**Price® AOD® pumping solutions for today’s marketplace**

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The concept and use of diaphragm pumps is one of the oldest pumping techniques used by mankind. In the early stages of development, the pumps were crude, mechanically driven, single membrane pumps with virtually no options available. Over the years, more innovative designs have continually progressed the pumps into their most common configuration of the modern world, namely the Air-Operated Double Diaphragm pump. Due to their low initial cost, easy maintenance, simple installation and operation coupled with their ability to pump a wide range of fluids with varying viscosities, along with the seal-less, self-priming, dry running capabilities, it’s no surprise that the Air-Operated Diaphragm (AOD®) pump has become and remains one of the most popular, reliable and versatile pumps on the market today.

AOD® pumps operate substantially different from conventional electrically driven centrifugal or positive displacement pumps. The general principle behind AOD® pumps is to transfer fluid through the pump by means of a user supplied source of compressed air. The AOD® pump consists of suction and discharge manifolds, suction and discharge ball valves, liquid and air chambers. The air chambers are separated by diaphragms, which are in turn, connected by a common shaft. The final and most important component is the air distribution system. The compressed air is directed into the air valve. Through a series of passages, the air is directed into one of the air chambers. As one air chamber fills with air, the diaphragm in that chamber will begin to expand into the pump chamber, displacing the fluid in that pump chamber past the discharge valve into the discharge manifold. Conversely, the shaft that is connected to the opposing diaphragm pulls it into its own air chamber. This creates a vacuum in the pump chamber, which “pulls” the fluid past the suction valve and into the pump chamber. As the pump chamber reaches its maximum capacity, the diaphragm will trigger a switch, which reverses the air-flow to the opposite chamber and the process is repeated. The two pump chambers are always simultaneously in opposing cycles of the stroke: one is always discharging fluid while the other is in the suction cycle. This continuous redirecting of the compressed air causes the reciprocating motion of the diaphragms, which results in pumping of the process fluid.

The basic design of AOD® pumps, offers many advantages over other pumping alternatives. Because the driving force of the pumps is compressed air, the pumps do not require complex electrical and/or electronic controls to install and operate. The pumps handle a wide variety of fluids ranging from very high to low viscosity, to those that are corrosive and/or abrasive. They also have the ability to pump...
low-density powders and can pass fairly large solids. AOD® pumps do not “shear” the fluid during transfer, so they are ideal for handling shear-sensitive media such as foods, paints and inks where fluid consistency needs to be maintained. Due to the diaphragms being fixed at the outer diameter bead, the pumps have static sealing surfaces and do not require mechanical seals. They are self-priming with lifts greater than 20 feet, and can run dry or against a closed discharge without damage. In some cases, they can even be run while completely submerged in the process fluid. For applications where performance needs to be varied, the pumps offer an infinitely variable flow rate without the need of a variable speed motor. Just by varying air inlet pressure the performance of the pump can be adjusted to suit the application. AOD® pumps are portable and because of their quick and easy installation, they are easily transferable from site to site. Couple all of this with their ease of repair and maintenance, and you begin to see why AOD® pumps have remained an industry favorite.

Now that you are familiar with the general use, operation and advantages of air-operated diaphragm pumps in general, its time to look in detail at the innovation and features that Price AOD® pumps offer. First and foremost, is our patented oil-less, non-stalling air valve. Our state of the art, “posi-shift” air valve design supplies a continuous high-pressure signal to the main spool, which insures reliable stall-free operation. This is ideal for all types of low-pressure applications where the pump can operate on inlet pressures as low as 5 psi. There is no need for springs or magnets that are present in other manufacturers designs. This means 100% customer confidence that the pump will start in the most difficult conditions of service, including troublesome frequent start/stop applications.

In addition to the stall-free design, the patented Price® AOD® air valve consists of a main spool made from a highly engineered non-metallic material and precision-manufacturing techniques that allows for completely oil-less operation. It is because of this non-metallic spool material, that there are no metal-to-metal wearing surfaces, so there are no sleeves or O-rings required. The main spool is also hydraulically balanced, thus there are no additional side forces that cause excessive wear to the spool or housing. The result of the non-wearing design allows the user to operate the pump completely lubrication free, which results in several benefits. Aside from the obvious maintenance headaches and costs associated with oil pots, no lubrication means no oil misting into the environment creating an unhealthy working conditions. With no oil, lubricants or grease packed components being introduced to the system, there is no chance of contaminating the pumped product, if a diaphragm failure were to occur. Our oil-less design has been field proven and working trouble-free since its introduction over 15 years ago. The end result is that the Price® oil-less air valve design results in lower operating and maintenance costs and less downtime.

