



# **STERI-VAC**

## **CENTRAL SUCTION SYSTEM**

### **INSTALLATION MANUAL**

This is a general installation manual for Steri-Vac Central Suction Systems.  
For detailed information see specific technical sheet.

These are high-volume suction systems, designed for the removal of wet wastes  
(saliva, water, chippings, etc.) from the dental operator.  
The main components of these units are:

- 1) Power Source
- 2) Collection Center (Canister)
- 3) Piping & Fittings
- 4) Maintenance

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## 1) Vacuum Power Source, Low Voltage Control Box and Electrical Equipment

Each power source consists of a motor assembly with low voltage (on-off) controls. All motors are equipped with three-wire cord and grounding plug. Only normal house current is needed as the current demand is 6 – 12 amps depending on type used. All motors have permanently lubricated sealed bearings. Each control box has a pilot light, overload circuit breaker and motor test switch.

Using the momentary test switch, the motor can be turned on without using the low voltage friction switches in the operatories.

**Motor Cooling.** A fresh air supply for motor cooling is a **MUST**. Do not install the motor in a hot or confined area without taking the necessary precaution of bringing fresh air into the area. Any vents for an intake must have at least 1½ square feet of unobstructed area. **Furthermore, exhaust air is hot and should be vented to the outside.** If installed in a confined area such as a closet or closed cabinet, a fresh air supply **should be supplied to the confined space** and/or the power unit. **DO NOT use PVC pipe for exhausting.** The 3" flexible tubing is satisfactory for exhausting the **regular, heavy duty, and brushless motor Steri-Vac Units.** For long exhaust runs over 25 feet, use sheet metal ducting for all installations.

**Master Switch.** A master on-off switch should be provided at the same location as other master controls – i.e. compressor, air conditioner, etc.

**Low Voltage Wiring.** Use test switch on control box to check the motor **BEFORE** connecting low voltage wires. After checking the motor, connect the low voltage wires from the control box to the wiring coming from the switches in the operatories, which are hooked up in parallel. Low voltage wires can be taped to the **PVC** pipe. However, in concrete floor installations, low voltage wires **MUST** be installed with strict adherence to electrical codes. If necessary, consult an electrician.

**Concrete or Slab Floor.** This installation applies to new offices or those being remodeled and/or when no basement or crawl space is available. If possible, install the 1½" **PVC pipe only after the other trades are through** with their work but **BEFORE** the concrete is poured. Make sure that the other workmen do not damage the installation of the tubing and keep supervisory personnel advised of this responsibility.

Protect the pipe against damage by covering with sand or vermiculite fill. Watch while the concrete is being poured and make sure the PVC tubing is not damaged by the tamping or spreading of concrete.

## 2) Collection Center (Canister)

The canister is a trap and separator. Waste material is carried into it by the vacuum air stream and held temporarily until the power unit is turned off. The canister is located between the vacuum inlets in the operatories and the power plant. Select the canister location carefully using these guidelines:

- A. Access to plumbing drain. The canister should be located as low as possible (above the drain) to avoid excessive water lift. The top of the canister cannot be installed more than 40" above the vacuum tubing main line. The canister can be installed at any convenient distance below the vacuum tubing main line. The check valve must be mounted vertically and above the plumbing drain to permit the canister to empty by gravity. Do not use PVC cement to plumb in the check valve as it might eventually have to be changed. Vinyl tape can be used.

- B.** The canister must be installed where it is accessible, leaving room for the cover to be removed for periodical visual inspection and cleaning. The canister need not be mounted below the level of the inlets. It can be hung on the wall of the laboratory, utility room, darkroom, garage, etc. (Mount as low as possible to avoid excess water lift). Make sure that the canister is mounted at a reasonable level with no strain on the connecting pipes and fittings. **Canister cover must be in place for the suction system to operate. Always disconnect the power plant from the electrical outlet BEFORE removing or replacing the cover to avoid possible injury.**

**NOTE:** The canister will only drain when the motor is off. It is necessary for the user to shut the unit off periodically to relieve the vacuum and allow the gravity drain to work. Should the canister fill up, suction will automatically stop and the flow of fresh air to the motor will stop. If this happens, the user **MUST** immediately turn off the motor and allow the canister to drain.

**Check Valve.** The check valve is attached to the bottom of the canister as shown on the last page. It remains closed while the vacuum is on. When the power source is off, the check valve will open and allow the fluid waste in the canister to drain by gravity into the plumbing system.

**CAUTION:** Do not operate your system unless the check valve is correctly installed. It **MUST** be installed with arrow pointing away from the canister in direction of flow. **Do not** bypass the valve. In case of malfunction, repair or replace immediately. The system will be damaged, otherwise.

**Plumbing Requirements.** In most localities, the **Steri-Vac System** is considered foremost a vacuum system and therefore generally not under jurisdiction of plumbing authorities. However, the connection (direct or indirect) from the check valve to the drain is considered part of the plumbing and must be installed per local plumbing codes.

### **3) Vacuum Piping and Fittings**

The vacuum piping connects the inlets to the collection center, and should be scheduled 40 **PVC** (High-impact Polyvinyl Chloride) and be 1½" inside diameter. The pipe is corrosion proof, durable, and will not burn. It is lightweight and can easily be cut with a hacksaw, and is available from most plumbing and hardware stores.

