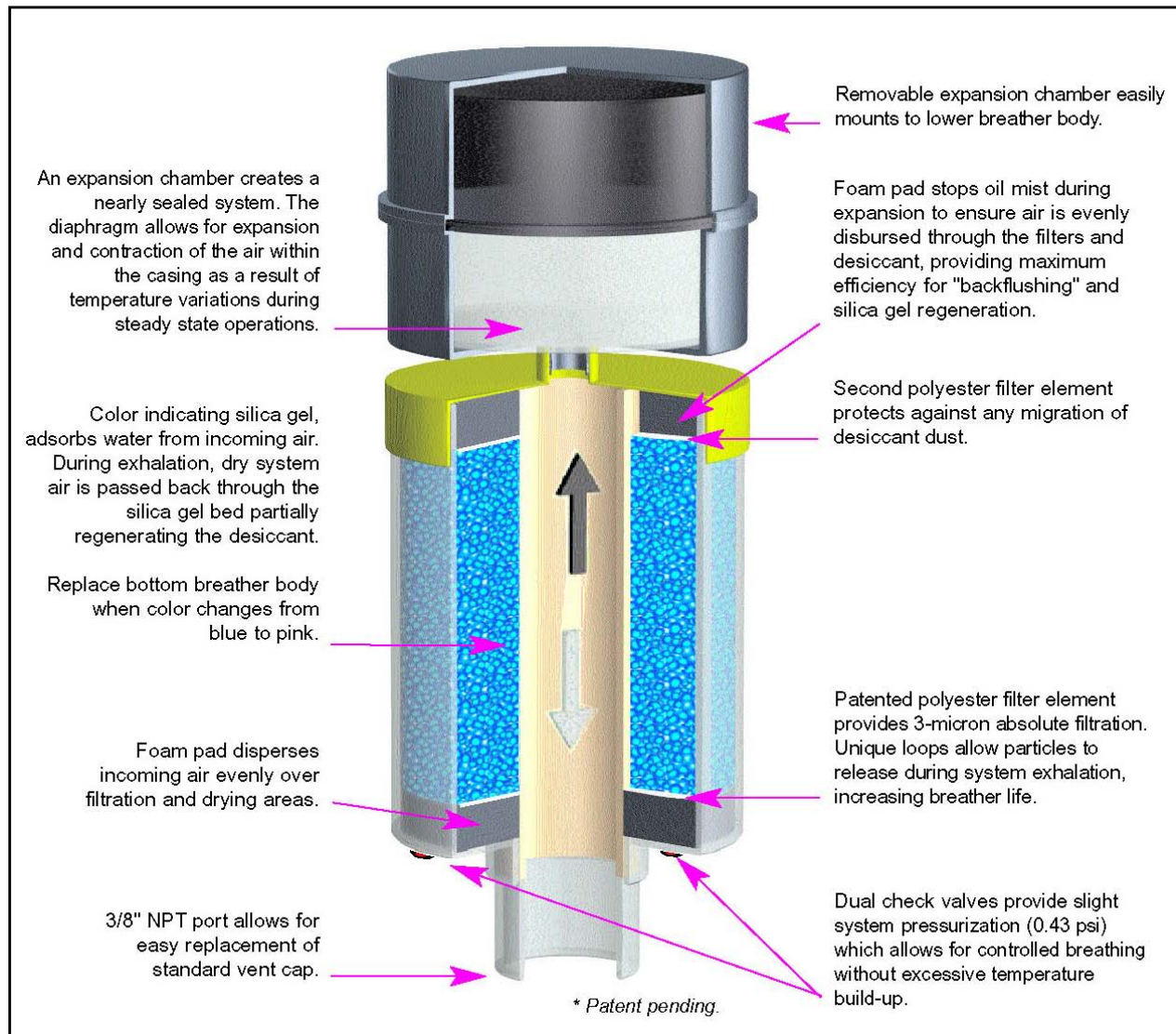


# Repackaging Existing Technology to Meet Industry's Needs

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Optimizing performance/minimizing downtime. . .



