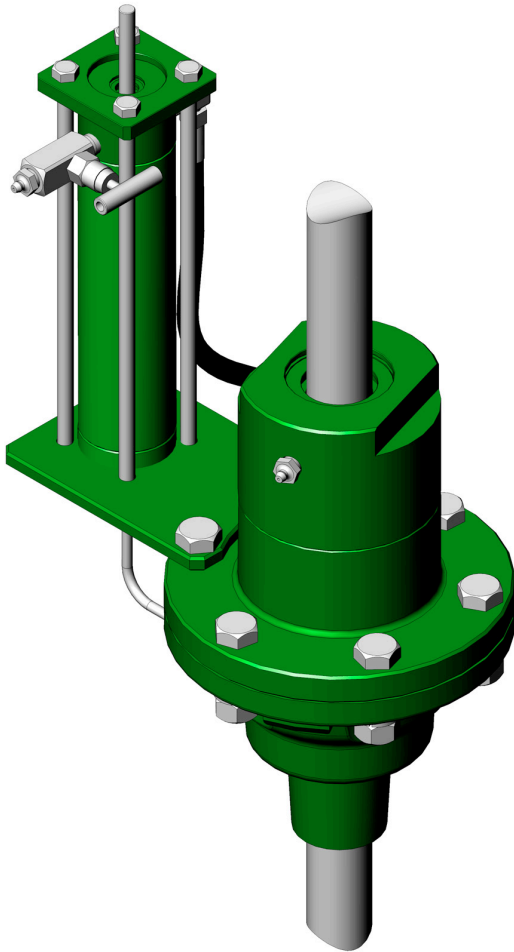


▲ THE HYDRO-BALANCED STUFFING BOX

NEW TECHNOLOGY CONTROLS LEAKAGE AT THE WELLHEAD TO LOWER LIFT COSTS AND REDUCE POLLUTION



► **Barrier Fluid Technologies, LLC** has developed the Hydro-Balanced Stuffing Box to help solve the problems associated with leaks around the polished rod in oil and gas pumping well installations. It should be particularly helpful on wells that exhibit short packing life due to lack of lubrication and on installations in environmentally sensitive areas. The hydro-balanced concept isolates the production fluid from the primary seal, and therefore the atmosphere, with the placement of a proprietary secondary seal system below the primary seal. The chamber created is then filled with biodegradable grease and pressurized to flow line pressure, thereby forming a pressure balanced barrier of grease. When the primary seal wears sufficiently to leak, only the biodegradable fluid can reach the atmosphere.

The new seal system provides continuous lubrication to the polished rod, reducing friction and allowing lower temperature operation. This extends the life of the packing elements and polished rod, and reduces the energy demands on the pump motor.

