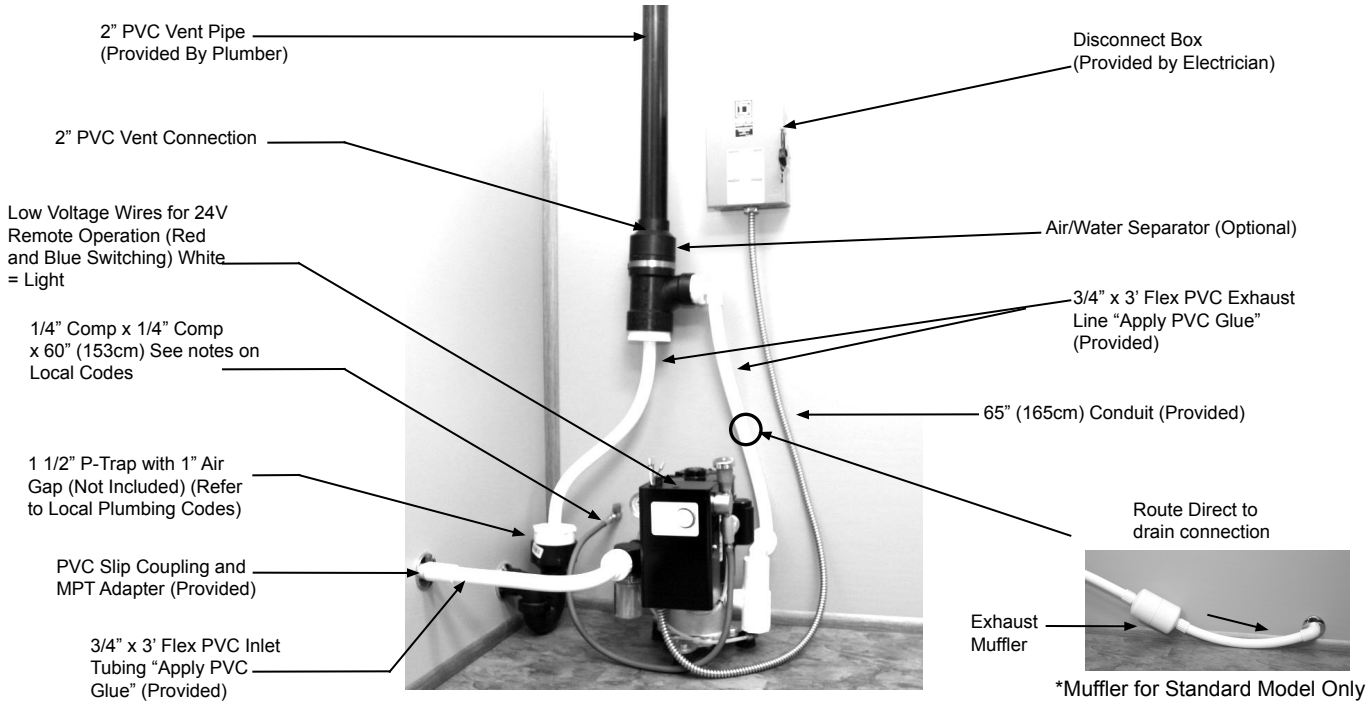
Installation & Operation

JVS Vacuum System



This dental vacuum should only be installed by qualified personnel. Should any questions arise, call JDS Technical Support between hours of 8:30 a.m. to 5:00 p.m. (Pacific Standard Time).

Unpacking The System:

Place the Vacuum System in a dry, clean, well ventilated area, on a solid, level surface. Consider sound level and insulate as needed. Be sure adequate ventilation is available as the Vacuum System is air cooled. Ambient temperature in the equipment room should be within the temperature range of 40 degrees Fahrenheit (4° C) minimum and to 100 degrees Fahrenheit (38° C) maximum.

During the cold weather months, ice may form inside the pump from the residual water after factory performance testing. **Allow ice to melt before starting the vacuum to avoid damaging the pump.**

To ensure that the pump is free from ice:

•Remove motor shaft access cap • Turn motor using wrench • Shaft should run free when all of the ice has melted

1. Remove the cardboard from the shipping platform.
2. Check to be sure that the pump is not damaged and that the Pump Installation Kit is in the box.
3. Remove pump from the shipping platform.
4. Install rubber feet onto the bottom of the pump.

