



CASE STUDY

COOK CLEAN® Sealing System with Solid Ring Technology Controls Emissions, Lasts Longer

SCENARIO

Greenhouse Gas (GHG) reporting requirements highlight the need to reduce gas leakage at the point where most of it occurs – reciprocating compressor packing cases. A Gulf Coast energy company took the initiative to control this leakage from six of their compressors in natural gas transmission service.

The company's Ariel JGT single-stage machines have suction pressures of 800 psig and discharge pressures of 1200 psig. Static vent leakage rates from the cylinders measured from 0.8 scfm up to 2.1 scfm. The company wanted to replace their conventional ring sets with zero emission/low leak packing.

SOLUTION

After reviewing available options, the company chose a COOK CLEAN sealing system with Solid Ring technology. Solid Ring technology replaces conventional segmented back-up rings with uncut rings. These uncut rings eliminate leak paths to seal more effectively, especially at higher pressures.

Cook Solid Ring technology allows packing assemblies to run cooler, which reduces wear, extends run times and decreases maintenance costs. Each ring set includes multiple seal rings that load and unload sequentially based on pressure. This reduces friction by minimizing the number of rings in contact with the rod at any time. The increased sealing capacity of each ring set also allows fewer cups (and rings) to be used. The first ring set does most of the sealing, reducing the pressure applied to subsequent rings. As a result, the overall frictional heat load is greatly reduced.

Cook Solid Ring packing was installed in a total of 24 cylinders.

RESULTS

After installing the COOK CLEAN system, vent leakage was reduced to near zero scfm. The same results were seen after 8,000 hours of operation. Even after 12,000 hours, measurements were from 0.0 scfm to 0.3 scfm across the 24 cylinders.

