

# PERFORMANCE STUDIES

Field Reports from Cook Compression

ROD PACKING  
REPORT # 122

## Packing Upgrade Extends Service Life, Reduces Vent Leakage at Aromatics Plant in Thailand

### SCENARIO

Operators at PTT Global Chemical\* Aromatics Complex 1 were searching for ways to increase the service life of rod packing and reduce seal leakage in a Dresser-Rand 5HHE-VL-3 lubricated compressor in hydrogen service. Their conventional packing was typically replaced after 12 months or less of operation.

Cylinders on the three-stage compressor measure 835 mm (32.9 in.), 520.7 mm (20.5 in.), and 228.6 mm (9 in.). The unit operates at 300 rpm with suction pressure of 3.36 barA (48.7 psi) and discharge pressure of 37.39 barA (542.3 psi). Suction temperature is 43.3°C (110.0°F) and discharge temperature is 66.4°C (151.4°F).

Based on their responsiveness to technical inquiries and local support by Cook agent Leymas Co., Ltd., Cook Compression was selected for the project.

### SOLUTION

The Cook team conducted a field inspection to collect packing dimensional data, gather compressor operating information, and measure packing gas vent leakage with Cook's high-accuracy Sentrix™ thermal mass flow meter.

Drawing on support from Cook Compression engineers in the UK, the team proposed Vortex cooled packing cases on all three stages of the compressor.

Vortex cooled packing cases significantly improve heat transfer, resulting in greater sealing component life and less maintenance with no gas-to-coolant leakage.

Each upgraded case contains P1R pressure breaker rings, which are highly effective at preventing debris from entering the packing case. The cases also feature BTRR low-leak pressure seal rings, which improve sealing effectiveness and reduce frictional loading against the rod. The cases also incorporate LF Vent Pac® technology, which offers high-performance sealing of the vent, plus extended service life and simpler field maintenance.

### RESULTS

To date, the Cook packing upgrade has achieved more than 18 months of continuous run time. Gas vent leakage remains near zero scfm. As a result, the PTT Global Chemical aromatics plant continues to benefit from improved compressor reliability and lower maintenance costs.

\* PTT Global Chemical Plc. is a subsidiary of PTT Plc.

*For more details about sealing component upgrades, contact your Cook Compression representative or visit [cookcompression.com](http://cookcompression.com).*



3rd stage cylinder packing



Sentrix portable thermal mass flow meter



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