

Is an AODD Pump Right for Your Application?

One estimate shows that at least 75% of food manufacturers in the UK have an air-operated double diaphragm (AODD) pump. To avoid negative impacts on operations and maintenance budgets, operators should understand when an AODD pump is the ideal choice.

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In an AODD pump, two flexible diaphragms are driven by air pressure from a compressor, creating positive pressure in one chamber and negative pressure in the other. The two chambers alternately fill and discharge. There are many advantages to this design.

Run dry – Interruptions may occur during product transfer from drums or to filling equipment. Running pumps in a dry condition (without process fluid) can shorten their life. The diaphragm pump is the only hygienic pump that can safely run in a dry condition.

Deadhead – Deadheading can damage and even break some types of pumps. For example, if a discharge valve in a centrifugal pump is blocked, the product recirculates in the pump chamber, and the temperature increases to a damaging level. In contrast, an AODD pump will stop when the pressure in the discharge line reaches the same pressure as the air driving the pump.

Self-priming – AODD pumps do not need positive inlet pressure. Usually, a dry suction lift of up to four meters (13 feet) is possible. The lift may exceed eight meters (26 feet) if the pump is flooded. A UK food manufacturer needed to transfer tomato pieces and purees from 220-liter (58-gallon) bag-in-drum barrels. The pump needed to be self-priming, even with the high-viscosity purees. An AODD pump provided the answer.

Low shear – AODD pumps, because of their virtually friction-free design, are ideal for moving shear-sensitive products. An international food processor in the UK needed a hygienic pump at a sauce production plant. The product included a lentil mixture and a spice sauce that would be mixed with rice and vegetables. Two AODD pumps met the requirements for gentle handling of the products.



An example of an AODD pump designed for fast disassembly is the Flotronic® One-Nut® AODD+ pump from Unibloc Hygienic Technology. Access is achieved by removing only one large nut, as seen in the photo above.

Cleaning and maintenance – Many food processors don't know that there are two designs of AODD pumps. The traditional design moves the process fluid through pipework on each side. This pump design takes about two hours to disassemble, clean, and return to service.

An alternative pump design moves the process fluid through the center of the pump, avoiding the need for extra pipework. In addition, the pump assembly is secured by one large nut, enabling fast access for cleaning and maintenance. This innovative design can be cleaned in only 15 minutes, saving labor that can be redirected to other tasks. In applications where pumps are manually cleaned daily, the savings become very significant.

Unibloc Hygienic Technologies is an industry leader in precision-engineered positive displacement pumps, air-operated double diaphragm pumps, and drum pumps, as well as valves, strainers, bubble traps, oil coolers, and sight glasses. The company is known for industry leadership under its various brands: Unibloc pumps, Flotronic One-Nut AODD pumps, Hygenitec™ flow control products, and Standard Pump industrial products. For more information, visit www.unibloctech.com.

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