

ROTATING RIGHT

SEEPEX MULTI-PHASE PROGRESSIVE CAVITY PUMP

MULTI-PHASE PUMPING

Multi-Phase Pumping has proven to be an effective alternative to separation equipment resulting in lower capital and operating costs. Installation of multi-phase pumps can help not only reduce cost but can also be used to increase production and extend the life of fields. This technology has been proven successful in conventional oil fields as well as in heavy oil applications. seepex Progressive Cavity Pumps are the most cost effective form of multi-phase pumping.

The seepex Multi-Phase Pumps can be run continuously in applications up to 99% GVF. Seepex is one of the world's leading progressive cavity pump manufacturers and has many years of experience in the design and manufacturing of progressive cavity pumps with the capabilities and expertise to design a system for your specific application.



PERFORMANCE

- Sizes to 150,000 boepd
- Differential Pressures up to 350 psig
- Even Wall Stator Technology
- 95% GVF continuous and up to 99%
- Dry Run Protection Available
- Slow Speeds
- High solids capability.



PUMP DESIGN

The pump rotor/stator have been modified specifically for multi-phase pumping applications. The use of advanced materials and an adjustment to the interference between the rotor and stator have been incorporated in the pump design for these applications. These modifications are intended to lower the heat build-up in the stator. Standard single mechanical seal and non-pressure sealed protecting system. Other sealing options available.

The progressive cavity multi-phase pump is specially suited for applications that require flow rates below 150,000 boepd and can handle differential pressures up to 350 psig. With suitable mechanical seals it can be operated at higher suction pressures.

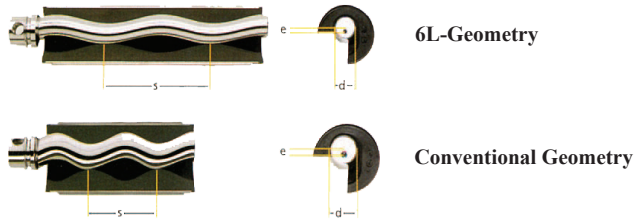


Even Wall Stator

User Advantages

Rotor - Stator-Geometries

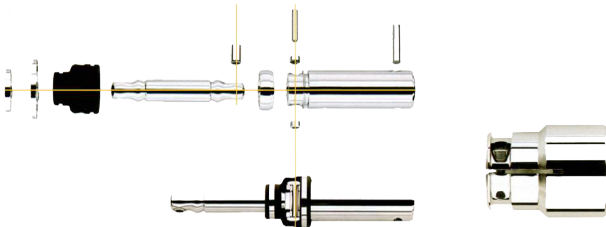
seepex 6L - conventional geometry comparison



smaller rotor diameter
 + reduced eccentricity
 + increased pitch length
 = 6L-Geometry with 20 % lower sliding velocity

- Improved service life (+35-50%) due to lower sliding velocity and longer sealing line
- Better pressure stability due to wider sealing line
- Reduced thrust loads on universal joints and bearings due to smaller rotor diameter and lower eccentricity
- Thrust loads of the conventional design exceed the thrust loads of the 6L-Geometry by approx. 50 %
- Smooth and almost pulsation-free operation
- The “stretched cavities” have a positive influence on vibrations, turbulences, pulsation and shear rates

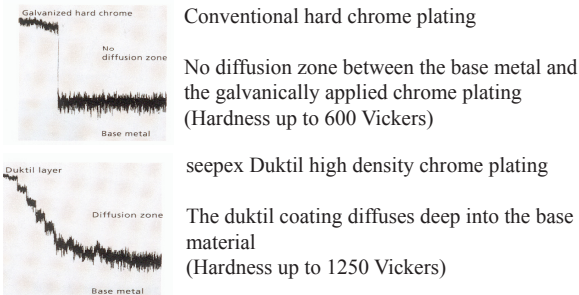
seepex Universal Joint Design



Benefits

- Only 4 hardened and wear resistant universal joint components (1 coupling rod bush, 2 guide bushes, 1 coupling rod pin)
- Positively sealed, gas and liquid tight elastomer universal joint sleeve
- Optional stainless steel universal joint sleeve protector with unconditioned - 10.000 h/24 months guarantee on the protected universal joint
- Simple and cost-effective to maintain
- Streamlined design, thus improved NPSH conditions
- Simple and cost-effective to maintain

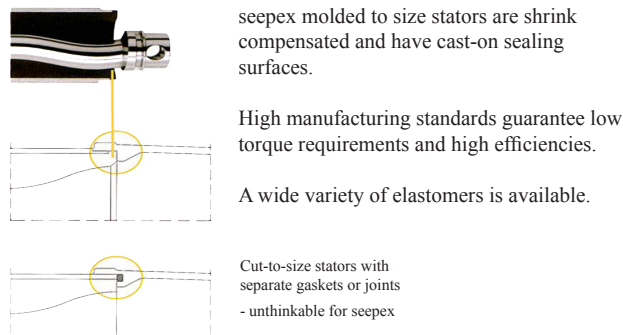
seepex has The Optimum Rotor Surface



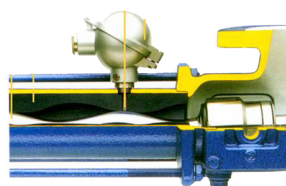
Benefits of the high quality seepex rotor surface

- Reduced starting and operating torque
- Improved efficiencies
- Smoother operations
- Increased service life
- The hardness of the coating is 1250 Vickers versus 180 of the base material
- The adhesion to the base material is excellent with no surface fissures

seepex Molded to size stators



seepex Optional TSE Dry Run Protection

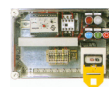


Benefits

- Universal solution for all applications protects pump and stator against damages caused by frictional heat due to lack of liquid pumped
- Highly efficient low cost dry running protection system



TSE controller for panel mounting



Complete IP55 (NEMA 4) pump control panel with incorporated TSE controller



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