td>Water Temperature Range</td>
<td>35-80° F / 2-12° C</td>
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#### Separator

<table>
<thead>
<tr>
<th>Type</th>
<th>Small</th>
<th>Large</th>
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<tr>
<td>Vent Size</td>
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<tr>
<td>Inlet Hose</td>
<td>3/4&quot; NPT</td>
<td></td>
</tr>
<tr>
<td>Drain Hose</td>
<td>3/4&quot; NPT</td>
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</table>

#### Platform Drain Hose

<table>
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<tr>
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<th>Clear Vinyl</th>
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<tr>
<td>Size</td>
<td>N/A</td>
<td>3/8&quot; OD</td>
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#### Exhaust

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<td>Line Sizing</td>
<td>1&quot; Hose with 3/4&quot; NPT Connection</td>
</tr>
<tr>
<td></td>
<td>1 1/2&quot; Hose with 1 1/4&quot; NPT Connection</td>
</tr>
</tbody>
</table>

### Environmental

| Equipment Room Ambient Temperature - Operational | 40° - 104° Fahrenheit / 4° - 40° Celsius |

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To prevent moisture from entering the vacuum:
• Vent should be routed to outside air source through wall or roof.
• Use one or more 90° elbows to cap an outside vertical vent line.

Disconnect Box
Refer to “Electrical” on Site Requirement sheet. (Provided by Electrician)

Air/Water Separator Height - Top bracket mounting screws located 28” (70 cm) above vacuum supporting surface. (Floor, shelf, stack rack etc.)

Operatory Air Line Connection

Notes:
**Important Information**

**Intended Use**
To provide suction during general examinations and procedures conducted by qualified dental professionals.

**Electromagnetic Interference**
This Midmark Wet-Ring Vacuum is designed and built to minimize electromagnetic interference with other devices. However, if interference is noticed between another device and these units:
- Remove interfering device from room
- Plug interfering device into an isolated circuit
- Increase separation between unit and interfering device
- Contact Midmark if interference persists

**Disposal of Equipment**
At the end of product life, the unit(s), accessory, and other consumable goods may become contaminated from normal use. Consult local codes and ordinances for proper disposal of equipment, accessories and other consumable goods.

**Transportation / Storage Conditions**
Ambient Temperature Range: 40°F to 104°F (4°C to 37°C)
Relative Humidity: 10% to 90% (non-condensing)
Atmospheric Pressure: 500hPa to 1060hPa (0.49atm to 1.05atm)

![Other symbols and labels]

**Note**
Amplifies a procedure, practice, or condition.

---

**IPXO**
Ordinary Equipment

---

This product has been evaluated with respect to electrical shock, fire & mechanical hazards only, in accordance with UL60601-1 and CAN/CSA C22.2 NO. 601.1.
Before you Install...

**Pre-Install steps..**
A. Remove vacuum(s) from shipping platform.
B. Move vacuum to a dry, well ventilated area on a solid, level surface.
C. Verify all sides of Vac Unit are not obstructed.
D. Unpack installation kit.
E. Install rubber feet. (Single Pump Models Only)
F. Verify water by-pass valve is in recycler position, CLOSED.

**Equipment Alert**
Scavenging polishing paste with abrasives, running the pump without water supplied, using water with high mineral content, or water with excessive sediment can damage or reduce the lifespan of the pump and is not considered a defect in material or workmanship.

**Install Kits**

**Single Models**
- Bushing Qty 1
- Nipple Qty 2
- QC Fitting Qty 1
- Clamp Qty 4
- Mount with Nut Lock Qty 3
- Intake / Exhaust Hose 1” ID x 84” Qty 1
- Fresh Water Intake Hose 1/4” OD x 72” Qty 1

**Twin Models**
- Bushing Qty 1
- QC Fitting Qty 1
- Clamp Qty 4
- Nipple Qty 4
- Intake Hose 1 1/2” ID x 96” Qty 1
- Fresh Water Intake Hose 3/8” OD x 72” Qty 1
- Vacuum Inlet Strainer Qty 1
- Cap Qty 1
- Platform Drain Hose 3/8” OD x 96”, Qty 1
- Pipe Plug Qty 1
Installation
Plumbing Connections - Single Models with Air/Water Separator

Single Models Air/Water Plumbing...
A. Mount Separator 28” (70 cm) above vacuum supporting surface.
B. Install exhaust silencer into 1” exhaust hose from vacuum to P-trap if applicable.
If not using an exhaust silencer....
C. Connect exhaust hose from vacuum to separator.
D. Connect 3/4” hose from separator to drain or P-trap.
E. Connect 2” PVC to top of separator and out to vent.
F. Connect 1/4” poly tube from vacuum to water supply.
G. Connect 3/4” NPT fitting and hose clamp from vacuum line to operatory.