Maintaining the integrity of lubricants has been a difficult process in the past. Today, though, with the proper application of existing materials, it is becoming less challenging. That's because companies are incorporating existing technologies into new products that do

a better job of meeting this critical industry need.

Silica gel is not new. It's been used for a number of years to dry moisture from oil. An especially effective desiccant, it is capable of adsorbing 40% or more of its weight at 100% humidity. It protects lubricants by adsorbing moisture in its porous sur-

face and keeping it from contacting the oil in a reservoir. According to *Fluid Energy Industrial* "Silica gel is odorless, non-toxic, and non-corrosive, with stable chemical and thermal characteristics."

Since this desiccant comes in a variety of media, it can be used on a range of applications. Its packaging is often what determines the feasibility of its use on a specific application. Several silica gel-containing units are available for use with gearboxes and large reservoirs. One of the most popular styles turns from blue to pink when the gel is expended. This indicates the desiccant's capacity to continue adsorbing moisture from the oil reservoir.

Other technologies available for mitigating moisture and particulate contamination in lubrication systems encourage completely closing the system to the outside environment. This is a sound and effective means by which to stop contamination ingress; however, it is not always a feasible way to maintain quality lubrication. In instances where it is impractical, or nearly impossible to close the system to the outside, there has not always been a compromise on closed versus open systems.

## Hybrid Solutions

Manufacturers are now offering a hybrid product that integrates the benefits of a closed system offering drying technology with the capabilities of a vented system to relieve extreme pressure changes. This is accomplished by packaging expansion chamber technology with desiccant drying technology. To alleviate the possibility of an undersized expansion chamber, or a sudden pressure change, the desiccant filter is equipped with check valves to allow excess headspace pressure to vent without the risk on any contamination or moisture ingress.

The hybrid technology is available in a variety of sizes for different applications. A commercially available larger size for gearboxes was introduced to the market in early 2003. A smaller model designed specifically for pumps and small gearboxes has recently been released in the marketplace.

## Real-World Value

Both OEMs and end users are finding value in these hybrid solutions.

According to a major U.S. pump manufacturer, the hybrid product will solve many of the issues currently facing the pump industry. Studies have shown the largest contamination source is particulate ingress. The second largest form of contamination is moisture. The hybrid products are designed to combat both.

One place the newer, smaller hybrid product is being used successfully is in a major petroleum company, where it is ensuring the quality of lubrication on pipeline equipment. The product's check valve feature, along with the capability of the unit to close the system is what makes it ideal for this application. While the equipment on the pipeline can be sealed off from the outside environment, should there ever be a sharp pressure increase or decrease, hermetic shaft seals on the equipment would be safe from any damage.

Without a pressure relief valve, increases in interior pressure on a bearing housing or a gearbox will have detrimental effects. Not only will the increase in pressure cause the oil level to vary, which can cause skidding to occur in the case of a bearing housing, it also will increase the temperature, leading to premature thermal wear. Operating in a vacuum situation puts undue strain on hermetic shaft seals, which can cause not only seal damage, but also shaft damage.

## Convenience

The convenience of these new products is the packaging—they're now available in one single unit.

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There is no longer a need to install a complex bulky "T" fittings or piping connections. The expansion chamber, dryer and filters are all in one easy-to-install package. The expansion chamber is able to be reused on future units, so the only item to replace is the desiccant and filter, which are housed together. Should the end user decide not to remove the expansion chamber in order to change the desiccant, the entire unit can be replaced by simply removing it from the system and discarding it.

## The Bottom Line

These state-of-the-art hybrid products are revolutionizing the way industry maintains its lubrication systems. While the component technology may not be brand new, the way in which it's being utilized is cutting-edge. Applications for these types of products exist in all industries around the globe.

## State-of-the-art hybrid products are revolutionizing the way industry maintains its lubrication systems.

All oil contains some level of moisture, and when it is not maintained properly, the moisture level will increase to damaging levels. With the introduction of this hybrid technology, it is now possible for end users to keep those moisture levels from ever becoming catastrophic. Applying this type of technology can help optimize operational performance and minimize downtime—and save countless dollars. **P&S**

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