10 WAYS TO KILL YOUR **DOUBLE DIAPHRAGM** PUMP

An air-operated double diaphragm pump is indeed a highly reliable pump type and is generally easy to operate and maintain. However, there are several factors that can lead to the deterioration or failure of the pump.

1. Run the pump dry without limitations

Dry running an air-operated double diaphragm (AODD) pump may not immediately damage the pump, but it can accelerate wear and lead to premature failure. When an AODD pump runs dry, it operates at a higher speed, resulting in increased air consumption and more frequent diaphragm strokes. This can cause the diaphragms to lose their elasticity more quickly and ultimately fail.

To prevent this issue, you can use a **Flow Stop Valve** in the air supply to the pump. This valve detects increased air consumption and automatically closes off the air supply to the pump, protecting it from damage due to dry running.

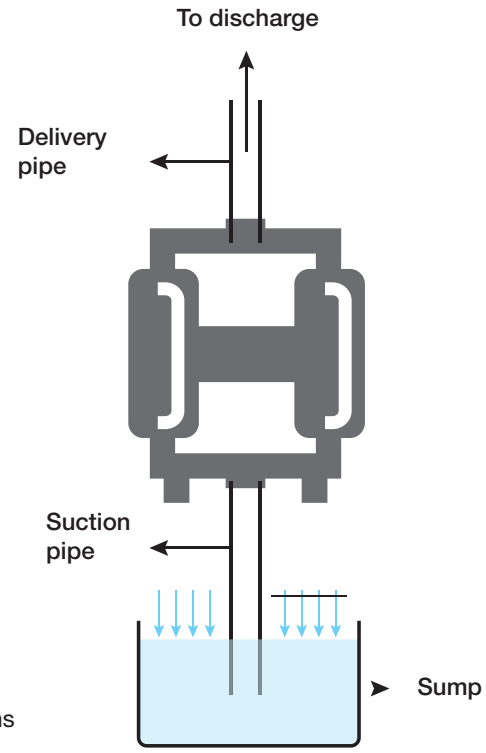
2. Run the pump with dirty and/or very humid air

Air moisture and quality are crucial factors for the proper operation of air-operated equipment. High moisture or poor air quality can lead to issues such as icing or clogging of the air valve or muffler in an air-operated double diaphragm (AODD) pump. Moisture in the air can condense in the air exhaust due to temperature drops from high to low pressure, leading to clogging of the muffler. Additionally, accumulated waste over time can also contribute to clogging.

To avoid these problems, it's essential to use clean, dry, and filtered air to operate the pump. Regularly checking the muffler for dirt buildup and monitoring the quality of the air supply is also important. If the plant air quality is poor, consider using an **Anti-Ice Muffler** and installing an air filter in the compressed air line before the pump. These measures will help ensure error-free operation of the pump and prevent issues related to moisture and air quality.

3. Start-up of the pump at full pressure

It's always advisable to start up a diaphragm pump slowly to ensure optimal performance and longevity. If the air pressure supplied to the pump is too high while the pump is not filled with liquid, it can cause the pump to change over too quickly. In such cases, the valve balls may not have sufficient time to close the valve seat properly, preventing the creation of a vacuum needed to draw the liquid into the pump. For systems with automatic on/off functionality, it's recommended to install a **Soft Start Valve** in the air supply to the pump.



4. Use the same diaphragms on different applications

Incorrect diaphragm selection can lead to diaphragm rupture and various other issues with the pump. The lifespan of diaphragms largely depends on the material they are made of. Always ensure that the diaphragm material is resistant to the liquid being pumped. PTFE diaphragms are suitable for most chemical applications but may not have the best mechanical strength and can wear out quickly in abrasive applications. Diaphragms made of molded PTFE on a rubber layer offer better durability in such applications. If unsure, consult a specialist to determine the best diaphragm material that provides the optimal balance between cost and lifespan for your specific application.

5. Run the pump with high inlet pressure

An air-operated double diaphragm (AODD) pump producing an irregular noise resembling that of a machine gun is often indicative of the pump operating at excessively high inlet pressure. In such cases, the liquid pressure can push the valve balls on the suction side away from their seat, causing them to move around in their cage and generating the distinctive "machine gun noise." To mitigate this issue, it's recommended to install an AODD pump in a manner that requires the pump to create suction lift or experiences only minimal positive inlet pressure. Additionally, using heavier valve balls, such as rubber balls with a steel core, can help reduce this problem by providing greater resistance to being pushed away from their seat by liquid pressure.

