

PERFORMANCE STUDIES

Field Reports from Cook Compression

COMPRESSOR UPGRADES
REPORT # 102

Solid Ring Technology Doubles Packing Life in Application With Dirty Gas

SCENARIO

With packing case sealing components wearing out in less than four months, a petrochemical plant owned by MTBE Malaysia Sdn Bhd (MMSB), a subsidiary of Petronas, was struggling with excessive product leakage and unacceptable downtime in a polypropylene vent recovery compressor. The plant produces methyl-tertiary-butyl-ether (MTBE), which generates a dirty gas stream for the vent recovery compressor. The process gas contains constituents of the polypropylene powder mixture, with traces of aluminum oxide and triethylaluminum.

The compressor is a non-lubricated, three-stage, vertical JSW and was using a labyrinth-style packing case with carbon-filled material. In their search for a longer-lasting packing solution, plant maintenance personnel turned to Cook Compression.

SOLUTION

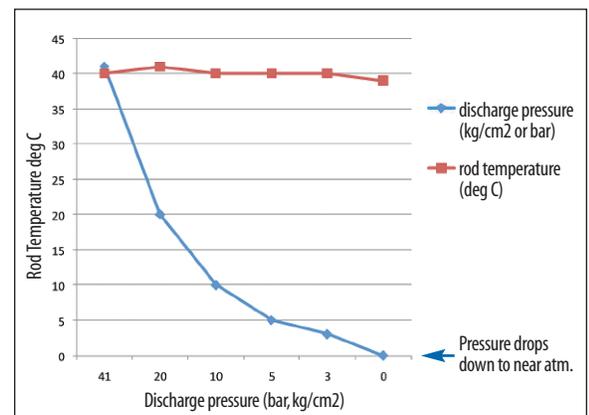
Drawing on engineering support from Cook Compression facilities in the US and UK, Cook recommended packing case upgrades on all three stages. The upgraded cases are designed with P1U, CUU and AL rings, all made from TruTech™ 3330 material. TruTech 3330 material is a proprietary Cook polymer alloy that delivers extended service life in non-lubricated gas compressors.

Each upgraded packing case contains two P1U pressure breaker rings, which are highly effective at preventing debris from entering the packing case. Upgraded cases also incorporate CUU solid ring technology for additional performance benefits. CUU backup rings are uncut. They improve sealing effectiveness, significantly decrease leakage rates and reduce frictional loading against the rod. This ultimately extends packing life by lowering the rod temperature. Figure 1 shows estimated discharge pressure and temperature for the packing configuration. Pressure drops to near atmospheric with no rise in temperature.

RESULTS

Cook upgrades have more than doubled packing service life and MTBM is now extended to nine months. Increased sealing integrity has significantly reduced leakage of valuable product, while the plant benefits from lower maintenance costs and improved compressor reliability.

For more details and information about sealing component upgrades, contact your Cook Compression representative or visit cookcompression.com.



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