Application Brief 364

CPI's EMISSIONGUARD™ WR⁴ Wiper Ring solves long standing oil leakage issues in this non-lubricated compressor

The Challenge

This non-lubricated WORTHINGTON compressor - 2 stages - 4 cylinders is installed on a site of a leading air separation company in the west of France. This compressor was upgraded with CPI's EMISSIONGUARD™ TR² Low Emission Packing Rings on all cylinders in 2023, following initial run tests a significant reduction in packing case vent leakage was observed. However, the traditional design and originally equipped wiper cases leaked significant amounts of crankcase oil down the piston rod and never performed to the customers' satisfaction. Their lifetime and leakage were unpredictable. The original compressor design is such that the crosshead comes very close to the wiper case and consequently a high level of oil is thrown at the wiper housing. To solve this issue a deflector was installed but without success.

The Solution

A wiper case improvement study was conducted by CPI, given the problems faced by the customer, CPI decided to implement the EMISSIONGUARD™ WR⁴ Wiper Ring into the existing wiper case as an initial temporary fix. A new wiper case with the WR⁴ ring was then installed at the beginning of 2024 for a further run test, regular performance tests were conducted for one year and these confirmed the effectiveness of this new WR⁴ Wiper Ring, solving both the lifetime and leakage problems.

The Outcome

Following successful testing, the customer validated the new CPI wiper case with EMISSIONGUARD™ WR⁴ installed. The customer has since decided to modify the other 3 wiper cases on the compressor and has asked CPI for a study on another INGERSOLL RAND compressor on site which has 4 cylinders with 4 stages. The result of extended lifetime which has reduced the number of maintenance interventions together with the significant reduction of oil leakage and therefore oil consumption, represents a significant cost reduction and economic saving to the customer.