Preventing gas lock & gas pound

Variable Slippage® Pump
Leading brands. Leading solutions.

Apergy’s artificial lift division is a team of industry-leading companies that utilize their collective resources to help oil and gas producers. We work hard to optimize revenues, profitability, safety, and environmental compliance through high-quality production, completion, gathering and control systems.

Vision statement

Our vision is to improve the lives of our customers, employees, shareholders, and those in our communities. Working toward that vision—through our actions, our products, and our commitments—is why we get out of bed in the morning. Unlocking Energy is the economic engine that will support us as we improve lives and achieve relevance in the marketplace.

Core values

We have no interest in being just an ordinary company. We’re committed to creating a positive culture that improves lives. Our goal is to make Apergy a customer’s collaborative partner and a rewarding place to work. We strive to maintain a unique culture that values and encourages honesty, unity, respect, hard work, friendship, and an entrepreneurial spirit.
Equalize pressure.
Eliminate gas lock.
Enhance production.

The patented Variable Slippage® Pump (VSP) is a sucker rod-drawn, positive-displacement pump which operates on the principle of pressure equalization just before the plunger reaches the top of the upstroke.

Existing pump designs rely on the ability of the pump to produce high pressure in the compression chamber during the downstroke. This high pressure is needed to open the traveling valve and allow fluid and gas to flow through the plunger for lifting to the surface on the upstroke. Failure of the traveling valve to open on the downstroke in gassy wells causes a gas locked condition and no production.

The VSP has a gradual taper in the upper barrel. As the plunger enters this taper near the top of the upstroke, slippage increases past the plunger, and pressure is equalized above and below the plunger and traveling valve. As a result, when the plunger starts downward, the traveling valve opens easily since high pressure in the compression chamber has already been achieved.

**ENHANCED PRODUCTION**
Designed specifically to prevent the production-halting, and revenue decreasing gas lock condition in pumping systems.

**REDUCED MAINTENANCE**
Increased minimum polished-rod load allows for greater sucker-rod life, a reduction in necessary interventions and greater pump runtimes.

**PROLONGED PRODUCT LIFE**
Available in abrasion and corrosion-resistant materials and coatings, to ensure maximum product durability and life span.
Gas lock and gas pound are common conditions in gassy well environments that can greatly reduce or even stop a well's production. When gas enters a pump, it cannot effectively compress fluid on its downstroke. This prevents it from being carried to the surface. If fluid cannot reach the surface, production can be inefficient or nonexistent.

**GAS LOCK** occurs when so much gas is present below a pump's plunger that it becomes impossible to achieve proper compression. As a result, the pump's traveling valve cannot open and production is completely halted.

Conventional pumps aren't designed to address gas pound or gas lock. As a result, any gas that enters the pump can accumulate, making it increasingly difficult for the pump to achieve ideal fluid compression, internal pressure or production.

**Our Solution**

Our VSP counteracts gas locking and gas pound during its normal operation. The pump accomplishes this by allowing a small amount of fluid to slip back down into the pump during the upstroke. This fluid mixes with any gas in the pump, equalizing pressure and allows the pump to compress fluid effectively. This fluid slippage has minimal impact on production, allowing for a consistent production rate and high net production.

**Results**

By actively combating gas lock and gas pound, the VSP promotes steady, efficient production, a higher average production rate, and increased well profit. The results are especially true in gassy well environments.
HOW THE VSP WORKS

In typical pumps, gas can accumulate in the cavity below the plunger. This makes it impossible for the pump to compress effectively.

In the VSP, fluid is able to slip from above the plunger down into the cavity below. This fluid helps equalize pressure and allows the pump to maintain efficient production.

The tapered barrel at the top of the VSP allows a small amount of fluid to slip back down into the pump during its upstroke. This fluid then enters the cavity below the plunger and mixes with the gas to equalize the pressure in the pump. This allows the pump to maintain compression and steady production.

ELIMINATES GAS LOCK & GAS POUND
The VSP’s tapered barrel equalizes in-pump pressure during its upstroke to allow for compression and production, preventing gas lock or gas pound.

CLIENT SATISFACTION
Almost 100% of VSP customers re-order the product when the equipment reaches the end of its lifespan or for their other wells.

CUSTOM BUILT
Each VSP pump is built to meet the specific needs of the well in which it will be installed, enhancing product lifespan and efficiency.

EFFICIENCY FOCUSED
The VSP is designed to promote steady and consistent production, especially in gassy wells.

SEAMLESS FIT
Industry-standard components allow the VSP to fit into nearly any well and make for a simple installation process.

LONGEVITY
The VSP’s increased minimum load on the polished rod allows for enhanced sucker rod life.
Apergy’s Rod Lift Solutions unites Alberta Oil Tool, Harbison-Fischer, Norris, and UPCO. These four are some of the industry’s most iconic brands. Our brands are deeply committed to delivering leading-edge technologies with superior quality, world-class manufacturing and unsurpassed support. Each brand brings results in optimized production rates and life-cycle costs for oil-and-gas producers around the globe.

Improving well performance is a day-to-day concern for oilfield operators, with no time for downtime. We improve long-term productivity and profitability by offering some of the most durable Rod Lift components in our industry.

Our Apergy Rod lift brands have served the oil-and-gas production industry for many decades. Each brand builds a reservoir of knowledge and expertise, enabling them to meet the unique operational needs of every well. We’re constantly striving to develop new products that can carry on that legacy of innovation.

Our highly trained Technical Services team consists of subject matter experts that provide reliable guidance from the drawing board to final product installation. Our Sales team also stands ready to assist you throughout the entire life of the product.

Performance-Driven Innovation

Time-Tested Quality

Application and Technical Expertise

Reliable Customer Support
Partner with the best team in the business

- Decades of experience recommending and servicing lift systems to accommodate changing well conditions
- Unrivaled expertise in the downhole arena
- The best performing, highest quality, and safest products designed, engineered, and manufactured in-house
- Experienced and responsive field support staff with extensive local knowledge
- The highest commitment to the protection and safety of our employees, our customers, and the environment
- Comprehensive customer training and product support

Harbison-Fischer products and services are available in the following North American locations:

**Administrative & Manufacturing**
Crowley, TX .......................... 817.297.2211

**California**
*Bakersfield ......................... 661.387.0166
Shafer ............................. 661.399.0628
*Taft .................................. 661.765.7792

**Illinois**
Grayville .......................... 618.375.3841

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*Freer .............................. 361.394.6040
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*Pleasanton .......................... 830.224.6400
Wichita Falls .......................... 940.766.4259

**Wyoming**
*Casper .............................. 307.472.7518
*Gillette ............................ 307.686.4050

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* Indicates HF Pump Repair Shop locations