

# CASE STUDY

## Ring Damped Valves Cut Expenses, Save Energy on Joy Compressors

### SCENARIO

A gas processing facility in La Grange, Texas, uses Joy reciprocating compressors with OEM valves in the first stage cylinders. However, ongoing problems with short valve life and frequent valve failures have led to a high number of unscheduled shutdowns. On average, roughly 50% of the Joy valves must be repaired or replaced every year. Valve failures not only interrupt regular operations, but also result in excessive repair costs.

### SOLUTION

Cook Compression® partnered with the customer to find a solution and agreed to replace OEM valves with innovative Cook Ring Damped Valves. The valves were installed in one of the first stage cylinders of a Joy WB-14 compressor in January 2014. The compressor processes 78% methane and operates at 740 rpm. Each valve is 4.375 inches in diameter.

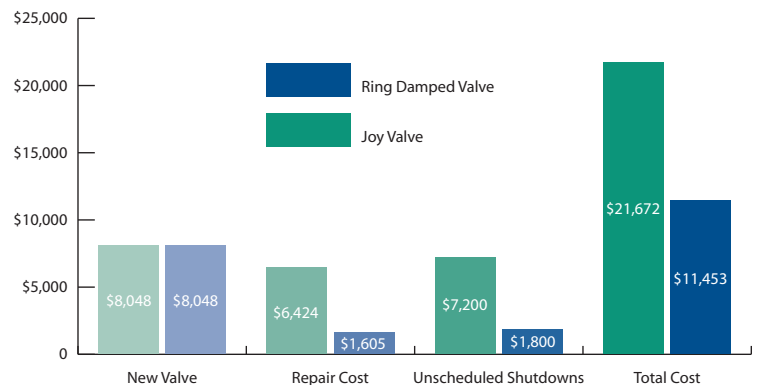
### RESULTS

After almost a year in operation, Ring Damped Valves have had no failures or instances of repair. Performance data collected at regular intervals confirms that the Ring Damped Valve is fully compatible with the Joy Compressor.

The comparison on the right illustrates estimated costs incurred by the customer on one Joy compressor with OEM valves and the projected cost if Ring Damped Valves are used over a two-year interval.

The success of the Ring Damped Valve is attributed to a patented design that includes a damping ring and nonmetallic sealing element, which offers higher lifts and longer life in natural gas service.

Replacing Joy valves with Ring Damped Valves has the potential to reduce valve-related expenses on Joy Compressors by up to 50%. In addition, Ring Damped Valves will reduce energy-related expenses by 2.5% compared to Joy valves, while mitigating risk of unscheduled shutdowns and costs of compressor downtime.



Joy Valve Assumptions: 16 1<sup>st</sup> stage valves/compressor, 8 valve repairs in year 1 and 8 valve repairs in year 2 with a cost of unscheduled shutdowns of \$600  
 Ring Damped Valve Assumptions: 16 1<sup>st</sup> stage valves/compressor, 0 valve repairs in year 1 and 4 valve repairs in year 2

Figure 1. Costs of Ring Damped Valves vs. Joy valves over a two-year period. Ring Damped Valves can reduce total valve-related costs by up to 50% on Joy compressors.