Note
Exhaust silencer installation is an optional for the Wet-Ring Vacuums. Wet-Ring Vacuums are operational without exhaust silencer.
Installation

Plumbing Connections - Single Models without Air/Water Separator

**Single Model Plumbing...**

A. Install exhaust silencer into 1” exhaust hose from vacuum to P-trap if applicable.

*If not using an exhaust silencer...*

B. Install 1” exhaust hose from vacuum to P-trap or floor drain.
C. Connect 1/4” poly tube from vacuum to water supply.
D. Connect 3/4” NPT fitting and hose clamp to vacuum line from operatory.

**Note**

Exhaust silencer installation is an optional for the Wet-Ring Vacuums. Wet-Ring Vacuums are operational without exhaust silencer.

---

P-trap with Air Gap or Floor Drain. Refer to local plumbing codes.
Installation
Plumbing Connections - Twin Models with Air/Water Separator

Note
Exhaust and inlet connections can be installed on either the RH or LH sides. Install hose connections to one end and plug/cap the other end.

Twin Model Plumbing...
A. Mount Separator 28" (70 cm) above vacuum supporting surface.
B. Connect exhaust hose from exhaust to separator.
C. Install plug in exhaust end not in use.
D. Connect 1" hose from separator to drain or P-trap.
E. Connect 2" PVC to top of separator and out to vent.
F. Install inlet strainer to one end of the inlet piping. Cap off other end.
G. Connect 1 1/4" NPT fitting and hose clamp to inlet strainer from operatory.
H. Connect 3/8" poly tube from vacuum to water supply.
I. Install 3/8" platform drain hose from platform to drain or sewer.
Installation
Plumbing Connections - Twin Models without Air/Water Separator

Twin Model Plumbing...
A. Install 1 1/2” exhaust hose from exhaust to P-trap.
B. Install plug in exhaust end not in use.
C. Connect 3/8” poly tube from vacuum to water supply.
D. Install inlet strainer to one end of the inlet piping. Cap off other end.
E. Connect 1 1/4” NPT fitting and hose clamp to inlet strainer from operatory.
F. Install 3/8” platform drain hose from platform to drain or sewer.

Water Source
Plug
Cap
P-trap with Air Gap or Floor Drain. Refer to local plumbing codes.

Vacuum Inlet
Platform Drain Hose
In From Operatory

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Installation - Single Models

Electrical - Convert 1 1/4 HP model to 115 Voltage (if applicable)

**Note**
CV3 and CV3R Models are factory configured for 208-230 Volt operation and can be rewired to operate on 115 Voltage. All vacuum systems are to be installed according to local electrical codes. Refer to Specification Sheet for Electrical Ratings located in this manual.

**To convert 1 1/4 HP Motor from 208-230V to 115V...**
A. Loosen screws on electrical box to remove cover.
B. Install line voltage conduit with conduit connector in side of vacuum electrical box.
C. Connect line voltage to leads at terminals X1 (Black) and X4 (White-Neutral).
D. Connect ground wire to ground (green/yellow) lead.
E. Remove all three jumpers from terminal block and relocate at ...
   X3 and X4
   X5 and X6
   X7 and X8

---

**115 Voltage Configuration**

---

**Proceed to Supply Box and Remote Panel Installation**
Installation - Single Models
Electrical Connections for 1 1/4 HP 208-230 Voltage

To connect 1 1/4 HP Motor to 208-230V ...
A. Loosen screws on electrical box to remove cover.
B. Install line voltage conduit with conduit connector in side of vacuum electrical box.
C. Connect line voltage to leads at terminals X1 (Black) and X2 (Red).
D. Connect ground wire to ground (green/yellow) lead.
E. Verify jumper locations ...
   X2 and X3
   X6 and X7

208-230 Voltage Configuration

Proceed to Supply Box and Remote Panel Installation
Installation - Single Models
Electrical Connections - 2 HP 208-230 Voltage

To connect 2Hp Motor to 208-230V ... 
A. Loosen screws on electrical box to remove cover.
B. Install line voltage conduit with conduit connector in side of vacuum electrical box.
C. Connect line voltage to Red and Black contactor leads.
D. Connect ground wire to ground (green/yellow) lead.

Proceed to Supply Box and Remote Panel Installation
**Installation - Twin Models**

**Electrical Connections - Convert 1 1/4 HP models to 115 Voltage (if applicable)**

**Note**
CV6 and CV6R Models are factory configured for 208-230 Volt operation and can be rewired to operate on 115 Voltage. All vacuum systems are to be installed according to local electrical codes. Refer to Specification Sheet for Electrical Ratings located in this manual.