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JDS Vacuum Pump Specifications:

Model	Max Users	Height	Width	Depth	Total HP	Voltage	Hertz	Amps	Breaker Size	Water Recycler	Air Water Separator
JVSS10	2	17 in.	12 in.	12 in.	1	115V / 208~230V	60	16 / 8	30 / 20	No	No
JVSS10R	2	17 in.	12 in.	12 in.	1	115V / 208~230V	60	16 / 8	30 / 20	Yes	No
JVSS10S	2	17 in.	12 in.	12 in.	1	115V / 208~230V	60	16 / 8	30 / 20	No	Yes
JVSS10RS	2	17 in.	12 in.	12 in.	1	115V / 208~230V	60	16 / 8	30 / 20	Yes	Yes
JVSS15	3	18 in.	12 in.	12 in.	1.5	115V / 208~230V	60	22 / 11	40 / 20	No	No
JVSS15R	3	18 in.	12 in.	12 in.	1.5	115V / 208~230V	60	22 / 11	40 / 20	Yes	No
JVSS15S	3	18 in.	12 in.	12 in.	1.5	115V / 208~230V	60	22 / 11	40 / 20	No	Yes
JVSS15RS	3	18 in.	12 in.	12 in.	1.5	115V / 208~230V	60	22 / 11	40 / 20	Yes	Yes
JVSS20	4	19 in.	12 in.	12 in.	2	208~230V	60	13.4	20	No	No
JVSS20R	4	19 in.	12 in.	12 in.	2	208~230V	60	13.4	20	Yes	No
JVSS20S	4	19 in.	12 in.	12 in.	2	208~230V	60	13.4	20	No	Yes
JVSS20RS	4	19 in.	12 in.	12 in.	2	208~230V	60	13.4	20	Yes	Yes

Models suffixed with **“R”** denotes Recycler

Models suffixed with **“S”** denotes Air/water Separator

R - Water Recycler: Saves on water usage by installing a flow regulator (0.25 GPM)

S - Air Water Separator: Allows the displaced air from the pump to vent out separately instead of blowing into the drain or venting directly into the room to avoid excess humidity.

Notes: A consigned electrical circuit with circuit breaker must be provided for each pump. Ambient temperature must be within the range of 40 degrees Fahrenheit (4° C) minimum to 100 degrees Fahrenheit (38° C) maximum.

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IMPORTANT: JDS Dental Products Vacuum Systems are Class 1 Equipment and are to be installed according to local plumbing and electrical codes.

Do not operate the equipment without complete and proper grounding.

Fuse Replacement: Warning. For continued protection against risk of fire, replace the low voltage fuse with listed, Bussman® Type AGC-1 only.

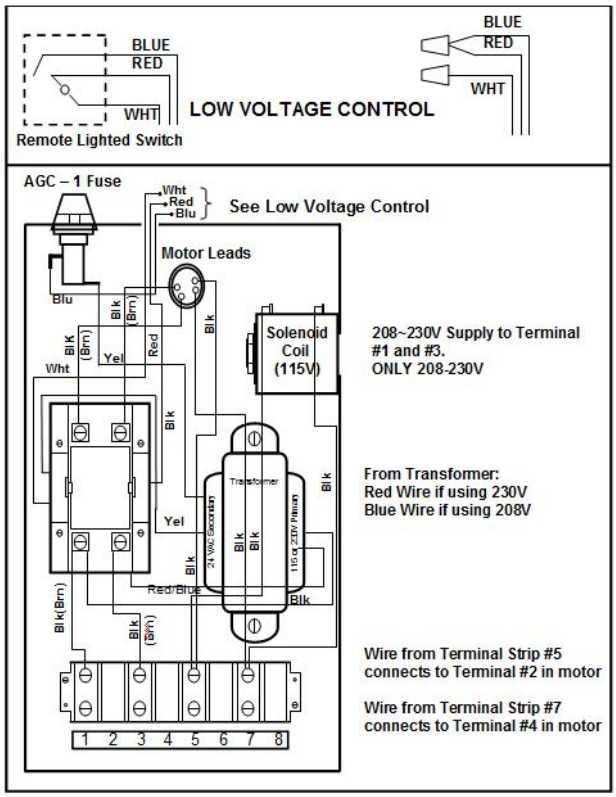
Caution: Electrical shock hazard. Do not remove cover. Refer servicing to qualified personnel

Caution: White wire on top of electric box is for 24V light only.

