

# PERFORMANCE STUDIES

Field Reports from Cook Compression

COMPRESSOR VALVES  
REPORT # 117

## High-Performance Valve Solves Problems for Natural Gas Storage Facility

### SCENARIO

Compressor valve problems not only reduce the reliability of a machine, but also can restrict the productivity of an operation. This was the case for a North American natural gas storage facility that was struggling with poorly performing valves in a two-stage Ingersoll Rand KVR compressor.

The compressor has a 14-inch bore and 19-inch stroke. It operates at 335 rpm with a suction pressure of 720 psig and discharge pressure of 1,150 psig. The unit could not be fully loaded because it was already running at the upper limit of its horsepower. Compressor valves in the first stage failed monthly, resulting in repeated downtime, maintenance expense and lost productivity. The customer contacted Cook Compression for recommendations.

### SOLUTION

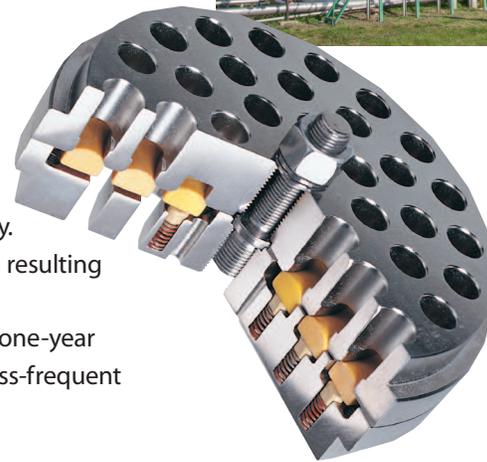
Experts from Cook Compression analyzed the application and proposed replacing existing valves with custom-engineered Manley® valves. Radiused sealing elements in Manley valves deflect foreign matter in the gas stream for improved durability. They also promote aerodynamic flow of gas through the valve, resulting in reduced power consumption.

The customer specified that the new valves must achieve a one-year payback, based on reliability increases, cost reductions from less-frequent valve reconditioning and horsepower savings.

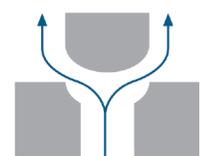
### RESULTS

The Manley valve performance and cost savings far exceeded the customer's requirements. The payback goal was reached in only two months, based solely on horsepower savings. The compressor, which is used roughly three months out of each year, is now in its third year with the original set of Manley valves.

The Cook solution also has helped the facility meet productivity demands. The Manley-equipped compressor is able to run fully loaded and is selected to run before any of the other machines at the facility because of its gains in efficiency and productivity.



Conventional valve



Manley valve

*Radiused elements deflect foreign matter and improve gas flow*

*For more details about Manley valves and other high-performance solutions, contact your Cook Compression representative or visit [cookcompression.com](http://cookcompression.com).*



*One Name, a World of Solutions*

[CookCompression.com](http://CookCompression.com)