ixetic R744 compressor technology
ixetic’s background:

Already at the beginning of the development, ixetic drew special attention to the development of the shaft seal.

- ixetic settled long term partnerships with shaft seal and compressor oil suppliers.
- Development of special test benches and testing procedures for shaft seal evaluation
- Joint development activities between shaft seal and oil supplier.
- Latest design solutions are agreed to be exclusive for ixetic until the next generation of seals has been developed.

After defining a shaft seal which gives the potential to achieve the high demands of R744, the engineering group focused on the evaluation of real driving and stand still conditions.

The key findings during the second stage of the project have been:

- Only a mechanical seal is capable of achieving the requested leakage rates over the lifetime of the car.
- Further development of existing designs was required to guarantee good sealing behavior of new seals and during standstill periods over several months.

ixetic recently started test programs to simulate these conditions in test cars and verify the final design.
Static leakage of ixetic compressor shaft seal design

Standstill leakage of ixetic compressor shaft seal under various temperature/pressure conditions

- duration: 740 h standstill, no rotation of the shaft (Car not in operation)

Average leakage: 4.2 g/y
Static leakage at shaft seal of a new compressor

leakage at stand still conditions with new face seal
at 28°C oil temperature and pressure of 46 bar

average of leakage: 1.1 g/y