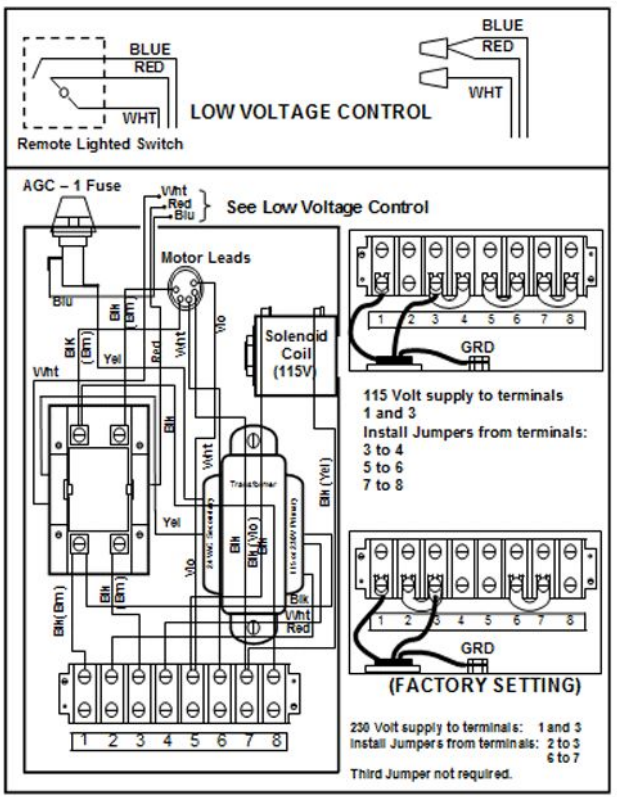
This Vacuum is designed and built to minimize electromagnetic interference with other devices. To mitigate disruptive electromagnetic interference, position and place this device away from other sources of electromagnetic energy.

⏚ **Protective earth ground** N **Neutral Terminal**

208-230 Voltage Models



Dual Voltage Models



Electrical Rating

JVSS10 – V: 115/208-230 60Hz. Max Amb: 40°C Max Amps: 16.2/8.1 RPM: 3450 1.0HP Single Phase

JVSS15 – V: 115/208-230 60Hz Max Amb: 40 °C Max Amps: 22.0/11.0 RPM: 3450 1.5HP Single Phase

JVSS20 – V: 208-230 60Hz Max Amb: 40 °C Max Amps: 13.4 RPM: 3450 2.0HP Single Phase

A. Plumbing Hook-Up Requirements:

Water Line (Recommended)
1/4 " poly tube water supply line with shut off ball valve terminating in 1/4 inch FPT. **The line must be flushed out prior to connection to vacuum.**

IMPORTANT: Water is essential for the operation and longevity of the pump. There must be no interruptions or restrictions of the water supply during operation. Water containing high mineral content may cause mineral build-up and create water starvation, leading to seal failure. A filter and water softener are recommended for this situation.

Waste Line
Water and air exhaust to sewer line terminating in:

Option A – Floor sink, an exhaust separator is highly recommended for most installations.
Option B – P-trap adapted to 3/4 inch (19mm) PVC slip connection. A 1 inch (25mm) air gap may be required by local code.

Vacuum Line
3/4 inch (19mm) PVC female slip connection. Guidelines for the proper design of a vacuum piping system are given in the following sections.

IMPORTANT: Continuously running sinks or cuspidors must NEVER be connected to the vacuum piping system.