BENEFITS

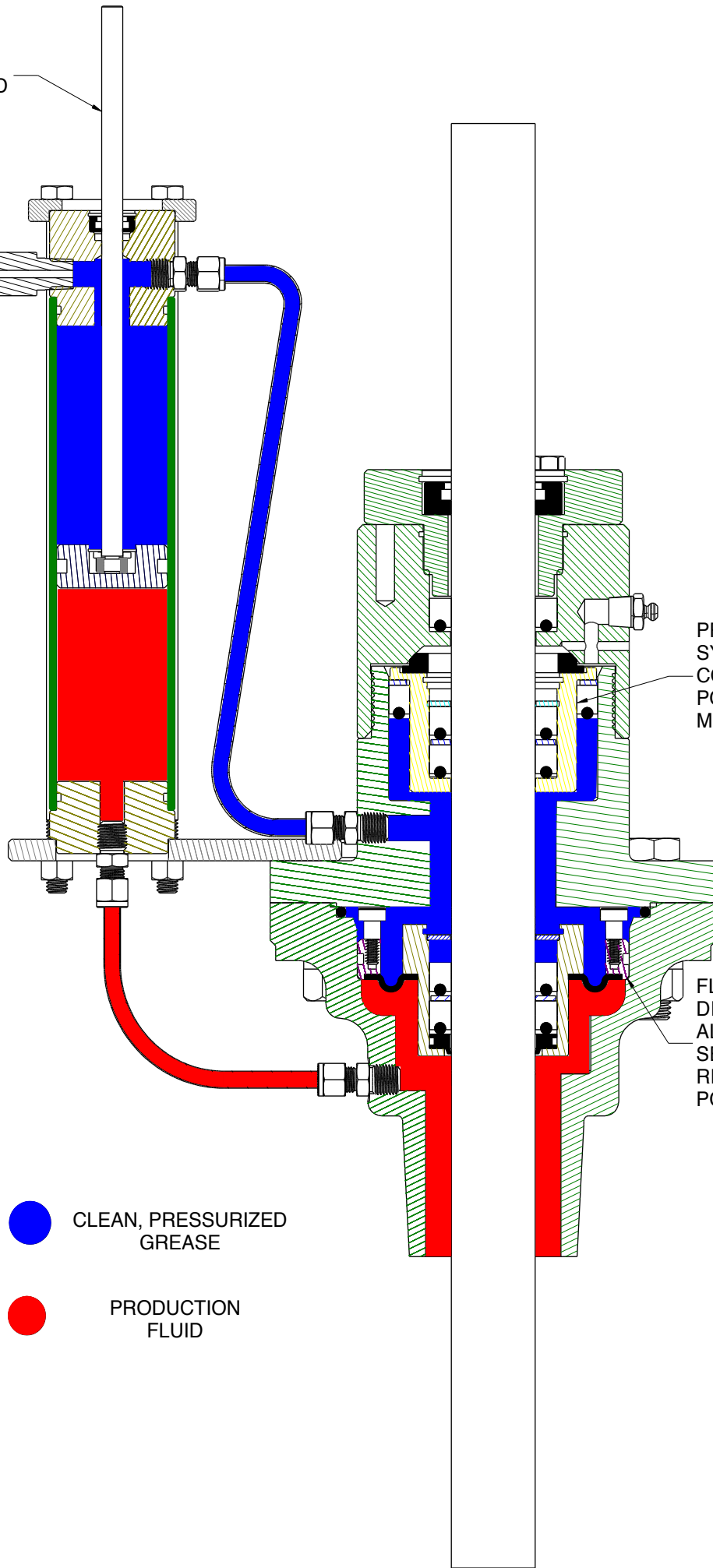
- Reduces maintenance costs by extending the service life of the packing and polished rod.
- Packing and polished rod are well lubricated, even when pumping large quantities of salt water.
- Eliminates dry starts; polished rod continually lubricated before passing through any seals.
- Continuous lubrication eliminates dry running due to undetected pump offs.
- Greatly reduces or eliminates the cost of environmental cleanup from leaking rod pump seals.
- Greatly reduces or prevents lost production due to stuffing box leakage.
- Potential energy savings by decreasing friction between the rod and packing.
- Primary seal only exposed to clean, ambient temperature grease, greatly extending its life.
- Equalized pressure at the secondary seal. With no pressure drop across this seal, and continuous lubrication, its life will be greatly increased.
- Secondary seal system's innovative design allows it to move and stay centered with, the polished rod. This greatly decreases wear and improves sealability.
- Primary seal system's proprietary, field serviceable, design compensates for polished rod misalignment, improving sealability and increasing seal life.

Patents 5,209,495 6,302,401 7,343,969 & Patents Pending

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GREASE LEVEL
INDICATOR ROD

GREASE FILL
PORT



PRIMARY SEAL
SYSTEM
COMPENSATES FOR
POLISHED ROD
MISALIGNMENT

FLEXIBLE
DIAPHRAGM
ALLOWS SECONDARY
SEALS TO MOVE &
REMAIN CENTERED WITH
POLISHED ROD.

● CLEAN, PRESSURIZED
GREASE

● PRODUCTION
FLUID