



AODD (Diaphragm Pump) Freeze up problems



Liquid Shield Polar air tool lubricants - Powerful, economical protection for operators and equipment

Air-operated double-diaphragm pumps (AODD) are preferred in transfer applications because their simple design makes them easy to operate and cost-effective to repair. However, it's estimated that 60% of the total ownership costs of a diaphragm pump are due to downtime, and two of the leading causes are freezing and stalling.



When compressed air expands, it gets cold, sometimes to below -30°F, freezing any moisture in the air supply and stalling the pump. Diaphragm pumps can generate high decibels at full speed, a main reason mufflers are recommended during installation. The AODD air motor requires compressed air to operate. As the compressed air enters the air valve and channels through the pump center section to exhaust through the muffler, rapid temperature changes occur. At the muffler exhaust, air temperature is below freezing and can cause icing-related issues that are common in humid environments.

Erratic pump operation, inlet air with high levels of moisture or visible frost on the outside of the muffler are indications of an icing-related issue that is decreasing pump efficiency. There are manufacturer suggested solutions to eliminate these issues:

- Decrease the air pressure to the pump.
- Increase the pump size to operate at lower speeds (i.e. lower air pressure).
- Exhaust air to a remote location using an exhaust port tube.
- Add an air line filter with a water catcher and drain to collect condensation.
- Install an air line heater to raise the exhaust air temperature above freezing.
- Adjust the pressure dew point temperature with an air compressor dryer.

Solutions to icing can range in difficulty depending on the application and environment, but reducing the air pressure to the pump is one of the quickest and most effective ways to reduce icing.

Liquid Shield polar air tool lubricants provide a simpler cost effective solution to the problem.

Inject LS air tool lubricant into the compressed air supply line. Minute quantities of our polar lubricant are all that is required to prevent water and ice from forming on the exhaust system.

A variety of air line lubricators are readily available to ensure that the polar lubricant is always supplied to the compressed air stream.



Our base oils are compatible with most elastomers used in AODD systems. Liquid Shield air tool lubricants are available in 4 / 8 / and 20 litre containers. If your company is a manufacturer or distributor of AODD pumps, you may want to consider a private label version of our products, so that you can ship the right lubricant with every pump that you sell, or rent. Your customers will be satisfied with the equipment you provide, and the equipment will operate more reliably, saving money and time.



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