B. Electrical Hook-Up Requirements:

Low Voltage Line (24V)
18-3 Thermostat wire from remote control switch if low voltage remote control switching is desired. Red and Blue wires are for switching, the White wire is for a lighted switch.

Line Voltage (60Hz)
A single phase, 115 or 208-230 volt, 60Hz., supply circuit with approved ground connection is required. The 1 and 1 1/2 HP units are dual voltage 115/208-230 VAC. 2 HP units are 208~230 VAC only. **All units are factory wired for 208-230 volt operation:** 220 volt operation is recommended for maximum efficiency. An electrical hook-up kit, complete with high voltage switching box, and pre-wired conduit is provided.

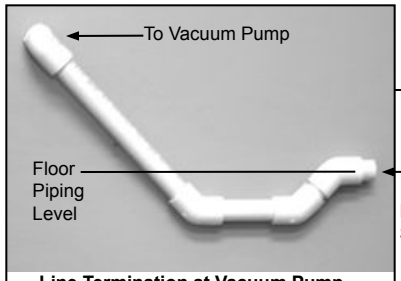
C. Vacuum Piping System Guidelines:

The design of the vacuum piping can have a large effect on the efficiency and reliability of a vacuum system. Experience has shown that the most effective vacuum piping designs are based on the air velocity that will occur in the lines. The velocity must be high enough to entrain all liquids and sediment in the air flow so that they do not accumulate in the lines. At the same time, the velocity must not be so high as to cause unacceptable vacuum losses. The **Vacuum Line Sizing Chart** on the following page is based on maintaining an optimum air flow velocity according to the criteria described above.

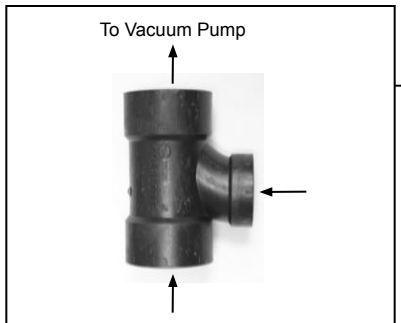
D. Vacuum Line Size Chart

# of Operatories Supplied through Line	Pipe Diameter in inches (mm)
1	3/4" (19)
2	1" (25)
3	1" (25)
4	1 1/4" (32)
5	1 1/4" (32)
6	1 1/2" (38)
7	1 1/2" (38)
8	1 1/2" (38)

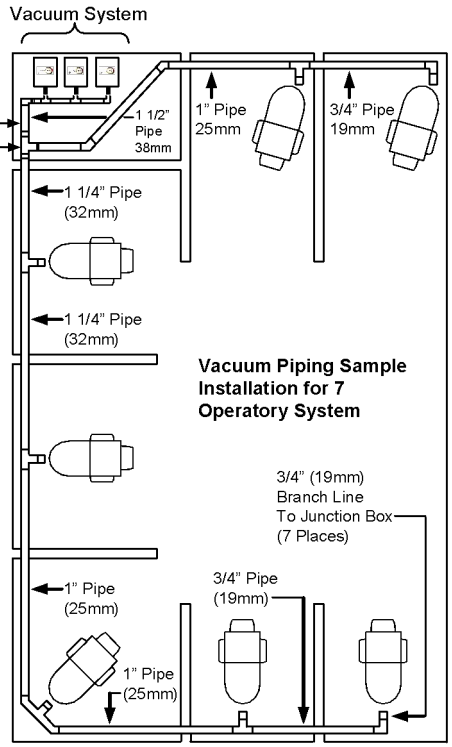
NOTE:
Use the number of operatories being supplied, not the number of outlets within the operatories to determine line size at any given point. Branch lines to individual operatories off of the main suction line should be ¾ inch diameter



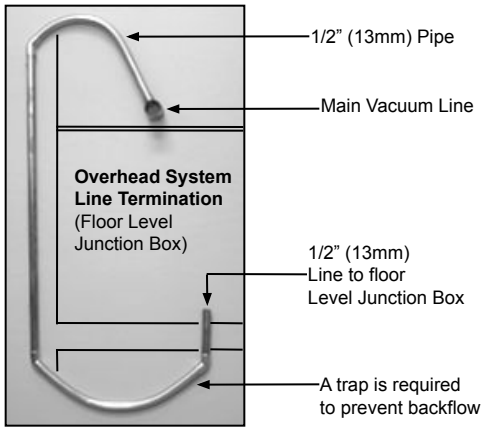
Line Termination at Vacuum Pump
(Low Restriction Trap)



