Optimize Your Rod Lift Systems With Pro-Rod® Coiled Rod
Three Major Value Points of Pro-Rod®

• Reduce Maintenance
• Increase Production • Enhance Profit

Pro-Rod® delivers the most convenient and cost-effective coiled rod product and is the industry's largest coiled rod manufacturer, with world-class facilities in Canada, the United States and the Middle East.

Coiled rod is manufactured as a one-piece, continuous rod string that effectively connects the bottom-hole pump to the prime mover at surface. With only two connections, one at the top and one on bottom of the rod string, all other connections are eliminated for a uniform rod diameter. Costly well maintenance interventions due to failures associated with rod couplings, tubing wear and coupling makeup issues are significantly reduced. Coiled rod's uniform and flexible nature makes it the most effective and efficient choice for rod strings in all wells deviated from vertical (horizontal, slant or directional).

Our coiled rod is manufactured using the highest quality domestic steel available and is subject to the industry's most rigorous quality assurance program. Pro-Rod®'s proprietary high-quality, fully quenched and tempered coiled rod is available in the size and grade required to meet your needs.

REDUCE LIFT COSTS
Failure analysis data indicates that the majority of conventional sucker rod string failures occur within the coupling connections and forged upset areas. Pro-Rod®'s connectionless rod string with uniform rod diameter can drastically reduce the associated costs of rod string maintenance, tubing replacement and well downtime.

INCREASE PRODUCTION
Removal of the couplings from a rod string creates a uniform flow area for fluid in the production tubing and eliminates pressure loss experienced across couplings, increasing both pump efficiency and production.

REDUCE SERVICE COSTS
Firstly, producers can expect lower well service costs by reducing well intervention frequency utilizing Pro-Rod®. Secondly, coiled rods one-piece configuration also helps to significantly reduce trip times, rod handling and manpower associated with conventional sucker rods.
Benefits of Coiled Rod

Bringing the benefits of coiled rod to your oilfield, simply and efficiently

Coiled rod technology has been available since the 1960s but remained a relatively under-utilized product due to the significant logistical obstacles it once presented for well operators. Recent advances in the equipment used to install and maintain coiled rod-equipped wells, coupled with an increased availability of third-party coiled rod installation services, have removed the cost-prohibitive barriers of entry and revolutionized the utilization of coiled rod in the industry.

Pro-Rod® and Apergy Artificial Lift have been at the forefront of these recent advances. Thanks to state-of-the-art installation and servicing equipment, coupled with coiled rod manufactured with industry-leading steel strength and quality, oil producers can now leverage coiled rod in any type of well, in a manner that ensures optimal production and drastically reduces well maintenance costs.

The Benefits of Coiled Rod

INCREASED PRODUCTION
By removing couplings, centralizers and guides from the rod string, coiled rod helps boost production by providing:

- Increased annular flow area
- Eliminates pressure drop across couplings/centralizers/guides
- Eliminates rod coupling/centralizer piston effect
- Allows for utilization of larger diameter rod in slim-hole applications

Rod in Production Tubing

Conventional coupled rod  Coiled rod  Conventional sucker rod with coupling  Coiled rod
Contact Load & Tubing Wear

Couplings on conventional sucker rod (left) generate high concentrated contact loads and bending stresses especially in deviated tubing sections. Coiled rod's uniform diameter (right) allows for a more uniformly distribution of loads which decreases contact loads and bending stresses.

REDUCE WELL DOWNTIME AND MAINTENANCE

- Eliminating couplings prevents an estimated 75% of rod string failures
- Coiled rod distributes side loads more effectively than conventional sucker rod throughout the entire rod string, which eliminates the concentrated wear caused by couplings every 25 feet to significantly reduce tubing wear

Sucker Rod in Tubing

Sucker Rod Coupling & Tubing Wear
Optimizing Production Across a Range of Rod-Driven Pump Systems

Pro-Rod® has earned its reputation as an industry-leading rod lift solution for a variety of well configurations and artificial lift applications.

