ARO®

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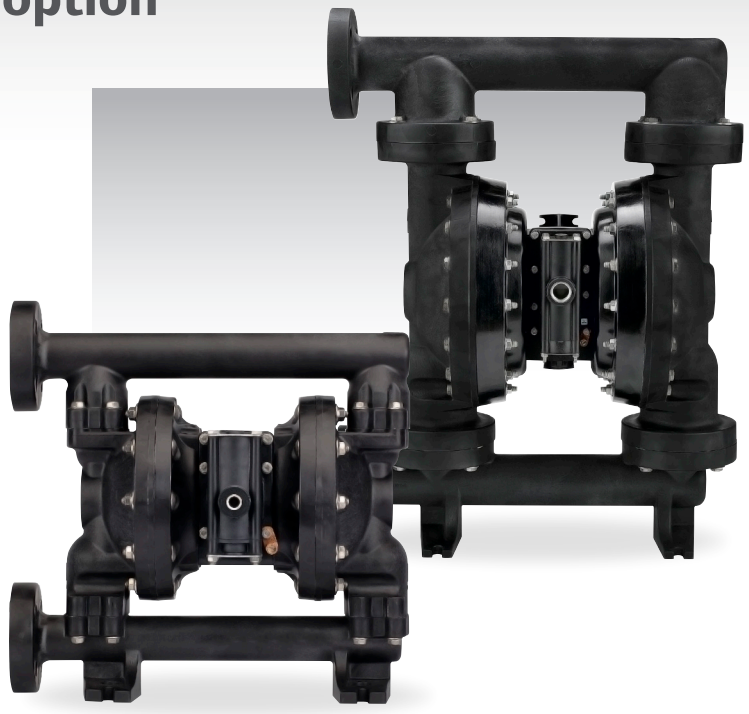
SPECIAL REPORT | VOLUMETRIC AND DOSE PUMPS | TECHNICAL FOCUS

ARO® completes its EXP range of air operated diaphragm pumps with a conductive PVDF material option



At the recent Hannover Messe, which took place in Germany from April 1– 5, 2019, ARO®, a manufacturer of fluid management products in the industrial segment of Ingersoll Rand®, presented its new PVDF conductive pumps, which completes the range of existing EXP Series pumps.

ARO® is an American brand of pneumatic piston and diaphragm pumps, which has been part of Ingersoll Rand PLC since 1990. Internationally recognized, this brand is sold primarily through distribution.

ARO® Product Manager Jacques Pechdimaljian says, "Our products are highly sought after and the biggest users are in the chemical processing industry and original equipment manufacturing. For the chemical markets, our pumps are used for process, i.e. chemical formulation, knowing that we remain below 1,079 l/m or 6.4 m3/h. We also are present in the manufacturing of ceramics, automotive and cardboard, to name a few. Our pumps are general solutions for all applications with aggressive, corrosive and viscous fluids. Our expertise is recognized in the handling of difficult to transfer fluids with mainstream electrical technologies."

Read on to learn more.

"OUR STRENGTH IS OUR COMMITMENT"

ARO® is a relatively small brand within Ingersoll Rand's family of brands.

"That is also our point of differentiation in the market," explains Jacques Pechdimaljian. "Our strength is our commitment we have with our customers. We are very responsive to the demands of our resellers. We use a very tight and committed distribution network to meet requests around the world. We have strong partnerships with local distributors, which ensure proximity to the end customer."

EXP TECHNOLOGY

The ARO® brand is at the forefront of pneumatic membrane pumps with its EXP technology.

The product manager explains, "We differentiate ourselves from the rest of the players in the market with the reliability of our pumps, but also through the electronic interface that we have developed in recent years. For example, diaphragm pumps run with compressed air, and we have developed an electronic interface that allows customers to remotely control and receive information on the operation of the pump."

"OUR STRENGTH IS OUR COMMITMENT"

In other words, ARO® preserves the benefits of compressed air while adapting the technology to the connected industry, and therefore participates in the improvement of the installation. ARO® pumps can meet the requirements of ATEX zones, in areas at risk of combustion or explosion.

"We have all the necessary certifications to provide to our customers and original equipment manufacturers," adds Jacques Pechdimaljian. "The PVDF pumps are excellent for transferring aggressive products. The PVDF also proves to be less expensive and more suitable than alternative materials such as stainless steel or PTFE plastic. "

DEVELOPING AN ALTERNATIVE CONDUCTIVE MATERIAL

EXP technology is a flagship product in the ARO® pumps family. It has adapted perfectly to high-tech industries.

The product manager says, "Air operated diaphragm pumps are quite flexible in terms of building materials. For example, we have aluminum, stainless steel and polypropylene pumps, as well as PVDF. But we have to adapt our products to the ATEX (explosive atmosphere) market, a significant portion of our business, knowing that nearly 50% of our customers need pumps with protection against explosions."