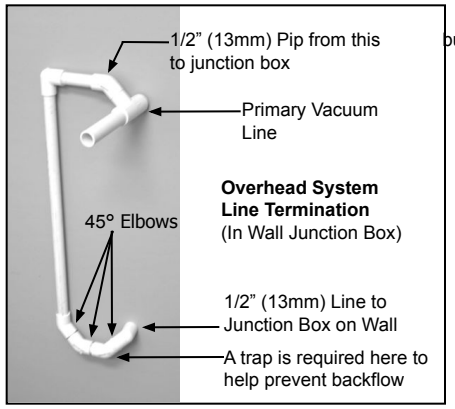
Y-Tee
(Flow Diagram)



Vacuum Piping Sample Installation for 7 Operatory System



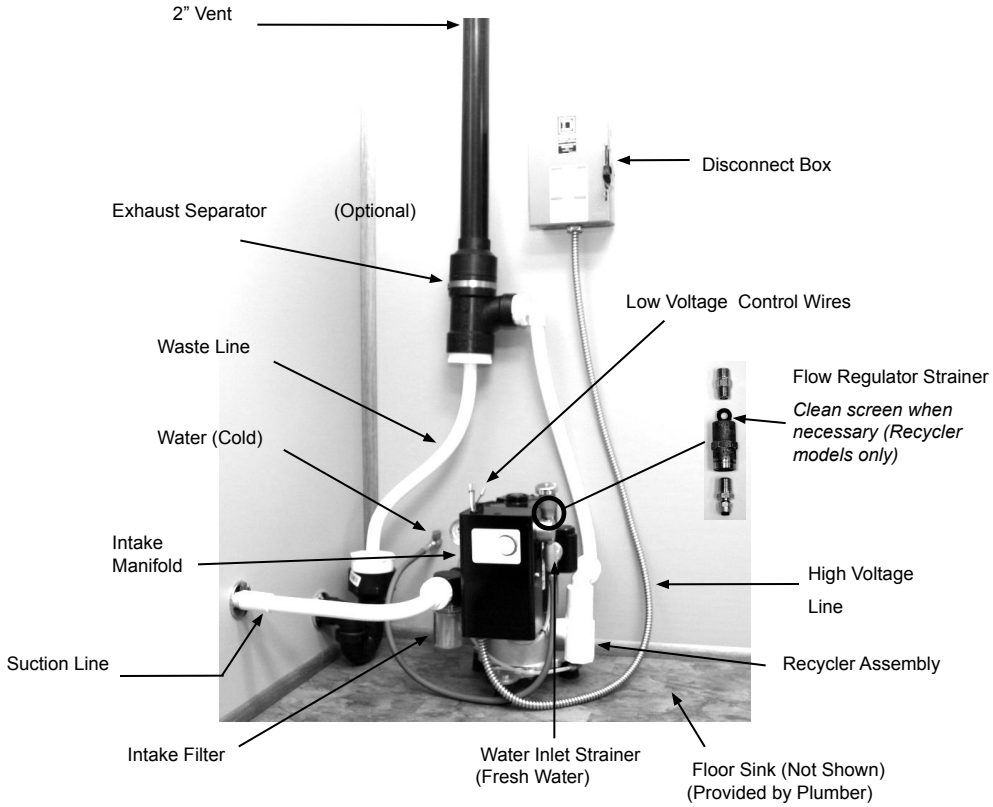
Overhead System Line Termination
(Floor Level Junction Box)



Overhead System Line Termination
(In Wall Junction Box)

The vacuum lines should be supported to prevent sag and should be angled 1/4 inch (6 mm) for every 10 ft (3 m) towards the vacuum pump. It is of primary importance to minimize turns of 90 degrees in the system. This not only causes vacuum loss, but exposes areas where sediment can accumulate. A combination of two 45 degree elbows are recommended to a rather than a single 90 degree elbow. Restrictions in the line will also cause vacuum losses. Y-Tee should be used whenever possible.

