

How to Choose the Correct Small Volume Prover Seal Material for your Application

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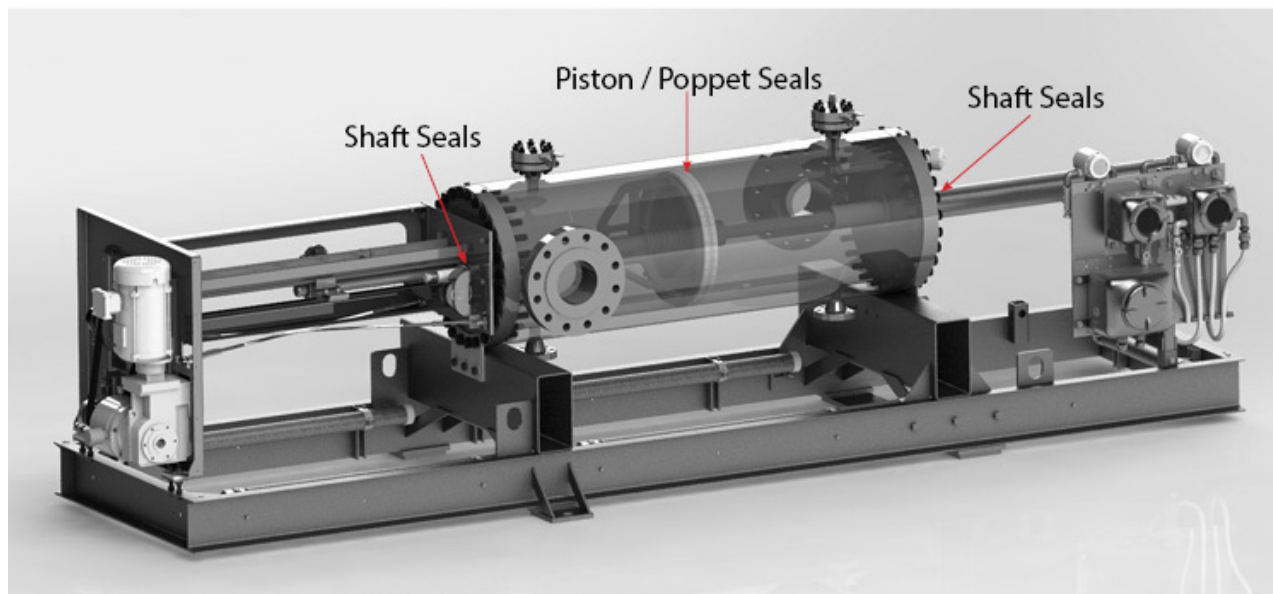


Small Volume Prover Seal Materials

There are two common types of seal materials that are available when choosing seals for a small volume prover. They are carbon or Ekonol®. Please note that other seal materials are available, for non-standard applications, however, today our discussion will focus on the two standards.

Seal Function

Small Volume Prover seals are critical for accurate measurement and also for containing the process material within the Prover. The seals are used in several key components of SVP's, such as the piston, poppet, and shaft seal retainers. (See images below).



Seal Material

Although the seal materials are called out as Carbon and Ekonol®, the base material used in the construction of both seal types is polytetrafluoroethylene otherwise known as PTFE. PTFE is commonly known as Teflon and is a synthetic fluoropolymer of tetrafluoroethylene. It is widely used in numerous applications, seals just being one of them. The properties of PTFE make it chemical, temperature, corrosion and weather resistant.

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- Carbon seals are a combination of PTFE and carbon. This combination provides strength, resistance to wear, thermal conductivity and low permeability.
- Ekonol® seals are a combination of PTFE with the aromatic polyester trademarked as Ekonol®. This blend provides flexibility, high-temperature resistance, wear resistance and increased service life.

Seal Materials & Small Volume Provers (SVPs)

By now, you are probably trying to figure out which seal material will work best with your prover. The short answer is, seal material recommendations are made based upon the process fluid for which the prover will be used. Carbon seals were once the industry standard and used for all applications. As the industry progressed, so did seal material choice and the Ekonol® seal became available and is now widely used.

For proving applications involving clean, lighter and refined hydrocarbon products, including LPG, gasoline, diesel, and condensate, Ekonol® is the better seal choice as it is more flexible than the carbon seals allowing for a better seal on the lighter products. Also, note that the word “clean”, if there is a high degree of particulate matter in the process fluid, Ekonol® seals will wear quickly.

Proving applications that involve heavier hydrocarbons such as crude, high viscosity products, “dirty” products or contain a high level of abrasive contaminants, carbon seals are the recommended choice. They are firmer and more resistant to the wear caused by particulates.

Summary

The overall longevity of seal life is determined by two key factors, the amount of particulate in the process fluid and the number of proving runs made. All types of seals have a lifespan for proper sealing. Choosing the appropriate seal material for the application will extend the longevity of the seal life.

Flow Management Devices (FMD), the leader in Small Volume Proving technology, uses proprietary blends for both their carbon and Ekonol® seal materials, ensuring maximum seal life for your proving application. FMD also offers special seal materials for specific applications.

Contact our Sales Team with any questions regarding prover seal material compatibility.