

CASE STUDY

Upgrade Boosts Unit Productivity Up to 30% at HMC Polymers Thailand Plant

SCENARIO

Looking to capitalize on rising prices and demand for plastics, HMC Polymers Thailand was pushing to de-bottleneck a plant producing less than 200,000 metric tons per year of specialty polypropylene. Of particular concern was a compressor on line #1, a two-stage, lubricated Cooper unit used to recycle polypropylene gas. The run time of the compressor was three to six months, roughly equal to the service life of the plant itself due to plugging of process equipment.

HMC Polymers Thailand contacted Cook Compression® agent Leymas Co., Ltd., to explore improvements in both throughput and reliability for the compressor. Quick responses to initial technical inquiries, as well as professionalism and dedicated support rendered to a sister HMC plant in Mexico, made Cook Compression the right choice for the project.

SOLUTION

Cook Compression's Vig Nathan (Regional Manager Asia Pacific) and Bob Templet (Project Manager) led the response. Preliminary inspection found the compressor was running overloaded and experiencing excessive vibration. High temperatures were also observed on discharge valves. Cook and Lyman conducted a joint field inspection/interview with HMC operating and maintenance personnel to collect component dimensional data and maintenance records.

Cook proposed a comprehensive upgrade that included high-performance Manley® radiused-disc compressor valves and BTRR seals featuring patented uncut ring technology. The Cook solution also reduced the number of valves to decrease clearance volume, added non-stick coating to valves to extend run time, and balanced the load across the compressor for better overall performance.

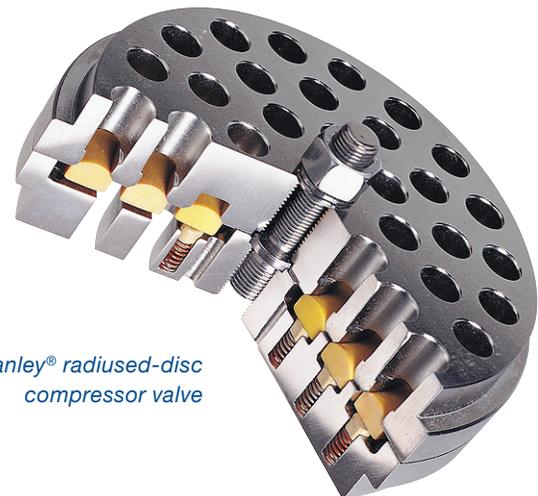
RESULTS

The upgrade has been a resounding success for both throughput and reliability. With no major capital expense – and no major parts replacement – gas flow increased by as much as 30%. This benefits the entire operation by improving the quality of the product and extending the service life of the plant.

Compressor run time has more than tripled, with over 18 months of operation to date. The compressor also runs smoother, with no excessive vibration.

According to the customer, “The success of this project helped us achieve our production target of greater than 200,000 t/yr with uninterrupted operation. We realized a higher yield as a result of improved throughput and better product quality.”

HMC Polymers has since asked Cook Compression to implement flow and reliability improvements for lines #2 and #3 at the plant.



*Manley® radiused-disc
compressor valve*