In addition to the oil-less, stall-free design of the Price® AOD® air valve, another main advantage is the fact that it accomplishes these benefits, while using the fewest air valve components of any major diaphragm pump manufacturer. Our air valves require no O-rings, which is a huge advantage compared with some competitors air valves that contain many o-rings. Anyone who has done maintenance knows what a hassle multiple O-rings can be during disassembly and re-assembly. Fewer parts means fewer problems.
Our externally serviceable main spool allows simple access into the housing, which makes inspection and/or repair quick and easy. There is never a need to disassemble the pump or take it out of service to inspect the main spool. Spool removal is as simple as this:

We are so confident in the performance and design of our air valve that we offer a 5-year material and workmanship warranty on both the main and pilot spools. Our simple yet effective design truly defines the term “engineering excellence”. Simply put, it’s the best air valve available on the market.

Price® AOD® pumps not only offer a superior air valve design, but also have a variety of other features worth mentioning. Depending on your different pumping performances required, Price® offers a full line of AOD® pumps, in sizes ranging from ¼” to 3”. A nearly endless list of fluids can be pumped due to the wide variety of pump and diaphragm materials available. Pump bodies are available in metallic (Aluminum, 316SS, and Cast Iron) and non-metallic (Polypropylene and PVDF) designs. Diaphragms, balls and seats are available in such materials as Neoprene, Buna, EPR, Viton®, Teflon® and the newly available material of Santoprene®. Our new Santoprene® diaphragms have a unique, proprietary “full-faced”, long life design, and along with our other diaphragm designs, are not interchangeable with any other manufacturers parts. This feature assuring that the customer will be using only authentic Price® Pump quality replacement parts. Any combination of pump body and elastomer materials can be used creating a number of possibilities available to meet the customer’s application and fluid requirements. In addition to the sizes and materials available, the main shaft of Price® AOD® pumps are nitrided, to provide longer life than standard non-treated 316SS shafts used by other manufacturers. Our pumps come standard with “whisper-quiet” polypropylene mufflers, with the option of a metallic muffler, when needed. Our AOD® line features NPT and ANSI flanges for the North American market with BSP and DIN flanges for the European market. We have clamped designs for general industry and bolted designs available for applications such as the petrochemical industry. If configuration is a key factor in the application, our manifolds can be assembled to in different directions to fit the required piping arrangement. For blending applications or if halving the pumpage is a requirement, Price® offers a few models with a split manifold arrangement, allowing a single pump to be used to pump two different fluids at the same time. For the most part, nearly every application can be handled with some variable combination of the AOD®’s available options.
Aftermarket accessories, to supplement the AOD® line, are also available from Price® Pump. For regulating the volume and cleanliness of the air supply, air-filter/regulators are available. These can be supplied with an onboard pressure gauge or as a bare filter/regulator unit. For applications where surges in the suction and discharge lines need to be minimized, Price® can supply a wide variety of pulsation dampeners and surge suppressors. Drum pump packages, mobile cart mounted pumps and many other customized pump packages can be provided upon request.

Nearly as important as the available features and options on the pump itself, a very critical aspect of a successful business in today’s world, is customer service. Price® Pump has always prided itself on unbeatable customer service. You will be talking to a human being when you dial our toll free number. Application support is always available via telephone, fax or e-mail. All inquiries and quotes are usually responded to and sent within 24 hours, so there is hardly a lag in communication with your customer. Another aspect of customer service that we take very seriously is providing the customers with an unusually short lead-time for the industry. This is especially impressive considering our pumps are built to order. Each pump order is specifically built to that customers specific needs. Prior to shipment, each pump is pneumatically and hydraulically tested to insure that a high-quality product is sent out the door. Standard lead times are 7-10 working days for pumps with a standard next day shipping on parts. If the pumps are needed in a hurry, we do have an expediting program that allows us to ship pumps the same day as the order is received. This is vital to providing solutions to emergencies when the customer has a catastrophic failure.

The bottom line with Price® AOD® pumps is that they are low cost, durable, and versatile pumps that get the job done. Price® AOD® pumps provide clean, safe, reliable low maintenance performance in literally thousands of applications. When you invest in pumping equipment manufactured by Price® Pump Company, you buy more than just a pump. You receive engineering excellence, application expertise and immediate factory support necessary to keep your pumping needs trouble free.

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