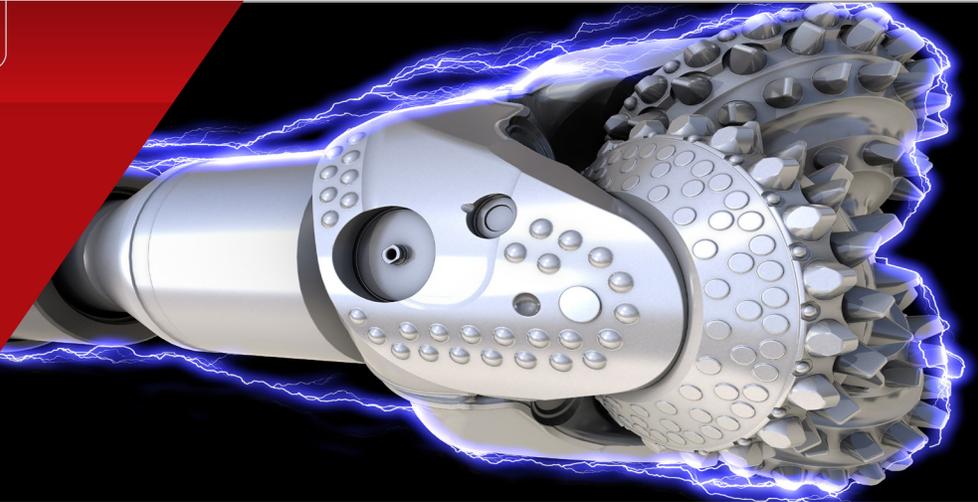


STRIKEFORCE™ ROLLER CONE POWERED BY DATCISM



MECHANICAL PRESSURE COMPENSATOR (MPC)

This patented technology greatly enhances durability of the bearing and seal system by reducing the seal stress. The rubber diaphragm in the system quickly equalizes the pressure on the inside and outside of the seals. The main reservoir system supplies the patented high load capacity grease to the bearing and provides pressure management to the primary seal. A second reservoir equalizes pressure between the outer, secondary seal and the inner, primary seal. The grease and pressure compensation between the primary and secondary seals is provided by an isolated secondary reservoir, which allows the greases to be optimized independently maximizing seal life and bearing capacity.

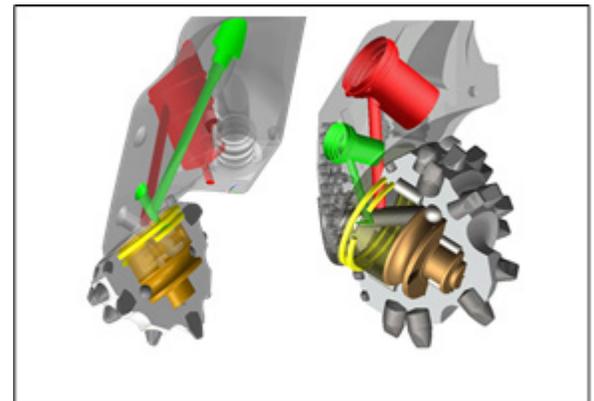


Figure 1. Interior cutaways showing dual compensators and dual seal configurations

DUAL OPTIMIZED CONTACT PRESSURE (OCP) SEALS

A new seal design has been developed to enhance bit life and improve performance. This proprietary seal geometry provides an Optimized Contact Pressure profile on the dynamic sealing surface of the bearing. The highest contact pressure resides on the outside edges of the seal, where protection is most critical to prevent contaminants from penetrating into the bearing system. At the same time, lower contact pressure at the center of the seal reduces torque and associated heat generation, extending seal life. Finite Element Analysis (FEA) modeling was used to simulate the various conditions that impact seal performance and have demonstrated that the high aspect ratio of the seals provides a means to apply more compression without increasing operating temperature or the wear rate. The combination of these design improvements all lead to greater seal reliability and longer bit life.

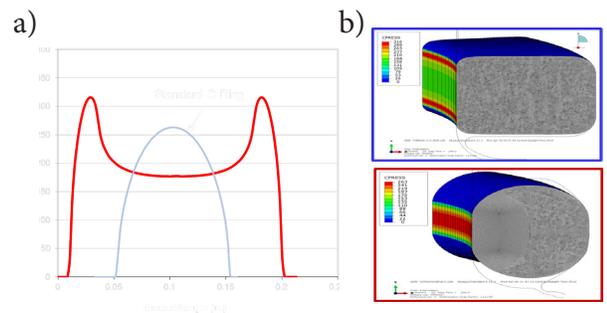


Figure 2. a) Contact pressure simulation of OCP seal (red) and bullet seal (blue) b) Pressure gradient of OCP seal (top) versus traditional o-ring seal (bottom)

Solving challenges.™

HALLIBURTON | Drill Bits & Services

www.halliburton.com