

Levare's Rodless PMM-PCP System Extends Run Life in Colombian Mature Fields

Rodless PMM-PCP technology increased run life by up to 274% while enabling the deepest PMM-PCP installation in Colombia at 8,760 ft.

Customer Challenge

Improve run life and reduce intervention costs in mature Colombian oil fields producing high solids, abrasive fluids, and challenging well geometries using Progressive Cavity Pumps (PCPs).

Levare Solution

Deploy Levare's rodless Permanent Magnet Motor-Progressive Cavity Pump (PMM-PCP) system featuring a high-torque PMM, enhanced Flex Shaft, and PTFE centralizers to eliminate rod failures and improve reliability.

Resulting Benefit

Levare achieved run life improvements of up to 274%, expanded deployment to 70+ Colombian installations, and successfully installed the deepest PMM-PCP system in Colombia at 8,760 ft in a well at Flamencos field, reducing interventions and lowering operating costs.

Levare in Action

Operators in Colombia's Dina Terciarios and Loma Larga oil fields partnered with Levare to address persistent artificial lift failures caused by high solids production, abrasive fluids, and challenging well geometries. By implementing Levare's rodless Permanent Magnet Motor-Progressive Cavity Pump (PMM-PCP) system, the operators significantly improved run life, reduced intervention frequency, and lowered long-term operating costs in mature field applications.

Our Challenge

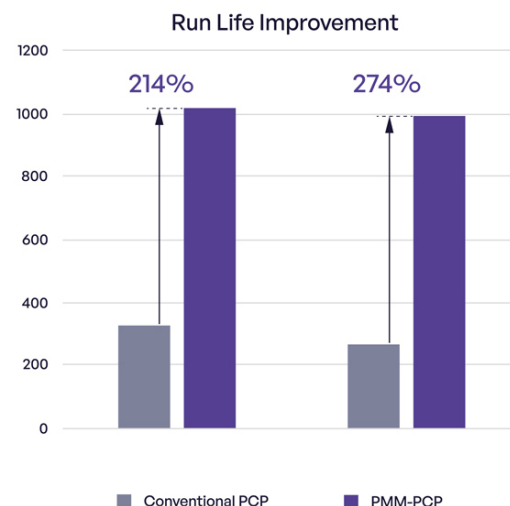
The Dina Terciarios and Loma Larga fields presented difficult production environments characterized by poorly consolidated sands, high solids concentrations, and complex well depths and deviations. Conventional Progressive Cavity Pump (PCP) systems experienced frequent rod-related failures, limiting average run life to less than six months.

These recurring failures resulted in costly workovers, production interruptions, and significant deferred oil production. Alternative artificial lift methods such as ESP systems were also unsuitable due to abrasive fluids, high viscosity, and relatively low production flow rates.

Overcoming Obstacles

The operating conditions within these mature Colombian fields created substantial mechanical and operational challenges for conventional artificial lift systems. Continuous rod wear and tubing failures increased intervention frequency and negatively impacted production reliability.

In addition, high sand production and well deviations complicated torque transmission and system stability. Levare needed to develop a solution capable of operating reliably under abrasive downhole conditions while minimizing vibration, reducing wear, and extending system longevity.



Our Solution

Levare implemented a rodless PMM-driven PCP system specifically engineered for challenging heavy oil and high-solids applications.

The system incorporated several advanced technologies:

- A high-torque, low-speed Permanent Magnet Motor (PMM) that eliminated the need for a speed-reducing gearbox.
- An enhanced Flex Shaft designed to efficiently transfer torque while directing axial load to the Motor Seal.
- PTFE centralizers to minimize vibration caused by eccentric rotor motion.

Together, these technologies simplified the downhole assembly while improving system reliability and operational flexibility.

How We Made it Happen

Levare optimized the PMM-PCP system through extensive field testing and continuous design refinement.

- Initial systems were deployed within the Dina Terciarios and Loma Larga fields.
- Field performance data was used to refine the system architecture and improve reliability.
- Thrust chambers were eliminated to simplify the overall assembly design.
- Flexible shaft coupling technology directly connected the PMM seal to the PCP pump.
- PTFE centralizers were added to improve operational stability and vibration control.
- Systems were configured to operate efficiently in high-deviation wells with severe sand production.
- Additional installations expanded deployment across more than 70 Colombian field applications, including the Flamencos Field, where the deepest PMM-PCP installation in Colombia was achieved at 8,760 ft in a well at the Flamencos field.

Our Results

Levare's PMM-PCP systems delivered exceptional improvements in operational life and reliability.

- The first Dina Terciarios installation operated for 1,015 days, representing a 214% improvement over conventional PCP systems.
- The Loma Larga installation achieved a 990-day run life, improving performance by 274%.
- The technology was successfully deployed in the Flamencos Field, where Levare installed the deepest PMM-PCP system in Colombia at 8,760 ft.
- Energy consumption decreased by 16%, reducing power usage by approximately 4 kWh per well.
- Deferred oil production losses were eliminated, generating annual savings of approximately \$110,000.
- Intervention costs were reduced by nearly \$245,000 due to the extended operating period.
- Wells previously experiencing frequent rod failures achieved stable long-term production.

The rodless PMM-PCP system also expanded artificial lift capabilities in high-deviation wells while significantly improving production reliability and lowering long-term operating expenses.

Partner with Levare

Maximize run life and improve production reliability in challenging heavy oil and high-solids environments with Levare's advanced PMM-PCP technology. Contact our team today to learn more.

