



## Airvac Vacuum Pump Modulation

### How Can Modulation Benefit You?

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Modulation is a patent pending program logic that improves the manner in which your vacuum system functions. Previous designs required vacuum pumps to turn on at 16" Hg and off at 20" Hg regardless of the situation within the vacuum system. The modulation sequence controls the speed of the vacuum pumps to maintain a tighter vacuum range and speeds up and slows down depending on the demand of the vacuum system.

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#### Advantages

##### **Decrease power cost up to 35%**

As the vacuum pump speed fluctuates depending on the demand, it is unusual for the pumps to ever operate at full speed. Furthermore, the pumps are not turning on and off as frequently, which reduces the power requirements to start the pumps. Therefore, running at lower speeds and reducing pumps starts decreases the power consumption.

##### **Less heat and noise**

As the pumps are normally operating at 30% of full speed, the pump creates substantially less heat and noise.

##### **Improved vacuum system efficiency**

Even though the vacuum pumps are operating at lower speeds, the pumps are constantly pulling liquid from the pipe. Therefore, there is less water in the pipe and more vacuum. As a result, the end of line vacuum levels drastically improve.

From our experiences, with modulation there is normally 2-3" Hg loss between the station and end of the line. With these high vacuum levels throughout the entire system, it will help overcome system imbalances related to waterlogging, excessive demand, etc.

Note: With the traditional 16-20" Hg logic, there could be a 10" Hg+ vacuum loss between the station and end of line.

## O&M Savings

The Busch Mink pump model was developed specifically for vacuum sewer systems and is proprietary to Airvac. Mink pumps do not use oil or filters that have to be changed. They are internally coated to protect against moisture and H<sub>2</sub>S gases. Pumps react to system demands without an operator having to respond, which evens out the peaks and valleys of the vacuum levels in the system resulting in increased efficiency. Eliminating the on-off cycling of the pumps and running at lower speed will result in a longer useful life of the pumps. These benefits result in reducing O&M costs.

## Next Steps

Airvac can assist you with measuring the efficiency of your existing vacuum pumps. You will be provided with the key technical information and cost associated with updating your system to capitalize on this patent pending modulation technology.

## Testimonial

Jamie Tuccalo, DPS Deputy Director of Plum Island, MA had this to say about his experience with vacuum pump modulation: "I highly recommend this. The PLC along with the pumps work together in adjusting the speed from 50% to 100% when needed, without operators having to respond. This also saves the life of the pump and keeps the standby pump from turning on. We are seeing an average reduction of 25 – 35% in our monthly power bills since we've upgrade to the Mink pumps and added the modulation feature. It is amazing."



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