Traditionally, metallic pumps are chosen for explosive atmospheres because metals have high electrical conductivity. They can be grounded to drain the electrostatic charge, so sparks are easily routed outside the process. Jacques Pechdimaljian, however, mentions another issue. "Often, high chemical compatibility and explosion protection are both required for an application. The client may need chemically resistant materials and, at the same time, require ATEX protection. Stainless steel, which is the most suited for chemicals, can sometimes be unsuitable in terms of chemical compatibility or in terms of price. Plastics have better chemical compatibility per dollar value, but only special carbon-charged plastics can ensure enough electrical conductivity to comply with explosion-proof standards, such as ATEX. We already have a range of conductive polypropylene plastic pumps, but this material does not stand up as well as PVDF against the most chemically aggressive applications. We then expanded our range by offering another alternative: a conductive PVDF pump that ensures high chemical compatibility along with electrical conductivity." ARO® always seeks to develop new products that improve the productivity, safety and automation of pumps.

TESTIMONIAL

"With this new product, we wanted to raise the bar in terms of reliability, automation capacity, security and durability of our pumping solutions. Clients no longer have to compromise the cost of ownership to ensure chemical compatibility and ATEX compliance. We have made new pumps to improve efficiency, energy and resources, and minimize exposure to chemicals while reducing the risk of error when using or repairing pumps."

Julien Bassett
Global Product Leader
ARO® Diaphragm Pumps

ELECTRONICS INTEGRATION

ARO® EXP pump motors have the capacity to house electronics that allow remote operation and monitoring of pumps, such as obtaining information on the speed of the pump to know if the system is operating as required.

"We had to bring changes to the geometry and design of our motors to incorporate electronic sensors," specifies the product manager. "All of our pumps are prepared at the factory to accept sensors and actuators. Unlike the ARO® EXP pump itself, the sensors and actuation systems require electrical power to operate. So, we have done a lot of certification work to ensure that our pneumatic pump, now enhanced with electronics, complies with explosion proof requirements. Today, our entire range is certified and we are the only brand that offers an electronic interface on all sizes of our pumps in ATEX Group II 2GD X."

OTHER CHARACTERISTICS

Diaphragm pumps can easily auto regulate and stop pumping without damage to the equipment, in the case of an obstructed pipe downstream. Also, thanks to its asymmetrical valve, the EXP series air motor can never enter a pneumatic stall situation, guaranteeing the safe and continuous pumping of fluids. In addition, the ARO® Quick Dump™ technology avoids risks of icing thanks to a valve placed inside the pneumatic motor. This technology makes it possible to rapidly push cold air outward. Also, it is important to point out that EXP pumps transfer fluids safely, with a higher displacement per cycle than most competing alternatives in this category, both on the plastic range and metallic. Finally, ARO® is constantly working in partnership with its suppliers to develop the highest performing and longer lasting diaphragm technologies, such as long-life PTFE.

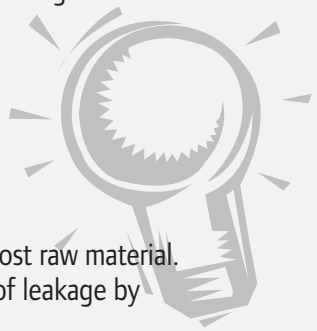
"In the chemical industry, for example, it is important to reduce the need for maintenance, thus reducing human operators' exposure to dangerous chemicals," adds Jacques Pechdimaljian.

"The industrial market is constantly evolving. Energy efficiency is a ubiquitous notion, and our customers are often trying to reduce energy consumption, including compressed air. Our electronic interface system comes in to meet this need by avoiding manual starts and stops by an operator. Also, electrification is something we are watching closely. Today, electrically operated pumps account for nearly 90% of the market. When discussing with customers, we realize that they think more easily about electric pumps than pneumatic ones. However, it is very important to note that pneumatic pumps offer inherent advantages that electric pumps cannot offer without adding complexity and cost to the system. Our strategy is to combine these benefits. Finally, we are committed to protecting the environment and the people. We are setting the bar high in relation to materials and design, in order to increase the lifetime of our machines and reduce plastic waste."

- Jacques Pechdimaljian

FEATURES AND BENEFITS OF THE NEW 1" AND 2" EXP CONDUCTIVE PVDF PUMPS

- Stainless steel hardware and inserts, which reinforce the plastic structure of the pump, reducing the risk of leakage and unreliability due to the creep of plastic parts over time. This contributes to a longer operational lifetime with fewer leaks, repairs, or emergency replacements of the pumps.
- Optional monitoring of flow and leak detection, combined with remote controllability, reducing the need for on-site intervention and supervision.
- Lightweight construction, thanks to lower density PVDF. The 2" ARO® PVDF pump is up to 60% lighter than a similar 2" pump made of pure PTFE.
- Lower total cost of ownership:
  - Purchase price up to 50% lower than similar 2" PTFE pumps due to the lower cost raw material.
  - Longer replacement cycles compared to PTFE pumps, thanks to a reduced risk of leakage by avoiding plastic parts that may creep over time.
  - Reduced time and repair costs, thanks to fewer parts and easy-to-use repair kits.



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About Ingersoll Rand

Ingersoll Rand Inc. (NYSE:IR), driven by an entrepreneurial spirit and ownership mindset, is dedicated to helping make life better for our employees, customers and communities. Customers lean on us for our technology-driven excellence in mission-critical flow creation and industrial solutions across 40+ respected brands where our products and services excel in the most complex and harsh conditions. Our employees develop customers for life through their daily commitment to expertise, productivity and efficiency. For more information, visit www.IRCO.com.

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