**Please Note:** **PVC** plumbing is preferable to any other material, including copper, for High-Volume, Low-Vacuum Oral Evacuation. Unlike copper and other metals, PVC will carry a moist air stream mixed with chemicals, and will not corrode, even by electrolytic action. The pipe can withstand the lack of positive internal pressure and has sufficient wall thickness and strength for use in oral evacuation systems.

**Branch Connections.** Branch connections are made using "T" or "Y" type fittings. **Make sure the flow path aims towards the canister when these parts are installed.** Otherwise, air turbulence can occur, resulting in decreased function and clogging. Where the pipe line branches in two different directions, use a "T" shaped fitting.

**Joining Pipes and Fittings.** Before joining the parts, make sure that each section of the pipe has been cut to the correct length. We suggest that the piping system be assembled and checked out before cementing the joints.

**Cementing.** Apply the PVC cement in a ½" band around the outside, at the end of the pipe, and also to the socket of the fitting. Then slip the pipe into the fitting with a twisting motion. The PVC cement **sets**

**very quickly**; therefore the fitting should be lined up immediately. A mistake can only be corrected by replacing the wrong part(s) with the correct one(s) using a coupling. **Do not cement pipes to canister or power unit.** Doing so will restrict removal or replacement in case of repair or service. **These joints can be secured with vinyl tape.**

**Pipe Support and Pitch.** Because PVC pipe is lightweight and carries only a moist air stream, minimal support is necessary. Place straps approximately 6 feet apart. A pitch of ¼" for every 10 feet of pipe is the minimum recommended.

**Special Installations.** Dental Unit Inlets: If the vacuum inlet is to be mounted within a dental unit, adapters for connecting the PVC pipe can be obtained from your local hardware or plumbing supplier.

### Overall Dimensions of Power Units and Canisters

Power Unit	Height	Width	Depth
Steri-Vac Heavy Duty and Standard	19"	16"	18"
Canister – Cat. No.	Capacity	Diameter	Height*
SV-5	5 Gal.	14"	15"

\* Height measured without check valve. Add 5" for check valve.

### For Most Efficient Installation...

These points should be followed for efficient installation and **MUST** be followed to protect the owner's warranty policy.

- 1) A fresh air supply for motor cooling is a **MUST**.
- 2) Heated exhaust air should be vented to the outside. If exhausted into the room, exhaust air should be directed away from the power unit so as not to interfere with the motor cooling cycle.

**THE EXHAUSTED AIR SHOULD NEVER BE EXHAUSTED IN THE SAME ROOM WITH THE AIR COMPRESSOR OR FURNACE TO AVOID CROSS CONTAMINATION OF AIRBORNE BACTERIA.**

- 3) The top of the canister can not be installed more than 40" above the vacuum tubing main line.
- 4) A master on-off switch is to be turned on and off each morning and evening; preventing accidental/unnecessary operation, and prolonging motor life.
- 5) Upon installation, make sure the drain line from the check valve (½ copper) does not extend into the water level to prevent siphoning back into the canister.

## Maintenance instructions for your Steri-Vac Suction System

Regular care of your **Steri-Vac Central Suction System** is easy but important. Following the instructions below will keep your system in good working order and is required to fulfill all your warranty obligations.

### Daily:

- 1) At the end of each working day, draw at least one pint of oral evacuation cleaner through each mouthpiece and hose used that day. Let the system run for about one minute to make sure the liquid is completely drawn through.
- 2) It is necessary to shut off the system periodically – about ten minutes every few hours – to relieve the vacuum, thereby allowing gravity to drain the canister automatically. If the canister fills up, it will close off suction but the power unit will continue to run, and the motor will labor without a free flow of air. This will shorten motor life. If this happens the power unit **MUST** be turned off, breaking the suction in the canister and allowing it to drain.

### Weekly:

- 1) Remove all inlet adapters and pour about one quart of oral evacuation cleaner into each inlet. Let stand for about ten minutes. Then purge the system, starting with the inlet in the operatory farthest from the collection canister.
- 2) Turn on the system and rapidly open and release the flap of the inlet faceplate against the vacuum in the line. This will cause an inrush of air, creating a shockwave that will carry debris into the canister that might have accumulated in the line. The same procedure should be followed in sequence for each inlet.

### Monthly:

- 1) Inspect the canister and remove any debris or sedimentation rings using a brush and oral evacuation cleaner.
- 2) Inspect and clean the catch screen.

Should you notice during the cleaning (or any other time) that the liquid stays in the canister and does not drain quickly, the check valve at the bottom is probably clogged and not functioning properly. Use a **BLUNT** instrument to probe carefully around the valve and flush with plenty of oral evacuation fluid cleanser. **Do not operate system until the blockage is corrected.**

### Motor Brush Maintenance (if applicable):

To ensure motor longevity, brushes should be changed every 400-450 hours for the 7/8 HP motors (Part #101145 & 400064), and 1000-1100 hours for the 1-1/2 HP motors (Part #400054 and 400055).

**NOTE: Brushes are not covered under warranty. Failing to change brushes according to above recommendations will result in motor damage that is not repairable.**

**WARRANTY:** Visit [www.cpac.com](http://www.cpac.com) for warranty information.

