

# SOLVING DOWNHOLE PROBLEMS



## CORROSION

**Problem:** The highly corrosive downhole environment attacks the carbon steel components of the tubing and pumping systems causing the system to malfunction and eventually breakdown.

**Solution:** The NOJAK pumping system uses corrosive resistant materials such as naval brass, 316 stainless steel and cross-linked polyethylene plastics. These materials allow the system to pump for years before experiencing corrosive degradation.

## GAS LOCK

**Problem:** Bottom hole gas causes several different types of gas locking with many traditional downhole pumps. In most cases the gas impacts the ball and seat not allowing the pump to operate.

**Solution:** The NOJAK pumping system allows any downhole or suspended gas to be exhausted during normal pump operation, which prevents gas lock. This system pumps fluid even in a gaseous environment.

## FINES

**Problem:** Pumping of fine sand and other particulates leads to many early pumping failures. The fine particles cut into the rubber cups and reduce pumping efficiency.

**Solution:** The NOJAK pumping system uses viton check balls to direct the flow of fluid. After thousands of cycles with heavy fines the system continues to operate as long as the fluid velocity is enough to carry the fines.

## PUMPING DRY

**Problem:** Managing downhole fluid is a major manpower and management problem with traditional rod pumping and ESP systems. These systems cannot pump dry or in many cases they will fail.

**Solution:** The NOJAK pumping system is unaffected by the absence of well fluids. If there is no fluid to pump, the check balls will remain seated and no frictional wear will occur. The system will never fail as a result of a dry hole.

## WORN OUT RUBBER AND STEEL PUMPS

**Problem:** Since downhole pumps rely on frictional force to seal and move fluid, the pump will wear out at some point. This type of pumping system begins degrading from the very first stroke.

**Solution:** The NOJAK pumping system does not require tight tolerance components and utilizes a unique design with check balls. These features eliminate frictional wear factors. The NOJAK pumping system will pump the same amount of fluid per cycle from the 1st cycle until the last.

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