

Supersonic Ejectors

Reduce Hydrocarbon Emissions

Dresser-Rand supersonic ejector technology provides a cost-effective solution for carbon footprint reduction in gas transmission operations. It enables facilities to reduce hydrocarbon emissions with a good return on investment because of the value of the captured gas.

Supersonic Ejector Technology

Dresser-Rand recently introduced a new technology that uses supersonic ejectors to capture fugitive emissions. When this technology is implemented in hydrocarbon gas applications, the recovery and recycling process captures virtually all targeted greenhouse gas emissions during normal operation. A typical application is the recovery of 100 percent of the natural gas vented from the primary gas seal in a centrifugal compressor.

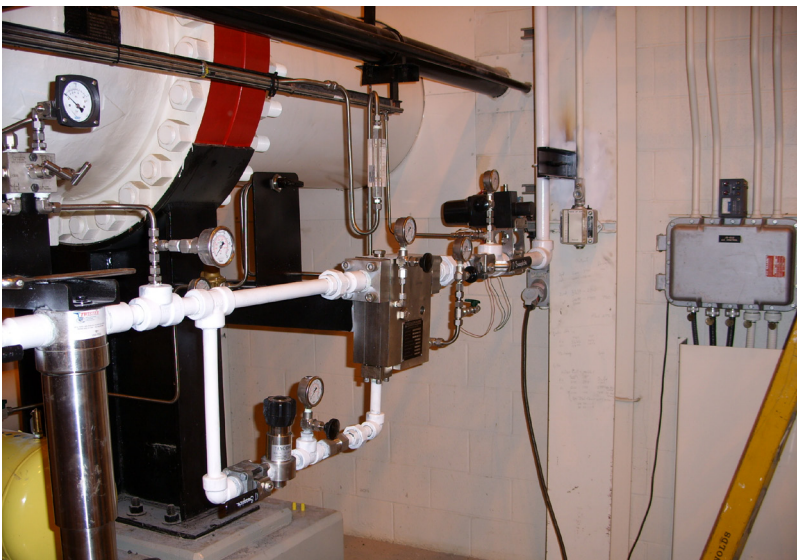
The ejector system (typically a two-stage device, but capable of being implemented in one, two, or three stages) captures gas that is normally vented to the atmosphere from the primary vent of a dry-gas seal. The captured gas is recompressed to a higher pressure for reinjection into the compressor station inlet, a heater inlet, or a fuel system inlet. The result of reclaiming these hydrocarbon gases is a reduction of hydrocarbon emissions to the atmosphere.

The supersonic ejector is a 316 SS assembly that measures approximately 12 inches (30 cm) square by six inches (15 cm) deep. The system has no moving parts and offers practically maintenance-free operation when compared to mechanical compressors and vacuum pumps.

The ejector system requires high-pressure compressor discharge gas used as the motive force to capture the targeted fugitive emissions. It compresses the fugitive emissions to a pressure up to six times the original pressure of the fugitive emissions.

Case Study

Dresser-Rand signed a technology license agreement with TransCanada Corporation in 2008 to manufacture, use and market the supersonic ejectors, incorporating technology developed by NOVA Research and Technology Corporation.



Following successful field testing of a prototype in 2007 and 2008, TransCanada installed a prototype system on a 24 MW gas turbine unit in one of its compressor stations in Alberta, Canada. This prototype system has saved more than 99 kW of energy equivalence and reduced 1,600 metric tons of CO₂-E greenhouse gases per year. The final design (a result of collaboration between Dresser-Rand and TransCanada technologists) has successfully completed field evaluation in another compression station in Alberta.

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Installation

Provided suitable hook-ups exist for the compressor discharge, seal vent gas and gas destination, an ejector system (comprised of the ejectors themselves and a compact instrument panel) can be installed in less than two days.

Obtain a Quote

Supersonic ejectors are available as new equipment options and as product upgrades for centrifugal compressors that compress hydrocarbon gases. Dresser-Rand evaluates all inquiries on a case-by-case basis to ensure optimal performance.

To obtain a quote for implementing supersonic ejectors into your compression system, contact a Dresser-Rand representative and provide the following information, or send an email to info@dresser-rand.com with the subject – Need Quote for Ejector.

Information to include:

- Compressor make, model and serial number
- Driver type
- Process gas analysis (motive gas and emissions to be captured if not the same) including MW, motive gas pressure, target gas function, and pressure
- Gas seal system P&ID

Please provide as much system information as possible to avoid delays.

Contributing to Your “Green” Efforts

With growing concern for the environment, this system presents a viable way to reduce carbon emissions, including hydrocarbons, while increasing energy efficiency in a variety of applications.