6. Installing an air line with an inner diameter that is too small

Using an air line that is too small, or air equipment in the air supply that reduces the volume of air your pump requires, will starve the pump of compressed air, causing it to operate slowly. Upgrading to a larger air line and/or air equipment capable of handling a greater airflow is the solution.

A rule of thumb is to use air equipment and hoses with the same internal diameter as the air connection of the pump. Check the operating manual of your pump for the correct size of air supply.

7. Installing a fluid piping to the pump which is too small

A suction pipe that is too small can cause cavitation inside your pump and reduce its lifetime. Similarly, a discharge line that is too small will result in larger pressure losses and diminish the flow capacity of your air-operated double diaphragm (AODD) pump.

If you're uncertain about the appropriate pipe size for your installation, please contact your pump specialist. Provide them with the necessary information about your application to ensure the selection of the best pipe size.

8. Run your pump fast on abrasive applications

If you run an air-operated double diaphragm (AODD) pump at high speeds in abrasive applications, the valve seats and balls will wear out quickly.

Additionally, the lifetime of your diaphragms will be reduced. In such applications, it's advisable to use a larger pump running at a slower speed to mitigate these issues.

9. Ignoring suction lift and medium viscosity when selecting a pump

All AODD manufacturers publish pump curves based on water and the pump running without suction lift. However, due to the way diaphragm pumps work, compressed air supplied to the pump is used simultaneously for suction lift and to discharge your medium. When an AODD pump has to provide suction lift, the maximum flow rate of the pump will be reduced.

Pumping media with higher viscosity creates more pressure drop inside the pump. Consequently, the pump requires more power to push the liquid out of the pump chamber through the ball/seat combination in the discharge line, reducing the maximum capacity of the pump.

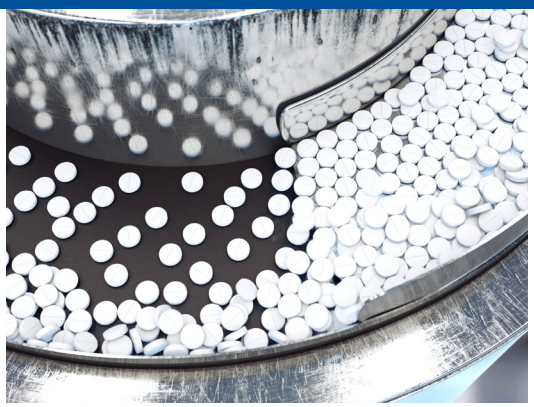
Always consider the flow reduction curves for suction lift and viscosity when selecting a pump, or consult with your local pump specialist.

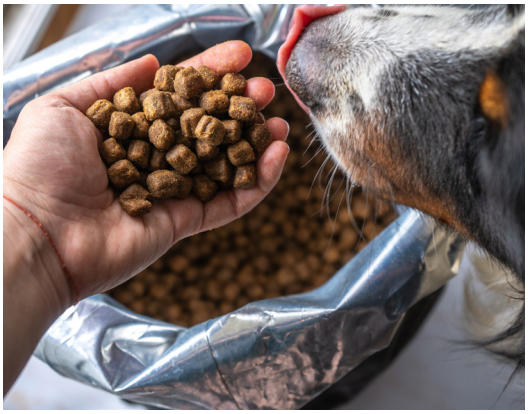
10. Not using the most efficient double diaphragm pump

Inefficient AODD pumps consume more air and take longer to complete tasks, leading to increased maintenance not only for the pump but also for the compressed air installation (compressor, dryer, supply pipes, etc.).

Verder offers solutions to this with their Verderair double diaphragm pumps, which feature rapid-acting air valves and an innovative flow pattern inside the pump. These advancements result in higher flow rates, lower air consumption, and reduced maintenance for both the pump and compressed air installation.

By enhancing productivity, lowering operational costs, and improving the working environment, these pumps contribute to overall efficiency and effectiveness.



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