

LEVITAS SEALS

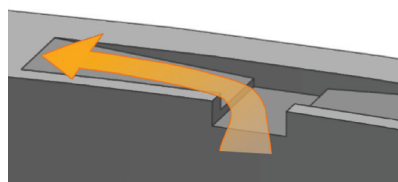
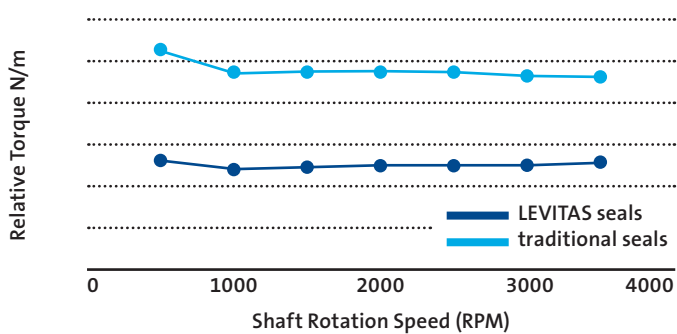


Freudenberg's innovative LEVITAS transmission seal rings have hydrodynamic surface structures which significantly reduce friction and wear to near an absolute minimum.

Rotary feedthroughs are generally used in automatic transmissions (AT), wet dual clutch transmissions (DCT), and continuously variable transmissions (CVT) to transfer hydraulic pressure through rotating shafts or bores. Unlike conventional seal rings, which are optimized hydrostatically and are generally used in these same transmissions, our LEVITAS seals build up their own hydrodynamic oil film and virtually float on this cushion of oil.

Despite the fact that there is no physical contact between the LEVITAS seal and the shaft, the sealing function is not compromised and LEVITAS seals offer the full functionality of traditional transmission seals. Our seals also offer the lowest possible torque, resulting in significant reductions of CO₂ emissions. The LEVITAS seal's ability to deliver a consistent, friction-optimized profile allows for extreme durability.

Reduction in Torque with LEVITAS seals



Oil flow in seal surface texture

VALUES FOR THE CUSTOMER

- Delivers up to 50% torque reduction compared to current state-of-the-art designs (depending on seal ring size)
- Significantly reduces friction and wear, creating an extended product life
- Produced with bidirectional texture (no orientation of seals is necessary during assembly)
- Global availability
- Similar groove dimensions to traditional seals (sliding surface roughness Rz 1.6 or better)

FEATURES AND BENEFITS

- LEVITAS seals can significantly reduce CO₂ emissions for vehicle manufacturers, delivering up to 0.5 g/km* savings in the NEDC — a very realistic value when all the seal rings in the automatic transmission are LEVITAS seal rings
- Full sealing function despite no actual physical contact between the seal ring and the dynamic counter face
- The low friction of LEVITAS seals results in extremely low wear and lower heat generation
- LEVITAS seal rings can be used at higher pressures and sliding speeds compared to conventional designs

* Calculations based on an 8-speed automatic transmission