Reciprocating Rod Lift

Reciprocating rod lift (RRL) remains the most widely utilized method of artificial lift around the globe. Coiled rod can complement most RRL systems, particularly those producing from horizontal, or directional well profiles. Pro-Rod® enhances these systems by reducing tubing wear, improving pump and surface equipment efficiencies, and increasing production in both light-and heavy-oil applications.

The removal of rod couplings along the entire length of a rod string achieves several key efficiencies to reduce your lift costs:

- Eliminates rod coupling failures with the majority of rod failures confined to the coupling/upset area.
- Reduces tubing wear by distributing contact loads over a larger area.
- Reduces rod stress.
- Creates unrestricted laminar flow through uniform rod diameter.
- Eliminates the piston effect common to conventional sucker rods, which reduces friction and increases plunger travel for increased production.
- Makes Pro-Rod® a more efficient and longer-running alternative to coupled sucker rods.

Coiled rod lowers maintenance costs, as overall rod stress and tubing wear are reduced, particularly in the case of deviated wells. With lower rod stresses, surface drives can be downsized, thus lowering capital and energy costs, and downhole pumps can be upsized to provide increased production. The absence of couplings also creates a more uniform diameter, resulting in reduced pressure losses, a lower likelihood of paraffin deposition and buildup and a less turbulent flow profile up the production tubing.

Application/Well Configurations

- Light, medium & heavy crude
- Thermal applications
  - Cyclic Steam Stimulation
  - Steam Flood
  - SAG-D
- Horizontal, deviated and vertical wells
- Deep wells
- Slim-hole well design
Progressing cavity pump (PCP) systems are a popular lift option in wells characterized by mid to low API gravity oil. In many regions this viscous oil is produced along with sand (solids) cuts that create conditions unfavorable to the utilization of conventional rod with couplings. The presence of solids in a vortex condition around each coupling increases the risk of abrasive coupling failure. In addition, the flow restrictions created by the couplings decreases the pump’s ability to effectively lift fluid/solids to surface.

The streamlined profile of Pro-Rod® coiled rod helps to enhance the operational efficiency of PCP systems by reducing rod and tubing wear as well overall rod stress. Lower rod stress allows the operator to downsize the surface drive, thus lowering operating costs, or upsize the PC pump to increase flow rates to the surface. The streamlined profile of coiled rod enables laminar flow of fluids to surface which minimizes problems associated with solids fall-out. This profile also allows for coiled tubing clean-outs to remove solids down to the top of the pump. Additionally, without having to make-up a coupling connection every 25 feet, Pro-Rod® strings are installed faster and with less manpower.

**Application/Well Configurations**
- Light, medium & heavy crude
- Cold heavy-oil Production with Sand (CHOPS)
- Thermal Applications
  - Cyclic Steam Stimulation
  - Steam Flood
  - SAG-D
- Horizontal, slant, deviated and vertical wells
- Polish rod-less systems
Elevating the Potential of Artificial Lift Production

Apergy Artificial Lift, part of Apergy Energy, offers a comprehensive line of artificial lift equipment, accessories and services strategically designed to drive the operational excellence of each of our clients. We provide industry-leading systems and components engineered to enhance the profitability of ESP lift, gas lift, plunger lift, hydraulic lift, rod lift, progressing cavity pump applications and surface production, as well as state-of-the-art software and products in the well automation, analysis and optimization space.

As an organization dedicated to the needs of our clients, we place a consultative service and support approach at the forefront of our operations. Driven by a team of veteran artificial lift experts, our mission is to deeply understand the complex production challenges faced by well operators on a daily basis, and provide them the exact set of tools needed to meet them as efficiently and effectively as possible.

Strengthened by the vast global footprint and tradition of excellence of our parent company, the Apergy Corporation, we are able to ensure that the products we provide—and more importantly, the people who make up our organization—are the best in the artificial lift industry.
Pro-Rod Coiled Rod

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