Overhead systems require the use of the next larger size vacuum pump. Overhead systems also require a 1/2 inch (13 mm) line rather than 3/4 inch (19 mm) from the operatories to the main line, and special provisions to ensure that liquids do not travel back into the operatories. A sample vacuum piping diagram is shown. Consult JDS Technical Support for further information regarding vacuum line sizing.



E. Installing Vacuum System With Exhaust Separator

1. Place the vacuum unit on a solid level floor within two feet (0.6 m) of waste line P-trap or floor sink.

2. Mount the exhaust separator tank using sheetrock anchors and screws provided, at least 2 inch (51mm) above a P-trap waste connection, and within 3 feet (1 m) of the vacuum exhaust for proper 3 foot (1 m) exhaust hose connections.

3. Connect operatory vacuum line to the pump suction strainer using PVC pipe or the provided suction hose and glue with PVC type cement.

4. Attach the provided 3/4 inch (19 mm) pump exhaust hose to inlet fitting of the exhaust separator, and glue with PVC type cement.

5. Attach provided 3/4 inch (19 mm) drain hose to P-trap or floor sink from bottom drain fitting of exhaust separator and glue with PVC type cement.

6. Install 2 inch (51 mm) PVC vent line off the top of the exhaust separator and vent to the outdoors.

7. Connect the provided brass water manifold with shut-off valve to a 1/2 inch (13 mm) water supply line.

8. Connect high voltage electrical supply line to the pump as indicated in the electrical diagram.

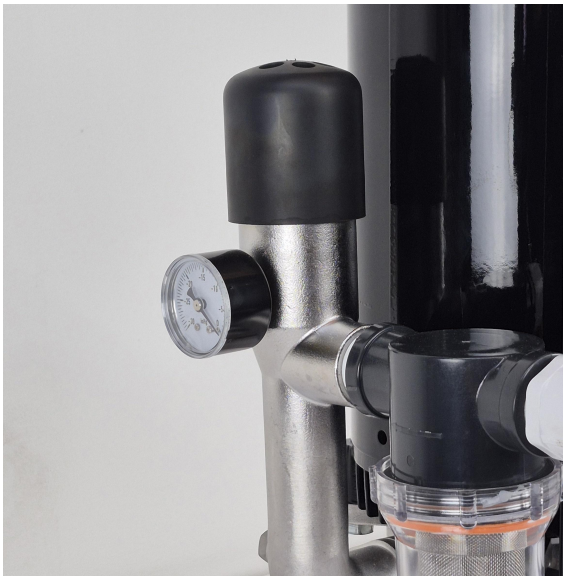
9. For low voltage remote control, connect low voltage wires of corresponding color from the Apollo Master Control Panel vacuum switch.

F. Initial Start-Up

1. Check that water supply valve is “OPEN”.
2. Start the pump.
3. Check exhaust tubing to ensure that water is flowing through the pumps.
   IMPORTANT: Do not run pump without full pressure water supply, or serious pump seal damage could result.
4. Check waste drain line to ensure that water is draining properly and that there are no water leaks.
5. Check vacuum gauge to ensure that the pump is functioning properly. Vacuum relief is factory preset for 10~11 inches Hg (34~37 KPa) Vacuum.
6. Store this installation manual for future reference.

G. Vacuum Level Adjustment

1. Remove the rubber boot + relief valve body by pulling up, the relief valve body should come up with the boot, together.
2. Remove the stainless relief valve housing from the boot.
2. Using a 1/4” socket or an adjustable wrench, adjust the center mounted nut in the middle of the valve. Tighten the nut to increase the in Hg and loosen the nut to decrease the in Hg.



Notes

Circuit diagram, component part lists, descriptions, calibration, and further instructions and information available upon request. Contact JDS Dental Products for assistance.

Ambient temperature for transportation and storage must be within the range of 40 degrees Fahrenheit (4° C) minimum to 100 degrees Fahrenheit (38° C) maximum. Keep Dry

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