To convert 1 1/4 HP Motor from 208-230V to 115V...

A. Loosen screws on electrical box to remove cover.
B. Disconnect red line voltage wire from red jumper. Replace nut on red jumper wire.
C. Connect red voltage wire with white jumper from X4.
D. Remove all three jumpers from terminal block and relocate at ... X3 and X4, X5 and X6, X7 and X8

**115 Voltage Configuration**

---

Proceed to Supply Box and Remote Panel Installation
Installation

Electrical Connections - Supply Box and Remote Panel

Electrical Connections...
A. Connect conduit cable(s) to user supplied electrical box(s).
B. Connect remote panel wires to Low Voltage Control wires if applicable.

Note: All vacuum systems are to be installed according to local electrical codes. Never operate the equipment without complete and proper grounding. Refer to Specification Sheet for Electrical Ratings, located in this manual.

Supply Box

*1 1/4 HP Models
115 Volt Source
OR
208-230 Volt Source
Single Phase, 50/60 Hz
Recommended - 20 Amp Fuse Disconnect Box
(Electrician Supplied)

*2 HP Models
208-230 Volt Source
Single Phase, 50/60 Hz
Recommended - 20 Amp Fuse Disconnect Box
(Electrician Supplied)

Remote Panel

Control Panel Wiring Cross Reference

<table>
<thead>
<tr>
<th>BRAND</th>
<th>WIRE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midmark</td>
<td>Blue</td>
</tr>
<tr>
<td>Air Techniques</td>
<td>Yellow</td>
</tr>
<tr>
<td>DentalEZ</td>
<td>Black</td>
</tr>
<tr>
<td>Apollo</td>
<td>Blue</td>
</tr>
<tr>
<td>Matrix</td>
<td>Red</td>
</tr>
</tbody>
</table>
Installation
Check & Test

Equipment Alert
Perform Checks before operation.
Turn only one vacuum on at a time while checking. Operating vacuum without full pressure water supply will result in serious seal damage.

Initial Start-up Checks, Verify...
A. All water supply valves are "OPEN"
B. Exhaust hoses have water flowing through each pump and no leaks are present.
C. Check vacuum gauge to ensure it reads 10 "Hg.

Note: If necessary perform Vacuum Relief Valve adjustment as shown below.

Vacuum Relief Valve Adjustment...
- Rotate barrel clockwise to increase "Hg.
- Rotate barrel counterclockwise to decrease "Hg.

Vacuum Relief Valve Location on Twin Platform Models

Vacuum Relief Valve Location on Single Models
## Specification Sheet
### ClassicSeries® Wet-Ring Vacuums

<table>
<thead>
<tr>
<th>Vacuum Model</th>
<th>Max. Users</th>
<th>Width (IN.)</th>
<th>Depth (IN.)</th>
<th>Height (IN.)</th>
<th>Weight (LBS.)</th>
<th>Total HP</th>
<th>Voltage (50/60 Hertz)</th>
<th>Breaker Size per Pump (Amps)</th>
<th>Inlet Connection Size (IN.)</th>
<th>Drain Connection Size (IN.)</th>
<th>Fresh Water Connection Size (FNPT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CV3</td>
<td>3</td>
<td>12&quot;</td>
<td>13&quot;</td>
<td>15&quot;</td>
<td>54</td>
<td>1 1/4</td>
<td>115 / 208-230</td>
<td>20</td>
<td>1&quot;</td>
<td>1&quot;</td>
<td>1/2&quot;</td>
</tr>
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<td>CV3R</td>
<td>3</td>
<td>12&quot;</td>
<td>13&quot;</td>
<td>15&quot;</td>
<td>56</td>
<td>1 1/4</td>
<td>115 / 208-230</td>
<td>20</td>
<td>1&quot;</td>
<td>1&quot;</td>
<td>1/2&quot;</td>
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<td>CV5</td>
<td>5</td>
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<td>17&quot;</td>
<td>63</td>
<td>2</td>
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<td>1/2&quot;</td>
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<td>13&quot;</td>
<td>17&quot;</td>
<td>65</td>
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<td>208-230</td>
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<td>1&quot;</td>
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<td>1/2&quot;</td>
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<td>CV6</td>
<td>6</td>
<td>25 1/2&quot;</td>
<td>20&quot;</td>
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<td>134</td>
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<td>115 / 208-230</td>
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<td>154</td>
<td>4</td>
<td>208-230</td>
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<td>25 1/2&quot;</td>
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<td>1 1/4&quot;</td>
<td>1/2&quot;</td>
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</tbody>
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