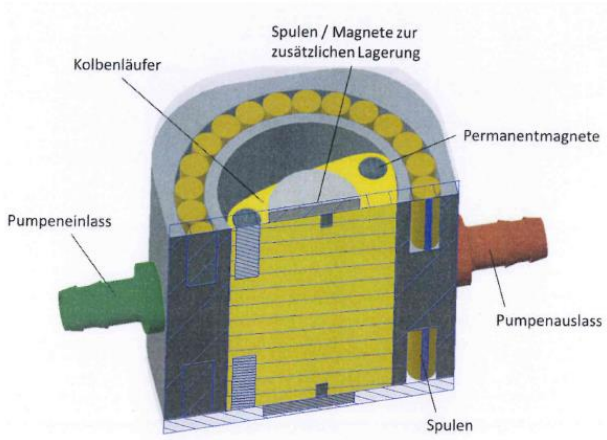
Rotary piston pump

Seal-free drive and bearing concept for a fluid pump based on the rotary piston principle

Invention

So far, the problem of sealing has been a major challenge when using rotary piston pumps. Piston rotors in conventional rotary piston pumps are based on an eccentric drive and a gear drive, which is guided along the eccentric path of movement in the housing. The new rotary piston pump instead works with permanent magnets arranged at the corner points of the piston rotor. In the pump housing, coils are arranged which generate a rotating magnetic field which in turn drives the piston rotor. This results in a seal-free drive that does not require the eccentric or gear drive components.



Commercial Opportunities

The proposed design can meet requirements for hermetic tightness over the life of the product and bypass interactions between the fluid and the seals. Due to the elimination of the sealing joints, the new technology is particularly suitable for use as a blood pump. Conventional blood pumps have considerable problems with possible blood clotting due to a lack of tightness, which can lead to thrombus formation. Blood deposits resulting from seals can also cause the pump to fail.

Current Status

A patent application for the invention has been filed. In case of interest we are pleased to inform you about the current patent status. On behalf of the RWTH Aachen University we offer interested companies licenses for the invention and possibilities for further development of the technology.

An invention of the RWTH Aachen University.

Competitive Advantages

- Seal-free design
- Long service life

Technology Readiness Level

12345678

Experimental proof of concept

Industries

- Mechanical Engineering
- Medical Technology

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